TITLE PAGE

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Reading guide

The master's thesis should be read literary to the table of content. This is to get the intended understanding of the project. At the bottom of every page a stock of the different chapters aper as a help for the reader to orientate through the thesis. All text will be in English with the exception of some location, project, and site names. All illustrations are made by Kristine Holleufer Nielsen unless other is marked in the illustration text. The source will be mentioned in the list of illustrations in the epilogue.

PROLOGUE - ANALYSIS - PRESENTATION - EPILOGUE - PROCESS

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ABSTRACT

With the state of nature, decreasing biodiversity, and the rising question of whether we are entering the 6-mass extinction due to the climate crises which are if not human-caused, humans-provoked, the responsibility to develop with nature as the fundament urgent. In 2022 Denmark agreed to an ambitious EU Biodiversity Strategy for 2030. With only 1.5% of the goal common goal of 20% of its land use being a part of the Natura 2000 network, Denmark needs to make concrete changes to meet the agreement by 2030.

This master's thesis tackles the use of landscape in Denmark by challenging the way of thinking about zoning in the development regime. By using the method developed and published by Ian McHarg of layering the mapped information, together with the integrated design process a development plan for a site in the sub-urban terrain of Granaa is presented. The development plan concentrates on recon-structing the nature in question, making it the base zone of the development of Søkjær. The residenc-es and agricultural use of the site are fitted to the base of nature to ensure the quality of the biodi-versity and recreative use of Søkjær. The proposal tackles the problem of land use, but the develop-ment depends on restructuring the Danish planning regime, which can be challenging for the realiza-tion potential. Nevertheless, the projects propose another way of planning with nature than tradition-al thinking and if realized could help Denmark reach its biodiversity goal in the future.

Keywords: recreation of nature, natura 2000, EU Biodiversity Strategy 2030, sub-urban, residential, land use, zoning

TABLE OF CONTENT

PROLOGUE

LOCATION

The Master thesis site is located on the “nose” of Jylland Denmark. The site is on the outskirts of the city of Grenaa. Grenaa is an old trad town with a population of 14.500 (NorddjusKommune, 2021). Its connection to the Kategatsea still has an important role in the municipality. The project site is of today used for agricultural purposes. In the ”kommunerammeplan” from the municipality, it is planned as a recreative zone(NorddjursKommune, 2021). With the residential area on the east and the agricultural fields on the west, the site gives an opportunity to explore how agricultural, city, and recreative (nature) zone could meet and mix.

ILL: 01. LOCATION MAP

INTRODUCTION

Denmark is facing a paradox, that can be divided into two parts. The first part is that Denmark has agreed to restore and protect 30% of the area of Europa. Looking into the land use of Denmark, The Danish Environmental Protection Agency states that 9% of Denmark is a part of the Natura 2000 network but a report from The Danish Society for Nature Conservation shows that under 1% is 100% dedicated to nature (Jørgensen et al.). So, to meet the goals of the agreement Denmark needs to restore at least 11% of its landscape and possibly even more. Then the other part of the paradox. If Denmark wishes to restore the landscape, which use are they then going to repurpose the area from? The population is growing as it is in the rest of the world and so there will be a need to expand the housing opportunities. A rise in population equals a need to produce and import more food than we do today.

To sum up the paradox, Denmark needs to:
- Expand the cities.
- Produce more food.
- Restore landscape, as much as 11% and possibly more of the total area of Denmark.

This is a math problem that can't be solved when thinking of the sectors zones and/or opportunities. The design proposal will challenge these types of zoning of the landscape. Maybe the restoration of the landscape does not need to equal the loss of housing possibilities, but instead offers another way to live, respect, and learn from the landscape instead.

PROBLEM STATEMENT

How can the combination between landscape planning, landscape architecture and **Urban Design** challenge the definition of land zoning in Denmark to accommodate the transformation of the Danish land use to meet the **30%** by combing two or more zones to reach the goal from **EU 2030 stategy agreement** and as a mean in the climate adaptation/protection progress?

METHODOLOGY

Design with nature now

I used the method developed and published by McHarg in 1969 (McHarg, 1969). I used digital tools and old mapping to overlie maps from the site to find biophysical characteristics to make decisions about future land use and landscape reconstruction.

Digital mapping

Integrated design process

This thesis has been based on an integrated design process (IDP) method. The IDP has five different phases: Problem, Analysis, Sketching, Synthesis, and Presentation. All phases affect one another. Therefore, the design process relies on a lot of moving back and forth among the phases, creating this non-linear and dynamic design process.

Problem

The project starts when the problem statement is formulated. This is to determine what elements the project will tackle. It can be a fixed sentence, a drawing, relevant theoretical questions, or anything else. The problem is used as a method to guide the design and development of a strong and relevant concept proposal for the specific context. The problem statement can as any other phase change as the project develops.

Analysis

The initial analysis includes digital mapping of the site and other desktop analyses like a historic mapping analysis as
well as going on-site visits. It is often important to do one or several site visits as the experience of the site can vary quite a lot deepening on first-hand experience, the weather, time of day, and the seasons. As a part of the analysis case studies can be a way to collect knowledge on the subject as well. The results of the analysis are usually formulated in design criteria or in a SWOT that will be reflected in the Design criteria.

Sketching

The sketching should take based on the overall analysis, but first and foremost the Design criteria. During this phase, the drawings typically start with a lot of non-specific sketches, that are just rough ideas for a concept, or smaller parts of the design of the project site. Some sketches present good or partial solutions to the initial problem and analysis and will be developed further in the process. In this sketching phase, the urban designer has different habits on how they like to sketch. It differs if one likes to start with hand drawings before starting to draw on a computer or build a model or start directly on software in 2D and then move on to 3D.

Synthesis

At this stage in the process, the project starts to shape up and all the different parts fit together. When all the pieces are assembled, some final new iterations of sketching or even analysis are often needed, to develop the site further, or to get a homogeneous project.

Presentation

The presentation is about gathering all the relevant elements and communicating efficiently all the qualities of the project. The final product could include features like renders, illustrations, and physical models are made.

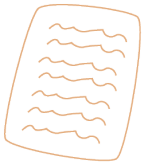
Species sample

Photo

Case studies

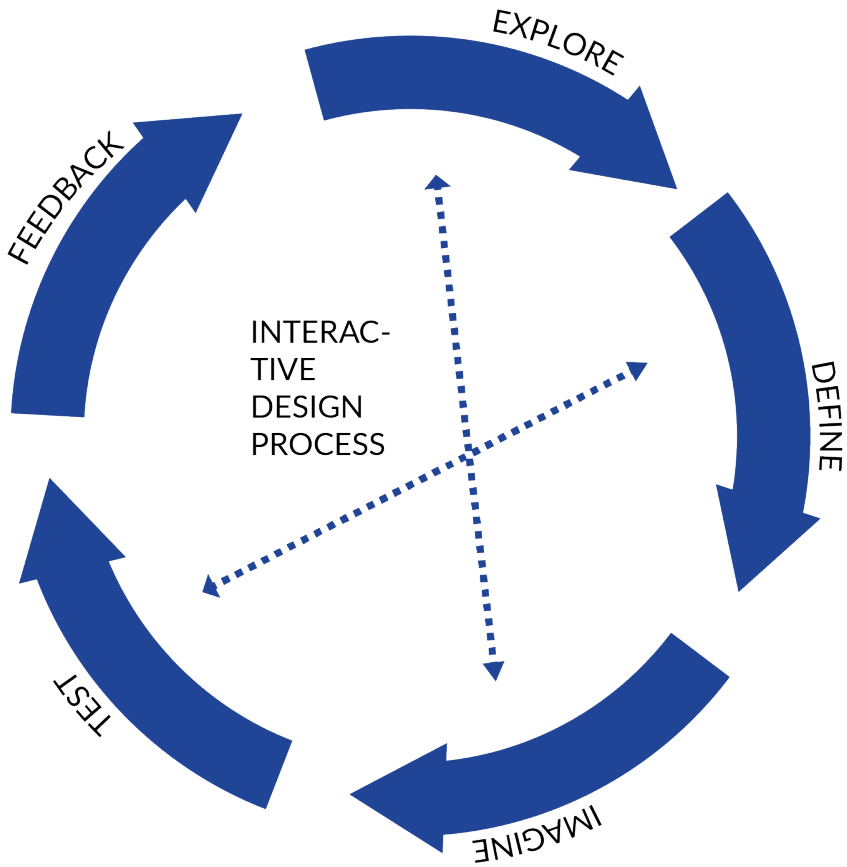
Supervisions

Empery



Illustrations

ILL: 02. METHOS ICONS



ILL: 03. INTERGATED DESIGN PROCESS

THEORY

Land use evolution

The earth

Looking back on the history of the earth, that is 4.5 billion years of history, the time humans have been on the planet is next to nothing. The number 4.5 billion is so big that humans can't grasp the concept of it (Hasak and Toomarian, 2022). But if we convert the lifespan of the earth into a calendar year, the humans entered the "year" the 31 December at 11.24 pm (Biomimicry, 2022). In the 4.5 billion years there have been 5 mass extinction. To classify as a mass extinction at least 75% of species go extinct within a relatively (by geological standards) short period (Ritchie, 2022). Nowadays there is talk about a 6-mass extinction as the way humans have exploited the earth has led to the loss of habitat, and loss of species, and all this a just a part of the climate crisis we are in due to the man-influenced climate changes(Ritchie, 2022). Discuss where the climate changes are purely manmade is a topic in itself and will not be a part of this project. But the way humans have used the earth's potential in the last centuries cannot be overlooked when it comes to the climate crises.

Humans

If one were to divide the influence of humans on the landscape, one could divide it into 3 phases. The first phase would be the period when humans lived in hunter-gather societies and lived as nomads, wandering from camp to camp to find food. Here humans lived more or less like other species on the earth, but still with a great impact on the species surrounding the areas they wandered in. The next phase is from when humans first started agriculture and to the 70'ties when the industrial transformation started. When humans learned how to grow foods the shift from a gathering hunter society to a permanent city society was evolving. The human footprint got bigger as the population grew and as did the fields. The third phase started in the 70'ties. The industrial revolution started and lead to a more efficient society. The farmer could grow more food with fewer working hours and that meant expansion. The fields got bigger and with that, the biodiversity started to increase. The expansion also meant the loss of habitat to not only agriculture but also Urban structures(Johansen and Helmersen, 2021).

State of nature

In 2020 the State of Nature in the EU report was published. The report seeks to identify the successes and shortcomings of the EU Biodiversity Strategy for 2020 through the collected data from 2013-2018. As a result, a new EU Biodiversity Strategy for 2030 is developed(Naumann et al., 2020).

The shortcomings of the Biodiversity Strategy of 2020 are in every aspect. There are improvements in the protection, restoration, and maintenance of habitats and species but with a total gap of 24% to reach the goal of 2020. The gap to reach the goal for habitats is 12%, for non-birds species it is 2% and for birds, it is 20%. This number is only for the habitats and species protected by the Natura 2000 network, so the actual number could look even worse. In trying to tackle these gaps and ensure that ecosystems are healthy and resistant to climate change, the new EU Biodiversity Strategy for 2030 was developed. It also aims to ensure that ecosystems are rich in biodiversity and deliver the range of services needed for the population's prosperity and well-being. The strategy I quite ambitious and has more of a focus on resorting to the eco-

systems whereas the previous one had more of a focus on avoiding degradation and biodiversity loss. It also focuses on the key gaps and other urgent findings from the assessments. They have an example of 4 points that is:

" *Agricultural pressures: increase organic farming to more than 25 %; reduce the overall use of and risk from pesticides by 50 % by 2030; provide space for wild animals, plants, pollinators, and natural pest regulators; and recover at least 10 % of agricultural area as high-diversity landscape features.*

Need for increased restoration: an ambitious EU nature restoration plan will be developed by 2021 to improve protection of intact habitats and restore degraded areas, e.g. by more effectively protecting marine habitats and restoring at least 25 000 km of rivers to free-flowing rivers by 2030.

Exploitation of forest resources and extensive management: propose a dedicated EU forest strategy in 2021, including a roadmap for planting 3 billion trees by 2030 and the strict protection of all remaining EU primary and old-growth forests.

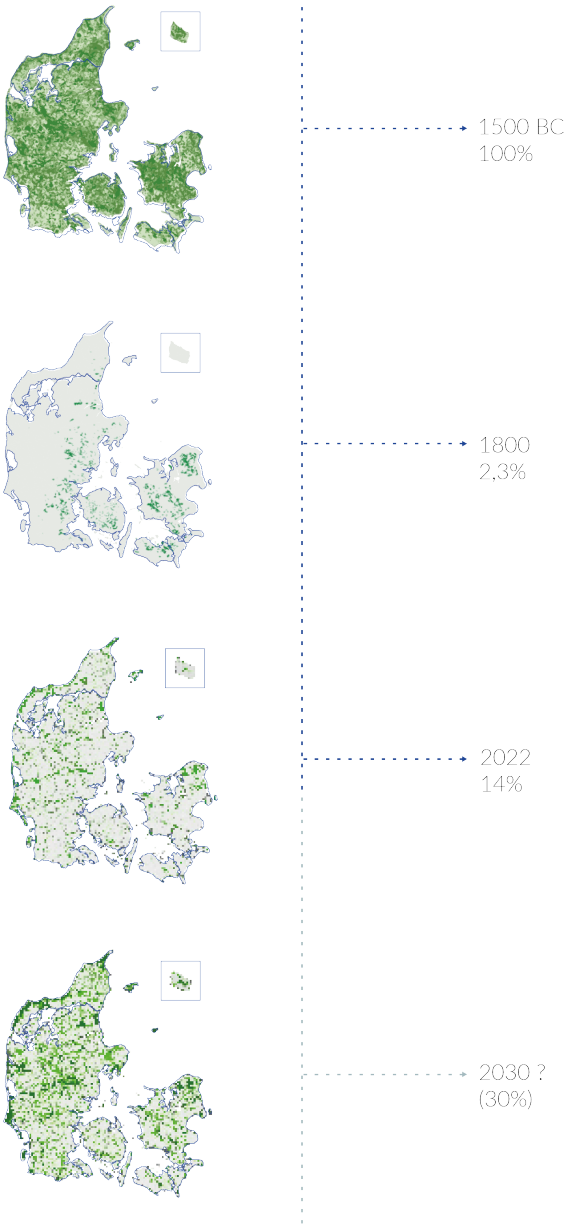
Insufficiency of the current Natura 2000 network: protect at least 30 % of the land and 30 % of the sea in the EU (including Natura 2000 and nationally designated areas), whereby one third of protected areas will be strictly protected; effectively manage and monitor all protected areas, defining clear conservation objectives and measures; and improve habitat connectivity for a coherent and resilient Trans-European Nature†Network (1978) "

(Naumann et al., 2020, p. 136)

Denmark

In 2022 Denmark signed the agreement to the EU Biodiversity Strategy for 2030. The report also collected and compared the conservation status of habitats and species at the member-state level. In the conservation status of habitats, Denmark is almost the state with the lowest conservation condition of habitats. The same pattern goes for the conservation of species. Here Denmark is turning up at 24 places out of 28 states in the conservation status of species overall. The Danish Environmental Protection Agency states that 9% of Denmark is a part of the Natura 2000 network but a report from The Danish Society for Nature Conservation shows that under 1% is 100% dedicated to nature (Jørgensen et al.). Because of this the commitment to a 30% goal received some criticism both nationally and internationally.

The Danish land use history is a bit different than the 3 phases that the earth generally has been through. The first phase is the same as in the rest of the world, but the second phase is a bit different. Denmark is the fourth flattest country in the world and has no bare rock as the base of the mainland(Lynn, 2018). This makes the landscape easy to shape. The sediments are from glacial retraction with makes the ground cultivable for most crops. These conditions could be a main factor in why there 1800 was as little as 2-4% forest back in Denmark(Dam, 2021). When the industrial revolution came in the 70'ties the Danish landscape was already fully in use. What the industry brought to Denmark was not more habitat loss but rather a more efficient way to work with agriculture. The fields got bigger, and the number of farmers shrunk. Back in 1800, the state recognized that a convergence of 2-4%



ILL: 04. DANISH FOREST TIMELINE

with the forest was too little and came up with a plan to reestablish the forest (Dam, 2021). In 2022 the coverage of forest was 14 percent (Architecture et al., 2021). With a goal of 30% Natura 2000 coverage and 20% of them being on mainland Denmark have a long way from the 1-9%. A report from Aarhus University seeks to map a possible scenario for this transformation, which includes the goal of 1/3 to be strictly protected (Ejrnæs et al., 2022). The mapping shows a much greener Denmark as is to expect from a 20% land use being a Natura 2000 area. In 2021 agriculture covers about 59,9% of the Danish landscape used for agricultural purposes, 13,8% of cities and other artificial surfaces, and 22,1% of forest and open lands (Levin et al., 2012).

In 2030 the Danish population will increase by about 200.000 people (DTS and Statistik, 2022). The cities will have to grow to keep up with the population and then the build zones will grow as well. The 2030 strategy states that at least 10% of the area should be recovered for agricultural purposes. So, Denmark needs to produce more food, recover at least 10% of its agriculture zone and have at least 20% of its mainland areas as Natura 2000 networks. Looking into what could be the future of agriculture Vertical Farms (VF) could be a contributor to solving the puzzle. By the city of Taastrup, the world's largest Vertical Farm (VF) is situated. They state to be able to produce 250 times as much as conventional farming methods. The reaches into VF done by Beacham, Vickers, and Monaghan state that the use of VF can help agricultural production meet the needs of the world population. They underline that it depends on the type of crops, and economy while the solution is expensive. The need to conduct further reaches because the area still has a lot of unexplored angels (Beacham et al., 2019).

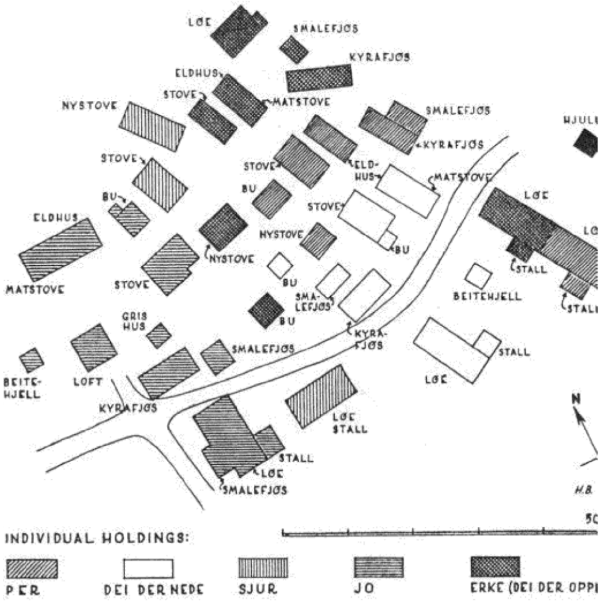
Living with nature

When one is doing statistics and/or planning it is useful to make zones to get a number and an overview of the situation in question. But does it mean that there can be no nature in a city zone and no housing or urban elements in a nature zone?
The "Giber Å, Enemærket og Skåde Havbakker"(area 234) area in Aarhus is a part of the Natura 2000 network, but there are several small urban structures within the Natura 2000 boundaries such as housing, camping, parking, museum, and restaurant (Miljøstyrelsen, 2022). A lot of these structures were present before the Natura 2000 protection of the site, but the new Mosgaard museum was built in 2014 and the area was appointed as a Natura 2000 site in 2003. The new museum is built as a structure rising from the ground with a green grass roof that is accessible to the public. Looking inside the city of Aarhus there are multiple parks such as the Botanical Garden, the University Park, Rosko Forrest mm. Maybe the city zone is not only for concrete and housing and the nature zone is not only for flora and fauna. Maybe the most important part is to respect the "base zone" and planning and/or design on the premises of that zone.

Looking toward the north the historic local societies in Norway are built with nature. The landscape in Norway makes it necessary to plan with nature because it is not possible to shape the landscape in the same manner as it is in Denmark. Furthermore, the steaks of buildings in the wrong place are higher with the possibility of avalanches, landslides, and boulders falling from the mountains. The rough landscape also made the farming possibilities limited. Because of this, the structures of the old Norwegian towns will reflect the landscape it is situated. These old formations of buildings are called "Tun". If it was a step hillside the houses were places in a row also called a "Række Tun"(Illu 05.). With good farming grounds and flat terrain, the structures would be placed in either an open square or a closed square depending on the possibility of animal visitors such as bears, wolves, and/or mosses. If there was a limited amount of good farming grounds the structures were placed closely together on the spots with bad quality (Klynge tun, Illu 06. (Berg, 2012).). The landscape defined both the structure and the size of the towns (Drange et al., 1992). Looking south from towards Austria they also have traditions of different village structures fitted to the landscape. The Angerdorf is characterized by the shape of the village (Illu 07.). It is defined by the need for every resident to have their field area, but the houses are also centered around a central grassed area. The houses and farmsteads are laid out around a central grassed area(Brandstetter, 2021). The big difference between the Angerdorf and the Klynge tun is that the Angerdorf is placed so everybody gets access to their field which is divided between the residents. Whereas the Klynge tun has its structure because of the landscape structure.

Nowadays technology has evolved and made it possible to make terrain adjustments. But the need to design and plan regarding the landscape that is present is still a big factor in the Norwegian Design and planning field.
In Denmark, there are projects channeling the idea of the zoning categories. "Naturbyen" by effect is a development that aims to demonstrate how housing, a recreation of a forest, biodiversity, and circular resources thinking can be combined in suburban areas. The project has a detailed plan of how to minimize the footprints of the housing to make space for nature, but also how to rebuild the forest and let the landscape regenerate before placing urban structures (EFFEKT, 2023).

ILL: 05. ”REKKE TUN” (DRANGE ET AL., 1992, P. 11)



ILL: 06. ”KLYNGE TUN” (BERG, 2012)

ILL: 07. ”ANGERDORF” (© WESTERMANN)

ANALYSIS

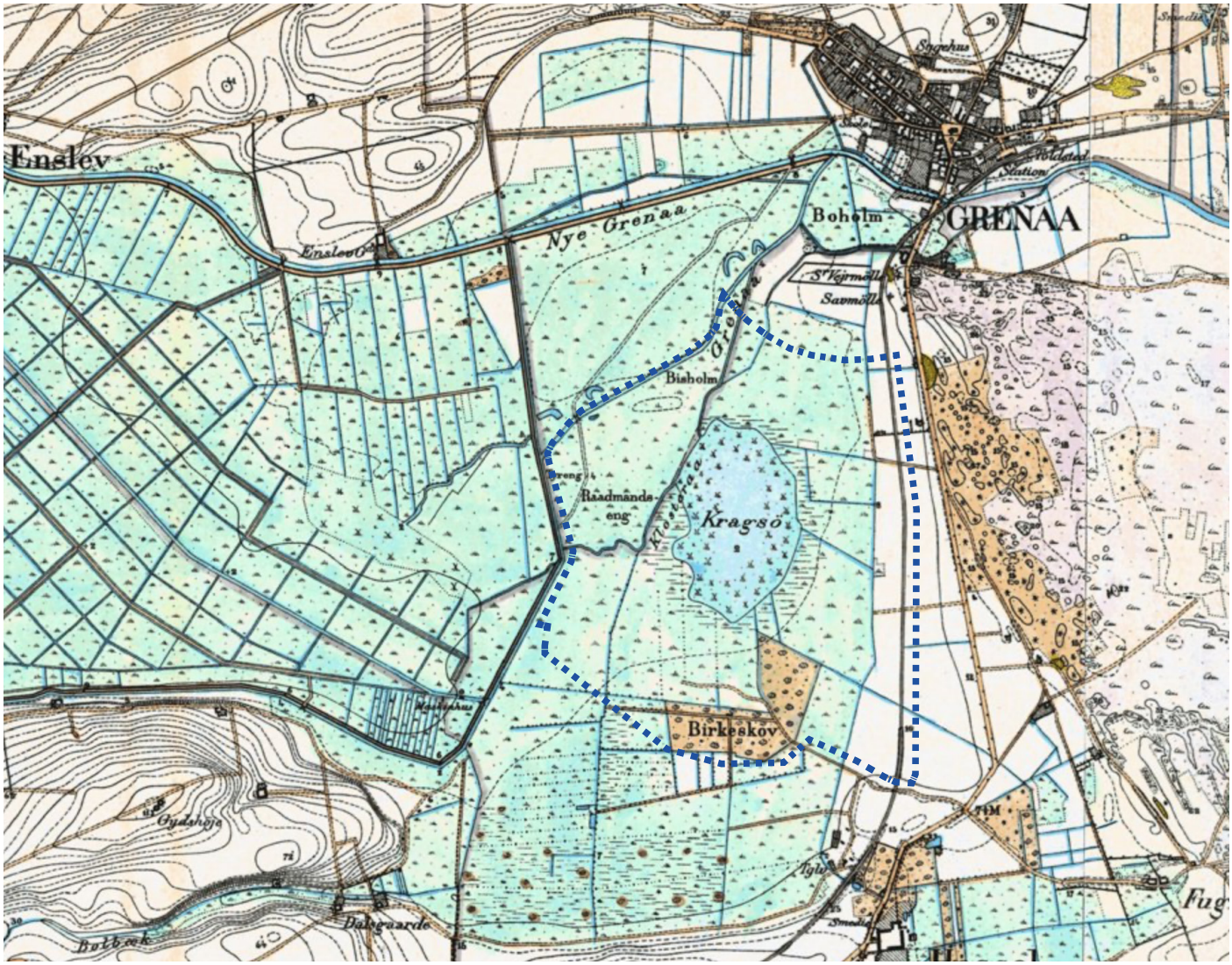
INTRO TO SITE

In the southern sub-urban of the small town Grenaa, the project site is located. The site boundaries are defined by the Grenaa River in the west, Ringvejen/ Road 16 leading to and from Grenaa in the north, and the track for the Letbanen in the east. In the south of the site, the boundary is formed by a forest and the invisible line inbetweener green areas within the site and on the outer edge of the site. In total, the site is about 2000 m2. The main use of the site is for aquicultural purposes. There are two forests, one in the north along the entry road and one making up the southern border.

In 2022 a competition to highwater secure Grenaa was won, and the site is mentioned as a part of the future climate adaptation and/or protection strategy. In the “Kommunerammeplan” most of the site is marked for future recreational purposes(NorddjursKommune, 2021).

1: 10.000

ILL: 08. SITE MAP



ILL: 09. HISTORIC MAP LARGE (HISTORISK ATLAS, HØJKANTKORT 1840 1889)

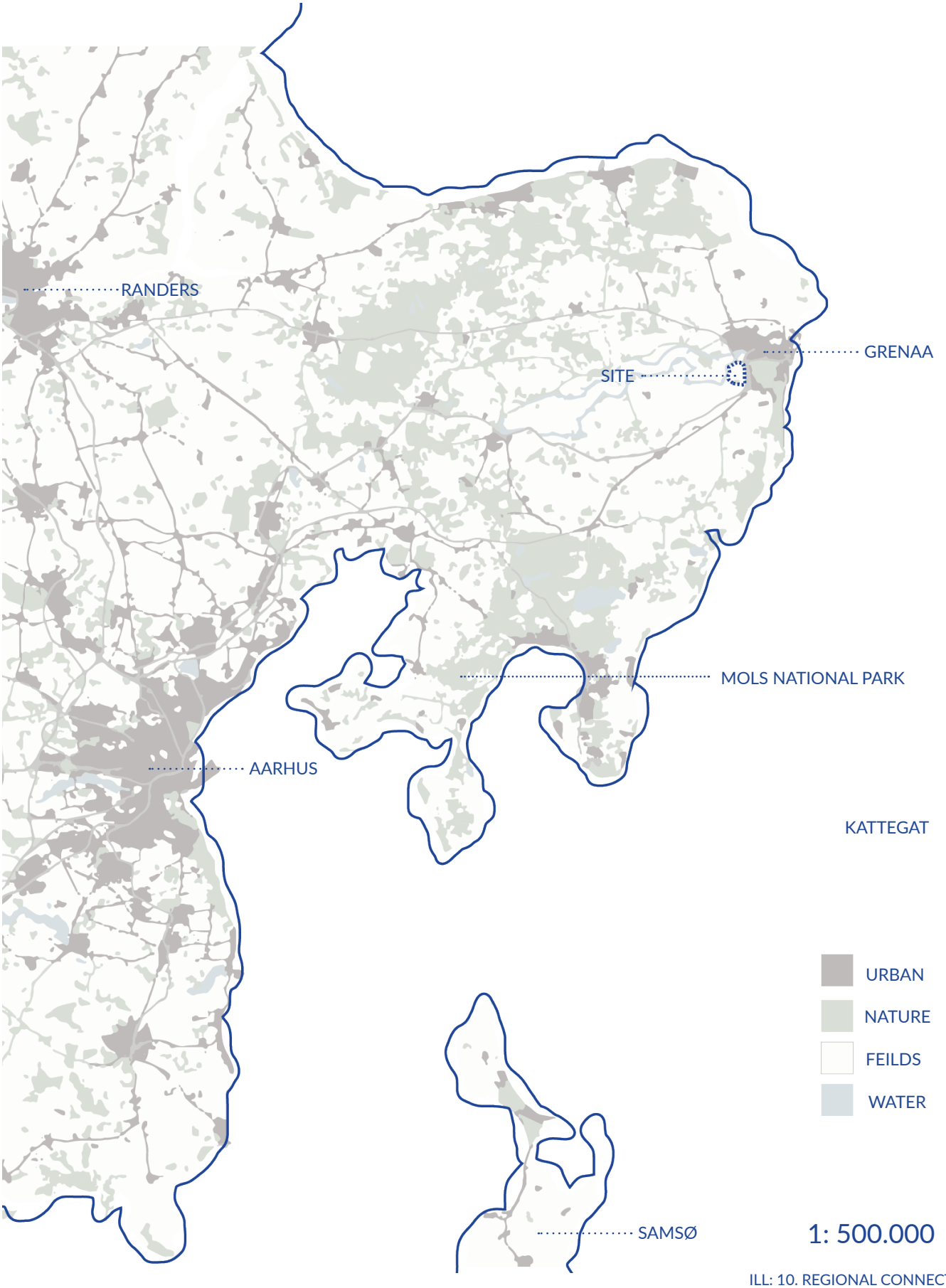
HISTORY

History of the site

Looking back at what historic mapping of the site, there once was a lake called Kragsø in the center of the site. The forest in the shout was called “Birkeskogen” and was larger on the mapping from 1840-1899. Both “Birkeskogen” and “Kragsø” are drawn on the mapping from 1901-1945 as well, but here both the lake and the forest seem to have shrunk.

Back in 1840, Kragsø was a lake with a connection to Kolinsund. Kolinsund was once Jylland’s largest lake with a length of 12 km and a width of 1-2 km. Kolinsund was drained in 1872-80 (Hansen, 2017). At the same time, Kragsø was drained as well. The purpose of the darning of Kragsø and Kolinsund was to expand the agriculture possibilities. Today there is 3 pump station working full-time to keep the two areas drained, so they can be used for agricultural purposes.

In 2022 Granaa issued a competition to make climate protection for the city, because of the water handling-related problems that the city faces. As a part of the hightide securing that Norddjurs municipally are collaborating with the winning team to create, the reassessing of Kragsø as a buffer zone is a part of the ongoing process (Engarkiv, na).



ILL: 10. REGIONAL CONNECTIONS

CONTEXT

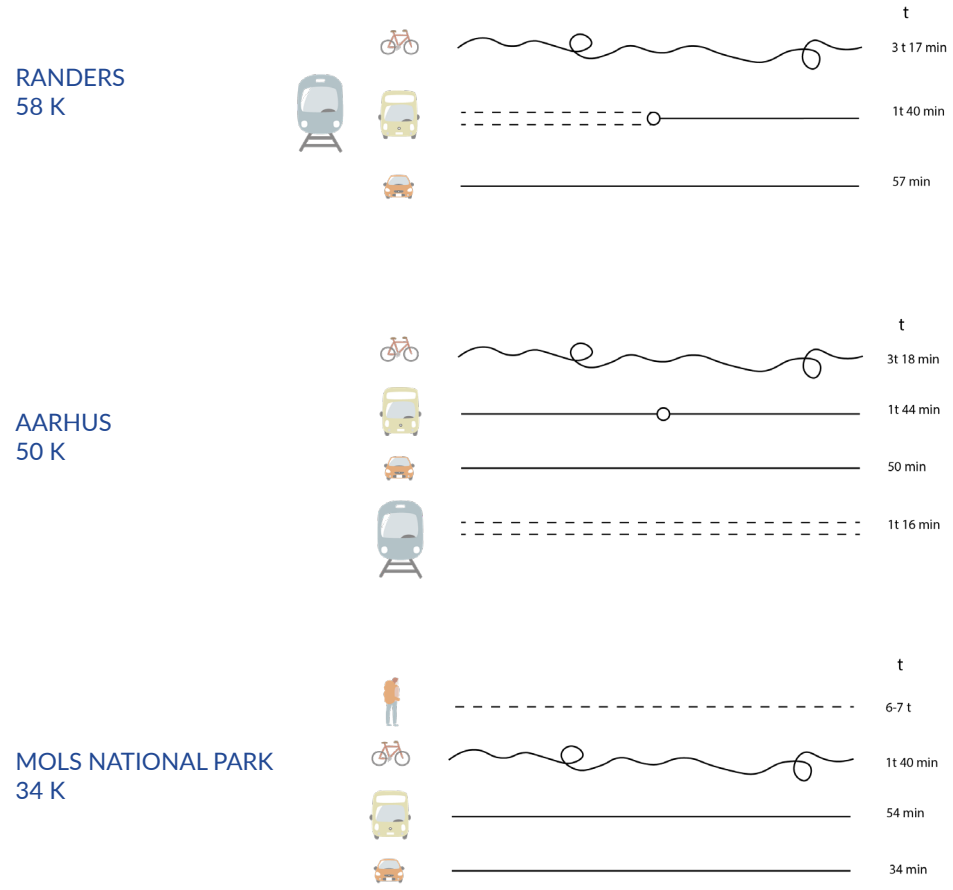
Connections

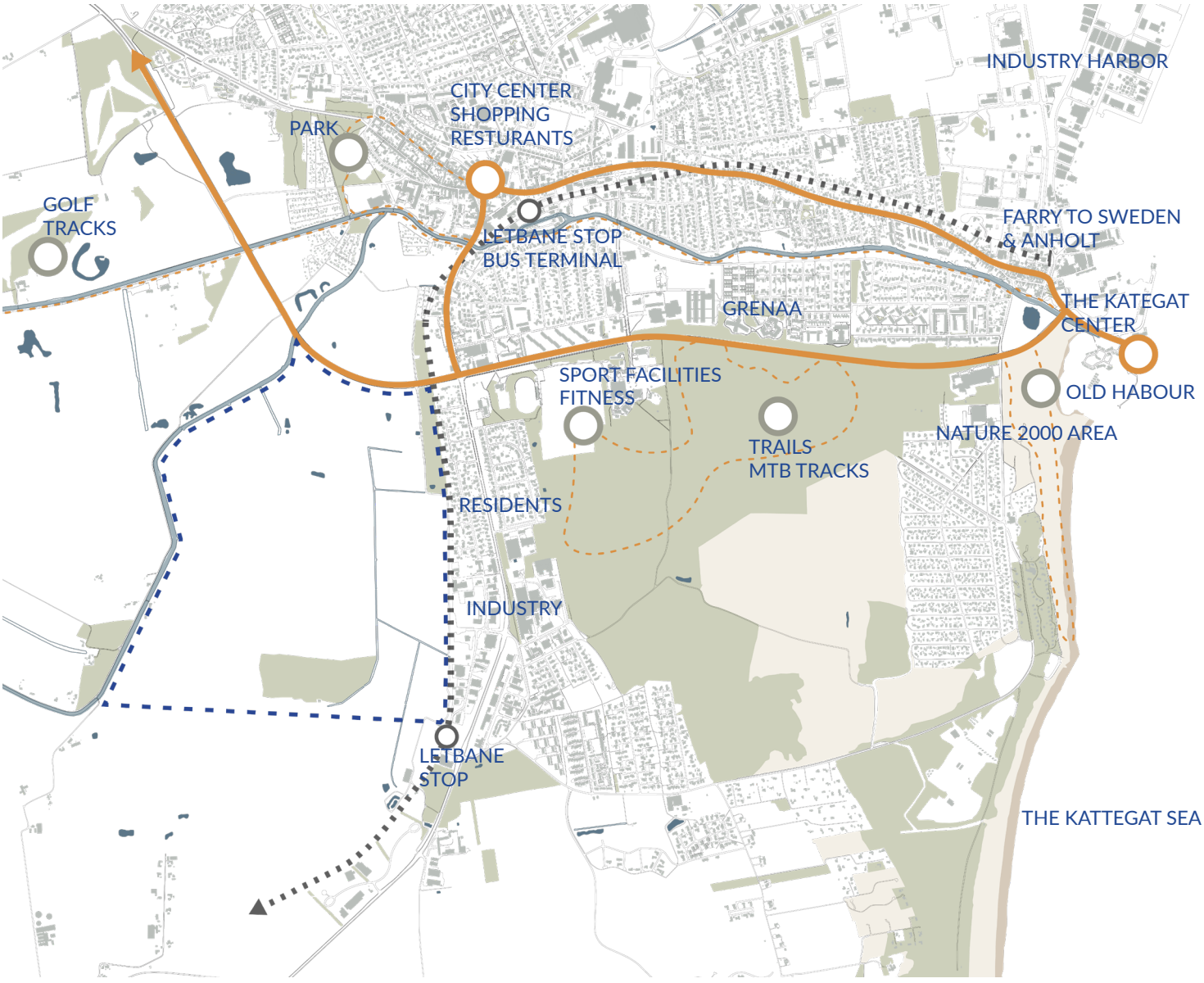
The site is on the outskirts of Grenaa and a part of Norddjurs municipality on the “nose” of Jylland. Looking to the west Randers is 58 km away. The fasted mode of transportation is by car and the ride is 57 min.

50 km in southwest Aarhus located. From Aarhus, there is a train track with the “Letbanen” going from Aarhus Center to Grenaa with a stop by the southeast corner of the site. The fastest mode of transportation is by car, but the trip with the Letbanen takes 1t 16min.

The national park Mols National park is directly south of the site. Mold National park is known for its large trail network and its unique landscape. In 2022 the park app service was used by users 22.000, but because the park is a public national park the precise visitors count is hard to estimate. Mols National Park is 34 km from the site, which is a 34 min car ride away. There is a hiking route going from Aarhus through the National Park and to Grenaa. The hike from the site to the park is a 6–7-hour hike.

ILL: 11. TRAVEL DISTNACE IN KM AND TIME





ILL: 12. NIGHBORHOOD CONNE-CTIONS

Nighborhood

North of the site Ringvejen/ Road 16 enters the center of Grenaa. Grenaa is an old market town. This is still reflected in the structures of the city center with the narrow streets, a church in the middle, and the connection to the river and thereby the sea. Grenaa is the largest trade and production city in northern Djursland. The harbor of Grenaa is important for the vibrance of not only the city of Grenaa but also the smaller communities on Djursland (NorddjursMunicipality, 2021).

In the center of Grenaa, one will find a bus terminal and one of the Letbanen terminus. There are also retail-, and grocery shopping opportunities as well as accommodation options in Grenaa. At the harbor front, the Kategatcenter is located. The Kategatcenter has 155.273 visitors in 2019 (Kategatcenter, 2020). The Kategatcenter is a sea and coast-themed center where visitors can experience large tanks with both rare and exotic fish, but they are also known for their shark tank. In the north of the Kategatcenter the industrial harbor. In 2020 it got confirmed that the harbor will undergo an expansion that will be done in 2023 (Fonvig, 2020). From this part of the harbor front, it is also possible to take the ferry to both Anholt and Sweden (Halmstad). Going south from the Kategatcenter one would reach the old marina of Grenaa. This is a marina with mostly sailboats. Most of the buildings at the marina are small wooden structures. At the marina, there are multiple clubs such as a diving club, a sailing club, and so on. Some stores and restaurants are open in the summer. In some of the wooden structures, there are vacation housing both rental and private.

Continuing south from the old marina there is a dike landscape along the sea that is protected by the Natura 2000 Network (Miljøstyrelsen, 2022). From the paths leading through the dikes, it is possible to connect to a larger path system further in on the mainland and in the south of the Grenaa city center. Here there is both MTB tracks and path through the forest area. Following the paths, one would reach the Sports facilities and continuing west one would reach the Letbanen tracks that are on the eastern edge of the site. The is no way to cross the Letbanen track except where Ringvejen/ Road 16 does in the north of the site.

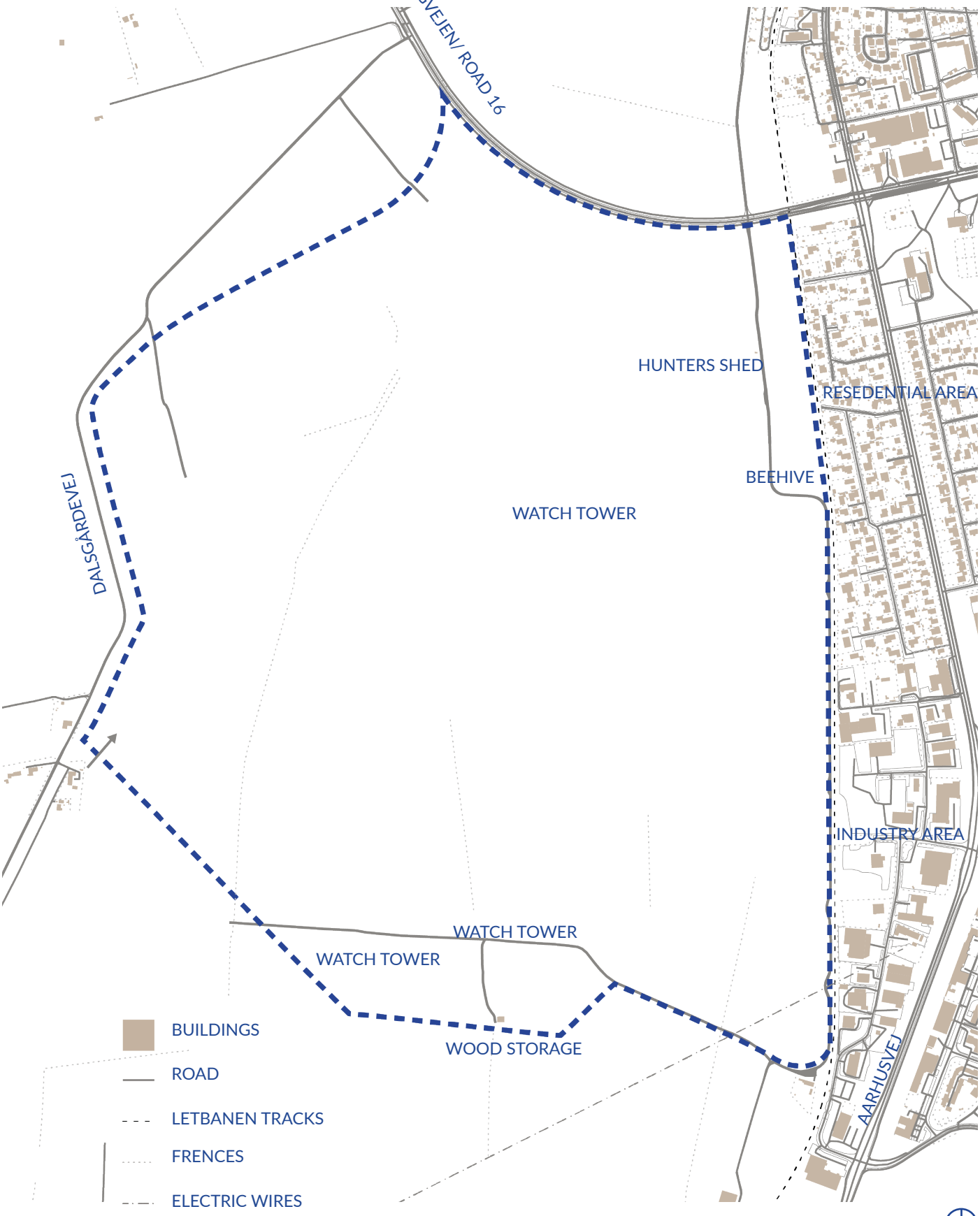
ELEMENTS

Functions

The site's main function is agricultural purposes, but the production type varies throughout the site. In the south, there is a forest used for wood production. There are also more hobby-based functions on the site. There is a small shed used for breaks when hunting at the site. On-site, there are several elements aimed at hunting. There are feeding stations for wild game and there are watch towers and hiding places for the hunters. In the north forest, there is a private beehive.

Urban

Because of the main use of the site, there are no larger build structures. There are two smaller buildings within the site. One is a shed used as a place to take breaks when hunting and the other is a storage for wood production. There are roads leading to the building. There is one way to enter the site by car and that is a road entering the site from the north. The road is connected to the Ringvejen/ Road 16. The road continues to the forest and through. It divides into two where one end goes north and the other continues west. In the west of the site, there are tree opportunities to cross the Grenaa River and enter the site by foot or with a tractor. The two crossing in the north are for agricultural purpose and the last one in the south are to give entrance to a house that is on the outer edge of the site boundary. None of the roads within the site are paved, all are either gravel roads or tractor tracks. The road connecting the entrances in the west connects to the Dalsgårdevej again leads to the 16 in the north and leads to a small town called Revn.



1: 10.000

ILL: 13. URBAN ELEMENTS

1:150.000

ILL: 14. REGIONAL BLUE AND GREEN STUCTURES

LANDSCAPE STRUTURES

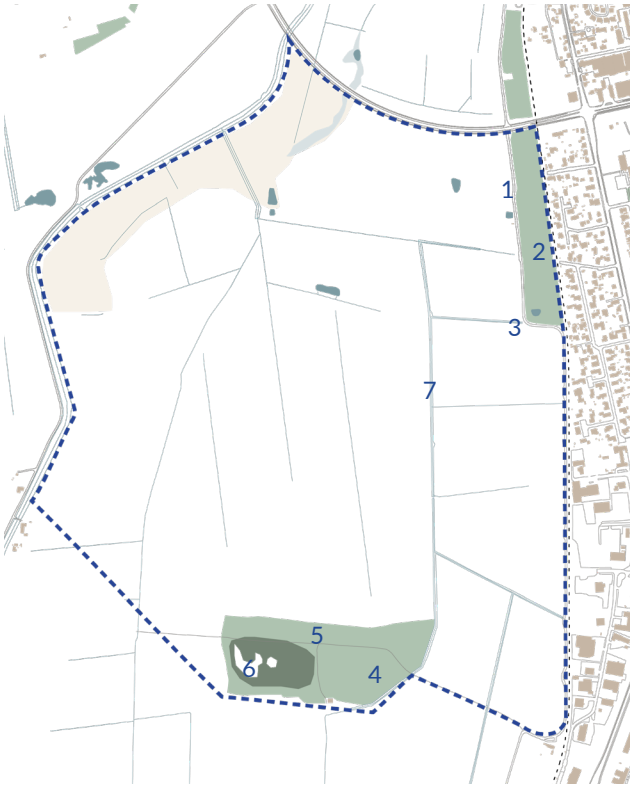
Regional structures

There is a green belt circling Grenaa from the top of Djursland to Mols National Park. Looking at a regional scale the structure of old Kolinsund in the landscape is notable. The old fjord once connected Grenaa to the green belt. Today the connection is through the green corridor by the Kattegat. The two streams that framed the old Kolinsund runs both to the east through Grenaa and to the Kattegat, but it also continue south and runs into the Kalø Vig fjord.

1: GRAVEL ROAD LOOKING NORTH

2: FOREST NORTH

3: GRAVEL ROAD LOOKING SHOUTH



ILL: 15. VEGETATION PICTURE OVERVEIW

4: FOREST SOUTH

5: FOREST SOUTH

6: GLADE FOREST SOUTH

GREEN AND BLUE STRUCTURES

Flora

The matrix of the site is the field in use for agricultural purposes. Looking at satellite photos there is no consistency in the type of crops harvested from the fields. The field has different species depending on the wetness of the area. In the center of the site, one would be more likely to find more water-resisting species such as reeds and carex. Along some of the ditches, there is tall reed vegetation but along others, there are trees such as willow and ash trees.

In the northern forest, there is a surprising amount of berry bushes and fruit trees. There are multiple apple trees and currants- and raspberry bushes. On the edge of the forest, it is mainly Oak and Birch trees but further in the forest is almost purely a birch-dominated forest which makes the forest floor green with a lot of species because of the access to sunlight due to the type of canopy.

Along the Letbanen track the vegetation consist of plants. These are not planned but have most likely arrived with the Letbanen as seedlings. The vegetation along the track is maintained and cut several times a year.

The forest in the shout is mainly a maple forest. The forest is used for wood production which is clear because of the distance between the trees and the vegetation in between the trees. It is maintained to secure that the trees that are grown for wood production have the right conditions to grow. Because of this, the canopies are not that close, and this makes the forest floor lush and green. The vegetation on the forest floor is low vegetation. The vegetation consists of many smaller wildflowers as different cultivars of anemone and wild daffodils. In the western part, the forest is dominated by Spruce trees that surround a glade where there are both fruit trees as apple and cherry but also birch trees.

7: LANDSCAPE VIEW CENTER SITE

Mamals

ILL: 16. FALLOW DEER (J. WENGBERG, NA)

ILL: 17. FRAUD (C. H. CLAUSEN, 2021)

ILL: 18. FOX (K. MADSEN, 2023)

Birds

ILL: 19. VIBE (L. FALCK, 2022)

ILL: 20. REED WARBLER (L. FALCK, NA)

ILL: 21. KINGFISHER (L. FALCK, 2022)

ILL: 22. LITTLE RINGED PLOVER (L. FALCK, NA)

ILL: 23. SHORT-EARED OWL (E. KRABBE, NA)

ILL: 24. COMMON SHELDUCK (J. MØLLER, NA)

Fauna

In the last 10 years, there have been registered 230 different species for a total of 7806 times inside the site boundaries. 8 types of insects, 1 snake, 7 mammals, and 36 plant and 180 bird species. Out of the 230 species 68 of them are registered with the engendered. 3 of the species on the Rødlisten are mammals and the remaining 65 species are all birds(ARTER, 2023).

Mamals

The 7 mammals that were spotted at the site are, the Deer (65), Hare (18), Fox (7), Common shrew (2), Fallow Deer (2), Leak (1), and Fraud (1). Out of these the Fox, Stoat, and Fraud are all on the Rødliste and all are categorized as almost endangered. The mammal that is most sighted is the Deer with 65 times.

Birds

65 of the 180 bird species registries on the site are within the Rødliste spectra (Bilag1). 11 the critically endangered.

- 3 species are regionally extinct.
- 8 are endangered.
- 15 almost endangered.
- 28 are considered vulnerable.

The 12 species that have been sighted most times the last 10 years are the Red glente (432), Vibe (189), Walking flag (155), Kingfisher (148), Starling (107), Singing habit (92), Common shelduck (50), Sparrowhawk (47), Teal (40), Pigeon hay (39), Yellow Sparrow (37), Lead hen (26).

TARRIAN AND WATER

Topography

Within the site, the topo varies from -1 to 2.5 mot. In the center of the site, the terrain is at its lowest. The terrain rises to 2.5 m in the east leading up to the residential area on the other side of the train tracks. The terrain styles at 1.5 m in the south as the forest appears. In the east, the terrain keeps low to the Grenaa River. Looking north the terrain rises to Ringvejen/ Road 16. In the forest area in the south, the terrain goes from 0.5 m to 2 m keeping the habitat dry.

Noise

The noise from the Ringvejen/ Road 16 in the north and the Aarhus Road in the east has no significant impact on the site. There is no registered noise from the Letbanen track.

ILL: 25. NIOSE MAP

Bluespot

Because of the topography, the site is easily flooded. There is not much of a difference when looking at the blue spot analysis for a 20-year event, 50 year event and a 100-year event. Because the site is of agricultural purpose there are created ditches and small lakes to lead the water away from the crops. In a case of a rain event of 46mm, the water will gather at the low point in the site and along the ditches in the south of the site.

1: 10.000

ILL: 26. BLUE SPOT 20, 50 AND 100 YEAR EVENT

ATHPOSPHERE

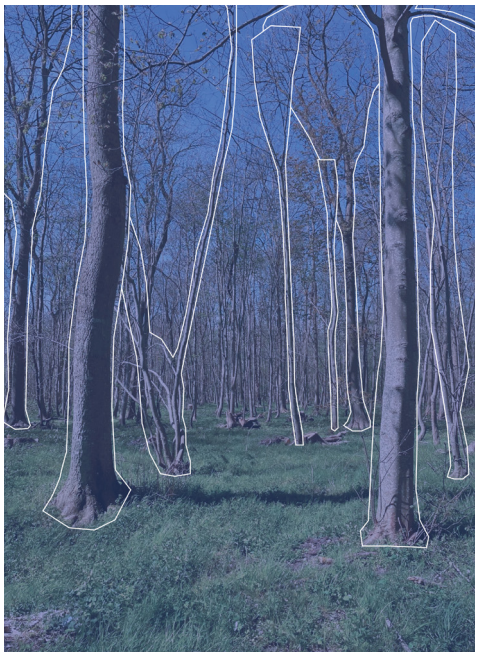
The site offers different spatial experiencing as one ventures through the landscape. Because of today's use and the terrain of the site largely consist of an open landscape structure. Surrounding the ditches there are rows of trees that contribute to the spatial feel, making visible boundaries at the site. The two forests also give the site a specialty. When looking to the east the Letbanen tracks together with the housing and industry makes up a physical and visible boundary to the rest of Grenaa. This also counts for the view to the north where it is raised road 16 that makes up the boundary.

The forest in the north doesn't have a clear entry and can there seems more like a boundary than a recreative space. When entering the forest, it is not maintained, but there are small areas where the tall birch trees canopies withdraw making a glade with smaller Appletree's and other smaller tree and bush species. The forest can be considered a semi-closed landscape structure because of the lush, unsorted vegetation. The forest does not have one specie that is more dominant than the other which make up a feeling of a bit unsorted and at times raw nature. There are several abandoned elements in the northern forest as tractors and spare parts but there is also a beehive where it looks like it is in use both of bees and humans. Entry road runs along the forest framing it. The road is a gravel road which contributes to the feeling of being away from the city but also makes the user slow down the speed on the road.

ILL: 27. ATHPOSHERE NORTH FOREST

ILL: 28. ATHPOSHERER CENTER SITE

Going south one drive along the Letbanen track and have a look at the housing area and later the road the industry area. The track is a bit higher than the road and at some sections it has fences. When arriving at the forest in the south there is a clear entrance. The forest used as a wood chopper forest makes the forest more sorted. The dominant species in the east of the south forest are maple trees. The drift of the forest makes it more open than the north forest and the forest floor has a lot of smaller species making the forest floor green and lush. Through time the stones found in the field have been dropped on the forest now making up small terrain differences that give the other vise flat forest floor a more spatial feel. The forest can be considered as a semi-open landscape structure while the sky is always visible and there is good space between the trees. In the western part of the forest, the dominant species is Spruce trees. The trees stand close together and not much light is getting through making the trees a boundary from the road. Going around the Spruce Forest there is an opening in the boundary of trees where one enters an open grassland surrounded by mostly Spruce trees making it a more closed landscape structure around the glade. The glade almost seems like a secret park berceuse there is no sign of it when walking elsewhere at the site.



ILL: 29. ATHPOSHERE SOTH FOREST

ILL: 30. ATHPOSHERE GLADE SOTH FOREST

CASE STUDIES

As a part of the Analysis, there are made to Study cases to further investigate different aspects of landscape recreation. The two cases differ as one is with a recreative purpose and the other is a development plan for sub-urban residential areas that have a sustainable and biodiversity focus.

EGÅ ENGSØ

What?

RECREATED LAKE

Where?

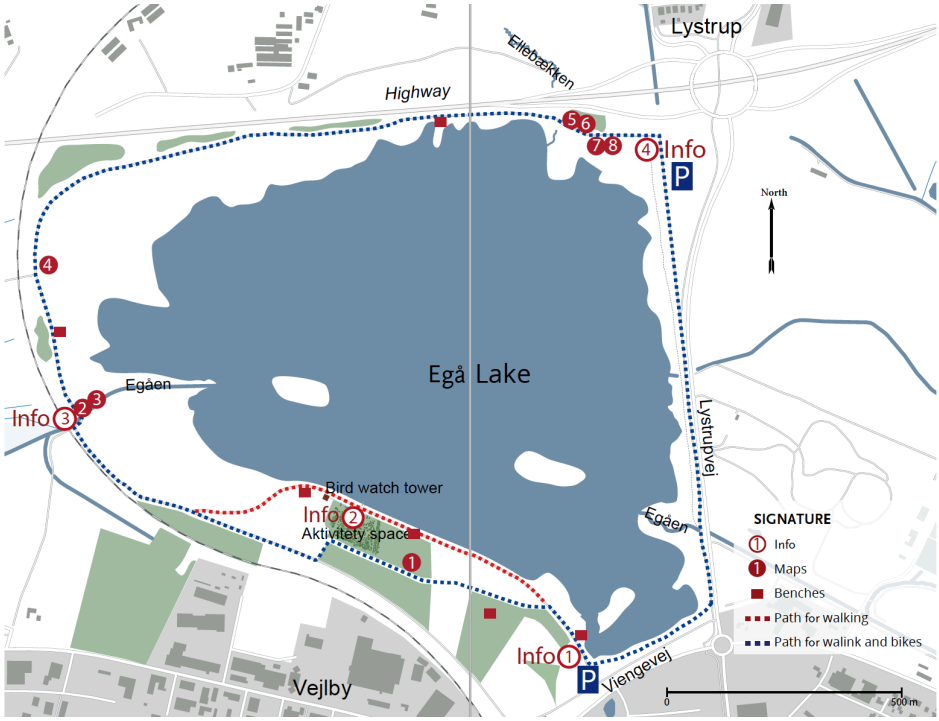
EGÅ, AARHUS MUNICIPALITY, DENMARK

Why?

TO LOOK AT EXAMPLES OF HOW TO RECREATE HABITATS AND MAKE A SITE ACCESSIBLE TO SOCIETY.

Before 2014 the land between Egådalen, Lystrupvej, and Grenåbanen was used as intensive agricultural fields for many years. Looking back in time, the area was originally a meadow and marsh used for grazing and haying. It had a rich biodiversity that deciphered in the 50'ties when the area was drained.
The area was drained with the purpose of using it for agricultural purposes. There was built a dike along the Egåen stream and a pumping station that removed the water and transferred it to the Aarhus Bugt. After the drainage, the ground's biomasses settled, resulting in the terrain being 1 – 1.5 m lower than before the drainage. Aarhus municipality, the former Aarhus Amt and Skov og Naturstyrelsen bought the area and turned the pump station off and the dike was removed. In 2006 the lake and the areas around were finished and already in 2007 there were registered 33 bird species in the area. If one were to visit the Egå Lake with little luck one could encounter 10.000 birds (AarhusKommune, NA).

The paths around the Egå Lake make it possible to walk and bike all the way around the lake. The trip is 5k when always following the path close to the lake. There is an activity space with shelters, a playground, and a fire pit. There are benches along the paths and one bird watcher tower with a view over the lake. The map of the area also shows that there is placed information board along the route (AarhusKommune, NA).



ILL: 31. TRANSLATED MAP OF ENGÅ LAKE (AARHUSKOMMUNE, NA).

NATURBYEN

What?

SUSTAINABLE HOUSING DEVELOPMENT

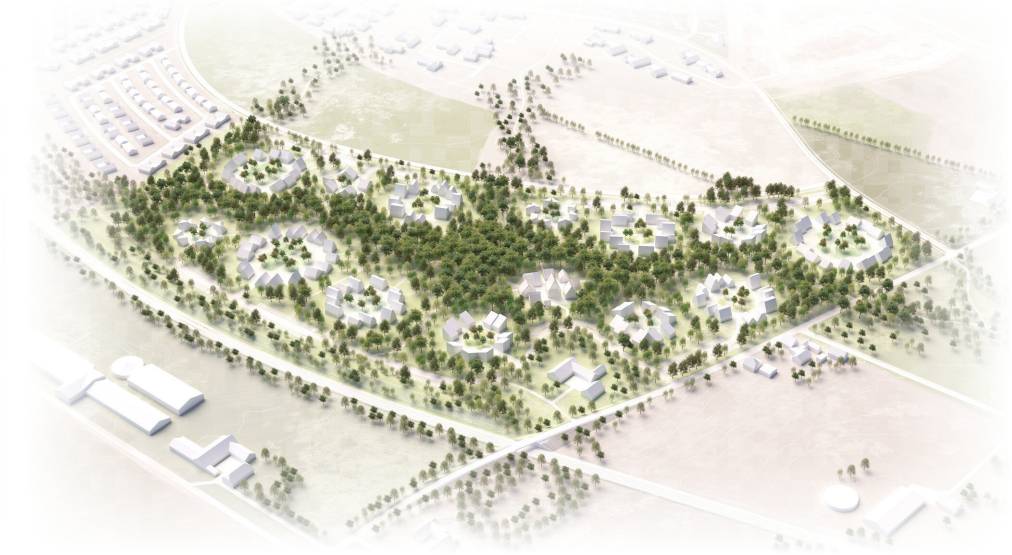
Where?

MIDDELFART, MIDDELFART MUNICIPALITY, DENMARK

Why?

TO INVESTIGATE HOW OTHERS HAVE TRIED TO RETHINK HOW WE PLAN NEW DEVELOPMENTS IN RELATION TO LANDSCAPE-BASED DESIGN.

In 2020 the Municipality of Middelfart in collaboration with EFFEKT and Middelfart Municipality
began to prepare a new residential area in the eastern part of the city of Middelfart. The residential will contain 220 new homes. What makes this project relevant to investigate is both the similarities to this project and first and foremost the approach of how to plan with nature. Naturbyen or translated as “Nature Village” seeks to demonstrate how sustainable housing development can be combined with afforestation, increased biodiversity, and circular resource thinking. With the project site in a suburban/ peri-urban, it aims to create socially connected neighborhoods, both inside the site also in connection to the city of Middelfart.
Before 2020 the site was an agricultural field. As a first step of the recreation, the site will be transformed into a forest and when nature has settled, the building of clusters of small communities will begin. The goal is to make a sustainable community that does now only share resources but also puts the environment and biodiversity forefront. The project should be seen as a laboratory expansion for residential developments and how to work with nature. But even though it is ambitious and EFFEKT themself call the project laboratory, the Naturbyen is in the process of getting developed since 2020 (EFFEKT, 2023).



ILL: 32. DEVELOPMENT PLAN, (EFFECT, 2020)

SUMMERY

The analysis paints a picture of the site as a surprisingly biodiverse area despite the factor that the main use is for agricultural purposes. The findings of the topography and the blue spot analysis suggest that the water could have a say in the large numbers of birds sighted. The site also has different landscape qualities within its boundaries as the forest in the north appears unsorted and then moves through the fields that are an open landscape, coming down to the forest in the south with 3 very different landscape structures in a relatively small area. From the open canopies ad lush forest floor to the closed dark pine forest then find the glade green glade in the center of it all.

But when one is moving through the site the boundary to the Grenaa city and the other recreative areas are dominant. Even though the Letbanen track does not affect the site with noise it cuts the site off to the rest of the city. Looking at the site's position in the landscape isolated it has a good position with the recreative forest and the sea to the east, Grenaa city in the north, and right outside the site boundary an industry area with a lot of shopping opportunities as well as a Letbanen stop. But all these opportunities are only reachable from the entrance and exit point north of the site.

The future plan both on a more local scale as the inclusion of Kragsø as a buffer in the “Næsen for vand” project but also the agreement that Denmark made with the rest of the EU to have 30% (20% on land) as a part of the Natura 2000 network could have an impact on the future use of the site.

SWOT

PRESSENT	**Strength** Birds/animals Forest diversity History Location	**Weakness** Boundaries Blue spot Lack of connection
FURTURE	**Opportunities** Water Biodiversity Future use Letbanen New crossings 2030 strategy	**Threats** Agricultural Boundary Connection Functions nearby Zoning system

DESIGN CRITERIAS

Landscape strategy

Preserve existing landscape structures with value.

Reveal the landscape history of the site by reestablishing and adding nature.

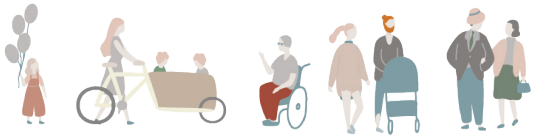
Enhance the potential of the site by combining the city zone with the landscape zone on the premises of the landscape and waterscape structures.

Connect the site to the green and blue existing structures to create green and blue frames on a city scale.

Mobility and access

Encourage both physical outdoor activities and nature walks for all user groups.

Ensure access to the site and the landscape at every season for all users.



Diversity

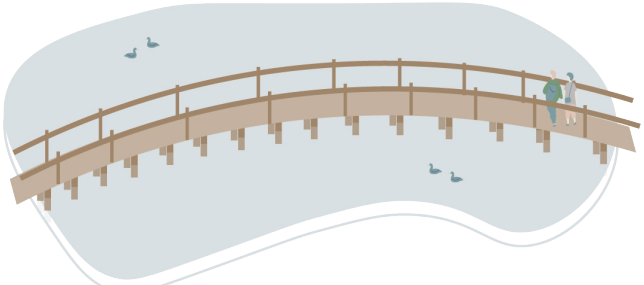
Preserve and enhance biodiversity, vegetation, and other natural benefits within the site boundaries.

Develop a mixed-generation co-living community for seniors, families, and young people to cope with future population growth and build social robustness in society.

Adapt and protect

Create a resilient urban and landscape design.

Handle water locally and from the surrounding catchment areas with the help of reading the waterscape.



ILL: 33. DESIGN CRITERIAS

PRESENTATION

SØKJÆR

A recreative nature-based community and residential area

1: 10.000

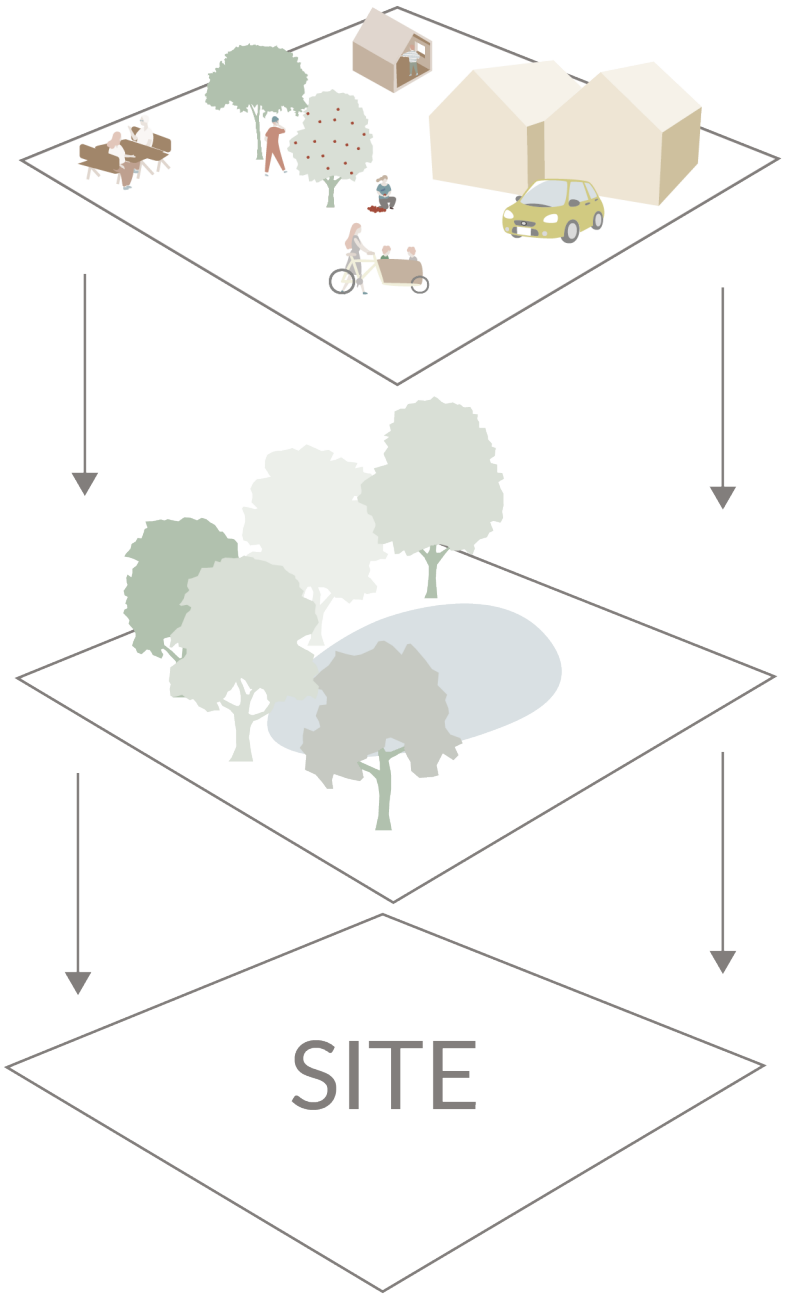
ILL: 34. DEVELOPMENT PLAN
SØKJLR

CONCEPT

Define
Existing and former landscape

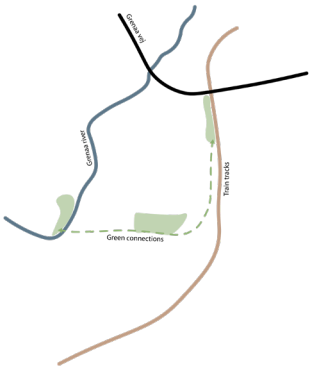
Recreate
Recreate and recreate nature

Adapt
Plan and place Urban structures on the new landscapes premises



ILL: 35. CONCEPT DIAGRAM

STORYTELLING



ILL: 36. STORYTELLING DIAGRAM DEFINE

ILL: 37. STORYTELLING DIAGRAM RECREATE

ILL: 38. STORYTELLING DIAGRAM ADAPT

DEVELOPMENT PLAN

The Søkjær site is a mix of the 3 traditional zoning types but with nature as its base. In the east of Søkjær, the residential area is located with a total of 150 homes. The two different Pocket Neighborhood structures offer two different user experiences, but both with nature and the community at their core to create a sustainable residential area, not only for the ones living at Søkjær but also for nature. The Large Pocket Neighborhood is fitted for all sizes of families or couples with its home sizes ranging from 120 sq.m to 160 sq. The Small Pocket Neighborhood offers a more intimate feeling and with its home sizes varying from 100 sq.m to 120 sq.m it invites singles, elders, copies as well as young people and small families to join the community. The housings are located and built so it avoids damage by flooding. All the structures are placed by or in the forest so the homes do not have a significant role in the open landscape structure that is Søkjær.

In the west of Søkjær, there are possibilities for the farmers to use parts of the site as areas for livestock.

The landscape of Søkjær is made available to the public by establishing a path network connecting Søkjær to not only to functions as grocery shopping but also connecting it to the surrounding recreative areas and mobility hub as the Letbanen station right outside the site boundary in the south of the site.

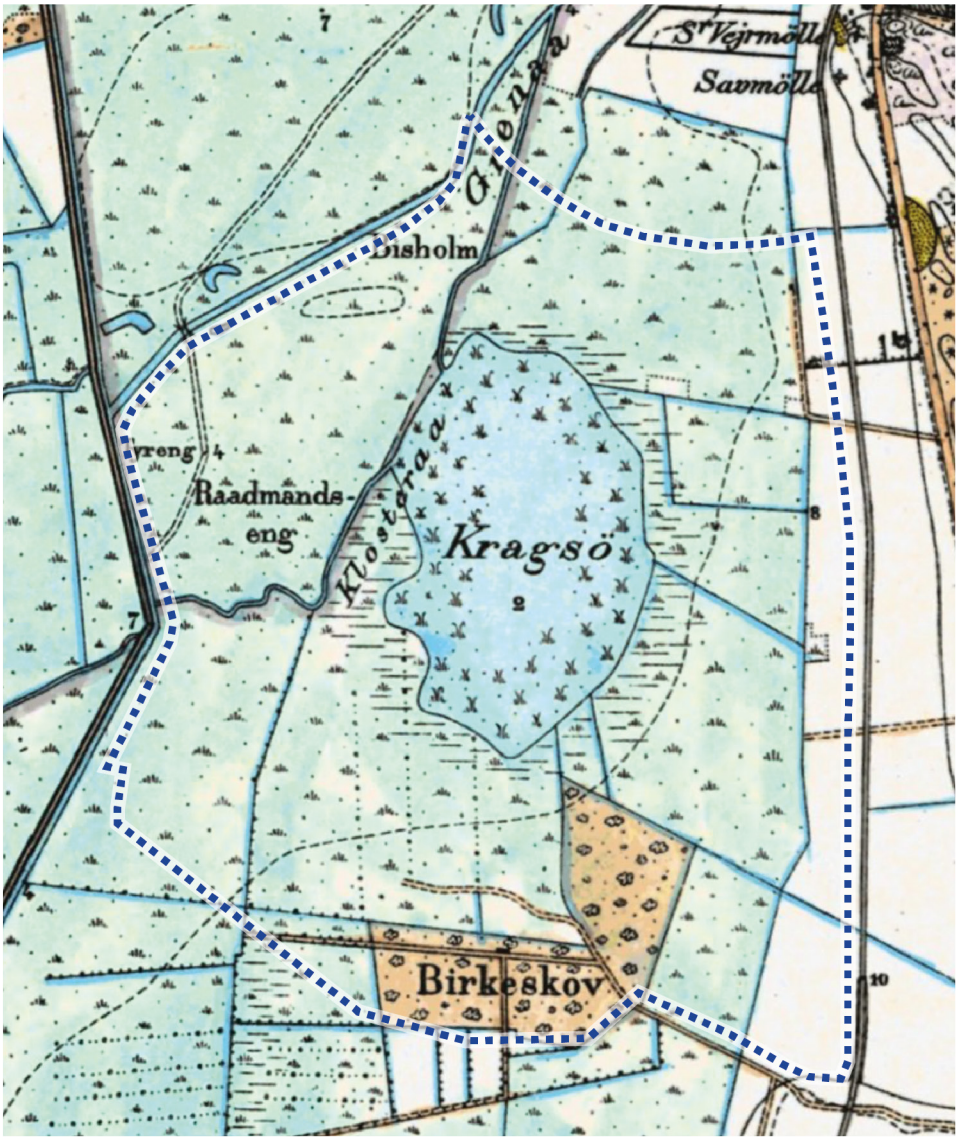
The quality of the site habitats has the potential to qualify as a part of the Natura 2000 network, but this would be decided with the development plan reaching at least 5 years in the scope of the development timeline.

1: 8000

ILL: 39. DEVELOPMENT PLAN
SØKJLR

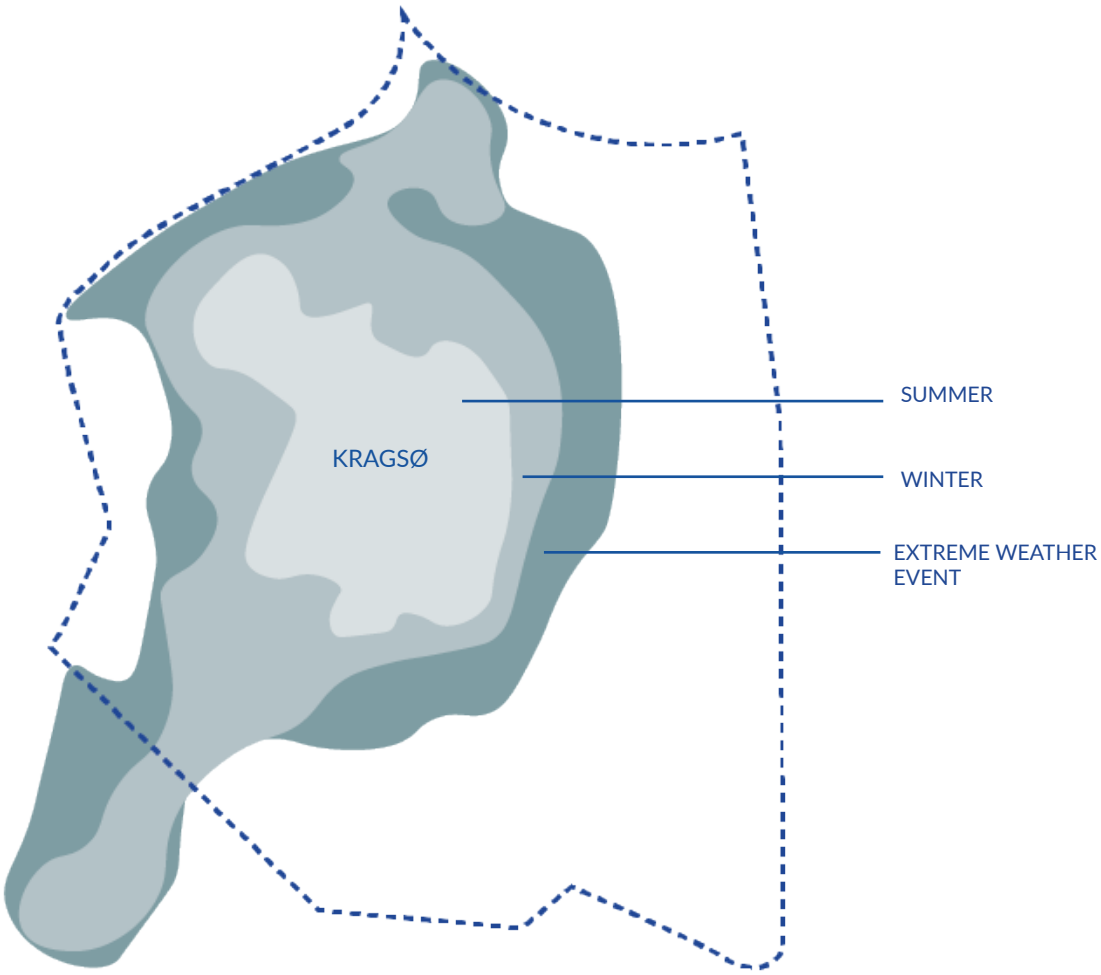
RECREATION OF THE LANDSCAPE

By looking at the results from the analysis the waterscape together with the terrain and existing habitat conditions gives a look into how the vegetation and habitats of Søkjær could be. The reconstruction of nature has been pathways the result of analyzing the existing conditions and looking at the old mappings of the site. The historic map of the site clearly shows Kragsø in the center of the site, with a pathway going running along the lake in the east. The lands around Kragsø are largely wetlands or meadows. These structures together with the tarring of today have led to the landscape presented in the developments plan.



ILL: 40. HISTORIC MAP SMALL (HISTORISK ATLAS, HØJKANTKORT 1840 1889)

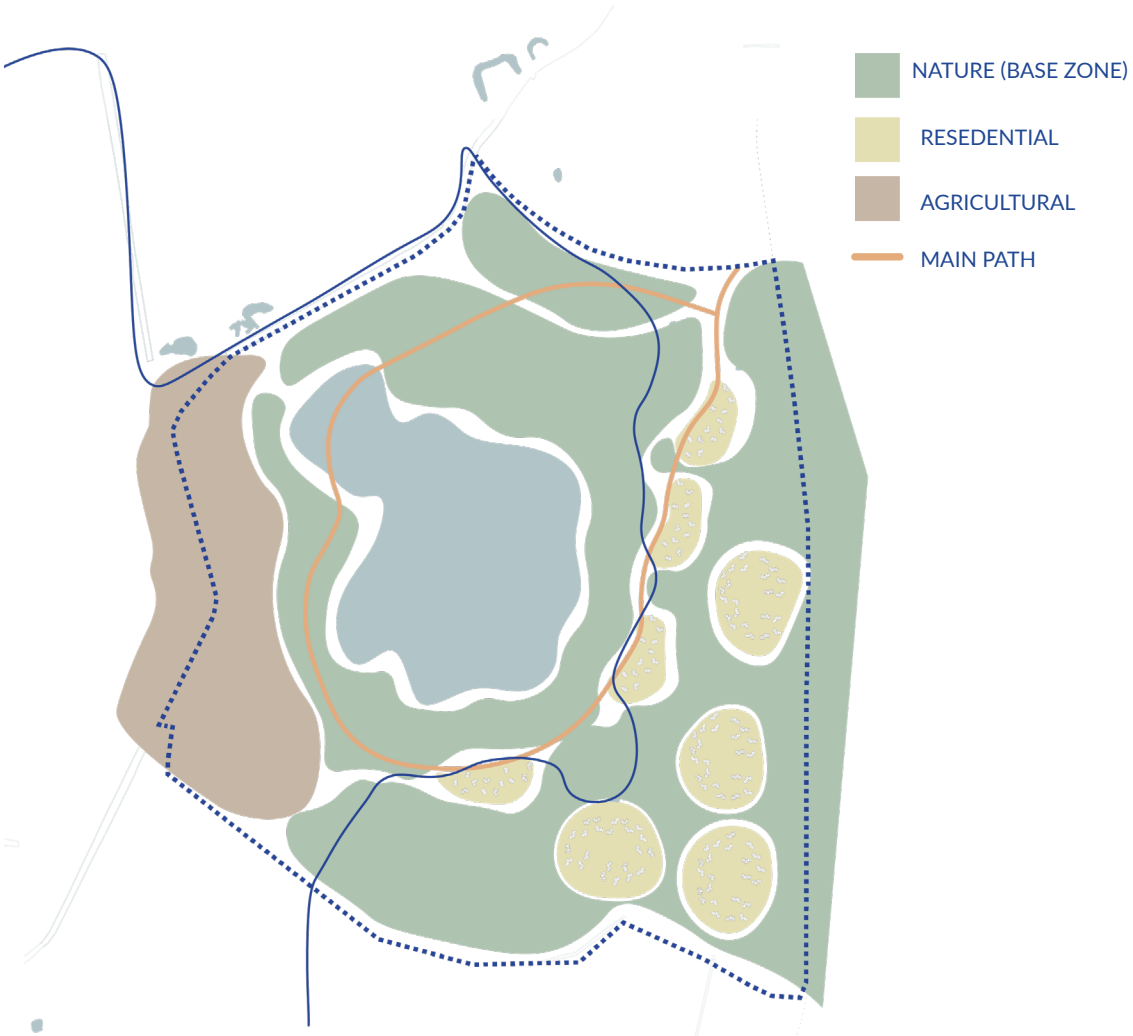
The form of Kragsø Lake reflects the terrain of today and the blue spot analysis. Because of that the Kragsø Lake is expanded to the west making the shape different from the historical mapping. The water height of the lake will vary depending on the season, The diagram shows how the area surrounding the lake can expect more or less wet conditions depending on the season and possible weather events.



ILL: 41. POSSIBLE WATER EFFECT
RELAINT OF TARRIAN

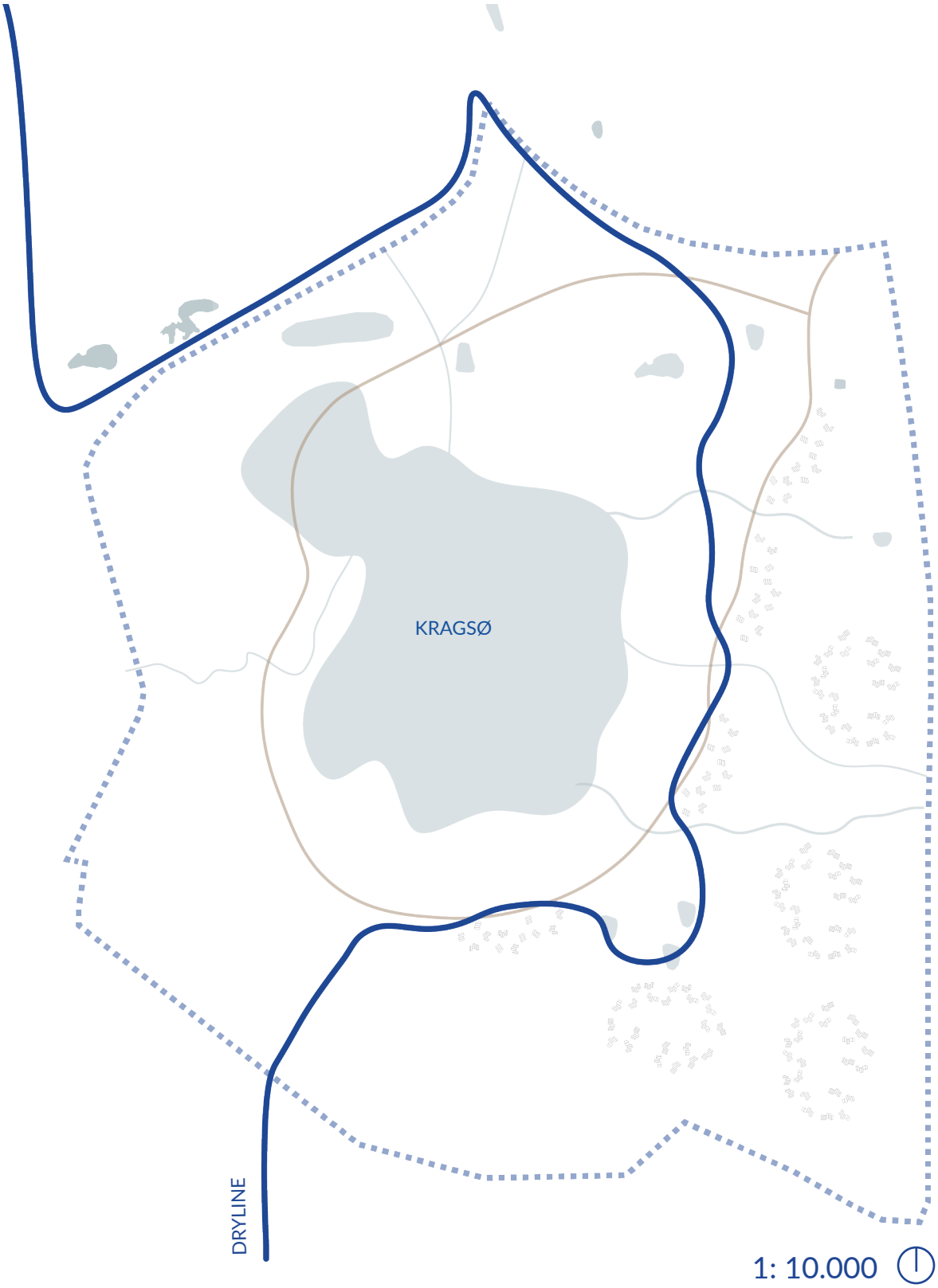
LANDSCAPE CHARETER

Søkjær is a mixed use zone with Nature as the basezone. The suburban areas to the east slides in to the site som the east in Pocket Nighboorhoods in two different sizes. In total the site contains 150 houses with a ragne from 100 sq.m to 160 sq.m spread in the to Pocket sizes.
The Argricultural use to the west also slides into the Søkjær areas with the possiblitety to have life stock using the medows and weetlands west from the mainpath. The Nature basezone should be seen as always pressent underneth the two other zoining types, and the Green symbols where the nature zone is the only zone present. The recreated Kragsø fuctions as the center of Søkjær and gives the different parts a commen gravatational point.



ILL: 42, NEW ZONES

WATER STRATEGY



ILL: 43. DRYLINE

Dryline

As the site privusly are challenged by the level of the groundwater and the tarrin leading the water in to the site. The Dryline are defined by the 1.5 meter above sealevel curve. Everyting above the Dryline would maintanie flood free in cases up to a 100 year event as the calculation is today. The Dryline have ben a defining desgin factor both for the landscape and housing creation.

ILL: 44. VIEW OVER KRAGSØ
NEW PATH

NATURE

As the Analysis function as the" Define" step of the design strategy, the next part of the project will begin the" Recreate" and "Adapt" phase as nature is recreated as a result of the analysis. The landscape takes base in the historic mapping of the site, the water analyses, the terrain, and the existing nature and species found on site.

ILL: 37. STORYTELLING DIAGRAM
RECREATE

ILL: 38. STORYTELLING DIAGRAM
DEFINE

VEGETATION

Wetland

The Wetland habitats are to find where the terrain is low or where there are or have been lakes previously. It will depend on the season and the rain events and how many water mirrors will appear on the surface. The ponds in the illustration will be present except in extremely dry periods. The ground will be more or less muddy also depending on the season and weather events. In the habitat species such as Sedges, Mosses, lower Rush species and other water-reliant species will be common.

Reeds

The Reed's vegetation appears where there is often or always wet, so on this site, the reed vegetation is to find around the Lake and smaller lakes. These conditions also make the zone more approachable in some seasons than others. With the ground being wet most of the year with some dry periods in summertime footpaths would mostly be used by the animal at the site. The footpath will in summer provide small paths down to the lake. The Gravel paths would be above the dense reed areas and at 1,5 meters so it is dry most of the year.

Meadow

The Meadow habitat will be along the dryline and will most often appear as a zone between the wet habitats and the forest habitats. The meadow will need to be" built" in order to get the amount of biodiversity wish of a flower meadow. The method used will be the" Slåtteeng" method, where the seeds from a doner meadow will be brought and spared the owner over the course of 3 years. The meadows will be cut in June and in August and the product will stay and dry on the meadows so the seeds from the plants can sit before the leftovers will be removed and used as food for life stock. If done correctly the meadow will reach full potential in the span of 5 years. The species will depend on the donor meadow, but species found in the habitat would be Besides roses, Chives, Columbines, Yarrows, Marguerites, Marigolds, etc. (NatureGrass, na).

Forest

The forest in the north and in the south will be linked together with a stream running through to the Kragsø. The trees planted to connect the two forests will reflect the species found in the forest nearest the new tree. In that way, the two forests will melt together. The forest area in the south used for wood production will keep its function and to maintain the new larger forest it will be allowed to expand the wood production to the new forest. This is to keep parts of the forest light with an open and green forest floor. The areas with the Pocket Neighborhood will be open and have the same character as the existing glade in the forest to the south.

ILL: 45. VEGETATION SØKJÆR

The different habitats are defined by the dryline and the findings from the analysis. The forest habitats are to find on the dry side of the Dryline. The meadow in most cases in the dry side as well, whereas the reeds and wetland habitats are on the wet side of the Dryline, closer to Kragsø.

ILL: 46. PATH TYPE 1

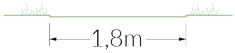
Type 1: Main path

The type 1 path which is also considered the main path will be universally accessible for users but not fitted for visitors on horseback. The raised path is a wooden path and serves as a dry path for the users but also a way to spear the vegetation in the wet periods where it is extra vulnerable to impact. The recommended width for a path where a wheelchair and a twin stroller is 2,25m (Lindemann et al., 2011) so the path is 2,5 m to give some extra space so that the raised path would not feel narrow. The path will never be lower than the Dryline which makes it accessible all year around. In cases where the users wish to enter the main path where it is elevated a slope leading up to the main path will be at every crossing with the Type 2 path. The type 1 path is a wooden path, and it is always 0,15 m over terrain to make space for nature underneath. The Main path is a loop of 3.3 km.

ILL: 47. PATH TYPE 2

Type 2: Gravel path

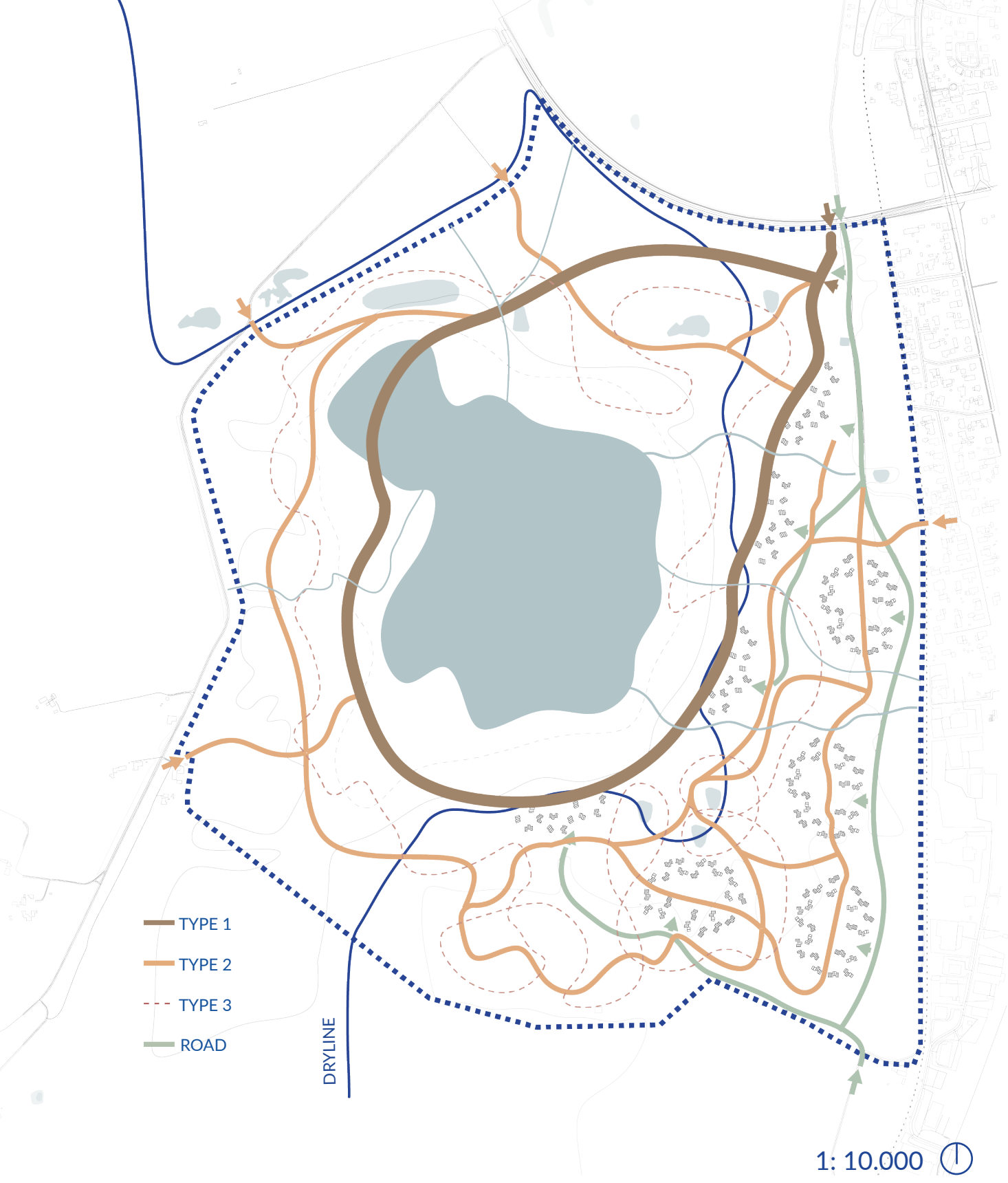
The gravel paths will offer a walk-through nature on ground level. The path will vary from gravel to wooden chips depending on the placement in the terrain. The path is accessible at the simi wet and dry periods of the year, and depending on the conditions the path would not be universally accessible. In the wet period a wheelchair or a stroller could have a hard time using the path. The path would need to be maintained to prevent overgrowth. The width of the part is fitted so a pedestrian and twin stroller can cross without any of them having to step outside the path (Lindemann et al., 2011).



ILL: 48. PATH TYPE 3

Type 3: Foot path

A footpath is defined as a path that accrues when one route has been used frequently in a period. It can be created by humans but most often one would experience the path system being created by wild animals such as deer. These paths will vary from year to year, and they will not be marinated or paved. Its width would also depend on the use of the path. It could range from 0,75 – 1,45 meters.



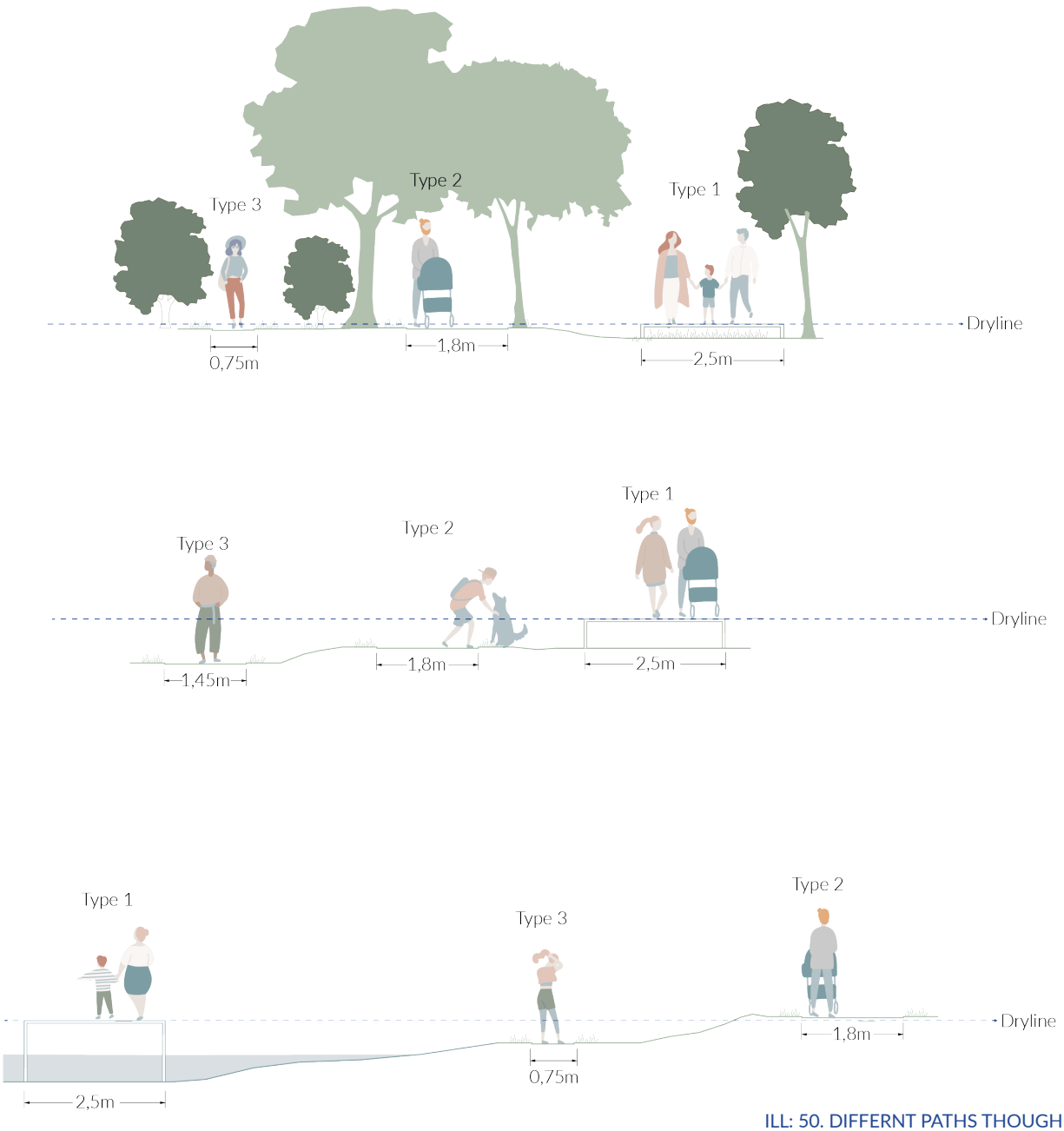
Entrance and Exits

ILL: 49. PATHS, ENTRENCE, EXIT OF SØKJÆR

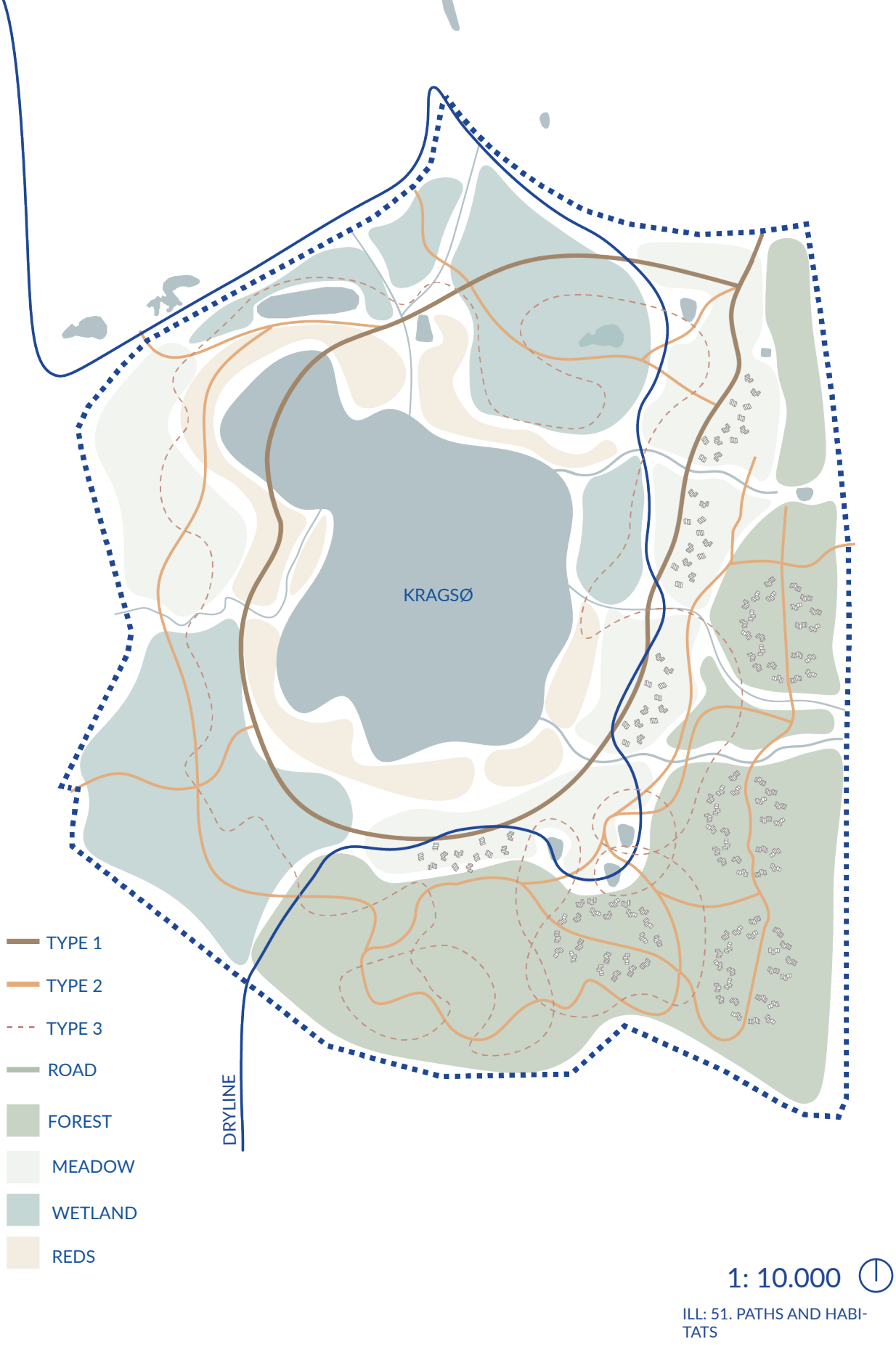
There is two entrance point by car and 6 by foot or bike. The entrances by car are in the north from Ringvejen/ Road 16 and in the south by Aarhusvej. The entrance in the south is next to the Letbanen station. The entrances can be used both by car and by bike or foot. There is one entrance from the west going under the Letbanen tracks, connecting the site to the recreative network and housing area next to the Søkjær. The 3 entrances in the west are over the Grenaa stream and lead to the main path.

Vegetation and paths

The 3 types of paths travel through the different habitats of Søkjær and offer the users different experiences. The experiences will vary depending on where the user is on the route, but it would also give different experiences depending on the type of path chosen.



ILL: 50. DIFFERNT PATHS THOUGH THE LANDSCAPE OF SØKJÆR



1: 10.000

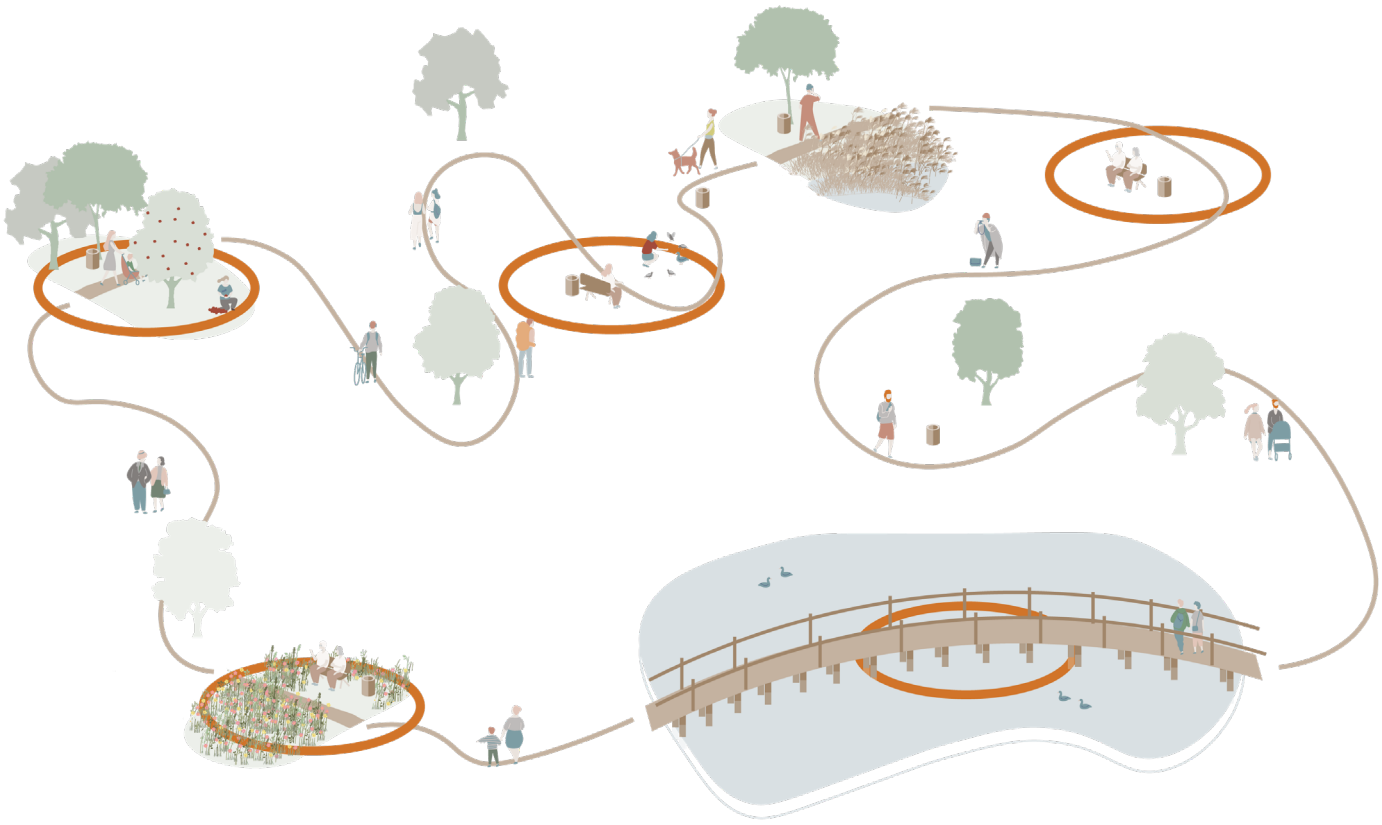
ILL: 51. PATHS AND HABITATS

With type 1 and type 2 paths always having the same routes they offer a stable connection around the Kragsø. Type 3 is narrower and not as stable but can offer different and more close-to-nature experiences that change from year to year.

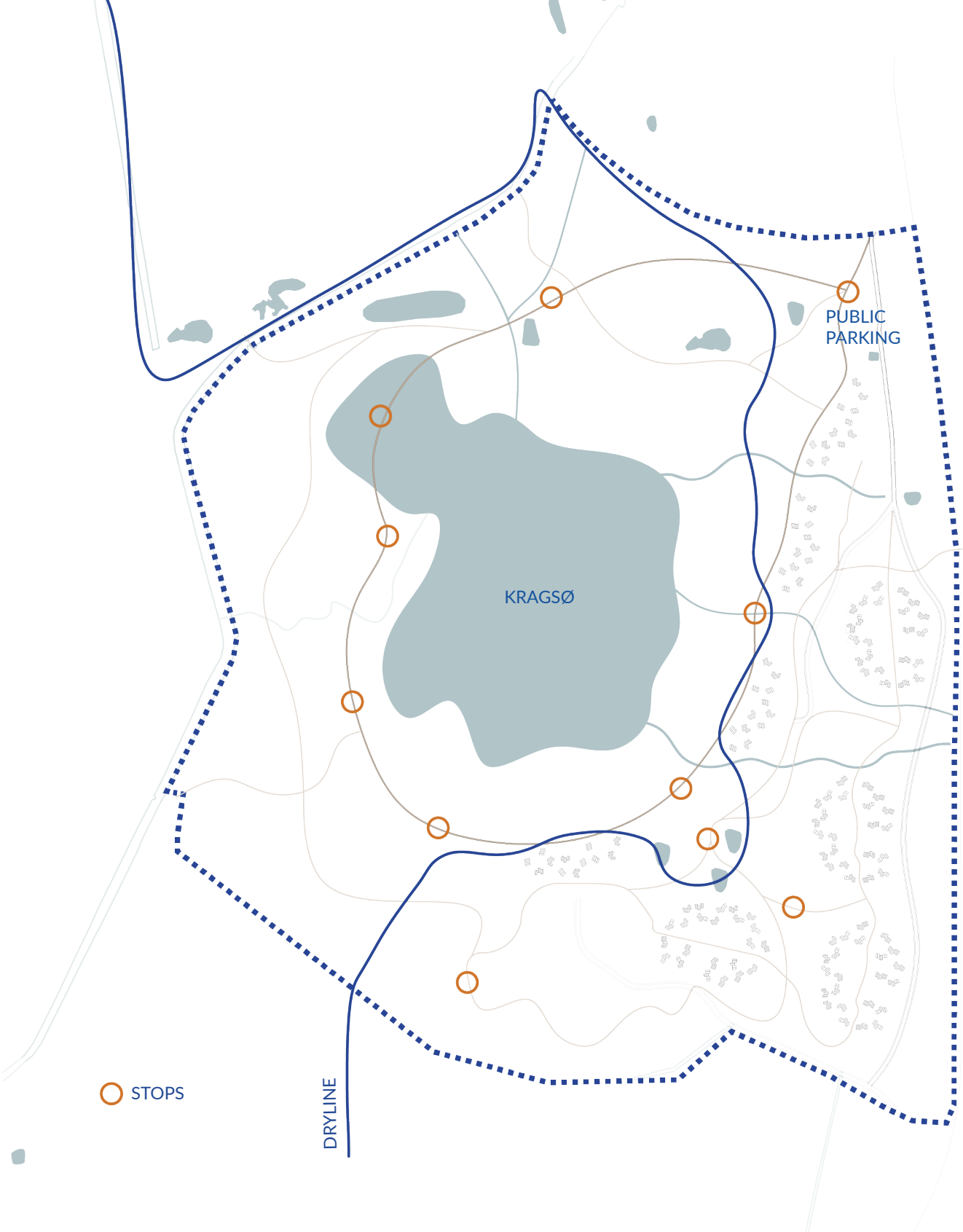
FUNCTIONS

STOPS

Along the paths, there are places to rest when exploring the Søkjær marked out as stops on the illustration. The stops are placed about 250 meters apart and always include a bench and a trash can. With the stops being spread around the Kragsø every stop gives a unique perspective on the Kragsø and the habitats.



ILL: 52. FUNCTIONS AND STOPS IN SØKJÆR



1: 10.000

ILL: 53. STOPS AND PARKING

As the Søkjær is not only for the residents but also for the public the site accommodates parking areas in the north of the site close to the entrance point by Ringvejen / Road 16. There are benches, a fire pit, and some information regarding the guidelines and experiences within Søkjær. There are 20 spots in the parking lot.

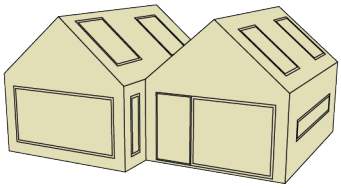
ILL: 54. LARGE POCKET NIGBOR-HOOD VEIW

HOUSING

The housing at Søkjær is 150 units. The units differ in size and also how they are fitted inside the two types of Pocket Neighborhoods. The Pocket Neighborhoods offer another way of living with nature as the residents will live in the landscape in a sustainable way. The housing is all on poles and is all wooden construction to make the houses light. The houses are also accessible on-site to take the temporary physical impact on the site to a minimum. The habitats around the Pocket Neighborhoods will be a part of the vegetation present between the houses and in the sheard and common spaces as well. This phase of the project is a part of the" Adapt" strategy.

ILL: 38. STORYTELLING DIAGRAM
DEFINE

HOME SIZE AND USER GROUPS

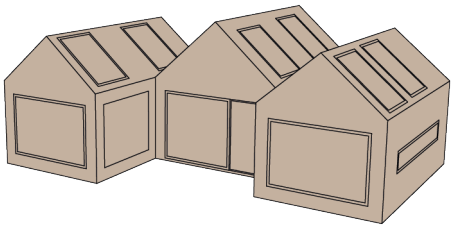


ILL: 55. HOME 100 SQ.M

100 SQ.M

SINGLE, COUPLE, 2 PR.

ILL: 59. USERGRUPS 100 SQ.M

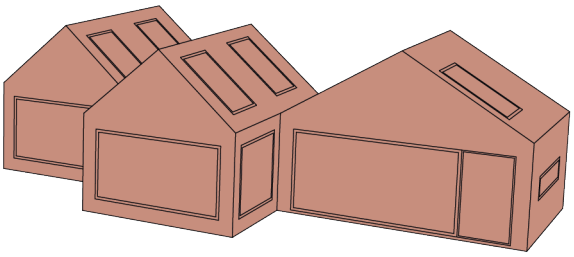


ILL: 56. HOME 120 SQ.M

120 SQ.M

COUPLE, SMALL FAMILY

ILL: 60. USERGRUPS 120 SQ.M

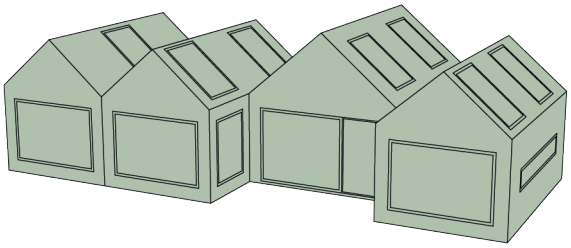


ILL: 57. HOME 140 SQ.M

140 SQ.M

SMALL, MEDUIM FAMILY

ILL: 61. USERGRUPS 140 SQ.M

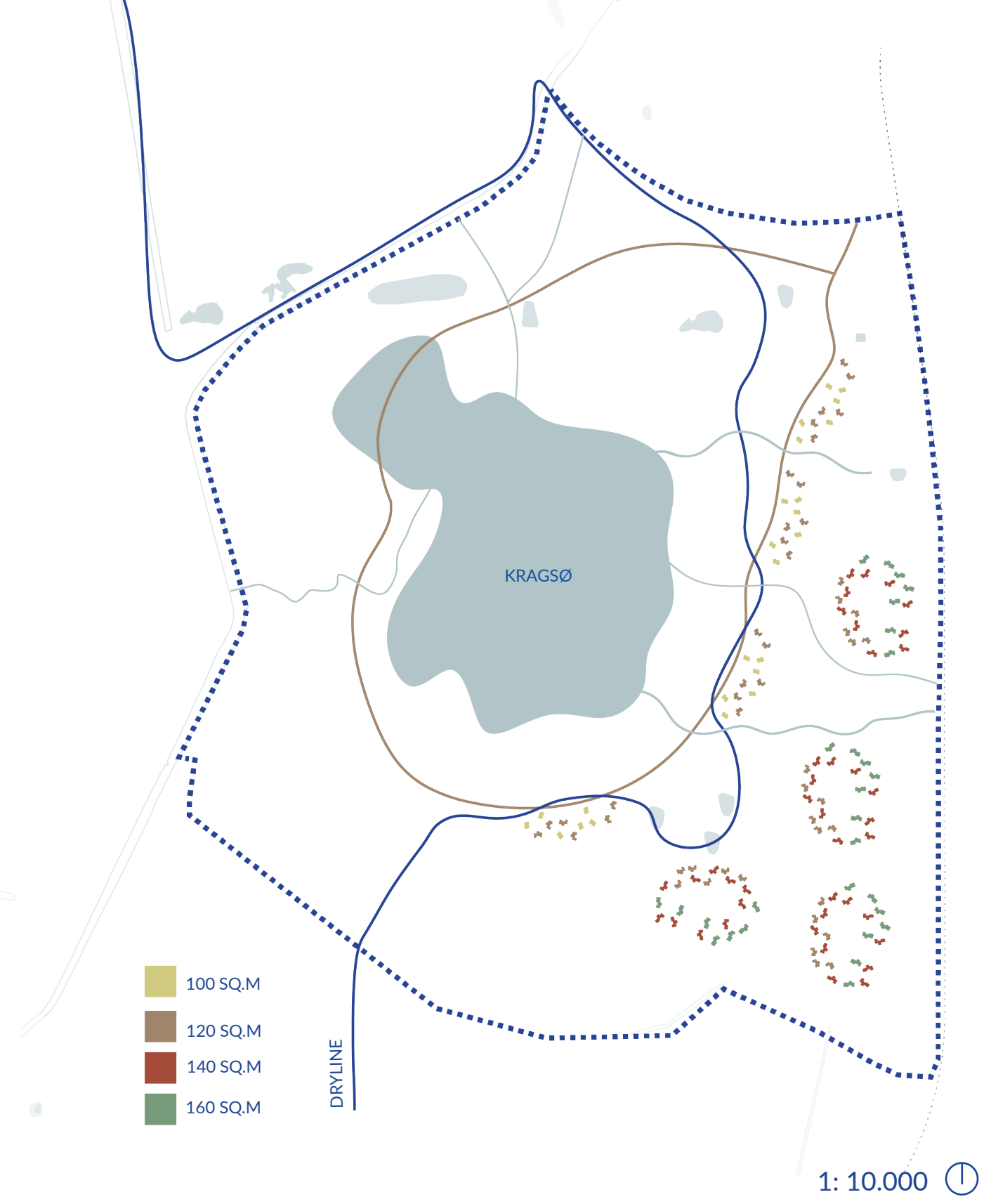


ILL: 58. HOME 160 SQ.M

160 SQ.M

LARGE FAMILY

ILL: 62. USERGRUPS 160 SQ.M



Pocket placetment

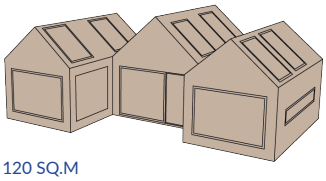
ILL: 63. POCKET NIGHBOR-HOOD PLACEMENT

The different home sizes will vary depending on the type of Pocket Neighborhood. The Small Pocket contains the smaller home sizes, and the Large pocket consists of the larger home sizes. With the larger homes, the Large Pocket has been placed farthest from Kragsø to lower the noise impact from the more active Pocket Neighborhood. The Small Pocket is situated by the Mian path and closer to the Kragsø.

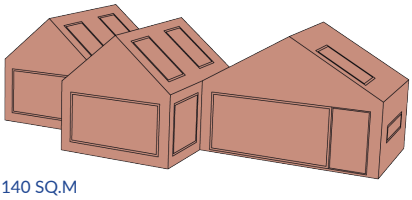
LARGE POCKET

About

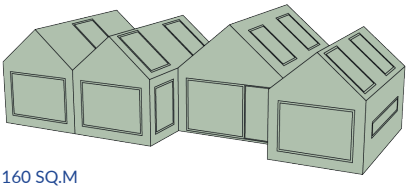
The Large Pocket structure takes its inspiration from the layout of the German Angerdorf and the land use philosophy from the Norwegian" Klynge tun" to create a neighborhood that invites the residents to be active outside the frames of their homes. The structure frames a community space where the main activities and gathering functions are situated. In between the houses facing away from the community space, there are Sherd spaces with more intimate functions shared between 3-4 homes.



120 SQ.M

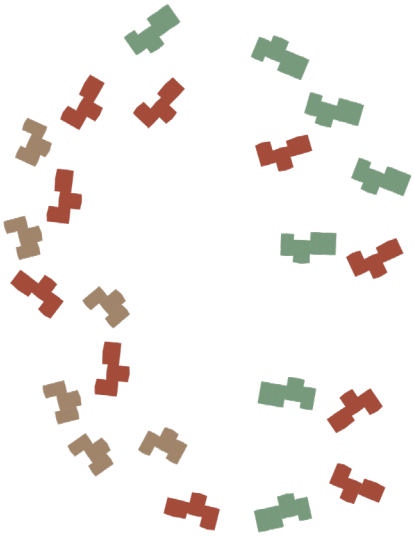


140 SQ.M



160 SQ.M

ILL: 64. HOME SIZE LARGE POCKET NIGHBORHOOD



ILL: 65. HOME SIZE LARGE POCKET PLACEMENT NIGHBOR-HOOD

Usergruops

The Large Pocket Neighborhoods have 23 homes varying from 120 sq.m to 160 sq.m. The home sizes invite different sizes of families to be a part of the neighborhood. The houses surround the community space and make a secure environment for kids to play and explore. The path going through the pocket connects to the rest of the path system making a connection to the other Pockets.

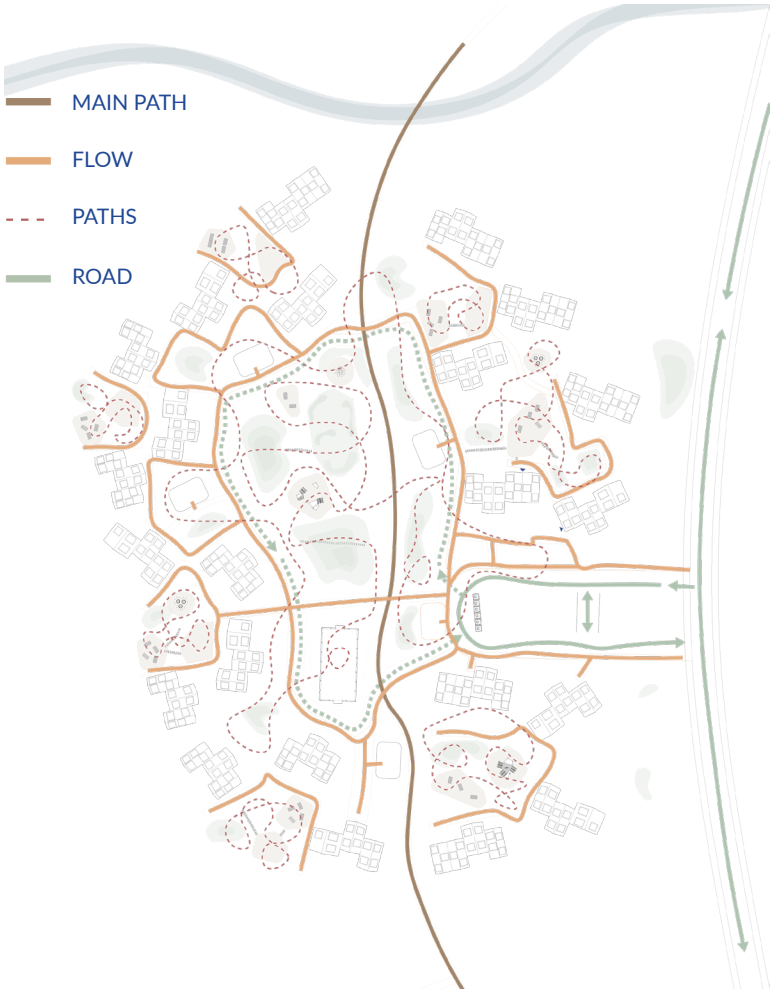
ILL: 66. USERS LARGE POCKET NIGHBORHOOD

1: 1000

ILL: 67. LARGE POCKET NIGBORHOOD

Flow

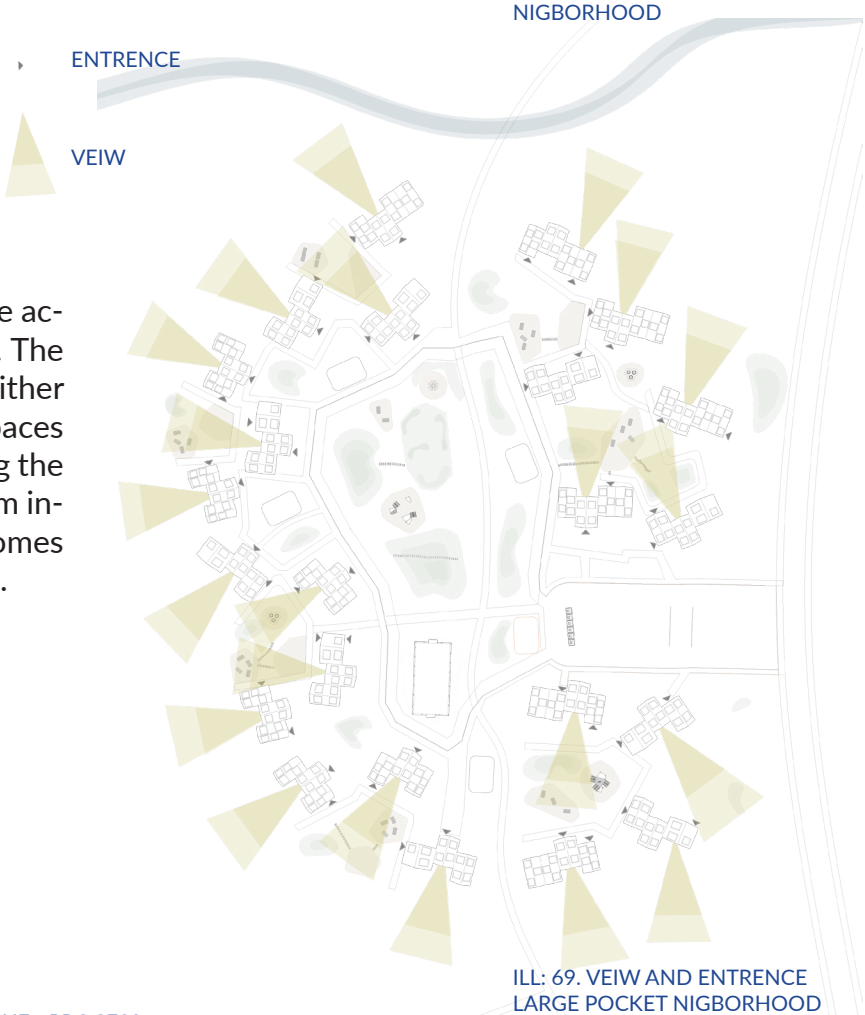
It is possible to enter the community space by car to get closer to the houses. The parking is by the entrance and exit, along with the waste management. The path going through the Large Pocket connects it with the rest of the path network and the nature but also allows visitors of Søkjær to enter the community space and use the facilities. There are paths leading from the parking to every home but also connecting them to the community space. In the shared space there are paths making sure that every home has access to the space and its functions to create a good groundwork for the neighborhoods to blossom.



ILL: 68. FLOW LARGE POCKET NIGBORHOOD

Veiw

Every home has two entrances to make access to both types of spaces available. The homes are also angled so that they either have a view of the green and lush spaces in-between or the habitats surrounding the neighborhood. The view on the diagram insulates the view direction but the homes have views in more than one direction.



ILL: 69. VEIW AND ENTRENCE LARGE POCKET NIGBORHOOD

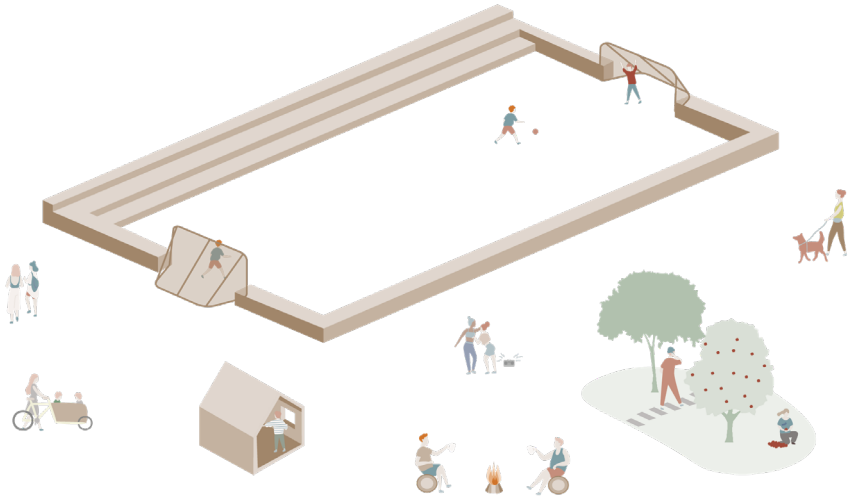
Sheard space

Every 3-4 homes have a space that they shear with each other. The function of these spaces invites more calm and joint activities with the neighbors, and the space should be viewed as a common garden while the homes do not have individual gardens. The functions are more intimate than the ones in the community garden. With fewer people using the facilities, one might find it more appealing to use and invest time in the shared functions of the space. The Sheard space is due to the function also being considered a more quiet and calm space than the community space.

ILL: 70. FUCTIONS SHEARD SPACE
LARGE POCKET NIGBORHOOD

Community space

With its playground, ball pit, and fire pit the community space invites larger gatherings. The Community space with its centered possession of every home has an overview of the space and it makes it a low effort to find someone to play with or just to see if there is anything happing in space. The functions are more active than within the shared space which makes it noisier. This is why it is in the center of the Pocket, to shield the habitats that the pocket is a part of. The path going through is a part of the path network making the community accessible to not only the residents of Søkjær but also the larger community surrounding the site creating a connection to the existing neighborhoods.



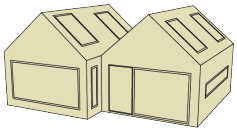
ILL: 71. FUCTIONS COMMUNITY SPACE LARGE POCKET NIGBORHOOD

ILL: 71. SECTION AA' LARGE
POCKET NIGBORHOOD

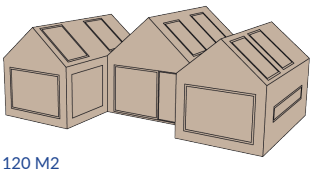
SMALL POCKET

About

The Small Pocket Neighborhood takes its base in the Norwegian" Række tun" with the homes placed along a defining factor as in this case the Main path. The Small Pocket are facing the Kragsø Lake with a view of the path system. The Small pockets are closer so the Dry-line than the Large Pockets but all of them are on the dry side of the line. The homes are on the opposite side of the Main path than the Kragsø to secure the view of the lake for both the residents and visitors as the base zone of the site is a nature/recreative zone.

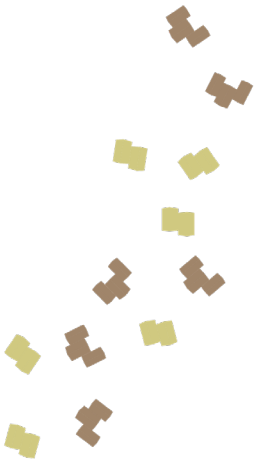


100 M2



120 M2

ILL: 72. HOME SIZE SMALL POCKET NIGHBORHOOD

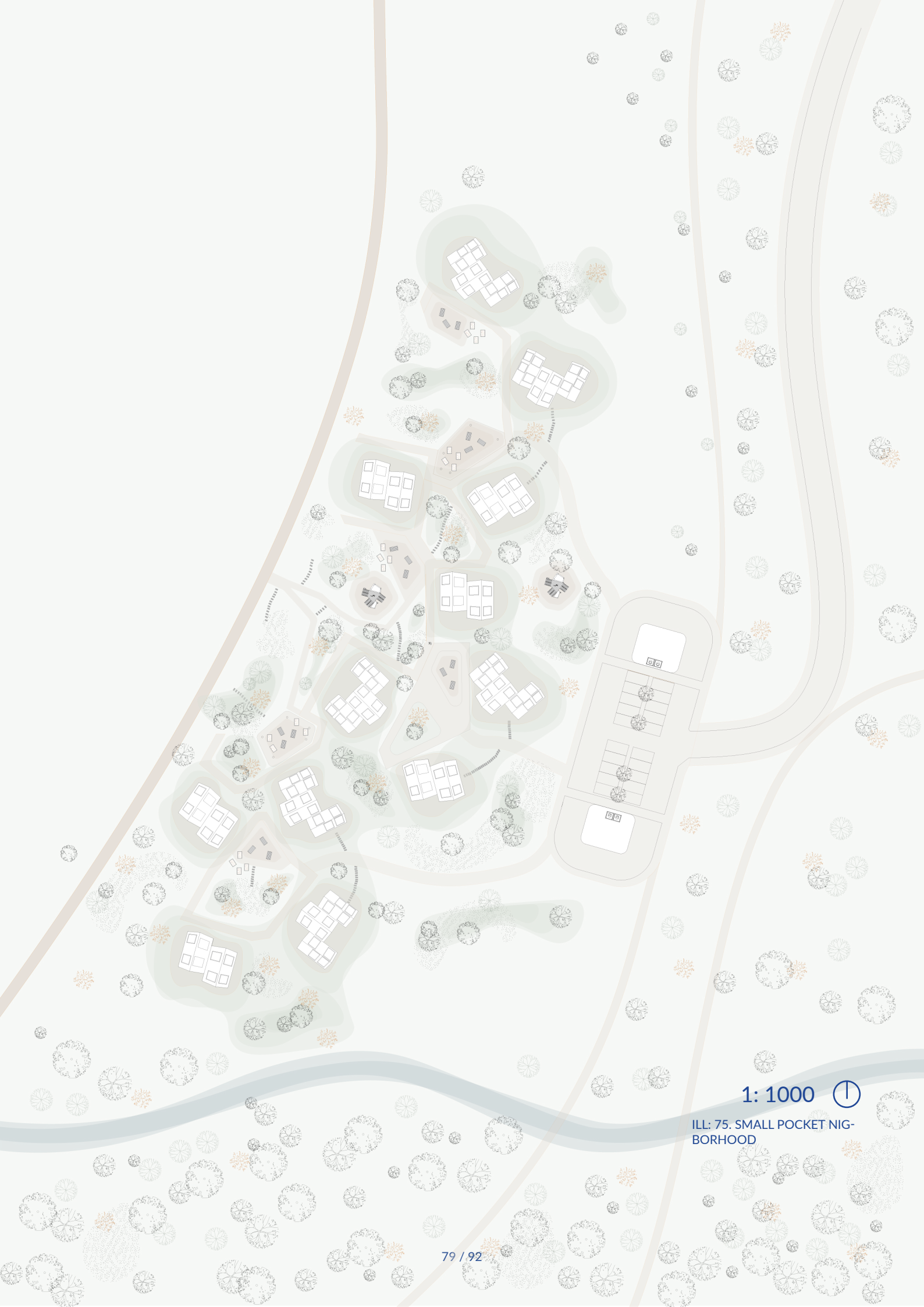


ILL: 73. HOME SIZE SMALL POCKET NIGHBORHOOD PLACEMENT

Usergruops

The Small Pocket Neighborhood consists of 12 homes that range from 100 sq.m to 120 sq.m. The average home is smaller in the Small Pocket to invite different user groups to be a part of Søkjær. The focus groups of the Small Pocket are more singles and couples but also small families with also are reflected in the functions inviting more calm integrations. This makes the neighborhood more suited to be close to the habitat surrounding Kragsø not disturbing the wildlife in a significant manner.

ILL: 74. USERS SMALL POCKET NIGHBORHOOD

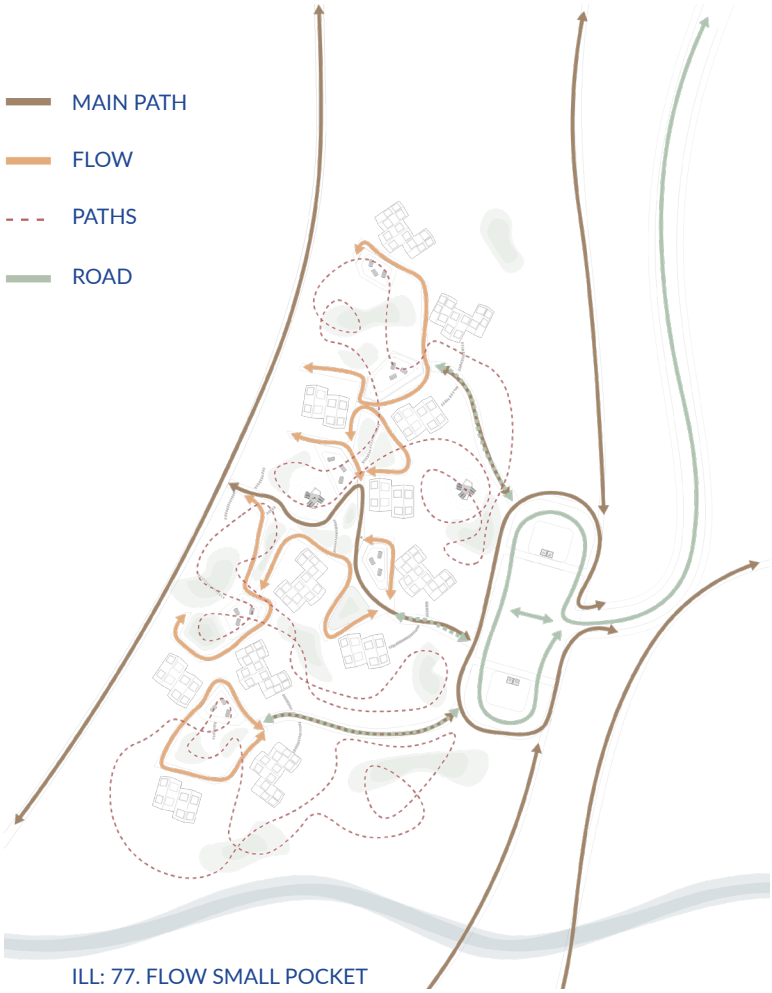


1: 1000

ILL: 75. SMALL POCKET NIG-BORHOOD

Flow

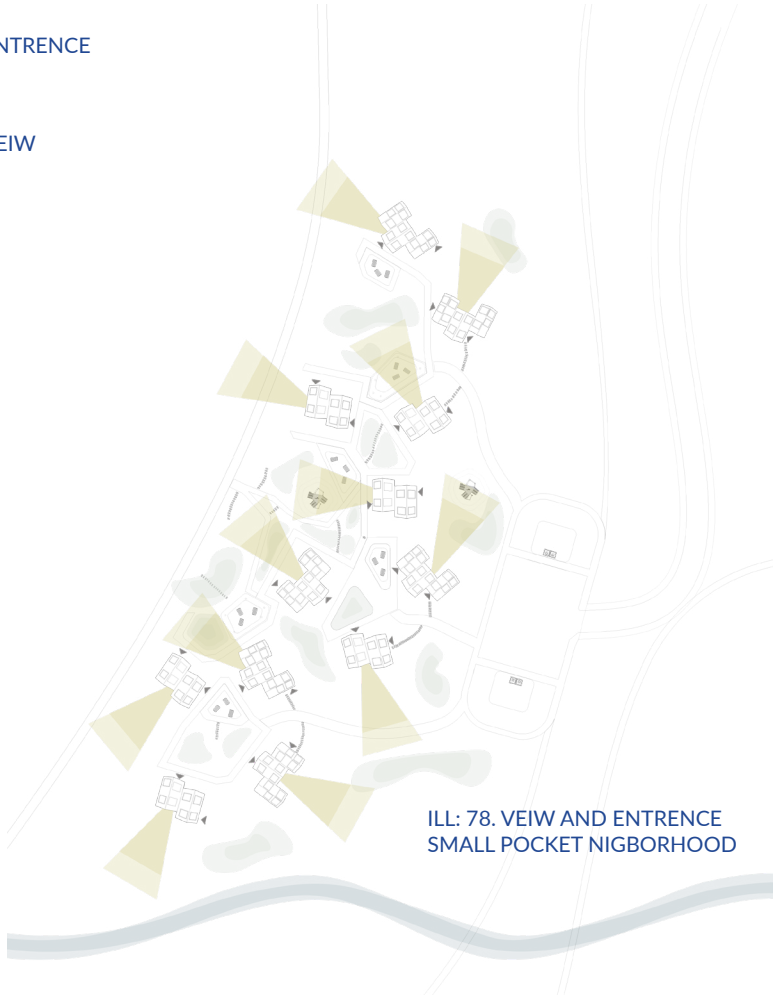
With its connection to the Main path, the flow of the Small Pocket is mainly by foot or bike. The wide paths leading from the Parking area to the homes are primarily for predestines but can be used by car or other vehicles in case someone is moving or need transportation closer to their home. The space on each side of the paths leading to the homes is free of permanent vegetation to make sure that the Pocket is accessible in case of an emergency. The paths within the pocket are to ensure every home has access to the spaces in between the homes but also make sure that it is easy to get home.



ILL: 77. FLOW SMALL POCKET NIGBORHOOD

Veiw

Every home has two entrances to make access to both types of spaces available. The homes are also angled so that they either have a view of the green and lush spaces in-between or the habitats surrounding the neighborhood. The view on the diagram insulates the view direction but the homes have views in more than one direction.



ILL: 78. VEIW AND ENTRENCE SMALL POCKET NIGBORHOOD

Sheard space

The dividing of the different spaces is different in the Small Pocket than it is in the Large Pocket. Because of the structure of the Small pocket, there is no space in the center of the Pocket. Instead, there are larger open shared spaces. The ground principle is the same, 3-4 houses primarily shear one space as a common garden with more private functions. But with a total of 12 homes, the difference between the community space and the Sheard space is more fluent. All the functions within the small pocket invites to calm and cozy gatherings. There are two small play areas with a playhouse and sandboxes to accommodate small families or visitors of the resident's needs.

ILL: 79. FUCTIONS SHEARD SPACE SMALL POCKET NIGBORHOOD

Community space

Even though the difference between the community space and the shared space is a bit more fluent there is still a difference. The Main path connecting the Small pocket to the path network is a public path and makes the space connection to the main path the community space of the Small pocket. The path leading to the Main path is angels in different directions to get the visitors to slow their tempo to apart to the calm character that is the Small Pocket.

ILL: 80. SECTION AA' SMALL POCKET NIGBORHOOD

SØKJÆR DEVELOPMENT

Year 0-5

On-site

Recreating the landscape.

Establishing meadows.

Planting trees by and above the dry line.

Closing the pumps and letting the water settle.

Off-site

Designing and building the houses and other statures that will be placed on site.

Year 5-15

All on-site

Maintaining nature though out the process.

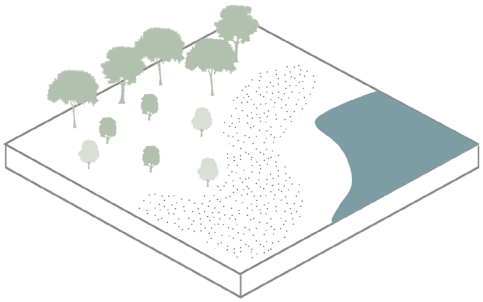
Planting more trees if necessary
Mapping flora and fauna.

Reevaluation of the development plan and adjusting any unexpected landscape events such as endangered fauna and flora or new waterscape structures.

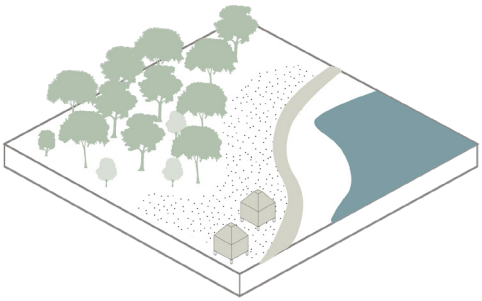
Establishing roads, parking, paths, and other main structures.

Assemble and/or place the structures that are built offsite on site as path parts, light, and housing.

The residents move in on-site.



ILL: 81. 1-5 YEARS, RECREATING THE NATURE



ILL: 82. 5 - 15 YEARS, PLACING URBAN STUCTURES

Year 15-

On-site

Maintaining nature.

Mapping flora and fauna.

Off-site

Expanding the landscape and waterscape to make greater connections to the surrounding areas as well as to other residential areas that could be in the reestablish phase.

Year 0-5

On-site

Recreating the landscape.

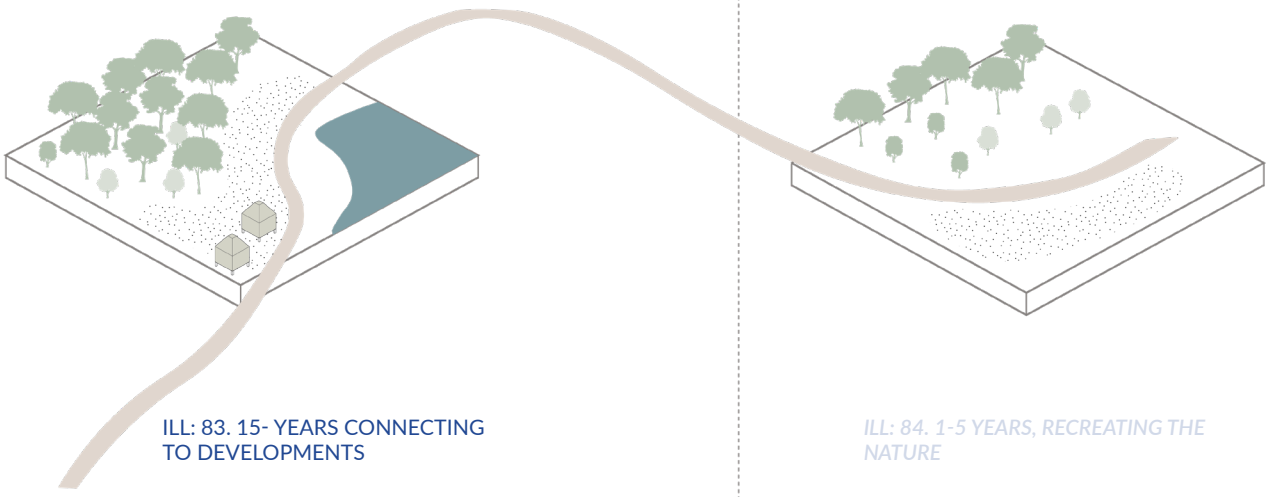
Establishing meadows.

Planting trees by and above the dry line.

Closing the pumps and letting the water settle.

Off-site

Designing and building the houses and other statures that will be placed on site.



ILL: 83. 15- YEARS CONNECTING TO DEVELOPMENTS

ILL: 84. 1-5 YEARS, RECREATING THE NATURE

EPILOGUE

REFLECTION

CONCLUSION

REFLECTION

The design proposal will raise questions, and I will use the reflection to bring some of the controversies to life. The goal was not necessarily to make a design proposal that could be sent as a “Myndighedsprojekt” (Footnote) in 2023. I wish to challenge the design proposal to investigate the realizing potential:

Law and order

With the problem statement challenging the conventional structure of the planning regime, this project was supposed to distance conflict with both the way the zoning functions but also the laws that are current for the zoning/planning regime. Today’s zoning leaves little space to transition areas where the two different zones can be merged. This type of transition is in botanical terms called a buffer zone and is almost always present in the landscape. These projects suggest that there could / should be a possibility to mix zones to get more out of the Danish area. The base of the idea is from the local planning department where it is possible to stack zones. It could be used if one had a building that is both for residential, office, and parking use, which is not that uncommon nowadays. To take the principles of layering through into the zoning into a project as Søkjær would mean that the landscape would be the base zone, where the urban is added on the premises of the in this case landscape zone. This idea is not in line with the laws today, so the realization of this project is depending on an updating of the laws concerning this theme. This could be an unlikely event, but the idea was to challenge this narrative to suggest a solution to the land use and space problem that Denmark is facing. But the fact that the project is relying on the laws to be adjusted is a weakness of the design proposal.

Usergruops

The design proposal is suggesting different users for both the site as a recreative area and regarding the different pocket neighborhoods. The fact that the pocket neighborhood varies makes the user groups different. The Large Pocket offering houses of the largest sizes but non at the smallest size could exclude some user groups, and the same goes for the smaller pocket just the other way around. This could lead to the dividing of user groups. The thought behind the different sizes is to offer different atmospheres to the two sizes. The large Pocket has functions that would make it more active and noisier whereas the Small Pocket is calmer as the social space is centered around greenery and places that offer rest. This division taps into the prejudices regarding the different users. It is not given that a coup-

le at the age of 60 wants it to be calm and a family of 4 wants the social space to be with activity and many different functions. The entrances to the Pockets could also be excluded for users that need to park by their house whether it is necessary, or a wish is irrelevant. This could make this type of resident unavailable for a part of the population. There could be some adjustments to the design with could make parts of the Pocket neighborhoods more accessible if this type of project were ever to be realized, but before this project could get that far the conflict with the traditional way of planning and zoning would need to be addressed at for hand.

To build or not to build?

As a part of the design proposal, there is a plan for how the development would move forward. For the first 5 years, the project would be on-site at least a nature recreation project only. It could be argued that it then makes sense to add urban elements to the site. The urban elements of the Pocket Neighborhood are going to add more stress on nature as sound but also impact the vegetation. The paths added could also to some degree disturb the fauna. So, when nature is restored why add urban elements? As the problem statement also insinuates that to reach 30% in 2030, we need to reconsider the way we make use of the landscape. So instead of thinking of nature as a part of the landscape that an unbuildable or need to be guarded maybe it would be useful to consider it as somewhere we connect with it and live along with it. The Large Pocket neighborhoods are placed in the forest area as they have functions that possibly would make it noisy. This is to limit the noise impact on the habitats around the lake where it is more open, and the birds are. The smaller pockets are placed by the main path to create a more enhanced visible connection to the open landscape structure, but as mentioned earlier the small Pockets' functions invite more calm gatherings that would make the noise level considerably lower.

Realization potential

Multiple factors would need to be reconsidered for the development of the Søkjær project would be realizable in 2023. Given that the purpose of the thesis was not to end with a development plan that is “good to go” but more to challenge and explore the theme the realization potential of the development plan is not the make-it-or-break-it element. With that said there are projects such as Naturbyen by Effekt and Fælledby by Henning Larsen that are being built in the next couple of years that is similar to the design proposal project. So maybe it is not unlikely that more projects like Søkjær are being developed and built in the nearby future but the refurbishment of the law and the way we use zoning would take more years to be developed and implemented.

CONCLUTION

The focus of the report has been to challenge the traditional way of zoning with the combination of landscape architecture, landscape planning, and urban architecture to create a design proposal that reflects the investigation of how zones can work together and co-exist and how this could contribute to solving the equation of how to optimize the Danish land use so it not only comply with the 2030 EU agreement but also meets the future requirements in the country of Denmark. When looking into wheatear the design proposal answers the problem statement or not the answer would be yes and no:

YES

The Søkjær project has Nature as its base zone and combines the city/rural and agricultural zone. The residential area east of the site boundary is continuing into the site but in a quite different structure. The houses are placed about the landscape in a way that gives space for community and everyday life for the residents of the Pocket neighborhoods and does not dominate the base zone thereby letting it define the site and rising biodiversity. The residents live and co-exist with the surrounding through the nature that runs through the pocket neighborhoods and the visible contact with the habitat they live in. The mobility system takes based on prehistoric or existing conditions.
To the west, the agricultural transit is created by the possibility to have livestock as a part of the meadow and wetland habitat. The site is united by the Main path going through all the zones and brings them together as the Søkjær area with the Kragsø in the middle.

NO

The base of the design proposal is depending on the refurbishment of the law in question. So, it could be discussed whether the proposal even is relevant when it is depending on a change in the planning system. With 9% of Denmark being a part of the Natura 2000 network there is more than 15% before 2030. This makes landscape recreation projects important but if the whole project Søkjær is meant as a Natura 2000 area the combing of zones cannot be established and with the year being 2023, 7 years is a relatively short period to get changes into a law system and still get the habitat to a quality that can be recognized as a Natura 2000 network area.

BUT

With the 2030 agreement, Denmark added one more factor to the land use dilemma that is already present. Denmark is a relatively small country that has used most of the landscape for agriculture back to the 1800 century. Today the country has a growing population which creates the need to either densify the cities or expand. With a larger population, the need to produce food will also increase and then we have the 2030 agreement with the goal of having 20% of the land-masses as a part of the Natura 2000 network. This is the dilemma, and it can be hard to see an obvious solution to the problem. The Søkjær project is not a solution to the dilemma, but it is a step in the right direction. While the project challenges the way we think of how housing is supposed to be planned in the landscape, it also offers a more balanced way of living with the nature of land learning from the landscape by letting it set the base of how we plan and live. So, challenging the way planning and zoning are done today and looking for potential for better solutions could help Denmark reach its national and international goals in time.

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