DESIGN 3: two final iterations
A fusion of successful elements

A regular steel armature is the physical structure as well as the link between all the barge elements. The Armature creates a spatial promenade, serves as a teaching device, and physically supports the building systems make the barge work. It unites the open wetland of the barge with the more enclosed spaces, as well as the two extroverted spaces that occupy the raked ends. In the wetland amphitheatre, shadecloth is unfurled from the armature and pulled across the terraced steps to create a protective covering overhead. A four-foot deep interstitial space is created within the armature. This space contains cabinetry and houses the environmental system components attached to the armature structure. The systems include water and power collection, as well as water purification in the form of native plant filtration and release back into the river. Wind turbines and solar arrays are integrated into the armature for power production. The fore and aft decks, as well as the processional space through the armature, are built up two feet from the original deck of the barge, with a particular focus on the treatment of the deck and barge surface.
Systems: Water flow and activity
The wetland plan is intended to recall the meander of a tidal creek, while allowing water to flow through the barge according to the tidal currents. An amphitheater allows the wetland plants to be used as a teaching tool, while providing a degree of access for students and visitors.
This iteration of the barge builds upon the idea of the barge as a lens. The housing of this lens is conceived as multivalent and adaptable, with varying degrees of enclosure made possible through layered wall systems, sectional manipulations, and direct physical connections to river and shore. Stitching together diverse elements, an armature contains the infrastructure necessary for making the barge as self-sufficient as possible.

Approaching the barge from land, site is filtered phenomenologically as well as physically. Working with the Money Point site as a staring point, we considered ways of extending an Arm that would allow tactile and visual experiences of the industrial and ecological systems. By inhabiting the margin where land and water converge, analogies are formed between newly regenerated wetland habitat, transformed river, and curricular intentions of the Learning Barge.

Occupying the barge involves shifting experiences as seasons change. Visitors arrive at a place where water and structure converge as the river flows into a constructed onboard wetland. Besides providing a transition from land conditions to barge, there is an opportunity for close interaction with plants and microhabitats without disturbing the endangered river shoreline. Native plants provide a backdrop or foreground for two stages: one directly connected to a gathering place called the Storytelling Stairs, and one occupying the transitional space of enclosure. As the wetland changes over the course of the year, so will the activities in this area, as children plant, harvest, and observe at an intimate scale.

Two open decks of differing sizes are connected by a long space under the Armature. Partially enclosable through shade fabric, this space faces the expanse of the river and addresses the opposite shore. Here students might sketch and write about their surroundings. This space also allows a close look at the solar photovoltaic and hot-water systems, and at the water collection and filtration system. Large windows connect this space to the classroom.

View of barge from approach.
Gathering on the small deck, one glimpses the Artifact Wall that stores objects students have found on their travels or made on their visit to the Barge. Accessible from two sides, this wall creates another condition of permeability.

Proceeding down the shore-side ramp, the visitor is once again visually joined with the wetland. Depending on the season, the classroom wall on this side will be open or closed. Because the roof structure is cantilevered from the Armature, columns are not necessary on this wall. Entering the space one is protected from wind and sun, but a sense of openness is preserved. Still intimately connected to the river through sight, sound and smell, children can gather around fold-down tables to process what they’ve learned through making and group discussion. Stored inside the walls are microscopes, paintbrushes and paper, buckets, maps and modeling clay.

As the students leave the barge, they will have a new sense of their role within the river ecosystem. Depending on their age and curricular needs, they may have concentrated on ecological awareness, the history of the shipping port, or the role of industrial processes in contemporary life. Visiting the Learning Barge, they will have experienced a unique educational event that will enhance their sense of the river as a crucial element of a set of interconnected systems, one for which we must provide stewardship for as well as ethically inhabit.
Framing the Approach

The barge is a semi-nomadic field station: it stops on the river according to certain criteria that oscillate between what is best for the curriculum and what is practically achievable in terms of students' embarking and debarking from the barge.

How do students and educators access the barge? This first piece of our site research looked at a "typology of landings." This drawing is a way of categorizing how the barge would engage the river and be accessed by visitors. Three principle types were classified: Barge as Extension, Barge as Island, and Barge as Adjacency. These are presented with their pros and cons on the facing page.

An important issue concerns the curricular opportunities in the barge approach sequence. Is the barge expected to do "all the work" of the curriculum, or do students often arrive having been immersed in the landscape of their curriculum? In other words, are the students learning as they approach, or do they learn only once they have arrived and stop learning once they leave? This informs in a related way the relationship of the barge as figure to its context or ground. Is it detached or engaged?

The barge was originally intended as a way of occupying the river without using the highly privatized shoreline. Limiting the barge to the river is a missed opportunity to engage more actively in the regeneration of the river and its shore. Stormwater from the urban fabric of the watershed is the primary contemporary pollutant, and people of the region have little experience of the waterfront. This regeneration is as much about bringing people back to the waterfront as it is about ecology. In this scenario, the barge becomes an agent of colonization. We researched the shoreline of the South Branch, looking for parcels that are likely to change ownership or are owned by "RiverStar" industries. The barge anchors off these shores and begins to claim them for public use. The claim operates along a gradient from conceptual to actual: the students may arrive to the barge by boat and then occupy the shoreline briefly, perhaps planting while they are there, or they may arrive at the barge by land.
Site: Money Point

We chose a site off Money Point as a case study. Our proposal is grounded in the work of Crisman + Petrus Architects’ Money Point Revitalization Plan, and in our own appraisal of the qualities of the site. The barge would be anchored at a site offshore of a vegetated area on the northern edge of Money Point. This position allows river views up to the Jordan Bridge and across to Blows Creek. The vegetated condition suggested that it is a property that is in transition of use.

The Revitalization Plan calls for a bioswale and possible stormwater bioretention pond in a proposed Citgo (a Riverstar industry) conservation area at the site we have identified. We use the bioswale as a path, connecting Freeman Avenue with the shore line. The school bus would park on Freeman Avenue in the remnant residential neighborhood. The phenomena of impervious surfaces and urban runoff would be discussed. Turning to follow the bioswale to the shoreline, the function of plants in relation to water quality, as well as the function of the Citgo storage tanks, would be clarified. Students arriving at the barge would have visceral exposure to factors that affect the health of the Elizabeth. The onboard wetland and sustainable energy systems of the barge are discussed in context of what students have seen on their approach.