

# Caring for a Drowned World

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**This paper examines the methodology and design outcomes of a graduate studio taught at Rice Architecture in Spring 2021 titled “Institute for New Ecologies.” Sited in the former suburb of Brownwood and adjacent to the Baytown ExxonMobil Refinery, the studio explored the relationship between extraction, toxicity, and land, imagining how architecture can participate in new agendas for environmental care.**

## THE DROWNED WORLD

J.G. Ballard’s 1962 Sci-Fi novel *The Drowned World* describes a near future in which global warming has created a planetary tropical climate, flooding much of the earth’s surface. It takes place in the hallucinatory landscape of an abandoned London, transformed in Ballard’s vision into a completely inundated lagoon. It follows a team of scientists studying and bearing witness the final vestiges of the city before the last inhabitants flee North to escape the heat. In the book, London is taken over by a band of pirates who drain the lagoon to loot the submerged treasures. The scientists, led by Dr. Kierans, are disgusted by the obscene scene and try to reflood the city:

“Colonel, you’ve got to flood it again, laws or no laws. Have you been down in those streets; they’re obscene and hideous! It’s a nightmare world that’s dead and finished, Strangeman’s resurrecting a corpse!”

—J.G. Ballard, *The Drowned World*<sup>1</sup>

While Ballard shows these hideous climate apocalypses, my studio was interested in imagining alternative planetary trajectories. Can our diluvial futures offer more redemptive strategies and possibilities? In short, how do we care for a drowned (and drowning) world?

## BAYTOWN, TEXAS

This paper examines the methodology and design outcomes of a graduate design studio taught in 2021 at Rice Architecture, titled “Institute for New Ecologies.” The studio was sited in Baytown, Texas, and sought to imagine a counter-project to Ballard’s apocalyptic vision for the lost Brownwood Suburb. Brownwood was

built in the late 1930s in Baytown, a small city on the northern shore of the Galveston Bay. The suburb was developed by the Humble Oil Company (which later became ExxonMobil), near the Goose Creek Oil Field. The exclusive suburb was marketed to white oil executives moving to Houston to work in the city’s booming petro-chemical economy, catalyzed by the recent expansion of the Houston Ship Channel.

However, over the course of several decades from the 1940s to 1960s, the land adjacent to the Ship Channel began to sink due to the unregulated extraction of groundwater from the local aquifer by refineries along the Ship Channel. This extraction produced widespread subsidence, causing the land to compact and settle by up to 10 feet in some locations.

The peninsula became increasingly susceptible to flooding during storm surges and high tides, causing more property damage with each storm. Although the city raised one of the neighborhood’s major roads by 5 feet to function as a protective levee, many residents ultimately decided to sell their property, causing a decline in property values. In 1983, the 10 foot storm surge of Hurricane Alice completely devastated the neighborhood and wiped out many of the remaining structures. Soon after, the city prevented residents from rebuilding their homes and stopped providing utility services. FEMA ultimately condemned the neighborhood and declared it unfit for habitation, making buyout offers to the remaining residents.<sup>2</sup>

After a decade of abandonment, the city of Baytown began to implement the Brownwood Marsh Restoration Project in 1994, removing the remaining roads and structures in order to restore the tidal wetland ecosystem. The project was initiated when the EPA required ninety petrochemical companies that had been disposing of industrial waste in Crosby, TX, to form the French Limited Superfund Site and restore wetlands and create a teaching gazebo as part of their legal penalties.<sup>3</sup>

Now, the abandoned Brownwood neighborhood resembles a drowned world, an archipelago of submerged lots and curving streets slowly dissolving into the Houston Ship Channel. Hidden in the marshy landscape, visitors can still find suburban spolia in the undergrowth, including old pipes, fences, manholes,

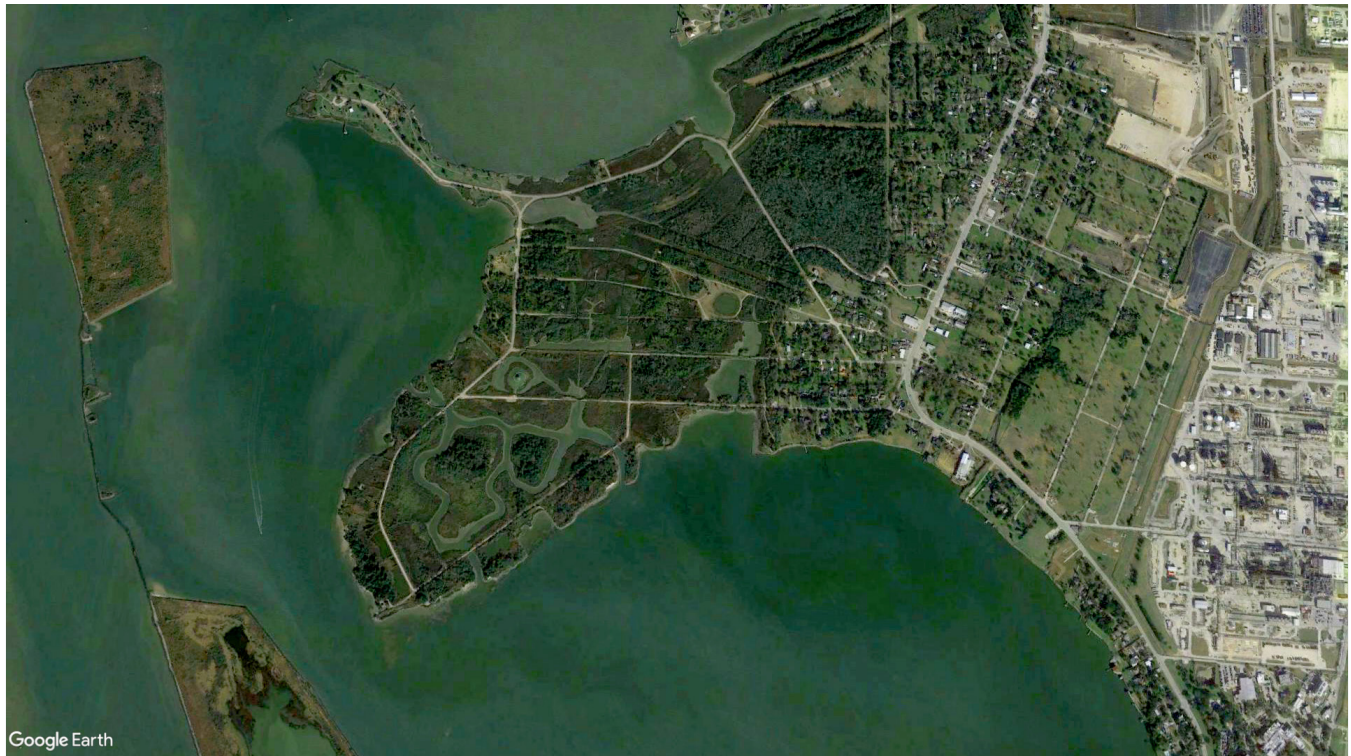


Figure 1. Aerial View of Baytown Nature Center (Former Brownwood Suburb Peninsula). Google Earth.

hydrants, swimming pools, and house foundations, some still glittering with the original pink tiles.

Today, the Baytown Nature Center park and wildlife sanctuary is a thriving refuge for hundreds of species of migratory birds along the Great Texas Coastal Birding Trail. The 500-acre peninsula is a mixture of tidal wetlands and forested woodlands, home to hundreds of species of waterfowl, fish, and crabs. However, these landscapes are also marked with warning signs indicating the location of dozens of buried pipelines bringing oil from the refinery across the Ship Channel. Looming beyond the lush flora of the rewilded marshlands, the thick atmosphere of ozone and bright gas flares from nearby oil refineries undermine the park's natural tableau, reminding visitors of the environmental and embodied risks for those who remain.

Adjacent to the ExxonMobil oil refinery, the Baytown community continues to contend with these toxic landscapes—including constant sonic booms and frequent shelter-in-place warnings. This relationship is further complicated by the importance of these petrochemical industries for the local economy and labor markets. Ironically, the corporations forced to pay for the restoration placed placards throughout the park, boasting about their sponsorship of the project in an attempt to rewrite the script of their legally-mandated punishment.

### ARCHITECTURES OF ENVIRONMENTAL CARE

Situated within these industrial, environmental, and archeological contexts of Brownwood, this studio explored the tensions between architecture and the material histories of a landscape. Proposing research, residential, and pedagogical facilities for the community, the students were challenged to design an Institute for New Ecologies for Baytown.

The studio began with a mapping exercise in order to describe the Baytown landscape. The students were challenged to make visible the stories and encounters that are so often excluded from official maps: from indigenous histories and more-than-human ecologies, to the entanglements of capital, extraction, and risk, thinking through the land's deep geologies, petro-histories, and colonial violences. Learning from Anthropologist Andrew S. Mathews, these maps revealed the layered histories and contested relationships that have unfolded on the site: "These ghostly forms are traces of past cultivation, but they also provide ways of imagining and perhaps bringing into being positive environmental futures."<sup>4</sup> For example, some student's maps traced the relationship between Houston's bayou networks and transportation infrastructures, from rail to Ship Channel. Others compared land use vs habitat types along the Ship Channel, and zoomed in to create an archaeological reconstruction of an abandoned Brownwood home. Students used these maps to show the layered histories and contested relationships that have unfolded on the site over its history.





Figure 2. Photograph of Baytown Nature Center with ExxonMobil Refinery in Background. Photo courtesy of author.

Based on this exercise, students used these maps to zero-in on a site of intervention, creating institutional charters to imagine new organizational structures, typological hybrids, and agendas for environmental care. These charters functioned as a design brief for each student, not only outlining their program and scope, but also claiming a critical position about the project's relationship to the territory. For the final design exercise, students proposed both architectural and landscape design strategies, including public-facing programs such as classrooms and galleries, research-focused programs such as laboratories, test landscapes, and field stations, and residences for care-workers.

For example, one project, titled "Institute for Remediated Ground," chose as a site of intervention the edge of the ExxonMobil refinery property. Responding to the unregulated environmental contamination of the surrounding neighborhood, the project imagines an architecture of reclamation rather than retreat. The Institute's program uses strategies of phytoremediation to remove contaminants that had accumulated in the land over the past decades. Nested in the patchwork of test landscapes and sunflower remediation fields, the institute itself is designed as a temporary structure, one that can be dismantled after the land is rehabilitated. Thinking with María de la Bellacasa's work on soil care, the project imagined themselves as "members of the soil community rather than as mere consumers," creating new rituals of reciprocity and maintenance in the landscape.<sup>5</sup>

A second response was the project "Archipelagos for the Aquatic Commons." The students responded to future federal plans to erect flood barriers in the Galveston Bay, seeking to protect not only Houston's flood-vulnerable communities but also shield the extensive petrochemical refineries in the Ship Channel from dangerous storm surges. Rather than constructing what are often environmentally damaging water barriers, their project reimagine flood infrastructure as a soft network of aqueous pedagogical spaces and field stations. Connecting the small chain of barrier islands in Burnet Bay on the northern coast of the Brownwood peninsula, they proposed a new public laboratory and site to study and safeguard high-risk coastal communities in Baytown. Beyond protection, the project's environmental stations also care for the non-human ecologies in the bay: monitoring pollution levels, erosion and sedimentation rates from shipping traffic, and habitat health. As a series of structures that span both land and water, this network links flood infrastructure to broader agendas of environmental advocacy, citizen-science, and community-based pedagogy.

This third project, titled "Petcoke," proposed a facility to experiment with the toxic petrochemical by-product of petcoke. Located on an island created with dredged material from the Houston Ship Channel, the project takes the form of an enormous gantry straddling a canal and lock system. The gantry contains mobile laboratories in which scientists can explore how to safely store and process the material. Embedded in the thick walls of the canals and protected from the aerosolized pollutants



Figure 3. Map tracing the relationship between Houston's hydrological networks and transportation networks. Anna Cook & Jessica LaBarbera. 2021. "Institute for New Ecologies" Design Studio, Rice Architecture. Instructor: Brittany Utting.

are residential units. The strange materiality of captured dust in the domestic spaces, the bright safety colors of the filtration systems, and the monumentality of the facility explore the aesthetics of the Anthropocene, critiquing and exposing the latent toxicities of these sites.

Suggesting neither absolute nor abandonment, studio projects directly contended with the increasing occurrence of environmental hybridity, exploring new modes of remediation and care for disturbed ecologies. As H el ene Frichot writes in *Dirty Theory*: "We must move past our disgust, to work with the dirt: This is an imperative for coping with our dusty, dirty, defiled world."<sup>6</sup> Rather than rejecting the by-products and contaminants of these industrial environments, each project proposed alternative ways for architecture to re-inhabit our defiled and diluvial worlds, countering the slow violence of Houston's petrochemical landscapes. Somewhere between the lush wetland ecology of Baytown's submerged suburbia and the "obscene and hideous" streets of Ballard's London, the studio imagined new institutional and architectural hybrids for our drowning world.

#### ENDNOTES

1. J.G. Ballard, *The Drowned World* (New York: Berkley Books, 1962).
2. For an extensive history of the Brownwood subdivision, see Larry Albert, "Houston Wet," (1997) Master's Thesis, Rice University. <https://hdl.handle.net/1911/71304>.
3. Laura Bernal, "Brownwood: From Neighborhood to Nature Center." *Houston History Magazine* Vol 16 No 2. Spring 2019.
4. Andrew S. Mathews, "Ghostly Forms and Forest Histories," *Arts of Living on a Damaged Planet: Ghosts of the Anthropocene*, eds. Anna Lowenhaupt Tsing, Heather Anne Swanson, Elaine Gan, and Nils Bubandt (Minneapolis: University of Minnesota Press, 2017) G145.
5. Mar a Puig de la Bellacasa, "Making Time for Soil: Technoscientific Futurity and the Pace of Care," *Social Studies of Science* Vol 45, 5 (2015): 703.
6. H el ene Frichot, *Dirty Theory: Troubling Architecture* (AADR Art Architecture Design Research, 2019) 5.





Figure 4. Institute for Remediated Ground. Jane Van Velden & Adam Berman. 2021. "Institute for New Ecologies" Design Studio, Rice Architecture. Instructor: Brittany Utting.



Figure 5. Archipelagos for the Aquatic Commons. Anna Cook & Jessica LaBarbera. 2021. "Institute for New Ecologies" Design Studio, Rice Architecture. Instructor: Brittany Utting.



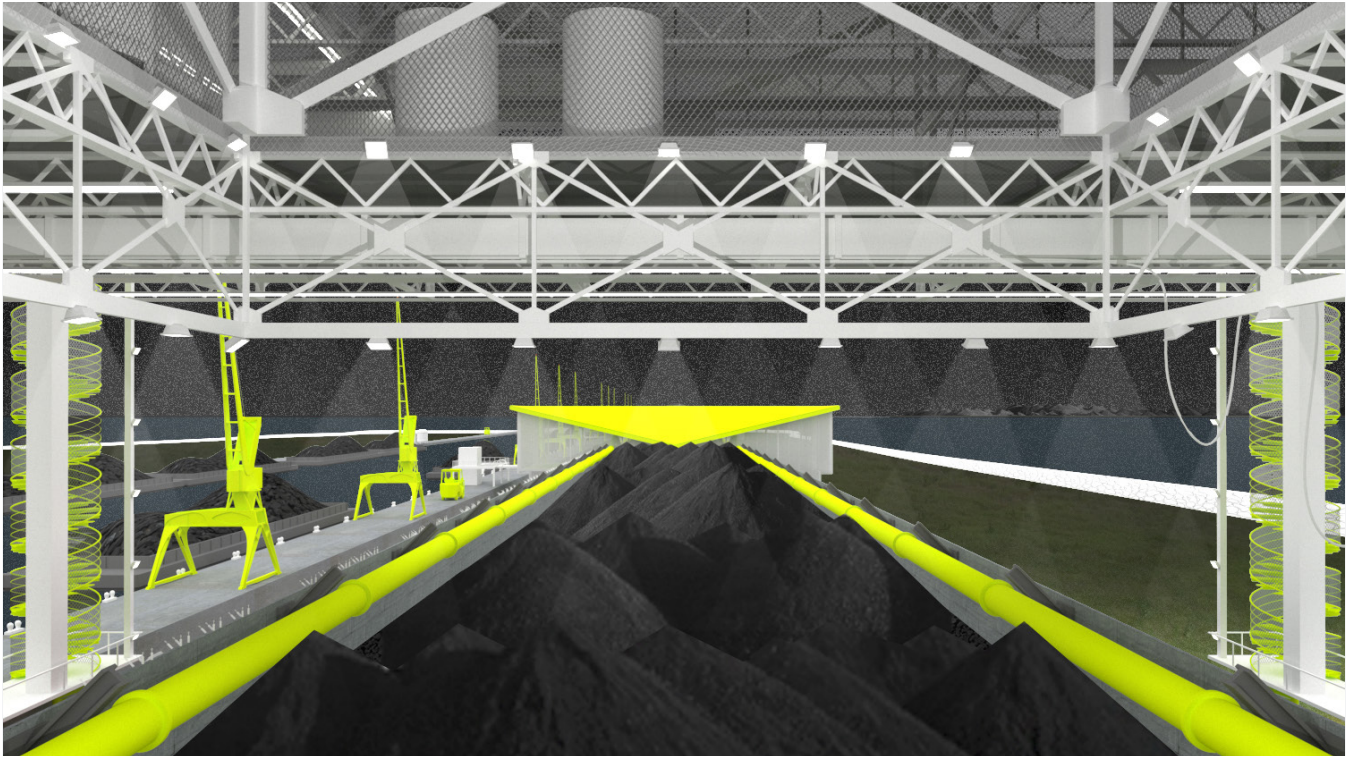


Figure 6. Petcoke. Michelle Schneider. 2021. "Institute for New Ecologies" Design Studio, Rice Architecture. Instructor: Brittany Utting.

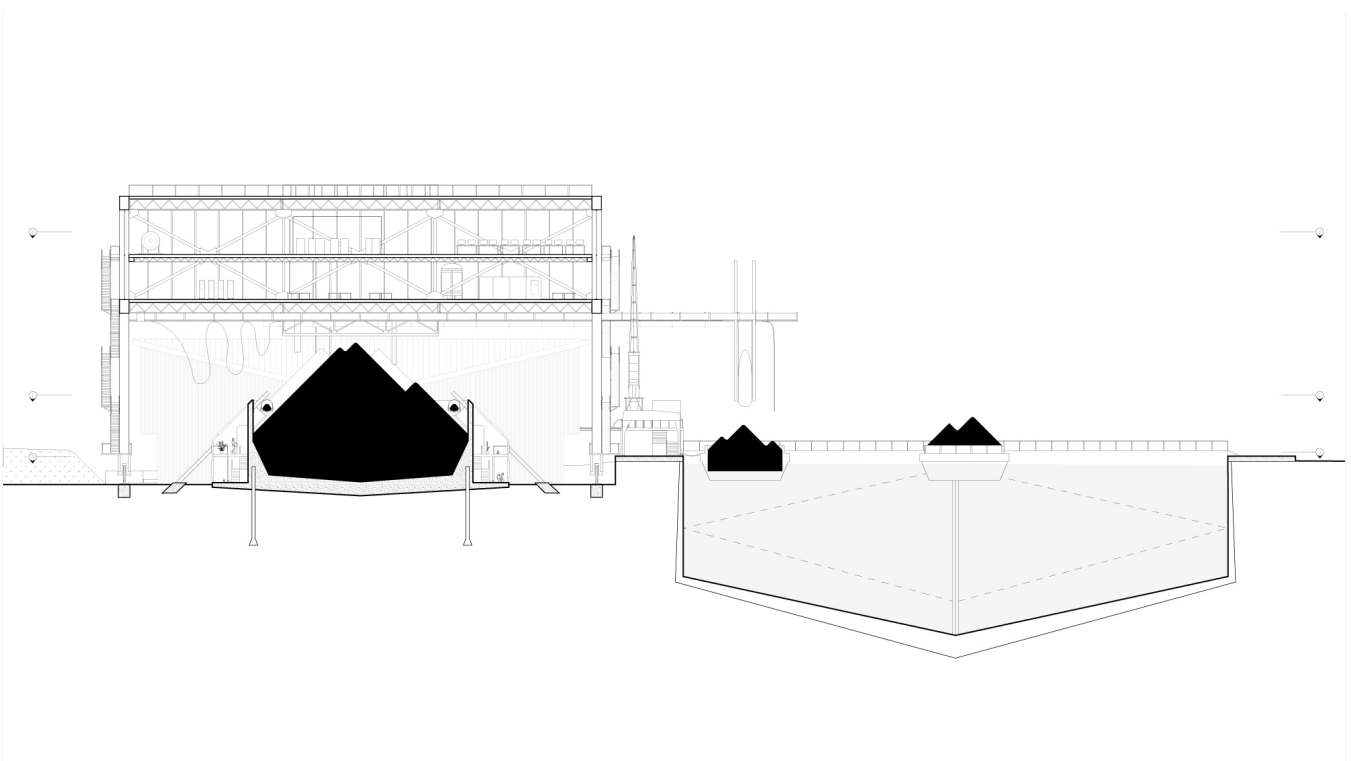


Figure 7. Petcoke. Michelle Schneider. 2021. "Institute for New Ecologies" Design Studio, Rice Architecture. Instructor: Brittany Utting.