

The redefined Social

Production in and of an eco-social condition

P5

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Heterogenous City : Architectural Design Crossovers Graduation Studio

AR3DC100

Heterogeneous City
Architectural Design Crossovers Graduation Studio

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P5

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Fascination

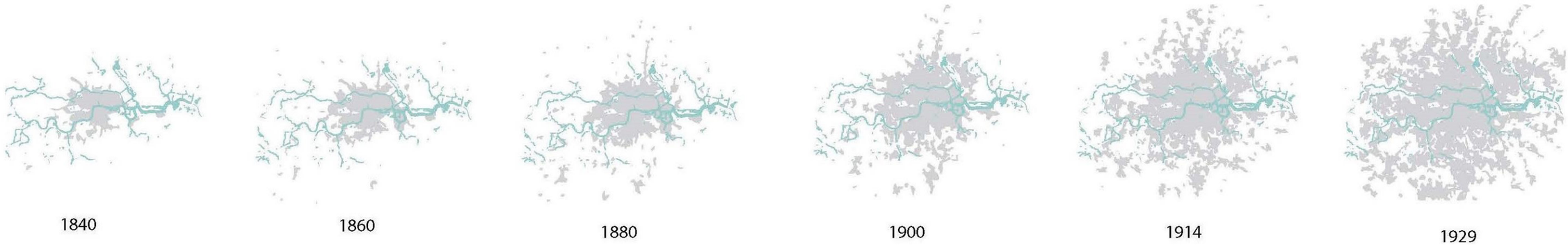
Food as a **social binding force**

Food is a **constant rhythm** in everyday lives.

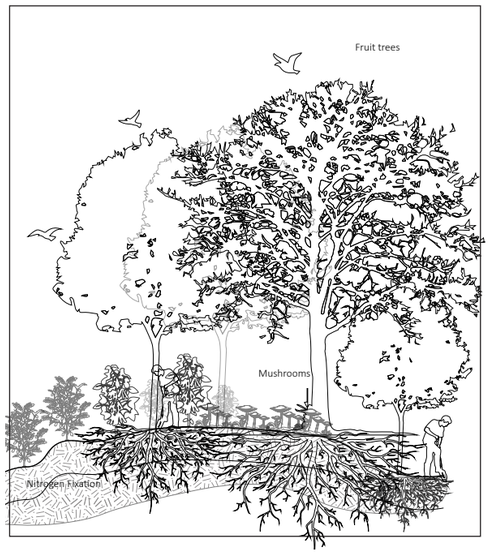
The feeding of cities has been arguably the greatest force shaping civilisation, and it still is.
In order to understand cities properly, we need to look at them through food.
- (Steel 2013, p. 10)

Potential of Food to transform

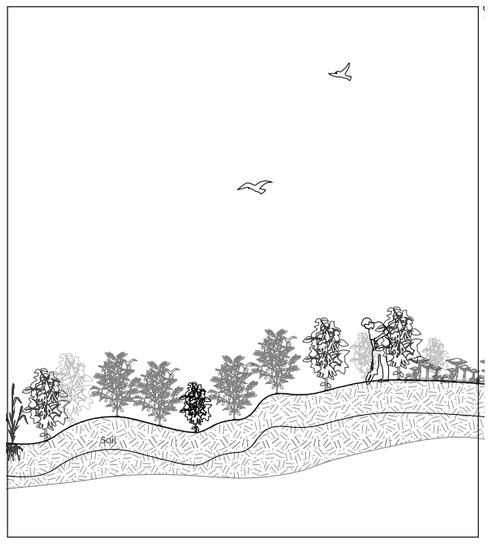
-cities
-Social spaces
-social relationships



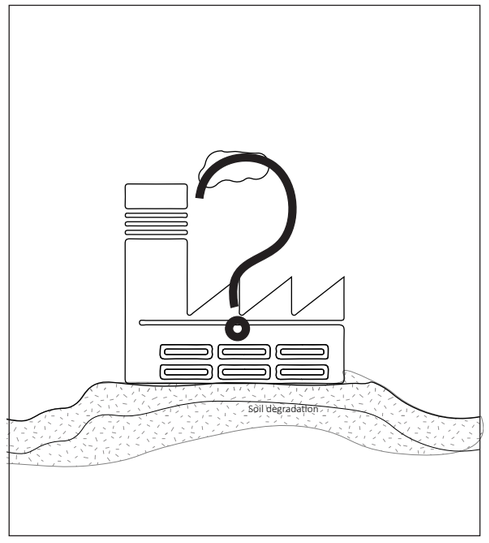
The simple laws of geometry meant that the larger a city grew, the smaller the relative size of its rural hinterland became, until the latter could no longer feed the former.
(Steel 2013, pp. 70–71)



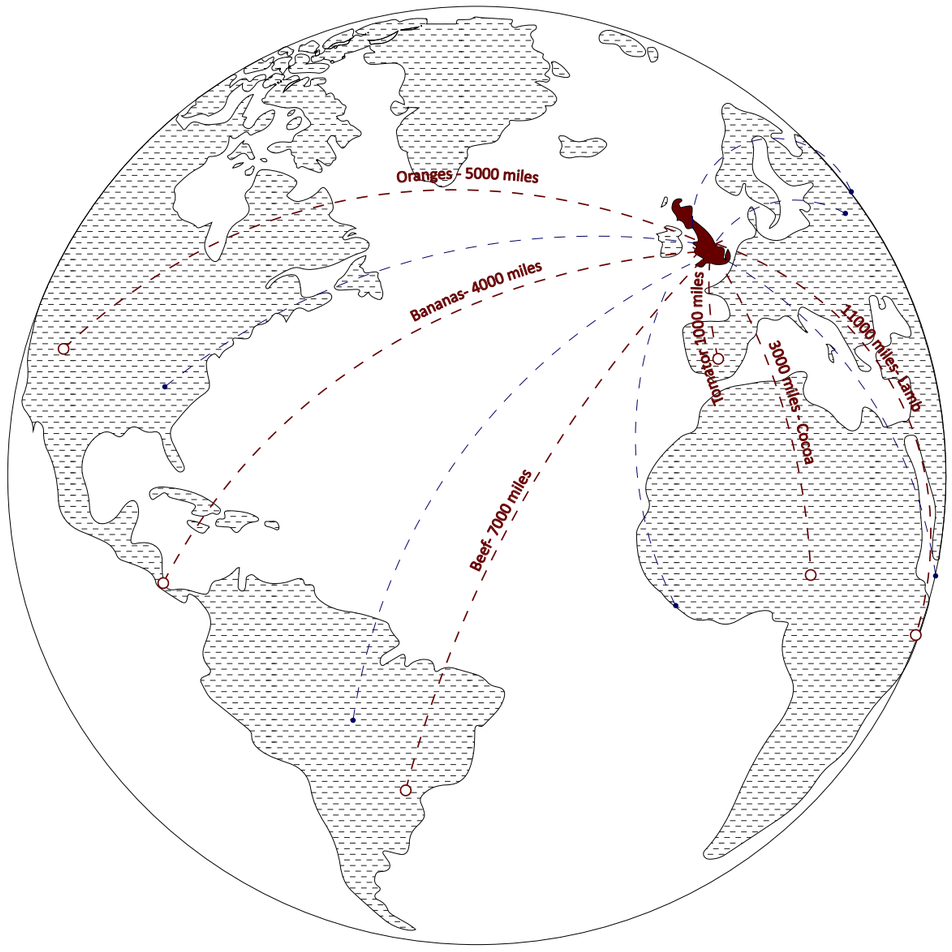
Pre - Industrial



Present



Post Anthropocene



From being self-sufficient within its rural hinterlands,London has transitioned to being reliant on an unsustainable global food network and agircultural practices.

Problem Statement

Communities have been held together by a fundamental infrastructure built on agriculture and food. Urban densification has obscured productive Landscapes and its networks paving way for increased food miles and an unsustainable agriculture practice. This disconnect has rendered the social fabric of the cities isolated and disintegrated.

Source



Consumer

The disconnect

Research Question/Agenda

How can architectural intervention **integrate productive landscapes** into the city to **restore the broken link between people and food** ,thereby bringing them **together socially?**

Production in and of an eco-social condition

- What are productive landscapes?
- What kind of mutation agriculture goes through when inserted into an urban context and what is the perception of value of land in urban context?
- What is the need to redevelop the social fabric of London and how do allotments and community gardens encourage the growth of interpersonal relationships among people involved?
- What patterns of spatial behavior can be induced by productive landscapes and where could it potentially be situated in London?
- How can the scales of various productive landscapes be merged to maximize the eco-social value of land and to serve more individuals so that it can compete with the uses that seek to eliminate it in exchange of commercial developments?

Potential of Food to transform **social relationships**

Productive Landscape in London - Historical Evidence

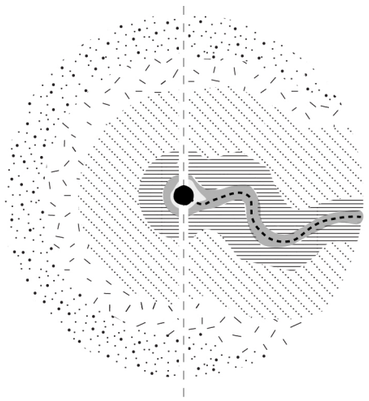


Potential of Food to transform **cities**

Mutation of Agriculture in Urban context - defining productive landscapes

Von Thunen Model - 1826

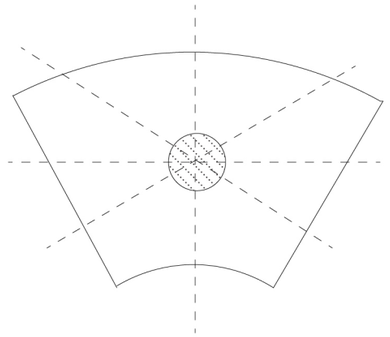
Thünen.V. (1826).



Isolated state surrounded by agriculture

Garden City - 1902

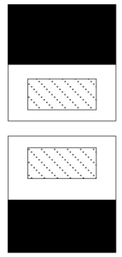
Howard, E. (1946).



Residual space as public space

Broadacre City - 1923

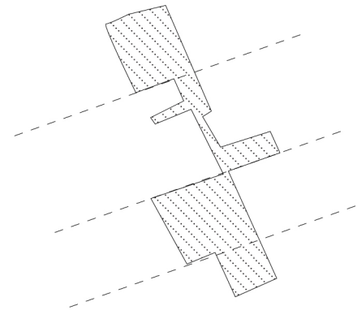
Wright.L.F



Divisional structure

CPUL - 2004

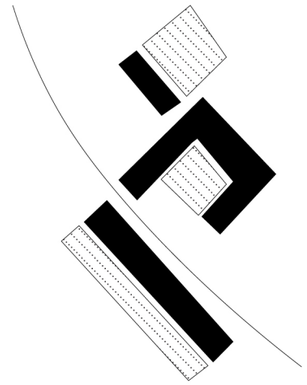
Bohn, K. &Viljoen, A.



a network of productive green landscapes reviving derelict sites

Agricultural Urbanism - 2010

De La Salle, Janine M., and Holland. M.



Societal relationship with Agriculture and its aspects organizing, growing, processing, distributing, cooking and eating

A Landscape that includes - food, community and ecology

Green Landscapes within the Greater London periphery



Green Belt

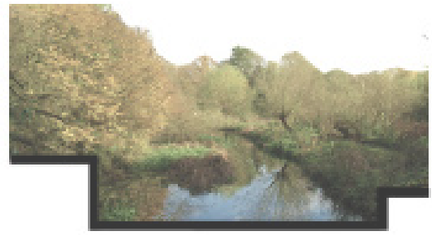
Woodlands

Wetlands and water

Allotment and Gardens

Parks and Sports fields

River



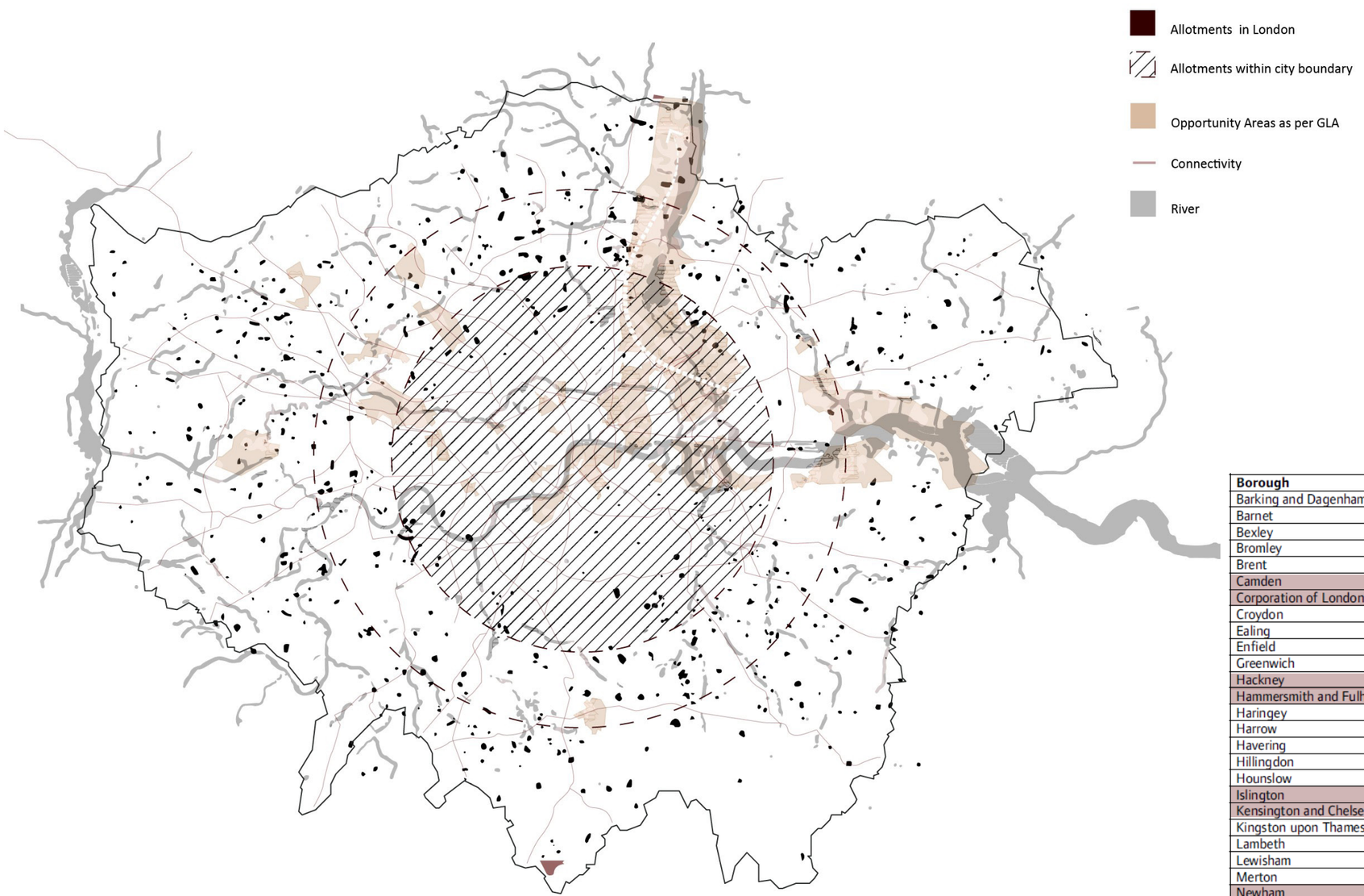






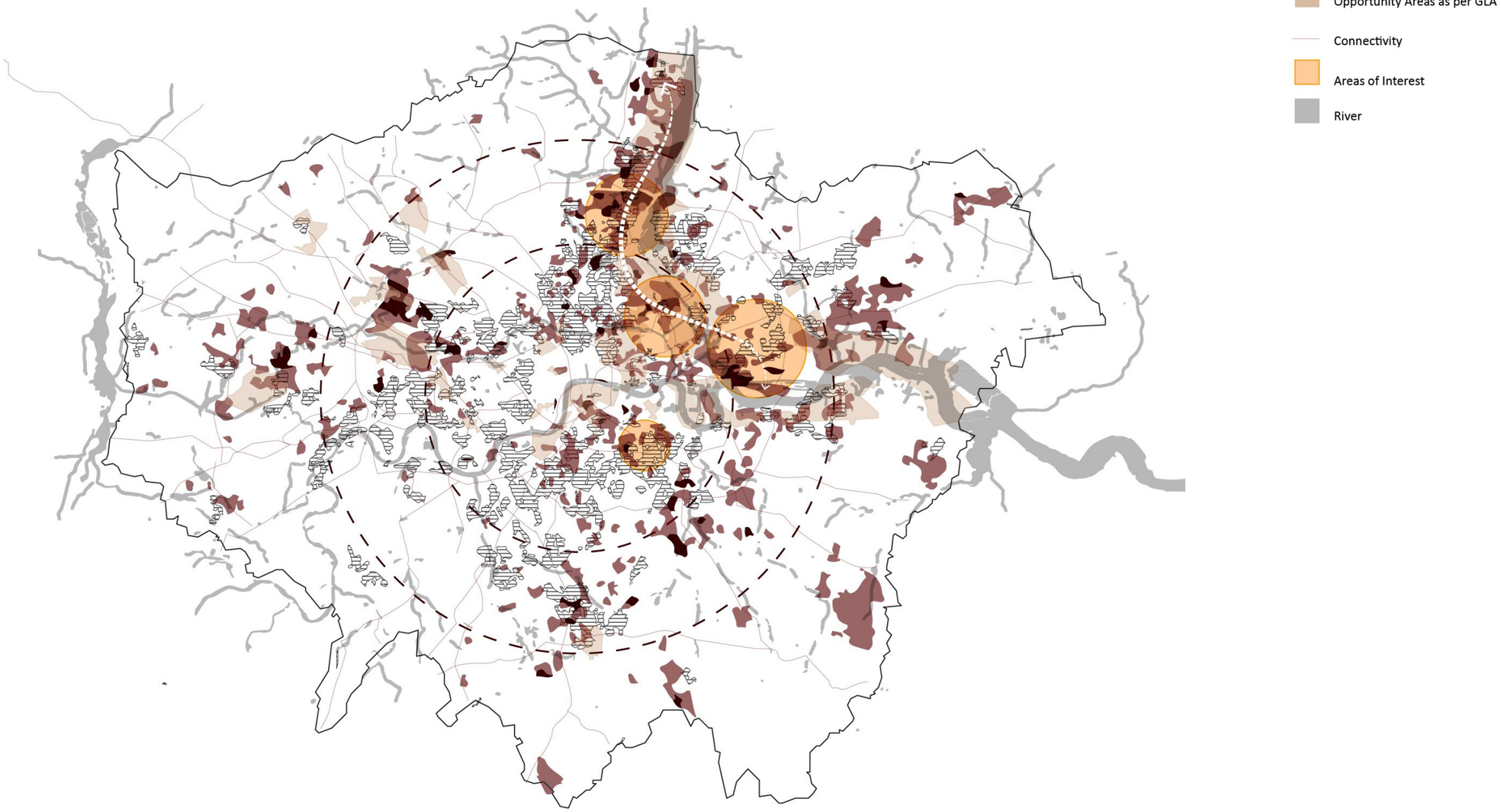


Allotment and Community Gardens within Greater London Periphery



Borough	Number of sites
Barking and Dagenham	15
Barnet	50
Bexley	37
Bromley	52
Brent	23
Camden	9
Corporation of London	0
Croydon	17
Ealing	59
Enfield	36
Greenwich	18
Hackney	9
Hammersmith and Fulham	2
Haringey	25
Harrow	32
Havering	26
Hillingdon	37
Hounslow	30
Islington	4
Kensington and Chelsea	0
Kingston upon Thames	22
Lambeth	11
Lewisham	36
Merton	19
Newham	8
Redbridge	25
Richmond upon Thames	25
Southwark	19
Sutton	37
Tower Hamlets	7
Waltham Forest	37
Wandsworth	10
Westminster	0
TOTAL	**737**

Identification of Potential Sites - superimposed layers



Most

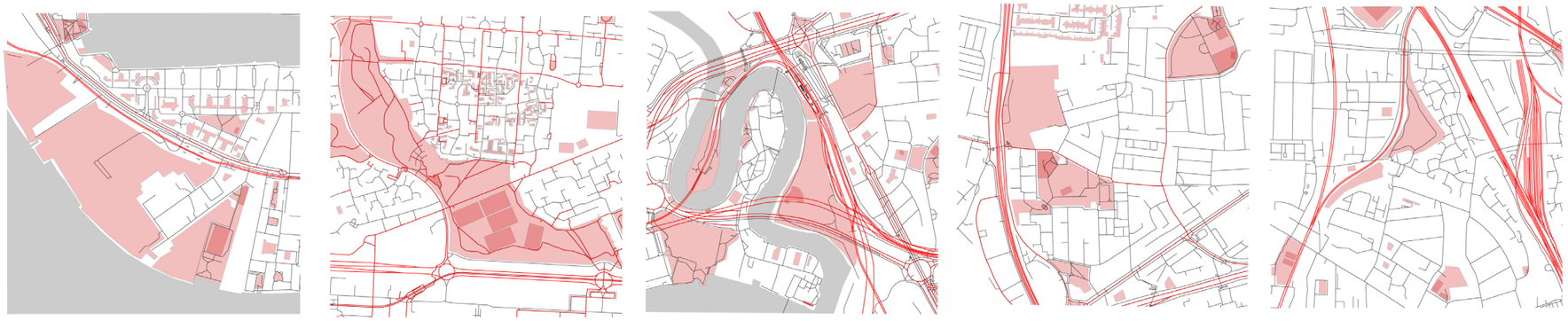
Degree of disconnectedness

Least

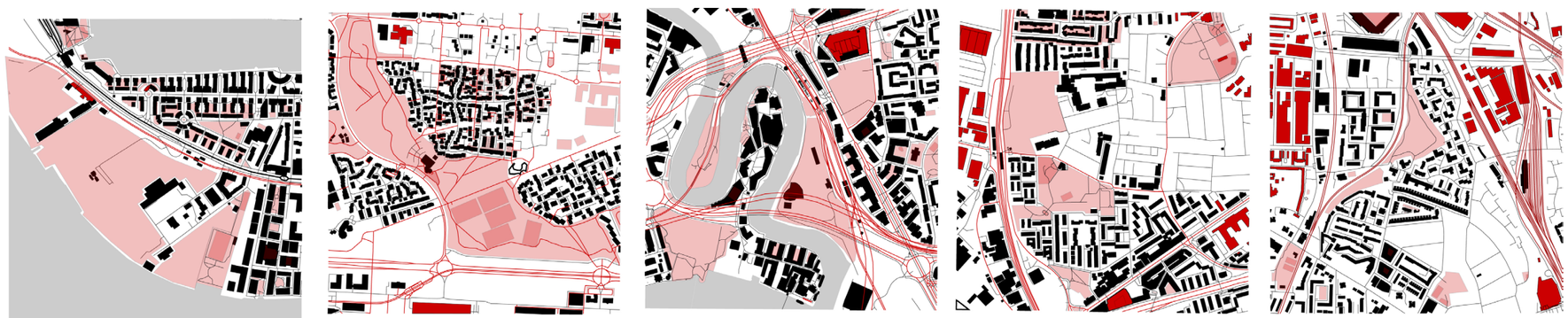
Parks - Vacant Lots - Derelict spaces



Infrastructure
rail as edges



Social structure



Newham - Lyle Park Dockland

Beckton Park Area

Lower Lea-Dockland

Manor Road

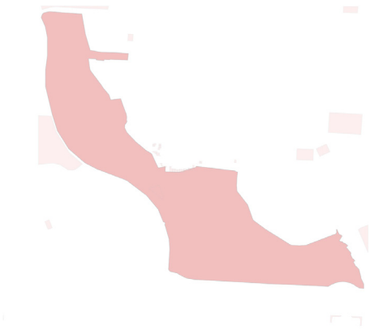
Bridge House Meadows

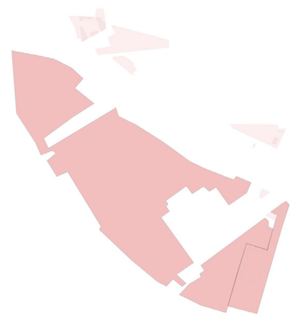
Most

Degree of disconnectedness

Least

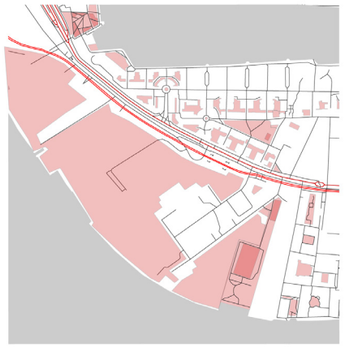
Parks - Vacant Lots - Derelict spaces





Infrastructure
rail as edges





Social structure





Beckton Park Area

Newham - Lyle Park Dockland

Site investigation - Royal Docks and Beckton Park





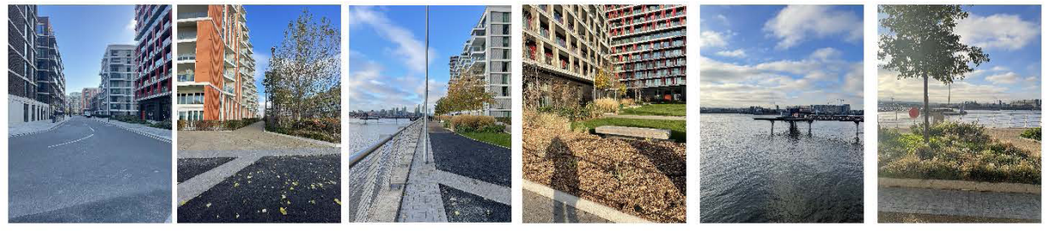
1. Beckton Park



2. Stratform and Custom House



3. canning town



4. Royal Docks and Silvertown

The ethnic diversity of the people of Newham also necessitates a **holistic approach to regeneration** operations in order to meet a range of **social and cultural needs.** Unless social and cultural rehabilitation **promoted citizens' active engagemen**t with one another, physical regeneration and infrastructural development alone could not provide a **shared sense of community identity**.

Extremes / Disparities / Fragmented Community





Inactive Parks







Mono - functional land use





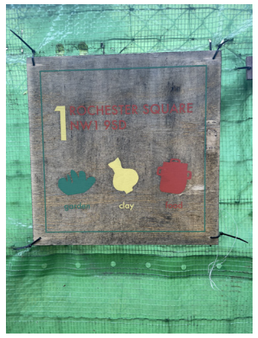


Patterns of spatial behavior induced by productive landscapes transforming into social spaces

Photographic Documentation of the food axis

Growing and Education





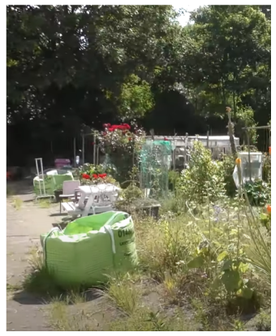












Selling and buying

















Eating - Social interaction

















Cooking- Cultural identity









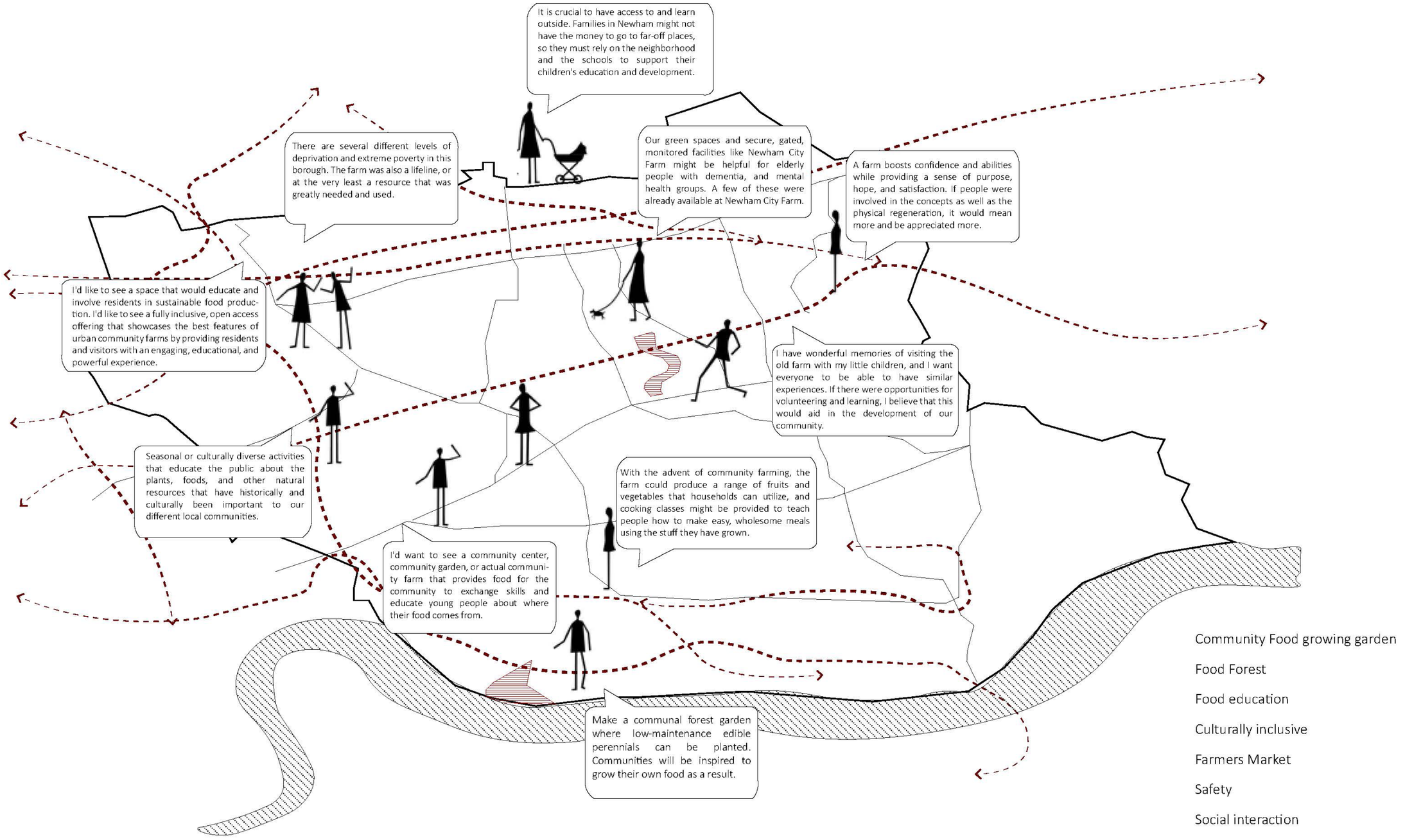








Newham Borough - Present and Future



Community Food growing garden

Food Forest

Food education

Culturally inclusive

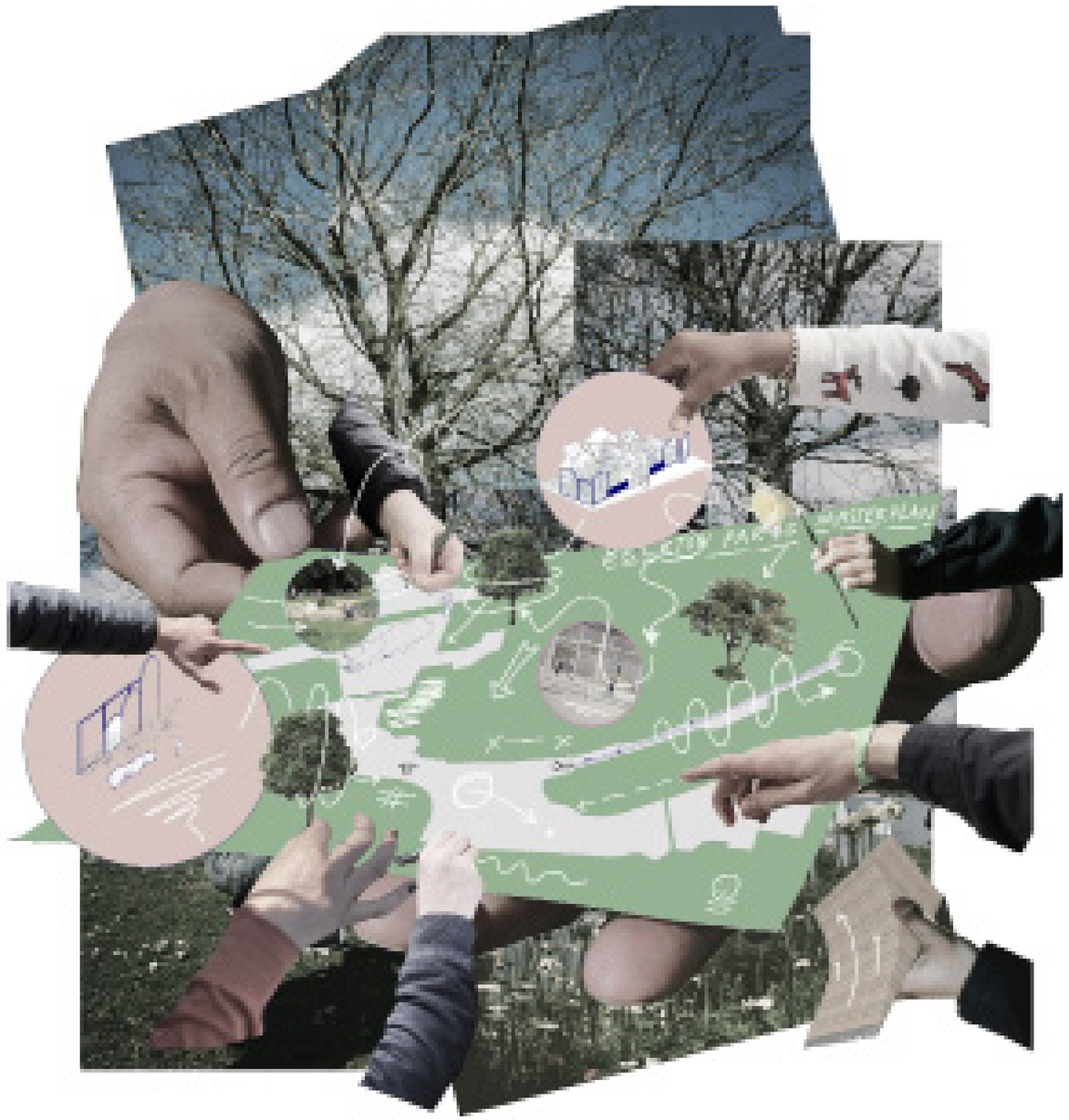
Farmers Market

Safety

Social interaction

Community bonding

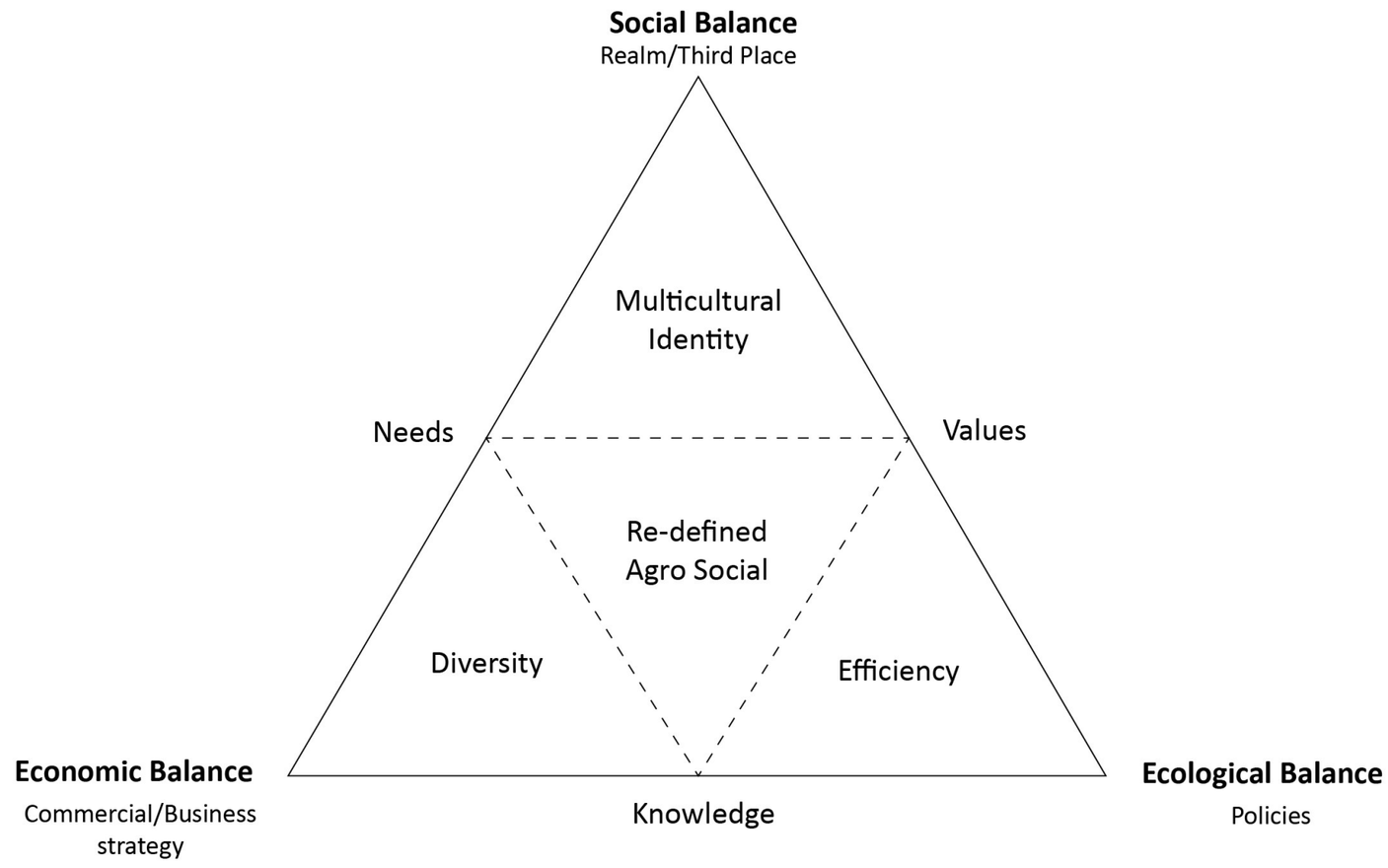
The Beckton Park Development Plans

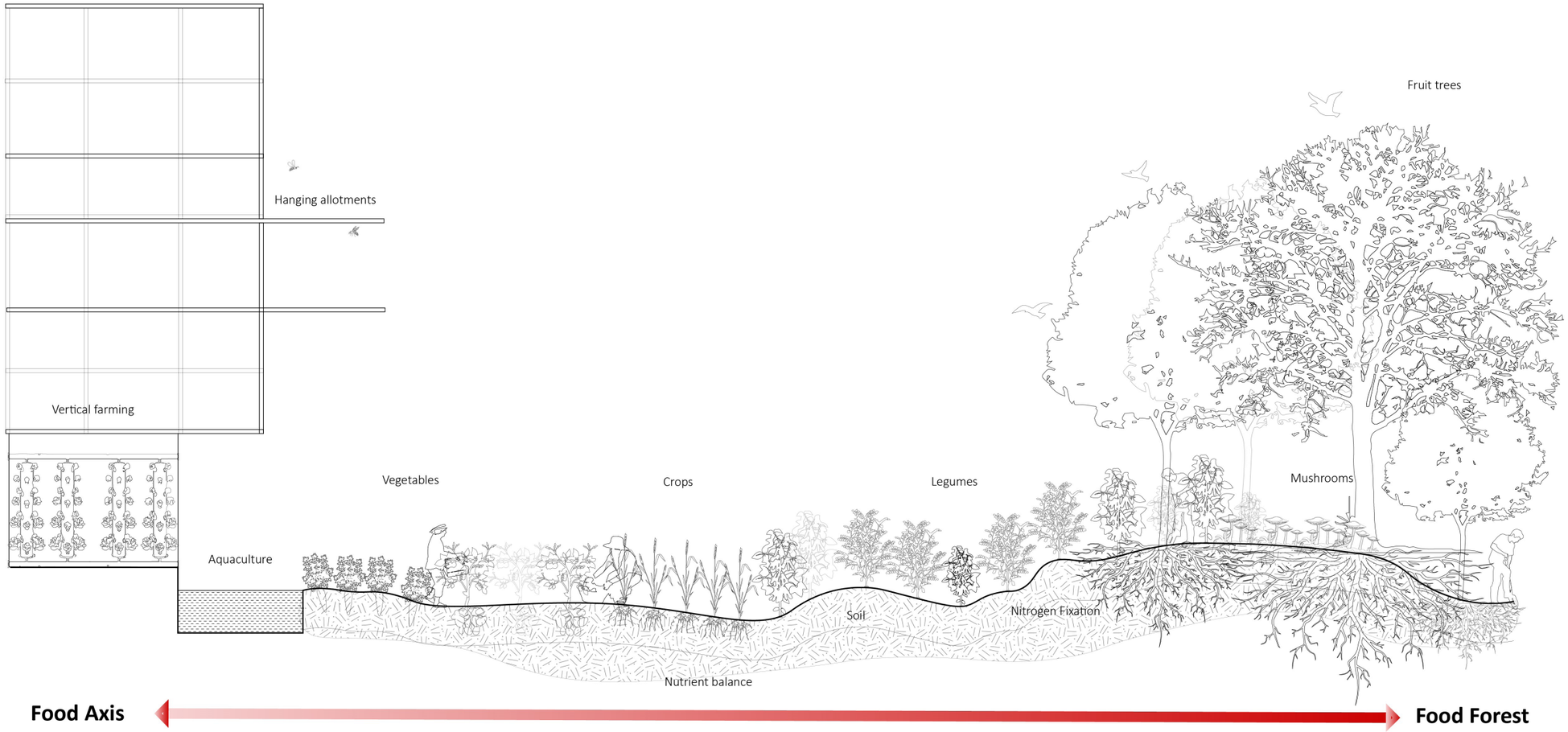


Production of an and in an **Eco- Social Condition**

Human-nonhuman interaction is at the heart of all things, the imminent commons also belong to the social.

The wind, bees, and flowers coexist to disseminate pollen, we need to redefine what it means to be social.

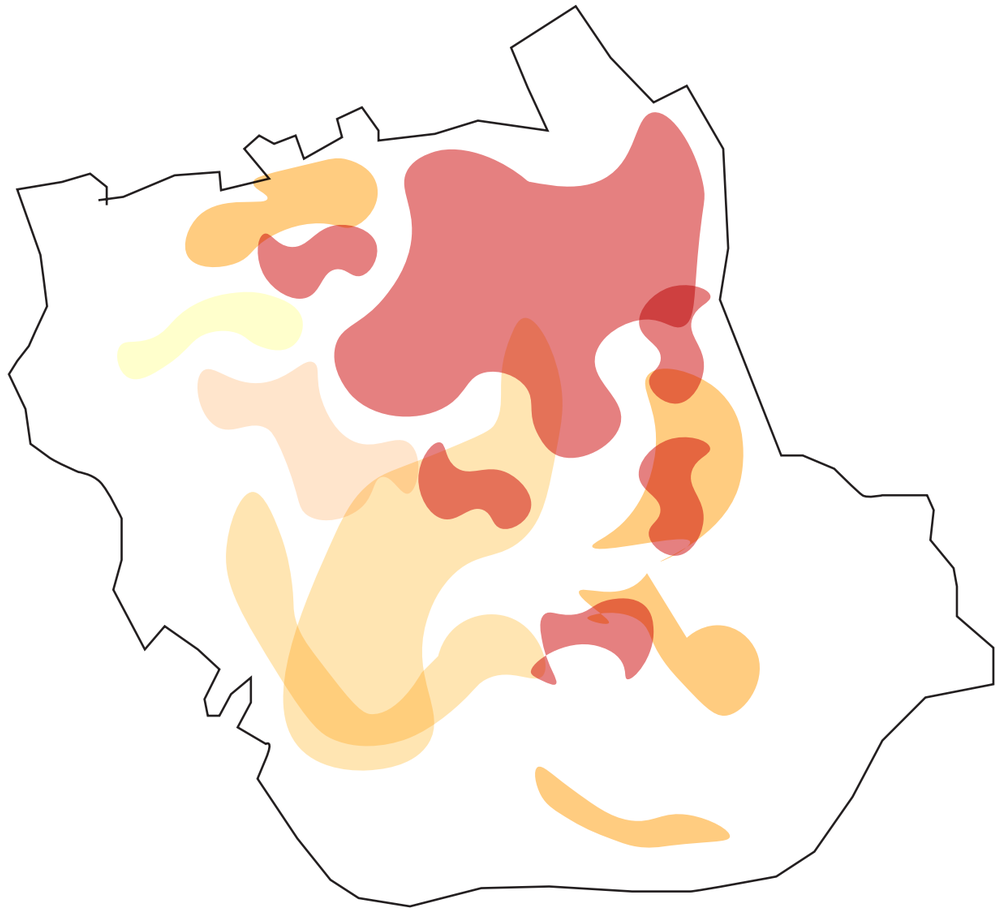


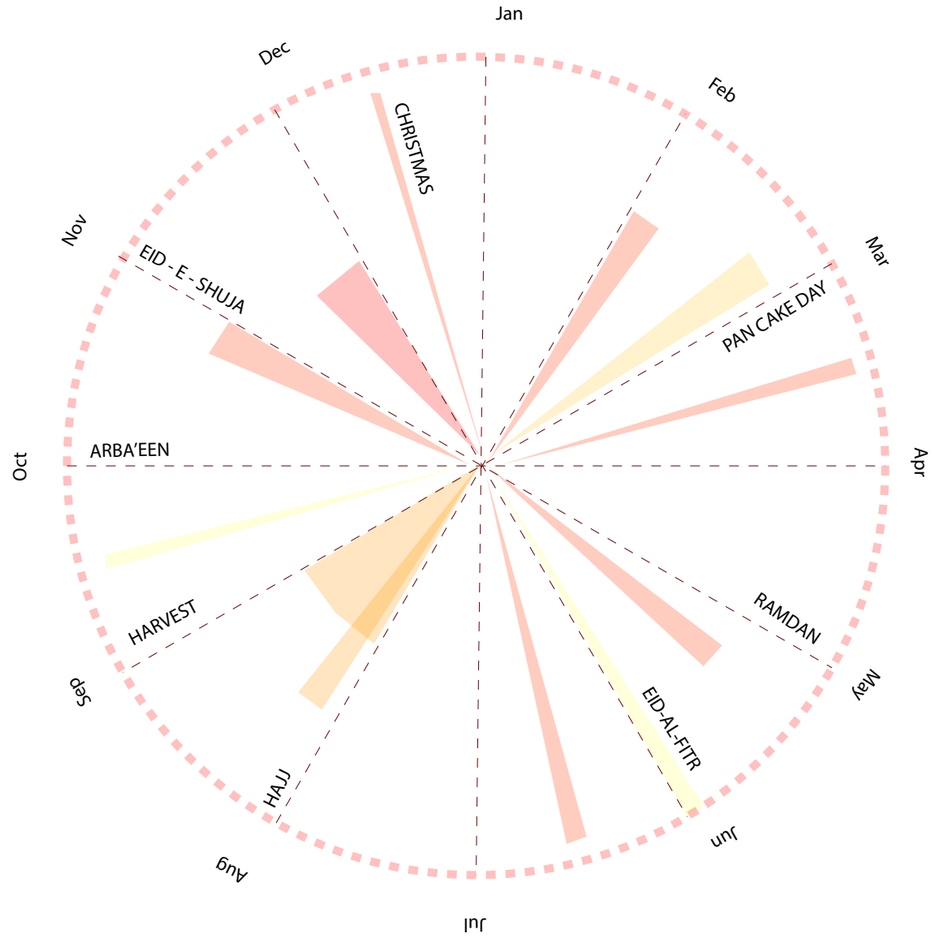

Hanging allotments
Vertical farming
Aquaculture
Vegetables
Crops
Legumes
Fruit trees
Mushrooms
Soil
Nitrogen Fixation
Nutrient balance
Food Axis
Food Forest

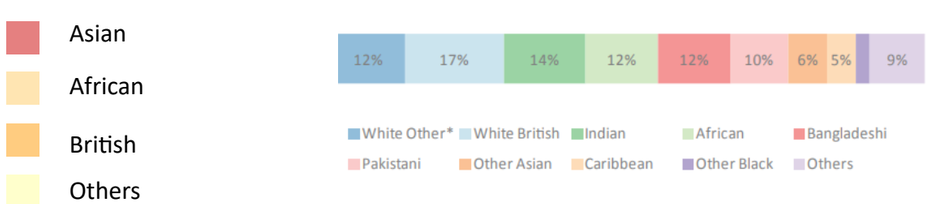
Intersection of the Agro and Social producing an eco-social condition

"A setting with a connection to the imminent commons generates a sense of belonging to a larger whole and increases seasonal awareness."

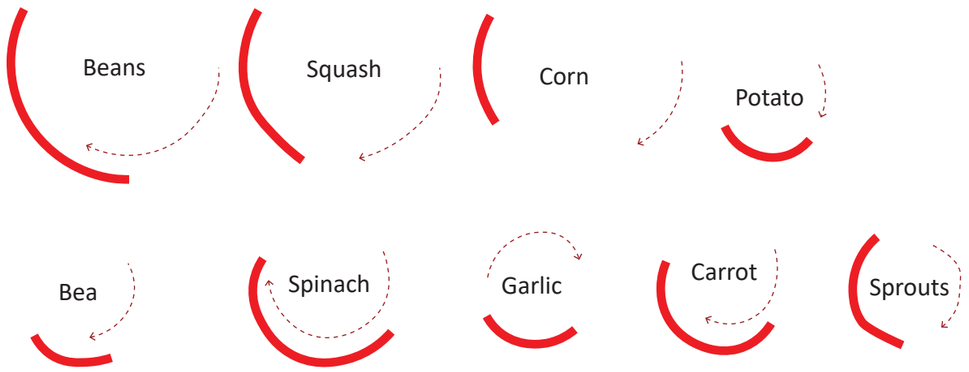
- Terrapin. Improving Health & Well-Being in the Built Environment



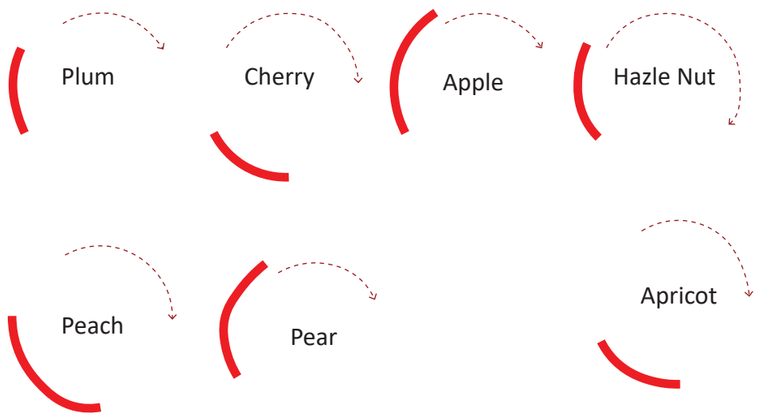








Companion Planting

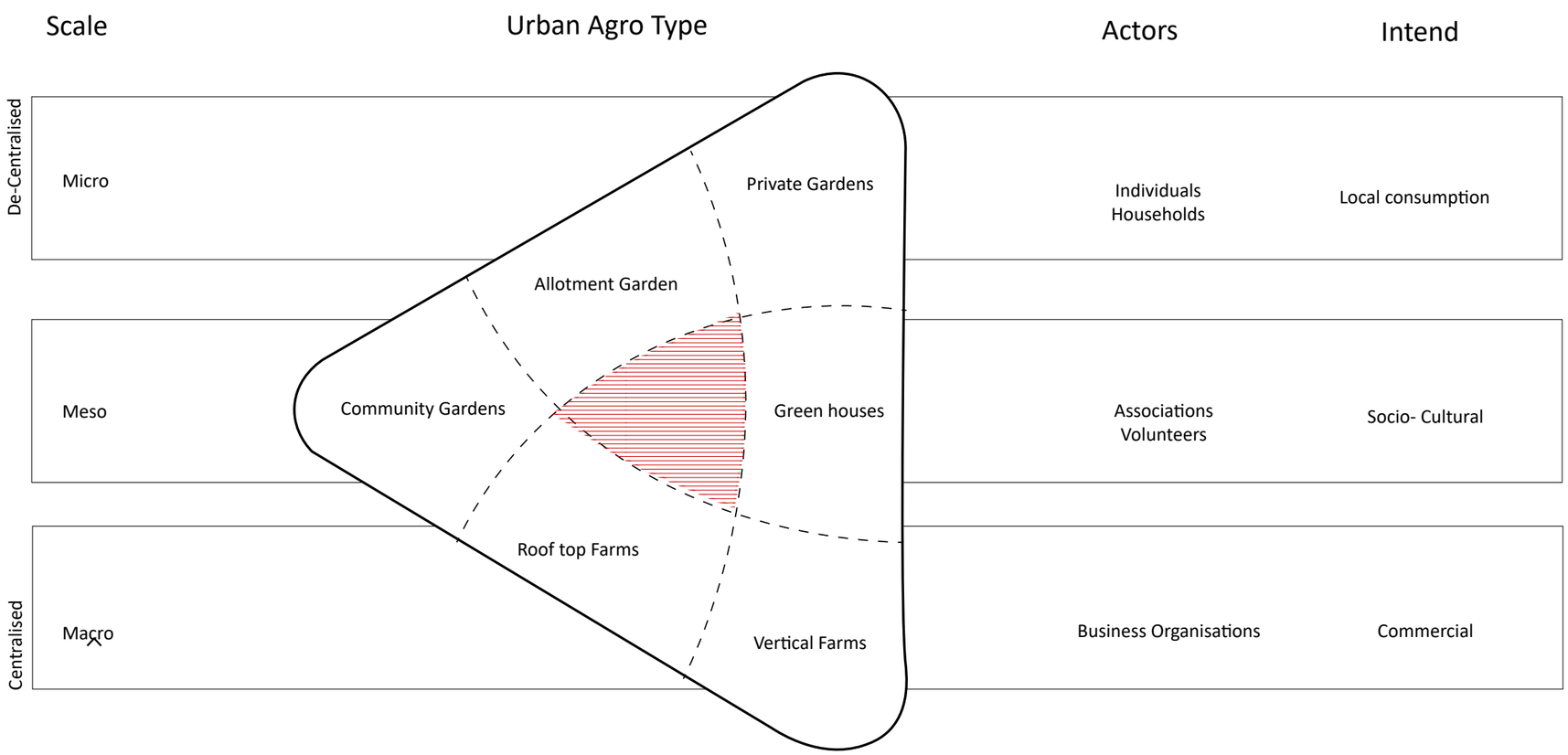


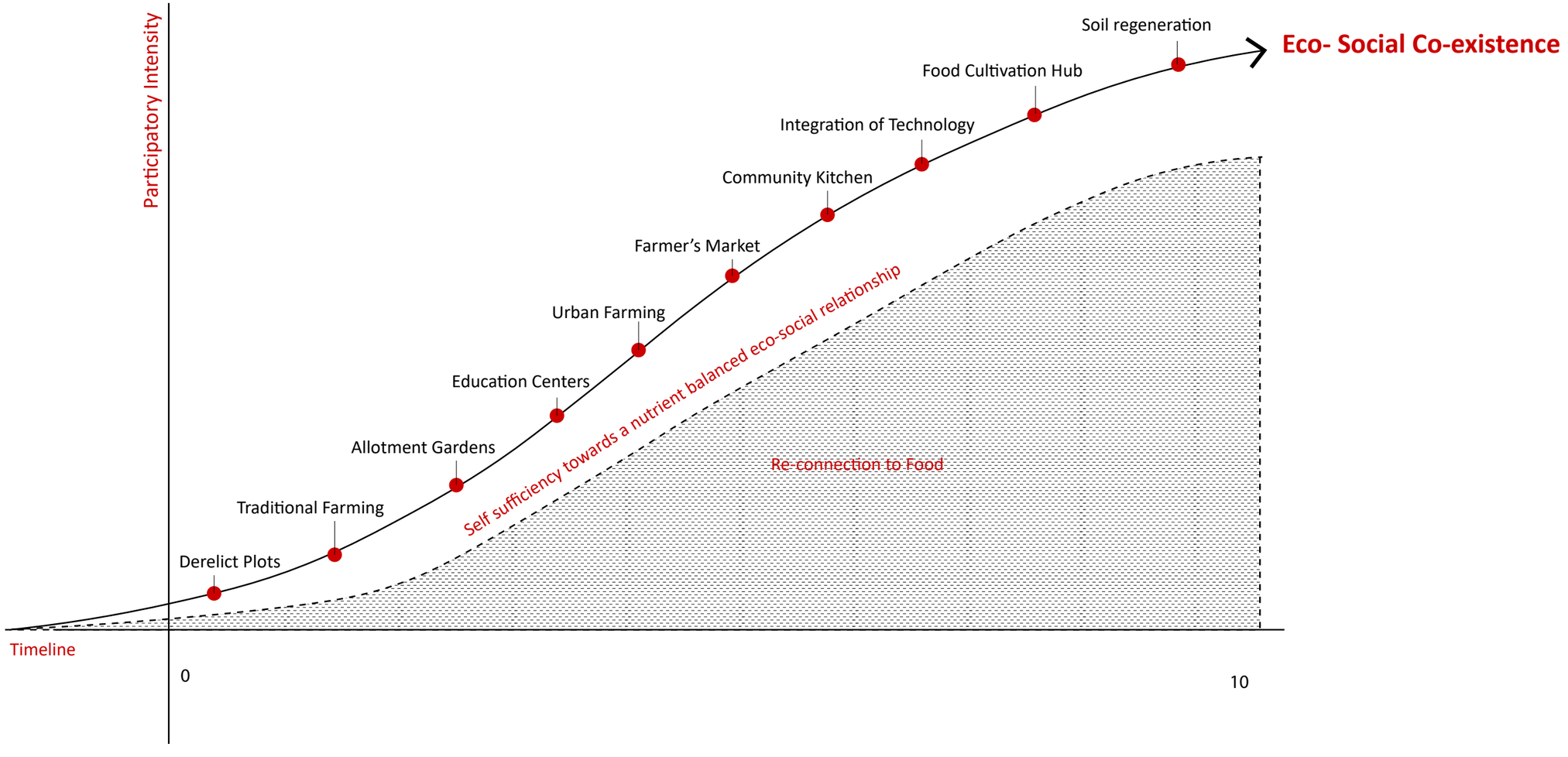
Agri-Forest

Harvest

Plant

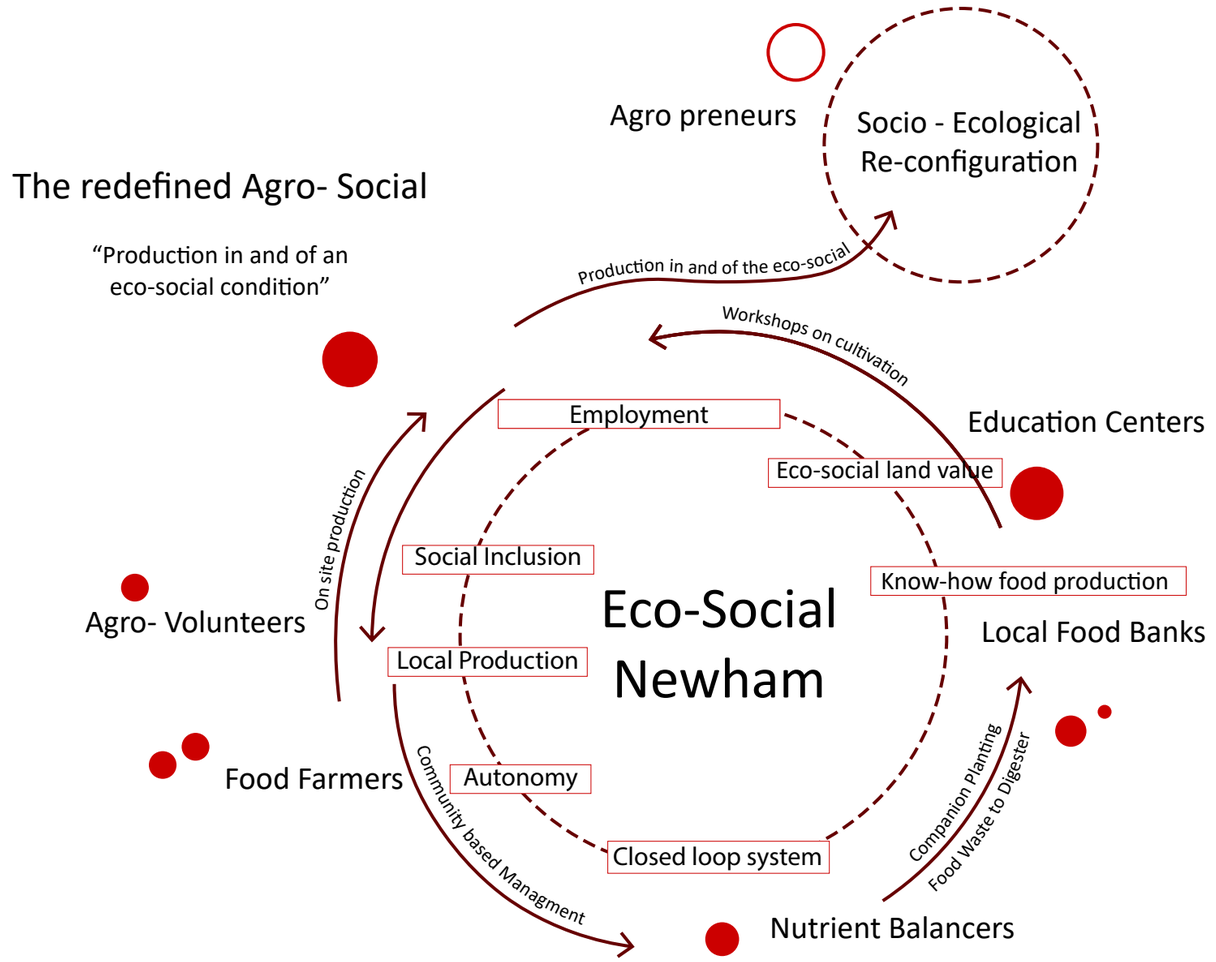
Merging the **scales of various productive landscapes be to optimize the eco-social value of land** and to serve more individuals so that it can compete with the uses that seek to eliminate it in exchange of commercial developments


Scale
Urban Agro Type
Actors
Intend
De-Centralised
Micro
Private Gardens
Individuals
Households
Local consumption
Allotment Garden
Meso
Community Gardens
Green houses
Associations
Volunteers
Socio- Cultural
Roof top Farms
Centralised
Macro
Vertical Farms
Business Organisations
Commercial

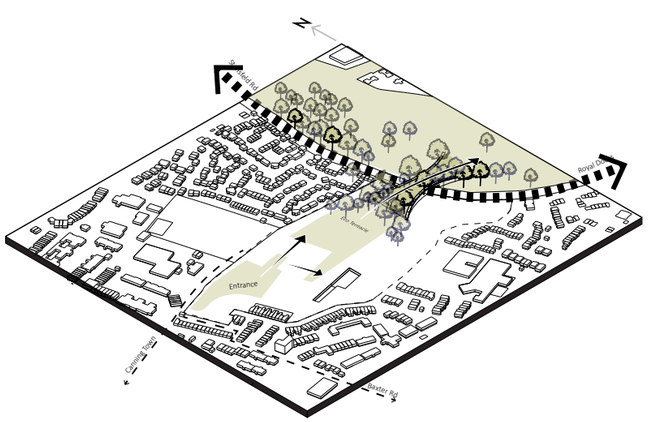

Participatory Intensity
Soil regeneration
Eco- Social Co-existence
Food Cultivation Hub
Integration of Technology
Community Kitchen
Farmer's Market
Urban Farming
Education Centers
Allotment Gardens
Traditional Farming
Derelict Plots
Self sufficiency towards a nutrient balanced eco-social relationship
Re-connection to Food
Timeline
0
10

Design Agenda and Intentions

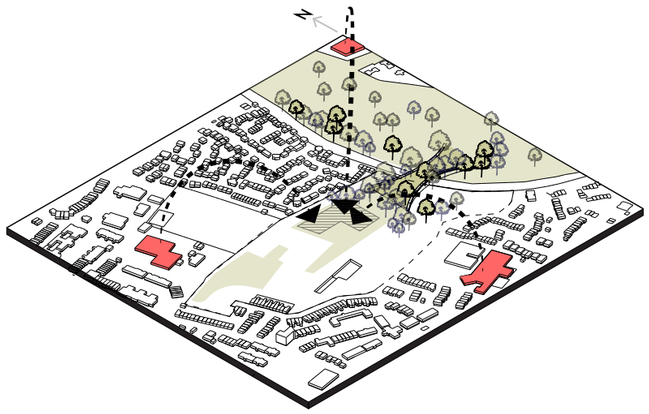
Design Agenda



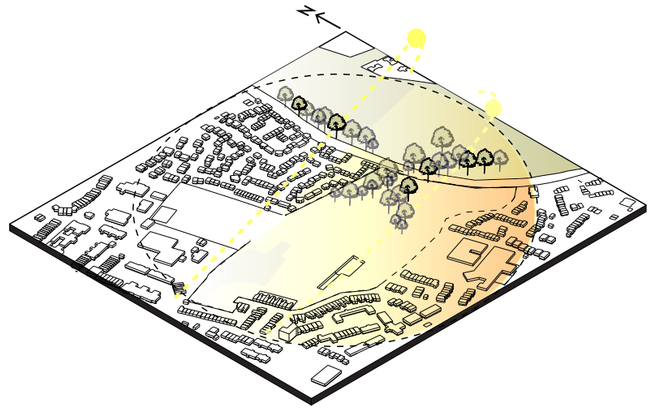
Site Conceptual Development - 3 Strategies



Link to Beckton Park



Strategy of linking education centers for creating awareness

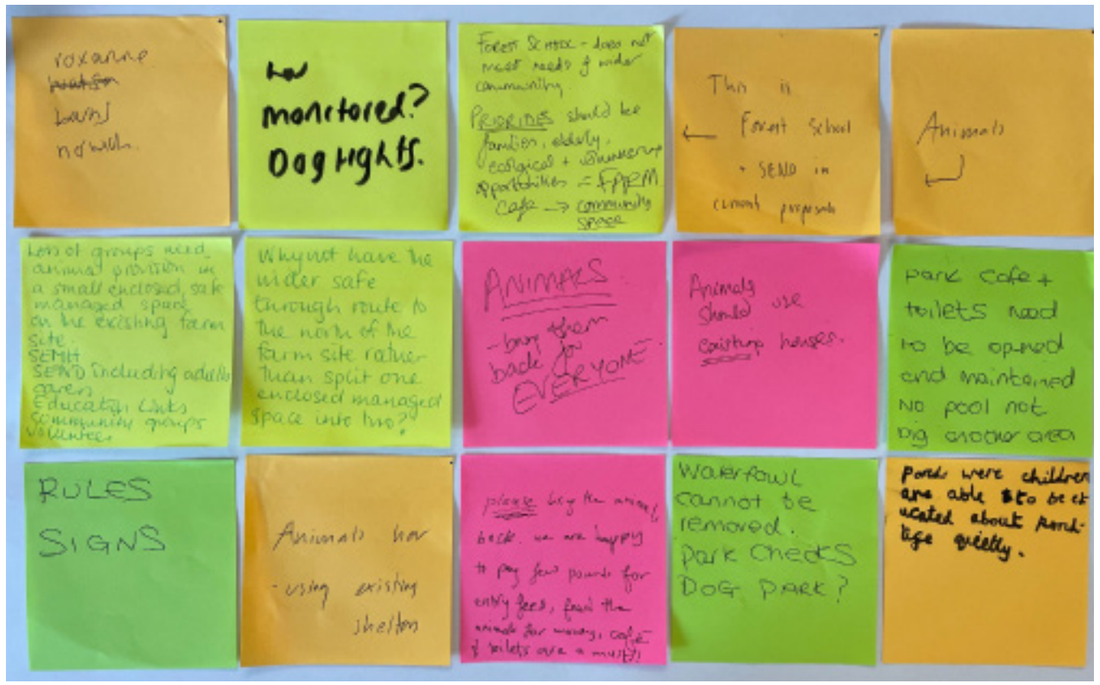


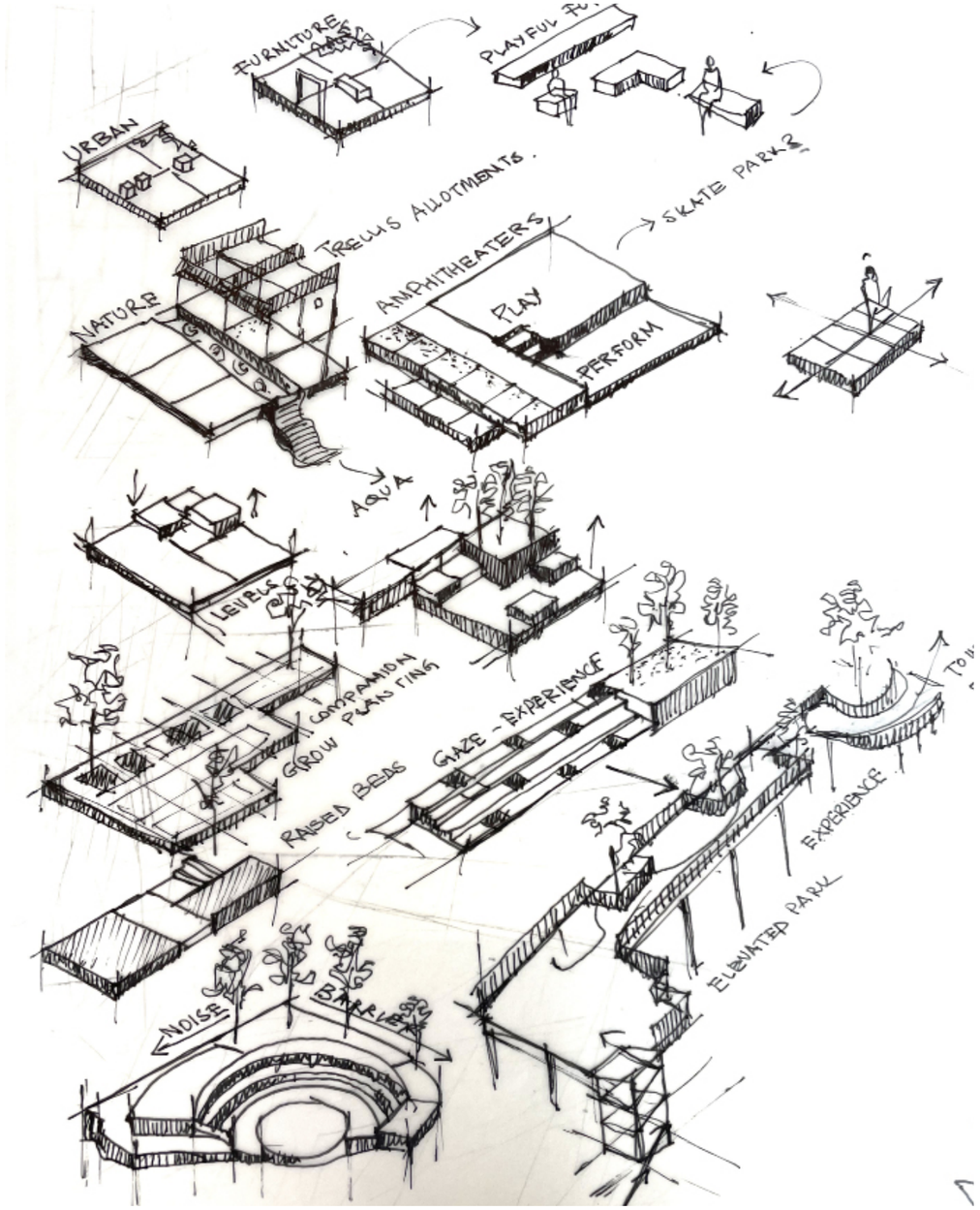
Arrangement of programs - Sunpath

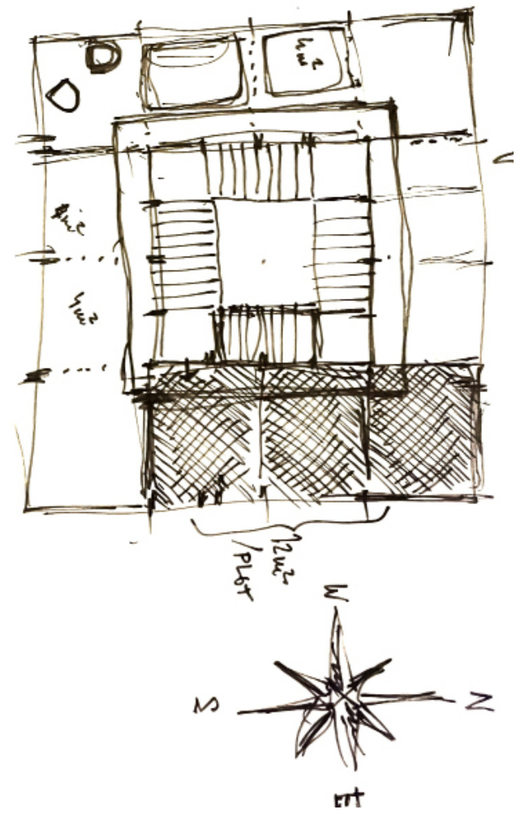
Reflection and addition of a new trajectory



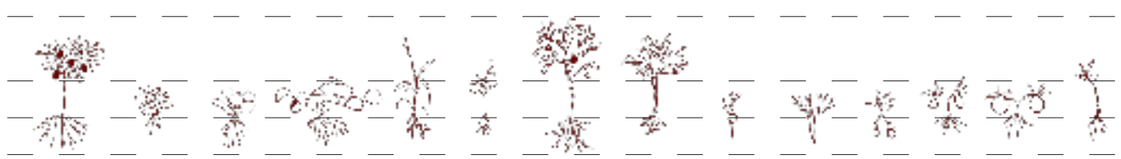


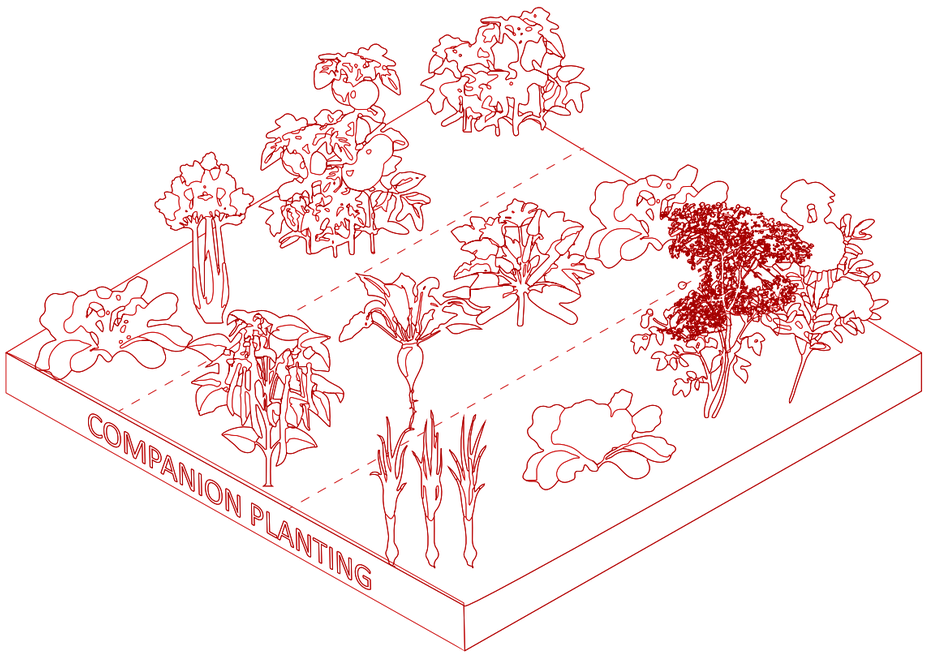

roxanne
Lawns
norwich
how monitored? Dog rights.
Forest School - does not meet needs of wider community
PRIORITIES should be families, elderly, ecological + volunteering opportunities = FARM Cafe → community space
This is Forest School + SEND in current proposals
Animals
Lots of groups need animal provision in a small enclosed, safe managed space on the existing farm site.
SEMH
SEND including adults carers
Education links
Community groups
Volunteers
Why not have the wider safe through route to the north of the farm site rather than split one enclosed managed space into two?
ANIMALS
- bring them back for EVERYONE
Animals should use existing houses.
park cafe + toilets need to be opened and maintained
No pool not big another area
RULES
SIGNS
Animals how
- using existing shelters
please bring the animals back. we are happy to pay few pounds for entry fees, feed the animals for money, cafe & toilets are a must!
Waterfowl cannot be removed.
Park checks DOG PARK?
Ponds were children are able to be educated about pond-life quietly.


FURNITURE
PLAYFUL FU
URBAN
TRELLIS ALLOTMENTS
SKATE PARKS
AMPHITHEATERS
NATURE
PLAY
PERFORM
AQUA
LEVELS
COMPANION
GROW PLANTING
RAISED BEDS
GAZE - EXPERIENCE
EXPERIENCE
ELEVATED PARK
NOISE
BARRIER


PLOT
N
S
E

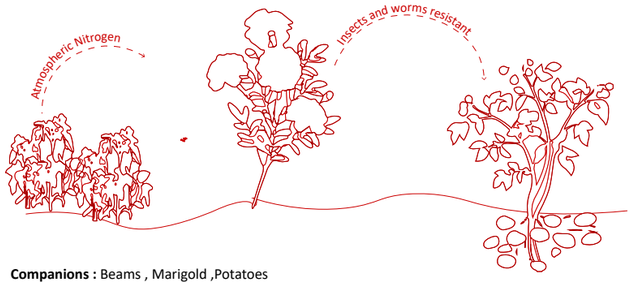



100 cm
0
50 cm





Companions : Beans , Corn, Squash, Cucumbers , Potatoes, Sunflowers



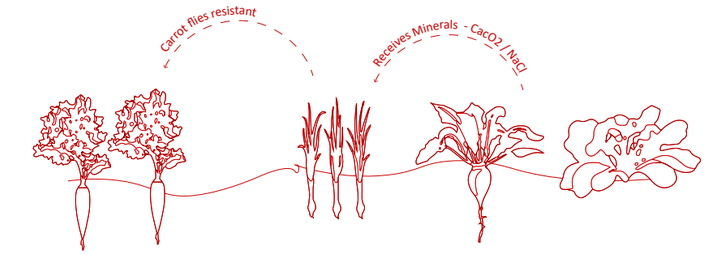
Companions : Beams , Marigold ,Potatoes



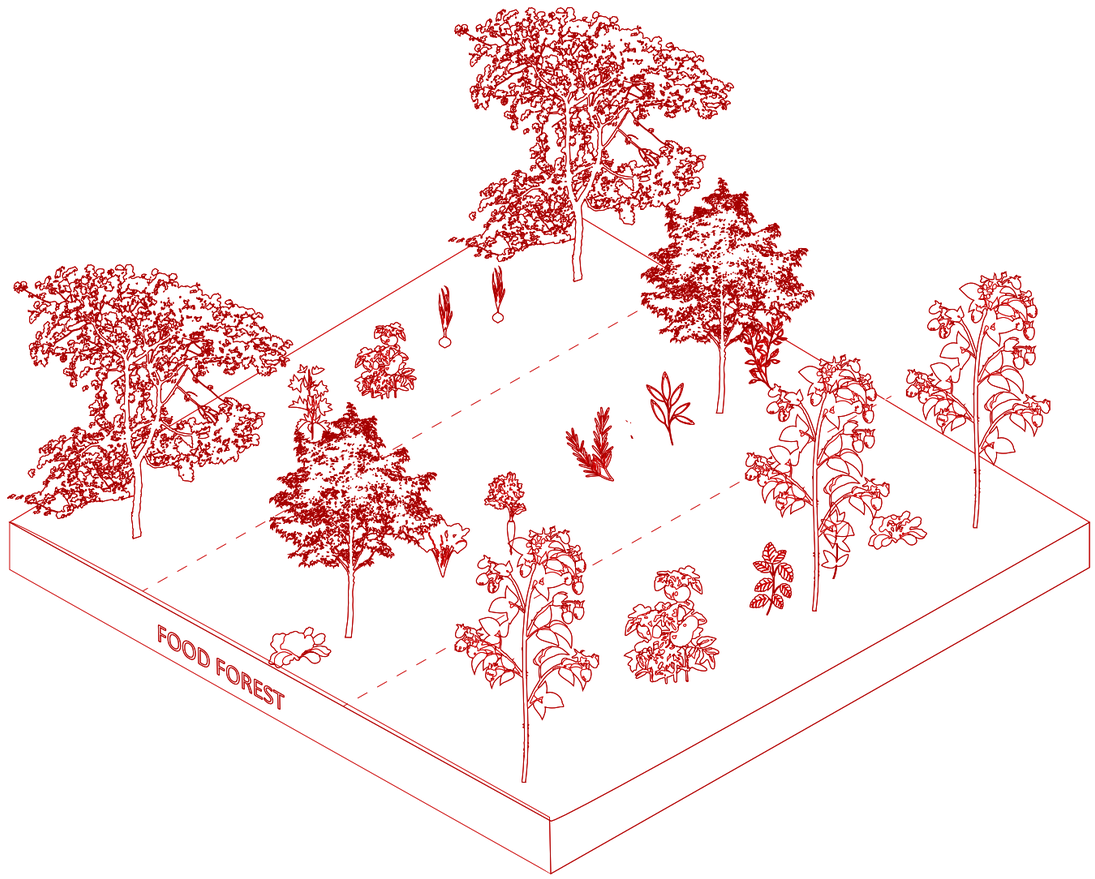
Companions : Cabbage, Celery , Tomatoes, Cauliflower



Companions : Spinach , Corn, Potatoes , Garlic



Companions : Carrot ,Onion, Garlic, Beet , Cabbage

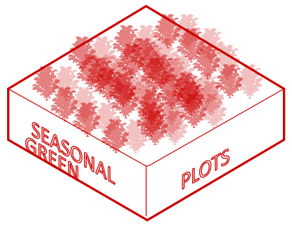


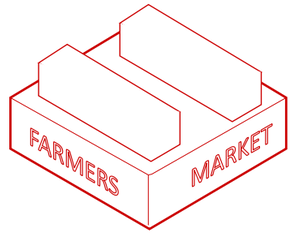


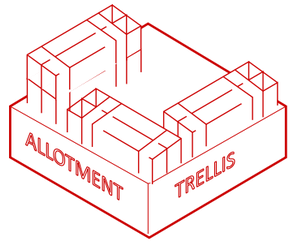
Companions : Apple - Tomato, Garlic, Cauliflower ; Apricot - Spinach, Carrot, Rosemary, Thyme ; Raspberry - tomatoes, basil ,chive, carrot, cabbage

The three pillars of the re-defined Social

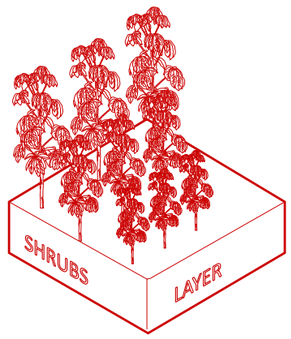
Productive landscapes as social space

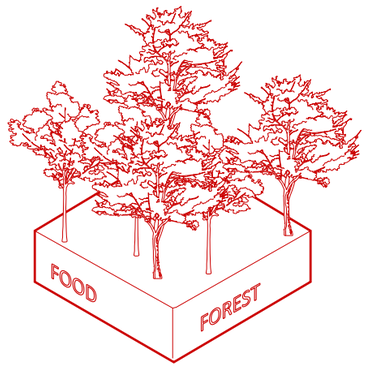


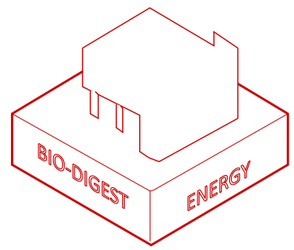




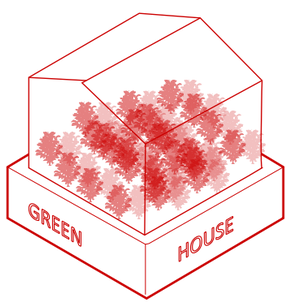
Restoring the experiential connection to land

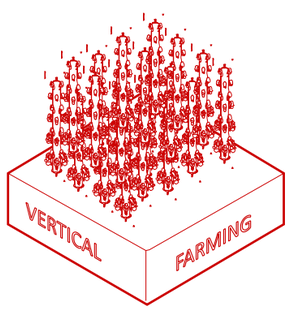


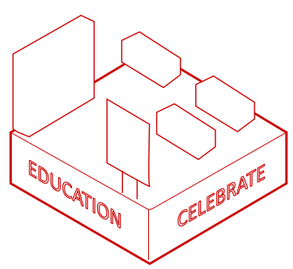




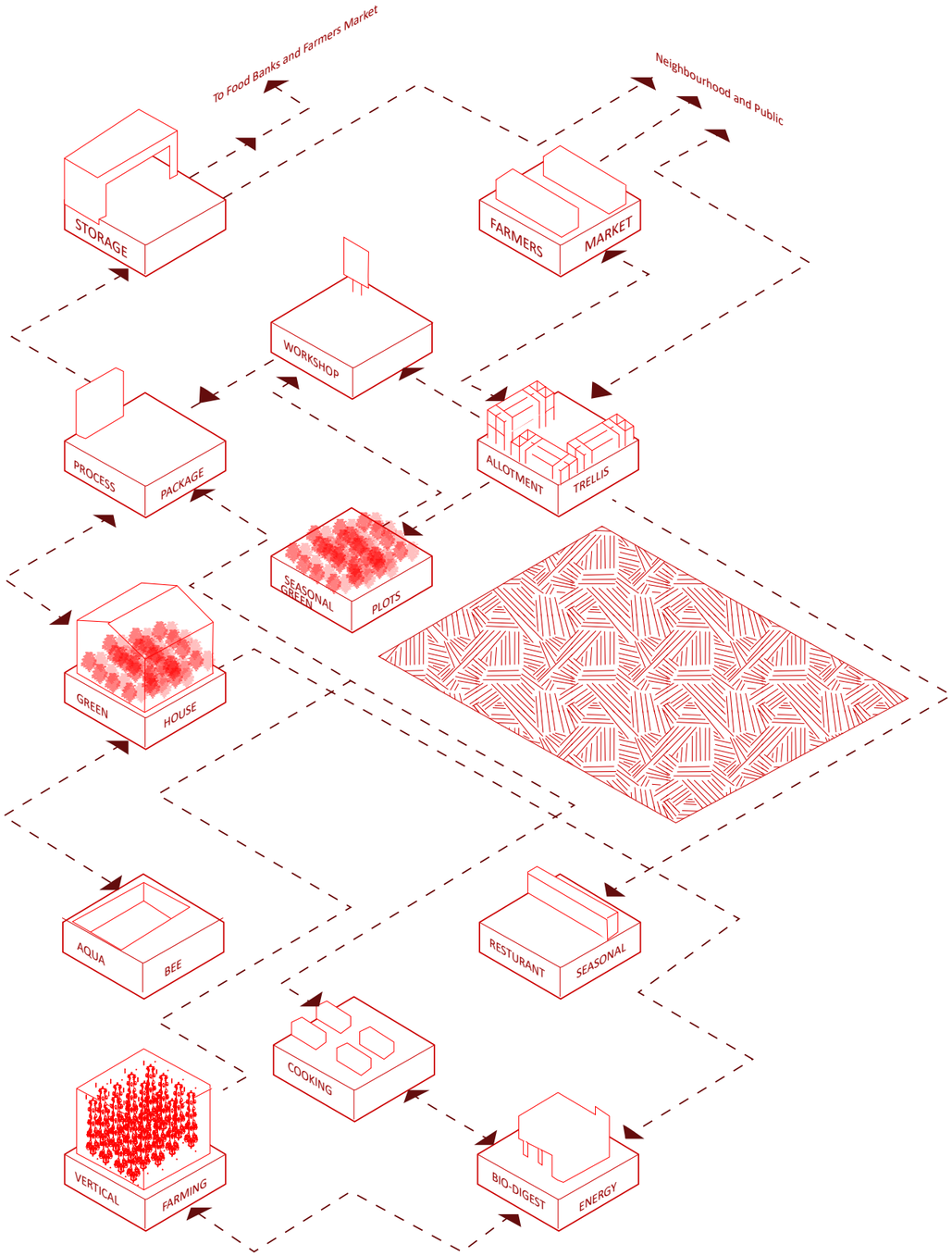
The Eco-Social Production







Program and proximity



SEASONAL VALUE | DISTRIBUTION



Market Hall (Farmers and Spice)

420 m²



Seasonal Restaurant

320 m²



Social Core

EDUCATION | RESEARCH



Food Lab

400 m²



Green House

400 m²

AGRO-ECOLOGY



Hanging Allotments

960 m²



Community Bonding



Aqua Culture



Rainwater Harvesting



Seasonal growing

10000 m²



Soil regeneration



Agri Food Forest

8125 m²

CELEBRATION OF FOOD AXIS



Communal Kitchen

320 m²



Communal Dining

280 m²

PRODUCTION | STORAGE



Hydroponics

2400m²



Aeroponics



Education

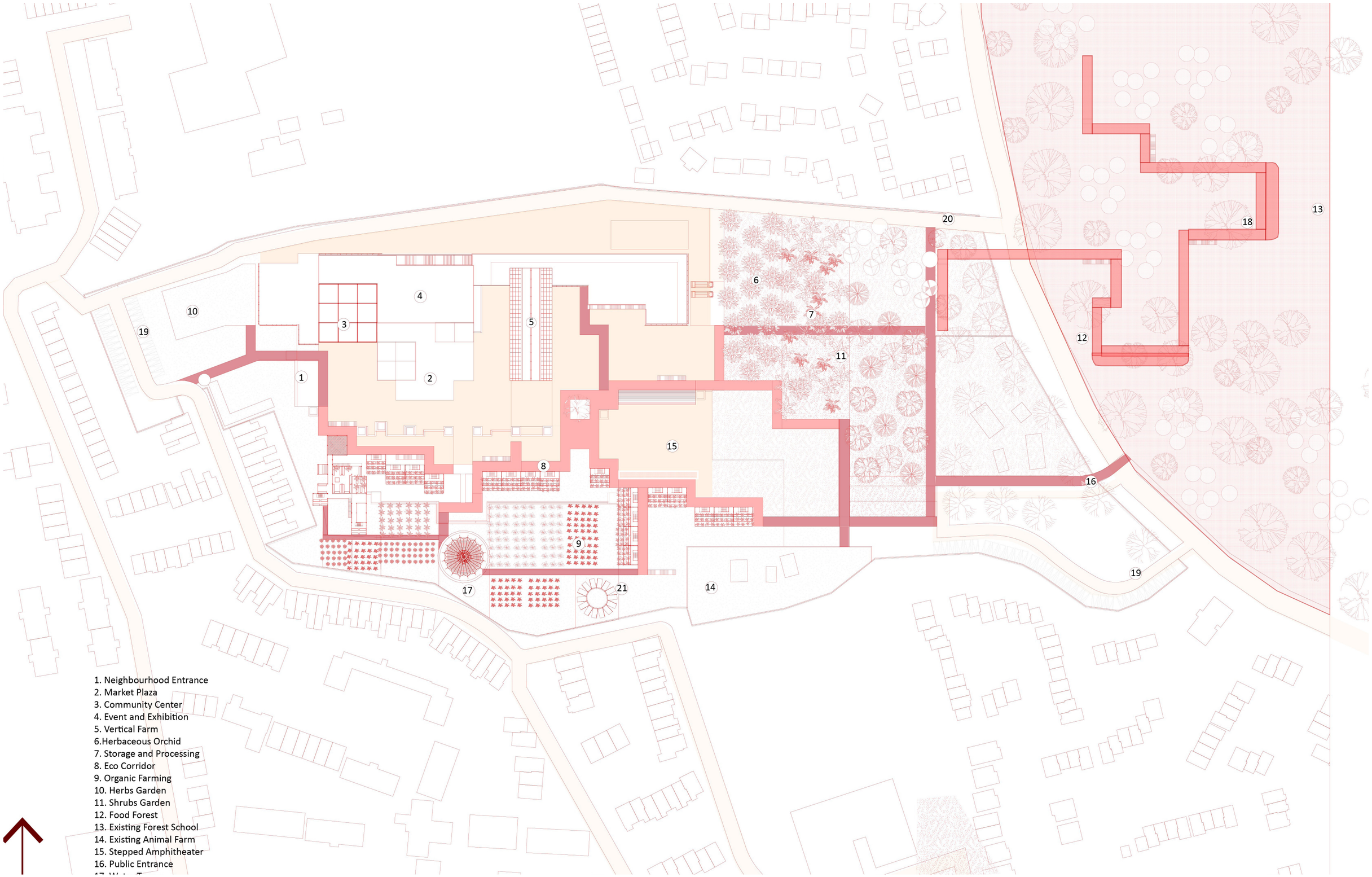


Rainwater Harvesting

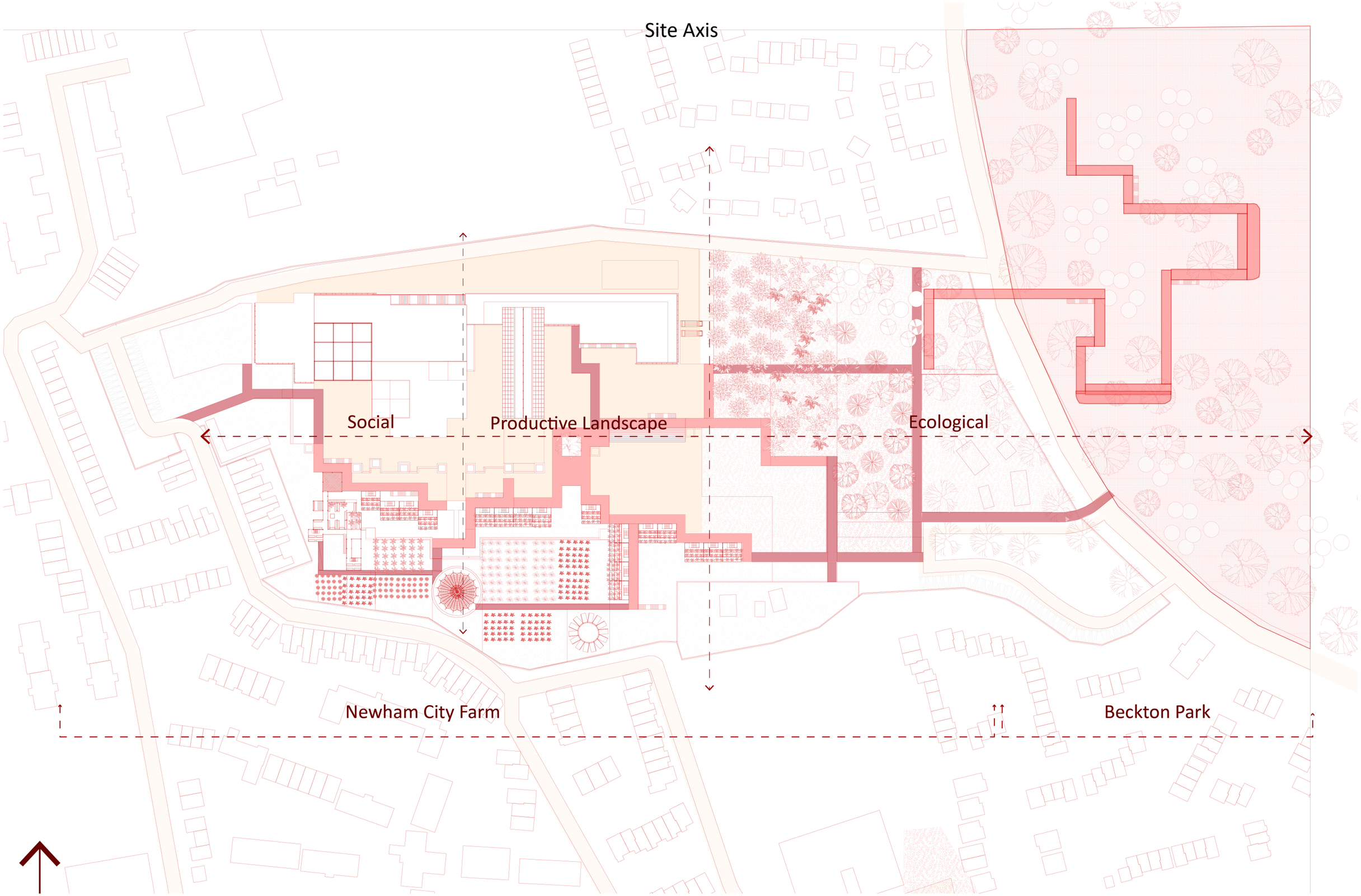


Anaerobic Digester

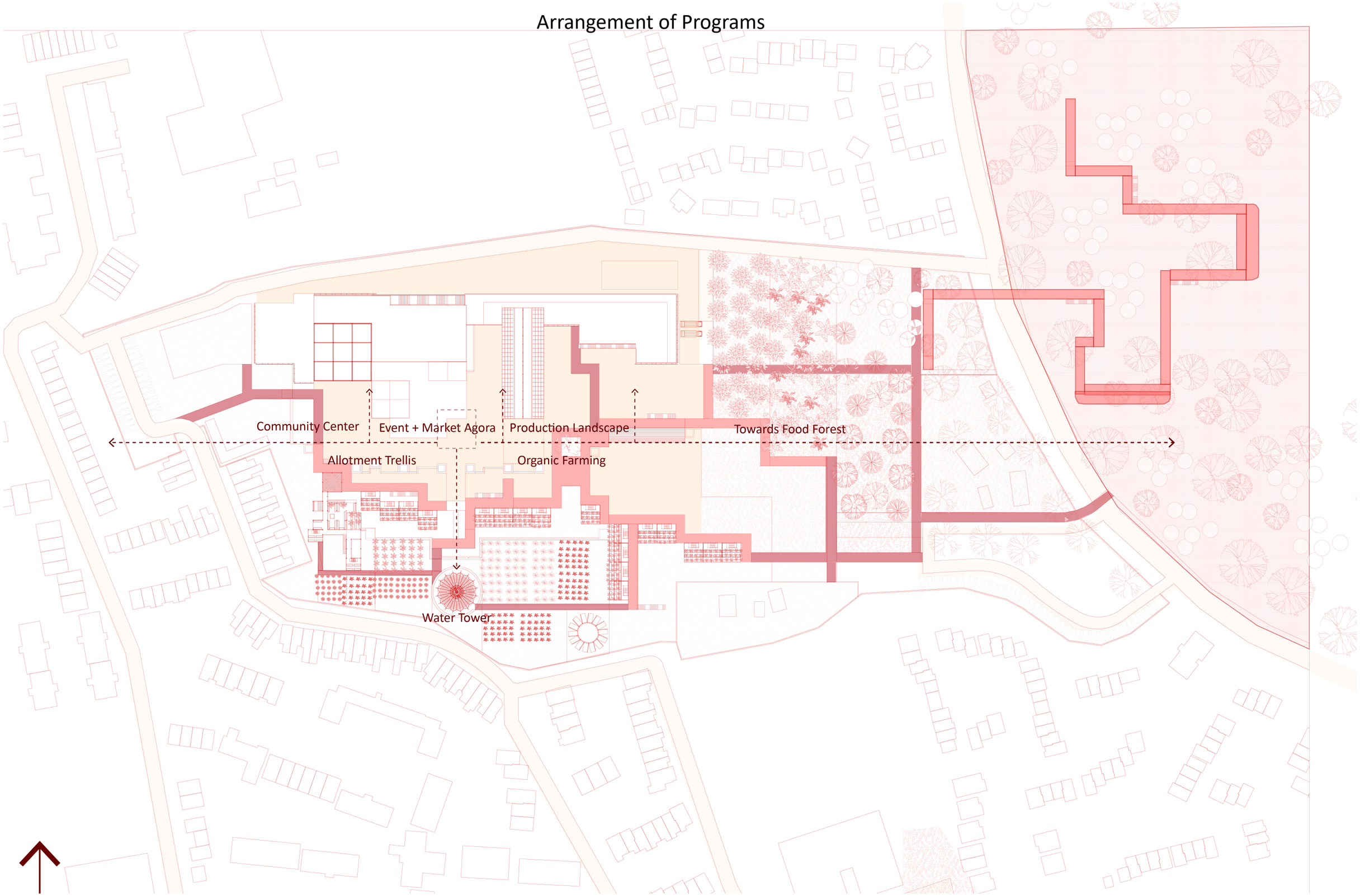
Master Plan



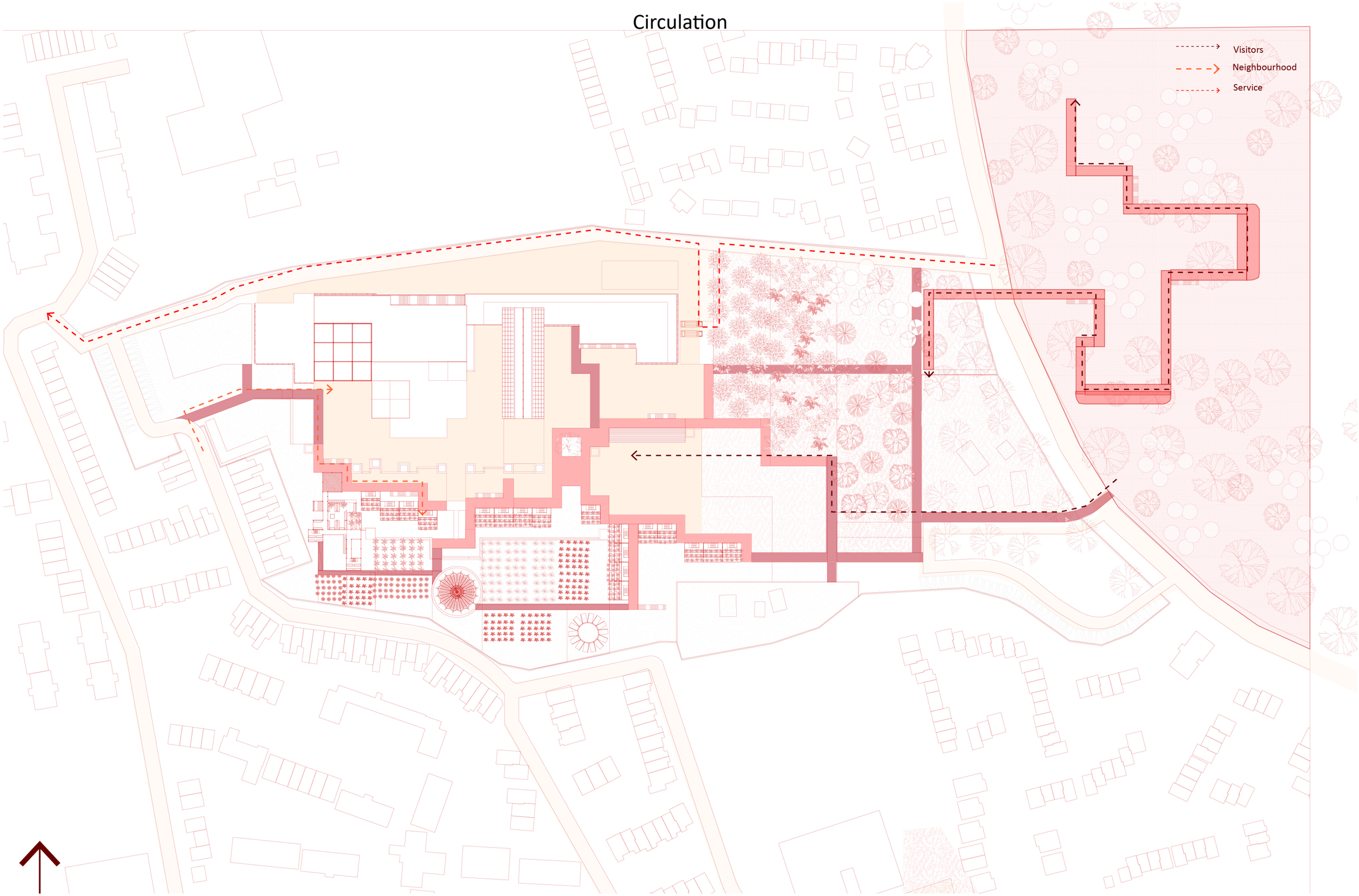
1. Neighbourhood Entrance
2. Market Plaza
3. Community Center
4. Event and Exhibition
5. Vertical Farm
6.Herbaceous Orchid
7. Storage and Processing
8. Eco Corridor
9. Organic Farming
10. Herbs Garden
11. Shrubs Garden
12. Food Forest
13. Existing Forest School
14. Existing Animal Farm
15. Stepped Amphitheater
16. Public Entrance


Site Axis
Social
Productive Landscape
Ecological
Newham City Farm
Beckton Park

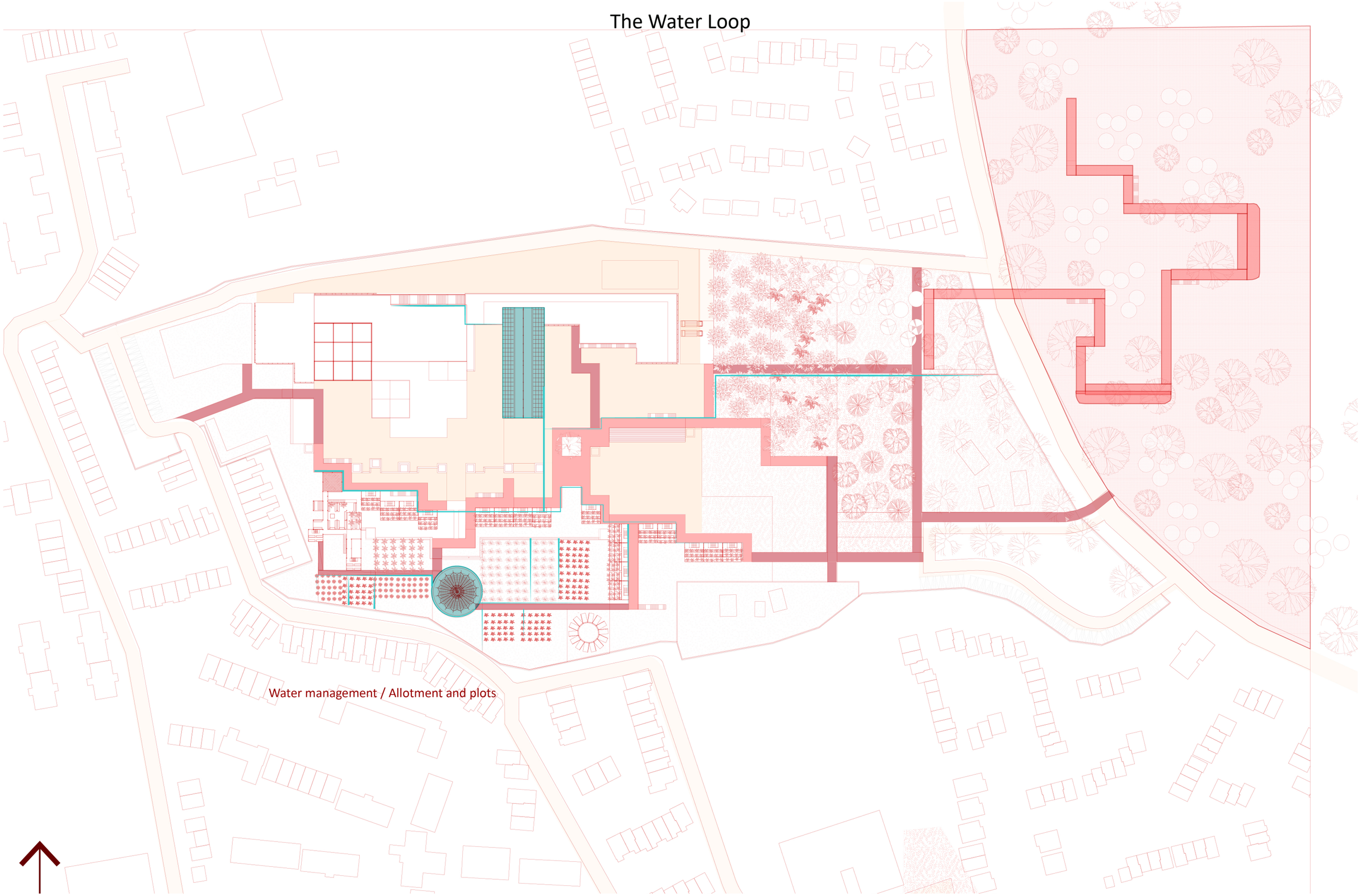
Arrangement of Programs



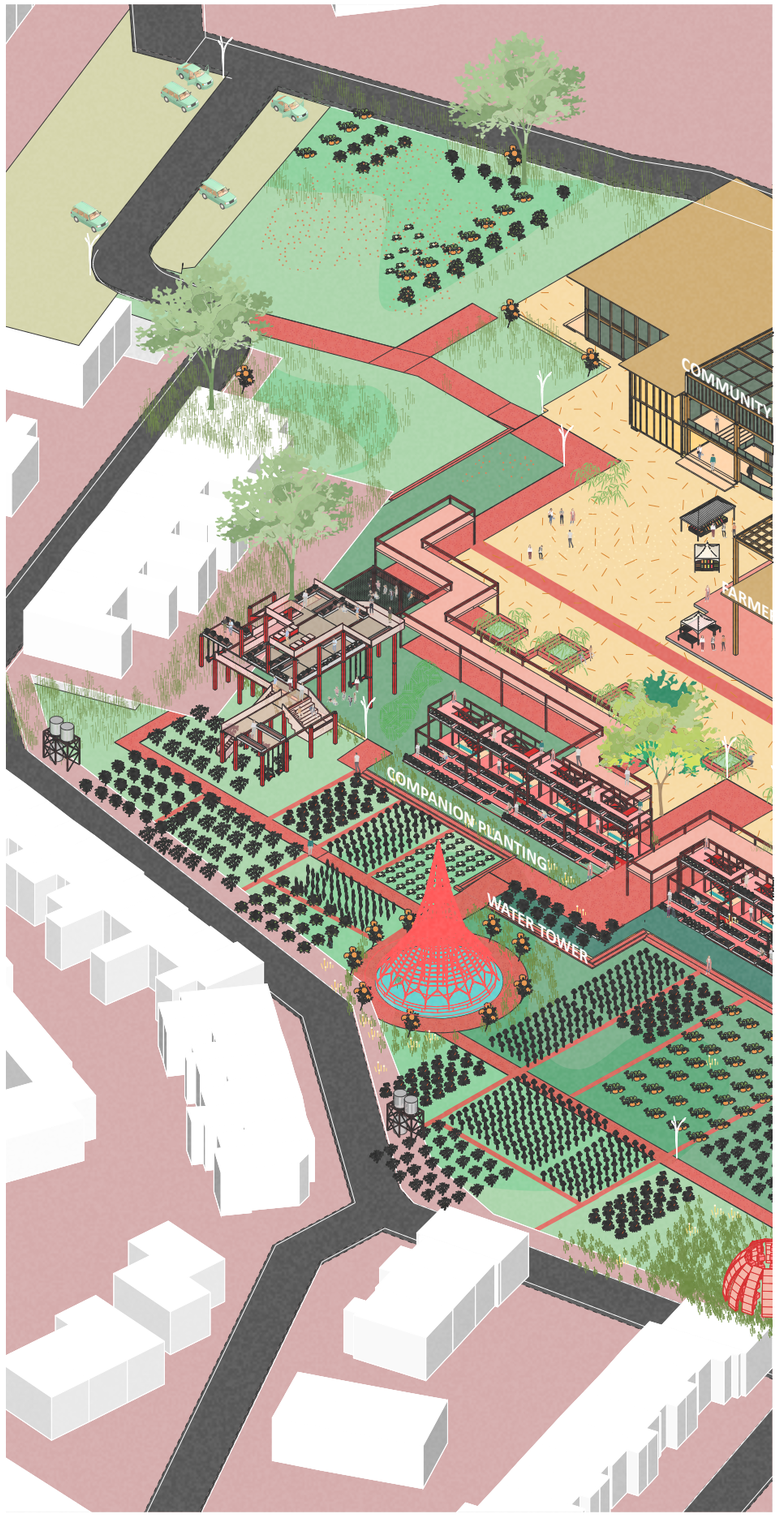
Circulation

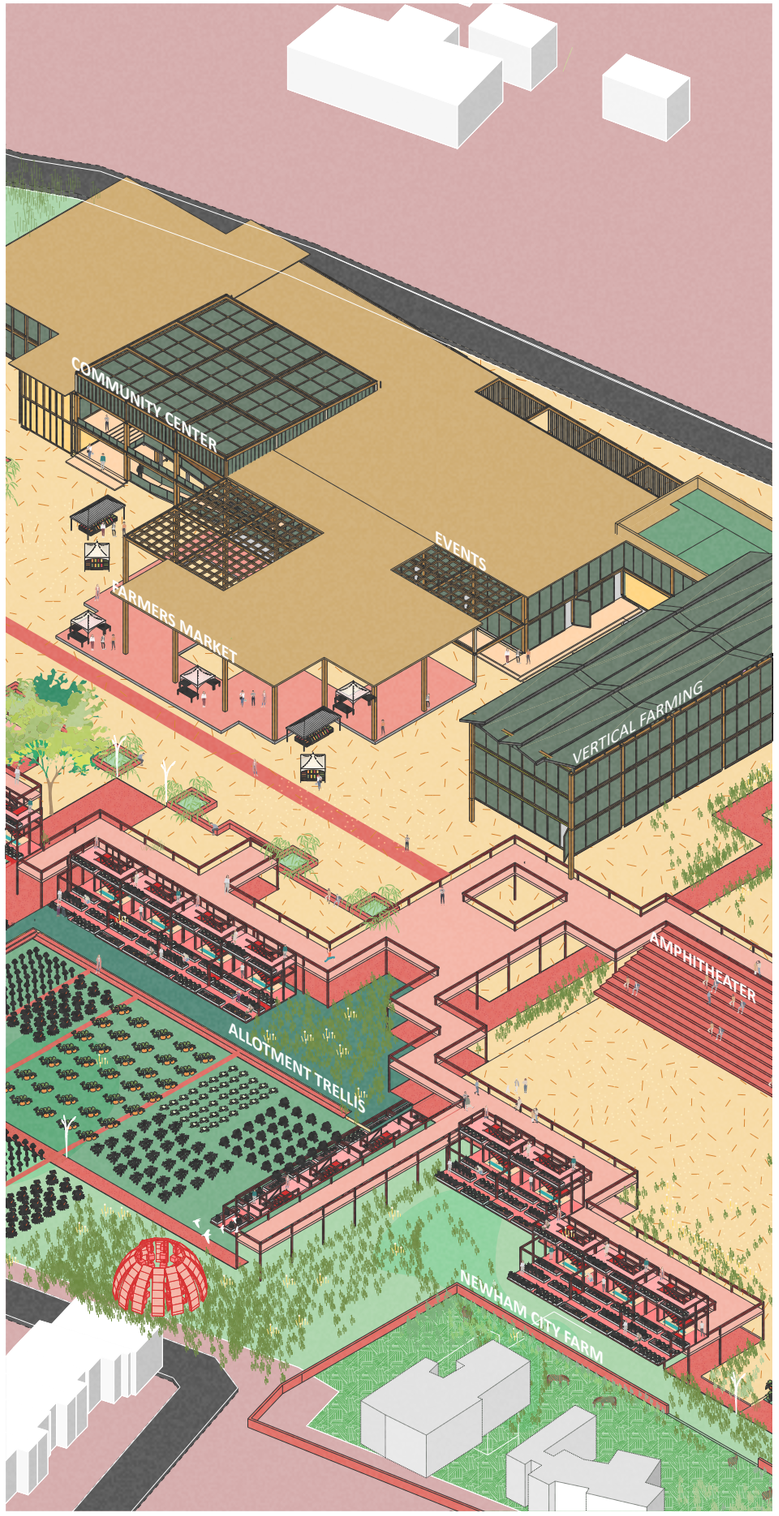


The Water Loop



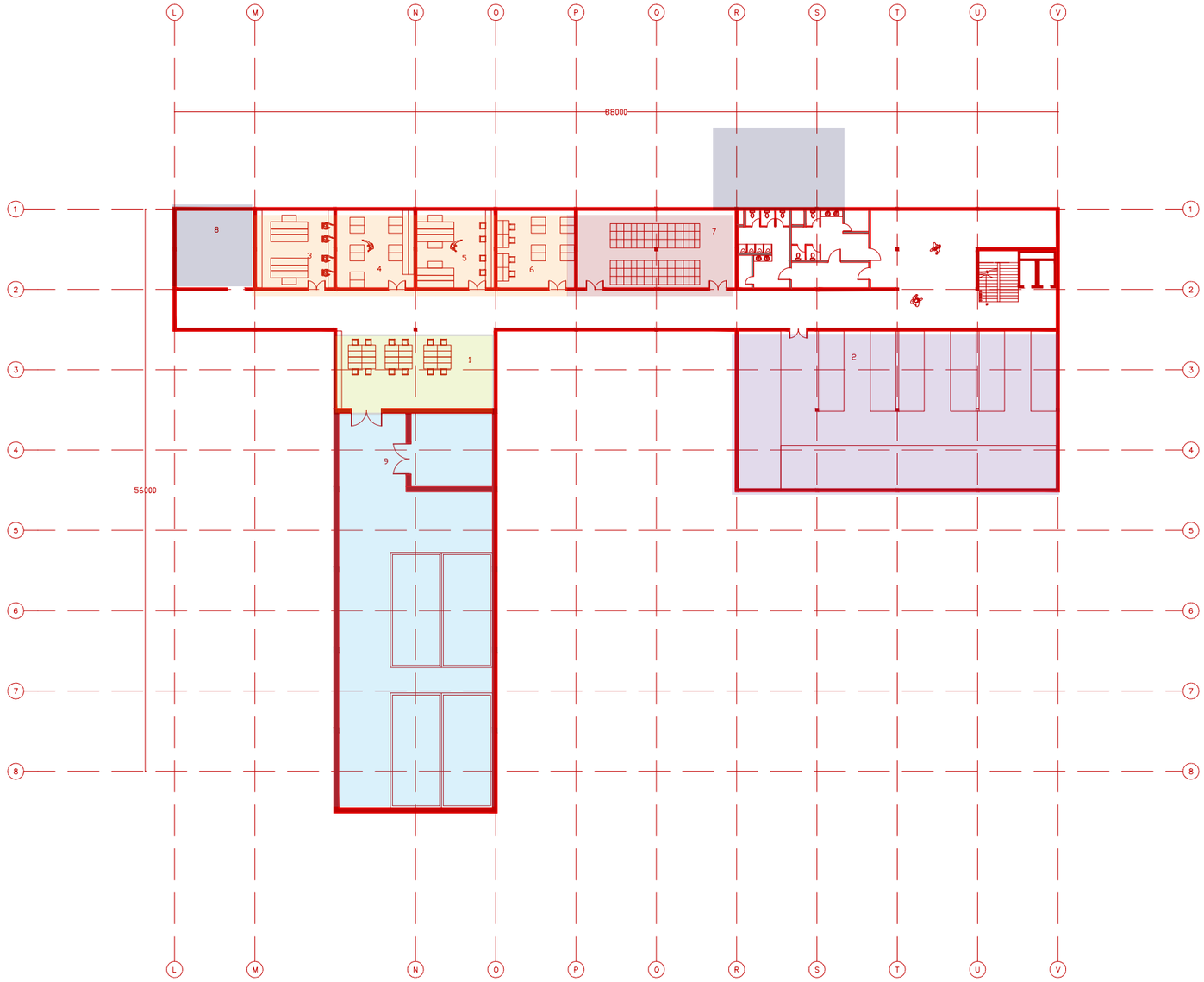

COMMUNITY CENTER
VERTICAL FARMING
PROCESSING
DISTRIBUTION
COMPANION PLANTING
WATER TOWER
ALLOTMENT TRELLIS
AMPHITHEATER
FOREST SCHOOL
ECO CORRIDOR


COMMUNITY
FARME
COMPANION PLANTING
WATER TOWER


COMMUNITY CENTER
EVENTS
FARMERS MARKET
VERTICAL FARMING
AMPHITHEATER
ALLOTMENT TRELLIS
NEWHAM CITY FARM


FOOD FOREST
BECKTON PARK

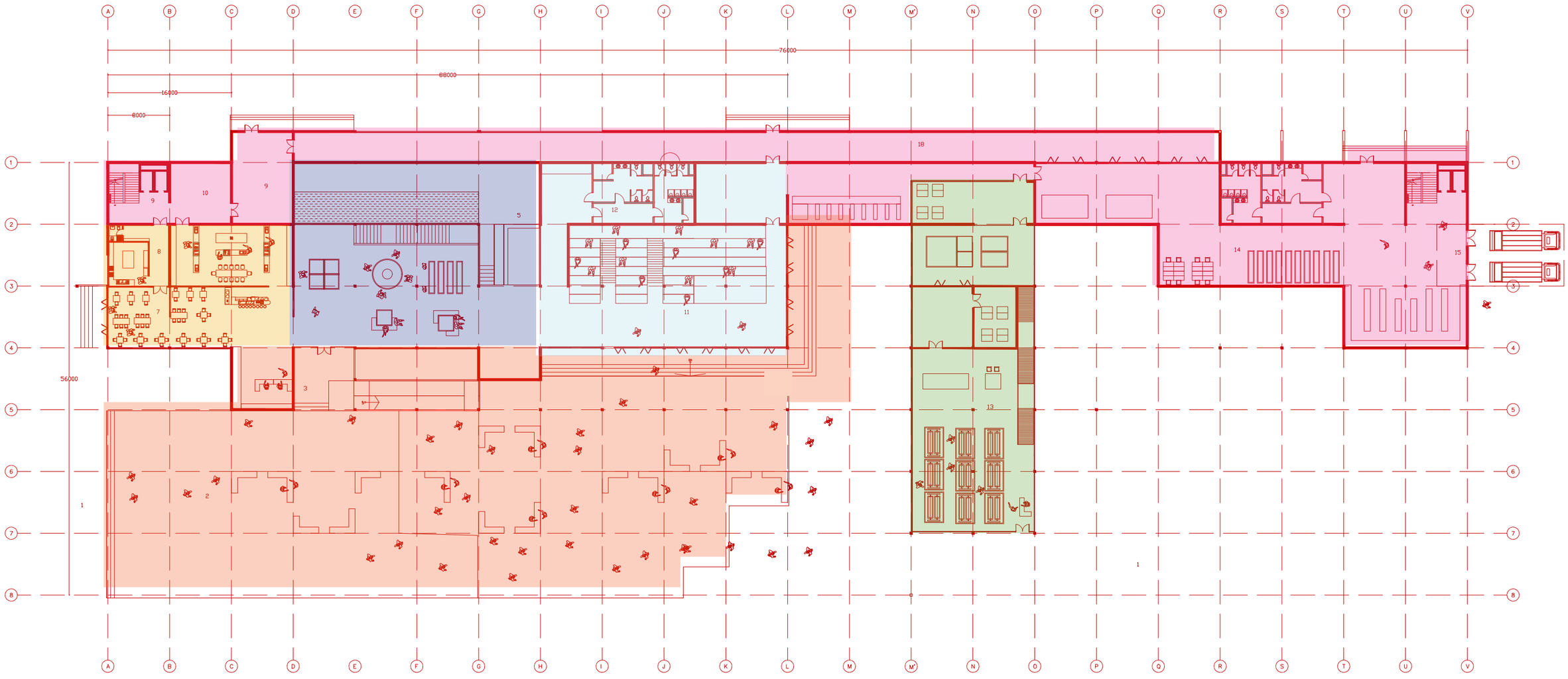
Basement Plan / Labs



BASEMENT FLOOR PLAN - LABS

1. Work space
2. Storage
3. Evaluation Lab
4. Entomology Lab
5. Microbiology lab
6. Plant pathology Lab
7. Mushroom Lab
8. Anaerobic Digester
9. Technical Room
10. Water Reservoir

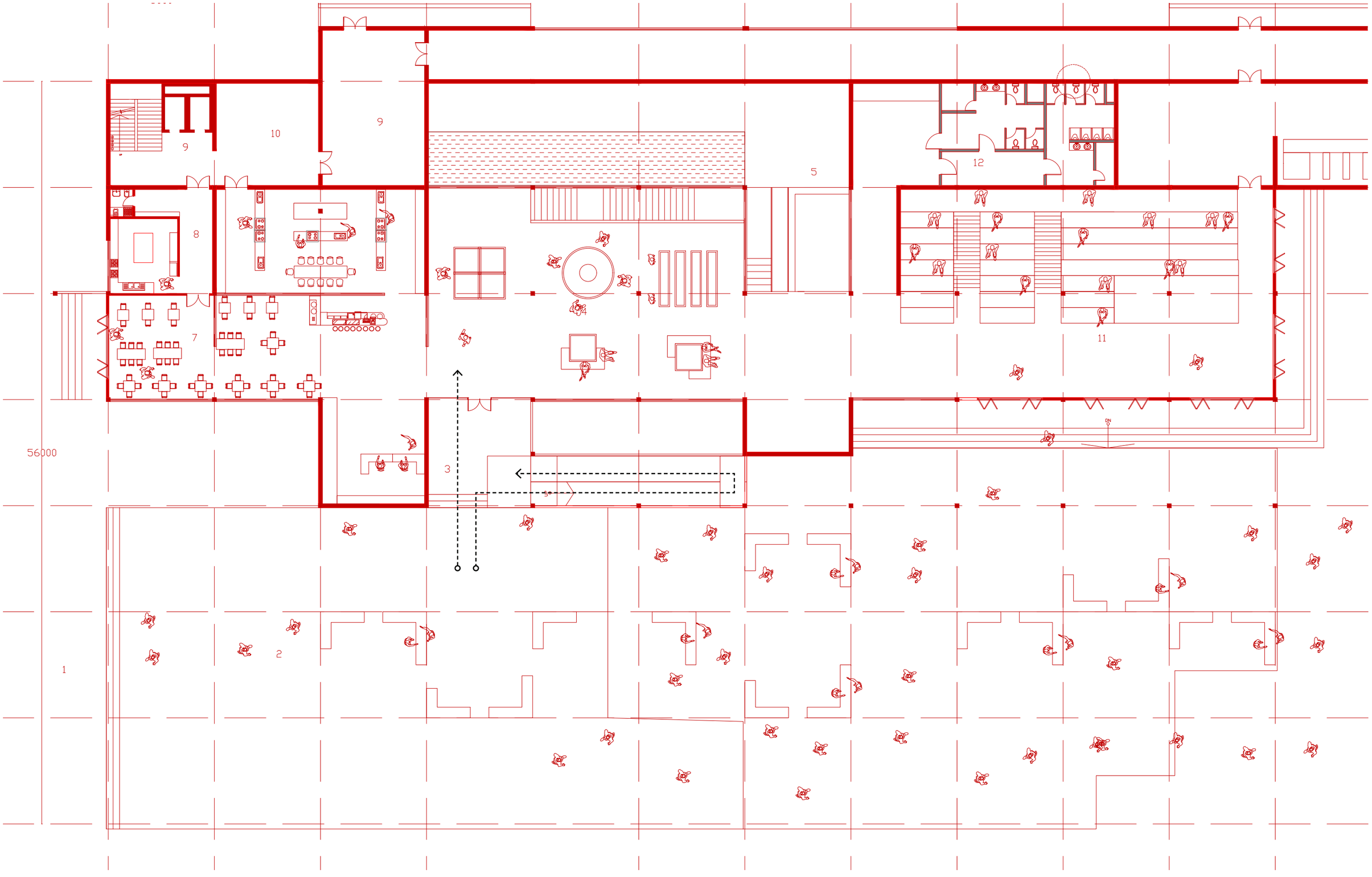
Ground Floor Plan



GROUND FLOOR PLAN

1. Entrance Place
2. Market Agora
3. Community Center
4. Exhibition Space
5. Pisciculture
6. Cultural Exchange
7. Seasonal Cafe
8. Kitchen
9. Back end Services
10. Storage
11. Event space
12. Toilets
13. Vertical Farm - Paternoster
14. Production and Process
15. Distribution Hub
16. Vertical Farm Entrance
17. Reactors
18. Service Corridor

- Market Plaza
- Exhibition Space
- Cafe and Community Kitchen
- Events
- Vertical Farm
- Processing and back of house


56000
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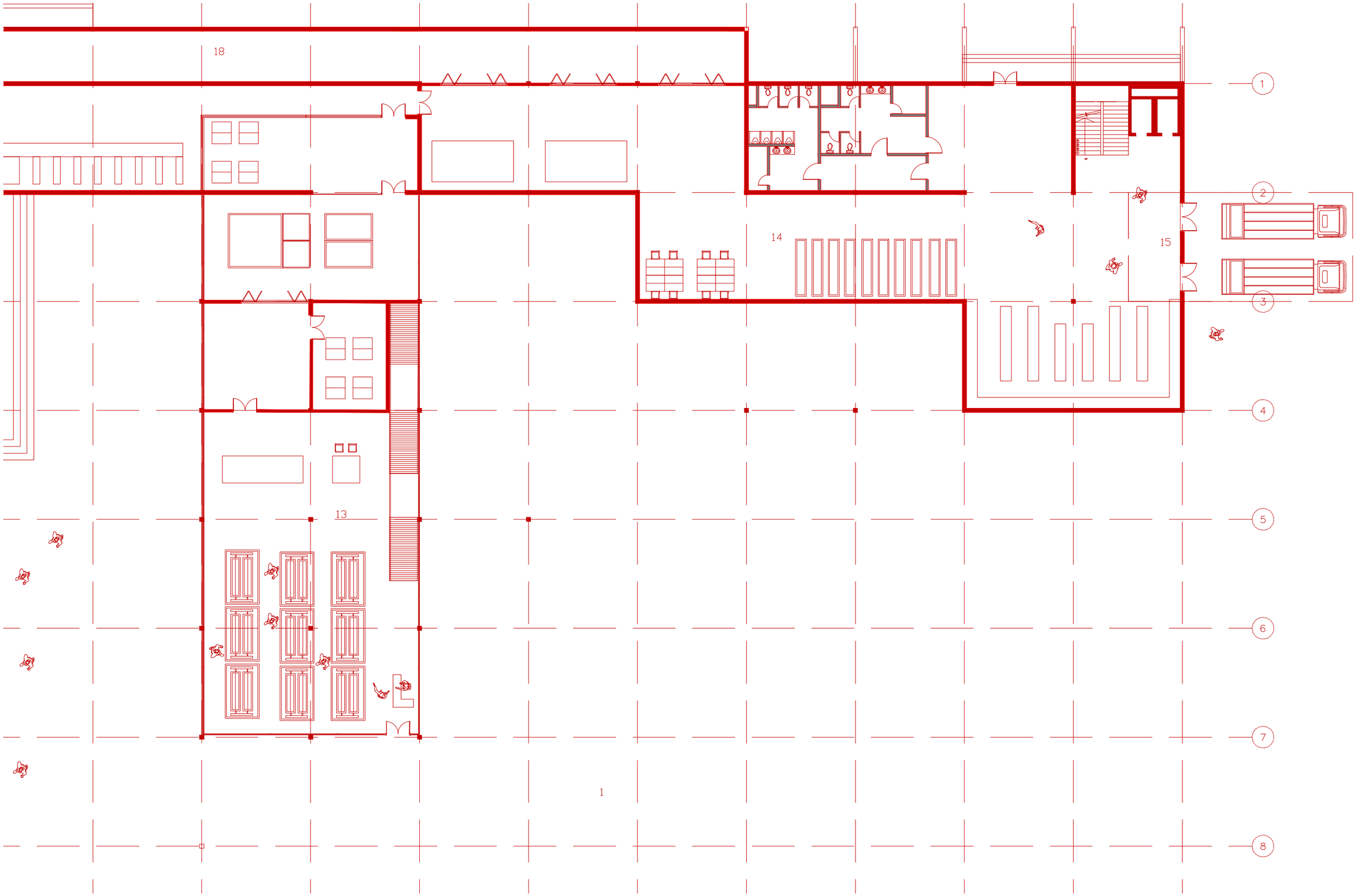
DN


18
14
15
13
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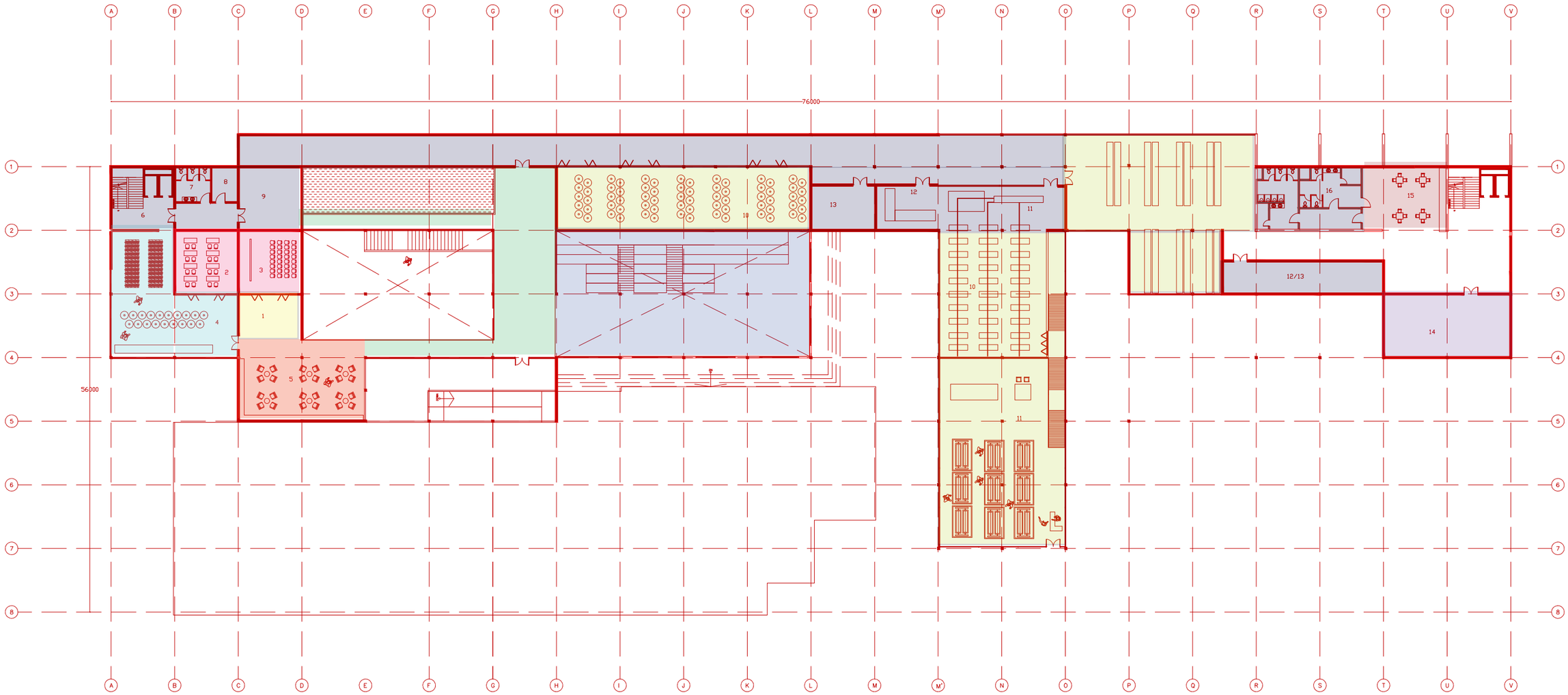
8

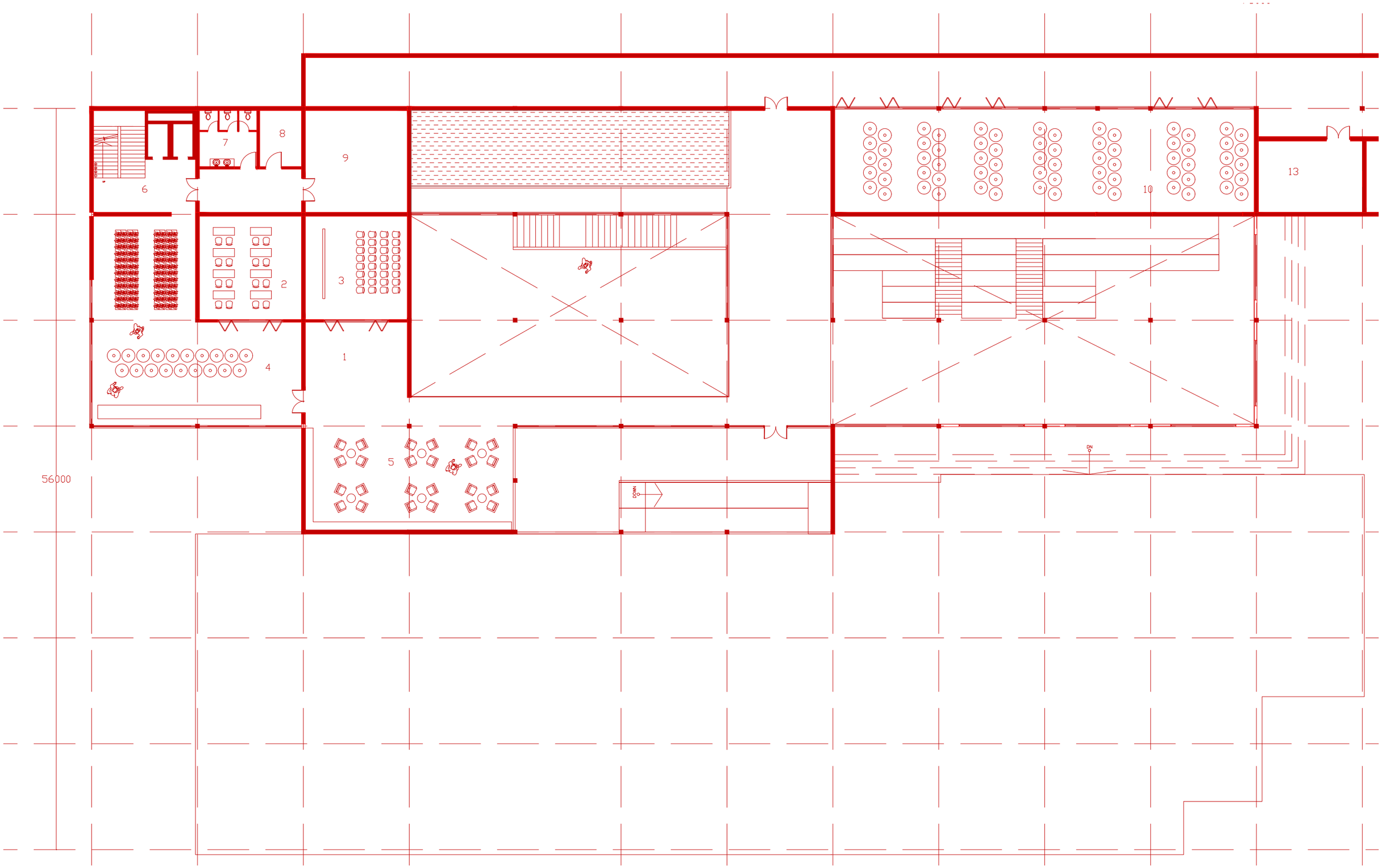
First Floor Plan



FIRST FLOOR PLAN

1. Learning Hub
2. Classrooms
3. A V Room
4. Hands on Workshop
5. Library
6. Back end
7. Toilet
8. Storage
9. Germination Room
10. Leafy Herbs Production
11. Vegetable Production
12. Technical Room
13. Germination Room
14. Sorting and Storage
15. Work space
16. Toilet

- Corridor
- Event space
- Library
- Classrooms and AV room
- Hands on workshop rooms
- Back of house


1
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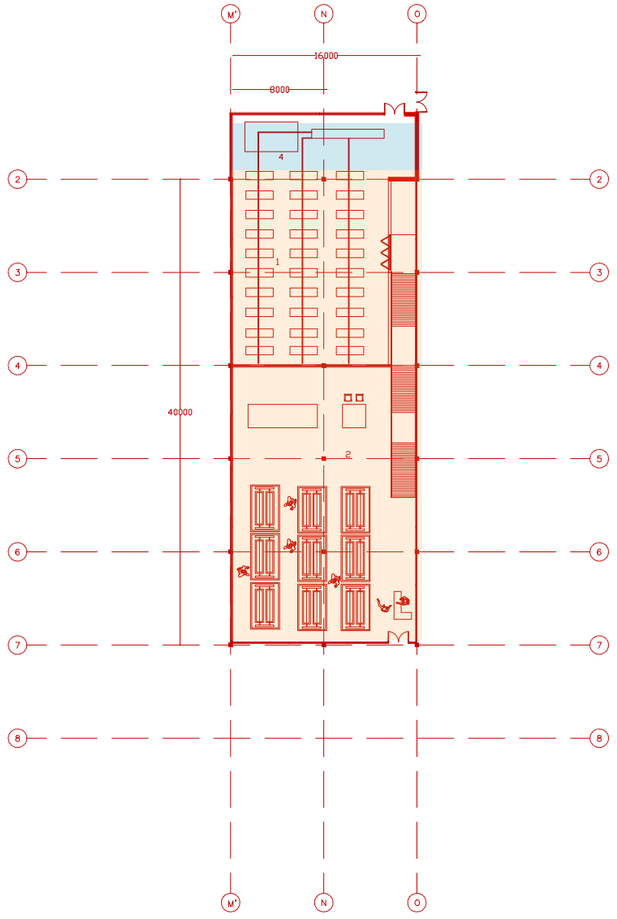
13
DOWN
DN
56000

2nd Floor - Vertical Farm



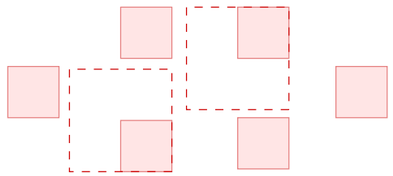
SECOND FLOOR PLAN/ VF

1. Leafy Herbs Production
2. Vegetables Production
3. Germination Room
4. Technical Room

Modules

S

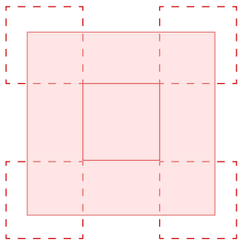
1-150 people



Allotment Gardens
Personal Comsumption

M

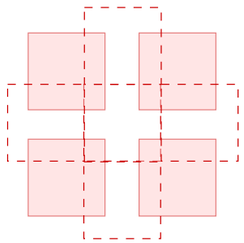
150- 250 people



Farmer’s Market
Seasonal Restaurant
Communal Kitchen
Communal Dining

L

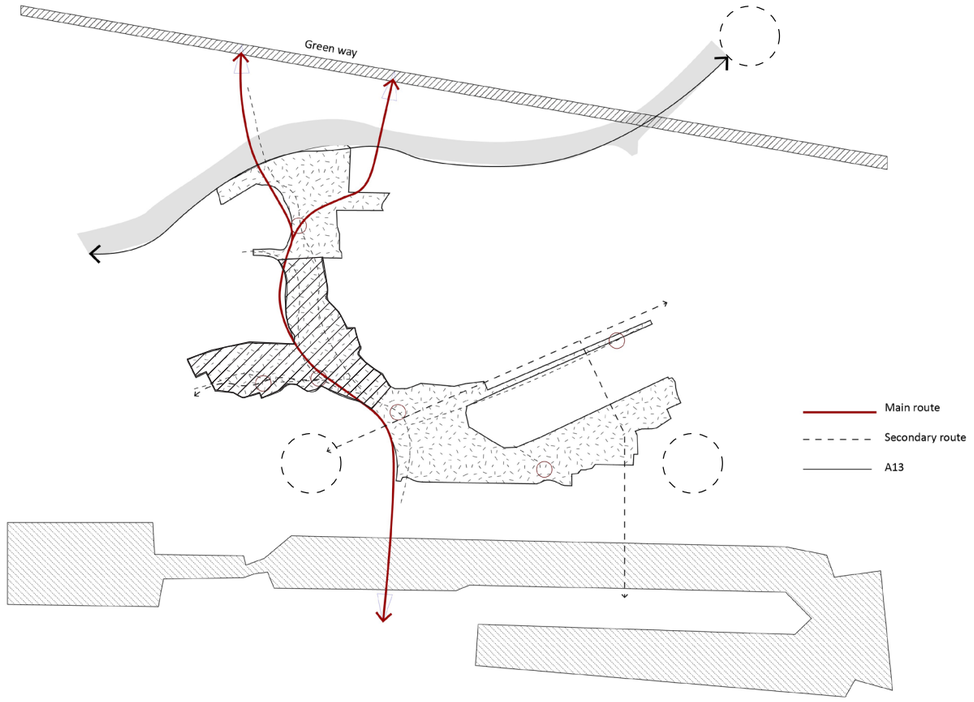
750 - 1000 people



Local distribution
Vertical Farming
Aquaculture
Horticulture

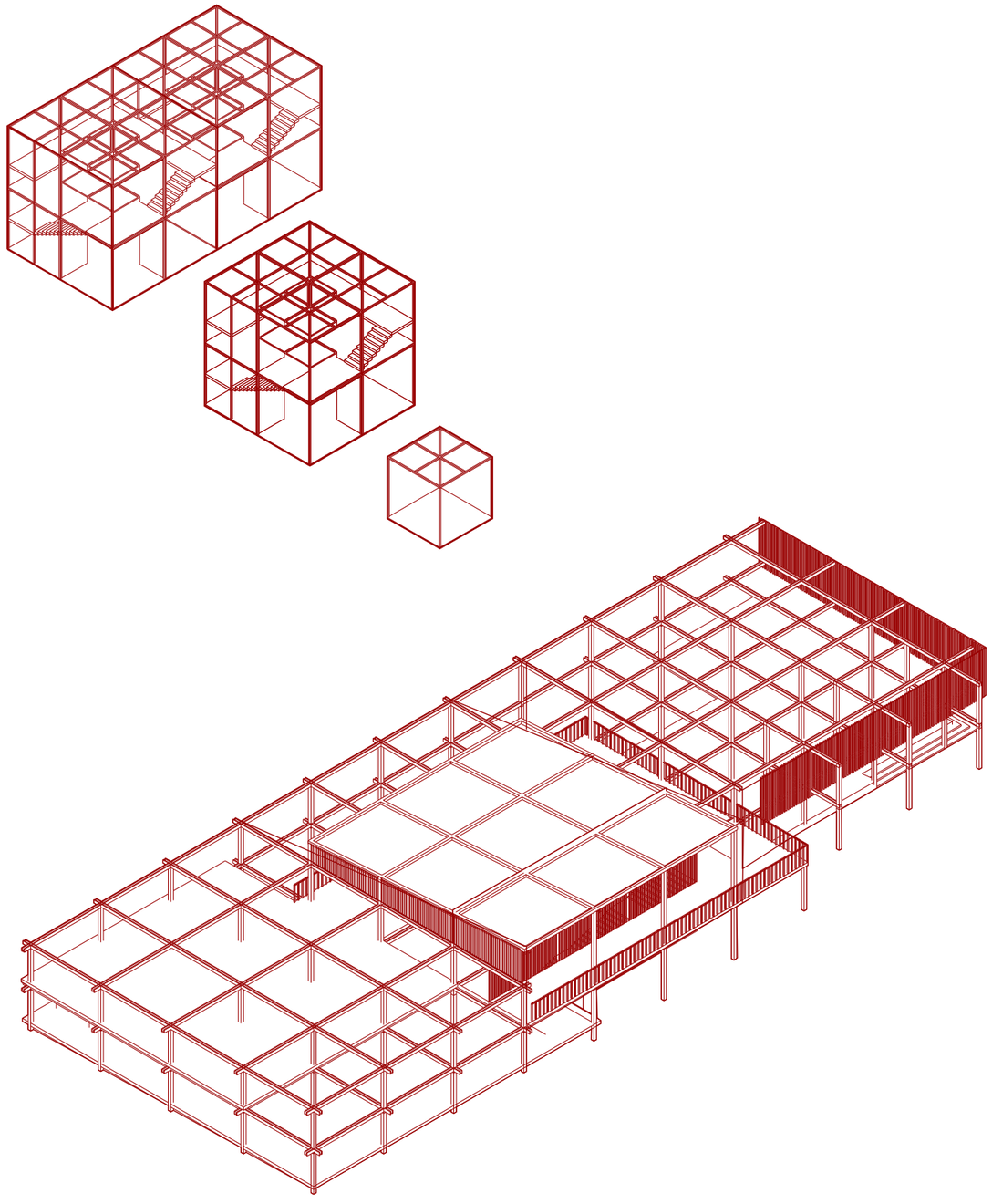
XL

1000-15000 people



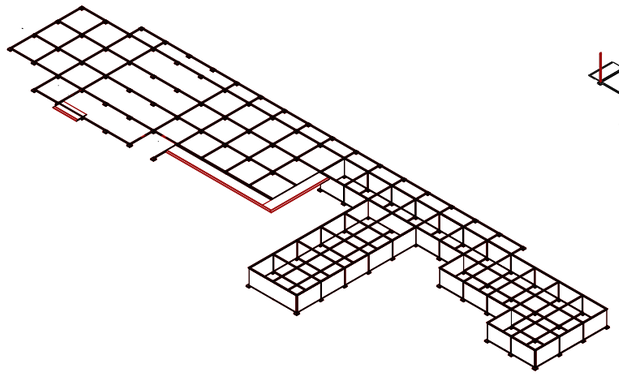
Regional Distribution

Modules

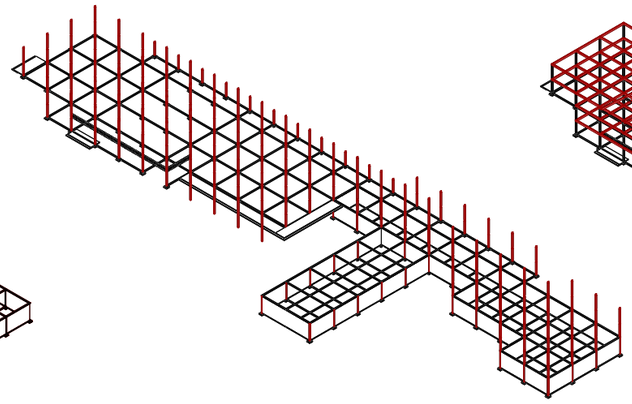


The design concept is rooted in the principle of modularity, where a grid system of 8 x 8 meters forms the basis for organizing the site. This grid system establishes three distinct modules of different scales: small, medium, and large, each serving specific functions.

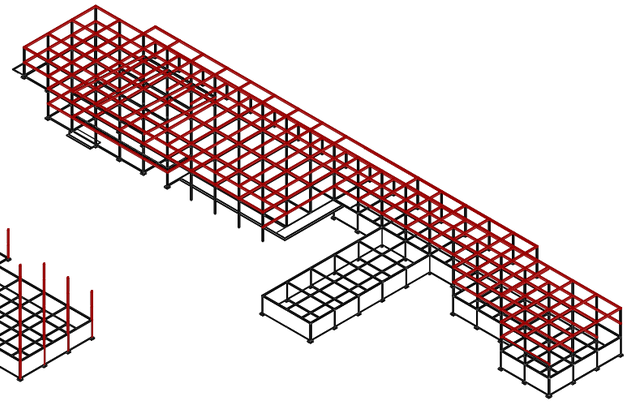
Modularity in Construction



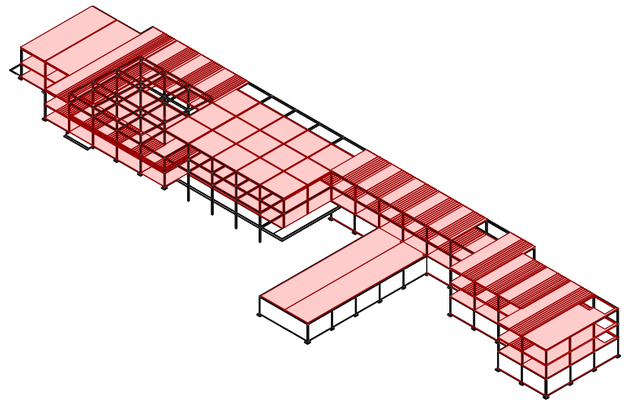
Pre cast Concrete Foundation Base



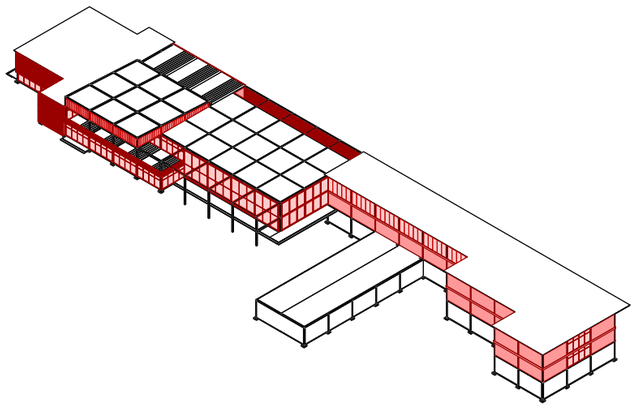
Timber Columns 300x300mm



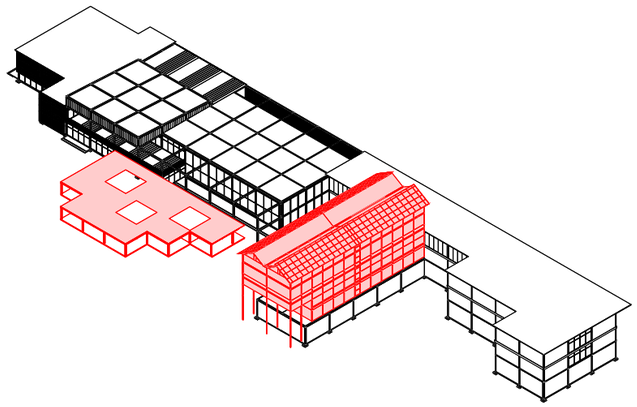
Glulam Beams 350 x 100mm



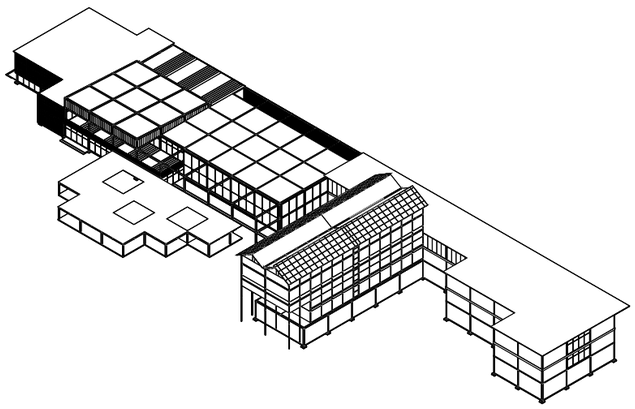
Wooden Flooring and Roof Structure



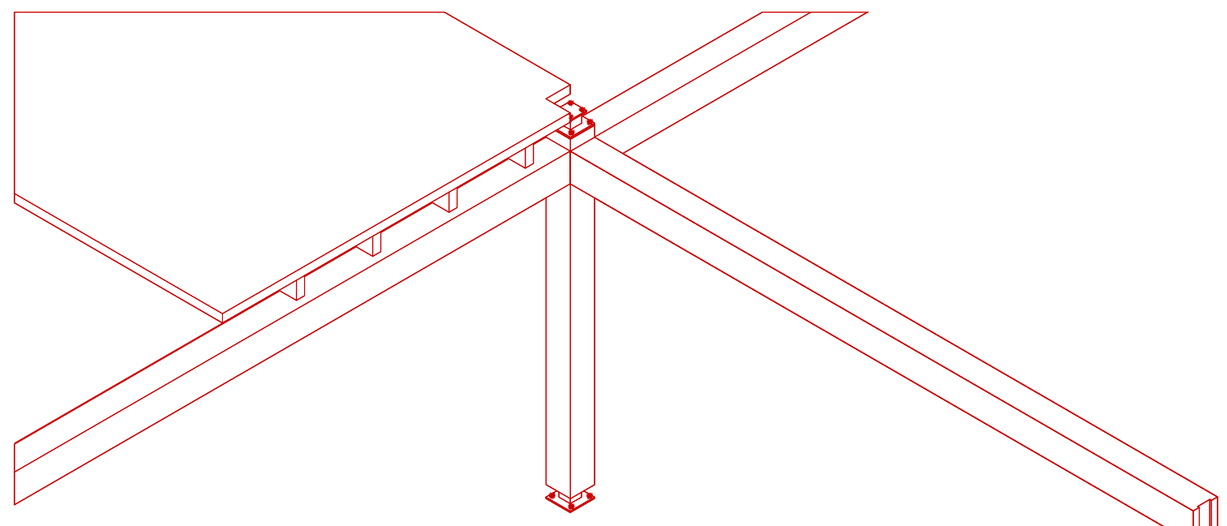
Facade slats and windows/ curtain walls

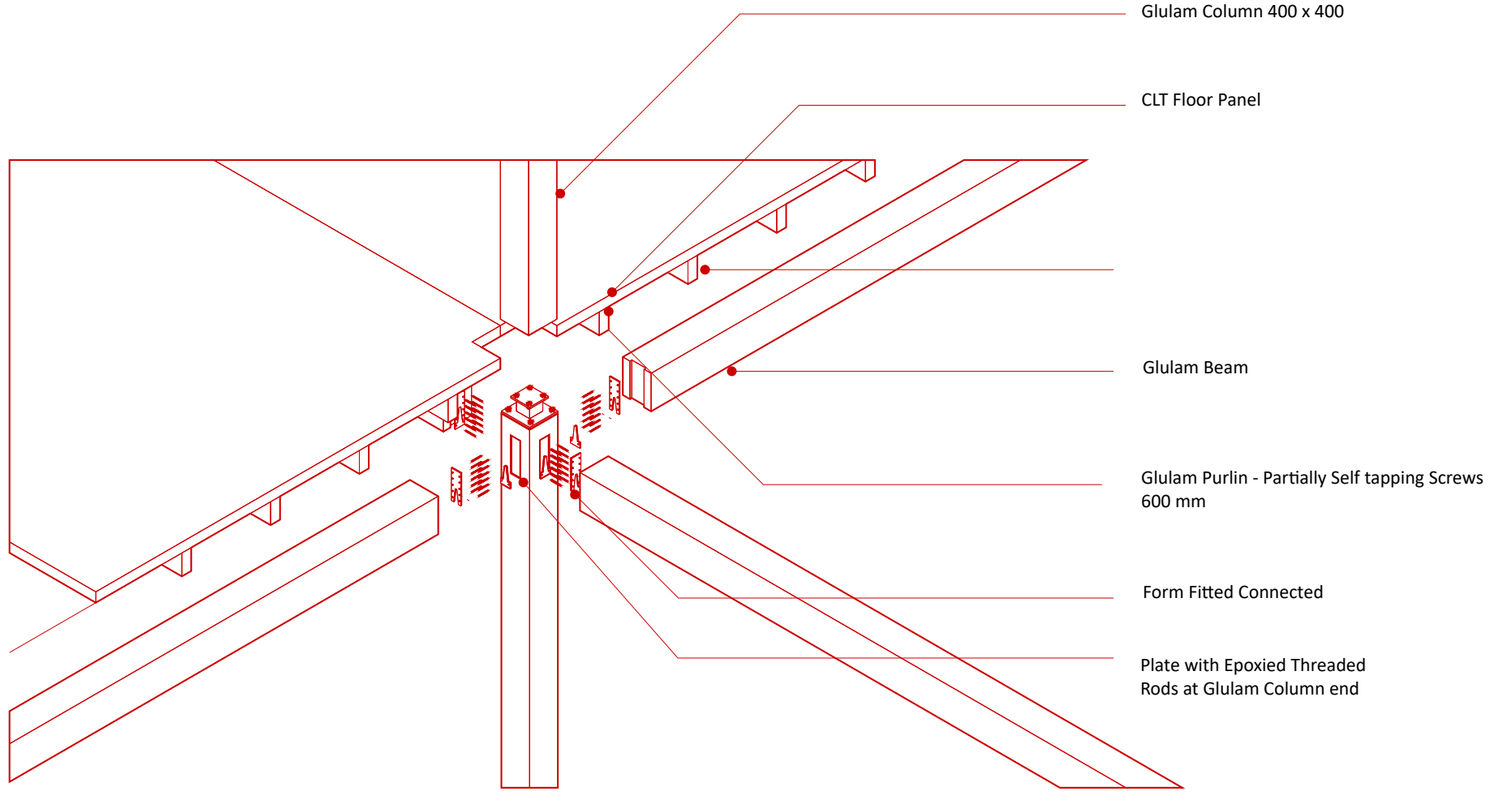


Attached Structure - Market and Vertical Farm

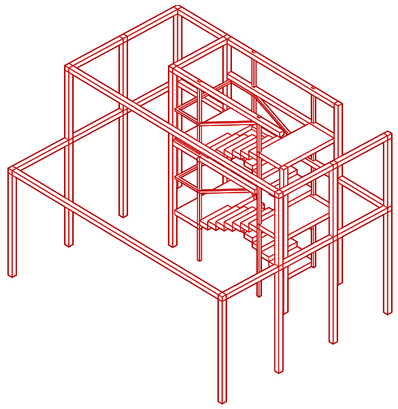


Final 8x8 Grid based modular structure

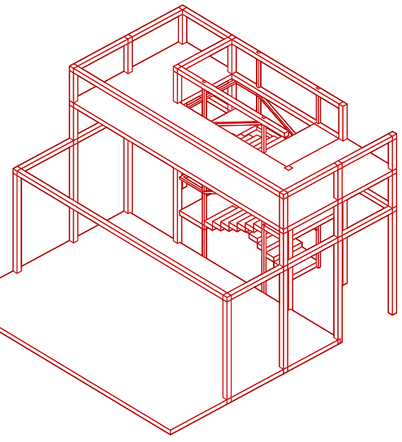



Glulam Column 400 x 400
CLT Floor Panel
Glulam Beam
Glulam Purlin - Partially Self tapping Screws
600 mm
Form Fitted Connected
Plate with Epoxied Threaded
Rods at Glulam Column end

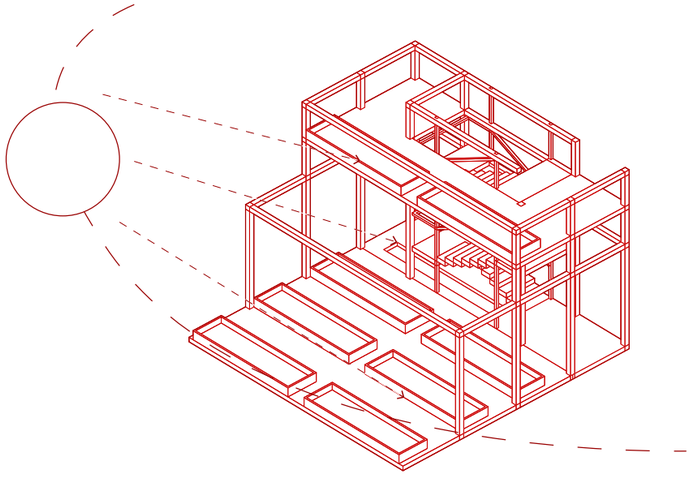
Modularity in Construction - Allotment



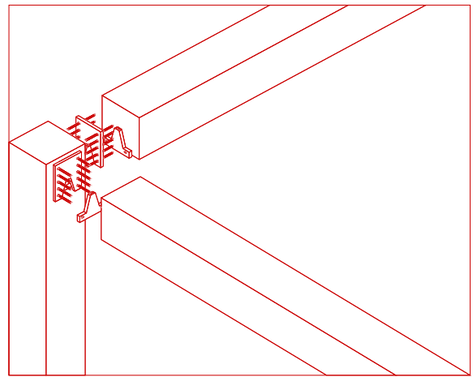
Structure and staircase

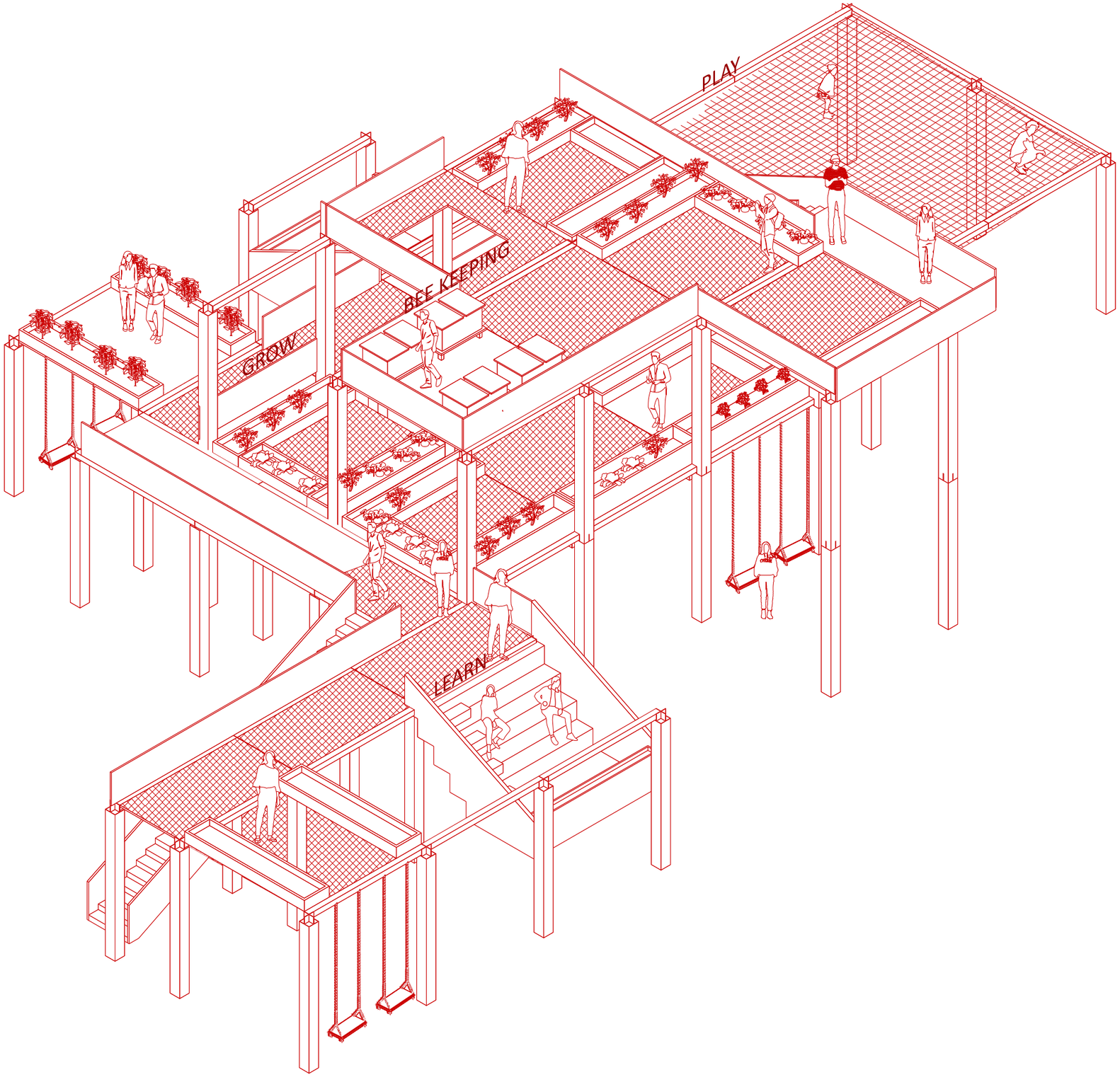


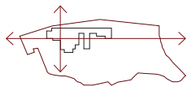
Decks - 8x8 , ,4x8 ,3x8



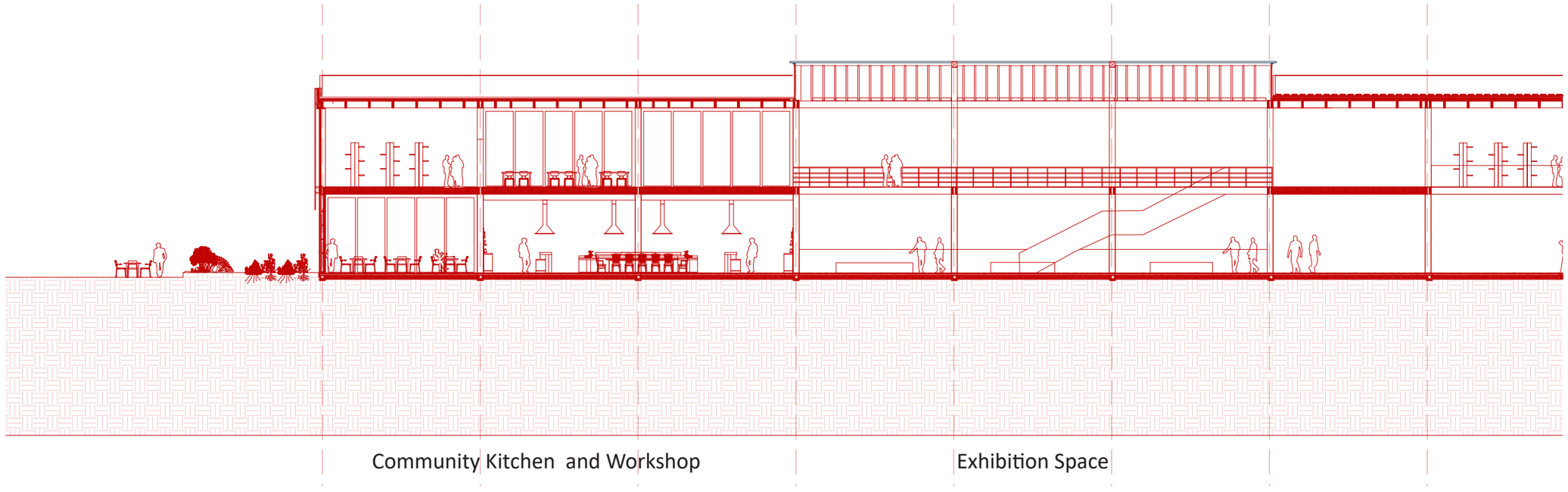
Planter boxes oriented to South Sun Exposure




PLAY
BEE KEEPING
GROW
LEARN

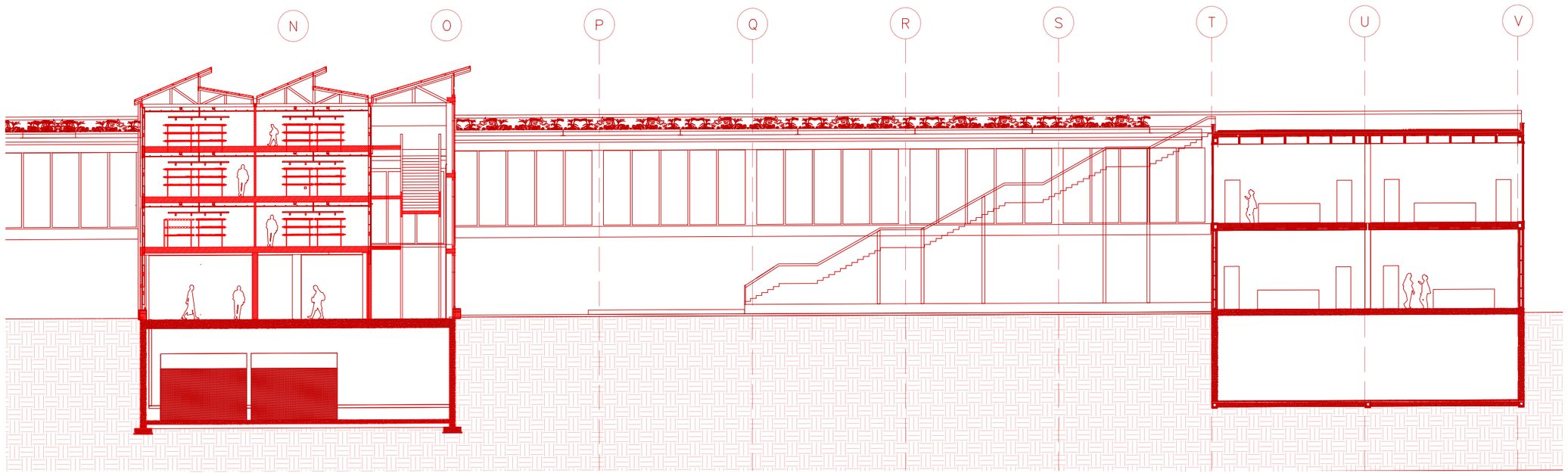


Section AA’



Community Kitchen and Workshop

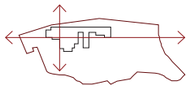
Exhibition Space

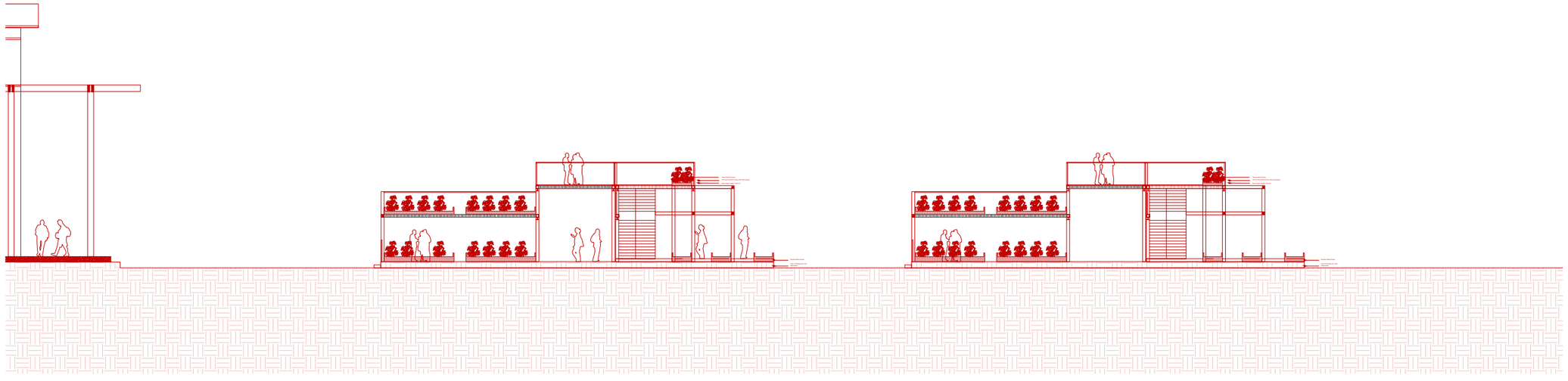


Vertical Farm

Processing and Distribution

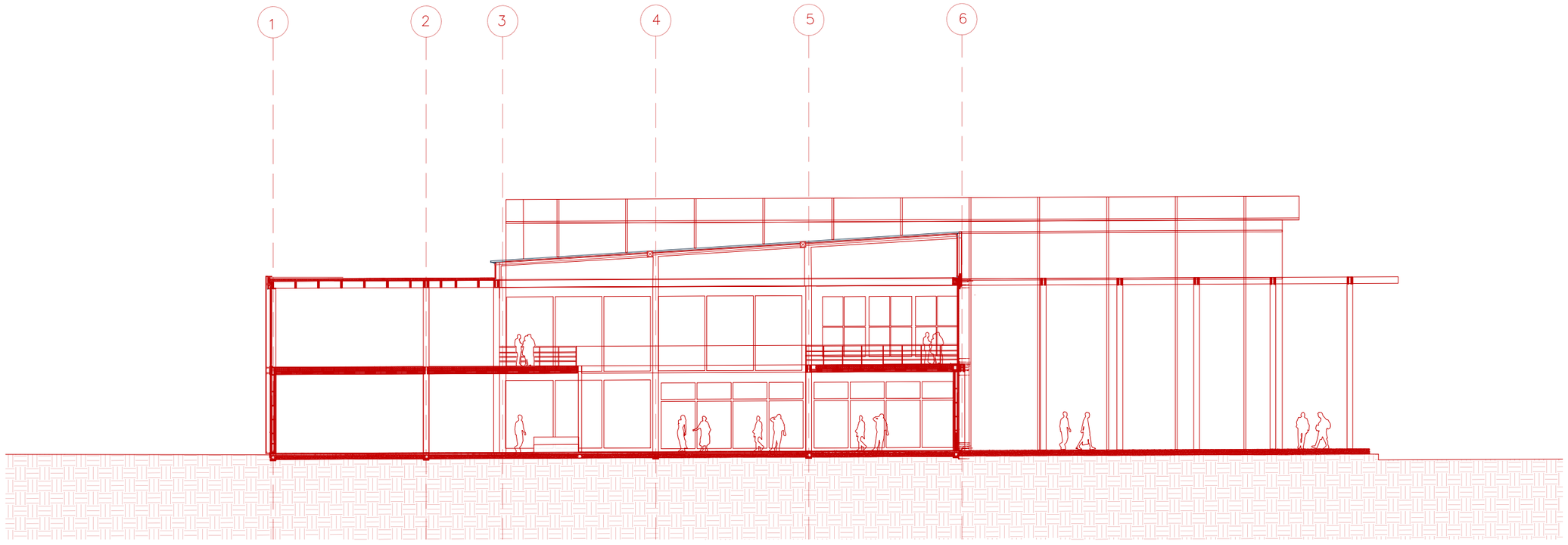
Section BB’





Market Plaza

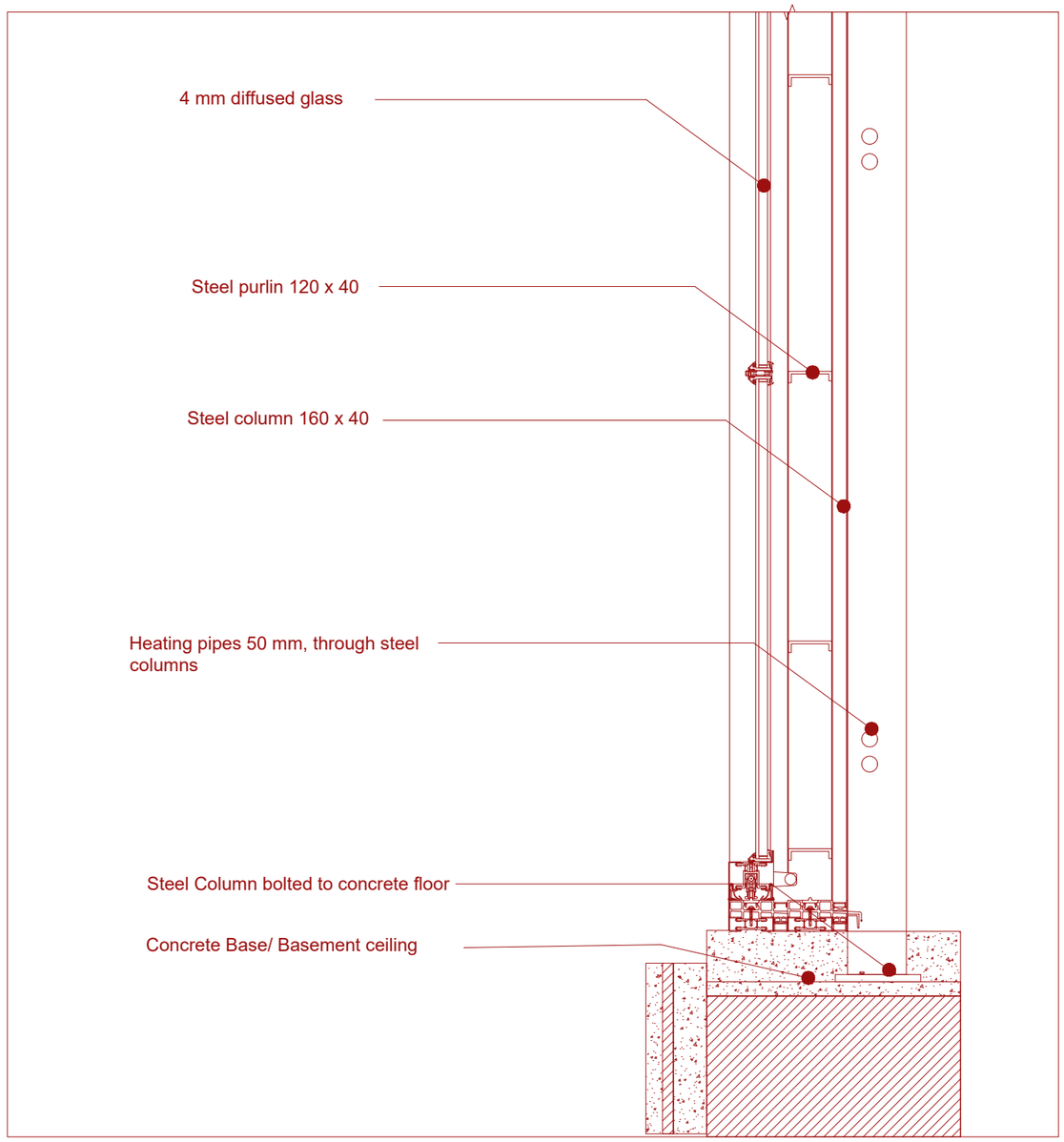
Allotment Trellis



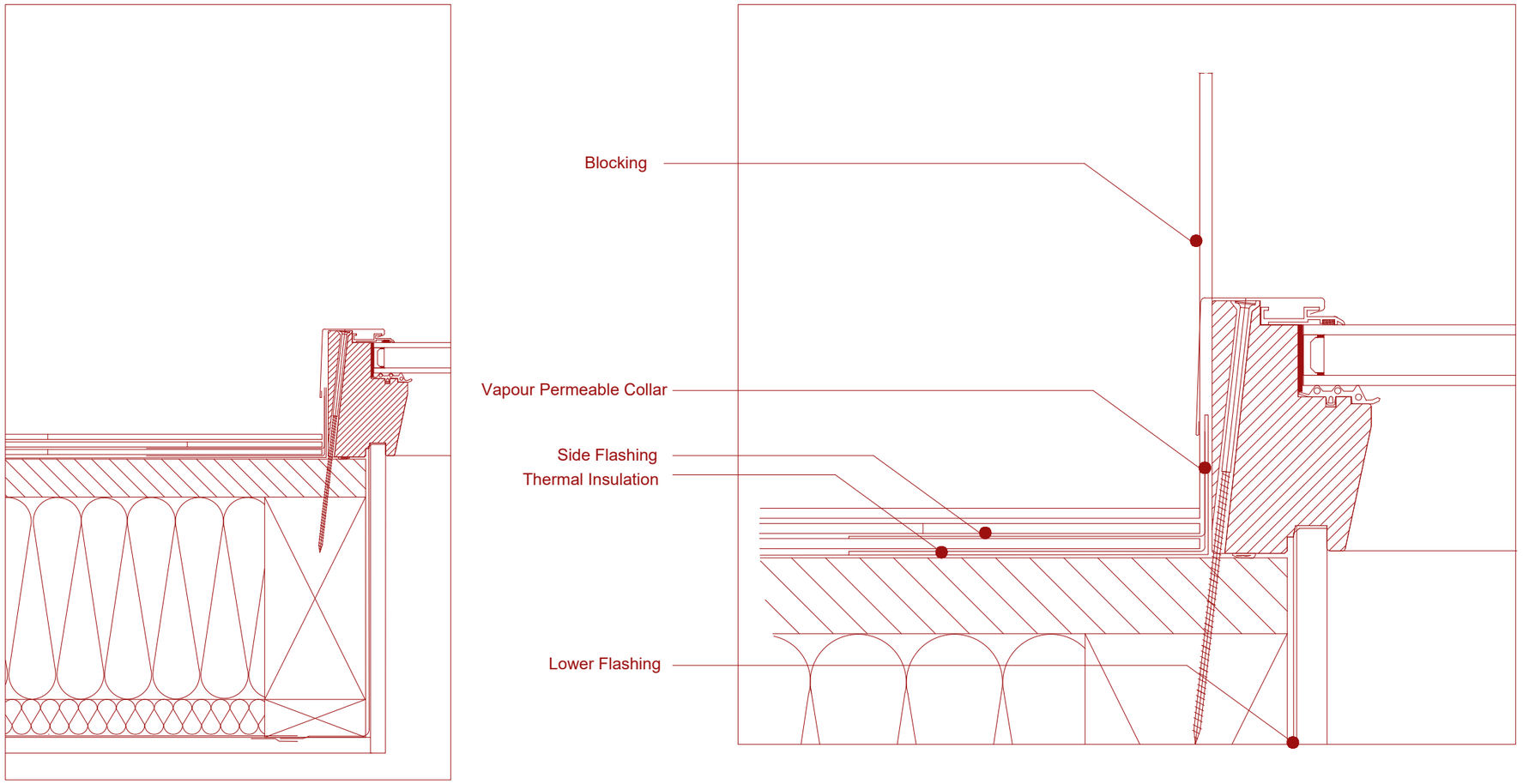
Back of house

Community Kitchen and Workshop

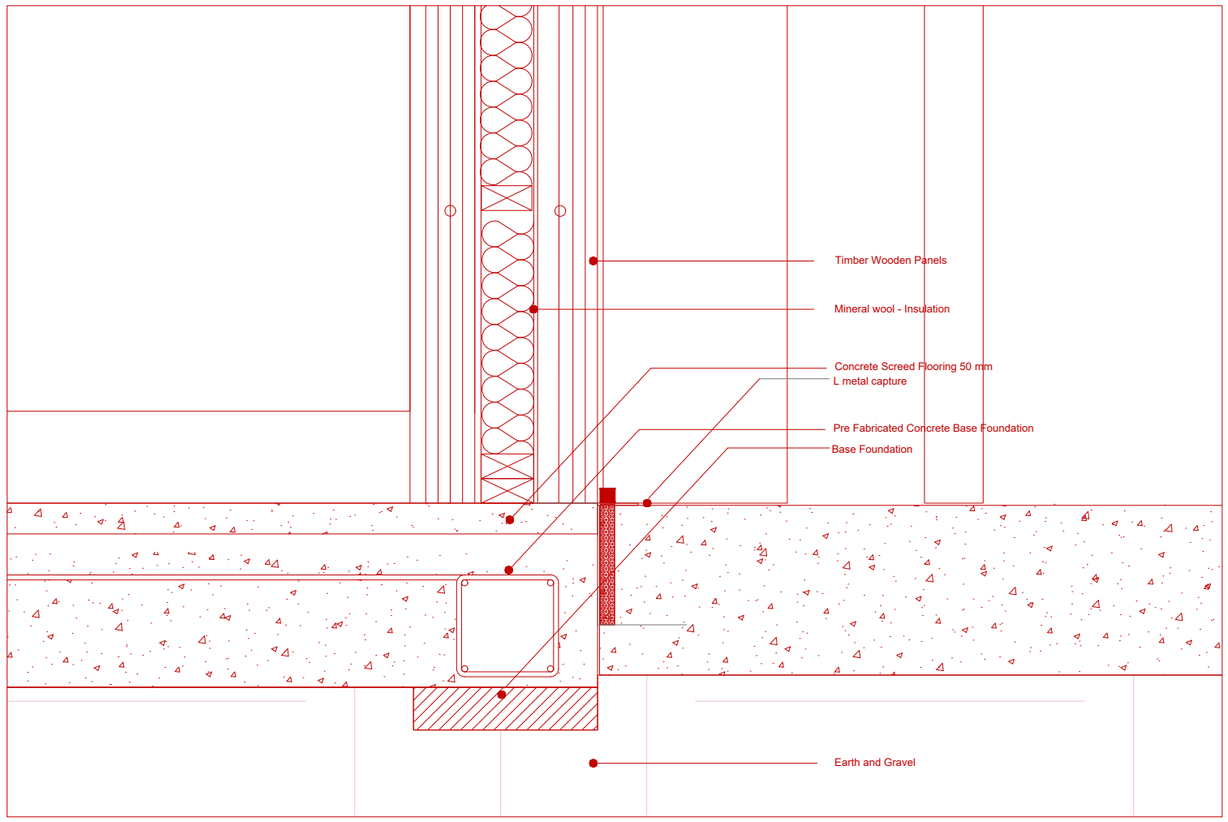
Market Plaza



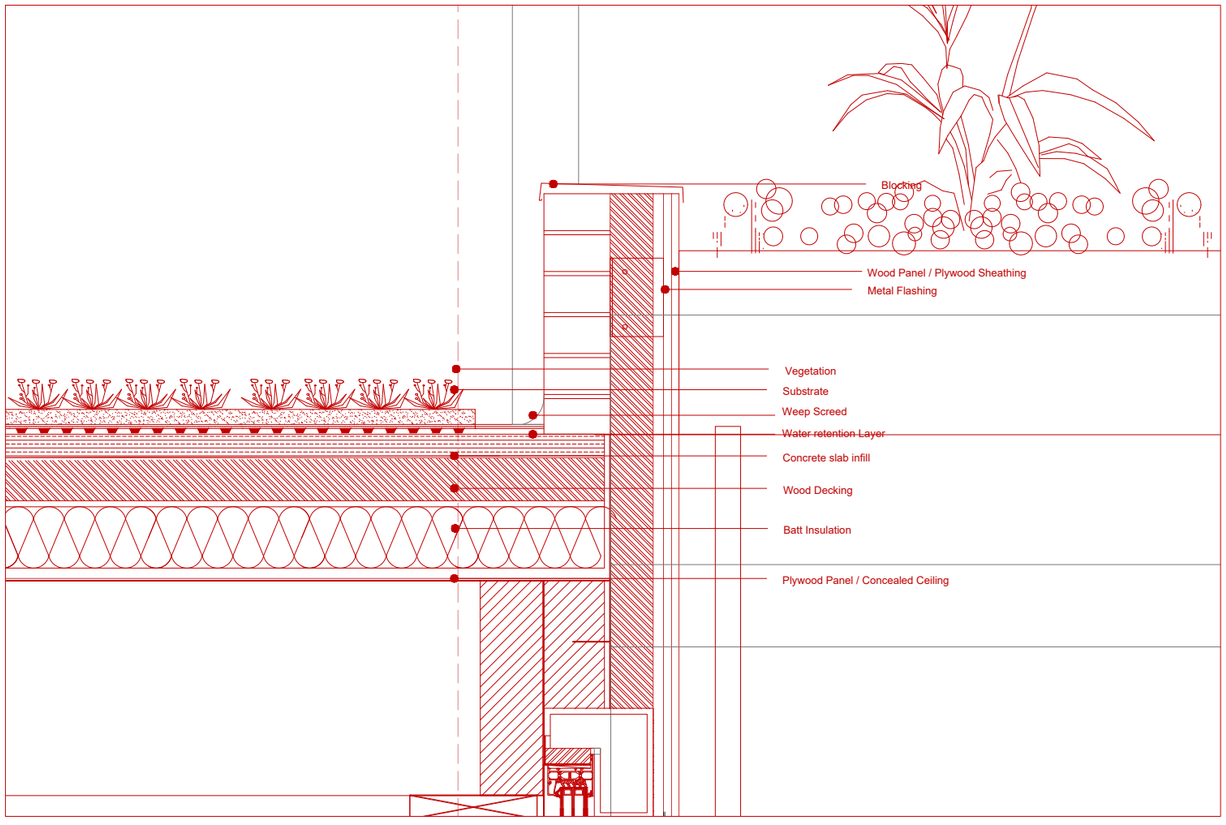
Vertical Farm - Wall Detail



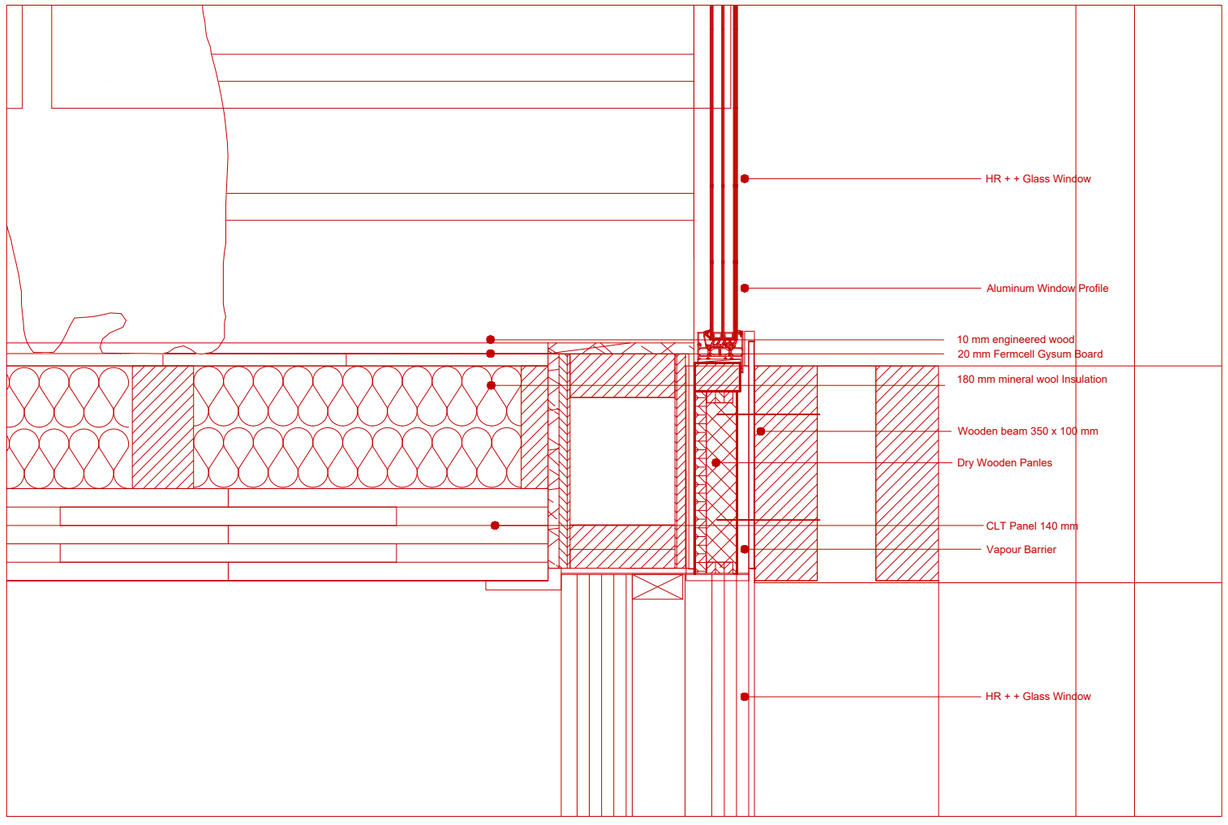
Skylight Detail - Exhibition Space



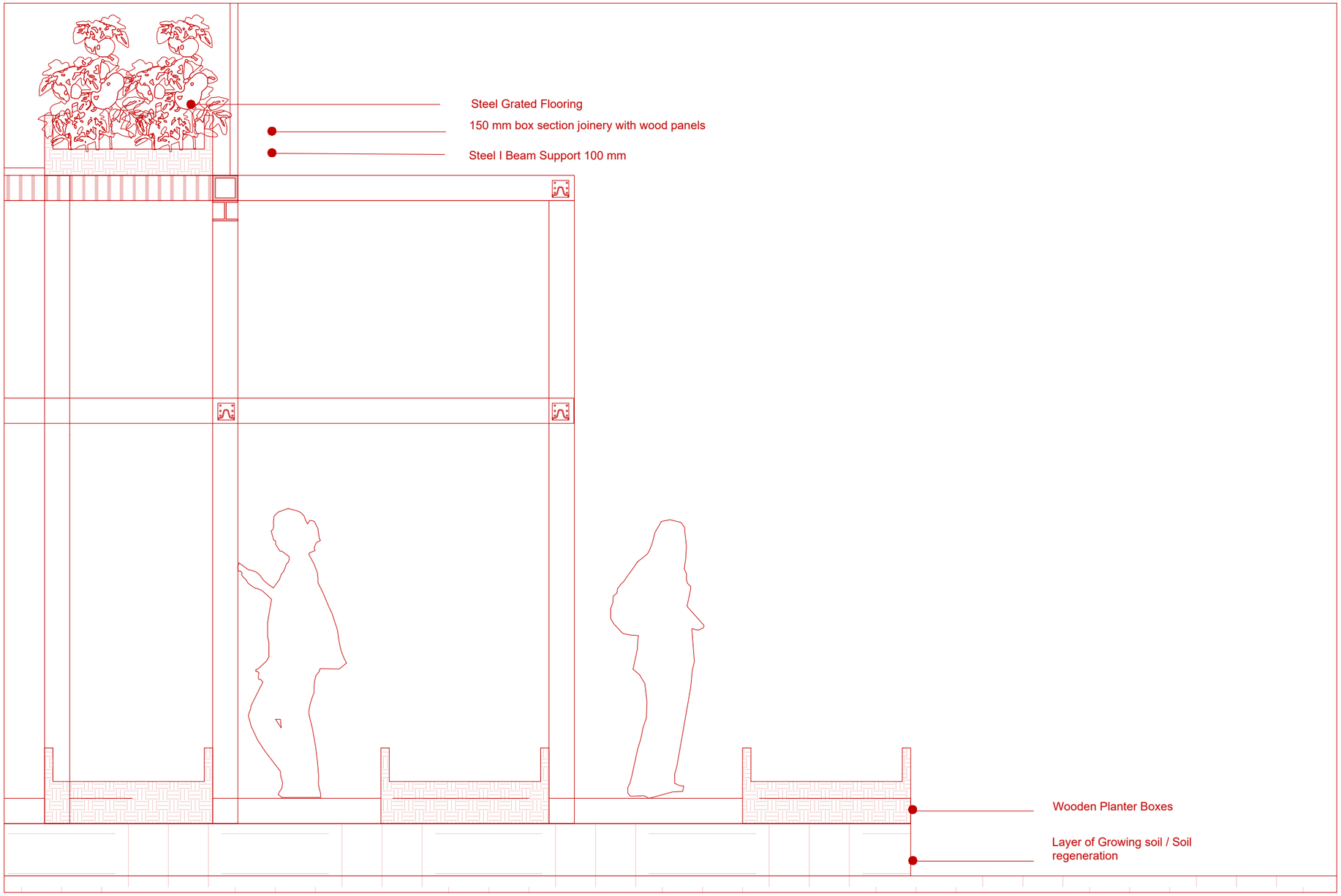
Main structure Ground Detail



Typical Roof edge detail

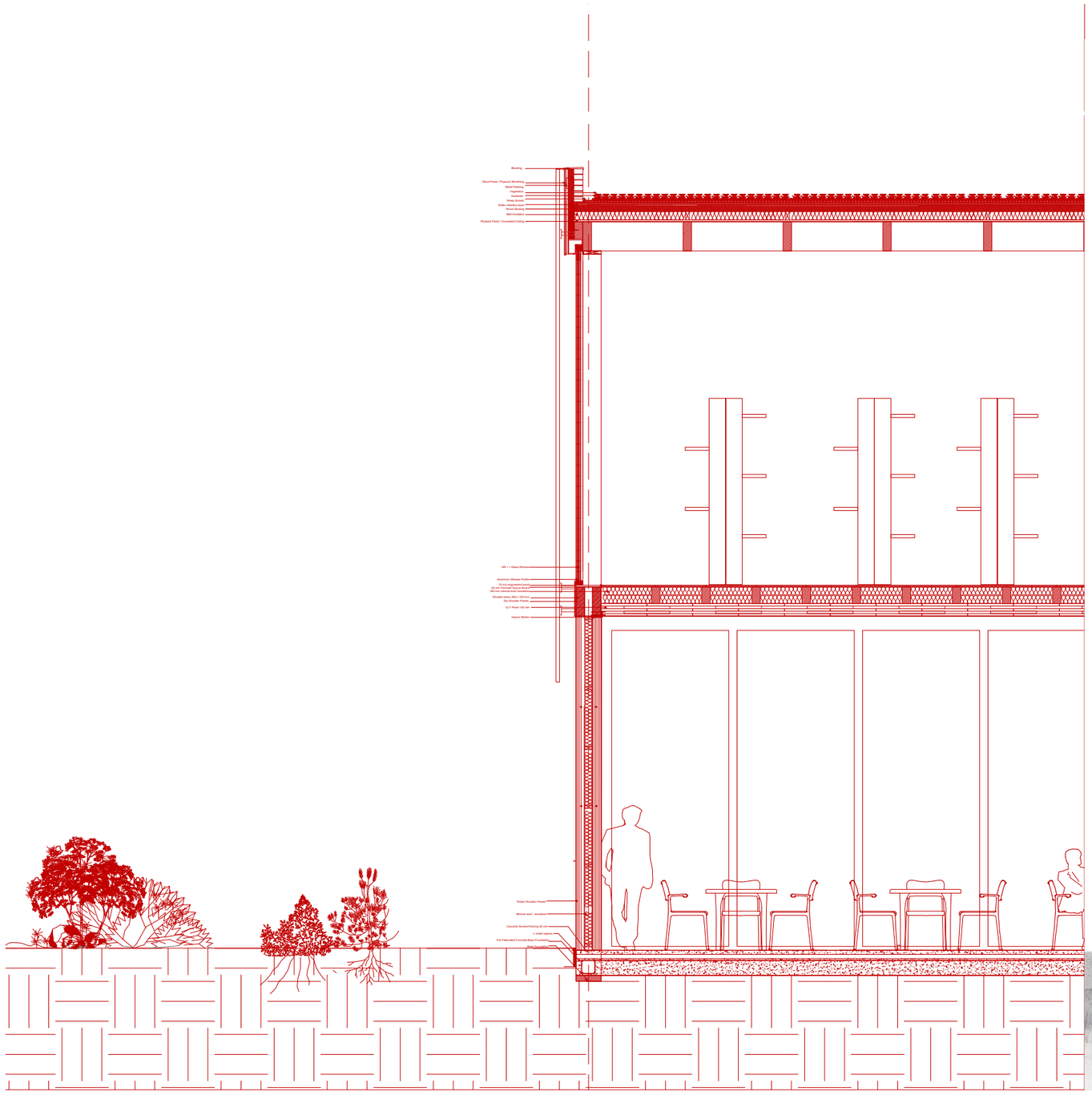


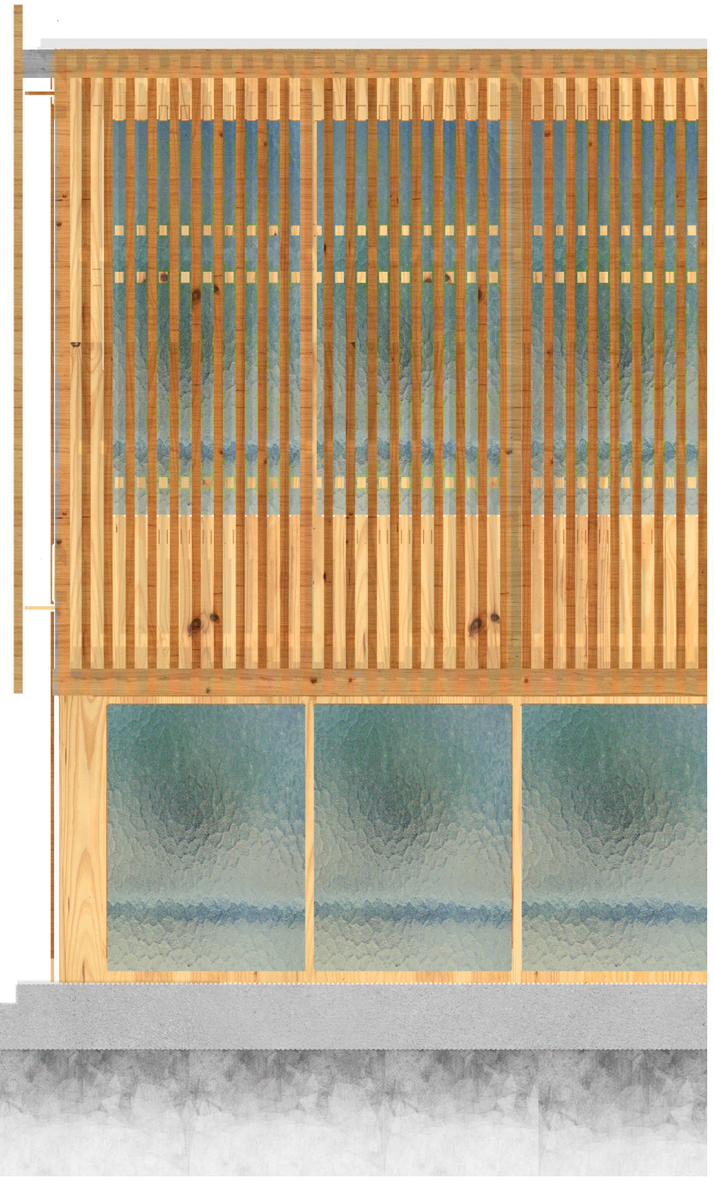
Typical Floor Detail



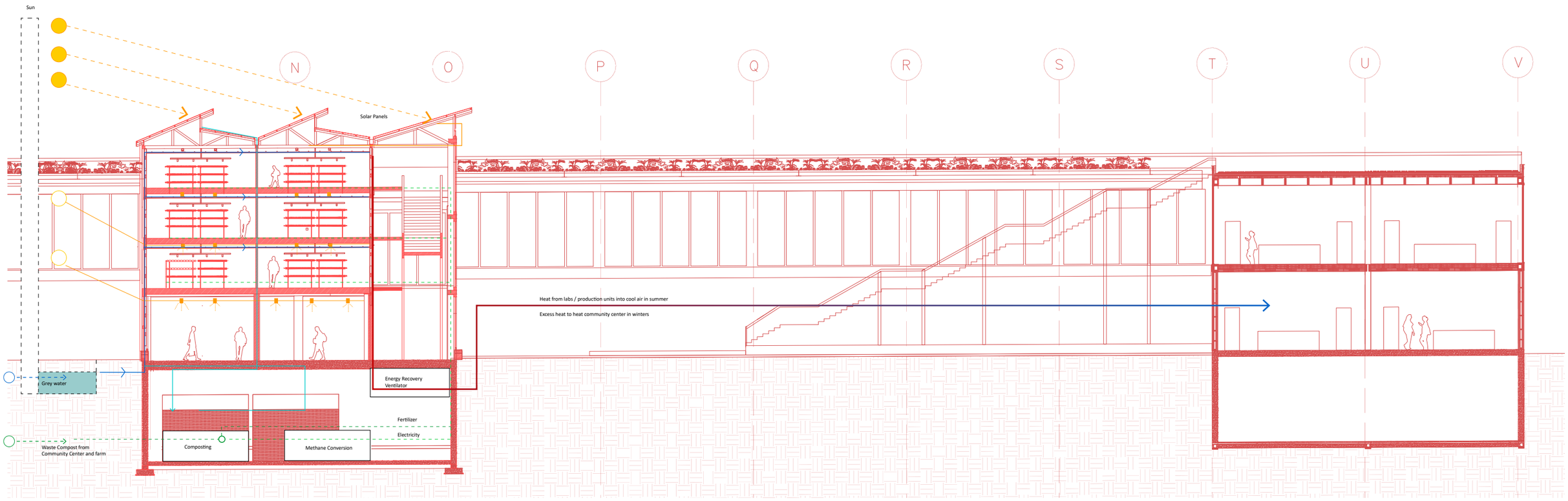
Allotment Detail

Partial Facade Section

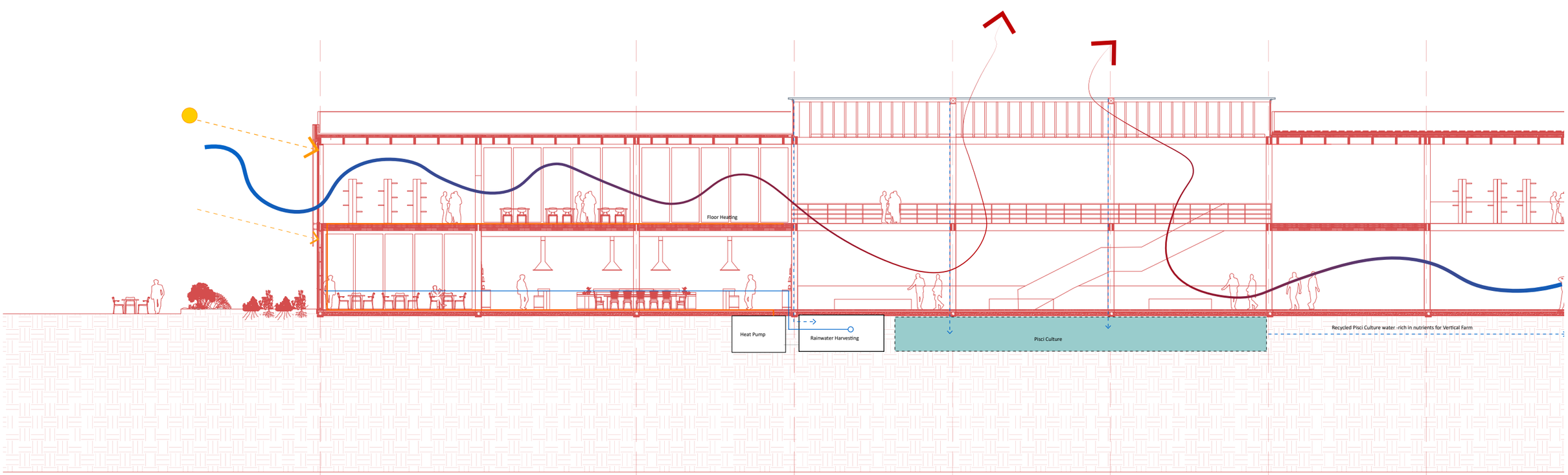




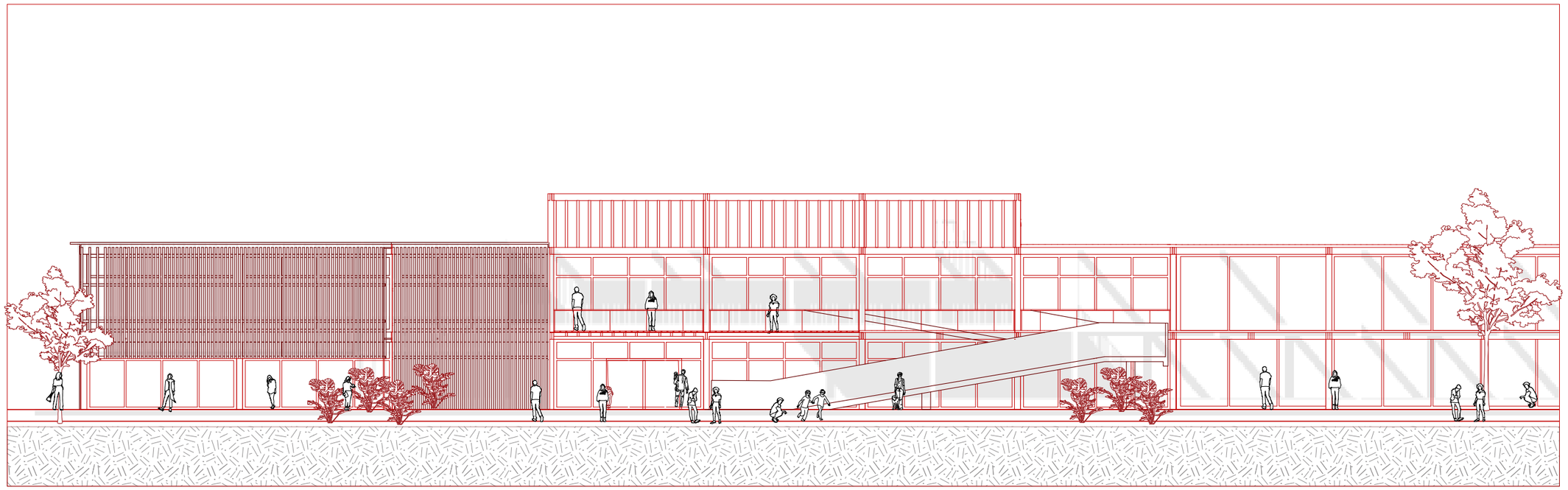
Energy and Waste Flows

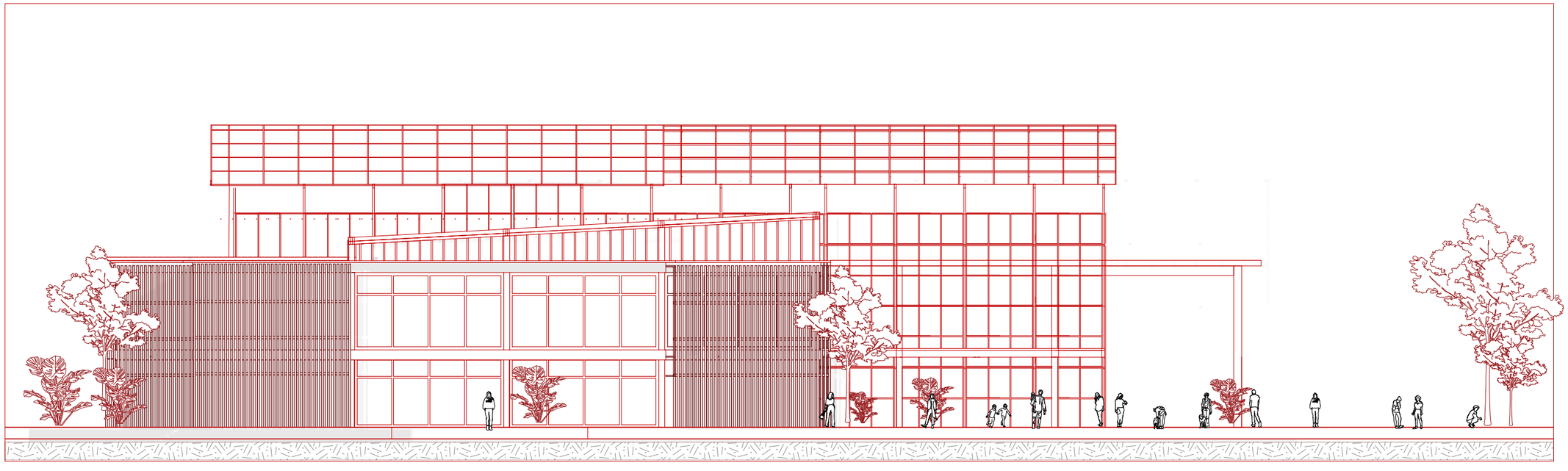


Air Flows

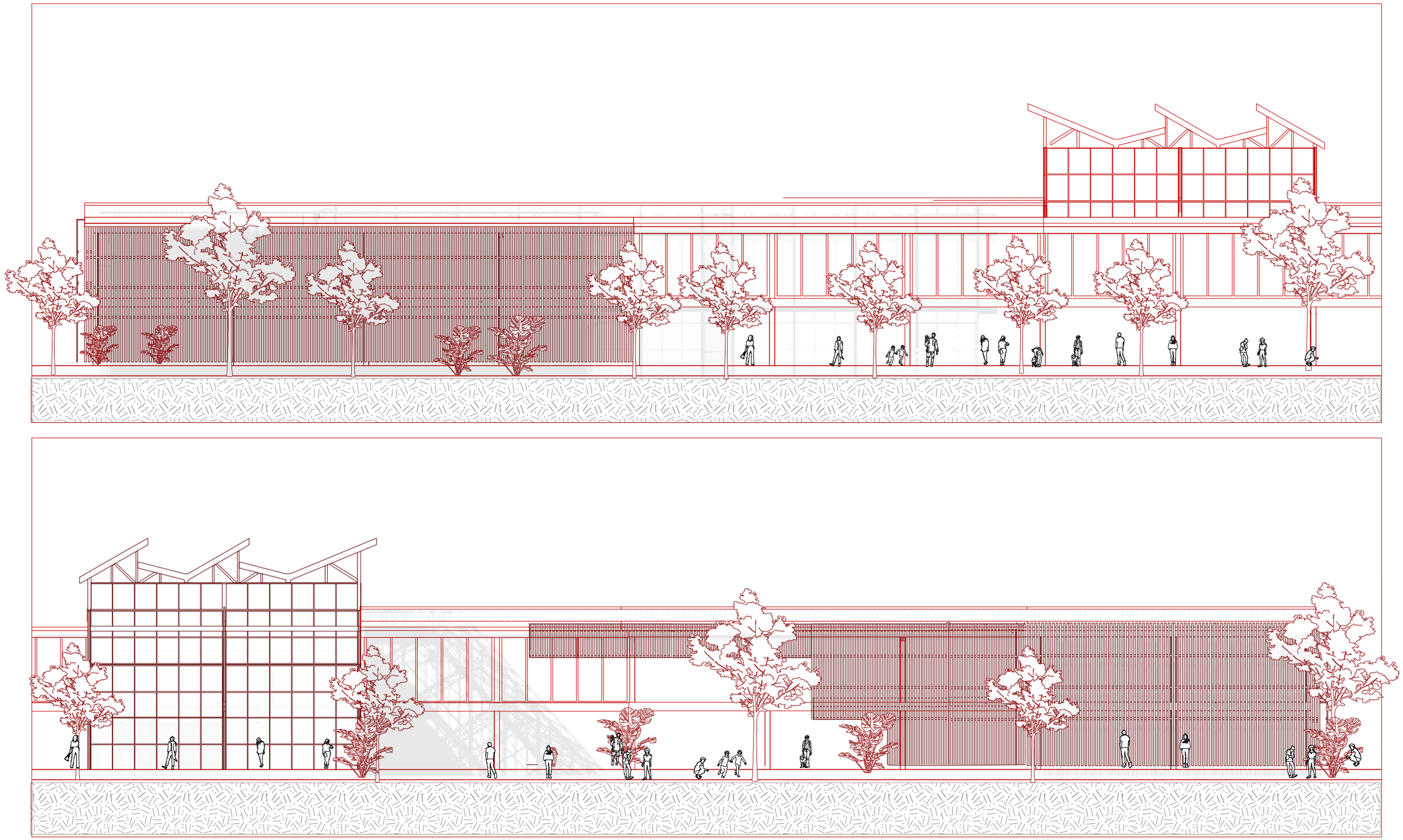

Floor Heating
Heat Pump
Rainwater Harvesting
Pisci Culture
Recycled Pisci Culture water -rich in nutrients for Vertical Farm

South / West Elevations





South/West Elevations




CHÉRIE


MARKET


EXHIBITION LEARN
Menu
~
Cassolette de la mer
Salade folle
~
Pavé de saumon
Magret de canard
~
Trio de fromages
~
Tarte Tatin
Crème brûlée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COMMUNITY
KITCHEN


SEASONA
CAFE


PISCI CULTURE


COMMUNITY
VERTICAL
FARM


HERBS
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References

Belanger, P. (2009). Landscape as infrastructure.Vol.28. No. 1. University of Wisconsin Press

De La Salle, Janine M., and Holland. M. (2010). Agricultural Urbanism. Green Frigate Books

Dezeen. 2021 . Danish Pavilion. https://www.dezeen.com/2021/05/20/lundgaard-tranberg-architects-danish-pavillion-venice-architecture-biennale/

Kennedy, C., J. Cuddihy & J. Engel-Yan (2007). The changing metabolism of cities. Journal of industrial ecology 11.2 p. 43-59.

Lefebvre,H. (1992). The Production Of Space. 1st ed. New Jersey: Wiley-Blackwell

London Assembly.(2016). A Lot to Lose: London's disappearing allotments.

Cromley, EC.(1996). Transforming the Food Axis: Houses, Tools, Modes of Analysis. Material History Review,pp.8–20

Mahaswa. R, et. al. 2021. Eco-agriculture and Farming in the Anthropocene Epoch: A Philosophical Review. E3S Web of Conferences

My London News. 2021. Newham Council vote to close Newham City Farm despite community uproar. https://www.sustainweb.org/news/sep21-petition-to-save-newham-city-farm/

Paul, H. (2013). "Third places" and social interaction in deprived neighbourhoods in Great Britain. J Hous and the Built Environ, 8:221-236.

Pflieger, Geraldine, and Rozenblat. C. (2010). Introduction. Urban networks and network theory: the city as the connector of multiple networks. p. 2723-2735.

Shenker, J.(2017, July 24). Revealed: the insidious creep of pseudo-public space in London. The Guardian; The Guardian.https://www.theguardian.com/cities/2017/jul/24/revealed-pseudo-public-space-pops-london-investigation-map

Steel, C. (2012). Sitopia Harnessing the Power of Food. London UK: Chatto & Windus, Random House

Steel, C. (2008). Hungry City - How Food Shapes our Lives. London UK: Chatto & Windus, Random House

Thünen.V. (1826). The Isolated State. 2nd edition Modified

T. Hartig, & H. Staats (2007). Preference for Nature in Urbanized Societies: Stress, Restoration, and the Pursuit of Sustainability. Journal of Social Issues, 63 (1), 79-96.

Terrapin. Improving Health & Well-Being in the Built Environment.https://www.terrapin-brightgreen.com/reports/14-patterns/

United Nations. 2015. Food and Agriculture Organization of the United Nations. FAO Publications

United Nations Decade on Biodiversity. 2019. Our Biodiversity, Our Food, Our Health. Convention on Biological diversity. UN Press

Verzone C., Woods C. (2021). Food Urbanism: Typologies, Case Studies, Strategies, Birkhäuser

Zaera-Polo, A. et.al (2017). Imminent Commons: Urban Questions. Seoul Biennale of Architecture and Urbanism

Secondary Literature and Articles

References

Angelil, M., Klingmann A. (1999). Hybrid morphologies, Daidalos Basel
Hunt J.D. (2000). Greater Perfections: The Practice of Garden Theory, Philadelphia: University of Pennsylvania Press. p. 32–75

Jane, B. (2010). Edible Matter in Vibrant Matter: A Political Ecology of Things. Durham and London: Duke University Press

Kim, S., & Kwon, H. (2018). Urban Sustainability through Public Architecture. Sustainability, p. 10, 1249. https://doi.org/10.3390/su10041249

London Assembly. (2006). London's food footprint: An analysis of material flows, consumption-based emis-sions, and levers for climate action

Lovell, S. T. (2010). Multifunctional urban agriculture for sustainable land use planning in the United States. Sustainability 2.8 2499–2522.https://doi.org/10.3390/su2082499

Mayor of London. (2019). London Food Strategy, London

Parham, S. (2015). Introduction. In Food and Urbanism: The Convivial City and a Sustainable Future. New York, NY: Bloomsbury Academic

Poole, S. (2006). The Allotment Chronicles: A Social History of Allotment Gardening. Silver Link Publishing,. Kettering

Websites

https://bkthisandthat.org.uk/brief-history-of-allotments-in-england/

https://www.telegraph.co.uk/gardening/howtogrow/9967597/Dig-for-victory-vegetable-growing-during-WWII-in-pics.html?frame=2525432

Historic Images - Getty images

https://www.insideflows.org/project/pasona-urban-farming/

https://mercatometropolitano.com/our-mm-manifesto/

https://www.archdaily.com/477405/value-farm-thomas-chung

AR3DC100

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Architectural Design Crossovers Graduation Studio

2022 - 2023

P5

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Alper Alkan (Research)
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