

Abilash Satish
as7812

GSAPP Works 2025 - 2026

PORTFOLIO

Columbia University
Master of Science in Advanced
Architectural Design

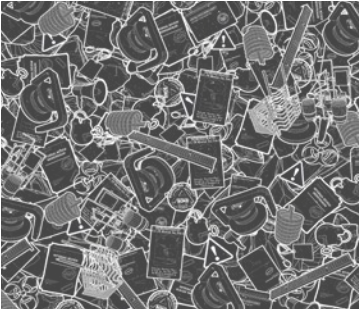
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1 Small Footprints Studio
Prof. Hilary Sample



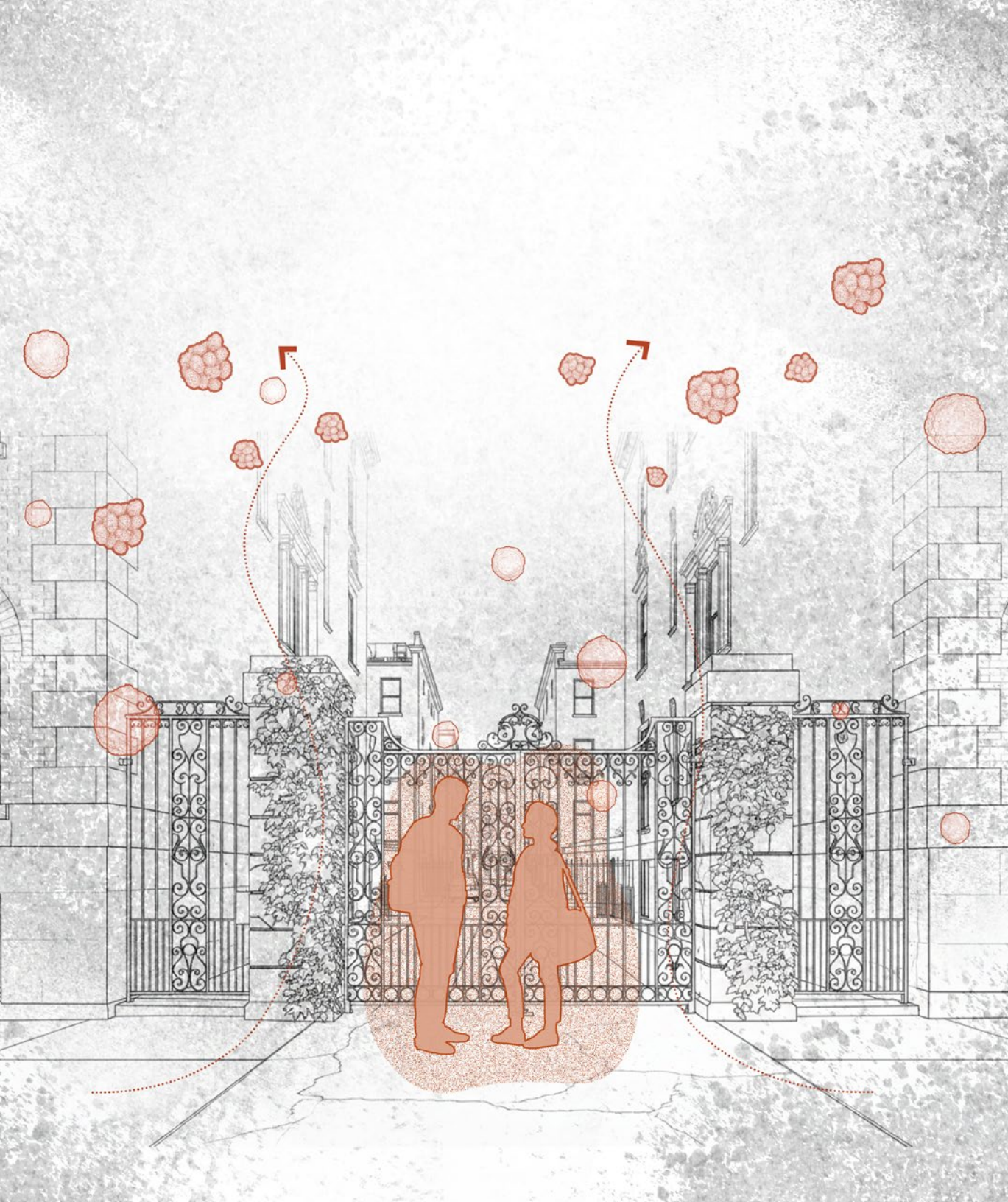
2 Geological Natures
Prof. Nerea Calvillo



3 Architecture of Solidarity
Prof. Imani J Brown



4 Disruptors of Architecture
Prof. Wendy Fok



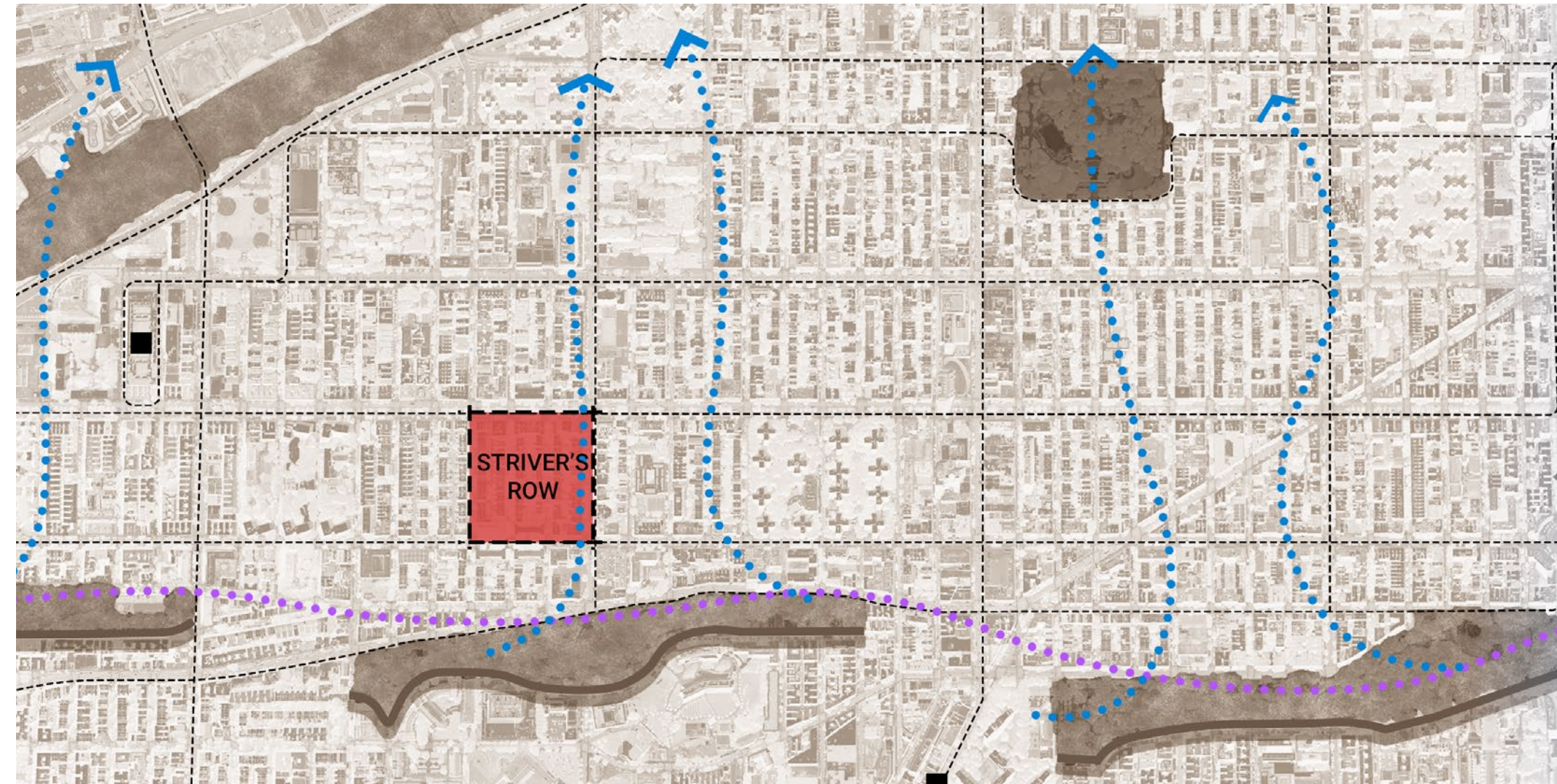
ASTHMA CLINIC

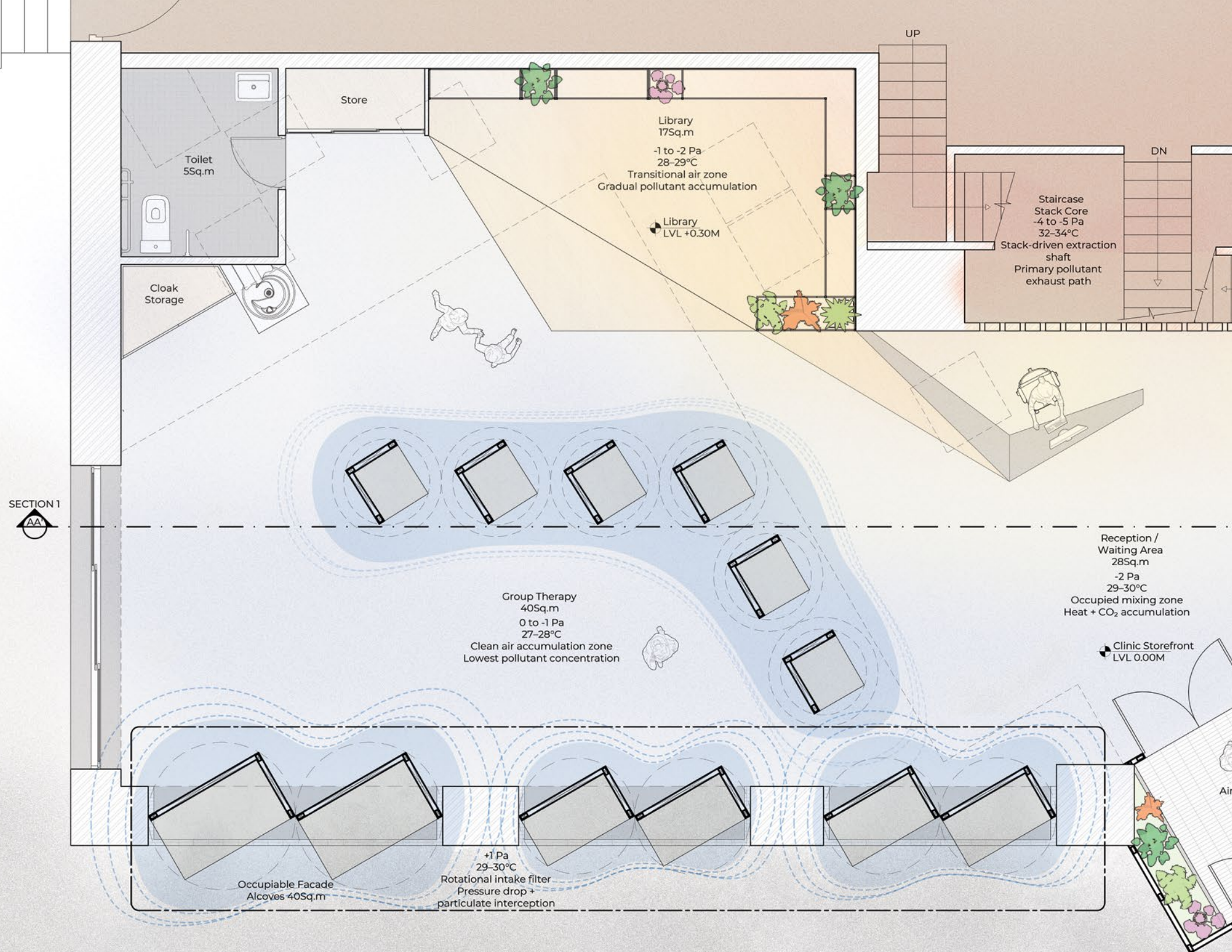
STRIVER'S' ROW, HARLEM

Striver's' Row was designed for cross ventilation. Today, those same ventilation paths channel PM2.5, fungal spores, and traffic pollutants into domestic interiors. The project re-conceives the clinic as an environmental mediator operating through filtration, pressure, and atmospheric extraction.

AIR IS NOT NEUTRAL

Manhattan's Topography poisons Central Harlem.
With locate asthma cases being twice that of New York City's Average





THE STOREFRONT CLINIC AS AN ATMOSPHERIC MACHINE

1. Intake
2. Slowing
3. Occupation
4. Filtration
5. Extraction



THE SPLIT CLINIC

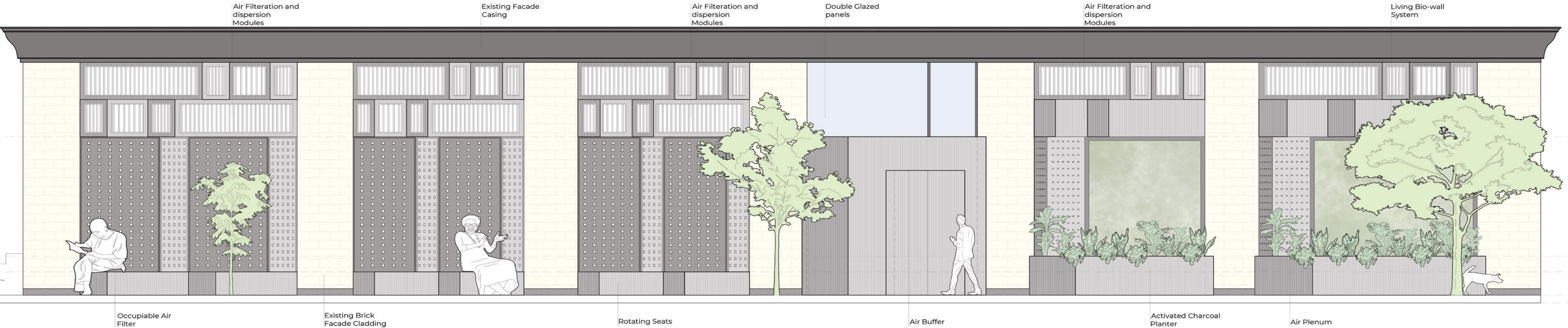
A pressure-mediated filtration environment that slows, captures, and redistributes polluted air through occupiable facade systems.

Conventional asthma treatment spaces stabilized through controlled interior environments.



BREATHING FACADE

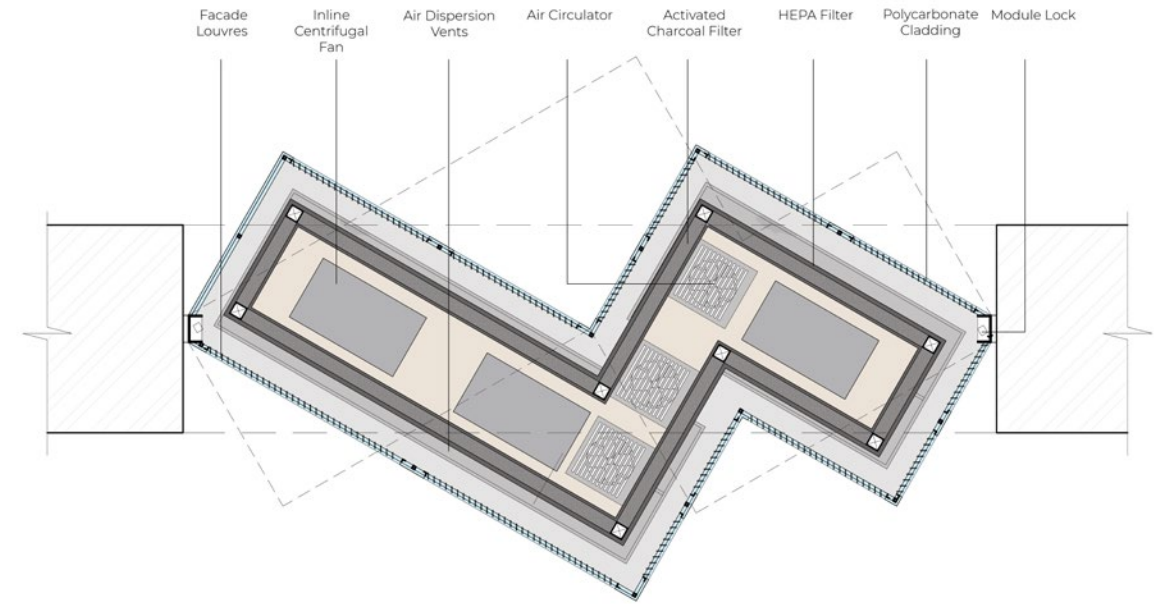
Porous rotating facade filters incoming air, reduces velocity, and redistributes pollutants through pressure differentials.



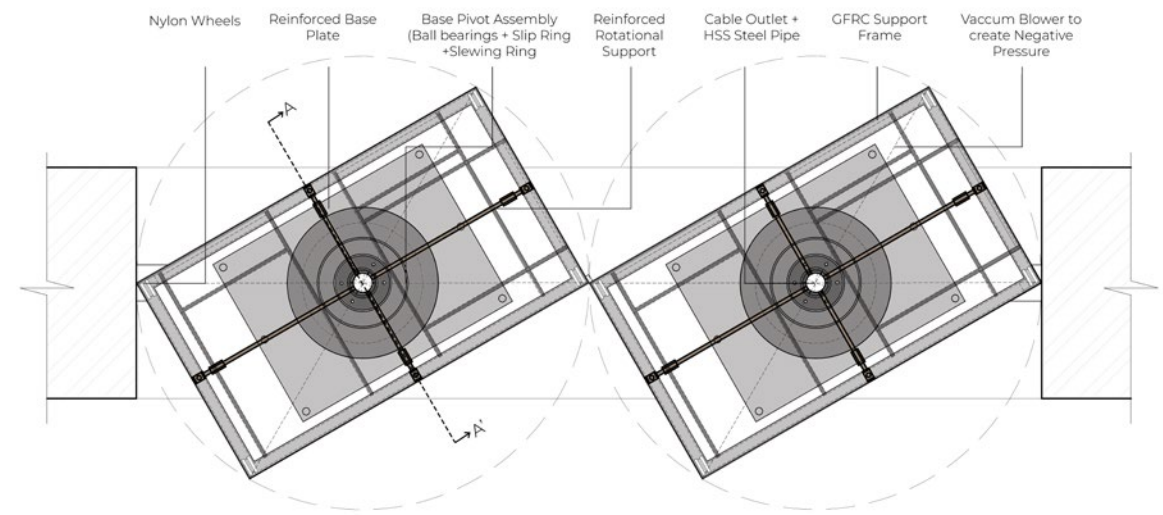


OCCUPIABLE FILTRATION ALCOVE

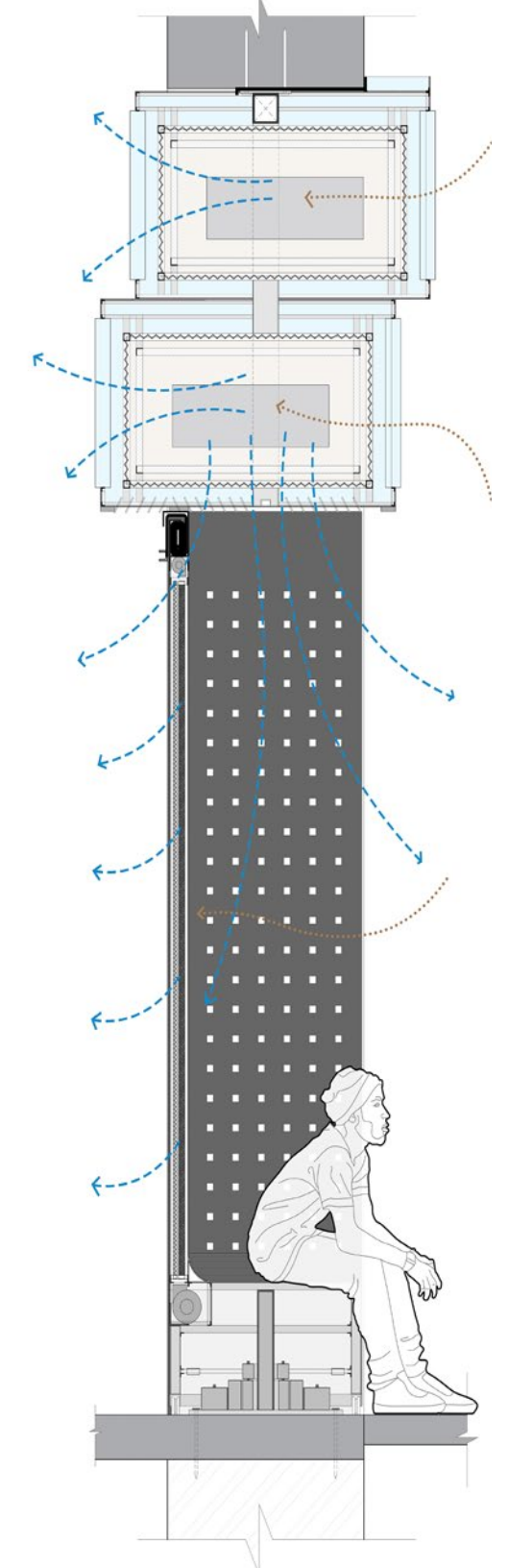
A rotating facade module
that transforms seating
into an active air intake
and filtration device.

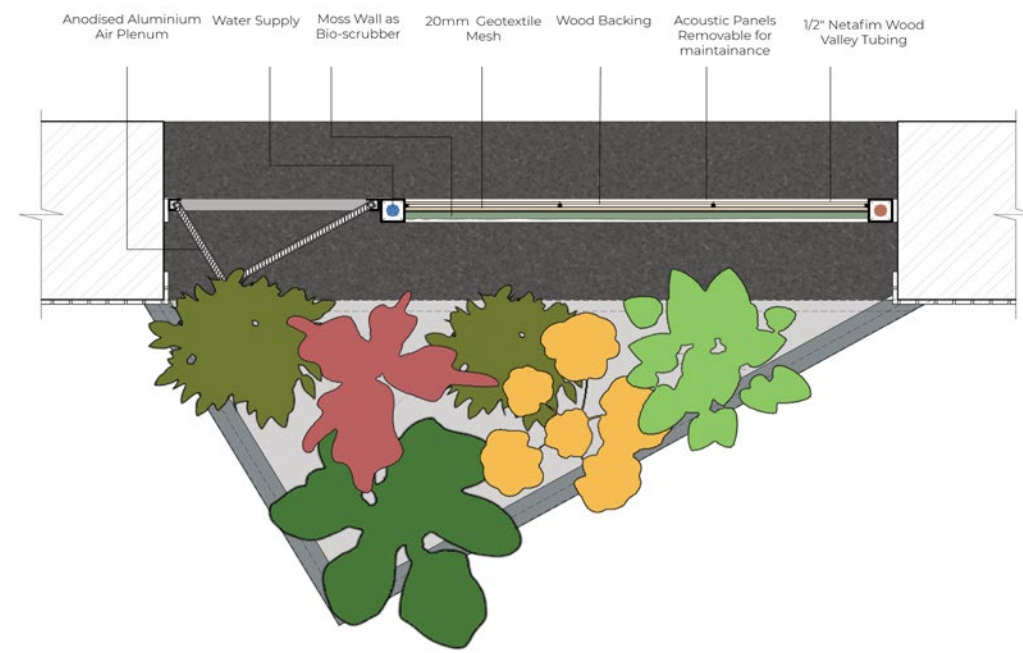
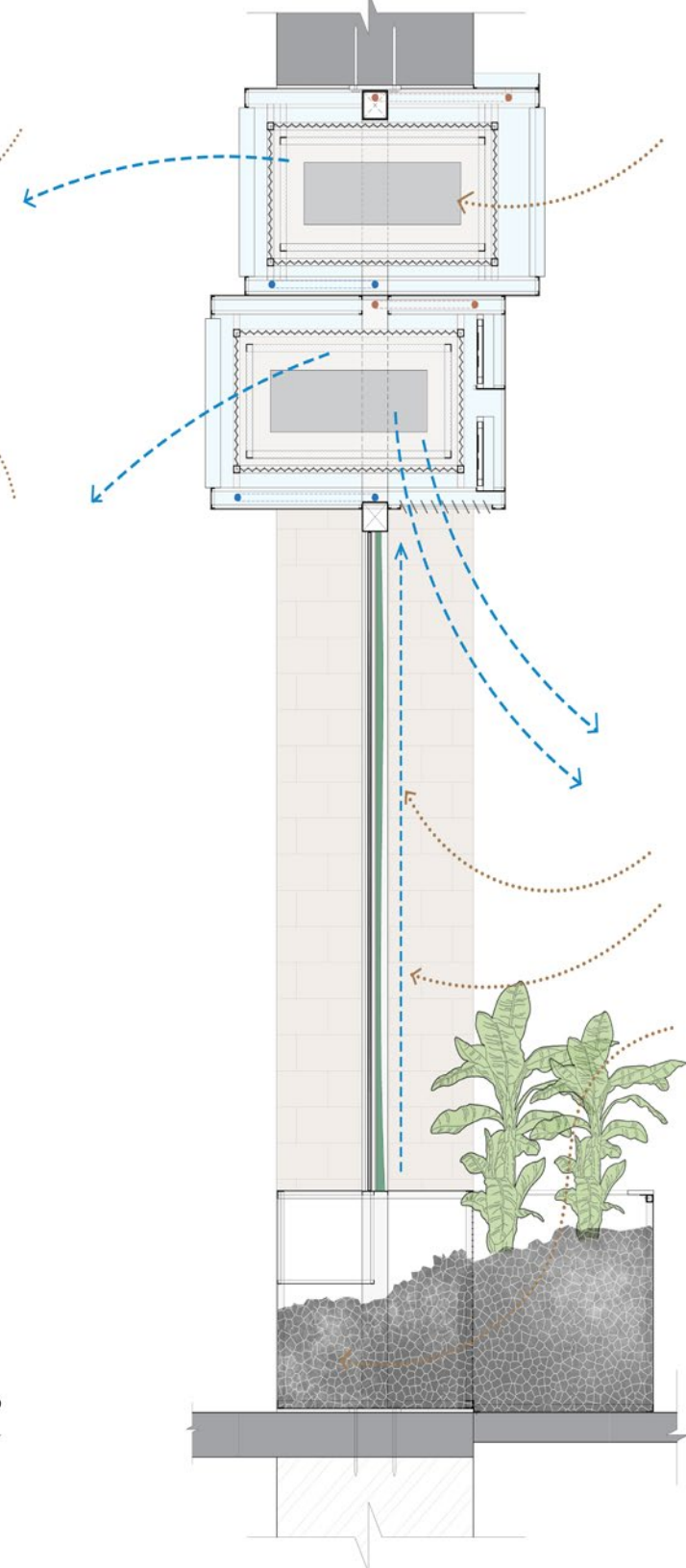


Plan @ 3150mm above FFL

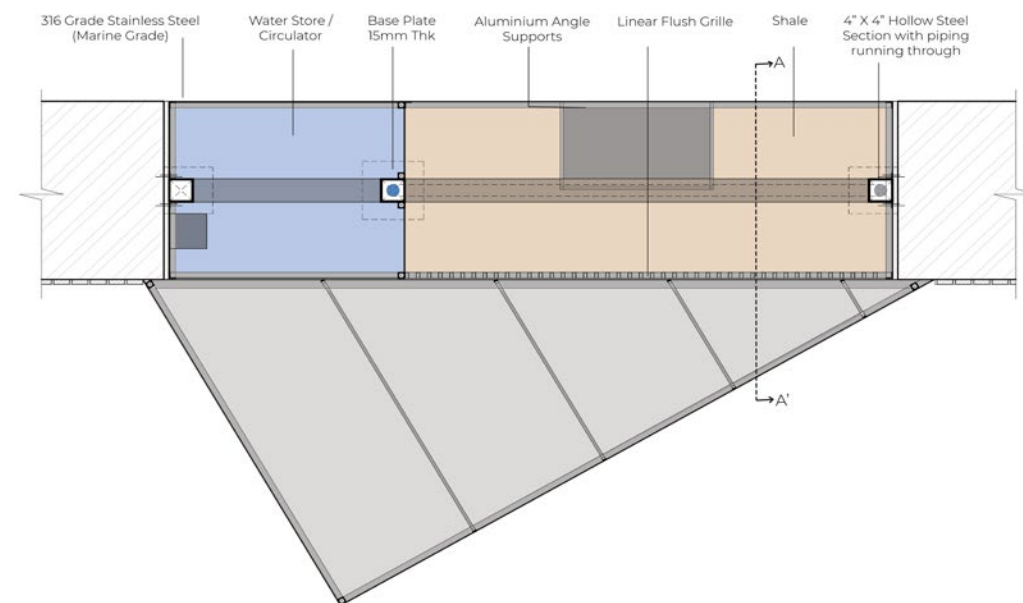


Plan @ 150mm above FFL





Plan @ 1200mm above FFL



Plan @ 75mm above FFL

PHYTO-LUNG FACADE

A layered intake system that slows, filters, and redistributes polluted air through planting, charcoal, and HEPA filtration stages.



A PRESSURE HOUSE

Tending Air while regulating stress.
The house manages polluted air and resident stress through pressure.





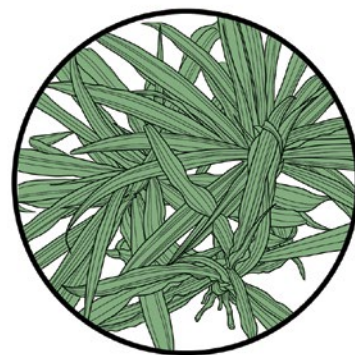
Epipremnum aureum (Pothos)

Proven VOC absorption
Works in low light + high humidity
Excellent trailing surface area



Spathiphyllum (Peace Lily)

Absorbs benzene, formaldehyde
Thrives in humid enclosed environments
Works well in dense clusters



Chlorophytum comosum (Spider Plant)

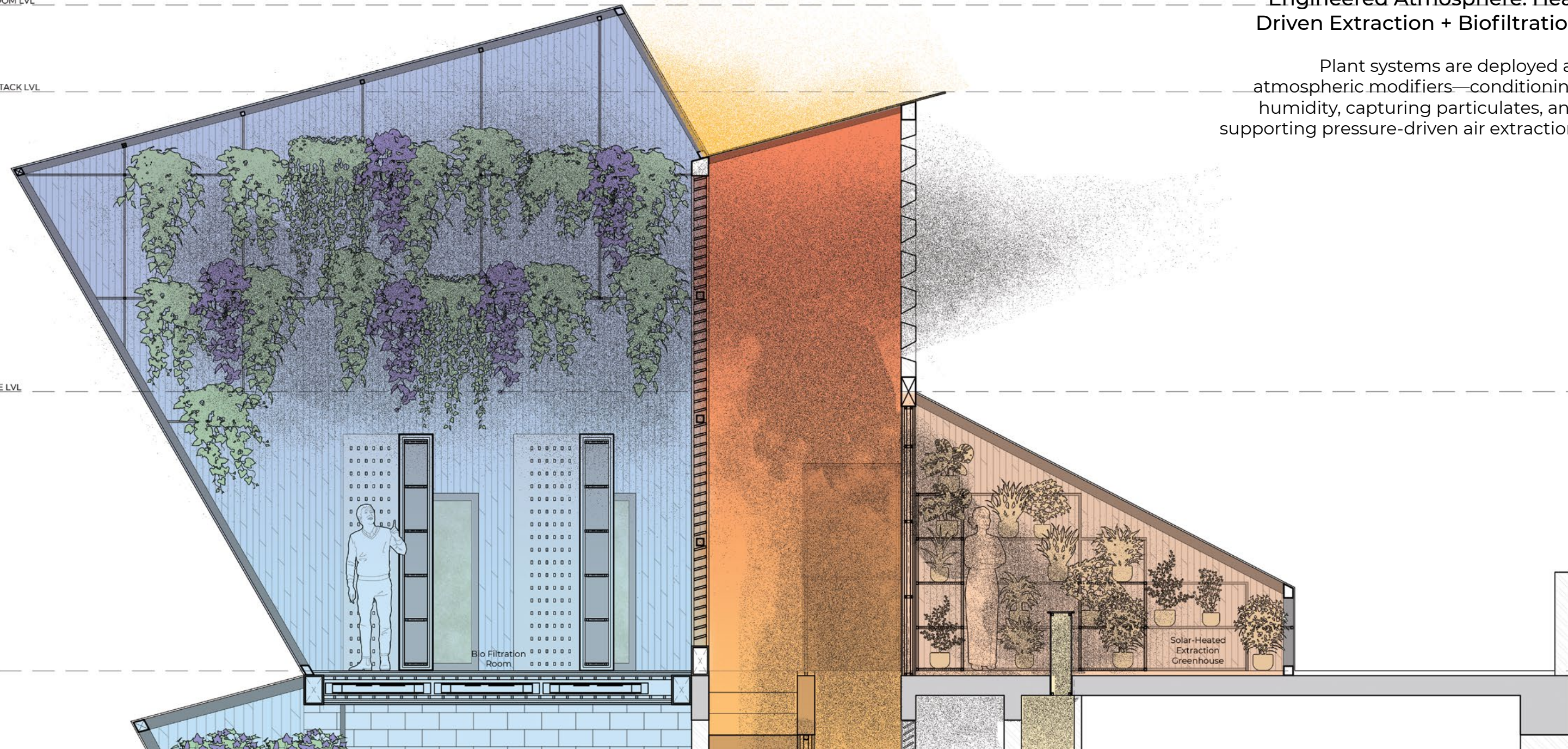
High surface-area-to-volume ratio
Good for continuous low-level filtration
Extremely resilient

BIOFILTER ROOM LVL
8.8M

OVERHEAD STACK LVL
8.8M

GREENHOUSE LVL
8.8M

ROOF LVL
8.8M



Engineered Atmosphere: Heat Driven Extraction + Biofiltration

Plant systems are deployed as atmospheric modifiers—conditioning humidity, capturing particulates, and supporting pressure-driven air extraction.



Columbia GSAPP — Small Footprints
Studio
Prof. Hilary Sample

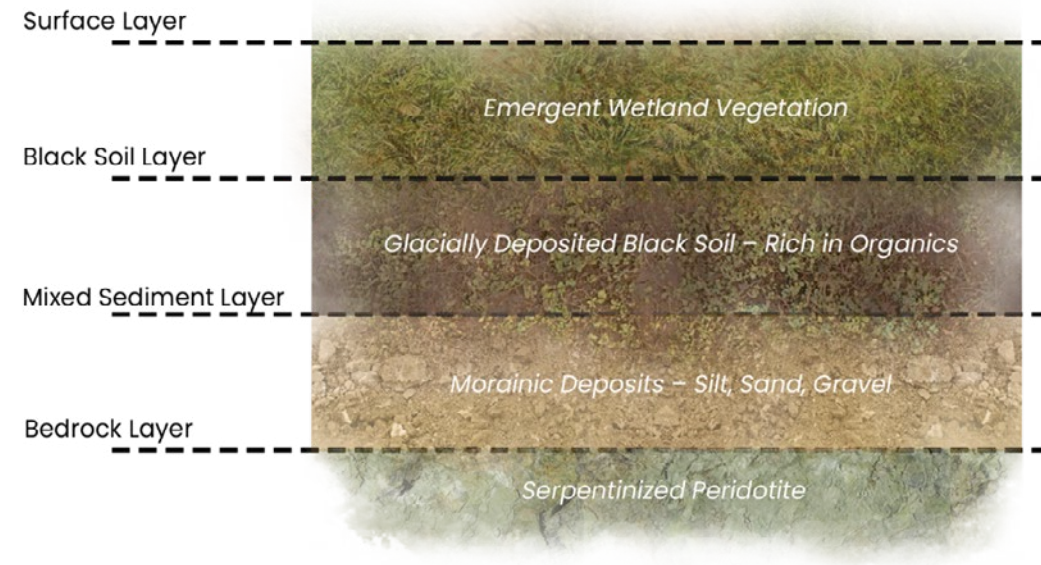


Carving, Shaking and Mounding of Anticolonial Ecologies

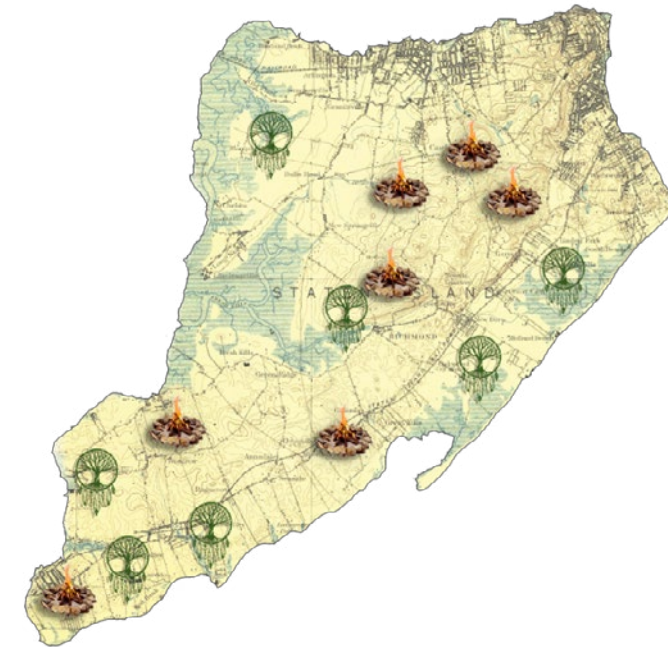
STATEN ISLAND, NEW YORK

This project investigates Staten Island's South Beach as a territory shaped by cycles of extraction, engineered flooding, colonial leisure, and ecological suppression. Tracing the island's transformation from Lenape wetlands and serpentinite formations to suburban development and fragmented flood infrastructure, the proposal critiques the failure of contemporary resilience systems such as the Bluebelt. Rather than treating hurricanes and sea level rise as external threats to resist, the project reframes flooding as a territorial design instrument capable of reversing historical patterns of land control and ecological erasure.

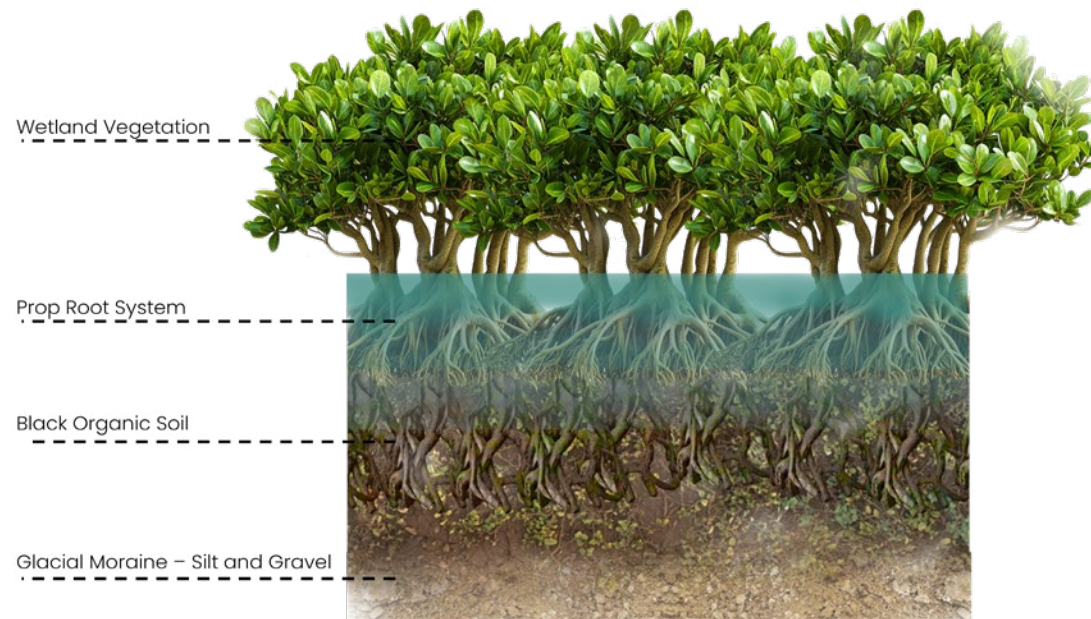
Through a speculative phased intervention, canals are carved into the coastline, dredged material is transformed into artificial mounds, and a temporary amusement landscape emerges as both spectacle and infrastructural catalyst. Over time, the project deliberately accelerates ecological succession: floodwaters breach containment systems, mangroves reclaim submerged grounds, oysters stabilize new wetland ecologies, and the amusement structures are gradually absorbed back into the landscape. The proposal ultimately positions geology itself as an active political force — reclaiming land from human systems of ownership, extraction, and control.



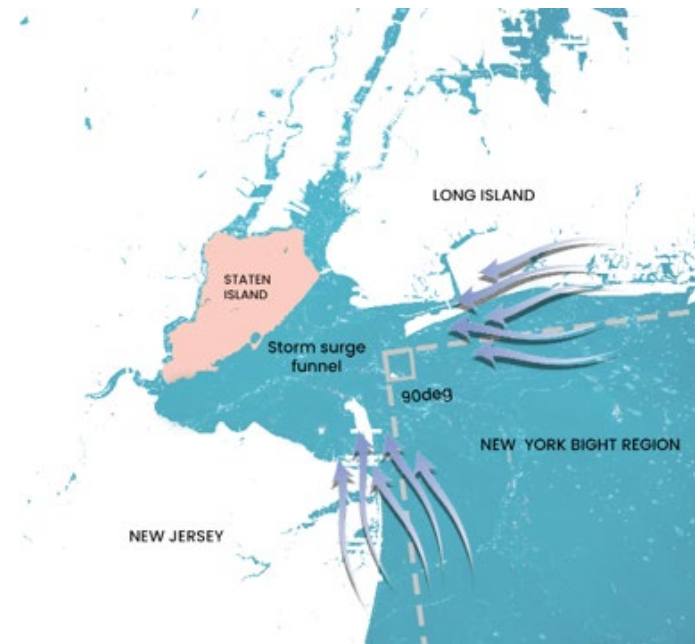
Soil Layers of Staten Island



Lenepe Landmarks of Staten Island



Mangrove Plantation Layers



Storm Surge Funnel

Reconstructing the Forgotten Wetland

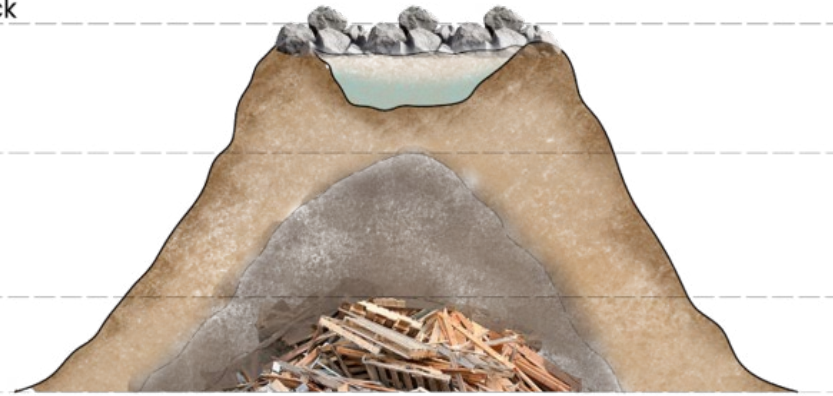


Serpentine Rock

Moranic Sand

Black Soil

Houses
remains



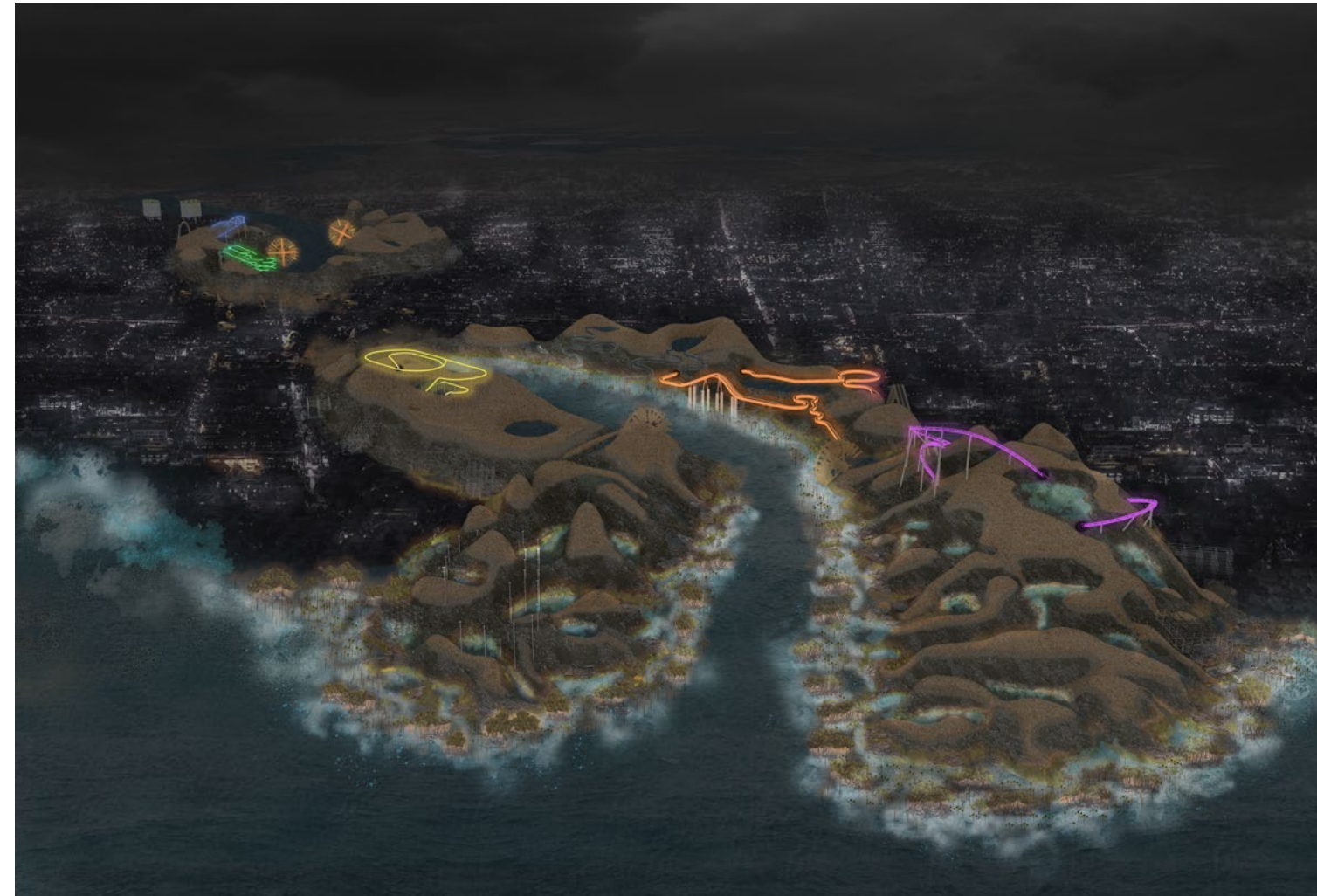
Ecologies of Collapse



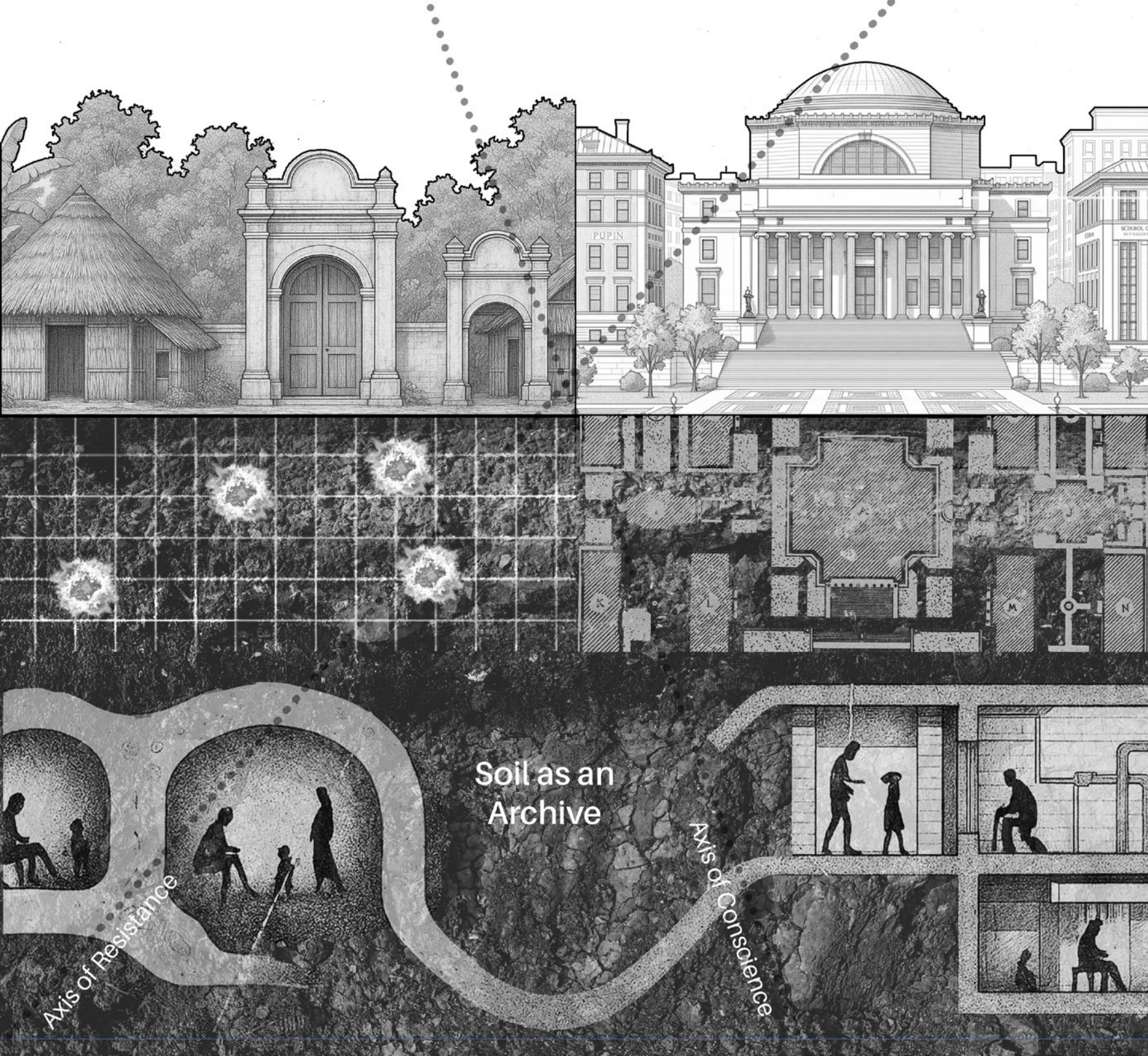


Ecologies of Reclamation





Columbia GSAPP — Geological Natures
Prof. Nerea Calvillo



Soil as a Universal Archive

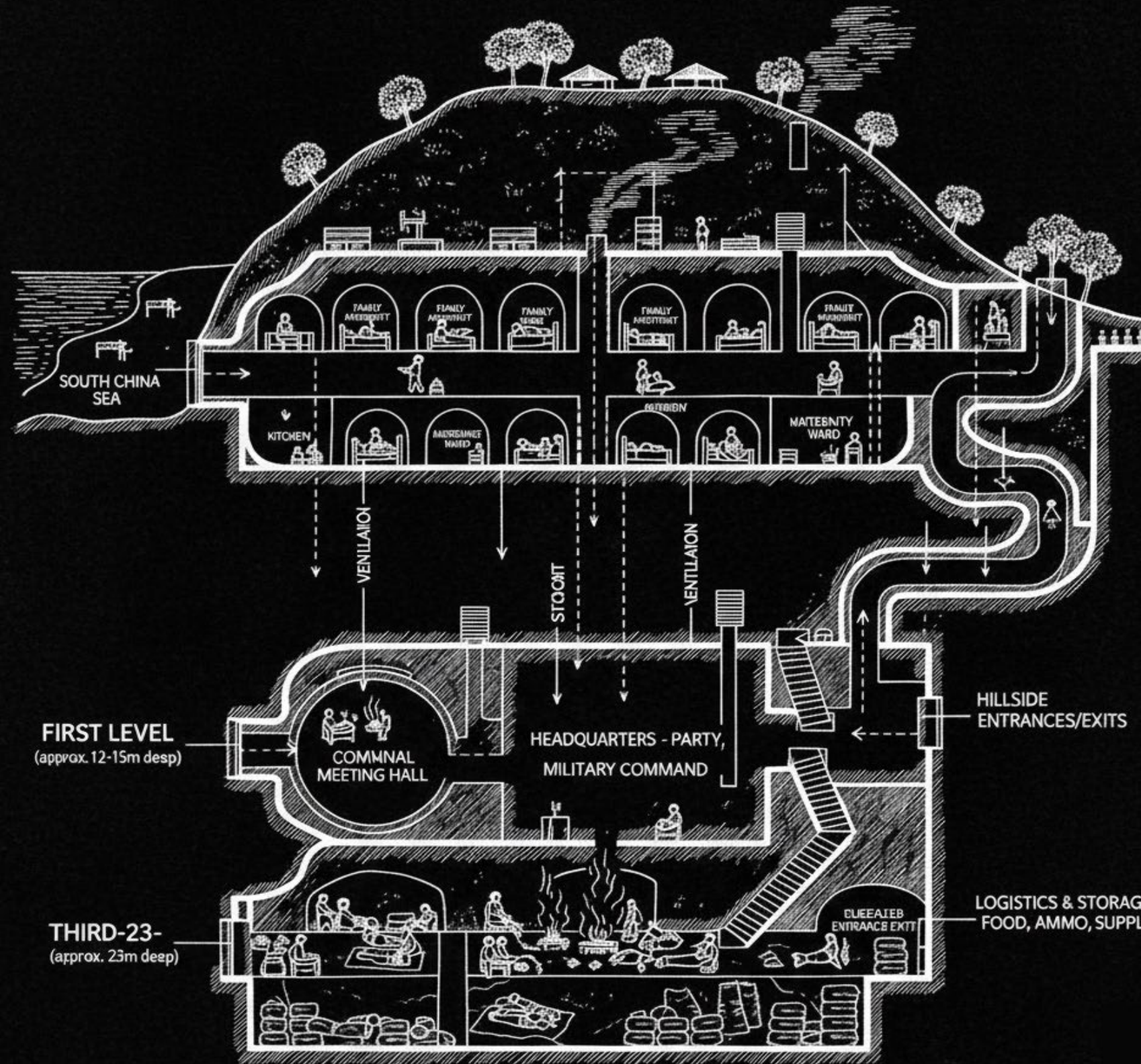
Investigating Columbia University's buried relationship to military research, extraction, and subterranean infrastructures.

This project investigates Columbia University's hidden relationship to military research through tunnels, laboratories, and subterranean infrastructures embedded beneath its campus. Tracing connections between the Manhattan Project, Cold War experimentation, and Vietnam War surveillance systems, the work reconstructs a buried network of circulation, secrecy, and institutional logistics operating below Pupin Hall and the university's underground corridors. Through forensic drawings, archival evidence, and spatial recomposition, the project reveals how architecture became complicit in the movement of scientific research, military knowledge, and political power.

Positioning soil as an active architectural archive, the project treats the subterranean not as neutral infrastructure, but as a contested ground that records extraction, violence, resistance, and memory. The work draws parallels between Columbia's underground systems and global geographies shaped by colonial extraction and warfare, reframing the earth itself as a witness to institutional histories. Through speculative sections and narrative spatial sequences, the proposal transforms the undercroft into a space of confrontation and accountability—where buried histories are made physically and spatially unavoidable.



While Columbia buried military research beneath its campus, civilians in Vinh Moc buried entire lives beneath the earth to survive American bombardment.



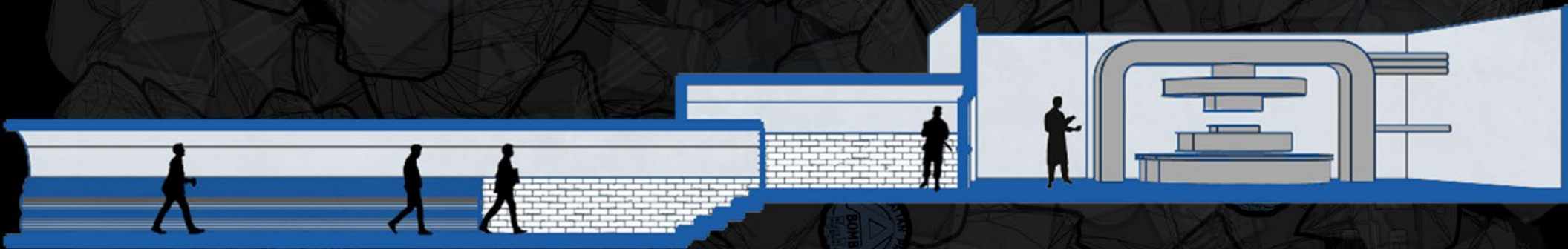
VINH MOC TUNNELS

Civilian Shelter

6,562 feet Long

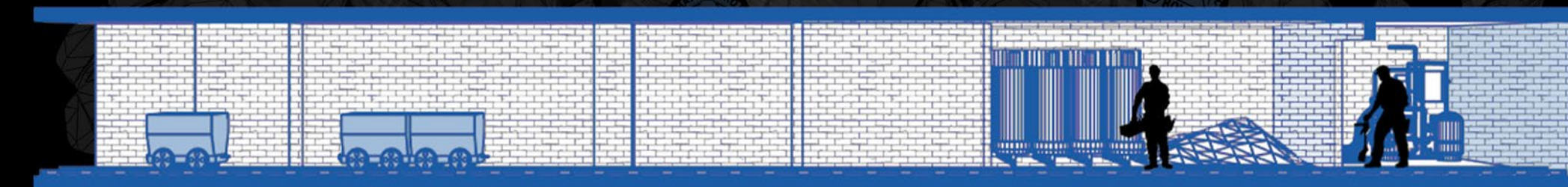
75 feet Deep

Columbia University's tunnels - Under Pupin Hall - 1935

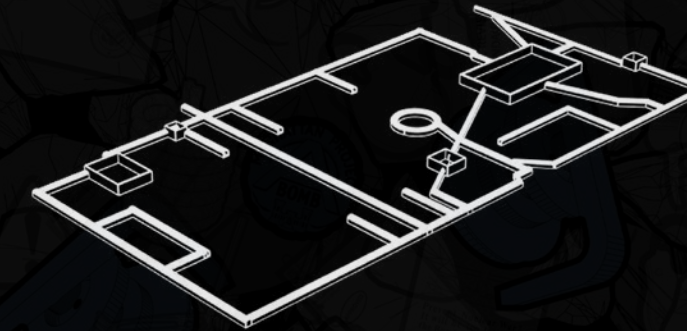
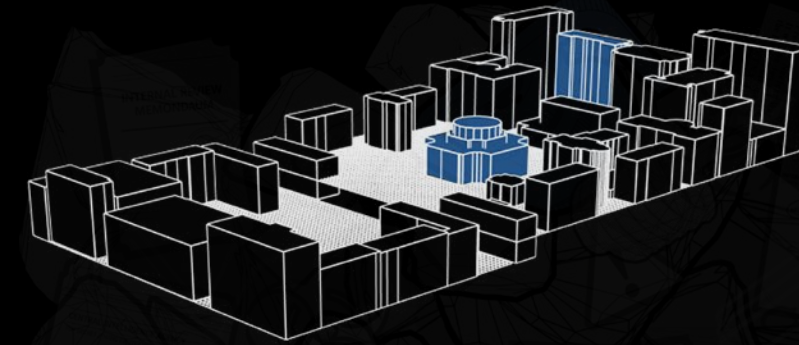


Once used to transfer Columbia Scientists to the Cyclotron site during experiments for the Manhattan Project.

Once used to transfer and store coal and radioactive material for the Manhattan Project.



Columbia University's tunnels - Under Pupin Hall - 1935



Tunnels once used to transport psychiatric patients later supported Manhattan Project experimentation beneath Columbia University.

Electronics Research Lab

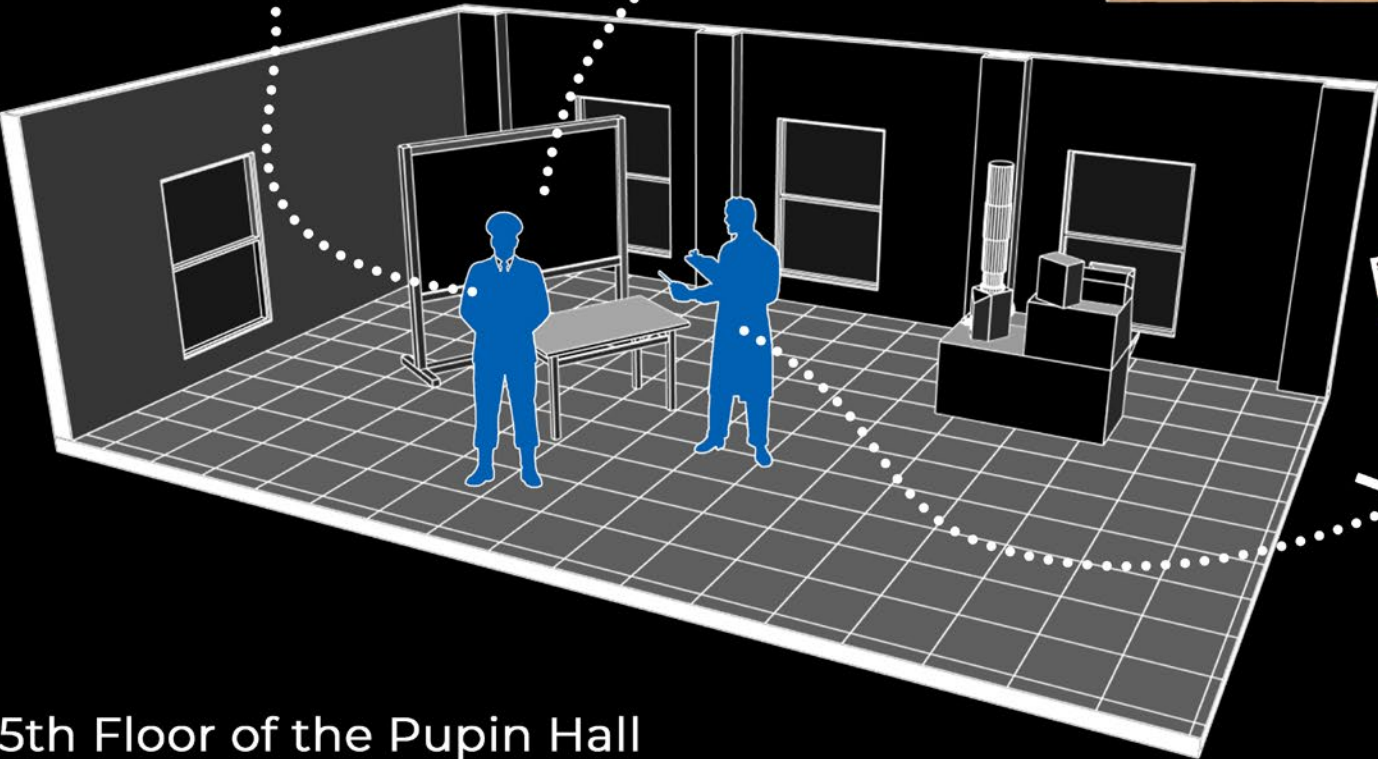
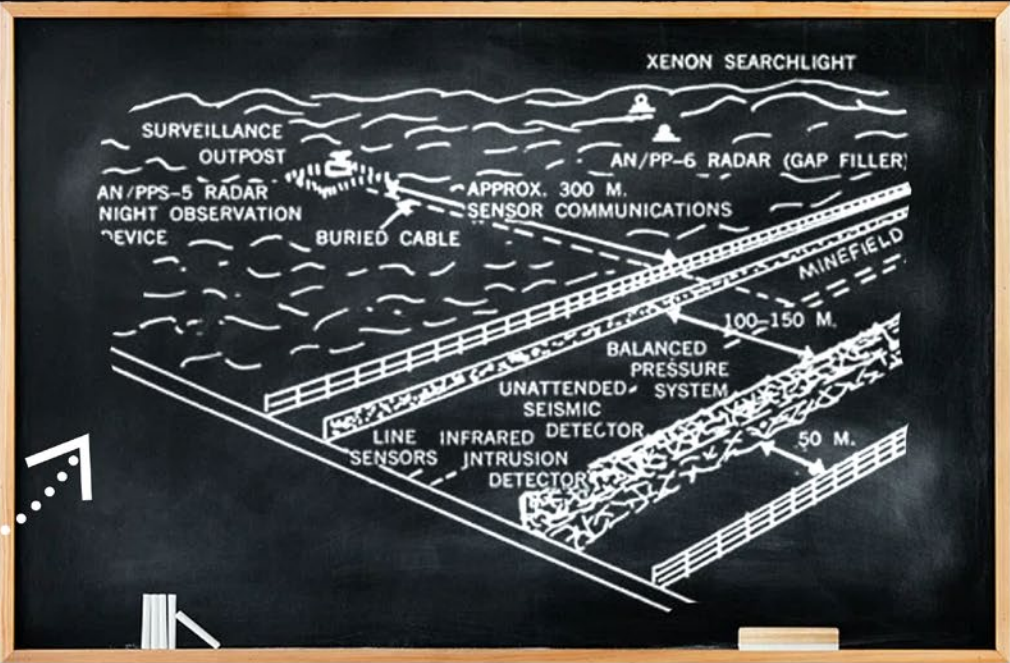


Robert McNamara
US Secretary of Defence

268. Memorandum From Secretary of Defense McNamara to President Johnson¹

Washington, October 14, 1966.

b. *Install a barrier.* A portion of the 470,000 troops—perhaps 10,000 to 20,000—should be devoted to the construction and maintenance of an infiltration barrier. Such a barrier would lie near the 17th parallel—would run from the sea, across the neck of South Vietnam (choking off the new infiltration routes through the DMZ) and across the trails in Laos. This interdiction system (at the west—mainly in Laos—an interdiction zone covered by air-laid mines and bombing attacks pin-pointed by air-laid acoustic sensors.

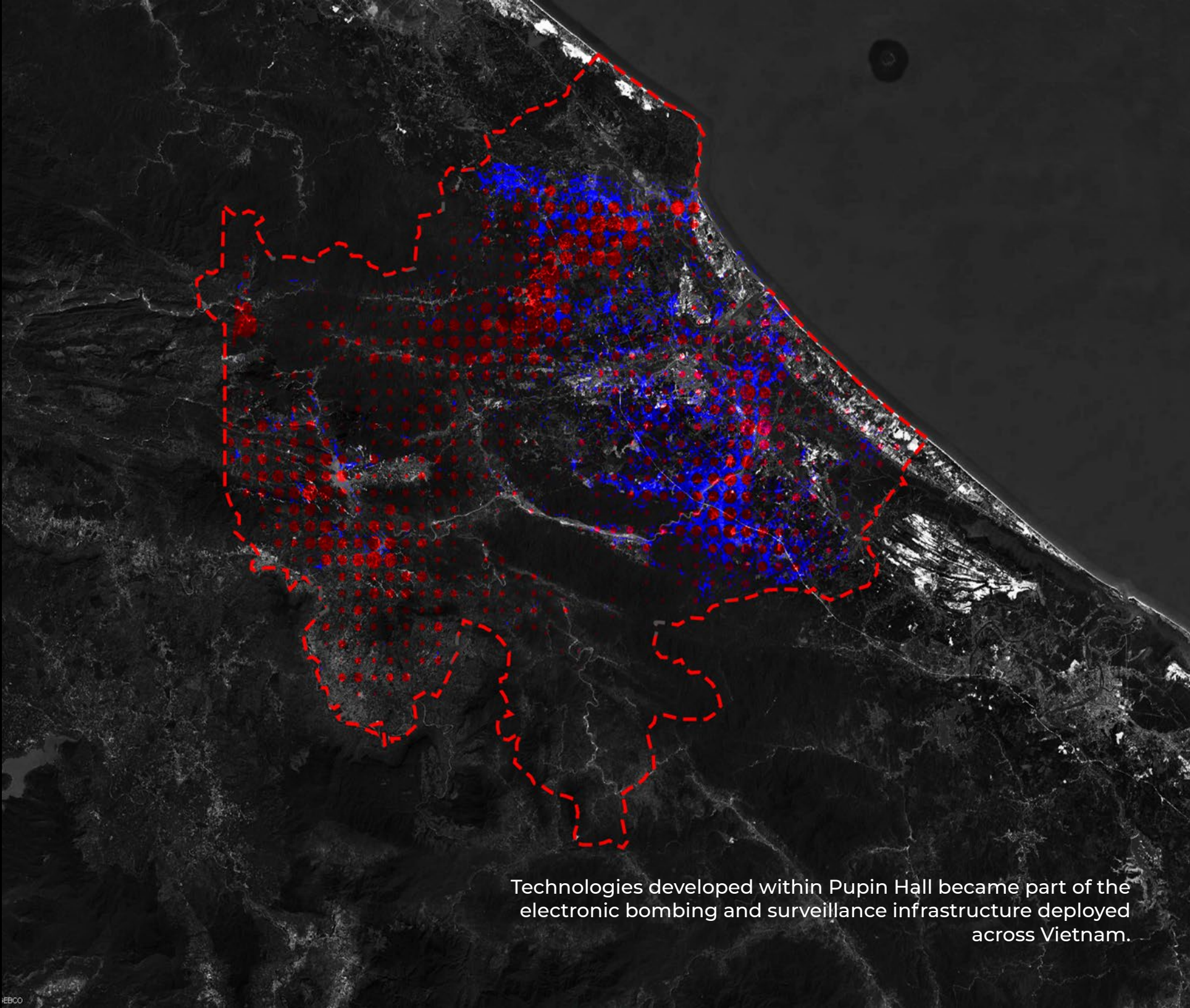


5th Floor of the Pupin Hall

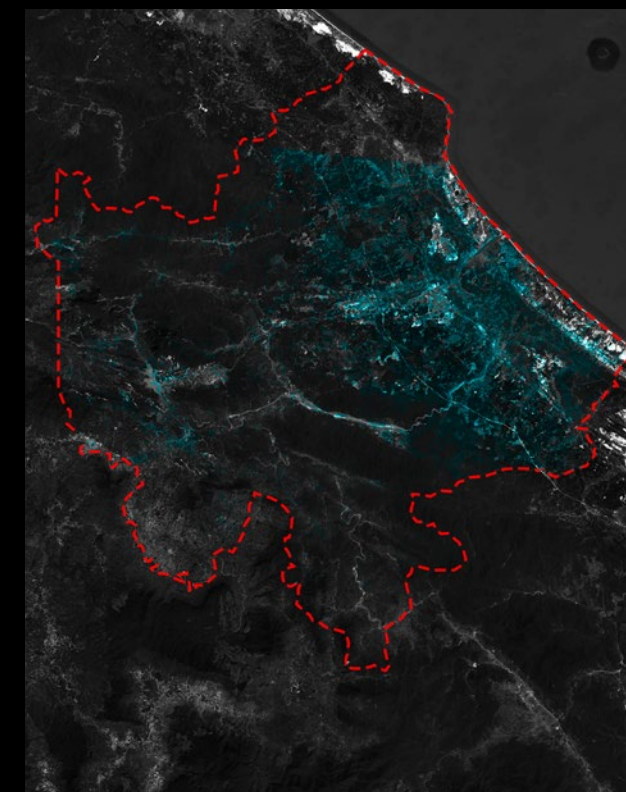
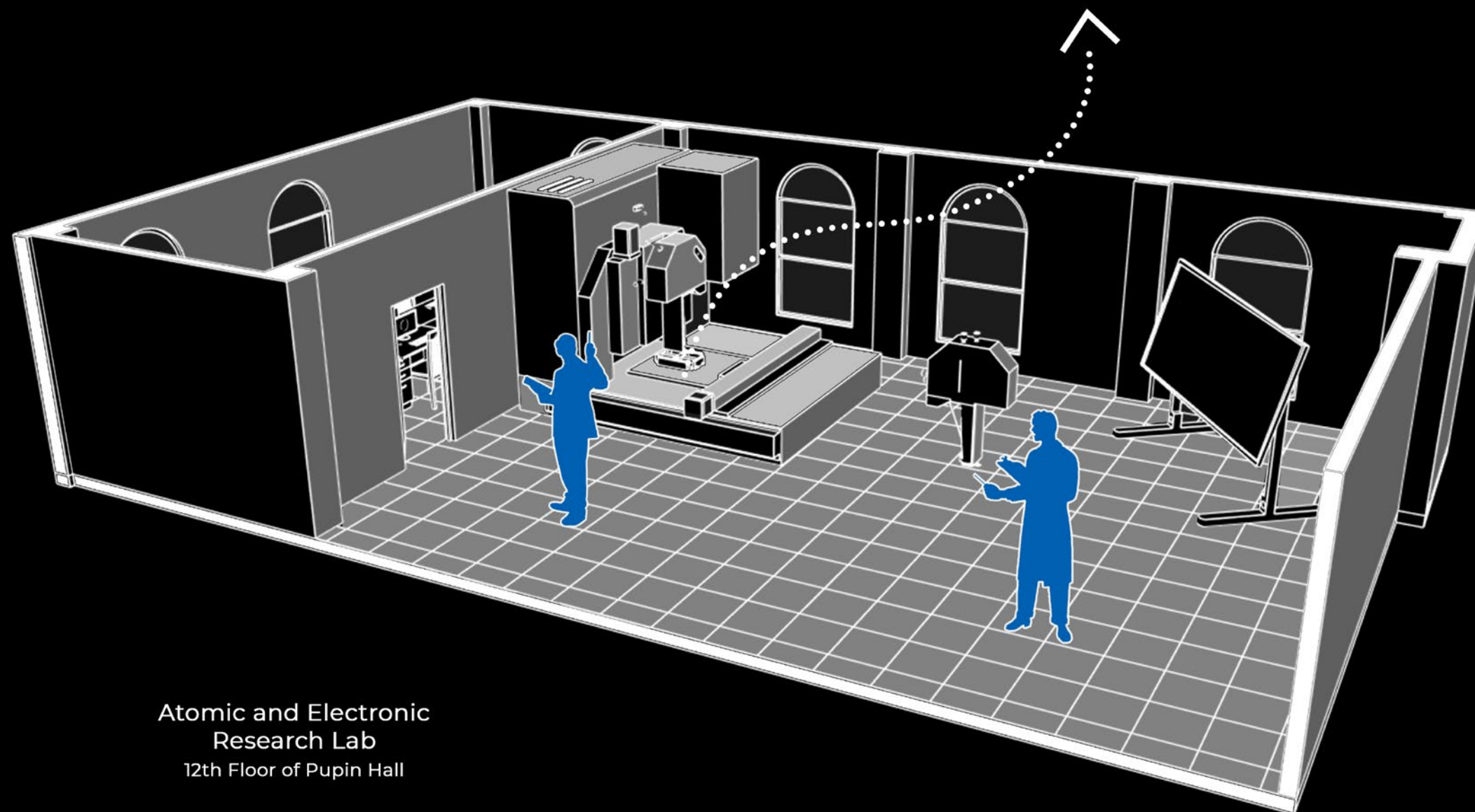
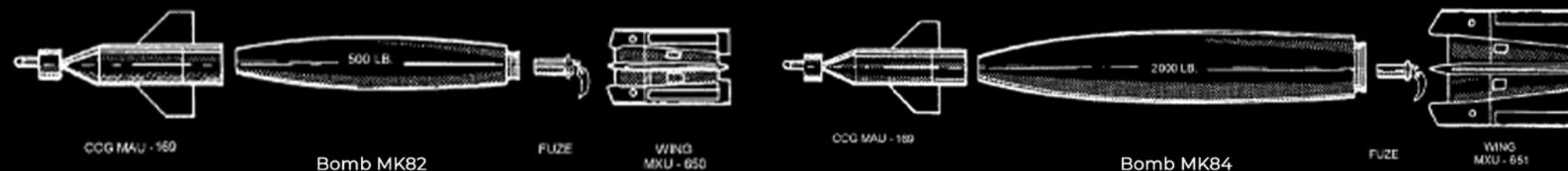
He has made contributions in the design of nuclear weapons, in instruments and electronics for research in nuclear and low-temperature physics, in the establishment of the nonconservation of parity and the demonstration of some of its striking consequences, in computer elements and systems, including superconducting devices, in communication systems, in the behavior of solid helium, in the detection of gravitational radiation, and in military technology. He has published more than 500 papers and been granted 47 U.S.



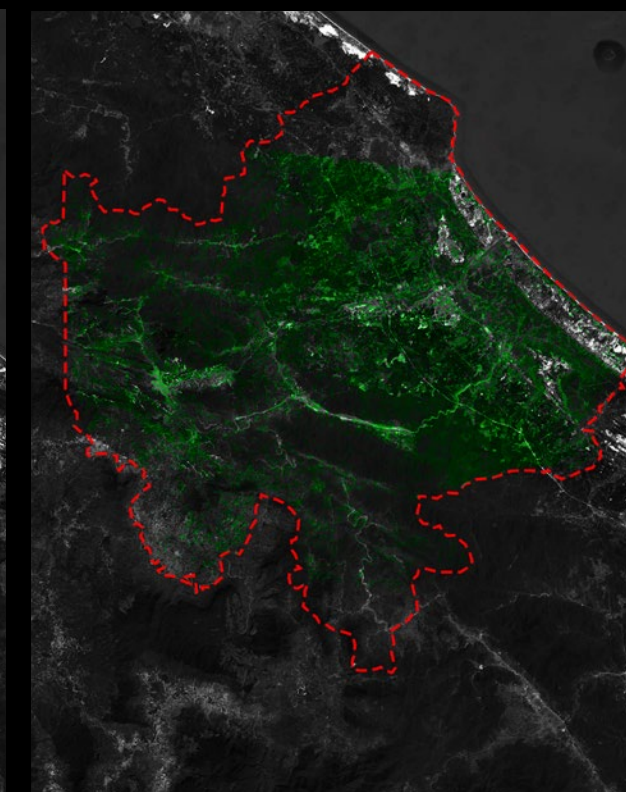
Prof. Ricard Garwin
Columbia Physicists



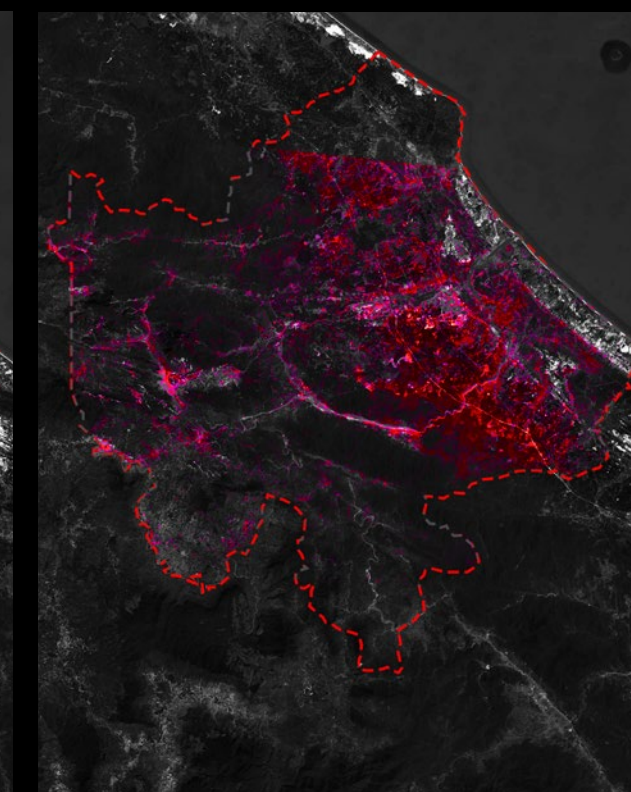
Technologies developed within Pupin Hall became part of the electronic bombing and surveillance infrastructure deployed across Vietnam.



Rim Craters
91,112



Crescent Craters
71,356



Pattern Craters
229467

Weapons systems developed through Columbia-affiliated military research produced bombing patterns that remain visible across Quảng Trị Province today.

YORK, N.Y., FRIDAY, FEBRUARY 20, 1987
Copyright 1987
Spectator Publishing Co.
FIFTEEN CENTS

Student charged with uranium larceny booted out of University residence halls

By Josh Gillette

One of the students accused of stealing potentially lethal chemicals from an abandoned University physics lab and performing experiments in his dorm room was kicked out of Columbia housing yesterday. Another charged with the same offense will find out today whether he will be equally punished.

Jeff Bankoff, SEAS '90, was charged with being socially disruptive and illegally storing chemicals in his room and in a closet in McBain Hall. At a meeting yesterday with SEAS Dean of Students Edward DeCarbo and Associate Dean of Students Carol Roy, Bankoff was told to be out of his room by Sunday, placed on disciplinary probation for the rest of his undergraduate years, and warned he may lose all

sign-in privileges.

Disciplinary probation dictates immediate expulsion from the school should Bankoff violate any more University rules.

The other student accused of stealing such chemicals as uranium 238, chloroform, caffeine and nitric acid, Kenneth Hechtman, CC '90, underwent a disciplinary hearing yesterday with Columbia College Dean of Students Roger Lehecka and Associate Dean of Students Karen Blank and will be informed of punishment today.

Security officials and University Environmental Health Services (EHS) employees raided the Carman and McBain dorm rooms of Hechtman and Bankoff last Friday night after they received reports from

other students that the two were conducting experiments with the stolen chemicals.

See *Uranium*, p. 5

Former ADHOC member may also lose dorm rights

By Scott Susin

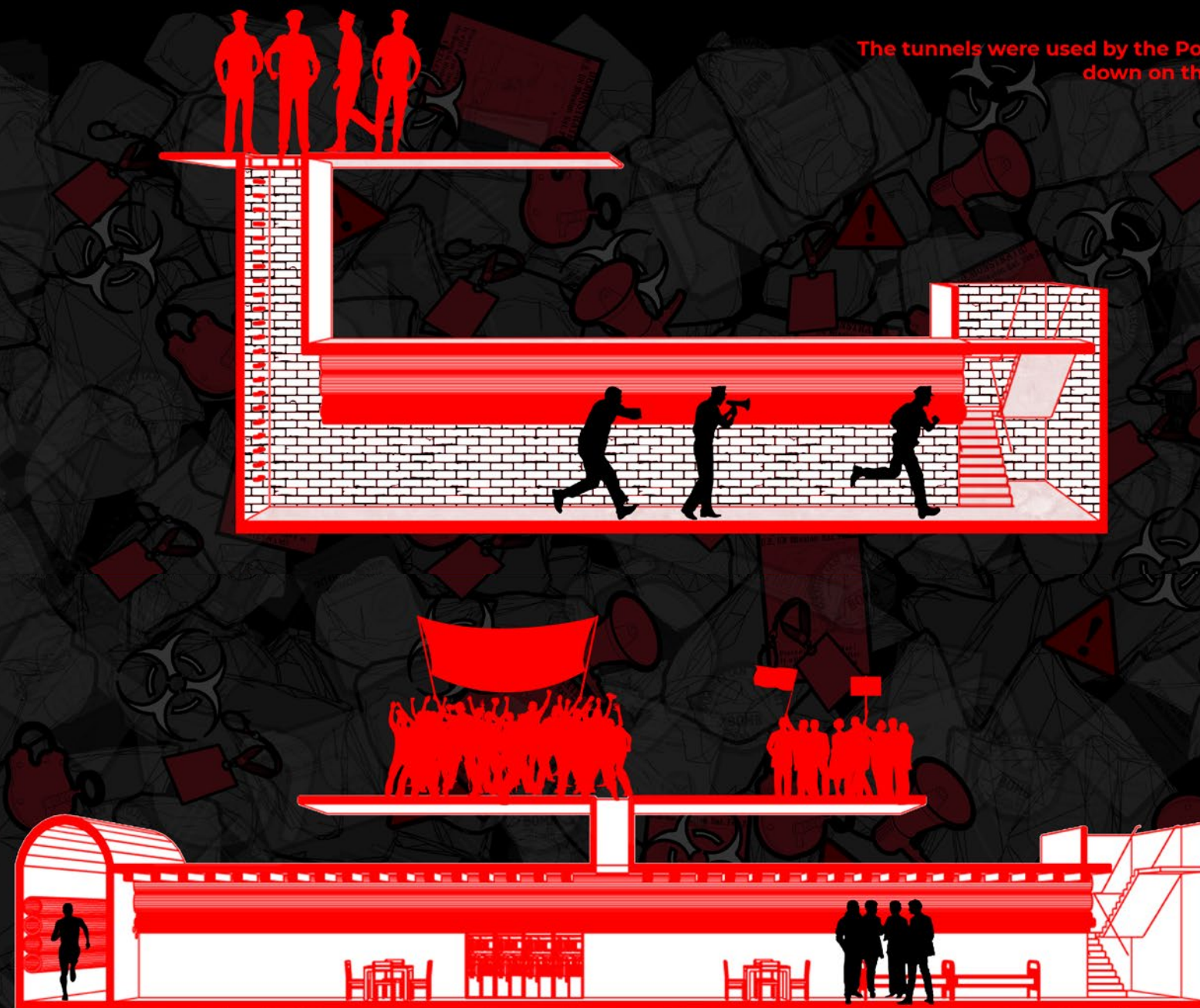
A former member of the campus group ADHOC, to which both Ken Hechtman, CC '90, and Jeff Bankoff, SEAS '90, belonged, is also in trouble with the deans.

J. Laurens Troost, CC '90, is charging that he is being disciplined unduly severely over another inci-

See *ADHOC*, p. 9

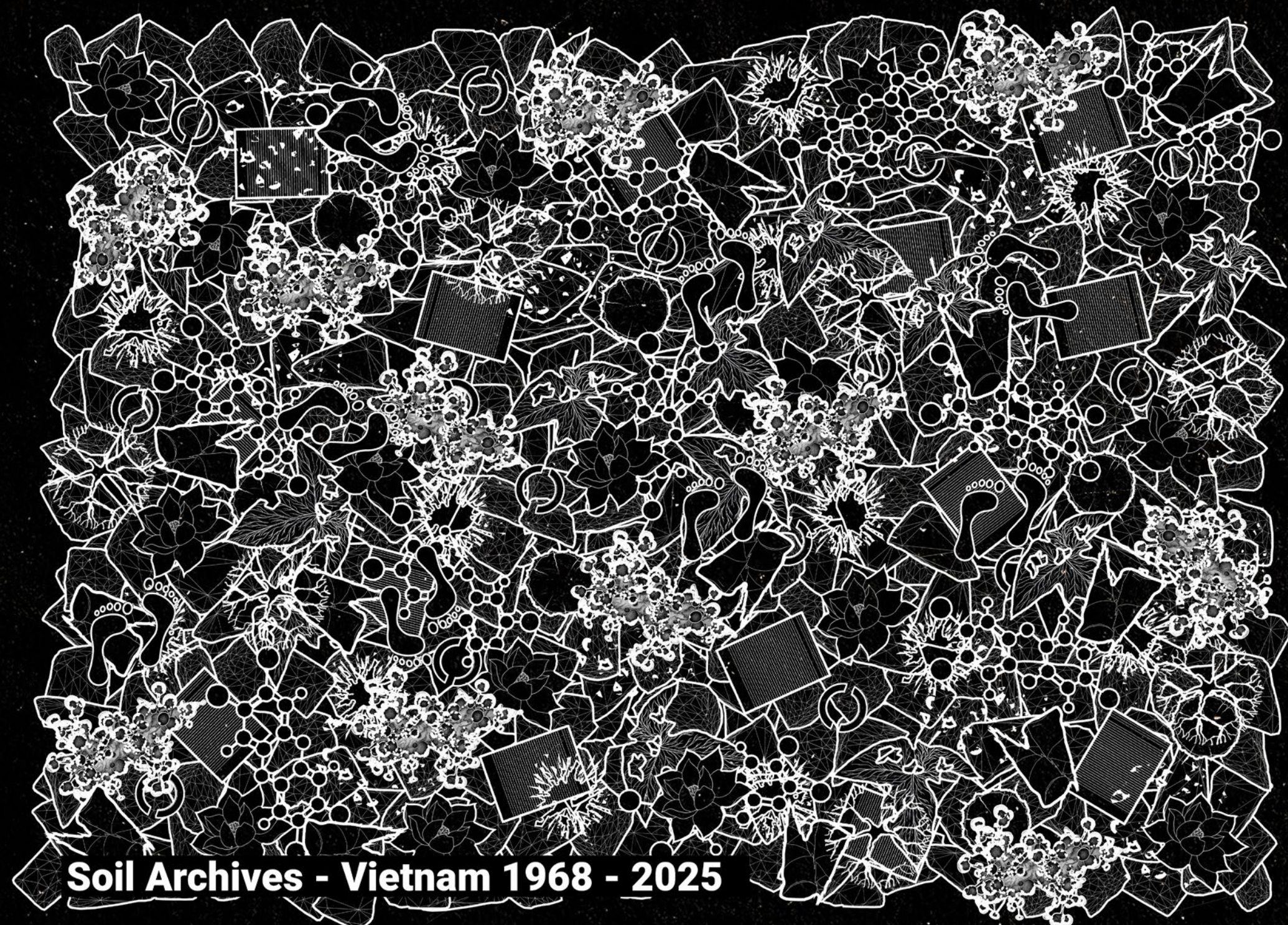


Student occupations exposed the university's buried relationship to military research and hazardous experimentation.



The tunnels were used by the Police to crack down on the protestors

The tunnels stood in solidarity in with the 1968 protests

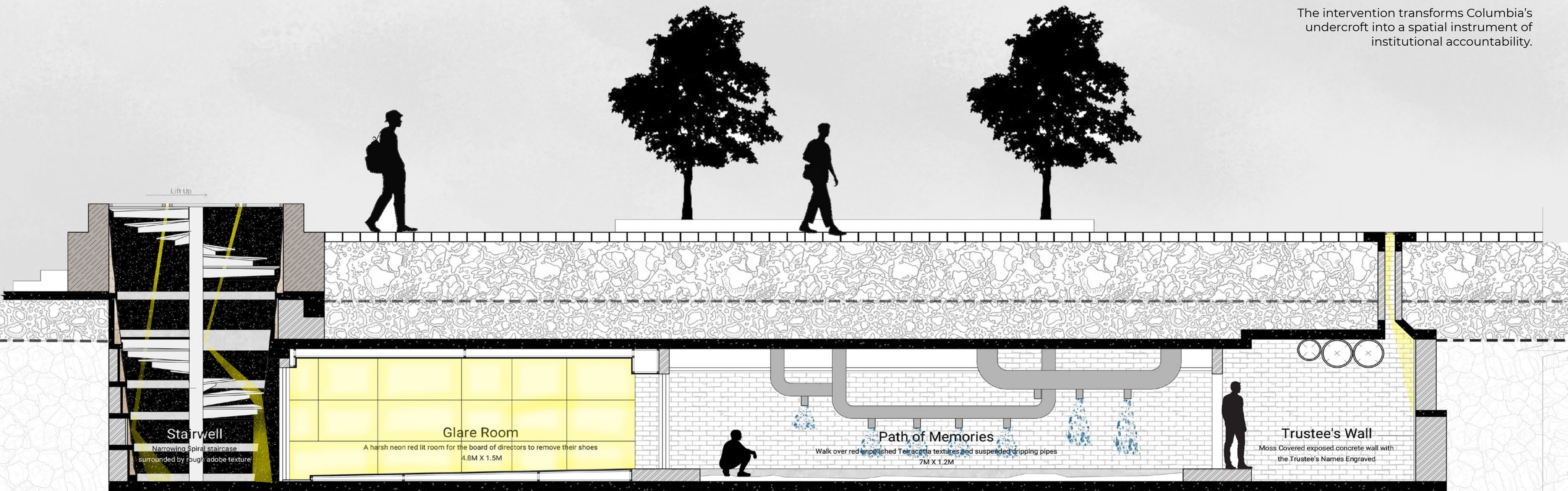


Soil Archives - Vietnam 1968 - 2025



Soil Archives - Columbia 1869 - 2025

The intervention transforms Columbia's undercroft into a spatial instrument of institutional accountability.



Lift Up →

Stairwell

Narrowing Spiral staircase
surrounded by rough adobe texture

Glare Room

A harsh neon red lit room for the board of directors to remove their shoes
4.8M X 1.5M

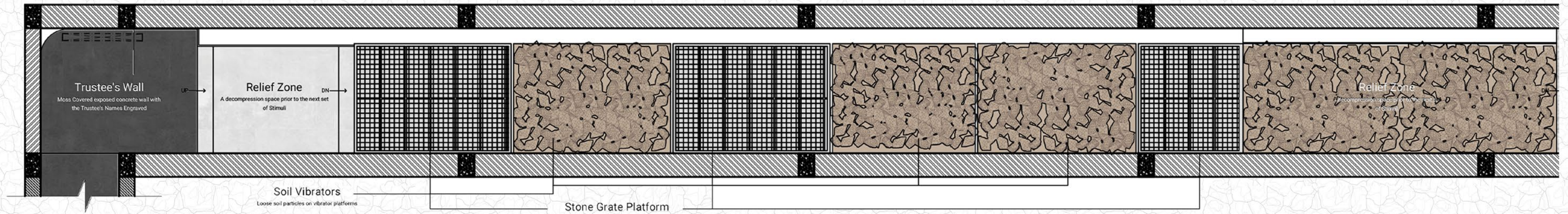
Path of Memories

Walk over red unpolished Tetracotta textures and suspended dripping pipes
7M X 1.2M

Trustee's Wall

Moss Covered exposed concrete wall with
the Trustee's Names Engraved

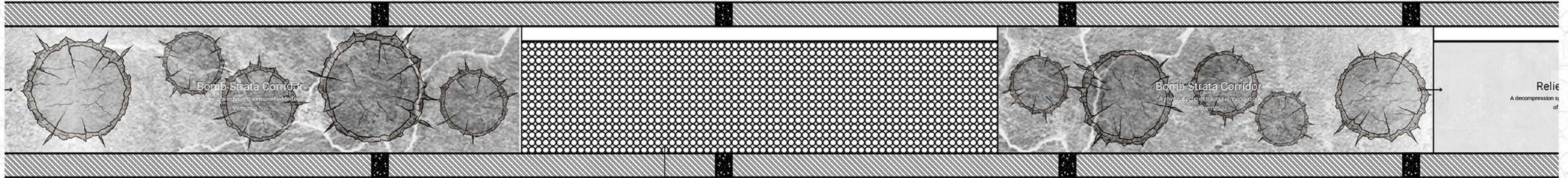
Staircase Connector Section



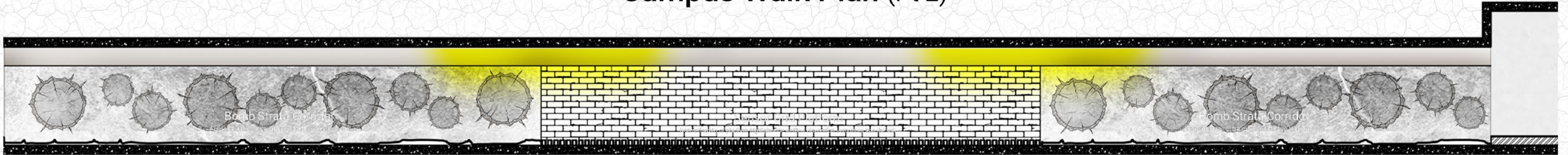
Campus Walk Plan (Pt 1)



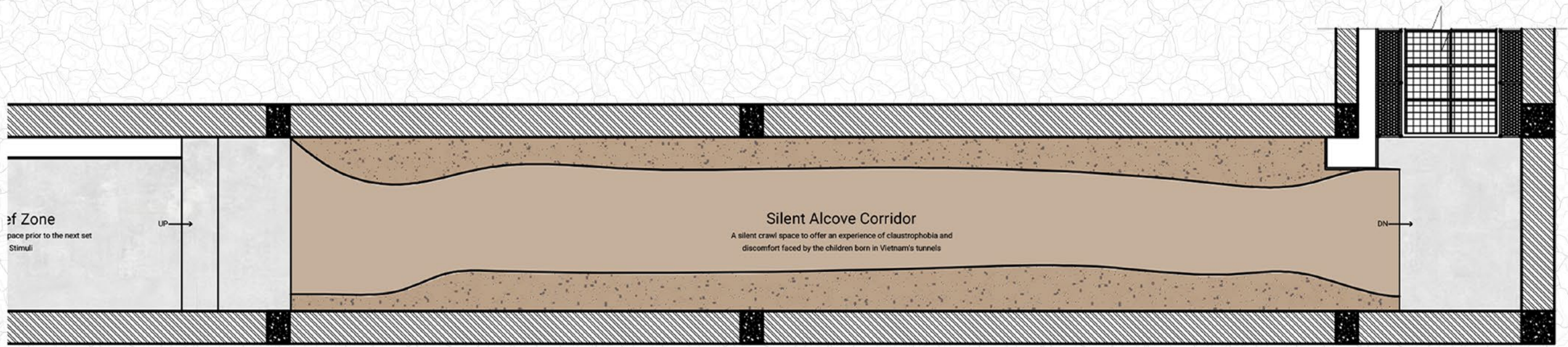
Campus Walk Section (Pt 1)



Campus Walk Plan (Pt 2)



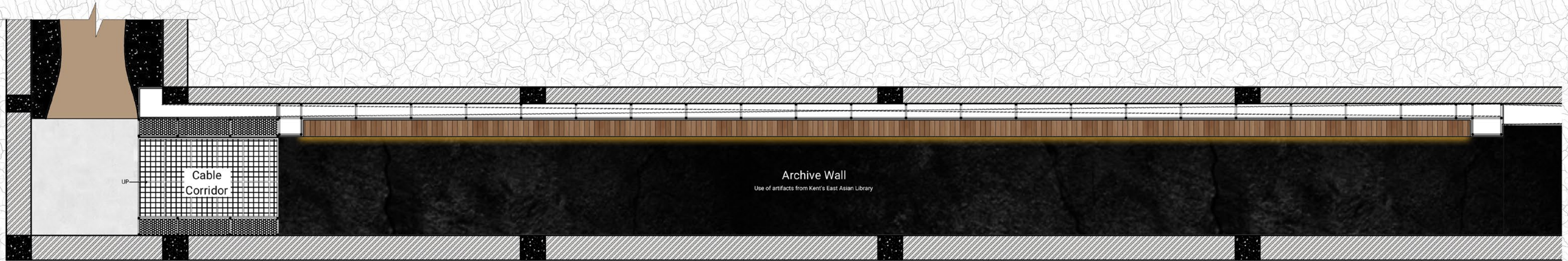
Campus Walk Section (Pt 2)



Campus Walk Plan (Pt 3)



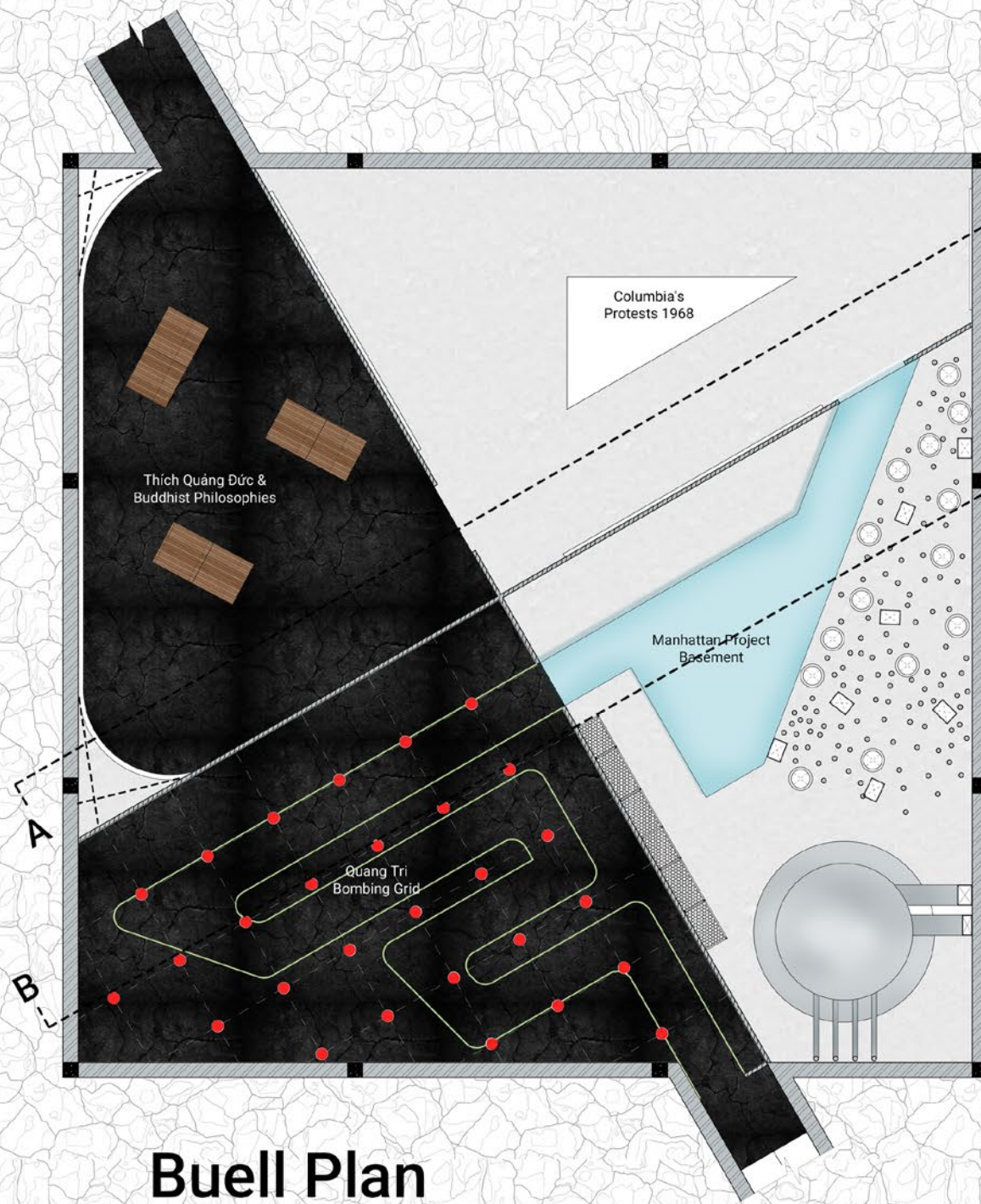
Campus Walk Plan (Pt 3)



Kent Hall (Plan 1)



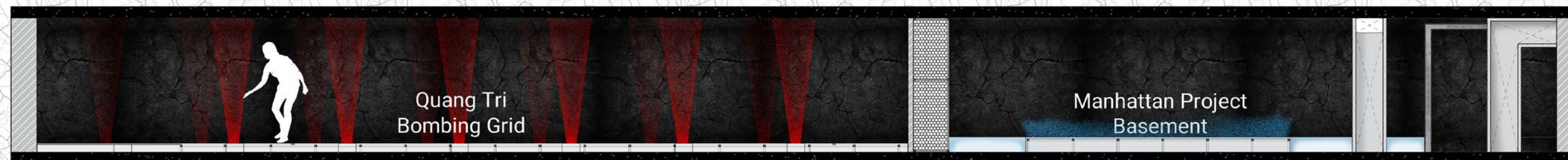
Kent Hall (Section 1)



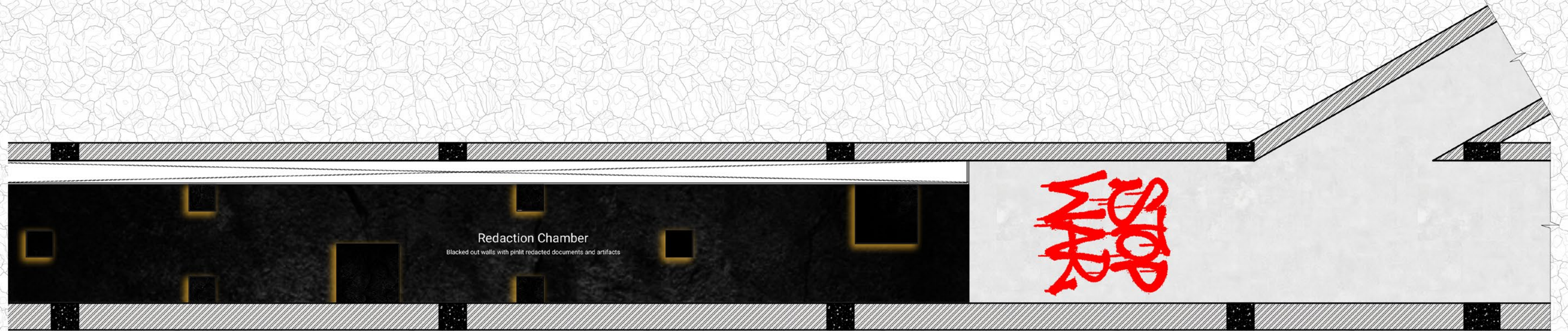
Buell Plan



Buell Section AA



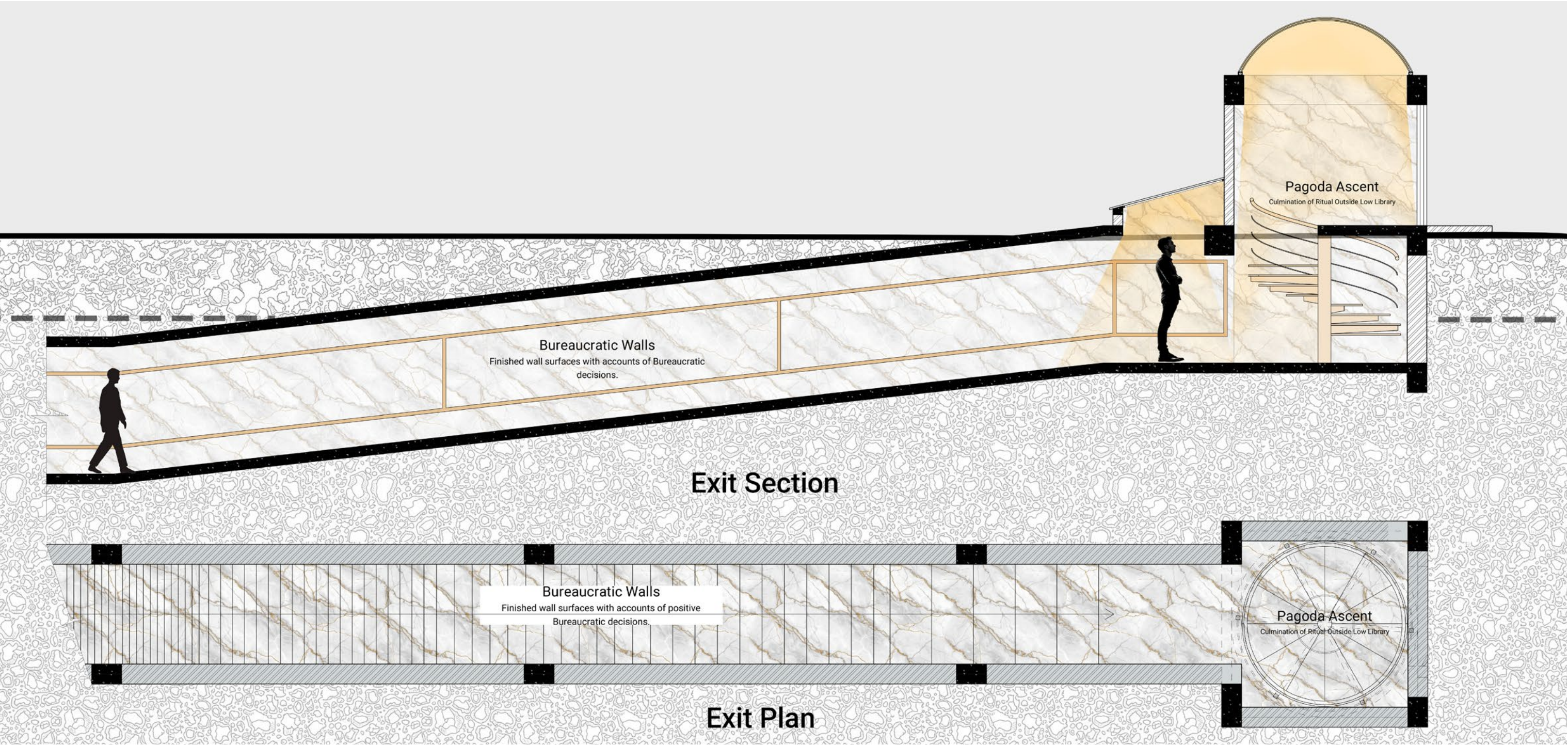
Buell Section BB



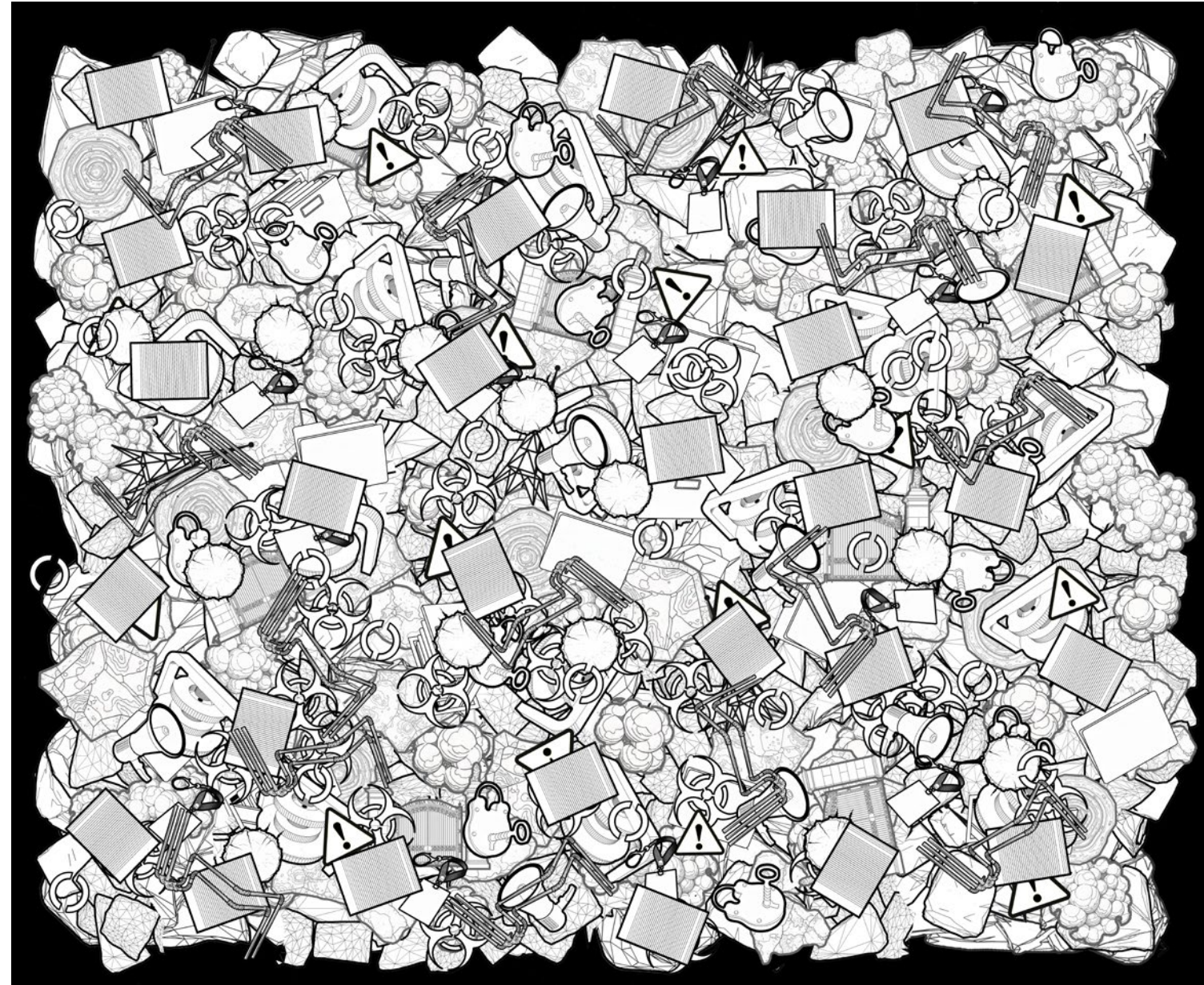
Kent Hall (Plan 2)



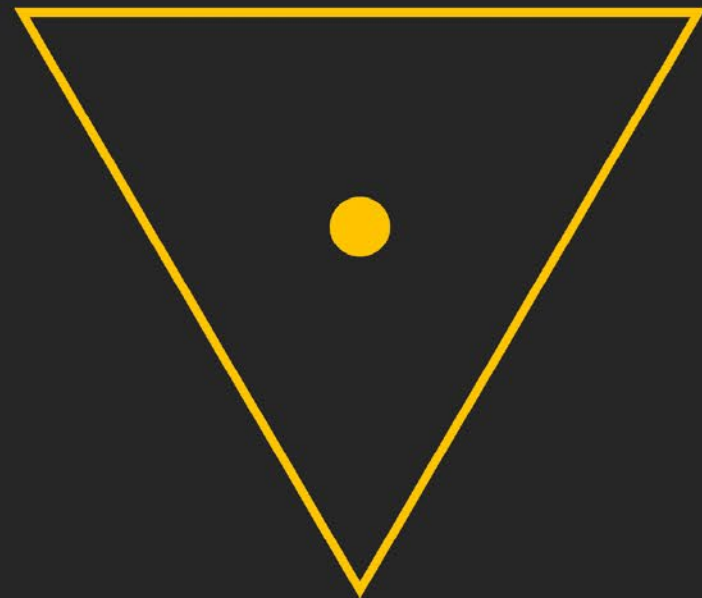
Kent Hall (Section 2)



Before every decision, the institution
is made to descend through the
consequences buried beneath it.



Columbia GSAPP — Architecture of Solidarity
Prof. Imani J Brown & Andre Santos



TARK

Power Examined

Evidence | Strategy | Decision

TARK
POWER EXAMINED

The forensic investigations from the previous semester evolved into a spatial intelligence framework translating architectural research into decision infrastructure.”

The Global Crisis of Spatial Integrity

The High-Cost of Unverifiable Territories

The Stalled Pipeline

\$100B+

in global infrastructure is currently paralyzed by “unverified spatial narratives” and conflicting territorial claims.

The Decision Gap

Forensic Evidence VS Consultancy Strategy

Organizations are forced to choose either one.

Capital Paralysis

Ground Truth

is contested, capital becomes stranded—leading to a total stalemate in project execution and legal policy.

Systemic Risk

Territorial Conflict and Legal Collapse

Are directly driven by Inaccurate spatial data.



Integrated Decision Infrastructure

Evidence
Territorial Investigation

Agenda
Narrative Framing

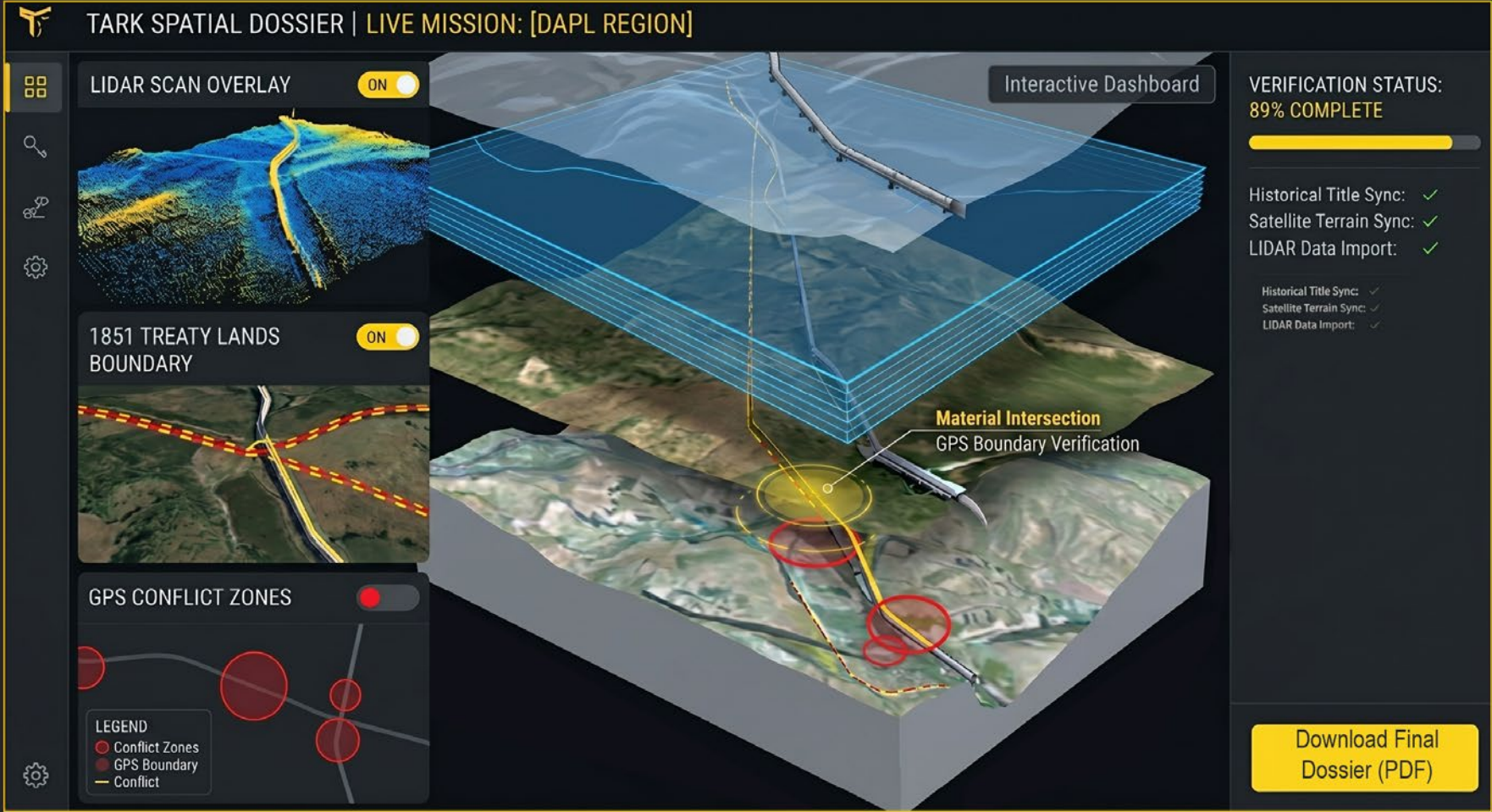


Influence
Political Decision Support



TARK Spatial Dossier

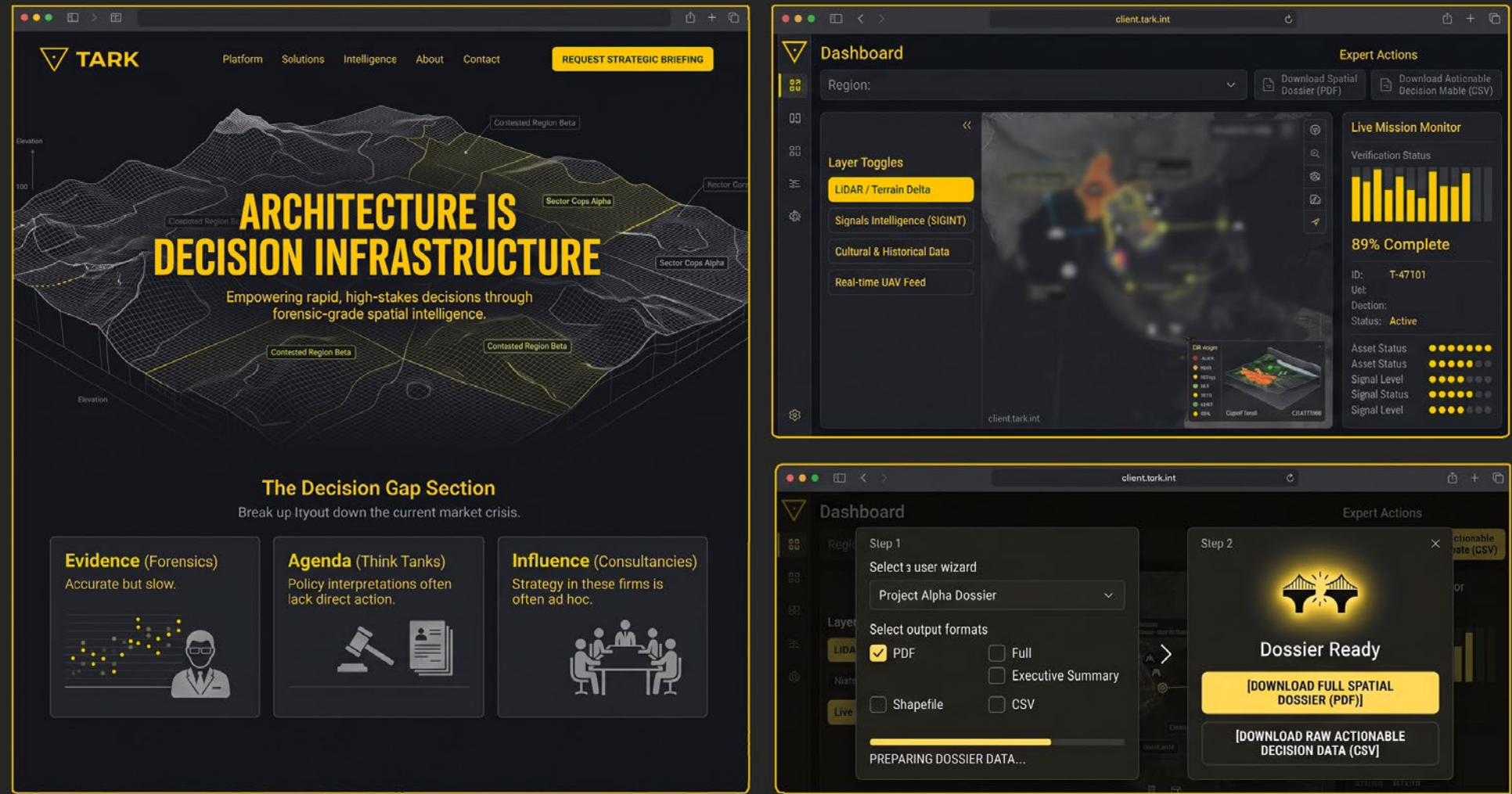
Material Certainty



Sub Centimeter Ground Truth: TARK provides the infrastructure to bridge the **DESICION GAP**, turning fragmented narratives into data points

The TARK Platform (Real-Time Verification)

client.tark.int | Mission Control



The Fragr^{nted} In^{put}

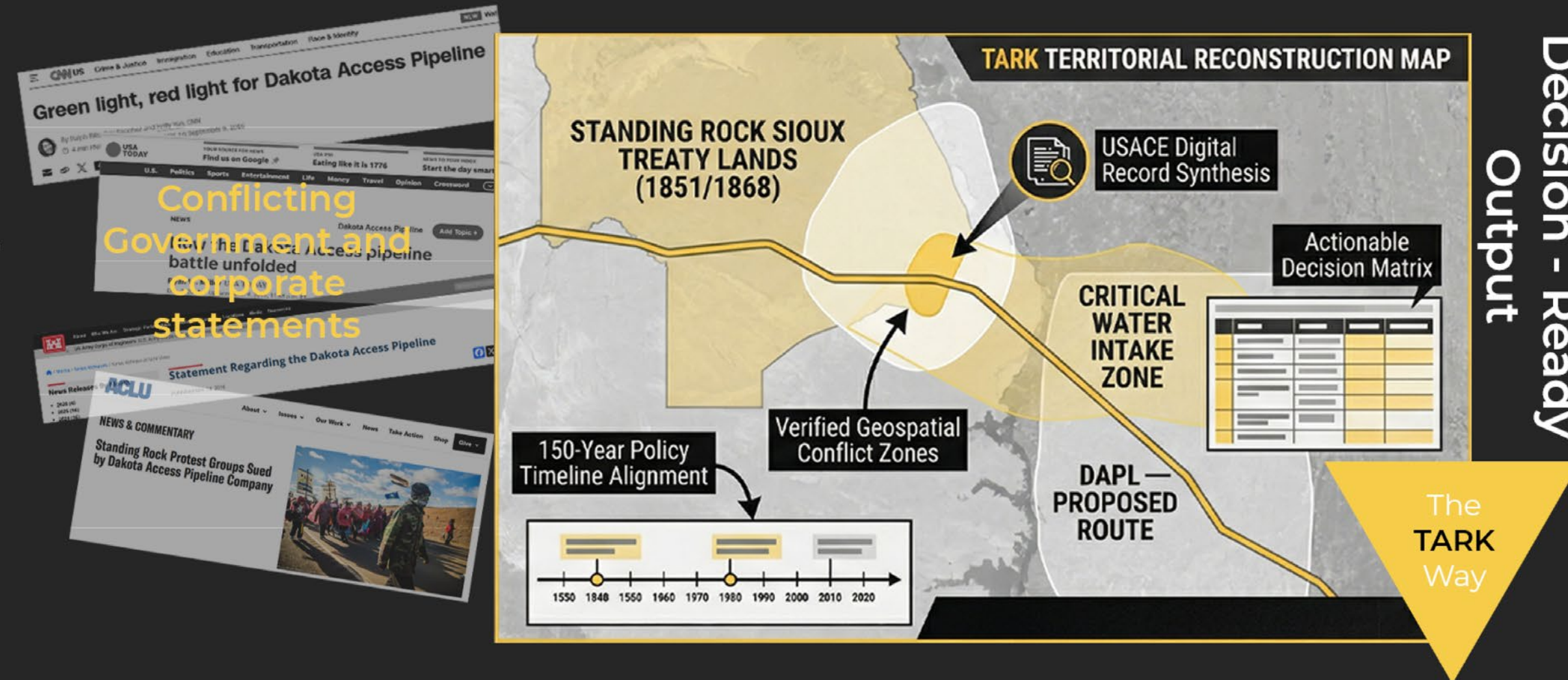


Replace fragmented data with spatial truth
aiding in faster and more effective decision
infrastructure



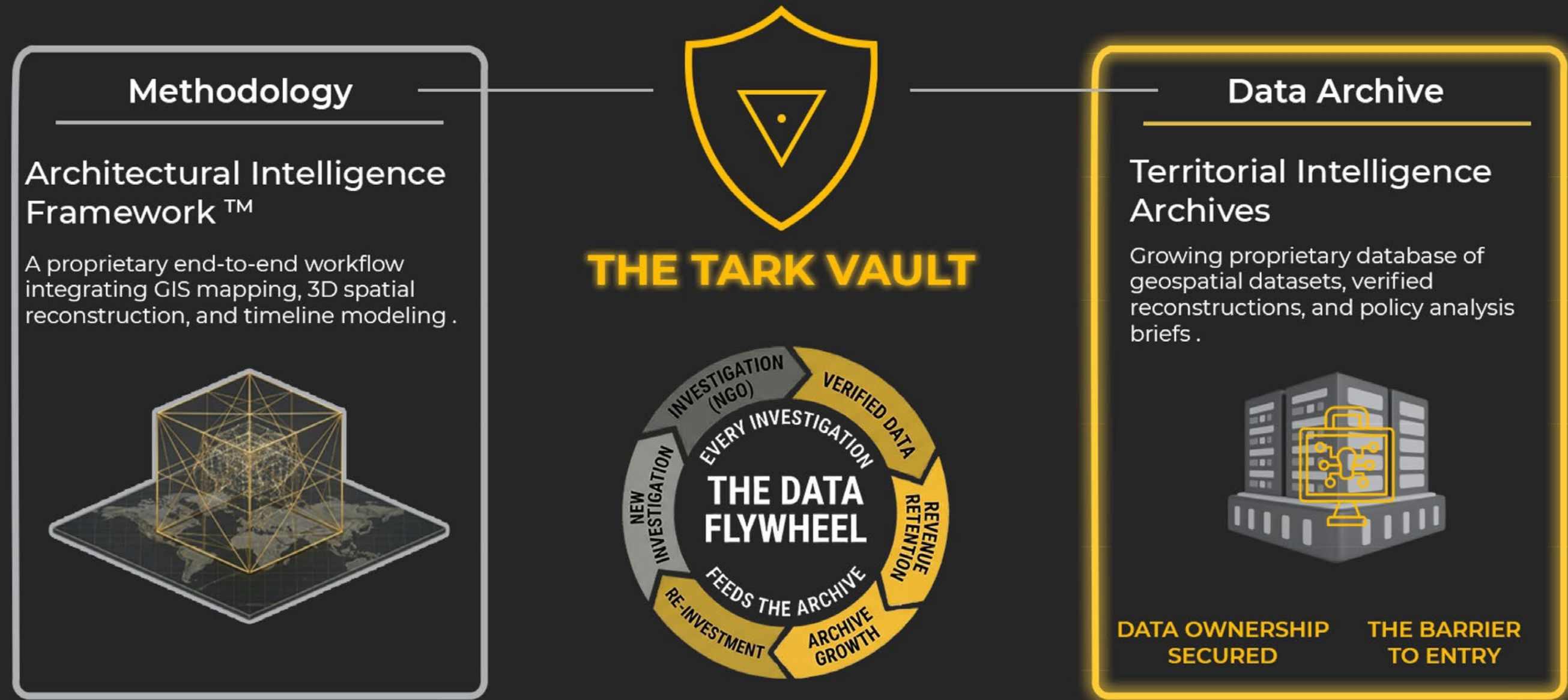
Reframing architecture as a system for territorial verification, spatial accountability, and decision infrastructure.

We synthesize 150 years of USACE Digital Records, and satellite imagery into a single **SPATIAL DOSSIER**.



INTELLECTUAL PROPERTY AND DATA ARCHIVE

The TARK Vault



Columbia GSAPP — Industry, Practice & Research
– Intersecting Design & Entrepreneurship in
Architecture
Prof. Wendy Fok

Thank You

Abilash Satish

as7812