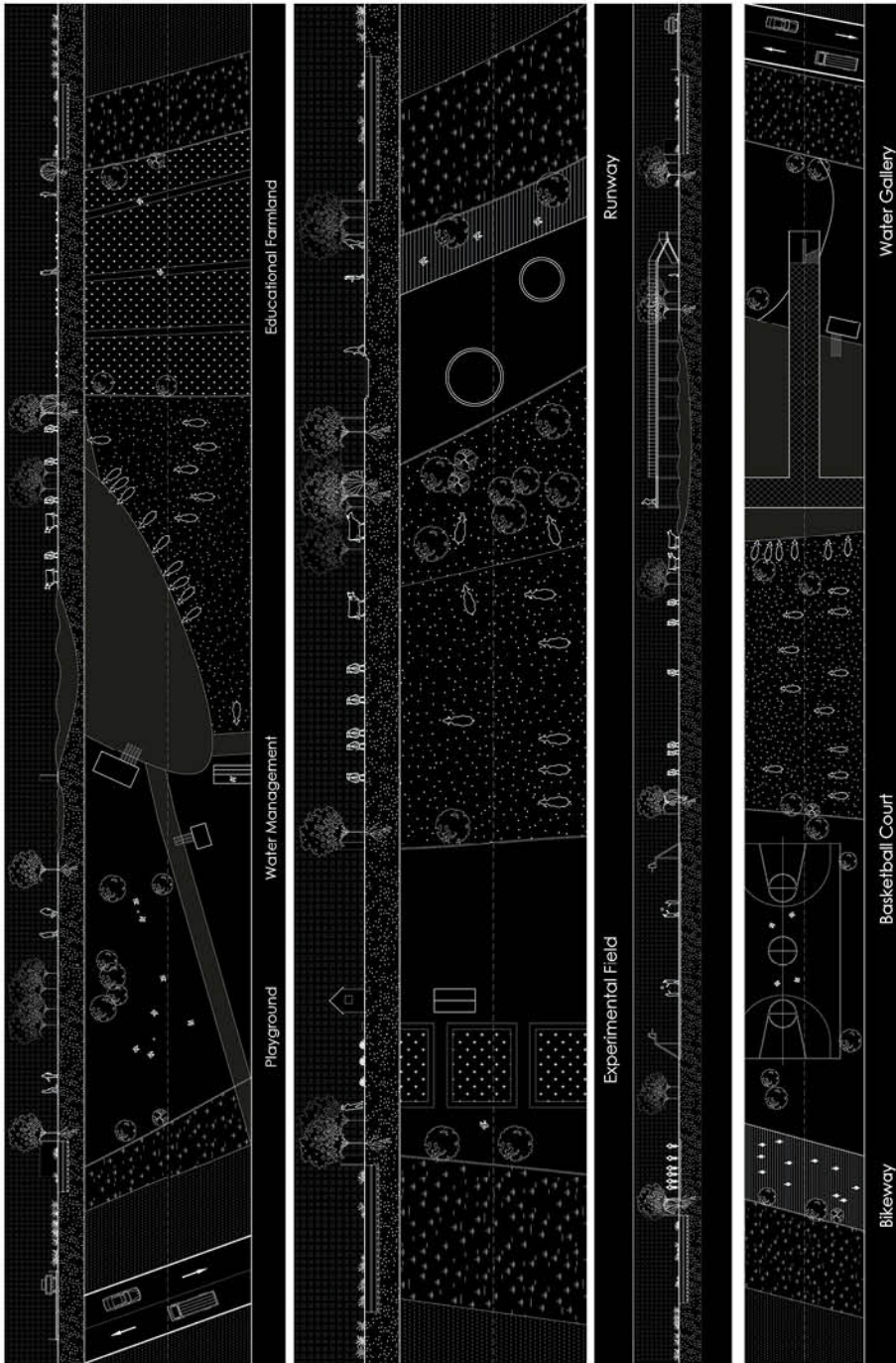




PORTFOLIO

GSAPP

Wanqi Jiang



01 Cattle Life Journey

U.S.-Mexico borderline biogovernance studio

GSAPP Advanced Studio
2021 Summer

Site: Columbus, New Mexico, US

Instructor: Ersela Kripa + Stephen Mueller

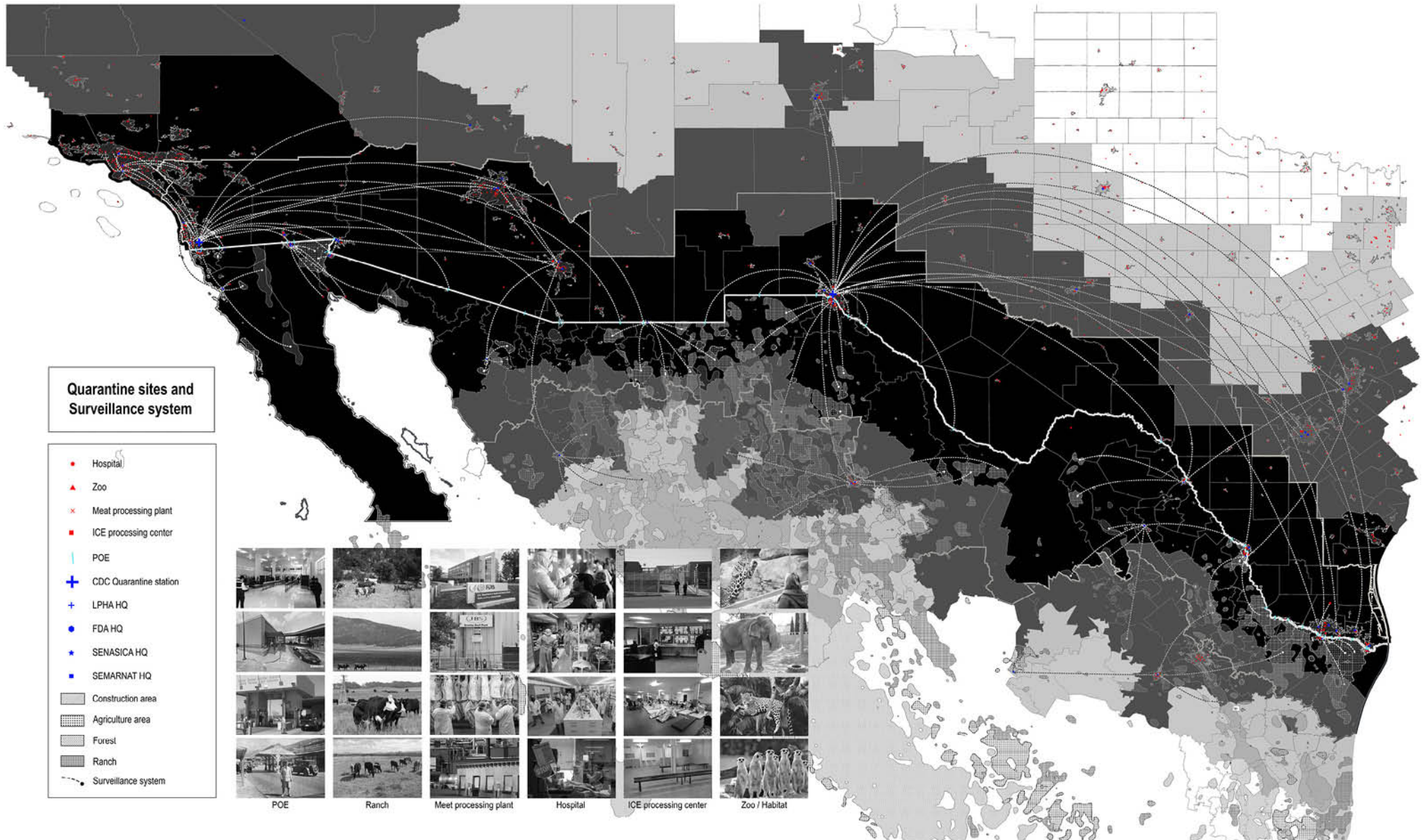
Partner: Can Yang



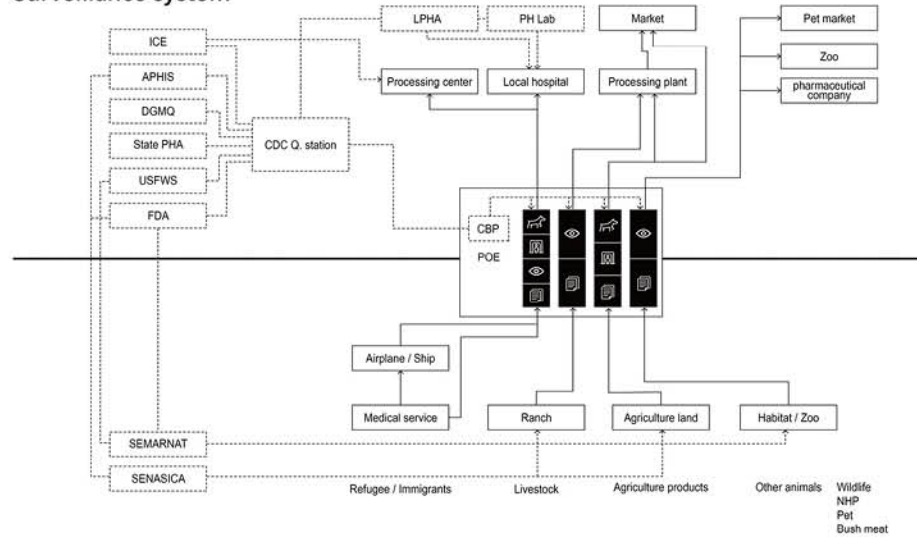
U.S. and Mexico borderline has always been a place full of disputes and complex issues. Military, biology, environment, trade, cross-border flow of people constitute the complexity of the border. With economic globalization, cross-border trade activities are more and more frequent across the border. Therefore, this project focuses on the cattle trade industry chain across the US-Mexico border, trying to construct a new multi-level structure of cattle industry chain to solve the instability of the existing single industry chain and improve economic benefits. At the same time, fully respect the lives of cattle, so that they can have a happy life. Then taking Columbus, a small town near the US-Mexico border, as an example under the new industrial system, setting up a cattle corridor to protect cattle rights and to reshape and develop the small town, activating tourism, education and leisure functions, and promoting the development of cattle-related industries.



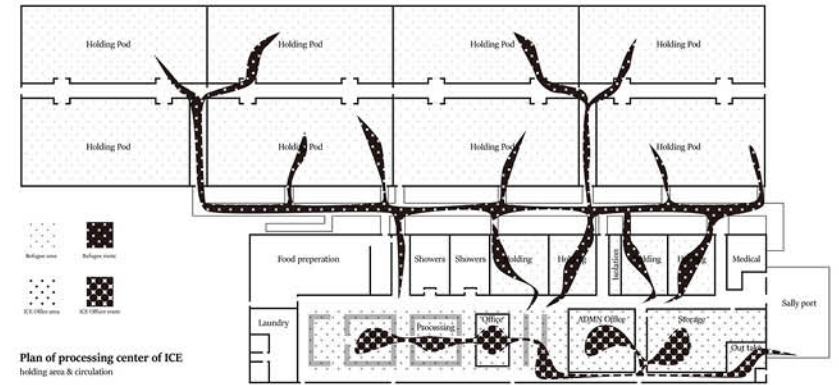
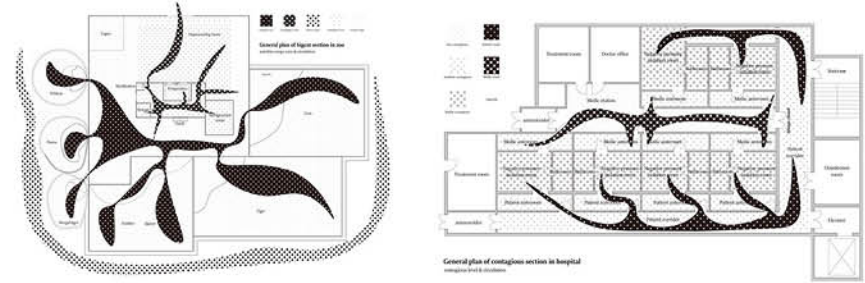
QUARANTINE SITES AND SURVEILLANCE SYSTEM ACROSS THE US-MEXICO BORDER



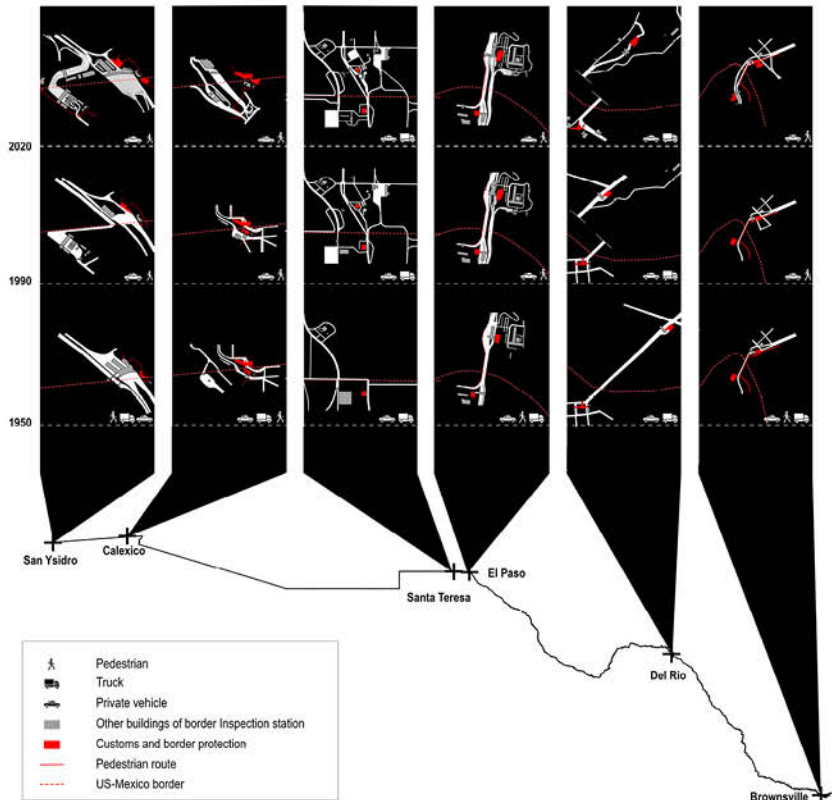
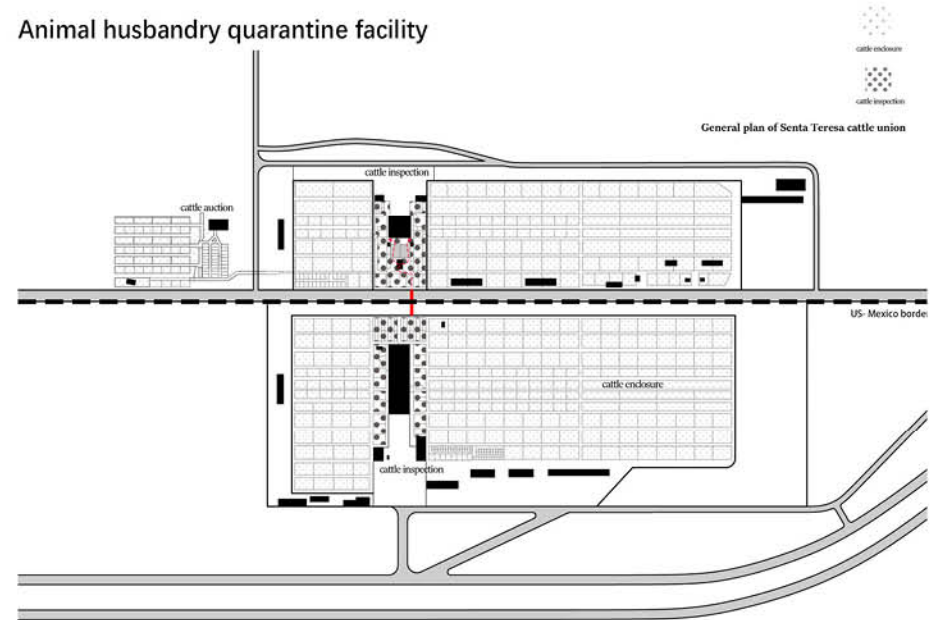
Surveillance system



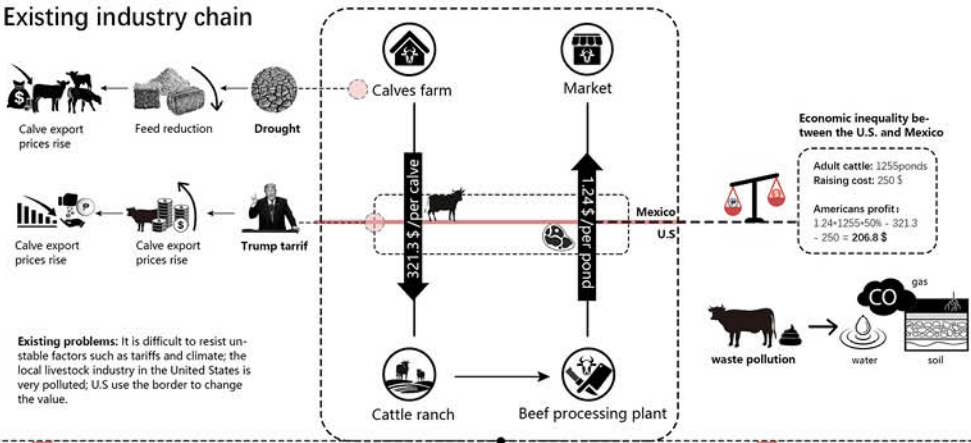
Related quarantine facilities research



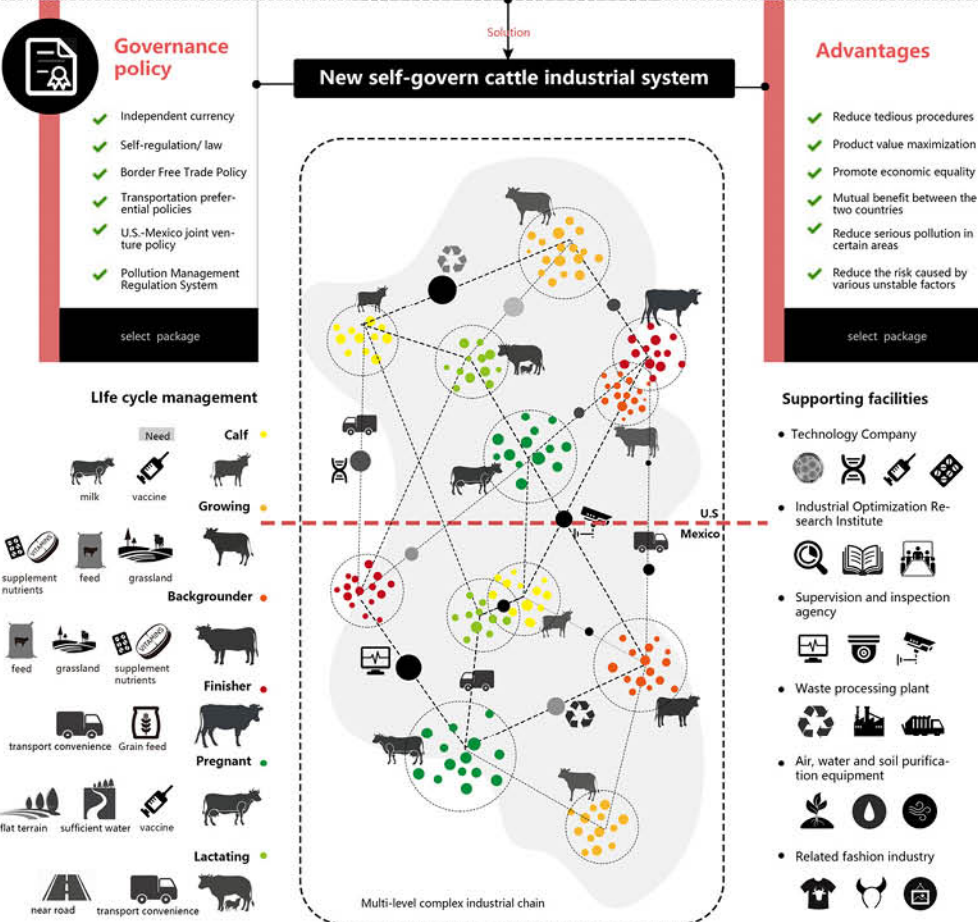
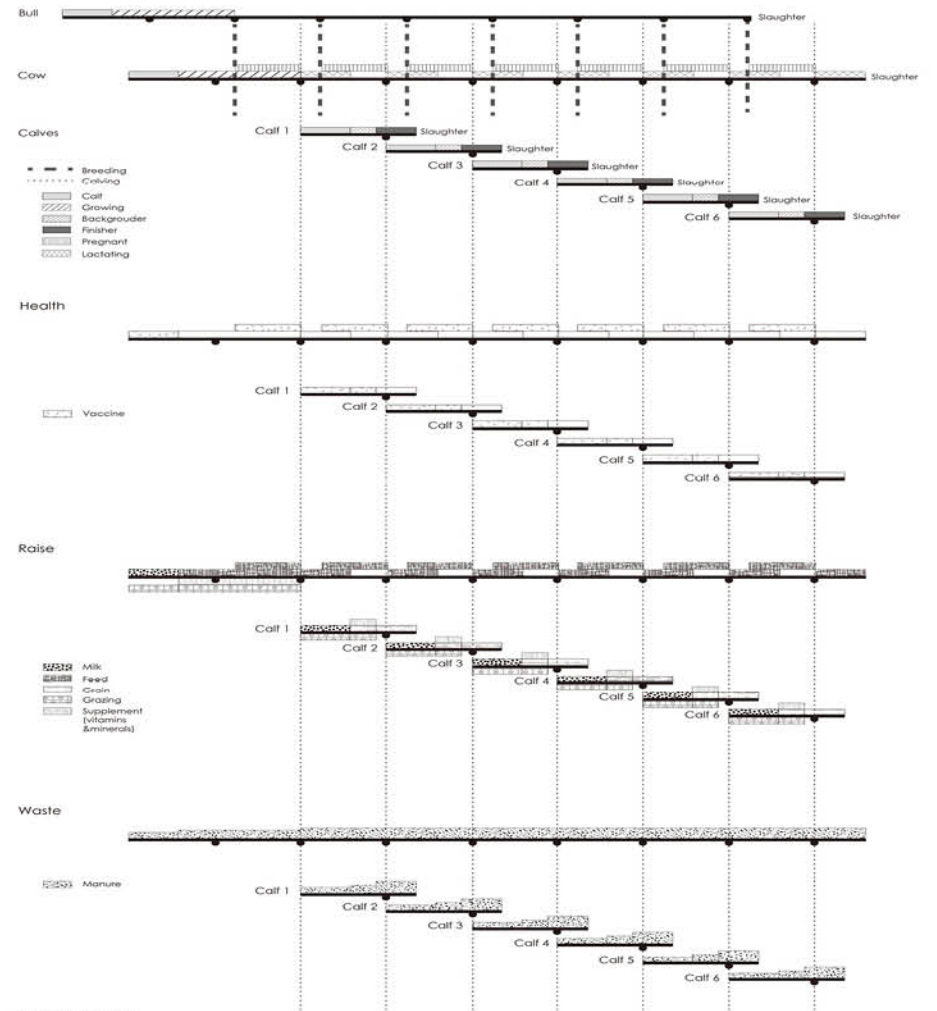
Animal husbandry quarantine facility



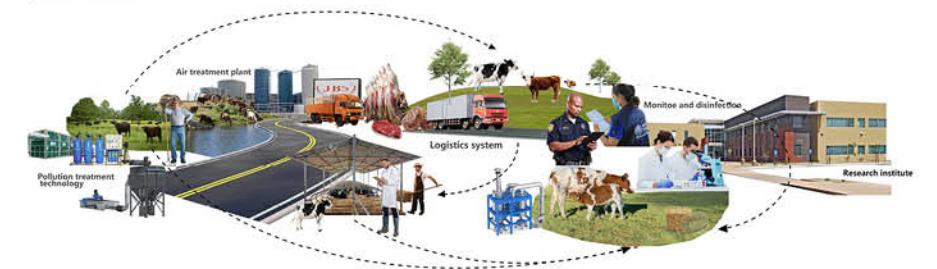
Existing industry chain



Different life stage of the cattle

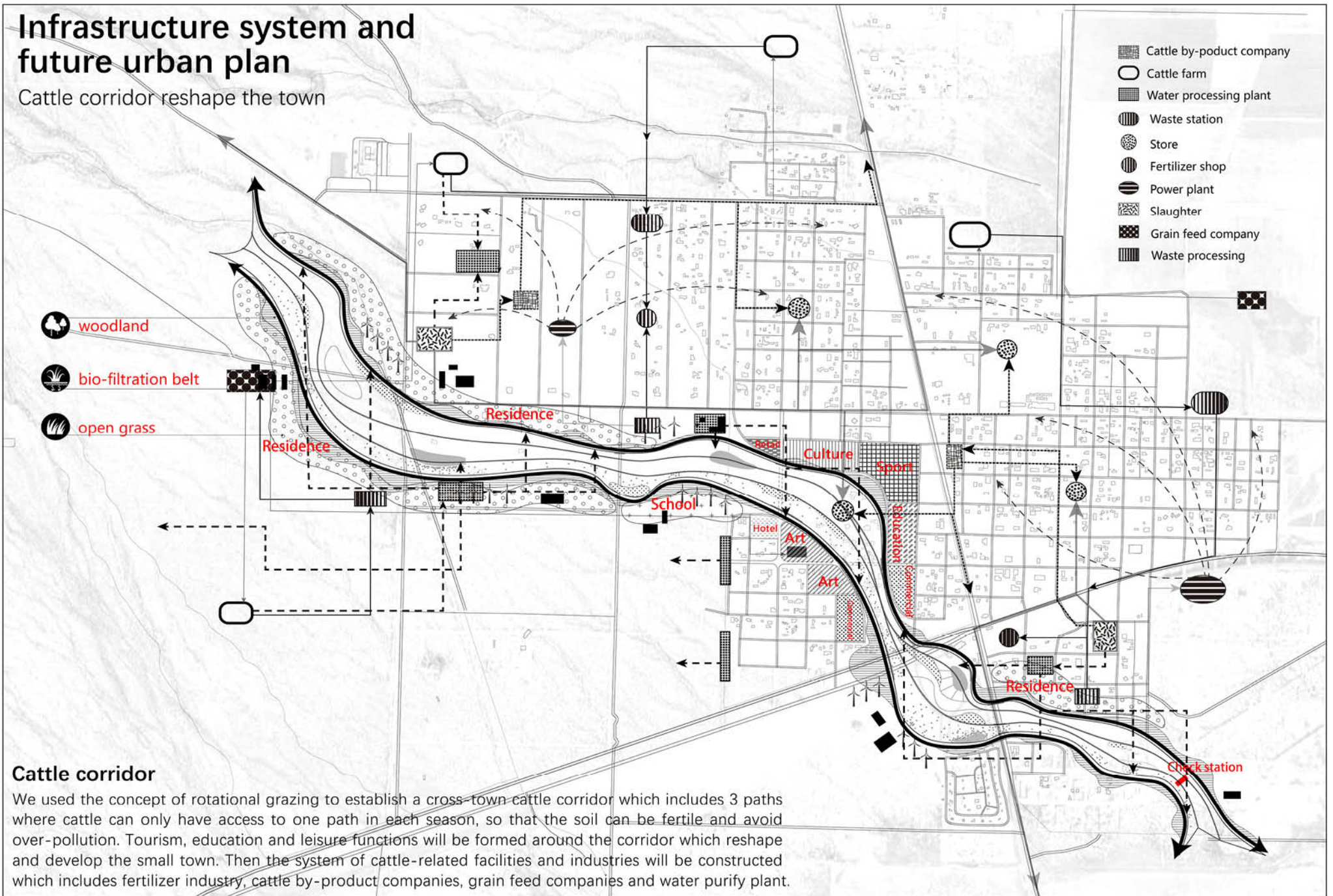


System vision



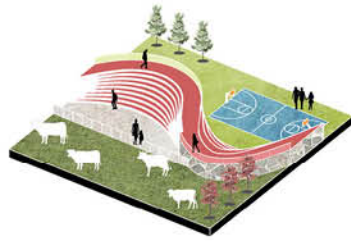
Infrastructure system and future urban plan

Cattle corridor reshape the town



Cattle corridor

We used the concept of rotational grazing to establish a cross-town-cattle corridor which includes 3 paths where cattle can only have access to one path in each season, so that the soil can be fertile and avoid over-pollution. Tourism, education and leisure functions will be formed around the corridor which reshape and develop the small town. Then the system of cattle-related facilities and industries will be constructed which includes fertilizer industry, cattle by-product companies, grain feed companies and water purify plant.



Bringing opportunities for interaction between human and cattle through landscape design on the corridor, making it a tourist attraction and animal education space. Installing noise-reduction facilities to make the corridor more comfortable for cattle. **Interaction between cattle and people**



02 Food Campus

Food court+ Food education+ Food factory+leisure park

Building area: 5600m²

Site: Flushing, New York

Instructor: Phu Hoang

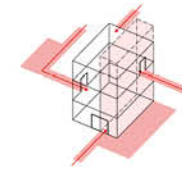
Team leader

Team work with Wenxuan Xu

80% work of drawings

60% work of model

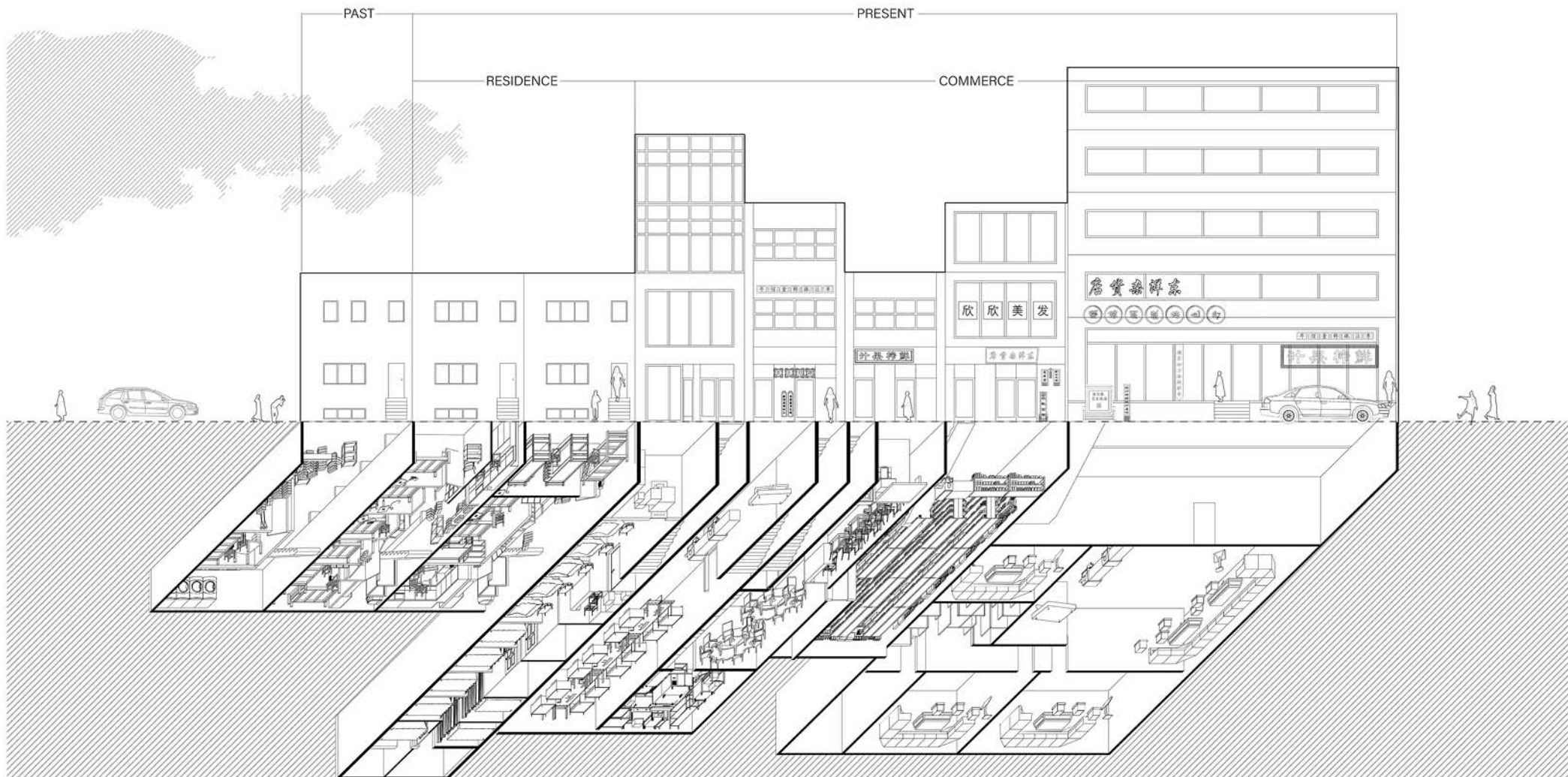
90% concept design



Flushing, the Chinese immigrant settlement in New York city, is now facing the serious gentrification trend which leads more and more small businesses to close down or have to move to the basement where the rent is cheaper. In addition, because of the Covid-19, it is especially difficult for the small food businesses to survive. Most food businesses are special Chinese restaurants or food carts which are very important for the Flushing because it is they that make up the Chinese characteristics of this community.

Therefore, our project is to establish a Food Campus that gathers various food businesses, and combine with food education and a food processing plant to create a new business mode which can preserve and develop small food businesses.





Basement utilization

- Before
 - laundry
 - storage
 - parking
 - Service room
 - Commercial space
- V.S
- Now
 - restaurant
 - KTV
 - office
 - Grocery
 - Internet cafe
 - illegal dorm

Anti-typology in Flushing

The basement, as a basic spatial prototype, was initially built as service rooms or storerooms, which is private and regarded as ancillary space of the house. But under the recent gentrification trend in Flushing, housing price and the rent become higher and higher which forces the immigrants give the basement new functions and challenge the maximum utilization efficiency of buildings, which creates many anti-typological basements. They try to live, work and have entertainment underground and transform the entrance facade to activate the hidden business, which shapes the informal urbanism in Flushing. However, in the process of gentrification, even basement rents become expensive, which leads to the closure of many basement restaurants.

Gentrification V.S. Localization



In the 1960s, the former president was willing to relax immigration policies, and a large number of Chinese international students valued the multiculturalism of New York City. After the establishment of Metro Line 7, Flushing has the convenience of connecting East Queens and Manhattan. Especially after the 9/11 incident, a large number of Chinese began to immigrate to Flushing from Chinatown in Manhattan.

Shopping mall

The Chinese regard buying a house as an investment.

Small businesses based on individuals are replaced by large businesses based on large funds

House Value Index

flushing manhattan New York

Superior Apartment plan

House prices in Flushing are getting higher and higher. The influx of people has caused people's demand to continue to grow. Real estate developers have the idea of gentrifying Flushing and want to build a fancy and modern Flushing.

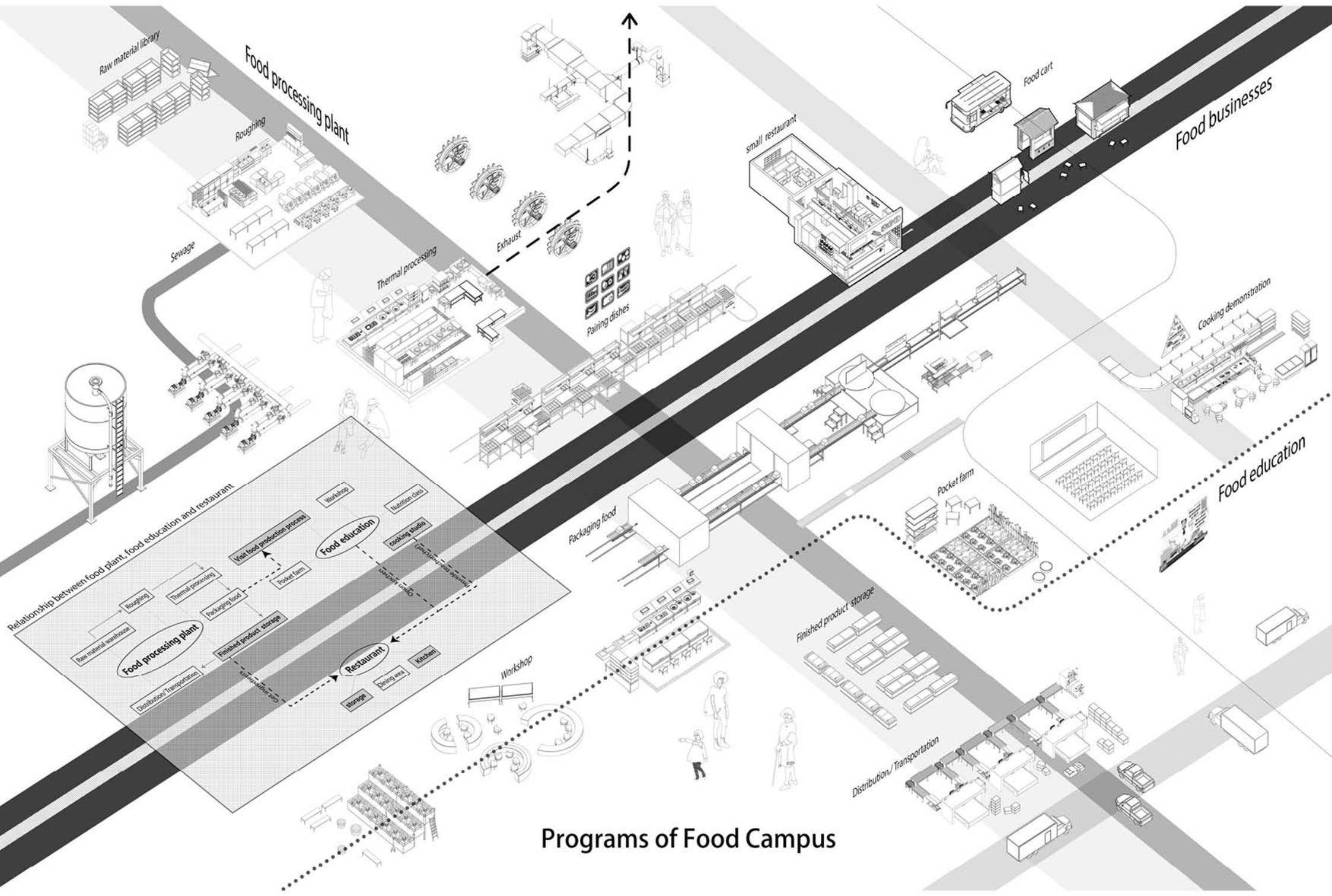
The rise in housing prices has led to higher and higher rents. Small businesses are beginning to be unable to afford rent, and more and more traditional food have closed down in Flushing.

Solution

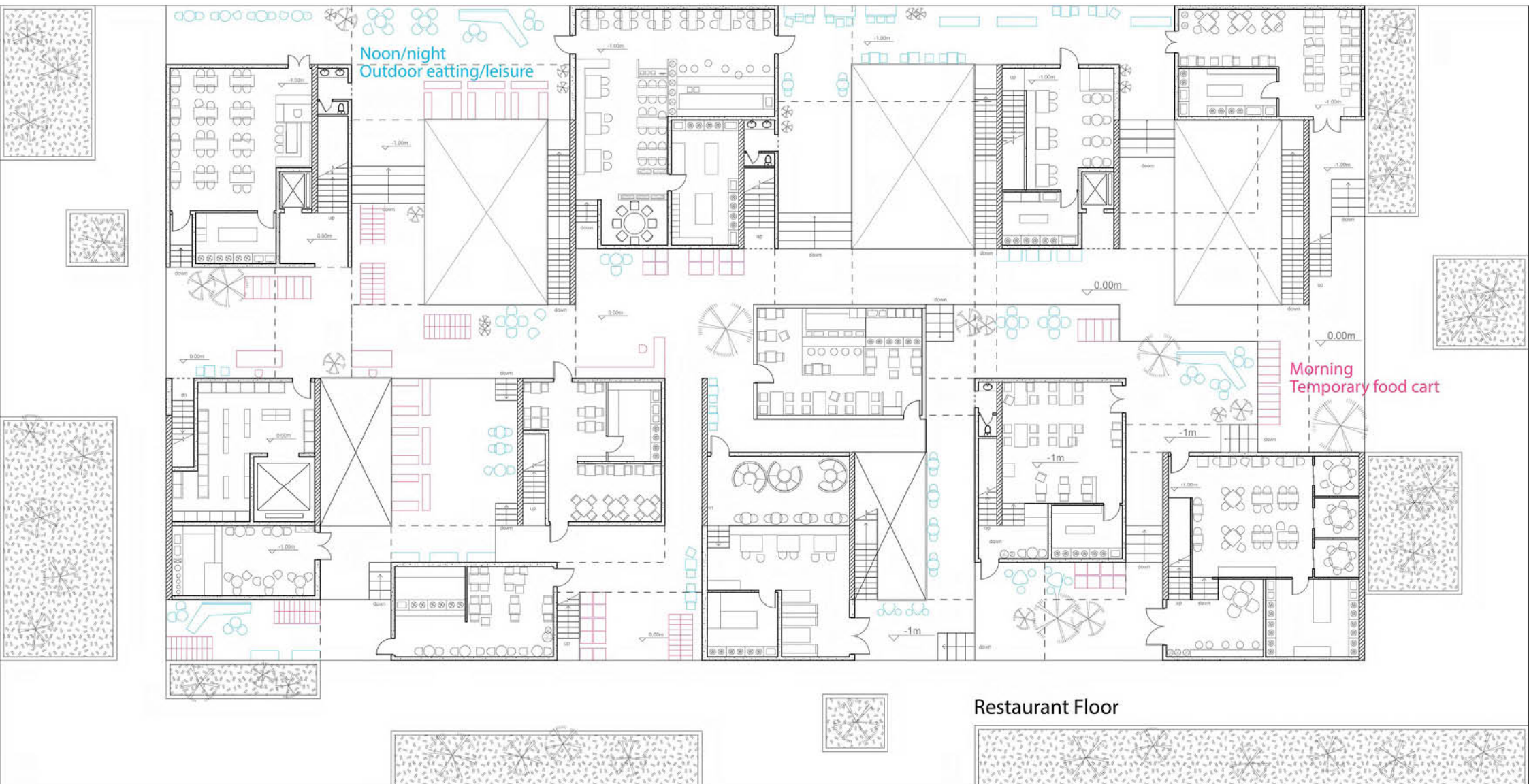
develop and preserve food business **New business mode**

Benefit

- Abundant programs --- Attract more customers
- No need for restaurants to drive far to the market to buy ingredients --- Reduce carbon emissions
- Food plant provide pre-processed ingredients for restaurants --- Increase efficiency
- Establish E-commerce selling platform --- gain more income and enlarge sales

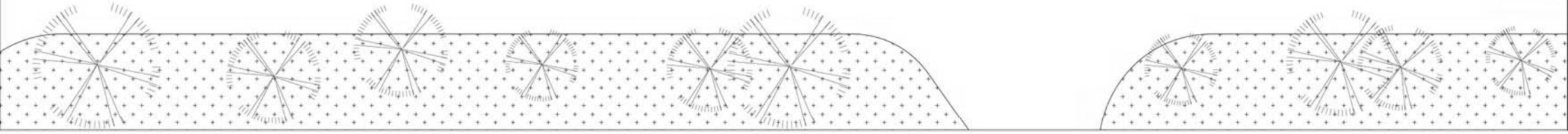


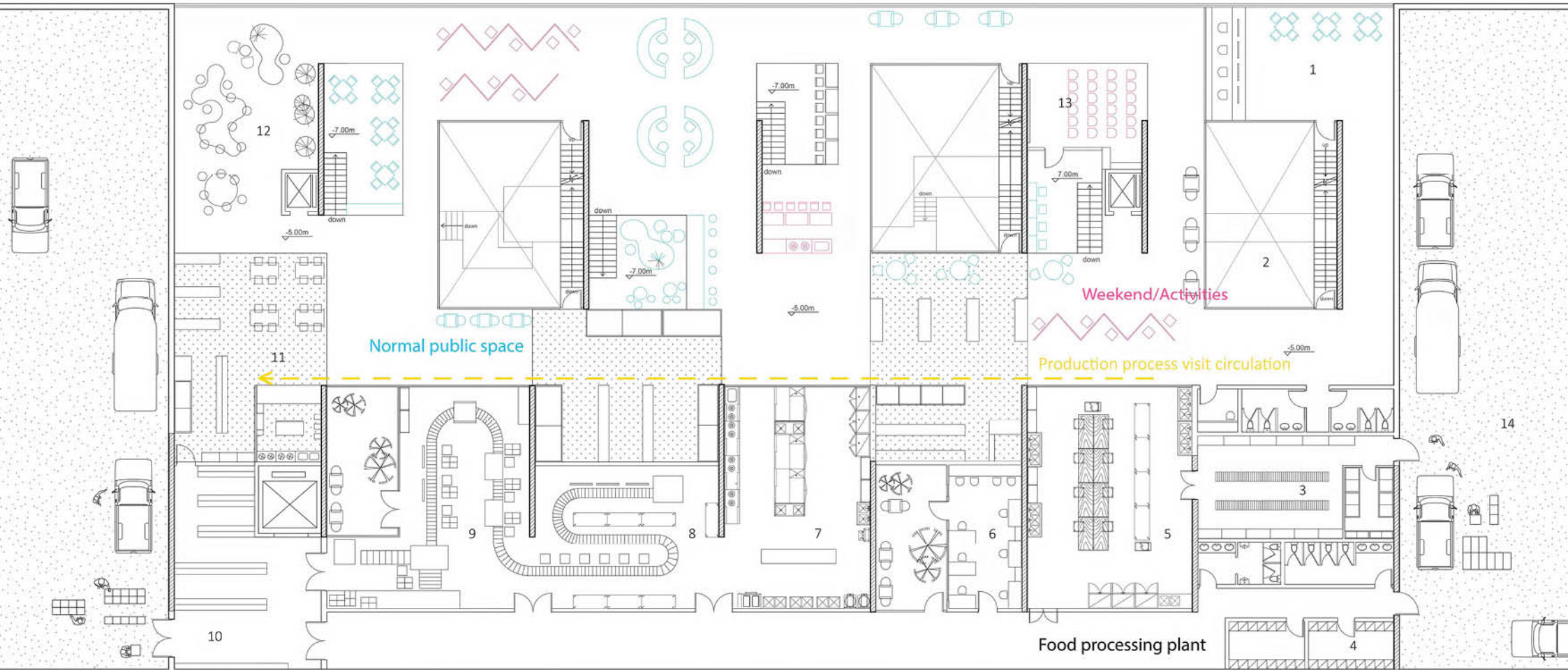
Programs of Food Campus



Restaurant Floor

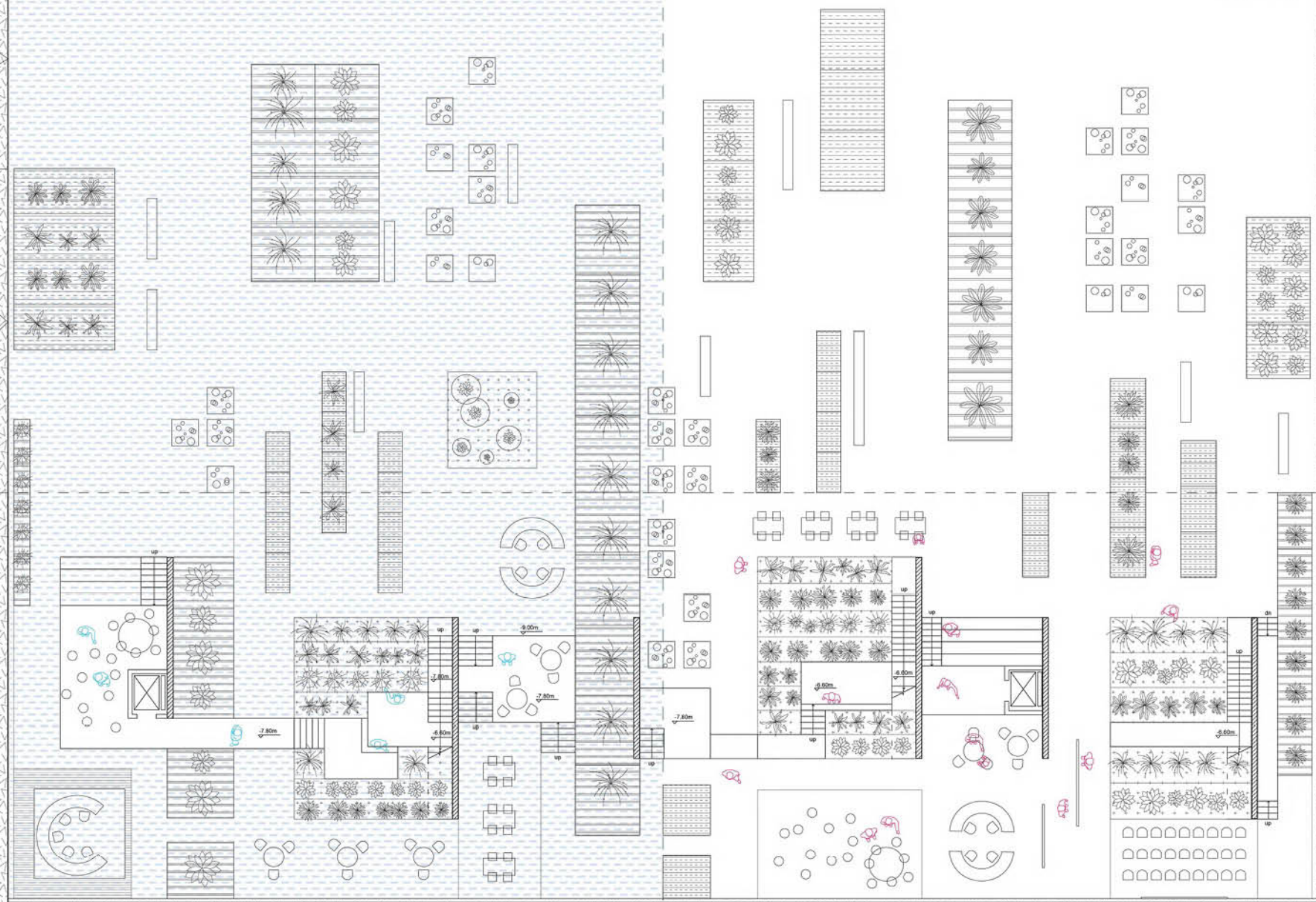
-1 Floor
1/8" = 1'





1. Entrance hall 2. Void 3. Raw material storage 4. Dressing room 5. Roughing
6. Office 7. Thermal processing 8. Pairing dishes 9. Package 10. Finished product storage
11. Informal shopping space 12. Children play 13. classroom 14. Parking lot

Waterfront park plan
1/8" = 1'

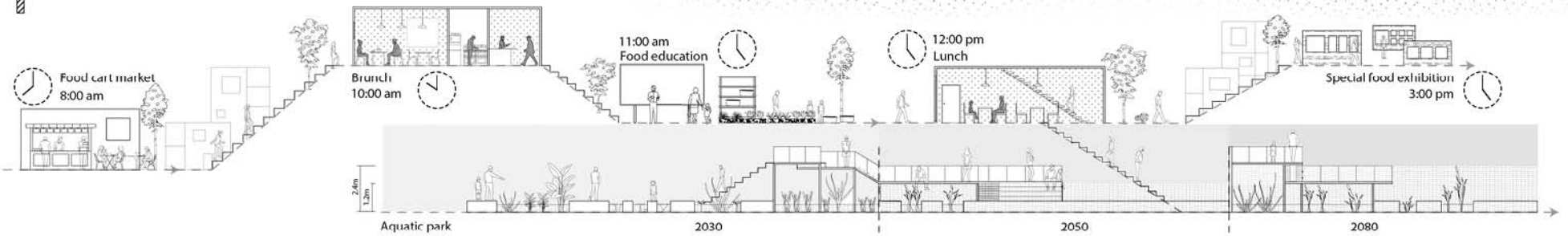
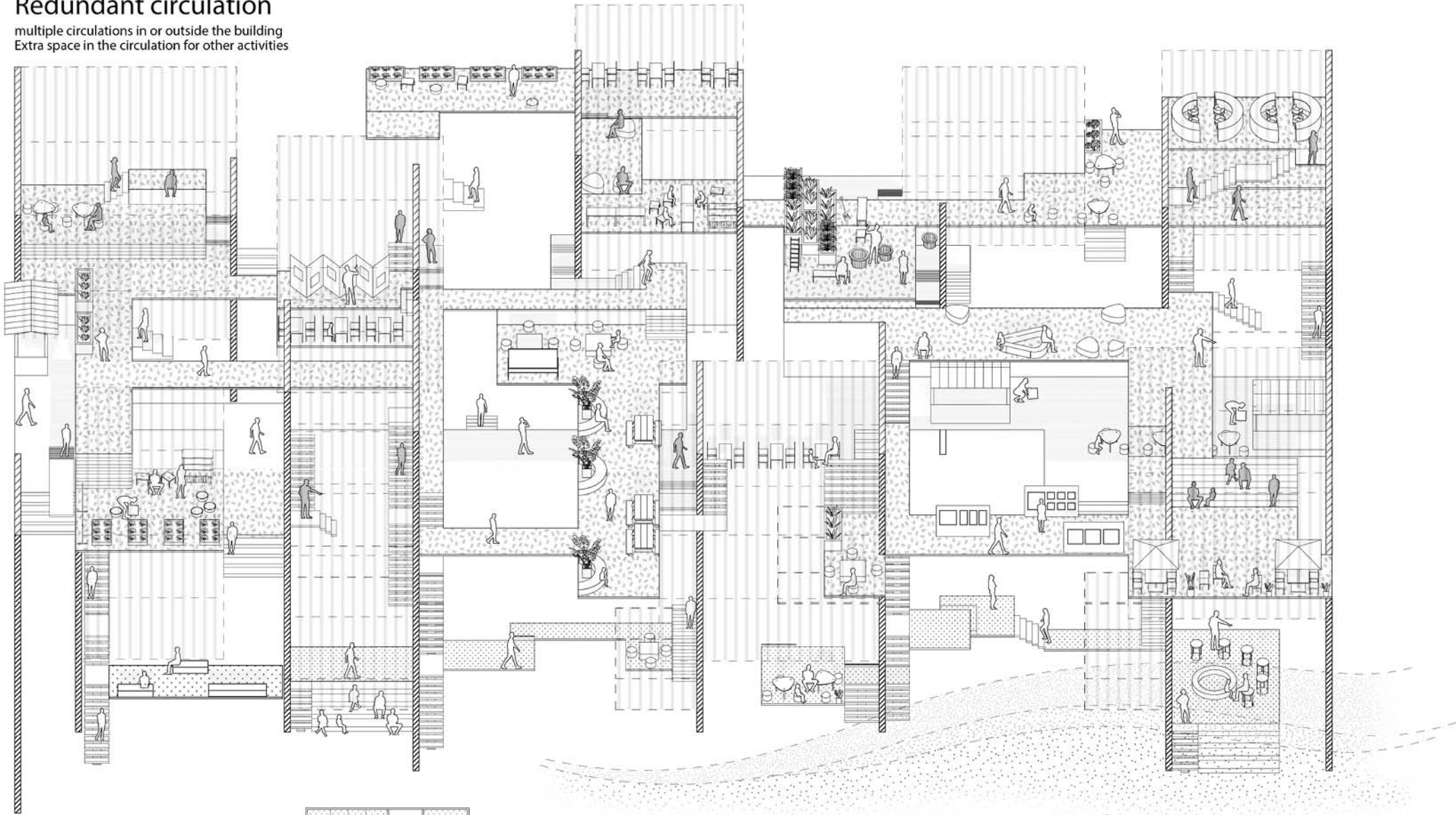


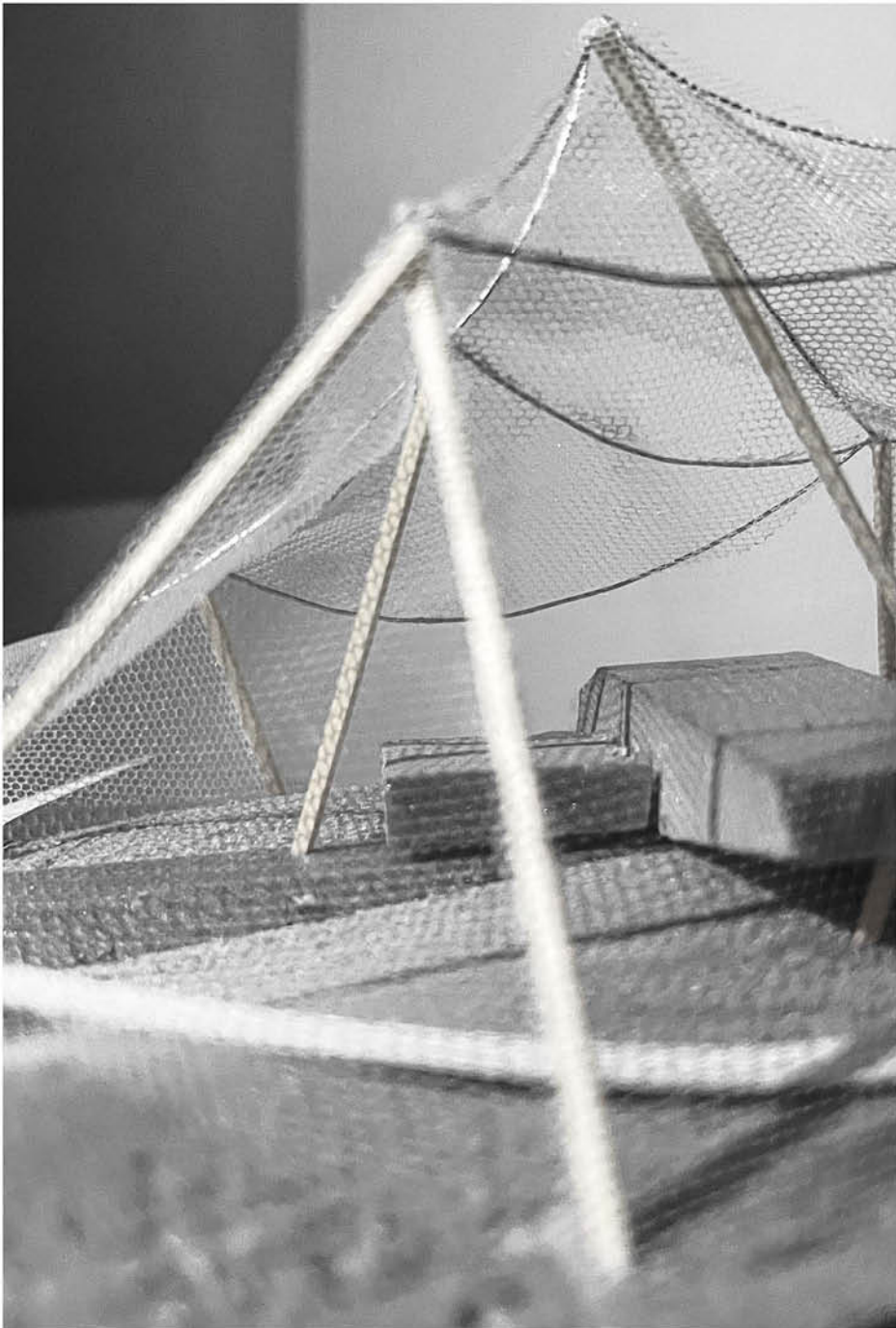
2050
Flooding submerge 1.2 meters

Now
Aquatic crop park

Redundant circulation

multiple circulations in or outside the building
Extra space in the circulation for other activities





03 Dance with Birds

Bird Sanctuary design

Building area: 7140m²

Site: Los Angeles, US

Instructor: Laurie Hawkinson

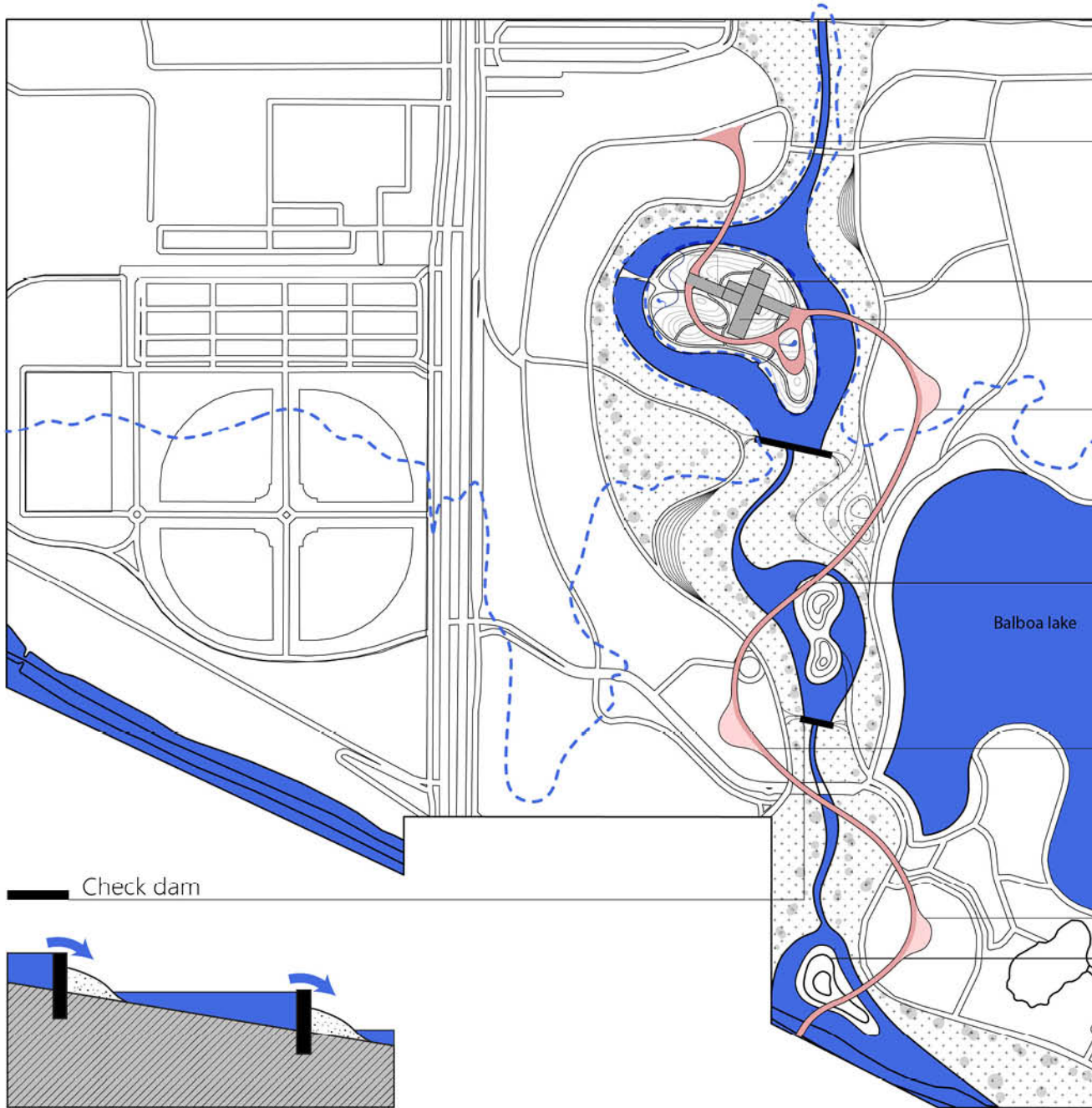
Individual work



This studio speculates on a site at the Los Angeles River and the Sepulveda Basin in the greater Los AngelesIt analyzes this complex and extra-large-scale physical environment through many trajectories: geophysical, historical, environmental, technological, political, cultural, and economic.

Starting from the scale of regional planning, the project firstly establishes a leisure, entertainment, cultural and educational system serving the surrounding community based on the existing natural and biological conditions of the site, and transforms the topography of the site to deal with 100-year flooding. Then focus on designing an island bird sanctuary, combining aviary, bird gallery and bird research and breeding institution to protect endangered indigenous birds and publicize bird knowledge to the public, thereby further raising environmental awareness. At the same time, by exploring the spatial relationship between the aviary structure ,architecture massing and the elevated path, to create various bird watching experiences and various possibilities of interaction between visitors and birds.





-  Creekside Park
-  100yr flooding line

Gathering place

Bird island

- Bird gallery
- Aviary

Bookhouse

Water bird island

- Feed store
- Weland treatment garden

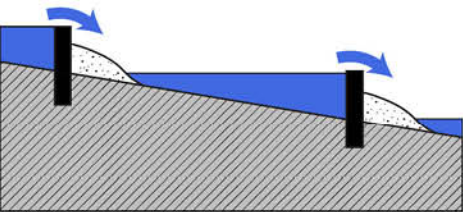
Cafe

Observation tower

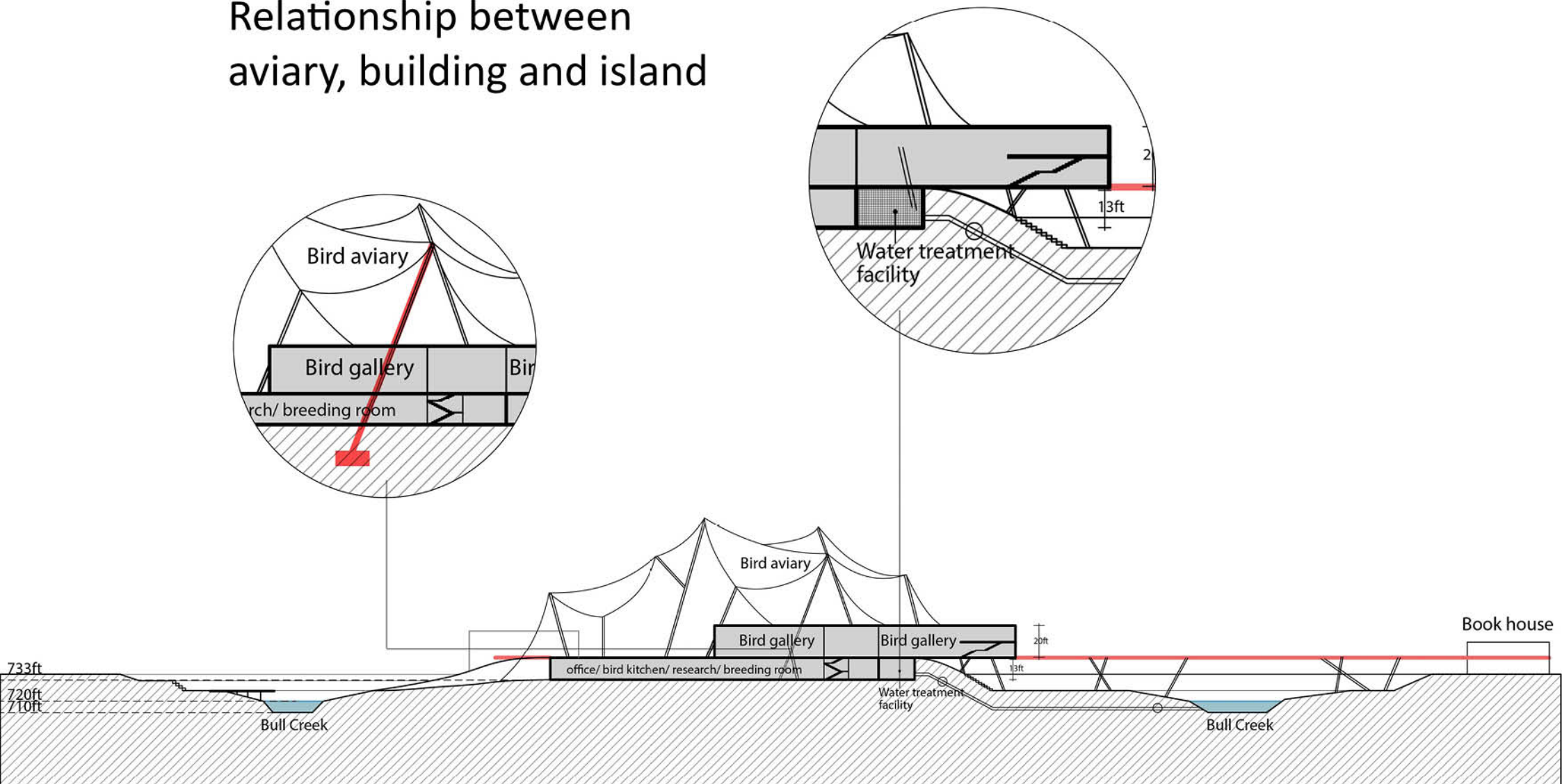
Fishing island

- Fishing hut
- Boat pier

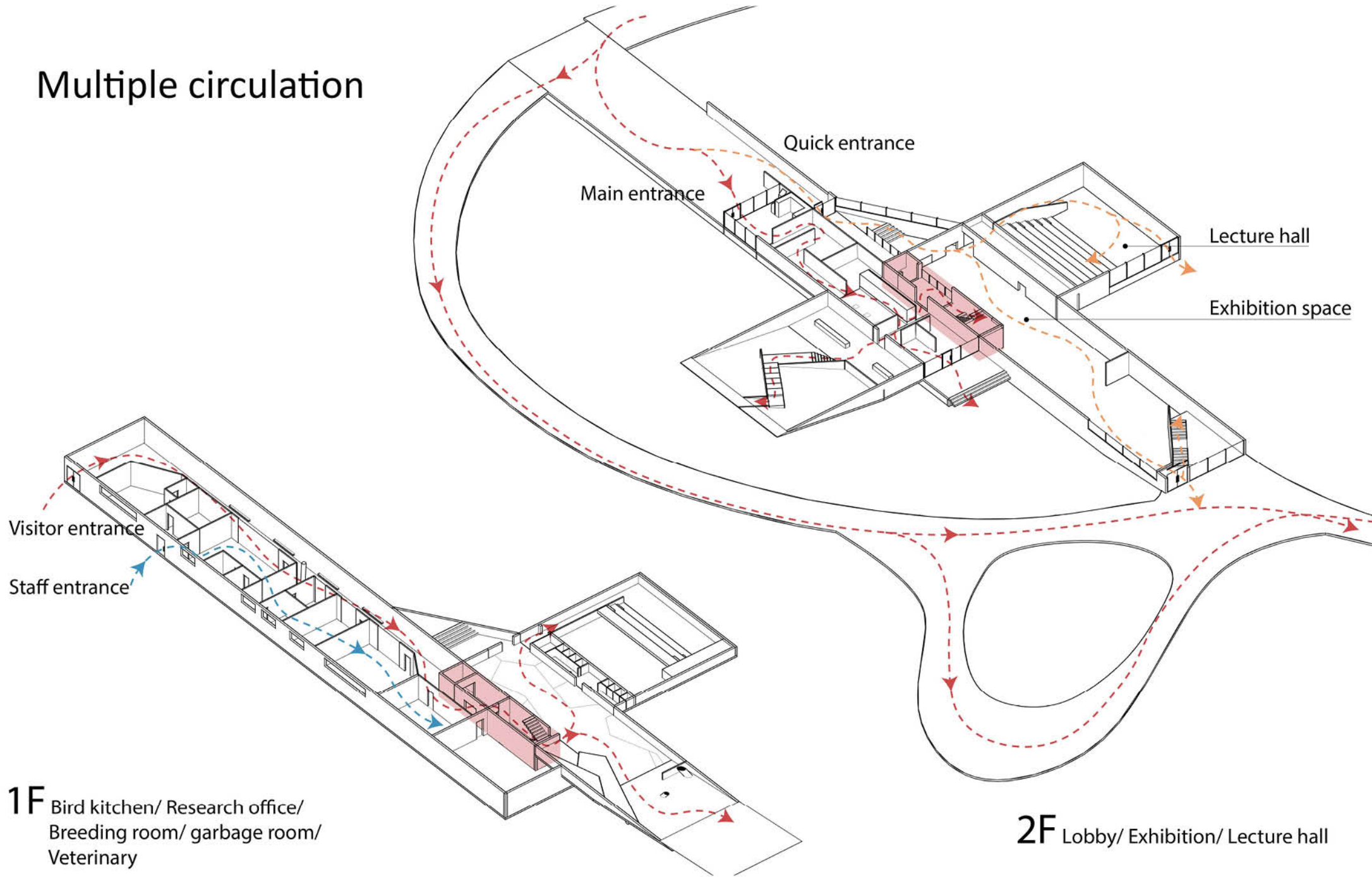
 Check dam

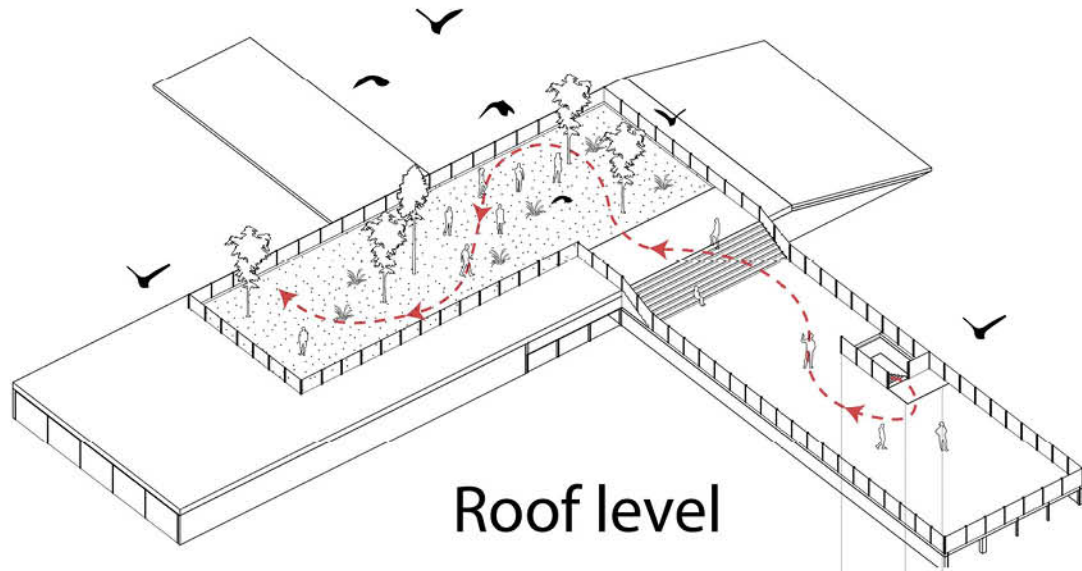


Relationship between aviary, building and island

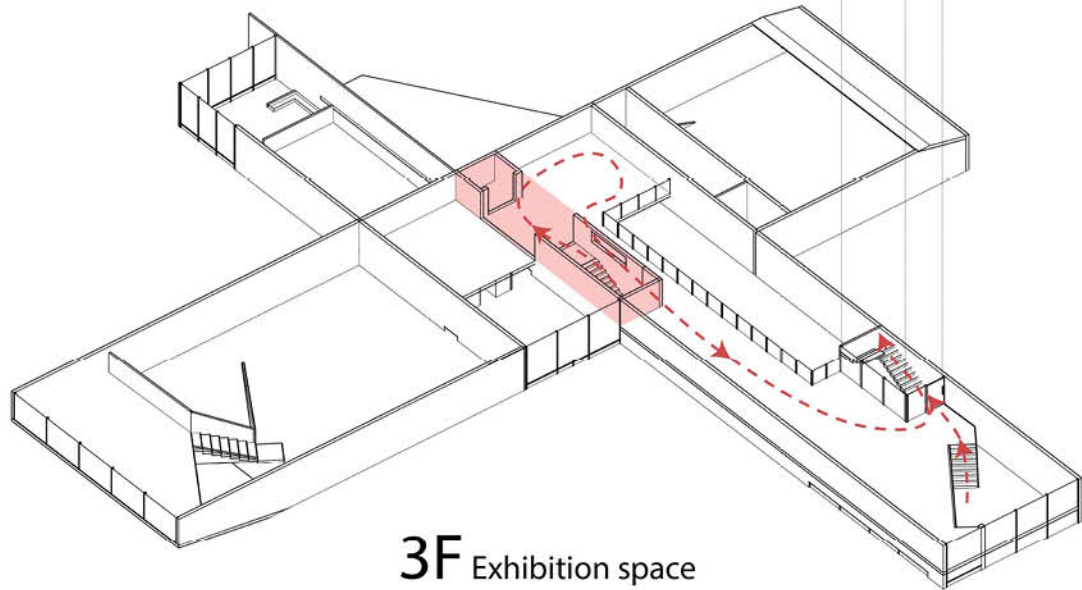


Multiple circulation

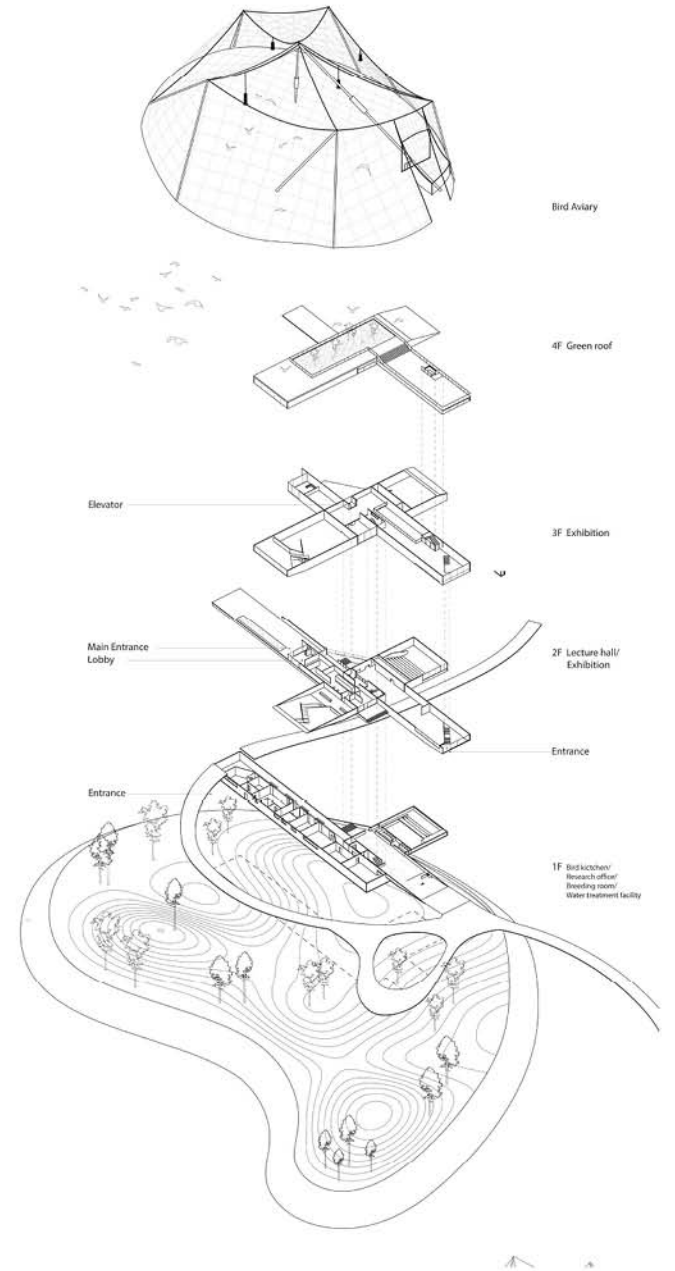




Roof level



3F Exhibition space



Bird Aviary

4F Green roof

Elevator

3F Exhibition

Main Entrance
Lobby

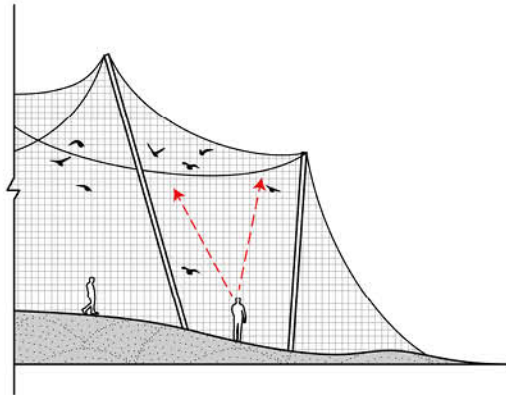
2F Lecture hall/
Exhibition

Entrance

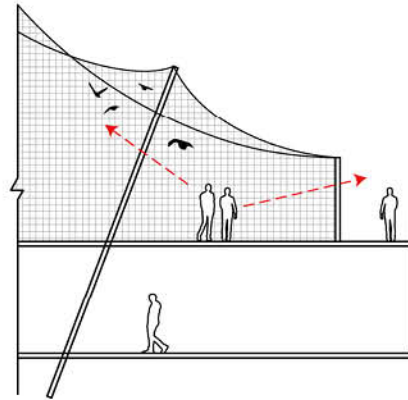
Entrance

1F Birdkitchen/
Research office/
Breeding room/
Water treatment facility

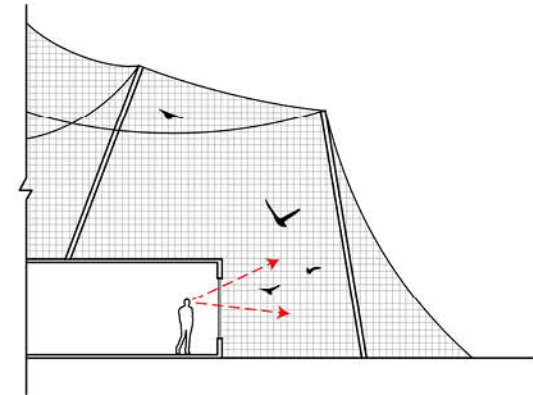
Different aviary experience



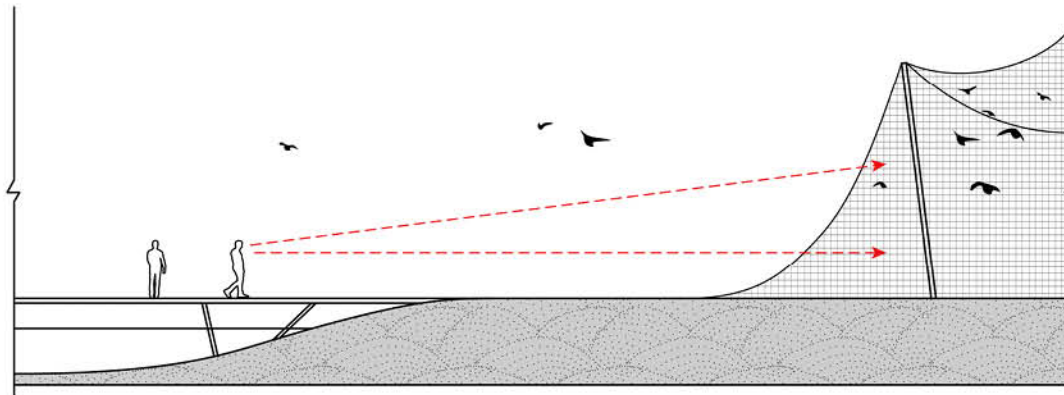
Inside aviary/ Far away from the net



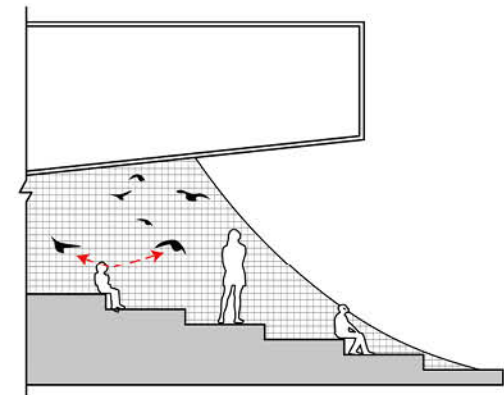
Inside aviary/ Near the net



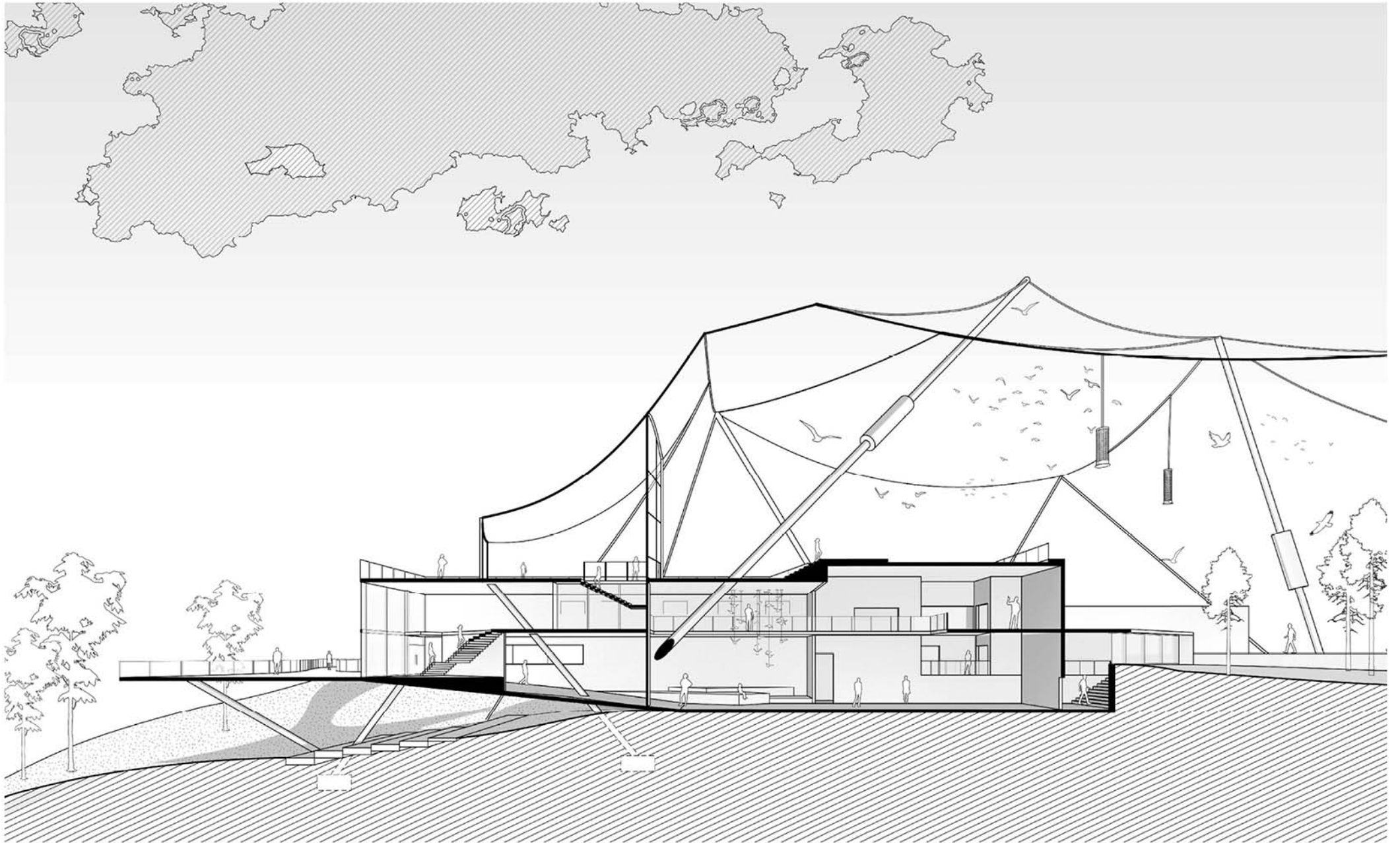
Inside building/ Look out

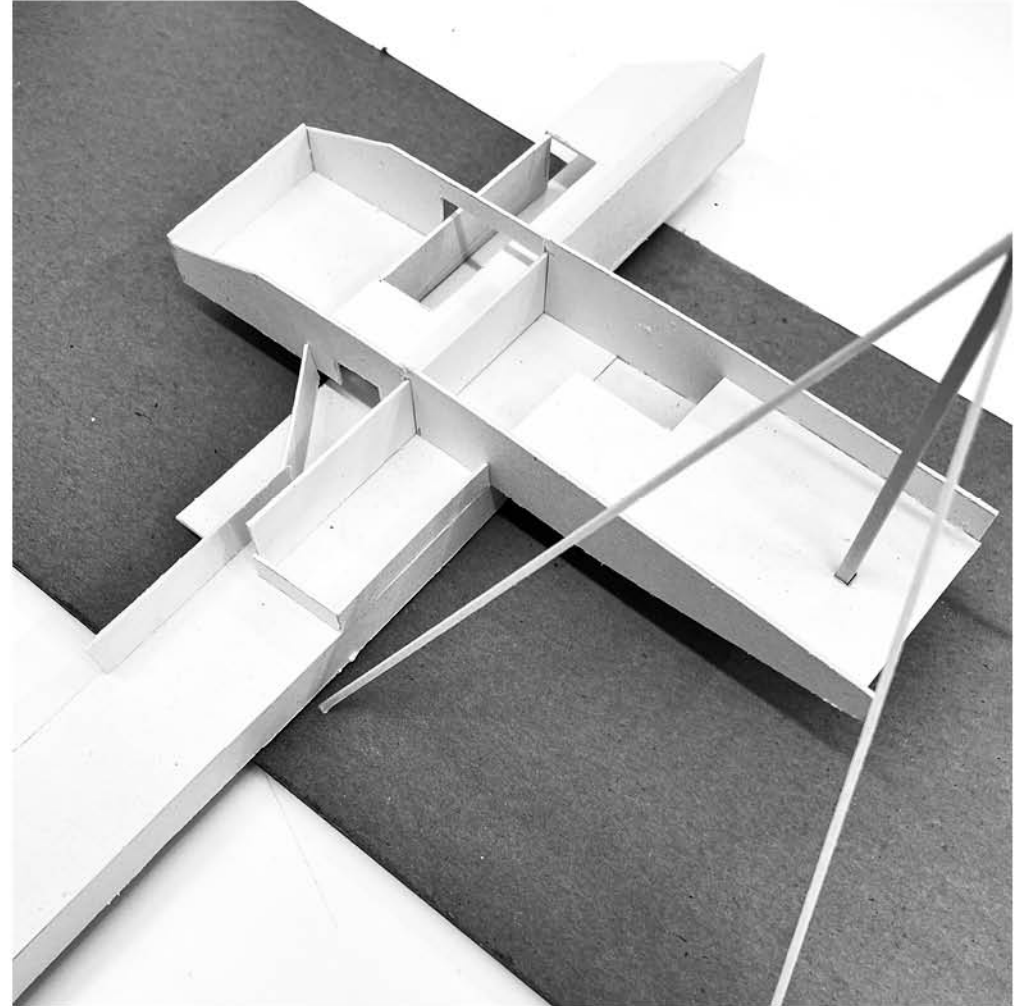


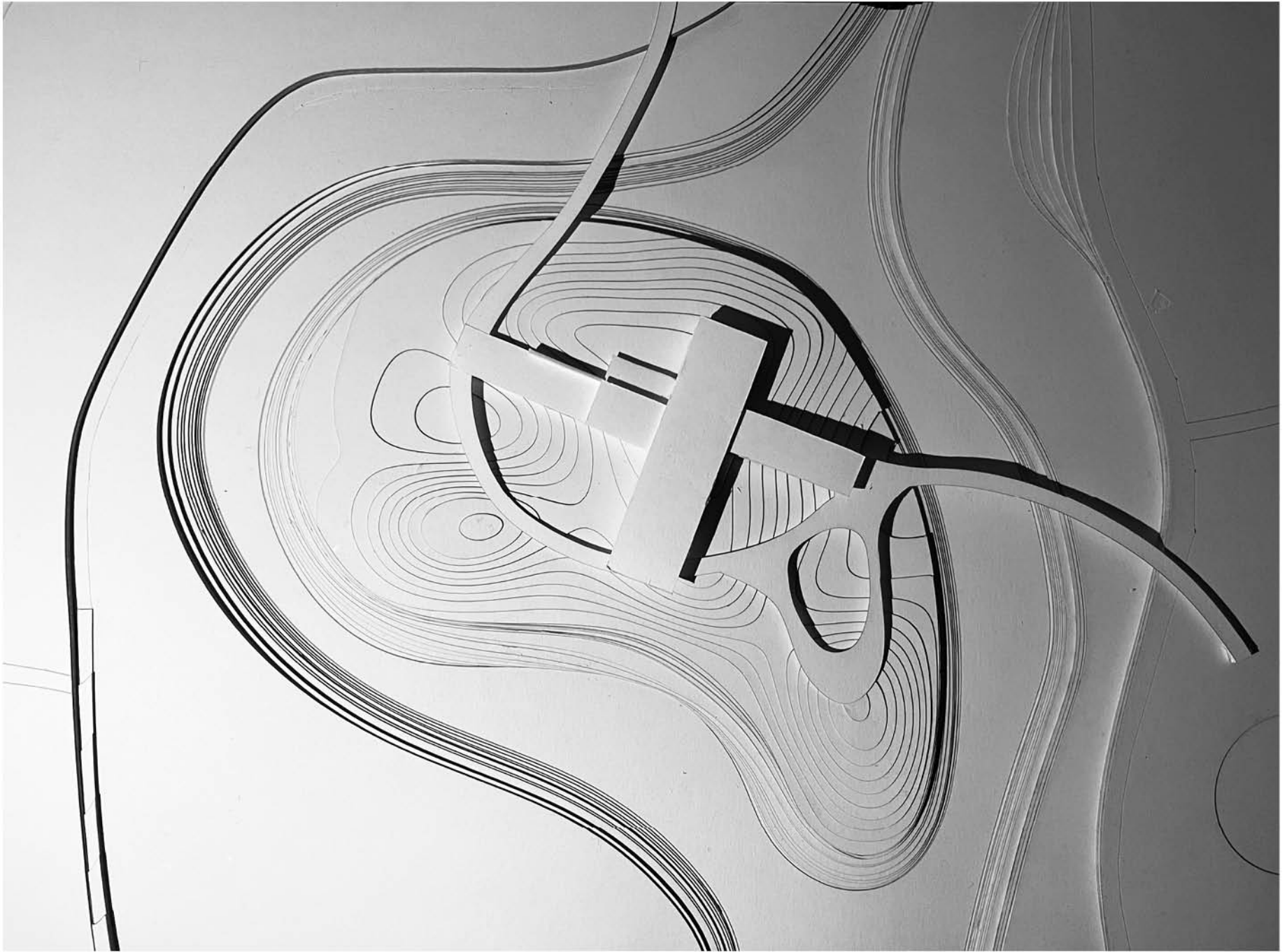
Outside aviary/ Overlooking the aviary

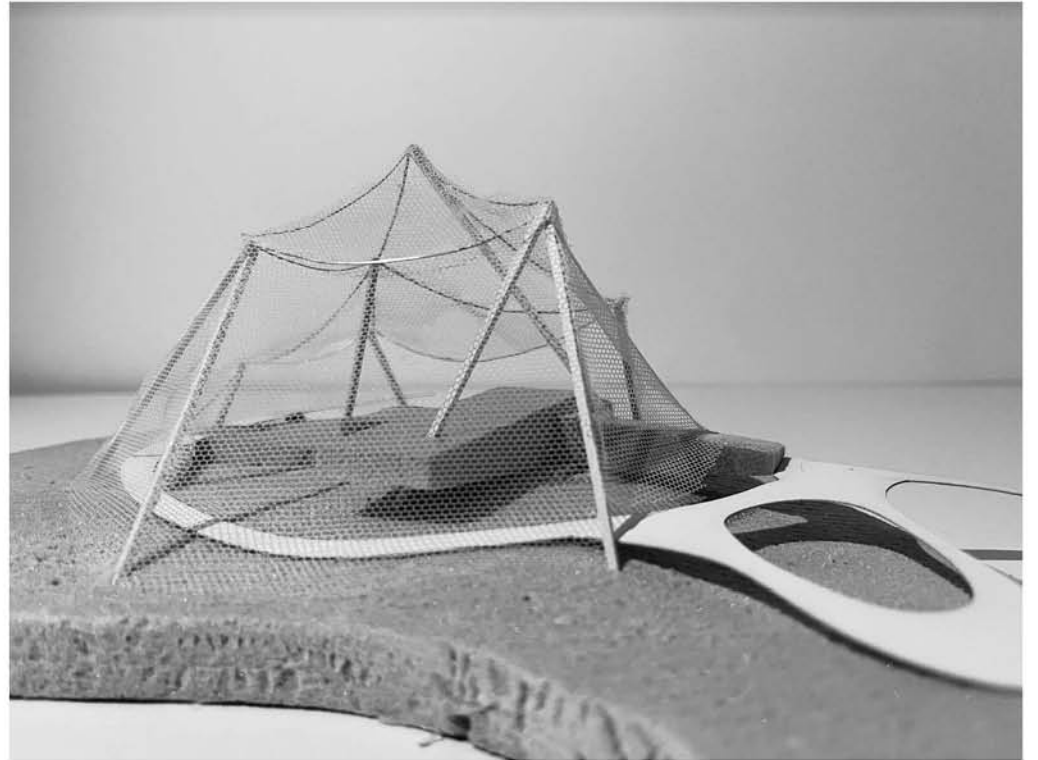
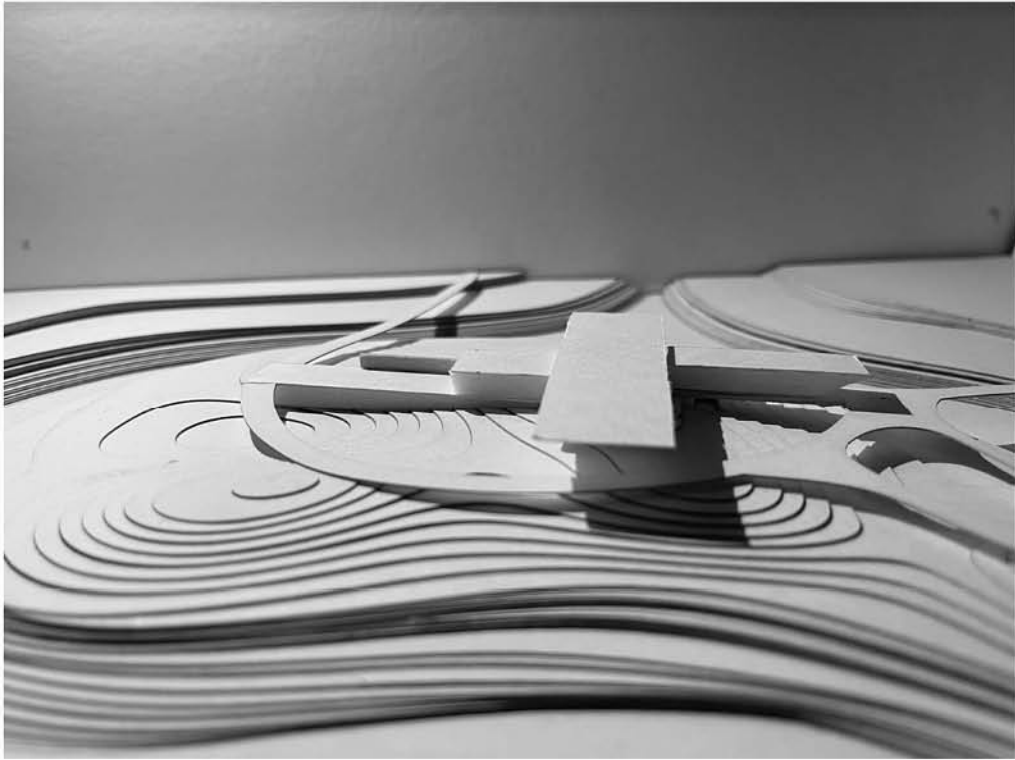


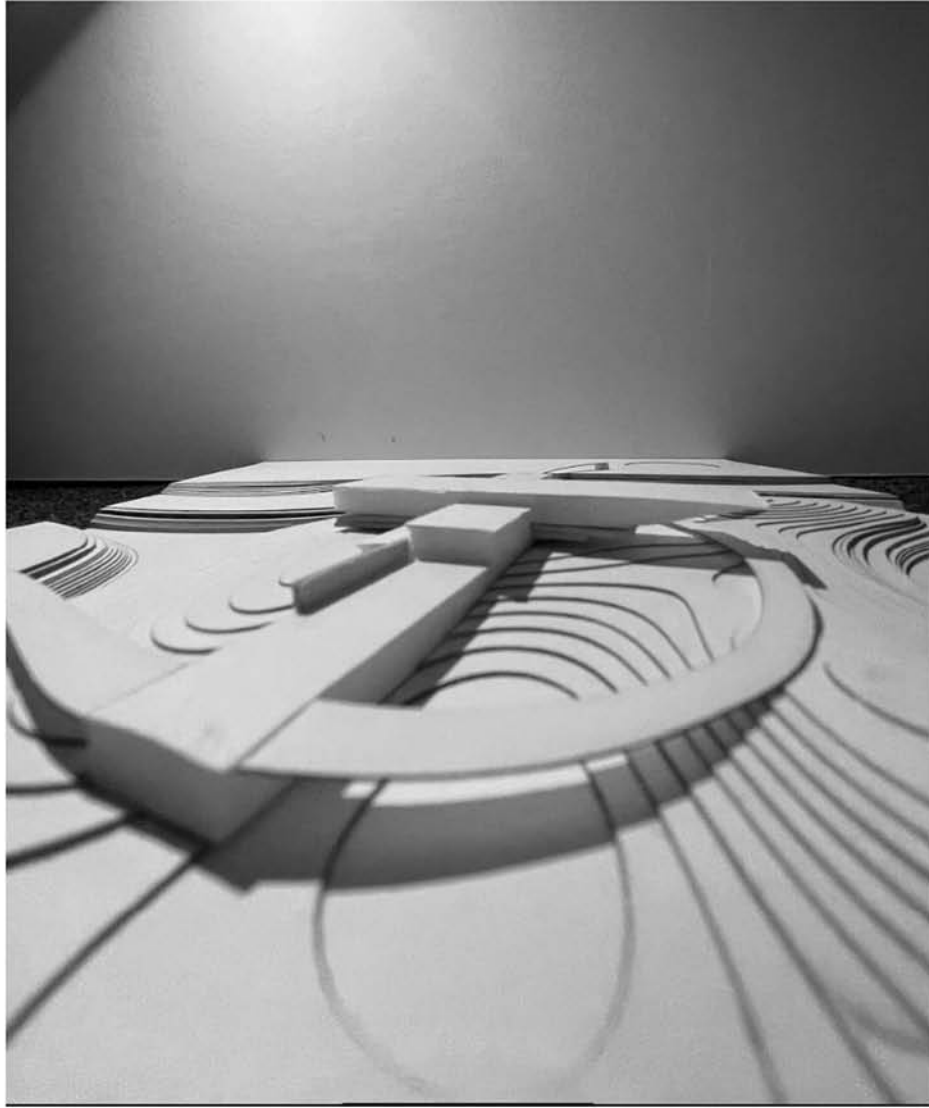
Outside aviary/ Surrounded by net



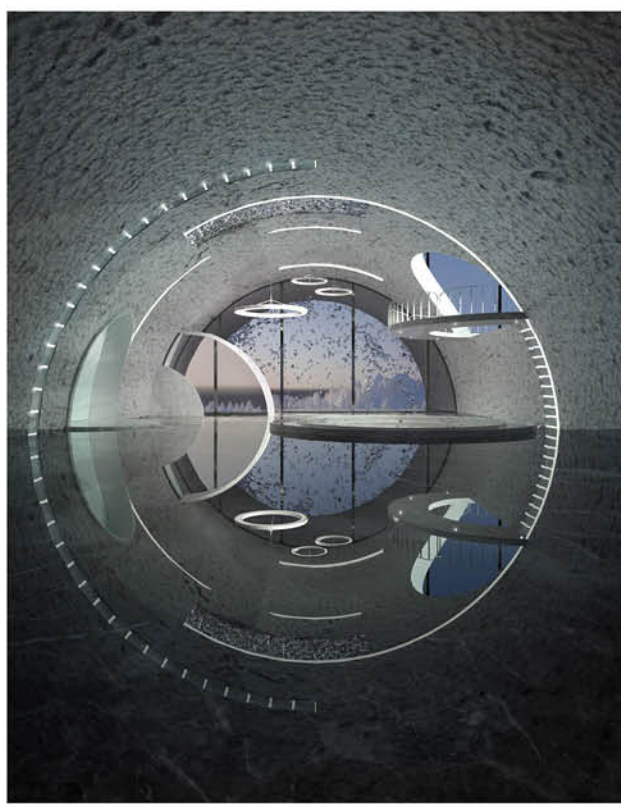
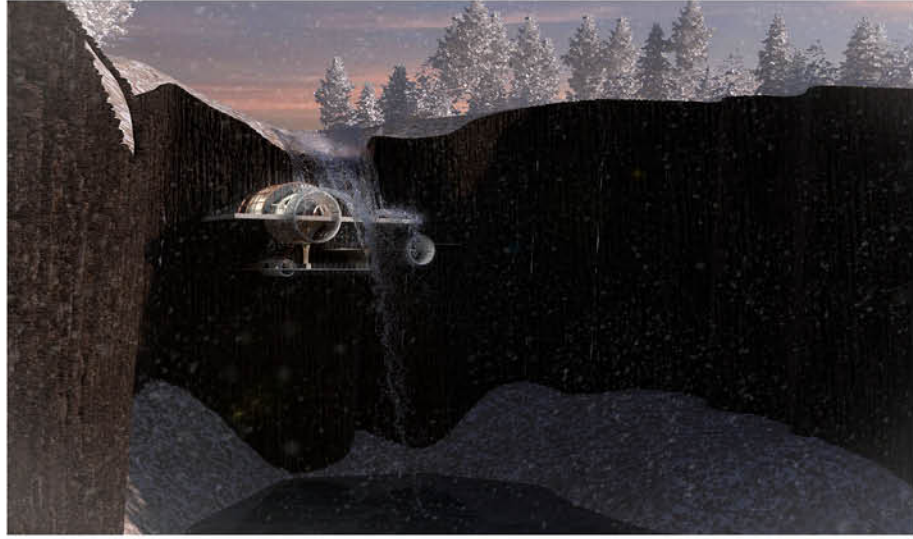








Selectives



Team work with Yingying Zhou
Vray for 3d Max

Techniques of the Ultrareal
2021 GSAPP fall selective

Rendering work




Role in the team: Making model, Render, Photoshop

How do you fill a room with plants?

generative design

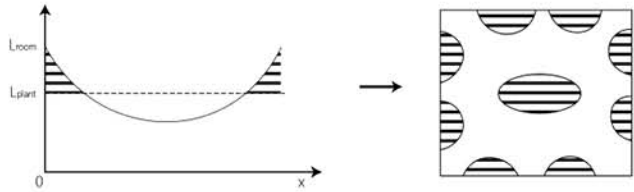


Data input

Plant type	Calathea 	Sansevieria 	Nephrolepis cordifolia 
Amount number	a	b	c
P=price(\$)	60	140	80
R=plant radius(inch)	6"	9"	15"
Lux=lighting need	1400	1900	2200

Behavior logics

Behavior1: Clustering towards daylight areas

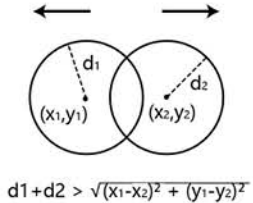


 Areas that meet plants light need

L_{plant} = light need of plant
L_{room} = light need of plant

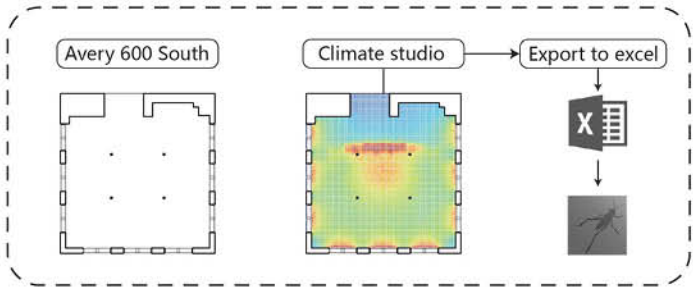
Based on the lighting data produced by the climate studio, plants will be scattered to areas with local L values larger than L_{plant}

Behavior2: collision

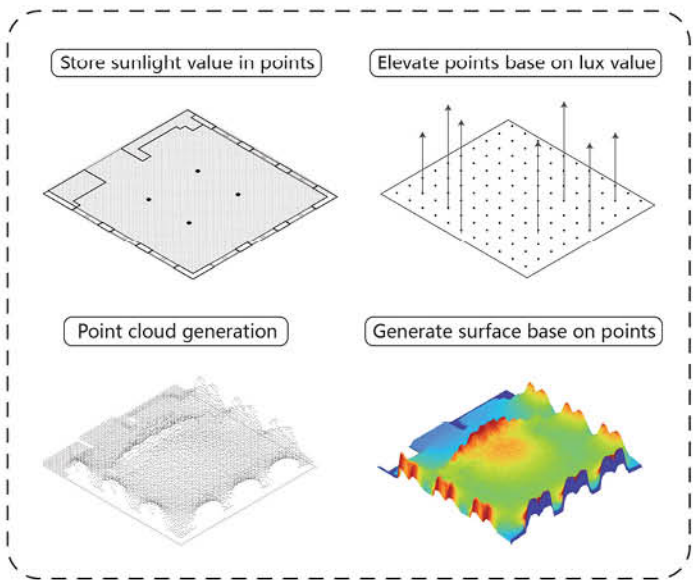


$$d_1 + d_2 > \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$

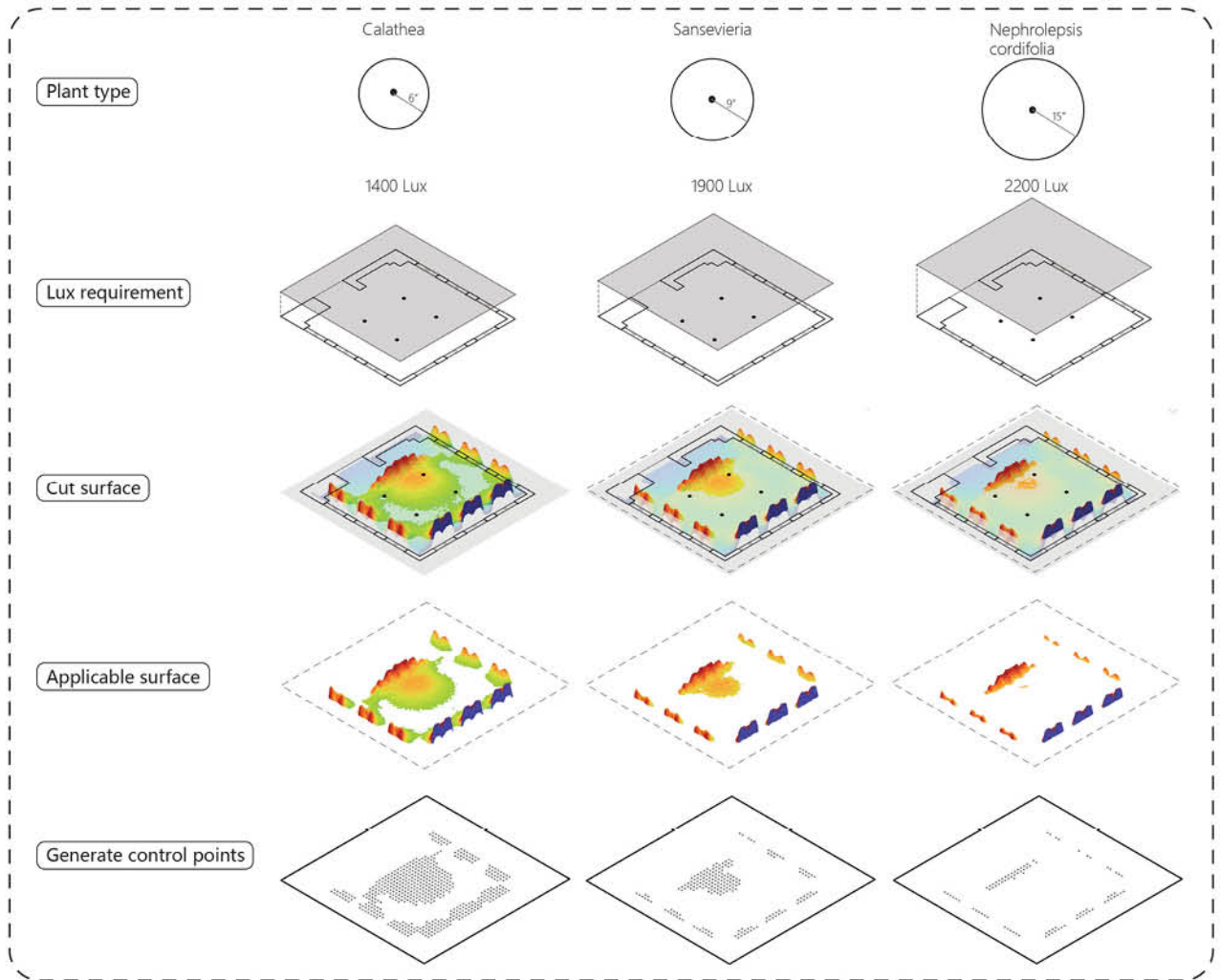
Plant placement area generation



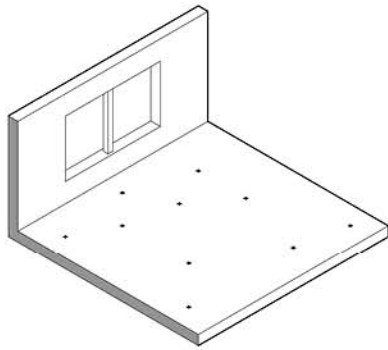
Sunlight data collation



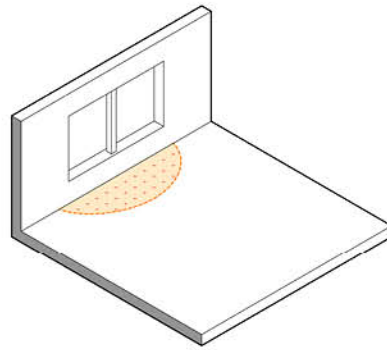
Sunlight data visualization



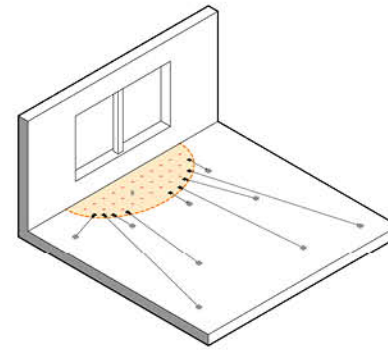
Mapping plant placement points



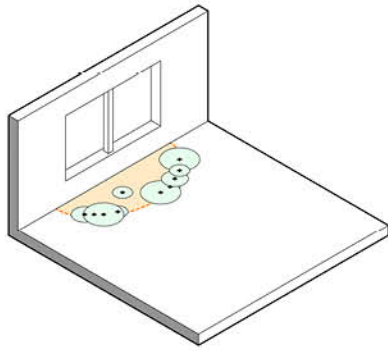
Randomly Populated Points



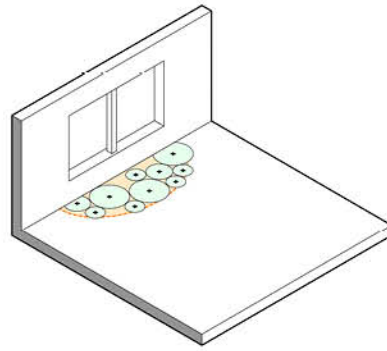
Targeted Points



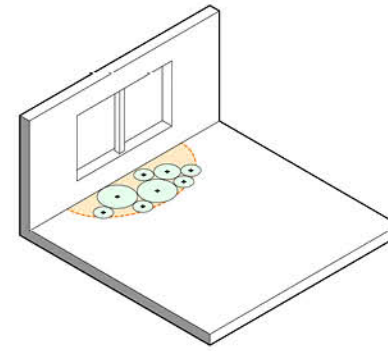
Points Pulled to Targets



Overlapped Shadow



Circles Tangent to Each Other



Culled Circles outside the Room

RHINO

GRASSHOPPER

PYTHON

GRASSHOPPER

DISCOVERY

