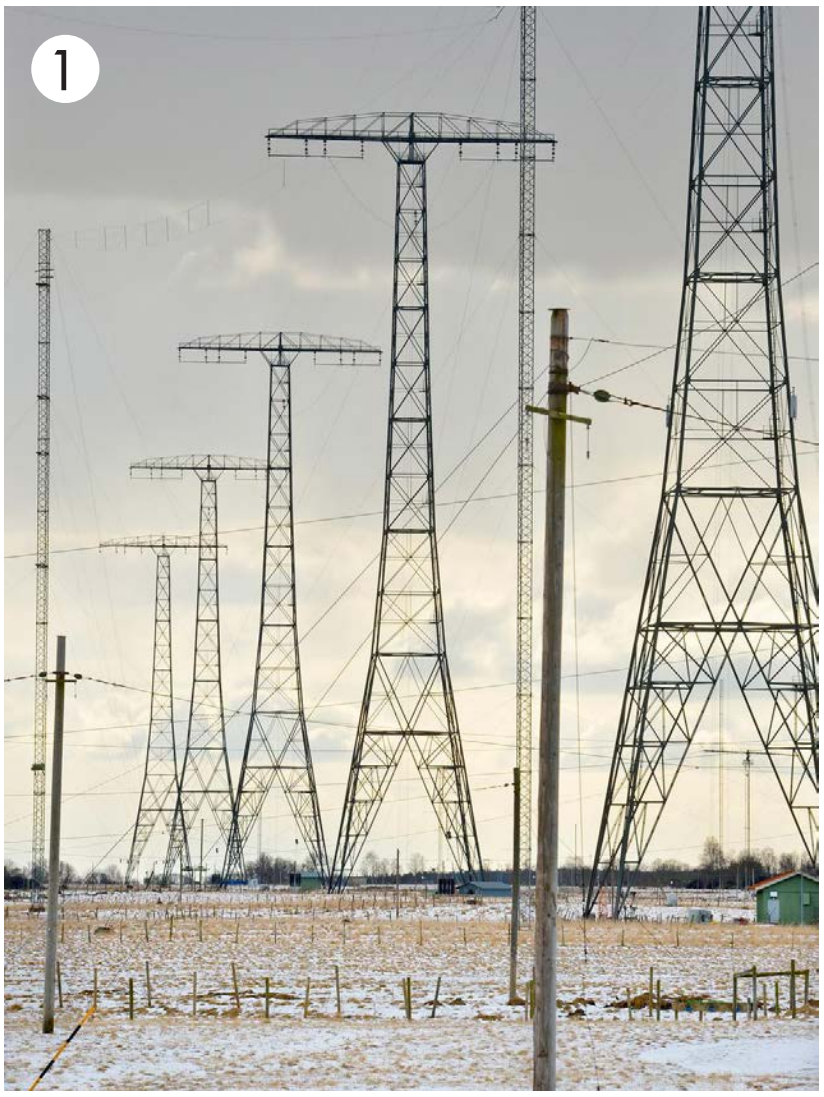
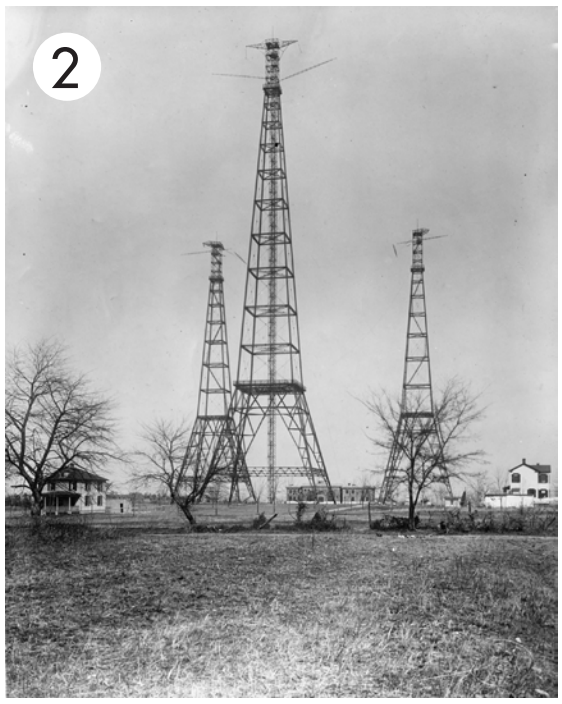
Architecture & Urban Space Design 2021

Agnes Janfalk

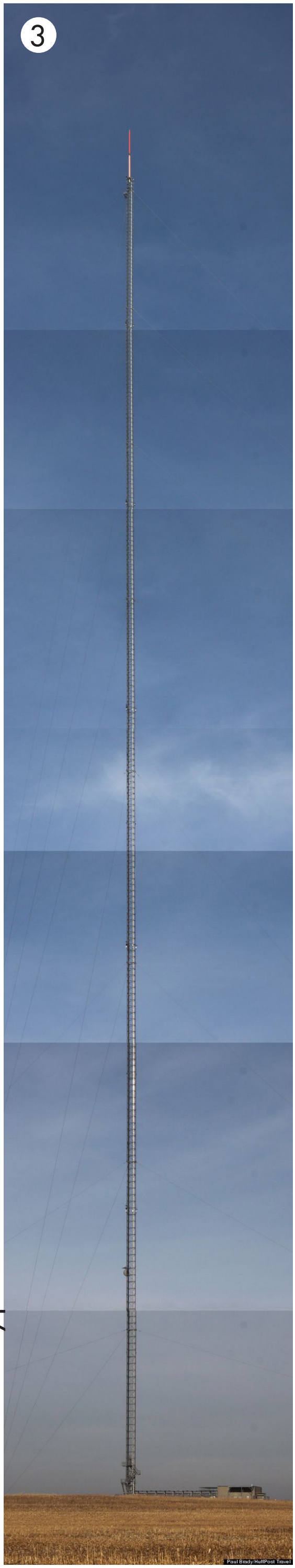
TRANSMISSION TOWERS





1 Grimeton Radiostation, Grimeton
2 NAA, Three Sisters, Arlington, Virginia
3 KVLY-TV mast, Blanchard, North Dakota
4 Grimeton Radiostation, Grimeton
5 Radio towers, Sumaré, Brazil

Transmission towers are a common sight in all sorts of landscapes, urban and rural alike. Still, the steel structures can seem almost alien up close. The Grimeton radio towers were constructed in the 20's to connect Sweden with the US, can that connection inform the future use of the towers? How can we utilize these structures for new typologies? Can we integrate them in the human scale, making them more approachable?

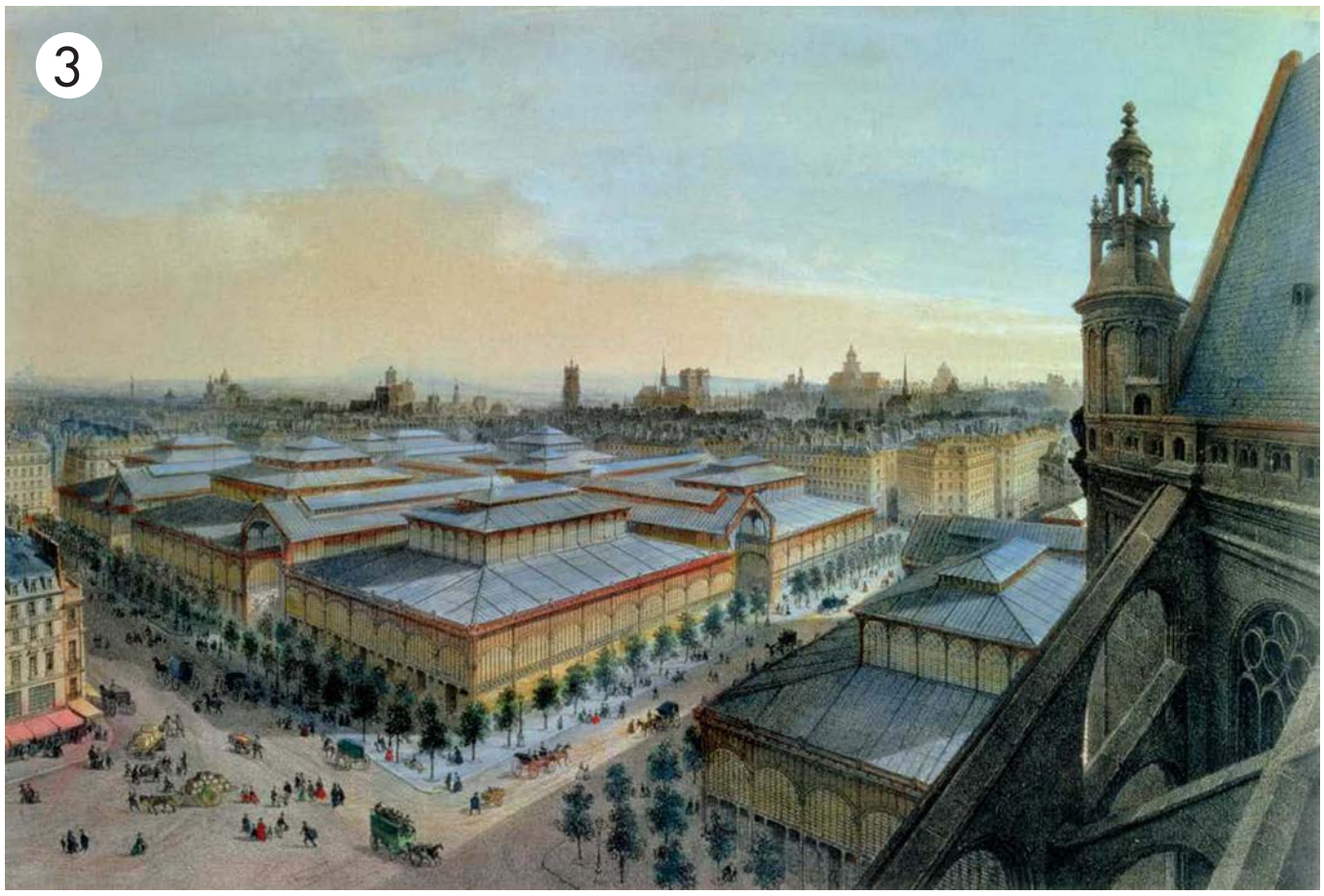


Infrastructure Type: Transmission Towers

MARKETS

1 Tsukiji Fish Market, Tokyo
2 Grand Basar, Istanbul
3 Les Halles, Paris, demolished
4 Tsukiji Fish Market, Tokyo
5 La Merced, Mexico City

The market hall is a common typology in the city scape. Rushing, fragrant, crowded, sprawling. They are often vast areas in the outskirts of town, using up possible green/living/housing spaces. The market is, historically, the hub of society. It's where you bought your food, traded services and heard the latest news.
The social role of the market place has become less and less central in modern society, but the connection between food, society and culture is still strong. Can we reinvent the marketspace by merging it with the modern day news hub, radio? And can that give us a new, as of yet, unexplored typology for the modern market place?

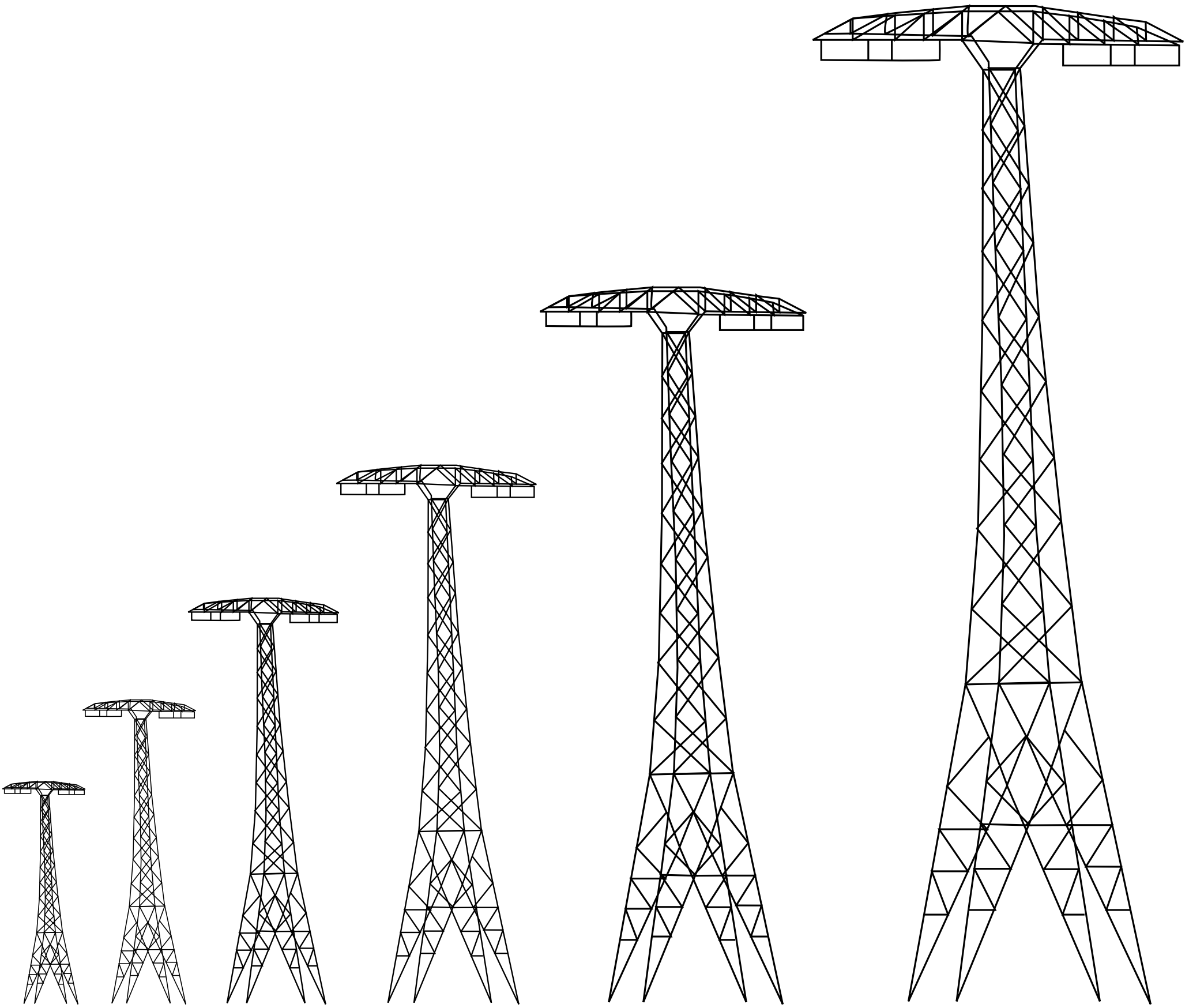


Human Space Type: Souk/Market

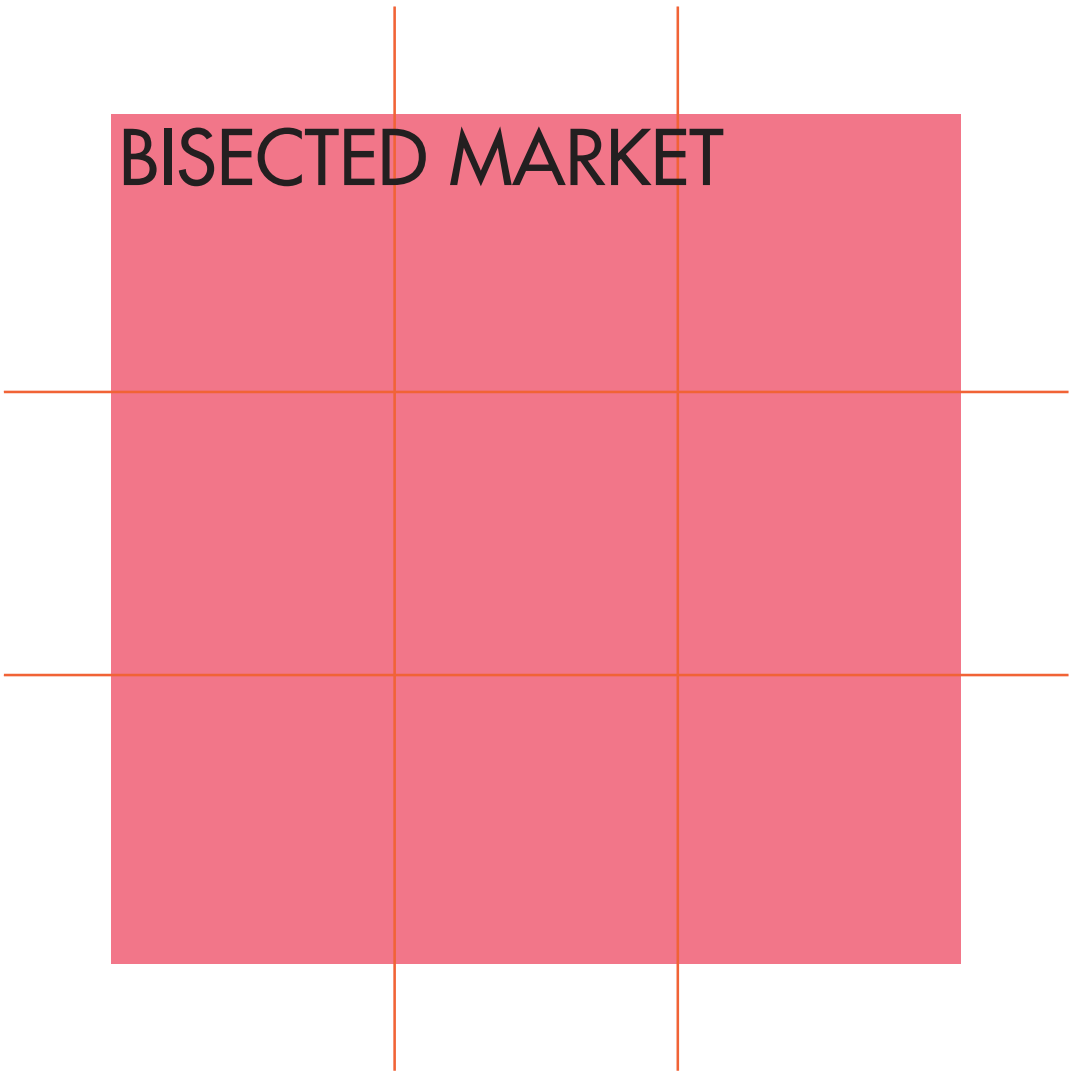
infrastructure type

TRANSMISSION TOWERS

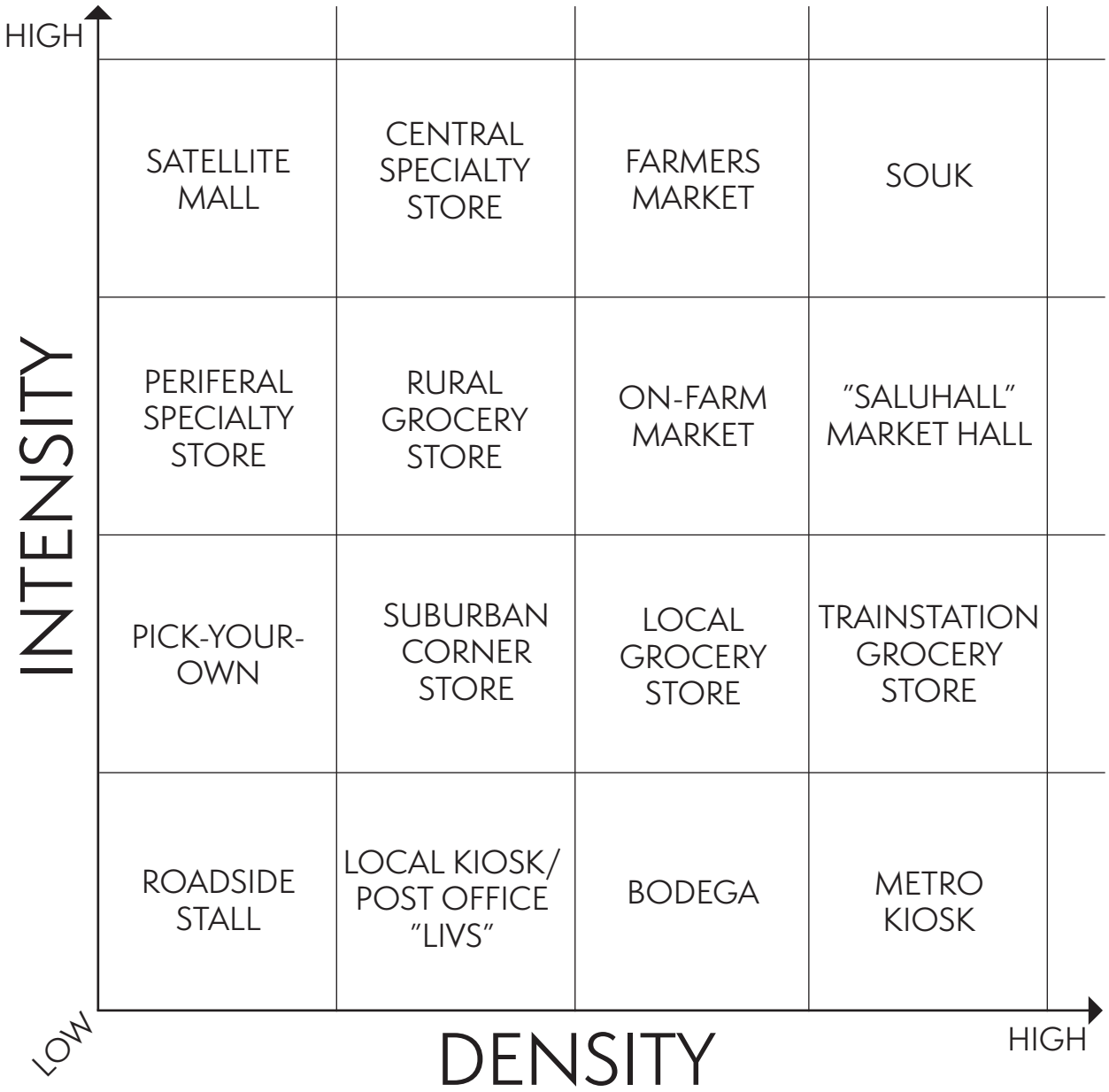
By merging transmission towers with markets, and effectively re-connecting the marketplace to news/social interaction/gossip, two of the founding structures of the human society are reunited.
The nature of the structures necessitates a physical, local, connection between towers, but also a global connection to other towers within our towers scope. The transmissions span oceans and mountains to connect people far and wide.
This connection is mirrored in the way humans share customs and cultures in this emerging globalized world. By merging these two infrastructures a positive feedback loop is hopefully created, enabling an interconnected, global society.



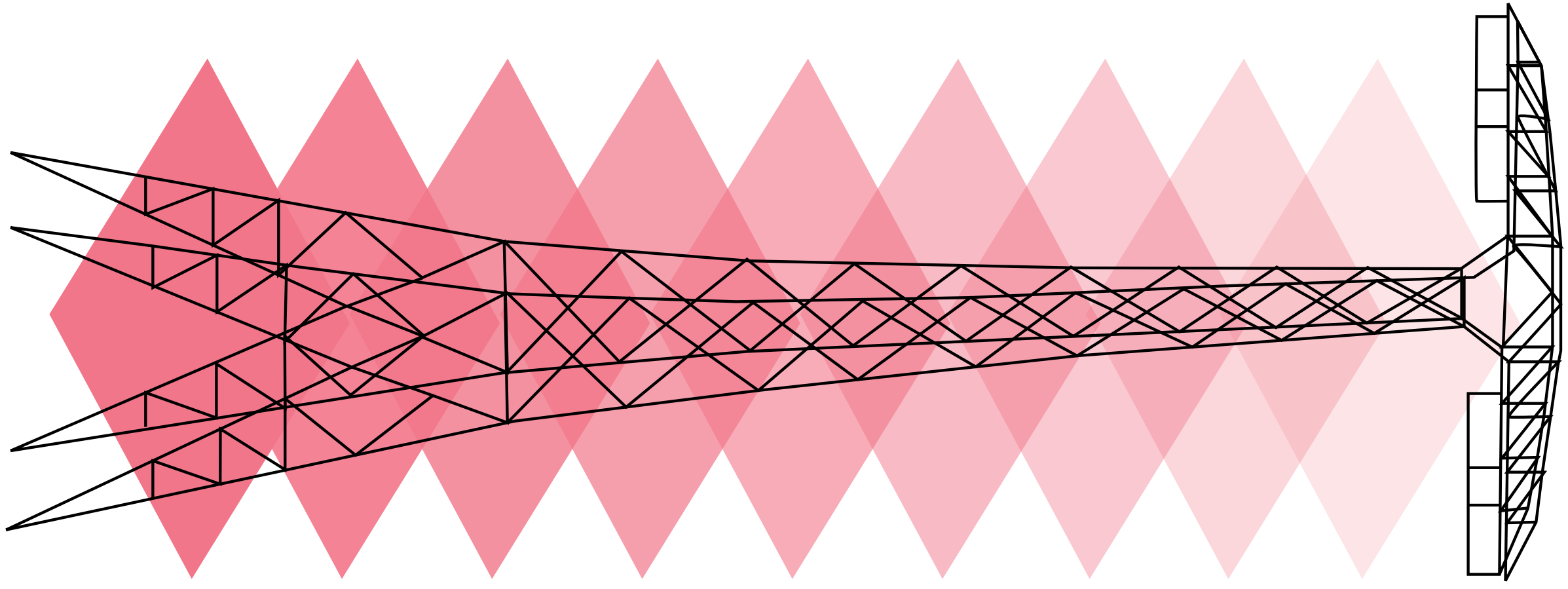
MARKET



EXPLODED MARKET


HIGH
SATELLITE MALL
CENTRAL SPECIALTY STORE
FARMERS MARKET
SOUK
PERIFERAL SPECIALTY STORE
RURAL GROCERY STORE
ON-FARM MARKET
"SALUHALL" MARKET HALL
PICK-YOUR-OWN
SUBURBAN CORNER STORE
LOCAL GROCERY STORE
TRAINSTATION GROCERY STORE
ROADSIDE STALL
LOCAL KIOSK/ POST OFFICE "LIVS"
BODEGA
METRO KIOSK
INTENSITY
LOW
DENSITY
HIGH

TOWER MARKET



INTENSITY

HIGH

LOW

hybrid space system

TOWER MARKET

GLOBALLY

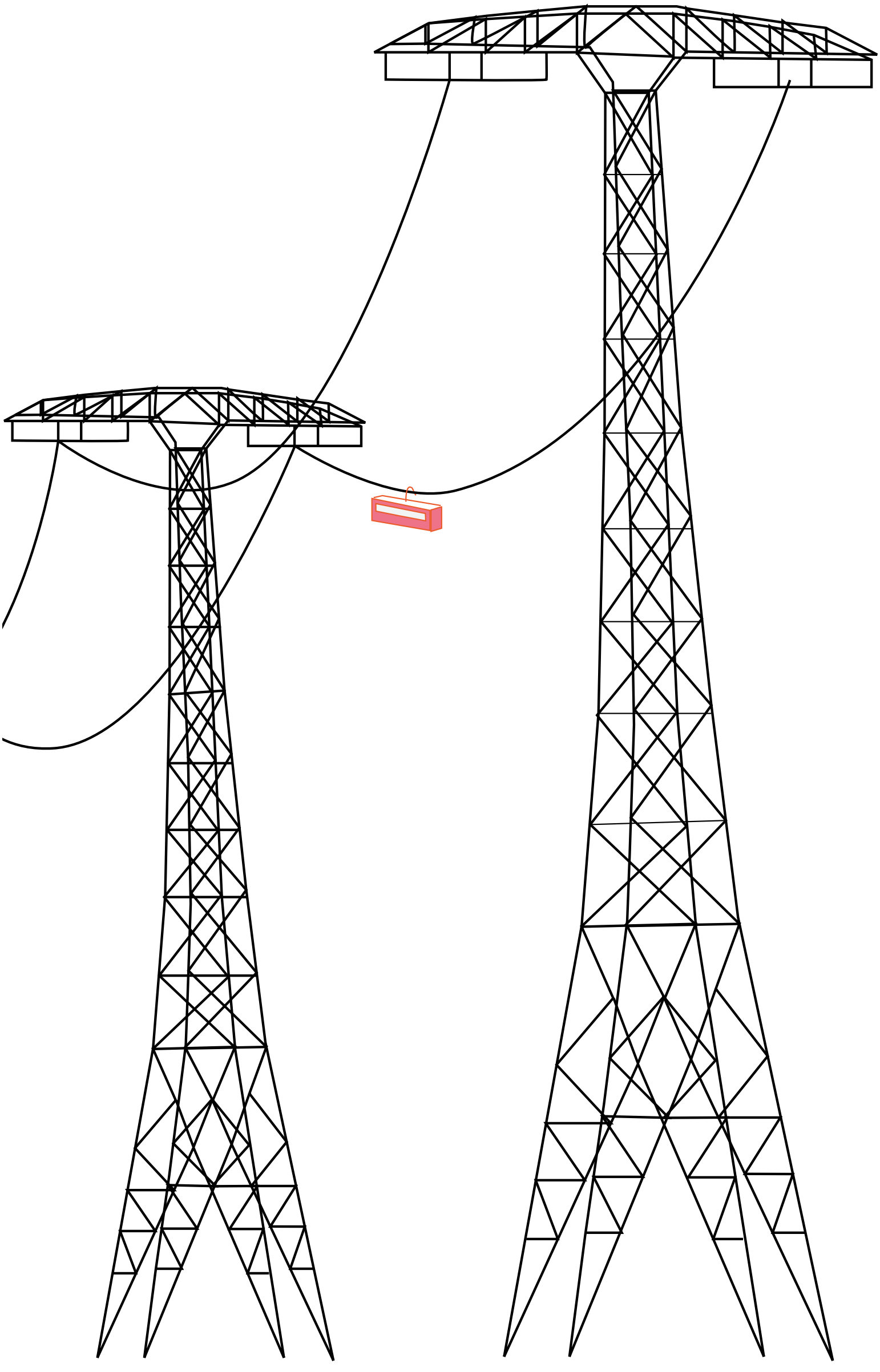
LOW DENSITY

A part of the concept of MARKET TOWERS lies in the physical and percieved connectedness to other people, places and cultures. The radio towers were some of the first structures to connect people living worlds apart, without necessarily having to travel for days to do so.

LOCALLY

HIGH DENSITY

The physical interconnectedness on a local level gives the towers a logical infrastructure for the transportation of produce and people within the market compound, as well as shelter for large amount of people without building additional structures.



infrastructure

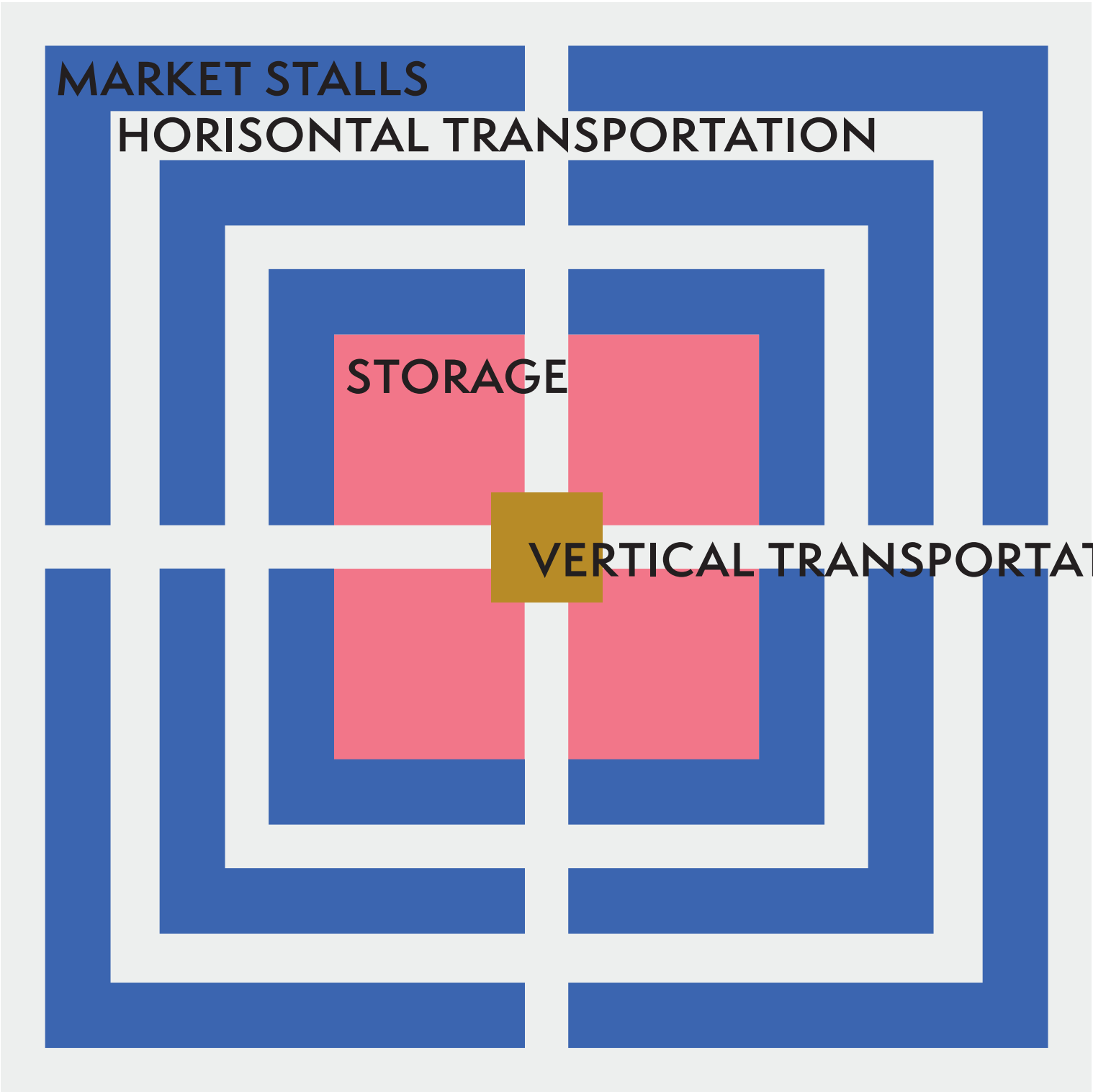
LOCAL

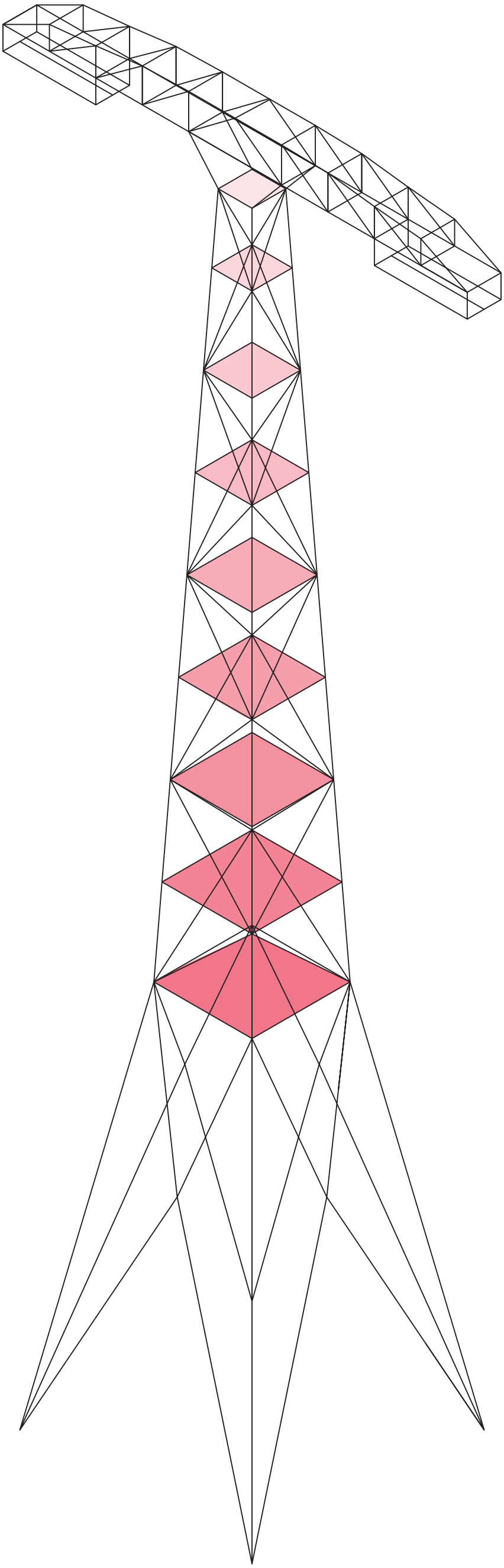
The lines locally connecting the towers can be used to suspend canvases for temporary shelters or tu run a funicular between the towers.

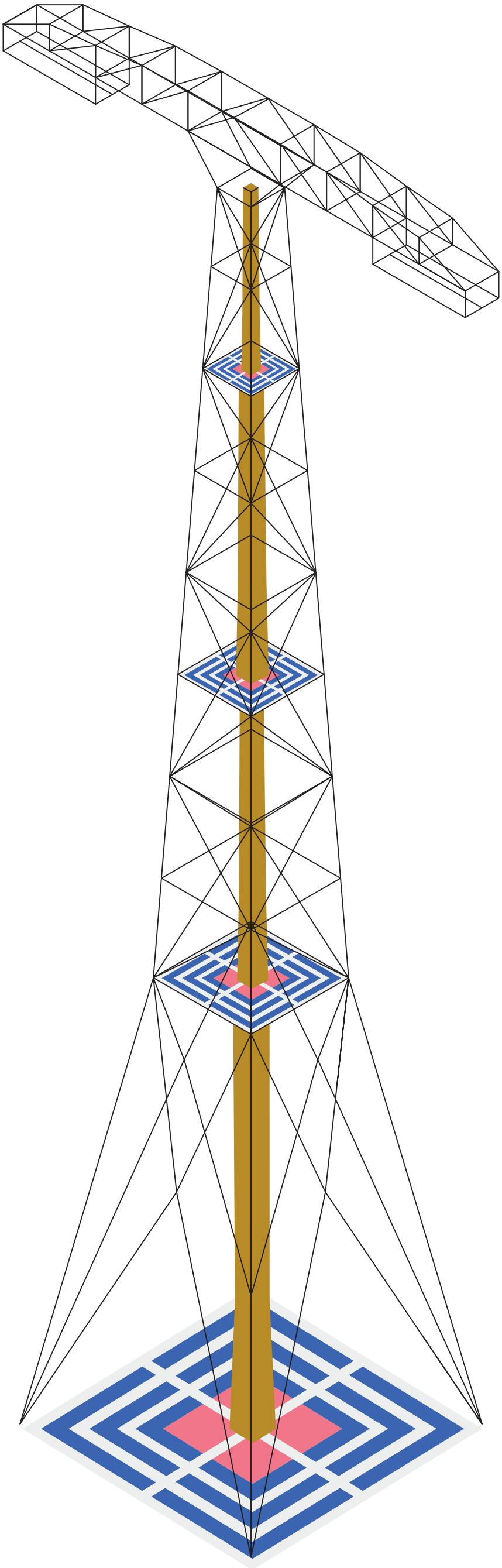
infrastructure

INTERNAL

The rectangular layout of the towers enables a logical internal infrastructure, with concentric layers of market stalls around a central transportation shaft with lifts and technical infrastrucure.







growth pattern

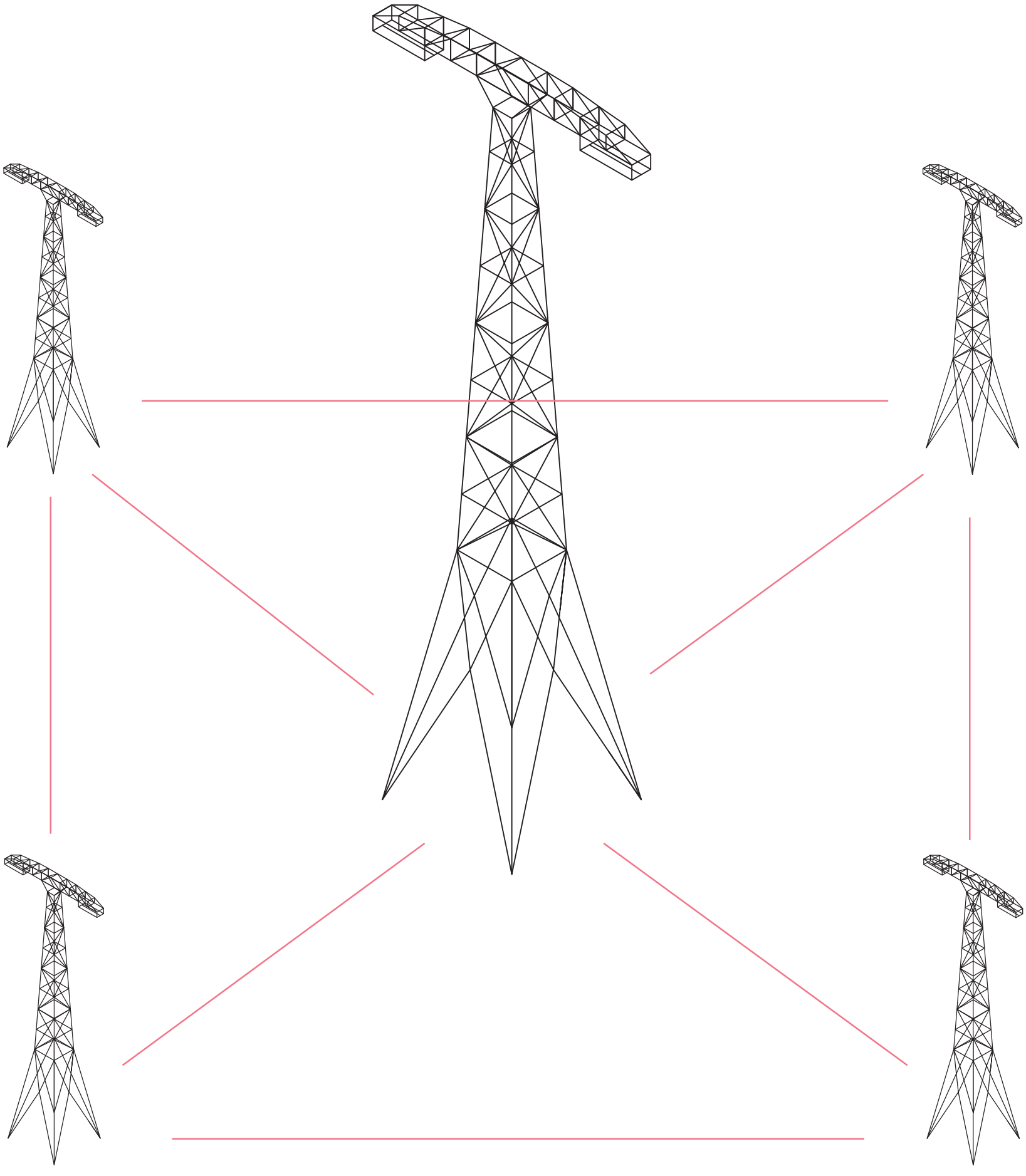
NETWORK ARCHITECTURE

my proposed growth pattern is modeled on computer network architecture, scaling up according to the spatial scope of each

L A N

LOCAL AREA NETWORK

Starting at the smallest components of my structure, locally connected towers. They make up the first component in the growth structure, and acts as the local market of the surrounding community.
A LAN is a local, closed network, connected to the outside world via routers.



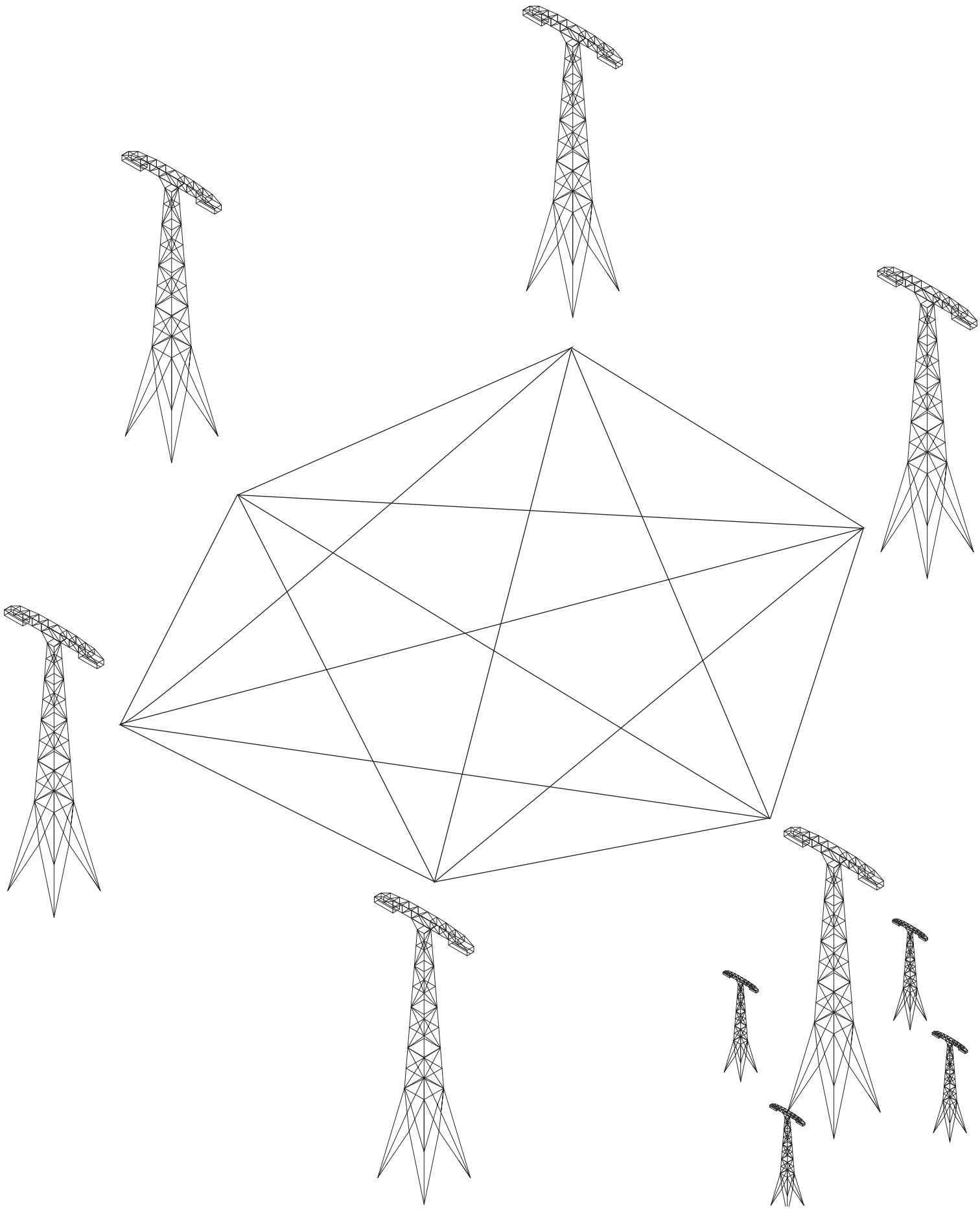
L A N

In the context of LAN, the network connects a series of markets with different focuses at Skanstorget in Gothenburg.
The markets can be used independently from each other for specific needs, or as a whole for the weekly shopping.

M A N

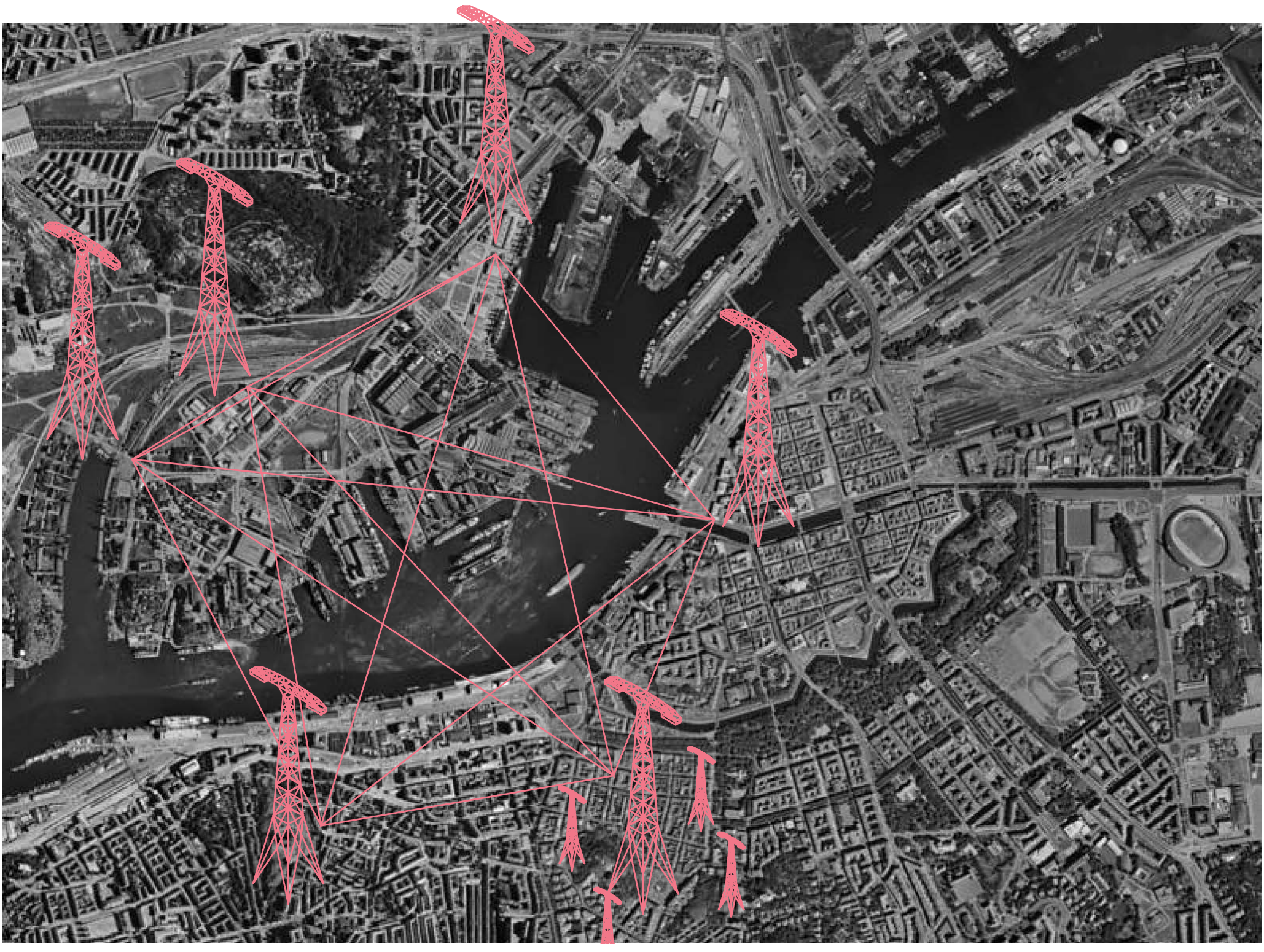
METROPOLITAN AREA NETWORK

The next structure is a metropolitan area network, typically used by city governments or larger organisations. The MAN is a collection of interconnected LANs within a geographical region the size of a metropolitan area. The LAN is a node in the MAN network, connecting it to the other routers in the network. The MAN in turn has a router connecting it to the WAN, which is the next iteration of my growth pattern.



M A N

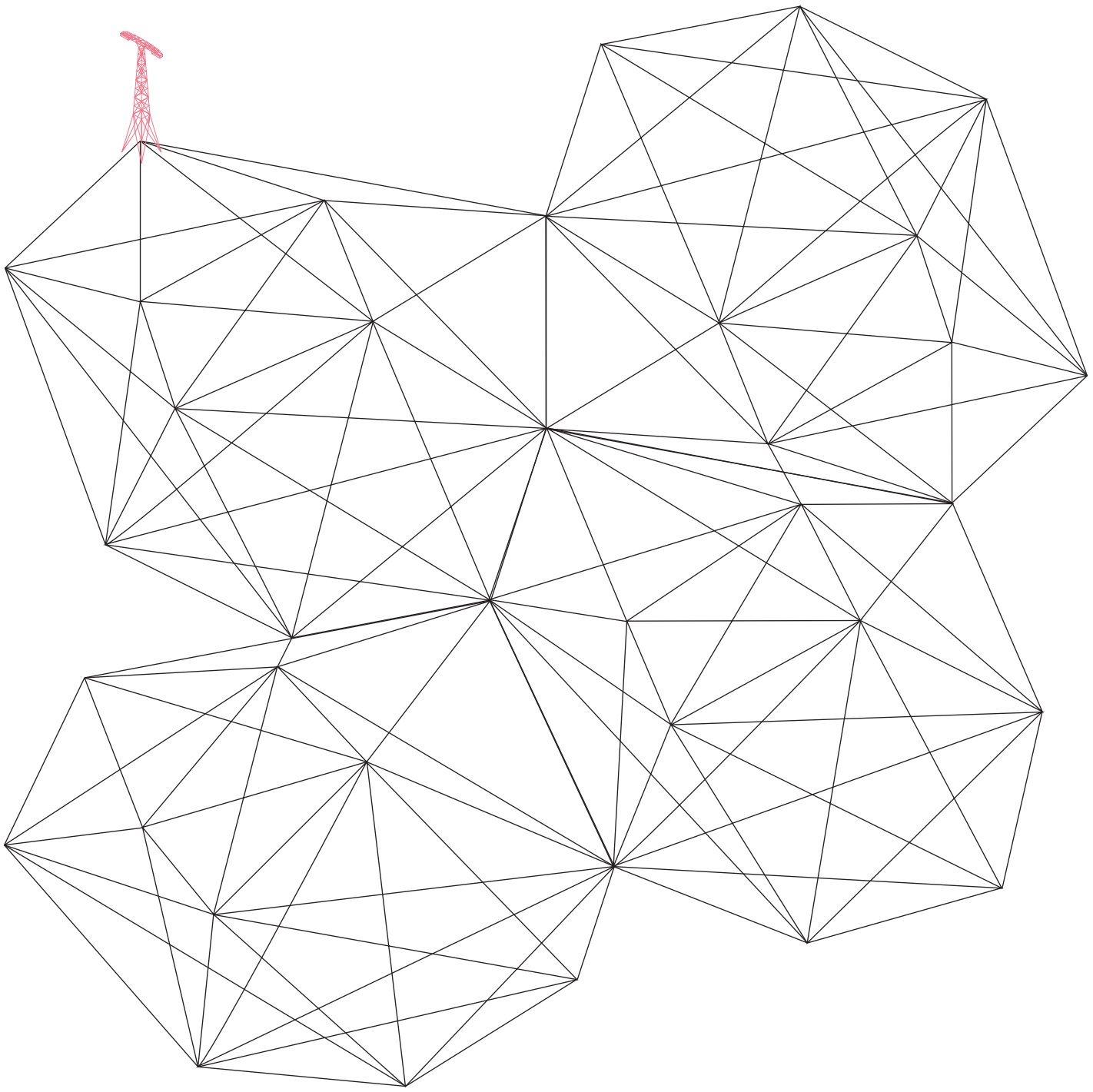
In the context of MAN, the network connects all towermarkets in the city of Gothenburg, giving sellers and consumers an idea of supply and demand across the city. At this level, the connection is no longer physical, but the connectedness is percieved through the constant exchange of information between towers. Perhaps there is a broadcast played at all sites, to strengthen the connection.v

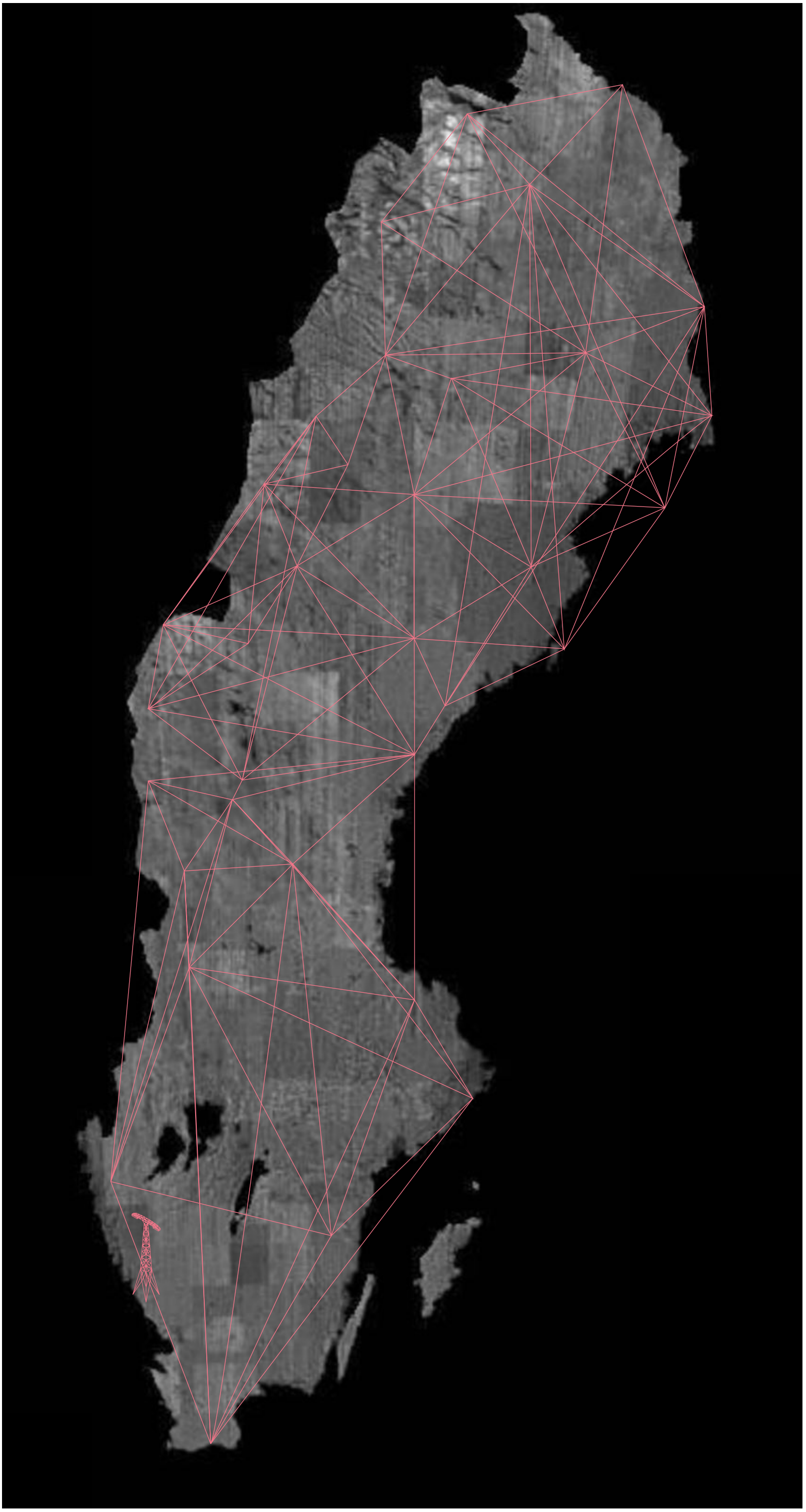


W A N

WIDE AREA NETWORK

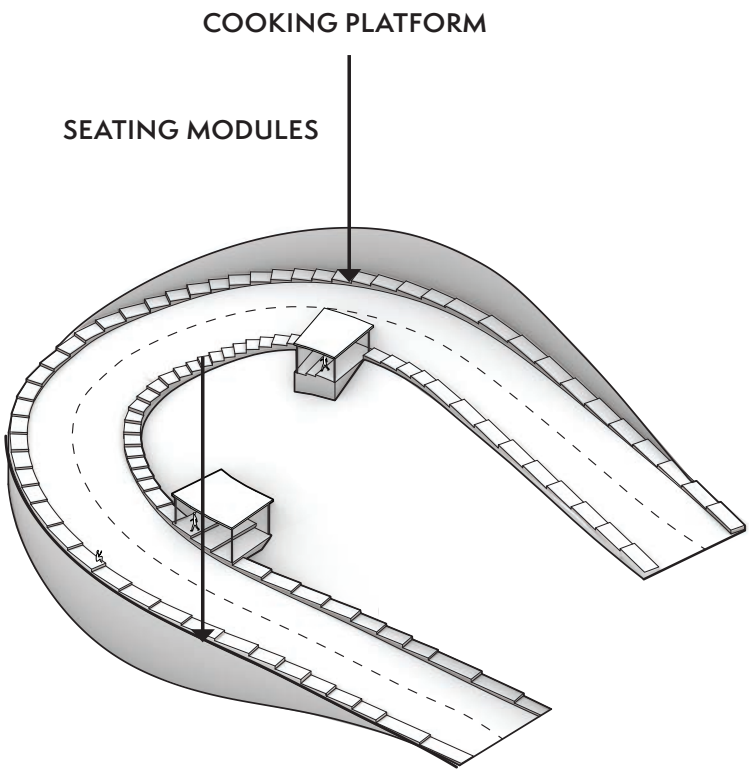
The WAN is a vast network, spanning long distances, relaying information across the world. It allows people, organisations, buyers and suppliers to carry out daily functions regardless of location.
The most commonly known example of a WAN is the internet, but in this case it´ll be used as a communications medium between markets across the world, letting different cultures exchange recipes and customs across regional divides.





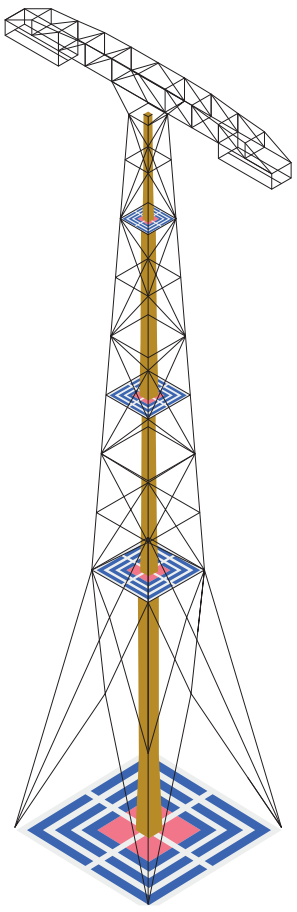
group recap phase 1

SERPENTINE ROAD RESTAURANT

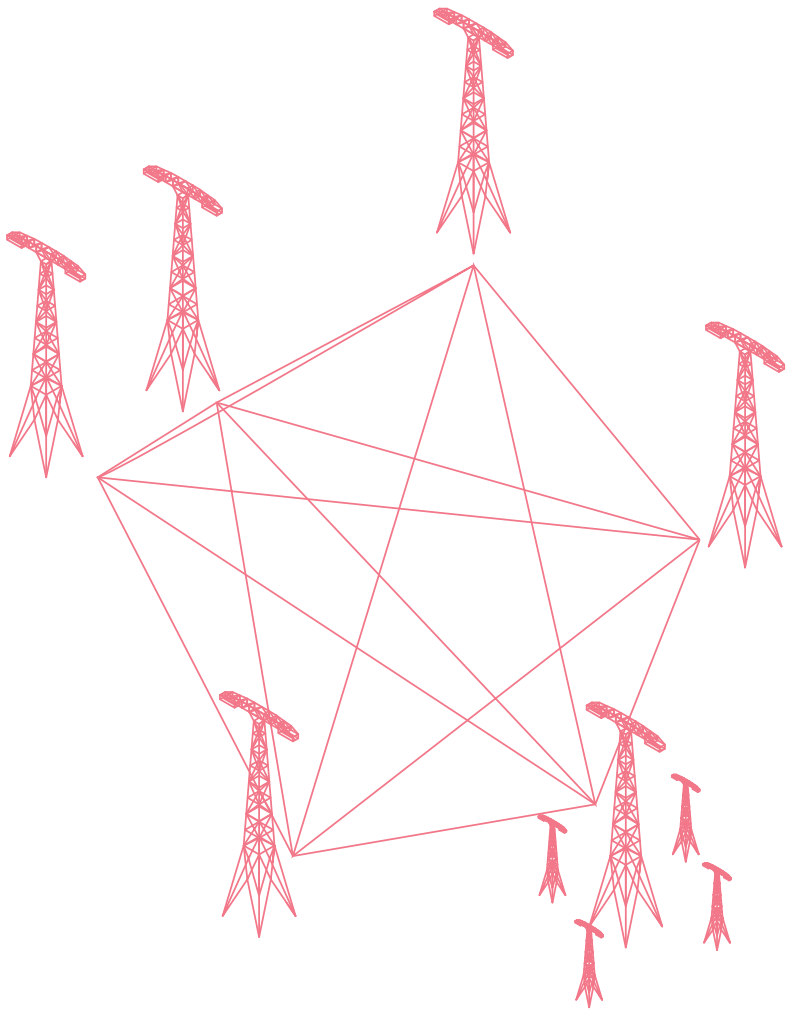


BRANCHING RIVERS

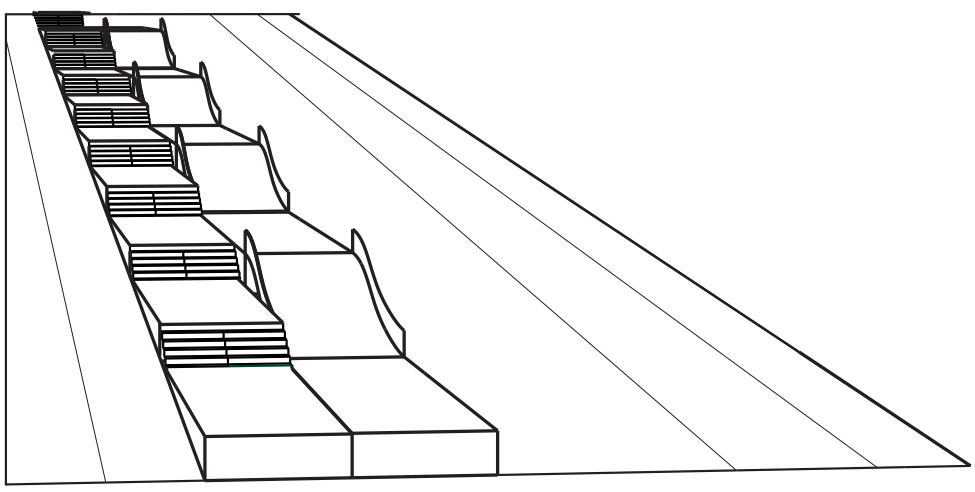
TOWER MARKET



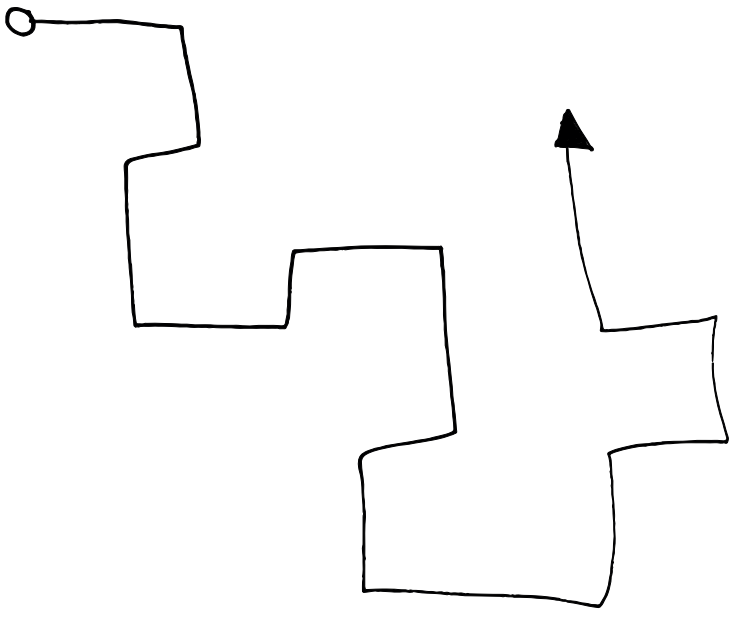
NETWORK ARCHITECTURE



SLOPING STREET PLAYGROUND



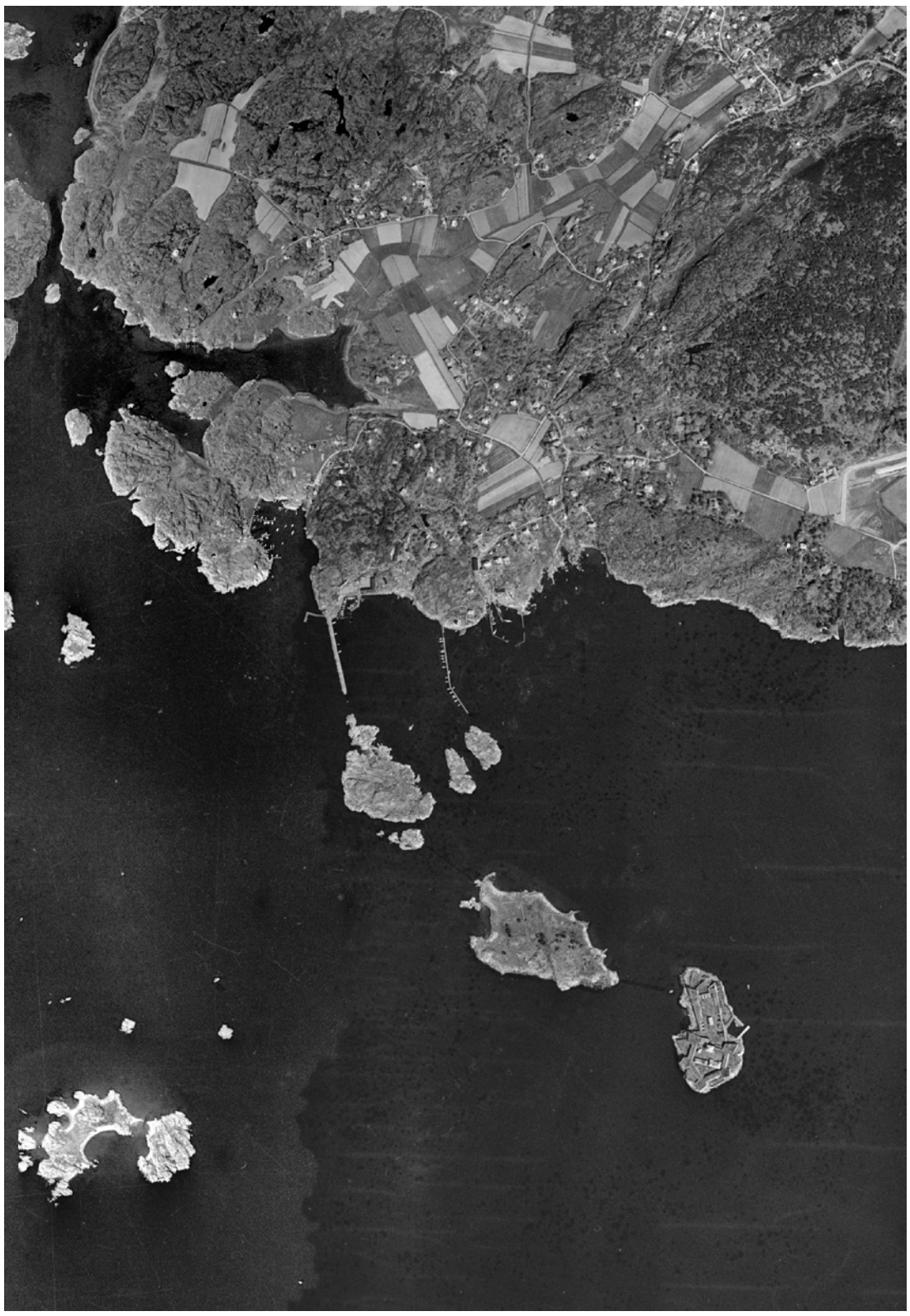
LABYRINTH



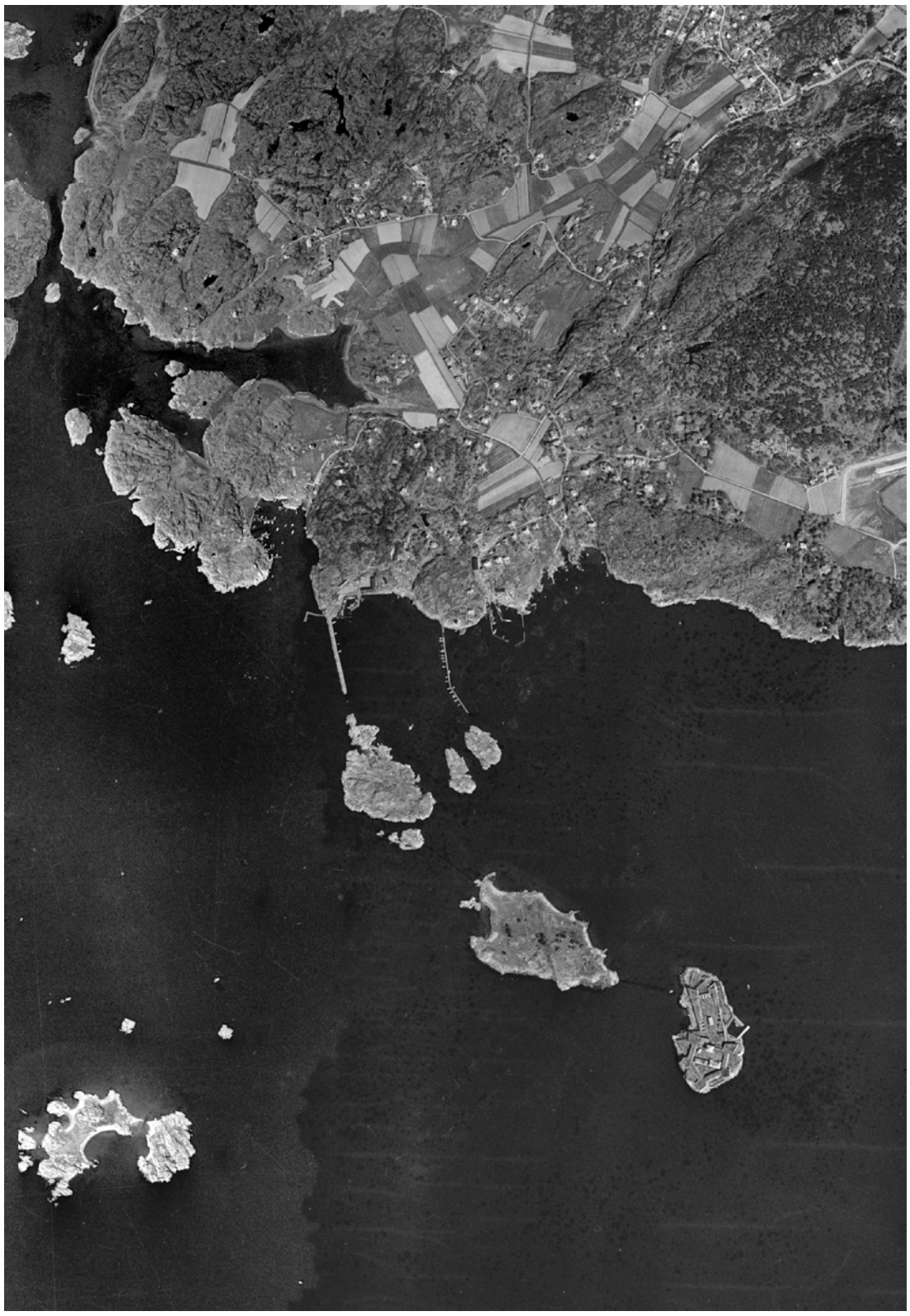
phase 2

PROBLEMATIZED WATERFRONT

reimagining alternative futures

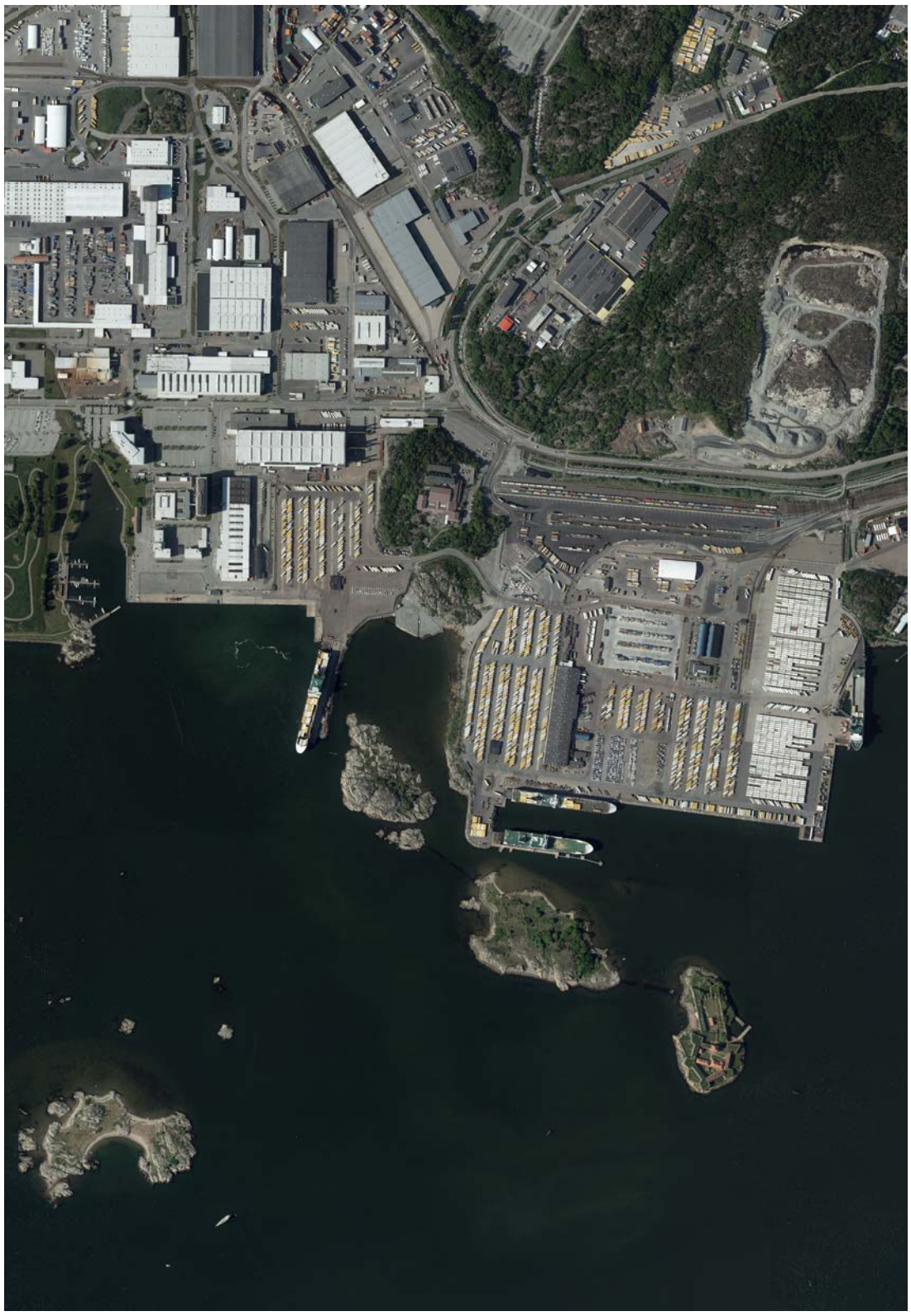


COASTLINE 1960



This is an example of the natural coastline of Gothenburg, pre-harbour expansion.
Smooth rock, bays and small scale agriculture and industrial structures.

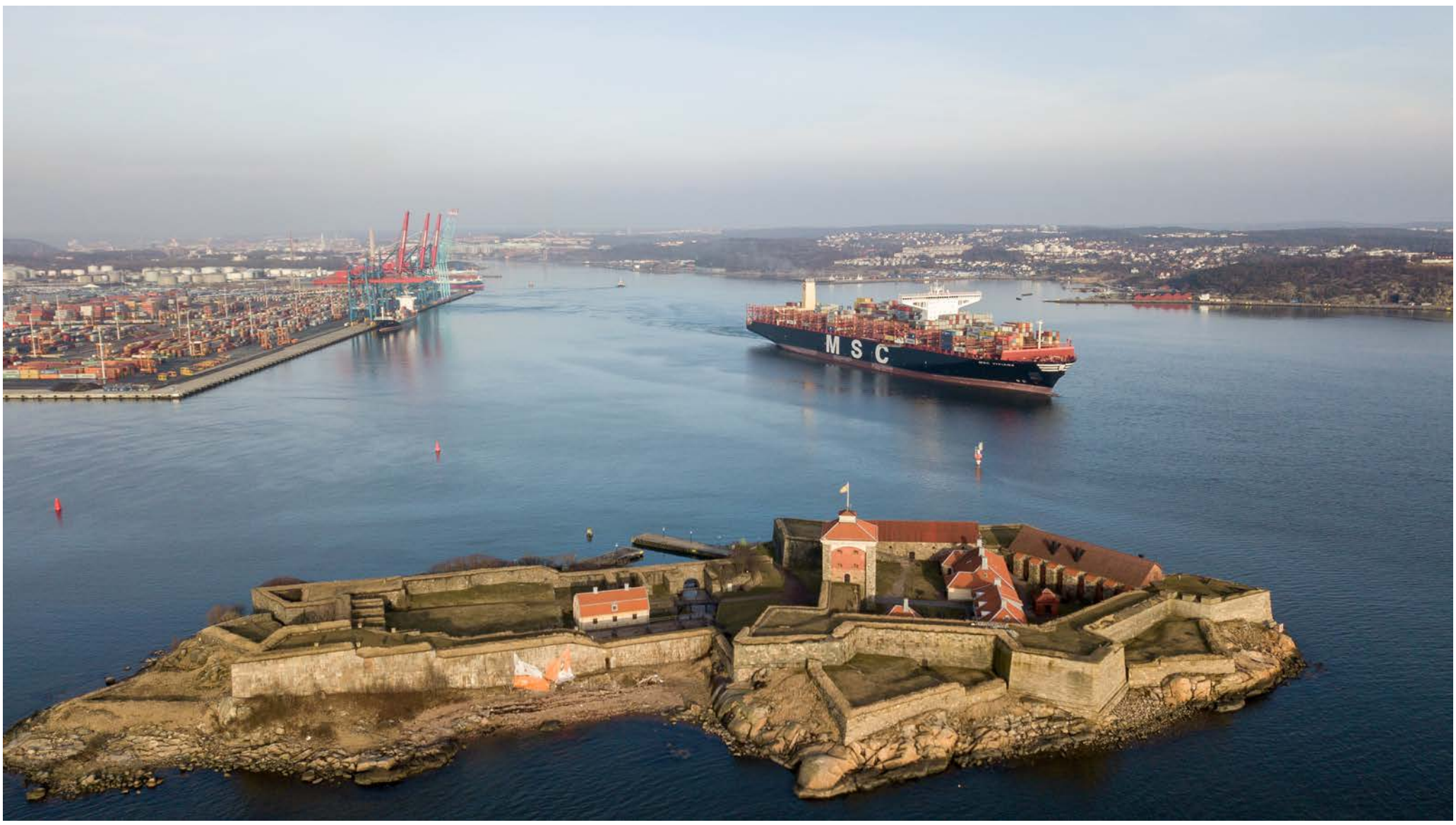
COASTLINE 2018



The shape of the coastline has changed a lot due to industrialisation. Soft, diverse and organic nature areas have become hard, rational and large-scaled industrial space. The future hybrid network could create spatial qualities that will make the area feel more welcoming.

PROBLEMATIZATION:

PRIVATIZATION AND COMMODIFICATION OF THE COASTLINE



Typologies of different scales that can be found along the coasts of the world can be of different character and size, but have a common trait in that they are a part of the commodified waterfront

They range from the small private dock to the large port megacities of southeast asia.

As commodified/private spaces they are inaccessible to the common citizen.

In Gothenburg, we feel that the commodification has resulted in a disconnection between Göta Älv and the inhabitants of surrounding communities.

We have chosen to categorize them as:
mini - small - medium - large - extra large

private dock

MINI COMMODIFICATION

privately owned, small scale, docks
used for small boats and swimming

Svanesund ferry terminal

SMALL COMMODIFICATION

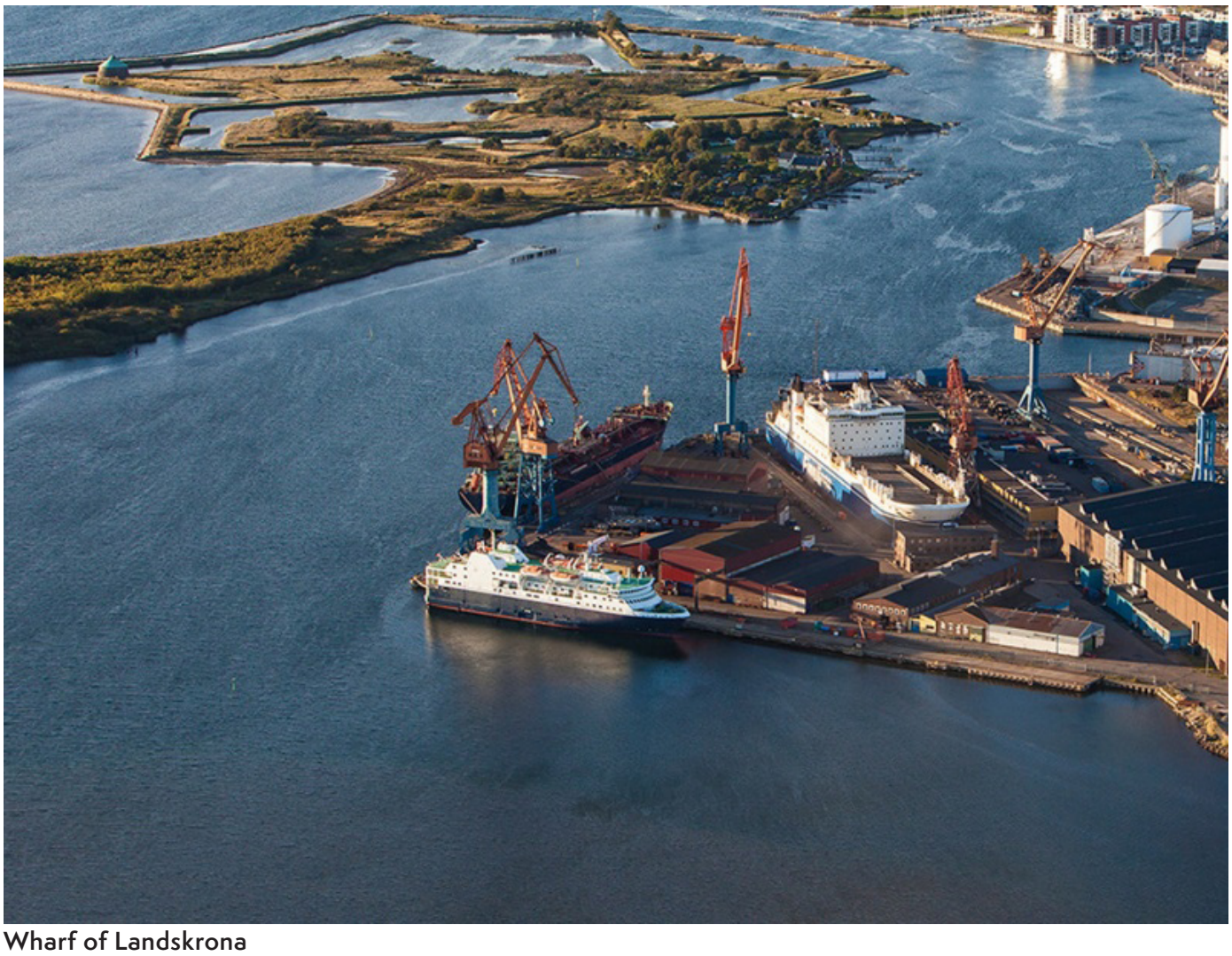
small ferry terminals, infrastructure ports or docks

Tjörn marina

Hönö Klåva marina

MEDIUM COMMODIFICATION

larger marinas, fishing ports and surrounding communities



Wharf of Landskrona

LARGE COMMODIFICATION

large industrial ports and water adjecent industries, such as the port of Gothenburg and Torslandaverken (a.k.a. Volvoland)

LARGE COMMODIFICATION

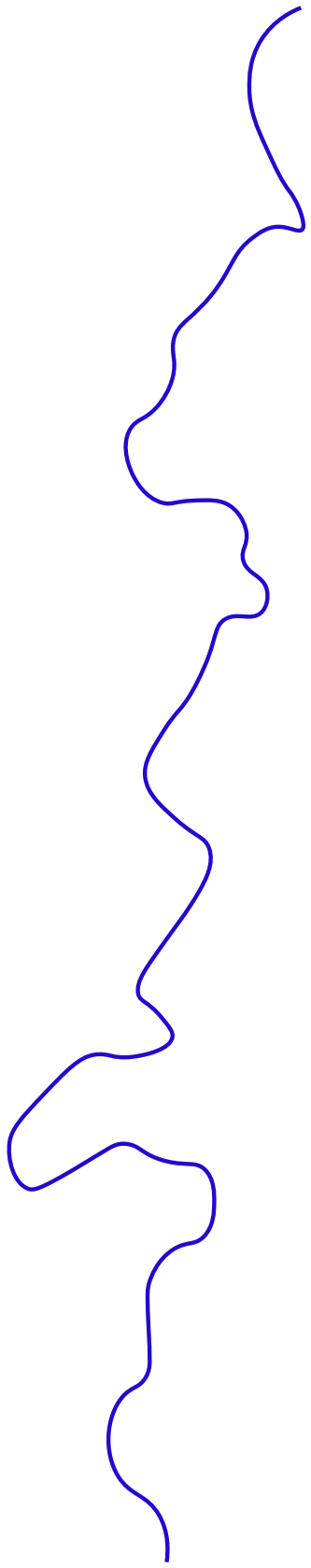
Site specific: Port of Gothenburg

Port of Singapore

X-LARGE COMMODIFICATION

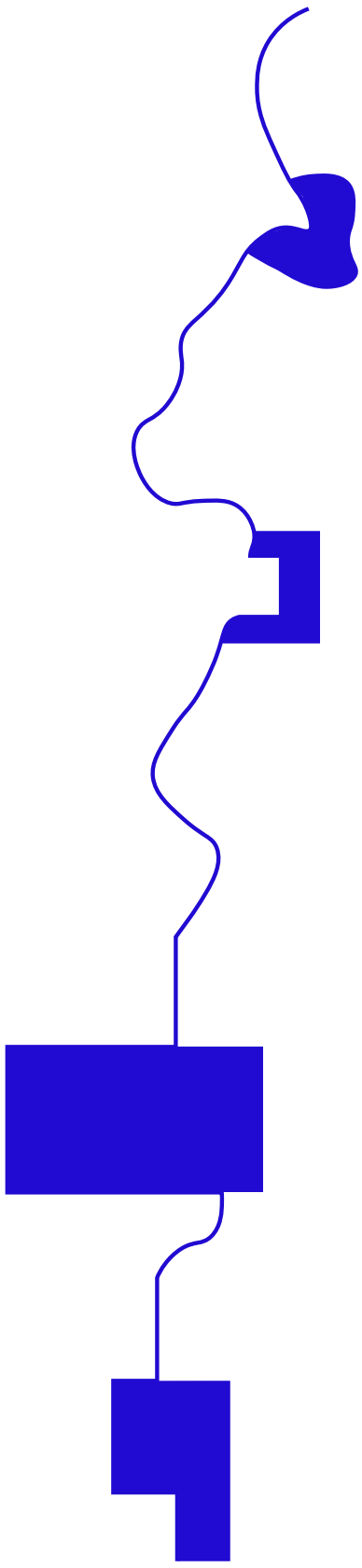
large-port megacities, such as the ports of Singapore and Shanghai

NATURAL COASTLINE



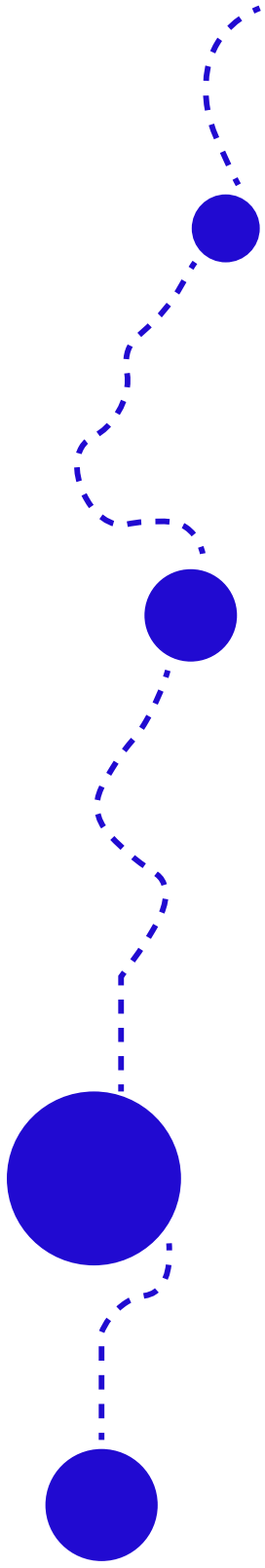
the natural, historical coastline
organic, accessible and continuous

PRIVATIZED COASTLINE



the privatized coastline
orthogonal, inaccessible, broken up

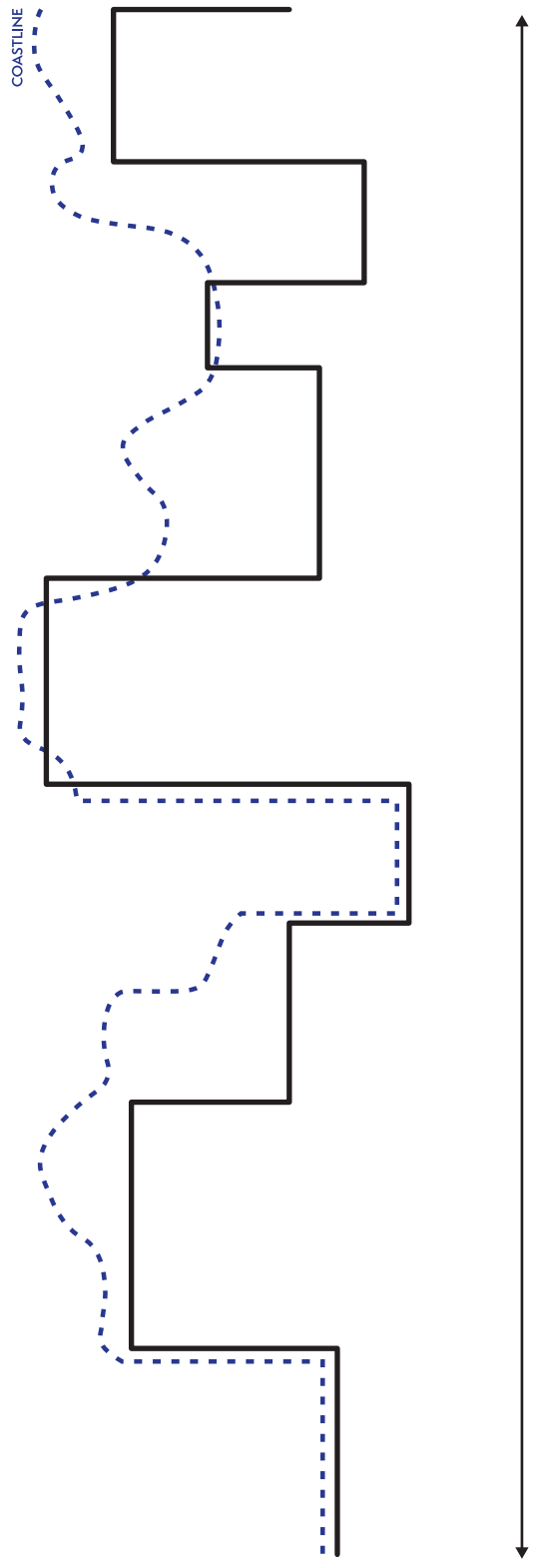
PROBLEMATIZED COASTLINE



the problematized coastline

along the previously continuous coastline, industrial landscapes have spread out. They are surrounded by fences, and difficult to reach by foot or public transport. These enclaves of industrialism manage to make the entire coastline inaccessible due to hindering the pedestrian reach.

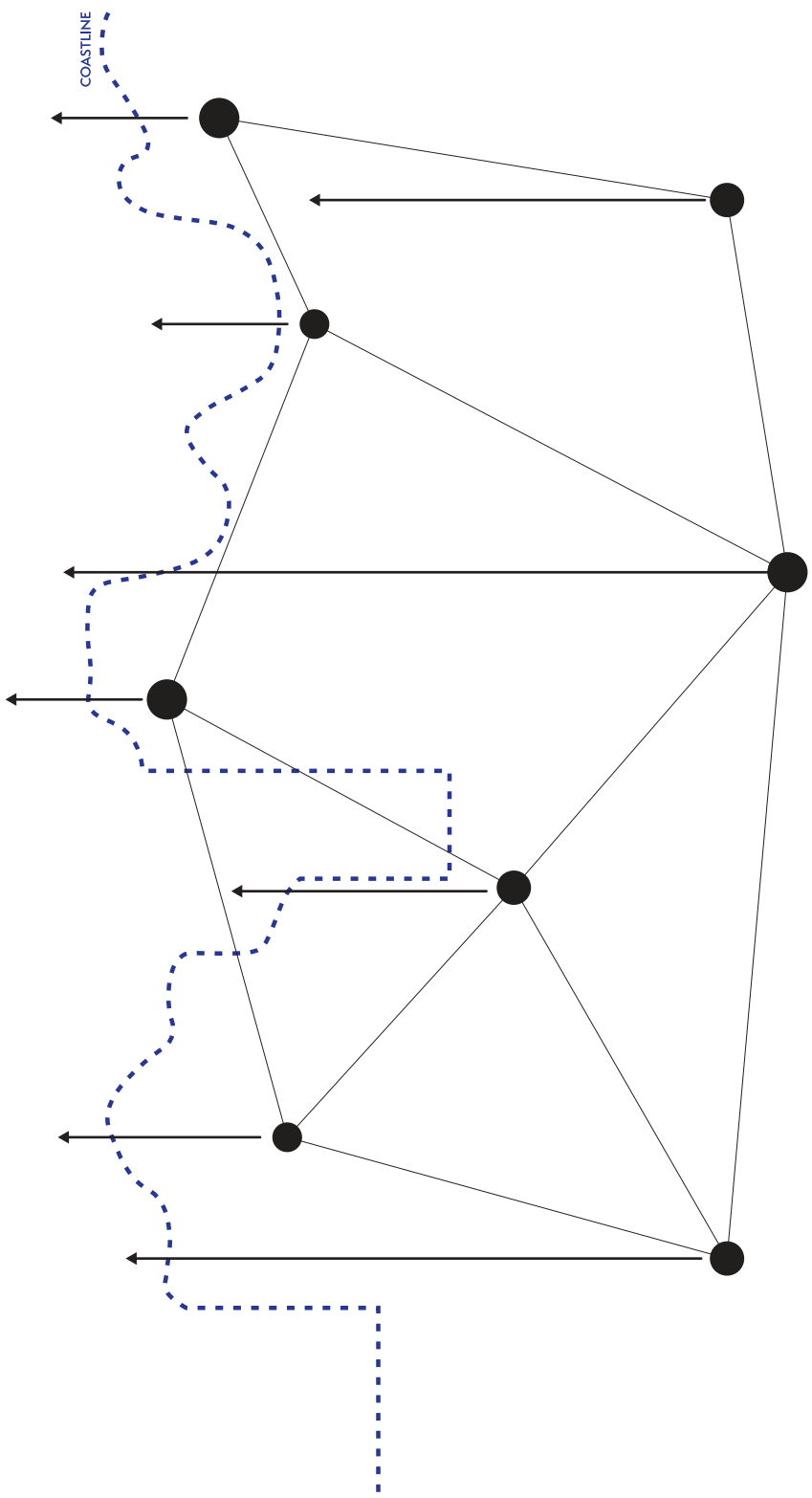
CONCEPT DIAGRAMS



PATH

The first implementation in our network is the path. It searches it's way through the landscape, changing direction as it encounters an obstacle.

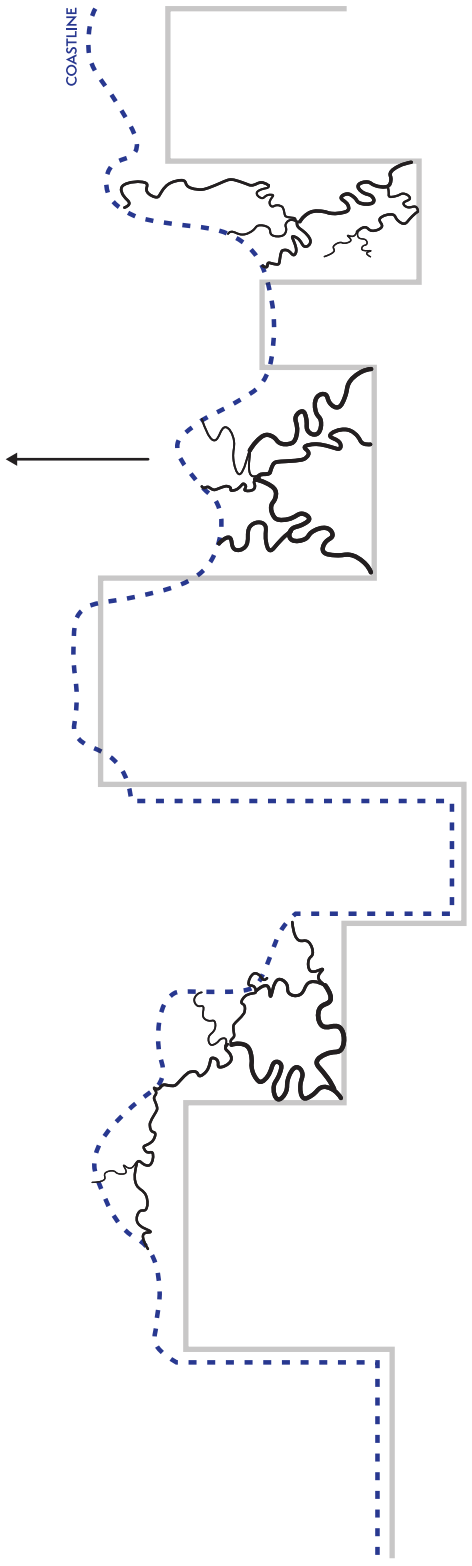
CONCEPT DIAGRAMS



NODE

The next step is adding the node, in the shape of a tower. It places itself where agent trafic is heavy and acts as an overall orientational tool as well as lending our structure a much needed verticality

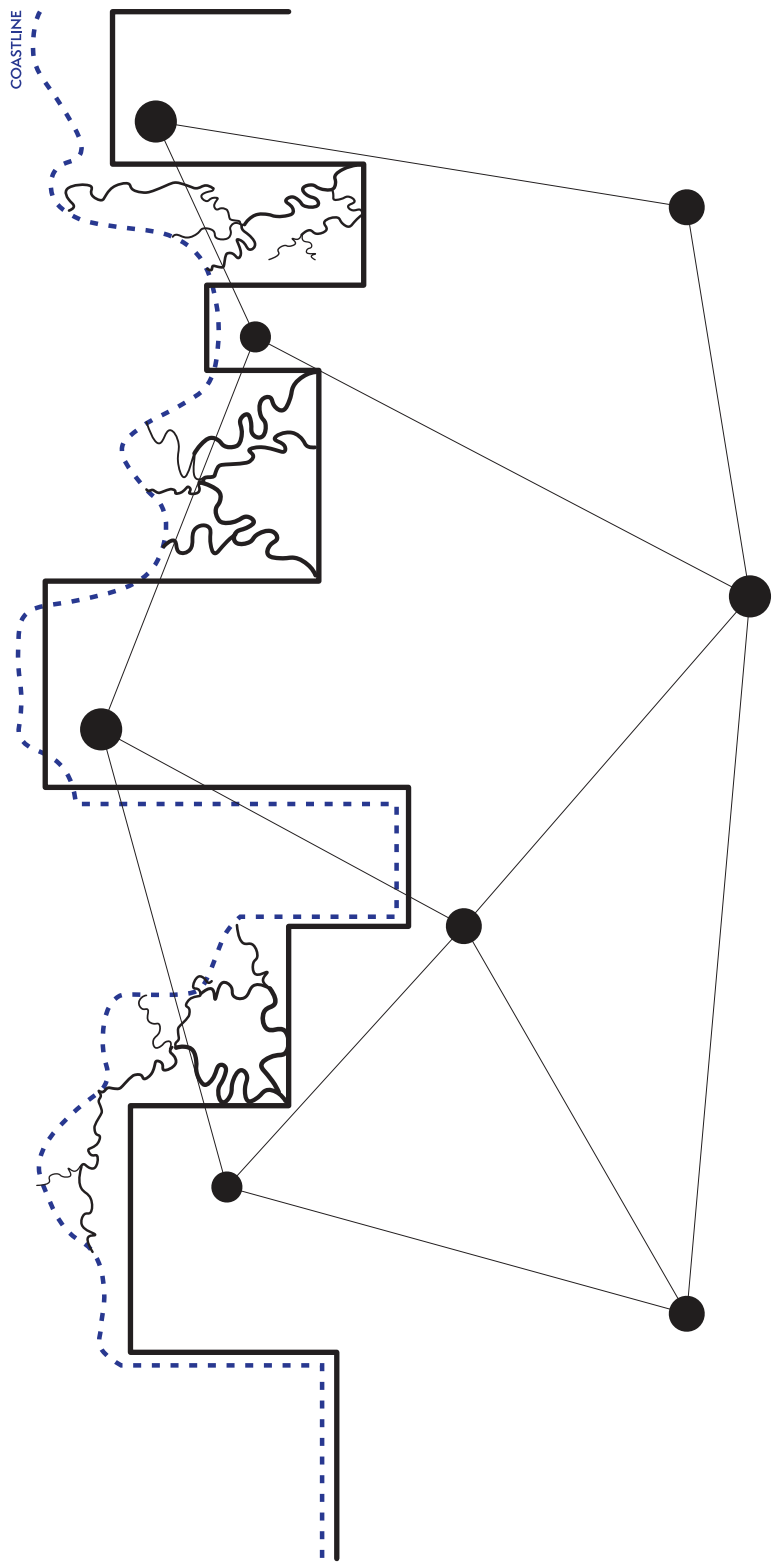
CONCEPT DIAGRAMS



FLOW

The final implementation in our network is adding the flow. It meanders through the spaces created by the first two structures, always searching for the water. Agents are led further into the otherwise inaccessible area.

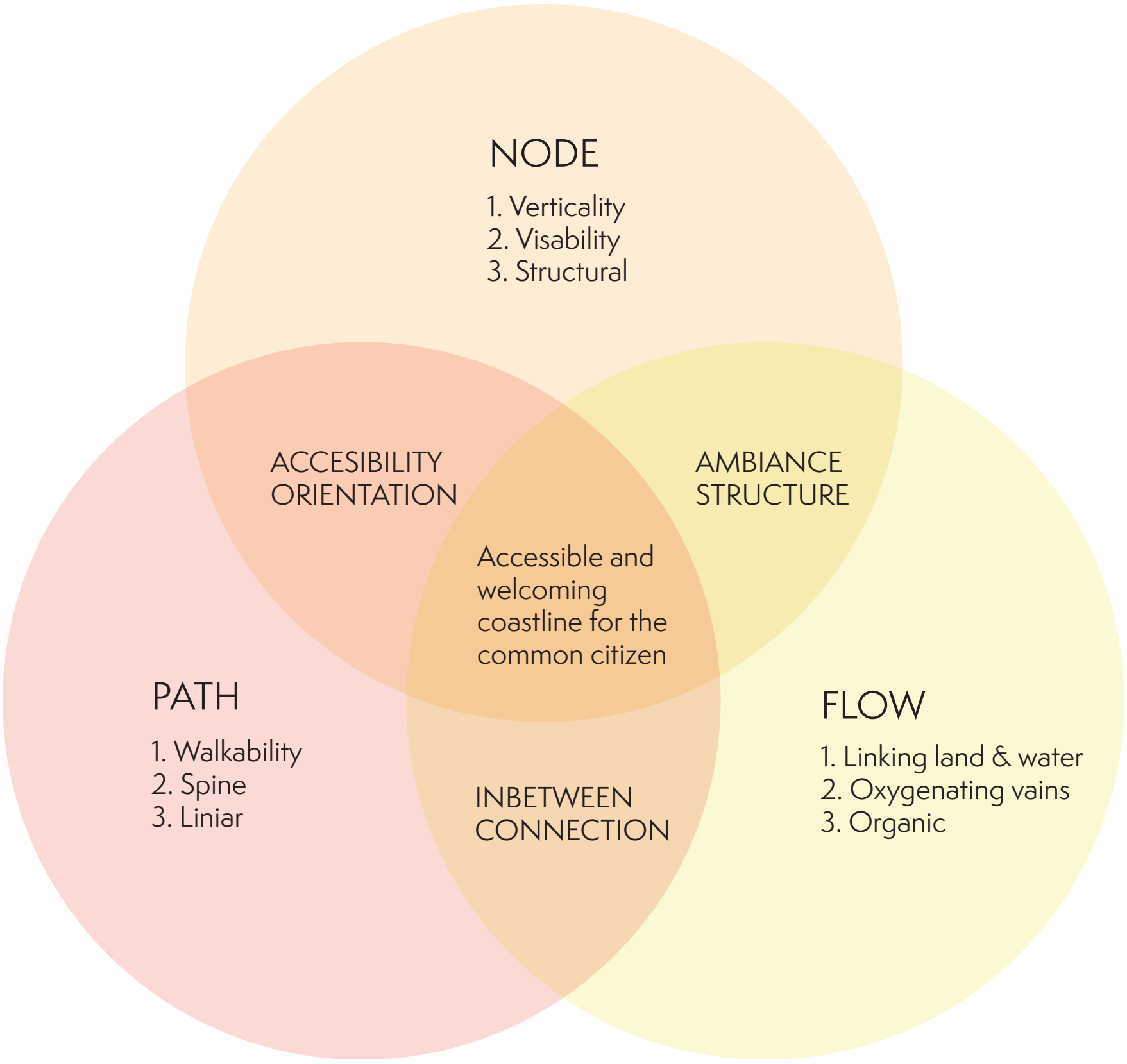
CONCEPT DIAGRAMS



COMBINED NETWORKS

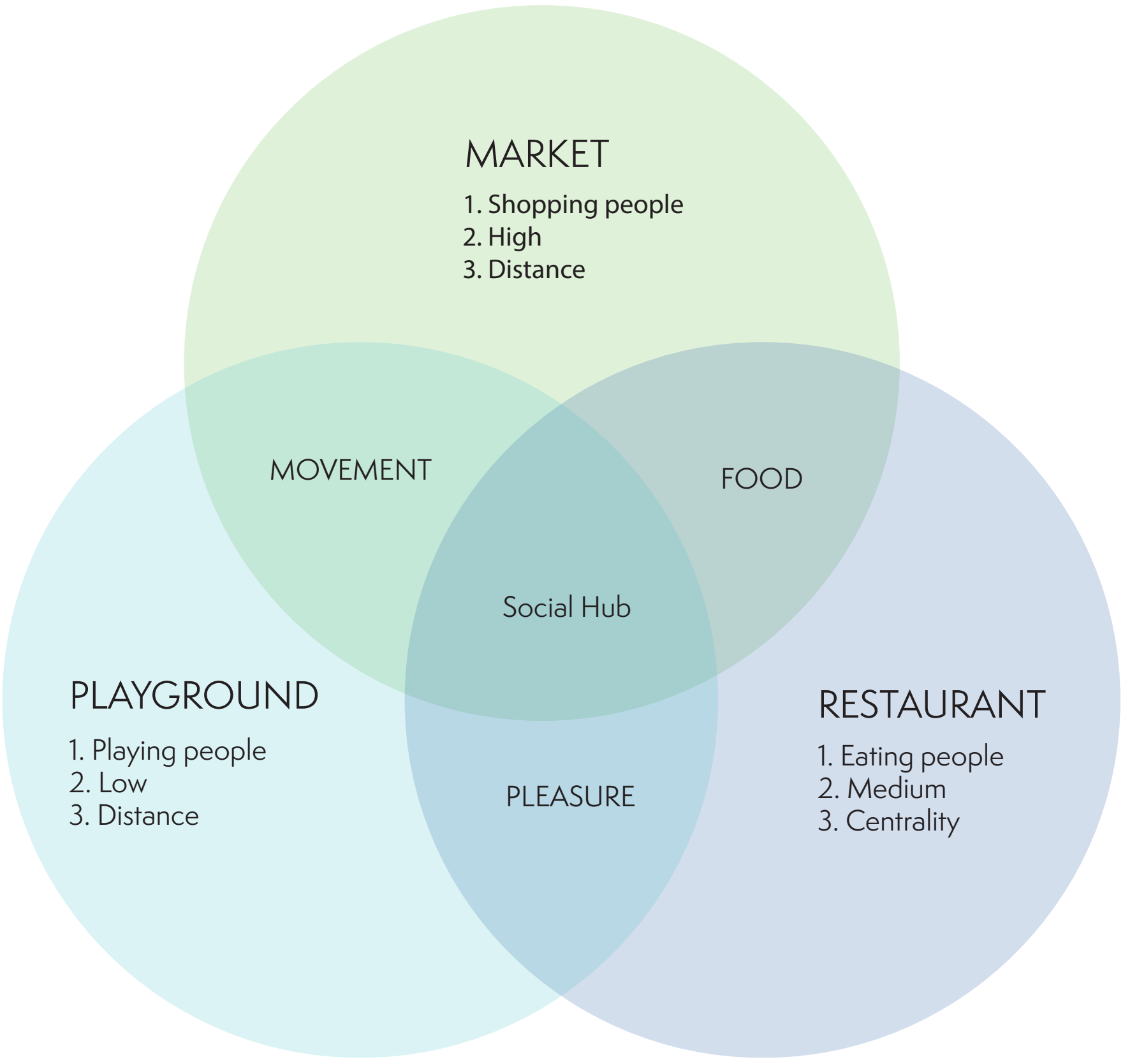
When working together, the merged structure acts as an oxygenating body for the anaerobic area along the river.

DIAGRAMMING SOLUTIONS



1. Strength
2. Part in system
3. Appearance

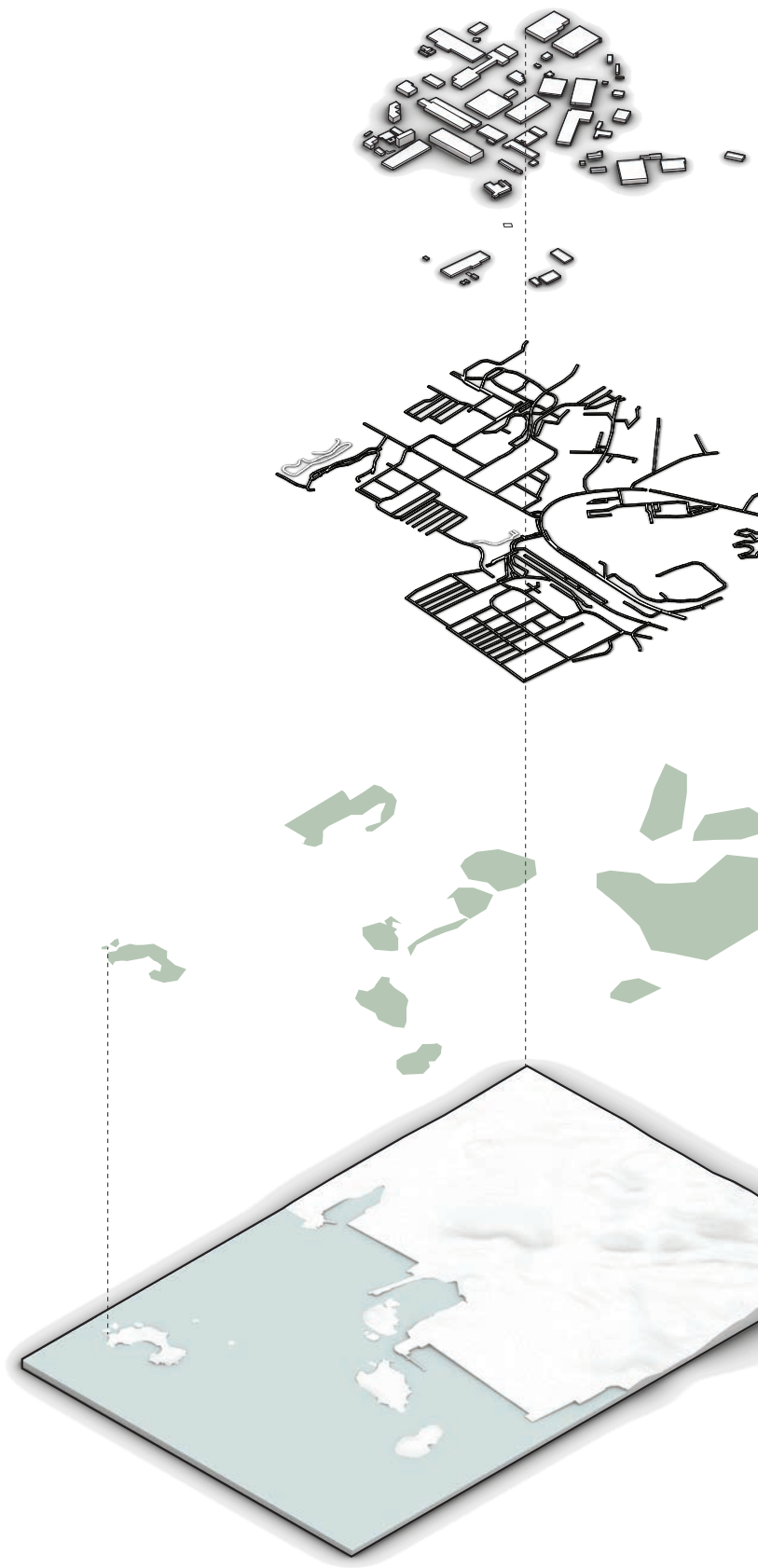
DIAGRAMMING SOLUTIONS



1. Agent
2. Intensity
3. Density logic

SITE

CLASSIFYING SITE



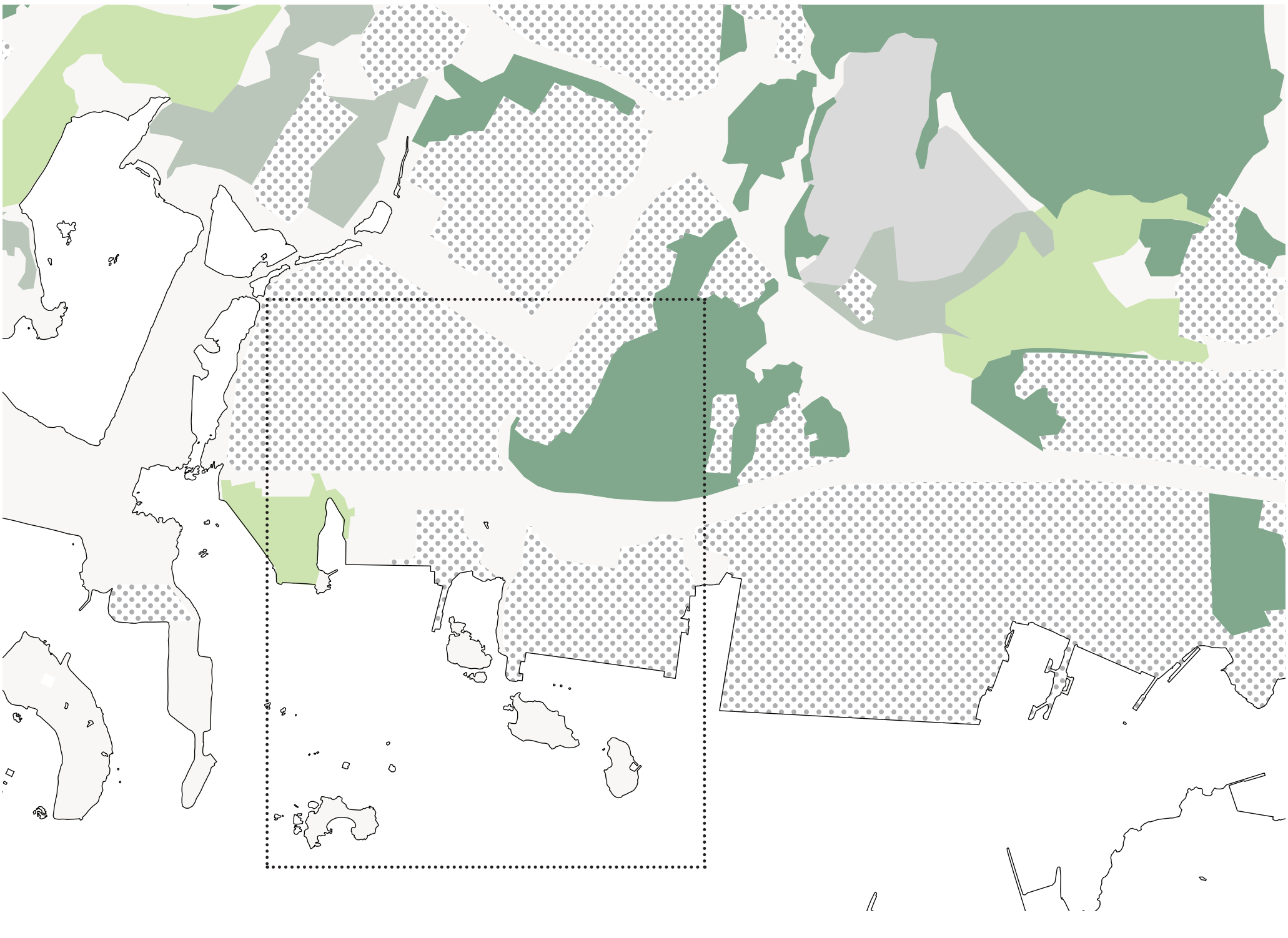
BUILDINGS

INFRASTRUCTURE

RAW LAND

TYPOGRAPHY

ZONES

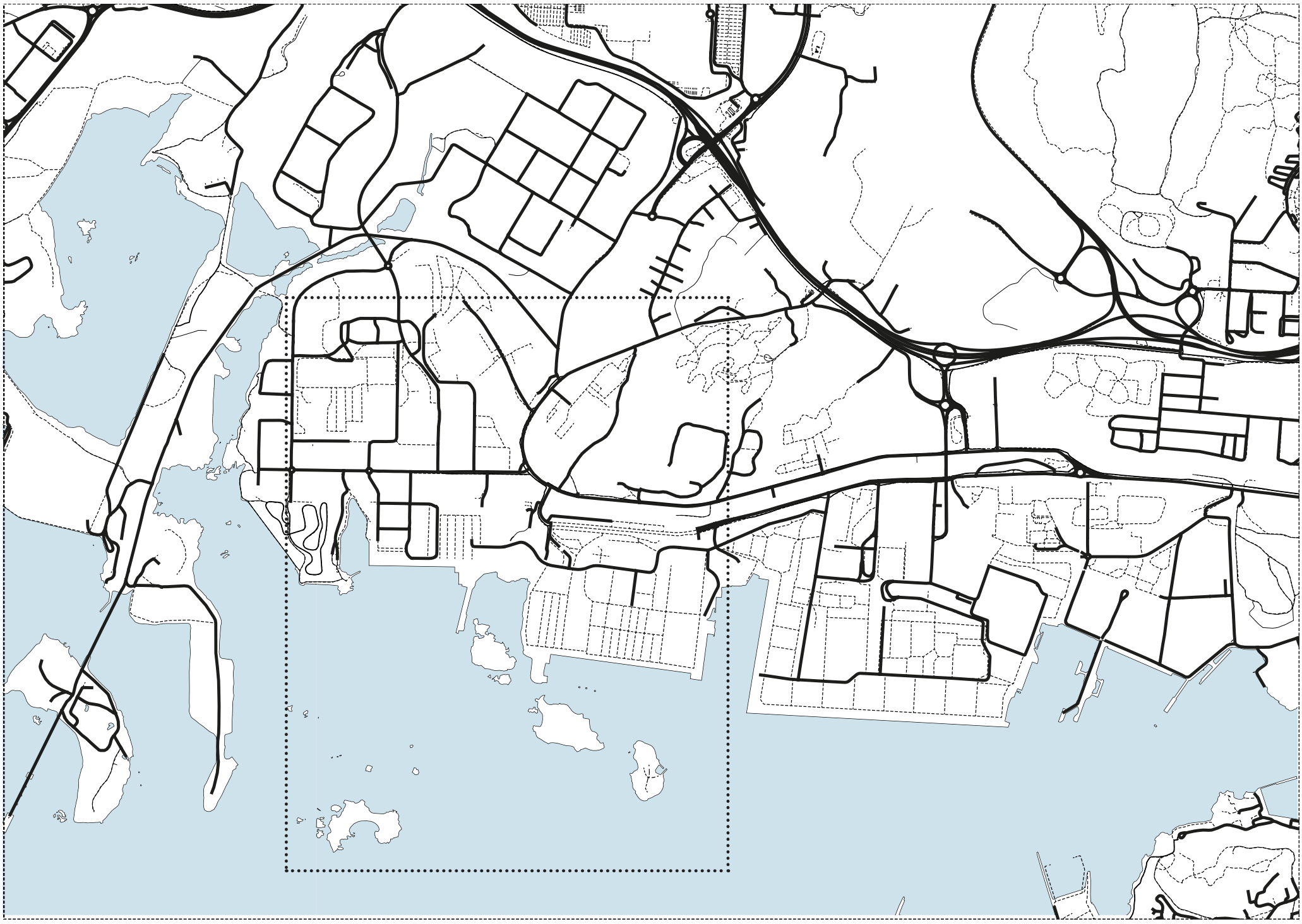


ZONE TYPES

- INDUSTRIAL
- WOODLAND
- MEADOW
- PARKLAND
- UNDER CONSTRUCTION

The mapping of the existing zones on our site visualises the inaccessibility we pinpointed in our problematisation.mostly industrial areas broken up by small stretches of infrastructure and green spaces

MAPPING ROADS



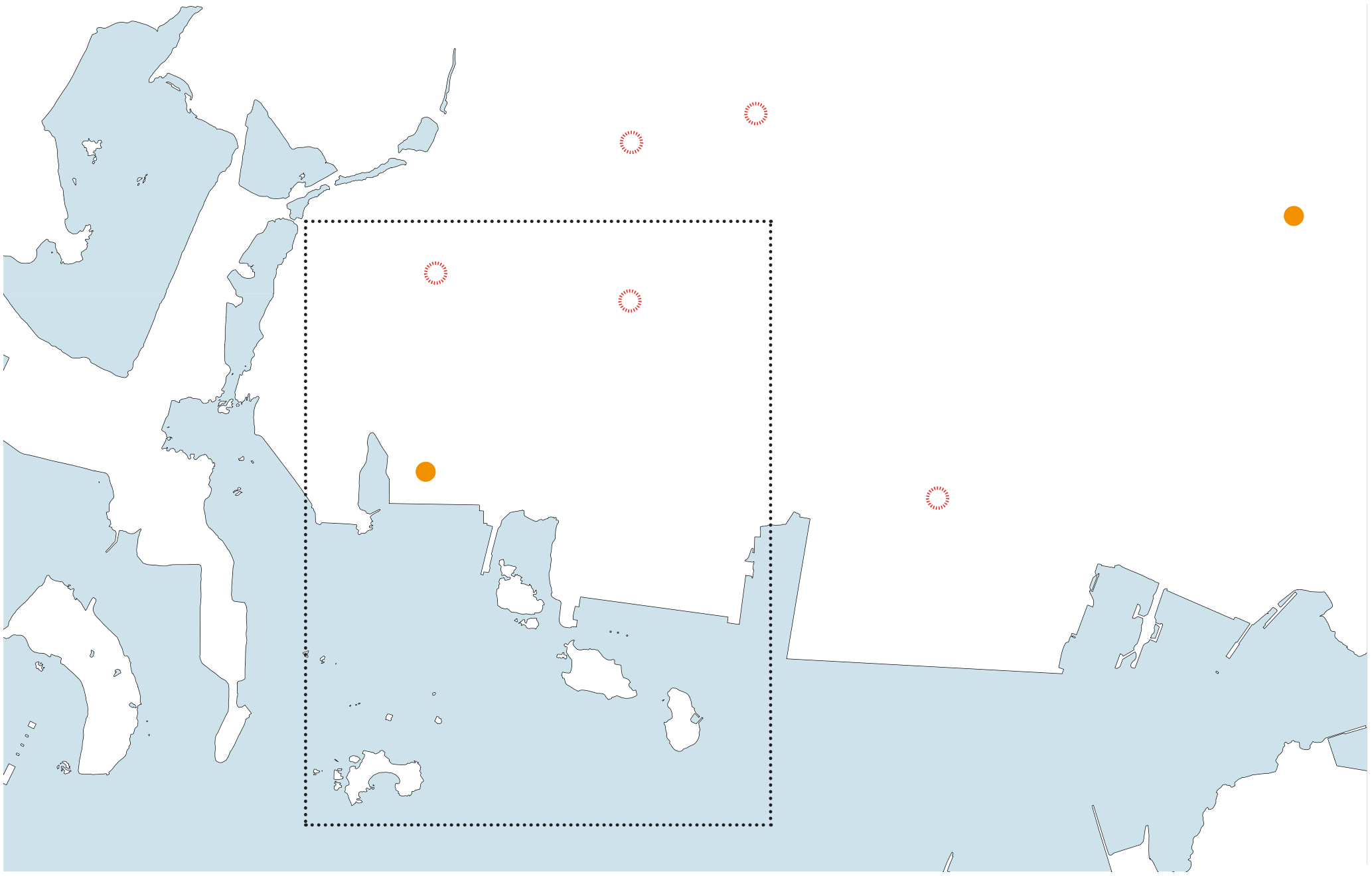
INFRASTRUCTURE TYPES

PRIMARY ROAD

SECONDARY ROAD

The roadmap shows the large scale and industrial nature of the infrastructure present at the site.

MAPPING HUMAN SPACE TYPE

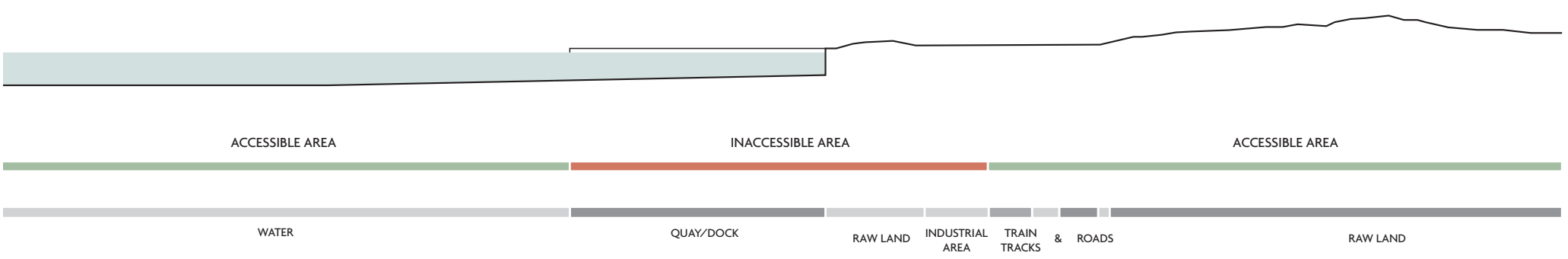


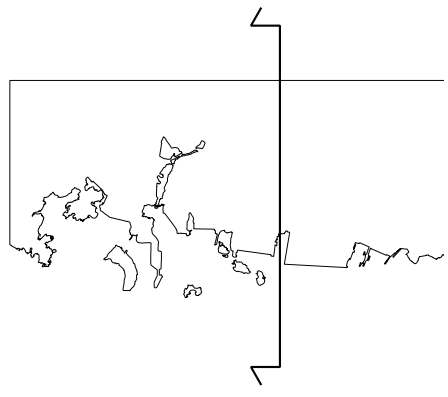
HUMAN SPACE TYPES

- LUNCH RESTAURANT
- CAFÉ
- RESTAURANT
- SUPER MARKET
- PLAYGROUND

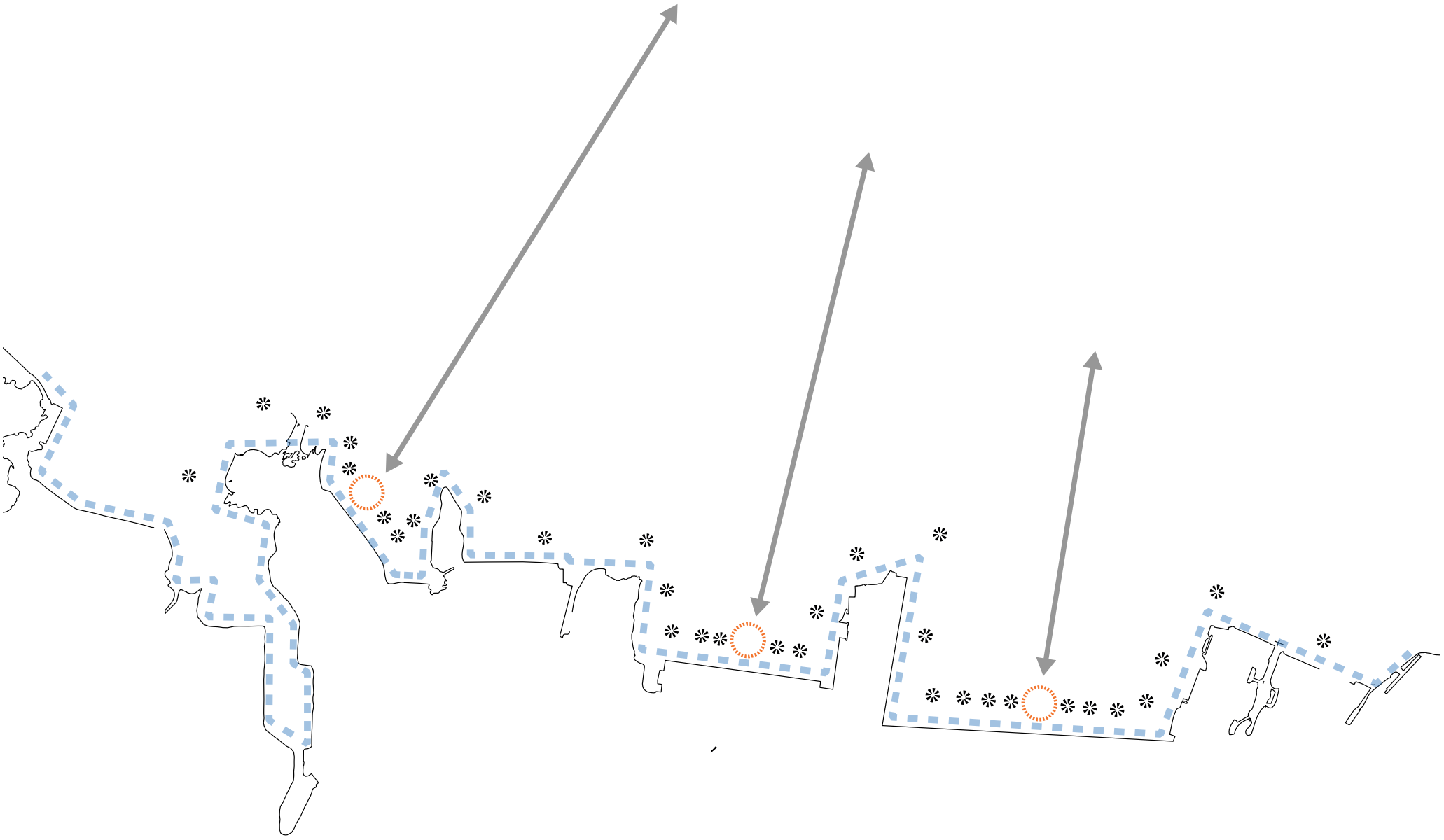
The scarcity of human spaces is apparent when you map the restaurants, stores and playgrounds in the area. It is clear noone is expected to stay here outside of business hours.

EXISTING CONDITIONS





INTERVENTION CARTOGRAPHY



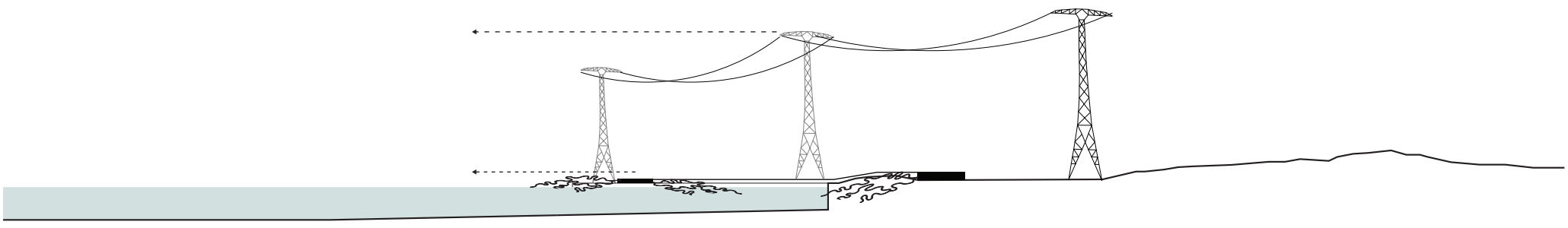
Dining people

Shopping people

Playing people

Connection land and coastline

SPECULATIVE BEHAVIOUR



ACCESSIBLE AREA

WATER | QUAY/DOCK | RAW LAND | INDUSTRIAL AREA | TRAIN TRACKS & ROADS | RAW LAND

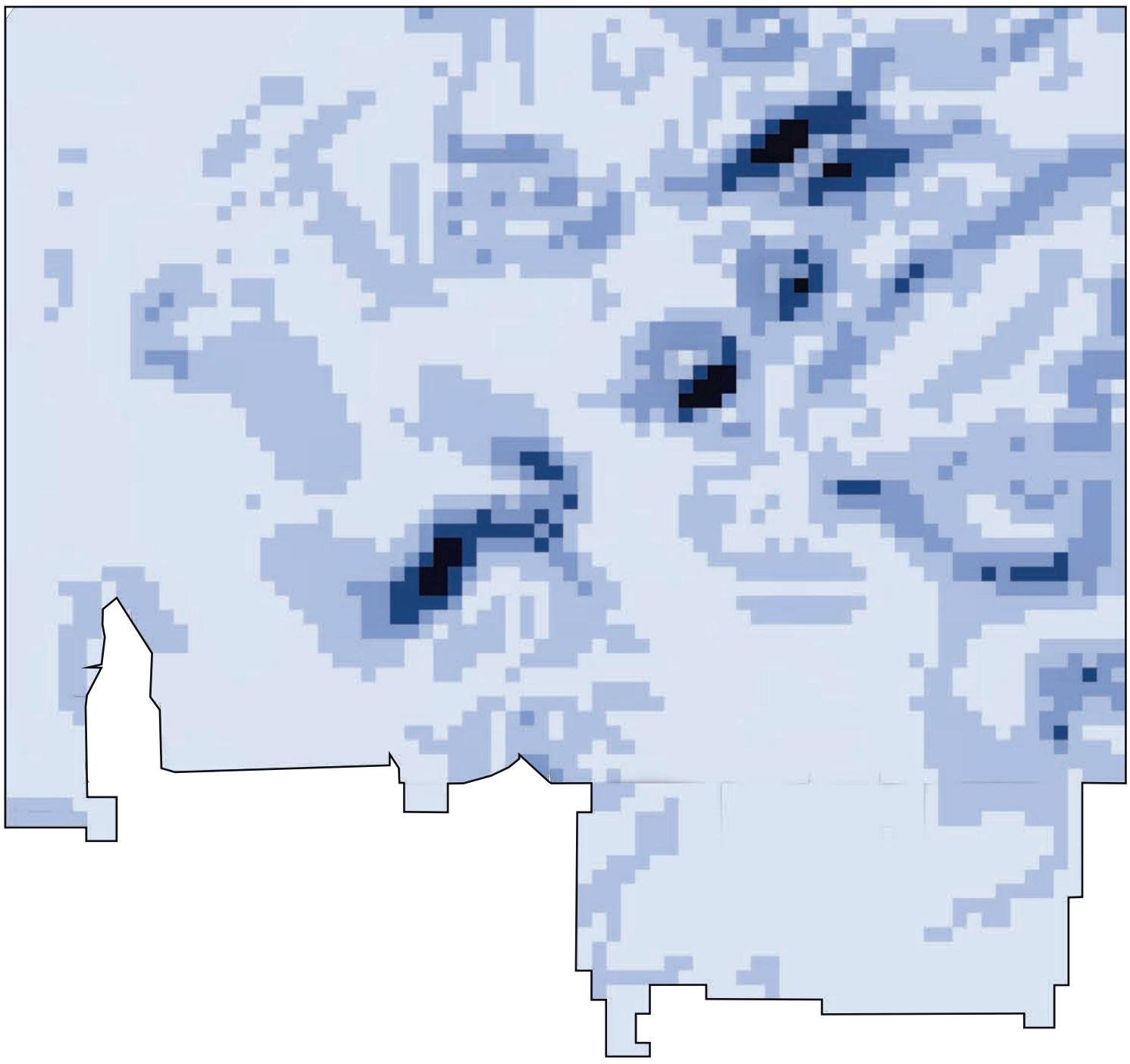
+

TOWER MARKETS

PLAY PATH

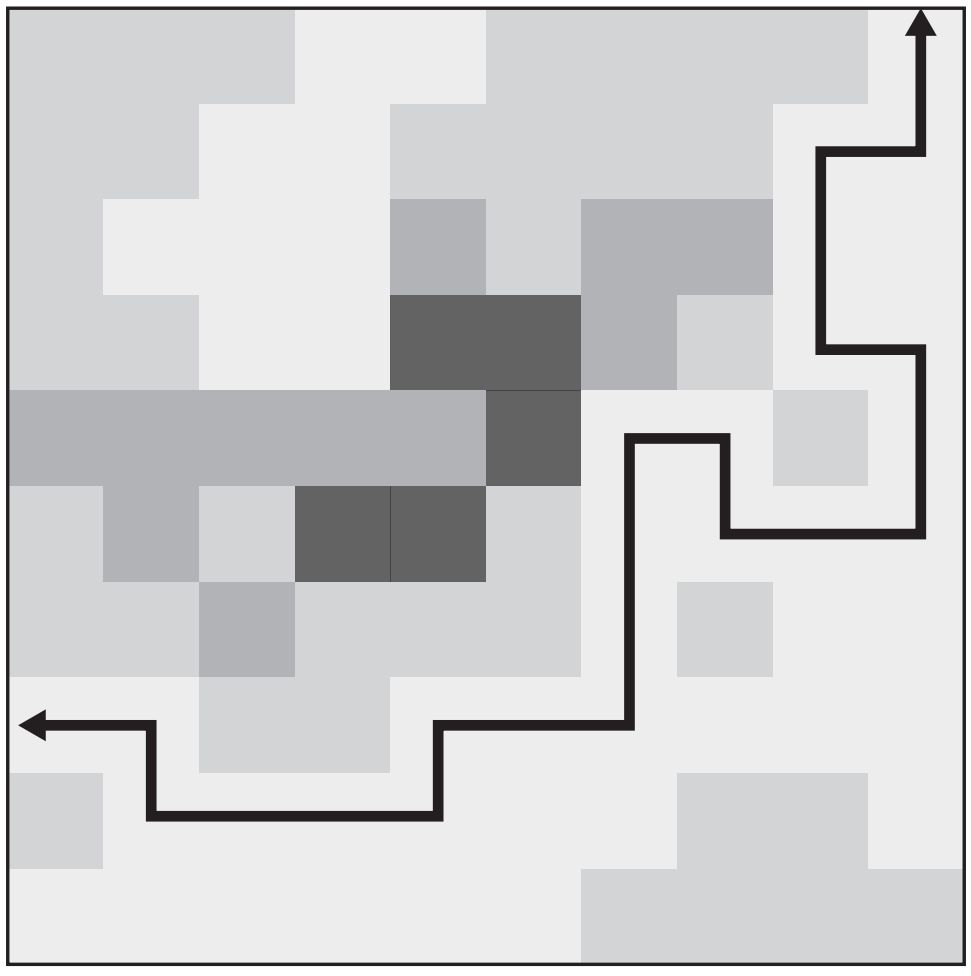
FLOWING RESTURANTS

INTERVENTION LOGIC



By analysing the inclination of our site, we identified spaces that were suitable for intervention connected to the strength of the individual structures.

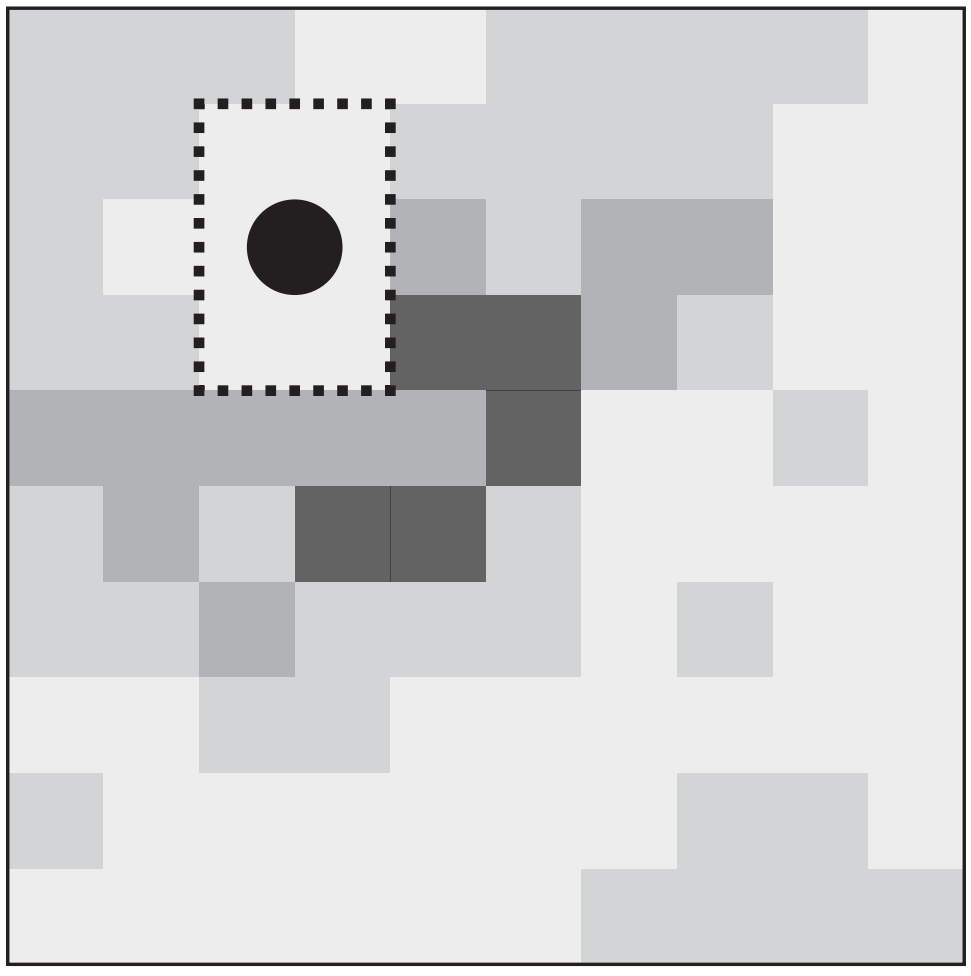
PATH LOGIC



PATH FOLLOWING INCLINE

The path wishes to find the “path of least resitance”, i.e the least inclination and around any peaks and hollows

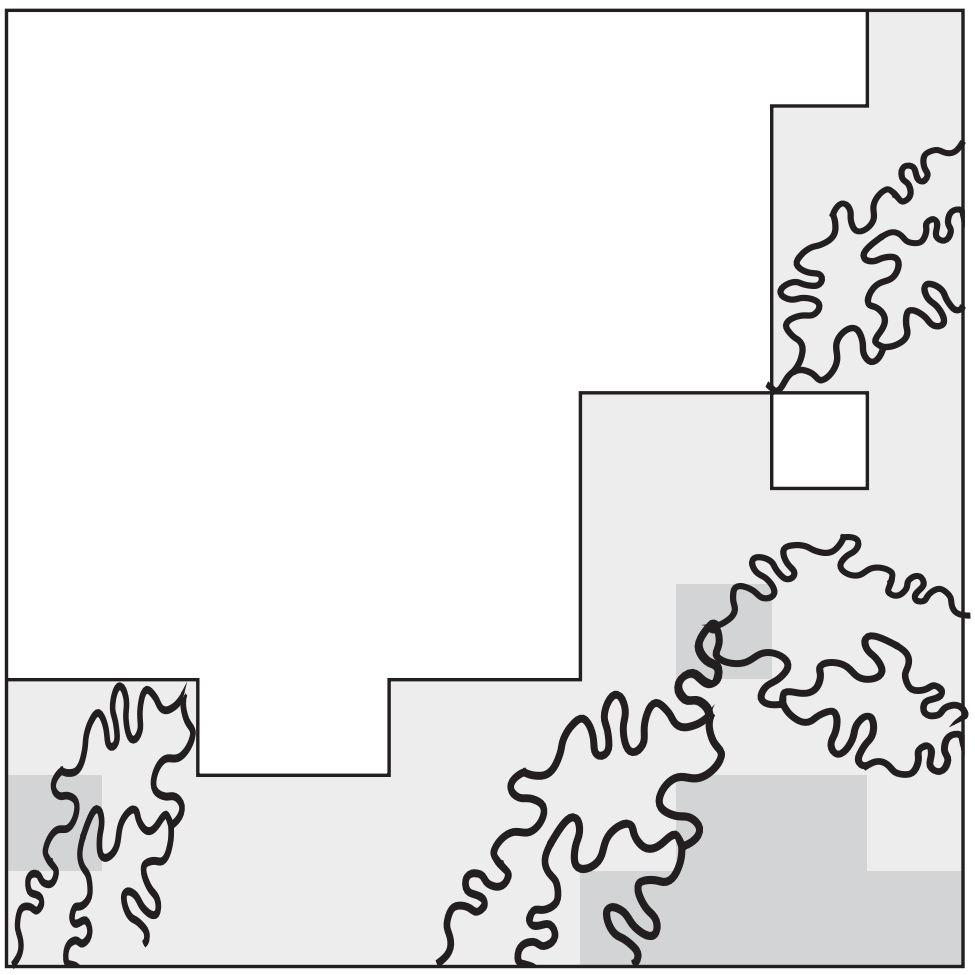
NODE LOGIC



NODE SEEKING PLATEAU

The node seeks an area of no inclination surrounded by high inclination, favoring plateaus where the possibility of transmission is best.

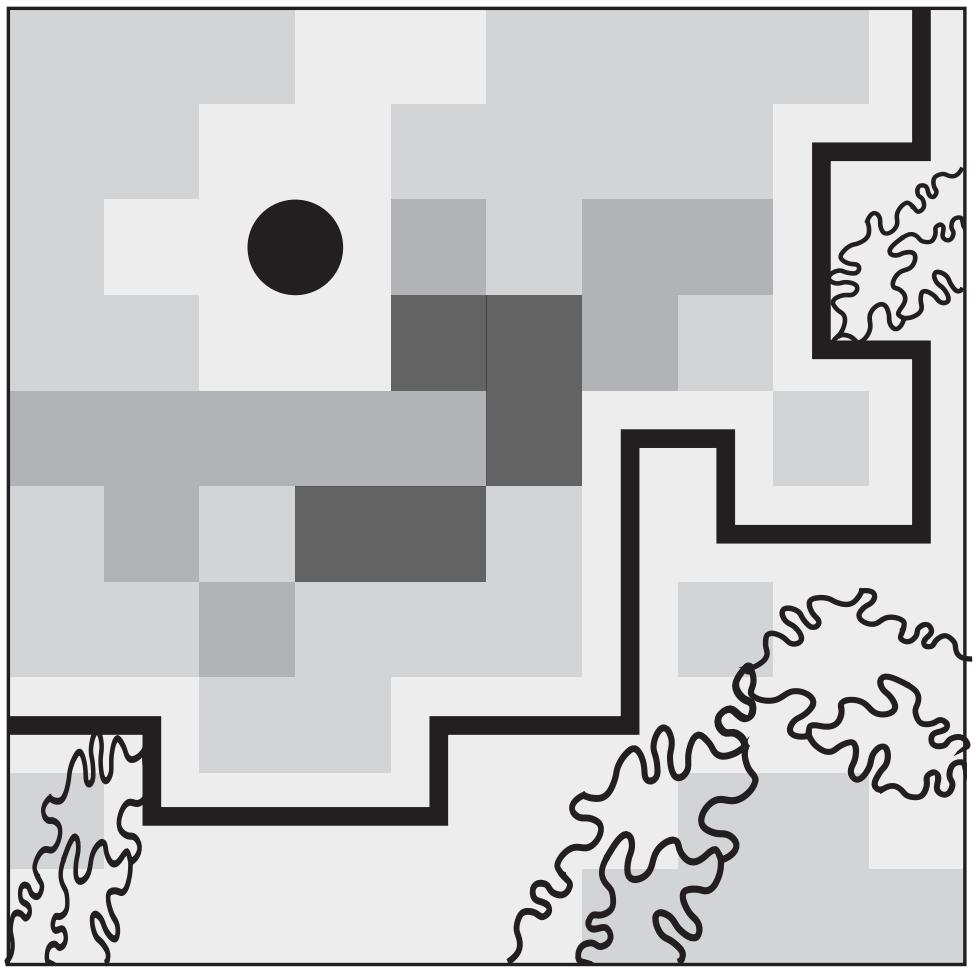
FLOW LOGIC



FLOW SEEKING WATER IN NEGATIVE SPACE

The flow seeks water in the negative space created by the other two structures, connecting our structure with the waterscape.

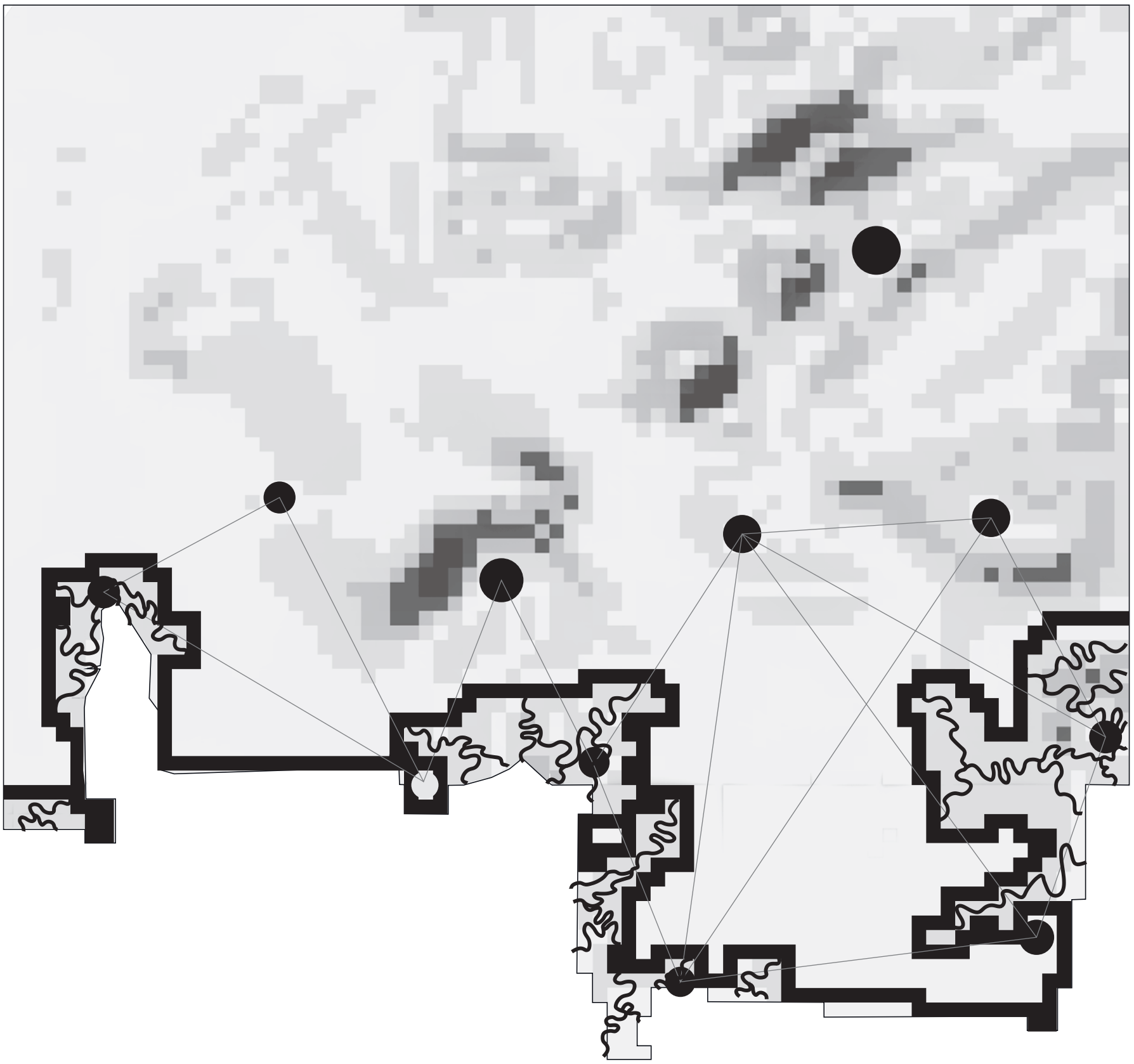
COMBINED LOGIC



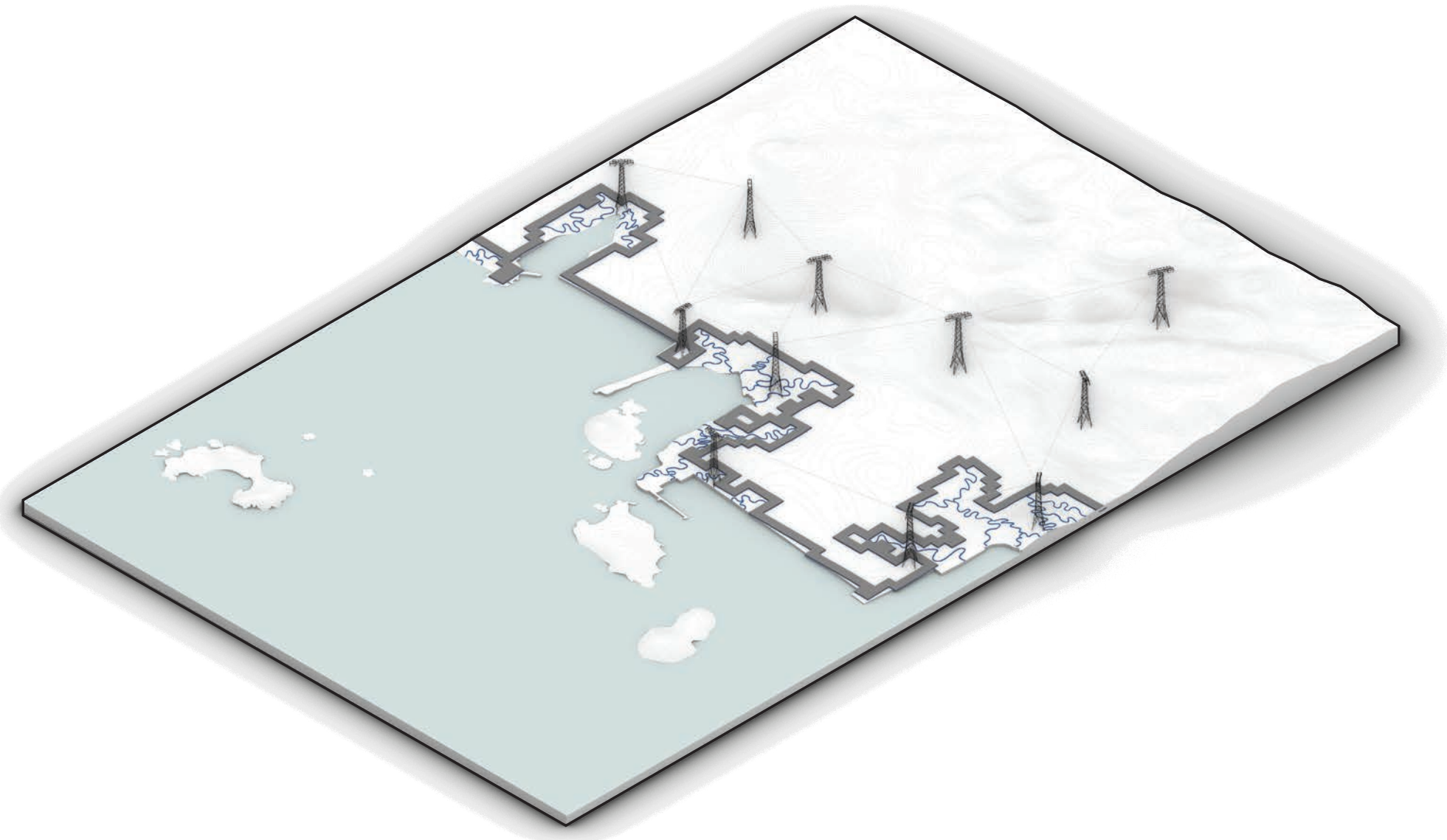
PATHS, NODES AND FLOWS WORKING TOGETHER

TO HUMANIZE COASTLINE

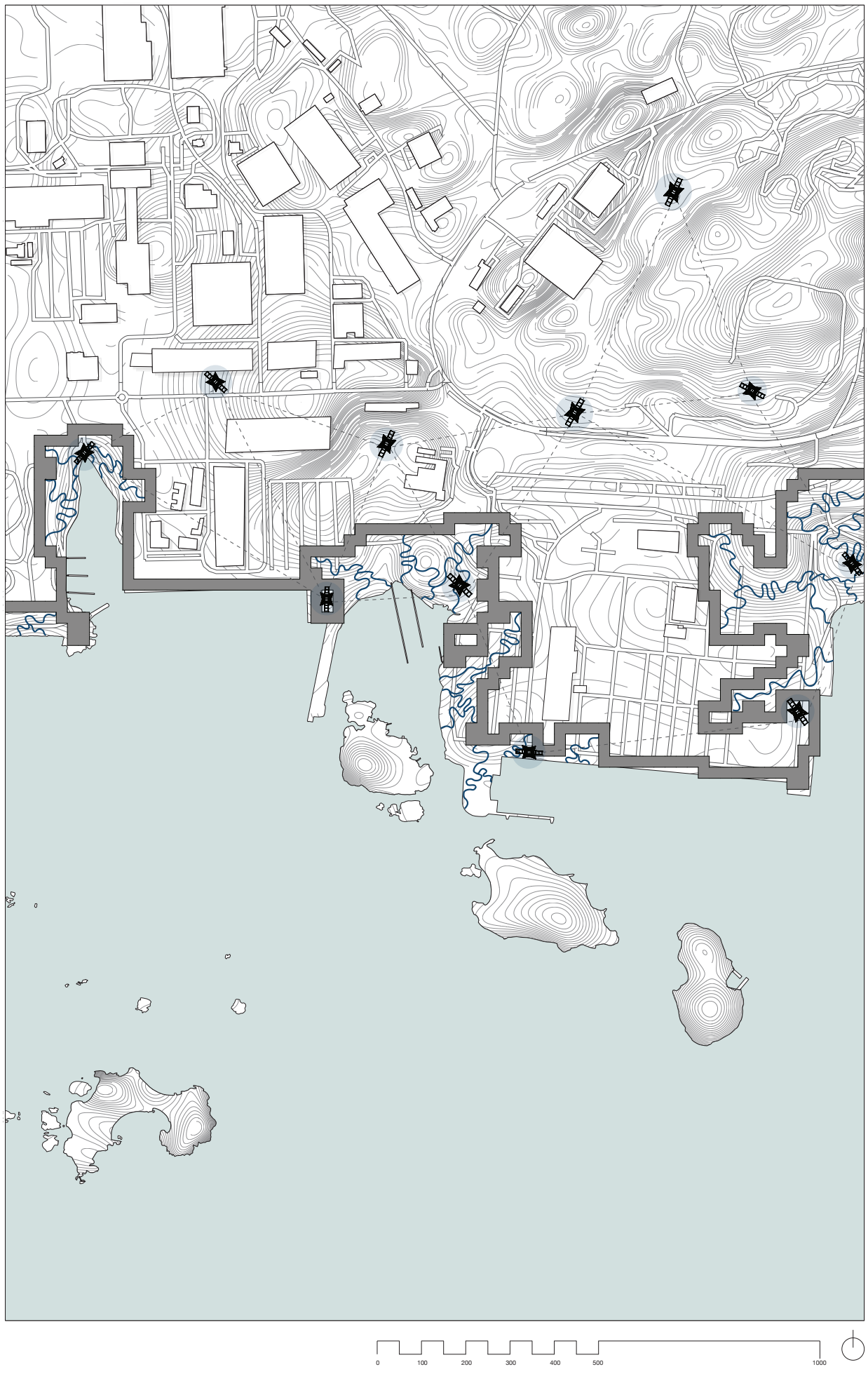
NETWORKING LOGIC



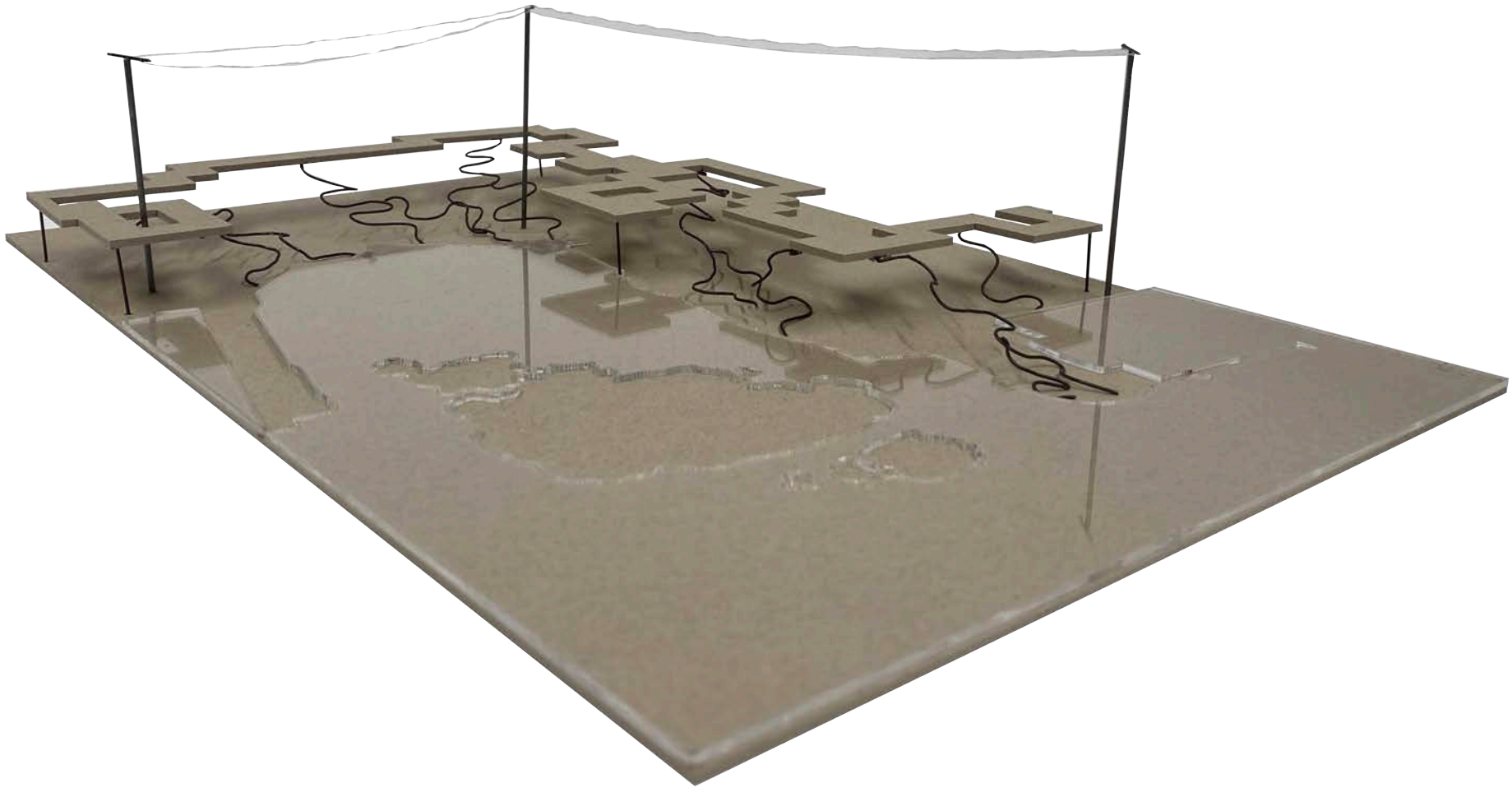
MASSING MODEL



PLAN



PHYSICAL MODEL

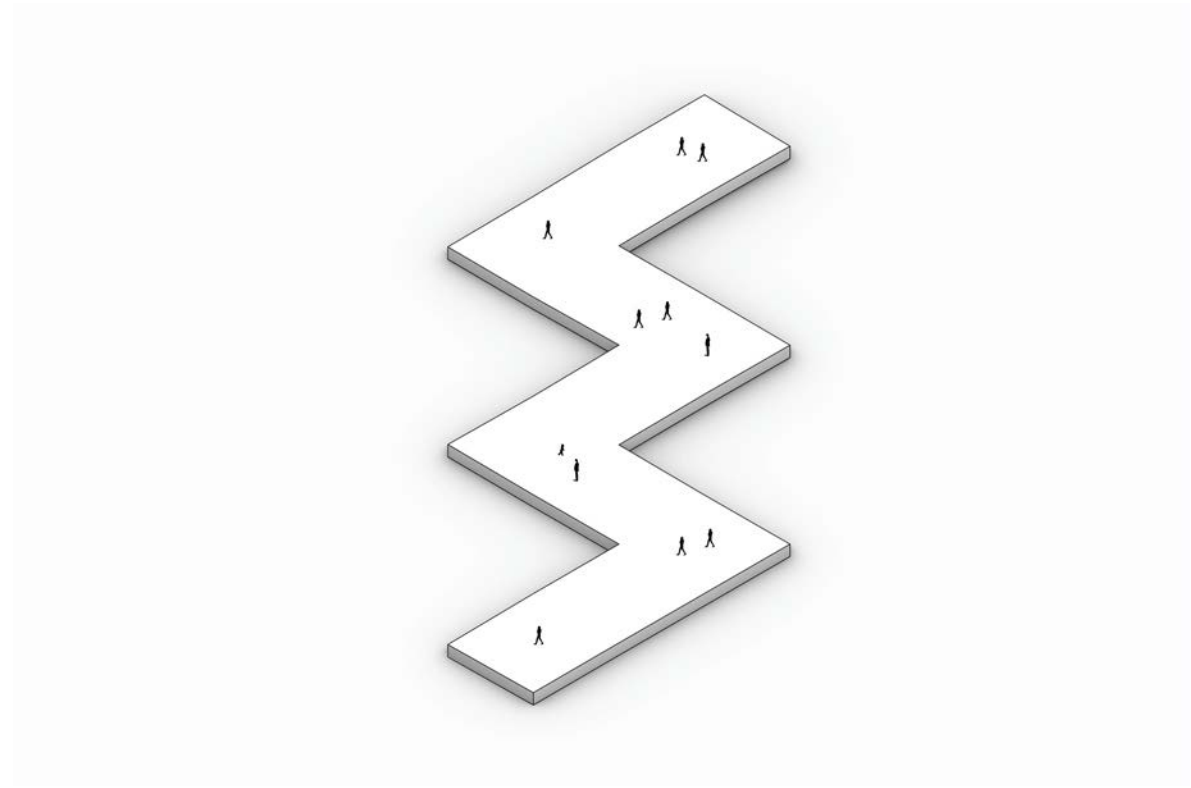


phase 3

THE SOCIAL NETWORK

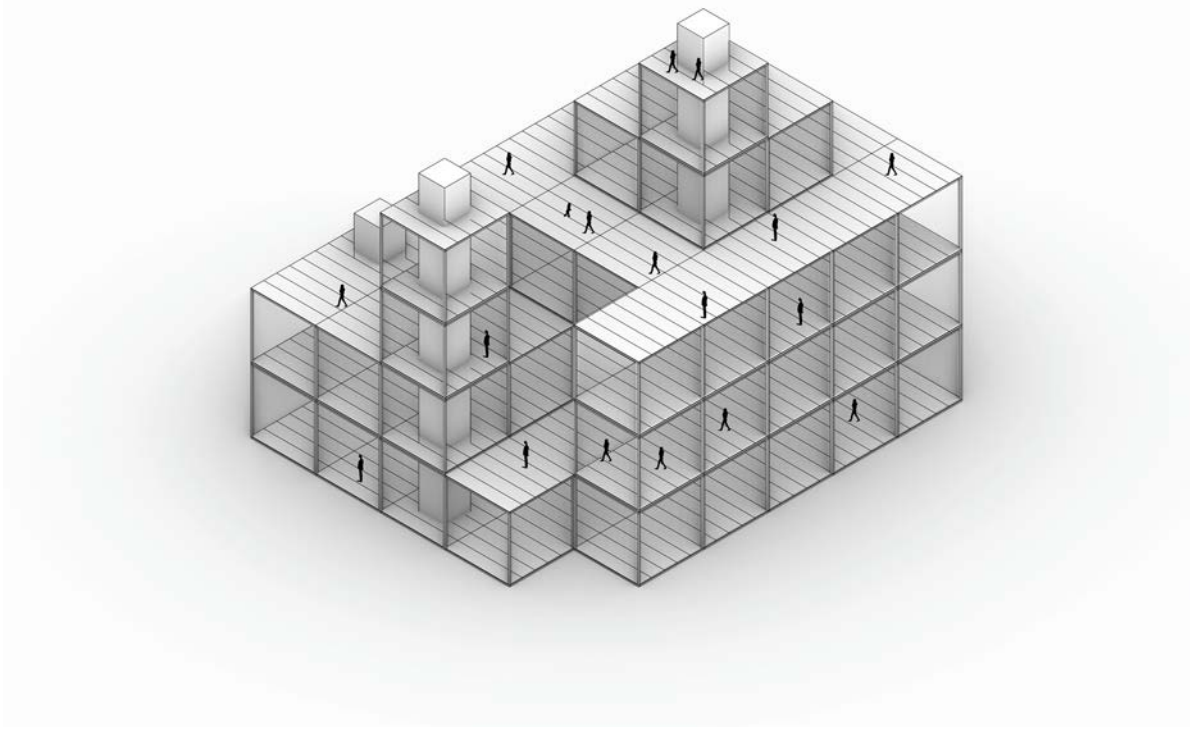
GROUP G

AGNES JANFALK
ANNA HAMMARLUND
JULIA ÖSTLUND



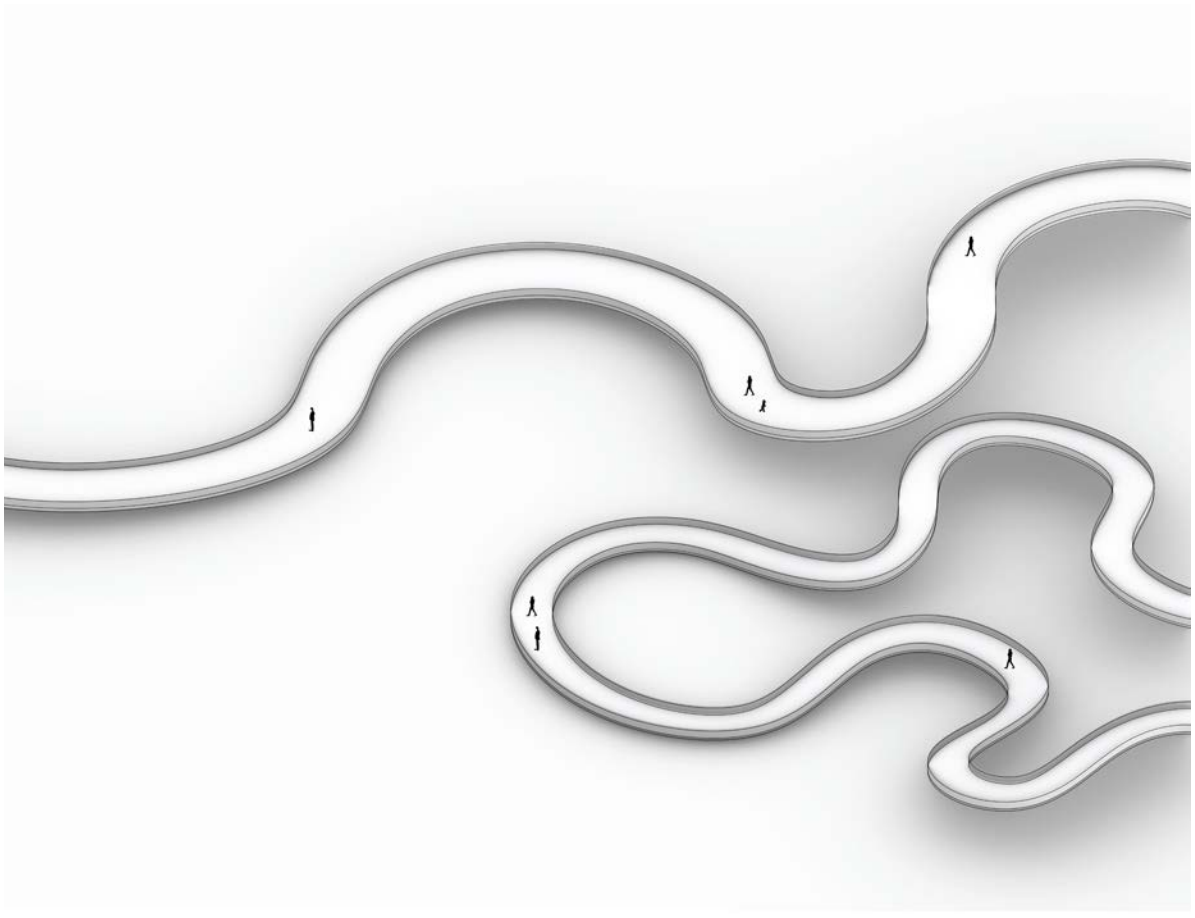
PATH

HIGH INTENSITY
LOW DENSITY



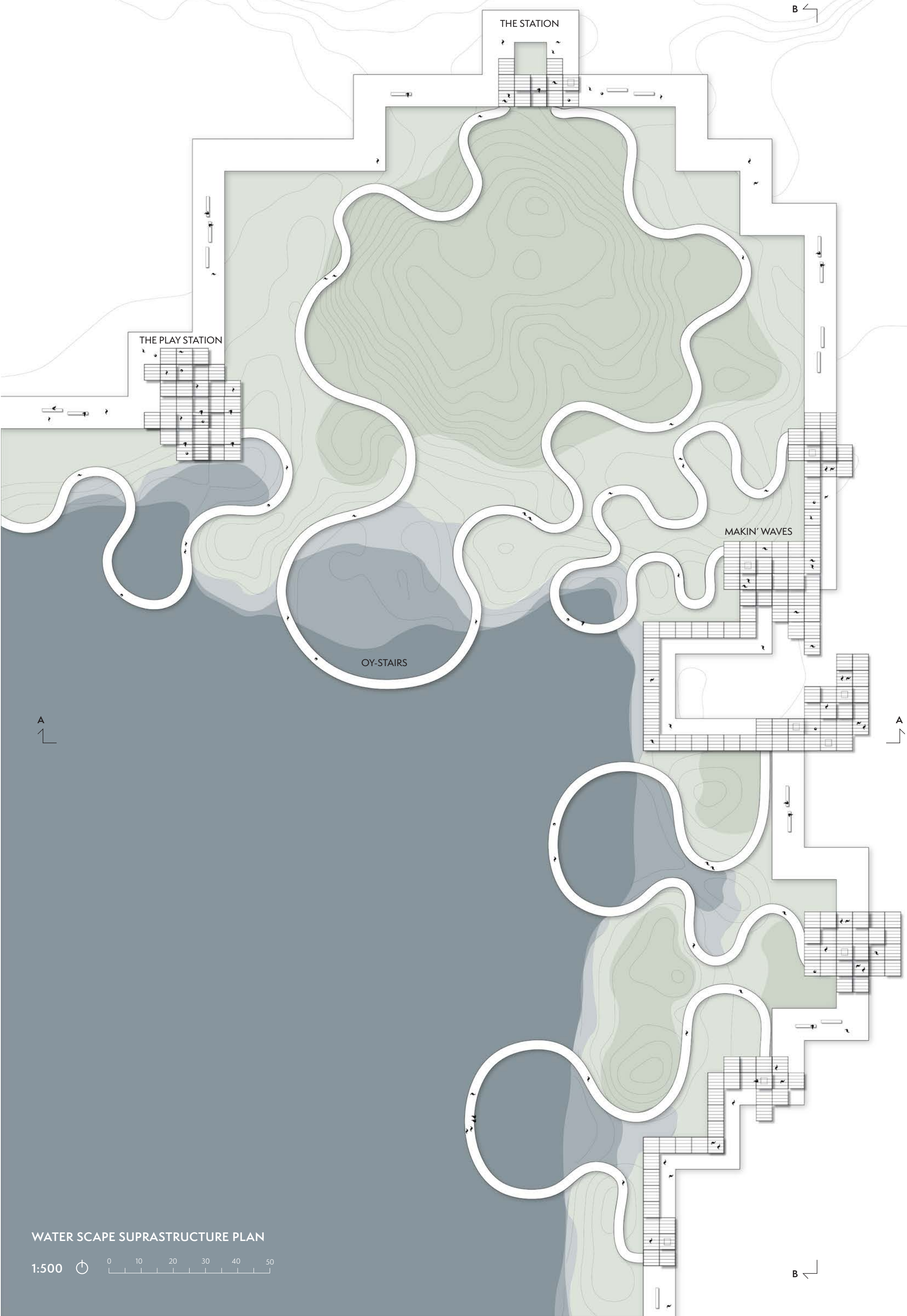
NODE

LOW INTENSITY
HIGH DENSITY



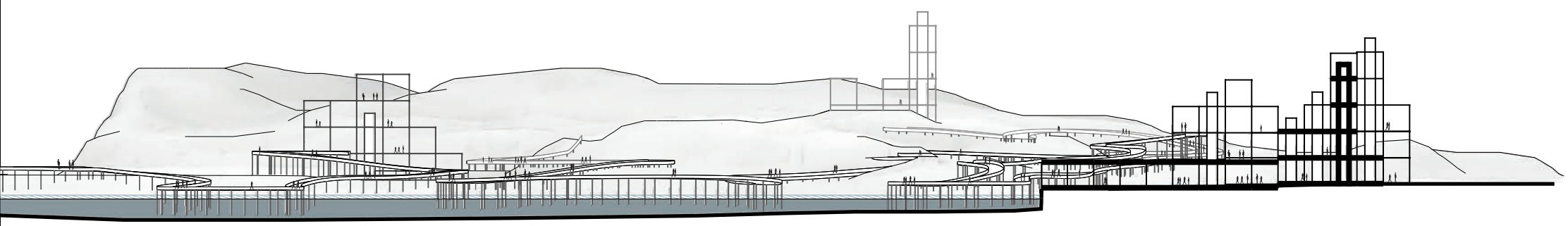
FLOW

LOW INTENSITY
LOW DENSITY



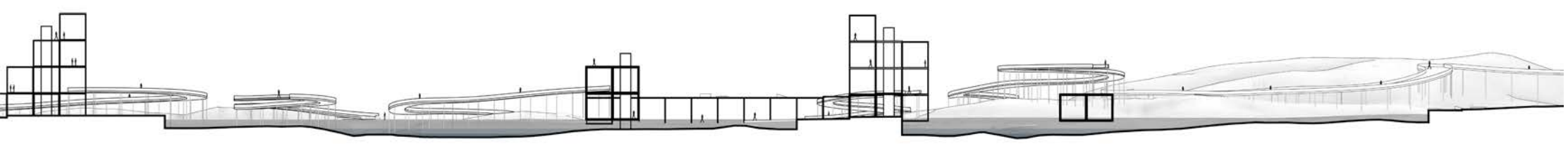
WATER SCAPE SUPRASTRUCTURE PLAN

1:500 0 10 20 30 40 50



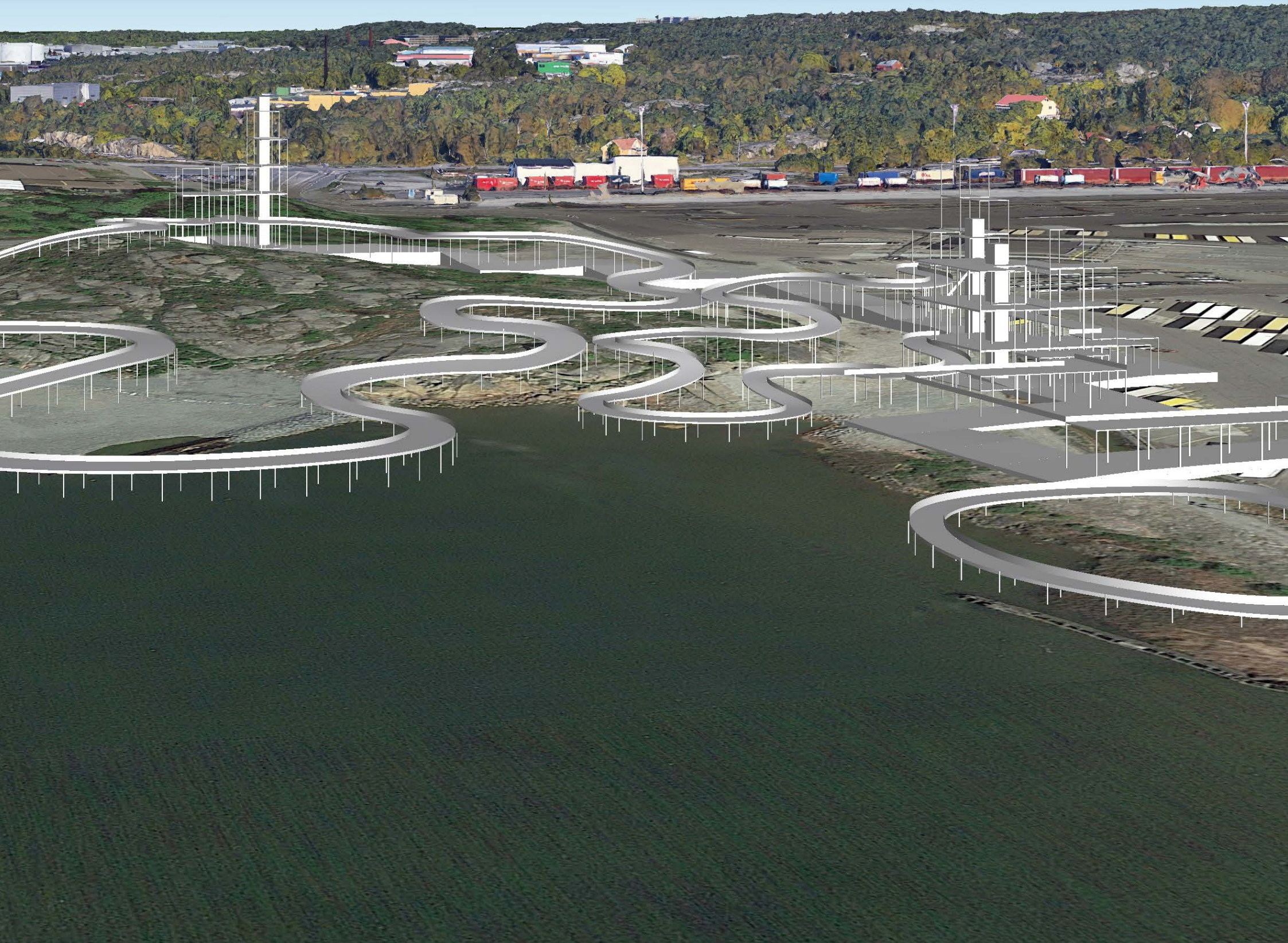
WATER SCAPE SUPRASTRUCTURE SECTION A-A
1:1000

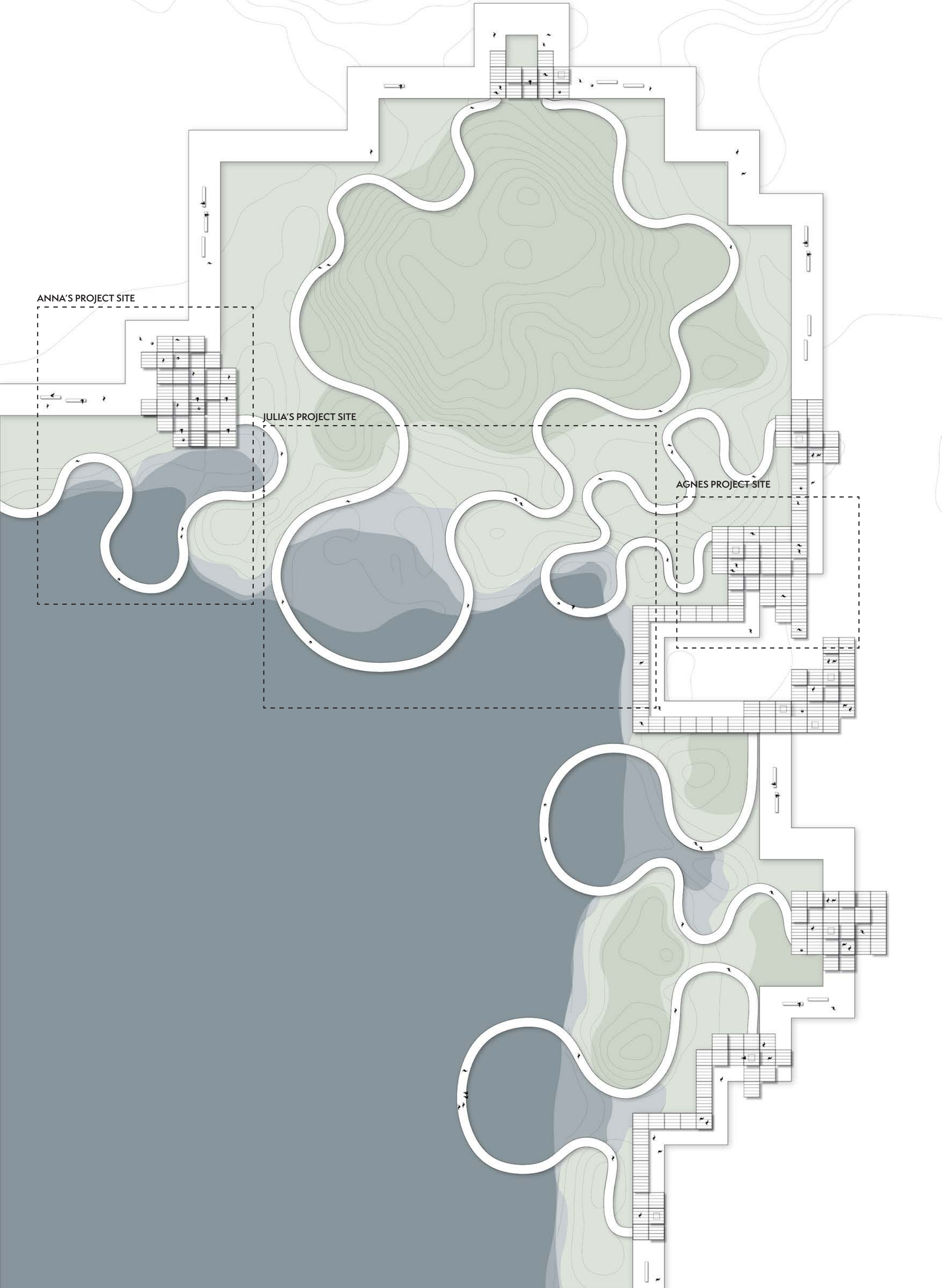
0 10 20 30 40 50

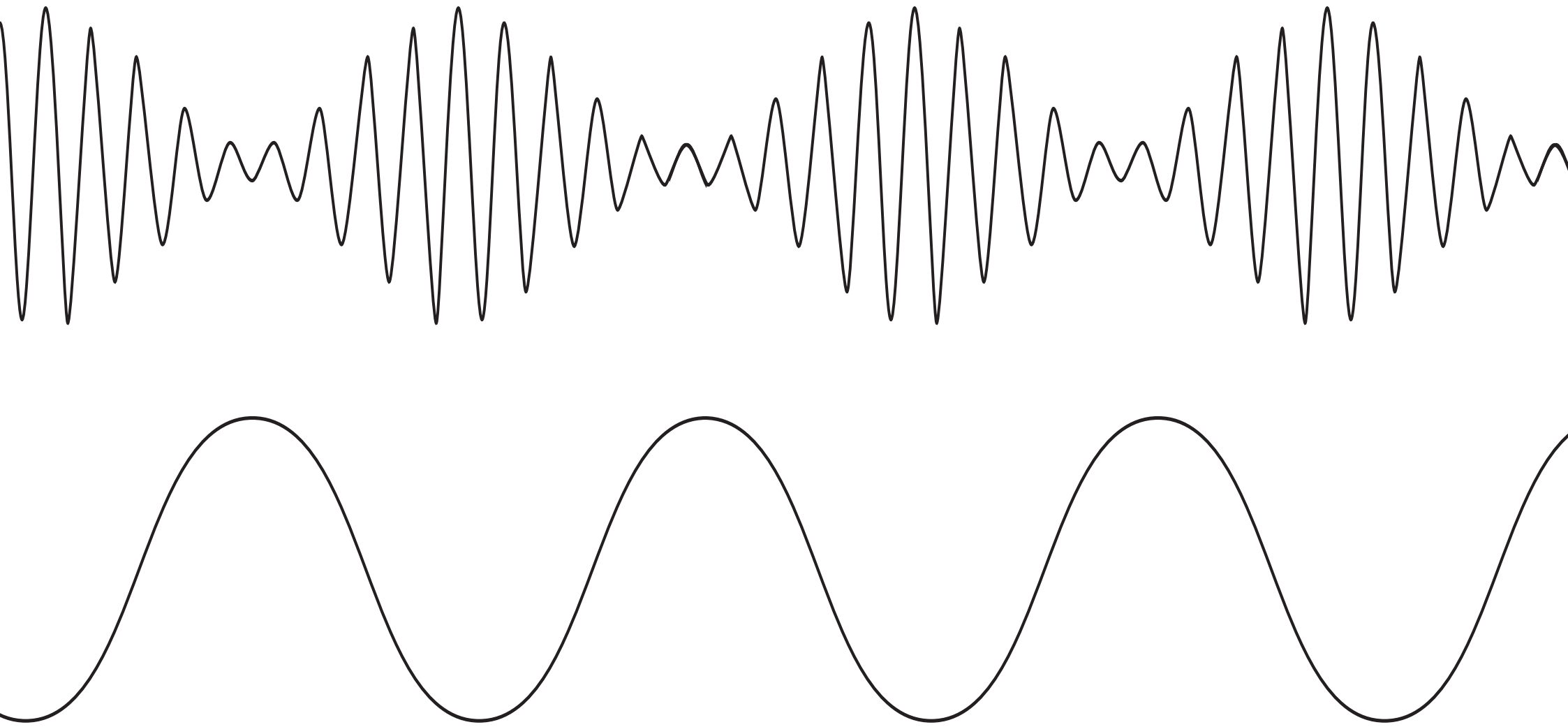


WATER SCAPE SUPRASTRUCTURE SECTION B-B
1:1000

0 10 20 30 40 50



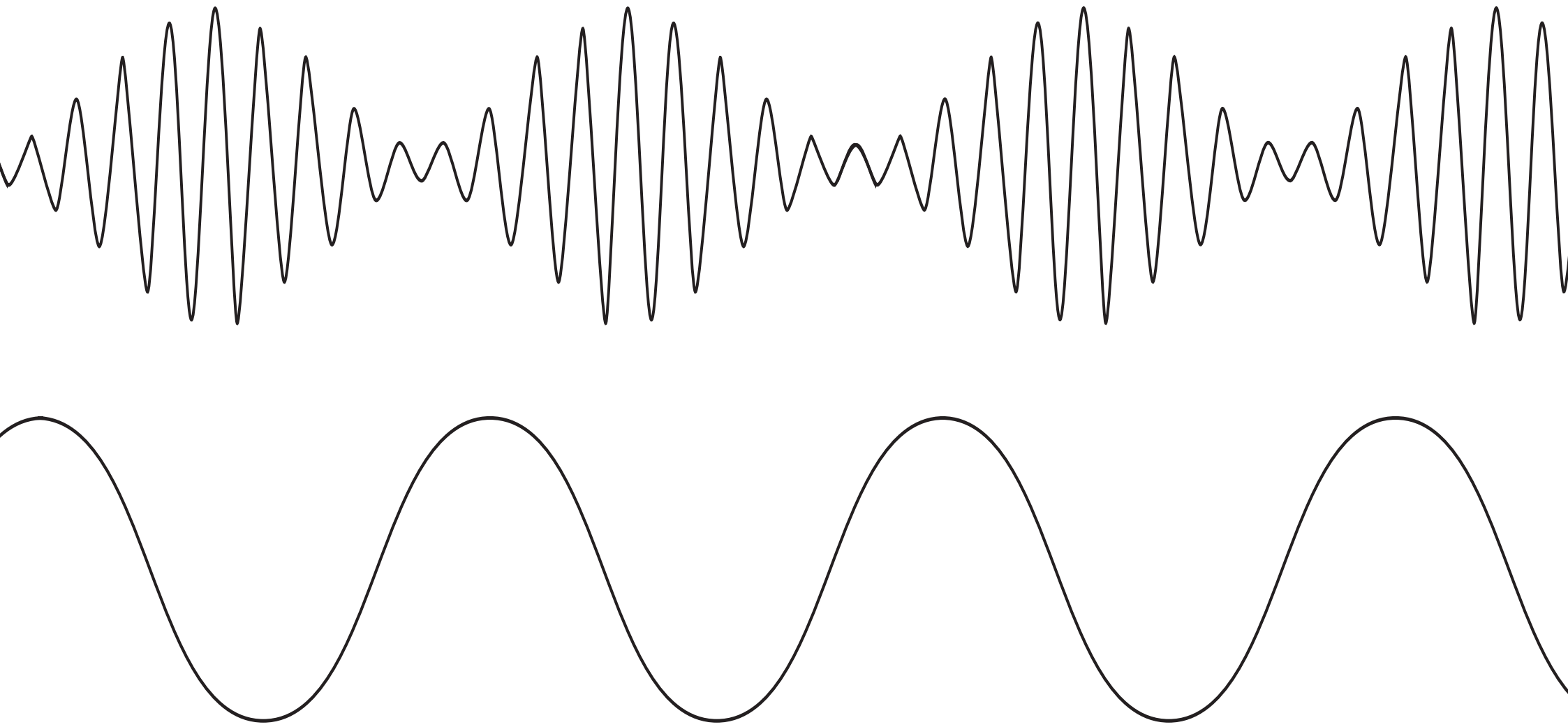

ANNA'S PROJECT SITE
JULIA'S PROJECT SITE
AGNES PROJECT SITE



MAKIN' WAVES

Reusing decommisioned radio towers for an aquaponic structure in the port of Gothenburg

AGNES JANFALK



INTRO

The focus of this project is to develop the typology of the 'node', the organ of the suprastructure, as well as dealing with the problem of privatization of the coastline in Gothenburg.
The node contributes with a necessary oxygenation of the project, something to draw people in, a space to congregate, acting to rehumanize the industrial landscape.

The original souk and radio tower hybrid has been deconstructed. fractioned into its smallest components, the steel rods with which it is constructed, and the market was reimagined as a space for food production instead of food transaction.
Anyone can come and reap the benefits of the system, a sort of communal allotment garden.

In addition to the productional spaces recreational and unprogrammed spaces are built in as well, as a way to expand the possible uses of the structure.
The enclosed spaces act as a shelter to the harch winds of autumn gothenburg or a cool respite on a rare hot summer day.

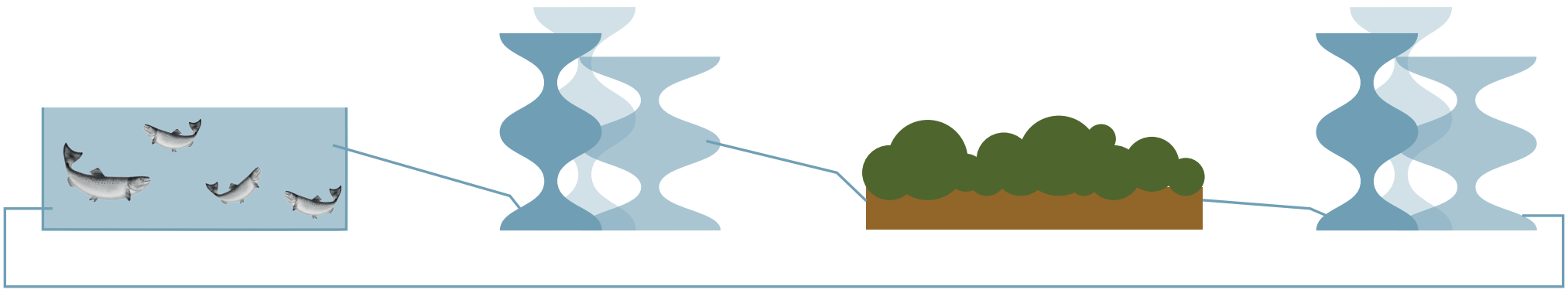
AQUAPONICS

1.
REARING TANK FOR RAINBOW TROUT
FISH WASTE ENRICHES THE WATER WITH NUTRIENTS

2.
SETTLING TANK
BACTERIAL CULTURE CONVERTS FISH WASTE TO NITRATE

3.
PLANT BED
NITRATE ACTS AS NUTRIENT FOR PLANTS

4.
SUMP TANK WITH PUMP
CLEAN WATER IS PUMPED BACK INTO REARING TANK



FOR EVERY 1m² OF FISHTANK THE SYSTEM NEEDS APPROXIMATELY 20m² OF PLANT BEDS

YIELD
PLANT BEDS: 45kg/m² PER YEAR
FISH TANK: 5kg/m² EVERY 4 MONTHS, OR 15kg/m² PER YEAR

YEARLY YIELD OF 1 UNIT: 900kg OF VEGETABLES AND 15kg OF FISH

DESIGN PRINCIPLES

THE STRUCTURE IS BUILT BY A COLLECTION OF CONCEPT BOXES

THE AQUAPONIC BOX
with rearing tanks for fish

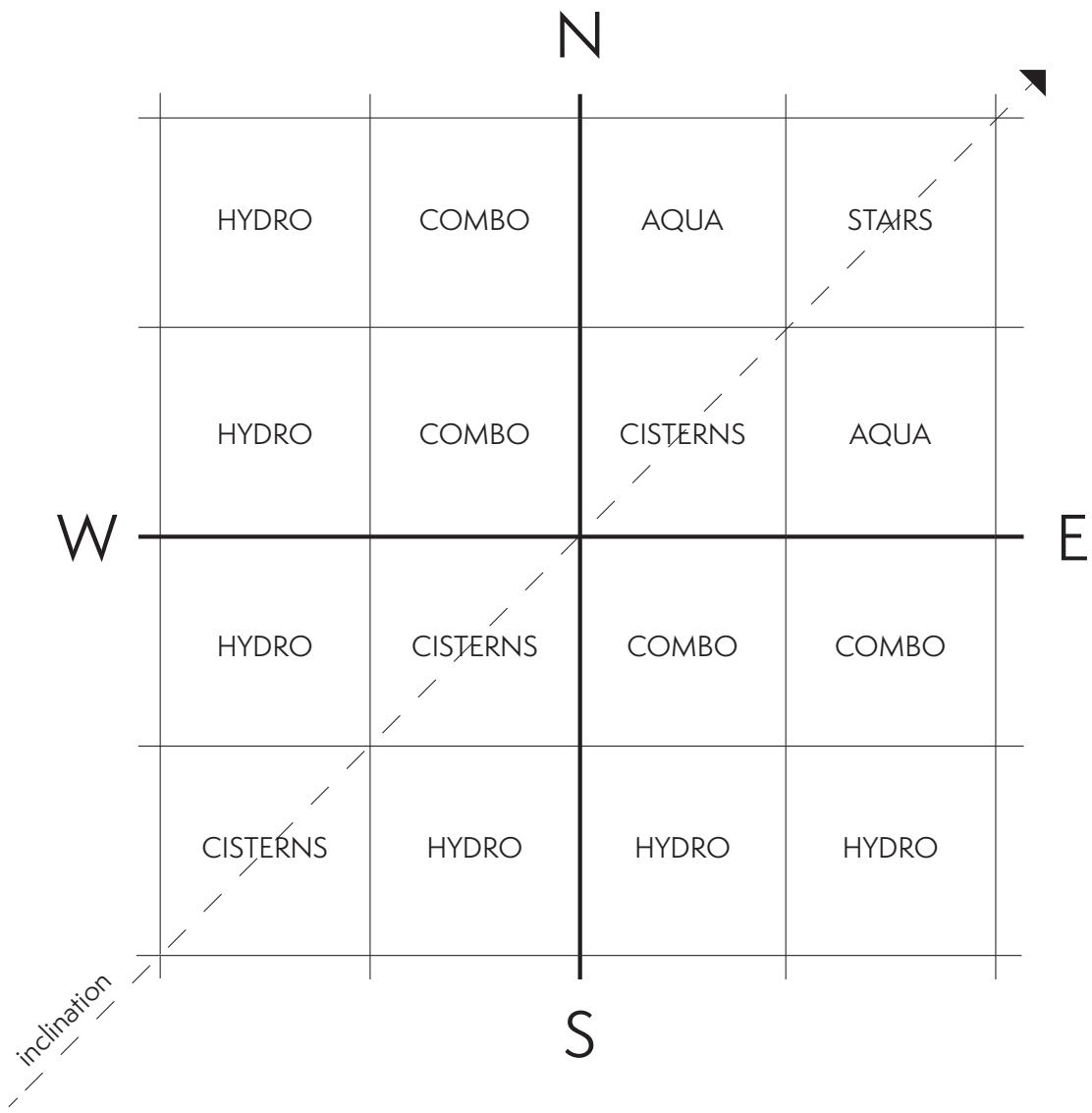
THE HYDROPONIC BOX
with plant beds for growing vegetables

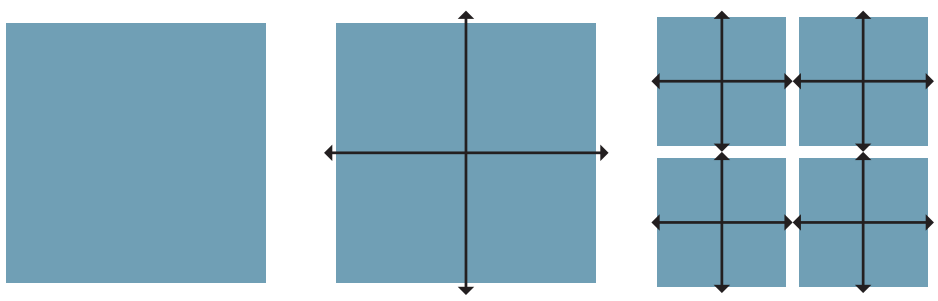
THE COMBO BOX
a combination of the aquaponic and hydroponic boxes

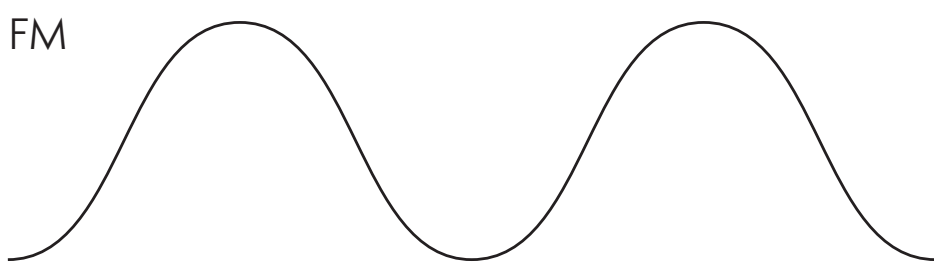
THE CISTERN BOX
with water cisterns

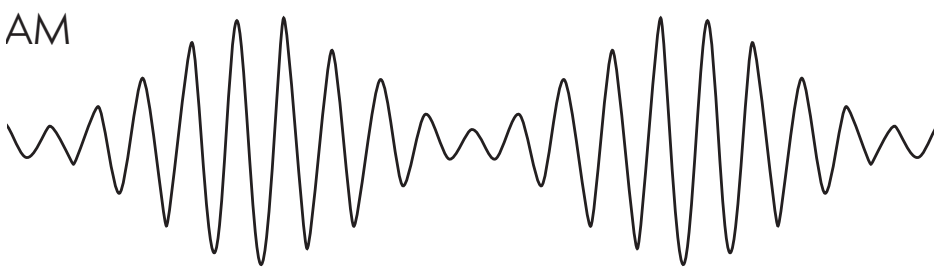
THE SEATING BOX
a more open structure for recreation and socializing

THE STAIR BOX
the internal communication of the system



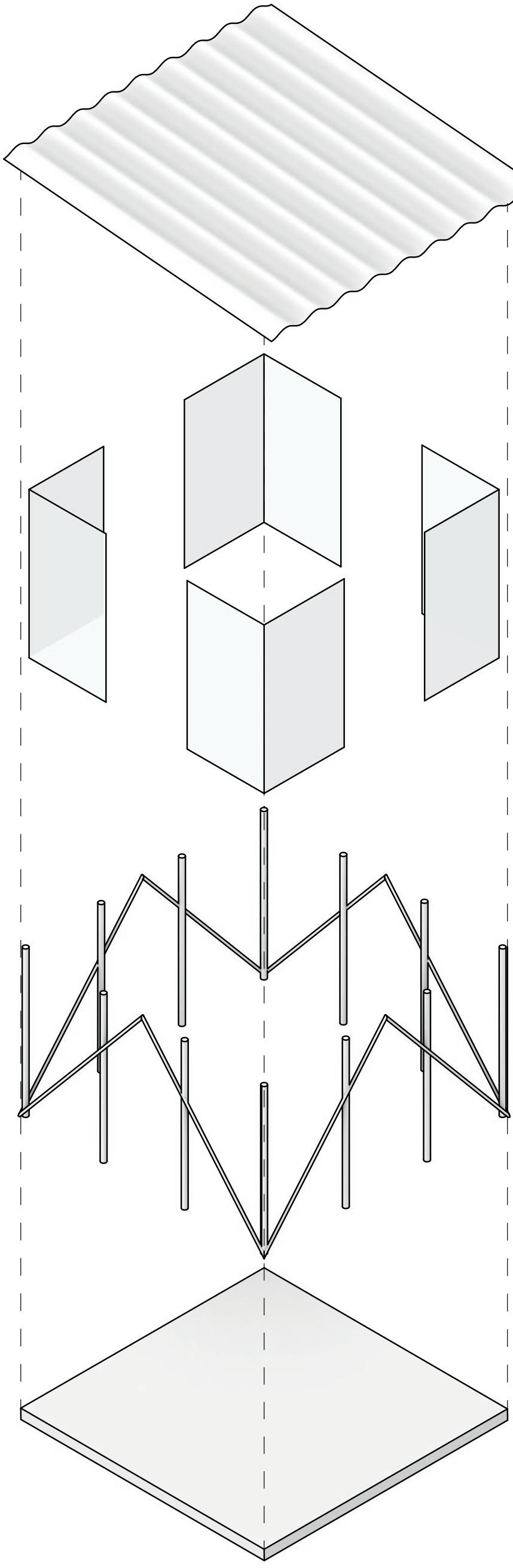






The radio is reconnected to the project by using the sine curve (the mathematical representation of radiowaves) as a design element.

THE BASIC BOX



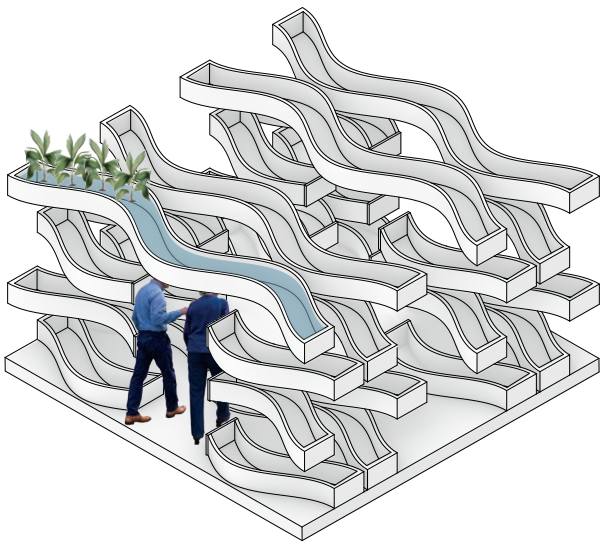
CORRUGATED PLASTIC ROOF FOR RAIN WATER COLLECTION

GREEN HOUSE GLASS TO MINIMIZE USE OF ARTIFICAL LIGHT

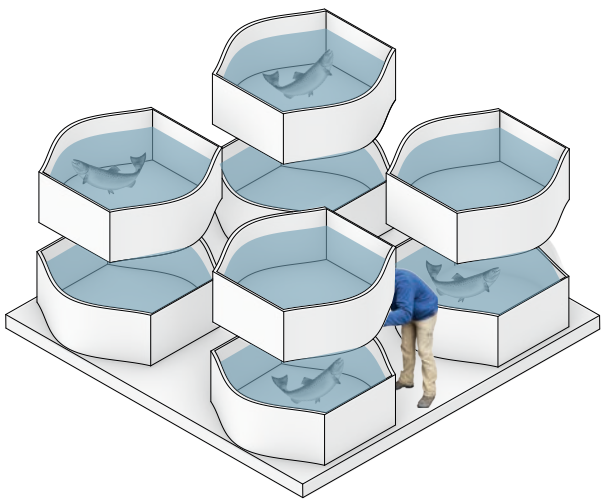
REPURPOSED INDUSTRIAL STEEL FROM DE-COMMISIONED RADIO TOWERS

5x5m ECOCRETE SLAB

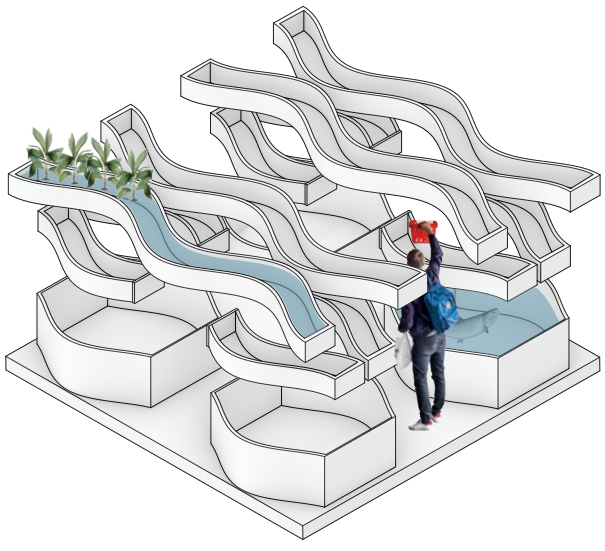
HYDROPONIC BOX



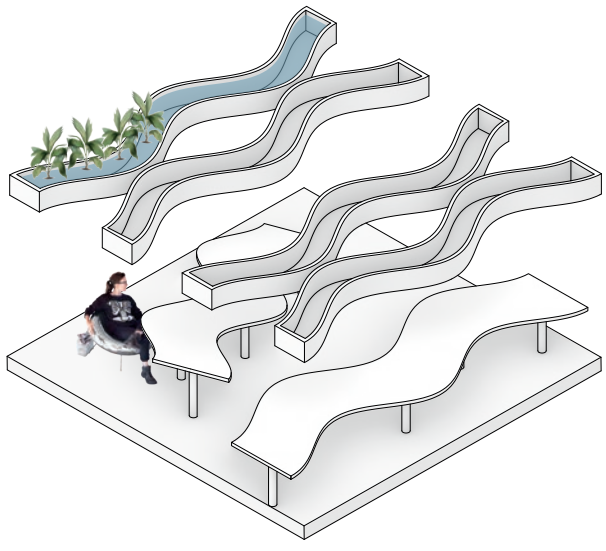
AQUAPONIC BOX



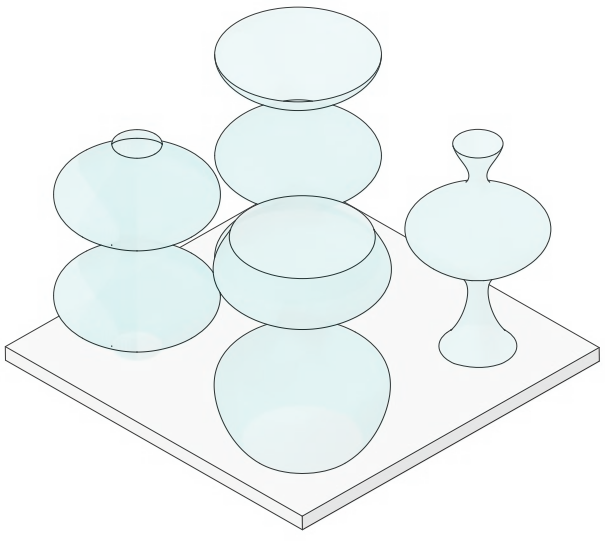
COMBO BOX



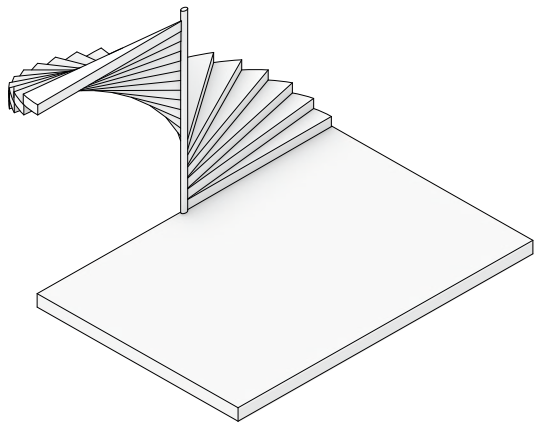
SEATING BOX



CISTERN BOX



STAIR BOX



RATIO OF BOXES

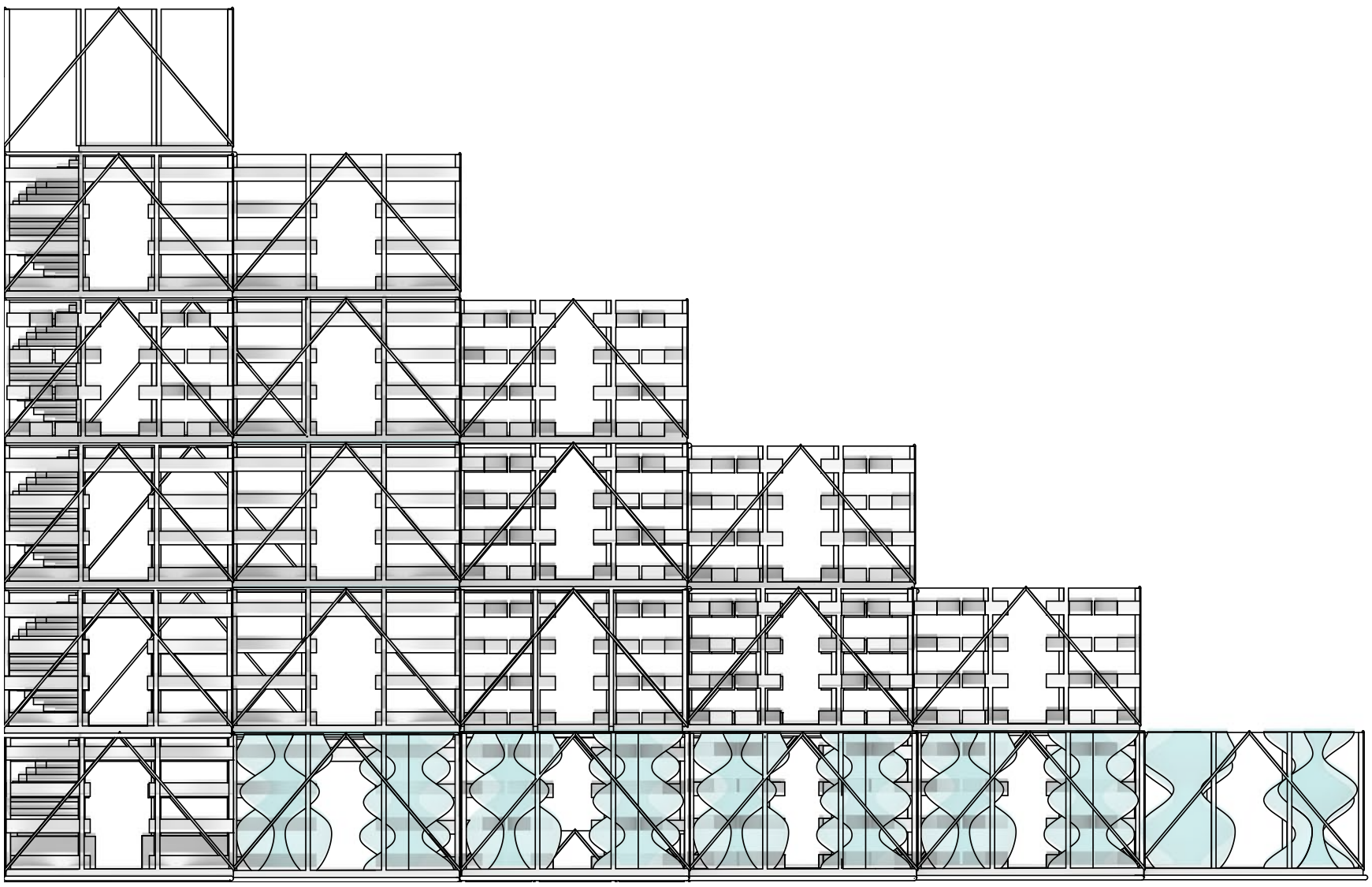
6 HYDROPONIC BOXES : 1 COMBO BOX
12 HYDROPONIC BOXES : 1 AQUAPONIC BOX

BOX COUNT

24 HYDROPONIC BOXES
2 COMBO BOXES
1 AQUAPONIC BOXES

YEARLY YIELD

25000 kg VEGETABLES
330 kg FISH



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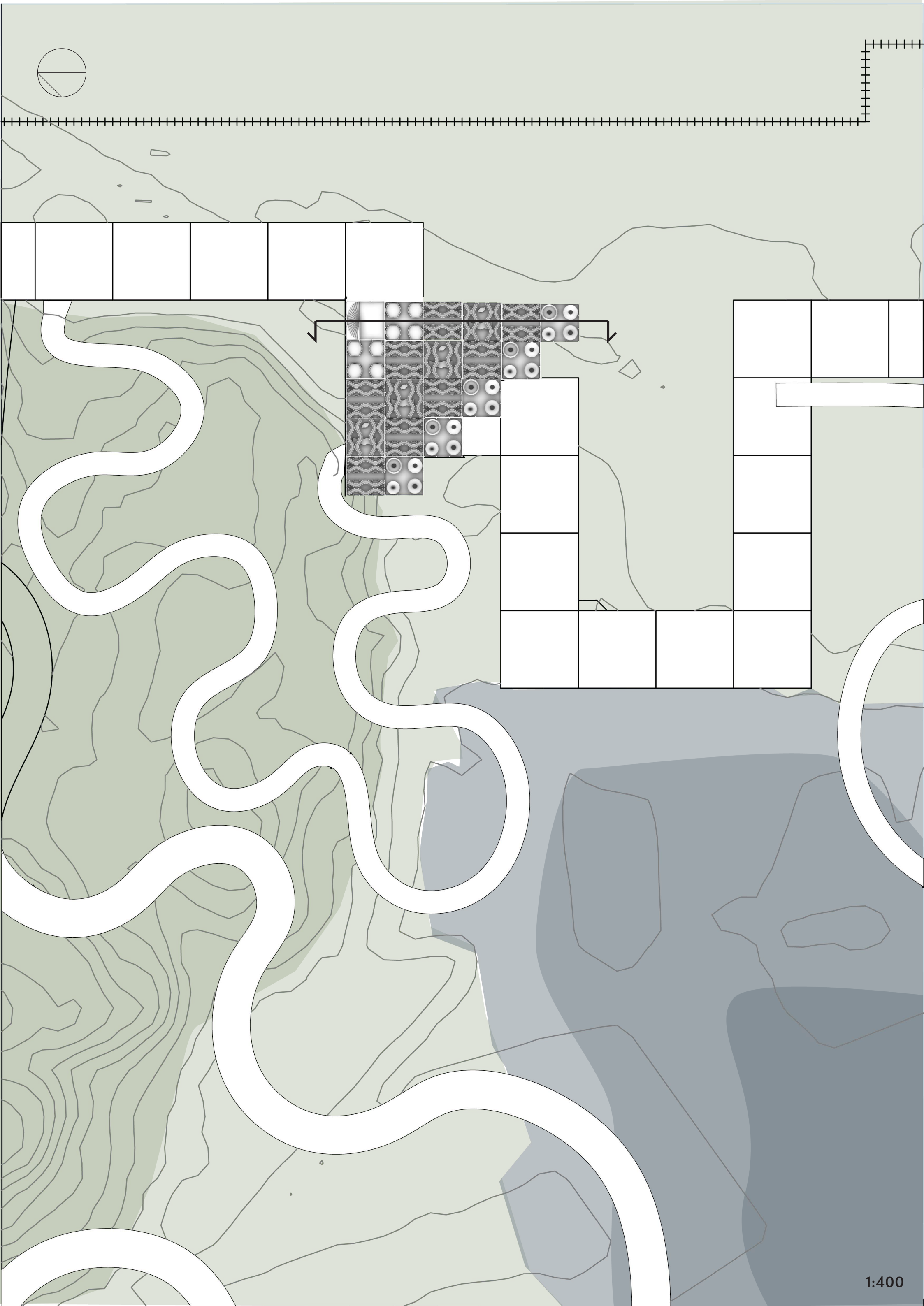
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