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Columbia University

<>

Graduate School of Architecture, Planning and Preservation

Master of Advanced Architectural Design <AAD>

2019 - 2020

Portfolio by **Manuela Siffert Porto**

04 No Stop Loom

No Stop Loom

GSAPP

Fall Studio with

vPPR Architects - *Art House*

Catherine Pease, Jessica Reynolds, Tatiana von Preussen

Work by Manuela Siffert Porto

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No Stop Loom

Located in Coxsackie, by the Hudson River, the master plan for the site consists on a grid of pillars that occupies the entire site, including the river and expanding to the town, but also with a possibility of growing infinitely to across the Hudson Valley. The project is more about the strategy of occupation than the specific site.
The idea is for this grid of pillars to create a 3D loom, enabling the community to grow and change over time.
The pillars are tall and thin, and contain electricity and sometimes water shafts. The grid visually marks the intervention and can host signalization and also illuminate the site and town.
They also structure the metal meshes that floats like waves creating either floors or ceilings, always at least one meter above the ground to escape from the eventual flooding.
In the intersections of the meshes, the floor and ceiling enables the housing units and other communal spaces to emerge, being weaved using the meshes to tension the yarns and threads, like a loom.
The spaces are created by the users and artists, resulting in always a different work and transforming all the spaces in works of art itself.

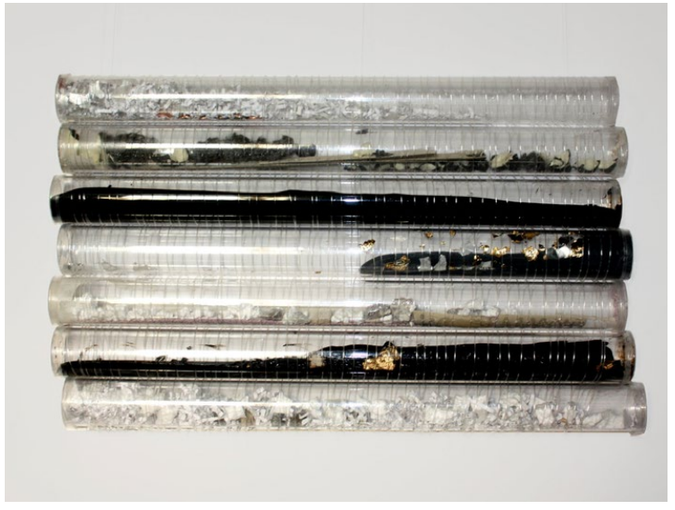
Ancient Japanese Drawing

Anni Albers

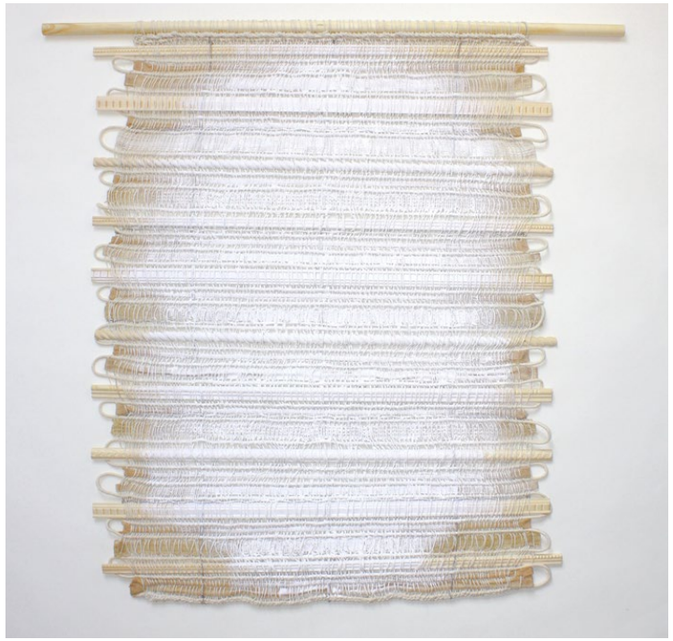
*** The semester started with an analysis of the work of a selected artist followed by a proposal of an Operable Wall for the artist**

Luam Melake

Luam Melake is an American Postwar & Contemporary artist born in 1986 and based in NYC.
Bachelors degree in Architecture. Minor in Art History in Berkley University, California.
Melake's practice is focused on mixed-media handwoven textiles and functional furniture.
She is primarily concerned with exploring and exaggerating the interdisciplinary relationship between art, design, craft, architecture, and industrial production. Materials, methods and concepts are borrowed from each field to allude to their interconnected relationships.



SandCastles, Luam Melake, 2017



Without Qualities, 2018 ^
Black, Luam Melake, 2017 v

www.luammelake.com

Operable Wall Manifesto

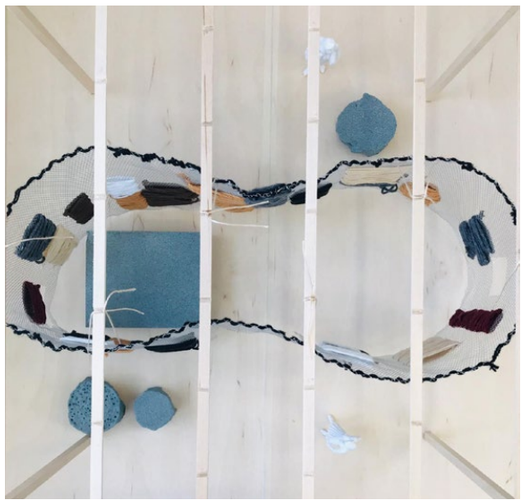
1.Flexible in form and size adjusted through threads

2. Performs as a canvas/loom for textile works

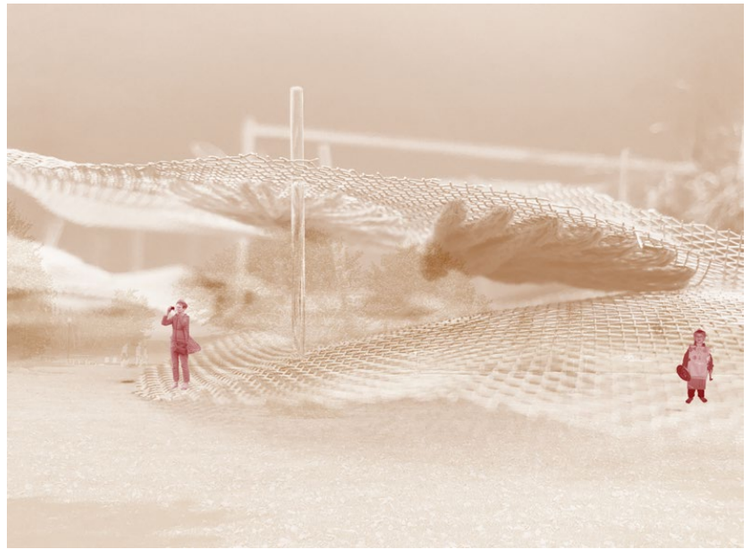
3. Opacity/privacy changes over time as artworks are created

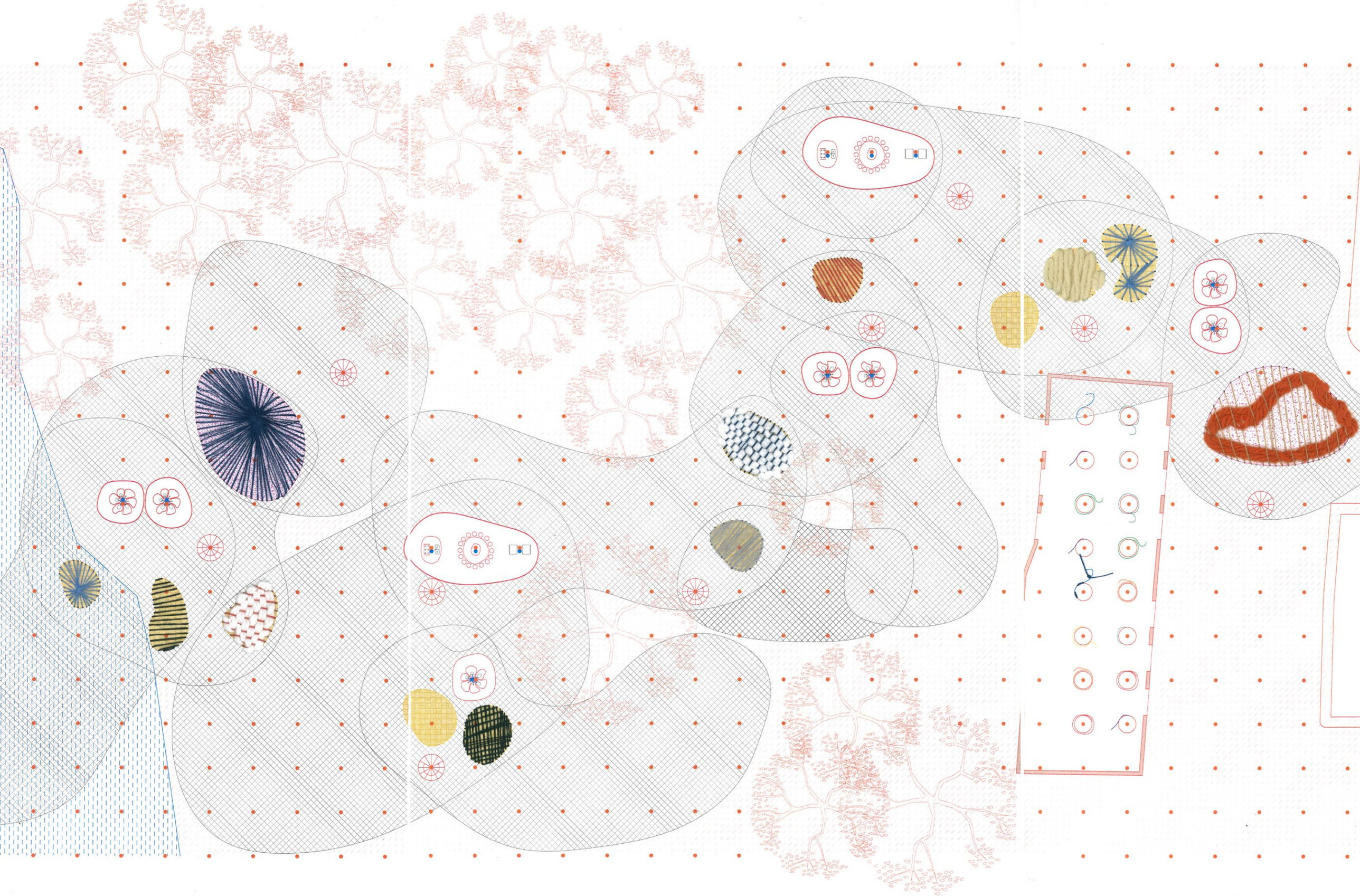
4. Contrast between industrial material of the metal mash and textiles (craft x industry)

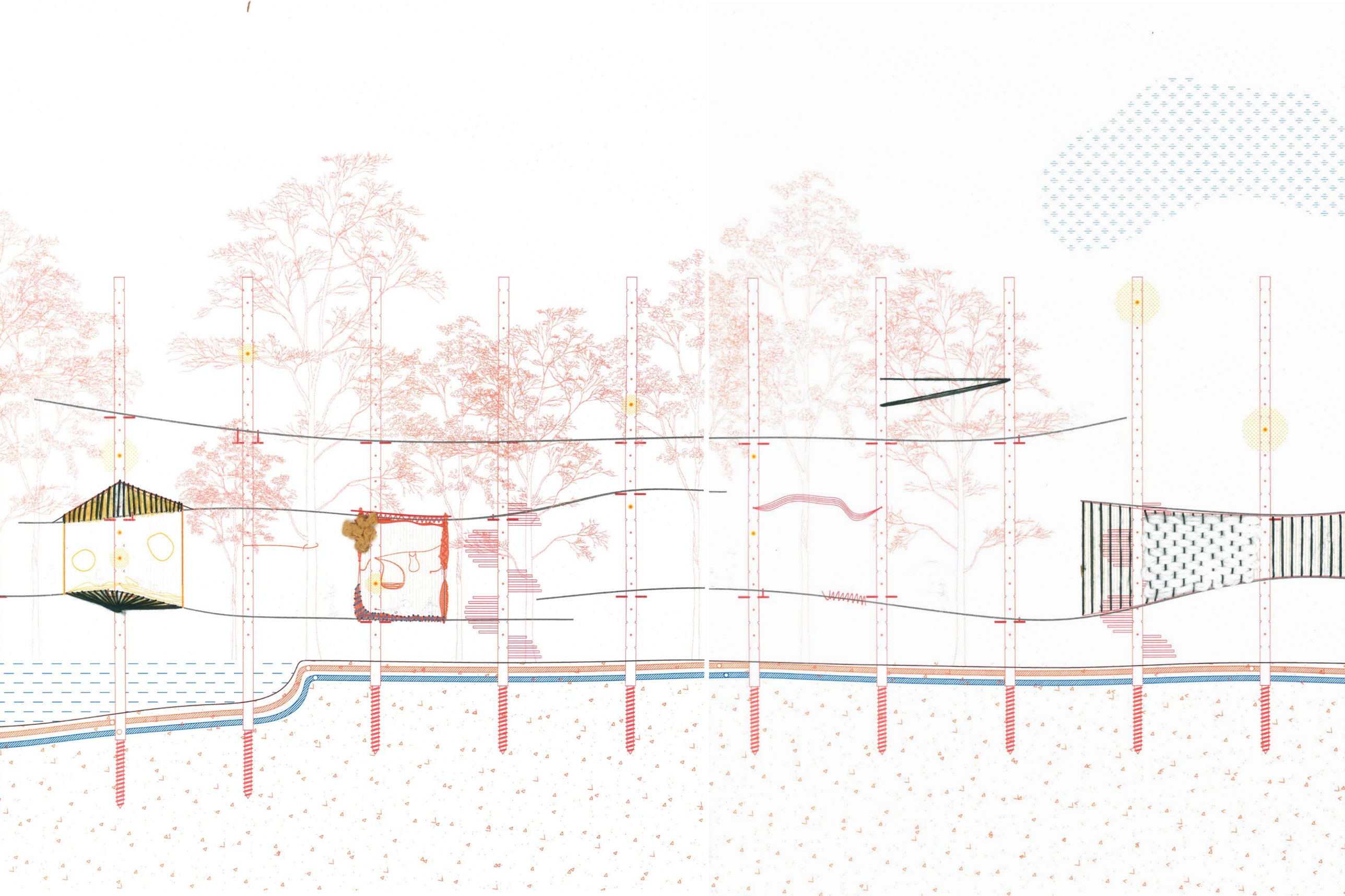
5. Physical and visual lightness and transparency through materials

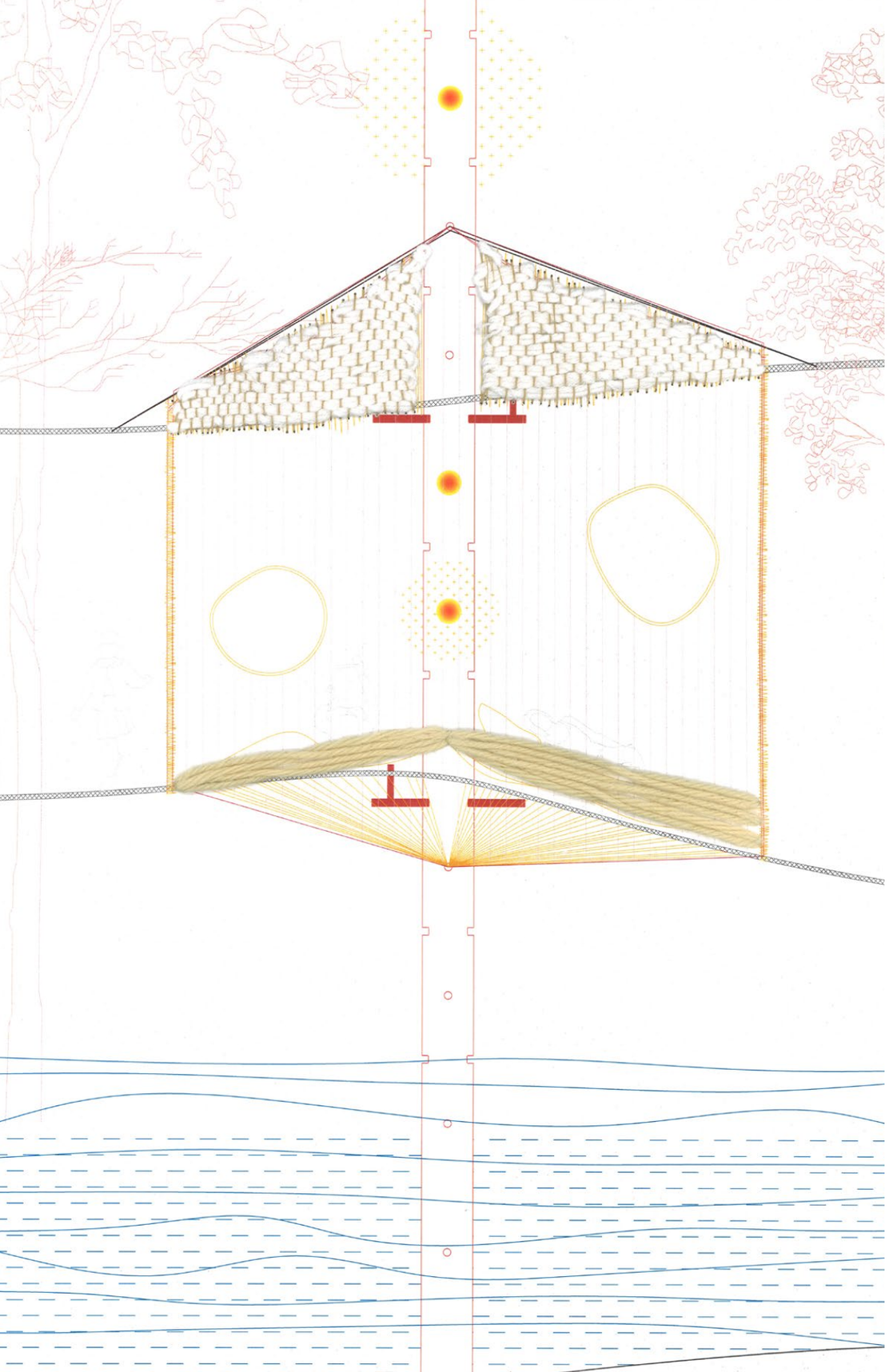


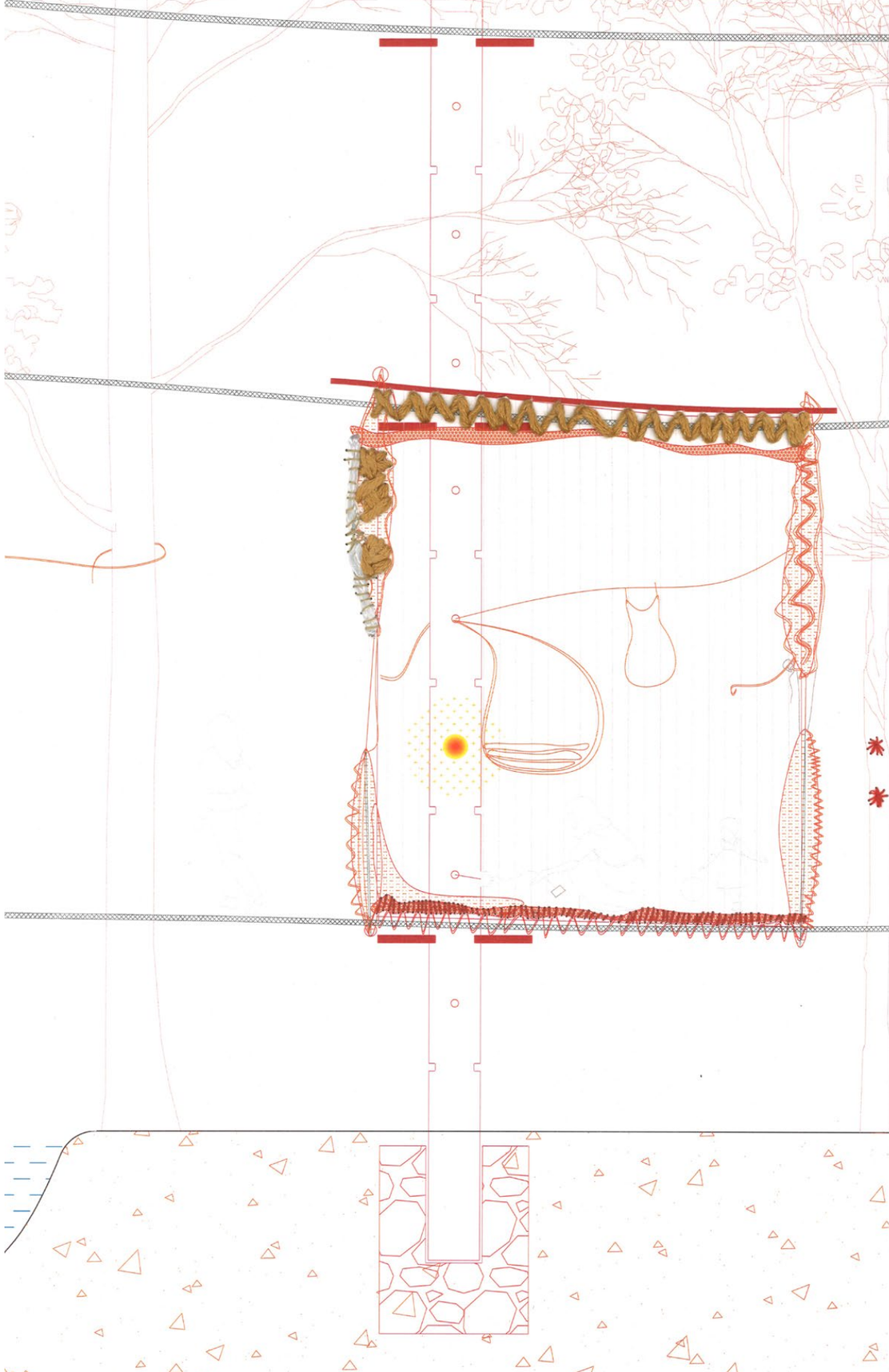
Archizoom - No Stop City

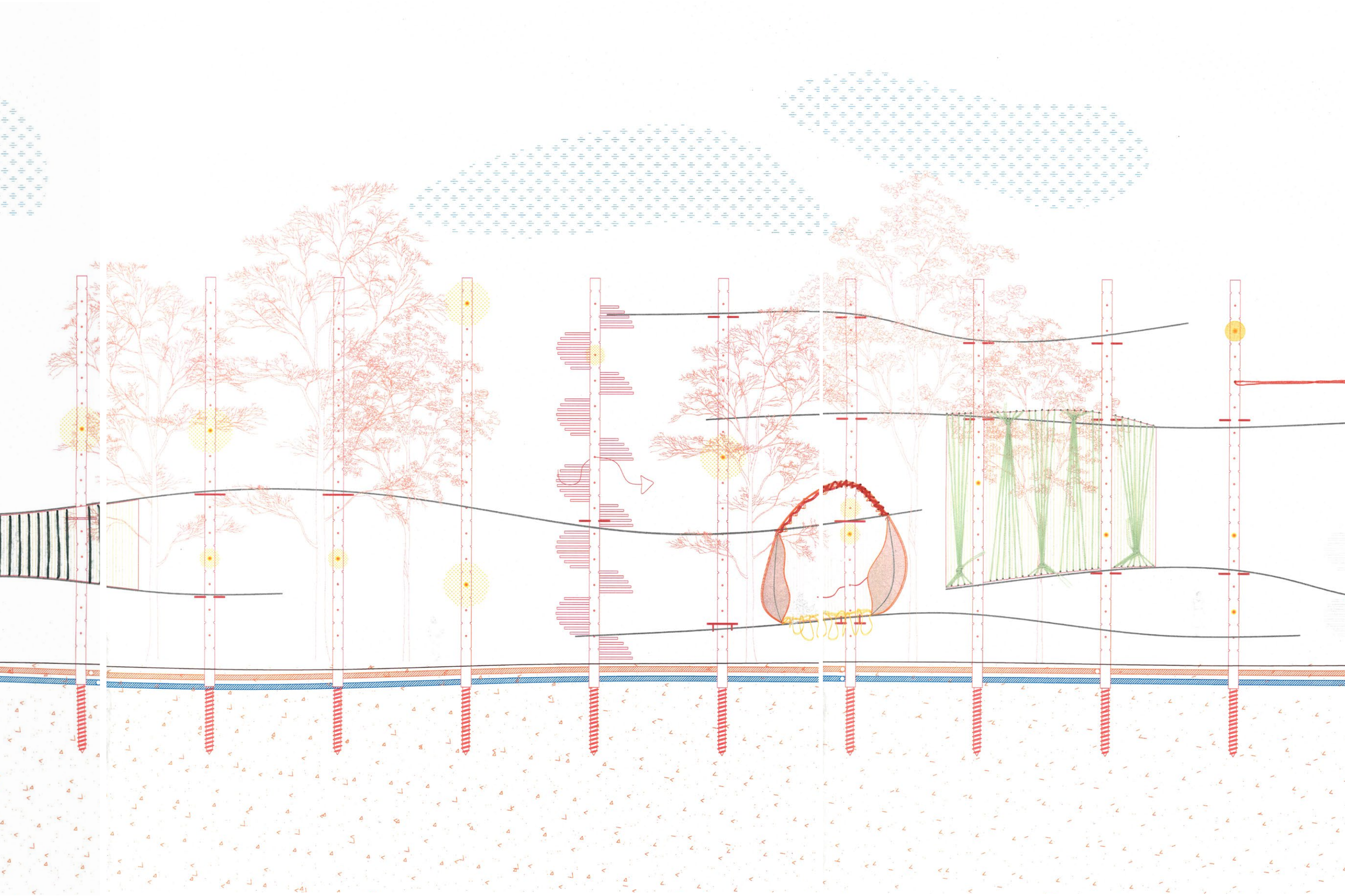






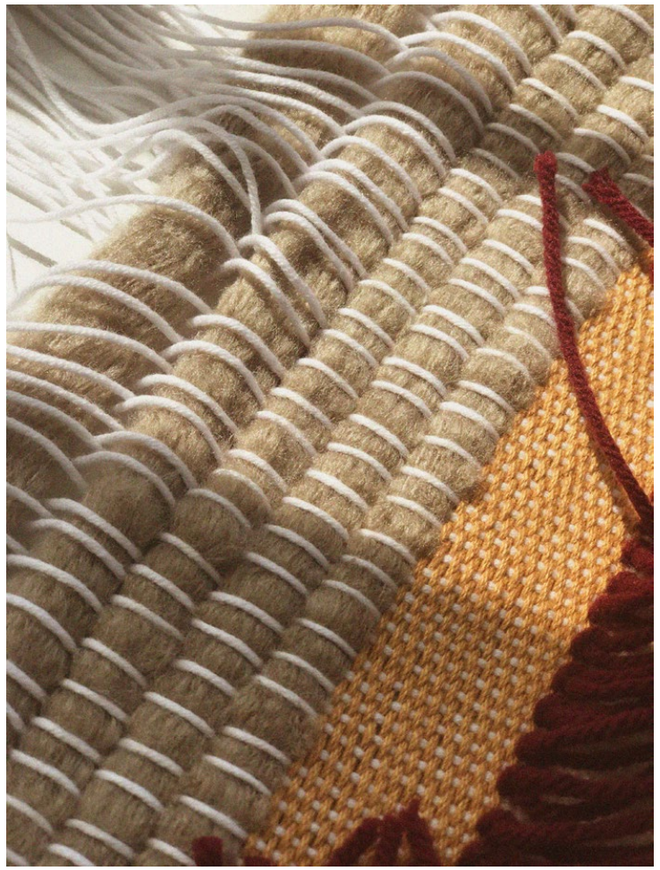


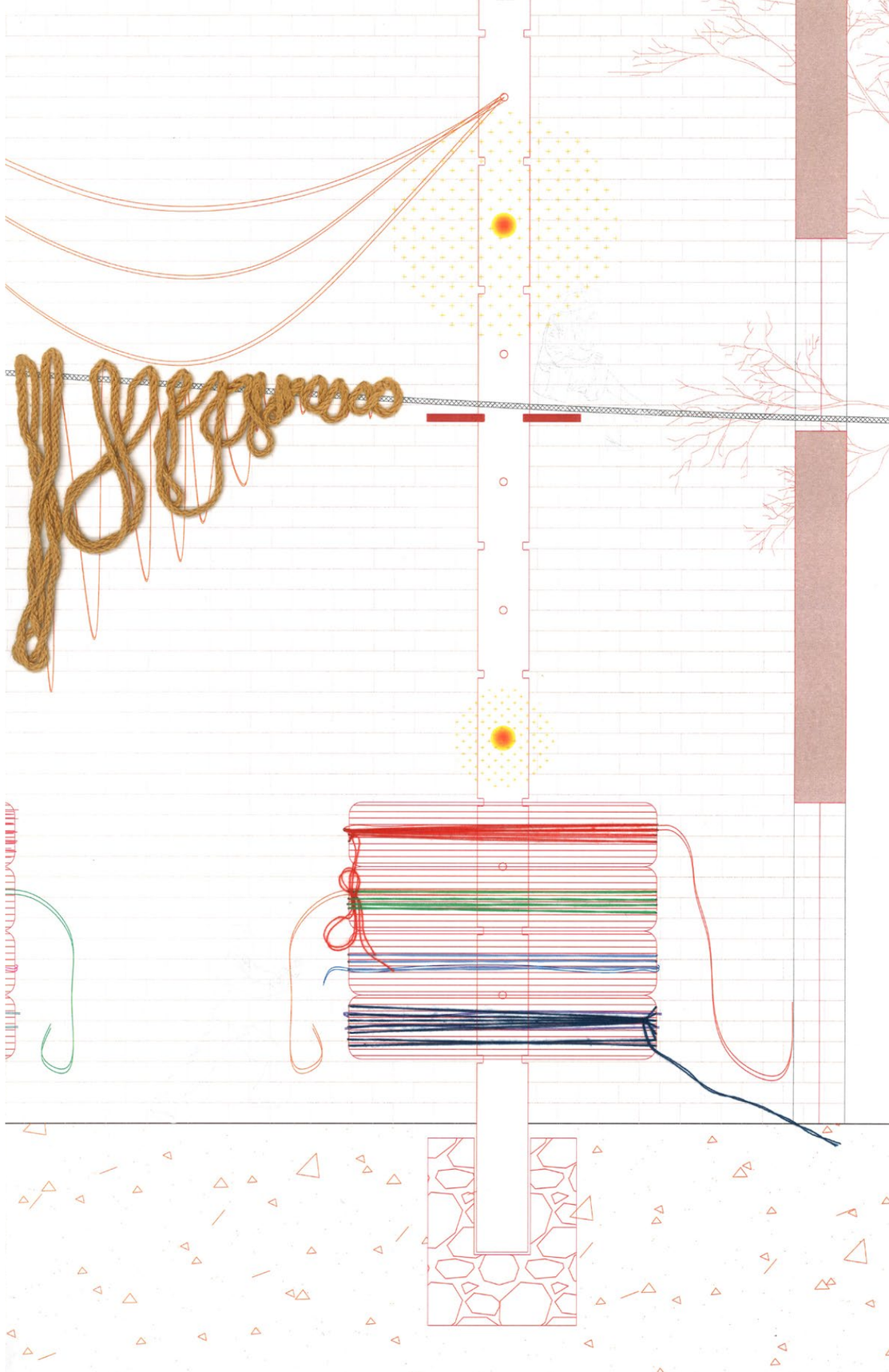


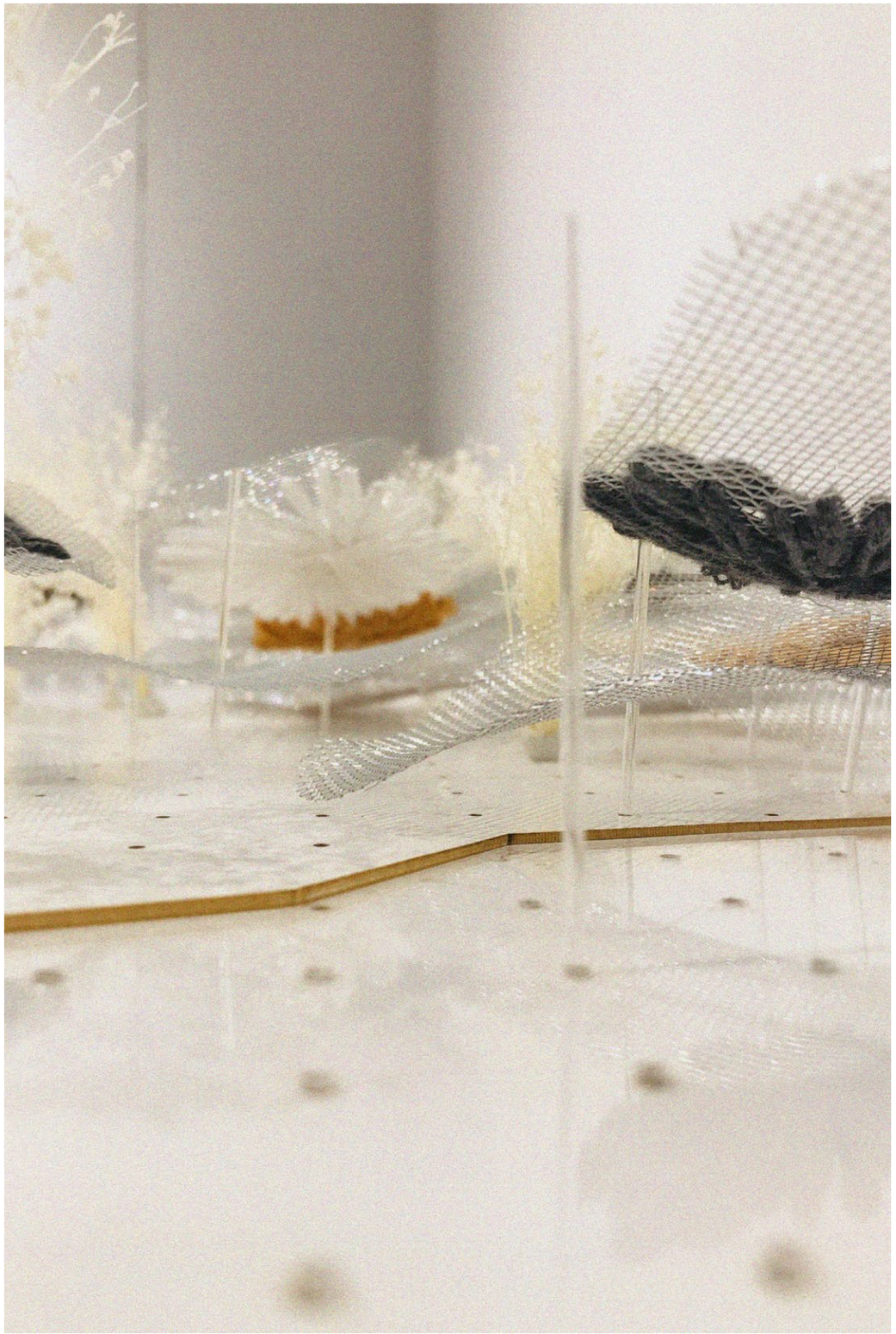


COXSACKIE

YARNS
500 colors







Capping the Memory 34

Capping the Memory

GSAPP

Transscalarities Seminar

Coordinator: Andres Jaque

Instructor: Samuel Stewart-Halevy

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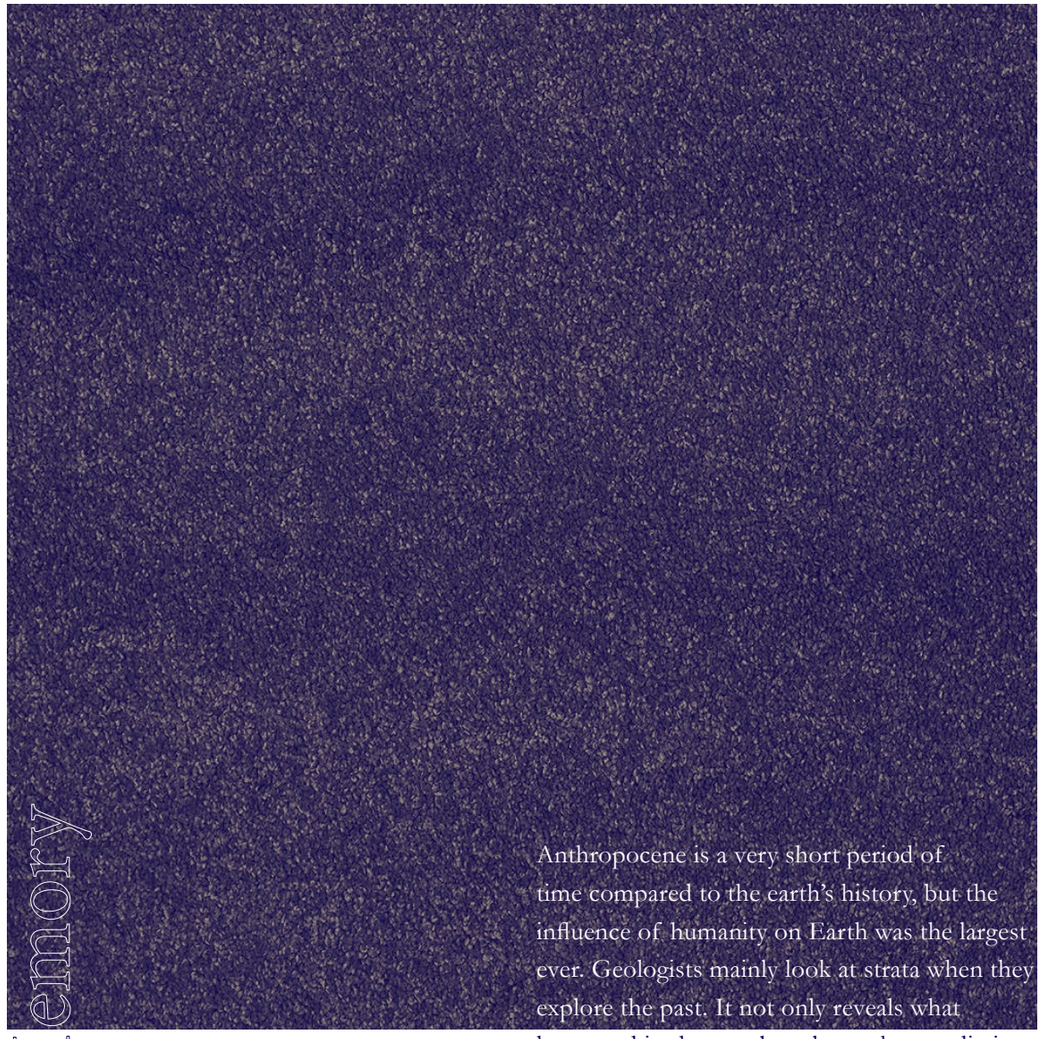
Work by Kyu Chan Kwak, Manuela Siffert, Ruochen Ji


planting soil
barrier protection
drainage layer
impermeable plastic liner
gas vent layer
soil barrier layer

drainage layer
impermeable plastic liner
gas vent layer
soil barrier layer

Capping the Memory



Anthropocene is a very short period of time compared to the earth's history, but the influence of humanity on Earth was the largest ever. Geologists mainly look at strata when they explore the past. It not only reveals what happened in the past but also makes predictions about future possibilities. As a story of layers being superimposed, the chronology of Fresh Kills is its geological strata. By investigating each layer of strata, we depict the memories in different periods, and the impact on the earth's land from the civilized city of humanity, which forces us to think about the real conflict embedded in its history and methodology of how humanity should change in order to sustain it.

People nowadays know Fresh Kills as a former landfill. But before its transformation to a landfill, Fresh Kills was just a rural agricultural area in Staten Island. It had been a salt marshland for thousands of years, its subsoil made up of clay, sand, and silt on top. The land contained large amounts of wildlife and natural landscapes, including swamps, forests, and wetlands. The radical humanized change process in the area started in 1946 when the government of New York City purchased this site as a temporary waste dump as incinerators in NYC were shutting down and other landfills were approaching the end of their lifespan. [1] Tunnel Authority chairman Robert Moses strongly supported this plan, wanting this area to be developed as Staten Island's industrial base, after its usage as a landfill. Meanwhile, the plan was opposed by residents in Staten Island and members, who called for the federal government to step in and stop the project. [2] City's public works commissioner Cornelius Hall had been one of them, who surprisingly turned to support the project after he became the Borough President of Staten Island, pushing the plan to reality.[3] Further in 1948, an expansion plan of the landfill project was approved by the City Planning Commission, the landfill would be used for 20 years. At the end of its usable life, new real estate would be created on the top of layers of garbage and dirt, then developed as a multi-use area with residential, recreational, and industrial components.[4]

However, Fresh Kills' lifespan turned out to be much longer than expected, as its transition to a real estate project never came true. The conflict between the landfill and neighborhood came to existence. In April 1948, the landfill accepted its first truck of garbage. By 1961, the height was increased to 25–40 feet. During its operation, the garbage destroyed the ecosystem within the site that lasted for thousands of years. It was no longer a life-enhancing land that we remembered, but a horrible graveyard for millions of tons of New York City's waste. At the peak of its operation, in 1986, 29,000 tons of garbage was added to the site every day.[5] It became the only landfill to receive New York City's residential waste. This huge amount of garbage eventually led to a terrible disaster of Syringe Tide. Significant amounts of medical waste, including hypodermic syringes, and raw garbage from Fresh Kills were washed up onto beaches, causing the closing of beaches on the Atlantic coast and tremendous loss in tourism income.[6]

With pressure from local residents and members, and to account for consequences that landfill had caused, Fresh Kills landfill was forced to come to a point where its operation might be stopped. A state law was passed in 1996, meaning that the Fresh Kills would no longer accept solid waste after 2001. With the support from the city's mayor Rudy Giuliani, along with the governor of New York State; George Pataki and the EPA, the landfill site was finally closed on March 22nd, 2001.[1] After the 9/11 attacks, Fresh Kills was temporarily re-opened. It was used as a sorting ground for roughly one third (about 1.6 million tons) of the rubble from Ground Zero. Detectives and forensic evidence specialists worked at the Fresh Kills Landfill to recover the remnants of the victims. The remaining debris was then buried in the landfill.[7]

In the same year, after the definite closure of the landfill, the state decided to launch an architectural competition for a park to be developed in the area, which was won by Field Operations. According to the draft plan announced in 2004, Freshkills Park will be the

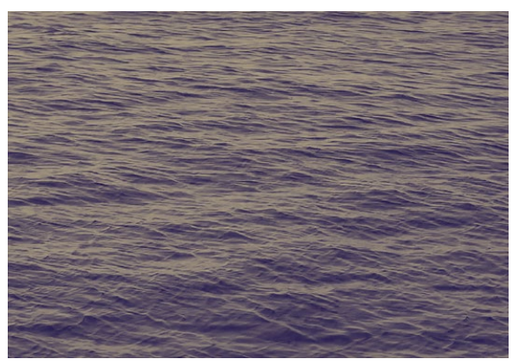
largest park in New York City and will host a variety of public spaces and facilities for social, cultural and physical activity, learning and play.[8] The site is large enough to support many activities and programs, including nature hikes, kayaking, and large scale public art, among many others. The first phase of developing Fresh Kills Park would be covering up the waste properly. The layers covered on the waste would stabilize and separate them from the upper environment, and prevent the release of landfill gas into the atmosphere.[9] The waste would break down progressively, and the gas it generated would be extracted by gas control stations on the ground. This suggests the cost of covering all the trash up is all unseen from its surface.

Currently, the transformation from the unpleasant site of landfill into a natural field is successful. It is now almost impossible to recognize this site as a former landfill. Even if the west mound capping procedure is still going on, the rest of the landfill is now fully covered and plants are growing well in the site. The 40-feet-high garbage mountain now looks like a small hill. Whereas, at this time, Freshkills can hardly be recognized as a park either. First because, it is not yet fully open to the public (despite some scheduled events), it still has an unresolved relationship to the surrounding urban context (no entrances) and the unbuilt infrastructure can hardly transform this uncultivated area as a public realm.

When conflicts between the landfill and neighborhood essentially settled, however, it is still doubtful that the real conflict behind the story of Fresh Kills is resolved as well. Despite the promising ongoing transformation to a potentially public green park, the real conflict is between the city's garbage disposal system and urban environmental quality. Residents in Staten Island succeeded in driving out garbage from their neighborhood, 'Not in my back yard'. However, All New York Cities boroughs garbage still needs to be going somewhere which may cause another story of Fresh Kills with extra vehicle emissions from long-distance garbage transportation. Would covering up a Fresh Kills in New York State without alternative solutions for garbage disposal becomes a gradual process of making the second Fresh Kills somewhere else?

Another issue worth discussing is the denial of the buried memory proposed in the future park. Alternative strategies could be considered parallelly with the current one, which is covering up waste to eliminate its visual existence. History or memories could be a kind of valuable education as well. Just like the 9/11 memorial museum, the past should not be covered but to be recorded and archived, to serve as a warning against unpleasant aspects in reality. With proper shielding and sanitation, it is possible to preserve a part of its section as a demonstration, which illustrates the severe conflict between waste disposal and production in the past to the visitors, therefore letting the landfill tell the story without producing negative effects on its neighborhood. The trash and landfill problem is an enormous and complex issue all over the globe. Although the huge amount of trash is intrinsic to our society, it should be a discussion addressed to all of us. Freshkills Landfill, once the biggest in the world should be the best textbook. Even situated in a new project that is exactly the opposite of what it used to be, memories should be evoked and learned through design despite its unpleasantness.

References:
[1] Steinberg, Ted (2010). Gotham Unbound: The Ecological History of Greater New York, New York: Simon & Schuster, pp. 242-58, 320-22, ISBN 987-1-476-74124-6.
[2] "Proposal to Secede From City Assailed", The New York Times, January 12, 1947.
[3] "Moses and Hall", Staten Island Advance. June 5, 1946.
[4] "More Land To Be Taken for Dump at Fresh Kills", Staten Island Advance. March 4, 1948.
[5] Lloyd, John; Mitchinson, John (October 5, 2006). Ql: The Book of General Ignorance. Faber and Faber. ISBN 0-571-23368-6.
[6] Gross Jane (July 12, 1988). "Beach Debris Still a Mystery; 77 Syringes Wash Up on S.I.". The New York Times. pp.4.
[7] Hartocollis, Anemona (March 24, 2007). "Landfill Has 9/11 Remains, Medical Examiner Wrote". New York Times. Archived from the original on May 13, 2011.
[8] "Freshkills Park Newsletter - Winter/Spring 2011" (PDF). February 22, 2011.
[9] "Fresh Kills Park, New York City". August 27, 2007.



46 Room to Room

Room to Room

GSAPP

Summer Studio with

NArchitects - *The Museum Striped by its Galleries*

Mimi Hoang and Eric Bunge

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Work by Manuela Siffert Porto and Zhang Han

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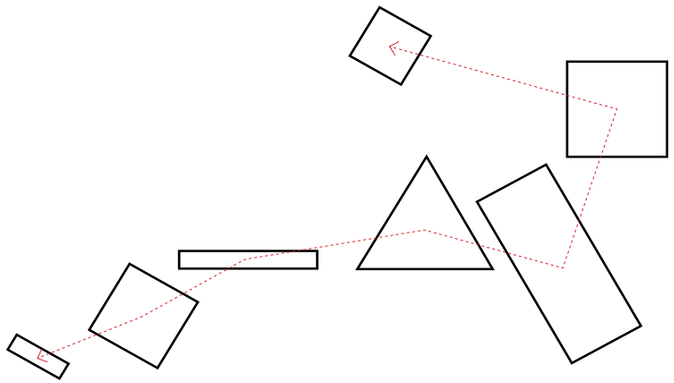
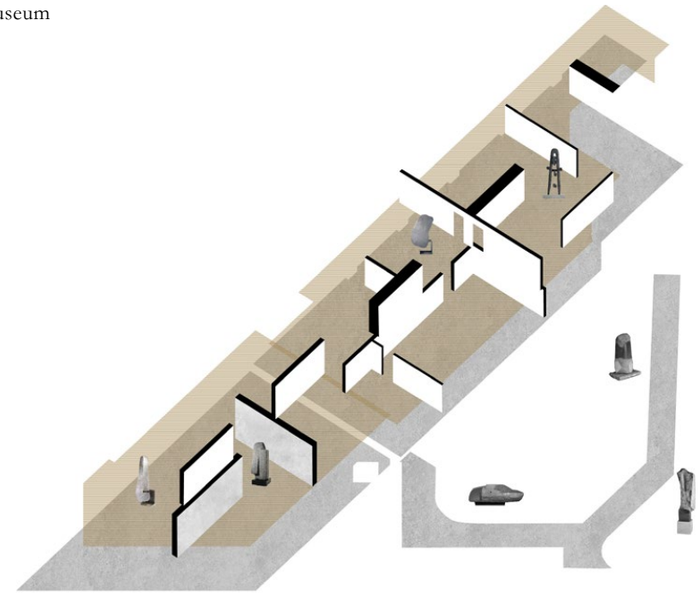
Room to Room

Our museum was designed to have only galleries (the counter-brief proposed in the Studio). After analyzing the galleries spaces in the Chichu Museum by Tadao Ando and the Noguchi Museum by Isamu Noguchi, we wanted to incorporate in our design the interesting characteristics of both museums.
Our design process starts with putting together the closed rooms of a similar scale as Chichu's, in the site assigned for our group, a perfect cube of 29x29 meters. All the rooms in our museum contain art and are open to the public, even though the art can coexist with the incorporated programs needed for a museum to function (loading dock, curation, cafe, toilets, storage...). After organizing this rooms in a programmatic logic, they create two interesting new spaces beside the original room itself: the left-over space (the space left between the border of the room and the border of the site) and the overlapping space between two rooms. The overlapping space is transformed sometimes in circulation (elevator or stair) and sometimes in openings and voids. The circulation spaces are also art spaces.



> Noguchi Museum

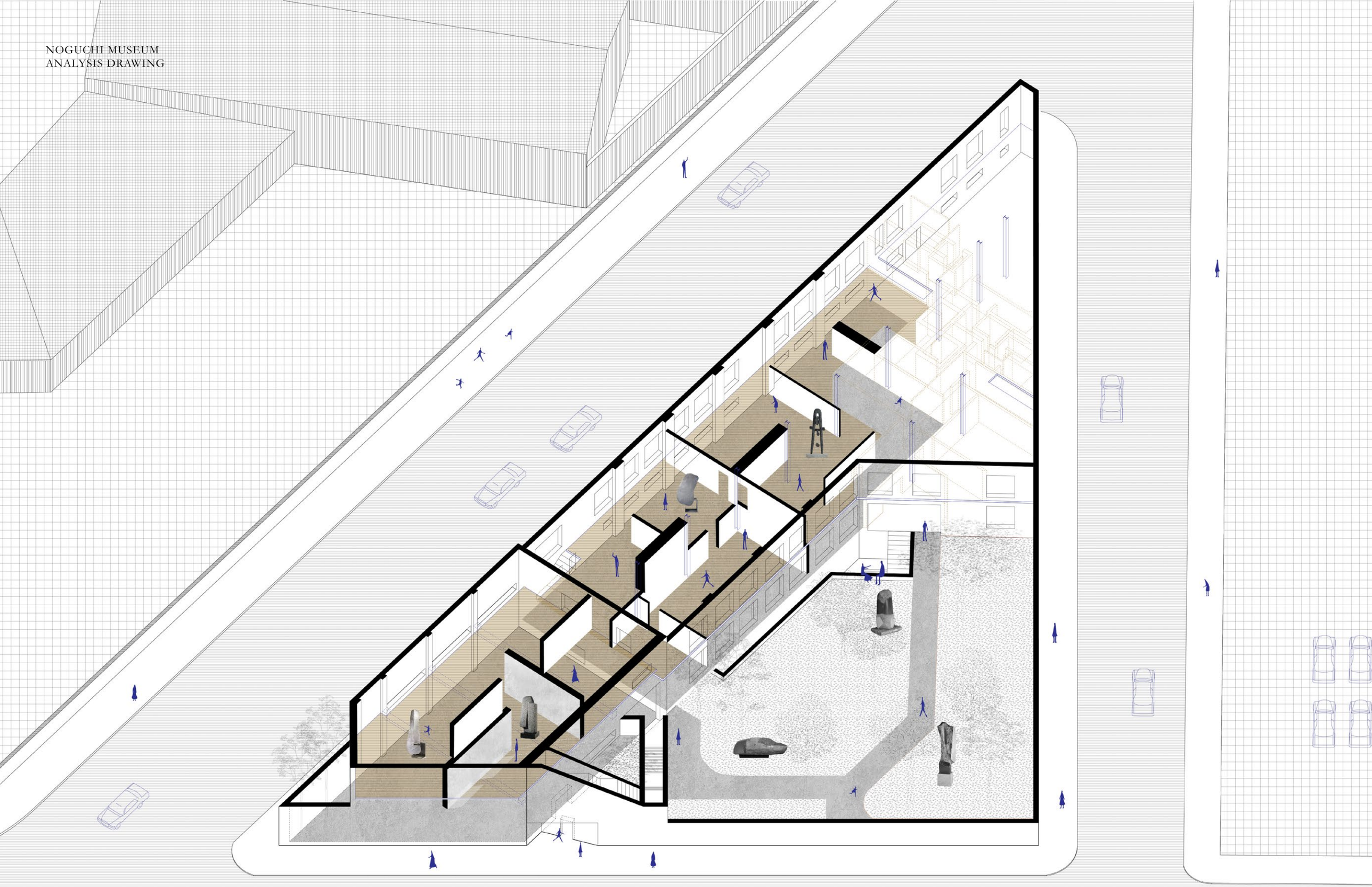
One Room



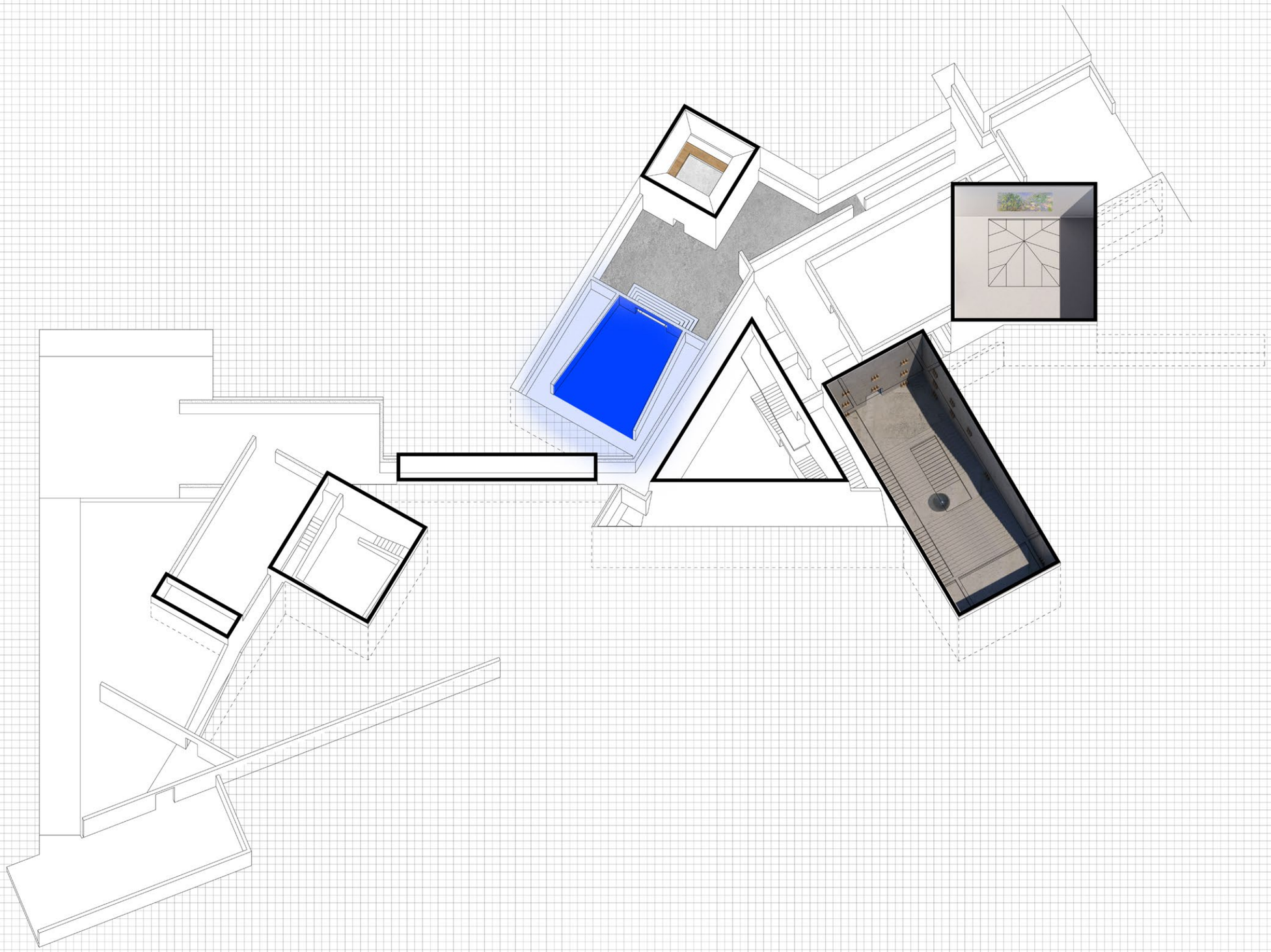
> Chichu Museum

Isolated Rooms

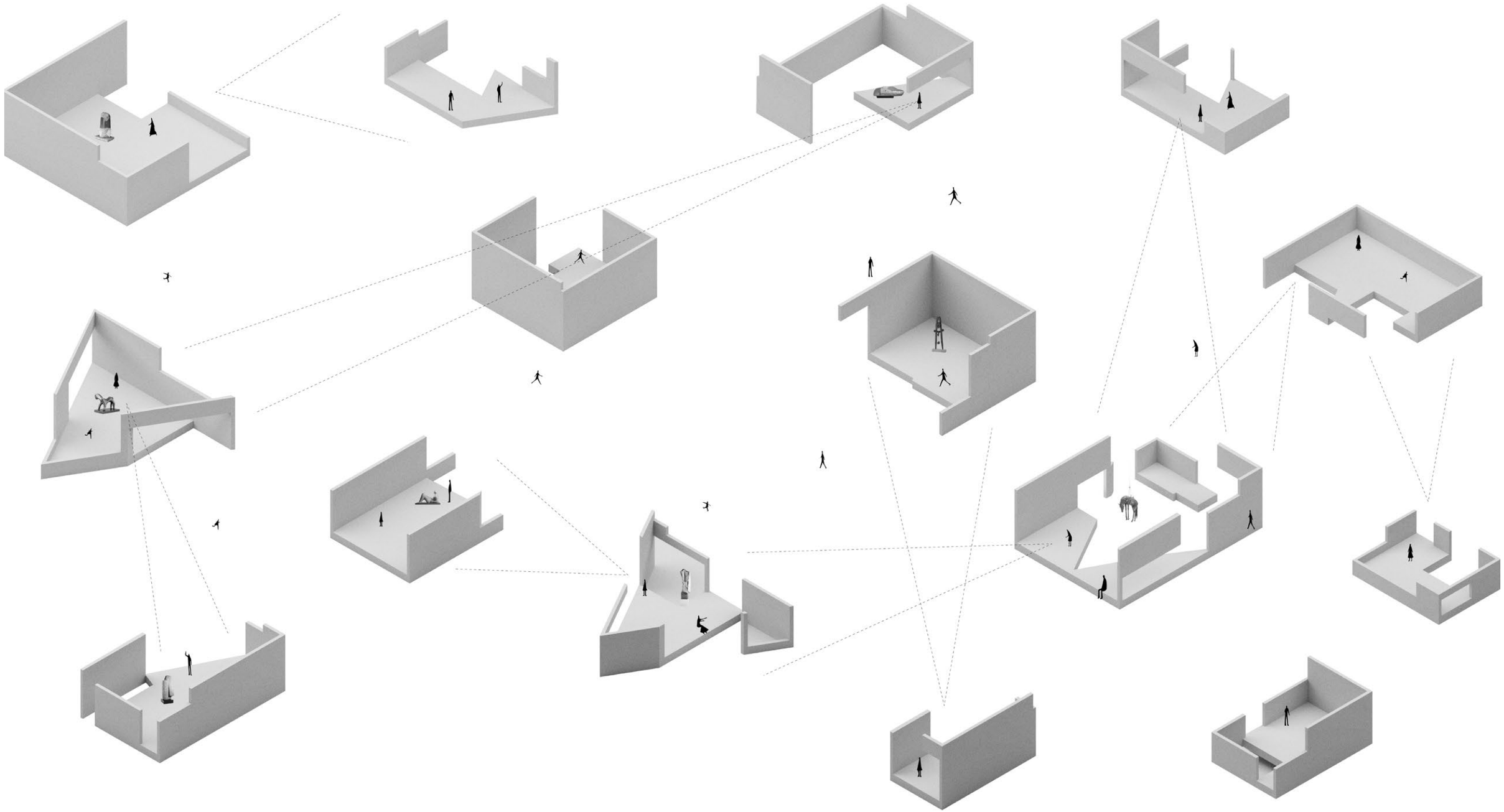
NOGUCHI MUSEUM
ANALYSIS DRAWING



CHICHU MUSEUM
ANALYSIS DRAWING



PERSPECTIVE SECTION



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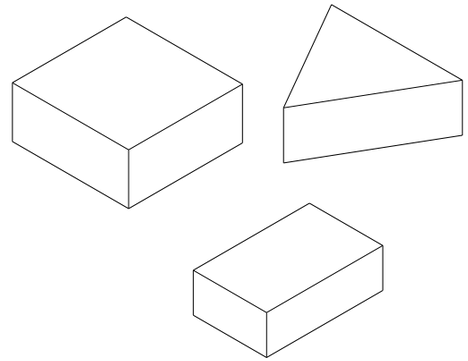

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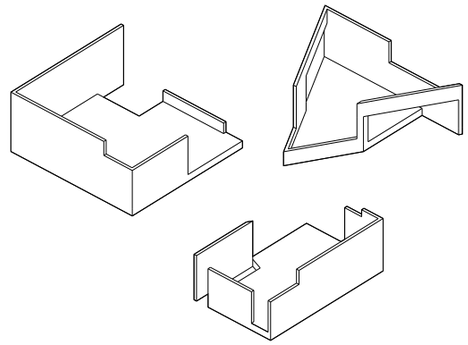

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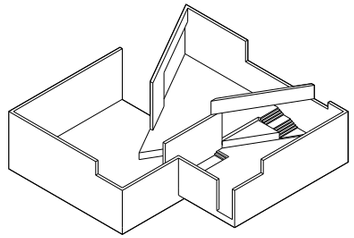

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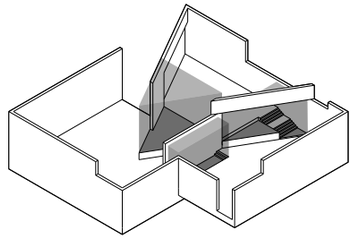
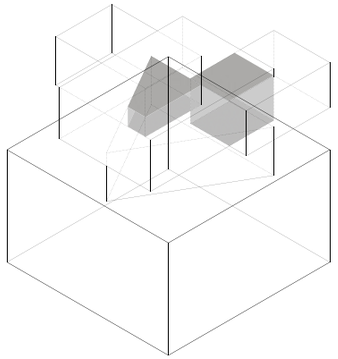
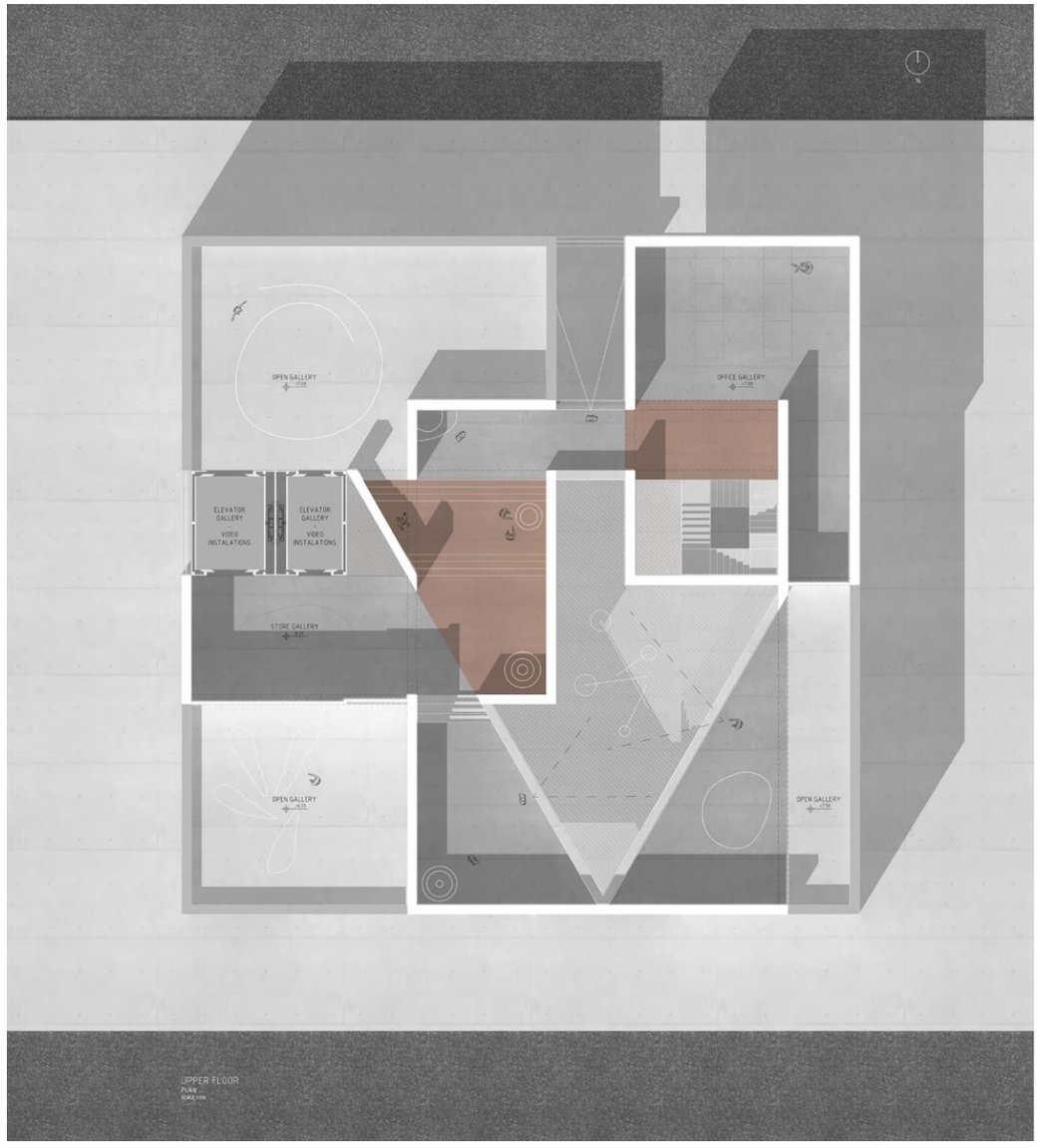
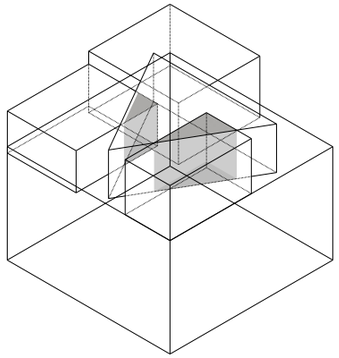


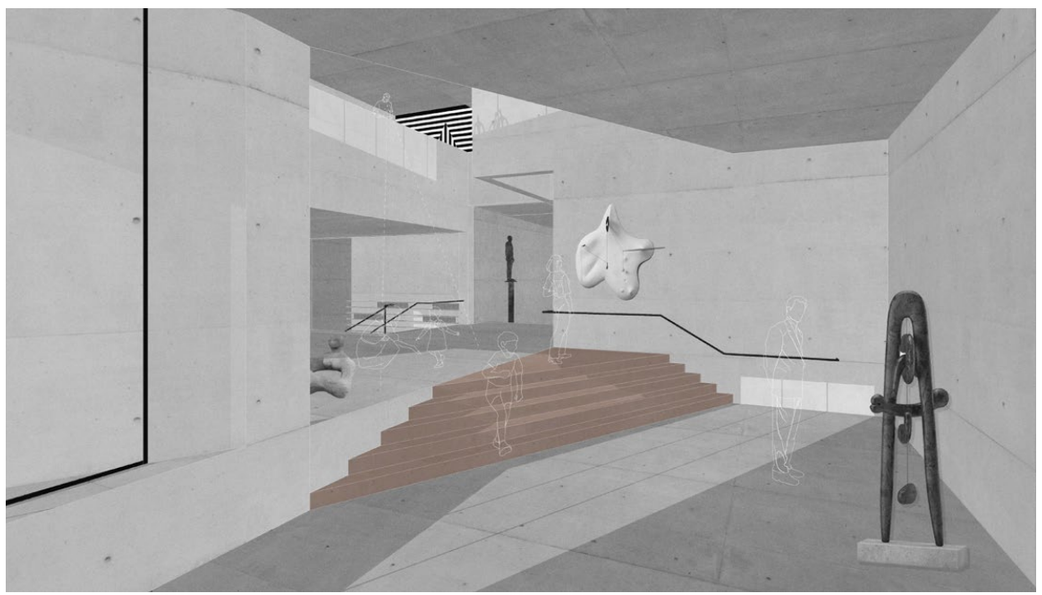


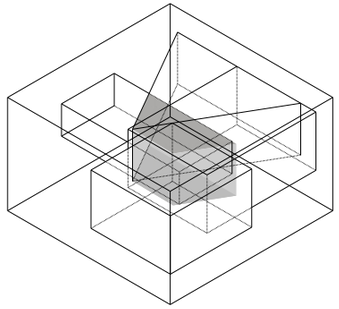
> UPPER FLOOR

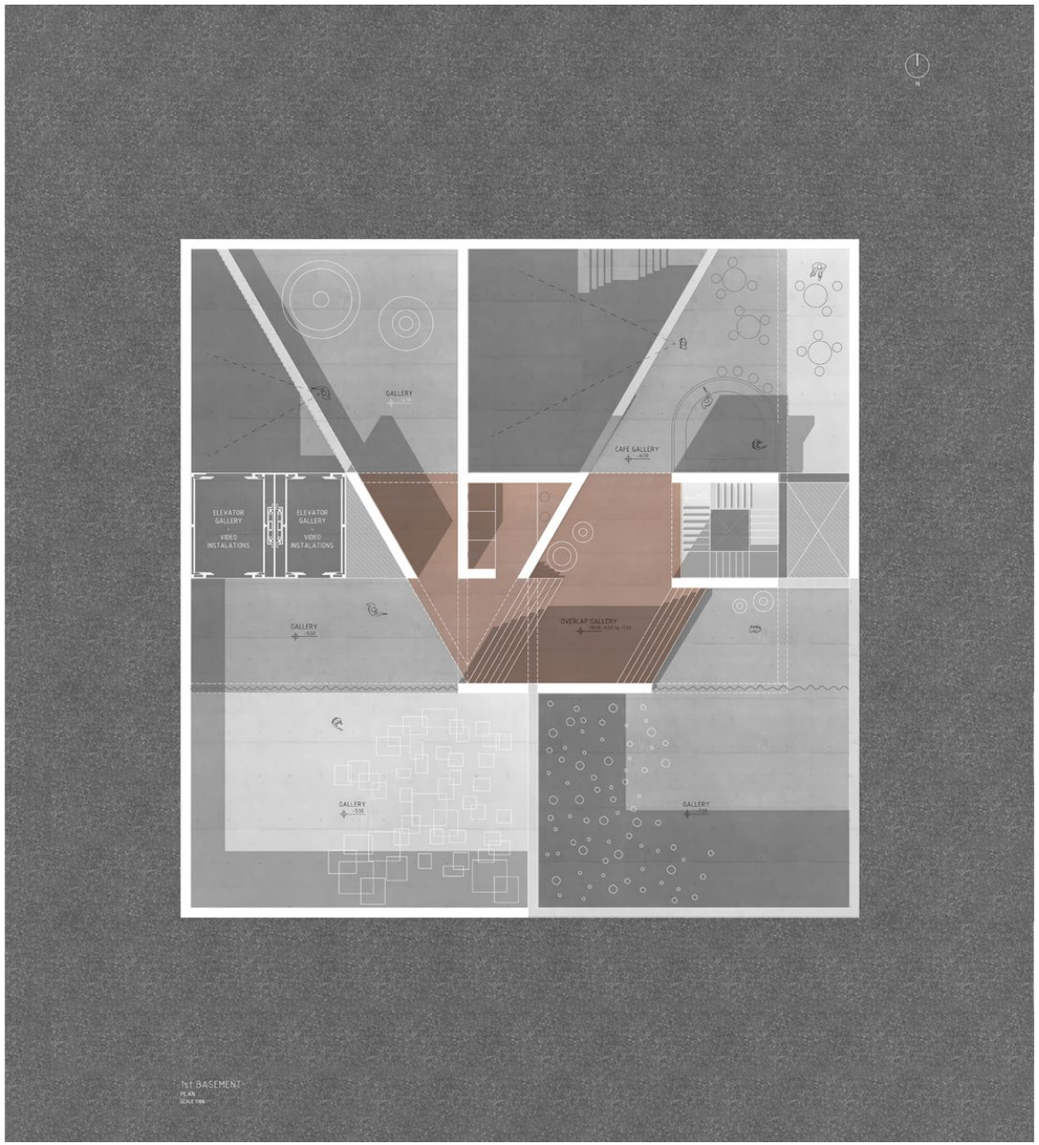

OPEN GALLERY
+7.56
OFFICE GALLERY
+7.56
ELEVATOR GALLERY
VIDEO INSTALATIONS
ELEVATOR GALLERY
VIDEO INSTALATIONS
STORE GALLERY
+3.50
OPEN GALLERY
+3.13
OPEN GALLERY
+1.95
UPPER FLOOR
PLAN
SCALE 1:100



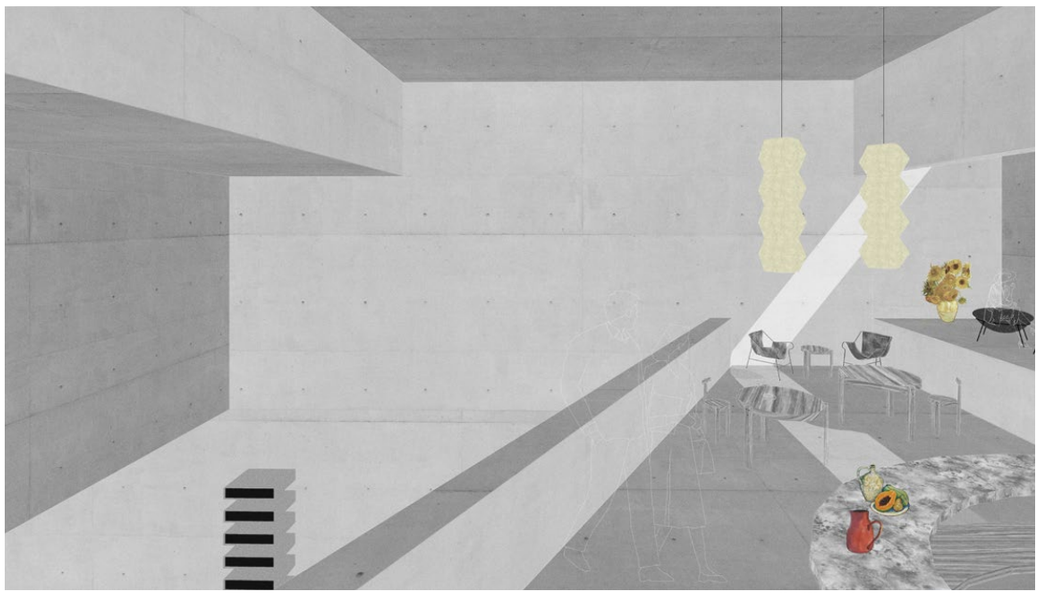
> GROUND FLOOR

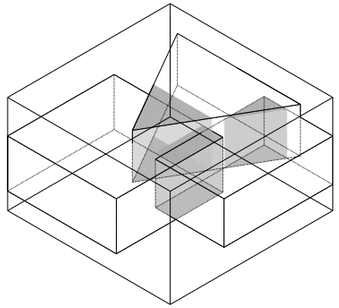


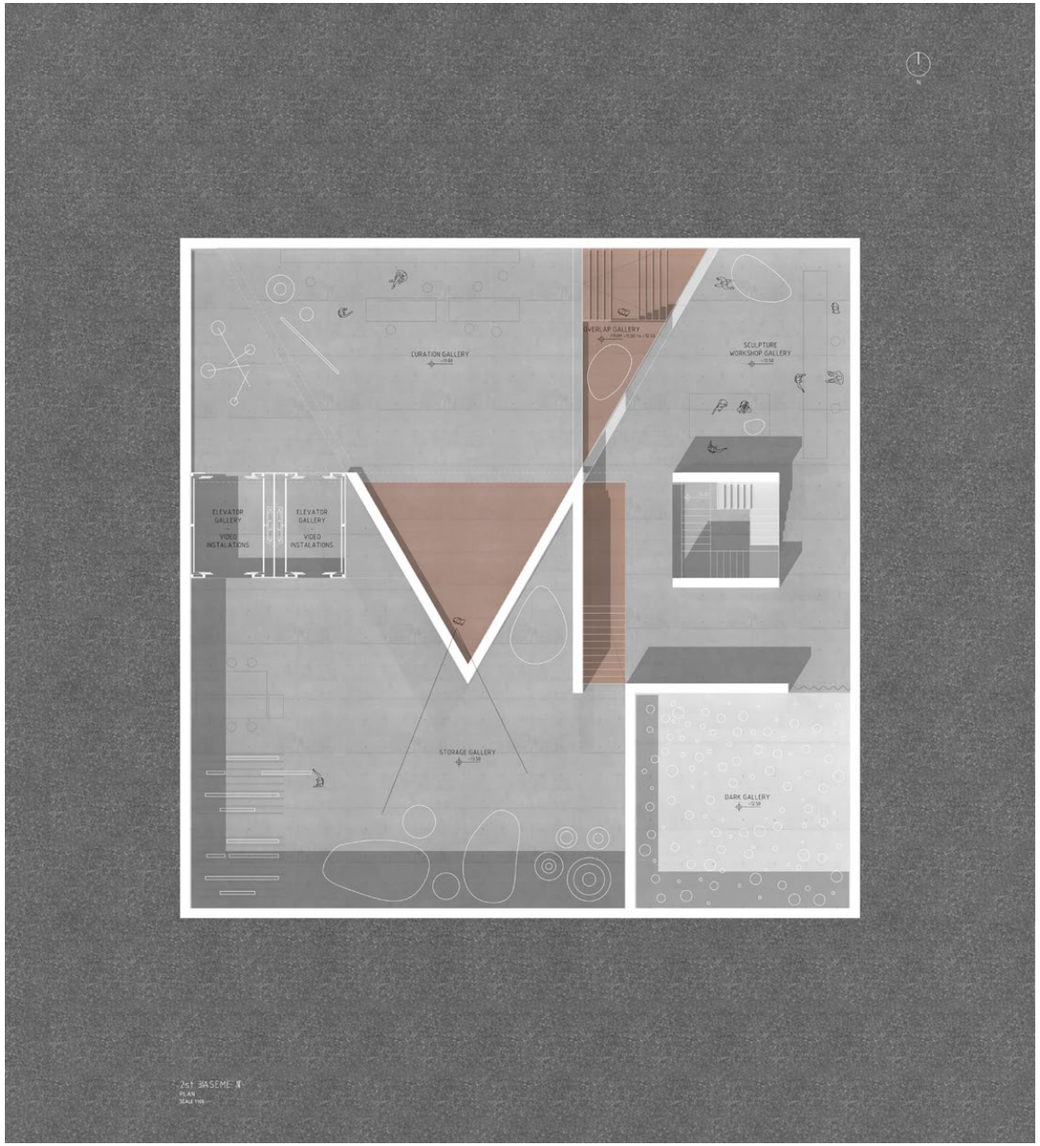




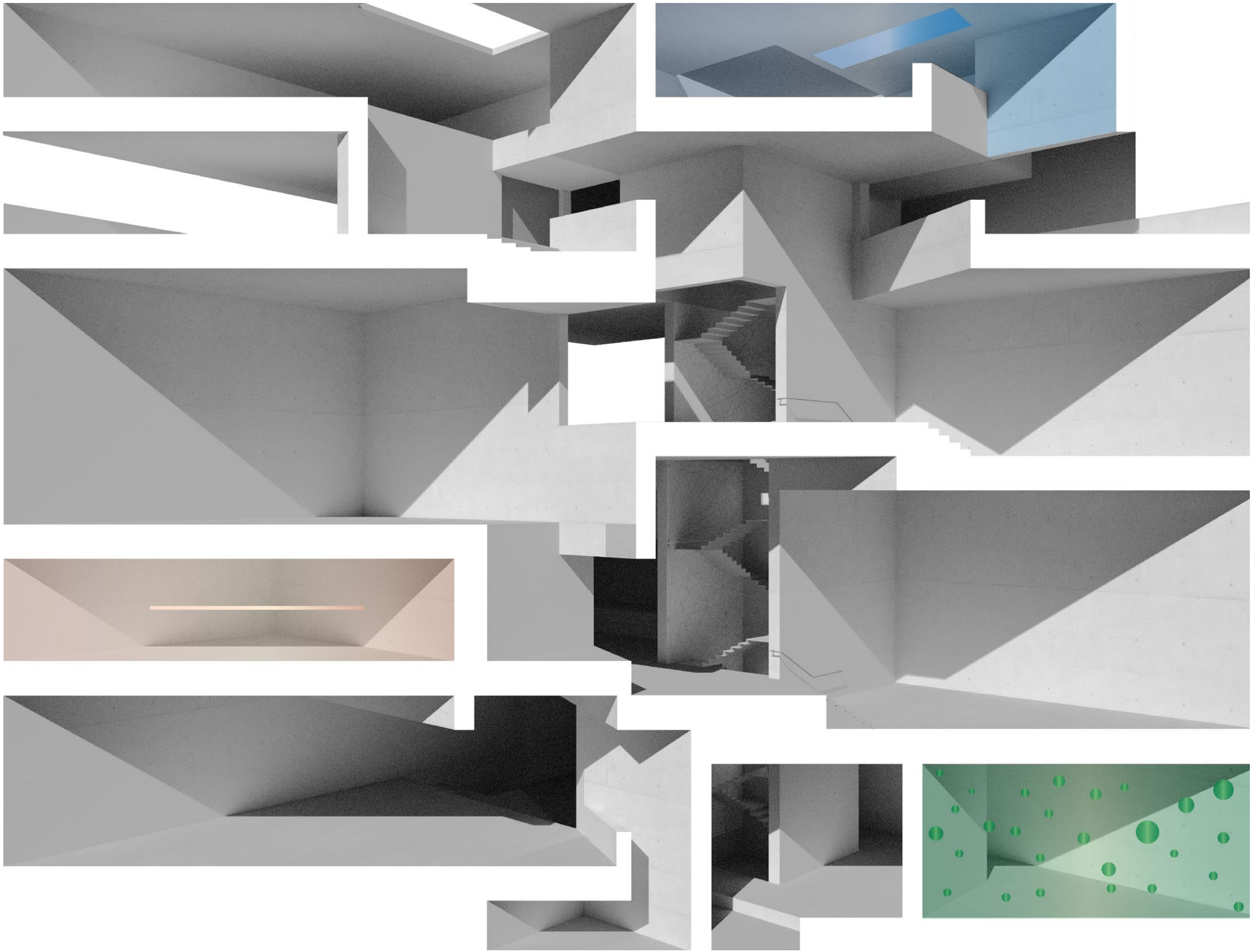
> 1ST BASEMENT







> 2ND BASEMENT



Slow House

GSAPP

Extreme Design Seminar with

Prof. Mark Wigley

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Work by Manuela Siffert Porto

Architecture and TV in the work of Diller Scofidio

Although Diller Scofidio + Renfro is an office worldwide known mainly for their bigger and mainstream projects, such as the recent MoMA extension, the High Line, the Shed, the building in Hudson Yards, some more conceptual projects are extremely relevant for our discussion about television and architecture, the most relevant one, the design for the Slow House.

The Slow House was a project from 1990, a weekend house in eastern reaches of Long Island, intended for a waterfront site in North Haven. The house was never completely built, its foundations were poured, but the client was unable to complete its construction. However, it is still a project worth being discussed.

There are three points that will be discussed in this essay on the Slow House and also an other project by the same architects, Overexposed, as examples to contribute for the dialogue between architecture and television.

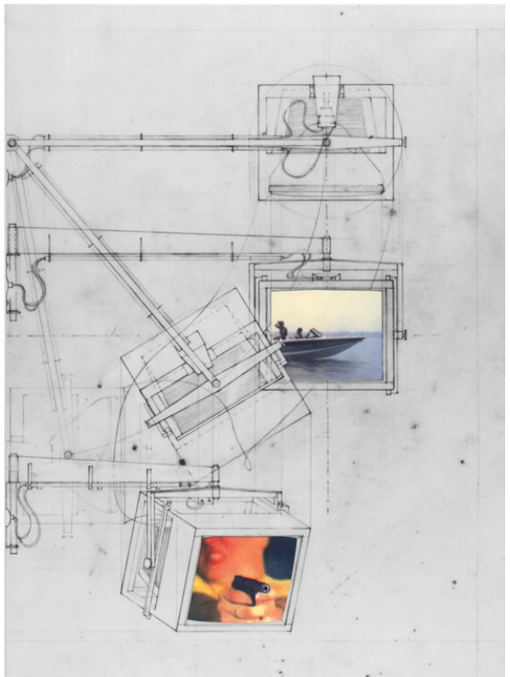
The first one is the notion of television as a third window; the second, television as anesthesia, and the third, television as surveillance and the notion of privacy.

"The third window is a recent invention: the television screen, a removable and portable window that opens onto the false day of the speed of light emissions. The television screen is an introverted window, one which no longer opens onto adjoining space but instead faces beyond the perceptible horizon". In this passage by Paul Virilio in the text Improbable Architecture we understand the television as an architecture element, a window. For the author, the first window is the door; what we know as a traditional window was invented centuries later, being the second window, and the third window is the virtual one, the television.

The Slow House is interesting for his discussion because its design is basically about those three windows. Written by the architects this statement is powerful: "There is no front facade, only a front door. The weekend house is conceived as a passage from physical entry to optical departure or, simply, a door to a window." Besides those two traditional windows, maybe the most important feature of this house is the third one: the television set, the video apparatus placed in front of the large window, where the image transmitted is fed by a live video camera, sit at the summit of the left stack, directed at the water view. The architects continue to explain: The electronic view is operable; the camera can pan or zoom by remote control. When recorded, the view may be deferred— day played back at night, fair weather played back in foul. The composite view formed by the screen in front of the picture window is always out of register, collapsing the opposition between the authentic and mediated.

Here, the relation between the "authentic" window and the mediated window (the video screen) is interesting to explore. Architecture is already mediating and controlling the views through the designed openings of any building/space. In the case of the Slow House, the viewer is forced by the windows – entrance door and big glass opening – to look at the sea. We can think of those architectural windows also as screens. Besides the space already forcing your views, the third element of the television is forcing your eyes to another screen, although, the interesting thing in this case, is that the television is not there for TV shows or entertaining films, its there serving mainly as literally another window, framed to show exactly the same view as the real window, with the difference that this view can be edited: you can fast forward or rewind, you can pause, zoom in or out.

During the night you can watch the view during the day and vice-versa.

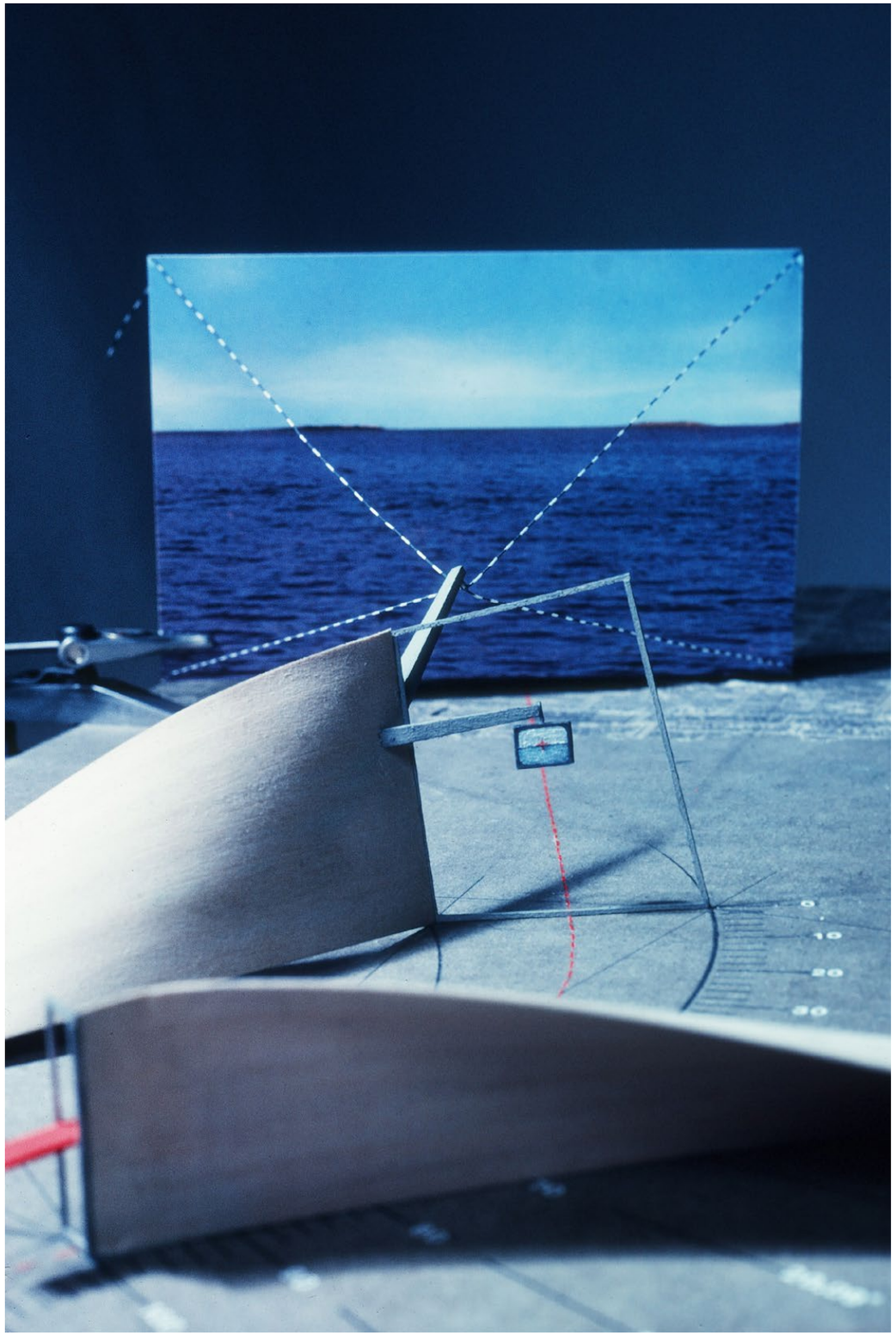


We can't know for sure where your eyes will be driven to if you were inside the Slow House. However, on modern days it is safe to say that people spend more time looking at their video apparatus then to an authentic window. The television has an anesthetic function, watching something disconnects you from your senses and reality. The simple feature of controlling your own view and what you want to see, takes you away from reality and may corroborate with this quote *"…the subsequent supremacy of the television window over the door and other traditional means of access…"* (Virilio, 1983)

Even though in Slow House you are watching through TV a "real view", the question is, how real anything mediated by a screen is. The video apparatus displayed at the Slow House is a way of anesthetize the user, attracting his eyes to the pixels of the screen and maybe making him forget why do this house exists in the first place with a view. Couldn't you see the sea view on the screen anywhere else? In your apartment in Manhattan? By remote control, sitting on your chair, you can shape the way you want to see the world. In the background, another shaped world by architecture. Although they might seem the same word, they are not, the simply fact that you can go back to watch day time shots from the sea at night time, or showing summer views in winter time is one of the features the television can do for you that distances the pixels' word from the real one. Another interesting topic to discuss using this house as a point of departure is the relationship between privacy, surveillance, television and architecture.

"To either side of the "picture window" are two antenna-like stacks: the chimney is to the right, the video apparatus to the left. At the summit of the left stack sits a live video camera directed at the water view and feeding the monitor in front of the picture window." (Diller Scofidio, 1990)

When you read a live video camera directed at the water it's hard not to think about



surveillance. The fact that the camera is recording a public place 24/7 and feeding this information to your private TV monitor can be read as a way of controlling your vista to watch what you want and who you want. If there is any person at sea, you could zoom in, analyze, pause, go back.

This theme of privacy and surveillance related to screen and architecture takes us to another interesting project by the architects that can greatly contribute to our discussion.

A big part of Diller-Scofidio work is also about installations and video projects. Overexposed, made in 1995, is a 24–minute continuous video pan across and up and down the surface of Gordon Bunshaft's Pepsi–Cola building (one of the signature curtain wall buildings of the 20th century), and can be understood as a critic about the glass curtains facades of modernist buildings, questioning how the glass was a promising democratic thing for modern designs and how it became instead an overexposed world. *"Glass was considered to be a material of truth and an instrument of disclosure. However, the utopian future envisioned by the modernists turned dystopian several generations later. The transparent building which was to permit unlimited vision out, in fact, exposed itself to observation from without."* (Diller Scofidio, 1995)

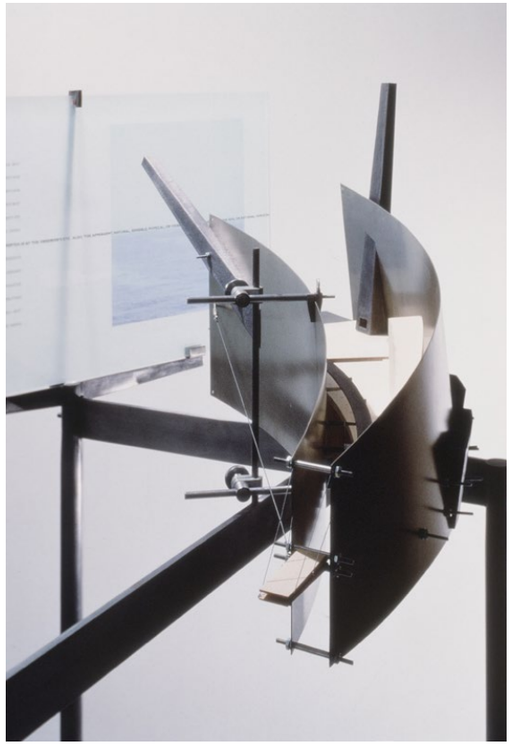
The image of this video is very valuable for our discussion because, first of all, the first impression you have is that image from the windows of the building are television screens standing on top of each other. And maybe it could be – as was discussed earlier in this paper, isn't the TV screen a window itself? We could say that this sentence by the architects would make total sense if we replaced the word glass for TV and the word building for screen.

Like TV for many people, the glass curtain wall was about democratizing information for the modern movement ideology. However, they may have created an overexposed world leaving few shadow zones of privacy. "The pathologies have inverted: the fear of being watched has transformed into the fear that no one may be watching. Thus, glass has assumed the role of a representational surface, a performance screen."

The voice over of the Overexposed film is an extremely detailed narration of each window/screen/office about the character in the view in question, observed from a fictive viewer from a neighboring building, like an investigation show on cable TV.

Those two projects by Diller Scofidio are very literal examples of the television as a window, and the window as a TV. Both of them makes us think about architecture always producing several types of screens inside each other.

When you first starting thinking about this topic, you think you know what the TV represents in architecture. But the more you discuss it, you realize the relation is much more complex and symbiotic. Television may not be just inside the room, but may be the room itself.



images are all from dsrny.com/project/slow-house

82

Amie Siegel

GSAPP

Arguments Seminar

Instructor: Óskar Orn Arnorsson

<>

Work by Manuela Siffert Porto

Amie Siegel

The subjective and artistic value of architecture trough Amie Siegel's work

This essay proposes to discuss the subjective value of objects in art and architecture trough three works of the artist Amie Siegel: Provenance, Double Negative and Quarry. Questions raised in class during the semester will also be part of the debate. The main question here is the similarities of the art world and the architectural world and the power of both worlds as a symbol and not an object. Through those three works we can raise questions, examples and answers to instigate the continuation of this broad debate.

The work Provenance has three parts, but the film is what interest us the most here.

In the film, as she called a multielement film installation, she traces back the history of the furniture of Chandigarh, designed by Pierre Jeanneret and Le Corbusier when the city was built in the 1950's. The film follows the same logic of a Provenance document made for works of art - starts with the current owner of the object (who bought the pieces in auctions) until the original owner, the buildings of Chandigarh.

The object/furniture in this work is the protagonist and the people are merely ephemeral. In other words, as Siegel mention, the object becomes valuable when it starts to be treated like people. We could say that in this case, the furniture acquires a high cultural capital and in consequence, high exchange value.

We could think here that the furniture also represents the value of the architecture itself and serves as an analogy for us to think about the buildings as works of art. For some reason, the furniture of Chandigarh is being sold, maybe because they don't function anymore for a contemporary purpose of the building, or any other reason. This makes us think about the obsolescence of constructions like that, decreasing maybe the objective value of those objects, although the subjective value always seems to increase due to its rarity.

The role of the architecture as art is shown even more clearly in Siegel's work Double Negative. The "object" in question here is Villa Savoye designed by Le Corbusier in 1929, a worldwide western reference for all architects. The Villa Savoye serves today as a work of art itself. The reason to visit the place is to admire its building, is a museum of the museum. This is an obvious example to debate architecture as art and symbol. The Villa is no longer fulfilling its function as a house but its iconic function as a piece to be admired.

This work is very interesting because it shows the negative prints of the original Vila and an exact replica of the Villa in Australia, painted in black instead of white. Just the fact that the Villa Savoye has a replica is crucial to understand architecture as art.

In the work Quarry, the object in question in the film is the raw material of marble, and Siegel follows it since their excavation in the largest Quarry in the world in Vermont to its use in luxury apartments in Manhattan, such as the polemic building 432 Park Avenue by the architect Rafael Vinoly. The film is very interesting because it shows the marble as a very powerful protagonist, almost with a human movement. The intense instrumental music contributes to bring an aura to the object and transform it to almost something sacred.

In this case, the marble leads us to a very interesting analysis of the subjective value of the apartment buildings itself. Let's take here Vinloy's building as an example. The same way that the incredible spiritual marble can be part of your domestic environment (in her text, Siege's mention that one of the real estate vendors of the 432 Park say the marble sink in the apartments are from the same place in Italy were the marble Michelangelo made David was extracted from, which is at least doubtful) there must be many other objects that makes the building and the apartment an work of art.

In one of Siegel's lectures, a very interest question is raised – isn't the world or art and real estate (specially in cities like New York) the same? Collectors, funders and investors in both worlds aren't the same people? Both objects, for the buyer are a display of wealth and taste.

This question can have many answers, in Siegel's words, it has a lot to do with instrumentalization of art and the commercial value of it, transforming it into an asset, like in real estate: "in terms of assets, condos and artwork are in the same space".

The anecdote of the marble "Michelangelo's" sink is powerful to debate another outcome of this phenomenon, the dichotomy of functionality and subjective value. The sink isn't very functional, but what is important here is the spirituality of the artwork – that's what is being sold.

Another aspect that contributes to the discussion is the fact the 432 Park has a curious number of unoccupied condos. Here, apartments are left alone like artwork, as a safety deposit box.

In the case of this example, the architect is the artist, is the brand. We can say architecture has been an object of desire for a long time, of course. However, it seems that the real estate market now, as well as the art market is exacerbating its exchange value every day. The subjective value of the artist has become very attached to its price in the market.

In the same sense, the subjective value of architecture given by the name of the architect/artist seems to be the what matters for a successful market price, more than the objective values of functionality, structure and use. Here we can come back to the chairs of Chandigarh – they were taken off their original place, which they were designed to work and function and sold as art pieces to fulfill a desire of a collector, not of a chair anymore but as a spiritual object with a brand. Is this collector buying architecture or art? Both.

The debate between subjective value of materials and objects is crucial to contribute to the discussion of the design process and for us to reflect about that as designers. Is architecture being reduced as a symbol or icon? Star architects are making their brand and sometimes this can overcome the real quality of space. We can also say that this brand can be now a days exacerbated with the social media phenomenon. The designer is the artist, the artist is famous and consequently his work is art and expensive.

On the other hand, hasn't architecture always been art? Isn't the symbolic part an important part of the design process? What is the difference between Le Corbusier's buildings and his paintings?

Architecture, under all of its constraints of engineering, function, climate responsibility and economy, sometimes transcends to inspire us with ideas in space and light - qualities achieved in the abstract. In Steven Holl's words, isn't architecture overall the art of space? Isn't what is known and admired for? Also, isn't art so broad that also incorporates architecture? With art installations, for example, using special qualities to express artistic intentions.

Amie Siegel puts in the center of her works the object, transforming it into subject. In the cases written here, we could say the boundary between object and subject in art and architecture is never exact. Some people worry about the separation of those things in the design process. I don't believe we can separate those two things. In other words, can the "spirituality" behinds the materiality that Siegel wants to show be controlled in a rational way?

images are all from the work Provenance
amiesiegel.net/project/provenance

Condenmed Island

90

GSAPP

Fall Studio with

Mark Wasiuta - *Cultural Agent Orange*

<>

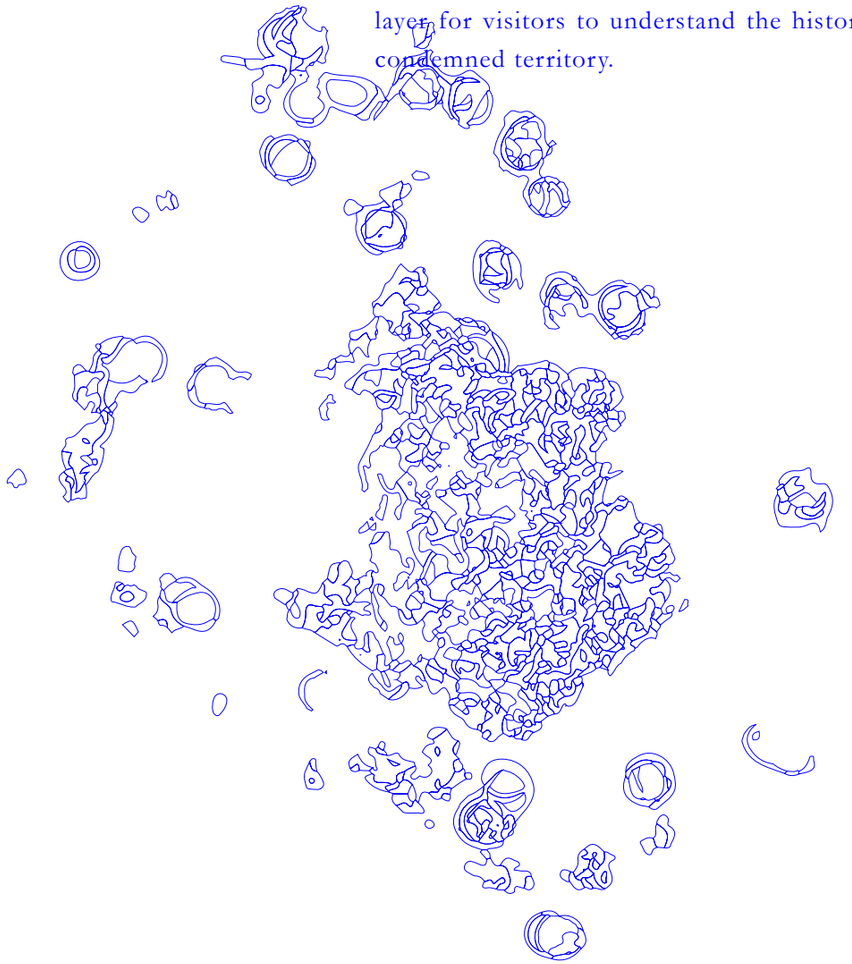
Work by Manuela Siffert Porto

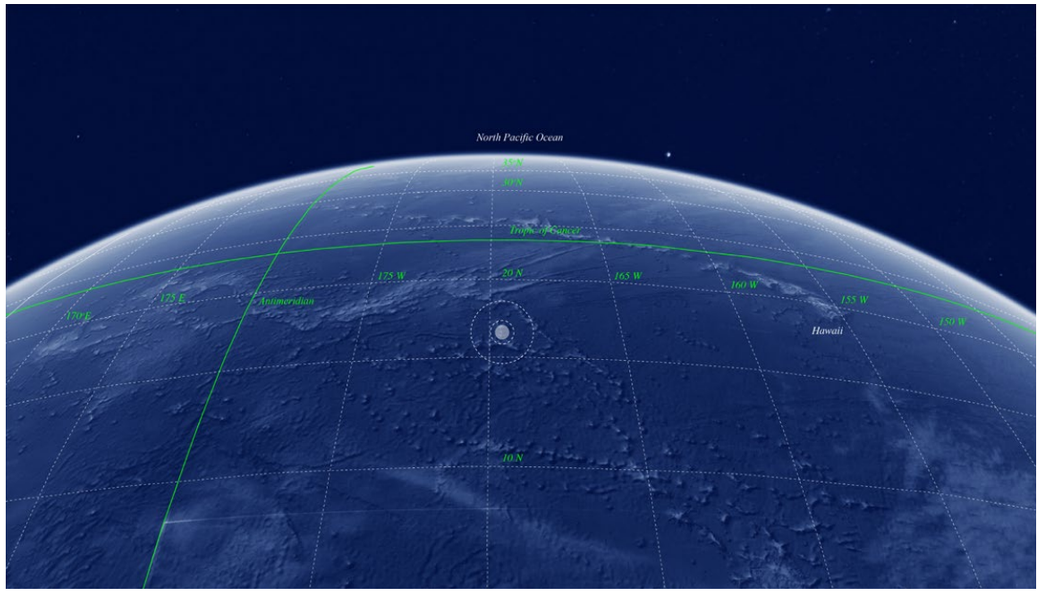
and the best T.A Jarrett Ley

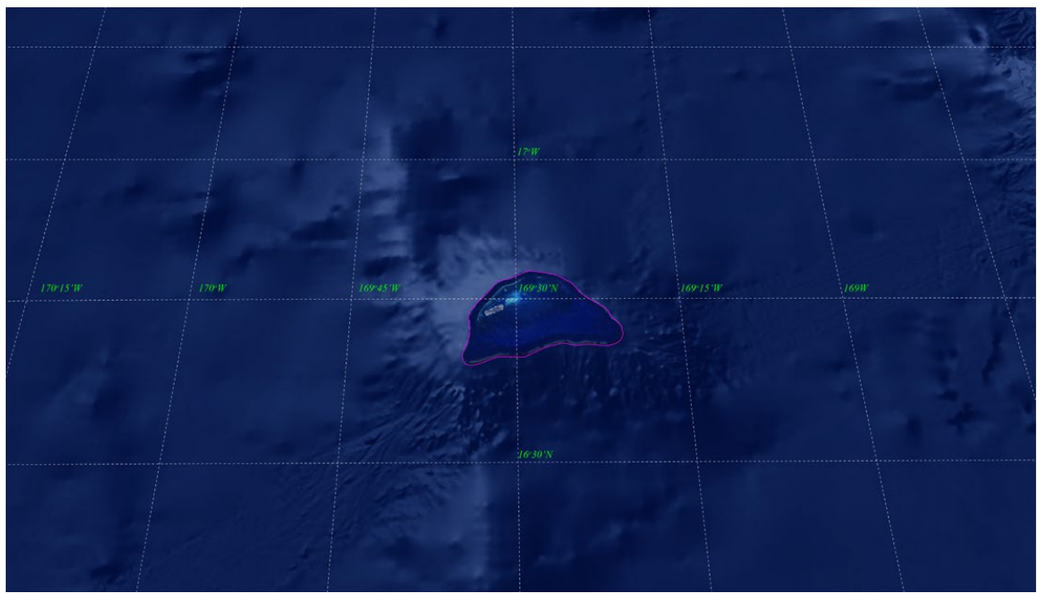
Condenmed Island

Condenmed Island

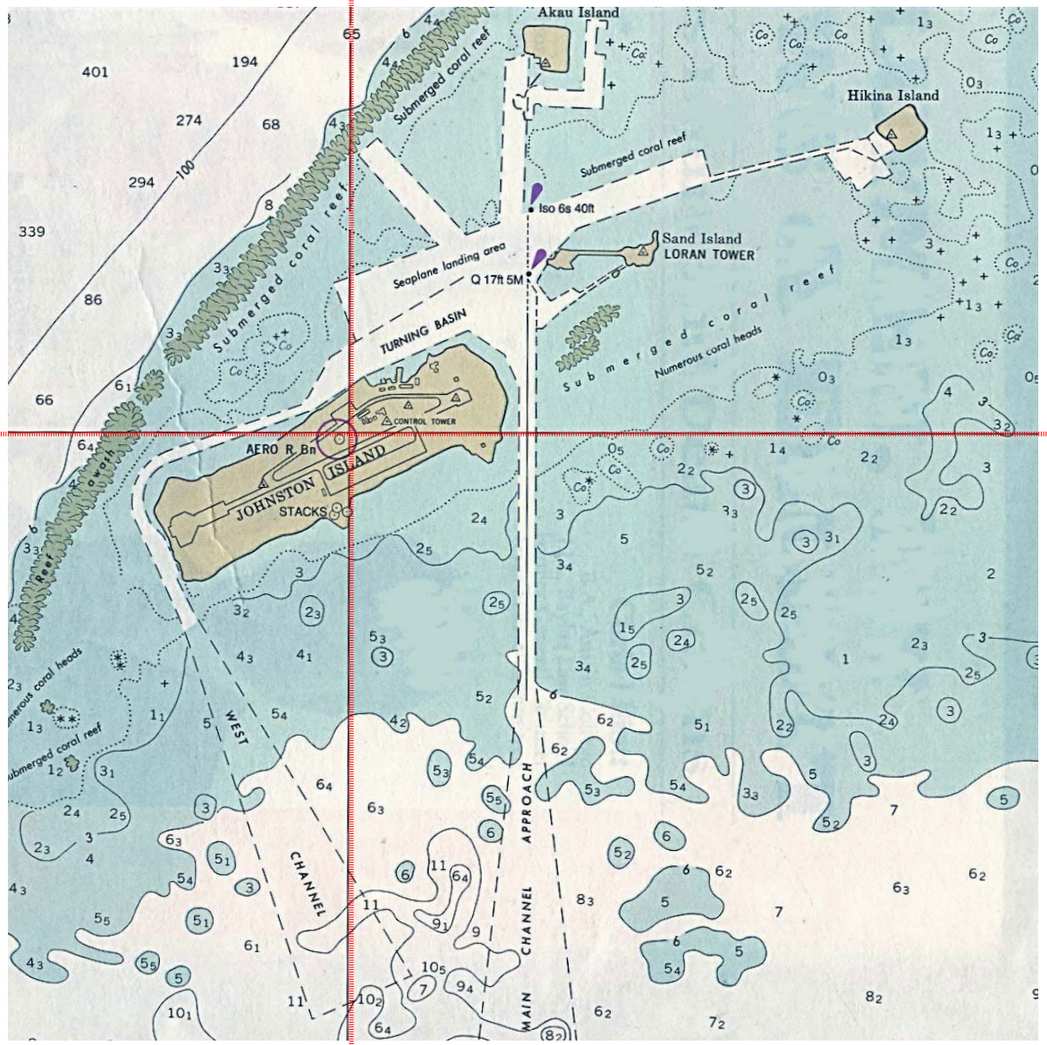
Fifteen thousand km from Hawaii, Johnston Atoll is the only shallow water and dry land area in four hundred and fifty thousand square miles of ocean.
The island has a very complex history of a testing ground for innumerous military missions.
These intense events can enable us to understand the Atoll as an accumulation of toxic elements and memories.
A history of a constant injured territory.
On the other hand, all this toxicity is intertwined with wildlife and exuberant natural landscape.
Through the proposal of three **architectural instuments**, this project aims to read this toxicity not only by isolated labs for expects, but by introducing the necessary protective layer for visitors to understand the history of a constant condemned territory.







JOHNSTON ISLAND
16° N
169° W



CONTAMINATION

North Pacific Ocean
reef
Akau Island
Hikina Island
reef
Sand Island
Johnston Island
Johnston Atoll
U.S. Territory

ANALYSIS DRAWING
HIGH ALTITUDE NUCLAR TESTING

In 1962, part of the operation Fishbowl, using a Thor missile, the first two operations – Bluegill and Starfish, failed.
The engine stopped and the missile broke apart. Pieces of the missile fell into the lagoon, contaminating it with plutonium.
In July 1962, the test Starfish Prime was successful and the warhead was detonated in a 400 kilometer altitude, causing an electromagnetic pulse far larger than expected, causing electrical damage in Hawaii. The radiation belt persisted at high altitude and damaged five satellites.

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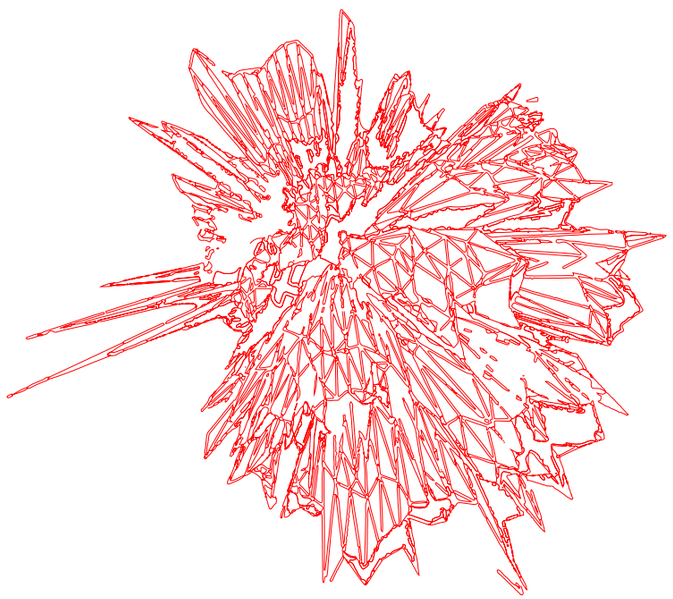

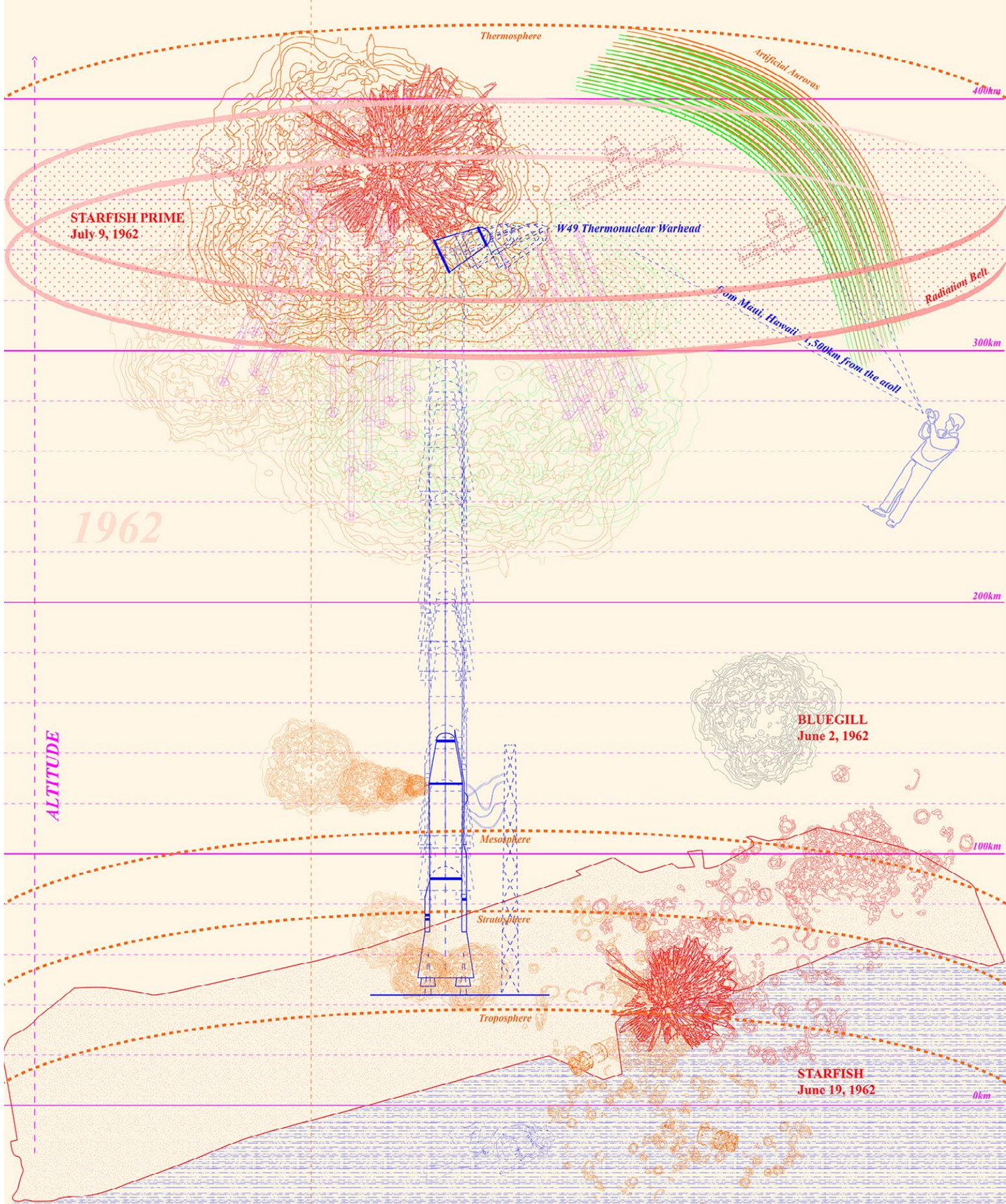

ANALYSIS DRAWING
HIGH ALTITUDE NUCLAR TESTING

The most serious disaster thought, was days after that, called Bluegill Prime.
The engine malfunction and the Thor didn't even launched before a massive explosion, destroying the rocket and the launch pad. This event caused serious contamination in the atoll, contaminating the land and the lagoon with plutonium and americium. It also caused serious health problems for the personal involved.
By the 1964, 550 drums of chemical and radioactive agents were dumped into the atoll.
By the end of the year, the nuclear high altitude test were ended.

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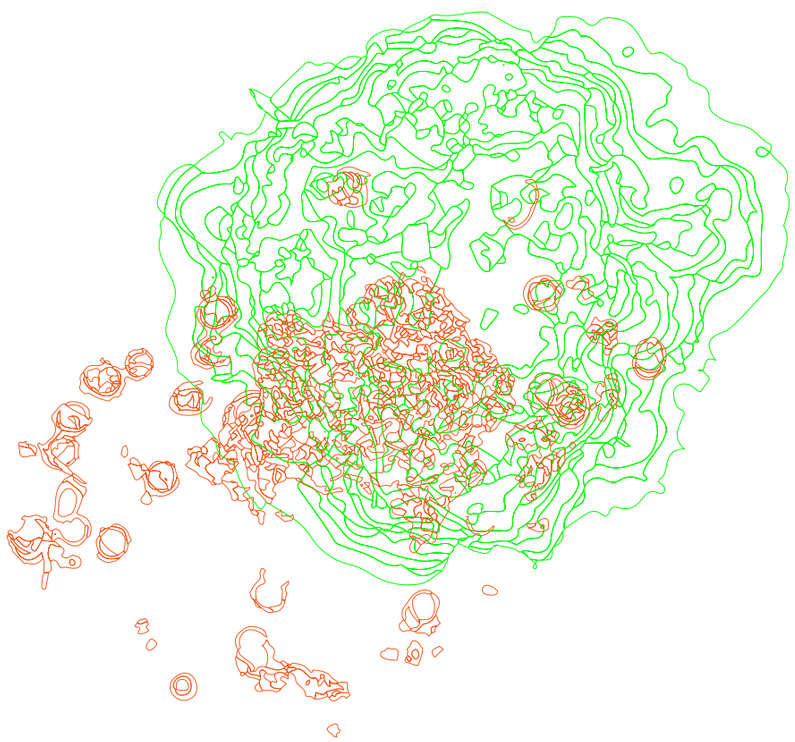

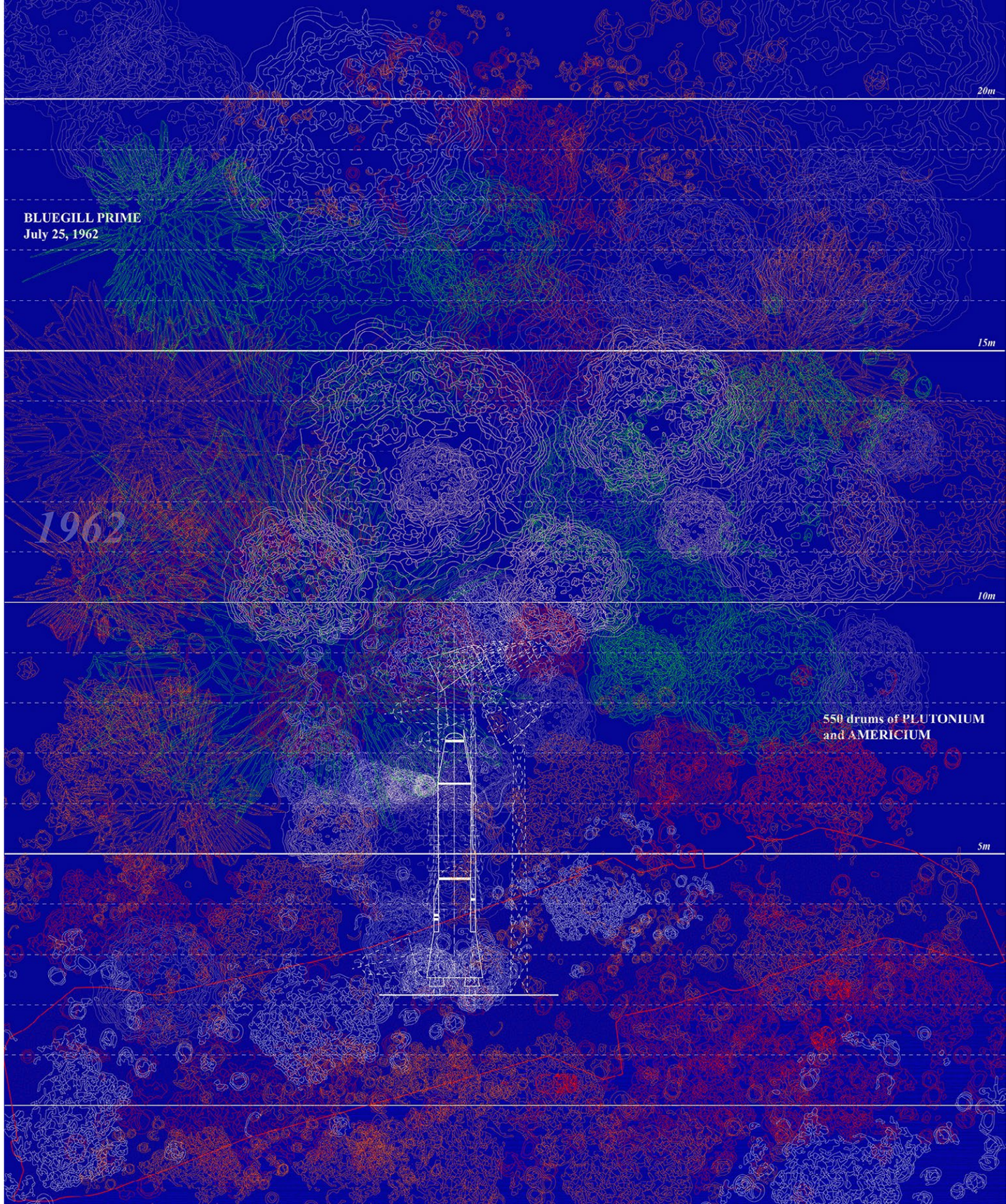

ANALYSIS DRAWING
PROGRAM 437

After that time, the Thor Missile was still operating, but as anti-satellite weapon system for Program 437 which would destroy or disable enemy targets through nuclear explosion.

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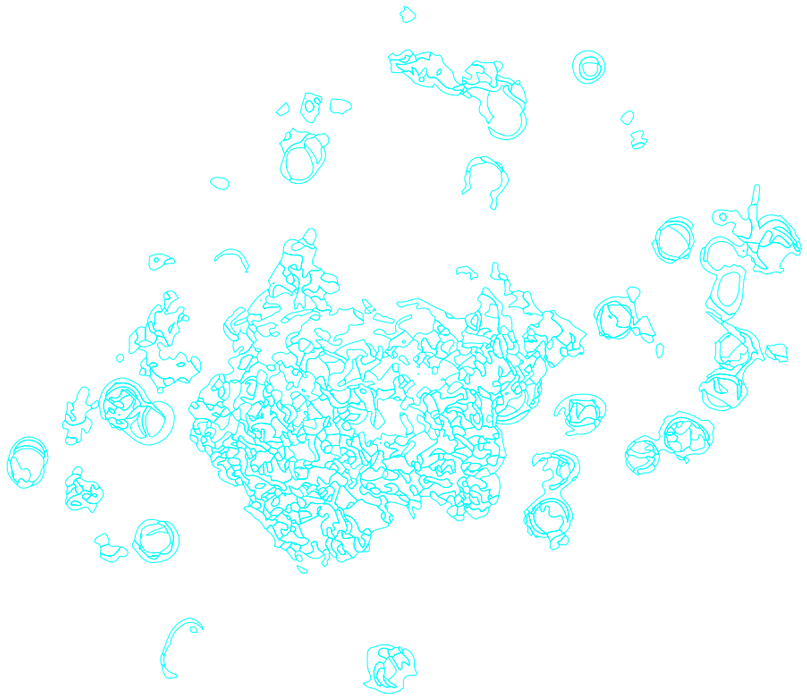

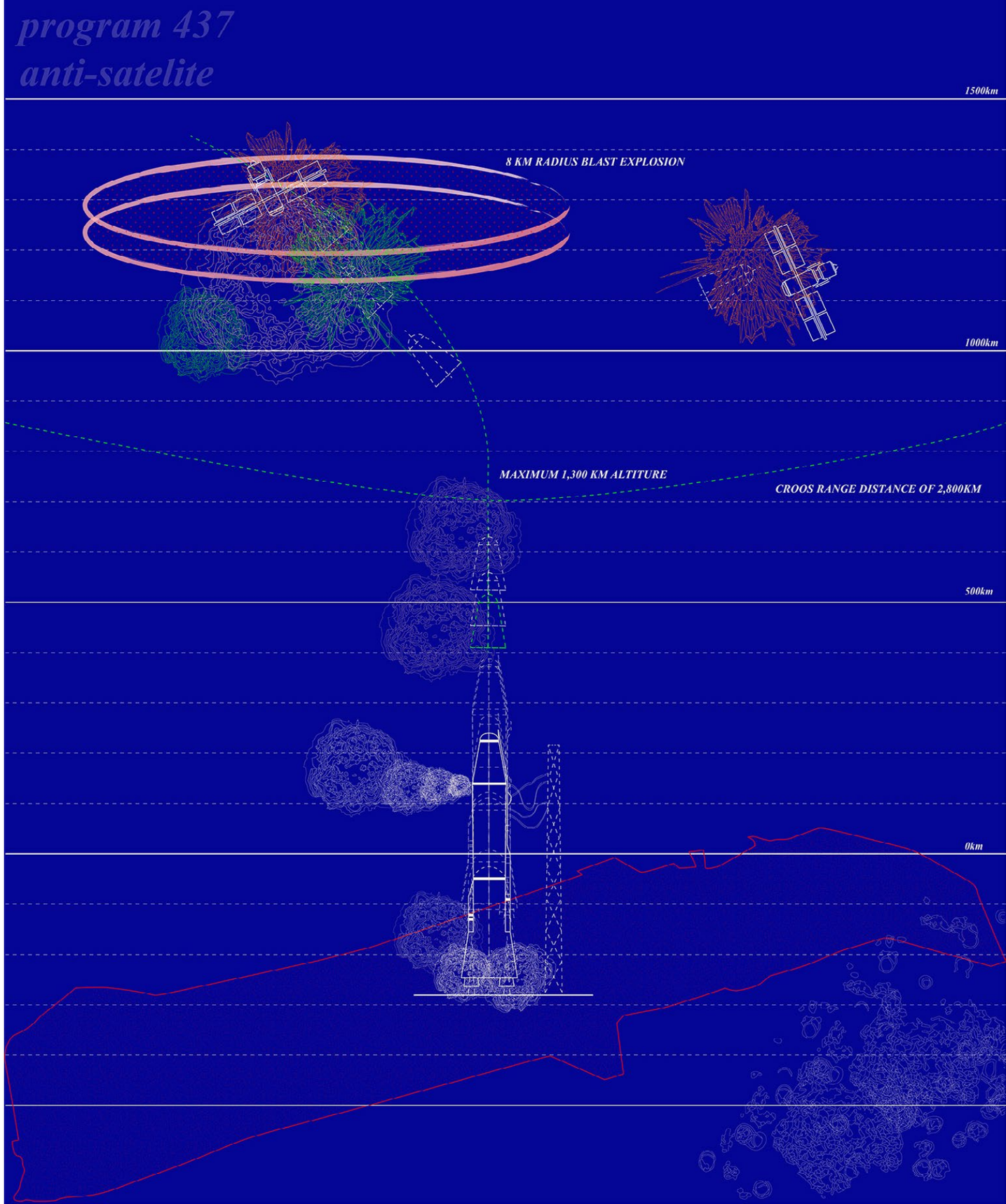

ANALYSIS DRAWING
AGENT ORANGE STORAGE

During the 1970's the island was used for storage of more than 25,000 drums of AO. Approximately 8 thousand drums leaked, adding one more layer of contamination to the soil and the lagoon.
The island also storaged and destructed chemical weapons that came from Okinawa, Japan and West Germany.
The drums were incinerated on the Operation Pacer HO, highly polluting the air around the atoll.

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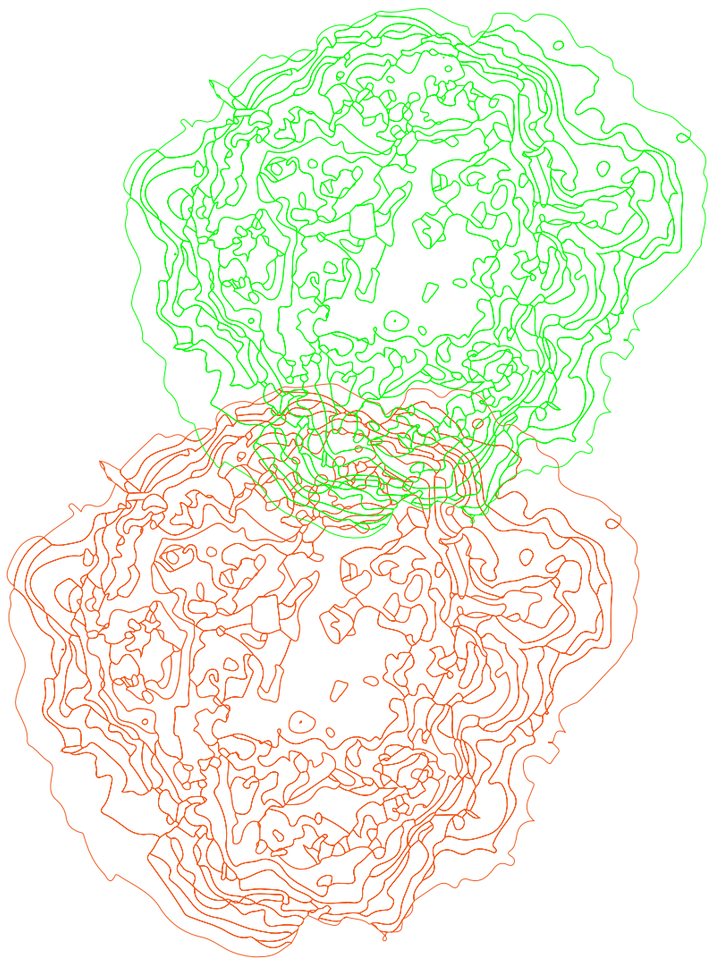
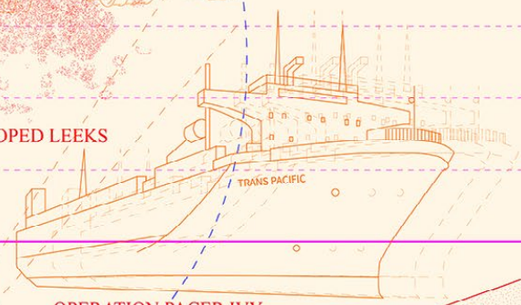


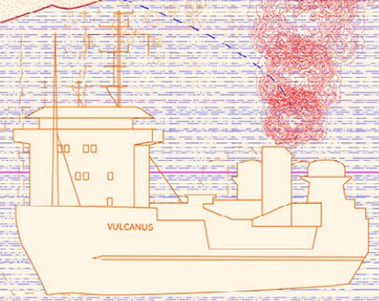
1972

25,200 DRUMS OF AGENT ORANGE

8,990 DRUMS DEVELOPED LEEKS

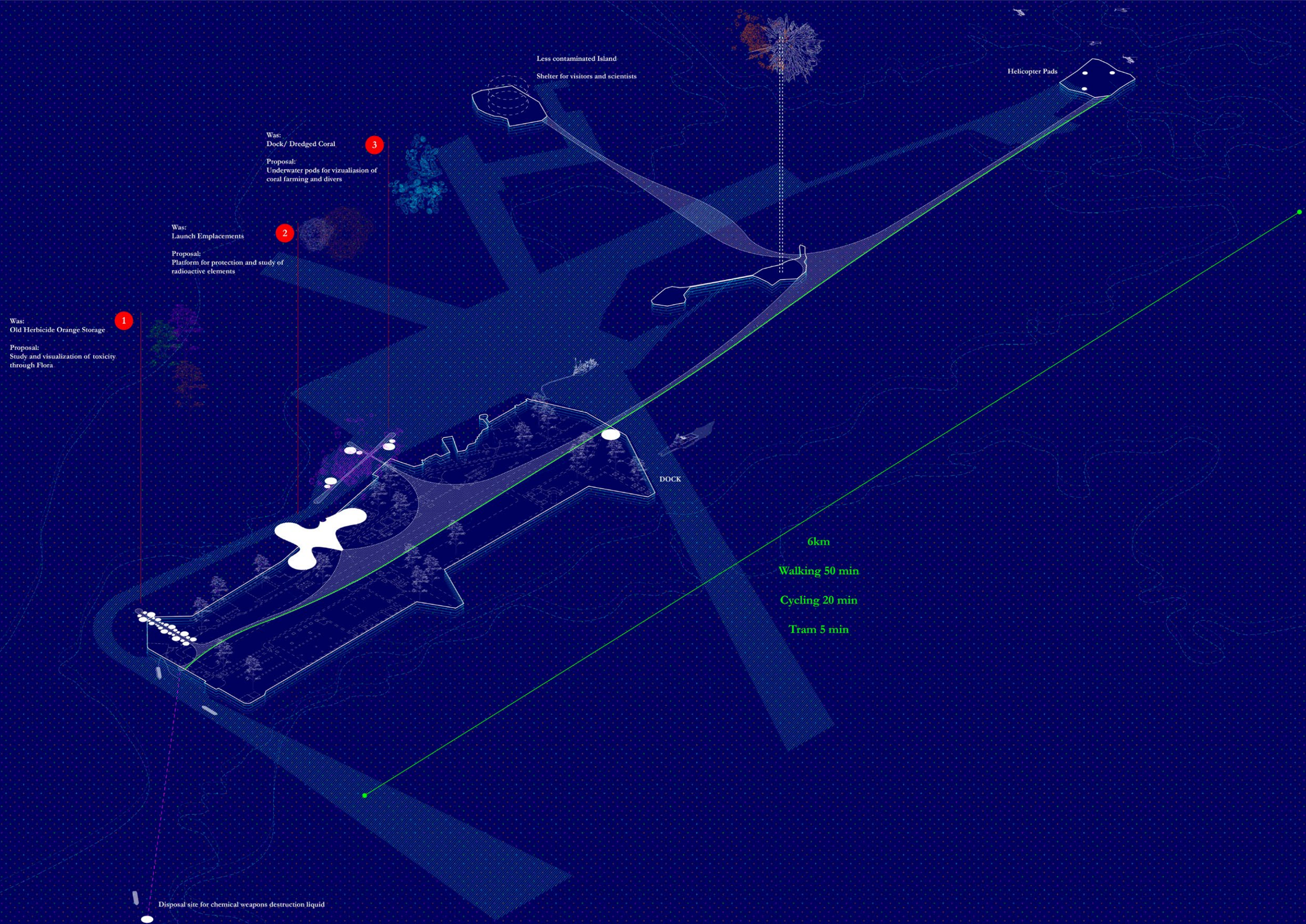


OPERATION PACER IVY
MV Transpacific



OPERATION PACER HO
M/T Vulcanus

the project proposes
instruments to gather scientists and visitors
to understand and visualize nature and the historic traces of toxicity in site

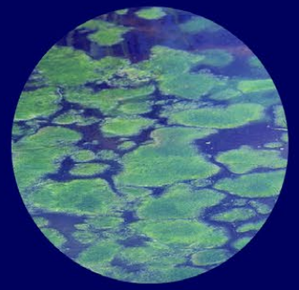

Less contaminated Island
Shelter for visitors and scientists
Helicopter Pads
Was:
Dock/ Dredged Coral
3
Proposal:
Underwater pods for vizualiasion of coral farming and divers
Was:
Launch Emplacements
2
Proposal:
Platform for protection and study of radioactive elements
Was:
Old Herbicide Orange Storage
1
Proposal:
Study and visualization of toxicity through Flora
DOCK
6km
Walking 50 min
Cycling 20 min
Tram 5 min
Disposal site for chemical weapons destruction liquid

1

INSTRUMENT 01
UNDERSTANDING TOXICITY THROUGH FLORA

Intrument 1 happens where all the drums of Herbicide Orange were stored, and leaked. As A.O is a chemical that was primarily used to devastate forests during the Vietnam War, I elected some flora species, native to costal Vietnam and costal Hawaii, to be analyzed.















1

INSTRUMENT 01
UNDERSTANDING TOXICITY THROUGH FLORA

- *Water Lily*
  - Eatable
- *Algea*
- *Solanum Americanum*
  - Up to 1.2m
  - Medicinal
- *Hibiscus brackenridgei – Ma'o Hau Hele*
  - Up to 9m
- *Heliconia*
  - Up to 3m
- *Yellow Oleander*
  - Up to 4m
- *Ipomoea Indica*
  - Up to 6m
- *Cordia Subcordata* — Up to 10m — Edible
- *Thespesia Populnea* — Up to 12m — Edible
- *Scaevola Sericea*
  - Up to 3m
  - Fragant Flowers
- *Madagascar Periwinkle*
  - Up to 1.5m
- *Metrosideros Polymorpha* — Up to 25m
- *Coconut and travelers Palm* — Up to 25m
- *Argemone Glauca* — Up to 1.2m
- *Crown Flower* — Up to 2m
- *Mucuna Gigantea* — Up to 15m — Poisonous
- *Dodonaea Viscosa* — Up to 8m — Poisonous

1

INSTRUMENT 01
UNDERSTANDING TOXICITY THROUGH FLORA

In controlled pods, one side being with the original contaminated soil of the island, the other, virgin, non-contaminated soil are in opposite sides of the pathway, so that can be directly compared.
From the main pathway, two floors of pathways emerge, the lower one for experts that can enter the pod, and the higher one, for the visitors that watch this aquarium of trees through the glass.

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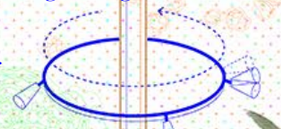
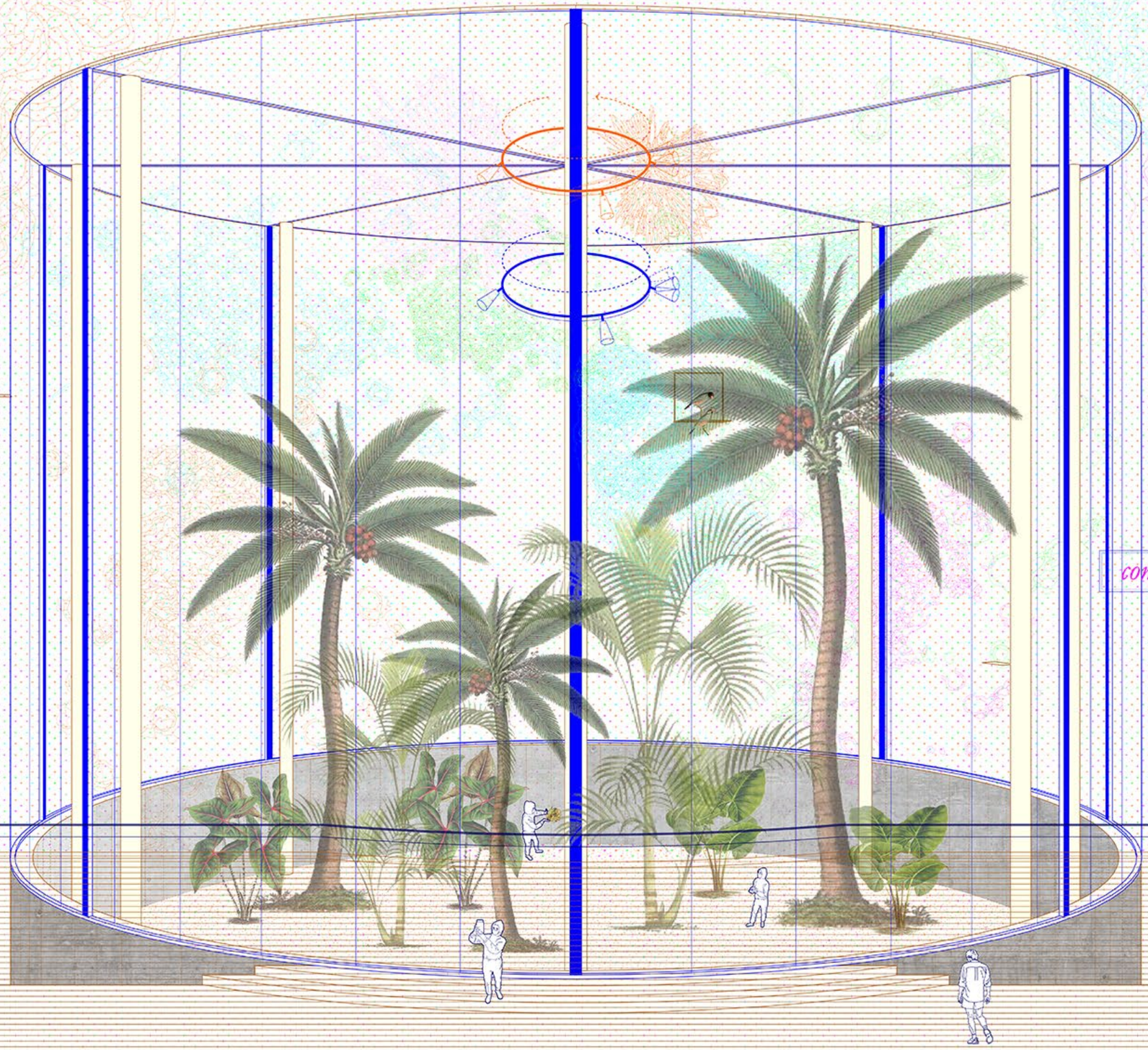


1 INSTRUMENT 01
UNDERSTANDING TOXICITY THROUGH FLORA

The pods are identical for the same species, same conditions inside, controlled by irrigation and fertilizers, if necessary. Here, the vegetation is the spectacle that traces toxicity, turning its concentration visible.

>

1 INSTRUMENT 01
UNDERSTANDING TOXICITY THROUGH FLORA



example of one pod

species:
Coconut Palm
Travelers Palm

max height of the specie + 2m

concentration of oxigen 85%

5m of soil (natural or virgin)

2 INSTRUMENT 02
UNDERSTANDING RADIOACTIVE TRACES

The second instrument to be detailed is found where the rocket launch emplacements and explosions happened. This place is also known as Pluto yard, due to its high contamination of plutonium.
Some essential materials are proposed.
Tick concrete, as an example, the concrete dome constructed in Bikini Atoll to contain radiation, and x-ray glass, resistant to radiation and interesting because its opacity can change due to the concentration.

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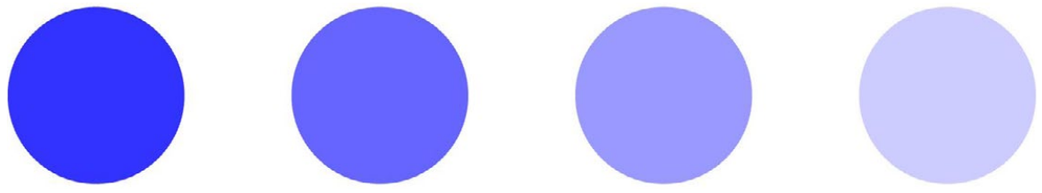
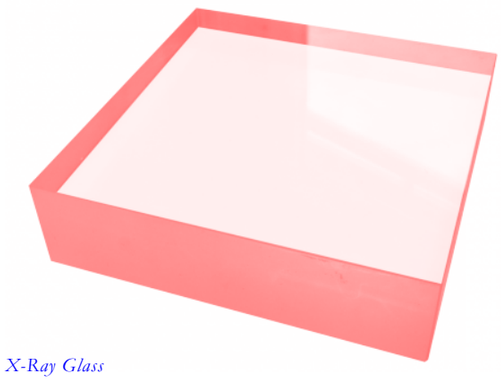


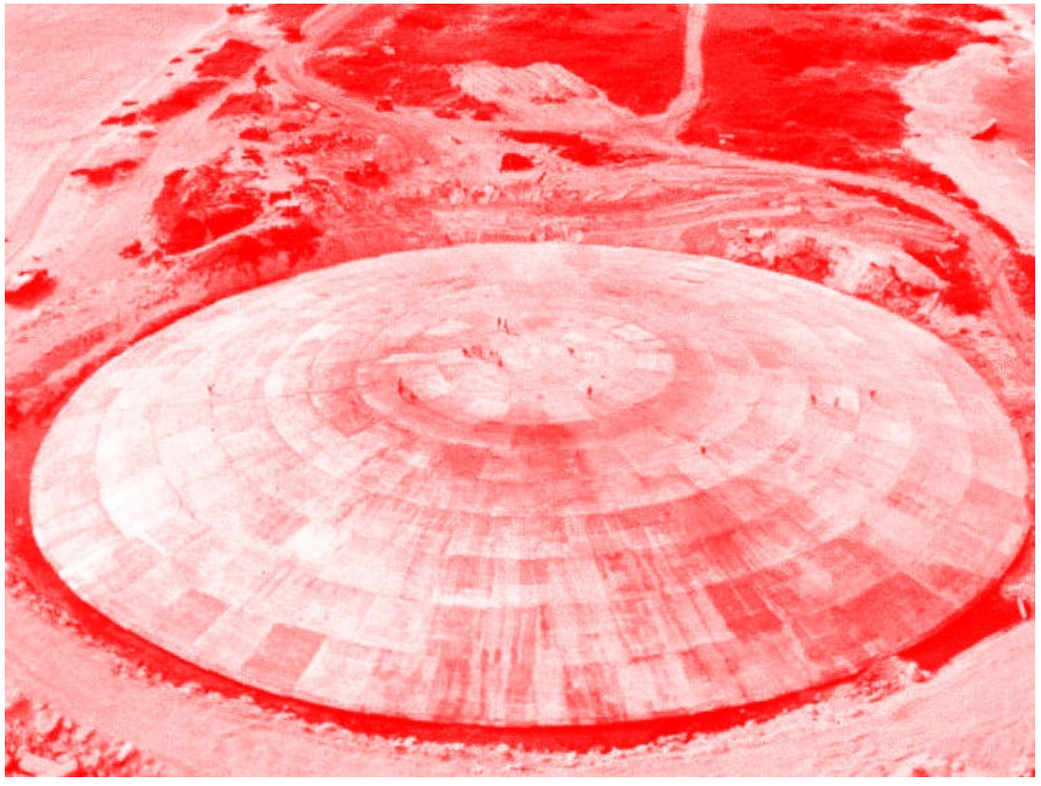
OPACITY

MORE RADIATION ← LESS RADIATION

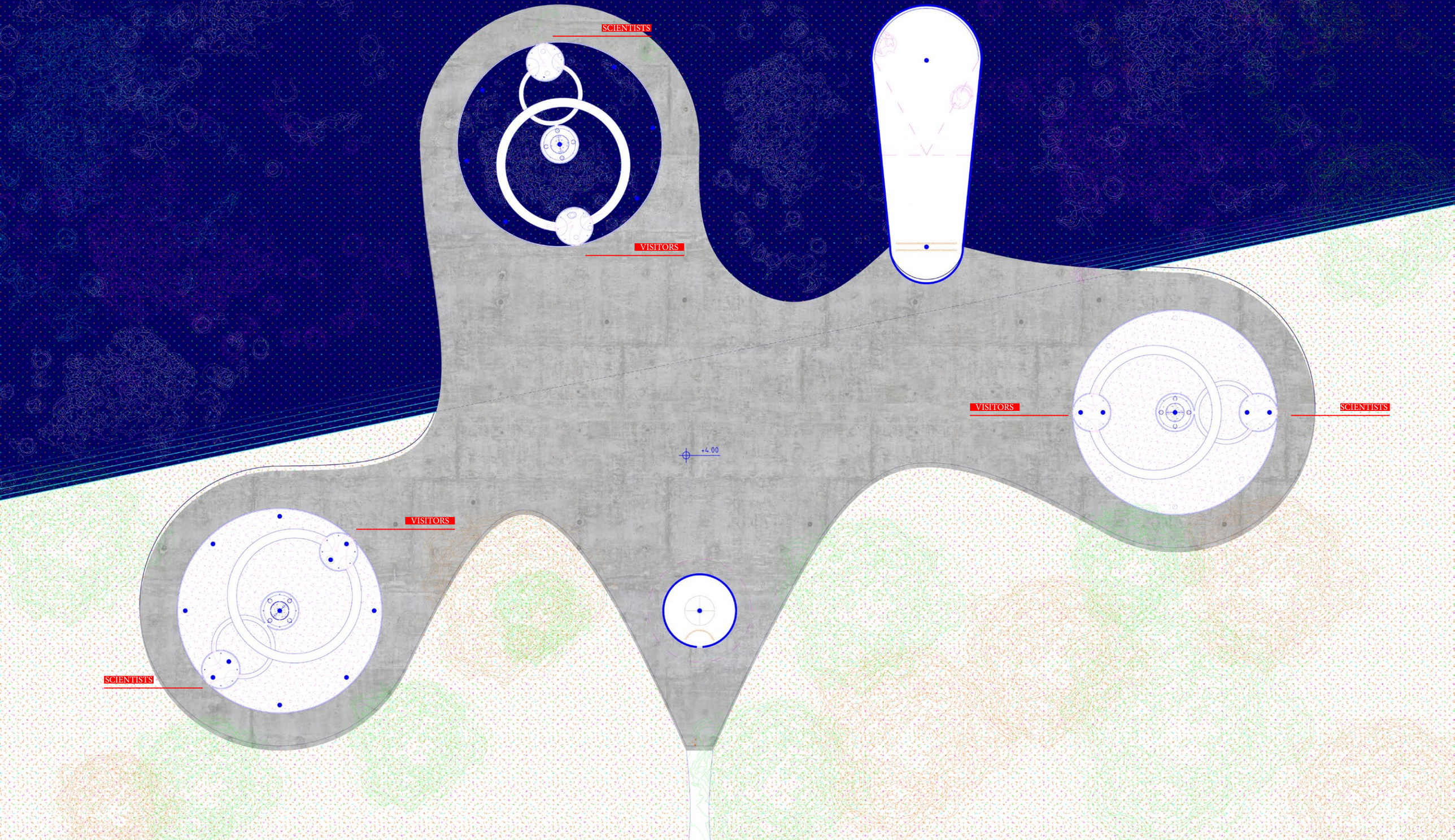


X-Ray Glass

Bikini Atoll concrete protective dome >



2 INSTRUMENT 02
UNDERSTANDING RADIOACTIVE TRACES



2 INSTRUMENT 02
UNDERSTANDING RADIOACTIVE TRACES

This powerful emptiness of space and the continuous live glass turn this space into a performance of toxicity, a way to understand the violence of nuclear American history.

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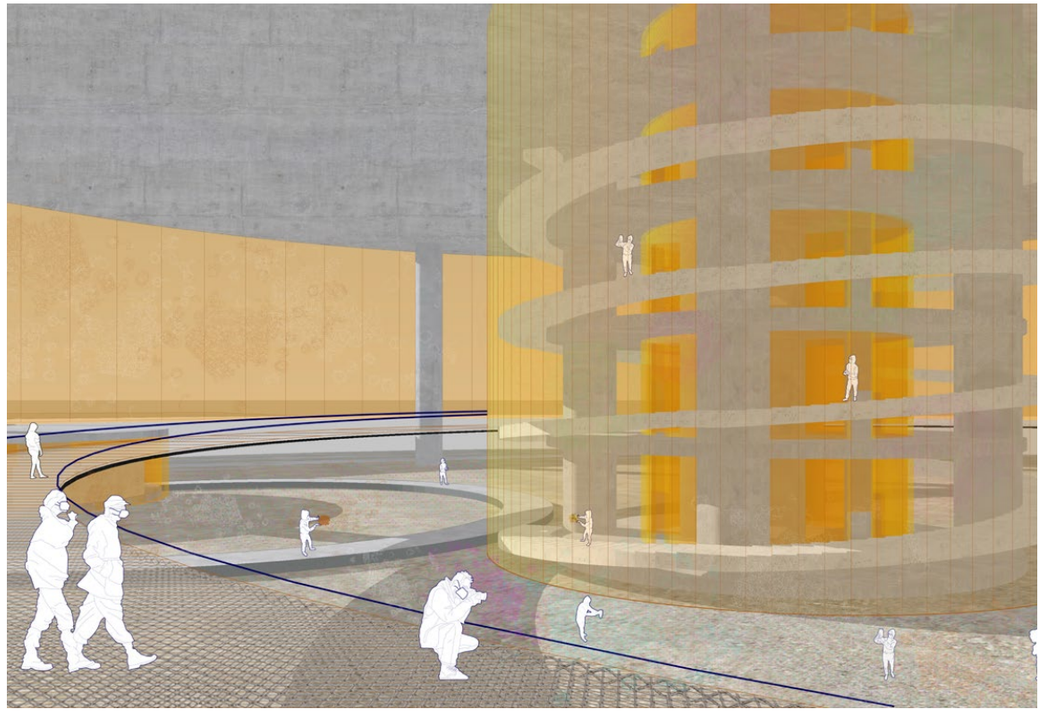
LAB INTERIOR



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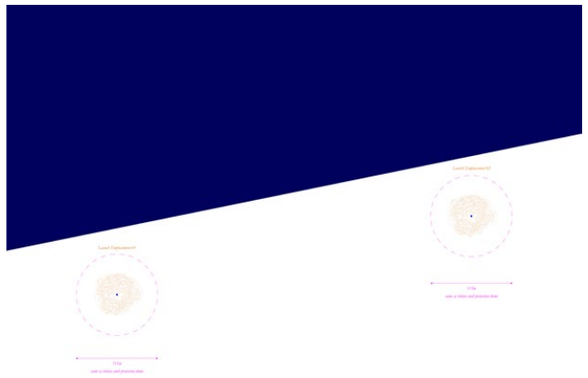

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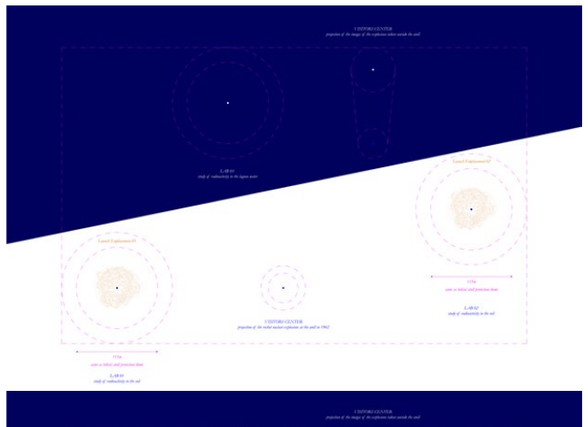

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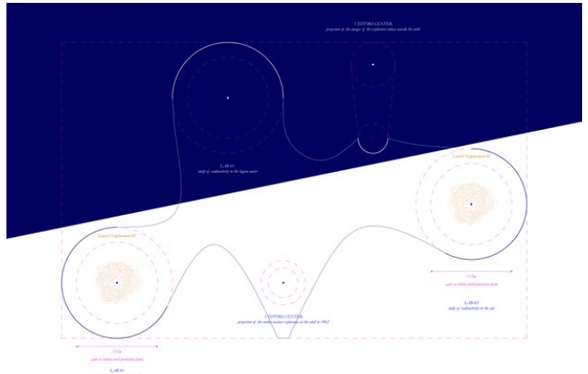

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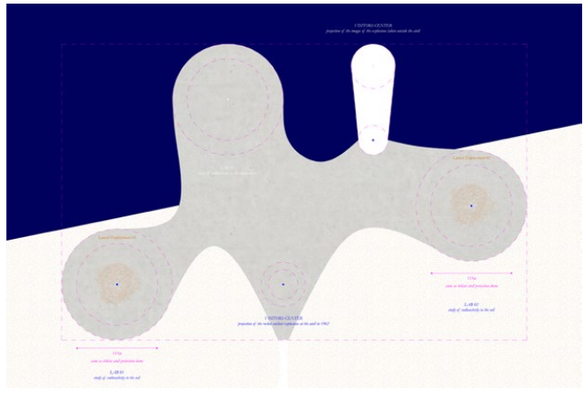
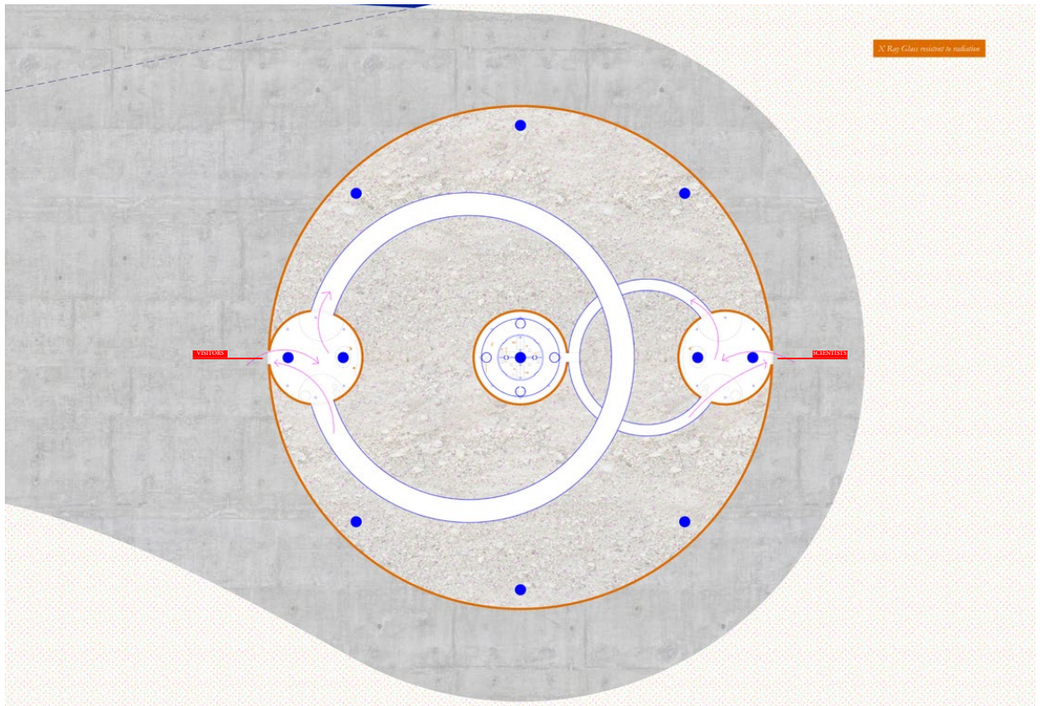
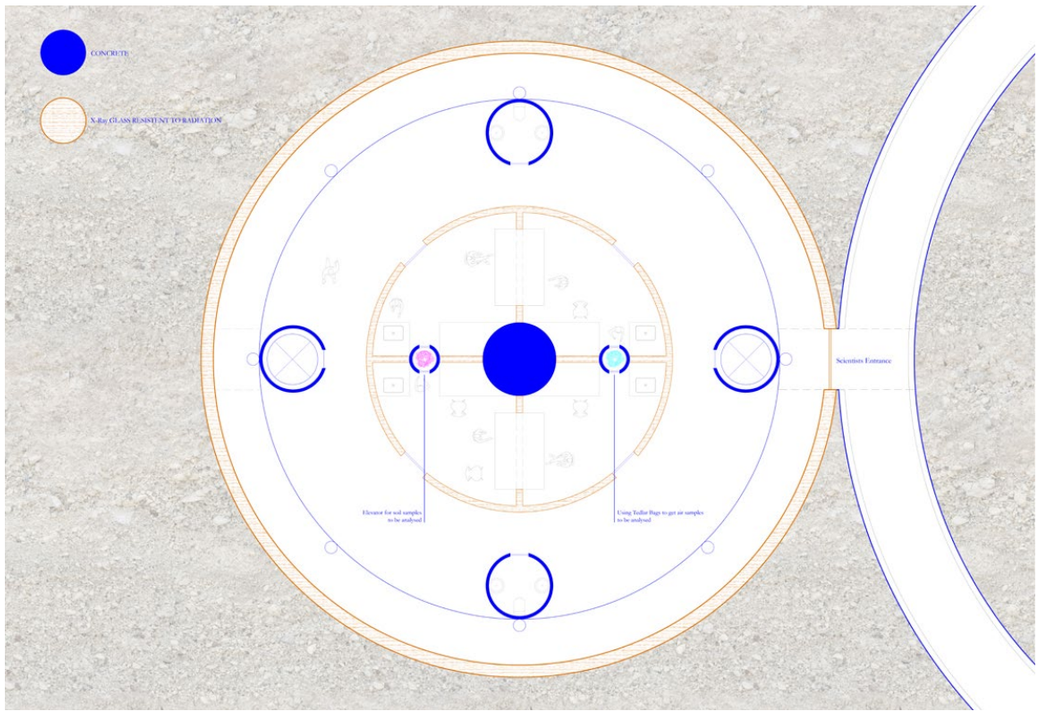
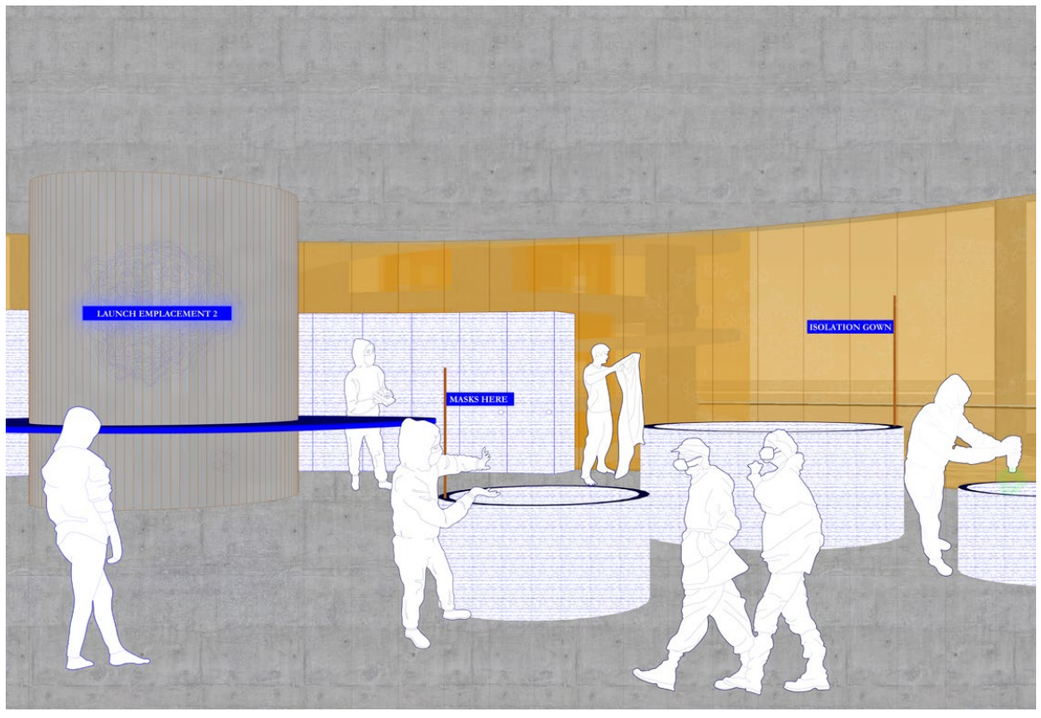


2 INSTRUMENT 02
UNDERSTANDING RADIOACTIVE TRACES

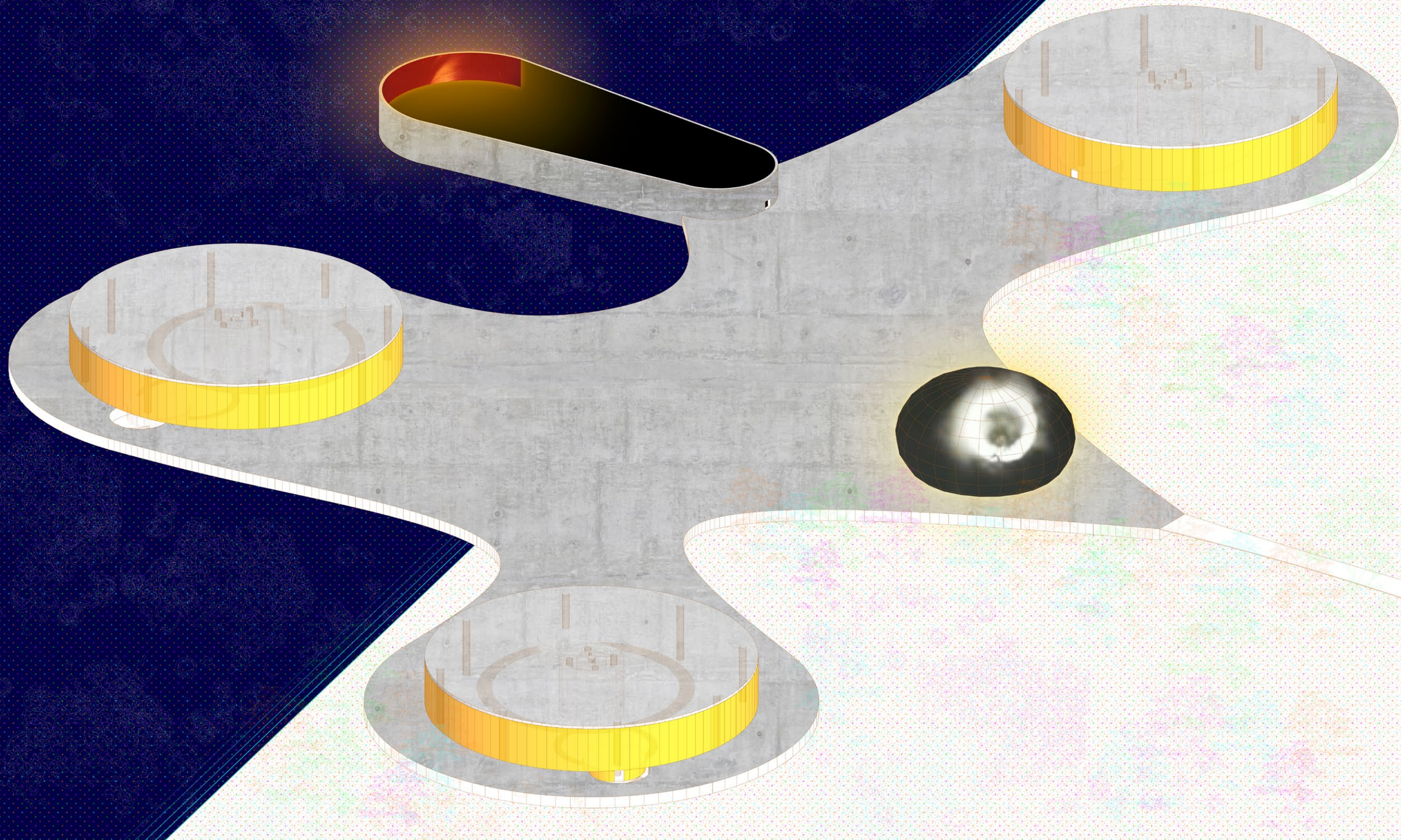




CHANGING CYLINDER



2 INSTRUMENT 02
UNDERSTANDING RADIOACTIVE PLACES



3 INSTRUMENT 03
VIZUALISING TOXICITY CORAL RECONSTRUCTION

Installation 3 is sited at the old dock and is also an example of a place where the coral was dredged during one of the islands enlargements, for the ships to have access. The place is also close enough to the Pluto yard, for an interest of examining the coral activity facing toxic traces.
It consists in articulated underwater pods that welcome visitors and divers to see the fascinating activity of coral reconstruction, or coral farming.
coral farming or coral gardening, is the cultivation of corals for commercial purposes or coral reef restoration, in this case. Also exploring the bottom of the sea can reveal other traces of history.
The structure for the pods remembers consists in a giant metal mesh cage, protected with glass on the inside for visitors to safely dive into the sea. The exterior of this structure is live, it changes over time, as corals and other living beings also attach to it. The pod is also an illumination device, enabling divers and visitors to watch the spectacle with no natural light.
The life underwater will reveal the concentration of radiation.
It will also reveal how the quality of water, ph and oxygen levels change with the introduction of more wildlife.

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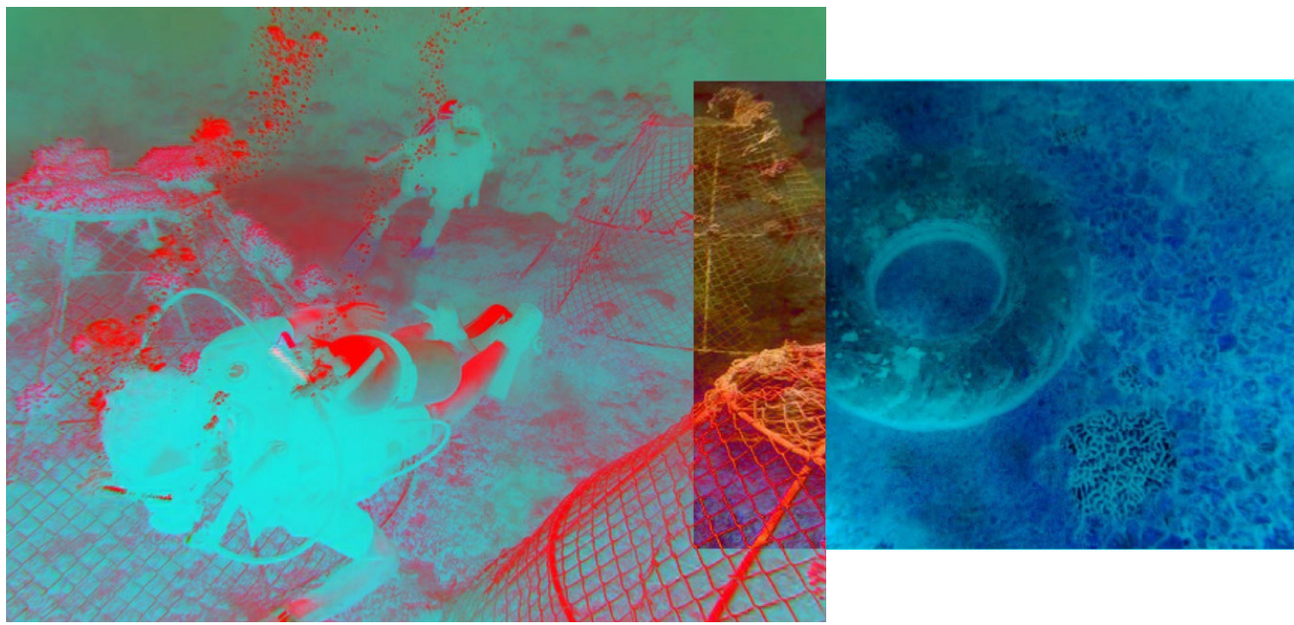

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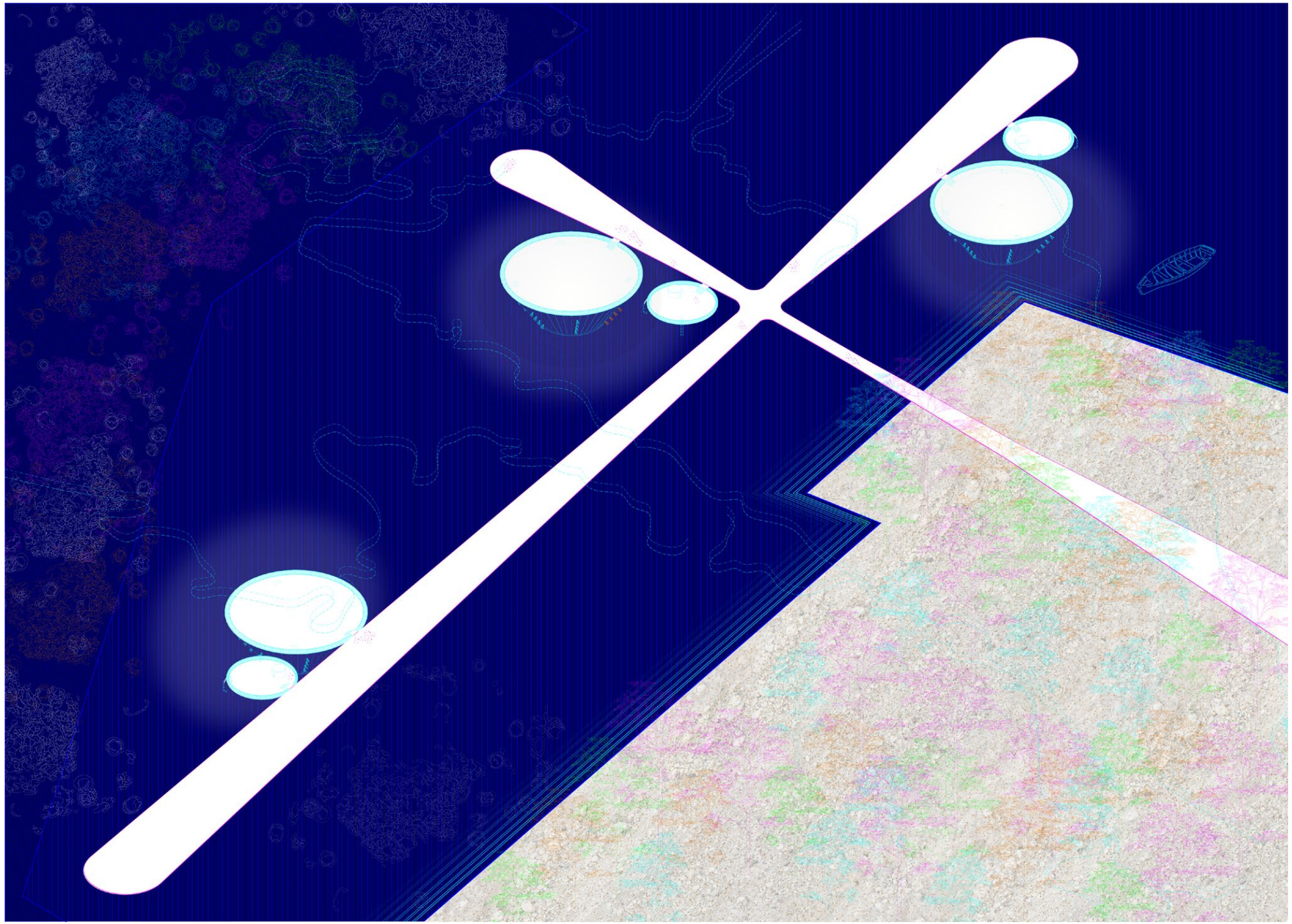

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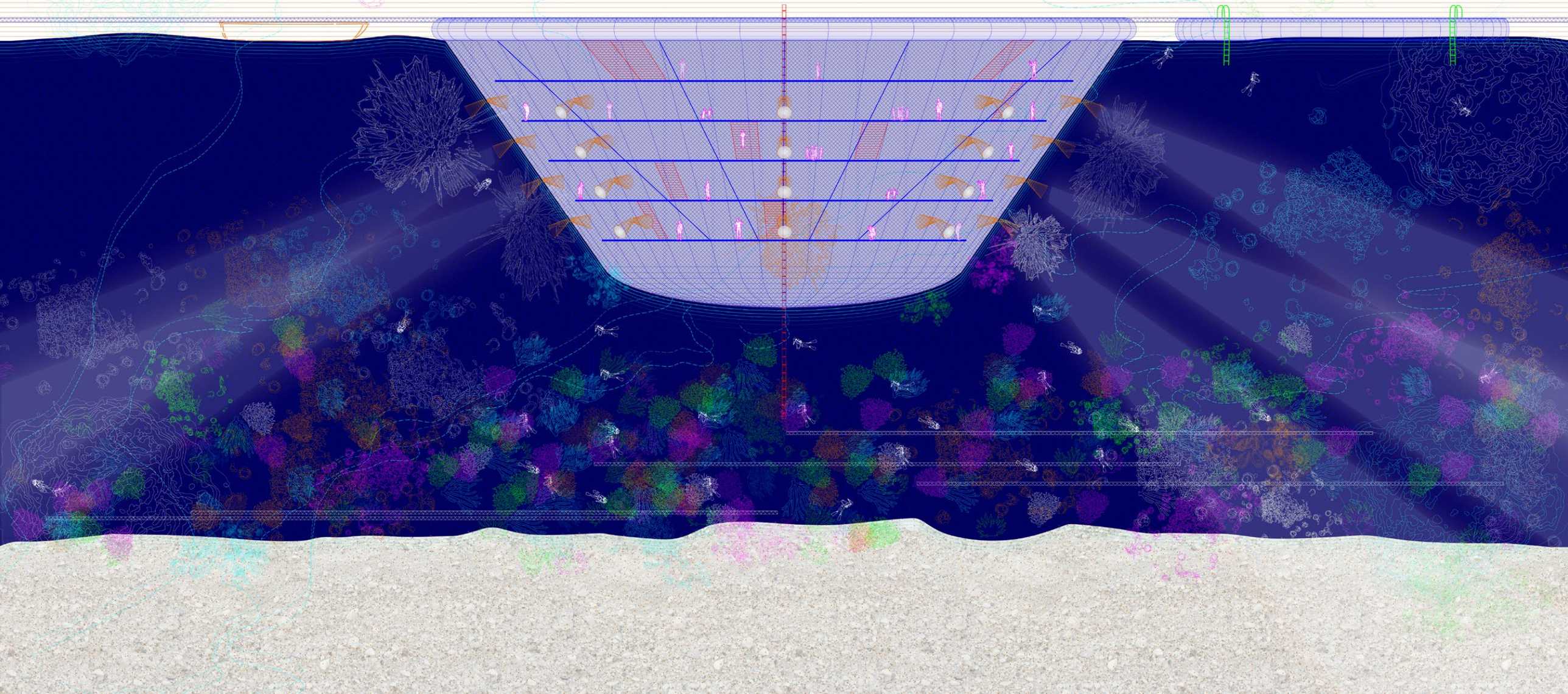

-8m

-12m

-16m

PH
5

-22m


Rafaela Olivares

GSAPP 2019 - 2020

Thank You for

The most supportive parents, Luiza and Rui

The most generous grandparents, Irene and Carlos

The most loving husband, Rafa

The most fun and intelligent friends,

Azul, Alex, Guille, Kiko, Oscar, Rafa and Vicky

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