

# SYMBIOSIS

Revitalizing Houma tribal identity through community cultural spaces

A Thesis

Submitted to the

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in partial fulfillment of

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by

Ayushi Singhal

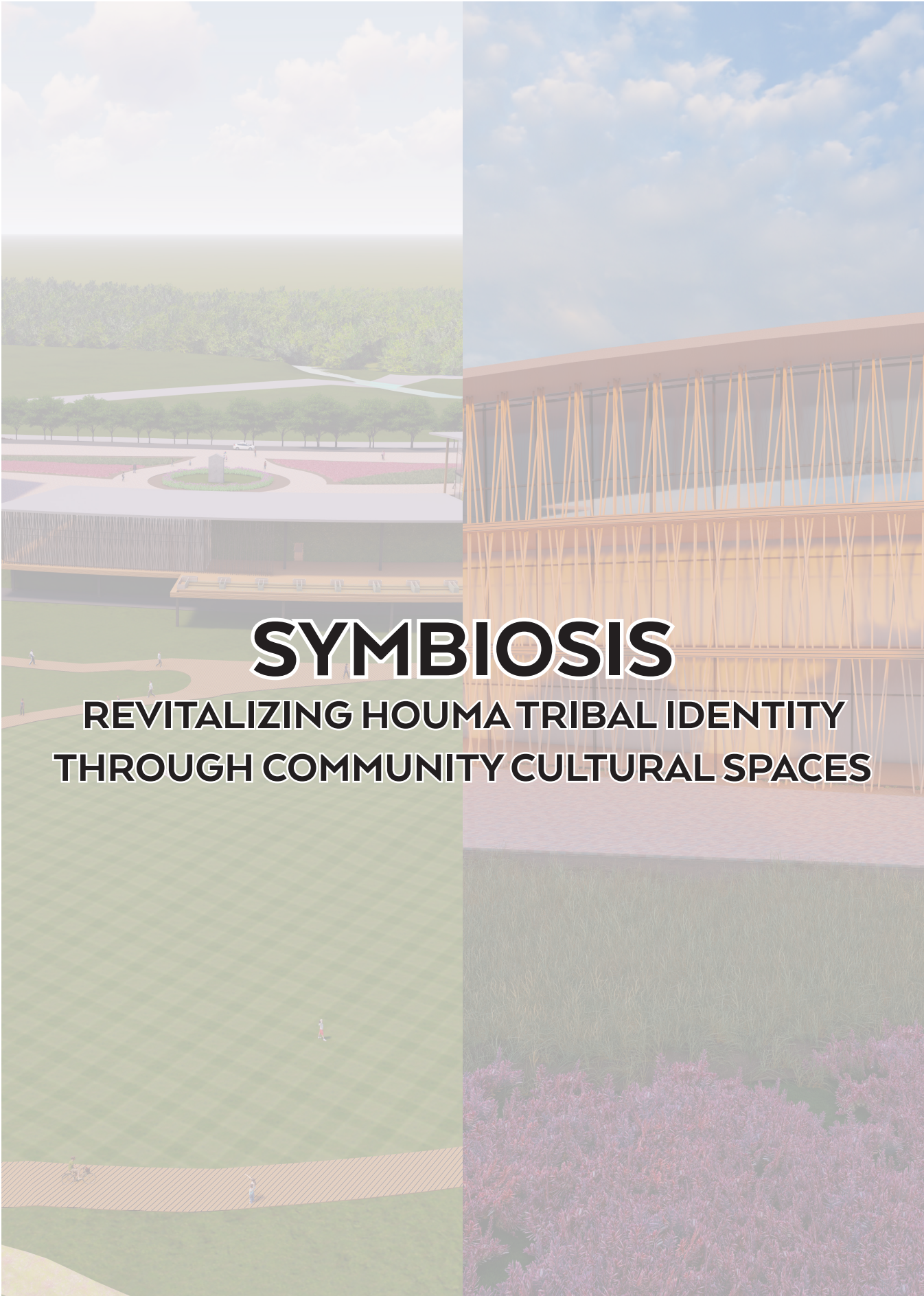
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Advisor: Mary Ben Bonham

Reader: Gulen Cevik



# **SYMBIOSIS**

## **REVITALIZING HOUMA TRIBAL IDENTITY THROUGH COMMUNITY CULTURAL SPACES**

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# ABSTRACT

Earth's climate has altered over time. There have been seven glacial advance and retreat cycles in the last 650,000 years, with the abrupt conclusion of the last ice age marking the start of the contemporary climate era – and human civilization. The current warming trend has been the product of human activities since the mid-twentieth century, and it is occurring at an unprecedented rate spanning millennia.<sup>1</sup> Notably, countries in low-lying areas and small islands are concerned that their land areas would be decreased due to inundation and coastal erosion, and, at worst, a large proportion of their population may be forced to leave their land and migrate. Although climate change impacts all communities, Indigenous peoples are among the first and most severely affected. Indigenous peoples are frequently connected to the land; many tribes depend on fishing and hunting for sustenance and spend time outside for spiritual or cultural reasons. Indigenous peoples have long recognized the close ties between their land, water, and animal and plant life. Traditional practices and lifestyles may be adversely impacted by climate change-related harm to the land, the water, and living things, resulting in great distress. Additionally, displacement brought on by climate change may compel individuals to abandon their ancestral homes, leaving them vulnerable on the social, economic, and cultural levels.

In an attempt to restore the cultural identity of one such tribe, This Thesis project would study the tribes of Houma based in south Louisiana and attempt to provide them with a unique tribal center that would provide them a sense of pride and ownership in their lost land and help revive and share their culture and practices with the world around them.

# THESIS QUESTION

## INITIAL PROPOSITION:

How can principles of Biomimetic design provide a climate resilient life for the people in Houma city of Louisiana?

## REVISED PROPOSITION:

To restore the identity and culture of Houma tribe in south Louisiana through biomimetic approaches in design.

## FINAL PROPOSITION:

**How can architecture respond to promote community identity, cultural preservation, and social well-being that fosters a sense of pride and ownership among the Houma tribal community?**

# THE HOUMA TRIBE

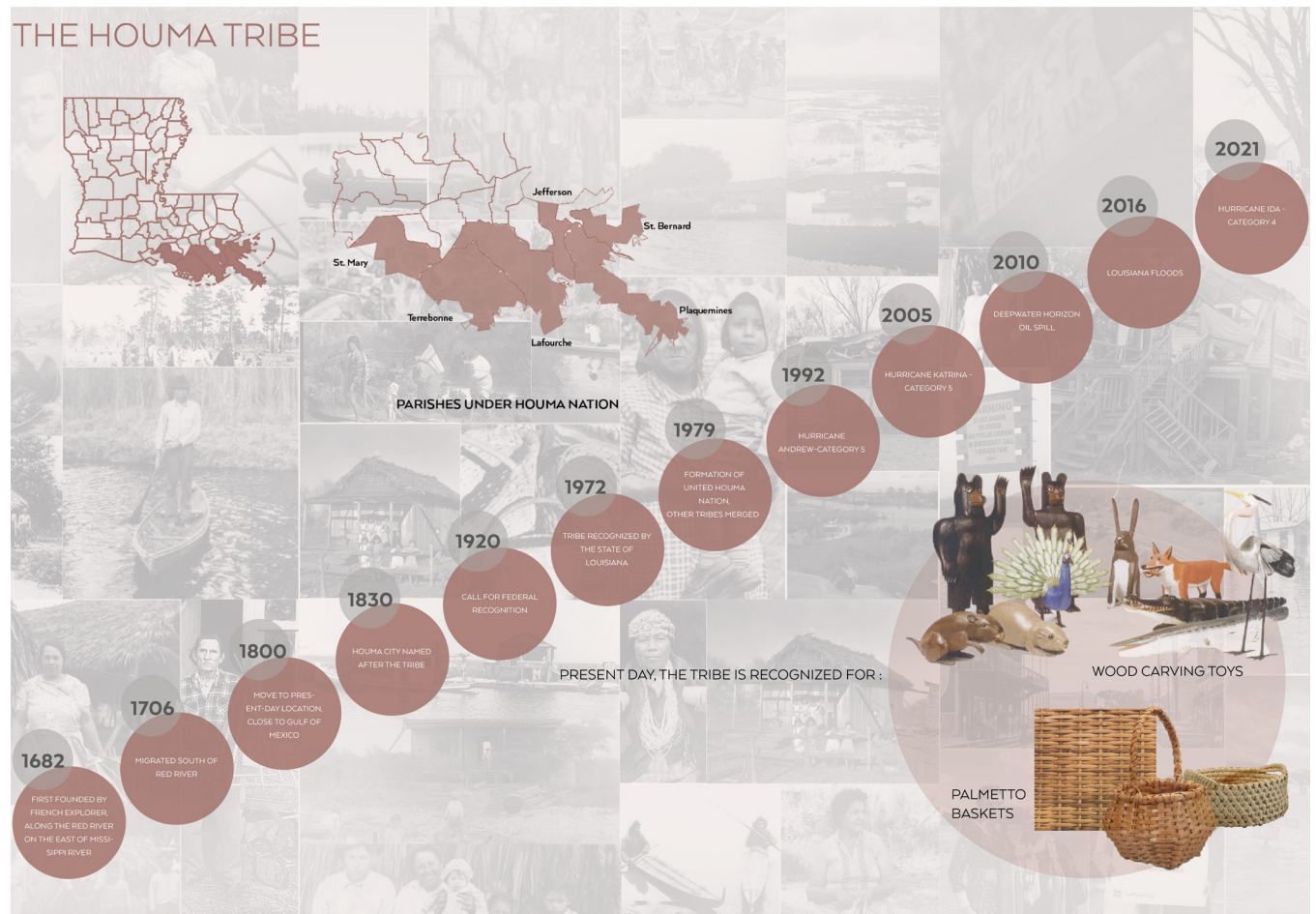


FIGURE 1 : Houma Tribal timeline

# INTRODUCTION

**Houma or Ouma.** Houma was named after the Native American tribe who settled in the south of the red river in Louisiana. The term “houma” or “ouma” means red in the tribe’s language Muskogean and is referred to crawfish, their war emblem.<sup>2</sup>

**Location** In the late seventeenth century, Houmas lived on the east side of the Mississippi River, opposite the mouth of the Red River. Today, most live in the southeastern Louisiana marshes.<sup>3</sup>

**Population** There were perhaps 1,000 Houmas in 1650 and between 600 and 700 around 1700. There were about 11,000 enrolled members in the early 1990s. Today, they currently have 17000 members enrolled in their official database.<sup>4</sup>

**Language** The tribe speaks a native language called the Muskogean language.<sup>5</sup>

Historical Information

**History** Shortly after they made their initial alliance with the French, in 1686, more than half the tribe was killed by disease. Catholic missionaries began operating among the Indians after 1700. The Tunica Indians, to whom the Houma had given permission to settle in the area in 1706, soon killed more than half of their hosts.<sup>6</sup> The survivors moved south after the massacre.

In 1718, shortly after the conclusion of the Chitimacha war, the Houma joined some Chitimachas and members of other tribes and migrated south again, to the vicinity of New Orleans, and then north again to present-day Ascension parish. After the Natchez defeat at the hands of the French, Houmas, who aided the Indian refugees, were in their turn attacked by French forces; hundreds were captured and sold as slaves in New Orleans.<sup>7</sup>

By the early eighteenth century the Houma had begun a process of absorbing some smaller, neighboring tribes, such as the Acolapissa, Bayougoula, Biloxi, and Chitimacha. Beginning some time in the early nineteenth century, the people still in Ascension parish moved south and settled on the Gulf Coast (present-day Lafourche and Terrebonne parishes). Other portions of the tribe intermarried with the Atakapa and moved to their territory or migrated to Oklahoma or to the north, toward their original homeland, and became lost to history.<sup>8</sup>

The Houma remained generally isolated well into the twentieth century. In the 1930s, oil speculators began taking advantage of the Indians’ illiteracy and lack of understanding in order to obtain their land. In response, local Indian leaders pushed their people to learn English. Still, most Houmas did not attend school until after World War II. Schools in the area were desegregated in the 1960s. Centuries of intermarriage thoroughly integrated Catholicism and the French language into Houma identity.

**Religion** Temples have carved wooden figures on their fronts. There could have also been earthen statues of gods within. The sun, thunder, and fire were likely among the gods that the populace most frequently worshipped. Through quests, young people might have looked for guardian spirits.<sup>9</sup>

**Government** Houma head chiefs, if they existed at all, were less powerful than the Natchez Suns. Women were known to have served as war chiefs.<sup>10</sup>

# INTRODUCTION

**Dwellings** Each village might have had over 100 cabins, possibly arranged in a circle. The homes were square, pole-frame constructions with walls made of adobe and Spanish moss that ranged in size from 15 to more than 30 feet on a side. They had cane matting both inside and out, followed by grass thatch outside.<sup>11</sup>

**Diet** The Houma were traditionally corn and other agricultural growers. They also hunted muskrat and other small animals, gathered shrimp and other sea food, and consumed a range of wild plant foods.

**Key Technology** Palmetto was used in the manufacture of baskets, mats, and other items. Hunters used a two-piece blowgun. Musical instruments included clay-pot drums with skins stretched over the top.<sup>12</sup>

**Trade** The Caddo were important trade partners. An significant export was seafood. The flint and bow wood were likely imported. They could have also exchanged salt and bird feathers. Notable Arts Houmas carved wooden satyrs and animals, some in relief, and painted in black, white, red, and yellow on their temple vestibules.<sup>13</sup>

**Transportation** The primary method of transportation was by pirogue or hollowed-out canoe.

**Dress** Men wore cloaks made of deerskin. Some men and women wore mantles made of woven muskrat skin or turkey feathers. Additionally, they might have sported moccasins, skin leggings, and possibly bearskin blankets in the winter and worn red, yellow, white, or other colors in their clothes.<sup>14</sup>

**War and Weapons** Allies included the Okelousa, and enemies included the Bayougoula, at least in the late seventeenth century. The Houma fought with bows and arrows, knives, and clubs.<sup>15</sup>

## Contemporary Information

**Government/Reservations** Most Houmas live in Terrebonne and Lafourche parishes, Louisiana, and particularly in the Dulac-Grand Caillou and Golden Meadow communities. They are governed through an elected tribal council. There is no tribal land base.<sup>16</sup>

**Economy** Fishing, trapping, and hunting are still important. People also work in nearby oil fields. The people have been unable legally to substantiate their claims to oil-rich land.

**Legal Status** The United Houma Nation, Inc. (1979), was denied federal recognition in 1998.<sup>17</sup>

**Ongoing traditional palmetto crafts** include baskets, mats, dolls, and fans. Kinship patterns also remain as do healing and other cultural traditions. Healers often use native methods combined with Christian prayers. French is the first language, with English second. Only a few words still exist of Houma, which was probably in sharp decline in the middle of the last century. The lack of a land base, among other things, has worked against community cohesion.<sup>18</sup>

# MISSION STATEMENT

The tribe has been living in the region for over 10,000 years and has a deep connection to the land, which is now being threatened by rising sea levels and erosion. This tribe has always relied on fishing and hunting for sustenance, but the changing environment is making it increasingly difficult to maintain their traditional way of life. This is leading to a loss of cultural identity and a sense of dislocation among the tribe members, who are struggling to adapt to the changing world around them. The situation highlights the urgent need for action to address the climate crisis and its impact on indigenous communities. Such a center could help preserve and celebrate the tribe's cultural heritage, which is an essential aspect of their identity. Cultural centers can provide a physical space for the community to come together, share their stories, and pass down traditional knowledge to future generations, serving as a hub for community events, including traditional dances, and storytelling sessions. It can provide educational resources for tribal members and visitors, including exhibits, workshops, and classes on traditional crafts, language, and history. In addition to celebrating and preserving the Houma Tribe's cultural heritage, a tribal center can also help promote cultural tourism, bringing economic benefits to the tribe and the surrounding area helping in raising awareness about the tribe's history, traditions, and current challenges, helping to build support for the community. Overall, this tribal center could be a valuable resource for the Houma Tribe and an important step in preserving and promoting their cultural identity.

## GOALS

- fosters a sense of pride and ownership among the tribal community
- Explore and embrace the connection with nature
- Platform for community engagement and collaboration, responsive to the needs and aspirations of the tribal community
- To produce a design that can serve as a model for other tribal communities facing similar challenges, and that contributes to the wider field of architecture and community development.





# LITERATURE STUDY



FIGURE 2 : Entrance to the complex



FIGURE 3 : Interiors of the exhibit hall

## CHOCTAW CULTURAL CENTER, OKLAHOMA

The Choctaw Cultural Center is dedicated to exploring, preserving, and showcasing the culture and history of the Choctaw people. The exhibits are immersive and told from the Choctaw perspective – honoring the physical and spiritual journey of the Choctaw people, the “Chahta Nowvt Aya.” Located in Durant, Oklahoma, the Choctaw Cultural Center showcases the Nation’s treasured history and culture, and serves as a place to gather, learn, and preserve the Choctaw spirit and way of life.<sup>19</sup>

Featuring rich interactive and immersive exhibitions and engaging programs and activities, the building is situated on 22-acres, is over 100,000 square feet and houses two exhibit halls, an art gallery, auditorium, children’s area, classrooms, offices, gift shop, café and more. Among its many features is a Permanent Exhibit Hall with a four-part story focusing on the history of the Choctaw tribe from ancestral times (circa 1250) to current day Oklahoma.<sup>20</sup> To help tell the story are “live casts” of living Choctaw tribal members created based on 3-D scans of their faces and bodies. Some of the life-like figures scattered throughout show how the tribe lived “before contact” while others display how they live in contemporary times.

Other items of note in the permanent exhibit are a giant Luksi (Turtle) in the children’s activity center with traditional Choctaw houses and a mini-forest to explore. Also featured throughout are hand-made items created by Choctaw tribal members including jewelry, baskets, beadwork, a cape of feathers, artwork, and more.<sup>21</sup>

The Center also includes a Changing Exhibition Gallery for traveling and community curated exhibits and special events. A state-of-the-art collections area is devoted to caring for cultural items, collections and an archive of some of the Nation’s most historical documents, artifacts and other archival items.

Upon leaving the indoor exhibits, guests are invited to visit the Hvshi Gift Store for authentic Choctaw-made items and memorabilia and enjoy a meal at The Champuli Café for traditional Choctaw food as well as current options.<sup>22</sup>

The Living Village is a surrounding space which includes a replica of a traditional Choctaw mound, a stickball demonstration field, heirloom Choctaw crops, and a dance circle.<sup>23</sup>

Throughout the Cultural Center – indoors and outdoors – Choctaw tribal members have the opportunity to teach, learn and actively participate in the Choctaw culture. Activities like gathering for special presentations and Choctaw films, participating in the Choctaw tradition of oral storytelling or playing in a demonstration stickball game, all help keep the Choctaw spirit alive.



FIGURE 4 : Aerial view of the complex

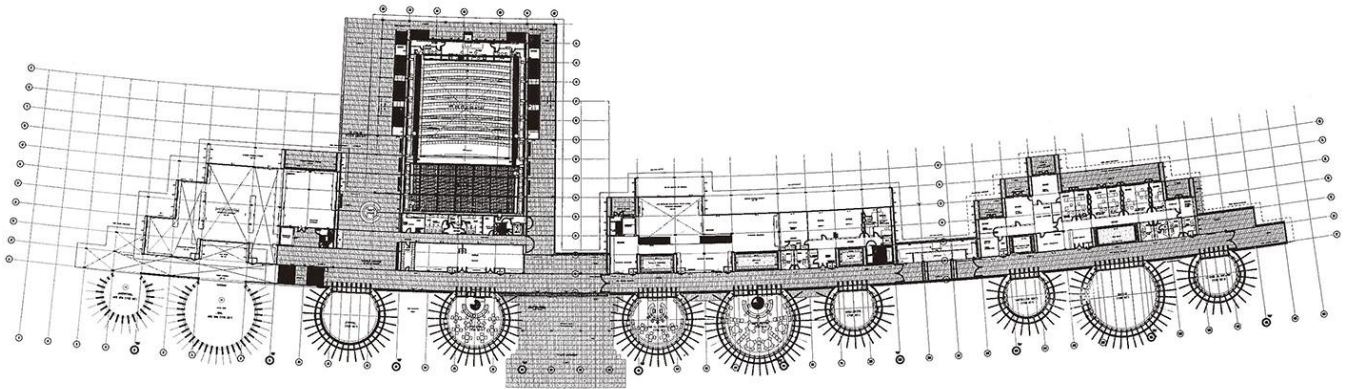


FIGURE 5 : Plan of the complex  
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## JEAN TJIBAOU CULTURAL CENTER, NEW CALEDONIA

The Kanak Cultural Center, also known as the Tjibaou Cultural Center, is a museum and cultural center located in Nouméa, New Caledonia. It is dedicated to preserving and sharing the culture and traditions of the Kanak people, the indigenous population of New Caledonia.

The center was designed by famous Italian architect Renzo Piano and named after Jean-Marie Tjibaou, a Kanak nationalist leader who was assassinated in 1989. It opened in 1998 and features a mix of traditional and contemporary Kanak art and exhibits, as well as a performance space and outdoor areas for cultural events.<sup>24</sup>

The center's exhibits explore various aspects of Kanak culture, including art, music, dance, language, and spirituality. Visitors can learn about the history of the Kanak people and their relationship with the land and sea, as well as the impact of colonization and cultural assimilation on Kanak culture.<sup>25</sup>

Situated on eight hectares of land between Magenta and Tina bays, the site encompasses an art centre, a museum, performance spaces, a library, a landscaped park and more. The heart of the Tjibaou Cultural Centre is a 7,000 m<sup>2</sup> building consisting mostly of ten ribbed and slender structures inspired by the form of traditional Kanak huts. Made of steel and Iroko wood, their height varies between 20 and 28 m, and their surfaces from 55 to 140 m<sup>2</sup>. The ten huts are positioned next to a flat, lower building with an adjoining alley that leads to each hut.<sup>26</sup>

The Kanak Cultural Center is an important resource for the Kanak people and serves as a symbol of their cultural identity and heritage. It is also a popular tourist attraction and a place for locals and visitors alike to learn about and appreciate Kanak culture.



# PROCESS

# PROGRAM LAYOUT - EXISTING

The existing activity area for the tribe are very limited and scattered all over the houma town. This makes it difficult for management and provides one dedicated space for houma as a lot of these spaces are shared and rental places with other things in the city. Currently, the tribe operates from a small office building that hosts vocational classroom training but does not have the space to expand in the existing building.



FIGURE 6: Existing Houma activity centers

# PROGRAM LAYOUT - PROPOSED

After careful consideration and understanding of what the tribe wants in order to achieve its goals, a new set of programs was curated, keeping their requirements and type of activities in mind. The proposed program provides them with a balance of formal and informal community spaces for community engagement and socialization. The tribe can also engage in fishing activities, an important aspect of the tribal identity, which was slowly depleting due to unavailability of resources.

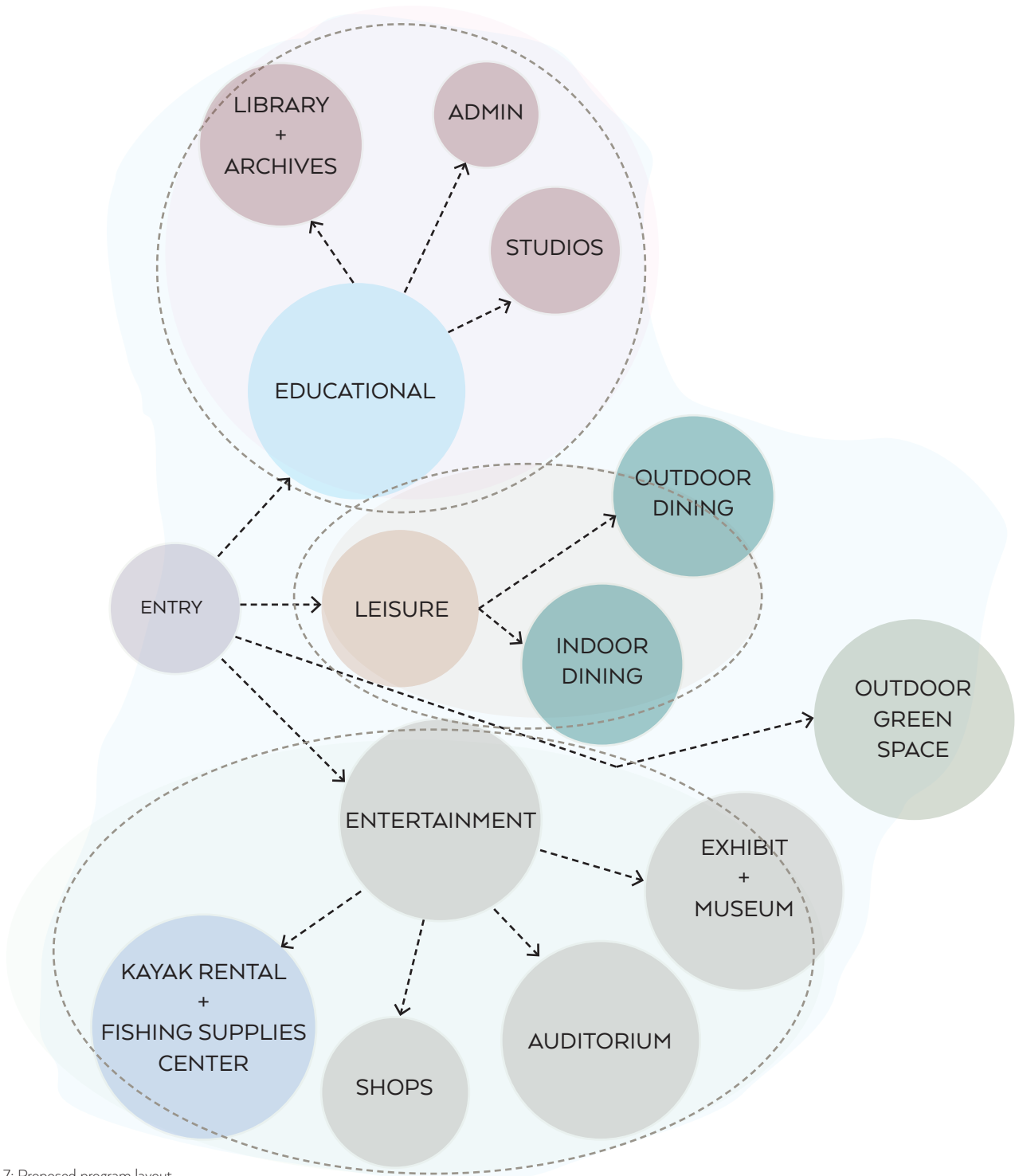


FIGURE 7: Proposed program layout  
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# PROGRESS

## PROGRESS - FALL '22

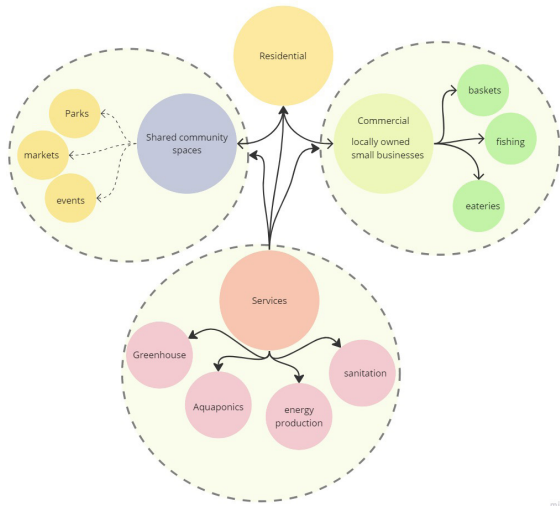


FIGURE 8 : Initial program layout- Fall 2022

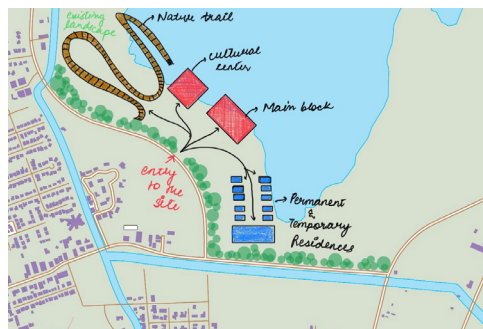


FIGURE 9: Initial site layout- fall 2022

## PROGRESS - SPRING '23

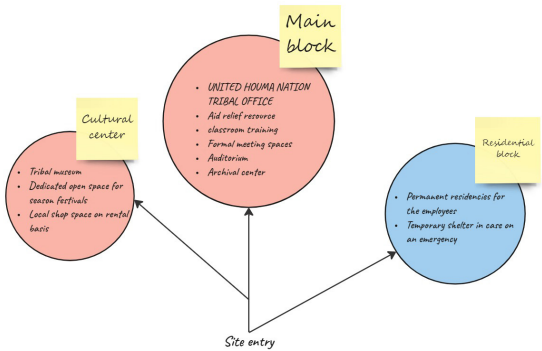


FIGURE 10: Revised program layout - Spring 2023

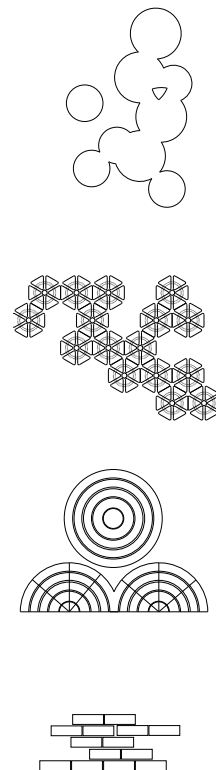


FIGURE 11 : Iterations

# PROGRESS

## PROGRESS - SPRING '23

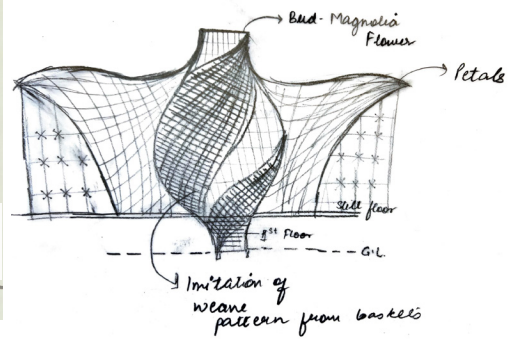
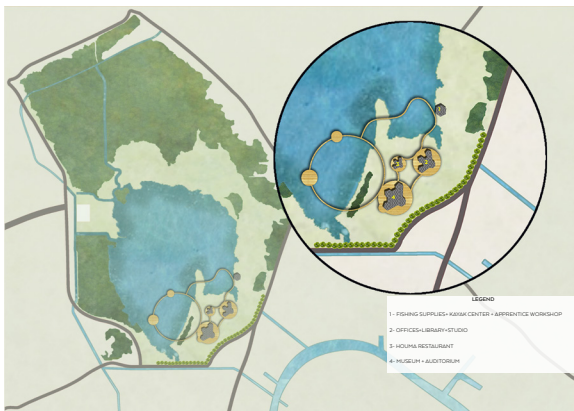
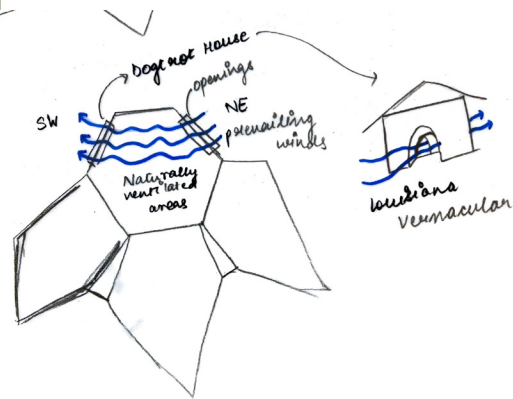
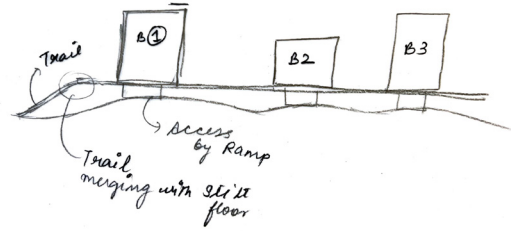


FIGURE 12: Site plan concepts

FIGURE 13: Conceptual sketches

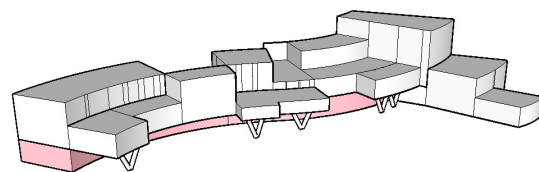
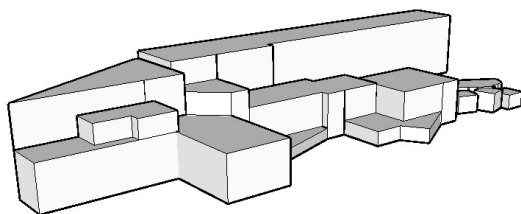


FIGURE 14: Massing models

# AREA ANALYSIS

## AUDITORIUM

DESCRIPTION : The auditorium will be used for performance of Houma folklore music and dance and also as a means of storytelling.

OCCUPANTS : 600

AREA :18,000 SF

## EXHIBITION AREA

DESCRIPTION : The complex will have multiple exhibits (permanent and revolving) showcasing the journey of tribe and portraying the important aspects of their culture.

OCCUPANTS : 500

AREA :30,000 SF

## LIBRARY + ARCHIVES

DESCRIPTION : The archives area will be a safe space to preserve the past of the tribe and the addition of library will encourage more people to visit and learn about the space. The library has different seating arrangements, catering to groups as well as individuals.

OCCUPANTS : 80

AREA :10,000 SF

## ADMIN OFFICES

DESCRIPTION : This office space will manage the whole complex as well as will be the main source of contact to the houma tribal chiefs and executive body.

OCCUPANTS : 60

AREA :5000 SF

## STUDIOS

DESCRIPTION : The studios and workshop spaces will have the format of classrooms for vocational training and guest lectures, as well as large studio areas for different music, dance and art activities.

OCCUPANTS : 250

AREA :12,000 SF

## RESTAURANT

DESCRIPTION : The Houma kitchen will be a specialty restaurant serving the cajun speciality dishes of the Houma tribe. The space provides an indoor dining as well as an outdoor dining for people to savour the views of the landscape and the lake.

OCCUPANTS : 400

AREA :8,000 SF

# AREA ANALYSIS

## SOUVENIER SHOPS

DESCRIPTION : These shops will be a part of the museum+ exhibit area. The visitors can buy some souvenirs to remember their time in the center. This will also promote the Houma craft as well as be a part of economical development for the artisans.

OCCUPANTS : 30

AREA : 1500 SF

## KAYAK RENTAL + FISHING SUPPLIES CENTER

DESCRIPTION : The kayak rental is an important addition to rejuvenate the use of lake for fun activities and also for the purposes of fishing and hunting.

OCCUPANTS : 25

AREA : 5000 SF

## PARKING SPACE

DESCRIPTION : The complex has both multilevel parking and surface parking, with dedicated spots for specially-abled and buses.

CAPACITY : 883



# SITE ANALYSIS

# EXISTING SITE CONDITIONS

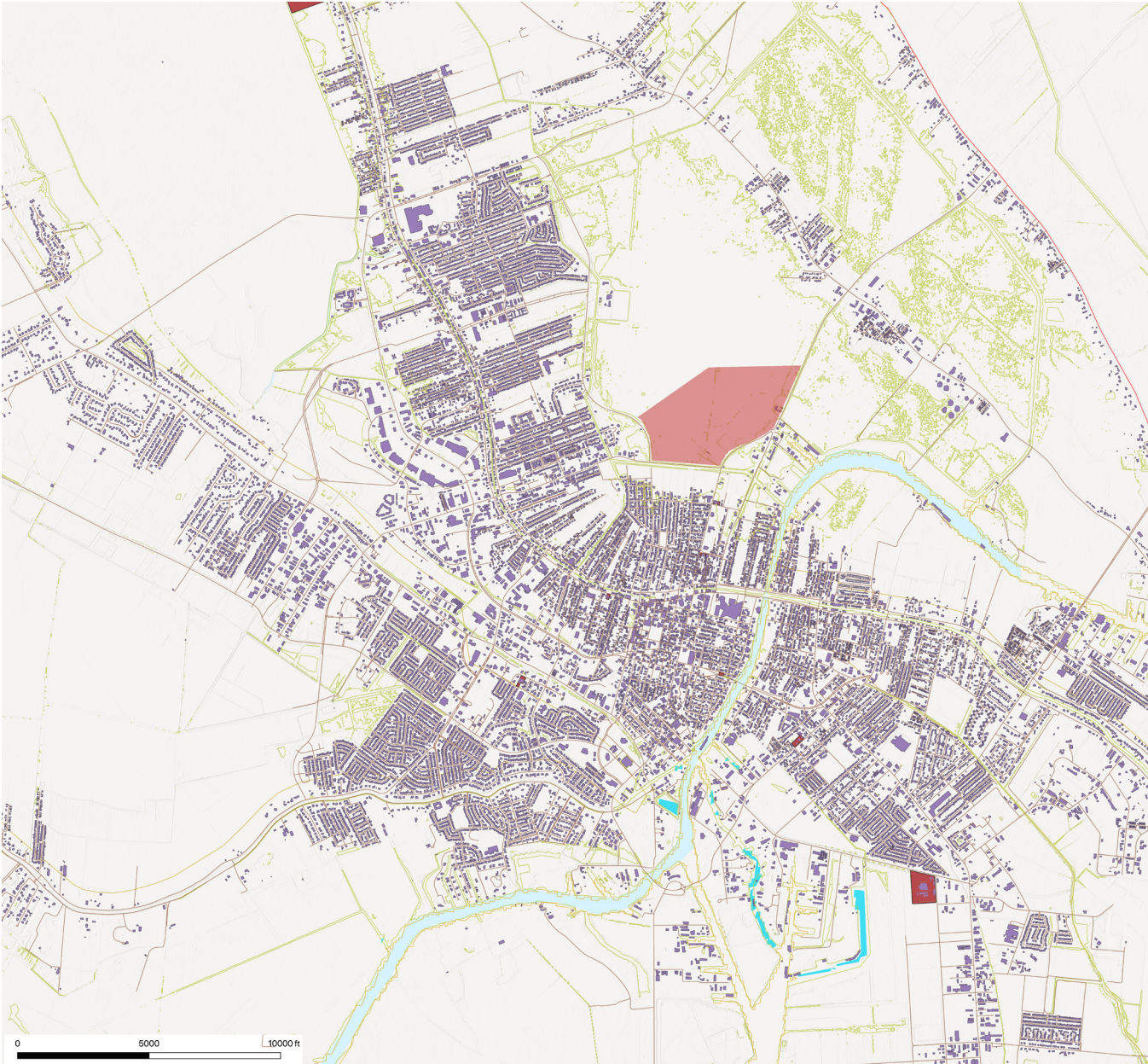


FIGURE 15: Qgis site map



FIGURE 16: Site surroundings

# EXISTING SITE CONDITIONS



FIGURE 17: Satellite view of the site with zoning

# EXISTING SITE CONDITIONS

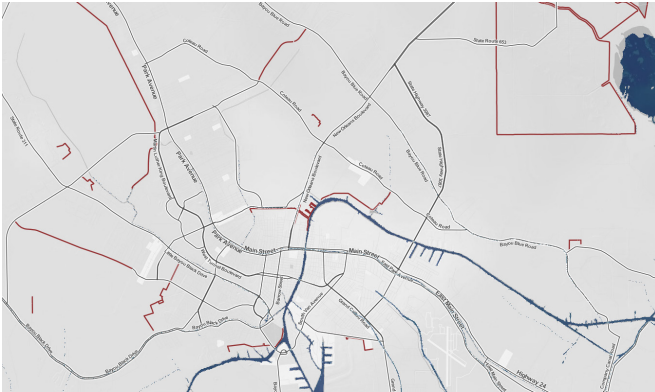


FIGURE 18: Current coast

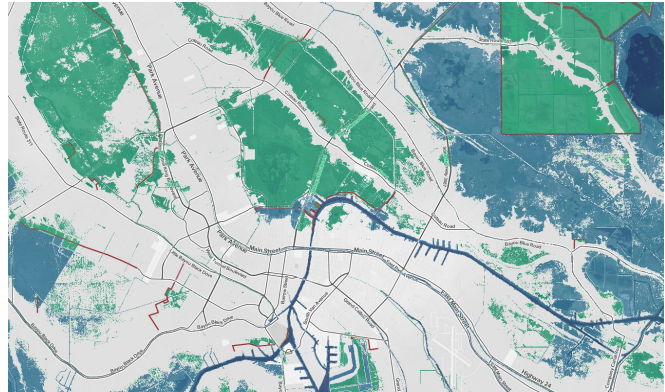


FIGURE 19: 1' sea level rise

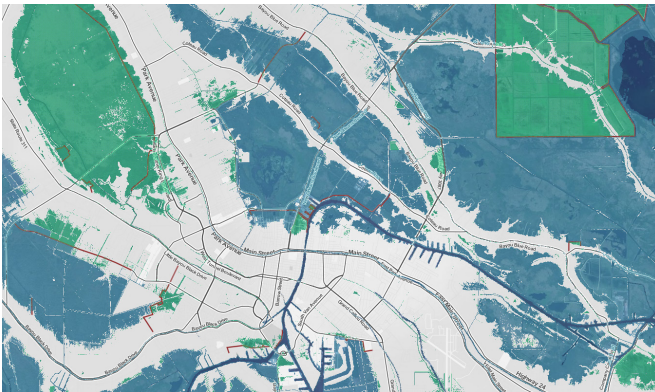


FIGURE 20: 2' sea level rise

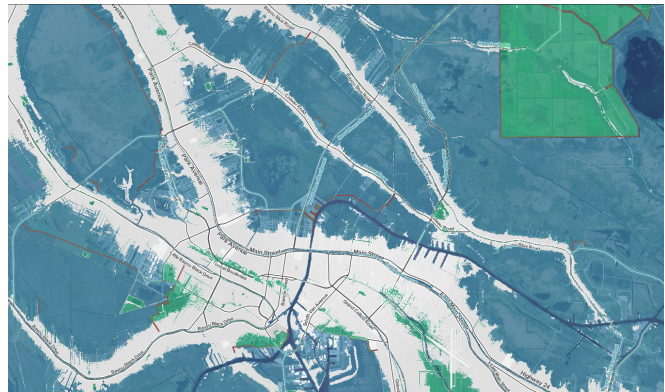


FIGURE 21: 4' sea level rise



FIGURE 22: Direction of hurricanes passing through the site

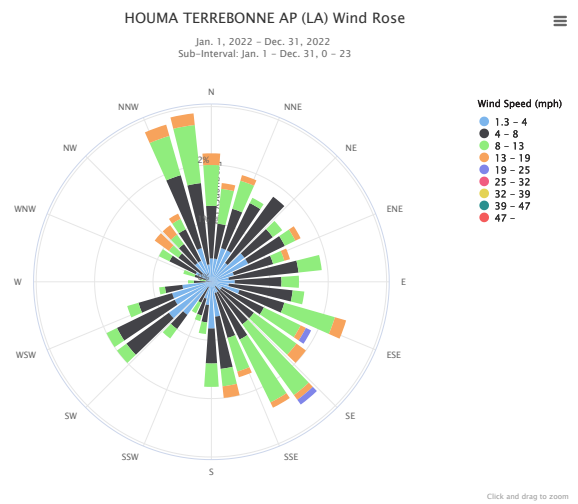


FIGURE 23: Wind rose



# EXISTING SITE CONDITIONS

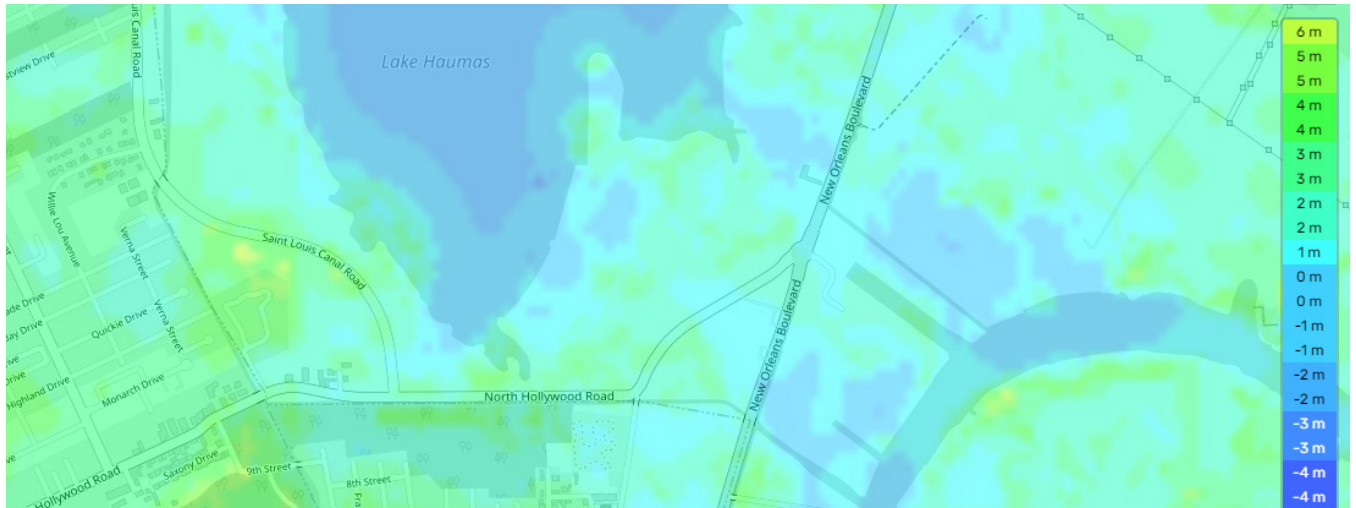


FIGURE 24: Existing topography

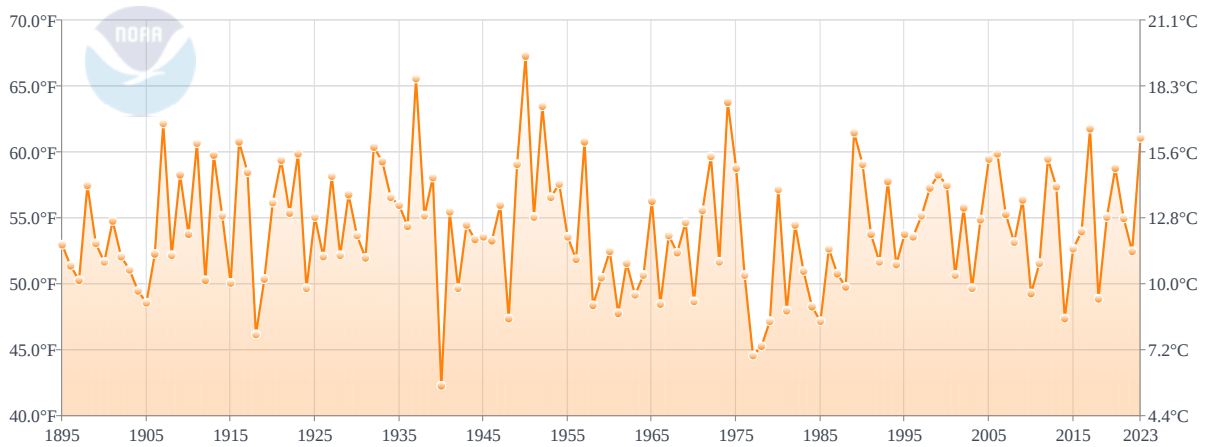


FIGURE 25: Average temperature- terreborne parish

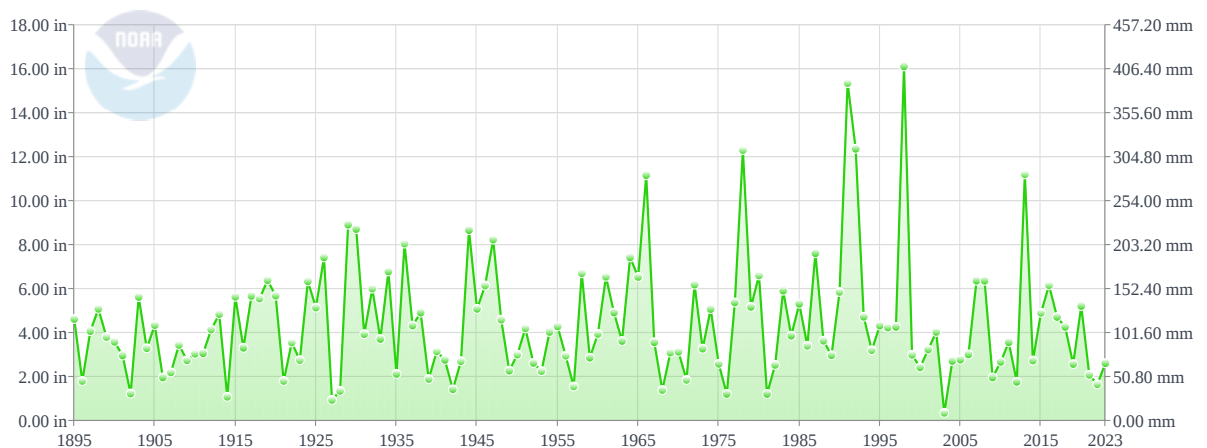


FIGURE 26: Average precipitation- Terreborne parish



# PROPOSAL



## SITE PLAN

SCALE 1/64"=1'-0"

- |   |                     |                      |
|---|---------------------|----------------------|
| 1 MUSEUM+ ART EXHIBIT + AUDITORIUM        | POLLINATOR LAWN     | NATURE TRAIL         |
| 2 HOUMA SPECIALTY RESTAURANT              | ELEVATED BOARDWALK  | KAYAK LAUNCH DOCK    |
| 3 LIBRARY+ ARCHIVAL CENTER                | DENSE FOREST        | INTERPRETIVE SIGNAGE |
| 4 ADMIN + STUDIOS AND CLASSROOMS          | OBSERVATION DECK    | 3' REBETMENT         |
| 5 KAYAK RENTAL AND FISHING SUPPLIES STORE | PLAY/EVENT LAWN     | TRUCK LANE           |
| 6 SURFACE PARKING                         | AMPHITHEATER        | EXISTING WETLAND     |
| 7 MULTILEVEL PARKING                      | MULTIUSE BIKE TRAIL | FISHING AREA         |

FIGURE 27: Proposed site plan

# SITE PLAN

The proposed site is divided according to four different user groups; educational, leisure, recreational, and cultural.

The site has good access to the St. Louis Canal road from its two edges and has a well-defined entrance and exit for vehicular movement. The entry from the north allows the user to decide their movement across the site.

Due to the natural grade of the site and the artificial grade, only a part of the building is visible to the visitor from the street and creates a sense of mystery when it opens up to a wide green space and the lake. The site is also shielded with dense tree cover on its periphery that acts as a buffer zone for the outside traffic noise. The entrance to the building is through a green pavilion which has a big statue in the center of the place representing the tribe. The circulation around each building is designed so that a person has to pass through the sculpture to move from one building to another, emphasizing the importance of the tribe with each movement.

The site has a big outdoor space for multiple activities, such as a flowering garden, a play lawn for gathering purposes, and small green pockets spread all across the plot. This space can be accessed through a multi-purpose bike trail which is 10' in width and provides multiple points of entry and exits to different parts of the park. There is also a 6' natural trail that goes through the existing wetland area and amid dense forest cover to bring a more hike-like feel to the users. The interpretive signage around the trails guides the users through different areas they pass through in their journey, also informing them about the type of plants they observe.

The lake can be enjoyed in multiple ways, like an elevated boardwalk, a viewing deck that descends to the level of the water, and fishing spots for commercial and recreational purposes. The kayak rental and fishing center also support users' interaction with the lake.

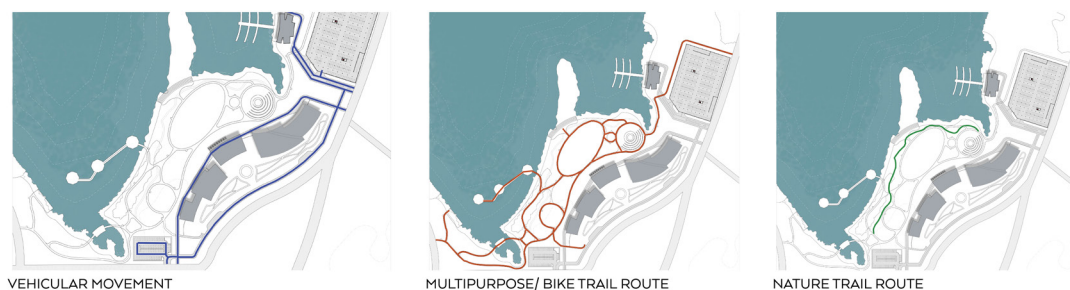


FIGURE 28: Circulation through site

# FLOOR PLANS

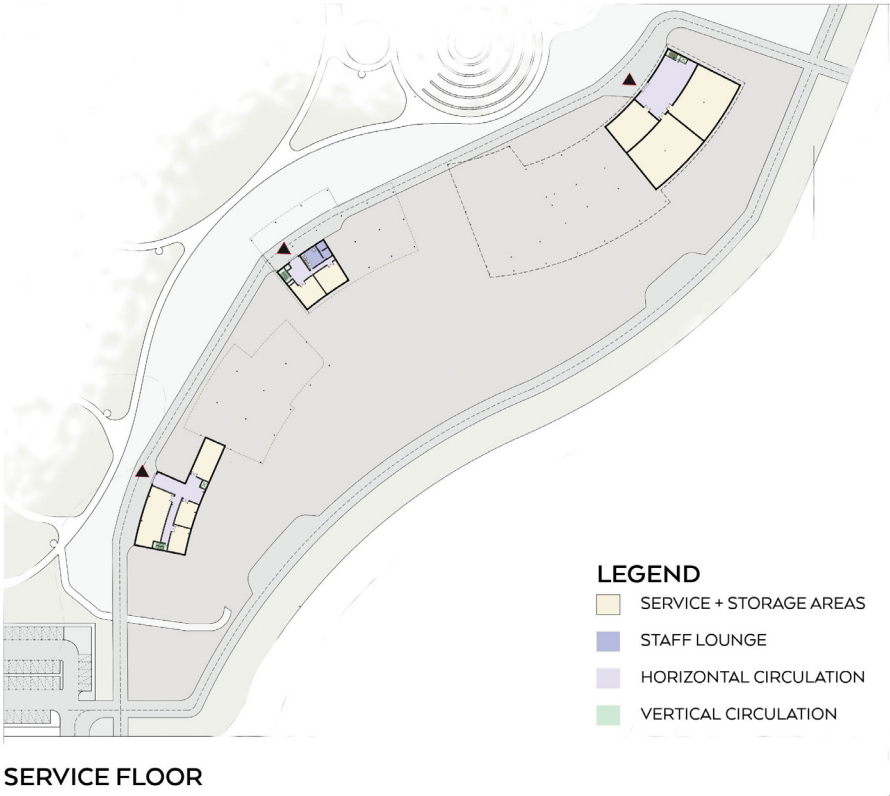


FIGURE 29: Service floor plan

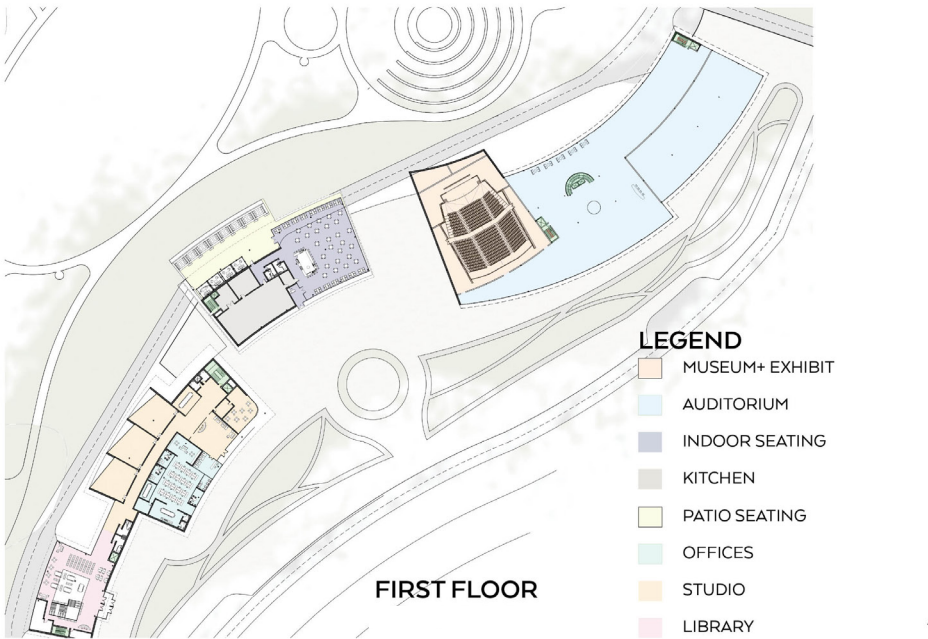
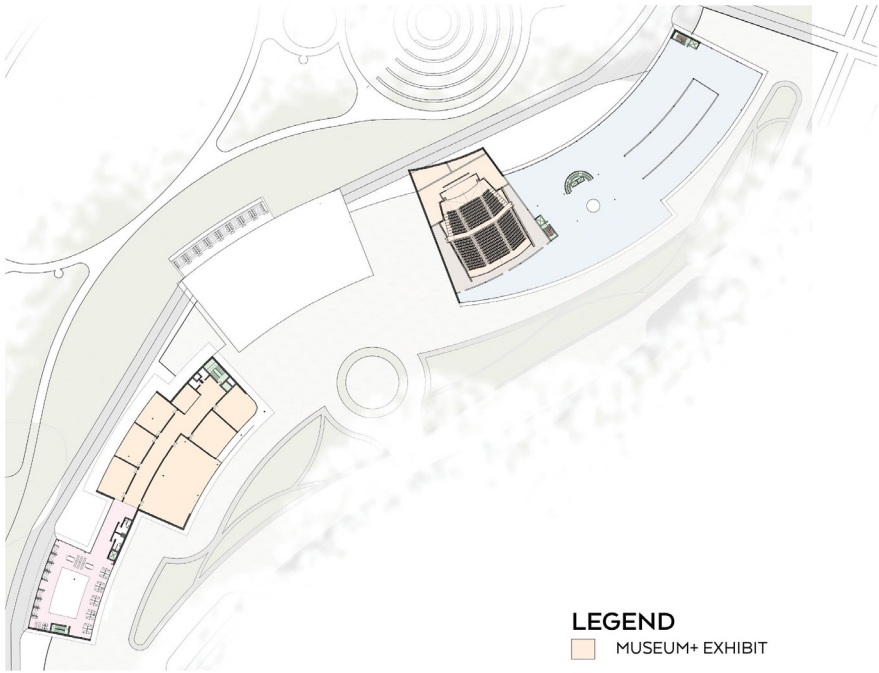


FIGURE 30: First floor plan

# FLOOR PLANS

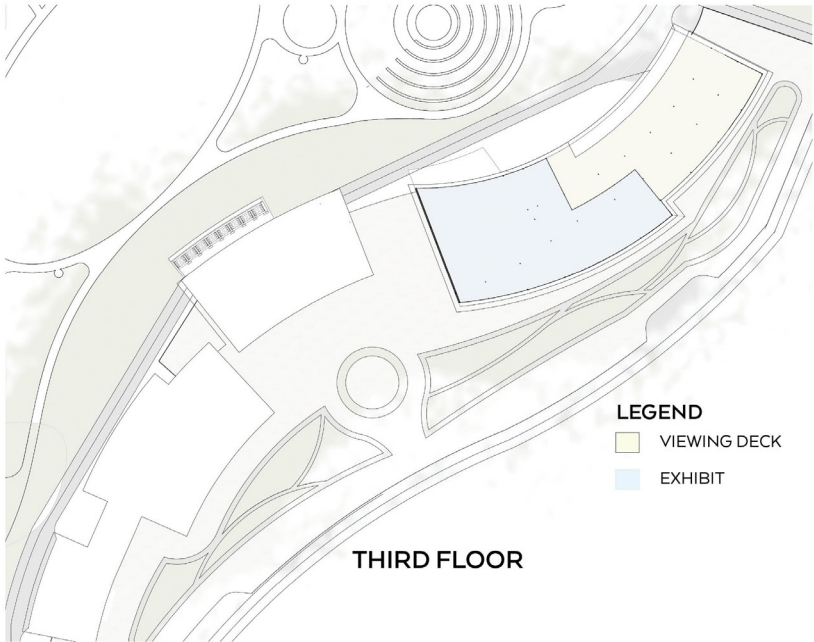


**SECOND FLOOR**

- LEGEND**
- MUSEUM+ EXHIBIT
  - AUDITORIUM
  - INDOOR SEATING
  - KITCHEN
  - PATIO SEATING
  - OFFICES
  - STUDIO
  - LIBRARY



FIGURE 31: Second floor plan



**THIRD FLOOR**

- LEGEND**
- VIEWING DECK
  - EXHIBIT

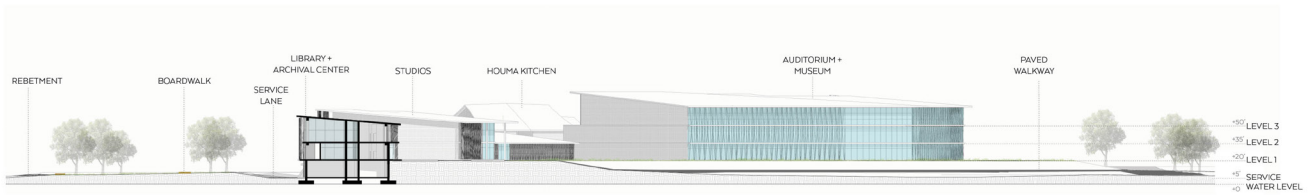
FIGURE 32: Third floor plan  
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# SECTIONS



FIGURE 33: Sections through the site

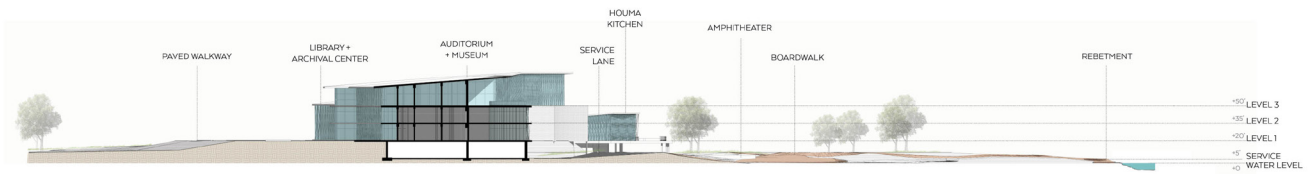
# SECTIONS



SECTION-A



SECTION-B



SECTION-C



SECTION-D



SECTION-1



SECTION-2

FIGURE 34: Site sections



# DESIGN STRATEGIES

## POLLINATOR GARDEN

Pollinators move pollen from the male part of a plant’s flower to the female part of the same or another plant, resulting in fertilization. This movement of pollen is necessary for the production of fruits, seeds, and many of the foods that we eat. Bees, butterflies, beetles, moths, bats and some birds are all pollinators. The flowering plants that comprise bee lawns are resilient enough to be used in recreational multi-use field spaces, are aesthetically similar to existing turf (if not more attractive), and have the added benefit of providing habitat and food sources for these valuable species



Lanceleaf tickseed



Cardinal flower



Swamp milkweed



Gayfeather



Butterfly weed



White wild indigo

FIGURE 35: Proposed Pollinator garden

## FACADE DETAIL - WEAVE

After studying the weave pattern of the palmetto baskets for which the tribe is known for, the facade imitates a similar pattern. This makes the complex resonate with the culture. In addition to the cultural significance, the woven facade also controls the amount of sunlight entering the building and projects an interesting play of light and shadow in the interiors spaces.



FIGURE 36: Basket weaving for inspiration

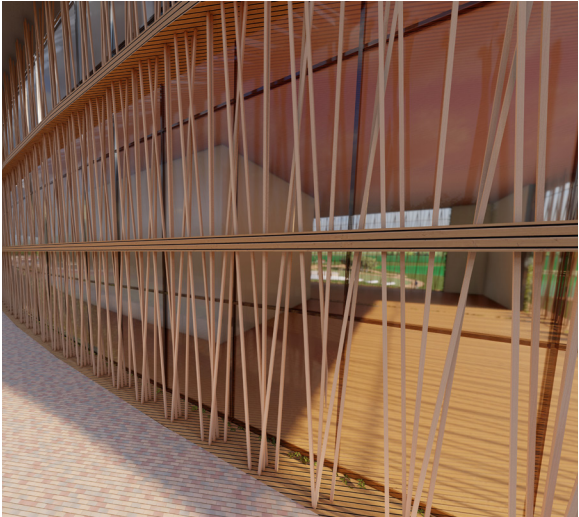


FIGURE 37: Proposed woven facade

# DESIGN STRATEGIES

## GREEN ROOF

- Remove air pollutants
- Reduce urban temperatures
- Thermal benefits to buildings
- Improve biodiversity
- Attenuate Rain water
- Reduce noise
- Increase productivity & creativity
- Improve sense of well-being

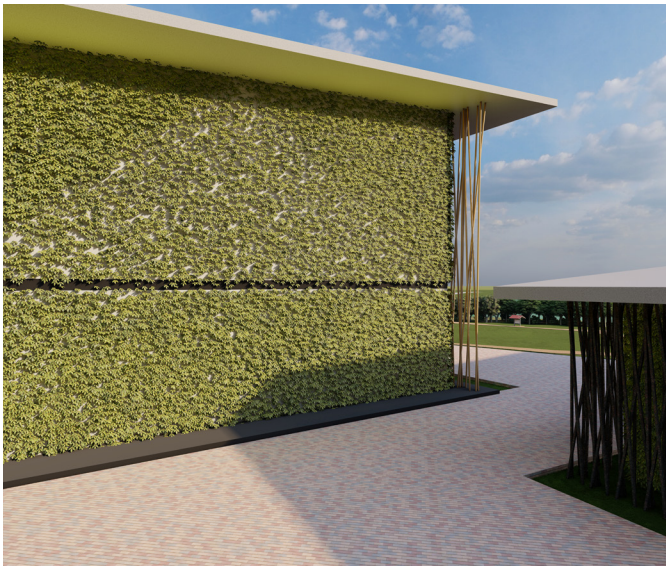
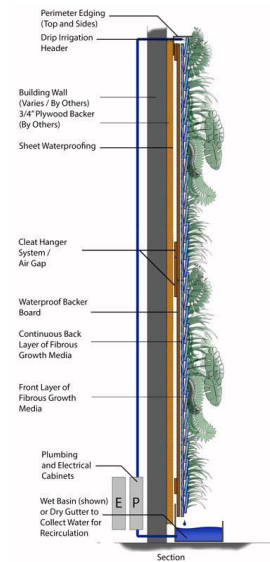


FIGURE 38: Proposed green wall



## MATERIAL PALETTE

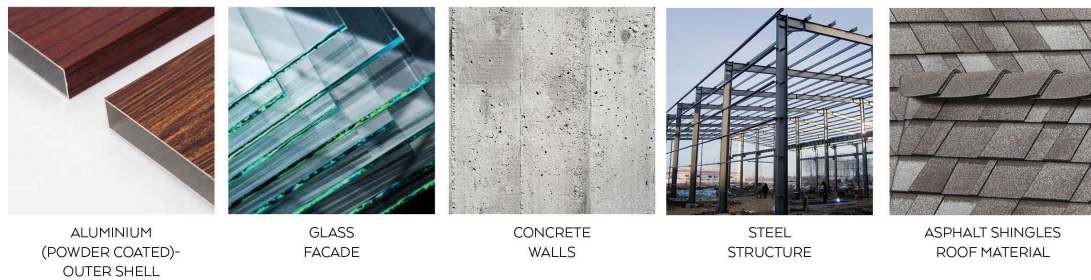


FIGURE 40: Material palette



# VISUALIZATIONS

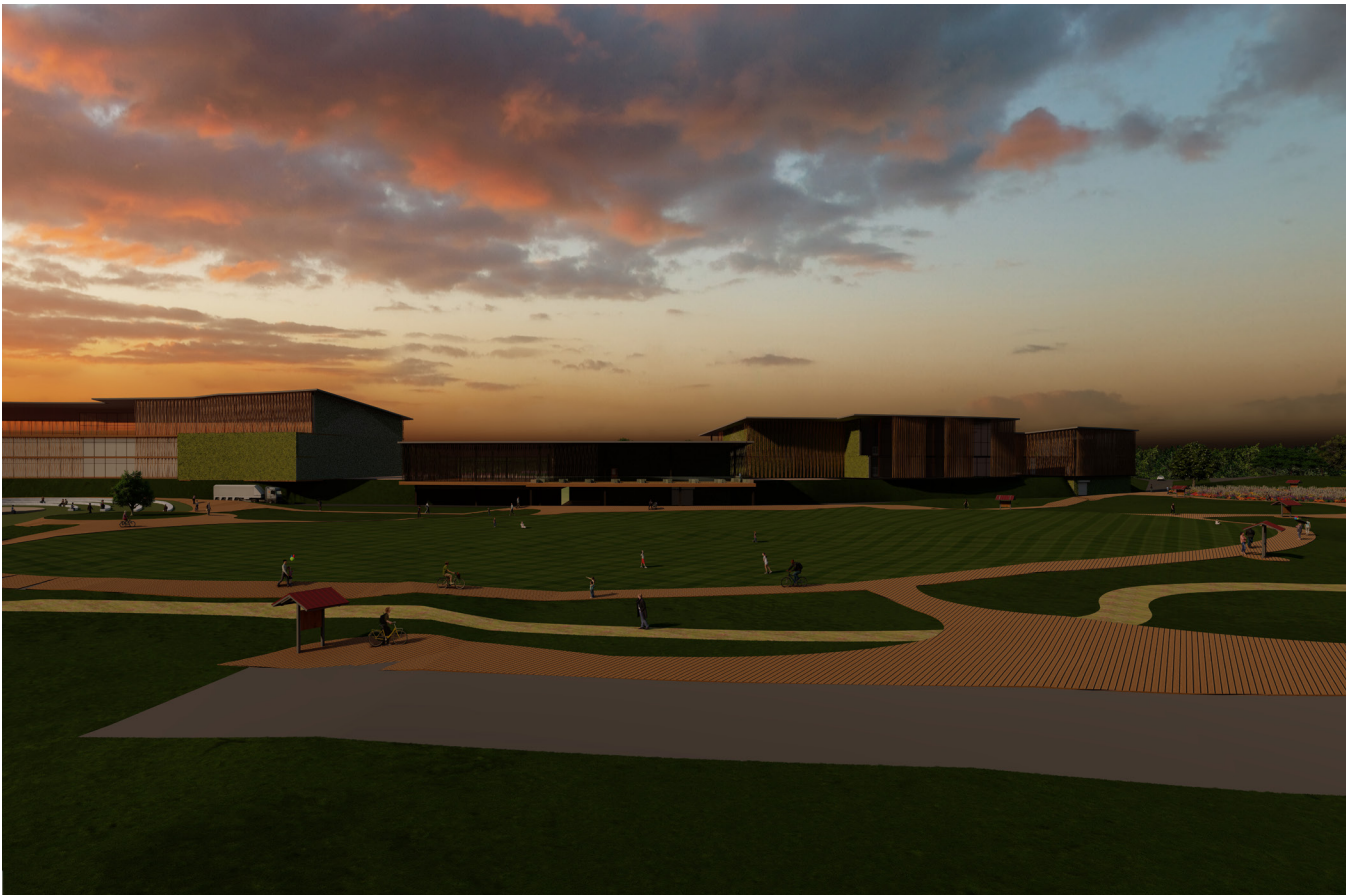


FIGURE 41: View from the observation deck



FIGURE 42: Entrance to Exhibit



FIGURE 43: Rear facade of Library



FIGURE 44: Entrance pavilion

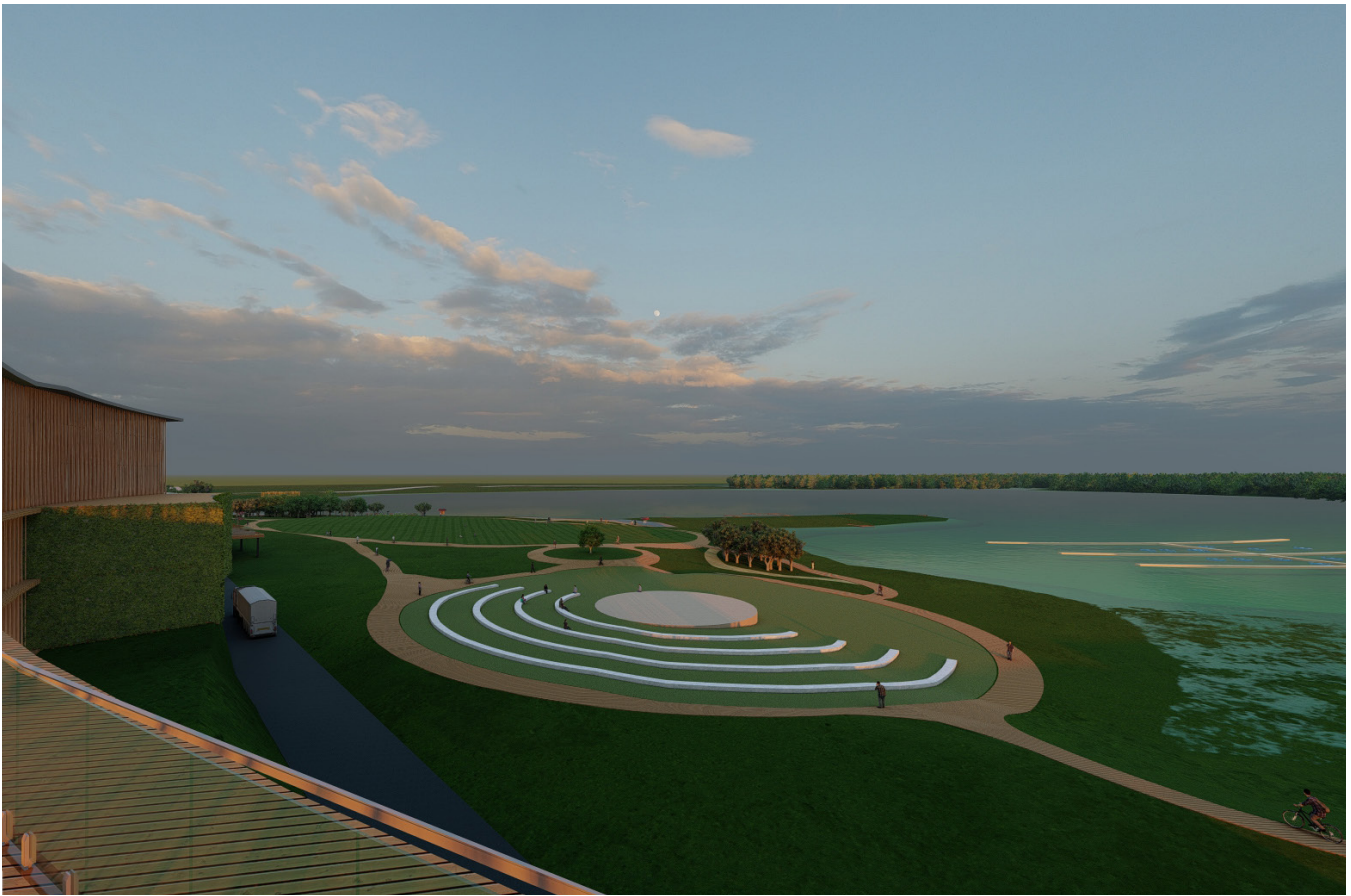


FIGURE 45: View from Exhibit third floor



FIGURE 45: Entrance to natural trail

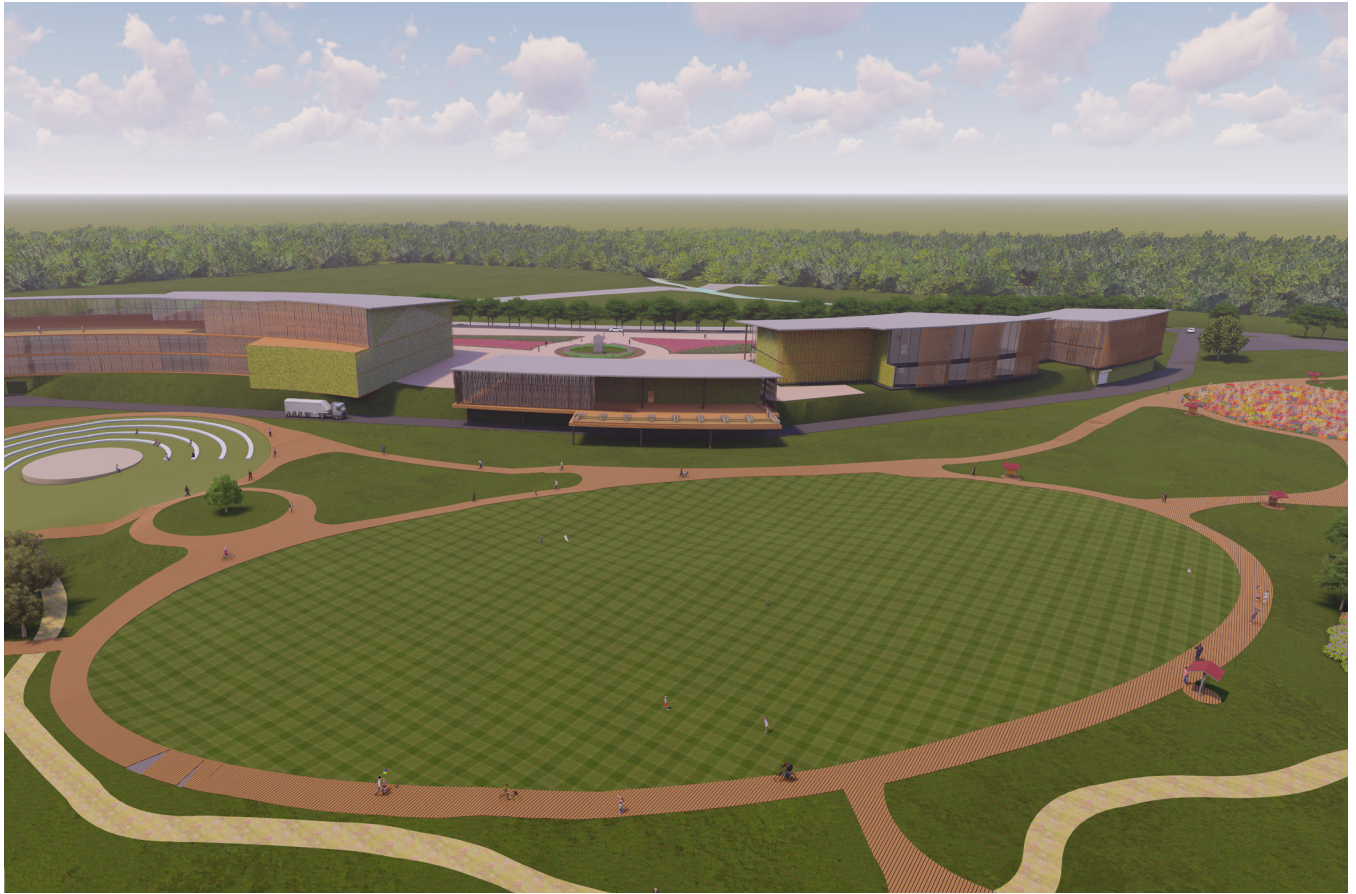


FIGURE 46: Aerial view- daytime

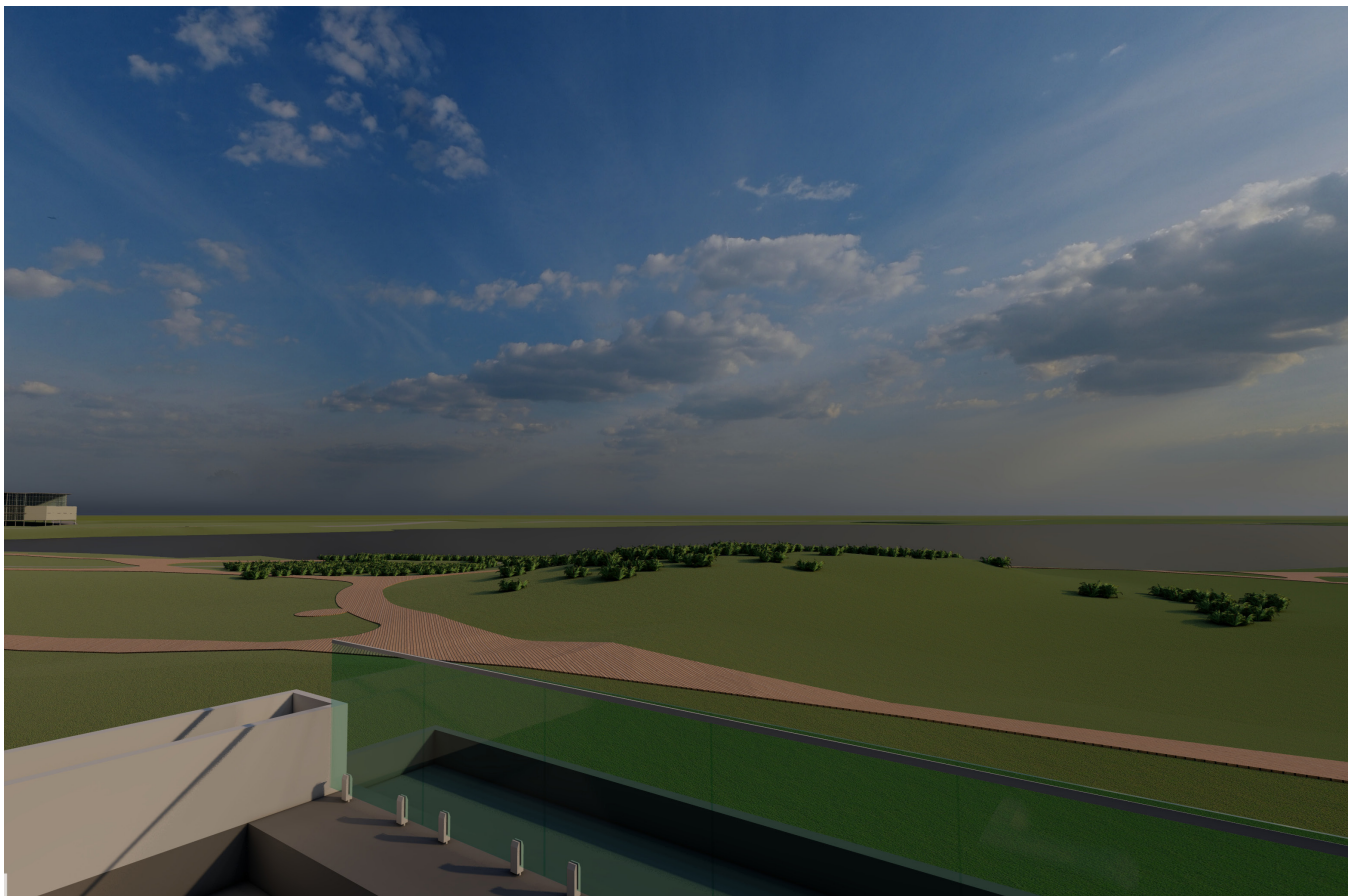


FIGURE 47: View from restaurant deck



FIGURE 48: Library interior



FIGURE 49: Restaurant interior



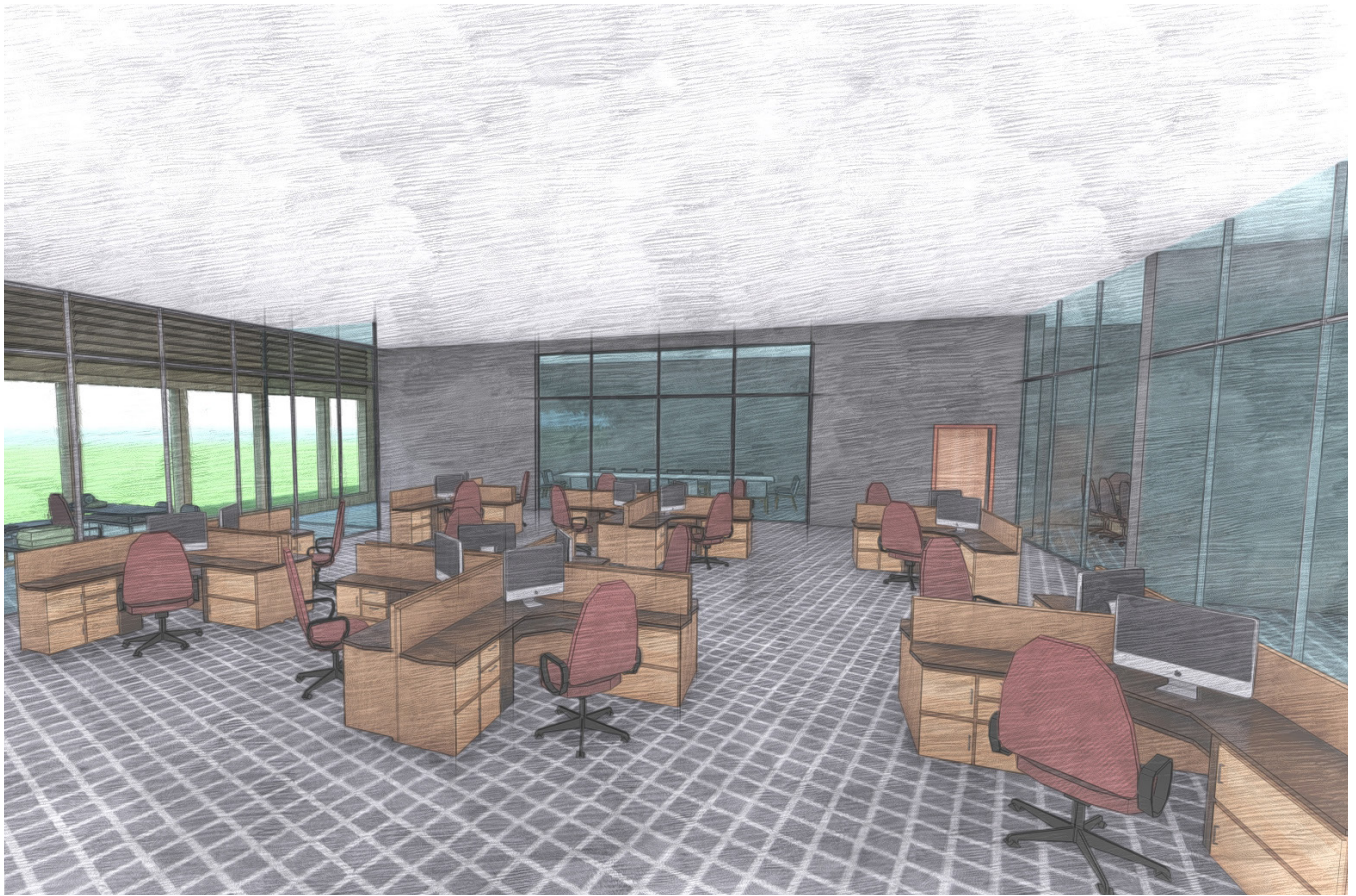


FIGURE 50: Admin office interior

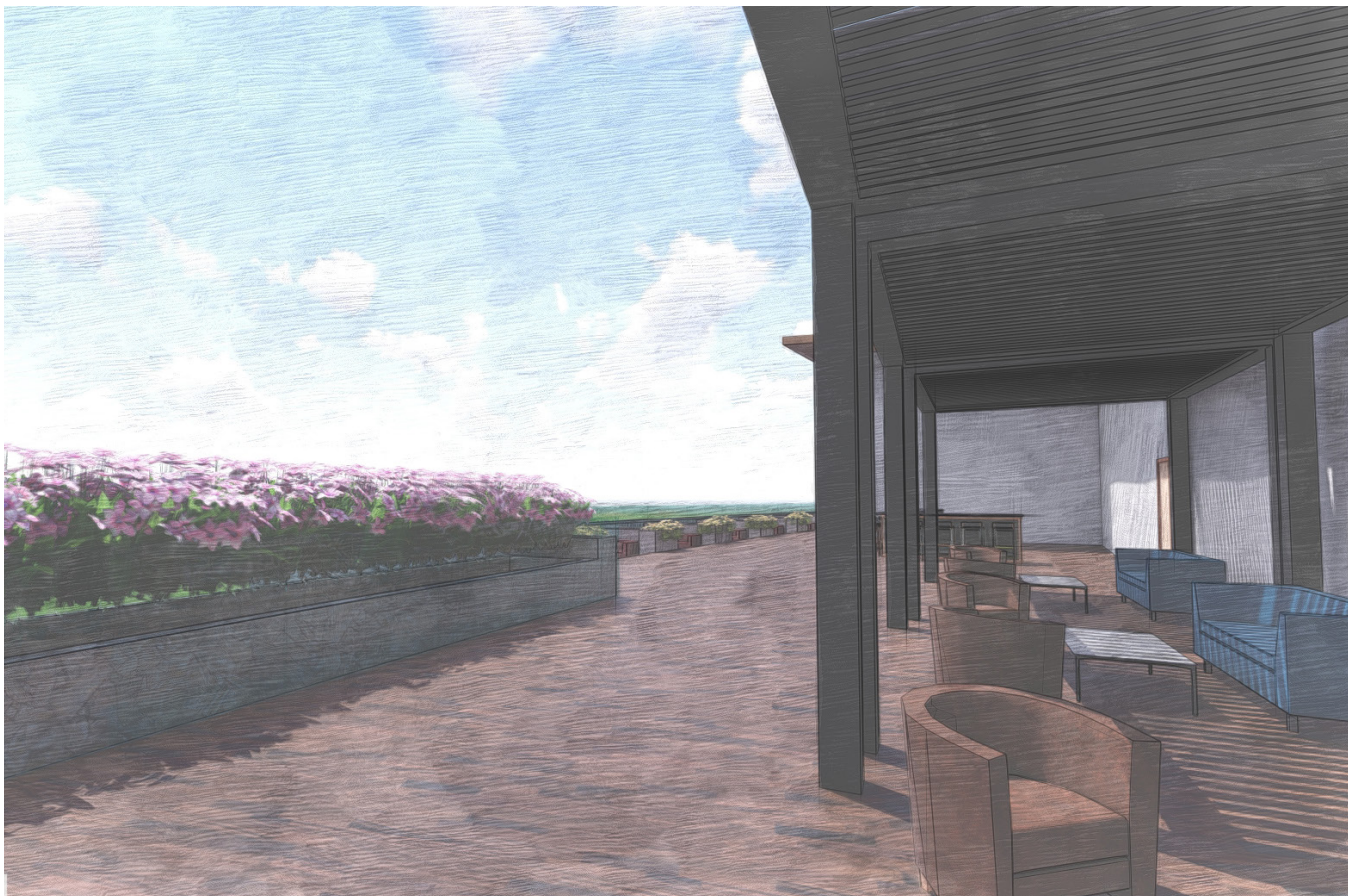


FIGURE 51: Restaurant deck



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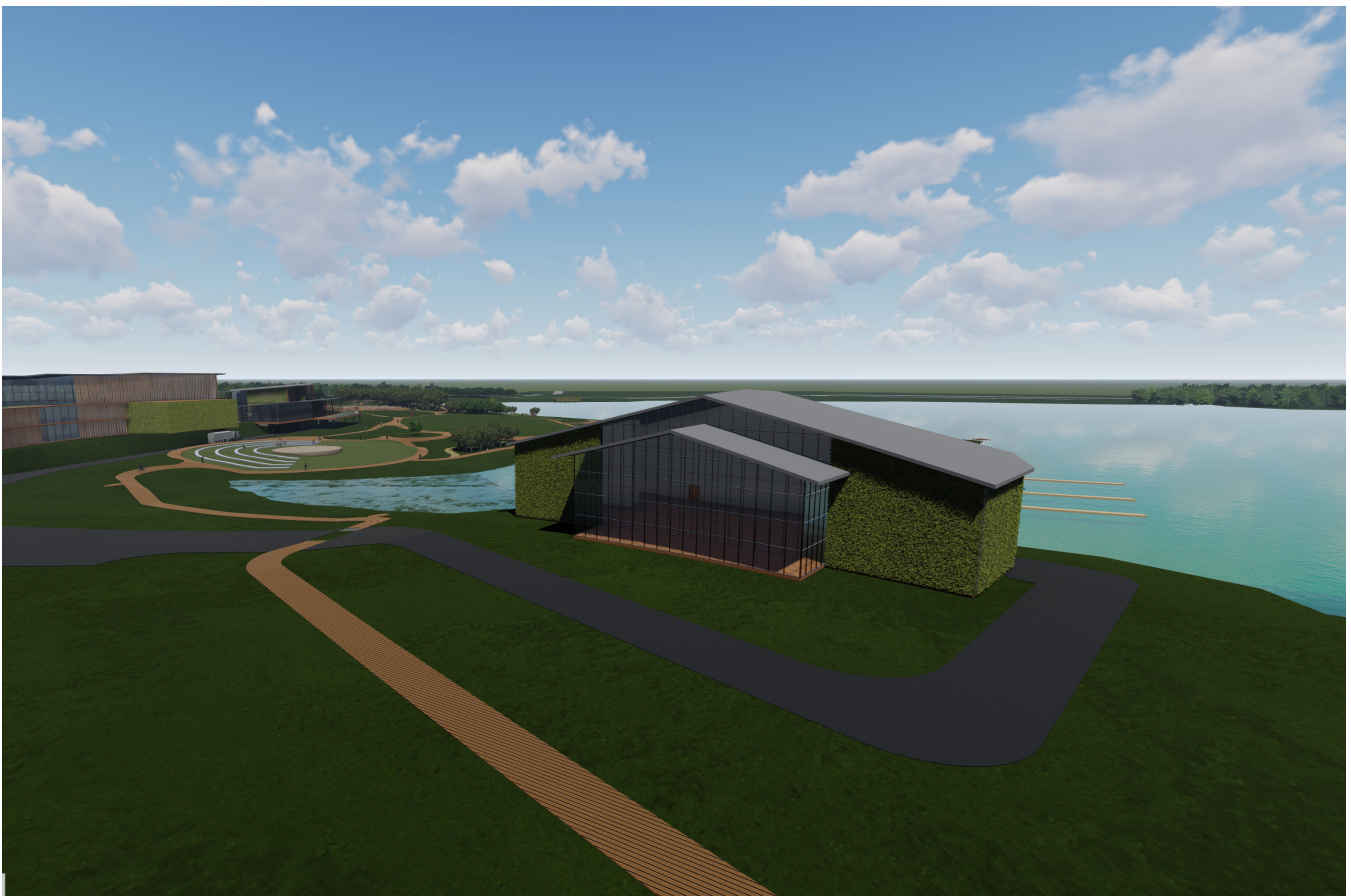


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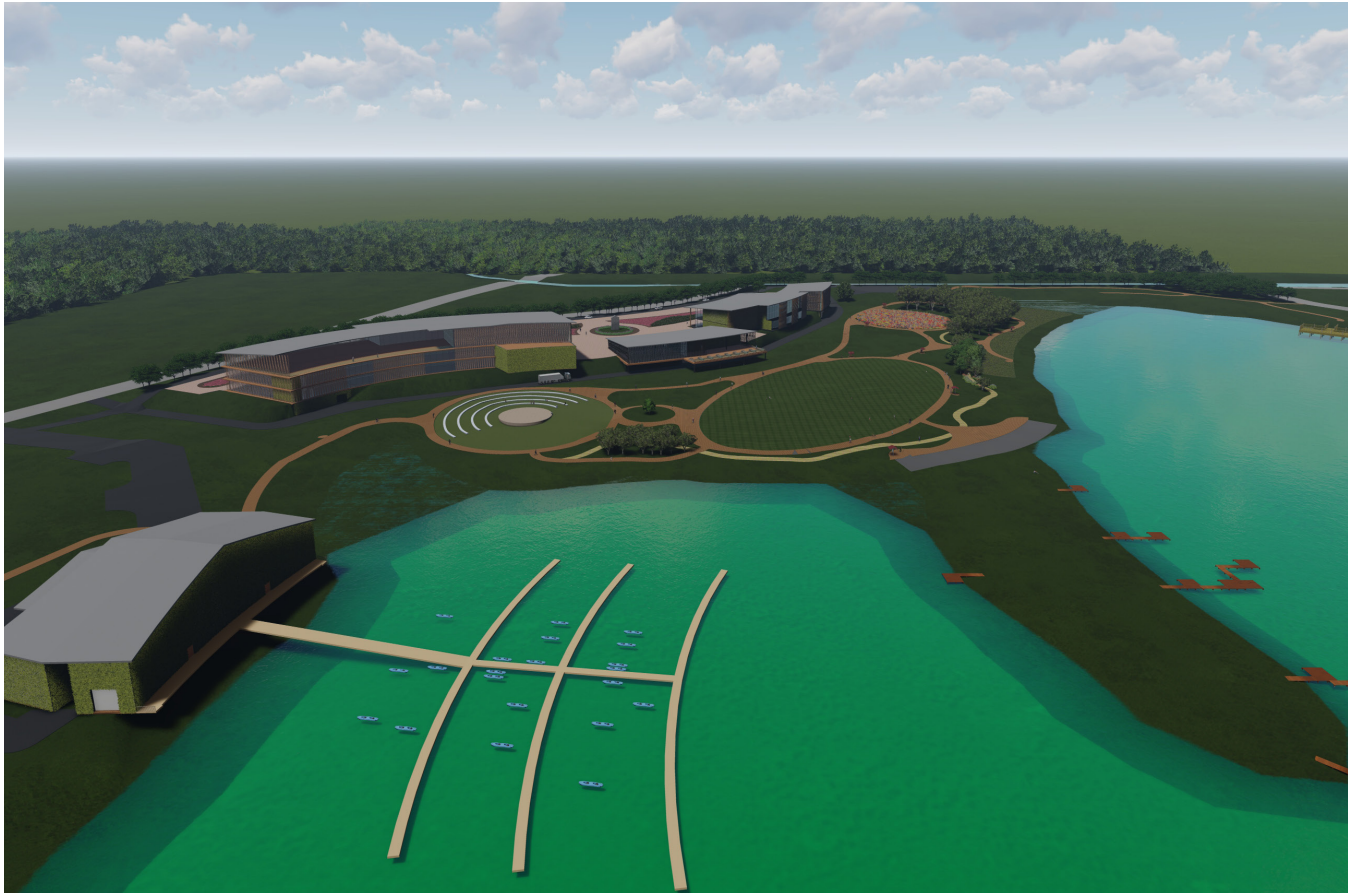


FIGURE 54: Aerial view from north side



FIGURE 55: View overlooking pollinator garden

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FIGURE 17: Satellite view of site with zoning

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FIGURE 18: Current coast

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