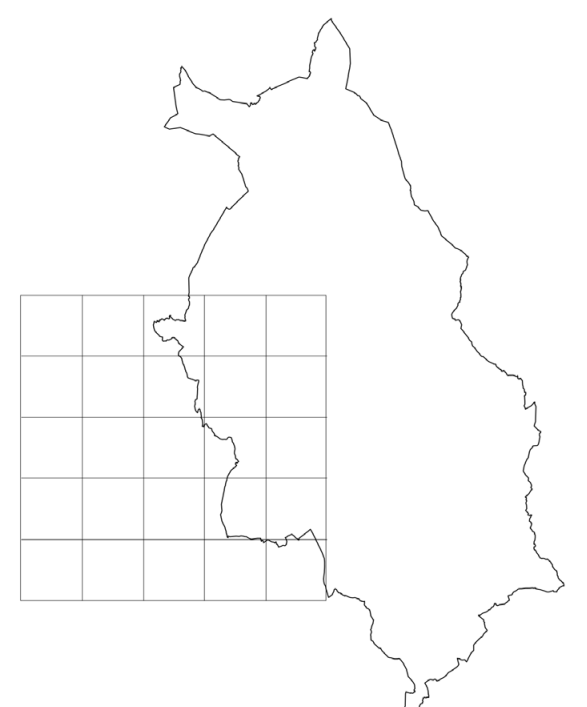
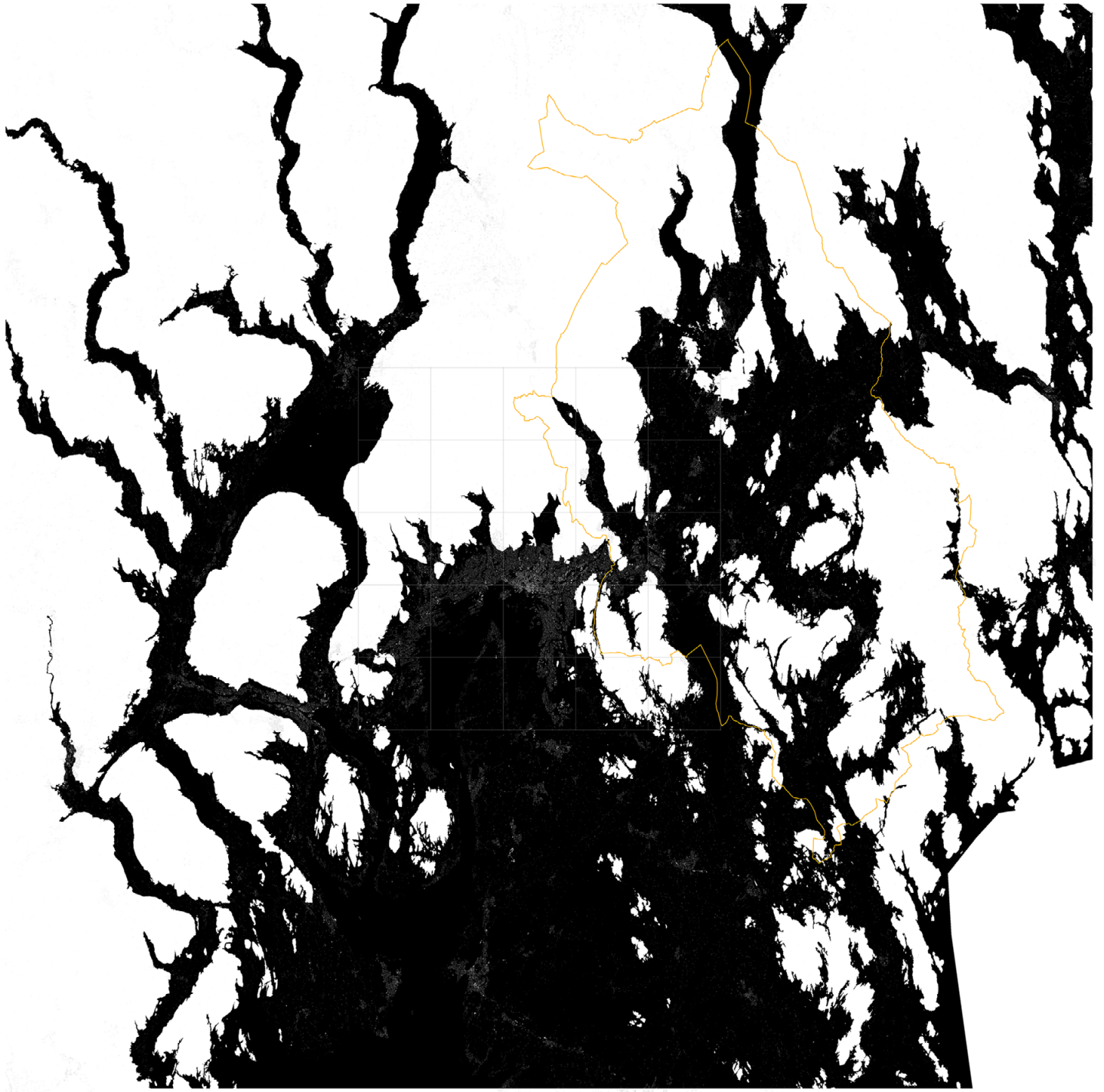


GREATER METROPOLITAN REGION OF OSLO – OCCUPATION

Sources: Geovekst

 Building

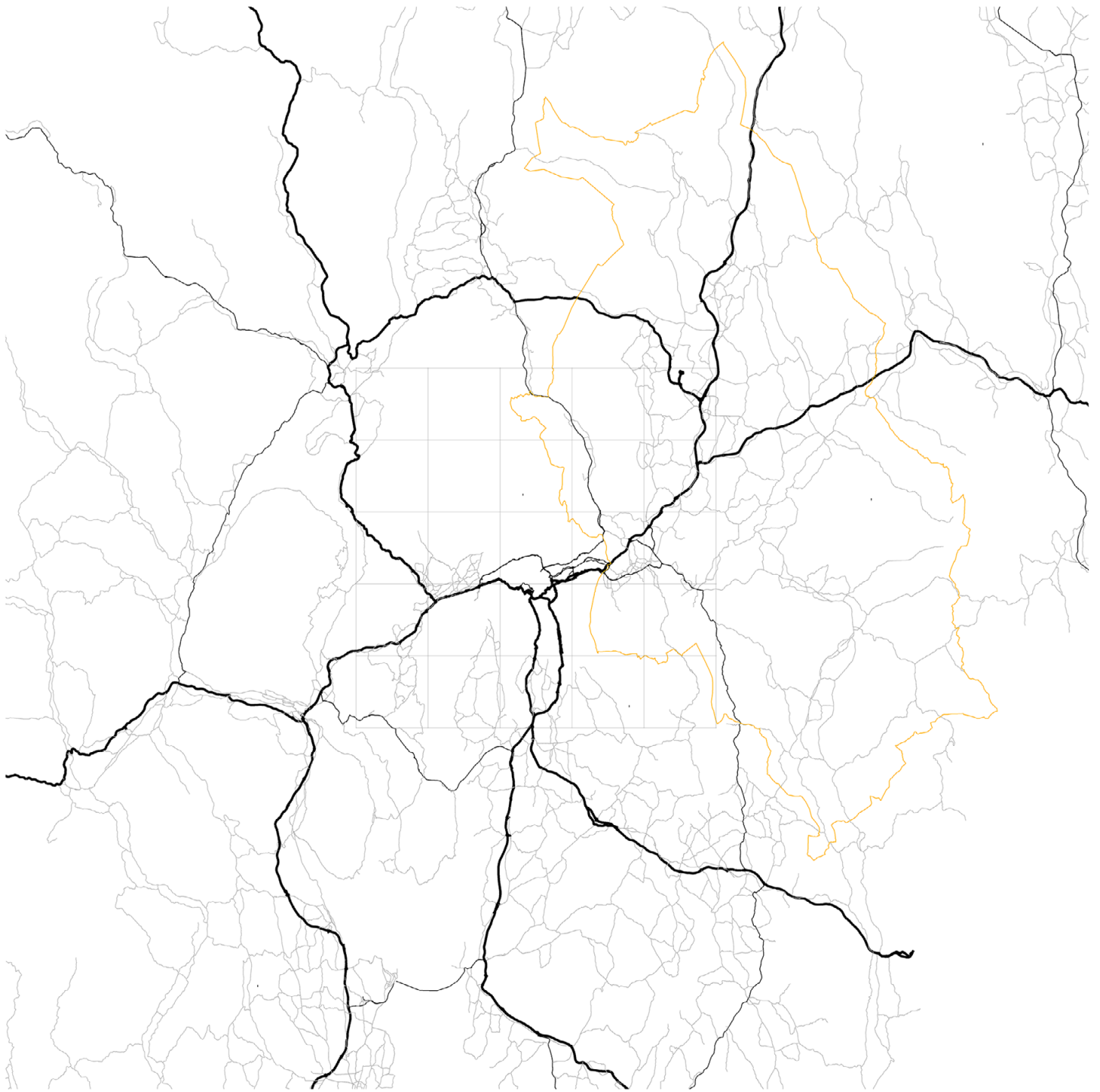




GREATER METROPOLITAN REGION OF OSLO – OCCUPATION

Sources: Geovekst, NGU

-  Romerike region
-  Building
-  Marine border



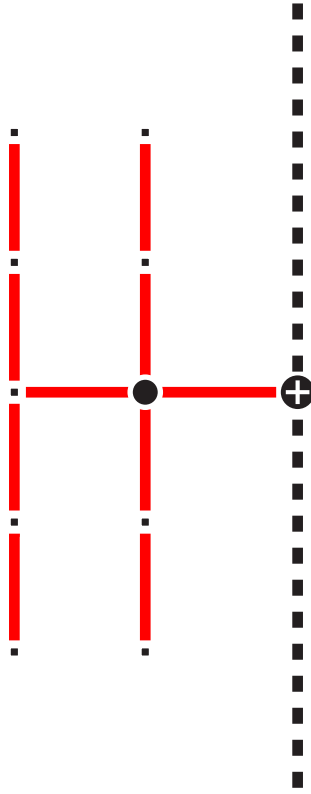
0 50 Km



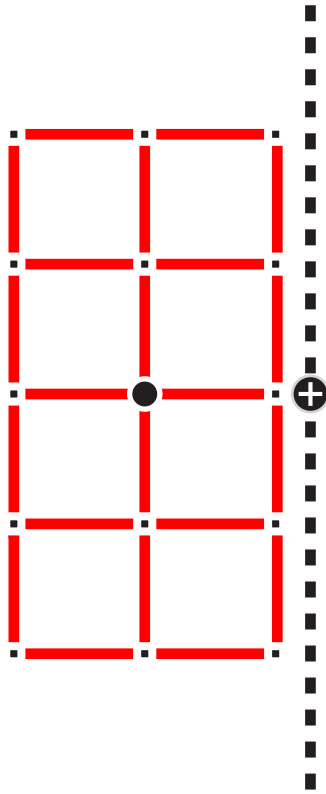
GREATER METROPOLITAN REGION OF OSLO – ROAD NETWORK





Sources: Geovekst, Vegvesenet

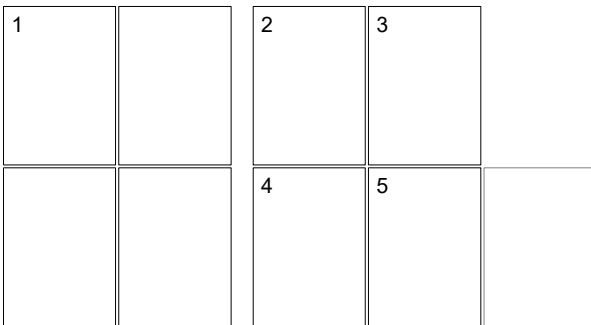
-  Romenike region
-  Europaveg
-  Riksveg
-  Fylkesveg



- LOCAL CENTER
- ⊕ RAILWAY NODE
- ■ FAST NETWORKS (RAILWAY / FREEWAY)
- EXISTING TRAFFIC NETWORK (HIERARCHICAL)



-  LOCAL CENTER
-  RAILWAY NODE
-  FAST NETWORKS (RAILWAY / FREEWAY)
-  PROPOSED NETWORK (ISOTROPIC AND MULTIFUNCTIONAL)



1 THE DISPERSED OSLO METROPOLIS

The greater metropolitan region of Oslo is characterized by a dispersed settlement structure – referred to as a norwegian ‘*Città Diffusa*’¹. Among the spread structures are villages, towns and patches of detached houses in vast areas of agricultural land.

The region has a population of approx. 1.5 m, and includes Oslo municipality, Akershus county, and several municipalities in the counties of Buskerud, Oppland, Vestfold and Østfold. The region has a shared work- and housing market with Oslo. The work market largely gravitates towards Oslo.

2 OCCUPATION LAYER

The agricultural landscape occupies the areas of marine depositions (black) originating from the end of the last ice-age, approx. 9500 years ago. In this period, the land was covered by the ocean, and as the ice cap

retreated, the land slowly rised, exposing rich, fertile soil consisting of clay, silt and sand.

3 ROAD NETWORK

The road network is characterized by a hierarchical structure, with Oslo as a dominant element.

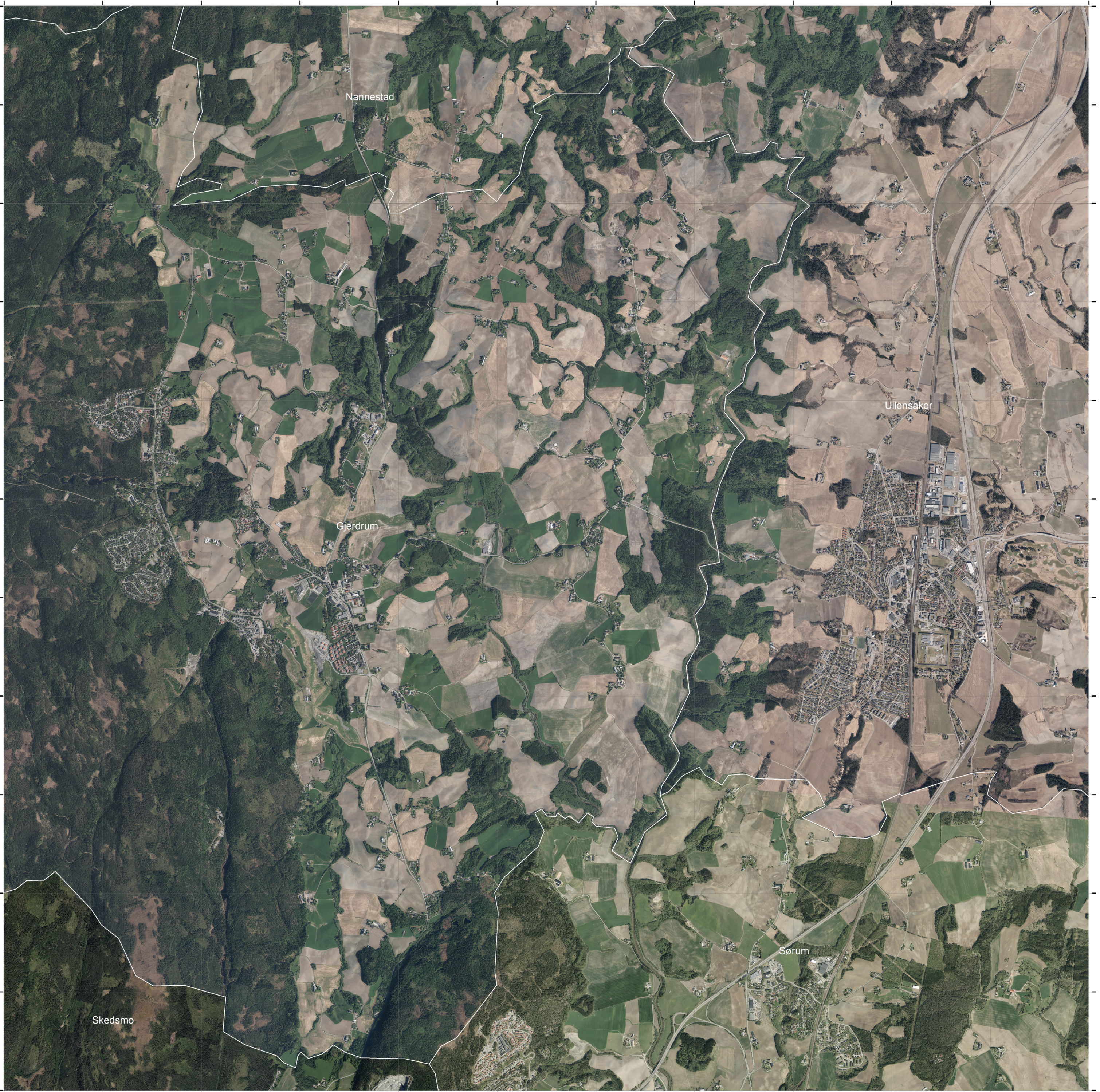
4 PROBLEMATICS

The current model of mobility is characterized by a hierarchical network structure and a relatively low level of connectivity. This results in slow public transport and congested roads.

5 HYPOTHESIS

Proposed model of mobility. An isotropic – or mesh-like – network structure has a higher degree of connectivity, and could facilitate a public transport system with fast and dynamic routing of autonomous vehicles.

¹ Ellefsen, K.O., ‘Città diffusa - den nye urbane tilstanden’, *Morgenbladet*, 5 November 1999, <https://morgenbladet.no/1999/11/citta-diffusa-den-nye-urbane-tilstanden>, (accessed 24 April 2017).

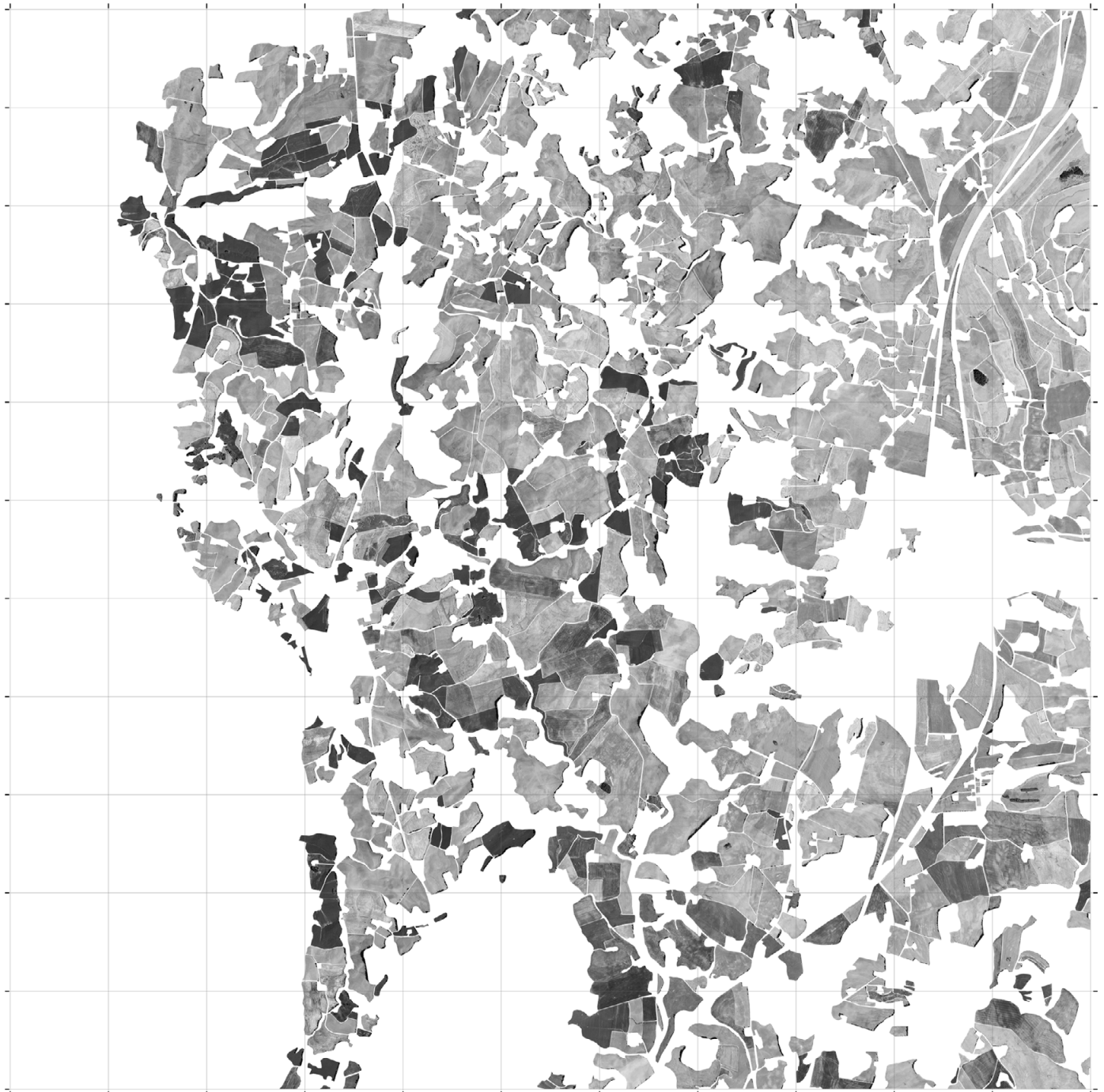


0 1 Km



GJERDRUM - KLØFTA, STUDY AREA

Source: Kartverket, Geonorge

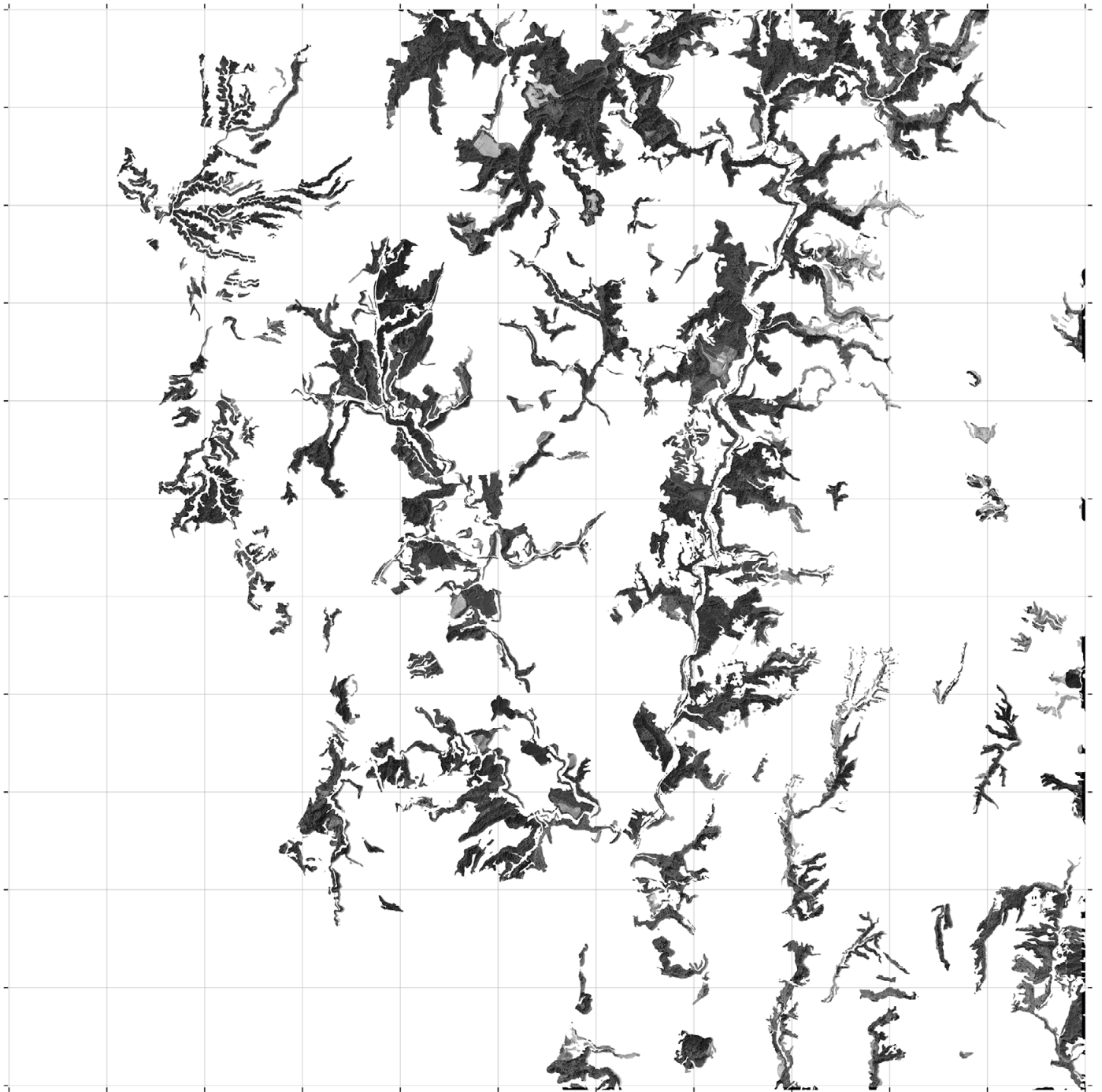


0 1 Km



GJERDRUM - KLØFTA, AGRICULTURAL FIELDS

Source: Own mapping



0 1 Km

GJERDRUM - KLØFTA, GULLIES

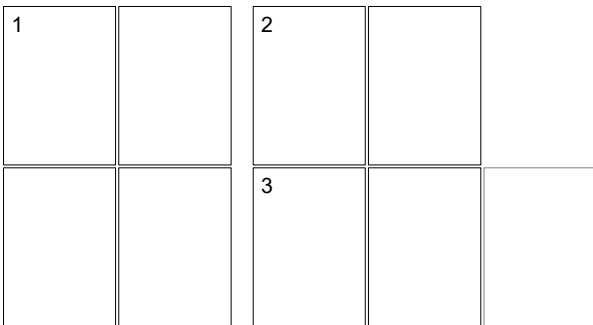
Source: Own mapping



Photo: Kai Krog Halse



Photo: Giambattista Zaccariotto



1 STUDY AREA: GJERDRUM – KLØFTA

Gjerdrum municipality is a typical forestry- and agricultural area with typical coniferous forest above the marine border¹, and a mosaic of cultivated areas and forest below the marine border.

2 THE AGRICULTURAL FIELDS

Prior to the Green Revolution², what is now the agricultural fields of the Romerike region, was mainly ravine/gully landscapes. In order to accomodate modern agricultural methods of production, the ravine/gully landscape was mechanically levelled out by means of bulldozers from the 1950's and up until recent years.

Prior to this radical intervention, however, the gullys structured the layout of farms across the region. Farms would be situated on top of the gullys to avoid running water, while the fields would benefit from nutritious manure running from the barns, down to the fields by means of gravitation³. Still today there are mainly farms to be found on hill tops and ridges amidst the agricultural landscape.

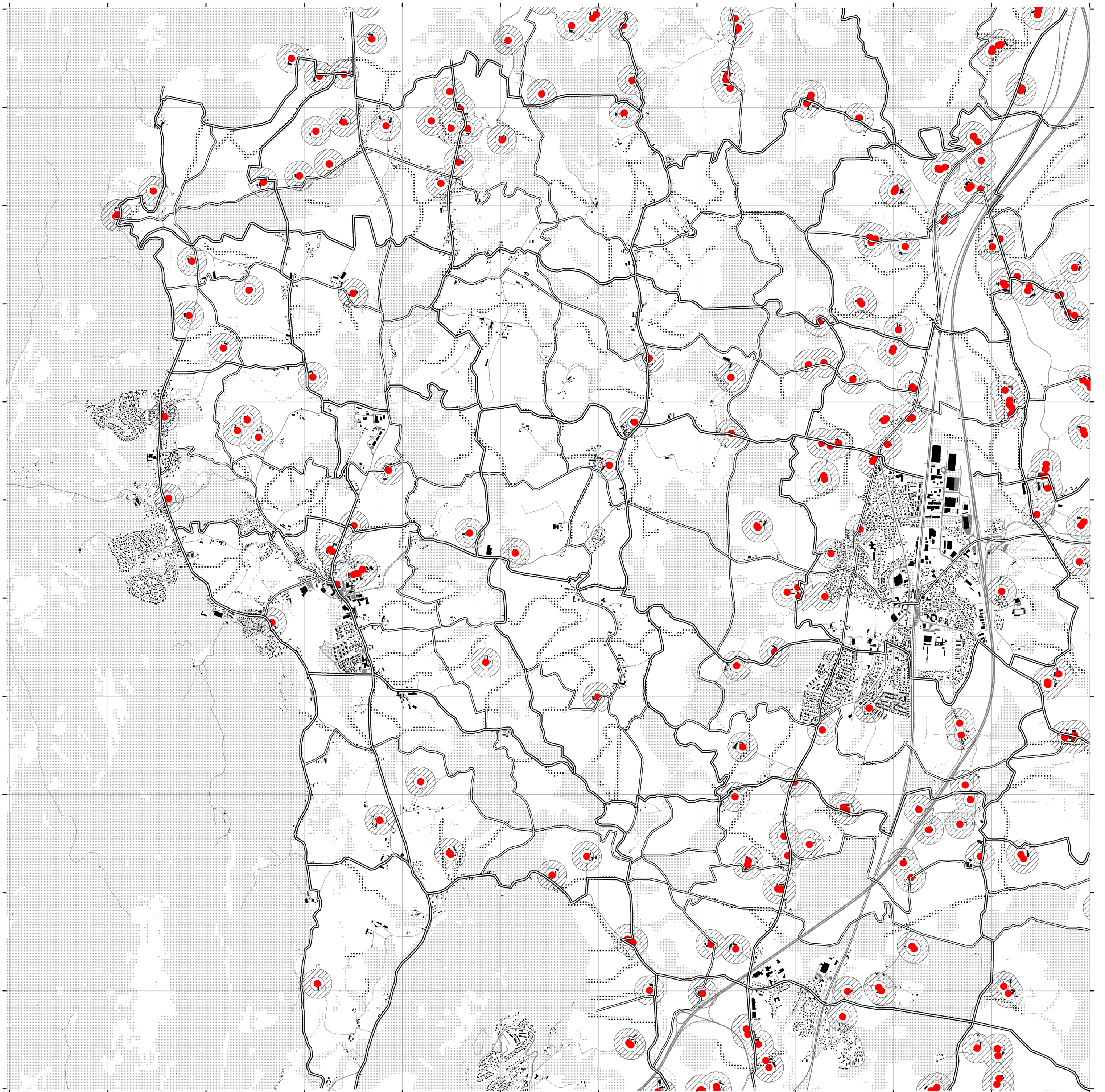
3 THE GULLIES

A gully is a small V-shaped valley carved out of clay-rich soil by rivers and streams. Clay-rich soil is the dominating substrate below the marine border (200 m.a.s.l.) in the region.

1 The marine border is situated between 200-210m above the present sea level, and marks the level of the sea at the end of the previous ice age.

2 https://en.wikipedia.org/wiki/Green_Revolution (Accessed 6 March 2017).

3 H. Aall, et al., '*Norske Bygder Romerike III*', Bergen, Norway, John Griegs Forlag, 1934 p. 14.

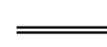
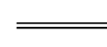








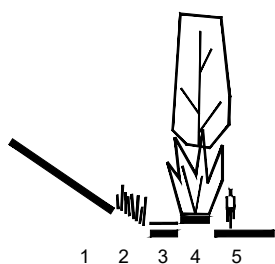
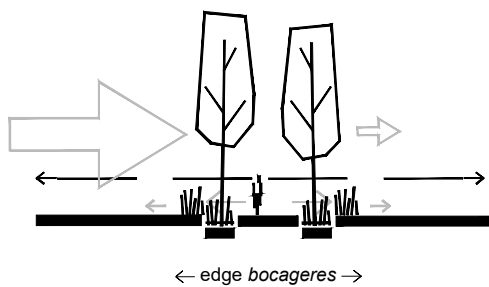
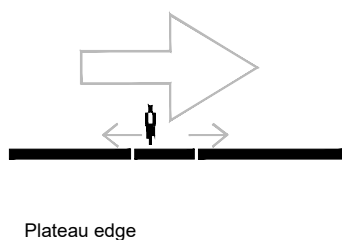
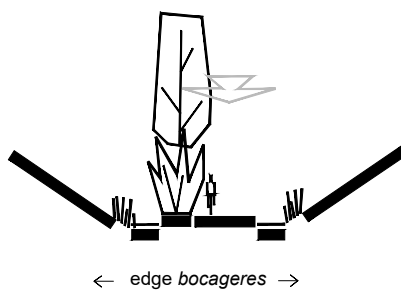
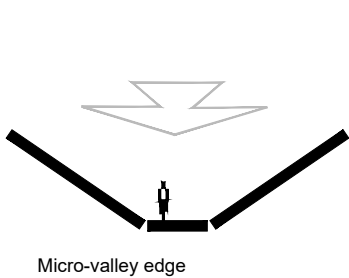
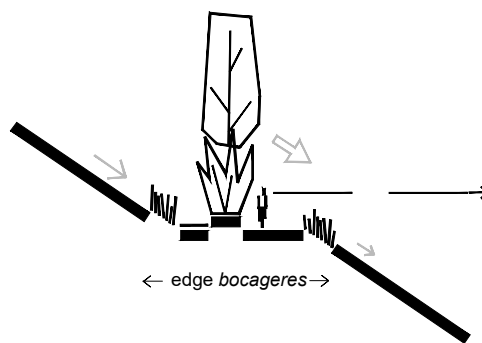
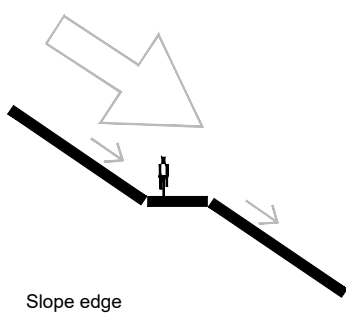
0 1 Km



GJERDRUM – KLØFTA, A LANDSCAPE FRAMEWORK

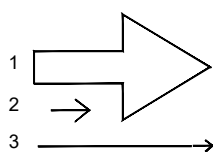
Source: Geonorge, own mapping

-  Isotropic network, density =2Km
-  Isotropic network, density =1Km
-  Existing farms
-  Railway
-  Possible cluster development zones
-  Existing road
-  Existing building
-  Restored forest corridor

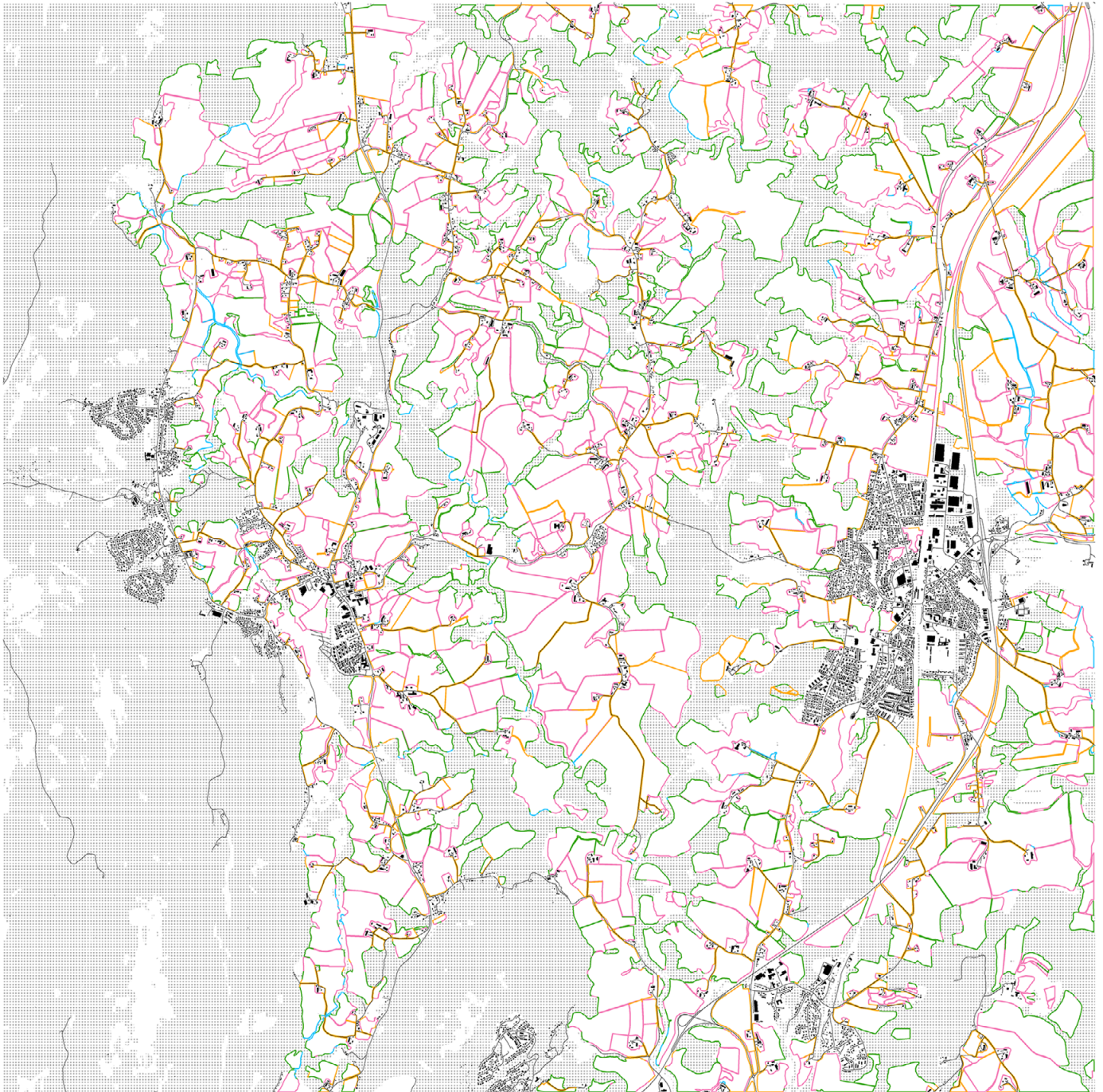


Edge *bocageres* structure:

1. Existing land-use ground
2. Verge of wild-grass
3. Water-drainage storage and cleaning (dry or wet ditch, wadi...)
4. *Talus*(embankment) or wall with layered vegetation
5. Traffic corridor



1. Wind-flow direction and magnitude
2. Run-off water flow direction and magnitude
3. View direction



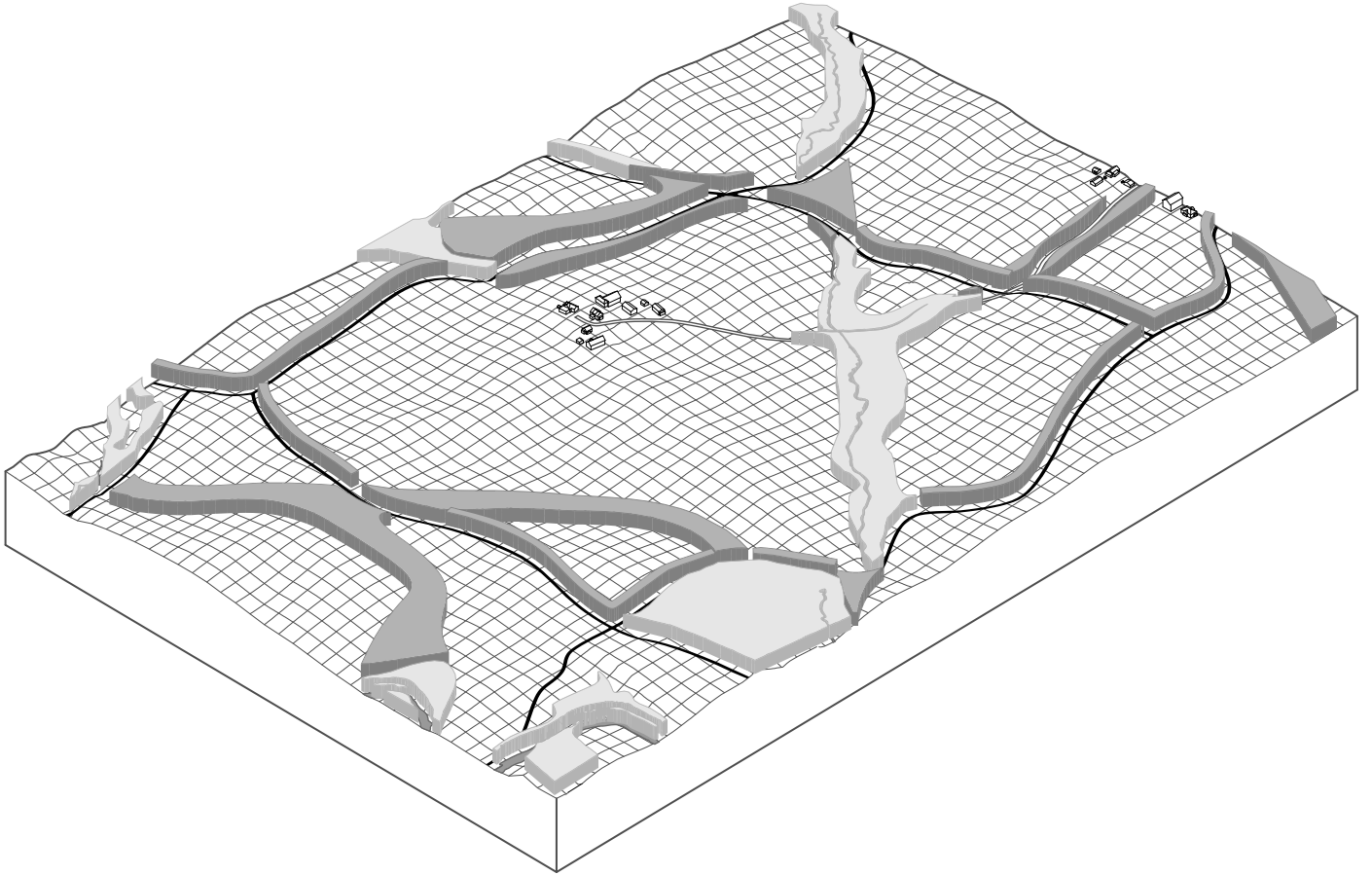
0 1 Km



GJERDRUM – KLØFTA, EDGE SITUATIONS

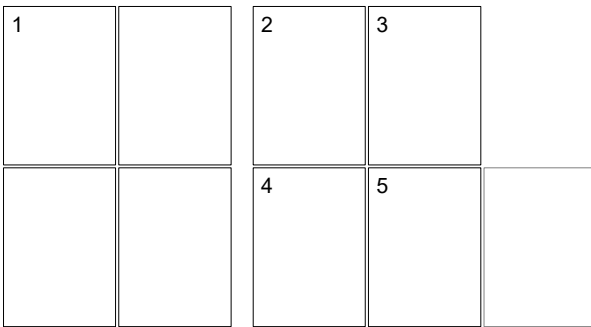
Source: Geonorge, own mapping

- Edges along water
- Edges along existing roads
- Edges along forest
- Edges along fields
- Existing mobility network
- Existing forest



- Bocager structure
- Proposed network link
- Existing forest
- Water
- Existing road





1 A LANDSCAPE FRAMEWORK

By utilizing agroforestry concepts and tools, the network is capable of acting as a multifunctional space which integrates aesthetics, ecology, hydrology and mobility.

2 GUIDING MODELS

Based on topographical conditions and the agricultural context, a toolbox of agroforestry concepts and tools has been developed. to guide the design process. The toolbox is mainly based on principles found in the traditional european bocage landscapes.

3 EDGE POTENTIALS

Four edge conditions has been identified as possible carrying structures for the isotropic network. In the study area the field edges alone represents nearly 1000 Km edge length.

4 SCENARIOS

Through three scenarios possible network configurations and a consecutive model of urbanization is explored.

5 DESIGN

The scenarios are further explored through their potential integration in the landscape .