THE PARADISE CREEK NATURE PARK: A COLLABORATIVE MODEL OF ACADEMIC COMMUNITY ENGAGEMENT

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Figure 1. Rainwater Filtration Pavilion

Forces for change currently impacting the academy and the profession necessitate innovative pedagogical models and new modes of practice. Critical thinking and transformative action are essential to confront the dominance of global neoliberalism, increasing economic and social inequalities, environmental degradation, and the relentless commodification of architecture and nearly everything else on the planet. Within the discipline of architecture, universities and professors have a crucial role to play in the education of future architects. This paper examines a model of civically engaged practice developed in a series of design research studios taught by Professor Phoebe Crisman between 2006-2012 at the University of Virginia School of Architecture.[1] Rather than the typical studio pedagogy played out through the design of a speculative project or the normative practice approach of awaiting a commission conceptualized by a client, these studios worked with community partners to identify opportunities, design a sustainable project that inspires environmental stewardship, and seek grant funding for realization. While learning in a rigorous academic setting, students were empowered to practice their creativity and knowledge, critical abilities and design skills to engage a real problem through community collaboration.

A SERIES OF ENGAGEMENTS

Each studio experimented with a different form of collaboration achieved in varying timeframes. Several lessons were learned in each investigation. For instance, the Potomac Environmental Research &

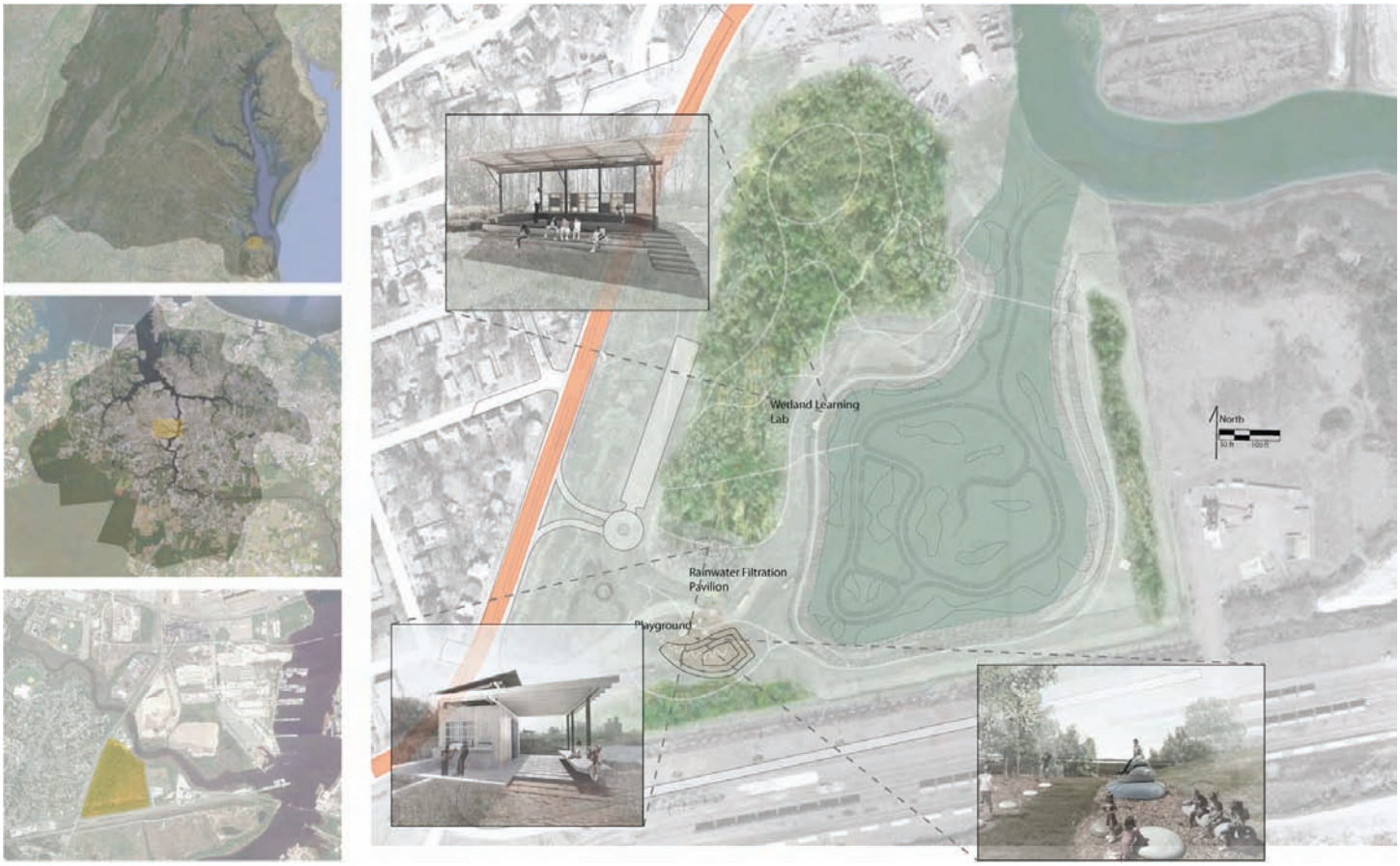

Figure 2. Site Plan & Diagrams: Chesapeake Bay watershed, Elizabeth River watershed, Paradise Creek location

Education Center, in partnership with George Mason University, and the Chesapeake Bay Foundation Eco-Education Center the were designed within a semester-long studio.[2] The Learning Barge—a floating environmental education center—was designed and built through a sequence of interdisciplinary studios and seminars involving complex partnerships with several academic departments, an environmental NGO, four urban school districts, the US Environmental Protection Agency and others.[3] Sometimes engagement occurred outside the studio, such as the public artwork Sixteen Silos, Sixteen Shades of Yellow, created with UVA Art and Architecture Professor Sanda Iliescu and our students. This large-scale textile installation at the LaFarge cement silos celebrated the start of a ten-year initiative to sustainably revitalize a contaminated area of the Elizabeth River and uplands in Chesapeake, Virginia.[4] In those earlier projects—and in the current Paradise Creek Nature Park project as well— working with community partners is a crucial aspect of a green, interdisciplinary approach. This type of civic engagement remedies the familiar academic disengagement from public needs and experience.

AGENCY

The concept of agency is a meaningful way of understanding this type of community engagement in the design studio. Anthony Giddens's theory of agency, put forward nearly 30 years ago, is a good place to begin. Giddens wrote in The Constitution of Society: Outline of the Theory of Structuration: "[Agency] means being able to intervene in the world, or to refrain from such intervention, with the effect of influencing a specific process or state of affairs. This presumes that to be an agent is to be able to deploy a range of causal powers, including that of influencing those deployed by others. Action depends on the capability of the individual to "make a difference" to a pre-existing state of affairs or course of events. An agent ceases to be such if he or she loses the capability to "make a difference", that is to exercise some sort of power."[5] In their essay, "Beyond Discourse: Notes on Spatial Agency," Tatjana Schneider and Jeremy Till built on the work of Giddens, Bruno Latour and the early Frankfurt School to articulate a theory of "alternative spatial agency" appropriate to architecture's limitations and possibilities.[6]

THE PARADISE CREEK NATURE PARK

This essay focuses on the process and results of the most recent studio in the series. Taught during spring 2012, the studio studied the complex relationship between human inhabitation, and sustainability education via the design of a forty-acre public wetland park with a diverse array of project partners. Located along the east coast of the

Figure 3. Wetland Learning Lab

United States in the Chesapeake Bay watershed, the Paradise Creek Nature Park will be amidst the four cities comprising the highly industrialized Elizabeth River watershed—Norfolk, Portsmouth, Chesapeake and Virginia Beach, VA. The park will contain the River's last stand of mature forest and will coexist with both toxic industrial sites and the racially diverse and economically challenged urban neighborhood of Cradock. An area of exquisite beauty and horrific environmental degradation, several citizen-led efforts are transforming this wasteland by creating wildlife meadows and rain gardens, storm water improvements back yard habitats and a constructed oyster reef. The US Navy has converted over 70 acres of toxic waste landfills into wildlife habitat and now there is a pressing need for public river access and conservation education. The Park will be the first public landscape in the region with the primary purpose of engaging 20,000 citizens a year in environmental stewardship of the Chesapeake Bay. The Paradise Creek Nature Park will be the first public park in the region to be designed exclusively with green infrastructures and thus will create a regional model for sustainable development.

Figure 4. UVA students with Mayor of Portsmouth

CIVIC PARTNERS

The Elizabeth River Project (ERP), lead partner and one of the largest community-based watershed groups on the Chesapeake Bay, purchased the site in 2008. Prof. Crisman and her UVA students have had a successful partnership with ERP on the Learning Barge project. The Virginia Port Authority funded the eleven-acre wetland restoration portion and the City of Portsmouth will ultimately own and operate the park. Portsmouth Public Schools has planned pre-k to grade 12 activities at the park and a group of "Park Ambassadors," at risk

youth who live near the park, are growing native plants, removing invasive species and educating the community about the park. The Cradock Neighborhood Association represents the adjacent residential community and Old Dominion University is researching species onsite. Several Virginia state agencies have participated, including the Departments of Environmental Quality, Forestry, Conservation and Recreation, and Game and Inland Fisheries. Two Federal agencies are also involved: NOAA and the EPA, which provided habitat recommendations and project funding. Paradise Creek Nature Park is one of only five urban sites selected by the federal government for participation in the "America's Great Outdoors" partnership. The park will restore living resources, conserve land, increase public access, and expand citizen stewards on the Chesapeake Bay.

UVA project involvement began during the initial idea stage in 2006. Professor Crisman's Studio collaborated with the Elizabeth River Project to create schematic design proposals for the park and associated environmental education center. A resulting design report that was used to successfully seek funding for the park and now—six years later—the project is moving forward. After ERP hired a professional firm to create a park master plan, they asked UVA to modify the park plan and design several park elements that engage urban kids in hands-on exploration and learning, including two classroom pavilions, a playground, tree house and kayak launch.

DESIGN RESEARCH GOALS

There were several design research goals: create a place that increases the sense of well-being, economic vitality and opportunity for outdoor exploration for all ages; design educational and picnic pavilions, a playground and other park structures that educate visitors about sustainability; make a place where citizens may rediscover the healing respite of a healthy, living river; and create strategies for industry and natural ecosystem to co-exist in harmony.

BUILDINGS AND LANDSCAPES THAT TEACH

The Park and its architecture physically manifests an inventive educational agenda that teaches about sustainable dwelling, as well as the inextricable links between water and land, the tidal river ecology and wetland restoration. The relationship between natural and constructed systems is revealed in a design that works with sun, wind, water, earth and biology. For instance, photovoltaic panels provide power and rainwater and wastewater is collected and filtered. The architecture demonstrates how to build wisely and dwell with reduced environmental impact. Durable, locally sourced and recycled industrial materials are used. Students investigated materials, technologies and constructional systems in service of the didactic agenda. The design research project establishes a model for powerful university and community collaboration, while fostering a commitment to environmental ethics and sustainable practices by connecting academic learning with the students' desire to make a positive difference in the world.

DESIGN PROCESS + THINKING IN SYSTEMS

Students worked individually and in teams to study complex social, economic, ecological and architectural issues across scales from the Chesapeake Bay to the Paradise Creek watersheds, from city to neighborhood, site to building and architectural detail. The studio started by researching and analyzing issues within three major categories: Ecosystems: Water, Wetland and Wildlife Habitat; Human Culture and Settlement; and Environmental Education. Students also examined innovative projects around the world, including nature parks, outdoor classrooms, environmental education centers and green playgrounds. Next they began a series of design explorations and created nearly fifty pavilion proposals in model form. They studied how the architecture might be used and perform. For instance, an outdoor classroom can simultaneously generate energy, collect water and filter water, engage the senses, form an assemblage of didactic surfaces and spaces, and be a habitat for migratory butterflies and birds. Throughout the process, UVA students worked closely with teachers from Portsmouth Public Schools and Starbase Victory—a handson science enrichment program focused on science, technology, engineering and math skills for fourth, fifth and sixth grade students. After several meetings and schematic design iterations, the studio refined the designs and developed construction documents for two educational park elements. Phase I will open in December 2012 with two miles of hiking trails, eleven acres of restored tidal wetlands, and a pervious entry road and parking. Planned for completion in 2014, phase II will include construction of the pavilions.

RAINWATER FILTRATION PAVILION

The Rainwater Filtration Pavilion provides a shady rest area at the park entry with two accessible composting toilets, rainwater filtration system, and a multi-faucet, cast concrete outdoor sink for hand washing and fieldtrip cleanup. A linear concrete bench extends into the landscape and provides a place to gather school children at the beginning or end of a fieldtrip. The pavilion design and supplemental signage will teach about rainwater collection and filtration, material reuse, benefits of composting, and the power of a native plant rain garden to filter grey water. The sloped roof channels rainwater into a visible storage and filtration system. UVA students analyzed the Learning Barge water collection system, calculated the amount of water needed each day and charted monthly rainfall and volume collected against seasonal park use. Grey water is gravity-fed into an adjacent native plant rain garden that treats both grey water and site runoff.

WETLAND LEARNING LAB

The hybrid classroom/picnic pavilion will be a comfortable, shaded and dry microclimate for learning activities and social gatherings. The learning lab, designed to accommodate thirty students, will provide students and visitors with an interactive experience with the restored wetlands and industrial landscape beyond. A recycled steel structure of columns and beams reference the industrial character of the site and will support sustainably harvested wood roof framing and tongue-

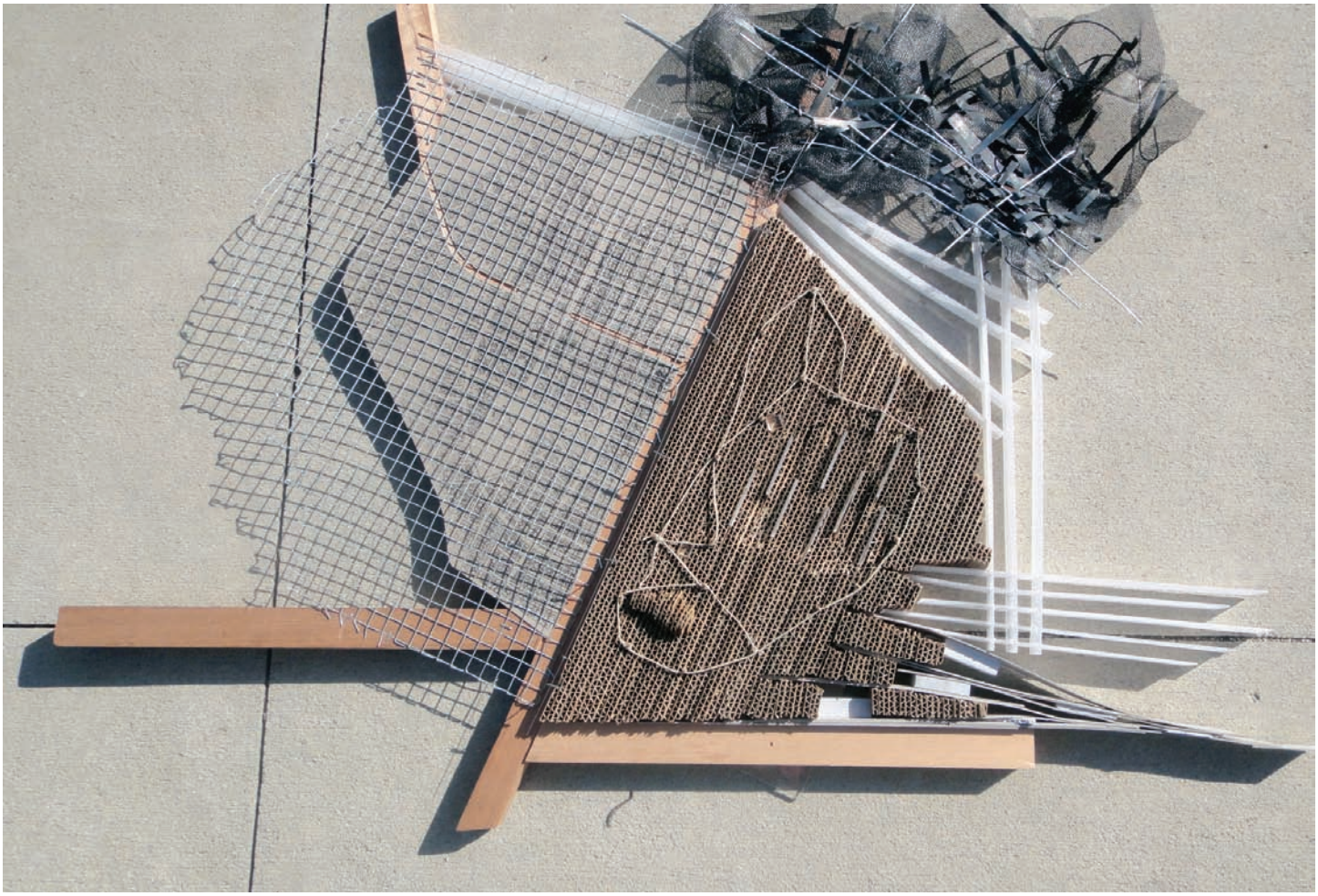

Figure 5. Conceptual Site Model

andgroove decking exposed in the classroom beneath. A corrugated, galvanized steel roof surface will convey rainwater to an adjacent rain garden to prevent runoff into the wetland. Natural light and ventilation will be maximized and modulated to teach visitors about environmental forces, while interactive surfaces containing maps and other images will provide unique learning opportunities. An artifact wall will frame views, create shade and shadow, and will display found natural objects and artwork created onsite. These artifacts become treasures left in the constantly changing wall. Portsmouth Public Schools will bring pre-k through 12th grade classes to learn about wetlands, ecosystems, green infrastructure and the importance of water reuse. The structure will also educate visitors about the importance of citizens doing their part for the river, while offering an inviting area to relax and enjoy the wetland view.

IMPACT AND ASSESSMENT

The City of Portsmouth will operate the site as its third largest public park and the first city park in the region to demonstrate green infrastructure as a model for nearby cities that urgently need to reduce urban stormwater impacts. The innovative design will educate park visitors and city officials about the importance of green infrastructure in the municipal setting, the value of riparian buffer conservation, native plants, tidal wetlands, and the role of the citizen steward. Surrounded by heavy industry, naval shipyards and urban housing, the park will showcase nature in harmony with intense and problematic human settlement. Together these projects will filter runoff from about 8,750 square feet of surface area, while demonstrating a sustainable approach for environmental restoration sites. The projects will retain 100% of stormwater runoff on site, prevent a total of 1.8 pounds of nitrogen and 1 pound of phosphorous a year from reaching Paradise Creek and the lower Chesapeake Bay, and educate 20,000 visitors a year on green infrastructures with a targeted focus on urban municipalities. ERP will provide guided tours of the green infrastructures to nearby municipalities, advise them on how to incorporate similar designs in their cities, and conduct education workshop for the general public. ERP will monitor and measure green infrastructure performance by calculating nutrient reductions using the Virginia

Stormwater Management Nutrient Design System. They will measure citizen and municipal engagement based on numbers of visitors to the park and numbers of green infrastructure projects inspired by this project in other cities.

CONCLUSION

This research service learning project—with diverse community partners and real world constraints—empowered University students to enrich and hone their research, design and communication skills, while learning about intertwined issues of environmental education, the balance of human health and industrial transformation, community engagement, and sustainable design. The students connected sustainability education with their lives as citizens making a positive difference in the world. Their work will contribute to the city of Portsmouth and the entire Hampton Roads region—establishing a translatable model for sustainable land use, while creating a public place that physically and spiritually connects the urban community of the Elizabeth River watershed with its home river.

BIBLIOGRAPHY

Baird, George. '"Criticality" and Its Discontents', *Harvard Design Magazine,* 21 (Fall 2004/Winter 2005), pp. 16-21

Bizios, Georgia and Katie Wakeford, eds. (2011) *Bridging the Gap. Public-Interest Architectural Internships.*

Crisman, Phoebe (2010). "Environmental and Social Action in the Studio: Three Live Projects along the Elizabeth River," *Agency: Working with Uncertain Architectures.* F. Kossak, D. Petrescu, S. Walker, et.al, eds. London: Routledge. Pp. 32-46.

Crisman, Phoebe (2007). "Working on the Elizabeth River," *Journal of Architectural Education*, v.61:1.Pp. 84-91.

Davies, Anna R. (20__). "Pollutants," *Patterned Ground: Entanglements of Nature and Culture*. Stephan Harrison, Steve Pile and Nigel Thrift, eds. London: Reaktion Books Ltd. Pp. 122-123.

Doucet, Isabelle and Kenny Cupers, eds. (2009) "Agency in Architecture: Reframing Criticality in Theory and Practice," *Footprint: Delft School of Design Journal,* Issue # 4, Spring.

Fagan, Geoff (1996). "Community-Based Learning," *Education for Sustainability*. John Huckle and Stephen Sterling, eds. London: Earthscan Publications, Ltd. Pp. 136-148.

Martin, Reinhold (2005). 'Critical of What? Toward a Utopian Realism', *Harvard Design Magazine*, 22, Spring/Summer, pp. 1-5.

ENDNOTES

1 Crisman, Phoebe (2010). "Environmental and Social Action in the Studio: Three Live Projects along the Elizabeth River," *Agency: Working with Uncertain Architectures*. F. Kossak, D. Petrescu, S. Walker, et.al, eds. London: Routledge. Pp. 32-46.

2 For a discussion of the studio, see Phoebe Crisman (2011). "Potomac Environmental Research and Education Center," *Lunch: Systems*, v.6, Pp. 64-79.

3 For more information about the Learning Barge and the multi-year research project focused in the industrial conditions of the Hampton Roads region and the Elizabeth River watershed , see Crisman, Phoebe (2007). "Working on the Elizabeth River," *Journal of Architectural Education*, v.61:1. Pp. 84-91. Also see www.elizabethriver.org and www.arch.virginia.edu/learningbarge.

4 Crisman, Phoebe with The Elizabeth River Project (2006). *Rediscover the Treasure: Money Point Revitalization.* Portsmouth: Money Point Revitalization Taskforce.

5 Giddens, Anthony. *The Constitution of Society: Outline of the Theory of Structuration* (Berkeley: University of California Press, 1984): 14.

6 Schneider, Tatjana and Jeremy Till (2009). "Beyond Discourse: Notes on Spatial Agency," Doucet, Isabelle and Kenny Cupers, eds. *Footprint: Delft School of Design Journal*, Issue # 4, Spring.