

open oproep 1119
master plan for the regeneration of the **scheldt Kaaien**
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00 scheldekaaien TEAM 03

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towards a Master Plan: an introduction

The biggest public space in Antwerp, charged with a memory of its past, source of the richness and worldwide importance of the city, the Kaaien as the same Scheldt were for a long time forgotten by Antwerp and, losing their role and centrality, were transformed in one of the biggest parking spaces in Europe.

Built and modified in different periods and phases, on natural and artificial grounds of different nature, as an answer to different needs and technological developments, the Kaaien are today at the same time an urban space with a unique identity and a sequence of spaces with different characters, roles and functions.

1_ describing possibilities: the Kaaien as One

The first part of the following pages explores problems and possibilities coming out of a conceptualization of the Kaaien as one, i.e. as a space with a strong and unique identity, a space measuring the whole city of Antwerp and giving the same city the opportunity to modify its skyline, while reinforcing the attractiveness of the existing city.

Many European and non European experiences faced similar themes during the last decades when many harbours were displaced from their previous and historical location. These experiences suggest possibilities for Antwerp, but also paths not to be followed.

A set of concepts, in the form of spatial devices, enlighten the vision here proposed.

2_ describing possibilities: the Kaaien as Many

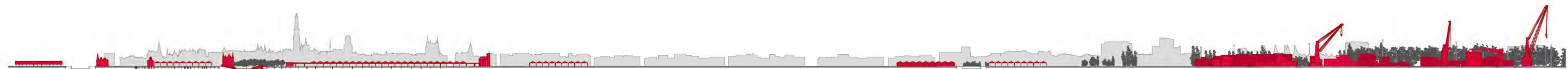
The second part explores the theme of the spreading of this space in a great, well identified urban collection, a sequence of spaces with role, function and image, strongly connected with roles, functions and images of the different parts of the city beside and on the other side of the Scheldt.

What is striking here are the multiple situations one can encounter walking along the Kaaien, a kind of section of all Antwerp, of its urban and natural characters and aesthetics. Domestic spaces, event places, monumental areas, post-industrial sites tells the story of contemporary Antwerp as we would like to tell it, with a narrative and descriptive approach that absorbs and represents the different tonality of the city sounds.

3_ building a Master Plan into the uncertainties

The Antwerp Kaaien are an enormous space. It is not reasonable to think that the Master Plan will be realized in one step and in a very short period. It is not reasonable because the Kaaien are still in use, because the resources needed to modify their present status are important and overcoming the possibilities of the city and of their owners in a short period, because the city lacks of some important studies about mobility, technology and feasibility that can evaluate in a deeper way any proposal here advanced.

What means that the Master Plan is built in a climate of structural uncertainty, a situation common to many big projects which means that the Master Plan must be open and flexible as stated in the third part of this album; open to a change in some main policies, for instance the parking and mobility policy, flexible to a change in the relevant quantities involved, for instance of visitors of the Kaaien and of the city. An approach by scenarios can be useful to measure the difficulties and to guide the process.





The Kaaien as the outcome of a rationalization process

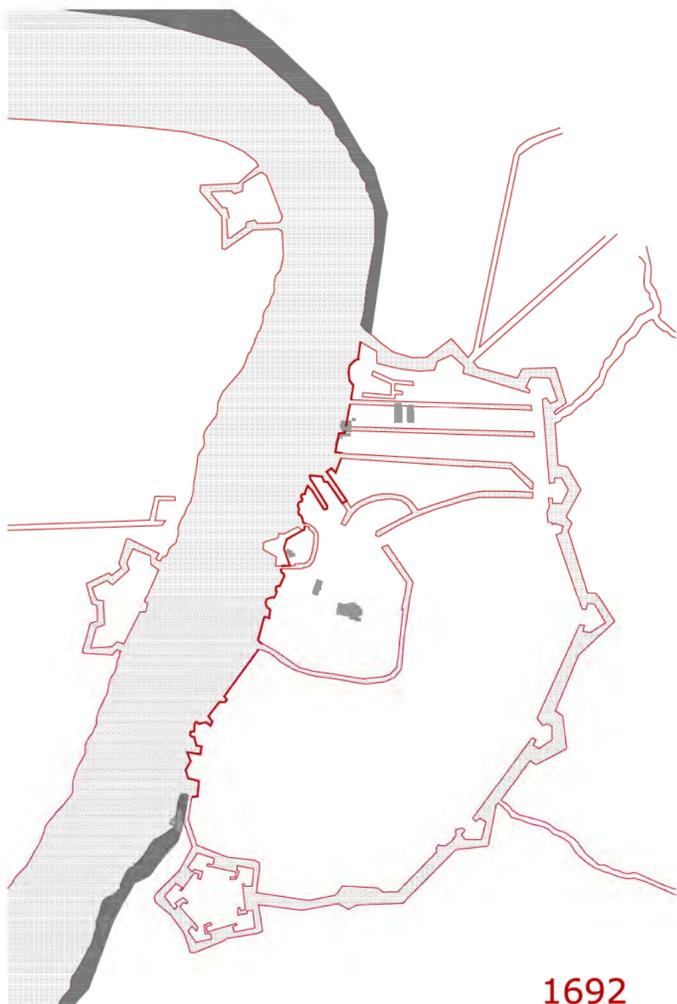
Since the last decades of the XIXth century the Kaaien have the actual form and aspect: a unique, big and regular waterfront of the city. The Kaaien are one. But they were not built in one step. Following the growth of the urban commerce and the development of many maritime techniques, following the growth of the city, they were continuously modified, expanded, reinforced, improved in a long process of rationalization.

A lagged coastline, as shown, for instance, in the Mortier map (1692) till the Van der Maelen map (1854), was rectified reducing the northern part of the Kaaien, while the southern part was expanded until the actual hard line; many basins and canals were covered and closed changing in a radical way the relations between the city and the water. Some remains of the city before these interventions could still exist as an archaeological find in the northern part. The actual coastline was established around 1885: it is not so ancient.

In their expansion the Kaaien invaded grounds of different geological nature and had to face and solve, as a consequence, different technical problems. This strong rationalization process has today to prove to be again important for the city life. Its result was a big open and flexible space, where the dimensions of the Kaaien, their length, more than 6 km. and width, about 100 m., are already a feature of possible uses and are rich of possibilities for the future.



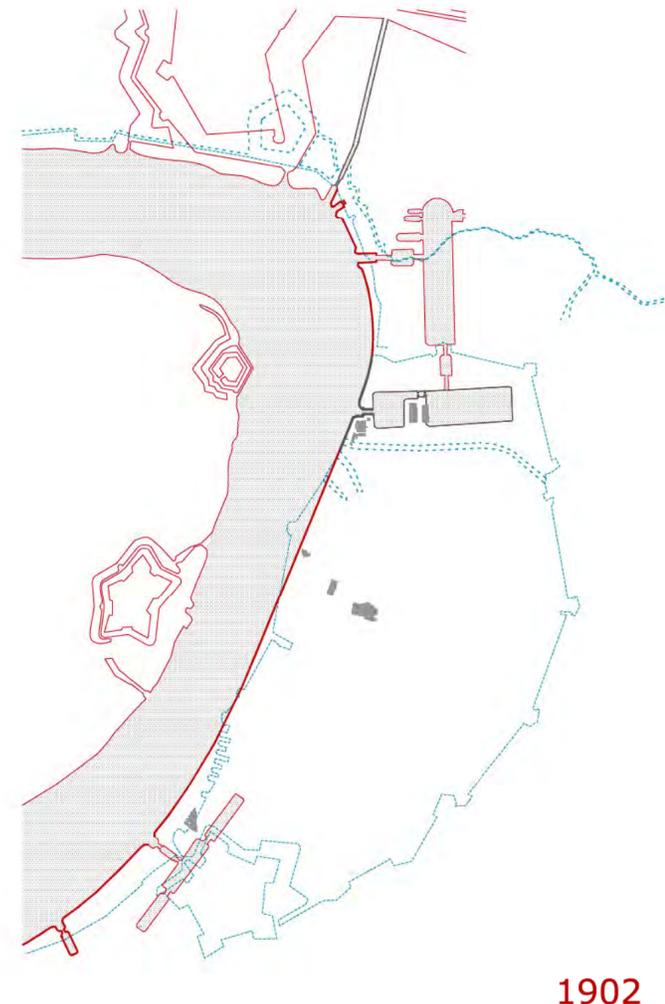
- transformations
- permanences
- - - disappeared
- water



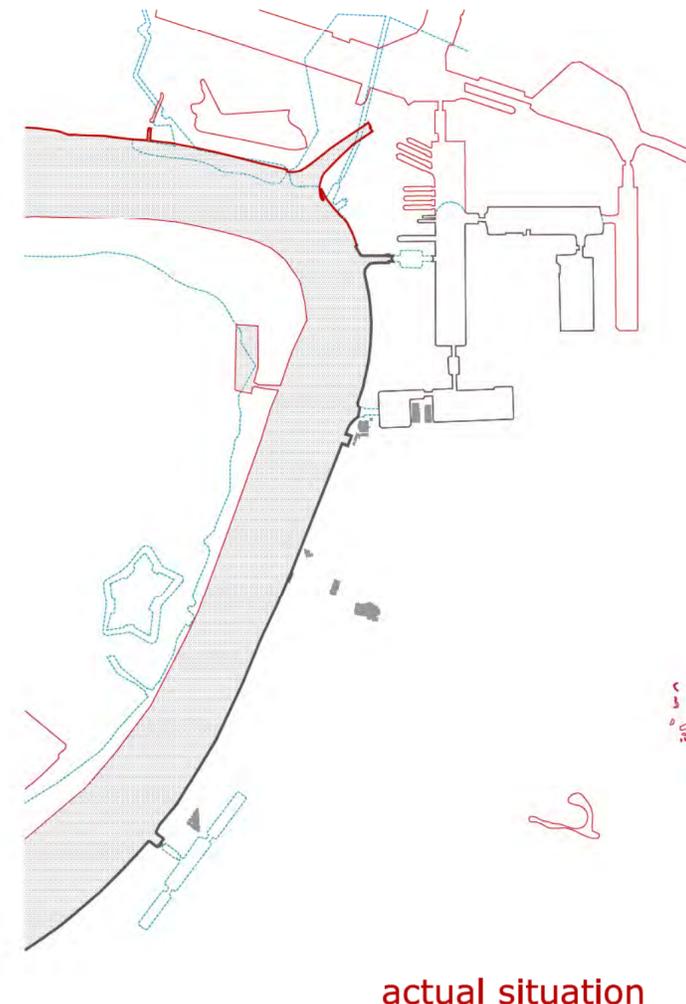
1692



1854



1902



actual situation



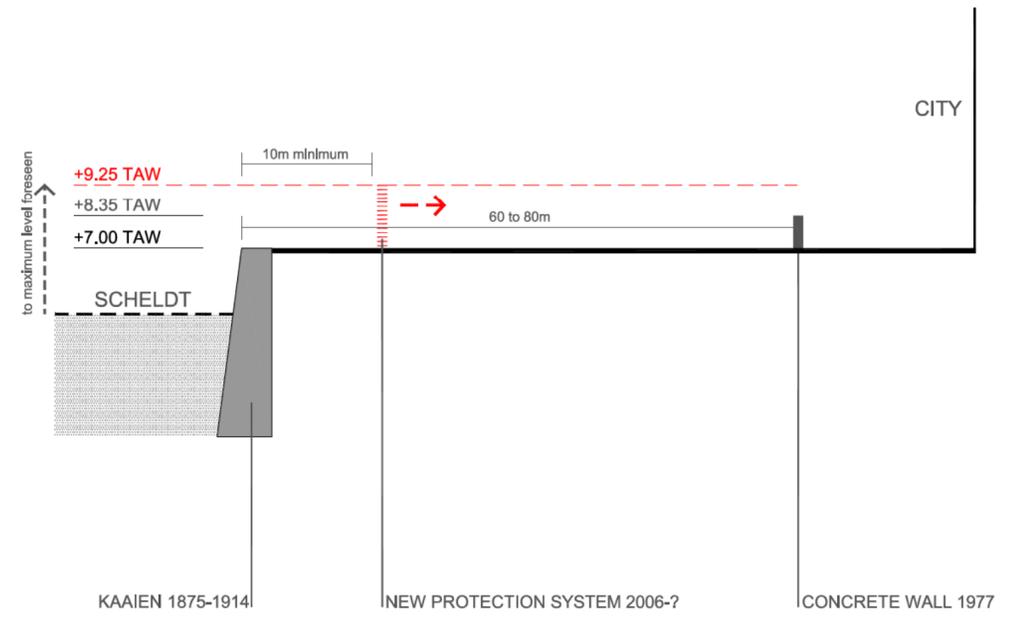
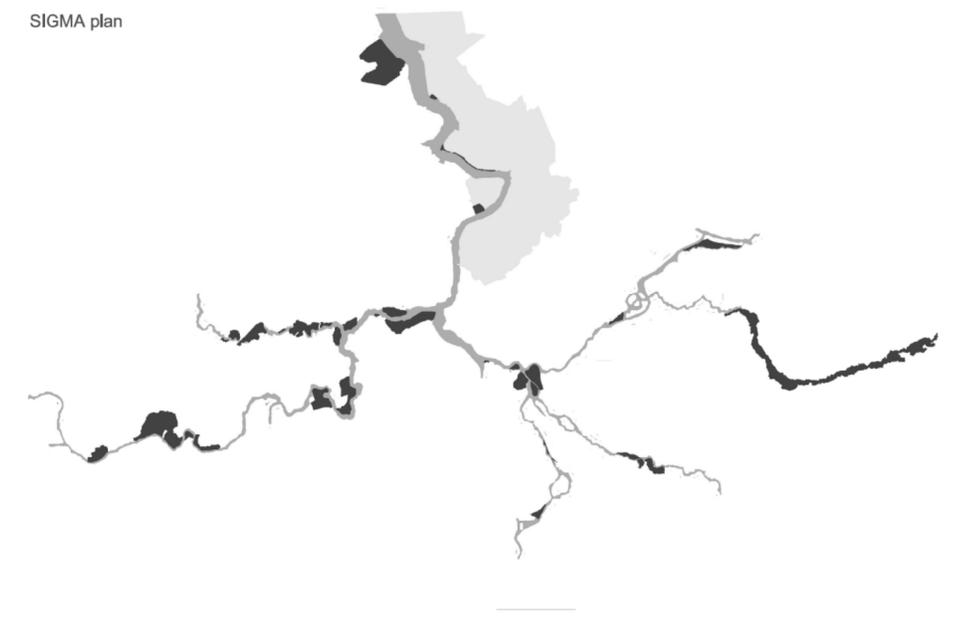
-  water
-  flooded areas
-  strategic areas for guided flooding (from SIGMA plan)
-  areas already protected from flooding
-  areas to protect from flooding

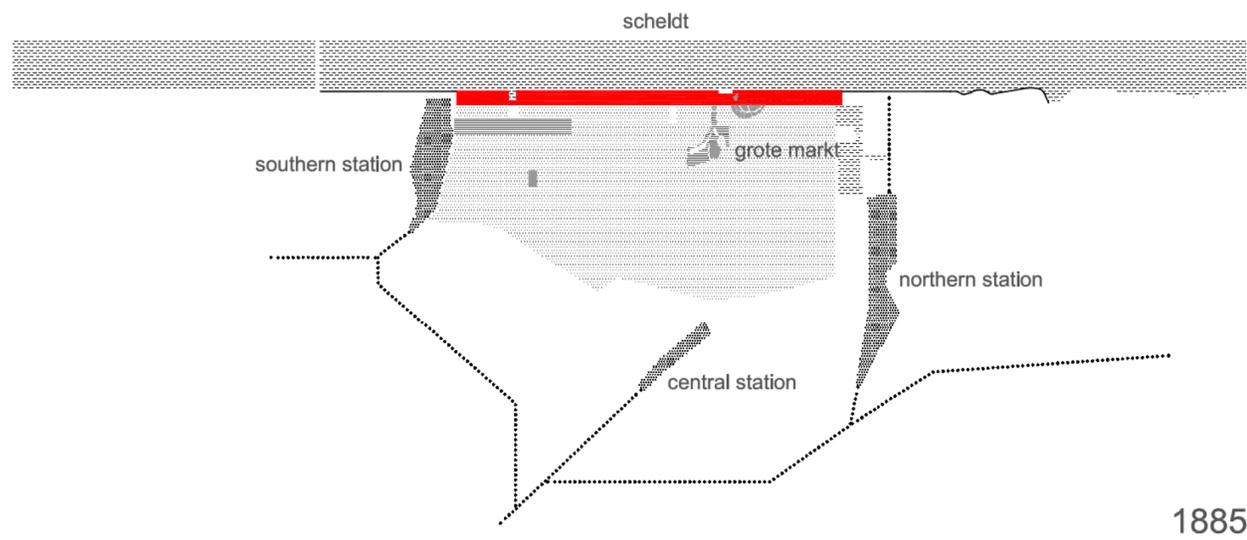
some critical aspects: nature

A new rationalization is needed today: for many reasons the space of the Kaaien is today a critical space. To get out of this crisis catching all the opportunities, in a period dominated by uncertainty, when different experiences have shown that many options are open, needs a deep reflection.

Firstly some "natural" constraints: at about 7.25 m. on the sea level, the Kaaien, as well as all the lower watercourse of the Scheldt, are too low. The flowing of the river becomes often a real risk especially with a high tide. Following the suggestions and prescriptions of the Sigma Plan to avoid the risk on a centennial time of return and to protect the city from the invasion of the water it is necessary to raise the protection till 9.25 m. on the sea level.

Obviously there are many possibilities to do that and, as many recent European and non European experiences show, they can be conceived as opportunities building different non contradictories hypothesis for the regeneration of the Scheldt Kaaien.





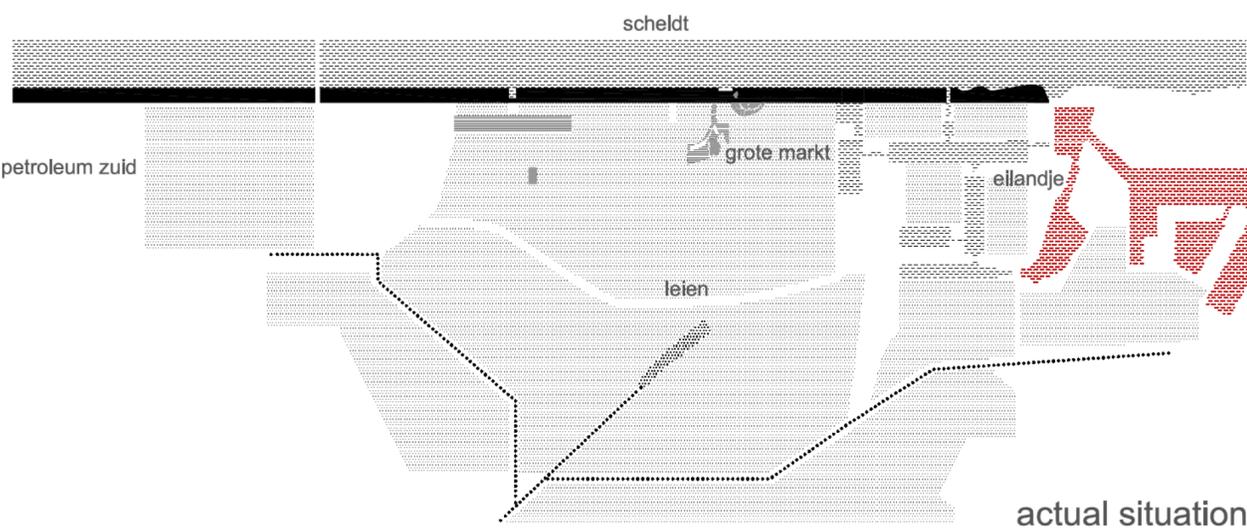
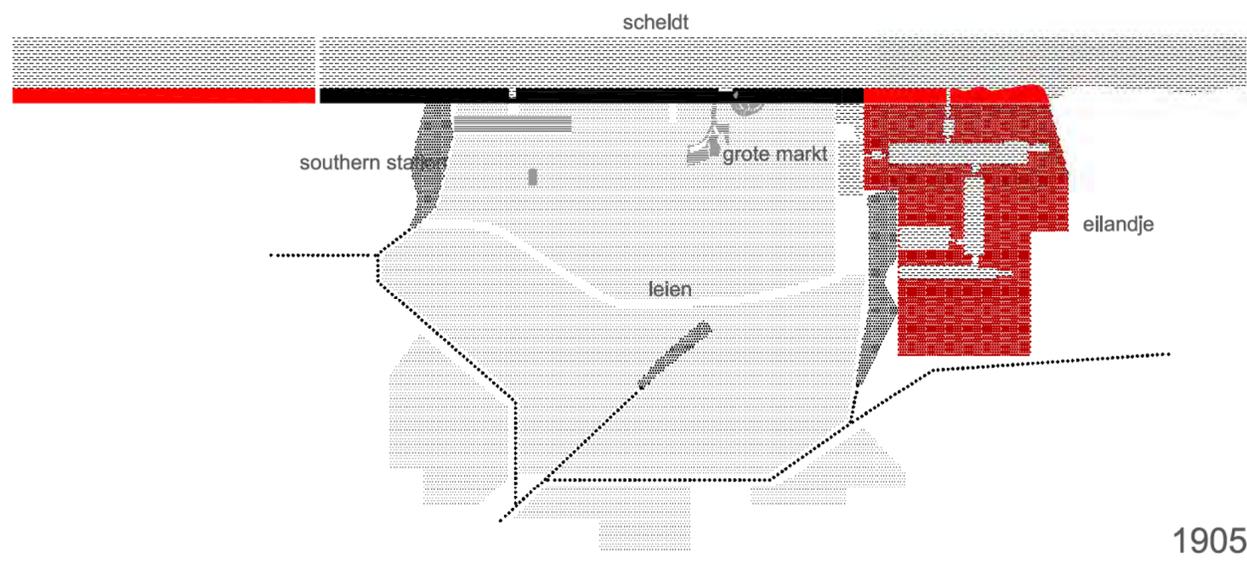
Some critical aspects: the displacement of the harbour

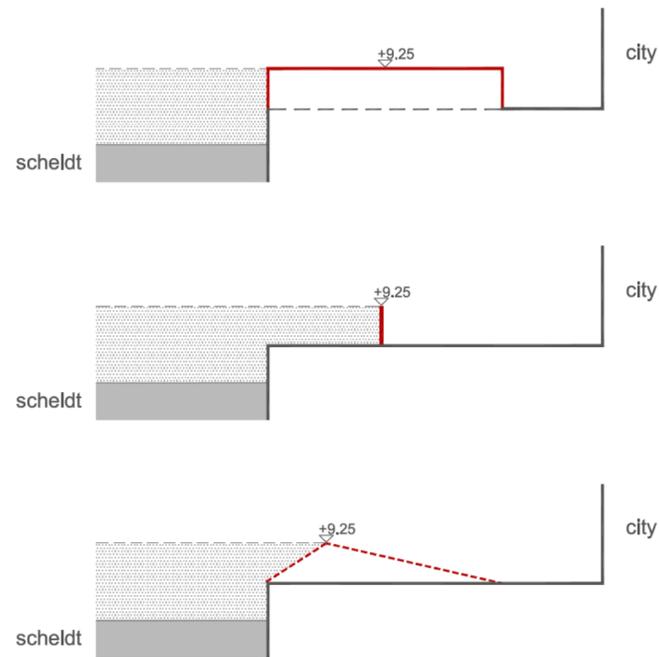
The Kaaien are a critical space also for another, may be more important, reason. Since many decades the harbour has started to move away from the city, to the north and to the south, to Eilandje and Petroleum Zuid before, and to a more distant northern location after. The original spatial structure of the city changed several times in a radical way and with it the centrality and the role of the Kaaien. The two rail-stations related to the harbour at the southern and northern end of the Kaaien were dismissed leaving the space of the Kaaien empty and without a clear function and role in the city.

In a period of a fast growth of the motorization level the demand for parking areas was stronger than any other in the competition for the space: the Kaaien were transformed in a big parking now difficult to remove.

The consequence has been a radical modification of the spatial structure of the traffic flows inside the city and outside it with a fast increase of the traffic along the Kaaien transforming them in one of the best way to cross the city from north to the south and vice versa.

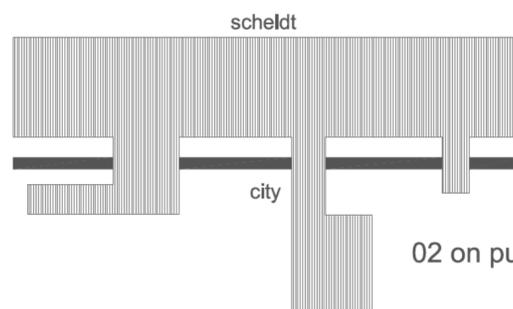
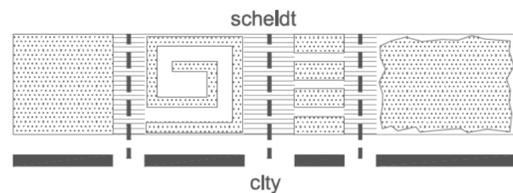
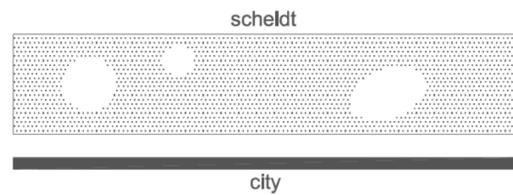
The traffic is now a true barrier between the city and its river. A regeneration policy for the Kaaien means to go back and to reconstruct the contact between the "internal" city - not only the façade along the Kaaien - and one of its biggest and most important public spaces.





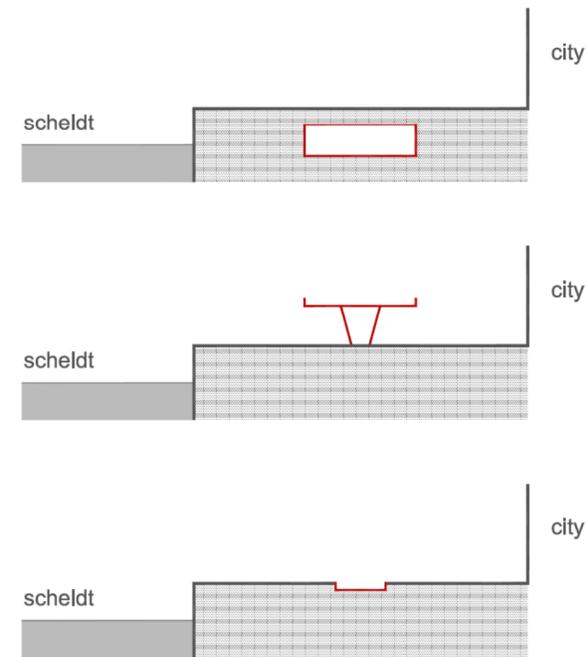
01 on flooding protection: scenarios

- a new platform
- a new wall
- a slope



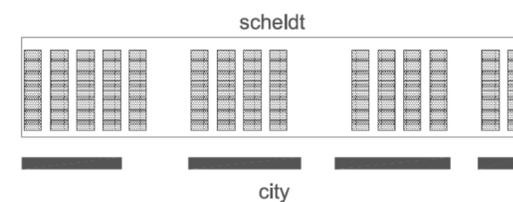
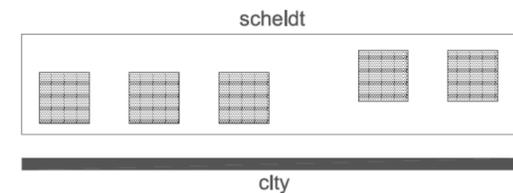
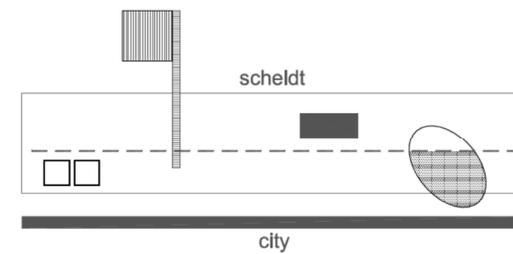
02 on public space: scenarios

- the Kaaien as park
- the Kaaien as a collection of gardens
- the Kaaien as prolongation of the city public space



03 on mobility: scenarios

- tunnel
- viaduct
- reduced road section



04 on buildability: scenarios

- objects in a park
- tissue

4 scenarios

1. on flooding protection

In order to reach the level of 9.25, avoiding the risk of flooding, some different and non contradictory strategies can be adopted, separately or at the same time. It is possible, for instance, to raise the level of all the Kaaien, to build a wall at certain distance from the banks, or to create a slope that can be invaded by the water following the different heights of the tide.

To raise the level of the Kaaien, practically covering the actual parking spaces, can permit to host the same quantity of parking spaces as today, but the new platform can become an important visual and physical barrier between the city and the river. A large wall, maybe with a promenade on the top, can be built at different distances from the river and from the city front articulating two different spaces, the protected space, between the river and the wall and the non protected spaces. A wall can be equipped, inhabited; it can host bistros, restaurants, shops...The visual impact could be temperate and some parking places on the Kaaien can be saved.

A double green slope, with a softer visual impact, can anticipate the atmosphere of the river towards the city and can contribute to the articulation of the general landscape. In its movements of levels a series of activities can be hosted, parkings included.

Finally, it is possible to adopt all these strategies in different parts of the Kaaien, to profit of the safety problem for designing a richer urban landscape.

2. on public space

It is important to think to this first series of scenarios together with other themes concerning the public space and the expansion of green public surfaces in a city that, in its central part, is lacking of them.

The Kaaien can be imagined as a big linear park, a moving surface, with slopes and walls, partially higher than the actual level to assure a correct flood protection. A continuous green public space of unusual, even monumental dimensions measuring the city.

This same public space can be conceived as a collection of mineral and green spaces, squares and gardens. The rhythm of the sequence can be coherent to the rhythm of the city beside and to explore variation. In a linear space of the dimensions of the Kaaien rhythm and condition of variations become a very important aspect and can be the basis for incremental interventions.

Finally the same public space can be conceived, as it was in the past, as a prolongation of the central public space: as a prolongation of the Grote Markt, of Spooemoord, or of the Vlaamse Kaai...reaching the Scheldt and vice versa. In this case the surface of the Kaaien is influenced and related to the interior urban space.

3. on mobility

Moreover, to solve the mobility problems and the barrier effect of the traffic along the Kaaien one can think to put it all in a tunnel (or on viaduct), or to put it in a trench, or to leave it on the ground, but slowing it down. The consequences of these three scenarios are divergent on different levels: concerning their financial impact, the visual impact - elimination of the barrier between the city and the Kaaien in some case, improving the pedestrian accessibility to the Kaaien - or concerning the time impact, i.e. the time necessary to realize them. The many recent international experiences on the re-qualification of waterfronts or the solutions given to hydraulic problems, together with the criticisms they received can guide the development of the Kaaien master plan and in the evaluation of the consequences of these different solutions.

4. It is also possible to conceive the immense surface of the Kaaien as a building area, for instance for public equipments, offices or houses. The high quality of the environment, the skyline of the city and the difficulty to finance such a big project might push to catch the opportunity, for instance, to build, as suggested by the *Spatial Structur Plan for Antwerp (s-RSA)*, at the two extremes of the Kaaien, with some high-rise buildings and two big equipments, to leave that the city approaches its river in some discreet and isolated points.

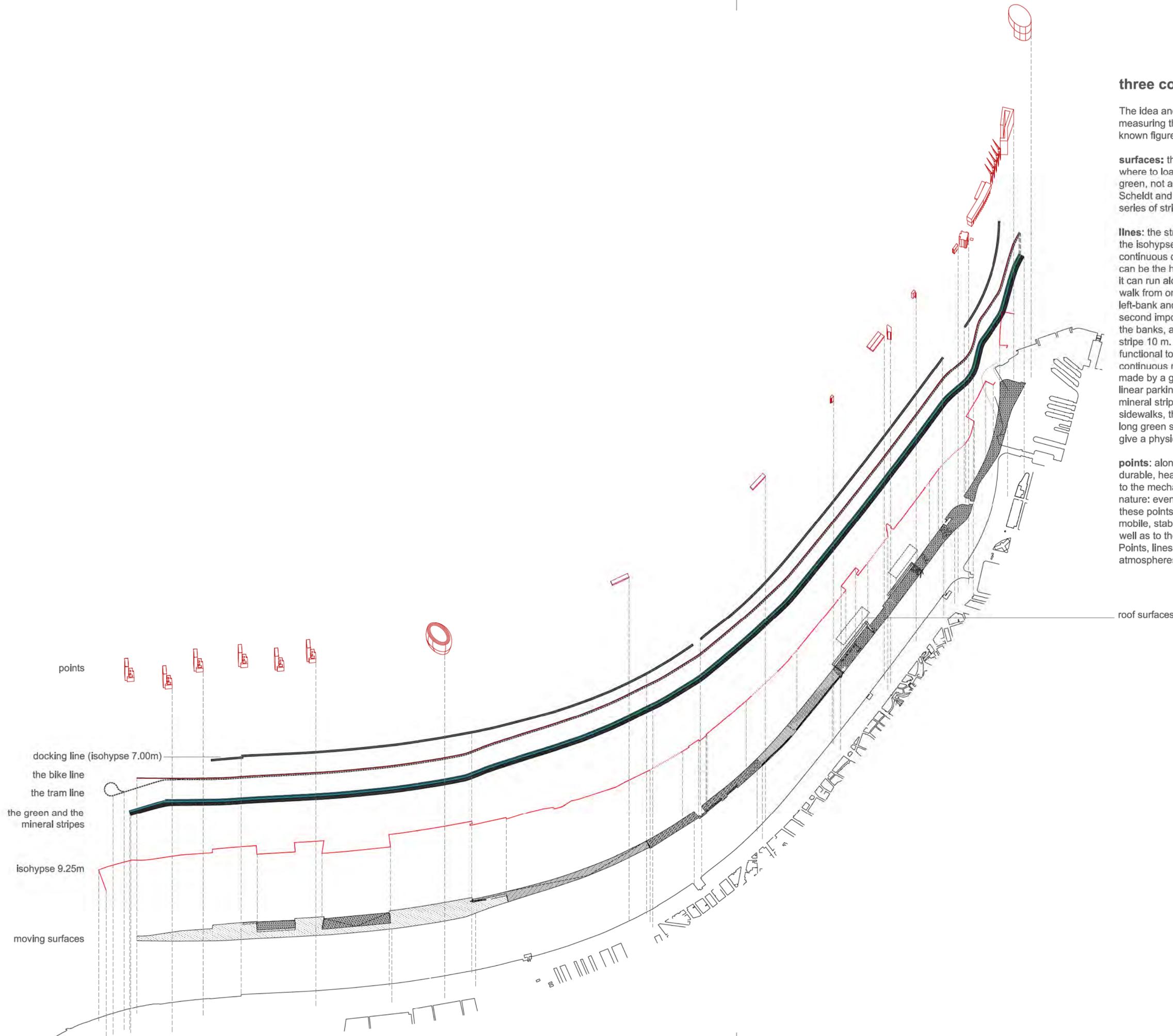
three concepts

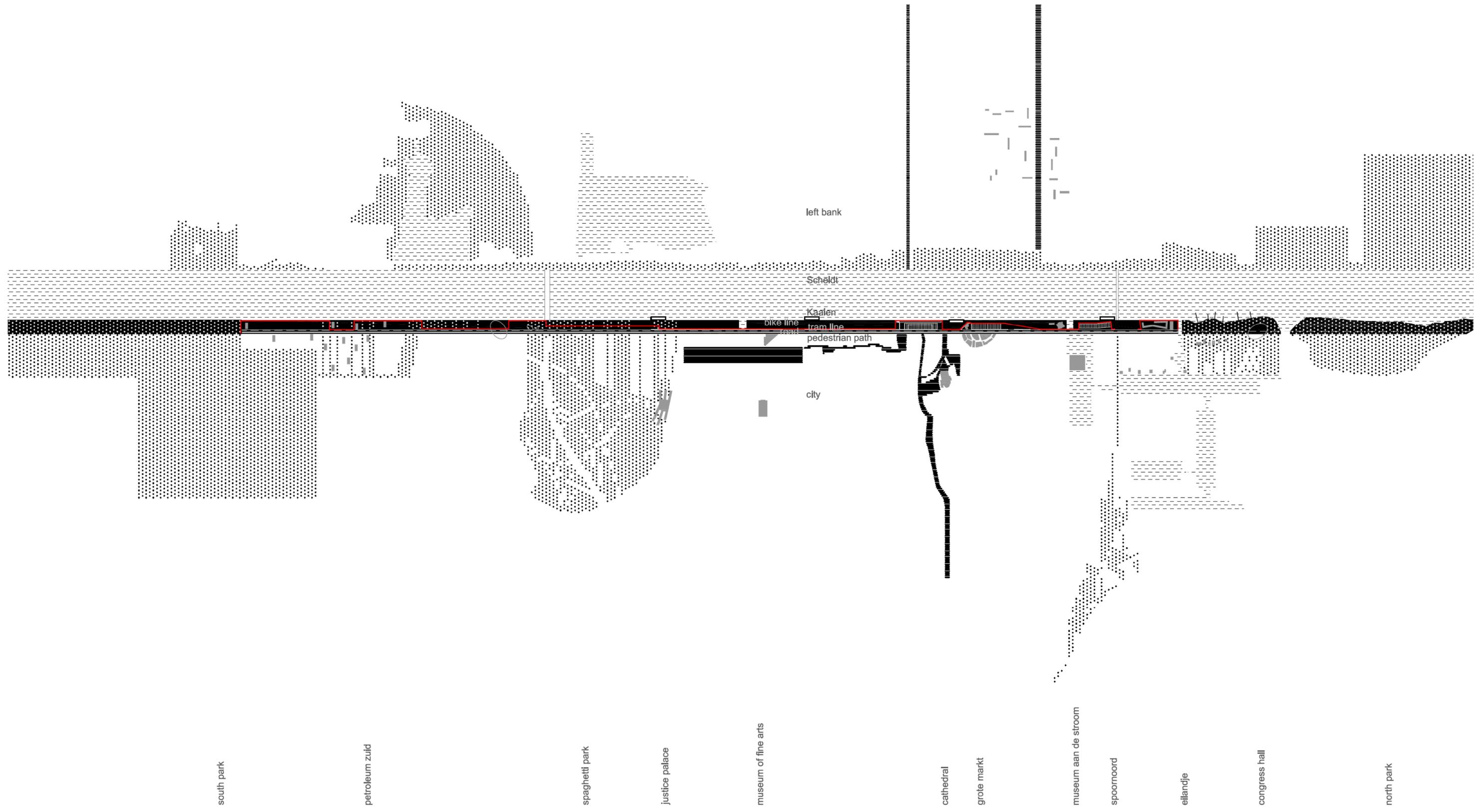
The idea and the aim of the Kaaien as one, as an unique continuous public space measuring the city of Antwerp, can conceptually be represented by three main well known figures: surfaces, like long stripes, lines in a series and some relevant points.

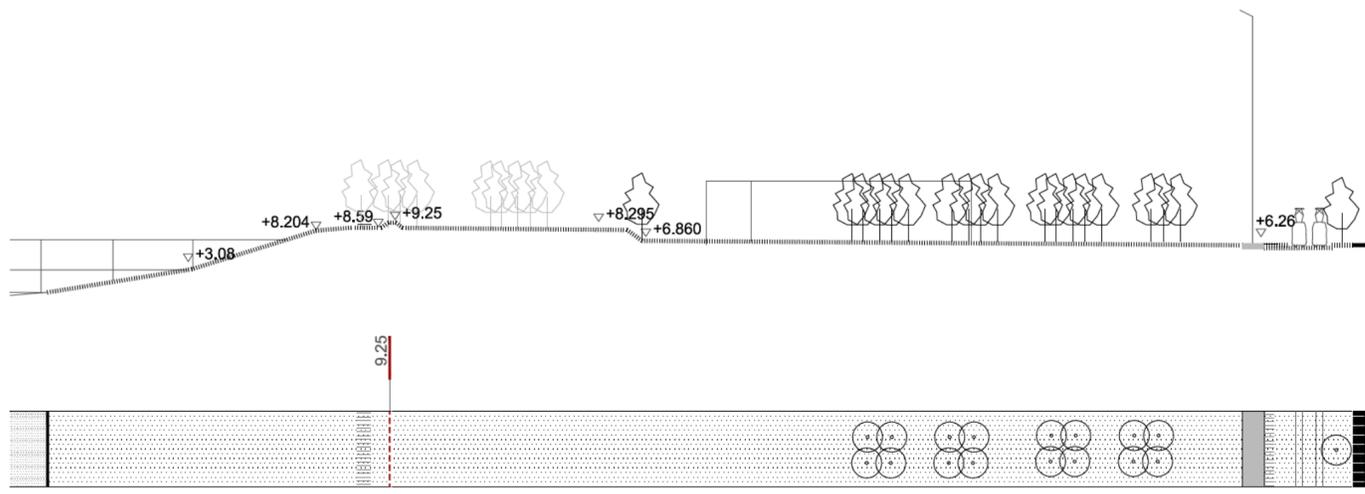
surfaces: the original and actual ratio of the Kaaien is to be, first of all, a surface where to load and download goods and people. Stripes 6 km. long, mineral and green, not always at the same level, with at one side the water surface of the Scheldt and the green surface of the left-bank, on the other the tissue of the city. A series of stripes beginning and ending in two important parks.

lines: the stripes are limited and surfed by some lines. The most important one is the isohypse, the line that individuates the points at the 9.25 m. level. It is a continuous one, for obvious reasons, and can assume different physical features: it can be the highest point reached by a slope; it can coincide with the height of a wall, it can run along a building, it can be mobile. In some parts it is a pedestrian path, to walk from one side of the Kaaien to the opposite one looking at the Scheldt, the left-bank and the city. It is the main novelty the new design will introduce. The second important line is that made by the regular blue-stone coast-line, the line of the banks, another isohypse at about 7 m. on the sea level, which is the limit if a stripe 10 m. large defining the docking space. This isohypse and the stripe are functional to the use of the banks by ships and boats and they are also the continuous memory of the "original" Kaaien levels and materials. The third line is made by a group of lines: the sidewalk longing the city façade, the segments of the linear parking along the same sidewalk, the two lanes road represent a mainly mineral stripe in one unique material, while the future tramway line with its sidewalks, the bike and the pedestrian paths, towards the Scheldt are inserted in a long green stripe. The bundle of these lines and stripes is a powerful tool to give a physical continuity to the Kaaien and to build the image of the Kaaien as one.

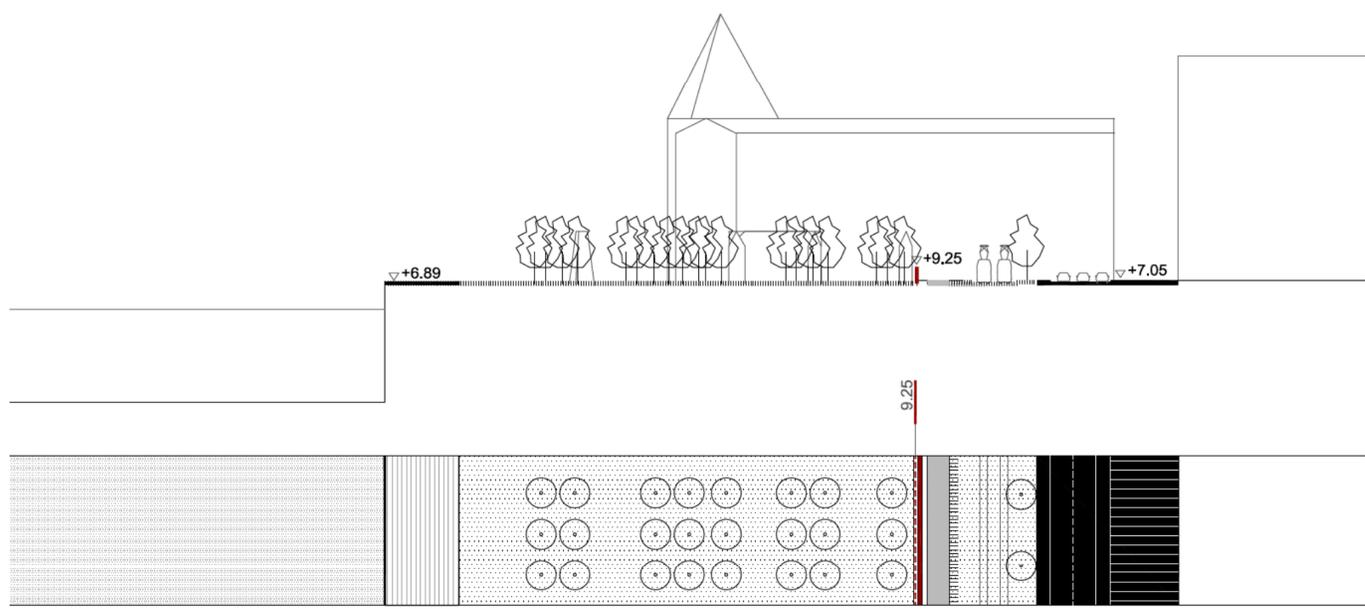
points: along a 6 km. long Kaaien many episodes happens: something stable, durable, heavy, like the Steen, and something lighter, moving elements that belongs to the mechanical aesthetics of the harbour, or elements that can be of a different nature: events, markets, a circus, exhibitions, informal activities, temporary uses. All these points can become important visual references, urban signals. Motionless or mobile, stable or provisional, they contribute to the everyday use of the Kaaien as well as to their use as an urban space for exceptional events. Points, lines and surfaces are the support of the practices that can change the atmospheres of the Kaaien.



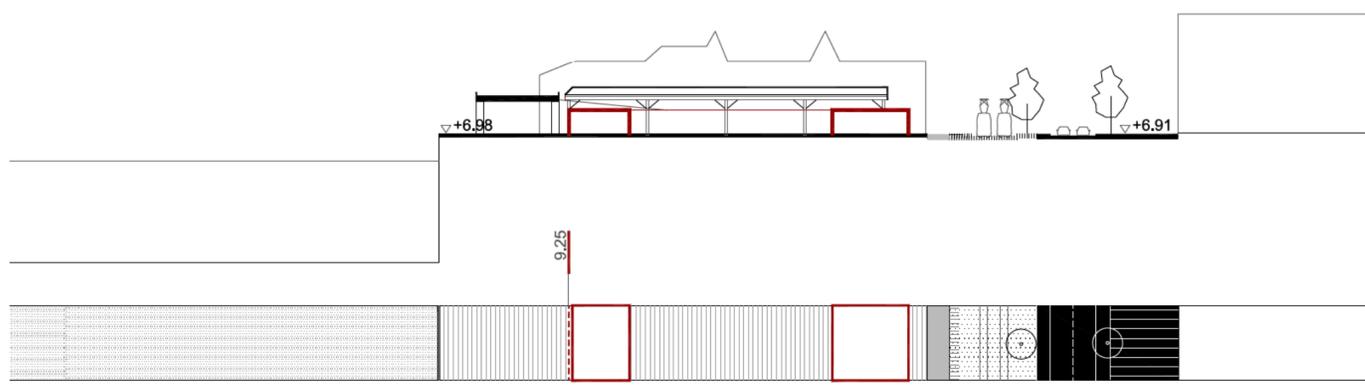




principle section 01



principle section 02



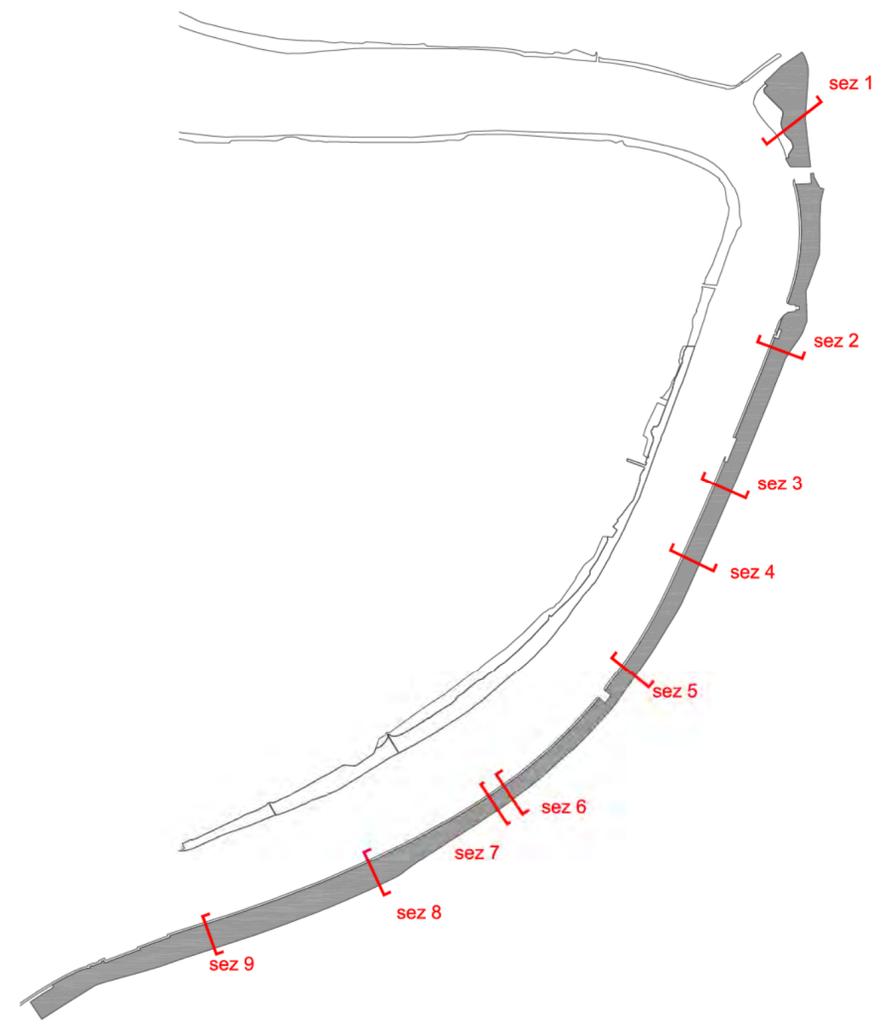
principle section 03

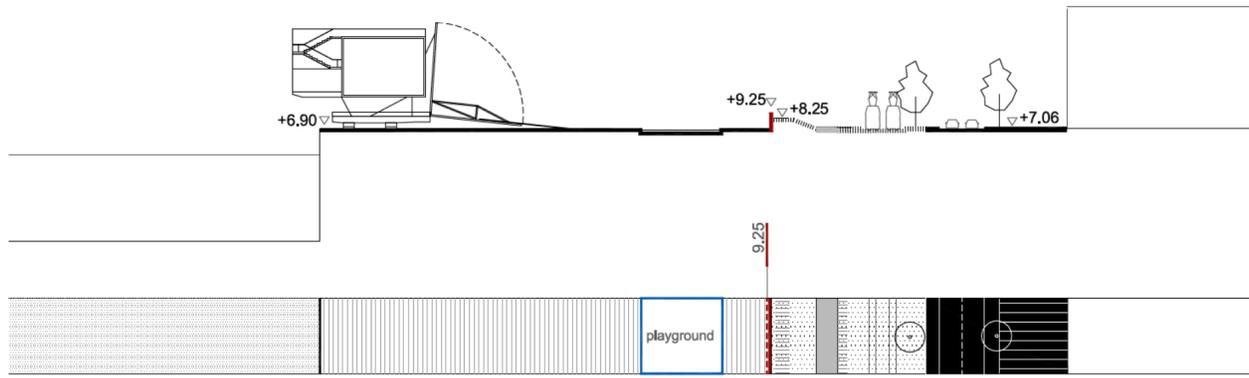


borders

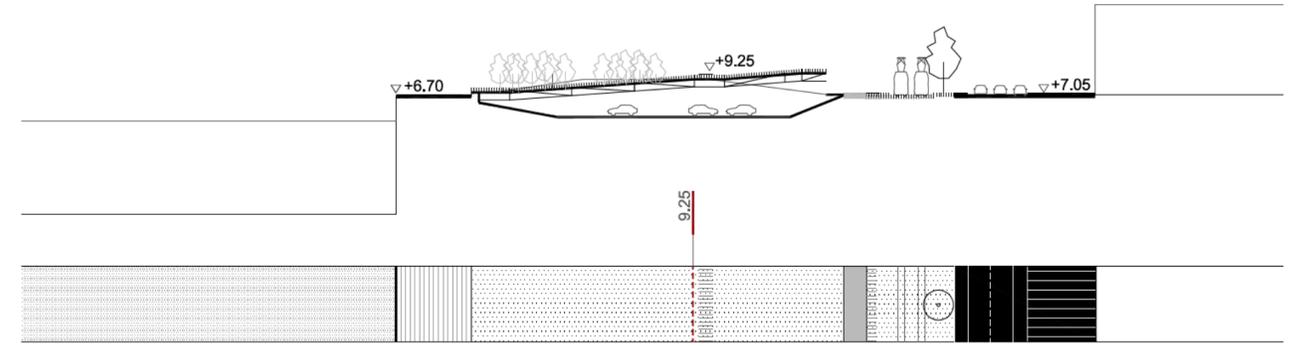


lines

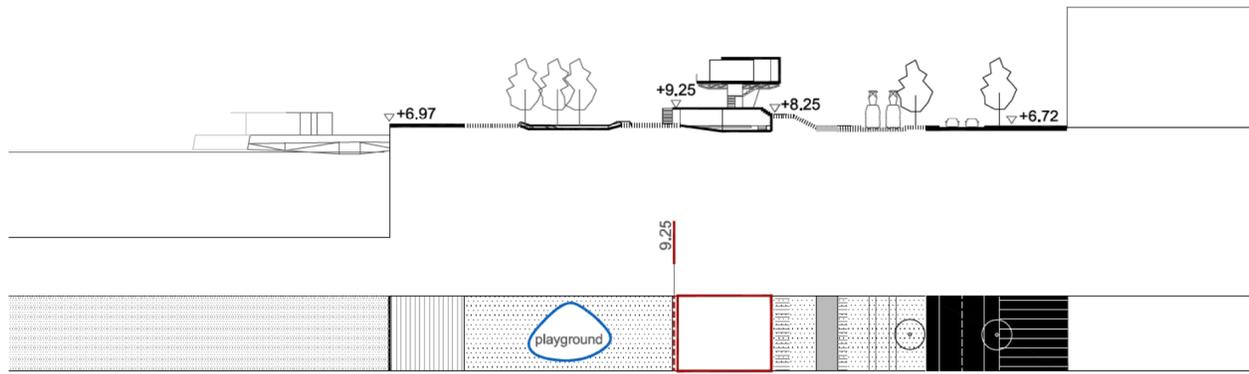




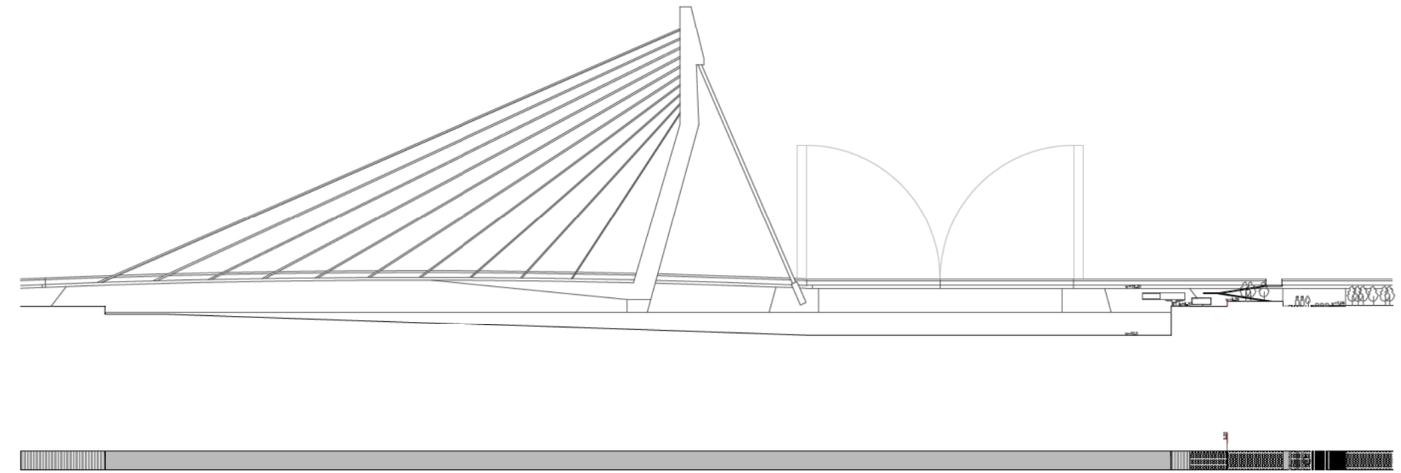
principle section 04



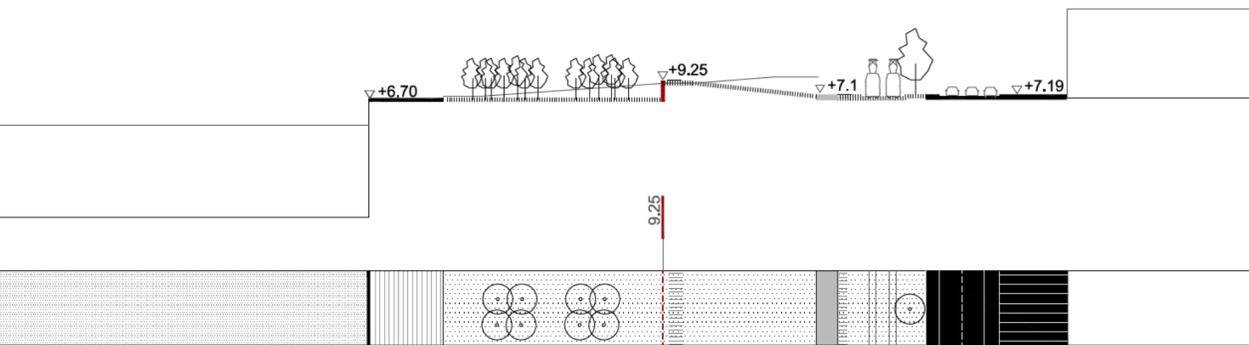
principle section 07



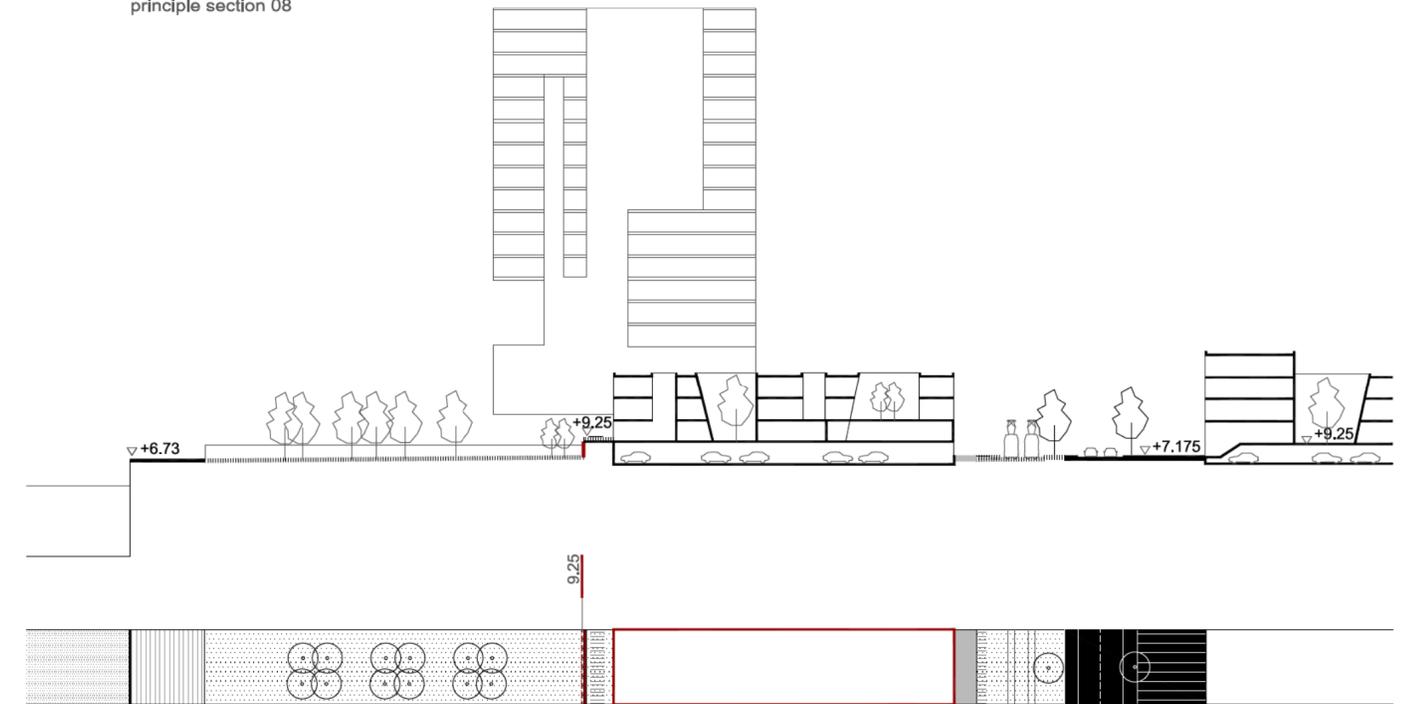
principle section 05



principle section 08



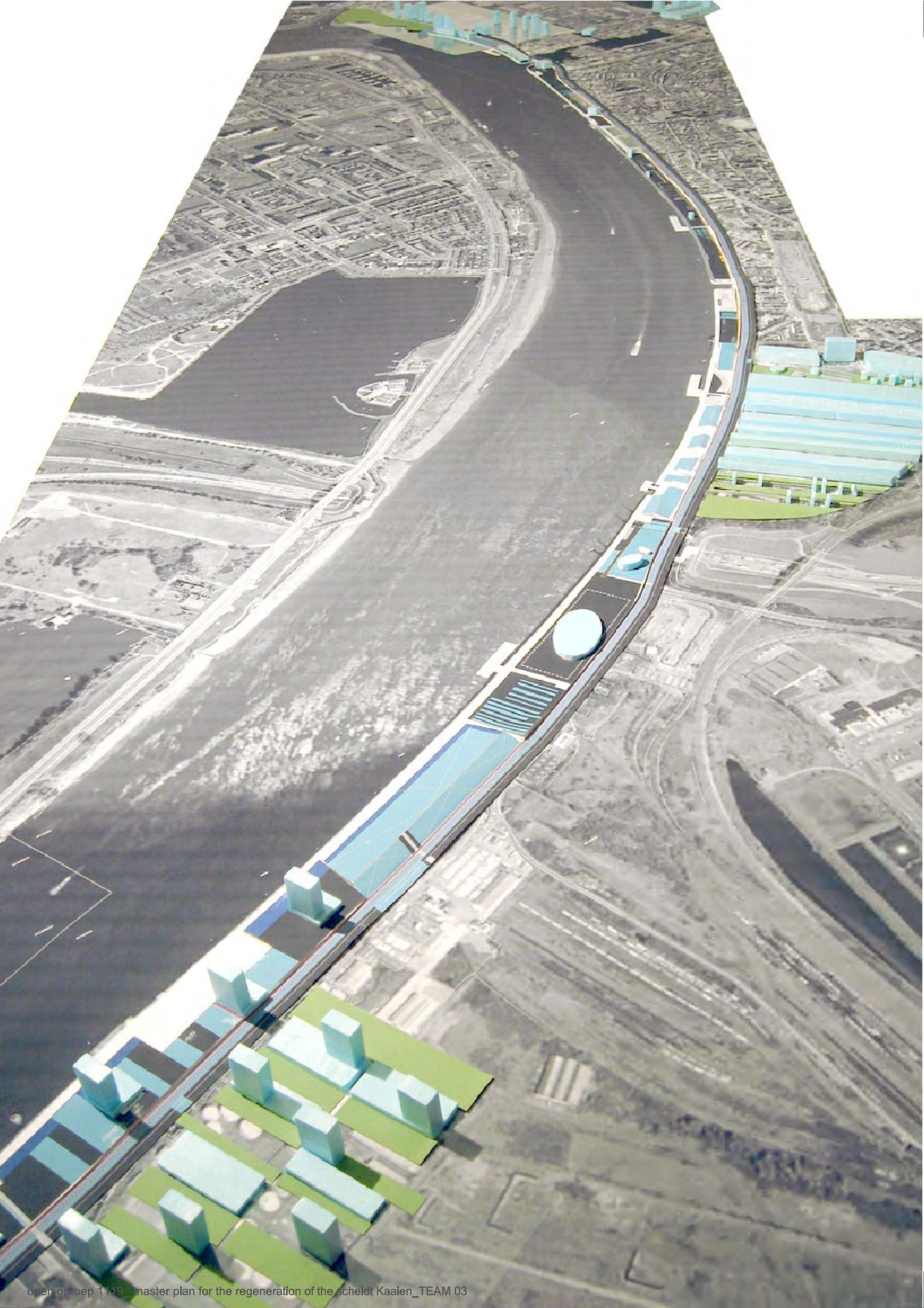
principle section 06



principle section 09







the Kaaien as Many

The image of the Kaaien as One cannot hidden the fact that the strip of the Kaaien skirts and meets very different parts of the city with their different roles, functions and symbolic images. The Kaaien cannot be conceived only as linear stripes from the north to the south of the city; the transversal image of the Kaaien, the many different images we have when arriving from the inner city reaching the Scheldt and its atmospheric values are also fundamental.

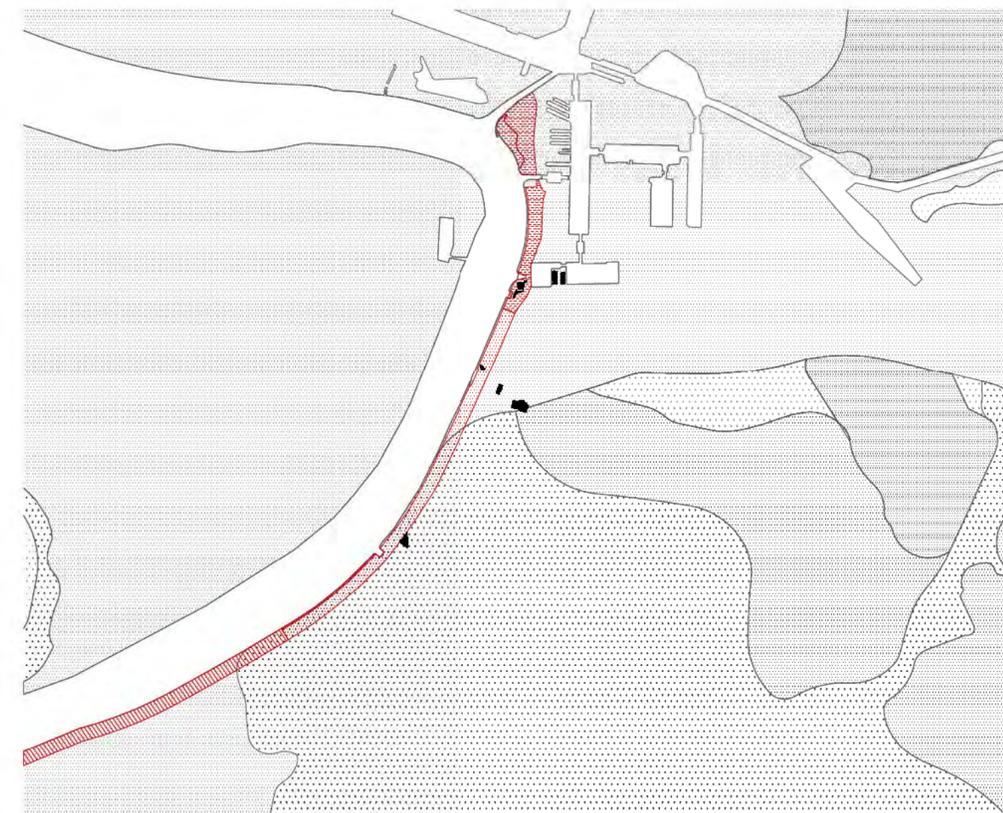
A double system of differences connotes the Kaaien: those produced by the longitudinal stripes following their different rhythms and those coming from the two sides of the city. The encounter of rhythms and situations gives rise to a rich urban condition that needs some coherence. The Kaaien are not an isolated space; they can become an integral part of the city that relates to the existing situations, reinforcing, clarifying and ameliorating them. This potential is today partially hidden by the marginality of some areas at the two extremes, by the uniformity of the southern part of the urban façade, or simply by the lack of continuity in the treatment of the public space perpendicular to the Scheldt. This condition can be radically modified acting on the two sides of the Kaaien.

Following rhythms and situations, we propose to distinguish, firstly, three main parts: the north-Kaai, the binnen-Kaai and the south-Kaai, three parts having their roots in the geological nature of the ground (polder clay in the north mixed with sand; sand with some clay in the middle part and polder clay mixed with sand again in the south reaching the Boom clay). The north and south Kaaien, both related to two naturalistic areas at their extremes are proposed as two different kinds of post-industrial parks; the central part is the extension and the starting points of the monumental system of public spaces of the urban core.

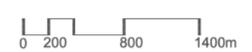
Each part can be articulated in more subtle ways; for instance the binnen-Kaai is not only monuments as in its northern part near the ancient city, but can also have an important domestic role near St. Andries neighbourhood in its southern part, along the modern nineteenth century city.

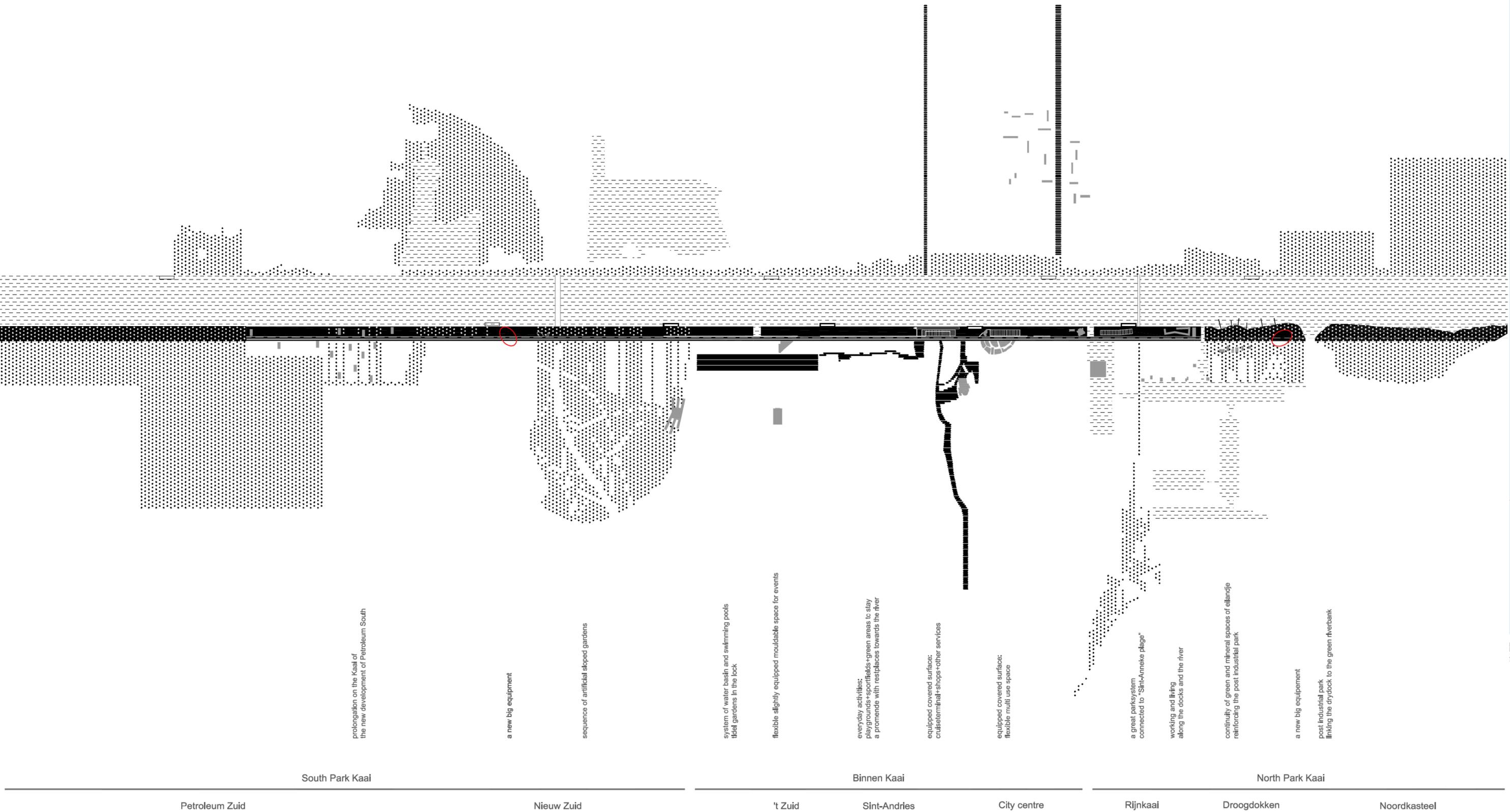
The way in which it is possible to reach the Kaaien from the city and the city from the Kaaien is different in each of these parts, which is giving different suggestions for the future image and use of the different pieces composing the sequence of the Kaaien as Many. This pluralistic concept is also related to the implementation of the masterplan; different ideas, designs and timing can be absorbed inside it and organised by some common choices.

thickness



- polder clay+ greygreen sand [kattendijk formation]
- sand
- clay containing sand
- grey and green sand [berchem-lez-anvers formation]
- clay of boom [rupel formation]
- clay containing sand [coquilliers]
- north kaai
- binnen kaai
- south kaai





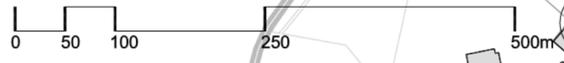
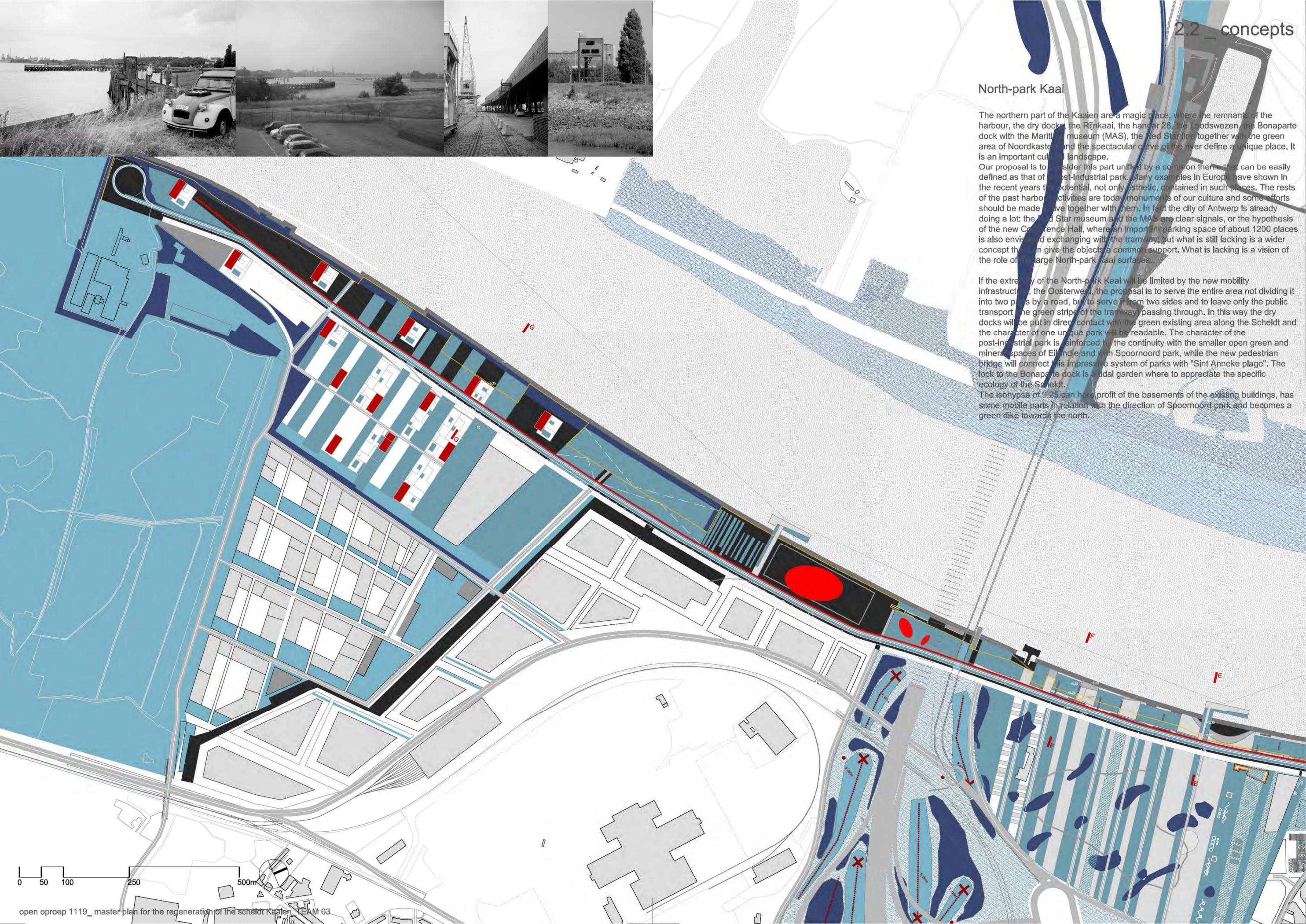
North-park Kaai

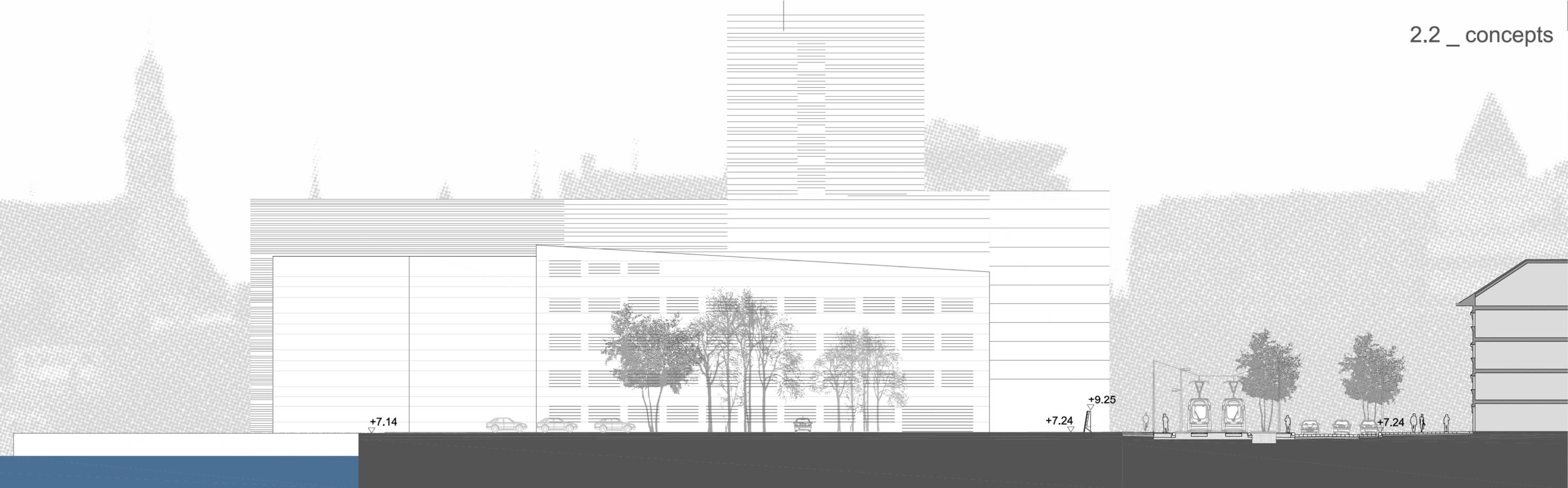
The northern part of the Kaaien are a magic place, where the remnants of the harbour, the dry docks, the Rijnkaai, the hangar 26, the Loodswezen, the Bonaparte dock with the Maritime museum (MAS), the Red Star line together with the green area of Noordkasteel and the spectacular curve of the river define a unique place. It is an important cultural landscape.

Our proposal is to consider this part unified by a common theme that can be easily defined as that of a post-industrial park. Many examples in Europe have shown in the recent years the potential, not only aesthetic, contained in such places. The rests of the past harbour activities are today monuments of our culture and some efforts should be made to live together with them. In fact the city of Antwerp is already doing a lot: the Red Star museum and the MAS are clear signals, or the hypothesis of the new Conference Hall, where an important parking space of about 1200 places is also envisaged exchanging with the tramway, but what is still lacking is a wider concept that can give the objects a common support. What is lacking is a vision of the role of the large North-park Kaai surfaces.

If the extremity of the North-park Kaai will be limited by the new mobility infrastructure, the Oosterweg, the proposal is to serve the entire area not dividing it into two parts by a road, but to serve it from two sides and to leave only the public transport (the green stripe of the tramway) passing through. In this way the dry docks will be put in direct contact with the green existing area along the Scheldt and the character of one unique park will be readable. The character of the post-industrial park is reinforced by the continuity with the smaller open green and mineral spaces of Ellendje and with Spoor Noord park, while the new pedestrian bridge will connect this impressive system of parks with "Sint Anneke plage". The lock to the Bonaparte dock is a tidal garden where to appreciate the specific ecology of the Scheldt.

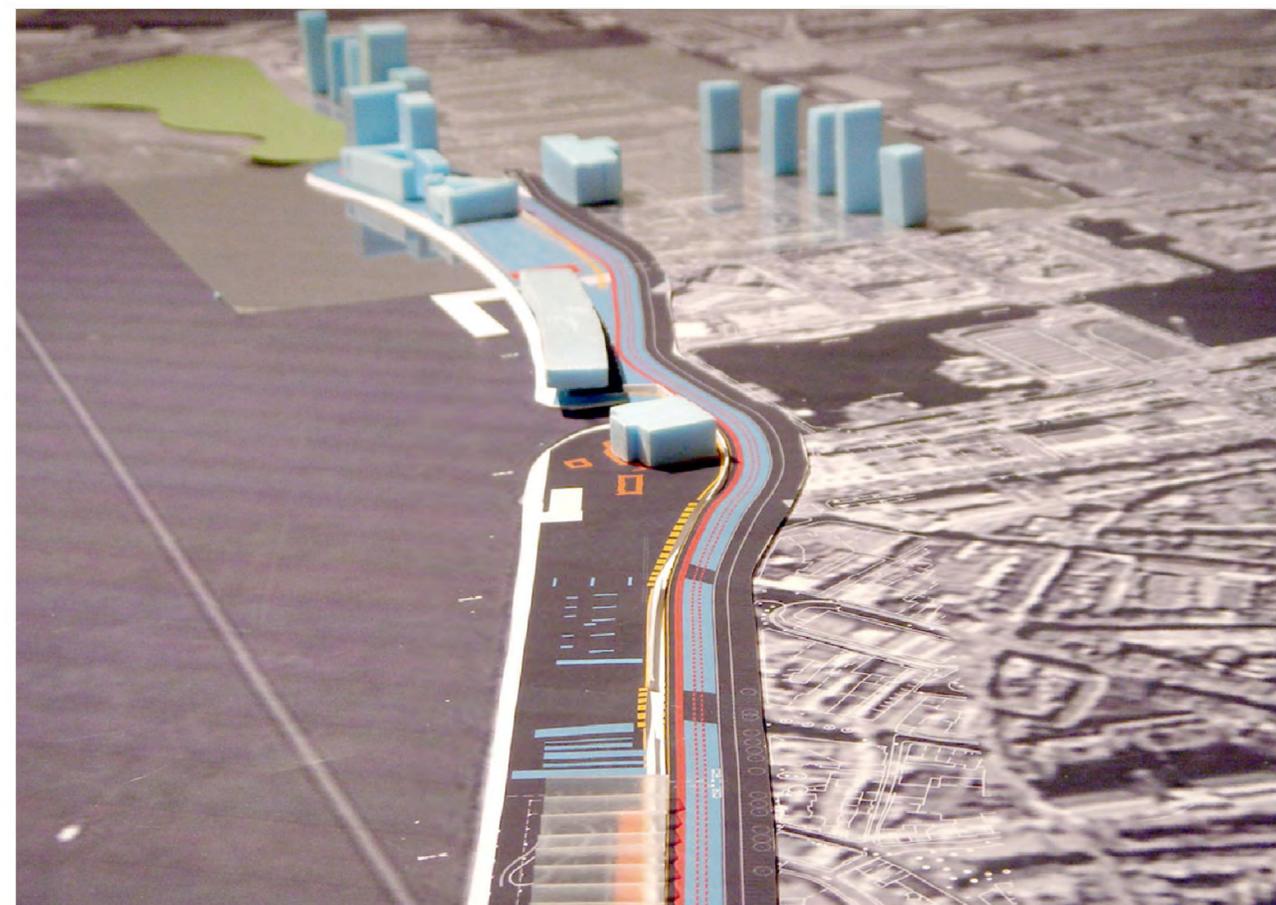
The isohypse of 9.25 can here profit of the basements of the existing buildings, has some mobile parts in relation with the direction of Spoor Noord park and becomes a green dike towards the north.





section A-A' North-park Kaai scale 1:250

- Isohypse 9.25
- ▬▬▬ built limit
- wall limit
- ▬▬▬ mobile flooding protection
- ▬▬▬ road
- ▬▬▬ mineral strip (street+parking+sikewalk)
- ▬▬▬ green strip (tramway line+sikewalks)
- ▬▬▬ bicycle path
- high building
- low-rise building
- new urban equipment
- ◊ monument
- ▬ equipment
- ▬ mobile equipment
- box
- ▬ informal sport equipment
- ▬ playground
- mineral surface
- green surface
- tidal area
- new park
- green corridor
- green buffer
- open-air parking
- ⌋ underground parking
- ▬ docking line



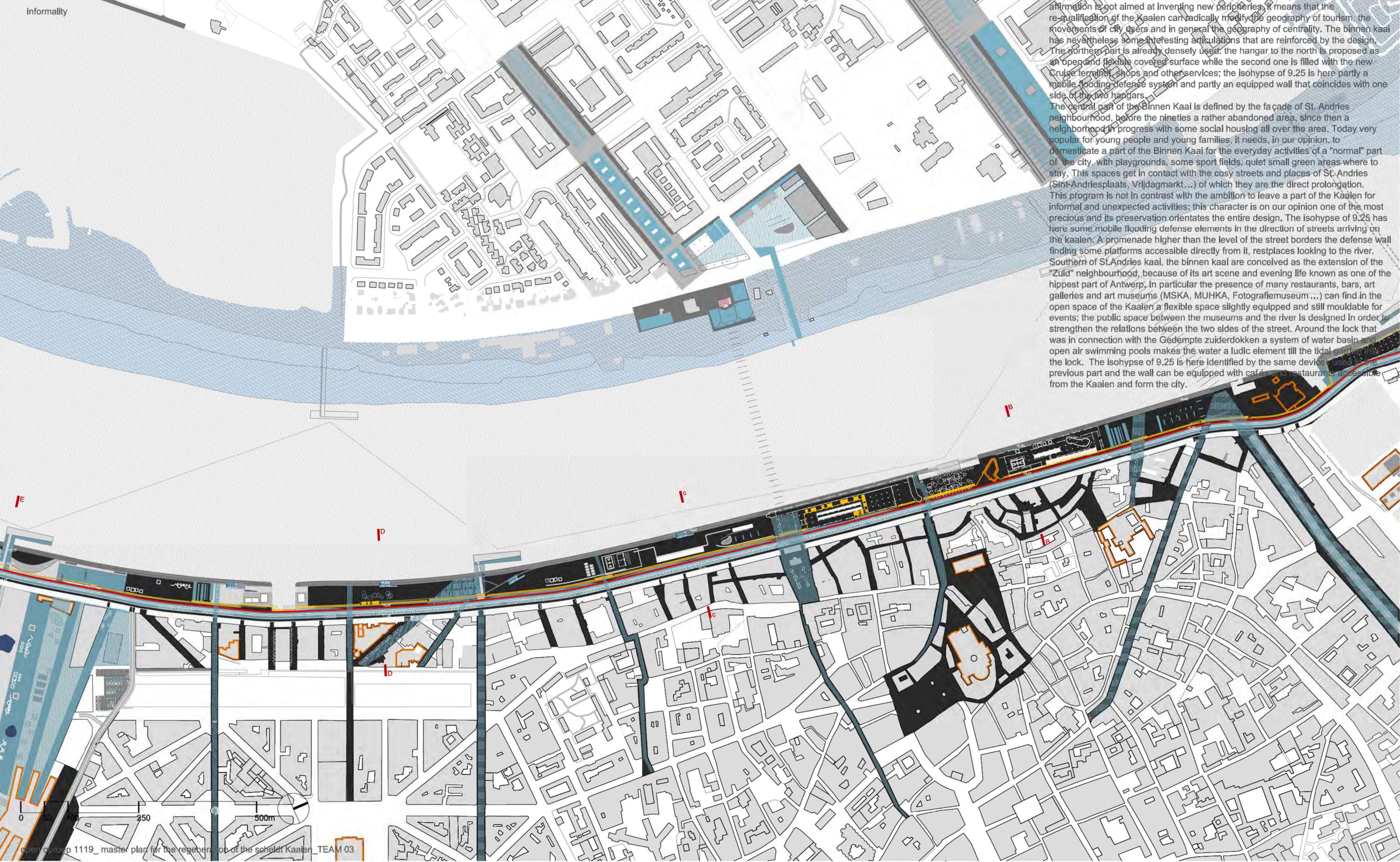


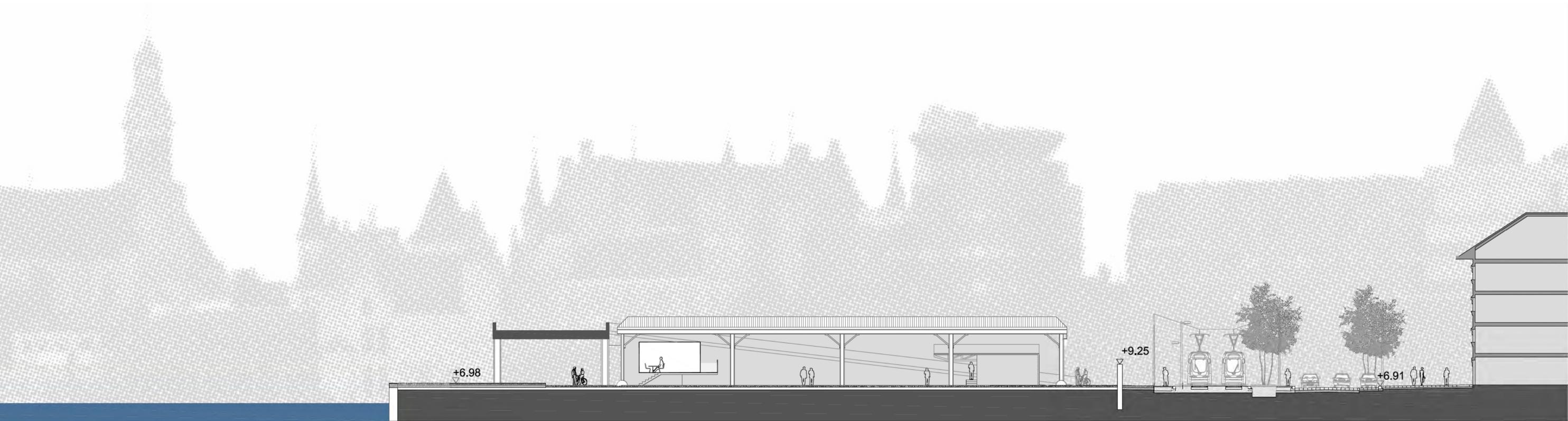
informality

the Binnen Kaal

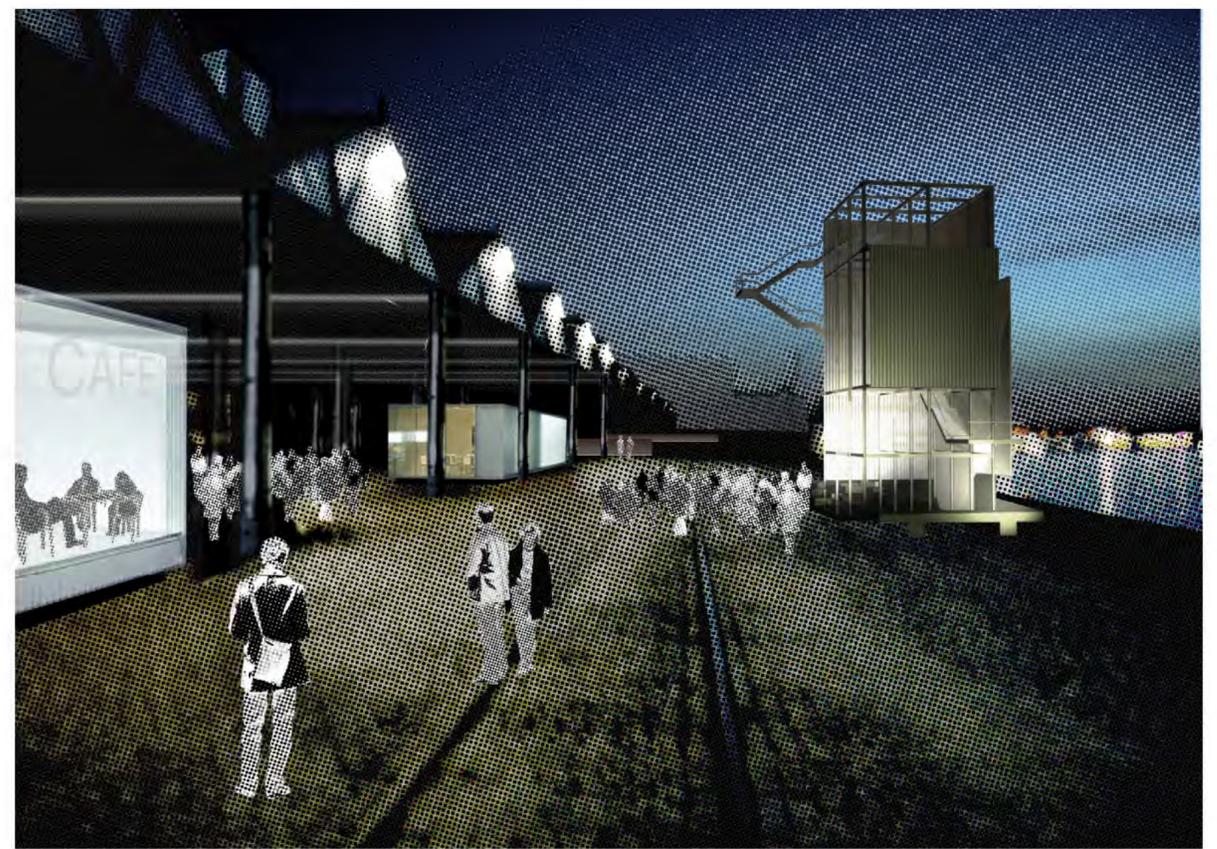
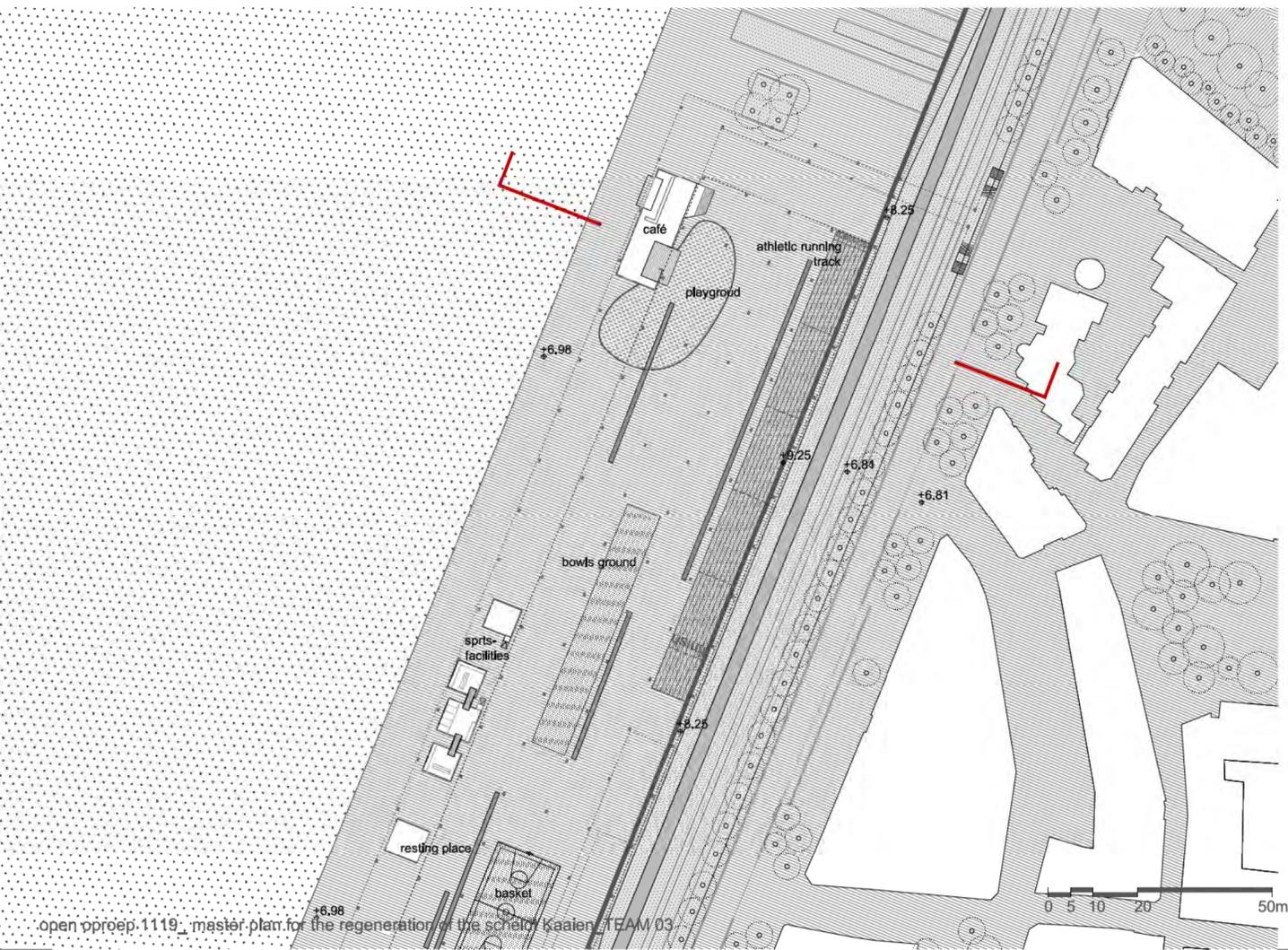
The central part of the Kaaien is where the centre of the city starts. This quite strong affirmation is not aimed at inventing new peripheries, it means that the re-qualification of the Kaaien can radically modify the geography of tourism, the movements of city users and in general the geography of centrality. The binnen kaal has nevertheless some interesting articulations that are reinforced by the design. The northern part is already densely used, the hangar to the north is proposed as an open and flexible covered surface while the second one is filled with the new Cruise terminal, shops and other services; the isohypse of 9.25 is here partly a mobile flooding defense system and partly an equipped wall that coincides with one side of the two hangars.

The central part of the Binnen Kaal is defined by the façade of St. Andries neighbourhood, before the nineties a rather abandoned area, since then a neighborhood in progress with some social housing all over the area. Today very popular for young people and young families, it needs, in our opinion, to domesticate a part of the Binnen Kaal for the everyday activities of a "normal" part of the city, with playgrounds, some sport fields, quiet small green areas where to stay. This spaces get in contact with the cosy streets and places of St. Andries (Sint-Andriesplaats, Vrijdagmarkt ...) of which they are the direct prolongation. This program is not in contrast with the ambition to leave a part of the Kaaien for informal and unexpected activities; this character is on our opinion one of the most precious and its preservation orientates the entire design. The isohypse of 9.25 has here some mobile flooding defense elements in the direction of streets arriving on the kaaien. A promenade higher than the level of the street borders the defense wall finding some platforms accessible directly from it, replaces looking to the river. Southern of St. Andries kaal, the binnen kaal are conceived as the extension of the "Zuid" neighbourhood, because of its art scene and evening life known as one of the hippest part of Antwerp. In particular the presence of many restaurants, bars, art galleries and art museums (MSKA, MUHKA, Fotografiemuseum ...) can find in the open space of the Kaaien a flexible space slightly equipped and still mouldable for events; the public space between the museums and the river is designed in order to strengthen the relations between the two sides of the street. Around the lock that was in connection with the Gedempte zuiderdokken a system of water basin and open air swimming pools makes the water a ludic element till the tidal gates and the lock. The isohypse of 9.25 is here identified by the same device used in the previous part and the wall can be equipped with cafés and restaurants accessible from the Kaaien and form the city.





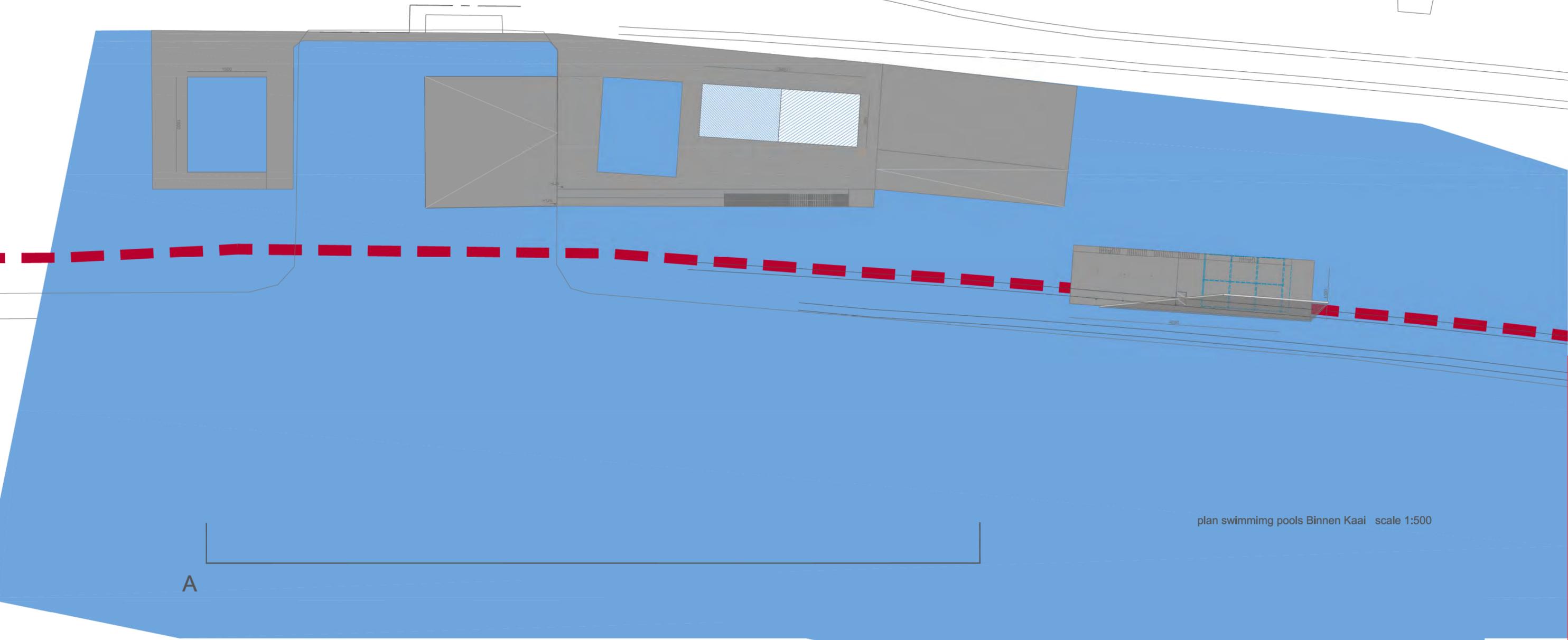
section B-B' Binnen Kaai scale 1:250





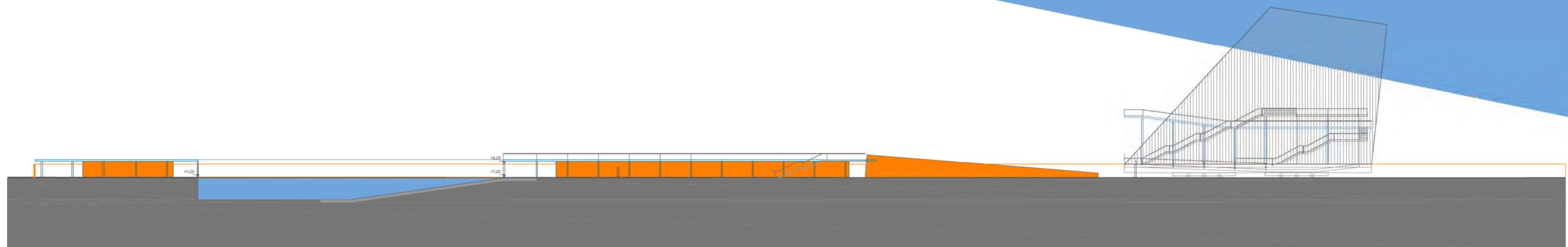
section C-C' Binnen Kaai scale 1:250



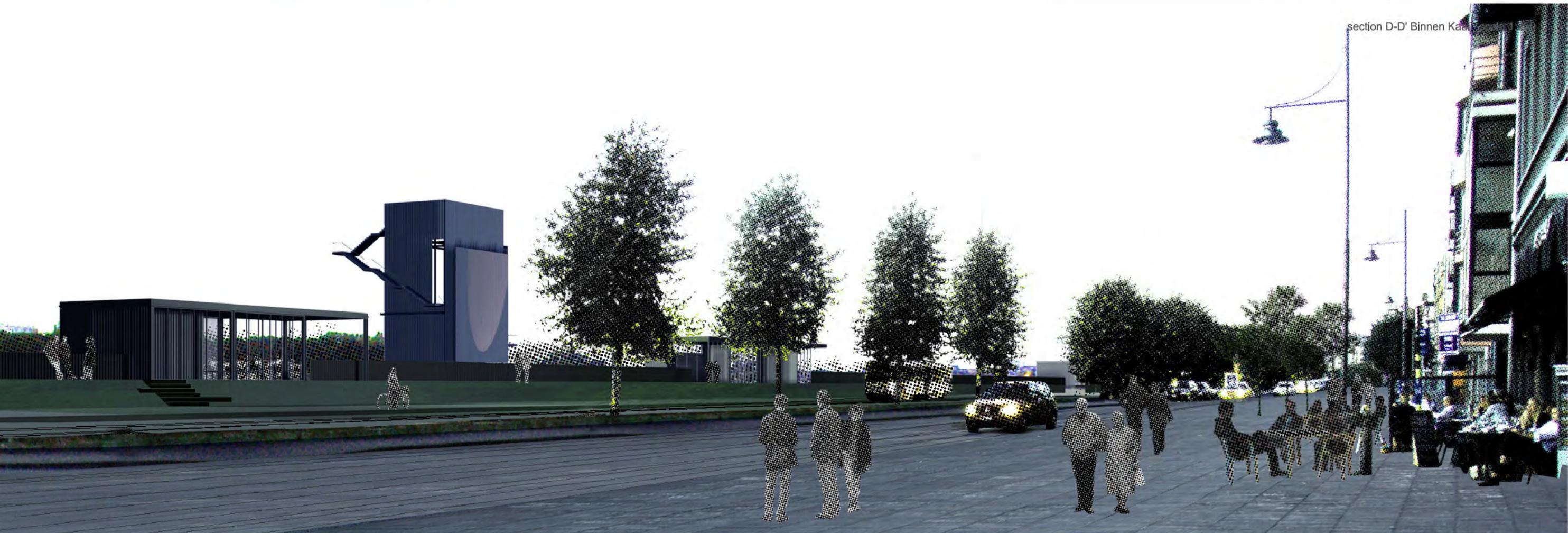
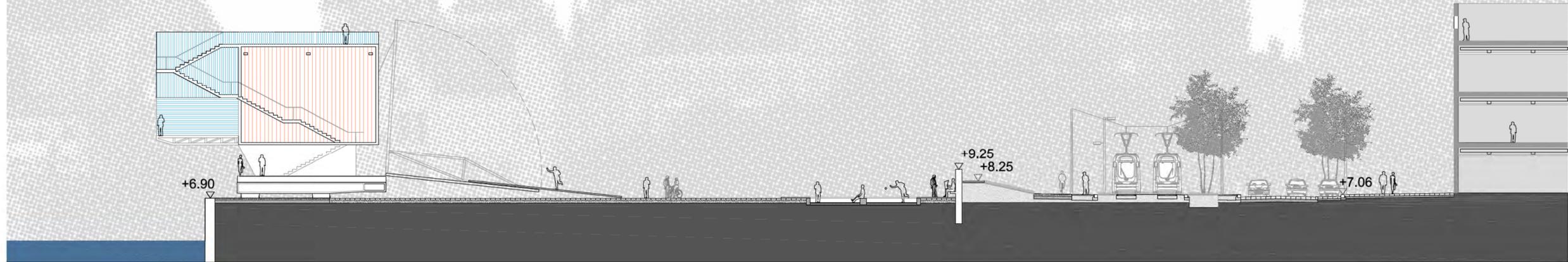


plan swimming pools Binnen Kaai scale 1:500

A



elevation swimming pools Binnen Kaai scale 1:500



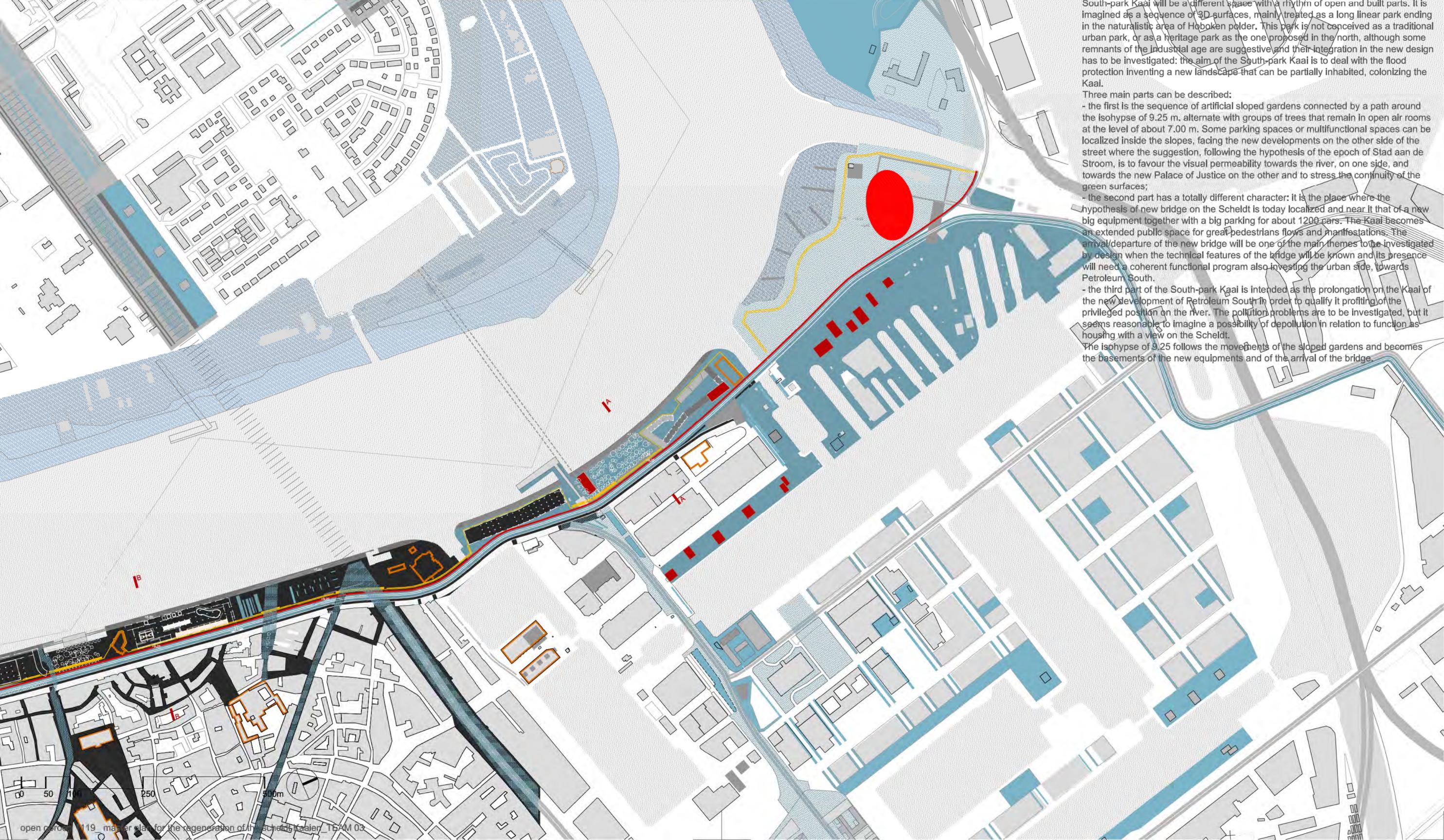


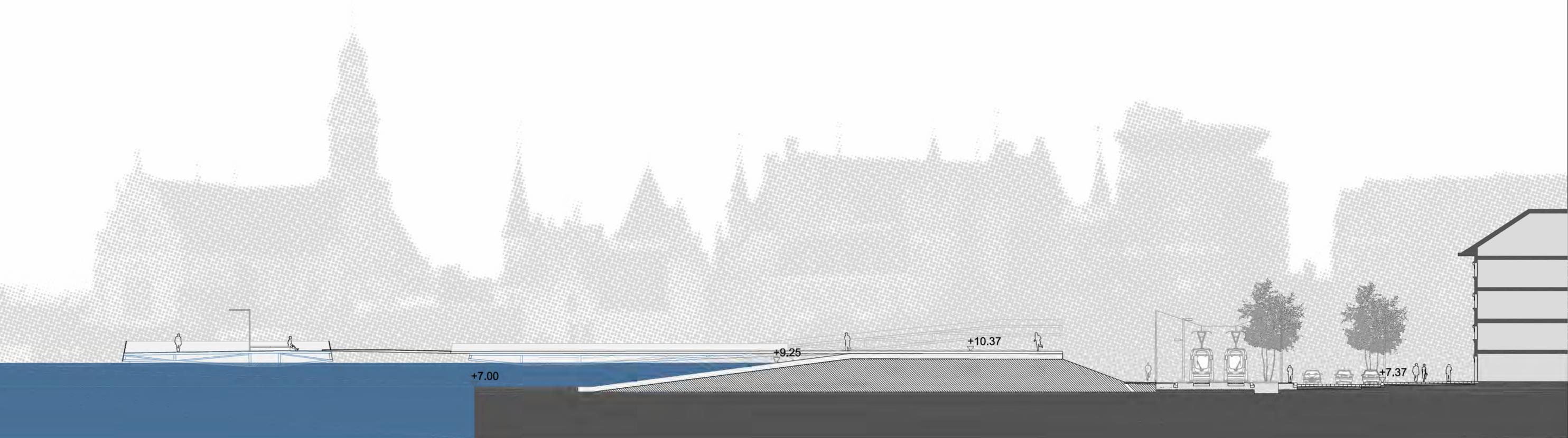
South-park Kaai

The southern part of the Kaaien is similarly to the northern one affected by the rests of the industrial activity and still used for harbour related activities. The soil is probably contaminated and many projects have been proposed in the last decades to transform the Kaaien and the vast areas along them (New South and Petroleum South). Unlike the Binnen Kaai, clearly limited by the linear façade of the city, the South-park Kaai will be a different space with a rhythm of open and built parts. It is imagined as a sequence of 3D surfaces, mainly treated as a long linear park ending in the naturalistic area of Hoboken polder. This park is not conceived as a traditional urban park, or as a heritage park as the one proposed in the north, although some remnants of the industrial age are suggestive and their integration in the new design has to be investigated: the aim of the South-park Kaai is to deal with the flood protection inventing a new landscape that can be partially inhabited, colonizing the Kaai.

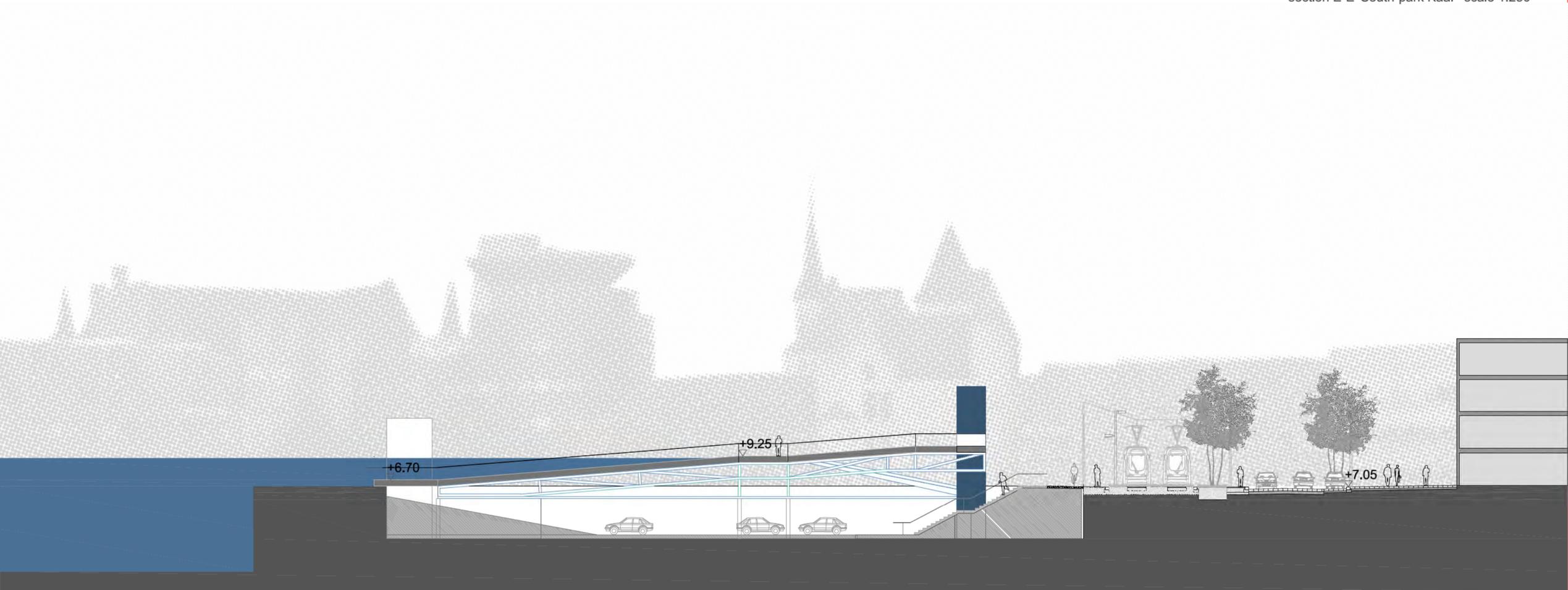
Three main parts can be described:

- the first is the sequence of artificial sloped gardens connected by a path around the isohypse of 9.25 m, alternate with groups of trees that remain in open air rooms at the level of about 7.00 m. Some parking spaces or multifunctional spaces can be localized inside the slopes, facing the new developments on the other side of the street where the suggestion, following the hypothesis of the epoch of Stad aan de Stroom, is to favour the visual permeability towards the river, on one side, and towards the new Palace of Justice on the other and to stress the continuity of the green surfaces;
 - the second part has a totally different character: it is the place where the hypothesis of new bridge on the Scheldt is today localized and near it that of a new big equipment together with a big parking for about 1200 cars. The Kaai becomes an extended public space for great pedestrians flows and manifestations. The arrival/departure of the new bridge will be one of the main themes to be investigated by design when the technical features of the bridge will be known and its presence will need a coherent functional program also investing the urban side, towards Petroleum South.
 - the third part of the South-park Kaai is intended as the prolongation of the Kaai of the new development of Petroleum South in order to qualify its profiting of the privileged position on the river. The pollution problems are to be investigated, but it seems reasonable to imagine a possibility of depollution in relation to function as housing with a view on the Scheldt.
- The isohypse of 9.25 follows the movements of the sloped gardens and becomes the basements of the new equipments and of the arrival of the bridge.

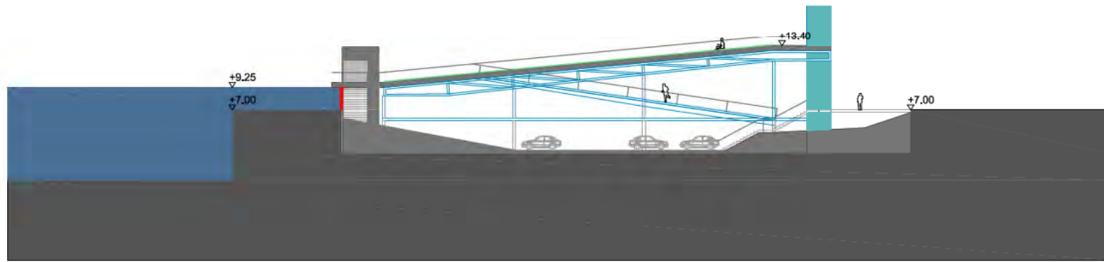




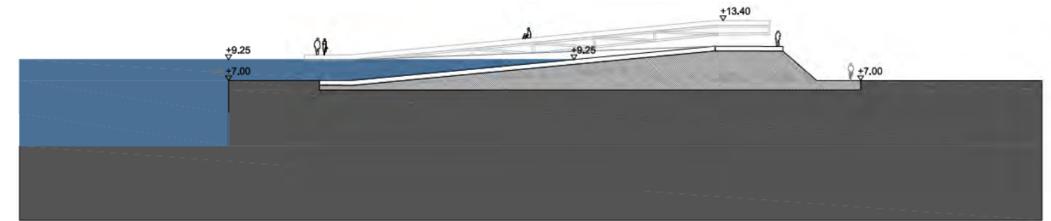
section E-E' South-park Kaai scale 1:250



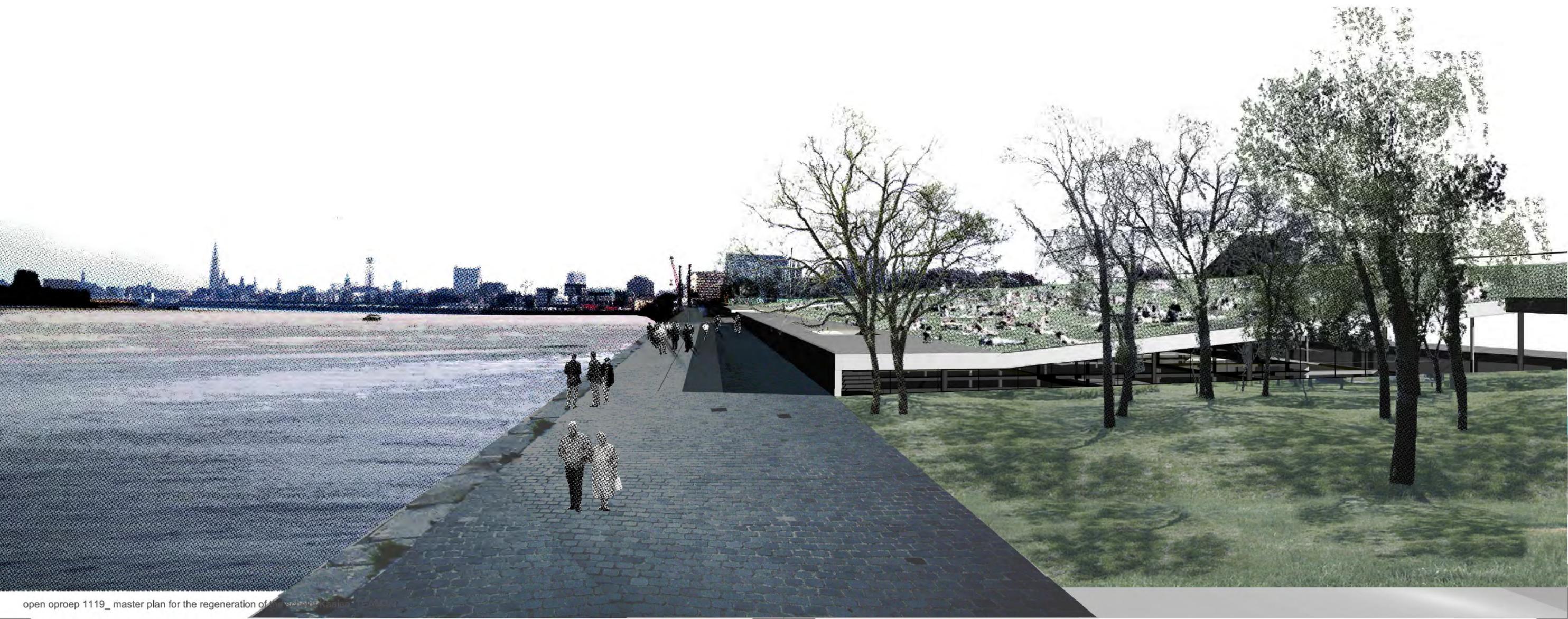
section F-F' South-park Kaai scale 1:250

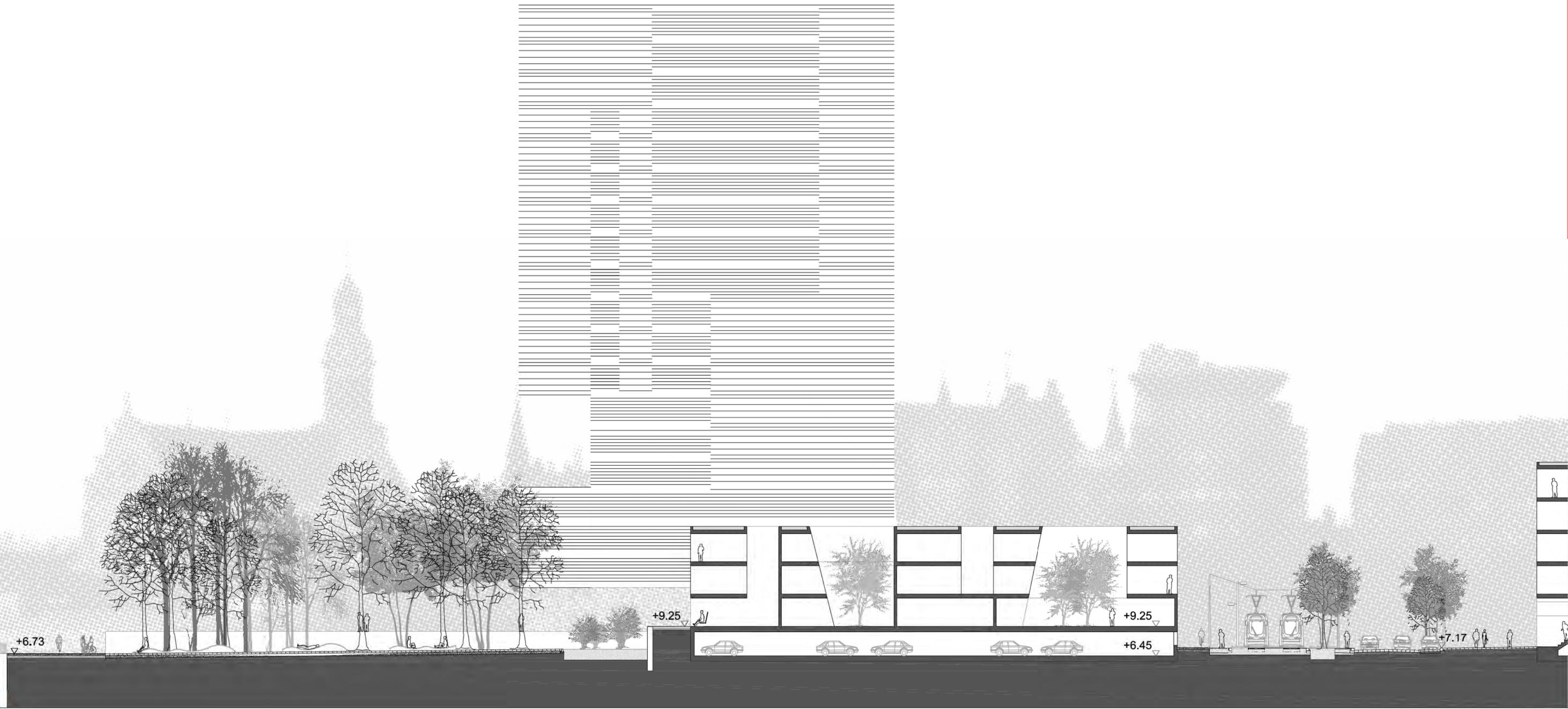


section E-E' South-park Kaai scale 1:500



elevation South-park Kaai scale 1:500





section G-G' South-park Kaai scale 1:250





reducing uncertainty

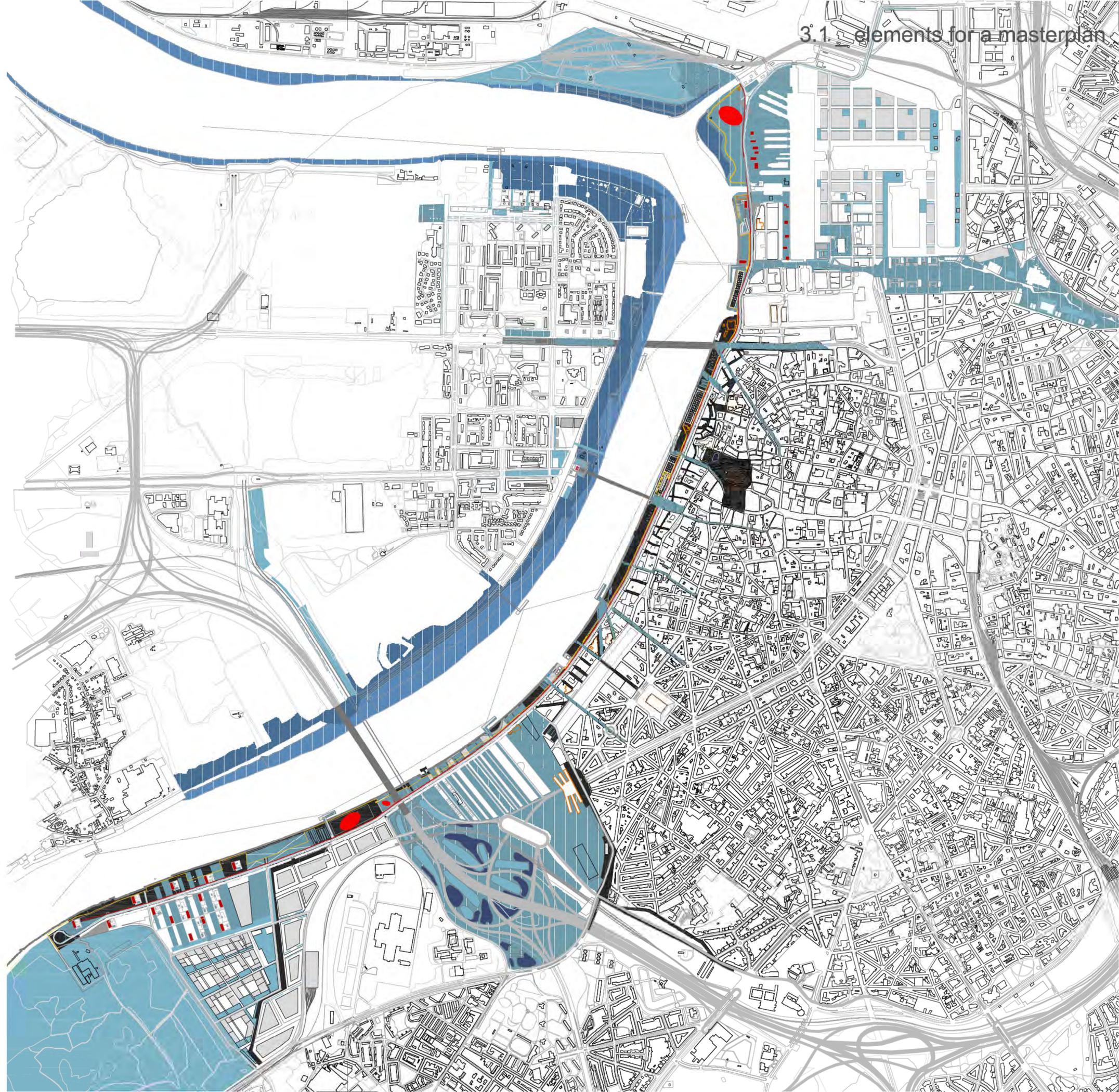
the principal aim of a Master Plan is to reduce the uncertainty. Juridically a Master Plan is a weak but important document. It proposes at the same time a series of constraints that can be differently faced and some guide-lines for the future interventions and projects that can be differently interpreted: a minimum of necessary constraints and a maximum of useful suggestions, leaving the freedom to the public and private promoters and to their designers to give a powerful interpretation of both constraints and suggestions.

constraints

The process of defining a Master Plan slowly will lead to the selection of some constraints that will come out of an accurate investigation and knowledge of the main questions concerning the Kaaien. Starting from the scenarios shortly discussed in the first part the Master Plan proposes some choices and to adopt certain positions. Some are self-evident some other have to be checked and improved needing, as we will explain in the next pages, some deeper investigations especially on the themes of mobility, of technical feasibility of the water barrier and on the financial feasibility.

suggestions

the suggestions the Master Plan will give concern physical forms, technical devices, uses, quantities and procedures: the previous pages contain some first elements to elaborate and discuss a vision for the Kaaien and for the city. What must be stressed is that the drawings of previous pages propose a first hypothesis for a vocabulary, a grammar and a syntax for the public space of Kaaien. The interpretation of the Kaaien as Many, as a collection of different spaces with their own identity, needs to link the sequence of the particular spaces by some common rules in which we can recognize the Kaaien as One.



- isohypse 9.25
- road
- mineral strip (street+parking+sidewalk)
- green strip (tramway line+sidewalks)
- bicycle path
- high building
- low-rise building
- new urban equipment
- monument
- mineral surface
- green surface
- tidal area
- green surface: new park
- green buffer
- parking
- underground parking
- docking line

a green grammar

The different interventions and the different urban materials the Master Plan is proposing: pavements, trees, sidewalk green surfaces and bike path, houses and equipments, rails and shops, water-barrier and green slopes, stable and moving equipments, swimming pools, landing stages, congress hall and stadiums, high buildings and patio houses, must build an aesthetically powerful landscape and a meaningful discourse clearly speaking about the Kaaien as One and the Kaaien as Many. Aesthetics is an important aspect of the Master Plan.

The way a Master Plan has to suggest and to control aesthetics passes through a vocabulary, a grammar and a syntax of the discourse of the Kaaien, as it was in the past for many parts of the city.

Sustainability means to pay attention to the water, collecting it, and facilitating its percolation in the ground. It means also to pay attention to energy, providing rules for the different existing or new buildings, equipments and architectural objects; rules imposing to save energy if not producing it, to study energy saving lighting systems. Finally it means to use materials of a strong and proved durability slowly aging.

The drawings of the previous pages show that a great variety of urban material and spatial situations can be realized and created with a reach vocabulary if the grammar rules are clear and evident, if the spatial and functional sequences are supported by an evident syntax.

The proposed green strategy and grammar for the site consists of the following principals.

Firstly, constant elements along the length of the site, reinforcing the interpretation of the Kaaien as One - such as the continuous green strip, mature tree alignment and planted sidewalk - constitute a defined threshold to the open space.

Secondly, punctual tree groups - such as the "mails" in relation with and prolongation of the ancient docks in the city centre today usually planted streets and the groves - reinforce the idea of the Kaaien as Many. Together these two strategies differ greater from traditional street planting as they apply to the vast scale of the Kaaien.

1. continuous green strip

The section containing the street and the tramway line is divided into two different landscapes, the mineral and the green one. The last one is made of grass and of a gentle slope reaching the level of 9.25.

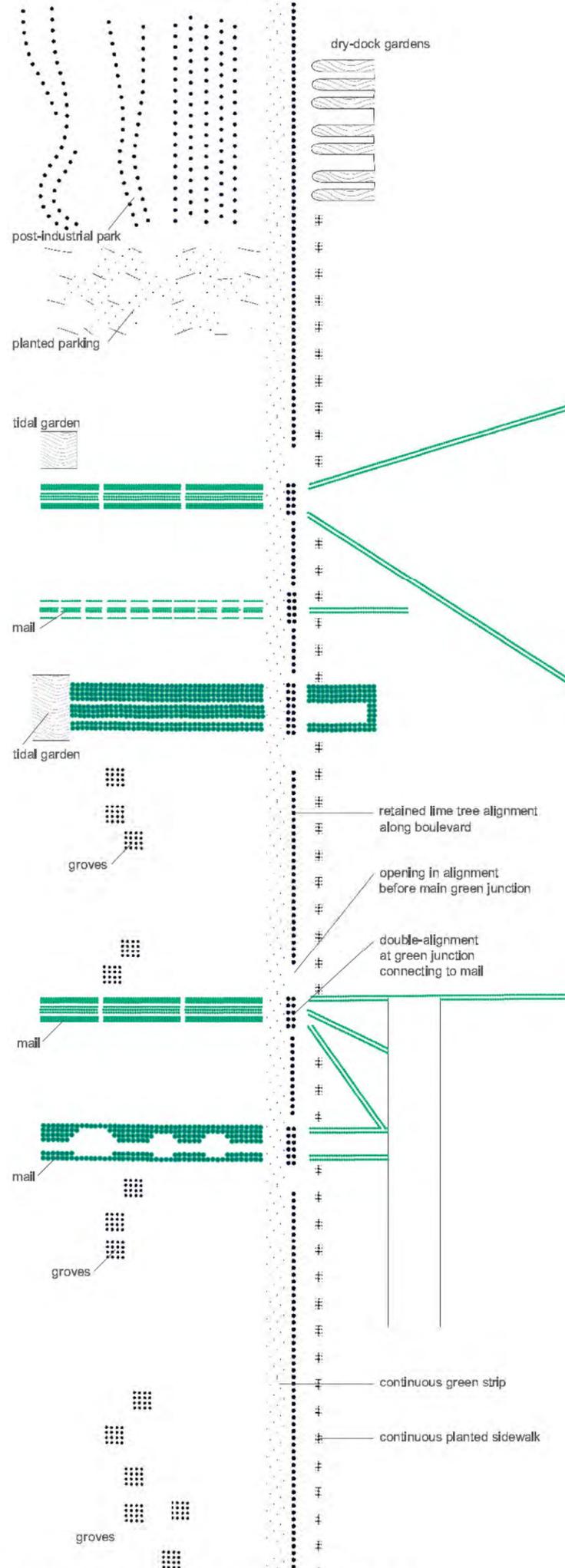
2. mature tree line

A new profile of the boulevard is set as to retain most of the existing lime trees. Nevertheless, a new rhythm must be applied to the alignment. Parts of it should be worked to reach a better dialogue with the overall design. For instance, punctual openings and doublings of the alignment are set to connect the main green places and "mails".

To guarantee the view to the Scheldt through the alignment the existing tree silhouettes can be raised bringing lateral branches above eye level and giving the whole alignment a more outstretched aspect to the sky.

3. planted sidewalk

The new profile of the mall integrates a 9 + 2 (occasionally linear parkings) meter-broad sidewalk along the urban façade. The sidewalk includes a rhythm of thickets, planted of middle-height trees, still allowing visual permeability and sunlight to the built environment. Alternating spaces for side parkings are combined into the plantation pattern.



a green grammar

4. "mails"

The existing green places appearing on the urban façade are lying on former basin docks. These green places refer to the ancient port activity formerly in the heart of the city.

The new green strategy is to build a strong relation between the river and the former basins, today planted squares proposing the "mails" as linear landscapes running east-west. They link together a contrasting urban edge, the Kaaiaen and the river. For the visitor, the "mails" allows a progression of spaces through protected land rooms tightly framed under canopies, to the exposed and expansive experiential stage of the open Kaaiaen. Along their length, the "mails" also help the visitor identifying monumental partitions or pieces of the open space.

The "mails" are made of various parallel plantation strips stretched out to the cobblestone edge. Intermediate mineral strips determine various framed sights to the river. In between, green lines combine various plantation density, such as to create a successive side wings effect.

Appropriate tree types are to be determined according to the strong exposure of the site. Plantation pattern provides particular growing conditions to certain species that will be enabled to develop greatly behind planted buffers.

5. groves

The groves locally enhance public access to the waterfront. Programmed with seasonal gardens and children's playgrounds, they provide daily sheltering and become both physical and programmatic connective elements between the urban environment and the river.

The groves accommodate various trees in geometric planting pattern creating a protected environment. The groves introduce a certain 'naturalness' to some parts of the site.

Tree types are chosen to produce dominant soft green and silver-grey landscapes - a shared palette of tones that refers to the river environment. Trees are firstly planted on high density, so as to ensure greater visual effect since first years, followed with selection of individuals according to growth over time.

6. dry-dock gardens

Ancient ship repair activity has left behind a series of derelict dry-docks that represent a unique opportunity to be investigated. At the very edge of the port domain, the challenge is taken to turn these monumental concrete recipients into a rich environment and sheltered refuge of biodiversity.

Seven of the docks can be colonised with various types of mix wood understories, of which primary components - as ferns, mosses and lichens - form the early stage of later trees settlement. Walking through the green basins, resting among the monumental steps or simply looking down from the surface will provide the eye a strong experience of the site.

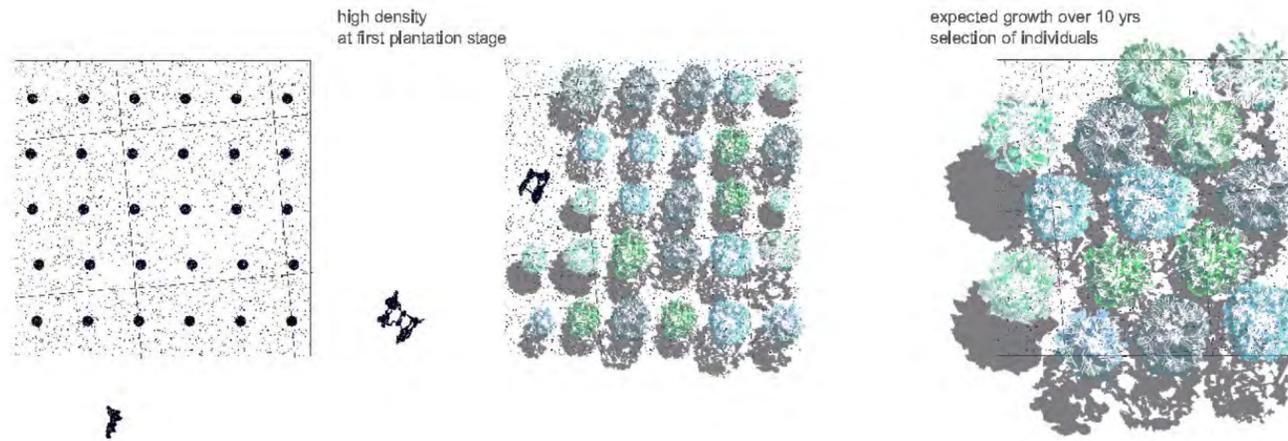
The existing structure already offers great basic conditions for growing, relating to the microclimate of traditional hollow gardens. The structure will be basically worked to provide public access, retain walls equipment, concrete slab crushing and basic planting.

7. tidal garden

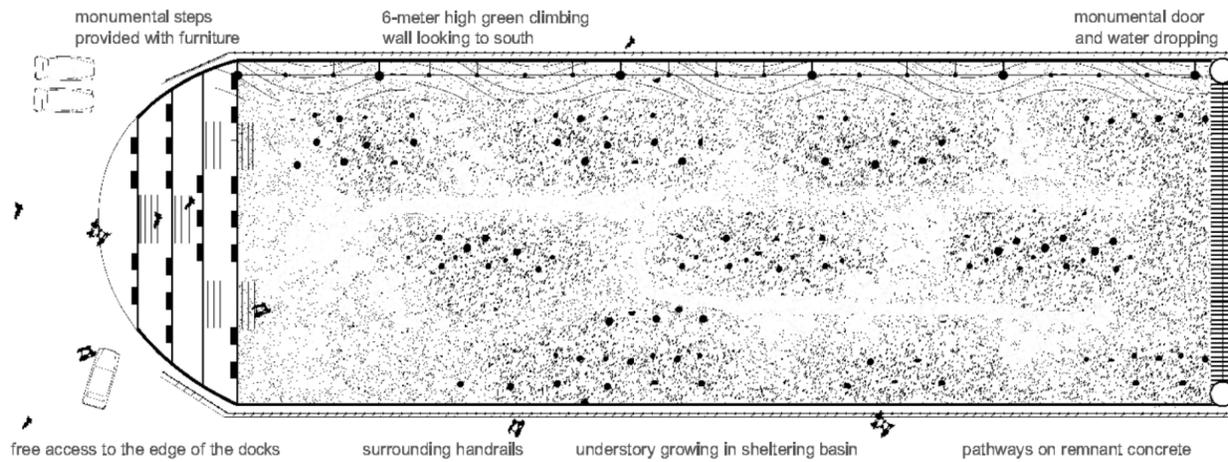
Along the edge of the quays, the former water locks constitute places for tides to expanse. These tidal gardens introduce the visitor to the dynamics of the river. A range of aquatic plants are among the vegetation that fill the successive levels, from marsh grass down to microscopic organisms found at the base of the estuary food chain.

The structure of the tidal gardens emphasises the high amplitude of tides specific to the region. Highest tides will flood the area all the way to the upper steps of the garden.

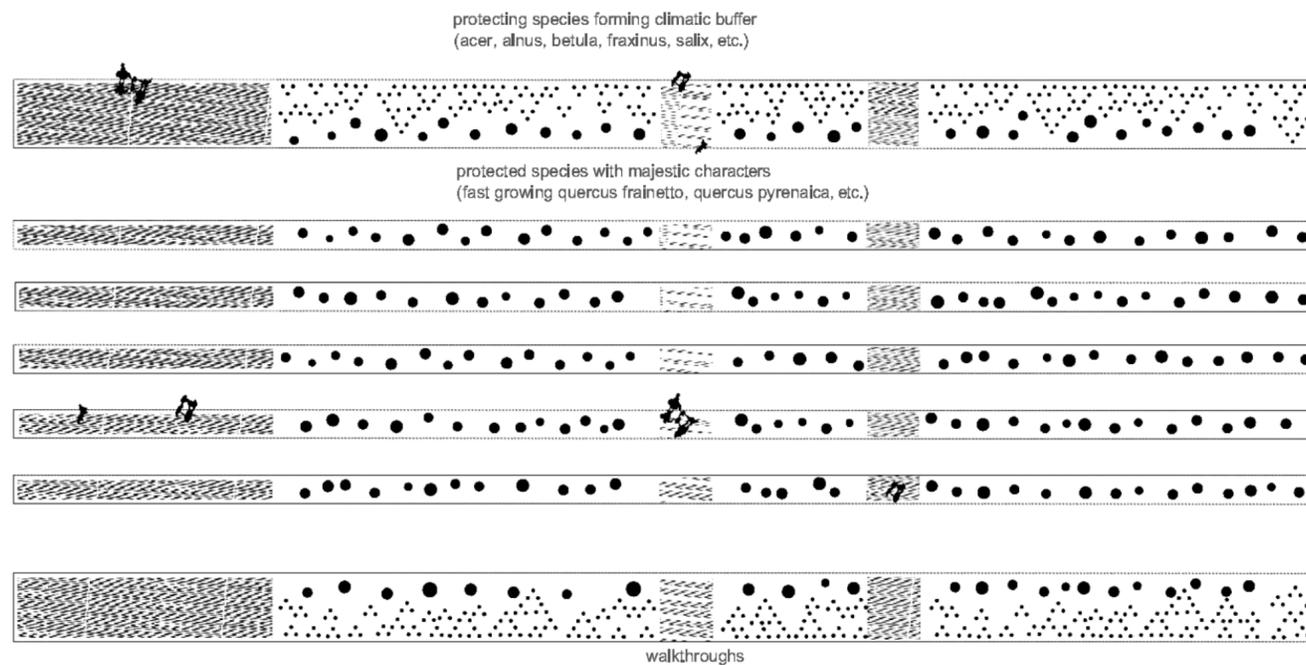
On the quays, sightseeing platforms will look down at the tidal gardens, as places of contemplation, allowing both distant views and close observation of the changing tides.



groves



dry-dock gardens



mail

alternating plantation

alternating side parking

paths

planted sidewalk

built facades

entrances

pruning of lowest lateral branches

raised silhouette expected growth over 10 yrs

retained lime tree alignment

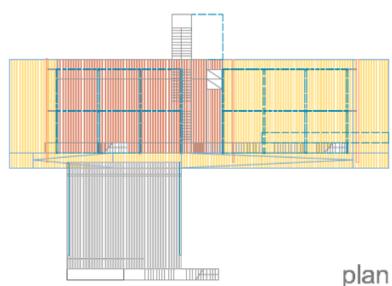
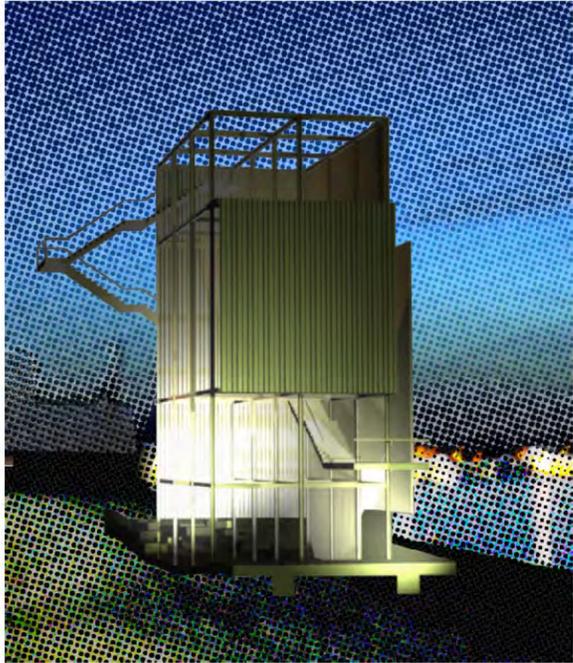
tidal amplitude in the Scheldt river

gradient of green elements according to hygrometry changing

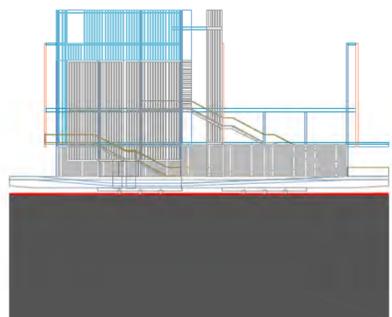
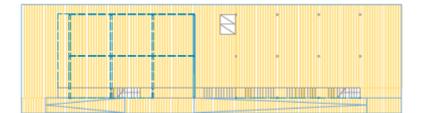
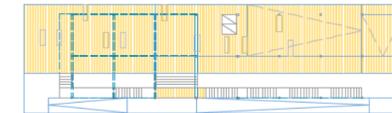
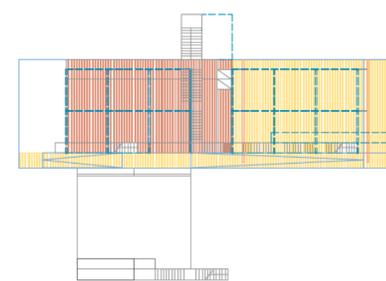
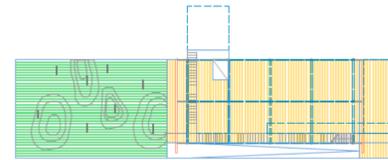
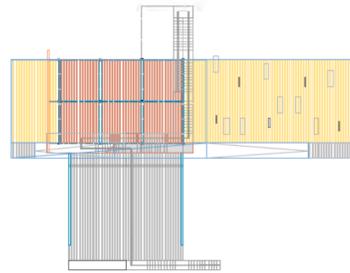
sightseeing platform

tidal gardens

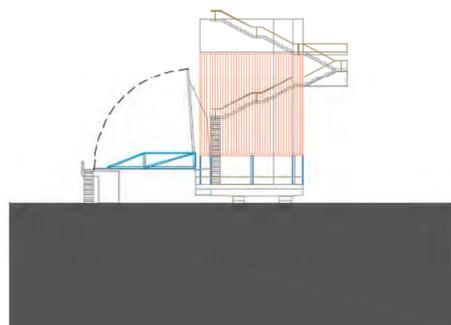
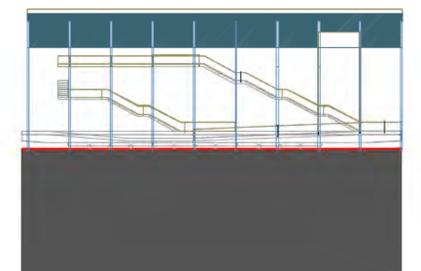
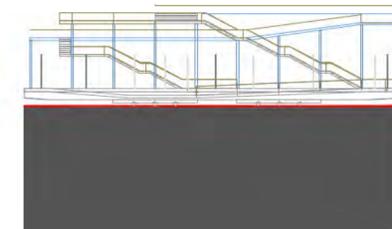
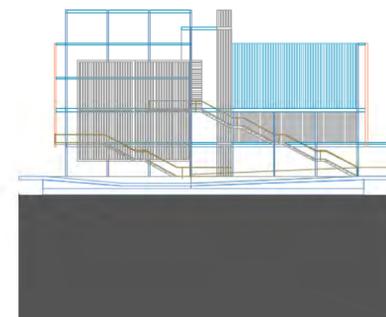
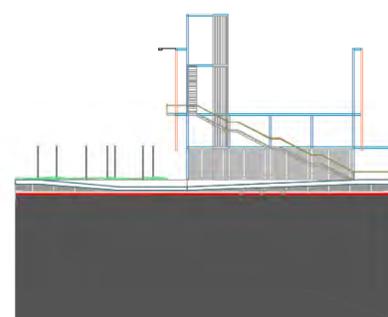
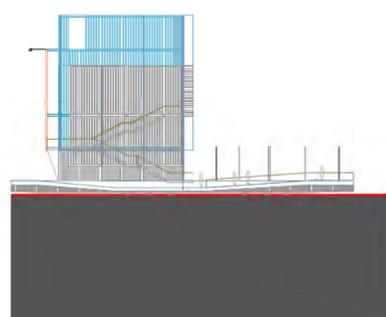
a grammar of objects



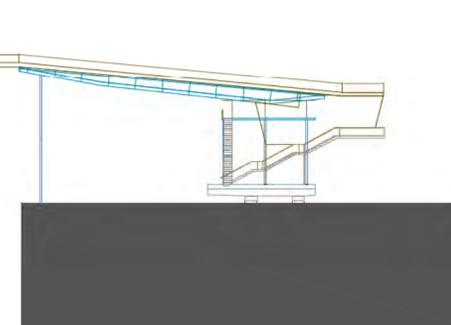
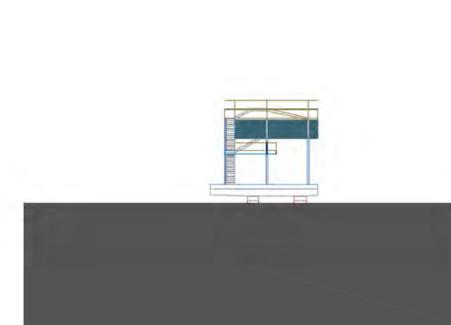
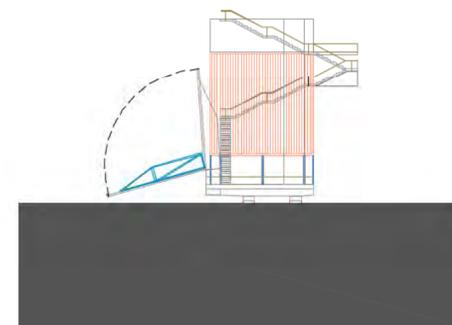
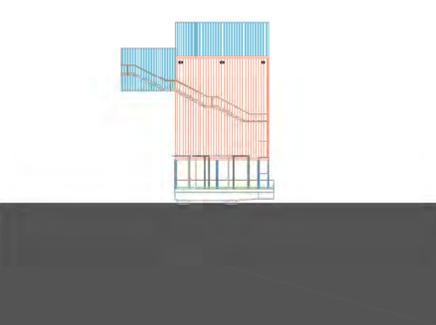
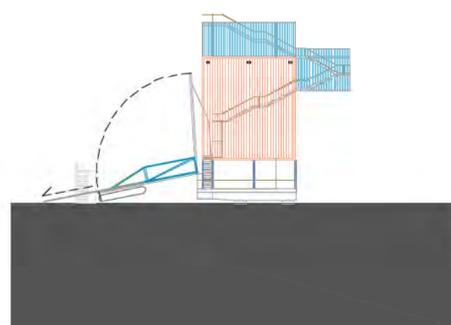
plan

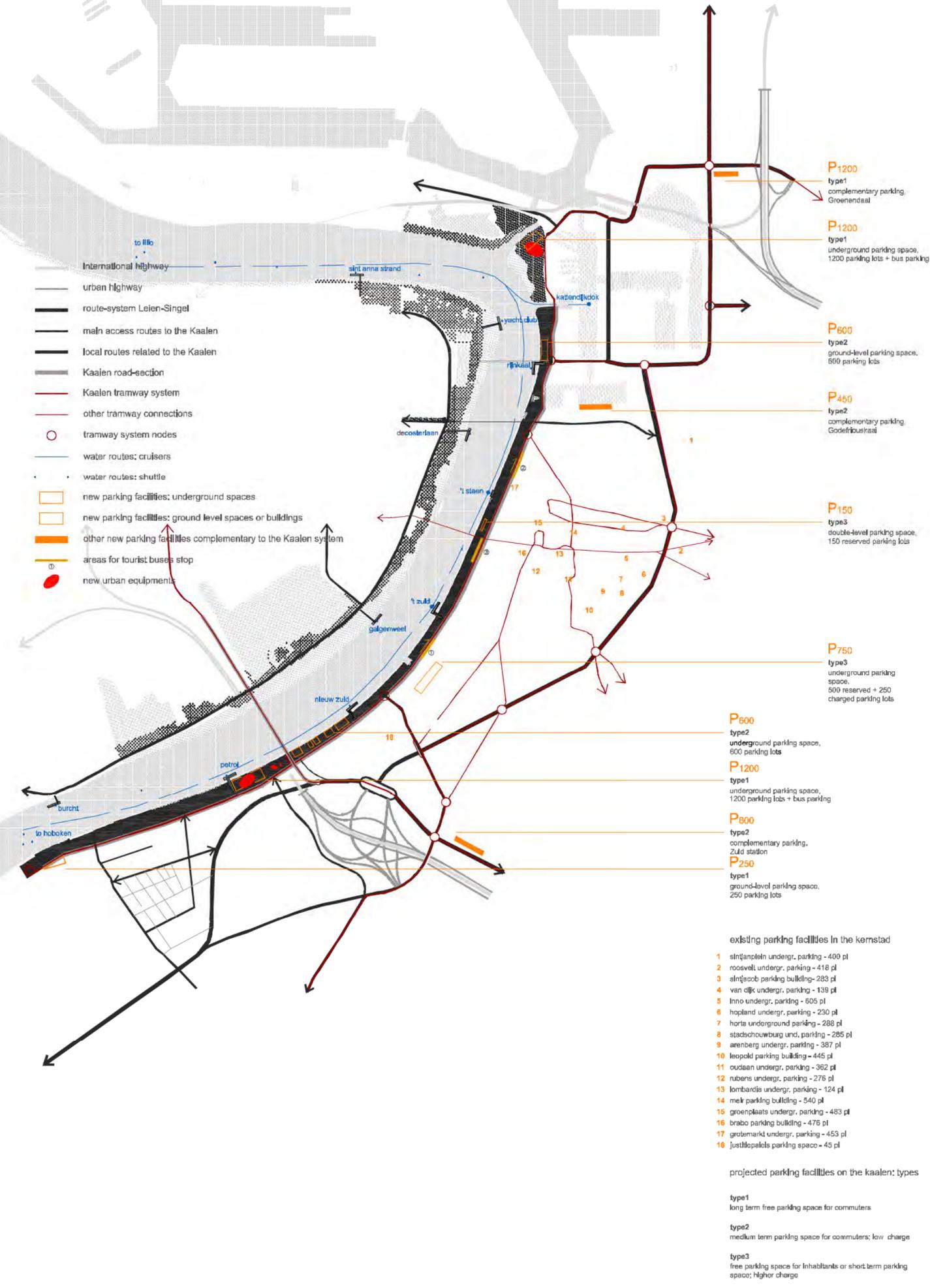


prospect



prospect





The Kaaien are today an important part of the mobility system and of the infrastructural support of Antwerp. They are one of the biggest urban open air parking space in Europe and a line crossing the city from north to the south, linking two parts of the harbour, skirting the central and more ancient part of the city and some important cultural equipments, parallel and near to the main commercial streets.

As it is well known and many experiences have showed in a recent past, an important mobility infrastructure is not the best to regenerate a public space so important for the city.

What we are proposing as an hypothesis to be checked by further studies is:

- a destination and use of the different parts of the Kaaien transforming this immense public space in a cultural inhabited space, where the terms cultural and inhabited must be interpreted in their broadest meaning. As a consequence the Kaaien will be more attractive for different kind of public many of which will enjoy the new public space and its equipments reaching them by feet, by bike and not only by car;
- conceiving the Kaaien as a special urban boulevard, a mall, and as a part of the lower network proposed by the *Spatial Structural Plan for Antwerp (s-RSA)* the Master Plan proposes to decrease the cars volumes and speed and to eliminate the trucks traffic along the Quays: no tunnels, no viaducts, no trench. The traffic investing the Kaaien is not a passing-through traffic, is a traffic looking for a destination in the inner city or along the same Kaaien.

- to build, following the same *Spatial Structural Plan for Antwerp (s-RSA)*, a tramway-line along the Kaaien; connecting the Leien and the two extremities of the same Kaaien where some important public equipments at the metropolitan and international scale, strong attractors of people and traffic, can be built.
- finally to displace a great part of the parking places along the same Kaaien at a location more distant from the central part of the Kaaien; while leaving a certain amount of parking places along the Kaaien for the short term parking during the day and for the residents during the night.

The problems a future mobility study has to face concern the consequences of these hypothesis on the whole mobility network of the city and especially on the lower network.

The main and immediate problems seem to be connected to the parking policy:

1. today along and on the Kaaien, more or less 5000 parkings are present (including the parking space on the Gedempte Zuiderdokken). This is a situation of equilibrium reached by the introduction of a policy of charging the parking space on the Kaaien: the offer seems to meet the demand. Our proposal is to maintain this amount with two aims: to cross the demand of residents with the rationalization of the existing spaces in the rest of the city centre and to rationalize also the localisation of the parking areas along the Kaaien introducing the biggest areas at their periphery and profiting of the flooding protection works to qualify the parking space. We propose an amount of a total of about 4950 places.

Two large sized partially underground parkings of 1000 to 1200 places each can be built at the northern side and at the southern, near the strategic connection between Singel and Leien and close to two important locations for new and large scale urban equipments. Closer to the city some medium size parking spaces of 500 to 600 places are provided. At the Kaaien itself and along the street some linear parking places, about 300 places, for short term parking and inhabitants are situated.

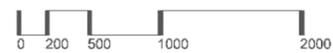
2. due to the recent introduction of charged parking spaces almost everywhere in the inner city the parking pressure is considerably lowered inside the streets. In general we can say that there exist a certain balance of parking spaces in the inner city and at the Kaaien. Anyway the Kaaien have today a major importance for the parking in the centre of Antwerp. For the areas directly related to the Kaaien, the share in the total offer on parking spaces goes up till almost 50%. Even if the Gedempte Zuiderdokken have an important role in the area of the South, the parking pressure is bigger in the northern part of the inner city than in the southern part (due to the existing parking at the Zuiderdokken, but also because of the larger amount of parking spaces inside the streets).

3. the policy we propose as a first approach, as already said, tries to maintain the existing balance, considering the amount of the present parking spaces and also considering the new programs to be developed. In general three different kinds of parking can be distinguished: short-term parking, long-term parking and parking for inhabitants. The priority in the city's parking policy near the Kaaien and the city centre goes to the inhabitants; the second target group being visitors and the third the commuters.

Long-term parking spaces can accommodate a mixed use: commuter traffic, parking space for events, night parking. To keep the existing balance, a well thought phasing of the realisation of the new parking facilities is necessary. Tourist busses stops are organised in three different locations: north of the Steen, at Zuiderterras, near the MUHKA. The long-term stop for busses can be localised at the north and south parkings.



- main access routes to the Kaaien
- local routes related to the Kaaien
- Kaaien road-section
- Kaaien-Leien-Singel tramway system
- other tramway connections
- tramway system nodes
- tramway-stops circles: radius 300 meters
- new parking facilities
- areas for tourist buses stop
- new urban equipments

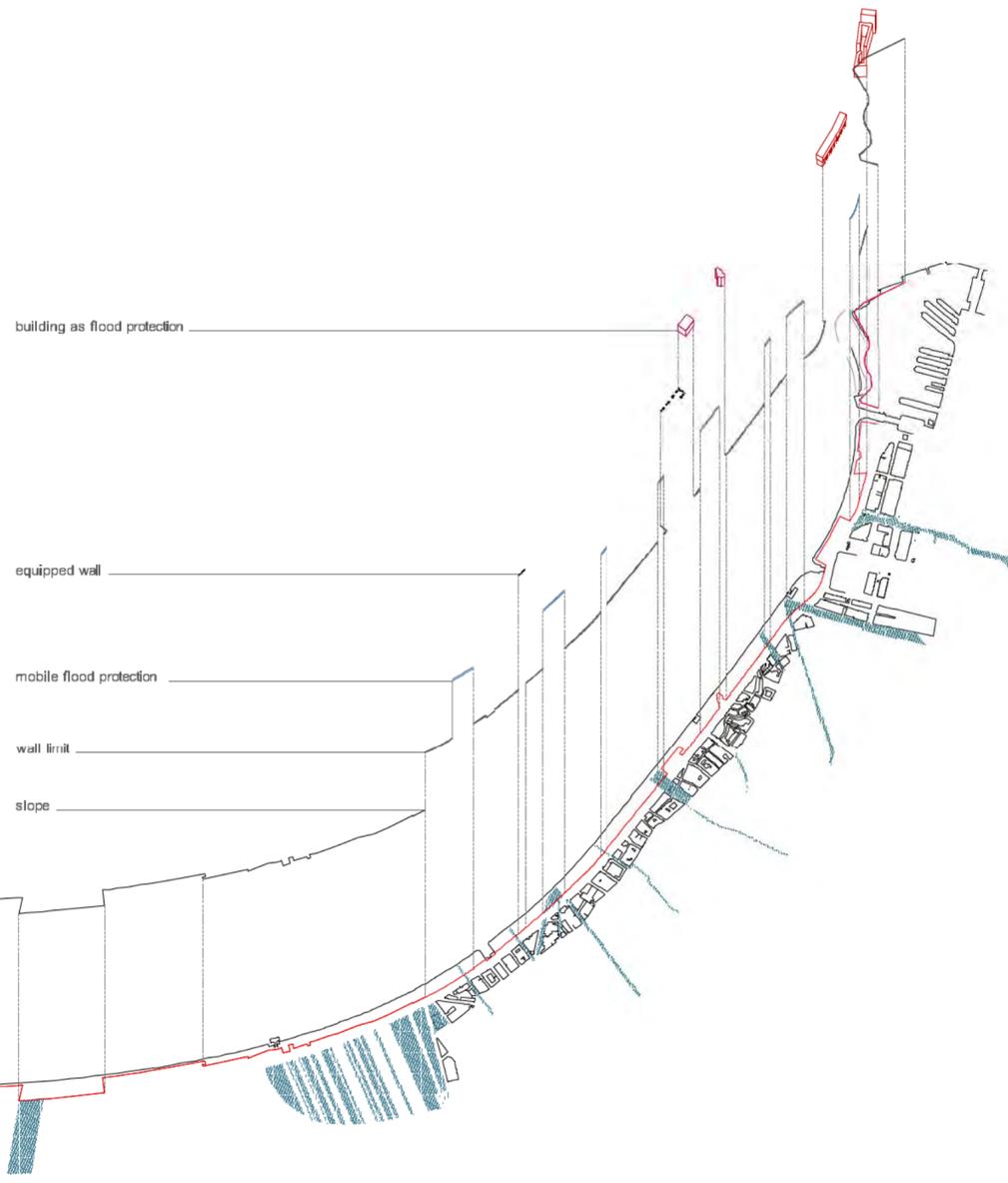


- international highway
- urban highway
- Kaaien road-section
- route-system Leien-Singel
- main access routes to the Kaaien
- local routes related to the Kaaien
- local road network related to the Kaaien
- Kaaien-Leien tramway system
- tramway system nodes
- new parking facilities: underground spaces
- areas for tourist buses stop
- new urban equipments

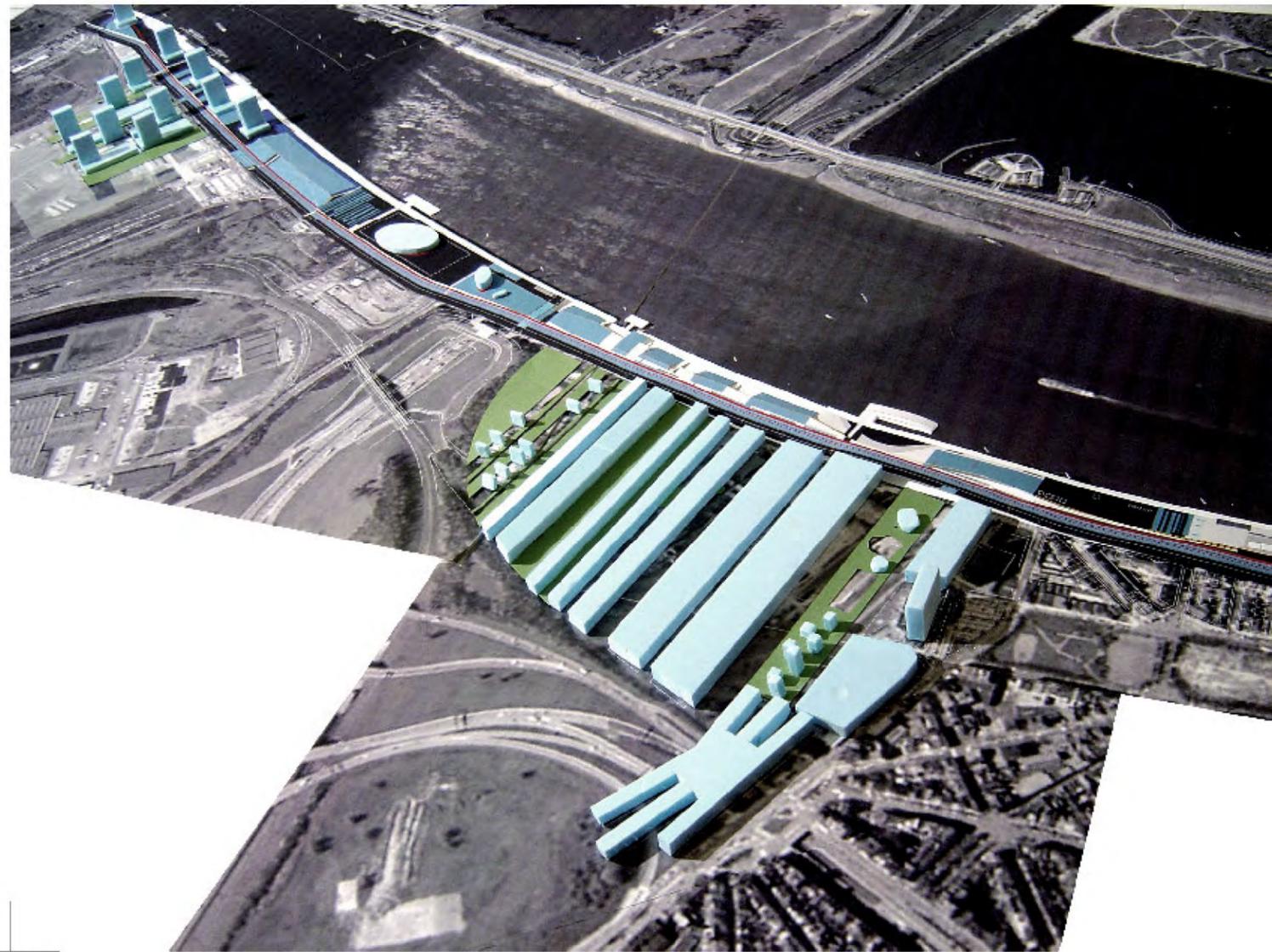




existing mobile protection



view of the south park kaai model



The solutions in order to avoid the risk of the flood certainly requires a profound technical research. In our first reflections they are not extravagant but quite uncomplicated: they deal with an articulated water-barrier that coherently to the part of the city aside can sometime be an equipped wall, a platform, the basement of a building, a slope higher than 9.25 m. Sometime this 9.25 isohypse is also a pedestrian path, looking towards the Scheldt and the left bank on one side, and to the city on the other.

The main technical questions arising are related, as it is well known, to the requirements of the actualised Sigmaphan. For the mobile constructions still different solutions are possible and feasible. The necessary height of 2.25 metres will not cause insuperable difficulties. That the mobile system will be integrated in the ground will be the overall characteristic. Self closing dam systems are possible, but are asking for a deeper construction at the underground level and seem to be more fragile. The advantage of vertical rising systems is the minimization of the width of the construction on ground level. Considering different options, one of the most sustainable options can be the Dutch-Dam system. This system consists of different panels strongly connected to each other that can be folded into the ground. All systems require anyway maintenance and functional checks. For these reasons, of the total length of the proposed water-barrier, 6335 m, only 9 % is proposed to be mobile, what is considerably reducing the costs and the risks.

Another technical consideration concerns the location of the parking spaces 10 meters far from the Kaaien wall in relatively shallow position; this can be considered advantageous for what is concerning the drainage, the influence on the environment, the stability problems and the costs. An important element that must be taken into consideration for the feasibility of the parking constructions is the presence of the Ruiencollector and other underground constructions. The Ruiencollector running along the internal side of the Kaaien is about 11 m. deep; it runs till the cleaning station in Petroleum Zuid and the clean water is after pumped into the Scheldt. The lower level of the underground parkings seems not to cause problems to the sewage system.



It is obviously difficult to investigate the feasibility of a large and complex project as the Kaaïen one. The tendencies of the different variables, of the housing and office market, of the financial market in the future are uncertain and we are in a situation in which. This is why some explorations have to be made and those proposed in the previous pages can be a starting point. The idea is not to look for a total financial balance but it is reasonable to think that these quantities are not disproportionate to the financial and quality aims of the city.

The drawings proposed in the previous pages suggest some opportunities: the hypothesis in the south-park Kaai can be situated between the 200.000 and 300.000 sqm in the housing and office sector, with some high buildings and low patio houses. In the northern part the existing plans are maintained with medium rise residential and office buildings.

About 20-25.000 sqm. of public equipments, for example a polyvalent stadium-concert hall in southern part of the Kaaïen and a congress hall at the northern side are envisaged, plus small quantities of equipments (bistros, shops, etc.).

To live in the two parks along the Kaaïen and the Scheldt, as we propose, can be very attractive for new people in Antwerp: to live in a patio house, or in an apartment with a magnificent view on the Scheldt and in the city. The sub-study on feasibility that will be realised needs to be strongly integrated with the design activity during the construction of the Master Plan.

Phasing the project for the Scheldekaaien must not be perceived as a linear or chronological sequence for the implementation of different subprojects. The phasing can be used as a strategic tool by considering three parallel and coherent scenarios. Each scenario can start separately, depending on the aims to be achieved. Once one scenario has started, it will automatically influence and regenerate other projects of the Master Plan.

The Scheldekaaien project as a tool to "save" the city

The most obvious scenario about phasing suggests to start the realisation of the Master Plan by solving the problems related to the risk of flooding. It is in fact an urgent and important action the city needs. Saving the city by creating a continuous water-barrier along the Kaaien can influence the further phasing of the project. It is nevertheless an expensive project that probably cannot be realized in one step. Depending on the different solutions for the barrier and the development of residential or built areas besides the Kaaien the process can be fastened or slowed down.

The Scheldekaaien project as a tool to valorise marginal areas

This scenario is focusing on the increase of the quality and value of the areas beside the Kaaien in relation to the realisation of a qualitative public domain. It creates opportunities to avoid the marginalisation of some parts of Antwerp territory. The development of the New South can be a good example: investors will be attracted by the regeneration of the Kaaien in front of the planned residential area. Petroleum Zuid as the northern Kaaien are another example. The realisation of a qualitative public domain between the buildable areas and the Kaaien can be the driving force to speed up this process and it is not unreasonable to consider this part of the project as a strategic one, in order to accelerate the process of transformation especially of the southern side of the city centre.

The Scheldekaaien project as a tool to put Antwerp on the international agenda

One of the main opportunities of the Kaaien project is to put Antwerp again on the international agenda. In fact Antwerp needs and has the opportunity to recover an important international place. In this scenario, the regeneration of some parts of the Kaaien can be used as a promoter towards the development of almost two important equipments at the international level. Being the two equipments not symmetrical they can be realised in different moments in time. The equipments are set on a strategic location at the Kaaien: in the north at the Droogdokkeneiland the first one and the other in the south, near the new bridge over the Scheldt. Also the new bridge, creating a new open image of Antwerp could play an important role in the recovering of an international image.

The conclusion of this initial exercise is that priorities and strategic actions are related to different points of view on the city and the coexistence of local and global concerns can be an interesting opportunity for the Master Plan strategy. The redesign of the Kaaien will probably follow at the same time different paths, composing a general idea by the use of fragmented and incremental interventions.

a program

In a *first phase* the complete section of the "mall" along the Kaaien at the Binnenkaaien, including sidewalk, driving lanes, tramline and water-barrier can be realised in combination with the connection of a new tramline to the existing lines on the Leien. The connection of the tramline can be made, following the *Spatial Structural Plan for Antwerp* (s-RSA), at the Londenstraat to the Noorderplaats and by the Namenstraat-Jan Van Gentstraat to the Bolivarplaats.

The existing parking spaces on the Kaaien can in this sense be maintained as long as the planned and new parking spaces in the north and in the south are functioning and served by a tramline.

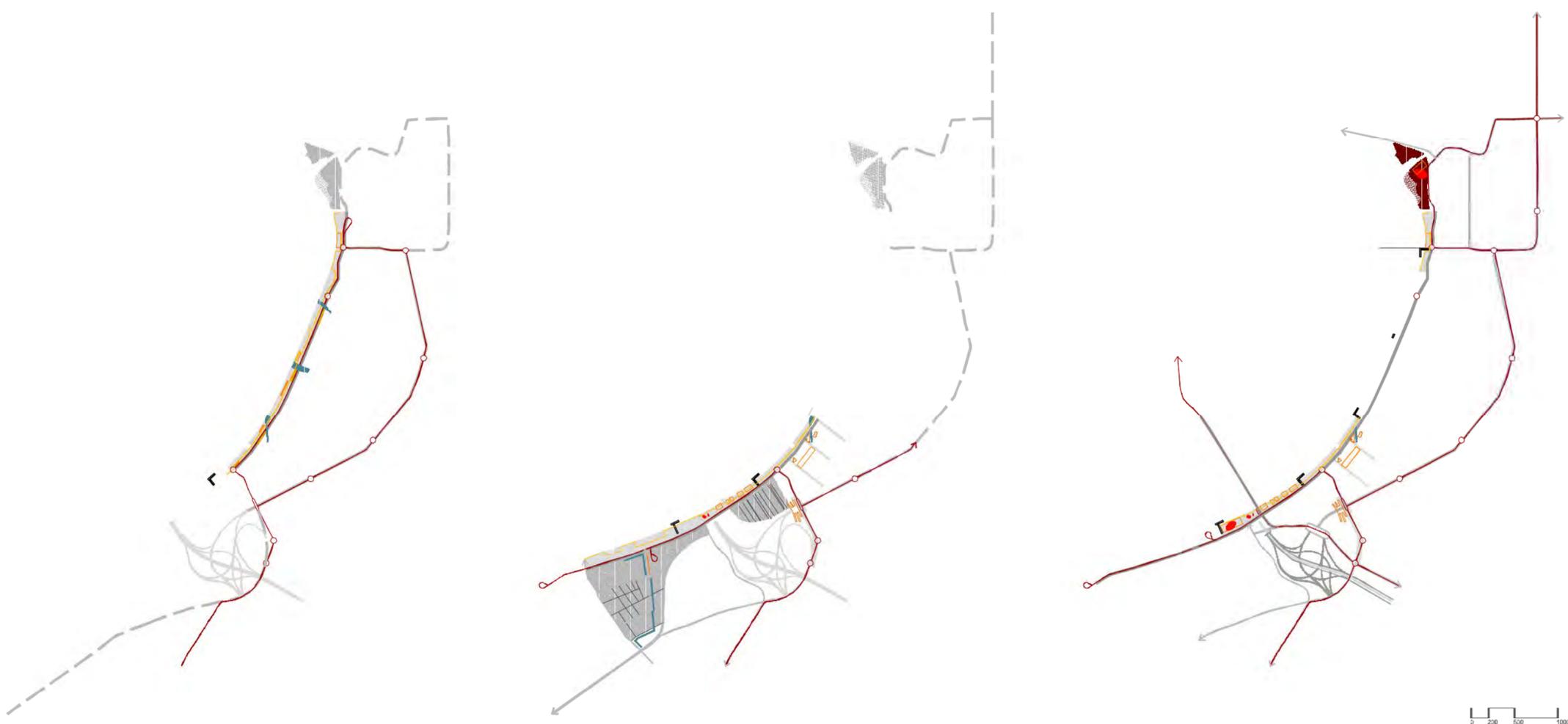
In any case the replacement of existing parking spaces must not be seen in a conservative way following the standard principle (replacement of the existing amount of parking spaces). Developing new parking facilities for commuters and visitors at highly accessible locations further away from the city centre creates, on one side, opportunities for parking facilities for inhabitants inside the inner city and on the other side opportunities for some special activity or function where the new parking are created. To provide enough parking space for inhabitants is also important towards the general objective to attract different population groups to the city.

The phasing of the realisation of the sections of the northern and southern parts of the New Kaaien can be related, as the *Spatial Structural Plan for Antwerp* (s-RSA) is showing, to the planned urban developments at Eilandje and Nieuw Zuid.

The extension of the tramlines to the north and to the south must be ready when the underground parking buildings will be concluded. The location of the parking spaces and especially the phasing of their constructions must also be related to the realisation of the metropolitan equipments.

Independent from the main and large scale continuous surfaces of the Kaaien, smaller and punctual elements on the Kaaien can be immediately realised. For instance the river cruise platforms, some light equipments, green elements, even temporary events are still possible.

- elements of the urban structure
- Highway
- route-system Leien-Singel
- main existing routes related to the Kaaien urban system
- elements of the intervention - 1st phase
- new flooding protection built barrier
- new flooding protection wall for the
- new flooding protection, mobile floating protection
- Kaaien road-section to renovate
- new Kaaien color tramway system
- tramway system nodes
- new parking facilities realized together with the wall
- other new provisional parking facilities on the Kaaien
- areas for tourist buses stop
- small green equipments
- new urban equipments



The implementation of the Master Plan is strongly affected by the already adopted juridical tools and decisional process.

juridical tools

At the moment there are no approved BPA's or RUP's present at the Kaaien (except for the RUP Oosterweelverbinding more in the north). As long as there don't exist any spatial development schemes (BPA) or spatial implementation plans (RUP), the Gewestplan is the only juridical basis for the building permission policy. Probably it will be necessary to work out, according to the guidelines of the masterplan Scheldekaaien and to the *Spatial Structural Plan for Antwerp (s-RSA)*, a series of RUP's to offer a more concrete juridical basis for the location of some sub-projects of the Kaaien. It is not always necessary to make up a RUP. The renewal of the surface of the Kaaien, for instance, can be permitted without the necessity of a RUP. In some situation the Gewestplan can be considered as sufficient to handing in the building permission, at least when the programs and functions to be developed are in accord to the destination of the Gewestplan.

The Binnekaaien are indicated in the Gewestplan as 'oeverstrook met bijzondere bestemming'. The juridical destination sounds as follows: "*the area marked as 'oeverstrook met bijzondere bestemming' is destined to the renewal of the Quays: local recreation as well as touristic and harbour activities can exist together. Only works and handlings related to this destinations are allowed.*"

The existing petrol installations at the south are marked as an industrial area. The Southern parts of the Eilandje: the 'Oude Dokken and Cadixwijk are subject of an approved BPA. The northern parts: the Droogdokken Eiland and the Mexico Eiland have only the Gewestplan as a juridical basis. Here the gewestplan destines the areas as a zone for local activities and SME. A small part of the Droogdokken Eiland, bordering the Schelde, has a green destination.

The juridical description above allows a large quantity of programs and activities. What is lacking in fact is any spatial juridical guidelines towards the location and appearance, i.e. the aesthetic quality of the wanted programs. Also to mention is that the Gewestplan doesn't mention any word on the realisation of the constructions necessary to save Antwerp from flooding. In this sense a RUP will possibly be necessary. Following the proposal here presented, a series of RUP's will be probably necessary to change the destinations of the Gewestplan in order to realise some important projects for the Kaaien.

decision process

the decision process for the whole Master Plan and for each sub-project or RUP must be characterized by a strong and continuous call for participation. Participation can slow down the process, but can be a resource for the many ideas and suggestions that can come out from people differently grouped and for the consensus that generally an intelligent and participated decisional process can build.

The proposals presented in the previous pages can be a start up of the participation process; used as an hypothesis that asks for reactions and utilizing the arguments that are moved by the same reactions. Participation is a multi-dimensional and multi-scale process: from small meetings with chosen stakeholders, to big assemblies with differently concerned groups of people.

