Norwegian
University of
Life Sciences

Master's Thesis 2023 30 ECTS
The Faculty of Landscape and Society

Promoting play and physical activity in a riverside, urban green space

Bendik Vindegg Torp
Student of Landscape Architecture

Title:

Promoting play and physical activity in a riverside, urban green space

Author:

Bendik Vindegg Torp
Bendik.vindegg.torp@nmbu.no

Supervisor:

Katinka Horgen Evenesen
Associate Professor at the Faculty of Landscape and Society
Katinka.evensen@nmbu.no

Format

A4. 297 x 210 mm

Number of pages

175

Keywords

Landscape architecture, play, physical activity, urban green space, riverside, evidence-based design

Figures lacking citations have been produced by the author.

Arial photos derive from Google earth if not otherwise specified.

ACKNOWLEDGEMENT

This thesis marks the end of many things. It marks the end of my life as a student. It marks the end of a five-year academic endeavour into the field of landscape architecture. It marks the end of spring and the coming of summer.

I would like to begin by offering my gratitude to Katinka Horgen Evensen. You are everything a supervisor should be: stern, honest and at times a little frightening. Thank you for your counsel and interesting conversations.

This acknowledgement would not be complete without mentioning the people of Grindaker. Your guidance, technical support and easy-going manner have been invaluable. Thank you for being the warm and helpful people that you are.

Ingvild Steiro from Bymiljøetaten and Annabel Danson from Asplan Viak both deserve praise, as well. Thank you for providing valuable insight into Myraløkka and it's potential.

While the last few weeks have made me resemble a digital hermit, I am grateful to the people around me. I would like to thank Rasmus Foyn Wahlqvist for our endless pursuit of comprehension, Andreas Gabrielsen for engineering life in Torshov and Amanda Alvereng for her patience and brilliant food.

To my family: no matter where the winds may blow, you will always be the harbour of home. My father, Steffen Torp, deserves a special mention. Thank you for all your help.

Finally, I would like to acknowledge the men and women researching the relationship of landscape architecture and health. The work they do is vastly underappreciated. What are we to design for, if not the health and happinness of people, and how are we to do so if no one guides the way.

Bendik V. Torp

ABSTRACT

Norwegian children do not get enough physical activity. This sedentary behaviour is carried into adulthood, bringing with it detremental effects on perceived health and happiness. Urban green spaces play an important role in mitigating these effects. However, it can be argued that our urban green spaces are seldomly designed in a way which adequately activates both youth and adults. This thesis investigates how to design for the promotion of play and physical activity in a riverside, urban green space. It seeks to do so by using a model for knowledge-based design in landscape architecture. The thesis finds evidence suggesting that a design which promotes activity for both youth and adults may be possible, but that there are certain conflicts to consider.

TABLE OF CONTENT

PART 1
INTRODUCTION

1.1 ACTIVITY IN URBAN GREEN SPACES

The rise of ever-present digital screens has been accompanied by a society of sedentary children (Dalene et al., 2022; Regjeringen, 2023). Physical inactivity begins in early childhood before being carried into adult life (ibid.; Breivik & Rafoss, 2017). Research indicates that varied, natural environments might mitigate these effects (Fjørtoft et al., 2018), yet one could question to what degree this information is being used to counteract physical inactivity among children living in urban environments. This thesis seeks to investigate how to design for the promotion of play and physical activity in a riverside, urban green space.

The purposeful use of public space to entice physical activity in youth is often tied to playgrounds. These typically colourful displays of rubber, asphalt and solitary play structures are a common sight throughout our cities (Woolley & Lowe, 2013). However, this design can be argued to harbour certain disadvantages.

A playground lays claim to public space. While one rarely demolishes a building in favour of brightly coloured rubber, one can show to multiple examples of such surfaces being developed in favour of arguably valuable vegetation in urban settings. In effect, this removes recreational areas, which may also have benefited those outside the given playground's intended age span (Fongar & Thoren, 2022). Recent studies additionally show that there may be more advantageous ways of designing areas that promote play and physical activity (Fjørtoft et al., 2018).

Natural environments have been shown to benefit the activity-levels of youth (ibid.). Natural elements are typically high in affordances, meaning that they may be used in various ways (Thoren et al., 2019). A waterbody can be splashed, crossed, diverted or meddled with. A series of stones may be jumped off, lounged upon or harbour fascinating insects. This affords a broader selection of opportunities than those of a typical, urban playground. One could additionally argue that natural environments may activate youth across a broader spectrum.

Natural elements carry no instructions. Given that there are no guidelines for use other than those set by the terrain, vegetation, water and weather, natural environments allow for a broad section of youth to be activated by the same elements (Fjørtoft et al., 2018; Woolley & Lowe, 2013). It is a matter of what affordances a given person may find. In turn, this may impact an area's effectiveness at promoting play and physical activity. If one examines the components of such a natural environment, one will find that many traits correspond to those favoured by adults.

Studies indicate that walking in urban green spaces is one of the most favoured forms of attaining physical activity among Norwegian adults, especially by those who live in urban environments (Regjeringen, 2023; Breivik & Rafoss, 2017). How appealing these spaces are has been tied to their presence of nature, varied vegetation, wildlife, and even playing children (Fongar & Thoren, 2022). Considering how such a natural environment may afford both recreation and play, leading to physical activity for children and adults, it may be that designing for one could benefit the other. While such a design practice corresponds with the political aims of providing health-promoting environments, there are yet unanswered questions as to how it can be done (Regjeringen, 2023; Oslo kommune, 2017).

The municipality of Oslo has specifically encouraged the use of knowledge-based approaches when designing for public health (Oslo Kommune, 2023), which has been considered within the methodology of this thesis. It seeks to propose a design which promotes play and physical activity in an existing riverside, urban green space.

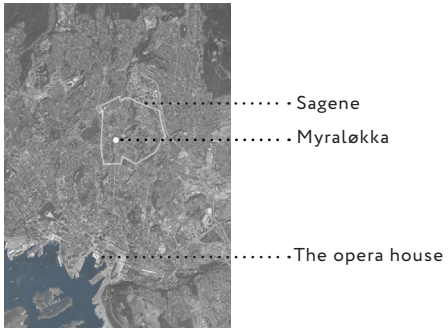


Figure 1: Myraløkka and Sagene's location

SAGENE & MYRALØKKA

The project area is located in Myraløkka, Oslo (see fig. 1). This urban green space lies in a densely populated district, Sagene, which scores low on multiple public health indicators. With challenges facing municipality and inhabitants, a proposal targeting play and physical activity may interest its municipal body.

Due to Myraløkka's urban location and inherent qualities, it makes an interesting case for evidence-based health design in landscape architecture. It opens an avenue to investigate what potential lies in an existing urban greenspace and to do so in the light of contemporary knowledge related to health and landscape architecture.

While this thesis specifically investigates Myraløkka, the empirical foundation and consequential design-solutions are (to a degree) universal. This means that they could function as an inspiration for similar greenspaces in other settings.

1.2 DESIGN-PROBLEM

DESIGN-PROBLEM

How to design for the promotion of play and physical activity in a riverside, urban green space?

ACTIVITY & PUBLIC HEALTH

The promotion of physical activity is highlighted in a recently published white paper on Norwegian public health (Folkehelsemeldingen)(Regjeringen, 2023). The reason for this is twofold.

First, physical activity is closely tied to overall health. Studies show that low physical activity levels correlate with anxiety, stress, depression and long-lasting illnesses (Regjeringen, 2023). Increasing activity levels may therefore impact both individual wellbeing and future societal costs. Additionally, it is tied to social inequalities in our society.

People of low socio-economic status are less likely to meet recommendations for physical activity (Regjeringen, 2023). Being tied to negative health outcomes (as described in the paragraph above), this contributes to increasing unwanted, social inequalities in the Norwegian society. A possible remedy may be found through public space.

In the white paper, the government proposes strengthening walk- and activity-friendly neighbourhoods (Regjeringen, 2023). Offering publicly available arenas of activity, especially in relation to youth, is a possible tool in preventing hereditary social differences from continuing (Regjeringen, 2023). Unorganized activities can be considered beneficial in this regard due to being equally accessible to all (Regjeringen, 2023).

This thesis embraces the governmental guideline in two ways. On the one hand, it proposes a design where the promotion of play and physical activity is a cornerstone. On the other, it contributes to highlighting tools, theories and practices which may be relevant to other landscape architects and planners working toward similar goals.

NATURE, HEALTH & ACTIVITY

Being in nature has been shown to benefit health on many levels. In a scoping study by Hartig et al. (2014), the researchers investigated what pathways lead to these benefits.

Hartig et al. (2014) hold that nature can be a catalyst for at least four pathways to good health: fresh air, physical activity, social cohesion and stress reduction (see fig. 2). It is suggested that exposure to nature stimulates these pathways beneficially, but also that they influence each other.

A premise of this thesis lies in the understanding that there is an interrelationship between nature, physical activity and other health-promoting factors. If one manages to engage people physically through the medium of a natural environment, it can bring with it exposure to fresh air, mental restoration and social interaction (both on an interpersonal and communal level). It is a self-reinforcing process.

When presenting data connected to public health, physical activity levels are a common denominator (Breivik & Rafoss, 2017; Regjeringen, 2023). It will be used as an indicator of health throughout the following thesis. However, it is important to see this in relation to Hartig et al.'s (2014) observation of the interconnectedness of the pathways to health.

The physical activity one is typically exposed to through interaction with nature differs with age. For an adult, the activity often stems from getting to a given green space (Hartig et al., 2014). For a child, it often also entails activity through play (Thoren et al., 2019). Play and physical activity set in natural environments are often tightly wound together, making the two similar (Thoren et al., 2019). The terms will, therefore, at times be used interchangeably. Play equals physical activity, but all physical activity does not equal play.

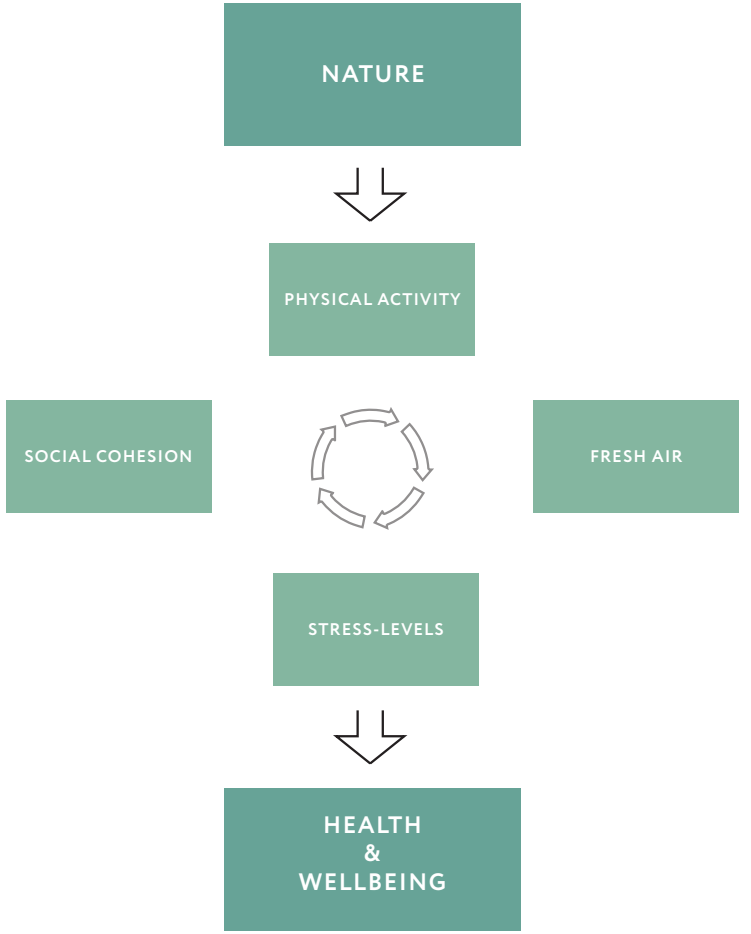


Figure 2: Nature and the pathways to health (Hartig et al., 2014)

1.3 METHOD

METHOD

The amount of research conducted within the field of Landscape architecture and health has increased dramatically in the past twenty years (Thoren et al., 2019). On the one hand, this may be caused by an increased focus from governments, non-governmental organisations and universities. On the other, it might be linked to how landscape architecture is evolving as a profession.

There has long been a widespread assumption that if a given space is green, it must also be health-promoting (Stigsdotter & Sidenius, 2020). However, the relationship between people and their environment is complex (Hartig et al., 2014). The health-promoting capabilities of a given green space depend upon several factors, suggesting that a lawn might be less health-promoting than, for example, a forest floor (Fongar & Thoren, 2022; Thoren et al., 2019). If different kinds of green spaces could result in different health outcomes for their users, one could argue that landscape architecture practitioners must be aware of these mechanisms.

One way of attaining and applying such insight can come from using a knowledge-based approach to design.

Researchers from Copenhagen University have developed a model named Evidence-Based Health Design in Landscape Architecture (EBHDL) (Stigsdotter & Sidenius, 2020). The model has been used in education and the design of various environments aimed at improving health (Stigsdotter & Sidenius, 2020; Gramkow et al., 2021; Refshauge, 2015). It is proposed as a tool for practising landscape architects to design knowledge-based (Stigsdotter & Sidenius, 2020).

This thesis aims to design for the promotion of play and physical activity in a riverside, urban green space. With the relationship between health and physical activity outlined by multiple sources, one could argue that the use of EBHDL is applicable in relation to this thesis. Due to an interest in investigating the potential of such a methodological framework, I have chosen to follow the model relatively closely. Alterations have been made to accommodate its use to a thesis in general and to this thesis specifically.

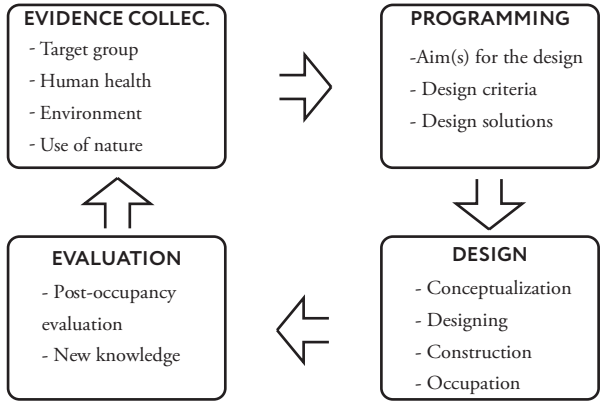


Figure 3. EBHDL model (Stigsdotter & Sidenius, 2020)

EBHDL is divided into four parts. Figure 3. displays the original EBHDL model, with each part's general content. The following pages will elaborate upon the significance and function of each part, both related to how it is presented by Stigsdotter & Sidenius (2020) and how it has been used in relation to this thesis.

EVIDENCE COLLECTION

Evidence (understood as practical or theoretical information related to landscape or health) varies in scope and function. Stigsdotter & Sidenius (2020) proposes to structure evidence by dividing it into four categories (see fig. 4). Due to the interrelated nature of landscape and health, evidence may only sometimes fit neatly into a given category (ibid.). In an attempt to clarify what evidence goes where and the progression in which it is presented, certain alterations have been made to the categories of the evidence collection.

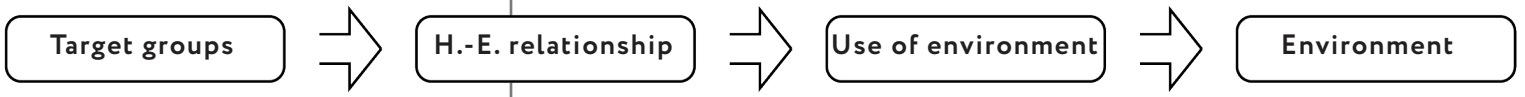


Figure 4. Progression of the four categories in the evidence collection, as used in this thesis

Target groups are presented in EBHDL as information about whom the design is intended to affect. This relates to who they are and what their health status is. I have chosen to include specific information regarding the target groups living close to the project area because they are the ones most likely to benefit and interact with the design proposal of this thesis. I have also included short passages about what might mitigate the target group's health status.

Human-Environment relationship is the second category of evidence. EBHDL presents it as evidence of positive correlations between the target group(s) and exposure to nature. Because factors such as social mechanisms and the built environment also may influence people's health, yet would not usually fall under the term 'nature', I have chosen to dub the category Human-Environment relationship. It gathers and presents three theories related to human nature and the use of public green space, followed by three theories more closely tied to facilitating play and physical activity.

Use of environment is presented in EBHDL as evidence highlighting how nature may treat and promote health in a given target group. Due to how factors other than nature may play a role in health promotion, I have chosen to name the category Use of environment. I interpreted the category's function to collect empirical findings on how environments (and their traits) impact use among target groups. Because the topic relates to the previous category of evidence, I have additionally diverged from EBHDL by placing it before the category of Environment.

Environment is presented in EBHDL as an investigation into the project area's existing condition, potential for health promotion, regulations and governmental guidelines. I will predominately treat it as a chapter for landscape analysis, presenting what makes up the area. It will begin with the delimitation of Myraløkka before looking at the context in which it lies. After that follows a detailed investigation of the riverside, urban green space.

PROGRAMMING

Programming is dedicated to turning theory into practice. It involves the creation of a table where evidence acts as a basis from which one can formulate design-criteria and design-solutions (Stigsdotter & Sidenius, 2020).

In EBHDL, it is common practice to create a table which directly relates to all four categories of evidence; Target groups, Human-environment relationship, Use of environment and Environment. I have chosen to divert from Stigsdotter & Sidenius on this count.

Some categories of evidence are more closely related to design-critera than others. For example, Human-environment relationship lists theories seeking to explain how an environments affect its users. That provides a theoretical framework from which we can extrapolate criteria affecting use. Use of environment, empirical findings on what has been beneficial for use in the past, functions similarly. However, target groups primarily outline the health status of the given users, letting us know why an intervention is important, more than how it is to be designed. Therefore, I have chosen to make a table which only directly derives from Use of environment and the Human-environment relationship. Environment, relating to specific information about Myraløkka, will be used to supplement the tables.

EBHDL uses three columns in its matrix: evidence, design-criteria and design-solutions. I will include an additional column, 'status', which explains the project area's current state as relating to a given criteria. This will help illuminate the design-solutions.

The table begins by listing a piece of evidence (see fig. 5). This objective finding leads to general criteria for design. Myrasløkka's status is listed before the design-solution presents how the criteria comes to light within the proposal. This way of structuring evidence and its implications can be argued to increase the chances of creating a transparent and knowledge-based design. It helps in the creation of the design and in tracing solutions back to their source.

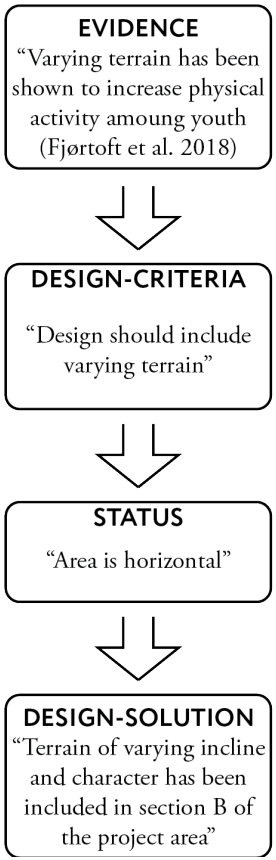


Figure 5. Example of the programming-table's progression from evidence to design-solution.

DESIGN

The third part of EBHDL outlines the design proposal. Creating a design is often a process dependent upon the given designer's background, creativity and understanding of the situation. However, the programming's design-criteria allow for creativity and understanding to be steered through a series of points that have been shown to benefit the project's over-arching goal: to promote play and physical activity.

The chapter begins by formulating a concept that embraces the design's general goal (Stigsdotter & Sidenius 2020). No specific guidelines are presented in EBHDL as to how the following design proposal will be presented. It will begin by displaying a master-plan before systematically moving through the design, elaborating upon its implications for activity and play. Thereafter it will present how the design relates to recreation (promoting physical activity for adults) and the theories from the programming table

DISCUSSION

The fourth and final part of EBHDL is originally the post-occupancy evaluation. This is where designers and/or researchers return to a project after a given time to evaluate whether the design met its original intentions (Stigsdotter & Sidenius, 2020).

Because the design proposed in this thesis will not be actualised, neither will it be possible to observe what effects the design had on the target groups visiting the area. In its stead, there will be a discussion about whether the design met its intended purpose and how EBHDL contributed to the solution.

Figure 6. displays the overall progression for EBHDL as it will be used in this thesis.

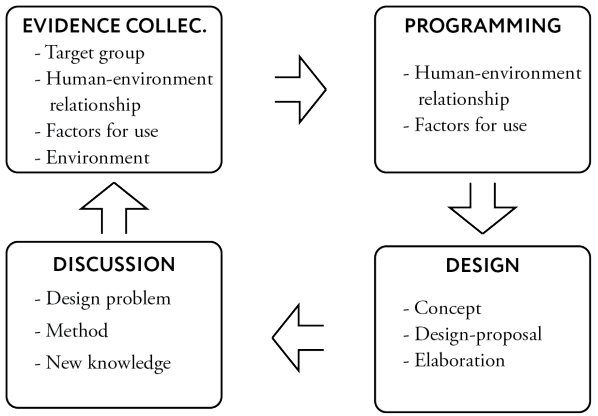


Figure 6. EBHDL as it will be used in this thesis (Stigsdotter & Sidenius, 2020)

DELIMITATIONS

This thesis includes several delimitations. The first is related to the depth of detail.

The design proposal will be similar to that of a Norwegian feasibility study. This means that it presents possible interventions without elaborating on exactly how they will be built. However, the suggestions are intended to be within the bounds of reason.
A secondary delimitation has to do with water. The design will argue for different forms of interaction with water. Samples taken in Myraløkka throughout the summer of 2021 show sporadic instances of bacteria rising above the levels recommended by Oslo municipality. One could choose to assume that this might A) be solved through a system of alarms (which is effective in other places in Oslo) or B) that it might improve with time (Oslo kommune, 2022). In this thesis, the benefits interaction with water can offer to the public has been given presedence.

The third delimitation relates to the construction of a high school just north of Myraløkka. The northern system of pathways along the Aker River is partially closed off due to its construction, but will, in all likelihood, open when construction is finished. I have therefore decided to design as if the lines of movement along the river will continue to function as they have in the past. There have also been discussions about possible alterations to the German-Norwegian school directly adjacent to the project area. If it is built, it will not bring any major implications for the design. The fourth and final mention has to do with gender.

Gender is not given a particular focus in the thesis. Literature suggests that girls and boys gradually approach different kinds of play and activity as they age (Thoren et al. 2019). While a girl of seven is likely to play in the same way as her male counterparts, by the age of twelve, their behaviours are likely to have diverged. Boys are typically stimulated by high-intensity activity (such as sports), whereas girls rely, to a greater degree, on activities of a social nature (Thoren et al. 2019).

Gender-differences has not been actively investigated, but the design proposes area's where both forms of activity may happen simoultaneously.

PART 2
EVIDENCE COLLECTION

2.1 TARGET GROUPS

CHILDREN

Children up until the age of fifteen will be the main focus of this thesis. The term 'children' will be used interchangeably with 'youth'. While ages sixteen to seventeen are not specifically targeted, it can be argued that they may be influenced by interventions aimed at children and adults.

The activity of Norwegian children

Norwegian children do not get enough physical activity. A national study observed that physical inactivity steadily increases from age six (13% for girls, 6% for boys) to age fifteen (60% for girls, 49% for boys) (Nystad & Eklund, 2022). A recent study by Dalene et al. (2022) showed that this increase in sedentary time persisted and was relatively unaltered between 2005 and 2018. Additionally, indicators suggest that where a given child lives impacts statistics of health (Dalen, 2021; Nordbø et al., 2019).

The health of children in Sagene

Children in Oslo generally participate in activities to a similar degree as the average mentioned above (Dalen, 2021). However, in the district of Sagene children participate at a significantly lower rate than their peers living in comparable districts (ibid.). It is speculated that this is tied to poor socio-economic status and low levels of education among parents, both factors which are prevalent in Sagene (ibid.).

The data provided by Statistics Norway (Dalen, 2021) showsthat children living in Sagene use public parks and playgrounds significantly higher rate than children living in less densely populated areas. With parks and playgrounds being among the primary factors for activation in the district, one could argue that their design and availability could directly impact play and physical activity for local youth across the socio-economic spectrum. If one is to do this, however, it is important to acknowledge that not all children are the same.

The development of children

Due to rapid physical and mental development in the early stages of life, the target group's needs (and how to answer them) will differ. A six-year-old might be fascinated by a single slide, but her twelve-year-old brother might need other stimuli (Thoren et al., 2019).

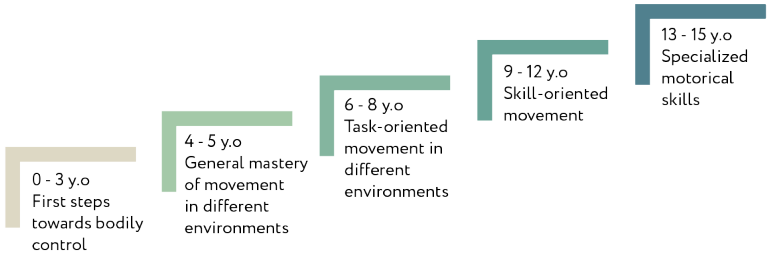


Figure 7: Progression of motoric development for differing age-groups leading to a lifelong, physically active lifestyle (Fjørtoft et al., 2018)

Fjørtoft et al. (2018) argue that children are activated by particular challenges at certain ages (see fig. 7). These challenges move from general bodily control towards specific utilization of that control. An example could be how four-year-old balances on one leg, whereas her older self uses that knowledge to balance on a branch.

Looking at children through a developmental lens lets one differentiate between their needs and acknowledge that they are part of a gradual process. To reach the specificity of higher development, one has to have been exposed to the generality of the lower.

If one is to design for the general activation of youth within an urban green space, it is, therefore, necessary to identify elements in the environment that have the capacity to stimulate activity across different developmental stages.

ADULTS

Adults will, in this thesis, be defined as those above the eighteen.

The activity of Norwegian adults

Only three in ten Norwegian adults get sufficient amounts of physical activity. That means that 70% are physically inactive, which is linked to increased levels of stress, anxiety and shortened life expectancy (Regjeringen, 2023). This gives an impression of the general public health of Norway's adult population, but like with the children, many factors are impacting these numbers.

The physical activity of adults in urban environments

Cities see higher levels of activity in their population than their rural counterparts. A study by Breivik & Rafoss (2017) showed that inhabitants in Oslo were statistically more active than the Norwegian average (with a difference of about seven percentage points). While this may be attributed to the closeness of necessities (school, work, shops etc.), it might also be attributed to the socio-economic situation of our urban inhabitants.

Research shows strong correlations between levels of education, income and health. For example, if one has a university degree, it is more likely that the given person participates in physical activities (Breivik & Rafoss, 2017). Similarly, if a person has a high income level, they (and their offspring) are more likely to satisfy activity-level recommendations. Even though cities generally see higher averages of physical activity, internal differences are likely present in areas where low socio-economic status is prominent (ibid.)

The health of adults in Sagene

Inhabitants in Sagene have the lowest life expectancy of any district in Oslo (see fig. 8). A man living in Sagene will statistically die eight years before a given peer in the district of Northern Aker, something which is similarly reflected in their female counterparts (Oslo kommune, 2020). Sagene additionally house the highest rate

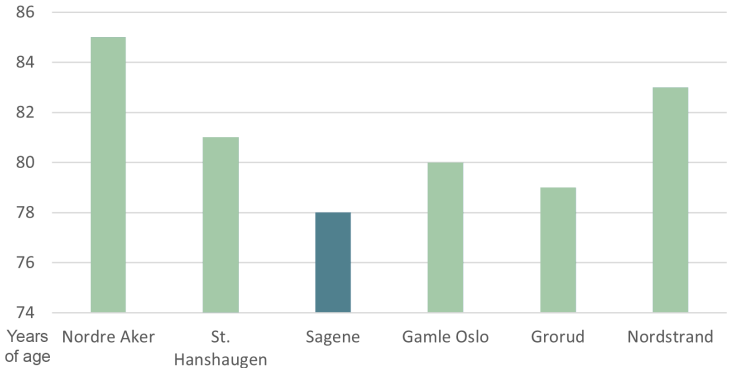


Figure 8: Average life expectancy in a selection of Oslo's districts (Oslo kommune, 2020)

of municipal housing in Oslo, which indicates that a fair number of its inhabitants are on the lower end of the socio-economic spectrum (ibid.)

What increases physical activity among adults?

Norwegian adults want to increase their levels of physical activity. Two studies (n = 1005) reported that over 70% of adults wanted to increase their physical activity levels the following year (Ipsos, 2021). Walking in nature was listed as the most sought-after medium for realizing this. This is further substantiated by additional sources who found walking in parks and greenspaces to be the most preferred way of getting activity, both in terms of frequency of use and their capacity to reach a broad audience (Breivik & Rafoss, 2017; Fongar & Thoren, 2022).

If one is to impact the physical activity of the adult population in Sagene, it can therefore be argued that facilitating access to appealing, natural environments may be a sound investment.

2.2 HUMAN-ENVIRONMENT RELATIONSHIP

AFFORDANCE THEORY

Affordance theory centres around the practical functions an environment offers to a given user (as seen in fig. 9) (Gibson, 2014; Thoren et al., 2019).

Affordances can be illustrated through the image of a boy climbing a rock. The rock (environment) inhabits the trait 'climbable' in relation to the boy (the user). Alternatively, if the boy's mother rested against it, the rock could also have the affordance 'restable'.

Affordances are relative to a given user. The stone could be 'Hide-behind-able' to a child but might not be so for her mother. The affordances an object or an environment provides a user is tied to that person's physical and mental state (Gibson, 2014). It might not even occur to the mother that stones are something one should crouch behind, just as it may be the first impulse that reaches her child.

Acknowledging and intentionally working with affordances can lead to a design with a high degree of different uses (Thoren et al., 2019). If a bench goes from solely being sit-able to inhabiting the affordances 'run-able' and 'hide-behind-able', its functions increase from one to three. Multiply this line of thinking with the objects or traits scattered about a park, and one begins to fathom how affordances may impact levels of play and physical activity. Natural environments have been shown to inhabit many such affordances and therefore serve as a cornerstone of the thesis (Thoren et al., 2019; Wolley & Lowe, 2013).

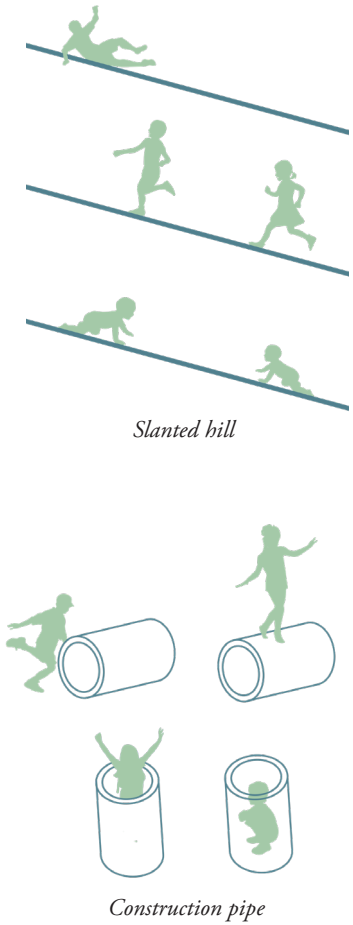


Figure 5. Affordances illustrated (Atmodiwirjo, 2014)

THEORY OF LOOSE PARTS

The Theory of Loose Parts proposes that children's social, cultural and cognitive development is linked to the interaction with loose parts in their environment (Nicholson, 1971).

Loose parts are variable natural or manufactured materials that can be moved, morphed, lifted and dabbled with (Nicholson, 1971; Houser et al., 2016). These elements include toys, twigs, mud, logs, berries or running water. With this in mind, the theory states the following:

"*In any environment, both the degree of inventiveness and creativity and the possibility of discovery are directly proportional to the number and kind of variables in it*"
(Nicholson, 1971, p.30).

From this, we can gather that loose parts, according to Nicholson, stimulate beneficial processes in children's play. Thoren et al. (2019) substantiate this by suggesting that loose parts are linked to imaginative play of construction and manipulation of the environment.

One could argue that loose parts are tightly linked to affordances. In and of themselves, they are of little consequence, but in relation to users, they pose a multitude of different uses. The presence of loose parts may therefore afford play, which in turn equals increased levels of physical activity.

THE PRINCIPLES OF PLAY

Researching play and physical activity among youth, the Southern Danish University and Monday Morning think tank has identified four core principles that stimulate play. The following is presented by Pawlowski et al. (2013).

Each principle (see fig. 10) highlights a factor that should be considered to successfully engage youth in a given environment (Pawlowski et al., 2013).

1. The game master

While play is spontaneous in its nature, it may benefit from having a game-master to initiate it. As older children tend to play this role, having environments which cater to youth of different ages is suggested to be beneficial.

2. The thrill

Play is enhanced by a certain degree of risk. A feeling of speed, height or as if something is at stake is suggested to create this internal thrill.

3. The variation

There should be variation in both playable elements and user groups. The variation should come to light through intensity levels, an ability to stimulate motoric skills and social interactions.

4. The practice

Play functions best if there is room to evolve through practice, preferably with the presence of elements that one can aim to master at a later point. This creates an incentive to keep coming back.

The principles emphasize the internal and social responses a given child experiences in relation to their environment. This psychology of play is useful because it helps illuminate what drives play on a different plane than that of physical surroundings. Designing with an awareness of both can be argued as beneficial if one's aim is to stimulate play and physical activity.

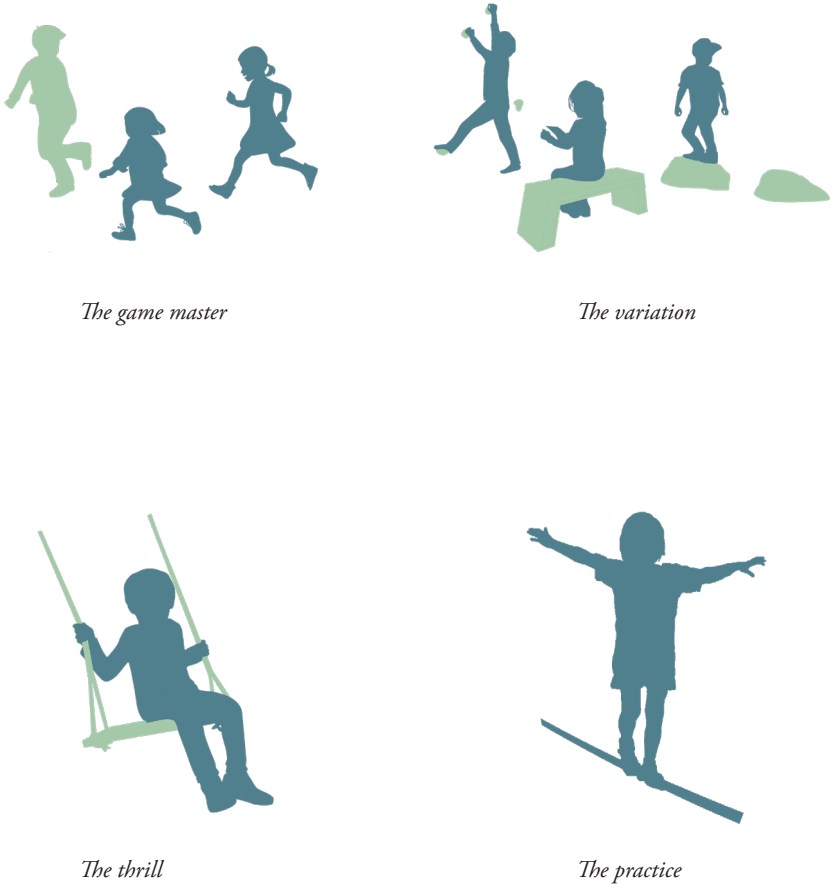


Figure 10. The four principles of play

ATTENTION RESTORATION THEORY

The Attention Restoration Theory (ART) suggests that exposure to certain natural environments may positively impact one's mental state and cognitive abilities (Kaplan & Kaplan, 1989). Mental restoration, the theory argues, is essential to counteract the mental depletion many experiences due to life in urban environments (ibid.).

ART presents four key characteristics that impact how restorative a given environment is (see fig. 11). If a given place manages to meet the design characteristics for ART sufficiently, some studies indicate that it impacts wellbeing and mental restoration (Ohly et al., 2021).

Being away means that the environment allows escape from sources of everyday stress. Busy streets or one's workplace may be examples of such (Marcus & Sachs, 2013). Extent refers to an environment's ability to make people feel like they have entered another place. This may be through its size, boundaries to the outside world, material use or activities (ibid.). Fascination is linked to elements or processes within the environment that stimulate soft fascination. Examples are vegetation, water or the changing of the seasons. Compatibility is linked to how an environment provides what a given user is after (ibid.). If one came to play, there should be playable elements. If one came for nature, there should be vegetation.

ART is relevant to the thesis due to the interrelatedness of the pathways to health. If one experiences mental restoration in a given green space, it may, in turn, affect physical activity (Hartig et al., 2014). While this may be especially so for an adult audience, it may also have implications for children.

With the increased focus being placed on screen time among youth, it can be argued that also they may be in need of restorative environments. Here, the pathway may work the other way around. If children seek play in an environment that sufficiently meets the characteristics of ART, this may, in turn, impact their mental restoration.

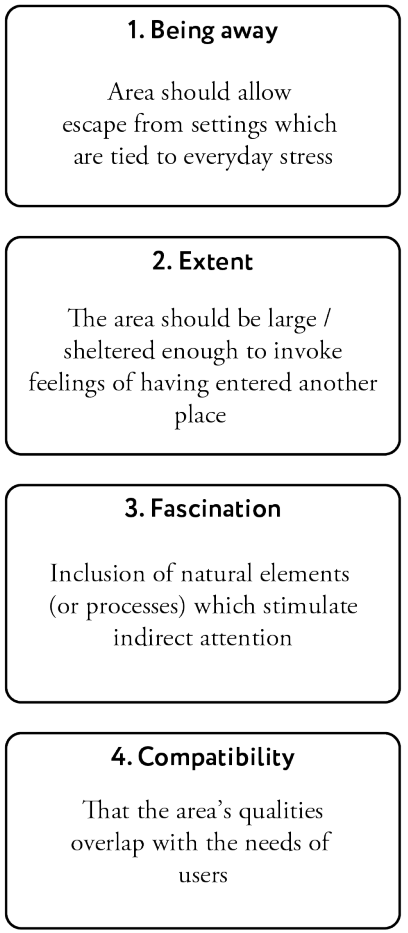


Figure 11: The four characteristics of restorative environments (Kaplan & Kaplan, 1989)

PROSPECT-REFUGE THEORY

The Prospect Refuge Theory proposes that humans have evolved to favour certain environmental settings (Marcus & Sachs, 2013).

The most favoured condition for environmental, experienced wellbeing is suggested to arise where you can view your surroundings (by prospect) without being observed yourself (by refuge) (see fig. 12) (Dosen & Oswald, 2016). For example, this could be a bench where one can watch their surroundings while having something at their back (Marcus & Sachs, 2013). However, some suggest that this preference might fluctuate throughout life and that teenagers are more likely to be at rest while on display than other age groups (Marcus & Sachs, 2013).

After a meta-analysis of the theory's effects, Dosen & Oswald (2016) found that people prefer prospect (the ability to see their surroundings) over refuge. This is further substantiated in a study by Gatersleben & Andres (2013), where natural environments with a high degree of prospect led to mental restoration, whereas the opposite did not. This suggests that a design which lets a given user observe their surroundings is more important than one which favours refuge. However, one could assume that a certain presence of refuge might be significant. If a bush at one's back may increase environmental comfort, one could also imagine it (and the refuge it offers) to be used as a part of children's play (Thoren et al., 2019).

Prospect-refuge theory has been suggested to help explain conditions for perceived wellbeing (Marcus & Sachs, 2013). However, some suggest that degrees of prospect and refuge are equally important in explaining where people do not want to be (Sreetheran & Bosch, 2014; Gatersleben & Andrews, 2013).

Figure 12. Progression from refuge to prospect

FEAR OF CRIME IN URBAN GREEN SPACES

Discussions on urban green spaces often highlight their benefits to a given user or society. However, it is important to recognise that their benefits depend on how the urban green space is perceived (Sreetheran & Bosch, 2014).

If an urban green space is perceived as unsafe, it could negatively impact people's wellbeing (Sreetheran & Bosch, 2014). If a woman, for example, found herself in a poorly lit park which was rumoured to be dangerous, chances are that feelings of unsafety would arise. In turn, this might lead her to avoid the park, leaving her devoid of the potential benefits being there could offer her.

In a literature review of perceived safety in urban green spaces, Sreetheran & Bosch (2014) identified three main attributes influencing how a given park is perceived (see fig. 13). Personal attributes are tied to gender, age, ethnicity and personal history. Social attributes are tied to how often and by whom a park is frequented and how it is perceived collectively. Physical attributes relate to layout, signs of development, vegetation and maintenance of the given green space. The total sum of the three is suggested to determine how a given green space is perceived.

The first and foremost attributes one can impact through landscape architecture seem to be the physical attributes. Examples include lighting, signs of development, maintenance, density and kind of vegetation and prospect. (Sreetheran & Bosch 2014). If the physical environment lays a foundation for use and recreation, that use will, in turn, impact who visits the area, how it is perceived collectively and ultimately, the personal relationship a given user has to their favoured green space.

While perceived safety is important for the activity of adults, it may especially be so for children. If parents are to bring their children to a given urban green space or let them frequent it by themselves, one could imagine perceived safety to be of paramount importance.

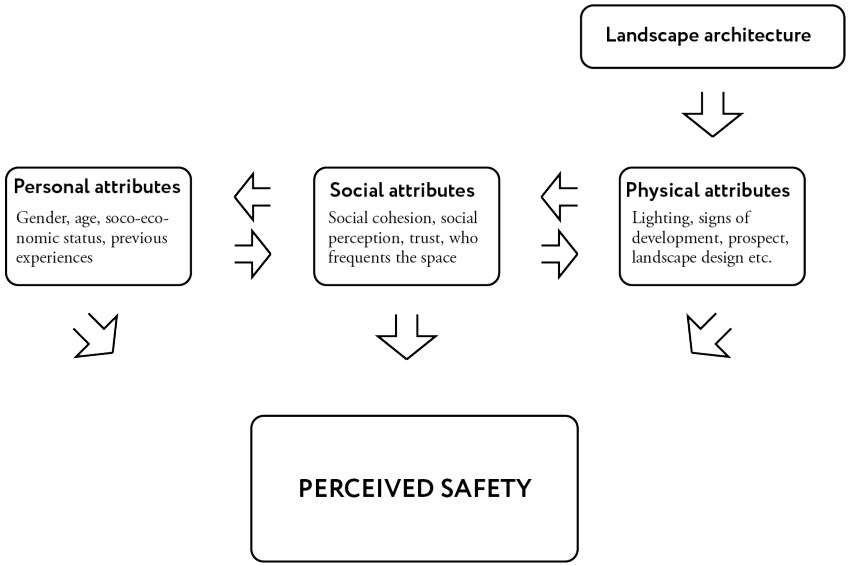


Figure 13. Attributes suggested to affect perceived safety in urban green spaces (Sreetheran & Bosch, 2014)

THE ACTIVATION OF YOUTH

Table 1. structures a selection of elements (meaning both a physical element or form of activity) that have been shown to engage children physically in Fjørtoft et al. (2018). The data is beneficial due to its broad range of examples, especially because it also considers the elements within the context of different developmental stages. This lets one identify which elements have the capacity to activate a broad spectrum of youth.

Five elements (marked with coloured text in Table 1) stimulate activity more broadly than the rest: Varied vegetation, Varied terrain, Balance, Nature and Climbing. Each element stimulates activity across all developmental stages. As a contrary example, Gymnastic-elements only do the same for two.

From this, we can gather that some elements are more likely to stimulate activity than others and may therefore be afforded a higher degree of importance in a design. That does not mean, however, that elements with a narrower span in Table 1. should be completely neglected.

Activating factor	0-3 years of age	4-5 years of age	6-8 years of age	9-12 years of age	13-15 years of age
Varied terrain (flat, incline)	■	■	■	■	■
Small hindrances (logs, rocks)	■	■			
Balance	■	■	■	■	■
Varied vegetation	■	■	■	■	■
Manipulative environment	■				
Bicyling (easy)		■	■		
(Bicycling (hard)		■	■	■	■
Swings / rotating elements		■	■		
Rotating elements		■	■		
Playstructures (swings, rotation-centered, huts)		■	■		
Target (for throwing)		■			
Varying spatial config.		■			
Nature	■	■	■	■	■
Ski / ice-skating		■	■	■	■
Climbing	■	■	■	■	■
Ballsports			■	■	■
Gymnastic-elements				■	■
Obsticacle courses				■	■
Trampolines				■	■
Skateboarding				■	■
Water activities					■
Dancing / Yoga					

Table 1. Elements that have been shown to engange children physically across different developmental stages (Fjørtoft et al., 2018).

Table 1. lists examples of elements that have been shown to activate children of different developmental stages (Fjørtoft et al., 2018). That does not, however, exclude an element from resonating with additional stages, even if it is not highlighted in the source material of Fjørtoft et al. (2018). Examples substantiating this line of thinking may be found in supplementary literature.

For example, Hyman et al. (2017) found that implementing a high degree of loose materials in schoolyards increased physical activity. In the table above, manipulative environments are solely listed under 0-3 years of age. A similar example can be found in relation to water activities.

Water activities are listed as an activating element for youth aged 13-15 by Fjørtoft et al. (2018). A report published by Statististisk sentralbyrå (2021) found bathing to be the second most activating, unorganized activity for youth aged 6-15 in Oslo. A study by Bozkurt & Wolley (2020) found play with water (in both natural and urban settings) to facilitate play for children of all ages, especially so for younger children. Activities included general play, splashing, playing on rocks crossing the water and feeding ducks. The fact that water activities have been used as an example for youth aged 13-15, and not for the other stages, does therefore not necessarily mean that the same element could not activate a nine-year-old.

This thesis will use the empirical foundation of Table 1. with the understanding that elements might activate a broader audience than what is listed by Fjørtoft et al. (2018). If an included element activates more broadly than expected, it is nothing other than beneficial. However, if the goal is to activate broadly, then using the elements shown to do so may be prudent.

Practical application

When analysing Table 1., it becomes apparent that different elements may be facilitated through the same design intervention. It is a matter of what a given environmental element may afford.

For example, a varied terrain can afford multiple elements listed in Table 1. If the terrain varies in incline and frequency, one could imagine activating elements such as skiing, dancing, and yoga to possibly occur within the given area. By identifying where the prerequisites of elements overlap, one could lay a foundation making programming for activity easier.

Figure 14. establishes five categories of design based on shared traits found in Table 2. The five elements shown to activate children across all developmental stages are highlighted in bold typing. If the categories are used as a guideline towards activating different developmental stages, then elements must vary in size, scope and difficulty levels (Thoren et al., 2019).

Environmental elements
Varied terrain (flat, incline)
Yoga / dance
Skiing
Nature
Varied Vegetation
Manipulative environment
Varying environments
Small hindrances (logs, rocks)
Balance
Climbing
Parkour
Gymnastics elements
Playstructures (swing, rotation, hut)
Trampolines
Water activities (bathing, play)
Ice skating
Bicycling (from easy to advanced)
Skateboarding

Table 2. Categories of elements that can be afforded through the same design-intervention.

Figure 14. The categories of Table 2. as shown by way of icons.

THE ACTIVATION OF ADULTS

Walking in public parks and green spaces have been suggested to be the most sought-after form of physical activity for Norwegian adults (Breivik & Rafoss, 2017; Fongar & Thoren, 2022). One could therefore argue that if a given green space manages to provide features favoured by adults, it would, in turn, impact their levels of physical activity (Hartig et al., 2014).

Having investigated a series of studies, Figari et al. (2019) found that distance from one's home to the given green space was considered imperative for use. A literature review from Fongar & Thoren (2022) deemed this distance to be no more than 500 meters if use were to be regular. However, if a park offers desirable qualities, some findings suggest that people will travel further to visit it (Figari et al., 2019).

The use of green space is connected to what it offers. Multiple reports state that parks offering many functions are more likely to be used (Fongar & Thoren, 2022). Examples of preferred functions include places to socialise, relax, get fresh air, interact with wildlife and experience nature (ibid.; Fongar et al., 2019). Varied natural environments were suggested to afford more functions than homogenous parks (ibid.).

A study of Norwegian's relationships to parks found that clean, visually stimulating surroundings were the most important quality for use (Fongar & Thoren, 2022). In a review of parks in Oslo, Nord & Østbye (2013) found such preferred visual stimuli to be natural components such as grass, shrubs, flowers, water elements and trees.

Multiple sources listed in Fongar & Thoren (2022) found that well-maintained natural features encouraged use. However, the same source suggests that people have a fondness for nature-like elements (ibid.). These preferences are probably tied to time and place. However, it indicates that a degree of naturalness (perceived absence of human influence) may promote use if the area is still perceived as well maintained.
Ease of use is another important feature. Many deemed snow-free areas important (Fongar & Thoren, 2022). Abundant seating was another valued asset (ibid.). That one experiences peace and quiet during a visit to an urban green space was also shown to be favoured (ibid.). Some, therefore, argue a separation of zones that generate sound from those that do not (Miljødirektoratet, 2014). Playgrounds, for example, can be imagined as a noisy feature. Even so, playing children has been shown as a favourable feature in urban green spaces (Fongar & Thoren, 2022). While the aforementioned features have been shown to stimulate visits to a given green space, other factors may diminish use.

Greenery, considered positive during daytime, could become equally frightening after sunset (Rahm et al., 2021). Keeping prospect, the ability to see over/through vegetation and one's surrounding area has been suggested to counteract this (ibid.; Sreetheran & Bosch, 2014). Another important factor for perceived safety is lighting.

Studies show that people, especially women, avoid poorly lit urban green spaces (Sreetheran & Bosch, 2014). Marchus & Sachs (2013) lists evenly distributing light along pathways and aestethic lighting upon vegetation as beneficial for perceived safety. The presence of others may also affect use.

The presence of others in an urban green space may work in two ways. If other visitors are perceived as belonging to groups such as drug users, homeless or prostitutes, it negatively impacts perceived safety and use (Sreetheran & Bosch, 2014). However, people who do not fall into categories such as those mentioned above have been shown to increase feelings of perceived safety (Sreetheran & Bosch, 2014).

2.3 ENVIRONMENT

MYRALØKKA

Myraløkka constitutes the geographical area of this thesis. While the park generally encompasses both the eastern and western plains of grass (as shown within the red lines of fig. x.), for the purpose of this thesis, the project area will be delimited to the park east of the Aker River, as well as basins found to its north-east (enveloped by a solid red line, displayed in colour).

On the one hand, the delimitation is done because the western part of Myraløkka serves important functions. It is grass-covered, open and partly steep and may host many people. Being a prime location for sunbathers, dog enthusiasts, outdoor concerts and winter sledding, it has functions worth keeping. However, this does not necessarily translate to the rest of Myraløkka.

The feasibility study

Since 2005 there have been political and civilian voices have advocated establishing a bathing facility at Myraløkka. From this, one can gather that A) there is a public wish to make the water more accessible, and B) that the public sees potential outside its current function and design. While nothing has been done physically to meet these wishes, the municipality has investigated possible avenues of action.

In 2019 Bymiljøetaten ordered a feasibility study of the area by Asplan Viak (Bymiljøetaten, 2020). The unpublished study proposed two alternatives of design which partly touch upon the project area. Possibilities for establishing a bathing facility in the lower basin of Myraløkka, a connection between the basins following the north-western riverside, and the possibility of leading water into a concrete-lined canal in the grass-covered, southern plain were proposed. The feasibility study has provided inspiration and practical insight into the possibilities hidden in Myraløkka.

Before describing Myraløkka in detail, the evidence collection will begin by looking at the context in which it lies.

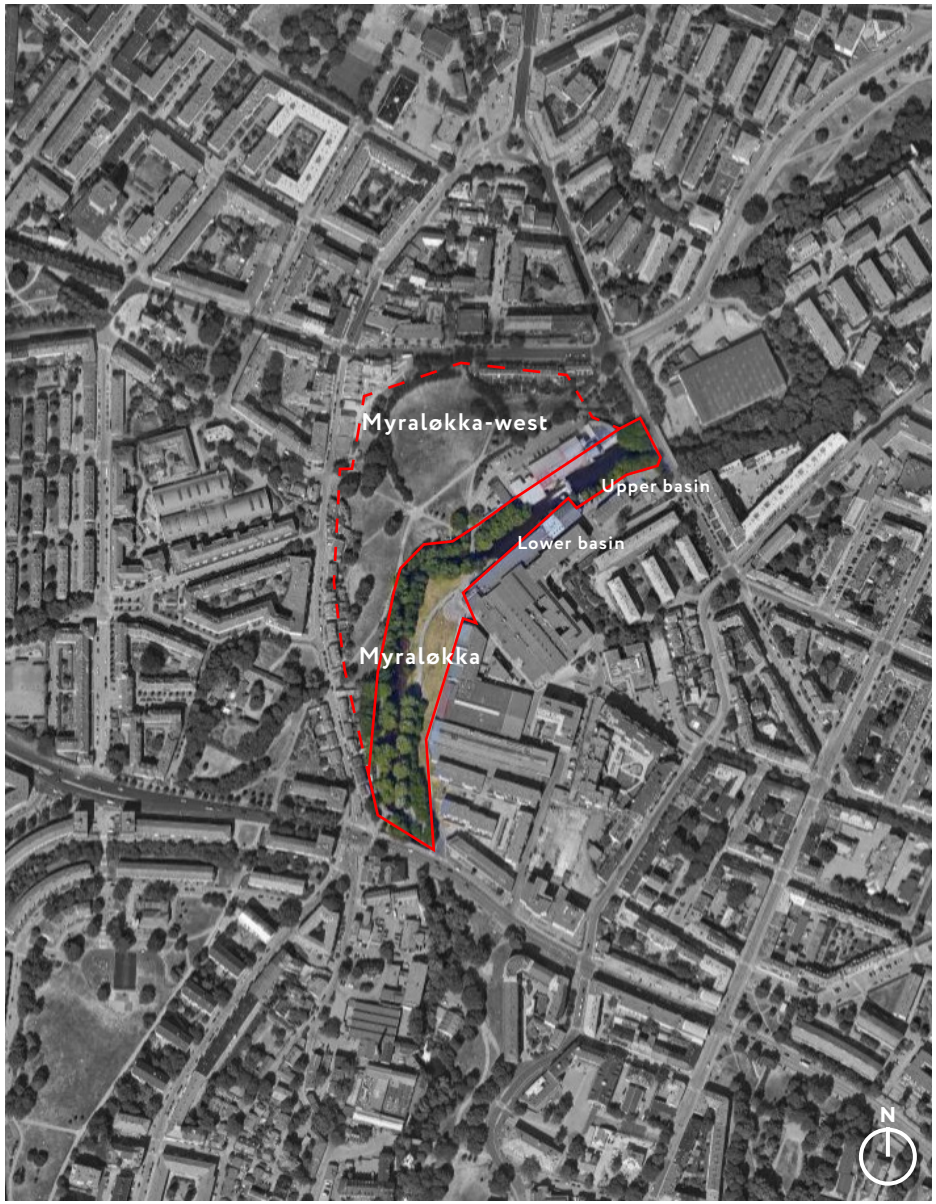


Figure 15. Myraløkka and the delimited project area

SAGENE

Myraløkka is located in the district of Sagene (see Fig. 16). The district is counted among one of the five central districts in Oslo. Even though it has been praised internationally for its beauty and inherent qualities (Dagsavisen, 2021), the district faces particular socio-spatial challenges.

Sagene is Oslo's smallest yet most densely populated district (Høilund, 2019). Over the past twenty years, the 3.1 square kilometre area has seen a significant rise of inhabitants (see fig. 16). Between 2008 and 2019, the number of children in Sagene rose by nearly 70% (Oslo kommune, 2023b). One can imagine an equal rise in publicly available recreational areas to be unlikely.

Housing in Sagene is made up of 99% apartment blocks (ibid.). It is reported that 50% of youth live in cramped housing (Folkehelseinstituttet, 2023). Overpopulated apartment blocks will likely lead inhabitants to nearby green spaces for play and recreation, increasing their importance.

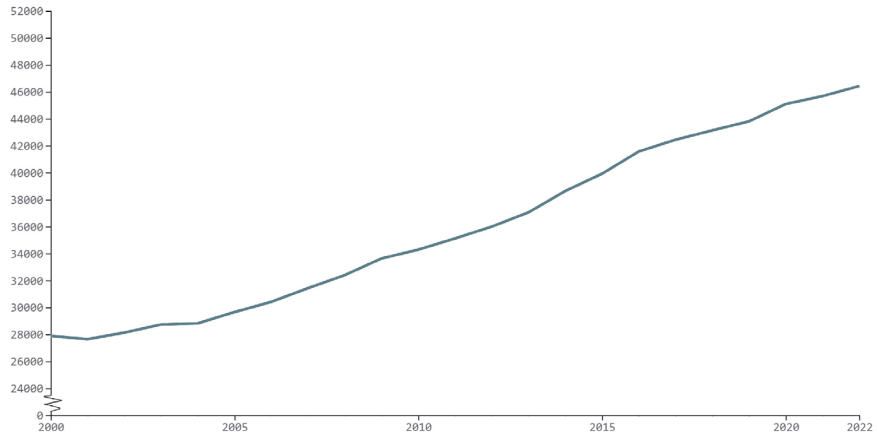


Figure 16: Sagene's rise in population from the year 2000 to 2022 (Oslo kommune, 2023b)

PARKS IN CENTRAL SAGENE

Sagene is host to a multitude of urban green spaces. Even though there are individual differences between these, such as their amount of vegetation, incline or size, most substantial green spaces share certain characteristics (with a notable exception being the Aker River).

Sagene's parks are characterized by extensive plains of low-cut grass crossed by multiple pathways of gravel or asphalt, with trees of substantial size in their outskirts. Iladalen, Myraløkka, Torshovparken, Gråbeinsletta and Bjølsendumpa (see fig. 17) are all green spaces with the abovementioned traits. This design is likely to have arisen due to multiple reasons. For example, a high degree of prospect arises from the open layout. It may also be tied to economy due to how low maintenance levels are required to care for grass plains. Additionally, such lawns accommodate large groups of people. While these are important factors to acknowledge, one could also point out that such a design is low on affordances and natural complexity.

Figure 17: Public green spaces in central Sagene

THE AKER RIVER

The Aker River (partly displayed in fig. x.) falls into a different category than traditional parks. Having suffered the aftermath of the industrial revolution, counteractive measures were implemented to restore its natural qualities and availability (Oslo kommune, 1991). It is now a cherished display of lush vegetation, fauna and running water (Tvedt & Svendsen, 2019).

The river constitutes an interconnected system of pathways and green spaces stretching over ten kilometres (Oslo kommune, 1991). Its main pathways (displayed in white) move through a variety of urban green spaces and therefore see high amounts of pedestrian traffic. Myraløkka's paths (displayed with the red line of fix. x) are part of this network, increasing its reach of potential influence.

While visited by people from afar, some will probably use Myraløkka because it lies within their immediate surroundings.

Figure 18: The Aker river and it's adjacent pathways. Pathways within Myraløkka displayed in red.

SCHOOLS & KINDERGARDENS

Figure 19. shows the location of schools and kindergartens within a 500-meter radius of Myraløkka.

Due to the substantial presence of institutions (five schools and eight kindergartens), a fair amount of children are likely to move through the area. It might also be reasonable to assume that some of these children live close to their given institution, highlighting the importance of Myraløkka as an available green space in their immediate environment. It is also possible that Myraløkka could see use organized by the nearby institutions.

There has, in recent years, been a public debate regarding the lack of sufficient recreational areas for both Sagene School and the Norwegian-German school (named in fig. X). Due to limited possibilities for expanding their outdoor areas, Myraløkka might be a destination for pupils and children during school & kindergarten (not limited to the two schools above). On the one hand, it might function as a traditional recreational area. On the other hand, it might be a valuable scene for teaching and learning within biology, physics, history and geology.

Figure 19: Schools and kindergartens within a 500 meter radius from Myraløkka

IMMEDEATE CONTEXT

To understand Myraløkka, it is relevant to look at its immediate surroundings. The aerial photo used in Figure 20. shows Myraløkka from an Eastern perspective. The functions of the built structure can roughly be divided into three categories: housing, multimedia businesses and schools.

Housing can be seen in the outskirts of Myraløkka. This is private housing taking the shape of individual houses (lower end of Figure X) and apartment blocks. At the core of Myraløkka, however, we find buildings catering to companies.

Multimedia businesses dominate the facades bordering Myraløkka. Most of these cater to the creation of TV and movies. An indoor playland, the sort one book for birthday parties, is a relevant exception.

On the western riverbank of Myraløkka lies the ***German-Norwegian school and kindergarten***, which houses children aged 1-12. The parking lot portrayed next to the complex has recently been transformed into a schoolyard (mainly consisting of asphalt and sand ground-cover).

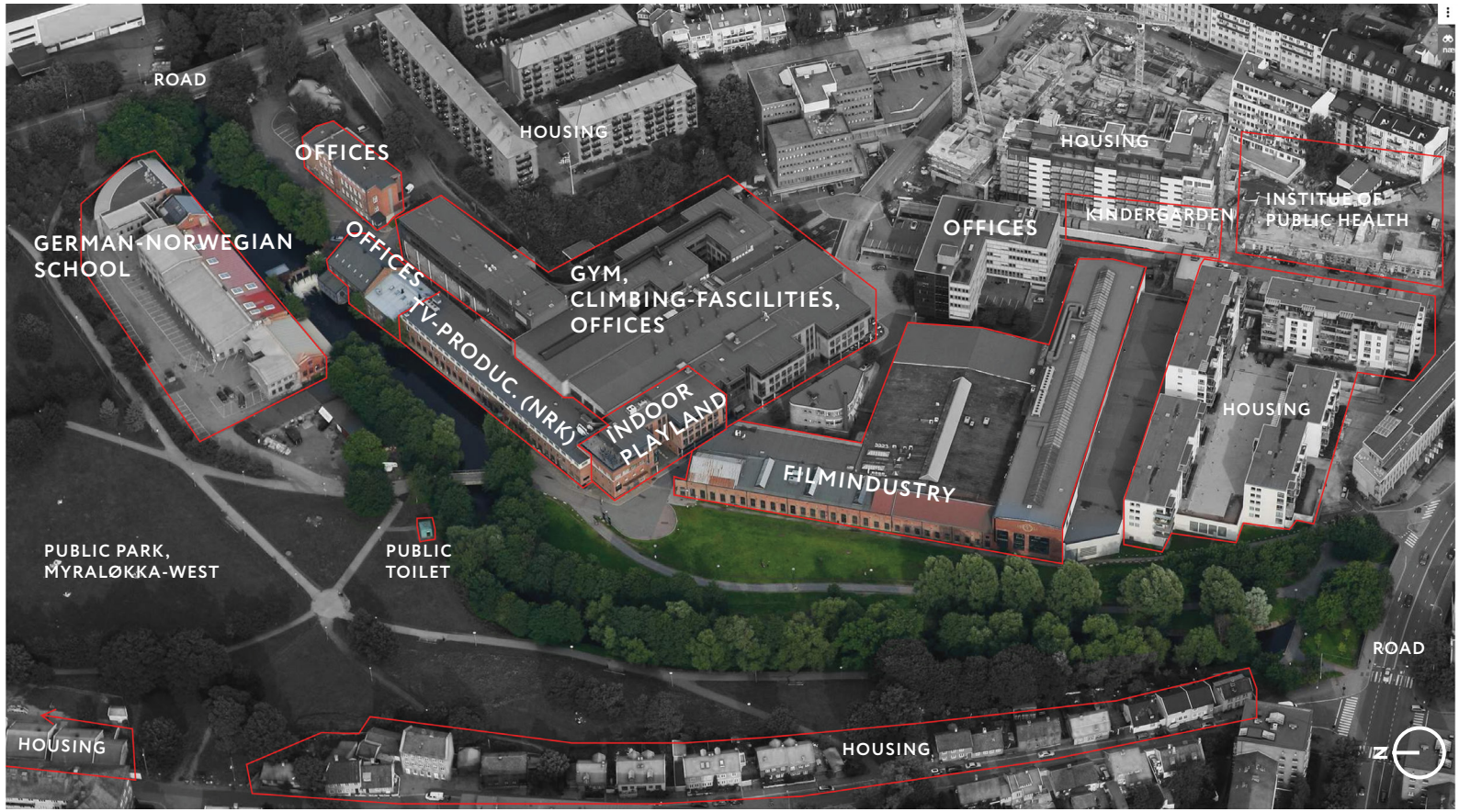


Figure 20: Immediate context, eastern view of Myraløkka (Gule sider, 2023)

MUNICIPAL REGULATIONS

Figure 21. displays a simplified version of Myraløkkas municipal regulations.

The basins are regulated as “Freespace water”, which is designated to “play/ recreation/sports” (Oslo kommune, 2023b). Centrally in Figure X., there is an arrow marked “drivable”. The area covered by the arrow is part of two different regulations and is designated to be free space (park) (S-3739) and road (S-5167) (Oslo kommune, 2023b). The same regulations show a designated turning area for vehicles (marked X. in fig. x)

The rest of Myraløkka is regulated as “Free space (park)”, intended to be a public green space. It is currently drifted as “park-standard 3”, requiring little maintenance (Bymiljøetaten, 2023). The regulation additionally mentions an intent to create a playground in the park 50 meters or further from Ring 2 (shown in a dashed line). As of today, there are no playgrounds in Myraløkka.

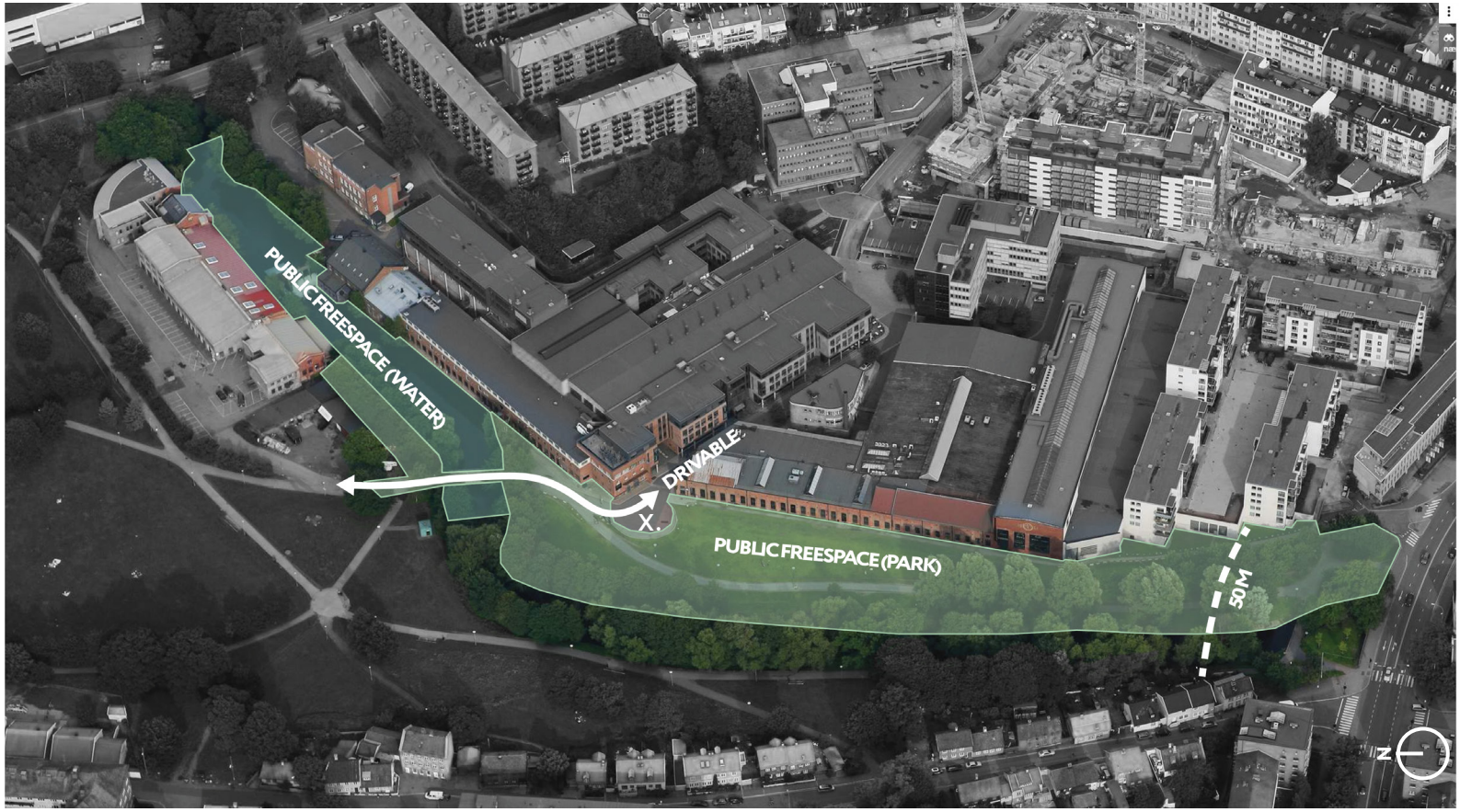


Figure 11: Municipal regulations in Myraløkka

FACADES

Facades are important spatial elements, influencing a given user's impression of his or her surroundings. They can make a place pleasant and beautiful but may also have the opposite effect.

Figure 22 divides Myraløkkas (more or less) visible built-structure into three categories. The first, displayed in grey, shows neutral facades. The impressions they create are likely to sway depending on the landscape around them.

The second category is negative facades, displayed in red. While not abundant, the white-ish, graffiti-clad facades in Myraløkkas southeast are counted as such. They give the impression of cheap housing-blocks.

Finally, there are the positive facades, displayed in yellow. They (notably wooden houses in the west, industrial buildings following the river and the bridge to the north) are complex, varied and improve the landscape around them. There is a substantial presence of such facades in Myraløkka.

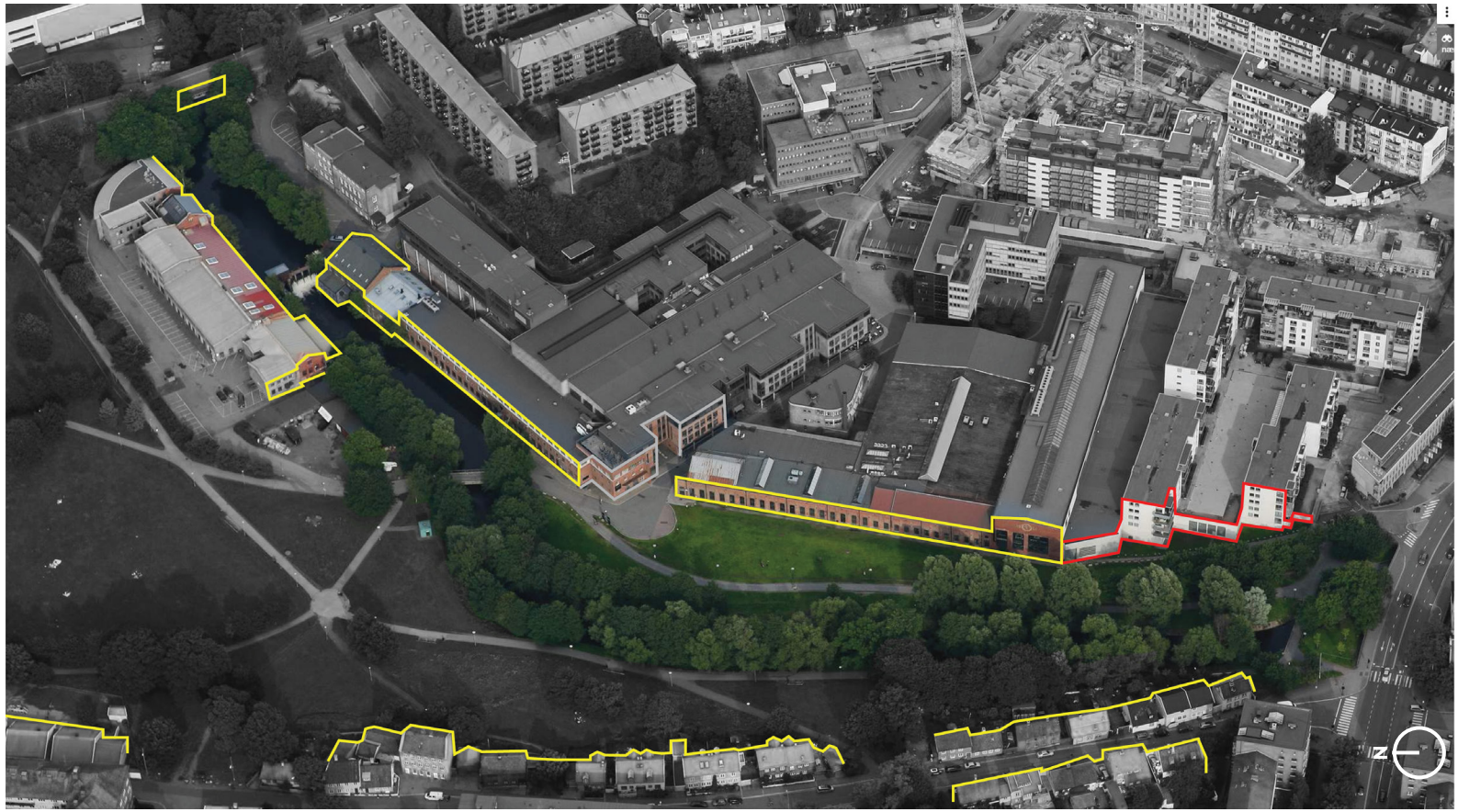


Figure 22: Facades catyegorized after visual character

A BRIEF HISTORY OF MYRALØKKA

Before becoming the urban green space it is today, Myraløkka shifted through a series of historical phases.

Myraløkka was once a semi-natural landscape connected to a farm named Myra (Oslo byleksikon, n.d.). The name "Myra" is probable to have arisen due to the oxbow lake, which used to lie there (seen as a blue line of fig. 23).

A large industrial complex was established in Myraløkka in 1854 (Holmen, 2021). It was one of Norway's leading institutions for producing machinery for many years. As its influence grew, so did the architectural footprint of its presence in Myraløkka. The factory closed its doors in 1987, and ten years later, the buildings were repurposed to serve its present functions.

During most of the industrial era, Myraløkka's outdoor area seems to have been similar to its present-day situation. The open plain was framed by riverside vegetation and industrial facades. A difference, as seen in both Figure 24 and Figure 25 was that the main axis of movement used to be

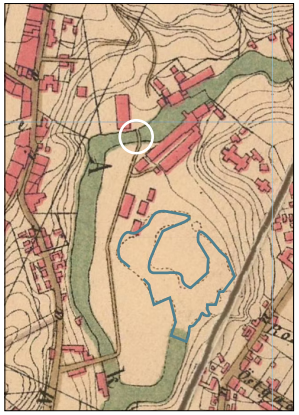


Fig. 23. Myraløkka, 1881. Myra bridge circled in white (Finn kart, 1881)

Fig. 24: People strolling through Myraløkka, unknown date (Digital musem, n.d).

located further east, alongside the industrial facade.

If one is to mention Myraløkka's history regarding children's activity, there is a need to gaze across the river. During the industrial era, clay was discovered in the western part of Myraløkka. The clay was gradually excavated, leaving a bowl-shaped landscape filled with hills (as seen in fig. 25) (Andreasen & Lutzow-Holm, n.d). During winters, the rolling landscape turned into an attraction for local youth. Although the hills have disappeared, the bowl-shaped layout of Myraløkka-west remains.

The Aker River also seems to have historically fascinated local youth (on both sides). While literature is scarce on the topic, a couple of images remain (as seen in fig. 26).

Fig. 25: Youth playing in Myraløkka-west, unknown date. Taken at a northern angle from Myra bridge (Digitalt musem, n.d).

Fig. 26: Children looking into the water of the lower basin, 1945 (Digitalt museum, 1945).

Fig. 27: Group of boys playing along Myraløkka's riverbank, winter of 1942 (Digitalt museum, 1942)

EXISTING PLAN

The plan to the right displays Myraløkka's current state. To ease the presentation of the area, as well as discussions later on, the area will be divided into three sections.

The sections of Myraløkka will be referred to as the forest, the plain and the basins (as shown in Fig. 28). Each section has certain characteristics that separate them from the others.

The forest gets its name from a cluster of trees. While not resembling an actual forest, the name fits within the context of Myraløkka.

The plain is named after its open, horizontal stretch of grass. A 'plain' can be defined as a large area of flat land with few trees.

The basins are named for being large depressions harbouring water. Internally they will be referred to as the 'upper' and 'lower' basins, deriving from their difference in altitude.

Before describing each section in detail, a brief explanation of Myraløkka's lines of movement will be given.

Figure 28. The three sections of Myraløkka

LINES OF MOVEMENT

Figure 29. displays the lines of movement (both pedestrian and driven) in and around Myraløkka.

Being part of a more extensive system of pathways along the Aker River, the thicker lines marked "busy" represent the main lines of pedestrian movement. These correspond to the pathways following the Aker River. Connected to these (especially prevalent in western-myraløkka) are smaller pathways leading a given visitor out into the vicinity, depending on where he or she wants to go.

East of the main pathway through Myraløkka, there lies a gravel pathway along one of the industrial facades. It does not have armatures, benches or edges separating it markedly from the bordering grass. The facade it follows has three doors and may be used as entry points for people working in, or visiting, the inside.

The drivable access lets cars move into the area. These will either turn in Myraløkka's regulated turning point (marked 'X') or move across Myra bridge towards the German-Norwegian school.

Between the 'official' pathways lies signs of people venturing outside these intended lines of movement. The dashed lines in the diagram indicate places where lines of trodden ground become apparent in the grass.

Figure 29. Lines of movement

THE FOREST

The forest constitutes the southern part of Myraløkka. Its main characteristic trait can be argued to be its trees, which in the warmer seasons provide foliage above.

While not abundantly vegetated compared to an actual forest, the spatial quality of the trees stands in contrast to the rest of Myraløkka. The riverside vegetation comprises large trees (as seen to the right in fig. 30). Across the pathway lies a series of Norway maples. The rows cluster in the south and open up as they progress northwards. Walking beneath these trees provides a sense of being removed from city life.

Two pathways through the area. The main axis of movement is an asphalt pathway following the river (as seen in fig. 30). It lies between the big riverside trees and the maples. Along its trajectory stands two benches, side by side, facing the river. To the east, following the facades and the open sky, lies the gravel pathway (as seen in fig. 31). It is lined by a selection of large stones, some square-cut and some of a round, natural form. The ground between the pathway and the maples is downtrodden, indicating that the pathway might not sufficiently cater to the number of people moving along this axis.

In terms of terrain, the area is spacious, horizontal and open, with no bushes or shrubs. Where it is not trodden away, the area is covered by grass. The facades to the east are predominately made of white-ish mortar covered by graffiti (see fig. 31). In the northern end of the area, an industrial, brick-clad facade makes itself known. The facade displays the old logo of the industrial complex (see fig. 32).

The area has a limited amount of affordances. The stones following the eastern pathway may be balanced upon or jumped off. The ground cover has twigs and leaves lying about , but is otherwise perceived as barren.

Fig. 30. The main pathway through the forest, southernly perspective

Fig. 32. Industrial facade sporting the logo of the insdutrial complex

Fig. 31 Gravel pathway with adjacent facade and stones

THE PLAIN

The plain lies at the heart of Myraløkka. The expanse of horizontal ground is covered by low-cut grass and an asphalt-clad half-circle in the north. The half-circle is a vehicle turning point and entry point for cars moving across Myra Bridge to the north (see fig. 35).

The two pathways (asphalt in the west, and gravel in the east) are complemented by a series of smaller, trodden paths moving across the expanse of grass. This indicates that some people favour the softer ground, perhaps a shorter route across the plain.

On the one hand, the plain is framed by the large riverside vegetation. In the southwest, there is a span along the river where only two trees stand. However, the adjacent riverbank makes the visual backdrop green. The large trees characteristic of the riverside return around the northern bend of the river, creating a large backdrop for the southernly facing lawn. Most of these stand on the inclining riverbank, not on top of the horizontal plain. A single bush can be found close to one of the facades. Signs and lighting armatures lie along the main pathway. In the east, the plain is framed by the industrial facades and the road leading between the buildings and into the eastern neighbourhood (as seen in fig. 33).

In terms of affordances, the plain offers mainly what a flat stretch of lawn in a sunny disposition provides. There are four benches and two tables, all loose, scattered about the lawn. If one looks at the riverside, however, it offers some interesting characteristics.

Part of the western riverbank (with few trees, seen to the right of fig. 34) offers shallow waters and low-lying terrain. This seems to be a cherished place for interacting with ducks that gather along the bank. Below the large trees, the northern riverside is covered by roots and stones. These interesting pieces of natural environment are probably valuable in relation to play and activity.

Fig. 33: The plain as seen from the northern bend in the river, southernly perspective

Fig. 34: The main pathway and the eastern industrial facade, south-easternly perspective

Fig. 35. The vehicle turning point, northern perspective

THE BASINS

The basins are two pools of water, broader and deeper than the Aker River in general (Multiconsult, 2022).

East of Myra bridge lies a small lip of land. It provides an entry point to the adjacent building and a place where one can look at the junction between nature and architecture (see. fig 36). If one's gaze wanders northeast, along the water, one will see the dam separating the lower and upper basins.

The upper basin is located approximately three meters above the lower basin. The dam separating the two lets water flow from one level to the next. One can walk onto the dam (see fig. 37), but first, one has to reach it.

Getting to the upper basin could be more intuitive. From Myraløkka, one has to walk the winding streets east of the green space. Alternatively, one can access it from the north. Upon reaching the basin, a plateau provides access to the dam and views over the river (see fig. 38). With its mix of historical architecture (including the northern bridge in fig. 38), water and lush nature, the upper basin is a place of serenity.

The basins are predominately only visually accessible. This is especially so for the lower basin, as it lies along the well-trodden path moving through Myraløkka. Moving along the northern system of pathways, one can see the upper basin for a short stretch before it leads a visitor behind the western building. However, some seem to use the upper basin's waters practically.

The upper basin affords a place in which one can swim. Interviews and observations revealed that the dam and plateau in the upper basin serve as landfall points from which one can jump into the river. A ladder is placed at the plateau to exit the waters easily. With water, both still and rushing in form, historical buildings and lush vegetation, both basins invoke a certain awe.

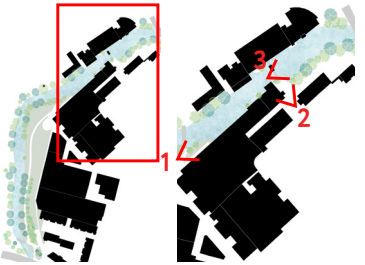


Fig. 36. View of the lower basin, as seen from the lip of land

Fig. 37. The dam, as seen from land

Fig. 38 View of the upper basin, as seen from the dam.

THE WATER

Figure X. shows the depths of the Aker River at average water flow. The numbers indicate that the depth is between this number and half a meter more.

The lower basin has an average depth of less than a meter (Multiconsult, 2022). The water of the upper basin is significantly deeper, with an average of 2.5 meters, progressively increasing as the water approaches the dam (Multiconsult, 2022).

The white arrows in Figure X. show places of significant currents. The lower basin generally contains slow-moving water (0-0.5 m/s), except a trail of fast-moving water following the dam. The turbulence this creates travels across the surface of the lower basin (Multiconsult, 2022). The water slows but picks up its pace for a stretch following Myra Bridge. The upper basin contains a steady and gentle water flow (0-0.5 m/s), and its waters are generally calm with little to no turbulence.

Fig. 39: The Aker River's depth and current

THE RIVERBANK

While the ground cover of Myraløkka mainly consists of low-cut grass, the riverbank offers varying characteristics. The pictures in Figure 39. illustrate the general look of each riverbank character.

The first category of riverbank in Myraløkka is the artificial support structures (see 1.). This ***stone-lined riverbank*** is steep and not easily accessible.

The second category of riverbank is characterized by ***low terrain meeting shallow waters*** (see 2.). The eroded riverbank makes the water accessible and mostly consists of pebbles.

The third category of riverbank is found along the northern bend in the river. Between the large tree trunks lies a ***root- and stone covered groundcover*** (see 3.). The incline is varied and allows for access to the water.

Facades and two patches of ***wild vegetation*** characterize the riverbanks of the basins. The buildings meet the water vertically, leaving no room for human contact with the water (see 5.). The patches of nature (see 4.) can be accessed but are filled with low vegetation making movement difficult.

The western riverbank generally consists of a combination of categories one and four.

2. Low terrain meeting shallow waters

1. Stone lined riverbank

3. Roots and stones, varying incline

4. Wild vegetation

5. Facades meeting water

Fig. 40: The riverbank

THE VEGETATION

The vegetation of Myraløkka can be divided into sections sharing similar traits and species (displayed in fig. 40).

1. Riverside vegetation (park)

The riverside vegetation (park) is characterized by large trees with open ground beneath them. In the southern row (1.a), *Salix alba* are dominant, interspersed with *Alnus incana*. The dominance is reversed in the northern cluster (1.b), and many trees are poly-stemmed. East of Myra bridge (1.c), there are two *Betula pendula,* uncharacteristic of Myraløkka in general. The vegetation on the western riverbank generally has the same three species intermixed.

2. Riverside vegetation (wild)

The two areas of wild riverside vegetation (marked 3. in fig. x). are a mix of species, including *Alnus incana, Salix alba* and *Corylus avellana*. It has a prominent bush and shrub layer, not present in riverside vegetation (park).

3. The maples

The trees clustering in the centre of the southern part of Myraløkka are *Acer platanoides*. These are of substantial size but clearly of smaller stature than their neighbours to the west.

Bushes

There is a small selection of bushes in Myraløkka (B). A row of newly planted bushes in the south-east, as well as a single, larger specimen in the northern plain. Species have not been possible to determine.

Solitary trees

A handful of solitary trees has found a foothold in Myraløkka (S). Two stand in the western plain, whereas the rest are located along the basins' facades. Species have not been possible to determine.

Grass

Grass makes up most of the ground cover in Myraløkka (4.). It is short-cropped and bears evident marks of wear.

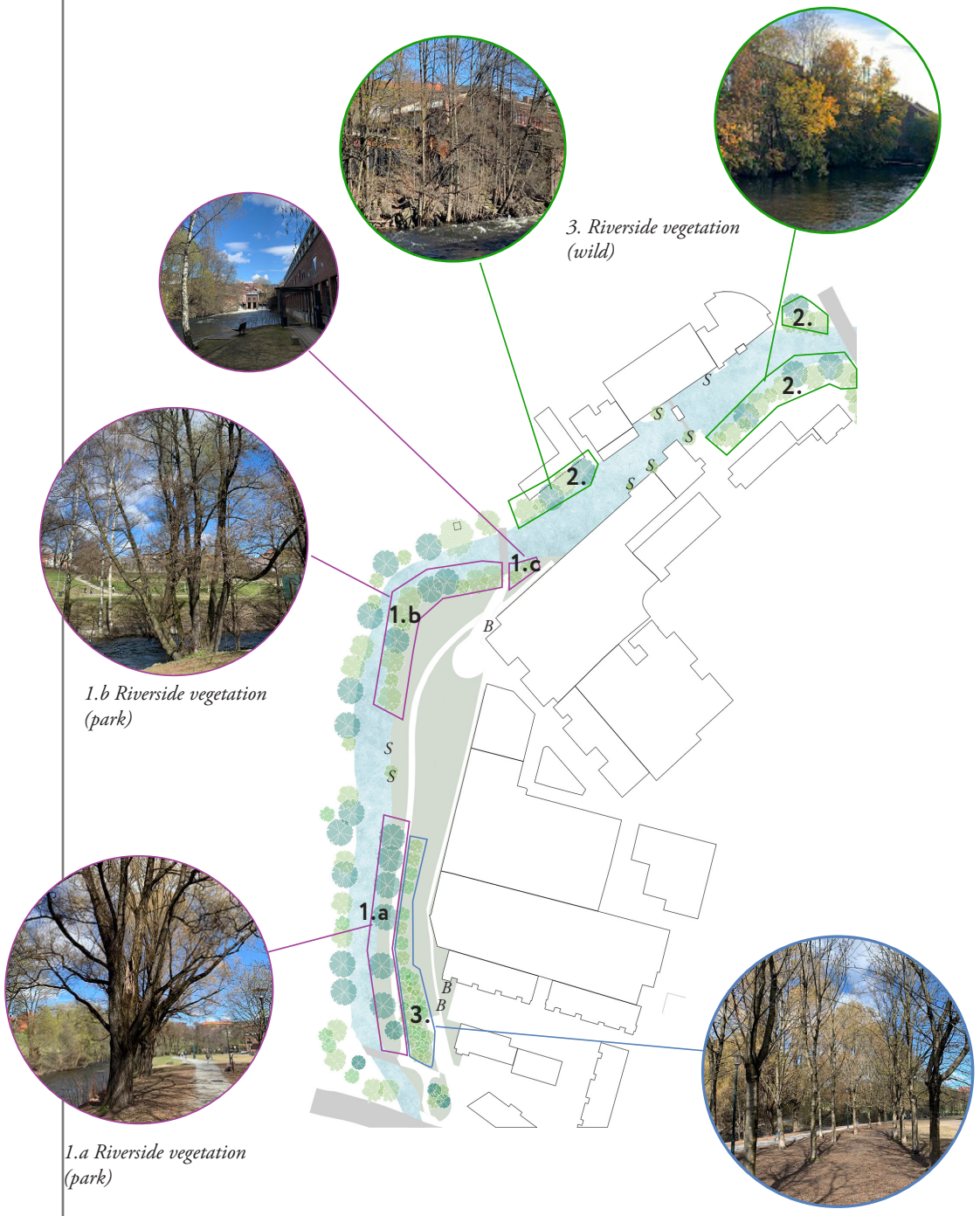


Fig. 40: The vegetation of Myraløkka

TALKS & OBSERVATIONS

Fifteen visitors to Myraløkka participated in anonymous, short interviews throughout three sessions. The participants were asked three questions and given leave to elaborate on their answers. The questions and main findings are summarised in Table 3.

The sessions were all made during daytime. Two during weekends, one at 11:00 AM and the other 15:30, the third in a weekday afternoon. By way of observations, these are some of the busiest times at Myraløkka. Having been there on excursion numerous times (spread across varying days and times), two additional observations is worth mentioning. The first relates to how Myraløkka seems to be used.

A significant difference was observed in people walking through Myraløkka as opposed to those who stopped. During an interview, a respondent acknowledged this (without being prompted) by referring to Myraløkka as a highway. This indicates that most people visit it as part of walking the Aker River pathways, not necessarily as a destination in and of itself. The second observation is related to children.

During all trips to Myraløkka, almost no children above the approximate age of four were observed. There were many younger children, but none of a higher age. Whether this is due to lack of affordances, safety issues or otherwise is unknown. Several people, however, mentioned Myraløkka as a destination for nearby schools and kindergartens. This means that significant numbers of children may be in the area at certain times of day.

FINDINGS

QUESTIONS				
1. What qualities draw you to Myraløkka?	Ducks	Sun	The water*	Proximity
	Lack of traffic	Birdsong	It's sense of nature	People watching
2. Are there any disadvantages?	Nothing to do	Lack of benches	Not enough for kids	Scary at night
3. If you could add something to Myraløkka, what would it be?	Seating options	Playground	Bathing-facility	Workout equipment
	Flower meadows	More vegetation	Insect-hotels	More ducks

* While most implicitly refered to a presence of the Aker River, three people mentioned this in relation to swimming in the upper basin

Table 1. The table displays an abridged version of answers given most frequently during interviews.

PART 3
PROGRAMMING

3.1 PROGRAMMING

The following pages will display a series of programming tables. Their function is to translate evidence into design-criteria and solutions. Table 4. provides an example of how they are structured.

The tables begin by listing the category of evidence they belong to: Human-environment relationship or Use of environment. Underneath follow the table's specific theme(s): mental restoration, perceived safety, affordances, etc. If there is room for more than one theme in the table, it will appear in tandem with another. If all evidence listed stems from the same source, the source will appear in brackets following the theme.

Evidence is listed in the first column. The second column formulates one or more criteria that a design should include or consider. The third column lists an observation about the current status at Myraløkka regarding the given criteria. The final column displays the design-solutions.

The design-solutions highlight how the criteria have come to light within the design proposal (specifically or generally). Given that the proposal is yet to be presented, it may be beneficial to revisit the programming after becoming familiar with the design.

CATEGORY OF EVIDENCE

Programme: theme(s) of the table			
Evidence	Design critera	Status: Myraløkka	Design proposal: Myraløkka
• Varying terrain has been shown to increase physical activity among youth (Fjørtoft et al., 2018)	Design should include varying terrain	• Myraløkka is predominately horizontal	• The design includes terrain of varying incline and character

Table 3. Structure of the programming-tables.

HUMAN-ENVIRONMENT RELATIONSHIP

Programme: Mental restoration			
Evidence	Design critera	Status: Myraløkka	Design proposal: Myraløkka
• Humans may benefit from environments that provide mental restoration (Kaplan & Kaplan, 1989; Nordh & Østby, 2013; Ohly et al., 2021)	Design should focus on the four characteristics of restorative environments: *Being away* (escaping the source of stress) *Extent* (entering a new world) *Fascination* (elements (or processes) holding one's attention) C*ompatibility* (that the are overlaps with user needs)	• Being away: Its size and natural features allow for escape from the urban environment. Few seating options and no access to the basins limit its capacity harbour many visitors • Extent: Experienced as a single, large, homogenous area similar to nearby green spaces. • Fascination: The river, birds, certain facades and large trees bring fascination. Other elements invoking fascination are scarce. • Compatibility: Pathways do not seem to work optimally. Additionally, it lacks sufficient seating and elements stimulating activities.	• Being away: The design provides ample opportunities for escape from the urban environment. On the one hand, due to an increase of space where users are likely to go (off the beaten path to reach elements, into the basins). On the other, through increased infrastructure, supporting the presence of more people. • Extent: The design focuses on creating extent through added vegetation, concealment of unappealing facades, varying terrain and ground cover dissimilar to the urban (bark-gravel, wood-choppings, forest-ground etc.). • Fascination: The design implements varying vegetation (additional trees, bushes, shrubs, straws, perennials and grasses), natural elements such as rocks and logs, varying terrain and a new brook (meaning a small stream). In addition comes wooden play structures and the fascination of being around other people. • Compatibility: The western bark-gravel pathways allow strolling at a slow pace. The eastern promenade facilitates practical movement. If one seeks solitude, it can be found on a selection of the smaller benches or more spontaneously on rocks, edges and hills. Tables and large benches accommodate larger groups. These vary in orientation and location due to the sun's movement. Whereas high-paced play is likely to occur in the southern forest, along the brook and on the dock, they all have room for slower play to arise

HUMAN-ENVIRONMENT RELATIONSHIP

Programme: Perceived safety, Prospect-refuge			
Evidence	Design critera	Status: Myraløkka	Design proposal: Myraløkka
• If an urban green space is perceived as unsafe, it could negatively impact use and people's health (Sreetheran & Bosch, 2014) • Physical attributes such as prospect, sufficient practical and aesthetic lighting, well-maintained vegetation, signs of development, and the presence of other people have been showed to impact perceived safety (Sreetheran & Bosch, 2014; Fongar & Thoren, 2022; Rahm et al., 2021) • A scoping review by Dosen & Oswald (2016) found that prospect to be more highly favoured than refuge. • Marcus & Sachs (2013) show to bushes behind seating as a favoured example of prospect-refuge. However, Sreetheran & Bosch (2014) point out that bushes may negatively affect perceived safety, as they are especially prone to block lines of sight	Design should include physical attributes that promote perceived safety: prospect, sufficient lighting, signs of development, appearance of maintained vegetation, presence of people Design should take settings of prospe-ct-refuge into account, but put a stronger emphasis on prospect	• Substantial sense of prospect, little to no refuge • Lighting armatures stand along main pathway, leaving large areas dark after nightfall • Some disrepair in relation to asphalt and graffiti-covered walls. While these are the only prominent signs of disrepair, neither are there many signs of development (meaning costly materials or a cherished environment) • Riverside vegetation in the accessible parts of Myraløkka looks well main-tained, with unmaintained areas of wilder nature lining the basins. Grass is trodden down along the main pathway and next to the facades. • There is a large flow of people moving through Myraløkka, but comparatively, few who stop to spend time there|	• Design balances added refuge (vegetation and terrain differences) with prospect. While elements add visual and practical stimuli, a degree of oversight is kept. • The design makes use of small and large armatures, spot-lights, lighting strips and aesthetic lighting to promote feelings of safety after dark • By implementing substantial changes to Myraløkkas appearance and func-tioning, one simoultaneously suggest signs of development. • Added vegetation will be maintained, including parts designed to have a nature-like expression. This may require an increase in the maintenance levels offered by the municipality. Re-organizing the pathways (and offering a softer alternative to asphalt) is likely to mitigate downtrodden grass due to people moving through Myraløkka • Connecting the basins' walkways to the northern system of pathways facili-tates a flow of people moving through the basins. The increased infrastructure and program will probably lead more people to spend time in Myraløkka, increasing social control.

HUMAN-ENVIRONMENT RELATIONSHIP

Programme: Affordances, Loose parts & Principles of play			
Evidence	Design critera	Status: Myraløkka	Design proposal: Myraløkka
• Environments with a high degree of affordances are linked to an increase in activity (Thoren et al., 2019; Fjørtoft et al., 2018) Natural environments have been shown to inhabit a high degree of affordances (Thoren et al., 2019; Wolley & Lowe, 2013; Fjørtoft et al., 2018) Loose parts (have been suggested as beneficial for play and physical activity (Houser et al., 2016; Hyndman et al., 2017; Thoren et al., 2019)	Design should focus on creating natural environments that are open to interpretation, contain loose parts and capable of serving multiple functions in play.	• Valuable affordances can be found in relation to Myraløkka's riverbank (trees, roots, stones and water) and wildlife (predominately ducks). • Leaves and twigs can be found in relation to the trees, pebbles and water by the Aker River is accessible.	• The design increases Myraløkka's offering of natural environments, both in character and size. Varying combinations of elements (terrain, vegetation, water, play-structures) provide settings where a given user may find affordances suited to their purpose. • The increase in differing environments and settings follows a natural increase in loose parts. Examples include berries, leaves, flowers, insects and accessible water.
• The principles of play have been suggested as factors impacting the play and activity of youth (Pawlowski et al. 2013)	The design should take the four principles of play into consideration: *The game-master* (different age-groups) *The thrill* (feelings of risk), *The variation* (intensity and motoric challenges) *The practice* (room to evolve).	• When schools and kindergartens visit Myraløkka, varying age groups are probably present. Observations and interviews indicate that few children are using the area in unorganized settings • Moving close to the river might evoke a thrill, but the lack of variation limits its potential for affording activity • The area provides a relatively low variation in challenges. • Due to a lack of challenges, there is little which might stimulate practice.	• The game-master: The design uses elements which have been shown to activate youth across different stages of development (elaborated under 'Factors for use'). This increases the chances of game masters taking part in play. • The thrill: The design facilitates thrill through bathing, encouragement of movement close to or over water, steep terrain, trampolines and play structures. • The variation: The design affords challenges scaling from easy (such as climbing rocks and hills) to hard (leaping from one side of the brook to another, balancing across river stones or swimming in the Aker River). • The practice: Through an emphasized focus on balance and bodily control (ranging from logs to climbing trees, trampolines and slack-lines), the design offers activities in which one is never fully educated.

USE OF ENVIRONMENT

Programme: The activation of youth (Fjørtoft et al., 2018)			
Evidence	Design critera	Status: Myraløkka	Design proposal: Myraløkka
• Varying terrain has been shown to activate youth across the five developmental stages of youth It may additionally afford activating elements such as skiing, yoga, dance and ball play	Design should implement terrain of varying character and incline	• Myraløkka is experienced as a single horizontal plain. Certain shifts are present along the riverbank.	• The design alters Myraløkka's terrain in multiple ways. On the one hand, it presents a series of hills and a canyon. On another, it presents an elevated walkwalk. The walkway varies in incline and distance to the water below. Ample stretches of horizontal terrain are still present.
• Natural elements have been shown to activate youth across all developmental stages • Natural elements encompass vegetation (of all layers), water, manipulative environments and varying environmental qualities (spatial changes, shifting groundcovers)	Design should include a variety of natural elements. This relates both to differing kinds of configurations, as well as singular features.	• The trees of Myraløkka and the Aker River are perceived as strong natural elements. Accessible vegetation of other layers is minimally present. • Canopies and tree trunks provide slight spatial variation, while the northern riverbank offers a patch of land where dirt, roots, and stones break the monotony of grass and asphalt.	• Varying vegetation is added to Myraløkka. This includes trees, bushes, shrubs, grass, perennials and flowers, chosen based on their inherent qualities. • The introduction of the brook adds a more accessible water element to Myraløkka. The Aker River serves as it's enlarged counterpart. Access to the basins invites youth to experience a place of singular, aquatic nature. • Through the natural elements mentioned above, a greater spatial variation is available. Use of differing species, maintenance-strategies and materials increases variation in groundcovers.
• Motoric challenge (especially through balance and climbing) have been shown to stimulate activity across all developmental stages. • While natural elements have been shown to offer such opportunities (rocks, logs, trees), built environments may supplement these to effectively stimulate the motoric challenges (play structures, swings, trampolines, slacklines)	Design should include elements that encourage balance and climbing, ranging from easy to advanced Design should include built structures that offer challenges and speed not common in nature	• The stones may afford balance following the eastern pathway in the forest or when trying to reach the water along the northern riverbank. Given the high branching in nearly all trees, few elements stimulate climbing. • No built play structures stand in the area	• By implementing stones, logs, climbing-trees and terrain of varying size, character and setting, the design promotes motoric challenge by way of natural elements. Of special mention are the jumping stones lowered in the Aker River. • Wooden play structures (of varying complexity), trampolines, swings and slack lines are made available within the area

USE OF ENVIRONMENT

Programme: The activation of youth			
Evidence	Design critera	Status: Myraløkka	Design proposal: Myraløkka
• Fjørtoft et al. (2018) showed to bathing as an element stimulating activity in youth aged 13-15 • A study by Bozkurt & Wolley (2020) found play with water (general play, splashing, crossing it by rocks) to activate children of all ages, especially girls and younger age groups. • Norway statistics (2021) found bathing to be the second most activating, unorganized activity for youth in Oslo	Design should include places for bathing and areas where interaction with water is possible	• The Aker River may be interacted with in varying degrees all along Myraløkkas riverbank • Where the water is easily accessible (meaning possible to walk near), the water is shallow. • The upper basin contains slow-moving water of substantial depth, and is used by some as a bathing-spot	• The brook offers running water for splashing, transporting objects and general water play. Stones are placed both along and in the brook to encourage such interaction. • A dock in the upper basin facilitates bathing for all developmental stages. • A pump transports water from the nearby river and out a faucet installed by the brook.
• Bicycling and skateboarding have been shown to stimulate activity among many of the developmental stages (Fjørtoft et al., 2018)	Design should include surfaces targeted at the promotion of skating and bicycling	• All hard surfaces may be skated upon, including the asphalt path and vehicle turning point in Myraløkka. However, they do not offer qualities varying from that of a normal, urban environment • Myraløkka has several bike-racks but give no indication that it is a place where one comes to perform the activity of bicycling	• Due to the role natural elements play in large part of the design and the abundant hard surfaces in the near vicinity of Myraløkka, skateboarding and bicycling have not been given special attention within the design. However, it provides bicycle-racks to encourage the activity as a means of getting to the area

USE OF ENVIRONMENT

Programme: The activation of adults			
Evidence	Design critera	Status: Myraløkka	Design proposal: Myraløkka
• Urban green spaces encourage physical activity among adults (Breivik & Rafoss, 2017; Fongar & Thoren, 2022; Hartig et al., 2014). Green spaces offering a high degree of functions are more likely to be used. Examples include places to socialise, relax, interact with wildlife and experience nature (Fongar & Thoren, 2022) Visually stimulating surroundings (grass, shrubs, flowers, bushes, water elements and trees) have been found to increase a green space's appeal (ibid.; Nord & Østbye, 2013). A nature-like expression have been suggested as favourable, but other argue that a green space must be perceived as well-maintained to attract use (Fongar & Thoren, 2022)	Design should offer a variety of possible functions Design should use natural elements to appear visually appealing. It should promote a nature-like expression but still carry an air of maintenance	• The area caters to certain functions (exposure to nature, interacting with wildlife, meeting other people, using the grass plain and bathing). However, it can be argued that the functions are limited by a lack of infrastructure and variation. • The Aker River and its riverside vegetation provide visual stimulus. So does the riverside vegetation. In the areas people are likely to move (forest and plain), they appear well-kempt, whereas the wilder vegetation of the basins carries an unkempt, natural expression.	• The design supplements the functions already present in Myraløkka. It increases possible exposure to nature and wildlife through access to the basins, added vegetation and the brook. It facilitates bathing, making it accessible to the general public. • Through the added natural features, the design may appear more visually stimulating. It is intended to increase the nature-like expression available in the plain and forest, but to do so without appearing unkempt.
• Snow-free pathways and sufficient seating has been suggested as important features in a green space (Thoren & Fongar, 2022) Experienced piece and quiet where suggested to be favourable among adult users (ibid). Separating places of high-intensity play and social zones has been suggested to achieve this (Miljødirektoratet, 2014).	Design should include lines of movement that can remain snow free during periods of snowfall The design should provide ample seating-opportunities Design should include places where levels of unwanted noise are low	• The main pathway of Myraløkka is ploughed during winter • Five benches and two tables offer seating-options • Levels of unwanted noise are relatively low. In the southern part of the forest, city life is audible. There is a road crossing a bridge north of the upper basin, but its noise does not appear intrusive due to the height difference.	• Brick- and wood-covered pathways can be ploughed, maintaining year-round movement through Myraløkka. • The design offers seating options varying in size, orientation and location. This is to accommodate different groups (large or small) and sunlit options throughout the day. • The design concentrates play in the central and northern parts of the forest. Ample seating is provided throughout the plain, where noise levels are lower and natural sounds help mask unwanted noise.

PART 4
DESIGN

4.1 CONCEPT

The conceptual angle of the design has been to provide varied environmental experiences within the framework that is the project area (see fig. 41). It carries value both for the promotion of play and physical activity. To do this, it strengthens what was already there.

In the forest, a denser situation is proposed. It is suggested to keep the open space in the plain, but to make it richer in qualities.
In the Basins, physical access is proposed. In addition to this three-part enhancement of exposure to natural features, the industrial history of Myraløkka is emphasised. Pathways following the historic buildings are of form and materiality that complement the adjacent industrial heritage.

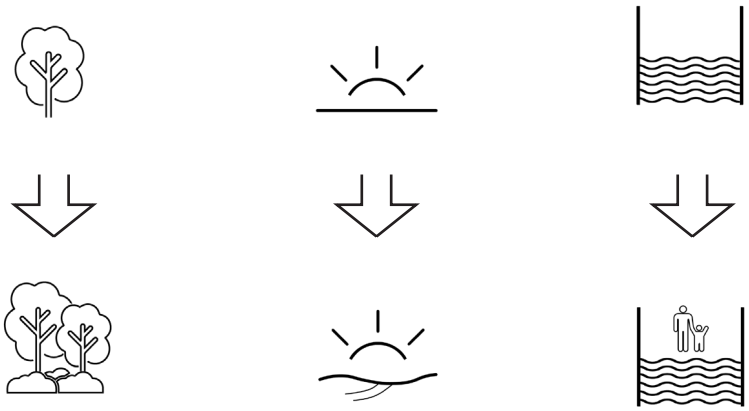


Fig. 41: The concept-diagram displays a strengthening of environmental experiences

4.2 DESIGN PROPOSAL

The plan to the right displays the design proposal in its entirety.

One may recognise the concept of strengthening exposure to Myraløkka's natural qualities in each of the three sections of the design. The forest is dense, the plain rich in qualities, and the basins available for movement.

The lines of movement following the industrial facades are of a form and quality related to the man-made. In addition to being functional and aesthetically pleasing in and of themselves, they also serve the purpose of marking a contrast between the built and the natural.

Embossed in the brick-tiled paving following the facades of the plain is the old, industrial complex logo.

Before presenting each section of Myraløkka in detail, its new lines of movement will be explained.

FLOW

Figure 42. displays the lines of movement in Myraløkka. Before outlining pedestrian use, vehicles will be mentioned.

Crossing Myra Bridge is the only way for vehicles to reach the German-Norwegian school. It is, therefore, necessary to uphold this as a drivable axis. However, to limit traffic through the public green space, it is proposed that the school encourage parents to park or stop vehicles east of the green space (where ample opportunities exist, either through parking or a kiss and ride). Added benefits to this practice are exposure to nature before and after school, increased levels of physical activity and a gentle introduction to independent movement for children. The broadest section of the promenade (marked 'X' in the diagram) follow the dimensions of a municipal vehicle turning point but is suggested to primarily serve official functions.

The main axis of movement through Myraløkka will be along the brick-covered promenade in its east (marked 'promenade'). The spacious promenade provides the shortest route along the north-south axis. In the north, it leads to either Myra Bridge or a walkway through the basins.

The thinner, whole lines indicate secondary axes of movement. In the north, a wooden walkway leads visitors through the basins and connects Myraløkka to the existing system of pathways to the north. West of the promenade lies a pathway allowing movement through the plain and forest, with multiple entry points to the promenade.

Dashed lines indicate probable lines of movement for youth in relation to play. These are spontaneous lines of movement guided by playable elements within the urban green space.

Two new entry points are established in Myraløkka's south. This makes movement between the promenade and southern pathways / nearby bridge more intuitive.

Fig. 42: Lines of movement

THE FOREST

The forest harbours the highest density of vegetation in Myraløkka. Added to its existing trees is a selection of bushes, trees and shrubs.

The central ground cover of the forest (marked by the deep, green colour underneath its central vegetation) is allowed a wilder appearance than that of Myraløkka in general. This nature-like feature carries visual and practical implications but is not intended to grow completely untended. The terrain keeps its predominately flat character to preserve existing vegetation.

Curbstones define the gravel pathway on the forest's eastern side leading up to the promenade. An organically shaped bark-gravel pathway weaves through the western vegetation.

The two pathways represent two different moods. If one is only passing through, one might wish to use the practical eastern axis of the gravel pathway and promenade. If one has time, a wish to be exposed to nature, or prefers the softer qualities of the bark-gravel ground cover, the western path provides a suitable option. Two minor additions to the southern entry point are made to ease the flow of people. The existing parking lot in the south-east of the forest is shortened slightly and reserved for HC parking.

Varying seating options are located around the forest. A series of singular benches lie along the bark-gravel pathways, whereas a group bench is placed along the shorter gravel pathway. While providing respite in the spatial environment, the seating options are also placed to let parents keep an eye on the activity happening there.

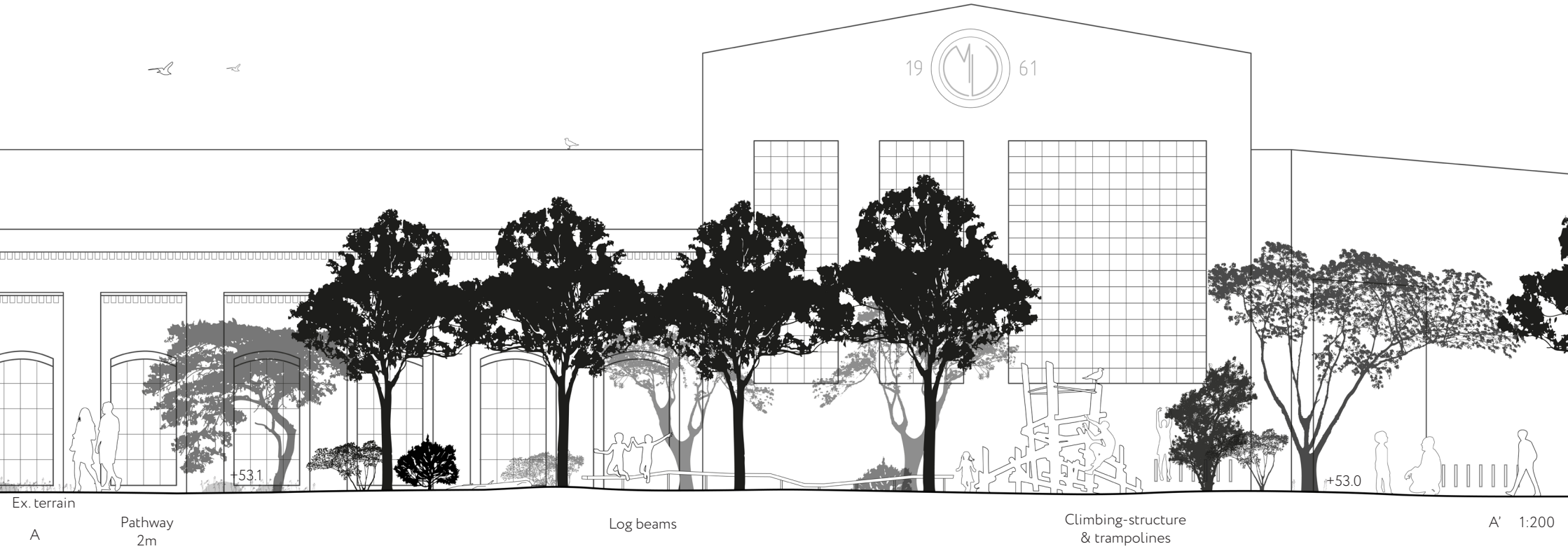


Figure 43. Section cut through the central and northern part of the forest.

Figure 44. A game of hide-and-seek has commenced.

THE PLAYABLE FOREST

The forest houses Myraløkka's most prominent areas for high-paced play. The activity is mainly tied to natural elements and motoric challenges.

The natural elements are, first and foremost, providing a beneficial setting for activity. The canopies function as a veil towards the sky, where bushes and shrubs create spatial variation throughout the area. However, their presence is concentrated in the central- and northern parts. Children may weave in and out of hiding places and spatial clearings. The wilder ground-cover provides flowers, ferns, twigs and insects that can be picked, moved or meddled with.

The added trees and bushes are selected to be climbable, touchable, edible or pickable. A secondary benefit of the layered vegetation is that it allows built play structures to blend into the landscape without compromising its visual character to a high degree.

Balance beams and climbing structures suitable for earlier developmental stages begin in the north and gradually increase in height and complexity as they move towards the centre of the area. Where children are encouraged to move substantially above ground, a ground cover of woodchips is established to ease potential falls. Apart from the structures mentioned above, a slack line is placed in a clearing next to the group bench. The elements are concentrated in the forest's centre and northwards to comply with the regulated 50-meter distance between a playground and the southern road.

The stones that used to line the gravel pathway are placed in a grid below the southern canopies, serving as both a visual and playable feature. Smaller stones are prominent in the north, where other boulders are placed intermittently throughout the area.

Due to the high concentration of elements, the high pace activity is likely to occur within the forest. However, its size and spatial variation allow contemplative play to occur undisturbed at its sides.

Natural elements Motoric challenge

Figure 45. The re-purposed stones of southern Myraløkka is an odd, yet intriguing, sight.

THE PLAIN

North of the forest, we find the plain. It constitutes a gentle nod towards the oxbow lake of yesteryears, as well as to the open plain it has been in in recent times.

Water from the Aker River is diverted to form a meandering brook through the landscape. With a height difference of 60-80 cm from the inlet to the outlet, the water flow is gentle but steadily moving. It is designed to be shallow but substantial in its presence (even in periods of low water levels in the Aker River). Crossing the brook is a series of universally accessible footbridges.

The terrain west of the brook is partly lowered by removing the top layer of earth. The natural incline facing the Aker River should allow this without compromising existing trees. This creates a slight height difference between the eastern and western terrain, promoting spatial variation.

In terms of vegetation, the plain is mainly covered by grass. Three flower meadows provide variation along the ground, coupled with the belts of perennials which line the brook. Solitary trees and bushes are scattered about the plain, promoting visual and spatial variation.

Ample seating options are provided across the plain, and like in the forest, they vary in size, orientation and amount of refuge. The width of the promenade allows for its benches to host people while others walk comfortably by. An especially large boulder is placed upon its neighbouring lawn, providing fascination and unformal seating. The amphi-stairs serve a similar function but are placed to be slightly more isolated from the promenade.

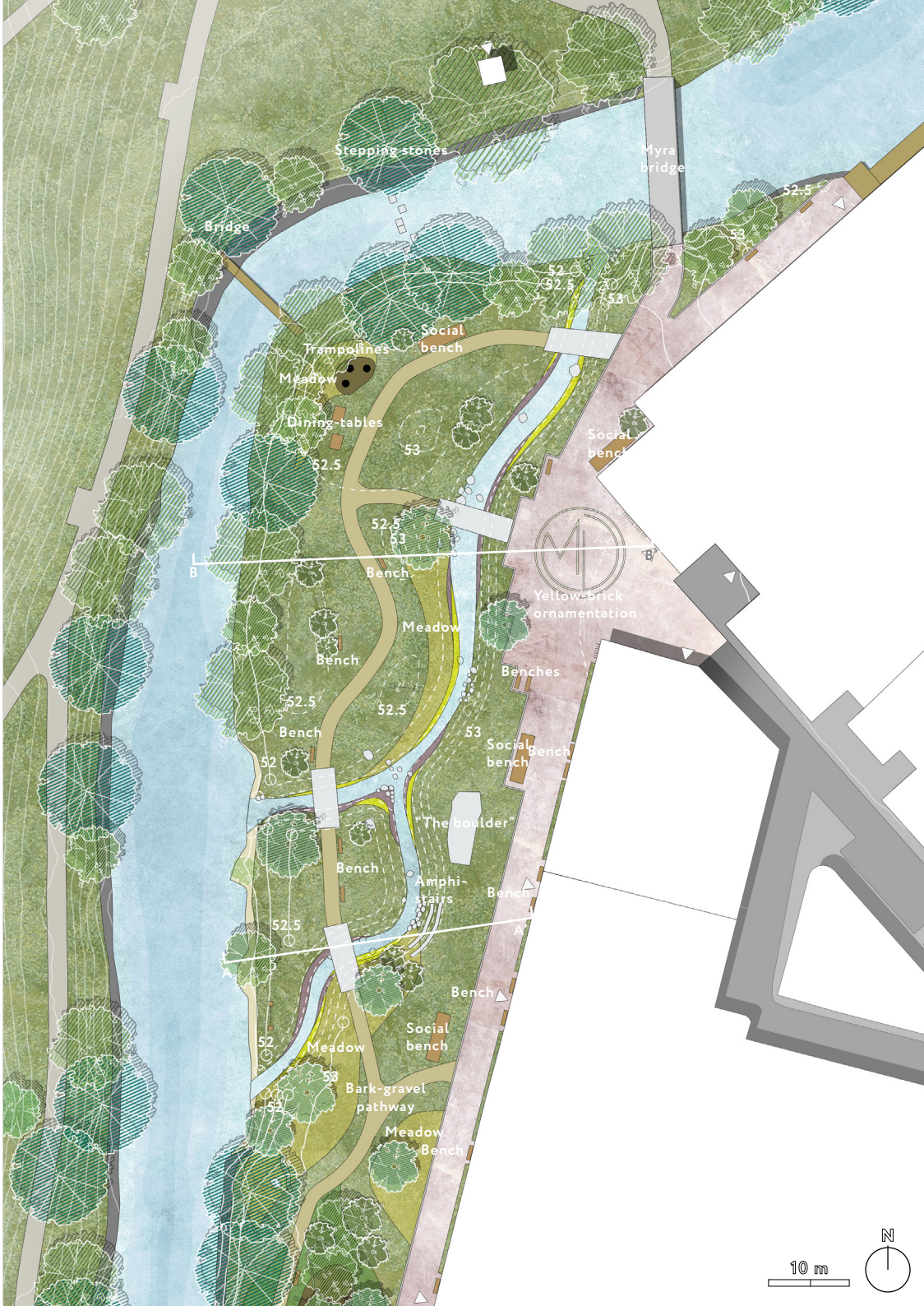


Figure 46. Section-cuts through the plain

Figure 47. Strolling into the plain on a bright afternoon

THE PLAYABLE PLAIN

Play in the plain relies in large part on nature to serve as its activating element. This mainly corresponds to varying terrain, water features and natural elements. motoric challenge arises as a consequence of interacting with these.

The horizontal terrain of the east drops at an incline to meet the brook before rising more gently towards the western terrain. On the one hand, this meandering canyon presents various opportunities for jumping, running, climbing and rolling. On another, it breaks the monotony of space. The north-western terrain rises to a series of rolling hills, fit for tumbling and lingering both.

Interaction with water is a central to activity in plain. The shallow water of the brook may be splashed, diverted, crossed or transport loose materials. The bank has been kept natural, with reinforcements of natural stones, to provide a setting in which children may interact with a nature-like waterbody and bank. The stones in the brook additionally pose as footholds and river-crossings. If one wishes to interact with the Aker River, the north-western riverbank provides two new additions to the landscape.

In this place of roots, stones and canopies, there stands a small bridge, one meter wide and elevated to handle a river in spring. Nearby, a series of stepping stones are lowered into the river. When the river runs low, the stones surface and pose dry-footed passage across the river. With a varying inclines down to the Aker River, the western plain is probable to see feathered visitors, allowing the feeding of local ducks.

Excepting the weaving trunks of the existing riverside trees, most of the larger vegetation in plain consists of solitary trees and bushes. The solitary positioning strengthens horizontal growth, creating both spatial presence and opportunities for climbing. The flower meadows and perennial-belts of the brook offer colours, loose parts and tactile qualities.

Variying terrain Water features Natural elements Motoric challenge

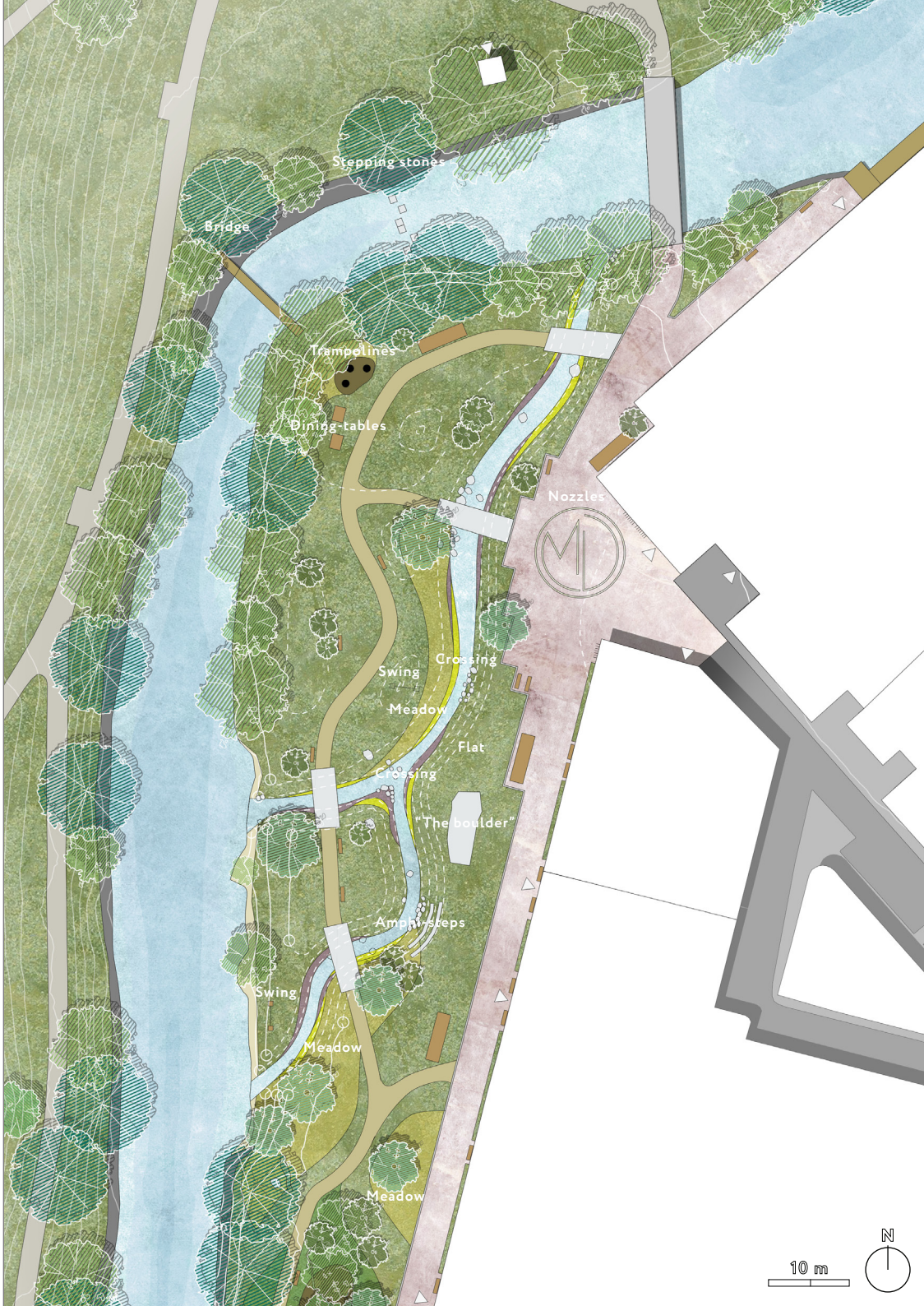


Figure 48. Someone has decided to leap across the brook

THE BASINS

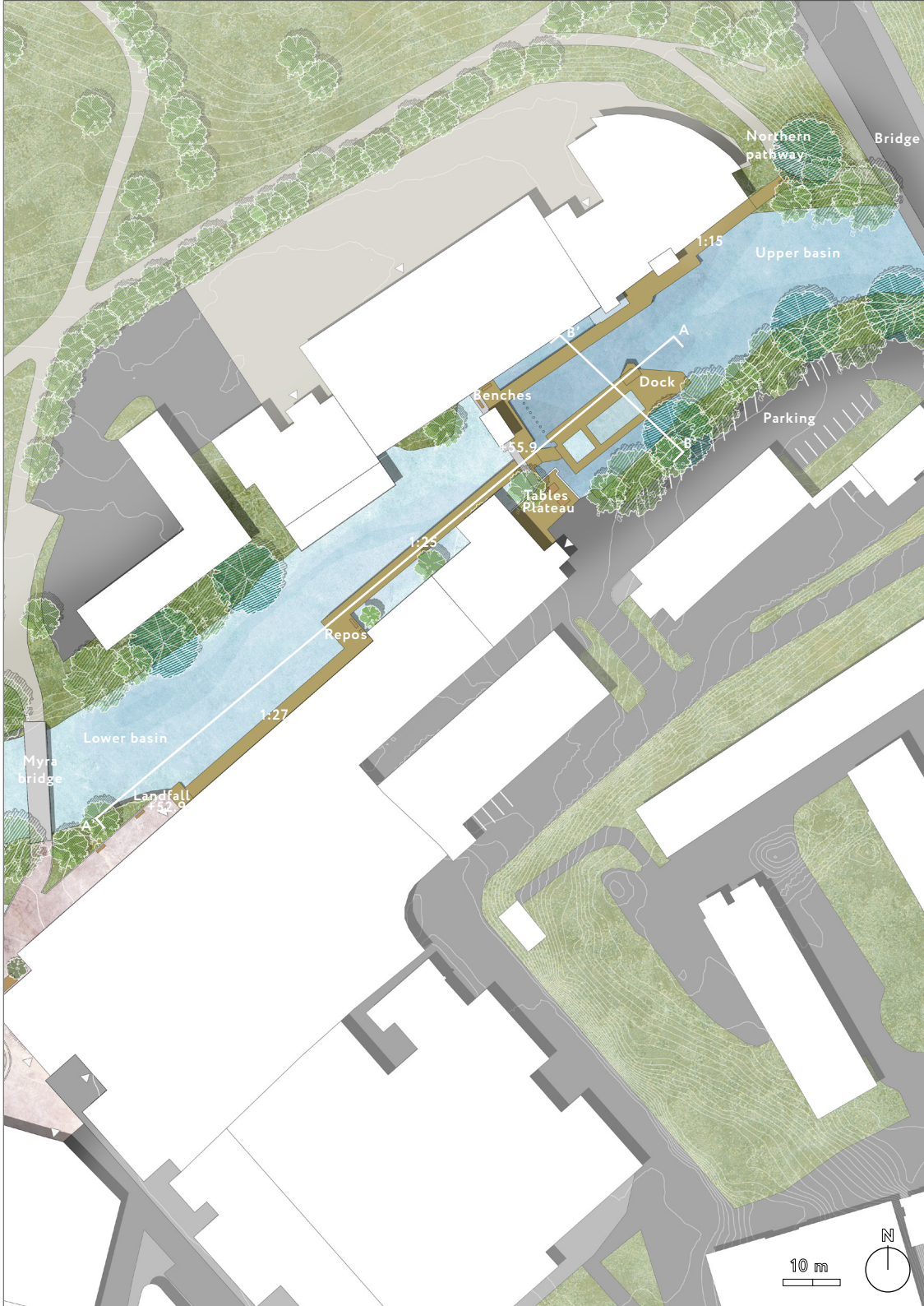
In the northeastern end of Myraløkka lies the basins. A universally accessible wooden walkway invites people into the formerly inaccessible river landscape.

The walkway lands just east of Myra Bridge. While it is predominately a means of movement, the walkway offers a singular experience of moving above the waters below. In the lower basin, it covers a height difference of three meters. The slope is relatively gentle and a repos accommodates rest and sightseeing both. At this point, the walkway obstructs views from a selection of adjacent windows. However, a higher degree of value has been afforded to the public's experiences of moving through the basin (which arguably aligns with regulated intents).

Upon reaching the dam separating the two basins, one has three movement options. Heading left leads visitors further along the walkway until it reaches the pathway north of the river. To the right lies the existing plateau offering tables and a way into the eastern neighbourhoods. Straight ahead lies a dock tailored for bathing.

The dock floats above the deep, slow-moving water. It is connected to the dam by a hinged walkway, allowing it to rise and fall with the water levels. During winter or periods of fast-flowing water, it may be unhinged and rested against the riverbank and the southern plateau.

While the elements of the basins do not cover a large area of tradable ground, the walkway and dock provide a window into the river's domain.



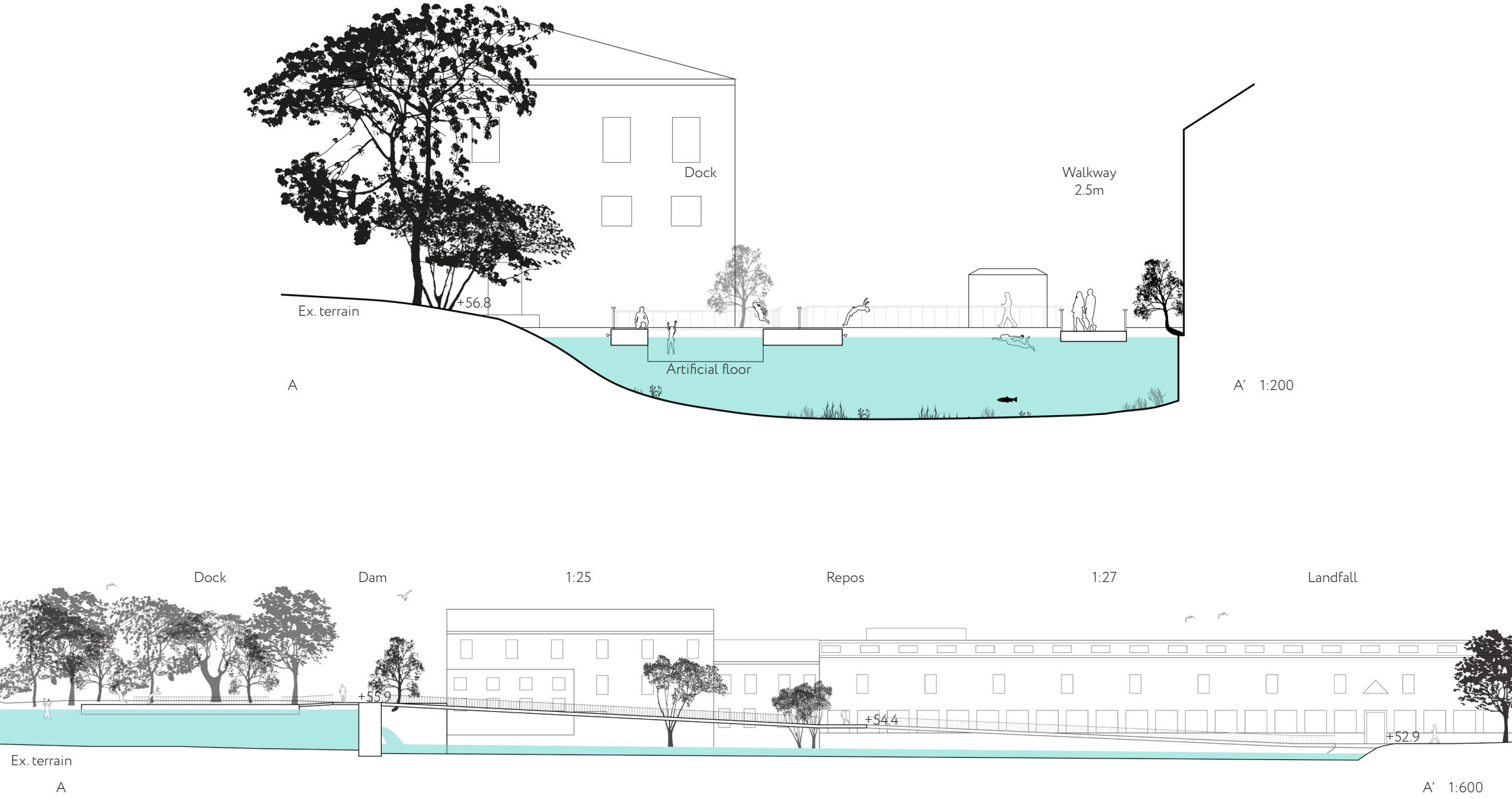


Figure 49. Section-cuts through the basins

Figure 50. A boy watches as two swans gently sway across the water of lower basin

THE PLAYABLE BASIN

The basin's activity revolves around its water. Excepting play that involves moving along the wooden walkway and looking at the vistas of flowing water, activity will primarily take part in and around the dock.

The dock has gotten its location based on three factors. First, the upper basin has substantially deeper water than anywhere else in Myraløkka. Second, the water there moves gently during the summer months. At 0-0.5 m/s it was placed in the lowest possible category of current by Multiconsult's analyses (Multiconsult, 2022). Third, the location offers direct sunlight throughout most of the day from May to August.

The dock has two internal openings. These fenced pools are constructed with artificial bottoms, allowing children and the physically impaired to enjoy the water in safe conditions. The larger of the two equals the size of pools used in local school-led swimming courses and could possibly serve as an outdoor alternative. Adept swimmers, however, are more likely to leap directly into the river.

Along the edge of the dock, there is ample room for jumping into the water. A water-level handrail moves along the entire dock, allowing one to feel the current's pull while staying stationary. After a swim, one can use one of the ladders (marked L in the plan) to climb back up. While bathing is a prime activator for youth and adults, swimming in a river poses certain risks.

The dam releases water into the lower basin. If bathing is to be encouraged, one must devise a barrier to increasing safety in worst-case scenarios. A possible solution could be to connect an underwater rail to two or more buoys. This might effectively stop a body but let general debris pass over. The solution, however, will have to be devised by experts.

Water features

Natural elements

Figure 51. A selection of visitors have made their way to the dock

VEGETATION OF MYRALØKKA

The use of vegetation impacts aesthetics, play, biodiversity and multiple other factors. While the programming table highlighted the importance of varying vegetation, it did not touch upon the topic of local flora.

While strong arguments can be made for solely selecting species native to Myraløkka, an equally strong case can be made for choosing species with inherent, beneficial qualities. In light of the design's goal of stimulating play and physical activity, species offering beneficial qualities have been emphasized. However, that species fit into the regional context has been considered.

The existing vegetation (except grass) has been preserved. The trees offer an important backdrop to the park's extent and provide shade, loose parts and opportunities for play. The reasoning behind the park's new additions will be elaborated upon here, with a rudementary plan for Myraløkka's proposed new vegetation on the following pages.

The trees of Myraløkka offer both aesthetic and practical functions. Solitary trees, with examples being *Fagus sylvatica* and *Malus domestica* 'Rød torstein' (see fig.52), are likely to stretch their branches and provide opportunities for climbing. Trees have additionally been selected due to flowering, fruits, and interesting bark or leaves. While providing incentives for play, these qualities also benefit the visual variation in the green space.

The bushes serve a spatial function benefiting both visual complexity and play. In the forest, they work in tandem with new and existing trees, creating spatial sections beneficial for play. In the plain, they break the monotony of the open. Some species, such as *Corylus avellana* 'Contorta', has been proposed due to unique branching and flowers, whereas others, such as *Ribes rubrum (*fig. 53*),* have been chosen for their spatial presence, berries, tactility resilience.

A belt of ***perennials*** is established along the brook. The collection of straw and plants introduces a variety of colours along the brook. While they have an aesthetical function, they also offer sensory stimuli through smell and touch. The selection of species, with examples being Iris pseudocarus and *Stellaria palustris (*fig. 54*)*, has been inspired by plants used in similar brooks across the city of Oslo.

The flower meadows of the plain serve many of the same functions as the perennials. These displays of straw and flowers appeal visually and physically to humans and insects alike. Even though all vegetation of Myraløkka requires a certain degree of maintenance from the municipality, this is especially true for the meadows. If established, they need to become part of Oslo municipality's special maintenance system for flower meadows.

The forest floor is proposed to be vegetated with flowers and straw common in woods throughout Oslo. The denseness of the foliage may also allow ferns to grow. Their goal is to provide an alternative ground cover to that which normally is found in urban

Fig 52: Malus domestica 'Rød torstein'

Fig 53: Ribes rubrum

Fig 54 Stellaria palustris

VEGETATION

BUSHES

Salix repens var. Rosmarinifolia
Myrica Gale
Malus Toringo var. sargenti
Ribes rubrum 'Jonkheer van Tets'
Coryllus avellana 'Contorta'

TREES

Fagus sylvatica
Salix alba
Prunus Maacki 'Galla'
Malus domestica 'Rød torstein'

EXISTING TREES

Alnus glutinosa
Salix alba
Betula pendula

RIVERSIDE PERENNIALS

Calamagrostis canscens
Carex rhynophysa
Lythrum salicaria 'Robert'
Stellaria pallustris
Iris pseudocarus
Hemerocallis lilioasphodelus

MEADOW

Agrostis capillaris
Anthoxanthum odoratum
Primula veris
Viola canina
Fragaria vesca
Carum carvi
Trifolium pratese
Campanula rotundifolia
Lotus corniculatus

FOREST FLOOR

Agrostis capillaris
Matteuccia strutiopteris
Polypodium vulgare
Anemone nemorosa
Fragaria vesca
Pachysandra terminalis 'green carpet'
Brunnera macrophylla

Figure 55: A rudamentary plan for Myraløkka's proposed vegetation. Exact placing of species is not displayed.

4.4 CONSIDERATIONS

A FAVOURED DESTINATION

While Myraløkka emphasizes unorganized activity for youth, it also caters to an adult audience. This is primarily done through providing an attractive destination for walks.

Adults are mainly activated by the process of getting to or through, Myraløkka. This means that even if they only partake in sedentary activities while there, something intrigued them to the point of making their way physically to Myraløkka. This something is connected to specific characteristics favoured by the general public.

Myraløkka caters to different functions. It provides a setting where one can be immersed in various forms of nature. In addition to ducks, the added vegetation will likely increase the presence of varying fauna in the area. One may lounge in solitude or partake in social gatherings depending on where one chooses to sit. In addition to these passive activities, some will likely take the plunge into the river's cool waters.

Another key factor for adult use is that Myraløkka has abundant visually stimulating elements. Its varied vegetation, water features, historic facades and complex terrain represent visual stimulus. As part of the municipal system of care, the area will be maintained, clean and free of litter. This may require an increase in the category of maintenance Myraløkka is connected to on a municipal level.

All pathways are universally accessible and of materials treated to secure steady footfalls. In winter, the promenade and wooden walkway will be ploughed after snowfall, securing access to and through Myraløkka.

Distances, vegetation and buildings help makes Myraløkka a place for experiencing quiet. Seating options are most abundant in the plain, partly due to its low noise levels. Running water and rustling leaves mask excess noise pleasantly.

MENTAL RESTORATION

To provide mental restoration to Myraløkka's visitors, the design has considered the four characteristics of restorative environments: being away, extent, fascination and compatibility.

Being away

Being away is connected to escaping the source of everyday stress. Increasing Myraløkka's infrastructure (meaning axes of movement, benches and attractions) allows more people to spend time there simultaneously. It also increases the chances of people going to or through Myraløkka instead of an alternative, urban route.

Extent:

Extent means creating feelings that one enters a different world. On the one hand, this is tackled through the periphery of Myraløkka. Adding vegetation along the unappealing facades in the southeast and in the forest in general strengthens impressions of Myraløkka's beneficial borders: industrial facades, vegetation and the wooden houses cresting the hill on the other side of the river.

Using carefully selected groundcovers, such as wood, brick or bark-gravel pathways, provides materiality contrasting that of the surrounding urban environment. Combined with Myraløkka's terrain, these factors give an impression of being in a place of its own.

Fascination

Fascination stems from elements or processes that hold one's attention. Myraløkka's changing vegetation, stones and terrain offer abundant visual stimuli. The running water in the brook and Aker River is another element stimulating fascination. The presence of animals (ducks, songbirds and insects) and other people are also likely to catch one's eye.

Compatibility

The pathways of Myraløkka provide options for both functional movement and strolls. With its various seating options, it can host both groups and

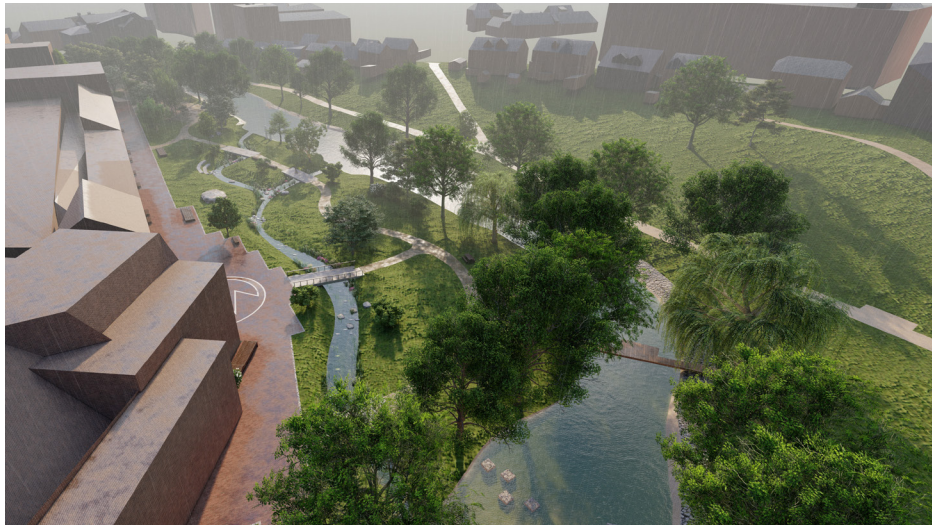


Figure 56: The plain as seen from above

those seeking (relative) solitude. In relation to activity, the natural environment and extent of the area will serve both high-paced, social play and contemplative, slower play.

PERCEIVED SAFETY

Feelings of perceived safety are primarily addressed on five counts in the design: prospect, signs of development, maintenance, social control and lighting.

Prospect

The balance between prospect and vegetation is a fine line. One wants the practical and aesthetic qualities abundant vegetation can offer, but not the feelings of unease they might invoke after nightfall. This especially concerns the use of bushes, as ground cover and trees do not hinder sight to the same degree.

Bushes are mainly planted solitarily or in pairs throughout Myraløkka. This makes their presence felt but minimizes areas where someone might (theoretically) lie in wait. However, being able to hide between bushes is part of the allure when children are playing in natural environments. Therefore, some bushes have been planted for pockets of space to arise in the forest. These bushes still maintain some distance from each other and are trained with aesthetic lighting after nightfall. A benefit in this regard is that prospect is relative to the size of the person perceiving his or her environment. This means that children are likely to experience more refuge than their adult counterparts.

Terrain also makes an impact on prospect. The spacious promenade of the east lies slightly raised in comparison to western plain. This makes it an advantage point, letting people head to the winding paths of the west if everything seems to be in order. The hills of the north-western plain are designed to not substantially obscure oversight.

Signs of development

The entirety of the proposal is likely to improve a sense of development in Myraløkka. The awe inspired by something new is bound to fade with time, but through maintenance, lasting materiality and vegetation that improves over time (both visually and functionally), it is likely that it could hold an image of being a cared-for space throughout the foreseeable future.

Maintenance

Another factor of perceived safety is linked to maintenance. On the one hand, this concerns vegetation. Bushes, trees and grass will be trimmed after necessity, but some might consider the flower meadows and wild ground cover of the forest as unkempt. Given their affordances to activity, contemporary concerns for biodiversity and data suggesting that some prefer a natural appearance, their semi-maintained state will be a foundation that may be altered if necessary. Seeing the vegetation in relation to its surroundings will probably benefit impressions that the green space is being cared for.

Social control

Connecting the basins' walkway to the northern system of pathways encourages a larger flow of people to move through Myraløkka. This is especially beneficial for the upper basin, as it cannot be seen from the rest of Myraløkka. This increase in people, walking through or lounging in the park, serves as a civil reminder that others are present or close at hand.

LIGHTING

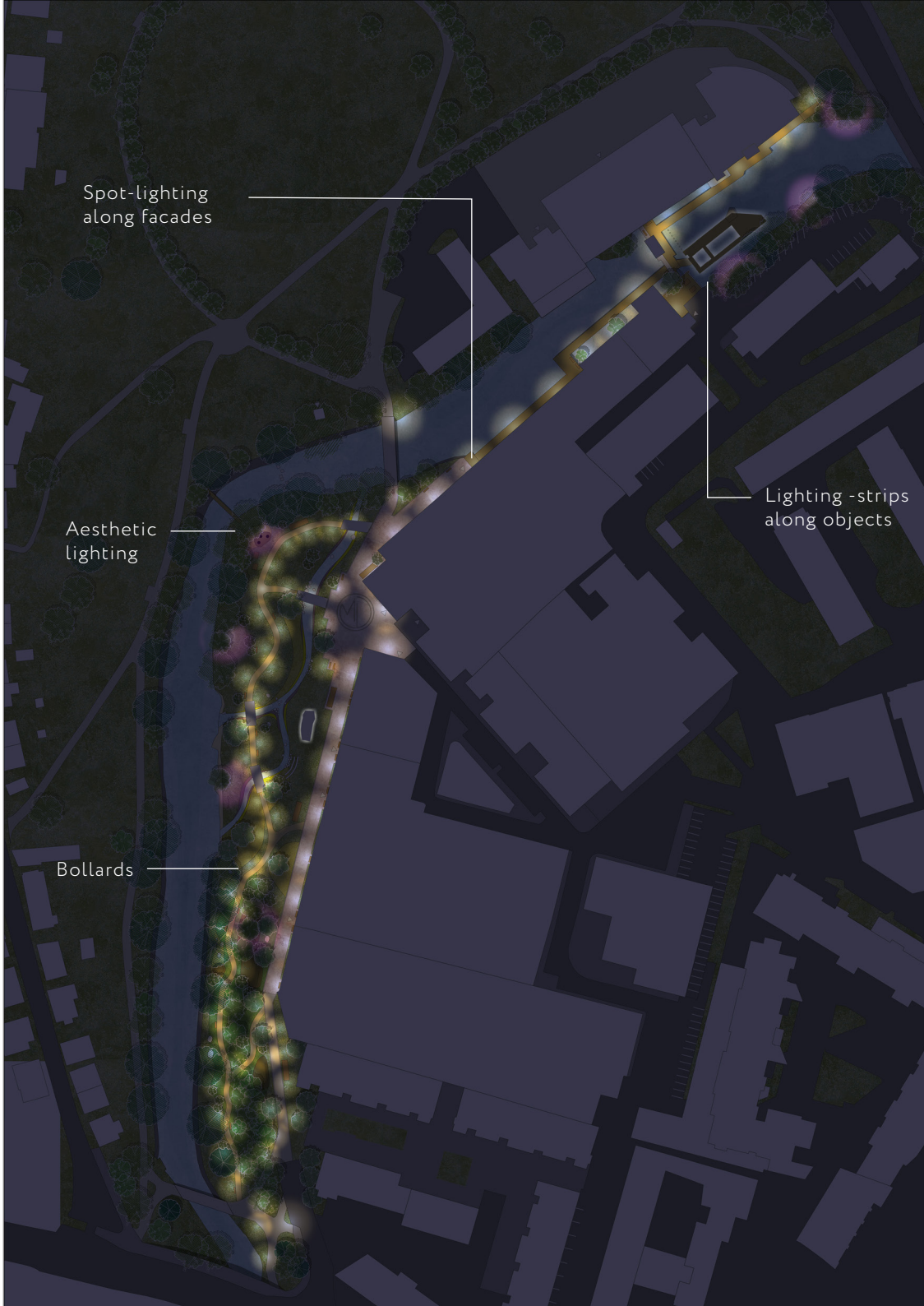
Lighting is an essential part of perceived safety in an urban green space. The lighting scheme aims to create a general overview of the green space (especially along the lines of movement) and turn potentially frightening vegetation into night-time assets. Below follows a brief description of the five kinds of armatures which have been proposed.

Spotlights are attached to the buildings along the main pathway. Lighting spans of 8-10 meters, an additional benefit comes from the illumination of the historic facades.

Bollards are placed at regular intervals along the western pathways. Illuminating span of 5-6 metes.

Coloured spots are attached at ground level, trained at selected trees and bushes which light up parts of the environment.

Lighting strips are used at the lower edges of the footbridges, the dock and the boulder in the plain. They function as a secondary form of aesthetic lighting.All armatures (except the coloured spots) have hoods to prevent unnecessary light-pollution.



LOOSE PARTS

By increasing the number of natural features in Myraløkka, one has simultaneously increased its amount of loose parts.

The sum of vegetation within the green space's borders provides a series of loose parts. One can imagine flowers being picked in the meadows, heaps of leaves being thrown into the water or twigs acting as make-believe swords. Along the brook, other forms of loose parts can be interacted with.

The brook offers both water and biodiversity. The flowing water might be filled in buckets, dammed up with branches or splashed. If one stands atop a rock, examining the water more closely, other possibilities may appear. Foam may have formed on the surface, as is sporadically does in flowing bodies of fresh water. Perhaps one can sneak up on a lounging firefly.

In addition to vegetation and water, geological materials are also relevant in relation to playing in nature Stones, from pebbles to rocks, may be collected and interacted with. Inevitable sediments in the brook, pebbles from the eroded riverside or stones from the forest may be the foundation of jutting cairns or splashing water. In addition to this comes the myriad of life hiding underneath a half-buried stone in the forest. Even if one can find examples like these around Myraløkka, one could question why there are not more.

Myraløkka could have put a larger emphasis on loose materials. If providing loose parts was the sole purpose of the design, the entire area might have become a quarry or an unhindered forest. This would impair other qualities important in the design, so their amount has been balanced against these considerations. Loose parts have been included to a point where their presence might yield benefits while still being in league with the image of a cared-for urban green space.

Figure 57: A couple stopping by one of the flower-meadows

PART 5
DISCUSSION

THE DESIGN SOLUTION

Through the evidence collection, it became apparent that both target groups might benefit from varying natural environments. For children, this means abundant affordances valuable to play (Fjørtoft et al., 2018; Thoren et al., 2019). To adults, it may provide visual and spatial qualities appealing enough to engage them physically (Breivik & Rafoss, 2017; Fongar & Thoren, 2022).

The riverside, urban green space of Myraløkka offer contrasting natural elements. On the one hand, it has valuable natural features in its river, riverbank, large trees and wildlife. On the other, it is largely barren of natural complexity. In light of the evidence suggesting potential benefits to the presence of varied vegetation, water features and varying terrain, the design criteria naturally led towards an increase these elements in areas where Myraløkka's where lacking.

Natural environments have been shown to activate youth of various developmental stages (Fjørtoft et al., 2018). Partly, this is tied to the motoric challenges they afford. The stones or trees of Myraløkka can be climbed or balanced upon, hills and inclines ran across or jumped over. However, one can imagine that the challenges offered by natural environments to have certain limits. A six-year-old might find ample, general motoric challenge in trees and stones, whereas an older youth might seek more specialised ways of using their body(Fjørtoft et al., 2018). Because the presence of older children has been suggested to benefit play in the younger (Pawlowski et al., 2013) and that activating them is important in and of itself, it can be argued that the design should be cater to more specialised activities.

Specialised motoric challenges are often tied to sports (Thoren et al., 2019). One could therefore imagine activities such as football or rollerblading to benefit activity levels in older children visiting Myraløkka. However, a possible conflict arsies because this may hinder both affordances and variation, both aspects deemed important for the general activation of youth (Thoren et al., 2019; Pawlowski et al., 2013).

If one allows the specific needs of higher developmental stages to lay claim to substantial areas in the green space (which many sports arguably would require), the area may not afford play to those of a lower developmental stage. One could argue that it is easier to defend a design catering to the general . If one allows for the general challenges afforded by nature to be the dominating feature of the green sapce, then it is equally accessible to all. However, this does not necessarily discourage implementation of elements targeting specifically targeting play.

The design proposal includes elements targeting individual motoric challenges. Examples include the larger play structures of the forest, the slack-line, the trampolines and the dock. Due to their emphasis on individual skill levels, it can be argued that they might activate various developmental stages and invoke the beneficial processes of practice and thrill (Pawlowski et al., 2013; Fjørtoft et al., 2018). One could therefore question whether more elements such as these would have been beneficial. Boulders (for advanced climbing), ziplines or swings are all valid examples of elements that might have strengthened Myraløkka's capacity to promote play and physical activity among youth. While effective, implementing them might have come at a certain cost.

The design proposal seeks to promote physical activity in adults by providing a natural environment in which they would want to spend time. By continuously adding elements aimed at the activation of youth, it would, at some point, have begun to tarnish Myraløkka's appeal to an adult audience. One would have risked it turning into a traditional playground. This could have resulted in a loss of audience. To lean upon the evidence indicating that natural environments were suited activators and using play structures only where the landscape partly hid them can be argued as a reasonable approach to upholding a balance between the two target groups. One could argue that such a balance in itself might benefit the promotion of play.

Safety is an important feature of any child's environment. Playing in and around water may be dangerous, as may spending time in most urban environments. The presence of adults may help mitigate these dangers. While this may mean that a given child's parent is present in the green space, it may also be tied to the knowledge that Myraløkka is a place where many people go (Sreetheran & Bosch, 2014). If children are allowed to visit the green space by themselves, it may be reassuring to parents that other people are likely to be nearby. In light of this, one could argue that designing for the activity of adults might positively impact the activity of children.

With evidence suggesting that there are similarities between environments that may activate both youth and adults (Thoren & Fongar, 2022; Fjørtoft et al., 2018), designing for one might benefit the other. Still, not all elements are equally compatible. The spatial qualities vegetation provides are valuable in play (Thoren et al., 2019; Fjørtoft et al., 2018). It can therefore be argued that the design of Myraløkka should have included a higher degree of bushes, shrubs and trees. One could imagine labyrinths of vegetation to be an excellent environment in which play could occur. However, the number of such elements needed to be withheld due to concerns of prospect, perceived safety and night-time use. A similar case can be made for the issue of loose parts, nature-like appearances, and perceived levels of maintenance. If the urban green space is to physically activate both children and adults, certain compromises will have to be made. However, one could argue that the compromises made in the design proposal of Myraløkka may be deemed as acceptable.

THE USE OF EBHDL

The design proposal in this thesis has been shaped by its primary methodological tool: Evidence-based health design in landscape architecture (EBHDL). Using any given method requires that a researcher (or, in this case, a designer) follow instructions, trusting that the method will bear fruit. While working this way has advantages, it is important to note that these benefits may come at a price.

EBHDL has undeniably helped shape the design. By forcing a designer to delve into the ocean that is scientific literature, the designer is bound to become aware of aspects of reality that are important to achieve one's goals. If I was not made aware of the importance of perceived safety (and its impacts on use), prospect might not have become a guiding feature of the design. Trusting nature's affordances to be the main activating element of the green space is another. However, one could question whether the design could have arisen without EBHDL.

Many key features of the design were determined early in the process. Increasing vegetation and spatial composition, shaping the terrain, and leading people into the basins are all examples of this. In many ways, I am inclined to believe that the design would have taken a similar form without the help of a knowledge-based approach. This reflection stems from the idea that we, as landscape architects, have a competence and understanding of our field, which makes it possible to see and react to certain needs and possibilities within a given context. It is what makes us professionals. Even if the design would have been similar, that does not necessarily discount a certain value of using EBHDL.

While I may have believed that certain design-solutions were applicable in a given case and chanced upon solutions corresponding with contemporary knowledge, I would not have known that it was a sound choice. By investigating theories and empirical data, one can be relatively certain that the choices one makes are correct. It is a preventive measure hindering assumptions that may lead to ineffective solutions. However, the toll it takes on effective workflow is also a factor to consider.

The practical use of EBHDL could be better. On the one hand, it is time-consuming. Each step of the process requires substantial time and effort to both investigate and present in a coherent fashion. Without this, one could simply begin at the design stage. Another possible disadvantage lies in the model's unclear progression.

Evidence may belong to more than one of the four categories presented by Stigsdotter & Sidenius (2020). Does ART belong in 'human health' or in 'use of nature'? It can be argued for both. Should one put geographically relevant health data in 'target groups' even if the area is not yet presented? Can empirical data be presented before its theoretical framework? Even after defining stricter boundaries for categories of evidence, such loopholes seemed unavoidable. Given that each part of the model builds atop its predecessor, this had repercussions throughout the thesis. This may, however, be tied to how a thesis has a particular set of requirements.

EBHDL was developed as a tool for landscape architects to use a knowledge-based approach to design. This could mean that it is a practical tool for creating designs aimed at improving the health of one's target groups. If so, it does not have to satisfy the structure and detail required in a scientific thesis. One does not have to invest time and effort into ensuring that a given reader can follow one's process of thought. It may simply be a means through which one can make decisions supported by contemporary knowledge.

REFERENCES

Andreasen, D., & Lutzow-Holm, I. (n.d.). *En industriell gravhaug*. Industrimuseum. http://www.industrimuseum.no/31industrigravhaug

Breivik, G., & Rafoss, K. (2017) *Fysisk aktivitet; omfang, tilrettelegging og sosial ulikhet* (Report No. IS-0613). Helsedirektoratet. Retrieved from https://www.fritidforalle.no/fysisk-aktivitet-omfang-tilrettelegging-og-sosial-ulikhet.5980645-356507.html

Bozkurt, M., Woolley, H. (2020). Let's splash: Children's active and passive water play in constructed and natural water features in urban green spaces in Sheffield. *Urban Forestry & Urban Greening*, *52*, 1-11. https://doi.org/10.1016/j.ufug.2020.126696

Bymiljøetaten. (2020). Mulighetsstudie Myraløkka. (Unpublished manuscript).

Bymiljøetaten. (2023). Park og trær. https://experience.arcgis.com/experience/ba2c0f78d1014294ba3bc7a7e8e910d0/

Dalen, H. B. (2021). *Barn fra vestkanten mest aktive i Oslo*. Statistisk sentralbyrå. https://www.ssb.no/kultur-og-fritid/artikler-og-publikasjoner/barn-fra-vestkanten-mest-aktive-i-oslo

Dalene, K. E., Kolle, E., Steene-Johannessen, J., Hansen, B. H., Ekelund, U., Grydeland, M., Anderssen, S. A., & Tarp, J. (2022). Device-measured sedentary time in Norwegian children and adolescents in the era of ubiquitous internet access: secular changes between 2005, 2011 and 2018. *International Journal of Epidemiology*, *51*(5), 1556-1567. https://doi.org/10.1093/ije/dyac063

Dosen, A., & Ostwald, M. (2016). Evidence for prospect-refuge theory: a meta-analysis of the findings of environmental preference research. *City, Territory and Architecture*, 2016, 3:4. https://doi.org/10.1186/s40410-016-0033-1

Figari, H., Krange, O., & Nordbakke, S. (2019). *Bruk og tilrettelegging av urban natur: En kunnskapssyntese* (Report No. NINA rapport 1684). Norsk institutt for naturforskning. Retrieved from https://brage.nina.no/nina-xmlui/bitstream/handle/11250/2623826/1684%20ny.pdf?sequence=6&isAllowed=

Fjørtoft, I., Kjønniksen, L., Støa, E. M. (2018). *Barn – unge og fysisk aktivitet. Operasjonalisering av anbefalingene om fysisk aktivitet og stillesitting for barn og unge i alderen 0-18 år.* Retrieved from https://openarchive.usn.no/usn-xmlui/bitstream/handle/11250/2578038/2018_12_Fjortoft.pdf?sequence=1&isAllowed=y

Folkehelseinstituttet. (2023). Folkehelseprofil - Bydel Sagene. https://www.fhi.no/hn/folkehelse/folkehelseprofil/

Fongar, C., Randrup, T., Wiström, B., & Solfjeld, I. (2019). Public urban green space management in Norwegian municipalities: A managers' perspective on place-keeping. *Urban Forestry & Urban Greening*, *44*, 1-10. https://doi.org/10.1016/j.ufug.2019.126438

Fongar, C., & Thorén, K. H. (2022). Kartlegging av indikatorer for gå- og aktivitetsvennlige nærmiljøer som grunnlag for videre arbeid og systematisering. Helsedirektoratet. https://tverga.no/app/uploads/2022/07/thoren_og_fongar_2022_indikatorer_for_ga-_og_aktivitetsvennlige_naermiljoer_-1.pdf

Gatersleben, B., & Andrews, M. (2013) When walking in nature is not restorative-the role of prospect and refuge. *Health & Place*, *20*, 91-101. https://doi.org/10.1016/j.healthplace.2013.01.001

Gibson, J. J. (2014). *The ecological approach to visual perception*. Psychology press.

Gramkow, M. C., Sidenius, U., Zhang, G., & Stigsdotter, U. K. (2021) From Evidence to Design Solution—On How to Handle Evidence in the Design Process of Sustainable, Accessible and Health-Promoting Landscapes. *Sustainability*, *13*(6), 1-23. https://doi.org/10.3390/su13063249

Hartig, T., Mitchell, R., de Vries, S., & Frumkin, H. (2014). Nature and health. *Annual Review of Public Health*, *35*, 207-228. https://doi.org/10.1146/annurev-publhealth-032013-182443

Holmen, E. (2021). *Myrens verksted*. Store norske leksikon. https://snl.no/Myrens_Verksted

Houser, N. E., Roach, L., Stone, M. R., Turner, J., & Kirk, S. F. L. (2016). Let the Children Play: Scoping Review on the Implementation and Use of Loose Parts for Promoting Physical Activity Participation. *AIMS Public Health*, *3*(4), 781-799. https://doi.org/10.3934/publichealth.2016.4.781

Høilund, A. (2019, April 10). Sagene er Oslos aller minste og tettest befolkede bydel. Og presset på fellesarealene øker. *VårtOslo*. https://vartoslo.no/anders-hoilund-morten-nordlie-sagene/sagene-er-oslos-aller-minste-og-tettest-befolkede-bydel-og-presset-pa-fellesarealene-oker/199259

Hyndman, B., Mahony, L., Ava, A. T., Smith, S., Sinha, G. (2017). Complementing the Australian
primary school Health and Physical Education (HPE) curriculum: exploring children's HPE learning experiences within varying school ground equipment contexts. *Education*, 45, 613-628. https://doi.org/10.1080/03004279.2016.1152282

Kaplan, R., & Kaplan, S. (1989). *The experience of nature: A psychological perspective* . Cambridge university press.

Marcus, C. C., & Sachs, N. A. (2013). *Therapeutic landscapes: An evidence-based approach to designing healing gardens and restorative outdoor spaces*. John Wiley & Sons .

Miljødirektoratet. (2014). *Planlegging av grønnstruktur i byer og tettsteder*. Retrieved from https://www.miljodirektoratet.no/globalassets/publikasjoner/M100/M100.pdf

Multiconsult. (2022). Hydraulogisk rapport: Myraløkka. (Unpublished manuscript).

Nicholson, S. (1971). How not to cheat children. *Landscape Architecture*, *65*, 30-35. https://media.kaboom.org/docs/documents/pdf/ip/Imagination-Playground-Theory-of-Loose-Parts-Simon-Nicholson.pdf

Nordbø, E. C. A., Raanaas, R. K., Nordh, H., & Aamodt, G. (2019). Neighborhood green spaces, facilities and population density as predictors of activity participation among 8-year-olds: a cross-sectional GIS study based on the Norwegian mother and child cohort study. *BMC public health*, *19*, 1-22. https://doi.org/10.1186/s12889-019-7795-9

Nordh, H., & Østby, K. (2013). Pocket parks for people – A study of park design and use. *Urban Forestry & Urban Greening*, *12*, 12-17. https://doi.org/10.1016/j.ufug.2012.11.003

Nystad, W., & Ekelund, U. (2022) *Fysisk aktivitet i Norge*. Folkehelseinstituttet. https://www.fhi.no/nettpub/hin/levevaner/fysisk-aktivitet/#:~:text=For%20barn%20og%20unge%20gjelder,intensitet%20som%20tilsvarer%20rask%20gange.

Ohly, H., White, M. P., Wheeler, B. W., Bethel, A., Ukoumunne, O. C., Nikolaou, V., & Garside, R. (2016) Attention Restoration Theory: A systematic review of the attention restoration potential of exposure to natural environments. *Journal of Toxicology and Environmental Health, Part B*, *19*(7), 305-343. https://doi.org/10.1080/10937404.2016.1196155

Oslo byleksikon. (n.d.). *Myrens verksted*. https://oslobyleksikon.no/side/Myrens_Verksted

Oslo kommune. (1991). Kommunedelplan 04: Akerselva Miljøpark. https://www.oslo.kommune.no/plan-bygg-og-eiendom/planer-normer-og-veiledere/kommunedelplaner/#gref

Oslo kommune. (2017). *Folkehelseplan for Oslo 2017-2020*. https://www.oslo.kommune.no/folkehelse/folkehelseplanen/#gref

Oslo kommune. (2020). *Oslohelsa 2020*. Retreived from https://www.oslo.kommune.no/getfile.php/13131998-1590734531/Tjenester%20og%20tilbud/Politikk%20og%20administrasjon/Statistikk/Rapport%20Oslohelsa%202020.pdf

Oslo kommune. (2022) *Årsrapport 2021 - Badevannskvalitet ved friluftsbadene i Oslo*. Retreived from https://www.oslo.kommune.no/bydeler/bydel-sondre-nordstrand/politikk-og-politiske-moter/politiske-saker-bydel-sondre-nordstrand/2022/arsrapport-for-badevannskvalitet-ved-friluftsbadene-i-oslo-2021#gref

Oslo kommune. (2023). *Ny folkehelsestrategi for Oslo (2023-2030)*. https://www.oslo.kommune.no/folkehelse/ny-folkehelsestrategi-for-oslo-2023-2030/#toc-1

Oslo kommune. (2023b). Statistikkbanken. Oslo kommune. https://statistikkbanken.oslo.kommune.no/webview/

Oslo kommune. (2023c). Reguleringsbestemmelser. Planinnsyn. https://od2.pbe.oslo.kommune.no/kart/#598174,6645510,9

Pawlowski, C. S., Christiansen, L. B., Schipperijn, J., Troelsen, J. (2013) *En god omvæj – Bevægelse i lokalområdet: Samlet evaluering af otte kommunale anlægsprosjekter til fremme af rekreativ fysisk aktivitet*. Retrieved from https://realdania.dk/-/media/realdaniadk/saadan-stoetter-vi/filantropiske-programmer/samlet-projektliste/en-god-omvej/egosamlet.pdf

Rahm, J., Sternudd, C., & Johansson, M. (2021). "In the evening, I don't walk in the park": The interplay between street lighting and greenery in perceived safety. *URBAN DESIGN International*, *26*, 42-52. https://doi.org/10.1057/s41289-020-00134-6

Refshauge, A. D., Stigsdotter, U. K., Lamm, B., & Thorleifsdottir, K. (2015). Evidence-Based Playground Design: Lessons Learned from Theory to Practice. *Landscape Research*, *40*(2), 226-246. https://doi.org/10.1080/01426397.2013.824073

Regjeringen. (2023). Folkehelsemeldingen - Nasjonal strategi for utjamning av sosiale helseforskjeller. Meld. st. 15 (2022-2023). https://www.regjeringen.no/no/dokumenter/meld.-st.-15-20222023/id2969572/?q=fysisk%20aktivitet&ch=3#kap3-5-3

Statistisk sentralbyrå. (2021). *Fysisk aktivitet og friluftsliv blant barn og unge 2020*. https://www.ssb.no/kultur-og-fritid/idrett-og-friluftsliv/artikler/fysisk-aktivitet-og-friluftsliv-blant-barn-og-unge-2020

Sreetheran, M., & van den Bosch, C. C. K. (2014). A socio-ecological exploration of fear of crime in urban green spaces–A systematic review. *Urban Forestry & Urban Greening*, *13*, 1-18. https://doi.org/10.1016/j.ufug.2013.11.006

Stigsdotter, U. K., & Sidenius, U. (2020). Keeping promses - how to attain the goal of designing health-supporting urban green space. *Landscape Architecture Frontiers*, *8*(3), 78-89. https://doi.org/10.15302/J-LAF-1-030015

Tvedt, K. A., & Svendsen, T. O. (2019). *Akerselva*. Store Norske Leksikon. https://snl.no/Akerselva

Woolley, H., & Lowe, A. (2013). Exploring the relationship between design approach and play value of outdoor play spaces. *Landscape Research*, *38*, 53-74. https://doi.org/10.1080/01426397.2011.640432

FIGURES

If nothing else is specified, then a figure is made by the author.

Figures with incomplete citations may be found in the reference-list.

Geospatial data dervived from FKB-data downloaded in January 2023.

Figure 1: Myraløkka and Sagene's location [illustration].

Figure 2: Based on Hartig et al. (2014). Figure 1. [diagram]. Available at: https://doi.org/10.1146/annurev-publhealth-032013-182443

Figure 3: Based on Stigsdotter & Sidenuis (2020). Figure 3. [diagram]. Available at: https://www.researchgate.net/publication/343416667_keeping_promises_-_how_to_attain_the_goal_of_designing_healthsupporting_urban_green_space

Figure 4: Progression of the categories of evidence [diagram].

Figure 5: Progression of the programming table [diagram].

Figure 6: Based on Stigsdotter & Sidenius (2020). Figure 3. (diagram]. Available at: https://www.researchgate.net/publication/343416667_keeping_promises_-_how_to_attain_the_goal_of_designing_healthsupporting_urban_green_space

Figure 7: Fjørtoft et al. (2018). Figure 1. [diagram]. Available at: https://openarchive.usn.no/usn-xmlui/bitstream/handle/11250/2578038/2018_12_Fjortoft.pdf?sequence=1&isAllowed=y

Figure 8: Based on Oslo kommune (2020). [graph] Available at: https://www.oslo.kommune.no/statistikk/oslohelsa/

Figure 9: Based on Atwmodiwirjo, P. (2014). Space affordances, adaptive responses and

sensory integration by autistic children. Figure 1-2. [illustration Available at: http://www.ijdesign.org/index.php/IJDesign/article/view/1556/659

Figure 10: The principles of play [Illustration].

Figure 11: The four characteristics of restorative environments [illustration].

Figure 12: Progression from prospect to refuge [illustration].

Figure 13: Based on Sreetheran & Bosch (2014). Figure 1. [illustration Available at: https://www.sciencedirect.com/science/article/abs/pii/S1618866713001350?via%3Dihub

Figure 14: Activating elements of Table 2 [illustration].

Figure 15: Myraløkka and the delimited project area [map]

Figure 16: Based on Oslo kommune (2023b). Sagene's rise in population [graph]. Available at: https://statistikkbanken.oslo.kommune.no/webview/

Figure 18: The Aker River and its adjacent pathways [map].

Figure 19: Schools and kindergartens within a 500 meter radius of Myraløkka [map].

Figure 20: Immediate context [diagram].

Figure 21: Municipal regulations in Myraløkka [diagram].

Figure 22: Facades categorized after visual character [diagram].

Figure 23: Finn kart (1881). Historical map of Myraløkka [map]. Available at: https://kart.finn.no/

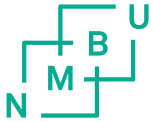
Figure 24: Digitalt museum (n.d). Mennesker gående på turvei [photograph]. Available at: https://digitaltmuseum.no/011012626586/mennesker-gaende-pa-turvei-kjorevei-langs-myrens-verksted-ved-akerselvas

Figure 25: Digitalt museum (n.d). Lekende barn med kjelke og skøyter på Myraløkka [photograph]. Available at: https://digitaltmuseum.no/011012626628/lekende-barn-med-kjelke-og-skoyter-pa-myralokka-gangvei-kjorevei-langs

Figure 26. Digitalt museum (1945). Akerselva ved Myraløkka [photograph]. Available at: https://digitaltmuseum.no/0210111647420/akerselva-ved-myralokka-myra-bru-myrens-verksted-til-hoyre-bentsebrua-i

Figure 27: Digitalt museum (1942. Guttegjeng lekende på isråk ved Akerselvas bredde en vinterdag [photograph]. Available at: https://digitaltmuseum.no/011012626689/guttegjeng-lekende-pa-israk-ved-akerselvas-bredde-en-vinterdag-omrade-myralokka

All figures beyond this point where made by the author.



Norges miljø- og biovitenskapelige universitet
Noregs miljø- og biovitskapelege universitet
Norwegian University of Life Sciences

Postboks 5003
NO-1432 Ås
Norway