sudbahn silos
TRIESTE

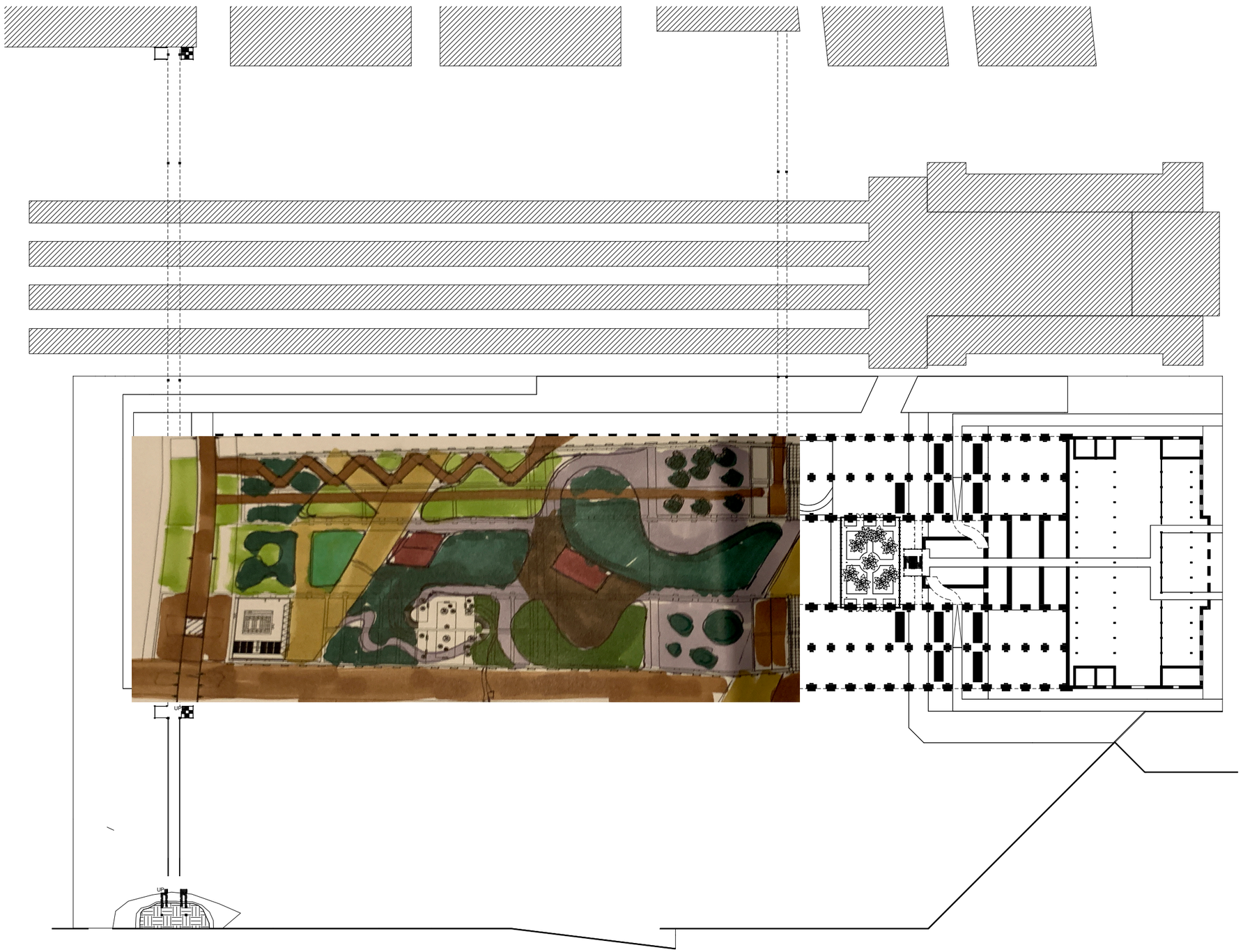
Luuk Dehing
4587316
23 june 2022

BORDERS & TERRITORIES

introduction

BORDERS & TERRITORIES

SUDBAHN SILO'S



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BORDERS & TERRITORIES

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COLOPHON
Luuk Dehing | 4587316

Tutors
Filip Geerts
Stefano Milani
Piero Medici

Border & Territories Graduation Studio
2021/2022
Transient Liquidities
Along the New Silk Road

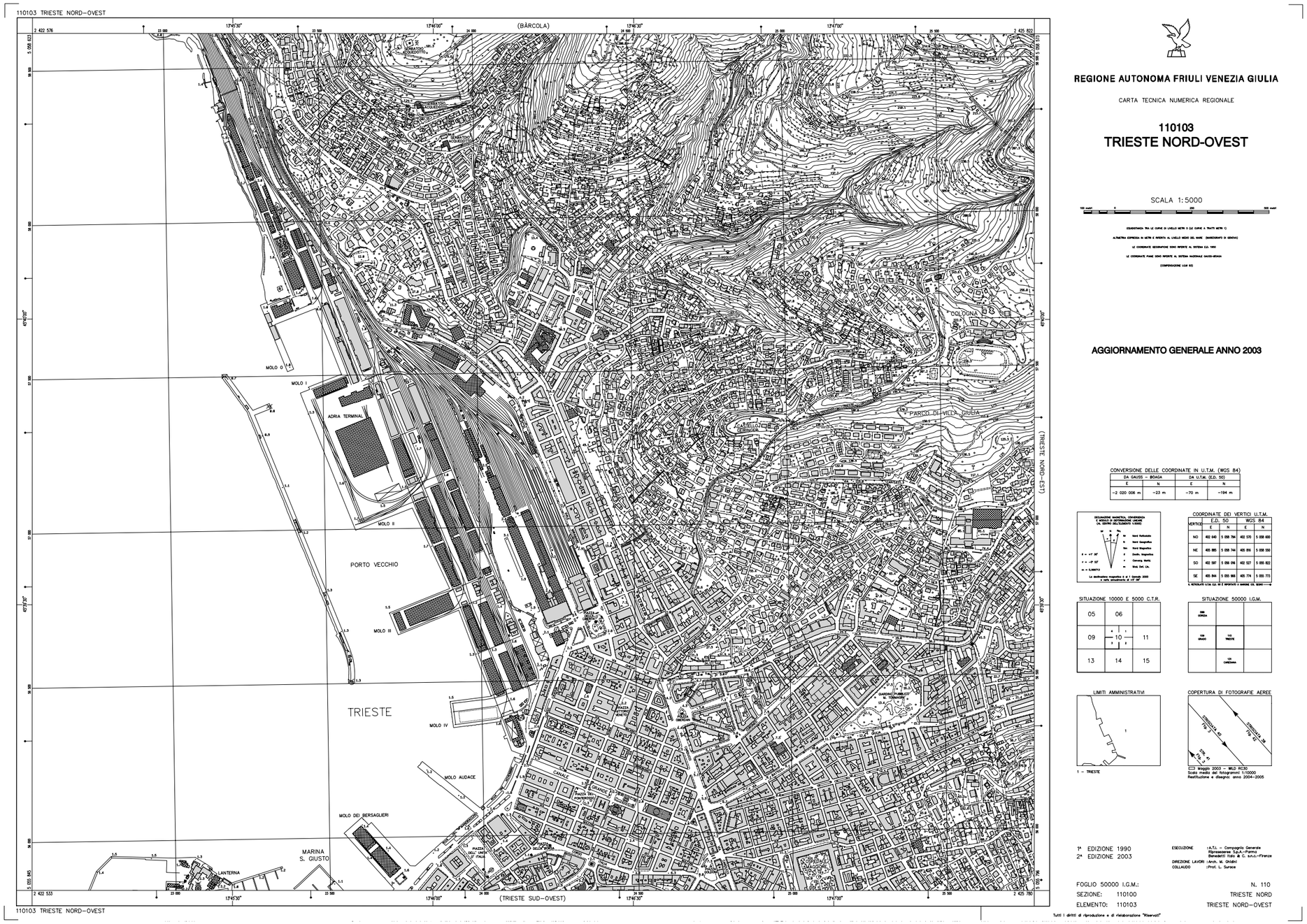
Technical University Delft
Faculty of Architecture

June 23 2022

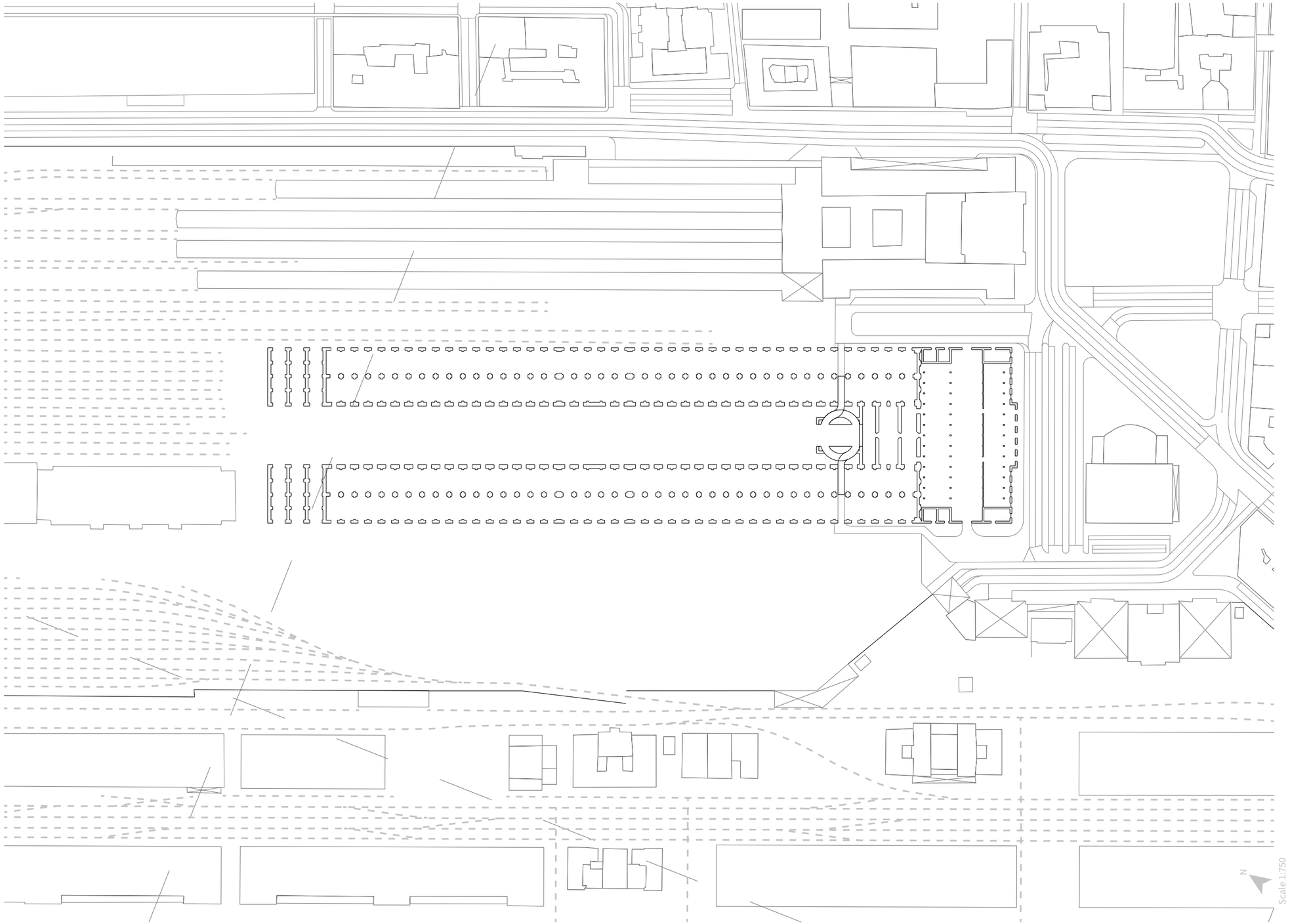
existing situation
problem statement

BORDERS
& TERRITORIES

URBAN TISSUE TRIESTE

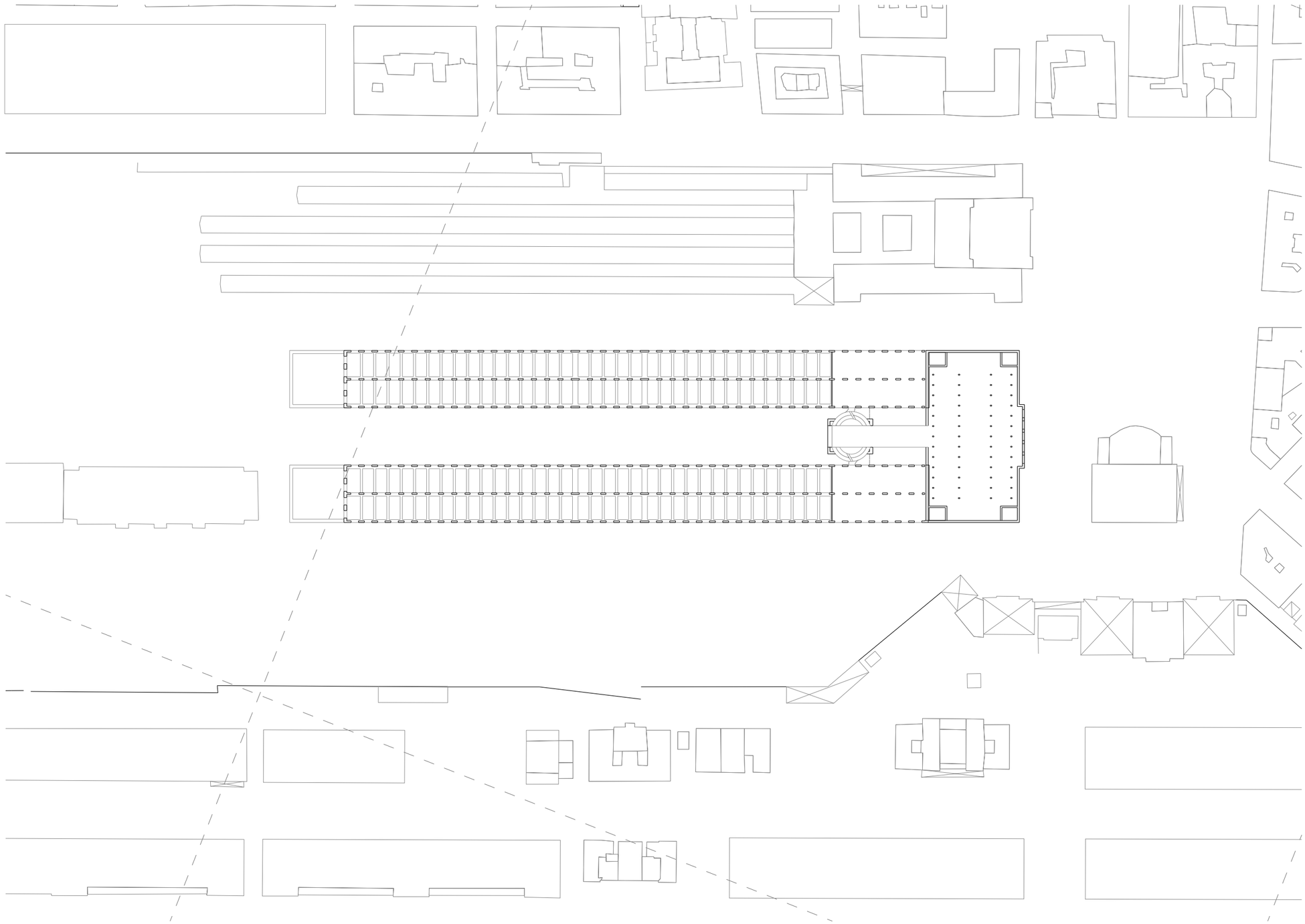


URBAN TISSUE TRIESTE GROUND FLOOR



sudbahn silos

URBAN TISSUE TRIESTE AT 7M HIGH



sudbahn silos

EXISTING STATE 2015

Scelto, N. (2016, February 4). Bird view

EXISTING VAULTS

Scelto, N. (2016, February 4). First floor

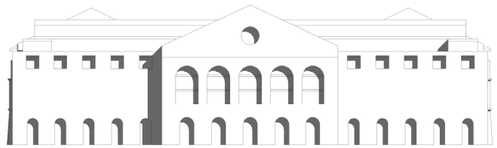
EXISTING COURTYARD

Scelto, N. (2016, February 4). Court yard


2015
2021

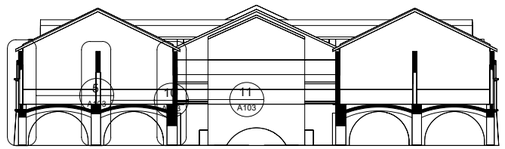
sudbahn silos

SUDBAHN SILO'S



1 PR front
1 : 500

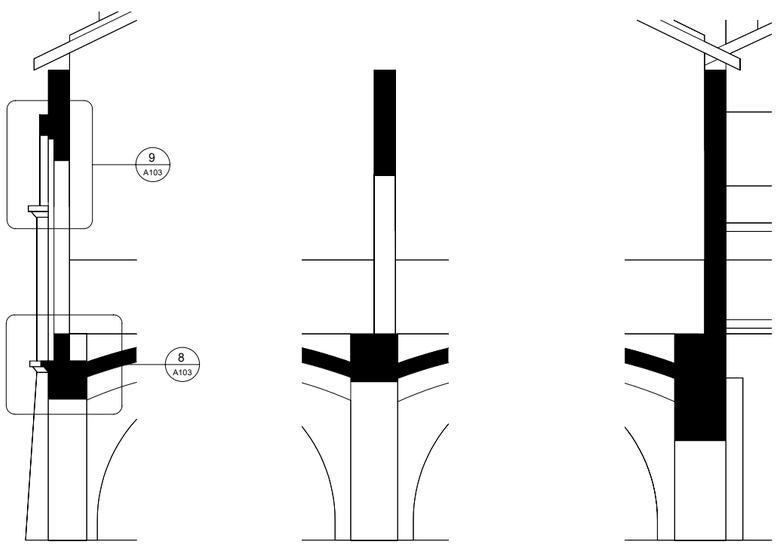
4 PR railway side
1 : 500

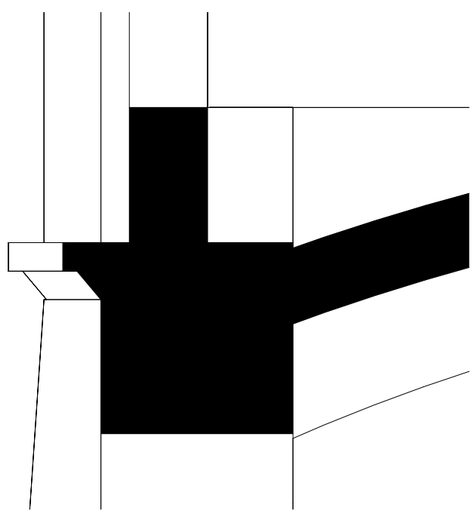


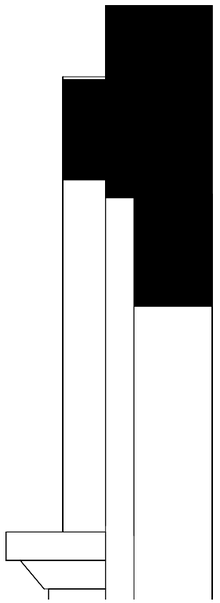
6 Section 7
1 : 500

2 PR park side
1 : 500

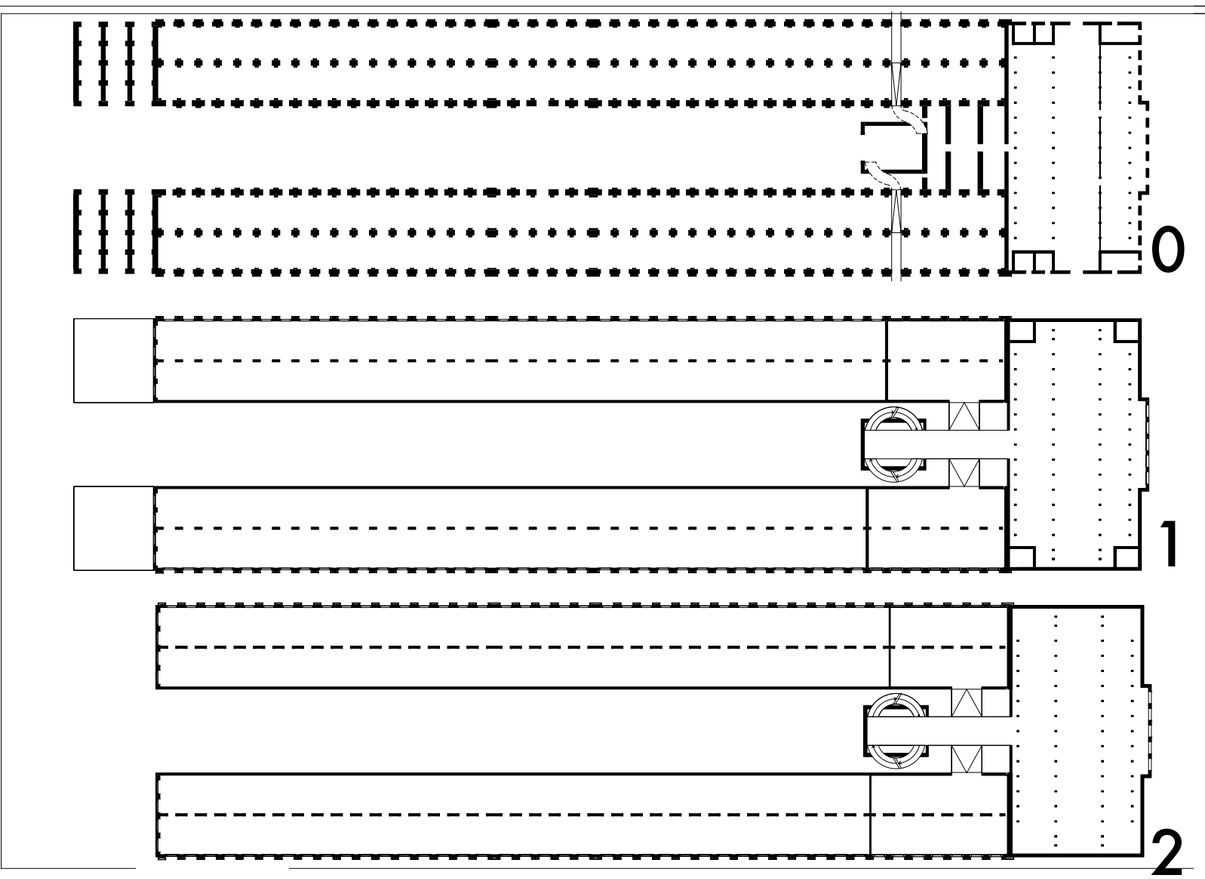
3 PR station side
1 : 500

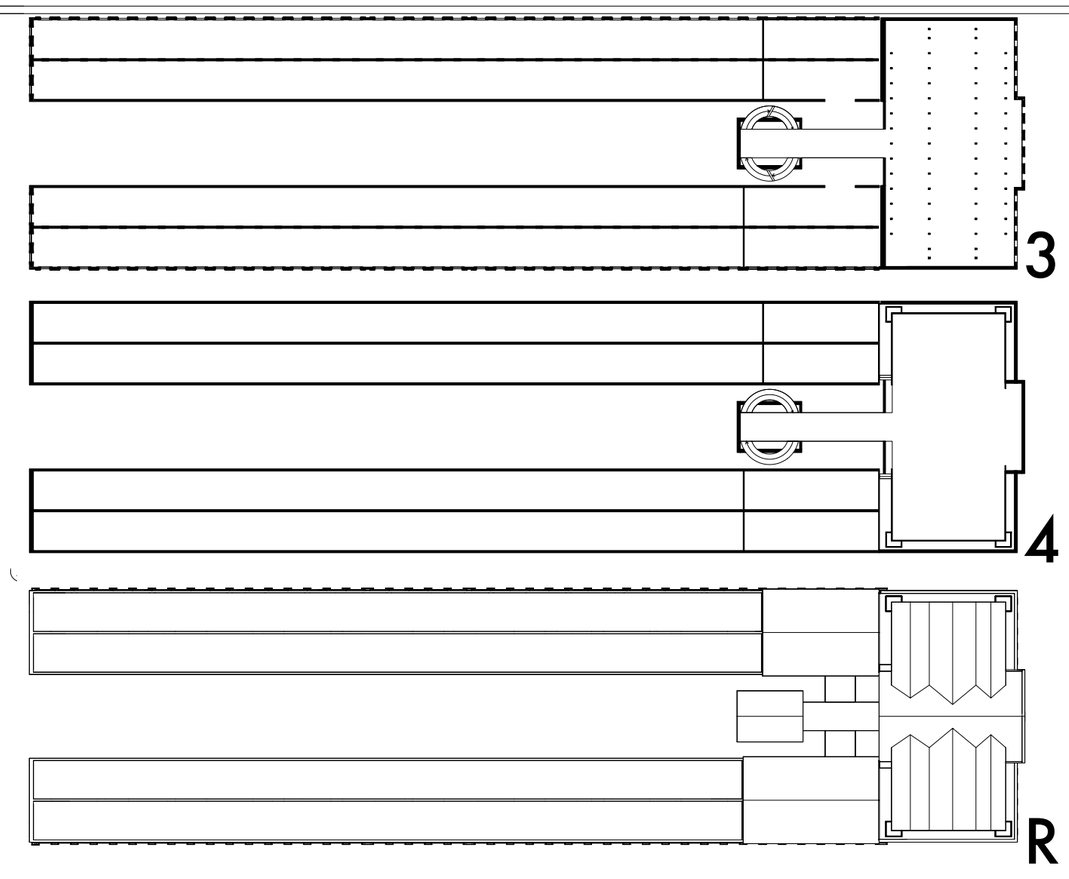


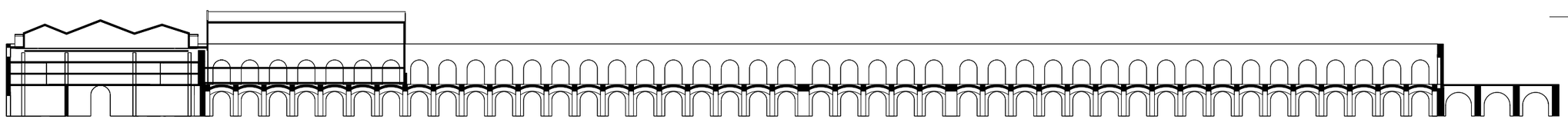




SUDBAHN SILO'S

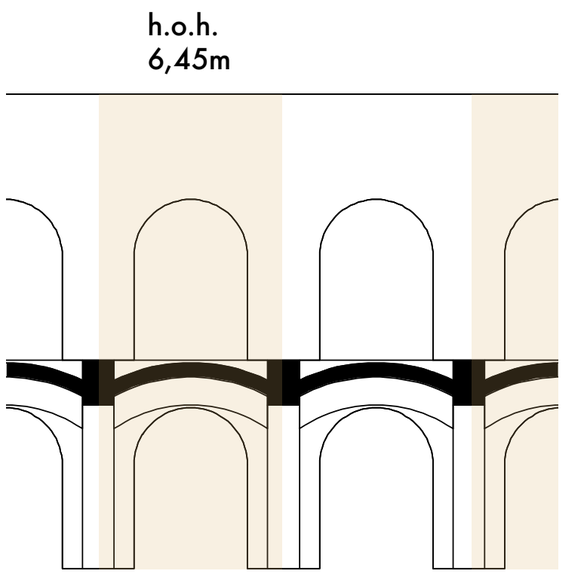


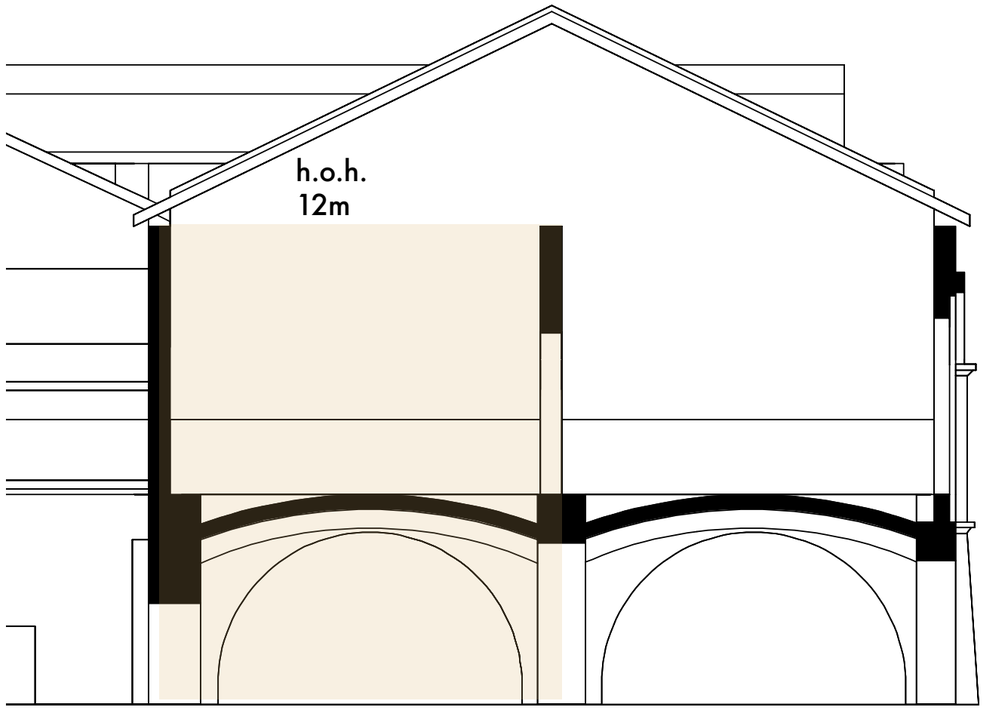




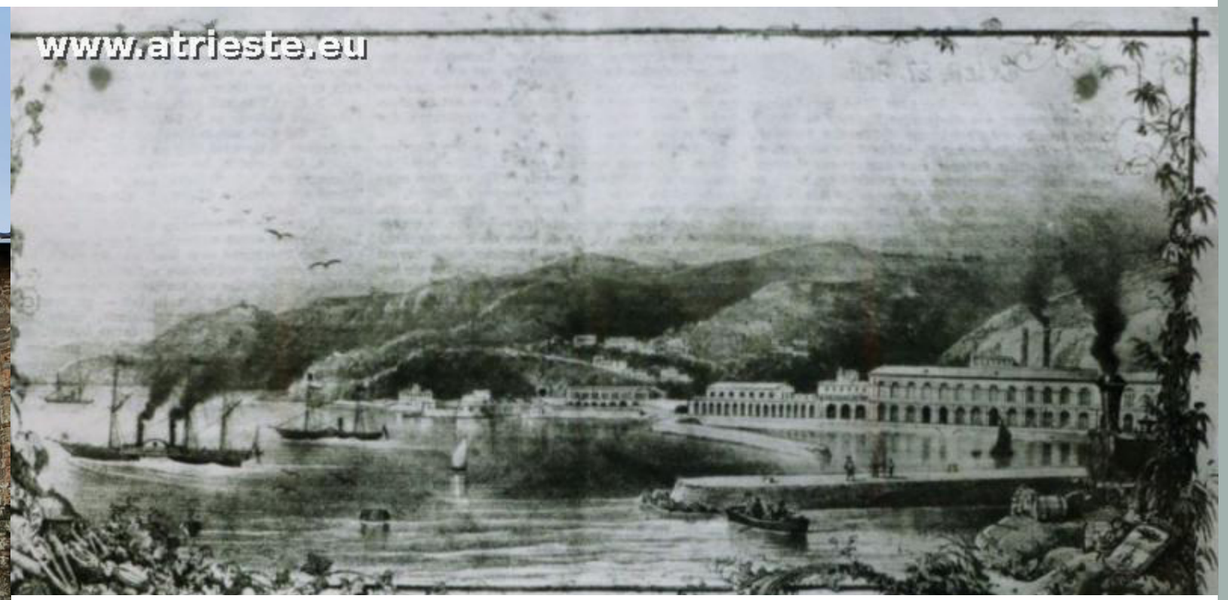
Section 8

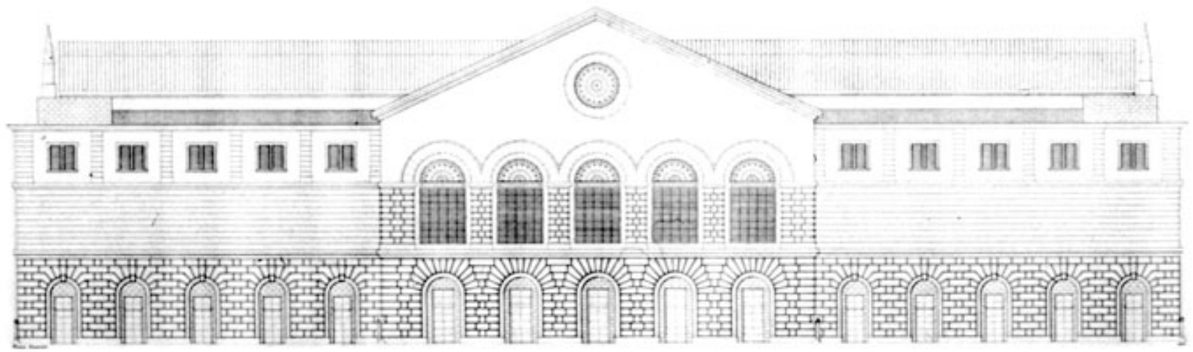
CONCLUSION: TOO BIG AND TOO OLD





ASSESMENT: FACADES ARE MOST VALUABLE



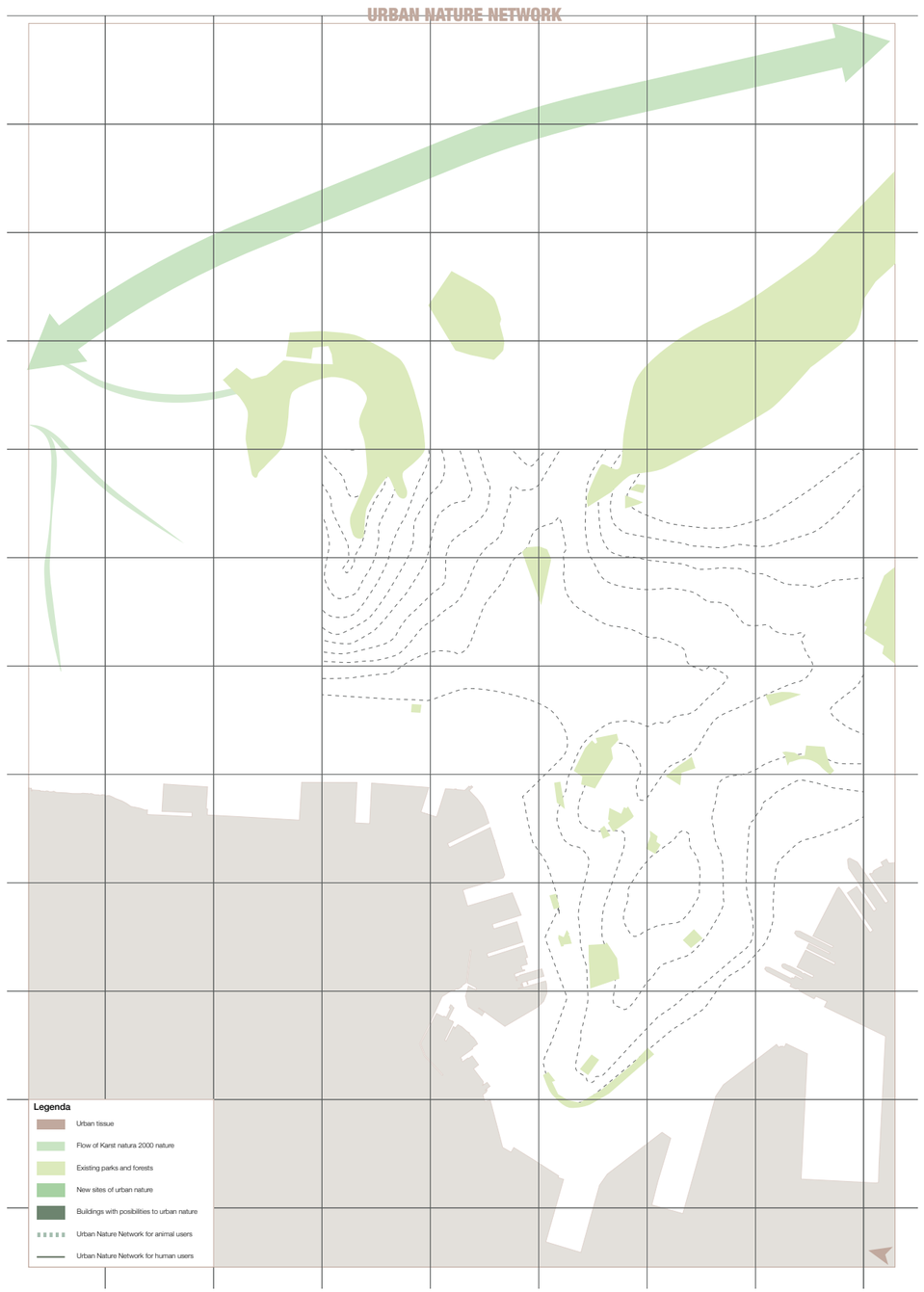


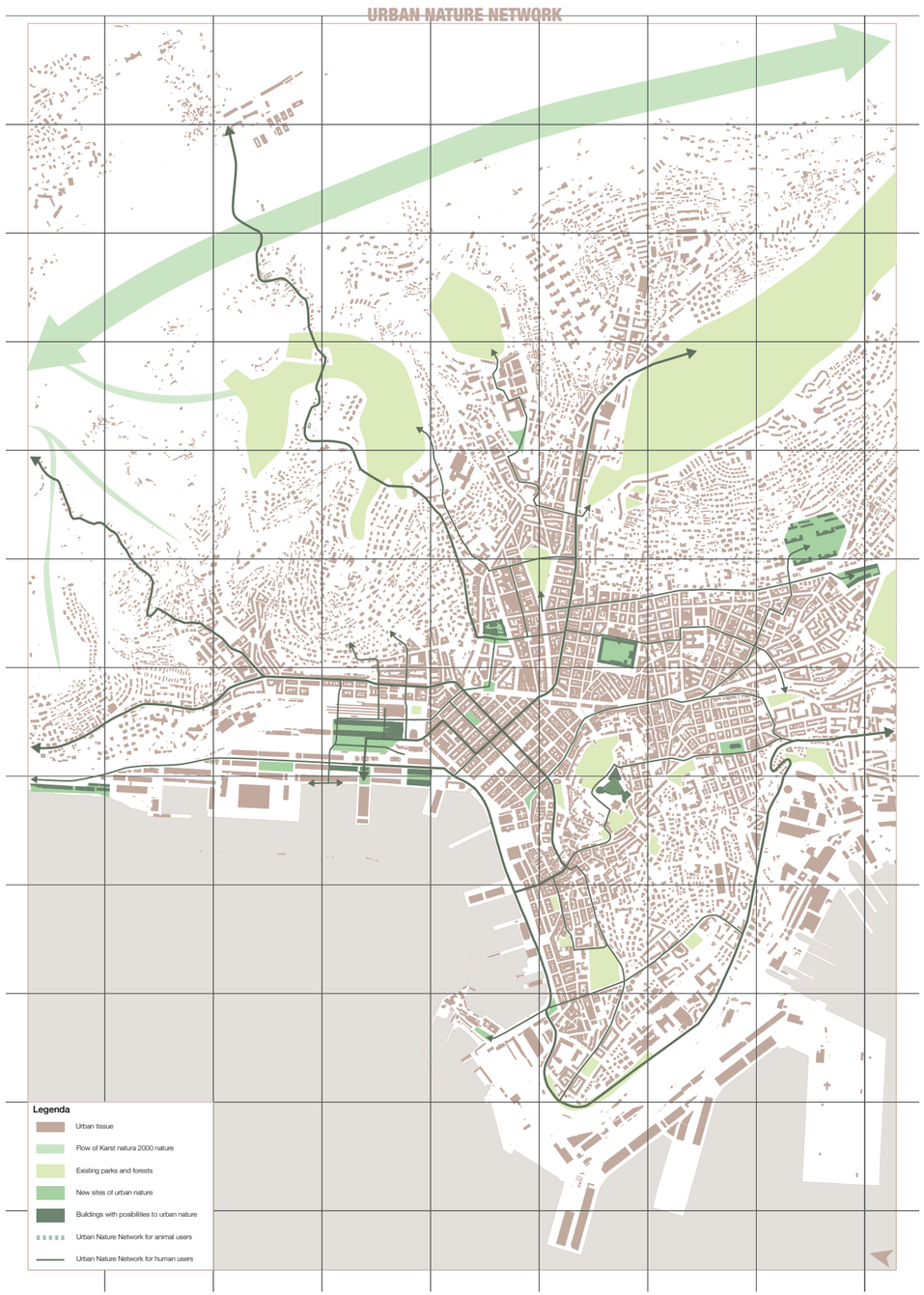
Zannitti (n.d.) historical drawings of silos

(urban) approach

BORDERS & TERRITORIES

PART OF UNN: NETWORK OF PUBLIC GREEN SPACES



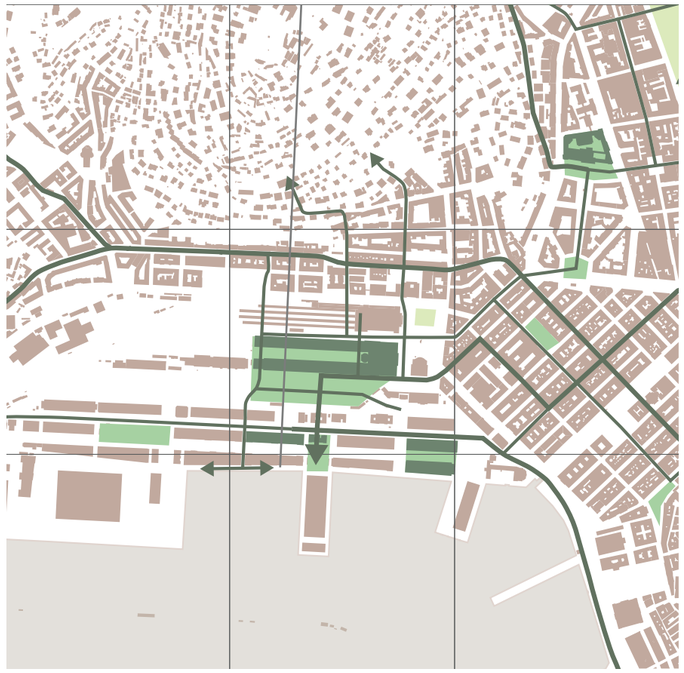


DEFINITIONS:

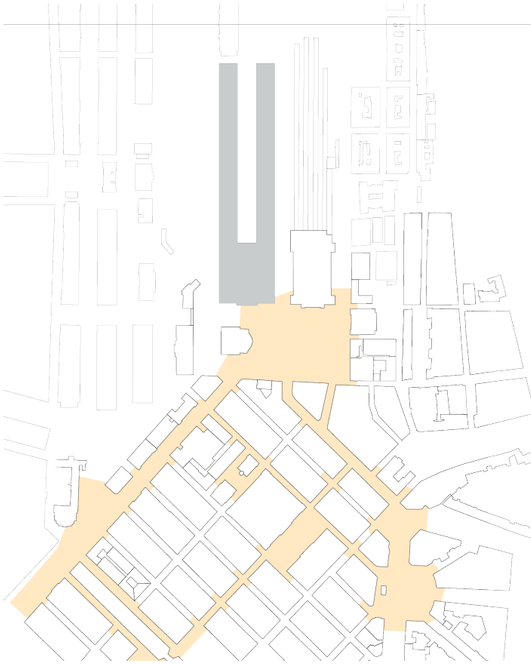
In essence, urban nature can be understood as areas in urban environments that are home to plants and non-human animals. Urban nature is not just dedicated recreational space such as public parks, but other types of informal green spaces, for example, green streetscapes, nature areas, roof gardens and community gardens.

World Urban Parks (n.d.)

SUDBAHN SILO'S

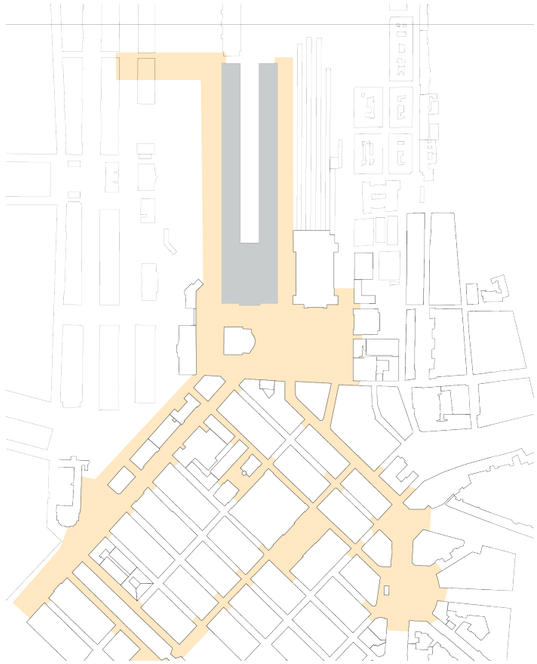


CONNECTING TO THE URBAN SYSTEM



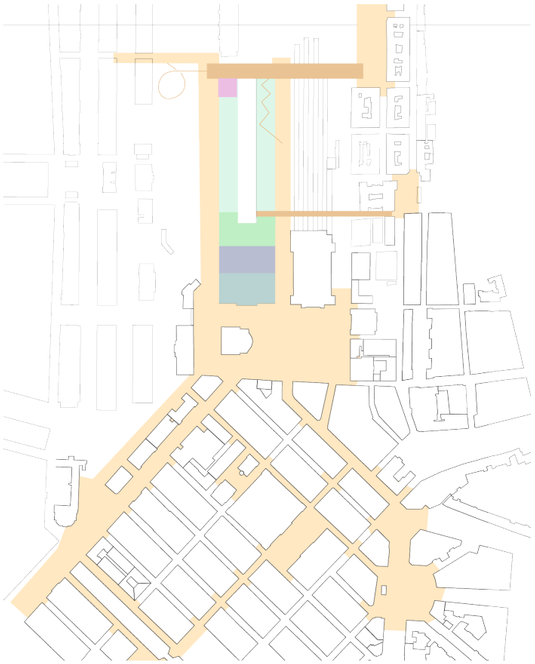
existing

Front facade part of 'wall' of public space
No further connection



step 1

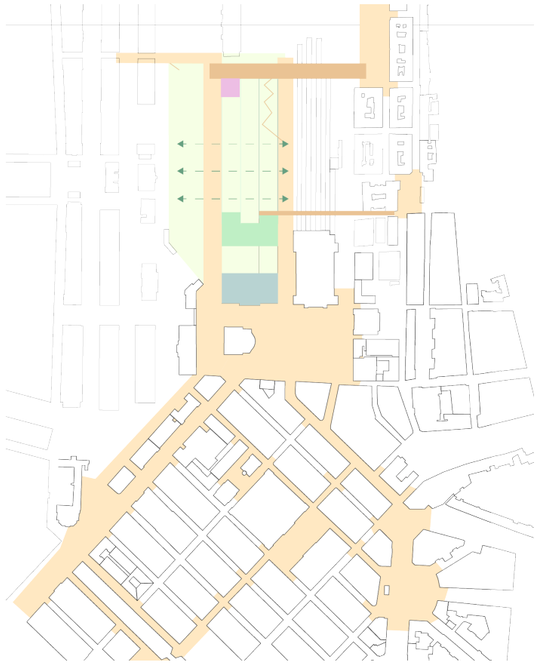
make two avenues along the side facades that create depth and connect the square to the porto vecchio district



step 2

Activate the carcas of the building with the adition of public functions (pink and turquase)

Connect the side further over the railway to other public spaces for a pivot function (dark brown)



step 3

Strip the building from unnecisairy parts

Use the remaining structure to house a park with the building as vital part.

The facades holds different park spaces, an open air public building

truely forming a pivot point for the city

design forming

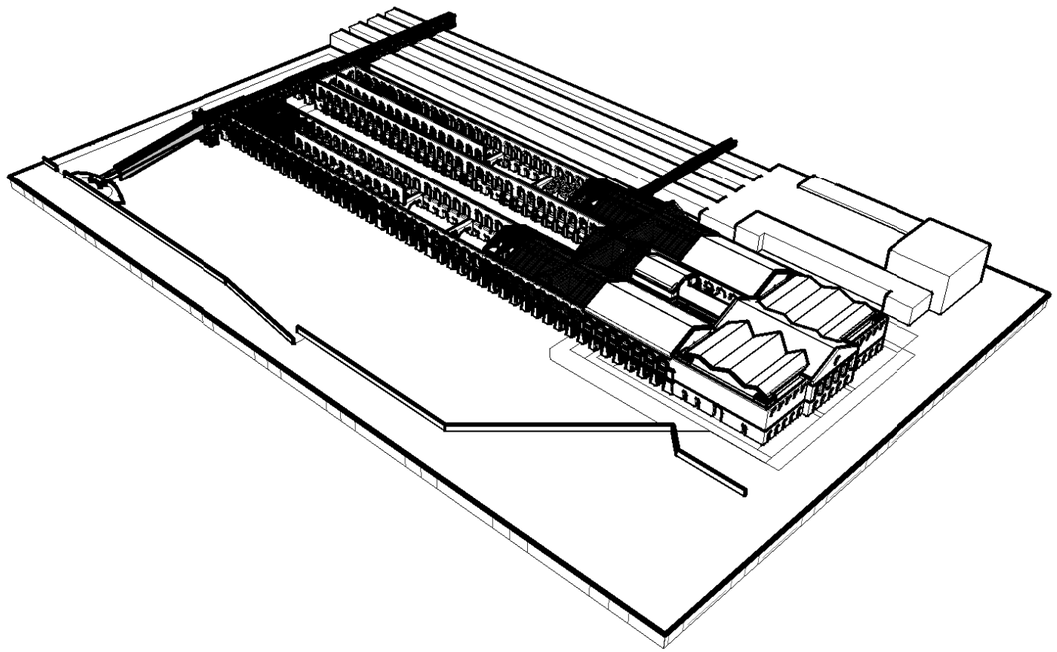
BORDERS & TERRITORIES

FORMING STARTING POINTS FOR PARK DESIGN

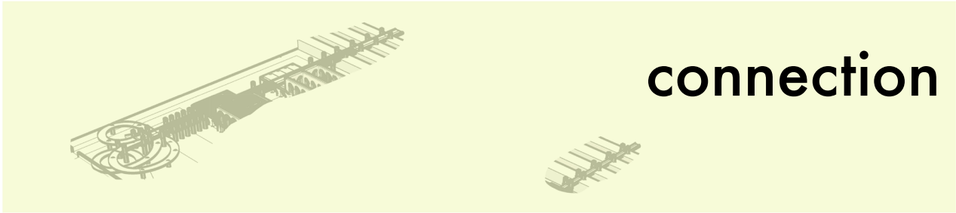
functions

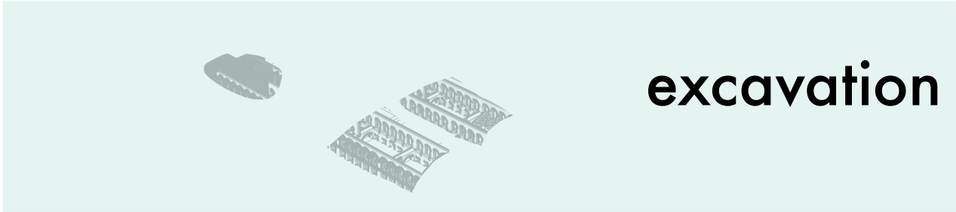
show history
keep spontanious nature
botanical green house
educational garden
cultural space
meeting point
look out point
hide facade parking
connect disconnected urban tissue

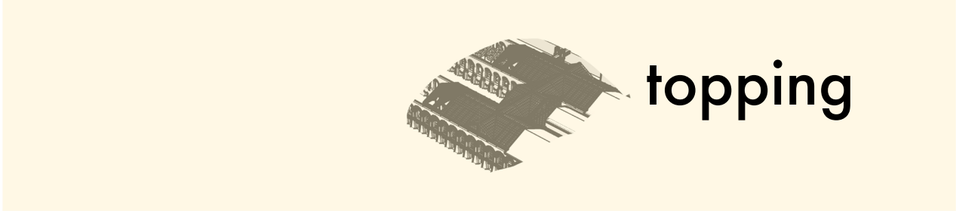
SUDBAHN SILO'S

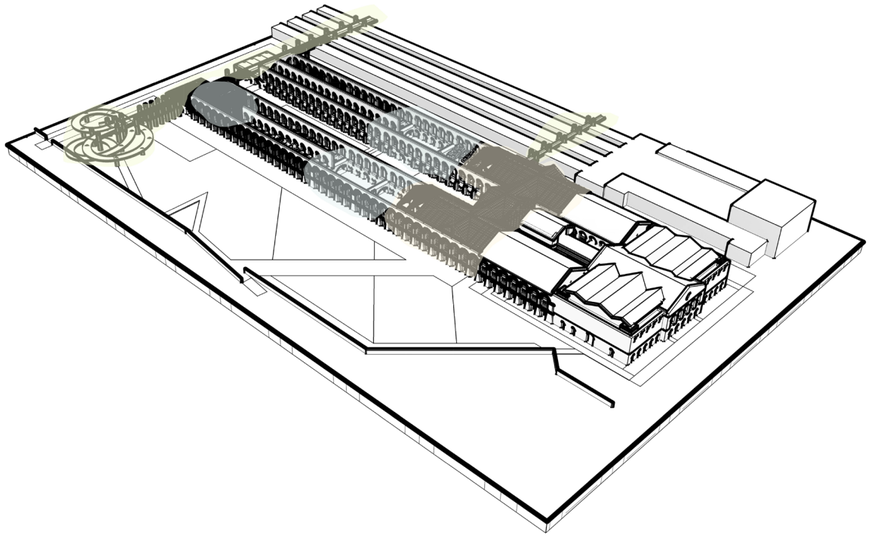


STRATEGY

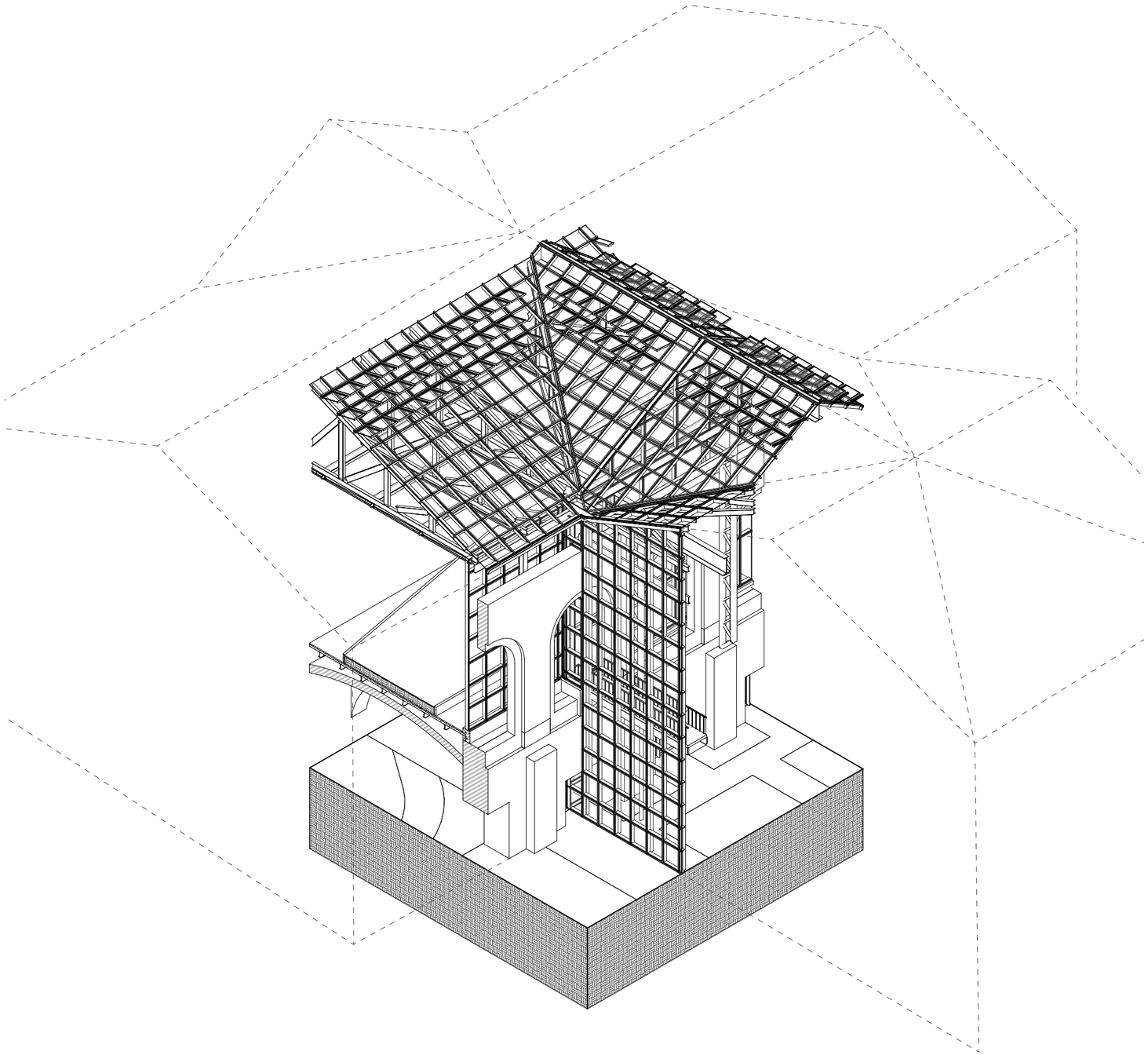




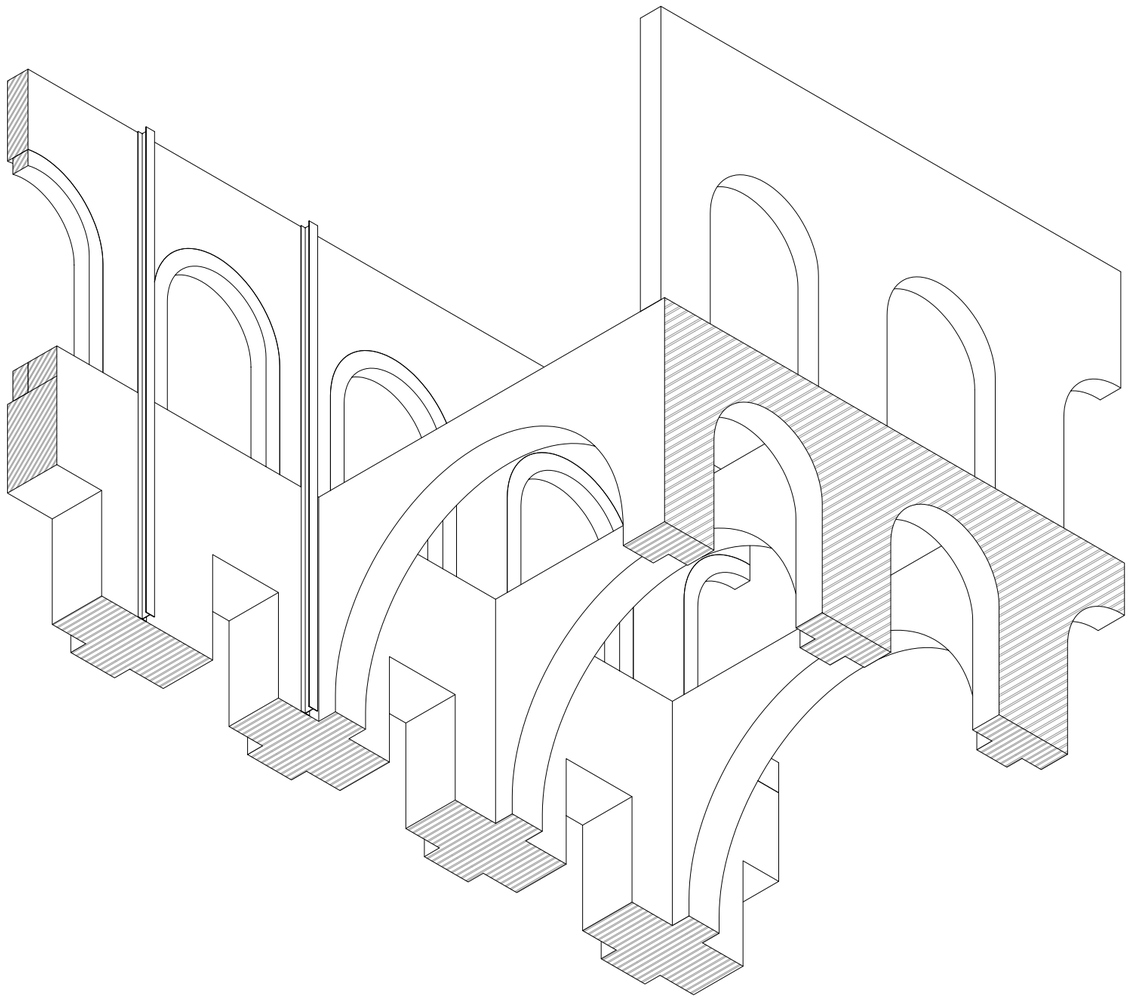




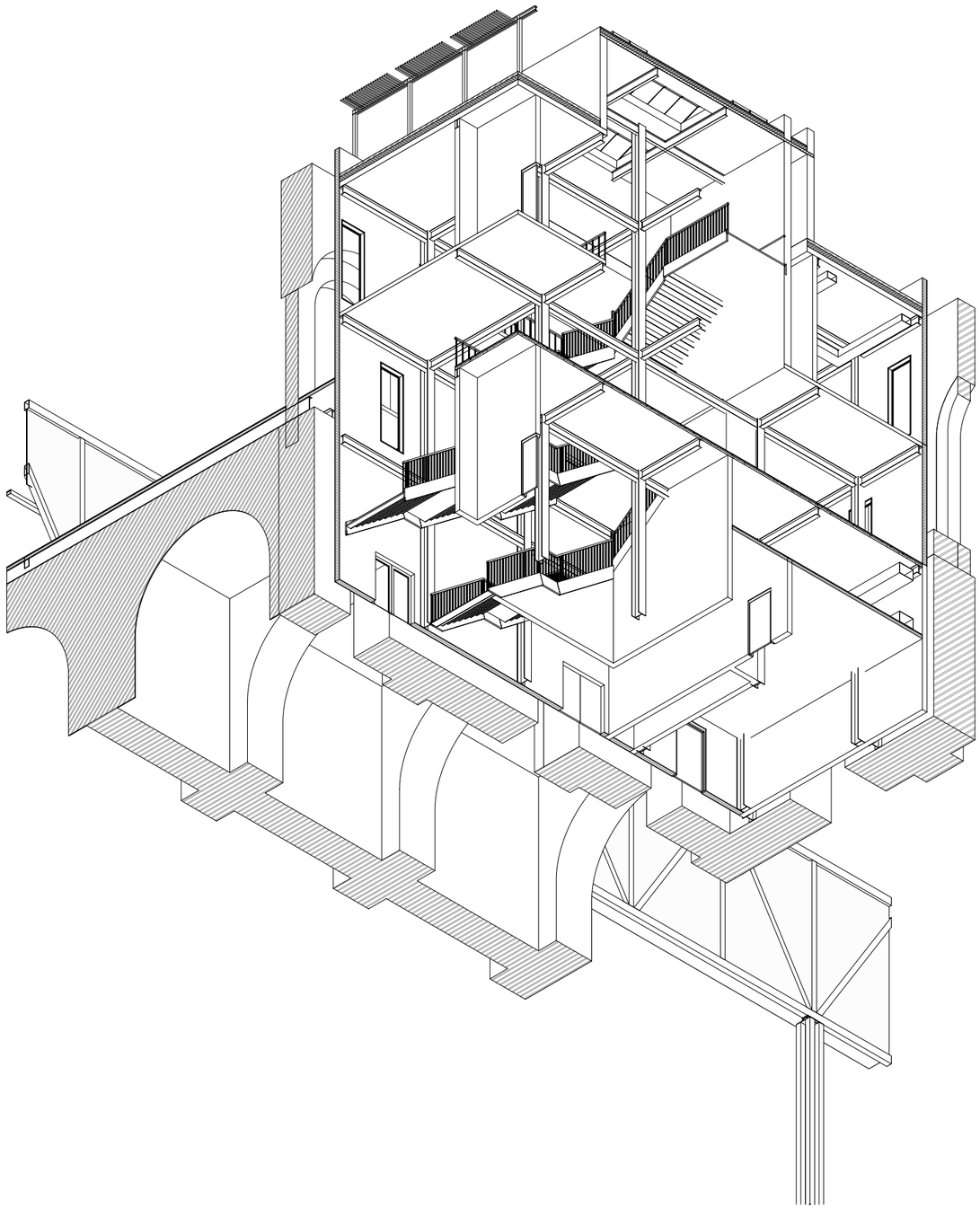
TOPPING: GREEN HOUSE



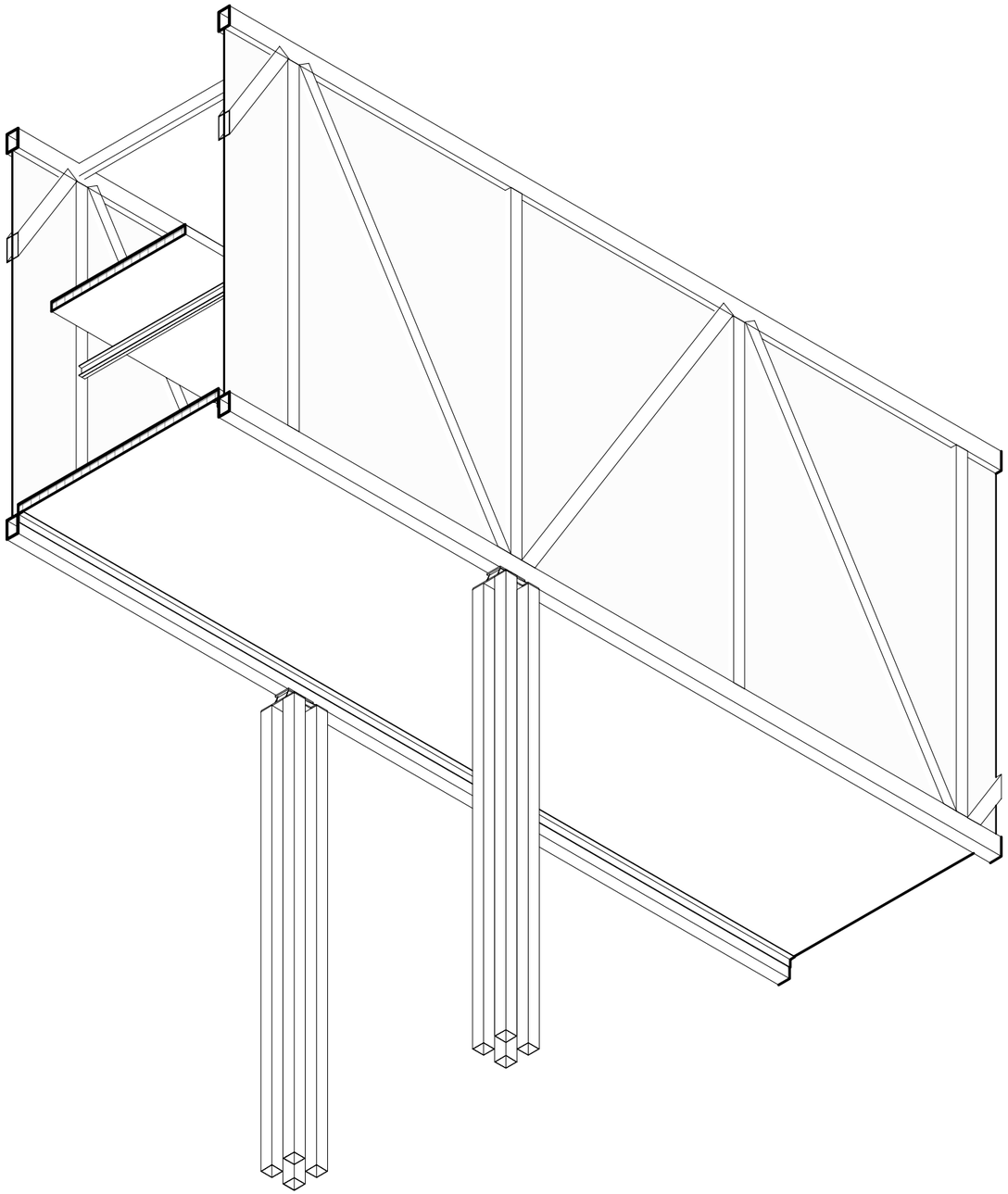
EXCAVATION: PARK CHAMBRES



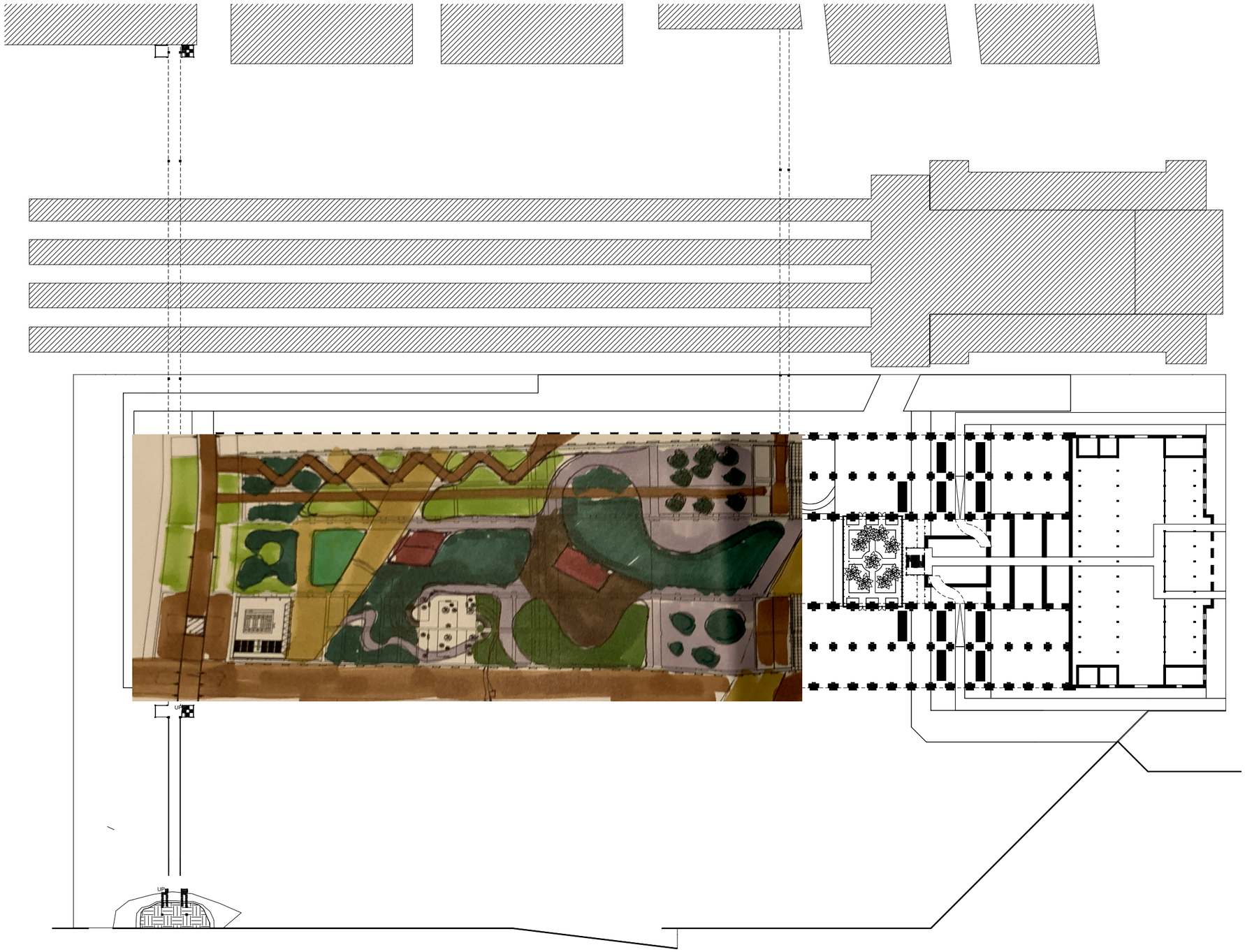
EXCAVATION: CAFE



CONNECTING: BRIDGES



SUDBAHN SILO'S



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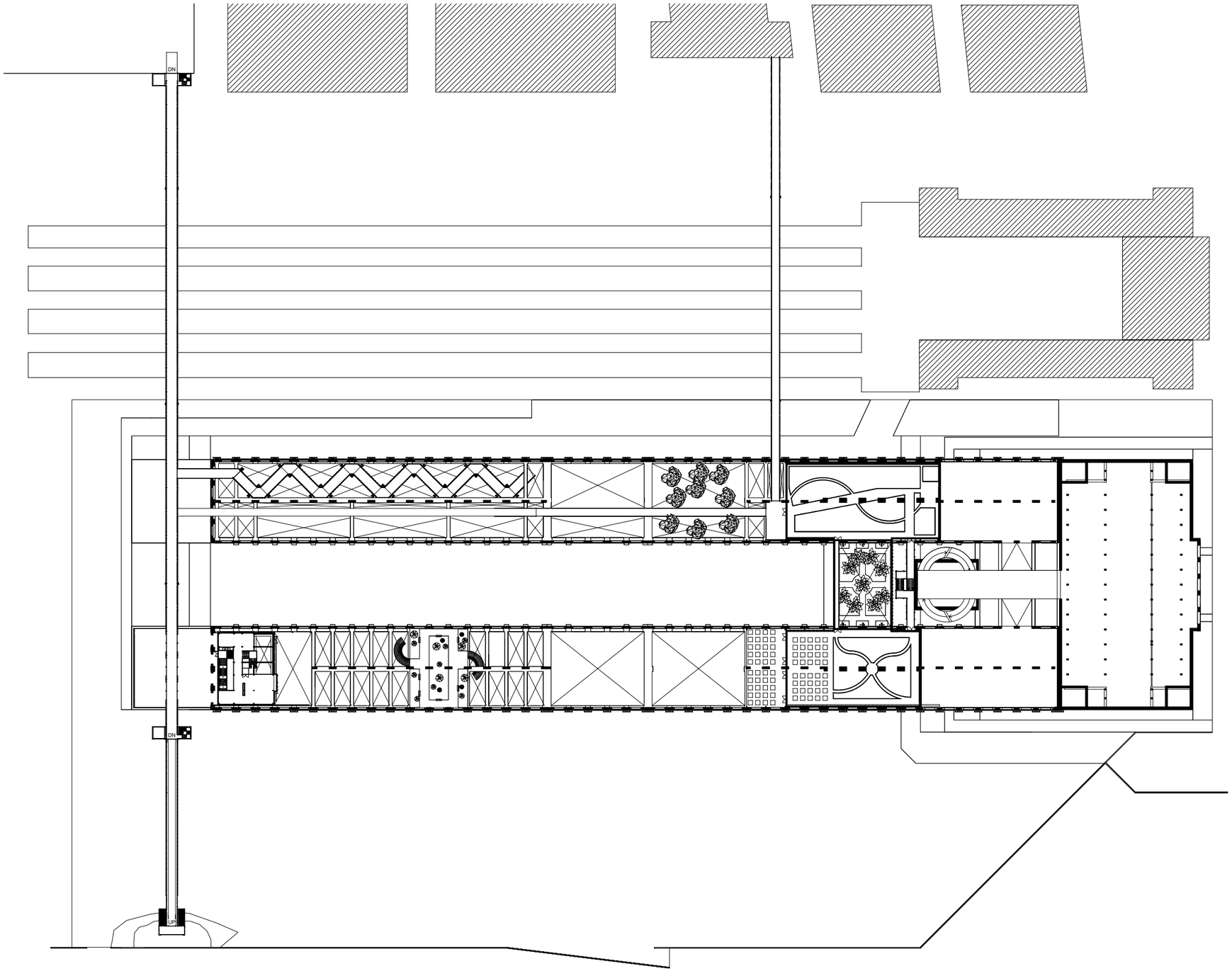
SUDBAHN SILO'S



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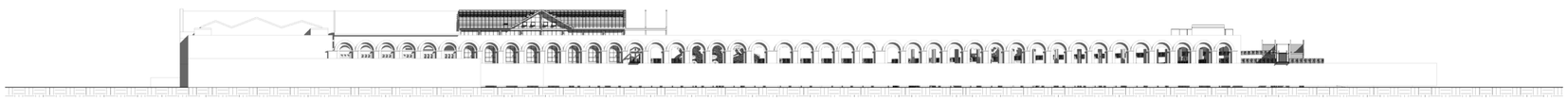
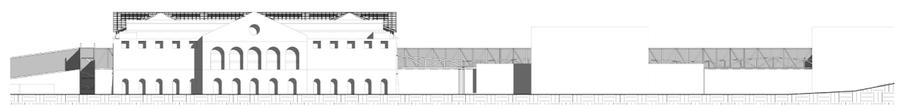
FACADES AND SECTIONS

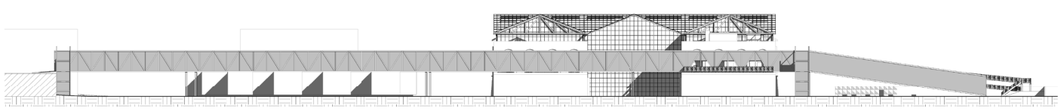


1 North
1 : 500

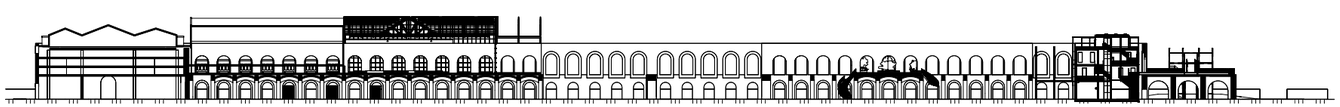
2 South
1 : 500



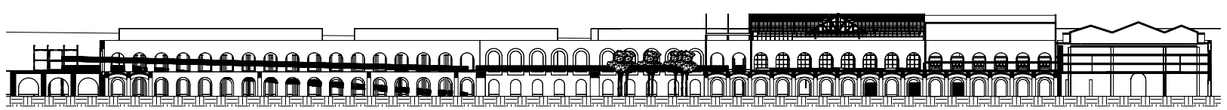
4 East presentation
1 : 500



3 West
1 : 500

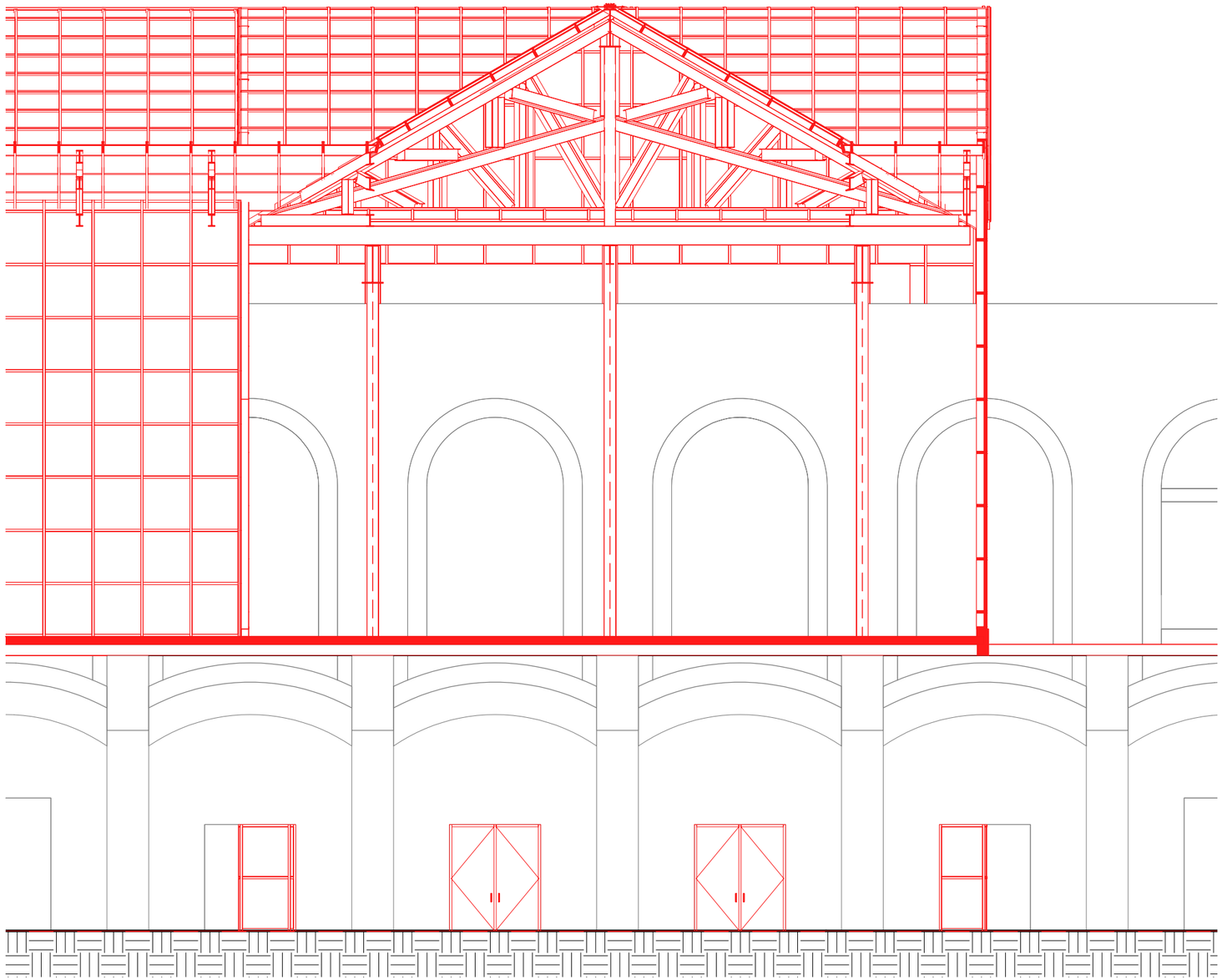


5 Section longitude 1 south
1 : 500



6 Section long 4 bridge
1 : 500

OLD VS NEW



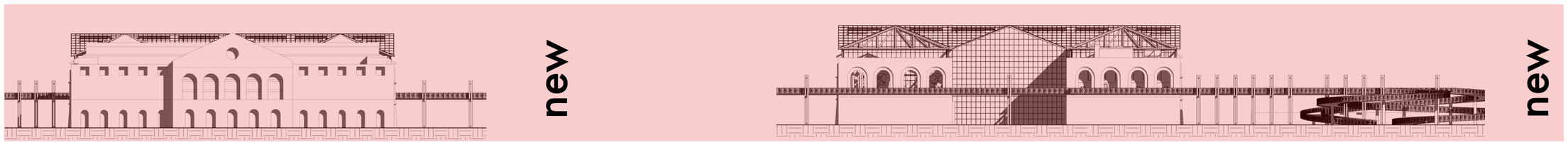
SECTION OF THE GREEN HOUSE ON TOP OF THE VAULTS

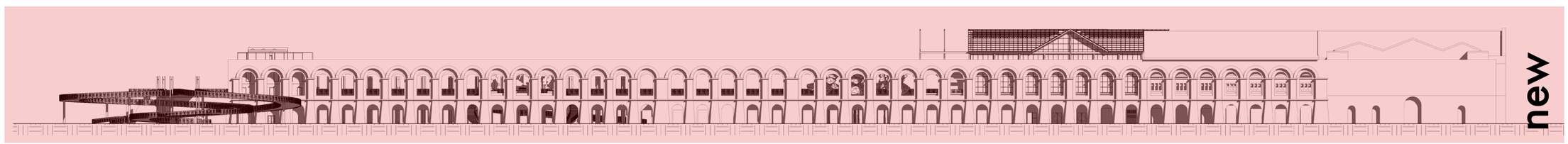
Legenda:

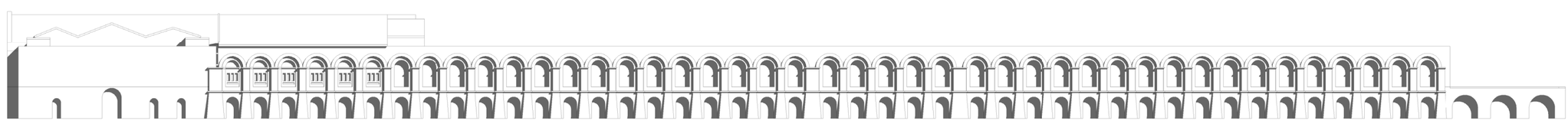
Existing structure

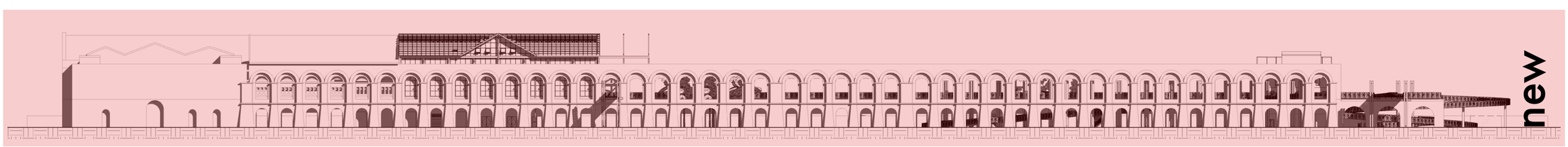
New structure

OLD VS NEW





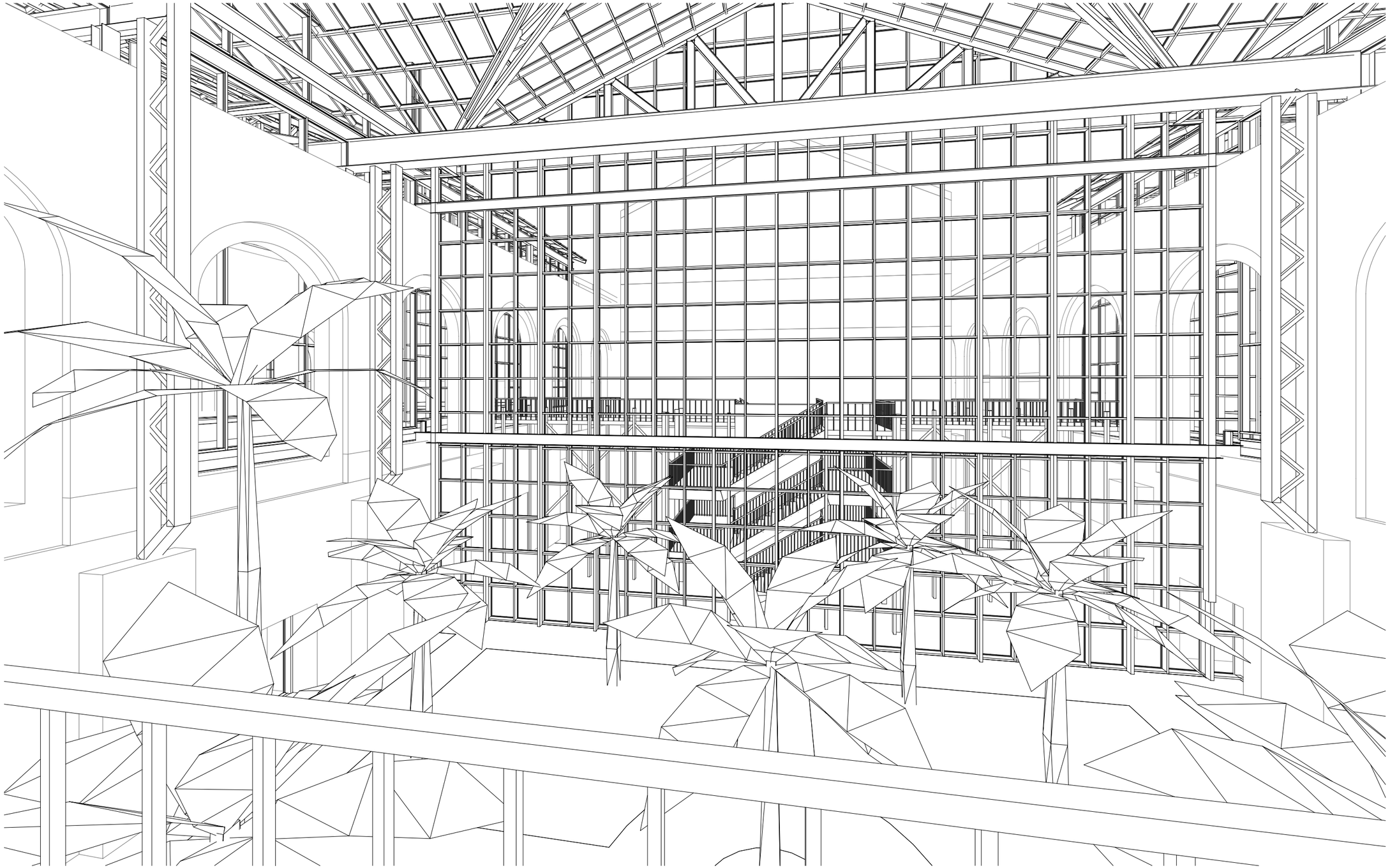




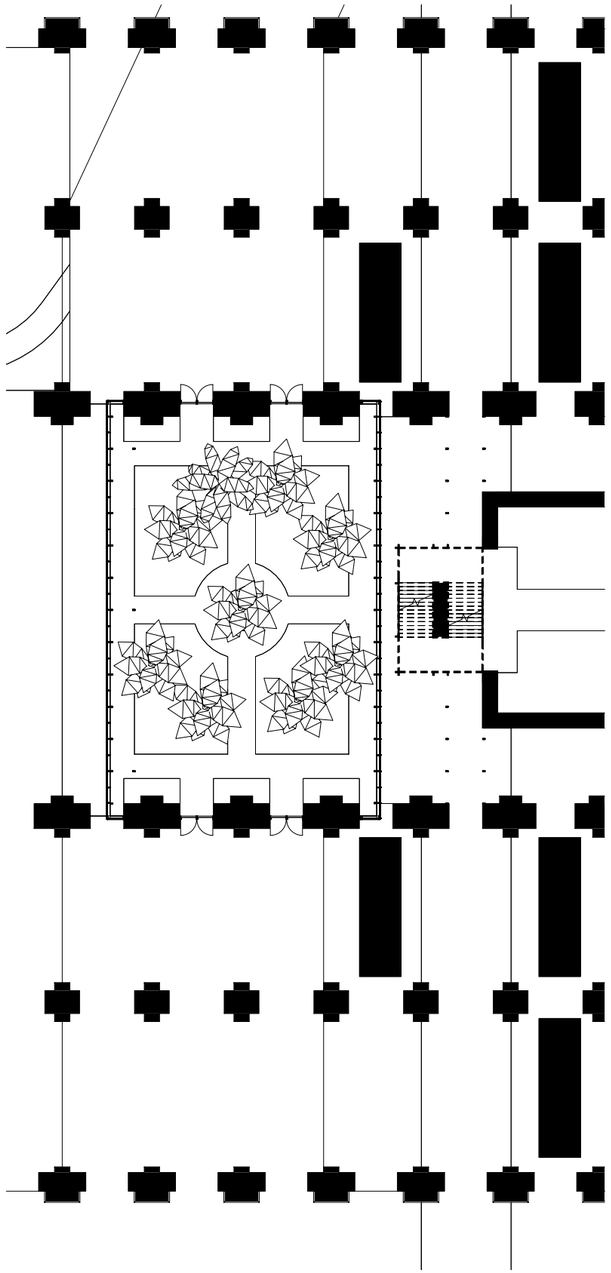
topping green house

BORDERS & TERRITORIES

INSIDE PALM HOUSE



PLANS



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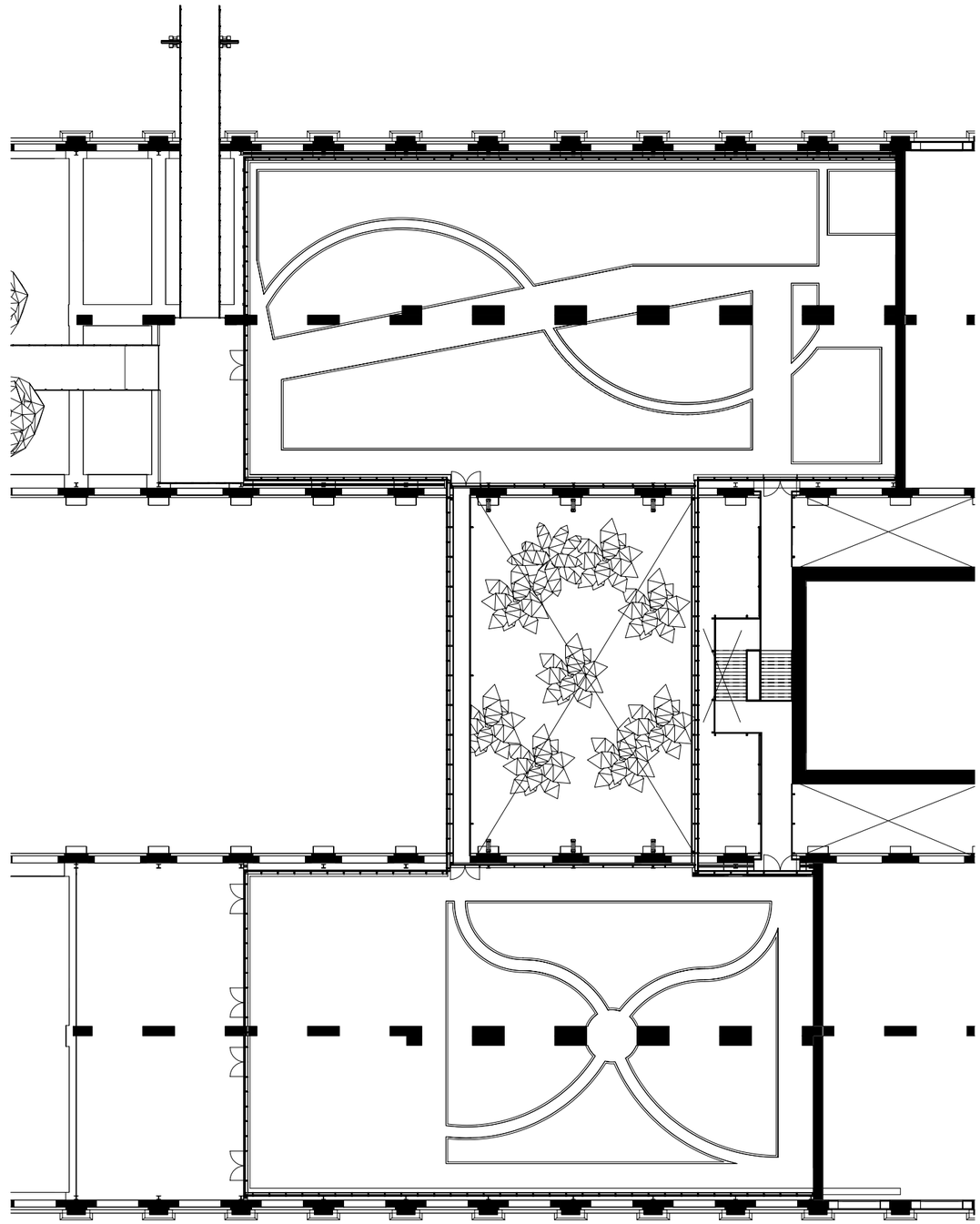
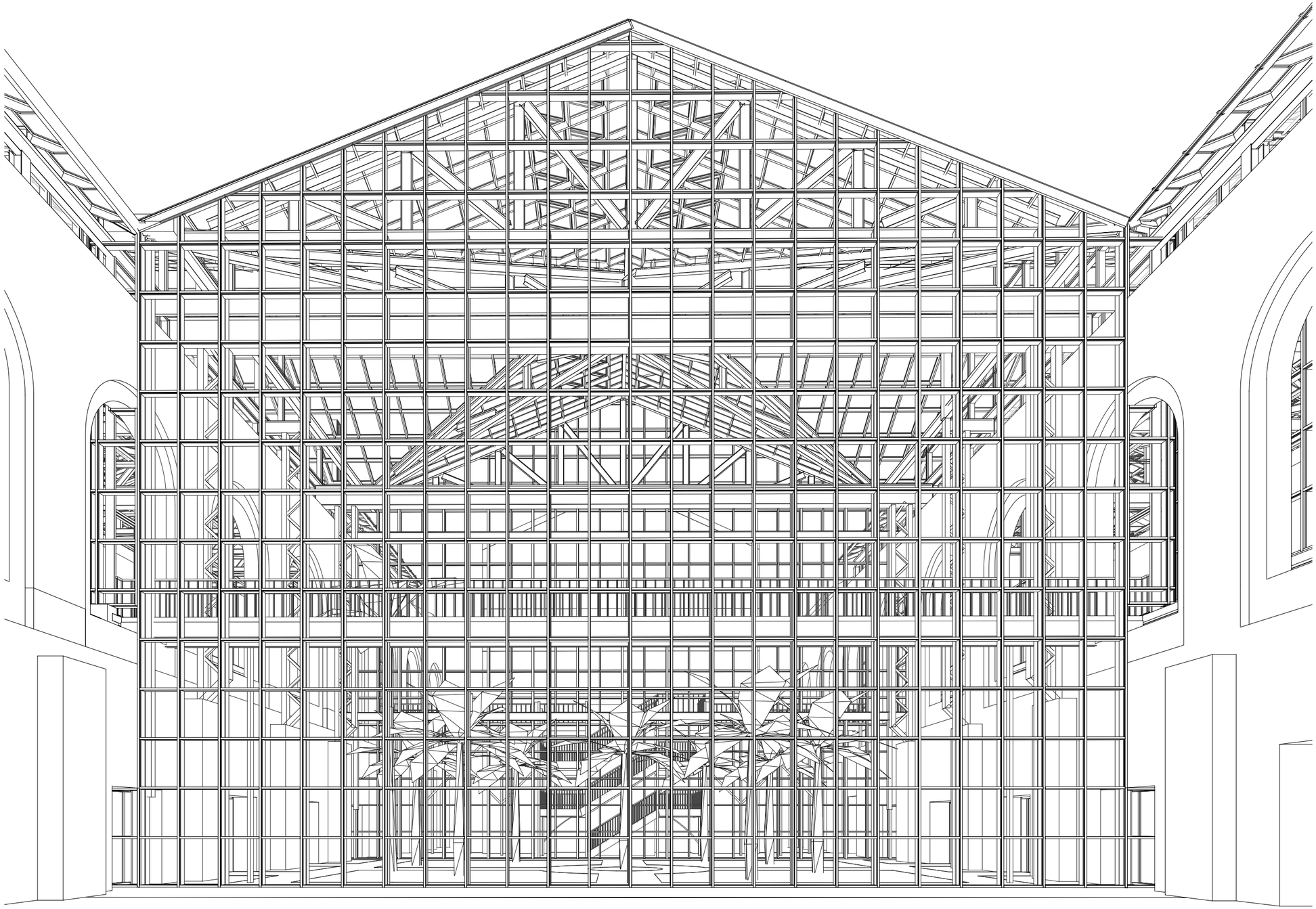
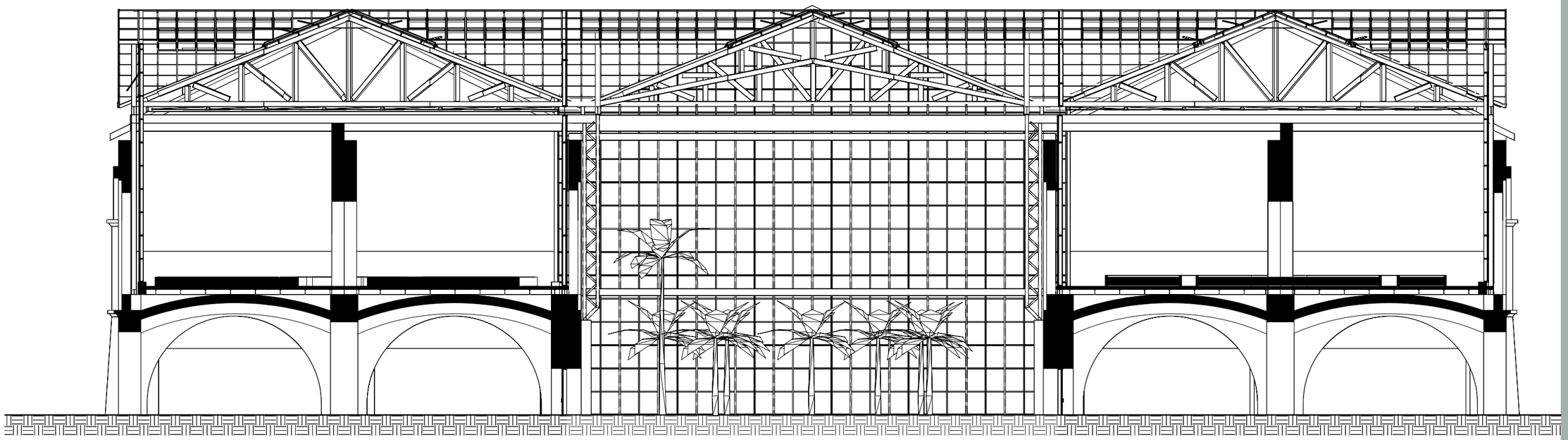


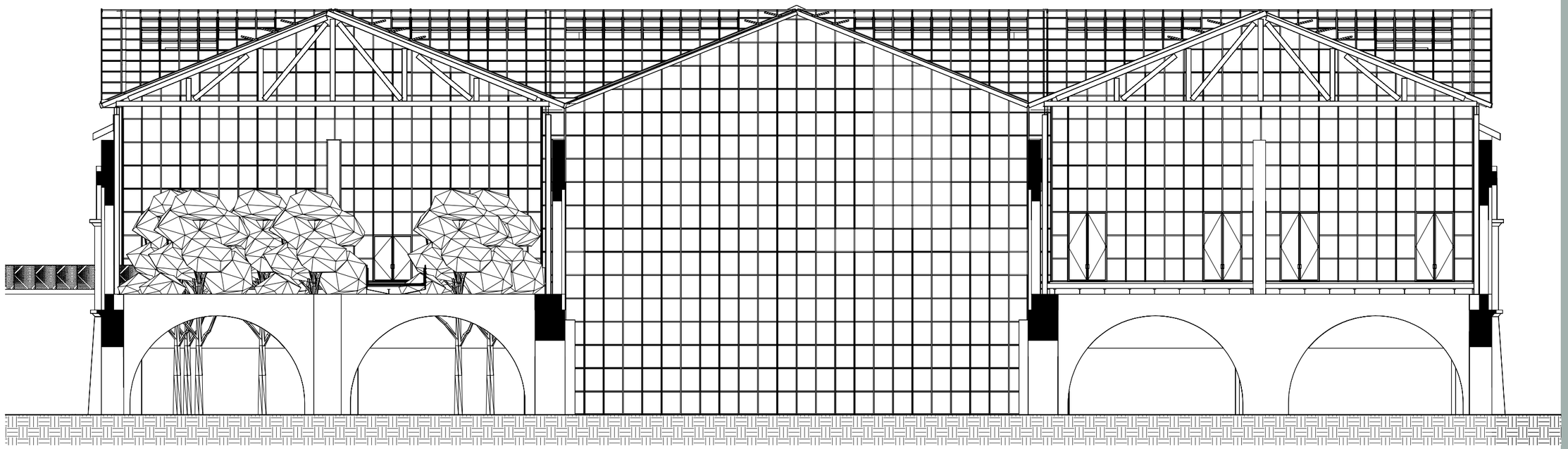
1

SUDBAHN SILO'S

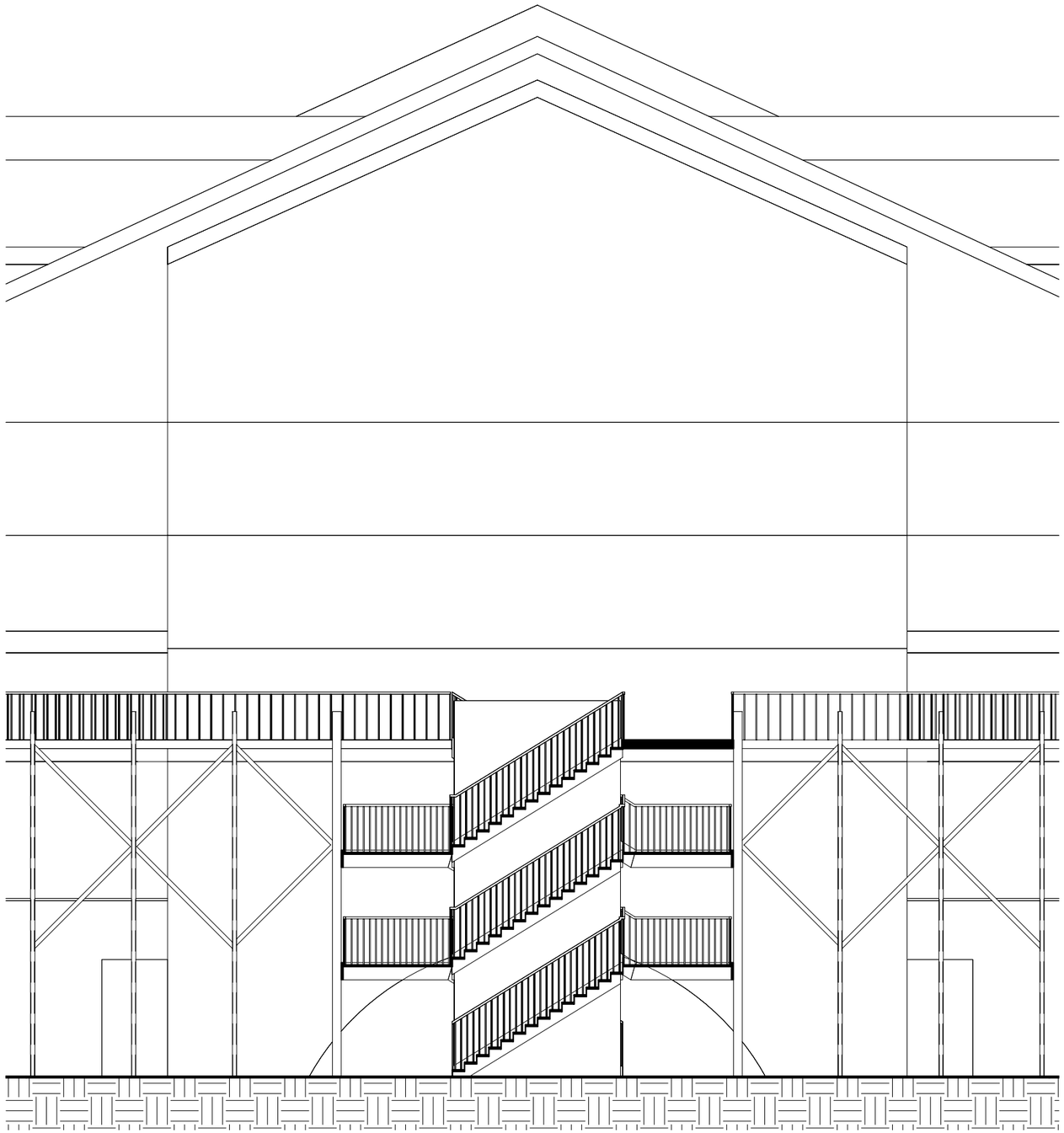


CROSS SECTIONS

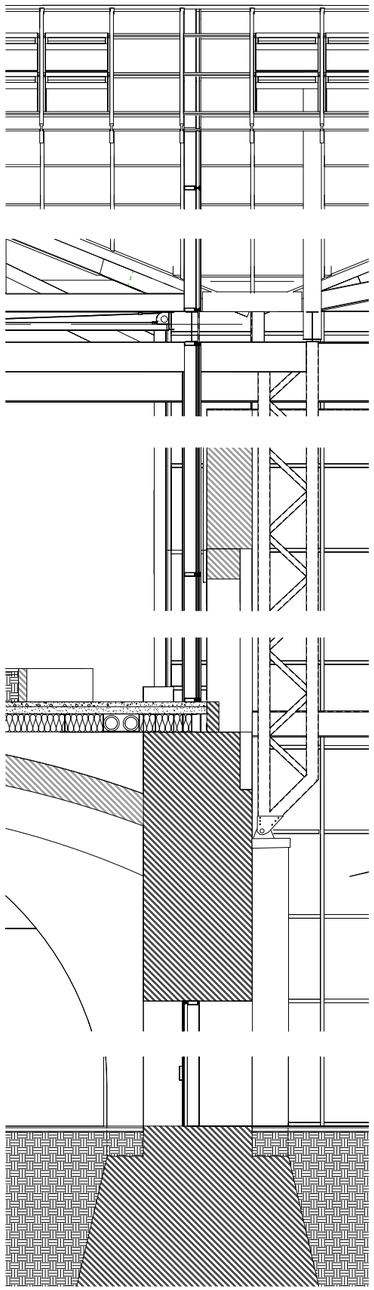


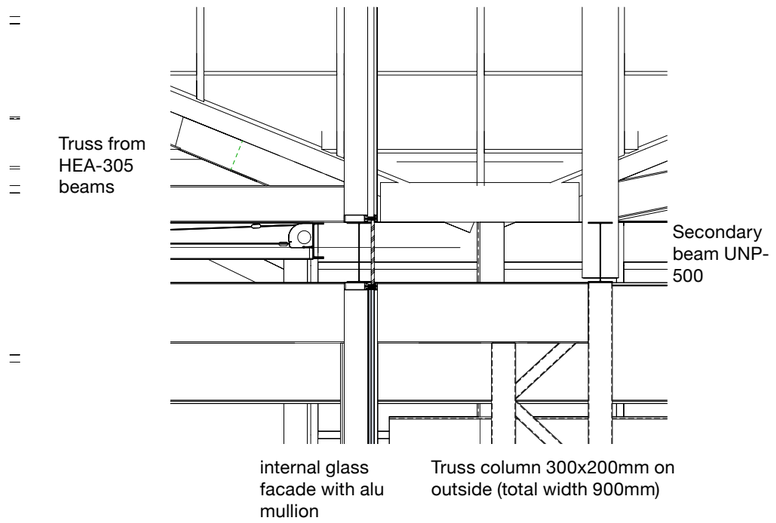


STAIRWELL GREENHOUSE

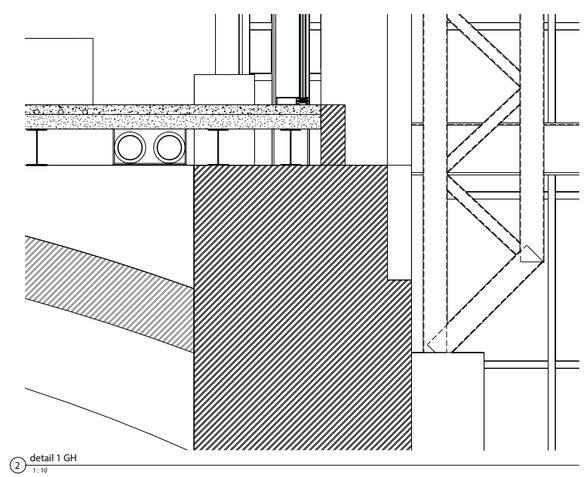


BUILDING DESIGN



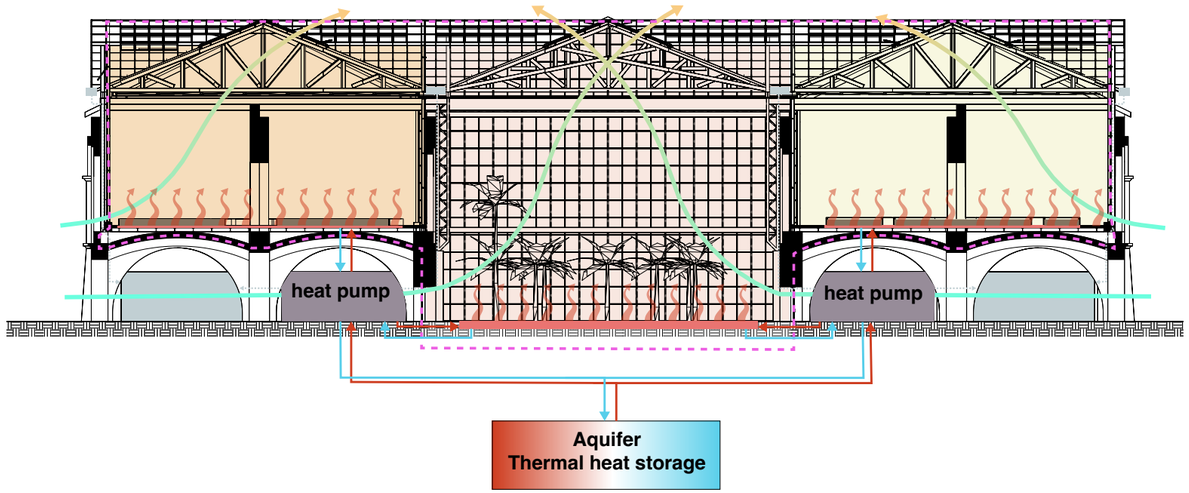


top floor 50mm
deck floor 50mm with floor
heating for plants
precasted concrete 100mm
HEA_305 profile (inbetween
insulation) h.o.h. 1500mm
Existing bearing wall



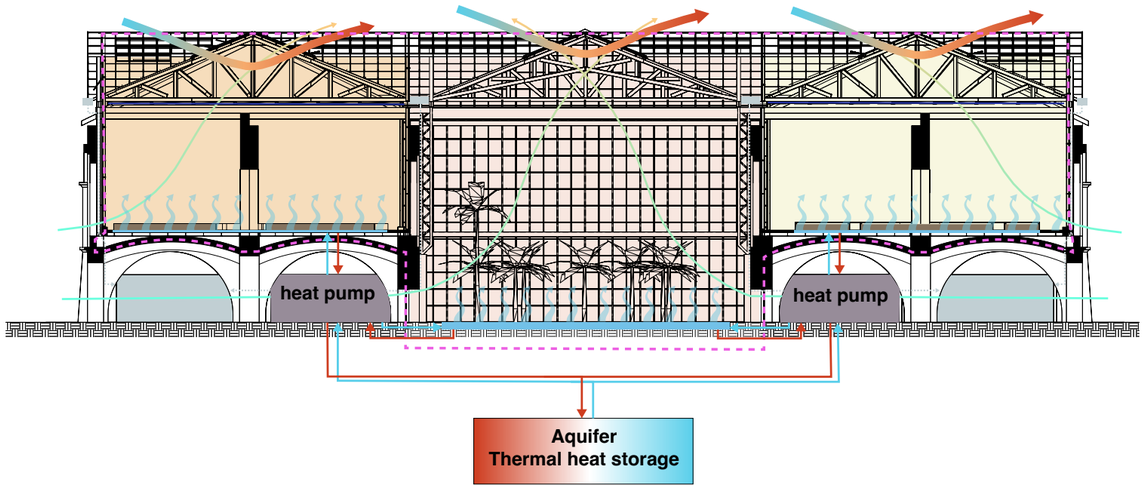
sudbahn silos

CLIMATE CONCEPT



Climate-system greenhouse WINTER

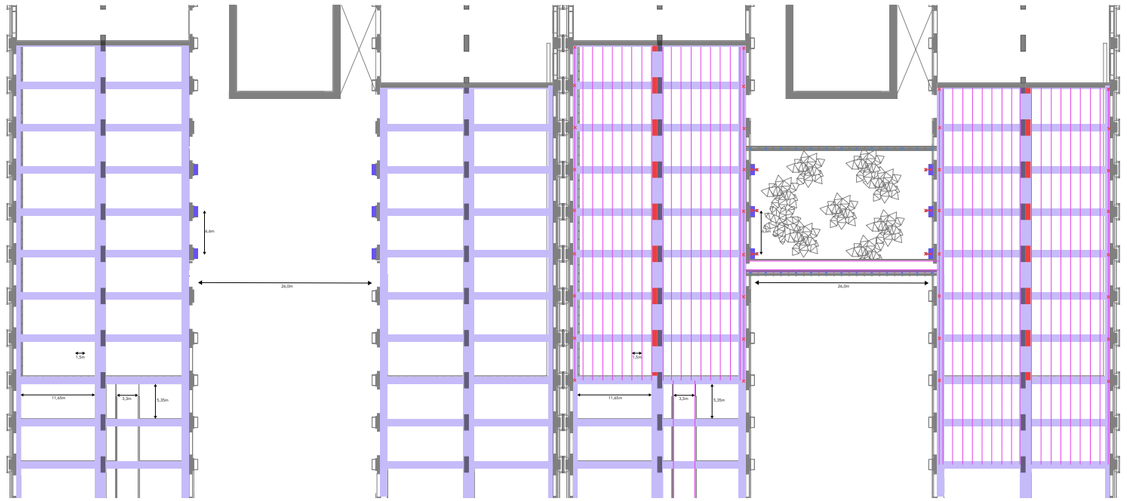
- Green houses are heated through floor heating. Heating the plant borders and therefore heating the space.
- Air is entering low in the green house through louvres and leaving through opening in the top of the roof
- Energy for heating the water of floor heating is obtained from aquifer, gaining heat and pulling back cold water. Based on heat pump system.
- Rain water is collected by gutters and stored in tanks on ground floor. Water is used to water the plants in green house, the gardens in the park and additionally for toilets cafe.
- Palm house: tropical garden, with climate based on palm trees (28-35 C)
- Mediate house: mediteranian garden with less moist (>21 C)
- Orangerie: Cold garden with winter protection. Partially goes out at summer (>15 C)
- Outside border climate control green house

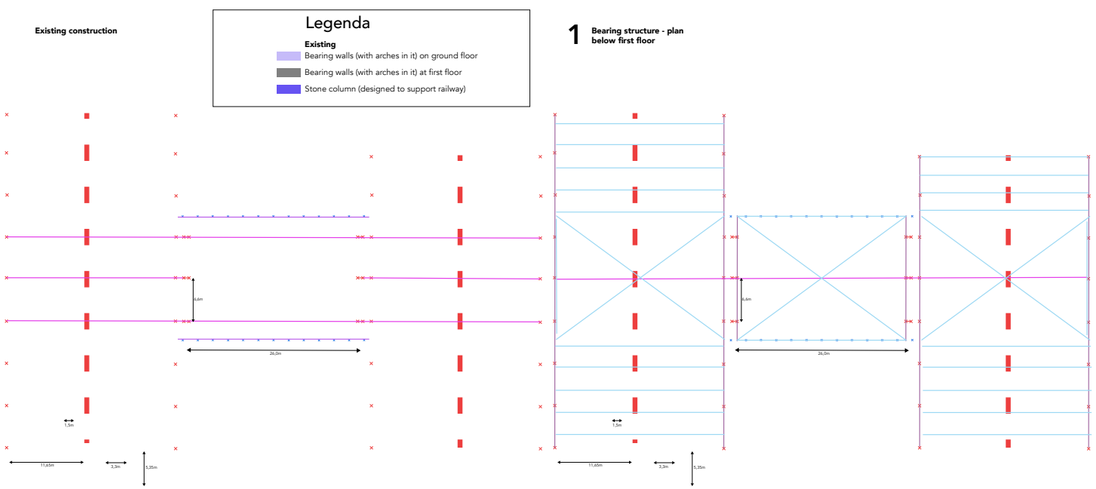


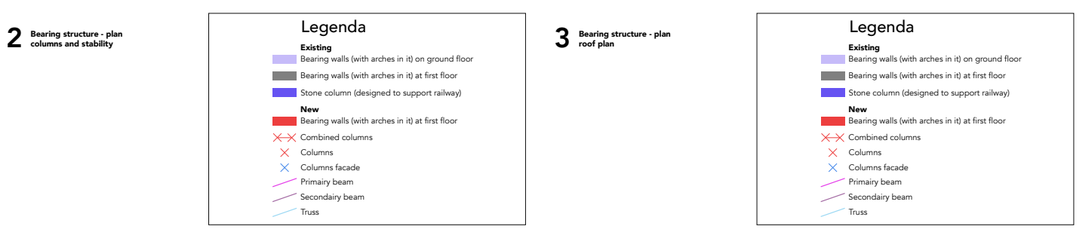
Climate-system greenhouse SUMMER

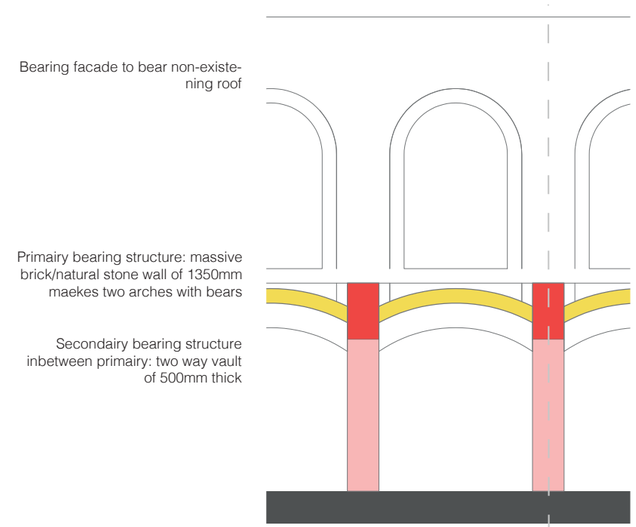
- Green houses are cooled down two ways. From below with a mild cold water. Using the floor heating pipes
- Ventilation air is entering low in the green house through louvres and leaving through opening in the top of the roof
- Energy for cooling the water of floor cooling is obtained from aquifer, gaining cold and pulling back hot water. Based on heat pump system.
- Rain water is collected by gutters and stored in tanks on ground floor. Water is used to water the plants in green house, the gardens in the park and additionally for toilets cafe.
- Sun screens are used during hot sunny days to keep out the sun and in combination with extra ventilation through the roof windows the air is cooled down.
- Palm house: tropical garden, with climate based on palm trees (28-35 C)
- Mediate house: mediteranian garden with less moist (>21 C)
- Orangerie: Cold garden with winter protection. Partially goes out at summer (>15 C)
- Outside border climate control green house

BEARING STRUCTURE

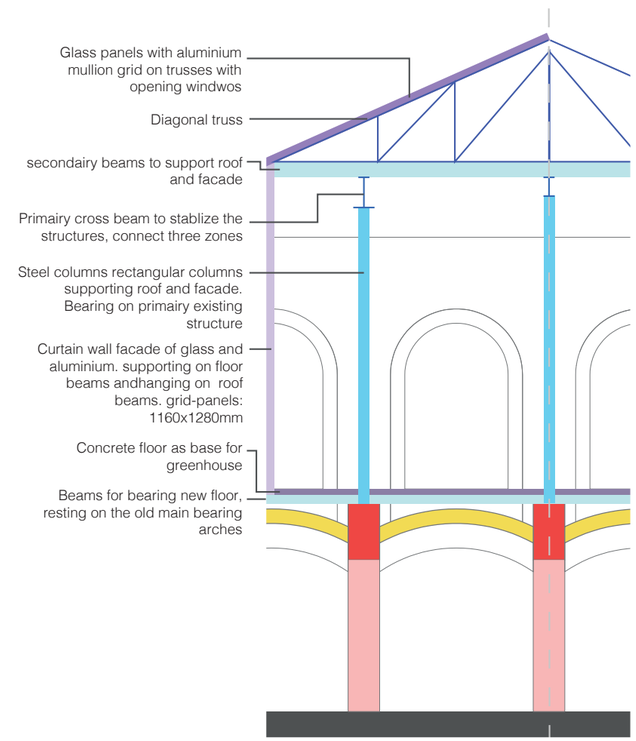








Existing



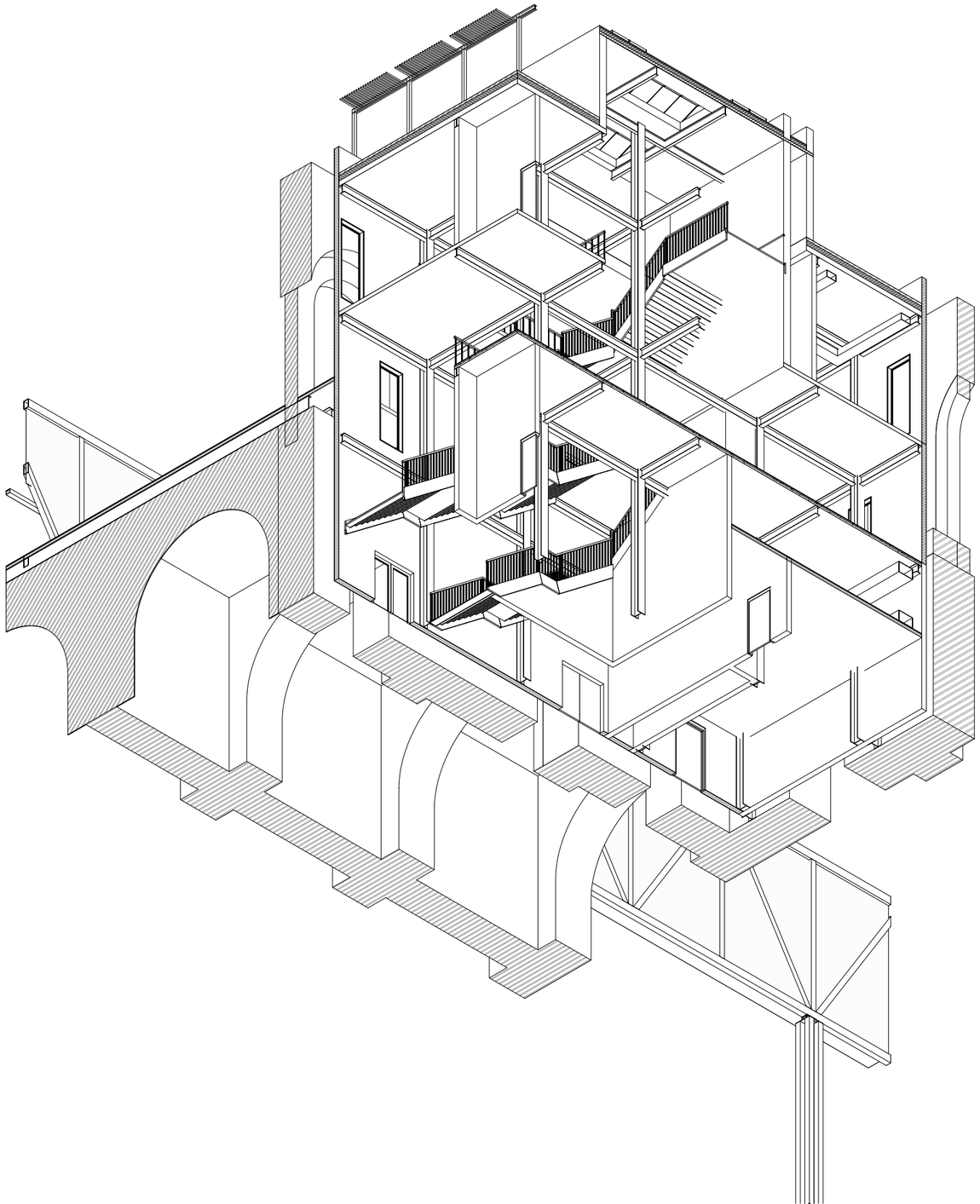
Addition

excavation

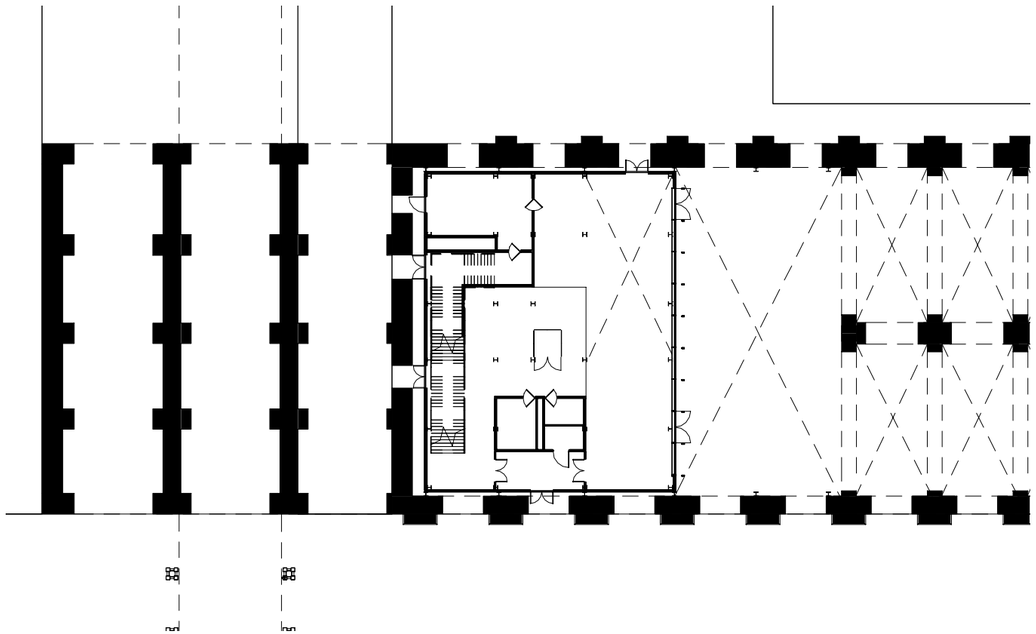
BORDERS & TERRITORIES

EXCAVATING CAFE

CHOISY



PLANS CAFE



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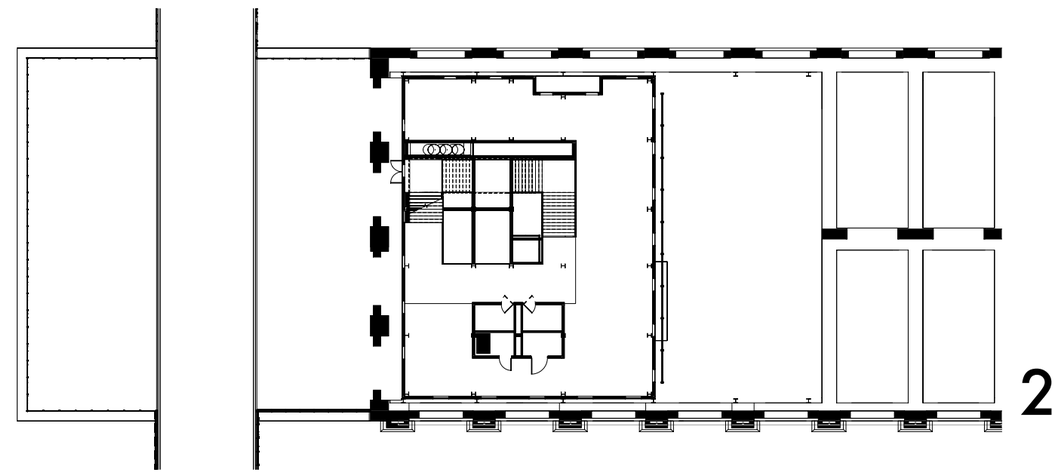

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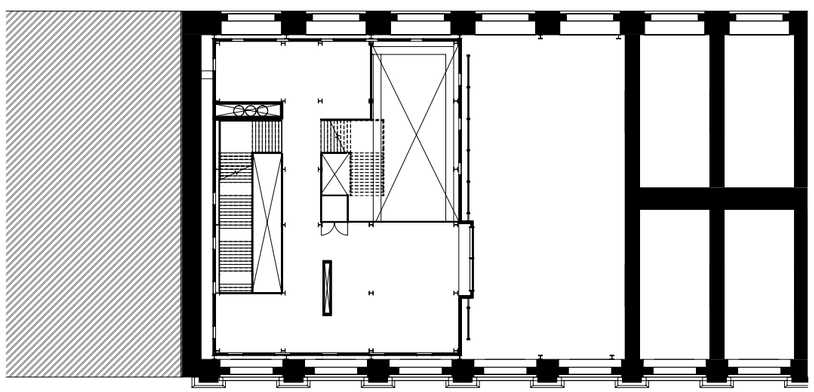

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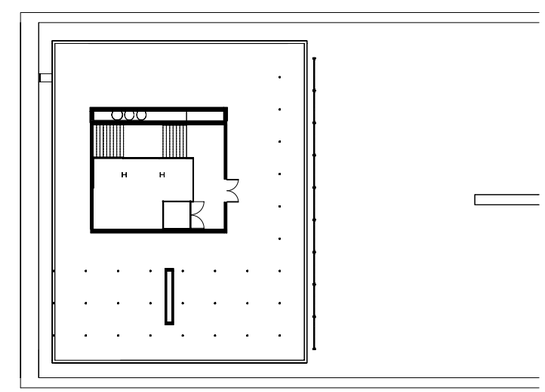
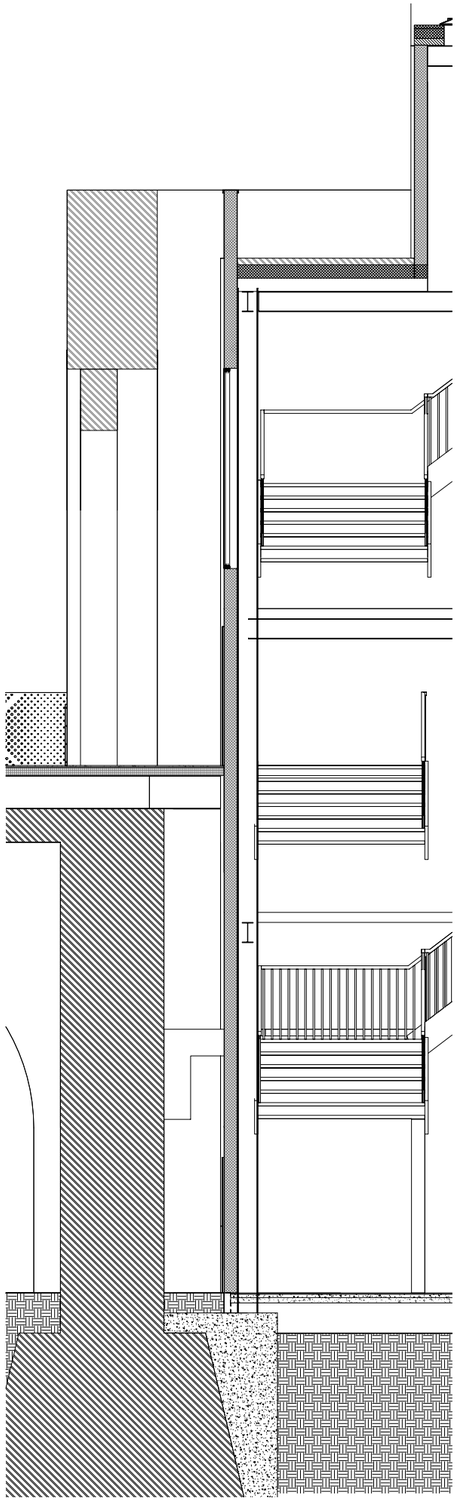
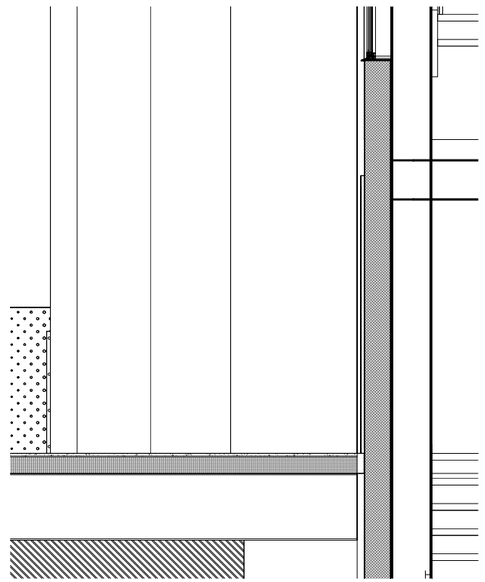


roof

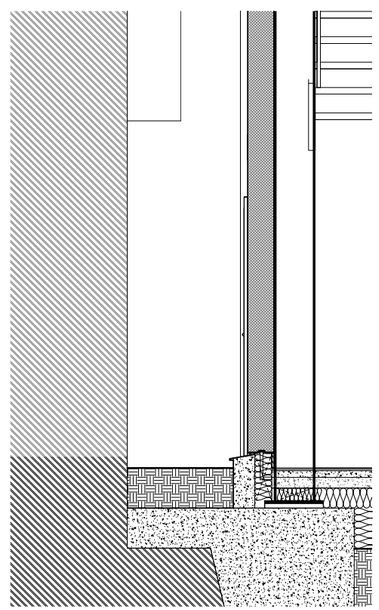
BUILDING DESIGN



foundation new columns
rests on existing over
dimensioned foundations
through new layers of
concrete on top of existing
brick



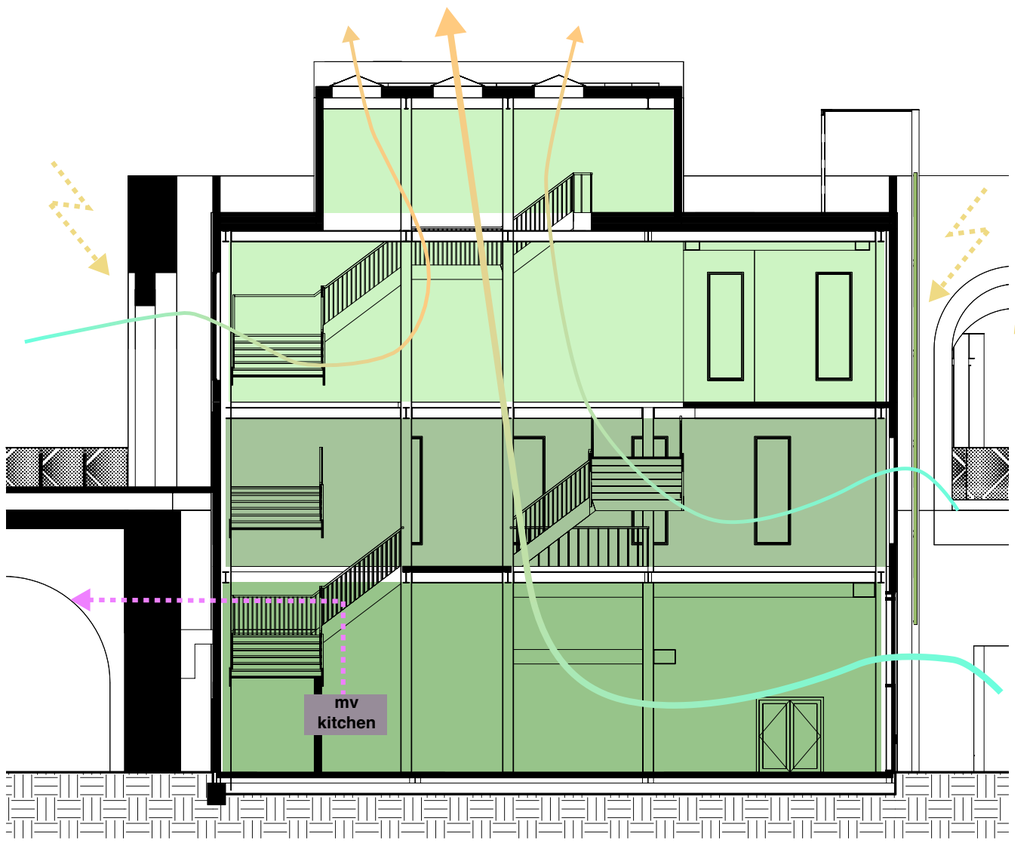
facade outside first:
sandwich panel (steel - pur foam insu-
lation - steel) 200mm
steel HEA-305 column/beam

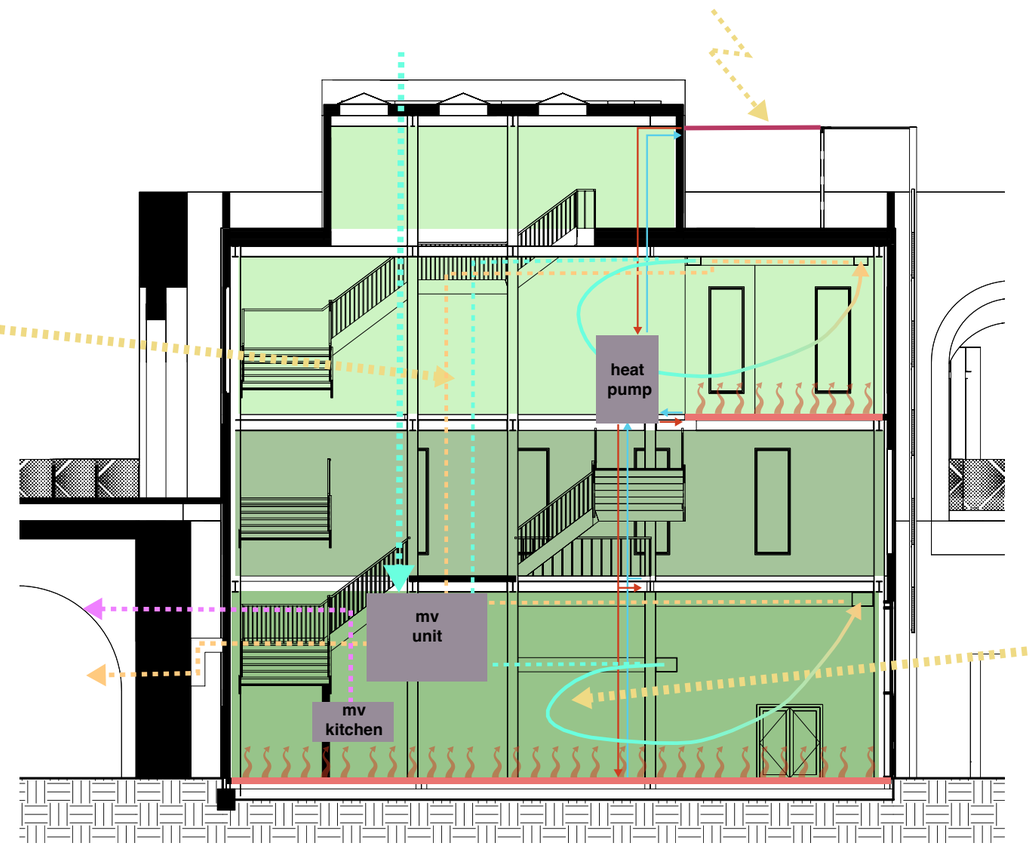


facade outside first:
sandwich panel (steel - pur foam insu-
lation - steel) 200mm
steel HEA-305 column

flooring
top floor 20mm
substrate 10mm
deck floor with floor heating 50mm
precasted concrete floor 70mm
insulation 300mm

CLIMATE DESIGN





Building has natural ventilation throug window louvres and opening windows on the different floors. In combination with roof lights on the top floor this creates a thermic flow of air ventilating and cooling the building.

Building is behind the old walls, preventing the sun to heat the building.

A green wall creates a screen before the south facade, through the moist created by the plants it cools down the air around.

exhausted air from ktichen goes through seperate system directly out the building

Cafe area is densly used with place for 60 people

first floor is transition space and can be used both as horeca and as exposition space

second floor is reasonably quiet space to move on to the roof terrace.

Climate-system excavation
SUMMER

Building is heated through floor heating on every floor, floor heating is connected to heat pump

Building has mechanical ventilation in winter with entrance and exit points covering the full building.

Energy for heating the water of floor heating is obtained from a system of PV-tubese on the roof, gaining heat from the sun.

Building has deep window sills to allow sun in winter to enter and in summer to stay out

exhausted air from ktichen goes through seperate system directly out the building

Cafe area is densly used with place for 60 people

first floor is transition space and can be used both as horeca and as exposition space

second floor is reasonably quiet space to move on to the roof terrace.

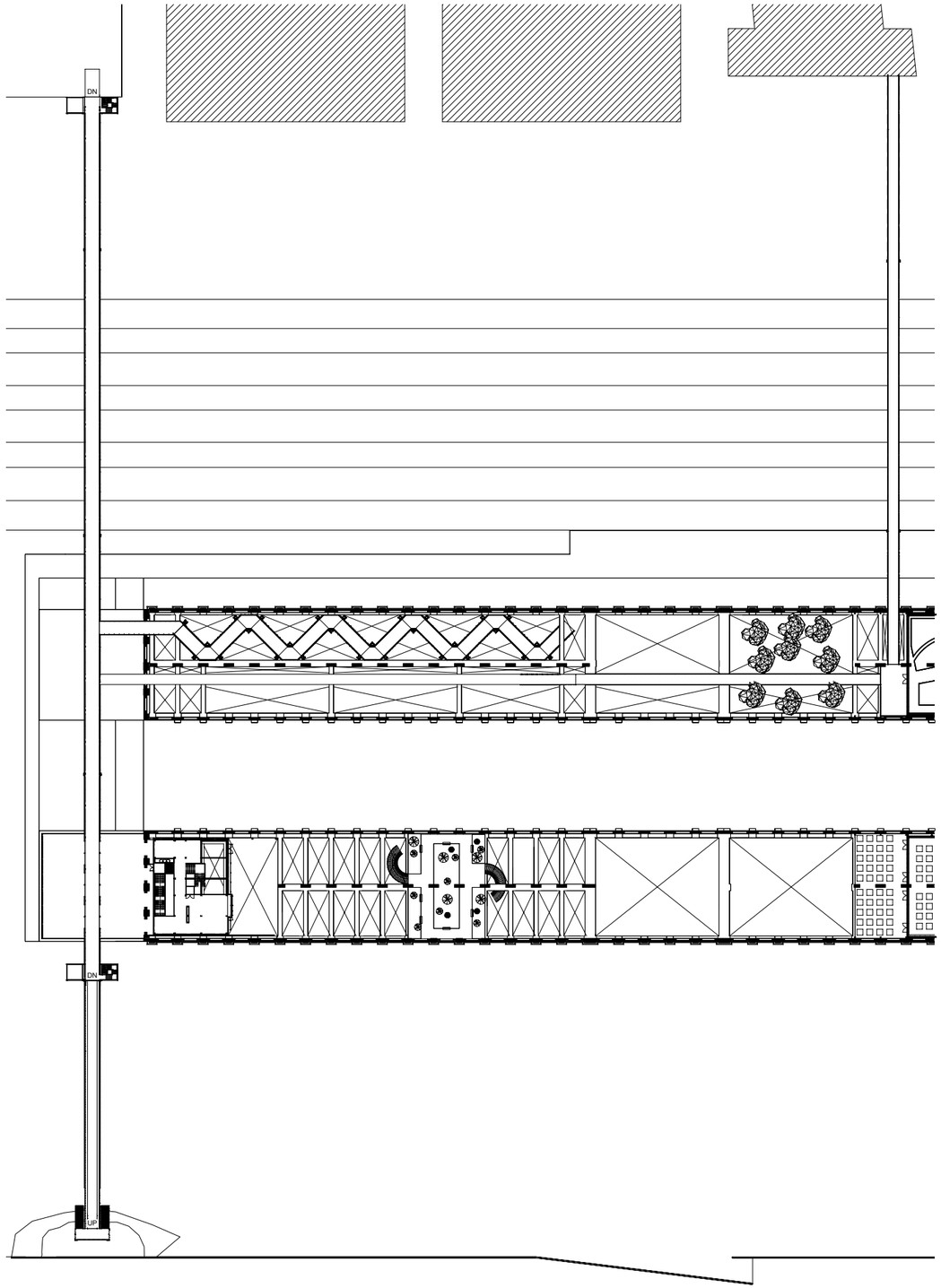
Climate-system excavation
WINTER

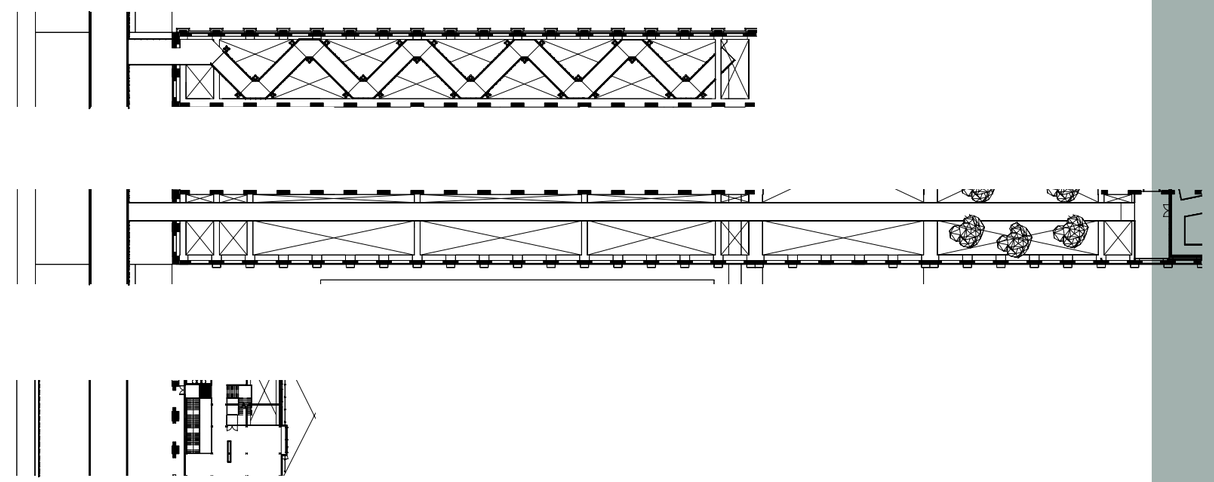
connection bridges

BORDERS & TERRITORIES

BEGIN BRIDGE AT PARK

DIFFERENT ELEMENTS

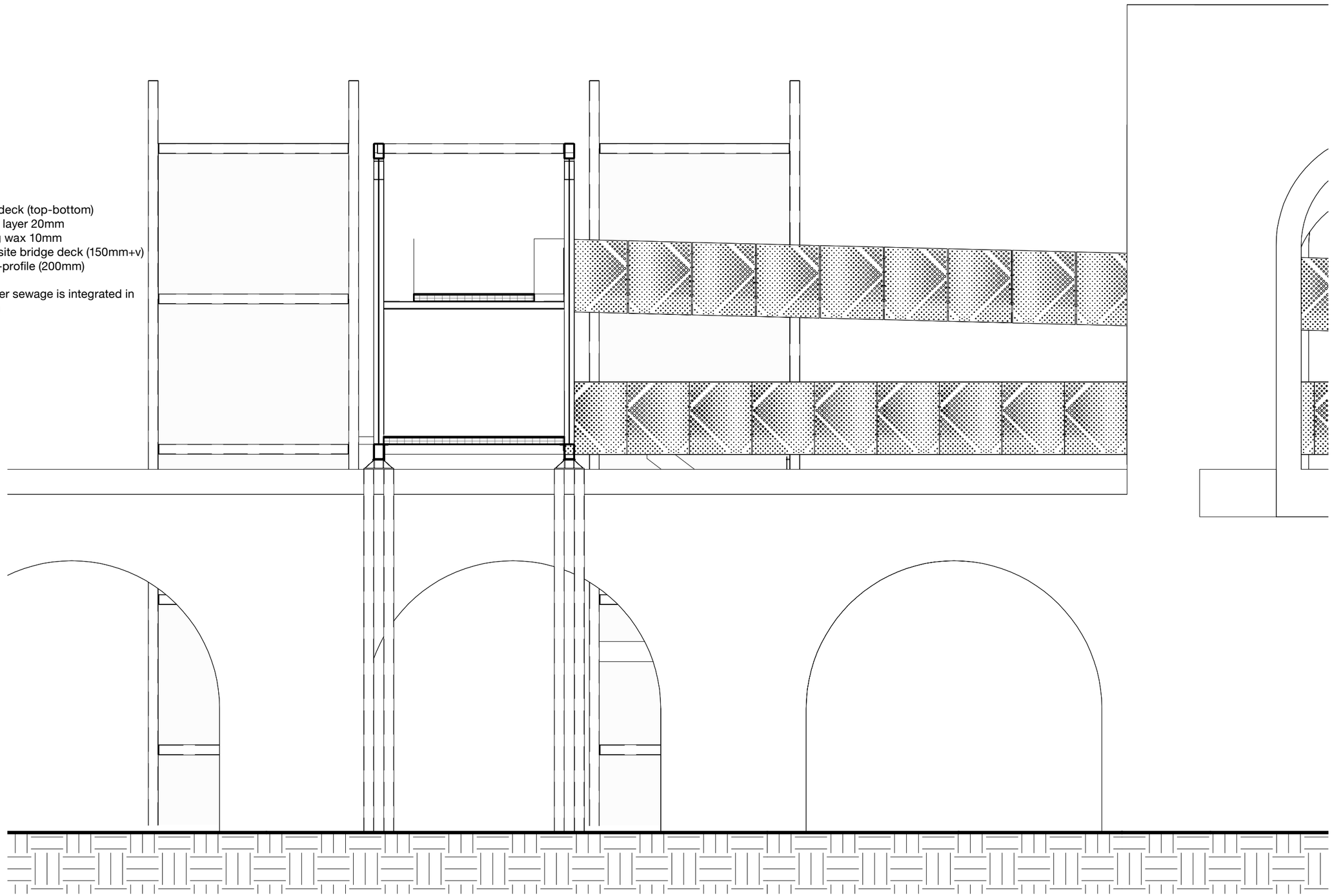




SUDBAHN SILO'S

bridge deck (top-bottom)
asphalt layer 20mm
topping wax 10mm
composite bridge deck (150mm+v)
steel C-profile (200mm)

rainwater sewage is integrated in column



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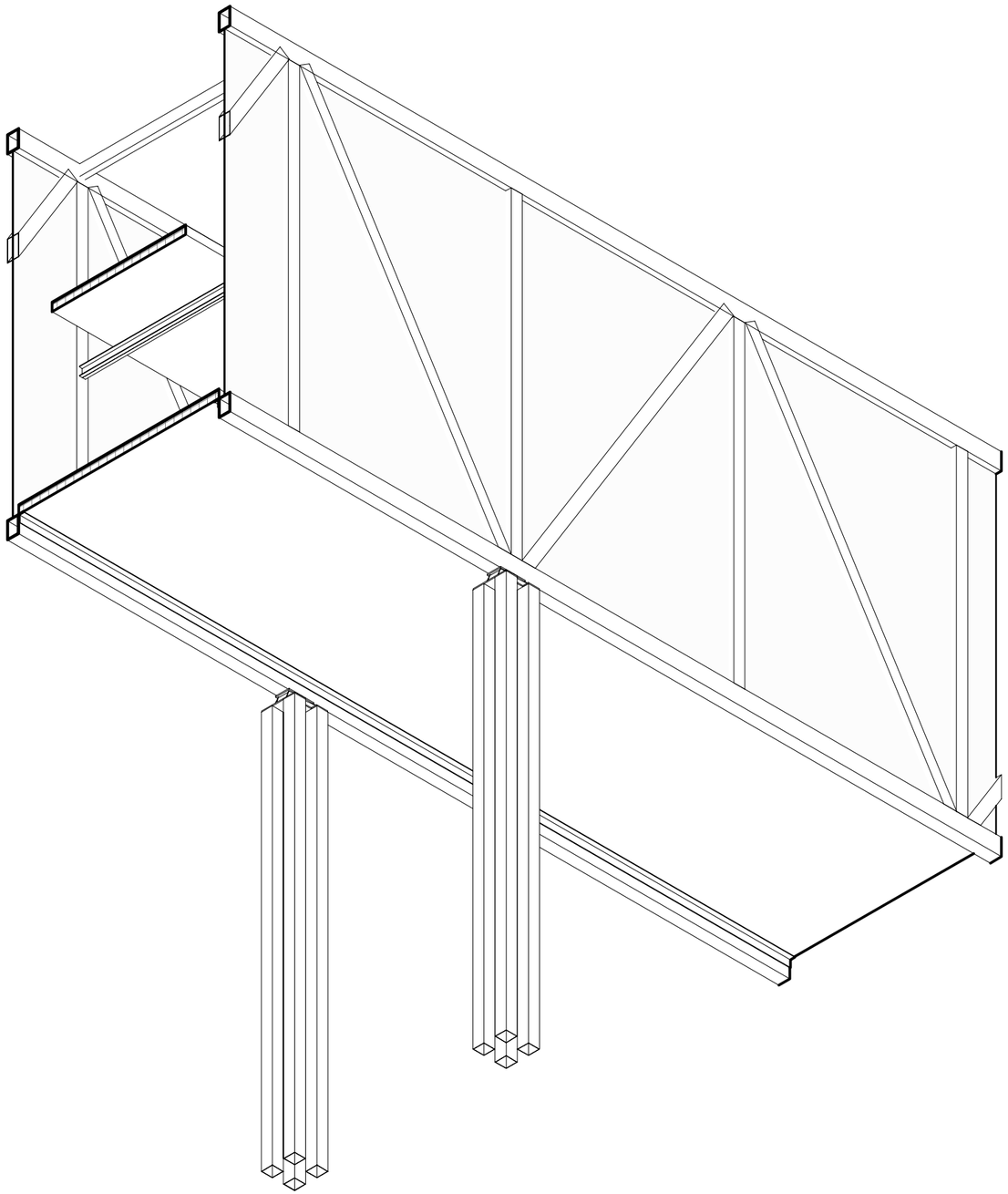

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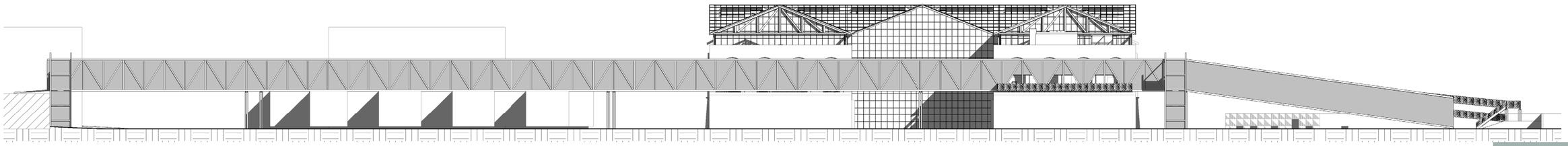
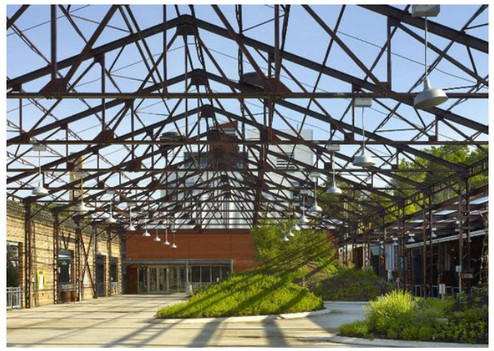
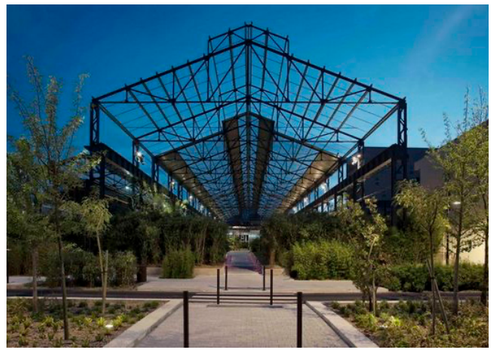


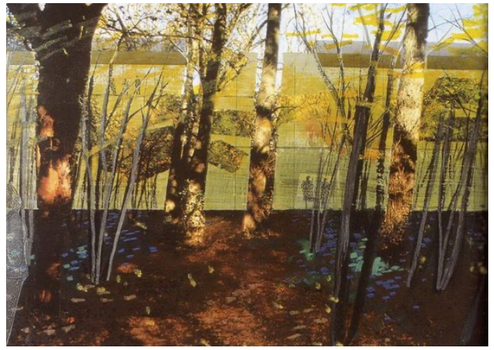
excavation references

BORDERS & TERRITORIES












sudbahn silos

reflection

BORDERS & TERRITORIES

LIMITATIONS

TO DO'S

questions?

BORDERS & TERRITORIES

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