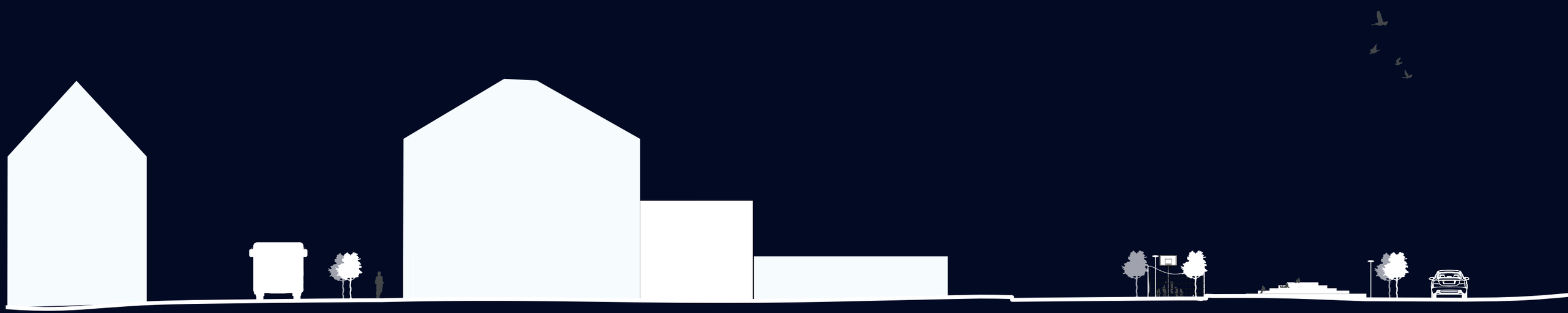
The main goal of this thesis is to explore how the feeling of safety in public spaces may be addressed by the means of urban design. The phenomenon of safety is well known within the field of urban design, but physical safety and mental safety are two different concepts. Therefore, this thesis seeks to explore and unfold the differences between the two concepts. This is being done by taking departure in a real-life case, in a site in Brønshøj, Copenhagen

Sensing Safety

A thesis exploring how Urban Design adressess the perception of safety in public spaces



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A Special thanks to
A special thank you need to be given to our collaborative partners for this project Brønshøj-Husum Lokaludvalg (Local Committee of Brønshøj-Husum), for letting us explore your case and utilize it for our master thesis. Furthermore, a thank you should also be given to the supervisor for the project Nicolai Steinø. Thank you for the support through our thesis designing. Lastly, a special thank you to the people who have supported us personally through the thesis writing process.

READING GUIDE

This thesis consists of 6 chapters, where chapter 1 will focus on the context of the thesis, chapter 2 will present the methodological and theoretical framework, chapter 3 will present the design along with the site analyses, chapter 4 will showcase the design process, chapter 5 will present the design proposal, and chapter 6 will include the closing statements such as implementation plan, discussion, conclusion, and the perspective. If a figure lacks a credit, it means that it belongs to one or both of the thesis group members. All figures that do not belong to the group members will be credited in the figure text, and the sources will be available in the figure list on page 119. Lastly, the appendix has been added as chapter 7, and it has been enclosed as a direct continuation of the report and will be enclosed as the last chapter. Although presented as a linear process, this is not the case for this report, and thus the chapter pages will be used to explain the process.

Figure 1: Brønshøj from above (Credit Kastrup Luftfoto)

ABSTRACT

This thesis seeks to unfold how the field of urban design may address the phenomenon of feeling unsafe in public spaces. This has been done with a specific case located in Brønshøj, Copenhagen, where Brønshøj Plaza has been chosen as the site. This site was chosen specifically as the annual 'Safety Survey' from Copenhagen Municipality showed that Brønshøj has had an increasing level of citizens that feel unsafe in the district. This number lies above the average for the rest of Copenhagen, making it statistically significant (Copenhagen Municipality, 2021).

For this thesis the methodological approach has been with the approach of the hermeneutic spiral, where the design tool of designing in different medias has been the main method that has driven the thesis process. As for the theoretical framework, firstly there was done an extensive literature review to determine the state of the art of the theme of urban design and the feeling of safety. From this state-of-the-art research it became clear, that urban design addresses forms of safety, but does not directly address the feeling of safety. Rather urban design addresses several principles that has a connection to how people perceive spaces. In this thesis 5 principles were chosen from the theoretical framework, to be utilized in the further design work.

The main conclusions from the site analysis are that the site is divided into different zones, which brings different atmospheres and feelings to the site. There are two main elements that help to create these barriers. Firstly, the different types of barriers, in the form of both visual and physical, in the site creates divisions. Lastly, the fact that some spaces have a specific use (such as the plaza and playground), but others remain unspecified also creates division in the site. To break up these barriers the main design element was decided to be a network of paths with multiple different functions.

Firstly, the paths should be connected well to the context ensuring the correct flow into the site. Then the path not only leads the pedestrians to the different spaces of the site, but the path itself is what has created these spaces, making a more coherent design. Lastly, specific places on the path have been decided with a wider measurement to accommodate the need for different sizes of space for different locally driven activities. Furthermore, to ensure that the site will also feel safe during the evening hours, an extensive lighting design has also been implemented.

This thesis then becomes one example of how to address the feeling of safety through the means of urban design. But as the theoretical state of the art review showed, then there are more principles and factors that can affect the feeling of safety in public spaces. As this is also a question of perception which is very much subjective to the individual person, there are more factors to be explored on how public spaces affects not only the human emotions but also its behaviours.

Figure 2: Placement of the case

THE AIM OF THIS THESIS PROJECT

The main goal of this thesis is to explore how the feeling of safety in public spaces may be addressed by the means of urban design. The phenomenon of safety is well known within the field of urban design, but physical safety and mental safety are two different concepts. Therefore, this thesis seeks to explore and unfold the differences between the two concepts. This is being done by taking departure in a real-life case, in a site in Brønshøj, Copenhagen. This area was chosen because it has been highlighted as a district where the citizens feel majorly unsafe when navigating the public spaces (Copenhagen Municipality, 2021). This was brought forward in the yearly 'Safety Survey' that Copenhagen Municipality releases a report upon each year. The survey results for the district of Brønshøj was, that citizens in particular feel unsafe when walking in public spaces such as, plaza's paths' parks and playgrounds (Copenhagen Municipality, 2021). This then raises an issue, due to the fact that the Local Committee of Brønshøj-Husum had decided to start funding to re-design Brønshøj Plaza and connect it to three other spaces to create a cohesive 'Culture Axis' (Brønshøj-Husum Lokaludvalg and SLA, 2021). This 'Culture Axis' is supposed to become a public space for different activities, and different spaces with certain functions, such as a big plaza, some green areas, and a new playground (Copenhagen Municipality, 2021). But with the results from the safety survey, it seems concerning to develop a new public space, without taking these results into consideration.

To map how and in which ways urban design may address the feeling of safety in public spaces, a state-of-the-art literature review was done, to map out the current literate state of the theme. Through this review it became clear that when addressing safety often urban design thinkers referred to the physical safety. Such as preventing environmental issues such as floodings, earthquakes, heat waves etc. but they psychological aspect of safety was not addressed directly. What became a clear statement was that the build environment can have both a negative and positive effect on the human psychology (see appendix XX). From this it was derived that the perception of how people read spaces was the main factor of determining if they feel safe or not in the city scape. Therefore, this thesis then began to explore how through designing it could be concluded, what elements that have an effect on the feeling of safety in urban spaces. The thesis major findings showed that three main concepts should be followed when designing for the feeling of safety:

- 'Natural Surveillance'
- 'Natural Access Control'
- Lighting in urban spaces

With these three elements in mind, the design took form (as seen in figure 3).

Figure 3: Masterplan

MOTIVATION

As cities keep developing due to the increasing urbanization several issues have been brought to the table during recent years. Though these tend to be of environmental nature, it is also important to highlight the fact that the urbanization is taking place in the first place. Because why do humans do as they do? Why do they move as they do? And overall, what is it that affects their behaviours? The motivation for this thesis lies within the thesis groups own personal interest in the behaviour of humans and how this can be affected not only by the activities in public spaces, but also the spaces themselves. And not only the behaviour but also how people read and understand public spaces, and what exactly makes some humans feel unsafe when moving in such. This leads to having a great motivation for examining the main issue of this thesis, as the aim is to explore how the field of urban design may address designing for the feeling of safety in public spaces.

Furthermore, the thesis group also has personal motivations to create a thesis focusing on an urban space design, and whilst in the process of developing the thesis also learning gaining both theoretical and practical knowledge of the design tools that are needed in order to design urban spaces. Lastly, the thesis group has a motivation to actively use design as the main method in the thesis process as both have a wish to become stronger in the field of urban design.

Figure 4: Brønshøj Gammel Skole (Credit Lokaludvalg Brønshøj-Husum)

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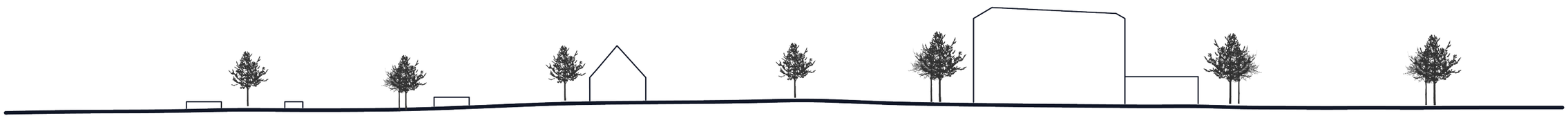

Figure 5: Table of Contents section

01. Introducing Brønshøj

To understand the issue at hand more thoroughly, this first chapter will take a dive into the issues of Brønshøj, by analysing several aspects of its context. Firstly, it will be determined the location of the District and how it is connected to the rest of Copenhagen. Then this chapter will take a look into both the past, present, and future of Brønshøj, to determine not only the previous story of the district, but also the future narrative. Lastly, the main points will be summarised.

Figure 6: Contextual map

CONTEXTUAL ANALYSIS

The district Brønshøj-Husum is located in the northwestern corner of Copenhagen Municipality 6 8 km from the center. In the north it borders Gladsaxe Municipality, east to Bispebjerg, south to Vanløse and west to Rødovre and Herlev Municipalities. The most important roads that run through the district are Hillerødmotorvejen and Hareskovvej to the east, Bellahøjvej and Slotsherrensvej to the south, while Motorring 3 passes close to the district and municipal boundaries to the west. The border between Brønshøj and Husum goes where Åkandevej and Kildebrøndevej intersect Frederikssundsvej (Olesen, Askgaard and Nielsen, 2020).

In 4 out of 13 districts, more than 10% of the citizens reported feeling unsafe in 2021. The 4 districts are Bispebjerg (17%), Brønshøj-Husum (16%), Ydre Nørrebro (11%) and Indre Nørrebro (11%). The number of districts increase when measuring the feeling of safety after nightfall. In 6 out of 13 districts, the proportion of citizens feeling unsafe in the evening and night hours is above average of 16 % in Copenhagen. These six districts are represented as follows: Brønshøj-Husum (26%), Bispebjerg (23%), Christianshavn (20%), Indre Nørrebro (20%), Valby (19%) and Ydre Nørrebro (17%) (Copenhagen Municipality, 2021).

Copenhagen municipality has since 2015 done an annual safety survey to determine the areas where the citizens of Copenhagen feel the least secure. According to this survey Brønshøj-Husum has been one of the main areas where the citizens have felt the least safe since 2017 (Copenhagen Municipality, 2021). With Brønshøj not only consistently being on the top of this list, but also with an increasing number of citizens that feel unsafe in the area, it is important to highlight in which ways, and what exactly the public are afraid of.

When looking into the physical placement of Brønshøj it is important to give a contextual explanation of the site. Brønshøj is located in the north-west area of Copenhagen, which is notoriously known for having a higher crime rate and thereby making the citizens in these areas feel less safe and secure (Mikkelsen, 2021). But with lowering crime rates in the last 3 years what become peculiar is that the people still do not feel any safer in the city scape (Mikkelsen, 2021). Of course, this lowering of crime rates can be largely contributed to the effects of the COVID-19 pandemic, but with these lowering crime rates, what factors are put into play that still increases the level of unsafety amongst the Copenhageners? The mayor of Copenhagen Lars Weiss calls for further investigation into this:

"The falling crime rate numbers missing effect on the feeling of safety speaks to the fact that the safety of the Copenhageners depends on several factors. Therefore, it is important to further dive into what makes people feel unsafe and how this unsafety divides across populations groups." (Copenhagen Municipality, 2021, p.3).

SAFETY SURVEY

Since 2015 Copenhagen Municipality has conducted an annual safety survey, with the aim of following the developments in various aspects of the Copenhageners general feelings of safety in the city. The survey takes departure in both the experiences of the citizens and registered police reports for civilian crime and selected types of crime (Copenhagen Municipality, 2021).

The safety is not evenly distributed across Copenhagen, and the proportion of insecure citizens varies from district to district. Bispebjerg and Brønshøj-Husum are the districts where most Copenhageners state that they feel unsafe. Despite the declining crime rate during the Covid-19 pandemic, the results of the safety survey shows that Copenhageners level of feeling safe has remained unchanged (Copenhagen Municipality, 2021).

The lack of impact the declining crime rates has on the general feeling of safety testifies to the fact that the feeling of safety much depends on several factors. Which is why it is important to further dive into what makes people feel safe (Copenhagen Municipality, 2021).

Amount of citizens who feel unsafe

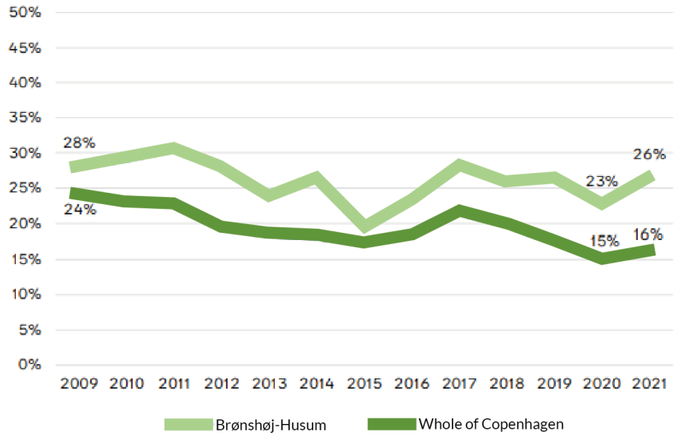

Figure 7: Statistical data on the amount of citizens that feel unsafe

The survey indicates that there has been an increase in the amount of people who feel unsafe in their neighbourhoods from 2009 (15%) to 2021 (16%), including an increase from 2020 (13%) to 2021. Although this overall statistic may not seem statistically significant, the difference in the amount of people who feel unsafe in Brønshøj-Husum compared to the whole of Copenhagen shows a statistically significance (Copenhagen Municipality, 2021).

Amount of citizens who feel unsafe in the evening/night

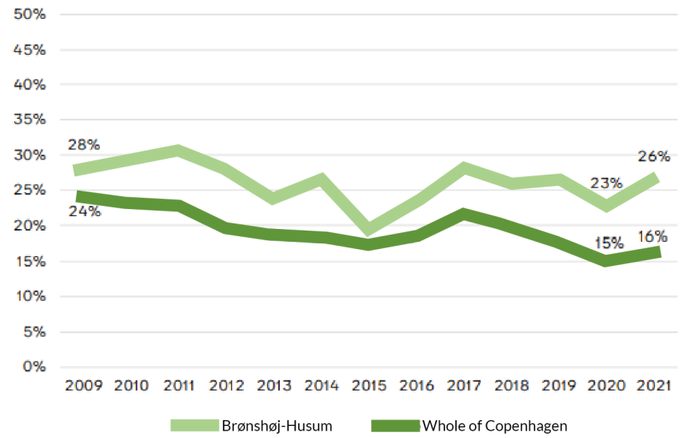

Figure 8: Statistical data on the amount of citizens that feel unsafe in the nighttime

The survey indicates that there has been a decrease in the proportion that feels unsafe in the evening and night hours from 2009 (28%) to 2021 (26%), including an increase from 2020 (23%) to 2021. These developments are not statistically significant. But again, he proportion of that feels unsafe in the evening and night hours in Brønshøj-Husum show a statistical significance as in 2021 the amount of citizens who feel unsafe in the district is higher thanthe average for the whole city (16%) (Copenhagen Municipality, 2021).

Specific areas where citizens feel unsafe

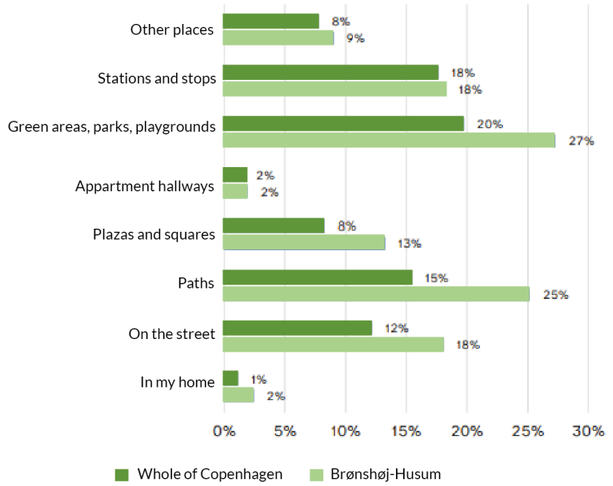

Figure 9: Statistical data on the specific areas where citizens feel unsafe

60% of the citizens in Brønshøj-Husum has stated that there are certain areas of the district where they feel unsafe when moving. As indicated on the diagram most people feel unsafe about traveling in green areas / parks / playgrounds (27%), on paths (25%), on the street (18%) and at stations / stops (18%). The proportion who feels unsafe about moving in green areas, paths and on the street, is above average for Copenhagen (Copenhagen Municipality, 2021).

PAST - HISTORY OVERVIEW

Brønshøj and Husum were originally two villages with street ponds. Brønshøj lay on a ridge, Husum on the other hand in a hollow. The area was part of the estate that King Valdemar the Great handed over to Bishop Absalon approx. 1160. In the second half of the 12th century a church was built in Brønshøj; this is today the oldest preserved building in the City of Copenhagen (Cramer-Petersen, 2020).

From the 1880s, suburban settlements began to appear, especially along Frederikssundsvej with low houses. The incipient expansion was related to the sharp increase in population in inner Copenhagen, which resulted in a housing shortage. Where the population in 1801 was 389, by 1890 it had reached 1,052 inhabitants. In 1879, the Frederikssund line was passed through the area, and a step board was laid in Husum by Islevhusvej; later it became an S-train station (1949) (Cramer-Petersen, 2020).

In 1901, Brønshøj and Husum were incorporated into the Municipality of Copenhagen. At that time, the area was still characterized by agriculture. After the incorporation and up to approx. 1930, many residential buildings were built; several of these had begun as allotment and utility garden areas with allotment garden houses. In addition, multi-storey properties were built, primarily along Frederikssundsvej. In the 1940s and 1950s, the City of Copenhagen built numerous residential buildings in the district to alleviate the general housing shortage in the municipality. At Bellahøjbakken, the large, cylindrical water tower in Brønshøj was taken into operation in 1931 as a replacement for a building with five large water tanks, built in 1909 13 (Cramer-Petersen, 2020). The Copenhagen tram network expanded soon after its incorporation in 1901 to also serve the residents of the new suburban areas. Along Frederikssundsvej, as early as 1902, a connection was made to Brønshøj with a terminus at the current Brønshøj Torv. Frederikssundsvej was expanded in the 1930s and then became a main thoroughfare (Cramer-Petersen, 2020).

In the residential areas, several large municipal schools were built in the first half of the 20th century, which were necessary for the large number of newcomers. Thus, Brønshøj School was built in 1924, Husum School in 1930, Bellahøj School in 1936 and Korsager School 1947 51. The population grew explosively from 7,204 in 1921 to 41,441 in 1950. Brønshøj can be considered fully developed around 1925 (Cramer-Petersen, 2020).

In the Brønshøj-Husum district, several green areas were created, including Brønshøjparken, established in 1936, and Bellahøjparken, which was laid out as a park in 1938. The establishment of Utterslev Mose as a folk park took place as part of an employment project in the 1930s and early 1940s. In addition, a number of smaller parks were laid out in the residential areas; they were a compensation for the fact that the City of Copenhagen had allowed narrower residential roads. Thus, instead of turning the areas into detached house areas, such 'replacement areas' were created at appropriate intervals (Cramer-Petersen, 2020).

Figure 10: Brønshøj Plaza, 1950 (Credit kbhbilleder.dk)

Figure 11: Brønshøj Plaza, 1985 (Credit kbhbilleder.dk)

Figure 12: Rytterskolen, 1921 (Credit kbhbilleder.dk)

Figure 13: Brønshøj Gammel Skole, 1921 (Credit Lokaludvalg Brønshøj-Husum)

Figure 14: The Pond, 1965 (Credit kbhbilleder.dk)

Figure 15: The Pond, 1991 (Credit kbhbilleder.dk)

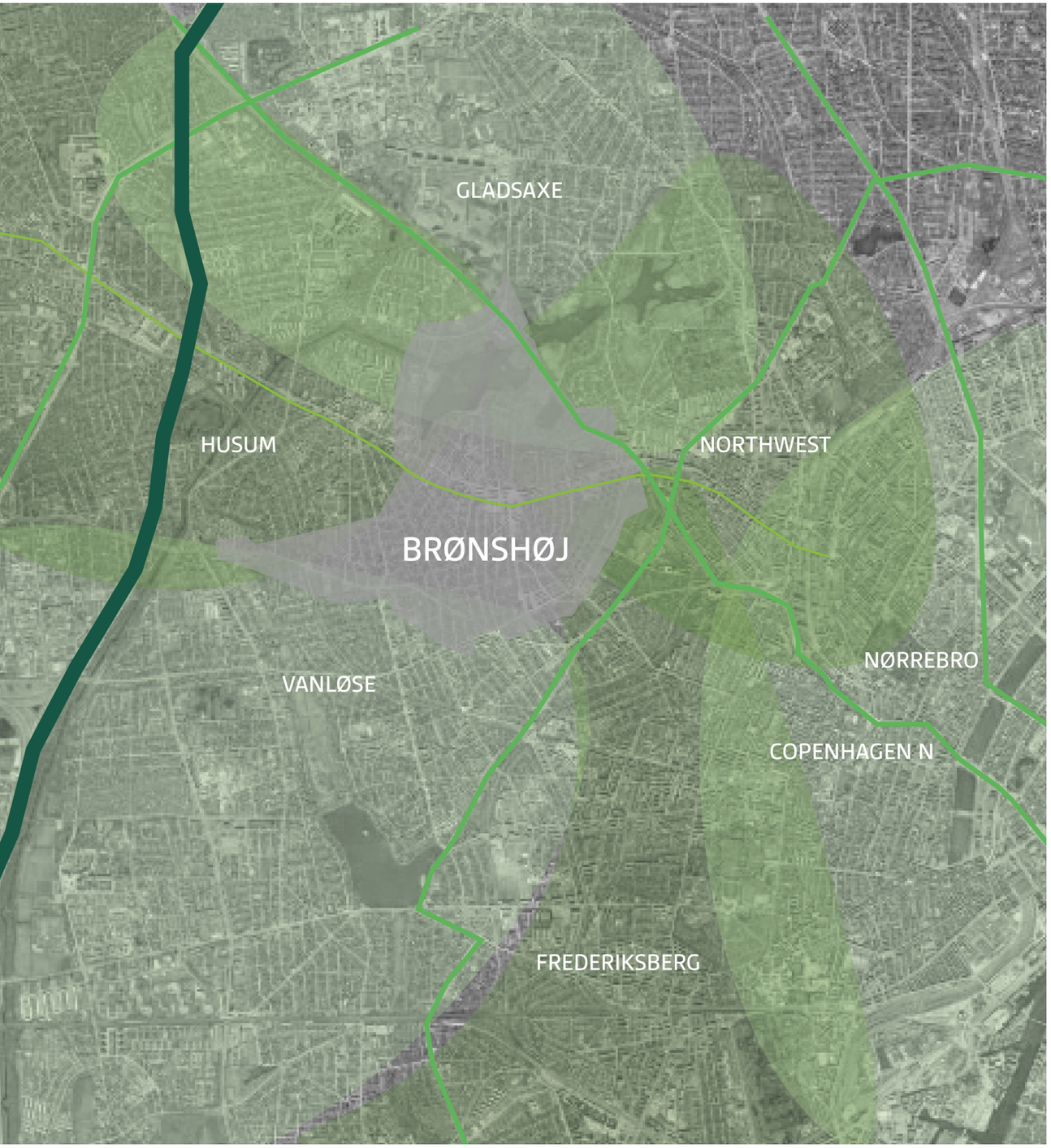

Figure 16: Connections to Brønshøj (Photo credit plandata.dk)

PRESENT - BRØNSHØJ TODAY

From the driveway to the district along Frederikssundsvej from Nørrebro and Bispebjerg, the eye immediately encounters the forms of housing that characterize Brønshøj-Husum. The villa development in the form of the mansion-like former Brønshøj Apotek, the red brick block from the 1920s and the detached high-rise buildings from the 1950s on Bellahøj. Where the road is lined with multi-storey properties, there is the opportunity to look at the underlying residential areas of different ages and styles along the crossroads (Olesen, Askgaard and Nielsen, 2020).

Frederikssundsvej connects the district. This old country road, which was Copenhagen's exit road towards Herlev and Ballerup, is still Brønshøj-Husum's most important traffic route towards the city center. Public transport is mainly based on bus operations, as Husum Station on the S-train line towards Frederikssund is peripheral in relation to the district's largest residential areas (Olesen, Askgaard and Nielsen, 2020).

Frederikssundsvej is also the most important business street with supermarkets, specialty shops, cafés, petrol tanks and other service companies, which in an unpretentious mix are scattered in multi-storey buildings, villas, functional buildings, and bazaar-like shopping rows (Olesen, Askgaard and Nielsen, 2020).

Brønshøj-Husum is overall one of the most socially disadvantaged among all of the Copenhagen districts. The district, which is predominantly a residential area, contains 7% of the municipality's total population, but only just under 2% of the workplaces. Over a third of the population are immigrants or descendants against approx a quarter in the whole municipality. There is great support for the primary school, which has 96% of the pupils at primary school level, and as far as the political is concerned, the district is overall red with the Social Democrats and the Unity List as the largest parties (Olesen, Askgaard and Nielsen, 2020).

In the period 2022-2025, the Brønshøj-Husum Local Committee consists of 22 Copenhageners who are either politically appointed by the political parties in the Citizens' Representation or nominated and elected by associations in Brønshøj, Husum, Bellahøj and Tingbjerg. All local committee members, deputies, professional committee and working group members make a voluntary contribution (Brønshøj-Husum Lokaludvalg, n.d.).
Brønshøj-Husum Local Committee collaborates - on the basis of a district plan with facts about the district's characteristics, needs and interests - actively with the district's Copenhageners and the municipality's administrations on the themes that are important to the district. Brønshøj-Husum Local Committee is the entrance for and collaborates with locally committed Copenhageners who need information and guidance on where to apply for support, permission, cooperation, etc. for the realization of local initiatives for the benefit of the district (Brønshøj-Husum Lokaludvalg, n.d.).

Area:
8,7 km2

Number of inhabitants:
44.433

Average age in the district
37,3 years

Percentage of children and youth under 18 years of age:
23%

Percentage of elderly citizens over 65 years of age:
13%

Figure 17: Facts (Copenhagen Municipality, 2021)

FUTURE - CULTURE AXIS

Brønshøj-Husum Local Committee has a vision to develop the area around Brønshøj Plaza and create better coherence between the cultural buildings, both indoors and outdoors. The purpose is to utilize the area's potentials for activities and communities - and make it more attractive for Copenhageners, local associations, businesses, and other actors to visit and use the buildings and outdoor areas that can provide experiences and life for everyone (Brønshøj-Husum Lokaludvalg and SLA, 2021). The main goal is to transform Brønshøj into a place that is worth visiting as a tourist and utilizing to its full potential as a local resident.

Therefore, the local committee in collaboration with the design studio SLA worked together to collect ideas for the development of the area and gathered them in a comprehensive masterplan, which was published in December 2021 (Brønshøj-Husum Lokaludvalg and SLA, 2021). This masterplan is a dynamic description and visualization (see figure 18). It outlines an overall structure for creating coherence in the area on and around the plaza. Sub-elements in this comprehensive plan can be redesigned, moved, and expanded as concrete and detailed work is done on the plan. The comprehensive plan is thus an overall organization of the future development of the Culture Axis (Brønshøj-Husum Lokaludvalg and SLA, 2021). But first and foremost, it is an invitation to citizens and stakeholders to seize the opportunity to realize exactly the facilities that you want to have access to, for everyday life and for parties.

"Brønshøj Kulturakse" (Brønshøj Culture Axis) has been the local committee's working title for the project, and that name has been retained in the overall plan. When the overall plan is to be realized, a new name for Brønshøj's cultural axis may emerge (Brønshøj-Husum Lokaludvalg and SLA, 2021).

When it was decided to move the current Culture House from Pilegården to Brønshøj Gamle Skole, Brønshøj-Husum Local Committee found that there was a need to think the area more together and make it Brønshøj's living axis of cultural access for all citizens in the area. It was therefore decided that money should be granted to prepare a comprehensive plan for the area from Brønshøj Torv to Brønshøj Water Tower with a strong representation of citizens in the development work. The involvement process in connection with the master plan has been long. Already at the end of 2020, an information meeting was held, where the Culture and Leisure Administration, Culture N, COWI and the local committee presented visions and concrete proposals in relation to both the new culture house and the overall plan (Brønshøj-Husum Lokaludvalg and SLA, 2021). Subsequently, the local committee held a series of dialogue meetings with tours of Brønshøj Gamle Skole. It was an important point that the citizens could visualize for themselves and see the possibilities in the new premises and areas. These dialogue meetings were open to all citizens but were limited in participation due to the Corona situation. In August 2021, the involvement work began in earnest. The result of the many involvement activities is the backbone of the comprehensive plan's recommendations, and the plan cannot stand alone without the many committed citizens' insights and experiences with the area and input to Brønshøj's future cultural axis.

The many inputs are collected in minutes from the meetings and in summary notes, which can be read on the local committee's website (Brønshøj-Husum Lokaludvalg and SLA, 2021).

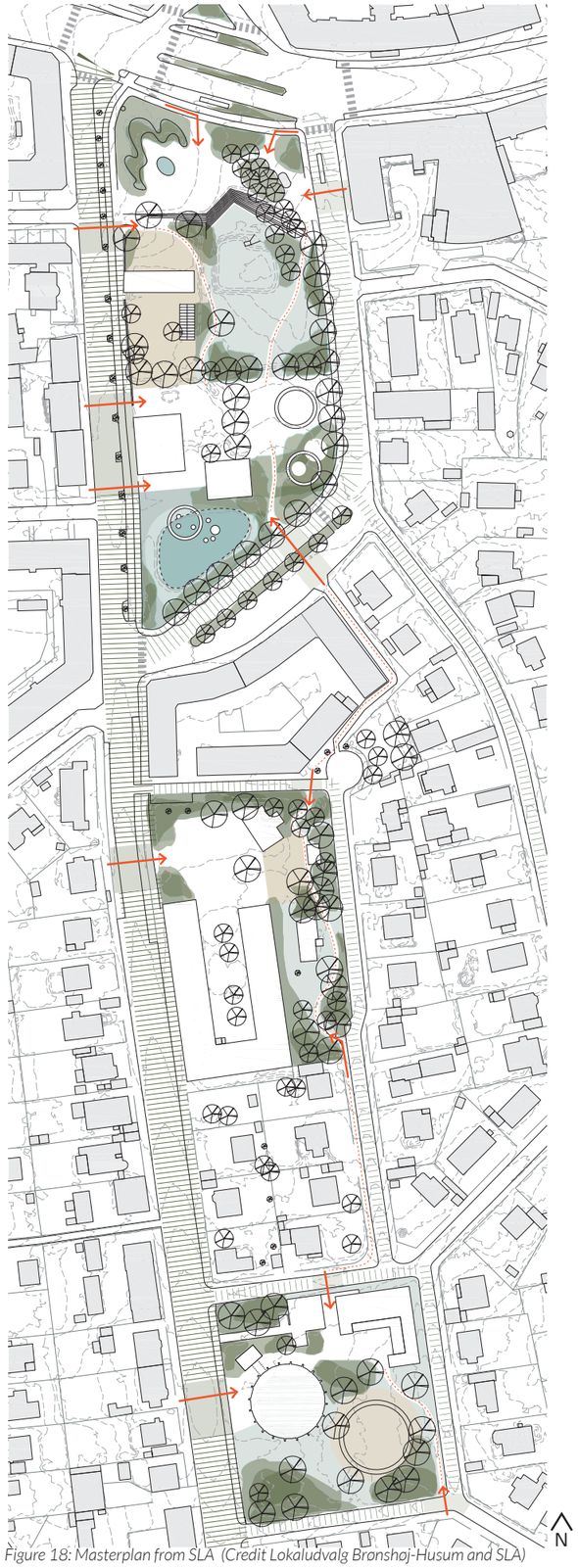

Figure 18: Masterplan from SLA (Credit Lokaludvalg Bronshøj-Husum and SLA)

What does the citizens say?

The new Culture House must act as the heart of the Culture Axis, with space for the culture, where people gather both daily and for occasions.

There should be places where you can sit without these seating areas having a direct connection to something com-mercial (like seating for a café). This could be at the basketball cage or at the playground.

It is more important that it is nice to be here than that road users from Frederikssundsvej can look into eg flea mar-kets. But we must also show that the space is active!

The Culture House needs a terrace/space for outdoor seating that can also be used for other activities.

The ball cage is disfiguring - it's a raw fence. But it is used a lot. Maybe it can be done differently?

It must also be safe and inviting to go for a walk with the pram - good lighting and a playful, wild nature. So, people also use The Culture Axis for on their Sunday-walk.

For the really big occasions we need a lot of space – like for Apple Day, flea markets, food markets, wine festival, 2700 Culture Day, etc. Some activities can take place on grass, others need tiles - and then it is important, that space is made for cars/trucks to load and unload.

The pond is a very special place. The plants need to be cleaned up so that you can get all the way down to the water in some places. There may be fish in the water and seating with tables around the pond.

The fencing needs to be removed.

Rethink the fountain on the Square. It's simply too boring as it is now.

SUMMARY

As highlighted in the previous chapter Brønshøj is a district with many different qualities. Located quite close to Copenhagen Central and at the same time located within the close proximity of the local context. Though it is well connected the district also suffers from other factors such as it being a socially disadvantaged district with a reputation of having high crime rates, though this remains just a reputation and not factual (Mikkelsen, 2021). Though it is a district with citizens who generally does not feel safe, it is also a district where the locals are very active and engaged in creating different activities to uphold the feeling of community. The citizens also have a wish to make Brønshøj a visit-worthy destination and utilize the spaces in the district to do so (Brønshøj-Husum Lokaludvalg and SLA, 2021). The wish is to make Brønshøj into the ultimate destination for cultural events, for both locals and tourists.

Figure 19: Brønshøj from above (Credit Kastrup Luftfoto)

02. Project Framework

To gain other perspective on the issue of feeling unsafe in public spaces, the methodological approach will be defined and presented in this chapter. Furthermore, the theoretical examinations will also be presented along with the findings and the concluded theoretical framework for the thesis.

METHOD

The method for this thesis project has largely been driven by designing. Though this may seem a given as this thesis seeks to give an example of an urban space design, designing from the very beginning and actively using design as a tool has been the main driver for the process of this thesis. More precisely the design tool of sketching in different ways have been the main anchor of method. Sketching has not only helped the thesis group to develop the design, but by allowing to sketch already from the first phases of the project, the sketches has also become the main catalyst for bringing out important points in this thesis.

Before the first site visit, initial sketches helped to determine the factors that should be analysed at the site. Therefore, it was through the method of designing that a greater understanding of the site was reached. Furthermore, as this thesis touches upon the issues not just of safety but the issues of feeling unsafe, this could be seen as an 'ill-structured problem', which is often how design problems are presented (Cross, 2006). The issues that designers deal with are not the same types as other scholars set themselves, as design issues may never guarantee correct solutions. Therefore, it becomes central for us as designers to bring forward satisfactory solutions rather than doing extensive analysis of the issue at hand (Cross, 2006). The process for this theory therefore becomes one of 'satisficing' rather than optimising, meaning that it is the goal to develop a large range of satisfactory solutions rather than trying to develop one hypothetically solution (Cross, 2006). Therefore, it becomes crucial for the methodology of this thesis to focus on designing from the beginning, and to use design actively to generate solutions that will be evaluated, evolved, and developed into the final proposal.

Taking an approach as such, can be seen as a reflection of the nature that lies within the task of designing, as well as the nature of the issues that designers often handle (Cross, 2006). For scientist and scholars, it is not an uncommon phenomenon to conclude with the phrase 'further research is needed' and is a justified conclusion in these fields. But what is asked of designers is to bring practicable results within a set time limit, for which we cannot conclude with 'further research is needed'. Therefore, in order to understand and work with these ill-structured problems designers have to learn to have the confidence to define, redefine and generally change the problems as the process moves on in light of the solution that might emerge from them (Cross, 2006).

With all of this in mind, the process of this thesis becomes an iterative process, where you cannot move from one step to another, to abandon the previous steps. But how does the process then move forward, as we have to come to a result? For this we may refer to the research approach of the 'hermeneutic spiral'.

The word hermeneutics (hermeneuein) comes from Greek and means to interpret or translate, and it was originally used about a discipline that specified a method of interpretation and interpretation of theological and legal texts (Schmidt, 2022). Modern philosophical hermeneutics is thus a humanistic and philosophical way of relating the world through interpretation and understanding. According to hermeneutics, everything we do or say is one interpretation (Schmidt, 2022). Maybe we are not thinking about it, but we are constantly interpreting the world around us. With hermeneutics we can analyse and understand our interpretations and self-interpretations (Schmidt, 2022).

With the theologian Friedrich Schleiermacher (1768-1834) begins the shaping of the modern hermeneutics. Schleiermacher does not regard, as before, a text as a testimony of one truth, but as something written by a person in a particular historical time, why the textual analysis must include analyses of the time, context, and culture that surround the author (Schmidt, 2022). Schleiermacher used an old rhetorical figure about 'understanding' circularity'- what we know today as the hermeneutic circle or spiral (Schmidt, 2022). The hermeneutic principle is that interpretation of a text, e.g., a narrative, a legal text, a field note or an interview transcript, always takes place within a circular structure where the individual parts must be understood from the whole, while the whole conversely must be understood from the parts (Schmidt, 2022). As human beings, we will always have a historical and cultural condition pre-understanding, which can be revised through new experiences, but which at the same time determines what it is we can learn. The pre-understanding is thus a prerequisite for us to be able to create new understandings. With this, pre-understanding becomes an active element in the interpretation and understanding of a given phenomenon (Schmidt, 2022). Therefore, what then makes us as designers move forward in the process is the approach of gathering information, which leads us to gain new knowledge, and by understanding how we came to that knowledge then we understand the bigger picture. For this thesis it then becomes crucial to understand not only the information and knowledge that is being brought, but also how it came to. With this approach we then move from having an understanding to analysing, gain new knowledge to put into use, to then move back to analysing to again change our understanding.

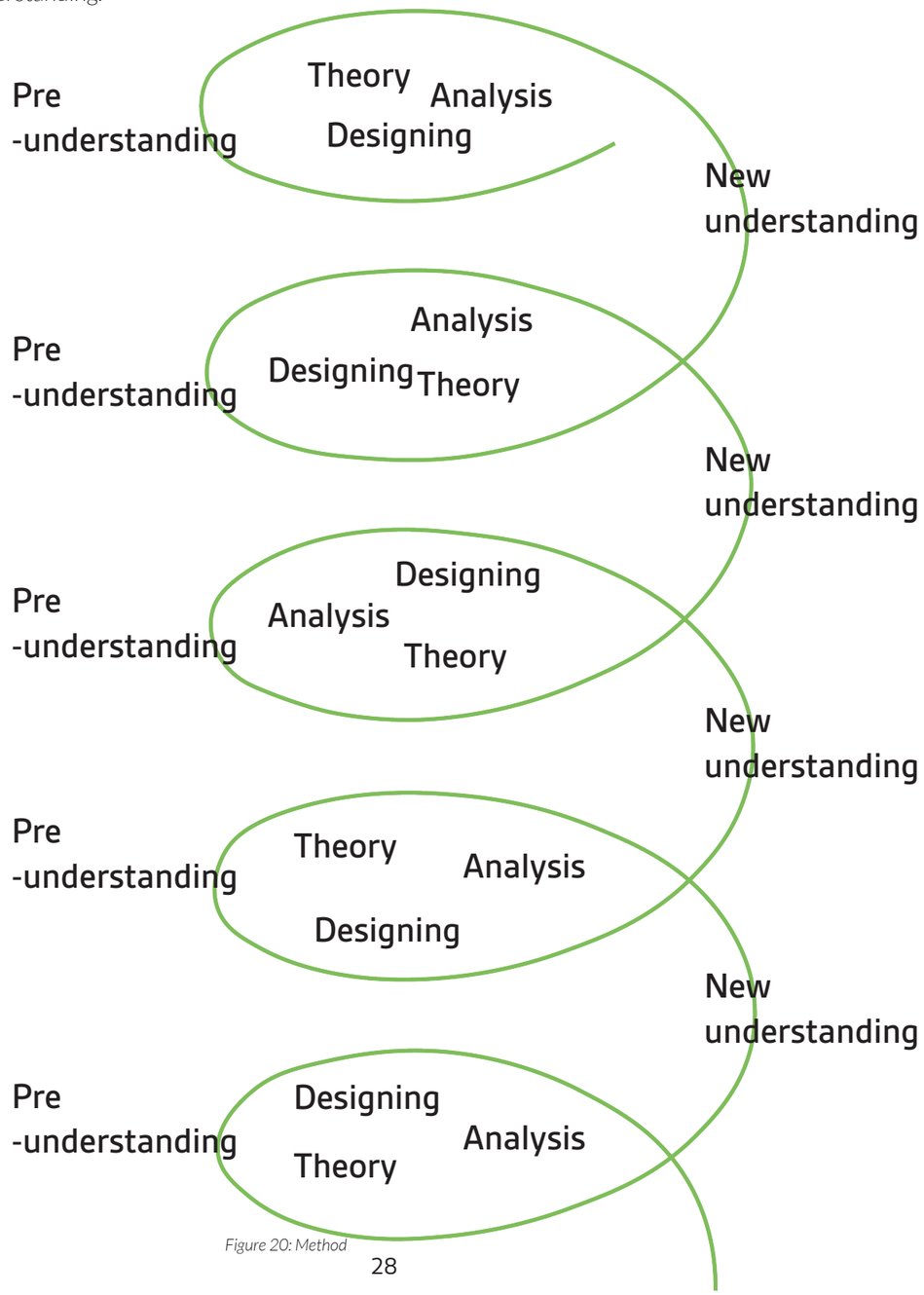

Figure 20: Method

THEORETICAL FRAMEWORK

As the growing issues of urbanization comes to light, one that cannot be overlooked is the quality of life that people experience living in these densely populated cities. This is where their life takes place, with different activities that takes place in both public and private spaces, as well as the threshold between these. This means that we as humans constantly move between different spaces and are almost forced to do so in order to proceed with our daily activities. As one can take direct measures to ensure the safety in their own private spaces, such measures cannot be done by the individual in the public spaces around the city. So, what happens when people do not feel safe entering and moving in these public spaces? If these public areas are not safe and welcoming enough for people to use, could it call for undesired and unsafe activities to take place in these public spaces? It becomes interesting to understand how the environment has an effect on the psychology of humans and how the build environment has an effect not only on the psychology but also the overall behaviour (Bonnes and Secchiaroli, 1995).

As the public spaces are an integrated part of people's lives, it is safe to say that when the access to such options disappears, it has a great effect on the quality of life (Roa and Mccay, 2021). An argument can be made those public spaces are the heart of an urban life that function as a place which lets people to meet, communicate, and socialize. After the Covid 19 pandemic the importance of these spaces, specifically the quality has been brought to life more than before (Roe and Mccay, 2021). It took a pandemic to realize the impact that the fields of urban design and urban planning have in our lives. Before the pandemic houses were just a drop-in place, a transitional space to stay between the different daily activities but due to the lockdown restrictions, they now became the main points of stay (Roe and Mccay, 2021). Overall, the pandemic showed not only the importance of the public spaces, but it also opened the eyes of the public to see how their local public spaces had an effect on their daily lives (Roe and Mccay, 2021).

Urban design shapes both the cities and the type of activities happening within them, whether they are positive or negative. It also influences how the cities are experienced and creates a link between the built environment and the people who utilize it (Ceccato and Nalla, 2020). A safe environment could be defined as a space that maximizes the use of public space and carries out diverse activities by people. It is where social interactions are provided. Basically, what happens within a space and how safe the space is perceived, depend on each other (Ceccato and Nalla, 2020).

For the theoretical framework of this thesis an extensive state-of-the-art literature review was conducted by the thesis group. This was done to investigate how the field of urban design may address the phenomenon of 'feeling unsafe in the city'. For the review several works were read, reviewed, and then put into a table to gather an overview of the different results of the review. The review suggested several points, but three main findings will be presented for this theoretical framework chapter.

Firstly, it became clear that when the field of urban design addresses safety, it expands on the factors of the physical safety. Such as safety measures taken during urban construction, environmentally based safety measures to combat flooding, heat waves, earthquakes etc. and health-based safety measures such as prevention of the spread of viruses resulting into pandemics in the larger populated and dense cities (Cai and Wang 2009). Secondly, though the main focus seems to lie on these physical safety measures, the state-of-the-art review suggest there is a wide agreement upon the fact that the built environment has an effect (both negative and positive) on how the safety of a space is perceived (Ceccato and Nalla, 2020). Thirdly, there is also an agreement that a simplified approach cannot succeed, and in general simplifying the phenomenon of the perception of safety cannot be done. Therefore, a call of an interdisciplinary approach when developing public spaces is needed for them not only to succeed, but to fully understand how the space can be developed to bring the feeling of safety (Nordic Safe Cities and SLA, 2021).

From these main points it gives a thorough look into the current state-of-the-art of how the field of urban design addresses safety in public spaces. It is clear that the field may not address the feeling of safety directly, but more so focus on the fact that how humans perceive the built environment, has an effect on their behaviour. To further dive into this phenomenon the thesis group dived into some of the bigger works in the field of urban design. Specifically, three of the reviewed works seems to not only address the perception of space but highlighting it with different perspectives.

When talking about the feeling of safety in public spaces one cannot not bring forward the concept of 'Eyes on the street' made famous by Jane Jacobs in her work 'The life and death of great American cities' (Jacobs, 1961). Jacobs highlights, that having more eyes on the street brings a level of safety. It could be pointed out that what Jacobs suggested is a form of surveillance that does not have the same connotation to the word as we know it today. This type of surveillance is not one of CCTV catching every movement in the city scape, but rather one in a more human scale with a more natural feel. This concept was later developed into being addressed as 'Natural Surveillance'. This new concept is something that both CPTED and Defensible spaces address.

The theory of 'Defensible spaces' brings forward four main discussion points, to determine if a space is 'defensible'. These are the capacity of the physical environment to create perceived zones of territorial influence; the capacity of physical design to provide surveillance opportunities for residents and their agents; the capacity of physical design to influence the perception of a project's uniqueness, isolation, and stigma; and the influence of geographical juxtaposition with 'safe zones' on the security of adjacent areas (Newman, 1973). Newman concludes that overall, if an area is relatively well defined, and designed with visible access and a community spirit where neighbours look after one another to create 'Natural Surveillance', this is the main factor that brings the feeling of safety to public spaces (Newman, 1973). Like Jacobs, Newman addresses the need for this 'Natural Surveillance' for public spaces to feel safe, though he also addresses several other factors.

The theory of CPTED (Crime Prevention Through Environmental Design) addresses the design as a tool that shapes the built environment in a way that reduces crime activities and make undesired activities less likely to occur (Crowe and Fennelly, 2014). Crowe and Fennelly also brings an overview not only of the types of crime that exists, but also the types that urban design can directly address (see appendix B). What is interesting to see here is that some forms of crime can be prevented by designing spaces in specific ways like traffic crimes, where bollards can be used to bring safety to public spaces. While crimes such as shootings, drugs, extortion, or corruption cannot be addressed by urban design (Crowe and Fennelly, 2014). Furthermore, it expands on three main strategies that CPTED are addressing. These are 'Natural Access Control', 'Natural Surveillance', and 'Territorial Reinforcement'. The word "Natural" refers to manipulating access control and surveillance as a by-product of the routine and normal use of space (Crowe and Fennelly, 2014). Also, the maintenance and caring of the space could contribute to the territorial reinforcement of the space. It is thought that not having a proper maintenance or signs of physical distortion are determining factors of the fear of crime more than the actual crime incidents (Crowe and Fennelly, 2014). This again speaks to the fact that if humans perceive the space in a certain way i.e., run-down, dirty, or not well maintenance, they may perceive the space as unsafe (Crowe and Fennelly, 2014).

It has now become clear, that visibility, both in the form of being able to read a space clearly and having activities in the space that creates a 'Natural Surveillance' is detrimental for public spaces to feel safe. But this is just one of many factors, as stated previously there is a wide agreement in the literature that when dealing with the perception of space many different elements come into play. Another important factor that comes into play is how the public spaces are perceived ones it becomes night-time, and darkness fall upon the city.

Ceccato has reviewed 35 articles that analyses lighting and its effect on crime. The conclusion showed that 72 percent of studies proof that proper lighting has a positive influence on safety (Ceccato and Nalla, 2020). It also shows that specifically the effect of lighting is very much controversial among the other urban features. Lighting could make the offenders to stand out and therefore decrease the crime rate, on the contrary it might also increase the chance of certain crimes by creating the "fishbowl effect" that let the victims stand out and make it more probable that they will be a victim of crime (Ceccato and Nalla, 2020). Therefore, it becomes of high importance that when designing the lighting for public spaces, these should be done properly and also fitted to the context of the space (Ceccato and Nalla, 2020). CPTED also mentions how both light and colours affect the way humans' functions as well as human behaviour, which is why it becomes a prominent element to consider when designing public spaces to feel safe (Crowe and Fennelly, 2014).

To conclude the theoretical framework, this thesis will take departure in three main concepts derived from the theoretical state-of-the-art review. Based on the concepts of 'Natural Access Control', 'Natu

ral Surveillance', and 'Lighting in urban spaces' this thesis will refer to these concepts as the main theoretical standpoints to take into considering when moving into the design process. To iterate that the process of this thesis is an iterative and not a linear process, the process of developing the theoretical state-of-the-art review has been done simultaneously as the design has developed.

When talking about the feeling of safety in public spaces one cannot not bring forward the concept of 'Eyes on the street' made famous by Jane Jacobs in her work 'The life and death of great American cities' (Jacobs, 1961). Jacobs highlights, that having more eyes on the street brings a level of safety. It could be pointed out that what Jacobs suggested is a form of surveillance that does not have the same connotation to the word as we know it today. This type of surveillance is not one of CCTV catching every movement in the city scape, but rather one in a more human scale with a more natural feel. This concept was later developed into being addressed as 'Natural Surveillance'. This new concept is something that both CPTED and Defensible spaces address

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Figure 21: Theoretical Framework

03. Brønshøj Plaza - Site

Now that the context of Brønshøj has been brought forward, as well as a mapping of the approach for this thesis and the theory which the project will proceed under, it is time to unfold the site through site analyses. Firstly, the site will be presented, as well as the arguments for the choice of site. Then the main analyses will be presented, as well as their conclusions. Lastly, these will be summarised in a site profile with the aim to visually highlight the most important take aways from the site analyses.

SITE PRESENTATION

As the placement of the Culture Axis had already been decided by LUA (The local committee) it was clear that the choice of site should be placed within the culture axis. The thesis group then evaluated the three potential sites, but ultimately chose the northern part of the Culture Axis, containing Brønshøj Plaza, Rytterskolen, a playground and ball cage, Brønshøj Gamle Skole (also known as the new culture house), and the pond. The choice of this site was due to the significance of the space, as it will be the location of the future culture house. Furthermore, this part of the Culture Axis is located closest to the main mobility connections. The thesis group saw it important that people would be led from the busiest part of the site, and down into the Culture Axis, which ultimately resulted in the first part of the Culture Axis as the site for this thesis. Therefore, the following analyses will present different elements and conditions within the site. The site analysis has been developed through several site visits, where the site has been visited on multiple days, at different time intervals, and in different weather conditions to get a thorough understanding of the site.

Figure 22: Site choice

Figure 23: Brønshøj Plaza

Figure 24: Brønshøj Plaza

Figure 25: Brønshøj Plaza

Figure 26: Brønshøj Plaza and Rytterskolen

Figure 27: Rytterskolen

Figure 28: Topography barrier

Figure 29: Barrier towards Rytterskolen

Figure 30: Open green space

Figure 31: Ball Cage

Figure 32: Viewpoint from Brønshøjvej

Figure 33: Brønshøj Plaza today

Figure 34: Transition between green space and the plaza

Figure 35: Brønshøj Gammel Skole, the Pavilion and the pond

Figure 36: Pond

Figure 37: Pond

LIGHT AND DARK ANALYSIS

The experience of walking into the site in different times of the day varies to a great extent. During the daytime the site receives a good amount of sun light and therefore, not many places in the site has shadow or dark corners. This changes majorly in the nighttime. As the urban lighting is only given by a few lampposts on the Plaza and suspended armatures in a few places, specific spaces in the site remain in complete darkness. This darkness is mostly centred in the middle of the site, as even lighting from the surrounding housing, shops, and restaurants does not come close to extending into the centre of the site. This also effects the use of the site during nighttime, and few people will be seen going into the centre of the site, and instead stay on the perimeter. This uneven distribution of light in the nighttime creates a great feeling of unsafety, and hence the spaces in the site are not utilized to their full potential.

Figure 38: Panorama view - daytime

Figure 39: Panorama view - nighttime

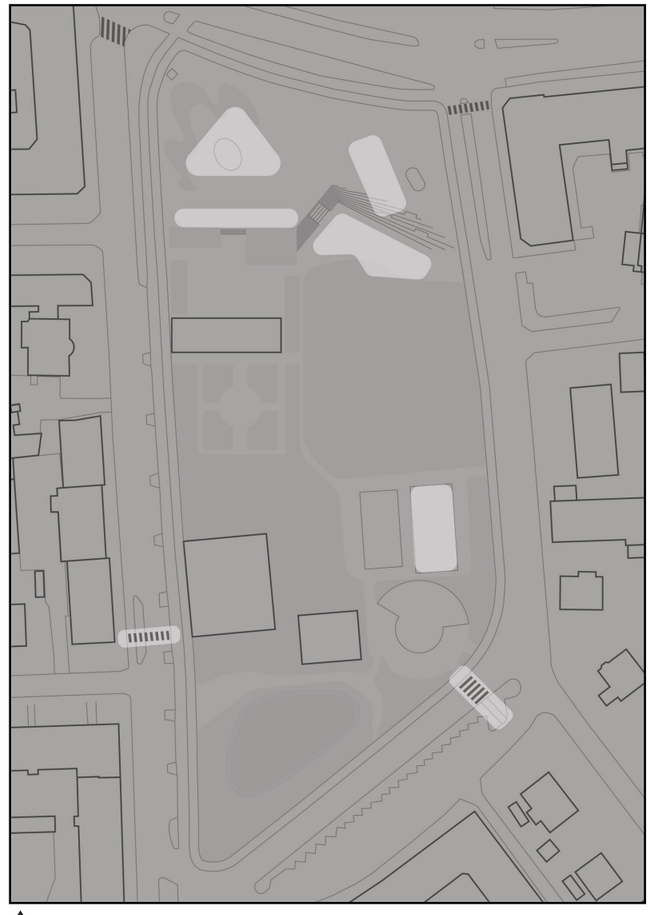


Figure 40: Light and darkness analysis

ACCESSIBILLITY

Due to some spaces being open and without any physical barriers that blocks people from entering the site, the site has in general a great accessibility. Though this can be seen as both a positive and negative, having such open possibility for access, can seem confusing as it does not direct or lead people into the site in a clear way. It also can become confusing with such open access weather it is permitted to enter the site from certain areas. Also, the path systems in the site are gravel paths, where a lot of the gravel has disappeared, leaving only dirt paths left. These are not as inviting to travel on, and an element as such could also be seen as a form of poor accessibility even though the site itself remains accessible.

The current entrances in the site are connected well to its context, though as many entrances in the site are lacking a clear emphasis it some can be seen as invisible and therefore remain somewhat unused.

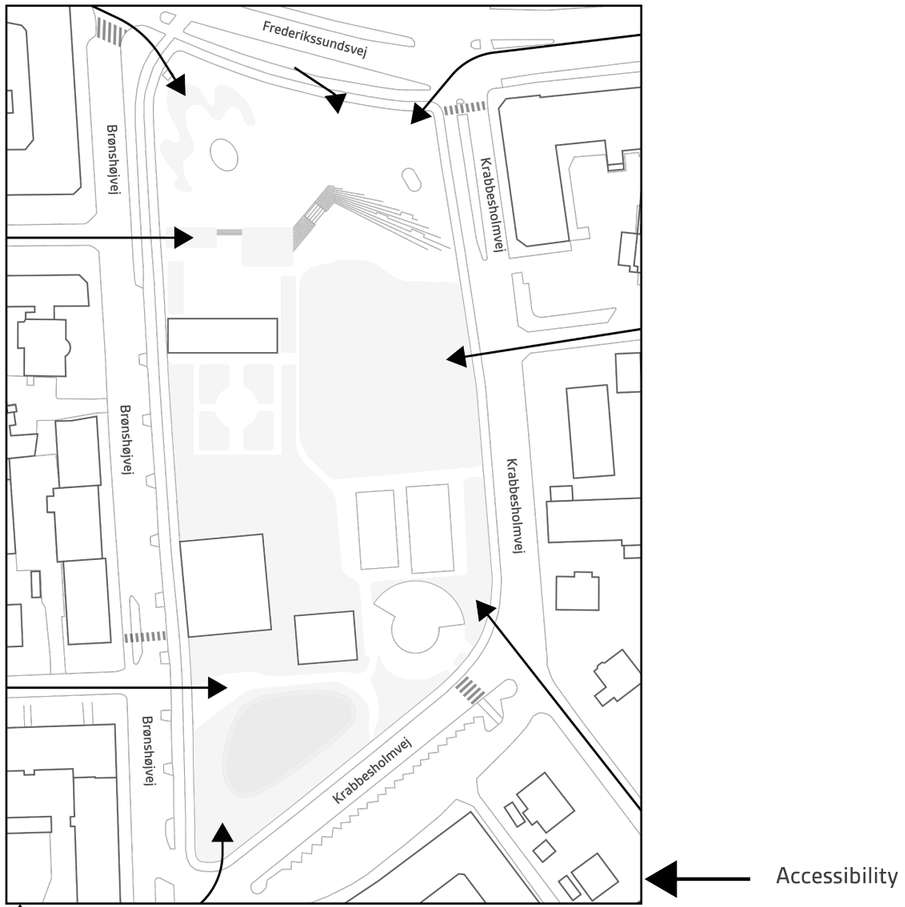


Figure 41: Points of access

GREEN/BLUE

The green spaces are pretty much situated all around the site. There is different types of green structures within the site, there are flat green lawns, old/young trees, and gardens. Although the green structure is shaping a nice nature atmosphere, in some parts the density of them does affect the amount of visibility. Which might affect the feeling of safety especially during the dark times.

On top of the green structure, there is a historic pond located in the south of the site. The area around the pond meant to create a relaxing and cosy environment which is in contrast with the level of mobility activities that happens on the west side of the pond.

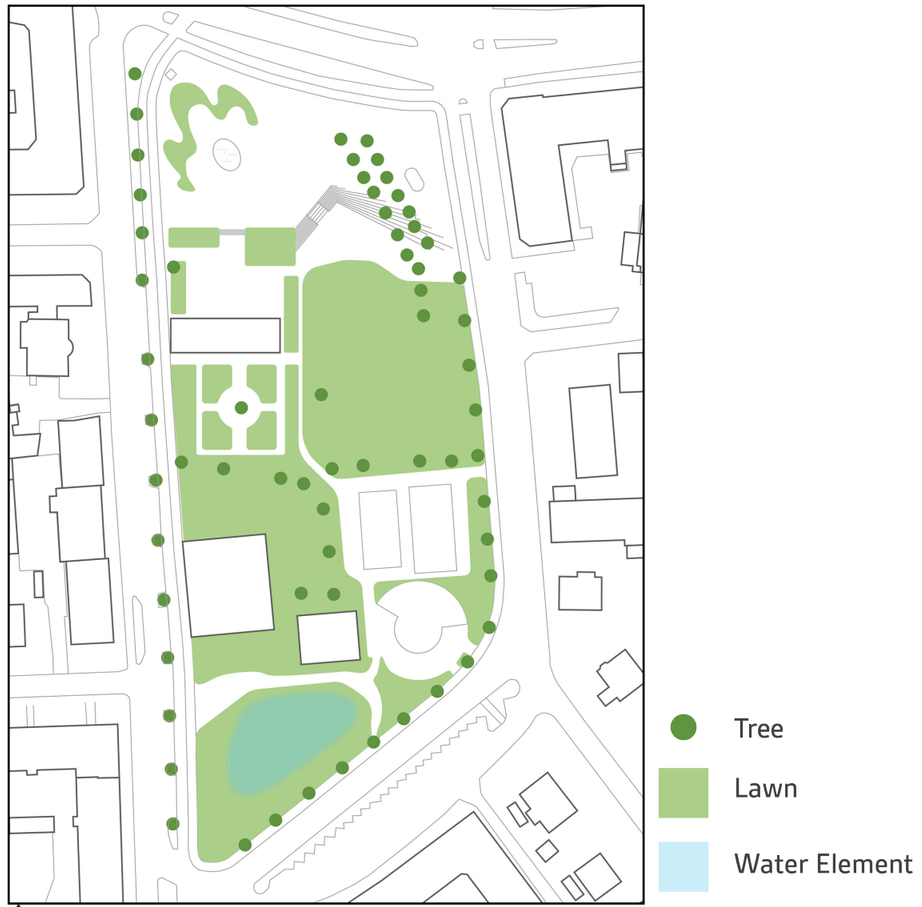


Figure 42: Green and Blue

HARD/SOFT MOBILITY FLOW

In general, the flow surrounding and within the site has high differences in the level of activity. For the hard mobility, such as cars, trucks, busses, and motorbikes Frederikssundvej has the highest level of flow, as it is not only a two-way street, but it is also the main connection going through Brønshøj. But Brønshøjvej and Krabbesholmvej has a much lower flow of mobility. This is mostly due to the fact that both streets are a one-way connection, and therefore the flow is limited. The type of mobility that utilizes these roads the most are the bus connections 2A (Brønshøjvej) and 10 (Krabbesholmvej).

In this analysis when referring to the soft mobility flow it is referred to pedestrians, as the movement of bikes have been explained in the connections analysis (figure 45, page 44). Within the flow for the soft mobility the movement also differs when looking at how pedestrians move in the different spaces in the site. At the plaza in the north the flow has the largest level of activity. Here people move over the plaza in different directions, and with a high walking speed, which reflects the atmosphere of the site. Several people can also be seen meeting up at the plaza, to then move out of the site to other destinations. A few people have also chosen to sit at the plaza during the days where the sun has been out. But even on the days with the sun out and temperatures suited for outdoor activities, then the green space between the plaza and ball cage remains empty. The same goes for the garden between Rytterskolen and Brønshøj Gamle Skole. This also means that the flow of pedestrians is significantly lower at this part of the site. Moving further down into the playground and pond, the site then becomes active again, but not to the same extend as the plaza.

Figure 43: Mobility flow analysis

NOISE LEVELS

The major activities that happen in the area is on the north- west side of the area. As the major road and the major bike lane node are situated on that side of the site. So, the more north people are and the higher level of noise they will be exposed to. On the contrary, on the southeast there will be a very quiet zone, in which the playground, the pond, and the basketball cage are located.

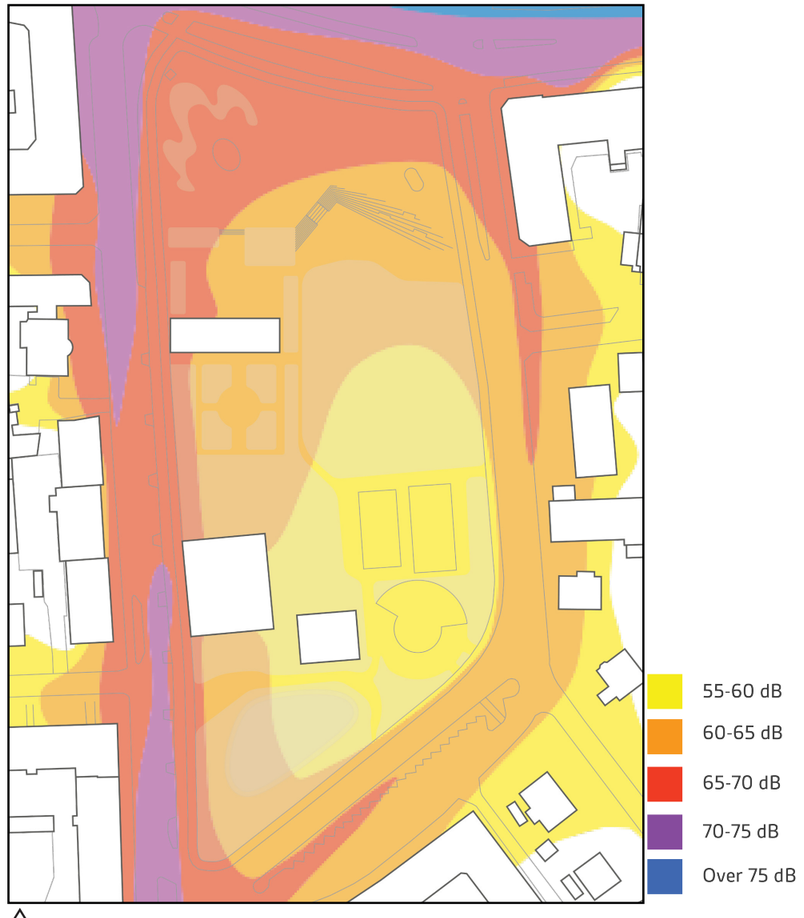


Figure 44: Noise levels

MAJOR/MINOR CONNECTIONS
PUBLIC TRANSPORT

What is prominent to notice about the main connections in Brønshøj is that they have been there for a long time, as the structures of Frederikssundvej, Brønshøjvej and Krabbesholmvej are all there in 1842 (Cramer-Petersen, 2020). Even though these three roads might seem like the major connections, even within the three there exists a hierarchy based on the different levels of activity that the roads experience. From both in person observations and online tracking it can be concluded that Frederikssundvej is the major connection in the site. Running through several districts the road has by far the highest level of activity in longer time periods than the other two connections. It is a two-way street, and one of the main city bus lines 5C has its stops on Frederikssundvej. The connection is also lined with shops, cafes, gas stations, and other commercial functions. Thereby, making Frederikssundvej the main connection for mobility and flow.

When looking at the other connections this is far from the case. Brønshøjvej and Krabbesholmvej are both one-way streets, with Brønshøjvej directing traffic towards the south on the west side of the site, and Krabbesholmvej directs traffic in the northern direction going on the east side of the site and connecting directly to Frederikssundvej. Based on several site visits it has been observed that Krabbesholmvej acts as a sort of backroad for especially families and the elderly on their bicycles. They seem to prefer to take that road, even though Krabbesholmvej does not have any bike lanes, and Brønshøjvej has bike lanes going in both directions. The main streets around Brønshøj Plaza function as a transport node that brings people in and out of Brønshøj Plaza, making the plaza the main place for movement.

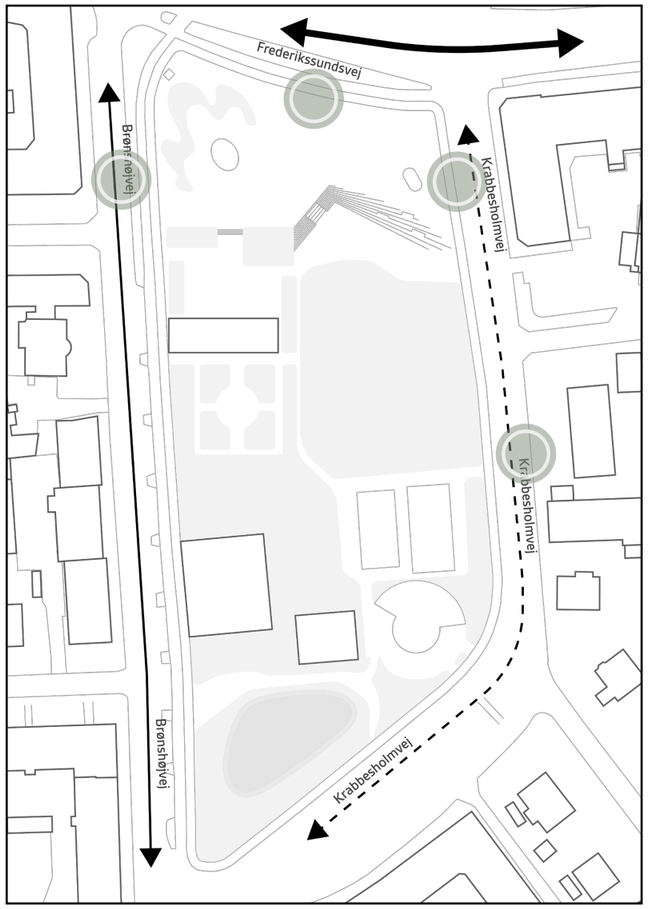


Figure 45: Connections

Bus stop

Major Connection

Minor Connection

Back Road

MATERIALS AND SPATIAL CHARACTERISTICS

The site is physically a very open space, with few buildings to fill the space. Therefore, the site mostly consists of medium sized open spaces, with different functions, with the largest space being the plaza in the north. Thought the spaces may have formed like this, the feeling of the spaces differs from one another. This is caused by several elements, whereas the different types of materials are one of them.

At the plaza the materials are mostly grey in colour and a type of concrete or pavement, with green elements and a fountain (row number 1-2). As mentioned previously in the analyses chapter, the plaza is also where there is the highest level of activity and flow. This along with the open space, and grey colours with low buildings creates a space with a busy and open characteristic.

Moving into the green open space behind Rytterskolen, due to the fact that this is a plane grass field in a medium size, the spatial characteristic of the space becomes open and with an empty feel (row 3).

Around Brønshøj Gammel Skole is where larger trees and fences begin to obstruct view, creating a pocket surrounding the school, which makes it seem closed off. Even with the red bricks, the school is almost impossible to spot behind the big trees (row 4).

Connected with the school the pavilion is within close proximity and behind the same fencing and trees. Coupled with the material of the pavilion being almost black, the structure becomes almost invisible from certain angles in the site (row 5).

Moving down onto the southern part of the site, you are met with another open space, with the pond acting as the centre piece. Due to its openness and good visibility towards one side, and a more protected side with trees aligning, this space does not seem as empty as the other green space in the site. Having a connection to water through the pond creates a calm atmosphere at this space (row 6).

Lastly, the site is surrounded by a sidewalk on the west side, but on the east side only a stripe of asphalt with a curb indicates a space for pedestrians (row 7).

Figure 46: Material and spatial analysis

VISIBILITY

Due to different barriers some places of the site have a very poor visibility. This is especially from the Plaza and down to the other parts of the site. Though not alle places have this poor visibility. As seen on figure 47 and 48 when looking down onto the plaza the visibility is very clear. The same goes for the pond (figure 50), where it on one side does not have any visible obstructions. On the parts of the site where the visibility is poor, it is often due to trees, parked cars, the topography, and other urban furniture. As the site has an uneven distribution on the visibility level it divides the site into different zones, with different feels, as some areas feel safer, as they can be read more clearly, where others are haunted by their uncertain nature due to the poor visibility (figure 49).

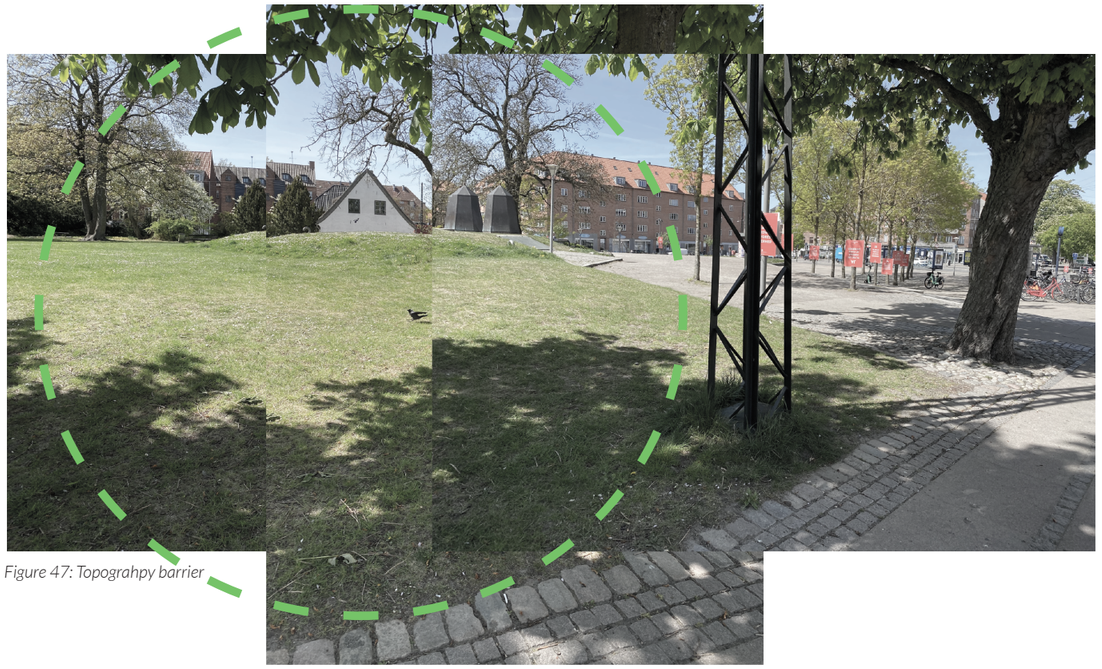


Figure 47: Topograhpy barrier

Figure 48: Topograhpy barrier

Figure 49: Fencing and parked cars

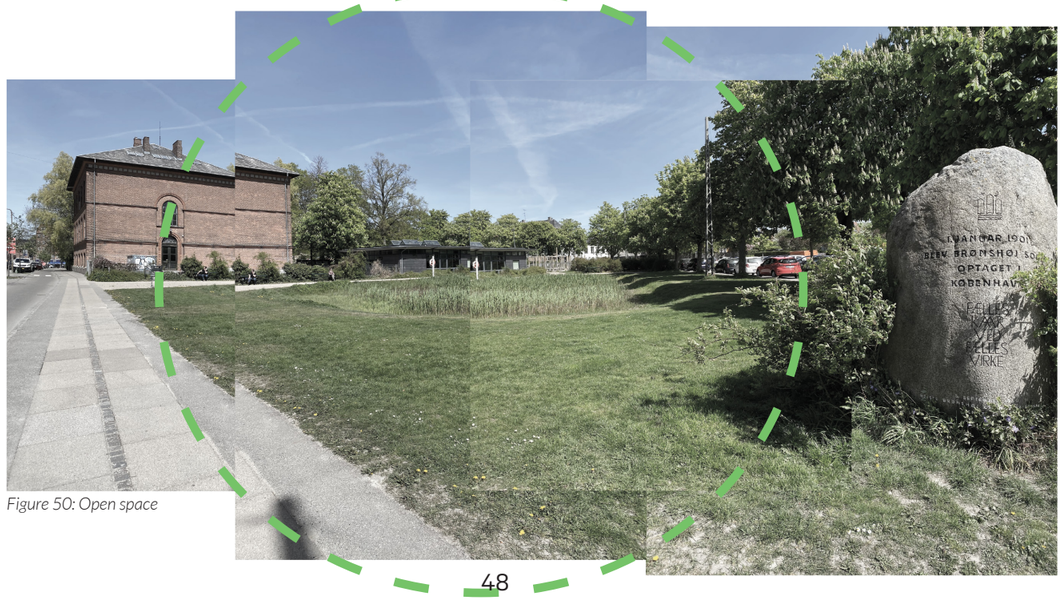


Figure 50: Open space

ATMOSPHERE

The atmosphere within the site is very different when you move from the north part and down towards the southern part. In the north the Plaza is very active, open and have the highest level of flow in the site (figure 51). Then when moving down to the green space, the atmosphere changes drastically (figure 52). Furthermore, it is interesting to see the transition between such zones, and how it is clear to see the barrier that divides them (figure 53). Lastly, the site is divided into two other areas, the playground, and the pond. The atmosphere between these spaces is also very different, though this could be due to the different functions of the site. The pond is a more relaxing and open space, with room to sit and enjoy nature (figure 54). Whereas the playground is a bit more active, but at the same time a closed off space with specific functions (figure 55).

The atmosphere within the site is affected by different elements like the topography, green and blue structures, barriers, activities. The plaza which is in the north side situated in a low-level topography which makes it very segregated from the rest of the site. However, the topography is designed by stairs and seating areas which help people to go to the middle part of the site, but it is not suitable for elderlies or disable people. In the middle of the site there is a huge flat green space that is used for different activities during the year and for children to play on. Moving more inside there is this fenced playground area which is right beside the basketball cage. At the end there is the pond located on the edge of the two roads that goes from the south and the west part of the site. But the water located in the pond is what differentiate this space with the rest. This is the place where people could relax and enjoy the sunny days of summer.

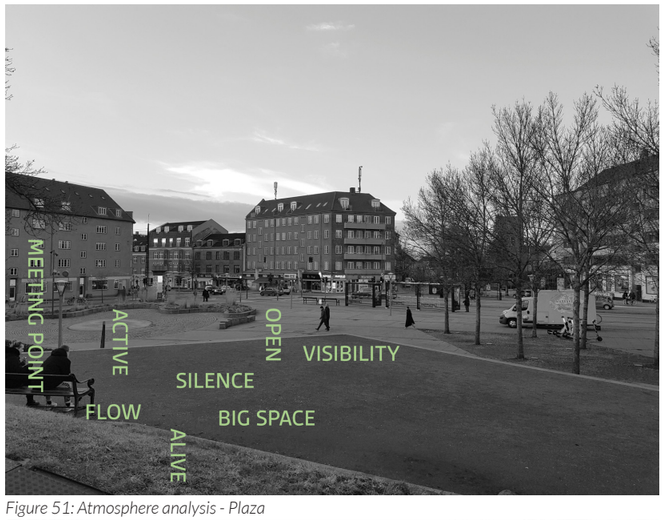


Figure 51: Atmosphere analysis - Plaza

Figure 52: Atmosphere analysis - Green space

Figure 53: Atmosphere analysis - Transition between plaza and green space

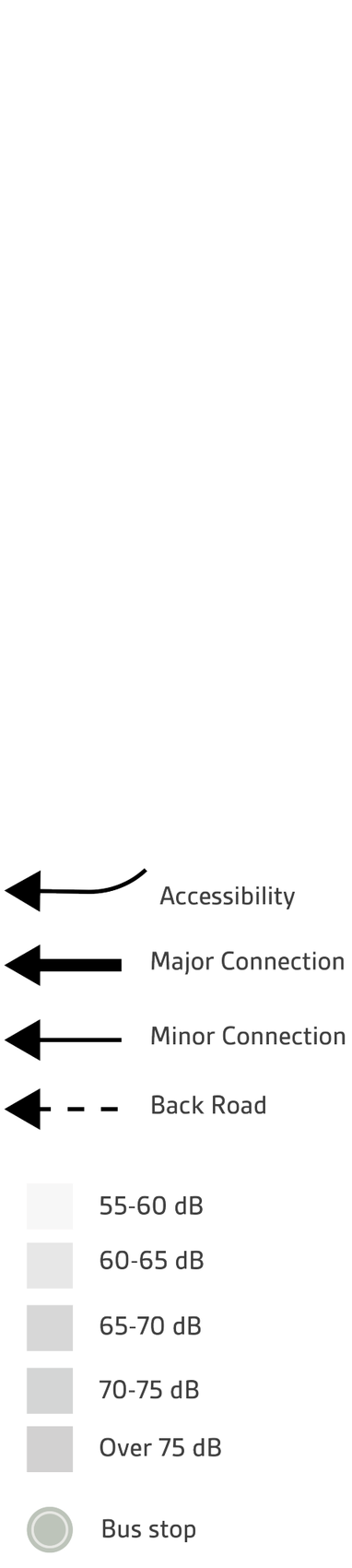
Figure 54: Atmosphere analysis - Pond

Figure 55: Atmosphere analysis - Playground

SITE PROFILE

As the site has been examined from many different perspectives it is clear that the main conclusion of the site analyses is that the site is very much divided into different zones. What creates these different zones is a number of factors.

Firstly, the zones are created due to not only the different functions of the spaces in the site, but also the different feelings throughout the site. These different atmospheres are created based on the change in levels of activity, noise, visibility, and mobility flow. All of these factors together create a site with clear divisions, and yet at the same time some of these zones remain, unclear, undefined, and therefore underused. The clarity seems to not work in favour of the spaces, as this clear distinction provides barriers of function and use. Though the site is well connected both to the farther context and the rest of the district, the site does not succeed in moving this flow through the site evenly. This creates areas that seem almost abandoned, unused, and dead. Though an argument can be made why this is a negative thing, it does not bode well to have spaces with such a clear division, as a development is supposed to take place in the site. From these main points from the site analyses, this knowledge will be used actively in the design process to ensure a final design proposal that takes all of these matters into account.



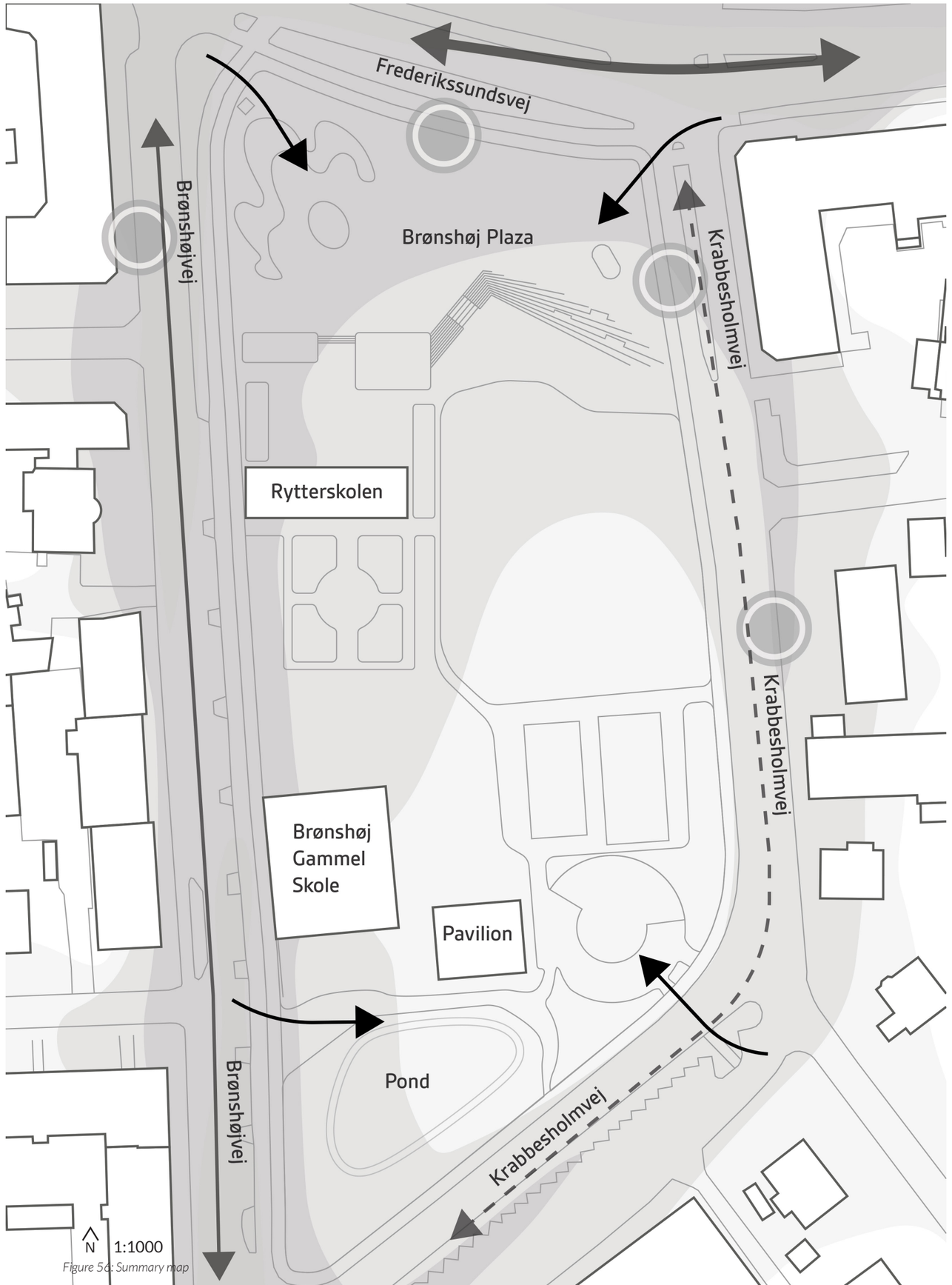


Figure 5a: Summary map

04. Design Development

As mentioned previously the method of designing has been the main method of this thesis process. Therefore, a look into the extensive design process is needed to understand the narrative of the thesis. Firstly, the approach of the design process is presented, followed by the design parameters and actions. These have been developed from all of the knowledge that was brought from the theory research, site analyses conclusions and the first round of sketches. Between the sketching phases the concept development will be presented, as the concepts have been derived from the initial sketches of the thesis. Lastly, the Moodboards that have been created for some design elements will be showcased.

PROCESS APPROACH

For the design process the main approach has been to sketch in different medias (plan, section and perspective). Although this could seem as a given sketching as a design tool has been the main method to drive and forward the design process for this thesis.

The sketching started with the initial sketches, that were also used to determine the factors we wanted to examine at the first site visit. But it was not only the analysis themes the sketches helped to bring forward. Sketching along with the new knowledge form the analysis also helped to define the different design themes for the design. Such as creating spaces, the path network, entrances, and placement/functions. Furthermore, it was also from the initial sketches ideas for the concepts arose. It is important to note that this design process did not follow a linear process, which is why several sketches may appear in the several themes or have given inspiration in more ways than one. It also explains why the concept development happened during the sketching phase and will therefore be presented in the middle of the design process, rather than in the beginning.

Of course, these sketches have not just appeared by themselves, as the design parameters have also helped evaluate the sketches and bring notes for development. To further bring inspirations for design elements the website Pinterest has been utilized to find reference pictures for Moodboards showcasing elements such as the urban furniture.

Furthermore, the opinions of the citizens (page 21) have also been used actively when evaluating the design to ensure that the main wishes were met. Lastly, the case studies have been used to give an insight into how these might work in a real context, and therefore the case studies have helped solidify certain design decisions based on the success rate of real-life cases.

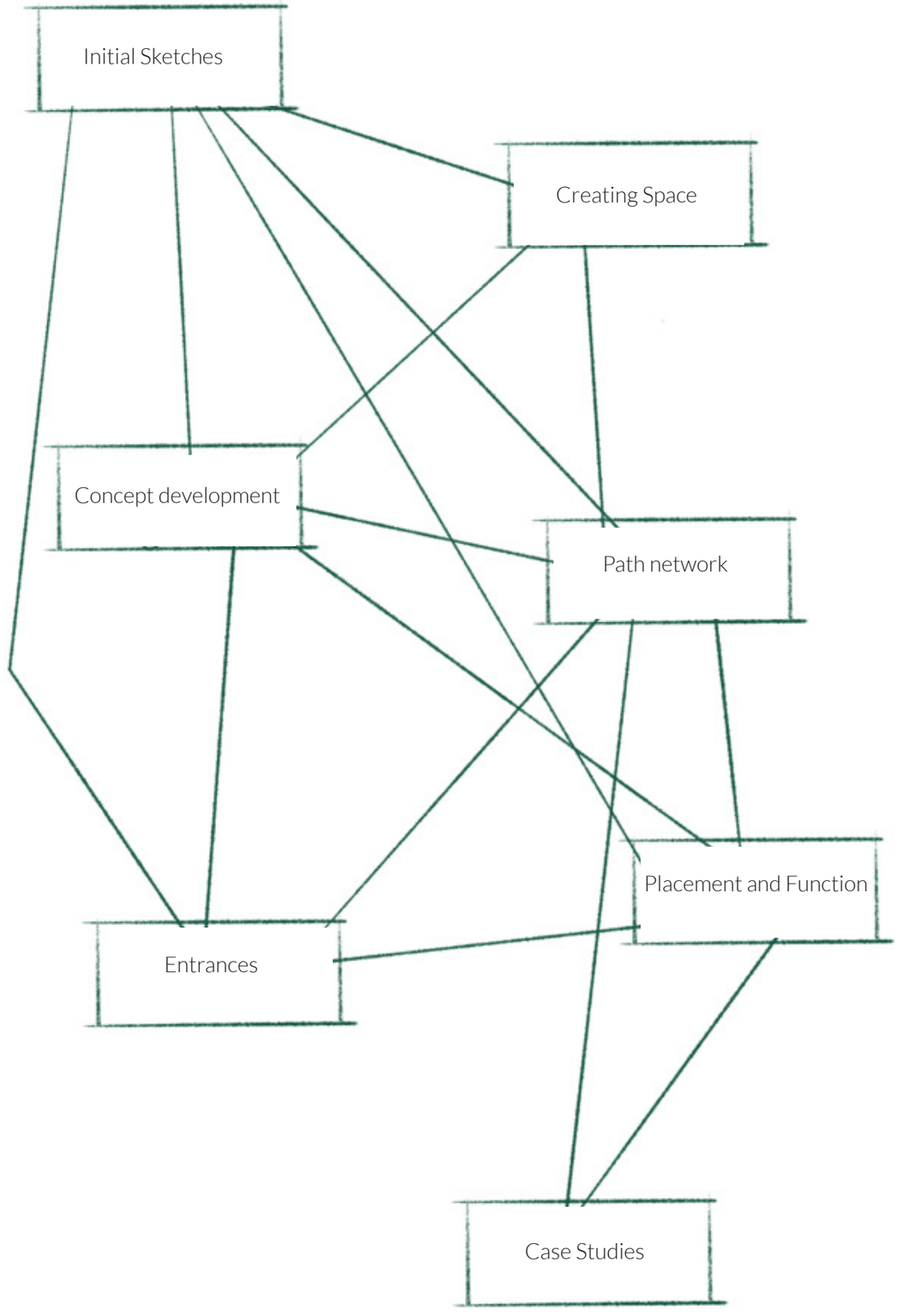


Figure 57: Approach

DESIGN PARAMETERS AND ACTIONS

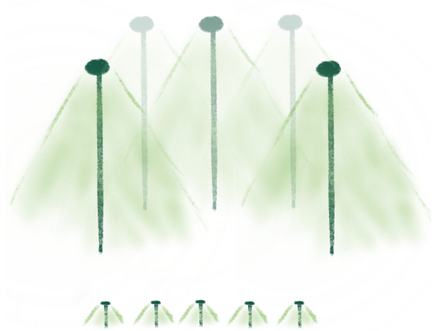
Based on the previously conducted analyses, the theoretical framework, and the wishes of the citizens, 6 design parameters have been made. These parameters showcase overall goals of the design whereas the actions give a concrete direction of how to achieve these goals.

Figure 58: Design Actions

Creating the space with a proper lighting design, that takes the activities into consideration.

How?

By creating a light network including different lighting types for different functions.



Prioritize pedestrians in the design.

How?

By clearly indicating that bikes should be parked outside the site and create barriers that does not make it easy to simply ride your bike within the site.

Creating a connection that brings the people and the nature closer together.

How?

By combining certain functions with the nature directly.

Creating spaces with possibility for temporary use, that can be used for different functions/activities.

How?

Create spaces of different sizes and with different pavement types.

Breaking the barriers between the zones to ensure a more evenly distributed level of activity.

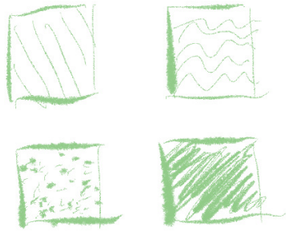
How?

By creating more clear visibility by removing some visible barriers, and moving the spaces for activities to other places in the site.

Creating different spaces with a clear distinction of their functions.

How?

By designing with different materials to identify specific uses for specific spaces.



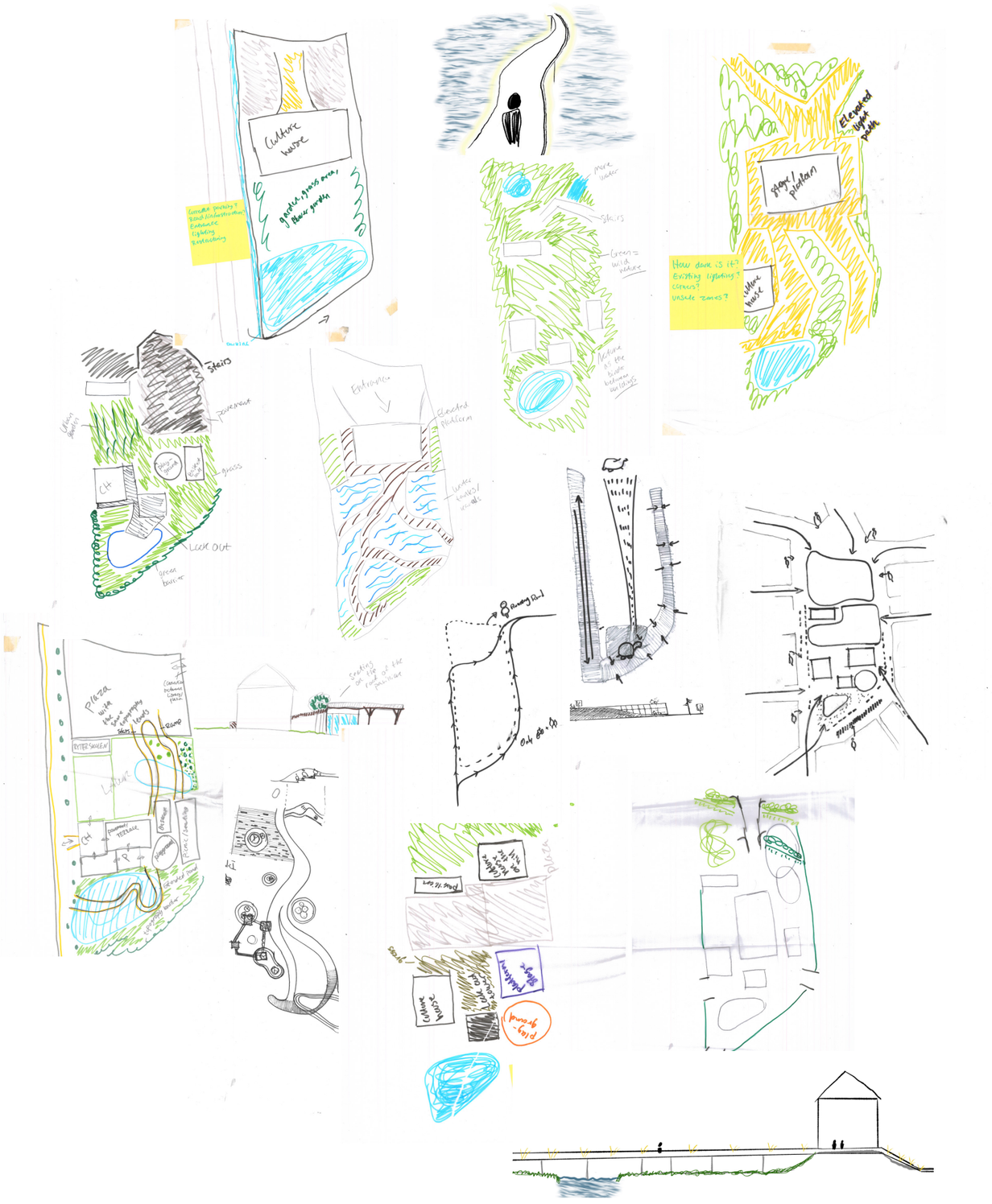


Figure 59: Initial sketches

INITIAL SKETCHES

For these initial sketches, what is prominent to note is that they were all drawn before the first ever site visit. Therefore, the sketches both helped with determining the factors of analyses and to already give suggestions for design options.

The initial sketches helped bring out some parameters for the design, by opening up discussions surrounding the buildings in the site and the roads surrounding the site. Among the initial sketches an idea merged to give visibility by giving people a higher viewpoint. This resulted in an elevated bridge that went from the north to the south of the site that also gave the function of lighting up the site (figure 60 - A). Another element which is prominent in the sketches is the idea of tearing down all the buildings in the site and creating new ones with other placements. This was explored to determine the different options of the space, though it was later decided that it was not viable to tear down building to build up new ones from scratch, as the current buildings also held a historic value for the site (figure 60 - B). Furthermore, it was also explored through these initial sketches if the design should call for a closure of the roads that goes vertically on the side of the site (figure 60 - C). Though from the analyses this may seem possible, as the Brønshøjvej and Krabbesholmvej are both one-way streets when going around the site, it was decided not to close the roads to accommodate the flow of the busses.

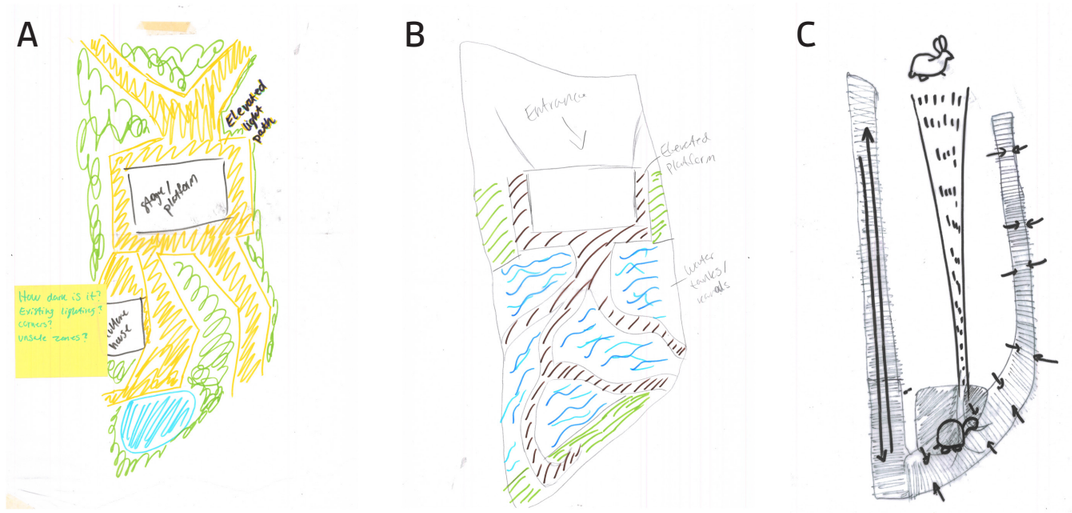


Figure 60: Highlighted sketches

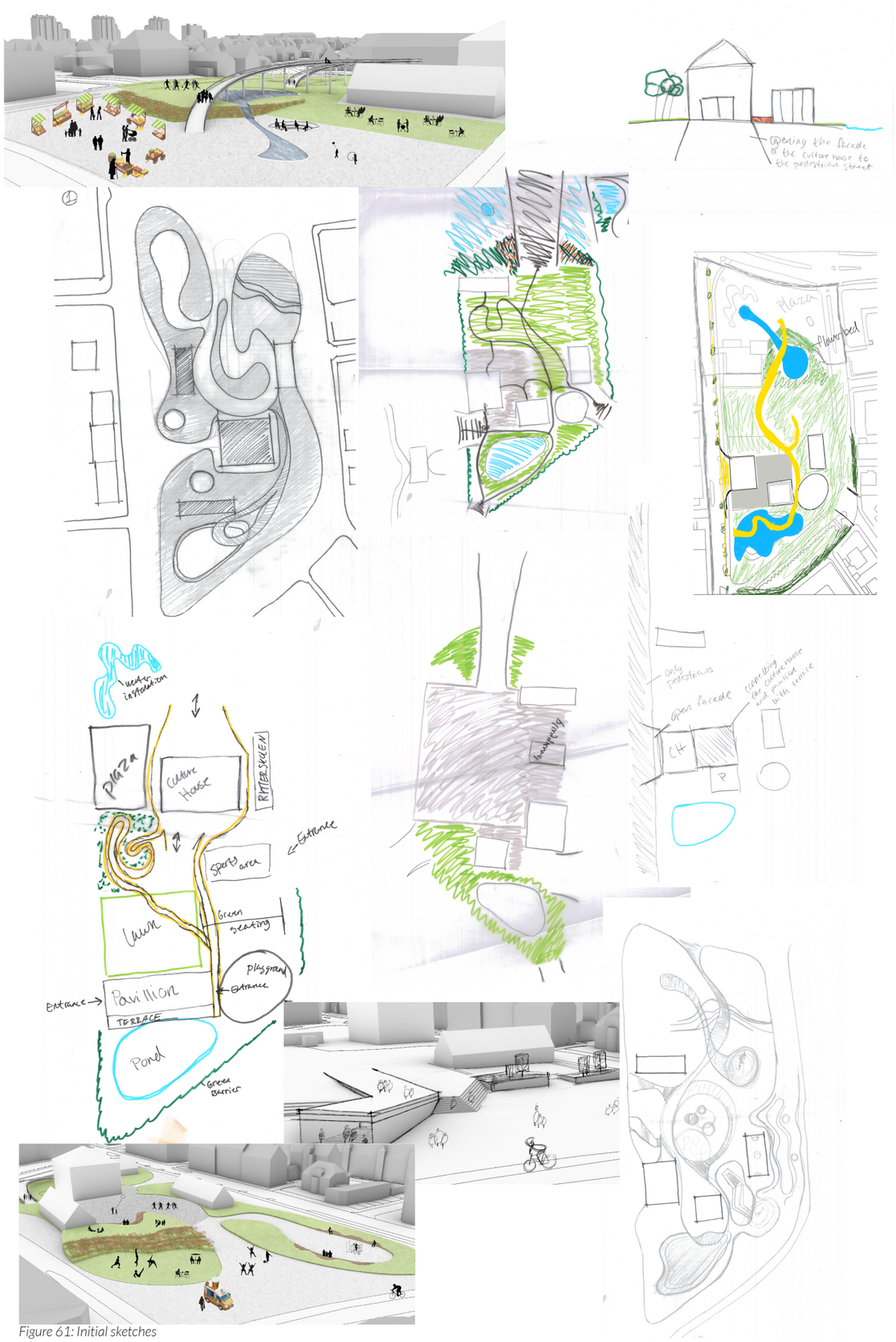


Figure 61: Initial sketches

SKETCHES - CREATING SPACES

The next theme that emerged from the sketches was the idea of creating different spaces in the site. As mentioned before there are already existing zones that should be broken to ensure a more evenly distributed level of activity. Therefore, an exploration was started to find different options for spaces, sizes, and functions.

Firstly, it was determined that a big space was of upmost importance to accommodate the citizens wishes of having a space for their plethora of activities. It was then explored in which ways the plaza could take form. Firstly, it was explored how the plaza could be created as a center point of the site, as it seems that the plaza attracts the highest level of activity (figure 62 - A). Then it was explored how the plaza size could maybe be smaller than the original space, but with some of the same placement (figure 62 - B). It was also explored how the plaza could be created using a different type of surface - grass, to give greener to the space (figure 62 - C). Overall, these sketches helped bring the point of creating a more cohesive design, and therefore utilizing an element to do so.

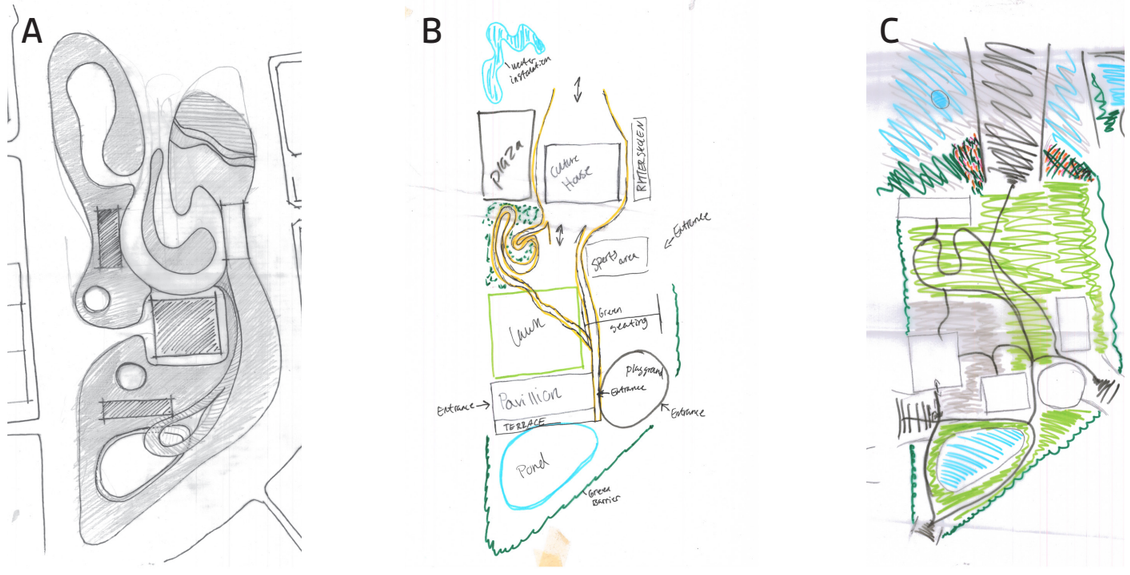


Figure 62: Highlighted sketches

CONCEPT DEVELOPMENT

Through sketching, the analyses, and the theoretical framework several concepts were developed for the design. These were then evaluated according to the design parameters and according to which concepts could be realistically implemented. This section will only present the main points of the concept evaluation, for the entire evaluation please refer to appendix (C, page 129-132).

Breaking Barriers

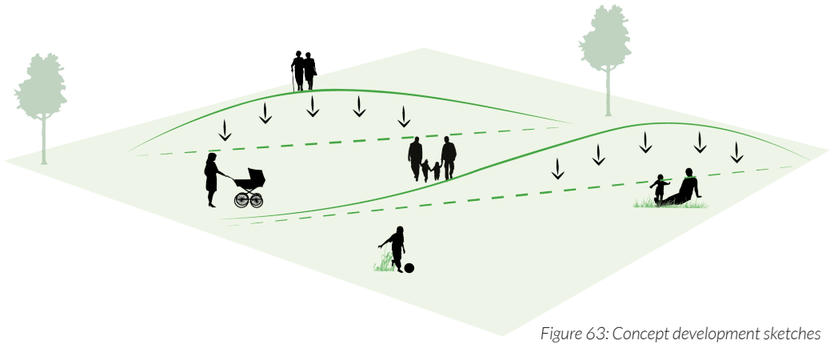


Figure 63: Concept development sketches

For this concept the idea was to break the visible barriers like the topography, tree lines and parked cars. This concept would focus on lowering the topography while also removing trees that obstruct the viewpoints into the site. The conclusion of evaluating this concept was to keep the current topography and to utilize it in the design, and instead focus on breaking the barriers of the zones, to ensure a more even level of activity in the site.

Path Network

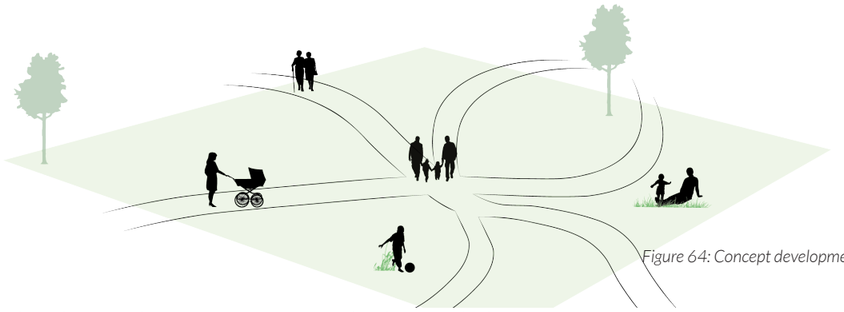


Figure 64: Concept development sketches

The idea for this concept is certainly clear. To help create movement in the site, creating a network of paths was the main idea. As the site is only one part of the entire Culture Axis, it seemed important not only to make people move through the site, but also to lead them further to the other parts. Therefore, the conclusion for this concept was to create a path network, that leads pedestrians both into the site and onto the next parts of the site.

Visibility from Above

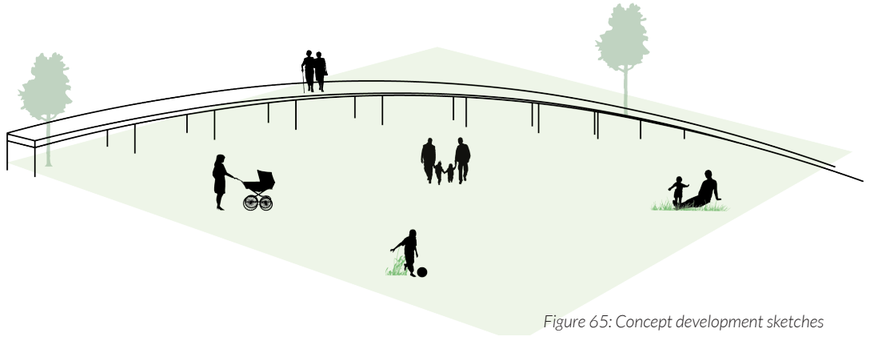


Figure 65: Concept development sketches

The idea behind this concept was to make an elevated path that went from the north to the site and to the south part of the site. Giving pedestrians a good view of the site and therefore also breaking the barriers of both the zones and the visibility. Though this idea also brought issues, such as creating corners, covered spaces and generally a feeling of unsafety for the people who would be utilizing the space underneath the path. Therefore, the conclusion for this concept was to not do a bridge but to do a slightly elevated path. Even though we may not be giving people a high viewpoint, by elevating them even slightly it will give the feeling of overview and control. Therefore, the path will have a slight elevation, to also indicate a specific function. As the elevated path should mean movement and the lower spaces are for staying.

Connecting to the Context

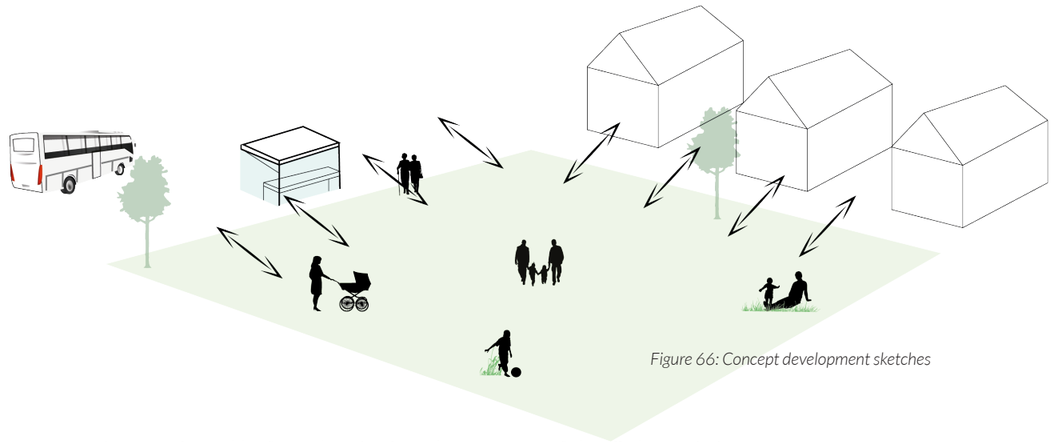


Figure 66: Concept development sketches

As mentioned before the site is only one part of the Culture Axis, so connecting it to the other parts seems a given. But it should also be connected to the more immediate context that surrounds just the site. From the analyses it is clear that Frederikssundvej is the major mobility connection to the site, but there are also side roads that go round along the site, which could be important to connect to the site in a more direct way. Therefore, the conclusion for this concept is that although this concept does not address the design parameters within the site, it most certainly addresses the parameters on the perimeter of the site.

FINAL CONCEPT

For the final concept the conclusions from each concept evaluation were merged into one cohesive concept. The idea stems from the shape of a tree, where you have a wider tree trunk as the connection to the ground. Where after the trunk the tree develops into smaller branches that leads up towards the sky. With this idea in mind, the final concept will consist of broader entrances, that will be placed according to the context, to ensure a controlled flow of pedestrians. They will then be led onto a path network consisting of more narrow pathways, that are elevated a little of the ground, to emphasize where they should walk. Furthermore, this path network should work as the main design element, that not only leads people to the different spaces in the site, but also connects these spaces together.

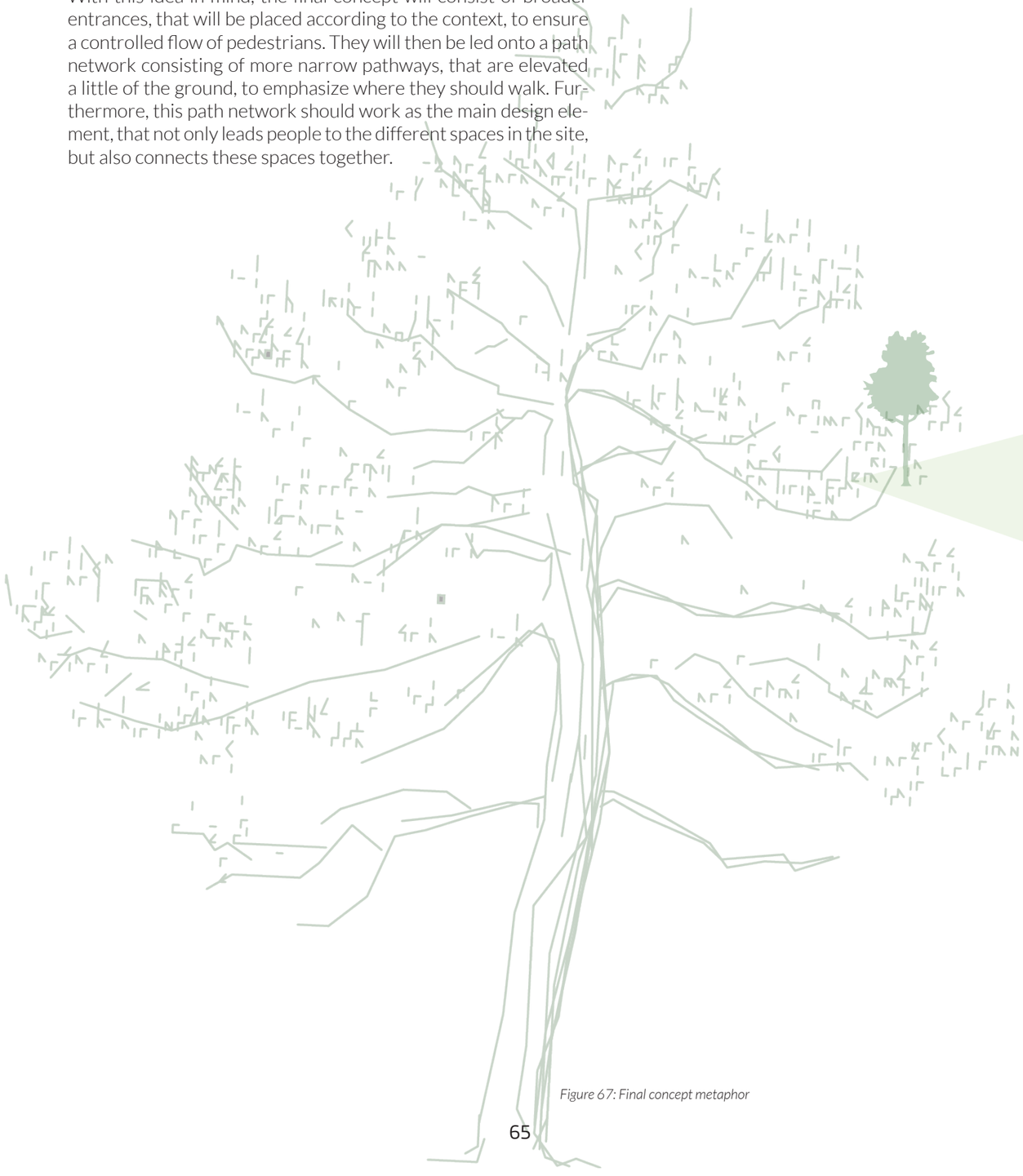


Figure 67: Final concept metaphor

Figure 68: Final concept

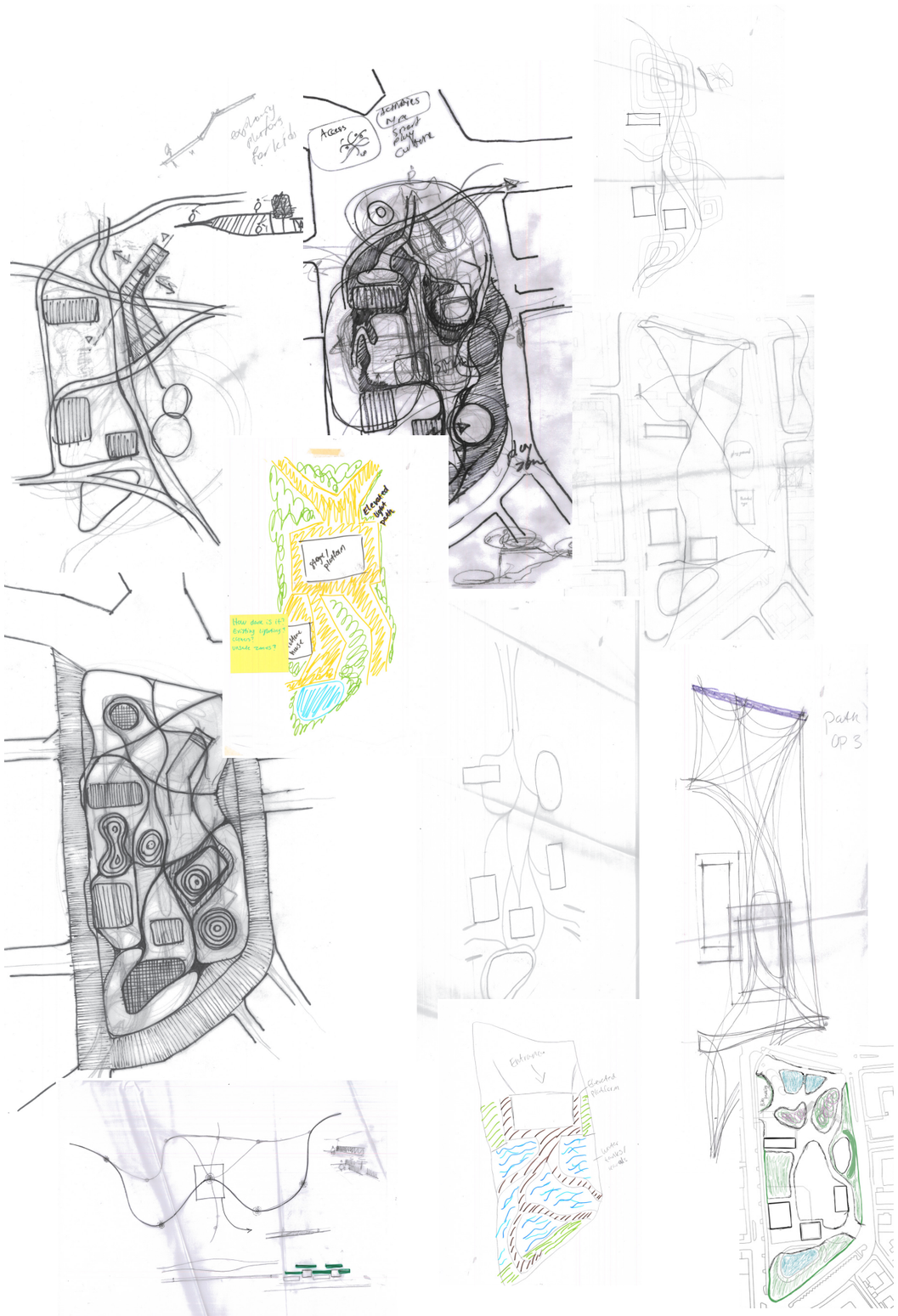


Figure 69: Initial sketches

SKETCHES - PATH NETWORK

As the path became the main design element it also became important to explore how this path network should be developed, and how to connect it to the context. As stated previously the path was decided as the main element, to ensure a cohesive design, that connects the spaces in a natural way. Therefore, the path became the element that should create the spaces.

Firstly, to determine the pathways, lines were drawn from one entrance to another in the site. Resulting in a sketch where hard lines were drawn to determine the points from which people should enter and exit the site (figure 70 - A). The next step was to then accommodate these lines with the spaces of the site, to also ensure that the path network also led the pedestrian to the different spaces in the site (figure 70 - B). Lastly, these lines were made with a width to test the spatial need for the network (figure 70 - C). By making the lines go in a more natural way with soft curves different shapes started to take form and create new spaces in the site. This method was the one chosen to design the final version of the path network, which can be seen in the masterplan (page 79-80).

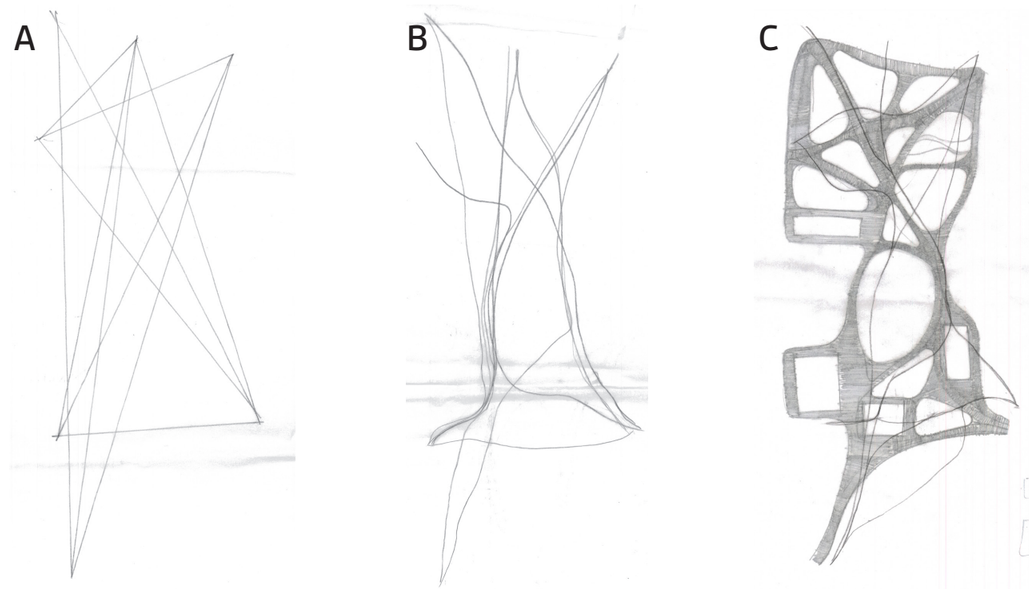


Figure 70: Highlighted sketches

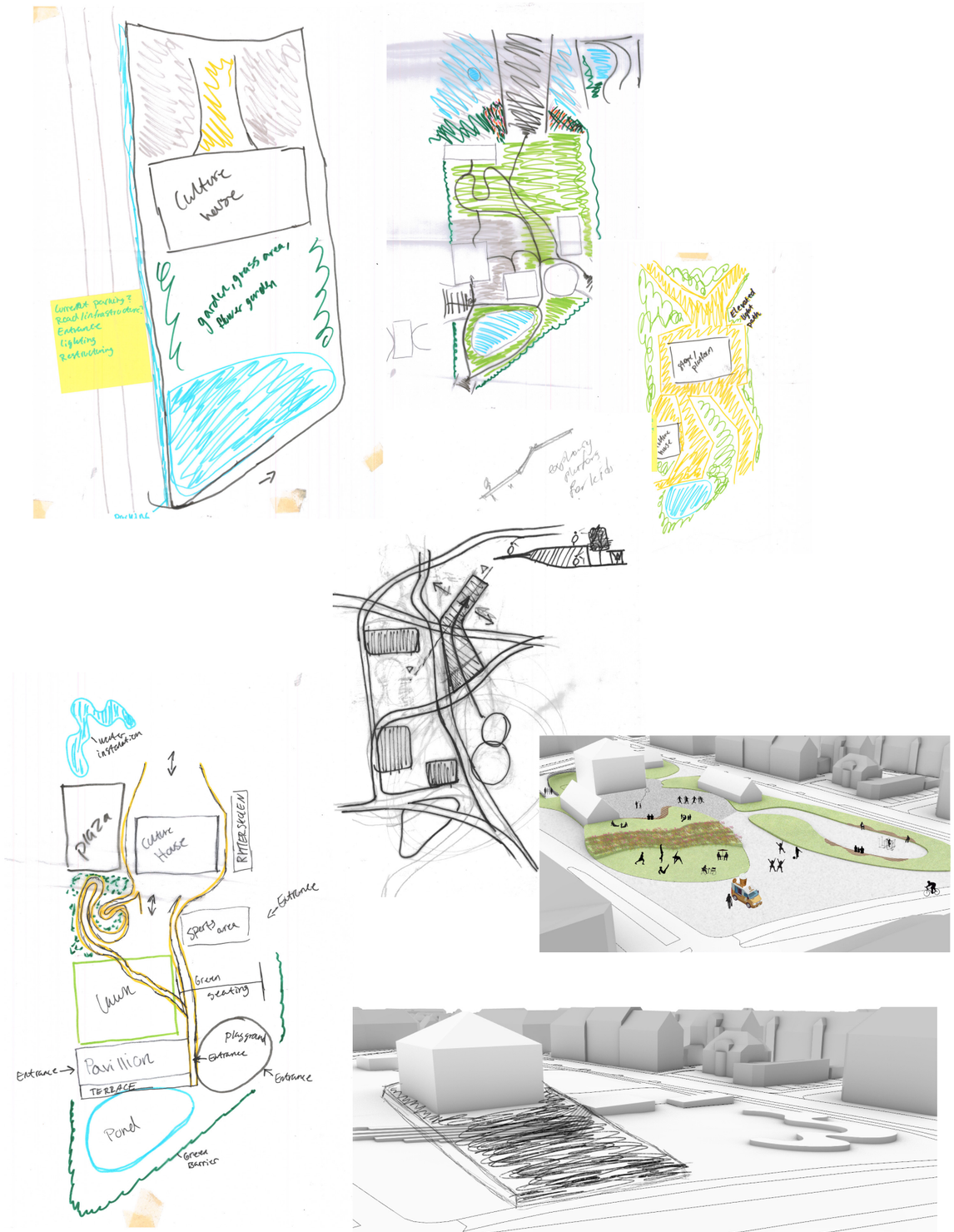
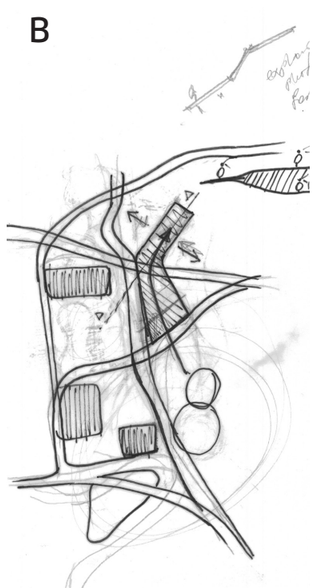


Figure 71: Initial sketches

SKETCHES - ENTRANCES

As shown on the sketches the entrances to the site have been given several options already from the initial sketches. But these were more focused on making a main entrance, with the reference of a red carpet. These were later refocused to instead bring focus to the different entrances, by making them broader than the path itself. But even with this decision the idea of an entrance still holds several options, which were explored in this theme.

Firstly, the reference of the red carpet was used to create an elongated entrance, to not only emphasize the entrance but also to lead people directly into the site. To further investigate how to lead people into the site, there was also developed an option where the entrance had a direct connection with the context, but in this case, it connected to only one main node in the context. It was decided that the entrances should be connected to not just one part of the context but several of the side roads surrounding the site. Lastly, it was brought as an idea to not only emphasize the entrances with a wider path but also with lighting, so the entrances would also be clear during the evening/night. This was done to ensure a clear usage of the site even after dark and by highlighting entrances also making it clear and visible in the dark. Furthermore, when designing the entrances, it was decided to do barriers surrounding the site, to control the flow of people. This was done as the theory implies that having a natural form of surveillance helps to bring the feeling of safety to the site (see page 29-30).



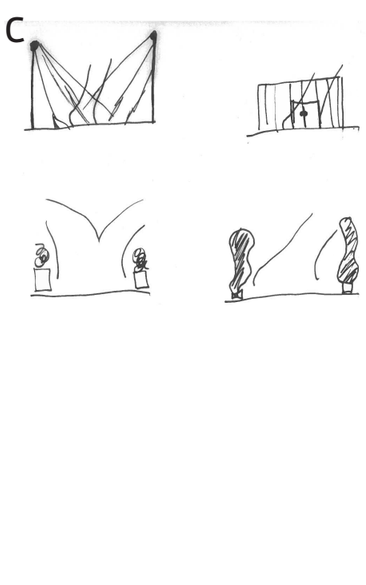


Figure 72: Highlighted sketches

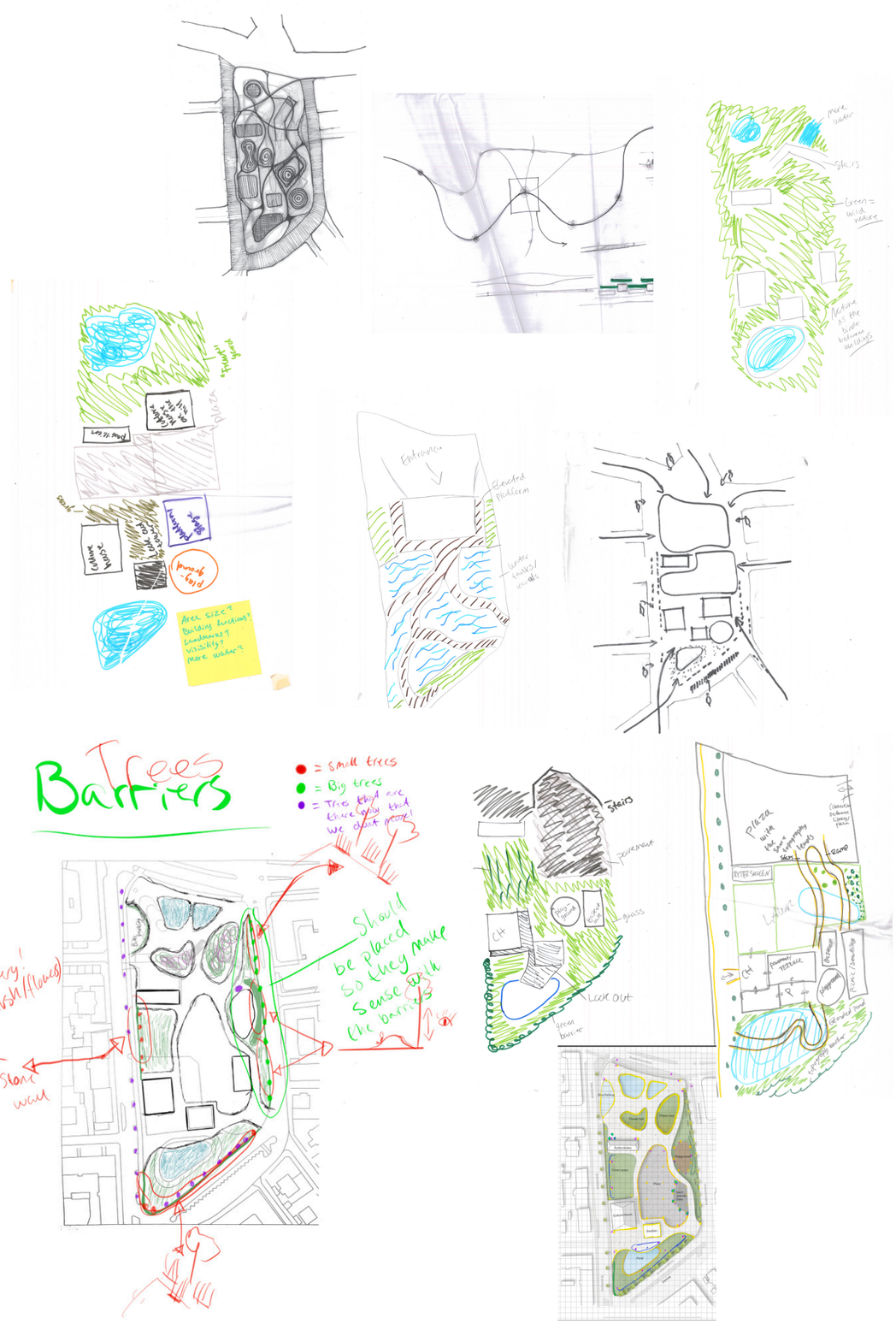


Figure 73: Initial sketches

SKETCHES - PLACEMENT AND FUNCTIONS

To give the spaces certain functions inspiration was taken from the current placements today. Although some elements were moved in the design development, such as the playground, this has been done to create a clearer connection with another area of activity (the ball cage). Therefore, the main focus of the functions and placements, have been when deciding to place the urban furniture in the site. Firstly, the trees were placed according to some of their original placement, as the project group saw it crucial not to remove too many trees. Therefore, a lot of the trees along the perimeter of the site will remain (figure 74 - A). Some trees have also been added to create a barrier, where the trees will be a barrier in the air, and bushes/topography will be the ground barriers. But to ensure there is still a visible connection into the site, the height of the trees will be above the average human height (see figure 99 page 104 for further details). Lastly, to decide the placement of the lighting, a grid was placed on the masterplan, and the lights have been placed in accordance with this grid, where each square represented 2 meters (figure 74 – B). It was during this process that the call for different types of light with different functions also started (see page 99-100 for more details).

A

B

Figure 74: Highlighted sketches

MOODBOARDS

As this thesis presents an urban space design, it was also important to design the urban furniture that goes into the site. Several seating options were explored, as well as different lighting options. Furthermore, the playground will not be designed in detail and therefore only principles from reference pictures will be used to describe the playground.

There should be different type of seating to accommodate the different functions. Along the green areas (the space between the Culture House and Rytterskolen, and the green area by the pond) a 'snake bench' will be installed. As to give opportunity for seating, but with the curves of the bench you can still have some form of distance between people when you sit down. At the plaza to not take up too much space, there will be seating that goes around the few trees that are placed in the plaza. For the active zones such as the playground and ball cage, the topography seating will be added. Both to bring people and nature closer together, and to utilize the topography for the barriers of the site. Lastly, trash cans will be placed around the site, at almost every light post to try and combat throwing trash in the site.

Figure 75: Urban furniture moodboard (For full credit please refer to the figure list)

The lighting design should consist of different types of lighting to give different functions. The taller lights should work as spotlights and will be used to highlight certain areas in the site. The medium sized lights should be just above the human height to bring light in a more human scale. The low lights should be used at the path where you need to see it and will also be utilized as a barrier when it is dark (at the pond). Lastly, the ground level lights should help light up the edges of the site (like the water tanks and flower beds) to ensure that people do not step into them.

The design of the playground should be suitable for children of a broader age range, and not just include elements for smaller children. Therefore, elements such as a trampoline, climbing structure and climbing nets, should be incorporated with classic elements such as slides and swings. Furthermore, the ground of the playground will be covered with a protective layer to minimize injuries and bring a safer feel to the playground.

Figure 76: Playground moodboard (For full credit please refer to the fig

Figure 77: Lighting moodboard (For full credit please refer to the figure list)

CASE STUDIES

The case studies for this thesis have been utilized to give a real-life example for some of the design decisions, to test if the decisions will both fit into the context, and to ensure that the choices are viable and can be implemented in a real-life context.

"The Red Square"
Location: Nørrebro, Copenhagen
Architect/developer: BIG - Bjarne Ingels Group
Built/Developed: 2012

The Red Square located on Nørrebro in Copenhagen is a part of a bigger public space called "Superkilen" (Danish Architecture Center, n.d.). This public space is seen as a space where architecture, landscape and art are merged into one urban space. Since its inception it has acted as a source of inspiration for other public space developments and have attracted local users and tourists alike. Though it has become a popular destination, the visual diversity of the space has been equally debated as admired, as the visual aspects has been created with the method of participation of local residents (Danish Architecture Center, n.d.). "Superkilen" is comprised of three different zones, where the "Red Square" is seen as the major source of inspiration for this project. As the square contains many elements such as urban furniture, a playground, an open space, lighting fixtures, it was helpful for the project group to see how such elements could be placed in a real-life context.

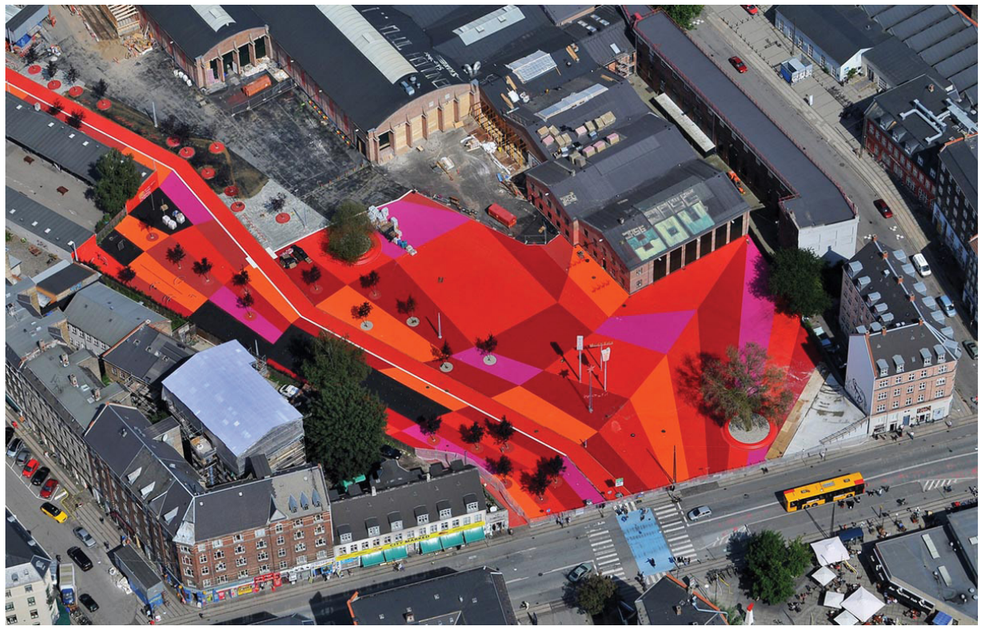


Figure 78: 'The Red Square' (Credit Realdania)

"Novo Nordisk Nature Park"
Location: Novo Nordisk, Bagsværd
Architect/developer: SLA, Alectia and Henning Larsen
Built/Developed: 2014

Lush nature, insects and dead trees adorn the forecourt of one of Denmark's most successful companies. Biodiversity is the recurring theme in Novo Nordisk Nature Park, where employees can breathe fresh air among trees and winding paths (Mains, 2020). When Novo Nordisk's employees arrive at the head office in Bagsværd, they have to go through a nature park in addition to the usual. What used to be a characterless industrial and parking landscape is now a lush public nature park with birdsong at the top. The footpaths meander through the park, around and around trees. The insects are welcome just like the dead trees that now house beetles and insects (Mains, 2020). The nature park is located on top of the parking basement and does not only function as a footpath between the two main buildings - but the area is also there for employees to take a mental break, move the meetings outdoors and "breathe" nature. Here, over 2,000 trees and other water-absorbing plantations grow freely and support both animal, plant, and urban life (Mains, 2020). What was prominent for the thesis group to see was not only the created path network, but also the usage of colors in developments. To see an example of a white path and how this contrasts with the green around was helpful in the decisions of choosing material for the main design element.

Figure 79: Novo Nordisk Nature Park (Credit Danske Arkitektvirksomheder)

CASE STUDIES

"Kongens Have"
Location: Copenhagen Central
Architect/developer: King Christian the Fourth
Built/Developed: 1606

Rosenborg Castle Garden, also called the King's Garden, was originally reserved for the king, but has been open to the public since the 1770s. Until 1909, there were drive yards in the garden that supplied fruit and vegetables to the royal table (Slots-og Kulturstyrelsen, 2022). Today, green lawns have replaced orchards and beds with ornamental and useful plants. The characteristic path system that divides the garden into square fields is located pretty much in the same place as Christian the fourth placed it (Slots-og Kulturstyrelsen, 2022). Several of the paths are flanked by old linden alleys dating from the mid-17th century. Some of the garden's sculptures also date back to the garden's founding in the 17th century, but otherwise there is not much left of the original garden. However, the garden still serves as a pleasure garden for anyone who visits the historic green areas in the middle of the big city. To create new spaces and experiences and emphasize the history of the garden and castles, a number of the garden's renaissance elements have been recreated in contemporary interpretations. Among other things a rose garden, a small pleasure garden with plants from Christian the fourths time, and a very small plant with trellis and archways lined with roses and fruit trees (Slots-og Kulturstyrelsen, 2022). The garden is a popular breathing space and an attraction for many Copenhageners and tourists. It is visited every year by approx. 3 million people and forms the setting for many events ranging from the private picnic to organized events and public events (Slots-og Kulturstyrelsen, 2022). What deemed as a prominent element to note for the thesis group was, that this particular and highly popular park in central Copenhagen, has a fence going all around it, and only lets people enter from certain places. It was helpful to see how in this context controlling the flow of movement with barriers does not inhibit the usage of the public space.

Figure 80: The Kings Garden (Kongens Have) (Credit danishgardens.dk)

"Putuo Caoyang Centennial Park"
Location: Shanghai, China
Architect/developer: Atelier Liu Yuyang Architects
Built/Developed: 2021

This multilevel, mixed use public space has been developed as a fresh new walkable and community centered urban space. The site once carried the branch line of the Zhenru freight rail and was later used as a farmers' market. The site is nearly 1 kilometer long and 10-15 meters wide, creating a narrow space (Atelier Liu Yuyang Architects, 2022). The Centennial Park aims to bring art into the community life, as the site has been designed with a vine-and-melon-like walking belt stretching from north to the south of the site. It also reimagined the grassland system, bringing organic renewal into the Caoyang community (Atelier Liu Yuyang Architects, 2022). Before development the space was seen as a typical left-over space in megacities, and therefore it was called to recycle the space in the time of urban redevelopment (Atelier Liu Yuyang Architects, 2022). This particular case differs a little from the others, as this case gave inspiration for the principles of the lighting design. As this space has lighting in different levels, it gave the thesis group an outlook into how lighting in different height have different effects and functions. These considerations where then taken into thought when designing the lighting system for this thesis project. .

Figure 81: The Centennial Park (Credit Arch Daily)

05. Design Proposal

From the design process several choices were made to conclude into the final design proposal. Firstly, the vision of the design will be explained along with the masterplan. Then several visualizations will be showcased to show the design from different medias. Then these visualizations will be repeated but with the focus on showcasing the lighting design. Then the material studies will be presented. Lastly, this chapter will conclude with an evaluation of the design as a whole.

VISION

The vision for this thesis is to re-create the urban space, 'Brønshøj Plaza' into a space that the residents feel safe to utilize to its full potentials. This design brings a space for gatherings, events and other activities that helps to enhance the cultural significance in Brønshøj. The path should be seen as the guide into the space that can lead people to all of the important destinations in a safe manner. Furthermore, the design also acts as an introduction to the future 'Culture Axis' that is meant to make Brønshøj a visit-worthy district in the city of Copenhagen.

MASTERPLAN

The master plan showcases an overview of the design as a whole. It shows how the path network creates, shapes, and brings out the spaces in the site in a cohesive way. With the soft curves the path leads the pedestrian clearly into the site and gives an equal opportunity to go to the different spaces in the site. The masterplan also shows how the different spaces are defined with different materials, to clearly indicate different uses in the space. As the citizens pointed out a need for a big, paved space, the plaza has been paved to fulfil this request. Furthermore, there was also a call for a green space, but as the analyses showed the current big open green space was not utilized. Therefore, the green space has been reduced in size and moved into the new Culture House and Rytterskolen. The green area around the pond has stayed as is, but with the added element of seating to bring people to stay and connect more with the nature. Furthermore, the playground has been moved further north to give a clearer connection with the ball cage and removing the barriers between the two active places. It is also clear to see that the path differs in width, this has been done to not only accommodate the entrances, but also to create medium sized spaces on the path for smaller activities. Lastly, as seen on the masterplan the entrances have been clearly defined, both with the use of barriers (see page 104 for details) and with the wider points of entrance in different places around the site. The width of the entrances is both to make the entrances more defined, but also so that cars and trucks can enter the site to unload different goods for the different events in the site.

For the purpose of showcasing the lighting design, please refer to page 92-93 for the lighting masterplan.

1:500

Figure 82: Masterplan

VISUALIZATION 1

This visualization shows the redesigned Brønshøj Plaza, and how this has been transformed into a grand entrance with the plaza being placed in the centre of the site. By giving this clear visibility into the site, the design aims to give better opportunity for 'Natural Surveillance', by leading people more clearly into the site via the clearly indicated path network. Not only does the path lead flow into the site, but the path is also what has created the different spaces in the site. In the front of the sites two different elements have been placed to give a more aesthetically pleasing entrance, making it both clear and inviting at the same time. These elements are the flower beds with a colourful assortment of flowers, and the waterbeds with a bottom of pebbles to give texture to the water beds. Furthermore, the entrances have been lined with bollards, to still give the space a physical safety, but these can be taken down if trucks or cars needs to go into the site to do a delivery of goods for different events. Lastly, a direct connection has been made from the middle of the two bus sheds, to give a quick access between the site and the node with the largest amount of mobility flow.

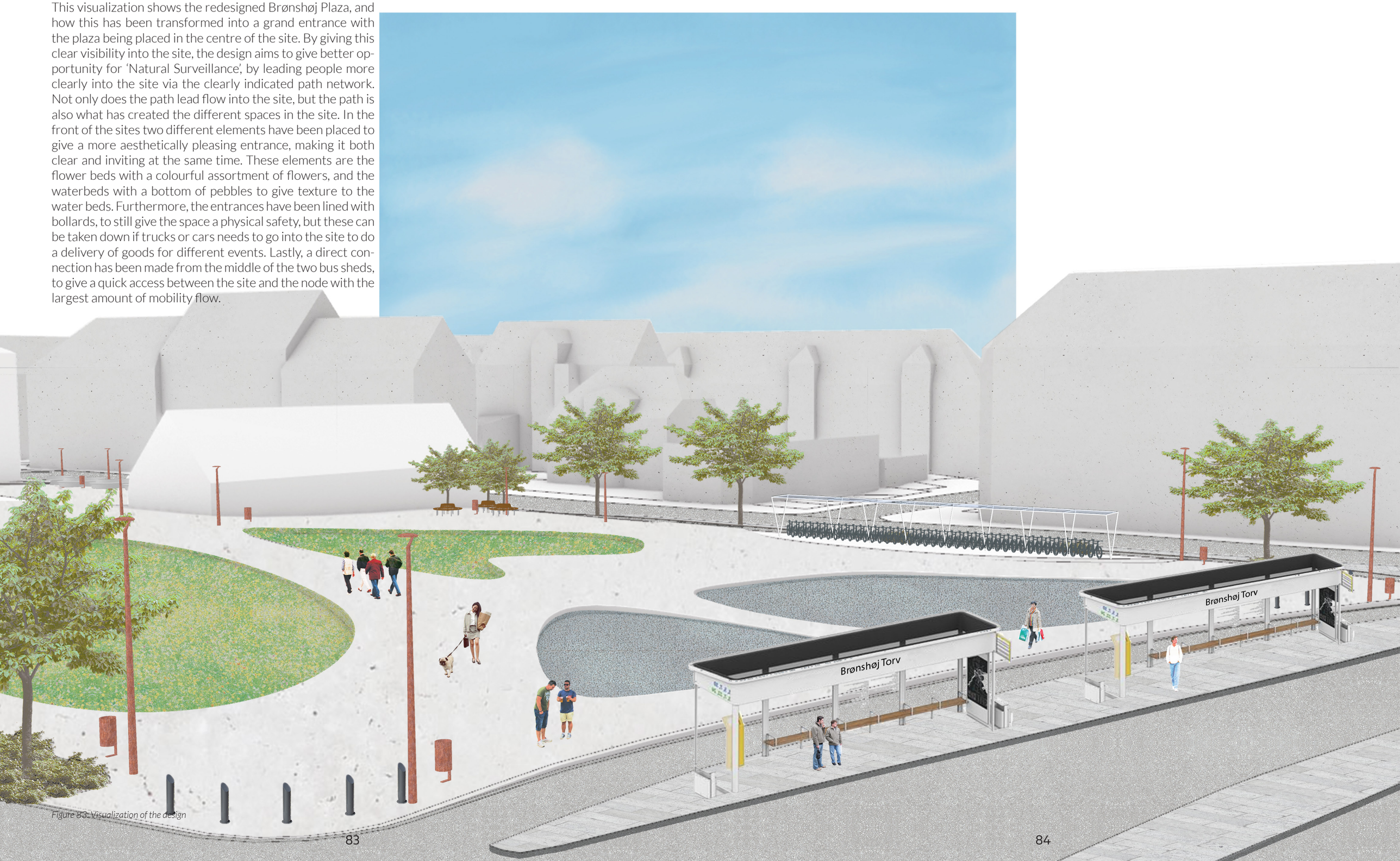


Figure 83. Visualization of the design

SECTION 1 AND ZOOM IN

The sections go through the area vertically. It visualizes that there is a transformation from the main street from the left side to the right, which is where the quieter environment exists. It also illustrates the scale of the side in comparison to the human scale. As people move from the left side to the right, they can experience a different spatiality and also different types of activities. Where in the left side which is close to the main street and the bus stop, there is more movements and noises but the areas like the space in between the two buildings are more designed for calmer, cosier, and more relaxing activities.

The cosy environment brings people in. It makes them want to come and stay, and their presence also invites other people to be motivated to come in and enjoy being in that area. There are vertical elements like trees and the light poles that create a different spatiality than just a flat surface. Although there are different type of activities and different atmospheres in the green space and the plaza, the path, and the way it is connected helps to create a smooth transition between these spaces. So, it is also clear from the section line that the plaza elevation is not suddenly changed to a higher elevation in the grass area.

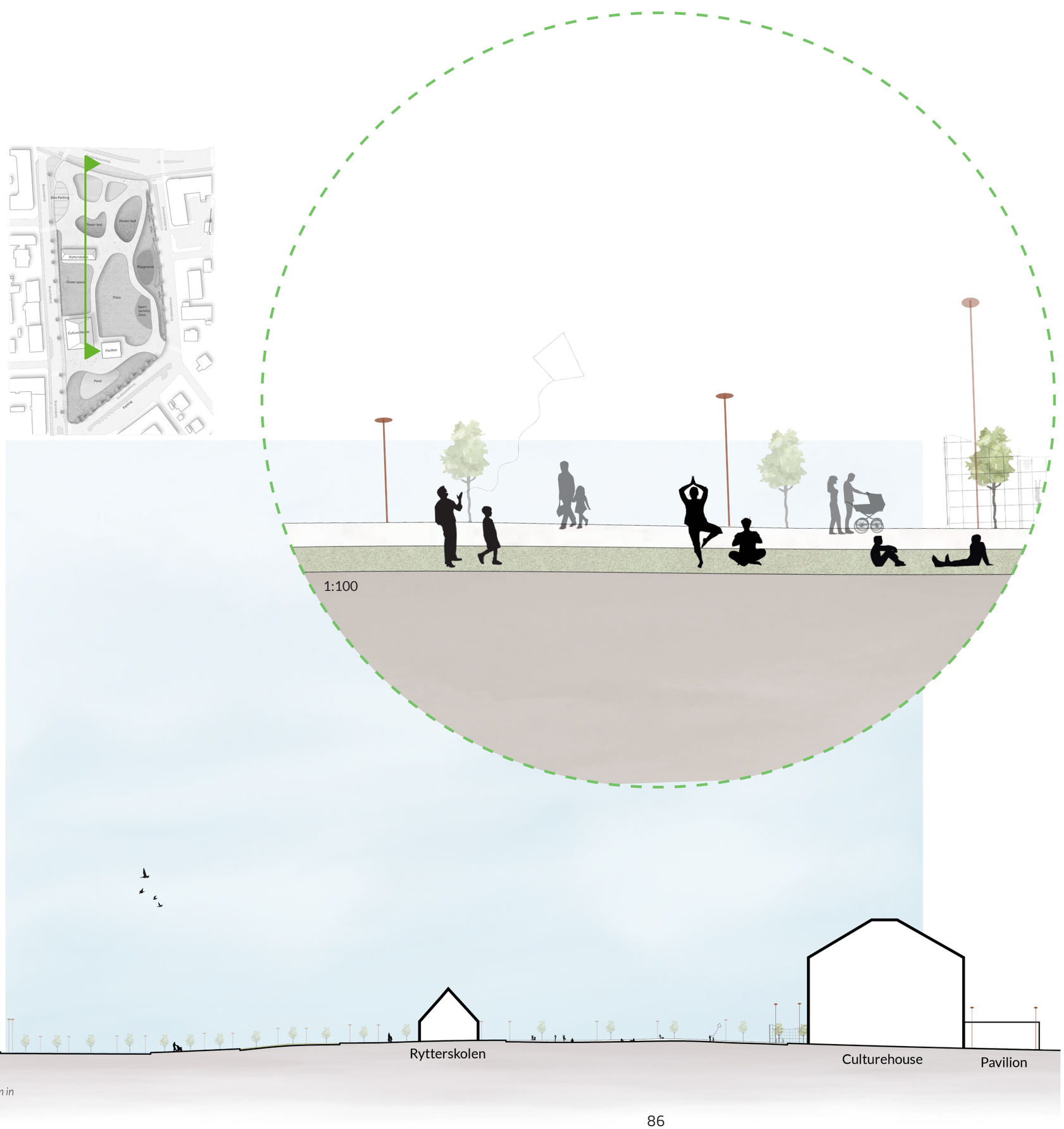


Figure 84: Section and zoom in

VISUALIZATION 2

This visualization shows the plaza and how you enter it from one of the southern entrances. This entrance is connected directly with the 'backroad' which is an important connection to connect to the other spaces in the Culture Axis. It shows how the entrance is clearly defined with the tallest light posts, and the entrance is also protected with bollards, that has the same removable effect as the rest of them. It also showcases the green space in the background, so this entrance is another example of providing strong visibility into the site.

The sport/activity zone is being shown as a place that can be a place for basketball activities or other type of sports that fits to the space. As a lot of activity is created in this space, to prevent the noise levels that might occur from the sport facilities, and general heightened level of activity closer to the residential buildings, the topography seating has been designed along with the trees to create a barrier to combat this issue. Also, the topography seating offer seating for people who wants to simply just watch the different activities without directly participating.

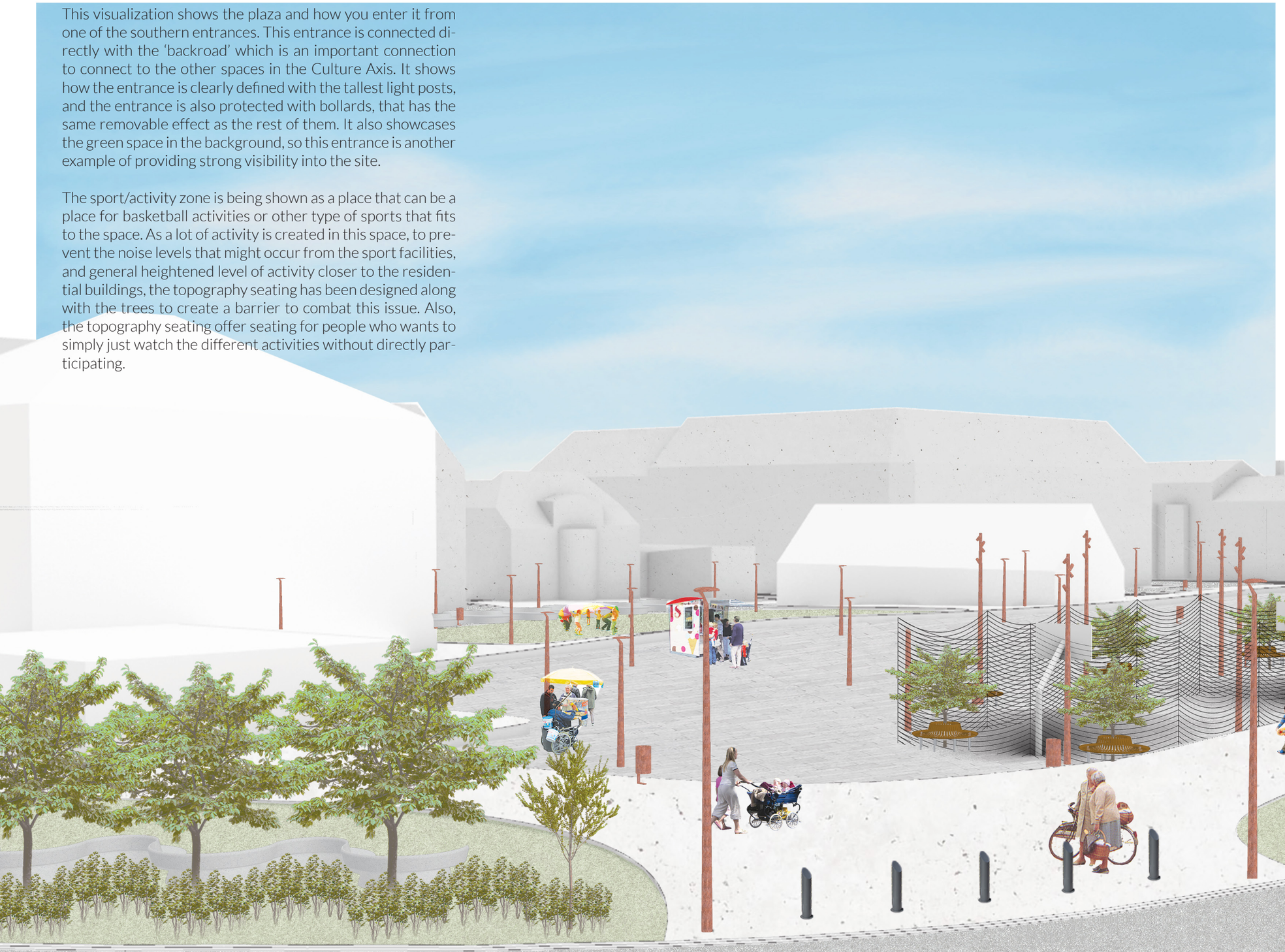


Figure 85: Visualization of the design

SECTION 2 AND ZOOM IN

This section shows the view to the area from a vertical cut through the site. As it is clear to see there are different types of activities happening in this section. The type of activities may vary as the type of spatiality is changing. So, on the left where there is the street, there is different type of transport, but by getting into the site there can be seen people coming in and out of the Culture house and the pavilion, as well as seating and relaxing on the edge of the pond. The spatiality in between the pavilion and the culture house is in a human scale that lets the people have a different interpretation of the space, where they can sit and enjoy being close to nature.

Moving from the buildings to the plaza area, shows a different spatiality. There is the wide space that gives people a flexibility to do their desired activities, or for the culture house to set up outdoor events or for festivals to have concerts or parties outside. Moving to the east there is the sport and activity zone were let the people to play sport or basketball. Also, a new design of the basketball cage is being presented which by keeping its function also helps aesthetically the place will be welcome for the rest of the visitors and also not let the people inside feel isolated in a cage. Trees and lamp posts help to fill the vertical space and are placed throughout the section.

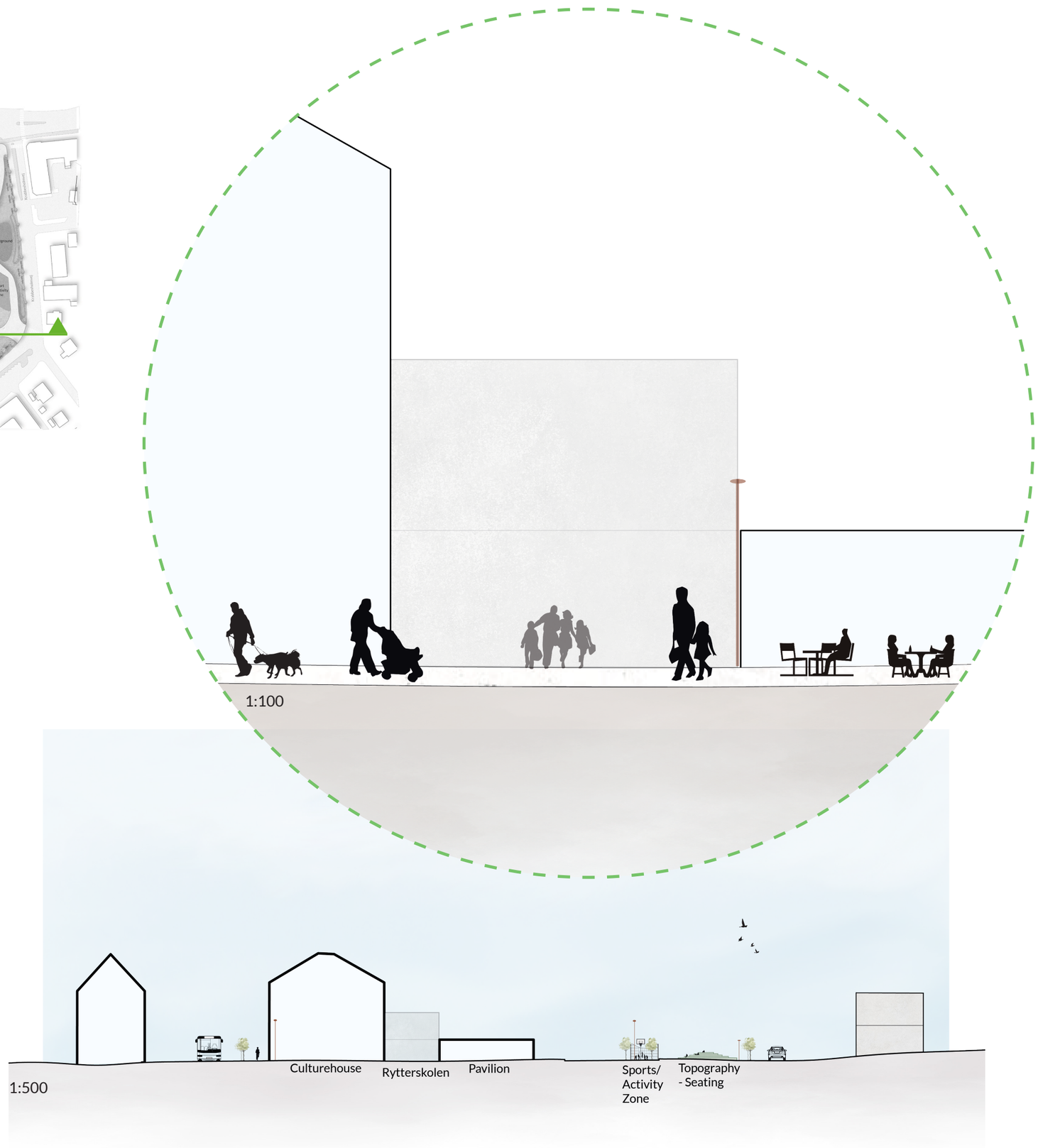


Figure 86: Section and zoom in

DESIGN DETAILS - PATH

The path network will act as the main design element, that does not only tie the spaces together, but is also the element that creates the spaces. Therefore, a detailed description of the path will be given in this section of the design proposal chapter.

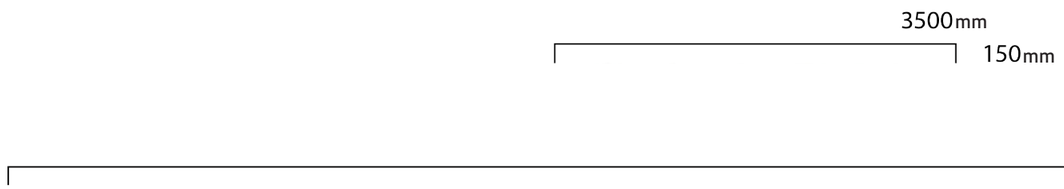


Figure 87: Path measurements
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As the path follows natural lines going from entrance to entrance in a network, the path does not contain the same measurements of width throughout the site. As shown in figure 87 the widest part of the path measures to 12.5 meters and the narrowest part measures to 3.5 meters. 12.5 meters may seem like a long distance for a path, but this has been done to accommodate the wishes from the citizens to have medium sized spaces for different events. Furthermore, the path also connects the Culture House and Pavilion together, thus a wider stretch is needed (figure 88).

Figure 88: Path visualization

The path also connects to other parts of the site, thus detailing how these connections meet is important, as well as showing the different edges of the path. To give access for trams, wheelchairs and in some instances cars, there will in some parts be added a slope as the transition between the path and the other spaces in the site (figure 89). Normally as seen in the first section in figure 89, the path has a strong edge, but as the height is only 15 cm, people can still walk down from the path. Lastly, there has also been added a sewage grate to catch any rainwater that may enter the plaza. This has only been placed at the transition between plaza and path, as the plaza is not a permeable surface, and therefore there is a need to alleviate the space when it rains.

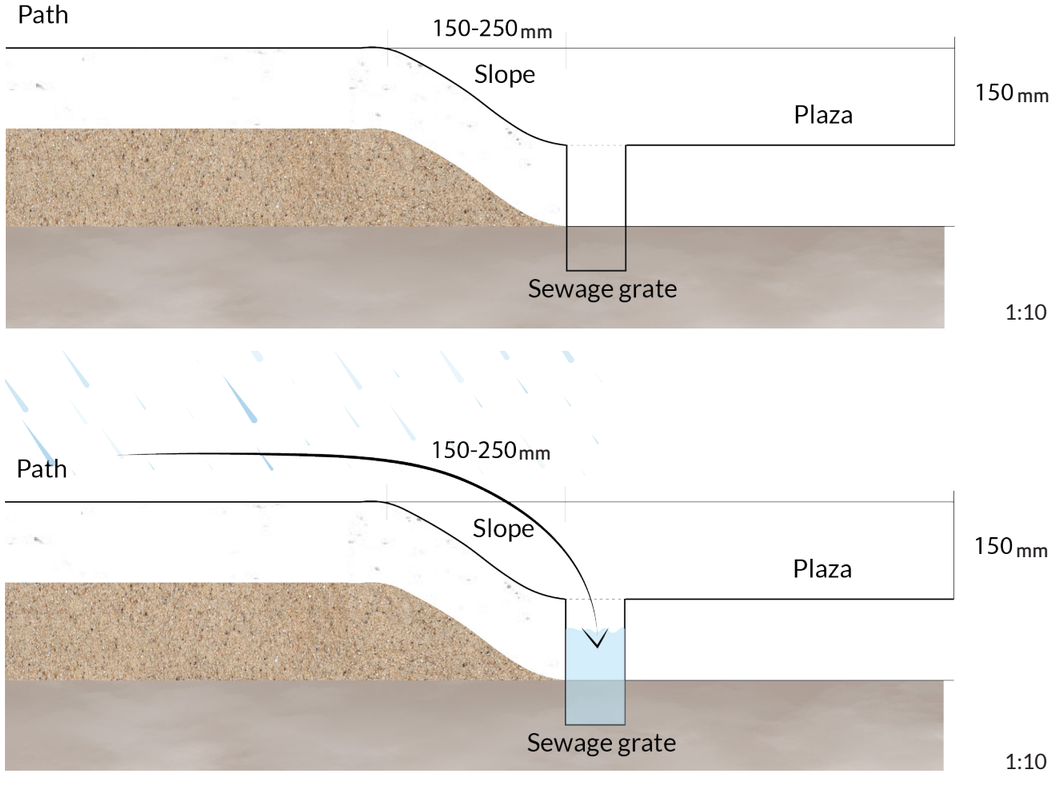

Figure 89: Path transitions

LIGHTING MASTERPLAN

This masterplan shows the network of lighting that the design has provided for the site. The lighting has been placed with different functions. At the entrances the lighting has been placed higher to fully indicate and give visibility to the entrances at night. Whereas the lighting within the site is at a much lower light, as to not disturb the surrounding residential buildings, and to also bring the light in a more human scale, than at the entrances. The different lighting types has also been chosen to light up spaces in different ways to consider the different needs characteristics of each specific space. To make it clear to understand each type of lighting has been created with a certain principle, as follows:

Type A: This type is designed for the areas that the most amount of lighting is needed, as the entrances.

Type B: This type is designed for the areas that still need a good amount of lighting but not as strong as the type A, it is used for areas like the plaza.

Type C: This type is equipped with spotted lighting that makes the light focus on a specific area, rather than lighting up the whole area, which is used for places like the Sport/Activity zone.

Type D: This type of lighting is lighting up the area in a low-level height, but its structure is still high enough to form speciality, this type is used for cosy and small environments like around the pond.

Type E: This type is mostly covering up the green and blue areas in the ground level and it is implemented around the flower beds and the water areas.

Type A is being used at the entrances which could help to navigate people to get in/out of the site. Also, they help the visitors that are passing by the area to easily distinguish the entrances with the rest of the area. They are also tall enough to cover up lighting of their surroundings to a good extent. Type B will be found in the areas where activities take place like the plaza. As they are designed in a human scale height, they both help lighting up the area, but also, they are tall enough to light up the face of people who are walking around. Their height also helps the spatiality of the space and create a different atmosphere than just a flat surface. There are also other areas like the playground and the sport/activity zone that need to be lit up with sharp and strong lights to help the users have the clearest vision and stay sharp, as they might need another type of atmosphere than a relaxing and calm feeling. Then here is where the type C is implemented. There are also other areas that need to be lit-up but maybe not as much as the sport zone activity, and maybe the type of activities requires the space to be lit up but maybe they need a more indirect type of lighting that illustrates the cosy and relaxing environment. That is where the type D lighting is implemented. They light up the area around the pond which is basically designed for a calm and relaxing environment. Then there is another type which is the type E which lights up the place but installed more in hidden spaces, they are meant to light up the flower beds and the water elements at the main entrance. Although the source of lighting is not going to be seen, the lighting effects of them are clearly being seen and help the visitors from falling down in the green areas. The last type of lighting, type F, is the type of lighting that spots on the areas but by utilizing the buildings structures, instead of being placed in light poles.

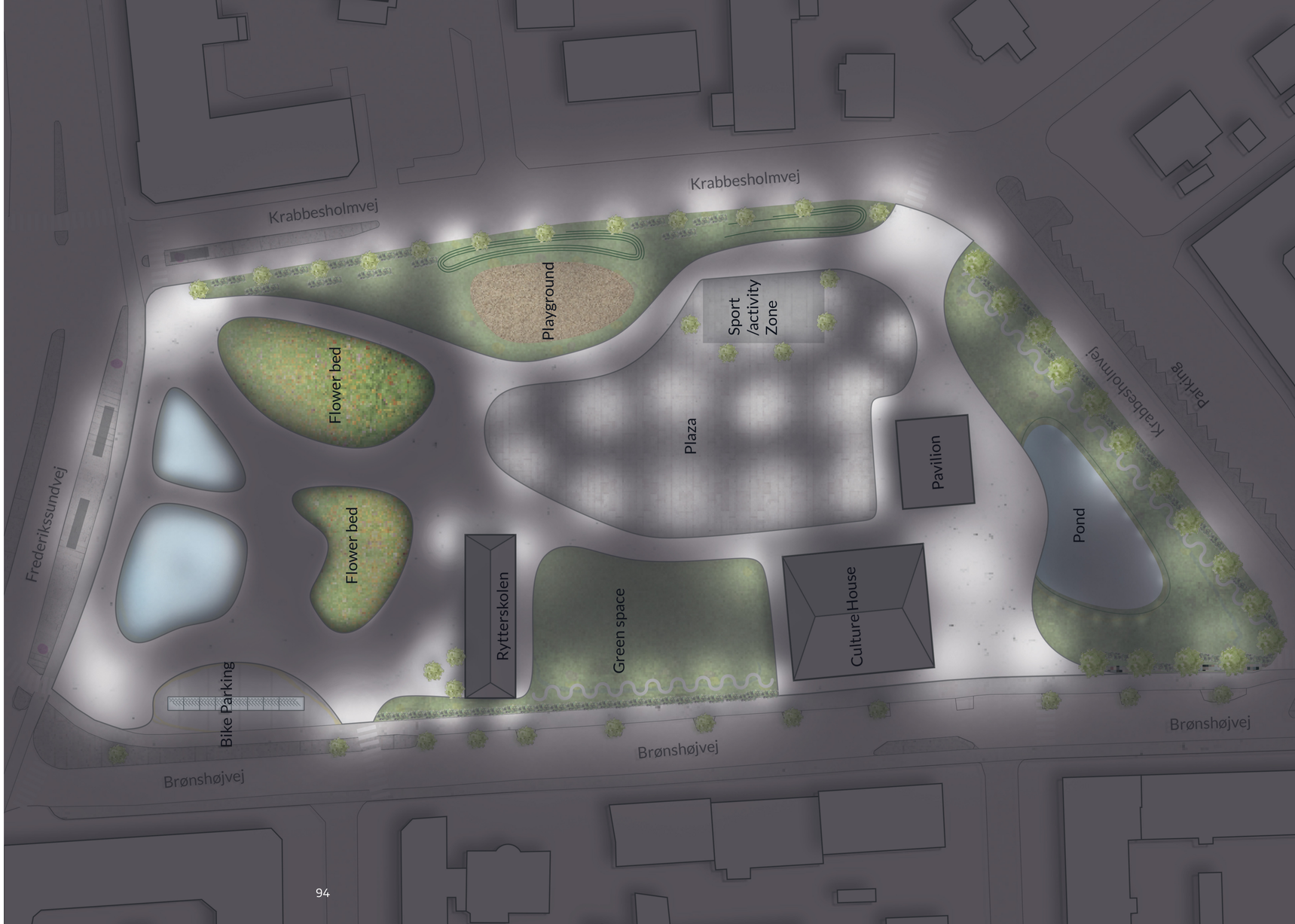

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Figure 90: Lighting masterplan

LIGHTING RENDERING 1

The visualization shows the main and the maybe the most important entrance to the site. It could be seen how the different types of lights are lighting up the place. The visualization shows the way entrances are being lit up to help the visitors to easily find the entrance to the site and by lighting up the attractions like the flower beds and the water elements there will make it welcome for the visitors to come in and experience being in there. Also creating a well-lit place makes the visibility easier for the people who are passing by, they help them to perform the natural surveillance and make it riskier for those who are willing to commit an act of crime.

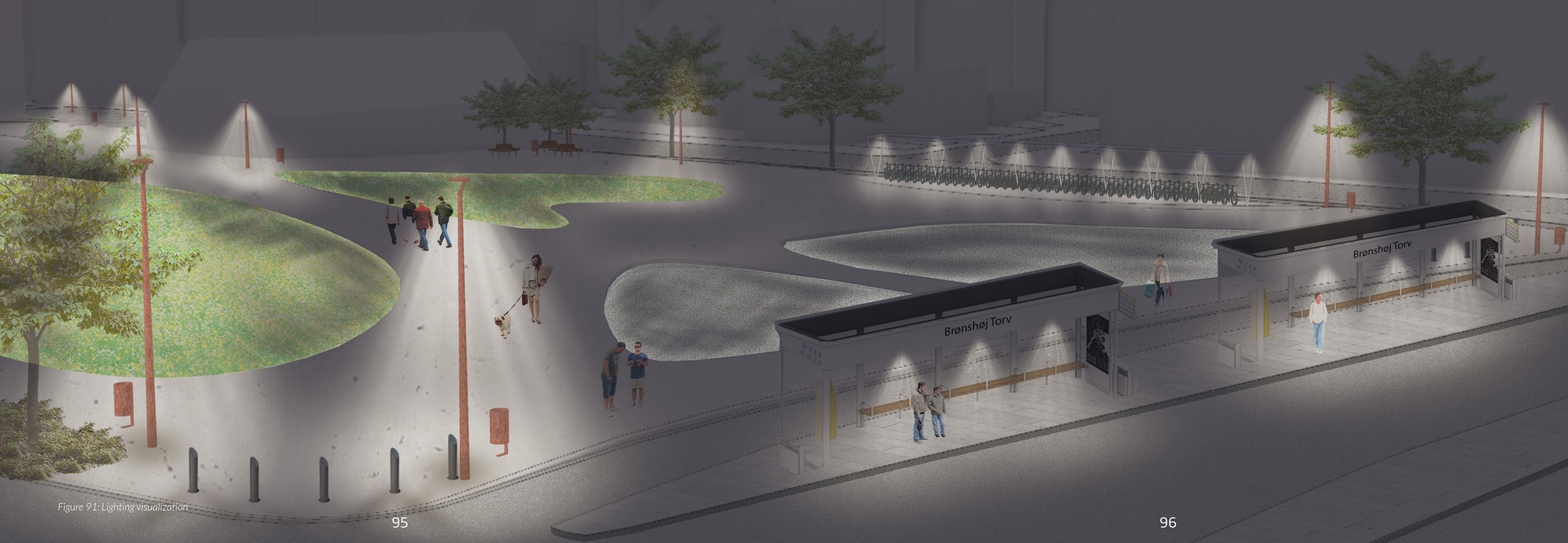


Figure 91: Lighting visualization

LIGHTING RENDERING 2

This visualization shows how the area could be seen from the southern entrance at night. It also illustrates the contrast that they might create between the surrounding environment and the Plaza. Also, as they make the space well lit, people can continue doing their activities both in daytime and the night-time with a better feeling of safety in the space. Also, it is designed in a way that creates different atmospheres. As in the entrance there are tall and strong lights, but in the green areas around the pond there could be seen lightings that are not lighting up the place as much and help people to experience another type of feeling during the dark hours, like a cosy and relaxing atmosphere.

Figure 92: Lighting visualization

DESIGN DETAILS - LIGHTING

As it is mentioned before there are different types of lighting that are going to be implemented in the area. Proper lighting is going to help to create good visibility during the dark hours especially in the winter times when there is not much daylight but there are many night hours. The shape of the light poles has been selected based on reference projects and the chosen principles of function.

They are being presented in different heights and different ways of installation based on their function. Also, their height and their volume have an effect on the way they shape the spatialiry of an area. So, their height is also considered as an element that affects the way they shape the space. Talking about the experience, their materiality has also been considered as an element that creates an effect on the visitors' experience and the way they communicate with their built environment.

The light pole type A has a big height as it needs to light up strong and a wide range of its surroundings, The type C has the same height, but the spotlight lamps help to control the light in a specific direction, and as it is being shown in the picture it has four different lamps which can light up four different directions. So, they also bring a wide flexibility for the areas that they are lighting up. The type D is also lighting up the area, but the amount of light is being controlled by the shape of it and it lights up its surroundings but to a limited degree. Also, the source of light is implemented in the inner side of this cubic volume which helps to control the amount and the direction of light. For the A, B and C type their structure has been designed in a way to make them strongly attached to the ground and help them stay strong even in the windy weather conditions, the diameter of the down part is bigger than the tip of the light pole to help the long light poles stay steady and attached to the ground. Type E and F are both smaller lights, as they have much different functions than the other types. The principle behind type E is to light up the water and flower beds to ensure that people do not step down into them at night. Therefore, this light will be placed in ground level on the side of the path and reflect into the spaces of the water and flower beds to light them up.

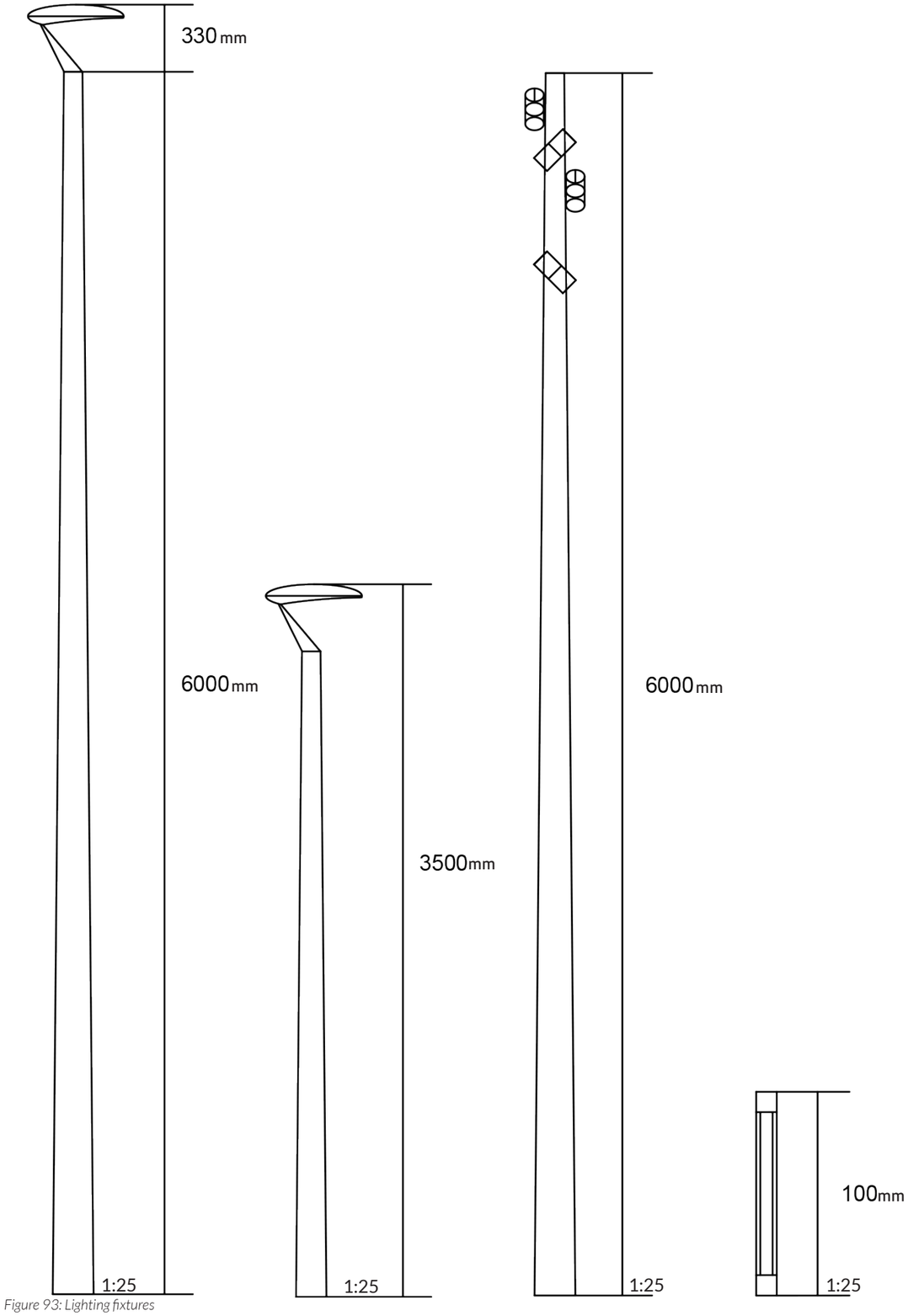


Figure 93: Lighting fixtures

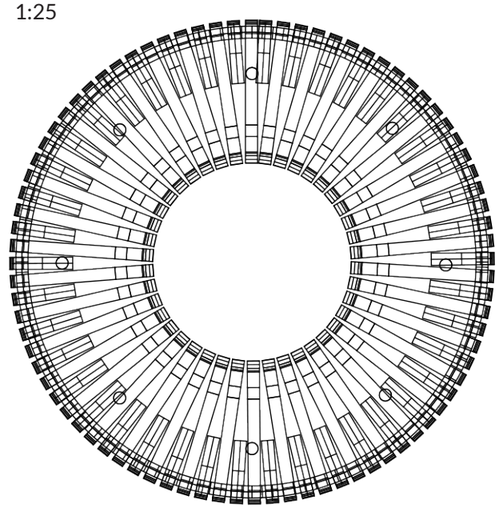
DESIGN DETAILS - URBAN FURNITURE

To give details about the urban furniture that will be placed within the site, this section will provide detailed descriptions of each element.

Tree Seating

The urban furniture that is being selected here is designed to facilitate people's seating in the area. The round shape of this type of seating lets the people sit around it without disturbing each other's privacy. The round shape lets the people sit and face outward, so when they are sitting there with strangers they might feel more in control of their privacy. Also, as there is a whole inside it lets the trees come out and stand out to the public. So, it also brings another feeling of being protected by a higher vertical element rather than just the seat backing.

Figure 94: Tree seating - Top view



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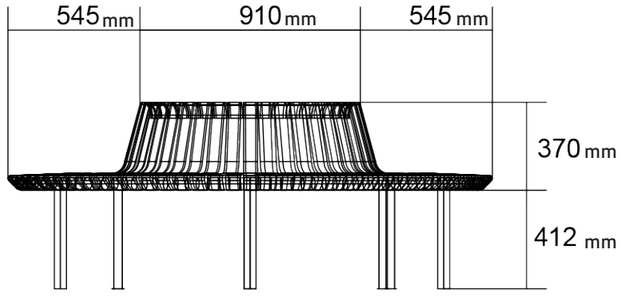

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Figure 95: Tree seating

Trash can

The trash can is being designed in a shape that is in line with the rest of the designed elements. To keep following the design coherency the shape of the trash cans is also designed in a curve shape. It is made of a circle shape that is attached to the ground with a narrow L shape stand. The height of the trash can is designed to be accessible easily for different user groups, from children to elderlies.

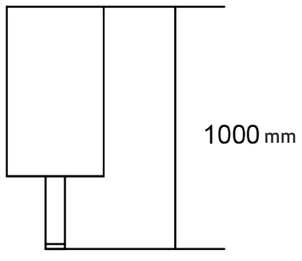

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Figure 96: Trash can

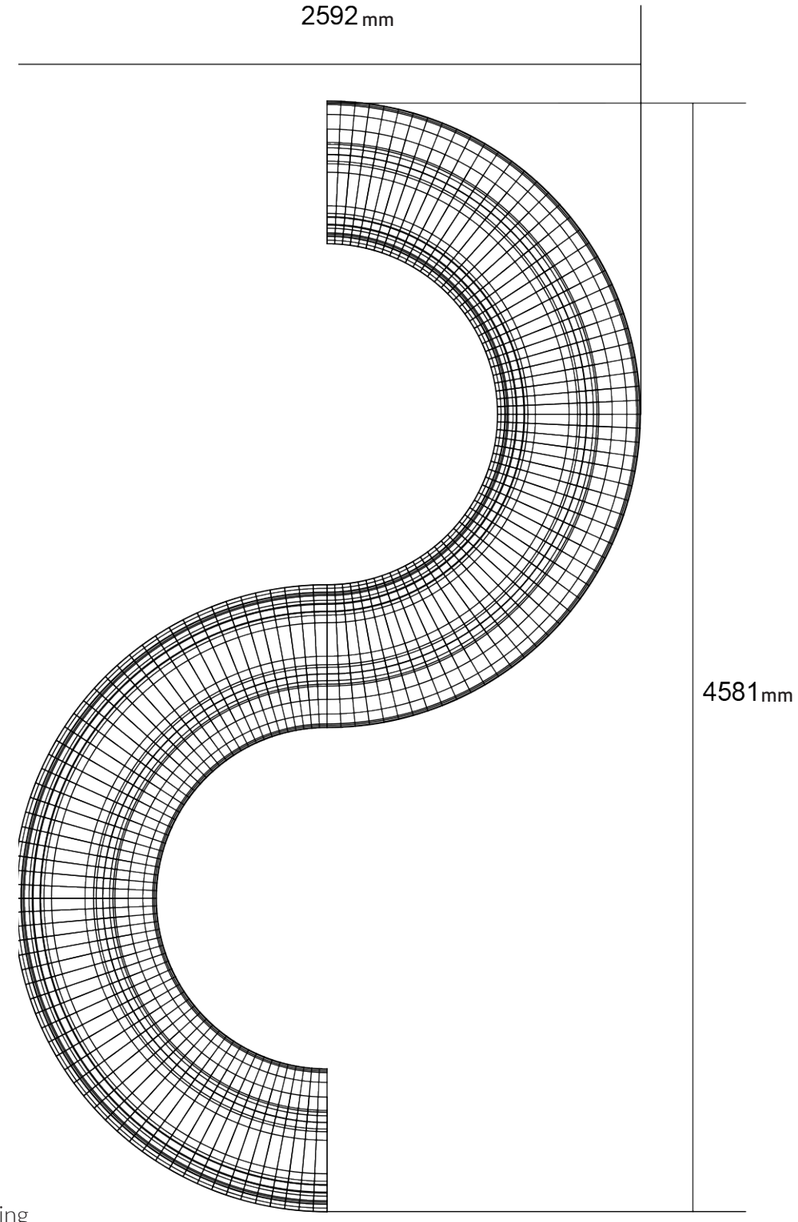

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Figure 97: Snake bench - Top view

Snake Seating

The next type of seating is made of a snake shape. The snake shape module lets the people have their own private area when they are seated inside the round shape areas. The shape itself creates a type of privacy and it creates dependent zones although it has a very uniform shape. So, the circle seating shape lets the people to be surrounded by the seating itself which therefore creates the private zones. The seating is basically made from a single unit of standard seating which has been swept around the circular shape. Another part of this seating is the flexibility of it, as it is aimed to be used for different areas in the site which require different length, having a module shape would help the seating to get expanded as much as it is needed.

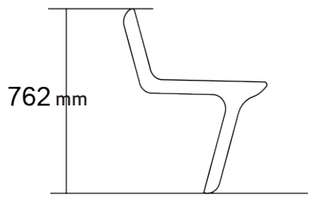

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Figure 98: Snake bench

DESIGN DETAILS - BARRIERS

The barriers that are used around the site are in different shapes and functions.

The first type is implemented on top of the current topography. This type is placed at the green space as it also functions as a support for people that are doing activities inside the green space, and also it functions as a green facade for the people who are passing by the area.

The next type of the barriers is made with the topography which is followed by seating areas. The topography seating is made of a human made topography. Having a specific unified raised seating also functions as a barrier for controlling the accessibility to the site but also blocks a high amount of noise that is being produced from the activities that are taking place inside the playground and the sport/activity zone. Although it is making a barrier, the height of each step is designed to be 200 millimetres, so it does not come up in a way that covers the visibility from outside to the inside of the area.

The last type is made around the site to help to control accessibility but at the same time giving enough vertical space for having a clear visibility towards inside the park for the people who are passing by the area. This takes both the concepts of 'Natural Surveillance' and 'Natural Access Control' into account. Another difference that this type has in comparison to the first one is that it has backward and inward transition along the stretch. This shape is made to break down the monotonous shape of the edge and give a different impression to the people who are passing by.

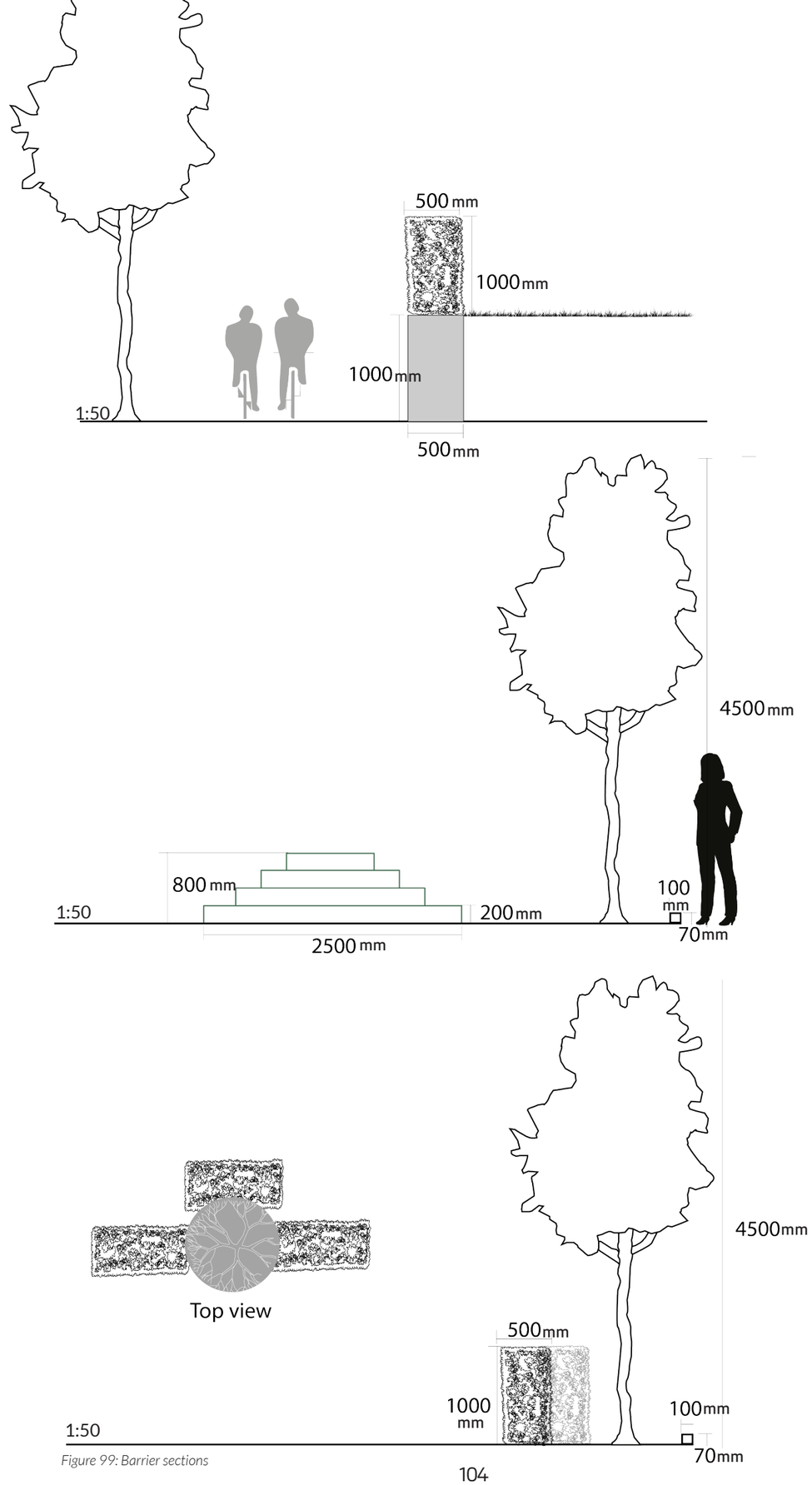


Figure 99: Barrier sections

MATERIALS

To further give details on the design this chapter will give an overview of the materials that were selected and used for the different design elements. As mentioned previously then materials play an important role in this design proposal, as they are a major part of what indicates the different spaces, and the fact that the different spaces can be utilized differently.

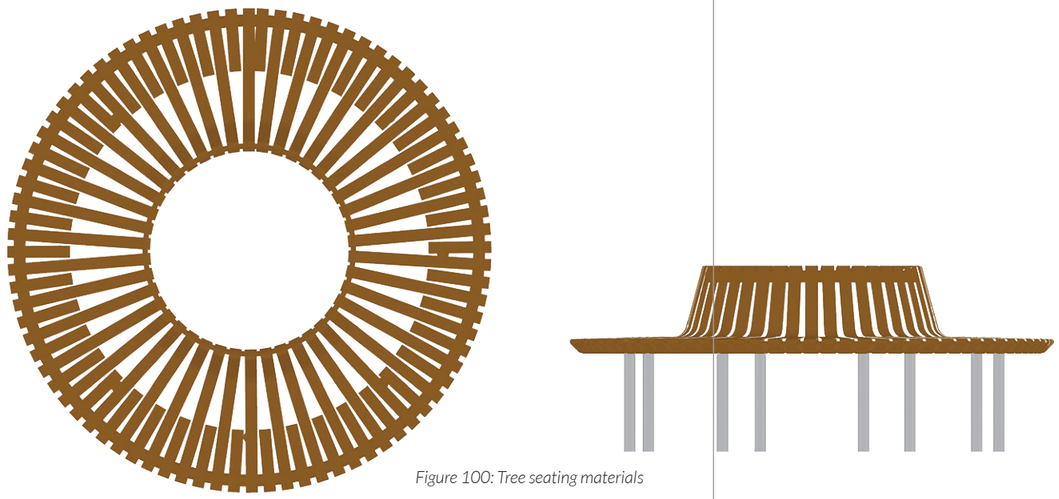
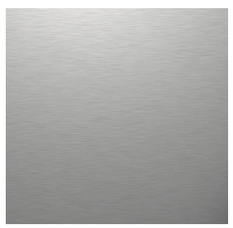


Figure 100: Tree seating materials

Wood

Wood has been chosen for the Tree Seating as they are more suitable for sitting than materials like steel or concrete. Also wood gives a more natural feeling as it is also suitable to use even in the cold weather, because it does not easily turn cold or warm as maybe the steel does (Ferris, 2022).



Steel

Steel is being used for the Tree Seating legs, as they are stronger and more durable than wood. Also steel is relatively easier to be mounted to the ground, and it also has great durability in the time of precipitation (Ferris, 2022).

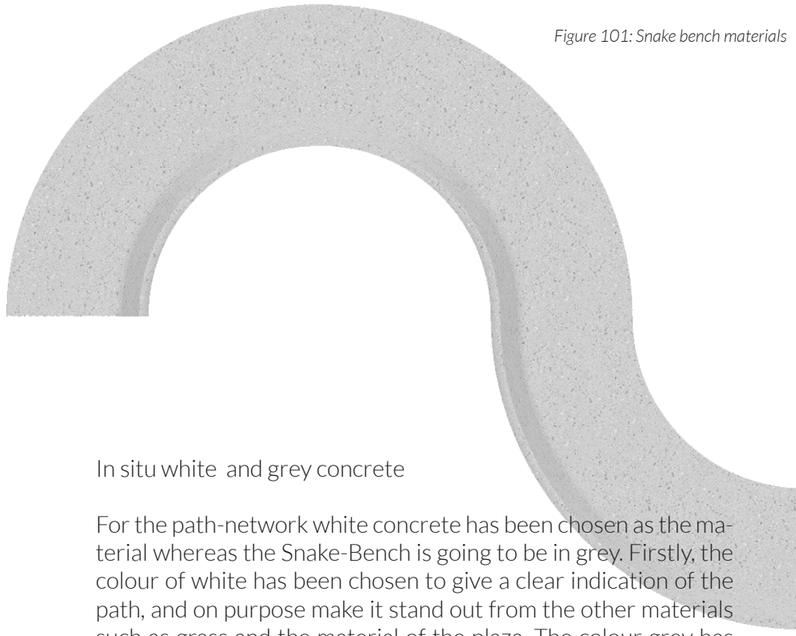
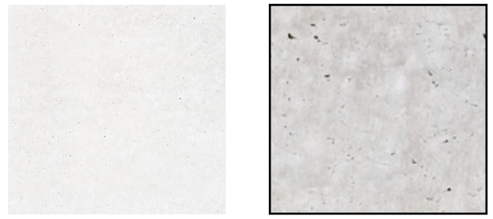


Figure 101: Snake bench materials

In situ white and grey concrete

For the path-network white concrete has been chosen as the material whereas the Snake-Bench is going to be in grey. Firstly, the colour of white has been chosen to give a clear indication of the path, and on purpose make it stand out from the other materials such as grass and the material of the plaza. The colour grey has been chosen to indicate a specific use, and therefore the material for the bench should not be the same as the path. Furthermore, making the path in white concrete also helps as the white colour also has a practical function due to its light-reflecting properties. The path and bench will both be made in situ to ensure resistance to structural damages (Aalborg White, n.d.).



Corten steel

For design elements such as the light posts and trash cans Corten steel will be utilized. Corten steel is unique in the sense that due to weather conditions the steel will rust, which in turn creates a protective layer on the steel. This protective layer will regenerate itself when exposed to changing weather conditions, making it a viable material and ideal to use in climates such as in Denmark. Furthermore, the Corten steel has been chosen to bring warmer tones into the space and with its red-brown colour also connect to design elements to the surrounding nature (Corteen Stål, n.d.).

Figure 102: Urban furniture materials

MATERIALS

Flowers

An assortment of different flowers has been chosen for the flower beds. This is to give the site some colour variations and overall, for the aesthetic feel of the north entrances.

Patterned pavement

For the plaza the material that has been used is known as patterned pavement. This material is synthetic asphalt that will bond permanently to the surface, with a great durability and a low level of maintenance. It can also be chosen in different colours and with different patterns, that can withstand a high level of usage. The pattern chosen is one that resembles tiles, and in a grey colour to differ from the colour of the path (Landsaver Environmental Installation Services, n.d.).

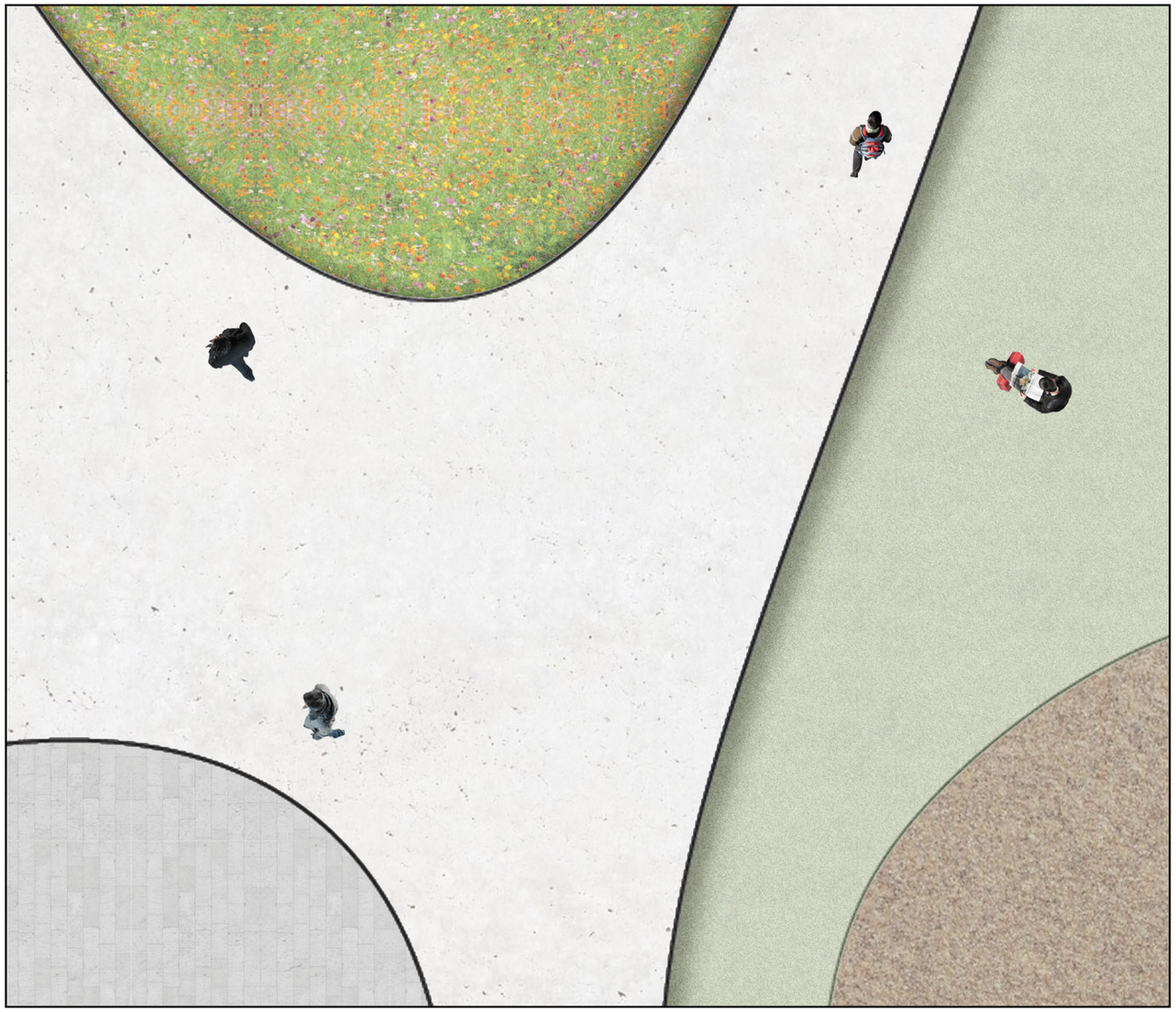


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Figure 103: Material zoom in

Grass

Grass has been chosen for certain parts in the design, to give a permeable surface, that can also have different functions. Furthermore, the topography seating also has the grass elements, to bring people and nature closer together, while also having the function of seating, and creating a barrier between the site and the road.

Rubber tiles

For the surface of the playground the material of rubber tiles will be utilized. This material is not only having a low cost and maintenance level, but it also brings the functional property of having a safe surface for the playground. Furthermore, the product has a much stronger durability and will therefore be able to last longer than other surfaces used for playgrounds such as sand or rocks (Fitnessfloor, n.d.).

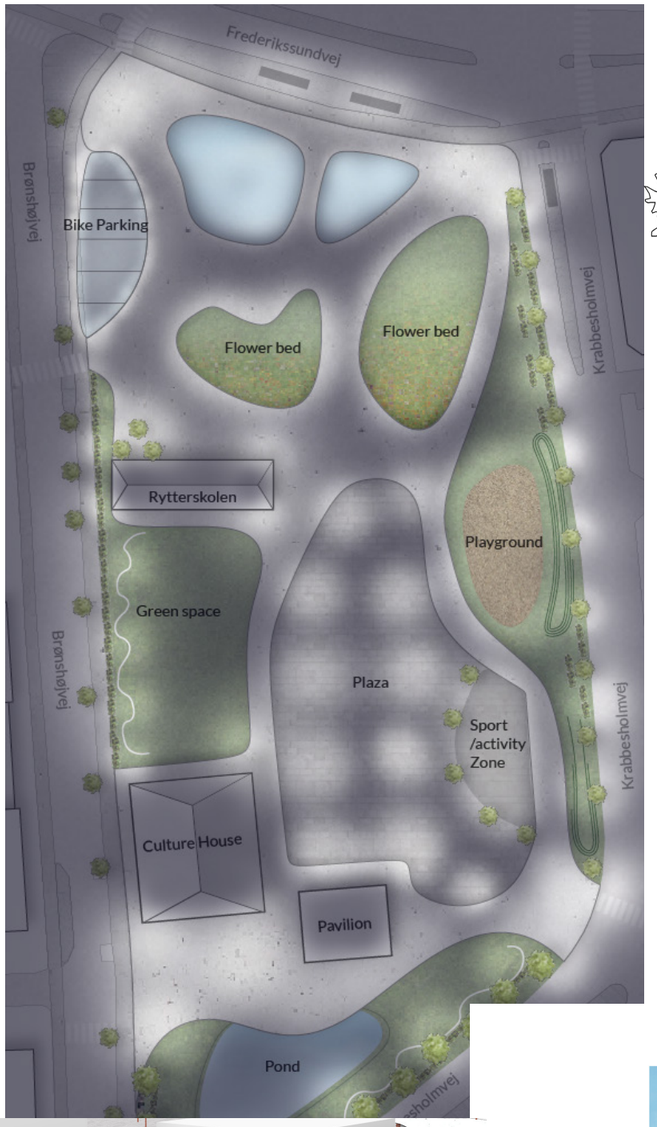
DISCUSSION - EVALUATION OF THE DESIGN

The design contains a lot of different elements, with a variation in the level of detail. As this design has been presented in this thesis a point could be made, that more technical aspects of the lighting design are needed, if the design should be implemented in real-life.

The main design element being the path network cannot stand on its own to provide a feeling of safety in the design, therefore a call for several elements is needed. This design of course has the path as the main design element, but it is elements such as the barriers, entrances, and the creation of better visibility by also designing vertically and not just horizontally that help to bring a better feeling of safety in the site. A path network on its own would not have the desired effect. Therefore, the path should be seen as the element that creates the spaces that are needed in the site and is also the element that will lead the citizens evenly into the site and to their destinations. Furthermore, several spaces on the path have also been designed to give space for activities such as seating, smaller markets or other activities that might not require the same amount of space as the plaza provides.

Another point to be made is regarding the choice to close off the site, and only provide access through the entrances. As showcased on page 104 there are three different types of barriers. The only barrier where people won't be able to enter is the barrier with a stone wall underneath, as this wall with the bushes on top creates a 2-meter-tall barrier. This is not the case with the other barriers, as they do not close of entirely, which they are not meant to either. The other two types of barriers are to make it clear that you should not enter, and if you choose to do so it will be somewhat difficult but not impossible. This choice was made due to the fact that closing off the sections of the entire site could also attribute to a feeling of unsafety. The barriers that were chosen with the goal of still having the function of a barrier without looking like a fence. Also, these types of barriers have been chosen to bring forward the concept of 'Natural Access Control', which calls for creating control of the access to the site in a more natural way (Crowe and Fennelly, 2014). Therefore, the barriers will still be crossable to some extent.

The design parameters indicate that the materials of the design should be utilized to enhance the different functions of the spaces in the design. This is done by indicating a big green grass area, for different types of activities where a softer surface is needed. The plaza where a hard pavement makes it possible for bigger events. The path itself to lead and guide through the site, while still providing space for smaller activities. Then at the north entrances of the site, the water and flower beds have been placed purely for aesthetic reasons, to provide an open and inviting entrance at the place where the largest mobility flow exists. Lastly, when looking into the lighting design, the principle of having 6-meter-tall lamp post to emphasise can be discussed weather it needs to be so tall. The principle behind the lamp post was to give an emphasis and make it taller than the general average lamp post (which averages from 3.5-4.5 meters). Therefore, the choice of 6 meters was made, though it could be argued that even 5, or 5.5 meters may have given the same effect.



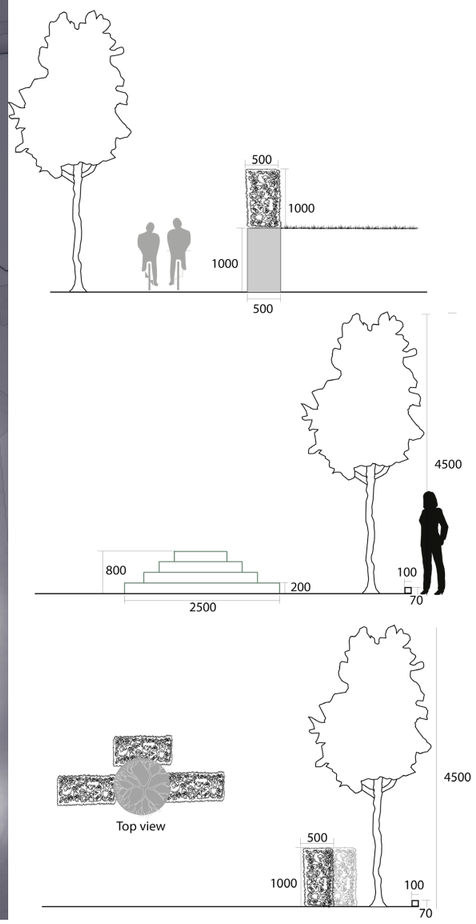


Figure 104: Final design collage

06. Closing Statements

Now that the design has been showcased in detail, it is important to reflect upon the design in different ways. Therefore, this chapter will include an implementation plan for the design, where it will be reflected upon how this design could be implemented in the real-life context. Then the design will also be discussed with different viewpoints to give an evaluation of the design. Then a conclusion on not only the design but the report as a whole will be presented. Lastly, a perspective will be given of……

IMPLEMENTATION PLAN

To give further detail for the design proposal, this implementation plan will give an outline of how this project could be implemented in a real-life context. This implementation plan gives an insight into certain principles for the design development, as the thesis group do not have the technical basis to explain an actual implementation.

Firstly, the design should be implemented as a whole, and access to the site should not be given until as least the third principle has been reached. As previously mentioned, the design works as a whole unity, both to function as the first part of the Culture Axis, but to also bring people the feeling of safety through the ways the design has been developed. But even so the implementation of the design should still follow some principles of how the different elements should be developed and implemented in the site. The principles are as follows:

1. The path should be put down first

2. Pavement of surfaces

3. Putting in lighting elements

4. New greenery

5. Urban furniture goes last

The first step should be to place down the path, as this is the design element that creates the other spaces in the site. Though for this to happen several steps needs to be taken first, as to remove the old elements such as pavement, trees, topography, and stairs just to name a few, in the places where the path network will be placed. Then after this the path network can be cast.

Through the creation of the path, the spaces of the design will appear. These will then have to be paved in the different materials to signify different uses for the citizens. These pavements will have different methods of being laid down. It is also important to note that for the plaza the pavement will not be able to be complete until the trees and lighting fixtures has been placed into the ground.

After the spaces have been paved it is then important to place all of the lighting elements, to ensure correct placements. It is also important to put in the lighting design, especially for the water and flower beds in the north of the site, before they are filled, and access will be limited.

As some trees will need to be removed to create better visibility, as many as possible will be relocated to other places in the site, where there currently are no trees. Otherwise, new trees and bushes will be added to the site, along with the flowers for the flower bed. At this point the water bed should also be filled, both with pebbles as the bottom and of course with water.

Lastly, the site will have to be filled with the design elements of the urban furniture, such as the seating, trash cans, bollards at the entrances, new ball cage, and new playground.

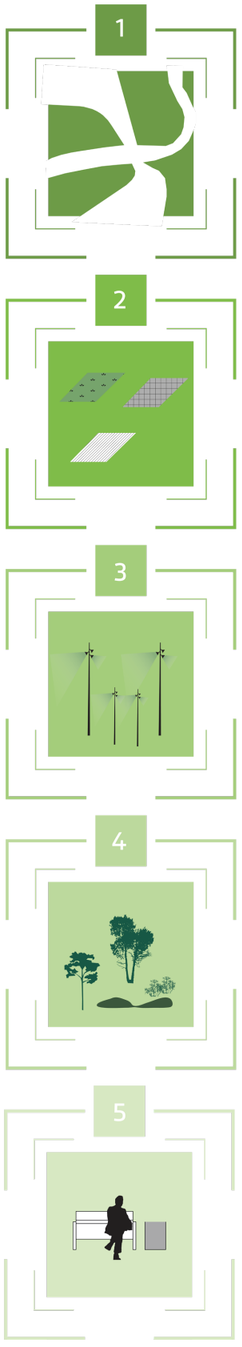


Figure 105: Implementation process

CONCLUSION

To conclude on this thesis, it is important to highlight that this thesis has fulfilled its aim. The aim of this thesis was to explore, in what ways the field of urban design may address the feeling of safety in public spaces. This was done both through the theoretical state-of-the-art review, and then tested with the case of Brønshøj. The field of urban design addresses several forms of safety, but some in more direct ways than others. The physical concept of safety, urban design has continuously addressed this by designing safety measures for the prevention of environmental issues, health-based issues, and some forms of crime such as terrorist attacks. While there is a broad acknowledgement to the fact that the physical safety, i.e., the feeling of safety is affected by the built environment, it is still somewhat unclear what elements from the built environment that has the greatest affect. Therefore, the conclusion for this thesis also lies in the thesis group giving their recommendations based on how the design for the specific case of Brønshøj developed. Based on how the design developed this thesis highlights three main concepts to not only take into consideration but to also develop according to the context. These three main concepts are:

- 'Natural Surveillance'
- 'Natural Access Control'
- Lighting design

These concepts are what the thesis group concludes as the main concepts to integrate into the design, but it is important to note that this should be done in ways that relates to the context. This is what the thesis can conclude as the appropriate approach to design for the feeling of safety in public spaces.
Lastly, it can be concluded that although the design is simple and does not bring any new and innovative design elements, it is in the way that these elements have been designed, placed, and utilized in the space that makes the design a success. Designing a path network is not a new phenomenon and it should be understood that the conclusion is not that this design element alone will be able to succeed in creating a greater feeling of safety. Lastly, to really get a grasp of the context having an extensive user involvement process seems to be of upmost importance, especially when dealing with a phenomenon as the feeling of safety in public spaces. As this thesis relies on the finding of the report developed by Brønshøj-Husum Lokaludvalg and the design studio SLA, it became clear that the wishes, values, and ideas of the citizens, it became clear that it was their understanding of the space that became useful for the development of the design.

REFLECTION

As the growing level of urbanization creates more densely populated cities around the world, it becomes important to investigate the consequences of this development. As the environmental state of the planet is declining a major focus has been put into how to create urban sustainability in the cities (United Nations, 2020). Though sustainability is most often referred to in the environmental field, there is also talk about the quality of life being a part of urban sustainability. Within the concept of quality of live, the focus is directed towards giving opportunities in the cities to be densely populated while still providing spaces that can give a higher quality of life (Ceccato and Nalla, 2020).

Improving the quality of life is an issue of global proportions, and inequality is a cruel reality that is experience in different levels throughout not just the world, but even within the cities themselves (Sinha, 2019). When discussing quality of life, it can be argued that some factors of determination will be varying in importance depending on the context. Though this may be the case, Sinha suggests that the factors various social, cultural, economic, political, demographic, and environmental aspects as the factors that will generally be used to determine the quality of life (Sinha, 2019).

When looking at the feeling of safety in public spaces, this concept can be present in several factors, as Ceccato and Nalla (2020) mentioned in their book, that the factors to determine how people perceive a space as safe depends on many factors such as gender, physical ability, psychological ability, age, ethnic background, sexual, and socioeconomic statuses. This only solidifies the point that when dealing with the feeling of safety in public spaces, it calls for an interdisciplinary approach, where different fields can come together to unfold how the perception of space affects the psychological and behavioral nature of people in the city. This interdisciplinary approach is not only to help explore the reasons behind these types of behaviors, as this approach can also be utilized to gain a greater understanding of the context to ensure a thorough understanding (Nordic Safe Cities and SLA, 2021). With these points it becomes clear that the feeling of safety in public spaces may not be a first priority in the agenda of tackling the consequences of urbanization in the countries around the world. But as this thesis shows it is an important part of the quality of life that is experienced in the city, which makes the phenomenon of perceiving space one to explore further and in more depth.

Figure 106: Urbanization (Credit The Borgen Project)

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LIST OF FIGURES

The list of figures will only include a list of the figures that were not owned, created or taken by the thesis group members. Any figure that does not state a credit will therefore be a figure that belongs to one or more of the thesis group members.

07. Appendix

In the appendix the material that can give a more detailed or deeper understanding has been placed.

APPENDIX A

STATE OF THE ART OVERVIEW

Author	Title	Year	Media (book, journal, article)	Main takeaway points
Bonnes, M. and Secchiaroli, G.	Environmental psychology: a psycho-social introduction	1995	Book	This book brings an introduction to the field of environmental psychology. Our chosen takeaway point: This book gave a greater insight into that how humans perceive spaces has a great effect on their psychology. Though this book explores this purely from the psychological standpoint and not one of urban environments or urban design, the book still gave a good insight into the importance of how the human senses perceive spaces.
Cai, K. and Wang, J.	Urban design based on public safety—Discussion on safety-based urban design	2009	Paper	This paper addresses the necessity of public safety design in the context of the modern city and thereby brings forward the concept of safety-based urban design. Our takeaway point: This paper talks about how the quality of the public safety in urban spaces is what determines if they can be perceived as success full urban design (Cai and Wang 2009). Furthermore, it highlights how safety is a factor that urban design has always taken into consideration and have historically taken inspiration from principles of military safety requirements (Cai and Wang 2009). This also means that the types of safety this paper highlights as elements that urban design can address are safety issues such as urban construction, environmental safety measure such as flooding and earthquakes, and health-based safety measures to combat pandemics in larger populated cities (Cai and Wang 2009). Lastly, the paper also highlights the term of 'psychological safety' which refers to the fact that humans process the built environment through a process of cognitively taking in environmental stimuli and evaluating this data as being threatening, unsafe or safe and free to move in (Cai and Wang 2009).
Ceccato, V., and Nalla, M.	Crime and Fear in Public Places Towards Safe, Inclusive and Sustainable Cities	2020	Book	This book calls for the need of an interdisciplinary approach to handle the issues of crime and safety in public spaces. Our chosen takeaway point: This book highlights safety as an essential element of urban sustainability, as the feeling of safety is connected to the quality of life (Ceccato and Nalla, 2020). The book also mentions safety as the main element that affects the usage of public spaces, but it is specifically how humans perceive safety that determines if they deem a public space safe or not (Ceccato and Nalla, 2020). It also highlights examples of how urban design has addressed the feeling of safety, mentioning the theory of CPTED, Jane Jacobs and Defensible spaces to name a few. Lastly, the book also highlights that how people perceive a space as safe depends on many factors such as gender, physical ability, psychological ability, age, ethnic background, sexual, and socioeconomic statuses (Ceccato and Nalla, 2020).
Crowe, T.D. and Fennelly, L.J.	Crime Prevention Through Environmental Design	2014	Book	This book highlights that public spaces can be designed to promote different type of activities, whether it is unwanted activities or desired activities. The theory of CPTED (Crime Prevention Through Environmental Design) addresses the design as a tool that shapes the built environment in a way that reduces crime activities and make undesired activities less likely to occur (Crowe and Fennelly, 2014). Our chosen takeaway point: CPTED is about the design and management of an area and their connection with the crime rate and the fear of crime. There might not be a need for high-end technologies to understand if a space is safe or not, whereas the users and offenders can feel safety/unsafety of a place by simply being in the place. A place could draw people inside by creating a safe atmosphere and at the same time draw away the offenders by giving the message that there is enough surveillance walking around the area (Crowe and Fennelly, 2014). Throughout the time, governments found it less expensive to implement a proper design in an existing environment to reduce the crime, rather than hiring extra police or security guards to keep a place safe. It might not only be less expensive but also a nicer experience where people feel more welcomed. Experience of walking in a safe space that nicely designed could be different than walking in a place that looks like a fortress. In another word, CPTED manipulate humans' behaviour through physical environment that effects crime and the fear of crime, therefore a higher quality of life (Crowe and Fennelly, 2014).
Jacobs, J.	Death And Life Of Great American Cities	1961	Book	This book is widely known as the most prominent work of Jane Jacobs, as she directs criticism of the 1950's way of urban planning which was responsible for the decline of neighbourhoods in many cities throughout the United States. Our chosen takeaway point: The concept of 'Eyes on the street' where Jacobs refers to the fact that having an even flow of people and movement on the street is what contributes to the safety being held intact on the streets of the city (Jacobs, 1961). A crowd of people keeps the city safer, as there are more eyes to surveillance the city scape (Jacobs, 1961). Jacobs also suggests that a mixed used neighbourhood with a range of different activities brings more 'eyes' and in turn also brings a greater feeling of safety (Jacobs, 1961).

APPENDIX A

STATE OF THE ART OVERVIEW

Newman, O.	Defensible Space: Crime Prevention through Urban Design	1973	Book	In his book, Newman argues that the architectural design nature plays a crucial part in increasing or reducing the criminal activity in the city. In this book Newman also brings his suggestions four categories to further discussion of defensible spaces (Newman, 1973). These are: the capacity of the physical environment to create perceived zones of territorial influence; the capacity of physical design to provide surveillance opportunities for residents and their agents; the capacity of physical design to in- fluence the perception of a project's uniqueness, isolation, and stigma; and the influence of geographical juxtaposition with 'safe zones' on the security of adjacent areas (Newman, 1973). Our chosen takeaway point: Largely what will be taken from Newman's perspective is his thoughts on 'Natural Surveillance' and 'Image'. As the natural surveillance refers to the physical characteristics of the area, and the citizens ability to have a visible connection, and 'Image' refers to how a physical design can impart a sense of security (Newman, 1973). Furthermore, Newman also describes how each aspect of design can affect the behaviour differently based on if you are a possible offender or a victim.
Nordic Safe Cities and SLA	Safe Urban Spaces	2021	Report	This report outlines how there is a call for other methods to provide safety in public spaces other than barriers. They suggest 5 'Safe Space Principles' to create urban spaces. Our chosen takeaway point: SLA and Nordic Safe Cities suggest that the negative consequences of barriers in public spaces can be limited if the choice lands on working with safety in a site-specific manner, that should consider both the physical and social context of the space and people using it (Nordic Safe Cities and SLA, 2021). A successful solution cannot be a 'one size fits all' and therefore each development should take departure in being site-specific and connecting clearly and naturally to the context (Nordic Safe Cities and SLA, 2021).
Roe, J. and Mccay, L.	Restorative Cities: Urban Design for Mental Health and Wellbeing	2021	Book	This book largely takes departure in how the COVID-19 pandemic simultaneously created a recognition towards the field of urban design and a demand for the field to solve the issues of people needing to social distance while being in close proximity to one another in the public spaces of the city. Therefore, the safety aspect of this book is related to health-based safety measures. Our chosen takeaway point: When talking about the framework for restorative urbanism Roe and Mccay highlights that this framework puts mental health, wellness, and quality of life in the forefront of urban planning and urban design (Roe and Mccay 2021). As the built environments are filled with cognitive, emotional, and practical demands that has the ability to deplete the social and phycological resources of the citizens, it leverages the urban environment to increase the mental health and wellbeing resilience of the inhabitants of the city (Roe and Mccay 2021). Therefore, it becomes of upmost importance to understand how the built environment can have a great effect on people's mental health, phycological state, and overall behaviour in the city scape.
Sohn, D.-W.	Residential Crimes and Neighbourhood Built Environment: Assessing the Effectiveness of crime prevention through environmental design	2016	Paper	This paper seeks to assess the relation between crime and the built environment utilizing crime data from the city of Seattle, USA. The paper studies the effectiveness of the CPTED principles from two different space design approaches. Our chosen takeaway point: As this paper concludes with three major findings: A mixed land use can reduce the number of criminal acts, a weakened access control contributed to a negative effect on crime prevention, and that increasing the bus stop density and street density also had a negative effect on the crime level (Sohn, 2016). By mixed land use Sohn refers to the mix of private and commercial land use, as a mixed use with different functions tends to draw people into the space. Though Sohn also refers to the fact that there is a call for more evidence-based knowledge on this statement, he still concludes that the mix of functions can lead a mix of people into the space (Sohn, 2016). The second finding showed the conclusion that a lack of access control had a negative effect on crime prevention. Lastly, the third finding was that increasing the number of bus stops and generally creating more density in the streets, did not have a positive effect on the crime prevention. This indicates that just filling a space with elements that may seem to increase the pedestrian level, does not directly attribute to a positive change in crime rates, therefore more actions must be taken to do so (Sohn, 2016).

APPENDIX A

STATE OF THE ART OVERVIEW

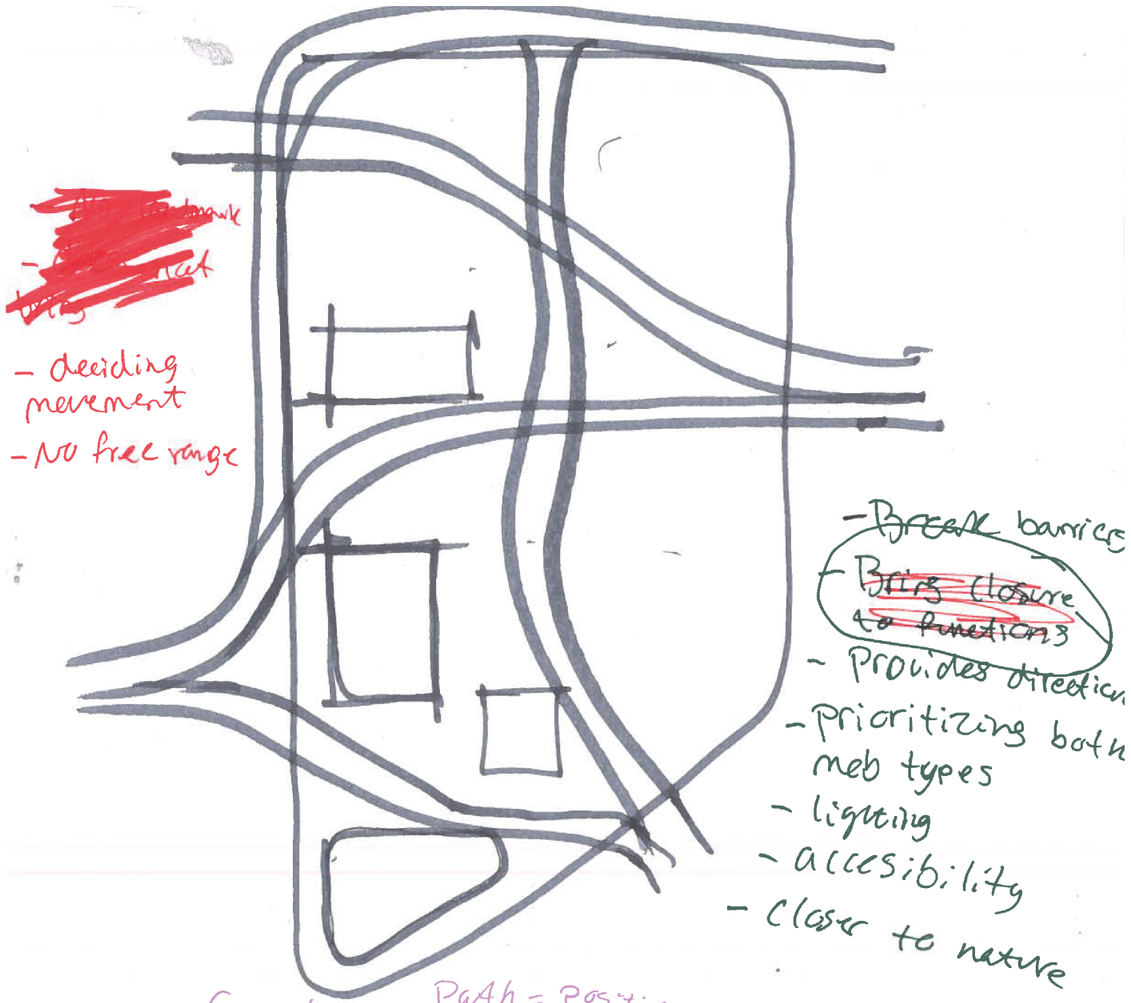
Wikström, P.-O.H. and Dolmén, L.	Crime and Crime Trends in Different Urban Environments	1990	Paper	This paper includes a study of crime and crime trends in urban environment taking departure in a case located in Stockholm, Sweden. Our chosen takeaway point: This paper gave a good insight into how there are significant differences between the types of urban environments and the crime rates, type of offenders, and victims, and how the trends in the types of criminal activity were significantly different based on the different types of urban environment (Wikström and Dolmén, 1990). Generally, this paper gave a good outlook into how criminal activities and urban environments correlates to each other, and also in what specific ways. Though this paper may have taken departure within the field of urban design, it still gave a good insight from the criminology perspective.

APPENDIX B
TYPES OF CRIME THAT URBAN DESIGN CAN ADDRESS

The table shows different types of crime, and the ones that urban design specifically can adress has been highlighted (Crowe and Fennelly, 2014).

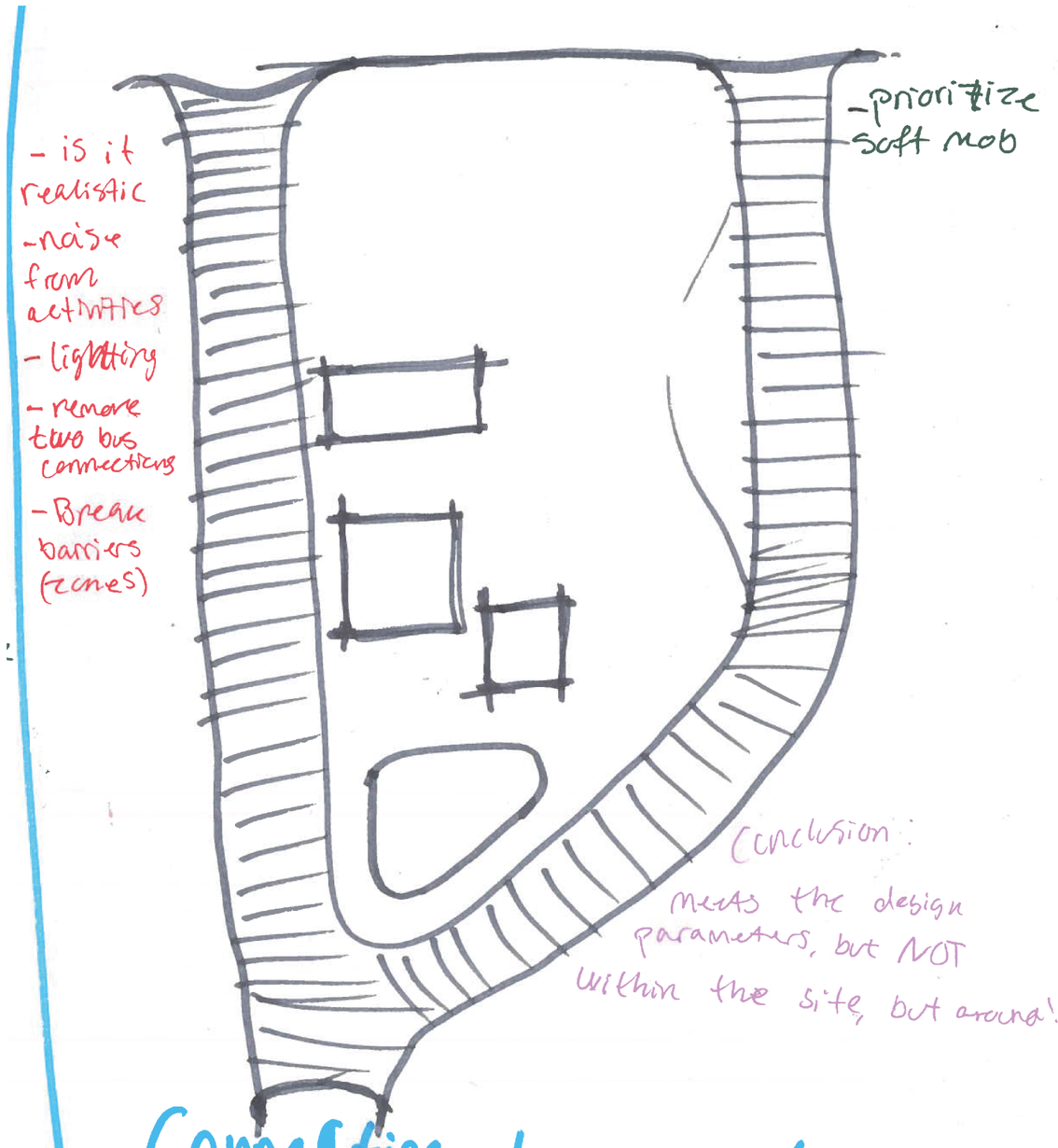
Domestic violence	Assault	Robbery
Violence (semi) public areas/assault	Kidnapping	**Traffic crimes**
Fraud	**Graffiti**	**Theft (motor) cycles**
Shooting	**Theft**	Sexual offenses
Burglary	Homicide	**Workplace crimes**
Corruption	**Car theft**	**Arson**
Vandalism	**Pickpocketing**	Bribery
Drug trafficking	Threat	Environmental crimes
Pickpocketing	Extortion	Blackmail
Terrorism	Drugs	**Robbery**

APPENDIX C



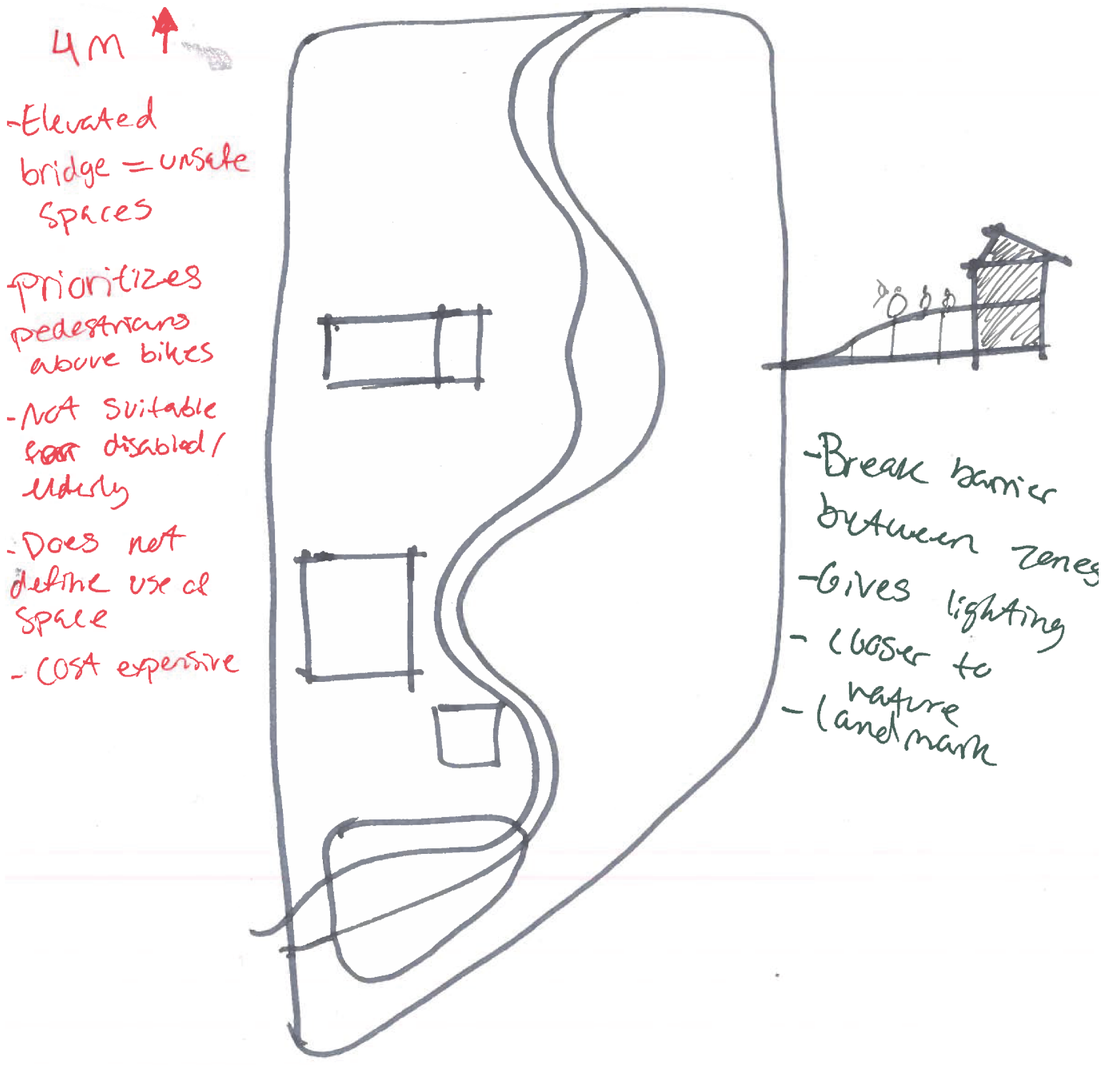
Path network/access

CONCEPT EVALUATION



Connecting to context

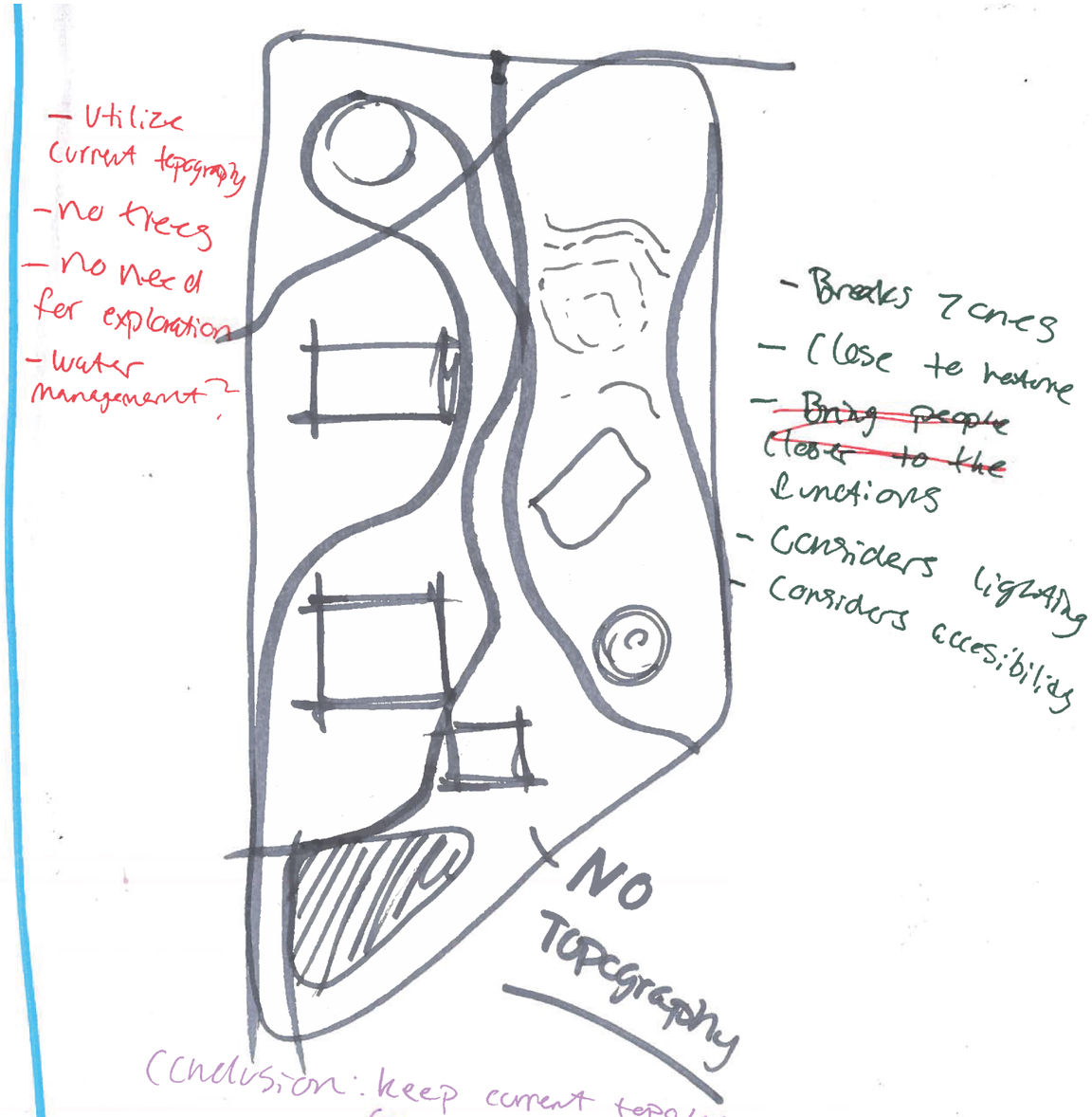
APPENDIX C



Conclusion : 4M is too tall

Visibility from above

CONCEPT EVALUATION



Conclusion: keep current topo/utilize it in the design. Create! Break zones in a different way

~~Breaking the zones~~ Breaking the barriers