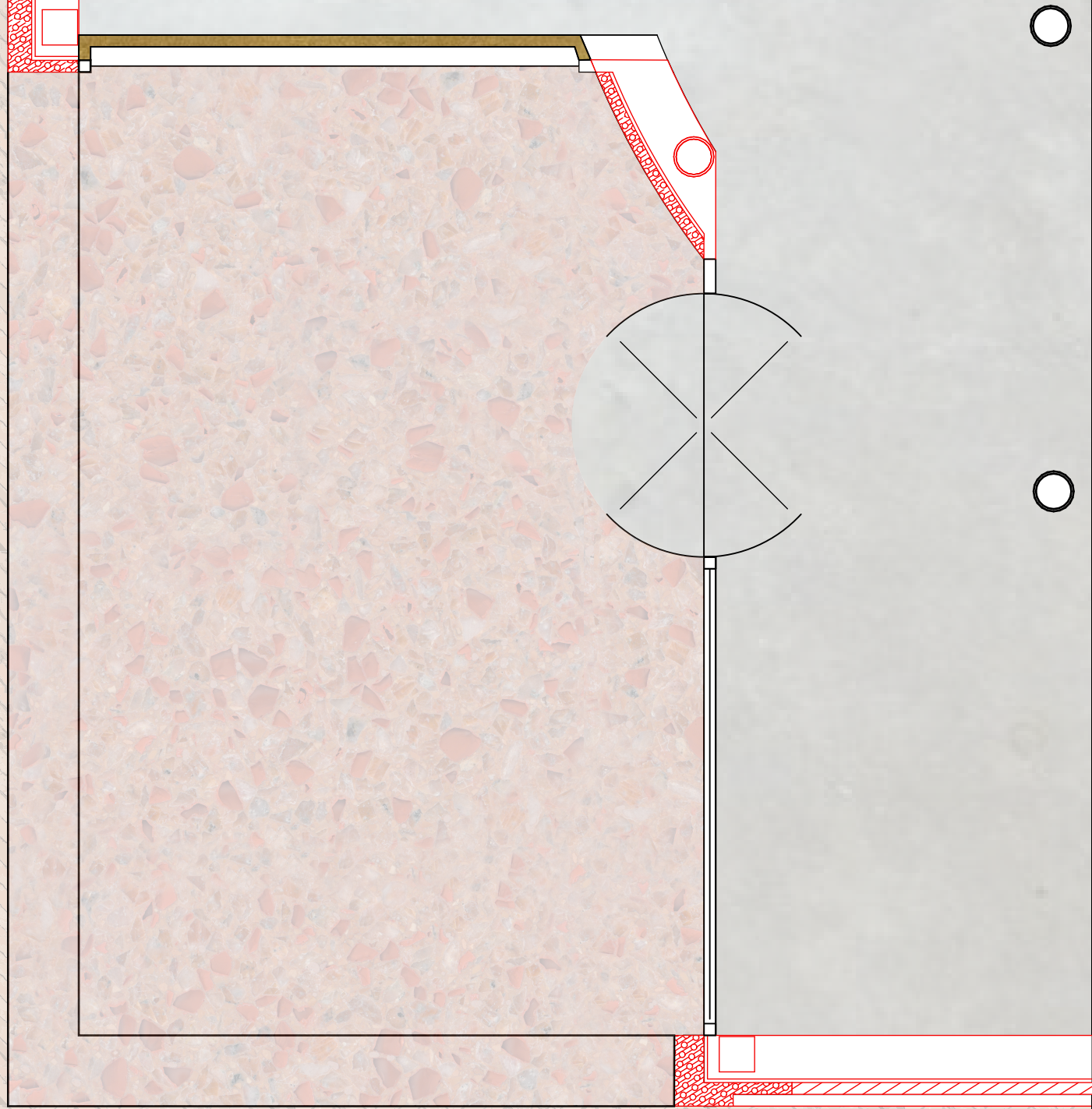
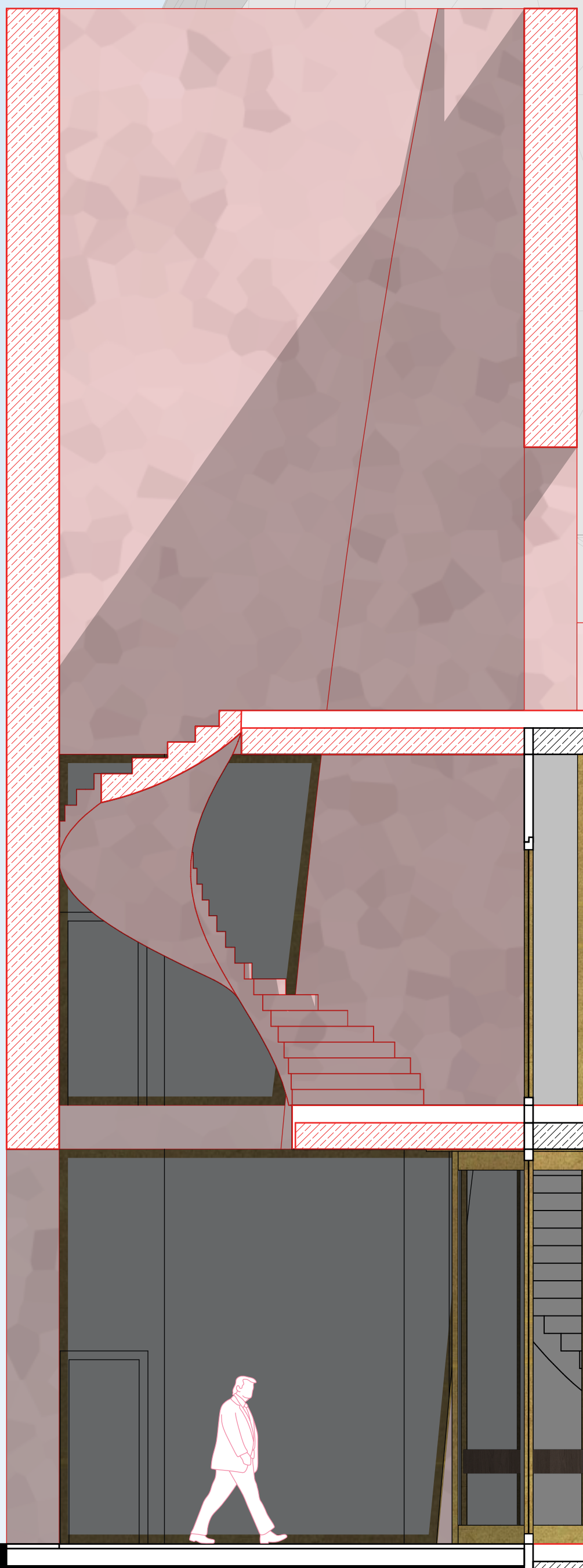
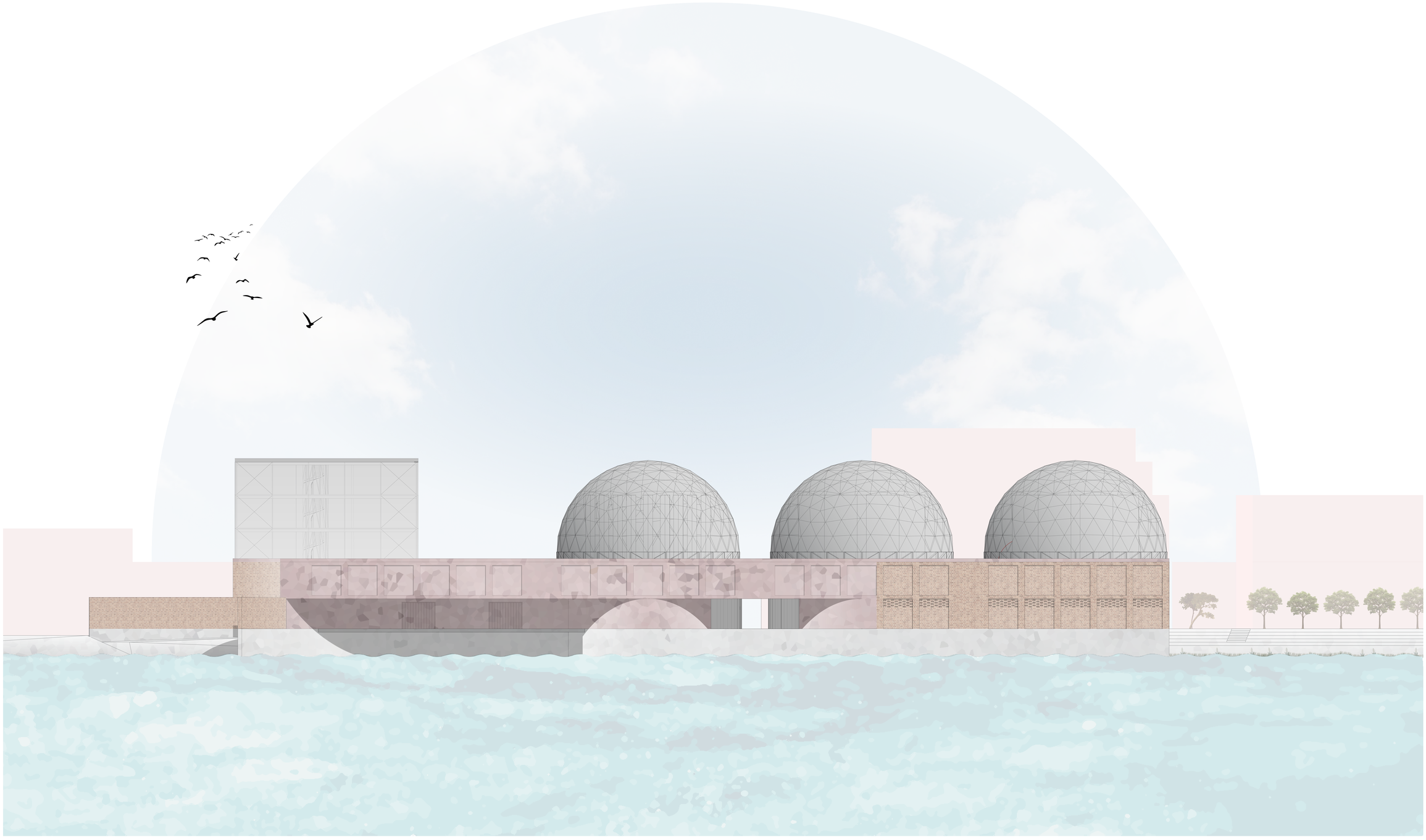


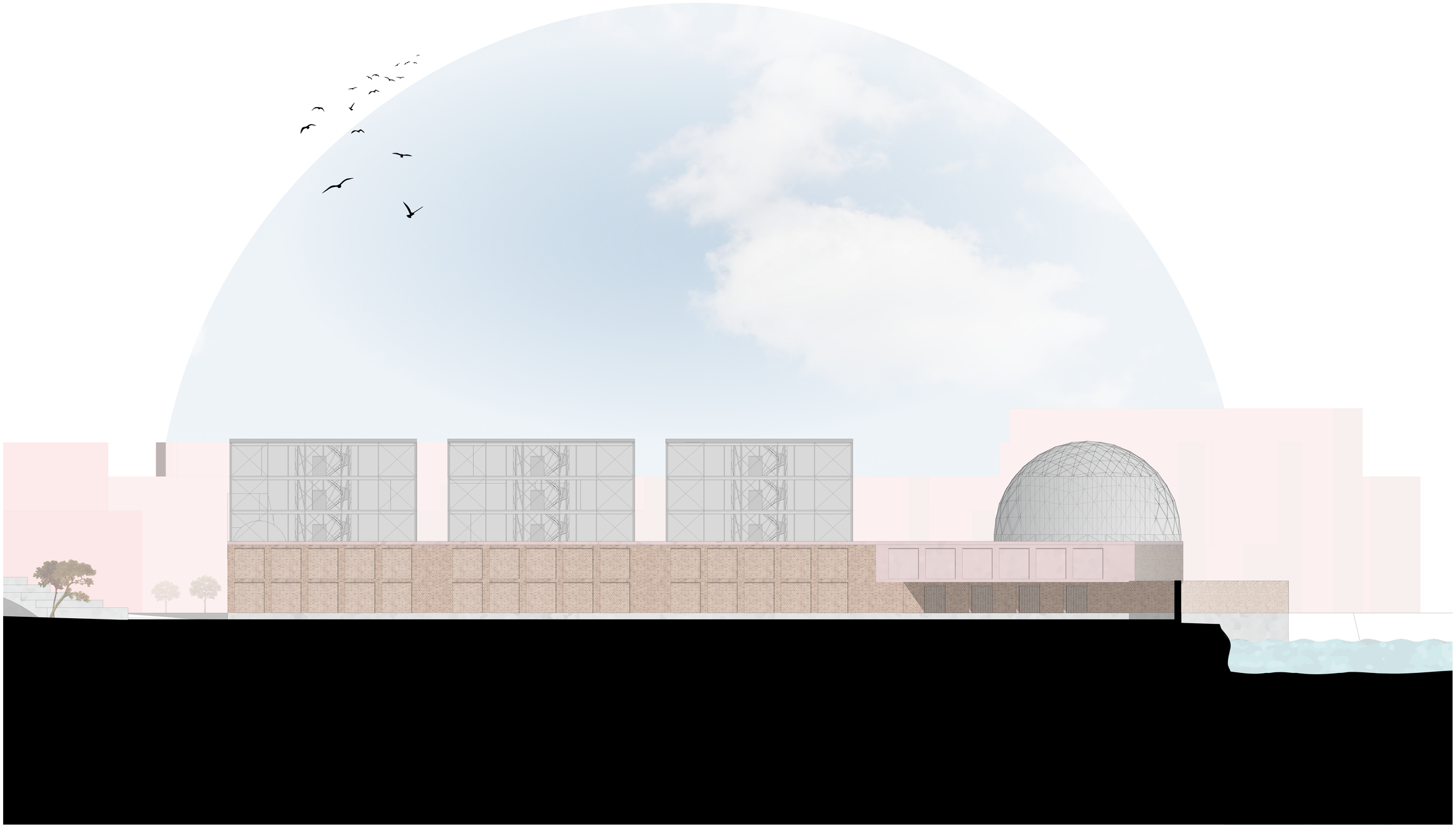
Make
Food
Great
Again



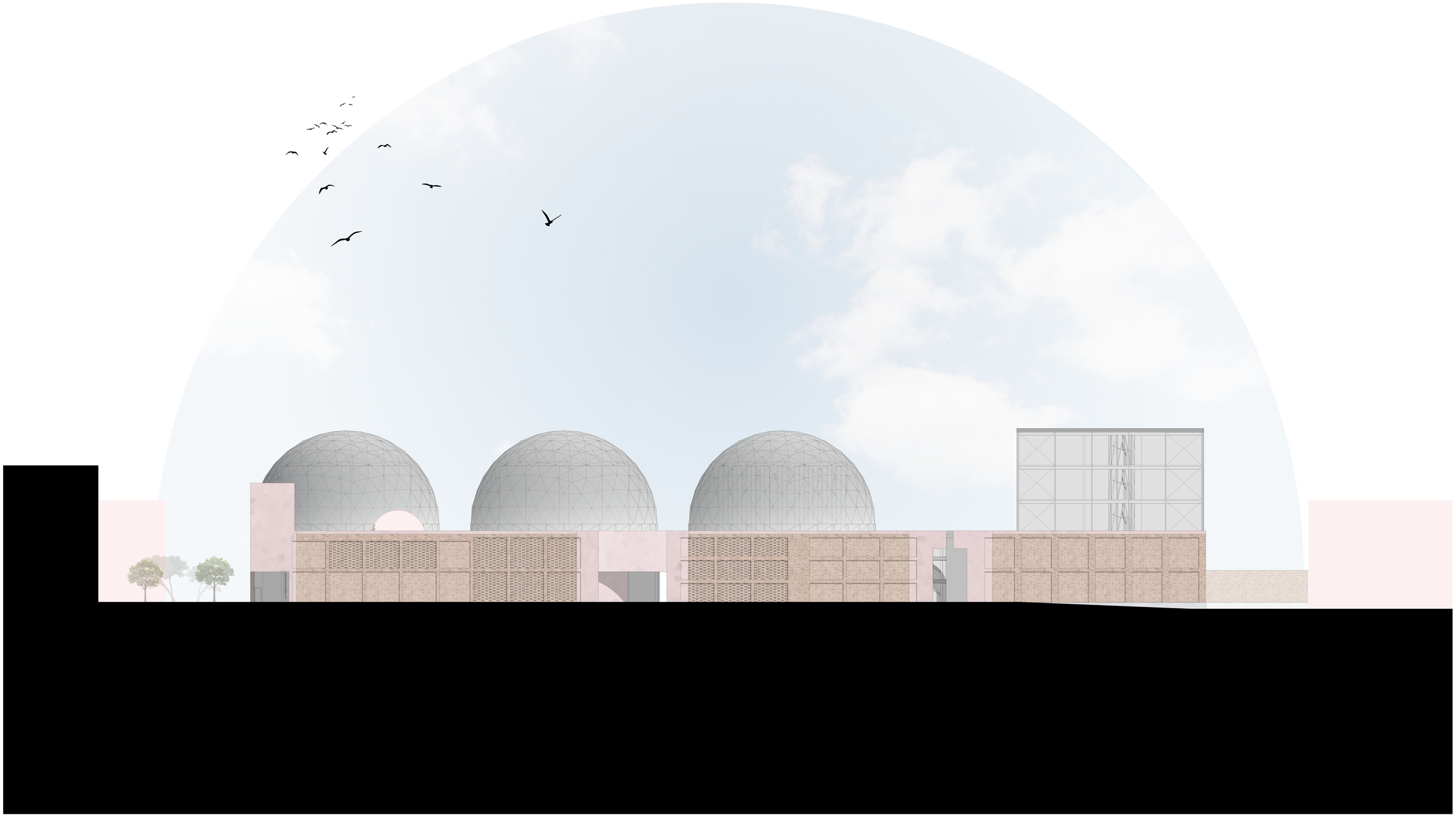




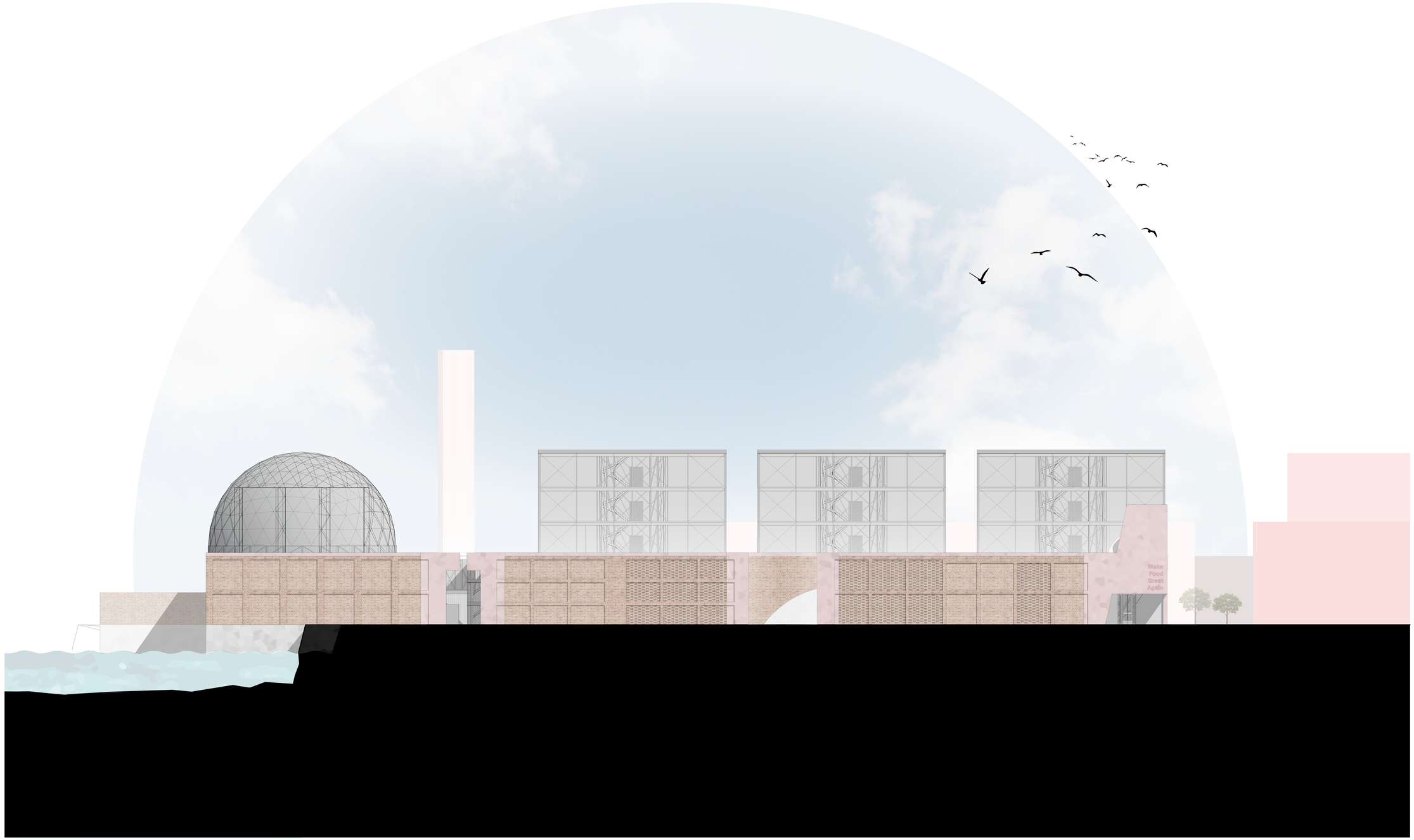
1 2,5 10 m
1,5 5



1 2,5 10 m
1,5 5

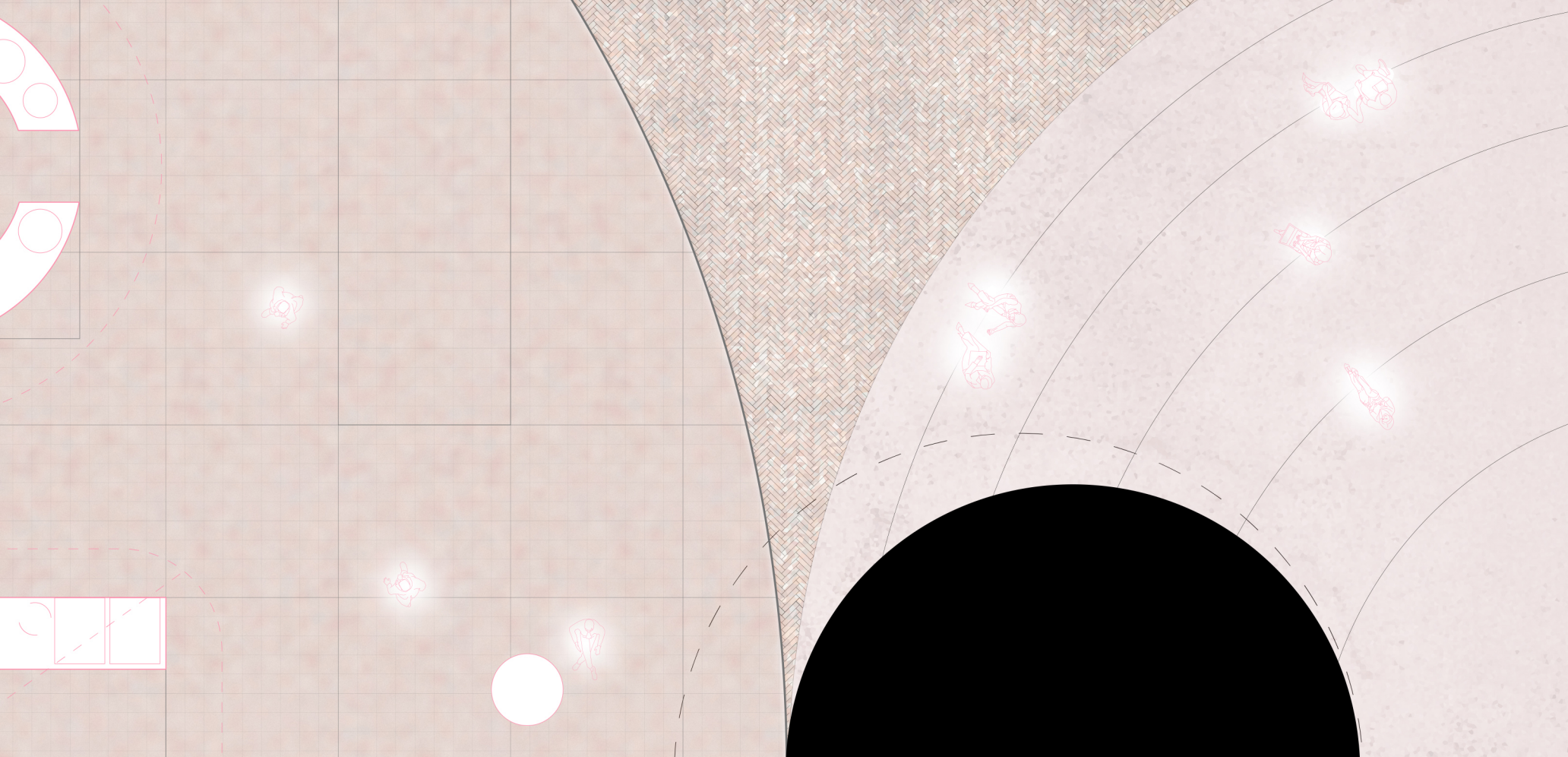


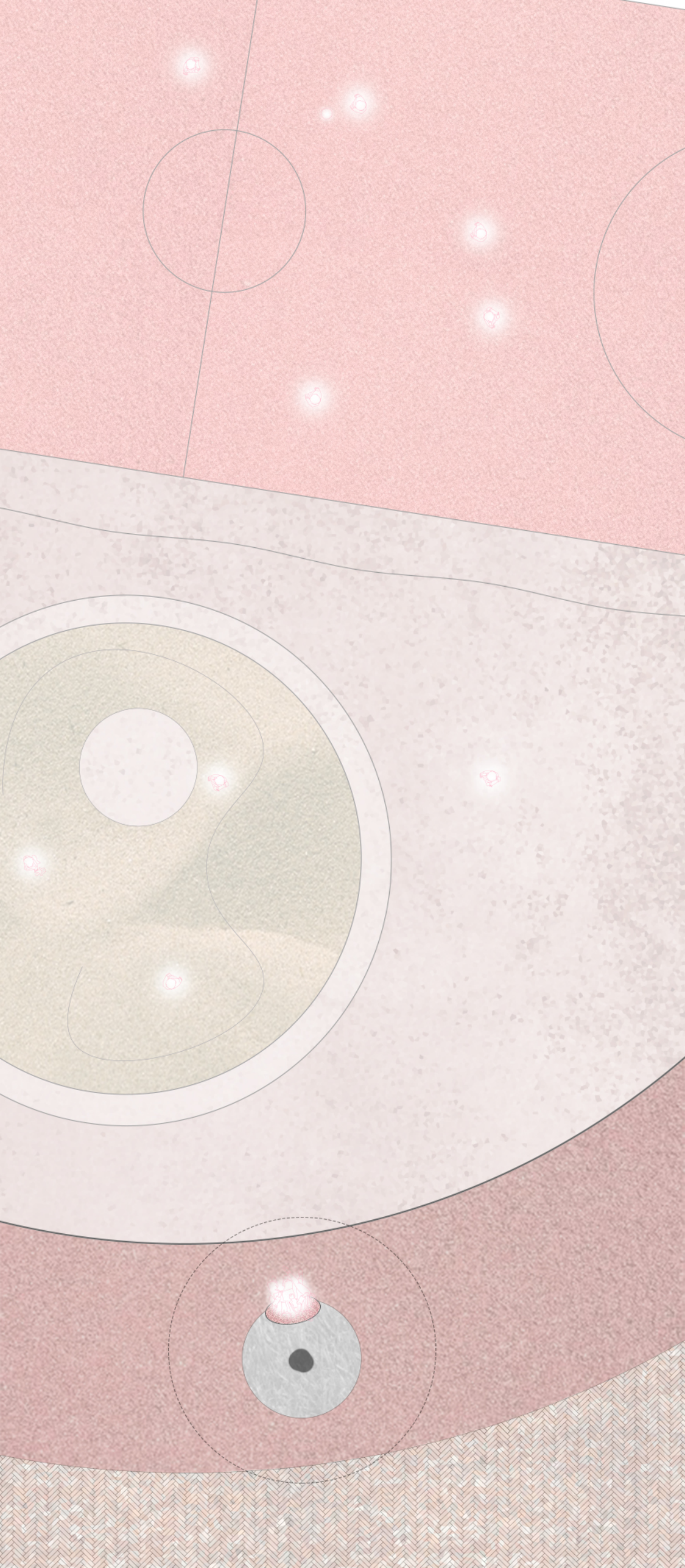
1 2,5 10 m
1,5 5



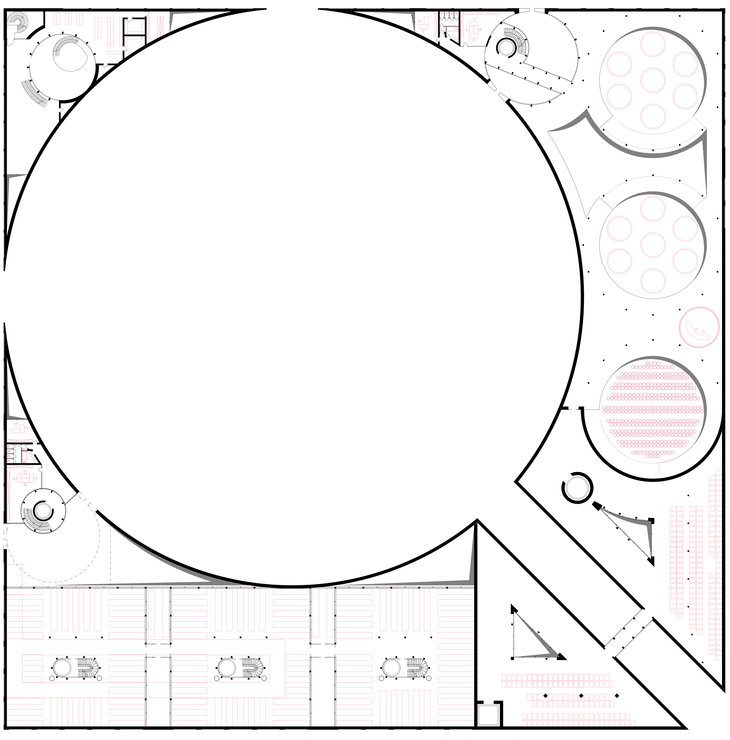
1 2,5 10 m
1,5 5

0 5 10m



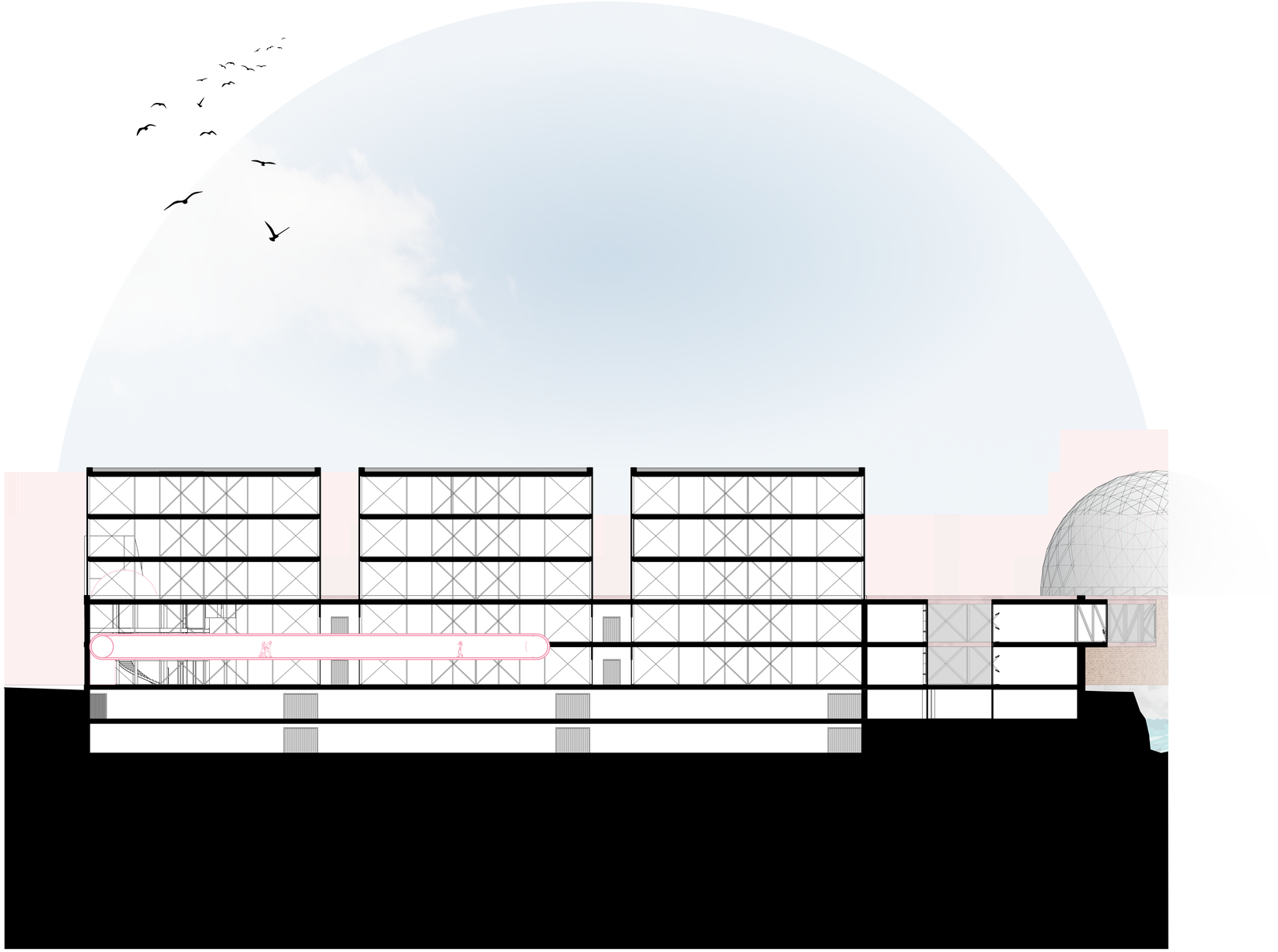


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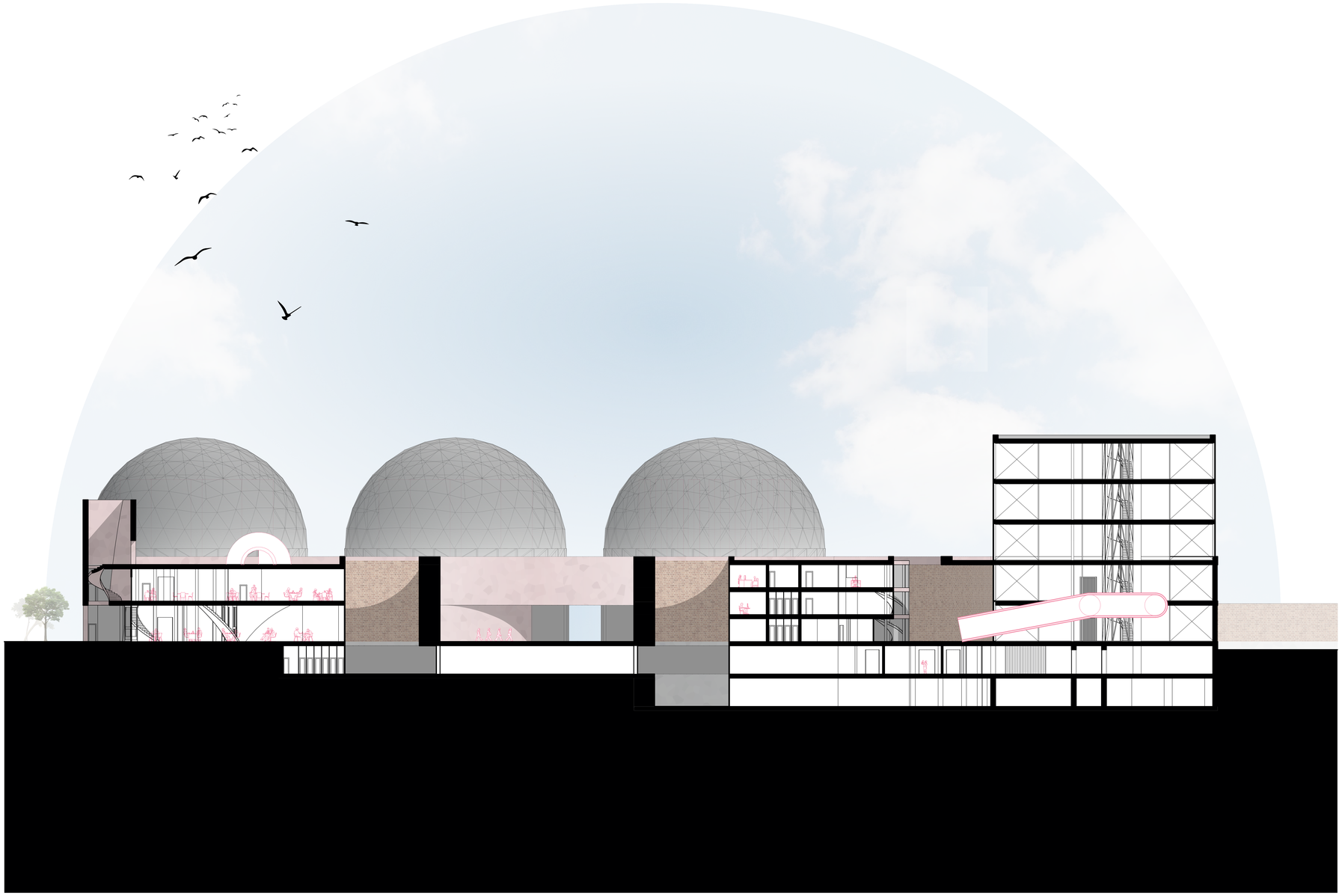




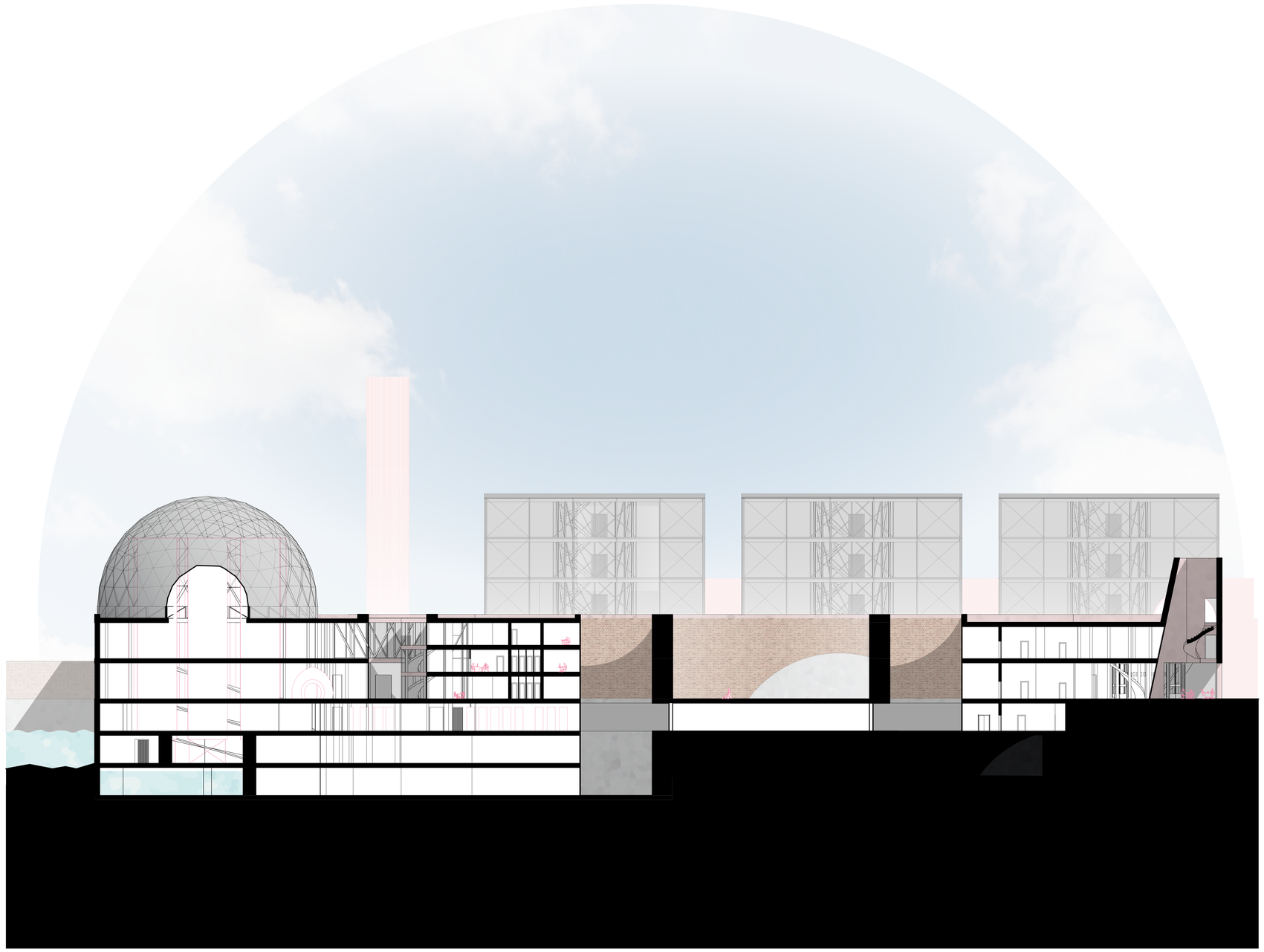
1 2,5 10 m
1,5 5



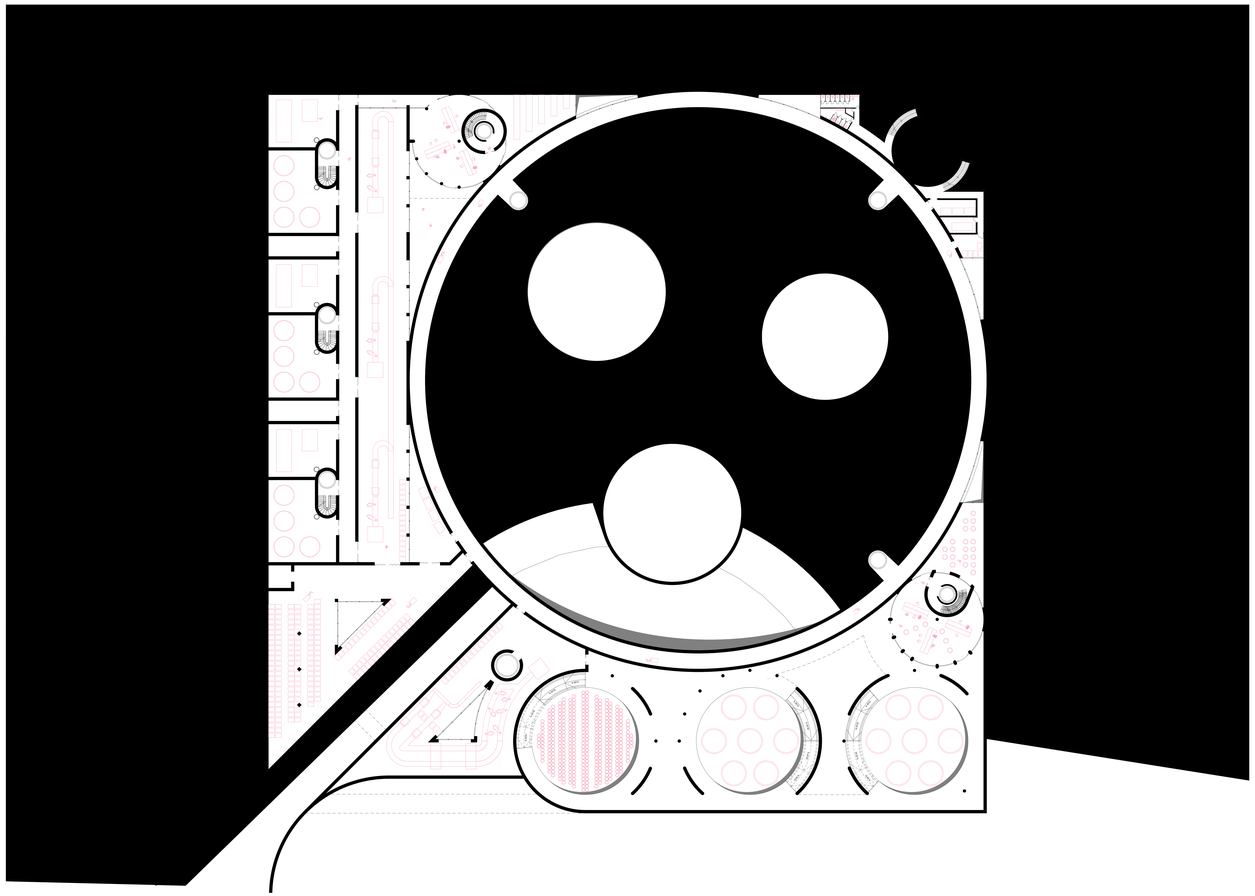
1 2,5 10 m
1,5 5

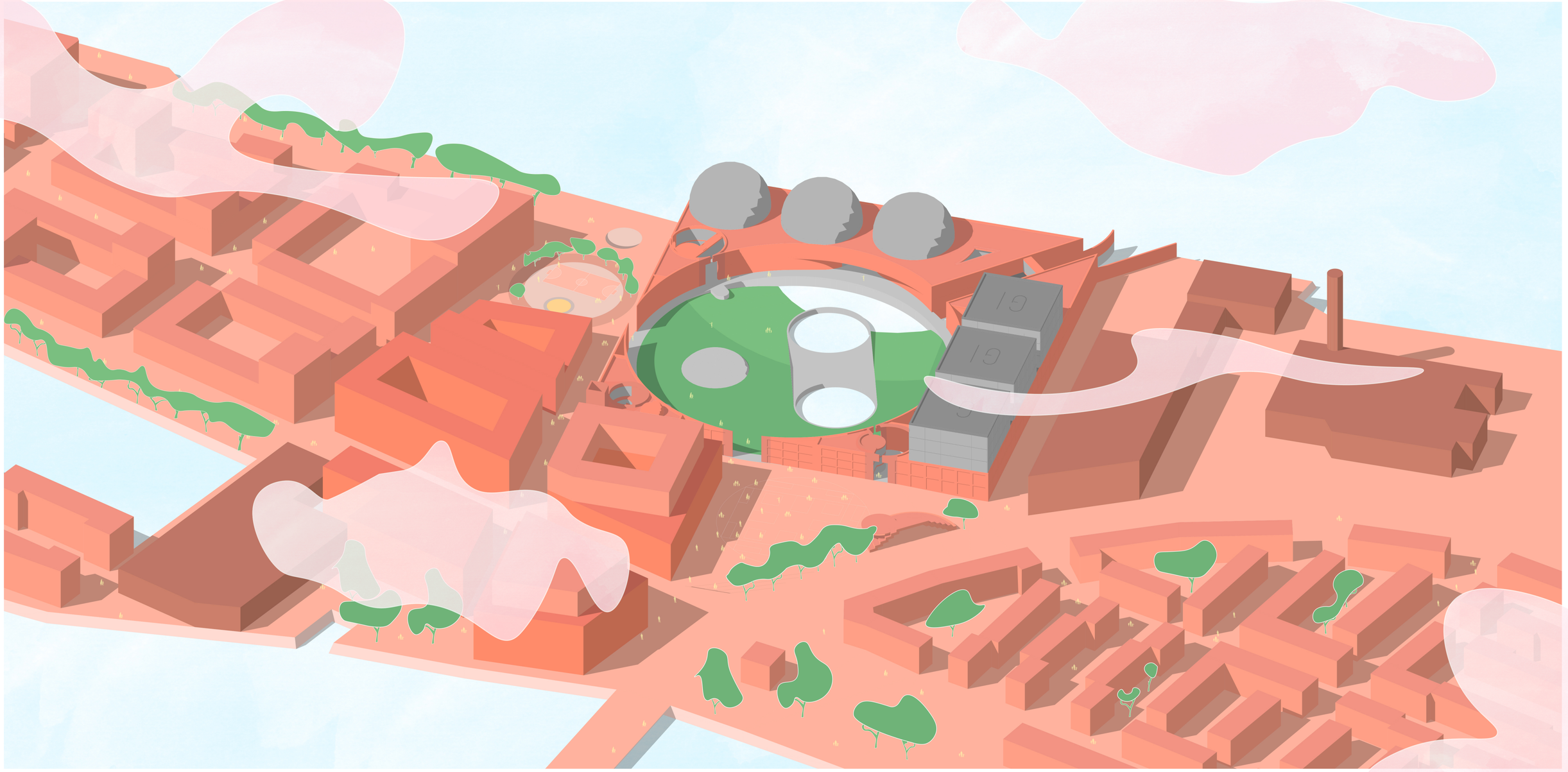


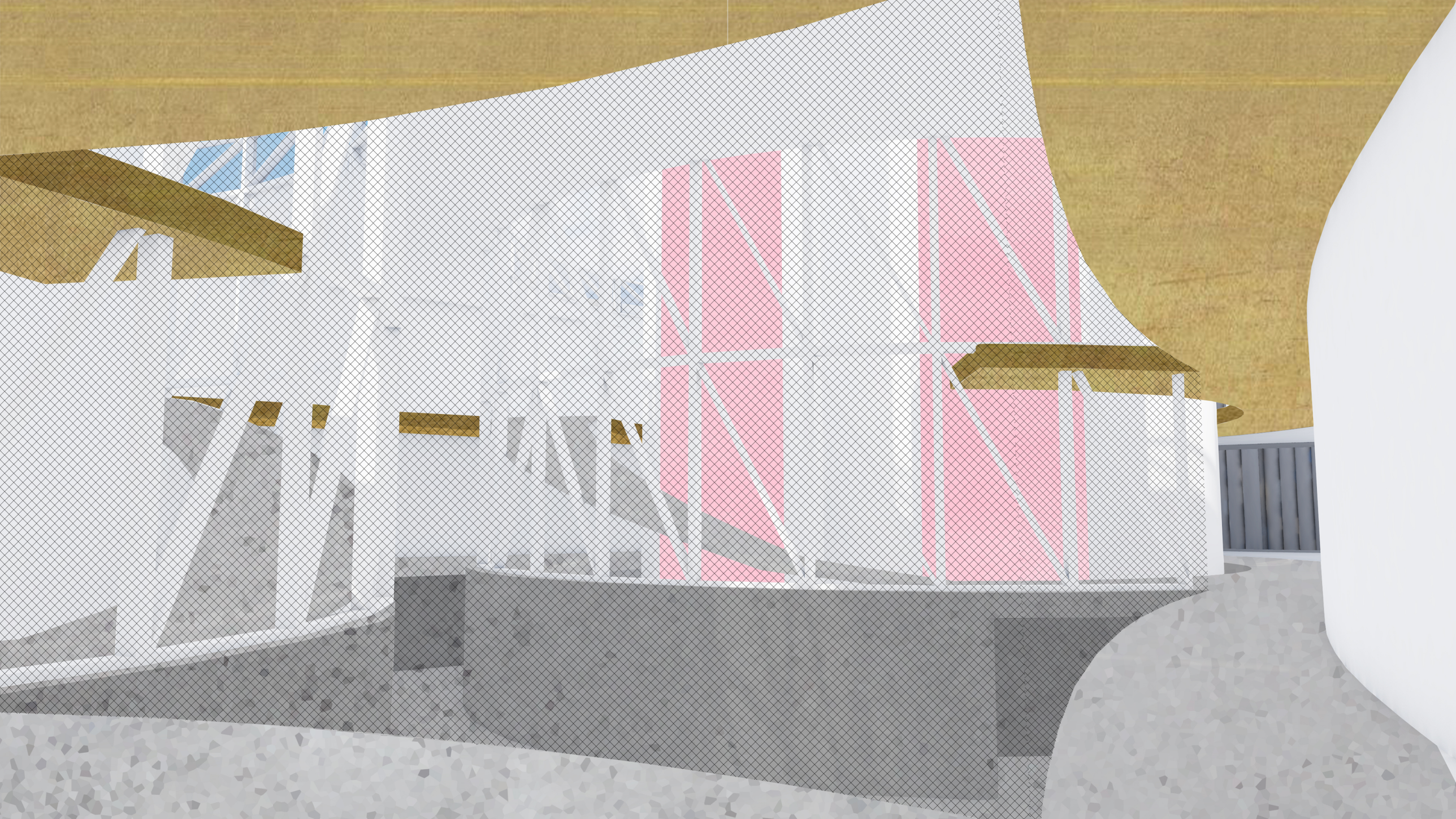
1 2,5 10 m
1,5 5



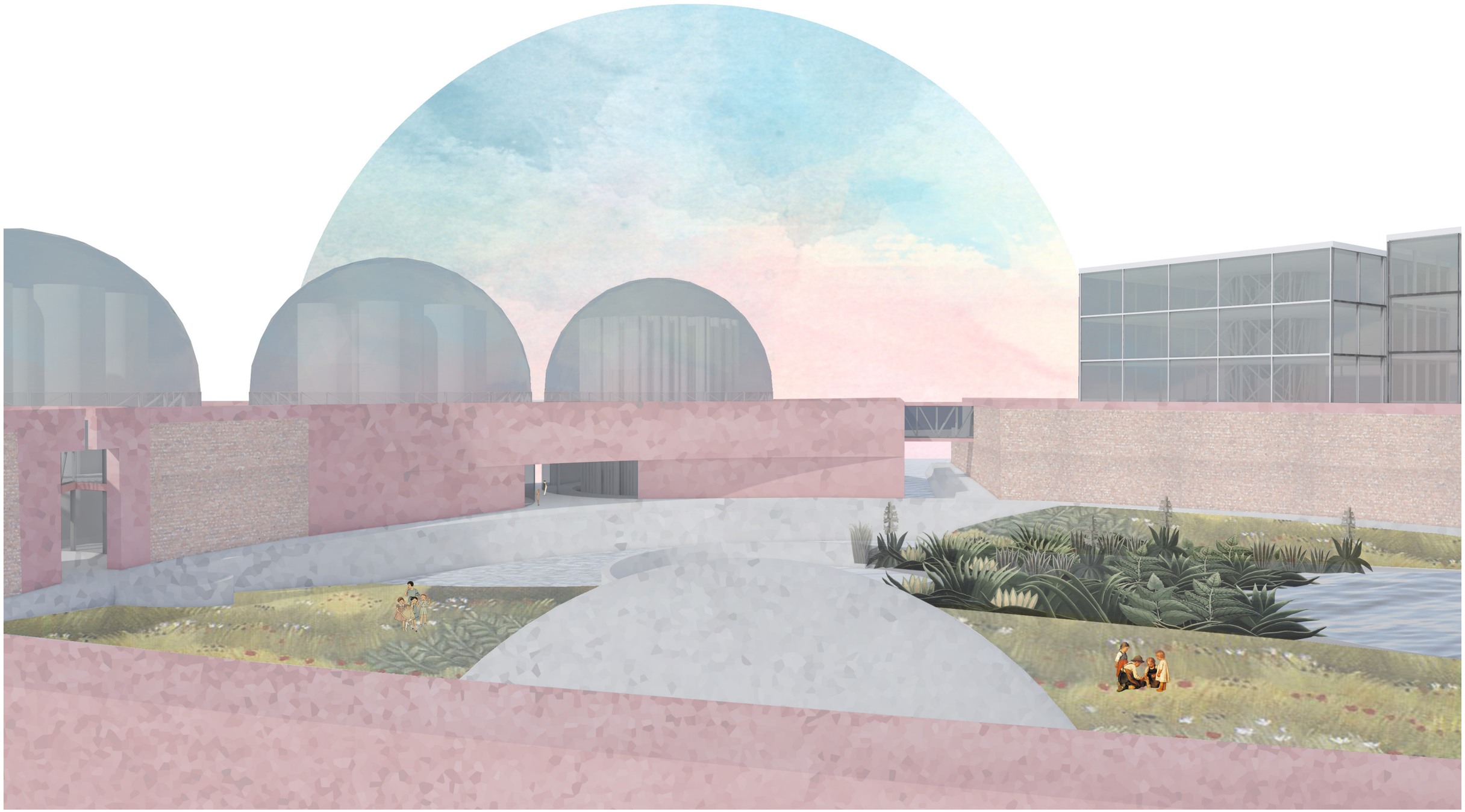
1 2,5 10 m
1,5 5

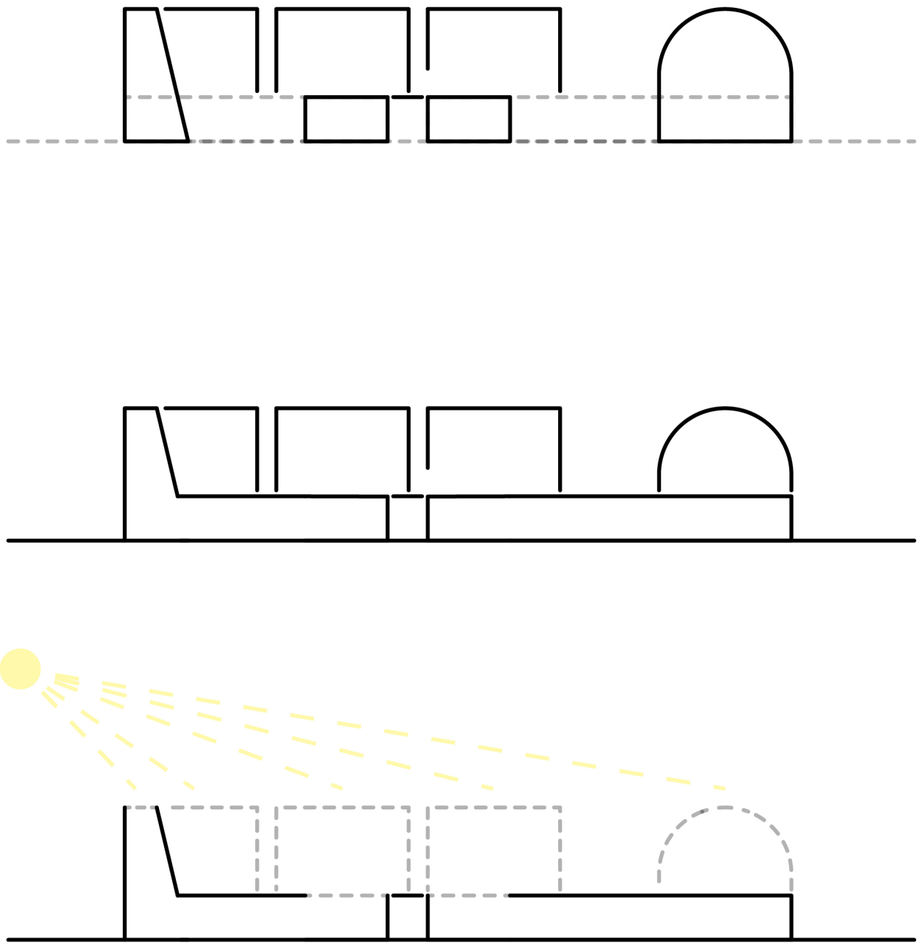


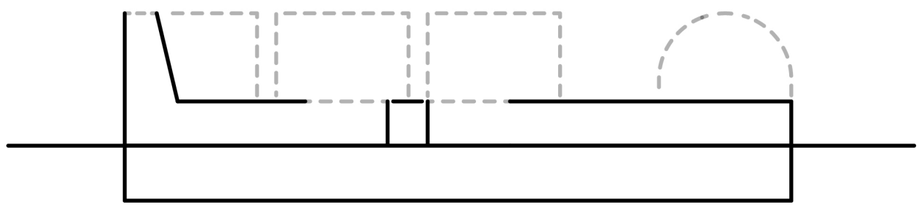








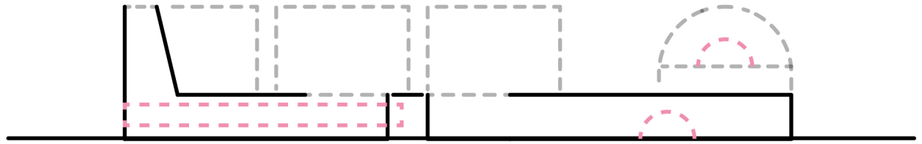




Steel Glass - *option to grow or shrink*

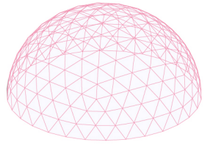
Brick Facade - *long life time*

Solid Base - *longest life time*

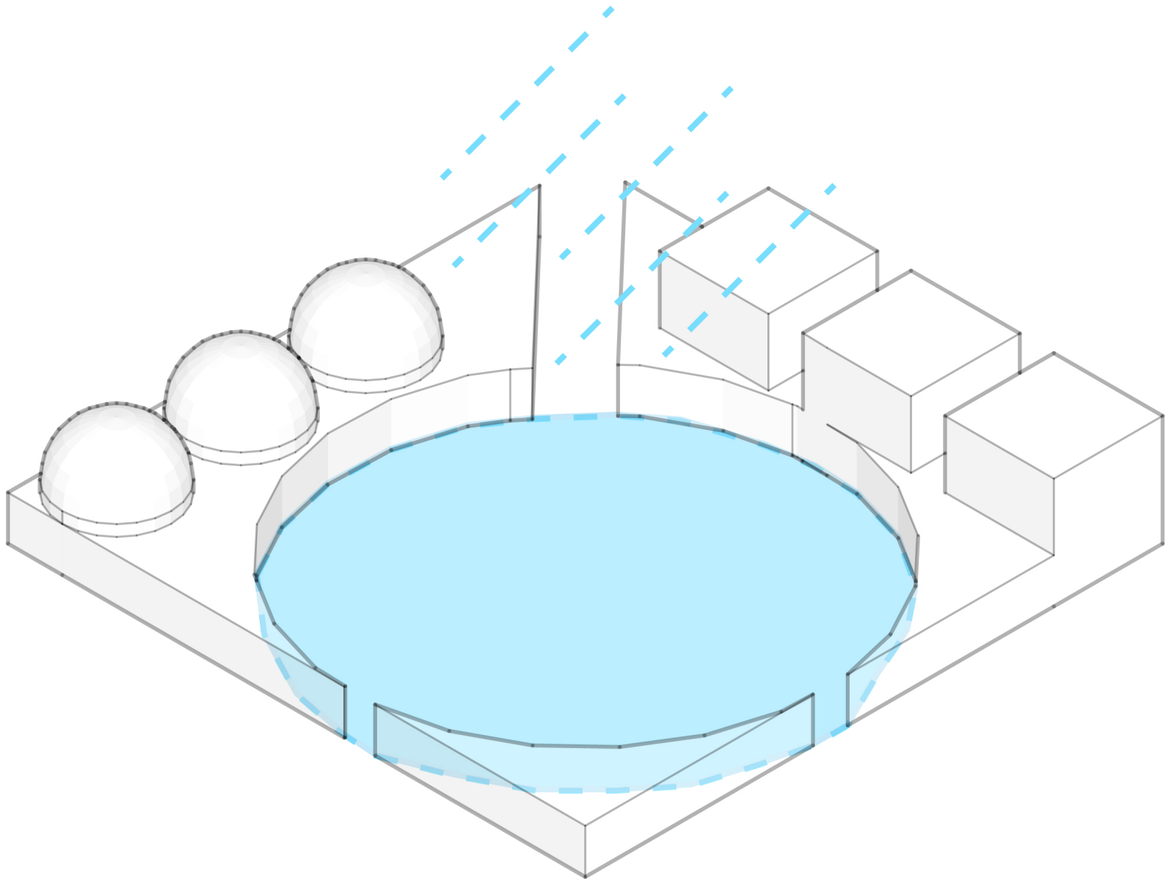


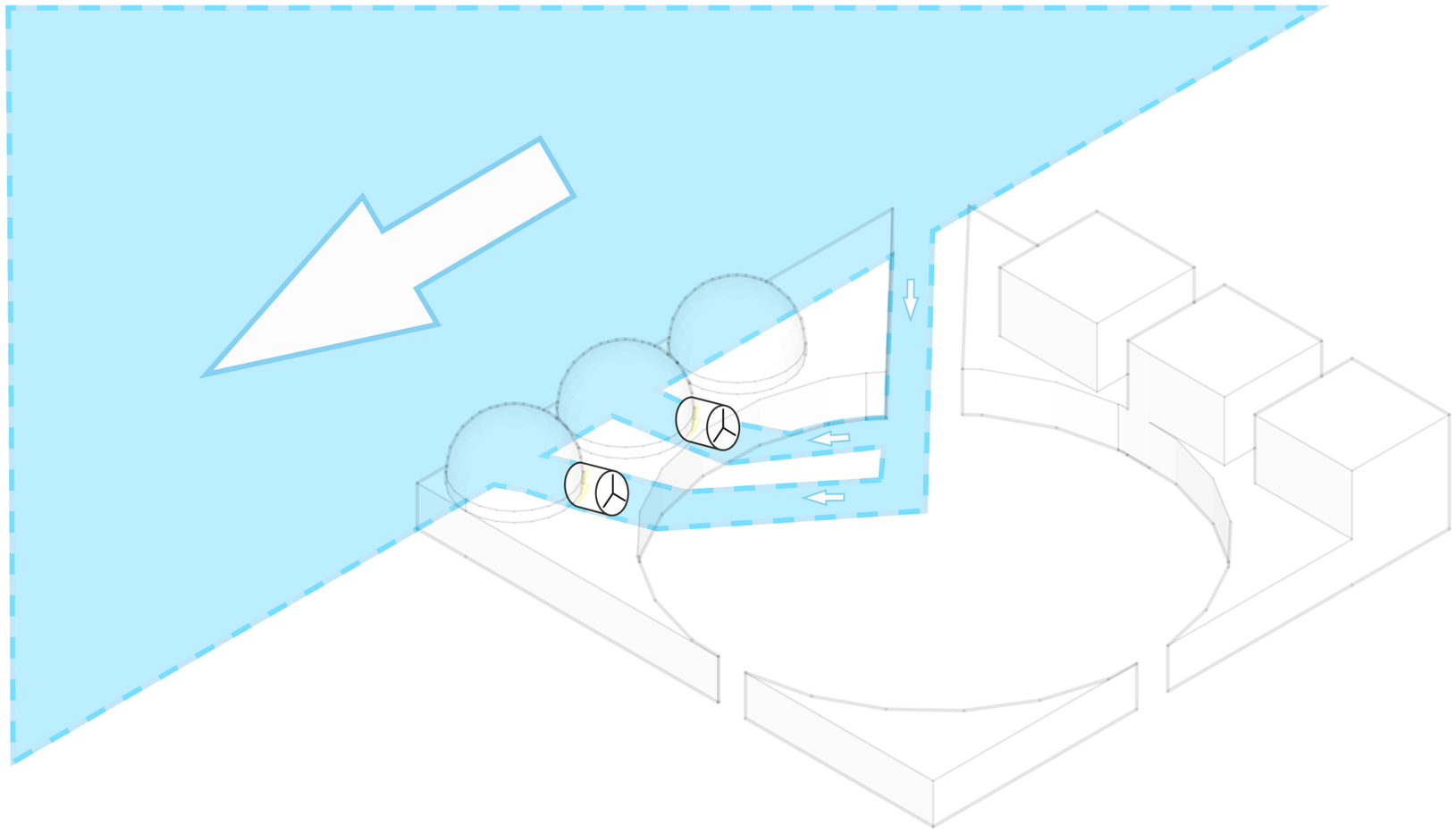
Domes - *temporary structures to increase adaptability*

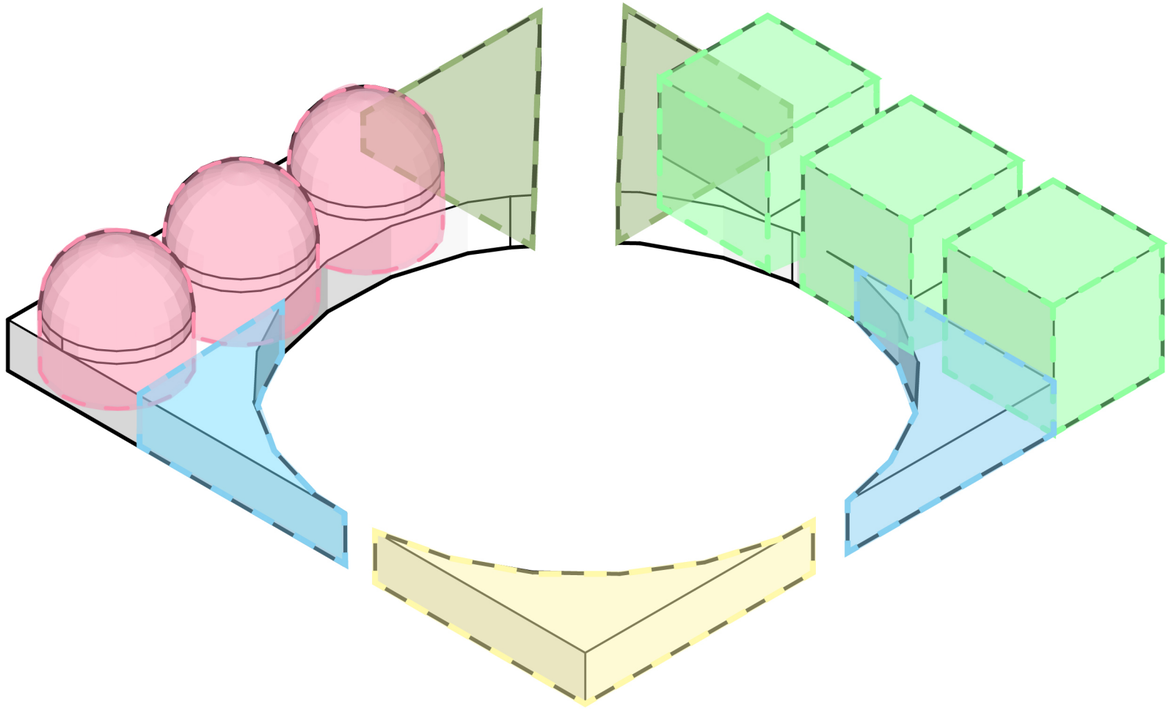
Tunnel - *possibly temporary*

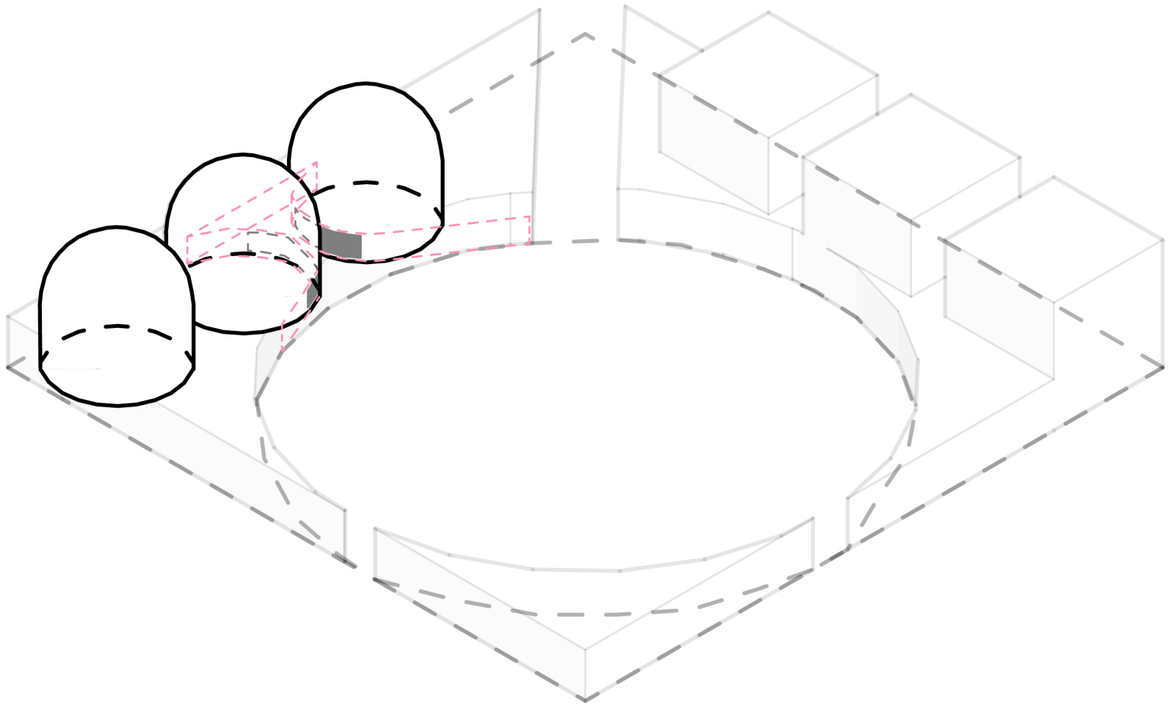


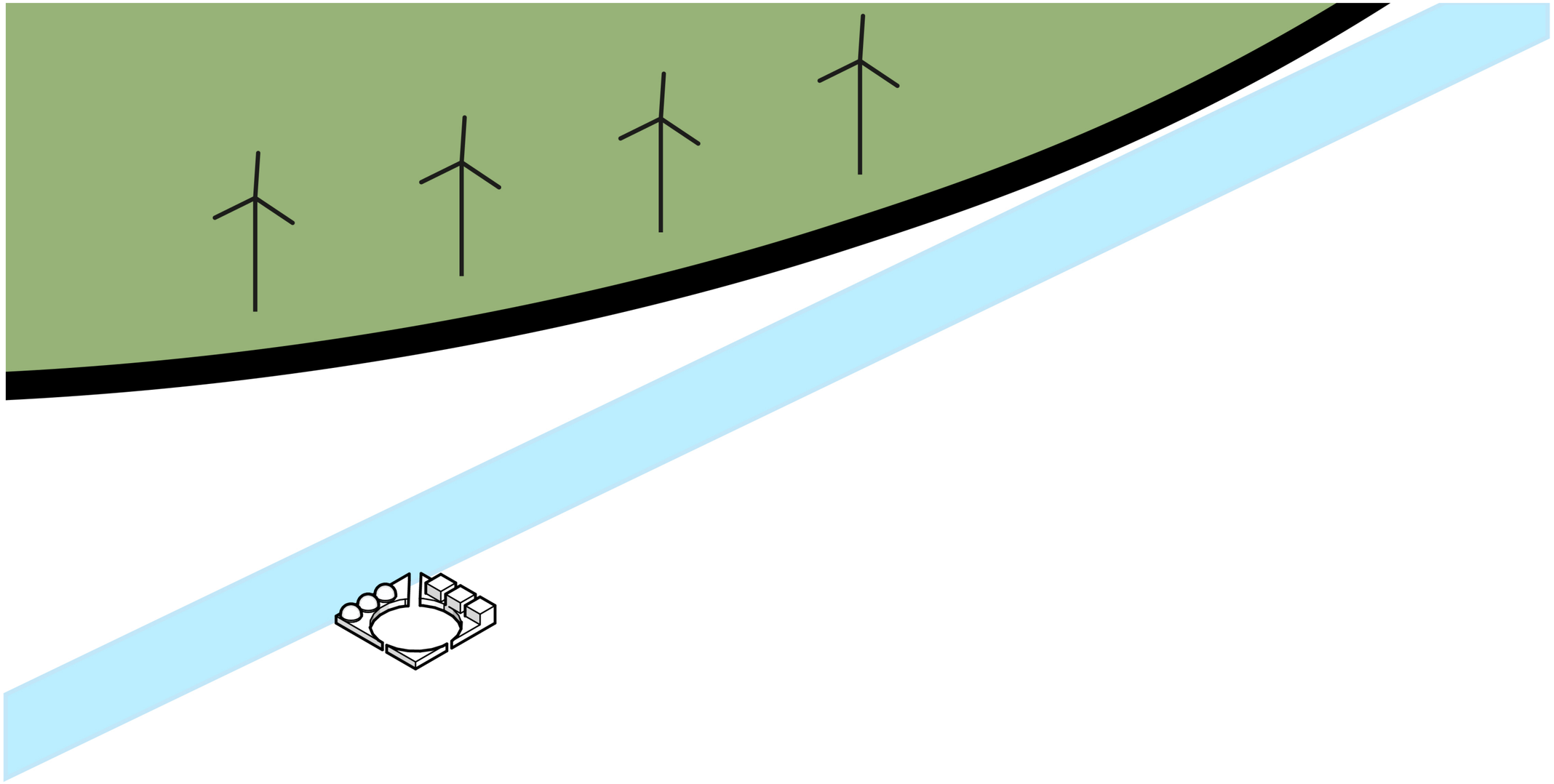
temporary geodesic dome structure built from pre fab panels

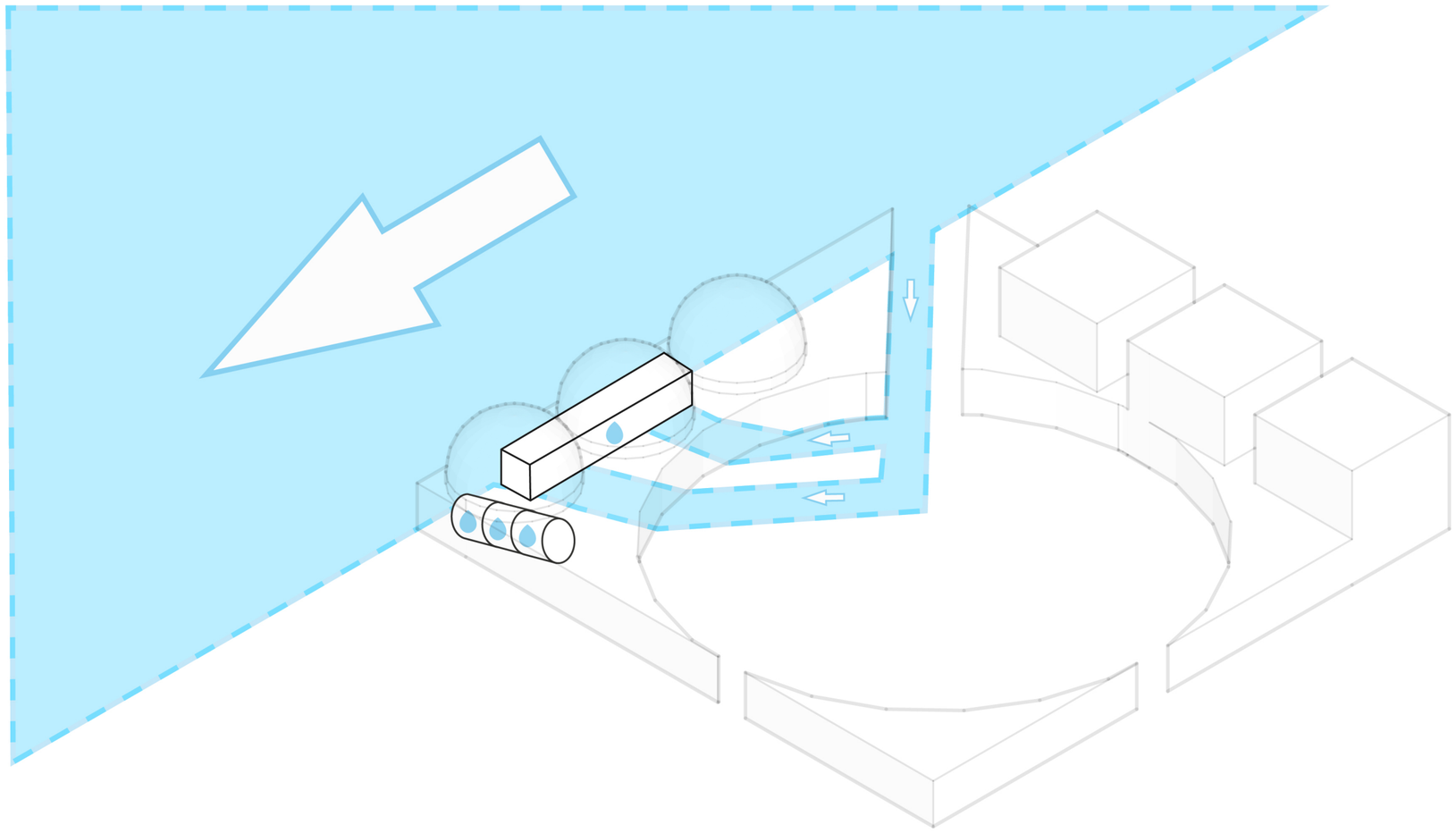


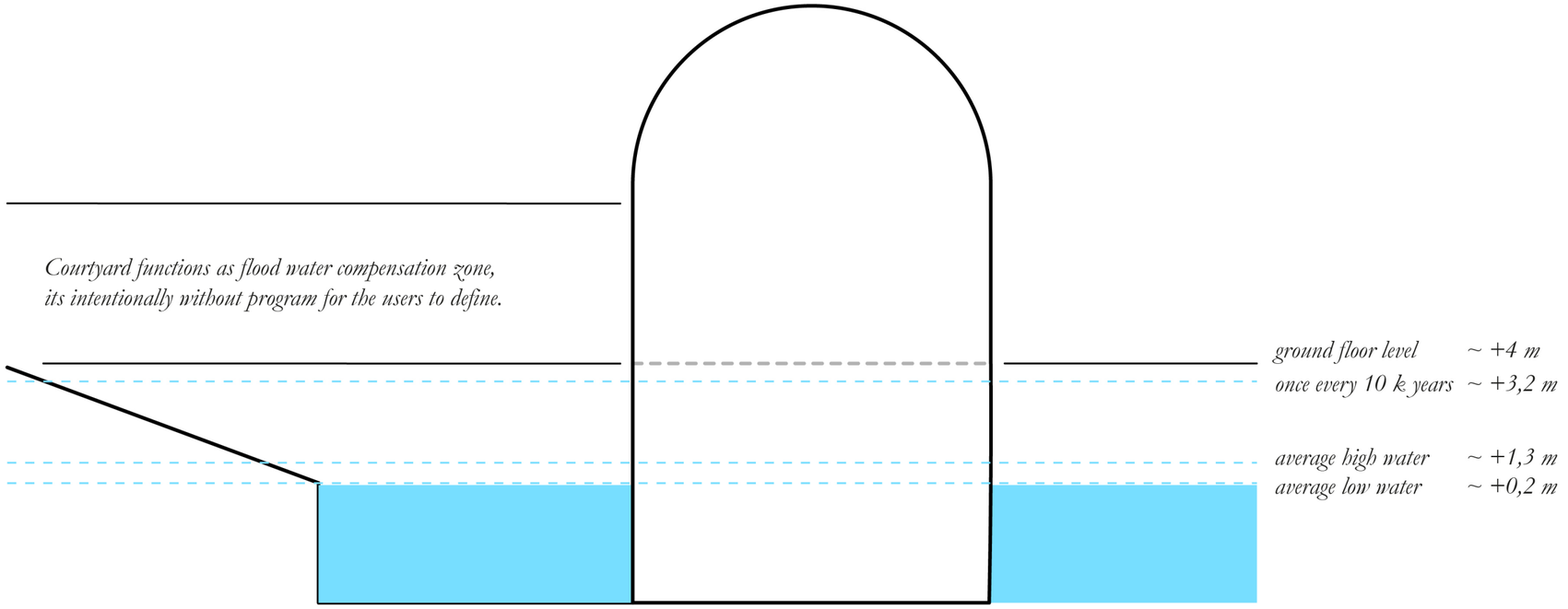




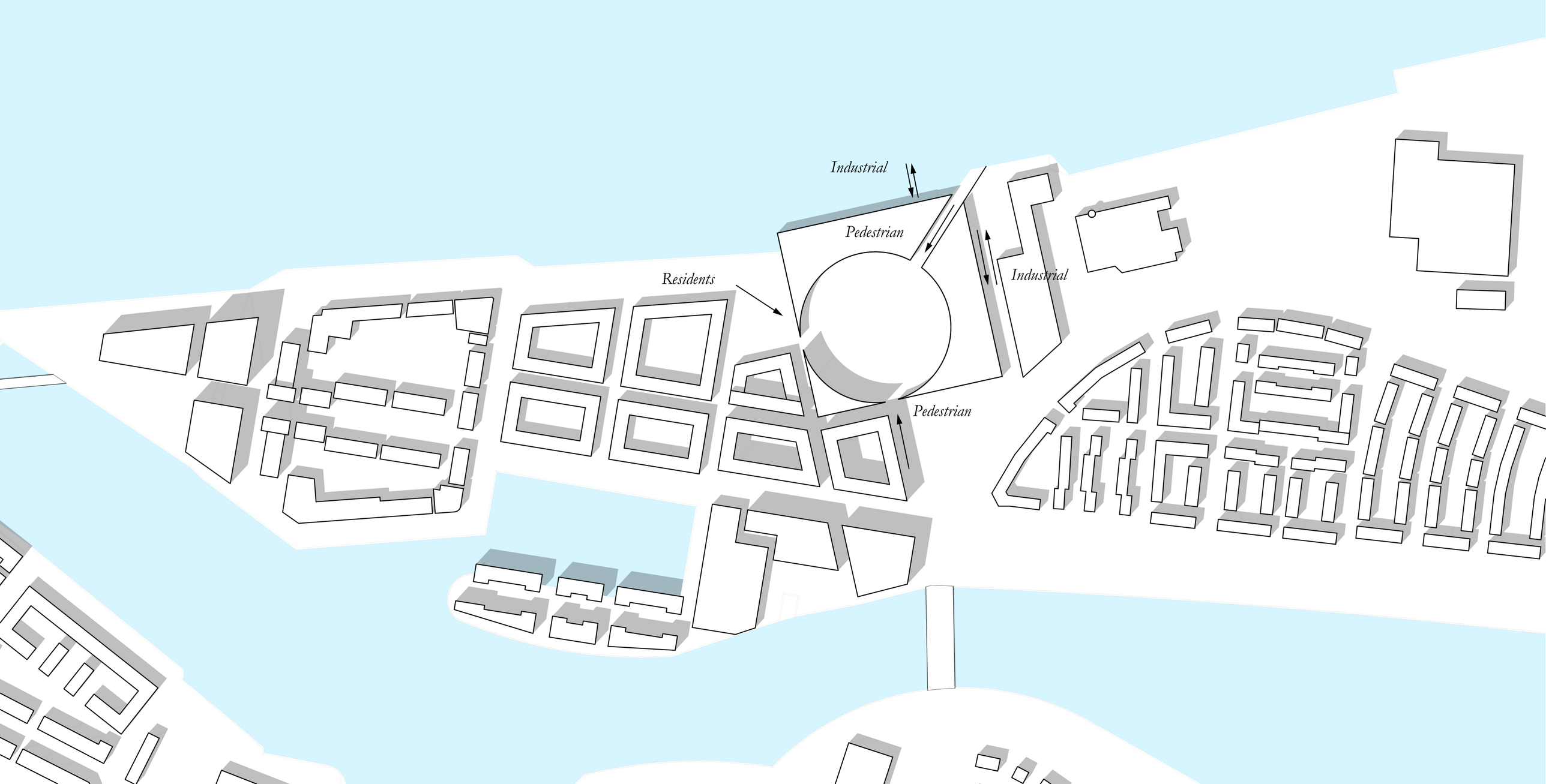


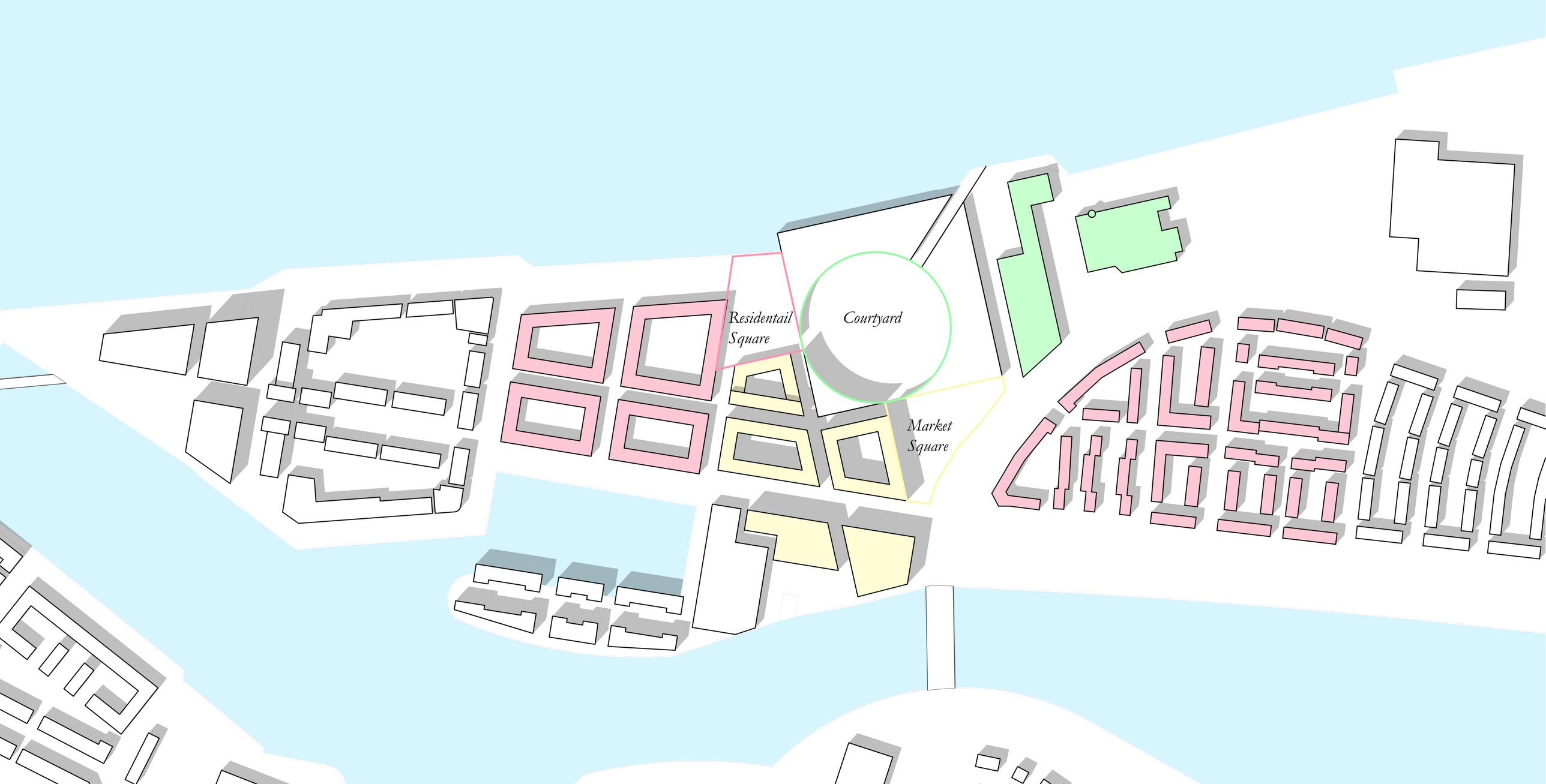


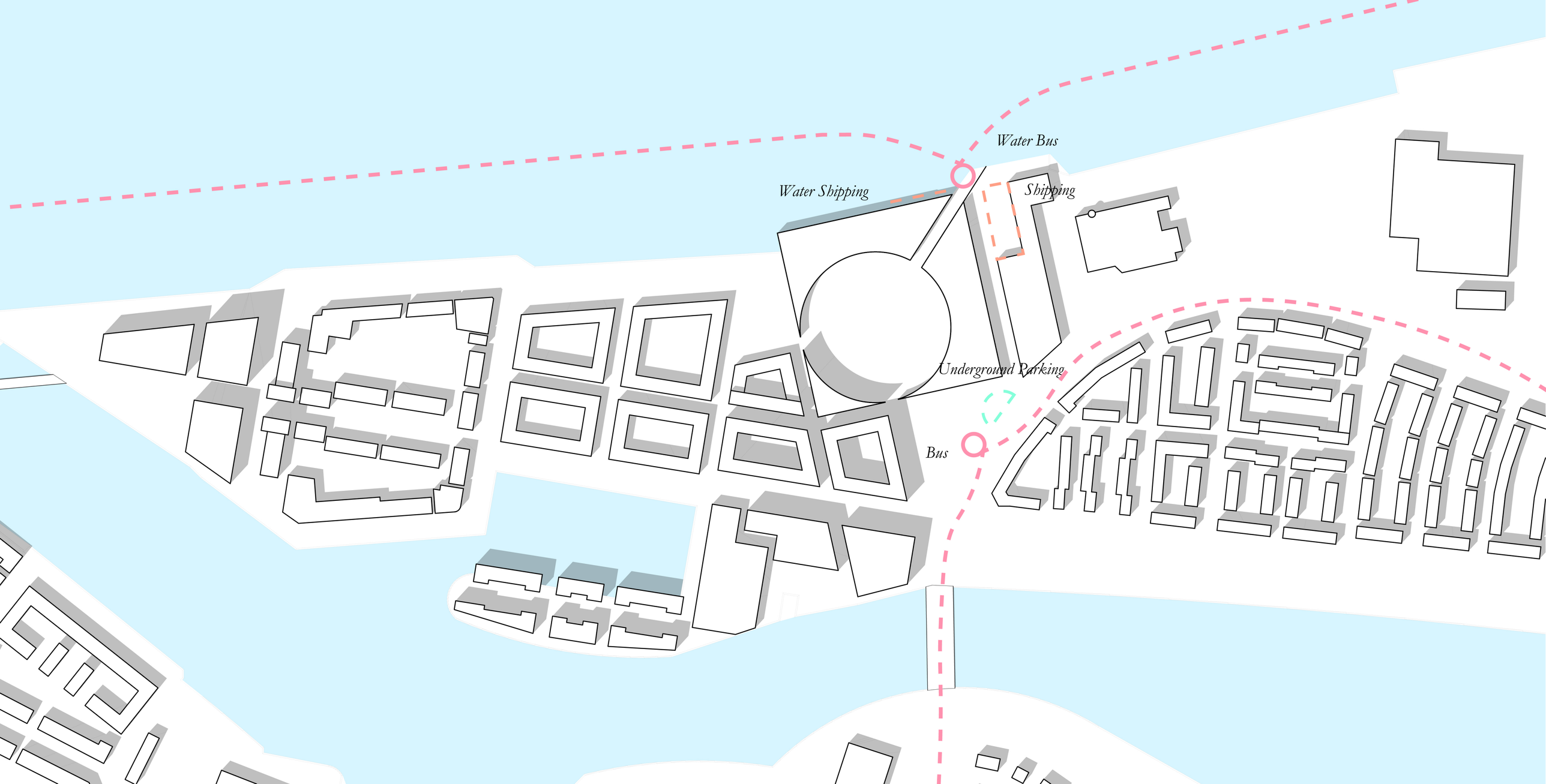


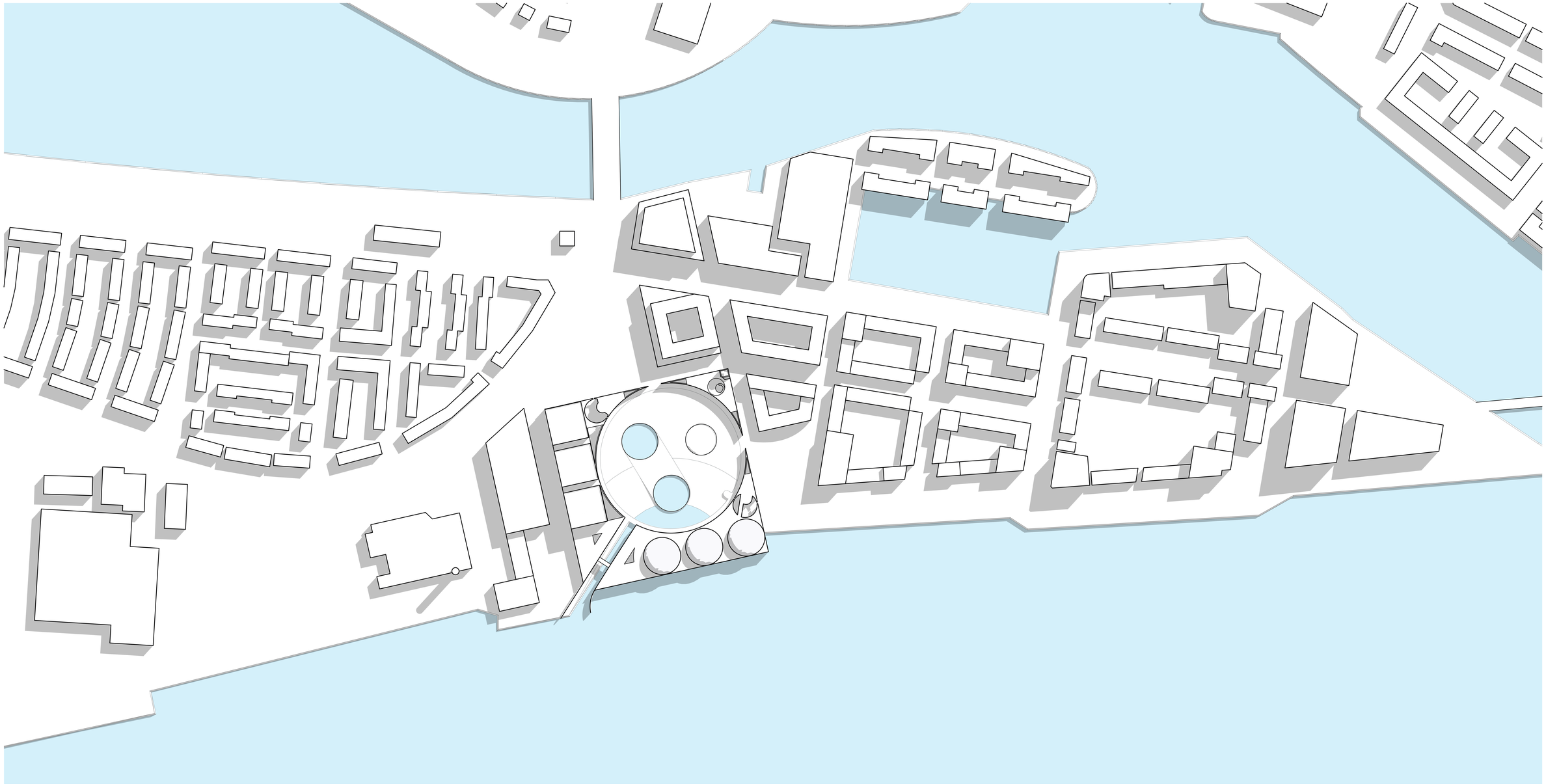

Courtyard functions as flood water compensation zone,
its intentionally without program for the users to define.
ground floor level ~ +4 m
once every 10 k years ~ +3,2 m
average high water ~ +1,3 m
average low water ~ +0,2 m

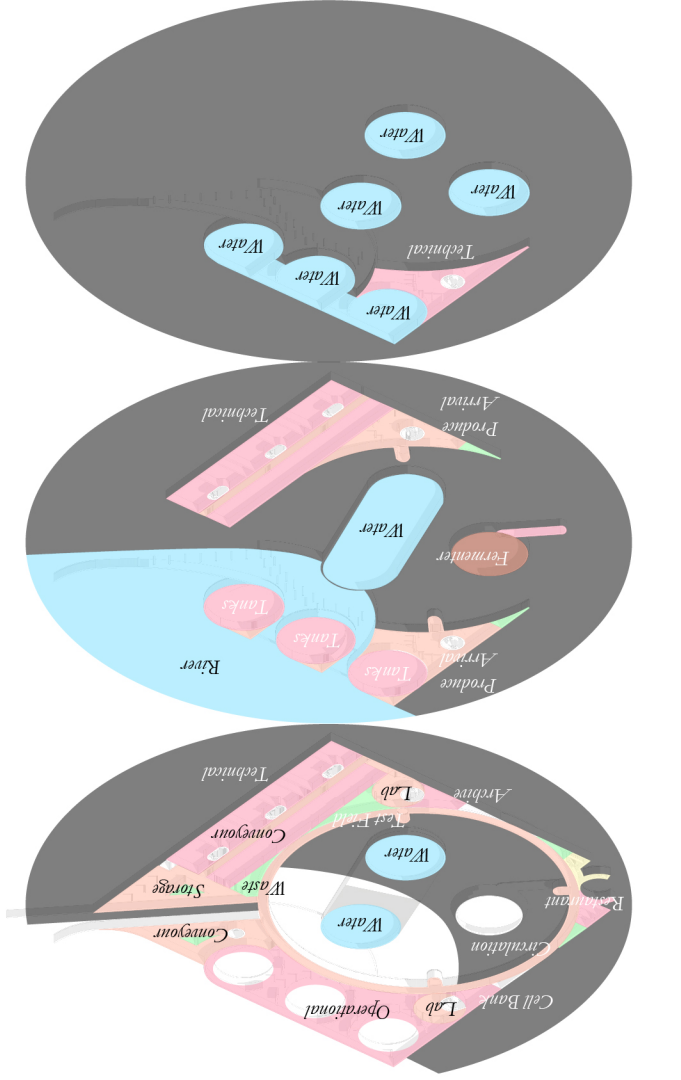

Meat Factory
Entrance
Restaurant
Entrance
Vertical Farm
Entrance

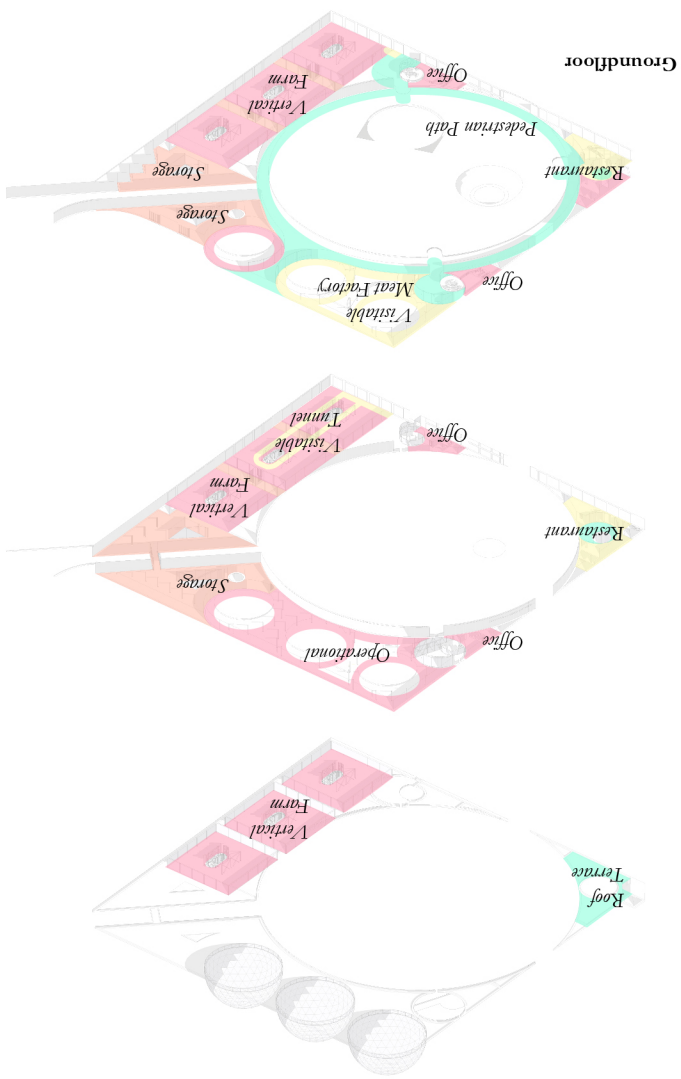

Industrial
Pedestrian
Residents
Industrial
Pedestrian

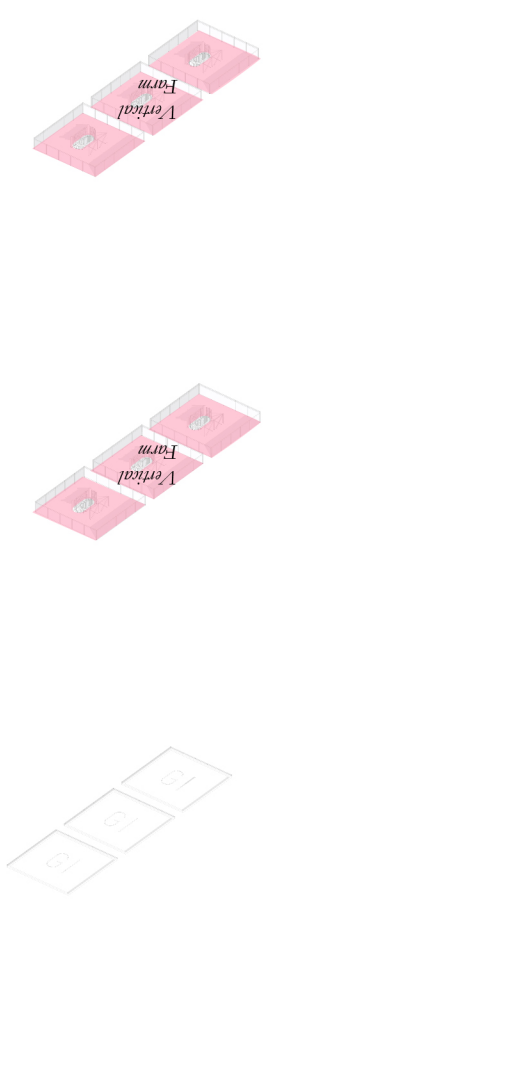

Residentail
Square
Courtyard
Market
Square

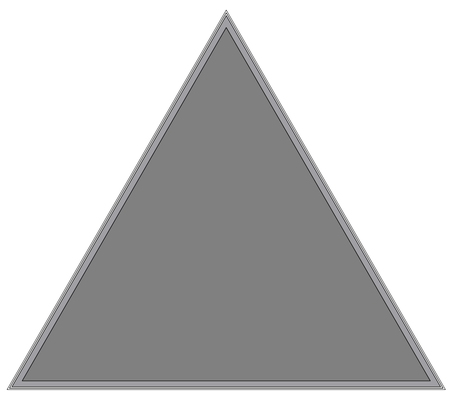

Water Bus
Water Shipping
Shipping
Underground Parking
Bus

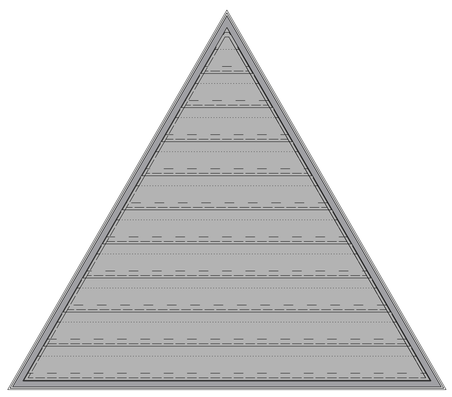


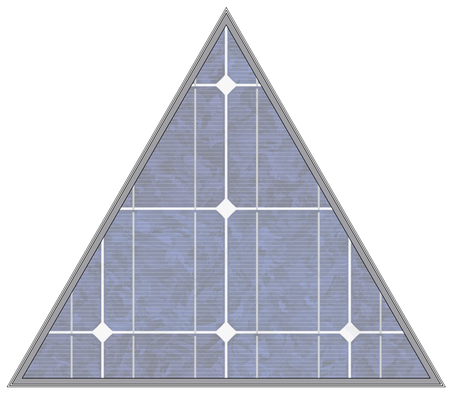

Water
Water
Water
Water
Water
Technical
Water
Fermenter
Produce Arrival
Tanks
Tanks
Tanks
River
Technical
Produce Arrival
Archive
Lab
Test Field
Water
Restaurant
Circulation
Cell Bank
Lab
Operational
Conveyour
Water
Waste
Storage
Conveyour
Technical

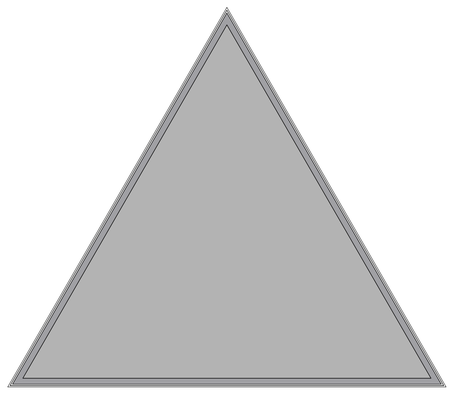

Groundfloor
Office
Vertical Farm
Storage
Storage
Pedestrian Path
Restaurant
Office
Meat Factory
Visitable
Office
Vertical Farm
Storage
Office
Operational
Restaurant
Office
Visitable Tunnel
Vertical Farm

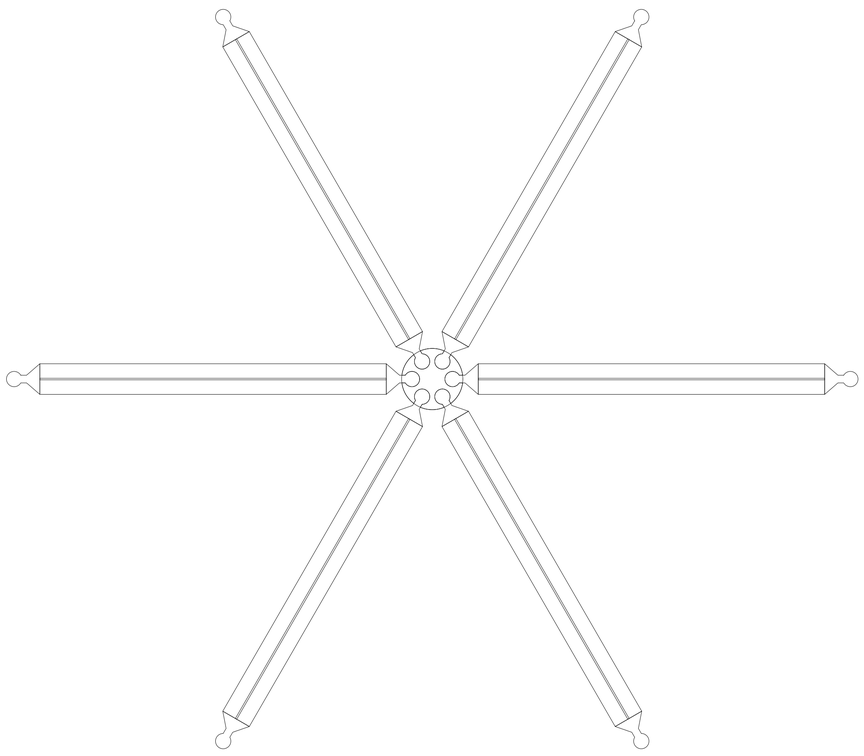

Roof Terrace
Vertical Farm
Vertical Farm

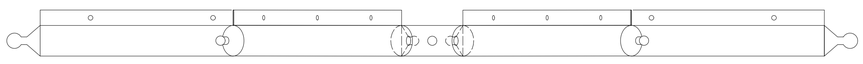




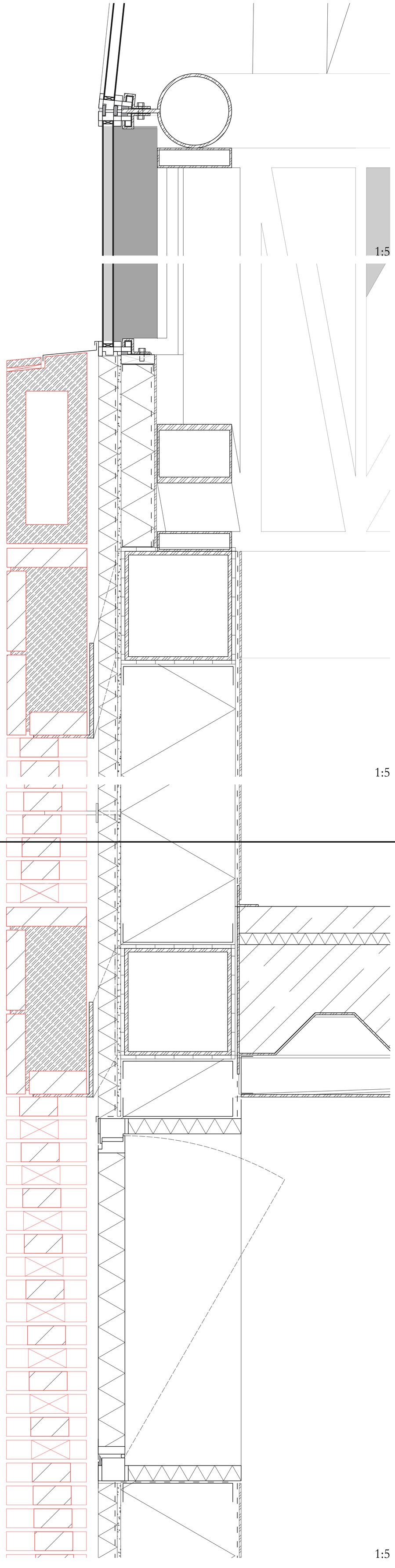




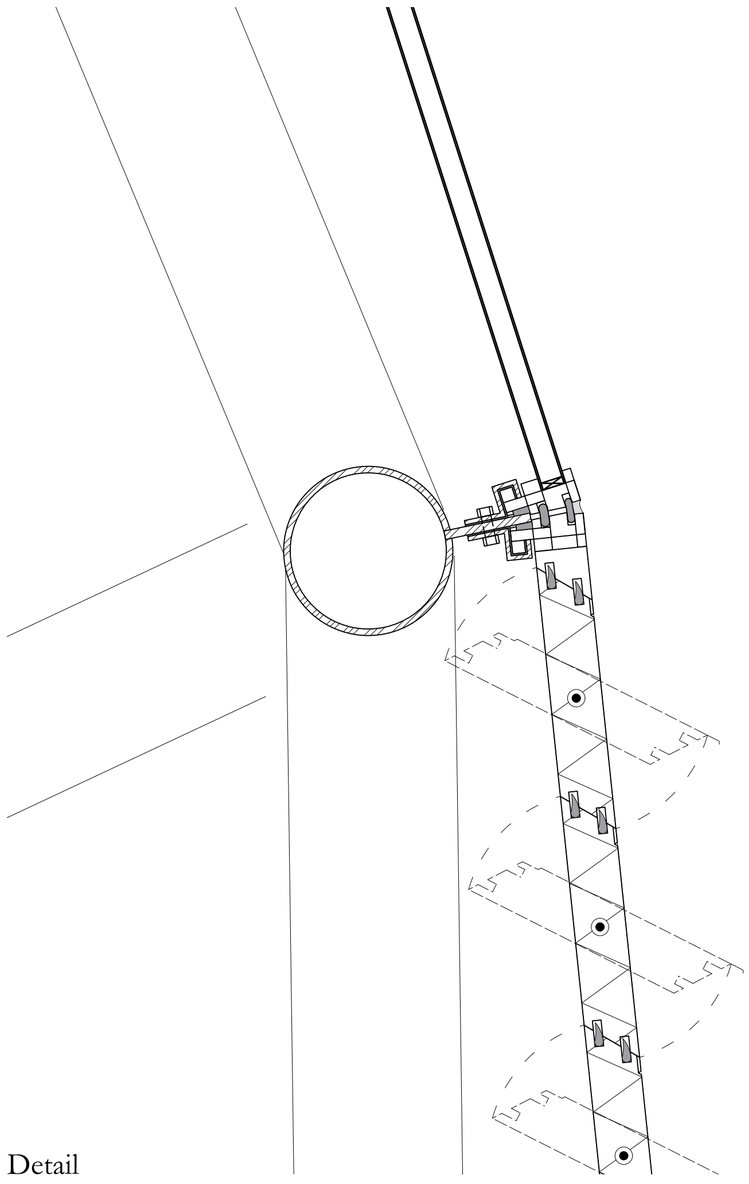




Detail 1:5



Detail 1:5

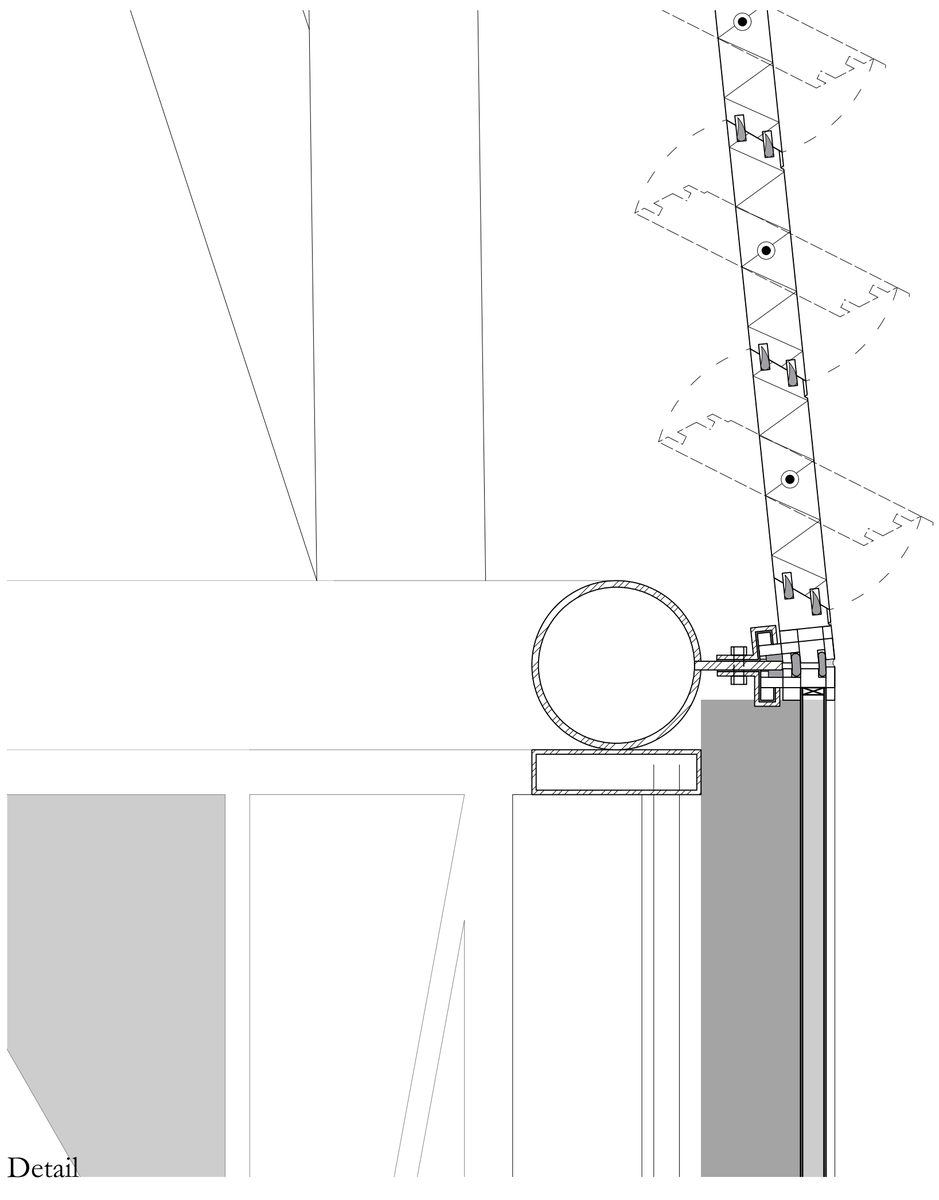


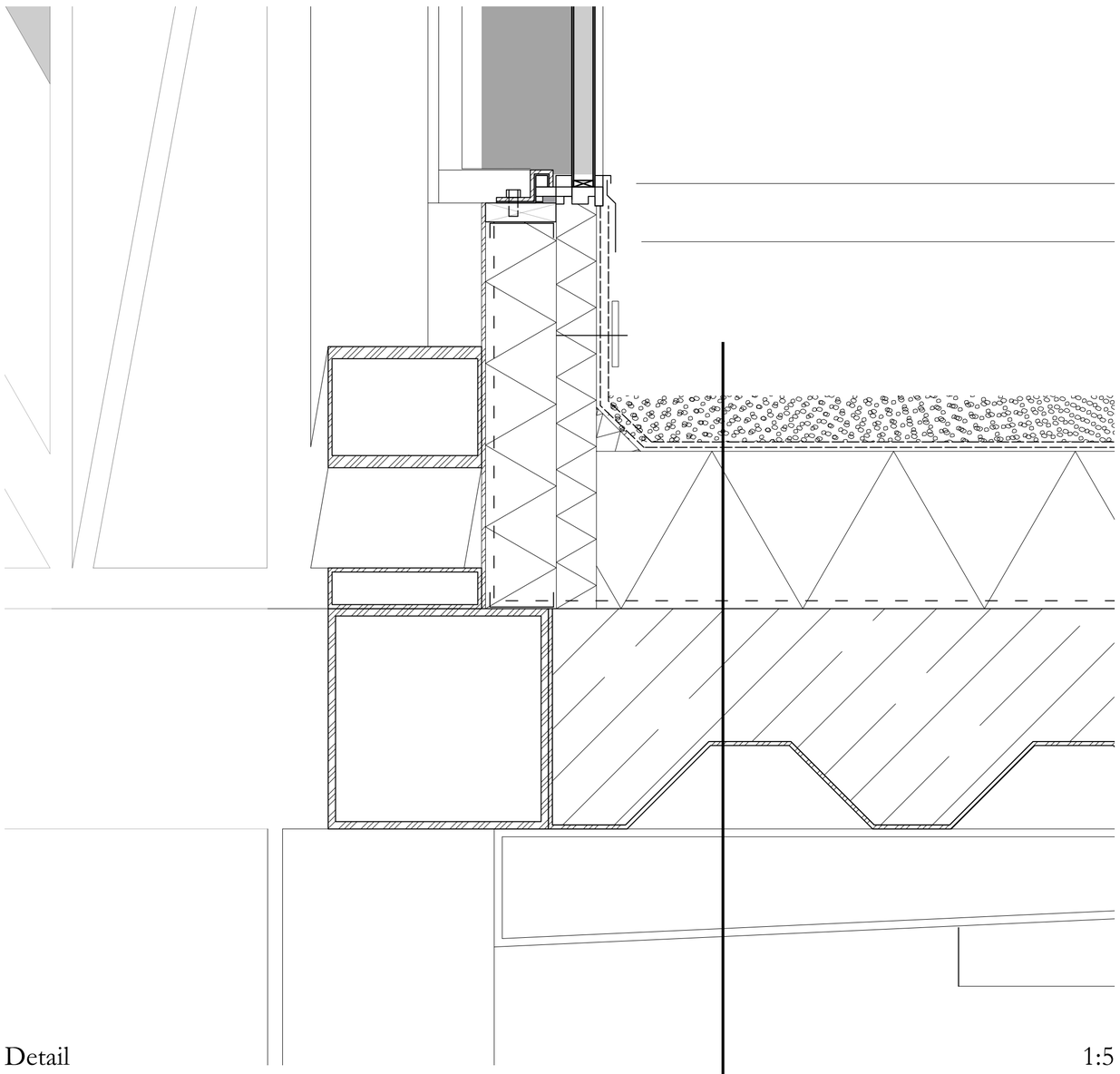
Prefabricated triangular panels fixed to the main structure.

Brick Waal Format,	210 mm
Cavity,	30 mm
Mineralwool water-repellent,	70 mm
Moisture diffusing windproof layer,	
Gypsum impregnated plasterboard,	9 mm
Sheet-steel sections with minderal wool,	280 mm
Vapor barrier,	
Perforated steel finish White,	5 mm

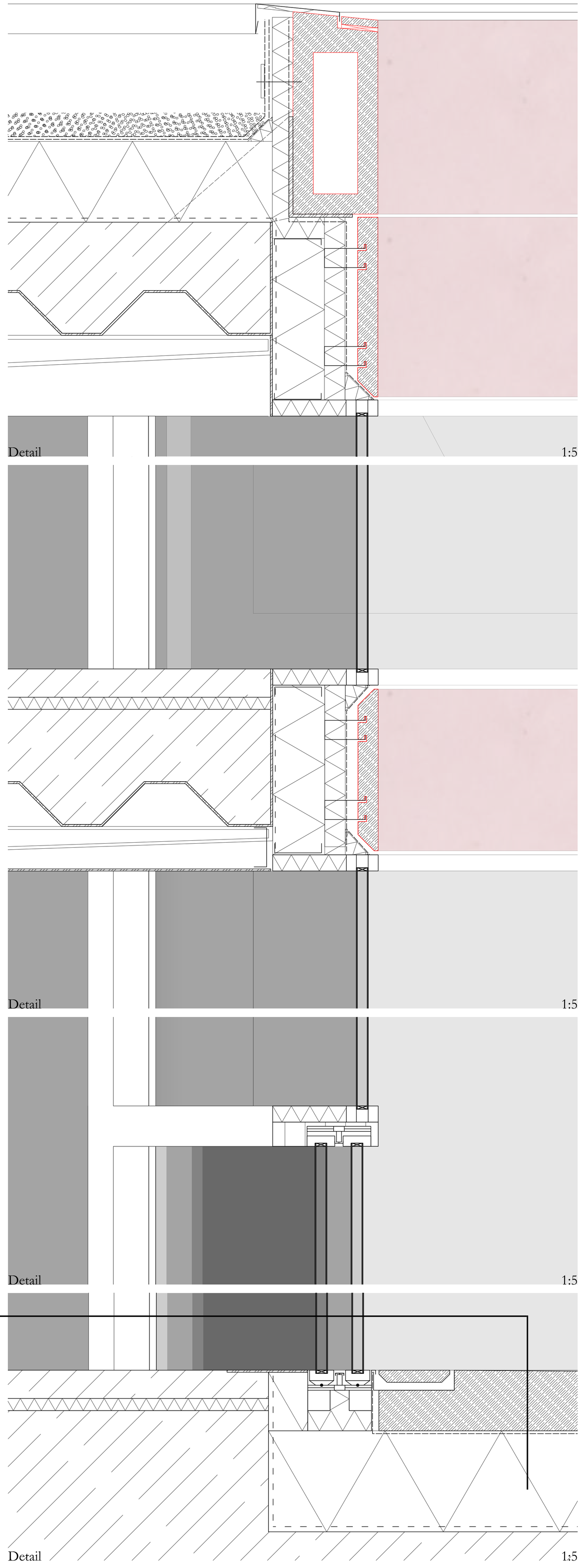
Detail 1:5

Detail 1:5





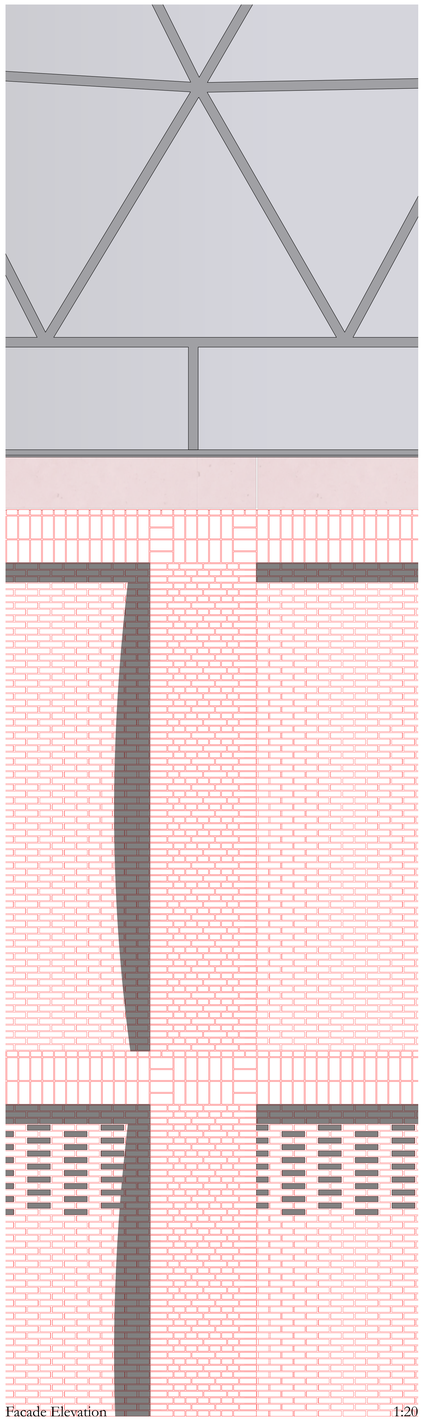
Detail 1:5



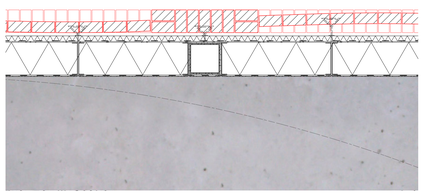
Detail 1:5

Gravel, 50 mm
Bituminous roof sealing
double layer,
Mineralwool 170 - 270 mm
to falls,
Vapor barrier,
Reinforced concrete 170 - 270 mm
on trapeziodal-section steel,

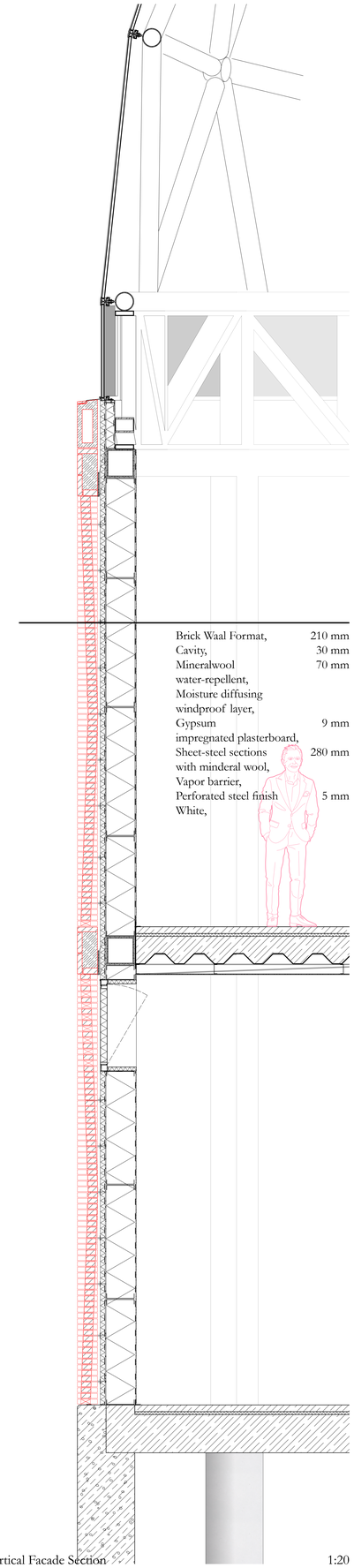
Honed screed 80 - 150 mm
to falls,
Sealing layer,
Hard mineralwoll, 250 mm
Vapor barrier,
Reinforced concrete 400 mm



Facade Elevation 1:20



Vertical Facade Section 1:20

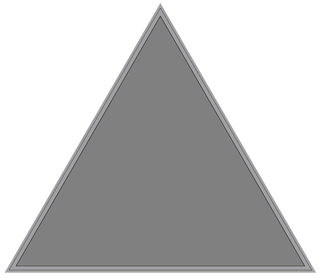


Brick Waal Format, 210 mm
Cavity, 30 mm
Mineralwool 70 mm
water-repellent,
Moisture diffusing
windproof layer,
Gypsum 9 mm
impregnated plasterboard,
Sheet-steel sections 280 mm
with minderal wool,
Vapor barrier,
Perforated steel finish 5 mm
White,

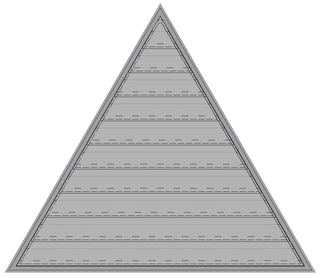
Dome Connection 1:20



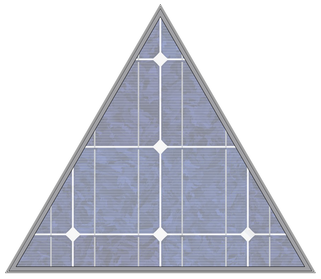
Dome Section 1:20



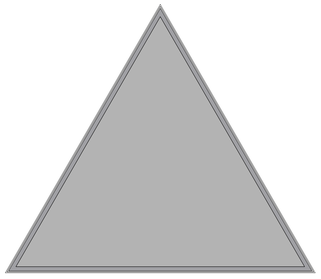
Window Panel 1:20



Ventilation Panel 1:20

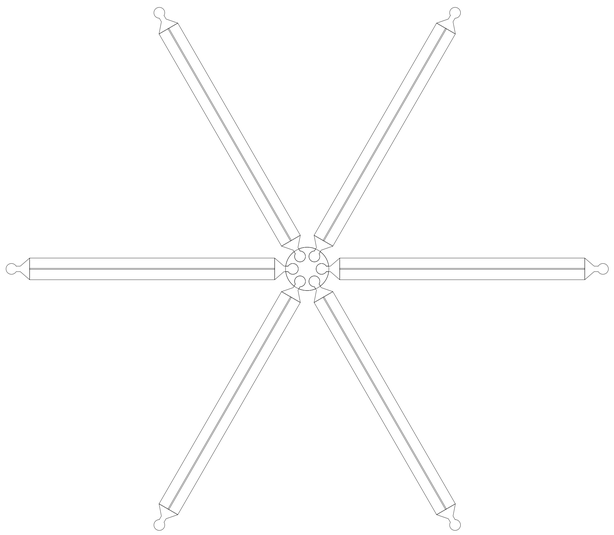


PV Panel 1:20

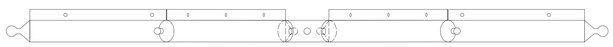


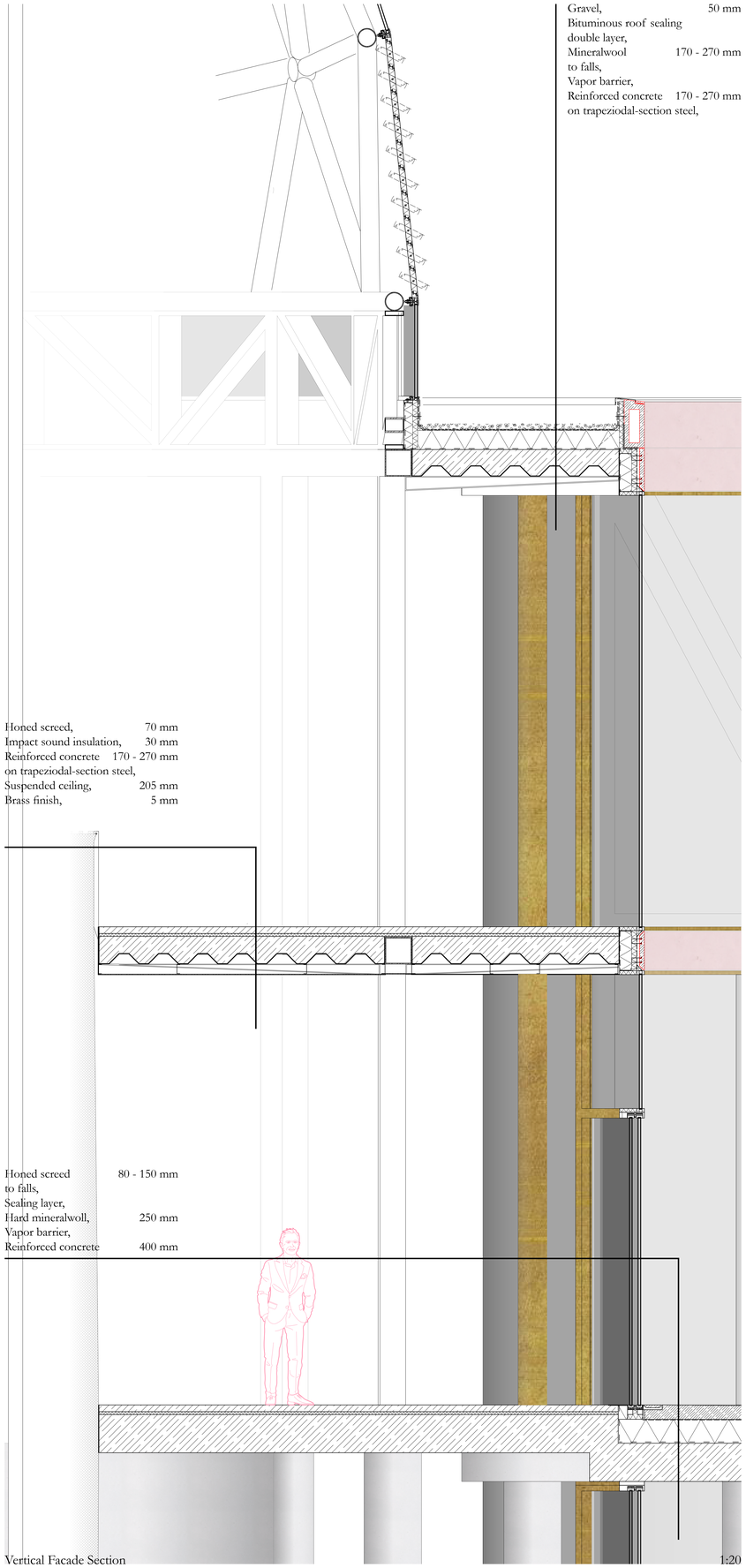
Closed Panel 1:20

Panels can be switeched out for adaptibility reasons.



Dome Connection 1:20



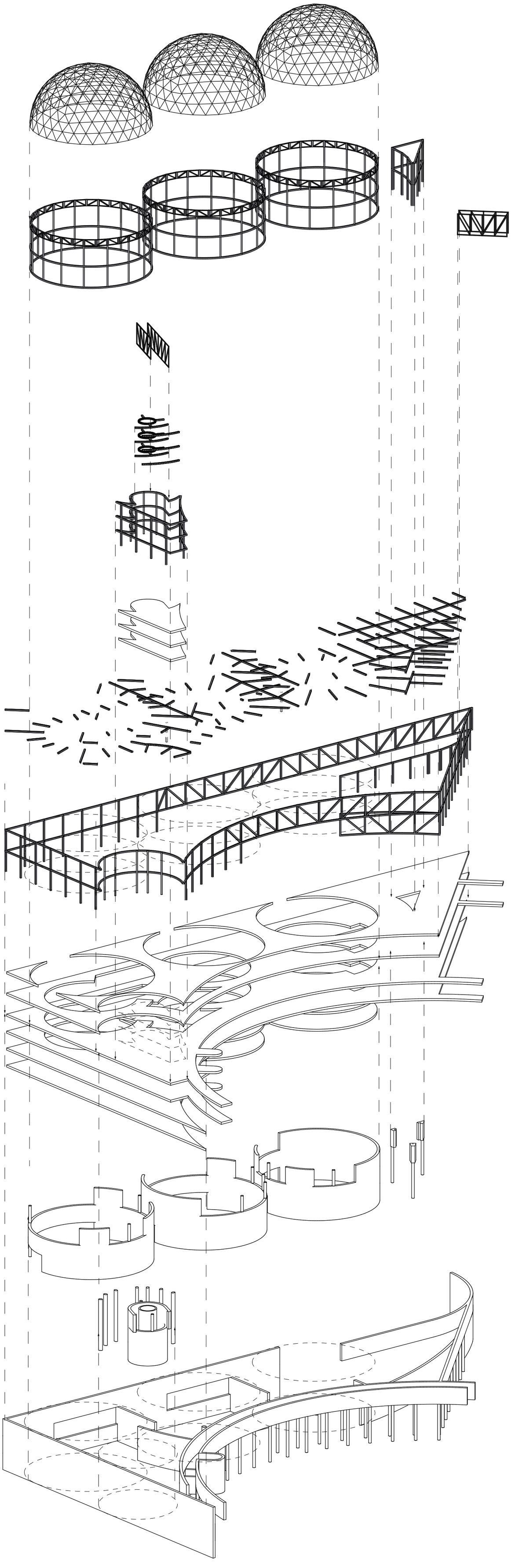


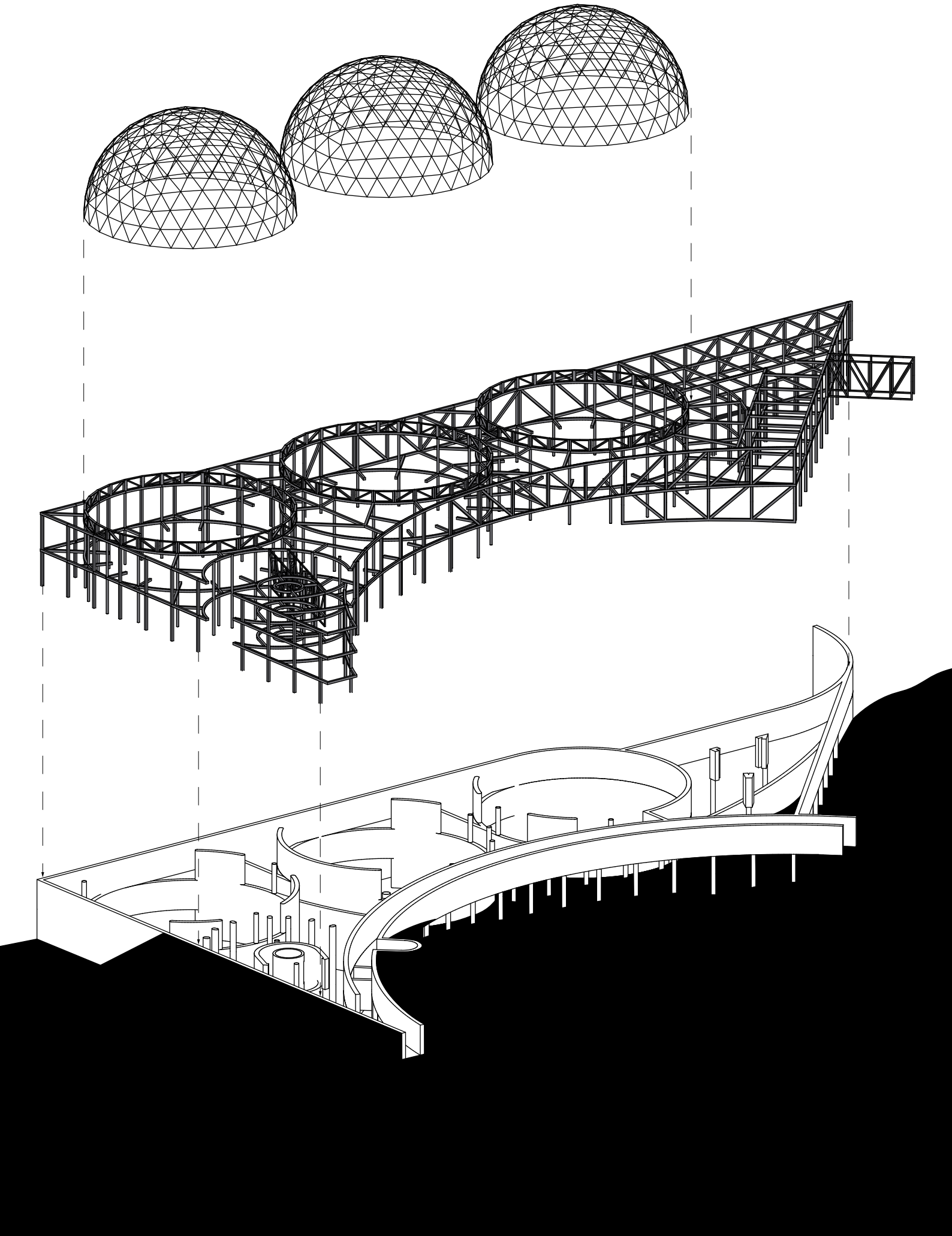
Gravel, 50 mm
Bituminous roof sealing
double layer,
Mineralwool 170 - 270 mm
to falls,
Vapor barrier,
Reinforced concrete 170 - 270 mm
on trapeziodal-section steel,

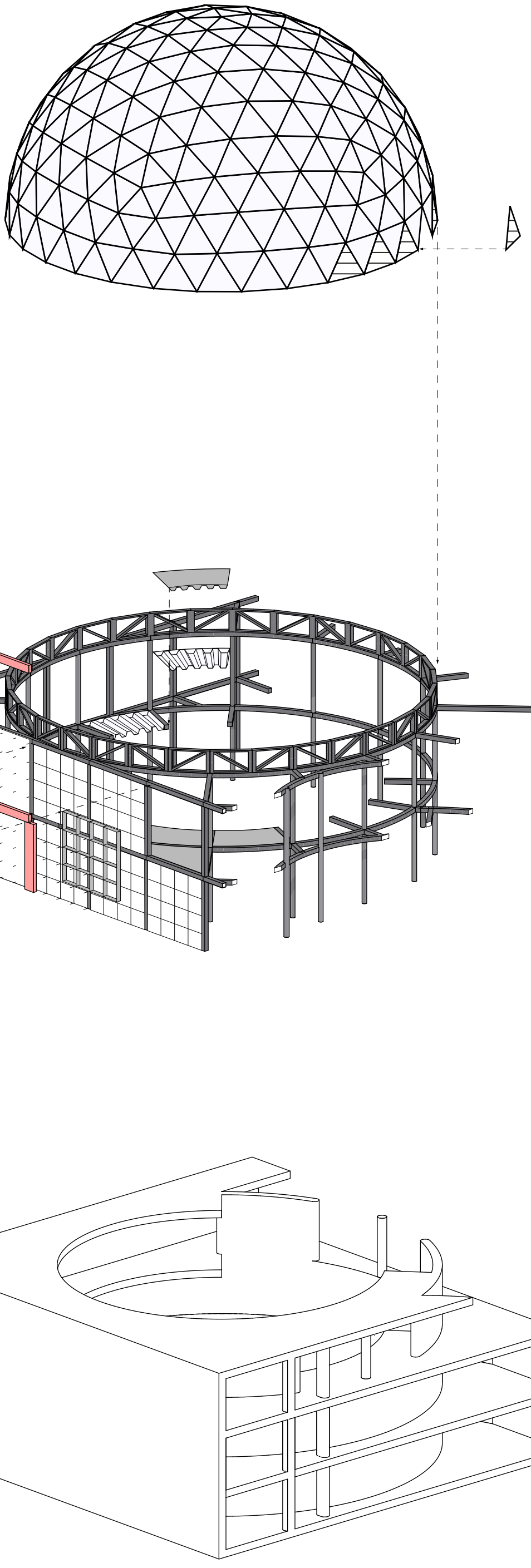
Honed screed, 70 mm
Impact sound insulation, 30 mm
Reinforced concrete 170 - 270 mm
on trapeziodal-section steel,
Suspended ceiling, 205 mm
Brass finish, 5 mm

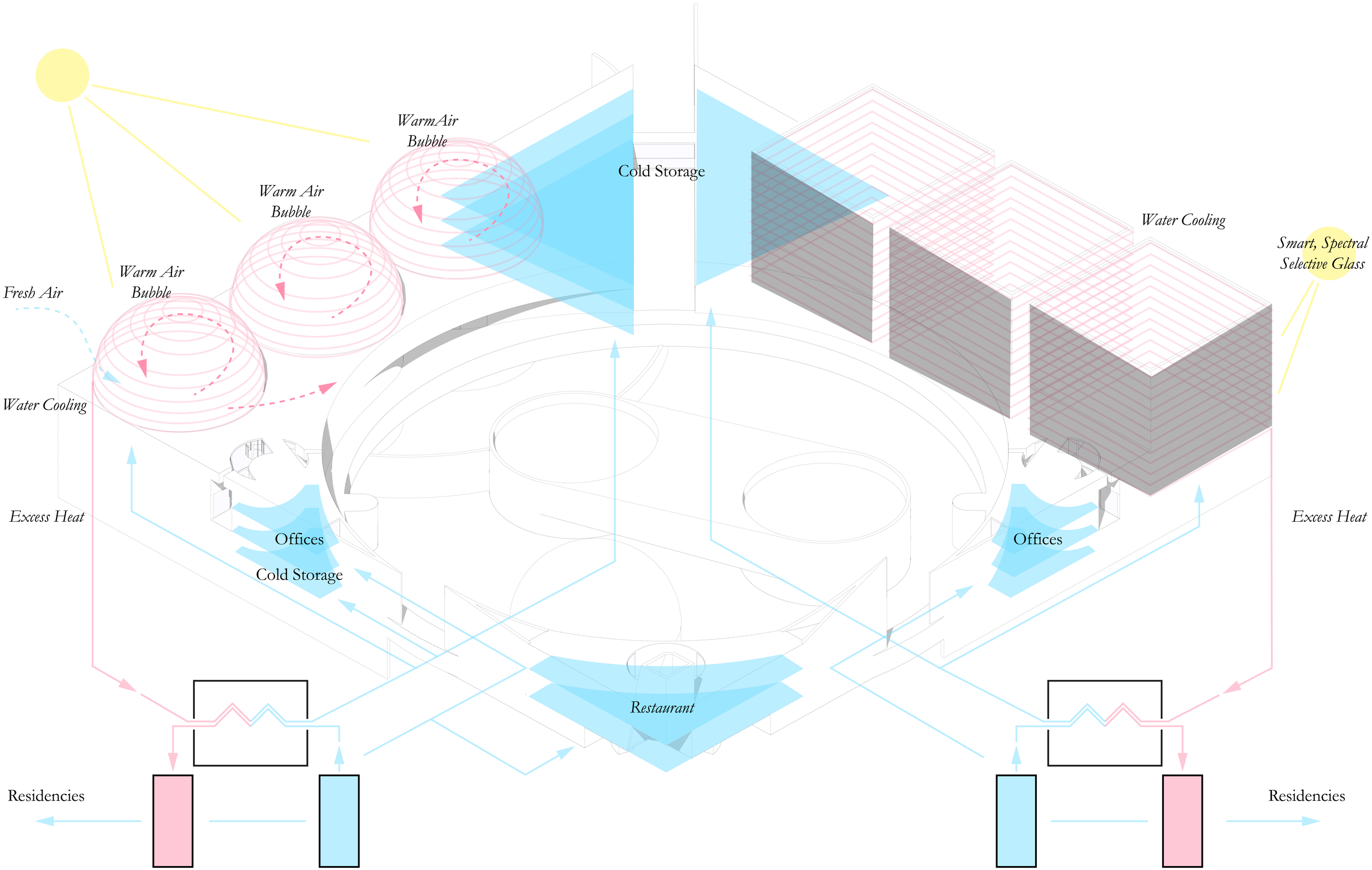
Honed screed 80 - 150 mm
to falls,
Sealing layer,
Hard mineralwoll, 250 mm
Vapor barrier,
Reinforced concrete 400 mm

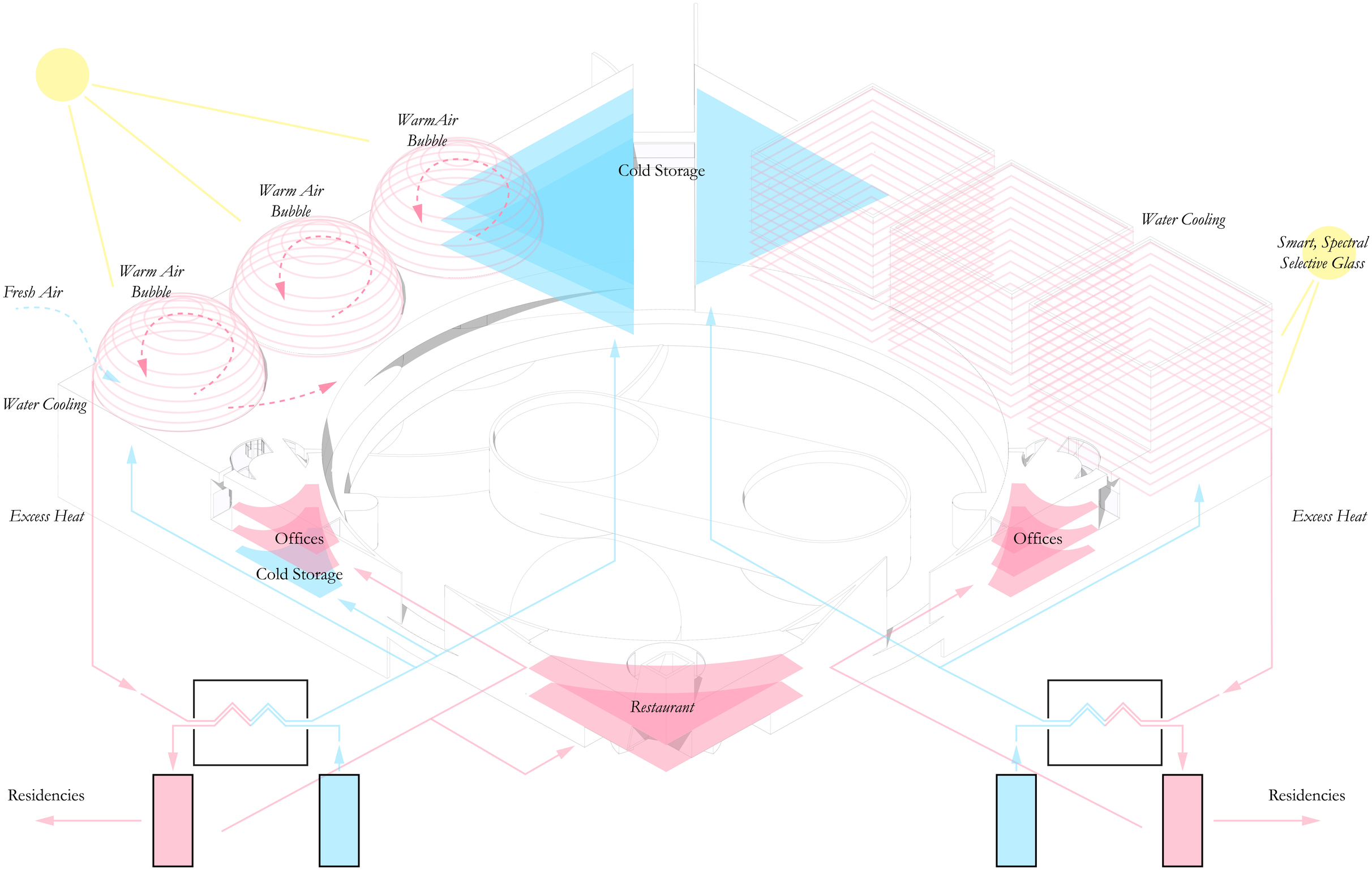
Vertical Facade Section 1:20

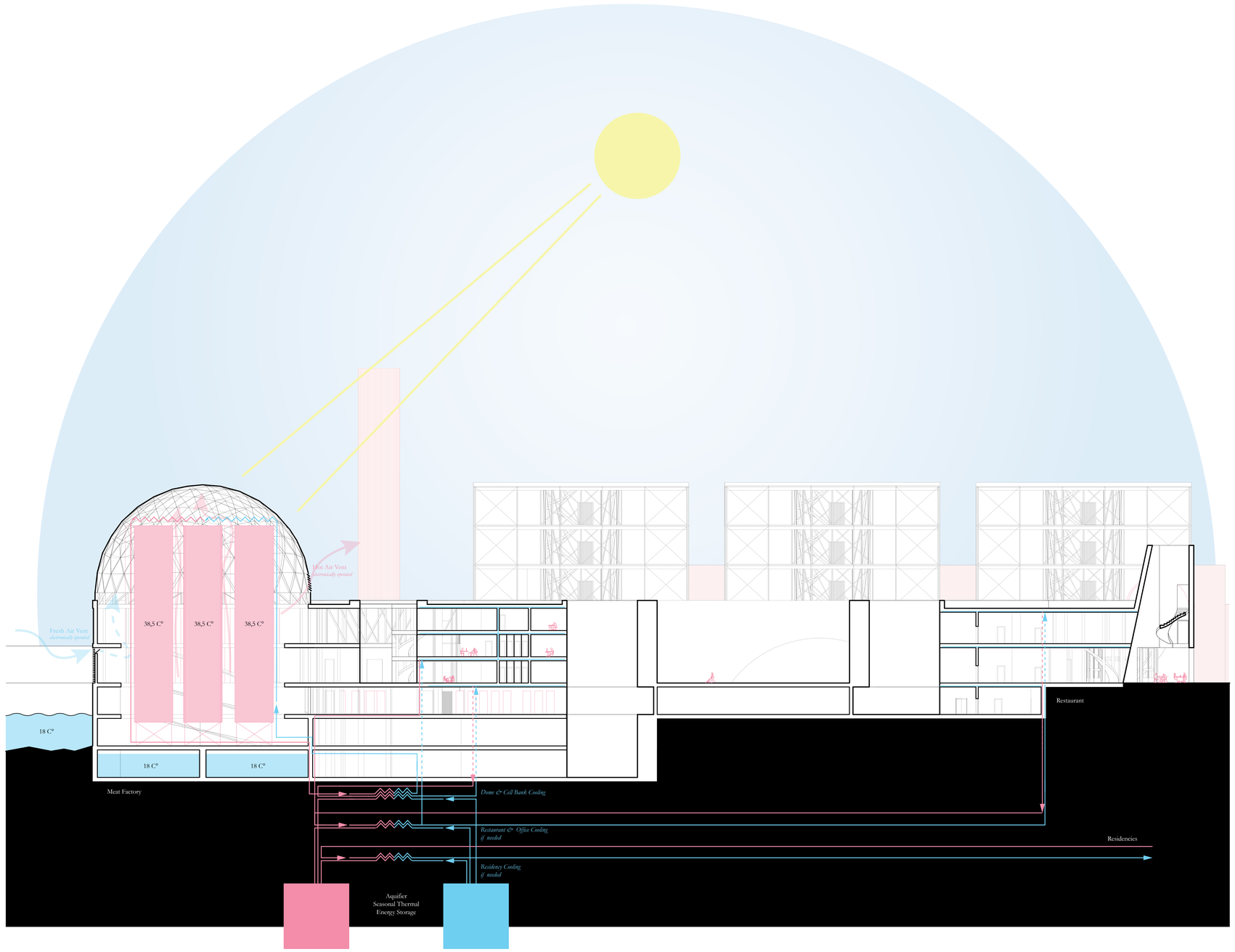




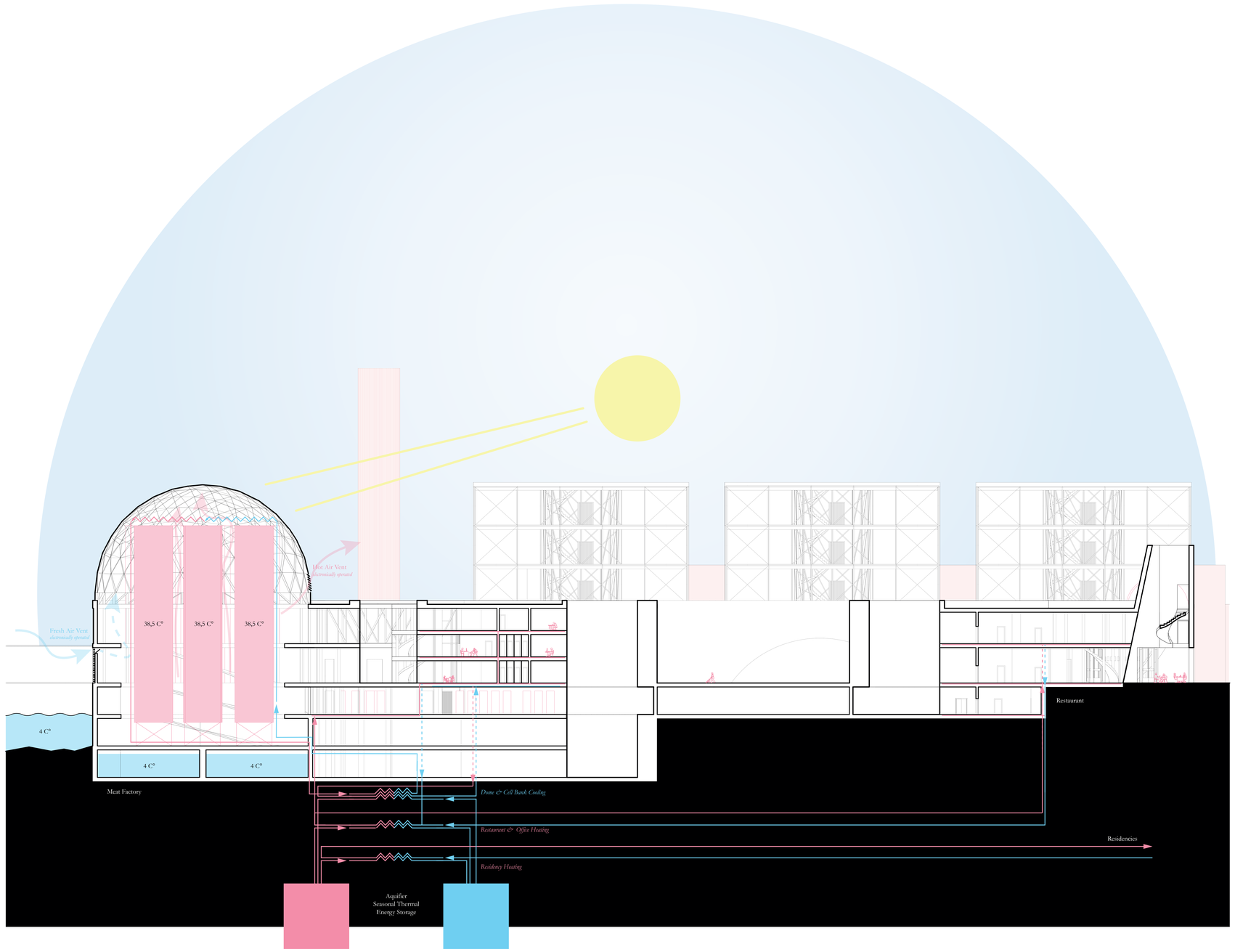



WarmAir Bubble
Warm Air Bubble
Warm Air Bubble
Fresh Air
Water Cooling
Excess Heat
Cold Storage
Water Cooling
Smart, Spectral Selective Glass
Offices
Cold Storage
Restaurant
Offices
Excess Heat
Residencies
Residencies

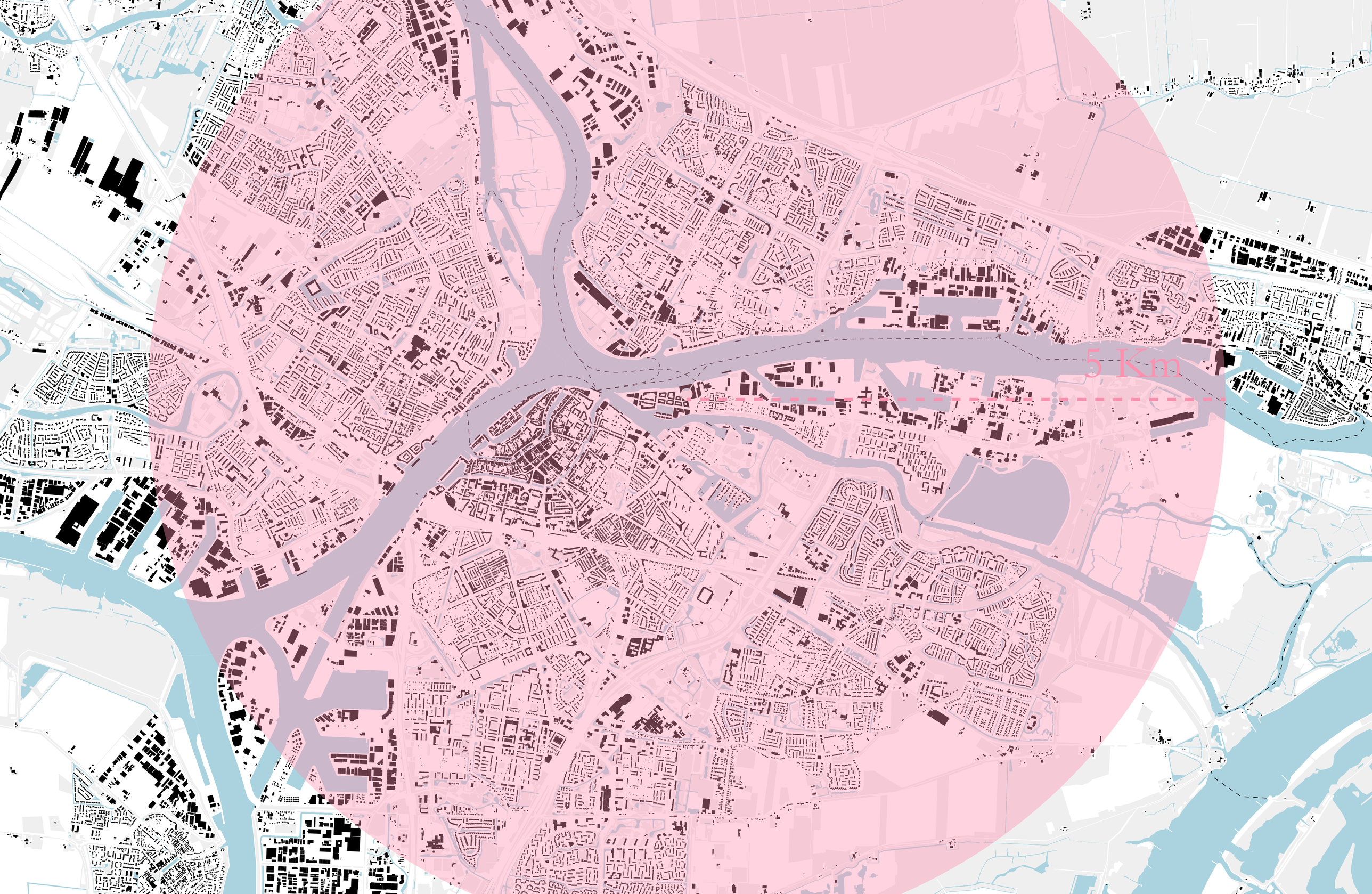

WarmAir Bubble
Warm Air Bubble
Warm Air Bubble
Fresh Air
Water Cooling
Excess Heat
Cold Storage
Water Cooling
Smart, Spectral Selective Glass
Offices
Cold Storage
Restaurant
Offices
Excess Heat
Residencies
Residencies

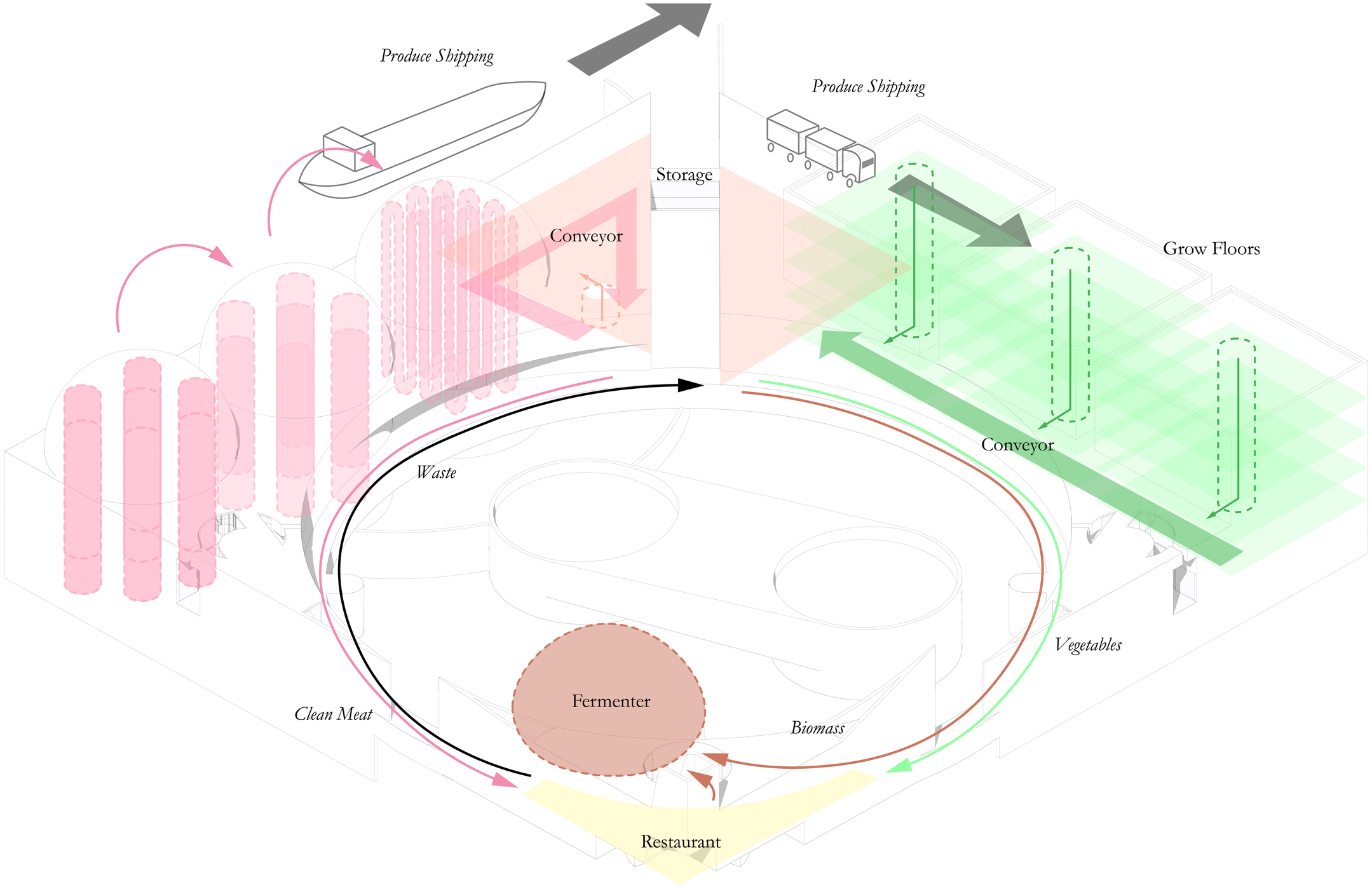

Hot Air Vent
electronically operated
Fresh Air Vent
electronically operated
38,5 C°
38,5 C°
38,5 C°
18 C°
18 C°
18 C°
Meat Factory
Dome & Cell Bank Cooling
Restaurant & Office Cooling
if needed
Residency Cooling
if needed
Aquifier
Seasonal Thermal
Energy Storage
Restaurant
Residencies

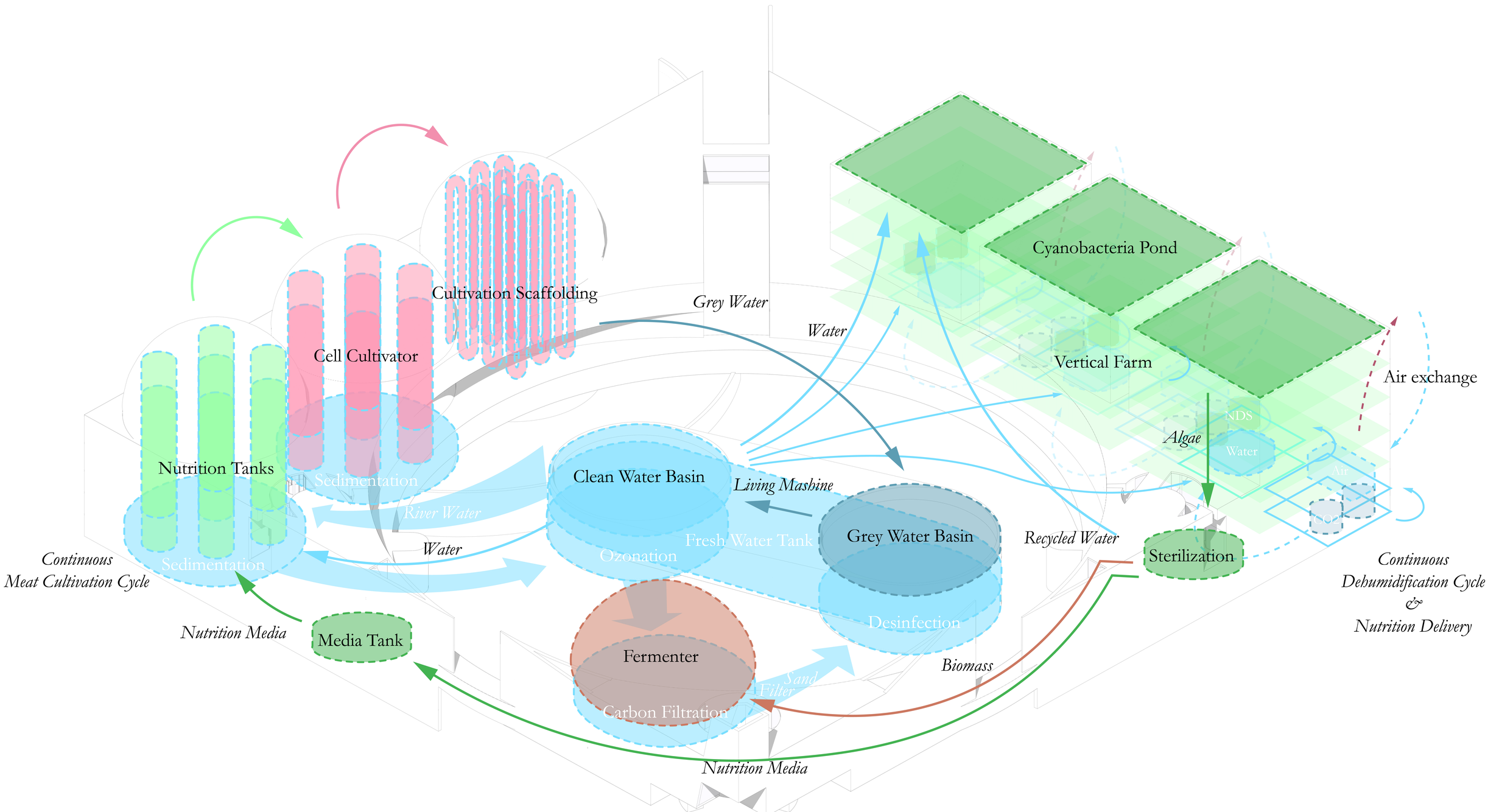
Summer

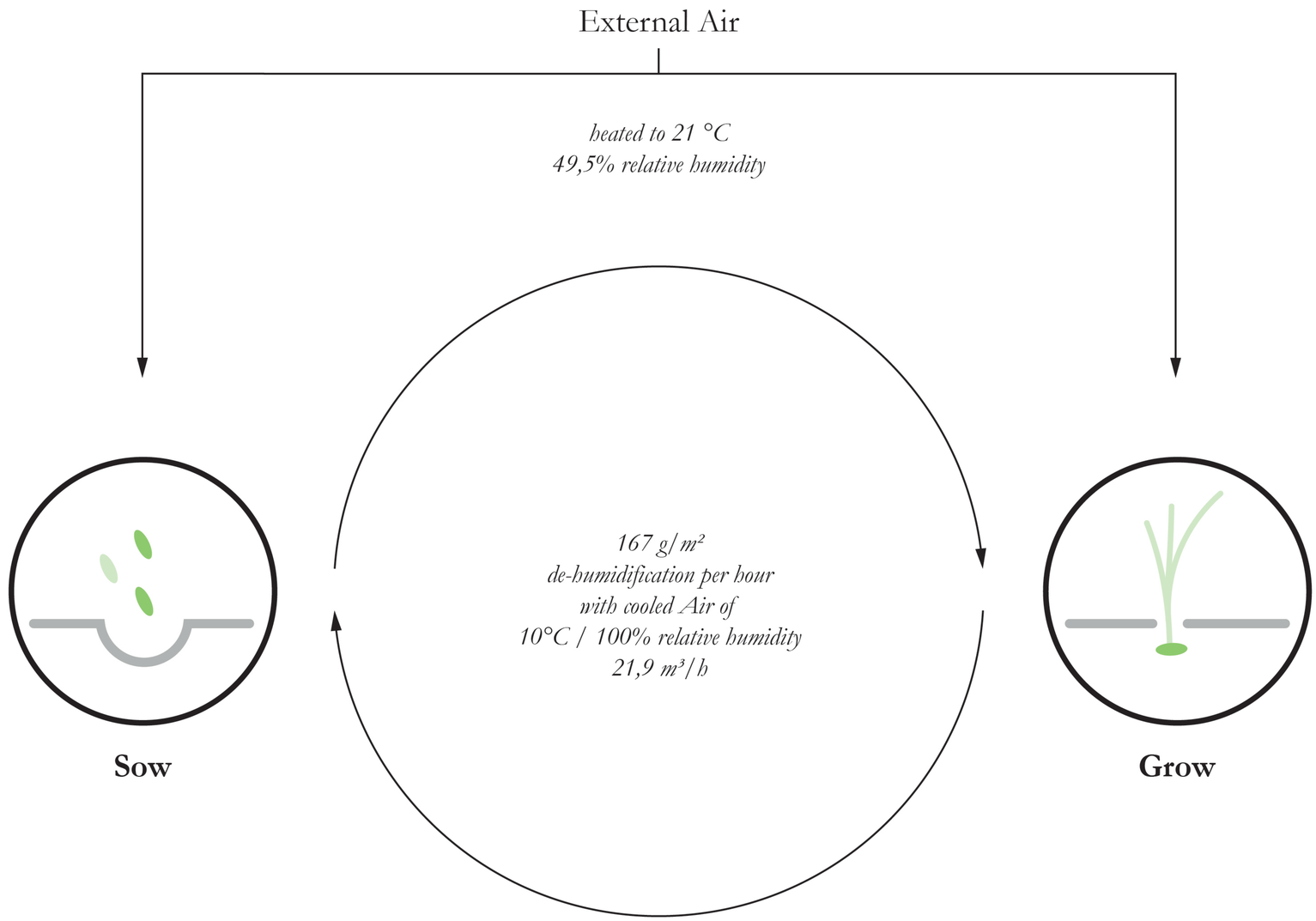

Hot Air Vent
electronically operated
Fresh Air Vent
electronically operated
38,5 C°
38,5 C°
38,5 C°
4 C°
4 C°
4 C°
Meat Factory
Restaurant
Dome & Cell Bank Cooling
Restaurant & Office Heating
Residencies
Residency Heating
Aquifier
Seasonal Thermal
Energy Storage

Winter

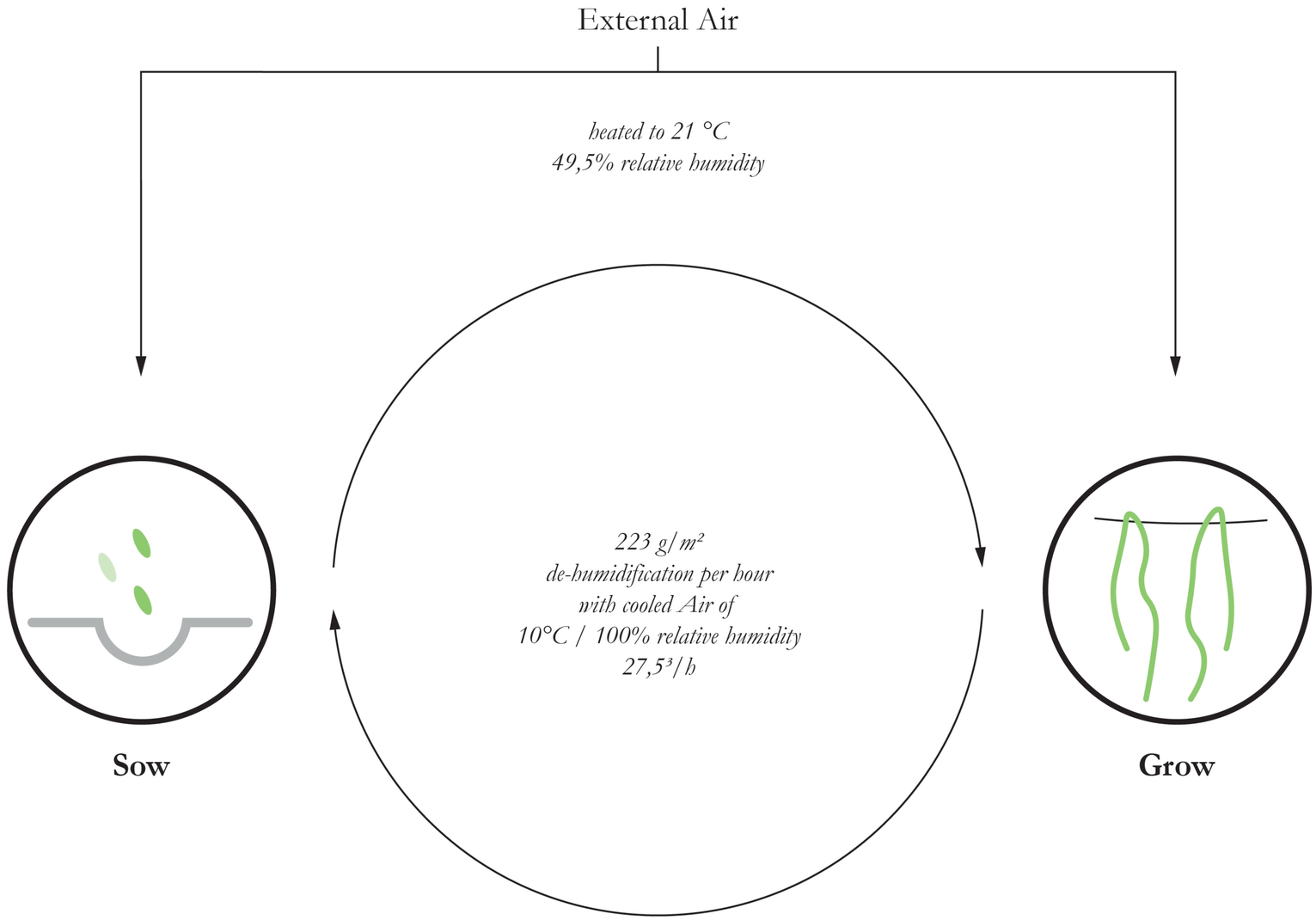

5 Km


Produce Shipping
Produce Shipping
Storage
Conveyor
Grow Floors
Conveyor
Waste
Vegetables
Fermenter
Clean Meat
Biomass
Restaurant

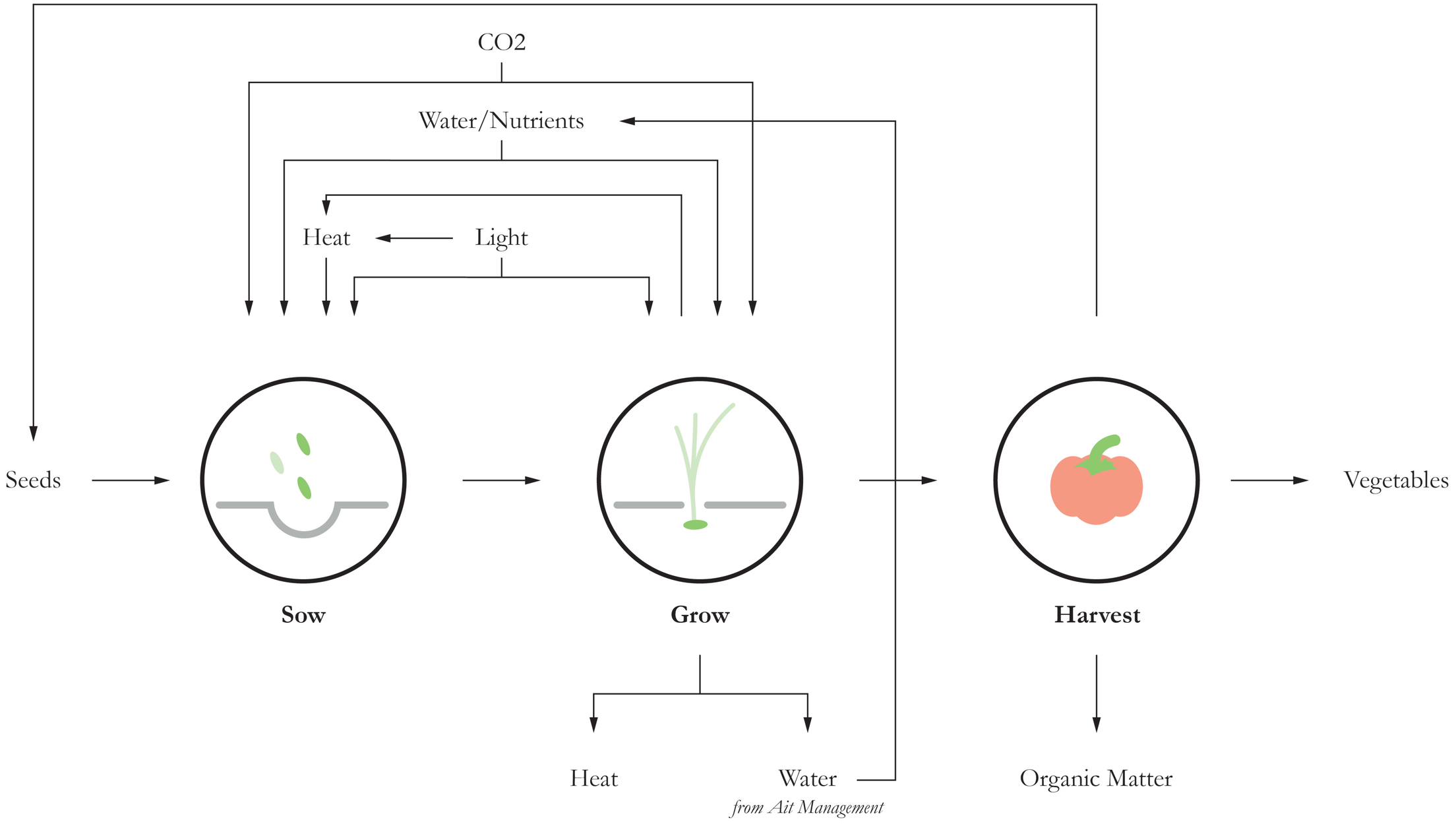

Cultivation Scaffolding
Cell Cultivator
Nutrition Tanks
Sedimentation
Sedimentation
Grey Water
Water
Cyanobacteria Pond
Vertical Farm
Air exchange
NDS
Algae
Water
Air
O2
Clean Water Basin
Living Mashine
River Water
Water
Fresh Water Tank
Ozonation
Grey Water Basin
Desinfection
Recycled Water
Sterilization
Continuous
Meat Cultivation Cycle
Nutrition Media
Media Tank
Fermenter
Carbon Filtration
Sand
Filter
Biomass
Nutrition Media
Continuous
Dehumidification Cycle
&
Nutrition Delivery



Air Management
Gutter System / Lettuce
desired 23 °C & 80% relative humidity

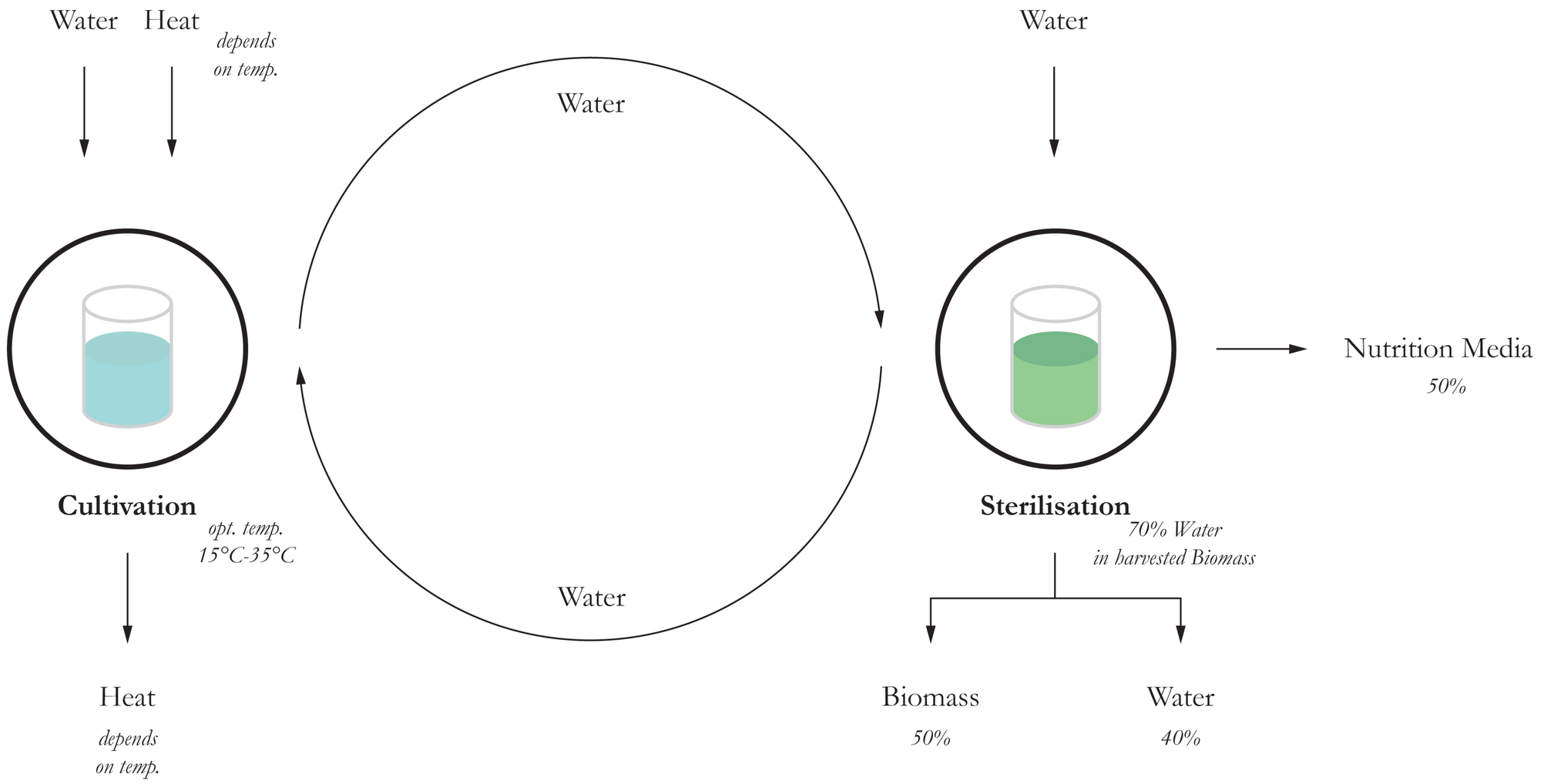


Air Management
High Wire / Tomato
desired 23 °C & 80% relative humidity



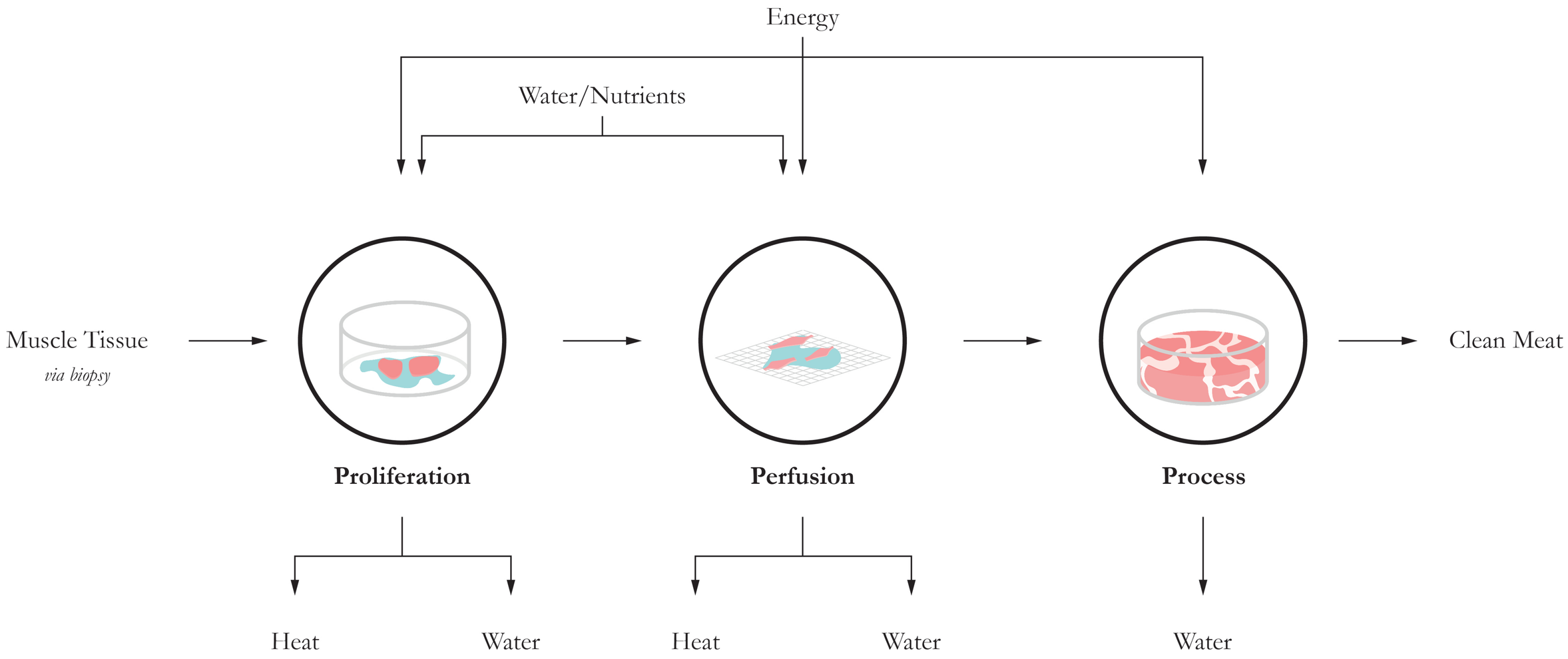
Energy Demand:

Illumination 69,9%
Air Management 27,9%



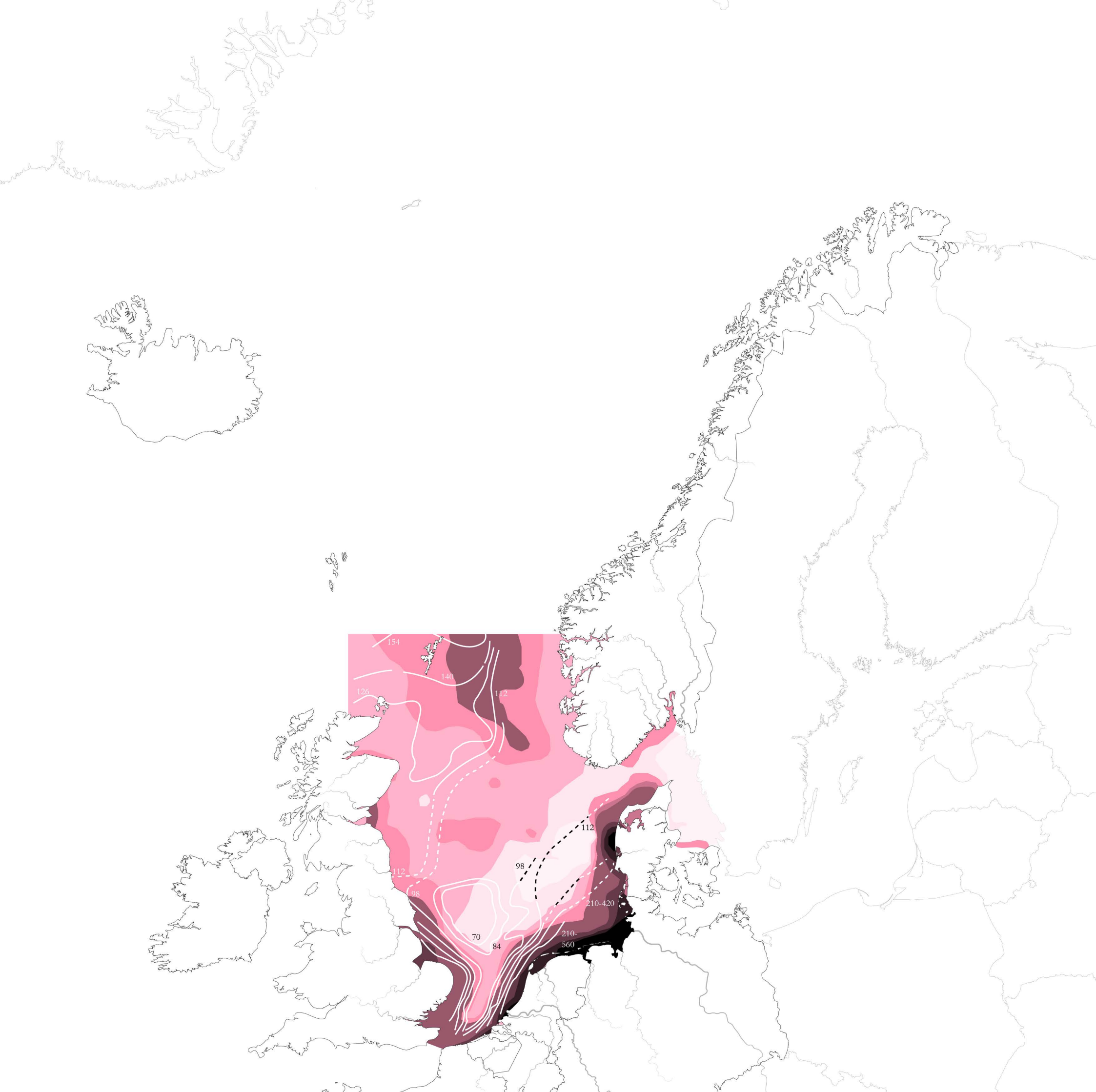
Nutrition Production
Cyanobacteria / Algae

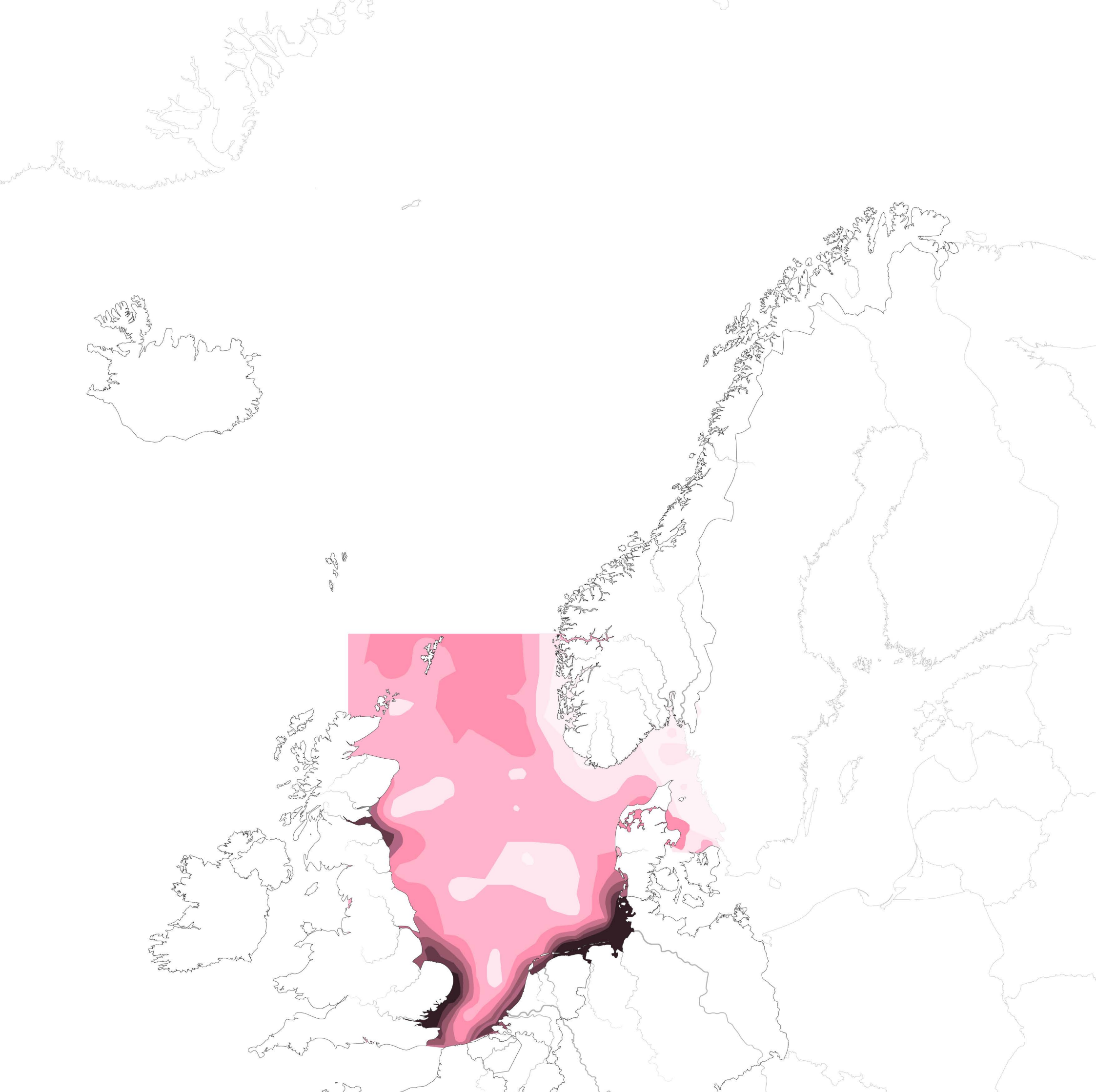
best method is an open pond

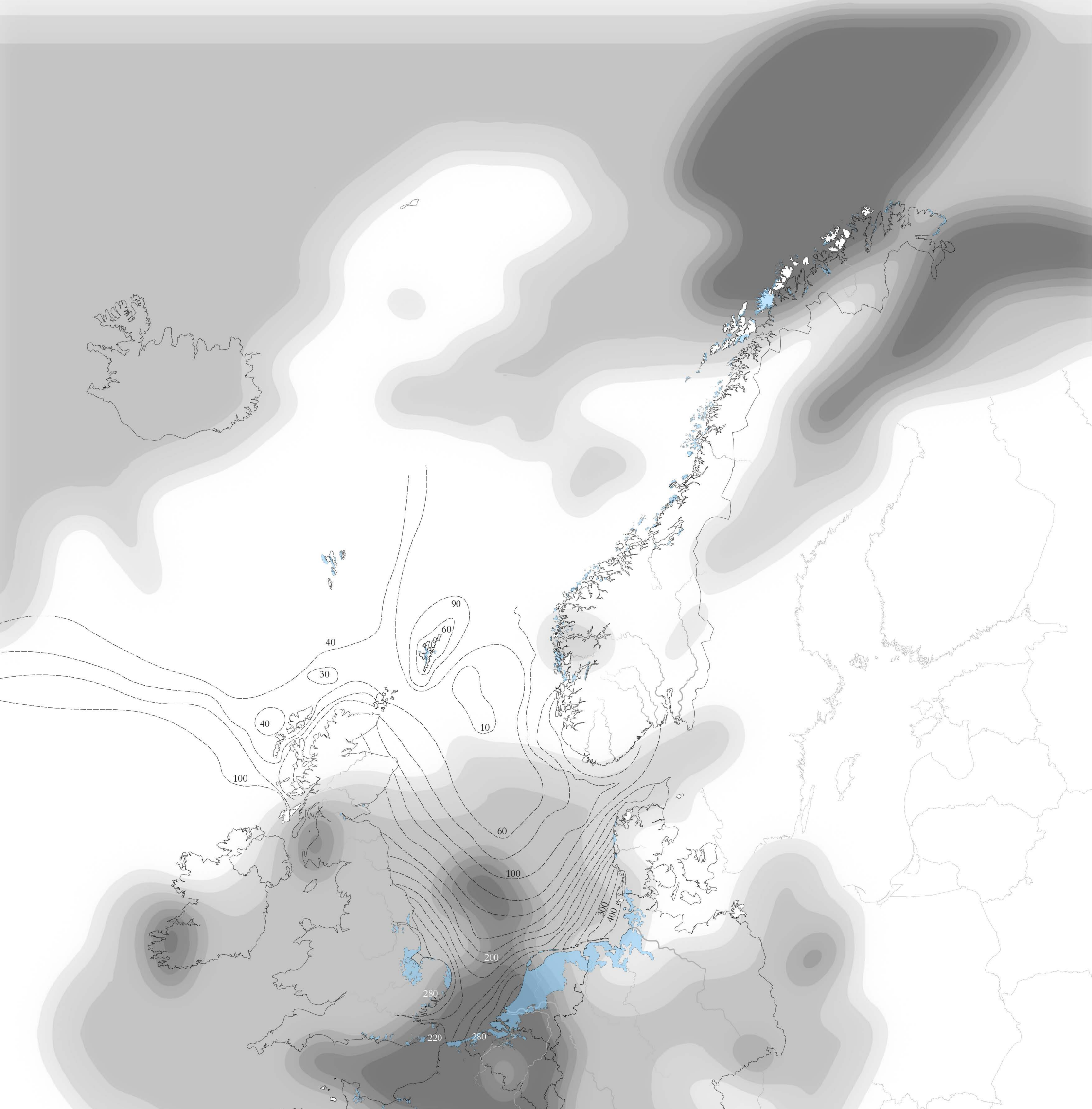


Muscle Meat Cultivation Process

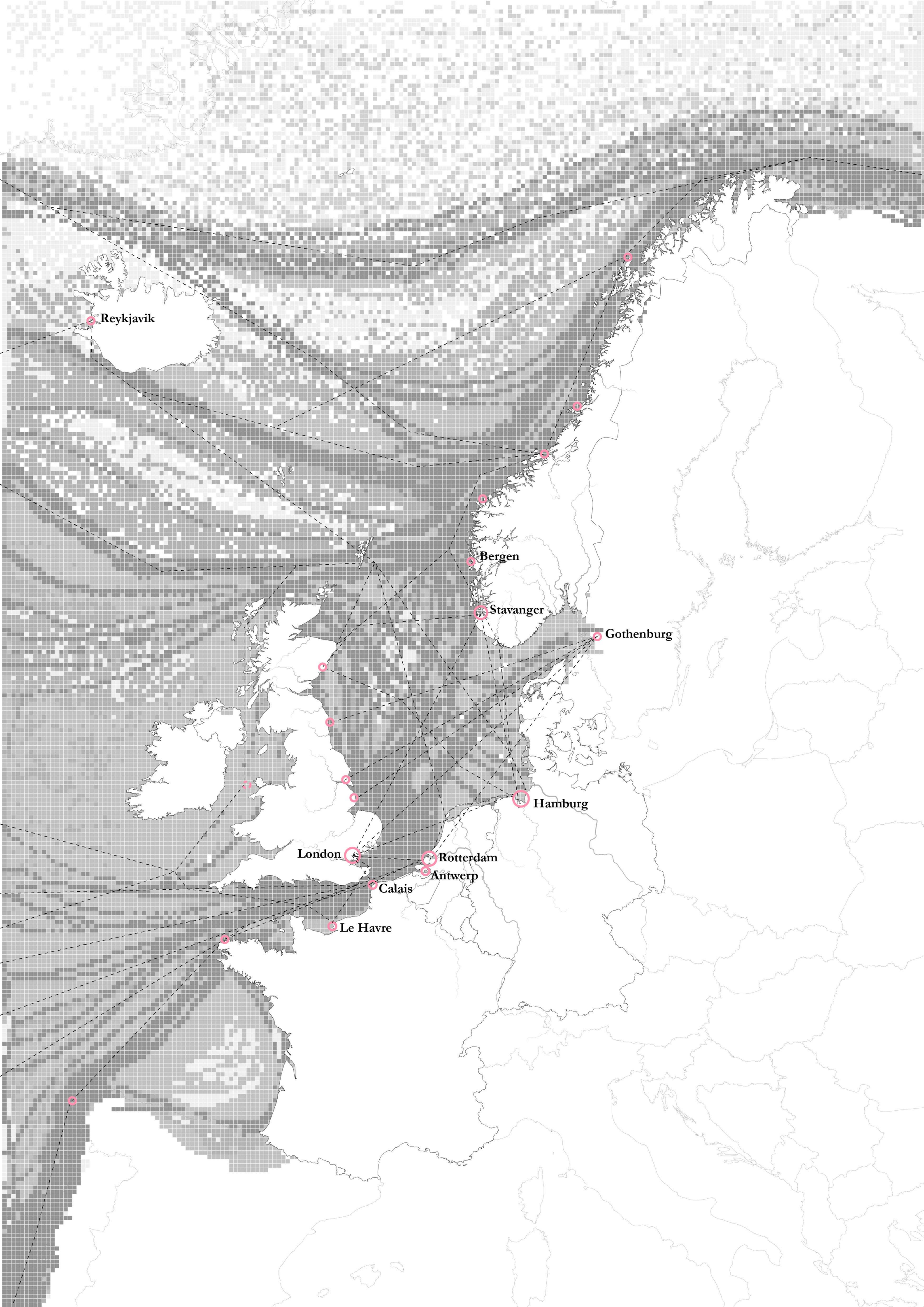
80% of the water used in the process can be recycled without treatment

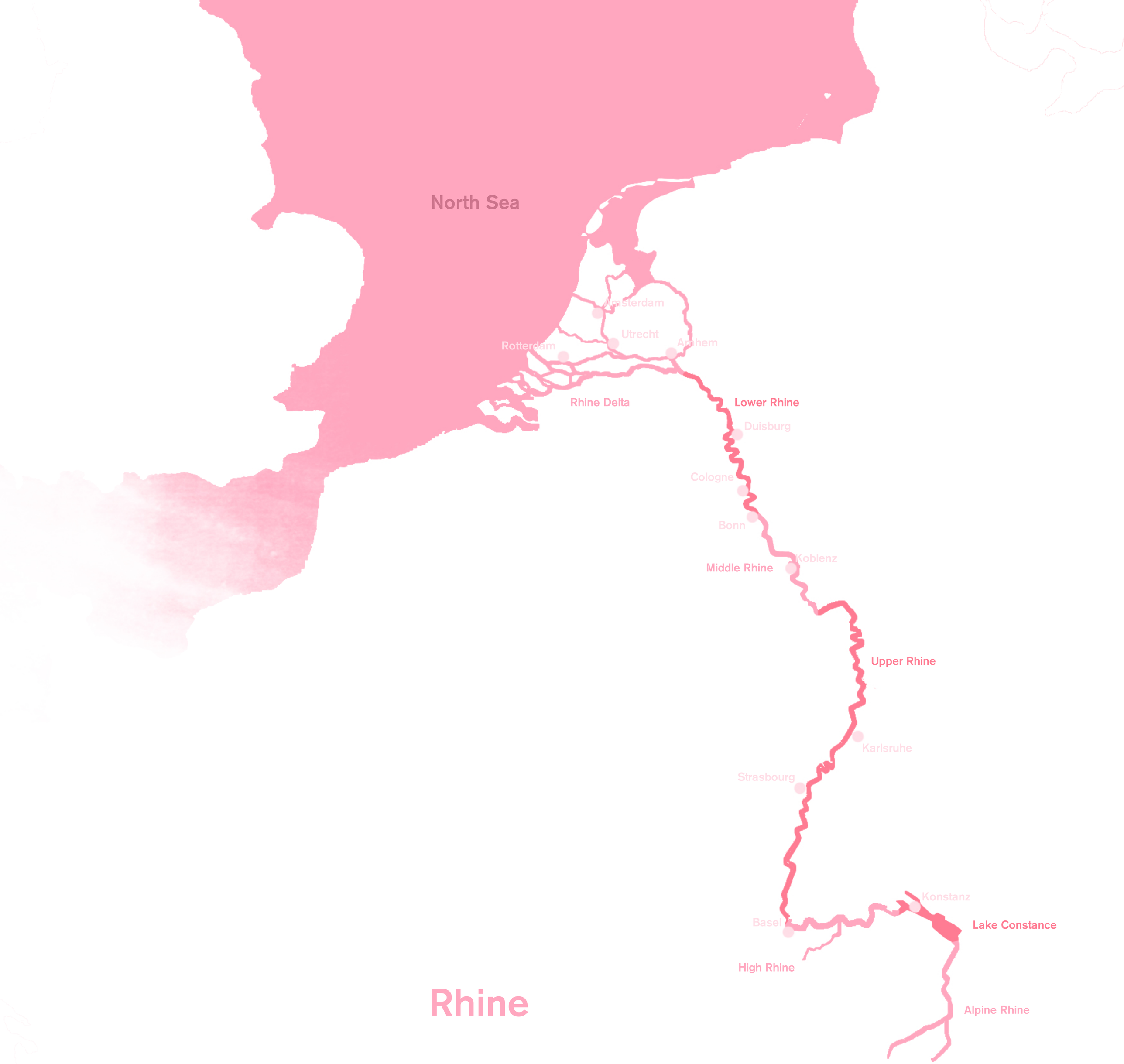

154
140
126
112
112
98
70
84
112
98
210-420
210-
560




90
60
40
30
40
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60
100
300
400
200
280
220
280

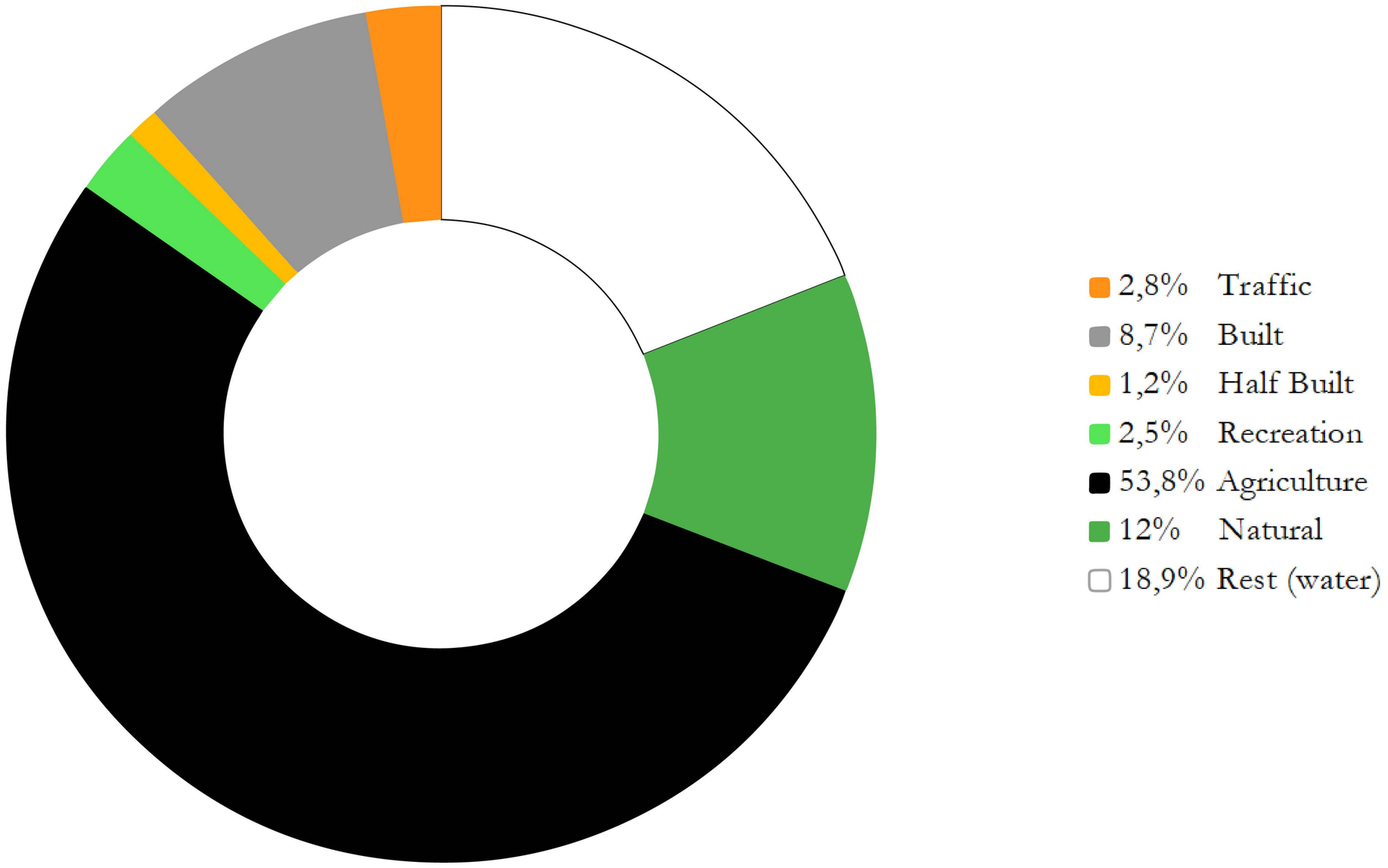
Reykjavik
Bergen
Stavanger
Gothenburg
Hamburg
London
Rotterdam
Antwerp
Calais
Le Havre
10
40
30
40
90
60
100
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200
300
400
280
220
280

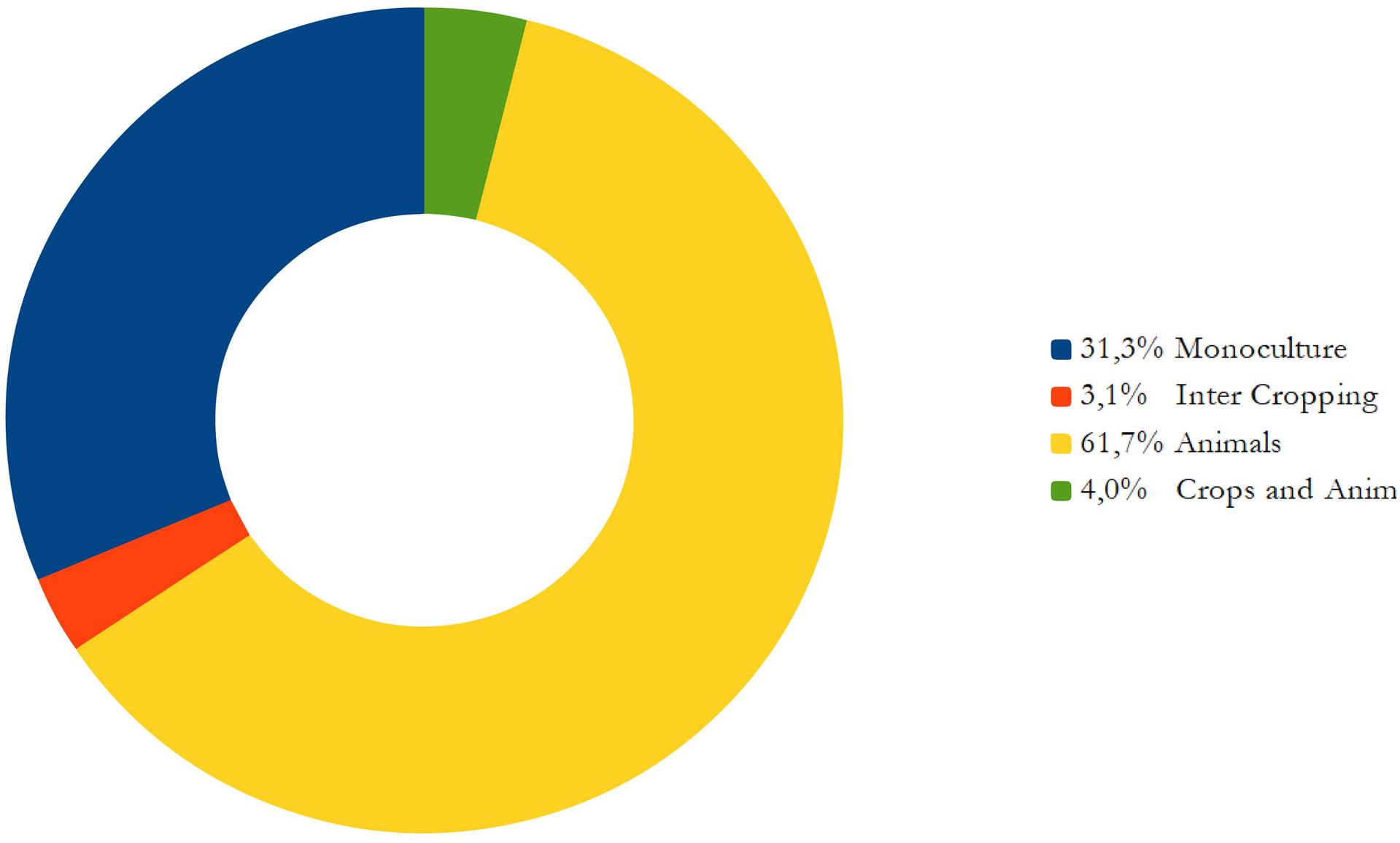

Reykjavik
Bergen
Stavanger
Gothenburg
Hamburg
London
Rotterdam
Antwerp
Calais
Le Havre

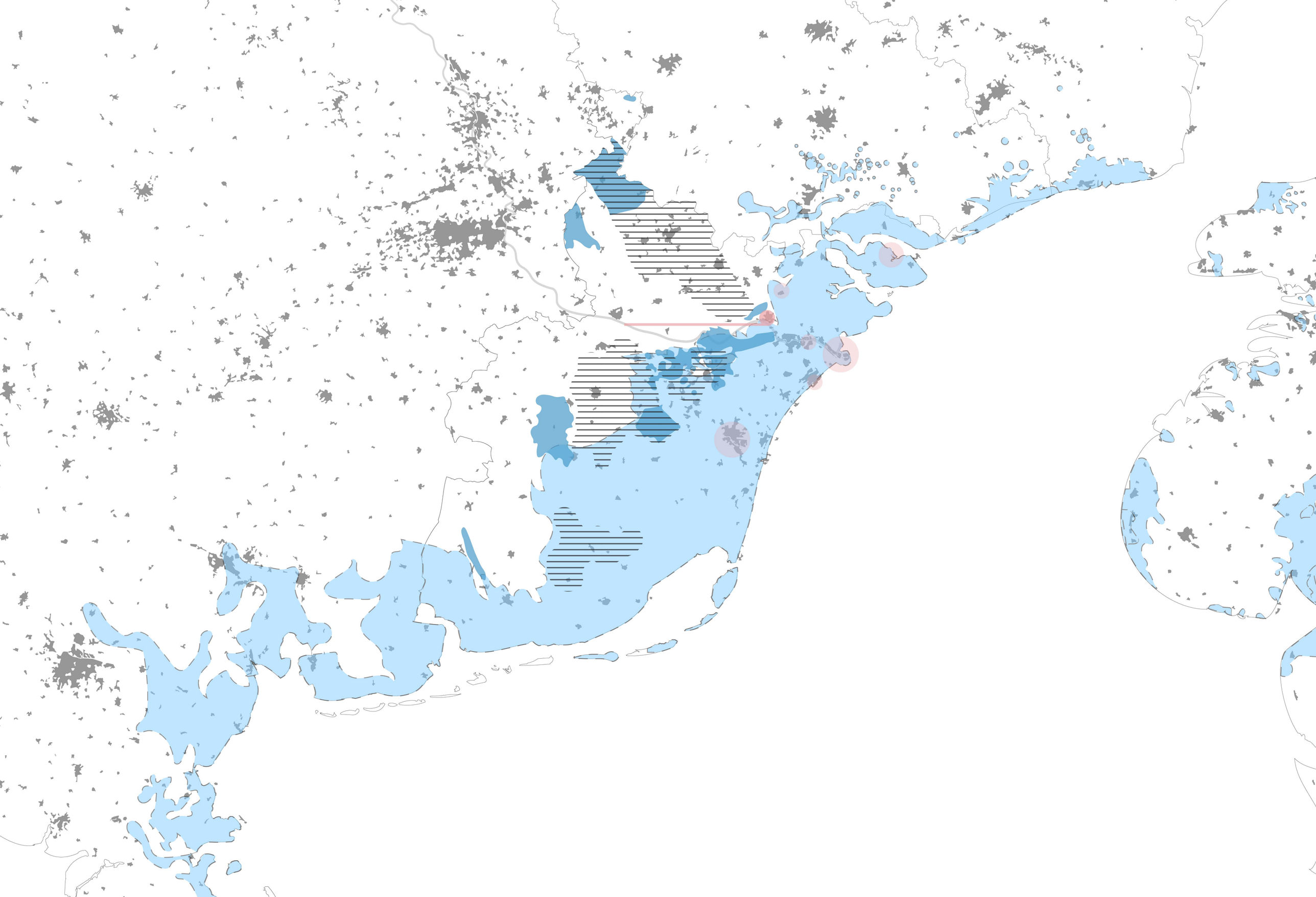

North Sea
Amsterdam
Utrecht
Rotterdam
Arnhem
Rhine Delta
Lower Rhine
Duisburg
Cologne
Bonn
Koblenz
Middle Rhine
Upper Rhine
Karlsruhe
Strasbourg
Konstanz
Basel
Lake Constance
High Rhine
Alpine Rhine

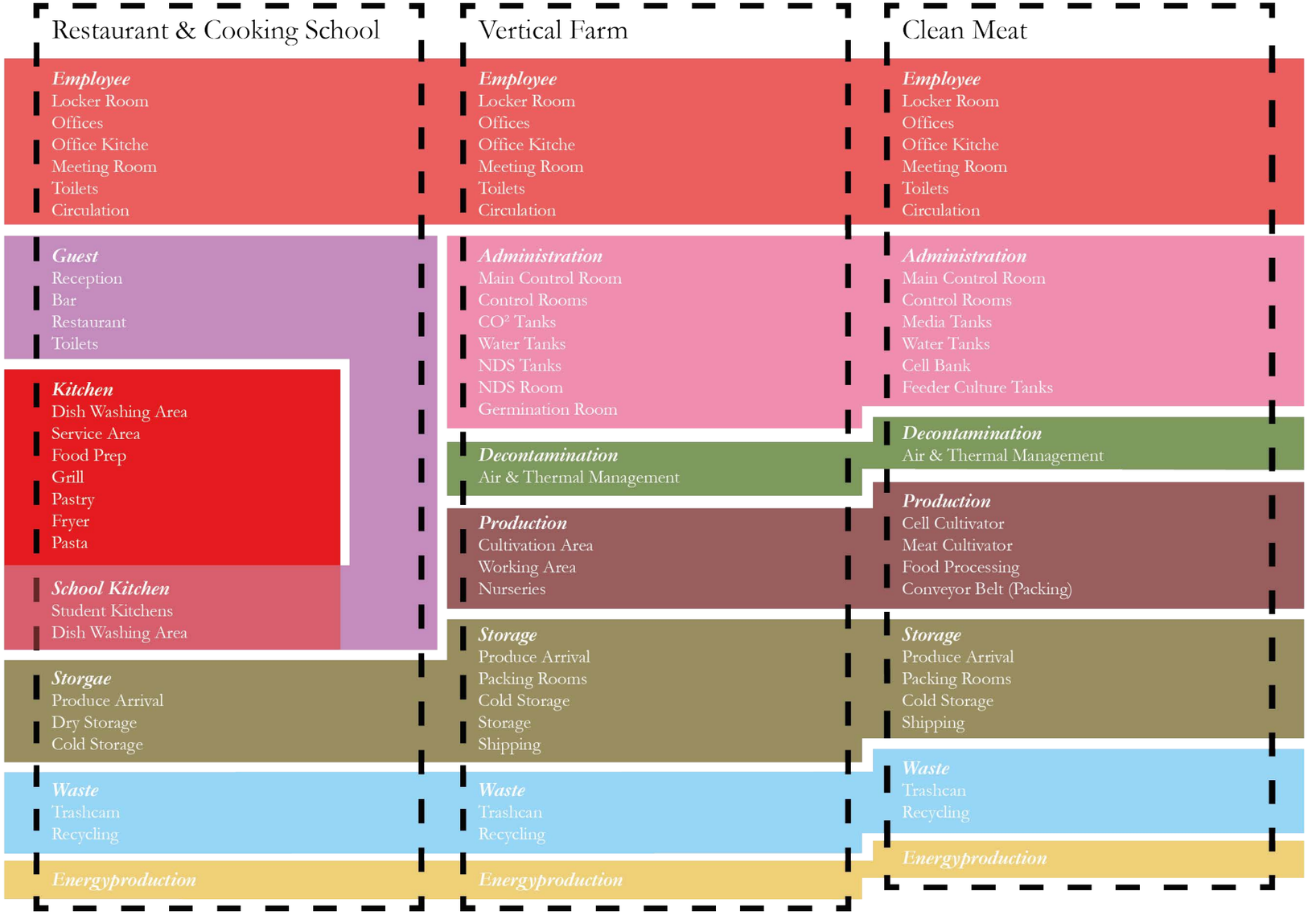
Rhine

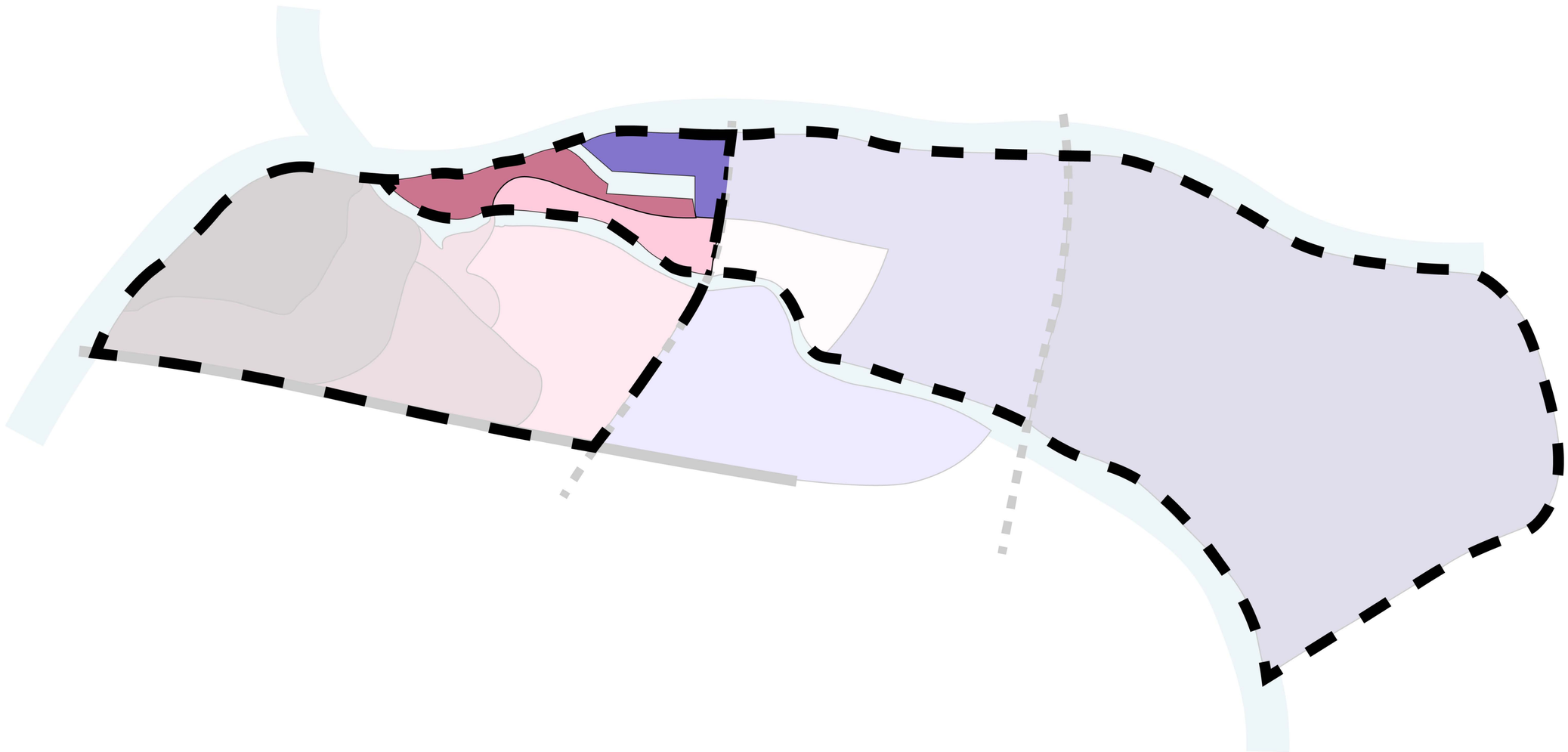


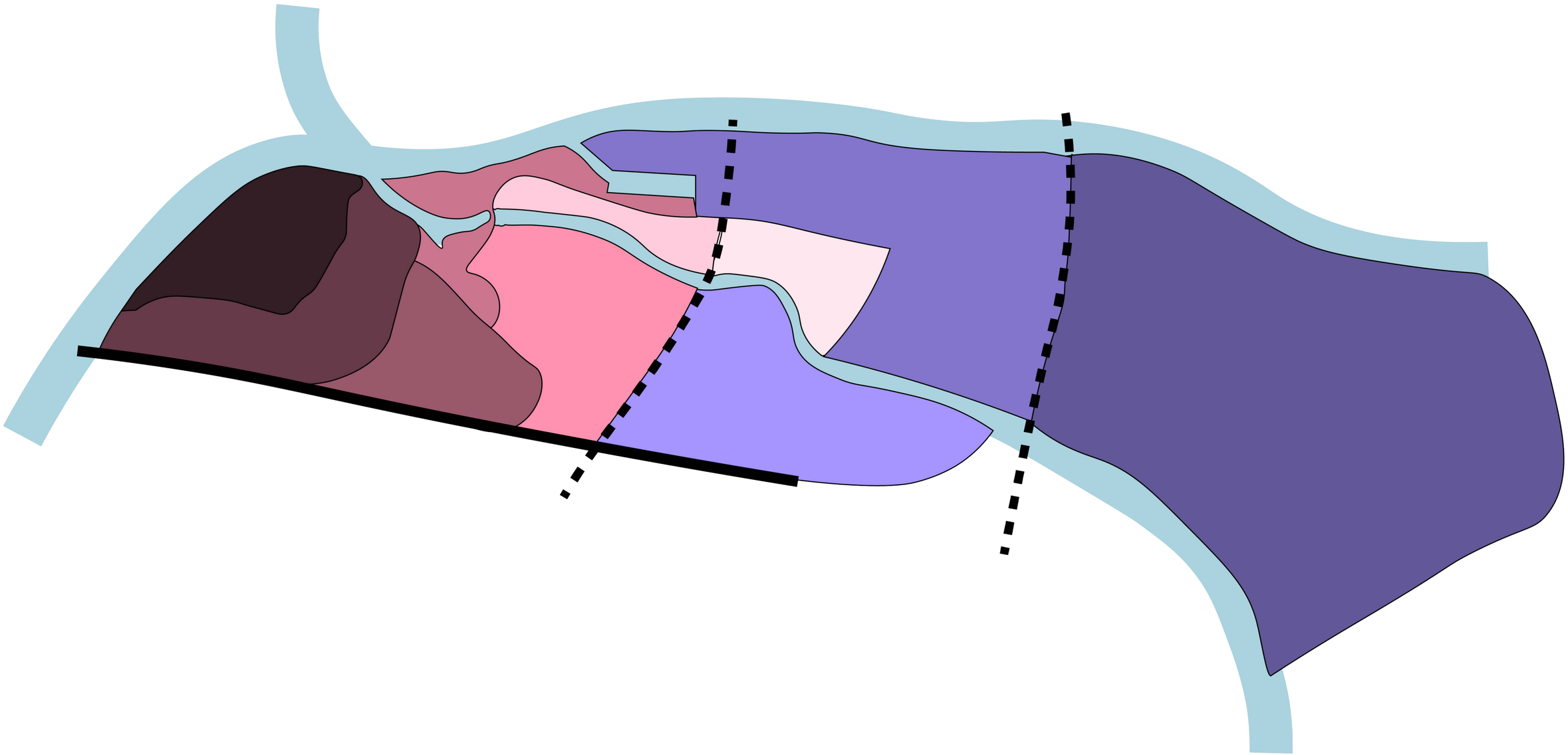

2,8% Traffic
8,7% Built
1,2% Half Built
2,5% Recreation
53,8% Agriculture
12% Natural
18,9% Rest (water)

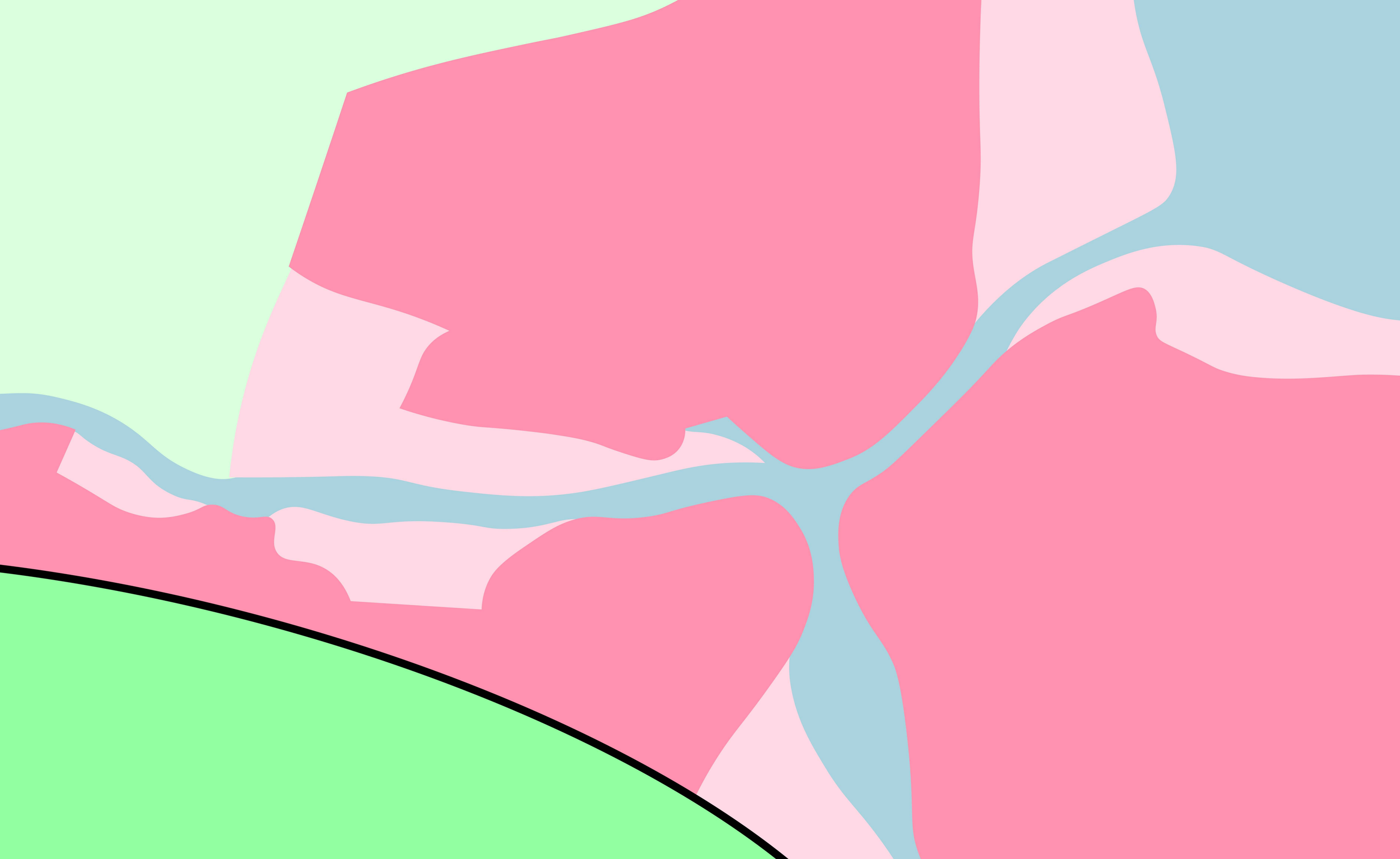

31,3% Monoculture
3,1% Inter Cropping
61,7% Animals
4,0% Crops and Anim

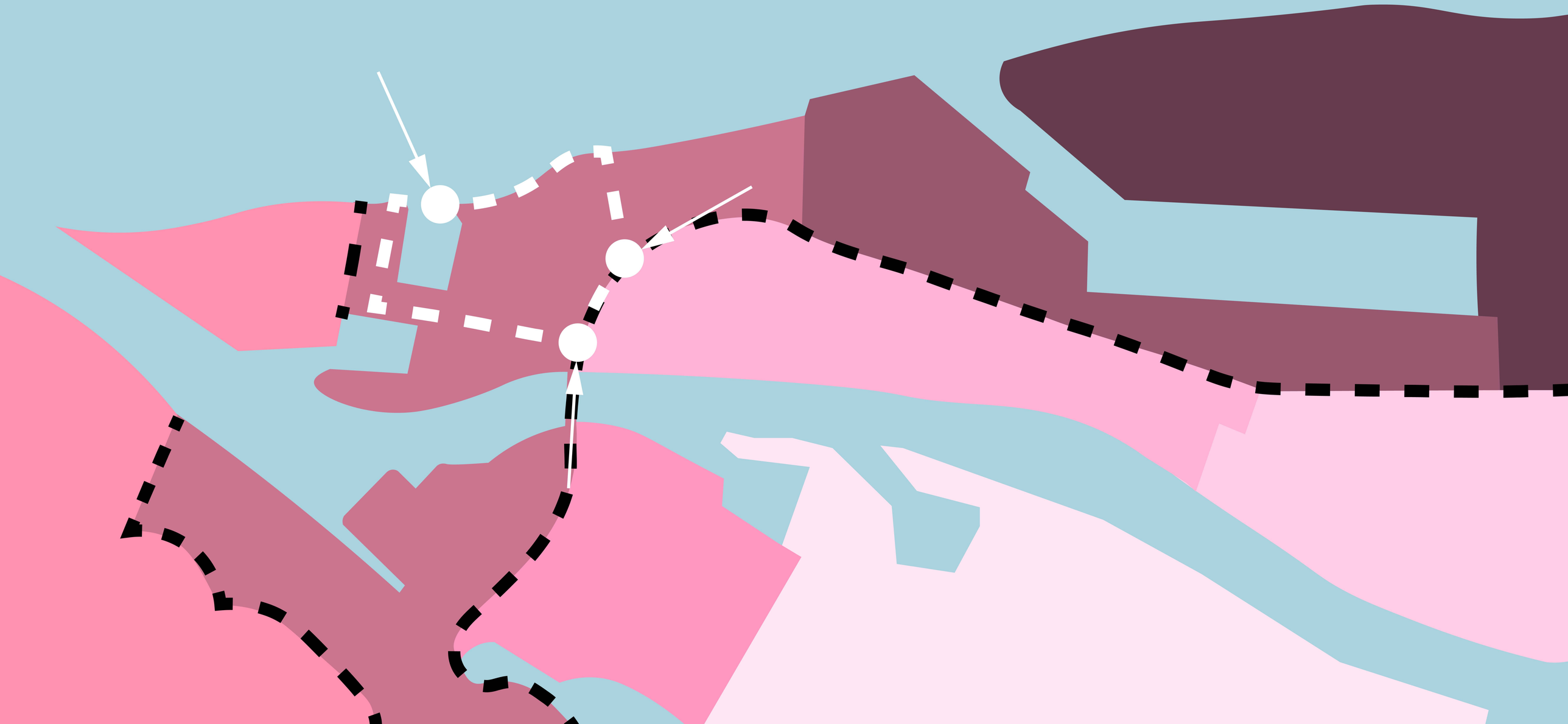


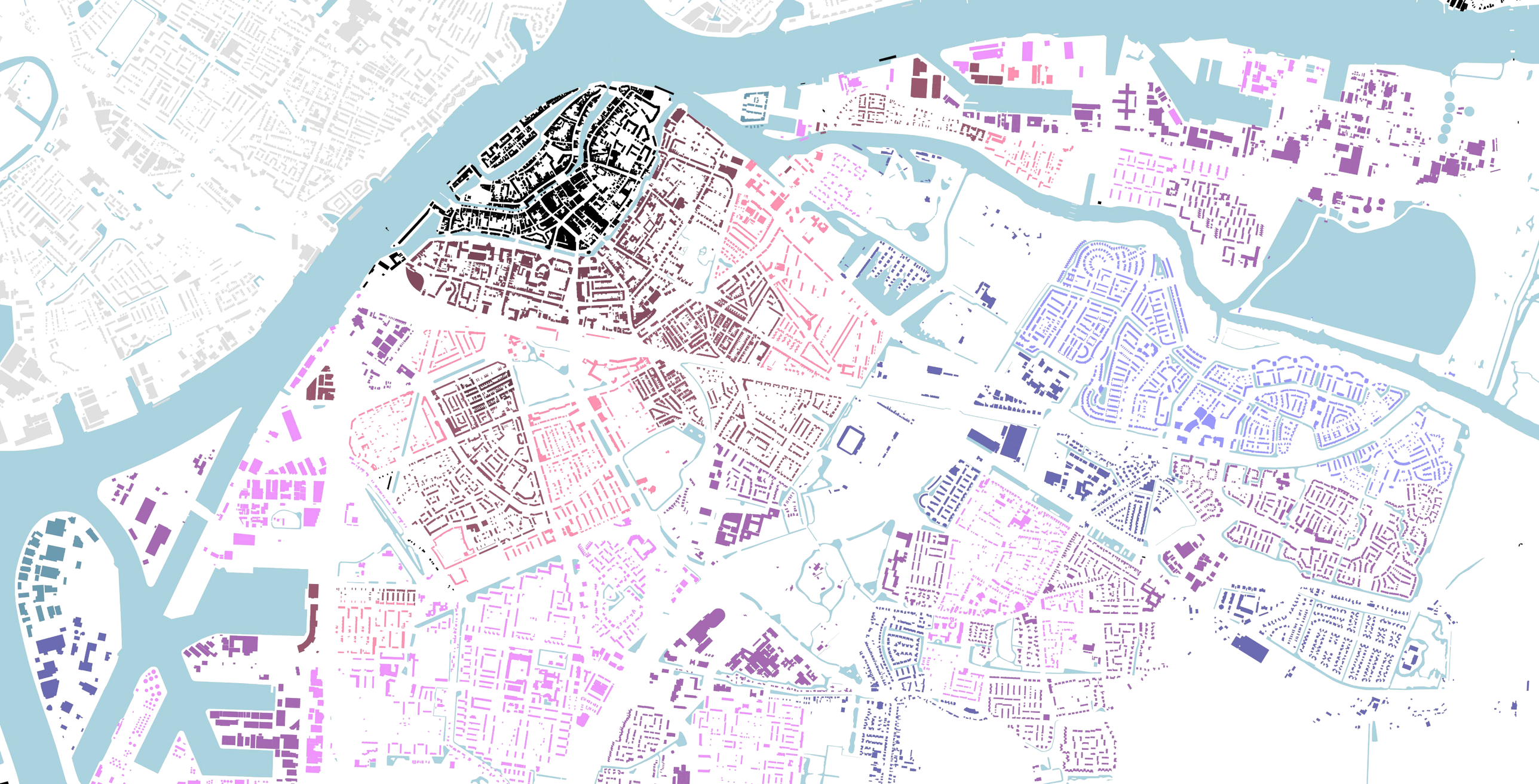

Restaurant & Cooking School
Employee
Locker Room
Offices
Office Kitche
Meeting Room
Toilets
Circulation
Guest
Reception
Bar
Restaurant
Toilets
Kitchen
Dish Washing Area
Service Area
Food Prep
Grill
Pastry
Fryer
Pasta
School Kitchen
Student Kitchens
Dish Washing Area
Storgae
Produce Arrival
Dry Storage
Cold Storage
Waste
Trashcam
Recycling
Energyproduction
Vertical Farm
Employee
Locker Room
Offices
Office Kitche
Meeting Room
Toilets
Circulation
Administration
Main Control Room
Control Rooms
CO² Tanks
Water Tanks
NDS Tanks
NDS Room
Germination Room
Decontamination
Air & Thermal Management
Production
Cultivation Area
Working Area
Nurseries
Storage
Produce Arrival
Packing Rooms
Cold Storage
Storage
Shipping
Waste
Trashcan
Recycling
Energyproduction
Clean Meat
Employee
Locker Room
Offices
Office Kitche
Meeting Room
Toilets
Circulation
Administration
Main Control Room
Control Rooms
Media Tanks
Water Tanks
Cell Bank
Feeder Culture Tanks
Decontamination
Air & Thermal Management
Production
Cell Cultivator
Meat Cultivator
Food Processing
Conveyor Belt (Packing)
Storage
Produce Arrival
Packing Rooms
Cold Storage
Shipping
Waste
Trashcan
Recycling
Energyproduction



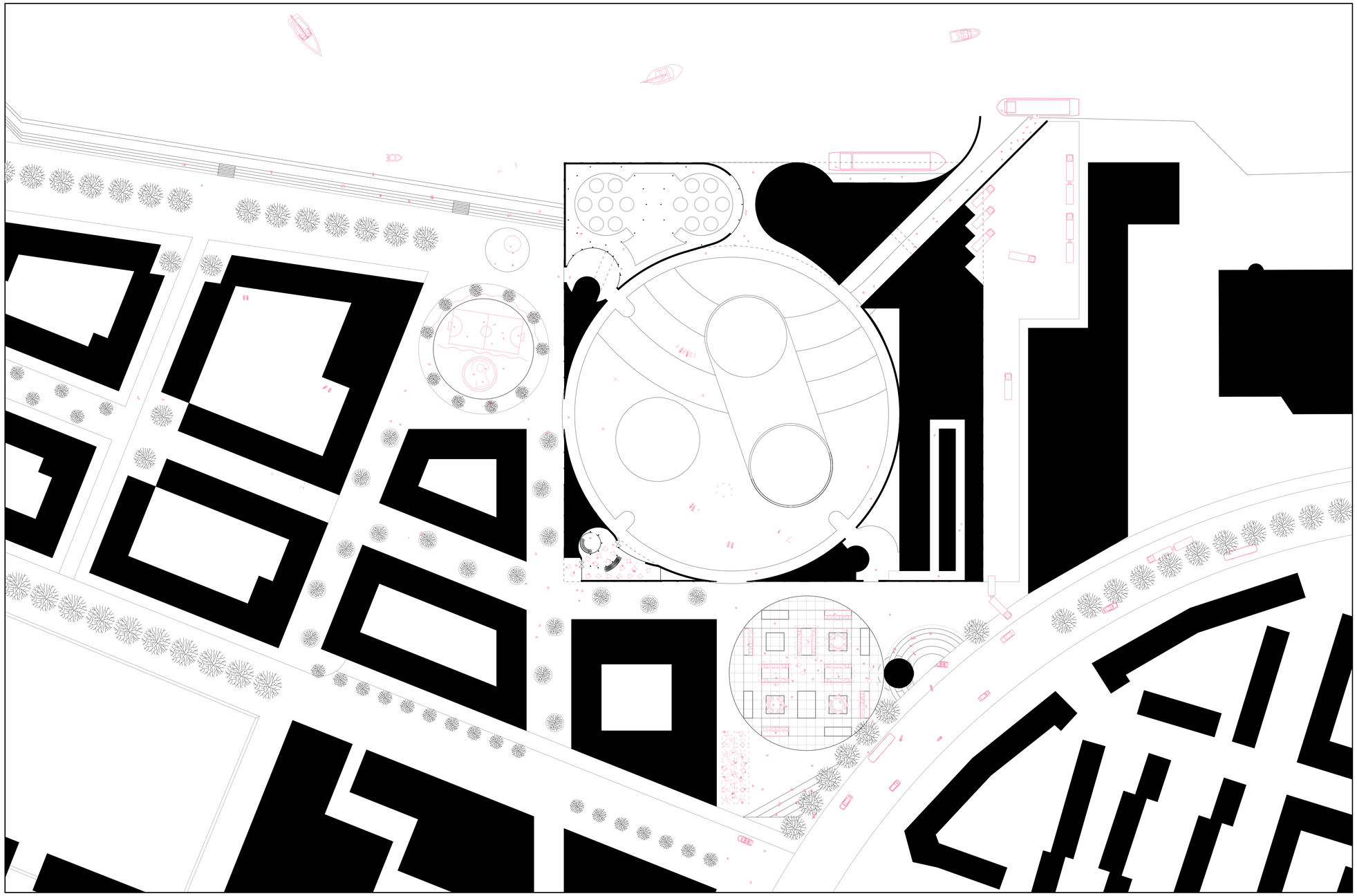


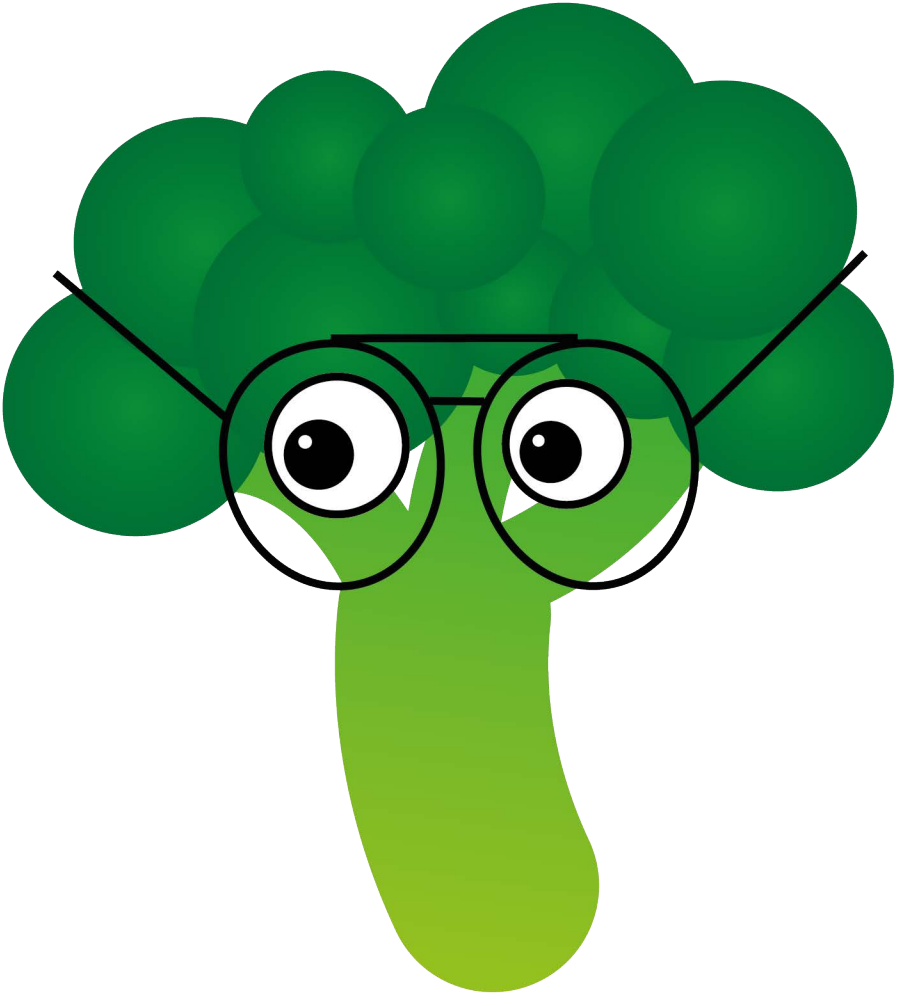


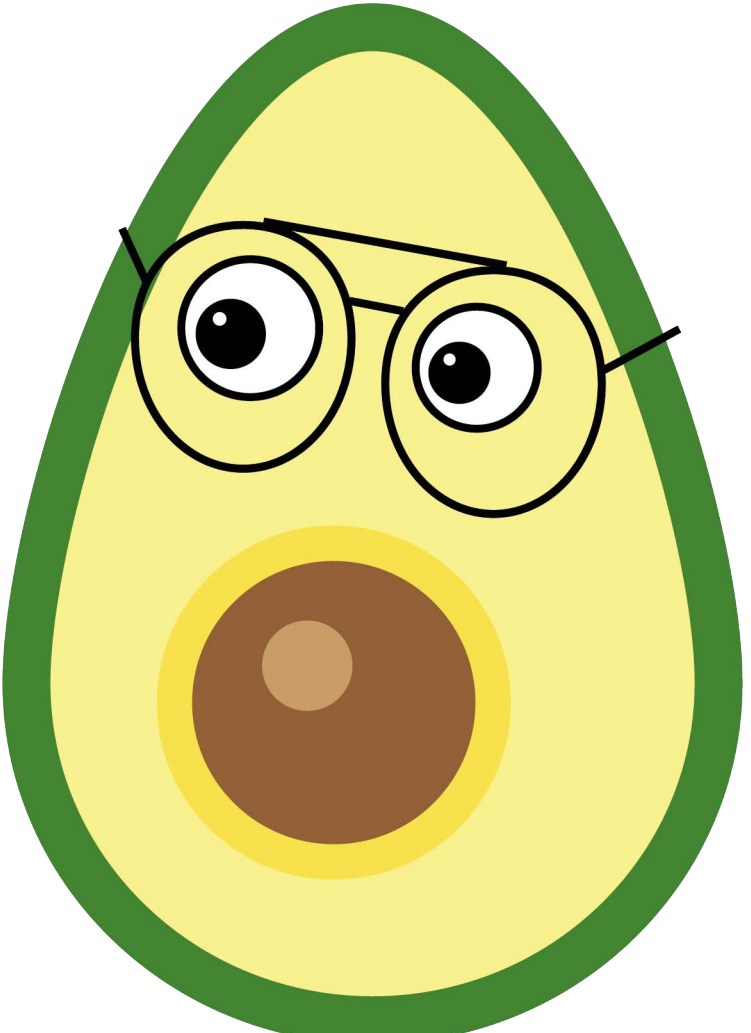


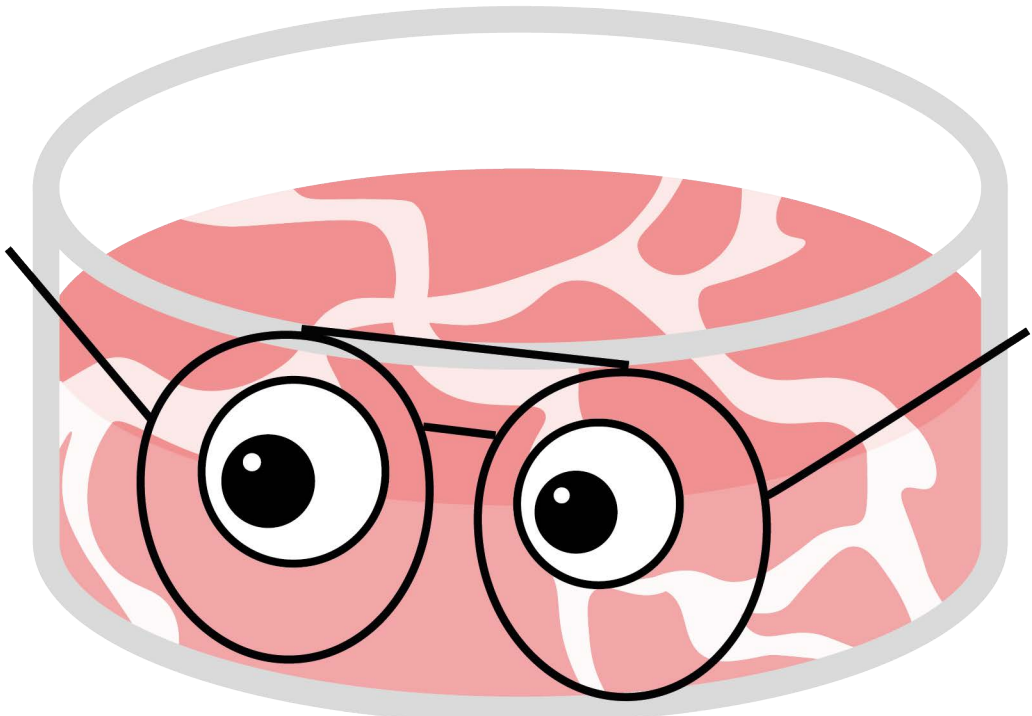


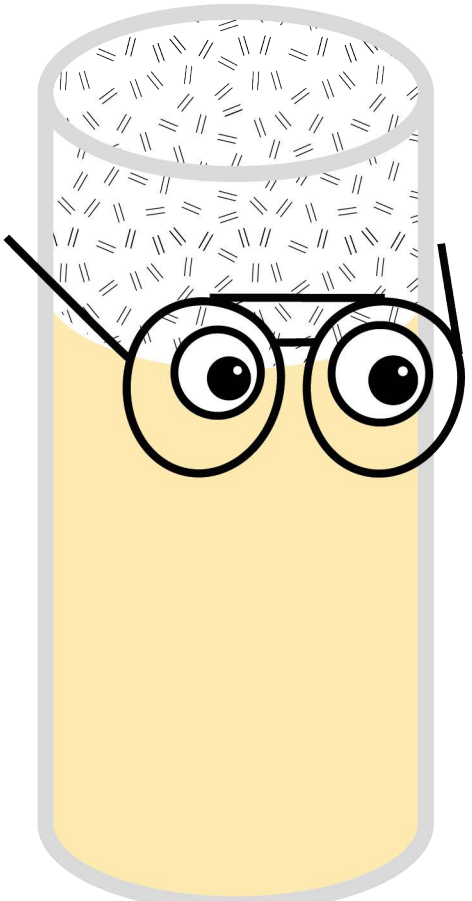


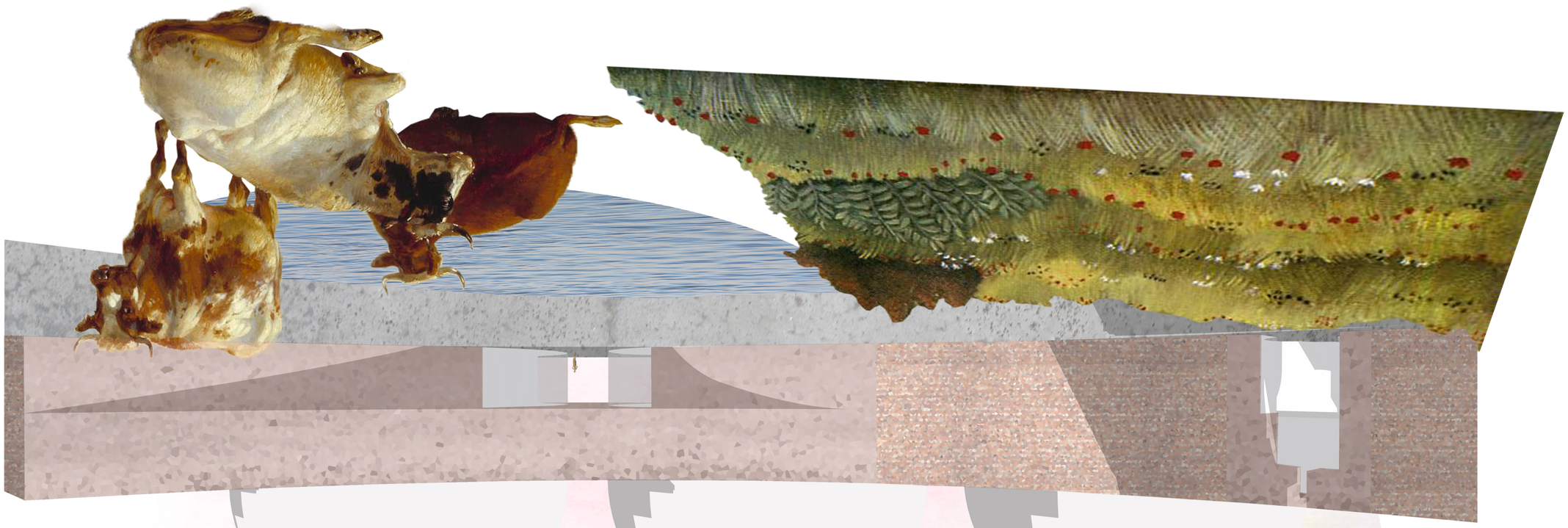

N
2,5
5
7,5
15
30 m

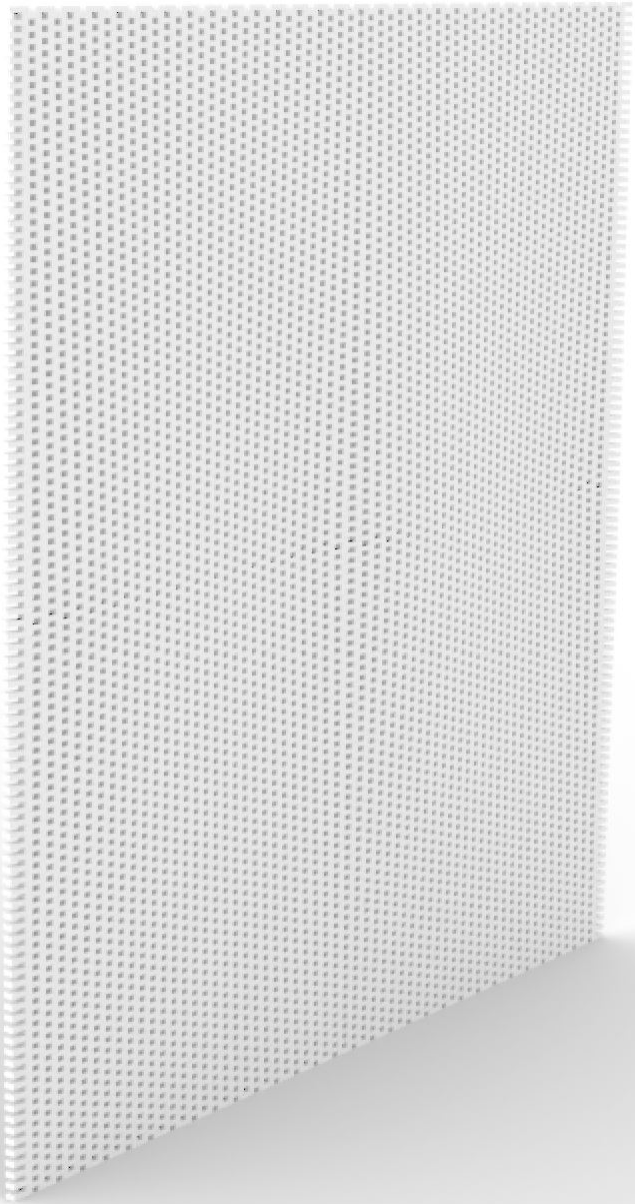










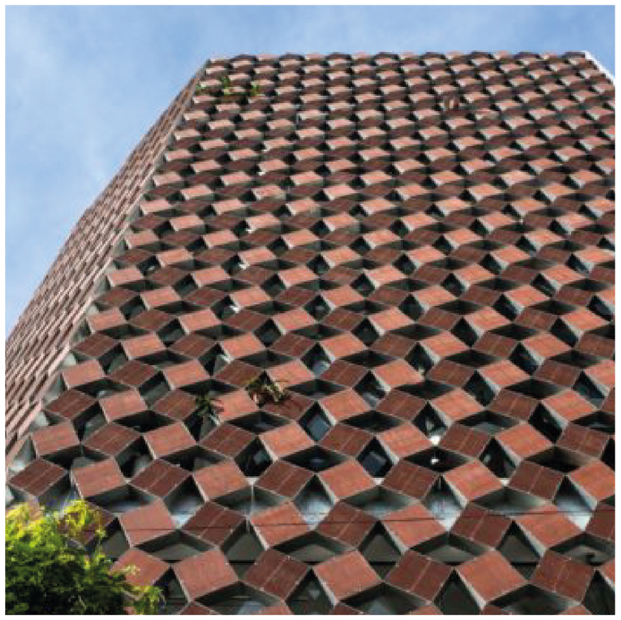


How can a brick facade be textile?



Textilverband Münster, Münster
behet bodzino lin architeckten

https://www.zi-online.info/imgs/1/2/4/2/0/7/5/AF_800_533-476a7b05e3c12349.jpg



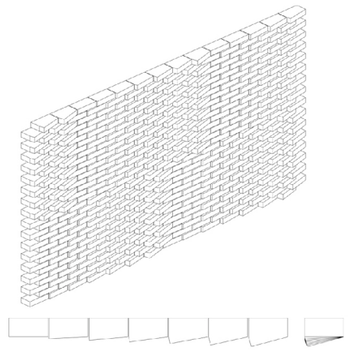
Office Building, Hanoi
H&P Architects

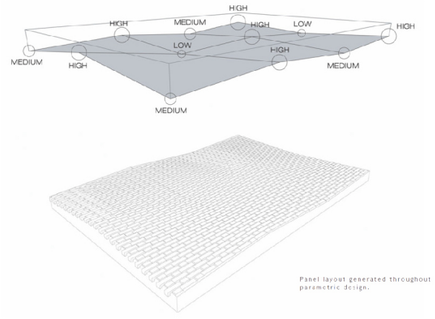
https://materialdistrict.com/article/properly-breathing-house-recycled-ceramic-bricks/

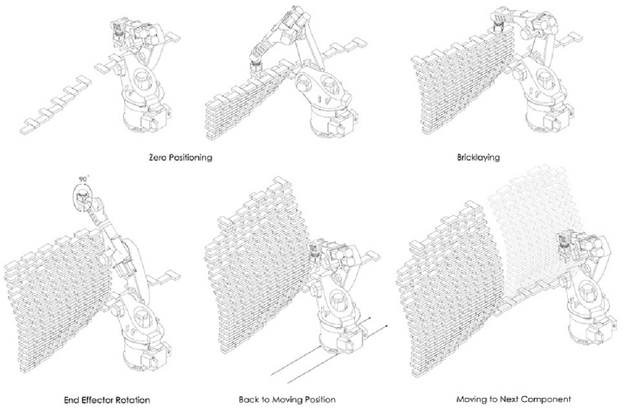


Stan Pau Reserach Institute, Barcelona
PICH Architects

https://www.flexbrick.net/en/portfolio/sant-pau-research-institute-in-barcelona/







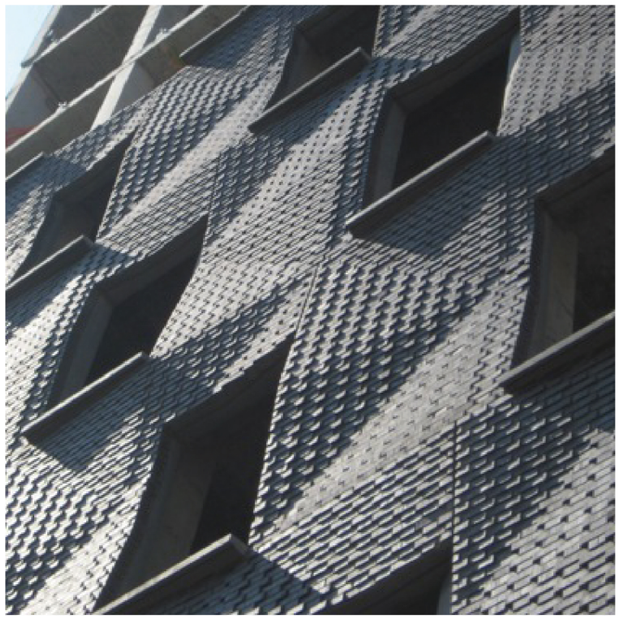


built by mason at site

Textilverband Münster, Münster
behet bodzino lin architeckten

https://www.zi-online.info/imgs/1/2/4/2/0/7/5/AF_800_533-476a7b05e3c12349.jpg

https://www.2bxl.com/#/twm/



pre-fab facade panels built by robots

290 Mulberry
ShoP Architects

https://www.archdaily.com/9028/in-progress-290-mulberry-shop-architects



built by robots on site

Art Gallery, Shanghai
Archi-Union Architects

https://www.flexbrick.net/en/portfolio/sant-pau-research-institute-in-barcelona/

http://www.archi-union.com/Homes/Projectshow/index/pageid/6/id/40

Enclosure

Textile

Sealing

Insulation

Window

Sunshade

Textile -

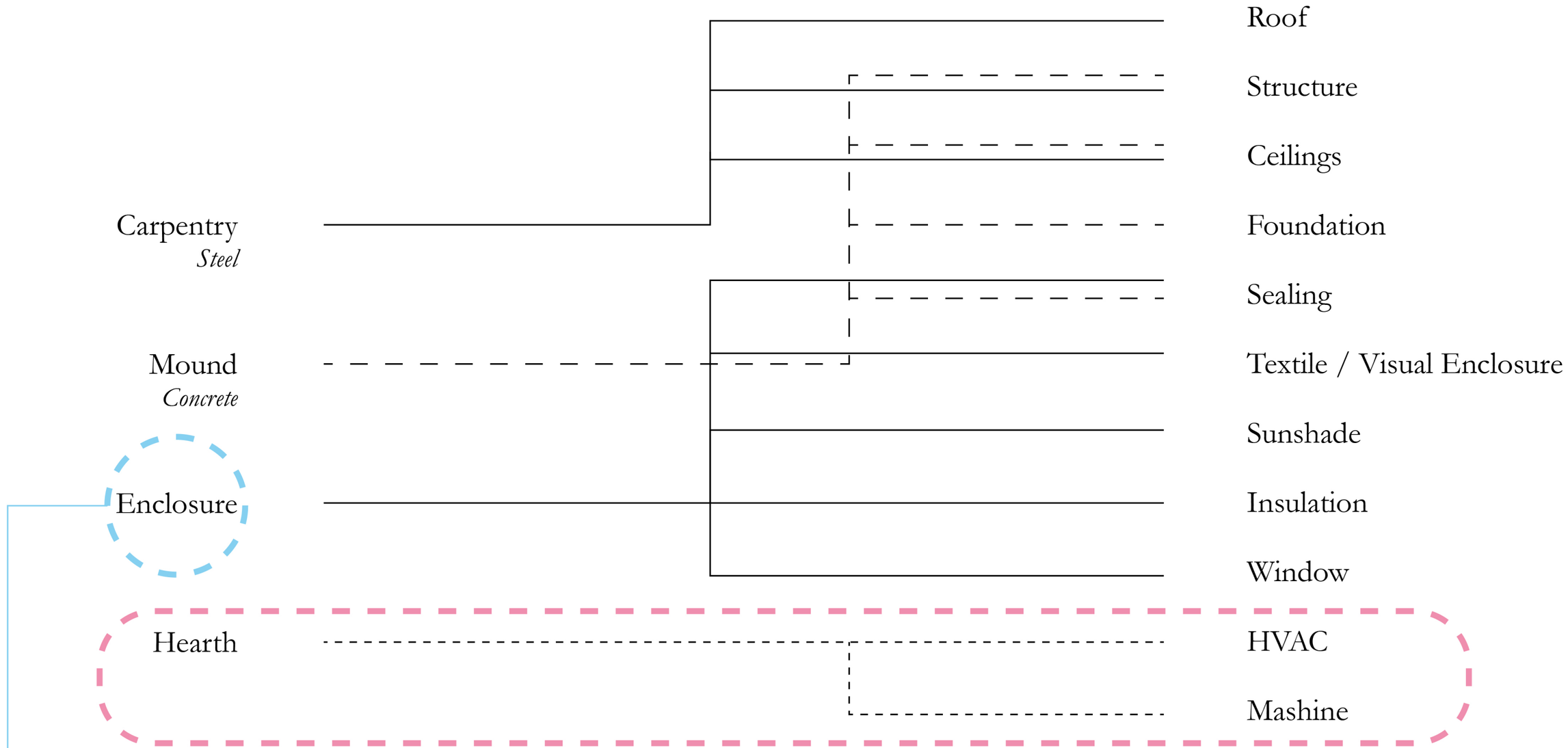
Semper refers with the element of textile to the tectonics of dressing which is represented through the art of weaving. The textile thereby is the devider of space.

„Wickerwork, the original space devider, retained the full importance of its meaning, actually or ideally, when later light mat walls transformed into clay, tile, brick or stonewalls. Wickerwork was the essence of the wall.“(Semper)

Considering the nature of brick facades being a cladding which fulfill the concept of dressing, I will further investigate how i can built a *textile* brickfacade.

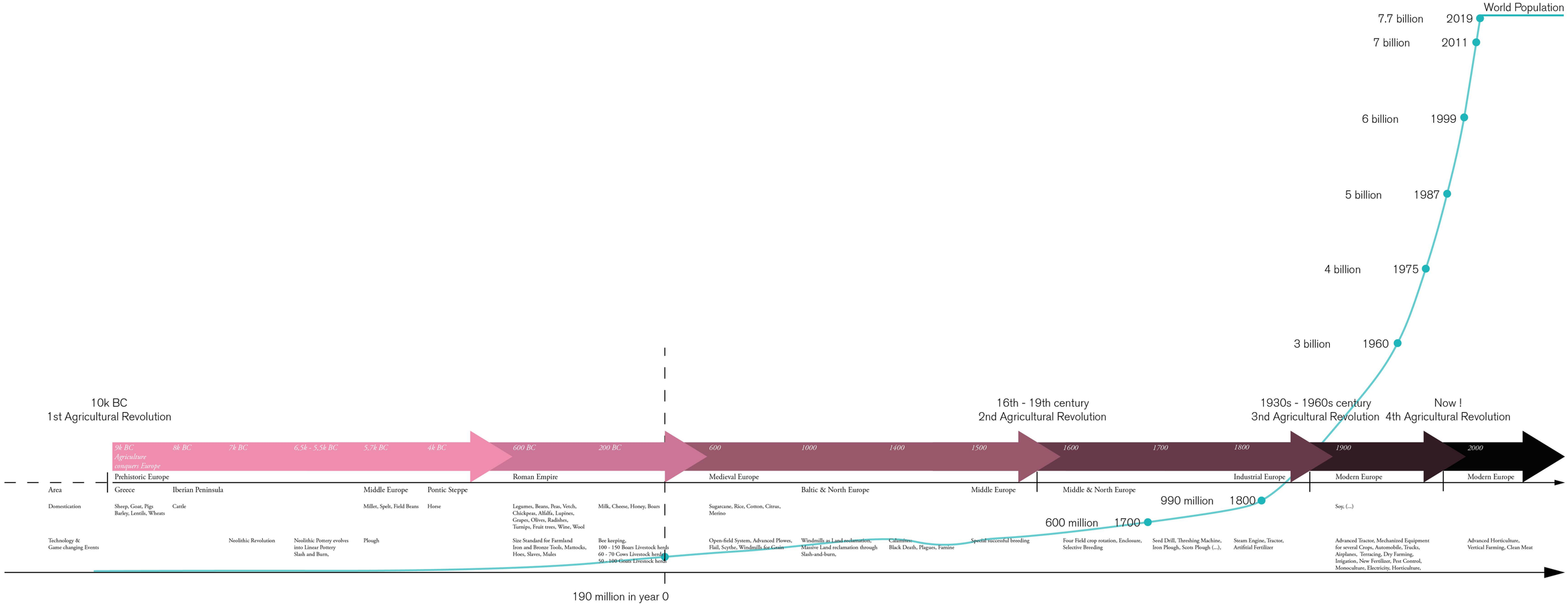
Semper, G., (1851). *Die Vier Elemente der Baukunst,* p. 104

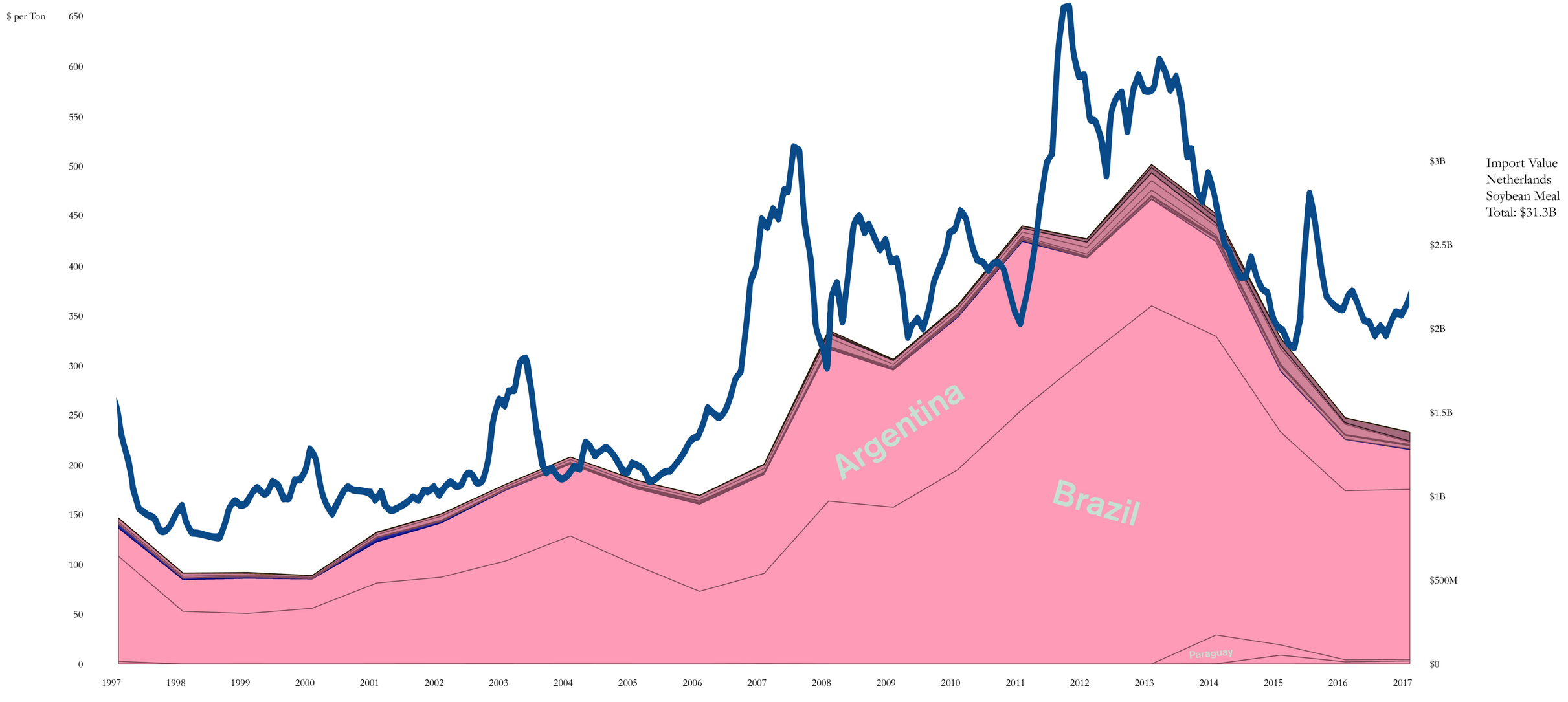
Garritzmann, U 2016, The Tectonics of Brick Architecture: Between the Tectonics of Load-bearing and the Tectonics of Dressing. in JP Wingender (ed.), *Brick: An Exacting Material.* Architectura & Natura Press, pp. 113-132.



Enclosure - according to Semper enclosure has its origin in weaving. Therefore the wall of the Barbarian hut, as presented in „The Four Elements of Architecture“ is purely a visual facade of the architecture. Only by additional requirements like structural, sealing or insulating the wall developes beyond the fabric.

Semper, G., (1851). *Die Vier Elemente der Baukunst*


World Population
7.7 billion
2019
7 billion
2011
6 billion
1999
5 billion
1987
4 billion
1975
3 billion
1960
990 million
1800
600 million
1700
10k BC
1st Agricultural Revolution
16th - 19th century
2nd Agricultural Revolution
1930s - 1960s century
3nd Agricultural Revolution
Now !
4th Agricultural Revolution
9k BC
Agriculture
conquers Europe
8k BC
7k BC
6,5k - 5,5k BC
5,7k BC
4k BC
600 BC
200 BC
600
1000
1400
1500
1600
1700
1800
1900
2000
Prehistoric Europe
Roman Empire
Medieval Europe
Industrial Europe
Modern Europe
Modern Europe
Area
Greece
Iberian Peninsula
Middle Europe
Pontic Steppe
Baltic & North Europe
Middle Europe
Middle & North Europe
Domestication
Sheep, Goat, Pigs
Barley, Lentils, Wheats
Cattle
Miller, Spelt, Field Beans
Horse
Legumes, Beans, Peas, Vetch,
Chickpeas, Alfalfa, Lupines,
Grapes, Olives, Radishes,
Turnips, Fruit trees, Wine, Wool
Milk, Cheese, Honey, Boars
Sugarcane, Rice, Cotton, Citrus,
Merino
Soy, (...)
Technology &
Game changing Events
Neolithic Revolution
Neolithic Pottery evolves
into Linear Pottery
Slash and Burn,
Plough
Size Standard for Farmland
Iron and Bronze Tools, Mattocks,
Hoes, Slaves, Mules
Bee keeping,
100 - 150 Boars Livestock herds
60 - 70 Cows Livestock herds
50 - 100 Goats Livestock herds
Open-field System, Advanced Plowes,
Flail, Scythe, Windmills for Grain
Windmills as Land reclamation,
Massive Land reclamation through
Slash-and-burn,
Calamities:
Black Death, Plagues, Famine
Spectal successful breeding
Four Field crop rotation, Enclosure,
Selective Breeding
Seed Drill, Threshing Machine,
Iron Plough, Scots Plough (...),
Steam Engine, Tractor,
Artifitial Fertilizer
Advanced Tractor, Mechanized Equipment
for several Crops, Automobile, Trucks,
Airplanes, Terracing, Dry Farming,
Irrigation, New Fertilizer, Pest Control,
Monoculture, Electricity, Horticulture,
Advanced Horticulture,
Vertical Farming, Clean Meat
190 million in year 0


$ per Ton
650
600
550
500
450
400
350
300
250
200
150
100
50
0
$3B
$2.5B
$2B
$1.5B
$1B
$500M
$0
Argentina
Brazil
Paraguay
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
Import Value
Netherlands
Soybean Meal
Total: $31.3B