

Country / City ..... Italy, Venice  
University / School ..... Università luav di Venezia  
Academic year ..... 2019/2020  
Title of the project ..... A contaminated "Drop"  
Authors ..... Michele Zammattio

## TECHNICAL DOSSIER

Title of the project ..... A contaminated "Drop"  
Authors ..... Michele Zammattio  
Title of the course ..... Master degree in Architecture (Final Dissertation)  
Academic year ..... 2019/2020  
Teaching Staff ..... Prof. Luigi Latini; Prof. Alberto Ferlenga; Arch.phd Andrea Iorio; Arch. Luca Zilio  
Department/Section/Program of belonging ..... Department of Architecture and Arts/Landscape and  
Urban Design Studio  
University/School ..... Università Iuav di Venezia



A contaminated "Drop" represents the manifesto of a reality in which both men and Earth have reached a geological phase, also known as "Anthropocene". This phase consists of a state of being in which the terrestrial environment is strongly conditioned by men's actions. Hence, the planet Earth undergoes both visible and invisible changes, with effects showing both on a local and global scale. But what if these visible changes are just the tip of a drifting iceberg of a lost continent? And what if the foundations of a city are nothing more than residual layers, no longer belonging to geological history, but they are discards of human development instead? In the Po Valley, there is a contemporary invisible "necropolis" made up of graves containing industrial and social waste, which are both contaminated and contaminating at the same time. The waste produced has become a new element of a now compromised biological chain. Nowadays, these contaminated traces can be an opportunity to redefine the degraded and polluted spaces, by being used as paths and parks for example. Moreover, they can also be used in green areas to carry out botanical experimentation for land reclamation, becoming themselves an Experimental Botanical Garden, and therefore transforming an environmental problem into a social and scientific resource.

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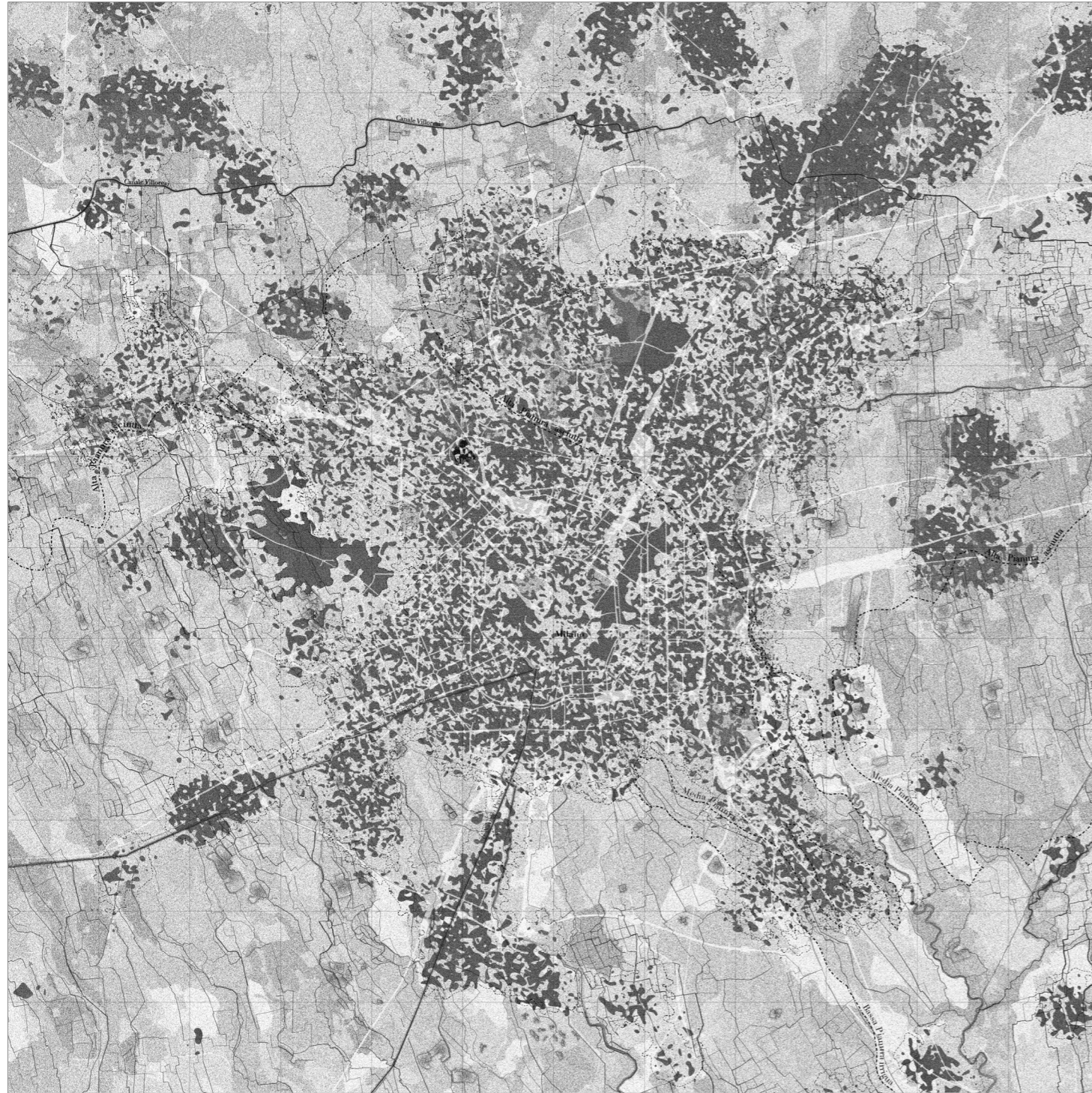


# CLIMATE CHANGE AGAIN

11th International Biennial Landscape Barcelona

Barcelona September 2020  
SCHOOL PRIZE

**Contaminated metropolis**  
Milano, 2020



**Contaminated "Drop"**  
Milano, Bovisa



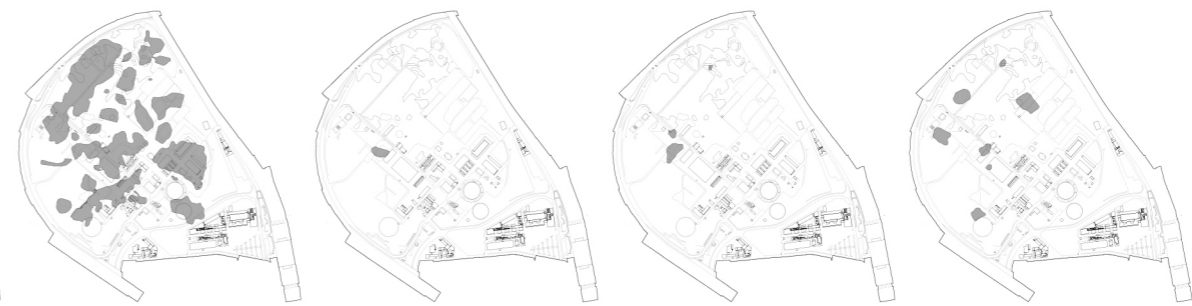
**As<sup>33</sup>**  
Arsenic  
-1/-20 m

**-OH**  
Phenols  
-1 m

**Free cyanides**  
-1 m

**Pb**  
Lead  
-1/-2,4 m

**C<sub>10</sub>H<sub>8</sub>**  
IPA, Polycyclic Aromatic  
Compounds  
-1/-12 m



**C>2**  
Heavy Hydrocarbons  
-2/-3 m

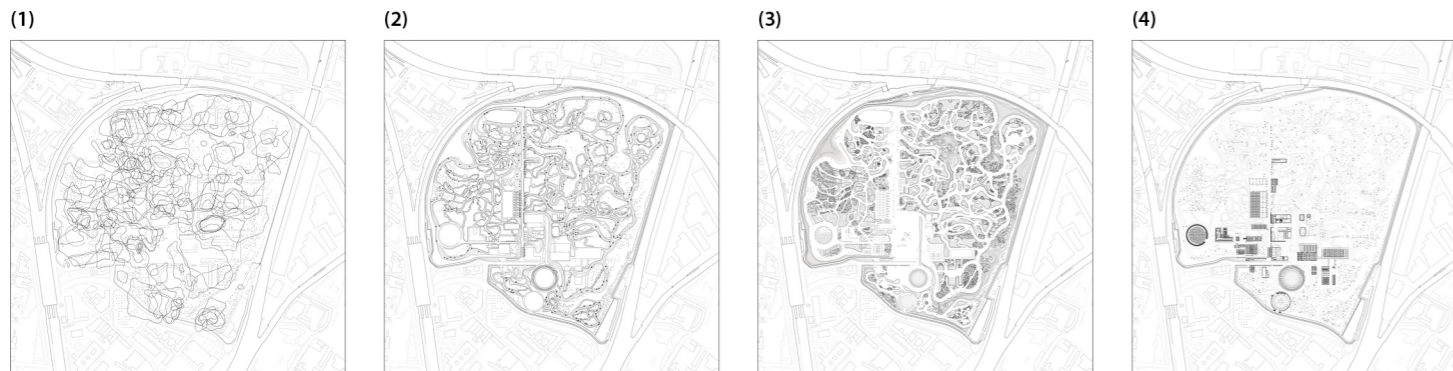
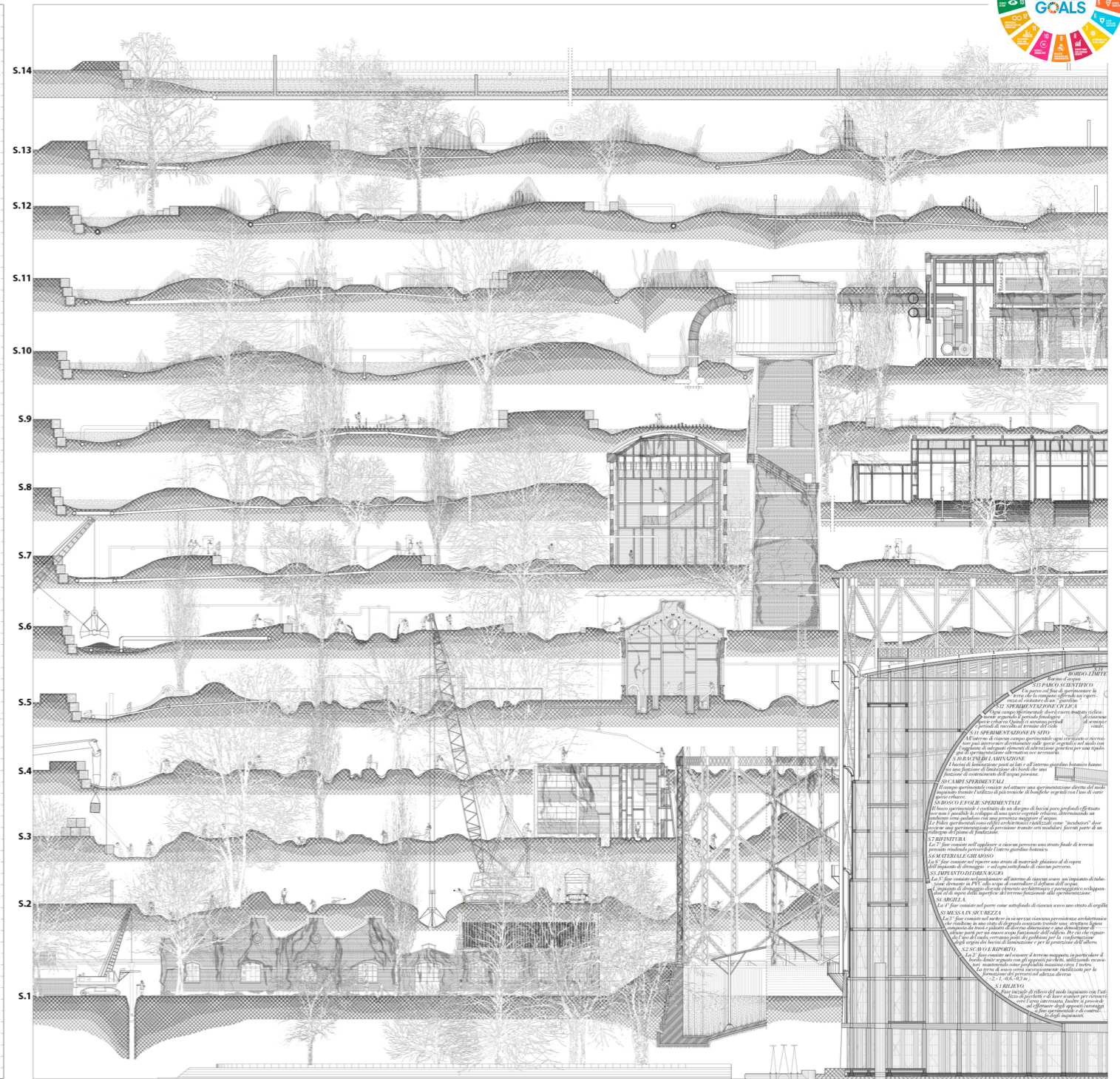
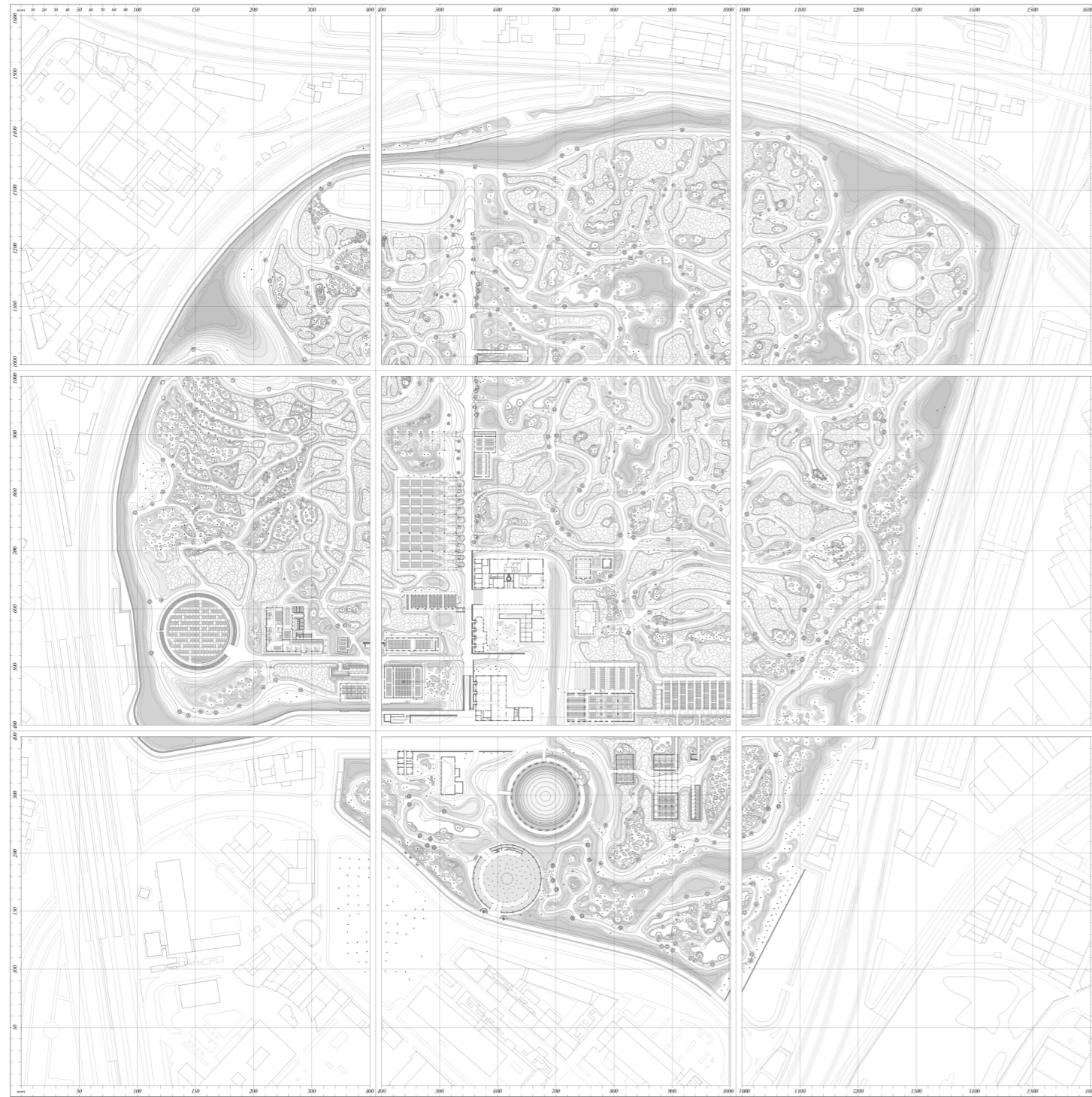
**C<2**  
Light Hydrocarbons  
-2/-3 m

**COV**  
BTEX  
-1 m

**Cd**  
Cadmium  
-1/-12 m

# Experimental Botanical Garden

# Typological sections

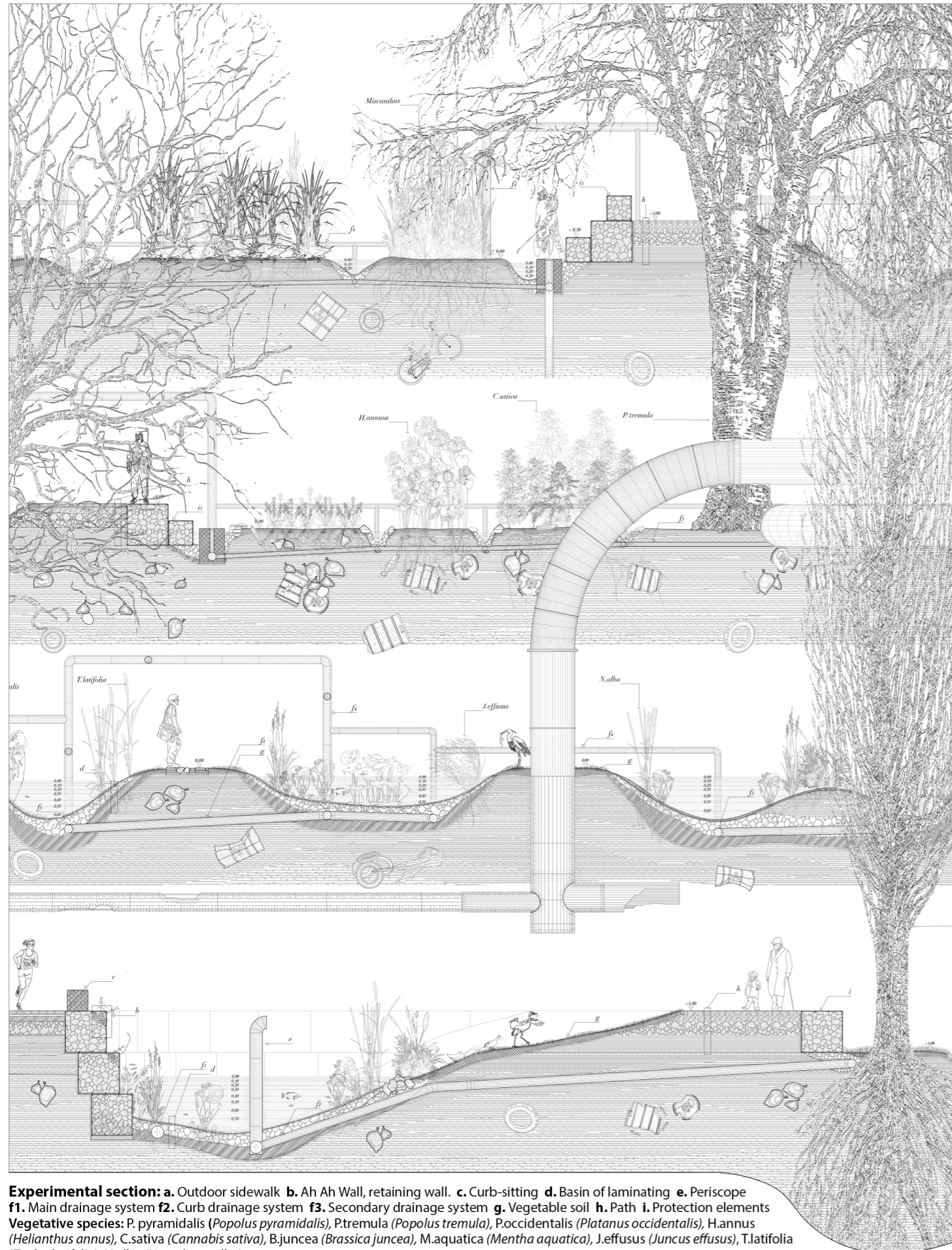


(1) The state of affairs of the project area with an architectural survey of the polluted soil. (2) Starting from the "contaminated framework", we proceed with the redesign of the soil by firstly defining a continuous pathway with different altimetry. (3) These paths delimit the experimental areas that can be divided into different types, such as rolling basins, experimental basins for phytoremediation, humid areas in the undergrowth, and experimental fields where it is possible to practice the different techniques of biological reclamation. (4) The abandoned pre-existing factories become experimental Folie, providing an opportunity to re-use them for scientific or social purposes, and, at the same time, they establish relations with the landscape project of the Botanical Garden.

**S.1 SURVEY:** The initial phase consists of an architectural survey of the polluted soil, with soil cores and circumscription of areas with the use of pickets and laser scanners. **S.2 EXCAVATION AND CARRY-OVER:** The 2nd phase consists of digging the mapped ground to a maximum depth of 1 meter and then reusing the residual earth for the formation of the paths. **S.3 SECURING THE TERRITORY:** The 3rd phase consists of securing the ruined architectural buildings with a wooden structure, composed of beams and pillars, for a new functional purpose of the building. Regarding the use of the soil, caged elements will be provided both for the configuration of the embankments of the rolling basins and the protection of trees. **S.4 CLAY:** The 4th phase involves placing a layer of clay as the foundation of each excavation. **S.5. DRAINAGE SYSTEM/PLANT:** The 5th phase consists of placing inside each excavation a drainage pipe system entirely made out of PVC to control the outflow of water. The drainage system becomes an architectural and landscape element developing above the surface of the ground. **S.6 GRAVELLY MATERIAL:** The 6th phase consists of storing a layer of gravelly material both above the drainage system and on the substrate of each route. **S.7 REFINEMENT:** The 7th phase consists of applying a final layer of pressed soil to each route, therefore making the entire botanical garden walkable. **S.8 WOODS AND EXPERIMENTAL FOLIE:** The experimental forest consists of a design of shallow/low-laying basins, resulting in a semi-swampy environment with a greater presence of water. Experimental Folies are architectural buildings reused as "incubators" for precision experimentation with the use of modular botanical gardens. **S.9 EXPERIMENTAL FIELDS:** The experimental fields are areas in which direct experimentation of polluted soil is carried out through the use of plant remediation techniques. **S.10 ROLLING BASINS:** The rolling basins, placed both on the sides and inside the botanical garden, have both a function of protecting the edges and of containment of rainwater. **S.11 ON-SITE EXPERIMENTATION:** Within each experimental field, scientists and researchers can intervene directly on the plant species or the soil. And with the addition of appropriate elements of genetic alteration, scientists and researchers can also study and make alternative types of genetic experimentation. **S.12 CYCLICAL TESTING:** Each experimental field should be treated cyclically following the phenological season of each herbaceous species. **S.13 SCIENCE PARK:** A park in which researchers can experiment with the land, and at the same time it is a place where visitors experience the magic of a "garden". **S.14 EDGE-LIMIT:** Water basin.



Ground section of the landscape project



**Experimental section:** a. Outdoor sidewalk b. Ah Ah Wall, retaining wall. c. Curb-sitting d. Basin of laminating e. Periscope  
**f1.** Main drainage system **f2.** Curb drainage system **f3.** Secondary drainage system **g.** Vegetable soil **h.** Path **i.** Protection elements  
**Vegetative species:** P. pyramidalis (*Populus pyramidalis*), P.tremula (*Populus tremula*), Poccidentalis (*Platanus occidentalis*), H.annus (*Helianthus annus*), C.sativa (*Cannabis sativa*), B.juncea (*Brassica juncea*), M.aquatica (*Mentha aquatica*), J.effusus (*Juncus effusus*), T.latifolia (*Typha latifolia*), N.alba (*Nymphaea alba*).

**Axonometric view:** 1. Entrance 2. Promenade 3. Hypostyle hall 4. Exoskeleton 5. Exhibition ramps 6. Earth Globe 7. The theater of the world 8. Bridge 9. Terrace 10. Spiral staircase

Journey to the center of the earth:  
 a project for a Georama

