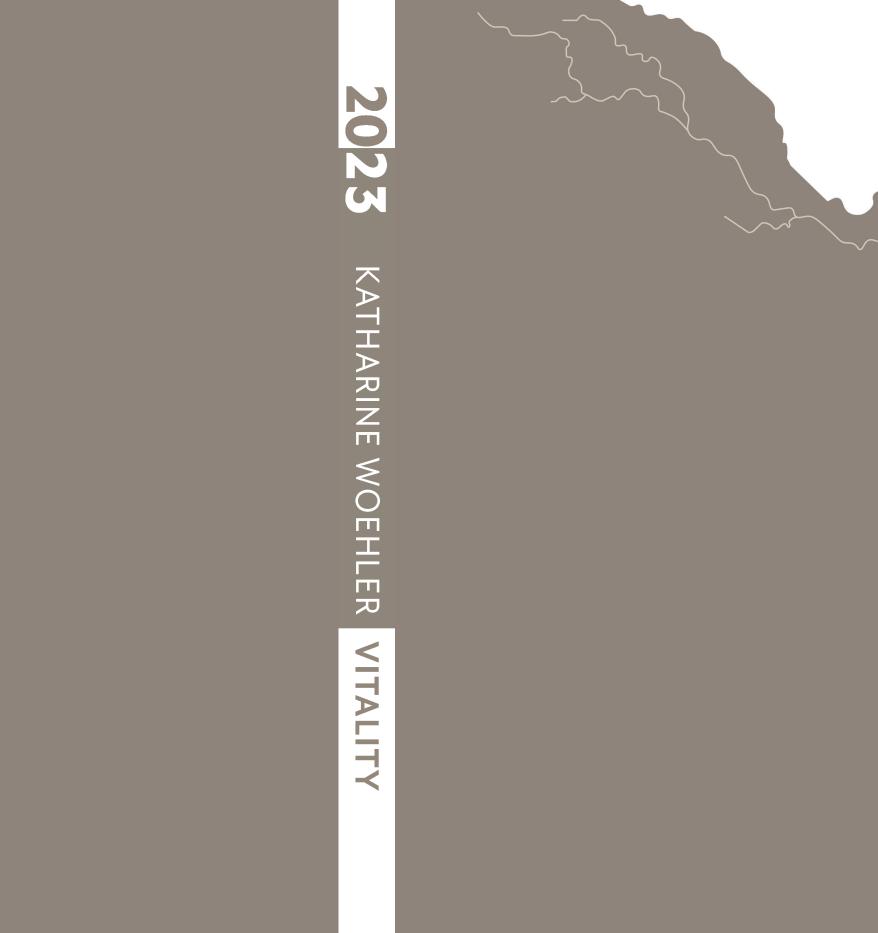
KATHARINE WOEHLER WELL AP, LEED GREEN ASSOCIATE

MASTER OF ARCHITECTURE CANDIDATE TEXAS A&M UNIVERSITY



VITALITY

VITALITY The power of endurance

KATHARINE WOEHLER well ap, leed green associate

MASTER OF ARCHITECTURE CANDIDATE TEXAS A&M UNIVERSITY

TO MY MOM,

Your dedication and hard work throughout your life have taught me so much about tenacity and leadership, I will always be grateful for the lessons you've taught me. My biggest cheerleader, my confidante, and my advisor all rolled into one. Your unwavering belief in me, your constant encouragement, and your willingness to listen whenever I needed to vent or brainstorm have meant the world to me. You are always there to encourage me and remind me of my potential. As I navigated this milestone in my academic journey, I couldn't have imagined doing it without you.

TO MY COMMITTEE,

Your willingness to engage in meaningful discussions and offer thoughtful critiques has truly enriched my work and enabled me to produce a project that I am proud of. Your feedback has stemmed many diverse approaches to how this project can be viewed, aiding the design in forming a comprehensive whole from all angles. I feel truly fortunate to have had the opportunity to work with such a supportive and knowledgeable committee. Your guidance and mentorship have not only helped me to complete this project but have also prepared me for my future pursuits in architecture and related endeavors.

thank you

COMMITTEE

Dr. Andrew Tripp _____ COMMITTEE CHAIR

Dr. Stephen Caffey _____

Dr. Inci Guneralp committee external member

Dr. Juan-Carlos Baltazar _____ COMMITTEE MEMBER

Marcel Erminy ______studio professor



TABLE OF CONTENTS











06 — EPILOGUE





ABSTRACT

The Brazos River is formed by the confluence of the Double Mountain & Salt Fork rivers in the Texas panhandle and continues across Texas for 840 miles, emptying into the Gulf of Mexico. While the Brazos river is the eleventh longest river in the United States, it is one of the longest rivers encompassed in a single state. It has become a symbol of the Texan independent spirit; the river personifies the idea of "everything's bigger in Texas." An impressive feat with its own set of consequences. Rivers of similar length are typically supported by two or more states, which means the Brazos only receives funding from one state rather than multiple entities. The Brazos river shares the stage with the Trinity River (710 miles), with its entire basin located in Texas. Adding to the hurdles the Brazos river faces, the river is known for having muddy unruly waters. South of Waco, it is advised to not swim in the waters due to the bacterial composition of the water. This presents a challenge for recreation on the river's water. The importance of this natural resource combined with the familiar obstacles of the river are what inspired this project.

HOW CAN ARCHITECTURE COMMUNICATE THE VALUE OF THE BRAZOS RIVER?





THE RIVER BEING DEAD, YET SPEAKS.
REMEMBER YESTERDAY? YES. NO. IN A WAY,
THE WAY OF RIVERS, A RIVER IS REMEMBERED. ??



THE BRAZOS

In its early history, the Brazos River served as a critical resource for numerous Native American tribes, and early American colonizations. Later, it served as a trade route for cowboys and cattle drives, fostering the growth of the ranching industry and the cowboy culture that is so innate with Texas today. Additionally, the river is prominently featured in Texan folklore and literature, serving as a symbol of rugged individualism, and endurance. Many native Texas writers and musicians, including Willie Nelson and Janis Joplin, have referenced the river in their songs. The river has even drawn global attraction, inspiring a swedish trombonist (Nils Landgren) to compose a song inspired by the muddy Brazos waters. Its legacy as a key element of Texas culture and identity is set to endure for generations to come.

THROUGH THE DECADES

EARLY 182 1800s	20s 183	0s 184	IOs 185	50s 186) Os 189)Os 190)Os
NATIVE AMERICAN TRIBES, SUCH AS THE COMANCHE & THE TONKAWA, INHABIT THE BRAZOS RIVER REGION.	ANGLO- AMERICAN COLONIZATION BEGAN IN THE BRAZOS RIVER BASIN.	THE BRAZOS RIVER BECOMES PART OF THE NEWLY INDEPENDENT REPUBLIC OF TEXAS.	SETTLEMENTS AND TOWNS DEVELOP ALONG THE BRAZOS RIVER, INCLUDING WACO, HEMPSTEAD, & RICHMOND.	THE BRAZOS RIVER BECOMES AN IMPORTANT TRANSPORTA- TION ROUTE FOR STEAM- BOATS CARRY- ING GOODS & PASSENGERS.	THE CIVIL WAR INTERRUPTS TRADE ON THE BRAZOS RIVER AS MANY STEAMBOATS ARE DESTROYED OR REPURPOSED FOR MILITARY USE.	RIVERS AND HARBOUR ACT OF 1899 PROVIDED FEDERAL ASSISTANCE FOR THE CONSTRUCTION & MAINTENANCE OF HARBORS AND WATERWAYS IN THE U.S., & FOR THE PREVENTION AND REMOVAL OF OBSTRUCTIONS IN NAVIGABLE WATERS.	RIVERS AND HARBORS ACT OF 1905, WHICH ADDRESSED POLLUTION OF NAVIGABLE WATERWAYS,. THIS PROVISION OF THE ACT HELPED TO IMPROVE WATER QUALITY & PREVENT FURTHER DEGRADATION OF IMPORTANT WATER RESOURCES LIKE THE BRAZOS RIVER.

1920s 193	80s 195	50s 198	80s 199	0s 200) DOs 20		SENT AY
THE BRAZOS RIVER AUTHORITY IS DEVELOPED IN 1929 TO OVERSEE THE DEVELOPMENT & CONSERVATION OF THE BRAZOS RIVER BECOMING "THE FIRST STATE AGENCY IN THE UNITED STATES CREATED SPECIFICALLY FOR THE PURPOSE OF DEVELOPING & MANAGING THE WATER RESOURCES OF AN ENTIRE RIVER BASIN."	DROUGHT AND THE GREAT DEPRESSION LEAD TO SIGNIFICANT CHANGES IN THE BRAZOS RIVER BASIN, INCLUDING THE CONSTRUCTION OF DAMS & RESERVOIRS. SPECIFICALLY, FURTHER CONTROLLING FLOODING & PROVIDING HYDROELECTRIC POWER.	THE CONSTRUCTION OF ADDITIONAL DAMS & RESERVOIRS ON THE BRAZOS RIVER, INCLUDING LAKE WHITNEY & LAKE WACO, CONTINUES TO PROVIDE WATER STORAGE AND FLOOD CONTROL.	THE BRAZOS RIV- ER EXPERIENCES SEVERE FLOOD- ING, LEADING TO THE CON- STRUCTION OF ADDITIONAL FLOOD CON- TROL STRUC- TURES.	THE POPULATION OF THE BRAZOS RIVER BASIN CONTINUES TO GROW, LEADING TO INCREASED DEMAND FOR WATER RESOURCES & PRESSURE ON THE RIVER ECOSYSTEM.	THE BRAZOS RIVER BASIN EXPERIENCES SEVERAL DROUGHTS, LEADING TO WATER SHORTAGES & RESTRICTIONS ON WATER USAGE.	RIVER AUTHORITY IMPLEMENTS SEVERAL WATER CONSERVATION MEASURES & CONTINUES TO MANAGE THE RIVER'S RESOURCES.	THE BRAZOS RIVER REMAINS AN IMPORTANT SOURCE OF WATER, ENER- GY, AND REC- REATION FOR THE COMMU- NITIES ALONG ITS BANKS, AND ONGOING EFFORTS ARE BEING MADE TO BALANCE HU- MAN NEEDS WITH THE PRESERVA- TION OF THE RIVER ECO- SYSTEM.





LOCK AND DAM #8

INCOMPLETE, 1916



LOCK AND DAM #6

1916



LOCK AND DAM #3

INCOMPLETE, 1916



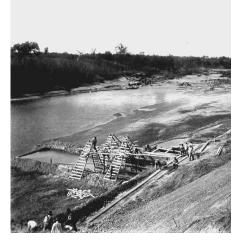
LOCK AND DAM #1

LOCK LOCATIONS

Despite the Brazos' fortitude and potential, it has resisted taming for irrigation, navigation, nor flood prevention measures. However, that does not mean humans have not tried. At the turn of the 18th century, the U.S. Army Corps of Engineers proposed a project to harness the river waters through a series of locks and dams (8 proposed) following the river's course between Waco and Washington. The project garnered support from Texans statewide due to the prospect of controlling the water, in terms of navigation, but additionally in terms of flood protection. Simultaneously, another budding navigation and shipment transportation was growing in its use - the railroad. Like the introduction of the internet, or modern-day resistance to Artificial Intelligence, Americans were resistant to change. These Americans supported projects encouraging the use of our rivers for freight movement, hoping to combat the power of the railways. The project would lead to similar projects along other rivers in Texas - if successful. Funds were garnered for four locks (shown left, moving bottom to top): Lock & Dam's 1, 3, 6, 8. Questions arose over the feasibility of such task and structural concerns arose after locks 1 and 8 were complete, eventually putting a halt to the remaining two locks (3 &6) of the four that had received funding."Tying together these four [Locks and Dams] was an increasing disparity between the dreams for the river and the natural limitations of the landscape." (Archer, 166). The river could have never sustained these dreams of navigation, primarily due to the depth and unpredictable nature. The four Locks and Dams were left abandoned, with two incomplete: Lock and Dams 3 & 8.







Lock and Dam #3 on the Brazos River, located roughly seven miles outside of the City of Hearne in Robertson County, is one of the four remaining locks and dams on the river constructed in 1915-1917 as part of the largest Progressive-Era project on the Brazos. The lock spans three-hundred feet along the river with a respective height of twenty feet, and is roughly sixty feet wide. The lock is constructed with reinforced concrete, and would have miter gates inside the lock to control the water levels allowing cargo and other boats to pass through had the dam also been completed. Notice the buildings on the shore, the town established was named "Port Arthur" in anticipation of the Brazos navigabilityand is now a ghost town.















The history of this lock is plagued with more than just man's attempt to control nature. The lock itself extends beyond an inanimate, unnatural formation in the muddy water. These photographs acknowledge the 300 men, six hundred hands, that labored one of four built locks in this ultimately unsuccessful project. "Immigrants & non-white Americans provided much of the labor for these locks while white Americans...acted as overseers" (Archer, 164). There is a high probability this labor was provided by inmates of a local prison. It is a safe assumption to assume these individuals were not compensated nor treated fairly on the site. Therefore there was a delicate dance between acknowledging the adverse sweat equity in this project, and Vitality's goal to bring attraction to the Brazos.











THE LAND ON WHICH THIS PROJECT IS DEVELOPED AROUND IS THE UNCEDED/SEIZED TERRITORY OF THE SANA, TONKAWA, & JUMANOS PEOPLE.

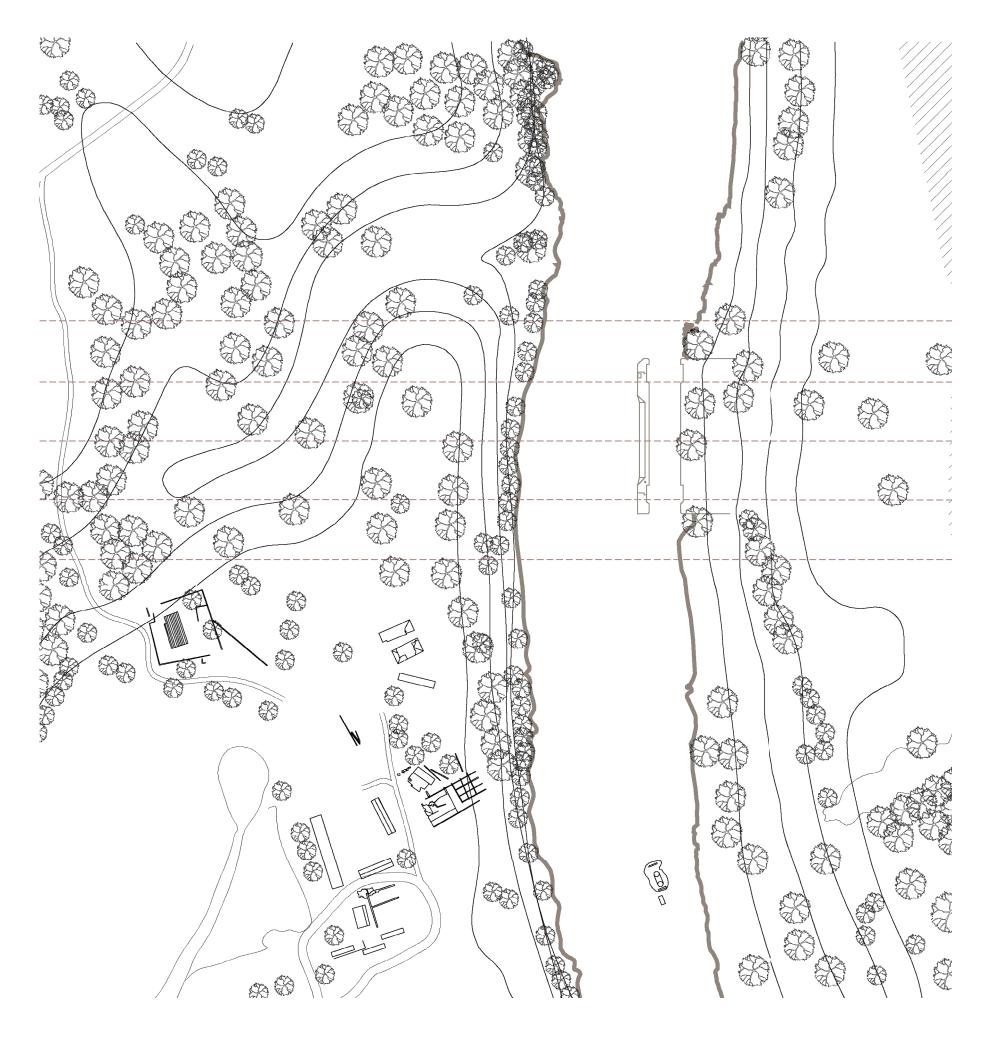
The Brazos River served as an important resource for Native Americans. However, the arrival of European settlers in the early 19th century led to the forced displacement of Native American tribes and the loss of their customs and traditions. **The Brazos River we know today is likely very different than the Brazos River that the regional Native American tribes, such as the Tonkawa and Jumano tribes,**

cherished.

THE TONKAWA PEOPLE were semi-nomadic hunter-gatherers who lived in central Texas, including the chosen site. While they were a smaller tribe in the area, they are known for their powerful resistance against European settlers. The Tonkawa were forcibly removed from their ancestral lands along the Brazos River, and were forced to flee to Oklahoma. Today, the Tonkawa Tribe of Oklahoma is a federally recognized tribe and is continuing to preserve their language,

history, and cultural heritage. THE JUMANO PEOPLE were known for their extensive trading network. The Brazos River became an important trade route for the Jumano, as it connected them to other tribes and trade centers in the region. Unlike the Tonkawa which maintain a strong identity to this day, much of the Jumanos culture and language were lost by the early 19th century. Their population was left unsustained due to the spread of disease and brutal conflict with the colonizers.

There exists an extensive history of Native American culture and heritage on the Brazos River, which played an important role in the lives of the tribes who lived along its banks and was an integral part in each aspect of life.



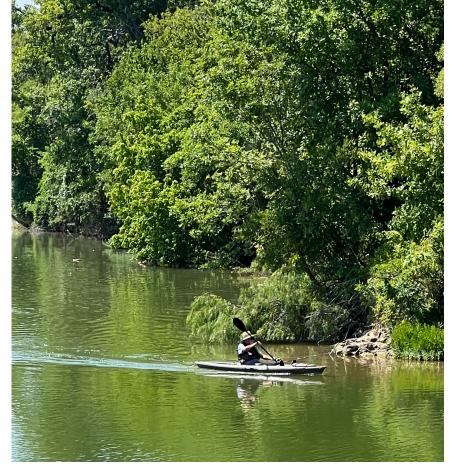








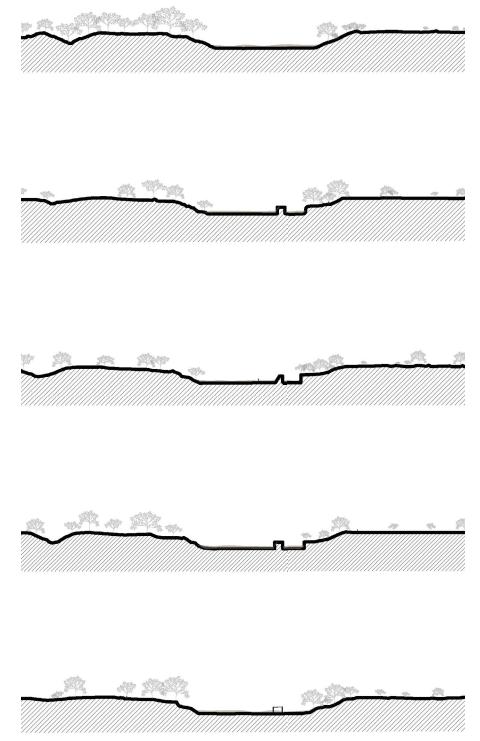




THE SITE

In the early stages of the design process, it was recommended that an in-depth analysis of the site be conducted through a LiDAR scan. While physically getting to the site and a scarred memory of a previous encounter with a Cotton Mouth snake at the site made this challenging, additional resources were explored. OpenTopography provides users with high quality topography data. The specific site data was collected via the U.S. Geological Survey 3D Elevation Program (3DEP), which collects data on the landscape from an Airborne LiDAR scan. This data was available in a point cloud and was then used to model the site (sections shown right) with accuracy.

The U.S.G.S. 3DEP data proved there was a significant elevation change on the site, the highest elevation being 285 feet above sea level and other points on the river bank less than 260 feet above sea level. This was the first challenge encountered - how to integrate the building with the site seamlessly so the building(s) could appear to look organic to the landscape. Additionally, the site has roughly 25 feet of level change that needs to be craftily designed so that all users can easily move about the site. This was vital to the success of the project.



ROOF FORMS

WATER

MUSEUM 260 FT ABOVE SEA LEVEL



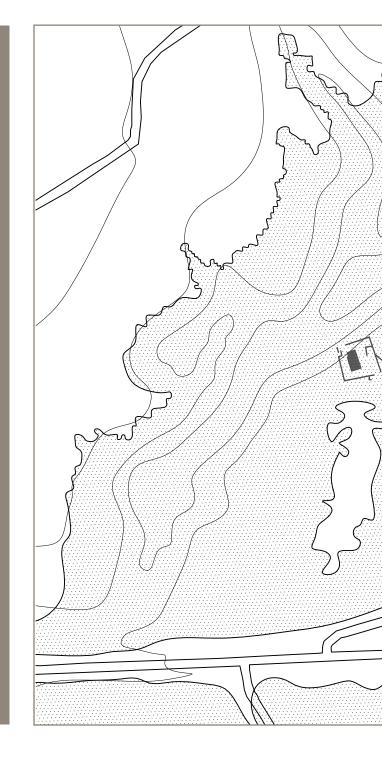
SHORE

RESTAURANT 272 $\frac{1}{2}$ FT ABOVE SEA LEVEL



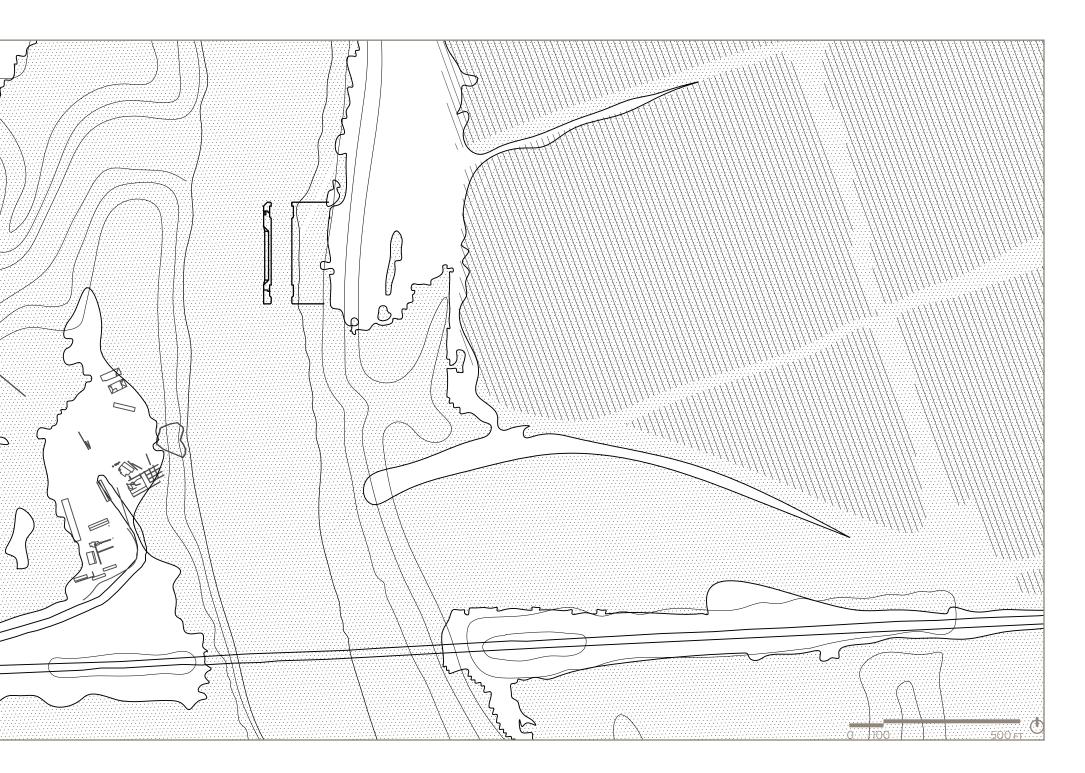


LODGING 285 FT ABOVE SEA LEVEL



FLOODING ON THE SITE

HATCHED REGION TO REACH 285 FEET ABOVE SEA LEVEL IN THE EVENT OF A 500 YEAR FLOOD







INTERVENTION

In approaching this project, with the idea of centering the design on the Brazos, I sought out places of importance. I marked these places on Google Maps, utilizing the various symbols it provides. A photograph from a podcast website, The Case of the Disappearing River by Jason Ridgeway, called out to me. The photograph depicted a thirty-foot concrete structure, left untouched and sitting in the Brazos river. After researching the history of these locks, I was enthralled and knew this is the place for the Brazos River Museum. There would be no other place that can physically tie history with the concreteness that lay beneath, besides the other three partial locks. Lock #3 has a particular draw, as it is located in close proximity to a town and still sits on the river's edge.

Additionally, one will realize throughout the book that **the role of the architectural designer is expanded**. There is a heightened awareness of the interconnectedness between the designer and the project impact on the environment, ancestral visitors of the site, the users, and the users to come. There is more to architecture than the physical, and the project's success stems directly from the countless hours of research and seemingly endless philosophical thoughts.



FOR WHO?



THE DAY-TRIPPER

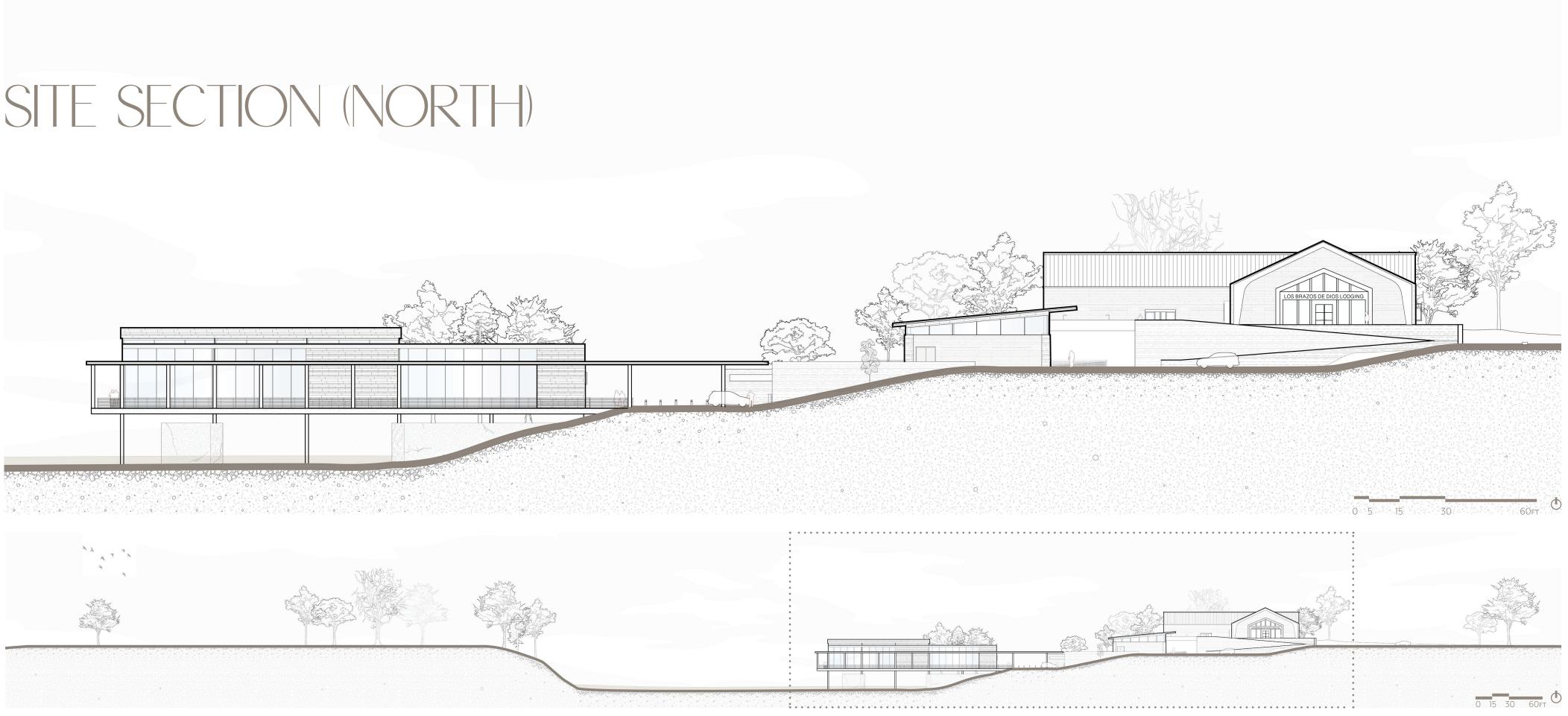


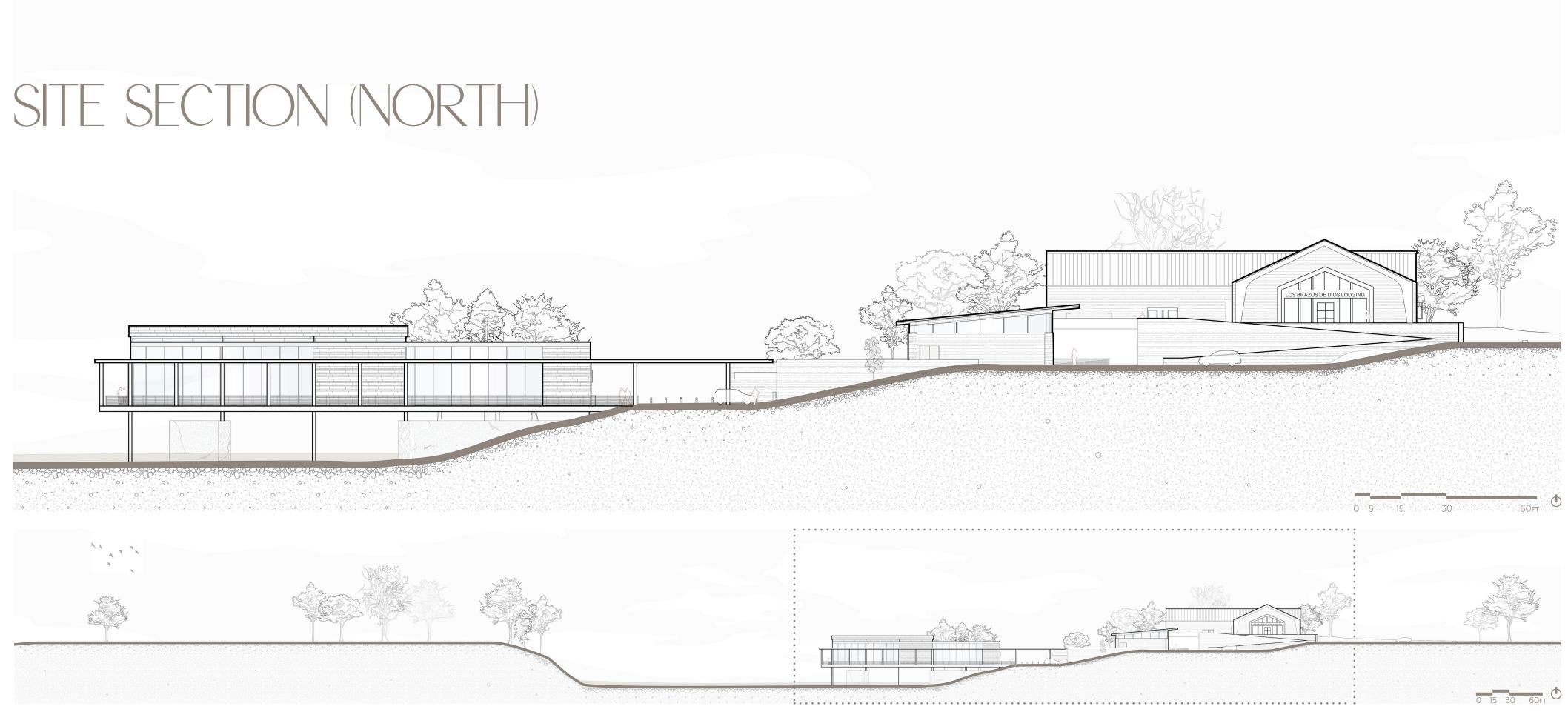
THE VACATIONER

place to learn MUSEUM

place to eat RESTAURANT

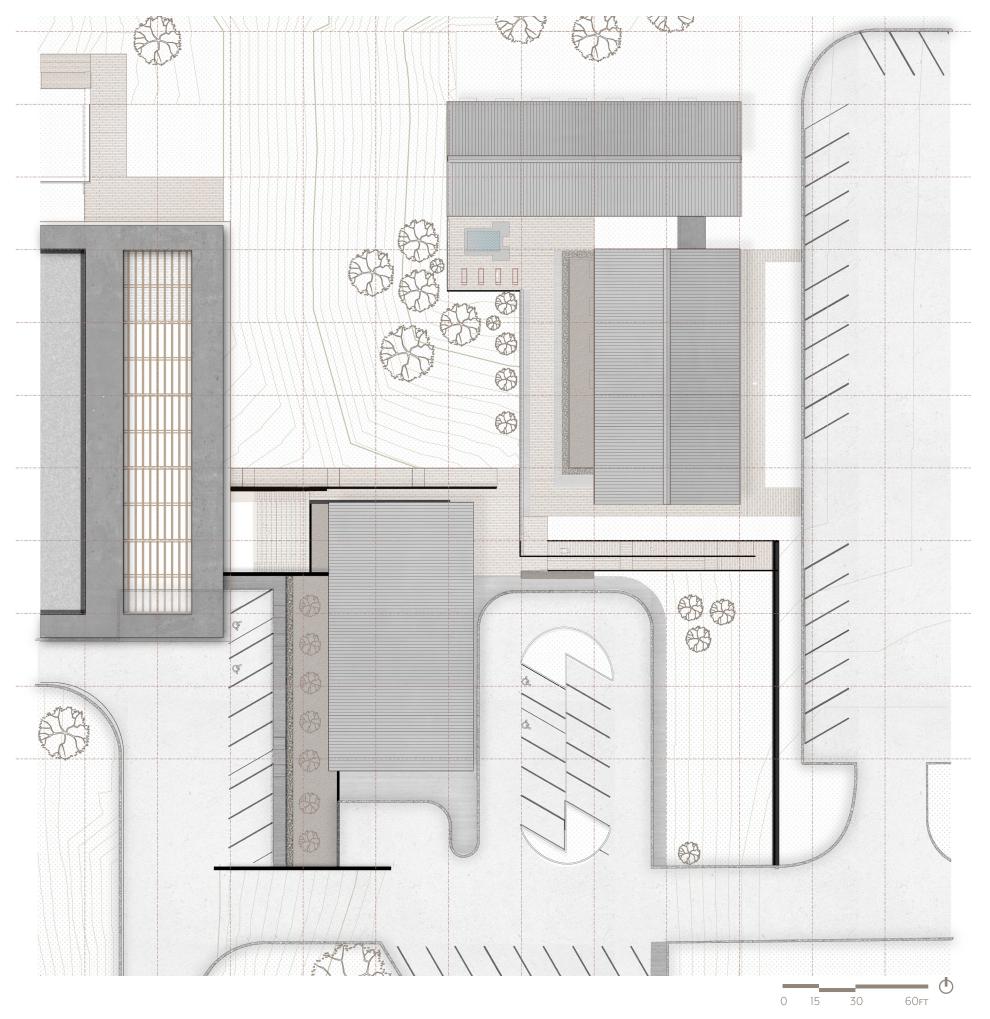
place to stay LODGING







THE LOST RIVER GRILL



LEARNING STAIRS









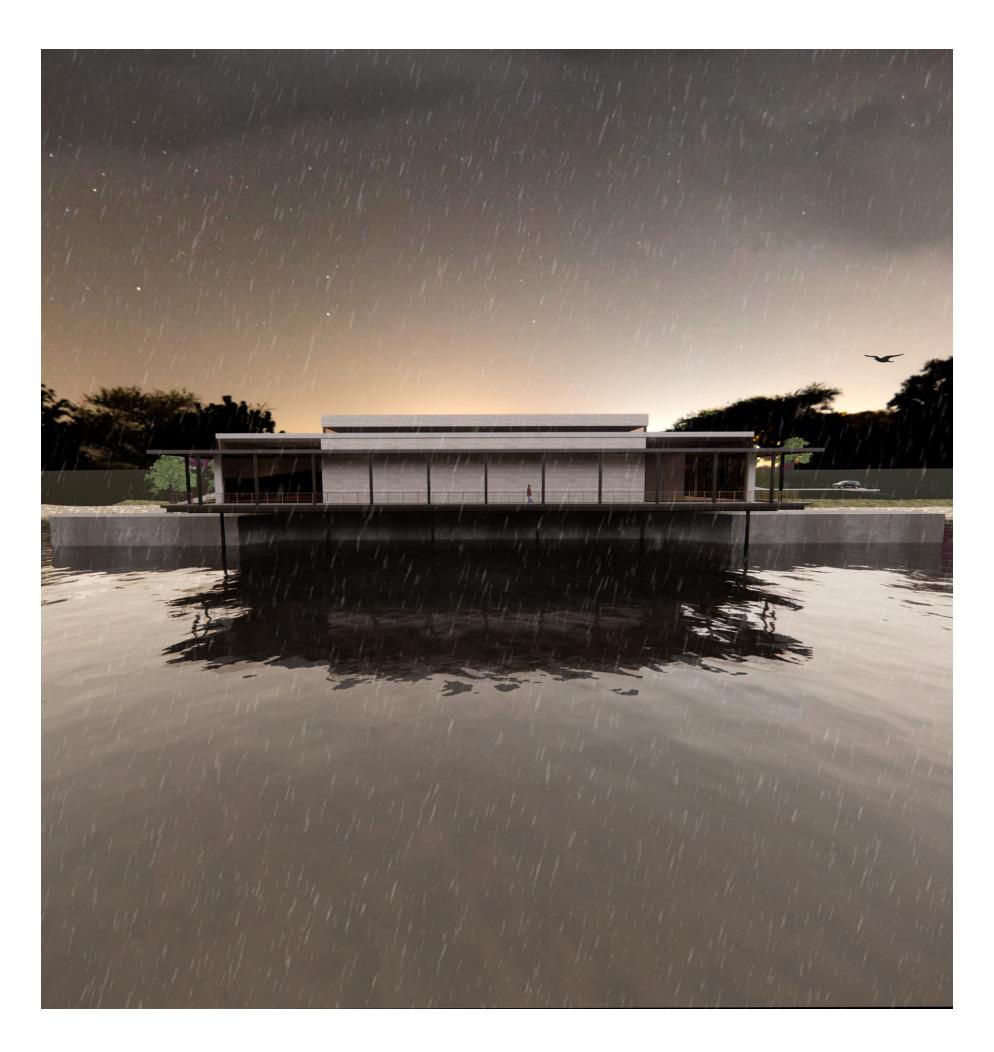
MUSEUM

This museum for the Brazos River is designed to showcase the rich history and cultural significance of the river. Exhibits will highlight the Native American tribes that once lived along the river keeping their history alive, as well as the role of the river as a key agent and vibrant force in Texas history. Visitors will also learn about the river's impact on the region's economy, and ecology.

Of course, the museum will acknowledge the site it stands on, and the incomplete lock and dam that will be integrated with the design. Visitors will leave with a greater understanding of the concrete in the muddy waters, and realize the failed dreams of navigation along the Brazos.The museum will provide a comprehensive and immersive experience of the Brazos River's importance in Texas history, and users will leave with a greater appreciation of this important river.

The museum utilizes a steel structure, in order to recover and sheild inside artifacts from a flood, as it is located in the flood zone. It will utilize a packaged mechanical unit that will be located above the wrap around walkway on the western side of the building, effectively hiding it from users as they look down at the museum roof from the lodging (twenty five feet above).

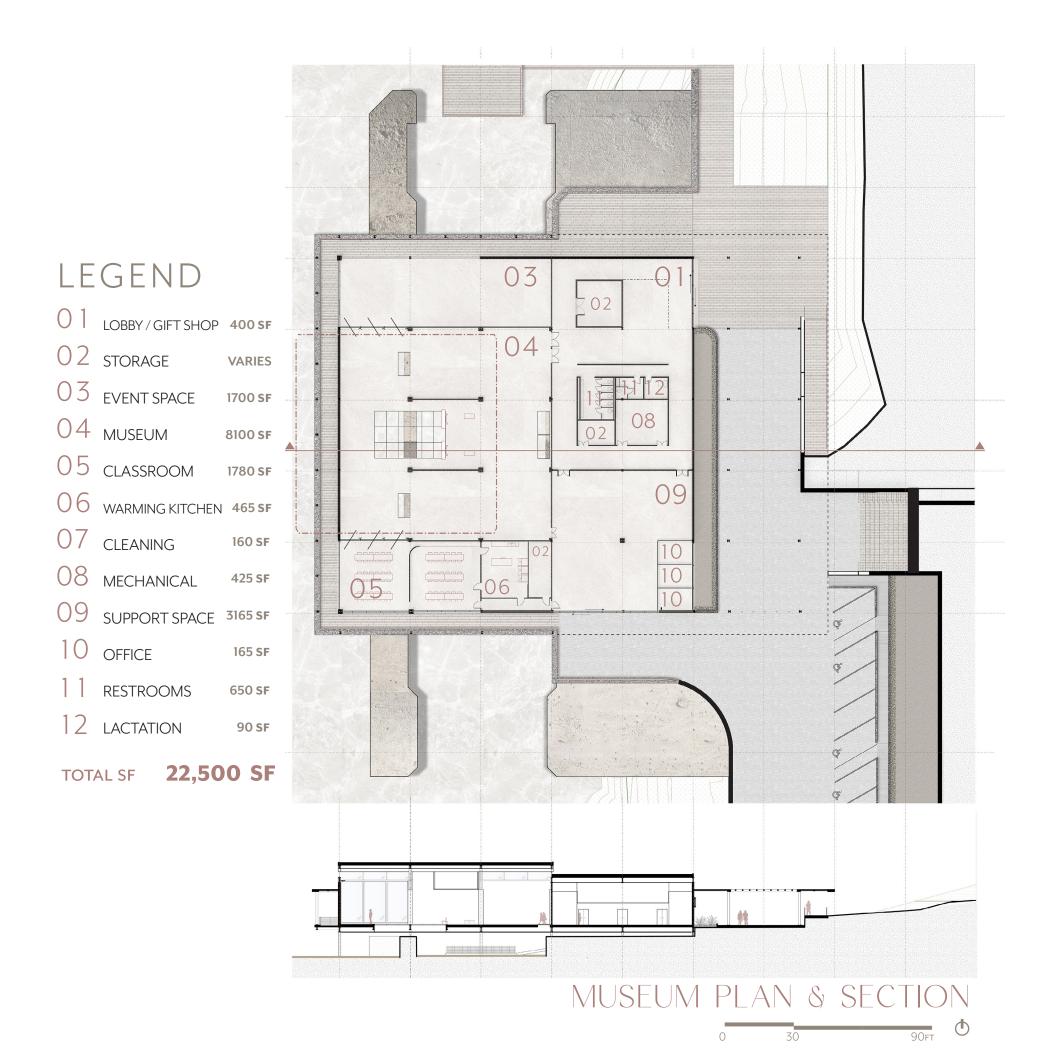




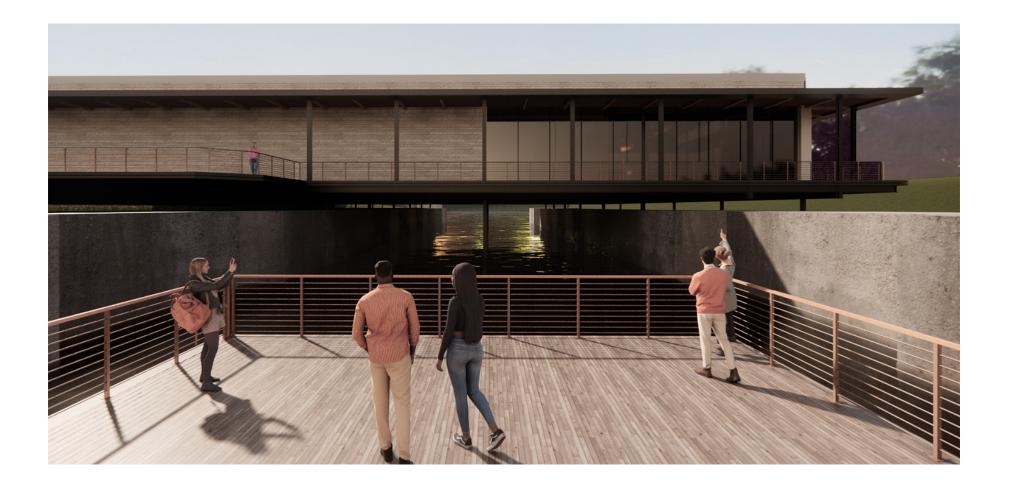
BRAZOS RIVER MUSEUM



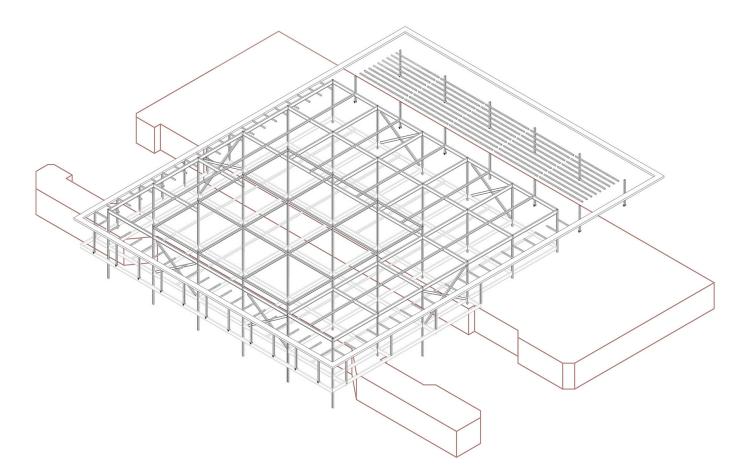
The museum required a particular design approach, as much of it needs to remain flexible and accommodote changing exhibitions. This is accomplished by a very flexible floor plan, with less than twenty five total fixed walls in over twenty-thousand square feet. The programming of the museum allows for events, such as a wedding and reception, to take place in the event space (03) and a place for a reception or other event in the flexible classroom space (05), which has connections to a warming kitchen (06). The bathrooms are intentionally left genderless, to reduce queueing after an event and to continue the theme of flexibility. The staff have a dedicated space in the museum, occupying just over fifteen percent of the total museum. The three offices have a visual connection to the activities taking place on the museum's plaza. Note the three glass floors in the nine-bay exhibition space to be explored in the page to come.



DOCK

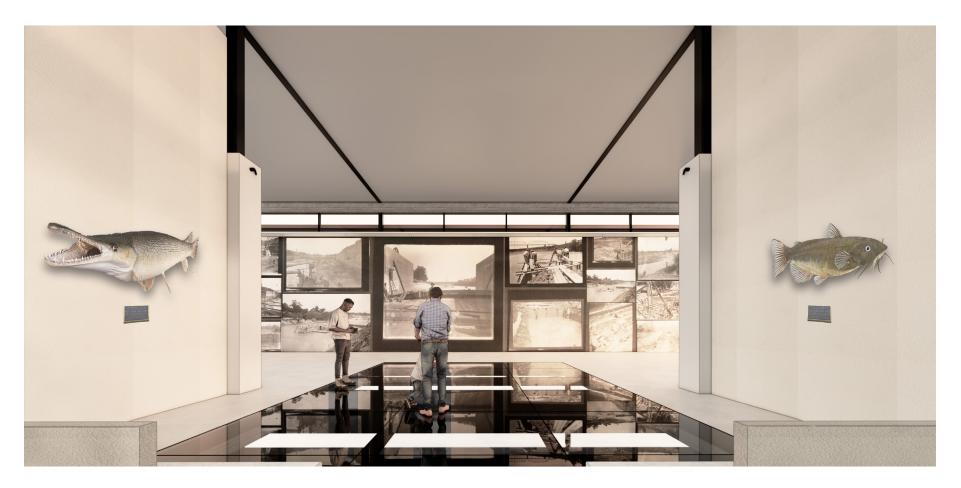


STRUCTURE



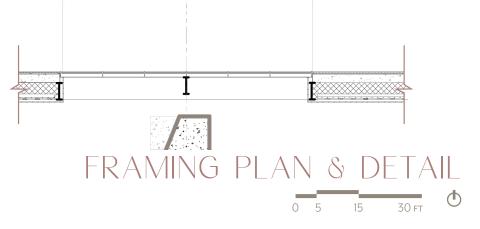
COLUMNS: STEEL W8x31 BEAMS: STEEL W18x35

GLASS FLOOR



The glass floor is located in the museum portion of the project, and drew inspiration from archaeological museums. While the views of the lock through the floor are mesmerizing, it is important to acknowledge the manpower put into the ultimately unsuccessful lock and dam projects. One looks down through the floor to the lock, but upon tilting their head back up, they are forced to come eye to eye with the 1917 photos of the workforce responsible for the construction. The idea is that users then contemplate, as I did, **the relationship between themselves, the lock they hover over, and the 300 men that worked to construct it.** The glass itself is composed of two glasses, one that provides the strength for foot traffic loads, and one that is in contact with the exterior. The two layers of glass, in combination, aid to prevent condensation from forming in the museum. It is supported by steel I beams. From top to bottom the layers of floor are as follows: finished flooring, ³/₄" plywood, 1" screed, 12" reinforced concrete slab, 16" mineral wool insulation, wind barrier battens, and ¹/₈" aluminum composite panel.

9'-6'	30	-0"	30 - 0"
	20 [°] 0 [°]		







THE GRILL

The Lost River grill is a casual American restaurant inspired by the very first shipment recieved at this site along the Brazos, with intentions of many more shipments to come. This shipment was recieved by Hubby and Sillaven in 1951. It contained: pork (over a hundred cases), beef (four cases), ham (one case), coffee, brown sugar, dried apples, trout, salt, pickles, molasses, whiskey, and bacon. The menu intends to utilize these ingredients to craft each meal, noting the place's ancestral roots.

The grill utilizes a glulam structure, again, designed for flood resilency. The grill is designed to be recoverable in the event of a flood, and may require cosmetic rennovation in the event of a flood. In terms of mechanical systems, the grill operates with a packaged unit sized appropriately for the four-thousand square foot interior space. Fans will cool the patrons on the patio as they dine in the summer months. Western windows on the interior are tinted, allowing views out while restricting heat gain in the dining space. The roof slopes up to the east side of the structure, allowing a smaller surface area for the western wall.



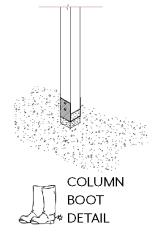
THE LOST RIVER GRILL

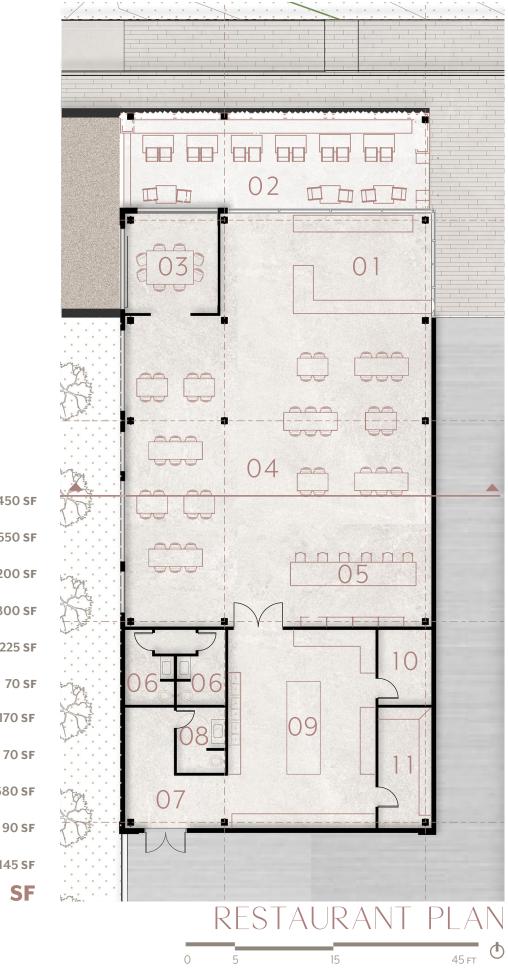


Entering the grill's interior, you will be not only greeted by the wait staff, but also the painting by Jim Clements (2011), entitled "Break at the Brazos" which embodies the Texan cowboy spirit.

The restaurant will be an open dining experience with the option to rent the party room that seats eight people comfortably. Users can enjoy the shade from the outdoor patio and watch people walk down towards the river museum or up towards the lodging and extended parking. The grill will be open for all three meal times of the day and has a full-service bar that will serve the famous **"Brazen Brazos"** cocktail.







LEGEND

0 1 LOBBY/ENTRY 450 SF 02 PATIO 650 SF 03 PARTY ROOM 200 SF 04 DINING SPACE 1800 SF 05 bar 225 SF 06 restrooms 07 STAFF ENTRY 170 SF 80 STAFF RR 70 SF 09 KITCHEN 680 SF 10 COOLER 90 SF DRY STORAGE 145 SF 4,620 SF TOTAL SF

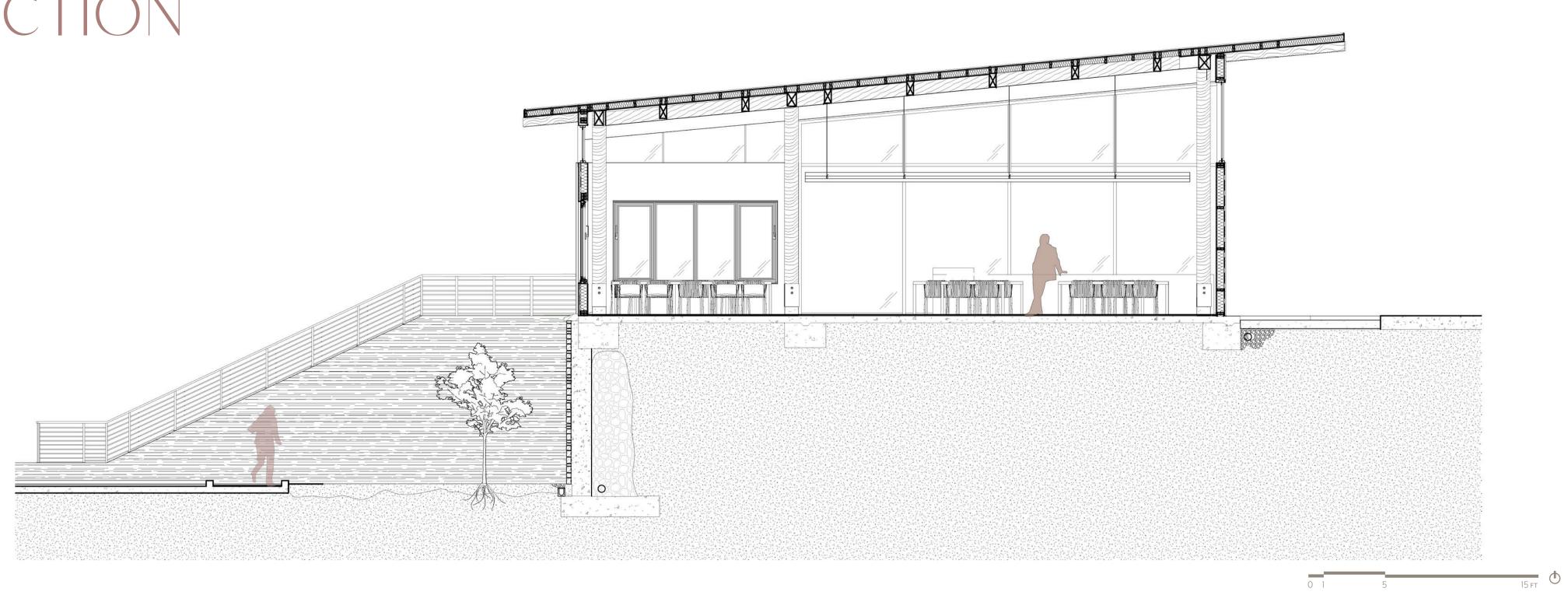
PATIO



BAR



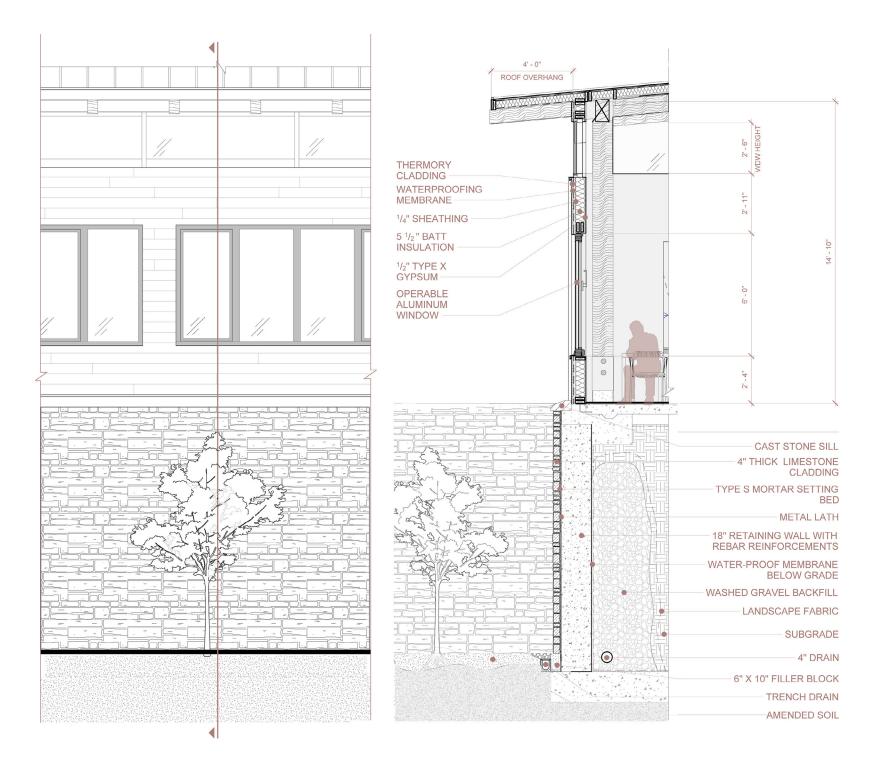
RESTAURANT NORTH SECTION



EXTERIOR



WALL SECTION







LODGING

The lodging is designed for the vacationer, who might like to stay overnight and get a look at the exhibitions for a second time the next day. It may also be for the exhibitionist, or possibly an artist in residence. The flexibility of the museum is carried through to the lodging as well. The structure of the lodging is designed so that if there is a better use for the building, it can be modified without structural considerations.

The exterior of the lodging was designed intentionally subdued and simplistic. The landscape is not calling for a gaudy display of architecture, in fact, the landscape might not be calling for a ten thousand square foot building at all. The thought behind the design is to blend seamlessly into the browns of the bark surrounding the lodging, using natural tones throughout. Metal fabrications extend out from the window, providing shade to the user.

The structure of the lodging is a glulam tudor truss, spanning fortyfive feet in one structure, and sixty feet in the other. Again, this allows for future flexible use. The buildings utlize a packaged VRF system, allowing each suite to be individually controlled to the patron's personal preference. The mechanical equipment is to be stored in the attics of both building, with access granted through each's mechanical room.



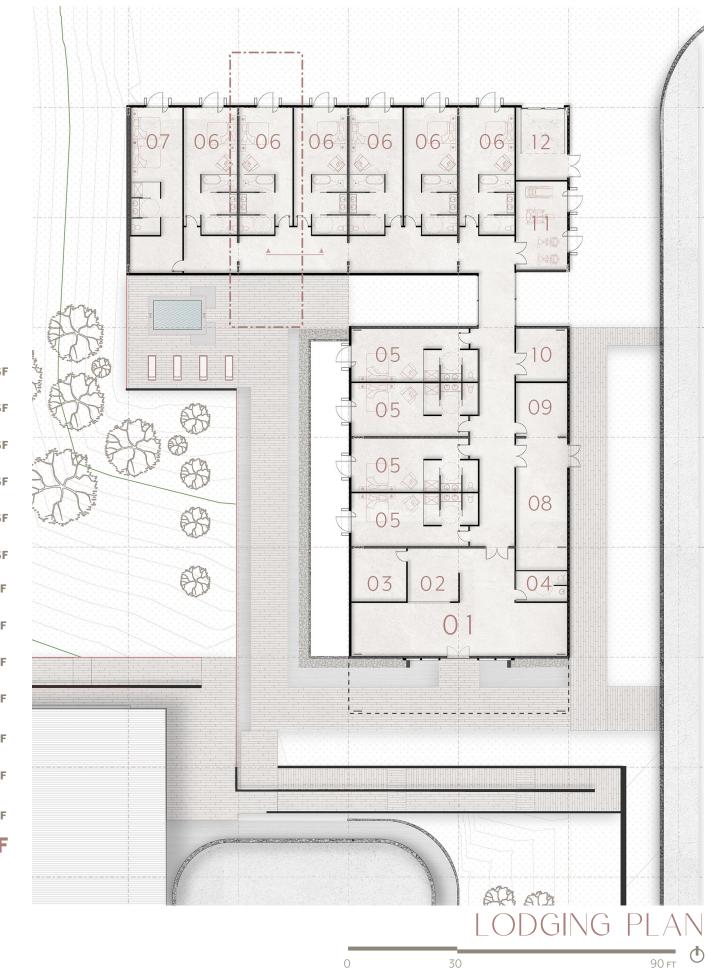
LOS BRAZOS DE DIOS



Los Brazos De Dios is the full name of the Brazos, meaning "the Arms of God." The concept behind lodging is quite literally for the user to immerse themselves into the surrounding context. The guest suites are spacious, with grand oversized windows. The thought behind this is that users will reflect on their surroundings. They are positioned so the view from each suite is of this naturally intriguing context, rather than out to a parking lot. The idea is that one can open their window and reflect on their relationship with the natural world. Similarly, each program (the museum, the restaurant, the lodging) are placed with distance between forcing users to explore the site and see what it has to offer them. One must remain critical over leisure and tourism, as it feeds consumerism and often carries negative impact to the surrounding context and local community. This is why the design intentionally encourages time spent on the site, such as allowing a small pool for wading and cooling off, but not for laps or dives.

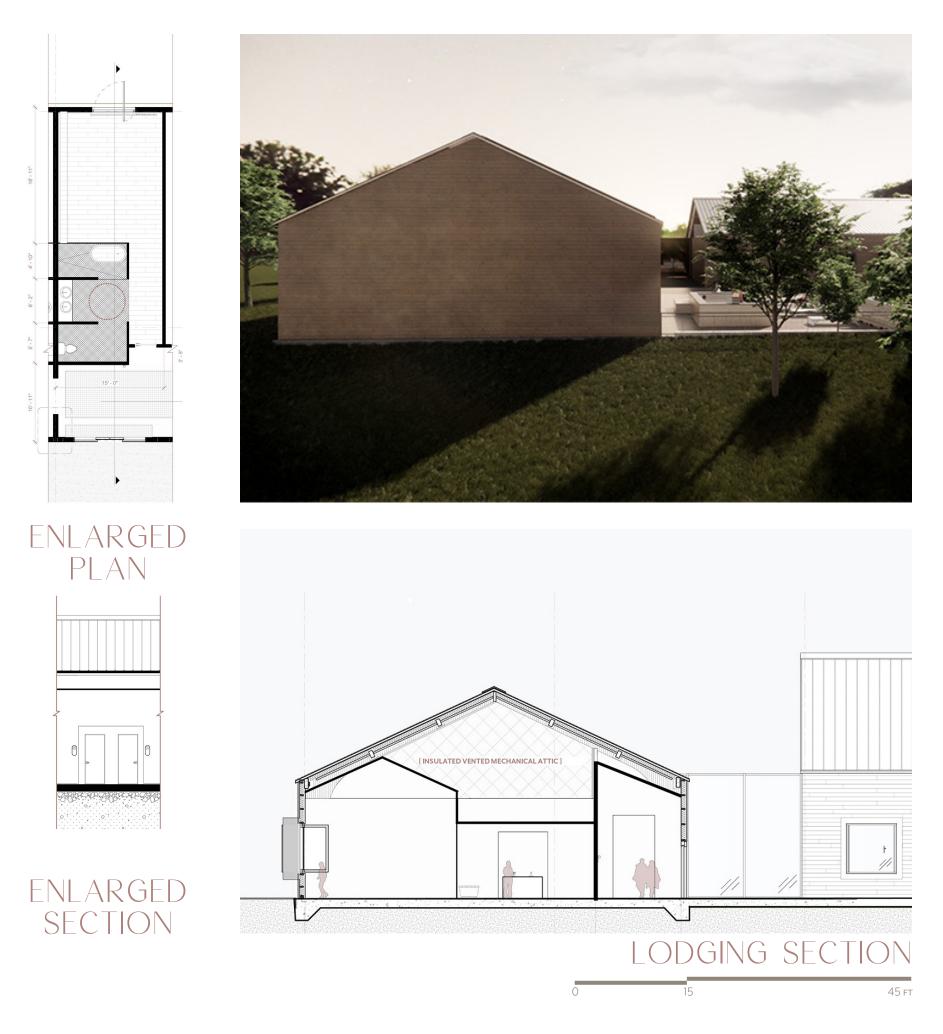
LEGEND

01 LOBBY 1275 SF 02 FRONT DESK 225 SF 03 REFRESHMENTS 225 SF 04 PUBLIC RR 115 SF 05 JUNIOR SUITES 350 SF 06 EXEC. SUITES 480 SF 07 DOUBLE SUITE 675 SF 80 STAFF SUPPORT 500 SF 09 LAUNDRY 200 SF 10 MAINTENANCE 200 SF W/ACCESS TO ATTIC 11 FITNESS 335 SF 12 MAINTENANCE OUTDOOR STORAGE 275 SF 13 POOL 850 SF TOTAL SF 10,800 SF

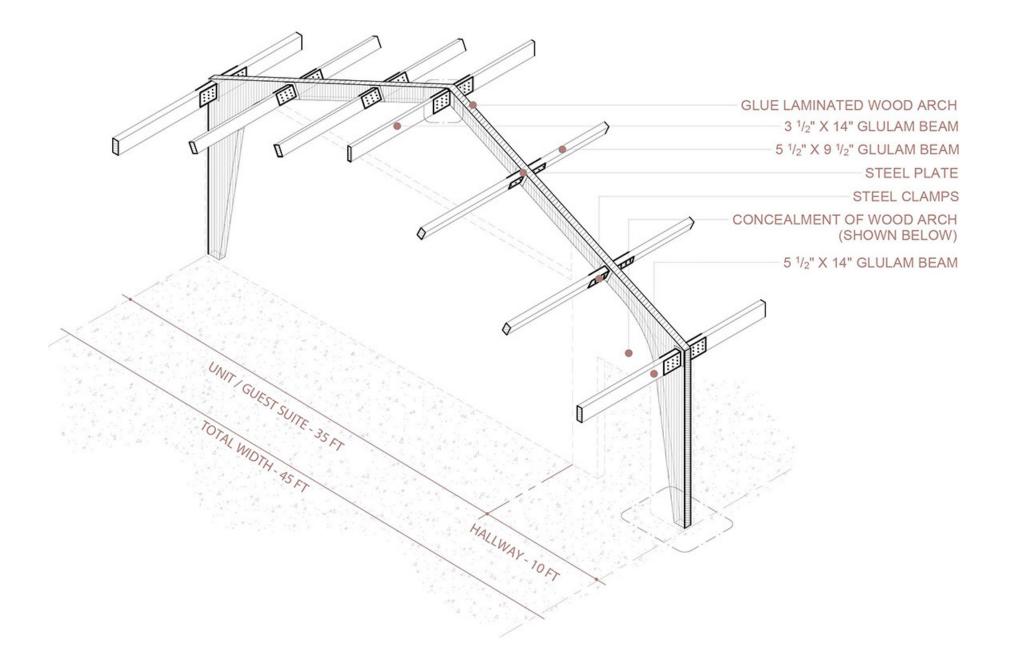


POOL

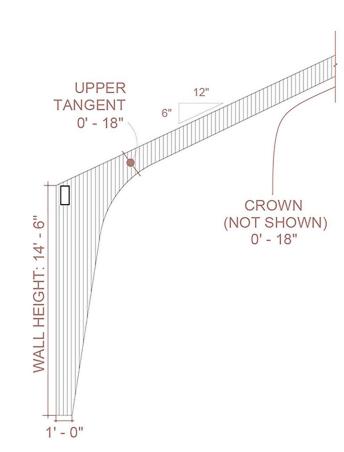




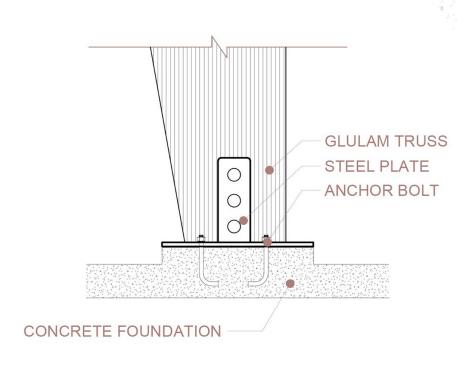
LODGING DETAILS

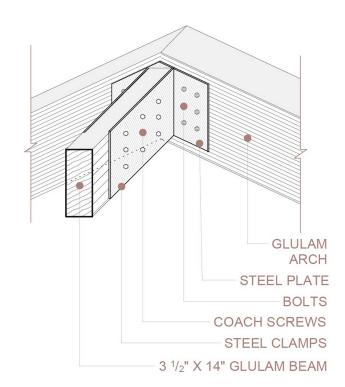


TRUSS DIMENSIONS

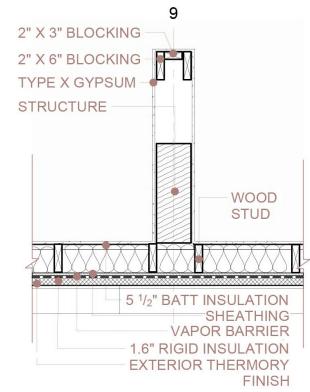


TRUSS CONNECTION

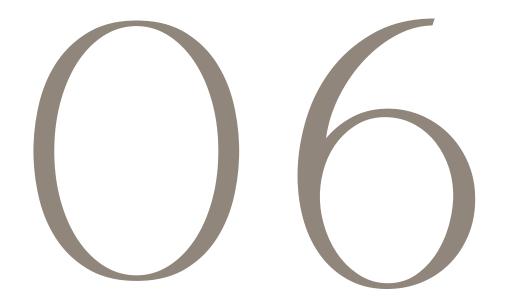




TRUSS CONNECTION



TRUSS PLAN DETAIL



EPILOGUE

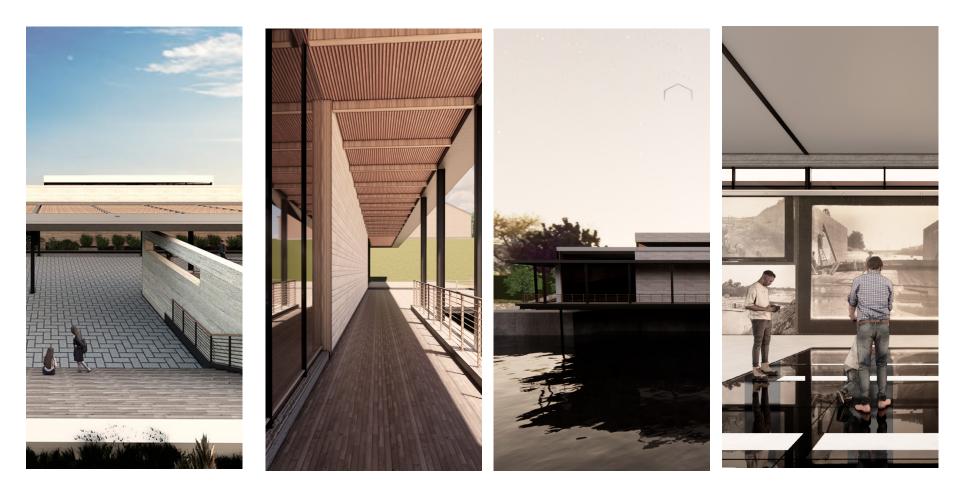
This is a conclusion to the 2023 Master's of Architecture submission: VITALITY.

Throughout this project, I stood firm in my belief that architecture is more than the walls, the concrete, and the bolts that hold it all together. It is the philosophy, the belief, the history, the grid, a formal belief, etc. culminating into one which ultimately determines the architecture. Most of all importance - trust and optimism in the design. One must be willing to stand behind each design decision with pride, trusting that it was the correct decision at this moment, for this location, in this circumstance. One must also remain optimistic, such as I did when my initial path was to choose a beautiful river in a distant country, but was recommended a muddy river located less than five miles from my house. So much unexpected is revealed during design, it is important to approach all uncertainties with an open mind.

With that said, I am extremely grateful I chose the Brazos river, rather than the distant clear rivers. My hesitance only made it clear exactly why this river needed this project. So many Texans do not realize the value of this river, and this project would aid in being the river's voice and allow Texans, Americans, and all to connect with the murky, cloudy flowing water and to connect with it as I did throughout this year. If you've made it this far, thank you.







Design of Exterior Space

Museum Walkway and Material

Museum Exterior, seen from river

Museum Exhibit - Glass Floor

CASE STUDIES



Fluvial and Tourist Quay of Folgosa Saraiva + Associados, 2012



The Riparian House Architecture BRIO, 2015



Neue Nationalgalerie Mies Van Der Rohe, 1968 David Chipperfield, 2021



Petar Zorani Square and Šime Budini Plaza Kostren i-Krebel, 2013

Note: All photographs above are property of the respective firms listed beneath them.

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AND ONCE AGAIN, TO:

- MY COMMITTEE MEMBERS
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MY MOM

MY FRIENDS

MY FAMILY

thank you

((IN TIME, HOW ORDER DOES SEEM TO LOWER ON THE WORLD, AND CLARIFY LIKE A RIVER.