summer
fall
spring

mia iannace | msaad

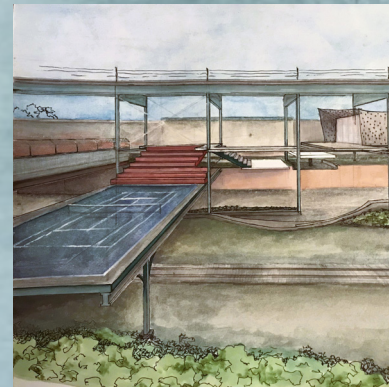# summer

p. 4-29

fall

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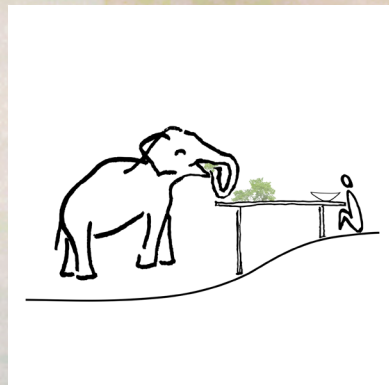
spring

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introduction

I divide my 3 semesters at GSAPP by season. Seasons mean growth. Seasons build upon each other, as each remembers the one before it. Though my experience lasted less than a year, I felt my brain expand and form connections at a speed and capacity that I had never anticipated, where it feels I have absorbed decades of knowledge but in a fraction of the time. I began to view architecture in a new light; each studio and elective revealed the complexities of the interconnected environmental, animal, human, and societal relationships that operate simultaneously in our world, and architecture is the result.

From the Summer I learned to never underestimate the power of scale: to embody the narratives of tiny, nondescript plants and inanimate objects and begin to see the world from their perspective and design for it. I met people from all around the world, who became my friends.

From the Fall, I learned how to write with my own distinct voice and trust in the possibility of enjoying the process of writing a 15 page paper about a niche architectural theory. The knowledge and work ethic I gained in the summer was a gift because it allowed me to view a complex urban project with the sensibility of a plant and its specific needs and apply it to communities.

The Spring was the most powerful season for me in every way because it is the keystone of my academic career. This semester was my opportunity to push myself to the absolute limit of what I thought I could do as an architecture student, and I am so proud of the result. I traveled to Thailand to visit the elephants in Ban Taklang village. I played with a baby elephant. I met the most loving and joyful people. I emerged from this GSAPP experience feeling more fulfilled and than I had ever imagined.

The transformation in my perceptions and understanding will be with me every day for the rest of my life and build with each season.

SUMMER

01 WATERCOLORING THE URBAN GROUND

Nurturing Expansions Joints for a Transient Apocalyptic Landscape

In Collaboration With `Valentina Jaramillo || Prof. Nerea Calvillo || New York, NY

In the not-so-far-off future, the land will be gray and lifeless, begging for the refreshment of vegetation. *Sagina procumbens*, or Pearlwort, can resist a post-apocalyptic landscape: it is a first plant to re-emerges from depleted soil. In New York City, Pearlwort lives unnoticed within the cracks of sidewalks and relies on watersplash and foot traffic to self-propagate. The post-apocalyptic world reveals opportunities in unexpected places and to re-assign value to forgotten or hidden things. 'Pearl' was found in the corners of stone benches of Frederick Douglass Circle, a monument on the Northwest corner of Central Park. Douglass was an emancipated slave, suffragist, and pivotal abolitionist.

We propose universal techniques to landscape Pearl's urban growth. Pearl will transform the pavement as it expands through the joints, physically and figuratively connecting communities. Through Pearl, we could redefine the meaning of urban floor; no longer is it a conveyor belt of pedestrian efficiency, but as a watercolored ground landscape for evolving, shifting, emerging and becoming.
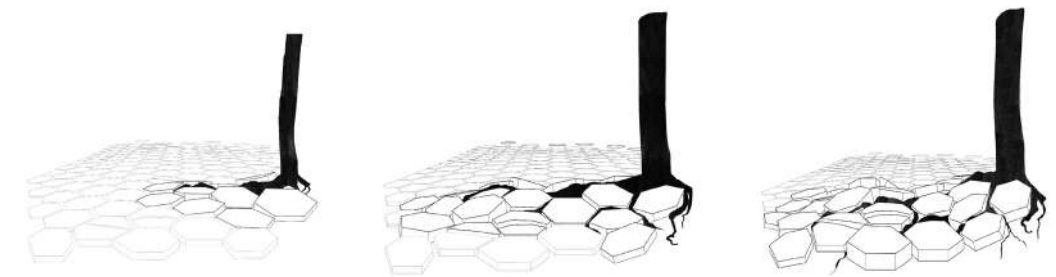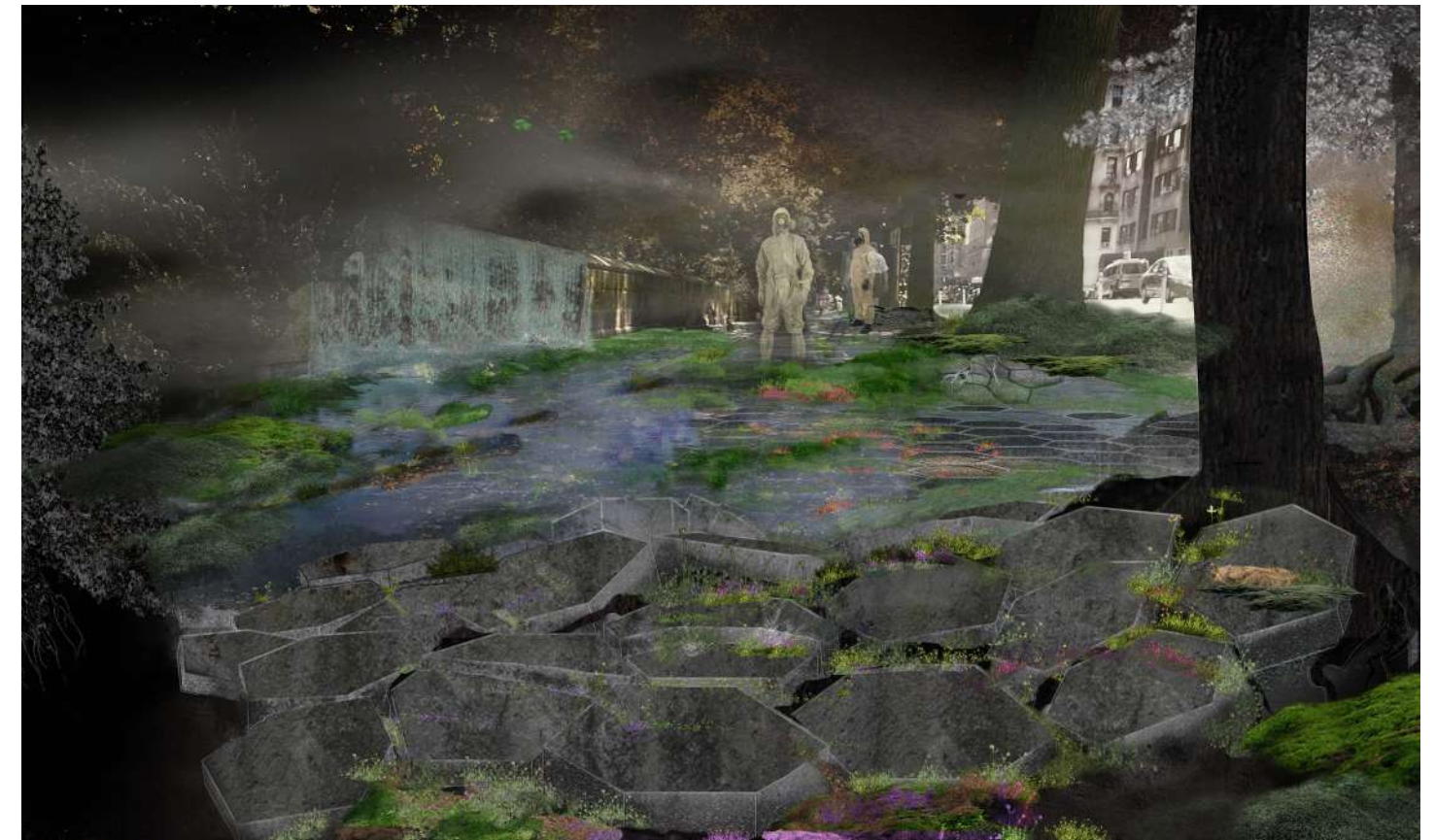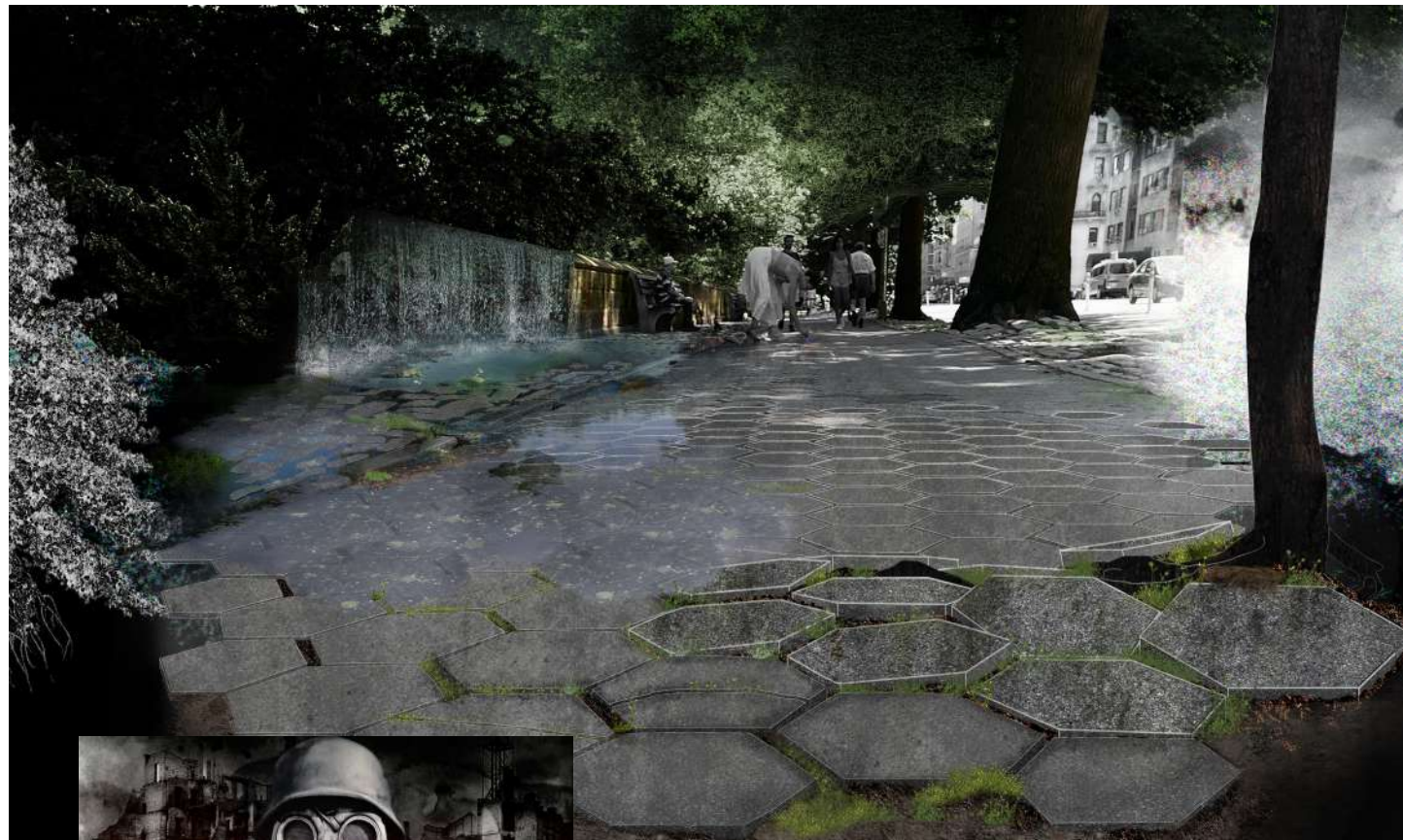
In so many words, the world is burning. Today, the wildfires may be only decimating the dry forests and fields and threatenin to incinerate the homes just outside their path. As the earth dries due to our extractive economy and release of emissions, while it simultaneously begins to flood with rising sea levels, the fires will soon overtake suburbia and then cities.
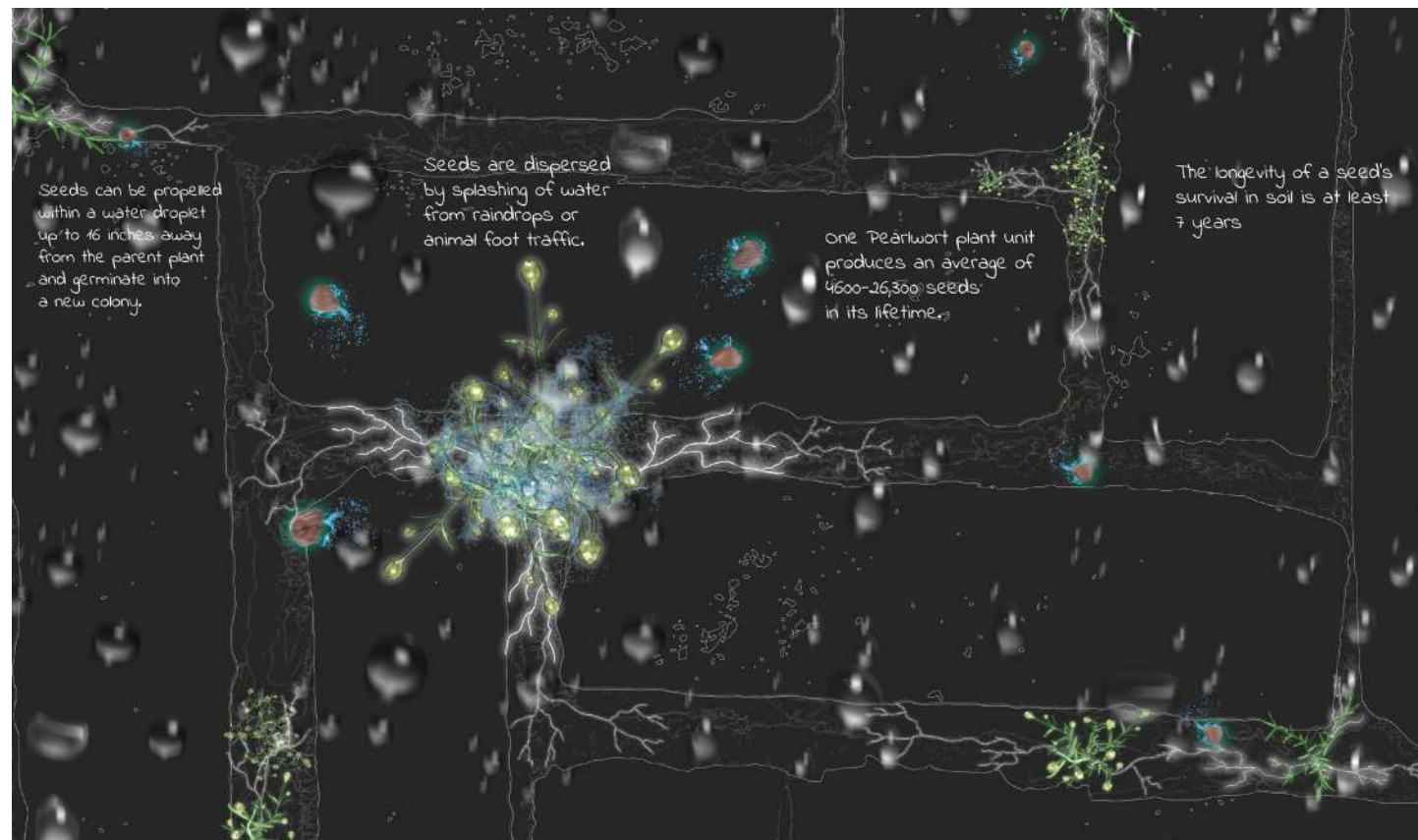
No longer will the environment be habitable for the vegetation we currently take for granted. But *Sagina procumben*s might be the only survivor of a post-apocalyptic landscape. Through the floods, fire, and ash, she could reawaken the pavement cracks and revitalize the city.

Sagina procumbens, commonly known as Pearlwort, or Pearl to us, is shockingly adaptable. She thrives in disturbed soil and can occupy practically any urban or disrupted habitat: wet and dry soils, in lawns, in the cracks of walkways and walls, and rocky coastal surfaces.

Because of her size, Pearl slips underfoot. Yet, when proper attention is paid, we can begin to understand the richness and nuances of Pearl's seemingly microscopic world by adjusting to her scale.

Seeds can be propelled within a water droplet up to 16 inches away from the parent plant and germinate into a new colony.

Seeds are dispersed by splashing of water from raindrops or animal foot traffic.

One Pearlwort plant unit produces an average of 4600-26,300 seeds in its lifetime.

The longevity of a seed's survival in soil is at least 7 years

Stuborn Root System

Mansional Meltdown

Deconstructs Ecosystems

Difficult seed removal

She is highly resistant to adverse conditions, enabled by her relentless horizontal taproot system. Her seeds can remain fertile in soil for at least 7 years, and are extremely difficult to remove. In fact, Pearl embraces environmental disturbance to take root, relying on foot traffic, mowing, wind, and watersplash from rain and irrigation to propagate.

In folklore, Pearl has been a symbol of resistance, protectiveness, and blessedness. According to Gaelic legend, as "Christ rose from the dead and stepped out of the tomb, it was the pearlwort that was there to cushion his first footfall." The allusion to Pearl's presence in Christ's resurrection emphasizes her superpower of being the first to emerge after damage and links her phenomenologically to rebirth and transformation.

1850

The Rev R.C. Douglas was the next to find it 'growing amongst Sphagnum in a small bog' (Douglas, 1850), which is a clearly native situation and different type of habitat from previous findings.

1815

Pearl's first scientific documentation: The Rev. Hugh Davies was apparently the first to find f. daviesii "on the green at Beaumaris" (Wales).

1837

Pearl's first portrait: Baxter says that it is "sometimes cultivated in gardens, but, I believe, it is rather rare."

1965

Pearl causes and "invasional meltdown" on subantarctic Marion Island in a symbiosis with *Collembolans*, a bioindicator of pollution in urban soils

32 A.D.

Christ reportedly steps on Pearl upon emerging from the tomb on Easter.

1836

The famous British botanist, Baxter, reports it flowering in the Oxford Botanic Garden [SP50] on 22 August 1836, though he does not say whether it was naturally occurring or an example in cultivation.

1842

'An account of the Royal Caledonian Horticultural Society meeting 15 July 1842 at Inverleith, Edinburgh says "For the four most curious NATIVE PLANTS, the premium was voted to Mr Middleton, for Sagina procumbens..."'
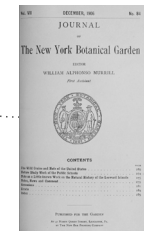
1906

Pearl's first documentation in New York City, as noted in *Journal of the New York Botanical Garden Vol. 7*, as an introduced species from England

1998

Pearl was introduced to Gough Island, NZ. She quickly dominated the island and destabilized the ecosystem. She has since been removed following an intense eradication program
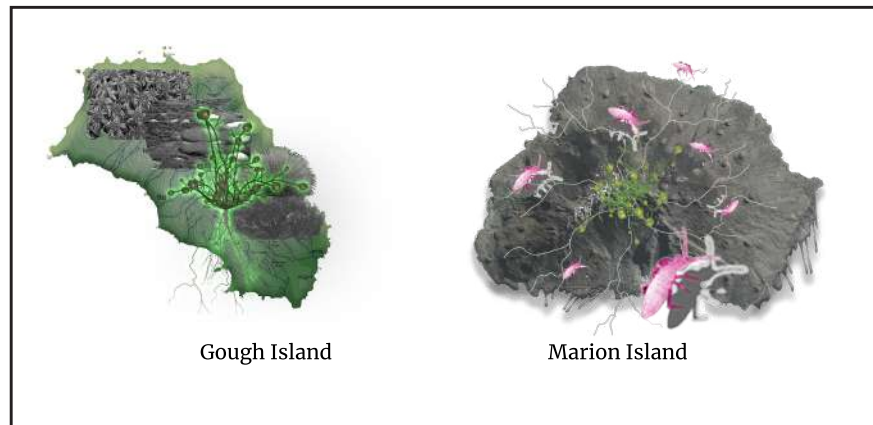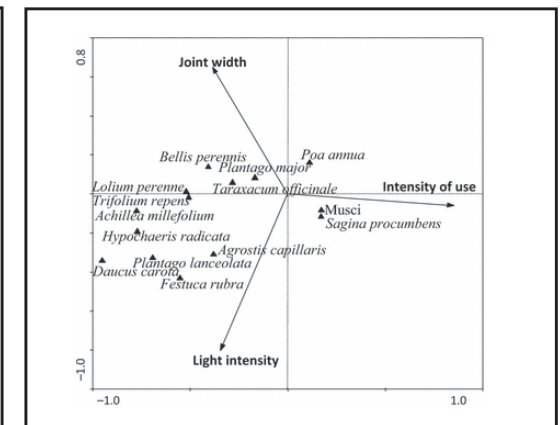
2022–

Pavement Interventions: Pearl saves the world!

Gough Island   Marion Island

Historically, Pearl has been documented by humans since times of early religious folklore, and scientifically, since 1815 in Scotland, and has been noticed as she appears in new places to this day. Pearl has not always been welcome… In 1965, Pearl caused an "invasional meltdown" in the Sub Antarctic Marion Island when she facilitated the spread of the prolific insect species *collembollans,* and in 1998, Pearl arrived at Gough Island overgrowing the existing native species, winning her the label of "invasive."

Regarding desired urban aesthetics, Pearl flies under the radar in pavement. According to a research study about urban weed flora, there is a "street scene perception" scale, which is a nonparametric measure of peoples' perception of street cleanliness defined by weed growth on paved areas. Tall species generally scored more negatively than short species. Pavement with narrow joints and plants growing less than 1 cm high in the joints, like Pearl, scored the best for street cleanliness. Pearl's ideal environment is between clay bricks with narrow joints.

Throughout the city, Pearl has been found as low-profile, moss-looking mats in full sun and frequent traffic, and as individual fluffy tufts in more moist, shaded areas in the seams of walls, steps, and corners.

The urban pavement as we find it, is highly regulated and coded to be smooth and efficient. As a result, travelers move quickly and miss Pearl's dynamic world that exists underfoot within the sidewalk joints.

We encountered Pearl in the corners of stone infrastructure at Frederick Douglass Circle, the roundabout on the Northwest corner of Central Park. The plaza is a monument to Frederick Douglass, a slave-turned-abolitionist and suffragist. The monument sits at a threshold between neighborhoods that have been historically disjointed. Our intervention expands on the Frederick Douglass Monument's formal strategies: using the fountain's splashing, drainage basins, and infinite circulation to facilitate Pearl's unbounded propagation.
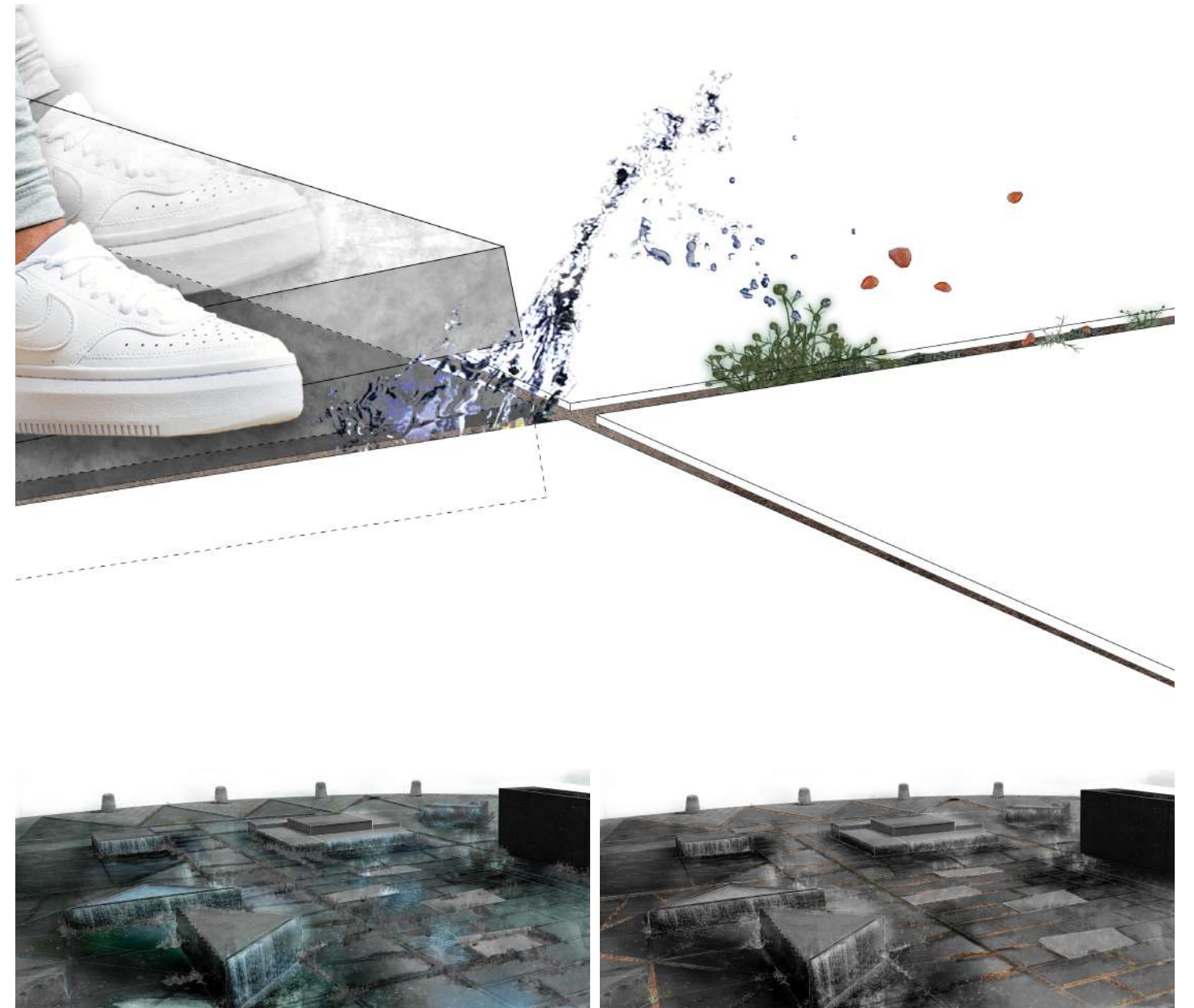
The operative tiles induce water displacement when stepped on, and the resulting watersplash on the plant initiates Pearl's reproductive process by dispersing her seeds.

"Feeding" the cracks with soil that mimics the condition of moisture and nutrients found in a nursery box, creates an ideal habitat for Pearl's growth, contrary to the distaste of gardeners who encounter her in their greenhouses.

LINK EVERYTHING W/ RESEARCH
• TOPOGRAPHY HELPS HER SPREAD
• MATERIALITY

HOW

WHAT

WHY

CHANGE MEANING OF "FLOOR"
↳ OUR EFFICIENCY SURFACE ⟹ PEARL'S WORLD
SLOW PEOPLE DOWN
REDEFINE MEANING OF FLOOR

"FEEL" THE FLOOR (THE WAY PEARL DOES)
CREATE A BRIDGE FOR INTERCONNECTING SPEC
PROTECT PEARL'S
CONNECT MICRO/MACRO SCALES

Over time, Pearl will grow autonomously, having been nurtured by the intervention's strategies to facilitate her growth. She will spread throughout the city and connect to neglected pavements and revive them.

These pavement interventions are not site specific; during the mundane and in the wake of destruction, they enable Pearl to design for herself a horizontal micro-landscape network out of the urban floor, for which humans must slow down and acknowledge.

Cecilia Vicuña, *Sidewalk Forests, 1981*

Our proposal is founded on nurturing the pavement's expansion joints. We have adapted strategies to facilitate Pearl's growth and reveal a transient horizontal landscape that will resonate throughout the city. The intervention redefines the meaning of floor; no longer is it a monolithic surface for pedestrians, it is Pearl's highway for growing, expanding, and evolving.

Pearl is painted with colors as a tangible illustration of growth throughout the city, inspired by Cecilia Vicuna's project, "Sidewalk Forests," where the pavement is marked with chalk around plants that grow in and around it, to "distill an awareness of the fragility and persistence of nature in the face of human intervention." We adapted this concept to illuminate Pearl's presence.

5 years

20 years
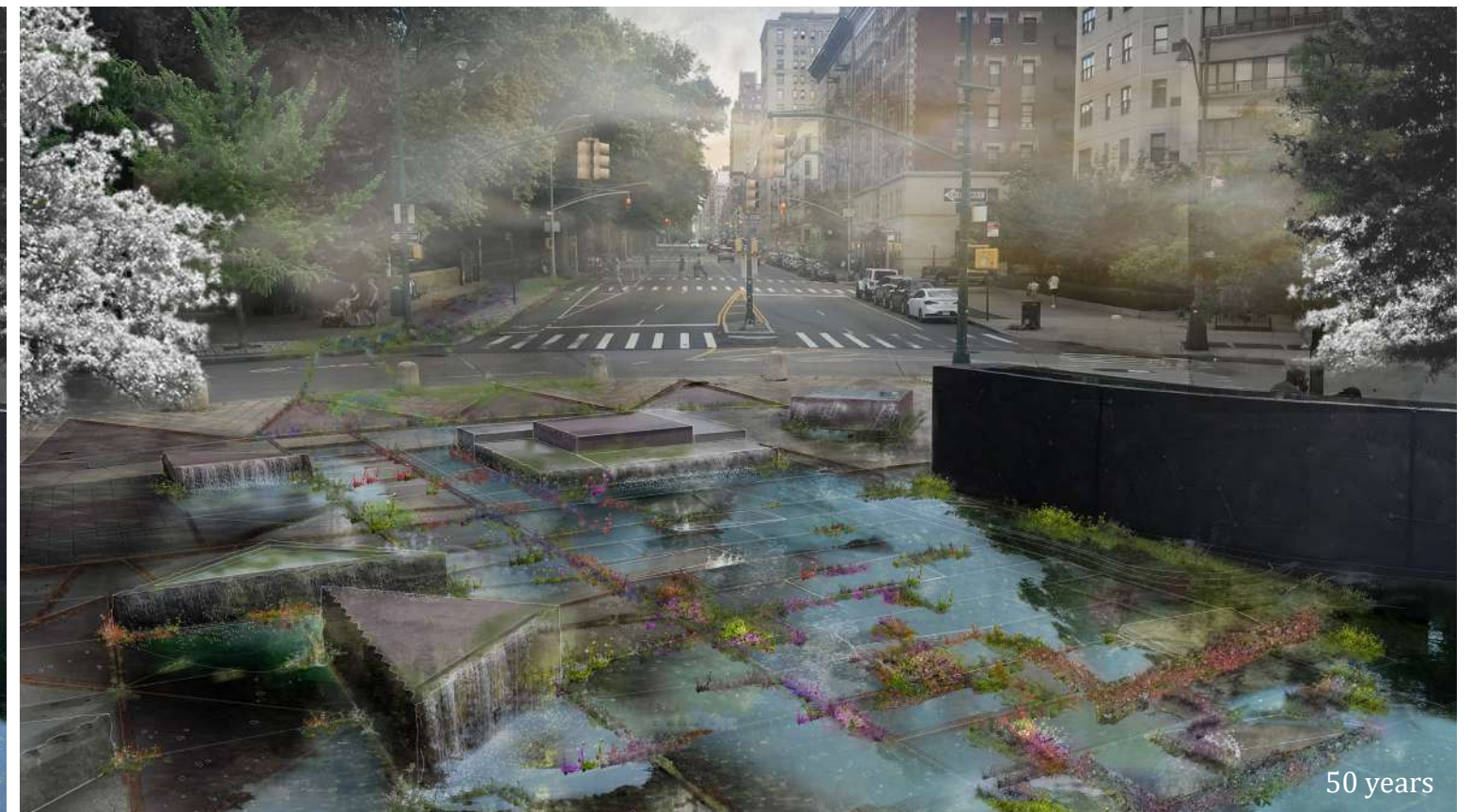
10 years

50 years

Inevitably, the square will become a swamp in 100 years. With respect to the monument's symbolism of freedom and transition for slaves and Douglass' impact on communities, C. Riley Snorton writes that the swamp had a metaphysical meaning for fugitive slaves; it is a simultaneous promise of life and death; and "expresses the conditions of 'something akin to freedom.'"

Pearl's movement is a hingepoint of transition, physically serving as a rebirth for a post-apocalyptic environment and conceptually, in linking and spreading and transforming throughout the city.

essays

transscalarities | SUMMER 2022

case study: dymaxion house | buckminster fuller

figure 1

figure 2

figure 3

Aluminum: The Great American Unifier?

Tuna fish containers, beer cans, airplanes, and the Dymaxion House have one thing in common: Aluminum. Aluminum is a wonderful material because it is lightweight, resistant to rust and corrosion, durable, cheap, and recyclable. Buckminster Fuller identified aluminum as a material that could incite a transformation to the definition of mass-produced housing, and, had the Dymaxion House been realized and distributed, today's standard suburban single family homes would not be the same.

Following the end of World War II in 1945, America faced a significant housing shortage initiated by the sudden influx of returning military personnel and the coinciding spike in birth-rate. Preceding World War II, the residual economic damage from the Great Depression resulted in only 43% of Americans owning homes, while the rest of the population rented. This statistic plummeted (Figure 1) with the onset of wartime construction restrictions (Lobner 2020).

The Dymaxion House was to provide a mass-produced, affordable, environmentally sustainable and transportable house for Americans. Characterized by a sophisticated radial tension system suspended on a central mast and clad in aluminum (Figure 2), the house's futuristic appearance resembled a UFO (Heichelbech n.d.). Because aluminum is cheap to manufacture, light to transport, and durable, the Dymaxion House could be obtained for the price of a luxury car, making realistic the feasibility for the average American to access housing, a promising mechanism to transform America's socio-economic trajectory. World War II's conclusion severely crippled the military airplane industry, since the sudden lack of manufacturing demand produced a surplus of aluminum airplane panels and also endangered thousands of livelihoods that relied on the fac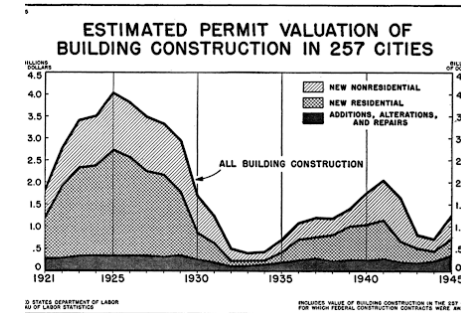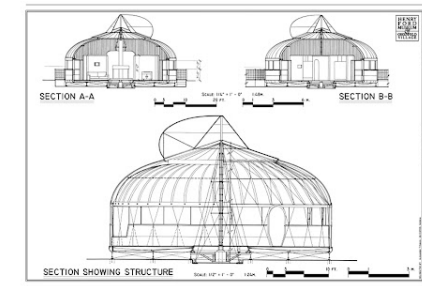tory's operation. Fuller partnered with Beech Aircrafts, proposing to convert the factory into a Dymaxion manufacturing facility and adapt their expertise in aluminum, which would also sustain and preserve thousands of jobs.

Divergent from the "white picket fence" aesthetic and incisive footprint of the suburban home, the Dymaxion House's domestic organization maintained the era's standard American "family unit." The radial interior included a living room, dining room, bedroom, and closets. The minimal terrestrial imprint of the house's mast-like central anchor and its environmentally responsive technology reflects Fuller's "vision of a world that works for 100% of humanity without ecological offense or disadvantage of anyone," rather than cater to a target market (Buckminster Fuller Institute n.d.).

In 1947, the Dymaxion House found nefarious competition: Levittown (Figure 3), a massive, "cookie cutter" neighborhood in Nassau County, Long Island (Galyean 2015). The Levitts "perfected the business of building suburbs," completing a new home every 16 minutes, quickly accommodating 70,000 people (Galyean 2015). Levittown's rapid production methods trounced contending modular building strategies (Heichelbech n.d.). On paper, Levittown was a domestic utopia; the image of ideal traditional American family life. However, its sinister reality reeked of conscious social control, exclusion, persecution, and segregation of the black community (Galyean 2015).

Though conceivable, the Dymaxion House received several thousand pre-orders, but only one prototype materialized in Wichita, Kansas because Fuller rejected investors and patenting requests (Museum of Modern Art n.d.). Resultantly, aluminum fell short of becoming a ubiquitous housing material. Had it prospered, Fuller's social and technological vision could have painted an entirely different picture of suburbia, social stratification, and sustainability that we see today

FALL

02 BRIDGING COMMUNITIES

Mia Iannace || Prof. Laura Gonzalez Fierro || East New York, Brooklyn, NY

This proposal is about using sports and sports facilities to bridge two communities separated by the neglected, pedestrian-unfriendly Van Sinderen Corridor and the adjacent elevated L Train subway structure. As a result, this extended site has a powerful potential to connect communities rather than separate them, to promote physical and mental wellbeing, become safe and accessible, and could transform from the least loved area into an area of neighborhood pride and ownership. Through a system of pathways and programs, this strategy of renewal can be applied along the blocks further down the corridor, or extend into other neighborhoods to form an extensive network of care.

As sports and sports facilities are an icon of community in New York City, they are a common ground for East New York and Brownsville. The the park uses sports to nurture organic socialization through public sports spaces and interactive pathways, physical safety through visibility, and a new appreciation for the environment as well as the industrial core of East New York.

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Fall 2022 | Prof. Laura Gonzalez Fierro | MIA IANNACE   35

NEIGHBORHOOD ANALYSIS: BROWNVILLE & EAST NY
FORMING PROGRAMMATIC TENSION AND CONNECTION THROUGH CONNECTION

The neighborhoods are separated longitudinally by the subway and cargo tracks, but are connected laterally by the spanning cross-streets. These which serve as arteries to each other and their features are accessible by vehicles and pedestrian traffic. The various businesses, attractions, and community spaces within each neighborhood are defined. A dialogue is exposed as some programs appear to mirror each other, and are activated by the shared cross-streets. An invisible tension is revealed upon the intersection through the Van Sinderen corridor.

NEEDS AND NODES: PROGRAMMATIC DISTRIBUTION
EXTRAPOLATING THE PLACEMENT OF PROGRAM ALONG THE LINEAR PARKWAY BASED ON POPULARITY AND SCARCITY.

The fragmented rectangles project a potential programmatic distribution informed by existing nodes of intersection, interspersed with apparent need where certain attractions are lacking between the two neighborhoods.

ZONES OF IMPACT: PROGRAMMATIC CONVERGENCE
THE SUPERIMPOSITION OF MIRRORED PROGRAMS INTERSECTING THE CORRIDOR

The distribution of circles indicate the prevalence of programs shared by both neighborhoods, where they intersect with Van Sinderen corridor. The size of the circles represent magnitude and of occurence and their resulting range of influence radiating from these intersections.

My research led me to choose the programs within the subway structure's frames to function as critical nodes of intersection relative to the existing services and spaces in the cross-streets of both towns, such that the park's programs are informed by the context of both communities. This activates an otherwise overlooked area into a platform for safe travel, recreational opportunities, and socialization across Brownsville and East New York.

The park's placement in both an elevated and grounded site provides the opportunity to reveal the features of industry and the natural beauty of the green valley beyond the elevated tracks that is currently inaccessible. The park provides a new vantage point to see the neighborhoods unfold below and promote an appreciation of the industrial landscape that keeps these towns alive.

Currently, Van Sinderen Corridor is narrow and unsafe for pedestrians. In response, the design proposes a multi-tiered linear park with ribbonlike pathways that weave through the columns and frames of the subway structure to safely relocate pedestrians into the valley, while widening the corridor for vehicular traffic.

The interconnected pathways diverge and converge according to their function, responding to the landscape and setting the rhythm of traveling and resting.

The pedestrian sidewalk is located under the subway structure's frames, alongside the corridor's new sloped barrier and can be accessed from ramps off the bridges at both ends of each block, and in choice slices along Van Sinderen. The inner paths cater to social interaction, circulation to sports facilities, and wheelchair and stroller accessibility. The lines of travel are separated by bioswale planters and benches, providing opportunities for resting, gathering and temporary activities like workout classes or movie screenings.
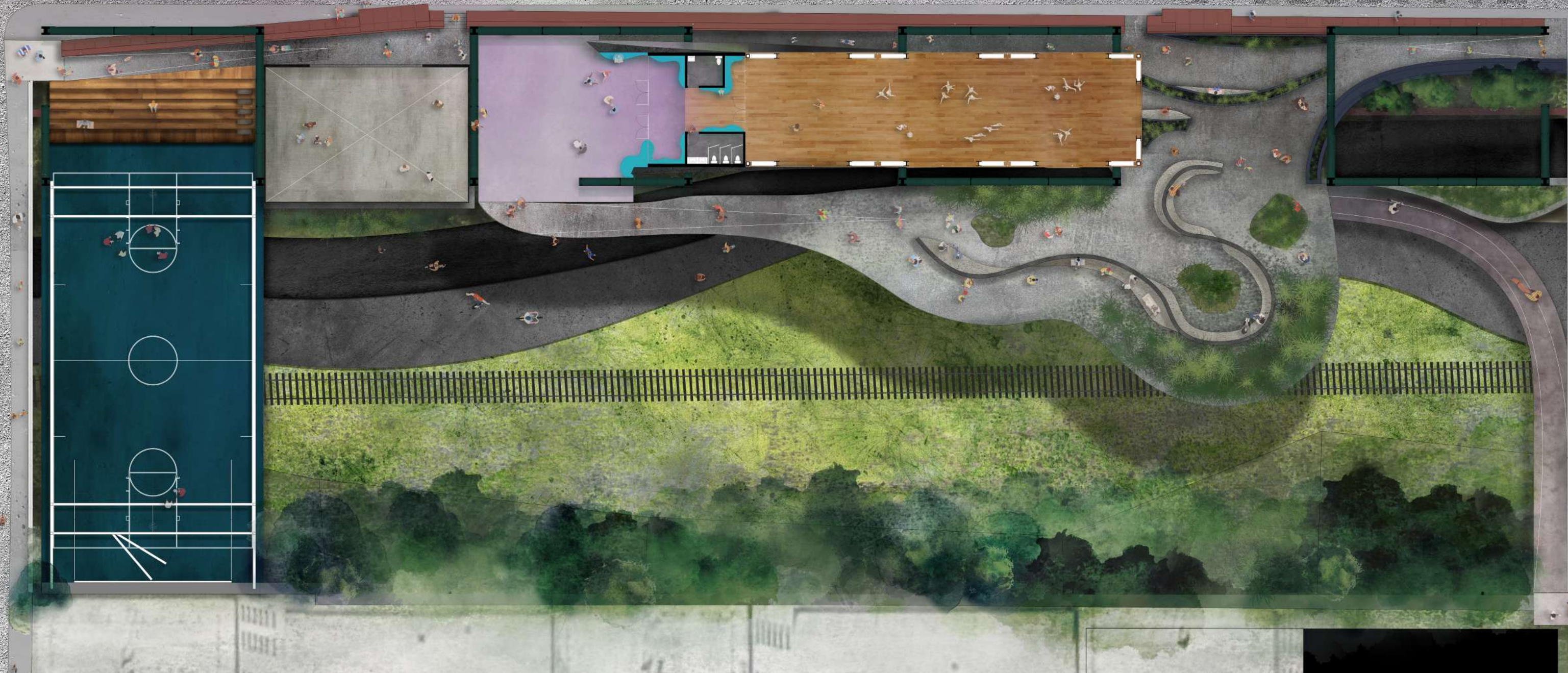
The ground level consists of a partitioned path for biking and running, and the outermost path has dynamic walls and curbs designed for skateboarding. Because these paths are farthest from street level, they can only be entered from every second bridge.

A basketball and racquetball court parallels the bridge, such that anyone crossing between Brownsville and East New York becomes a spectator. The court's parkside bleachers also unites players and passersby, which promotes both physical safety and community participation. The public dance studio, which contains a dance floor and restrooms, is suspended within two bays of the subway structure's x-frames.
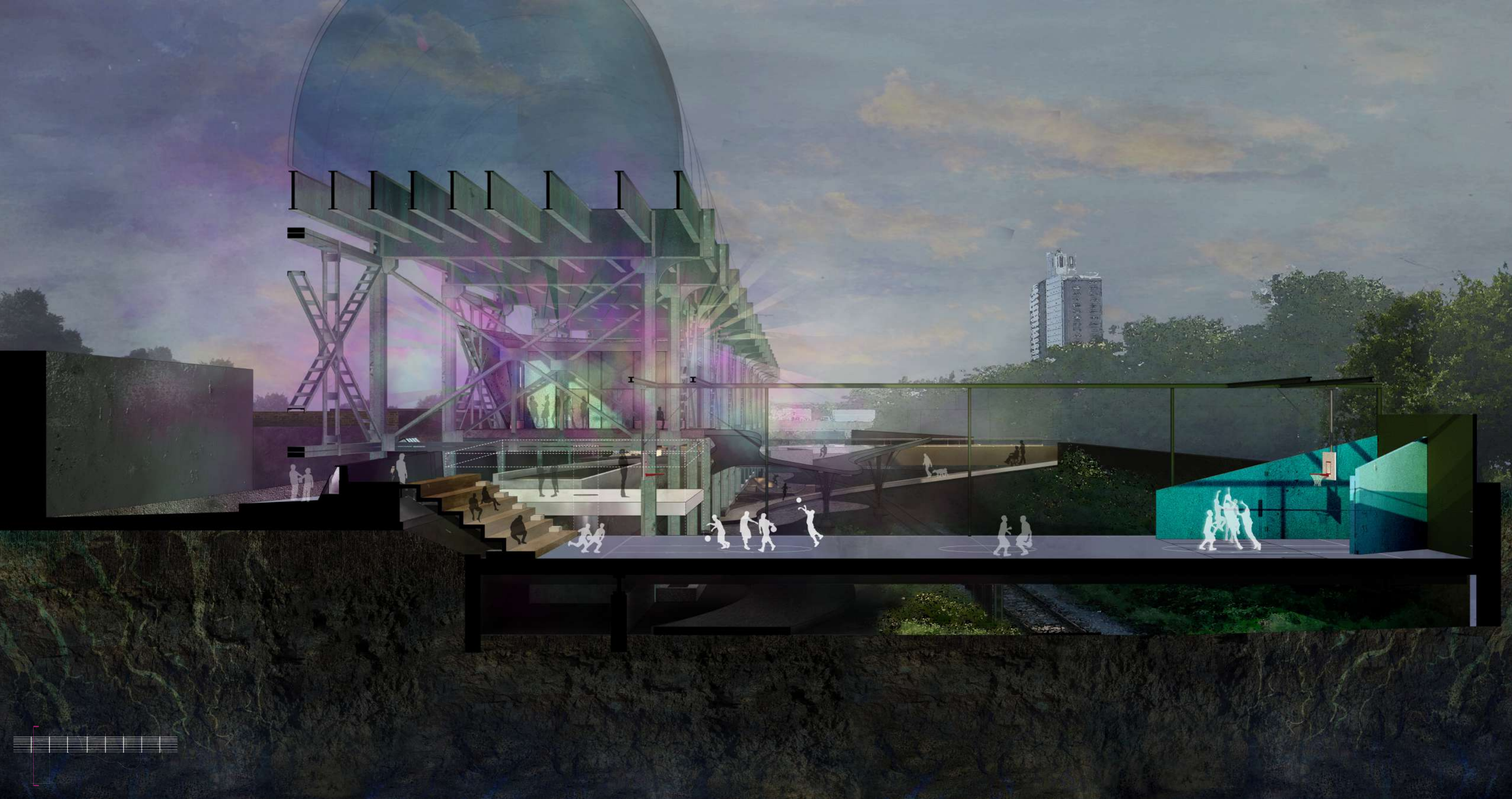
A suspended dance studio emerges above the buildings. Its transparency turns the dance studio into a stage that can be seen from the street and bridges. The entryway cladding of the studio itself is punctured with tiny lights, transforming the building into a glowing lantern casting its starry light over Van Sinderen and the park below.

All of these programs can be reached by a hydraulic elevator platform, which stops at the street level, the elevated dance studio, the court level, and the lowest ground level, so that anyone can participate no matter their physical abilities. At every level from the street to the park's features, there is a universally accessible ramp.

In response to Van Sinderen's purpose as a corridor for industrial transportation and other vehicular traffic, the park incorporates a sloped barrier all along the road to protect the pedestrians within the park and regulate entry. Because of its slope and height, it cannot be climbed or sat upon, or accumulate garbage. As a strategy to remediate the excessive dumping of garbage onto Van Sinderen, this new barrier contains built-in wastebins that invite people to separate their trash by material, such as wood, paper, plastic, clothing, electronics, and metals, and compost. The waste containers are not meant to prevent dumping, but instead to serve as receptacles for convenience and tools for teaching community care.

A third program is an alcove on the ground level, excavated into the slope. It is a pop-up space to expose local artists while serving as a CitiBike port, only accessible in the daytime during summer months. The columns supporting the topographical plaza above touch down near the alcove and have built-in benches that wrap around the column base for visitors to rest in the shade.

Since the park is embedded in a valley in the industrial zone, this area is prone to polluted runoff containing oils, manufacturing waste, garbage, and other environmental toxins. The park contains terraced bioswales, which are sloped channels filled with specialized soils and plants designed to naturally filter toxic runoff. The bioswales within the park are connected to each other underground and systematically terminate into earth-friendly drains.

essays

history of arch. theory | Mark Wigley | SPRING 2023

"of other spaces" | michel foucault

Examining the Mechanics of Foucault's Theory of Heterotopic Space [edited]

On March 14, 1967, the French philosopher Michel Foucault gave a lecture introducing heterotopic spaces to architecture students at the Cercle D'etudes Architecturales. The lecture is entitled, "Des espace autres," and as translated, "Of Other Spaces: Utopias and Heterotopias," which was officially published in the 1980s.

Within his lecture, Foucault clearly identifies his focus: "I am interested in certain sites that have the curious property of being in relation with all the other sites, but in such a way as to suspect, neutralize, or invent the set of relations that they happen to designate, mirror, or reflect...which are linked with all the others, which however contradict all the other sites..." Following this framework that expands from very real everyday spaces, Foucault asserts that some relationships between elements contest each other to form

"other spaces," which Foucault denotes as utopias and heterotopias. Heterotopias in essence are a way of understanding and dismantling living spaces and sites into a network of relationships instead of overarching hierarchical categories. In accepting the possibilities of consequence that the relationships within spaces can create, mundane living spaces can begin to be viewed not only microscopically, but discretely, unveiling entire new dimensions of living.

Foucault briefly touches upon utopias as perfect and essentialized sites with no real place or allusions to the society we know. The utopia is something of which we have learned to be weary because a perfect scenario cannot be real, at least in our earthly world. Because this is true, Foucault theorizes the heterotopic space: an effective utopia. It is tethered in concrete moments and locations and can use contradictions in linked spatial elements to actualize a virtual space and materialize possibilities. Heterotopias are the

offsets of reality; a secondary dimension formed by the implications of possibility, where possibility is an alternative space consequential of cooperative or combative interactions. Heterotopias are simultaneously fantastical and real; reachable and unreachable. While these elements are linked with real spaces, they could be thought of as the shadow of the tangible spaces people relate and occupy. These "shadows" are the unseen consequences of the elements that can be curated to create a site or living space and can incite a deeper, more metaphoric perception of the spaces that our societies or cultures can understand.

Foucault's theory of heterotopias sprang from a criticism of humans and architects for failing to "desanctify" their perception of space from the medieval "sacred mentality" of oppositional hierarchy: the localized intersection of what spaces are, relative to what they are not. Architecturally, people still maintain binary classifications of space such as private vs. public, family vs. social space,

leisure vs. work, and cultural vs. useful. Foucault asserts that architects fail to sever completely from these spatial organizations, thereby preventing a total paradigm shift towards delimiting space, such as recognizing heterotopias by considering space through the lens of "simultaneity, juxtaposition, near and far, side-by-side, and paradox."

In his manifesto, Foucault provides six indisputable principles to classify heterotopic typologies where they are discussed as a function of architecture, culture, and society; serendipitous byproducts of everyday life. The six principles serve to encourage architects' consideration of spaces as portals of possibility for sub-realities otherwise unseen to the naked eye. These principles can be reduced to classify heterotopias as spaces that are either formed by people's experiences, or heterotopias are created by those collective experiences acting upon a physical space. This distinction implies that the initiation of a heterotopia relies not only on the founding of a physical site, but to a certain

degree requires the abstract superimposition of specific cultural circumstances and interpersonal experiences to activate "shadow" spaces. An authentic heterotopia is one that emerges organically and transiently as a result of societal engagement with either a hypothetical space, a physical space, or some combination of the two. It leads to the question as to whether or not a heterotopia can be intentionally designed, or if this suggestion counters Foucault's ideas. The architect's role in experiencing heterotopias and attempting to construct them is a convoluted one because there is a fine line between using architecture to facilitate organic social dynamics and attempting to curate and intervene within them.

To explore this question, it might require examining the six principles as a set of design formulas. An analysis of the underlying themes of each principle within the set reveals two broad typologies of heterotopic spaces: those that are physical and activated by societal and temporal occurrences, and those that are mainly conceptual spaces enabled by, but not limited to, their physical environments. The latter in essence is siteless and spaceless but is signified by the space or typology of its site, like the spirituality of cleansing or living as an objectively perfect society. The former, the physically apparent heterotopias, possess heterotopic qualities of temporal paradoxes, dimensions, and phenomena within their intentional form and function because they are substrates of heterotopias rather than actors.

The heterotopias described by principles Two, Three, and Four, which address sites like cinemas, gardens, cemeteries, and fairgrounds, are predominantly physical heterotopias according to their social implications or formal contradictions. These spaces can largely work self-sufficiently as platforms for heterotopias. These conditions are likely more attainable to construct because the heterotopias form organically when people interact with the spaces and form allusions upon the physical site, based on the collective experience. The remaining principles are far more illusionary and form conceptual sites as a function of time, space, place, and people interacting simultaneously, where architectural spaces and heterotopias are not contingent. The elements form relationships despite the site, rendering compositions that could be imagined as projections above the physical space, such as the moment of giving birth or a honeymoon night.

Architecture is inherently and paradoxically heterotopic; it is a heterogeneous platform of art, science, and culture, which mirrors the values of society at certain points in time and translates them through spatial and formal expression. Architecture can speak for a population or society, though it often emerges from only a few minds with their own design ideals and worldviews. An architect can painstakingly design a space with a certain vision and touch, where the space's formal design and the user's experience can be decoupled. Within this mindscape, the architect can choreograph the spatial engagement. As such, it can be a perfect heterotopia, but fail as a heterotopia in practice. Even if the architect wished their space would perform as a specific heterotopia by statement or metaphor, the architect cannot unlink the subjective intentions of the space with people's objective experience of it. This suggests that the specificity of the desired impact of the space takes away from the success of the heterotopia. It is not to say it is impossible to construct a heterotopia; it requires a certain attunement and sensibility on the part of the architect to understand the temporal context, the behaviors of the society for which they are designing, and an ability to predict the future implications and engagements of the space with history and its own identity.

Perhaps the nature of attempting to design a space that triggers a heterotopia causes it to become a subset of true heterotopias because

figure 1

of its inorganic construction. For example, the public urinal in Amsterdam as shown in Figure 1 outwardly appears to be inviting a heterotopic experience. It seems to deliberately oppose the rest of the relationships in the site, its shape a blaring suggestion that there is a higher meaning. This public urinal is claimed to be a heterotopia because it is metaphorically a space of cleansing, which appeals more to the spiritual and conceptual aspect of heterotopias dependent on social constructs. It is debatable whether or not this space is a successful heterotopia because it insists on being out of place, while authentic heterotopias seem to be more subtle, benign until activation. Maybe there is no singular rule surrounding the authenticity of a heterotopia because it seems to be an infinite feedback loop.

Society tends to classify spaces and events as one conglomerate experience; however, people actually navigate hundreds of heterotopias daily when attention is paid to the sets of relations in life and how they complement or contradict perceptions of reality. Architects are of the few who can conceivably construct heterotopias, to further transform and "desanctify" the binary classification of spaces and construct further relationships as a site and the spaces it contains.. Architecture is born from the composition of relationships of elements floating in an infinite field of internal fantasy; instead of taking the world at face value, architects can begin to define living spaces as microcosms of dynamic realities that imply other worlds, when they are isolated and considered in relation to the present moment and location.

The question surrounding the possibility of fabricated heterotopias endures; they are formed by humans making conjectures and attempts to understand existence and how to occupy space. This difficulty lies in the fact that the architect is a single-handed author, while heterotopias are conceived by many authors: entire societies.

SPRING

03 FOREST-TO-FARM-TO-TABLE

A Co-Being Foodscape

Mia Iannace || Prof. Boonserm Premthada || Ban Taklang Village, Surin, Thailand

In Ban Taklang elephant village, the lives of elephants and their mahouts (handlers) are enmeshed; they eat and sleep under the same roof. Mahouts prioritize their elephants' nutrition, constantly providing fruits and vegetation and walks to water. Because 80% of their day is spent eating, elephants' food security and the village's economy are closely correlated. For financial and climatic reasons, accessibility and generation of food is complex and distribution is inefficient. During the arid summer season, agriculture in Ban Taklang village is compromised due to lack of rich soil, irrigation, and water recycling systems.

To enhance the elephants' health and happiness and also Ban Taklang's economy, the project is an interconnected system of occupiable multi-scale table typologies catered to elephants for dining and resting, water collection during the monsoon season, and passive farming. The domestic table form is an adaptation of the way mahouts' houses essentially function as a table for elephants: they eat from the raised deck, from the mahout's hand, and from piles of food in the yard. Located on the bank of a pond along a forest path, the tables are a pitstop for elephants and mahouts, while facilitating community engagement in a local farming cooperative.

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Spring 2023 | Prof. Boonserm Premthada | MIA IANNACE   55
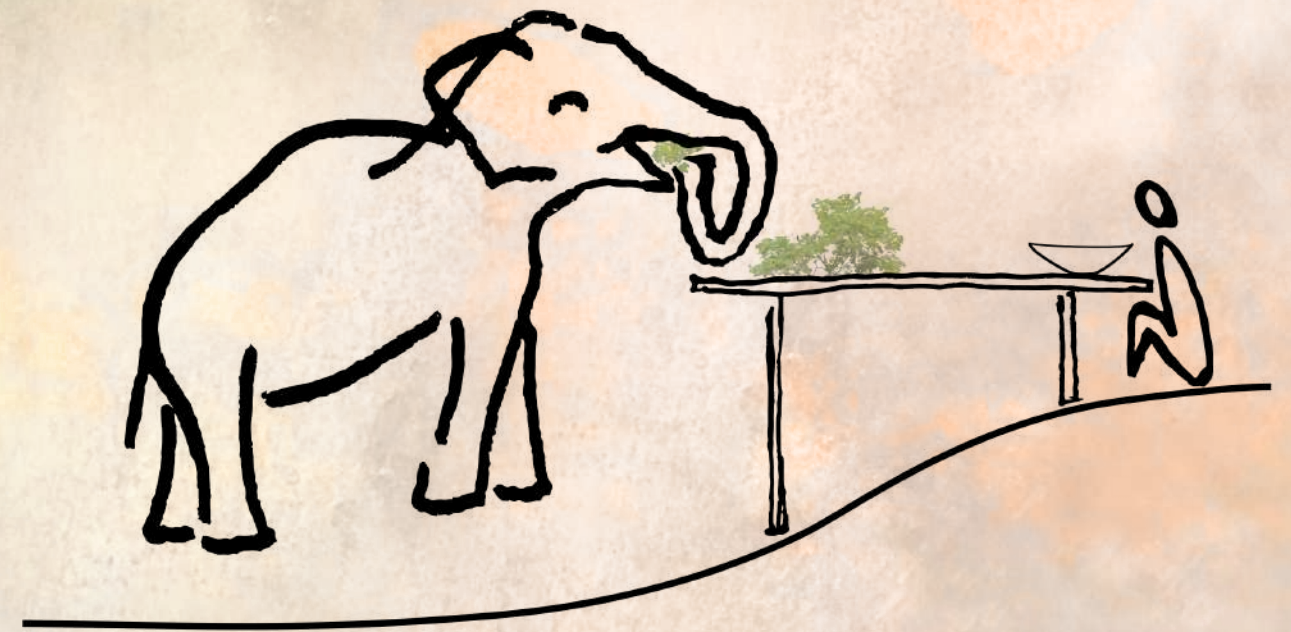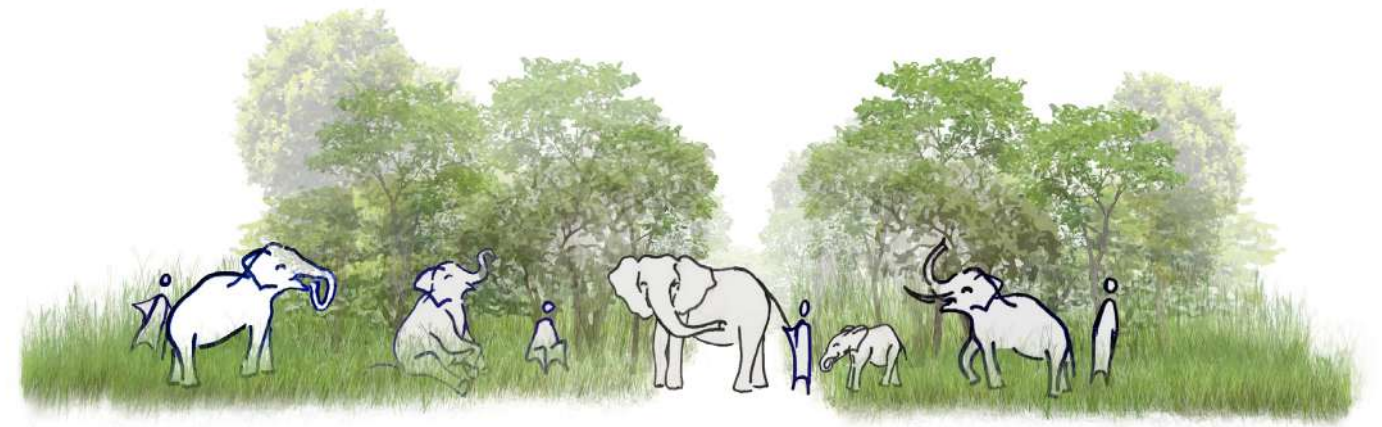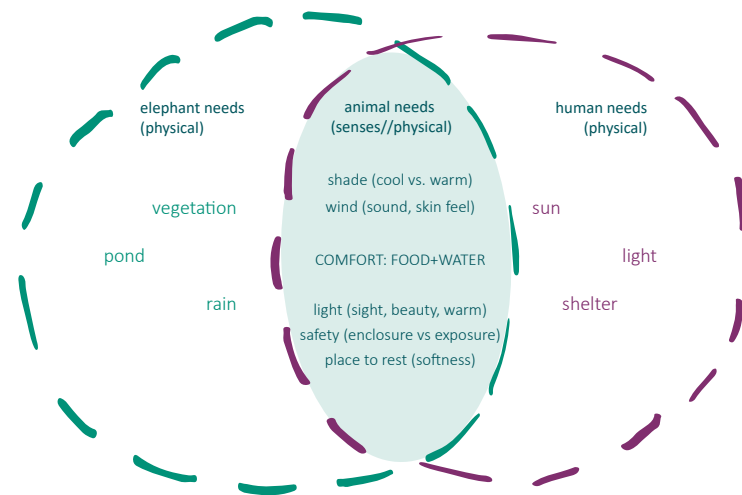
WALKING = MEASURE OF WELFARE

"Effective means for meeting social or nutritional needs and performed in response to external conditions."

"Association between distances walked and other behavioral or health indications to validate walking as a measure of welfare."
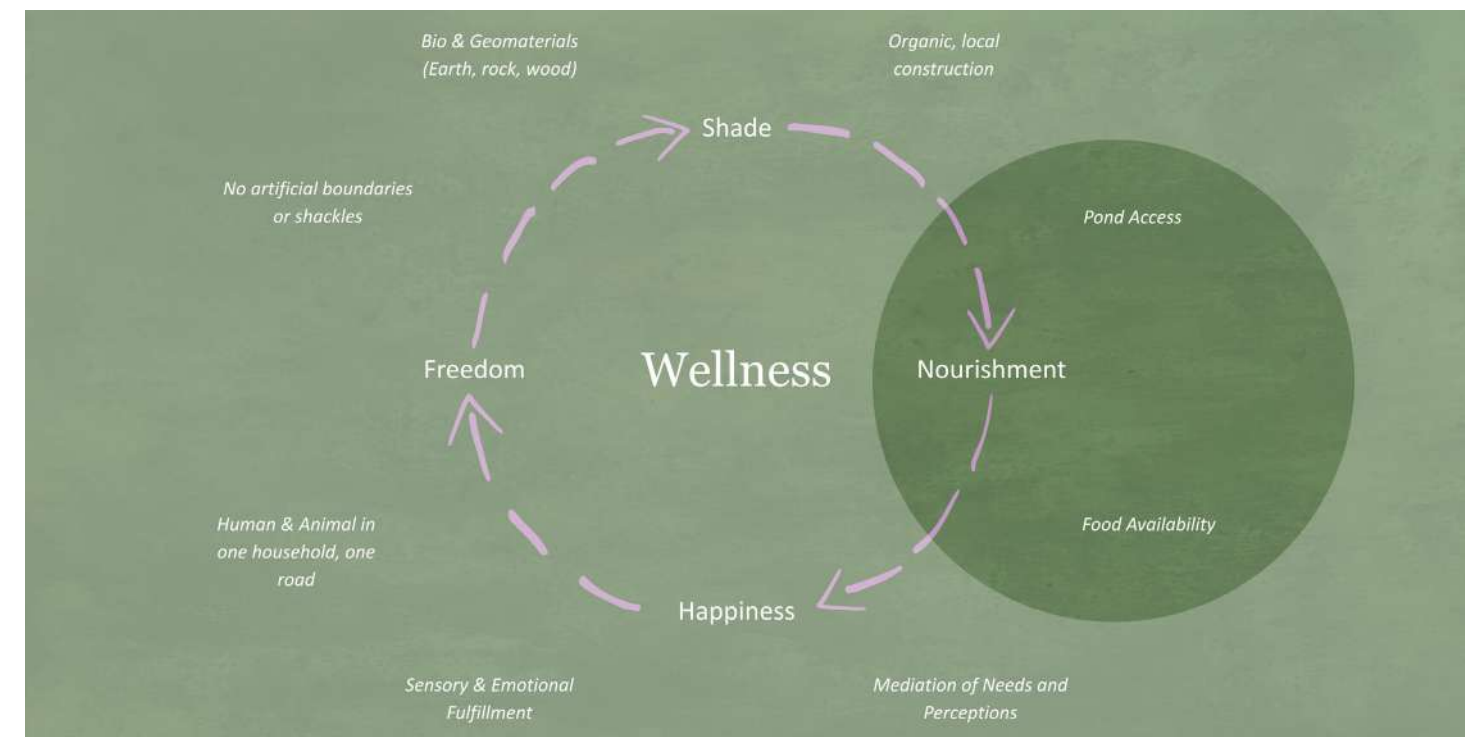
Demographic, social, environmental, and management factors determine the distance walked.

Exploration = info gathering function

Instinctual vs Human-led walking

The root of my research began with wellness because many elephants in the Ban Taklang Elephant Village have been rescued from Thai elephant tourism or were homeless during the pandemic and consequently suffer from behavioral issues and malnourishment. I mapped the basic environmental elements that facilitate an elephant's well-being and happiness because I'm fascinated by the relationship between environment and psychology.

I focused on nourishment as a pillar of wellness, centered on access to food and water. Because the studio is non-human centered, i intersected fundamental elements like temperature regulation, comfort in resting and eating, and safety for both humans and elephants because we are all animals with basic needs.

forest grasses and roots

sugar cane

bamboo stalk

pineapple tree leaf

banana fruit
banana tree leaf

napier grass

zucchini
summer squash

sticky rice
(indigestion)

ficus
(indigestion)

acacia
(protein & energy)

borage
(motherhood)

sticky tamarind
(protein)

cratoxylum formosum
(indigestion & motherhood)

rock salt
(electrolytes)

tinospora crispa
(fever, apetite loss, apathy,
tremors, indigestion)

mineral salts
(calcium + phosphorus)

sugar cane

pineapple, mango,
watermelon, coconut,
papaya, dragonfruit,
starfruit

watermelon

Family	Botanical name	Voucher	Vegetal Type	Parts eaten	EUR (nb mahouts)	Mahout medicinal use
Fabaceae	Acacia caesia (L.) Willd.	JMD 1127	C	r	diarrhoea: r and s (1)	yes (1)
Fabaceae	Acacia concinna Willd. A.DC.	JMD 1149	C	r, l	motherhood: r (1)	no
Zingiberaceae	Amomum schmidtii K.Schum. Gagnep.	JMD 1113	H	r, wp	diarrhoea: wp (1)	yes (1) (flatulence*)
Zingiberaceae	Amomum schmidtii K.Schum. Gagnep.	JMD 1113	H	r, wp	tonic: r (1)	no
Fagaceae	Castanopsis indica Roxb. ex Lindl. A.DC.	JMD 1151	T	r, b	motherhood: r: (2)	no (2)
Fagaceae	Castanopsis indica Roxb. ex Lindl. A.DC.	JMD 1151	T	r, b	diarrhoea: r (1) r and b (1)	yes (1) no (1)
Guttiferae	Cratoxylum formosum Jack Dyer	JMD 1096	T	l, s, t, b, r, sh	motherhood: r (1)	no (1)
Guttiferae	Cratoxylum formosum Jack Dyer	JMD 1096	T	l, s, t, b, r, sh	diarrhoea: r (2)	yes (1)
Moraceae	Ficus hispida L.f.	JMD 1134	T	b, t, sh, r	diarrhoea: r (1)	yes (1)
Moraceae	Ficus racemosa L.	JMD 1002	T	r, b, l, sh, f	diarrhoea: r (1) r + b (1)	yes (1)
Rubiaceae	Gardenia sootepensis Hutch.	JMD 963	T	l, t, r, b	diarrhoea: b (1)	yes (1)
Simaroubaceae	Harrisonia perforata Blanco Merr.	JMD 1144	Sh	r, sh	motherhood: r (5)	no (4)
Simaroubaceae	Harrisonia perforata Blanco Merr.	JMD 1144	Sh	r, sh	diarrhoea: r (13)	yes (7) no (6)
Araliaceae	Heteropanax fragrans Roxb. Seem.	JMD 957	T	b, r, t, sh	motherhood: r (3), b (1)	no (4)
Araliaceae	Heteropanax fragrans Roxb. Seem.	JMD 957	T	b, r, t, sh	diarrhoea: r (1), s (1)	yes (2)
Fagaceae	Lithocarpus auriculatus (Hickel & A.Camus) Barnett	JMD 1150	T	r	motherhood: r (4)	no (3)
Fagaceae	Lithocarpus auriculatus (Hickel & A.Camus) Barnett	JMD 1150	T	r	diarrhoea: r (3)	no
Moraceae	Maclura cochinchinensis Lour. Corner	JMD 972	Sh	r, b, r	diarrhoea: r (3)	yes (1) no (2)
Fabaceae	Mucuna pruriens (L.) DC.	JMD 1112	C	s, r	diarrhoea: r (1)	no
Euphorbiaceae	Phyllanthus emblica L.	JMD 1142	T	f, b	diarrhoea: b (1)	yes (1) (cough*)
Euphorbiaceae	Phyllanthus reticulatus Poir.	JMD 995	T	l, r, sh	diarrhoea: r (3)	no (3)
Theaceae	Pyrenaria sp.	JMD 958	T	r, b, s, l, sh	motherhood: r and b (1)	no
Dipterocarpaceae	Shorea siamensis Miq.	JMD 1148	T	r, b, s	diarrhoea: r (1)	yes
Anacardiaceae	Spondias pinnata L.f. Kurz	JMD 1115	T	b, sh, b, r	diarrhoea: r (2)	yes (1) no (1)
Combretaceae	Terminalia mucronata Craib & Hutch.	JMD 1108	T	s, b, r	diarrhoea: r and b (2), b (1)	yes (2) no (1)
Menispermaceae	Tinospora crispa L. Hook.f. & Thomson	JMD 1126	C	s, r, l	diarrhoea: r (1)	yes (1)
Menispermaceae	Tinospora crispa L. Hook.f. & Thomson	JMD 1126	C	s, r, l	tremor: s (1)	no
Menispermaceae	Tinospora crispa L. Hook.f. & Thomson	JMD 1126	C	s, r, l	fever, (apathy + appetite loss): r and s (1)	no

4th column indicates the context of elephant use and items selected, and in brackets the number of mahouts reporting the EUR; 5th column gives the number of mahouts using the item for the same ailment in their household (* indication have been specified when different from EUR). b = bark, f = fruit, r = root, l = leaves, s = stem, sh = shoots, t = twigs, wp = whole plant.

J.-M. Dubost, et al. Journal of Ethnopharmacology 244 (2019)

Elephants have several types of diets: their daily diet, their holiday diet, and their medicinal diet. Their daily diet is mostly napier grasses, and all parts of the banana tree and the pineapple bush. They also enjoy sweet fruits like sugar cane, bananas, and watermelons. Their diet for holidays and special occasions are all of their favorite sugary fruits.

The medicinal diet is fascinating because elephants often innately forage for a certain plant when they aren't feeling well - usually for indigestion or when in labor. The above table is an inventory of herbs mahouts give to elephants when they're sick; it is usually a shrub or vine found in the forest, high in fiber, protein, and energy.
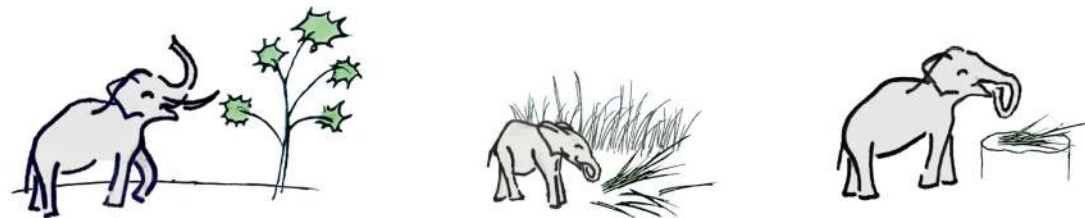
"the table makes us human" → **what does it mean to give the non-human beings a place at the table?**

meal at table = **status + identity** (distinguishment)
family gathering = **solidarity + community**

"the human is the only animal species that surrounds food with rituals…"

table = **place of memory** (madeleine de Proust): sounds + smells evoke memories

teak khantoke table
(northern)

rattan khantoke table
(northern)

woven floormats
(national/regional)

modern thai tablesetting
(westernized)

Elephants are Thailand's national animal and are greatly honored in Buddhism, so they are celebrated on Elephant Day. The elephants are served fruits on giant buffet tables. Because mealtimes are very important in Thailand, I looked into the different ways meals are consumed. Because I was looking to connect the mealtime rituals of humans and elephants as a continuation of their shared basic needs from the initial research, I found that the table is a link.

15-20 ft
4.5-6 m

9 ft
274 cm

6 ft
183 cm

1:6
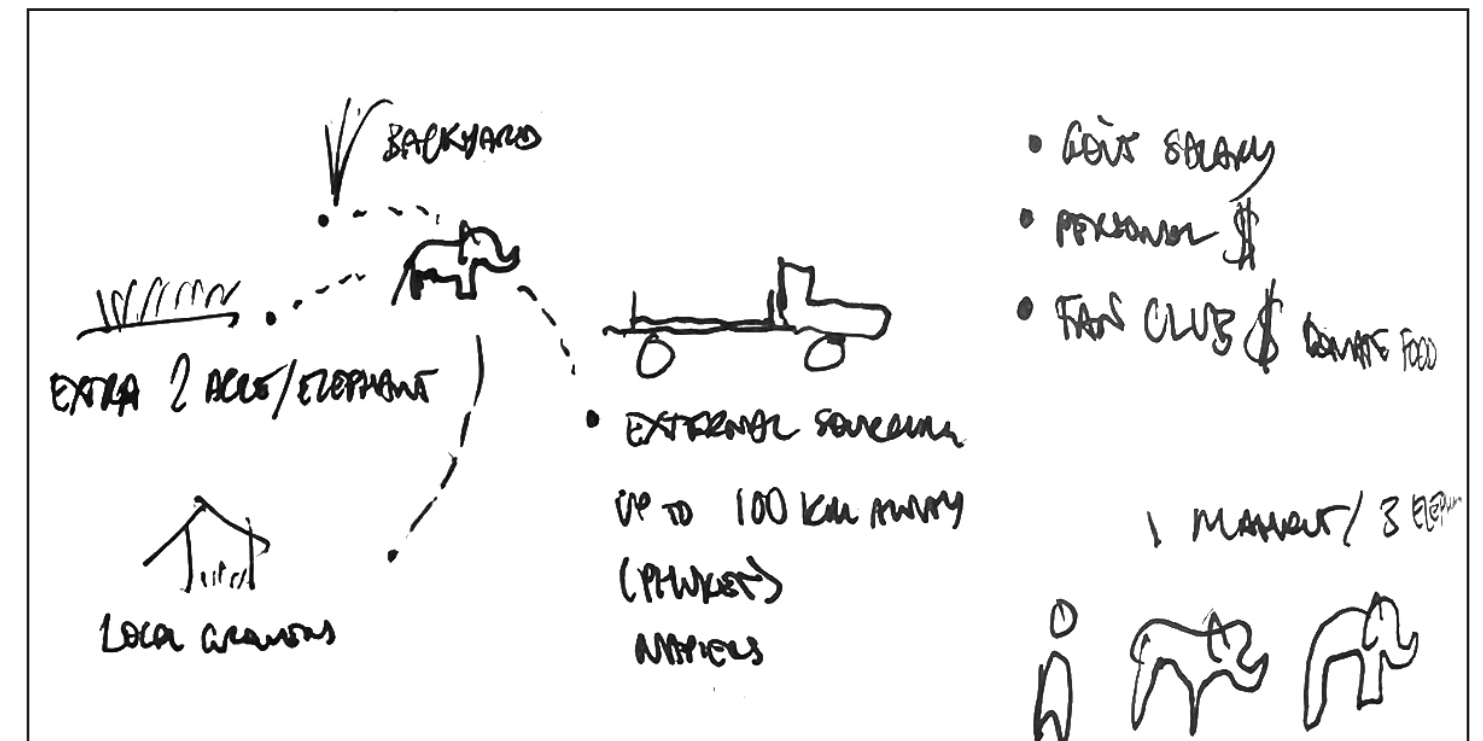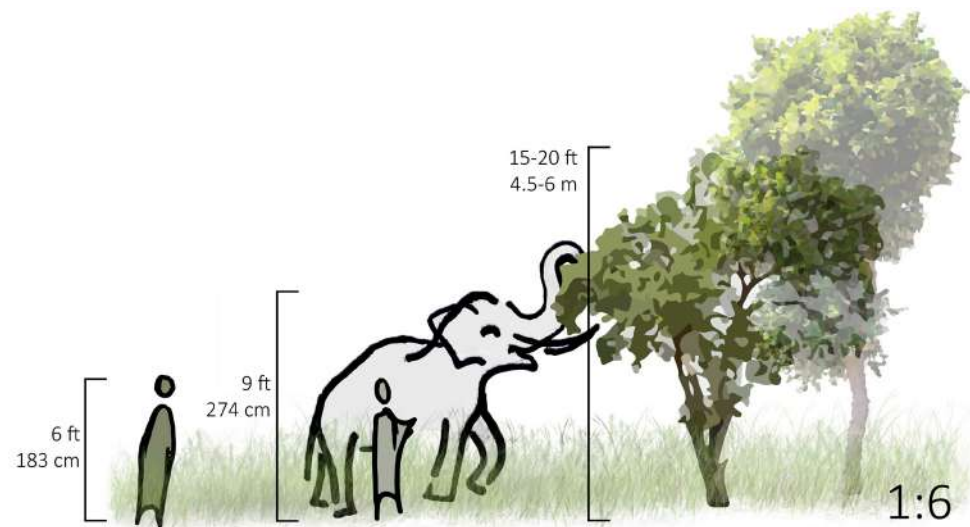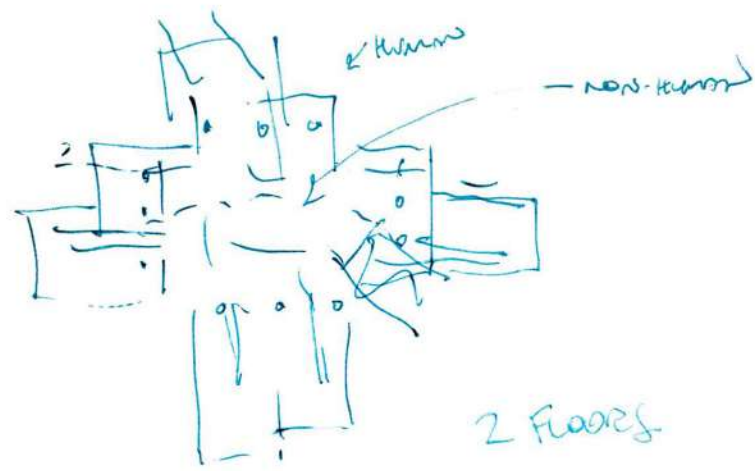
Food is often sourced from up to 100 kilometers away, even if it's paid for by patrons supporting the mahouts' livestreams of their elephants' daily routines. Today in Ban Taklang village, the economy is supported by the mahouts' government stipends, food and souvenir vendors for tourists, and livestream donations. For both financial and environmental reasons, food is hard to access and generate, and distribution is inefficient. As of now, agriculture is limited because of degraded farmland and poor management of water and natural resources.

Families grow some napier grasses, bananas, and pineapple bushes in their yards to supplement their elephant's diet. Most families own up to 3 elephants, so to complete the elephants' daily intake, mahouts purchase fruits and vegetation from growers, which is an expensive routine - a bunch of bananas is 50 Thai Bahts, which is about $1.50 USD, and elephants eat multiple banana bunches daily.

An undeniable fact is that elephants eat a lot. A male elephant can consume up to 3 times its body weight in vegetation daily, which means an elephant needs a consistent source of food throughout the day. From my first hand observation, elephants are fed in a variety of ways: from the deck of the mahouts' homes, directly from the mahout's hand, from the surrounding vegetation, from piles of food on the ground, and sometimes from giant tree stumps.

When speaking to several mahouts in the village during Kinne week, the purpose of my project became clear: to create regenerative and diverse food sources that elephants can access for nutrients, while providing economic stimulation, reforestation, and water resource management to enable this symbiosis.

6:9

The initial idea began a series of feeding platforms distributed through the forest, extending from the trees. It then shifted into a more domesticated structure in the forest that could be occupied by both humans and elephants that would serve as "tables" for elephants and resting places for the mahouts. This concept progressed into a concentrated network of stacked, scaled tables to fulfill the purpose of dining and resting, water collection, and farming.
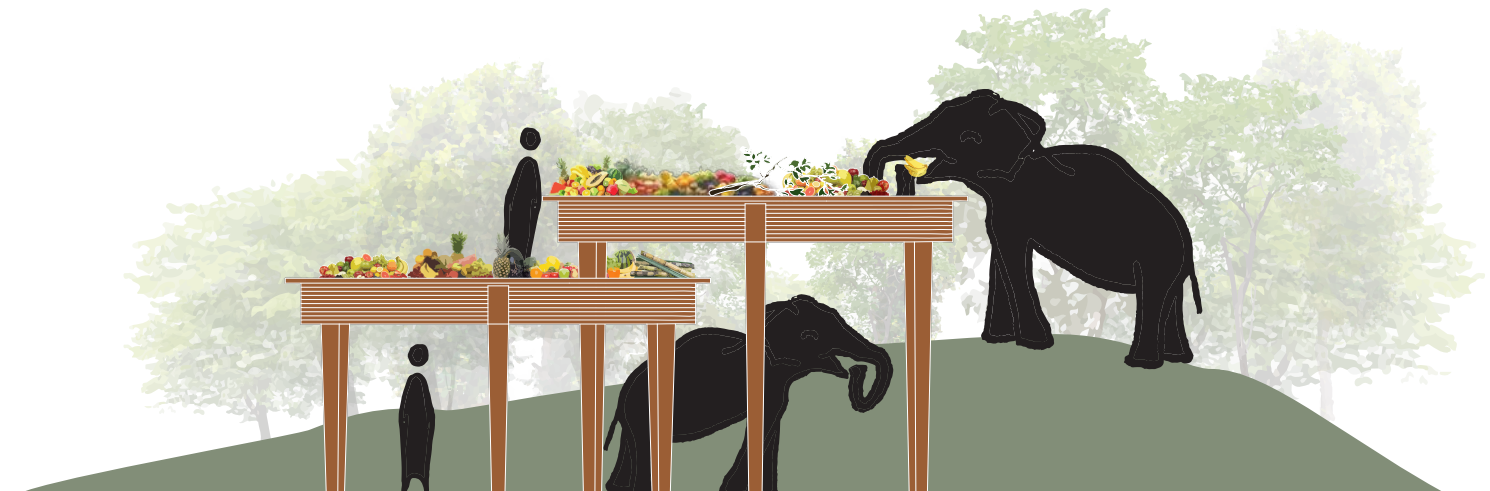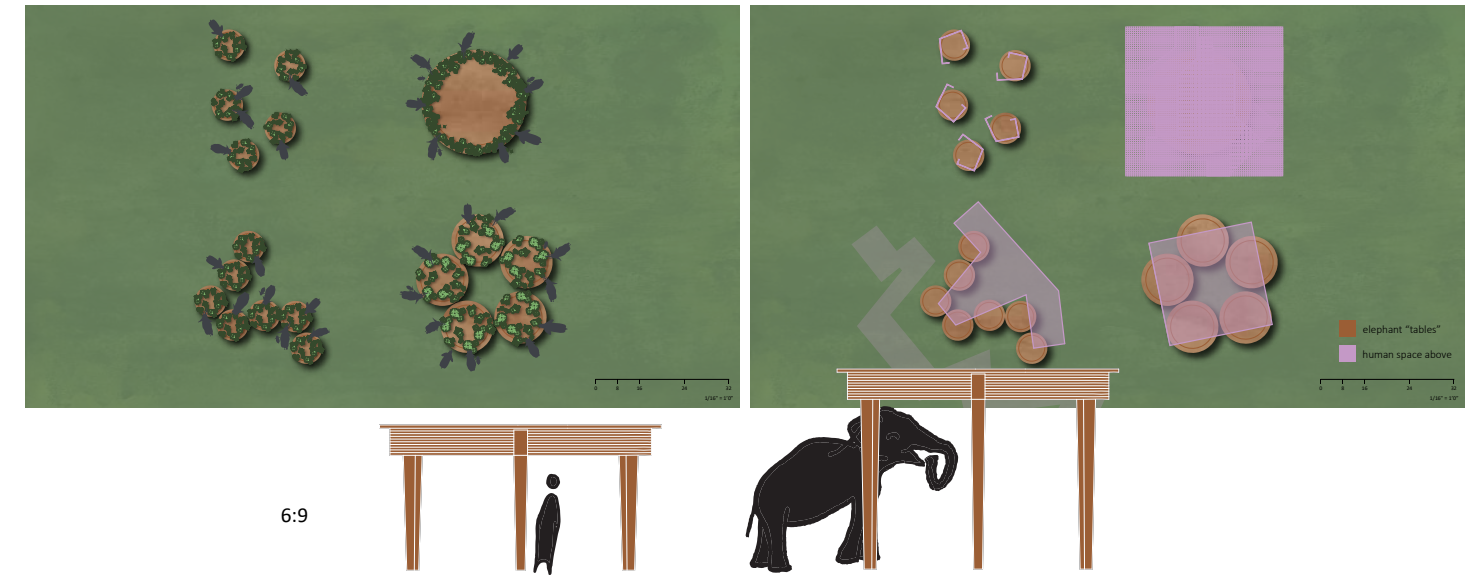
Inevitably, providing a table to an elephant requires a significant leap in scale. Since the elephants sort of use the mahouts' houses as a table, the design becomes a multifaceted system where the table acting as a surface for food consumption, but also becomes occupiable above and below by humans or elephants, all through a manipulation of scale.
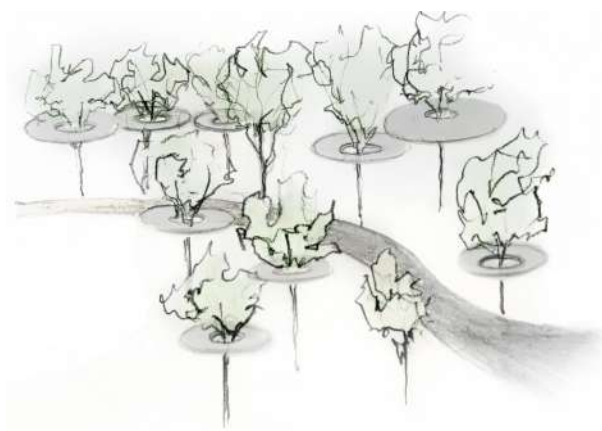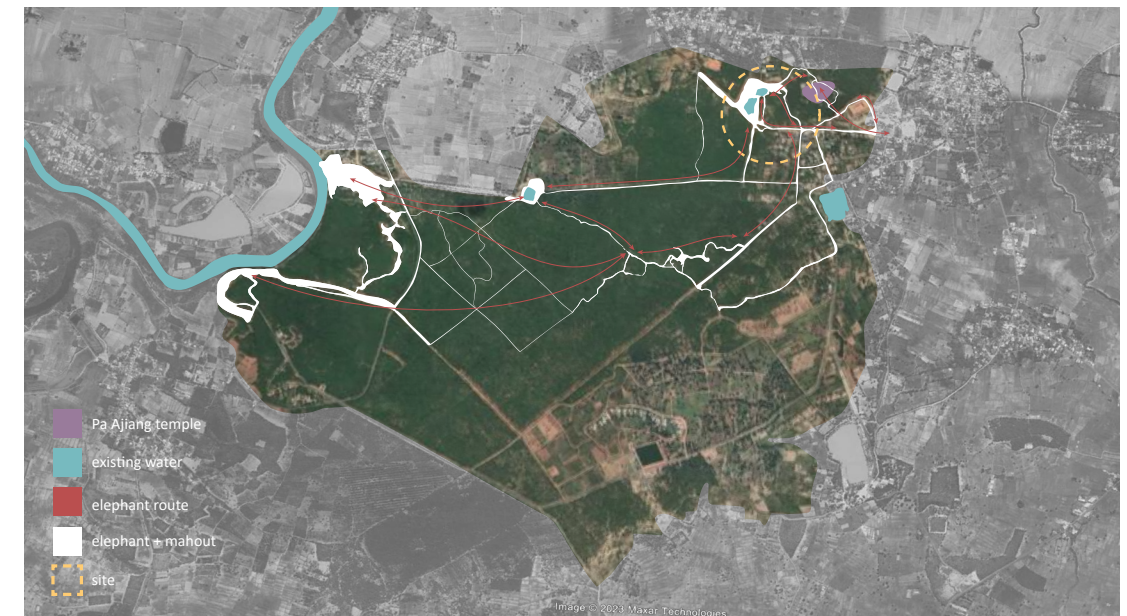
Bringing it all back to wellness, I found that the elephants' daily walking is connected to their food consumption. The distance elephants travel is a measure of their health, and elephants also eat the vegetation as they walk throughout the forest. This diagram speculates on the elephants' stops to forage on vegetation as they walk, as shown by the green bubbles, which converge at the base point of my site, on the bank of the pond.

Elephants can walk up to 20 km per day, from the village to a water source, and back. The white lines in the site map show the elephant paths through the forest. The destination being a water source is critical, so the meeting of the elephants' path from the village, their eating habits, and access to a pond informed my decision to pick my project's site on a path that cuts through an area reserved for farming, which terminates at a pond.

80 F daily avg temp
119 rainy days/year
6.3 sunshine hours per day
73% relative humidity

My design proposes a multiphase passive agricultural system, which capitalizes on the rainy season for water collection and irrigation and planting, the presence of the pond for surplus water supply and elephant refreshment, and the pathside land currently prepared for the growing of banana trees.
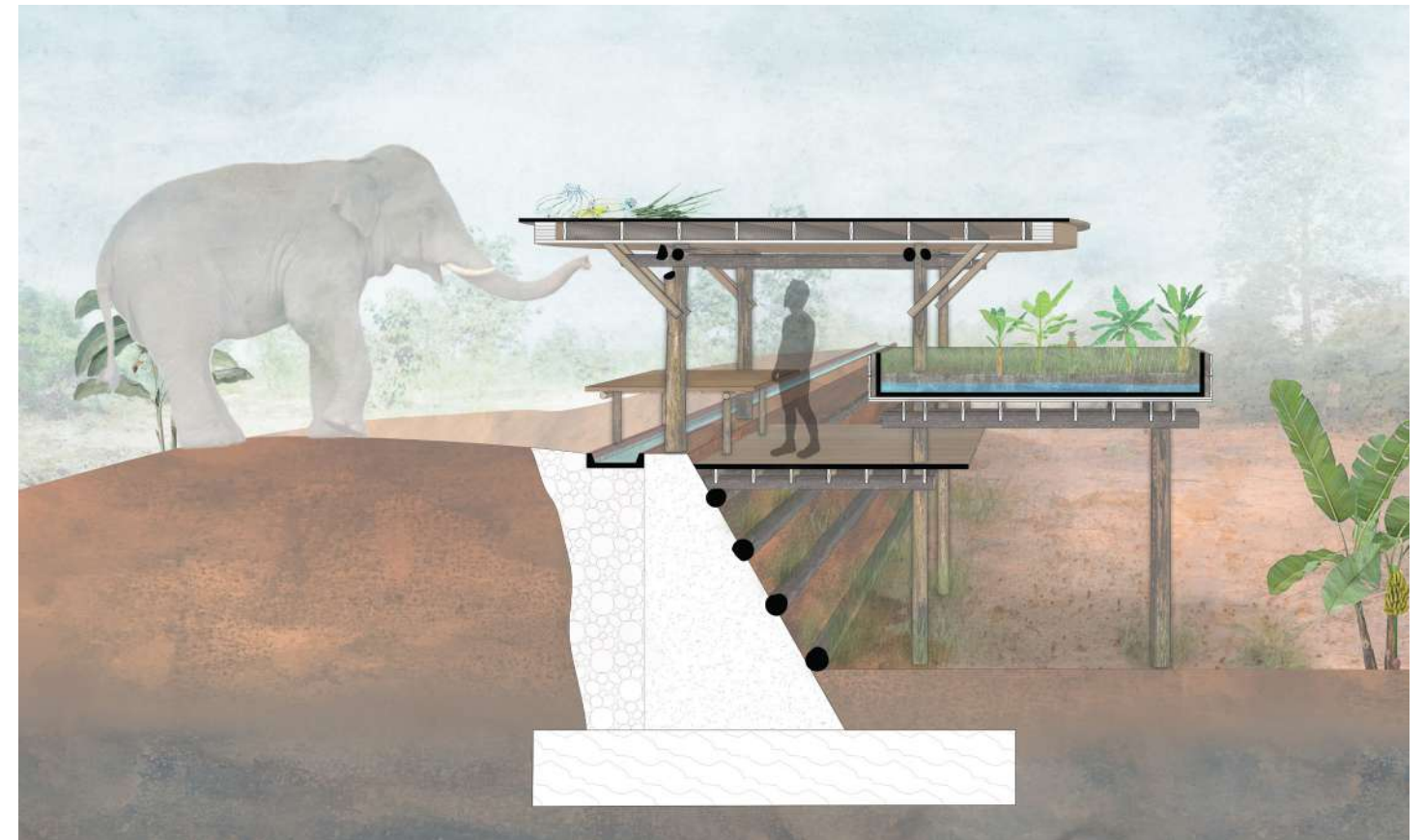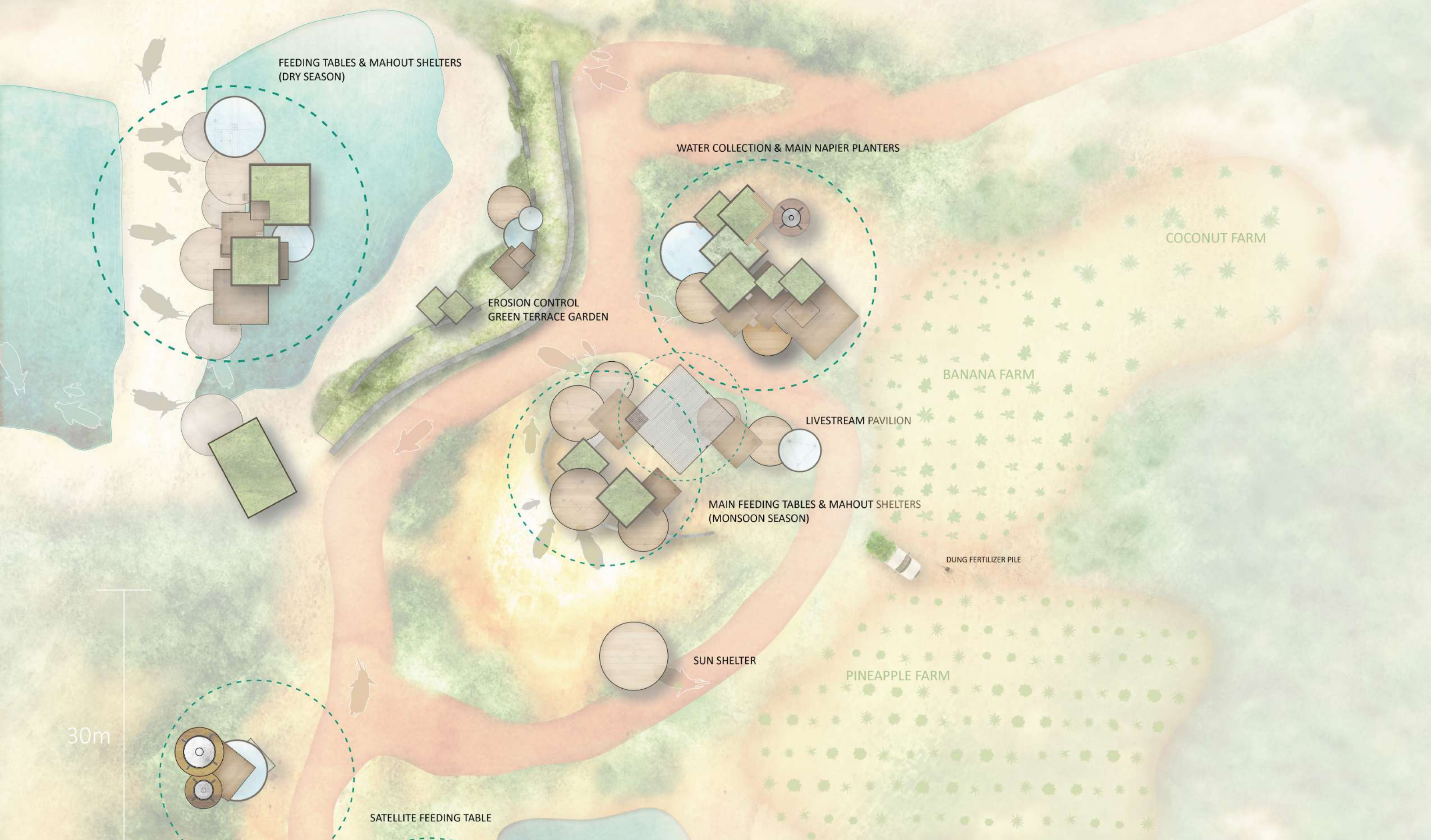
By using these table typologies to create a food generation and distribution system, it has the potential to boost the local economy: Locals and mahouts become casual farmers, and fan club donations could be directed to the growing of food. The food grown on-site will reduce transport costs, it could even be exported to other villages. Also, street food and souvenir vendors could expand to serve the mahouts and visitors in the table farm and establish a forest cafe.
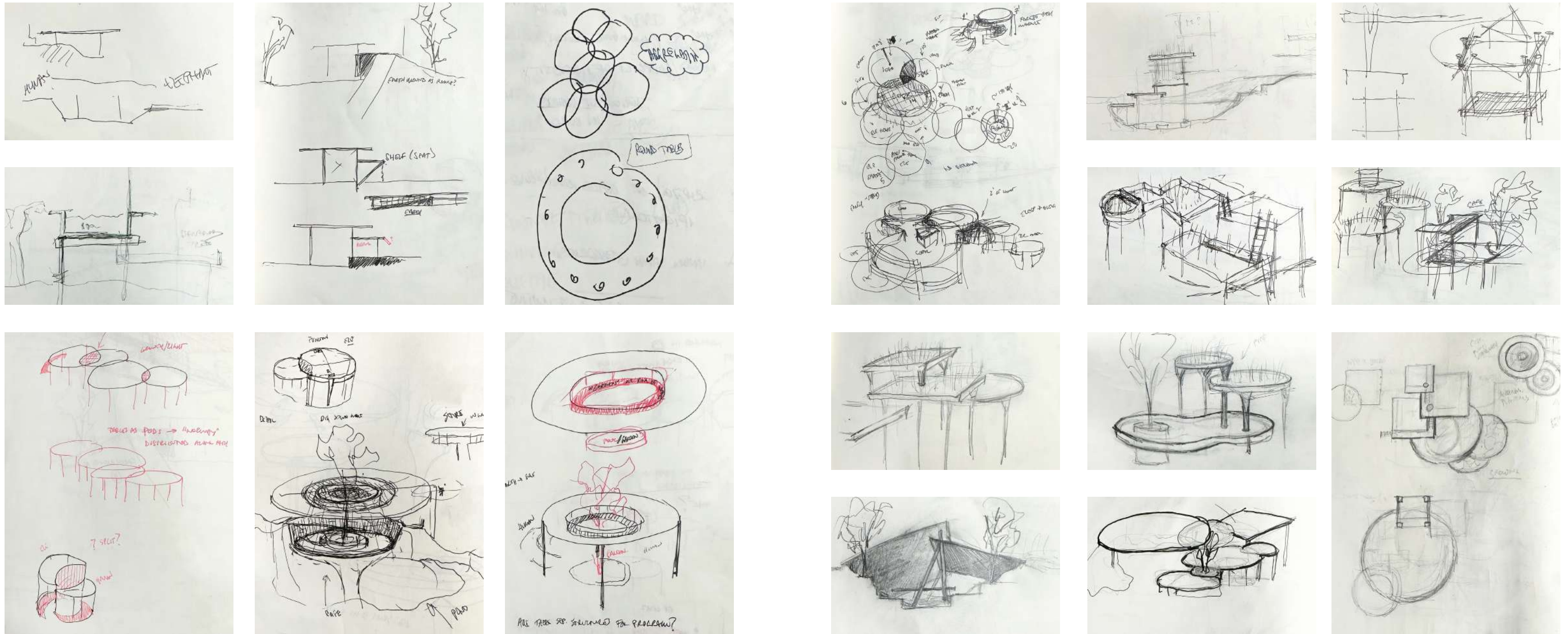
Throughout the semester, the design underwent a rigorous process of composing, refining, scaling, and simplifying until the tables became only the essence of what they needed to be: nothing more elaborate than could be feasibly built in the village, and straightforward for the elephants to navigate.

Programmatically, each zone of aggregated "tables" would expressly serve to perform a function. They could be expressly tables, planters, areas for shade, and settings appropriate for livestreaming... nothing more, nothing less. Yet, the project has an atmosphere.
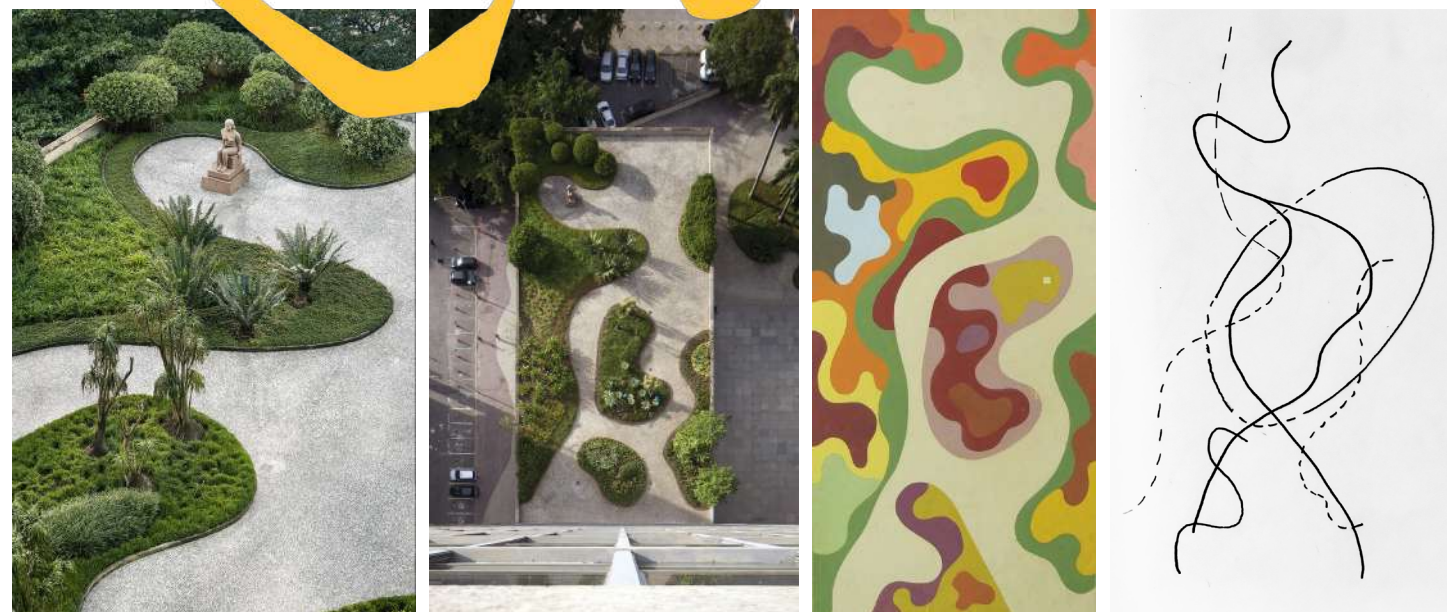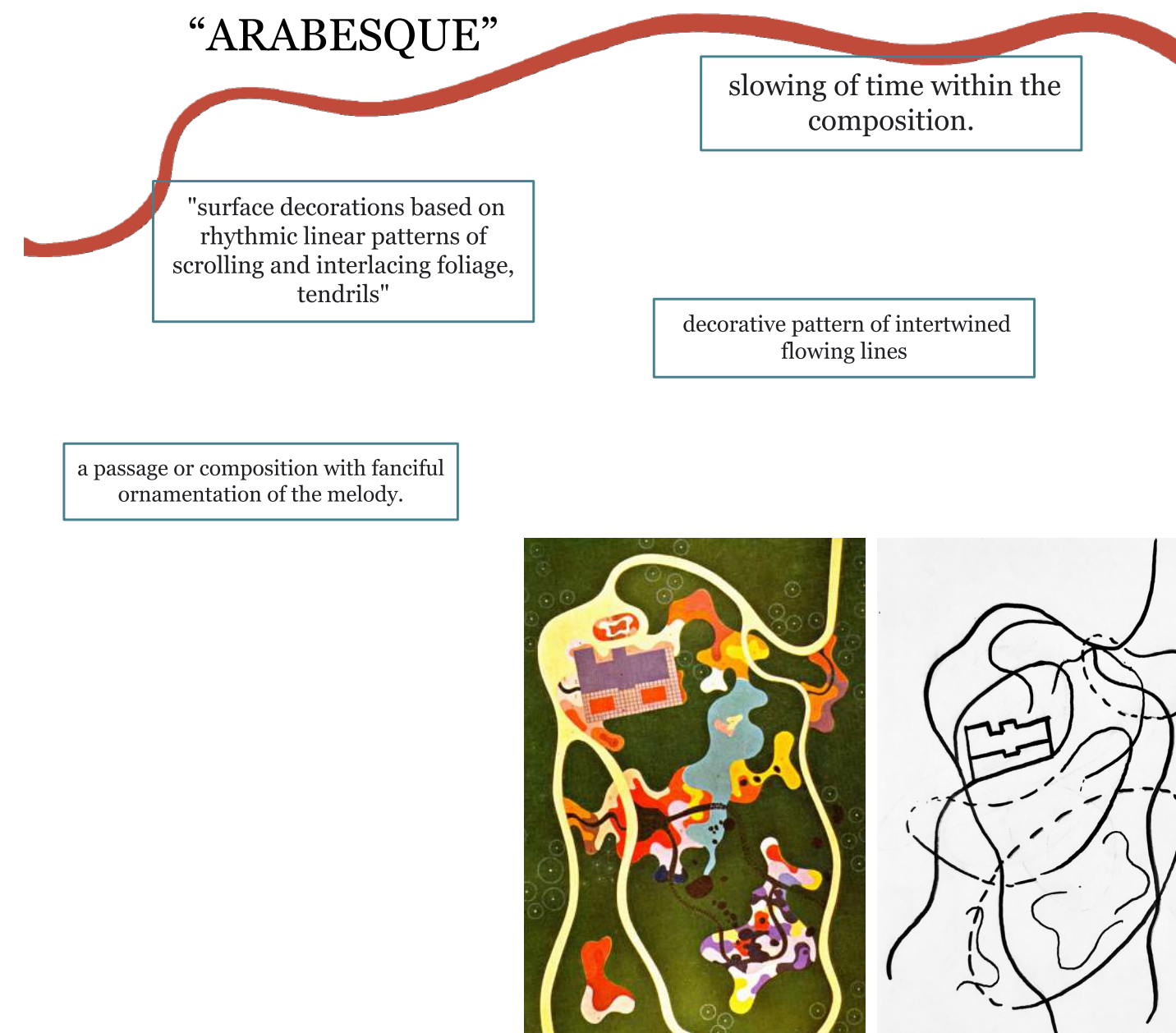
1/4 acres = avg. 1 elephant
crop consumption
in one night

30 m

30 m

60 m

1 acre

FEEDING TABLES & MAHOUT SHELTERS
(DRY SEASON)

WATER COLLECTION & MAIN NAPIER PLANTERS

COCONUT FARM

EROSION CONTROL
GREEN TERRACE GARDEN

BANANA FARM

LIVESTREAM PAVILION

MAIN FEEDING TABLES & MAHOUT SHELTERS
(MONSOON SEASON)

DUNG FERTILIZER PILE

SUN SHELTER

PINEAPPLE FARM

30m

SATELLITE FEEDING TABLE

Roberto Burle Marx

ARABESQUE

slowing of time within the composition.

"surface decorations based on rhythmic linear patterns of scrolling and interlacing foliage, tendrils"

decorative pattern of intertwined flowing lines

a passage or composition with fanciful ornamentation of the melody.

Roberto Burle Marx's avant-garde painted landscape plans and the physicality of his amoeba-like gardens evoke a feeling of motion. With fluidity and dimensionality, his forms can occupy all planes: his flowing paintings gain volume in becoming vegetation, and the choreographed experience of his gardens recall paintings. In describing his work as an "arabesque," which encompasses such lines of continuity, rhythmic pattern, and slowing time, Burle Marx could almost be discussing paintings or a musical composition, instead of a garden. In examining "arabesque" as the gestural composition of classical paintings, Burle Marx's paintings underwent this diagrammatic exercise to extract the essence of continuity across the forms.

The resulting linework emerged reminiscent of Cornelius Cardew's visual soundscapes, where the notes transcend staves into a morphing composition of shapes and lines. So, the arabesque catalyzes a sequential dimensional shift: Burle Marx's designs arrive, through arabesque, to Cornelius Cardew's linework, which produces a backwards arabesque that transforms into painting, perhaps eventually to inform a new garden.
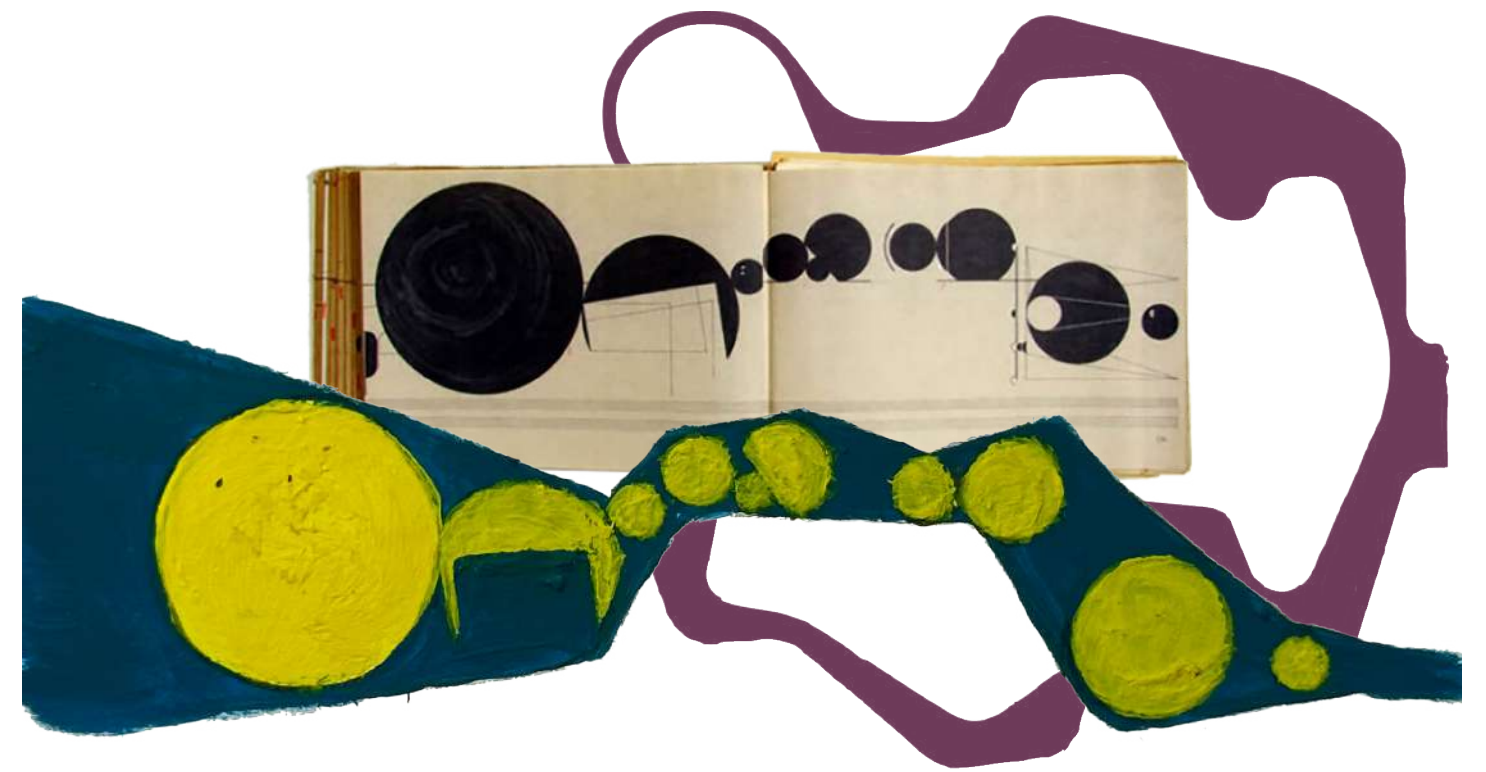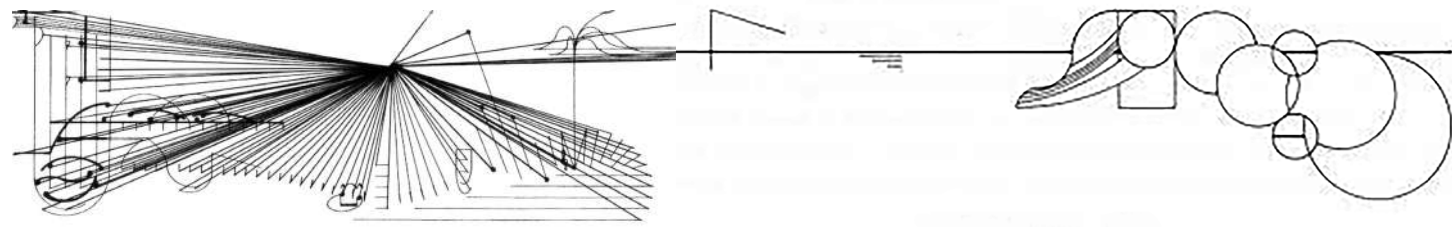
"**A garden is a complex of aesthetic and plastic intentions;** and the plant is, to a landscape artist, not only a plant - rare, unusual, ordinary, or doomed to disappearance - but **it is also a color, a shape, a volume or an arabesque in itself.**"

- Roberto Burle Marx