

The hillsides between two forests
A new visual, social and ecological horizon for Linderud



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Diploma Autumn 2022

International Master of Landscape Architecture

Oslo School of Architecture and Design

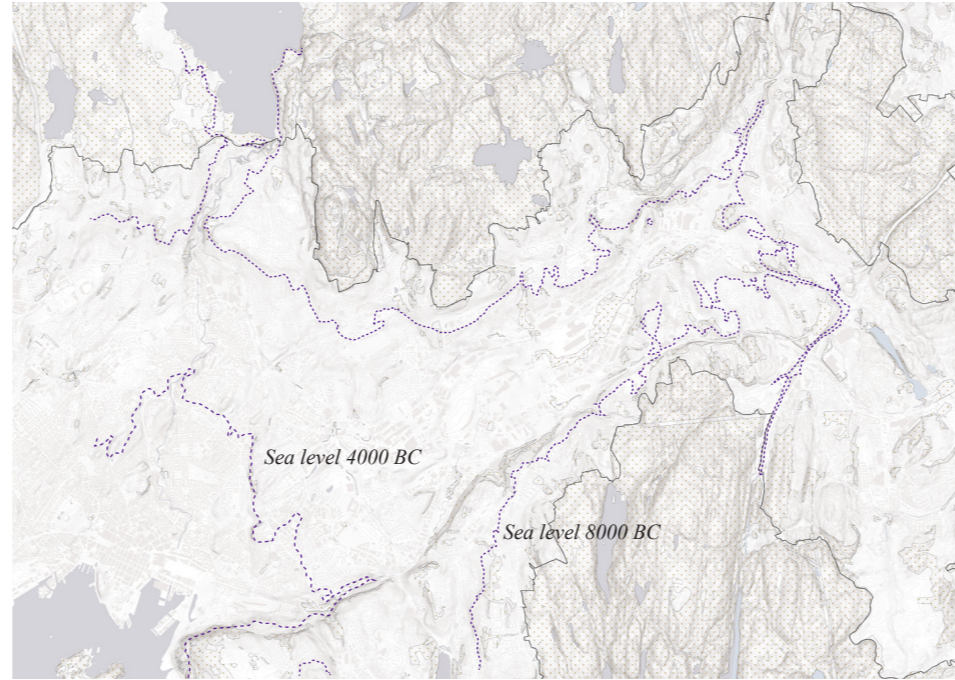
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Supervisor:

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Markagrensen



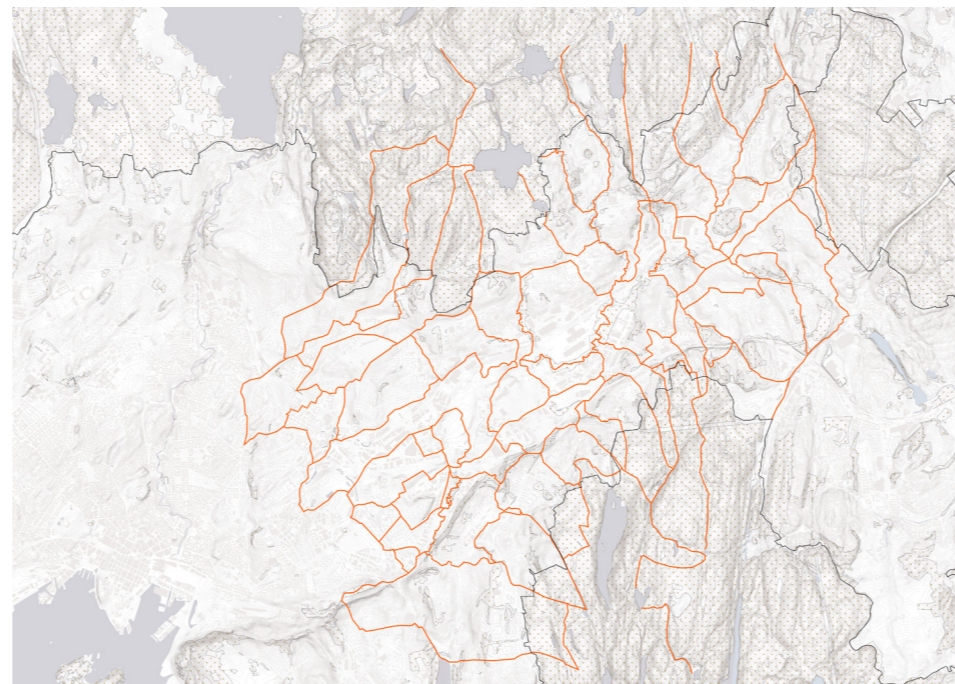
Sea levels 8000 BC (ca. contour line 159) and 4000 BC, traced from Groruddalen Kulturminneatlas p 42-43



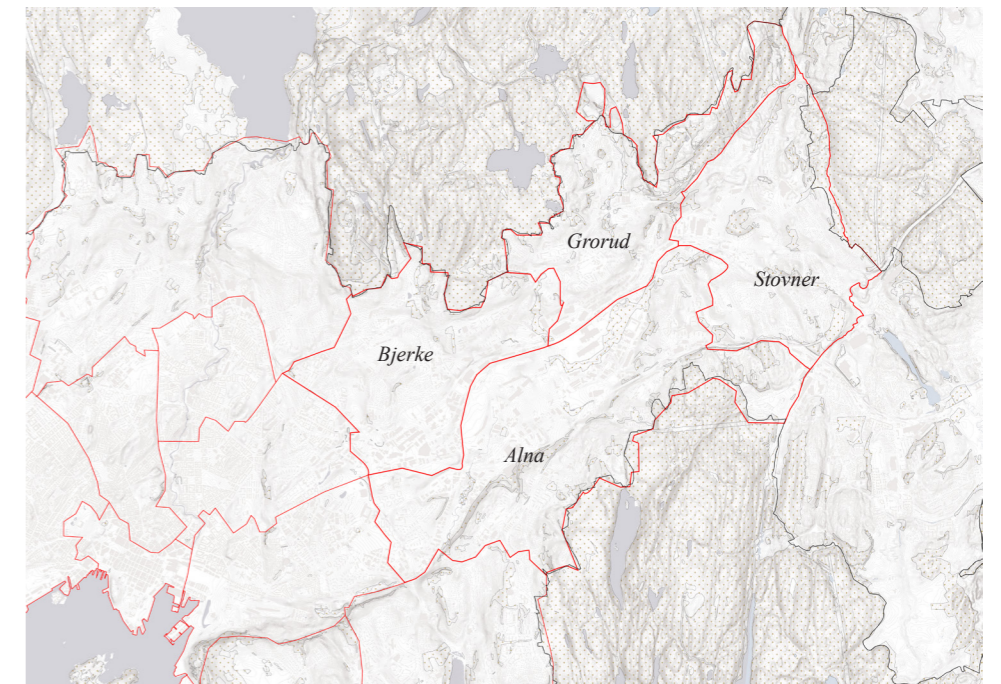
Contour 220: elevation until which drinking water could be supplied with natural pressure that gave the base for the first marka border. (Oslo Byleksikon)



Contour 221: main marine deposit line



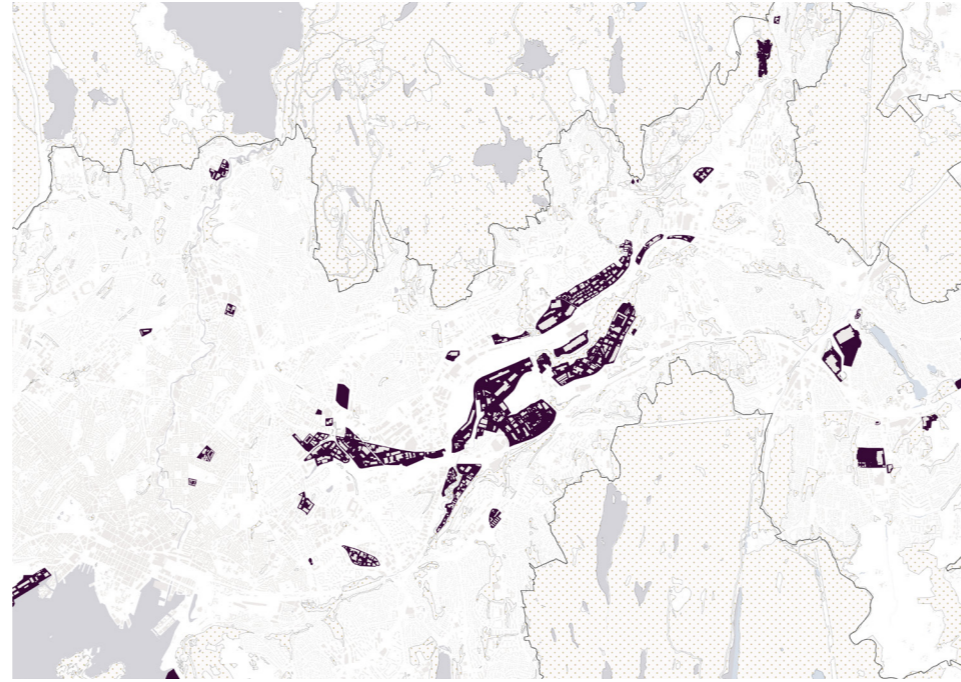
Borders of the farms, 1938, traced from Groruddalen Kulturminneatlas



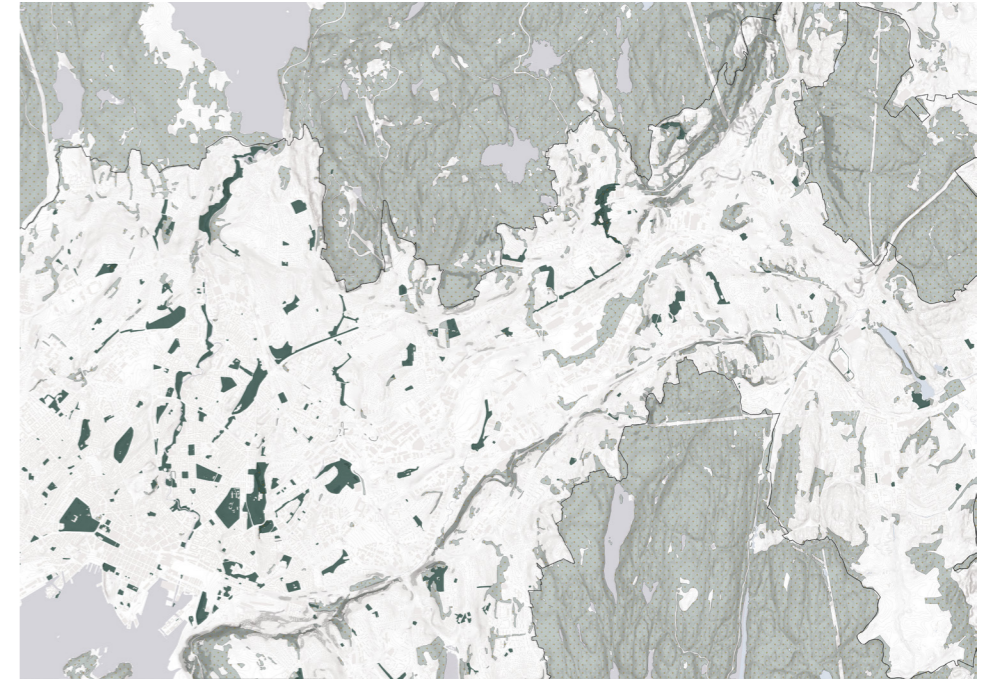
Administrative borders today



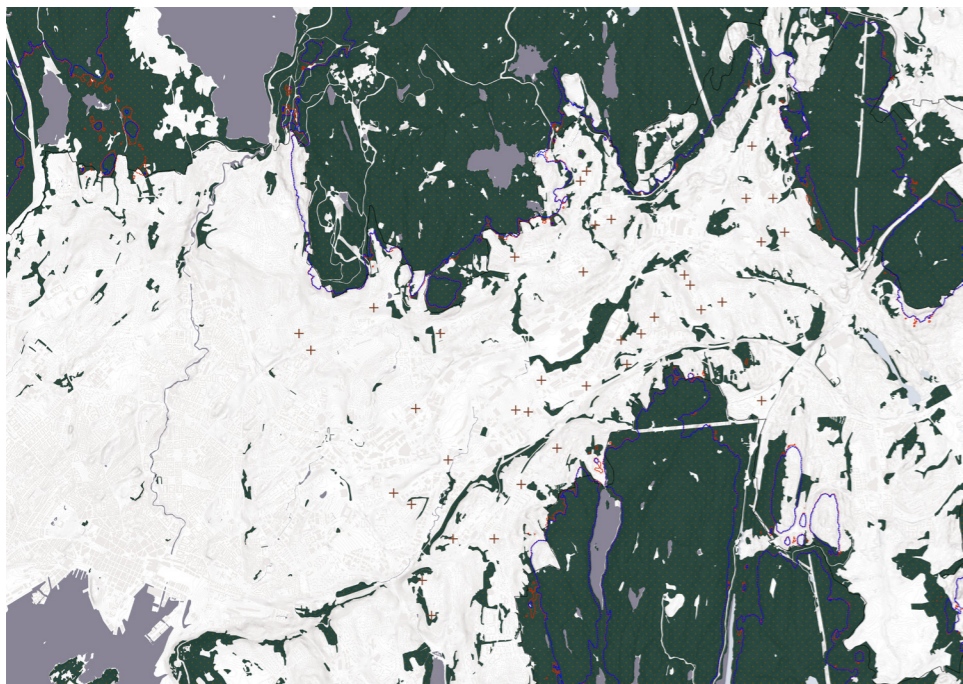
Barriers (roads and railway) cutting through the valley



Industries

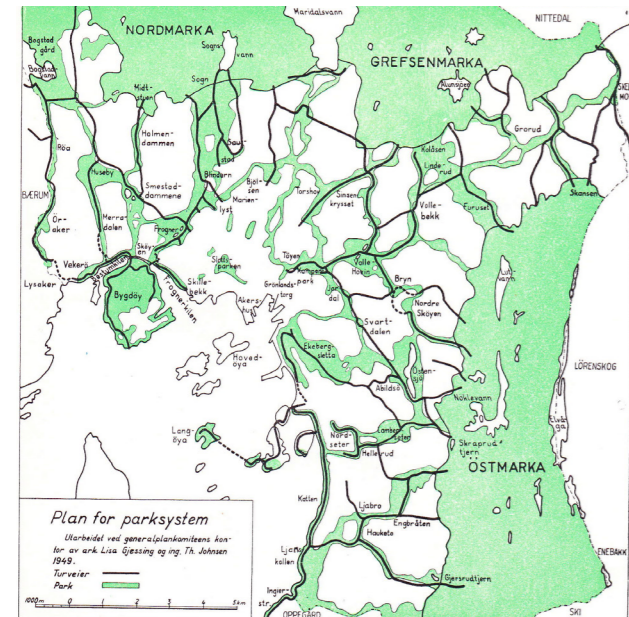


Public parks



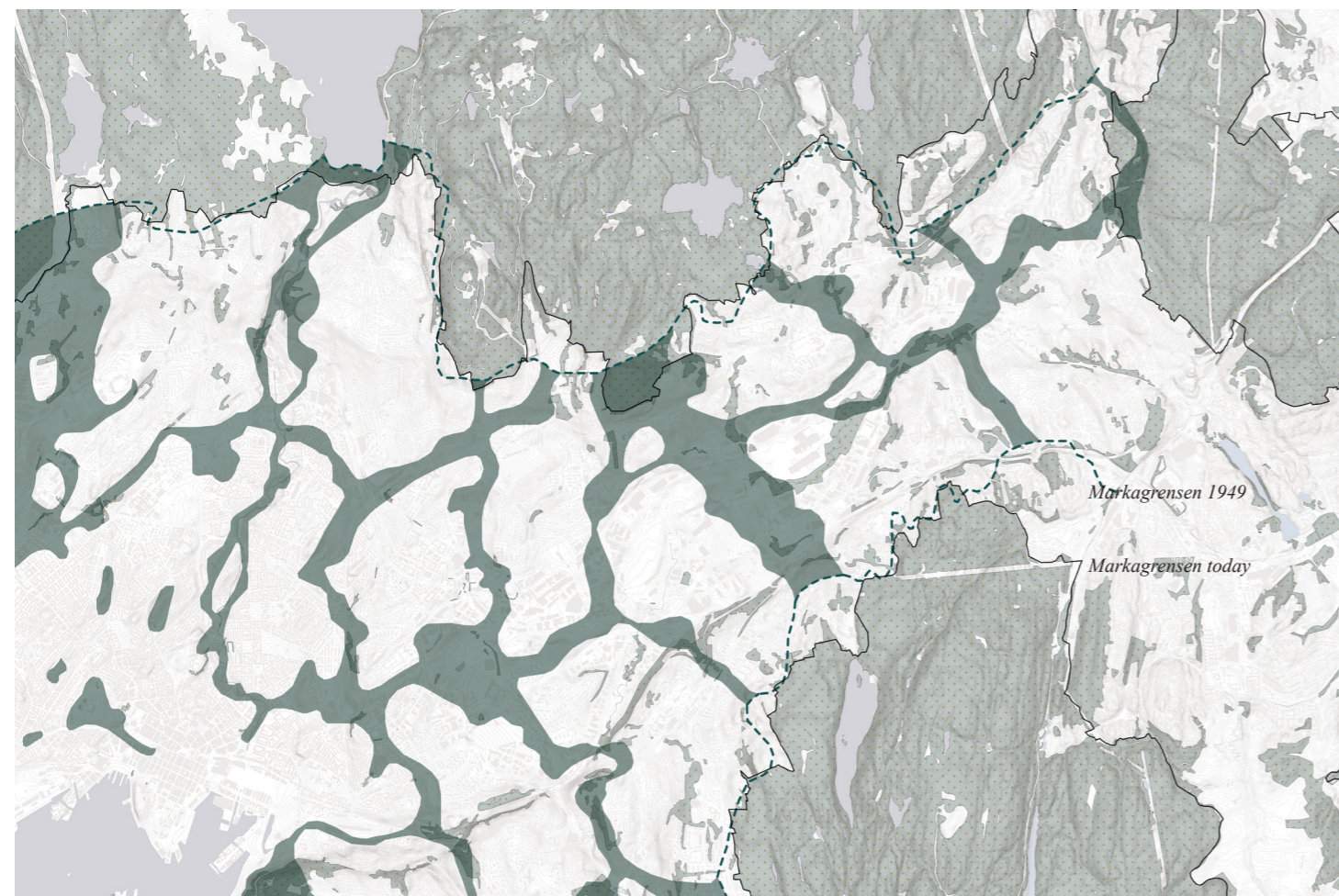
Forest and Water

Proposed Park- og turveisystem from 1949, projected on the city today



Park- og Turveisystem drawn by architect Lisa Gjessing and engineer Th. Johnsen, Generalplankomiteens Kontor

The intention was to connect the forest with the fjord and to offer recreational green space throughout the city. In the first place it was for humans, and specifically for health reasons, as the partly very poor living conditions in Oslo just like in other European cities caused health issues and diseases. Good links to the forest that engage people to spend time outside were meant to promote health.

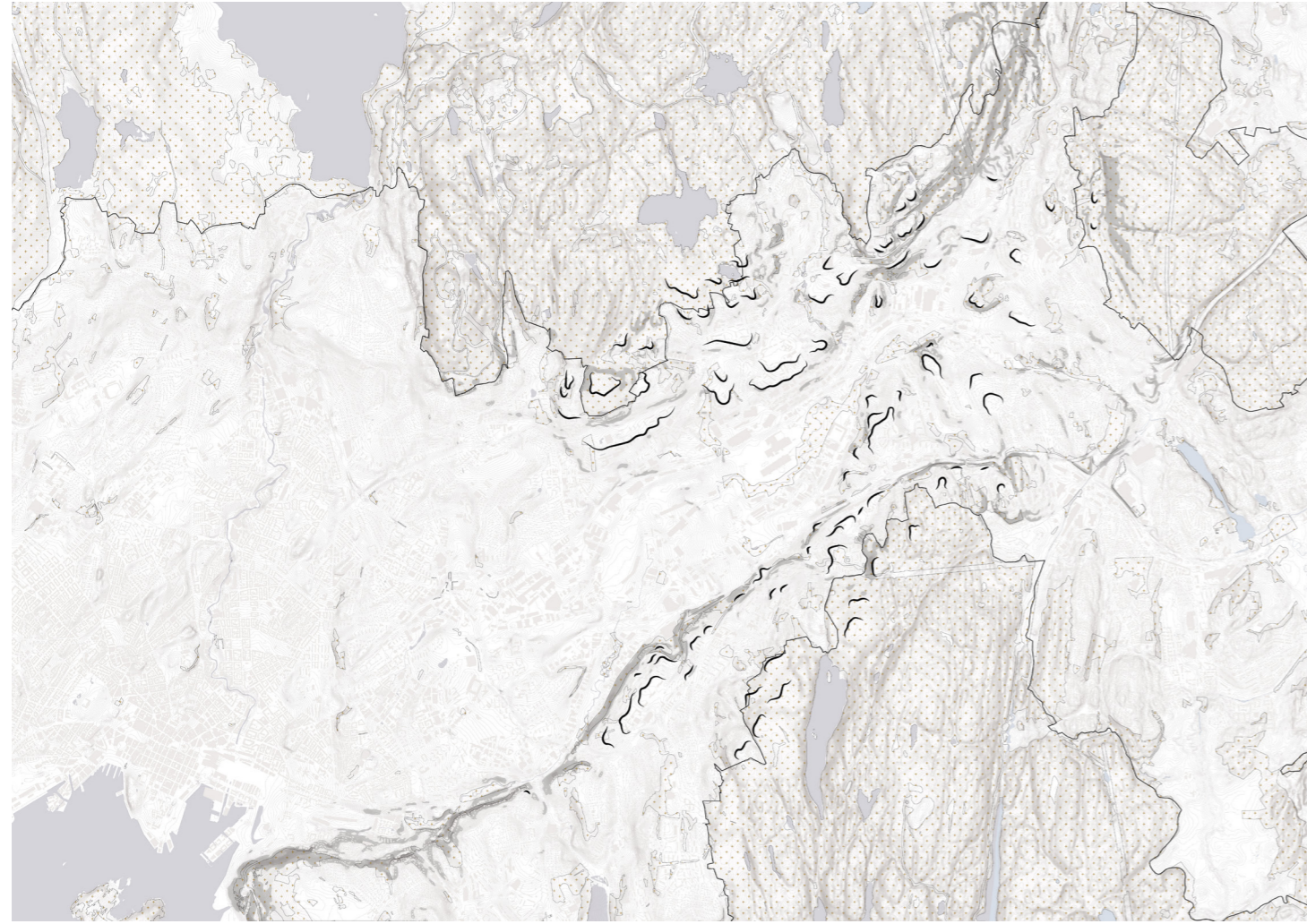


1km

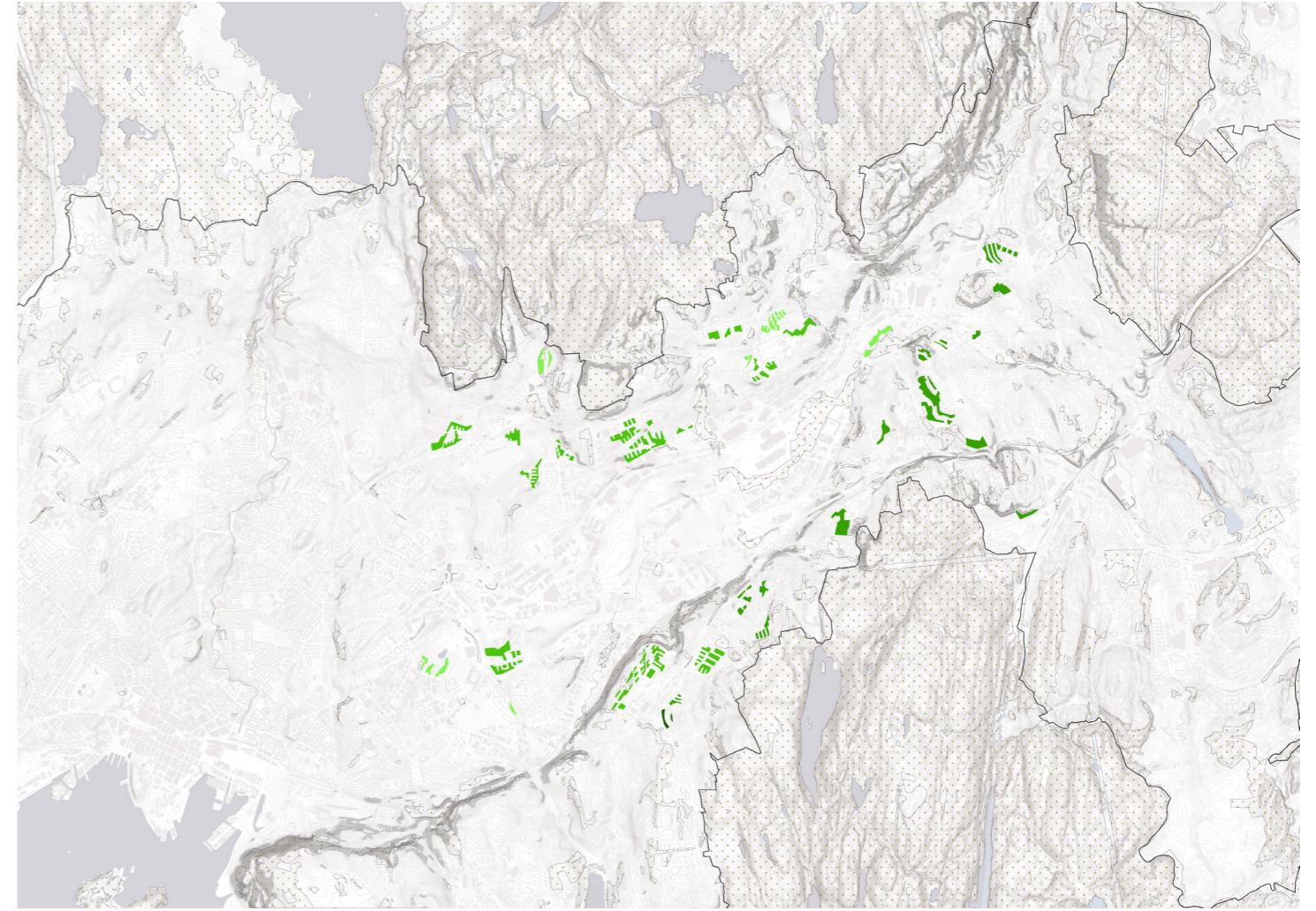
Image source: Wikipedia



Image source: Oslobilder

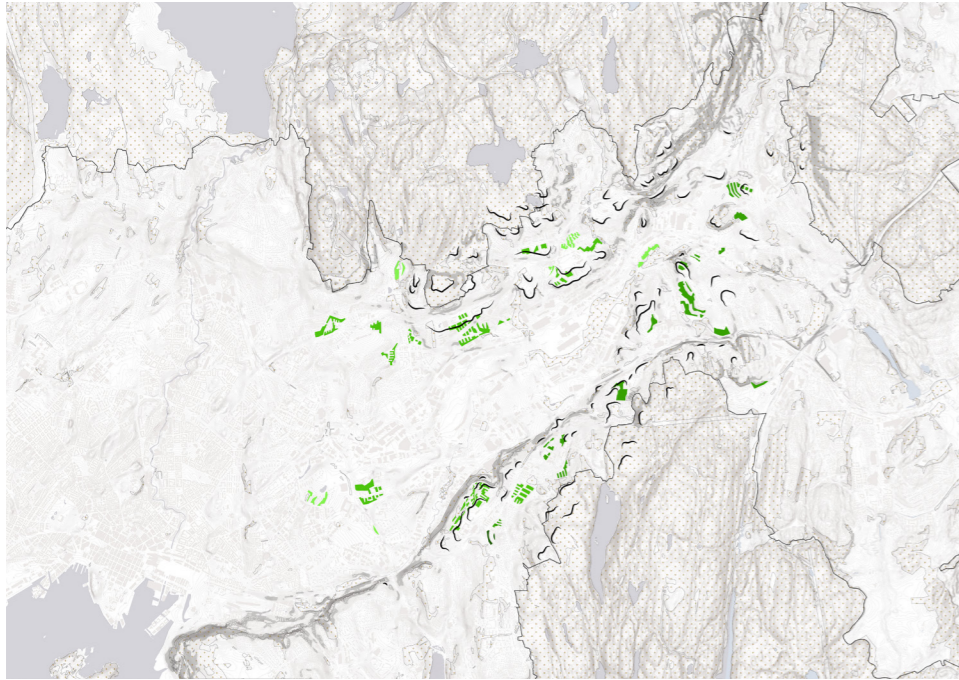


1km

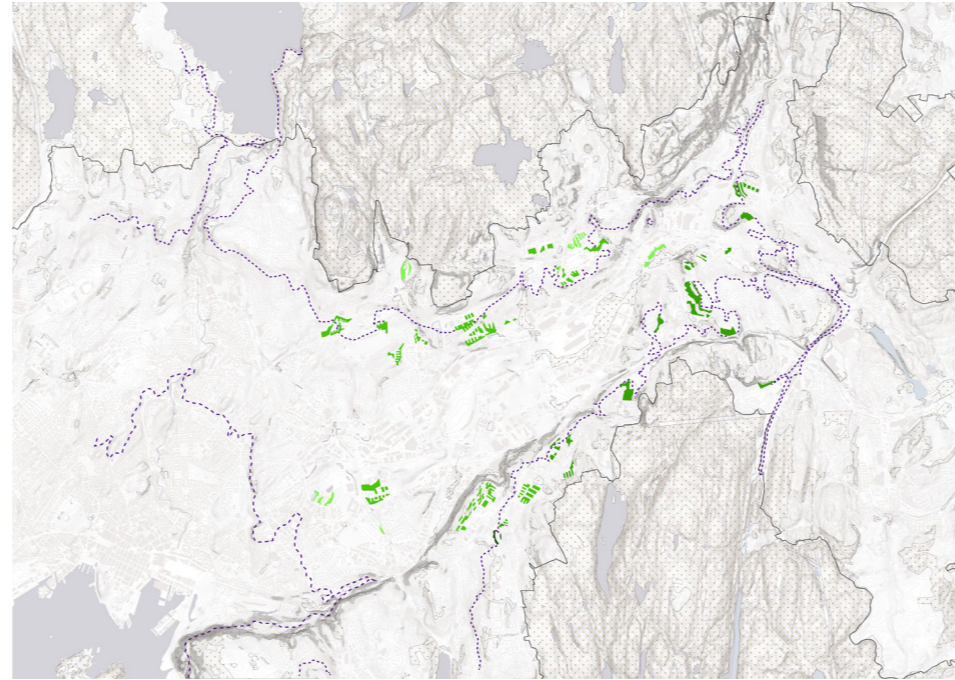


1km

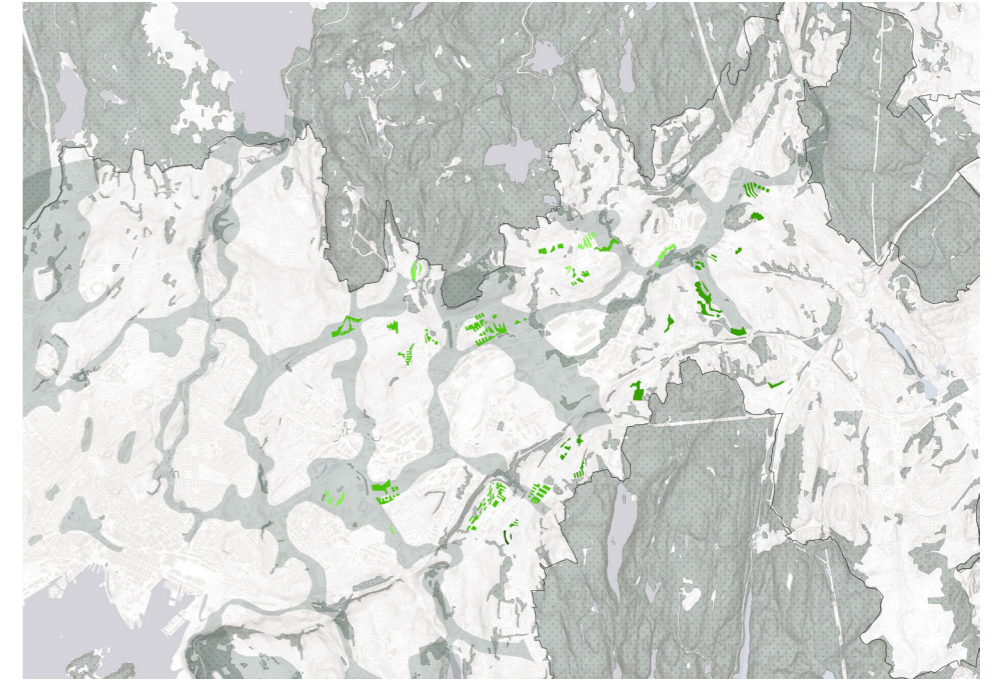
- After 1980
- Built 1970 - 1979
- Built 1955 - 1969
- Built 1940 - 1954



Overlay with the traced belvederes



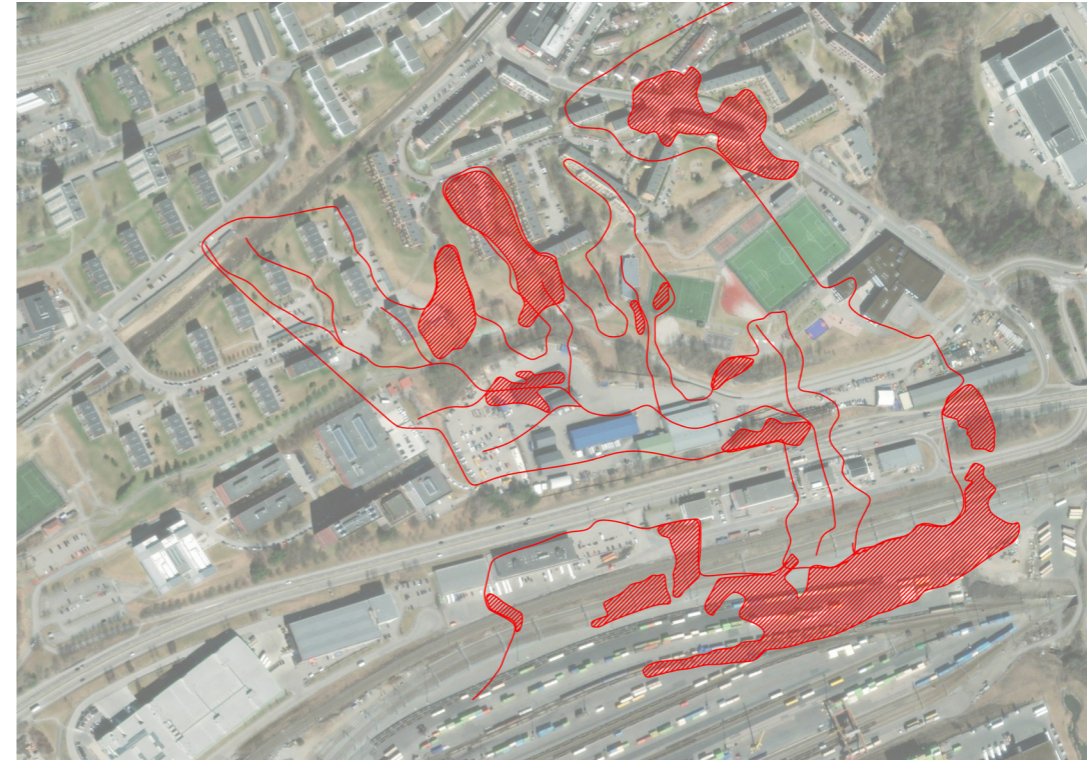
Overlay with the marine deposit line on elevation 159m



Overlay with the park- and hiking trail proposal from 1949



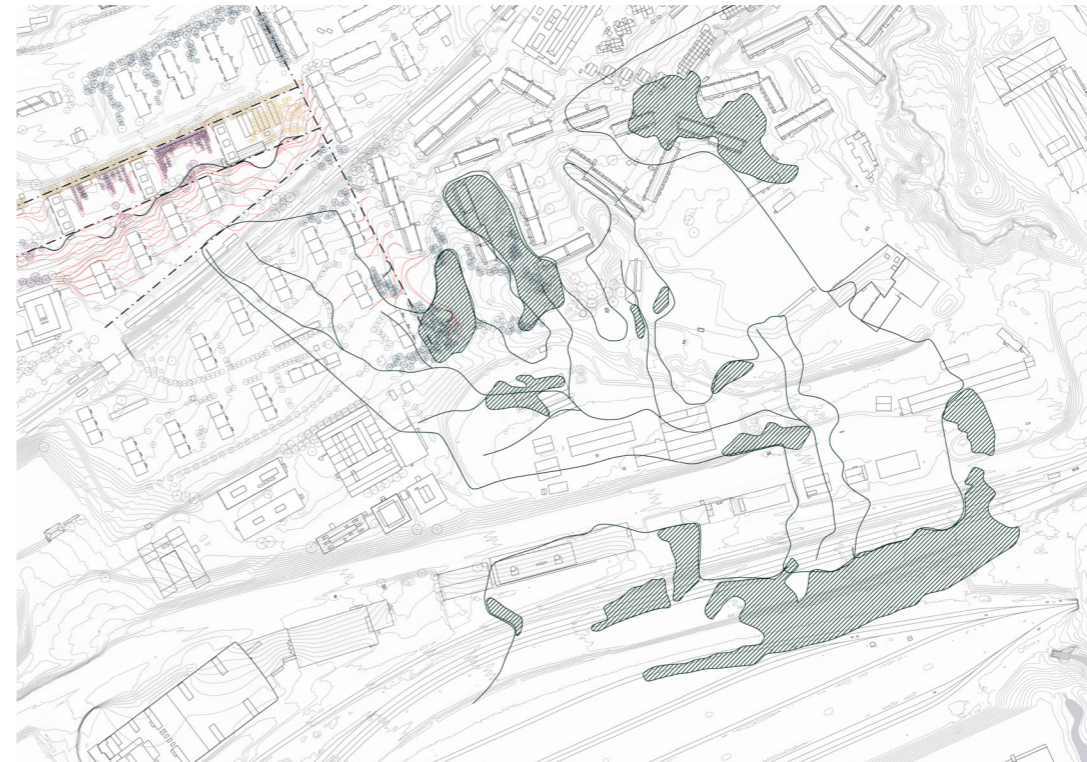
Aerial image 1947, source: Finnkart



Traced landscape and forested areas, projected on what is there today



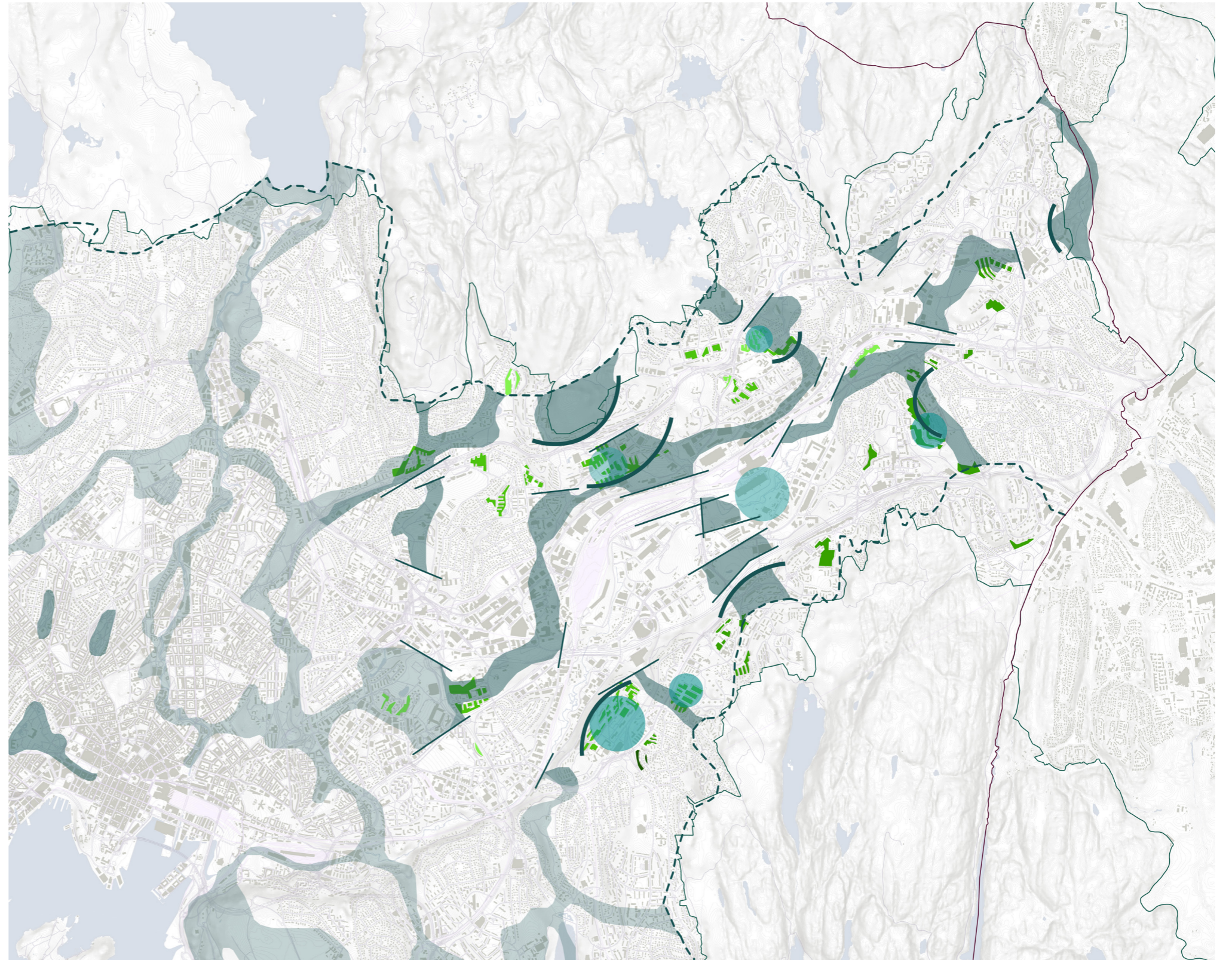
Today, source: Finnkart

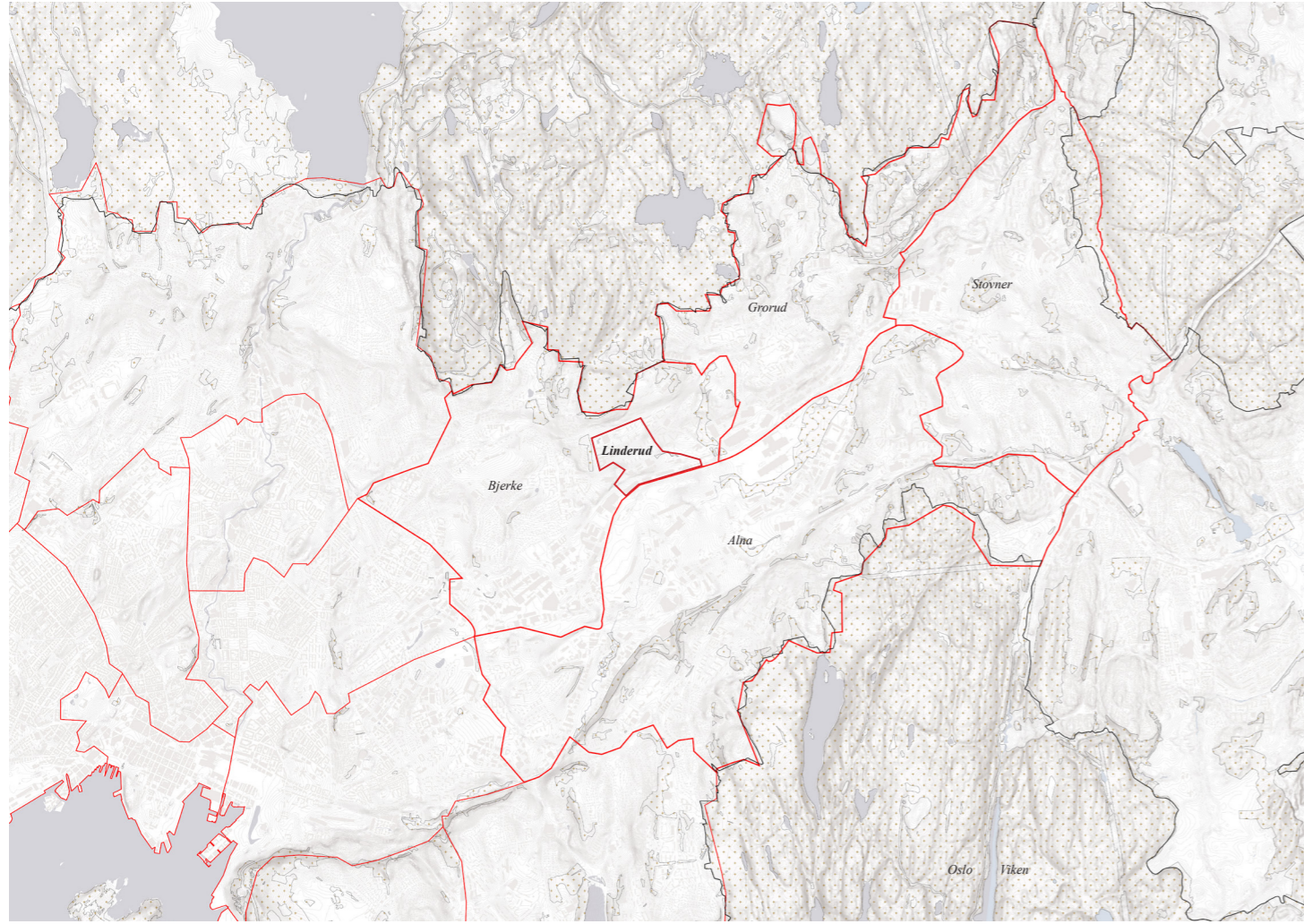


Traced landscape and forested areas, projected on my proposal

Scenario

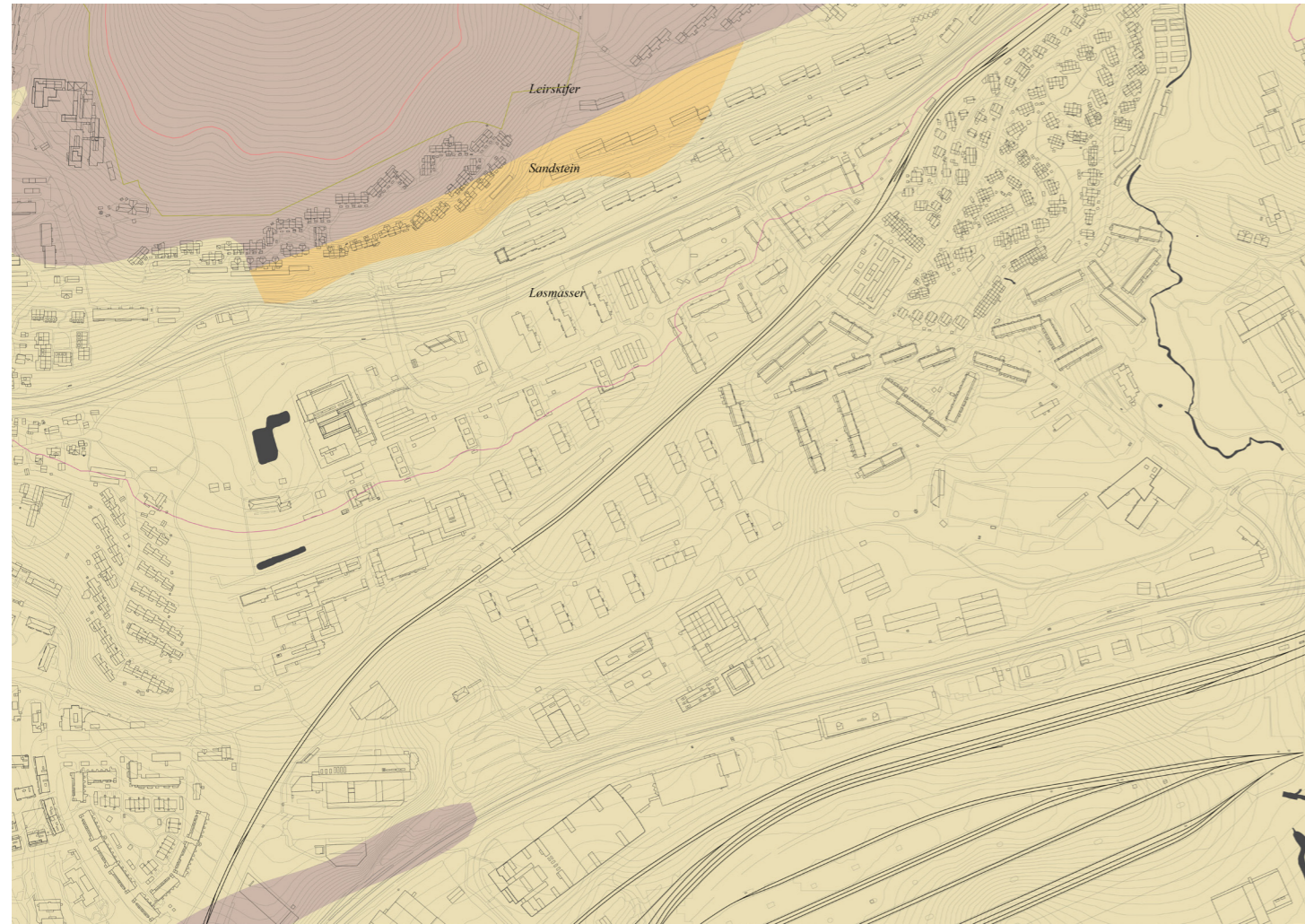
First sketch of a scenario based on the park and hiking trail system that got proposed in 1949. Where heavy physical barriers impede physical connections, belvederes are being carved out to strengthen view connections.



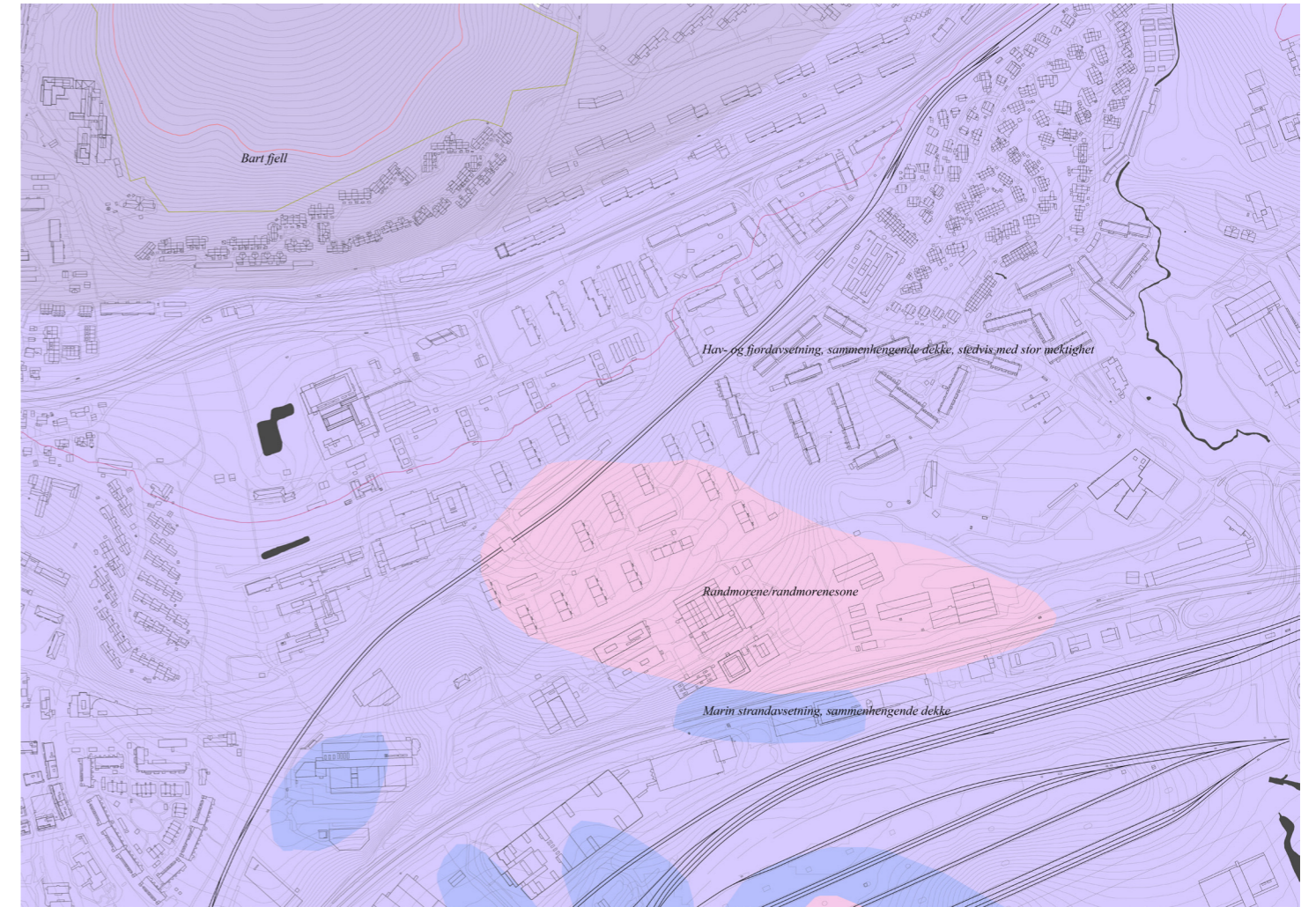


1km





Bedrock



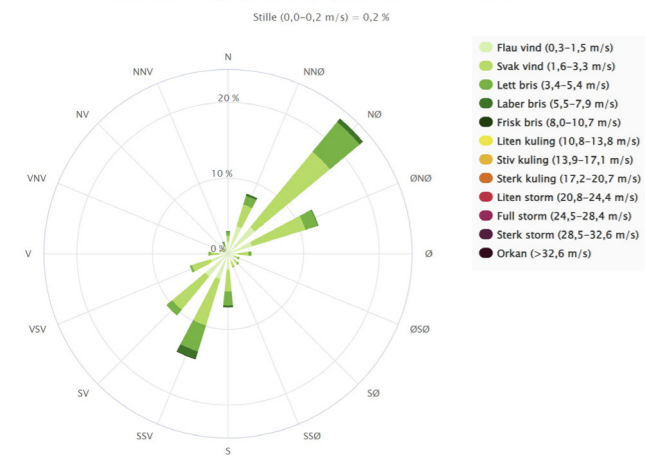
Topsoil

Stepping stones

Plant species will mostly move with the direction of the wind, while different animal species can use the new diverse green space as stepping stones and new connections.

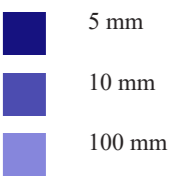
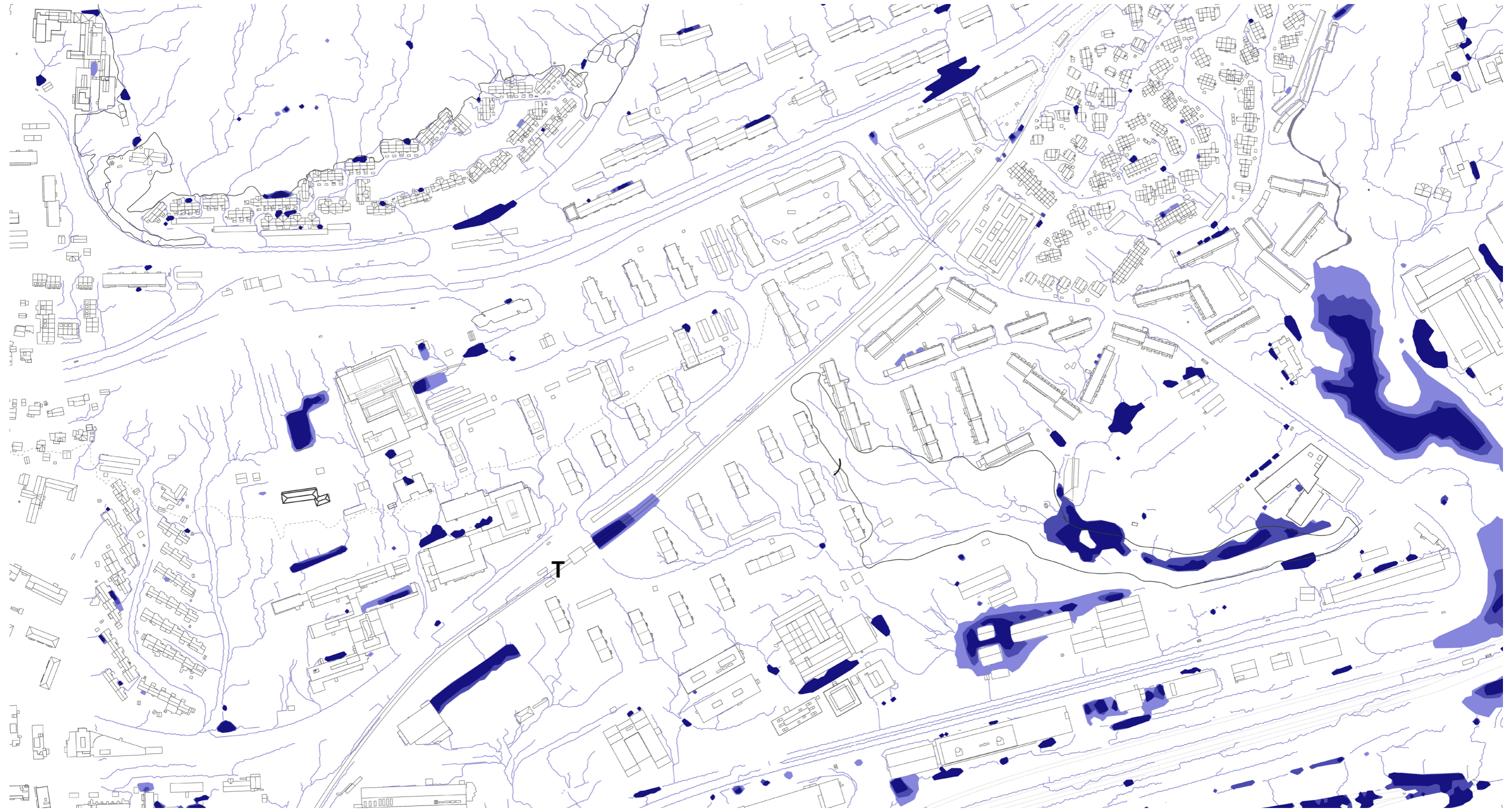


Vindrose for Alna (SN18230) i perioden; 12.2007-6.2015.



Source: Norsk Klimaservicesenter

Flood accumulation and flooded areas



Reference - Villa Cetinale, Italy

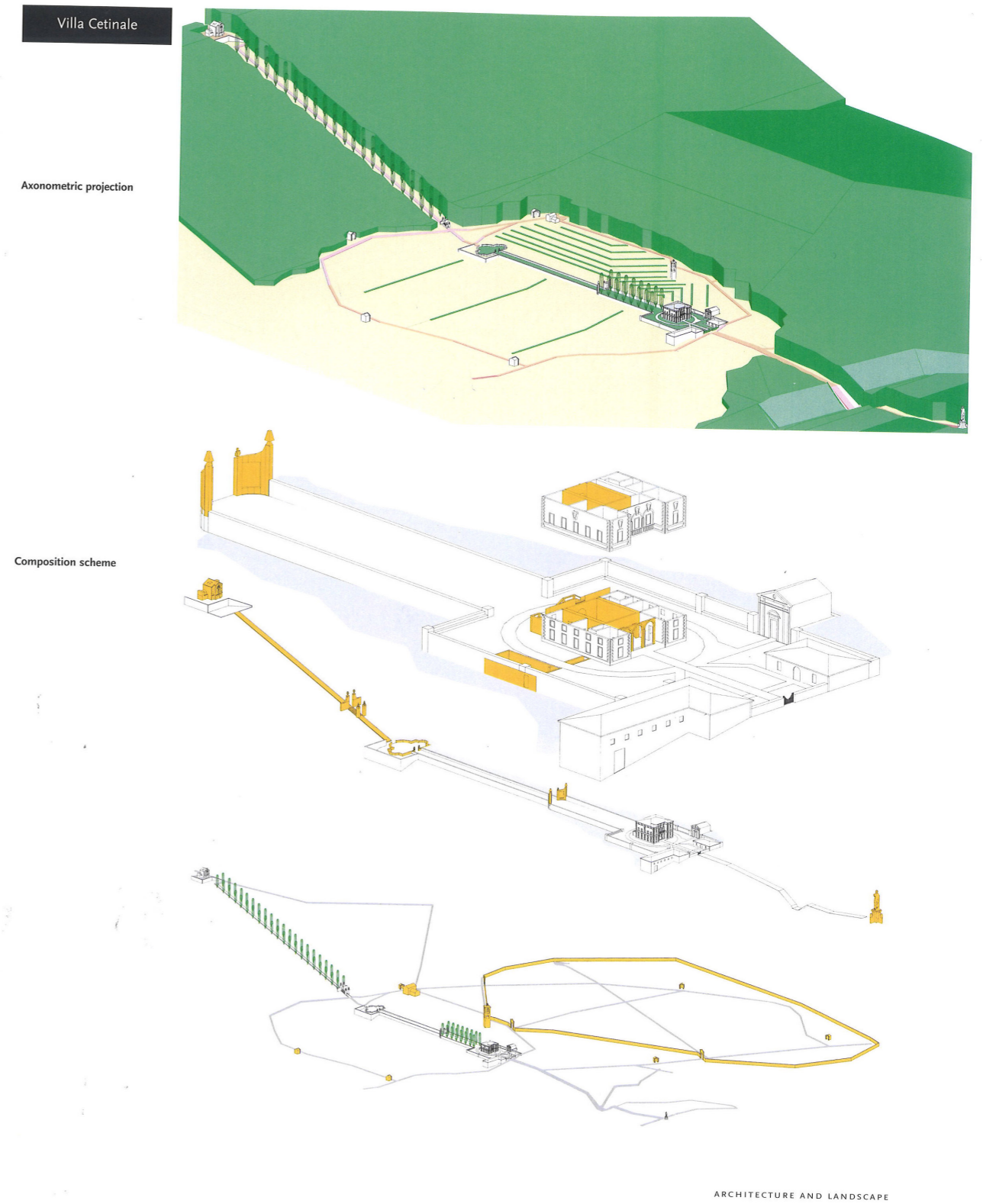
View as a landscape notion has a long history in garden art, for instance the great gardens especially in Italy, many of which are portrayed by Clemens Steenbergen in his book "Architecture and Landscape". The main viewpoints,



Steenbergen, C. Architecture and Landscape. p. 60

Reference

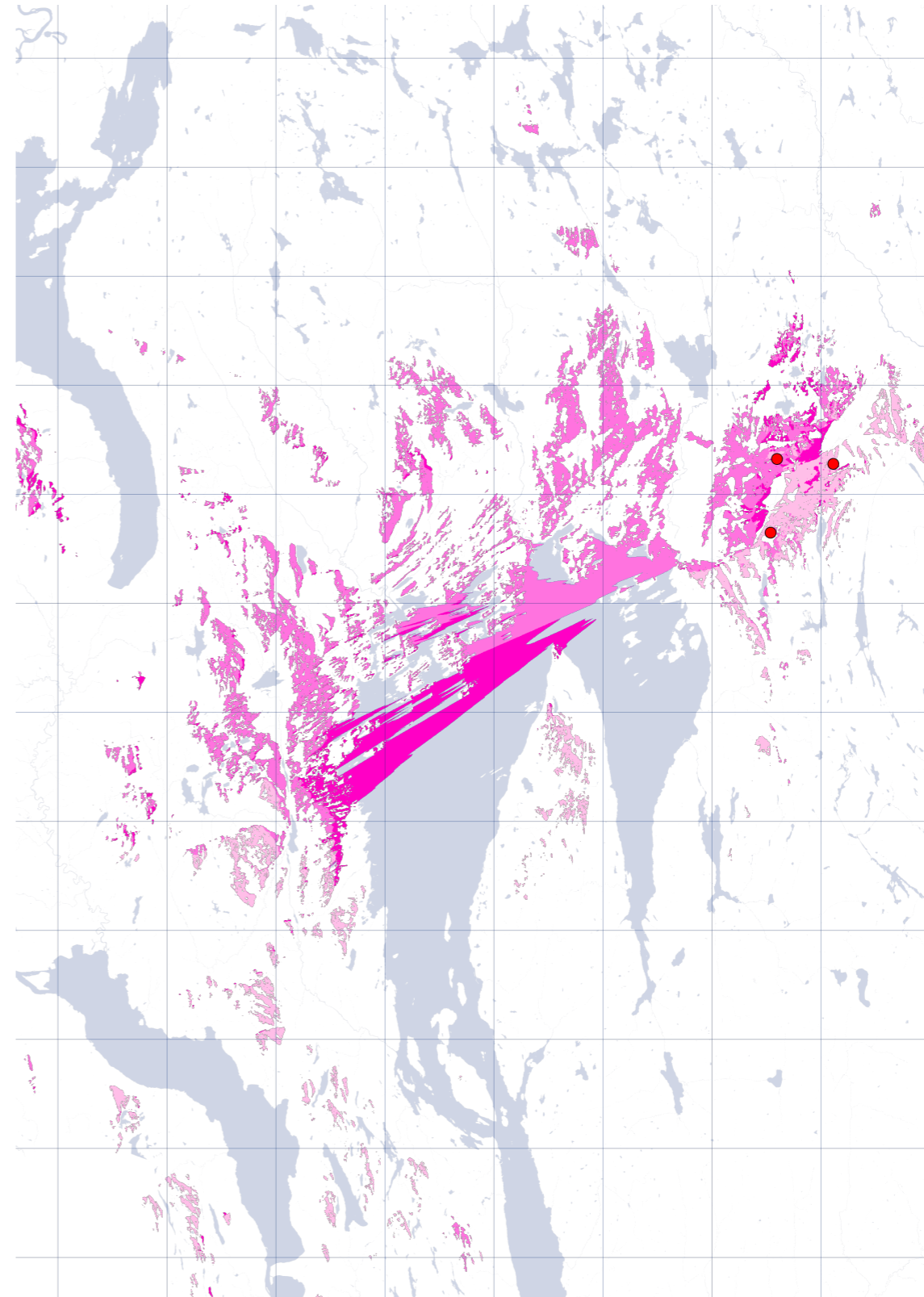
the villas, are mostly located neither on top nor down in the valley, but halfway on the lofty hillsides. Just like most neighborhoods in Groruddalen, also the site I chose to work with.



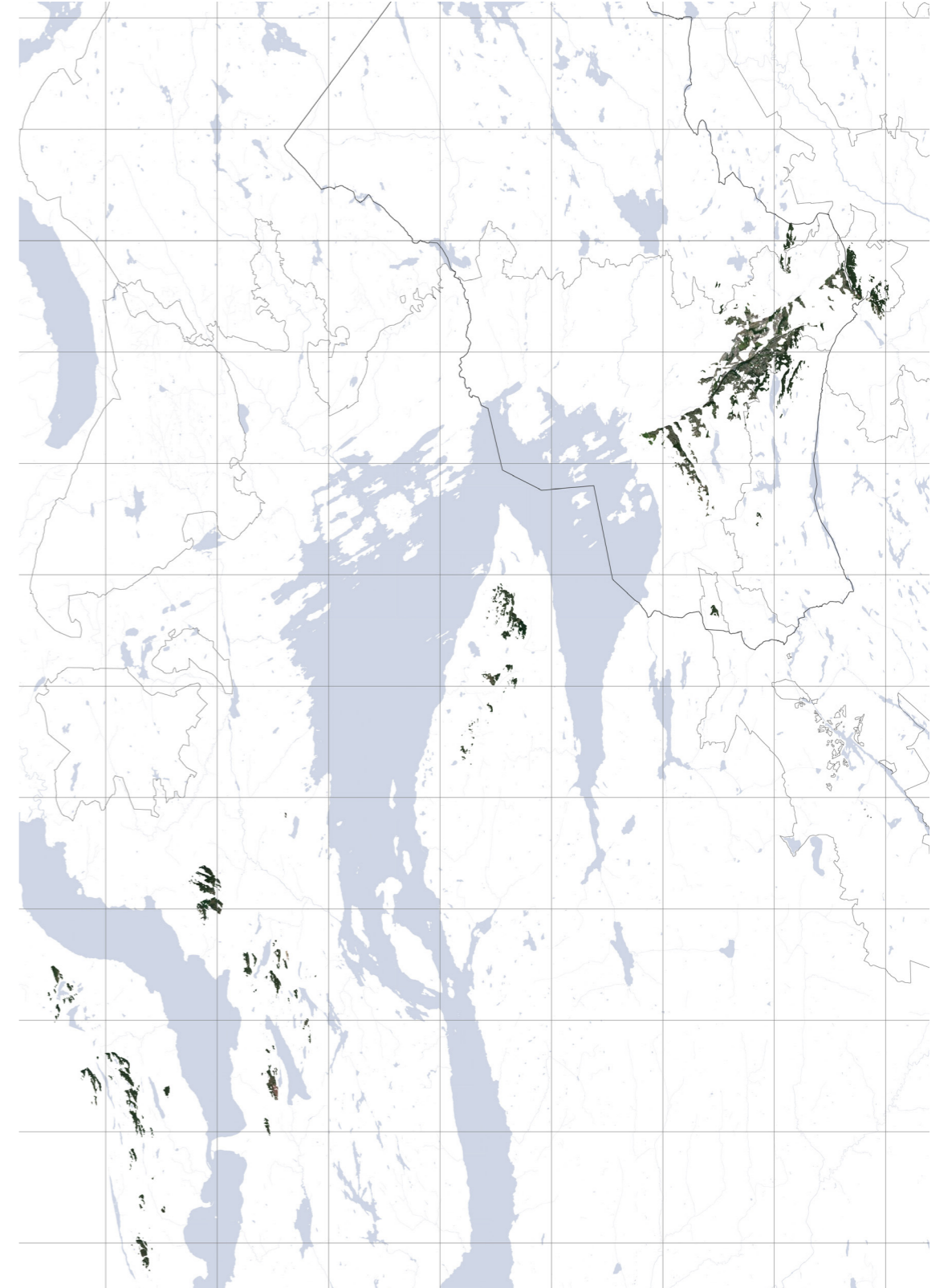
ARCHITECTURE AND LANDSCAPE

Steenbergen, C. Architecture and Landscape. p. 64

Using GIS software I analysed viewsheds for different viewpoints in the valley, and mainly on the project site. These drawings show the area that is visible from a certain point on eye level. However, buildings and other possible view barriers are not considered.



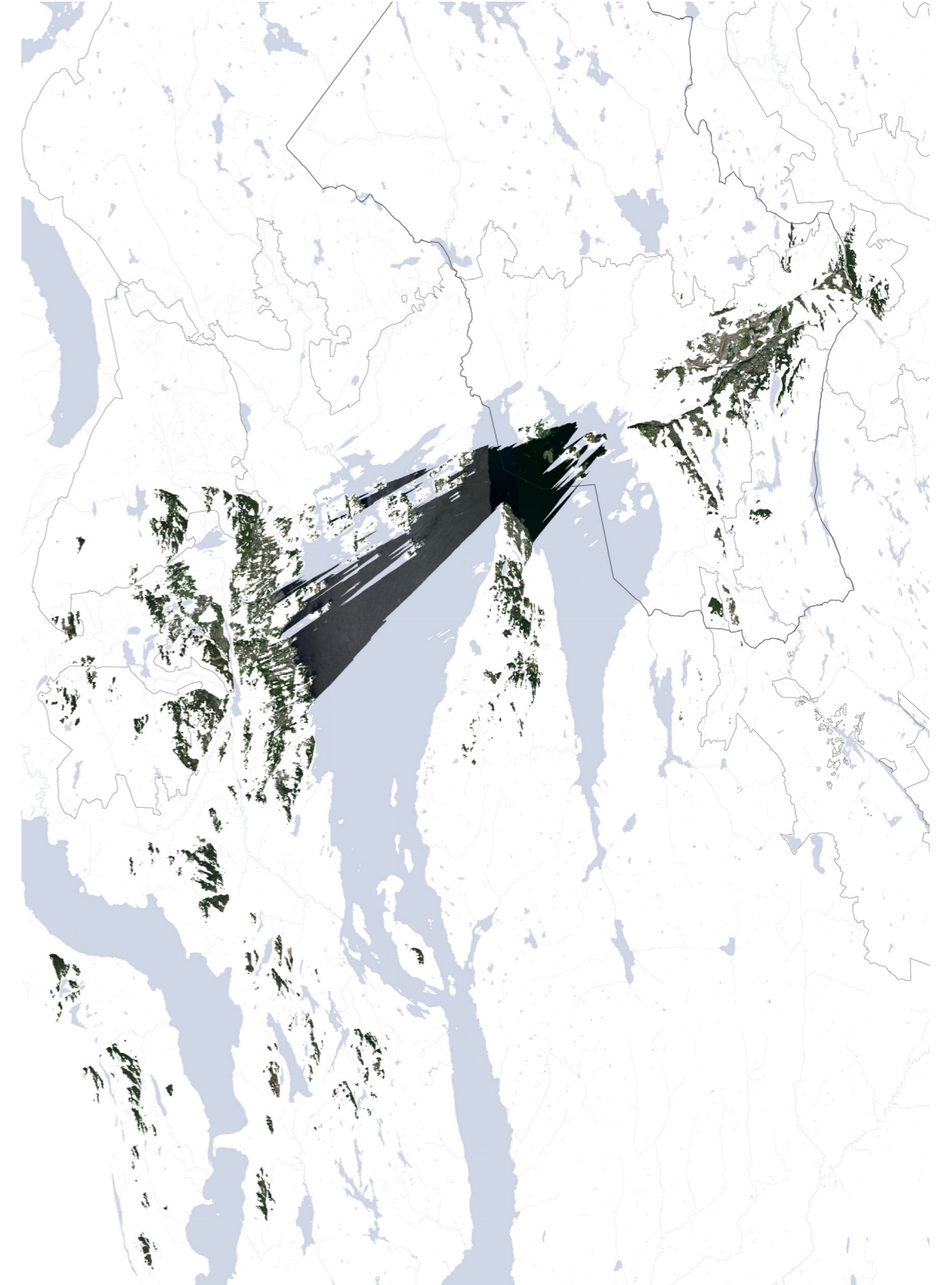




V4 Being part of the valley

While big parts of the neighborhood and the opposite side of the valley are visible from here, the view of the fjord is in reality blocked out.

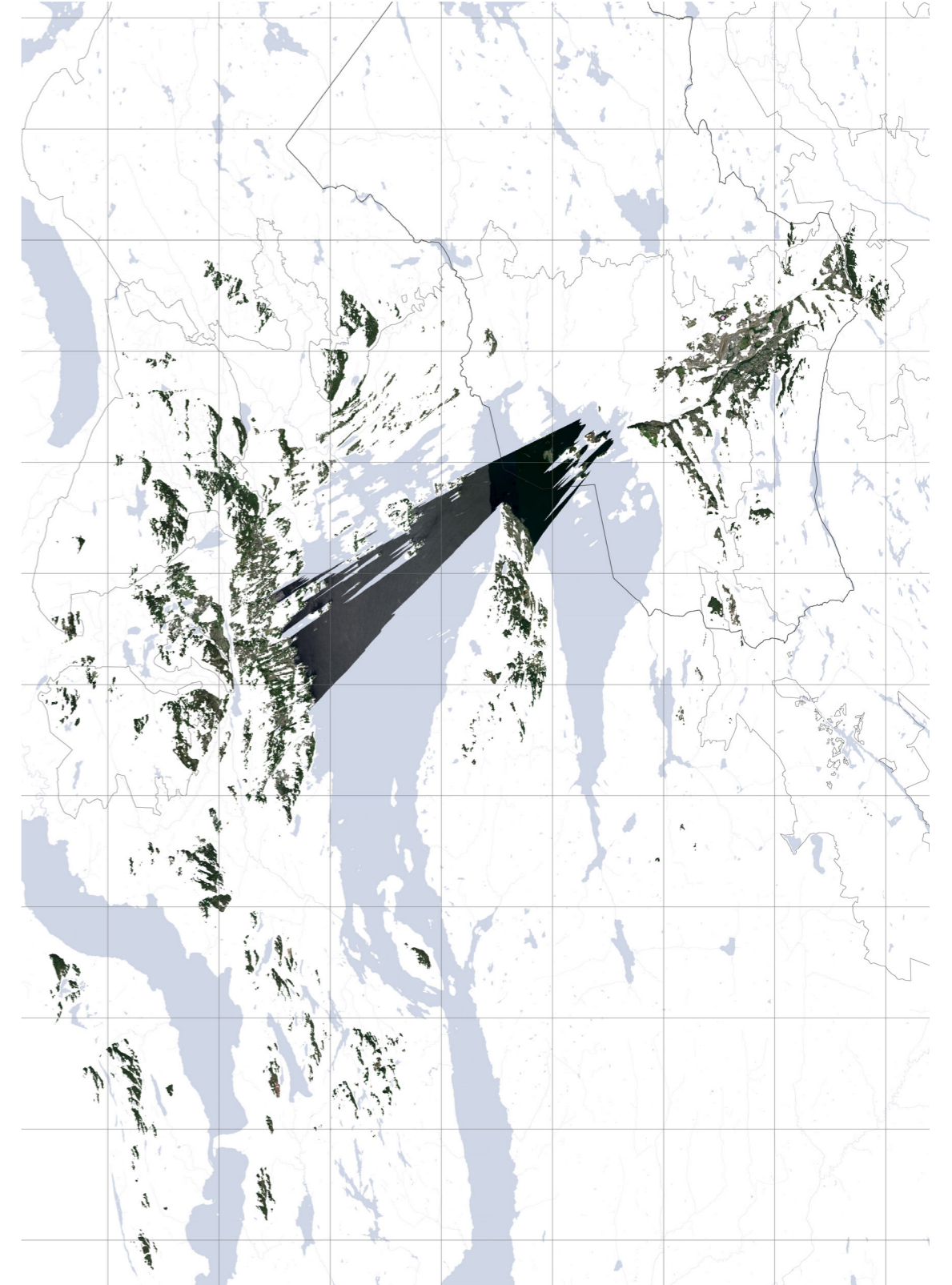
Viewshed analysis



V4 Being part of the city between the forest and the fjord

Currently, from street level there is a thin line of Oslo, the fjord and the mountains behind visible. That is why I decided to plan the main neighborhood viewpoint here, with a belvedere swinging out far enough have a great view towards the city without the blocks hindering the sight. This viewshed is generated from the elevation of the new viewpoint, 4m above ground.

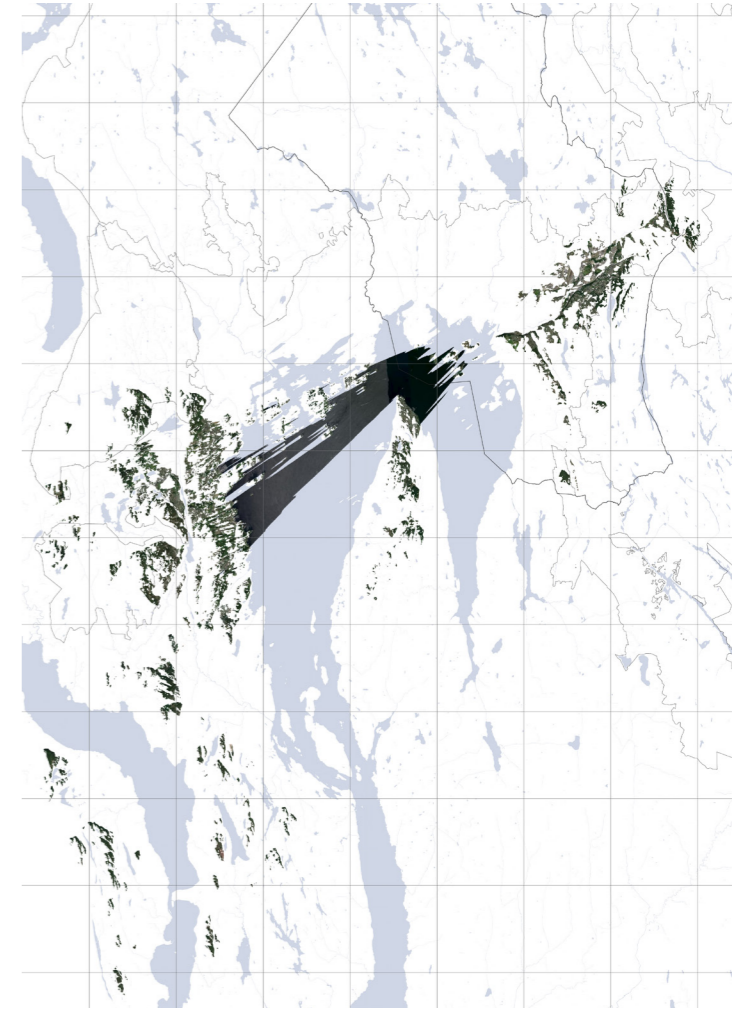
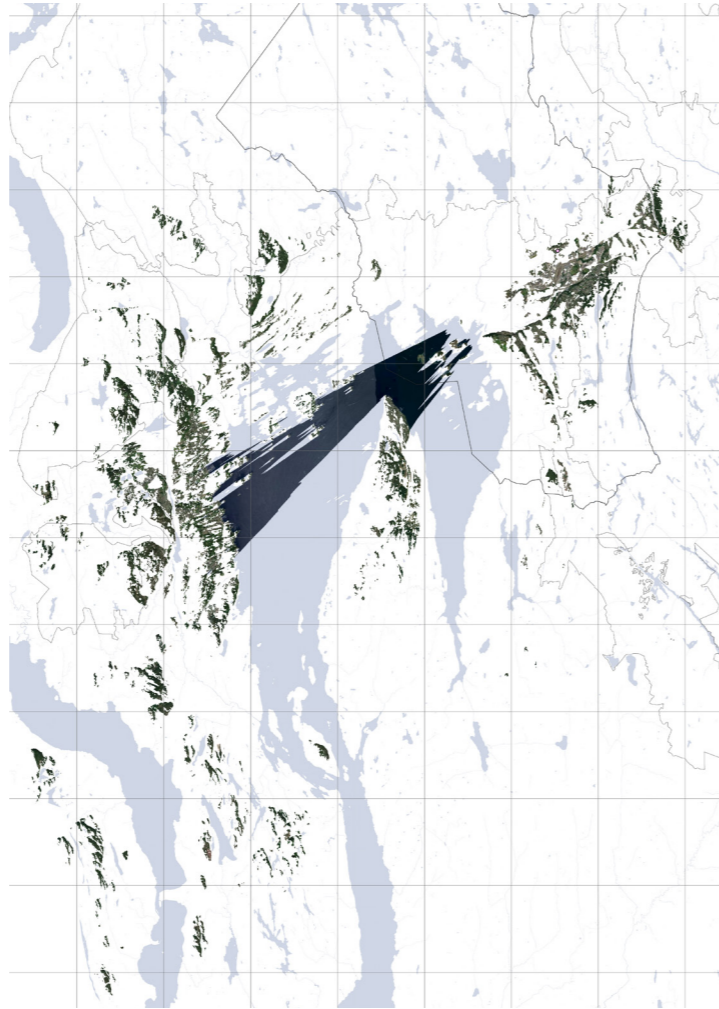
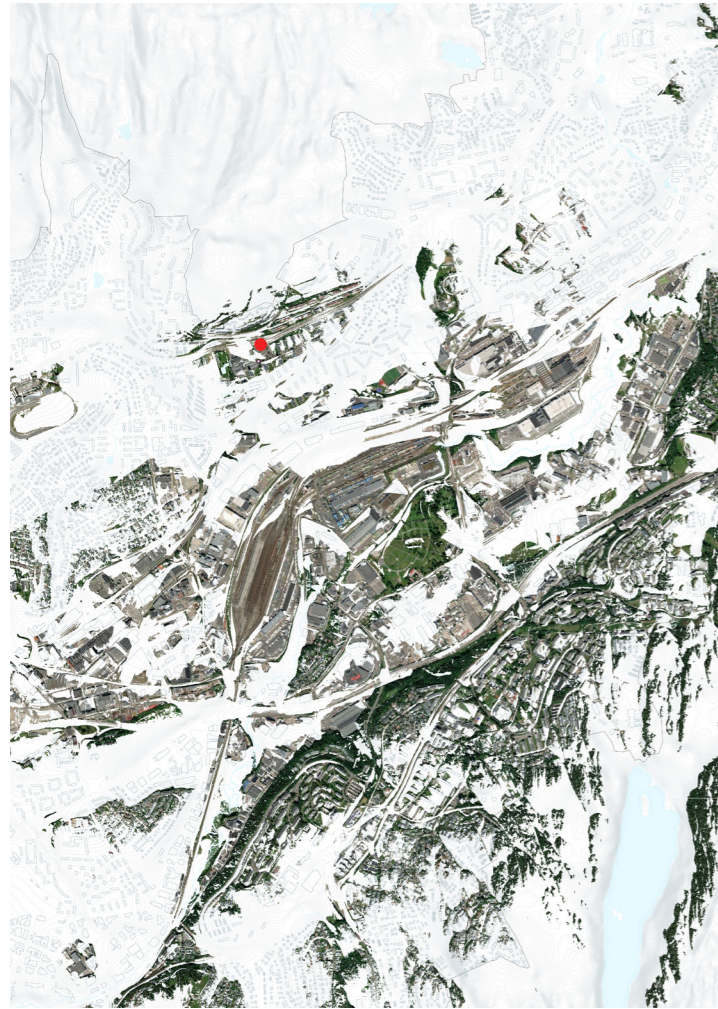
Viewshed analysis



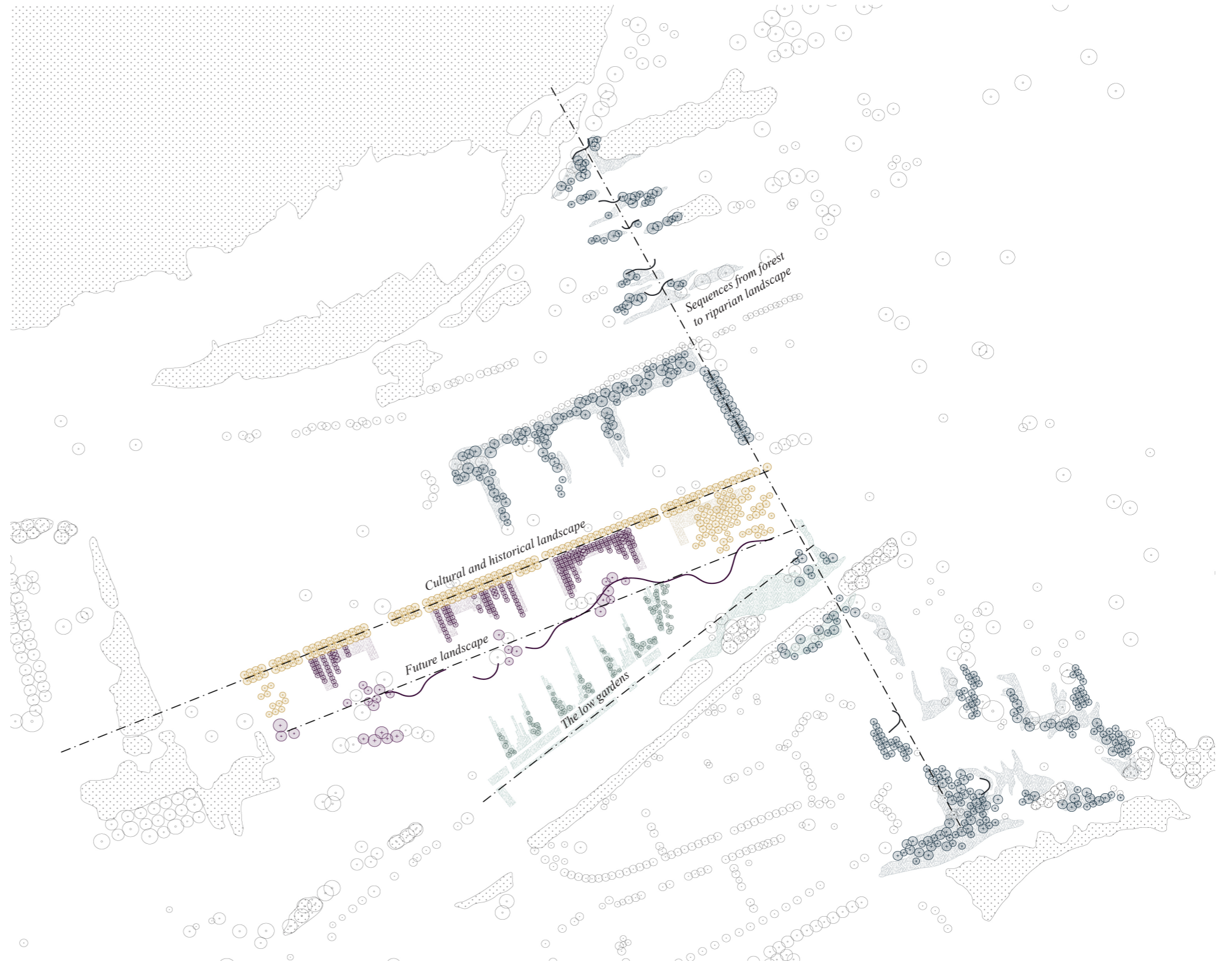
Other viewpoints I considered

I considered to elaborate two more viewpoints in the process: the entrance to the neighborhood by Linderud Shopping Center, and the garage rooftops. But in favour of the overall concept I decided not to focus on those.

Viewshed analysis



Each axis has a different vegetation theme. The overall intention is to use vegetation as a primary tool to create space, to frame views and play with openness and interiority, and furthermore to create ecological stepping stones allowing non-human dwellers to cross the barriers in the valley. Particularly diverse and rich edge situations are therefore maximized. For each vegetation theme I illustrated two representative plant communities in 1:50 sections, showing their spacial qualities and how they can host activity and biodiversity.



Key species

1 Sequences from forest to riparian landscape

Vegetation is used to underline the change of landscape and strengthen the connection from the Lillomarka-forest on top down to the valley bottom with Alna and its tributary streams; an upscaled ecotone whose entities form ecological stepping stones for flora and fauna.

Forest

- Betula pendula*
- Pinus sylvestris*

Field layer:

- Vaccinium myrtillus*
- Calluna vulgaris*
- Poa nemorosa*
- Deschampsia flexuosa*
- Stellaria nemorum*
- Fragaria vesca*
- Othocallis siberica*
- Athyrium filix-femina*

Forest edge

- Carpinus betulus*
- Quercus robur*
- Sorbus aucuparia*
- Corylus avellana*
- Prunus spinosa*
- Prunus padus*

Field layer: *like forest*

Riparian Landscape

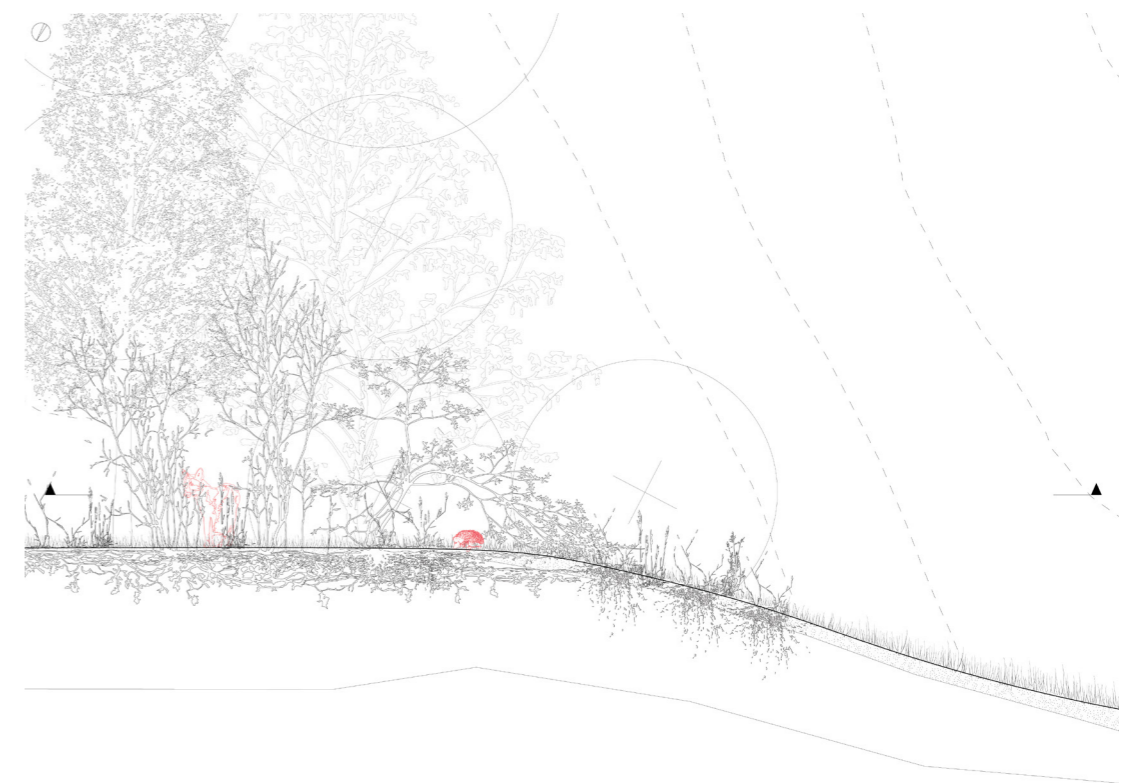
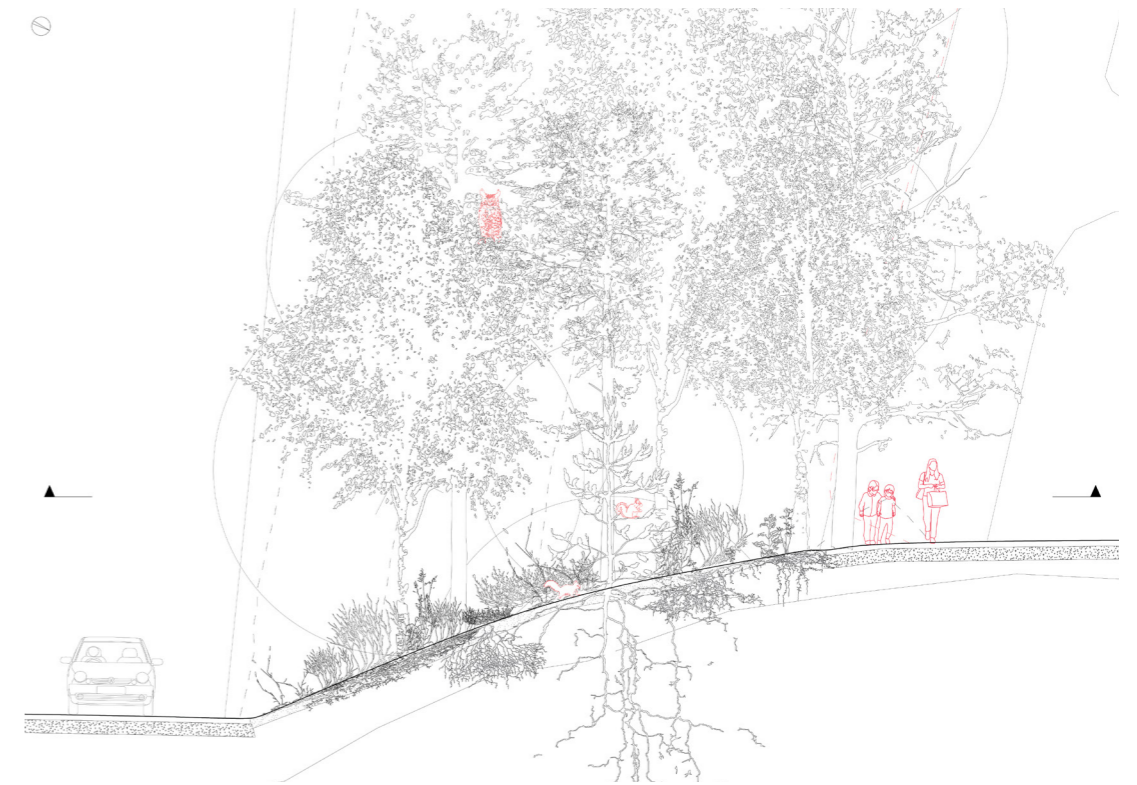
- Populus alba*
- Salix alba* "Liempde"
- Salix alba* "Repens"
- Salix purpurea*
- Betula pubescens*
- Prunus padus*

Forbs:

- Achillea ptarmica*
- Angelica sylvestris*
- Caltha palustris*
- Eupatorium cannabinum*
- Filipendula ulmaria*
- Geranium sylvaticum*
- Geum rivale*
- Hypericum maculatum*
- Lychnis flos-cuculi*
- Lysimachia vulgaris*
- Lythrum salicaria*
- Myosotis scorpioides*
- Prunella vulgaris*
- Ranunculus acris*
- Serratula tinctoria*
- Silene dioica*
- Succisa pratensis*
- Trollius europaeus*
- Valeriana officinalis*

Grasses:

- Alopecurus pratensis*
- Briza media*
- Carex elata*
- Cynosurus cristatus*
- Deschampsia caespitosa*
- Festuca pratensis*
- Festuca rubra*



Linden tree alley

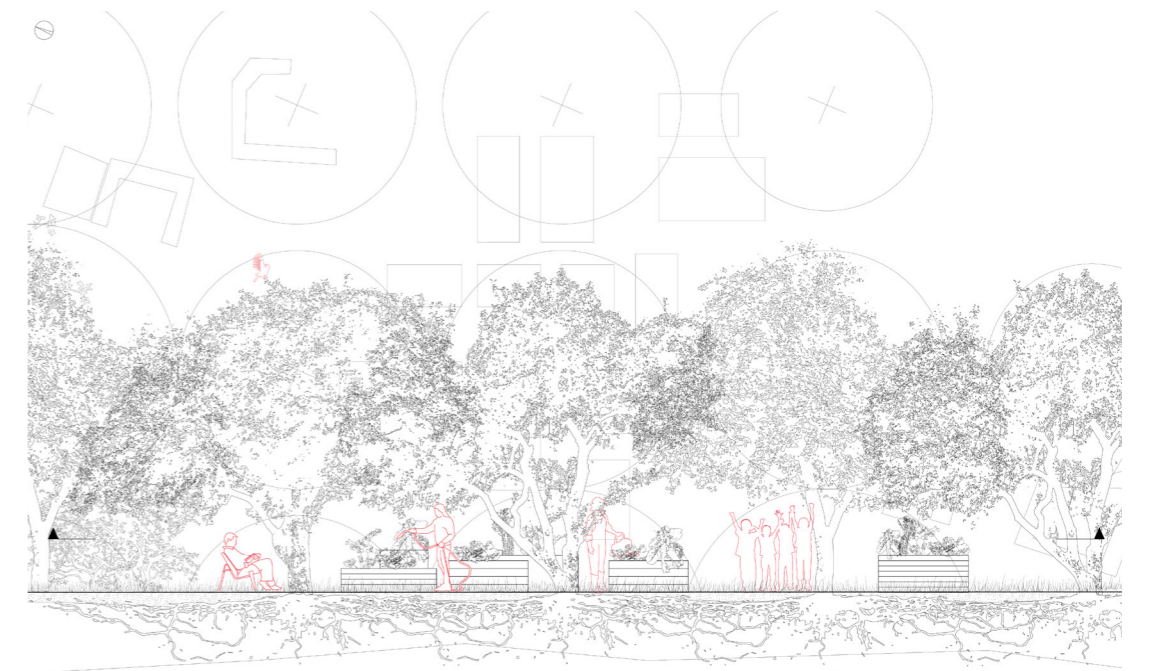
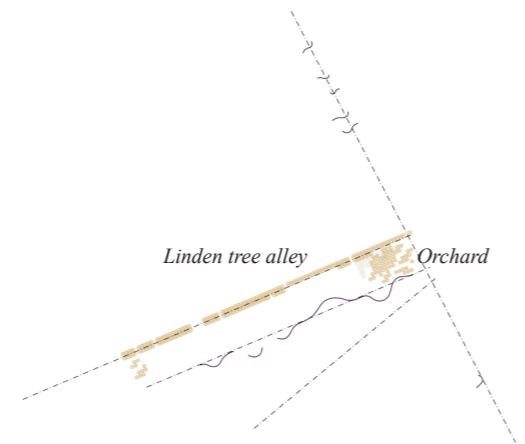
Tilia cordata, complemented with
Tilia platyphyllos (assisted migration)
Tilia vulgaris (assisted migration)

This axis is a reference to the history of the site and an echo of Linderud gård - the historical Linden tree alley which gave the farm and later the whole district its name is being picked up, and the orchard refers to the agricultural land use in the past.

Orchard

Malus domestica
Prunus domestica
Prunus cerasus
Prunus cerasifera
Rosa canina
Ribes spicatum
Rubus idaeus
Ribes uva-crispa
Sambucus nigra

Field layer:
Cichorium intybus
Leucanthemum vulgare
Anthoxanthum odoratum
Helictotrichon pratensis
Helictotrichon pubescens
Festuca ovina
Festuca rubra



Future trees - foreign or already naturalized species mixed with native species

- Quercus rubra* (assisted migration)
- Juglans regia* (assisted migration)
- Carpinus betulus* (assisted migration)
- Castanea sativa* (assisted migration)
- Sorbus intermedia* (assisted migration)
- Populus tremula* (nurse tree)
- Betula pendula* (nurse tree)
- Crataegus monogyna*
- Viburnum opulus*
- Corylus avellana*

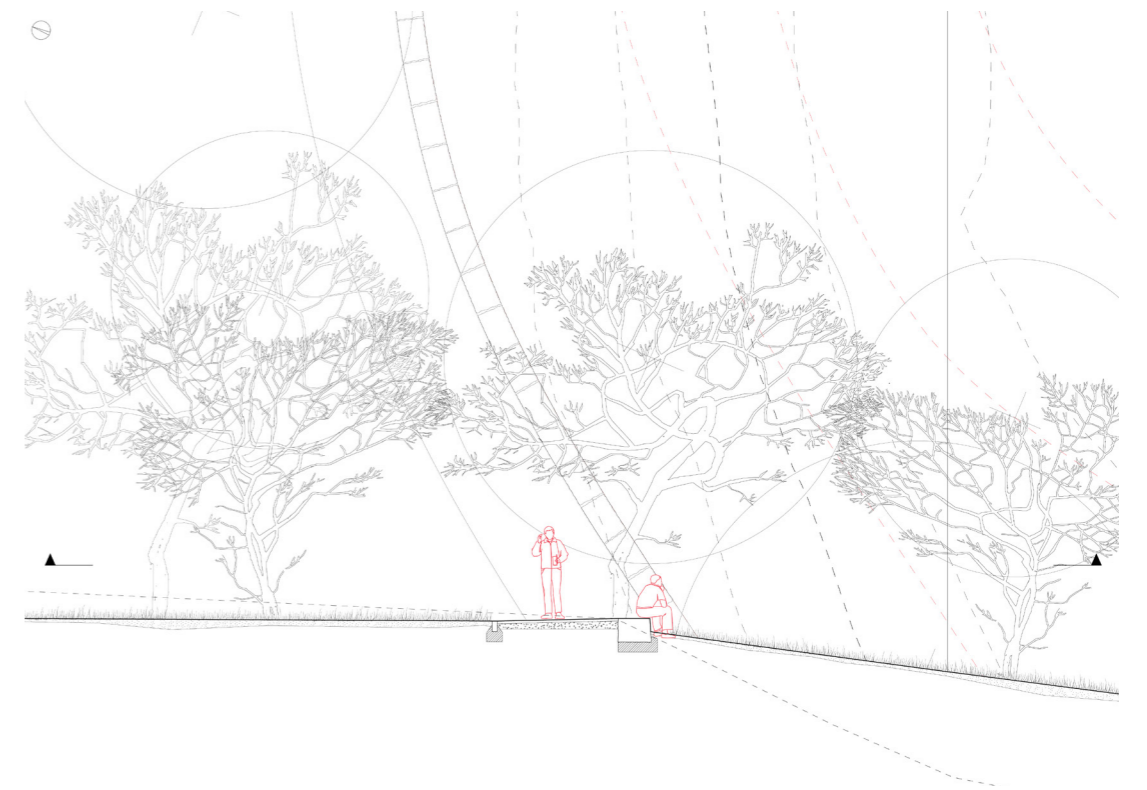
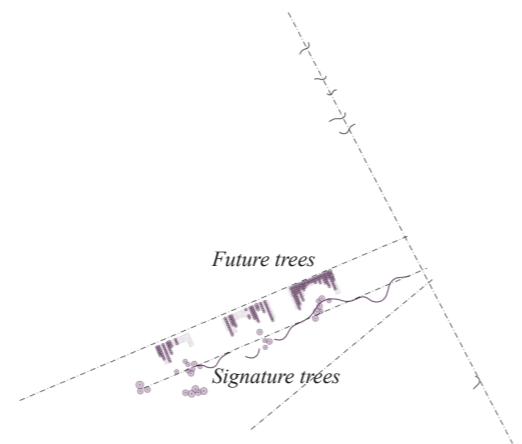
Field layer:

- Epimedium alpinum*
- Stellaria nemorum*
- Geranium sylvaticum*
- Poa nemorosa*
- Aquilegia vulgaris*
- Anemone nemorosa*

Assisted migration of species, either foreign or already naturalized, to be used broadly due to their suitability for the prospective climate in the Oslo region. A variety of stands, from pillar halls with high crowns and long trunks that allow for transparency, to dense multi-layered stands for interiority and intimacy. From the Linden tree alley, the future tree community is a sequence; sometimes transparent, allowing for looks through the long tree trunks, sometimes dense with a rich understory. The future trees are being planted young and in a close grid of 1,5 m. Being planted so close to each other, the trees develop long trunks and high crowns relatively fast. Later-succession species (Qu. rubra, C. betulus) are mixed with pioneer tree species serving as nurse trees (P. tremula, B. pendula). The plan drawing shows the trees after the first thinning, with a distance of 3 m between the trees. Exotic signature trees with remarkable features or seasonal aspects bring in a strong visual and spatial identity along the neighborhood promenade. These are planted in a bigger quality to bring a spatial effect soon after establishment.

Signature trees

- Magnolia kobus*
- Sophora japonica*
- Pseudotsuga menziesii*
- Prunus serrulata*
- Amelanchier lamarckii*



4 The low gardens

Low vegetation for an open view. Lush rain gardens serve stormwater infiltration to avoid floods where they currently occur even when the rainfall is relatively moderate, meadows between the blocks with scattered flowering shrubs frame the open and multifunctional lawns, and ecologically diverse, and along the subway tracks, wild seeming and insect-friendly vegetation can be experienced from the elevated walkway. In order to keep the maintenance low, a big variety of perennial species, herbs and grasses is being sown and mostly left to natural dynamics. Thriving species who outcompete others are allowed to do so.

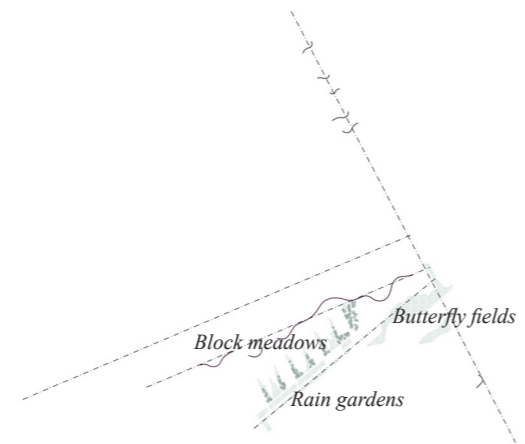
Rain gardens

- Hemerocallis hybrid*
- Iris pseudacorus*
- Juncus effusus*
- Alchemilla mollis*
- Echinacea purpurea*
- Filipendula ulmaria*
- Bistorta officinalis*
- Iris sibirica*
- Thalictrum aquilegifolium*
- Thalictrum hybride*

Block meadows

- Rosa canina*
- Amelanchier lamarckii*
- Hamamelis mollis*

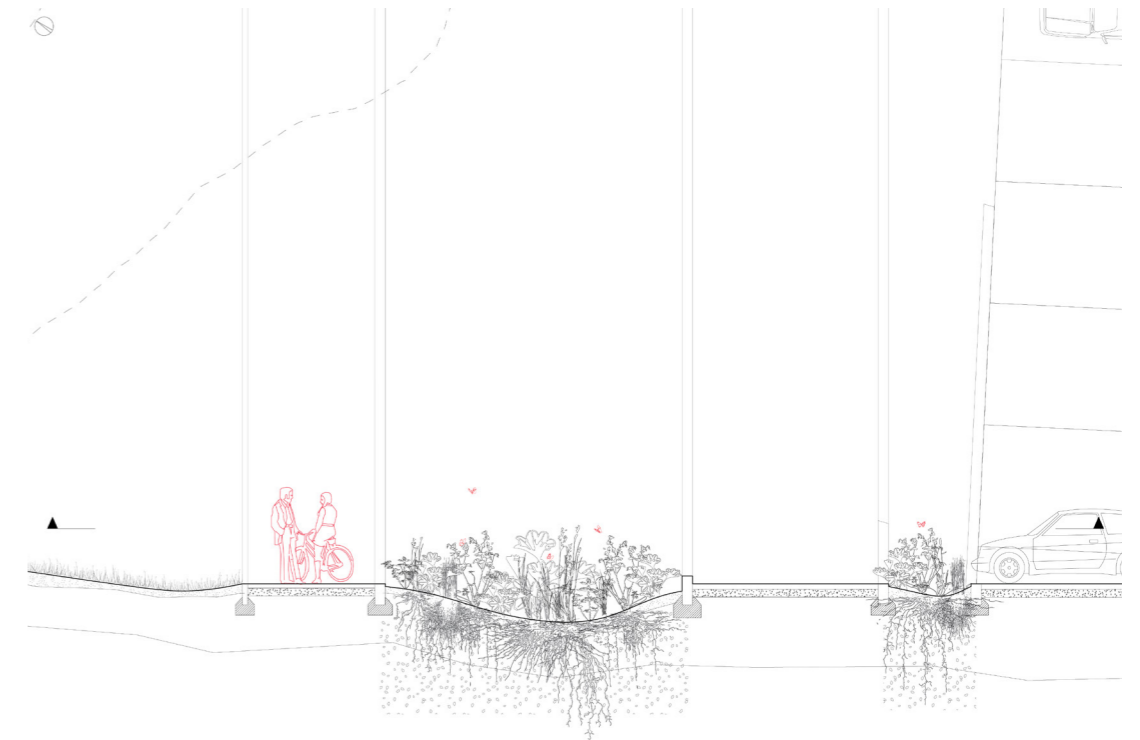
Meadow mix rich in colour and texture



Butterfly fields

- Buddleja davidii*
- Crataegus monogyna*

- Sedum telephium*
- Urtica dioica*
- Carduus marianus*
- Peucedanum palustre*
- Angelica archangelica*
- Angelica sylvestris*
- Alcea rosea*
- Humulus lupulus*
- Milium effusum*
- Molinia caerulea*
- Lotus corniculatus*
- Trifolium pratense*
- Cardamine pratensis*
- Allaria petiolata*
- Viola odorata*



On most of my visits, I explored and got to know the site through the lens of an analogue camera. The slow process of shooting on film and the careful consideration of standpoint, composition, angle and light before releasing the shutter made me look at the site in a slow, attentive manner.









Linderud

Photographic studies







Veitvetparken





The blocks of Sletteløkka frame snippets of a cross-section through the whole valley.



Linderud gård and the more than 200 year old Linden tree alley





Garages

There are a lot of garages in Groruddalen, and often they are positioned in a way that they block the view. These pictures are all taken on the project site.

Photographic studies





Sources

Byantikvaren i Oslo. 2004. Groruddalen Kulturminneatlas. Oslo.

Oppdag Groruddalen - en kulturhistorisk guide. "Linderud Gård", accessed 30.09.2022.
<http://www.oppdaggroruddalen.no/Omraader/Linderud/Linderud-gaard>

Oslo Byleksikon. "Markagrensen", accessed 15.09.2022.
<https://oslobyleksikon.no/side/Markagrensen>

Oslo Kommune. "Byøkologisk program", accessed 12.10.2022.
<https://www.oslo.kommune.no/getfile.php/131594-1456925023/Tjenester%20og%20tilbud/Politikk%20og%20administrasjon/Milj%C3%B8%20og%20klima/Slik%20jobber%20vi%20med%20milj%C3%B8%20og%20klima/Styrende%20dokumenter/By%C3%B8kologisk%20program%20for%20Oslo.pdf>

Riis Eilertsen, Maiken. "Den beste blokka på feltet. En antropologisk beboerundersøkelse om tilhørighet, eierskap og nabolagsidentitet på Linderud" (unpublished)

Steenbergen, & Reh, W. (2003). Architecture and landscape : the design experiment of the great European gardens and landscapes (Rev. and expanded ed., p. 399). Birkhäuser.

Tur, Lasse, and Neuhaus, Eli Syljeset (ed.). 2013. Groruddalen sett fra oven. Oslo.

Places Journal. "Ecology and Design: Parallel Genealogies", accessed 15.11.2022.
<https://placesjournal.org/article/ecology-and-design-parallel-genealogies/?cn-reloaded=1>

Wikipedia, "Fil:Generalplan 1950 parker og turveier s 63.pdf", accessed 19.08.2022.
https://no.wikipedia.org/wiki/Fil:Generalplan_1950_parker_og_turveier_s_63.pdf