From congestion to decongestion: Displacement of flows of goods in the last-mile transition from land to sea

Transitional Territories 2018-2019:
Landscape of Coexistence. Altered Natures and the Architecture of Extremes

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P5, 31-01-2020

Image: the H's dead thoughts. The Manifesto written for the studio symposium, me acting as ambassador for department of transportation and logistics.

MANIFESTO
- from congestion to decongestion -

Under the surface of smooth transitions and logistical flows, lies the agitation which "takes command once distance has collapsed" (Lars Lerup). One small change, delay or disruption can cause a negative ripple effect for different people in their daily routine. In order to understand the phenomenon of this "stuck in non-moving" at the working site, several aspects are questioned and researched:

Inquiry to causes of congestion in cities leads to a shifting perspective

Fundamental causes of congestion in cities are brought by the shift of production system: from 18th to early 19th century's cottage system to modern market system. The procedure leads to the invention of transportation and communication, then negotiation and commercialism. A brief literature review, based on tried-and-trust strategy, suggests that to relief by rapid transit actually caused induced demands: "Any extension of transit facilities permits additional congestion." (Sidney A. Reeve, 1917)

If we want to solve the congestion problem, chasing speed and expanding roads, which means following the demands, may not solve the problem at all. There should be another way of tackling.

Let's show more care for human agencies when we are pursuing the speed and smooth of the system spatially.

In 1977 Rem Koolhaas' "Culture of Congestion", a coexistence of man-made nature, preventive medical care, and multiple activities were compacted to the high-rise, a vertical growing, synthetic platforms to fight the "threat of ennui". However, an inquiry to the logic of logistics shows a "set of demands and pressures that operate against the logic of the city of congestion, encounter, and adjacency" (Jesse LeCavalier, 2016).

Scenarios under geo-political issues and climate change:

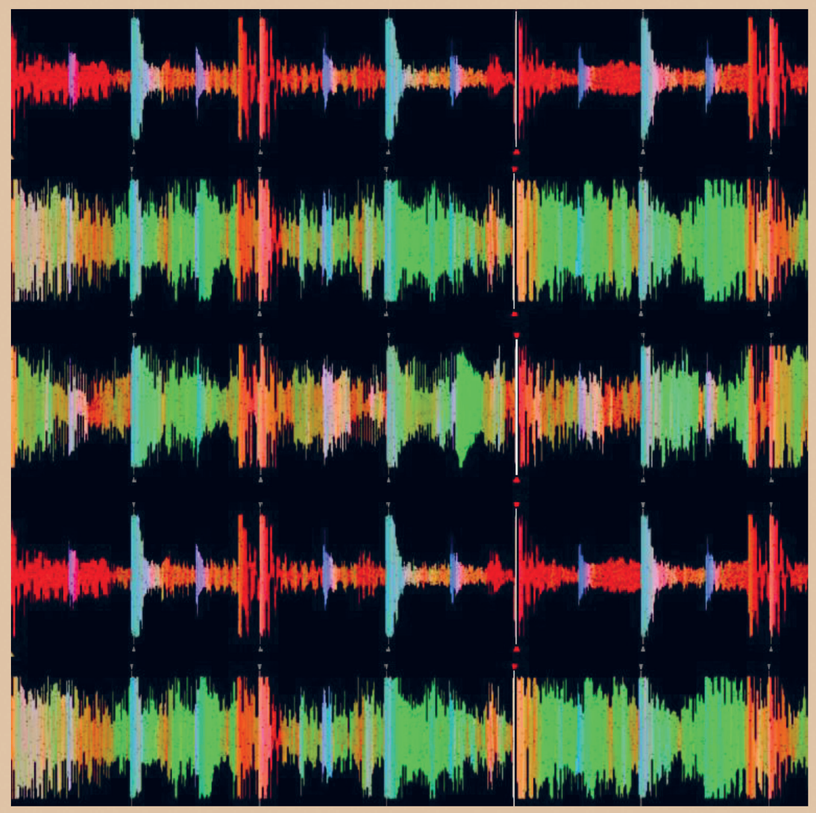
Severe weather conditions? Post-Brexit border check and waiting time? The Operation Stack and its influence for surrounding communities? The expansion of Port de Calais and Port of Dover?

Nowadays the ports are closed normally due to severe weather conditions. A scenario is drawn from post-Brexit cross border activity: longer waiting time at both side, which the Operation Stack and the future Operation Brock will happen more often. Besides, the ongoing expansion of ports under the framework of European TEN-T project will bring even more traffic, or unless, induced demands of goods on land.

Reasoning and designing with time frames

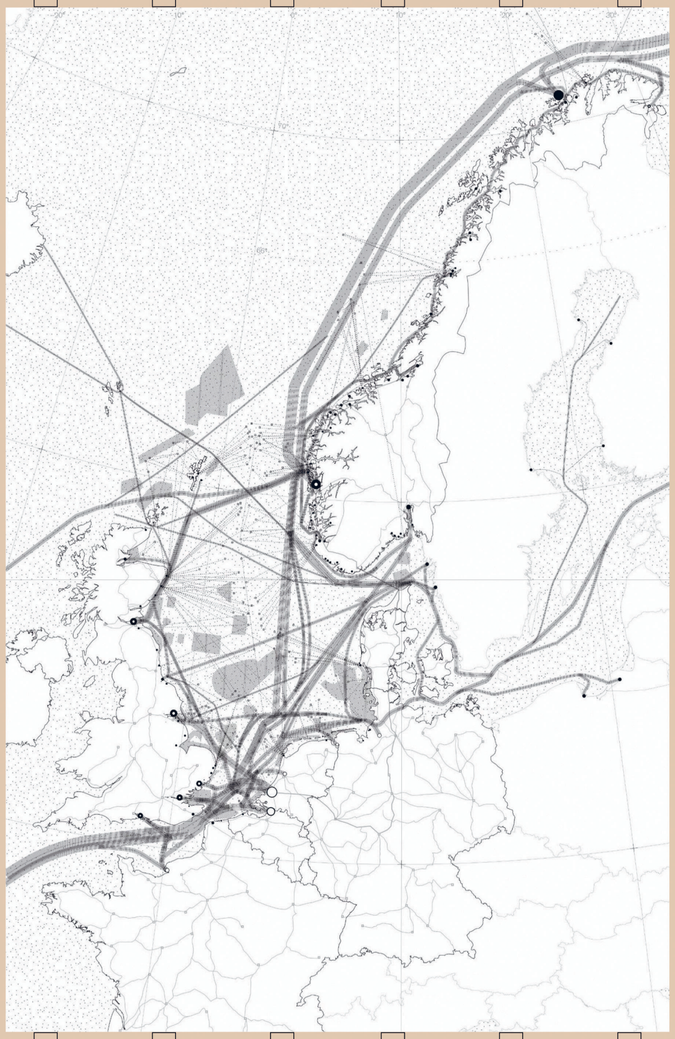
Just like our environment continues to demonstrate being a palimpsest, fluctuating with time, speculating the embodiment of transitional process from congestion to decongestion deals with different time spans of staying, be it hours, days, months or even years. The visual narration therefore should follow this distinction of time frames, description of activities and the spatial experience of a lorry driver in architecture.

The Annex Project - I understand an island addressing transitional territories by giving its identity as being annex to a destinated territory - is an achitectural project visioning through time, as a piece of land art and works with infrastructure.



Synthesis in music is an abstract way to show we realize and recognize that “everything flows” (Heraclitus), that everything is connected to each other, by distinguishing *this* as well as *that* and then combining them together.

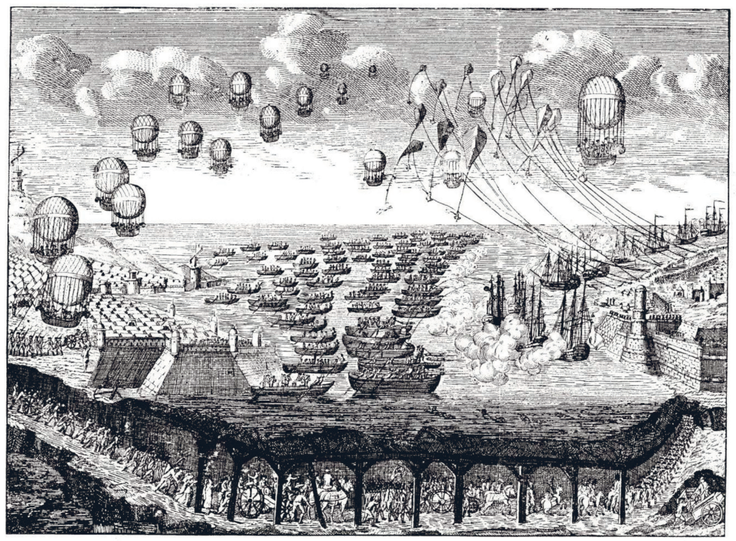
image: the soundwave of the great track Luv(Sic). pt3, a fusion of jazz and hip hop by Nujabes. Image generated on Recordbox, processed by the author.



My graduation project begins with a fascination with contradictory situations and their possibility of synthesis. Therefore, I look into two themes, the embodiment of connection activities – transport of goods – and the embodiment of disconnection – congestion.

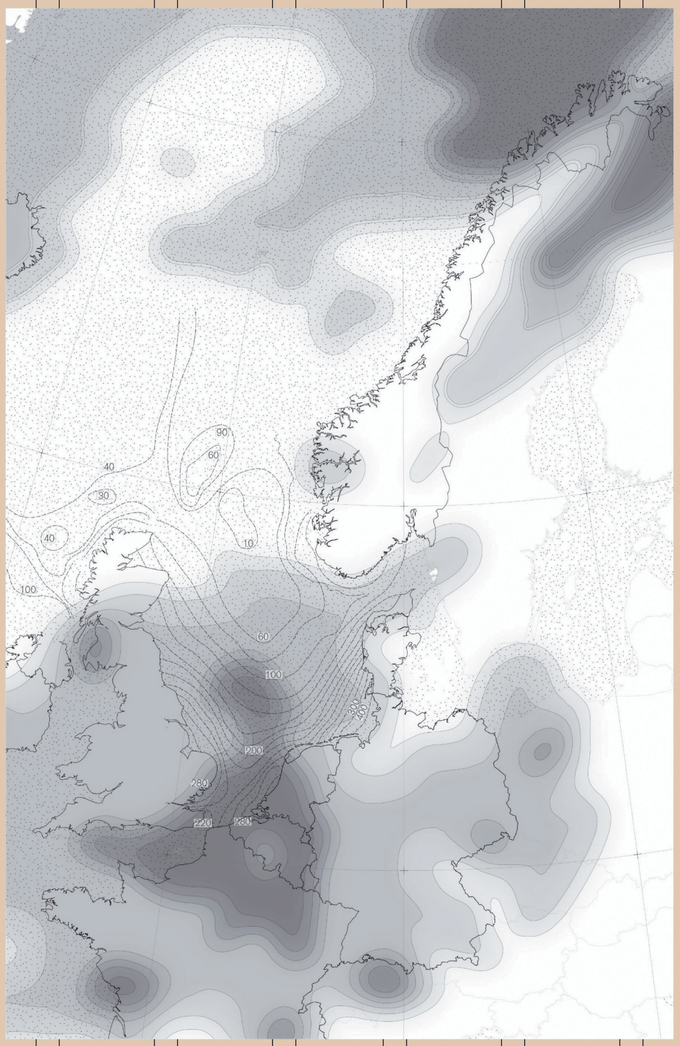
The projection map shows altered tangible flows through the North Sea in 2150. The Strait of Dover is highlighted as a geographical choke point along the flow paths.

‘Agitation takes command once distance has collapsed.’ (Lars Lerup, *The Continuous City*, pp. 194.)



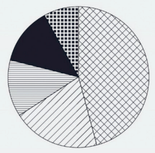
'DIVERS PROJETS SUR LA DESCENTE EN ANGLETERRE"
From an engraving of 1804 in the possession of Dr. H. R. Mill.

Bustling spectacles of connecting the UK and EU through infrastructure construction, in 19th century.



A projection of climate map adds another issue to the choke point area – being prone to storm surges.

Under the condition of Brexit and social strikes on a new climate regime, there is a need for contingency/risk management for the stuck of flows crossing the Strait of Dover.



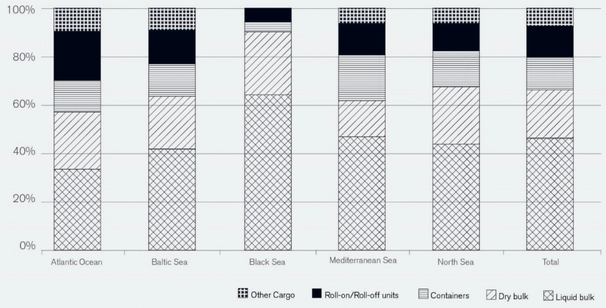


234 million tonnes
Roll-on/roll-off ships (2012)
UK had by far the largest ro-ro units.

Non-passengers ro-ro market

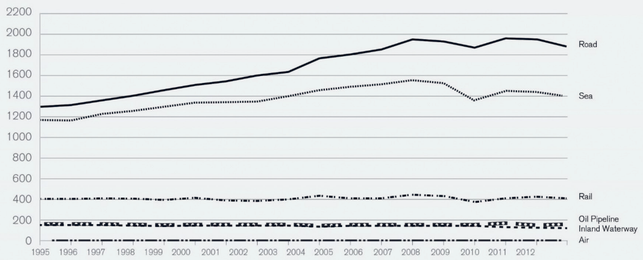


EU-28 short sea shipping of freight transport by sea region and type of cargo in 2012



Source: Eurostat, 2014

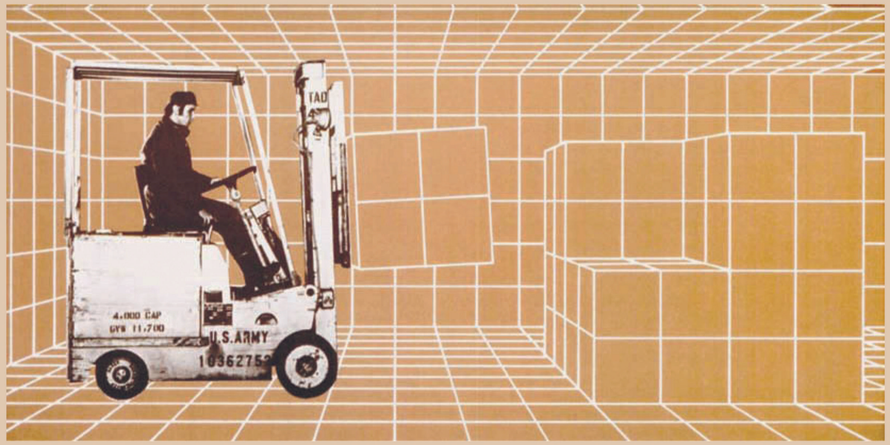
EU28 Performance by mode - for freight transport (billion tonne-km)



Source: Eurostat, 2014

Transportation mode is dominated by marine and road transport. As a short sea passing, the last-mile transition for flows of goods to travel from land to sea, roll on/ roll off brings two spatial agencies together: vehicles containing goods and human beings.

During the crossing process, drivers stay with their goods and vehicles, which is distinguished from other types of freight transport.

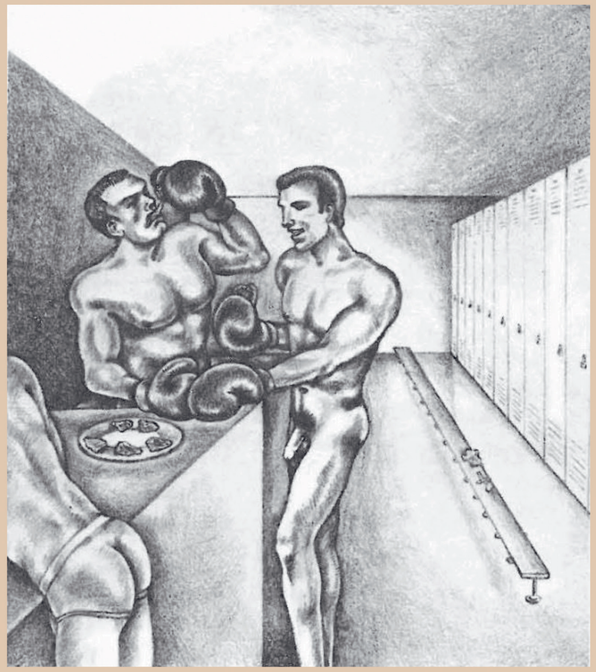


Our dependence on logistics has made the working scene an almost monotonous nowhere. Goods are sorted, modularised, stacked and become an ocean of commodities.

Efficiency, efficiency, efficiency!

‘We will work in every effort to keep the flow moving,’ says the machine.
Who is the machine, by the way?

Image: modeling the wholesale logistic base, 1983, *Army Logistician.*



Fundamental causes of congestion in cities are brought by the shift of production system: from 18th to early 19th century's cottage system to modern market system. The procedure leads to the invention of transportation and communication, then negotiation and commercialism. A brief literature review suggests that rapid transit actually caused induced demands: 'Any extension of transit facilities permits additional congestion.'

We are getting used to the situation and there is the culture of congestion.

Image: 1977, illustration by Madelon Vriesendorp



Drivers stuck in the logistic flow find themselves in the state of ennui. The issue of alienation in existing logistic model is much exposed at the moment. Drivers, as set free from their jobs, need to kill time and face themselves now.

The contingency provides the condition/chance for merging the humanistic gap between logic of logistics (the act of displacement) and the logic of congestion (the act of conglomeration).

Image: news photo from the Guardian.

Research questions:

Territory and urban scale:
How to displace the stuck flows of lorry drivers and goods on the UK side (Dover)?

sub questions
What is the spatial relation of the outcome of such a displacement to its larger territories?
What is the identity of such a displacement?

Architectural scale:
How to create architectural space that combines the act of displacement and the act of conglomeration?

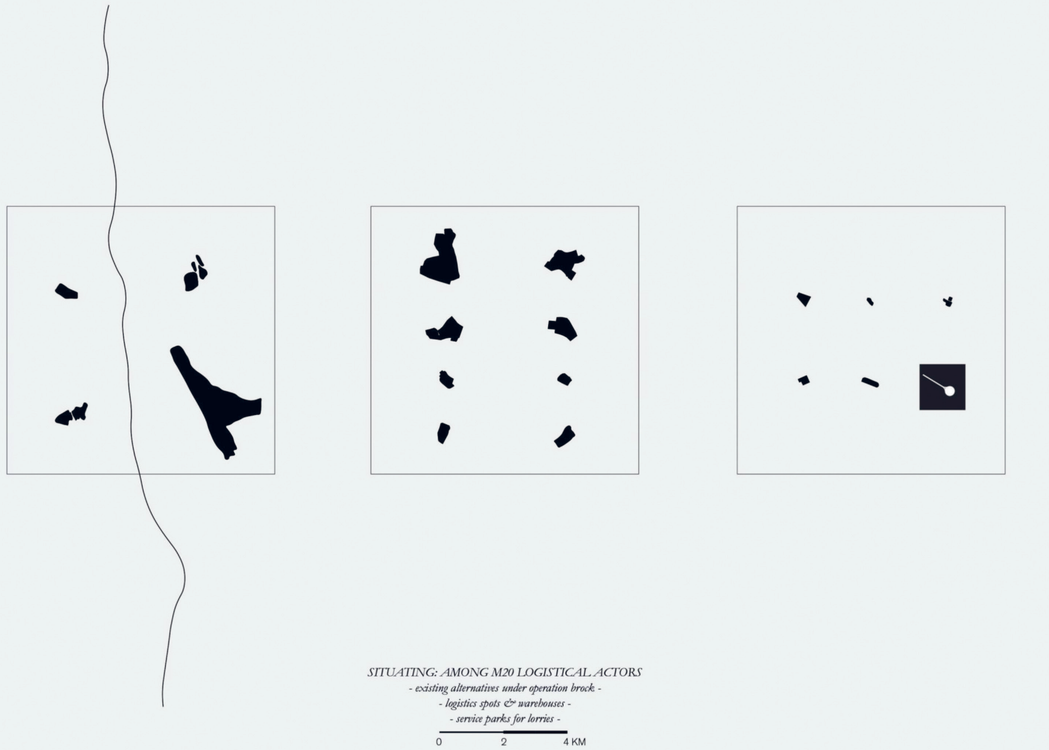
sub questions
How are the flows of lorry drivers directed to the space holder? (displacement)
How to achieve spatial qualities while maintain the efficiency of a service system? (balance the two)
What would be the new role of the space holder once it lost its original functions?



Mapping the journey on M20 motorway from near the Greater London to the entrance of Port of Dover

Highlighting logistic spots and warehouses along the journey and counting service parks for lorries

Grouping the existing Operation Brock and historical Operation Stack as a counter-model for the project



Three groups of logistic components' comparison under the same scale

The counter-model aims to form a dispersed network of detoured lorries. Lorries are kept far from final destinations of the journey (the Channel Tunnel and the Port of Dover).

Instead of following the existing development logic to find a large area on land or create linear segmented holding areas, I situate the project footprint within the 'service park' group. This is because I want to limit the scale within a 'normal' confinement and discuss about its additional possibilities in the project design.



The Ashford International Lorry Park in Kent, with holding area for approximately 388 lorries (counted from the satellite photo). It provides a basic parking capacity for the project's lorry agency.



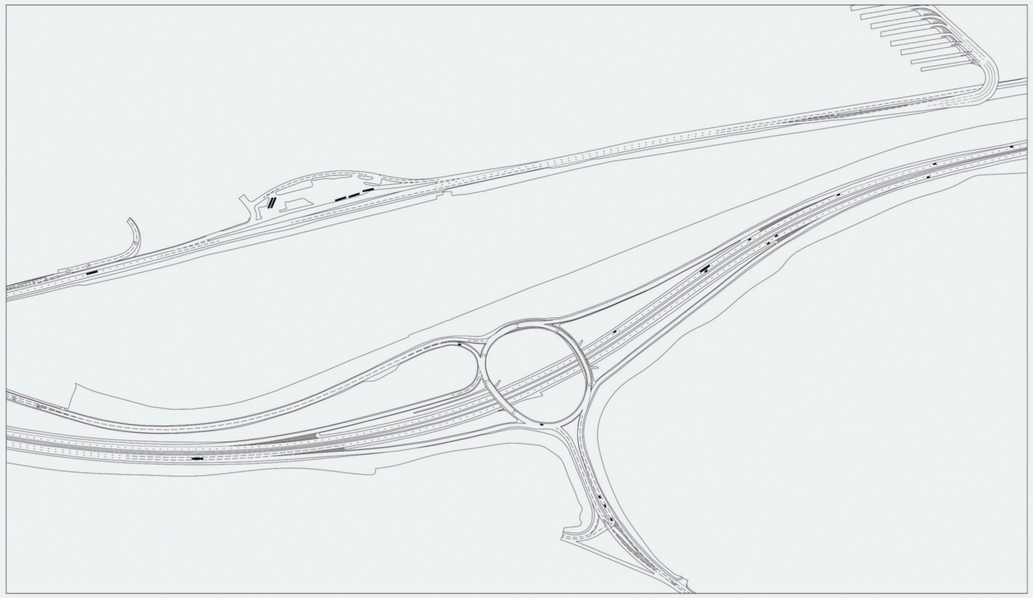
M20 ZOOM IN: JUNCTION 11 CAPACITY
- three lanes plus one for emergency use -

0 100 200 M

Zooming in, a closer mapping of flow patterns helps shape the project design proposal into an infrastructural form.

Line types of dividers, the amount of lanes, junctions and interchanges' radii are all pointing to the underlying traffic capacity of the site, indicating the speed of flows.

The project's legibility is based on an existing experience of highway in Kent.



M20 IN TRANSITION: JUNCTION 12 CAPACITY
- three lanes plus one for emergency use -
- two lanes plus one for emergency use -
- M20 transformed into A20 -
0 100 200 M

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THE CLOSEST A20 TO THE PORT OF DOVER
- two public roundabouts -
- coastline passage for pedestrians -

0 100 200 M

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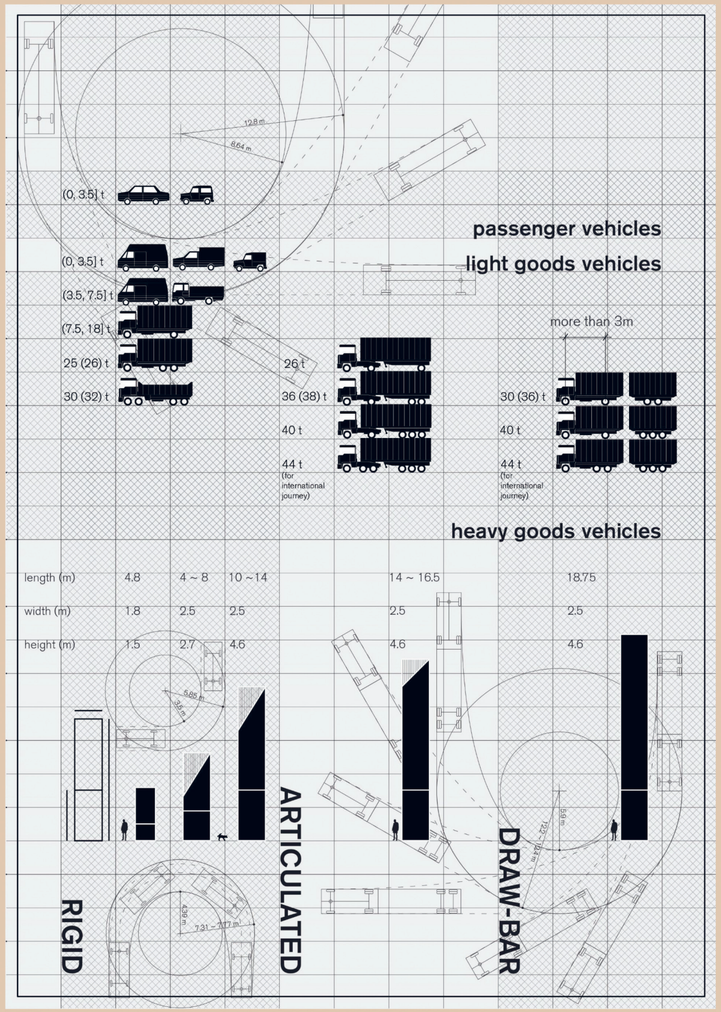


Zooming in again, goods vehicle family that run on the highway appear to be the goods themselves in the project level, where space holders become enlarged storage racks in the warehouse.

All Watched Over By Machines Of Loving Grace

Richard Brautigan, 1967

I like to think (and
the sooner the better!)
of a cybernetic meadow
where mammals and computers
live together in mutually
programming harmony
like pure water
touching clear sky.

I like to think
(right now, please!)
of a cybernetic forest
filled with pines and electronics
where deer stroll peacefully
past computers
as if they were flowers
with spinning blossoms.

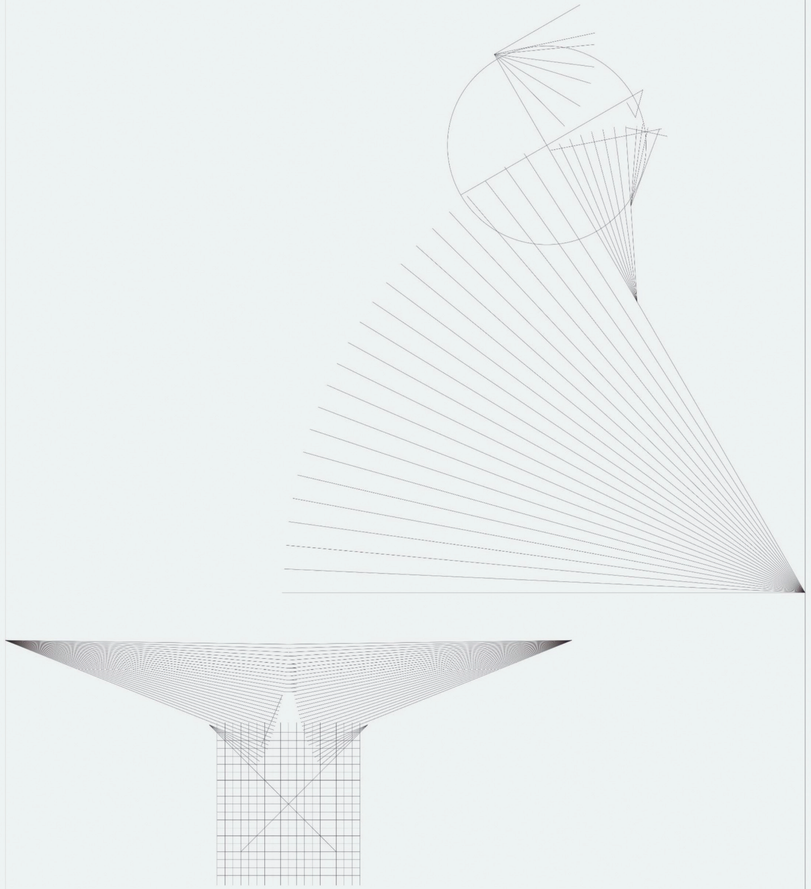
I like to think
(it has to be!)
of a cybernetic ecology
where we are free of our labors
and joined back to nature,
returned to our mammal
brothers and sisters,
and all watched over
by machines of loving grace.

The distinct scale difference between vehicles and human beings (and other animals) evokes one's feeling for the atmosphere created in the poem, *All watched over by machines of loving grace*.



Territorially, the design proposal is an annex island around the harbor area. The footprint of a scale of service park (in diameter of 300 metres) is projected on water.

Invisible lines are invisible borders from UK marine spatial planning. The island locates at the intersection area of harbor control zone and ecological conservation zone. What hidden in the seabed is the Channel Tunnel, which limits the construction area of the project.

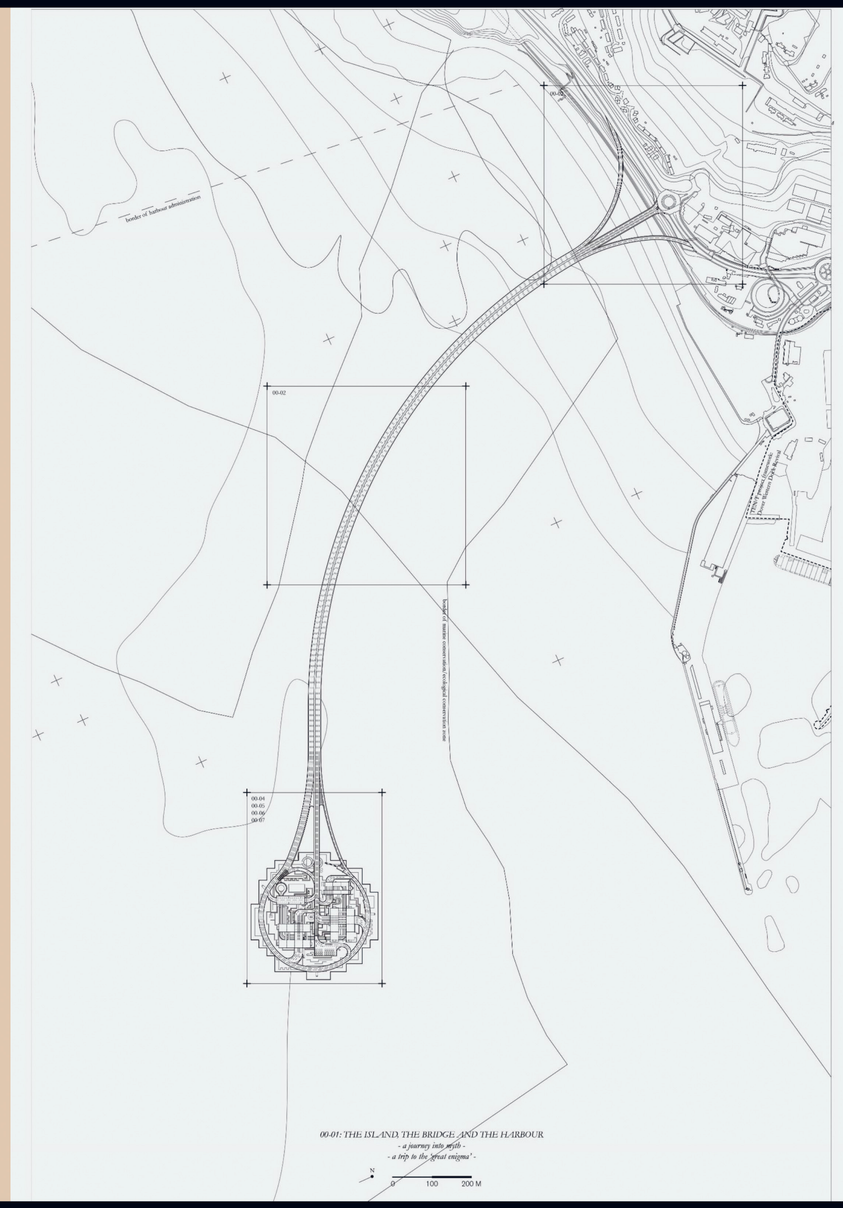


GRIDS AND CONTROL LINES FOR MASTER PLANS
- scale 1:2880 -
- the relationship with Dover harbour -

N
0 100 200 M

Beauty.

Control lines and relation to the surrounding referential system.



Displacement of flow of goods in the project include three main parts:
Drive around the roundabout to get on the bridge;
Drive on the bridge leading to the island;
Get on the island, park goods vehicles (and probably some cars) and start a human-scale exploration.

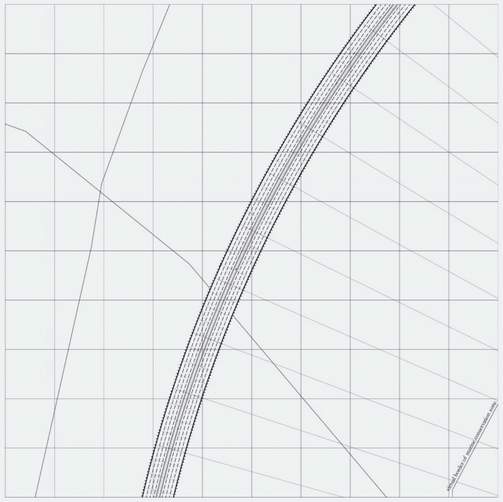


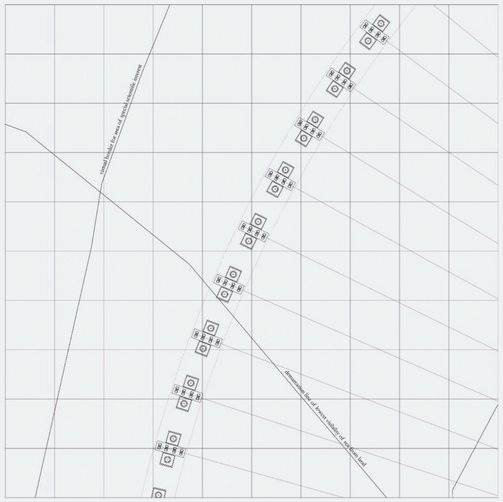


00.02: LAND-SEA CONNECTION
- paths for vehicles and foot-passengers: before & after -
- dashed column positions indicate structures not interfering with railway lines -

N
0 25 50 M

Segmented steel girder bridge traverses the railroad below, linking contraflow lanes from the land and making use of the existing roundabout.

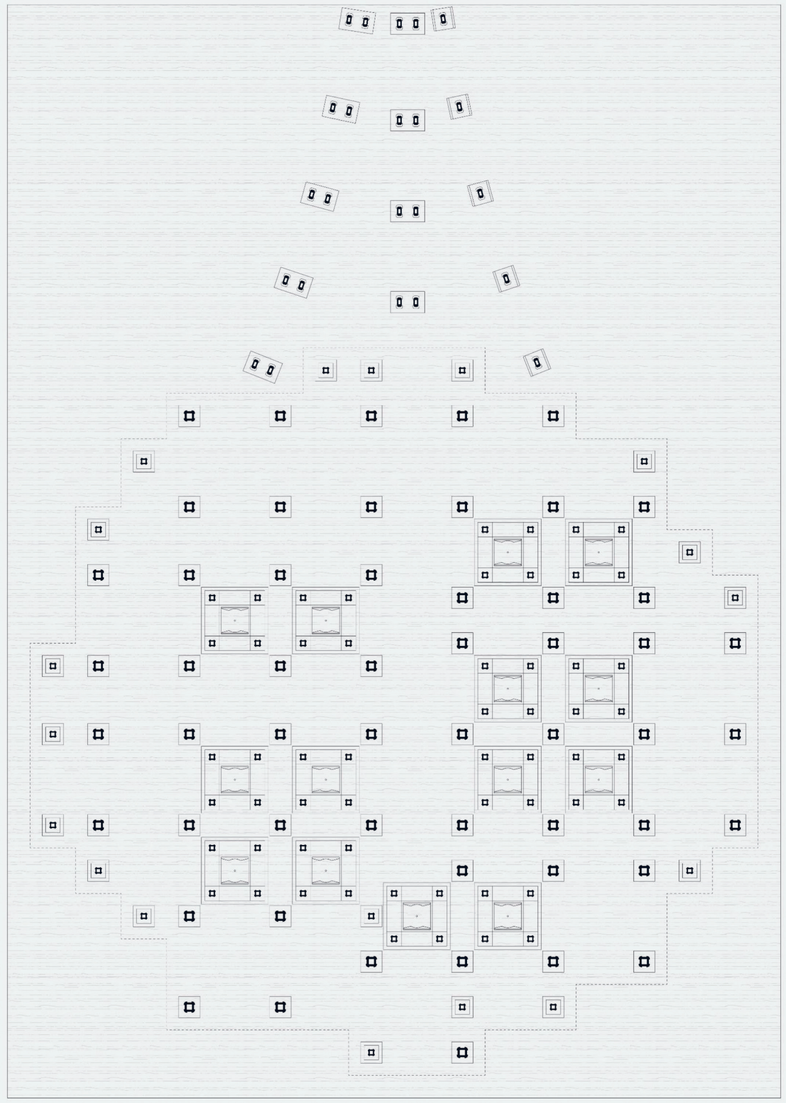




00-03: THE BRIDGE AND TIDAL MACHINES
- top view of the bridge & +1.500 m plan of tidal machines -
- pedestrian level above vehicles' layer -

N
0 25 50 M

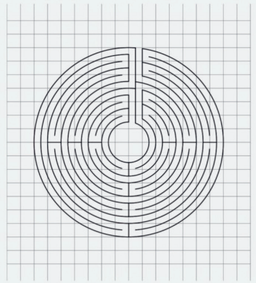
Tidal turbines are integrated to bridge columns, extracting tidal energy which is generated from about 7 metres tidal range each day.



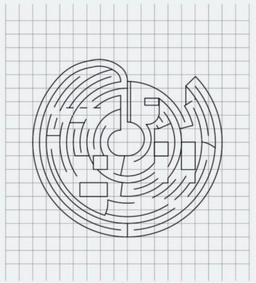
00.04: ISLAND PLAN AT - 25.950 M
- foundation columns clustered in different dimensions -
- tidal machines vertically indicate the weight above -

N
0 20 40 M

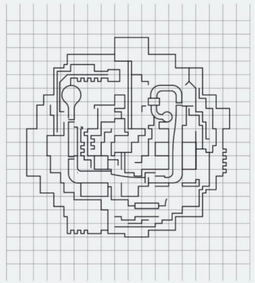
The island part also consists groupings of tidal plants and columns. Different dimensions of columns indicate the relevant weight above the platform.
An identical grid for logistic displacement is broken down and reshuffled here, which leads to an ambiguous coexistence of the act of displacement and the act of conglomeration.



the original



first distorsion, in September

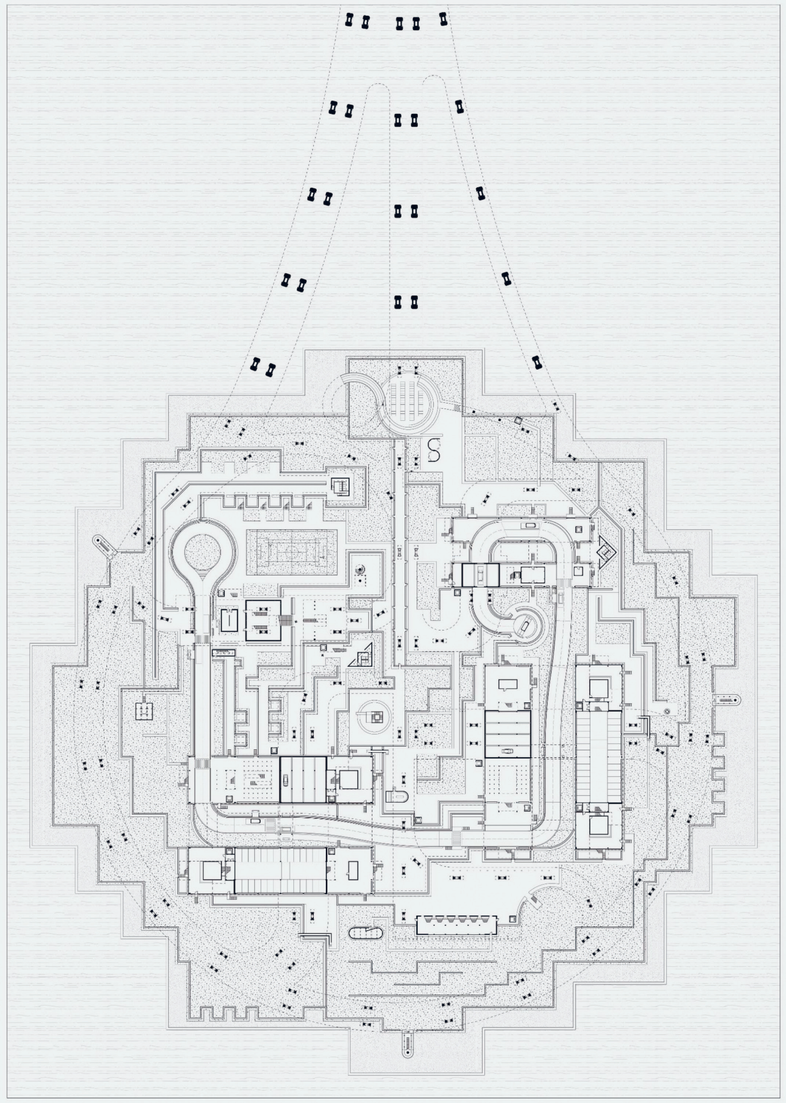


second distorsion, final paths, the pixelated

THE DISTORTED CHARTRES LABYRINTHS
- the wondering and wandering -
- the explorative nature unveiled through time passing-by -

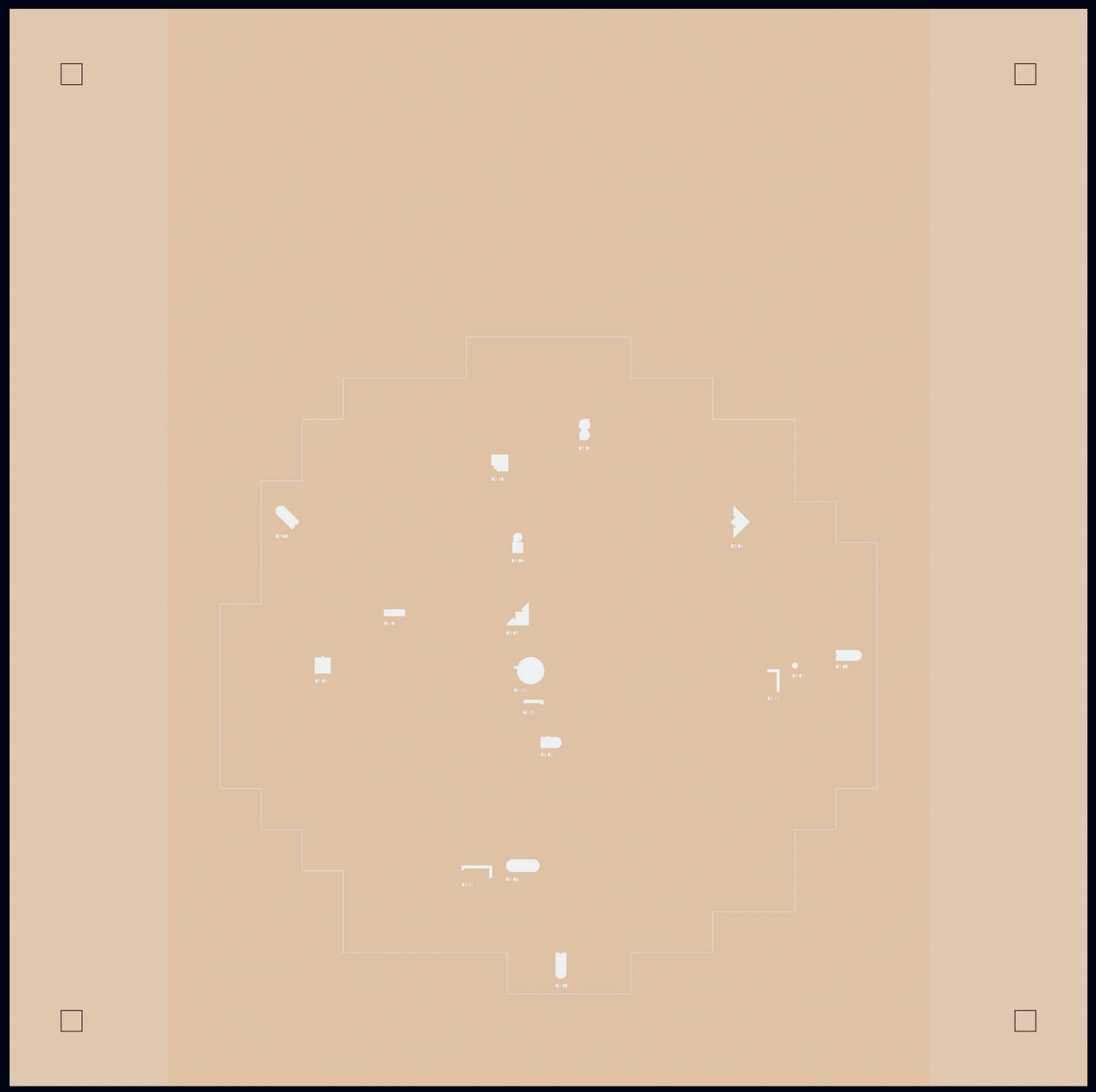
0 80 160 M

Moving vertically towards the platform, the ‘new-land’ is the landing ground for people who are set free from shackled being with their goods. The ground is for exploration and decoding, for holding spirits of wondering and wandering. Thus the symbol of an old French labyrinth is used here. It is distorted based on projected flows of vehicles from above, and edge condition of the platform.
Lines become tree walls and bush area to shape the wander path.



00-06: ISLAND PLAN AT + 1.500 M
- the constructed nature: 'the ground', the 'playground' & the 'new old-land'-
- an analogy of our city construction today & deciphering the great enigma -

Please look at the image.
It tells everything.



Please look at the image.
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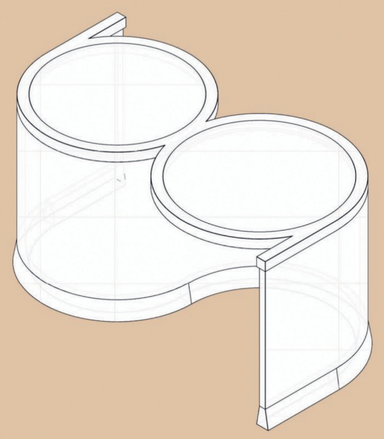
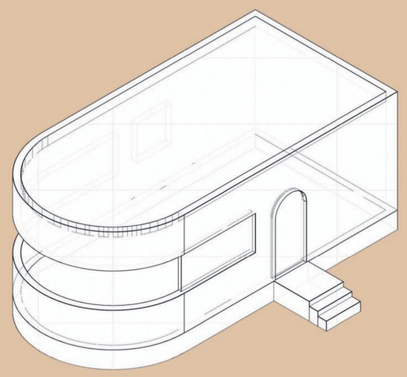


NR 1: THE INFORMER
- at the entrance and exit of the labyrinth -

0 1 2 M

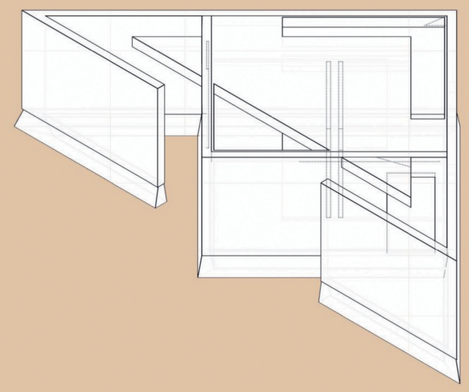
Please look at the image.
It tells everything.



NR 2: THE LORRYMAN HOUSE
- a retrospective culture analogous to London cabmen shelter -

0 1 2 M

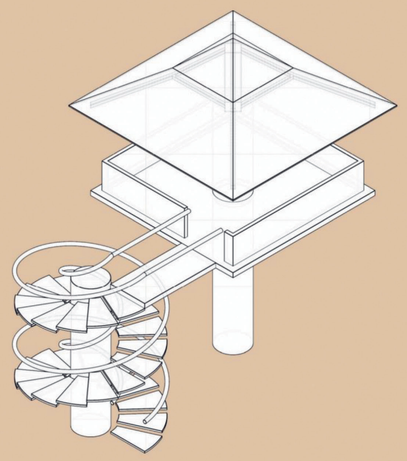
Please look at the image.
It tells everything.



NR 3 & 7: THE RELIEF I (THE RESTROOM)
- the functional ones -

0 1 2 M

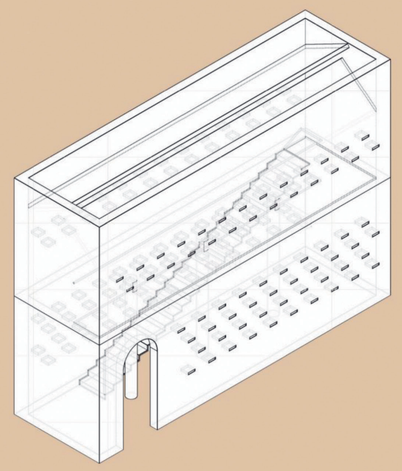
Please look at the image.
It tells everything.



NR 4: THE MEDITATOR I
- beside the secularized shelter/ the brothel -
- looking introvertly -
- a driver's choice -

0 1 2 M

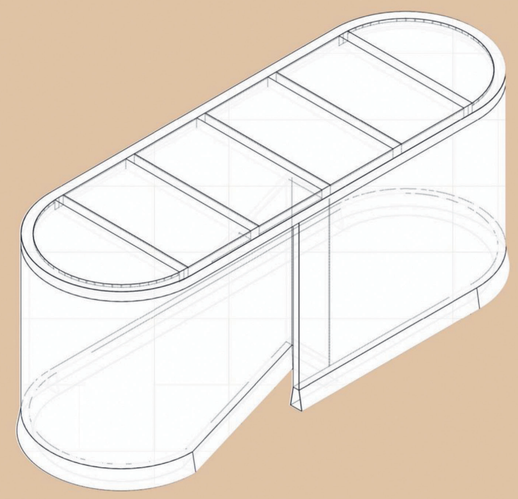
Please look at the image.
It tells everything.



NR 5: THE VOYEUR
- through brick holes -

0 1 2 M

Please look at the image.
It tells everything.



NR 6: THE GALLERY
- theme of logistic culture -

0 1 2 M

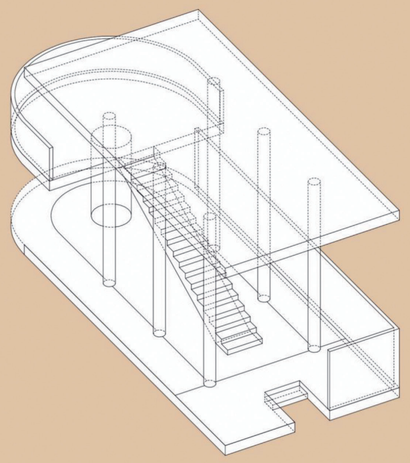
Please look at the image.
It tells everything.



NR 8: THE MEDITATOR II (THE DICTATOR)
- a telephone station to say hello to the EU neighbors -

0 1 2 M

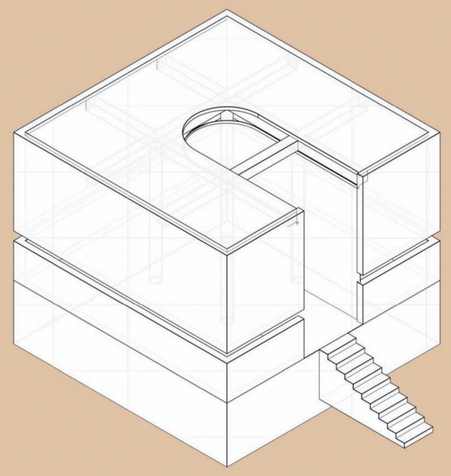
Please look at the image.
It tells everything.



NR 9 & 10 & 14: THE POINTER
- to the Shakespear Cliff (UK memory)-
- to Calais (European memory) -
- to Nordic melting glaciers (faraway, so close) -

0 1 2 M

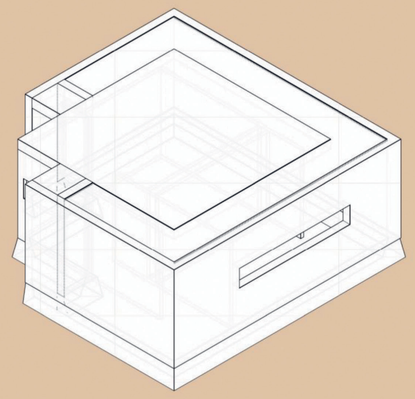
Please look at the image.
It tells everything.



NR 11: THE MEDITATOR III
- framing -
- looking extrovertly -

0 1 2 M

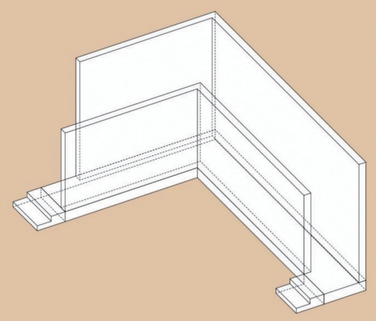
Please look at the image.
It tells everything.



NR 12: THE RELIEF II (THE RESTROOM)
- another functional one -

0 1 2 M

Please look at the image.
It tells everything.

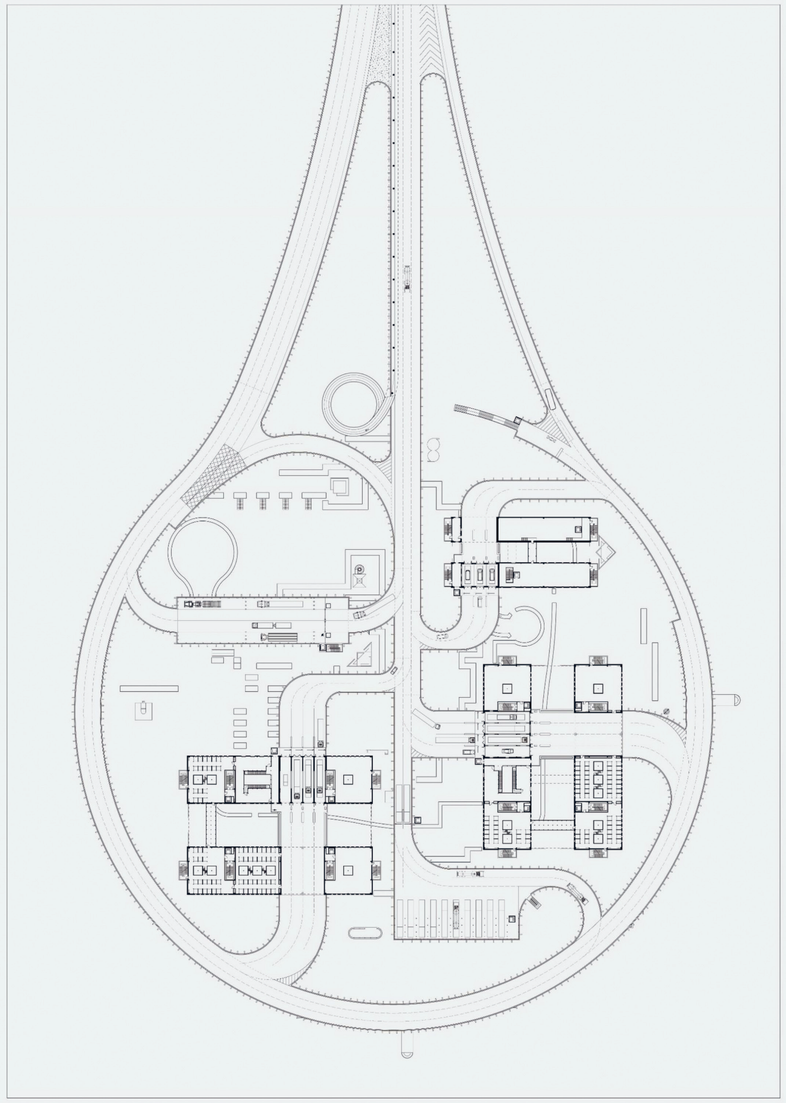


NR 13: THE SHORTCUT

- ... -

0 1 2 M

Please look at the image.
It tells everything.



00-07: ISLAND PLAN AT + 9.500 M
- the infrastructural form -
- an analogy of sorting system in contemporary warehouse -

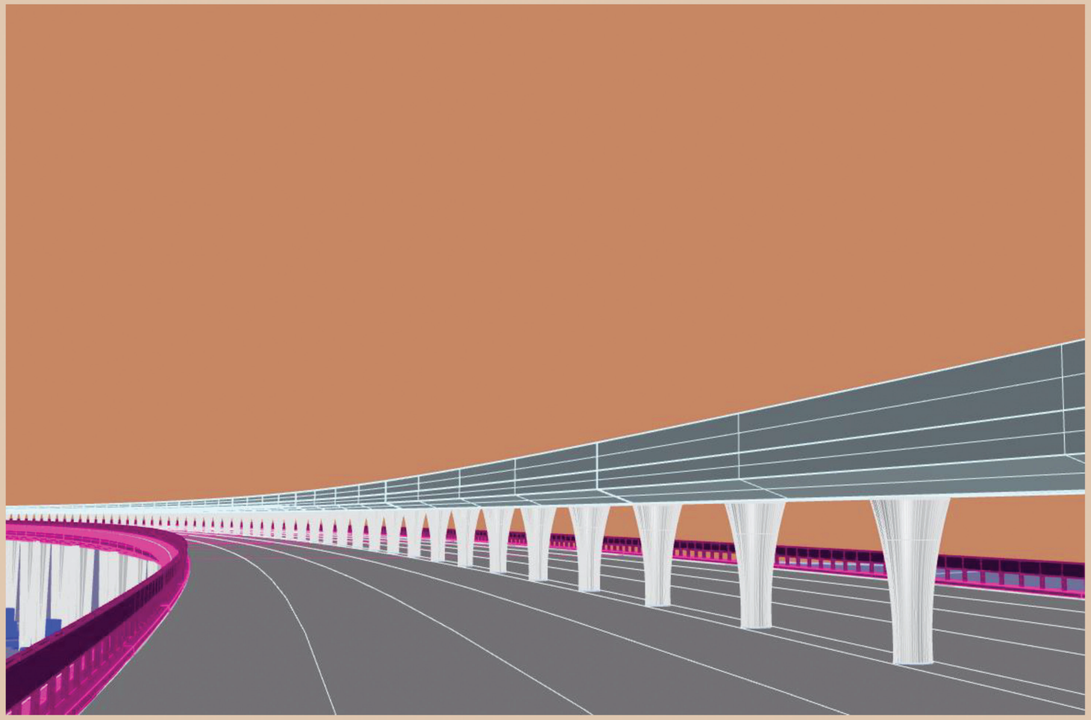
N
0 20 40 M

Please look at the image.
It tells everything.



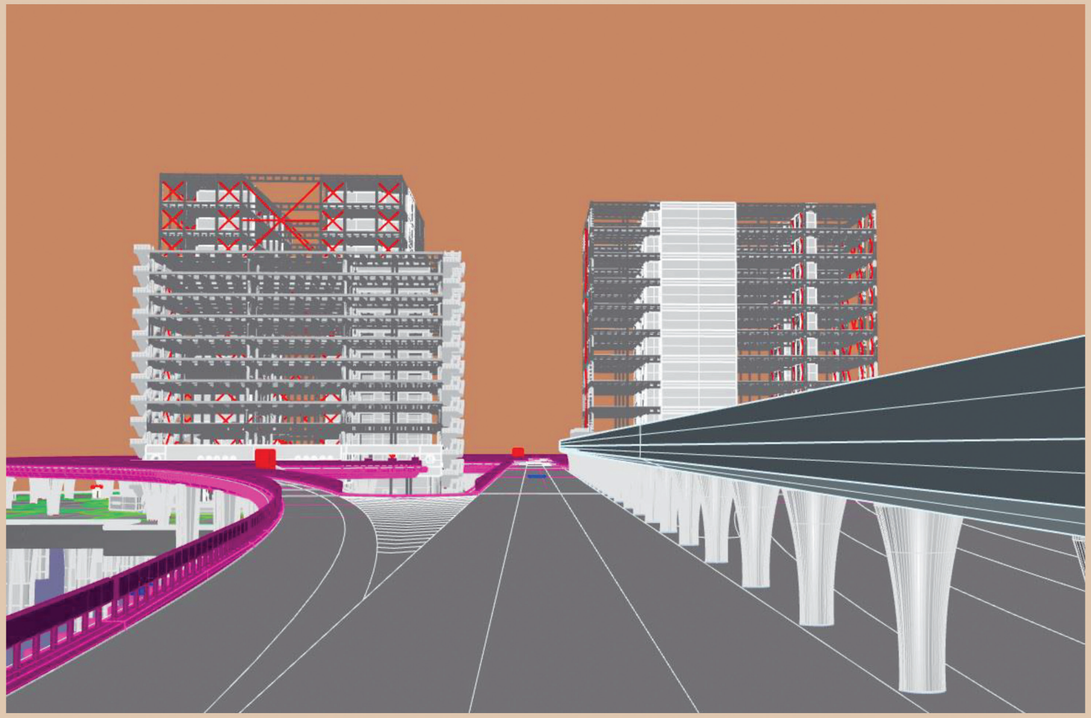
Hello, I am Ms. H.
I imagine that on some day in the future, I pretend to be a minivan driver to get a free trial of the newly constructed island.
I have to give my feedback to a public-private partnership company that manage the island. My opinion is valued a lot.

I start at the roundabout on A20 motorway that is linked to the island. I notice the height difference between vehicle lanes and pedestrian lanes because of the steep terrain. It must be hard for a designer to cope with this.



Driving on the bridge. The experience is a little different from driving on other bridges, because I can tell that someone wants to limit the pass of a kind of vehicle by using height limit of the pedestrian and cycling layer… I can't drive too fast on such roads.

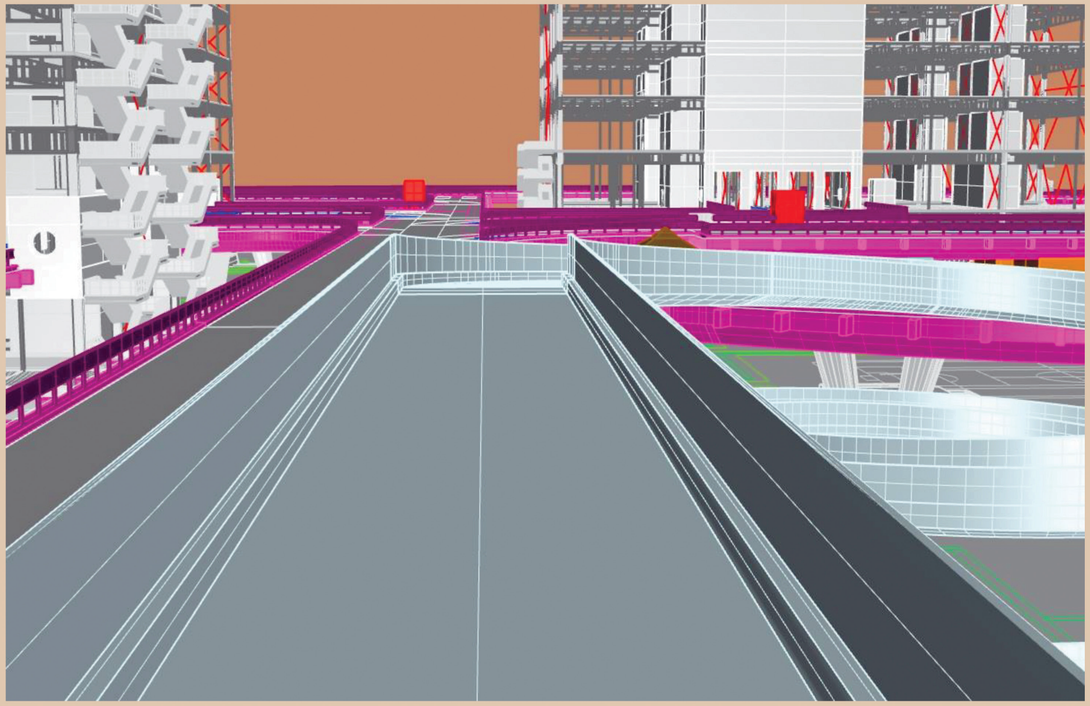
I think it would be nice if street lamps are integrated to the ceiling part of that pedestrian layer. It is important to show the road clearly, as I am very much likely to drive into a cloud of mist when the weather is stormy.



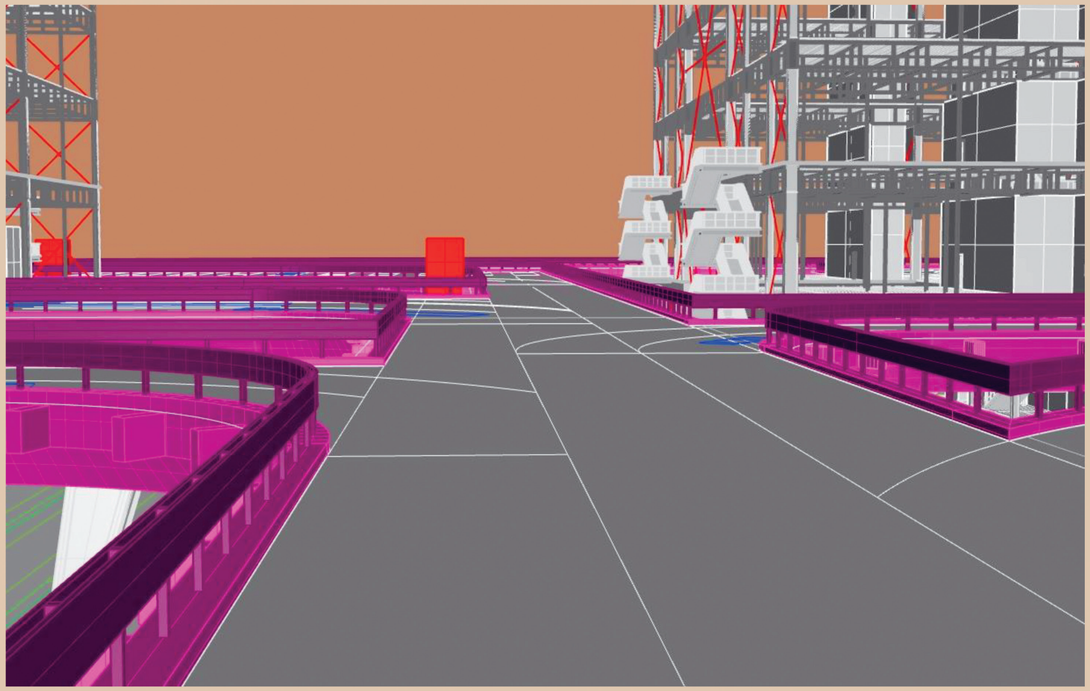
Oh. There they are. The Big Three.

I suppose the most left lane is reserved for emergency use, just like motorways on the existing land. So I will drive straightly.

They should put signages on these roads! Better be translucent Bob Noorda ones mounted on glittering lightboxes with different colors. Each color indicate a kind of vehicle – minivans, electrical lorries, fueled lorries, oversized lorries and those carrying dangerous goods that need exceptional care.

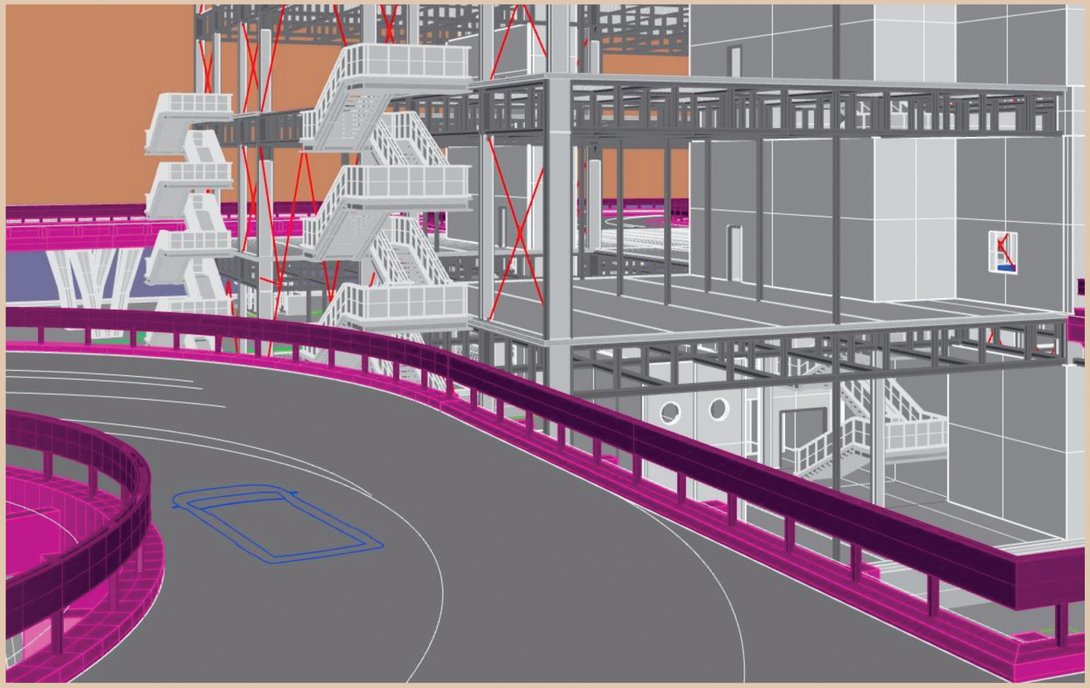


Curious about the view above on the pedestrian layer, I fly out a drone. Aha.

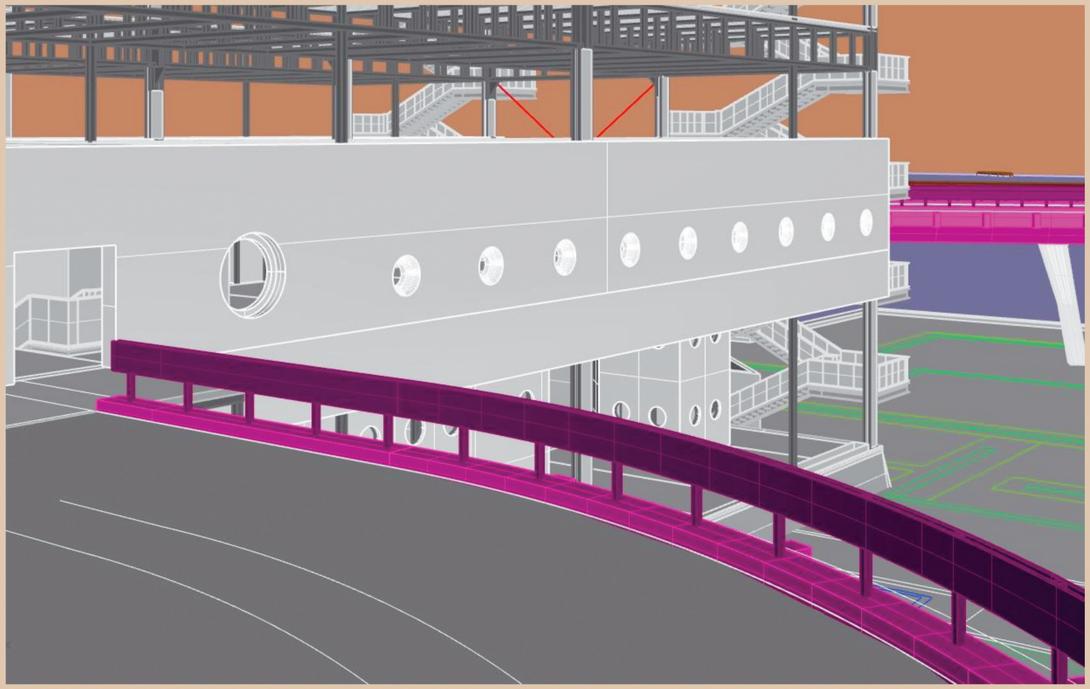


A lot of different turns!

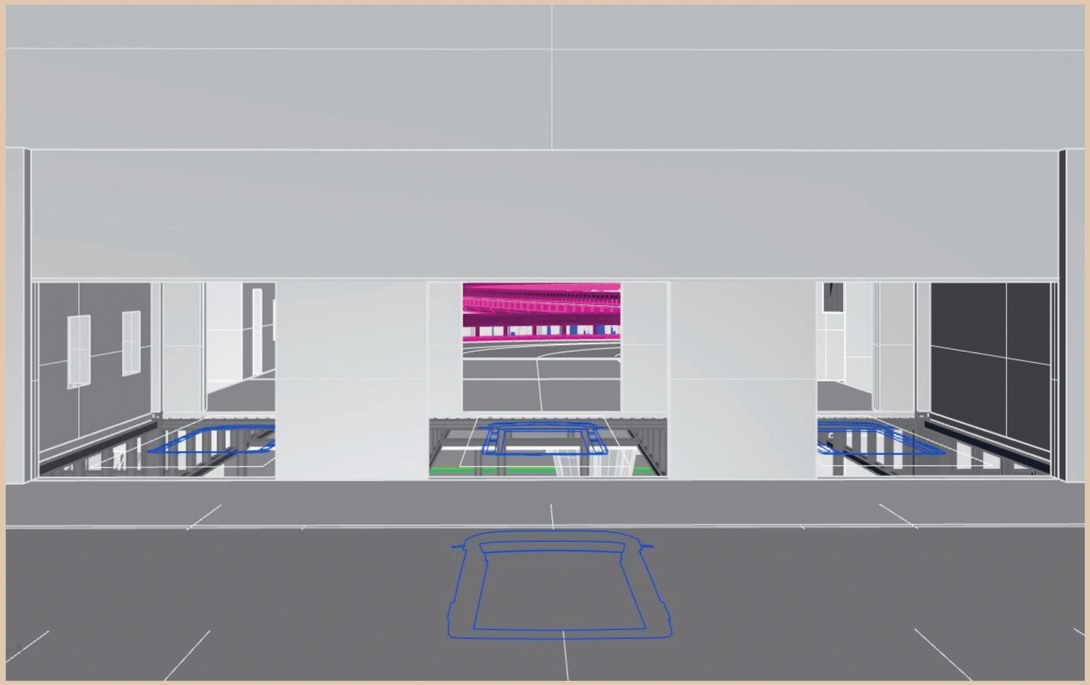
Before I came, someone told me that I should turn at the first one at my left side, which will lead me to the parking place for my minivan.



It seems that the larger two buildings are not yet finished constructing.



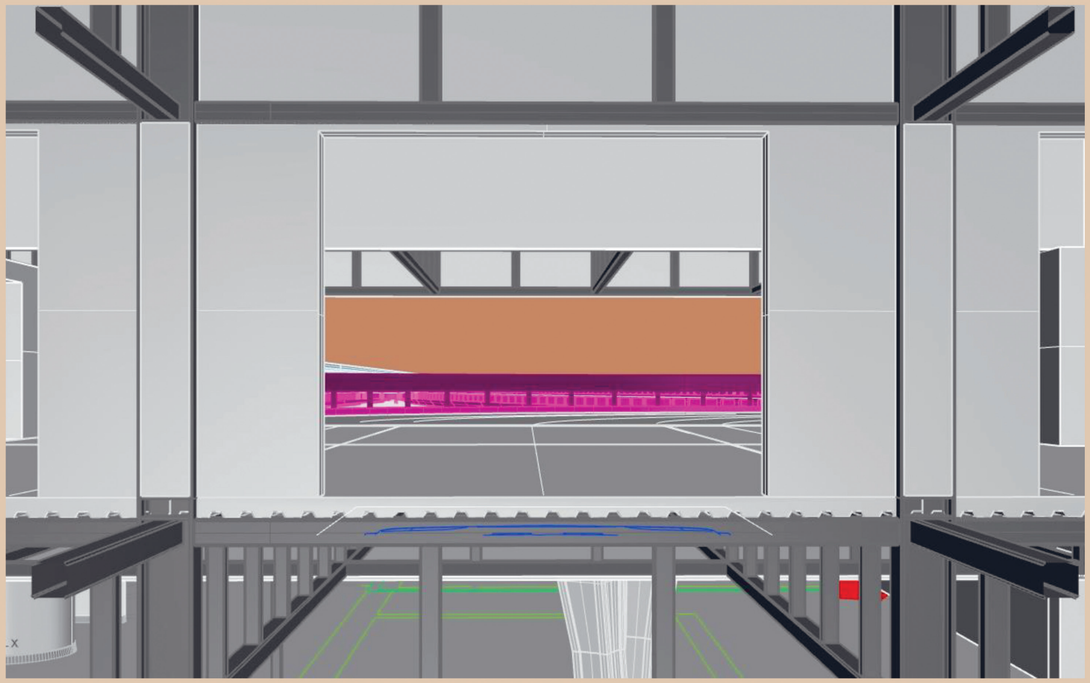
Approaching the entrance, those portholes on the façade recall my memory of walking on the west dock of the Port of Dover – portholes without openings on metal sheets, a long corridor-like space that eventually leads you to the Turret of Admiralty Pier.



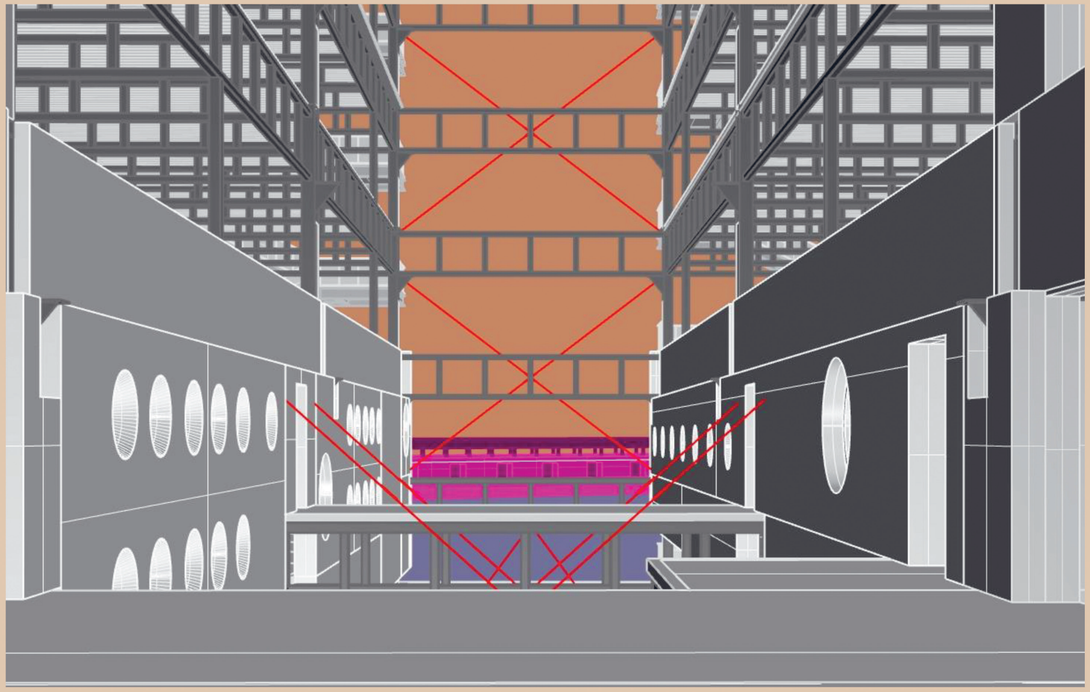
The entry to the automated parking buildings for vans!
The workers haven't installed doors to it.

I saw the original plan of this level decades ago, it would be just fine to have folding openings.

Well, since I cannot cross the entrance with my vehicle now, I need to send my drone inside to take a look.

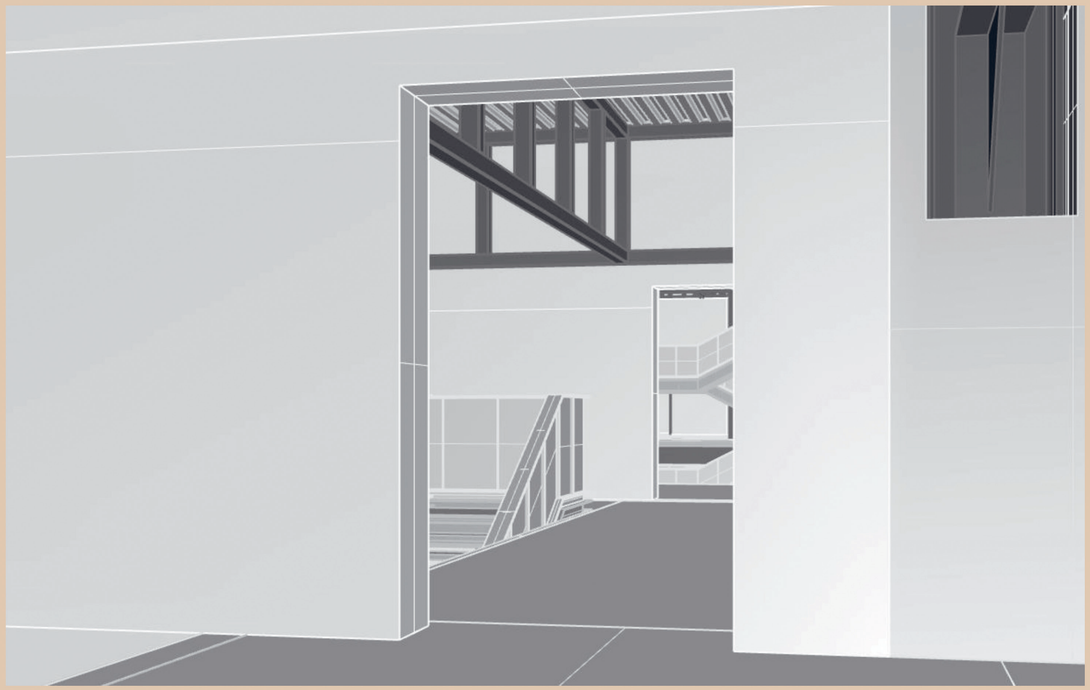


Inside the lift that will take my minivan to an appointed level.



This must be the scene when I walk out of the minivan. I will get my vehicle parked by automated shuttle trays. Those machines are not installed yet. Those logistic gizmos… I wonder if it is like a slow-down version of a subway station tracks that is turned 90 degrees.

Input, move, stop, output; input, move, stop, output!



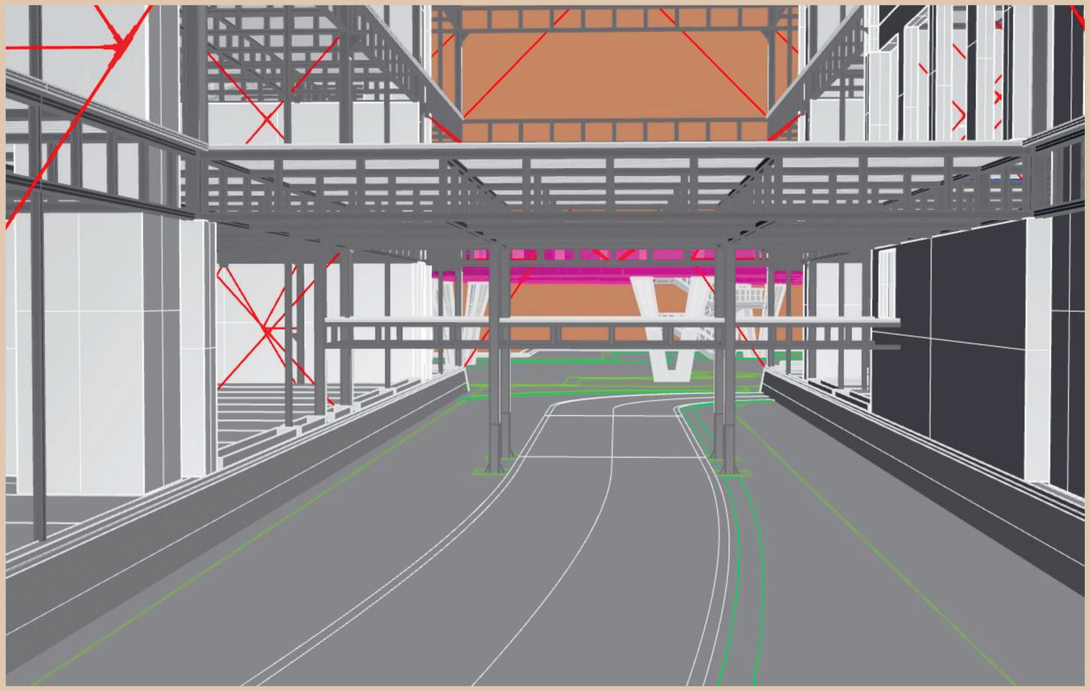
I control my drone to turn right and I notice a staircase.

Actually I can now walk on my own and observe. There is a surrounding passage link the front and back of the lift (you probably also notice this on the plan).



So, I walk downstairs.

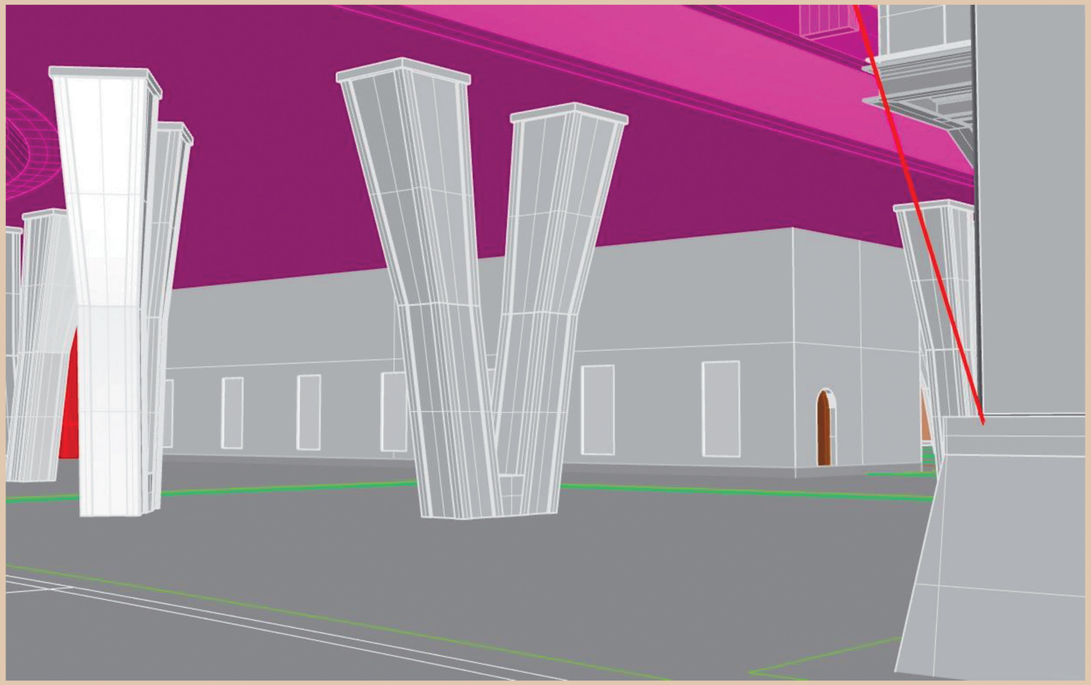
Ah, that white case must be for plants. I remember in the original plan drawing of this level, the designer wants to make the ‘ground’ level a labyrinthine city, an enlarged playground for explorers to wander around, where tree walls, bushes and grass spread over the plane, almost merging with greeneries that line the edge of every building.



I am a foot passenger now.

However, there should be bus stops and public transport lanes on the island when it begins its operation. I see that workers have engraved these lines on ground.

I walk along, passing the big building for lorries.

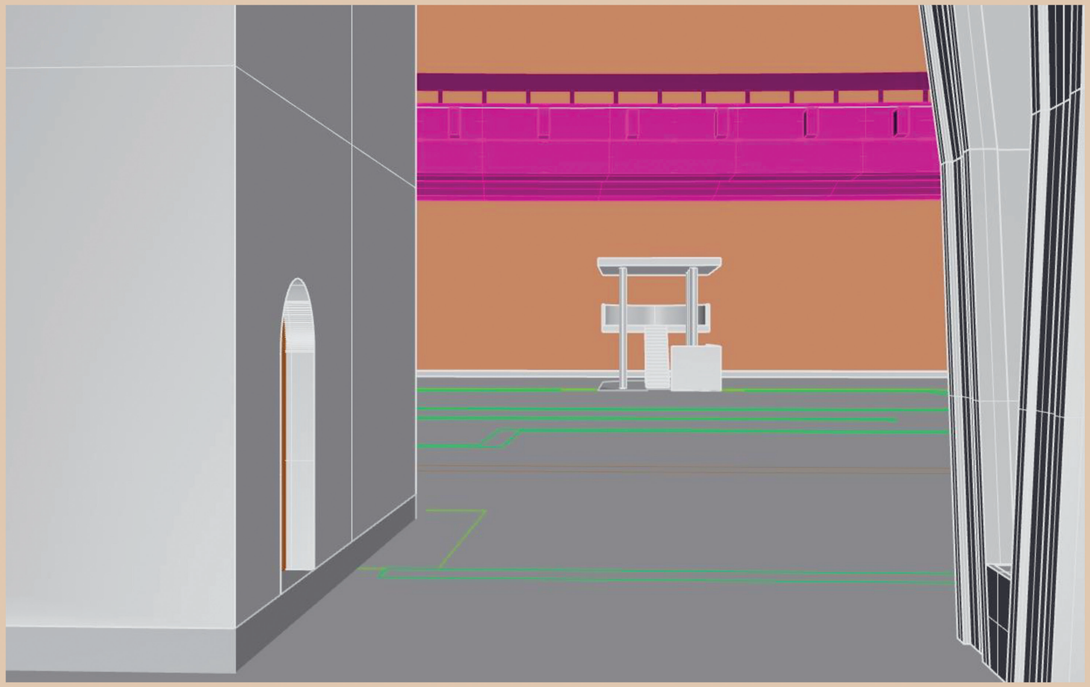


Yes, there it is.

This is the first stop I would like to stop at. That must be the culture zone of this island.

There is bookshop.

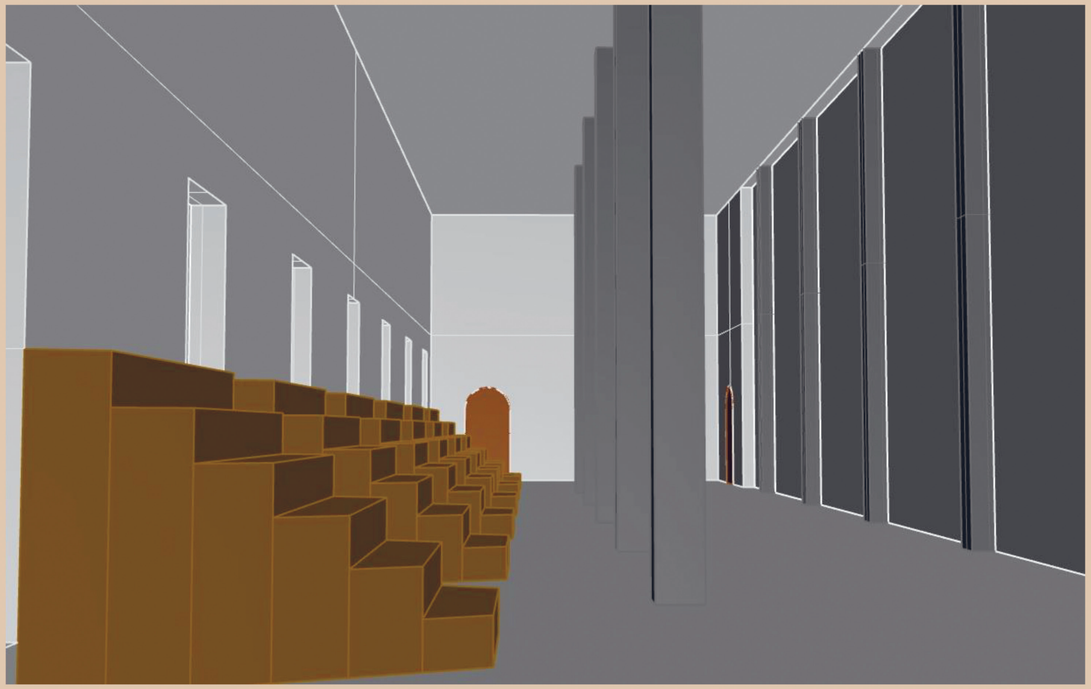
Let’s go and have a look.



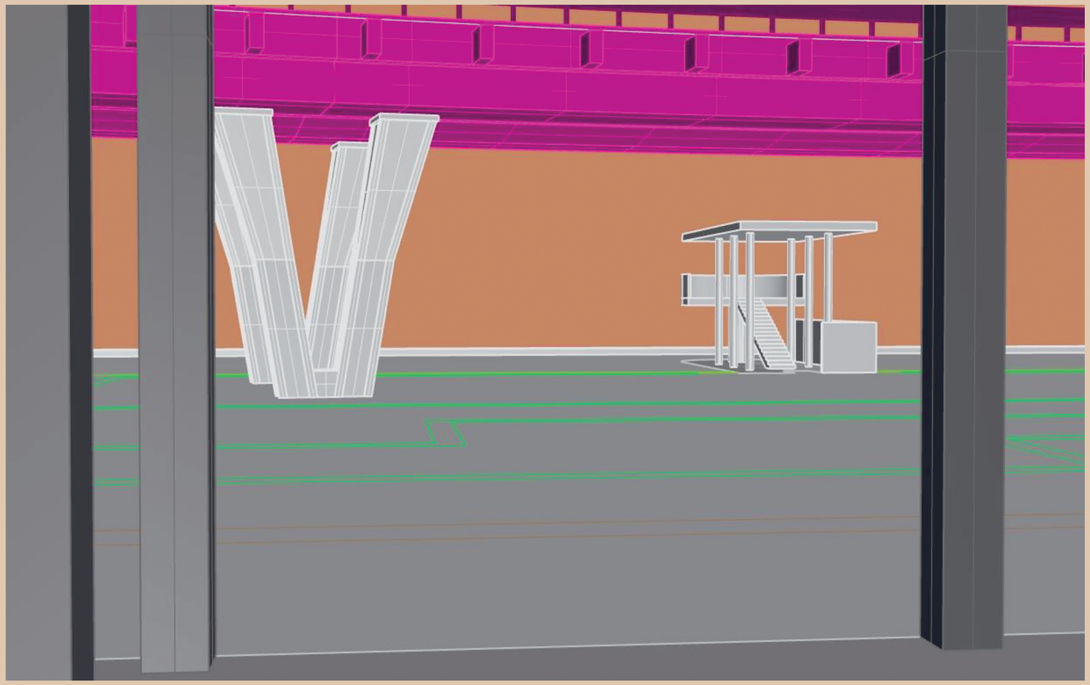
Oh, another distractor! The Pointer pavilion!

I might visit it later.

First let's go inside the bookshop.



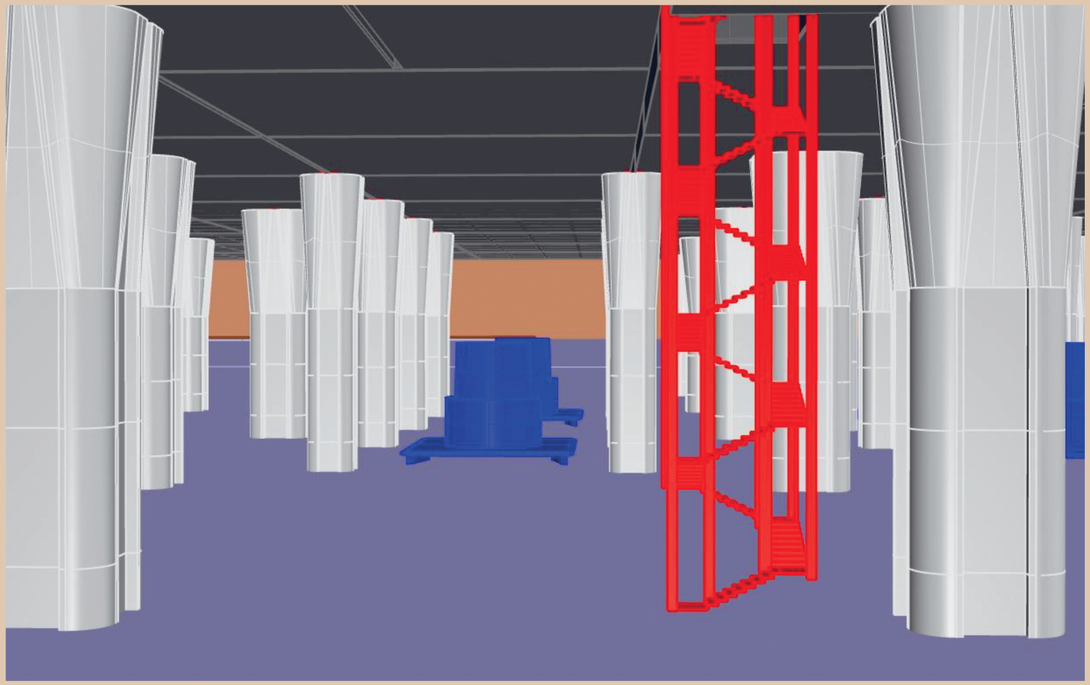
Well, there are steps with their height of about 300 mm. So it means I can pick up a book, sit on it and enjoy the view in front of me.



I sit on a step, look out, can see the vast ocean in front of me, probably with flows of traffic passing above in the future.

It is very quiet now. All I can hear is the sound the waves. I can smell the humid wind.

I don't want to talk now.



I keep on walking. Passing a few pavilions, a place for a brothel, a place for tea house and another big building, I finally arrive at the centre of the ground.

There is a staircase going downwards. It seems to lead me to water.

Should I go downstairs and have a look?

… it is very dark. I need a flashlight.

I can imagine when the weather is sunny, someone swimming close to this area will notice a beam of light coming from the hole, and he or she or it may be curious just like me to climb up… and finally found oneself landing on a new-land.

Ms. H told me after her coming back from the journey -

‘Lately I have those dreams of being a diver. I saw small holes on columns and they reminds me of those artificial concrete blocks for coral reefs’ habitat. … eventually I swam so long and when I came out of the water, I was in front of the bridge. Those dotted edges, probably for structure use in your profession,’

‘Cantilevers, they are cantilevers,’

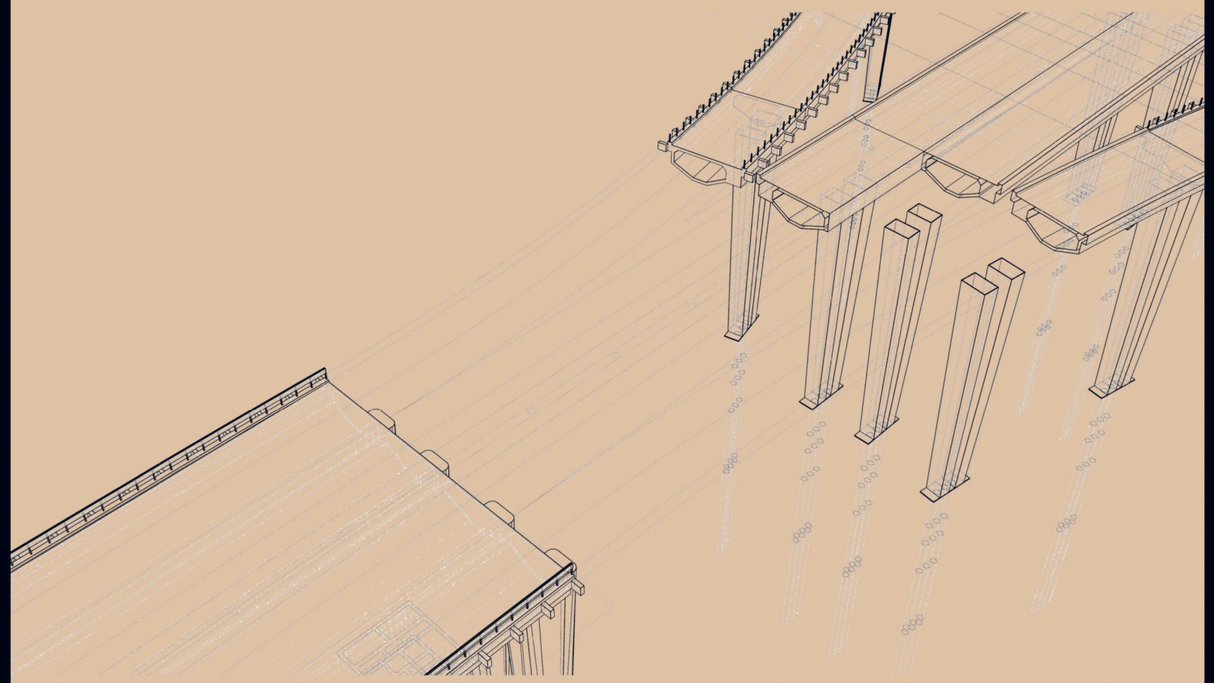
‘oh yes, they are also emitting lights! Can you imagine seeing it on night? All edges of the bridge, those infrastructure levels are put on glimmering necklaces!’



I tried to picture what Ms. H dreamed about.

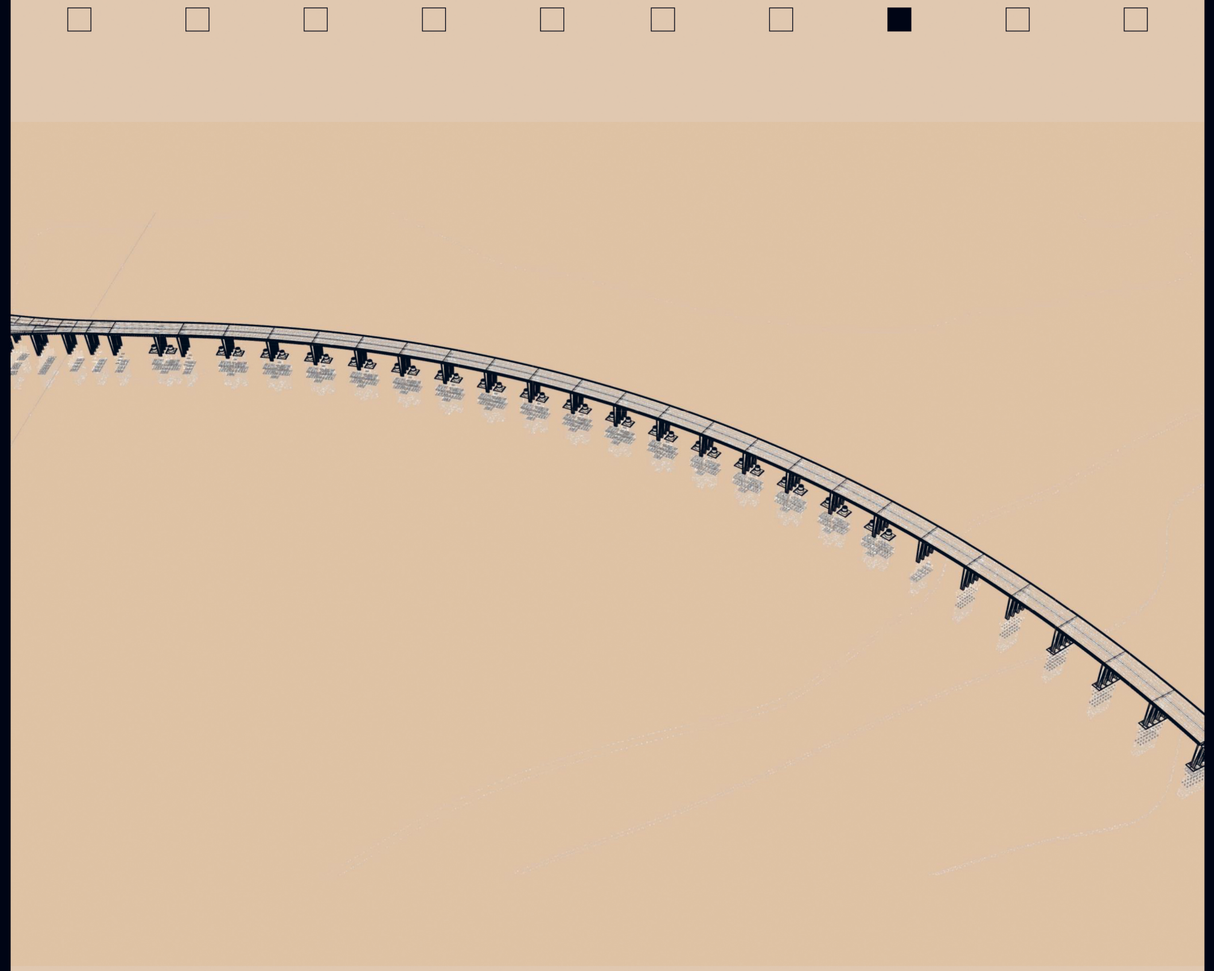


I tried to picture what Ms. H dreamed about.

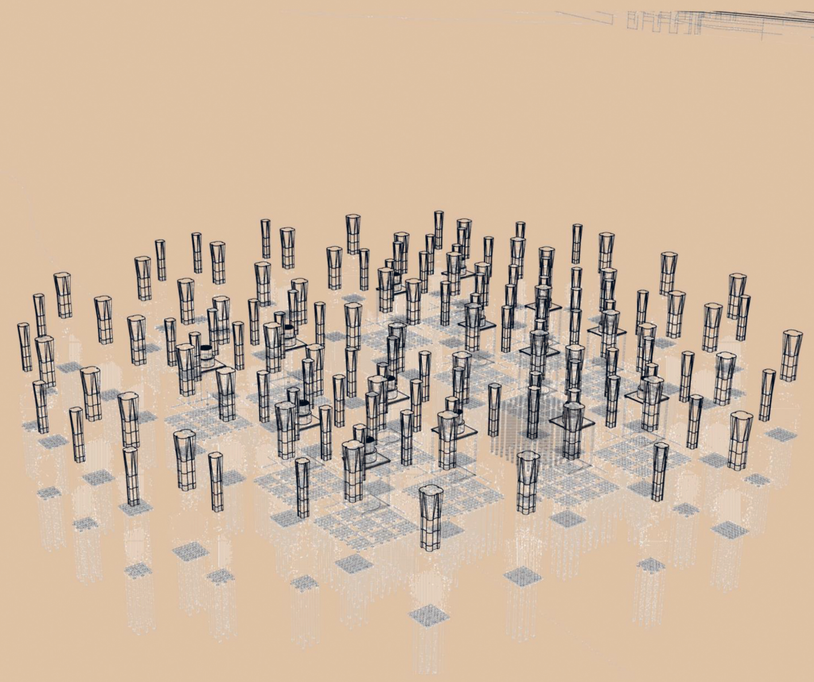


That’s for the story of Ms. H incomplete future experience of the project, for now.

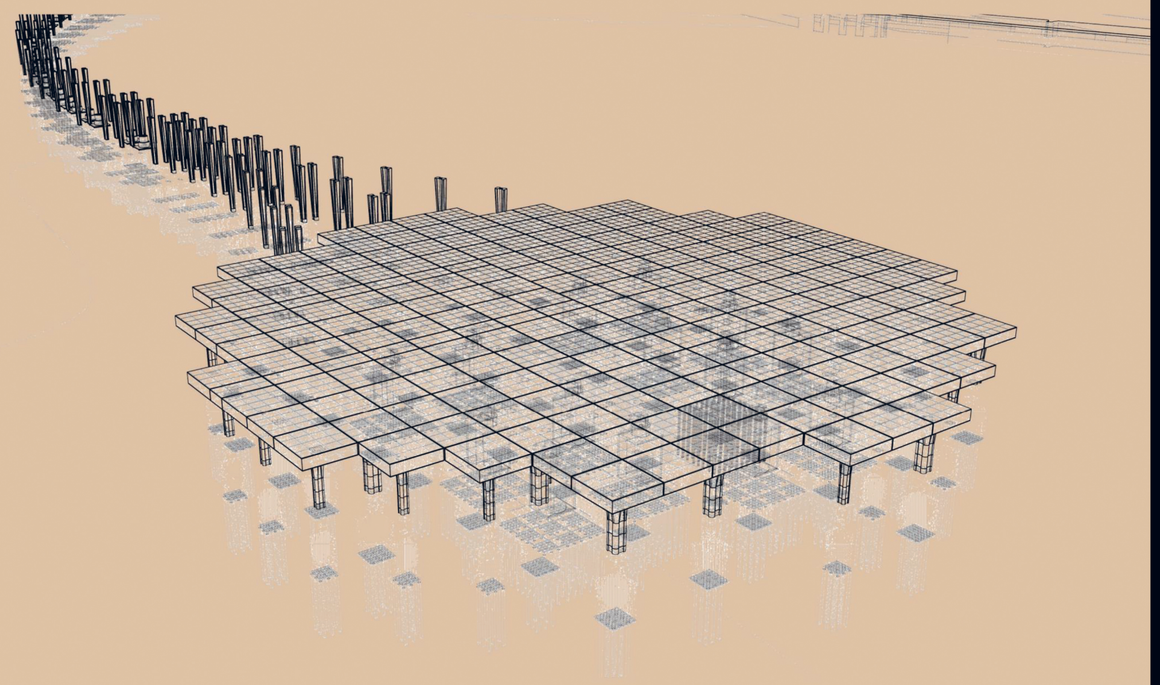
She mentioned the edge of infrastructure layer, and I think you can find it in the following pictures – they indicating the initial construction process of building the bridge, columns, the platform and some above.



Please look at the image.
It tells everything.



Please look at the image.
It tells everything.



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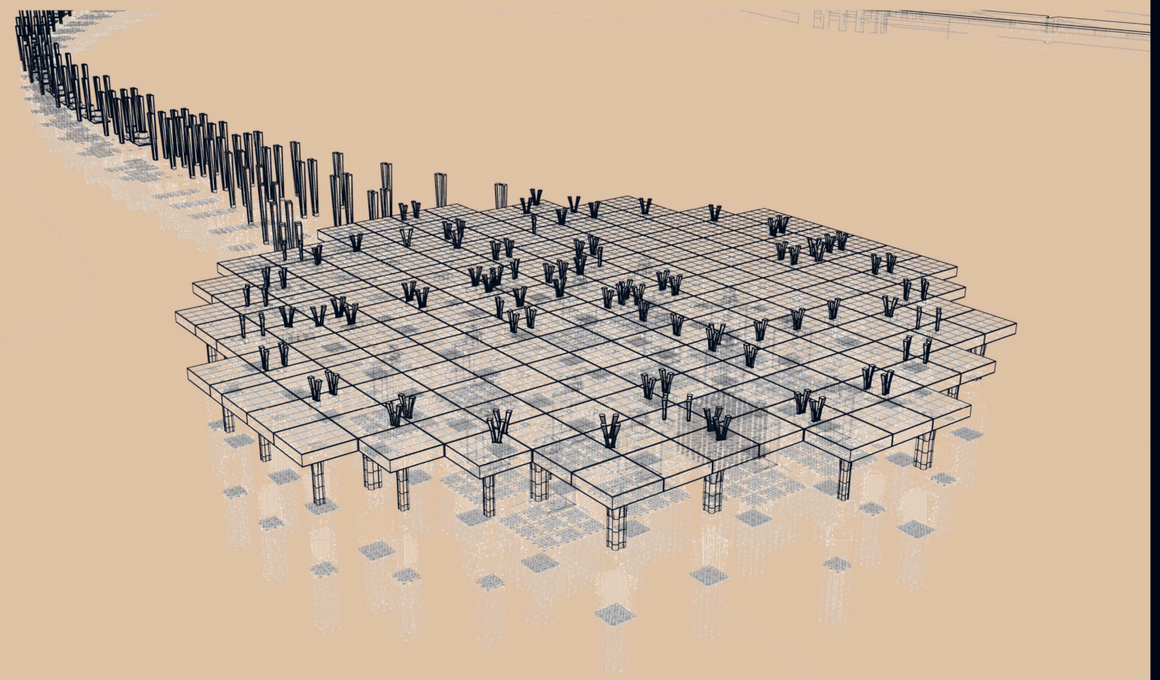

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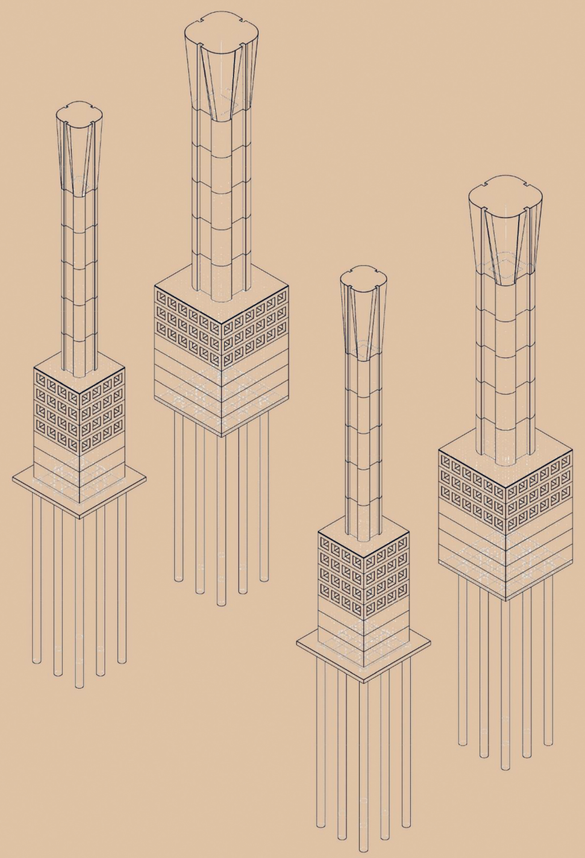

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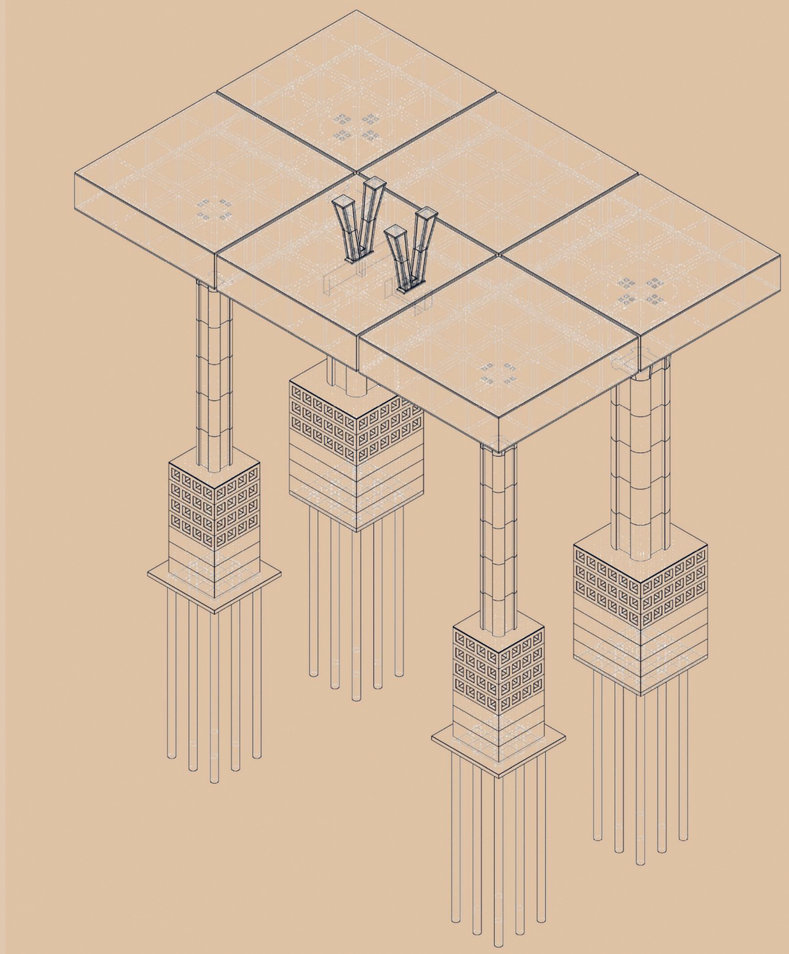

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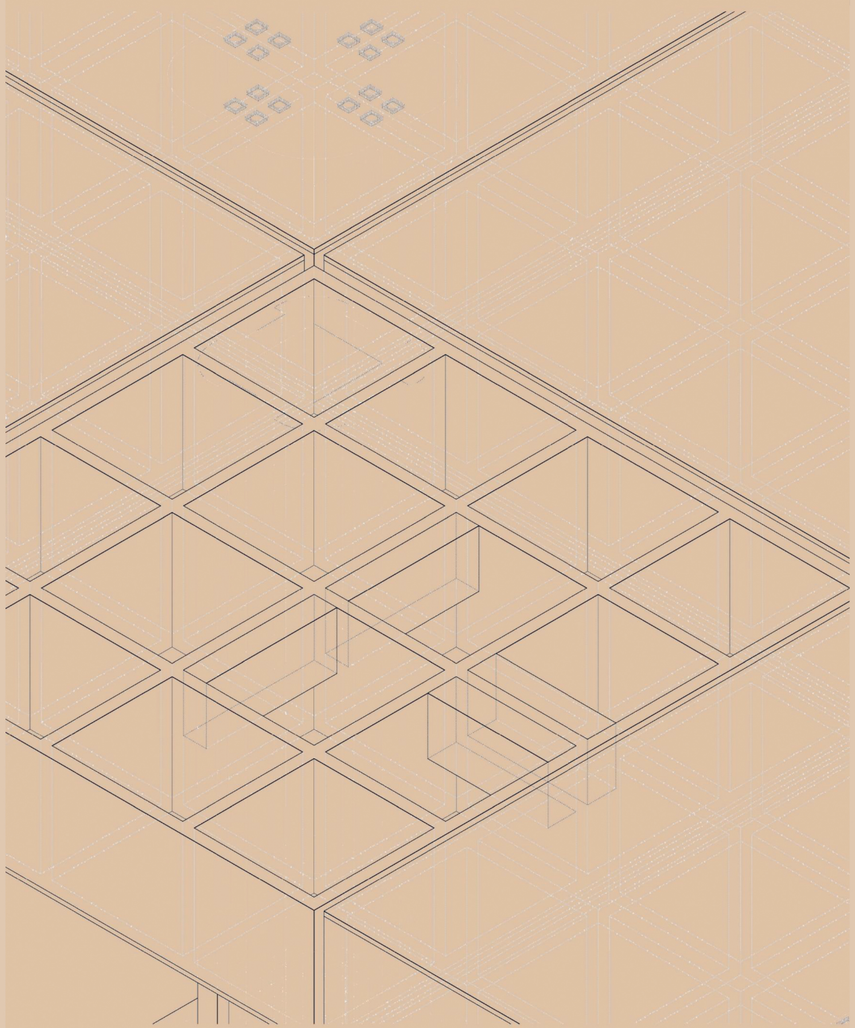

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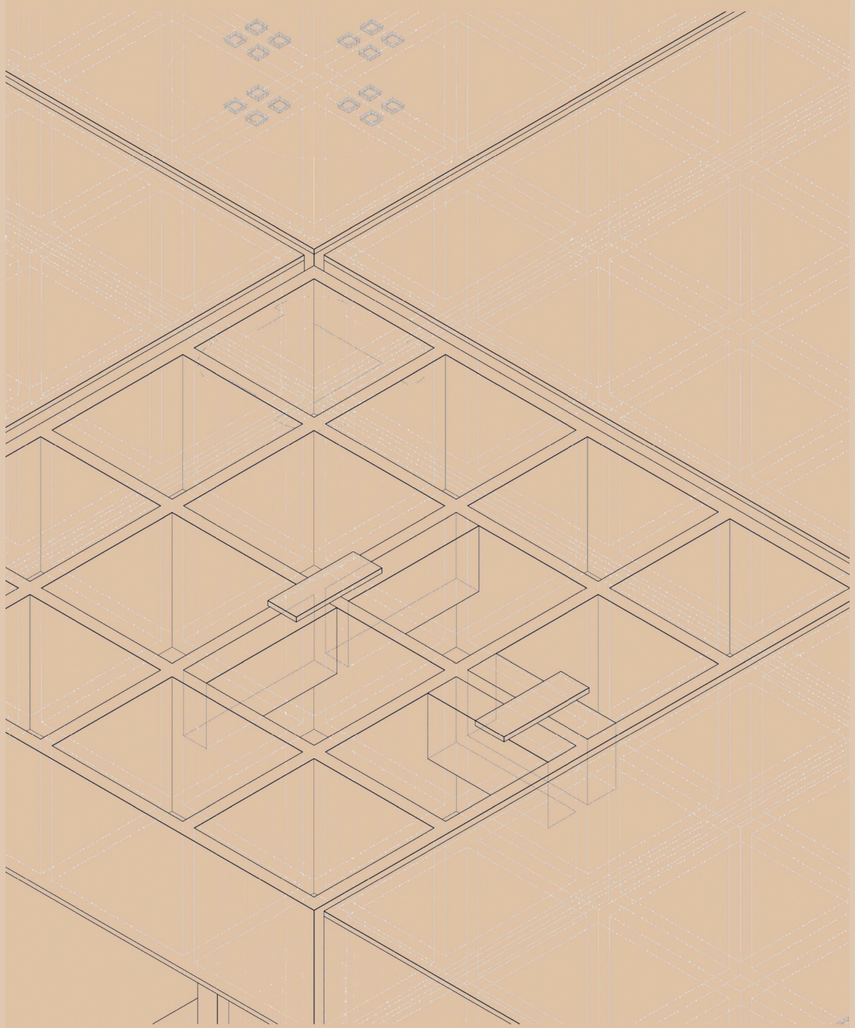

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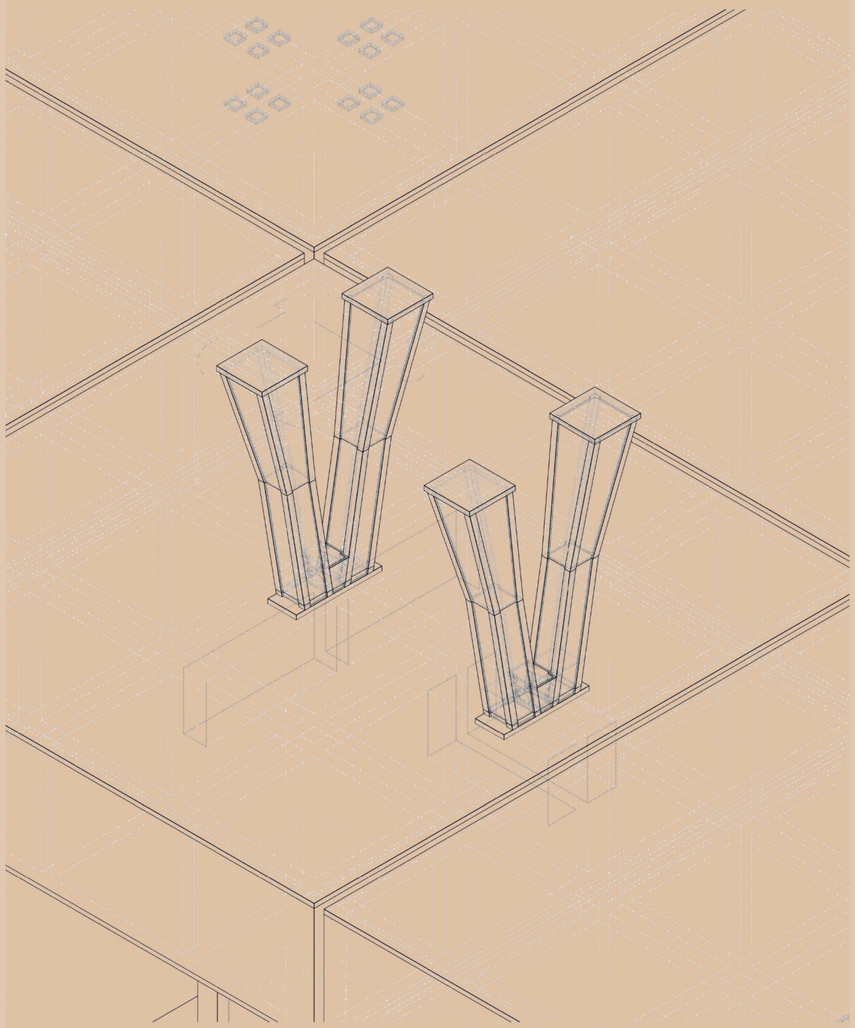

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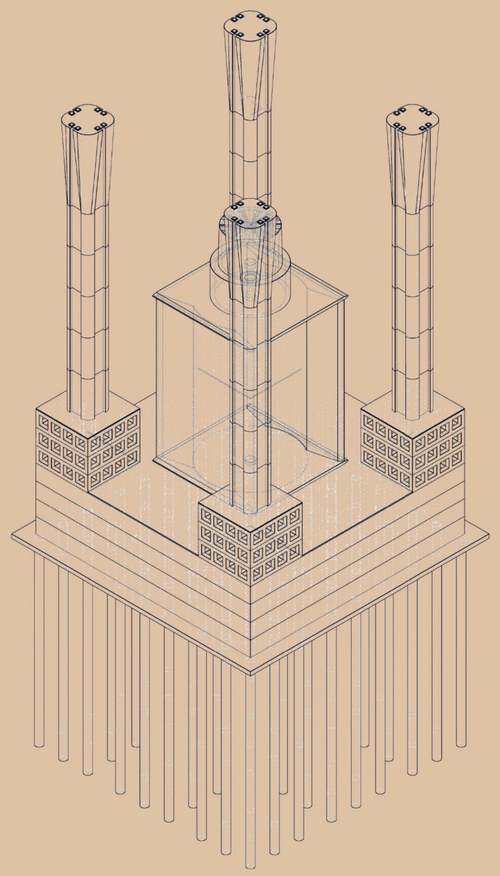

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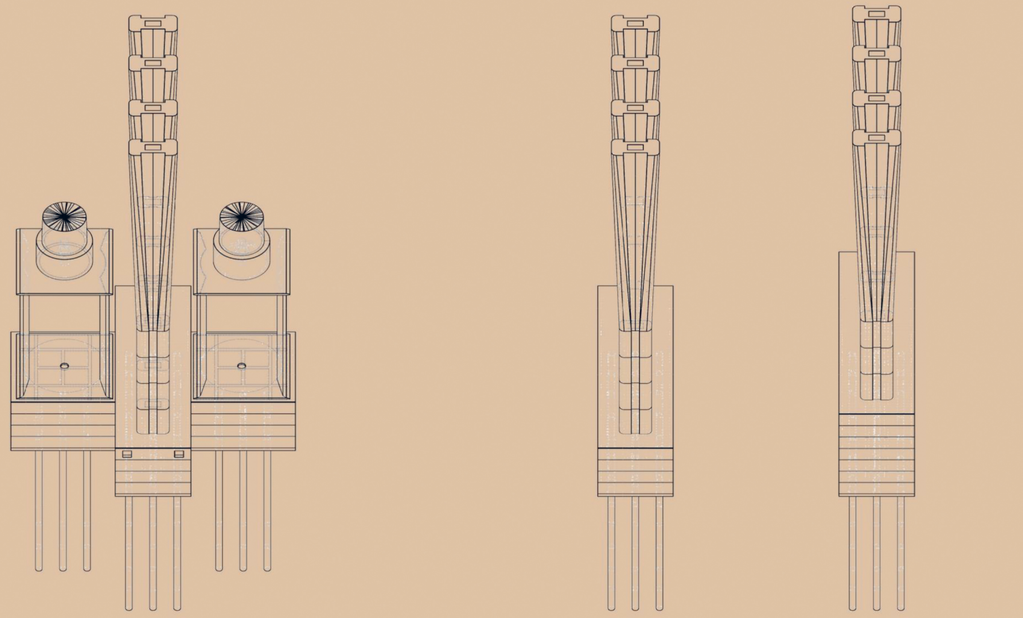

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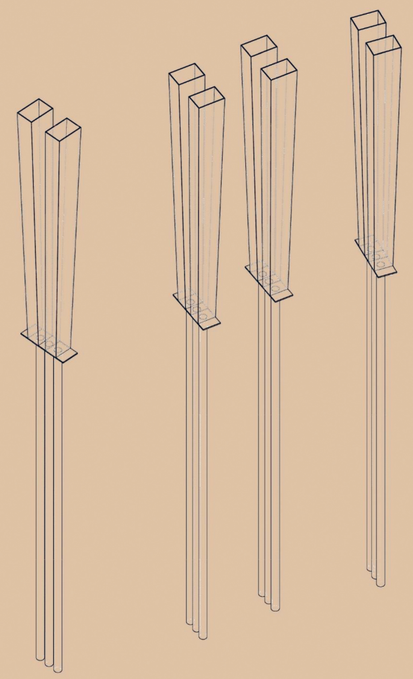
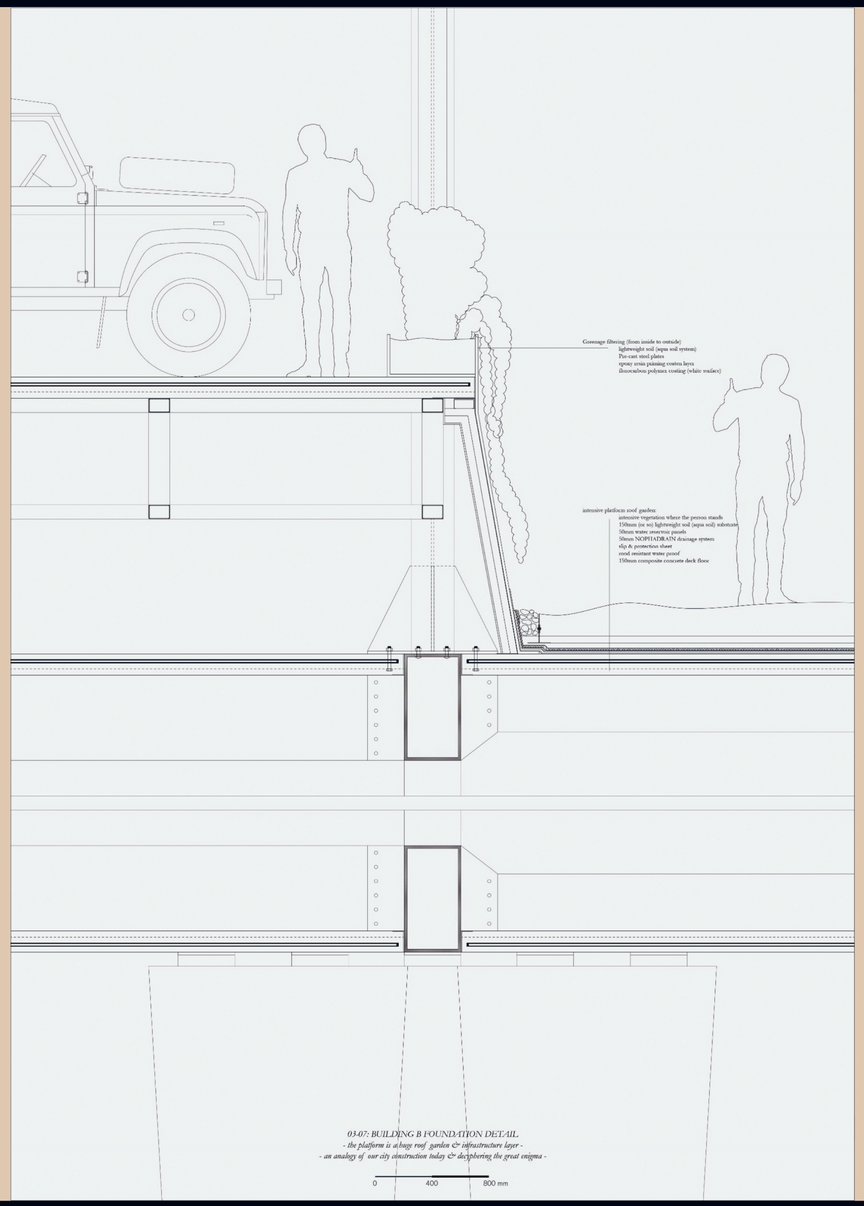


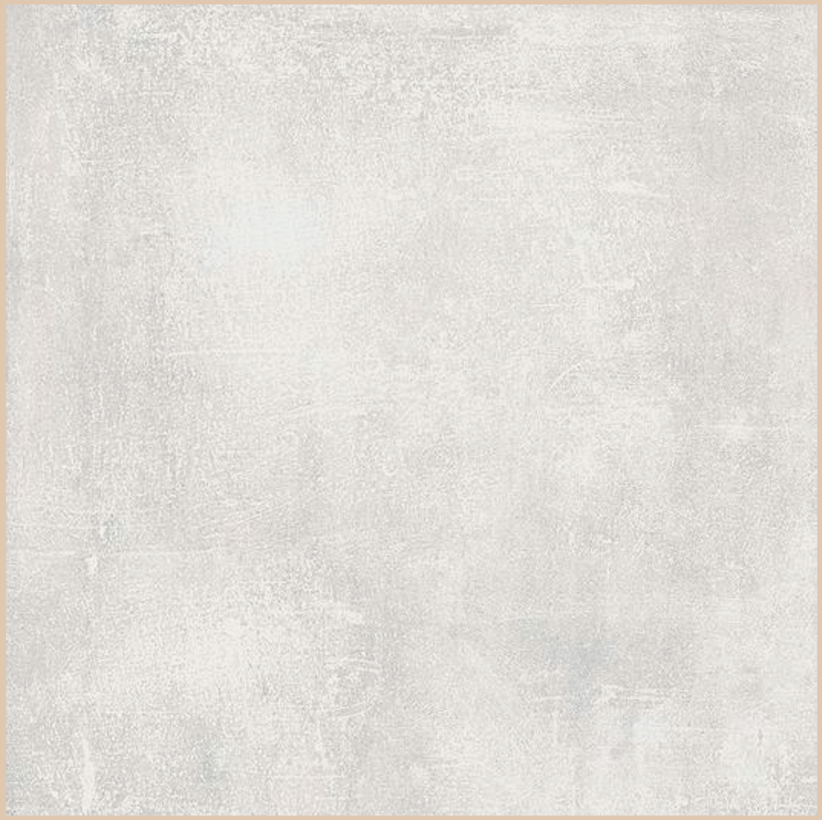
Please look at the image.
It tells everything.



03-07: BUILDING B FOUNDATION DETAIL
- the platform is a huge roof garden & infrastructure layer -
- an analogy of our city construction today & deciphering the great enigma -

0 400 800 mm

Please look at the image.
It tells everything.



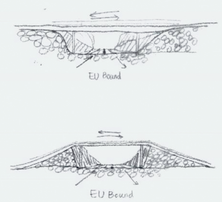
Please look at the image.
It tells everything.



Please look at the image.
It tells everything.

Epilogue

An island of becoming new land:
A portray of the reflection process
of making a projection.



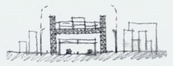
HIGHWAY INTERSECTIONS IN KENT

Approaching the final part of my narration, I will tell you some truth of this project.

It's about challenge one's first reaction as a designer to the problem field, detach oneself to one's familiar zone, and ultimately it becomes a reflective project of itself.





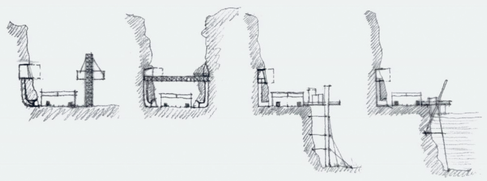




LAND & EMERGENCY GIZMOS
plain landscape
agricultural, urbanized, aquacultural zoned

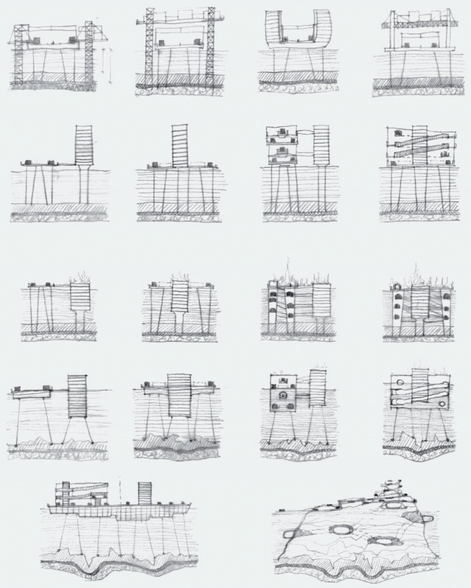
Please look at the image.
It tells everything.





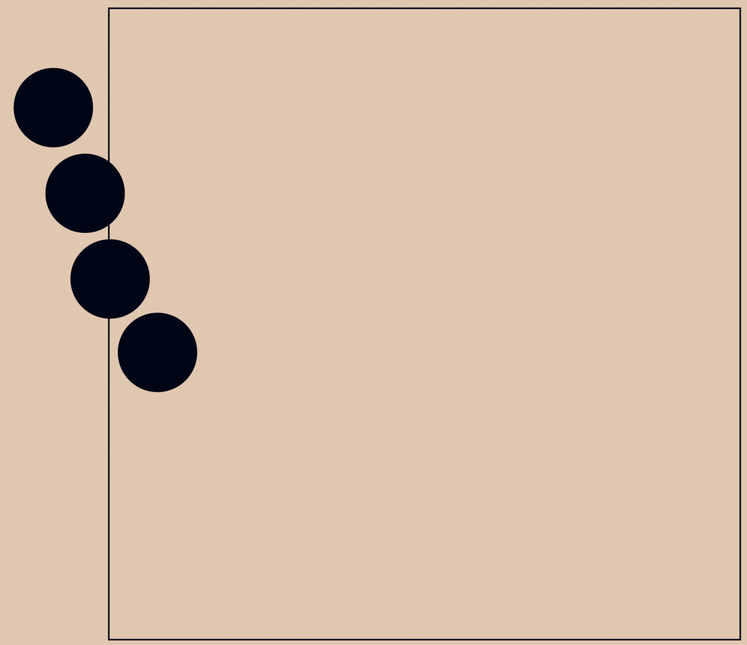
LAND & EMERGENCY GIZMOS
hilly landscape
What else could we do to our land?

Please look at the image.
It tells everything.



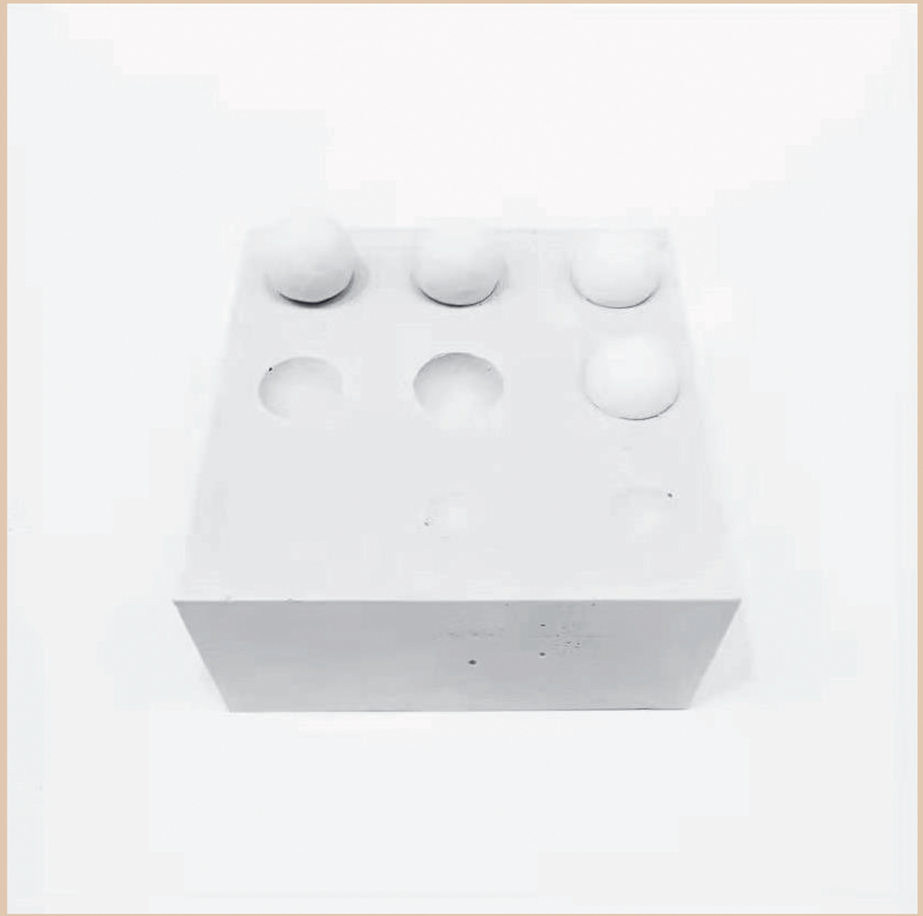
AN ISLAND OF BECOMING NEW LAND
- existing highway configuration on sea -
- set free_tilted -
- set free_floated -
- set free_bear -

Please look at the image.
It tells everything.



At the very beginning of shaping the project, I was thinking of what transitional territories meant as an academic project.

Most of the time my thoughts stay at an abstract level, that the concept model refers to a systemic inquiry for doing research.



In general ,the project belongs to those that are grouped as ‘annex projects’. The annex island.

More you will read in the research report and my reflection paper.



And pictures of the physical model are included in the supplement drawings.

Fin.