

man.GROVE

GRADUATION PROJECT

by Oya Yaren Karaca

CONTEXT

LITERATURE
REVIEW

CASE
STUDIES

DESIGN



LAGON AUX BŒUFS

- LAGON AUX BŒUFS IS A 450-HECTARE BRACKISH WATER LAKE LOCATED IN THE TOWN OF FERRIER. IT IS PART OF THREE BAYS NATIONAL PARK, THE LARGEST MARINE PROTECTED AREA IN HAITI. LAGON AUX BŒUFS IS VERY RICH IN BIODIVERSITY. THIS AREA IS LARGELY DOMINATED BY MANGROVES AND A NUMBER OF FISH SPECIES. BUT WITH ALL THESE RICHES, LAGON AUX BŒUFS REMAINS AN AREA NEGLECTED BY STATE AUTHORITIES. THE ABUSE AND EXPLOITATION OF MANGROVES AND THE BURGEONING ARTISAN FISHERY REMAINS ONE OF THE MAIN THREATS TO THE SURVIVAL OF THE SPECIES THAT THRIVED IN THIS AREA.
- TOGETHER WITH THE FORT-LIBERTÉ BAY AND THE MASSACRE RIVER DELTA, LAGON-AUX-BOEUFS CREATES AN ECOREGION OF EXCEPTIONAL VALUE FOR WATERFOWL AND MARINE BIRDS. IT CAN BE REGARDED A NATURAL EXTENSION OF THE DOMINICAN REPUBLIC'S SIETE HERMANO - LAGUNA SALADILLA AND LAGUNA SALINAS. LOCAL FISHERS, MIGRATING DUCK AND COOT HUNTERS, AND SCHOOL AND YOUTH ORGANIZATIONS ALSO EXPLOIT THE WETLAND. FARMERS UTILIZE IT TO CLEAN AND QUENCH THEIR LIVESTOCK, WHILE POOR LADIES USE IT TO WASH THEIR CLOTHES. AROUND THIS ESTUARINE WETLAND, THERE ARE AN ESTIMATED 20,000 INHABITANTS WHO RELY ON FISHING, AGRICULTURE, CHARCOAL PRODUCTION, AND OCCASIONAL BOAT RIDES. THESE INHIBITANTS ARE FORMER EMPLOYEES AND DESCENDANTS OF THE SISAL PLANTATION AND FACTORY, WHICH WERE BROUGHT TO THE AREA BY FOREIGN INVESTMENT IN THE MID-TWENTIETH CENTURY AND ABANDONED ONCE PLASTIC SUPPLANTED TRADITIONAL SISAL ROPES AND BAGS.

- THIS LAGOON HAS SIGNIFICANTLY MORE BIRD VARIETY THAN ANY OTHER REGION INVESTIGATED IN THE NORTHEAST COASTAL PLAIN. DURING THE WINTER MONTHS, WHEN MIGRATORY SPECIES ARRIVE FROM NORTHERN LATITUDES AND USE THE LAGOON, THE SPECIES DIVERSITY WILL RISE.
- THE MUCH-DEGRADED MANGROVE OF 1994 REGENERATED AGAIN IN 2004 SINCE THE SITE BEING RENTED BY SOME WEALTHY CAP-HAITIAN MERCHANTS. COOTS WERE REPORTED TO BE HUNTED AND SOLD IN FORT-LIBERTÉ IN JUNE 2004 AS A CHEAPER ALTERNATIVE TO CHICKEN OR DUCKS (A COOT WAS SOLD FOR 50 GOURDES, A CHICKEN FOR 200 GOURDES). SURPRISINGLY, SOME COOT CONSUMERS ARE MEMBERS OF ENVIRONMENTAL ORGANIZATIONS WHO DON'T DISTINGUISH BETWEEN CARIBBEAN AND AMERICAN COOTS, WHICH ARE BOTH REFERRED TO AS "POULE D'EAU" (WATER CHICKEN). IN ADDITION, MARINE BIRDS CAN BE FOUND IN THE NEARBY DRY FOREST AND NEAR THE SEASHORE. MANY SPECIES LIVE IN THE BAY OF FORT-LIBERTÉ AND THE SURROUNDING COASTAL ZONE. BIRDS USE THE SEASHORE AREA TO BUILD NESTS AND FORAGE.

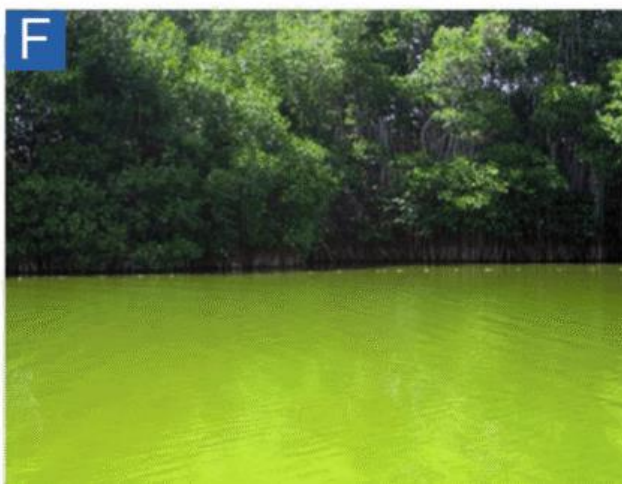
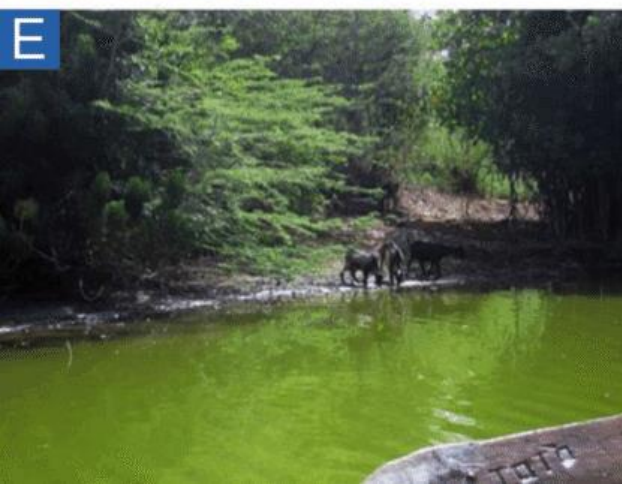


LAGON AUX BOEUF'S' SURROUNDING FOREST COVER:

- A- MANGROVE FERN (*ACROSTICHUM AUREUM*)
- B- MANGROVE VINE (*RHABDADENIA BIFLORA*)
- C- FRINGING RED MANGROVE
- D- SIGNIFICANT AREA OF FOREST CUTTING AND LOSS

Reference: Fig. 3. examples of causal loop diagrams ... - [researchgate.net](https://www.researchgate.net/figure/Examples-of-causal-loop-diagrams-representing-positive-and-negative-feedback-loops-A_fig9_36712679) (n.d.). Retrieved May 20, 2022, from https://www.researchgate.net/figure/Examples-of-causal-loop-diagrams-representing-positive-and-negative-feedback-loops-A_fig9_36712679

Birdlife Data Zone. (n.d.). Retrieved May 20, 2022, from <http://datazone.birdlife.org/site/factsheet/lagon-aux-boeufs-iba-haiti>



LAGON AUX BOEUFs' WATER:

A,B- CATCHES FROM FISHERMEN

C- SMALL SKIFFS USED BY FISHERMEN

D- FISHERMEN DEPLOYING NET

E- FERAL GOATS ALONG SHORELINE

F- NET SET ADJACENT TO MANGROVELINED SHORE

(GREEN COLOR OF WATER IN E AND F INDICATES EUTROPHIC STATE OF THE LAGOON.)

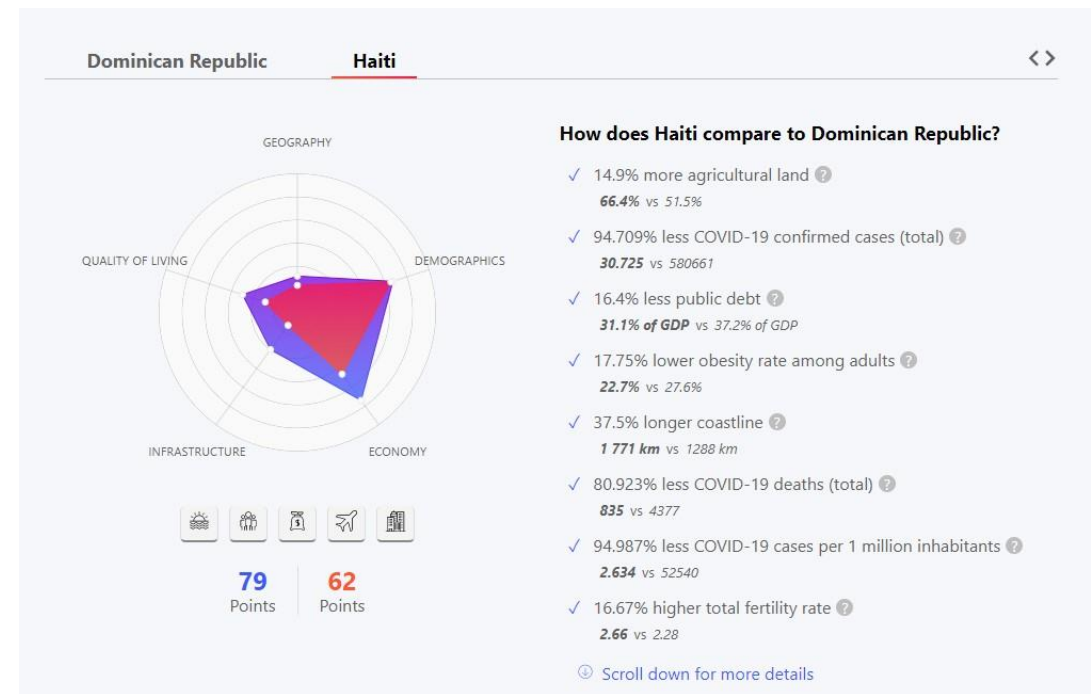
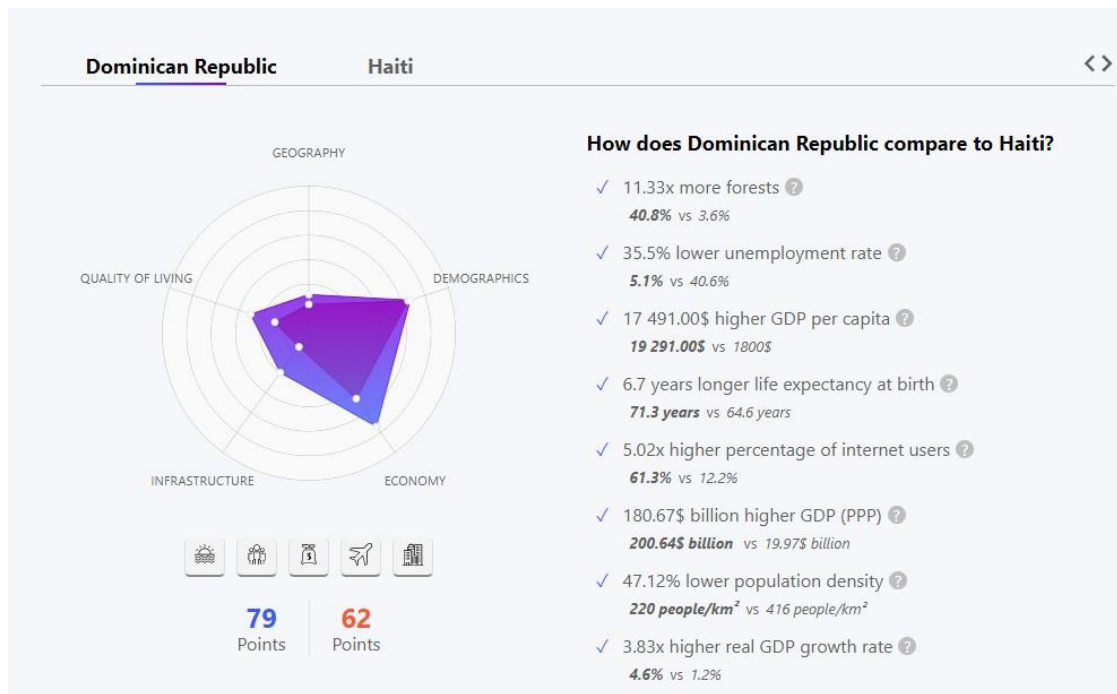
Reference: *Lagon aux Boeufs: (A) and (b) catches from fishermen, (c) small skiffs ...* (n.d.). Retrieved May 20, 2022, from https://www.researchgate.net/figure/Lagon-aux-Boeufs-a-and-b-catches-from-fishermen-c-small-skiffs-used-by-fishermen_fig48_309156319

WHY ARE HAITI AND THE DOMINICAN REPUBLIC SO DIFFERENT DESPITE SHARING AN ISLAND?



- IN THE 15TH CENTURY, CHRISTOPHER COLUMBUS FOUND THE ISLAND OF HISPANIOLA. A FIGHT FOR CONTROL BETWEEN FRANCE AND SPAIN BEGAN IN THE 17TH CENTURY. THE PROBLEM WAS HANDLED BY DIVIDING THE ISLAND INTO TWO COLONIES. FRANCE RULED THE WESTERN SECTION OF THE ISLAND, WHICH IS NOW HAITI. SPAIN RULED THE EASTERN HALF, WHICH IS NOW THE DOMINICAN REPUBLIC.

- **HAITI'S LAND WAS RUINED.** THE LAND WAS EXPLOITED BY THE FRENCH. THEY IMPORTED THOUSANDS OF AFRICAN SLAVES AND MADE IT INTO THE MOST PROSPEROUS COLONY IN THE WORLD. THEY RUINED THE SOIL BY HARVESTING THE SAME CROP — LARGELY SUGAR — YEAR AFTER YEAR.
- SLAVERY WAS TREATED HARSHLY, RESULTING IN A RESILIENT AND DISGRUNTLED SOCIETY EAGER TO REVOLT, WHICH THEY DID. THE FIRST BLACK FORMER SLAVE REPUBLIC THAT DECLARED THEIR INDEPENDENCE WAS ACTUALLY HAITI.
- FOLLOWING THEIR INDEPENDENCE, THE FOLLOWING REASONS HAVE CONTRIBUTED TO HAITI'S CURRENT STRUGGLES. THEIR LAND HAS BEEN DEVASTATED (DUE TO EXTENSIVE DEFORESTATION) AND THERE IS NO VIABLE ECONOMY. THEY ACCUMULATED A LARGE DEBT TO FRANCE (TO PAY FOR THEIR INDEPENDENCE) AND FOUGHT THE DOMINICAN REPUBLIC IN A WAR. WITH THE ADDITION OF BAD GOVERNMENTS AND NATURAL DISASTERS (SUCH AS EARTHQUAKE), IT'S EASY TO SEE WHY THEY'RE THE POOREST COUNTRY IN THE WESTERN HEMISPHERE. INTERNATIONAL PRESSURE HAS BEEN APPLIED TO FRANCE TO REPAY HAITI'S DEBT.
- **IN THE DOMINICAN REPUBLIC, THE SPANISH DID THINGS DIFFERENTLY.** THE SPANISH DID NOT TAKE USE OF THE ISLANDS IN THE SAME WAY THAT THE FRENCH DID. THEY BEGAN BY CONCENTRATING ON OTHER COLONIES IN THE AREA. THE SPANISH MATED WITH THE NATIVES, RESULTING IN A MORE RACIALLY MIXED POPULATION. THEY ALSO DEVELOPED A SINGLE POLITICAL AND ECONOMIC FRAMEWORK. THEY ALSO DEVELOPED TOWNS, AND DESPITE THEIR INDEPENDENCE FROM SPAIN, THEY HAVE REMAINED FRIENDLY.



:Reference: Dominican Republic vs Haiti: What is the difference? VERSUS. (n.d.). Retrieved May 20, 2022, from https://versus.com/en/dominican-republic-vs-haiti#group_quality_of_living

Haiti and the Dominican Republic share an island - why are they so different? Very Hungry Nomads. (2022, May 9). Retrieved May 20, 2022, from <https://www.veryhungrynomads.com/haiti-and-the-dominican-republic-share-an-island/>

MASSACRE RIVER: *THE BORDER*

Dominican Republic expels, mistreats Haitians, activists say

More than 31,000 people have been deported by the Dominican Republic to Haiti this year, more than 12,000 of them in just the past three months -- a huge spike, observers say

By DÁNICA COTO Associated Press
6 December 2021, 18:25 • 11 min read



The Associated Press

Men bathe in the Massacre River on the border between Dominican Republic and Haiti, i... [Read More](#)

DAJABON, Dominican Republic -- Bien-Aimé St. Clair frowned as the stream of older Haitian migrants pushed past him. Accused of living in the Dominican Republic illegally, they knew they had no choice but to go back across the border to Haiti.

LOCAL May 7, 2021 | 9:34 am

At full steam, Haiti opens channel to take water from the Massacre River



Dominican sectors oppose the canalization of the Massacre river by Haiti. / O DOMÍNGUEZ

Dajabón, DR

Haitian authorities have not stopped construction work on an agricultural irrigation canal built in the town of Perié (Haiti), which the Massacre River will supply, despite the conflicting opinions of different sectors of the country and the area.

Reference: ABC News Network. (n.d.). ABC News. Retrieved May 20, 2022, from <https://abcnews.go.com/International/wireStory/dominican-republic-expels-mistreats-haitians-activists-81583613>

Dominicantoday. (n.d.). At Full Steam, Haiti opens channel to take water from the Massacre River. DominicanToday. Retrieved May 20, 2022, from <https://domicantoday.com/dr/local/2021/05/07/at-full-steam-haiti-opens-channel-to-take-water-from-the-massacre-river/>

MANGROVES



«MANGROVE FORESTS STORE UP TO 10X MORE CARBON PER HECTARE THAN FORESTS ON LAND.»



«MANGROVES PROTECT COASTAL COMMUNITIES BY BUFFERING STORM SURGES.»



«MANGROVES SERVE AS “NURSERIES” FOR NUMEROUS SPECIES, SHELTERING THEM FROM PREDATORS AND CURRENTS.»



«MANGROVES SUPPORT FOOD SECURITY FOR COASTAL COMMUNITIES WHO EAT AND SELL FISH, CLAMS AND CRABS.»

«FISH FLOCK TO MANGROVES»

«MANGROVES, SPECIFICALLY THE UNDERWATER HABITAT THEIR ROOTS PROVIDE, OFFER CRITICAL NURSING ENVIRONMENTS FOR JUVENILES OF THOUSANDS OF FISH SPECIES, FROM 1-INCH GOBIES TO 10-FOOT SHARKS.»

«MANGROVES HAVE (CARBON) HOARDING ISSUES»

«BLUE CARBON ECOSYSTEMS (MANGROVES, SEA GRASSES AND SALT MARSHES) CAN BE UP TO 10 TIMES MORE EFFICIENT THAN TERRESTRIAL ECOSYSTEMS AT ABSORBING AND STORING CARBON LONG TERM, MAKING THEM A CRITICAL SOLUTION IN THE FIGHT AGAINST CLIMATE CHANGE.»

«MANGROVES CAN HELP KEEP PEOPLE SAFE»

«MANGROVE FORESTS – SPECIFICALLY, THEIR THICK, IMPENETRABLE ROOTS – ARE VITAL TO SHORELINE COMMUNITIES AS NATURAL BUFFERS AGAINST STORM SURGES, AN INCREASING THREAT IN A CHANGING GLOBAL CLIMATE WITH RISING SEA LEVELS.»

«IT’S BETTER TO REVITALIZE THAN REPLANT»

«MANGROVES’ DENSE ROOT SYSTEMS INHIBIT THE FLOW OF TIDAL WATER AND ENCOURAGE THE DEPOSITION OF NUTRIENT-RICH SEDIMENTS.»

SUSTAINABLE TOURISM

«TRENDS AFFECTING THE PLANNING OF TOURISM AND PROTECTED AREAS»

«PLANNING IS A PROCESS THAT INVOLVES SELECTING A DESIRABLE FUTURE OUT OF A RANGE OF PLAUSIBLE ALTERNATIVES, AND IMPLEMENTING STRATEGIES AND ACTIONS THAT WILL ACHIEVE THE DESIRED OUTCOME. THUS, BY DEFINITION, PLANNING MOVES US FROM THE PRESENT TO THE FUTURE. IT IS CRITICAL THEREFORE THAT PLANNERS AND TOURISM OPERATIVES UNDERSTAND SOCIAL, POLITICAL AND ECONOMIC TRENDS, AS THESE FORM THE CONTEXT FOR PLANNING. SUCH UNDERSTANDING PROVIDES OPPORTUNITIES TO CAPITALISE ON EMERGING MARKETS, DEVELOP ACTIONS THAT ARE MORE EFFICIENT AND EFFECTIVE, AND ENSURE THAT STRATEGIES AND ACTIONS CAN BE ADAPTED TO CHANGING CONDITIONS. SINCE THE WORLD IS MORE DYNAMIC THAN STATIC, PARK PLANNERS AND TOURISM OPERATORS NEED TO UNDERSTAND HOW DYNAMIC CHANGE, OFTEN NON-LINEAR IN CHARACTER, MAY AFFECT THEIR PLANS AND ASPIRATIONS. THE GROWTH OF INTEREST IN SUSTAINABLE TOURISM AND ECOTOURISM REFLECTS A RISING TIDE OF SOCIAL CONCERN ABOUT THE QUALITY OF THE NATURAL ENVIRONMENT AND THE EFFECTS OF TOURISM. ACTIVITIES CLOSELY ASSOCIATED WITH EXPERIENCING NATURAL ENVIRONMENTS ARE VERY POPULAR (TOURISM CANADA, 1995).»

«INCREASING SOCIAL AND ENVIRONMENTAL CONCERNS»

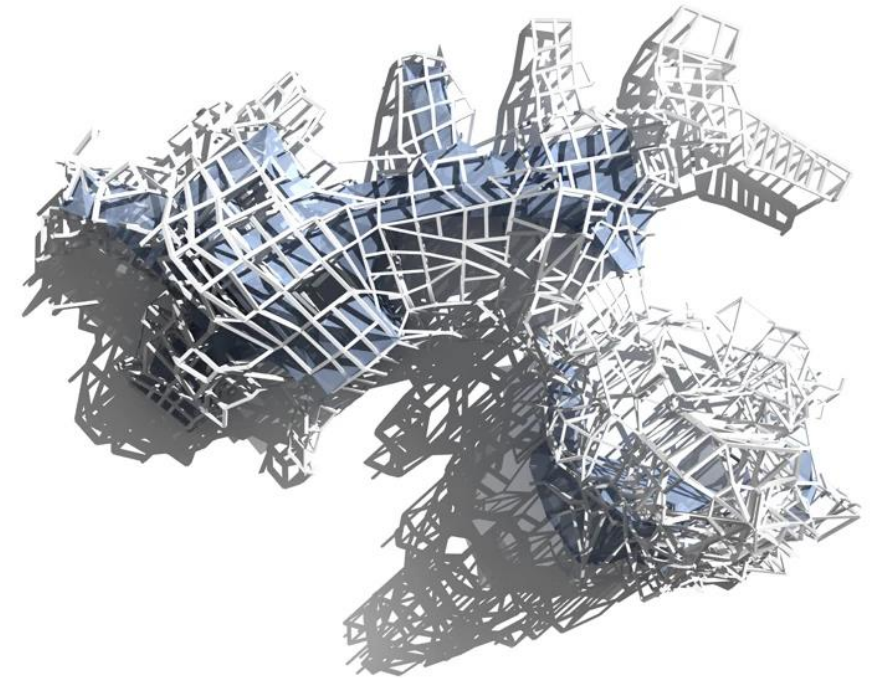
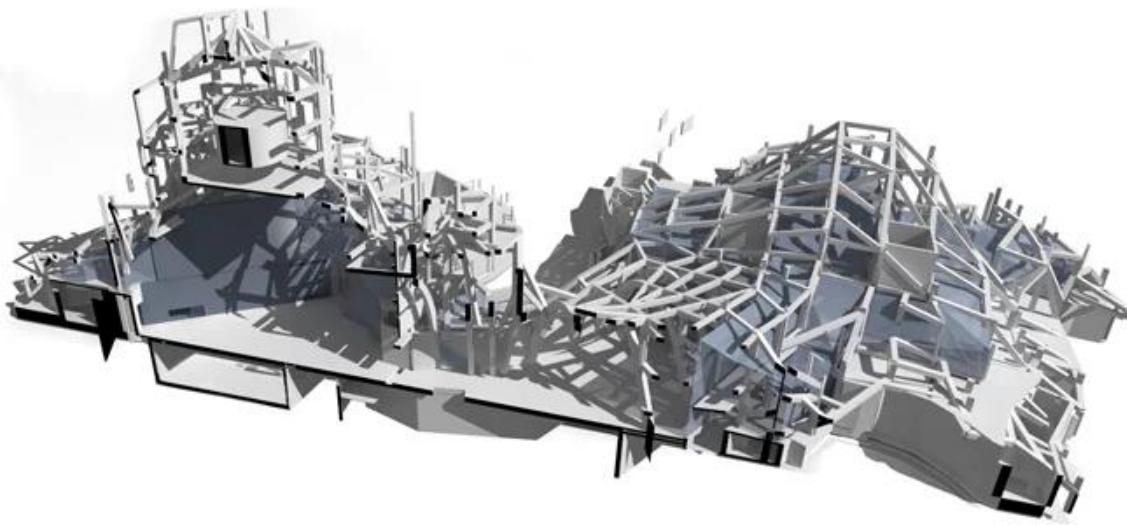
«ACROSS THE GLOBE, PEOPLE EXPRESS CONCERN ABOUT SOCIAL INJUSTICES AND ENVIRONMENTAL PROBLEMS. THEY ARE INCREASINGLY AWARE OF THE NEED FOR LOW IMPACT TOURISM WHICH DOES NOT HARM THE ENVIRONMENT. THEY TEND TO WANT TO SUPPORT LOCAL CONSERVATION OR COMMUNITY DEVELOPMENT INITIATIVES. THEY ARE THEMSELVES MOVING FROM CONSUMPTIVE TO LESS CONSUMPTIVE ACTIVITIES, OFTEN ADOPTING “GREEN CONSUMER” LIFE STYLES. THE GROWTH OF INTEREST IN SUSTAINABLE TOURISM AND ECOTOURISM IS A RESPONSE TO SUCH CONCERNS. PROTECTED AREAS ARE WELL PLACED TO TAKE ADVANTAGE OF THIS TREND AS THEY EMBODY THE VALUES THAT SUCH TRAVELLERS HOLD.»

ANNA HERINGER
«ANANDALOY»

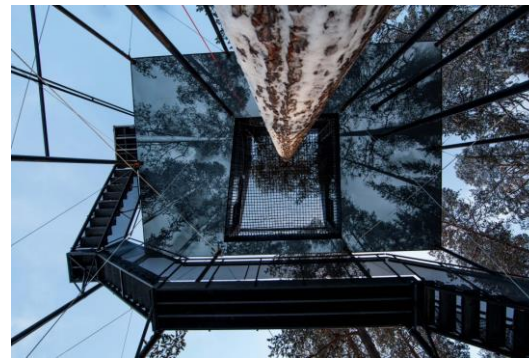




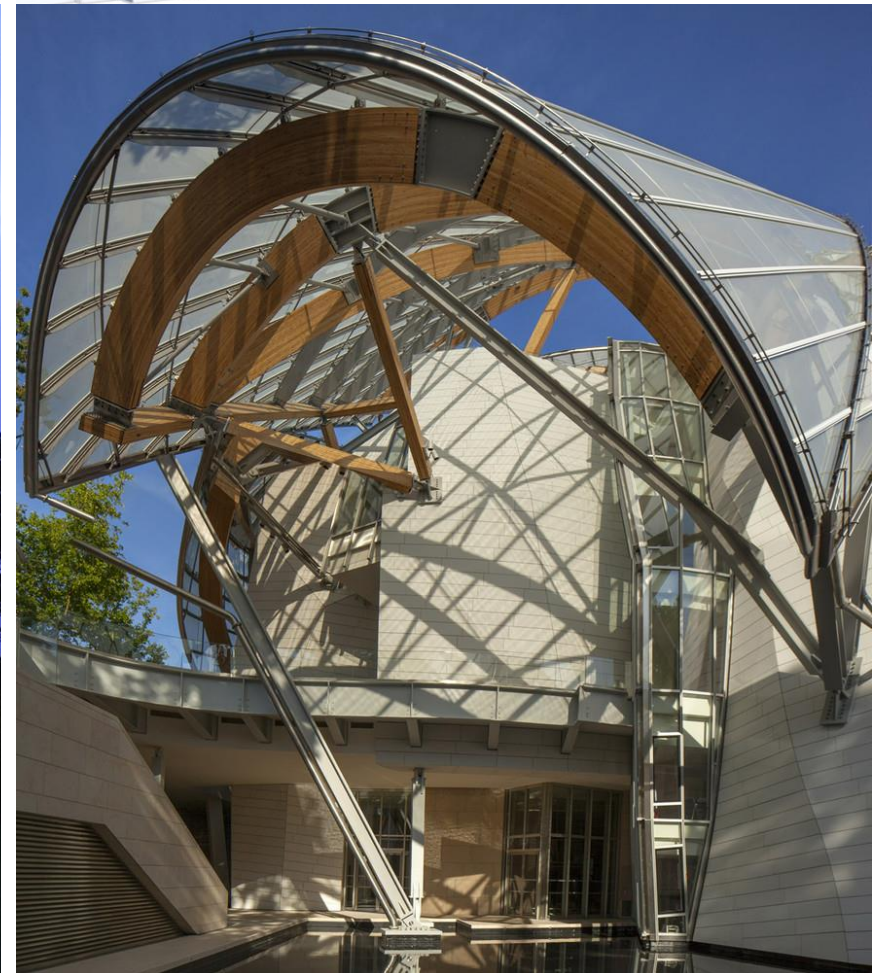
PLANT – ATELIER PETER KIS
«*THE GREAT ROCK*»



SNØHETTA
«THE 7TH ROOM»



GEHRY PARTNERS
«*FONDATION LOUIS VUITTON*»



DESIGN

SKETCHES

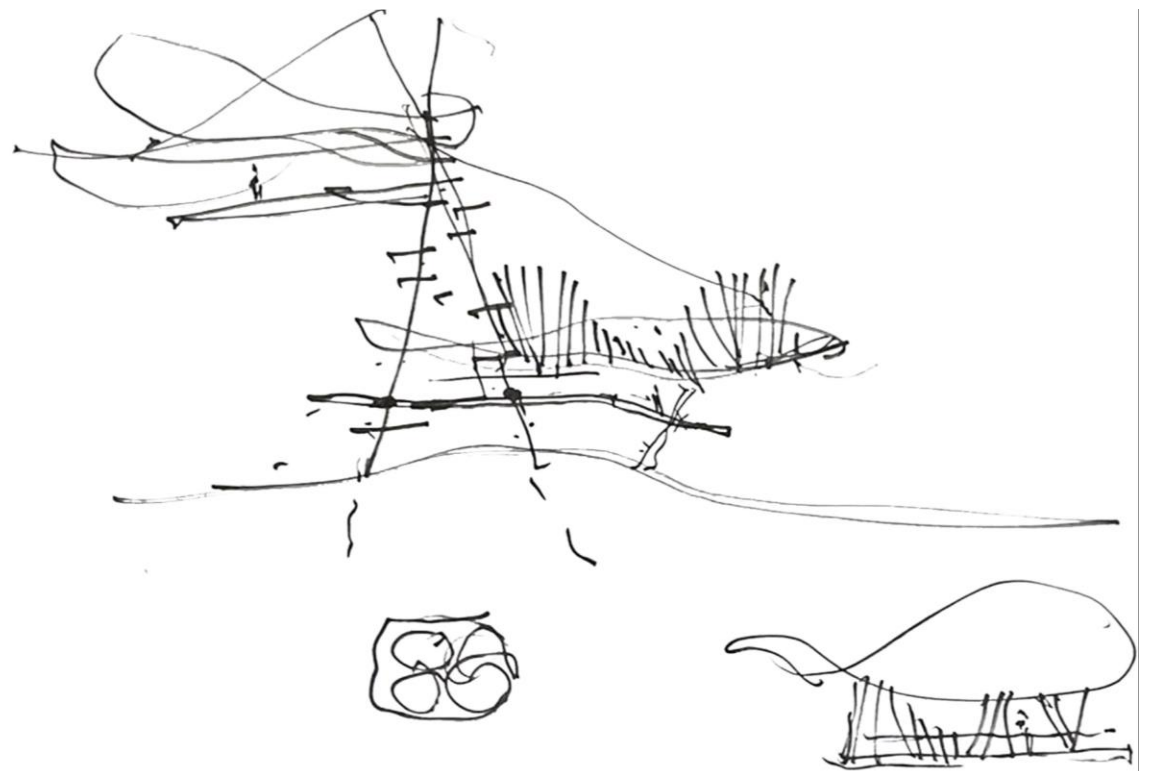
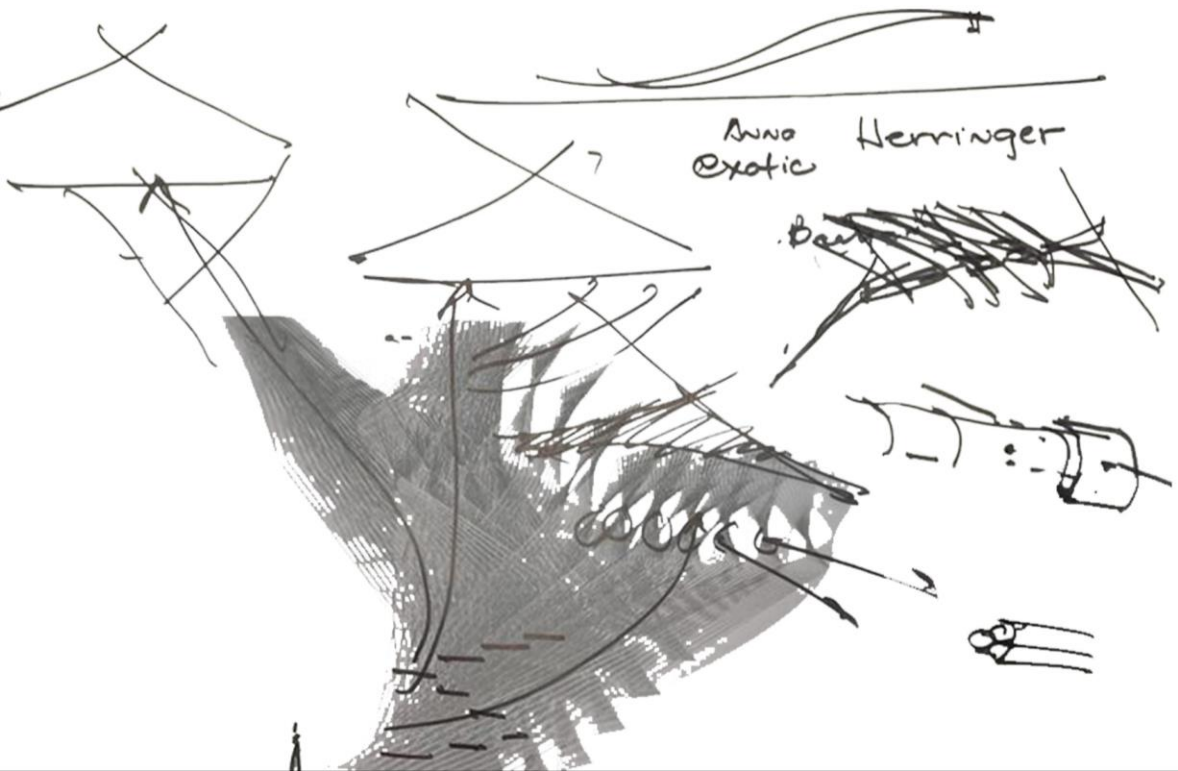
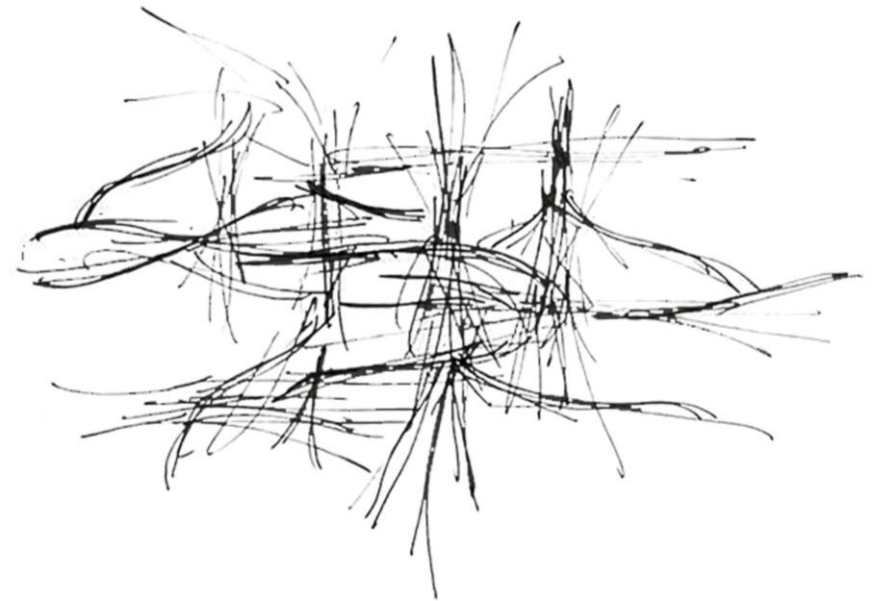
PLANS

SECTIONS

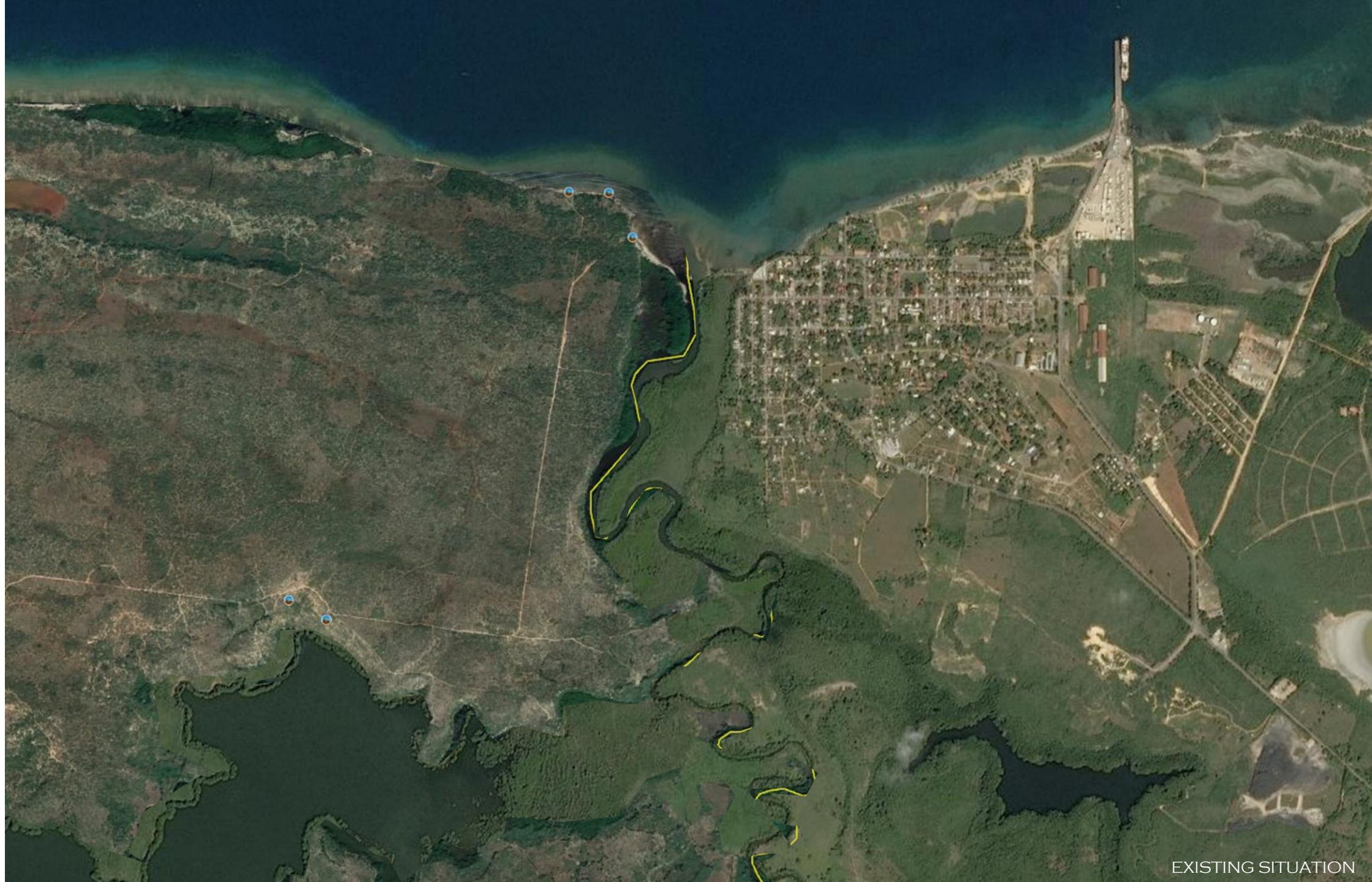
DIAGRAMS

RENDERS

SKETCHES

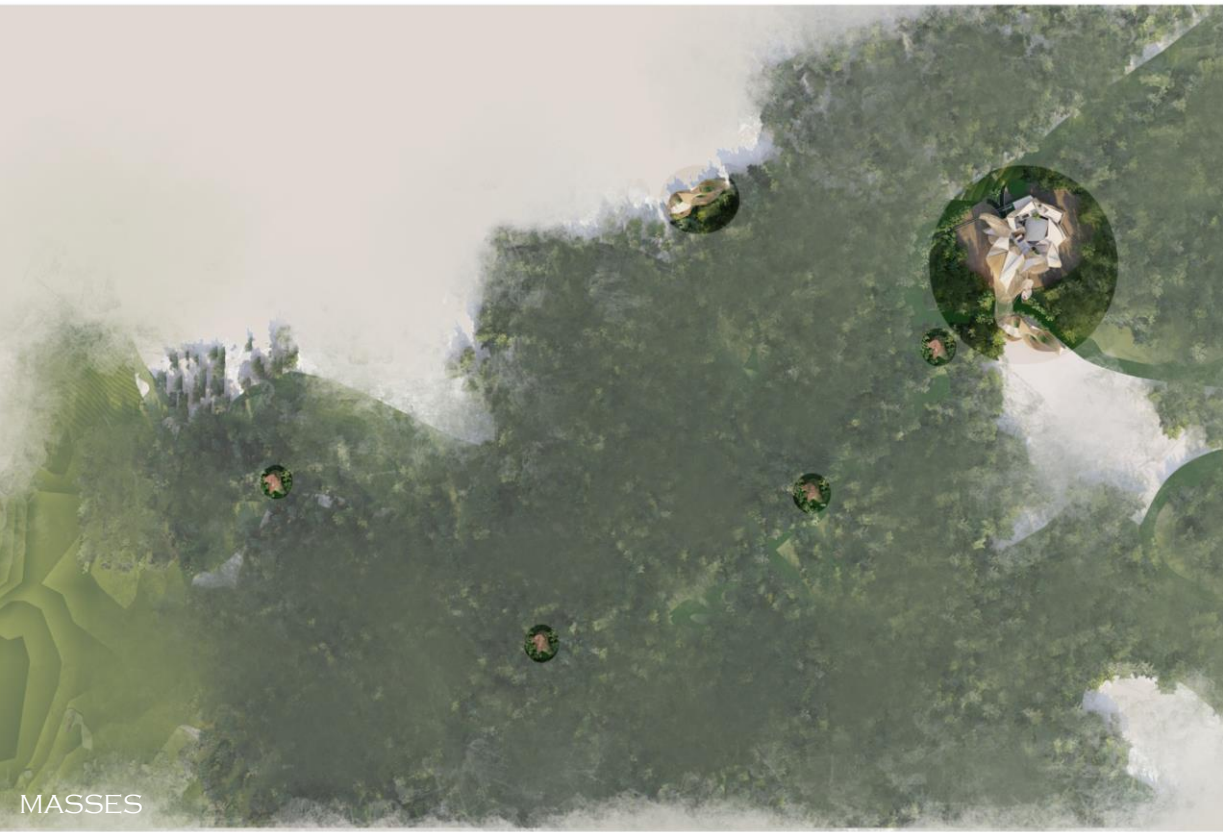


PLANS

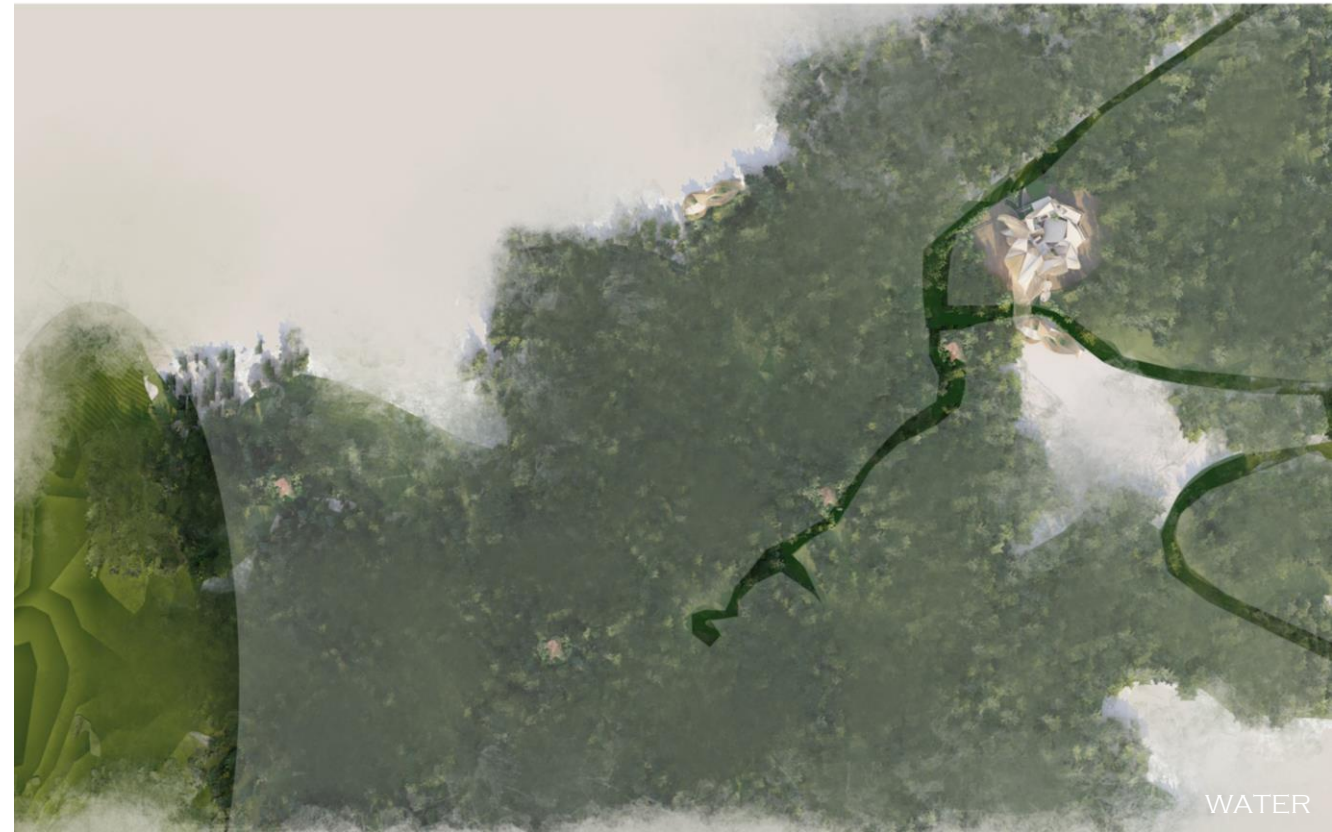


EXISTING SITUATION



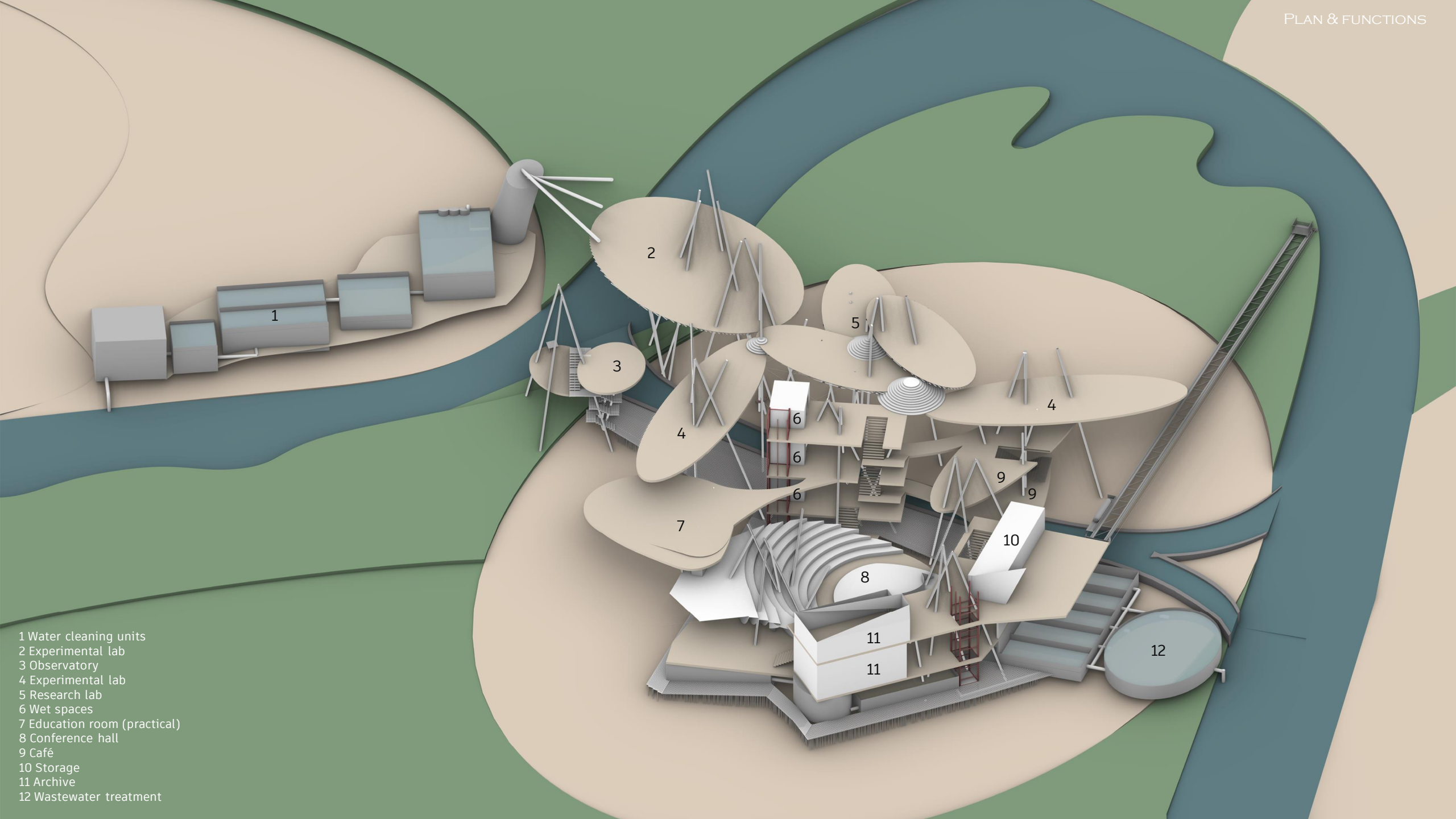


MASSES

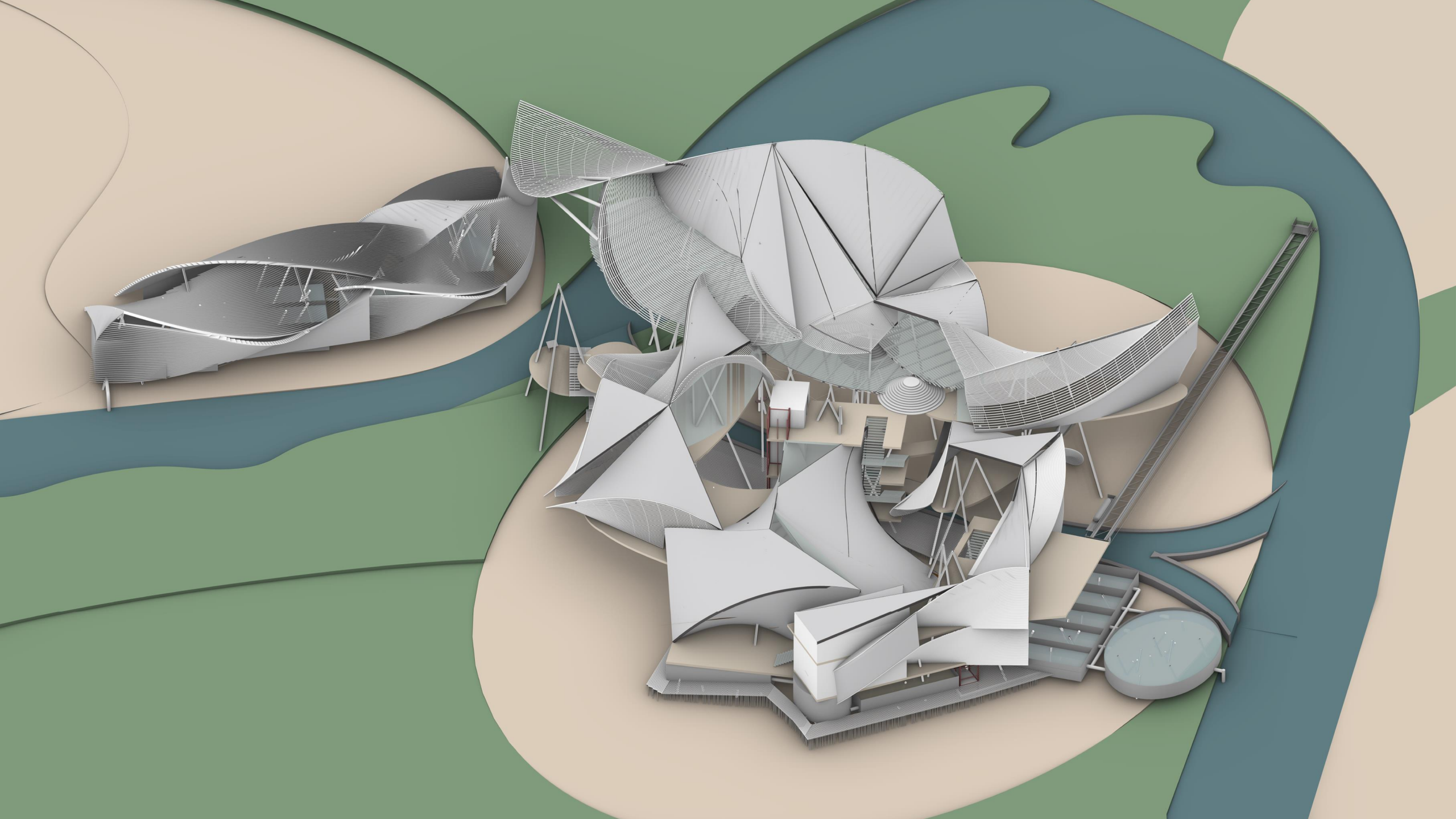


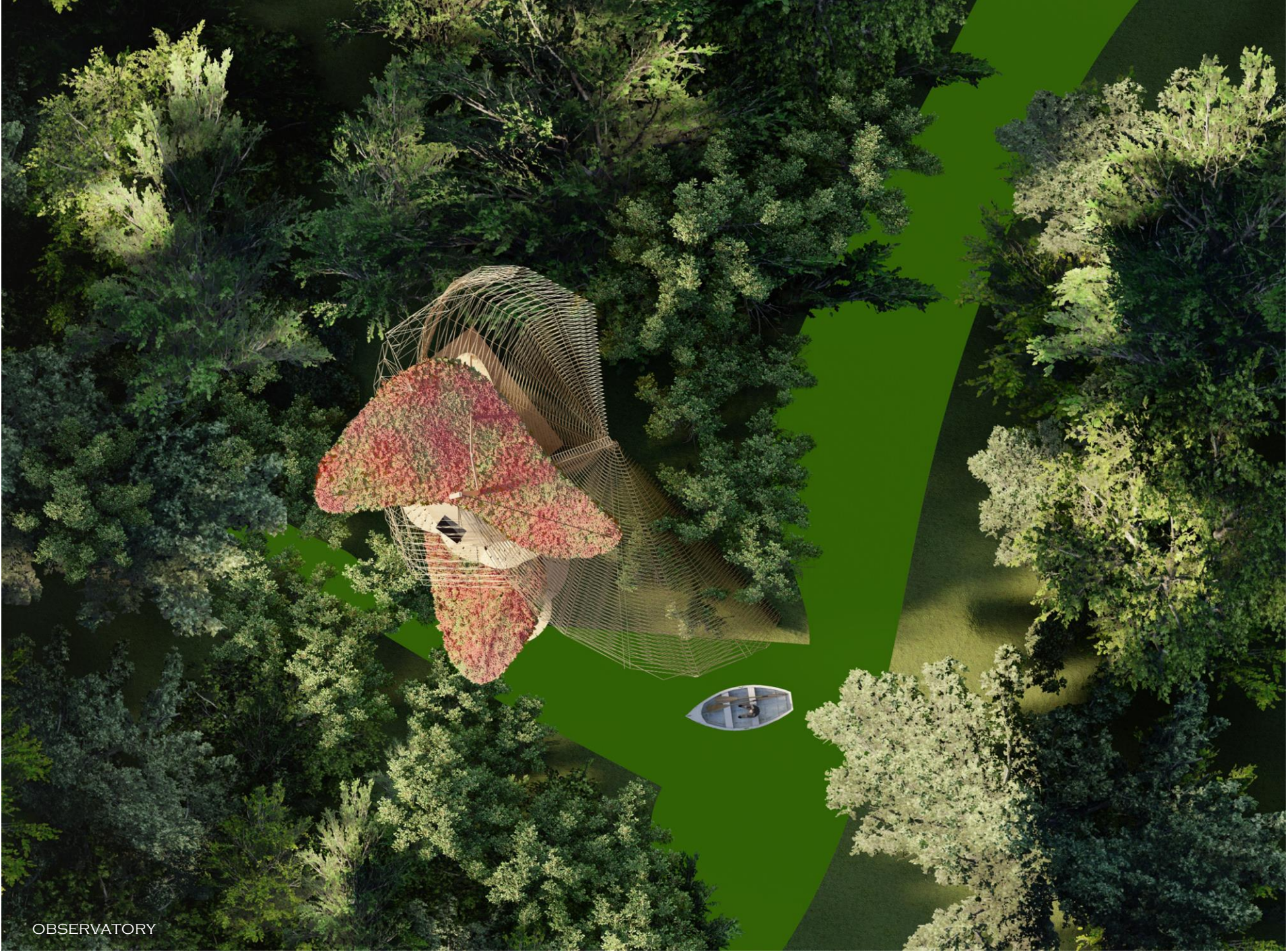
WATER

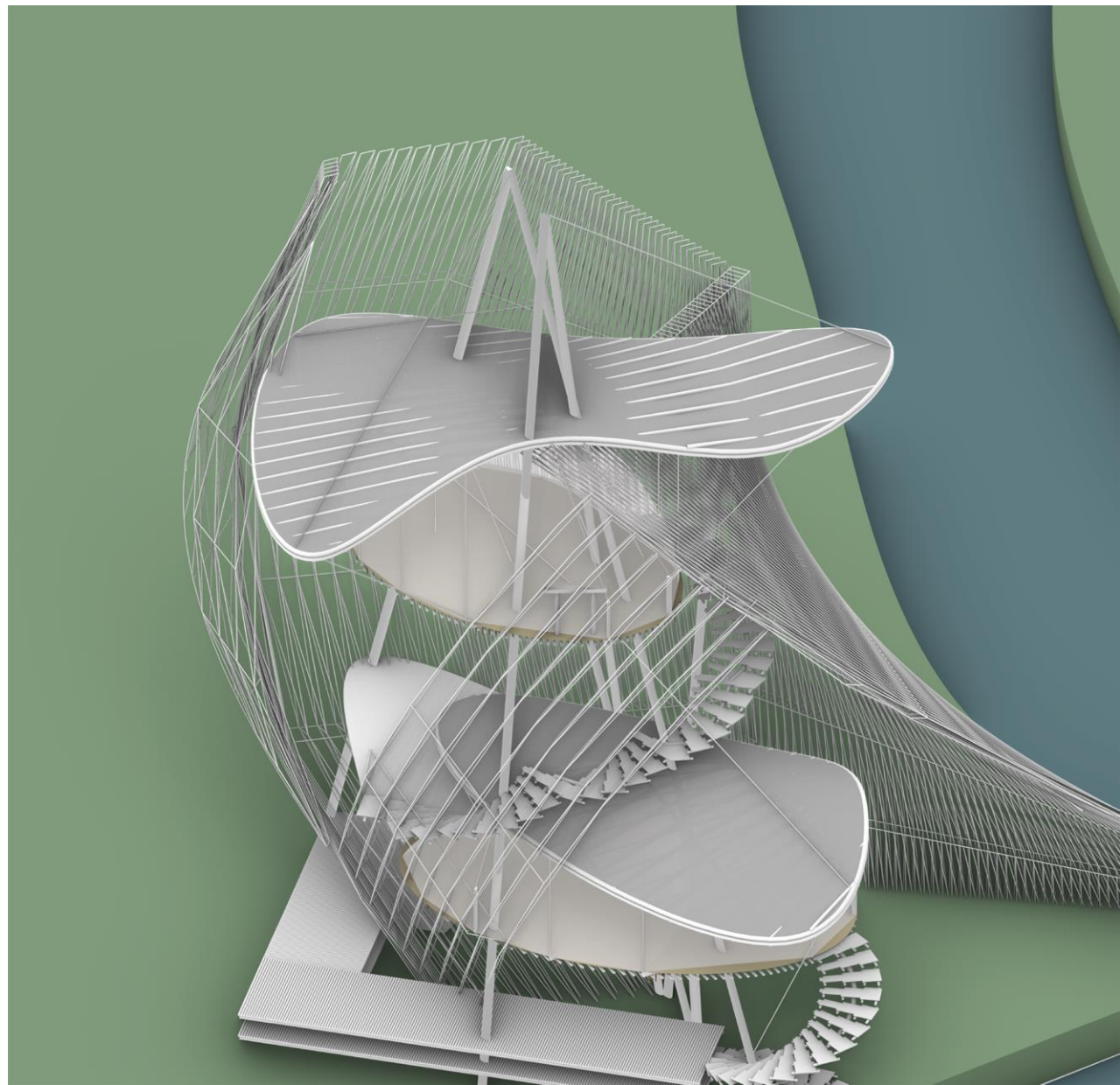
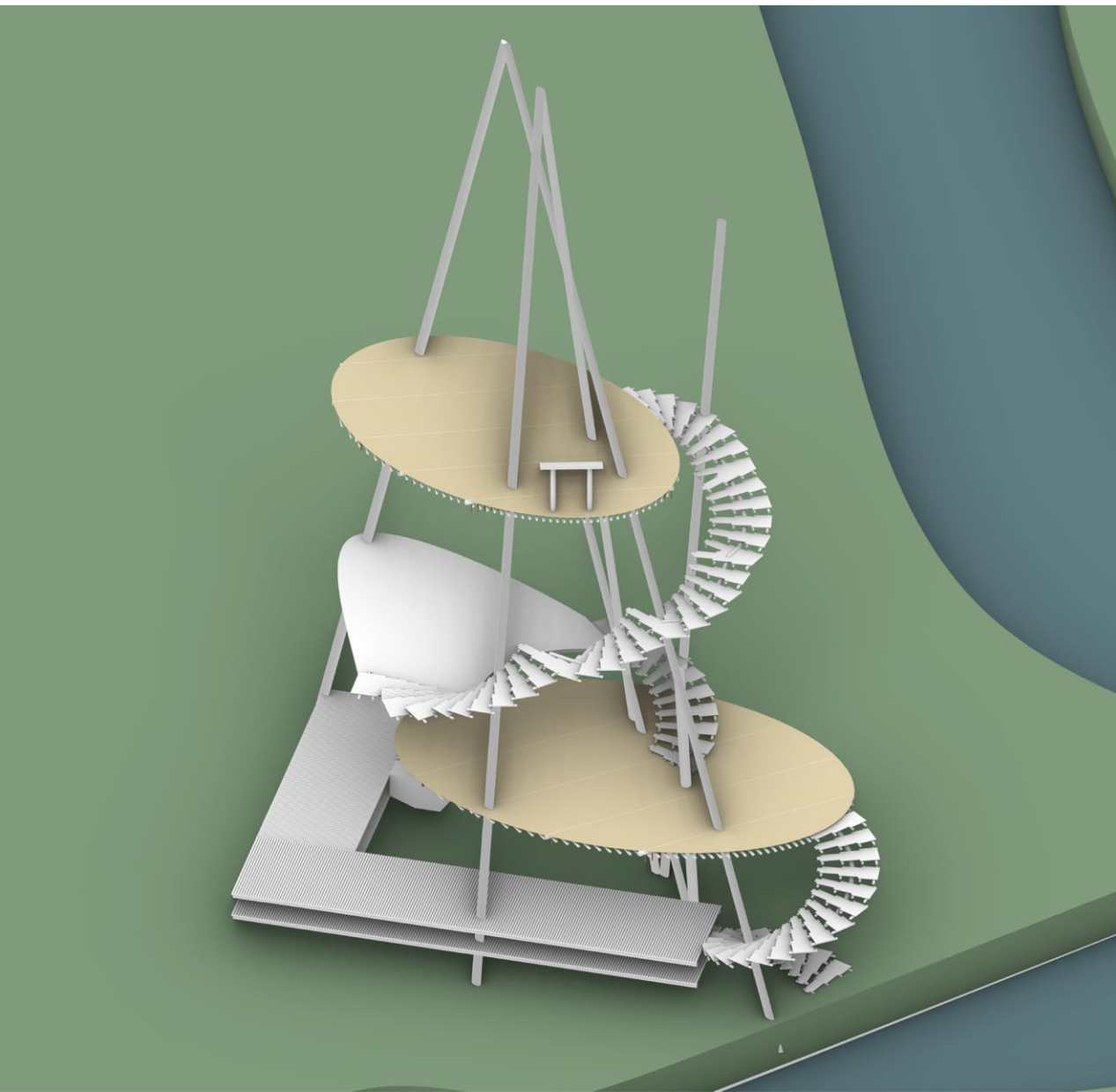




- 1 Water cleaning units
- 2 Experimental lab
- 3 Observatory
- 4 Experimental lab
- 5 Research lab
- 6 Wet spaces
- 7 Education room (practical)
- 8 Conference hall
- 9 Café
- 10 Storage
- 11 Archive
- 12 Wastewater treatment





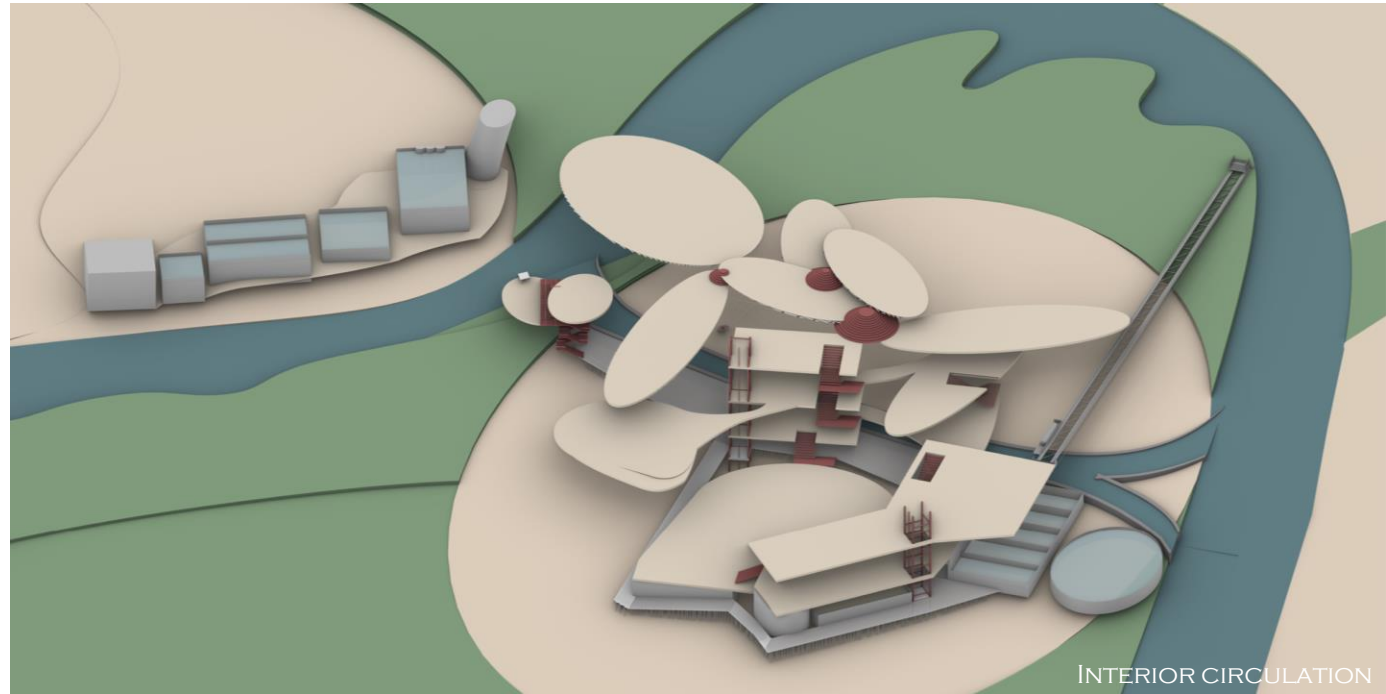
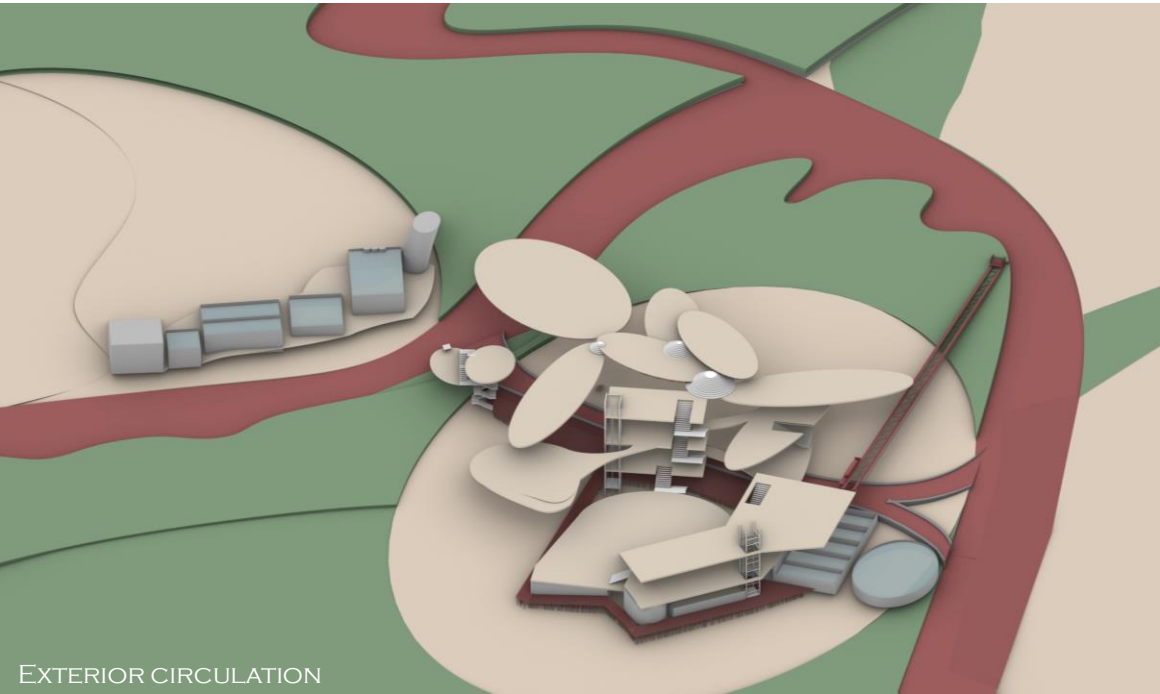


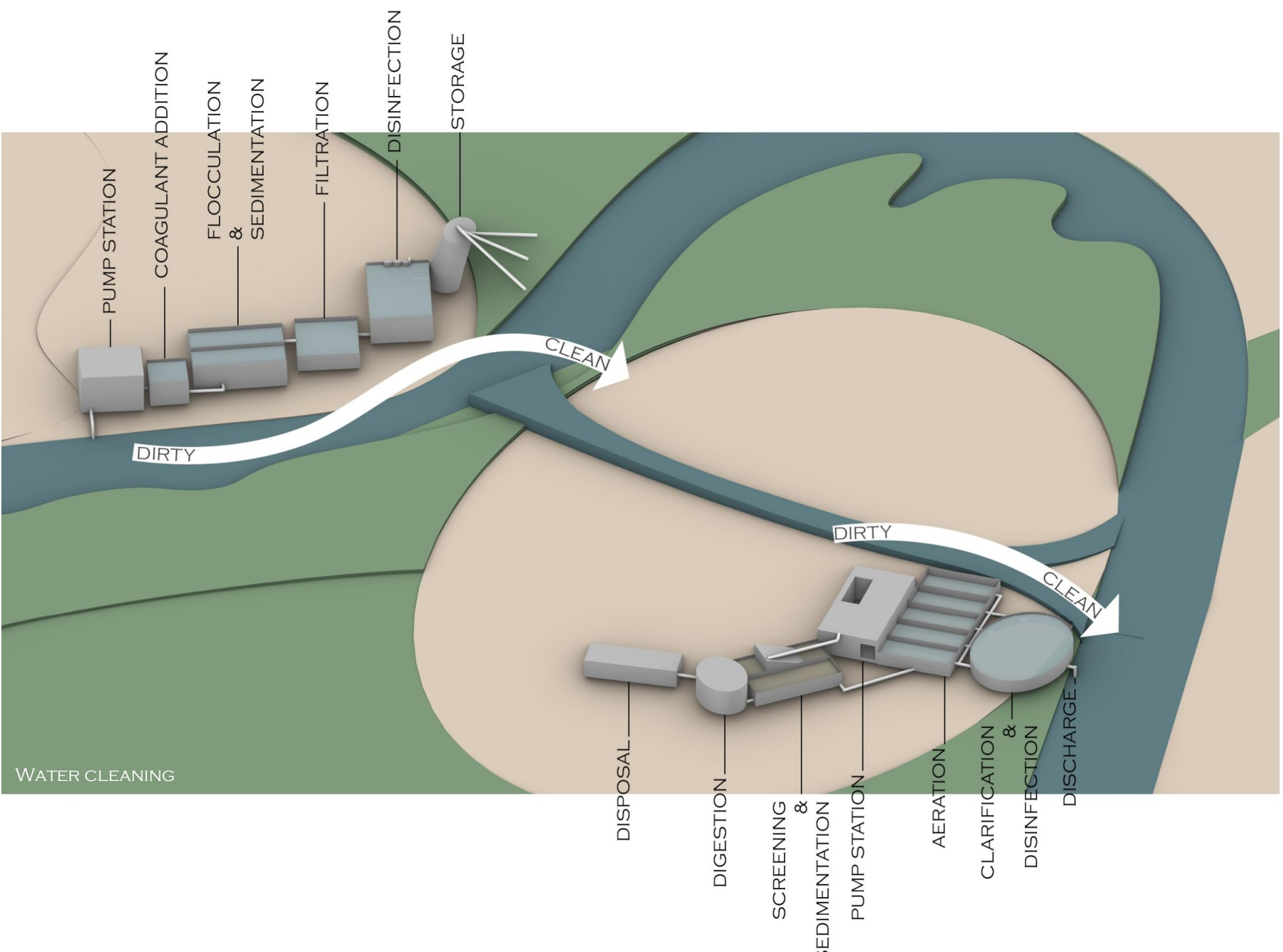
SECTIONS





DIAGRAMS



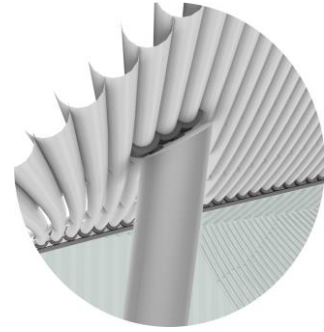


WATER CLEANING

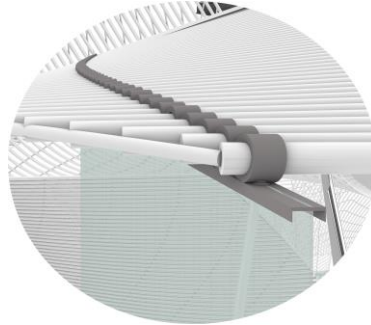
STRUCTURAL DETAILS



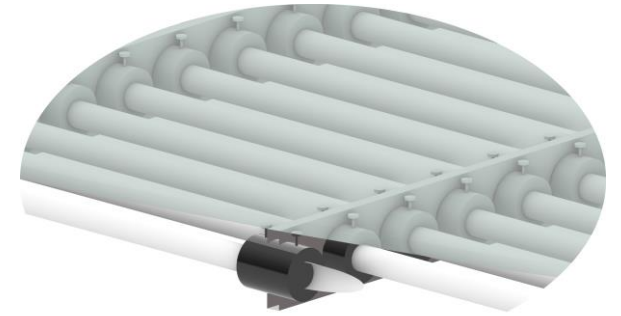
COLUMN TO BEAM (ROOF)



COLUMN TO BAMBOO SKIN



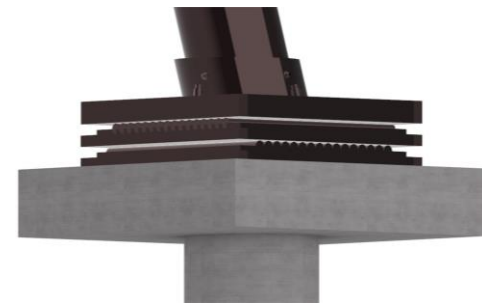
GLASS TO BAMBOO SKIN



SLAB

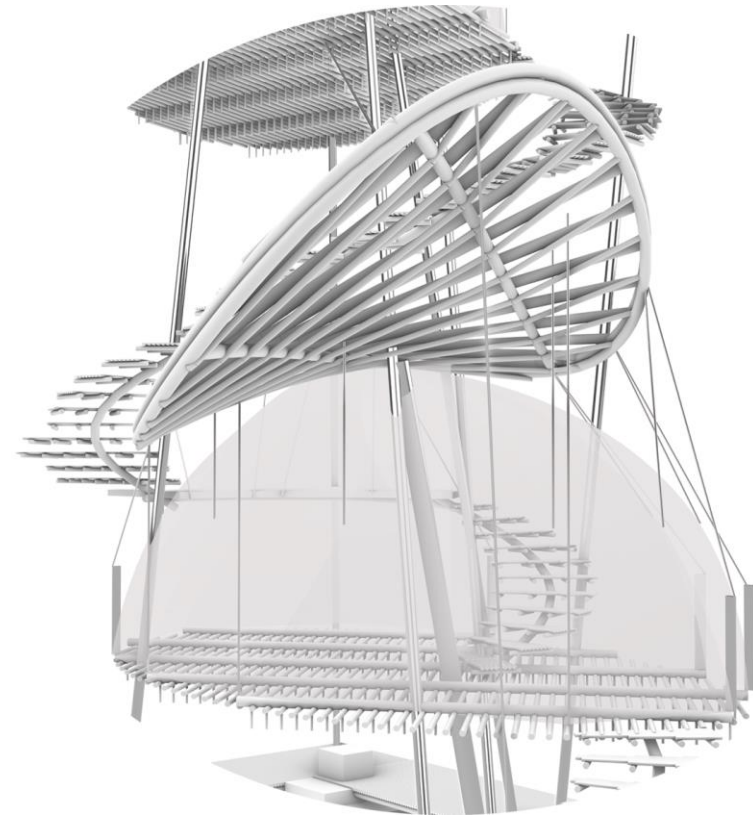
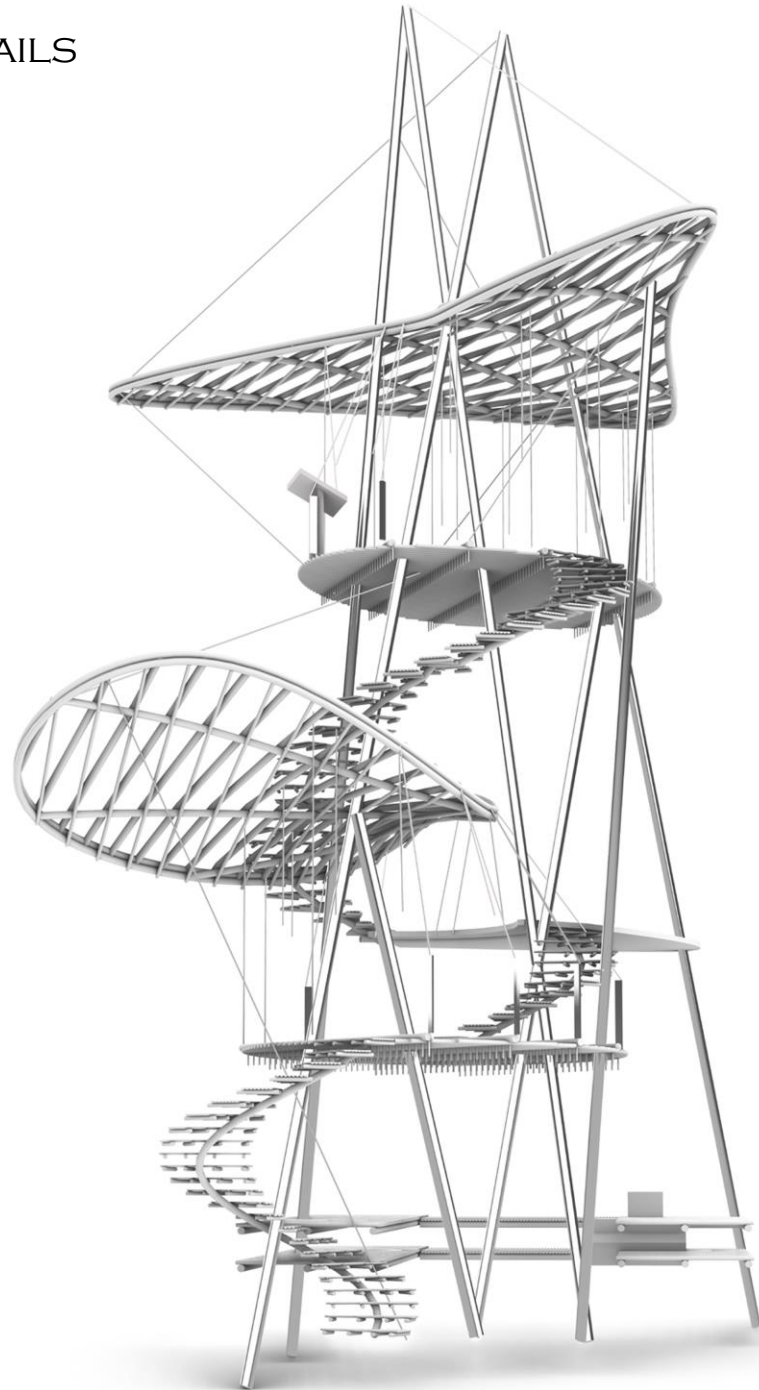


COLLAR, COLUMN AND CABLES



FOUNDATION

STRUCTURAL DETAILS



MOSQUITO NET

RENDERS





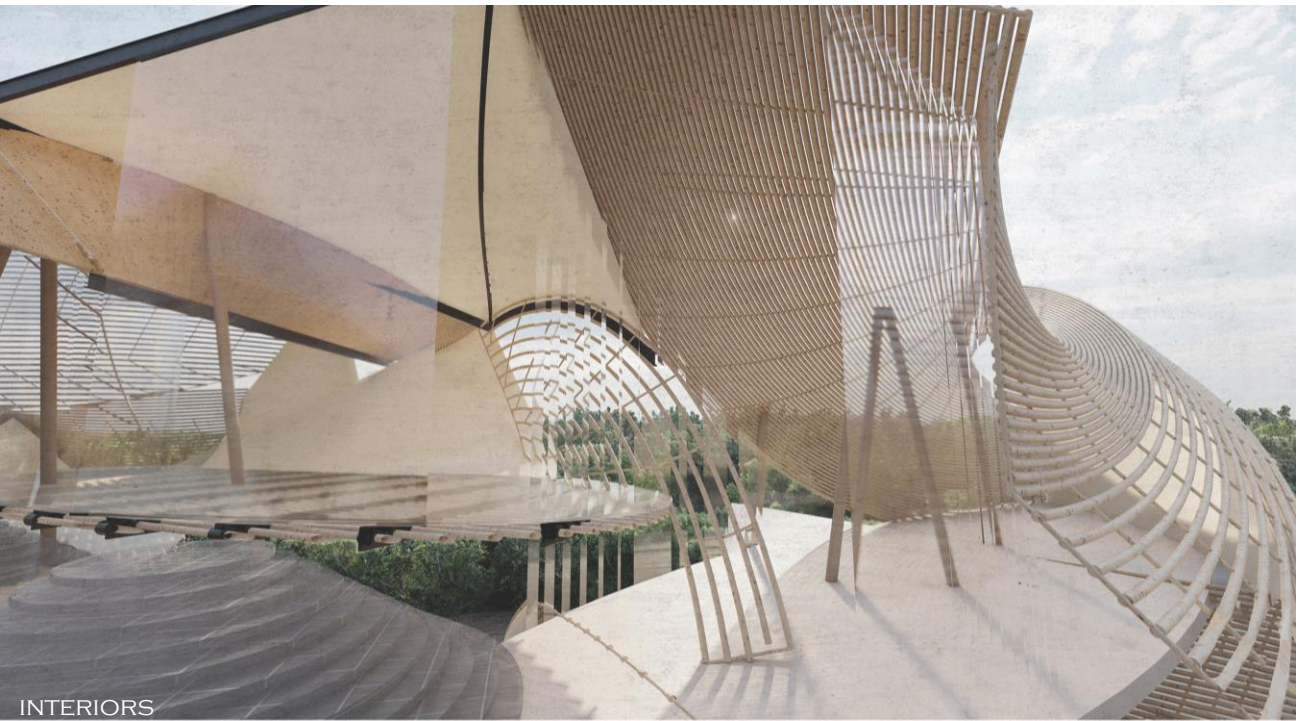












INTERIORS



INTERIORS



