Strata - scapes

APPROACH

The site of ‘t Zoet bears the very physical traces of its industrial past. A palimpsest of concrete, bricks, stone surfaces extends everywhere. They are archeological memories of obsolete, torn down, forgotten structures, where nature creeps in amidst the growing pressure of the city all around. This empty but layered space is the starting point of the project: a seeming tabula rasa, that is actually a tabula scripta; defined, yet open to new interpretations.

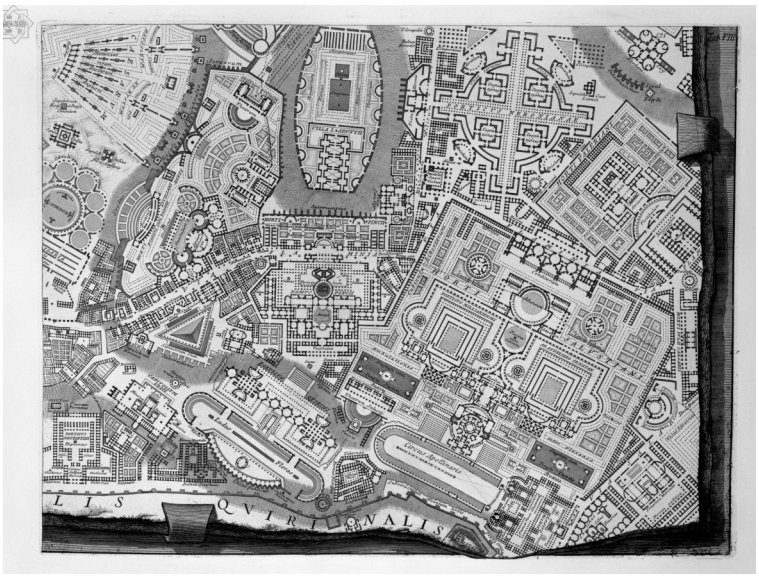
The precedent of Piranesi’s Il Campo Marzio dell' Antica Roma, its attitude towards the past, the present and the potential new reality of a city, guided us in exploring the site. Like Piranesi re-envisioned 18th century Rome as a collage of ancient and invented structures, free of formal constraints, we start from past traces and ruins, reassembling them and re-framing them as pieces of a new city –keeping an eye on the material and cultural heritage, without letting the past restrain a ‘wild’ vision for the future.

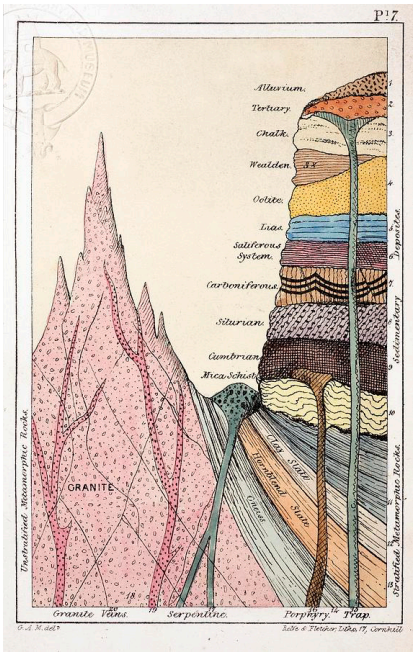
Unlike Piranesi though, our city is not an ideal one. It is a messy, unfinished, imperfect city, where the interstitial spaces, the cracks, the in-betweens acquire as strong a value as the architecture itself. Within this friction, the distinction between inside and outside, organic and inorganic, built and natural is not visible nor relevant anymore. Every space becomes a habitat, every surface a support for new life, as a collection of pioneer landscapes, where natural and organic processes are given room (and time) to play their role in shaping the built environment.

With this approach, we treat the city as a living ecosystem, in continuity with the existing, but always evolving, adapting and finding new ways of growing.

PROJECT

Conceiving the ground traces and foundations as our layer zero (*Past Soils*), we devised a series of new strata, to complement the urban palimpsest. They are divided in three main categories: *Basic Infrastructure, Test Grounds, Bio-based Infills.*





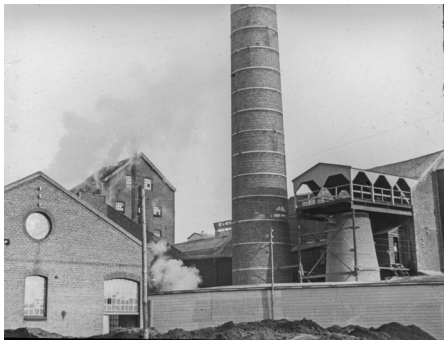
Inspirations of the project:
Left: Campus Martius // Opere di Giovanni Battista Piranesi, Francesco Piranesi e d'altri. Firmin Didot Freres, Paris, 1835-1839. Tomo 10. source: https://upload.wikimedia.org/wikipedia/commons/6/6b/Piranesi-10013.jpg

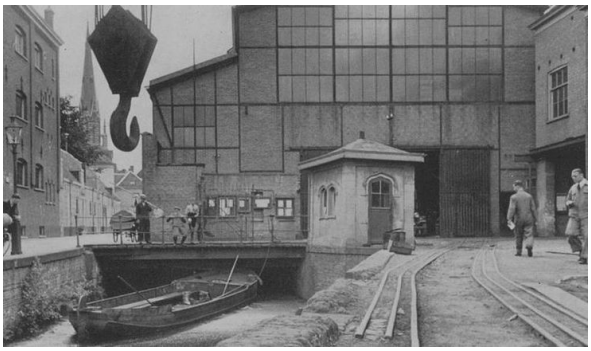
Right: 1838 Mantell's Geological Strata Section. is a photograph by Paul D Stewart which was uploaded on May 9th, 2013. Source: https://pixels.com/featured/1838-mantells-geological-strata-section-paul-d-stewart.html

The Basic Infrastructure constitutes the most rooted, fixed stratum. It allows access to and permanence on site, it responds to the essential technical and social needs, and it is therefore always public. It generates a framework within which urban development can take place. Basic Infrastructures include a new grid of streets and bike lanes, water management systems, bridge connections, mobility hubs, stairs and access ramps, as well as public toilets, simple shelters, pedestrian passages, outdoor gallery, outdoor cinema screen, small boat harbour, material storage and more. Elements of the *Basic Infrastructure* grow over time and create an outset for the future architecture. In the meantime they provide basic amenities for public events, first material experiments and research to take place.

The Test Grounds are occasions to experiment with innovative approaches, materials, construction techniques, uses and aesthetics. They activate the site in unexpected ways and push the boundaries of what architecture and urban spaces could look like. They also establish links with local industries, from education, agriculture, to digital fabrication in order to test and implement circular flows. These tests become a valuable shared resource for the further development of the site, in terms of knowledge, networks and social aggregation, and inform future developments. They include temporary places like 1:1 mockups of the future buildings, consultation pavilion for public debates, pop-up sport fields, weed fields, as well the ones that will turn into future public spaces as mini forest (positioned in one of the silos), pioneering plant garden (in the centre of the plan, where the most broken down foundations are located), Ground Cleaning Machine (a designated terrain where the polluted soil is cleaned in a process of phytoremediation) and more. One of the most prominent *Test Grounds* is a public promenade along the river. It replaces the road and bricked edge in front of the factory buildings. It uses reclaimed bricks and recycled concrete as a new material for paving, slopes, ramps and stairs and acts as a spatial mediator between the water edge, Sugar Square and other spaces.

Finally, *the Bio-based Infills* complete the buildup of the site. It is the most flexible and malleable layer and consists of all the buildings, spaces and structures that allow the full inhabitation of the site. The Infills provide a wide range of inside-outside climates and a gradient of privacy, from shared unisolated workshops and lobbies and to enclosed housing units and classrooms. Their added program overlaps with previously introduced common grounds and basic infrastructures, and incorporates them within new architecture (as a passage, public part of the building, cutout from the building site etc.). Added structures are made out of bio-based materials - majority of which were sourced locally, tested and experimented within the *Test Grounds*.





Historical photos of sugarfactory Wittouck, inspirations for parts of the project: the event stage, ground-cleaning machine, expo pavilion and logistics harbour. Source: Stadsarchief Breda

All this layers compose a strata-scape, that is not a mere stacking of built interventions and functions, but rather an intertwined system, where various programs can fit in different configurations –depending on their mutable needs– and where each stakeholder must negotiate with the the others and share certain spaces or programs. Therefore, over time, the area becomes more and more a complex stratigraphy where layers are interconnected through materiality, use, accessibility, resembling a geological section as the result of tectonic movements (in this case social, economical, political and biological drives).

PROCESS AND FUNCTIONS

The process and the way the project develops is an essential part of the vision. The foundations are where everything begins, literally and symbolically. Their patterns and traces already give a hint at a subdivision of spaces that could act as a matrix and manifest subtly the industrial past.

Most of the existing foundations are therefore kept and reused as the basis for the new strata. In this way, the ground (and its pollution) is mostly sealed, and allows for a safer inhabitation by human and non-human beings. In the case of dilapidated foundations, these are removed and the materials are re-used elsewhere for construction or paving, while the soil is exposed and a landscape strategy is implemented to phytoremediate it. The contaminated soil is also a bearer of past traces, as well as a support for the above-ground ecosystem and an ecosystem in itself, and as such is part of the strata-scape.

Bigger, opened-up areas are connected to a smaller-scale green/blue network that unravels between the cracks and boundaries of the foundations that are kept: discontinuities, edges, material changes are used to encourage pioneer vegetation to take over and expand across the site, strengthening biodiversity and supporting natural processes.

Together with some basic infrastructure, these experimental landscape and material interventions initiate the transformation of ‘t Zoet. The different strata do not follow a chronological order, but they happen gradually and almost in parallel to each other (with the exception of the Bio-based Infills, which require some basic infrastructure and tests to be realised before starting to grow across the site). This first phase, as soon as some minimal services provide access and livability, is mainly a bottom-up operation, where people and entities can propose ideas and apply for a plot to realise them. Plots are assigned based on foundations sizes and shapes, and in this way artists, craftsmen, citizens can actively participate in the creation of this new piece of city. Institutions can be involved later, but new organisations can also sprout out of these bottom-up initiatives and grow together with the site. Once these pioneering landscapes and initiatives are set up, the full inhabitation can start to occur.

Stemming from the *Basic Infrastructure* and learning from the *Test Grounds*, the infills develop as new institutions, residential quarters, office and production spaces. They are structurally intertwined with the infrastructures, incorporating them in parts of the buildings, and they are made of (mostly) bio-based materials and dry constructions, for them to be eventually biodegradable or at least demountable and reusable. These infills will be the results of the synergic development of the other strata and will therefore be flexible and subjected to change or later modifications, while the *Basic Infrastructure* and (partially) *Test Grounds* are conceived as cardinal points that, once consolidated, are preserved for a longer time span.

The assembled buildings and spaces distributed on the site serve as parts of three main functions: the Landscape Museum, Material Research Center, and Prototyping School. While each of these institutions has dedicated buildings for their specific programs, they also share many rooms, outdoor spaces, test grounds, and infrastructures. They are interconnected throughout the project site with above-ground bridges and passages, leading to a high degree of cross-pollination of ideas, collaboration, and exchange. Additionally, various forms of co-living housing and recreation spaces have been integrated to accommodate a wide range of participants and visitors.

The New Silos have become a landmark of this development, functioning as a large-scale auditorium with workshops and material storage underneath and an open-air research house with a timber forest. They invite visitors and tourists for concerts, performances, birdwatching and visits to the mini forest. As a result of this thoughtful mix of elements, 't Zoet has a potential to become an essential hub for education, innovation, and recreation on both a provincial and national scale.

MATERIALS

To create a healthy, hybrid milieu and offer a positive model of the building sector in an era of climate crisis, we embraced the concept of bioregional design. We chose to employ for the most part, organic and locally sourced materials, with a farm-to-building approach. The chosen materials are of 5 kinds:

- Sourced and reused from the site, like foundations, soil, willows.
- Grown on site during the first phases of the development, before the area is completely occupied, but also partially continued afterwards, like hemp, grasses/hay, mushrooms, algae and timber.
- Collected in or around the site among invasive species and others that are available and need to be removed, like Japanese knotweed.
- Reclaimed from the agro-industry byproducts and used through traditional techniques or with the help of new technologies (i.e. 3D printing), like byproducts of sunflower, rice and other fibres.
- Additional materials like recycled or bio-active concrete and reclaimed metal (mainly for infrastructural interventions), used for roads and structural elements.

This range of materials reflects in the range of spaces they are able to define. Transition spaces that blur the boundaries between outside and inside are the result of this approach, where certain (lightweight) materials are used for screens, curtains, roofs that delimitate spaces but don’t fully enclose them. In this way, a variety of climatic conditions is offered to users, who are able to choose the environment that is better suited for their activities in relation to seasonality and weather.

Materials reveal their textures and construction techniques, they even influence the shape of buildings and how structural and secondary elements are devised and assembled. For instance, in the case of more enclosed volumes, they follow stereotomic principles and have massive load-bearing walls of rammed earth or structural hay in their lower floors, while higher ones are made of bricks or blocks, easier to lift and assemble. Tectonic constructions on the other hand use more appropriate timber frame structures, to be able to have more openings and cover bigger spans.

The choice of extensively employing organic materials generates the aesthetic of a new daring bio-architectural future. In support of this material strategy, among the first interventions, we devised a logistical harbour next to the railway and the new silos, where supplies can be transported to, and one of the silos is devised as a material hub dedicated to storage and craft studios.

CONCLUSIONS

With this architectural experiment, we tried to envision an alternative yet possible scenario to current modes of development, which could foster (bio)diversity, adaptability, inclusion, equality, hybridization, and life in all its forms. The potential of ‘t Zoet to become a living urban, material and landscape laboratory is an invaluable opportunity, where knowledge and lessons learned could be then shared and applied to other sites. We see the shift in conceiving architecture not anymore as the creation of permanent, heavy objects, fixed in time and environmentally harmful, but as the assemblage of living organisms that can grow, and shrink and evolve overtime through care and the equal influence of anthropological and biological factors, as a historical necessity. The care for a living environment is put not only in the design of its spatial layout and maintenance, but also in the way this environment and its components are conceived, regenerated, produced and constructed, what impact they will have and what they will leave behind afterwards.

‘t Zoet as a Strata-scape is a living neighbourhood, shaped by culture and nature, and by a circular and bioregional approach. It represents a radical spatial concept, where landscape and buildings are integrated together, they grow synergically as one. The new strata enrich the existing urban and ecological palimpsest and give value to overlooked cultural and natural qualities that are there, hidden in plain sight. What is required is just a shift in mentality, perception and imagination.