PORTA ROMANA

THE URBAN THICKET

The third reality in the inbetween

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Thicket: *noun*[1]
thick.et | ˈthi-kət

1: A dense Growth of Shrubbery or small trees.

2: Something resembling a thicket in density or impenetrability

1 *Definition by Merriam Webster Dictionnary*

POLITECNICO
MILANO 1863

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00. Abstract

Located halfway from the city center on the north and the agricultural fields on the south, Porta Romana railway yard is at the exact central point of Milan, joining the compact dense city with the scattered organic one.

With a stretched horizontal form dictated by its function, Porta Romana occupies a big portion of the 3rd urban ring of the city which gives it a huge linking potential not only from north to south but also east to west. This special configuration attributes to it the symbolic yet strategic role of a threshold between the agricultural pattern of the Parco agricolo sud and the urban pattern of the city from the north, capable of overturning the actual rupture it is causing.

Thanks to its urban features and linking potential, Porta Romana will host the particular evolving programme of the sustainable Temporary village for the 2026 Olympic games with a long term scope of becoming a student housing complex by 2030 giving all the attention and focus to how to transform this impermeable void into an ecological and resilient threshold.

Starting by a sustainable, regenerative approach from a general to a detailed scale (a macro to micro scale), our intervention gives particular attention to the outputs of the reading phase in order to set the bases of a new ecosystem within the area capable of addressing the particular needs of the existing and prospective users like the nowadays climate issues, the conflictual urban discontinuity, and providing to the city innovative ways of living and sharing, new typologies of public spaces, social cohesion and community engagement. The whole based on a three pillar strategy: Connect | Enhance | Improve.

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00. Preface

We wish we could say that **sustainability, climate change and environmental issues** were our primary concerns and basis when starting this project, but the truth is that despite being highly concerned with the world we live in and the condition of our planet, we did not start this thesis with an environmental approach nor a sustainable landscape awareness....still,as we like to say now: **Better late than never.**

This thesis represents to us a **manifesto** of all the extensive learning we did, the urgency we felt when recognizing the threats our **anthropic actions** as a human specie have engendered, the declining conditions we are living in this **anthropocene**, and our sense of responsibility as future stakeholders in the construction of a better world.

The whole journey started with a simple but powerful question: **What do we want to do?**

We stress on the word **"want"** because the **desire** results from a **need**. Discovering what you want, points at what is lacking around you.

The question becomes then : **What do we need? What is lacking in Porta Romana? What can we do?**

The primary discomfort of tackling a complex site with a complex program became a challenge and an awareness at once. We realized that many of our ideas and values unintentionally and unconsciously go along with the climate matter. We acknowledged we needed basic but fundamental principles: **connectivity, permeability, better quality spaces, more inclusive and diverse public space, more walkability, greenery**....lots of greenery. This is not a cliché, Milan really lacks good air and green structures, but this, you will understand better in the following chapters.

Last but not least, when asking how we wanted this thesis to be, we realized that there are plenty of standard and "in the box'' publications and writings in the academic world. Hence, we decided to address our final work in a somewhat **provocative and direct narrative,** because first, information should be accessible to all no matter their academic level and because no one really reads boring paragraphs. **If you have read this sentence then we hope we have your attention for the rest of the booklet.**

01. What?

< Fig.1: Aerial view of Milan

According to the 2018 revision of world urbanization prospects, **55% of the world's population lives in urban areas** with a predictable increase up to **70% by 2050**; this means that today more than ever cities are at the center of all debates and reflections.

How can we ensure that these **urban settings** can evolve and prosper without taking the upper hand over **rural areas** and agricultural lands? How to apprehend this predictable growth?

Several political authorities and concerned departments, including urban planners and architects, have looked into the issue and taken a lead in this demographic and spatial growth by promoting a **return to the** city and better **management** of its **land capacities**.

These actions are reflected in the **regeneration** of under-exploited spaces, the **reappropriation** of disused lands, the **redevelopment** of infrastructures and a **restructuration** of the urban layout, especially in **post-industrial cities**, focusing on the **flexibility**, **temporality** and **versatility** of these spaces.

Milan, being part of the large attractive metropolises, is no exception to these socio-economical, urban and environmental measures.

Amidst the numerous **Intervention programmes** launched by the municipality of Milan in association with local stakeholders and international organisations, such as the Reinventing cities competitions with C40 or the integrated intervention programmes (Piano integrato d'intervento di Porta Vittoria for instance), a **large scale regeneration programme** is thought for several **under-exploited infrastructures** and industrial amenities among which the **Scalo ferroviario di porta Romana.**

Fig.2: Milano Cortina

01.2| Programme of the project

The programme of Porta Romana relies on **temporality**, **flexibility** and **sustainability**, and is extracted from the new **PGT Milano 2030.**

2020

The urban layout

80% EcoPark

Phase 01 | **THE URBAN LAYOUT**

The first phase of the programme is the creation of a new urban layout with urban connections and relations. The focus of this step is the connecting dispositives and the Eco-park.

2026

The temporary olympic village

50% housing
50% services

Phase 02 | **THE TEMPORARY VILLAGE**

The master plan will serve as a canvas for the temporary village of the 2026 winter Olympic games. The focus of this step is the location of the different areas and buildings with their integration with the park.

2030

The urban district

1/3 of total area

Phase 03 | **THE URBAN DISTRICT**

The third phase is the transformation of the Olympic village into an urban district oriented to host student housing with the necessary urban functions.

On june 24th, 2019, the joint location Milan-Cortina won the bid from swedish cities to host the 2026 Winter olympic games from february 06th to the 22th and the paralympic ones from March 6th to the 15th.

In addition to being the fourth edition of olympic games in Italy, this edition is characterized by its emphasis on sustainable strategies as requested by the International Olympic Committee.

In addtion to these requirements the temporaneity of the programme matchs the longterm goals of the PGT 2030 by reusing the housing spaces, services and infrastructure to host student housing which is the second part of the built programme

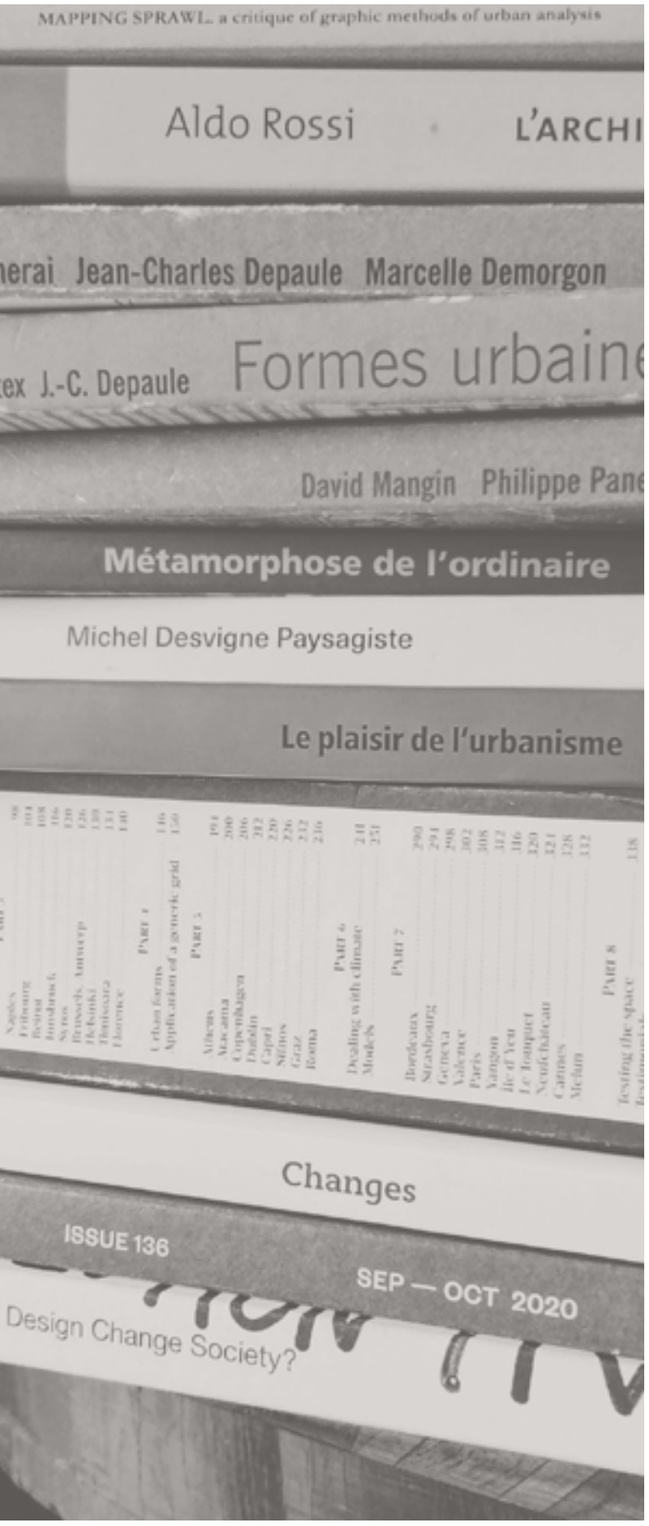
Fig.3: Milano Cortina 2026 logo

Fig.4: Image of student. Unsplash.com

By 2030 the olympic village needs to convert from a temporary athlete residence into a long term housing complex for students.

The reason behind this programme shift is the fact of Milan being the major global centre of high education and second largest city in high education and research institutes after Rome in Italy.

Home to nearly 200.000 students of which 70.000 are non resident all fluctuating between the 7 universities and 148 departments. The city witnesses an increase in student housing demand with sustinable environments, efficient mobility systems, new ways of living and a variety of services and public space.



< Fig.5: Image of bibliography

The presented project in this booklet is the result of an 11 months work carried out by the 2 members of the team under the guidance of their thesis supervisor and tutors.

Due to the unprecedented circumstances of the Covid 19 pandemic, the entire process was held in distance mode which enabled the use of new ways of learning and researching.

Despite the initial inconvenience caused by the distance, the new situation has made it possible to emphasize the urgency of the environmental issue and the impact of the dynamics of cities on the latter, making it a priority for us to tackle these new challenges and reflect on a series of possibilities and suggestions in order to overturn the current situation of the site in compliance with the imperative standards dictated by today's crisis.

In light of these considerations and this extraordinary situation, the work took place in 3 stages:

First, a sensitive reading of the site, its history and its characteristics, followed by theoretical research on the theme of *narrow parks and infrastructural lands* with a special mention to public spaces, new ways of living and new technologies for sustainable landscaping, In order to ultimately come up with intentions and projections for the project.

It is important to stress the fact that this is a non-linear process with several back and forth actions paired with a research-based background.

02. Why

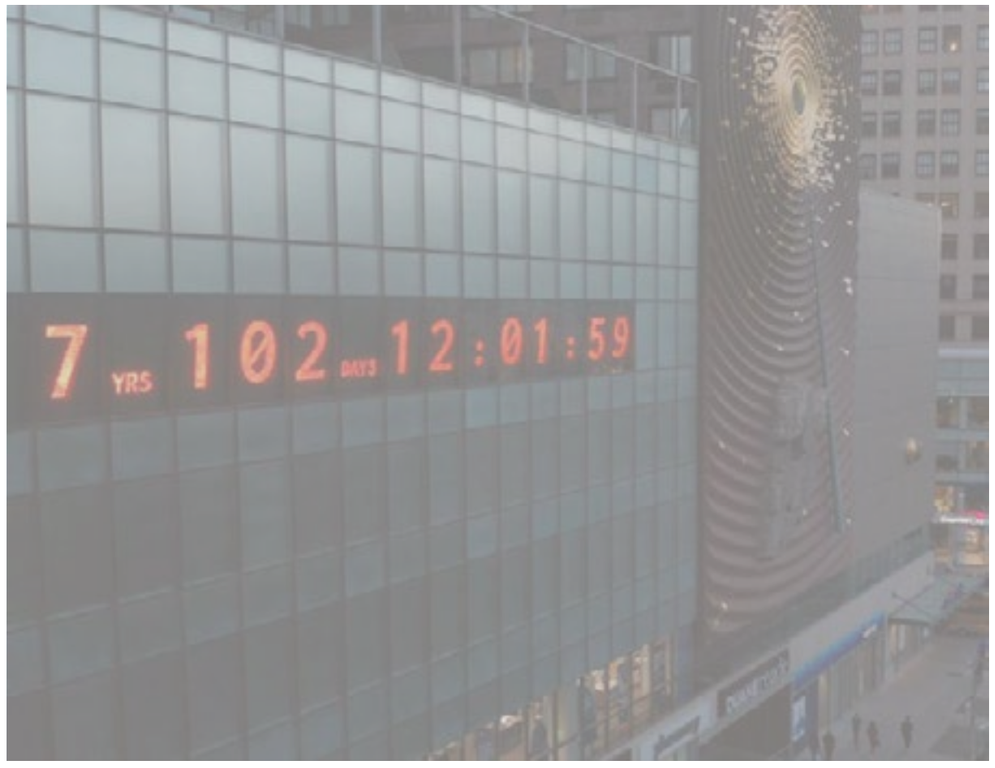


Fig.6: Manhattan's collapse clock by Gan Golan and Andrew BoyG

How long do we have before we collapse?

If you have ever asked yourself this question then we have great news for you; There is a new digital clock in Manhattan's union square displaying how much we have left before we hit the crisis (or it hits us). The bad news (because there is always a bad news) is that if you were expecting to survive to this era and decided climate change was none of your concern, we are sorry to cut you short: we have a little more than 7 years before we reach climate collapse.

This clock made by the artists Gan Golan and Andrew Boyd shows how much time we have left before our planet's carbon budget is depleted, and once the deadline reached we will experience catastrophic climate events. How did we get here?

One needn't provide the definition of global warming and climate change. We all know and see around the glaciers melting, sea levels rising, forests burning, and wildlife scrambling to satisfy the growing greed of humans.

We burn the fuels for our so-called needs extensively which give out the greenhouse gases that further deplete the protective layer of the earth called Ozone layer.

Everyone wants to drive a car on the overfilled asphalt roads releasing poisonous gases as traces of our paths, everyone wants to fly for christmas or summer holidays, and most people think that amazon packs are delivered to their doorsteps by elfs. *Alright maybe not elfs but that pack did not come to your door walking or riding a bike?*

This is of course one extrapolated example to illustrate the human (*but not so human*) behaviour.

There are unfortunately too many ways in which we destroy our planet, and probably as many ways to save it.

While many people think of global warming and climate change as synonyms, they are completely different but interconnected.

Global warming refers to the long-term warming of the planet while climate change encompasses global warming, It refers to the broader range of changes that are happening to our planet. *"Scientists use "climate change" when describing the complex shifts now affecting our planet's weather and climate systems—in part because some areas actually get cooler in the short term."*[1]

Although we believe everyone is aware of the current situation we still felt it our duty to stress on the actual state of our planet and how it affects by any means our lives - and by extension our thesis.

1 .What is global warming, explained for National Geographic by Christina Nunez , January 22, 2019

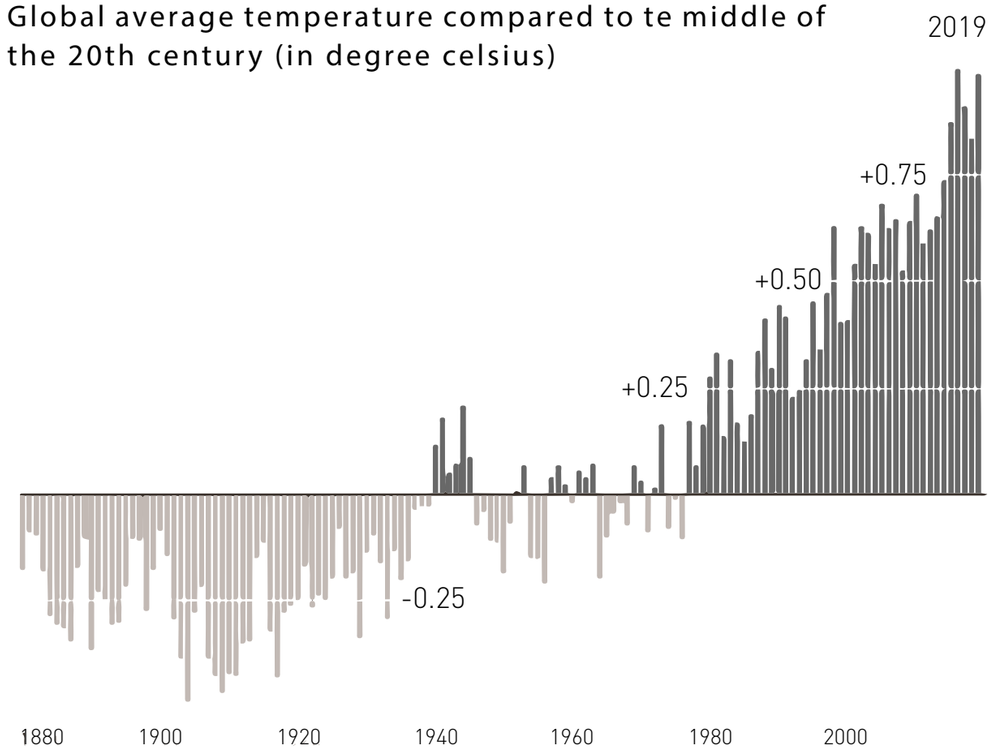


Fig.7: Average temperature in the world, By The Learning Network. Updated 30 april 2020

"How hot was 2019? It was the second warmest year since data has been collected, just shy of the 2016 record by 0.07 degrees Fahrenheit (0.04 degrees Celsius). Decade-long average data, as in the graph, smooths out natural influences such as a volcanic eruption or El Nino/ Nina, which affect climate.

The data help us understand what we see happening around the world — events like the Australian wildfires, the melting sea ice of the Arctic and Antarctic, the Caribbean hurricanes, and the Day Zero water shortages in Cape Town, South Africa."[2]

2 .What's Going On in This Graph? . Global Temperature Change. The New York Times 30 April 2020

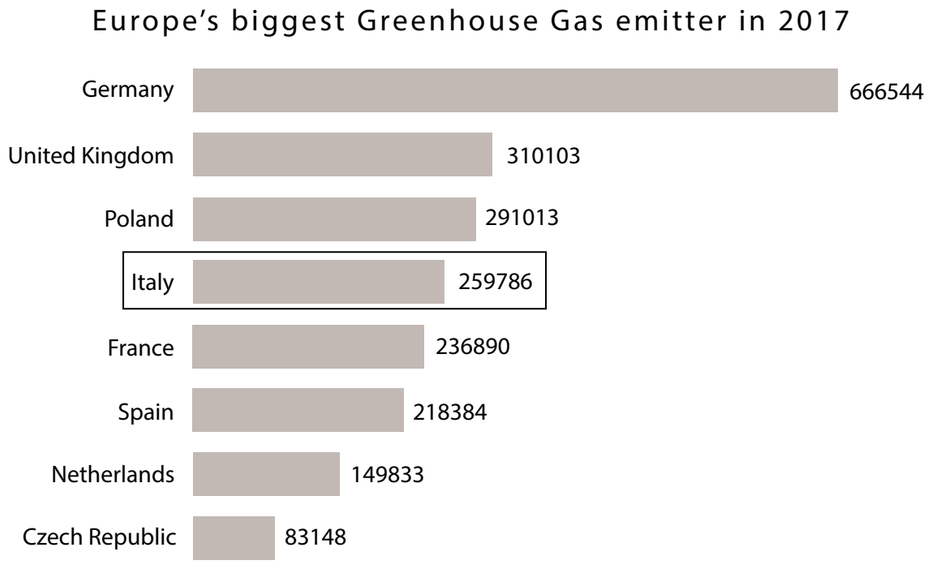


Fig.8: Europe's biggest Greenhouse Gas Emitter in 2017, By Office for national statistics/Eurostat

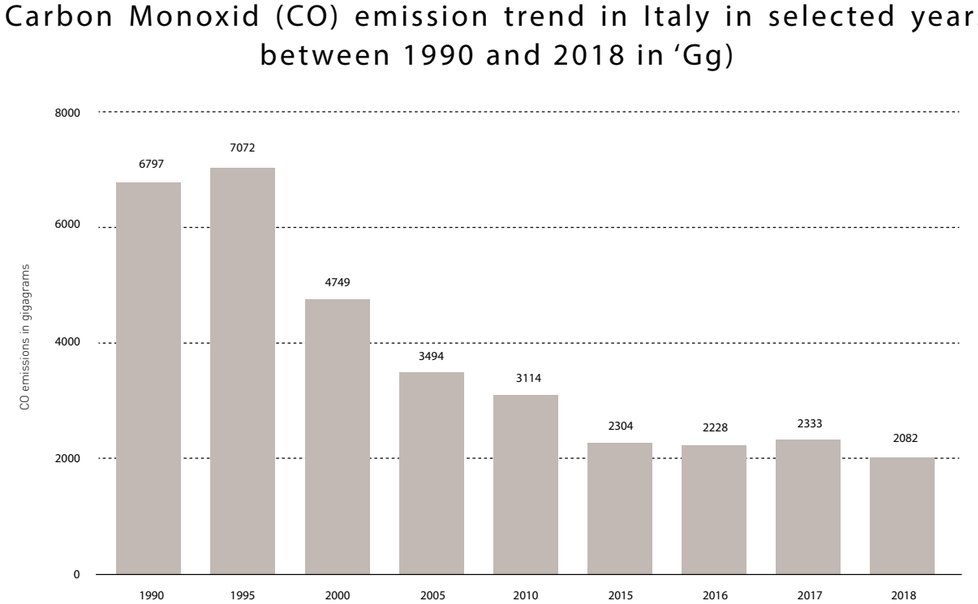


Fig.9: Carbon Monoxid emisison trend in Italy in selected years between 1990 and 2018 By Statista

In this Statista graph based on the research of the Office For national Statistics, showing the biggest european greenhousee emitters in 2017, Italy ranks among the fifth most "polluters" of Europe. The reality of the numbers is more important than what is shown on the left because the survey excludes the household emission. The ranking can vary according to the consumption tendencies of italian householders but we can assume from the following graph that italy is improving.

In the following graph we can gladly notice the decrease of CO emission trends in Italy in the past 18 years, this can be attributed to the local efforts and policies, a better implementing of renewable energies and the decline of industrial production which is the main poluting sector, surprisingly followed by the transport sector. Don't we have enough bikes? maybe not.

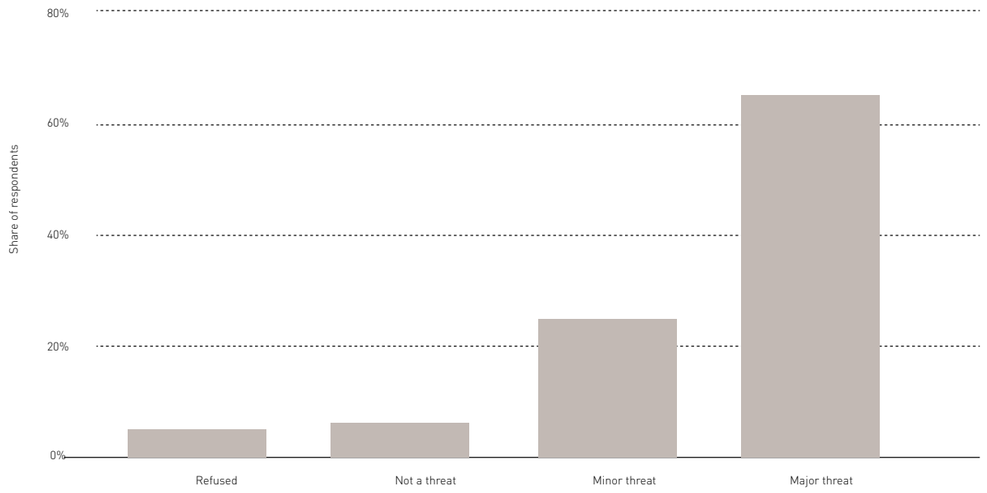


Fig.10: Climate change emergency in Italy by Euromedia research.

When asked about their concern on the climate change topic, over 80% of the surveyed italians[3] responded positively. Considering it mostly to be a major threat to Italy. Most of them related the climate change in Italy to waste disposal, air pollution and ocean and sea pollutions, as the top 3 most relevant environmental problem in the country.

But when asked about the most polluted cities in Italy, the responsed diverged. for that reason the following science backed gaphs will enlighten us about this matter and focus on our study area: Milan.

Is Milan really the most polluted city in Italy and if so why? (*it is a tricky sentence we know*).

To respond this question we need some basic information about air pollutants: Particulate matter, and Nitrogen Dioxide.

Particulate matter is a mix of solids and liquids, including carbon, complex organic chemicals, sulphates, nitrates, mineral dust, and water suspended in the air. [4]

3.Italy; September 27, 2019; 1,000 respondents; 18 years and older; Computer-assisted telephone interviews (CATI)

4 .https://www.blf.org.uk/support-for-you/air-pollution/types

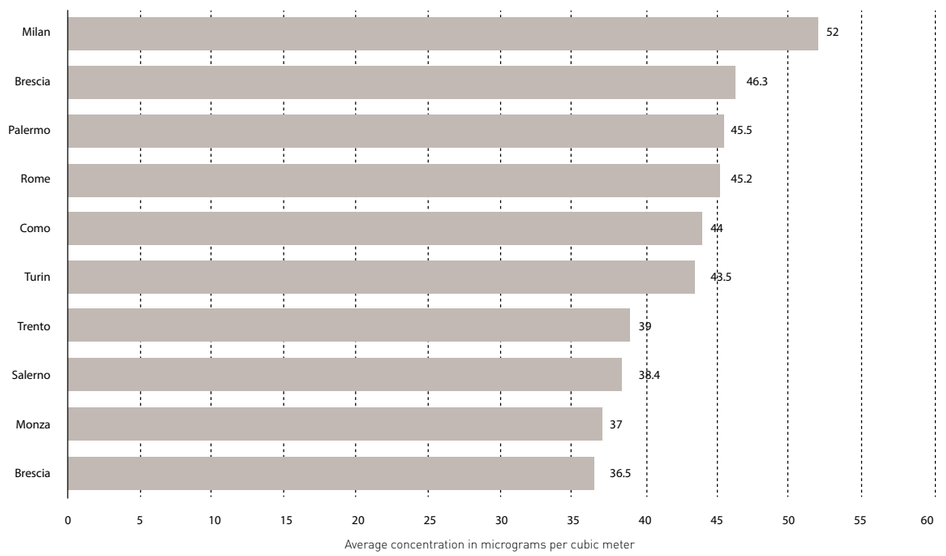


Fig.11: Average annual concentrtion of Nitrogen dioxie in selected italian cities in 2018. By Legambiente

While Nitrogen dioxide is a gas and is a major component of urban air pollution episodes, produced by cars, and power stations.

To respond to the question asked in the previous page: Yes, Milan is indeed the most air polluted city in Italy, with a concentration of 52 Microgram per cubic meters of NO_2 well above the EU limit of 40.[5]

Due to a combination of Geographical, meteorological and anthropogenic factors the air quality is the worst in Europe. If you live in Milan, congratulations you are a survivor.

Is Milan taking action?

For every bad news there is always a good one, and we are pleased to respond to you YES.

Since February 2019, the municipality of Milan has introduced new bans and measures also included in the PGT 2030 stating that by that year all diesel vehicles will be banned from circulating, Public transport, cycling and car sharing will be encouraged, 1.7 Million sqm of green lands will be protected, one metropolitan park will be conceived and over 3 million trees will be planted.[6]

5 https://www.statista.com/statistics/627831/italy-number-of-cars-in-milan/ .

6 https://www.theplan.it/eng/architecture/a-metropolis-embracing-change .

If you live on planet earth in 2020, you have probably come across "sustainability" and "resilience" in some fancy political speech or some market targeted project presentations.

These new fashionable words have become platitudes despite holding the potential solutions to the ultimate dilemma of the 21st century: how to survive in the advent of the Anthropocene?

In order to restore the genuine meaning of both concepts we first need to relate to their respective definitions.

From the Oxford languages dictionary, The second definition of Resilience is *the capacity to recover quickly from difficulties; toughness.* The first one is related to the elasticity of a material and its capacity to recover its primary shape.

On the other hand sustainability can be defined either by *the ability to be maintained at a certain rate or level and/ or the avoidance of the depletion of natural resources in order to maintain an ecological balance.* We can simplify these definitions by assuming that Resilience is a theory of adaptation to climate change in order to recover from the symptoms, whereas sustainability is a theory of mitigation of the causes **of climate change** by maintaining an ecological balance in order to prevent and abolish the symptoms.

It is clear by now that both resilience and sustainability are prerequisites to "hang on" while transitioning to an ecological civilization. Yet, **the actual question which we try to undertake in this thesis is whether we should design for resiliency to adapt or design for sustainability to mitigate?**

Richard weller, in his paper "Resilient sustainability?"[7] provided us with a promising answer stating that *: "Resiliency is then not so much about the abandonment of hope, as it is the grounding of sustainability's utopian tendencies in real places with real communities who are really experiencing deleterious environmental change, and because sustainability tends to favor the eco-system and because resilience tends to favor the social-system, the two need and complement one another".*

Therefore It behooves us to include both notions in our value system first as citizens of this planet then in our design philosophy as architects and last but not least in our design strategy as students, and this starts within our current context: MILAN.

7 .Architettura del paesaggio 38, p11-17

Fig.12: The sustainable > Development goals (SDG's) adopted by all United Nations Member states in 2015

Fig.13: The cover slide of the "Milan acting on climate emergency: The reselience Strategy"| 2019

The city of Milan belongs to 8 international networks among which 3[8] are focused on resilience, sustainable development, urban planning, mobility, energy and waste management.

All these networks introduce and promote resilient management plans for metropolitan cities with high environmental and social risks, in alignment with the 2030 Agenda for sustainable development.

"Milan Acting on climate emergency: The resilience strategy" is the name of the smart city expo world congress of 2019 held in Barcelona during which the Municipality of Milan has presented different strategies to counter environmental, economical and social shocks and stresses among which: Heavy rainfalls, heat waves, collapse of infrastructures, poor air and water quality through national, territorial and local actions.

8 City protocol, C40 Reinventing cities and 100 resilient cities.

Concretely this means that different stakeholders established a **Resilience Department** that works on monitoring and evaluating the different in situ actions. the most important and relevant one, especially to city planners, architects and real estate developers are:

City Government Plan which introduces new standards for new construction and requalified buildings .

Sustainable Roof Project that aims the establishment of potential installation of solar energy plants and green roofs in order to reduce polluting emissions of public building roofs.

Forestami: Urban forestation plan

PAC: climate action plan for adaptation to climate change with a 2050 horizon.

Sustainable Urban Mobility Plan (SUMP) aims at enhancing public transport and shifting the private car ownership model to shared mobility service model.

-4% LAND CONSUMPTION

15 Shared gardens

1 Metropolitan park

20 urban parks

1 million m² of

protected green land

7 new squares

7 regeneration

plans for **7 disused railway yards**

1.250.000 m² of railway

yards repurposed

675.000 m² of green areas

200.000 m² ecological corridors

4 sites in alienation

process for regeneration

" The void is a measurement tool of the new dimension of the city capable of feeding new figures and images, as of the porous and permeable city where indeed the void between an object and another authorize movements and creation of spaces" Paola Vigano "the territories of urbanism - Lotus international n 150,2012"

Fig.14: A map of Milan showing the green lands and the urban void of the railway stations .author unkown

Sustainability is not only about green spaces, mobility and water management. When it comes to cities, and big urban settlements the dynamics are way more complex and require different tools and strategies among which the main theme of this thesis : Infrastructure recycling.

This recycling process in cities appeared around 1970, as a response to the post industrial city pattern. Was it the collapse of the suburban model, the critiques of the modern production, the awareness of the climatic issue or the increase of the tertiary sector that motivated a return to the city and a reappropriation of the centers? Probably all of it at once.

In Italy, this dynamic was brought to the public opinion by Bernardo Secchi in his article "Progetto di suolo"[9], in which he suggested a critical revision of the making of cities and the void being its principal material, and was developed by Paola Vigano nearly 10 years after in her book "La citta elementare". The spatiality that emerges from a void regardless of its nature and typology is a potentiality for endless scenarios. It is a conflictual dimension between private and public, individual and collective and the incubator of a new way of living together.

One, though, should not restrict the void measure of a city by the strict definition of an empty land. A warehouse to rehabilitate, abundant asphalt surfaces, underused backyards, a vacant building, freeway edges or as in our case, a misused train station are all voids capable of regenerating, offering new uses and rituals and propelling economy and social cohesion.

9 Bernardo secchi, "progetto di suolo" Casabella, n 521, 1986

Fig.15: A counterform map of the intervention area highlighting the existing void

The regeneration of the 7 railway yards constitues a regeneration of 1.250.000m^2 urban voids and ceasuras. these 7 fragments will host 65% of green surfaces creating a green connected system for the city. [10]

The project of Porta Romana comes within this concept of infrastructure recycling.

Taking advantage of the impermeable void which constitutes the site and turning this problematic reality into an eco park and a sustainable district not only revivals the area of the porta Romana but also propones a new sustainably resilient model in order to invest in urban voids and/or post industrial sites. Which also contributes into a new identity for the city and mitigates the environmental shocks from which Milan suffers.

Though this approach might seem obvious for some and hazardous for others, we consider this theoretical research compulsory in the understanding of the pluridimensional aspect of our urban project and elementary in the consolidation process of our strategy.

10 Ametropolis embracing change, THE PLAN, 2018 https://www.theplan.it/eng/architecture/a-metropolis-embracing-change.

Fig.16: The entrance of Fondazione Prada showing no presence of green and all asphalt. Provided by the professors

We all know from the never ending research and studies that cities are hotter than the surrounding countryside. It's called the "URBAN HEAT ISLAND EFFECT".

Unlike the rural countryside, cities are largely paved-over or built on, with asphalt and concrete which leads to "no breathing grounds" which eventually just absorbs the sun's energy and re-release at night.

The study by the researchers from Yale university shows that emissions from asphalt are a significant source of air pollutants in cities, especially in hot weather. Researchers found that when asphalt was exposed to hot summer conditions it resulted in a 300% increase in emissions of secondary organic aerosols (SOA), an air pollutant known to have significant impacts on public health.

One of the ways to counteract this impact of the toxic asphalt pavement is by "Depaving".

The official depave movement began with a single Portland lot in 2007 by a man named Arif Khan who wanted a garden in his already paved backyard. The Dutch government also believes in acting against climate change by getting rid of 10% of its asphalt and replacing it with grasses and plants. We need green landscapes to absorb the heat and create cooling spots in the cities.

Parks are the "lungs of the city," architect Frederic Law Olmsted famously said about New York's Central Park. From the 500-year-old Giardino della Guastalla in Milan to downtown Houston's new Discovery Green, parks provide both a place for harried city residents to take a deep breath, relax, and connect with nature, and a cooling counter to the heat-island effect created by all that asphalt. Green space has even been shown to improve your physical and mental health.

Also an interesting term which was read in the article "The Dirt Issue by Lynn freehill-maye"[11] was "Softening the cities" which was to add green to the city in replacement of the asphalt.

11 https://www.yesmagazine.org/issue/dirt/2019/02/18/how-removing-asphalt-is-softening-our-cities/

Our idea is to extend the existing green corridors of the city, make them more walkable, bikeable and liveable, and make our project a part of the green system of the city. This is how our project starts with the idea of the site being a "Green Paradise".

Fig.17: The existing condition of the sidewalks in Viale Isonzo

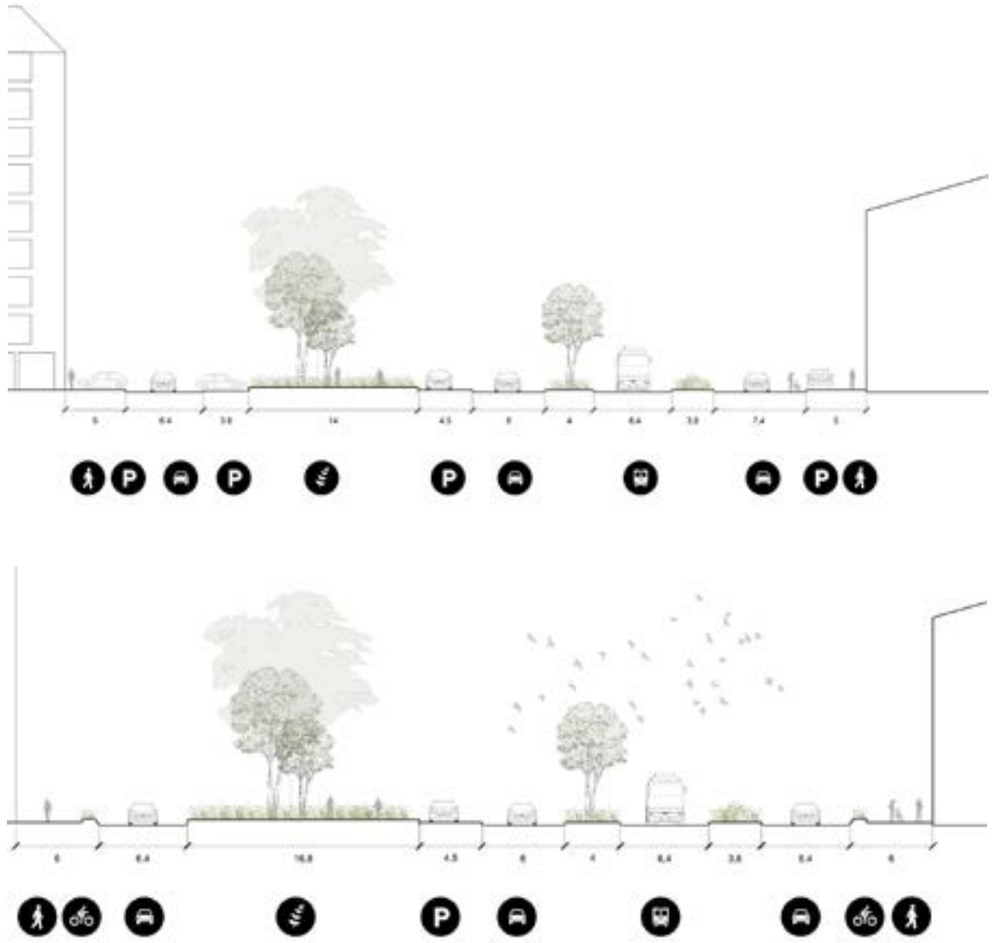


Fig.18: The future condition after the depaving of the sidewalk in the project

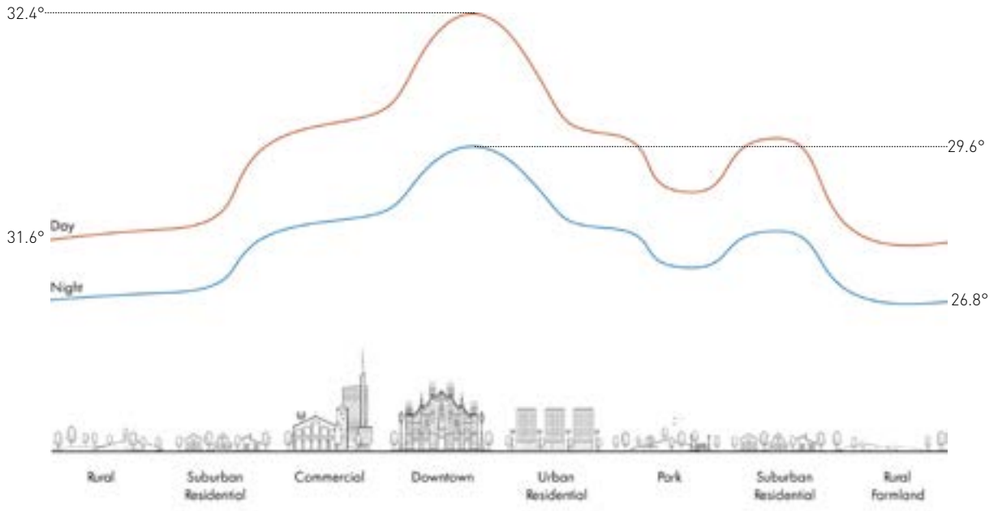


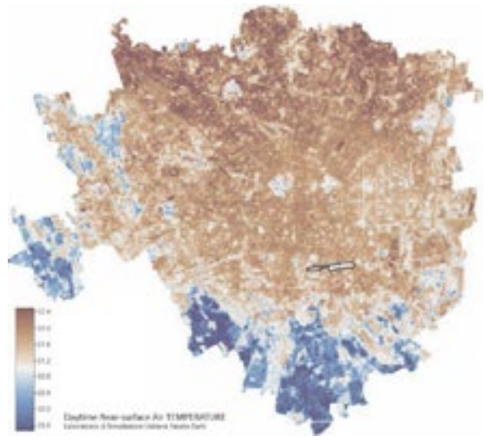
Fig.19: A schematic graph showing the difference of temperatures between city center and rural areas in Milan, Day and night

The Milan metropolitan area, with 41% of its territory covered by built-up[12] areas and infrastructures and with a population density exceeding two thousand people per square kilometre, is particularly subject to the "heat island" phenomenon, especially in The heat islands are usually determined by the peculiarities of each urban context (typology of blocks, urban pattern, ratio of full/void). But what makes it alarming and more drastic especially in Milan is massive use of asphalt and concrete, the height of the buildings, and the presence of dark surfaces.

This phenomenon creates temperature gaps from 6 to 7 degrees celsius between some areas in the city center and in the rural areas as we can see in the urban heat map ont the left.

12 . https://www.telespazio.com/en/news-and-stories-detail/-/detail/100620-milano-isole-di-calore

Most interventions thought by the different stakeholders include urban forestation and soft mobility improvement, among which the following actions adopted by the Milan PGT 2030



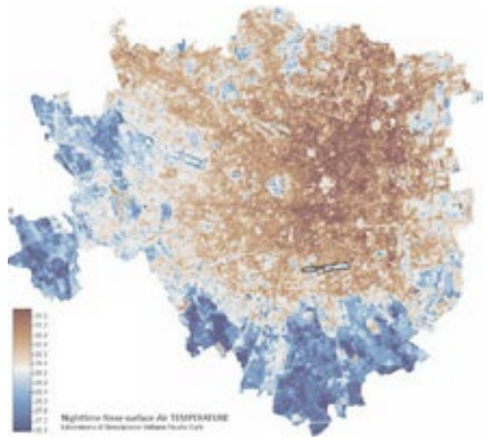


Fig.20: Urban heat island maps of Milan, Laboratorio di Simulazione Urbana "Fauso Curti", Politecnico di Milano

200.000 Trees planted from 2018 to 2020

3 Million trees to be planted by 2030

Milano citta green project

Creation of the project FORESTAMI

+290 new bike sharing points

218 km Cyclable way

+1 new ecoquartier

10% of milanese surfaces present

NBS solution potentiality

Nature Based Solutions (NBS) inclueded in Art 10 of PGT Milano 2030

"The identity of a city is formed in a long time period. The city is shaped with its geographical characteristics, cultural level, architectural character, tradition and customs and lifestyle."[13]

Changes are inevitable and with time, the city carries the traces of this change itself. The elements mentioned above also keep changing with time sometimes partially and other times completely. The documentation of these changes remains as an expression of a historical accumulation.

Change is an indispensable process but it is necessary to provide the continuity and conservation of originalities during the change of some values considering the dimensions, conditions and results of change. Cities are going through a transitional phase and suffering from a psychosis of a lack of Identity. Every building, every park, every road and every alley looks alike. It seems like every element in the city has been meticulously mass produced just like the products in the industries.

If cities start getting engulfed in the process of the changing time, one would wonder if we can differentiate any city at all by its characteristics. Hence, architectural preservation has always remained an important field as "it conserves the essence of the city at least in one aspect.

We as a team believed in revival and regeneration of a space as a solution to this problem.

^
Fig.21: Photo montage showing the different symbols of te identiy of Milan

13 .Loss of city identities in the process of change: The City of Konya- Turkey by Esra Yildiz,Dicle Aydin, Suheyla Siramkaya

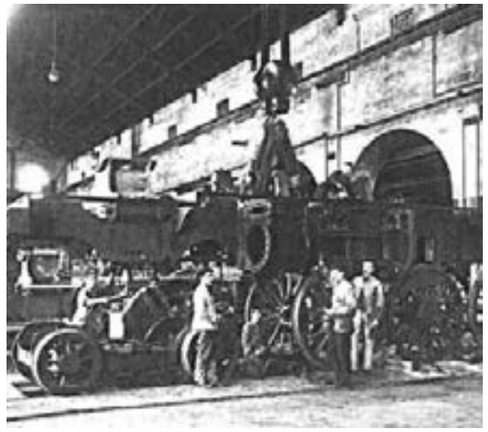


Fig.22: Porta romana station in the past. by http://www.storiad-imilano.it/citta/milanotecnica/ferrovie/ferrovia.htm

The identity of Porta Romana is similar to any space of transport and transit. As Marc Augé calls these spaces stripped of any form of identity: A non place.

Going from a space of circulation, of standardization and out of time, the railway yard has evolved into being a gated enclave, a no man's land in the middle of a frenetic urban regeneration process.

Fig.23: No man's land current situation of Porta Romana, by professors

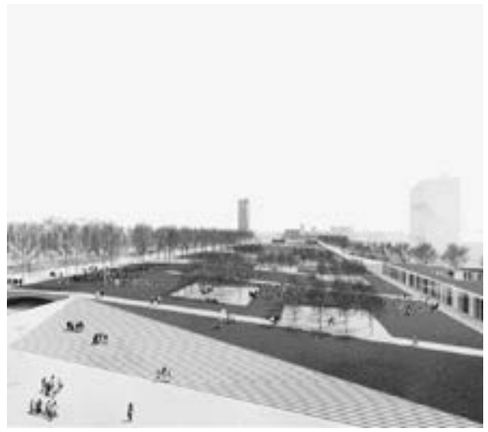


Fig.24: Proposal by Cino Zucchi and Michel desvigne for Porta Romana, CZA.

This byproduct space of modern times is now the perfect incubator for a new way of living the city. The branding of Milan starts and includes the branding of its disused urban voids, its non places making them into places of meanings, symbols, relatioships and identity. If you have been reading this thesis so far, you have understood by now that the new identity of Porta Romana is all about green, sustainable and responsible Milan.

Fig.25: Present picture of Fondazione Prada as a landmark in the brading of the area

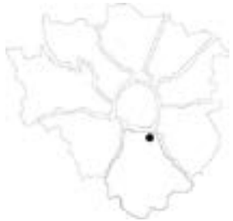
03. Where

Fig.26: Map of Milan >

To the world

To the monuments

To the city rings



To Milan

To the Linate airport

To the railway system

To the district

To the bypass

To the city patterns | Boundaries

Λ

Fig.27: Aerial map of the site

The historical evolution of Milan has shaped it is urban configuration in a ring like pattern, starting from a typical roman Cardo and decumano axis and evolving into an organic medieval cité.

The layering of walls and gates from different historical startifications have given milan a centric urban growth always included in the fortifications. This ring model was adopted later in the Beruto plan and shaped the railway system.

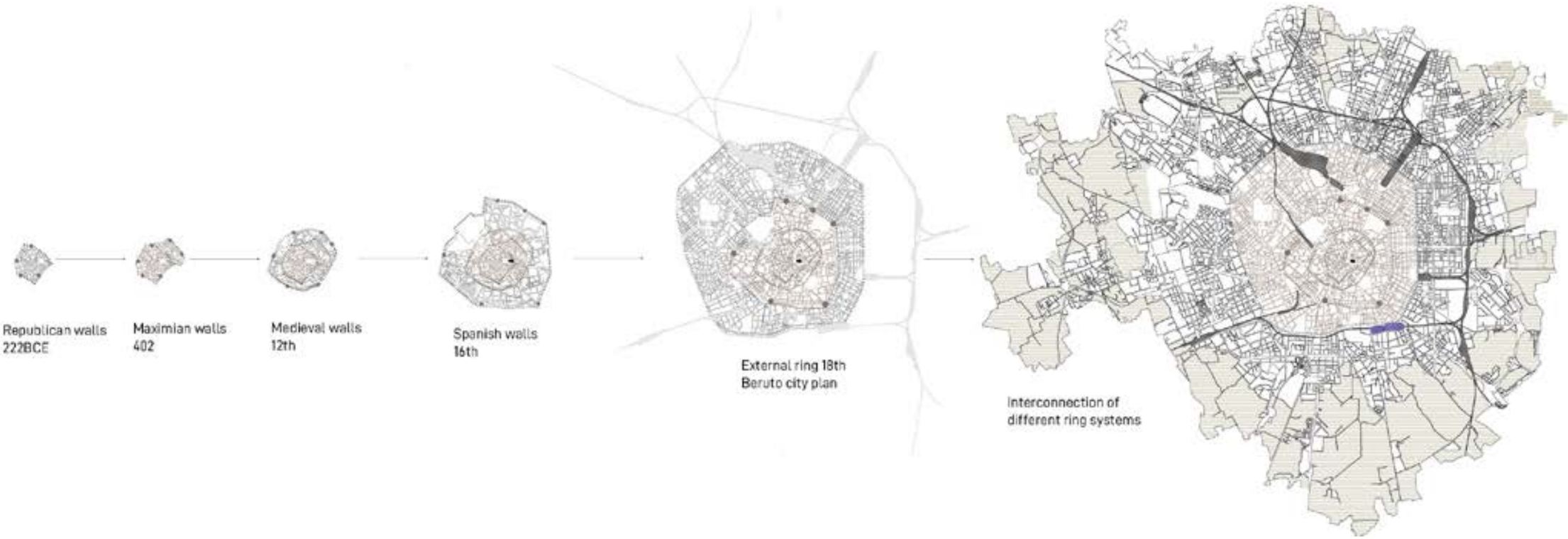


Fig.28: History timeline

Called "Circonvallazioni di Milano" these ring roads create different infrastrucutral systems: railway and bypass, along with the future green corridor and the green belt.

Geographic analysis is an observational analysis of the different geographical elements linked to the environment of the site, it allows to discover the different systems and the connections between them.

From the mapping of our intervention area we can clearly state that our site has a strategic position. Close to the main systems of the city: green, blue and transportation, our site can easily be linked to each one of them as an important node or a sequence.

In order to have a global vision of the intervention we consider a big portion of the city as our analysis area.

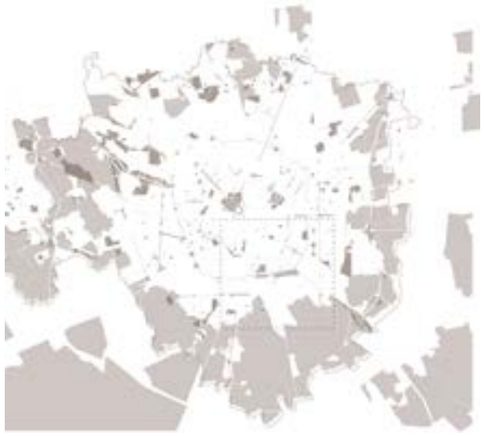


Fig.29: Green System

Fig.30: Water system

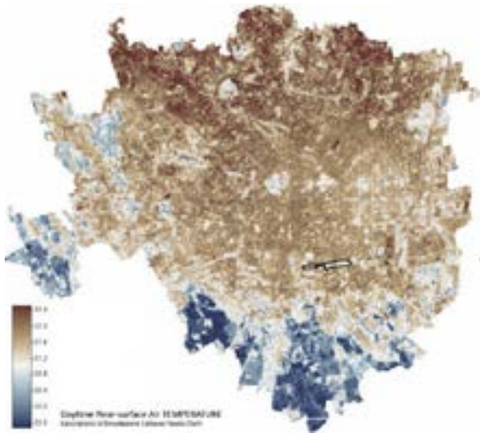


Fig.31: Urban heat map

Fig.32: High rise buildings

Fig.33: Amenities

Fig.34: Bus stops

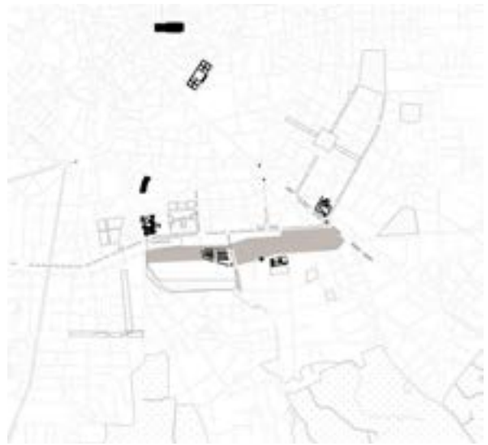


Fig.35: The point of interest

Fig.36: Cycle sharing system

It is important for us to consider a wider perimeter than our intervention area in order to target the relevant systems to which our project can be linked to, and have a more global comprehension of the potentialities of the site.

Fig.37: Transportation system

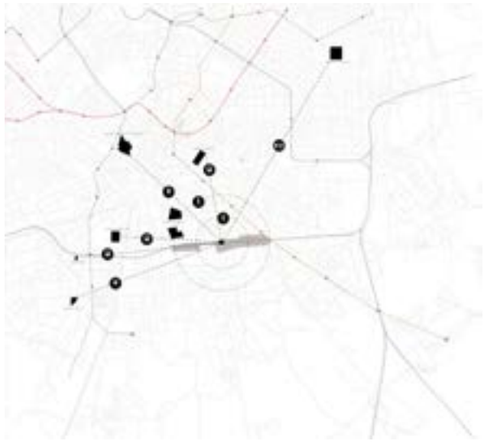


Fig.38: Universities I campus

The outcome of the geographical analysis showcases the proximity of the green belt and green corridor of which the site can become a big sequence as an urban eco park. The proximity of amenities, university campuses supports the student housing programme while the different points of interest imply the possible location of public spaces and connective paths.

Fig.39: Overlay of geography analysis >

LEGEND

N

Agricultural land

Green areas (park and recreation)

Important Locations

Bike sharing points

Green rings

Main axis

Walking distance

500 1000 1500 2000m

< Fig.40: The geometry of the site whithin the urban limit

< Fig.41: The proximity to the urban rings

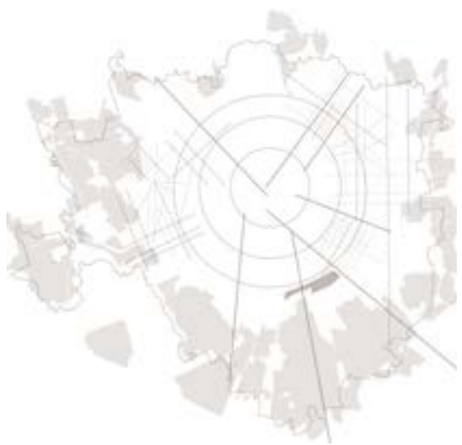


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Fig.42: The different patterns and lines of the city

The **analysis of geometry** is more related to **shapes and patterns.** While geographical analysis is about observation and mapping, the geometry one is about processing and deducing.

The purpose is to comprehend the different full and void ratios, the typologies of public spaces and private ones, **the thresholds, the limits and boundaries** and any existing landmarks. Once processed these information will **help us conceive the most suitable typologies and morphologies for both open spaces and built ones.**

Fig.43: Boudaries >

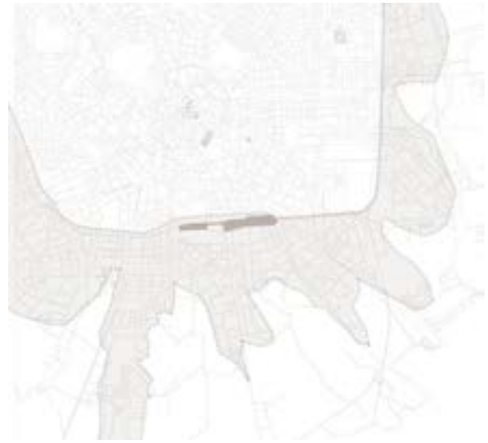

Fig.44: Limits >

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Fig.45: Thresholds

As stated previously in the urban evolution of Milan P.48 the city has evolved in centric stratifications, producing different patterns of urban fabrics, our site is at the **limit** between **two boundaries**: the urban dense fabric and the post industrial scattered one crossed by **3 main thresholds** that can connect it to both city centre and agricultural parks and lands.

These thresholds cross 3 important tension points that can host urban nodes and important functions (a landmark, an urban piazza, entry points to the park...)

Fig.46: Overlay map of Geometry >

LEGEND

N

Site

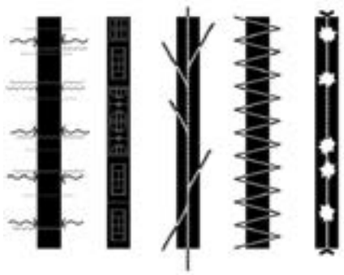
Organised and Dense

Organic and Scattered

Context buildings

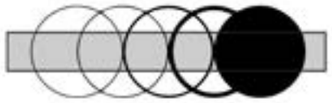
500 1000 1500 2000m

04. Like?



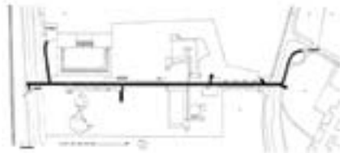
"Thin parks, thick edges" | Karl Kullman

Edge as a threshold

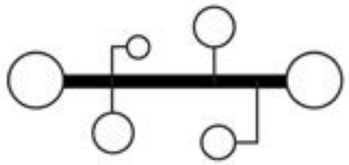


Dynamic and materiality

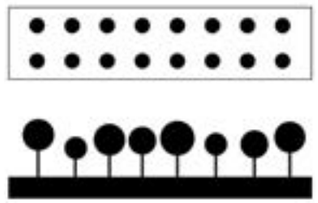
Gare CEVA, Genève | Ateliers Jean Nouvel



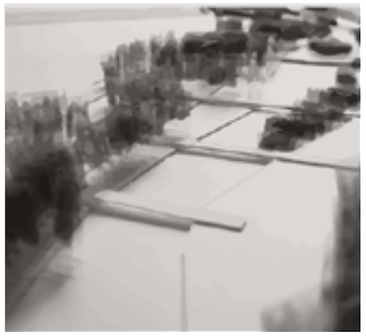
Bellinzona Bathhouse | A. Galfetti



Path and connections

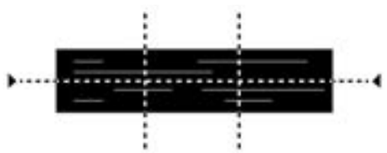


Organic growth and variety



Lusail Wadi park, Doha | MDP

Highline, New York |James corner fields + Diller Scofidio + Renfro



Sustainable landscaping

Preservation and recreation

Sydney Olympic Village

Article: Thin Parks, thick edges

Typology: Linear parks

Architect: Karl Kullman

Year: 2011

Karl Kullman is an assistant professor from University of California, Berkeley. He has written many articles specific to the topics of landscape and urban design from which one of the most relevant and interesting article to us: "Thin parks / Thick edges".

Using a range of spatial and observational metrics, the study draws on qualitative and quantitative data gathered from an analysis of 20 linear parks covering a range of linear site conditions. Common characteristics that emerged from the analysis are summarized in the article. He categorizes the many thin parks into different typologies.

The name of our project "The Urban Thicket" is inspired from one of his typologies called the "Thicket" which talks about "urban thicket" as a condition that negotiates between estranged parts of the urban fabric. Rather than attempting to heal a linear rift with a suture, the thicket fills the thin park with dense matter, within which local tactical connections and disconnections hinder efficient passage from one side to the other.

Karl looks at unused edges / narrow spaces as 'thresholds' rather than 'ruptures'. This reading supports the outcome of our geometry analysis and stresses on the role we forsee for our project giving it a dynamic role in the regeneration of a wounded ecosystem.

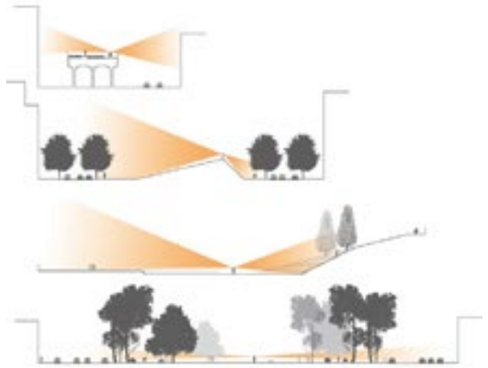


Fig.47: Sections of thin park typologies from http://www.karlkullmann.com/thin-parks--thick-edges.html

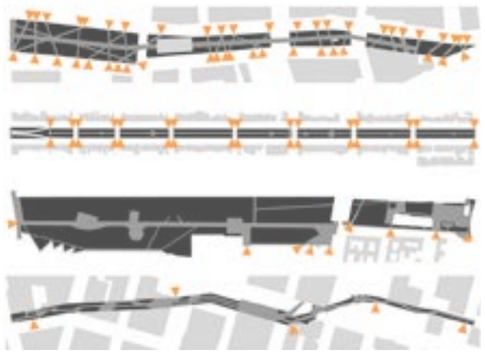


Fig.48: Plan of thin park typologies from http://www.karlkullmann.com/thin-parks--thick-edges.html

Project: Bellinzona Bathhouse

Typology: Bathhouse

Architect: Galfetti

Year: 1967

The bathhouse designed by A.Galfetti is a simple yet an impressive composition. The design organises the territory with the reinforced concrete structure that leads to the public swimming pool.

Fig.49: Master plan of Bellinzona project. Hiddenarchitecture.net

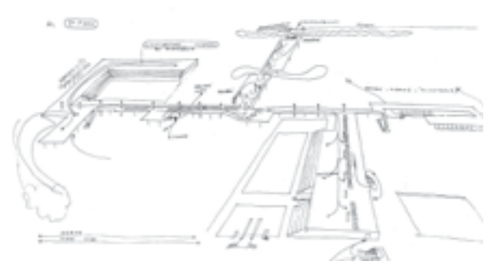


Fig.50: Hand sketch for the Bellinzona project by A.Galfetti. Hiddenarchitecture.net

With just a strong path connecting different elements the project connects the baths with the plain, the hill of Castelgrande, the town, the mountains, and the sky.

An overall spatial vision is implemented to address all functional, organizational and management aspects. The design hosts lots of new activities that create interaction among the visitors. The simplicity of the paths itself enhances the other spaces and brings in focus to the existing functions of the project. The drawing of the project gives a clear idea of how the space works and the counterform diagram of the same clearly shows the relation of the design to the city itself. When looking at the plan one can see how the project reminisces the city pattern and thus inspired from the basic idea of the project we decided to create a simple yet powerful strategy to connect the edges of the existing city. Though in the case study the new functions are created and connected with the footbridge, in our case we imagined our spine connecting the existing functions around the city and creating more new spaces for enhanced ambience, which makes it an urban and landscape element at once.

Project: Highline

Typology: Elevatedpark

Architect:

Year: 2003

The highline was the former West Side industrial railway. It is a 1.45 mile-long elevated, steel structure built in the 1930s for freight trains; the last train ran on it in 1980. In 2003, an open competition was held to convert the existing infrastructure into a public park.

Now, the project is one of the most visited places in New York with different activities ranging from get togethers, concerts and meditation.

The project acts as an example of urban redevelopment. It has inspired a lot of similar projects around the world. The design of the promenade itself is to connect to the city and create new experiences as one walks. One can feel the beauty of the city better as they walk by Highline as the design creates scenarios to do so.

Every component of the structure was tested and treated to ensure its structural strength before implementing the landscape on top of the promenade. Each piece of the railway was first removed and then mapped so that they

could be placed in the same place as an element of landscape . Energy-efficient LED lights gently illuminate the park's pathways and allow the eyes to adjust to the ambient light of the surrounding city sky. Native plants and trees were used in the design of landscape which was designed by architect James corner field operation and planting designer Piet Oudolf.

The Highline inspired us to create a sustainable design that allows people to engage in various activities. Also the promenade itself hosts different kinds of natural environments that also motivated us to make our spine an interesting walkway with different kinds of environments hosting different activities. But also most importantly be a part of the city and enhance its beauty better.

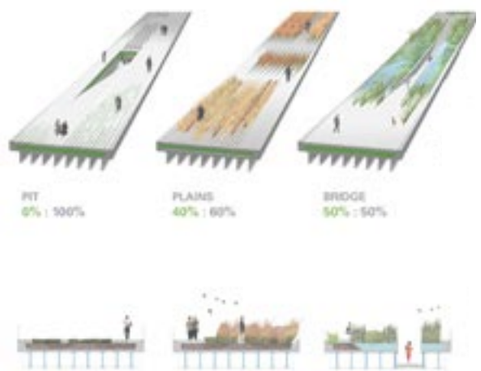


Fig.51: Sections of sequences of the High line. Archdaily.com

Project: Atlier Gare De Geneve

Typology: Train station

Architect: Jean Nouvel

Year: 2004-2019

We chose this particular project for Jean Nouvel's idea of materiality and temporaneity. The train station is designed with transparent/translucent glass blocks, in a simple but innovative way to permit the train movements to reflect in the station and therefore in the city. It's a space of "Dynamics" and "Motion". The architect plays with the idea of light and material and hence using the existing dynamics of the space in terms of motion and flow.

Immense glass blocks will constitute the walls, roofs, and terraces of the stations. The geometry of the design is elementary and absolutely simple. The main intent of the design is to create this poetic image of what we will see through the texture of the glass, which will pixelate, diffract, and recompose the moving images of passengers and

trains, of advertising posters, signs and lighting fixtures that populate train stations. The light that will be very different by day and by night hence creating different scenarios and feelings in the space, at different moments (times).

This idea sparked our intent to celebrate the motion of the train in our site and hence using glass blocks at certain sequences under the spine to create a rhythm that visitors would enjoy looking at. We wanted the train to be seen and not hidden under the new promenade that we create. Since celebrating the existence of the old is what we focus on, we believe in physically and visually being connected to the memory of the space that is the train.

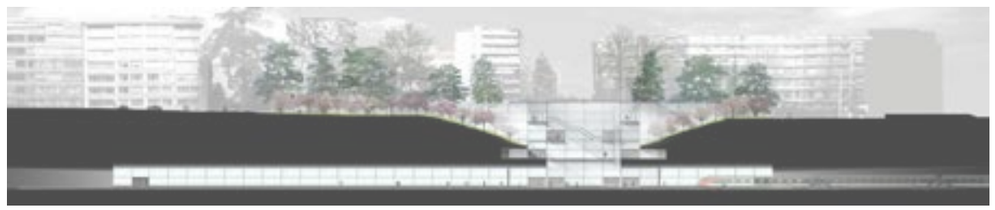


Fig.52: Section through the Ceva train station by Ateliers Jean Nouvel

Fig.53: Transversal section through the Ceva train station by Ateliers Jean Nouvel

Project: Lusail Wadi park

Typology: Urban park

Architect: Michel Desvigne Paysagiste

Year: 2015

The park transverses from the east to west bringing together the city of Doha neighbourhoods filled with natural plants and vegetation.

It acts as an ecological corridor that not only connects the urban fabric but also the mountains on the east to the mangroves and marshy shores in the west. This project embodies a space where natural environments meet and also part of a hydraulic infrastructure managing various water resources. The idea of Micheal Devigne using trees in the landscape is very peculiar.

He plants the trees in order whithin a rigid grid but as they grow, each one grows differently with time in respect to their own strengths and weaknesses

creating a beautiful variation in the landscape with some small trees , some tall, some denser and some scattered.

Although the design is controlled and ordered the outcome is organic and natural.

This is the idea that we also want to follow in our project where we let the trees grow organically and create their own variation in the landscape of the space, even if planted evenly in a perfectly geometrical grid, the trees will grow in a natural diverse way and break the monotonous ordered landscape.

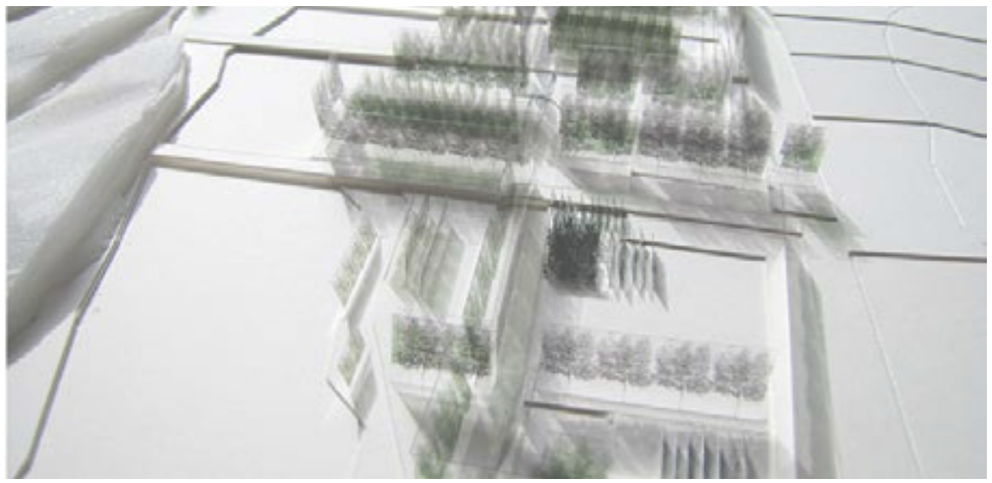


Fig.54: Model of the park Lusail Wadi Park. MDP

Project: Sydney olympic park

Typology: Urban Eco park

Architect: PWP Landscape Architecture

Year: 2030

The 2000 Olympic Games were slated for a thousand-acre site in Sydney, Australia.

Much of the land had been a highly contaminated site with little natural ecology by extensive industrialisation and manufacturing.

The site did have some positive attributes that PWP enhanced in the design like the 15 miles of continuous waterfront; various historic buildings and landscapes and an almost unspoiled 124-acre aboriginal forest.

Fig.55: Sydney olympic park masterplan proposal by PWP

This project links the existing ecology with newly restored ecologies while allowing for exploration through the park.

A large network of pedestrian and bicycle paths wind through the park and allow visitors to experience the whole space with different scenarios for example mangroves, sanctuaries, forest etc.

In 2010, The Sydney Olympic park authority decided to review the urban core of the park and create a livebly centre aligned with the latest economical, social and sustainable values, by releasing the Sydney Olympic park vision 2030 Plan.

The 2030 plan is designed to accelerate growth, with new employment, housing and increase in commercial value, better management of natural resources and a greater protection for the local ecosystem.

Planned to be self sustainable and energy efficient complex by itself, this project inspired us to continue the concept of preservation and recreation and made us realise the importance of the programming in growth of a project. In order to extend the life cycle of a project and increase its programmatic resiliency.

05. How?

If you have read carefully the preface, which we encourage you to do, you probably know that the first question behind all this adventure/ project is : What do we want to do?

To be honest the answer was pretty clear and relatively simple. What was hard and difficult on the other hand was the answer to the infamous question each architect asks him/herself: How do I do it?

Believe us, it took us nearly the whole year to figure out the answer because there are so many ways to reach a certain goal or a desired outcome, which makes architecture and urban design so fascinating and proposals so different.

In order to make the project feasible and understandable we needed to figure out an interconnected system intended to achieve a project in alignment with our values and principles capable of overturning the rupture reality of our site into a well connected, regenerated and sustainable district, and we ended up eventually and fortunately by identifying this system which stands on 3 pillars : CONNECT || ENHANCE || IMPROVE.

In our case our 3 desired outcomes which happen to be the pillars of our strategy were too general (but not in a negative way) to reconcile and required different tools and design solutions in order to get a coherent urban, landscape and architectural project.

In order to make the process/ strategy even easier we attributed to each limitation a tool to inverse its constraining reality and turn it into a potentiality.

For instance, the limit reality of the railway got attributed the connectig tool of "spine" which turned it into an elevated promenade that irrigates flows and activies around the whole site and even beyond.

It is hard to understand we know, hopefully the following chapter will enlighten you better, stay focused.

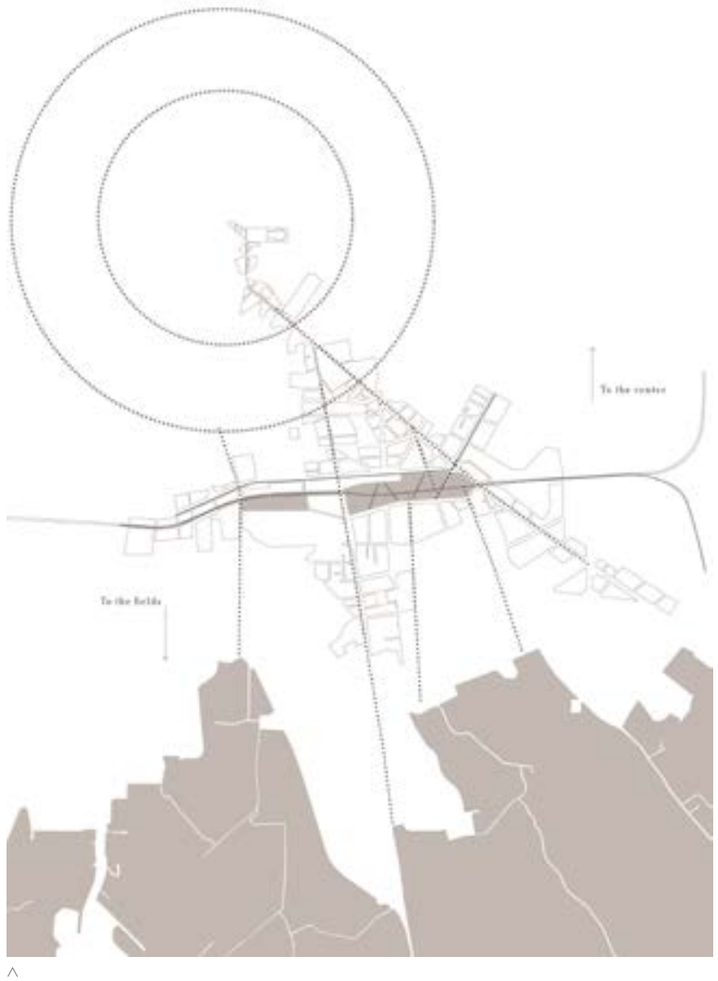


Fig.56: Connection to the city and the green fileds

The strong reality of the site is **the separative railway** and **the dominant void**.

Because railways aim to connect East to West, they always **tear up** the north from its south.

The old infrastructure alignments, in this case, **the railway**, determines the route and not the directional objective of the user. This by-product of the network leaves us with an east-west line and a **separation** from north to south that we can overturn easily by orienting this **transversal connection** and creating a new reality in which the railway is not **a separation** but **the main protagonist**. It becomes the **structuring element** leading to direction goals at its endings.

Fig.57: The green system in Milan

so that they can guide the pedestrian flow to the park and spine but also for safety reasons.

Each fingers is surrounded by its own square where emergency cars and ambulances can access.

The paths are generated by circle motions with different radiuses ranging from 6m to 20m creating softly curved walkways with 3 different widths 3m / 6m /11m according to the capacity of each building.

Fig.58: Landscape proposal for quality spaces

3. Quality over quantity

The aim is to create in this **fast city** a place where **time stops**. A place where you "disconnect" from the city and "connect" with nature, to enjoy better **quality spaces** and **quality time**.

The site is seen as a **thicket**. A third reality between **2 fragments** amid a more condensed and hierarchised condition and a more scattered organic one.

Hence, it creates its **own identity** taking advantage of the existing elements: **Void, wild vegetation** and a **railway.**

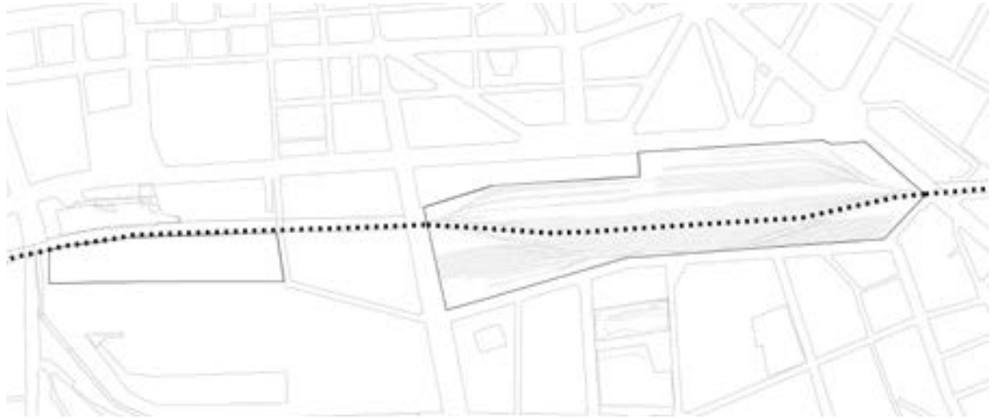


Fig.59: The existing condition of the railway as a limit

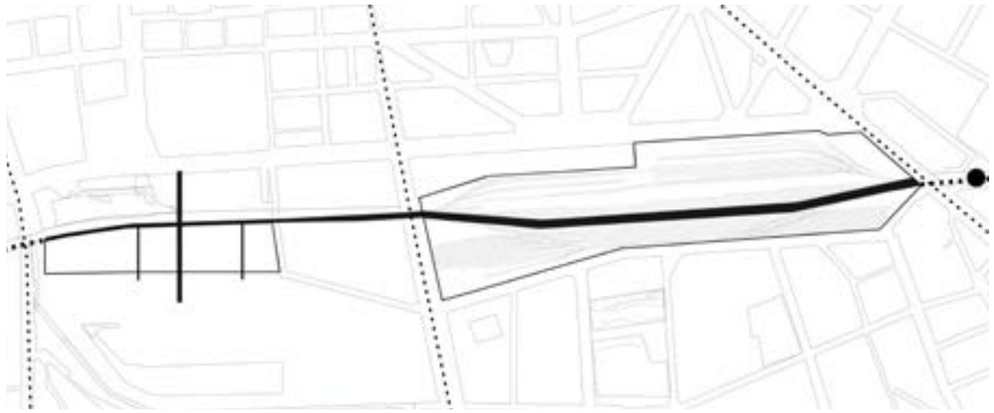


Fig.60: The pattern of the spine to overturn the rupture of the railway

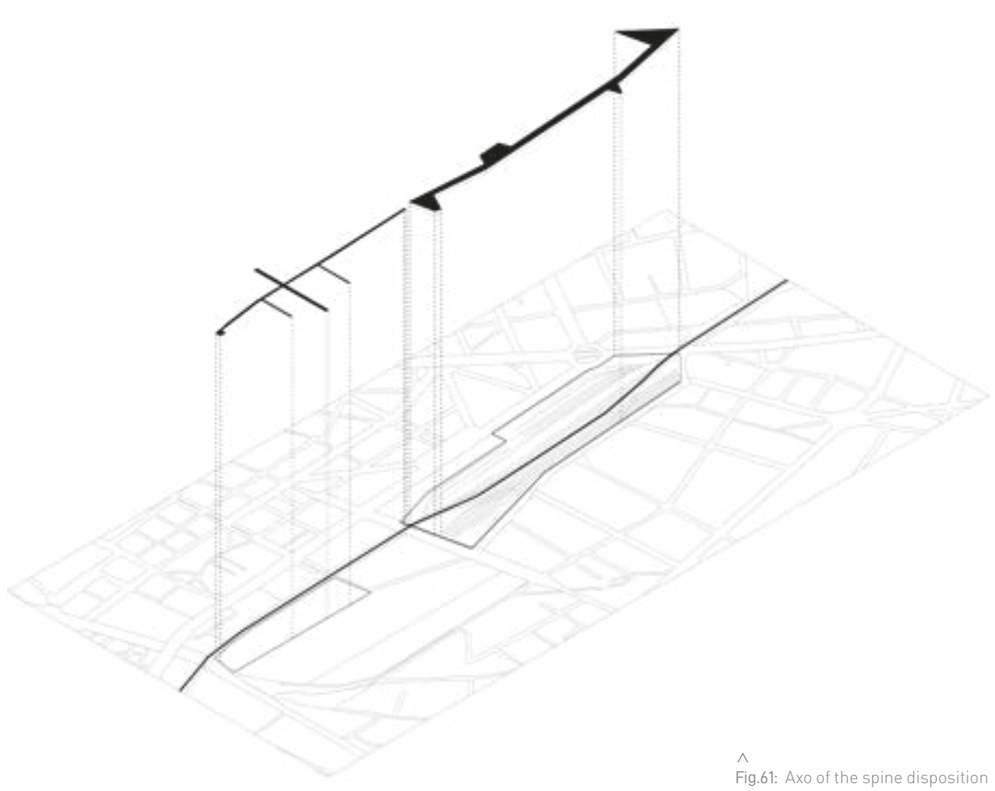


Fig.61: Axo of the spine disposition

The first tool that will help us reach our first pillar CONNECT is the SPINE.

The spine is an elevated promenade 6m on top of the railway line that joins the 3 thresholds : Corso Lodi, Via Giuseppe Ripamonti and Via carlo Bazzi.

Seen as a platform that covers the railways and supports structurally and functionally the fingers attached to it, the spine is definitely the most important element of our design.

It can also be referred to as a bridge in terms of paradigm " what is divided connects"

Besides being an urban element that links the thresholds, reaches both edges and distributes pedestrian and cycleble flows to the different points of interests, the park and the buildings it is also a landscape dispositive that provides different activities and experiences. We like to call it the "experiential walk".

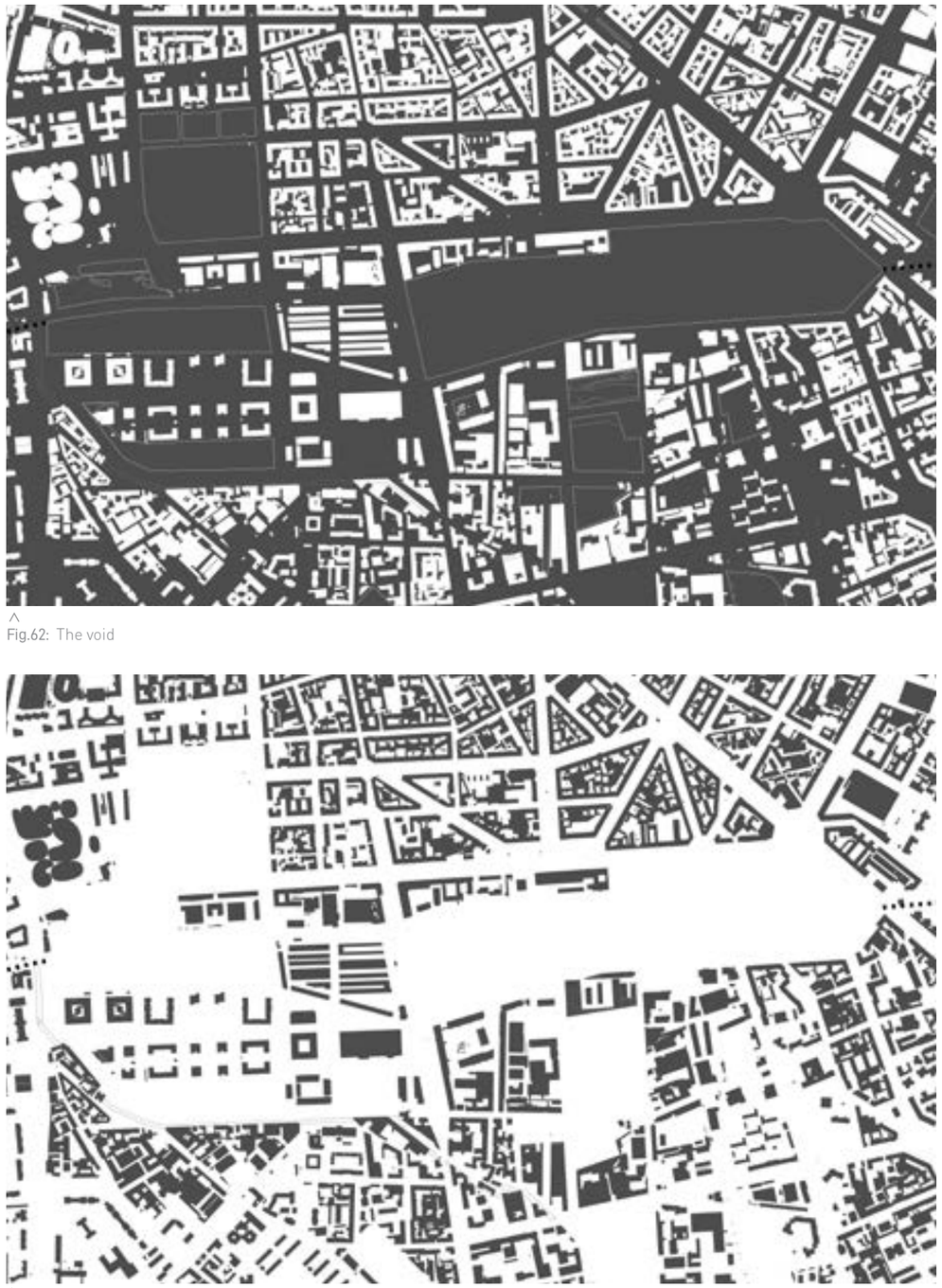


Fig.62: The void

Fig.63: The full

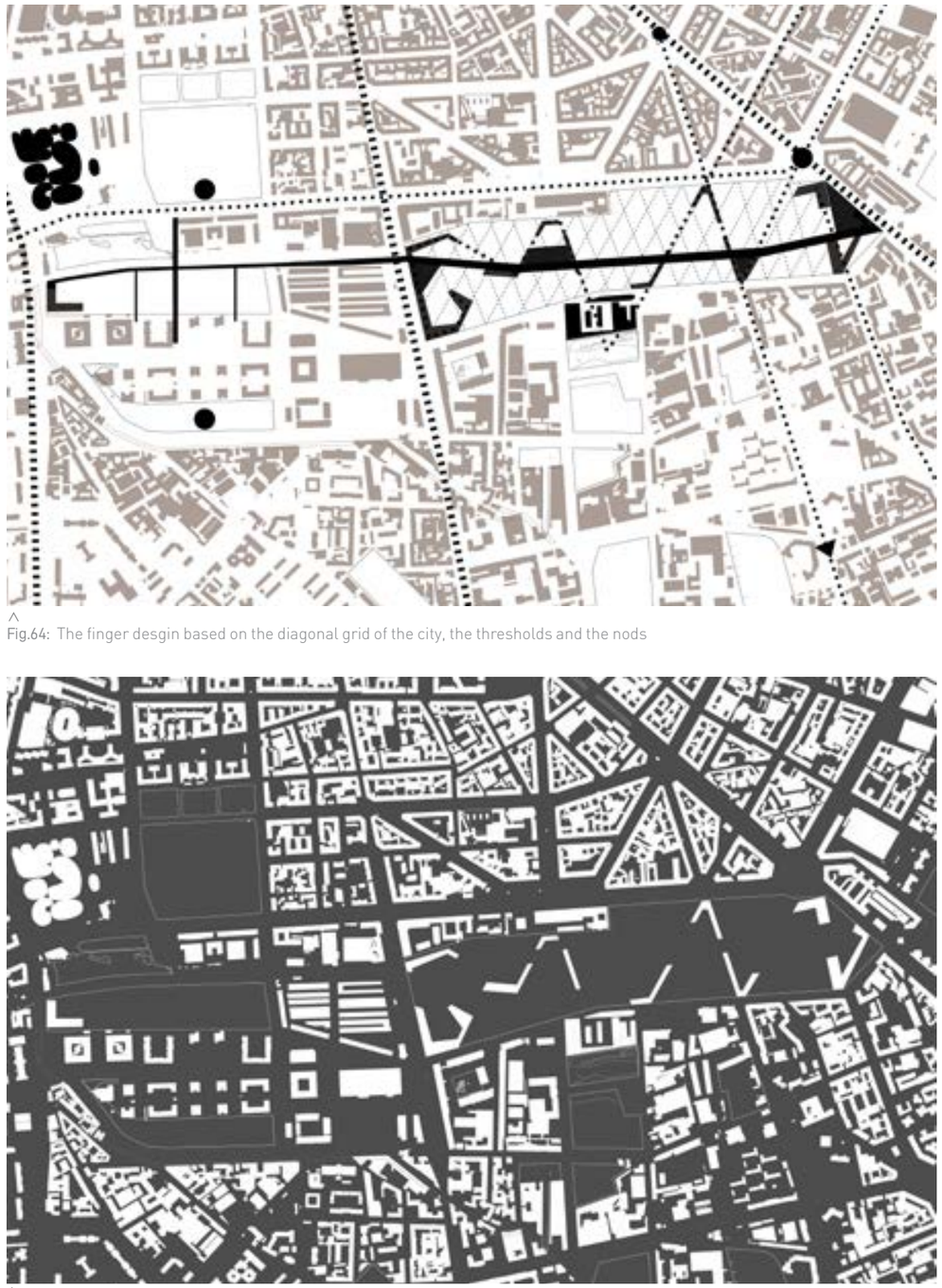
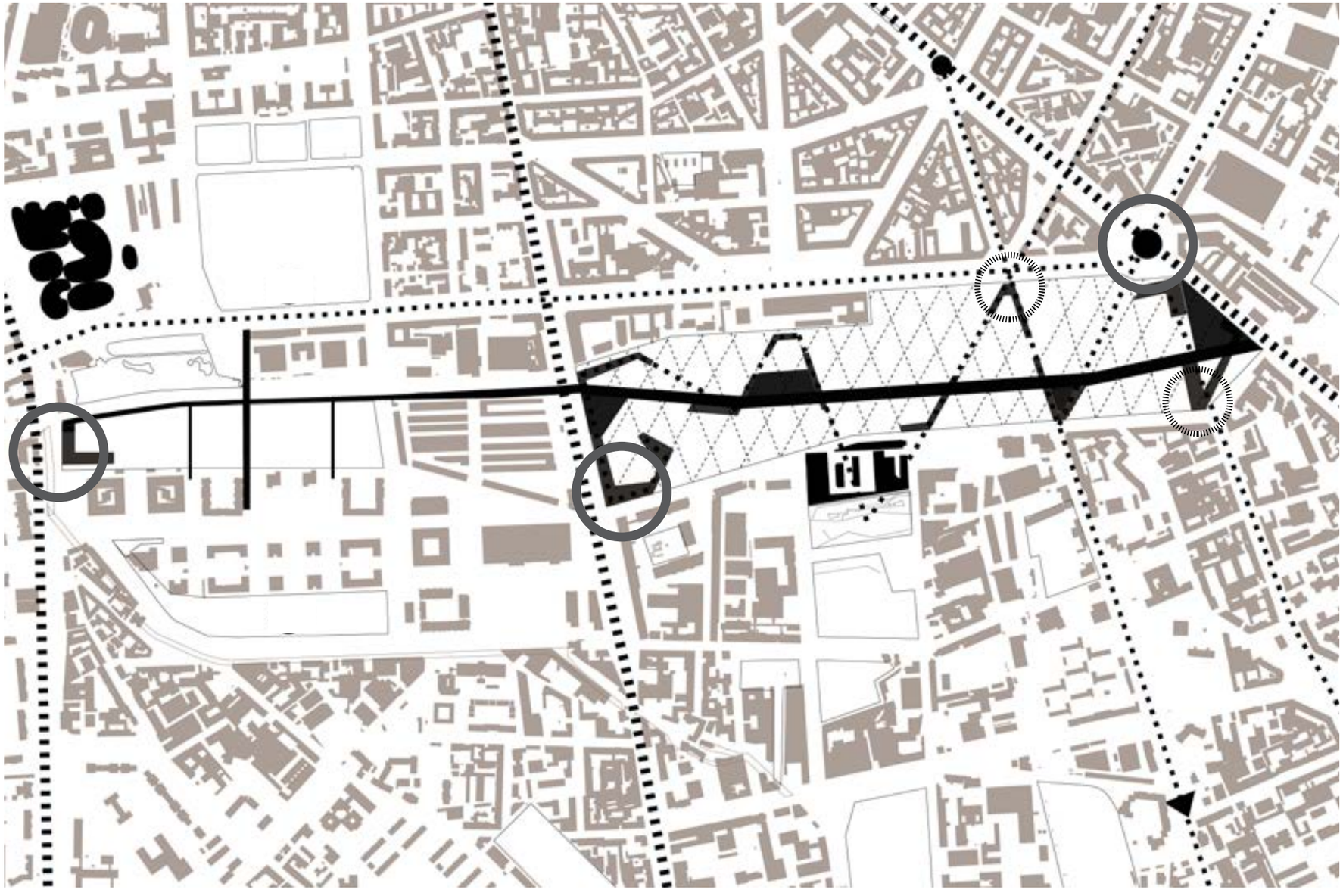


Fig.64: The finger desgin based on the diagonal grid of the city, the thresholds and the nods

Fig.65: The fingers pattern within the fabric of the context



LEGEND

Node + Tension point balnced

Node completed

Node

Threshold

Main axis

THE FINGERS

The metaphor of fingers recalls the act of touching.

The fingers which are in fact buildings "touch" each side of the city edge to link it to the spine.They represent transversal and vertical connections between the streets and the spine but also between the park and the spine itself in order to ensure transversal crossing between north and south.

Their shape is the result of the intersection of the main axis connecting different interest points and nodes. Some fingers complete the nodes while others balance the tension points of the thresholds.

The fingers are thin landscape built forms that host services, temporary uses, and events. They are designed to reinterpret in a built form the distributive function of a street or an avenue which explains why they are so thin, and do not exceed the width of 15m.

Fig.66: The role of the fingers within the fabric

Fig.67: Existing condition the main nodes at the thresholds

Fig.68: Future condition with the towers

"Totem. Solitary tree in the clearing. Act designating a place. The sign identifies a place. Place marked, chosen, orientation reference" [14].

Why a tower? is the question we get often asked when discussing our project with professors, or classmates. The reasons behind this strong choice are numerous and well backed with theory and analysis. Let us explain how:

The solution of the tower goes hand in hand with the "enhance" pillar: Based on our intention to minimize the built and liberate the soil (fewer asphalt and concrete more green and public space) we decided to condense most of the programme vertically in a tower typology.

14 Notes from a lecture by Prof sergio Crotti

The location of the tower is not fortuitous, it is in fact located at the most important threshold and node : Corso lodi node.

It balances the tension and fills the void of the angle (we need a zoom in the fabric), In addition to these urban considerations the tower is statement, a designation serving the identity of Porta Romana (based on the branding of Porta Romana and the high rise building analysis) and creates a new dynamicity in the skyline.

In the project we have 2 towers at the endings/ beginnings of the spine, they are in fact the 2 direction goals at the ending of the promenade and both act as enclosures at the level of the thresholds Corso Lodi and Via Carlo Bazzi.

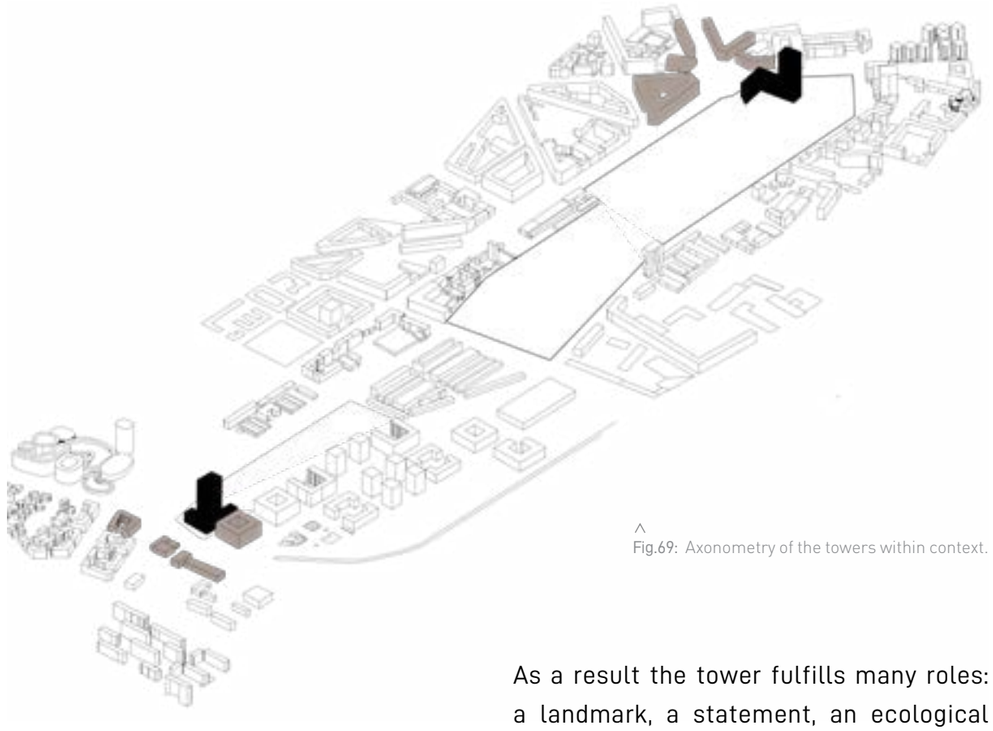


Fig.69: Axonometry of the towers within context.

As a result the tower fulfills many roles: a landmark, a statement, an ecological act, a vertical village and a multi scale interacting building.

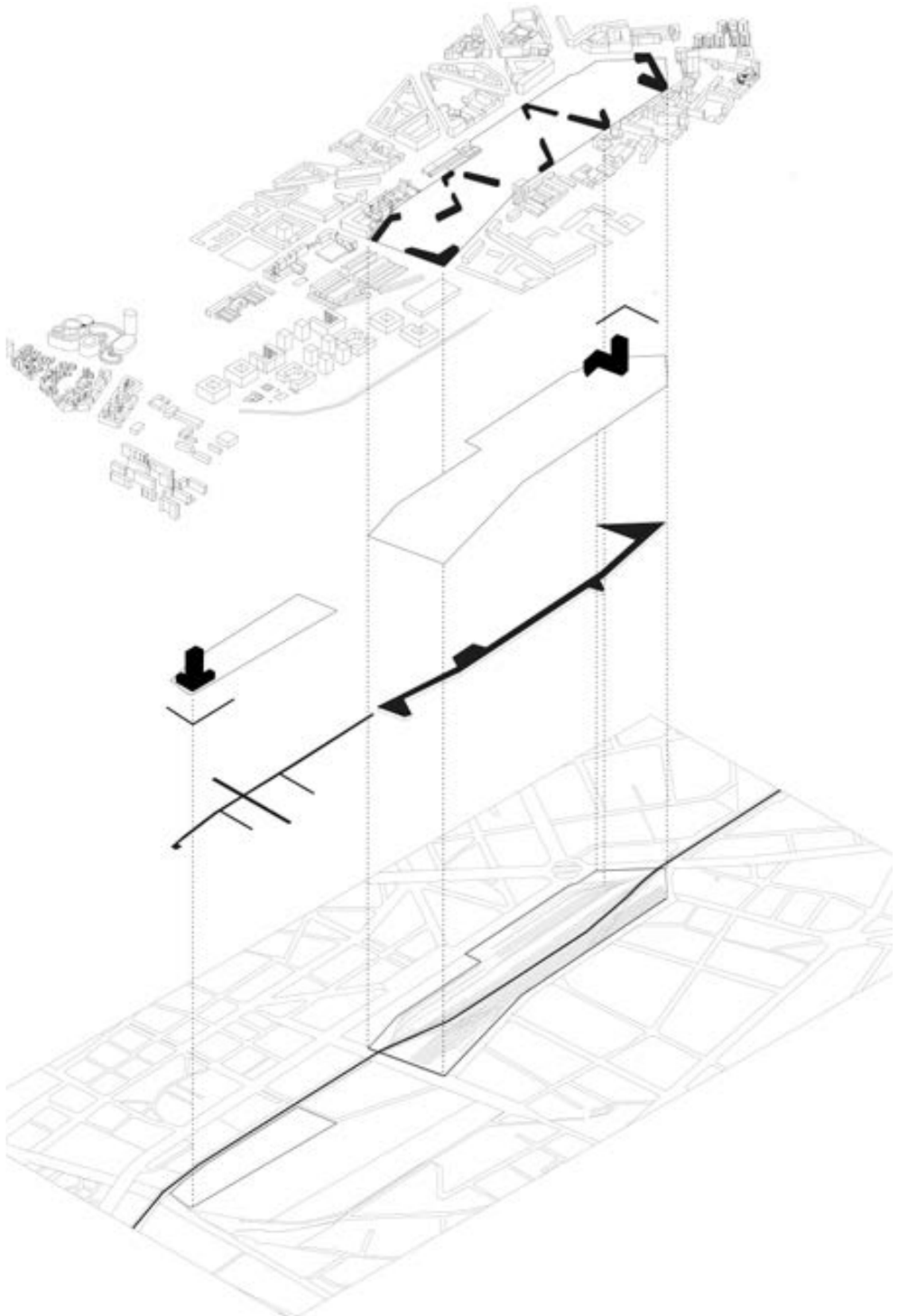


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Fig.70: The layering of the 3 tools in the context

The void is the matrix of our project. It is the **raw material we shape and manipulate to create space**.

Since the beginning of the studio we never considered the site as a big empty land to be filled but rather as an **impermeable void** to **pierce and connect**, an in between space between 2 realities often opposite to each other to be colonized[15] and reinvested, once our ambition and intents cleared we needed to find the right reponse to the new question (again):

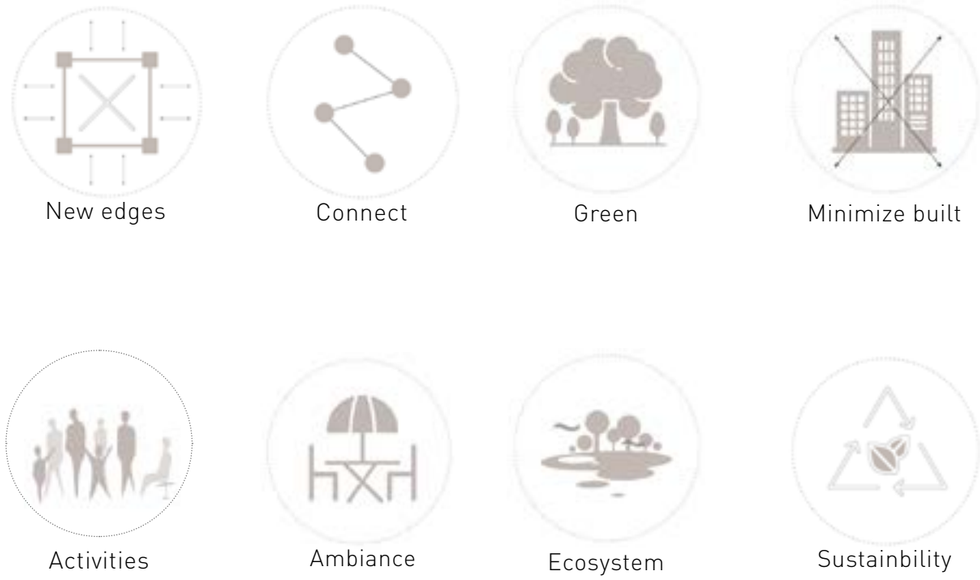
How can we materialize this third reality in the inbetween?

Reiterating what we said previously when speaking about the towers, **our primary intention was to liberate the site as much as possible and dedicate it to the Eco park**. By **condensing the programme** in the **thin fingers** and **high towers** we managed to save up to **90% of the total area** and dedicated it to a varied park and different urban squares and piazzas.

Different stages of Void preparations:

	2021	2022	2023	2024	2025	2026
Decontamination of the soil | Bioremediation	●	●				
Removal of 60% of railways tracks			●	●		
Preparation of the soil	●	●	●	●	●	●
Preparation of the wet lands				●	●	●
Placement of decontaminated railtracks | 40% of total tracks				●		
Planting of new flora species		●	●	●	●	●

15 .In reference to Marc Augé, Places and non places



The principles we tried to obtain in the **landscape** philosophy of the **eco park** are translated into several illustrtions to resume the different goals and actions we tried to implement.

Whether it be creating a new identity through a sustainable design, celebrating the old thanks to the revival of the memory of the place and the retaining of the railway tracks, the creation of different spaces for different types and levels of interaction and activities or simply but strongly the restoration of a wounded ecosystem.

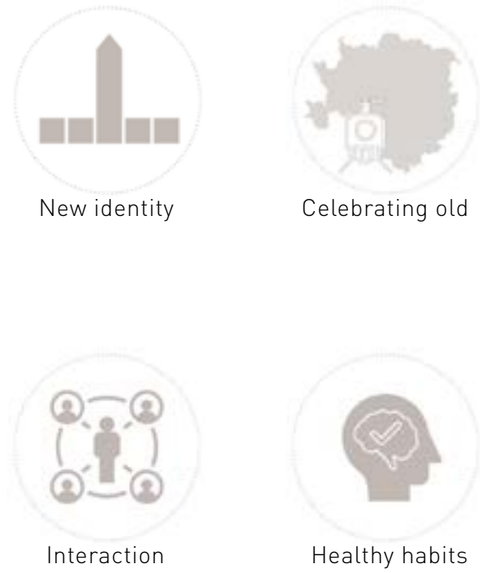


Fig.71: The principles and desired outcomes in the design of the park

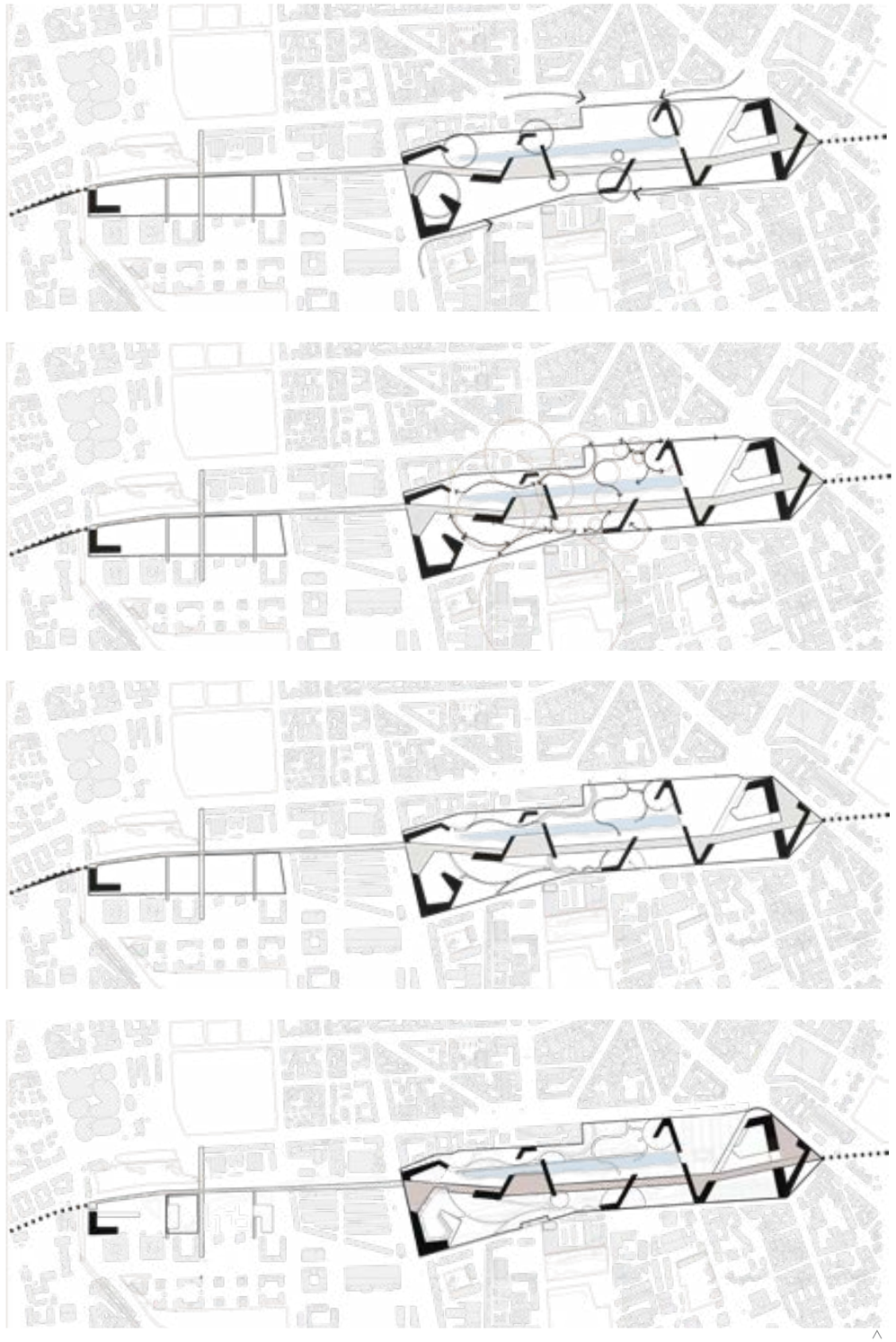


Fig.72: The design process of the organic walkways

1. Identify the direction of flows and points to be reached: the other side of the wet land and the furthest point of each finger.

2. Generate circle with varied circonferences to create soft curves starting from the streets and leading to the different destinations within the park.

3. Each curved walkway creats in its concavity a particular space, either a square for the adjacent finger or a green sub space.

4. The organic walkways whithin the park are established. All of them are pedestrian and cycle friendly, and all are accessible by cars for emergency purposes.

The accessibility to the park and to the fingers in particular was a big concern of ours. It was important that most buildings are directly connected to street, so that they can guide the pedestrian flow to the park and spine but also for safety reasons.

Each fingers is surrounded by its own square where emergency cars and ambulances can access.

The paths are generated by circle motions with different radiuses ranging from 6m to 20m creating softly curved walkways with 3 different widths 3m / 6m /11m according to the capacity of each building.

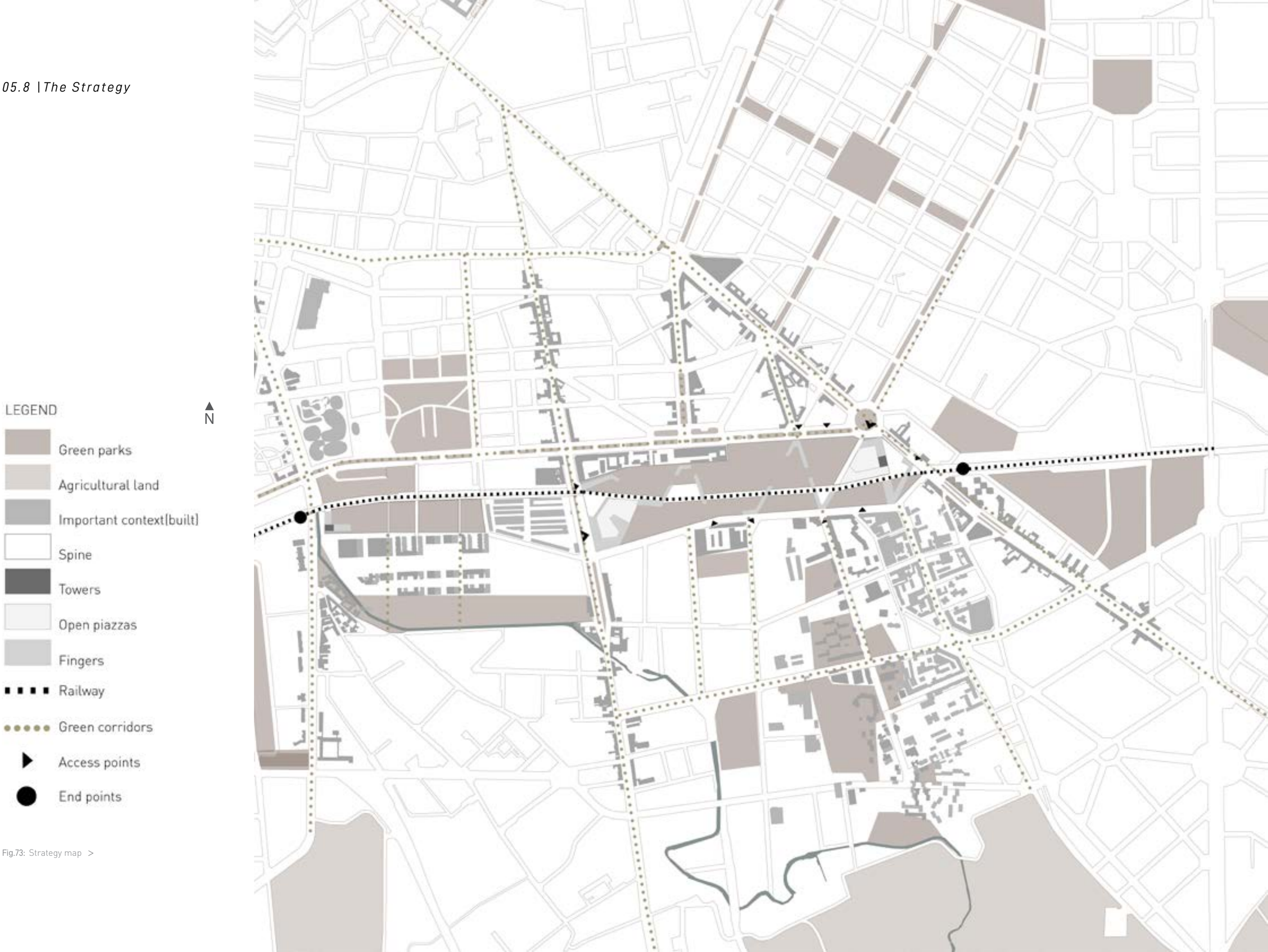


Fig.73: Strategy map >

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Fig.74: Black and white project proposal in context

06. Design

The design of the project is the result of the strategic decisions made through the process. The spine that runs east to west connecting the thresholds hosts the green promenade creating a refreshing ambience for the pedestrians.

The fingers host various programmes that engage the public in different activities as well as form the north-south connection of the city, while the towers host the accommodations as well as services required.

The pattern of these organised parts of the project is designed as complementary to the existing urban pattern, sometimes completing the nodes, continuing the existing paths and connecting the points of interests around the site.

The pattern of the project forms voids that are left organic to grow by themselves and are filled with local trees, plants, wetlands, organic farms, bugs birds and small fauna.

The existing unused railway tracks are partially retained as design elements throughout the public areas.

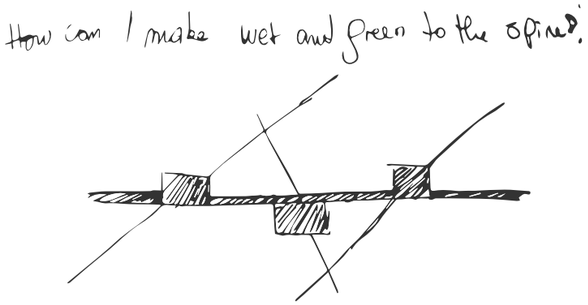
The other small park retains its old paths to avoid unwanted changes to the existing landscape.

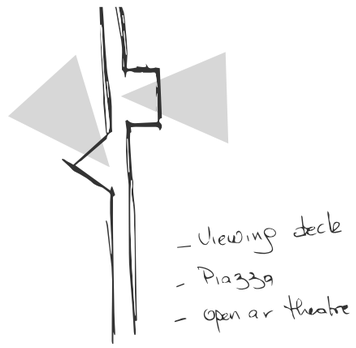
Two main public squares are created on different levels:

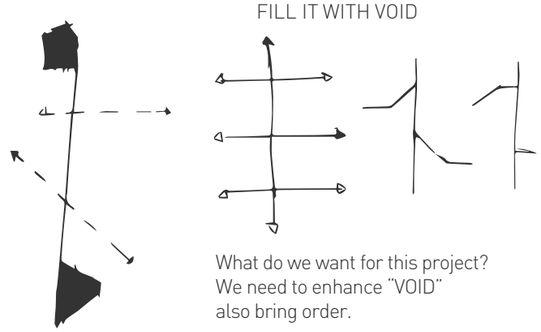
One is the underground piazza that connects the Corso Lodi junction to the underground metro and the other functions that the new tower provides engaging people in interactions and other social events.

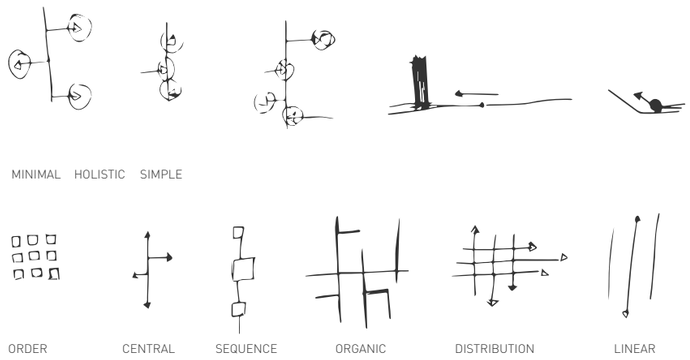
The other is the open-air theatre that connects Via Giuseppe Ripamonti street to our project as a tool to connect two different levels. The space under the open-air theatre also acts as a new train stop.

Since the site by default consists of topographical variations, different tools are used to connect various elements in the design. For example, the sloped urban farm that connects Via Brembo to the spine and also the sloped little forest area that does the same on the other end.









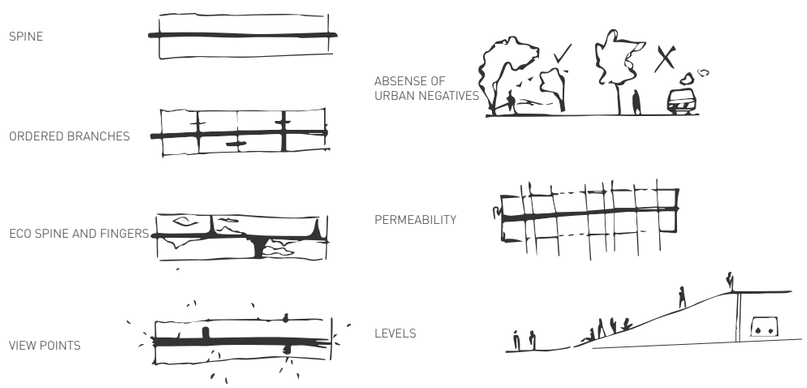


Fig.75: Some brainsorming sketches by the authors

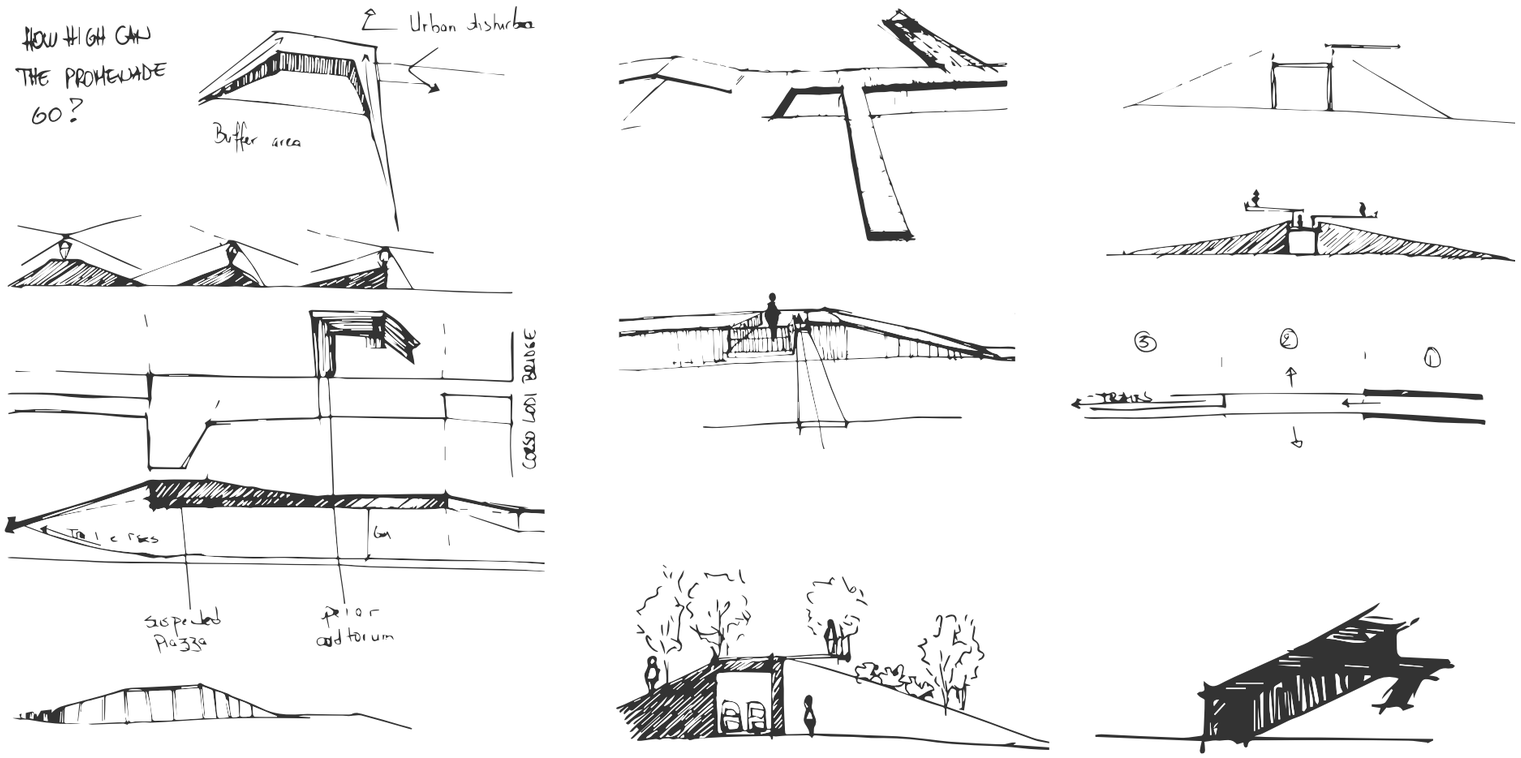


Fig.76: Hand sketches in the early stages of the spine design

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Fig.77: Bird's eye view of the Project

Urban scale

The Urban scale is an overview of the relationship between the site/ project and a wider context (the city) based on connectivity, accessibility and morphology.

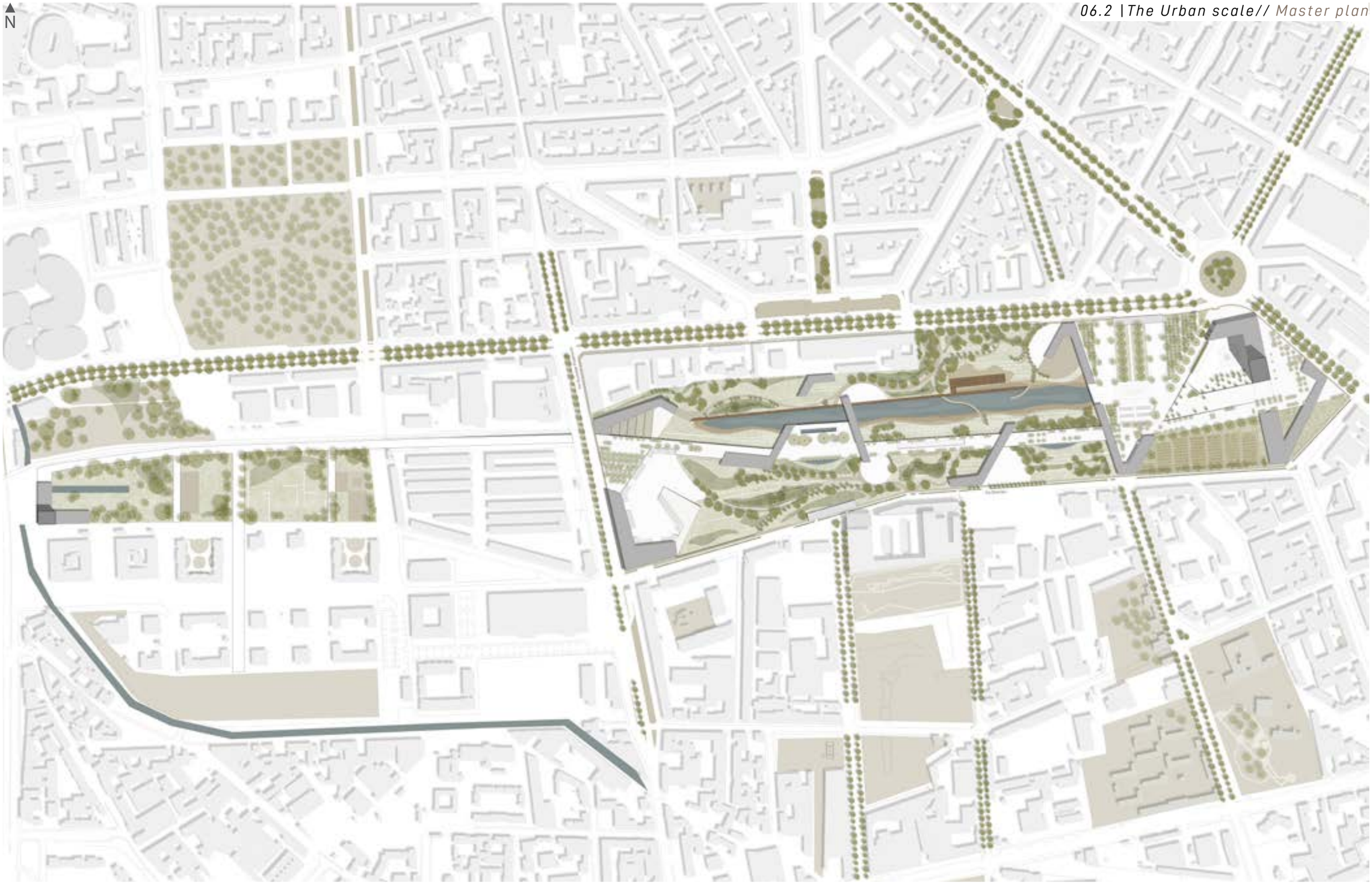


Fig.78: Master plan

Fig.79: Urban elevation

Fig.80: Urban Skyline

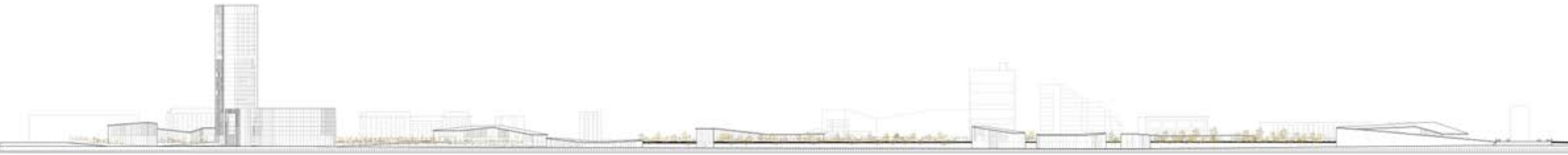


Fig.81: North Elevation [N]

Fig.82: South elevation [S]

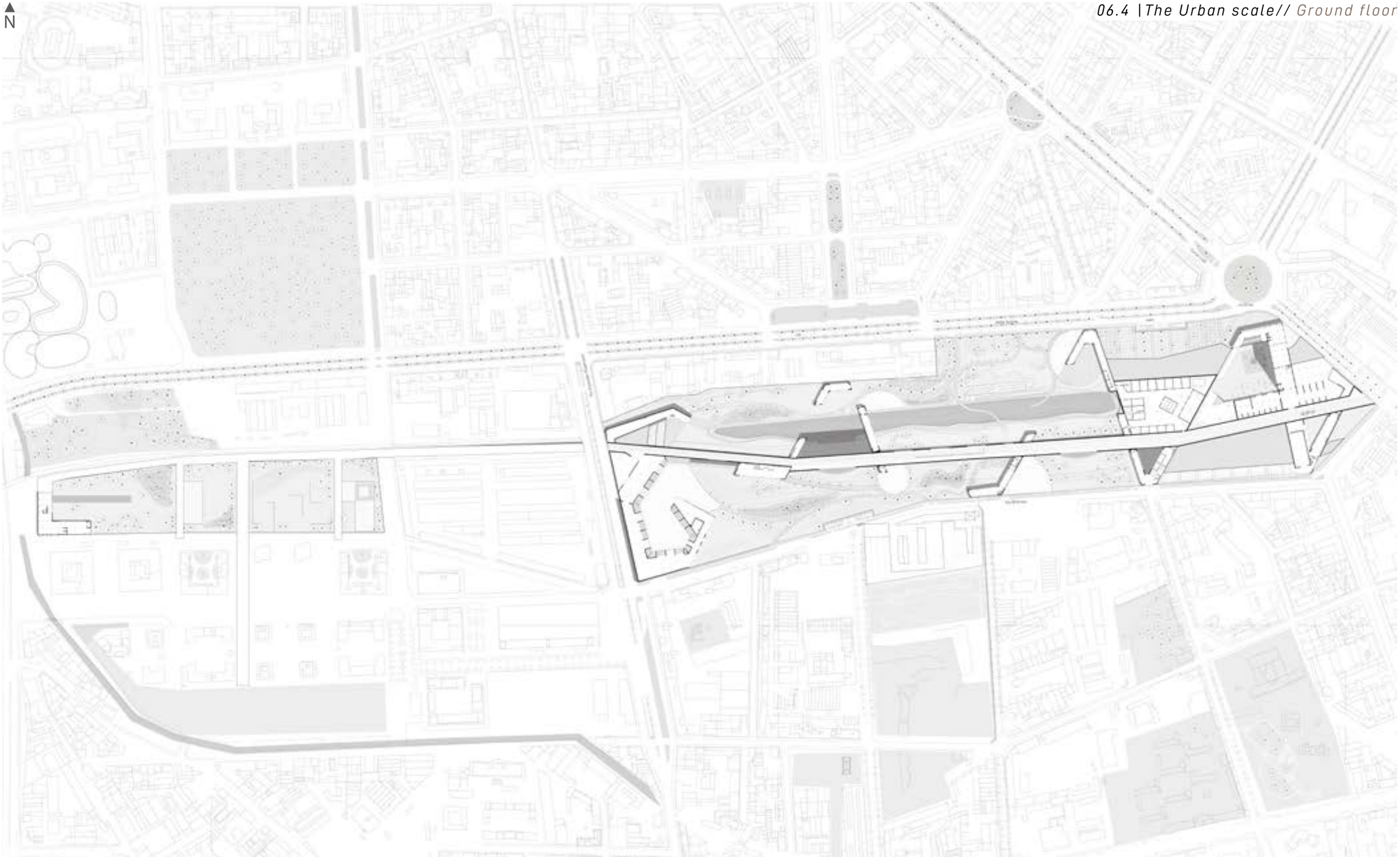


Fig.83: Groud floor plan

Fig.84: Urban elevation

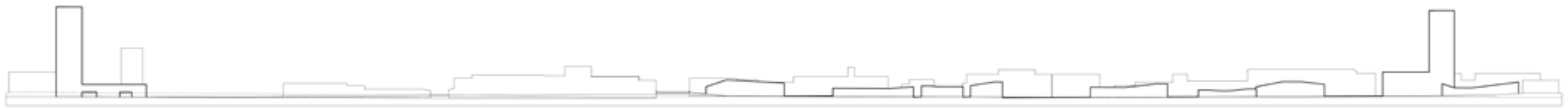


Fig.85: Urban Skyline

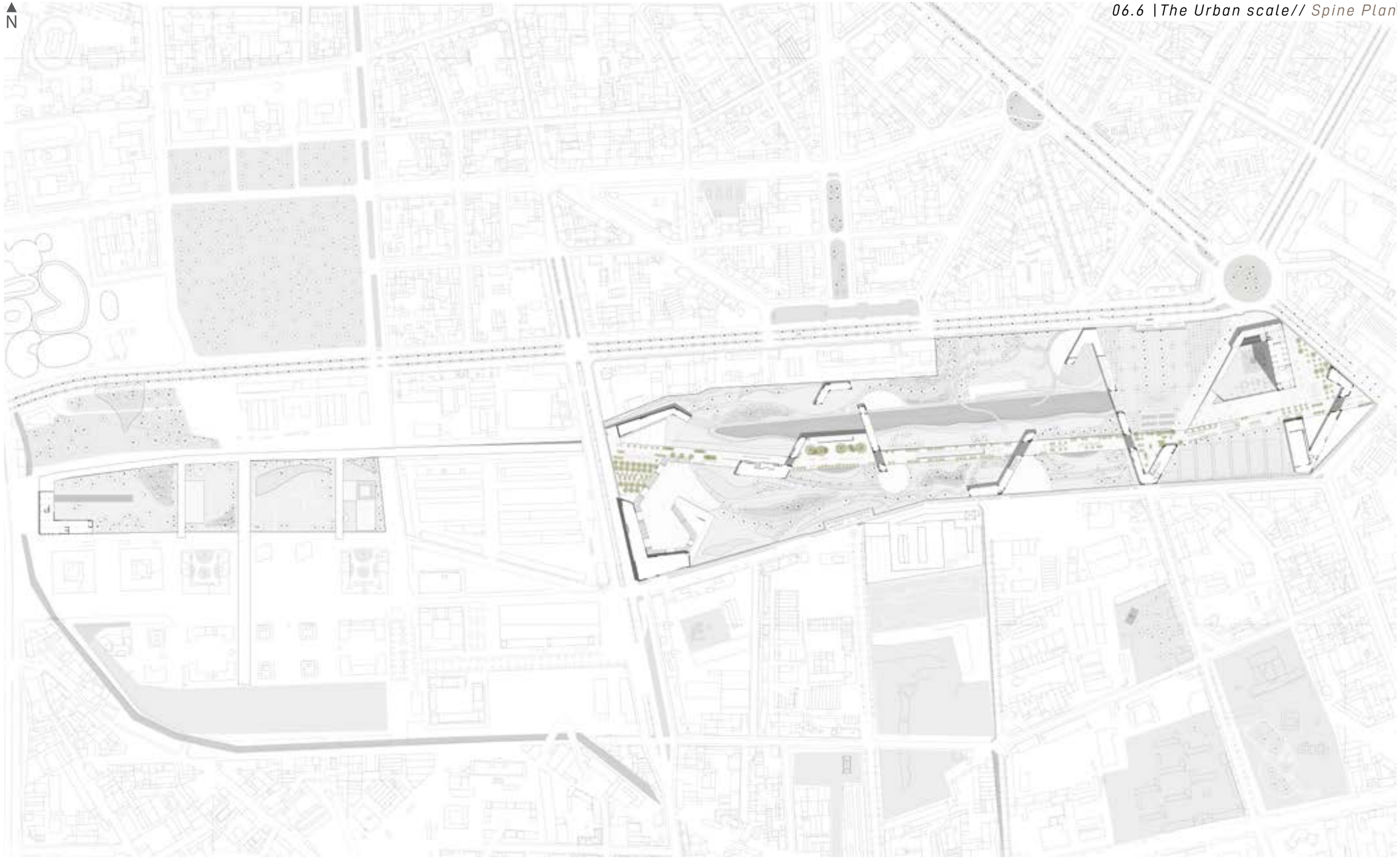


Fig.86: Spine level plan

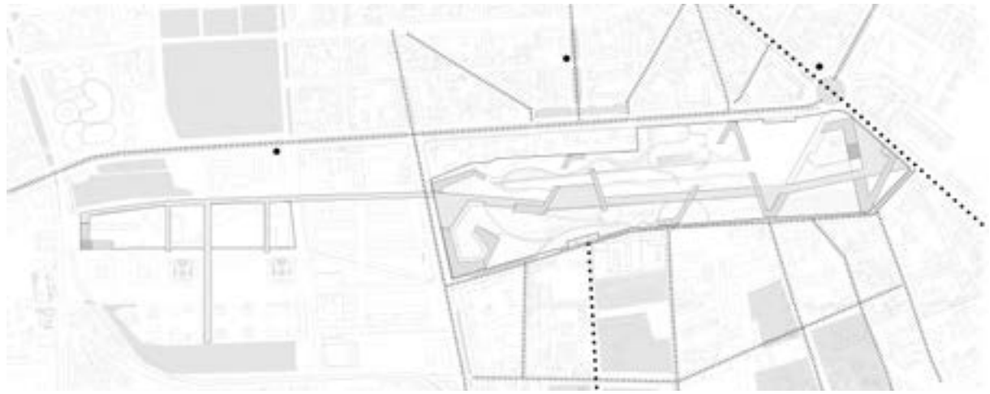


Fig.87: Cycle lane and car parking

Fig.88: Mobility improvement scheme

In concordance with the PGT, we decided to provide more cycle lanes directed towards the raggio verde and the Parco Agricolo sud and two new mobility hubs to encourage the use of electric cars and motor cycles over diesel ones.

Fig.90: Existing pedestrian paths

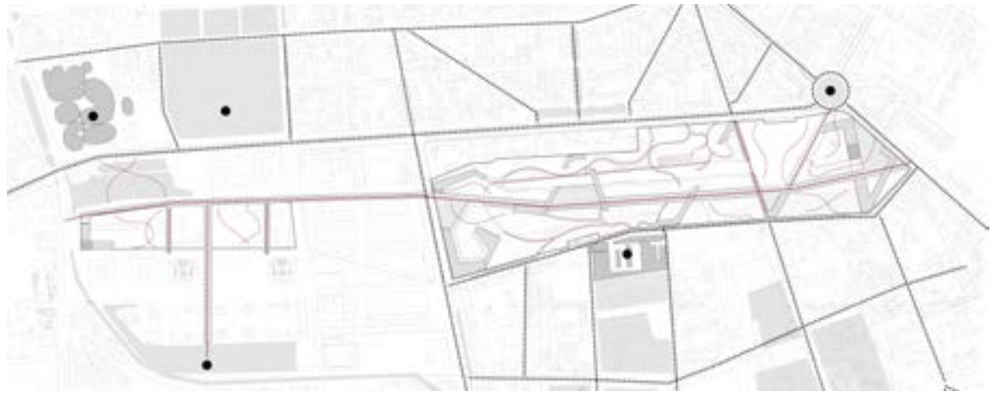
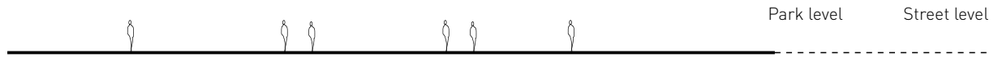


Fig.89: Pedestrian flow

The introduction of new path ways across the site maximize the walking tendencies of people. In the project we made sure to provide varied typologies of walkways with different experiences simulating potential desired paths “chemin de désir”.

1



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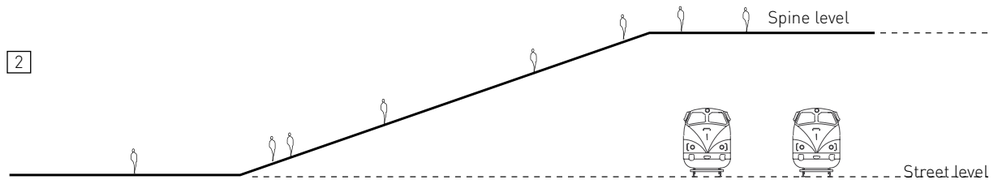

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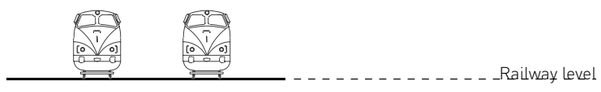

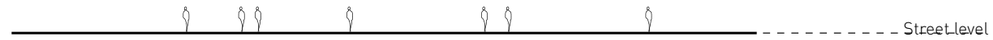

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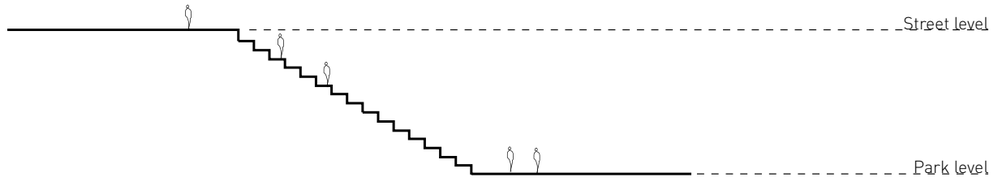

5

Street level

Underground level

The topography of the site has made it delicate to ensure maximum accessibility from the street to the park and buildings.

We decided to adapt to the existing condition and provide different design solutions according to each case.

Different slopes, and stairs lead to the spine and the underground piazzas.

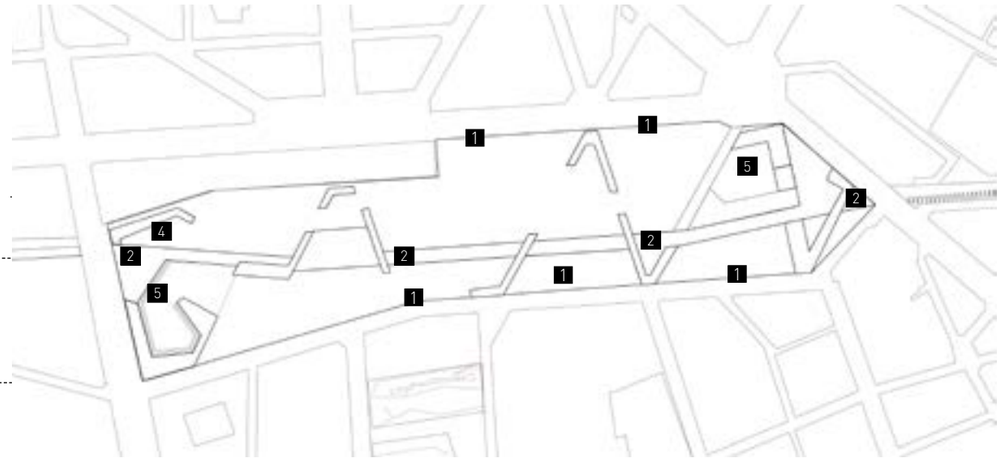

Fig.91: Level accessibility scheme

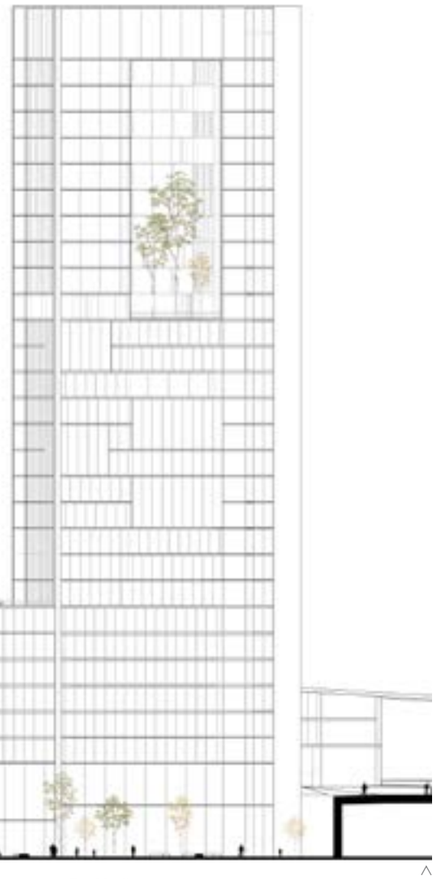

Fig.92: Section through the unddergound piazza

Fig.93: Existing condition of Corso Lodi node

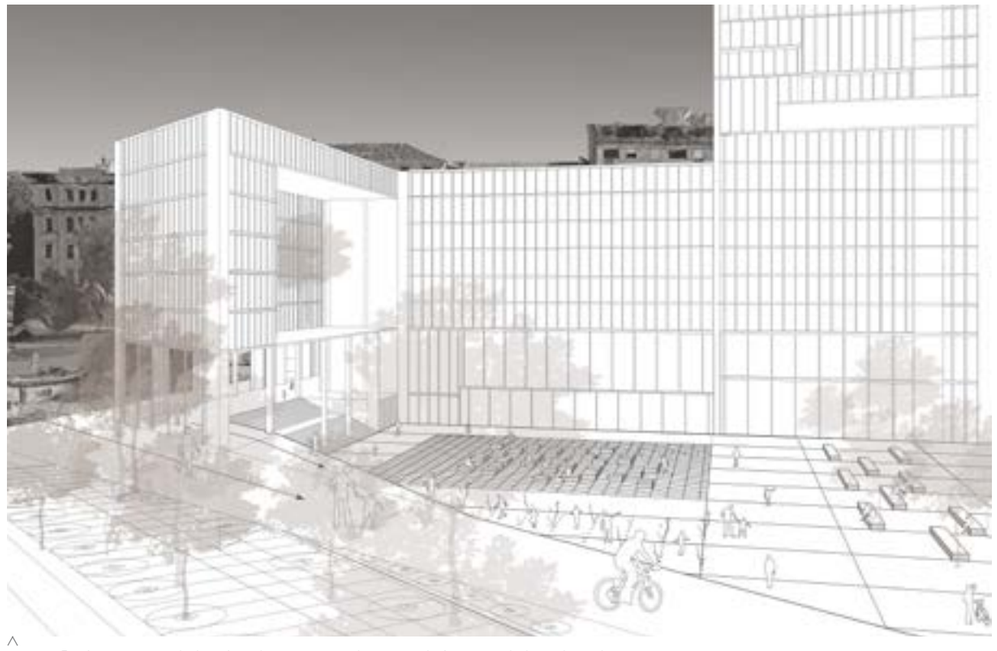

Fig.94: Project proposal showing the tower, underground piazza and sloped garden

Fig.95: Section through the Open air Theatre

Fig.96: Existing condition in Via Giuseppe Ripamonti

Fig.97: Project proposal showing the Open air theatre and the arena

Fig.98: Existing condition at Corso Lodi junction with and Via Brembo

Fig.100: Existing condition of the site in Via Brembo

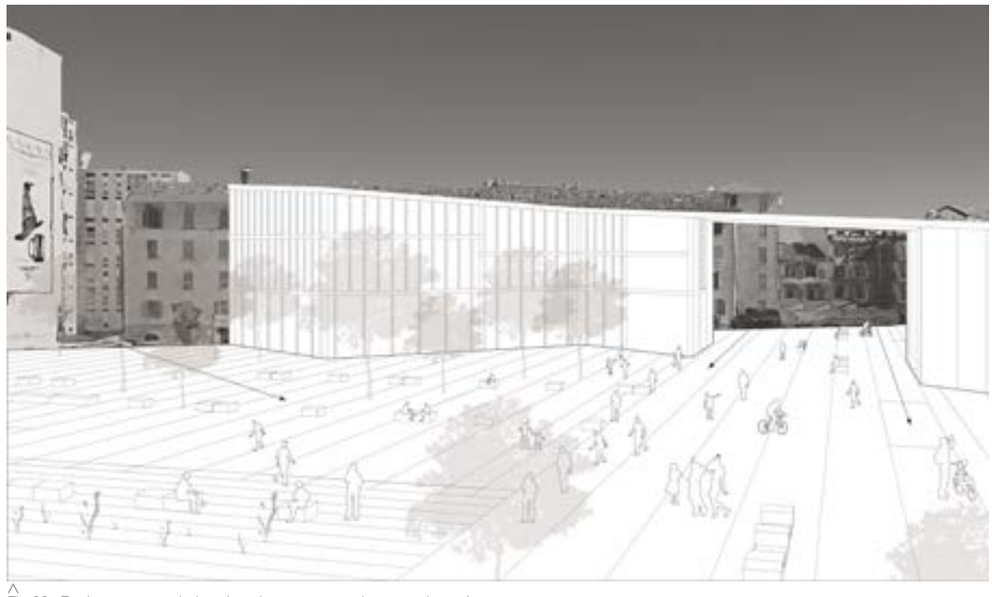

Fig.99: Project proposal showing the entrance piazza to the spine

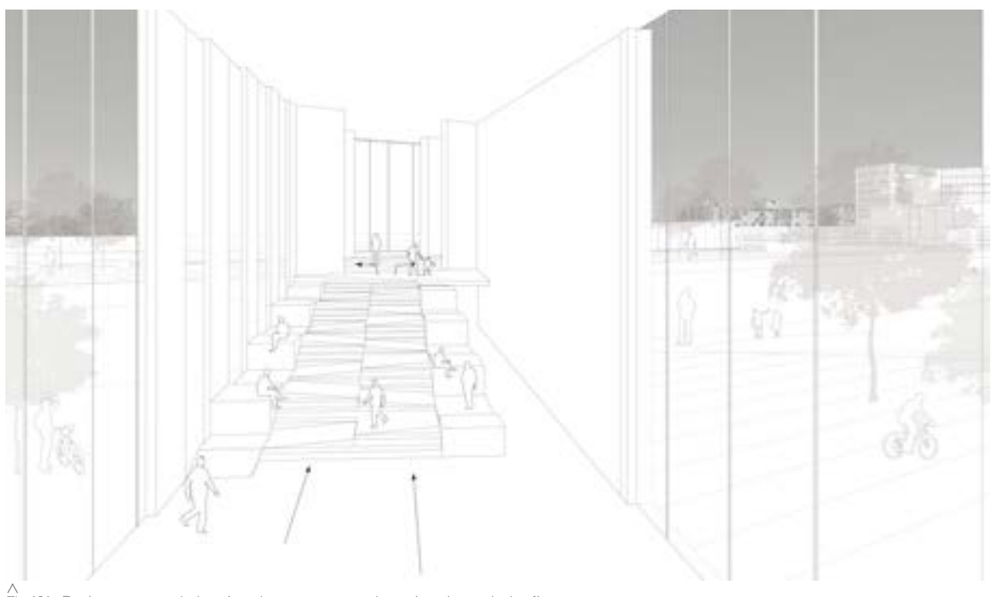

Fig.101: Project proposal showing the entrance to the spine through the finger

Project scale

The project scale is a deeper look into the project and its basis, we will explore different sections and plans along with the programme, the functions and the landscape aspect. ranging from 1/2000 to 1/50

The different uses suggested in the programme are segregted into different categories:

Housing | Athlete residence and student housing //Tower

Educational | Farming workshps, Botanical lab and the library // Fingers

Commercial | Retail, and commercial spaces //Tower and Fingers.

Social | Community center, mobility hub, Barter hub // Finger

Cultural | Exhibition hall, auditorium, Open air theatre // Fingers.

Leisure | Restaurant, sport facilities and cafés.

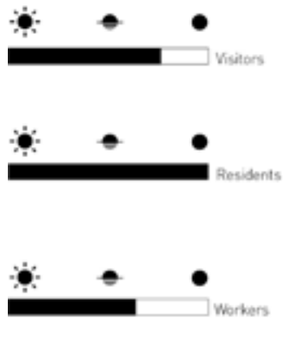

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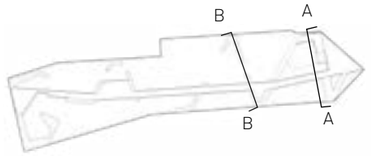
Fig.102: Use of spaces in time

< Fig.103: The programme axonometry of the project
^ Fig.104: Users of the project

The project is inclusive to all and offers a variety of services and amenitites of which visitors as well as residents and workers can benefit from.

The tower is permanently used by the temporary residents and has its own system of rest, sleeping, and recreation places.

The fingers host services meant for the neighborhood and the city and not exclusive to the residents of the tower.



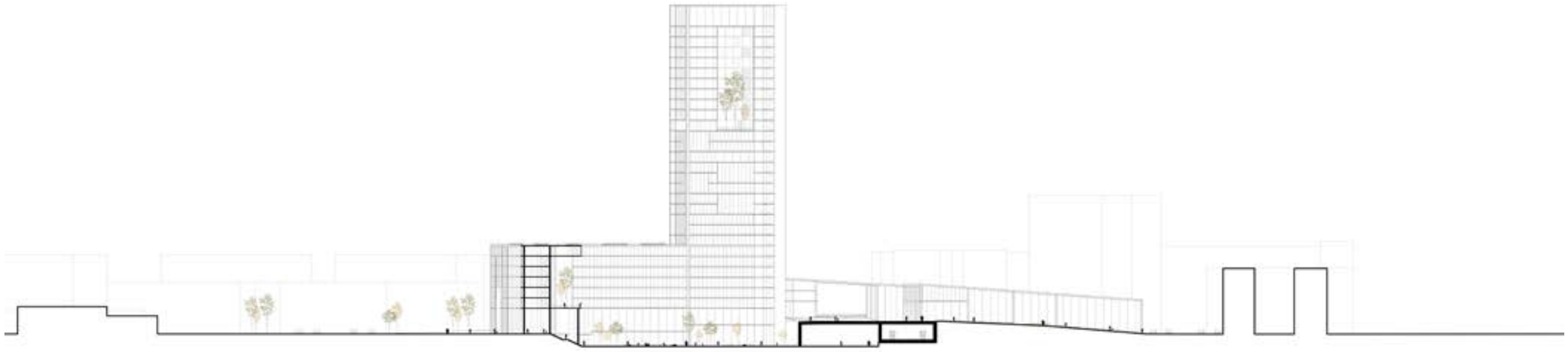


Fig.105: Section A

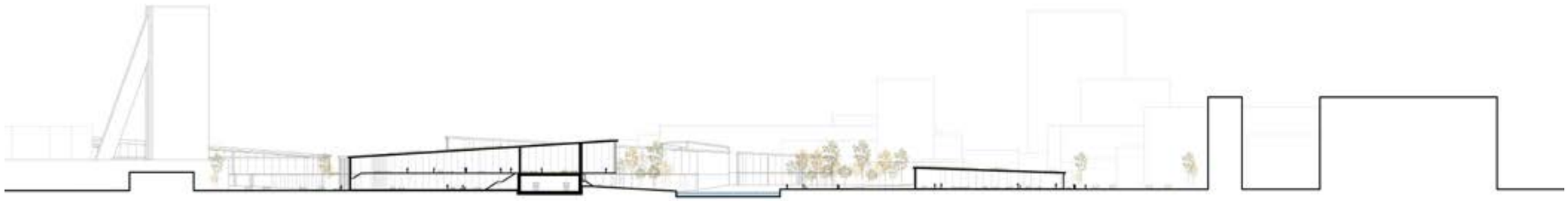
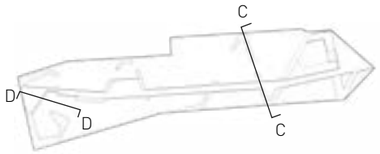


Fig.106: Section B

6 12 18 24



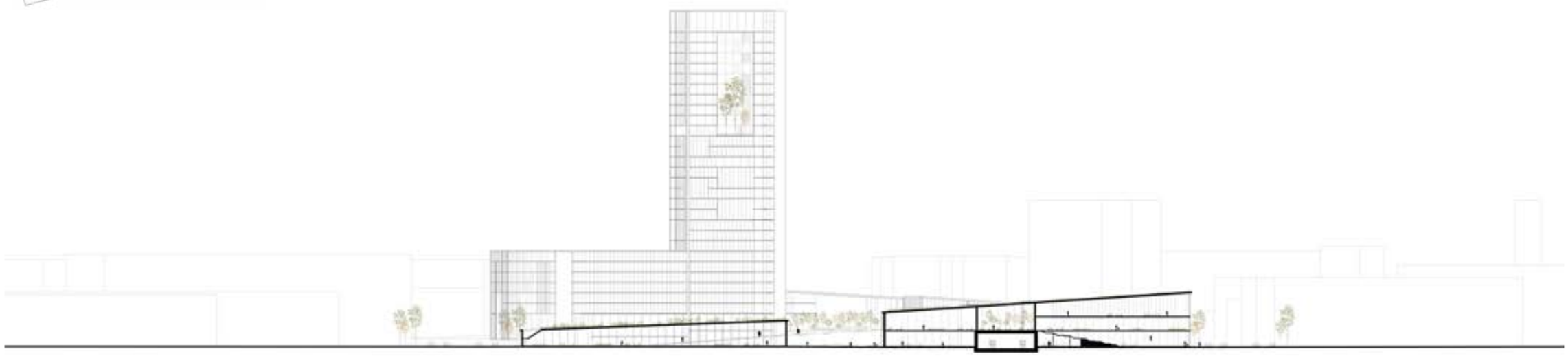


Fig.107: Section C

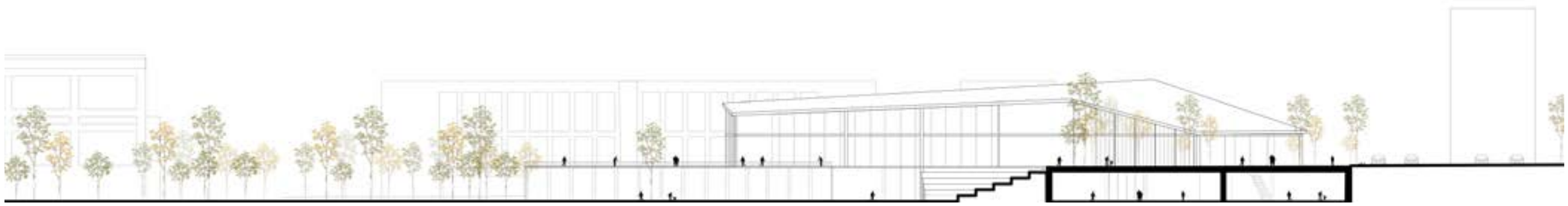


Fig.108: Section D

6 12 18 24

As referred to in the early chapters, the void is the matrix of the project. We consider it as an incubator for social interactions and collective rituals. The variety of public spaces designed in this project are able to host different uses, social groups or individuals at different times and provide different potentialities to regenerate an active use of the public space, and numerous activities.

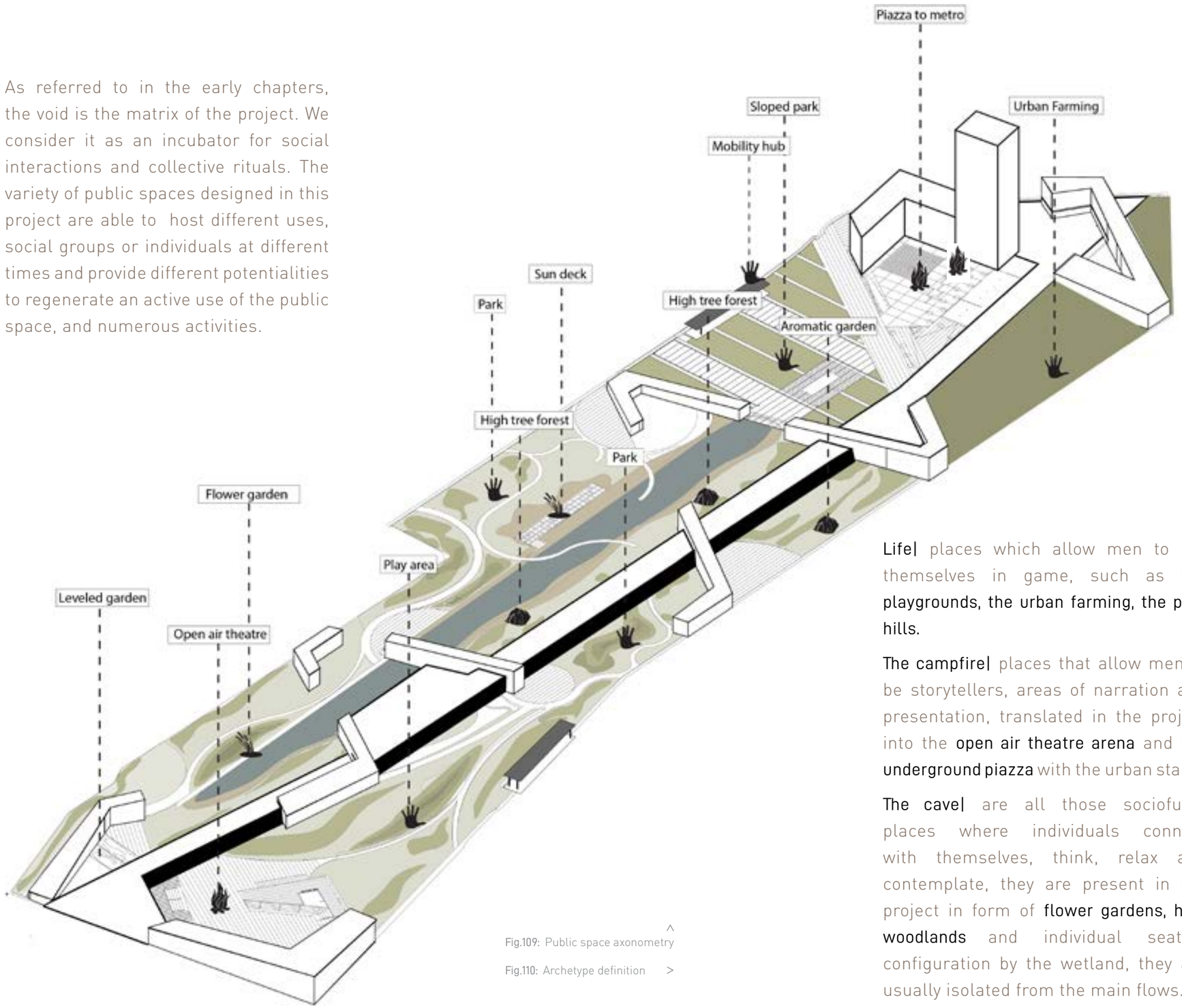
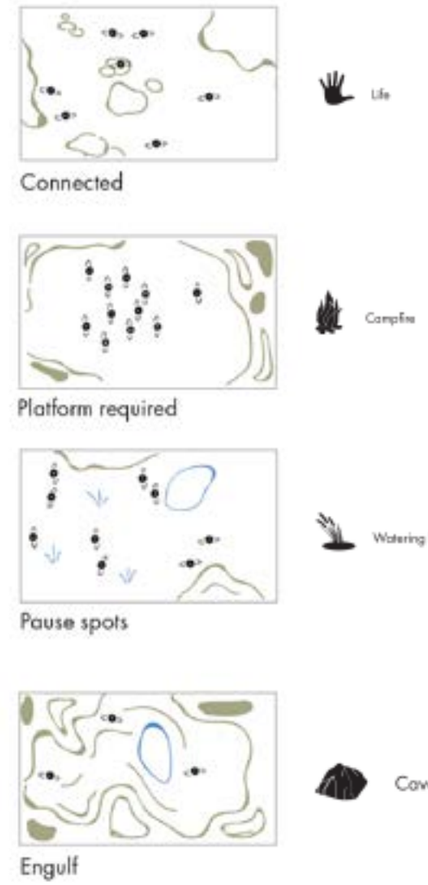


Fig.109: Public space axonometry

Fig.110: Archetype definition >

Our design is mainly suggestive and not rigid in order to adapt to different users and uses and for that we used the Thornburg archetypes.



Life| places which allow men to put themselves in game, such as the playgrounds, the urban farming, the park hills.

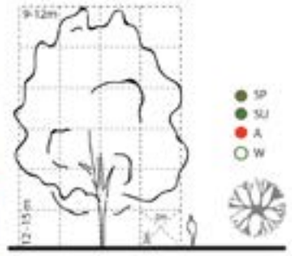
The campfire| places that allow men to be storytellers, areas of narration and presentation, translated in the project into the open air theatre arena and the underground piazza with the urban stairs.

The cave| are all those sociofugal places where individuals connect with themselves, think, relax and contemplate, they are present in the project in form of flower gardens, high woodlands and individual seating configuration by the wetland, they are usually isolated from the main flows.

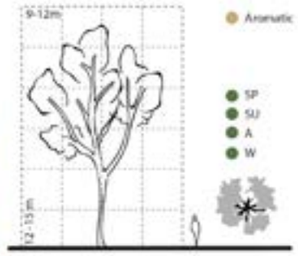
The watering hole| places of discussion and exchange as it used to be back in time when fetching the water from the ponds, they are provided in the project by the wetland, and the different water spots in the park as well as on the spine.

Taller trees

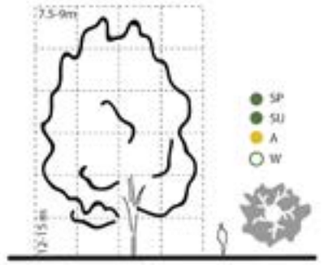
Acer rubrum
"Orange glory"



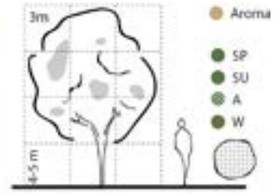
Eucalyptus



Gingko Biloba

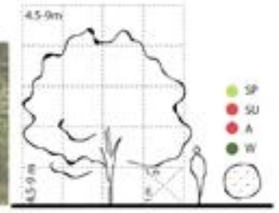


Citrus recticulata

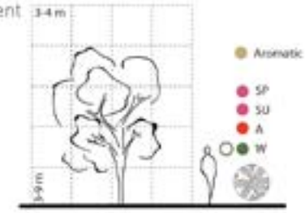


Smaller trees

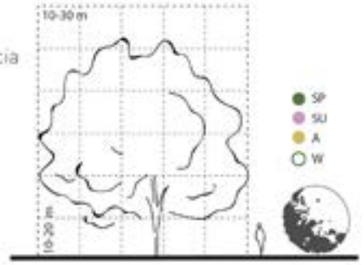
Kausa dogwood



Magnolia Heaven scent



Robinia Pseudoacacia



Ornamental plants

Moss

Red tillandsia

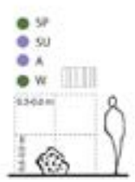
Phormum tenax

Aeonium sunburst

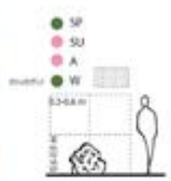
Perle von nurnberg

Flowers

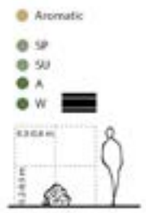
Agatache
"Blue Fortune"



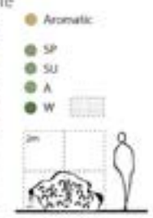
Sedum
Matrona



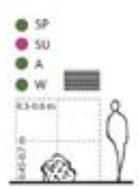
Thymus vulagaris
"Common Thyme"



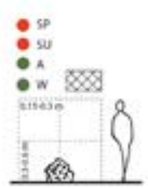
Jasmine Officinale
"White Jasmine"



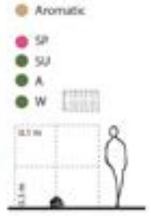
Salvia
"Purple rain"



Papaver rhoeas
"Common Poppy"



Foxtrot Tulip



Lavandula Folgate
"Lavender"

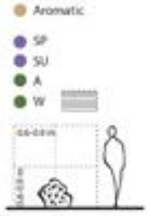
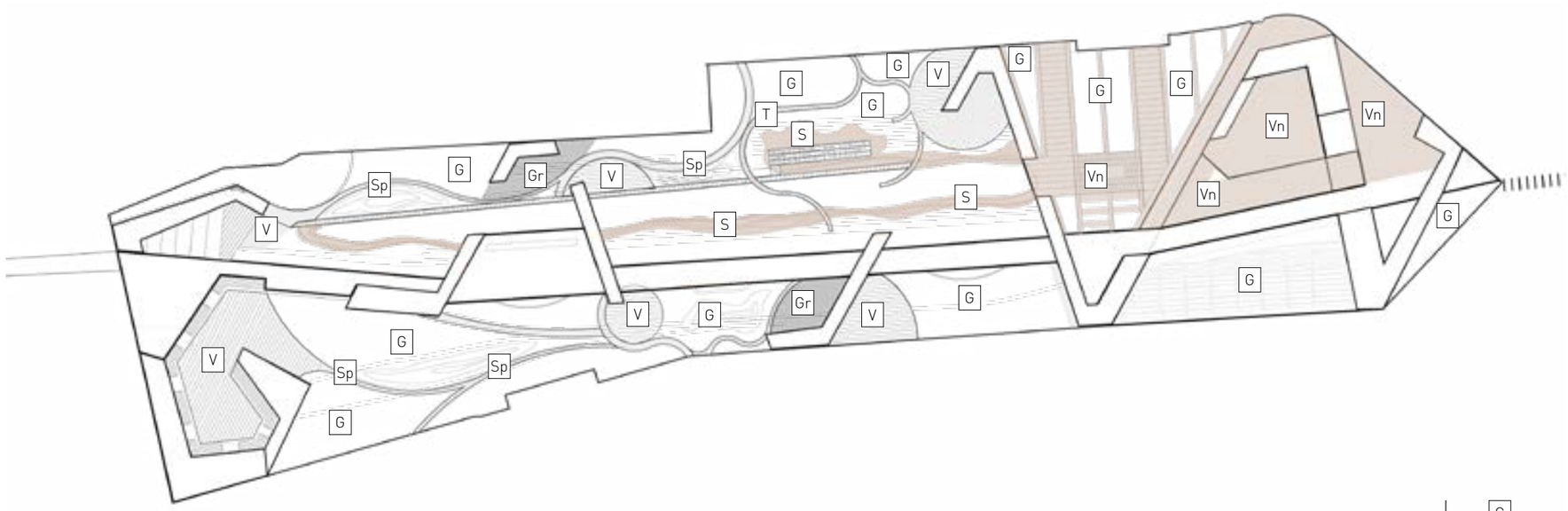


Fig.111: A selection of plants introduced in the project



^
Fig.112: Pavements and surfaces in the project

The choice of the pavement typology has a consequent impact on some topics discussed in early chapters, as we know now gray, permeable and dark surfaces reflect the sun and increase the urban heat while rainwater cannot reach the soil or be reused and end up wasted.

For this purpose we implemented different permeable surfaces covering 72% of the total surface of the public space.

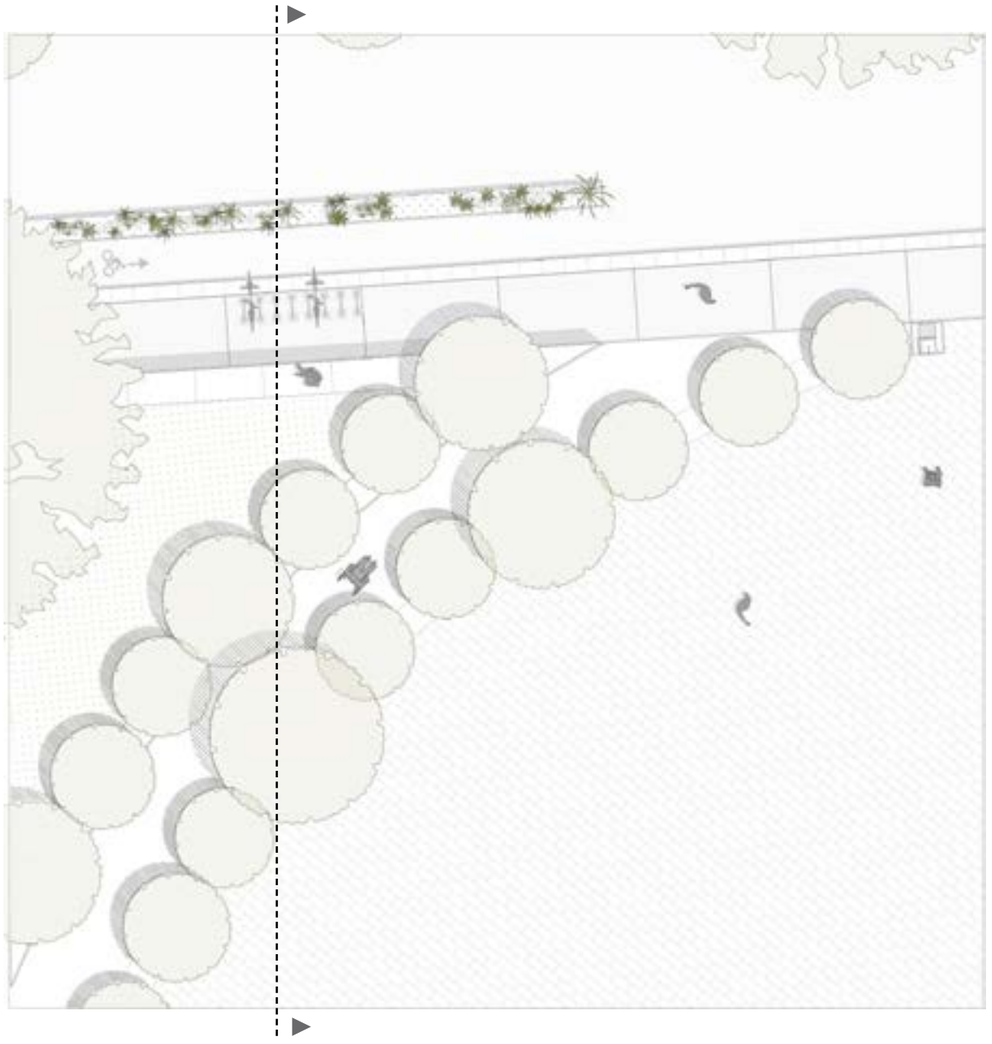
Permeable surfaces

- G Grass
- S Sand
- V Via del centro BK Ferrari
- Gr Grigliato BK Ferrari
- Sp Slate Permeable joint
- T Timber

Non permeable surfaces

- Vn Via del centro Bk Ferrari Non Permeable joint

N



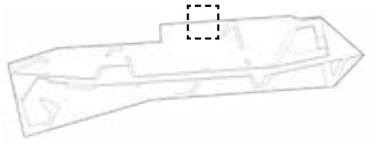


Fig.113: Landscape detail plan by the street

Fig.114: Pavement detail

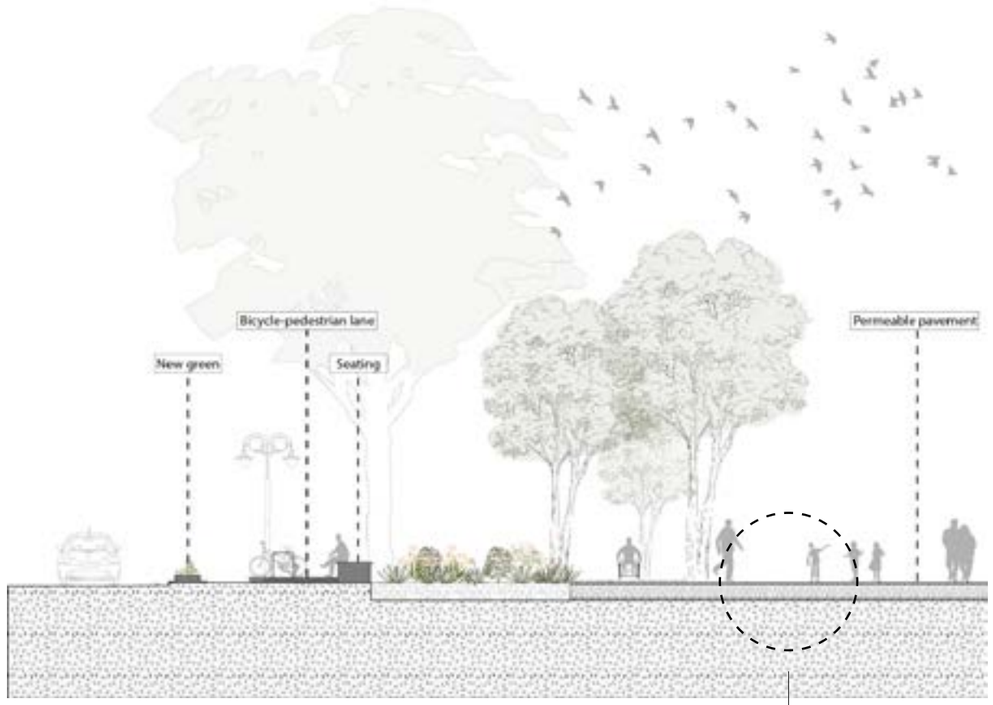
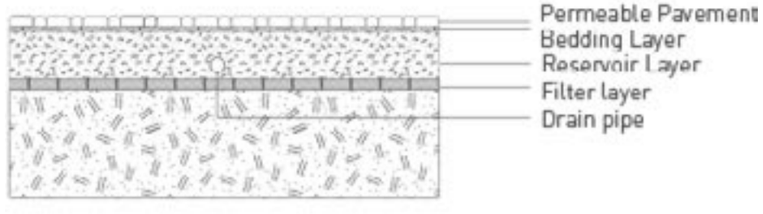


Fig.115: Section detail



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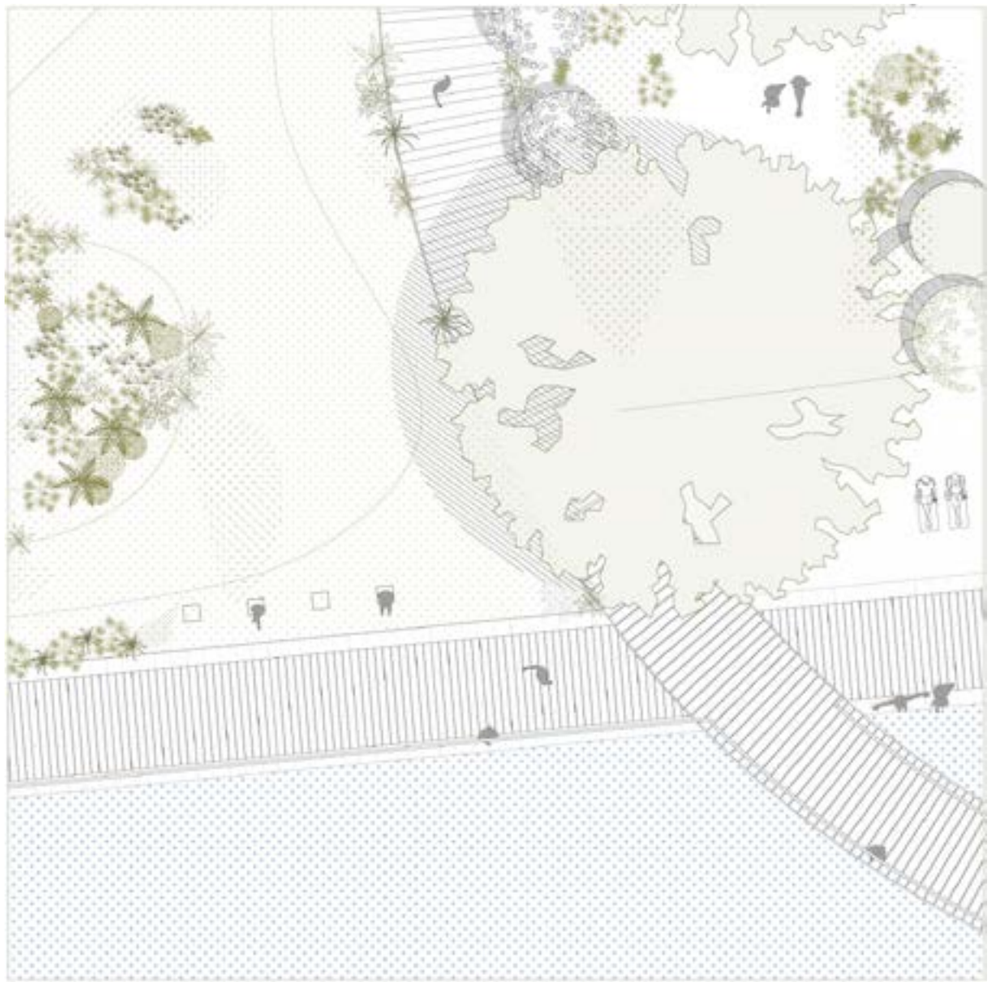


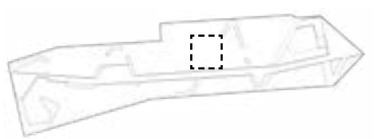


Fig.116: Landscape detail plan by the wetland

Fig.117: Wooden deck detail

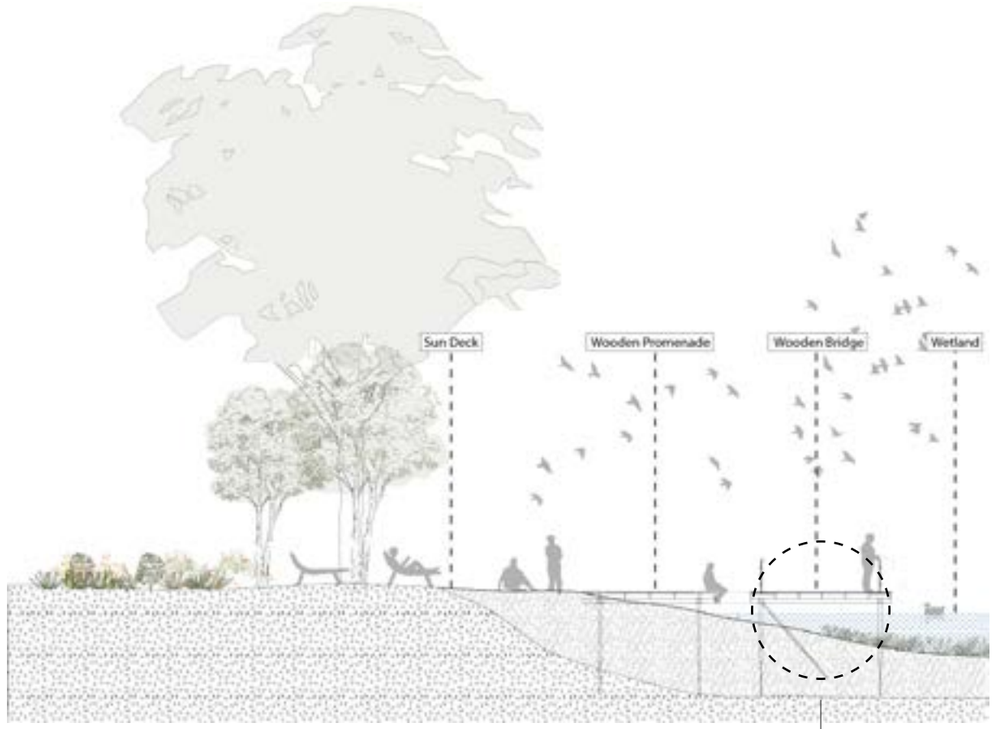
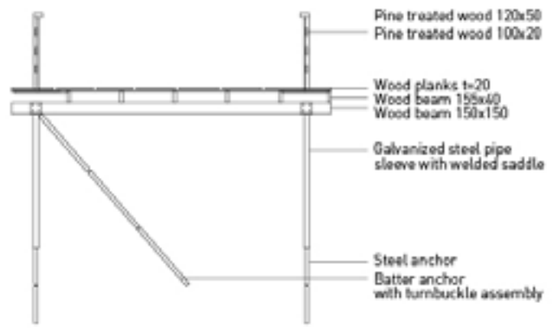


Fig.118: Landscape Section detail



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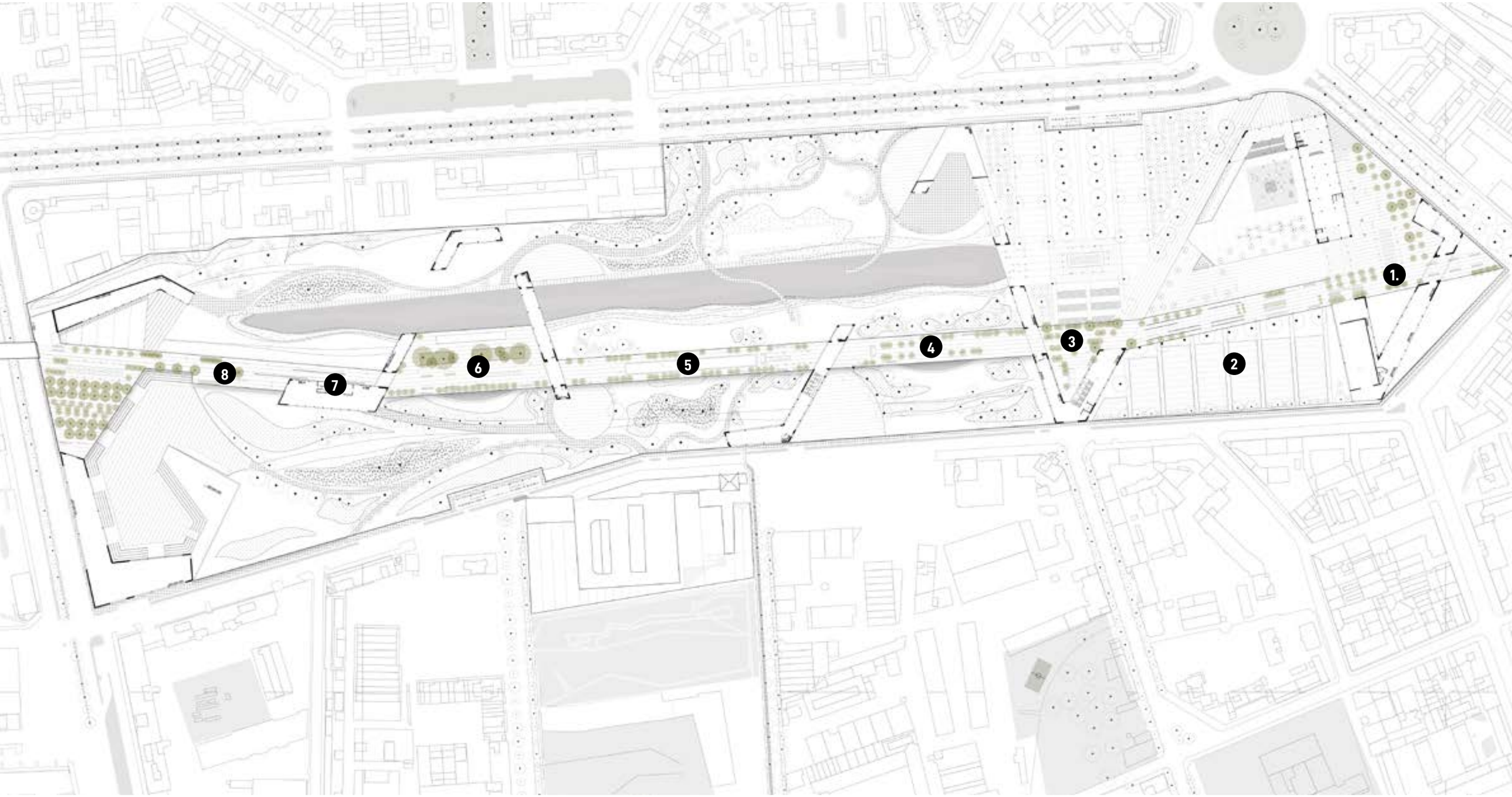


Fig.119: Spine plan close up

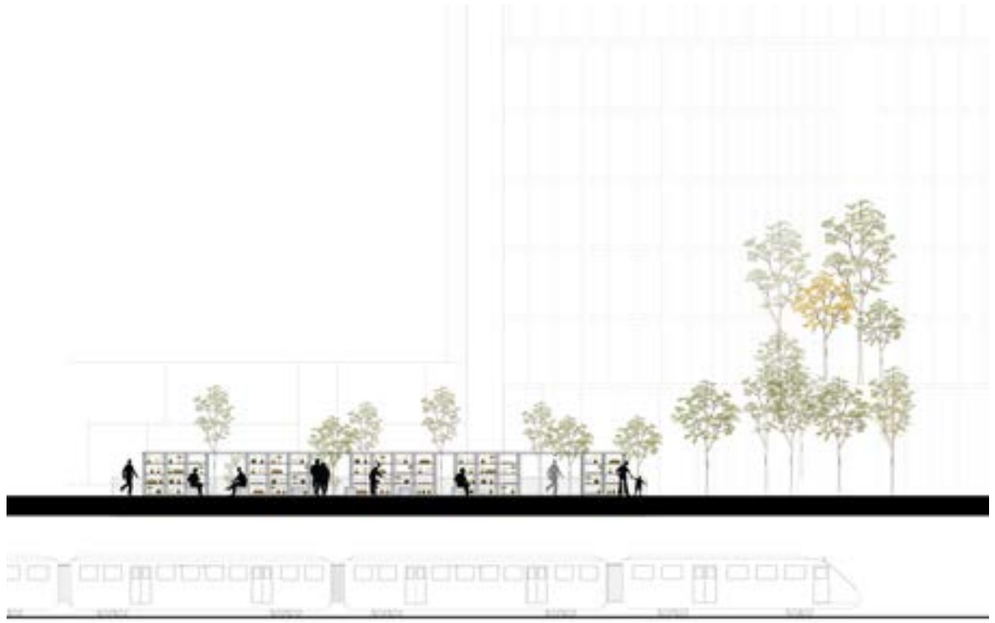


Fig.120: Sequence 1| Vertical Landscape

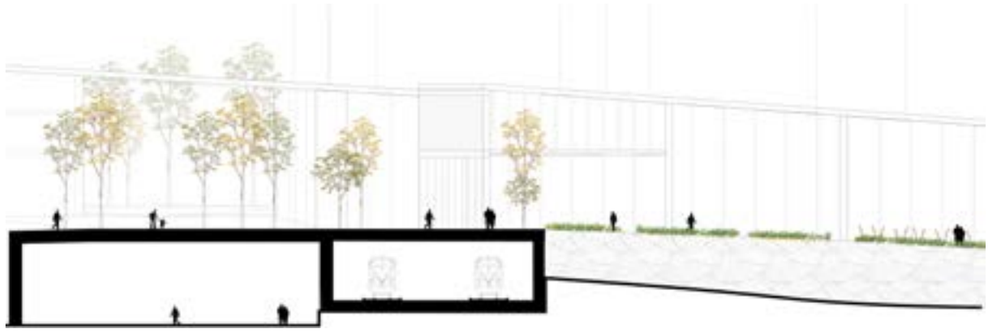


Fig.121: Sequence 2| Urban faming

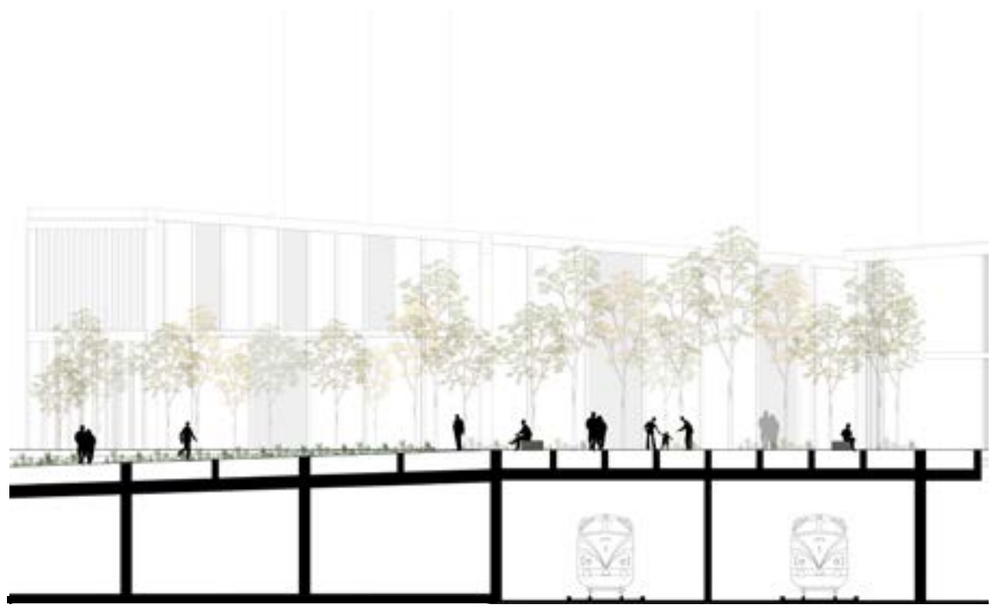


Fig.122: Sequence 3| The woodland

Fig.123: Sequence 4 [The play

Fig.124: Render of the entry to the spine from Corso Lodi

Fig.125: Render of the meadows garden

Fig.126: Render of the Urban farming area

Fig.127: Render of the Vertical landscape

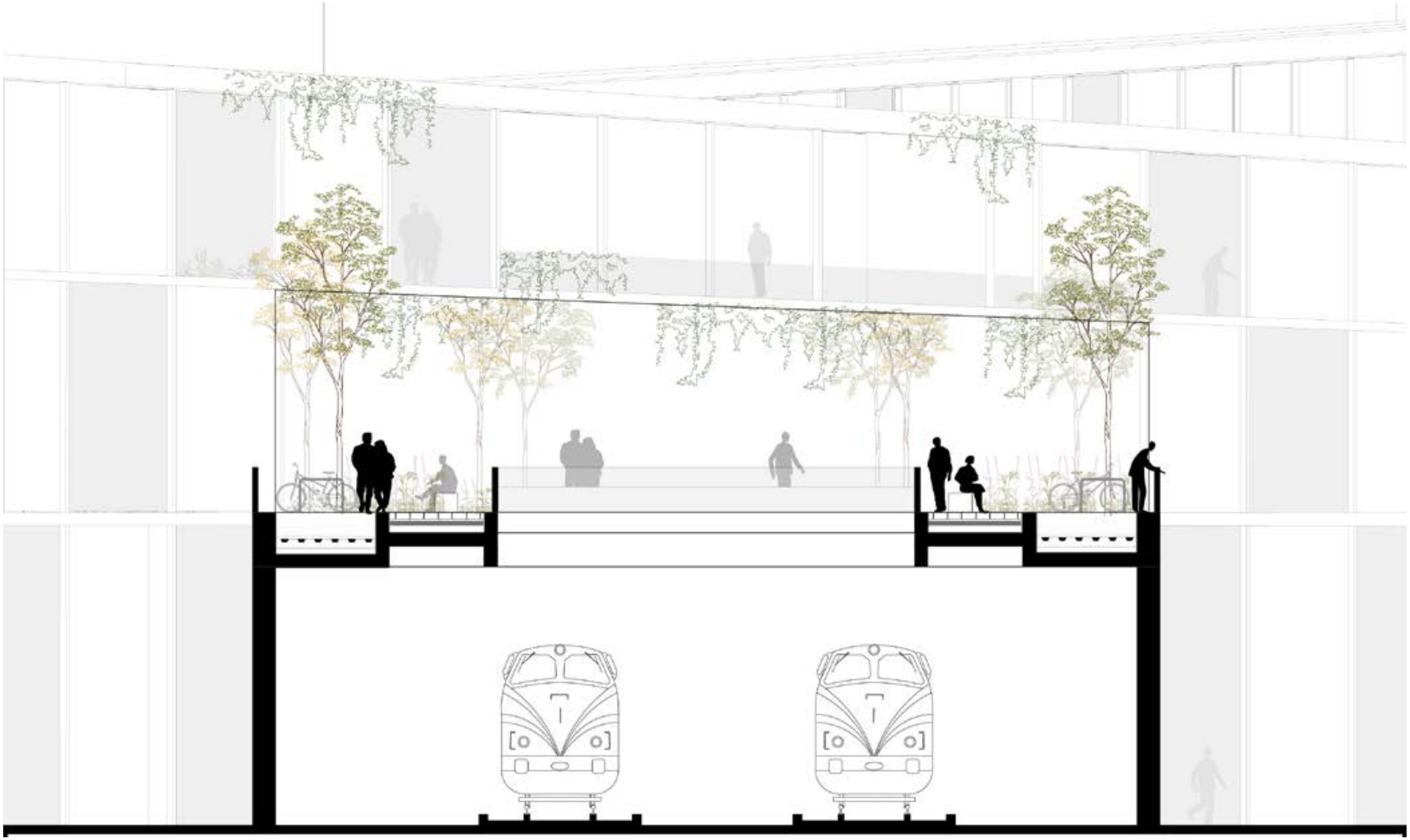
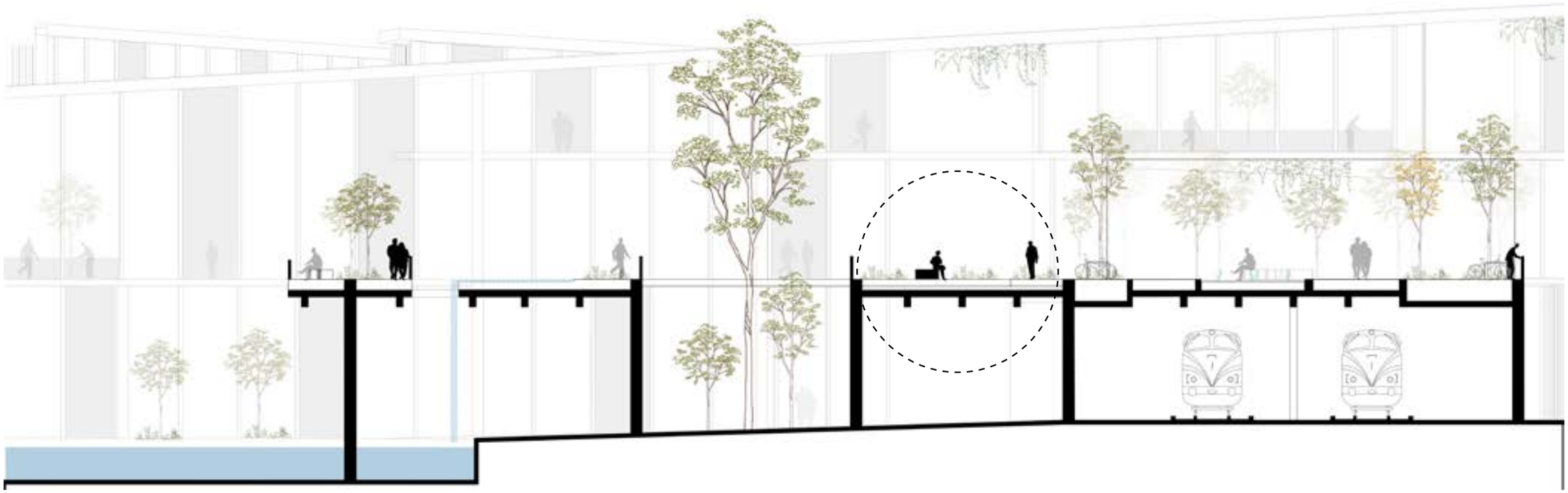


Fig.128: Sequence 5| Opening

^
Fig.129: Render of the train Opening area



^
Fig.130: Sequence 6| Waterscape

3 6 12

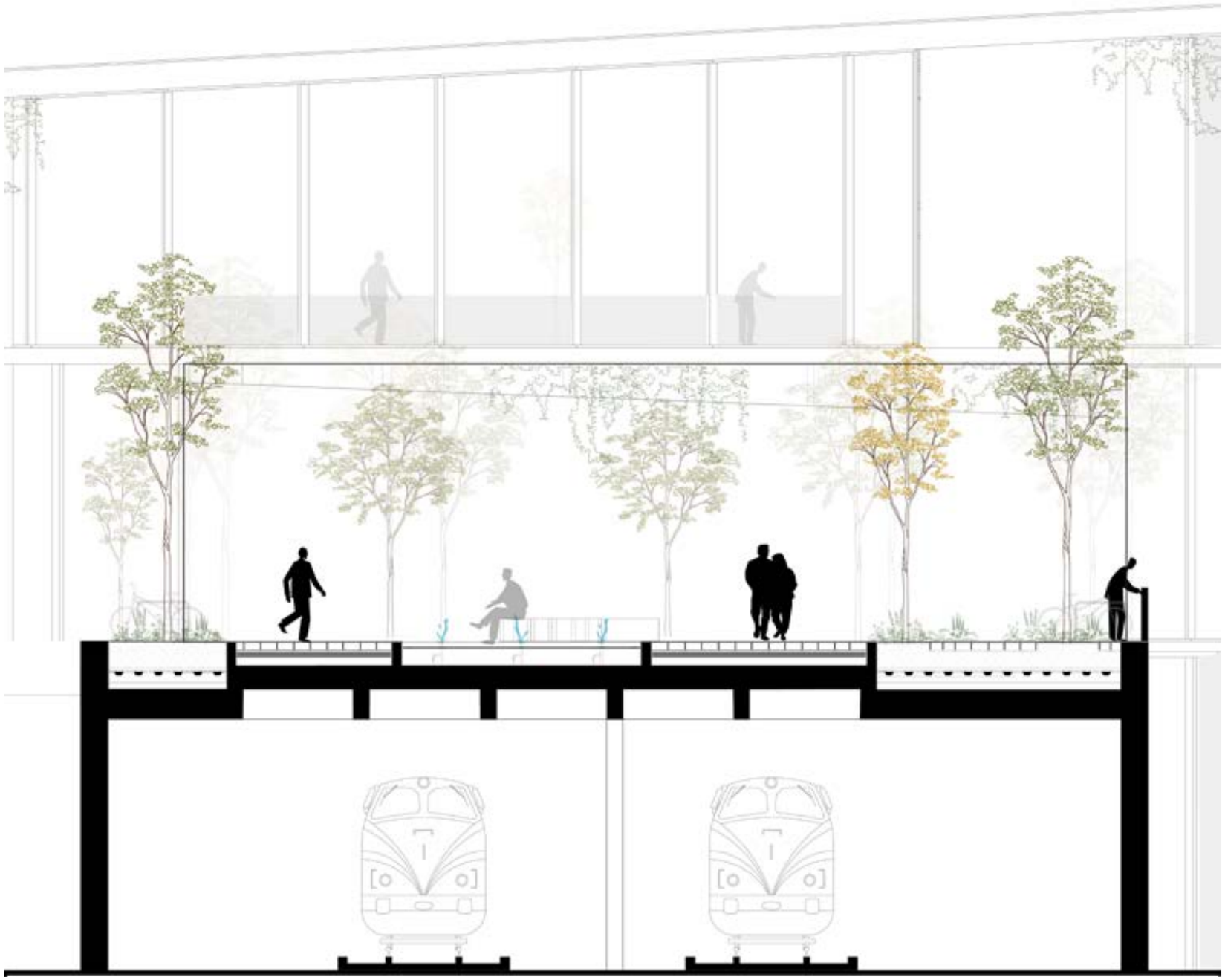


Fig.131: Sequence 6| Waterscape close up >

^
Fig.132: Render of the waterscape area

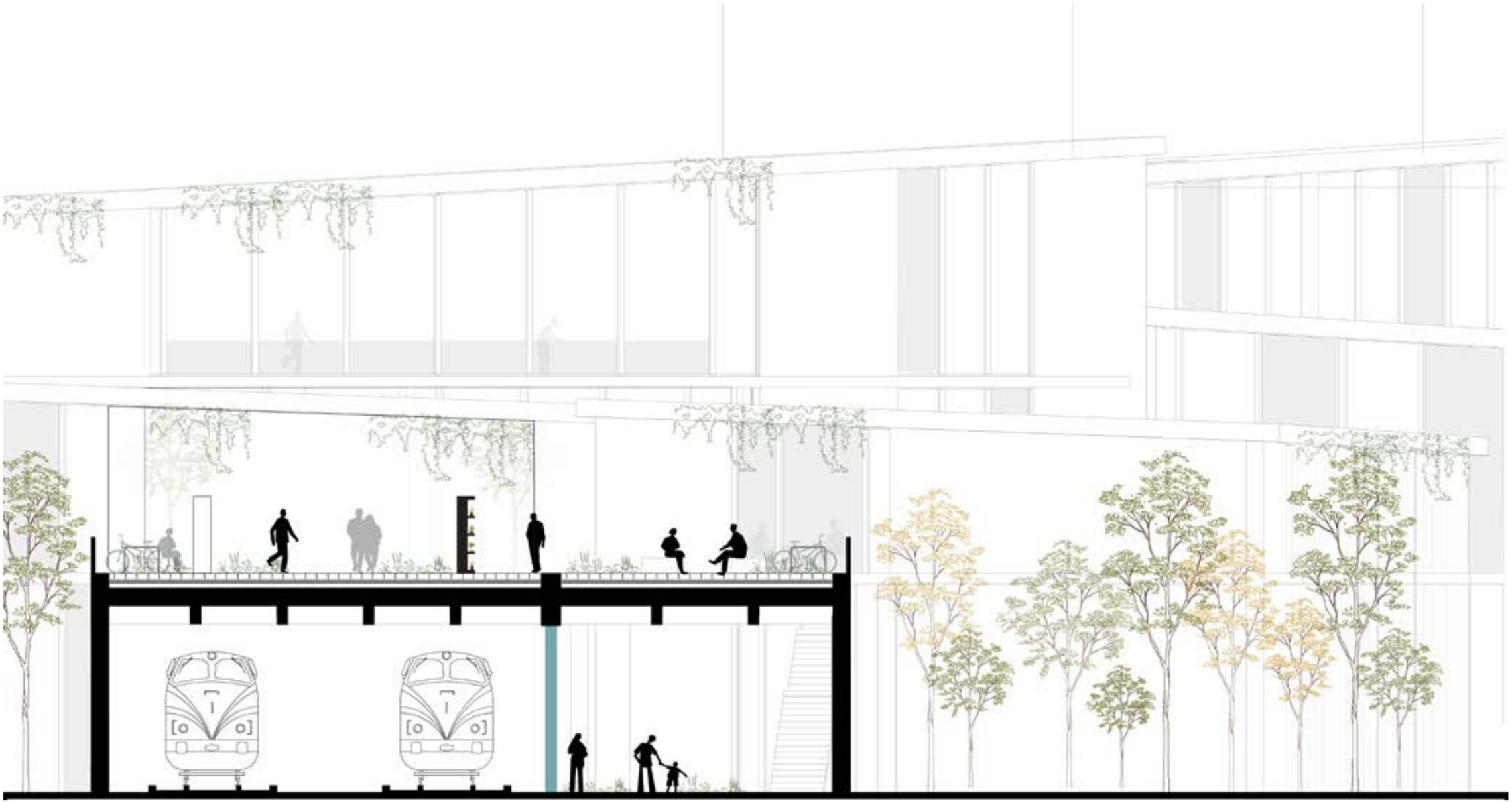
^

Fig.133: Sequence 7| Vertical Landscape

1.5 3 6

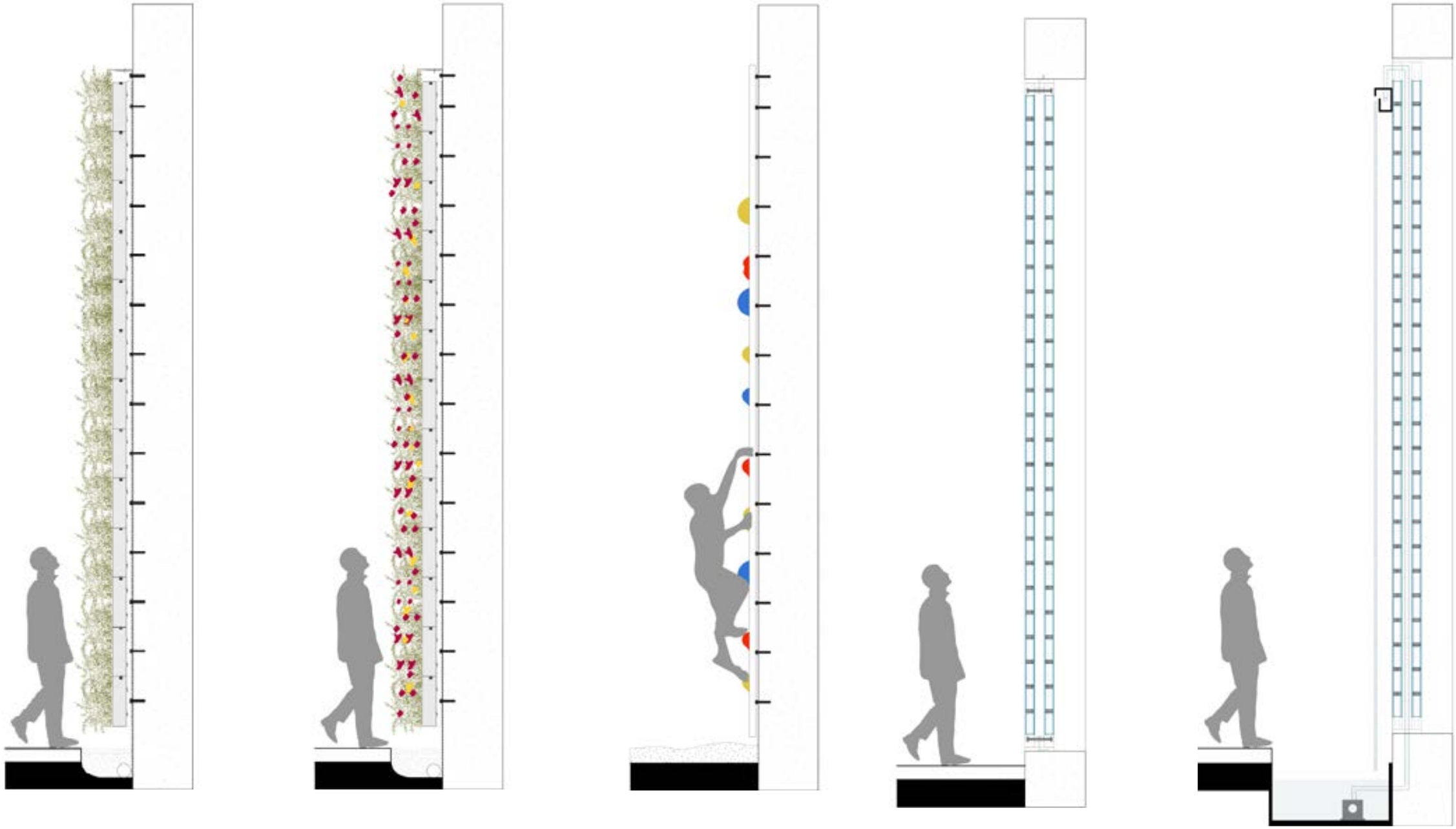
Fig.134: Render of the play area
<

<
Fig.135: Render of the woodland area



^
Fig.136: Sequence 7| Vertical Landscape

1.5 3 6



Green wall

Flower wall

Climbing wall

Glass wall

Glass wall with water

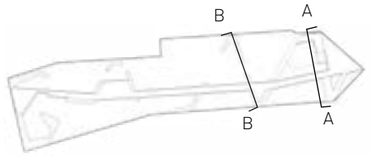
Fig.137: Vertical landscape under the spine

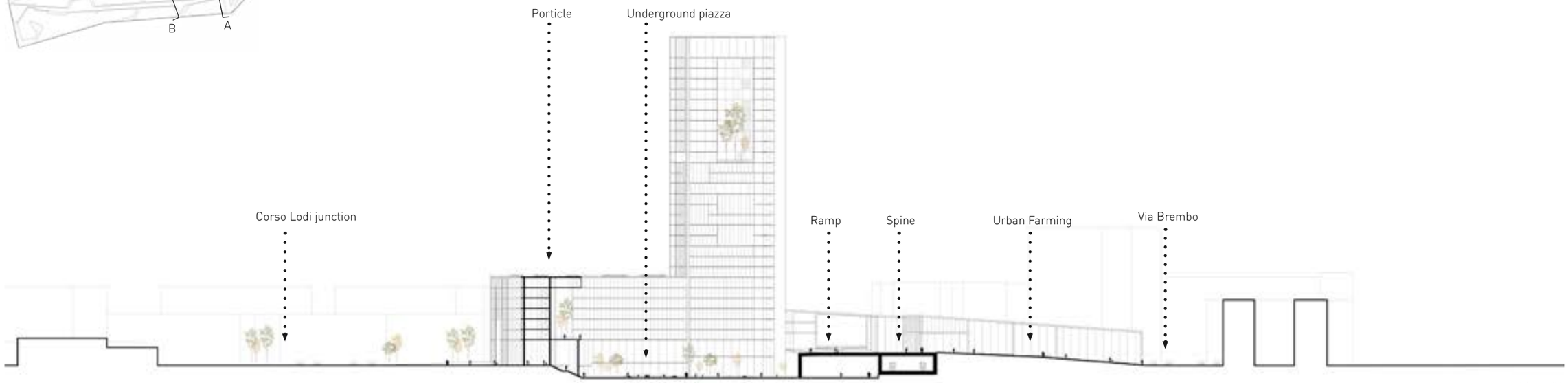
Focus scale

The Focus scale is a zoom in one part of the project with in 1/500, showing the urban connection with the site and between the indoor and outdoor spaces.

Fig.138: Focus area ground floor plan / Level +0.00 from the spine

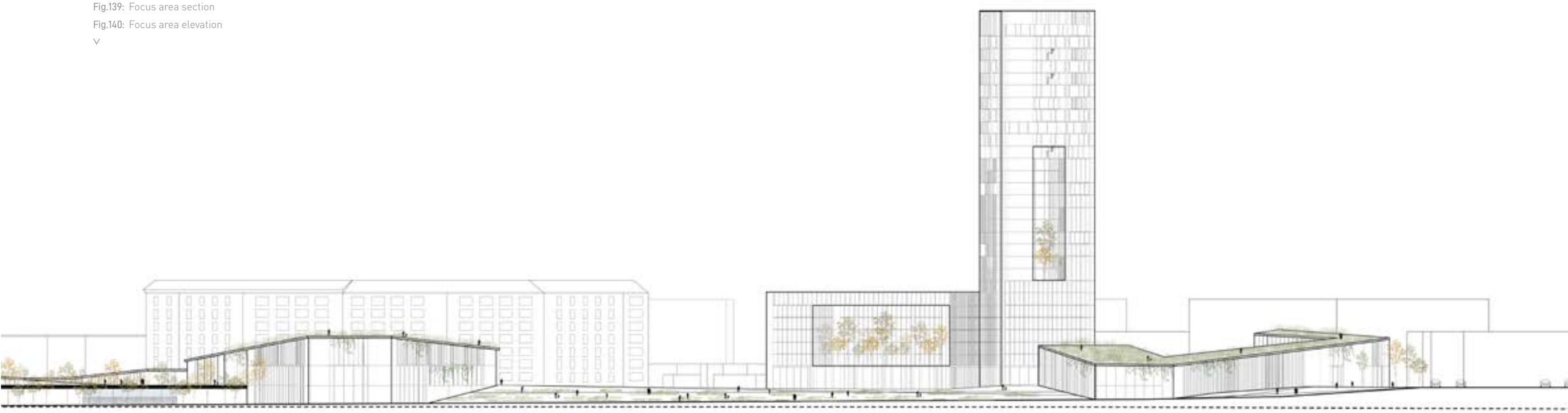
Scale 1:500





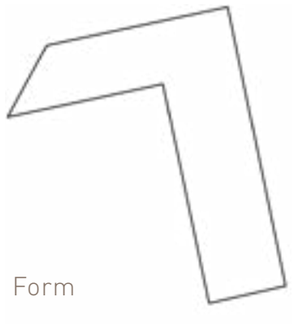
6 12 24

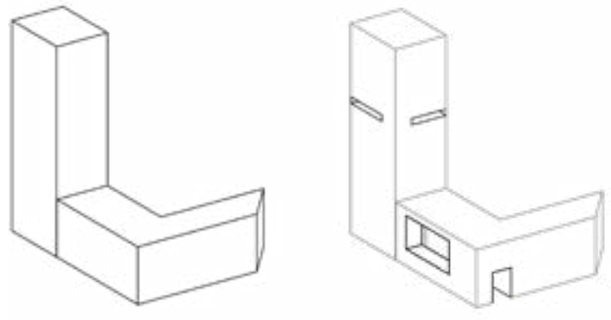
^
Fig.139: Focus area section
Fig.140: Focus area elevation
v



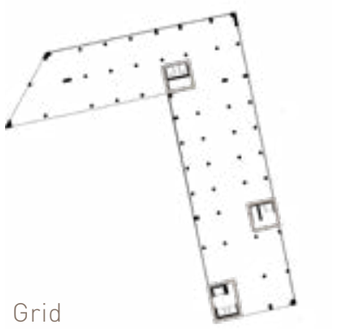
Building scale

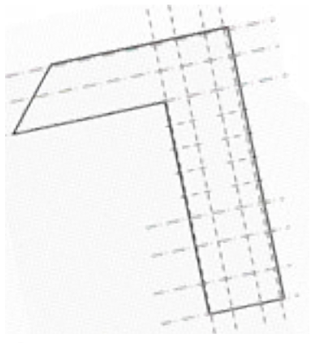
The building scale focuses on one chosen building to be detailed. For this purpose we decided to detail the tower as it is an important building in the project holding most all of the permanent programme.

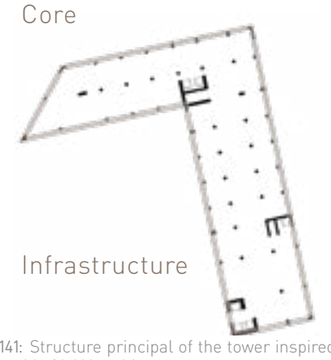




The void substracted from the the full creates air corridors whithin the building from which hot air can rise and release, this wind worridor creates a micro climate of continuous ventilation and reflected sun light inside the cores of the tower







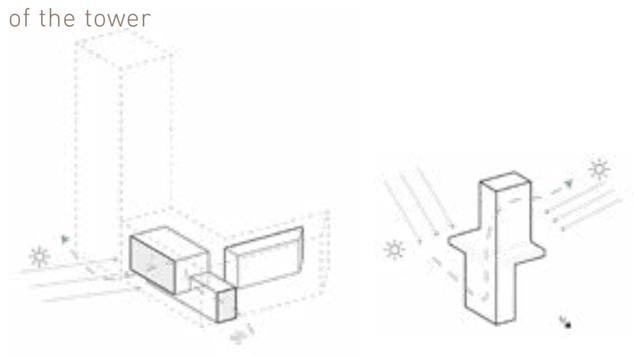
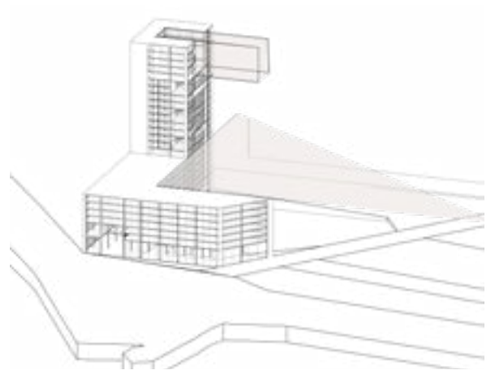


Fig.142: Full and void benefits

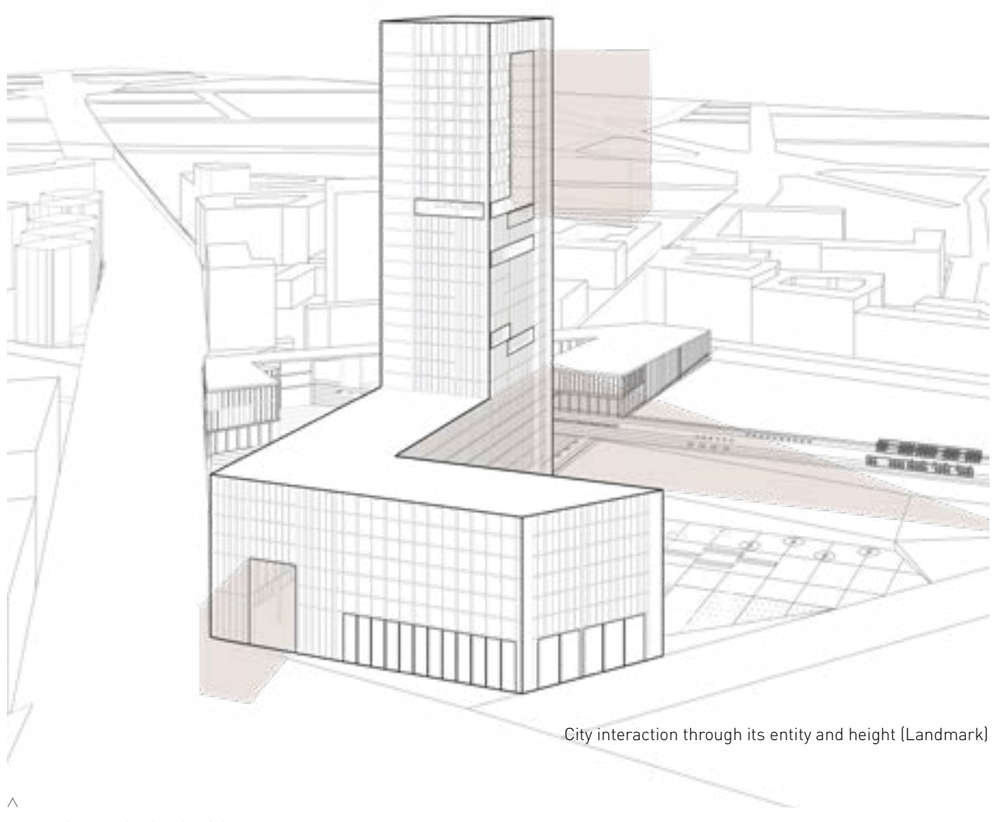
The tower is a vertical extrusion of its foor print reaching 134m high. A mixed structure between cellular concrete, Ferrock and Hempcrete with a column/ slab system creates free plans and large plateaus where lightweight partitions can adjust creating different changeable spaces. The flexibility grid of 1m35 enables switching from housing to working functions.

Fig.141: Structure principal of the tower inspired from the flexibilit grid of LAN architects

Human scale interaction in the urban realm

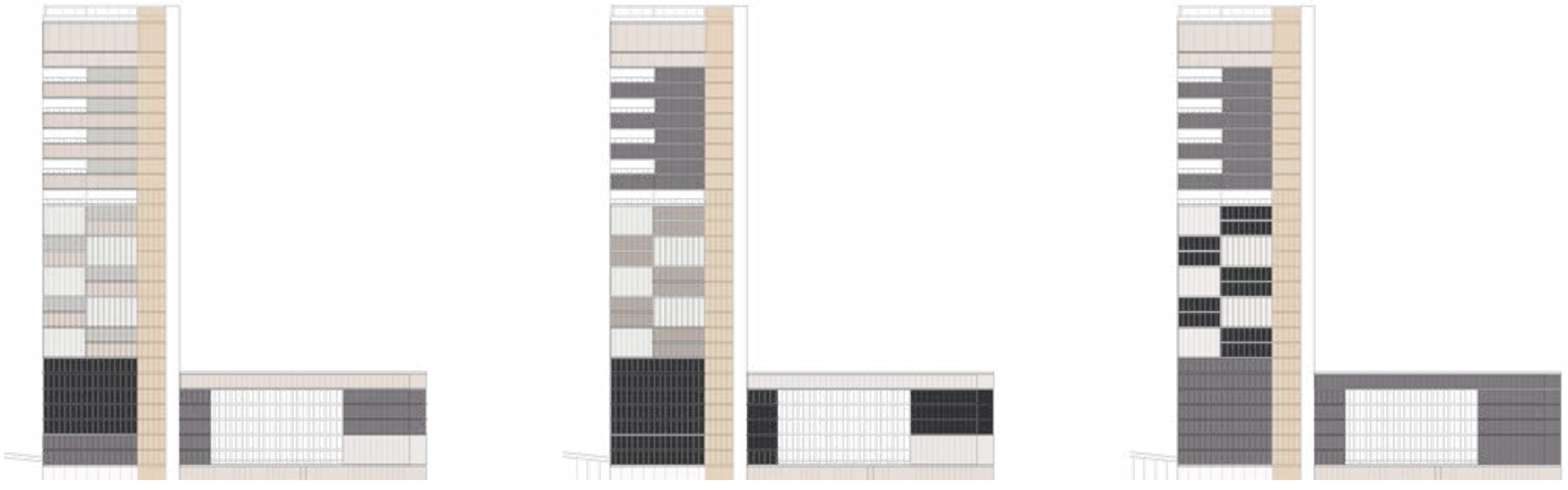


Context interaction through interior voids



City interaction through its entity and height (Landmark)

Fig.143: Interaction levels of the tower



Scenario 1

Scenario 2

Scenario 3

Multi purpose area

Interractive area

Core service and Circulation

Rest area

Single and double rooms

Reception

Offices | coworking

Dorms 6 and 8 residents

^
Fig.144: The tower programme

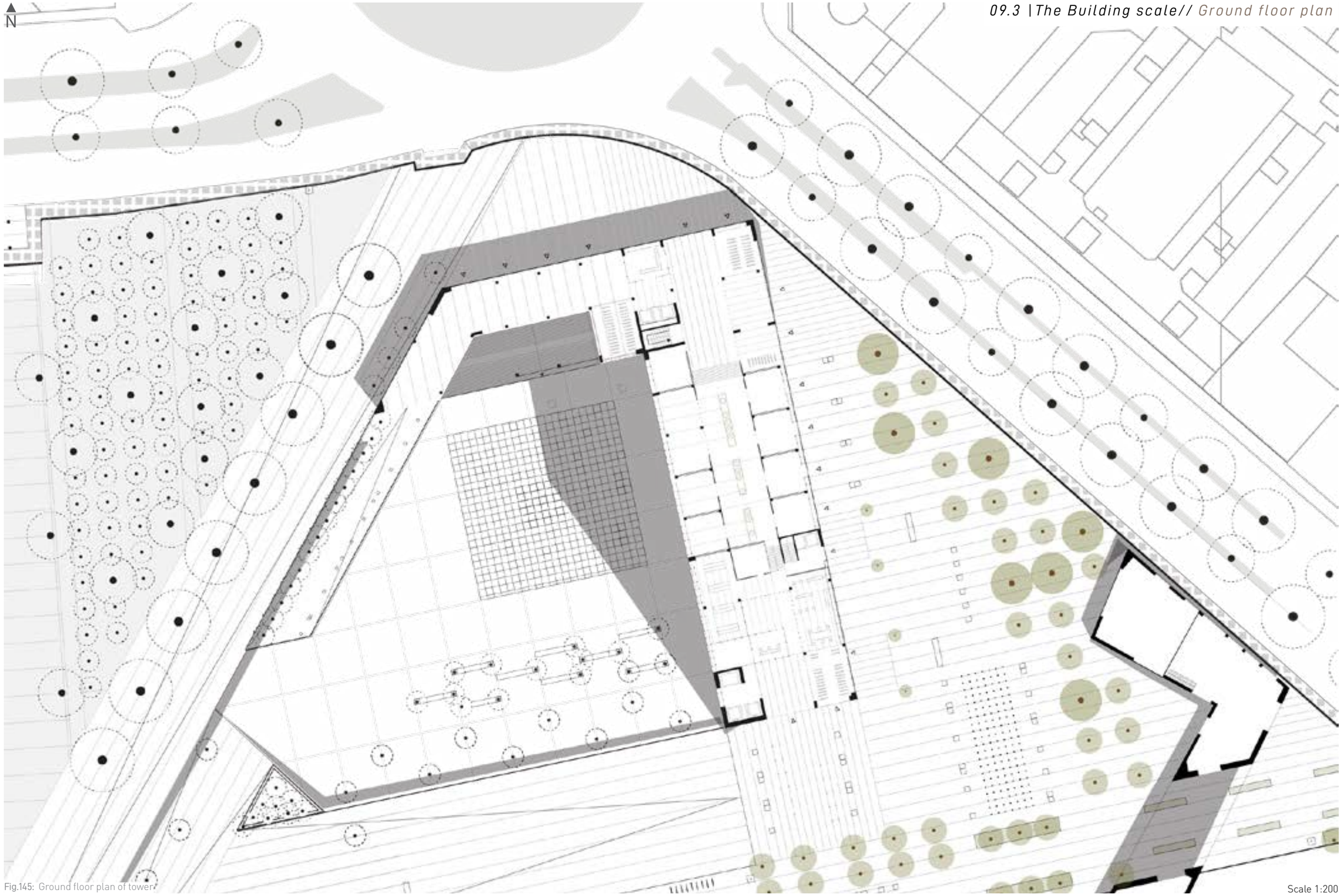


Fig.145: Ground floor plan of tower

Scale 1:200

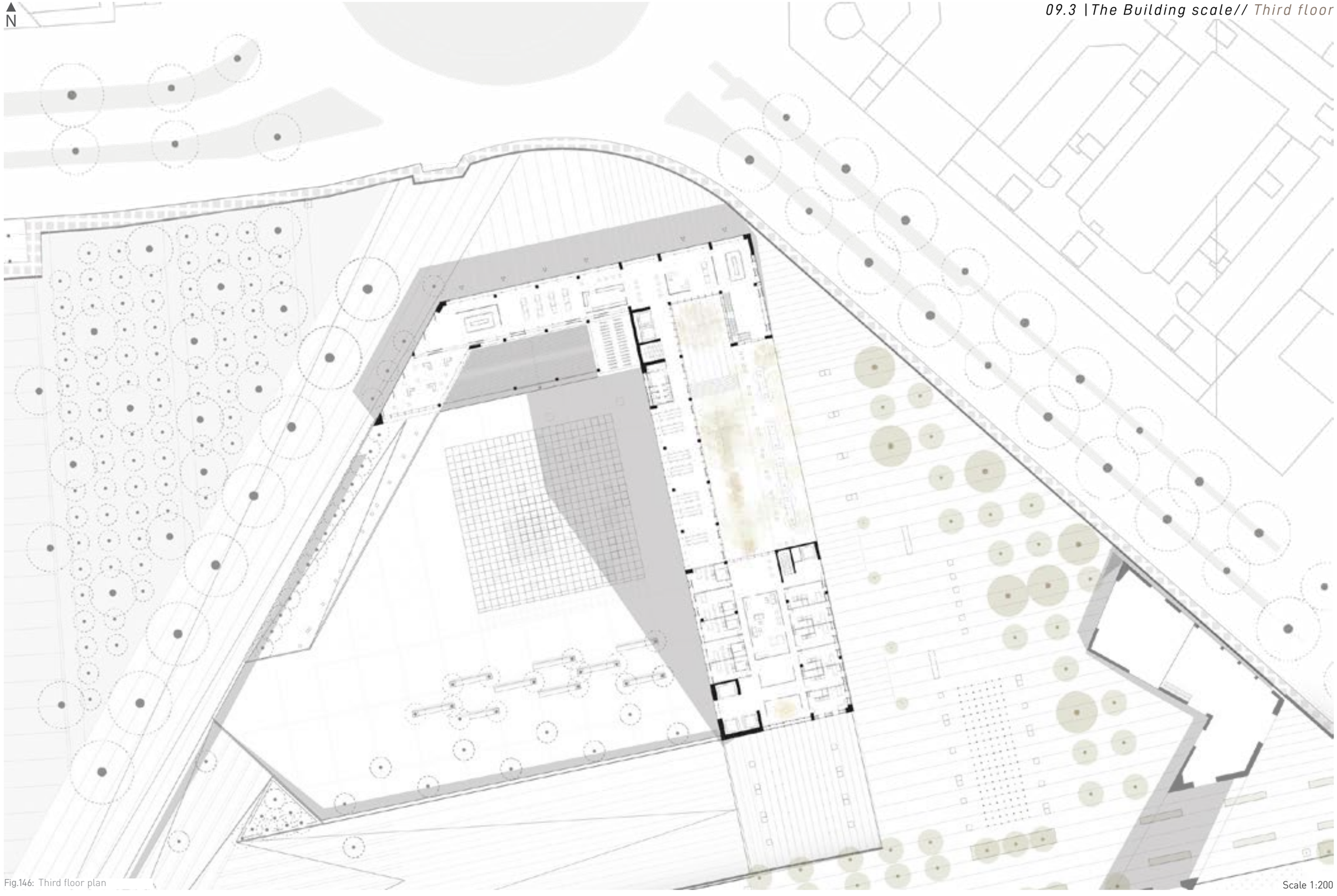


Fig.146: Third floor plan

Scale 1:200

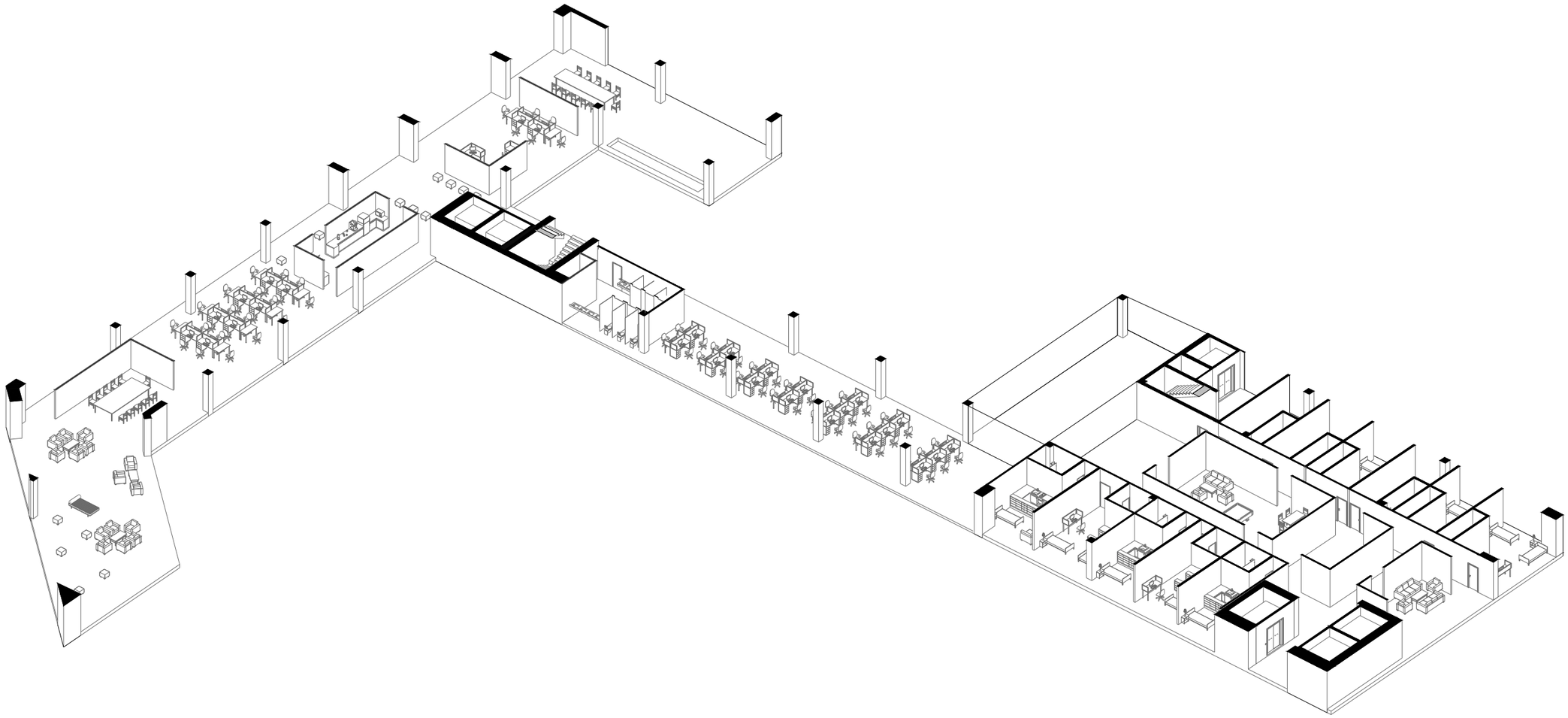


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Fig.147: Third floor axonometry

Fig.148: Eighth floor plan

Scale 1:200

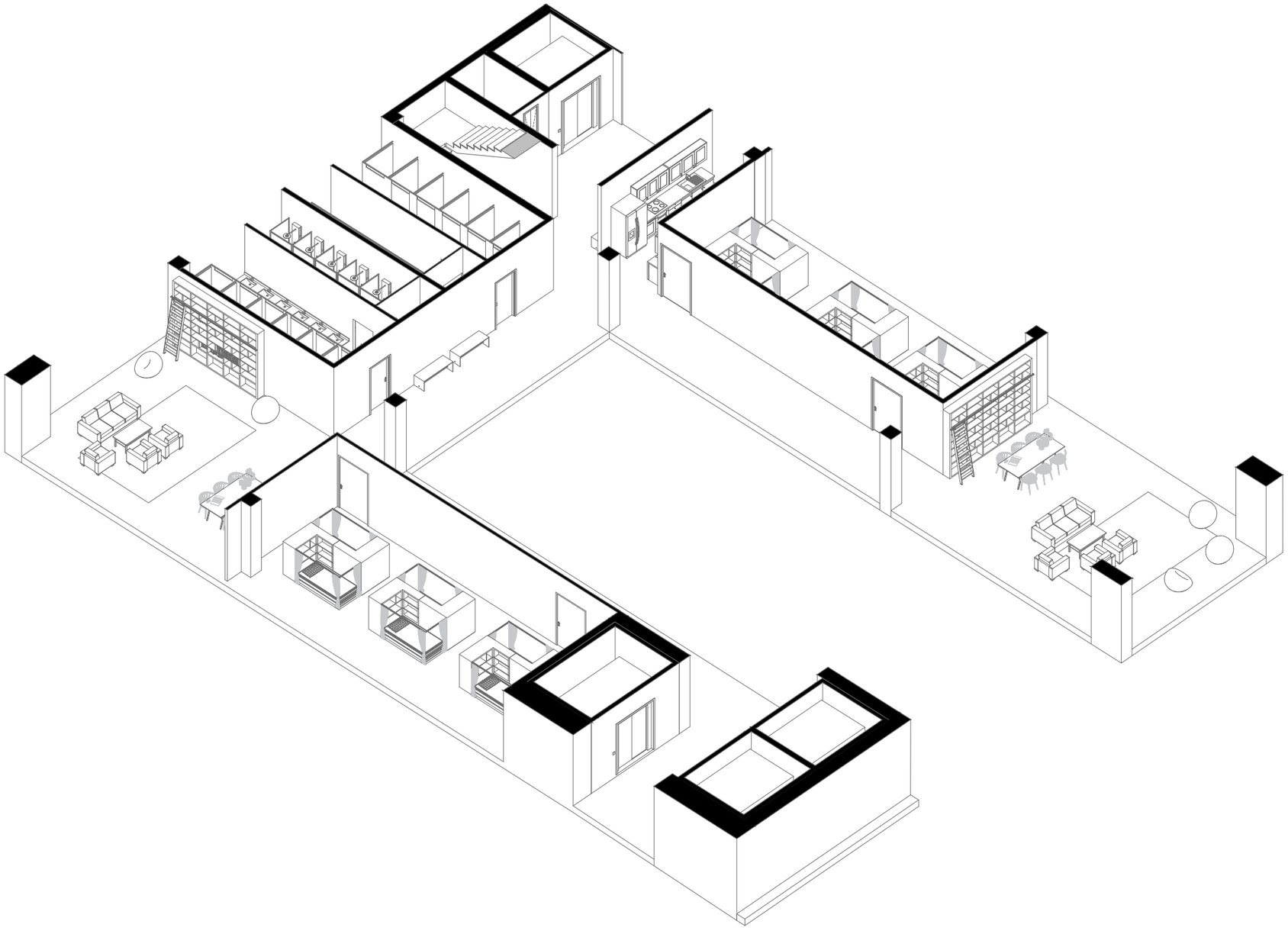

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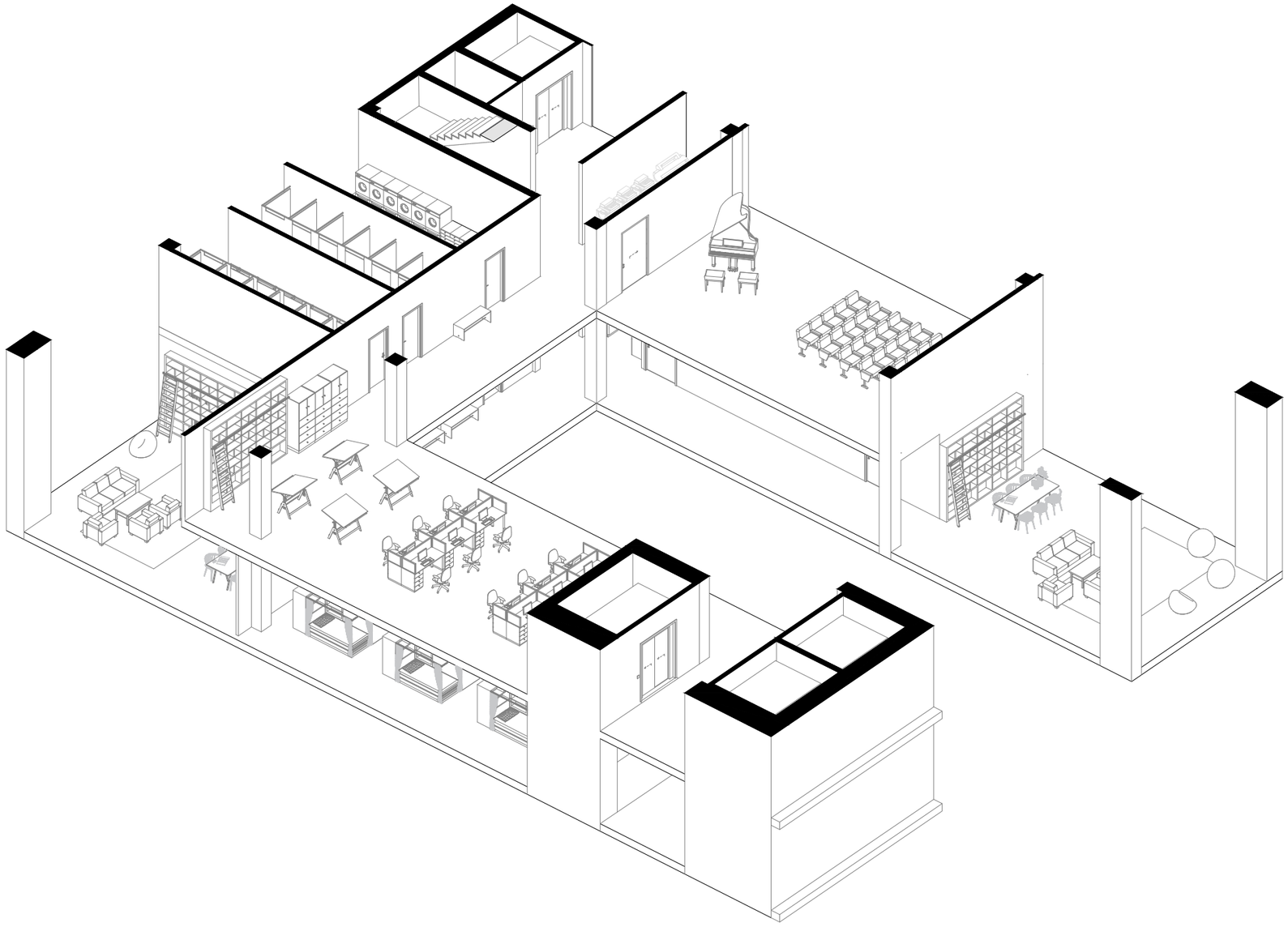
Fig.149: Eighth floor Axonometry

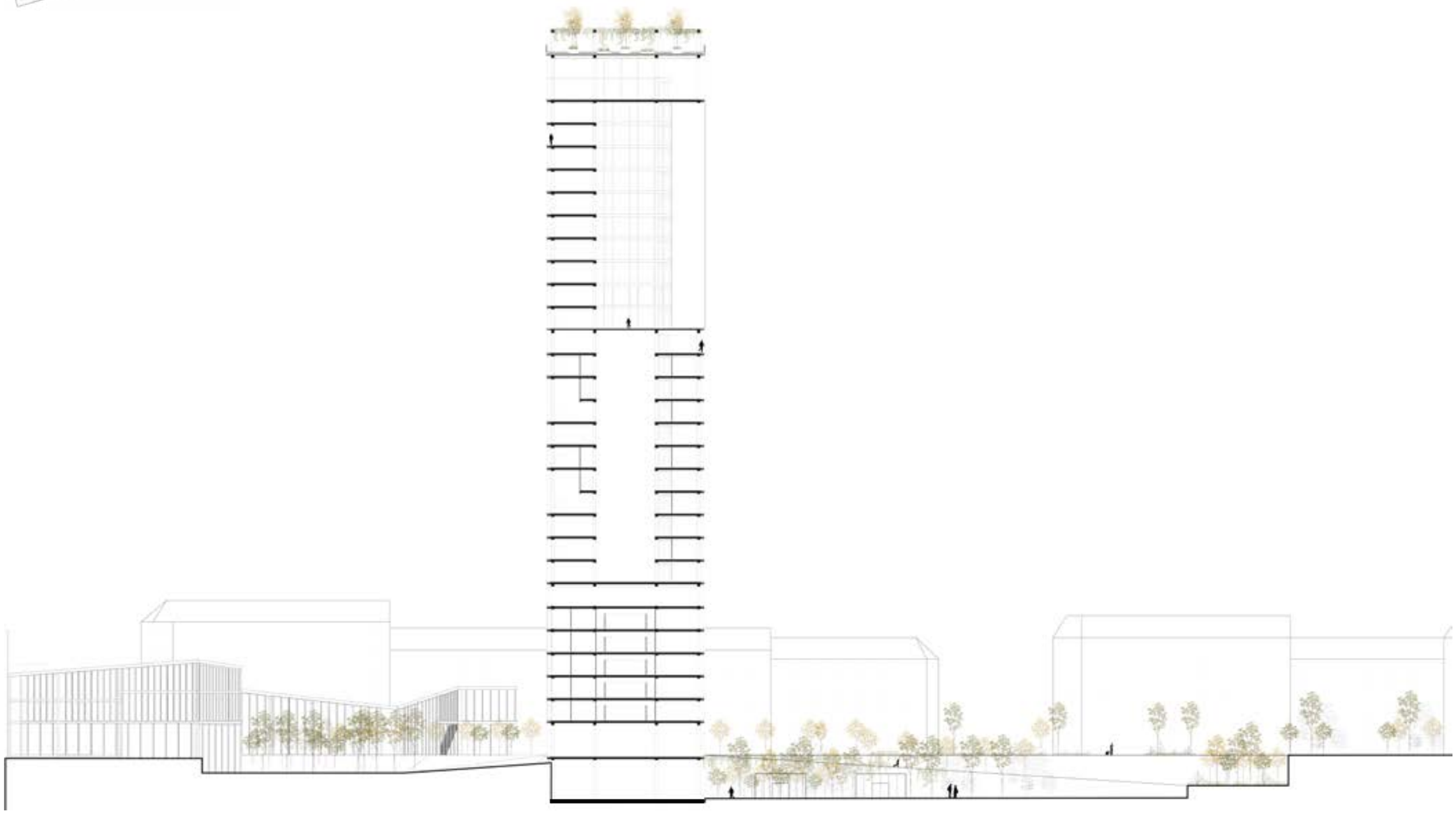
N

Fig.150: Nineth floor plan

Scale 1:200

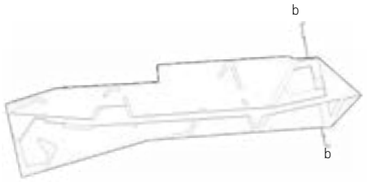


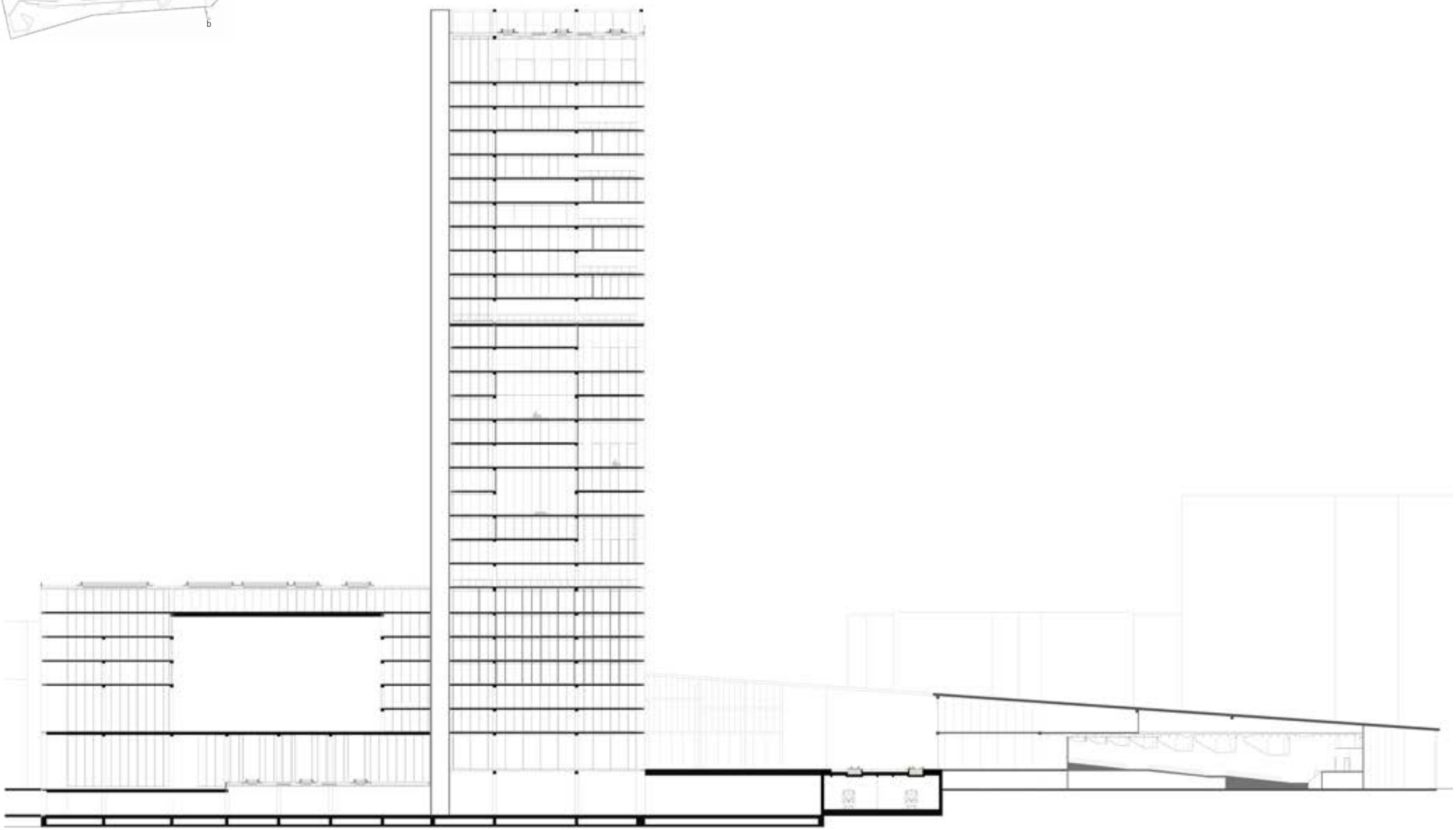
^
Fig.151: Nineth floor Axonometry



^
Fig.152: Section aa

Scale 1:200





^
Fig.153: Section bb

Scale 1:200

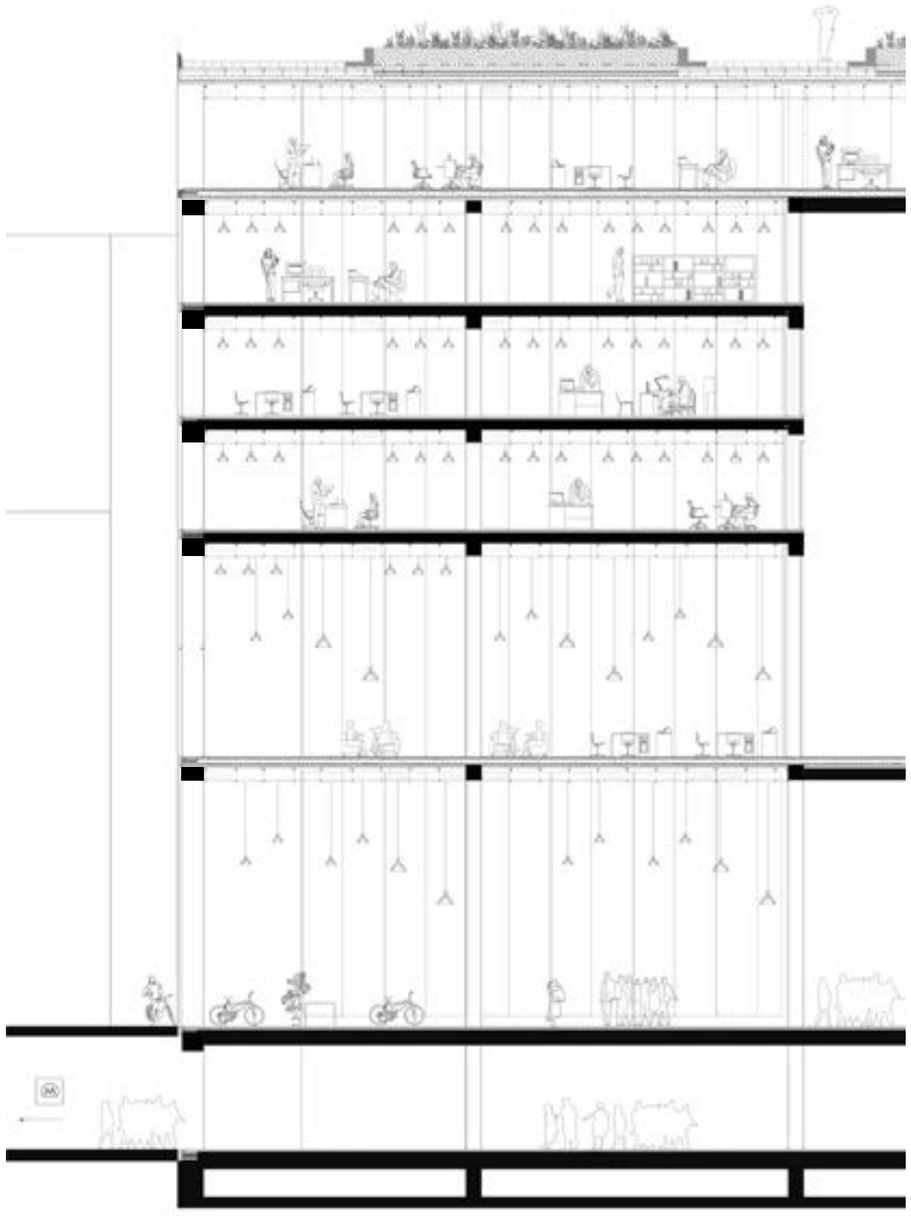
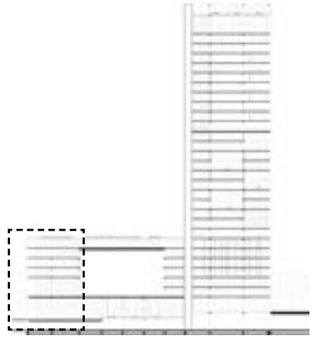


Fig.154: Detail section through porticle



Scale 1:20

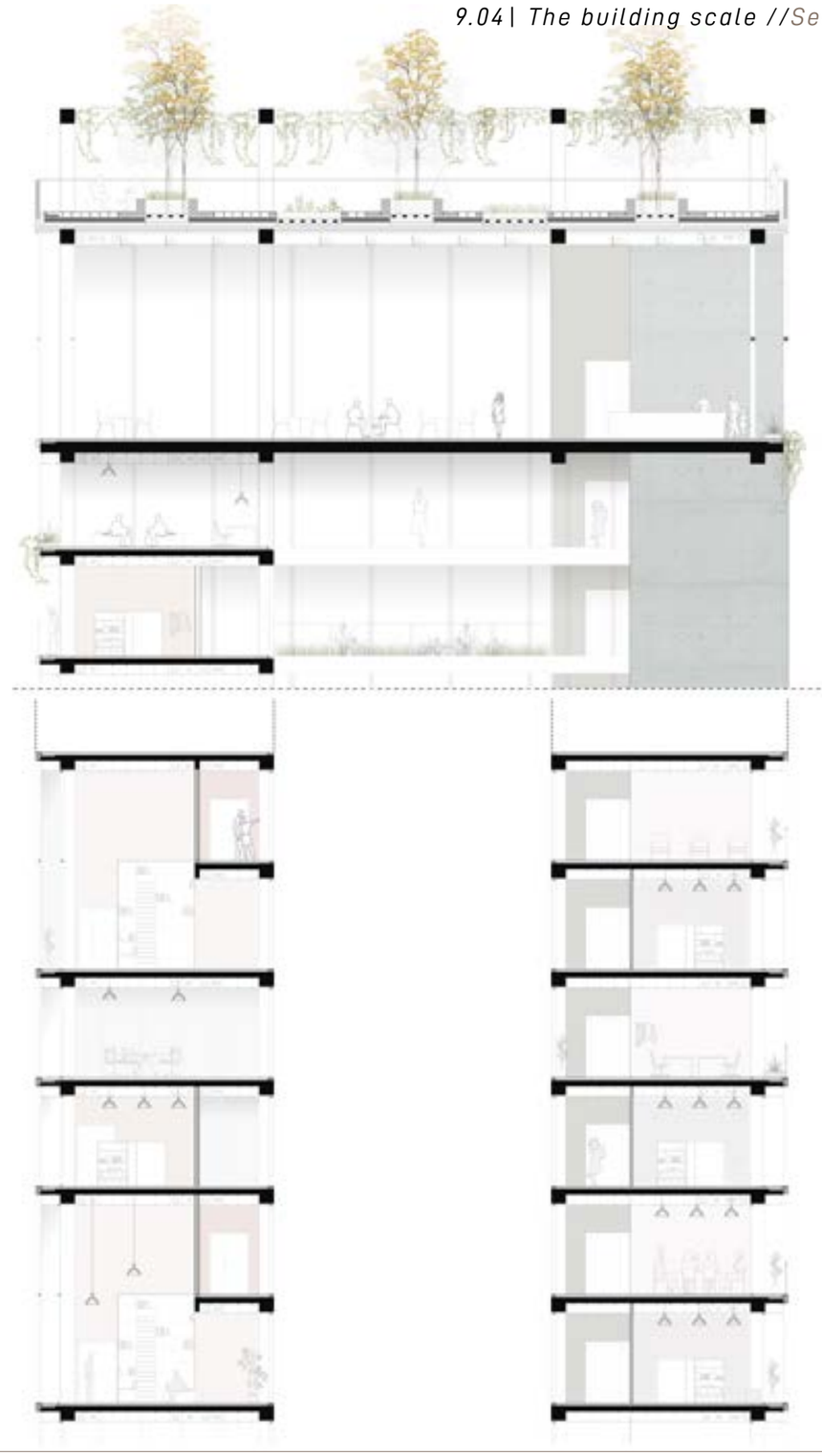


Fig.155: Detail section through roof and central core

Scale 1:20

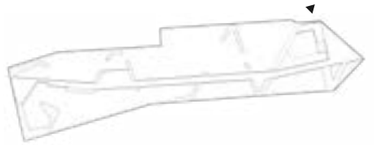


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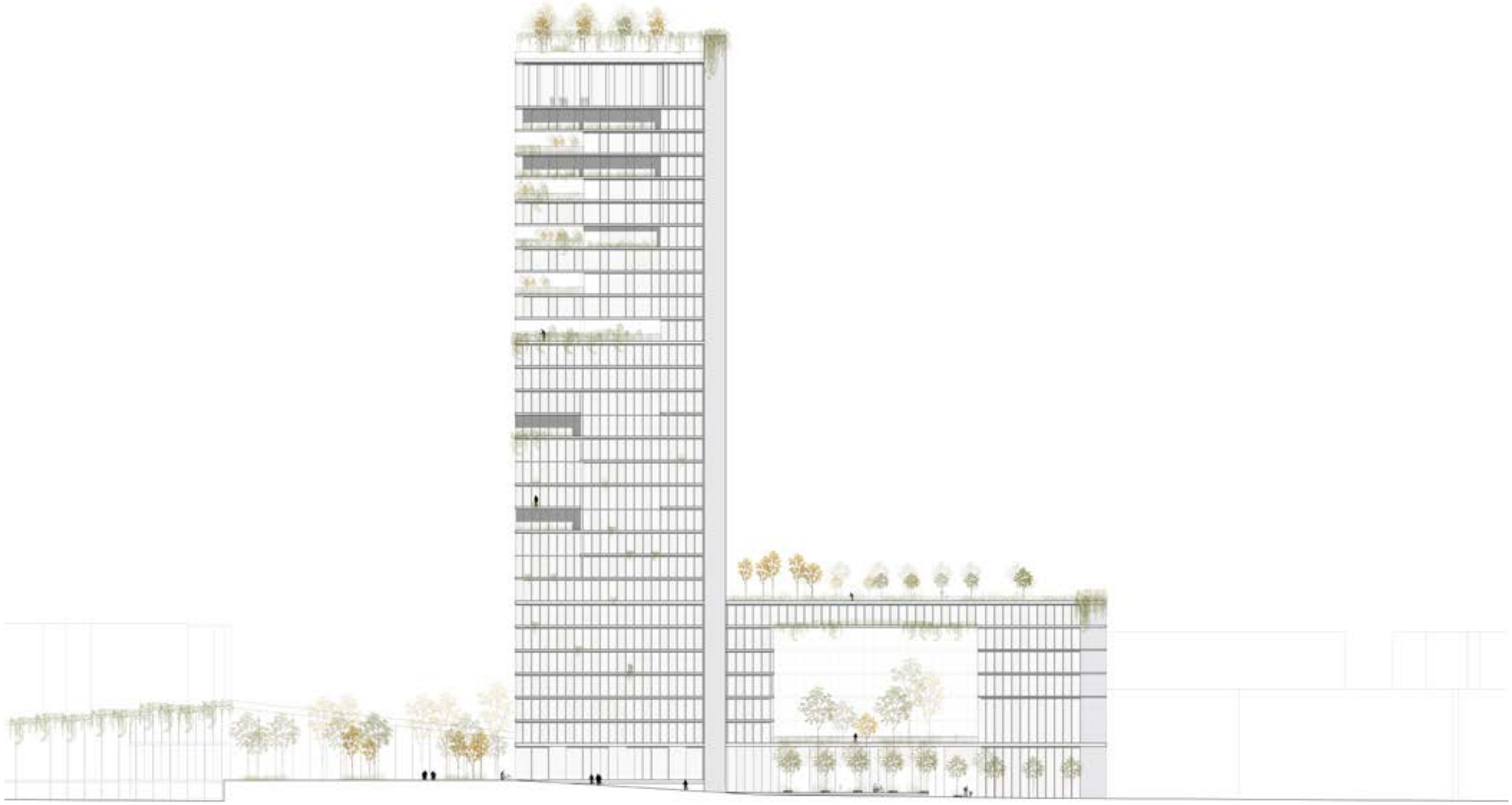
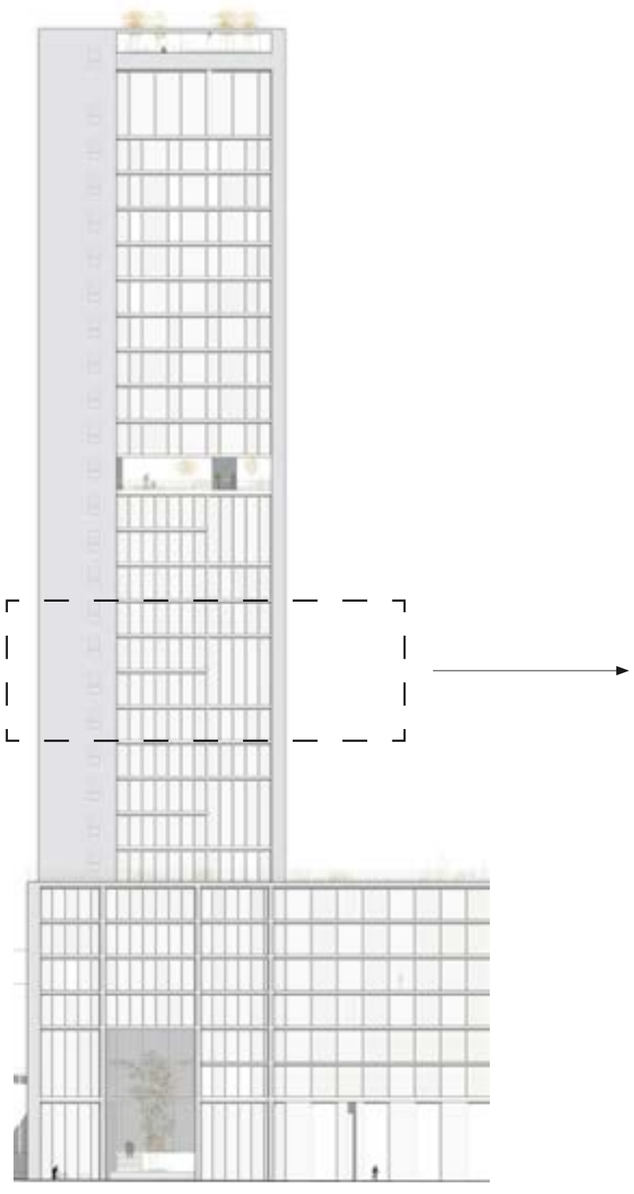
Fig.156: North Elevation

Scale 1:200



^
Fig.157: East Elevation

Scale 1:200



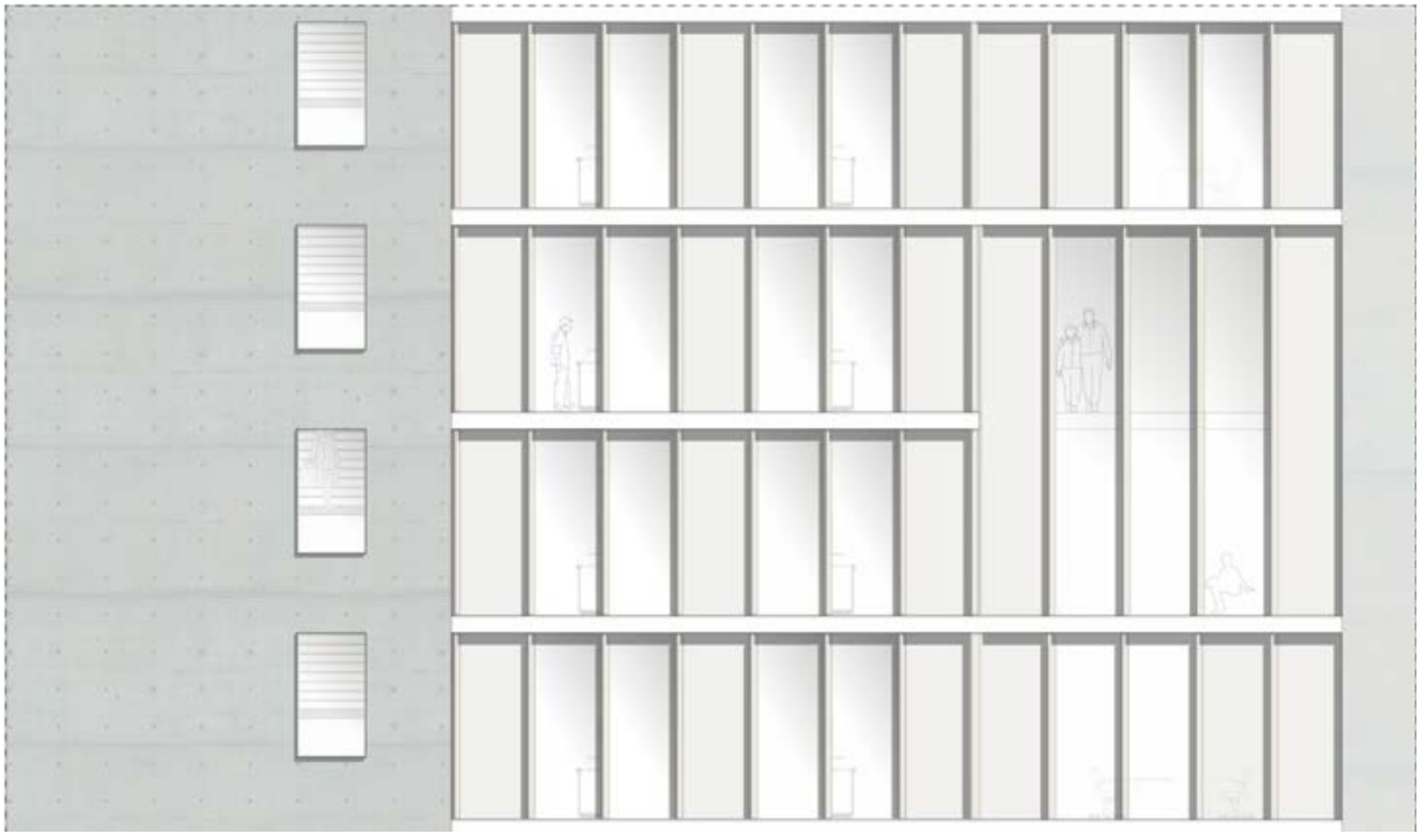
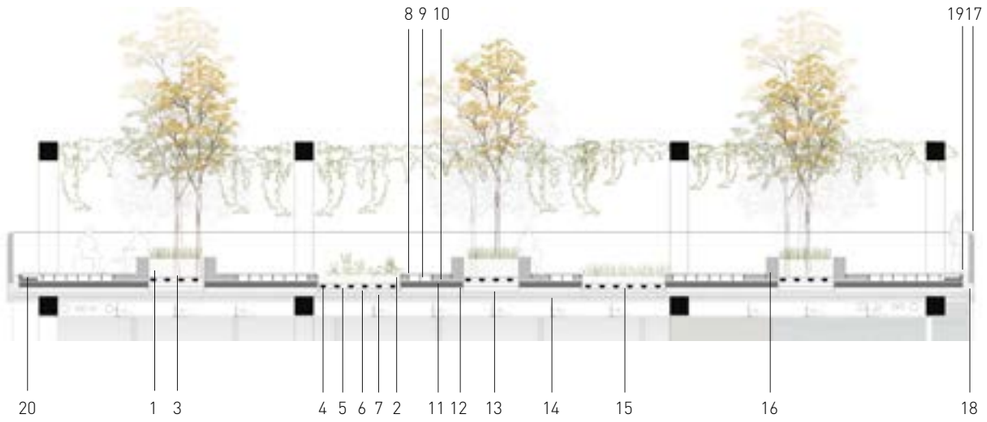


Fig.159: Detail Elevation

Fig.158: Detail of north elevation

Scale 1:200



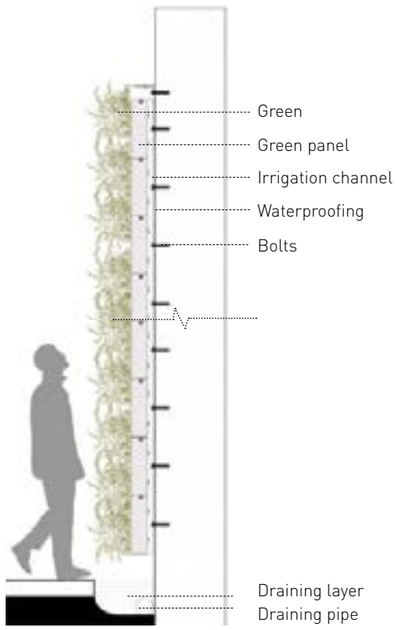
1| Substract 50cm*
2| Substract 30cm*
3| Filter
4| Water draining system
5| Water proof layer
6| Insulation
7| Vapor barrier
8| Permeable flooring
9| Flooring support system
10| Filter
11| Draining system
12| Water collecting system
13| Composite slab 35 cm
14| R38 insulation 20cm
15| Anti root membrane
16| Anti Perforation vase
17| Acroterion 1.2m high
18| Thermic bridge insulation 10cm
19| Insulated frame support
20| Floor attach

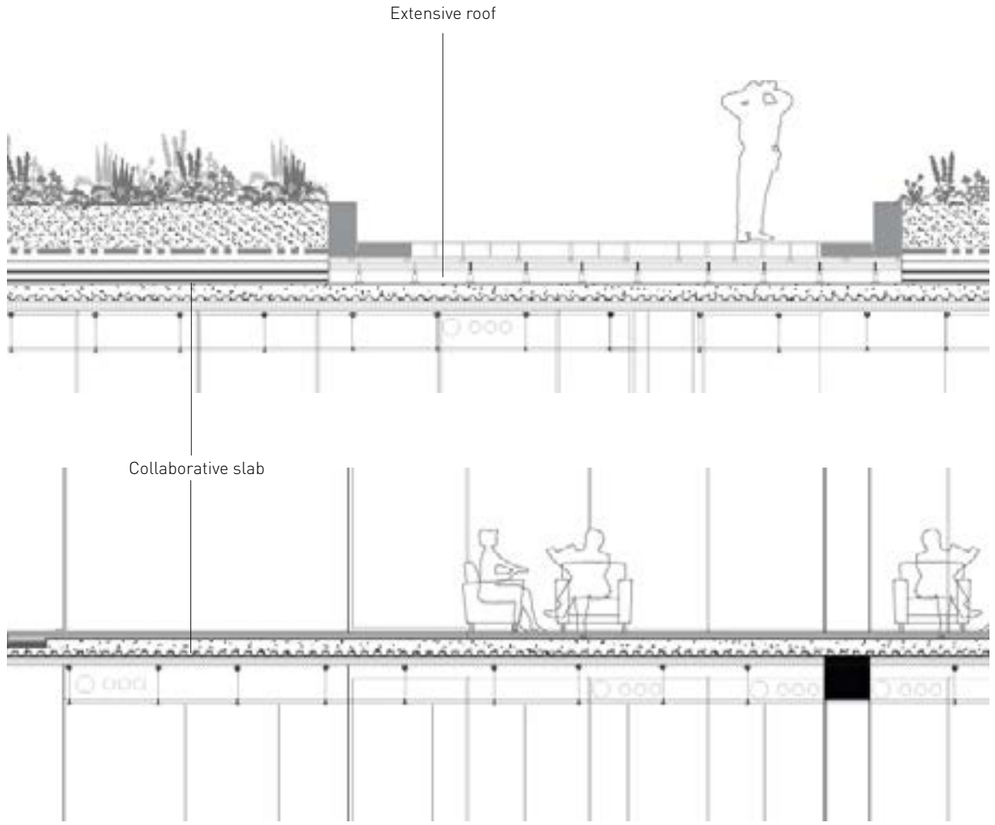
* Extracted from urban waste

^
Fig.160: Section detail of green roof
Fig.161: Section detail of green wall >

The green roofs and terraces in the project use the CLIMAGRUEN system which enables to carry heavy loads with minimum susbtract depth.

Structurally, the green roofs and terraces all rely on collaborative slabs, while the roofs are intensive, the intermediate terraces and balconies are extensive.

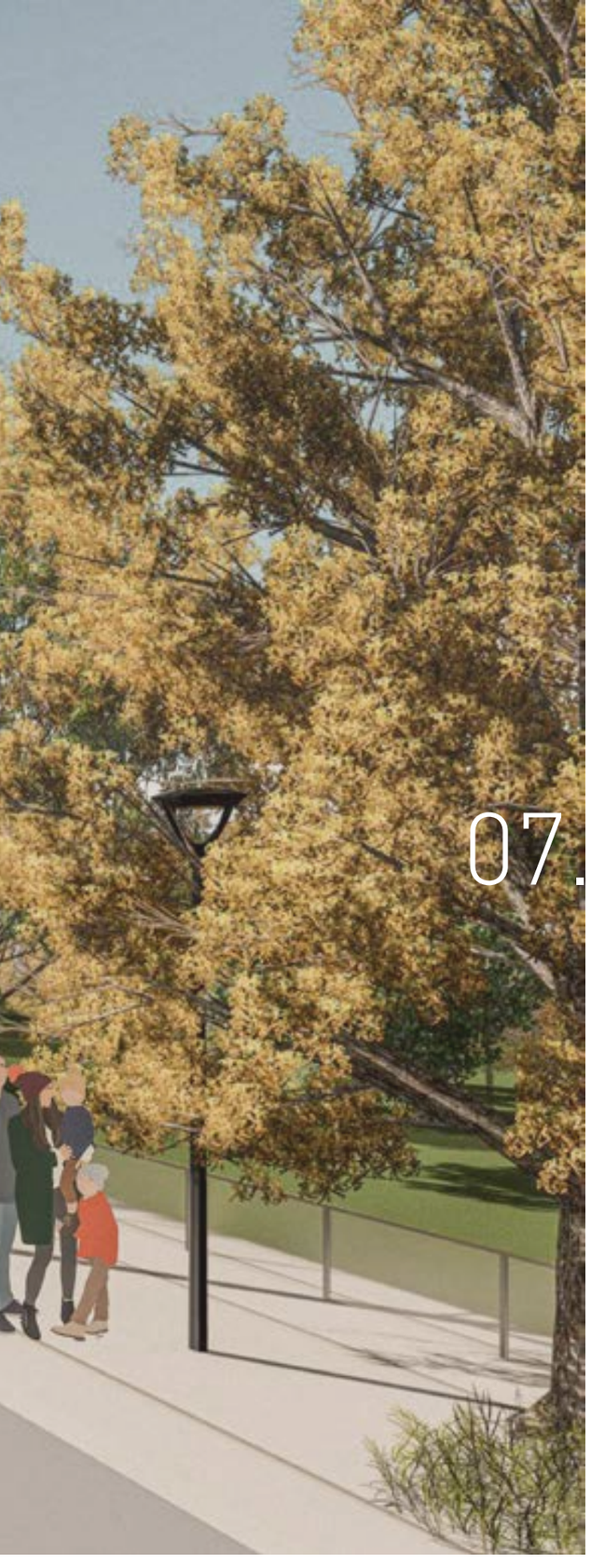




^
Fig.162: Section detail collaborative slabs

The structural system of the tower slab is conceived with the technique of collaborative concrete slabs, named also galvanized steel composite floors, this technique which consists of casting high resistant concrete into galvanized metal sheets, provides high bearing load capacity and long spans that reach 10m and lightweight slabs.

Fig.163: Bird's eye view of the project in urban context



07. Conclusion

To terminate this thesis we would first like to thank you for staying until the end, although we presume you have skipped some pages...This might seem a very unusual way to address an academic work, we agree, but the fact is that actions speak louder than words and if this provocative narrative has triggered any interest of yours in the future of our planet and the development of our cities then the risk of going out of the beaten tracks was worth it.

Thanks to this project it has been possible to stretch our minds and question our values, it has been possible to tackle challenges and investigate current conditions, it has been possible to research deeply the city of Milan with a global vision and make the best, we hope, out of its potentialities.

Starting from the rupture condition of the railway reality to overturn it into a connective axis was the first basis of this project, although it might not seem as important as air quality or depaving operations (which are still very important), we have shown in this project how a return to the city, a recycling of infrastructures and an improvement of permeability and connectivity enhances the quality of the city experience and creates positive repercussions in a sustainable and resilient backdrop for our environments.

The spine becoming a linking dispositive is able to distribute flows and generate activities and social interactions, while the architectural composition reverses the standards of city patterns and creates its own hybrid identity from the context though ensuring a diversity of functions and programmes.

The Eco park on the other hand is a great step in the regeneration and consolidation of the green system of Milan, it brings a breath of air into this dense and fast city, both literally and metaphorically, and restores a declining ecosystem.

As a conclusion, this whole project from overall strategy to small design details aims at creating new and reviving existing dynamics, whether it be economical through development of recycling and barter systems, new retail, service and functions, or socially through engaging public spaces, labs and nature oriented workshops or environmentally through soft mobilities, responsible choices and more green over gray.

When looking forward to the future we hope this city we called home for over two years becomes a precursor in new ways of living and surviving. Amidst this anthropocene era where industry, profit, globalization and consumerism have taken the hand over cooperation, equity, humanity and nature, we foresee a ray of hope and a shift of paradigm.

08. Complements

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ACKNOWLEDGMENT

From both of us

To professor Dario Vanetti, for his trust and guidance through this long and thrilling journey with valuable support, feedback and for always giving us full freedom of design and self expression in positivity and extreme kindness.

To professor Rafaella Cavallaro, For her unshakeable commitment, her sincere interest and understanding.

From Mrudulaa

I would like to thank my mother Sivapriya, father Krishnakumar and my little sister Sneha for being my supporting pillar throughout the process and motivating me to do my fullest.

I would also like to thank my friends Sri Krishnan and Gayathri for their timely help to overcome my anxiety during one of the hardest times and to be able accomplish the project.

From Yasmine

A papa, maman, aucun mot ne pourrait exprimer ma gratitude et ma reconnaissance envers vos sacrifices, votre présence et votre amour inconditionnel. Ce rêve n'aurait pas pu être réalisé sans votre soutien.

A juja, Pour le rayon de soleil qui a illuminé ma vie et m'a sauvé de la pénombre qui m'engloutissait.

A ma soeur, pour ses encouragements et sa présence timide mais Ô combien réconfortante

A Moi même, pour me rappeler.

Pour m'être relevée après chaque chute, essayé après chaque échec, et continué malgré la douleur, les difficultés, les peines et les obstacles. A chaque fois que tu perdras foi, que tu te décourageras relis ce mémoire et pense à tout ce qu'il symbolise. Sois fière, tu as fais tout ceci et tu feras encore plus.

Tu iras bien plus loin que tu ne le penses.

To Tepa, I told you dreams come true, On to the next one.

Fatima yasmine Harizi

Mrudulaa Somalinga Krishnakumar

15th December 2020