On asphalt;
readings of the city's surface

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master thesis in landscape architecure

fall semester 2018

AHO

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"Asphalt is a landscape. In principle it is endless, for it leads us to the most distant parts.."

Hans Van Dijk, 1998

"Sense of the city, an alternate approach to Urbanism"
ed. Mirko Zardini, Lars Müller Publishers

The topic of this project is asphalt as the dominant material of the urban grounds. Uiquity of these surfaces is under discussio and Oslo is the case of study. This is a project that does not attempt to modify or cancel the characteristics of the landscape that describes but a project that explores questions of description and representation on divergent readings of a single material within the Norwegian context.

Looking at the paved surfaces of Oslo, asphalt's omnipresence is unquestionable. What is distinct of those surfaces is that asphalt appears on sidewalks. That is very characteristic of the city's image, and probably a shared practice in Nordic countries. It does though, stand out as an exception to how asphalt is commonly perceived as the paving material used for roads and parkings.

Yet, in spite of the fact that asphalt is omnipresent in daily living we fail to really see it, but we tend to look upon it. Unravelling the narrarative of a material as a catalyst for the urban and terrritorial transformation, this project by means of descriptio aims at transforming the perception of the ordinary everyday surface.

The narrative of this diploma project is unfolded through scales that examine asphalt into to three different areas:

the common ground
mineral; geological stratum
physical surface

Starting from the ‘unit’, a typical pavement, as is observed as the daily support that binds together different fragments of living that reach the city scale and the region. Next chapter explores the international, national and regional processes and material flows that asphalt is related to, as it’s extraction operation trigger political and environmental concerns. Lastly, the observation lens zooms into the physical aspects of asphalt and the life of it’s own.

In each of these chapters, short stories and mappings, supported with photographical documentation, are unfolding the narrative of asphalt and it’s impact in the Norwegian culture.

common ground

the everyday surface

one size fits all; materialisation of the welfare state

black vs white; rollerskiing on asphalt

the blue, the green and asphalt in between

all asphalt leads to Oslo

mineral; geological stratum

the mountains of Norway spread in thin layers

Swedish agent; infrastructural glue

material flow in the regio

physical surface

.under the thin pink carpet

asphalt pathologies

summertime!infrastructural face lift

wear and tear

prescious stones

ruderals; the underclass of the plant world

Below you will find some experts from the book that is part of this project, along with the exhibition and a video.

common ground

the everyday surface

A typical sidewalk in an Oslo street is two meters wide. It is wide enough for four to five adult steps to walk over it, for a couple to cross one coming from the opposite direction, for a parent to push a twin stroller along. Different trajectories that are regularly planned are randomly interesecting.

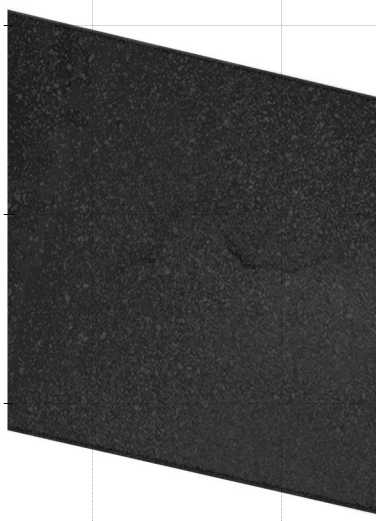
From the sidewalk, asphalt spreads into the courtyard. It covers the distance between the building facades and defines the spaces for social encounter. Footsteps and wheel strokes are laid with comfort on the surface that enters the courtyard. Asphalt generously strokes around the perimeter of the housing block. It spreads until the doorsteps to support the feet and daily routines of its residents.

On this surface daily life happens. The first step outside lands on an asphalt surface. The morning drizzle

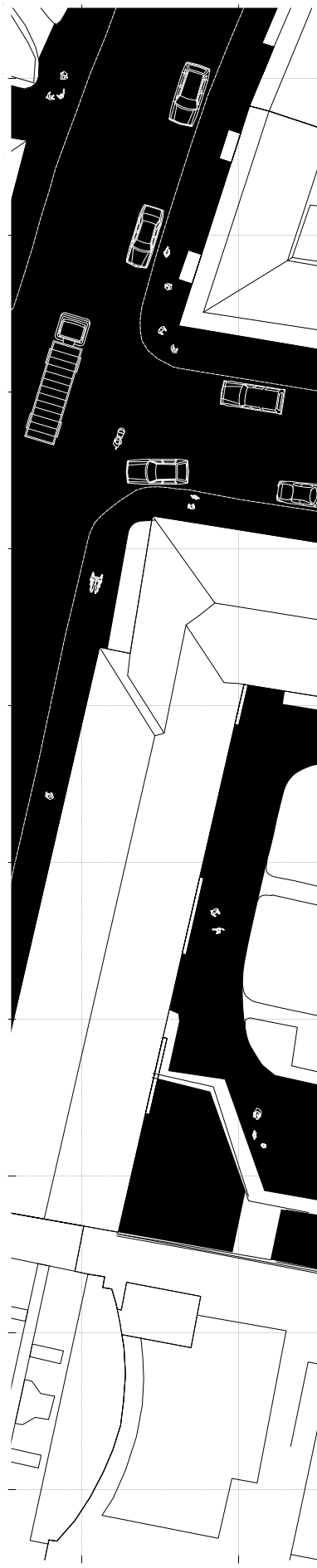
didn’t wash off yesterday’s chalk drawings. Asphalt paves the way to the garbage disposal shed, to the bike stand inside the courtyard, to the new shared bikes the municipality recently added in the street, to the bus stop around the corner. A few meters next to the wooden benches, stands the bicycle parking. But the neighbor today, decided to try the to the neighborhood next to the bus station. He sees the postman pushing the red wheel cart with the same easiness that himself rides on the smooth surface.

Asphalt transcends the mobility network and conquers playgrounds, courtyards, schools and platforms. The dark layer of matter binds these dispersed fragments of evryday living into a single unit and ensures homogeneous conditions of access for all activities, across scales.

Asphalt is the common ground.

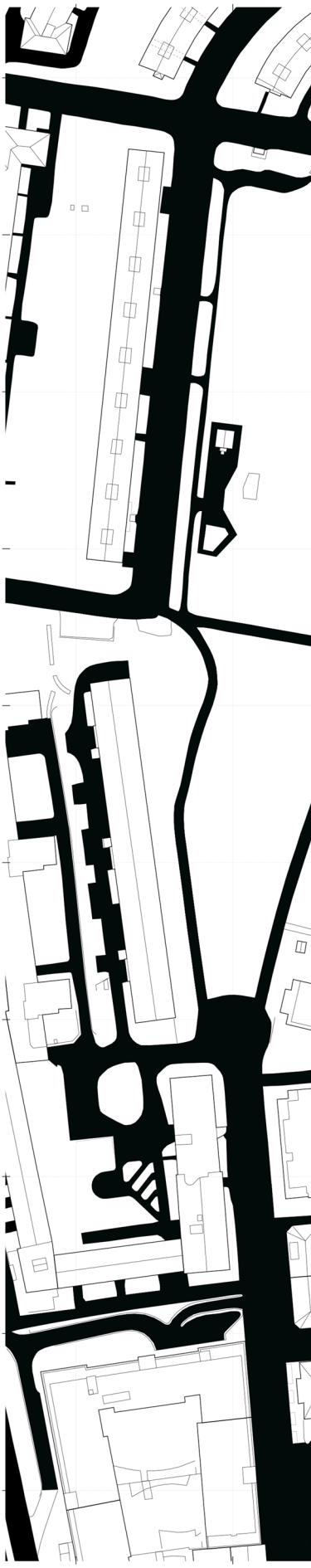



0
2.5 m
N




0
12.5 m


0
25 m
N




0
50 m
N


0
75 m
N

black vs white;
rollerskiing on asphalt

Rising over the city's skyline and sitting on the foothills of Marka, the 64 meter tall ski jump is the symbol of Norwegian love for winter sports. Ever since the end of the 1800s, Holmenkollen and the surrounding area have drawn large crowds of Norwegians every winter.

But now, the national pride is under threat by warming winter that shorten the cross-country skiing season. Shorter winters and decline in snow coverage reduced the number of days that one could slide on the white slopes of Holmenkollen.

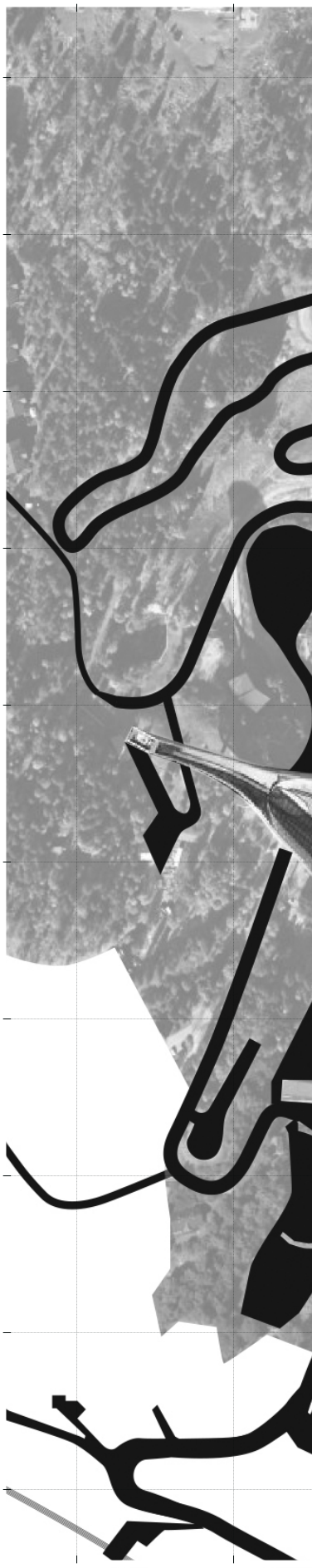
Roller-skiing on asphalt is the closest experience to cross-country skiing. Asphalt's ability to reduce friction, coupled with its draining properties allow for ski enthusiasts to practice their sport even when the snow is gone.

The Ministry of Culture in collaboration with the Norwegian Ski Federation provides a design and construction manual for roller-ski lanes that safeguards the national sport and extends training days whole year round.

A five kilometre long asphalt lane is unrolled on the hilly terrain of Holmenkollåsen. It loops around the undulating topography that allows for the controlled descent, the glide on a gentle hill, the climbing to steeper grades. Gravity and momentum are worked out almost as a physics experiment.

On dry summer days, skiers enjoy training theirs skills and techniques on highly engineered and designed surface for endurance and competence. It is a game of control, an oscillation between acceleration and resistance.

Asphalt comes to the rescue supporting and extending the practice and interest of skiing whole year round.




0
375m
N

Screenshot taken from the video: “Opplev Oslo - rulleski i Holmenkollen” published by The Agency for Urban Environment in YouTube, 3 July 2015

Pictue as found in the gallery colection “Opplev Oslo - rulleski i Holmenkollen” published by The Agency for Urban Environment

"We all want heaven , and we all want to get there smoothly and comfortably"

*Douglas Coupland**

*as found in "Sense of the city, an alternate approach to Urbanism" edited by Mirko Zardini, Lars Müller Publishers (1 October 20059) page 208

"...it is asphalt that defines and characterizes the surface, the void, the interval, the distance, the real concepts on which the territory is configured."

*Mirko Zardini**

"The Second Crust", https://www.cca.qc.ca/en/issues/24/into-the-material-world/41279/the-second-crust

mineral;
a geological stratum

Seen from the spectrum of landscape architecture that has

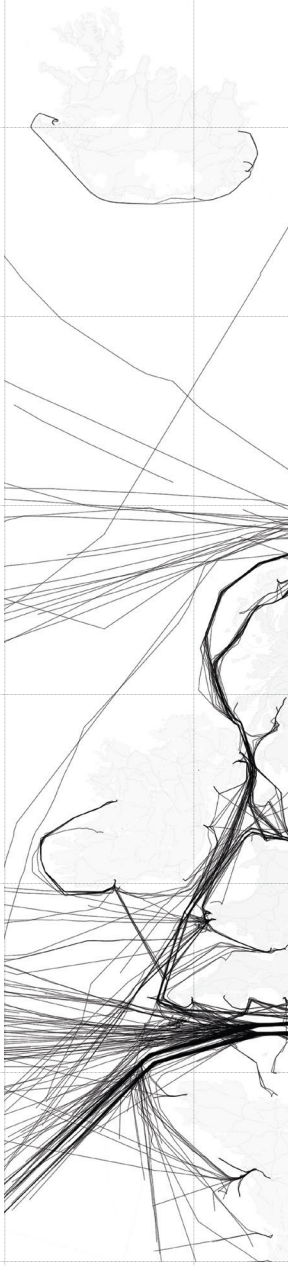
"*traditionally been defined as the art of organised horizontal surface [...] distinguished by its material and performative characteristics"*

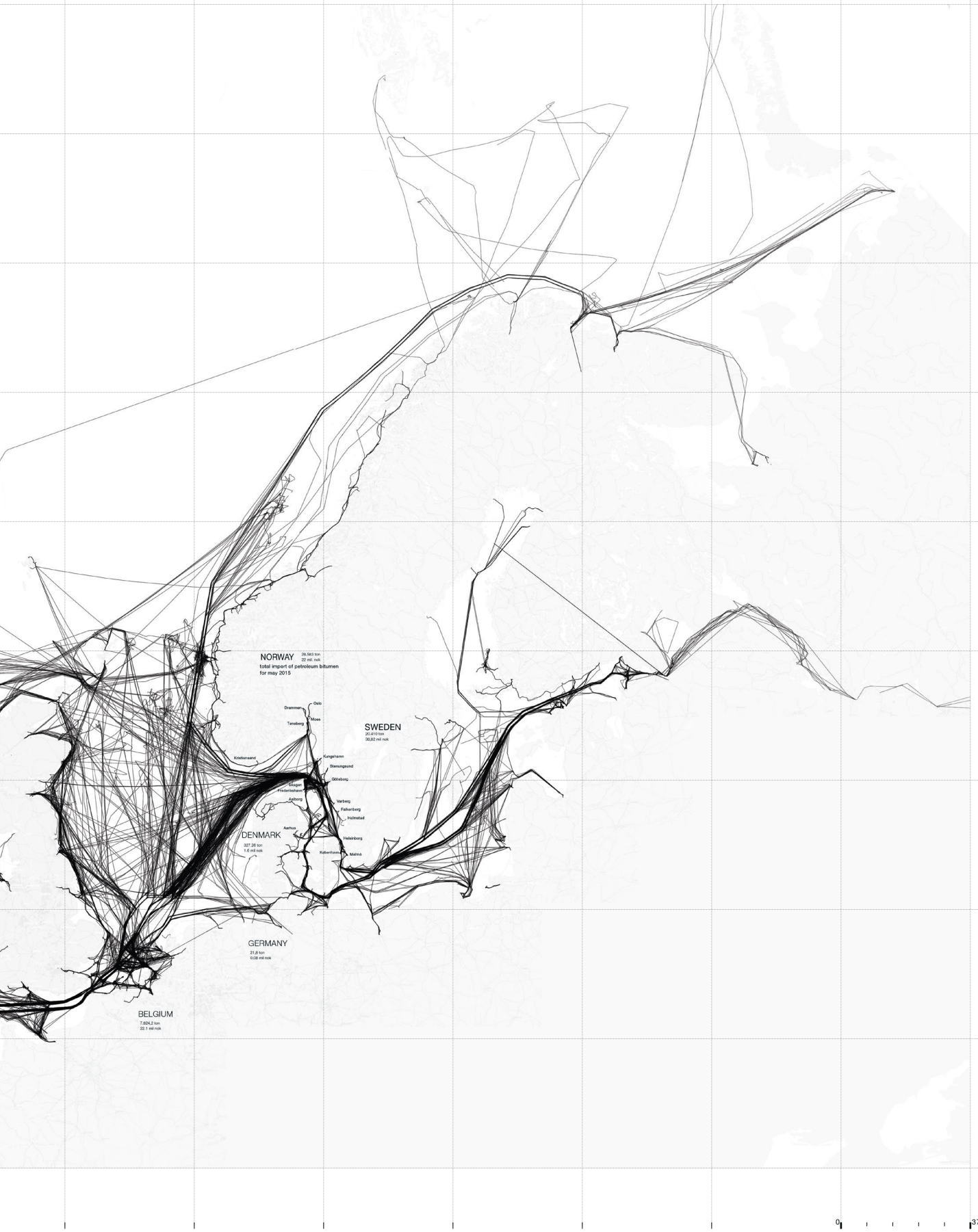
asphalt's mineral ubiquity on the horizontal plane gains greater attention.

[*]Stan Allen in "Mat Urbanism: The thick 2-D", in Hashim Sarkis, (a cura di), CASE: Le Corbusier's Venice Hospital, Munich: Preste, 2001

mineral; a geological stratun

The scarce substance arrives in Norwegian ports by sea vessels, imported from countries of Northern Europe. Sweden has been consistently shipping throughout the years the precious binder that glues local rocks into a seamless operating surface.




NORWAY
26.563 ton
22 mil. nok
total import of petroleum bitumen
for may 2015
Oslo
Drammen
Moss
Tønsberg
Kristiansand
Stavanger
Fredrikshavn
Ålborg
Aarhus
DENMARK
327.26 ton
1.6 mil nok
Kobenhavn
Malmö
Helsingborg
Hulmstad
Varberg
Falkenberg
Göteborg
Stenungsund
Lysekil
SWEDEN
20.410 ton
30,82 mil nok
GERMANY
21,8 ton
0,08 mil nok
BELGIUM
7.824,2 ton
22,1 mil nok

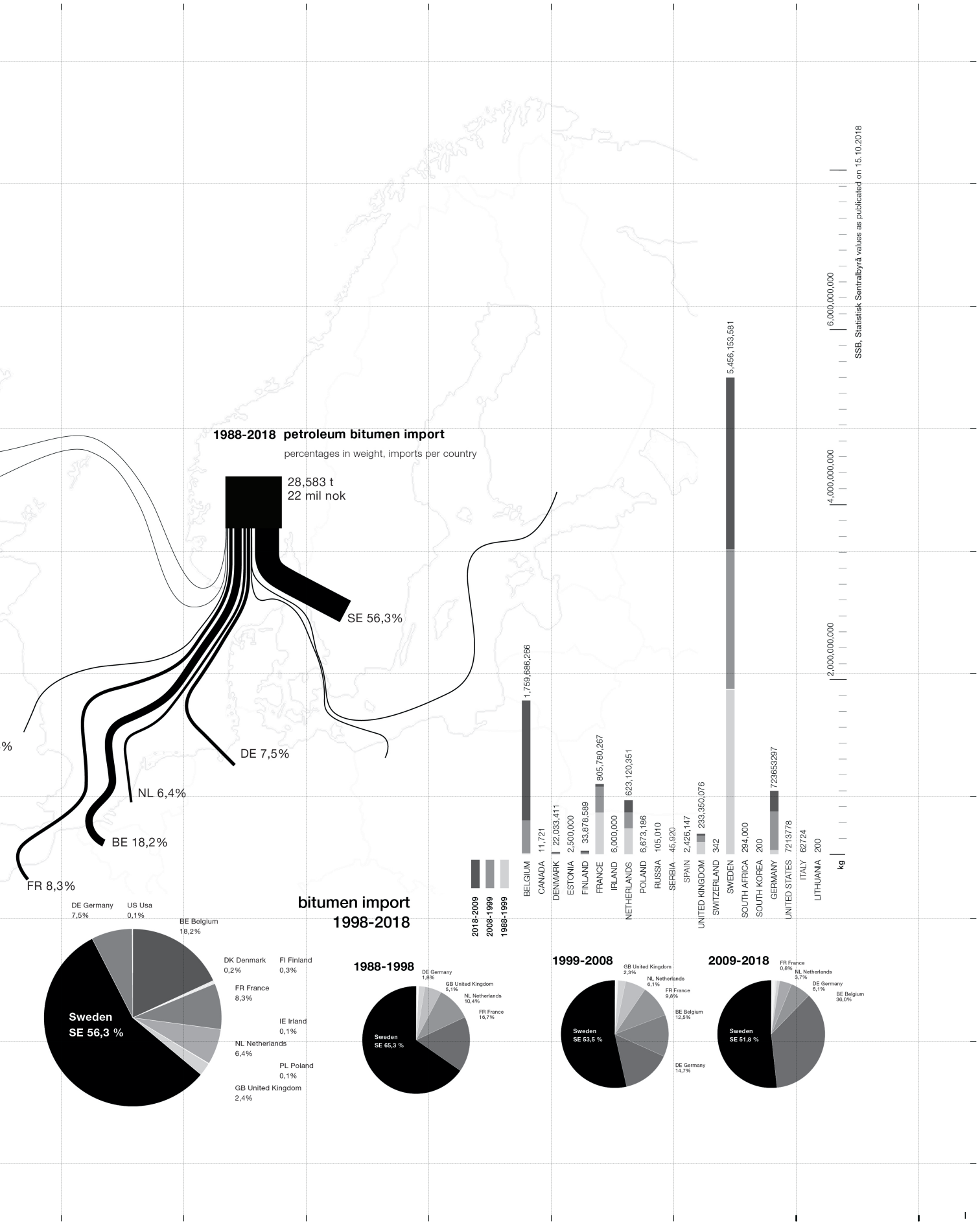
0 375 km N

Almost 60% of the total imported bitumen of the past three decades*, is refined in Gothenburg, from crude oil that arrives in Sweden from other countries. Pumped directly from the refinery and via a network of heated pipes in 170°C, bitumen easily flows on board.

The vessel carries in its 110-meter long heated body 6000 m^3 of cargo. It sails at 12 knots and within 12 hours it arrives in Drammen and Oslo, ready to deliver through the same ritual of heated pipes the flowing bitumen to the depots sitting on land.

The same repetitive patterns bind Norway and Sweden with bonds of material dependence and economy. They are not unconfined in form and shape as liquids, neither rigid and defined as solids. They are as viscous as the bituminous cargo in vessels that flow in the heavily trafficked waters of Skagerrak. They add cohesion on the economical and cultural network that has been connecting these countries for years.

*Percentages extracted from data received by SSB, Statistics Norway, about bitumen import for the past three decades.


1988-2018 petroleum bitumen import
percentages in weight, imports per country
28,583 t
22 mil nok
SE 56,3%
DE 7,5%
NL 6,4%
BE 18,2%
FR 8,3%
%
2018-2009
2008-1999
1988-1999
BELGIUM 1,759,686,266
CANADA 11,721
DENMARK 22,033,411
ESTONIA 2,500,000
FINLAND 33,878,589
FRANCE 805,760,267
IRLAND 6,000,000
NETHERLANDS 623,120,351
POLAND 6,673,186
RUSSIA 105,010
SERBIA 45,920
SPAIN 2,426,147
UNITED KINGDOM 233,350,076
SWITZERLAND 342
SWEDEN 5,456,153,581
SOUTH AFRICA 294,000
SOUTH KOREA 200
GERMANY 723653297
UNITED STATES 7213778
ITALY 62724
LITHUANIA 200
kg
6,000,000,000
4,000,000,000
2,000,000,000
SSB, Statistisk Sentralbyrå values as publicated on 15.10.2018
bitumen import
1998-2018
DE Germany 7,5%
US Usa 0,1%
BE Belgium 18,2%
DK Denmark 0,2%
FI Finland 0,3%
FR France 8,3%
IE Irland 0,1%
NL Netherlands 6,4%
PL Poland 0,1%
GB United Kingdom 2,4%
Sweden SE 56,3 %
1988-1998
DE Germany 1,8%
GB United Kingdom 5,1%
NL Netherlands 10,4%
FR France 16,7%
Sweden SE 65,3 %
1999-2008
GB United Kingdom 2,3%
NL Netherlands 6,1%
FR France 9,8%
BE Belgium 12,5%
DE Germany 14,7%
Sweden SE 53,5 %
2009-2018
FR France 0,8%
NL Netherlands 3,7%
DE Germany 6,1%
BE Belgium 36,0%
Sweden SE 51,8 %

mineral; a geological stratun

material flow in the region

Extraction sites, asphalt plants, waste treatment facilities and transport are spatial processes that take place within reach; they are operations that are challenged by long distances.

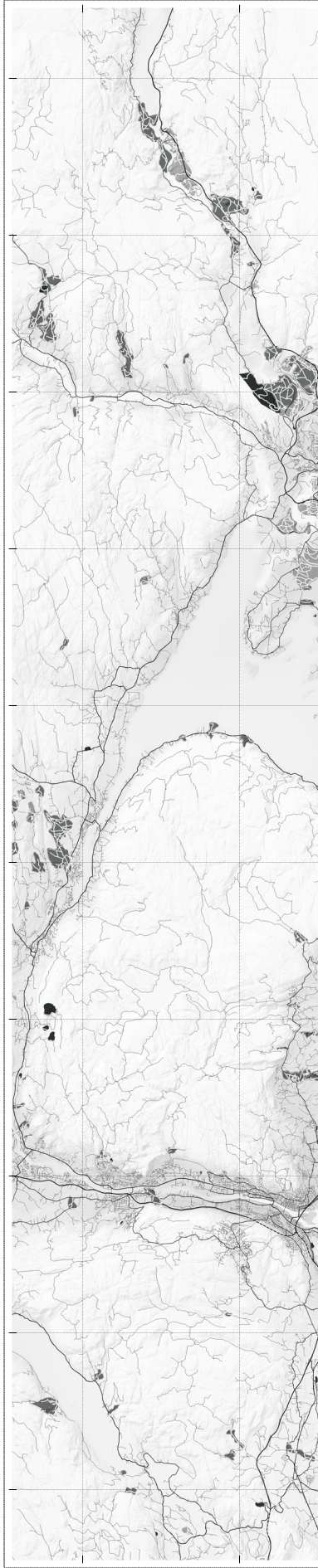
Aggregate resources, whether quarries, open pits, or facilities of recycled materials and industrial by-products, are more sustainable when in proximity. Asphalt plants are usually located nearby extraction sites, together with waste disposal for storing and treating masses from demolition or excavation processes. Bitumen arrives from the coastal depots.

Shorter distances of crushed stone, gravel and sand reduces energy consumption, traffic and carbon dioxide emissions. If the distance is more than 30-40 kilometres from the extraction site, then transportation cost of those heavy masses is higher than their actual price.

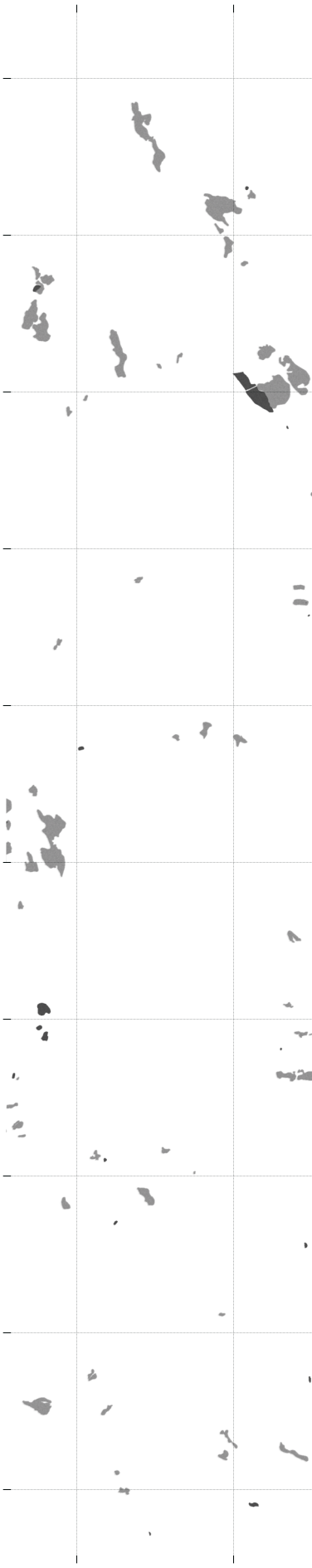
Current growth Oslo sees together with population projection increases the need for construction materials and better management of building masses. It is estimated that 340 Mt of aggregates will need to be extracted, processed and transported in order to sustain the population projection until the year 2040.

Oslo's own capacity in gravel, sand and hard rock extraction cannot sustain its growth which makes it materially dependent on the neighbouring regions of Reducing them into territories of extraction increases political pressure in the region.

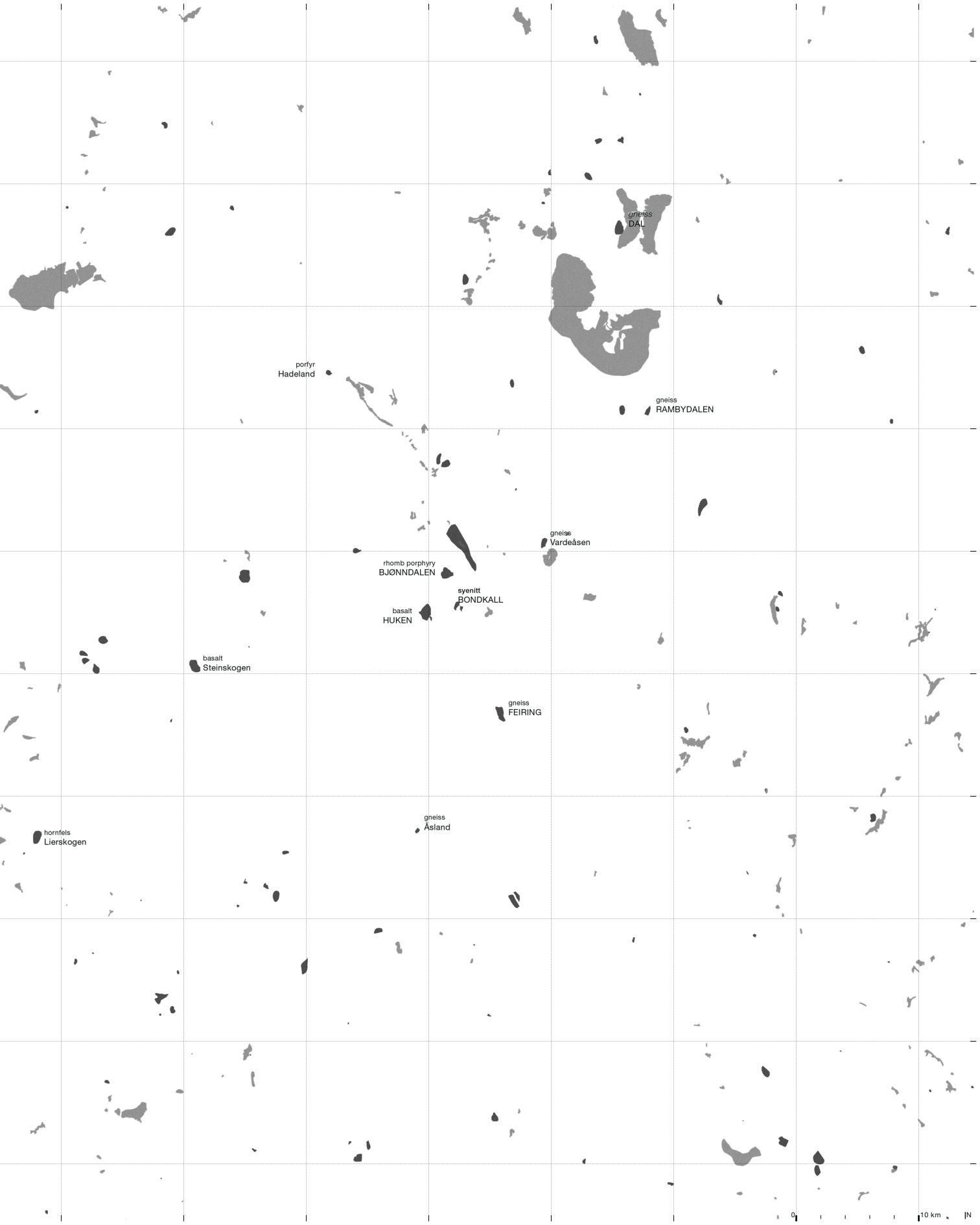
A mapping project of resources was initiated by NationalGU (open up the acronym?) to ensure access to local aggregates. This provides information about the capacity of deposits and their qualities, and for what building purposes those masses are suitable. This registration can offer better planning when it comes to building processes and can be used to prepare an analysis of future needs for building materials.




gneiss
DAL
porfyr
Hadeland
gneiss
RAMBYDALEN
gneiss
Vardeåsen
rhomb porphyry
BJØNNDALEN
syenitt
BONDKALL
basalt
HUKEN
basalt
Steinskogen
gneiss
FEIRING
gneiss
Åsland
hornfels
Lierskogen
0
10 km
N



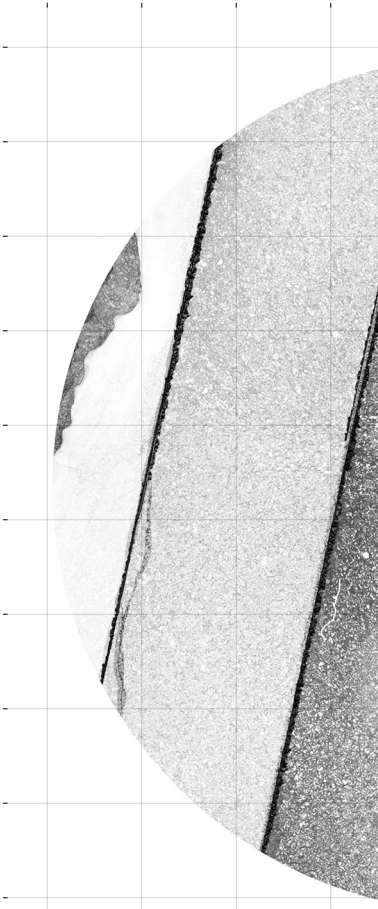
Resources of sand, gravel and hard rocks with the most important sites and stones.

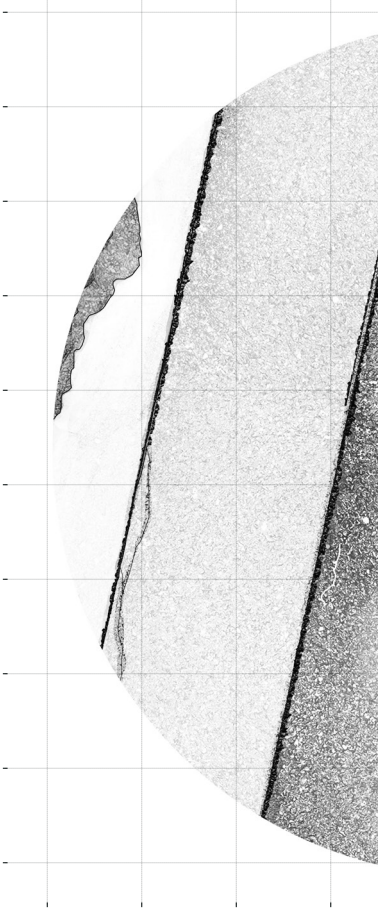

gneiss
DAL
porfyr
Hadeland
gneiss
RAMBYDALEN
gneiss
Vardeåsen
rhomb porphyry
BJØNNDALEN
syenitt
BONDKALL
basalt
HUKEN
basalt
Steinskogen
gneiss
FEIRING
gneiss
Åsland
hornfels
Lierskogen
0
10 km
N

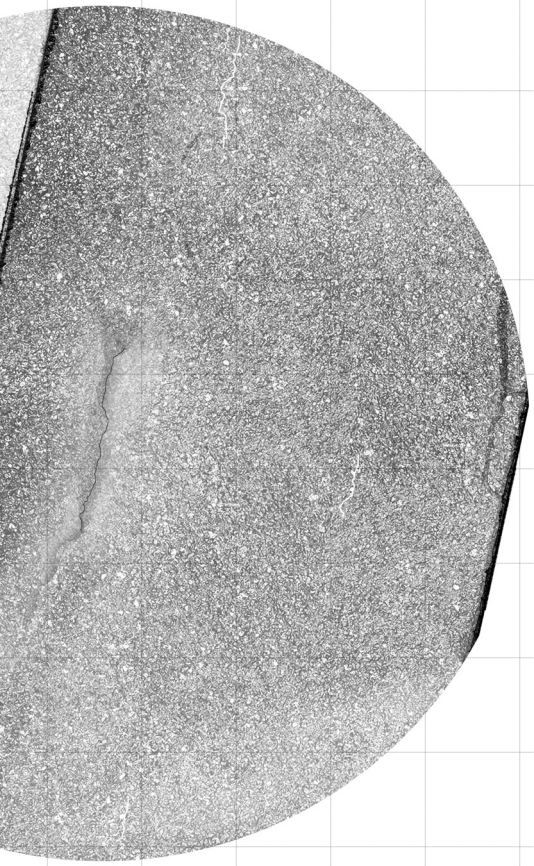
physical surface

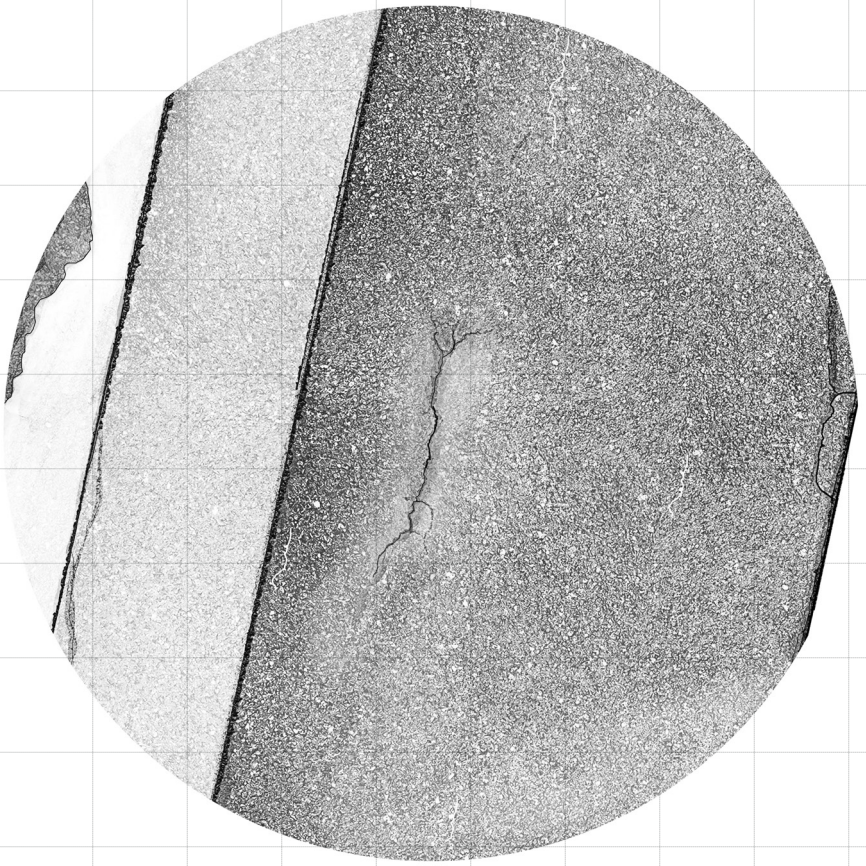
wear and tear

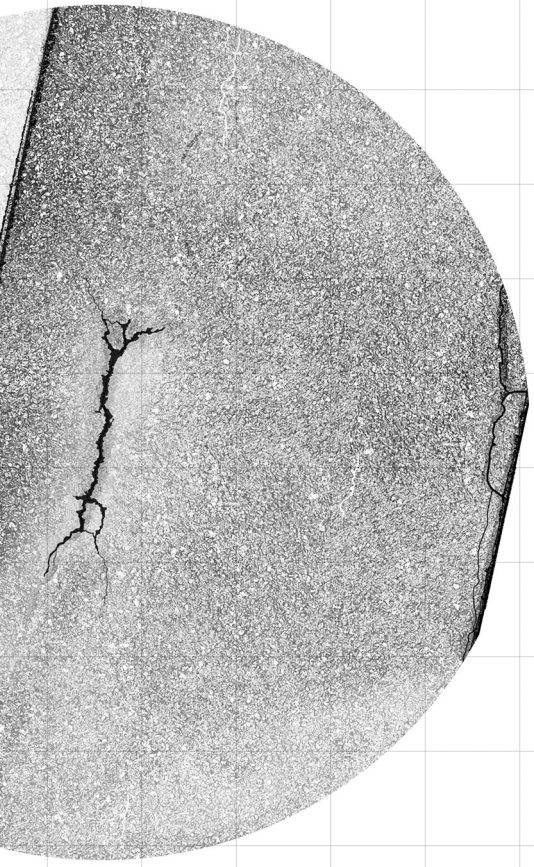
In normal wear and tear, sunlight and oxidation bitumen's properties start to be affected. The surface colour fades from black to grey and adhesive qualities become weaker. Daily friction, heat and moisture on the surface accelerate this process. The asphalt starts to crack. In the beginning this is not visible, but as water flows into the cracks, freezes and expands, it tears bigger fractures into the surface. These fractures are noticeable and tangible. If not fixed at an early stage, and due to heavy loads, a pattern of interlaced cracking in the asphalt layer occurs that resembles the hide of a crocodile. This leads to loss of particle interlock and subsequent loss of large chunks of asphalt, creating potholes on the surface.

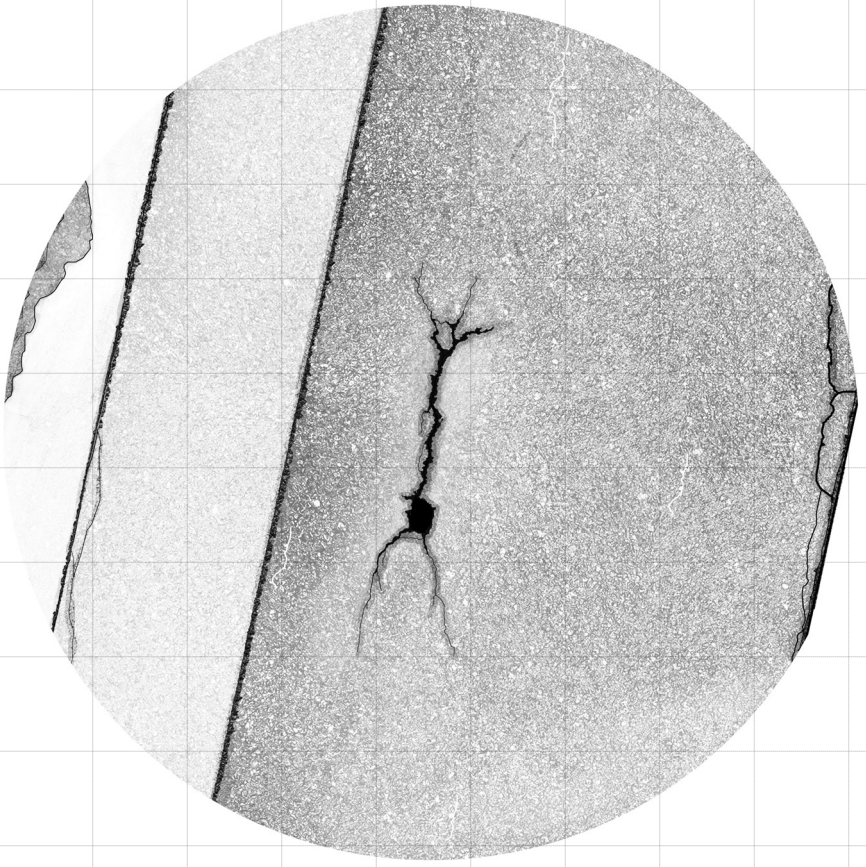








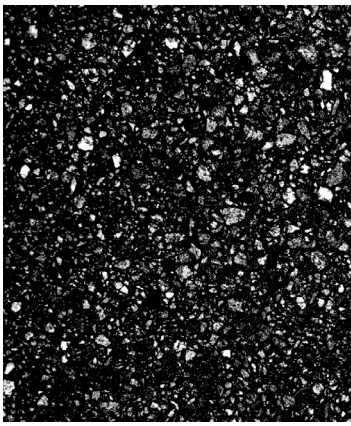


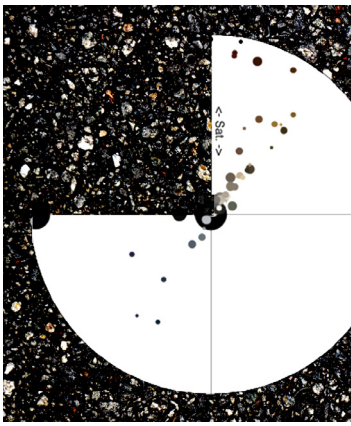


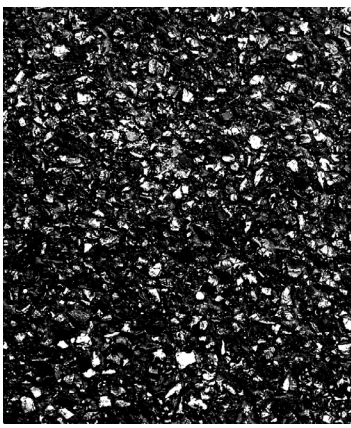
precious stones

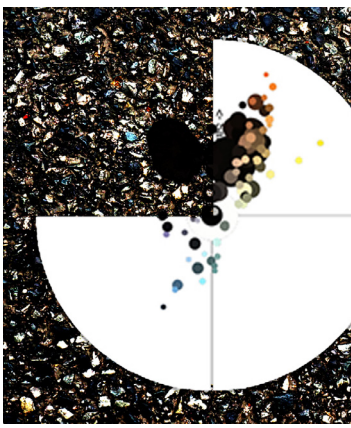
The texture of the surface alters gradually. Flakes and loose material are displaced. Sharper edges, shapes and sizes of aggregates start to reveal. Observing form this distance the texture is rough, not smooth. It is an irregular microtopography, of hollow and convex, composed from the smallest granulate up to thirty millimetre grain. In sunlight, these cavities are dry. In the shadow, morning mist slowly turns into moss and lichen that grow on dark edges and expand on undisturbed surfaces.

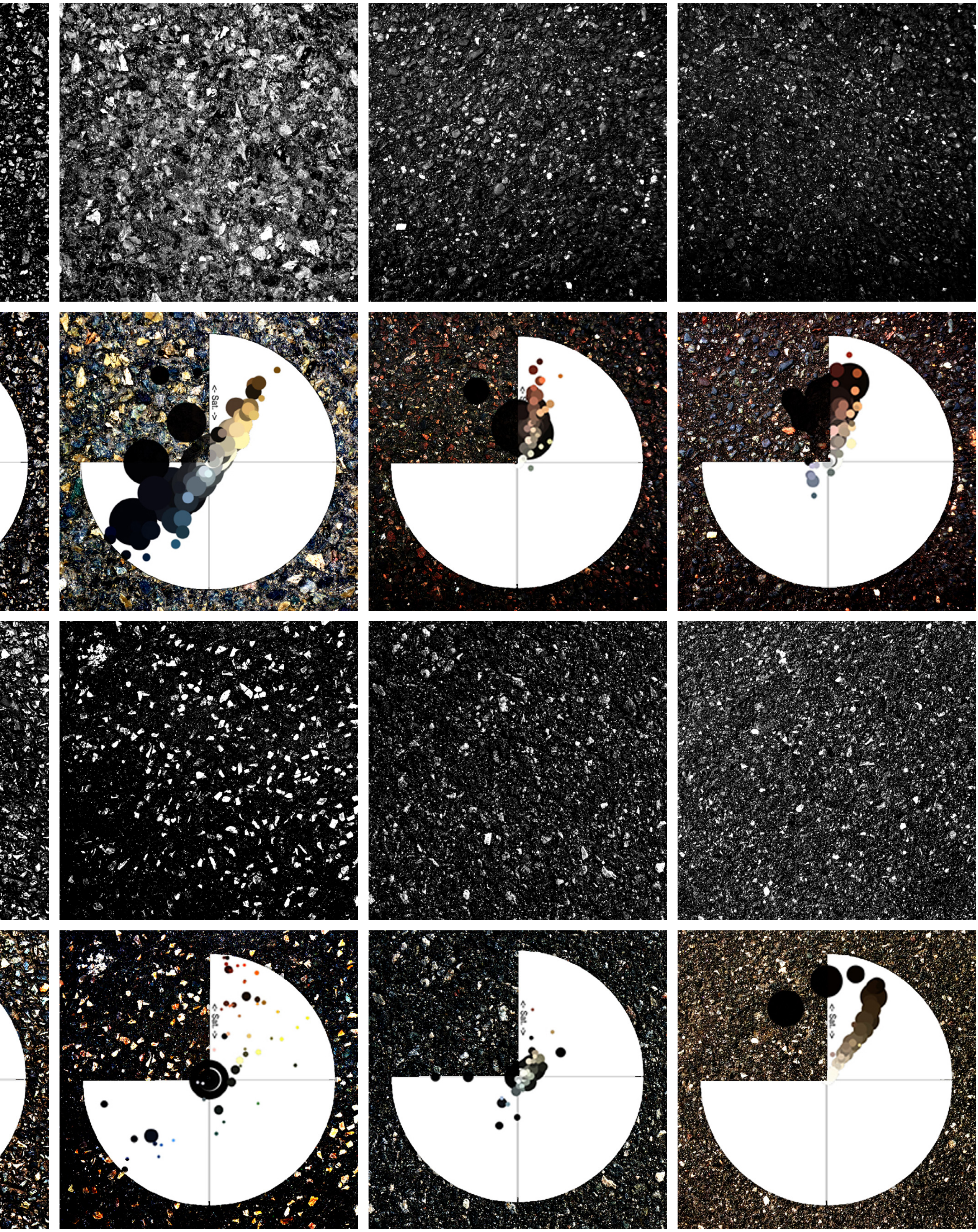
On faded greys get irregular spots of brown, red, dark greens, lighter greys and more glimmer. Aggregates of different origin can be identified and an expert eye could probably trace them back to the sites of extraction, or even in the exact geological strata of Oslo Grabe they belong to.







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