

**GRADUATION
WORK**

2016-2017

**CCMBE
LAND-
TIDELT**

FLOWSCAPES

Graduation lab landscape architecture

Lab Coordinator:

Steffen Nijhuis

Assistant Professor of Landscape Architecture

s.nijhuis@tudelft.nl

**Delft University of Technology,
Faculty of Architecture
Department of Urbanism,
Chair of Landscape Architecture**

Text:

Steffen Nijhuis, assistant professor TU Delft

**Daniel Jauslin, researcher and lecturer TU
Delft**

With contributions by:

**Christopher de Vries, urban designer European
Infrastructure Lab**

Lay Out:

Marina Dondras

Version:

September 2016

Copyright:

2012 - 2016 by authors and TU Delft.

All rights reserved.

FLOWSCAPES

INFRASTRUCTURE AS LANDSCAPE

LANDSCAPE AS INFRASTRUCTURE

4 Introduction

5 Assignment

Results

6 NADIA KALOGEROPOULOU_Landscape de-
velopment in the border condition

12 MARGOT OVERVOORDE_Tiengemetten 2.0

18 MILAN MALLINATH_Sandy rural landscape
and its water system in times of climate change

24 MARIA POTAMIALI_Haringvlietdam

30 CEM CHARLEY STEENHORST_Ruimte mak-
en, ruimte geven

36 KALLIRROI TAROUDAKI_Dynamic river-
scapes

42 RUOJING WU_Strategy of healthy green fu-
ture for Rotterdam Zuid

48 YIXIONG MIAO_Integration by landscape

54 XUEQIAN ZHAI_Hybrid highway landscape

60 MENGHAN FU_From Edge to Integrated sur-
face

66 ALEXANDRA ANTON_Shaping the outside
space through play narrative

72 JIE YANG_Landscape interface development



AR3LA031



DESIGN STUDIO

TUTOR TEAM

STEFFEN NIJHUIS
AND OTHERS

INTRODUCTION

The studio explores infrastructure as a type of landscape and landscape as a type of infrastructure (cf. Strang, 1996). The hybridization of the two concepts seeks to redefine infrastructure beyond its strictly utilitarian definition, while allowing landscape design to gain operative force in territorial transformation processes. Through focusing on landscape architectural design of transportation-, green- and water infrastructures the studio aims to develop innovative spatial armatures that guide urban and rural development and represent their civic and cultural significance. With movement and flows at the core, landscape infrastructures facilitate aesthetic, functional, social and ecological relationships between natural and human systems. Through design-based case studies at different scale levels the studio seeks for a better understanding of the dynamic between landscape processes and typo-morphological aspects; here interpreted as *flowscapes*.

The studio is concerned with the design of new topographies by integrating new programs into the 'genius of place' and time, and with regard to landscape processes, the continuation of spatial quality and cultural identity of the landscape. It does this through the development of landscape architectural concepts, methods and techniques for design research and research-by-design. Our landscape architectural design explorations require a multi-layered understanding of landscape: its spatial structure or visual landscape, history, context, or relational system and involve the underlying the ecological, economic and social processes.

In this process visual thinking and communication are considered to be crucial. Drawings, mappings and models are used to reveal and create relationships, explore and elaborate landscape systems as flows in terms of geometry, quantity, velocity, force, trajectory. Such specifically developed design techniques should become accurate tools for critical reflection.

Four perspectives on landscape which together characterize the work of landscape architects (Nijhuis 2006; Marot 1999; Prominski 2005):

Landscape as spatio-visual structure

The visual form of the landscape is based on the sensorial experience that emerges only by movement and is affected by the position and intensity of light sources. The act of perceiving is linked with the sequential unfolding of information as our bodies pass through space.

Landscape as palimpsest

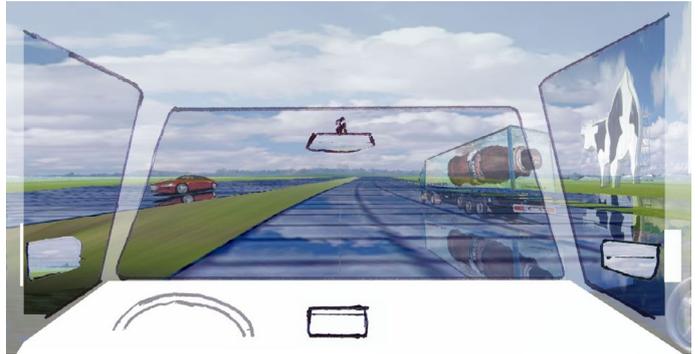
The landscape as an expression of historical culture, or as a palimpsest that evidences all of the activities that contributed to the shaping of the landscape. In this respect the *Genius Loci* (topos + locus) is an important basis and where operations of erasing and writing history add new layers to the landscape.

Landscape as scale-continuum

The landscape as relational structure is connecting scales and spatial, ecologic, functional and social entities. The continuum across scales facilitates attachment, connection or embedding of a specific site or location into the broader context.

Landscape as ecologic, economic and social process

Landscape and landscape construction is regarded as a process rather than as a product. Projects play a role as a open-ended strategy, as in staging or setting up future conditions. The landscape is a expression of the dynamic interaction between biotic, a biotic en anthropogenic factors.



Picture top:
Aerial picture of Los Angeles
(Edward-Burtynsky)

Picture bottom:
View from the road
(Daniel Jauslin)

LANDSCAPE DEVELOPMENT IN THE BORDER CONDITION

THE BORDERLAND AS A CULTURAL INTERFACE

NADIA KALOGEROPOULOU
GREECE
nadiakal26@gmail.com



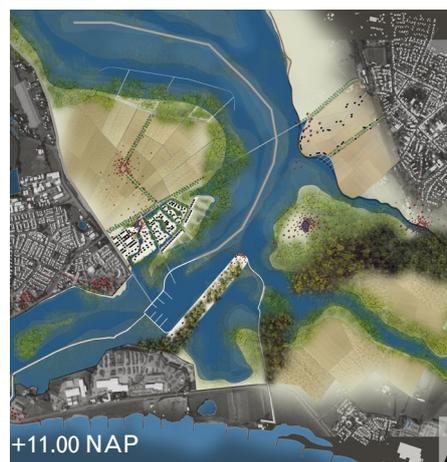
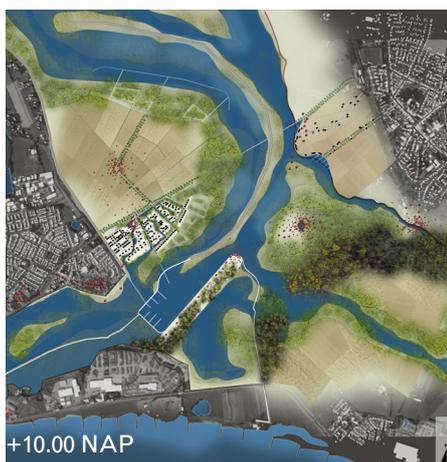
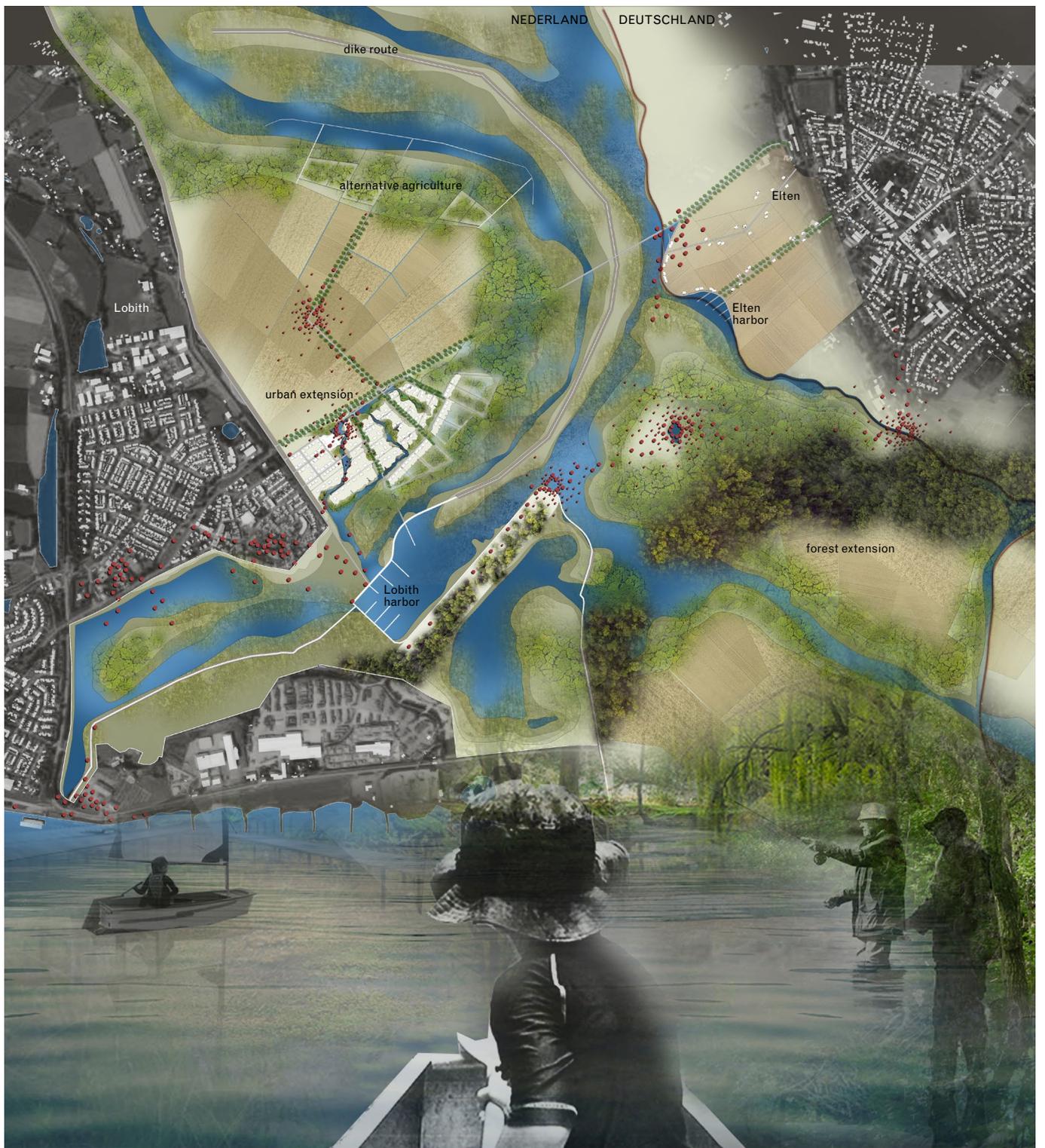
Research objective and analysis

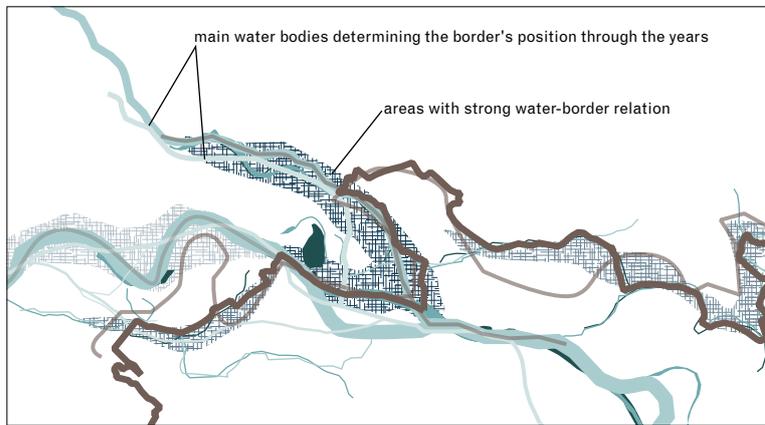
The border line, a seemingly simple geometrical form with a great spatial and mental effect to its surroundings, has been the fascination behind this graduation project. The borderland, a unique landscape characterized by the presence of the national border, is nowadays facing the risk of becoming a no-man's land, an abandoned and homogenized place, just like so many other places around the world. The objective of this graduation project has been, therefore, to accentuate the unique qualities of the border landscape as a place of cultural diversity and meaningful encounters, by intensifying potential connections and by encouraging interactions taking place within it on a daily basis. The border landscape between The Netherlands and Germany was selected, to further research the issue and eventually propose a design, in respect to the area's current conditions and future needs.

The area was first analyzed on a regional level, to test the relation between the border line and the underlying landscape. This analysis revealed that important features of the natural landscape and especially water bodies influenced the position and form of the border line. At the same time, the presence of the border influenced the way people organized themselves around it. The action of crossing the border on this scale seems difficult, due to reasons of mentality that make people believe they differ from the ones living on the other side of the national border. However, when zooming in, one realizes that reaching the border is hard not just due to mentality reasons, but also practically. The borderland is quite fragmented by physical boundaries that create patches of inaccessible land. Envisioning the future borderland as a place of daily encounters requires, therefore, first searching for ways of connecting those inner fragments.

The structural & punctual approach

A research on different types of possible connections resulted to a categorization in two groups. On one hand, there are structures, namely connections based on actual continuities (infrastructure lines, continuous water bodies, forest structures etc). On the other hand, there are single elements that, if imaginary connected to each other, create a network of localities. The site already offers a lot of potentials, namely elements that, if connected, will promise a more robust border landscape. An approach including structural and punctual interventions has therefore been followed, to secure the borderland's future development.

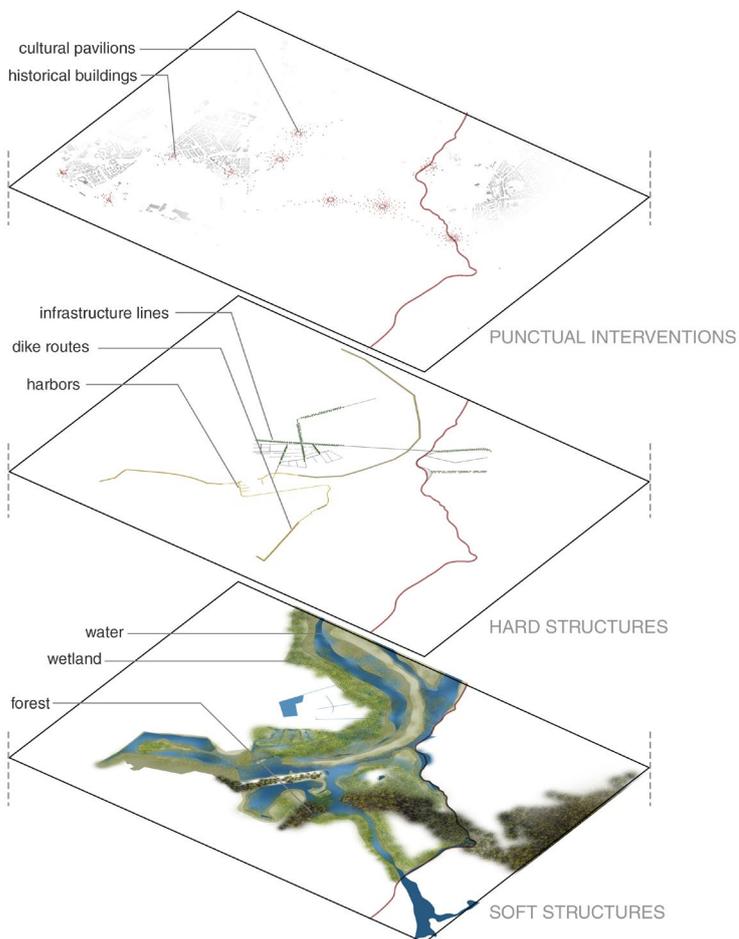




relation betw. water & border line



the potentials of the borderland



the master plan's components

The master plan

The most prominent feature of the master plan is the proposed continuous water structure, made by connecting the existing single water bodies now scattered around the borderline. The presence of the water, as well as a proper yet subtle carving of the land around it, will attract wetland species that in future could become a dense woodland environment. At the same time, the proposal focuses on extending the forested area now located in the German side of the border towards The Netherlands, in order to achieve a variety of different landscape types. The master plan reflects the final stage of the project, in which an extension of Lobith and Elten towards the border is envisioned. By literally bringing the Dutch and the Germans closer to each other, the plan envisions a more frequent communication between the two sides of the border, which would thus enhance its identity as a place of diversity and daily encounters. Another important aspect of the master plan is the cultural layer, a combination of newly-proposed pavilions and existing historical buildings that altogether form a network.

The master plan's components

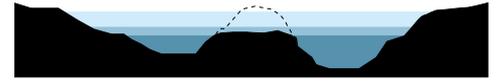
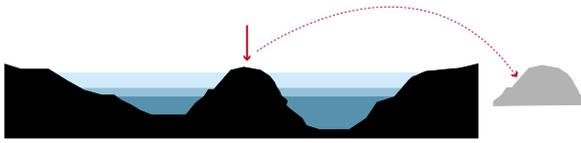
Decomposing the master plan gives an insight into how the structural and punctual approach has been applied. The first layer of action includes the "soft" structures and, more precisely, all water, wetland and forested environments. Undoubtedly, the landscape's final image will not be achieved within one day. The ground digging process and the formation of the water bodies, along with the development of the various landscape types, are proposed within a framework of ground and ecology works, which act like guidelines. The ultimate goal is to create a landscape that is diverse not just in terms of culture, but also in terms of nature, offering possibilities for alternative agricultural techniques that could boost the borderland's economy. Another major aspect related to the "soft" structures is the function of the water system. The connection of this system to the Rhine would imply that the proposed water continuity depends not only on precipitation levels, but also on the Rhine's fluctuation regime. The system's water would then fluctuate accordingly, and the result would be that of a "bluer" or "less blue" landscape, depending on the water's seasonal changes. The second layer of the master plan includes all "hard" structures proposed, namely roads and other infrastructural lines. Also, pieces of remaining historical dikes are connected and added to a system of pathways, offering interesting views. The third layer of action is that of the punctual interventions, which include a set of newly proposed cultural pavilions and, added to this network, all historical buildings or parts of buildings that have survived and remained to the area through the years.

before

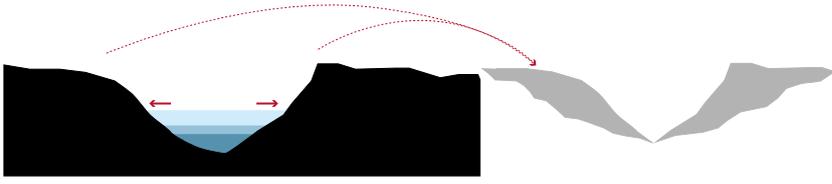
after

GROUND WORKS

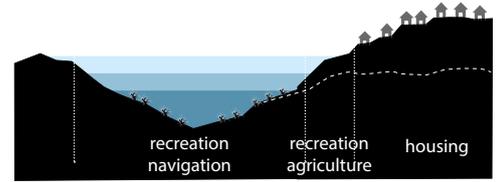
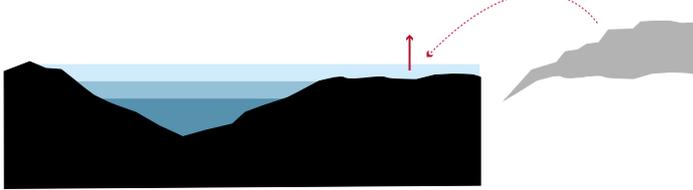
continuous water structures



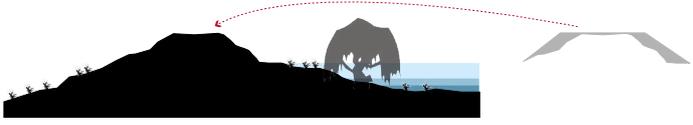
smoother shores



flood resilient urbanities



exciting landscape vistas



ECOLOGY WORKS

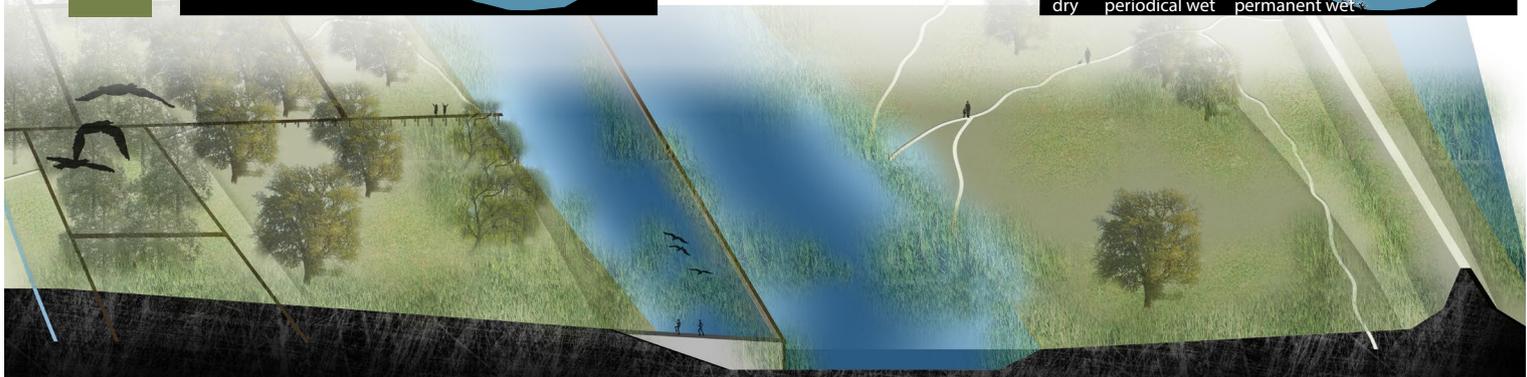
contrasting images of nature



pioneer species



nature partially controlled



populus nigra
periodical wet



bulrush
rich-nutrient
swamp plants



duckweed
rooting, float-
ing, submerged
plants



white water
lily
rooting, floating,
submerged plants



frogbit
rooting, floating,
submerged plants



thelypteris
palustris
permanent wet



alnus glutinosa
permanent wet

- agriculture
- forest
- swamp
- marsh
- water
- other

the soft structures' formation as a result of ground & ecology processes



urban extension within a water environment (high water level)



neighborhood surrounded by wetland (high water level)



experiencing the wetland as an open public space



experiencing the wetland conditions within the house territory

The housing extension project

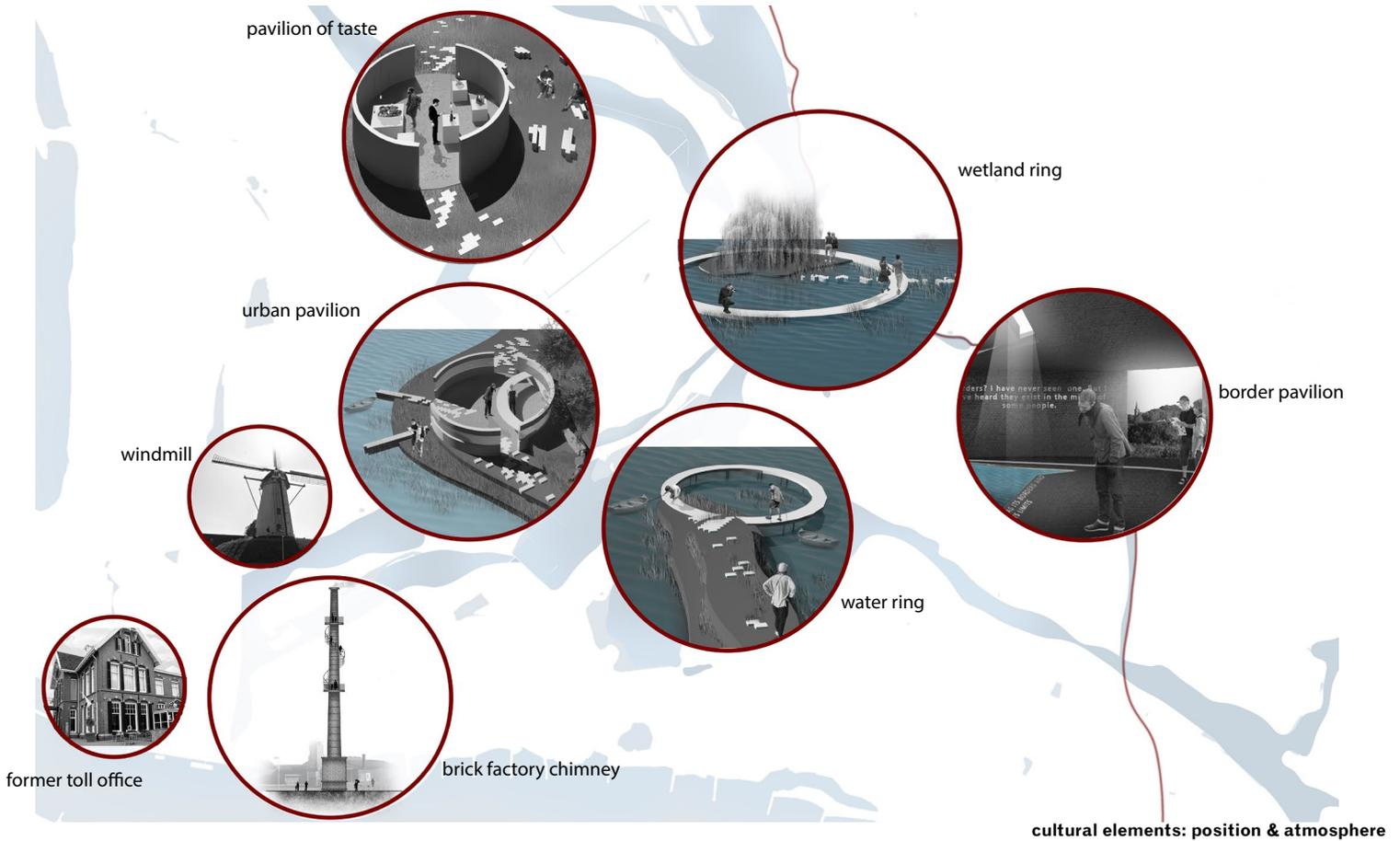
Following the master plan's guidelines of extending the settlements towards the border line, a detailed plan of Lobith's future extension is proposed, based on the area's current relief conditions. The buildings are placed on the land's highest levels, to protect against severe flooding events, which have marked the region in the past. The goal has been to create awareness to people regarding the river landscape, by literally bringing the wetland conditions within their home gardens and by letting them experience the water fluctuations on a daily basis. To do this, the cores of the settlement have been carved and consequently filled with water. The water fluctuations create an interesting environment which varies every day and, at the same time, helps people overcome their fear of flooding and turn water from enemy to friend. The changing water levels create a soft boundary which is at a constant dialogue with the harder infrastructural borders. At higher water levels, the area can be also navigated by boat.

The wetland area surrounding each neighborhood is a space open to public. Depending on the water level, different recreational activities can take place there. The wild, forest-like nature of the wetland is in striking contrast with the more "tamed" nature of the house gardens, which have the form of typical, fenced grasslands with fruit trees and vegetable cultivations. At low water levels, the boundary between public (wetland) and private (house garden) is clear. However, once water gets higher and enters within the house territory, those boundaries become blurry. The water fluctuation starts a dialogue between public and private, leading to a reinterpretation of this border type.

Every house unit is elevated to be even more protected from flooding incidents. The area underneath the house on ground level has the proper height to become a fully usable space. The bearing walls are placed on strategic positions, to guide residents' views towards the wetland landscape, hiding some angles while framing others. They can also be used on daily activities, by hosting for instance vertical gardens. Material-wise, they are made of bricks, a material that recalls the area's past and tradition in brick and stone manufacturing. On the contrary, the house is like an elevated volume in white and grey tones. The whole construction is an interplay between traditional and more contemporary design techniques.



architecture adapted to change



plan of the border pavilion (high water level)



inside the border pavilion (low water level)

The cultural layer

The punctual interventions have been envisioned as a set of elements with an educational as well as recreational role, whose main purpose would be to make visitors aware of the border landscape's qualities, in terms of both nature and culture. The objective has been double: on one hand, enhance the role of the remaining historical elements by adding them to a path system that would intrigue the visitor to discover them and, on the other hand, create a group of pavilions, each of them emphasizing a specific natural and cultural aspect of the borderland. Design-wise, it has been a challenge to search for a material, that would not only be the construction element of the pavilion itself, but would also be used as a paving material. The material units get more dense when reaching a pavilion, challenging the visitor to move forward and discover why this happens. On the contrary, when it is just about a route, the units get less and gradually fade into the landscape.

A pavilion placed literally on the border line has been subject to further analysis. Having a circular form, half of it lies on the Dutch side and half on the German. Due to the changing levels of the nearby water body, the pavilion is sometimes filled with water and sometimes empty, surprising the visitor and creating an interesting dialogue between a non-physical yet strong mental barrier –the national border– and a soft, physical one –water. The pavilion's inside walls bear quotes about the border's various qualities, encouraging the visitor to personally reflect on and engage to the subject.

TIENGEMETEN 2.0

A SHOWCASE OF 3 DESIGN APPROACHES
TO NATURE DEVELOPMENT

MARGOT OVERVOORDE
THE NETHERLANDS
ms.Overvoorde@gmail.com



CREATING A LEGIBLE LANDSCAPE

Looking at the history of landscape architecture, man and nature have always had an interesting relationship. On the one hand, man is a part of nature, but on the other we strive to manipulate and control it. A recent step in the relation between the two, is man that makes new nature. This is done by nature organisations striving for more biodiversity and opportunities for recreation. In designing the combination between ecological development and recreational use, the landscape architect comes in.

The context for this design is Tiengemeten, an island in the province of South Holland in the Netherlands. It was changed from agricultural polder area to new nature by Natuurmonumenten. Here, three different ecosystems reflect the characteristics of the Southwest delta landscape; the agriculture, marsh and inter tidal nature.

Taking into account recent developments, the relation between man and nature is changing. Urbanisation, the need for recreation, climate change and most of all the increasing public awareness of the workings of nature, require a new approach towards nature development. Especially one in which the landscape is legible to the public and they can understand and see the natural processes and the landscape architects' interventions.

In this thesis a new approach is found through research by the design on Tiengemeten. This new approach is specified for each of the three ecosystems in order to show different types of nature development and to give these areas their own strong identity.

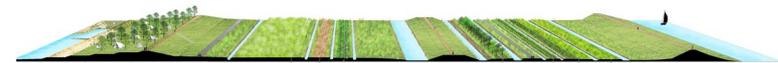
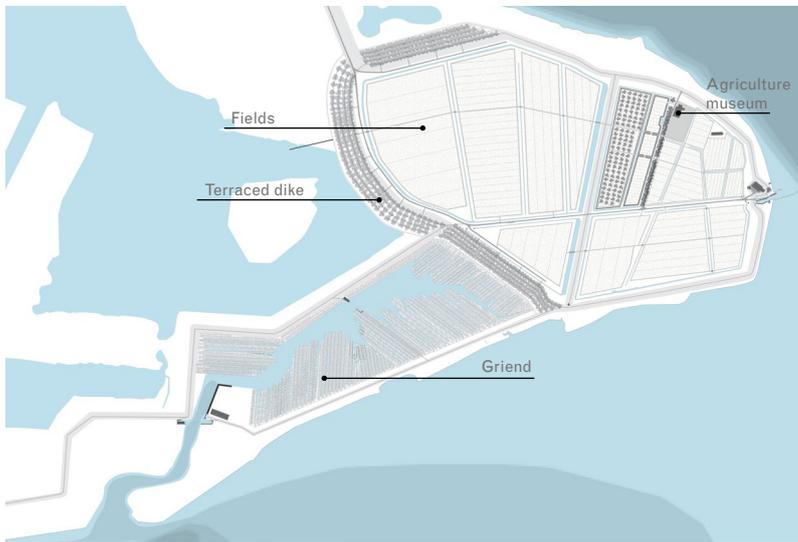
Through the design of one overall intervention and a permanent management, the polder reflects the cultivated landscape. In the marsh basin only small interventions provide the right conditions for ecological development and the possibility to see and understand this development. The fewest interventions are done in the wilderness, where the fresh water intertidal processes are released of the human control in order to change the landscape and create the right conditions themselves.

Together, these three areas with their own unique approaches form the new design for the island. A place where there is room for natural processes, recreation and the visibility of landscape architectonic design. A showcase for three approaches to nature development.

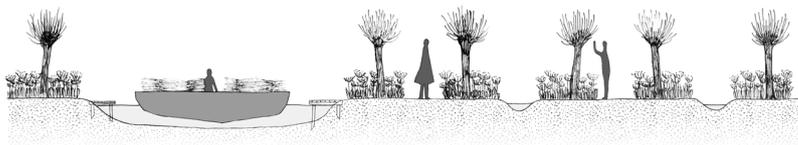
In the future, the principles of the three areas can be imposed upon a bigger scale, such as the edges of the Haringvliet, and form a larger recreational zone that is adaptive to future developments and acts as an activator for the existing villages and cities in the area.



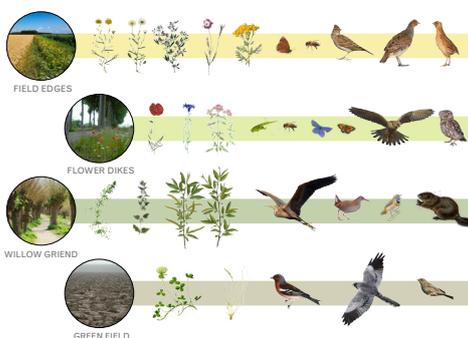
Walking in between agricultural fields and ecological edges in the polder. Showing the early development of nature in a production landscape.



the polder with the agricultural fields, ecological edges, enclosing dikes and griend



a walk through the willow production fields (griend)



due to the combination of agriculture and ecology, different species are found



the terraced dike, the border between polder and wilderness, with room for recreation

POLDER

In the polder, the wish is to preserve the historic landscape and thereby ensuring a sustainable relationship between agriculture and ecology. This leads to a concept where special species of flora and fauna are a part of a specific agricultural practice.

The Oude polder was designated as the place for this type of nature and this will be the place for the historic agricultural landscape. Together with the agricultural museum (now located in the Middenpolder) this will give an overview of the agricultural use of the island through the years, using old machines and the planting, growing and harvesting of the crops to illustrate this.

The added value is the ecological gain that is found in the edges of the fields, on the greenfield [braakliggend] land, in the griend and the dikes where native grains, flowers and herbs grow, planted in such a way that there is room for development. These plants attract insects that serve as food for birds, as well as a reduction of pesticides for the crops. In spring, birds can nest and find shelter here, in summer the insects provide food for them and in winter the plants give seeds and cover. The species of plants and animals that will grow here are rare in the Netherlands due to the upscaling and mechanisation of agriculture. Together the edges, dikes, fields and griend are forming an ecological network.

To let the visitor be able to experience this design and growth, a path network through the polder connects and leads along all these aspects and tells the story of the polder ecosystem. The growth of the crops and use of the land is legible for the visitor by walking on these paths. At the borders of the fields there will be signs that give more (literal) information on the species of plants and animals and the polder as a whole.

Arriving by boat at the harbour you step down into the Oude polder. Here you immediately feel the atmosphere of old agricultural land, that will look different throughout the seasons and years. You can take a right to the museum and through the fields where you will walk through the growing crops, alongside ditches and past the flower edges. Or you can follow the main road to the other side of the polder. Getting on top of the dike the landscape of Tiengemeten will unfold in front of your eyes. The dike you are standing on is a terraced dike with camping places in between the trees. Far away on the right, following the dike you can see the wilderness and the next polder and marsh. On the left you can see the dike leading to the griend forest. And in the middle you will find a creek where the water is flowing in and out with the tide.

MARSH

The focus in the marsh basin lies on securing biodiversity and land management of a specific nature type and thereby conforming to the international agreements. This means that special environmental conditions are created that form the base for a specific ecosystem.

A marsh is formed by the stagnation of water in an enclosed area. Here this area is a former polder. The basin that is created by the dike around the area will serve as the boundary for this enclosure, but the circle needs to be closed of by an element that can regulate the water level in order to keep it controlled. This element will be the dam. It will connect the north and south ends of the dike with a concrete structure. The dam functions as an intervention that regulates the water level in the marsh by letting rain water overflow when it becomes too high, or letting river water in when too low. This provides an incidental management.

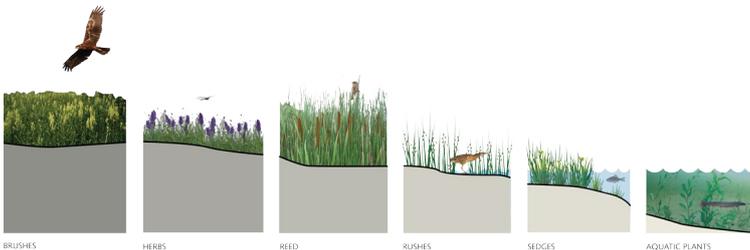
This mechanism is the perfect representation of the working of the marsh and will therefore be the place for the visitor to get information and understand this system. Next to it being a technical object it is also the place to experience the difference between marsh and wilderness and to experience the difference between man-made elements like the dike and dam, and the ecological development on the edges of land and water.

The dike that runs around the marsh is, next to an enclosure, also a path from which you can see the development in the marsh. The area within is 60 hectares, which according to *Portaal Natuur en Landschap*, is a marsh size with good quality. The scale of the basin also allows the visitor to understand the marsh as a whole, as a functioning ecosystem. The path that runs on the dike, along the basin strengthens this feeling.

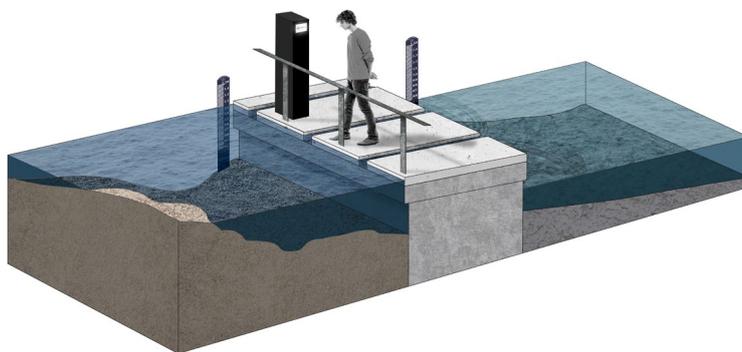
In order to really feel a part of the marsh, there is one path going in, this path is special. You will step off the circular dike onto a lower pier. It starts out with an open view, but will lead you to a covered path with higher edges and willows growing at the sides. You will be invisible while approaching the middle of the marsh and will arrive at a small former workers cottage. This cottage has been transformed into a bird observatory by making a horizontal cut through the whole cottage on eye level. From here you can observe the gradient between water and land with growing plants and the birds resting and eating.



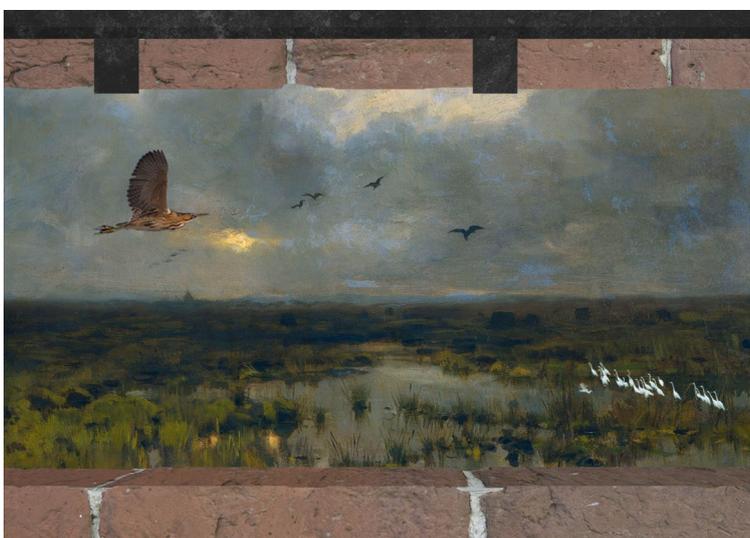
enclosed a dikes and regulated by a dam lies the marsh



the ecological development on the edges between land and water



waterlevel regulation is done by the dam and visible to the visitor



looking over the marsh from the bird observatory

WILDERNESS

The aim for the wilderness is to designate areas where the human influences are consciously minimised and thereby giving space to the dynamic natural processes. Morphological processes determine unpredictable ecological developments.

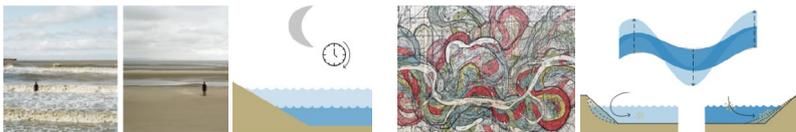
On Tiengemeten the wilderness with its fresh water inter tidal ecosystem serves as the place where the natural processes are present and will become even more dynamic because of the changing tide. The process that play a role here is the tidal difference that creates the flow of water and leads to sedimentation and erosion in meandering creeks. As mentioned before, a low lying basin on water (that currently is part of the marsh area) will be added to the wilderness domain. The basin and the inter tidal area are now divided by a dike. The intervention that will be done is the cutting of the dike and connecting the first water streams. By looking into the working of meandering rivers, erosion and sedimentation, tidal difference flows, wind and heights of the terrain, a prognosis is made of the change in the landscape. Here it is all about working with change, movement and time.

Cutting the dike and connecting the water will be two big interventions, but after the moment that this is made, the visitor will see nothing of it and this does not add to the legibility of the landscape. Looking at a reference project of George Descombes, the renaturalisation of the river l'Aire, an idea for this area is created. In this project they impose a grid of a chocolate bar on the new river bed, before letting the water flow through. This clearly man-made pattern changed by the flowing river into a variety of meandering river arms and almost intact pieces of the chocolate bar structure. This happened in the time span of a year and shows a more short term change to the visitor of a man-made landscape into one where natural forces interfere.

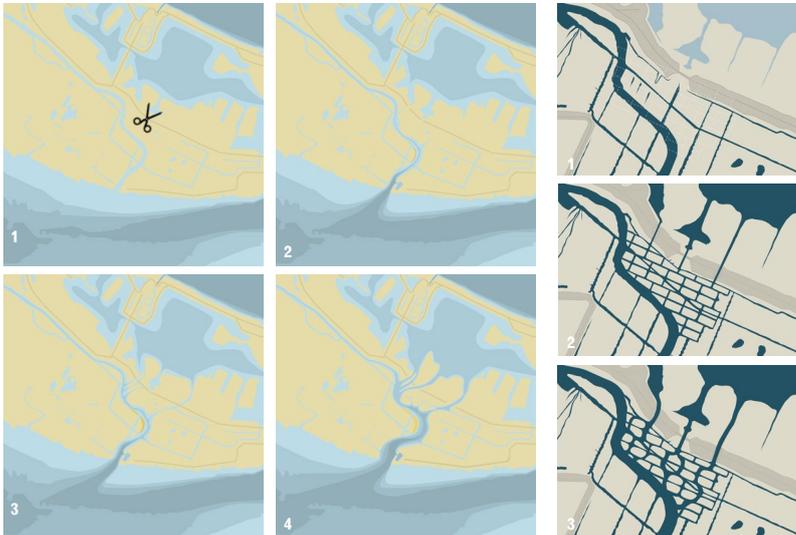
In order to experience this change and movement, a big path is constructed above the water and land surface. It gives people the possibility to come close, but at the same time is not an obstructing to the development of nature. This path connects the Vliedberg [former refuge mount] and the new harbour at the inlet of the creek. Being on the path you experience the wilderness while being in it, you can see the movement and if you are really brave you can even put on your booths and explore it closer.



wilderness with the creek, the circular path and the natural harbour



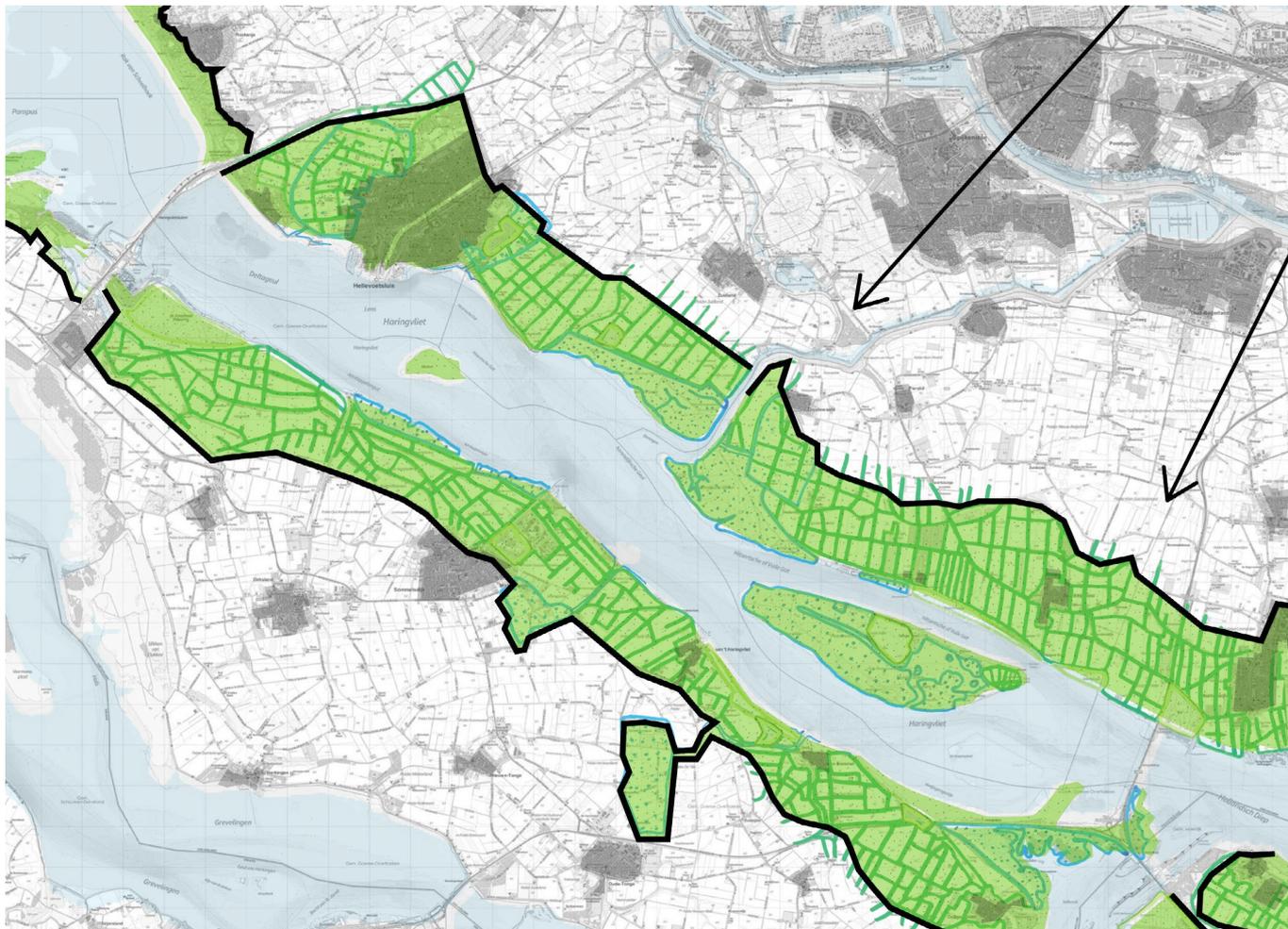
the processes of tidal movement & the flow of water with erosion and sedimentation



the minimal intervention of a cut in the dike starts the processes of the flow and tide



walking on the boardwalk or canoe in the creek, observing the changing landscape



FUTURE

The different approaches that are used to develop the three nature types on Tiengemeten can be projected on the surroundings.

Looking at the addition of ecological field edges that was done in the polder. In the polders along the Haringvliet, the main land use is agriculture, the polder principle can very well be applied here. Enclosed areas that can hold rainwater like the marsh are also found, a bit more inland, along the river. The specific conditions for the wilderness are the low lying ground level and the possibility to connect it to open water. Looking at the height map, some areas can be defined.

Together with the existing cities and nature areas they form a nature zone along the Haringvliet.

This reacts to the recent developments that will challenge the Southwest delta: Increasing recreational pressure, More room for nature (development), Urban sprawl and Climate change: increasing rainwater discharge or drought and rising sea levels.

With this nature zone, a boundary is created where the city is not allowed to expand

further. Nature gets more room to develop and functions at the same time as space for recreation. Because the exact effects of climate change are still unknown, an adaptive approach is needed to the rising sea level and unpredictable river discharge. With a limit to urbanisation and room for nature, this area is adaptive to a future where more water is expected.

Except dealing with recent and future developments, the area's qualities lie in the villages and cities that will be surrounded by nature and that will function as a stepping stone to and from Rotterdam to this nature. Along the Haringvliet there will be more business due to the visitors on their way to the nature zone and Tiengemeten. Tiengemeten serves as an exemplary project where nature is showcased that can be developed in other areas.

To leave room for the river, nature development and recreational space, a boundary is created for the urban growth. This boundary does not function as a line, but as a zone. The idea of changing a line into a zone has been proposed before, in multiple plans, but by using the principles of the nature types of Tiengemeten, a specific content of this zone is defined.

SANDY RURAL LANDSCAPE AND ITS WATER SYSTEM IN TIMES OF CLIMATE CHANGE

A CASE OF BAAKSE BEEK WATERSHED

MILAN MALLINATH
INDIA
milan.mallinath@gmail.com

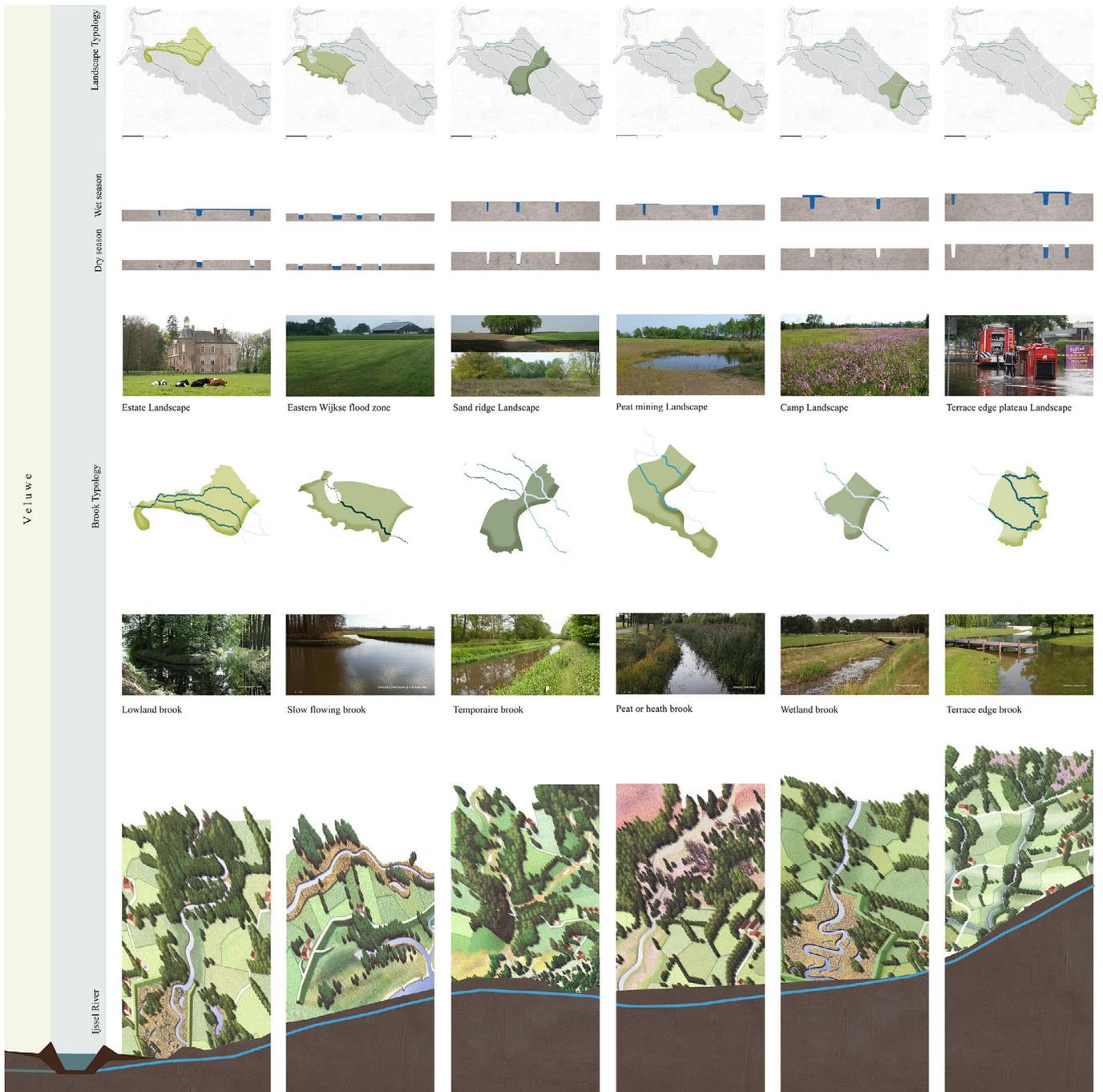


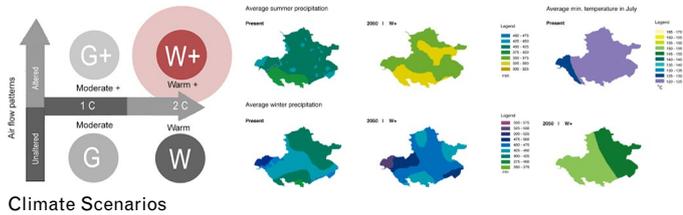
The graduation studio “Flowscapes” explored infrastructure as a type of landscape and landscape as a type of infrastructure. Its objective was to engage with the environmental issues by means of design oriented approaches that shape the urban and rural environment.

This project highlights today’s contemporary challenges of climate change and its resulting ecological crisis in relation to environmental sustainability. Nowhere in the east of Netherlands is the ecological and cultural significance of the traditional rural landscape more prominent than in the Achterhoek region, such as Baakse beek. With the dominating influence of the climate change, a fragile water system and a characteristic loss of its identity, the Baakse beek landscape can be seen as a microcosm of the sandy rural environment. This project offers a solution addressing the environmental issues and in addition forms an inspiration for future landscape design that is appropriate climatically, ecologically and culturally.

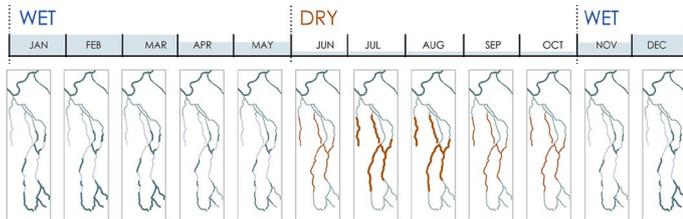
The images on the right express the rich context of the Baakse beek in which land use (nature conservation area, water storage and agriculture) is positioned in a landscape structure of streams. The diverse and versatile landscape includes Estate zone with castles and remains of Rabat forests, Flood zone with open grasslands, Sand ridge zone covered with forests, pig and poultry farms, Peat zone is a mined landscape with characteristic landscape allotments, Camp zone with remnants of cup shaped ‘Droebels’, and Terrace edge zone with major settlements and rolling farmlands. Climate is by far the most dominating feature in this landscape and will be in the upcoming years. The seasonal imbalance of rise in temperatures and precipitation leading to both drought and flood under extreme circumstances, has deteriorated these landscapes. Recent attempts to regulate this area, in order to make way for rural development related to agriculture and water management, have led to numerous environmental issues and loss of its scenic beauty. The extensive agricultural practice resulted in the disappearance of contrasts between the different landscape types.

The following pages express the main images and illustrations of the research developed to understand the several areas of the aforementioned concerns. The research is practically oriented and accumulates information regarding future climate scenarios. It involves the comparison of the historical and current conditions and documentation of the rural cultural landscape through landscape character analysis. The research is also an inquiry into the ecosystem preferences for climate sensitive flora and fauna.

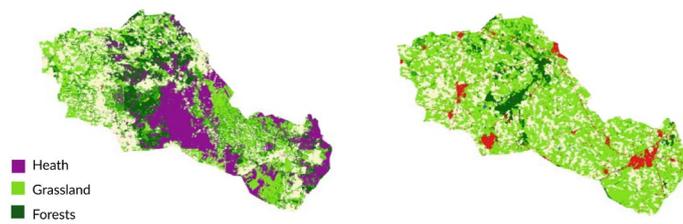




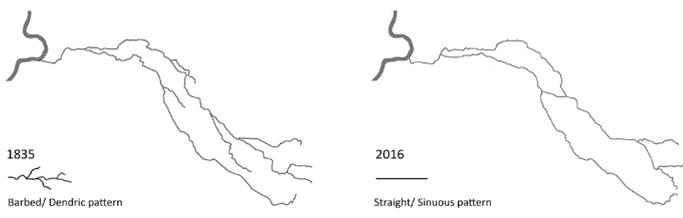
Climate Scenarios



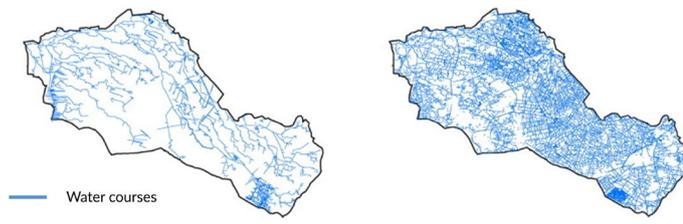
Flood and drought affected regions



Land use in 1800 and 2016



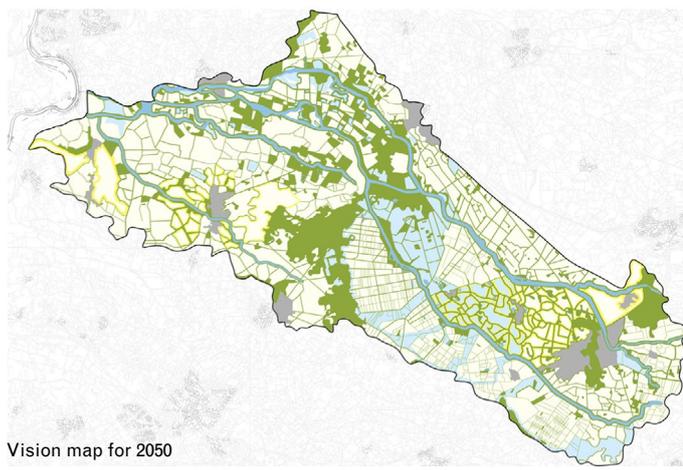
Stream structure in 1835 and 2016



Density of stream courses in 1800 and 2016



Dimensions of stream courses in 1800 and 2016



Vision map for 2050

RESEARCH

Future climatic scenarios of Achterhoek region
According to KNMI, the W + scenario of 2050 is considered to be the most extreme scenario with greater risk of drought in the summer than now.

Climatic change impacts on the water systems
Seasonal flood and drought regions of the Baakse beek in a year was plotted. The upstream and downstream region increasingly suffers from flood during winters. The mid stream region suffers from both drought and flood during summers and winters respectively.

Human influences on land use
A large shift in land use occurred between 1900 and 2000 as areas of wood and heath land strongly decreased while areas devoted to grass, roads and cities increased strongly. To-day the variation in land use has disappeared and mono-agricultural practice is dominant this is likely to have a consequence in W+ scenario.

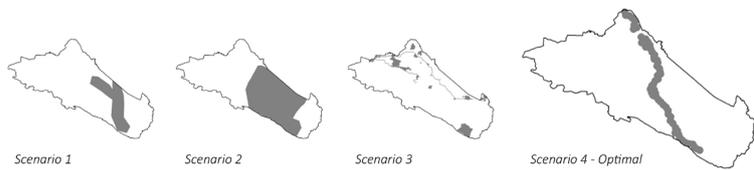
The image shows that the Baakse beek stream which evolved as a meandering stream is now deepened, widened and straightened to reduce fragmentation of land property to make way for agricultural production.

Human influences on water system
Currently, the density of the water courses has quadrupled in comparison to the situation in 1800. Dense network of streams drain the water more quickly leading to drier upstream thus affecting the aquatic ecosystem.

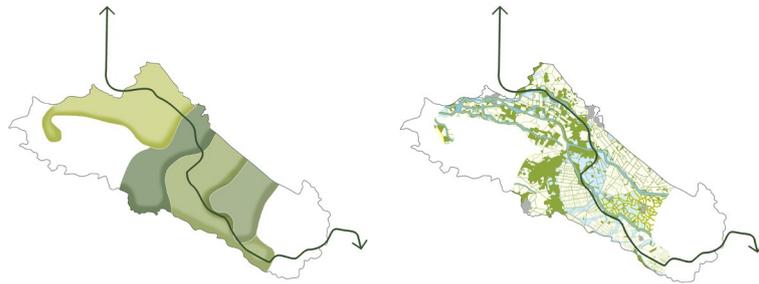
The smaller water course profiles in 1800 could carry and store less water than in the current case. Today, the profile has increased nearly fivefold resulting in more discharge of water and less water storage.

Impression of future ideal vision map
In this vision map, an effort was made to rebuild the lost relationship between the landscapes and their water systems for W+ scenario. It is designed to minimize the risk of seasonal drought and flood and to retain more water to balance the surface and ground water.

- Green areas form a continuous network along the stream
- Stream landscape: ensures access; additional ponds every 500 m
- Peat landscape: Water retention in old peat parcels next to the stream
- Camp landscape: Densify farm edges with hedges; tree lines
- Estate landscape: Rabatbos as water storage forests; link stream and moats
- Urban: Improve stormwater management; rain water harvesting
- Enken: Open lands make sure villages and forest edges do not grow together
- Broekland: Redirect veengoot to baakse beek; recharge ground water
- Urban green: Green landscape revolves through the city
- Additional areas of inundated fields in the old bog and marsh areas



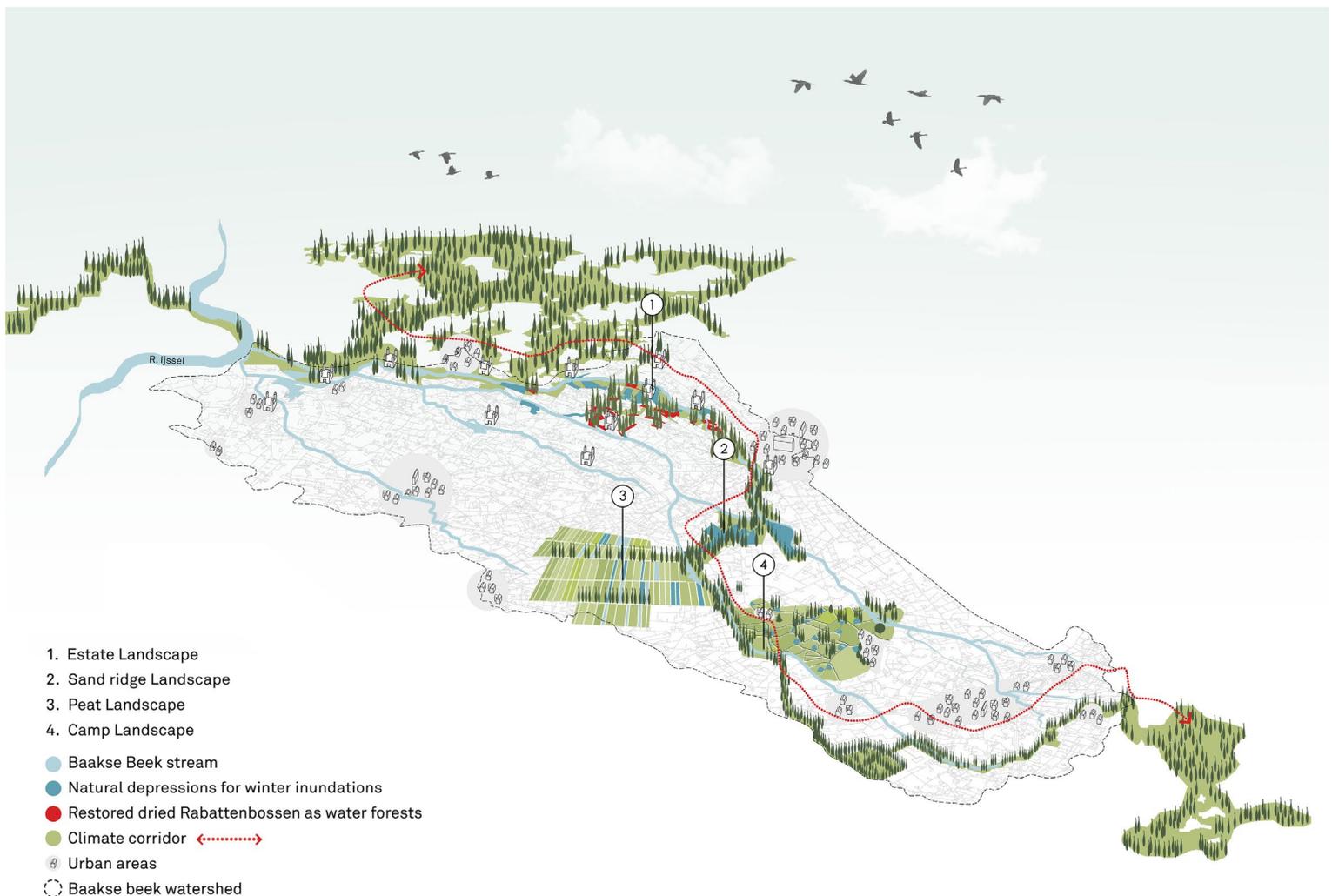
Climate corridor landscape scenarios



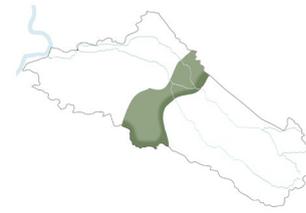
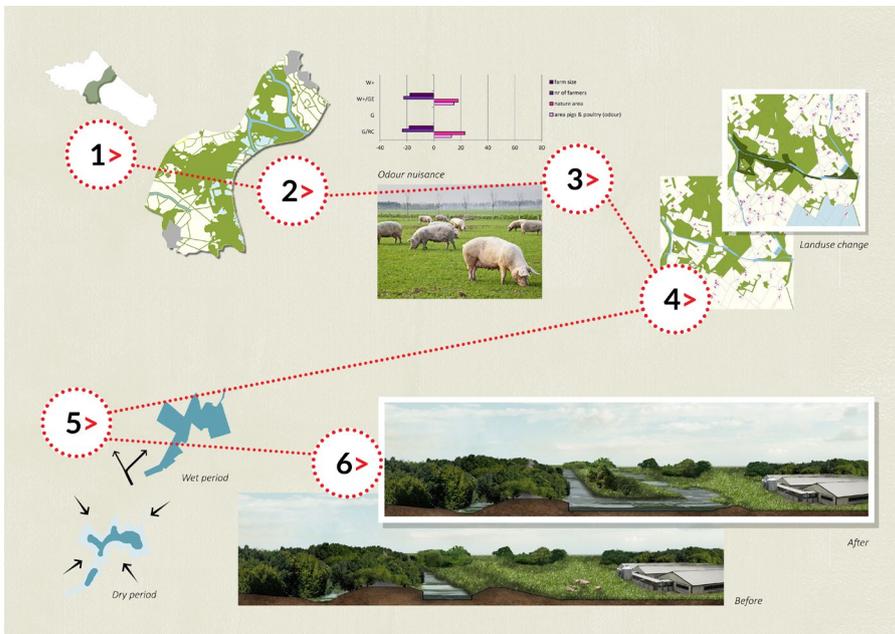
Climate corridor through Baakse beek landscapes and its vision map

Climate corridor as a strategic link

The climate change impacts on land use and natural environment allowed a deduction of four different landscape scenarios that incorporated both spatial and abiotic requirements that can be expected to result in a more effective climate corridor through Baakse beek watershed. In response to these findings, Optimal scenario (4) was developed as a potential solution for the Baakse beek area, which provided both dispersal and reproduction habitat to fauna, and the occupancy patterns indicated a functional link between the southern and the northern strongholds in the region, also under more severe climate scenarios. The climate corridor gives insights into the spatial conditions as proposed in the vision map.

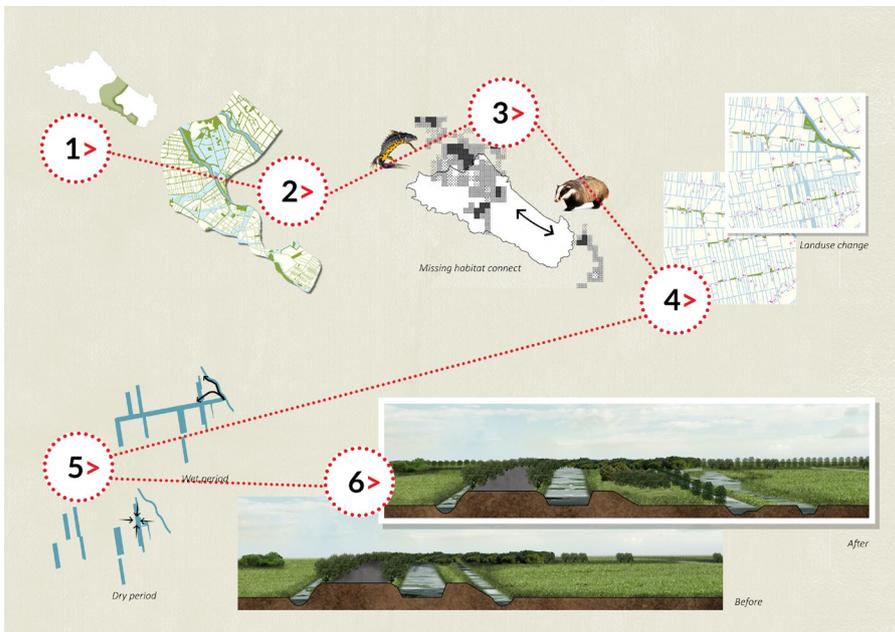


Climate corridor shown in the above visual provides a complete landscape infrastructure as it improves the Baakse Beek stream structure with additional water retention areas. It realises ecological connection zones with a strong pond and forest network. It makes sure that the existing elements are better adapted and future developments are made possible at four landscape zones- Estate landscape, Sand ridge landscape, Peat landscape and Camp landscape. A set of 6 steps illustrates how the vision for the area is appropriated to a design intervention at a local scale in the following pages.



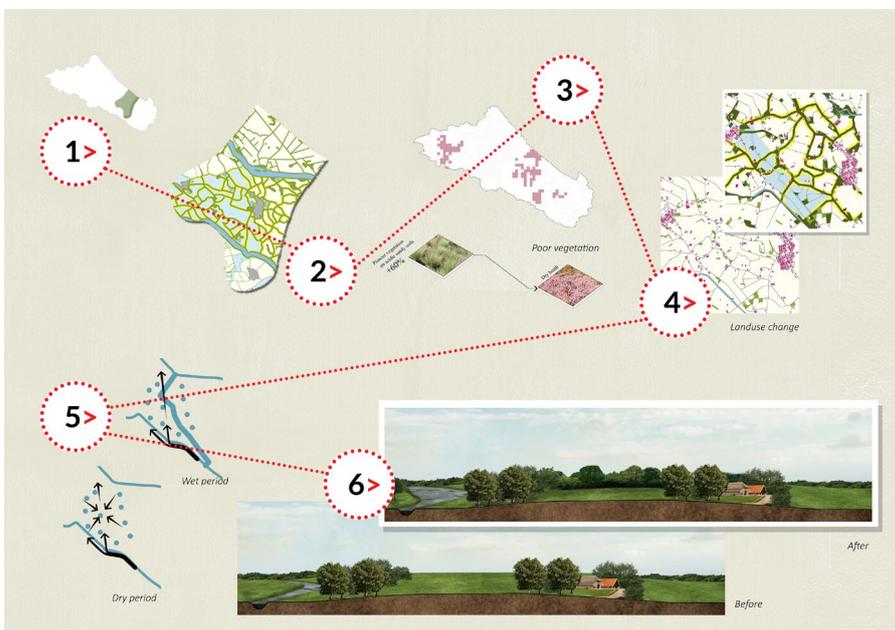
Sand Ridge Landscape

The nature and water management system reduces the increasing odour issues concerning the pig and poultry farms, thus, improving the social well-being of the residents.



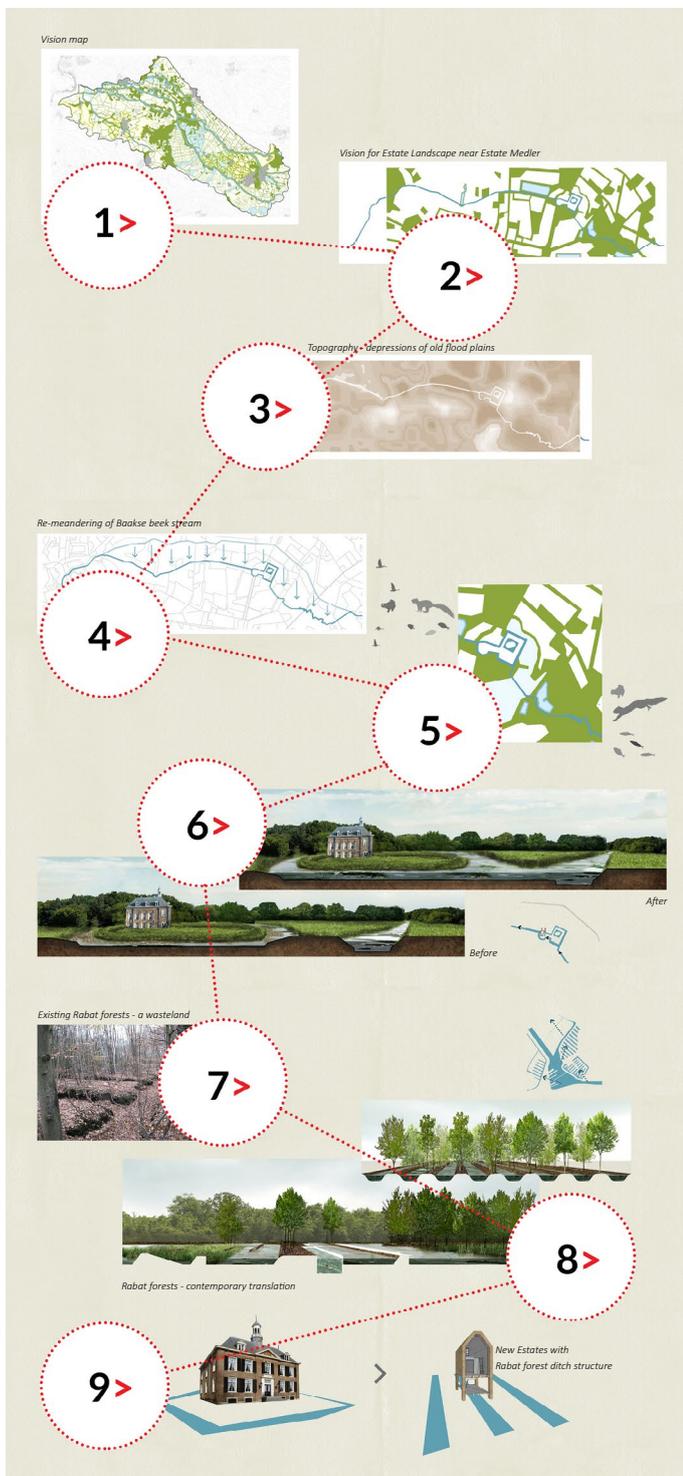
Peat Landscape

The experiential wetland stores water during extremely wet climate conditions and provides the missing habitat links for vulnerable species.



Camp Landscape

Stream valley connection in this landscape captures the picturesque view of tree plantings around the 'Droebels' that drain into retention ponds to recharge ground water.



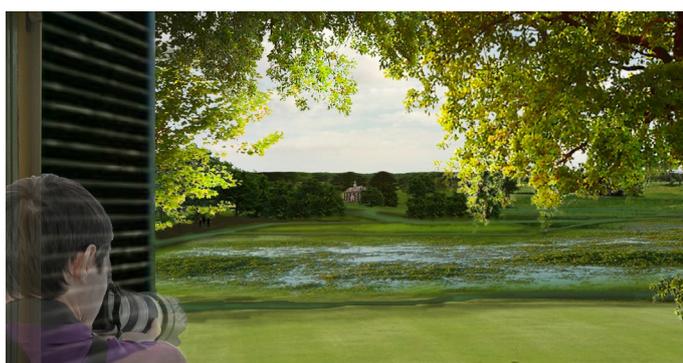
Estate Landscape

In addition to being excellent water storage units, both restored and contemporarily translated Rabat Forests are sites for new estates and destinations for tourists.

The theme of looking at Landscape as an infrastructure actually means to integrate 'Flows' and 'Scapes'. In this case the 'Flows' are the movements/ processes of the climate and stream system, while the 'Scapes' are the spatial entities as they deliver important services for provisioning sociocultural aspects (recreation, education, health, aesthetics).

New estates for human occupancy are consciously designed to serve multiple ends. The emphasis is on connecting people to landscapes, built structure with water system, structuring rural tissue and thereby building a relation between 'Flows' and 'Scapes'. Restoration and re- linking of the Rabat forests emphasizes the biodiversity and revival of traditional and cultural essence of the Estate zone. The re-meandering of stream courses to connect estate moats provide continuous fish passage and aesthetic goals. The end results of this quest hopes to achieve the ambitions of many parties involved in this rural area like farmers, estate owners, residents, visitors, nature organizers and water authorities.

The project thus combines important principles for planning and design like multi-functionality, connectivity, integration, communicative and social-inclusive design process and long term strategy making it a holistic landscape design.



View from the new estate overlooking the Stream valley landscape and Estate landscape during wet season when the stream water inundates the meadow fields and reminds us of the marsh lands which existed centuries ago.

HARING- VLIETDAM

A BEAUTIFUL OPERATIVE LANDSCAPE

MARIA POTAMIALI
CYPRUS
MPOTAMIALI@YAHOO.GR



Due to the major flooding disasters particularly in the Southwest region, the Delta works were needed in order to protect the people and the land. During the Delta works a lot of water infrastructures were built in the area as technical solutions, such as the Haringvlietdam. The Delta Works brought safety and made the area more accessible. However, nowadays we realized some negative effects as well, since ecosystems were damaged and lost.

Additionally, the climate is changing and in the future the sea level will rise. Due to storms and heavy rainfall rivers will have higher peak discharges. These changes will have considerable consequences for the Southwest Region and therefore innovative long term solutions need to be designed so that the area stays protected.

In this specific framework, it could be argued that the protection of coastal landscapes from flooding disasters is traditionally approached by engineering perspective that often resulted in negative impacts on local ecology and ecosystems. As well as massive mono-functional infrastructures that act only as intermediate space without culture and program value. Taking this in to account, it could be indicated that there is a strong need to incorporate landscape architecture and ecological services in coastal protection.

It is important to slowly transform this area in such a way that people will be part of the development and can profit from it. The design should be considered as an open ended slow process towards an adaptive coastal self-sufficient region.

This slow process, would give people the time to realize what would change and understand the future possibilities of this area and could develop a self-sufficient region which is producing energy from alternative resources (water, wind, sun), producing aqua agriculture that is consumed domestically or is exported to other countries, attracting tourism to the extended coastline (islands) and providing a unique experience both for the residence of the region and for the visitors.

Additionally, this slow process give opportunities for the initial plan to change in relation to what is happening in the region. This could be concern issues related to safety, the unpredicted natural system, the cultural landscape or the economy of the region.

The design concept is based on two different existing conditions in the area. From the one hand the existing coastal landscape with the natural processes and dynamics and on the other hand the existing structure of Haringvlietdam. Taking into account the existing conditions, the design is based on intervening to develop the barrier islands and to let the natural processes inside. The two of them have a contrasting character but together create a network that combines tourism, housing, experience, bivalve production and energy production.

The concept is based in two relations. The first is the dialogue between nature and interventions, since in every scale there is a dialogue between the interventions and nature. The second important relation is the one of the dam and the barrier island. The two of them work one for each other and create a unique network.



Masterplan



artificial island process of development

The barrier island was decided to be created as a group of islands that in the future might become one.

There are two types of islands, artificial islands where people will have their vacation houses and more dynamic islands for ecosystems which people cannot visit.

The first type of island will be developed by constructing a wall with concrete blocks. Then the natural processes of waves, tides and wind will bring sediment. When sedimentation will take place, we can plant seeds in order to create dunes and speed up the process of the development. By planting vegetation, the sediment will be stable and more sediment can be transported there by wind. Moreover, to speed up the development of the island concrete building units will be fixed.

The second type of island will be only for ecosystems and will not be accessible by people. The island will be developed by placing wooden sticks and letting the natural processes of tide and sediment to do the rest. This process will take more time than the artificial islands.



dynamic island for ecosystems



artificial island with vacation housing



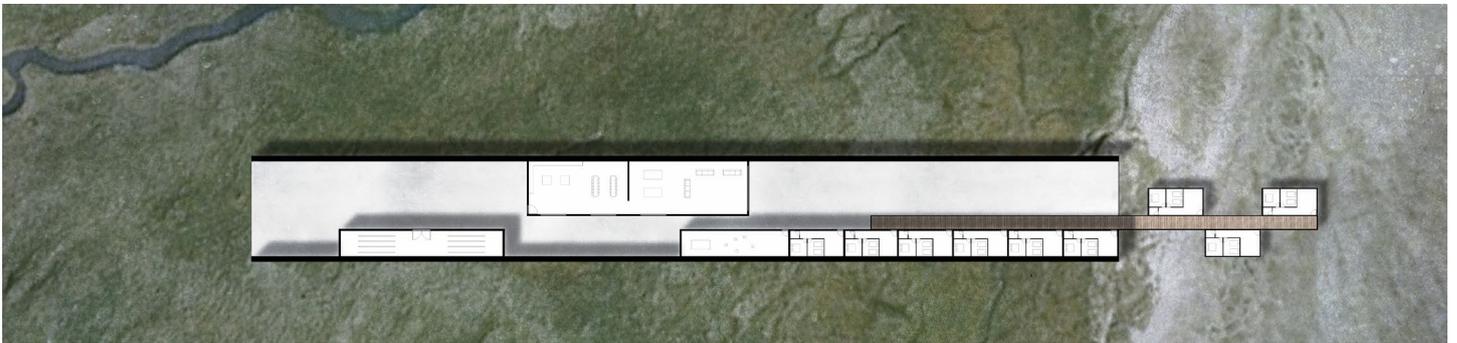
section of the building unit in the surrounding landscape



The building units will be transported in pieces by boat to the islands and will be fixed. They will contribute to the faster development of the artificial islands. However, this building units will not be placed only for the catchment of the sedimentation, but will be the distribution points of electricity and water to the vacation housing. More importantly, these units will provide the common space in which the people will spend time, communicate and share their vacations.

The basic unit would have some vacation houses, some common areas of kitchen and living room and a storage room in which the wooden houses would be stored during winter. A clear axes is open through the unit, from nature to nature and people can have a framed view towards the dam.

Every unit could be transformed differently by the people so different possible units are showed. Also, nature could infiltrate inside and since the micro climate would be different from the surrounding landscape different type of vegetation might grow.



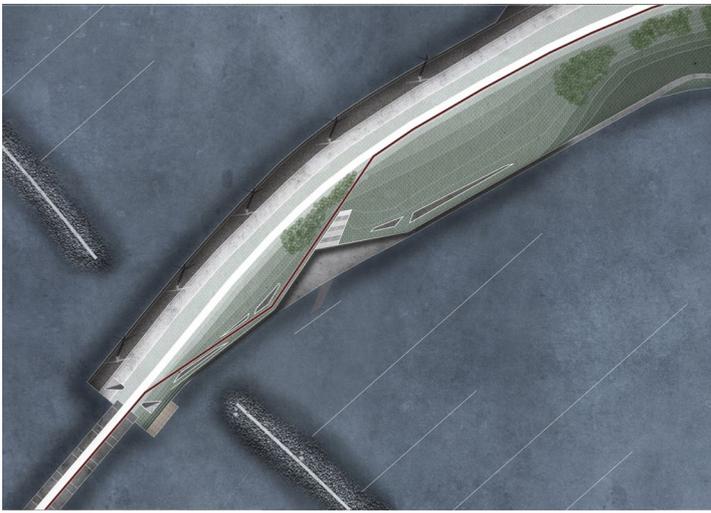
basic building unit



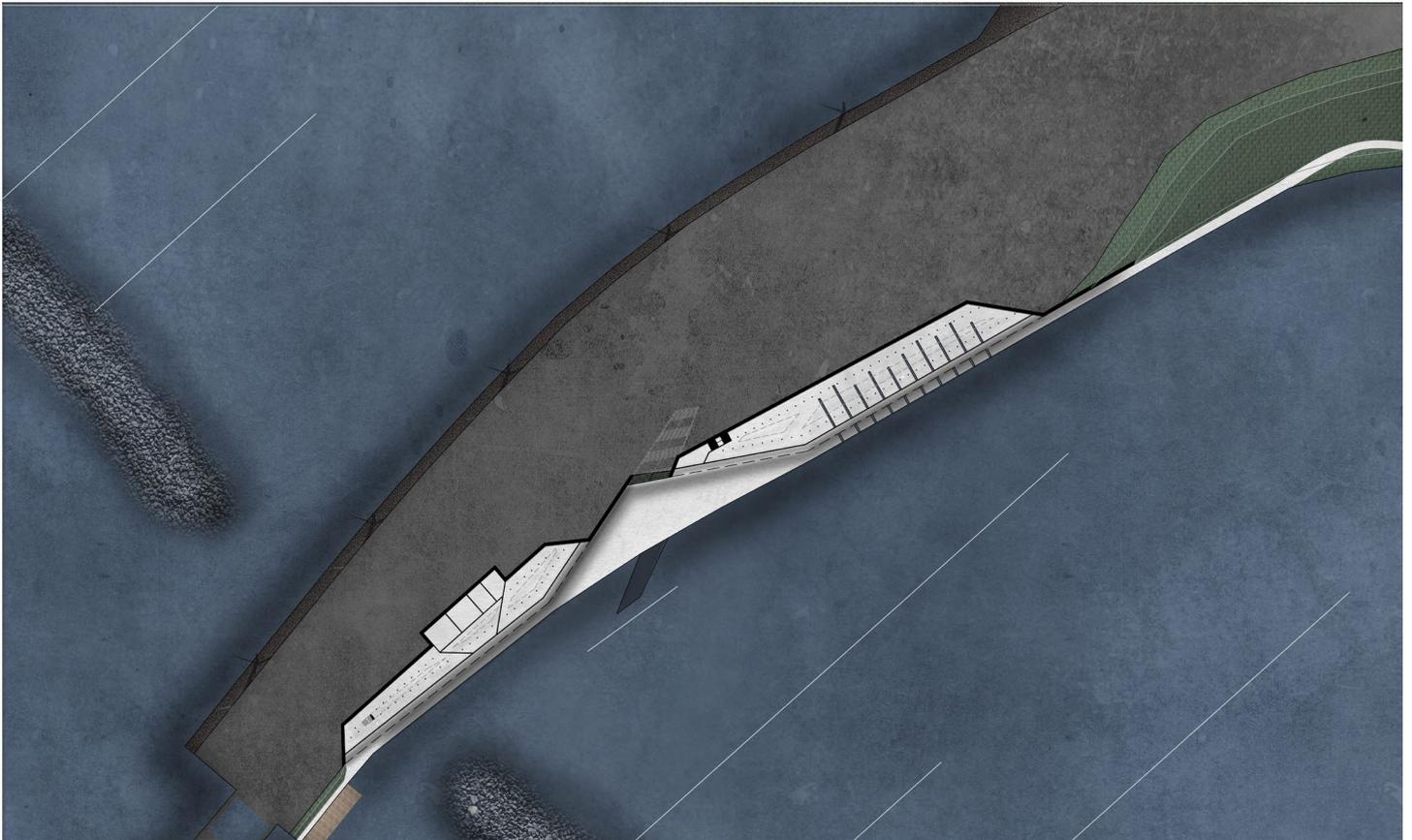
possibility for the building unit



possibility 2 for the building unit



In this graduation project the partial opening of the dam is proposed. Also, the dam is transformed to operate and contribute in the whole region with energy production and also mussel and oyster production. For this reason a line of mussel production is designed vertical to the dam and an oyster production unit is placed on the left side of the dam. On the river side, some buildings are integrated in the dam and placed inside. The buildings will include a show room where people can see and understand how mussels and oysters are produced, an underwater space that people could see the mussel ropes, a restaurant and an underground tunnel that leads to the other side of the dam where people have a view of the islands. The experience of the dam is designed with walk paths and a bike path from the one side of the dam to the other, while finding some interventions during the routes.



plan of the dam



perspectives from inside spaces - show room and restaurant



section of dam showing the integrated buildings



view of the dam from the river side



birds eye view showing the whole transformation of the region

RUIMTE MAKEN, RUIMTE GEVEN

DE VERTAALSLAG DIE ONTWERP EN GEBRUIK SAMENBRENGT

CEM CHARLEY STEENHORST
DELFT, THE NETHERLANDS
CEM_CHARLEY@HOTMAIL.COM



RUIMTE MAKEN, RUIMTE GEVEN

De vertaalslag die ontwerp en gebruik samenbrengt

Bij het ontwerpen van de buitenruimte krijg je te maken met de mens en zijn gedrag, maar ligt de focus binnen het ontwerpproces hier wel op? Als mens gerichte ontwerpers weten we weinig van hun wensen en hoe zij reageren op een omgeving. Hier ligt een potentie voor de landschapsarchitect om meer kwaliteit aan het gebruik en ontwerp toe te voegen door de gebruiker niet alleen centraal te stellen maar, ook te betrekken in ons ontwerpproces. De gebruiker wil steeds vaker meepraten, maar hoe geef je dit vorm? Een evenwichtige verhouding tussen de gebruiker en de ontwerper creëren was het doel binnen het ontwikkelen van een sociale ontwerpmethod, met als belangrijkste het ontwerpen van een participatie workshop. Om dit vorm te geven ben ik met veel enthousiasme een traject ingegaan bij het Mookhoekplein in Rotterdam in samenwerking met Woonstad Rotterdam. Hierbij heb ik samen met de bewoners aan de hand van een vertaalslag hun gezamenlijke binnentuin herontworpen.

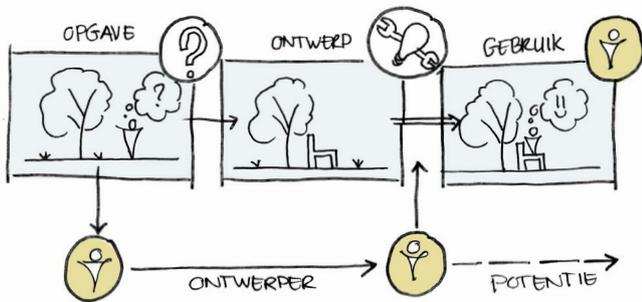
CREATING SPACE, GIVING SPACE

The translation that brings design and use together.

With designing the outdoor space we always have to deal with people and their behaviour, but does it have the focus? As designers for people we don't know a lot about their wishes and how they react to their environment. There is a potential for the role of a landscape architect to add more quality to the usage and the design by not just putting the user first but also involving the user in our design process. The user wants to engage more and more often, but how do we shape this? To create a balanced relationship between the user and the designer was the goal within developing a social design method, with a participation workshop as the most important element. To develop this I started a process at the Mookhoekplein in Rotterdam together with Woonstad Rotterdam. Here I made, together with the residents, with the help of a translation a design for their inner courtyard.



Foto's van de Participatie Workshop met de bewoners van het Mookhoekplein in Rotterdam.



Visie op de rol van de landschapsarchitect

"Je moet eerst voor mensen leren ontwerpen voordat je met mensen gaat ontwerpen"

Mijn visie voor dit project was om de potentie als het gaat om de gebruikersrol binnen het ontwerpproces te benutten en weer te geven. Hierbij is begonnen met een onderzoek naar de aspecten die van belang zijn als we kijken binnen het vakgebied van de omgevingspsychologie als het gaat om de leefomgeving. Hierbij zijn 4 termen veelbetekenend namelijk, territoriale definitie, controle, eigenaarschap en sociale interactie. Hierna is begonnen met het vormgeven van de participatieworkshop met behulp van verschillende organisaties, deskundigen, literatuur en testpanel, waarbij is gekozen voor de co-creatie vorm, om zo een evenwichtige verhouding mogelijk te maken. De participatie workshop, uitgevoerd met de bewoners van het Mookhoekplein in Rotterdam, is uiteindelijk opgebouwd uit twee sessies met verschillende soorten oefeningen op basis van elk hun eigen doel en een algemeen goed doordachte opbouw.



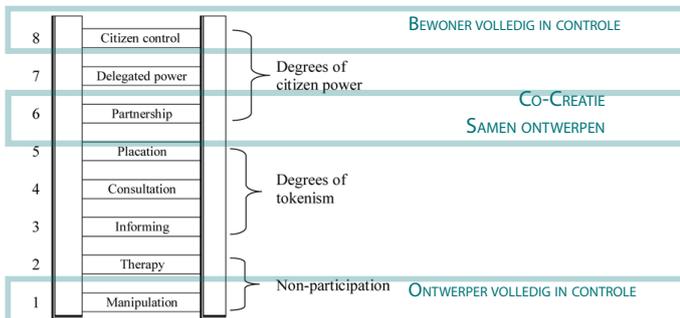
Territoriale definitie zichtbaar in voorbeeldstraat

"You need to first learn how to design for people, before you design with people."

My vision for my project was to use and show the potential when it comes to the user role within the design process. I started with a research into the important aspects when we look at the field of environmental psychology concerning the living environment. Four meaningful terms are territorial definition, control, ownership and social interaction. After this the participation workshop was developed with the help of several organisations, experts, literature and a testpanel, where the co-creation form was chosen to make an equal relationship possible. The participation workshop, done with the residents of the Mookhoekplein in Rotterdam, consisted of two sessions built up off different exercises all with their own goal and based on a general well thought through base.



Eigenaarschap zichtbaar in voorbeeldstraat



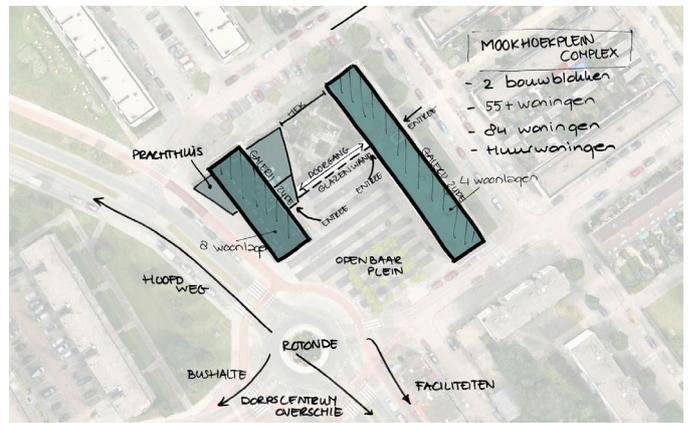
Ladder of Participation



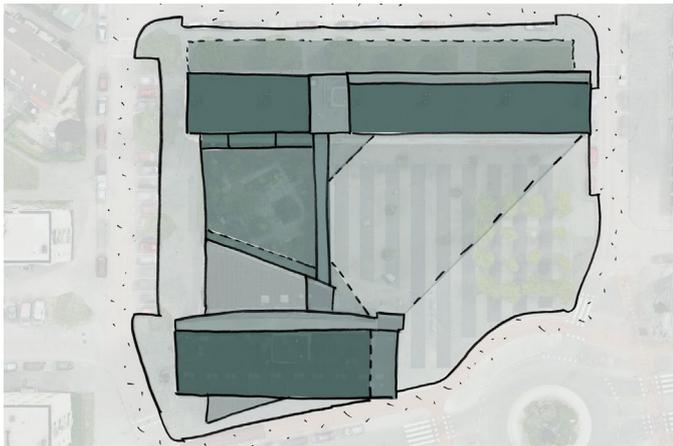
Literatuur, deskundigen, organisaties en een testpanel die gebruikt zijn bij het ontwerpen van de participatie workshop



Locatie Mookhoekplein, Rotterdam



Analyse locatie Mookhoekplein



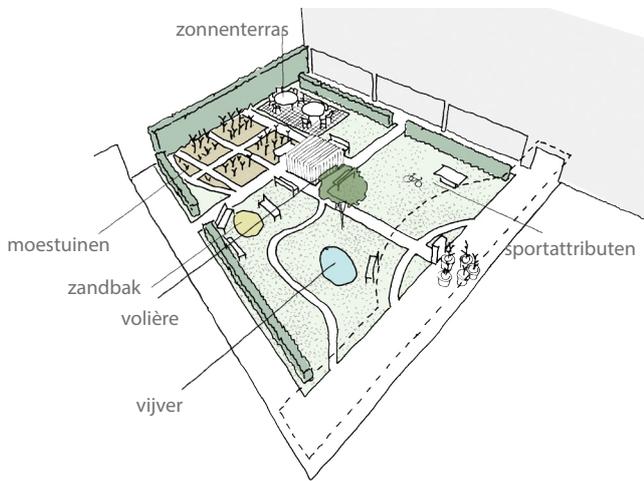
Gradaties prive naar openbaar Mookhoekplein



Overgangselementen en overgangszones Mookhoekplein

Opbouw	Discover				Inspire				Implementation	
Sessie	SESSIE 1				SESSIE 2					
Fase	Betrokkenheid		Informatie betrekken		Ideeën genereren		Ontwerpen		Evaluatie	
Perspectief	HEDEN				TOEKOMST					
Oefening	Thuiswerk boek	Voorstelronde	Mookhoekplein in het klein	Hoe is het nu?	Collage	Wensenlijst	Ideeën uitwisselen	Samen tekenen	Evaluatie	
Inspiratie	Questionnaires Dagboek Fotostudies	Ice-Breaker	3D Modellen Customer Journey	PMI Analyse	Collage	Checklist List of requirements	How to's Dotten Brainstorm Brain Drawing	Co-Design Design Drawing	Weightened Objectives PMI -Analyse	
Inhoud	Thuiswerk boek	Stel je kort voor binnen de groep. Vertel daarna iets wat NIET waar is en ook iets wat WEL waar is over u zelf! Laat de rest van de groep raden wat waar is.	1. Prik de 3 ansichtkaarten op de juiste plek in het model. 2. Wat doet u als de zon schijnt? Vul uw antwoord op de vraag in op het kaartje en prik deze op de juiste plek in het model. 3. Hoe loopt u als u een blokje om gaat? Tekent op het model uw looplijn met een stift en prik uw kaart in de lijn op het model.	1. Waar denkt u aan bij de tuin? Schrijf al uw opvattingen apart op, op een post-it en plak deze op het vel op tafel. 2. Geef door middel van de stickers op de opvattingen uw mening, positief, negatief of interessant. 3. Groepeer de post-its die bij elkaar horen en geef deze thema's een naam.	Hoe ziet uw ideale tuin eruit? Krijg plaatsen uit en plak ze op uw persoonlijke onderlegger om zo een beeld van uw ideale tuin te maken.	Wensenlijst: - Beschutting - Zitten - Beplanting - Samenkomen Wat vinden jullie van de wensenlijst? Moeten er nog dingen aangepast worden?	1. Hoe kun je? Schrijf af uw ideeën apart op die u kunt bedenken bij de vraag, in combinatie met de wensen. 2. Groepeer de post-its die bij elkaar horen en geef deze thema's een naam. 3. Kies persoonlijk de 2 leukste ideeën en plak daar op een sticker. 4. Schrijf of teken op aanwijzing over de verschillende aspecten een uitbreiding op het gekozen idee.	Onder begeleiding de ideeën intekenen in de tuin.	Commentaar leveren op de gemaakte ontwerpen van de andere groepen.	
Uitleg										
Doel	Bewoners op te warmen voor de workshop informatie te verkrijgen voor de workshop	Voorstelronde binnen de groep	- Kennis laten maken met het model - Informatie verkrijgen over hoe de bewoners de tuin nu gebruiken	Alle opvattingen die de bewoners hebben over de omgeving en de binnenruimte in kaart brengen	Bewoners een visie of steer kunnen ontwikkelen wat ze zouden willen en hun voorkeur of mening daarin kunnen vormen.	Waar willen we heen met de nieuwe tuin? Wat vinden we belangrijk?	Ideeën bedenken voor de doelen die zijn vastgesteld. Vervolgt af deze ideeën via een aantal keuzes en uitwerkingen uitkomen tot 3 of 4 eind ideeën om verder mee te gaan ontwerpen.	De 3 of 4 ideeën implementeren in de binnenruimte onder leiding van een ontwerper. Dit ontwerp kort presenteren.	Commentaar geven op alle gemaakte ontwerpen, positief, negatief of interessant.	
Benodigdheden										
Eind Resultaat										
Gebruikte wensen	Beheer Onderhoudsvriendelijk		Sociale Ontmoetingsplek Passender in het gebruikspatroon van gebruiker	Overkapping Boom Standbeeld	Netjes Groen Kleur Frieeltje	4 prioriteiten: - zitten -beschutten -beplanting -samenkomen	losse zitplekken	Romantische vormen Brede paden		

Overzicht Participatie Workshop opbouw



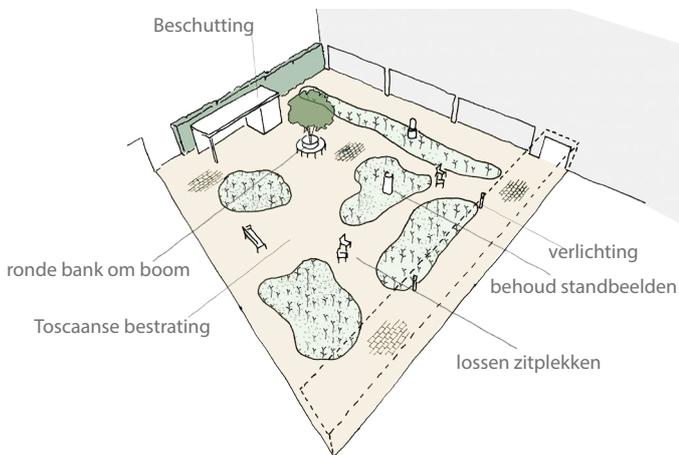
OVER DE GEBRUIKER

Ontwerp gemaakt voor de gebruiker

Het eindproduct van mijn project is het ontwerpen van een driedelige sociale ontwerpmethode. Het eerste deel bestond uit; hoe kunnen we meer inzicht krijgen in het gebruik en gedrag van de mens? Het tweede gedeelte hield zich bezig met het ontwerpen en vormgeven van een methode om de gebruiker te laten deelnemen in het ontwerpproces. Als laatste onderdeel is door middel van een vertaalslag door de ontwerper een gezamenlijk ontwerp tot stand gekomen waarbij de ontwerpen en de gebruiker samen zijn gekomen.

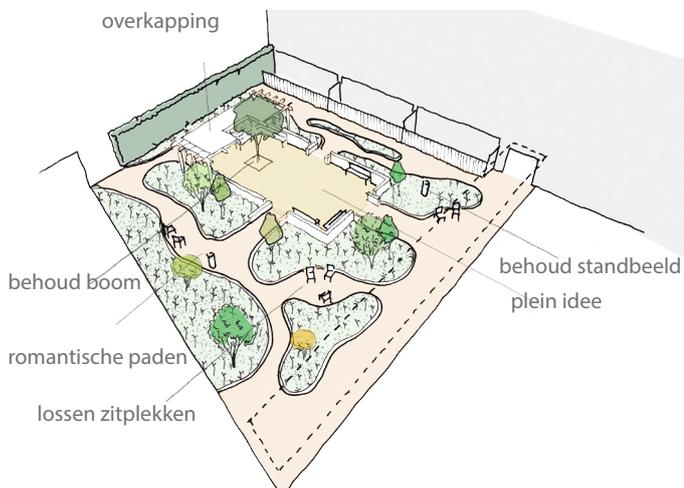
“DESIGN AS IF PEOPLE MATTER”

The final product of my project is having developed a social designing method consisting of three parts. The first part consisted of the question; how can we learn more about the usage and behaviour of the human? The second part is about designing and shaping a way to let the user be a part of the design process. As a final part with the help of a translation a joined design was developed by the designer where the user as well as the designer came together.



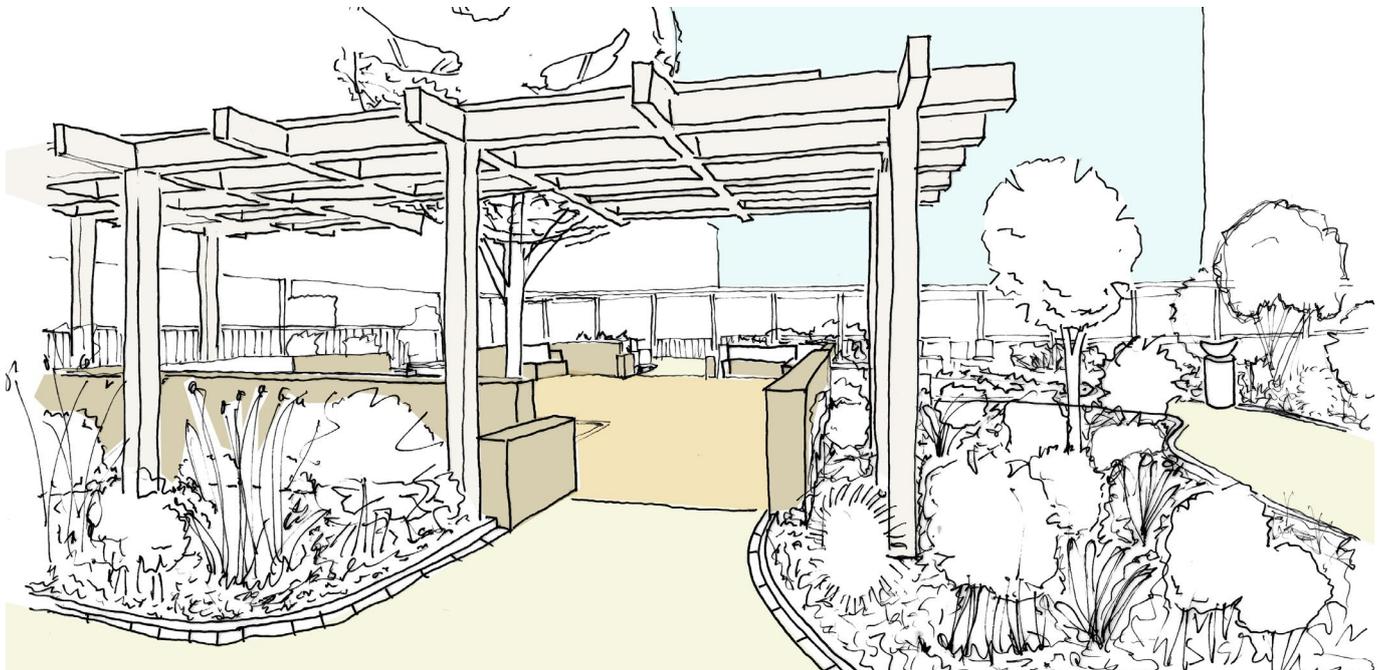
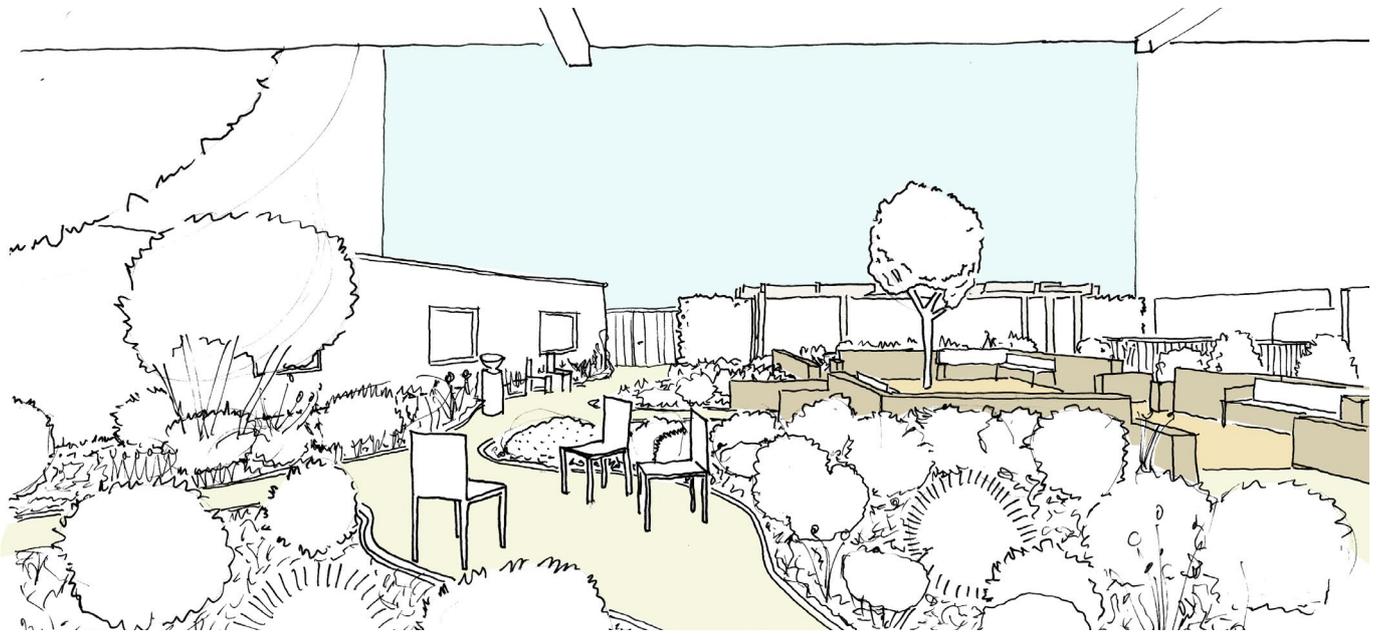
MET DE GEBRUIKER

Ontwerp gemaakt door de gebruiker



DE VERTAALSLAG

Ontwerp gemaakt door de ontwerper en gebruiker samen



Impressies van het ontwerp van de binnentuin

DYNAMIC RIVERSCAPES

A VISION FOR INHABITABLE, SUSTAINABLE FLOODPLAINS.
THE CASE OF HUISSENSCHÉ WAARD.

KALLIRROITAROUDAKI
GREECE
KALLIRROI91@YAHOO.GR



The project proposes a new approach for the design of river riparian zones, researching on the debatable issue of living on the floodplains. In recent years, there has been a shift in the tradition of engineering the river landscape towards a more landscape-friendly perspective. However, the focus still remains usually on nature and recreation, while other functions, like housing, are restricted. In addition, the dikes of the Dutch defense system form strong borders between the urban fabric and the river landscape, allowing little to no interaction between them.

The objective of this project is to embrace the natural river processes and use the potentials of inundation and sedimentation as a condition for the creation of a multifunctional and sustainable landscape. In the test area of Huissensche Waard, in Arnhem-Nijmegen region, a vision is developed in steps through time, combining the result of a study on the formative power of the river processes but also on socio-spatial characteristics of the site.

Through theory study and research by design, mutual interrelations and the possibilities of co-existence between processes, nature and a new living environment are discovered. The proposal binds the dichotomy between processes and forms by combining process-oriented and architectonic-oriented decisions, that utilize the full potential of this dynamic landscape.

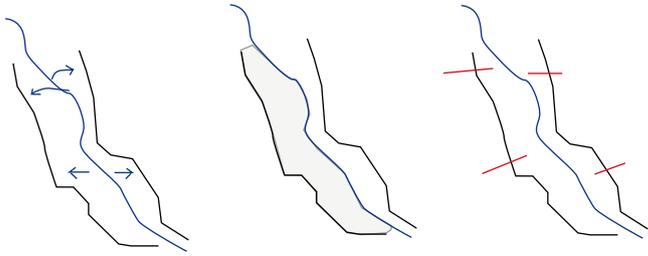
The interventions refer to three main user groups: the new residents, the inhabitants of the surrounding cities (namely Huissen and Angeren) and the visitors. A system of living mounds is integrated in the floodplains in balance with nature, through the use of local materials and sediments and with sustainable infrastructure. These mounds will be gradually created and organised as communities. In addition, new functions, like community gardens and a visitor's centre, act as an extension of the urban fabric into the floodplains and operate as a buffer zone between the 'wet' and 'dry' side, engaging people in this unique nature.

The benefit of this new integrative landscape can be found on different layers. Firstly, more space for water is given and more freedom for the water flow and sedimentation. Furthermore, different types of nature emerge and attract diverse species, that enhance the ecological value of the site. In addition, through the new interventions and an enhanced accessibility network, the area can become a new reference point on a regional scale, attracting attention and more visitors and benefitting the smaller cities economically.

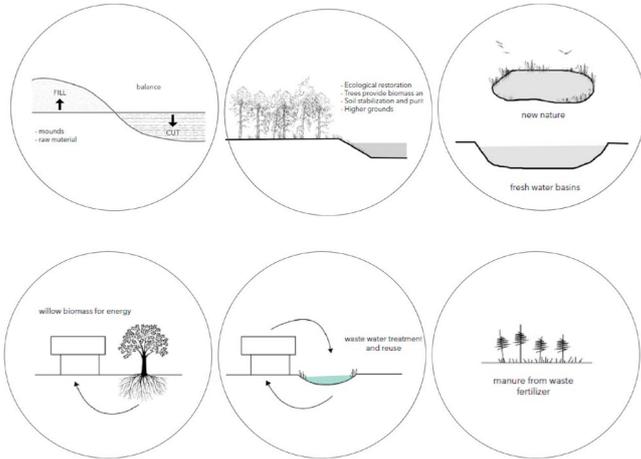


Huissensche Waard in 25 years: a dynamic, multifunctional, riparian zone (masterplan and section)

RESEARCH AND DESIGN



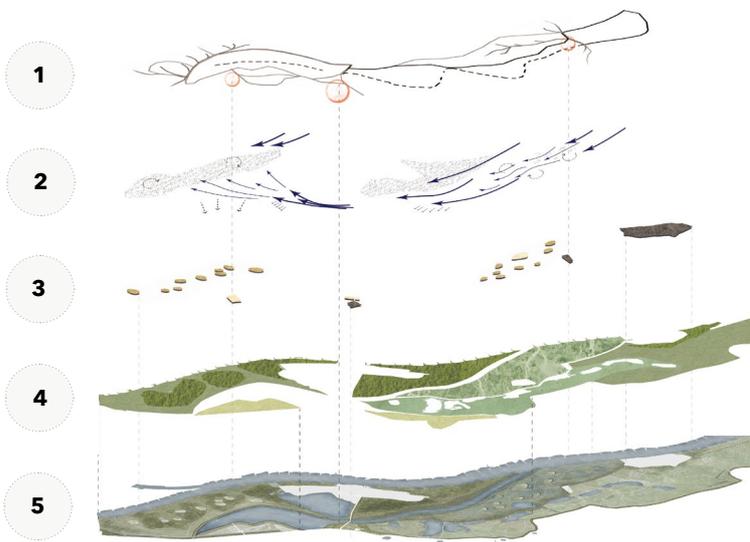
Main issues-schematic representation



Large and small scale principles



Development through time



Main issues

The project's main goals can be described as following:

1. embrace natural processes and give more space for water,
2. increase multifunctionality of floodplains and especially focus on the incorporation of a new living environment
3. 'break' the border of the dike and allow people from the surrounding cities to engage in this unique area.

Research methodology and derived principles

Based on the notions of landscape as a process and landscape as a flow, the interrelations among the three basic layers of the project (natural processes, nature and urban development) were studied to discover what each layer needs but also what it could provide in an integrative design strategy. Based on this method, basic principles emerged on large and small scale, which point towards the direction of sustainability. Sedimentation will be used as a condition for the creation of other functions, through the cut-fill principle, which will also enhance the identity of the place. Flood forest will thrive back in the floodplains, and also be part of the created processes by influencing water flow and sedimentation. On a smaller scale, the landscape elements will also provide sources for the houses, which will operate with sustainable infrastructure (circular waste water system of purification and reuse, biomass as energy source etc.). This way, the new functions will not pose a negative impact in the landscape and the three layers will operate together and be in dialogue.

The dichotomy between processes and forms

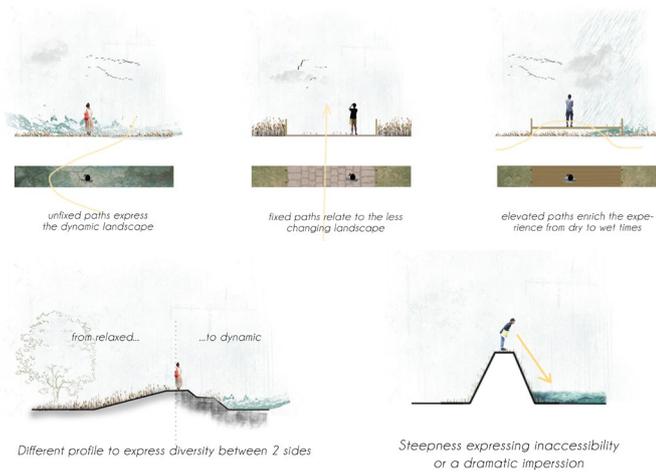
The design emerged through a mutual creation between processes and architectural interventions. On one hand, the natural processes are embraced and become driving forces for several design steps through the created conditions, on the other hand based on socio-spatial and landscape characteristics of the site other qualities are preserved or added in the area through interventions that also create conditions. To answer the three main aspects of the research question and based on this mutual design approach between processes and forms, the vision is developed in steps through time. The first steps refer to more fixed elements that work towards the direction of breaking the border dike and enhancing river dynamics. In the next steps, the natural processes take an active role and become main actors in the design decisions, especially for the incorporation of the living mounds.

Layered plan

Different layers merge together in this integrative approach of multifunctional floodplain design.

1. a new accessibility network
2. the facilitation of dynamic river processes
3. the combination of cultural and new elements/functions
4. a mosaic of diverse natures

More specifically, different areas of nature create a mosaic in the landscape, and attract a variety of species. In the parts that are frequently flooded, spontaneous vegetation and aquatic species can appear, while in the flood forest beaver and singing birds will find a friendly environment to settle. The already existing system of lakes is also extended and expressed more in the new plan, as an important natural area.



As for the imposed structures, existing cultural elements (like the Brouwketel and the brick factory) will be bined with the added functions (the new centre, the market of the gardens, etc) and create a strong identity for this place, that is based on its inherent qualities and characteristics but also allows space for flexibility. The new functions as well as the created living mounds also relate to existing parts of the inland side (the village church, the old castle etc), so that apart from giving new meaning to the floodplains they will enhance the relation between the two sides and attract more people to Huissen and Angeren.

EXPERIENCE IN THE LANDSCAPE

The interventions will lead to the creation of a diverse landscape, of different natures and atmospheres. The basic elements of the plan (paths, dikes etc) express this diversity and richness of the landscape. The more dynamic an area is, the less fixed the paths are. While the dike profiles can also emphasize the contrast or similarity between the two sides. Routings both for the new inhabitants but also for the visitors will be created, passing from the main elements of the design and enriching the experience of the dynamic riverscape.



a. path along the new river channel

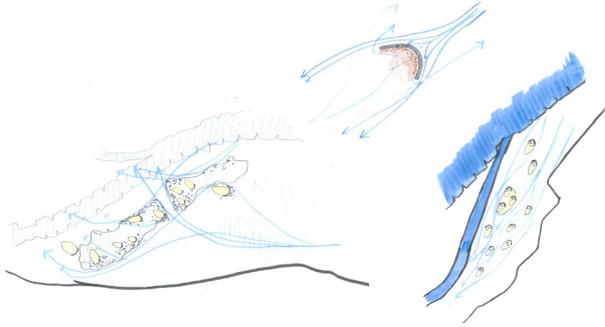


b. elevated path to the forest and mounds



c. dike between two different natures

THE LIVING MOUNDS



research by design sketches on water flow and sedimentation



The two mound typologies and their schematic development in steps



Typologies

Based on the described study of natural processes and suitable locations, two mound 'typologies' arise in terms of creation and relation to the landscape. The mounds in the forest will be created by people with the sediments gained by the trees and clay from the area. So the size was decided to be easy to organize as a community, taking into account that sediment gain occurs through time and not all mounds will be raised at once. The second typology is the mounds that influence water flow and are situated on the south part of the floodplains, close to the new channel. These mounds will start to develop by placing the barrier walls in the first place, that will affect water flow and will initiate sedimentation in the specific locations, gradually raising the ground of the mounds. The rest of the desired shape and height will be finished by people themselves. In both cases, the location and orientation of mounds came through research by design sketches, based on an estimation of the processes.

The barrier wall

The barrier wall is the starting point of the second mound typology, but will also be essential for the forest mounds. Although in that case it will not initiate the creation of the mound, it is needed in order to keep the mound stable and safe from the pressure caused by the water during flooding events. In both cases, the wall will be a multiplied, visible element so it can be seen as a landmark in the landscape.

Mound development

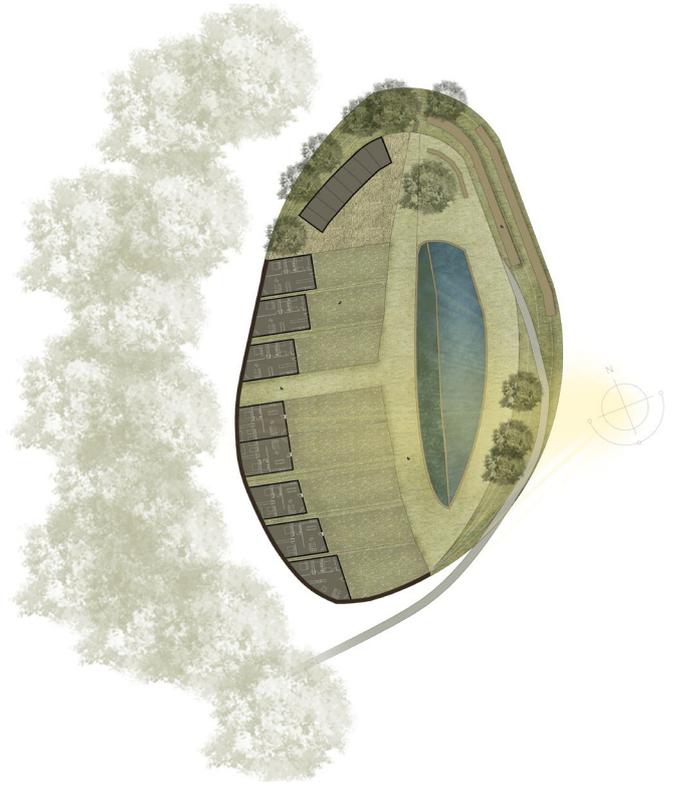
The design of the mounds expresses qualities related to the landscape, but also the sustainability principles. Views to the surroundings are created through openings or transparencies of the barrier wall. Each house operates individually (food, energy) but also there are common elements on community level, like the water pond for waste water purification.



the barrier wall as a landmark in the landscape, that people can approach and explore.



the barrier wall from the mound: openings and transparency allow views to the landscape



Section b-b
sustainable infrastructure of living mounds (waste water purification and energy from willow biomass)



STRATEGY OF HEALTHY GREEN FUTURE FOR ROTTERDAM ZUID

STRATEGIC PLANNING OF GREEN INFRASTRUCTURE

RUOJING WU
CHINA
KATINGW@GMAIL.COM

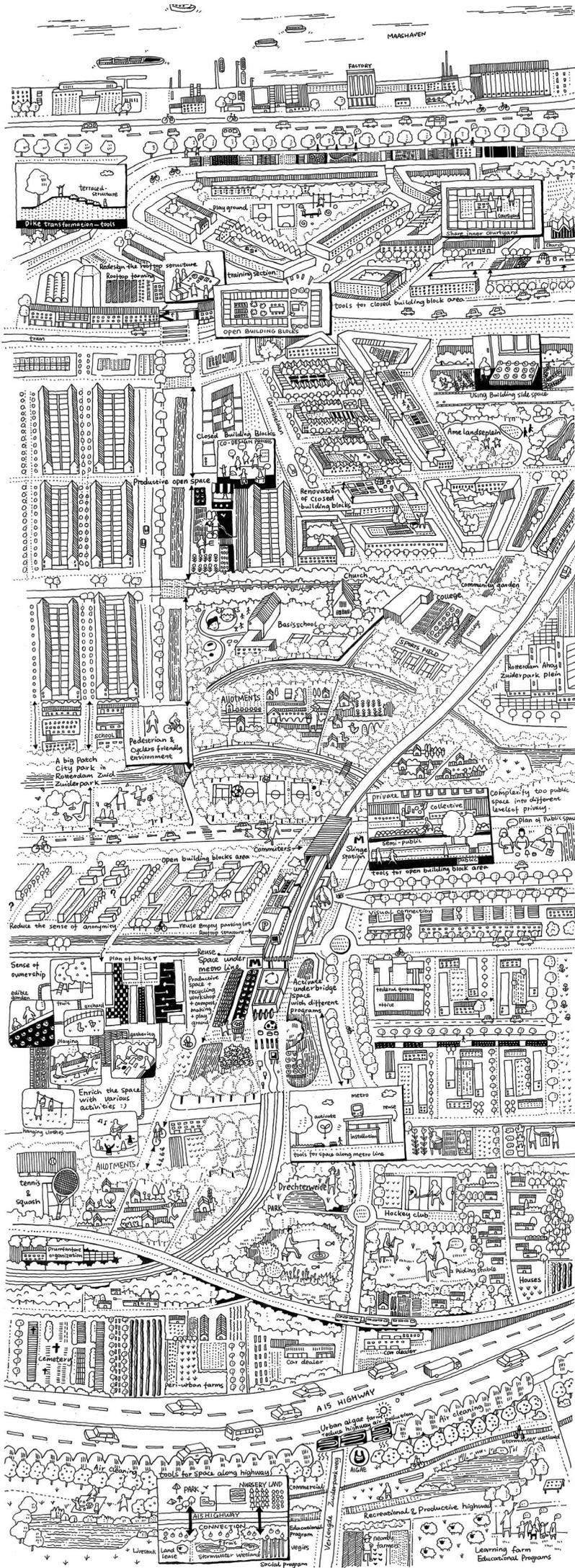


Urban agriculture is not a new topic. It has multiple benefits related to human and environmental health, social interaction, sustainable development, and so on. Instead of the patchwork of practicing urban agriculture, the question is that how urban agriculture can be integrated into city planning process, to be an integral part of green infrastructure?

The project seeks a strategic planning of integrating urban agriculture into part of the green infrastructure for Rotterdam Zuid, which hopes to open up the possibilities of urban agriculture to inspire people like planners, decision makers and residents. The proposal based on the collaborative communication combining the supportive policy, spatial feasibility and the participation of citizens. The vision embeds a city-scale green network within the city, reconfiguring the relationship between the existing landscape and the potential leftover space. The healthy green network contains agricultural and nonagricultural programs, where the interaction between urban agriculture and other green infrastructure enriches the activities and experience in the city. The project aims to generate a large scale, long-term and flexible vision as well as a set of spatial tools to elaborate into the urban vision. The vision requires an operational system that intersects top-down mechanisms and bottom-up initiatives.

The design outcome can be seen as a guidebook that inspires government and citizens to work together in Rotterdam Zuid. The design consists of three parts: 1) vision and strategy 2) spatial tools 3) the application of strategy and tools on a specific site. It comprises a basis green network for creating the healthy green structure for Rotterdam as well as a series of spatial tools for integrating urban agriculture according to various urban forms in Rotterdam Zuid. The design is a process of integration: 1) the integration of different urban infrastructures 2) the integration of different spatial typologies 3) the integration with different compatible programs and activities. The objective of the project is not only for promoting urban agriculture, but also viewing the underutilized space along infrastructure as opportunities to activate them as green corridors and patches with a wide variety of activities.

It is not a traditional way of top-down design, but a nonlinear planning process that multidisciplinary teamwork and participation of citizens are always necessary. The graduation project is not an end design, but tries to introduce new methods and ideas to stimulate thinking and discussion for the unpredictable future of Rotterdam Zuid.



The vision of the healthy green network and the tools of the spatial intervention consist the main part of my design. The process is inspired by Alexander Christopher, who believed that the structure of a town could be woven much more deeply, more intricately, from the interaction of its individual acts of building with a common language, than it can from a blueprint or a master plan. The future is unpredictable and the city is always growing. I gave my own interpretation through the design process: considering the open network is a large-scale pattern, the vision provides the rules of growth; the spatial tools are the knowledge of small patterns for people to guide the growth of the large pattern. The strategies are flexibly interpreted, arranged, and assembled. Slowly, piece-by-piece, every intervention or transformation helps to construct the whole network, collaborating and interacting for a healthy green future.

DESIGN VISION AND STRATEGY



**Supportive
Policy & Strategy**

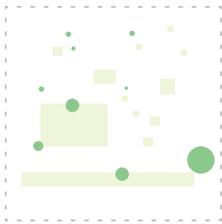


**Spatial
Feasibility**



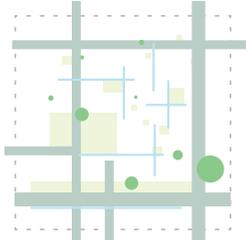
**Participation
of Citizens**

CONTEXT



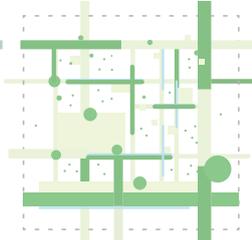
EXISTING SITUATION
■ green space for recreation
■ agricultural practices

POTENTIAL



THE HIDDEN CONNECTION
■ space along infrastructure (highway, railway, metro line, dike)
■ canals

PROPOSAL



CONNECTIVE LANDSCAPE

 walk & bike greenery recreational food edible insect pollination



The design consists of three parts: 1) vision and strategy 2) spatial tools 3) a case about applying part I and part II.

Part I: Vision and Strategy

The network is developed from overlapping layers of existing landscape and the leftover space along the infrastructures such as dike, canal, railway and highway, which meanwhile organizes the scattered asset into a connective landscape.

The essence of healthy green structure in Rotterdam Zuid actually aims to modify the land cover and land use of urban landscapes (diversity of native species and land use heterogeneity), and relationship (connection and interaction between scattered landscapes) among them. The network equals to a complicated model that benefits human and non-human species by activating leftover space that connects patches to support activities and slow mobility, at the same time strengthen the urban ecosystem.

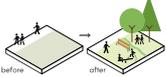
In order to ensure the function of the network; there are three rules as basis: 1) Ensure a comfortable environment for slow mobility; 2) develop the underutilized space; 3) use diverse native plants.

As a city-scale network, there must have various programs to enrich the experience. A toolkit is equipped. It includes general options like playgrounds, sports place; and it also contains food-related programs such as community gardens, fruit orchard.

RULES AND PROGRAMS



Pedestrian & cyclist friendly environment



Develop underutilized space



Diverse native vegetation



Part II: Spatial Tools

Part II is the spatial toolbox concentrating on how to develop urban agriculture according to different spatial types. The spatial strategy is the interaction between top-down and bottom-up approach: the readers of this part are not just residents but also communities, planners and decision makers. The aim is to empower citizens to create a better neighborhoods and collaborating with different agencies to improve the living environment for a healthy green future.

According to typology study, these ten types represent space potential for agriculture. They are divided into three categories: the residential space - residential building blocks and streets, the residual space - like green space along canals and dikes and the separative space - leftover space along highway, metro line. Each type has one or more ideas to inspire citizens and government.

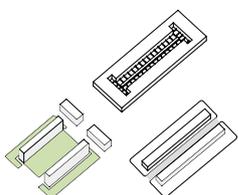
Every type has a similar format, including the identification, the idea of transformation including site consideration and involved partners, and one example picked from the real site in Rotterdam Zuid to demonstrate. The tools illustrate and demonstrate how these typologies can be developed a setting for urban agriculture, to activate the space with not only agricultural program but also facilitated with other activities.

(More details are in the report :)

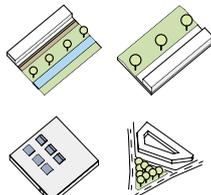
part II

spatial tools transformation for different spatial types

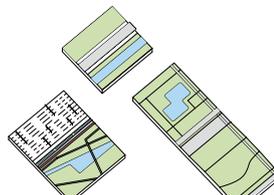
RESIDENTIAL space



RESIDUAL space



SEPARATIVE space

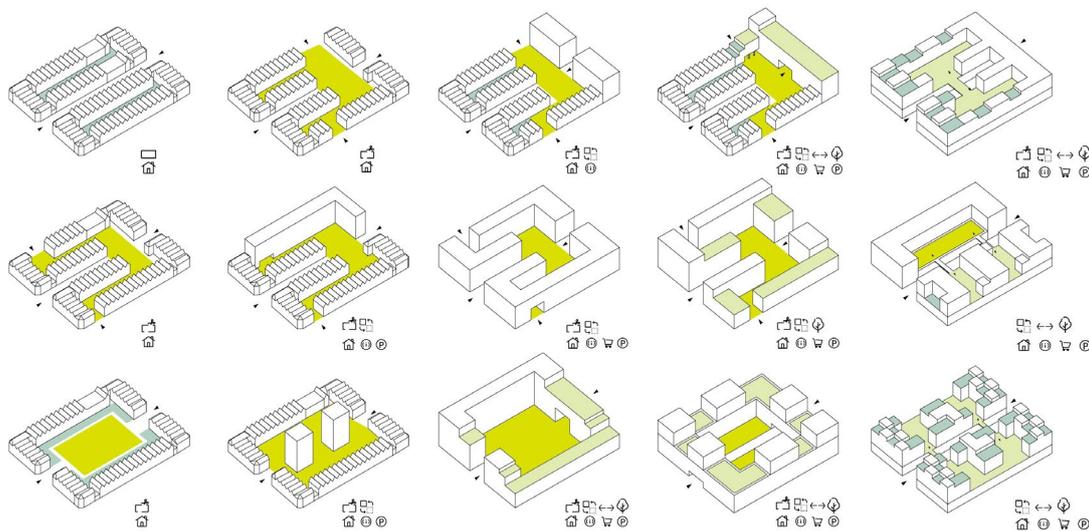
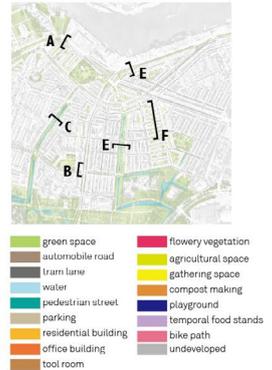
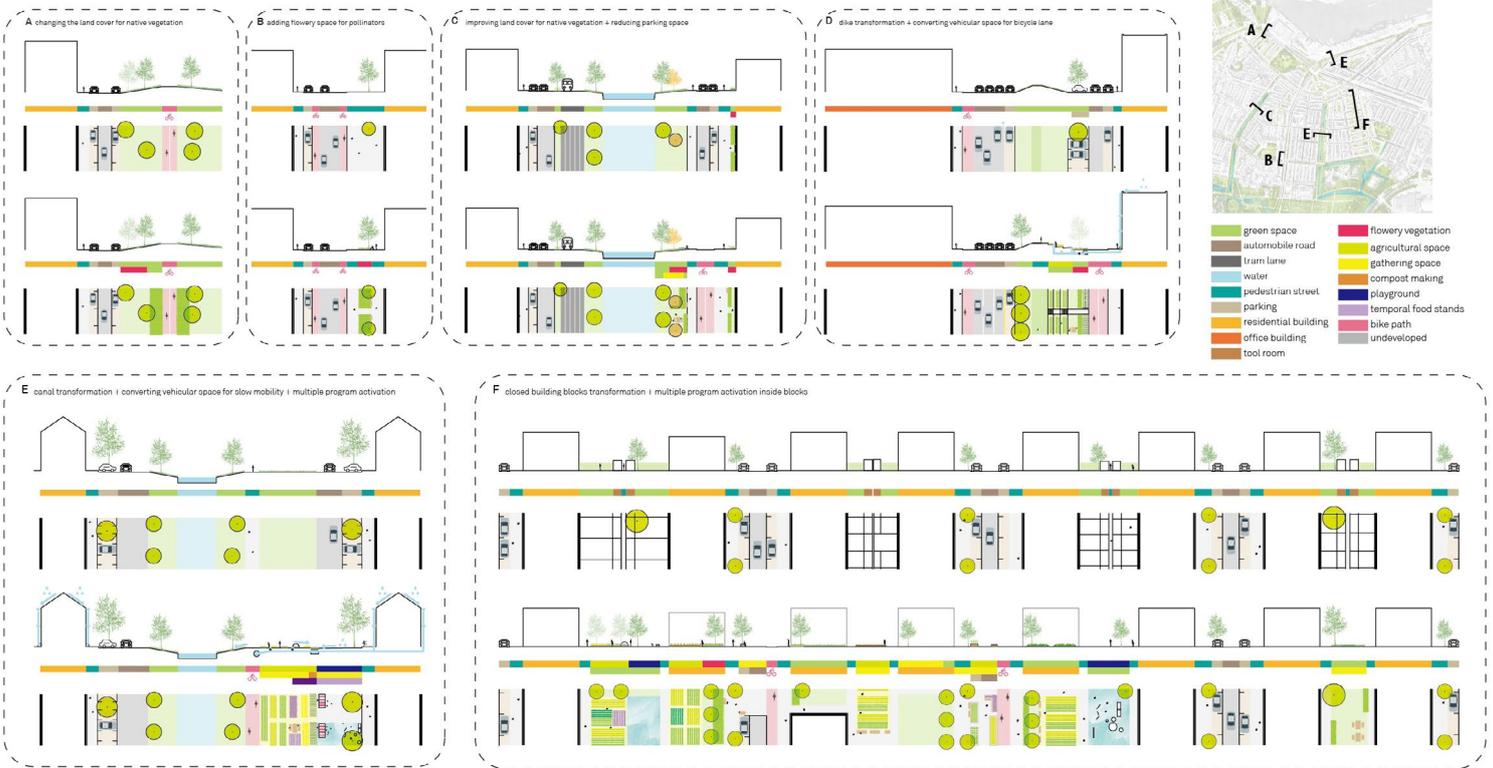


Part III: Adaptation of Strategy and Tools

The third part is an adaptation of part I and part II – to see how the healthy green network applies and how the spatial tools work on one specific site. Located in the districts Tarwewijk and Carnisse, the site is a dense residential area lack of a sense of community. The case shows how the top-down approach of the city vision and the bottom-up initiatives collaborate; it is not only about the transformation of the space, but also integrate with social and educational programs that serves as the catalyst of active green action, social interaction and healthy lifestyle for residents living there.



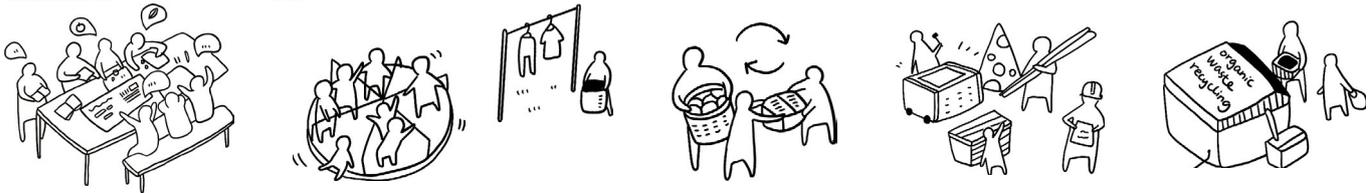
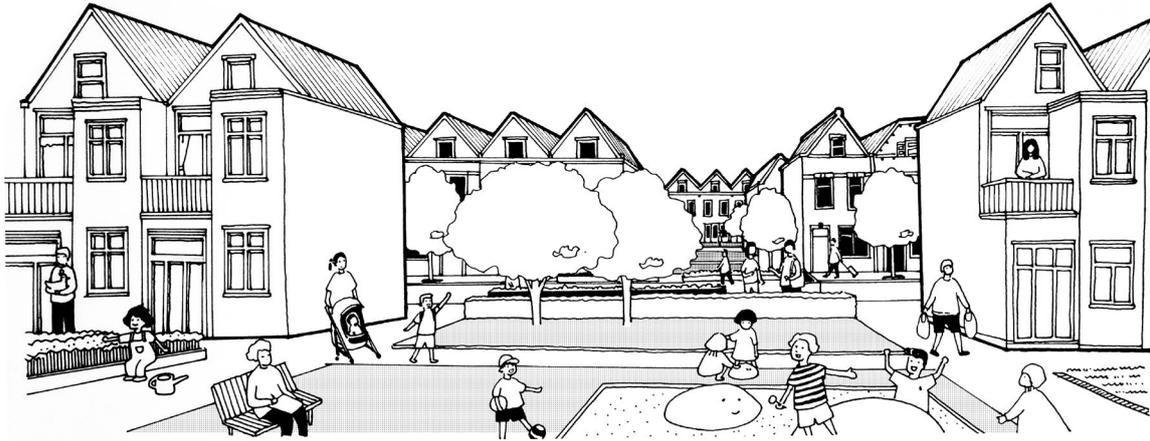
↑ The analysis of situation shows how the site plan developed



↑ Sections of before and after intervention. The levels of intervention depend on the site situation, from the lowest changing the vegetation to the highest housing renovation.

← The closed building block is one of the typologies in the site. The tool for this type is applied and proposes a series of new housing types considering the increasing population.

INTERVENTION	FUNCTION
CUT	REPLACE
CONNECT	GREEN ROOF
PRIVACY	RESIDENTIAL
PRIVATE	SERVICES
SEMI-PRI VATE	COMMERCIAL
SEMI-PUBLIC	NEW PARKING SPOTS



The above images from part III are the visualisation of applying the tools on the closed building blocks area. The intervention creates a scale that is beyond one building block and a sense of neighborhood that different blocks are connected. The landscape does not just limit inside one block, but penetrating from one to another. The space is semi-public space shared with neighbors. Each block would house a certain activities and produce different products for community share or food bartering.

INTEGRATION BY LANDSCAPE

INTEGRATION BY USING LANDSCAPE AS INFRASTRUCTURE

YIXIONG MIAO
CHINA
MIAO3YYZ@GMAIL.COM



A SUSTAINABLE WAY TO GUIDE THE URBAN EXPANSION

Urban expansion and development are normally guided by road infrastructure. Such road-oriented development have broken the integrity of natural layer and it ignores the profits that landscape could bring .

The thesis and the design research on how to use landscape (as infrastructure) to “integrate” ,and guide the future urban development. When the landscape is used as the infrastructure to guide the urban expansion, it should be a continual room for different forms of flows, and it should also have good natural quality which will be the base for the future urban development .

By connecting the fragments in different layers, it contributes to a more continual room and a more integral natural quality. A continual landscape as infrastructure means it has a stronger operative force and thus it is able to guide the sustainable urban development in the future.

Using landscape to integrate is caring more about the natural quality and the integrity of the natural , instead of just human interests.

The experimental site is in Ruhr, and the Emscher is the main greenstructure in Ruhr region. However , the Emscher is facing the serious environment problem and fragmentation. The experimental site is a abandoned land which has been causing the pollution and fragmentation to the Emscher in the age of industrialization. The site shows a great potential to recover the Emscher-Rhine ecology and the shrinking city in Ruhr because it is leftover. The conceptual tool will be implmented in this experimental site. Integration by landscape need a deep understanding on different flows in the dynamic landscape layers instead of just human layer. The project uses landscape structure as framework to provide room for flows, and thus achieve natural , social and economics co-prosperity.

The research method is design-related research, the design process is the most crucial part of the whole research process. In the design process, it will firstly study on the natural and urban context of the site in multiply scales. Then, the decomposing map as a analysis insturment will be implmented so that the site can be read deeply in different layers. Finally, it will propose the proper contextualized landscape structure and possible programs for the project . The following parts will show the overview of the design process

PHASE 1



PHASE 2



PHASE 3



The phases of development:
 In the first phase, the main landscape structure will be built, which play a crucial role in the large scale. It will contribute to a more integral system in the Emscher. In the aspects of

financing, it is easy to get first-step finance by doing this.

In the second phase, the fill-in trees will be planted in the abandoned land. The road infrastructure will be built. The main goal of this step is to

provide the attractive environment for the future urban development.

After the second phase, companies will invest on the site. The amount of the future investment is determined by the quality of the

landscape framework. In the framework approach, this project will show high resilience to the unpredictable development in the future. The future investors have the right to decide how to use the trees inner the site. Those

trees could be used for the company garden or just be replanted. The part which have not been invested can just serve as a part of the Emscher recreational system.

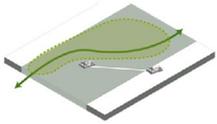


Problem statement

In Ruhr area, the cities have geographically met each other, and the nature has become the space that is left in between.

People is hard to have contacts with the wilderness. The nature will be totally destroyed if the urban expansion still continues. To understand this phenomenon, it studies on the process of Ruhr urban expansion overtime.

TIMELINE OF RUHR HUNDREDS OF YEARS BEFORE



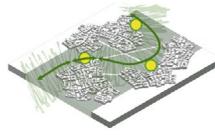
NOW



IF URBAN STILL GROWS ALONG THE ROAD



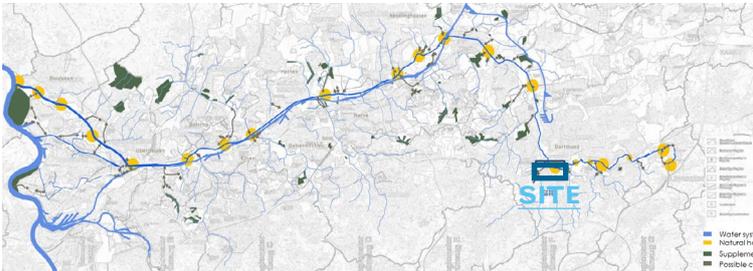
EMSCHER PROPOSAL



The timeline diagram shows the urban expansion over time. The urban context keeps growing along the road and the nature space gets more and more fragmented.

If the urban still grows along the road it will totally destroy the nature.

To avoid this, the greenstructure should be used as the development backbone so that the urban can grow along the greenstructure instead of road. For example, the Emscher greenstructure.



The Emscher is the framework for the future development in Ruhr. However, it is highly fragmented because the different projects and highway have caused the serious fragmentation to the Emscher greenstructure. The experimental site is a abandoned land right in the Emscher structure which cause the fragmentation.

Some high-diverse ecology habitats could be connected with the main Emscher structure. Those supplementary habitats could helps to recover the ecology and improve the water quality of the Emscher, and there is one just besides the site



- greenstructure with better ecology
- polluted water
- greenstructure
- SITE isolated site



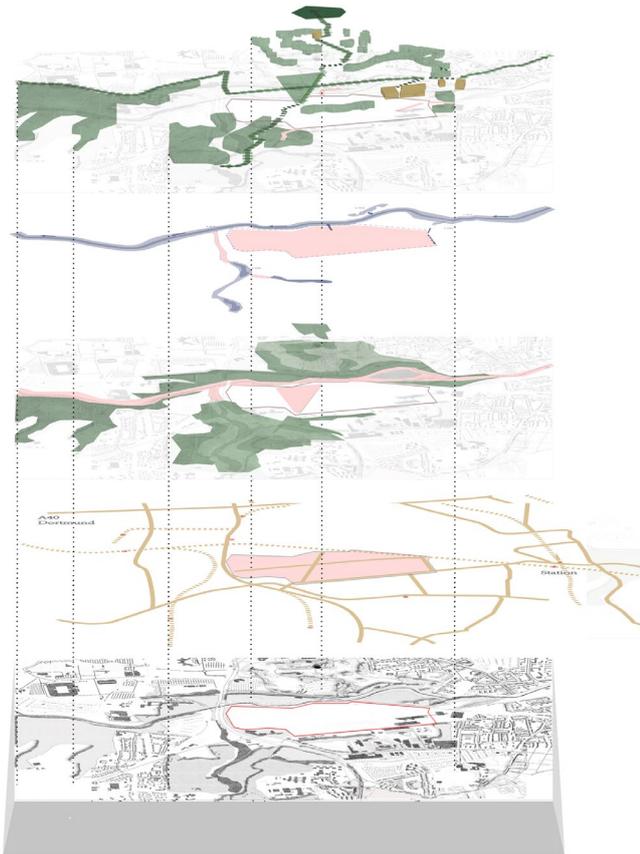
- High level Habitats
- Possible water connection
- Site
- Emscher
- Landscape integration

Overview of diagnosis

The site is a abandoned industrial land. It separates the existing greenstructure. One is from the city center to rural park, and the other one is Emscher structure, and there is a separate water structure near the site. Those natural and urban fragments are in different layers with different natural quality. When the greenstructure is used as the backbone to guide the sustainable urban expansion, it should be well connected in each layer and have good natural quality.

Overview of intervention

The main landscape structure of the project will connect those fragments into a continuous green backbone. Those separated habitats and fragmented water system will be connected and thus improve the natural quality and continuity of the Emscher backbone.



Diagnosis

It would be very hard to read everything in one layer of a map. So decomposing the map into different layers is a clear approach to make the site readable.

The decomposing layers diagram shows the fragmentation in the spatial layer, water layer, ecological layer and road layer.

Spatial layer:

The greenstructure from city center to rural should presents a continuous story. Different parts should be highly related with each other. For example the site is part of the Emscher valley experiencing route.

Watersystem:

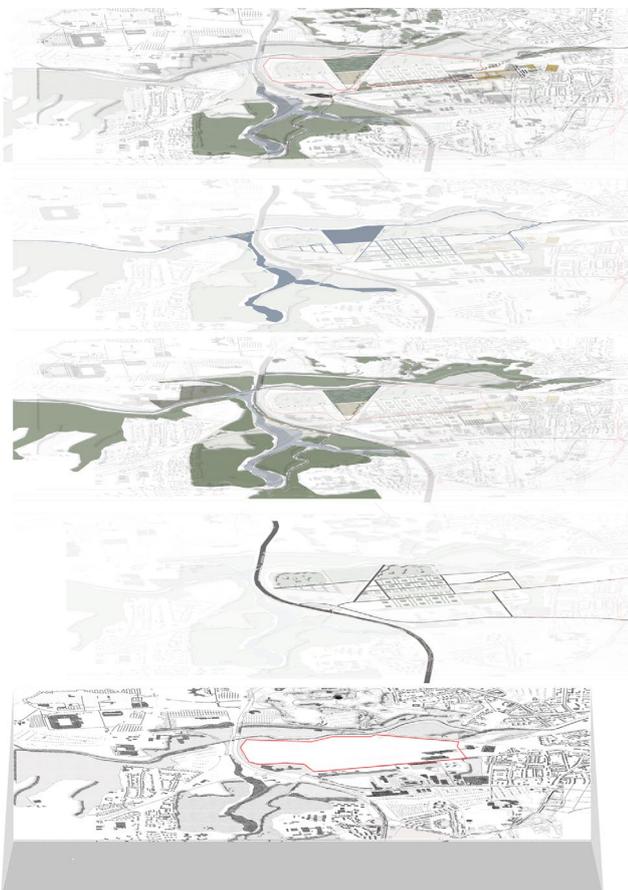
A link between Emscher river and high level habitat is missing in the water layer. Those high level habitat have shown the potential to relieve the pollution caused by the old industrial site.

Ecology:

The important ecological connection is missing near the site. The immigration route is not connected.

Road network:

The site is located besides a international highway. It is partly connected with public transportation and the slow traffic system. However, a complete road network inner the site is still missing.



Intervention

Based on the decomposing map above. The landscape integration will be implanted layer by layer.

Spatial layer:

The spatial fragments of greenstructure will be connected. The triangle is a landscape theater which looks at the bottom of the valley and the rising mountain. The triangle is also a bearing structure for the bridge. It separates the working area with recreational space.

There are several pocket park will be arranged along the recreational route.

Watersystem:

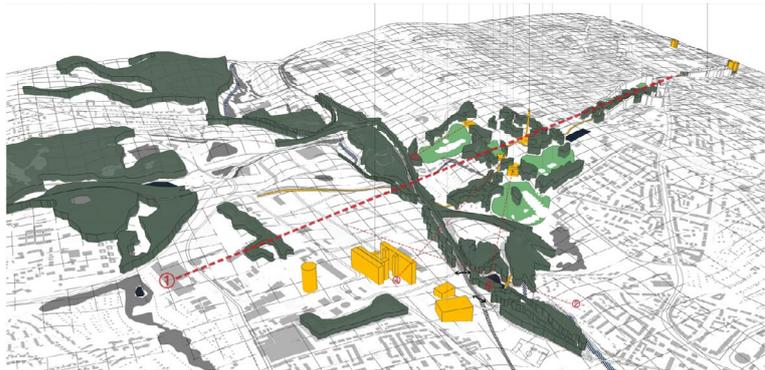
The Emscher river will be connected with a larger water structure and thus water quality can be improved. The Emscher will have a better water resilience and collect more water.

Ecology:

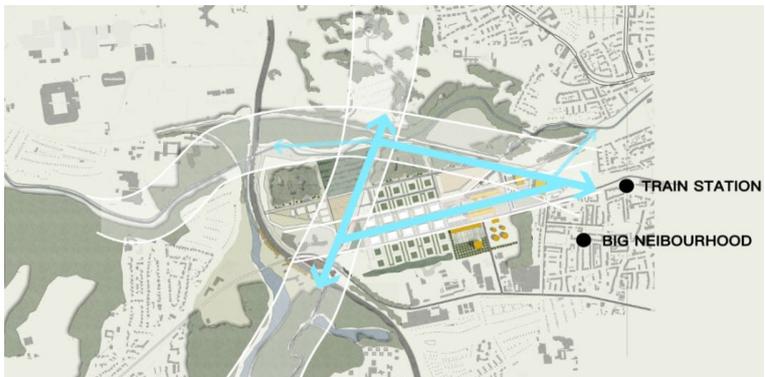
The Emscher river course will be connected with more natural habitats, and thus the ecology of the Emscher will recover faster.

Road network:

Besides the connections with the slow traffic system, the highway, the public transportation systems will be built. Three types of grids will also built for different programs and investment.

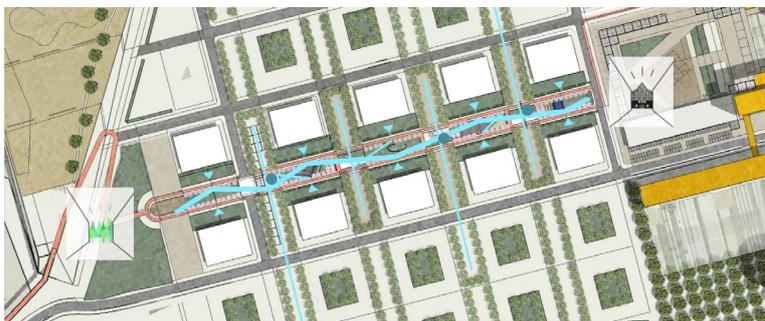


It has a deeper study on each layer of the decomposing diagram. For example, here is the visual elements study on the spatial layers but they cannot all be presented here because of the space limitation.



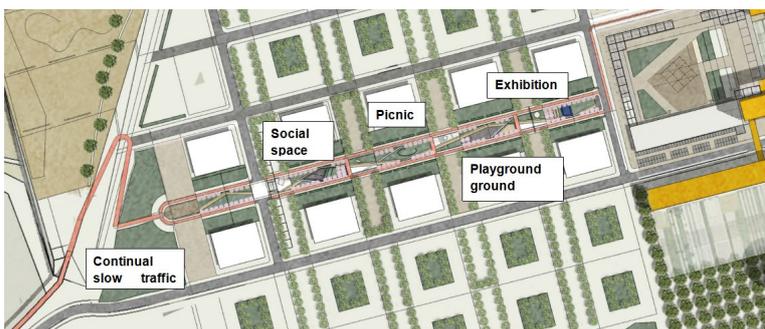
Elaboration design

The task is designing on the room for the connection and flows on the landscape as backbone (or framework). Those main room for flows connects the city center to the rural park, and those room of connections solves the fragmentation in different layers.

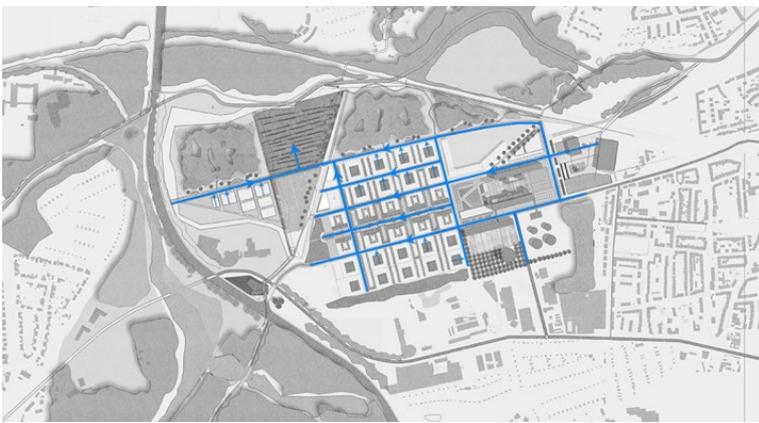
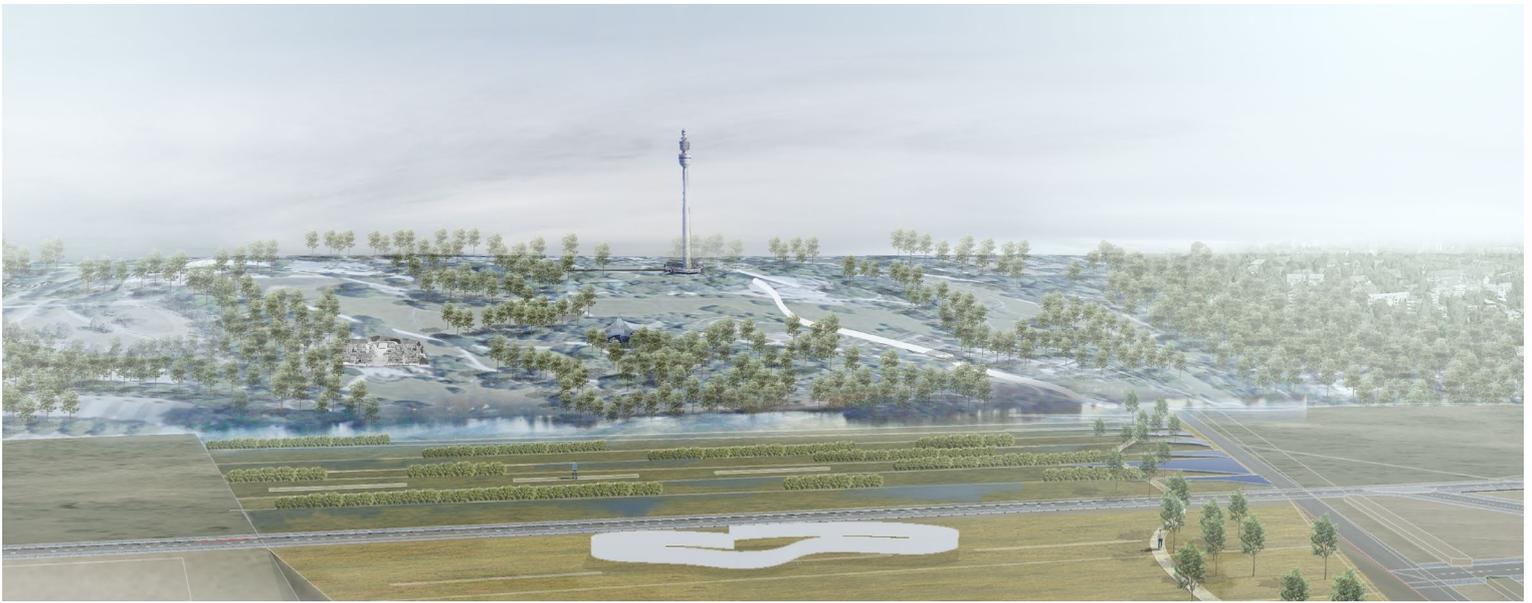


Linear park

The linear park is a transition area between rural and neighborhood. Thus, it should give different picture and feeling when you walk towards to different sides. The heritage as a landscape element define a space that could give strong spatial experience, this space will



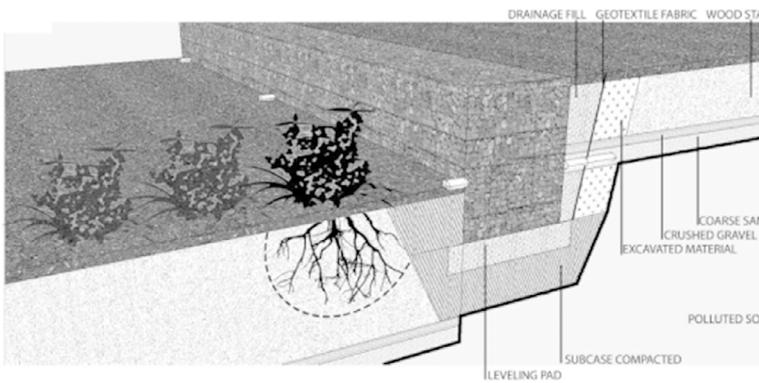
Recreational programs could be developed along the central axis. The four exhibition spaces make up a continuous story line about high tech industrial. The shared space is a relative public area and it will be used for exhibition.



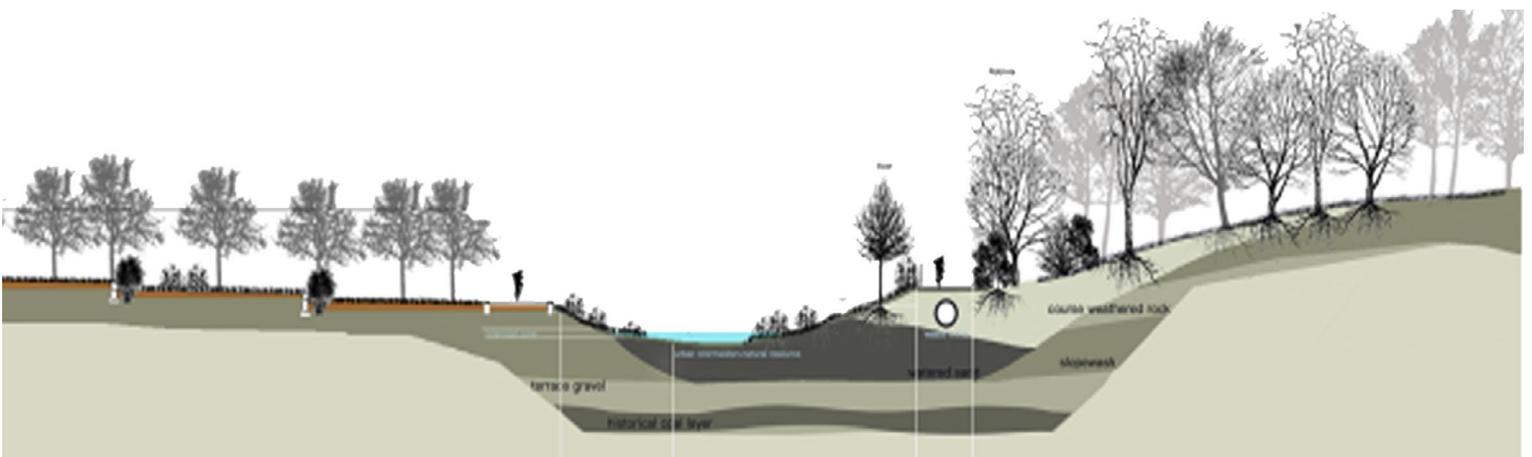
Bio wedge

The soil is still polluted in the site. To solve this problem, the rain water will be collected and discharged into the bio terrace. The water flow will create diverse physical condition for the growth of vegetation on the wedge

The wedge is the only open space in the industrial park. It is a landscape theater which looks at the bottom of the valley. When people move forward, those linear space move back (white line), those linear space are formed by natural forces. In the southern part, small path provides the various-scaled framework for temporary exhibition.



A technical layer is added to decrease the penetration of the polluted water. The underground pipe will lead the water to the next terrace and the water will be purified it again. The layer will also limit the root of vegetation, which means only low trees can grow in this visual corridor



HYBRID HIGHWAY LANDSCAPE

INTEGRATING HIGHWAY INTO URBAN CONTEXT

BY LANDSCAPE ARCHITECTURAL METHOD

XUEQIAN ZHAI
CHINA
MELODYZHAI36@GMAIL.COM



HYBRID HIGHWAY LANDSCAPE

Urban highway, as a product of modern city, is one of the most important influencing factors that shape the contemporary urban landscape. It was built to ease the urban traffic pressure. However, the negative impacts on the urban space and the surrounding environment cannot be ignored. In the most cases, highway is widely regarded and treated as an only functional infrastructure. In my point of view, it also has potentials to be a public facility instead of strictly utilitarian by being contextualized, integrated and interacted with urban environment and urban life. Therefore, I have developed a concept of 'hybrid highway landscape' as a new phase of urban highway. On one hand, urban environment and space related to highway could be enriched for city image; on the other hand, the highway is able to avoid being enclaves in the urban environment by embracing hybrid approach.

Integrating highway into urban context

In order to explore the potential of hybrid highway landscape, German highway A40 in the centre of Duisburg, a highly urban context, and its right-of-way has been regarded as an interesting experimental field of the research project. During the industrial stage, factories of manufacture and distribution in Ruhr area were located along the highway in considering of the convenient transportation. In the recent decade, with city expansion and declination of industry, factories have been moved out. Further, the space related to highway become part of urban landscape in Duisburg.

The elevated and six-lane highway create serious spatial and functional issues- urban fragmentation and limited penetration, while the isolation and enclosure of it negatively affects Duisburg's identity of the post-industrial city. In addition, the carbon emission and noise pollution cause environmental problem especially in the area adjacent to it.

Base on both the objective of hybrid highway landscape and the symptoms of current situation, the corresponding strategies have been proposed. Generally speaking, the vision is to integrate the highway into urban context. Overtime, new urban spaces will be created above and along the highway that seek to take advantage of the connector. Urban parks, promenades, trails, pedestrian bridges and development projects are envisioned as a series of urban insertions that ripple through the City fabric, making new connections and reinvigorating old ones.

The following pages express the stepping stones of the current research, essential images of the specific design expression, which were followed by the aforementioned generic conclusions.



Collage of 'Hybrid Highway Landscape'

The basic idea is to apply the design principles underpinning parkways to modern highways in the urban context. By doing this, the urban environment within

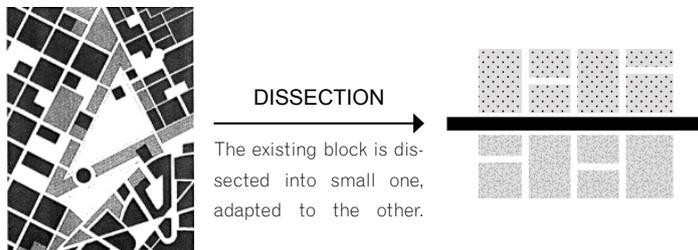
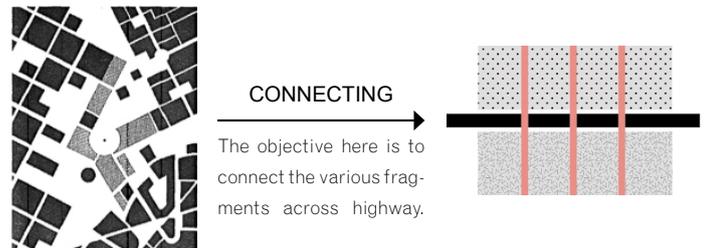
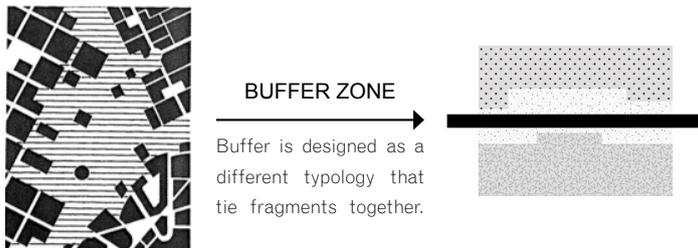
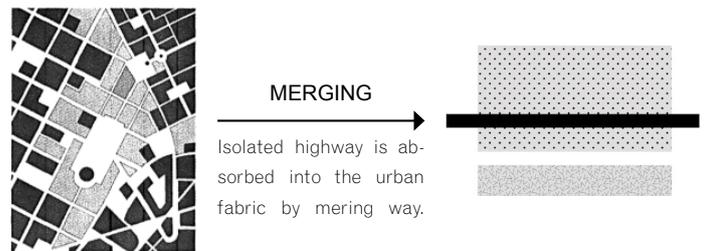
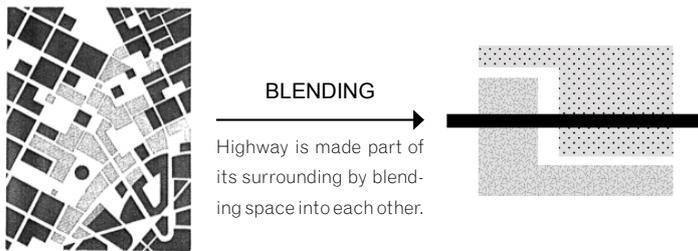
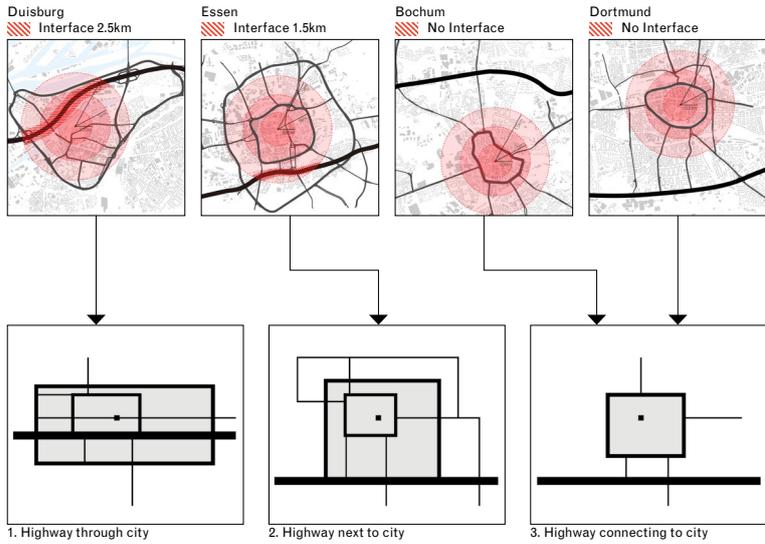
right-of-way such as post-industrial structure, housing, roadside plantings will be strongly related to highway in order to form an integral zone.

RESEARCH STEPS

Topology study on the relationship between highway and urban pattern

A40 connects four populated cities in Ruhr area--Duisburg, Essen, Bochum and Dortmund. The ways how the city are connected to the highway are different. In the case of Duisburg, highway goes through the city. While A40 goes next to Essen without touching the central city. By contrast, in the case of Bochum and Dortmund, the cities are not directly connected to highway but through local roads.

Besides, the highway-city interface is up to 2.5km long in Duisburg. Therefore, Duisburg is considered as the research area in considering of the relationship between highway and city. It crosses the Rhine at Duisburg Harbour where is close to city centre, leading to the hybrid of highway and urban context (Kuhlmann 2010).



Urban Fragmentation
Source: illustration by Beune & Thus

Six Principles in terms of Highway Integration

The existence of urban areas that are not optimally integrated into the overall urban structure is demonstrated. A number of neighborhoods, and also isolated park-like areas, show this condition in the sense that external relationship and inherent coherence are absent (Beune & Thus, 1990).

When related to highway, these urban fragments could be integrated by regenerating the spatial barrier. Therefore, the principles to urban fragments are translated into highway issue.

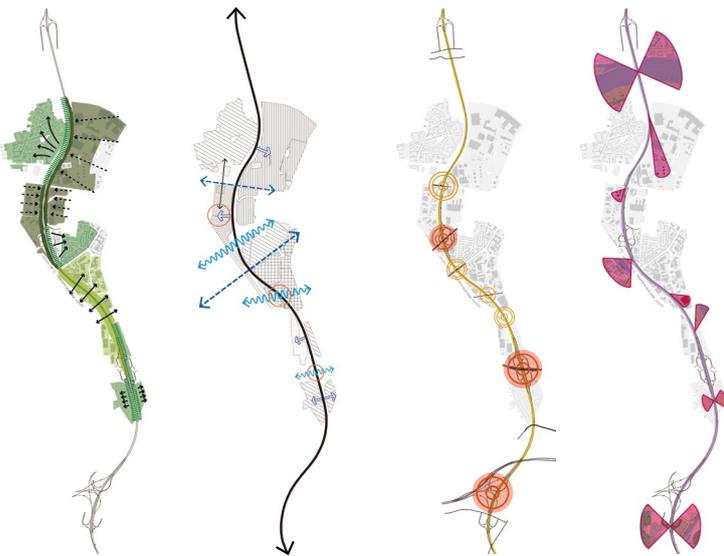
Together the challenges and potentials are listed as follows:

1. The urban space related to highway is commonly treated as negative place which accommodates only functional utilities such as industrial site and warehouse land, hardly with any social involvement. The intensive mode of land using leads to the further decline of tree canopy. In turn, the absence of landscaping aggravates the situation of abandoned fields. In view of this, it is a great potential to regenerate the space along the highway by creating a sequence of unique public places.

2. Three highway underpasses available for pedestrian perform poorly as discontinuous sidewalk, stressful tunnel and lack of human scale in terms of walking experience. Moreover, the urban road network approaching to the highway decreases at the inner harbour and tends to be sparse, leading to poor connection between both sides. Therefore, slow traffic system which emphasises the intersections of highway and city roads could be proposed in order to improve both accessibility and penetration.

3. From the perspective of highway users, following the pleasant river view over Rhine, there is continuous tree belt planted along the highway staying unchanged, which completely keeping the urban images away. Only at a few certain spots such as intersections, the trees are taken place by transparent noise barrier, allowing a glimpse of Duisburg. Based on the principle of ray propagation, it will be eye catching to build a relatively tall structure in the field of view.

4. Currently in Duisburg, the width of tree barrier proves to be insufficient to reduce the air and noise pollution to an acceptable level. Therefore, various typologies of greening such as urban forest, vertical planting and highway park are expected to relief the environmental issues.



The isolated highway is transformed into an integral zone which relates right-of-way to itself. Urban forests are restored within the right of way. The highway is then programmed as a sequence of unique public places. Urban connections are made and new development is realized.



A



B



C

The right-of-way is commonly perceived as an unidentifiable non-place or negative space. In order to regenerate the space along A40, the interface between highway and city plays an essential role in the transformation. Therefore, three typologies of interface where the highway can interact with urban environment is elaborated as on the right.

1. Highway 'Dike'

The idea is to spatially and gently extend highway into urban environment by creating a continuous slope as buffer zone. On the top of the slope, roadside trees are planted as soft pollution barrier. On the bottom, flowers and grass are arranged on the ground or in the planters in order to create an enjoyable environment for pedestrian.

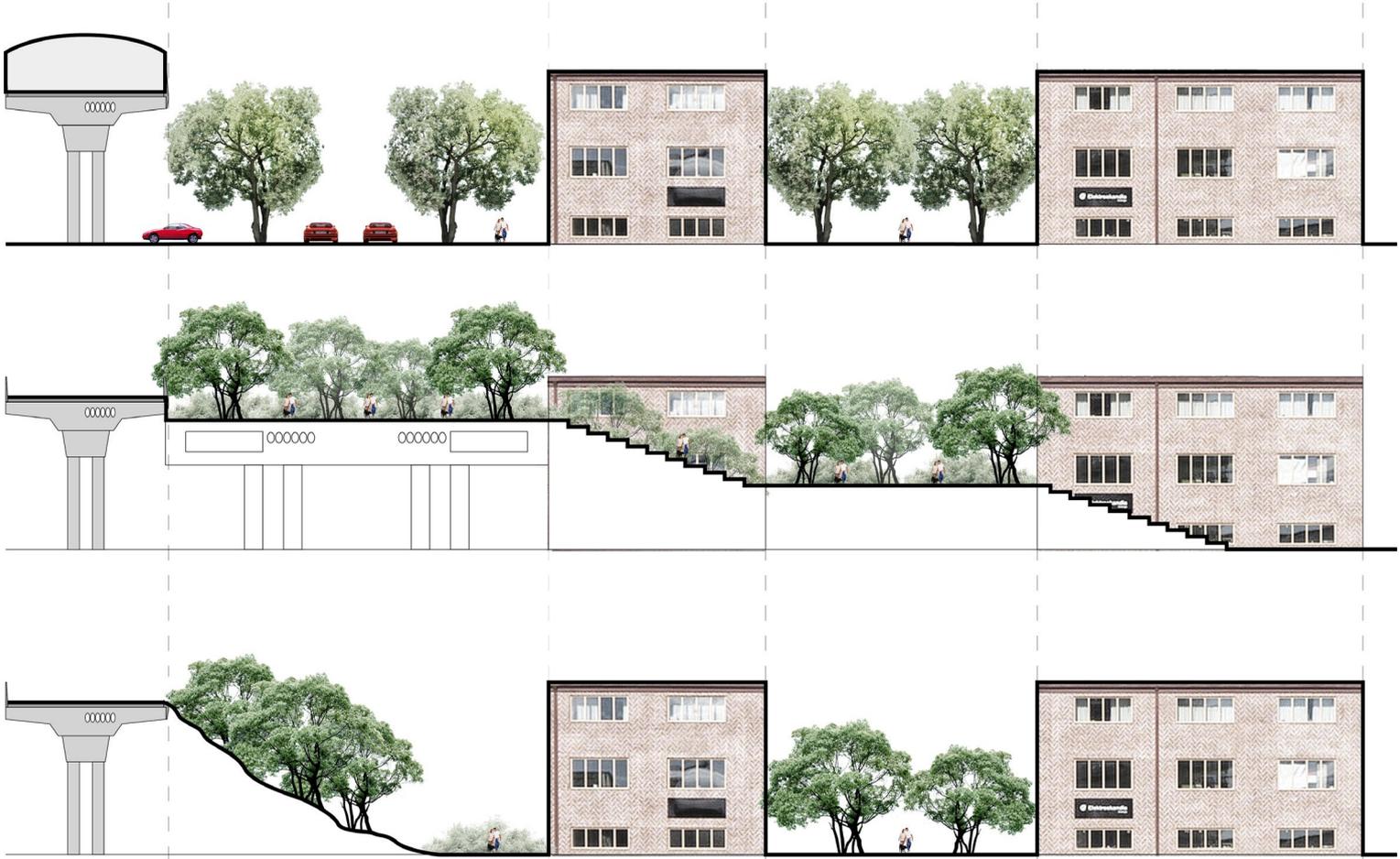
2. Under Highway

Instead of highway extension, it aims to extend the urban life into the space under the highway. With vine plants, the environmental impacts on the 'under-highway' space are relieved to an acceptable level. The space can be occupied by sports or retail for social involvement.

3. Elevated Park

This is a combination of the first two ideas. On one hand, the elevated park creates a platform in the middle for both highway and city extension. On the other hand, it forms an independent system as a media to tie highway and urban environment together.





Three Strategies of Regenerating the right-of-way



- Masterplan
- 1 ribbed park
 - 2 community centre
 - 3 housing
 - 4 playground
 - 5 garden



FROM EDGE TO INTEGRATED SURFACE

GROWING IN HUNTER'S POINT,

SAN FRANCISCO : LANDSCAPE OF ACCRETION

MENGHAN FU
CHINA
fmh0457@gmail.com



**TITLE (GROTESQUE BOLD 9PT, ALL CAPS
COPY LINE BELOW UNDERNEATH TITLE)**

The urbanized Delta area is a combination which is influenced by different natural processes and also influenced by the increasing human interventions. And the bay area is also under threaten of the sea level rise. So an adaptive way of working with different processes is needed. In this project Hunter's Point in San Francisco bay area were treated as an integrated surface where nature and urban embracing each other.

The theme of the graduation project is flowscape, in which with movement and flows at the core, the aesthetic, functional, social and ecological relationships between natural and human systems were facilitated. Flowscape as a landscape infrastructure is not only a technical structure but also a carrier of natural and urban processes. It is proposed to solve the environmental problems and adapt to the surroundings as well as providing the appropriate environmental conditions for the long term dynamic natural and urban development.(Nijhuis,S and Jauslin,D.2015)

Following the core of the flowscape, the project site is located in urbanized San Francisco bay area, which is a combination which is influenced by different natural processes(tide, wave, wind, sedimentation, erosion.etc) and also influenced by the increasing human intervention(dike, dredge, landfill, reclamation). And the bay area is also under threaten of the sea level rise. So an adaptive way of working with different processes is needed. To achieve the goal of developing in an adaptive way which consist both natural and urban aspect into account, the site of Hunter's point is chosen due to the complex of combination of problems(social and environmental) and potentials.(dynamics of natural processes)

Historically, the hunter's point used to be a navy shipyard which constructed on the landfill of the original tidal marshland. Historically, the Hunter's point was a tidal marshland constantly in flux, influenced by wind, erosion, and water. Over the past century, this area has become more static because of the landfill and became a navy shipyard on the landfill. Yet this constructed landfill was formed over time, through the deployment of a complex framework for accretion. This industrial hard land is no longer economically, ecologically, or socially relevant. Since the highly dynamic natural processes gives the site multiple potentials of engaging the natural processes and the urban process. In this project I proposes a new way of engaging the natural processes and take sea level rise as an opportunity, creating a new productive landscape that incubates new hybrid uses and long term urban development. As a result the landscape transformation design plays a significant role to also develop the spatial quality which people can have a totally different experience of the whole new landscape.



Perspective of artificial elements combining the artificial element and aquatic production.

RESEARCH STEPS

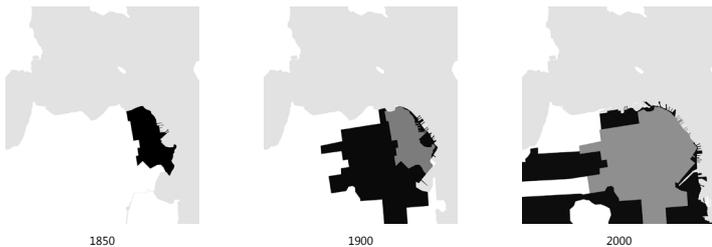
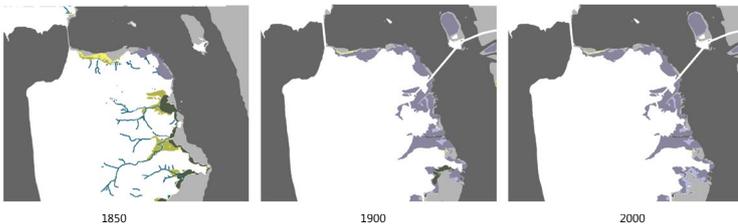
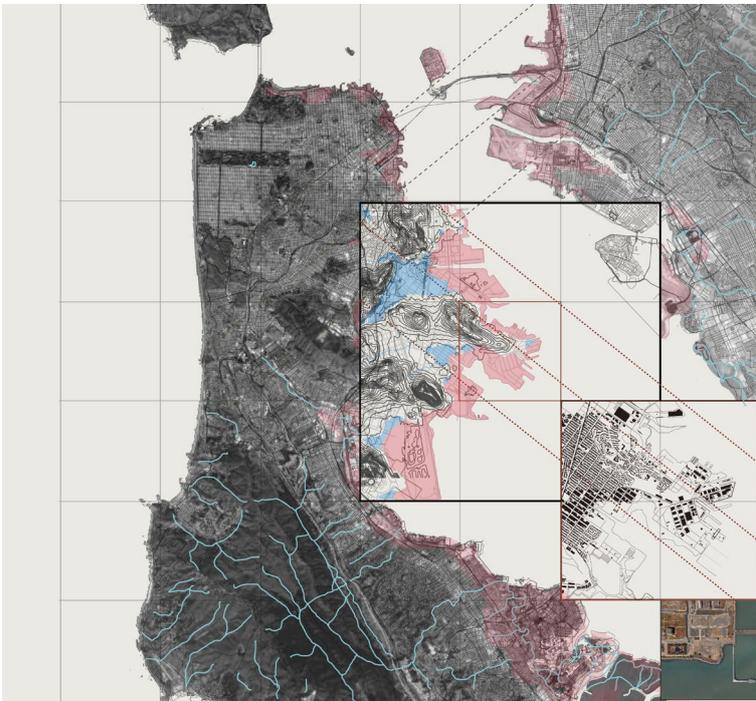
Geographical location

Hunter's Point, San Francisco

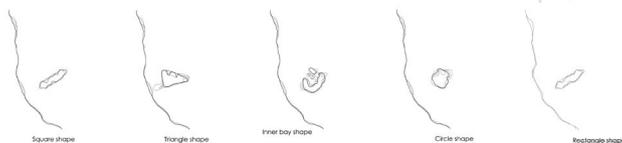
I chose Hunter's Point as my design site because of it used to be a tidal marshland, it have the possibility to get back the exchange with natural processes. And also this area is used to be a navy shipyard built on the landfill, facing the threaten of the sea level rise and also the need of transformation. The complicated situation in Hunter's Point gave the possibility to test different strategies due to different situations.

Analytical approach

The relationship between urban pattern and the landscape will be addressed. In San Francisco, the important moment in history was addressed from the original landscape to landfill period to current situation. From the 3 layered map we can draw the conclusion that the infrastructure and urban pattern is expanding from the landfill on original tidal marshland to the mainland. The junction of city pattern is shifting according to the underlying landscape, the main junction of urban pattern follow the original creek. The main factors influence the developing of the city pattern is the original tidal creek--the main axes of city pattern are parallel to the original creek. This illustrated the implied close relationship between the underlying landscape and also the way landscape influence the city development. And from the analysis, the basic relationship between the urban development and the landscape was concluded.



Tide effect 1. Top and bottom area get deposition
2. both sides get eroded
3. waveward gets erosion



Wave effect 1. Top and bottom area get erosion
2. both are gets deposition shade area



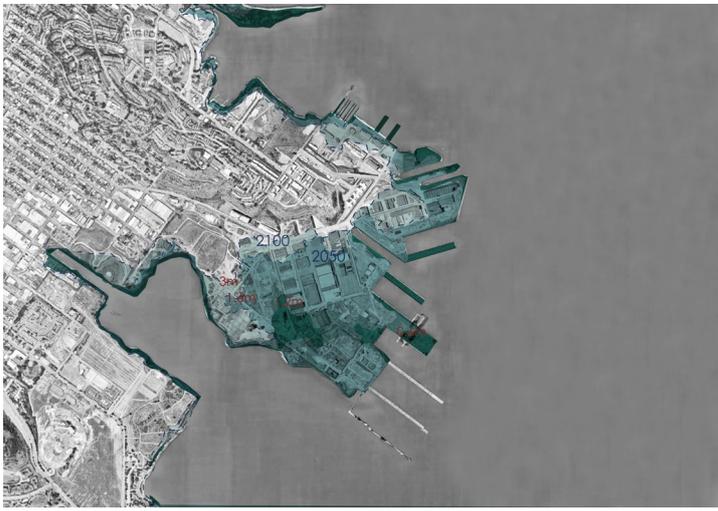
Square shape
1. Top and bottom area get longer
2. Both sides get eroded
3. Get more length and little proportion

Triangle shape
1. Top and bottom area get eroded
2. Wavedward sides get eroded
3. Backward side gets little influence

Inner bay shape
1. Top and bottom area get longer
2. Both sides get eroded because of flood and wave
3. Bottom in the inner bay get more depositions, the shape turns to become triangle shape

Circle shape
1. Top and bottom area get longer
2. Both sides get eroded, top get more erosion
3. Get more length and little proportion

Rectangle shape
1. Top and bottom area get longer
2. Both sides get eroded
3. Get more length and little proportion



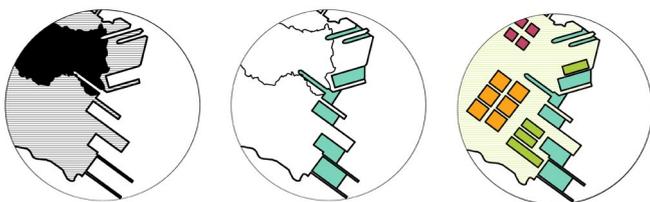
The map shows the areas under the threaten of the sea level rise and also the storm surge. There have been significant advances in the scientific understanding of the risk of accelerating sea level rise (NRC 2012). Present sea level rise projections suggest that global sea level in the 21st century will be much higher due to both the expansion of the oceans by warming and, increasingly, by the melting of land-based glaciers and ice sheets. These projections are summarized in the recent National Research Council report on West coast sea level rise (NRC 2012) which provides estimates of regional sea level rise for San Francisco. By 2030, the mid-range projection for sea level rise is 5 inches with an upper projection of 11 inches and by 2050, the mid-range projection is 11 inches with an upper projection of 24 inches. But can we take sea level rise as an opportunity? In the mapping we can see the boundary of the sea level rise in 100 years.



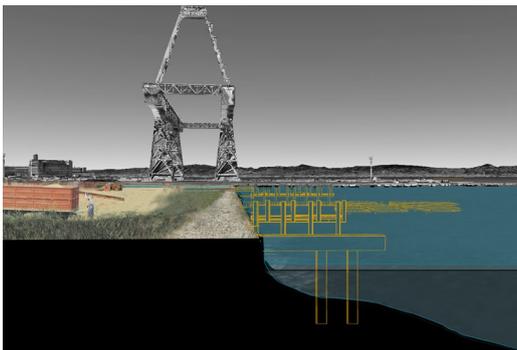
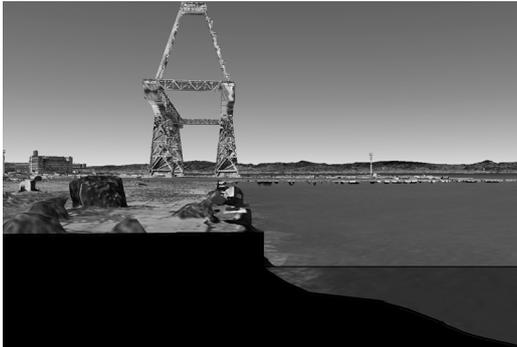
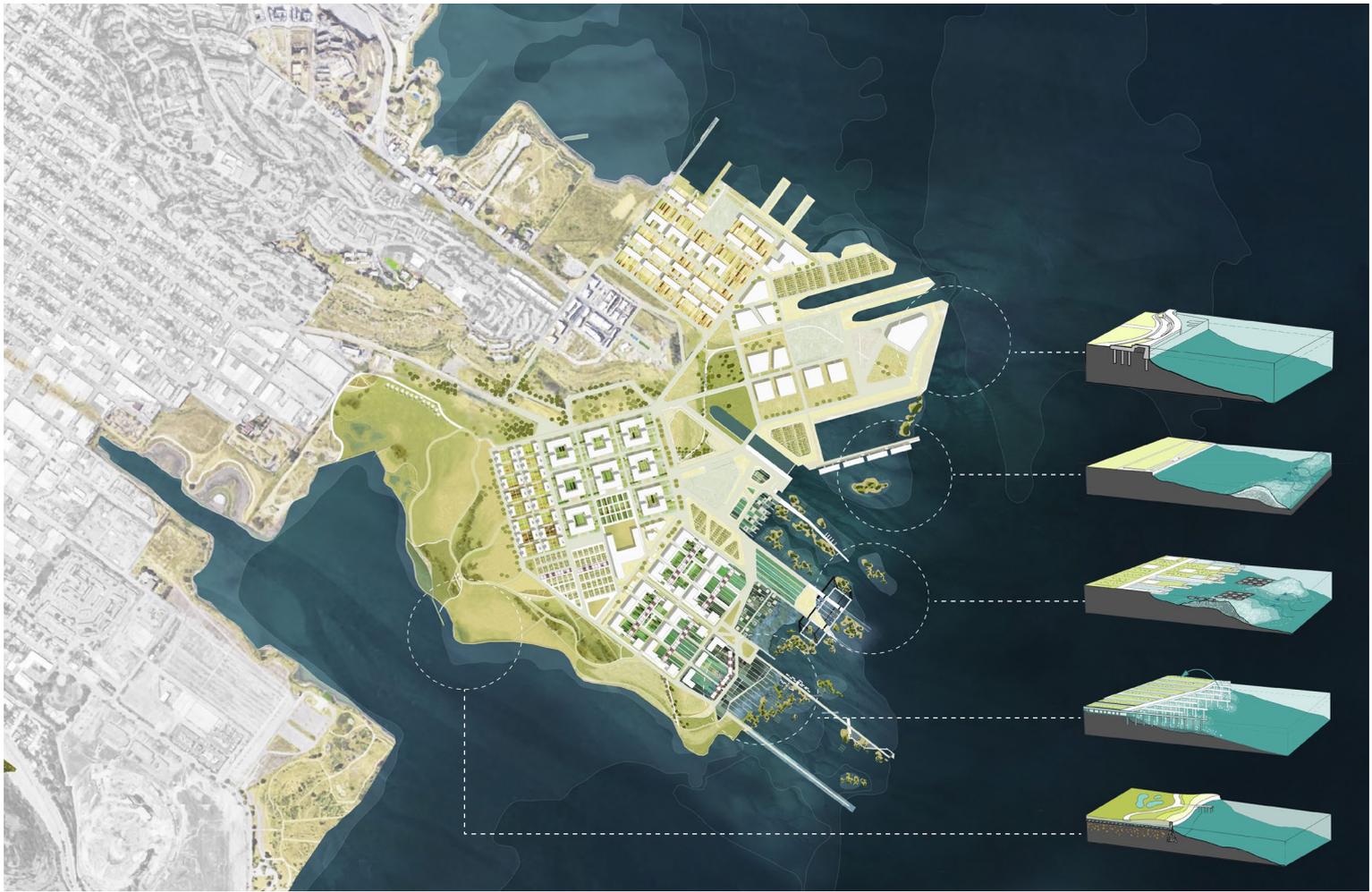
The construction of the dock keeping gaining sediments, so this part of the bay is much shallower than the other part. And the tide direction is also showed in this map.



The conclusion map shows the problems and potentials of Hunter's Point. The construction of the dock keeping gaining sediments, so this part of the bay is much shallower than the other part.



Hunter's Point as a testing-ground for a new hybrid landscape where habitat creation, terrestrial and aquatic agriculture, small-business incubation, residential and recreation co-exist. These rich adjacencies facilitate a new, dynamic landscape experience.



Master Plan

Applied strategies facing sea level rise and social problems:

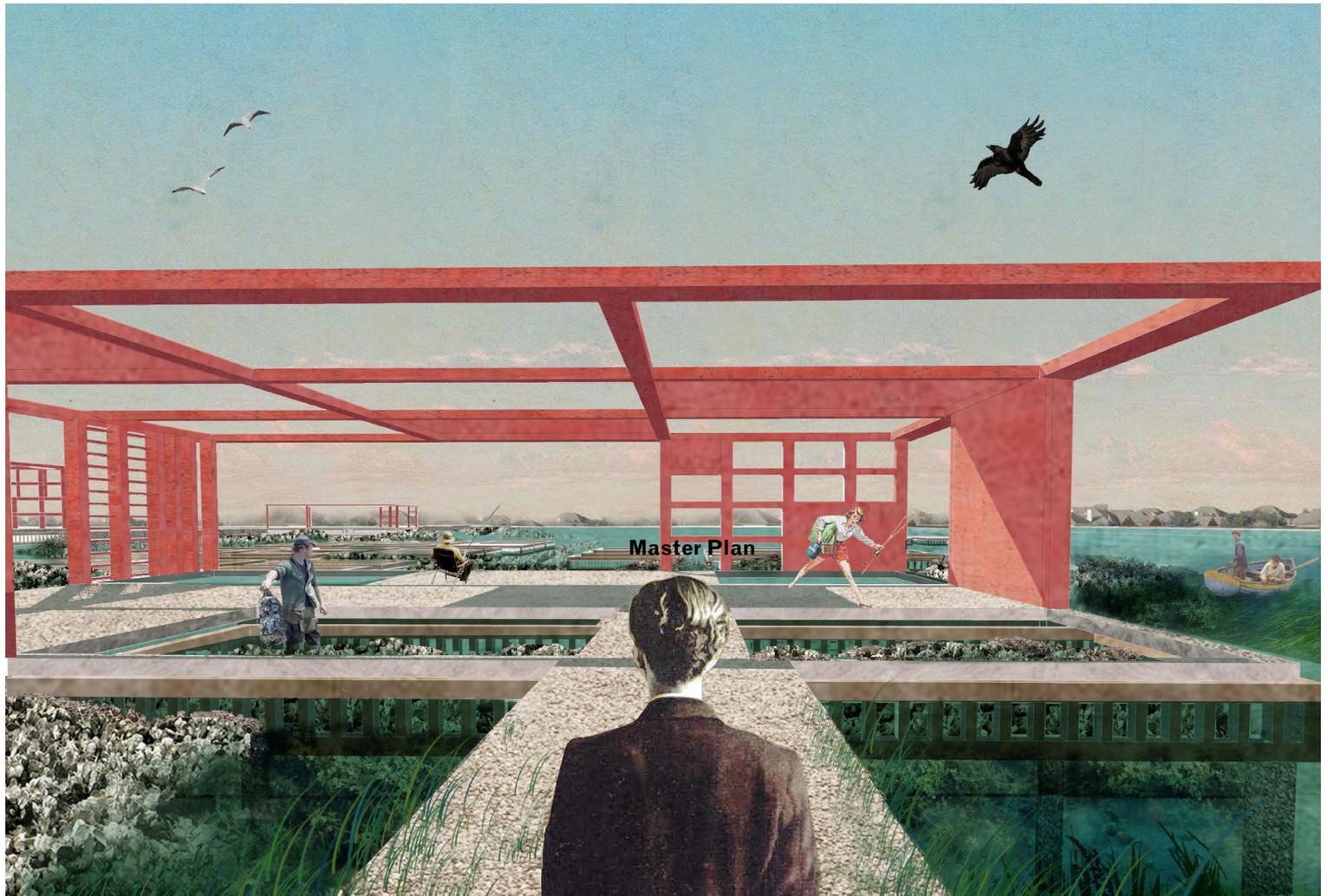
Combining strategy with urban farming and constructed piles.

In this way of working, the sediments will grow by the piles construction, and using these sediments to higher the innerside farmlandground. So it can be applied to protect the innerside of Hunter's Point.

Combining strategy with aquatic production. Using ussle piles substrate as a horizontal levee to decrease the erosion and the impact of the waves, and also a way to getting sedimentation. With the consturction of the oyster box to make the mussle piles more stable.

Combining strategy with multi-functional sea wall. To keep the essence of the memory from the navy shipyard period, and also because of some of the part of the bay is much deeper and doesn't have the potential to take use of the natural processes, so in the industrial areas, the multi-function seawall with the height 1.5 meters will be built to protect the area facing to 100 years sea level rise with the king storm.

Combining strategy with terrian as a sea wall . In the polluted part, first the sea wall will be built in case of the pollution goes into the bay, and then the vegetation will clean the soil gradually.



SHAPING THE OUTSIDE SPACE THROUGH PLAY NARRATIVE

FLORENTINA-ALEXANDRA ANTON
ROMANIA
F.ALEXANDRA.ANTON@GMAIL.COM



SHAPING THE OUTSIDE SPACE THROUGH PLAY NARRATIVE

After the Second World War, play has been used as a tool to reconstruct the image of the city of Amsterdam. Even though nowadays urban areas present similar derelict sites, the causes and needs are different. The negative effects of gentrification and suburbanization require a play related strategy with emphasis on sustainable aspects. As a result, the objective of the master thesis concerns the introduction of strategies related to play to stimulate a new dynamic in a derelict central urban area, to disclose and activate a hidden identity.

Several design strategies and theories are studied. The analysis follows a layer approach that depicts the natural, cultural and urban layer, the social structure and its relation with the public space and the notion of play. The resulted strategy regards play spaces as polycentric, flexible and dynamic. The polycentric design emphasizes the identity of the landscape as a set of places and routes. The notion of flexible relates with the social aspects of the area and focuses on age, ethnicity. The third criterion focuses on the dynamics of the landscape and the sustainability of the open public space.

Feijenoord area, located in Rotterdam South is a good example to apply the analysis together with the strategy and design proposal. The selection is based on the following factors: its central position in Rotterdam city, the strong influence of the dynamics of the landscapes in the area (the area is outside the dikes), the definition of the area as a movement space rather than a place of enjoyment, and being a predominant monocultural living area. The shape of the chosen site is the result of the overlaying of different layers in time – natural, cultural, urban. The relations between these different layers are missing and, therefore, do not contribute to a characteristic image of the area. The area is composed of fragments connected by lines. People do not appropriate the space. Therefore, the identity of the area can be described as a multitude of dispersed individual images.

The images on the right exemplifies how the identity of the area can be recreated using a play related strategy and design. The proposed public spaces are defined as polycentric - multiple public spaces along the water, liveable - the use of the place by specific actors, in this case children, and dynamic - the transformation of the public space according to the tidal range.



Perspective towards the southern water canal during low tide



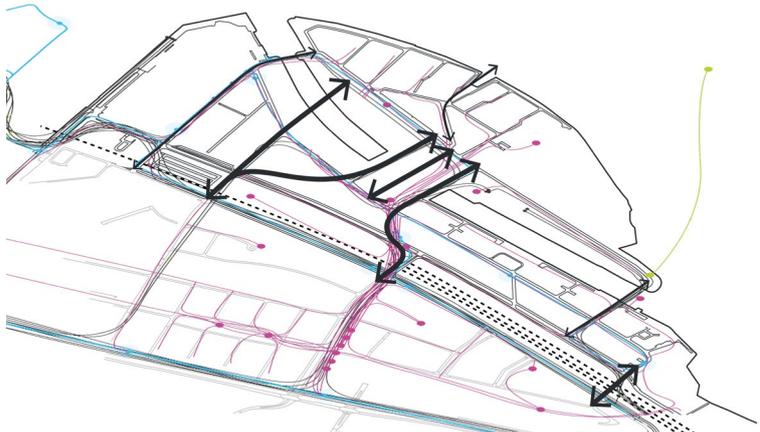
Perspective towards the southern water canal during high tide



Perspective the second public space situated along the southern water - gradual opening of the landscape

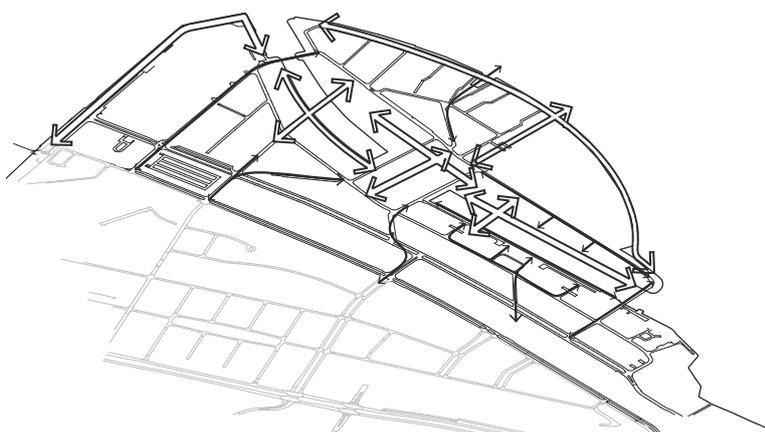
Location: Feijenoord area, Rotterdam city

Layered analysis and proposal:



Existing situation - movement

Movement: pedestrian movement along the two canals is concentrated in the central part of Feijenoord island; the two canals are perceived as a barrier;



Proposed situation - routing

Routing: transformation of the two canals and of the exterior edge of Feijenoord island from a backside to an attractive riverfront;



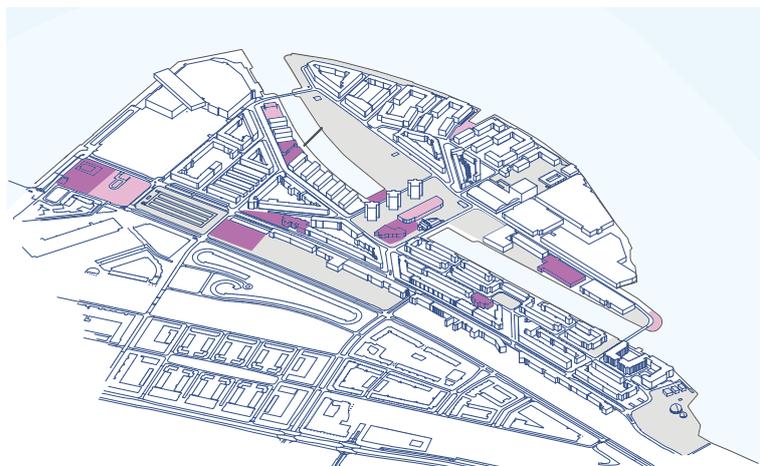
Existing situation - vegetation layer

Existing green layer: area outside the dikes - vulnerable to water dynamics; contrasting characteristics between north, south, and the connecting 'island';



Proposed situation - vegetation layer

Proposal green layer: public spaces along the two canals and along the exterior edge of the island; diversity of green public spaces that contribute to the recreational and ecological aspect of the area;



Existing situation - public spaces

Existing public spaces: public spaces are directly related with the public functions and with the movement flows; predominantly designed for children under 10 years old; the public spaces designed for locals are few and developed using a bottom up approach;



Proposed situation - vegetation layer

Proposed public spaces: the proposal consists in developing specific routes and public spaces for different type of actors; the public spaces are located at the intersection of different type of movements; the public spaces relate the existing activities and functions with the natural dynamics of the area;



Strategy proposal Feijenoord area

In the proposal, the design framework aims to develop a play related strategy through which the local character is revealed and integrated into the city scale identity. Public spaces are created / recreated by emphasizing and introducing play elements. The play elements are defined by the existing and the proposed functions and activities, respond to the current movement patterns, and use and reinterpret the shape of the island determined by the natural and industrial layer. Therefore, the play oriented design framework leads to a design that focuses on the local social issues, and relates it with the accessibility and with the natural characteristics of the site.

The proposal addresses the role of water – the two harbours Nassauhaven and Persoonshaven, and the river Maas, in the nowadays social context. The two harbours form the backbone structure of the Feijenoord area. By relating the element of water with the element of play, the proposal aims to transform the existing public space from an anonymous one into a public space that reveals the main characteristics of the site resulted from the design framework principles - social (related to flexibility), natural (related to dynamics), and movement patterns (related to polycentric).

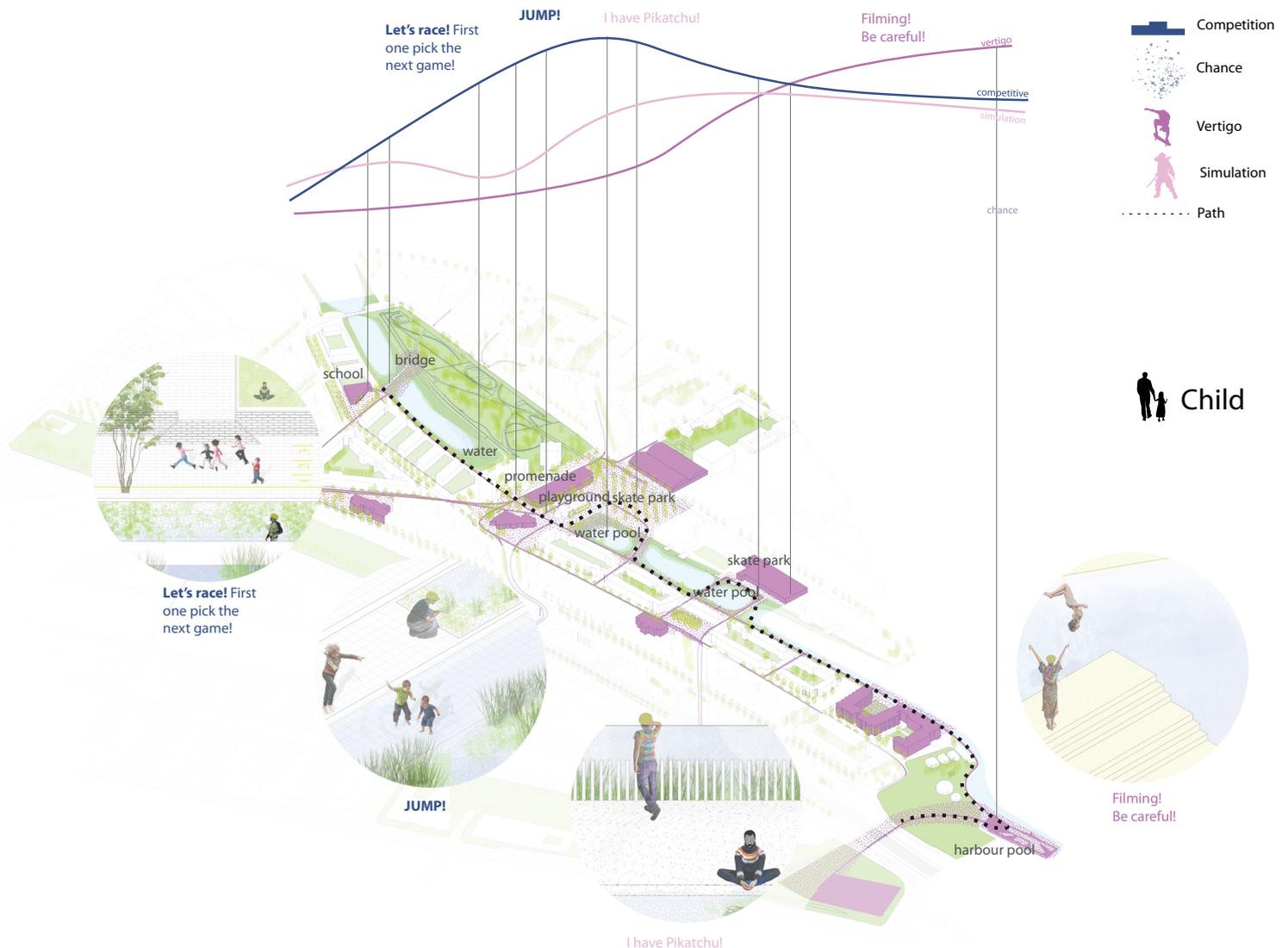
In the drawing bellow, there is represented how the spaces are perceived along a route by the child (one of the five actors) in relation with play. Four types of play are defined: competition, chance, vertigo, and simulation.

Competition: running, seeing and being seen;

Simulation: meditating, contemplating, imagining;

Chance: chance of being surprised, of unexpected change;

Vertigo: dangerous, life-threatening games;



Identification in space of actors and play related principles



**PROPOSED ROUTE
ALONG THE TWO CANALS**

- Visual connection between Nassauhaven (northern canal) and Persoonsdam island;
- Gradual transition between water canal, park and central public space;



- Community places (e.g. urban agriculture) for residents;
- Transition between built elements and public space;
- Place that reveals itself in steps;
- Develops opportunities for play activities - sitting, having lunch, climbing, hiding, sunbathing;



- Proposed promenade route;



- Foyer - the focus of the existing playground is shifted towards the public place along the water;
- The sloped roof building attached to the electricity building points towards the water;

**PROPOSED ROUTE FROM THE
CENTRAL PUBLIC SPACES
TOWARDS THE EXTERIOR
EDGE OF THE ISLAND**



**Proposed public square during
different times of week: playgrounds**



**Proposed public square during
different times of week: market
square**



**Public space acting as transition
space between central public space
and the exterior edge of Feijenoord
island**



**Opening up the view towards the
other side of river Maas: old and new
landmarks**

LANDSCAPE INTERFACE DEVELOPMENT

ADAPTIVE DEVELOPMENT FOR TORONTO LOWER DON RIVER

JIE YANG
CHINA

JESSIE.YANGJIE@OUTLOOK.COM



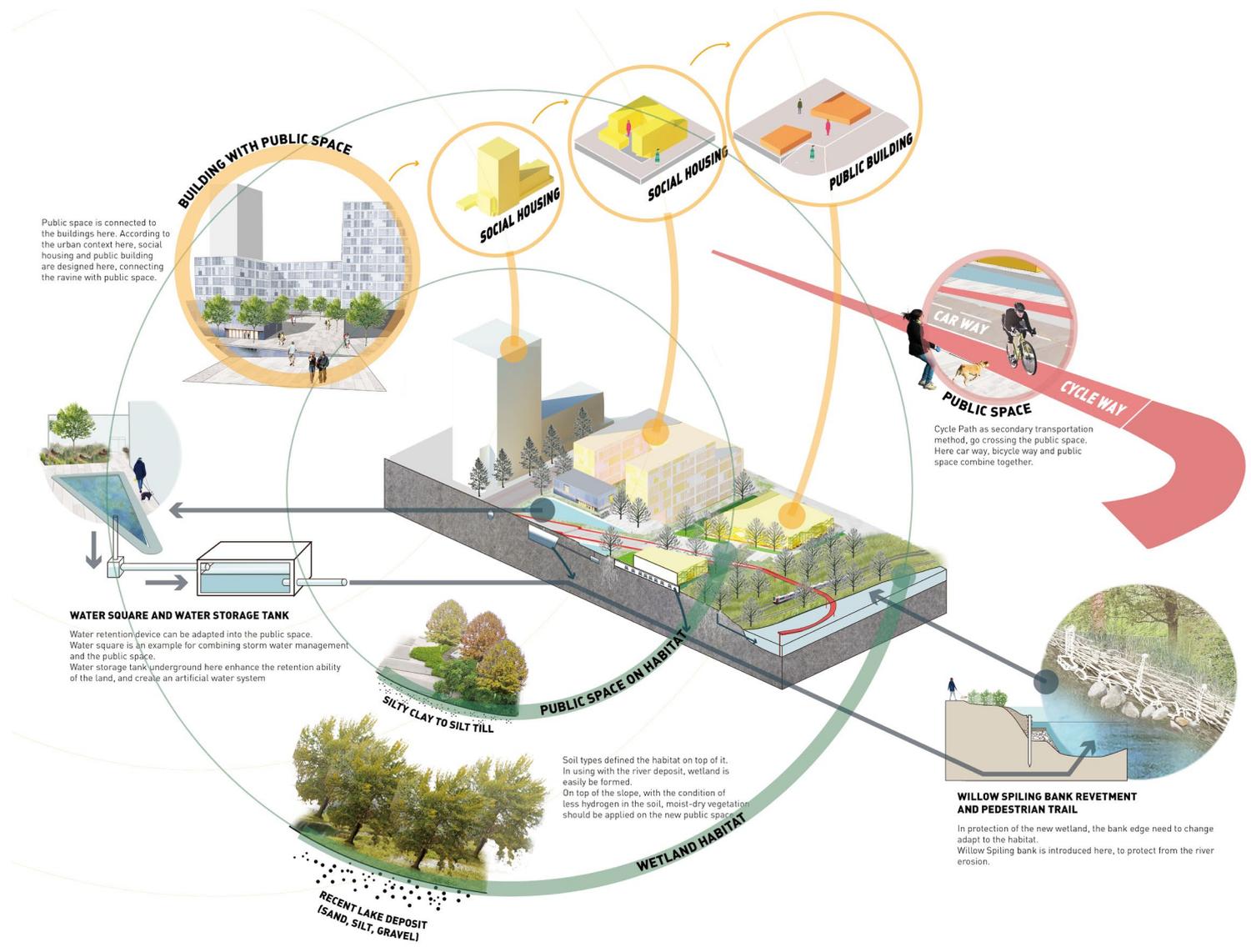
LANDSCAPE INTERFACE DEVELOPMENT

Being inspired by the emphasis on the interaction of humans and their environment, and to actually integrate flows and scapes by landscape infrastructures in my graduation lab Flowscape, my fascination is to study how to balance the human culture and the natural environment in urban area, how to integrate flows of natural and human system with scapes of urban territory.

The complementary territory where human system and natural system interact and be porous into each other is the essential space to study the interaction, and by naming it "interface" the main objective is using the concept of "adaptive interface" as an instrument to facilitate the interactions between urban and nature. Don Valley In city Toronto has the quality of the "interface" where natural ravine system is sitting within Downtown Toronto. The analysis and design extended the Dutch Layer Approach into five specifically layers - natural landscape, water network, transportation network, building typology, and public space. Each layer indicates different interactions, by decomposing and recombine them, interface is developed in an adaptive way.

The first part of my graduation project is acquiring knowledge through analyzing the interface of Lower Don River with these five layers. The situation was analyzed by mapping tools and sections. After that, I started to compare my project with some precedents in urban planning, architecture design, and landscape architecture subjects, transforming their relative spatial compositions into the Lower Don River interface to find the design principle of it. The later part is applying these acquired design principles through landscape architectural design, specifying the principles through one area in the experimental site, in order to adjust the research principles and derive the design principles from that. In the end, the five-dimension-principles were justified within the certain context and new principles were generated through the designing. In the final results of the design I create some possible combination of different layers. Buildings can attach to the public space. Wetlands meet the needs of both water management and ecological needs. And neighborhood house can always attach to the green land from good accessibility. Etc, etc.

Through the experiment of my project, the idea of interface is a strong aspect of thinking the interaction between urban and nature, and the layer approach in a powerful tool to research and design with interface.



Public space is connected to the buildings here. According to the urban context here, social housing and public building are designed here, connecting the ravine with public space.

BUILDING WITH PUBLIC SPACE

SOCIAL HOUSING

SOCIAL HOUSING

PUBLIC BUILDING

CAR WAY

PUBLIC SPACE

CYCLE WAY

Cycle Path as secondary transportation method, go crossing the public space. Here car way, bicycle way and public space combine together.

WATER SQUARE AND WATER STORAGE TANK

Water retention device can be adapted into the public space. Water square is an example for combining storm water management and the public space. Water storage tank underground here enhance the retention ability of the land, and create an artificial water system

SILTY CLAY TO SILT TILL

Soil types defined the habitat on top of it. In using with the river deposit, wetland is easily be formed. On top of the slope, with the condition of less hydrogen in the soil, moist-dry vegetation should be applied on the new public space

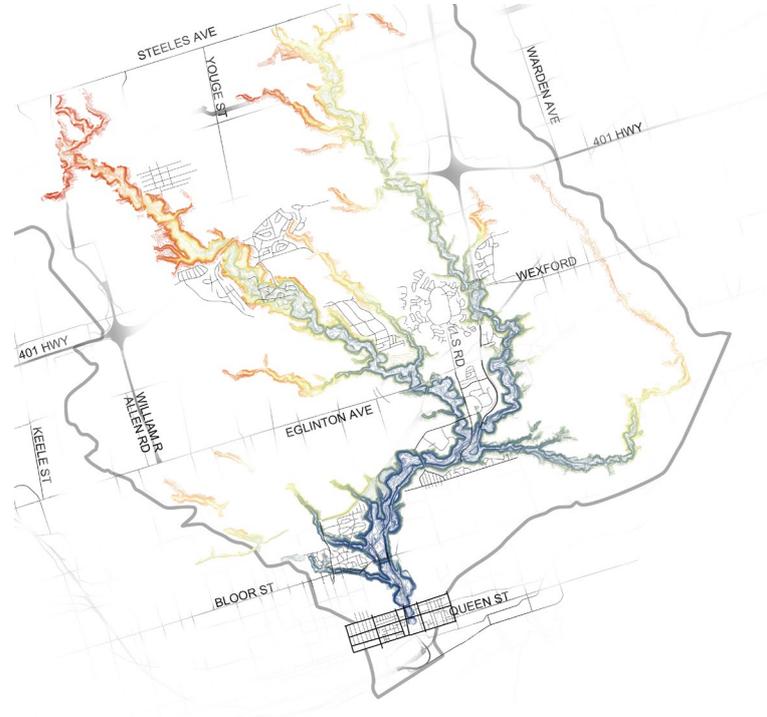
WETLAND HABITAT

RECENT LAKE DEPOSIT (SAND, SILT, GRAVEL)

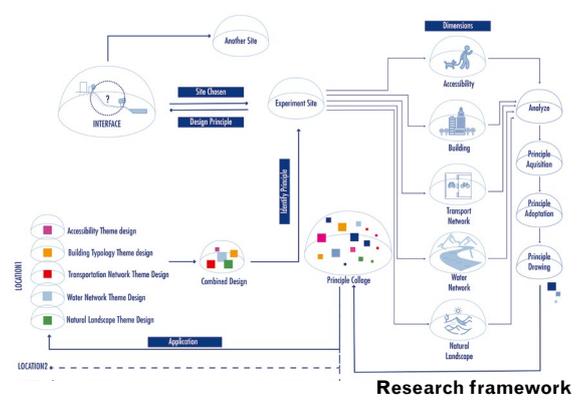
WILLOW SPILING BANK REVETMENT AND PEDESTRIAN TRAIL

In protection of the new wetland, the bank edge need to change adapt to the habitat. Willow Spiling bank is introduced here, to protect from the river erosion.

Appliance with five layers on interface.



TORONTO HARBOUR
Abstract urban tissue and nature map, understanding the interface in watershed scale.

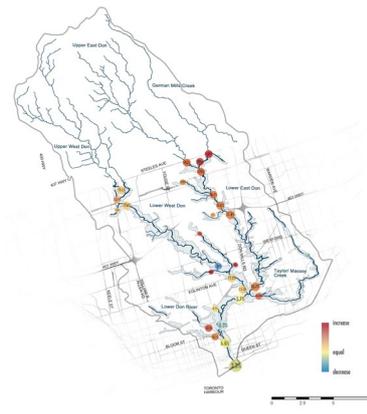


Research framework

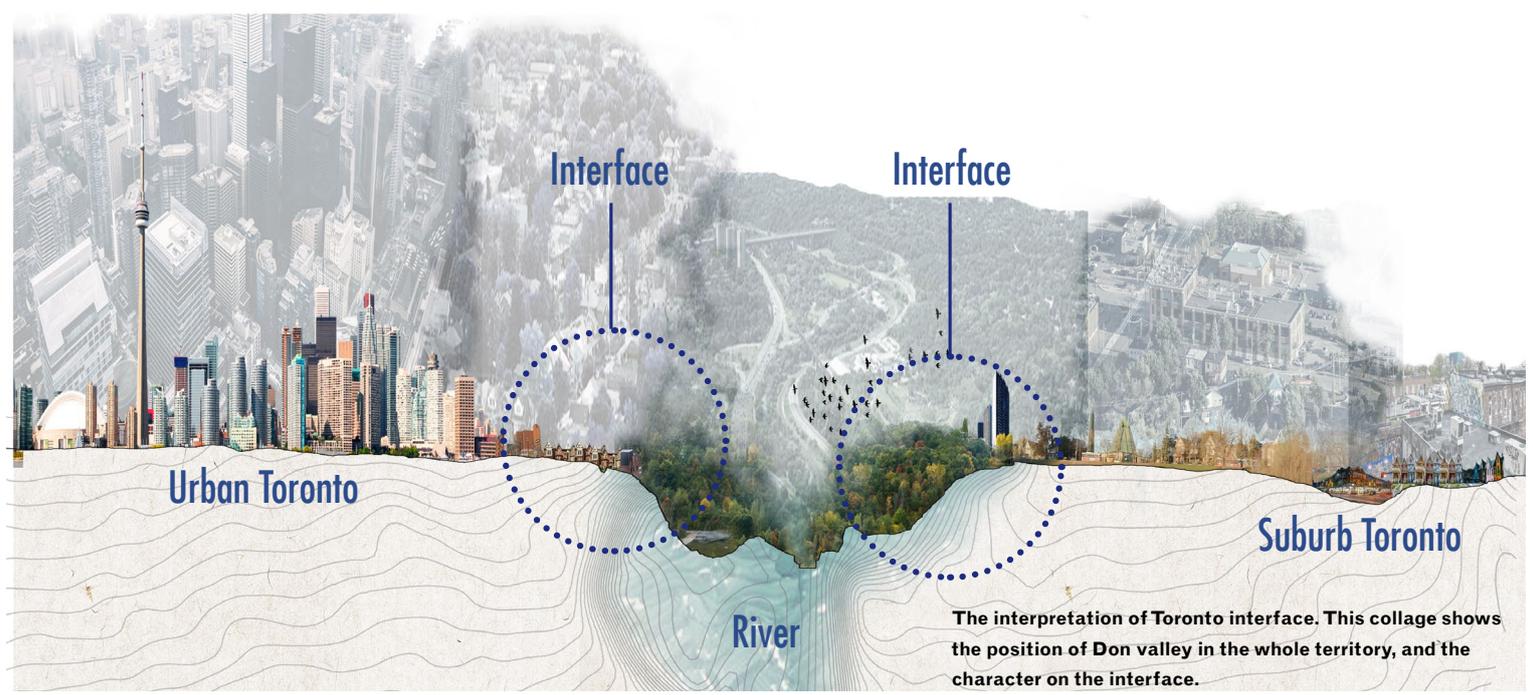
Research Method

To understand Toronto interface, several maps were made to understand the characteristic of the interface, and finally I chose the Lower Don River as an experimental site to work on.

According to those quality of 'landscape interface', five layers were used here to research: Public space, building typology, transportation network, water network, natural landscape. And in order to understand and analyze the different layers of the complex systems, the spatial relationships which are related to those roles should be explored via re-research and mapping.

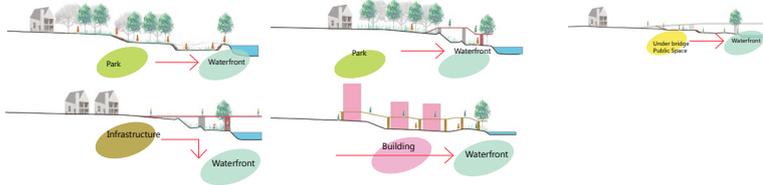
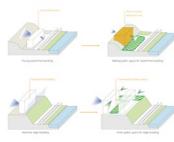
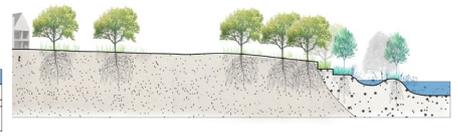
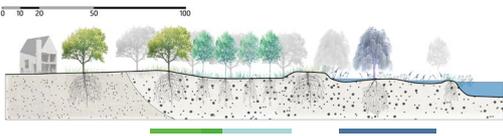


Analysis map of different layers



The interpretation of Toronto interface. This collage shows the position of Don valley in the whole territory, and the character on the interface.

0 10 20 50 100

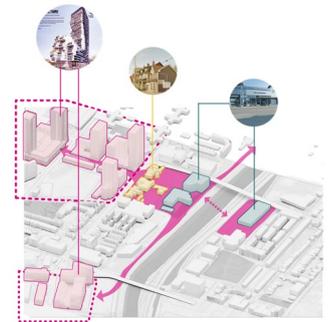
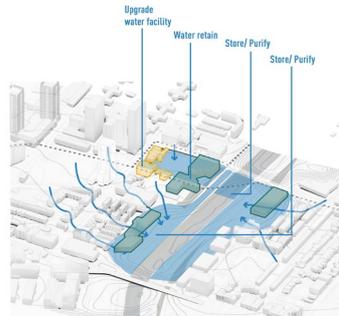
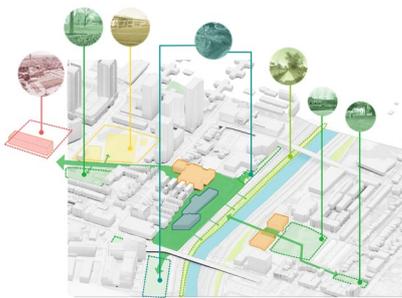


Principles for different layers

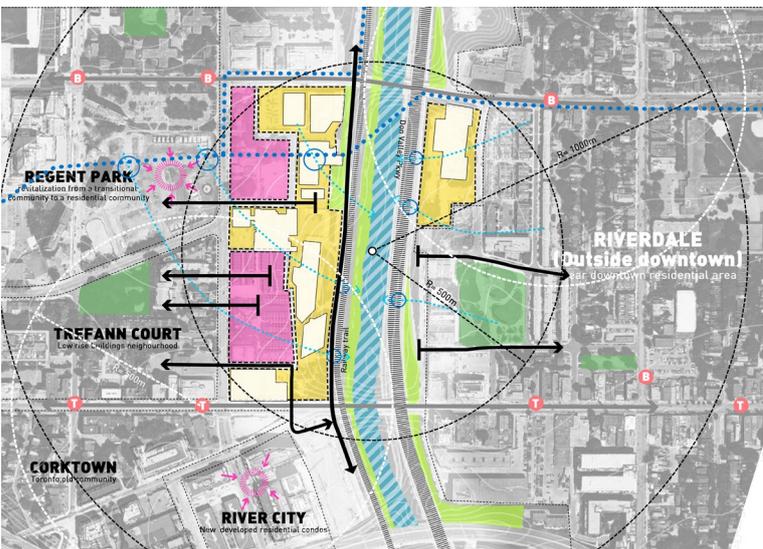
Principles from five layers

After analysing of the Don River, I started to compare my project with some precedents in urban planning, architecture design, and landscape architecture subjects, transforming their relative spatial compositions into the Lower Don River interface to find the design principle of it. The principles are derived also from the lens of five layers.

Principles for natural landscape is aiming at solving the ecological problems. Water principles are for water management. Transportation Principles provide the possibilities for lighter traffic on site. Buildings principles aim at better spatial relationship with the nature. And the principles for public space suggest different types of public space for connecting nature and urban.

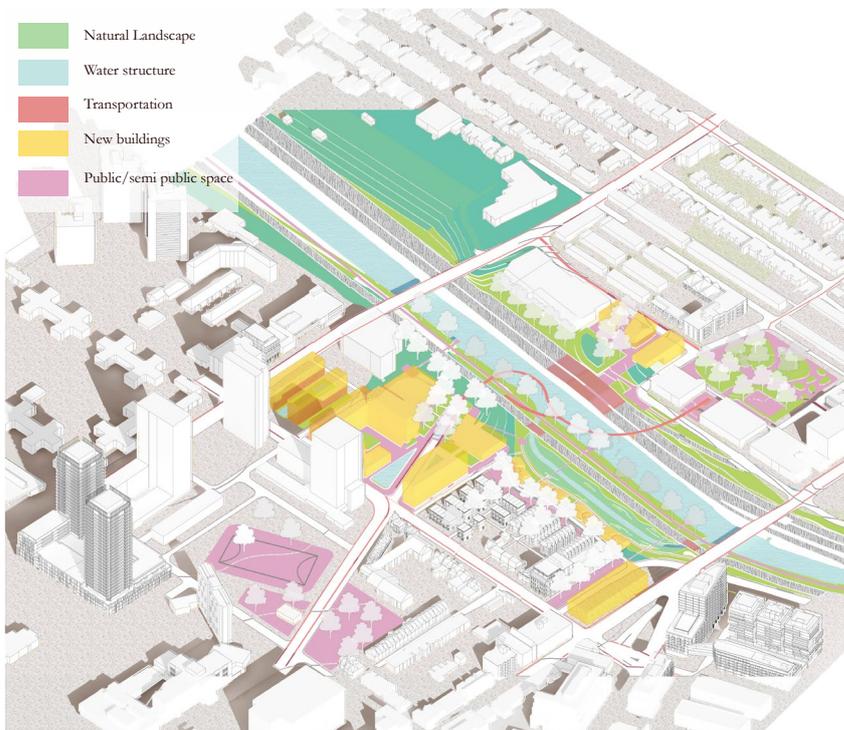


Potential map of the site



Site Story and the potential map

According to the analysis of the 5 dimensions above, and the specifically problems on site, here is the conclusion I draw for this site. Here natural don ravine was taken up by urban blocks, the natural habitat was almost gone but only a little shrubs and trees were growing on few spots. There are few outputs in this area, city's main water trunk is running under the site. But the area still uses combined sewer systems which causes overflows and polluted water in rainy season. Train trail and high way are cutting through the interface, auto dealerships are taking over the space on the bottom of the interface. While the surrounding neighborhood (Regent Park and River City) is going through community regeneration, the interface was left over with old community and post industrial functions.



Design on five layers

In order to design on the site with the consideration of five layers, it is an original way to do it separately with five theme design. So according to the principles I developed before, I started to do theme design with the maximum benefit of each layers.

After the five layers' design, SWOT analysis was used to evaluate different design. And in the end , the combined design was built by the combination of strengthes and opportunities of different theme designs.



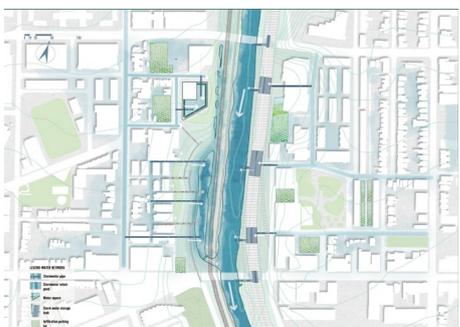
Natural landscape theme design



Natural landscape theme design



Natural landscape theme design



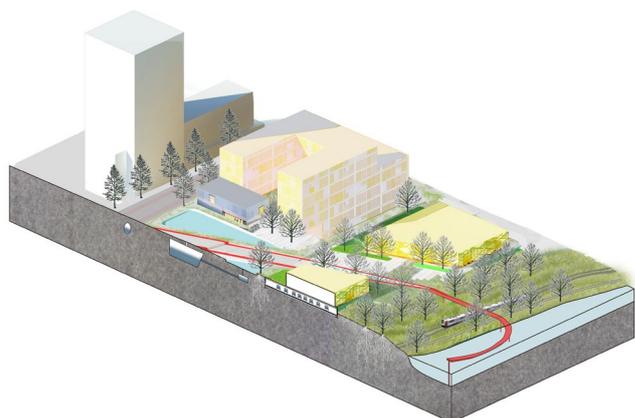
Natural landscape theme design



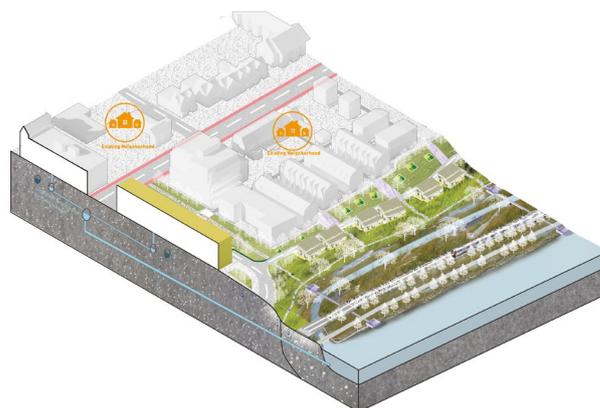
Natural landscape theme design



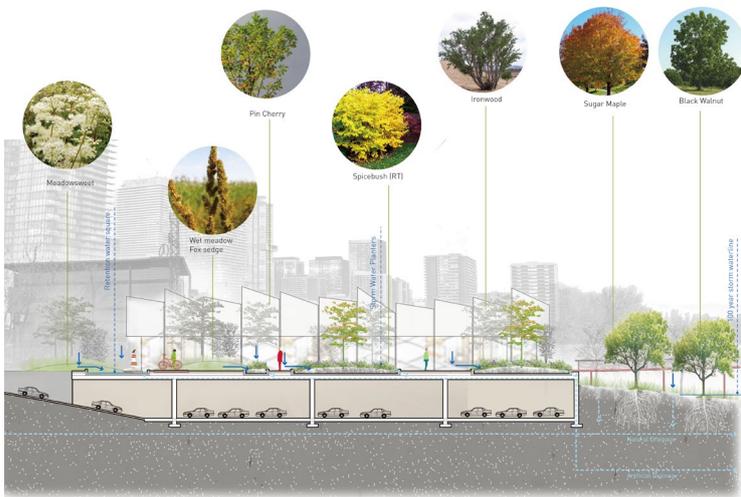
Natural landscape theme design



3D image of site A



3D image of site B



Detail Design 1

Detail Design 2



Design on details

These above images show the detail design and visualization of the site. The details are also related to the layers, the drawings always include the aspects of subsoil, water, vegetation, transportation, and the material reflect on the function.

In the section drawing it's clear that this design is a systematic design which reflects the whole system of water and subsoil. Natural and urban aspects are showed on those drawings.

Spatial accent

The visualization drawings show the atmosphere on the site. Spatial accent is also taken into consideration of the design. For example, the view of Toronto Tower shows the strong connection between city and nature.

The second drawing show the connection of two sides of the river. Natural values are emphasised on the river edge, the once natural river edge were turned back to the lively, ecological, natural zone.



