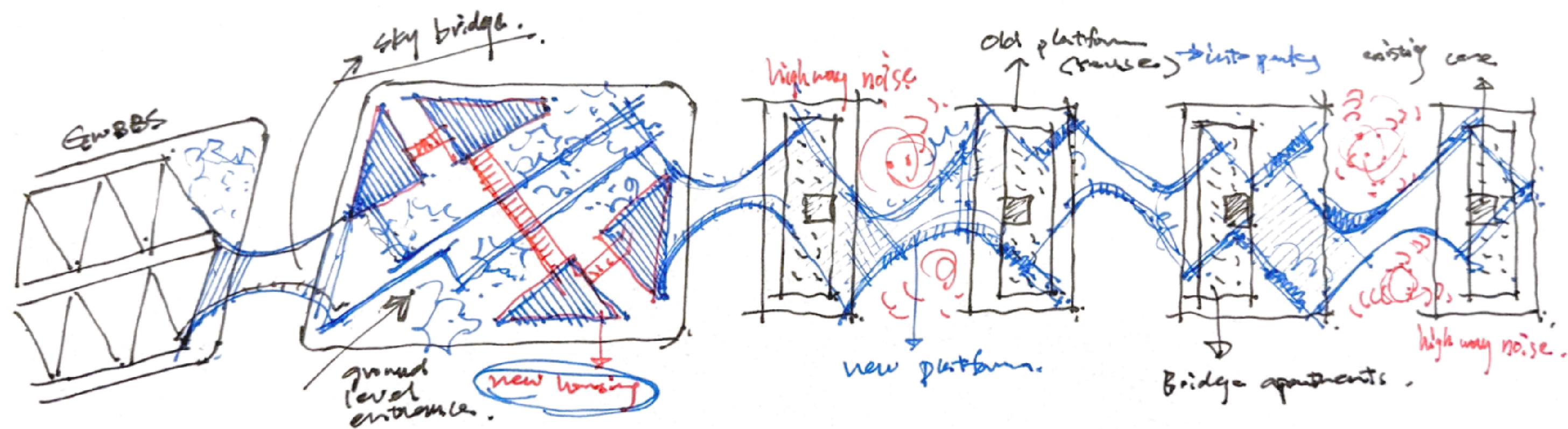




portfolio

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Plastic Assembly

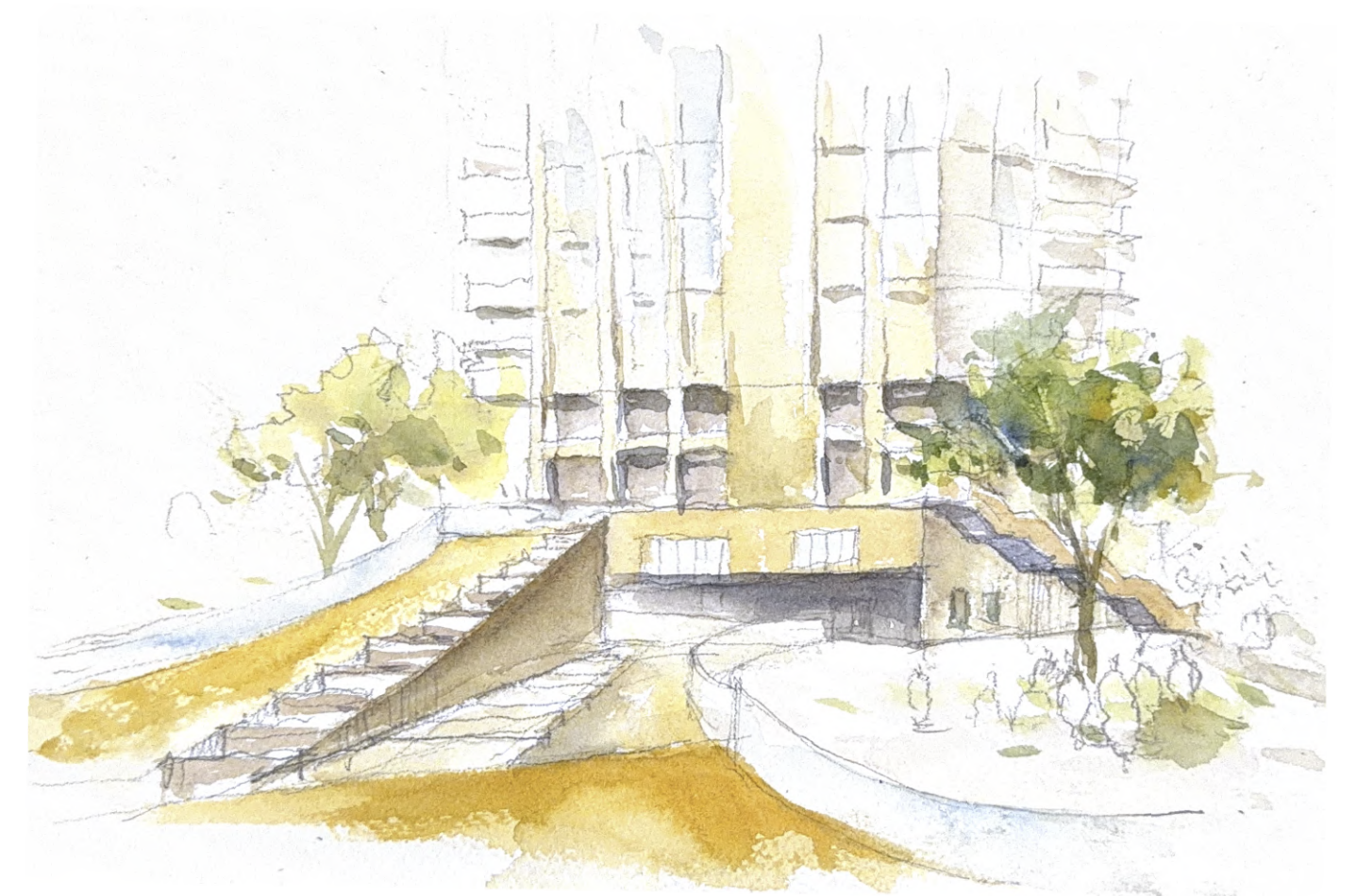
-A civic scaffold for post-plastic imagination

Acoustic Passage

-Making Acoustic Pollution Perceptible

Urban Suture

-Layered Mediation in the GWB Megastructure



2025 Advanced Summer Studio

Columbia University

GSAPP

Advisor

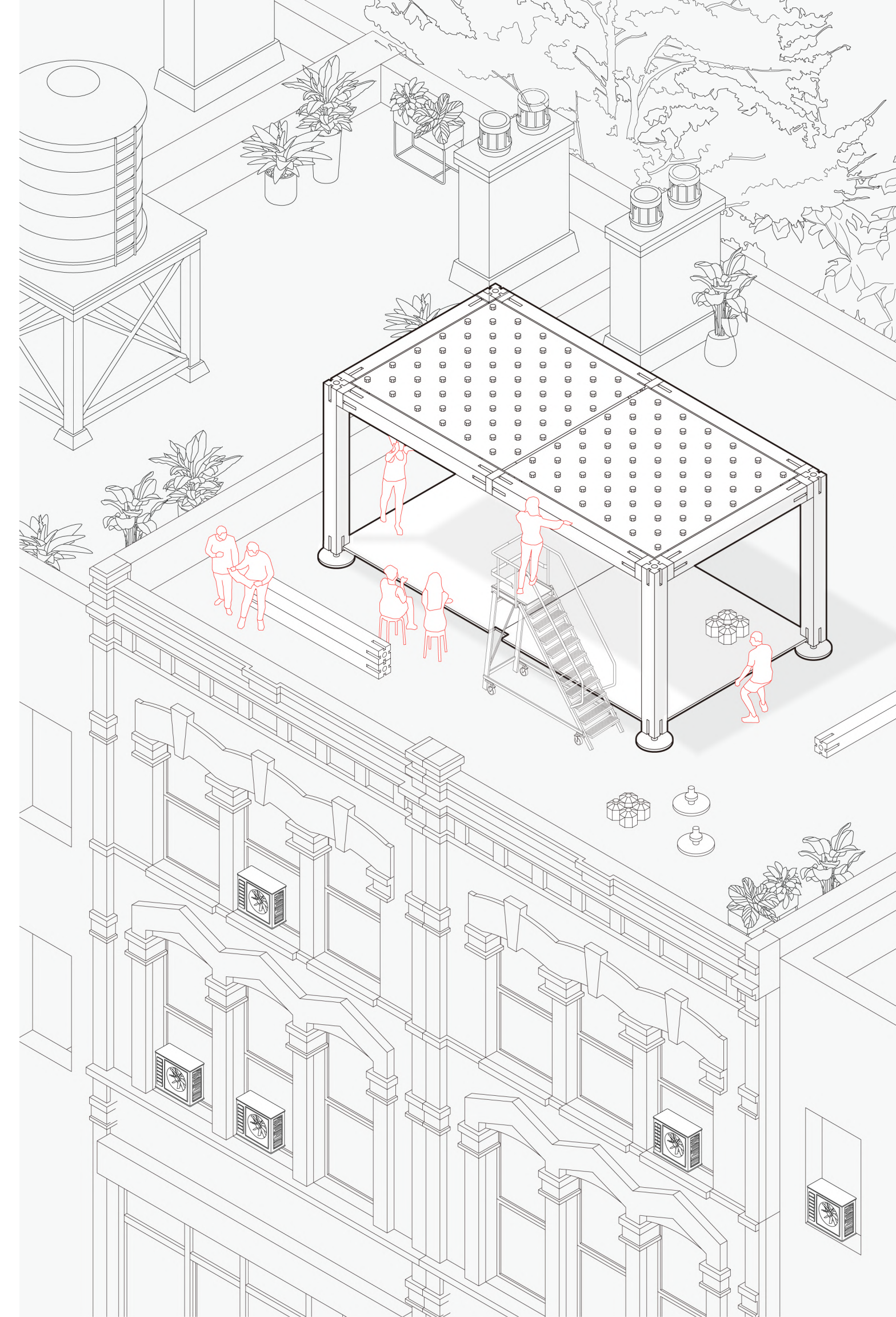
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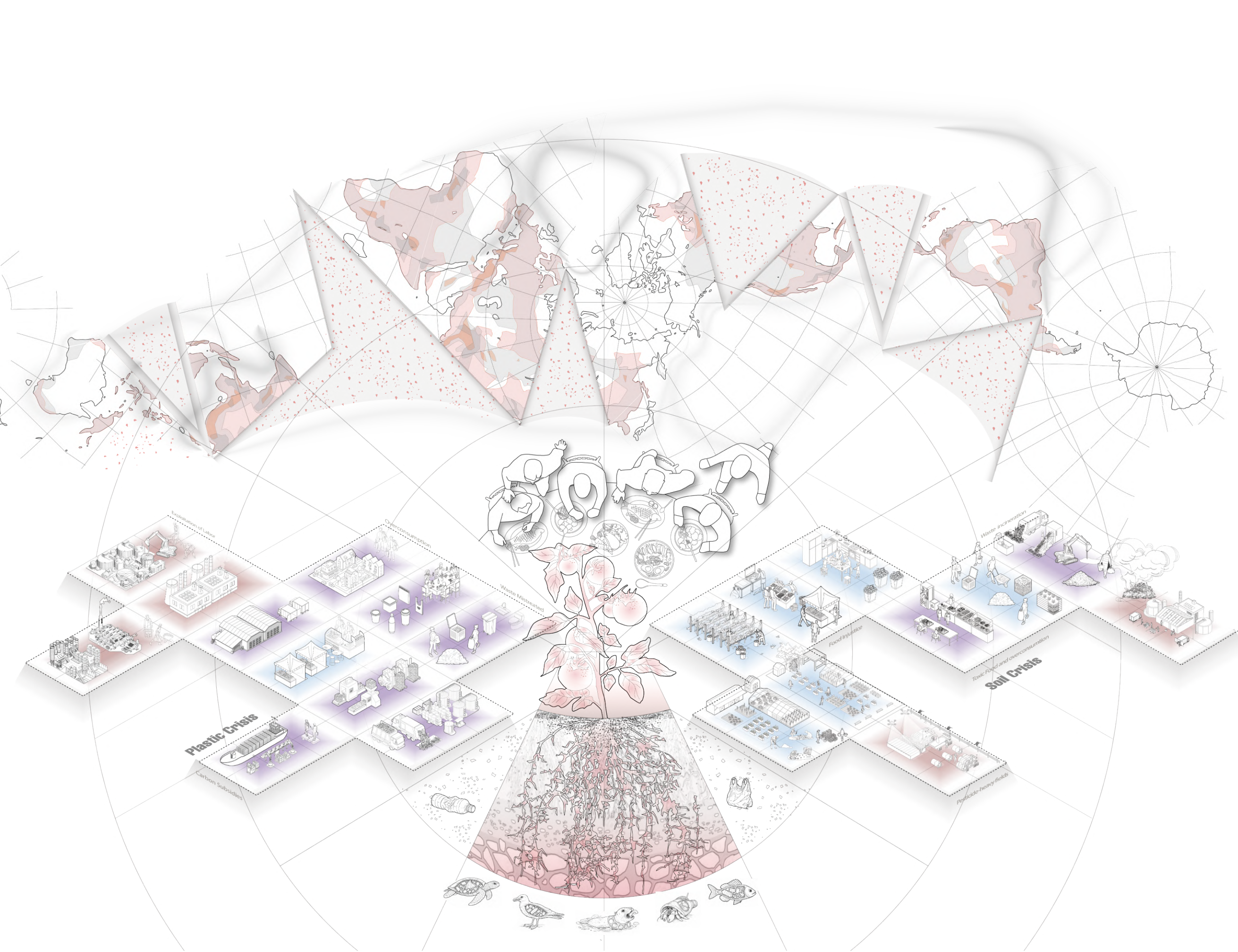
Plastic Assembly

#A civic scaffold for post-plastic imagination

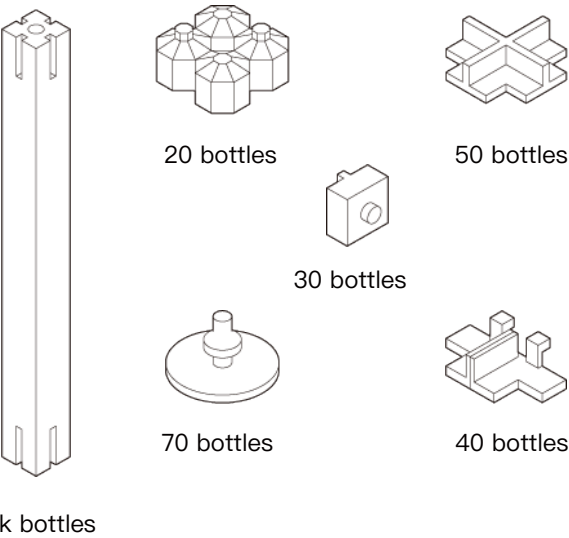
Plastic Assembly proposes a modular, decentralized system for plastic reuse—one that transforms PET waste into civic infrastructure. Rather than treating plastic as a material to be hidden, discarded, or moralized, the project foregrounds its presence and asks: how can design reframe waste as a site of public labor, spatial value, and collective imagination?

At the core of the system is a lightweight module based on a 330x330 cm structural grid. Each unit is constructed from reused PET bottles and caps. These components form translucent, thick-walled bricks, assembled into panels that can be plugged into various spatial configurations—shelters, kiosks, workshops, aquaponic gardens. Four modules form a larger 660x660 cm cluster; several clusters together generate a full-scale public environment. The structural logic is simple and repeatable, allowing for collective construction and adaptation by local users.

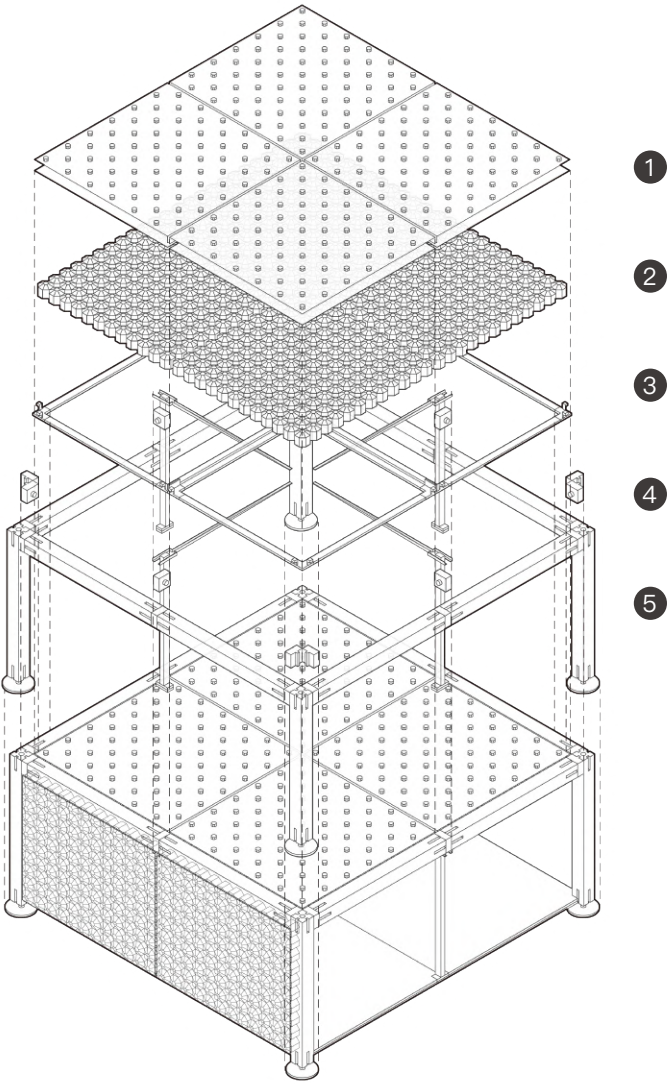




Plastic as a scalar system:
The elevated public space is accessible through the vertical circulation located in the ground-floor lobby of the office building.



- Roof Membrane/ Recycled bottles caps ①
- Recycled PET bottles ②
- Roof frame ③
- Beam-column joint ④
- Beam-column system ⑤

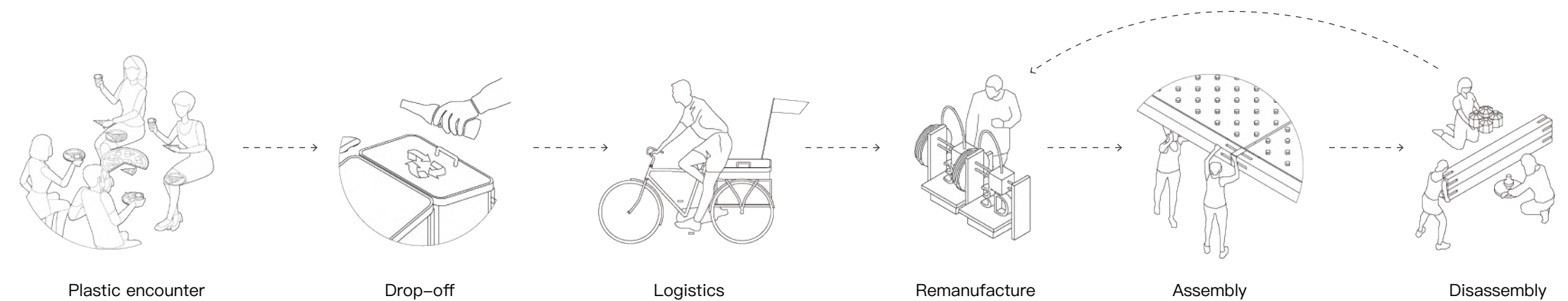
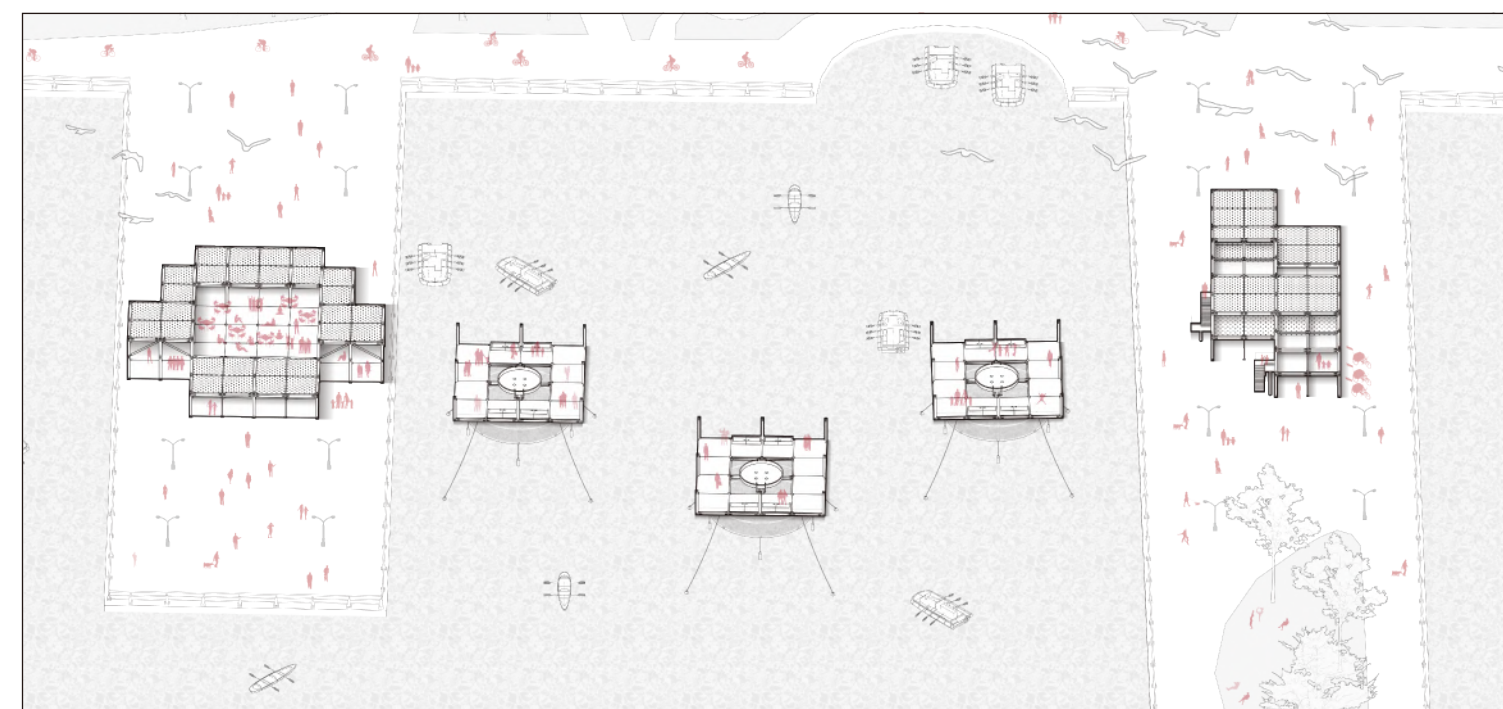
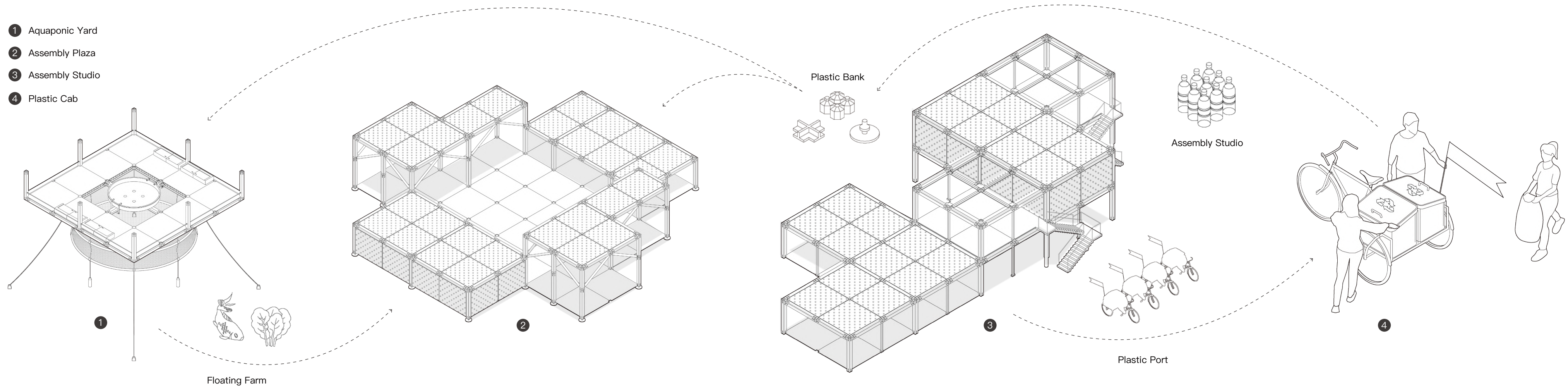


Microplastic Infiltration

Microplastics emerge from discarded plastic that escapes recycling systems, fragmenting through environmental processes and entering the food chain. Amplified by agricultural and livestock practices, they have become a pervasive intrusion into the biosphere, altering ecological relationships across scales.

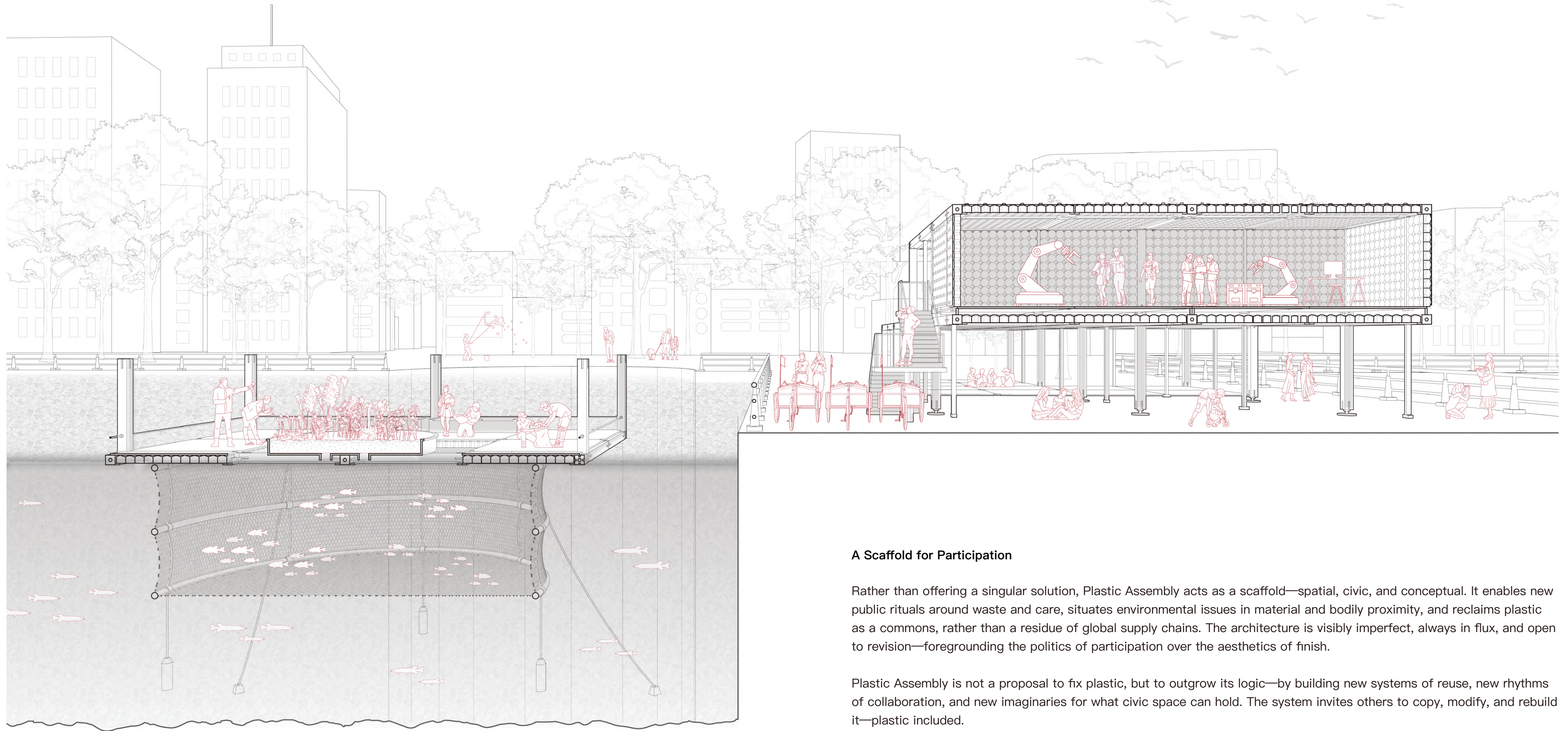
The project proposes a system linking plastic processing, food cultivation, and community space as a continuous cycle. Discarded PET bottles are transformed into construction components and reassembled into public structures integrating aquaponic systems. Through embedded informal gathering spaces, the system reframes waste as infrastructure and makes ecological cycles visible, collective, and participatory.

- 1 Aquaponic Yard
- 2 Assembly Plaza
- 3 Assembly Studio
- 4 Plastic Cab



NYC as a testing site

The system is tested across Manhattan's Pier 45 and Pier 46, but designed to be mobile, replicable, and open-ended. Floating aquaponic islands connect the two piers, while Plastic Cabs—reused delivery bikes and carts retrofitted into mobile nodes—extend the system into adjacent neighborhoods. Events, food sharing, and plastic-for-credit programs create flexible forms of engagement beyond static recycling bins.



A Scaffold for Participation

Rather than offering a singular solution, Plastic Assembly acts as a scaffold—spatial, civic, and conceptual. It enables new public rituals around waste and care, situates environmental issues in material and bodily proximity, and reclaims plastic as a commons, rather than a residue of global supply chains. The architecture is visibly imperfect, always in flux, and open to revision—foregrounding the politics of participation over the aesthetics of finish.

Plastic Assembly is not a proposal to fix plastic, but to outgrow its logic—by building new systems of reuse, new rhythms of collaboration, and new imaginaries for what civic space can hold. The system invites others to copy, modify, and rebuild it—plastic included.

2025 Advanced Fall Studio

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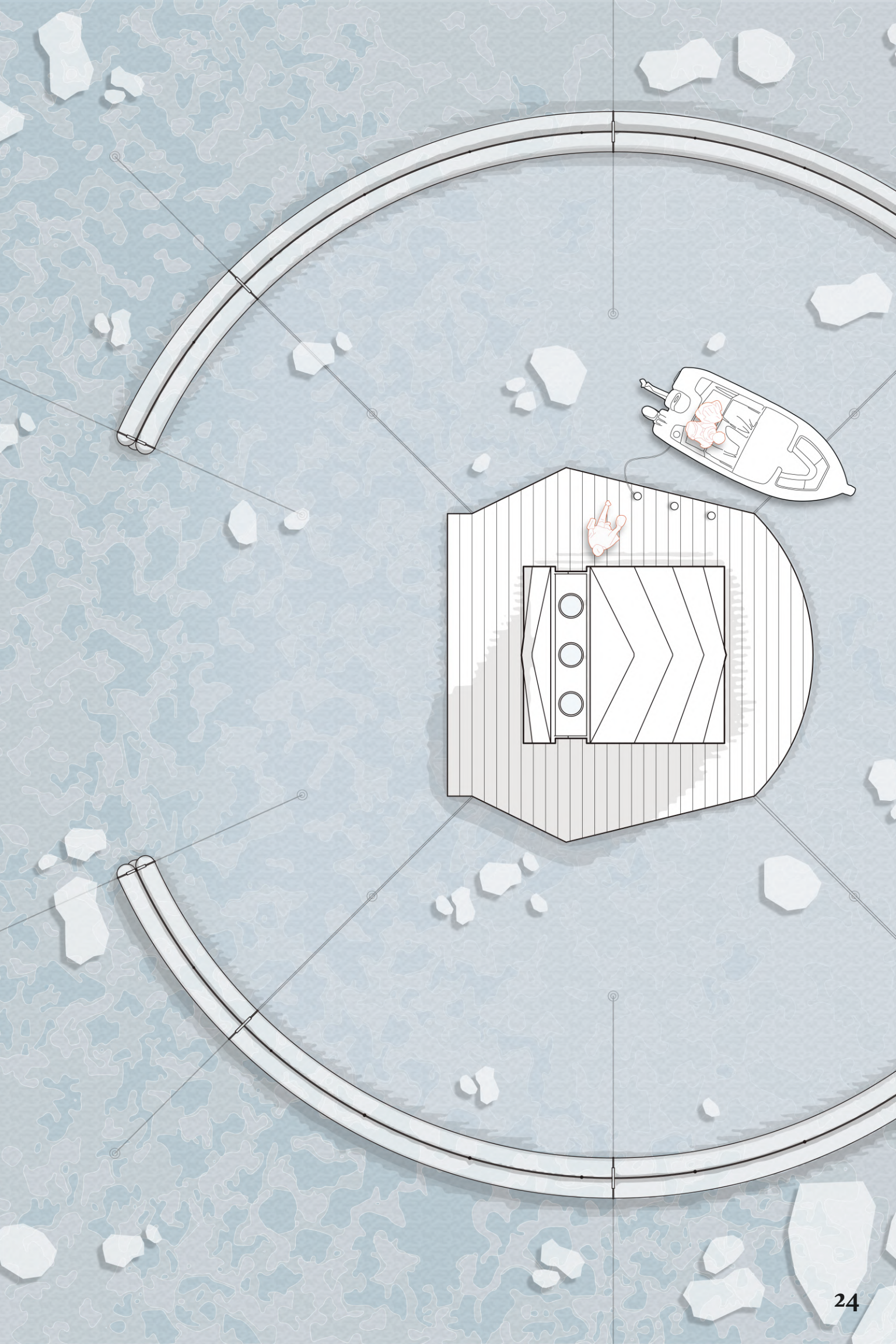
Leslie Gill, Khoi Nguyen

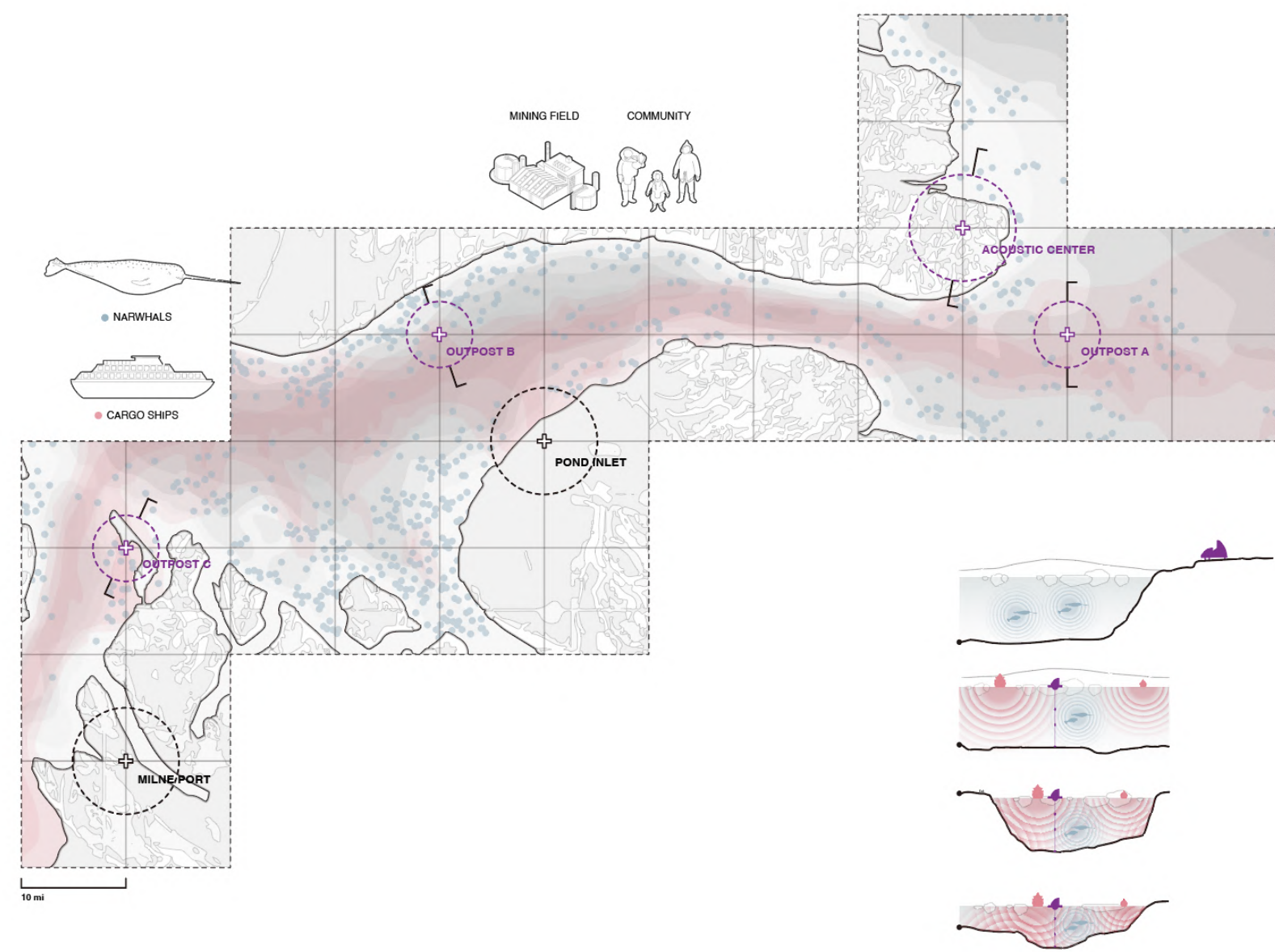
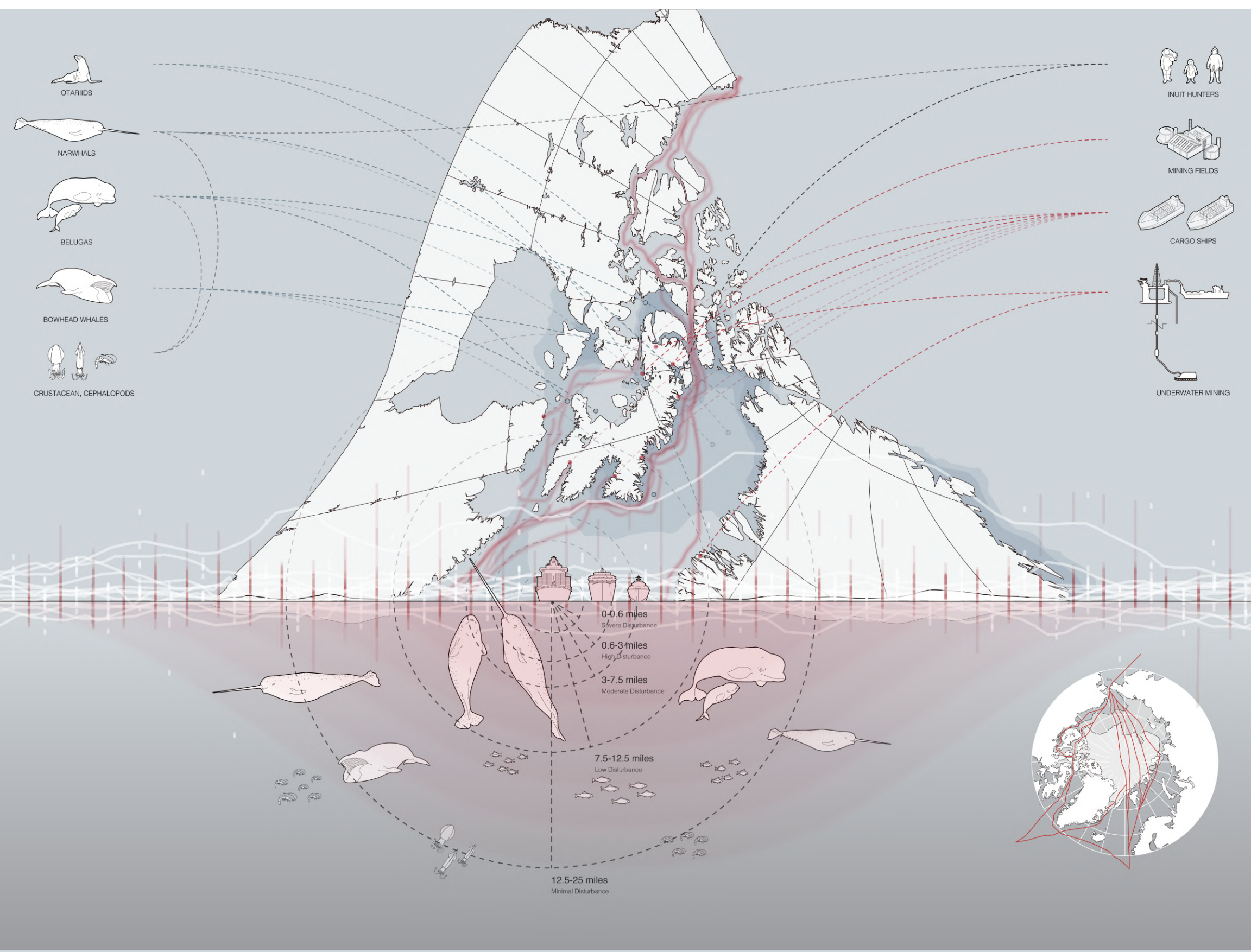
Acoustic Passage

#Making Acoustic Pollution Perceptible

Sound pollution in the Arctic Circle has emerged as a critical yet largely invisible environmental issue. For marine mammals such as narwhals and beluga whales, sound is not secondary but foundational—shaping communication, navigation, and survival. As industrial activity expands into previously ice-covered waters, low-frequency noise increasingly occupies these acoustic environments, disrupting ecological systems that depend on sonic clarity.

This project proposes an architectural framework that treats sound as both subject and material. Rather than mitigating noise through conventional engineering solutions, the project constructs a spatial system for listening, recording, and translating acoustic disturbance. Architecture becomes an intermediary—making environmental change perceptible, legible, and experientially present.

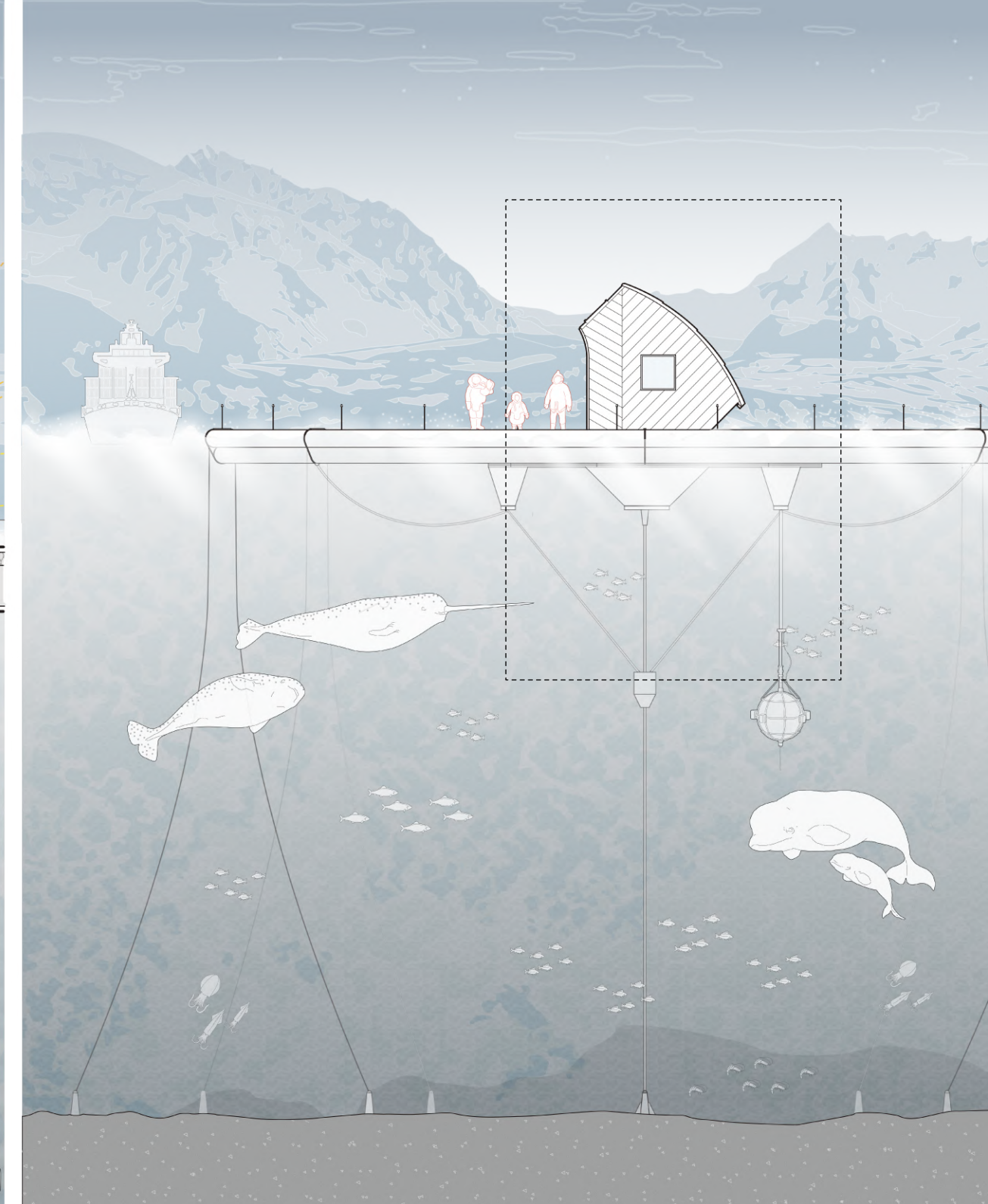
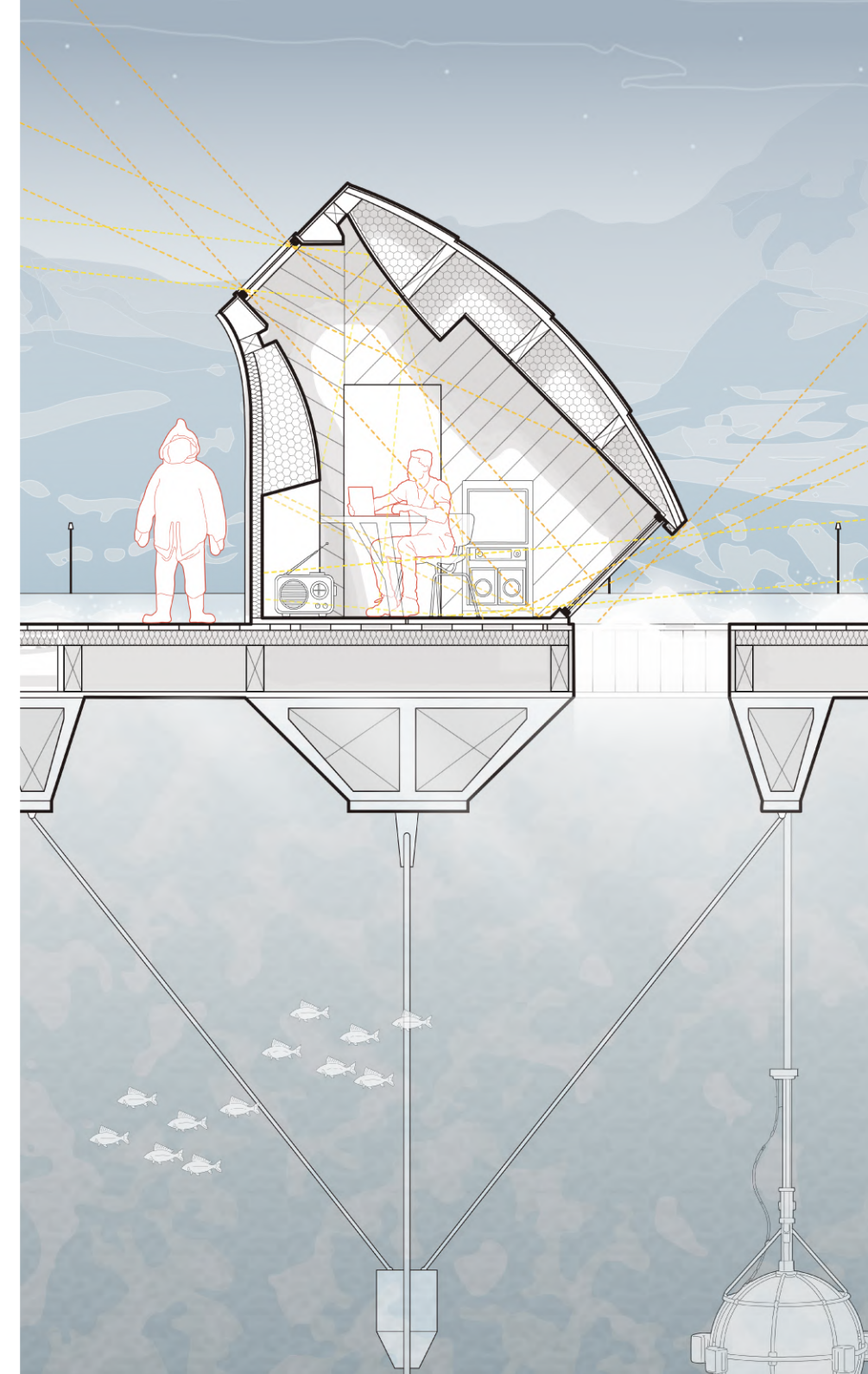




Climate Change, Shipping Corridors, and Sonic Conflict

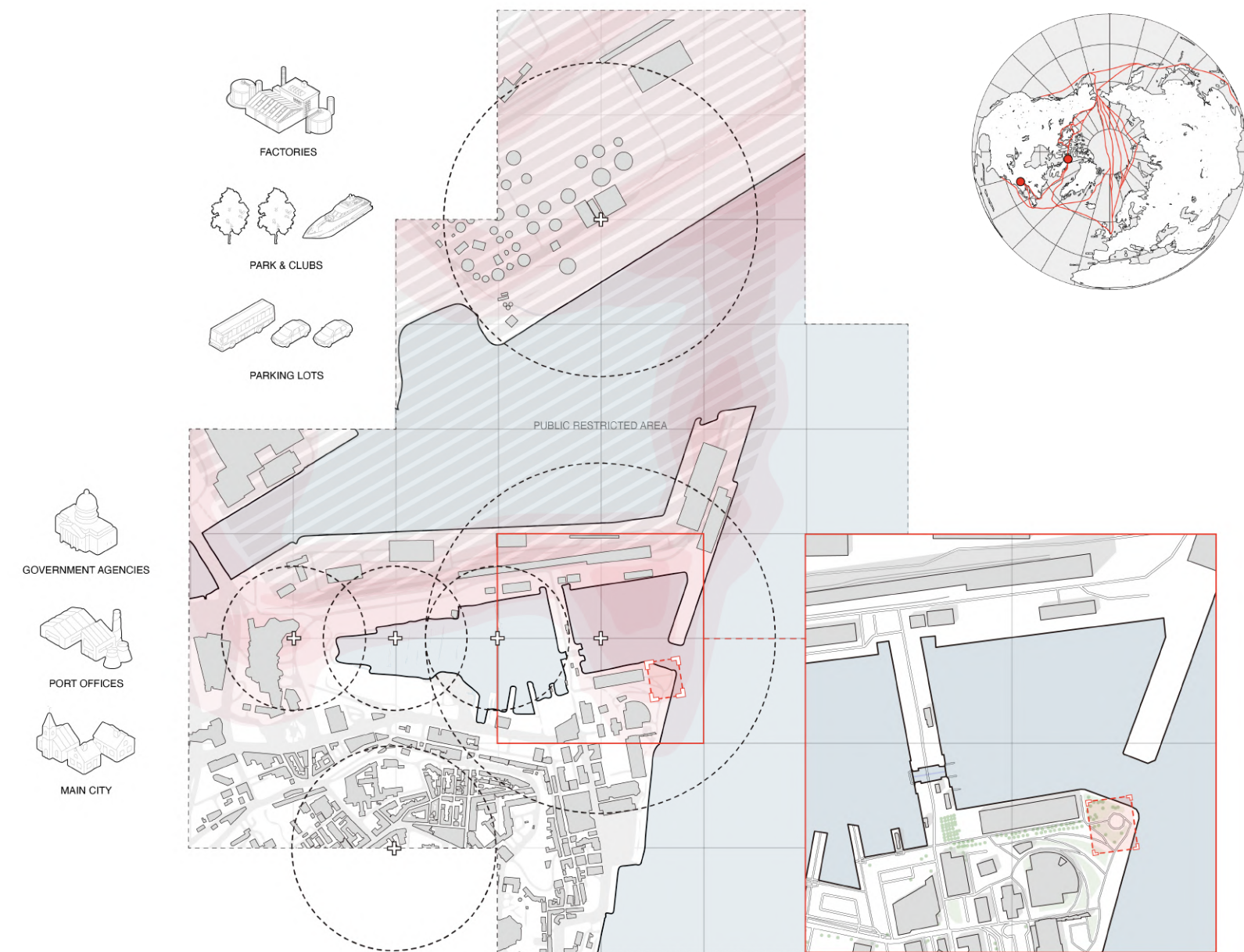
Climate change has accelerated the opening of Arctic shipping routes. As sea ice retreats, vessel traffic remains active for longer periods each year, introducing persistent industrial noise into marine habitats. Unlike visual pollution, sound travels across vast distances underwater, accumulating in ways that are difficult to regulate or localize.

This condition is especially pronounced around Baffin Island, Canada. The Mary River Mine ships iron ore from Milne Inlet through Arctic waters to global markets and plans to significantly increase production. The shipping corridor directly overlaps with the seasonal migration routes of narwhals and beluga whales, where industrial logistics and ecological systems collide within the same acoustic territory.



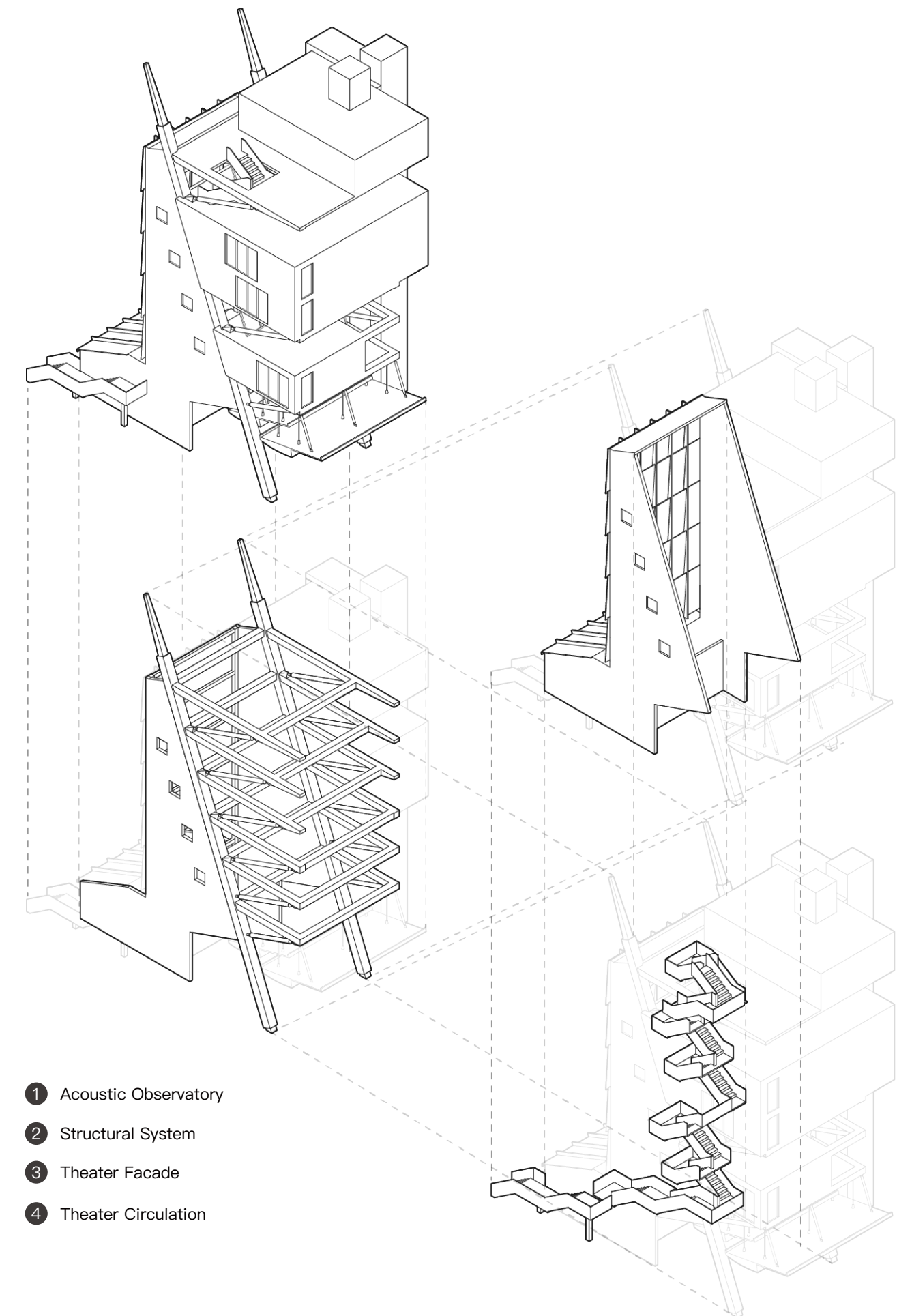
Floating Outposts as Acoustic Infrastructure

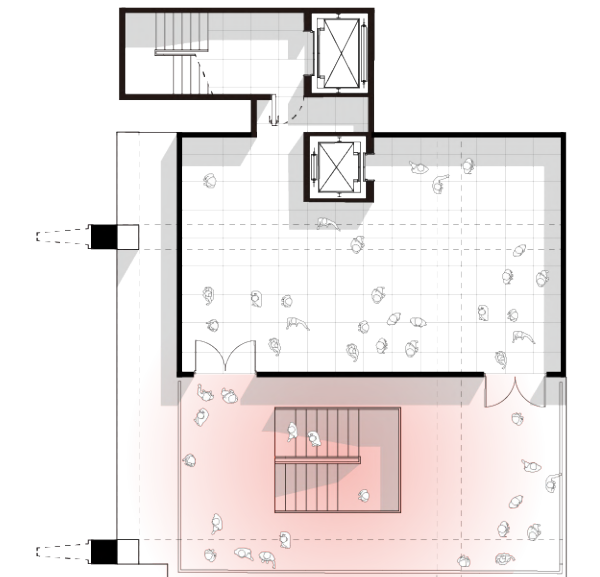
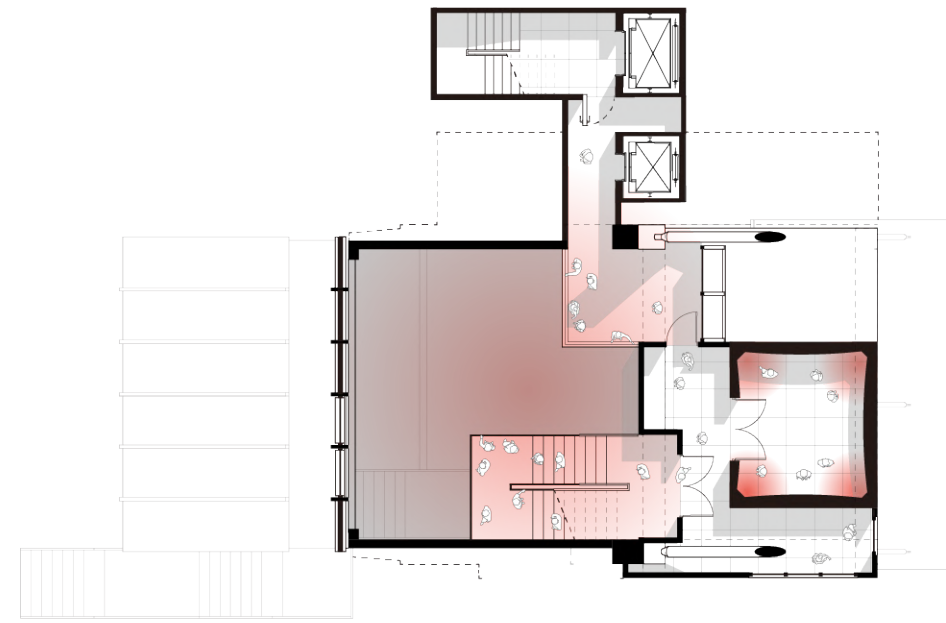
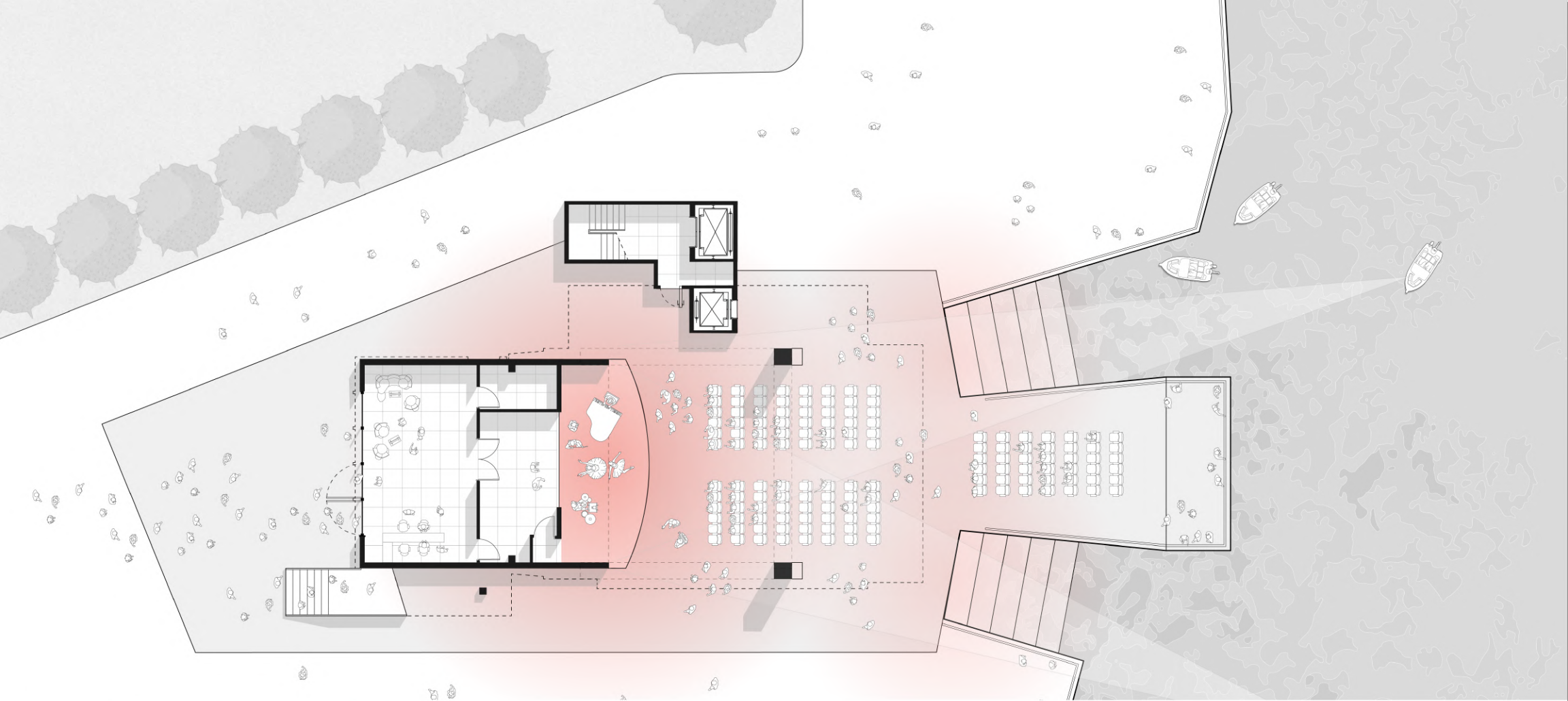
The project deploys a network of floating Outposts that collect underwater sound across different depths and environmental conditions. Each Outpost functions as a single-person acoustic station, equipped with hydrophones, recording devices, and environmental sensors. Operating as an independent yet repeatable unit, the Outpost can be deployed, relocated, or recombined in response to shifting ice conditions and research needs. Through this modular network, architecture operates as an active sensing infrastructure.



Acoustic Observatory in Quebec City

Located along the waterfront of Quebec City, the Acoustic Observatory explores the relationship between sound, movement, and landscape. Responding to the site's proximity to the harbor, the project transforms the surrounding acoustic environment into an architectural experience. Vertical circulation elements guide visitors through shifting sound conditions, creating moments of amplification, reflection, and resonance. By connecting the building to the waterfront both visually and acoustically, the museum frames sound as an active spatial medium that mediates the relationship between visitors and the surrounding urban and maritime environment.



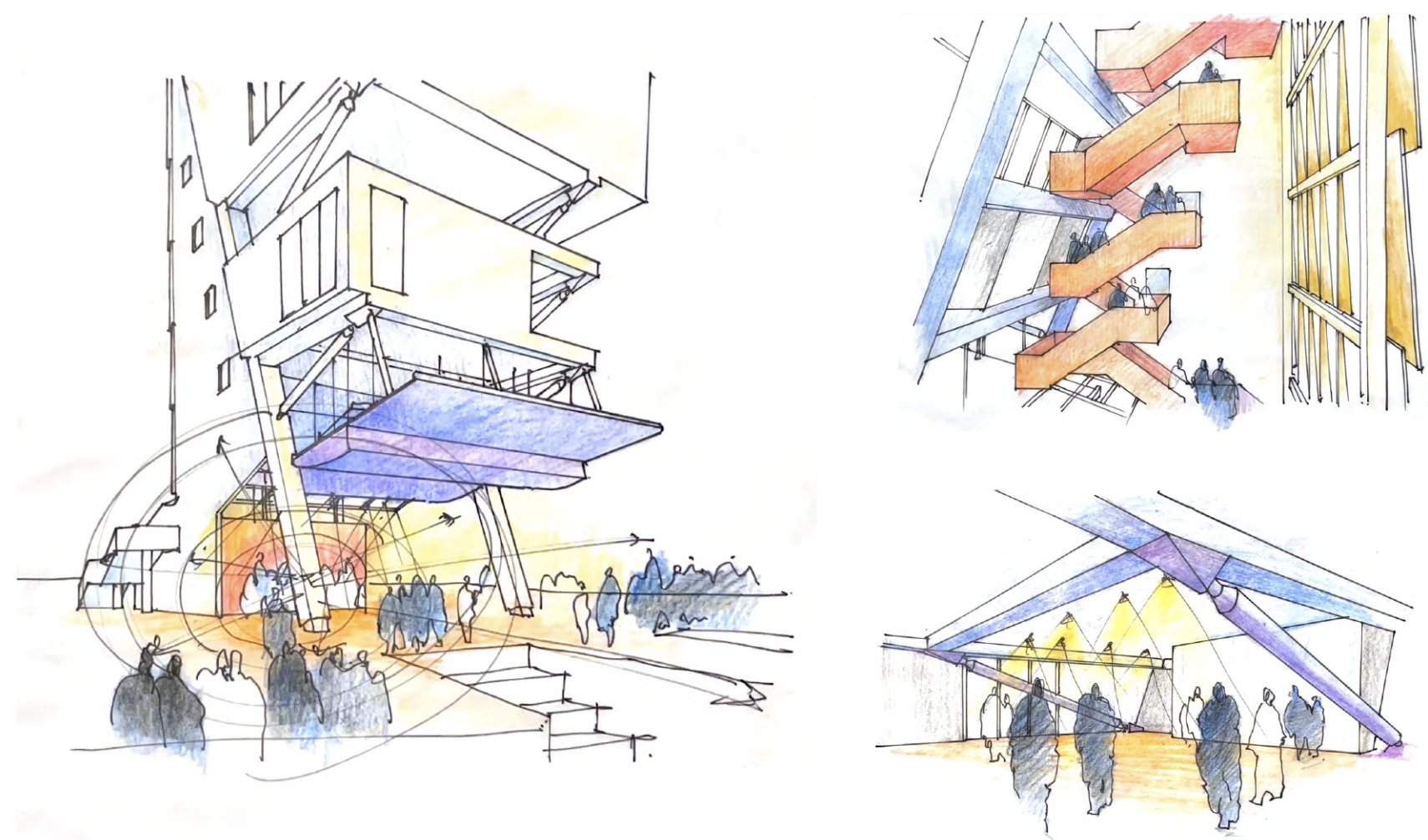


- ① Ground Floor Plan
- ② Section
- ③ Second Floor Plan
- ④ Fifth Floor Plan

Soundscape Experience

The ground level operates as a public sound theater where performance, gathering, and everyday circulation intersect. Positioned between the city and the waterfront, the space allows sound to expand into the urban environment while drawing surrounding acoustic conditions into the building. Rather than separating audience and performance, the project encourages continuous interaction between listeners, performers, and passersby.

Throughout the observatory, different spatial conditions correspond to varying degrees of openness and enclosure. As visitors move vertically through the building, sound shifts in intensity, reverberation, and clarity, creating distinct acoustic atmospheres within each zone. Through section, circulation, and material variation, the architecture transforms sound into an experiential medium that connects movement, space, and human interaction.



The Architecture of Listening

Sound is fundamental to the way humans perceive the world. It allows us to navigate space, recognize distance and direction, and develop emotional connections to our surroundings. For marine species beneath the ocean surface, sound becomes even more essential, serving as a primary medium for communication, orientation, and survival.

From Acoustic Outpost in the Arctic to the proposed Acoustic Observatory, the project investigates the growing issue of Arctic noise pollution caused by melting ice and increasing human activity under global warming. Through architecture, the project seeks to reveal the invisible relationship between sound, environment, and ecological change, transforming acoustic awareness into a spatial and sensory experience.

2026 Advanced Spring Studio

Columbia University

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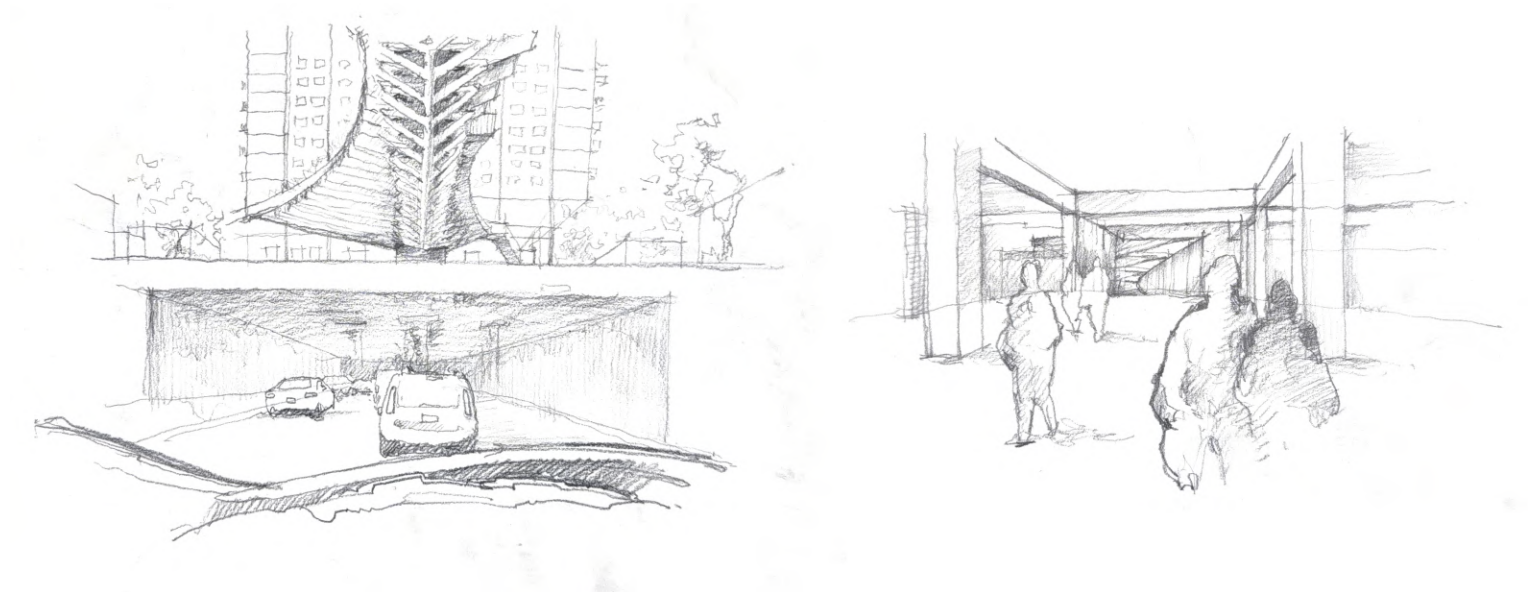
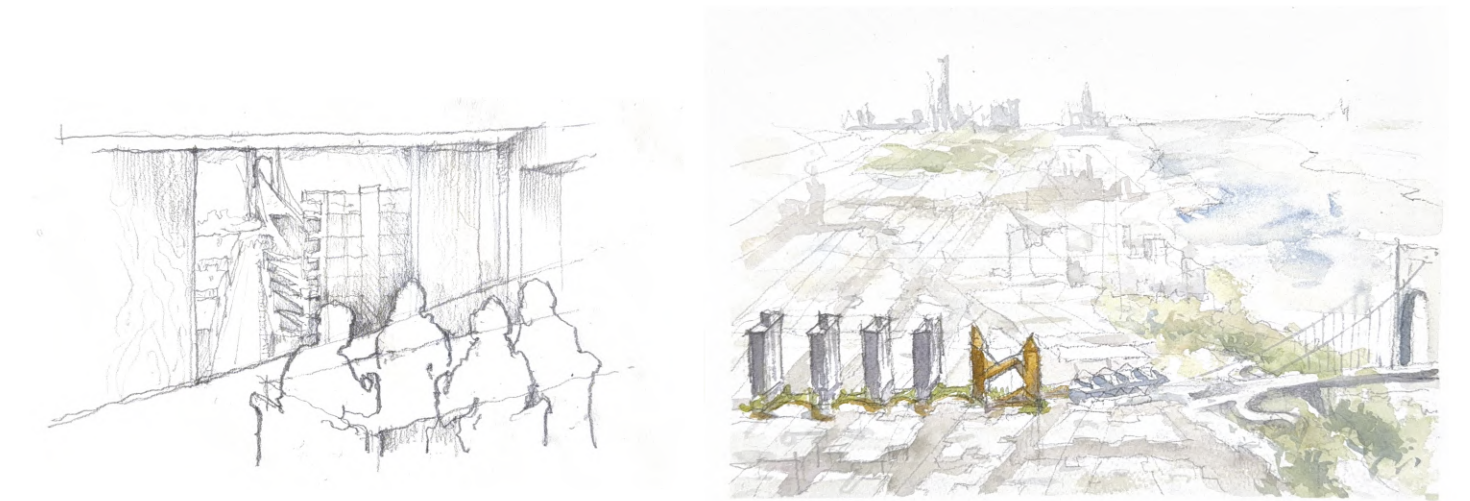
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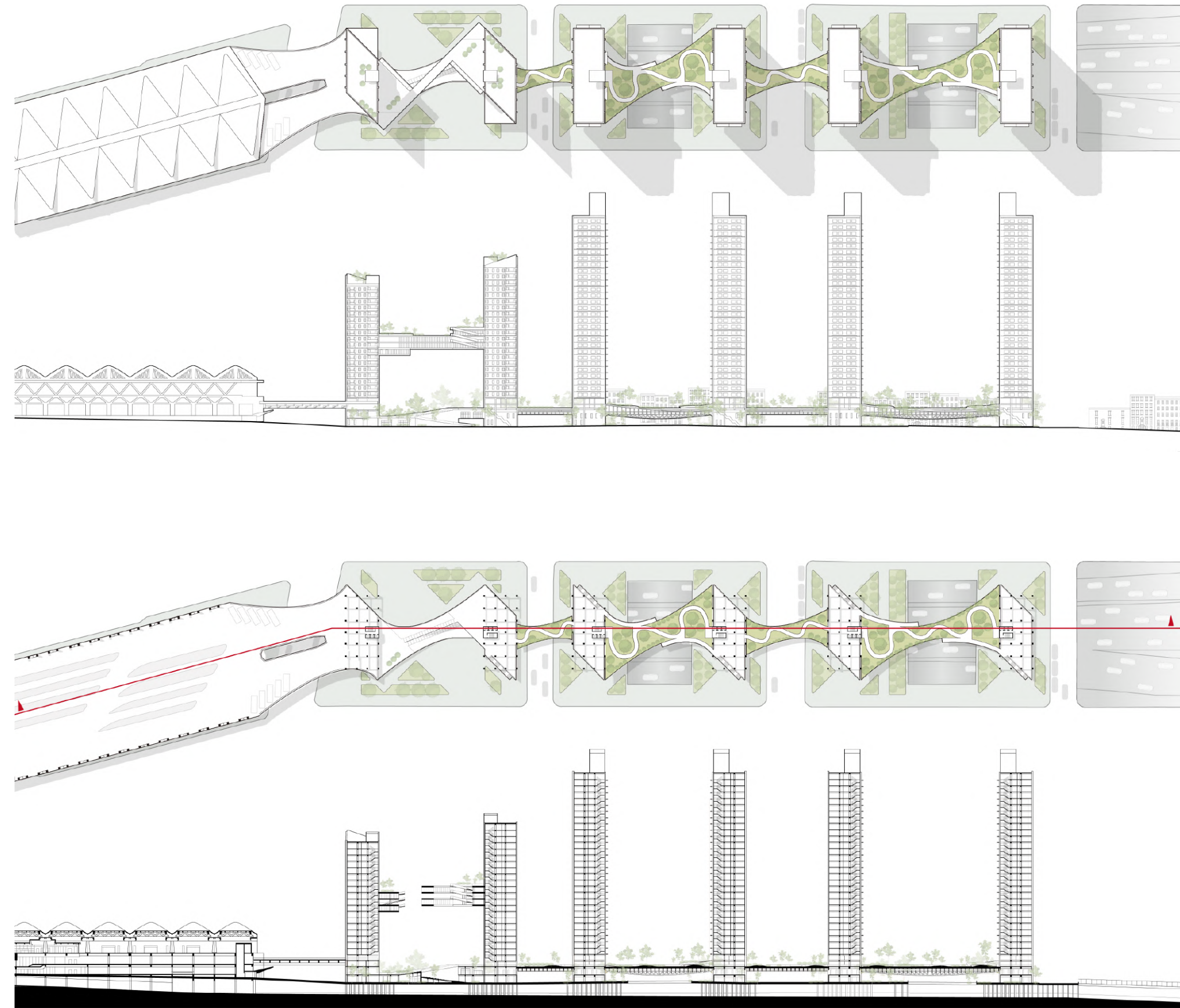
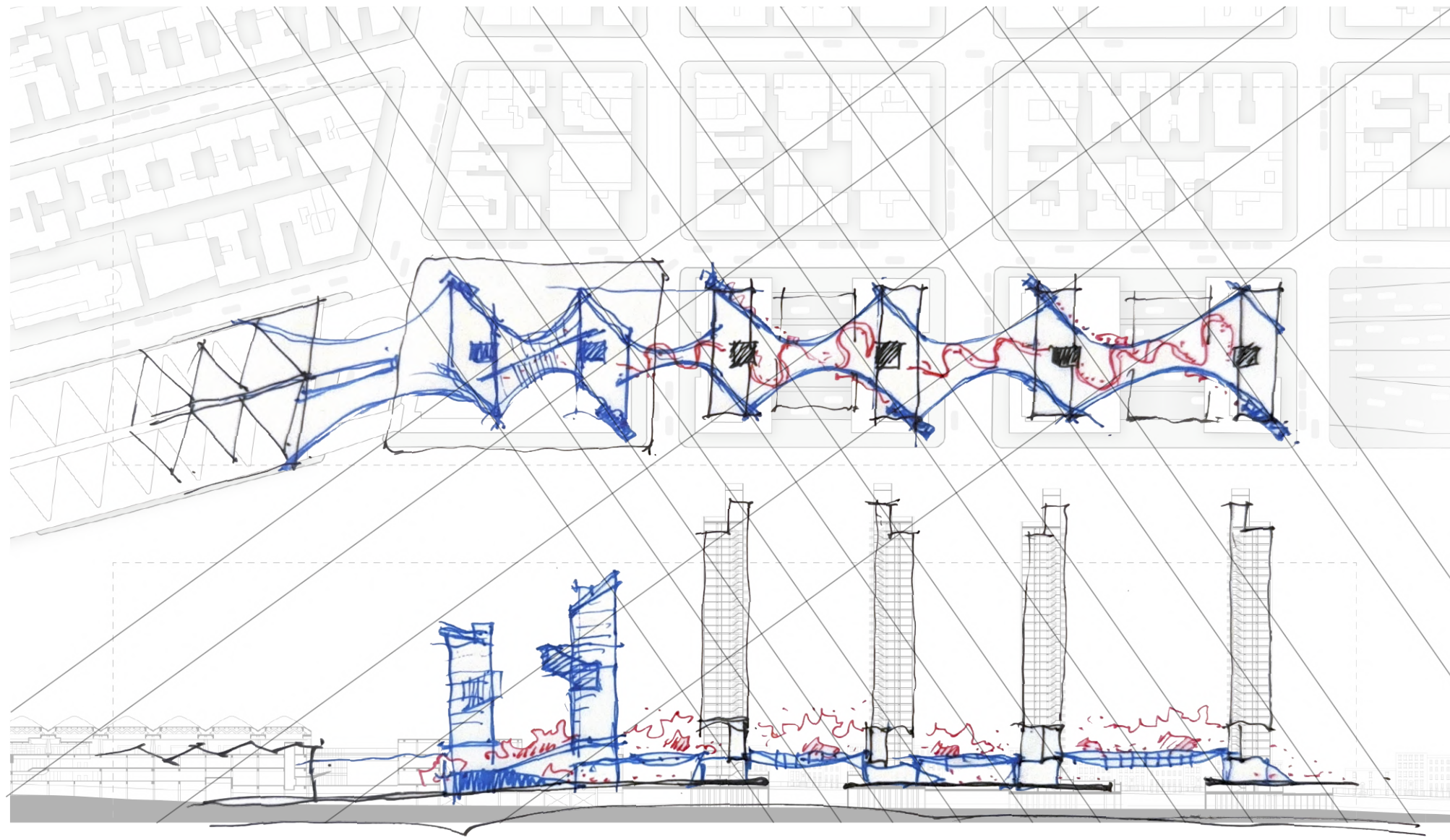
Urban Suture

#Layered Mediation in the GWB Megastructure

Situated at the eastern landing of the George Washington Bridge, the project examines the dense overlap of infrastructure, housing, and public space within one of Manhattan's most infrastructurally intensive zones. The George Washington Bridge Bus Station and the Bridge Apartments form a continuous megastructure above the Trans-Manhattan Expressway, compressing mobility and high-density living into a single urban condition. While this produces a strong infrastructural presence, it also results in persistent noise, air pollution, and fragmented pedestrian connectivity, limiting opportunities for public and ecological space at the human scale.

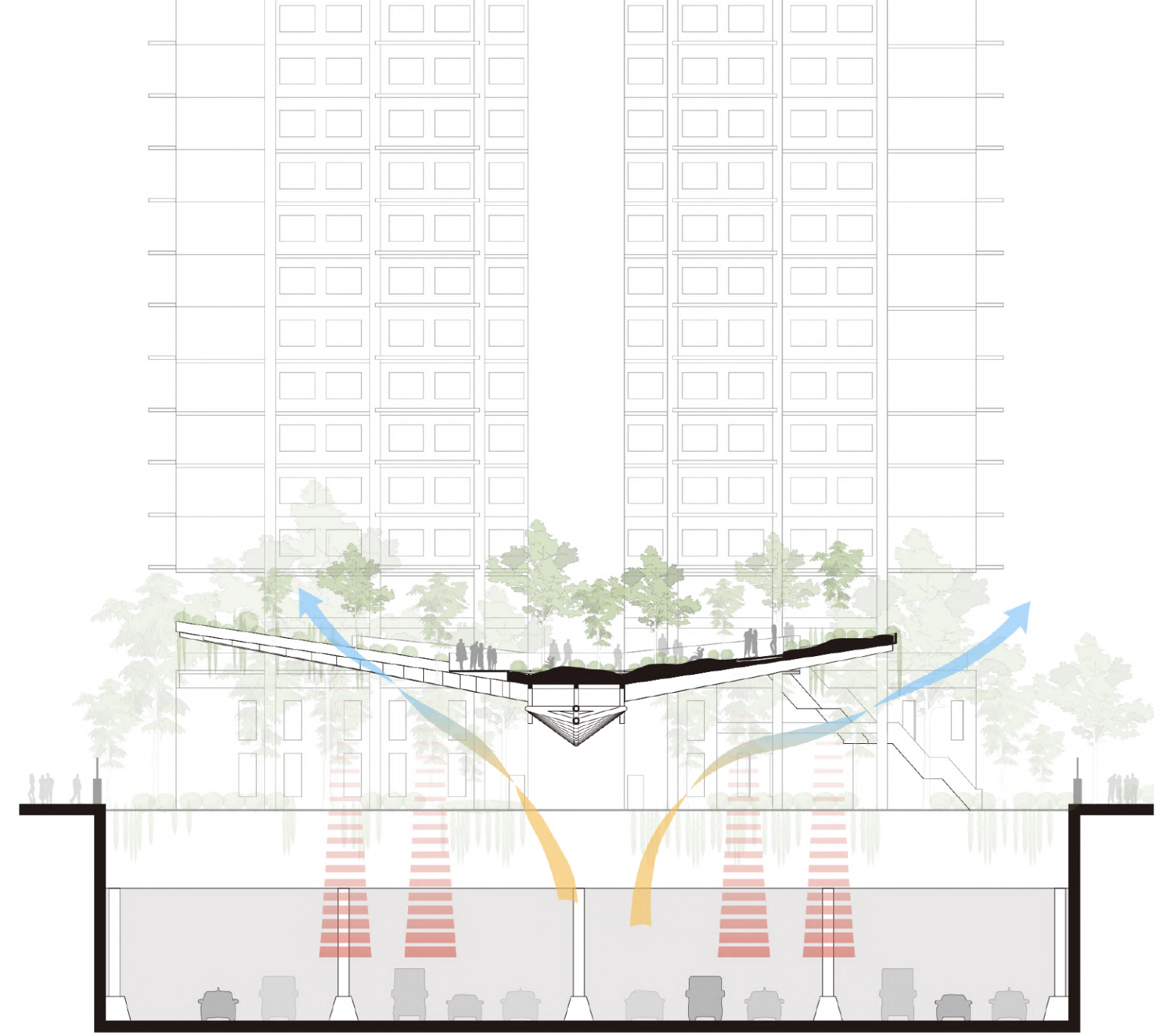
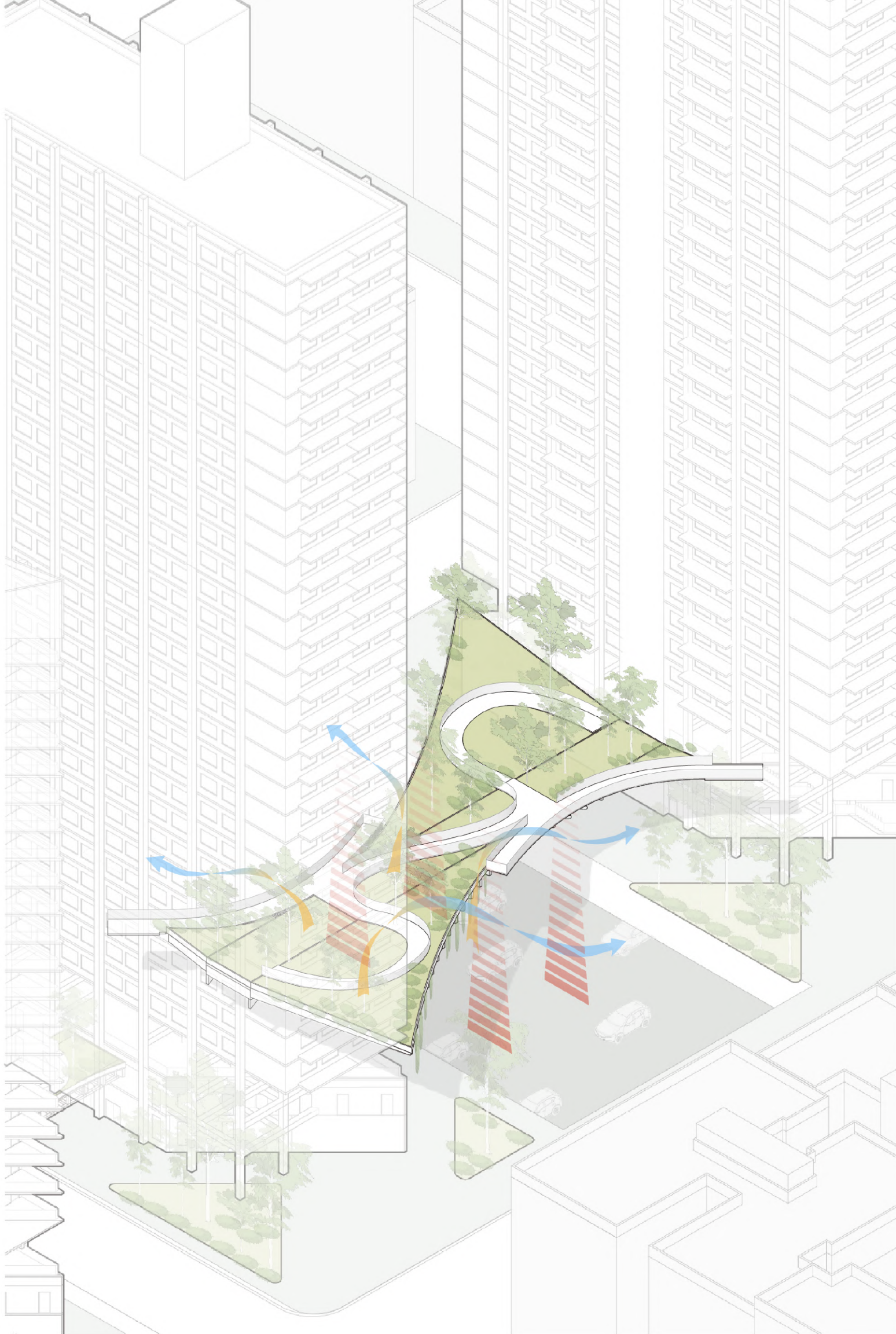
The project proposes "Urban Sutures" as an architectural strategy to reconnect these fragmented urban layers. Instead of removing the existing megastructure, it introduces stitching operations through circulation, ecological corridors, and ground-level reconfiguration to reestablish relationships between infrastructure, housing, and public realm. By reframing the city as an interconnected system of environmental and social layers, the project transforms separation into connection and exposure into mediated collective space.





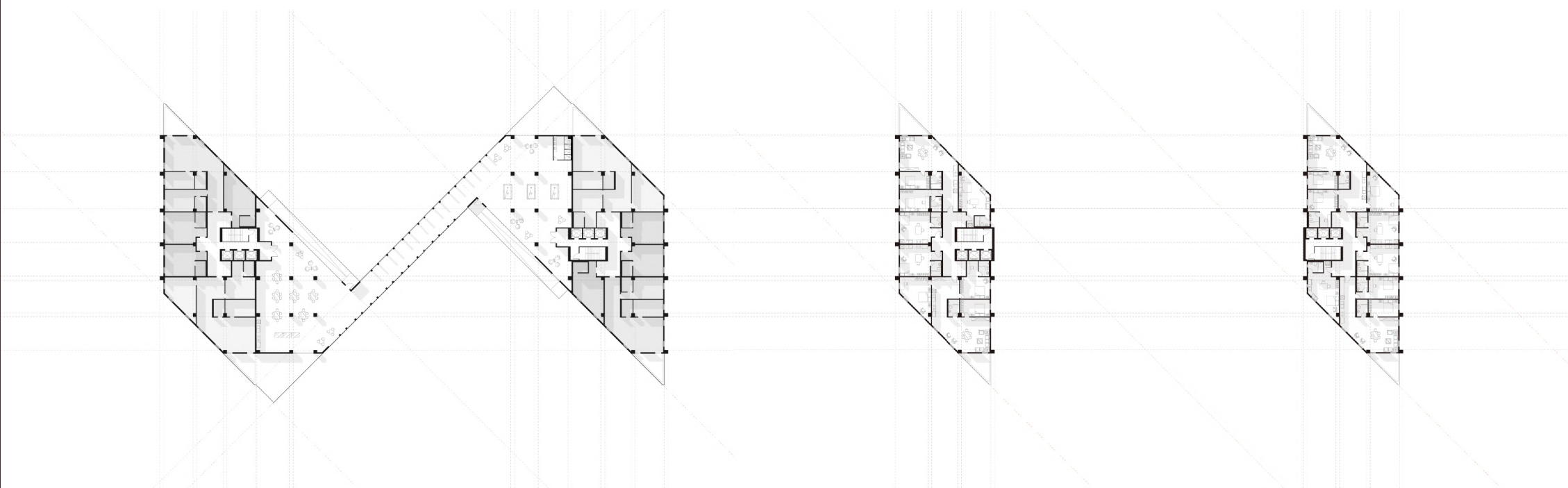
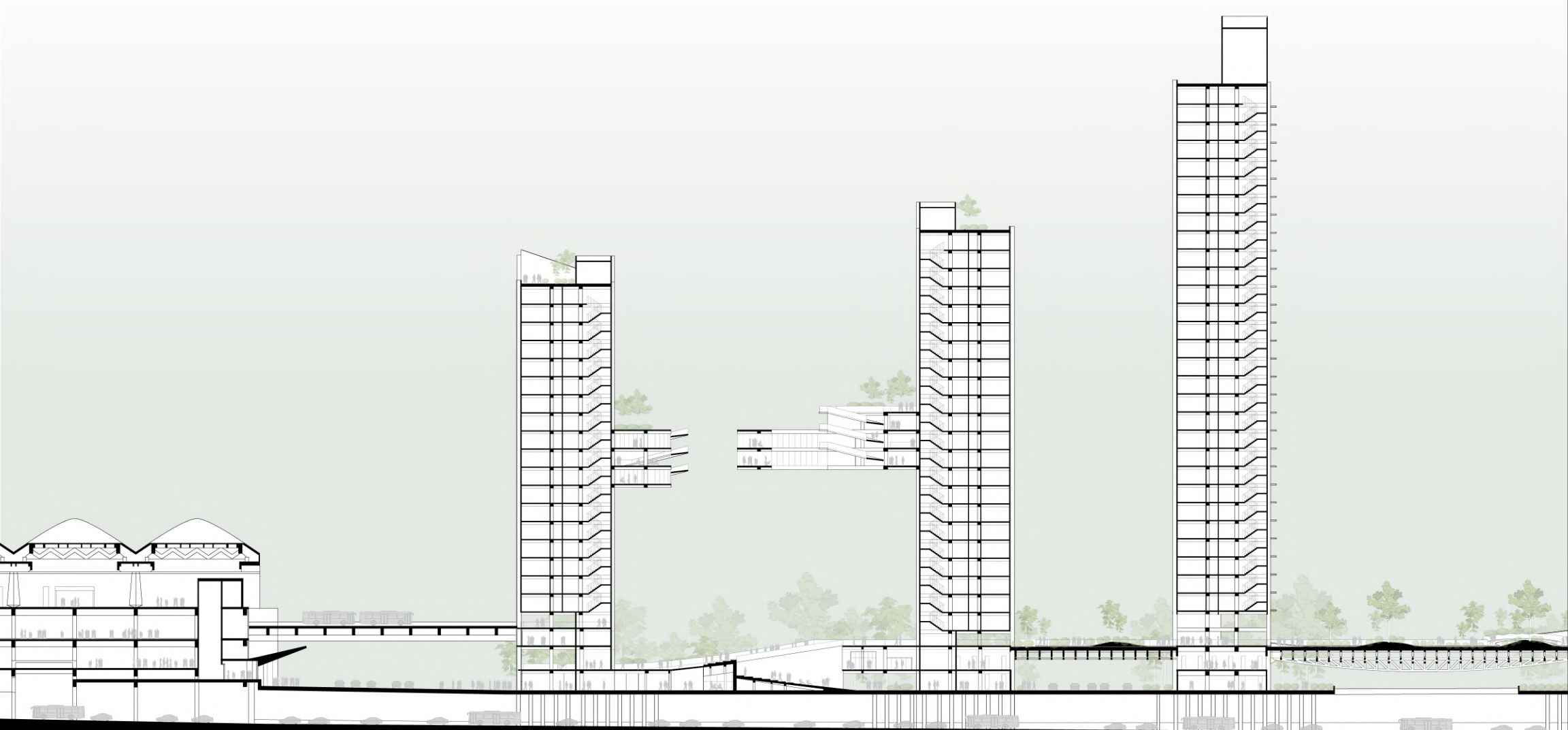
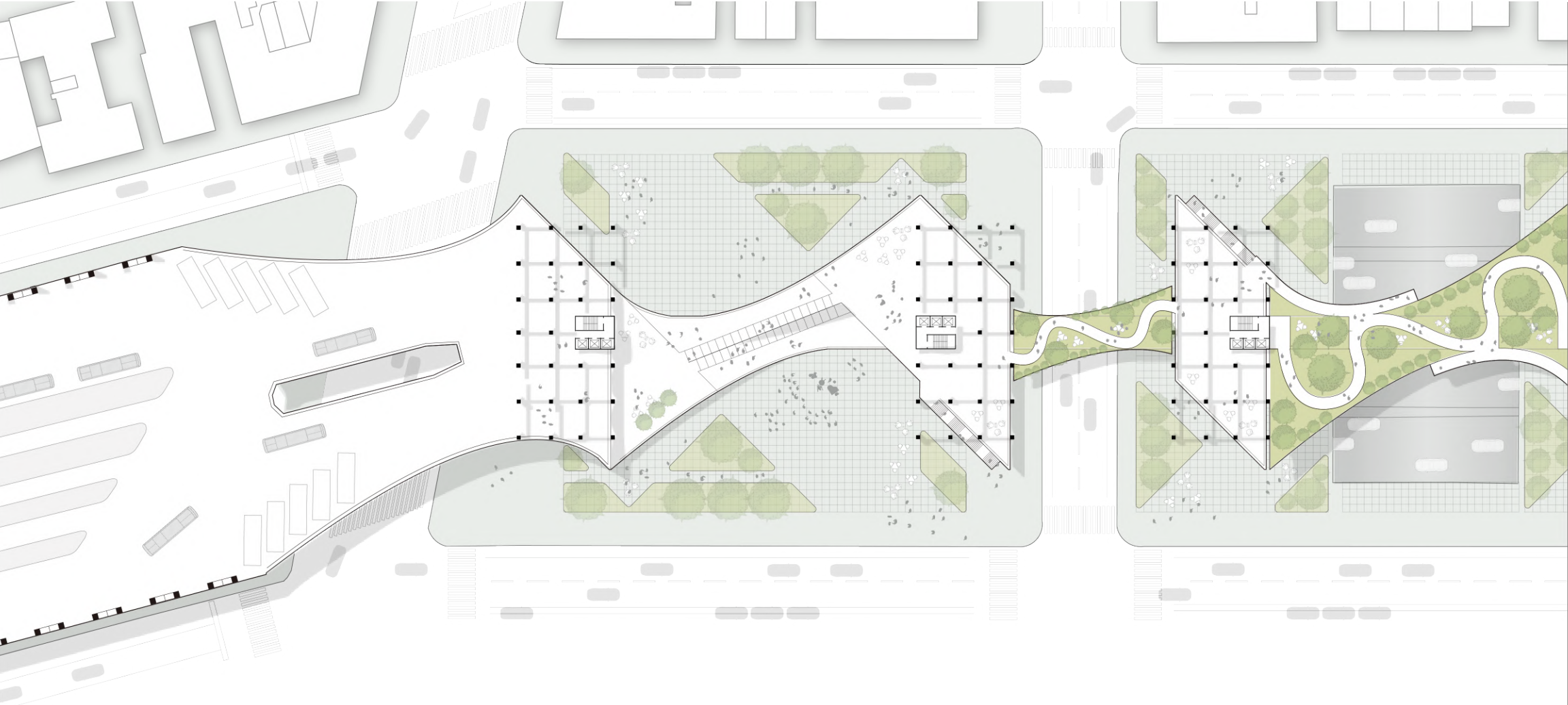
Urban Reweaving

The proposal introduces a new elevated ecological corridor that stitches together existing housing, new residential towers, and public circulation systems. Generated through the collision between the Manhattan grid, the geometry of the GWBBS, and the directional logic of surrounding infrastructure, the project establishes a new urban layer that mediates between concrete megastructure and ecological performance. Through hybrid timber construction, reconfigured public interfaces, and stratified landscapes, the intervention transforms conditions of exposure into spaces of connection, environmental buffering, and collective urban life.



The Ecological Corridor

The elevated corridor is conceived not as a conventional park, but as an ecological mediator within the existing megastructure. It responds to environmental stress through three strategies: deflection, buffering, and filtration. Inclined surfaces and triangular geometries redirect airflow to reduce exposure to pollution, while the timber structure and vegetation layer diffuse noise and filter airborne particulates, improving the local microclimate. Rather than eliminating pollution, the system reorganizes conditions of exposure into a spatial and atmospheric gradient experienced along the corridor.

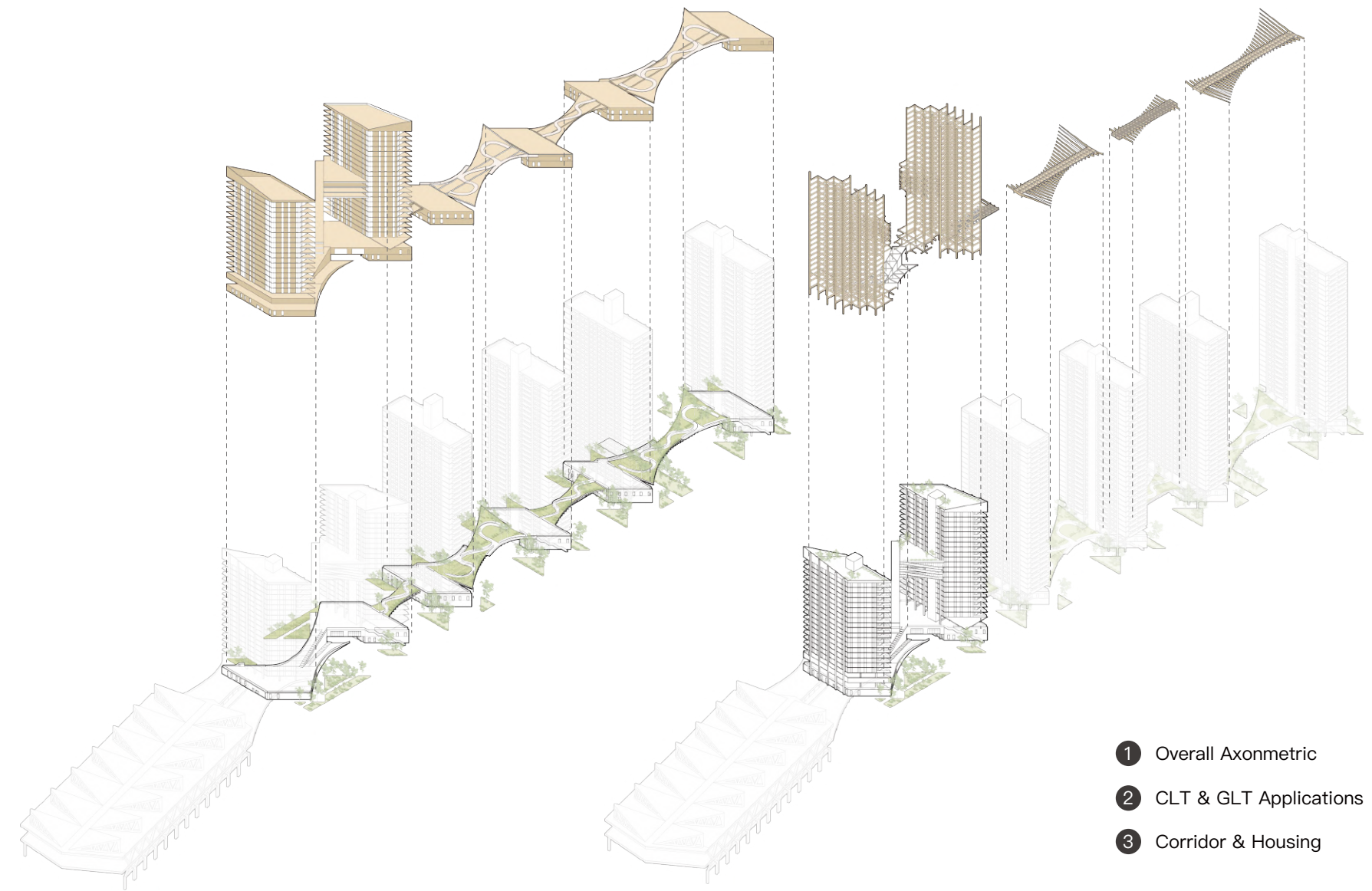
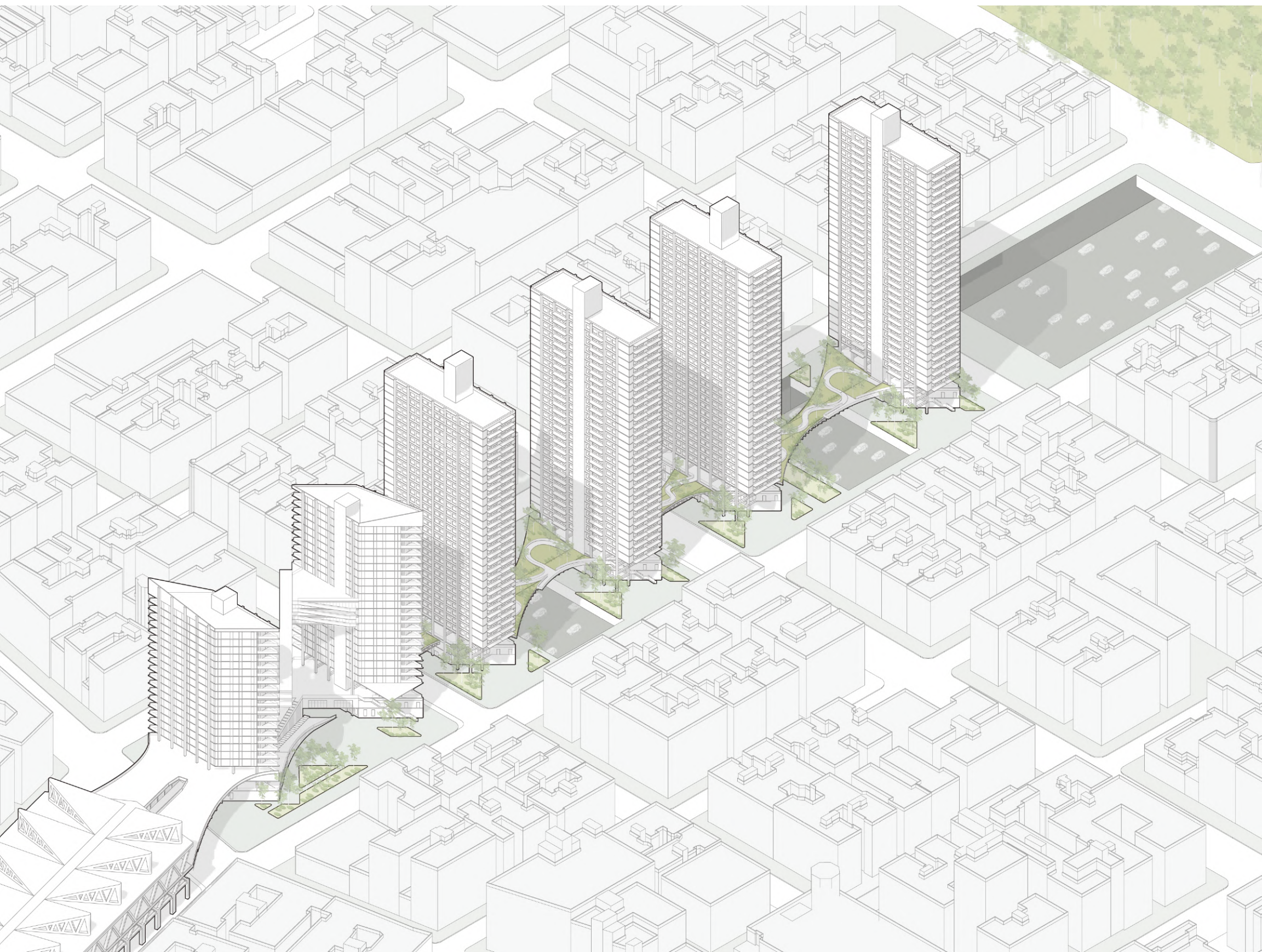


- 1 Bridge Floor Plan
- 2 Section
- 3 Amenities Floor Plan
- 4 Typical Floor Plan

From Corridor to Courtyard

The project reorganizes the site through a continuous sectional strategy, connecting the modified Bridge Apartments, the elevated ecological corridor, new housing, and a sloped courtyard. The courtyard acts as the terminal condition of the system, introducing a rare ground-level open space within a dense infrastructural environment. Elevated bridges and shared terraces extend communal living at higher levels, while bus circulation on the west side is restructured vertically to separate overlapping flows.

Each tower accommodates approximately 200 units, with spatial distribution based on orientation—smaller units concentrated centrally and larger units along the north and south facades. Triangular geometries extend outward to form balconies, reinforcing continuity between interior living spaces and the broader urban structure.



Hybrid Material Recalibration

The project introduces a hybrid timber system within the existing concrete megastructure. CLT is used for slabs and walls across housing, the corridor, and renovated tower bases, improving acoustic performance and creating a warmer material atmosphere. Glulam forms the primary structural frame, shaping beams, columns, and corridor ribs, establishing a clear contrast with the existing concrete structure.

Overall, the project reframes the site as a layered urban system, where timber, landscape, and housing work together to transform a rigid infrastructure into a more connected and environmentally responsive condition.

