WATERWASH™-ing

Working to have a positive effect as an environmental artist and activist, I have thought long and hard about potential ways to make a difference. How can an appreciation of place engender public involvement? What kind of visual strategies reinforce the science values protecting natural spaces? The need for restoration and revitalization of areas challenged by stormwater issues is widespread on Long Island's North Fork, in fact in waterfront areas worldwide. WATERWASH occurred to me nearly full blown during a conversation with Mark Terry, principal Southold town planner with a background in environmental science. I envisioned a vegetated swale with native plants, permeable pavement, and educational signage explaining the need for non-point source stormwater management in private as well as public places. The transformation of a neglected space into a public outreach park could inspire community commitment to stormwater issues. He called this merger of functional restoration and aesthetics my brainchild.

This brainchild was not easy to bring to life, however, especially with an artist as lead agent. It was a continuing process, taking over 2 years to complete. Initially, I had planned to focus on Great Pond and its wetlands, a maritime freshwater interdunal swale area near my home in Southold. In 2005, I led a successful community effort to preserve the area and prevent further development. Subsequently, I was appointed to serve on the town's Land Preservation Committee. Harper Preserve was the subject of "Leap of Faith" an ecological video installation and my first body of artwork with serious environmental content. Harper Preserve was also the focus of my first Long Island Sound Futures Fund grant with the Peconic Land Trust for education about and restoration of this globally rare wetlands. The native cranberries and threatened Iris Prismatica found there provided source material for GO ECO, an interactive educational tool based on the ancient Asian game of Go. Preservation and restoration processes also helped structure another "serious learning game", GO Doñana, about the UNESCO wetlands south of Seville, Spain.

However, the worst stormwater spots around Great Pond were on private, not public property and were not widely accessible for outreach opportunities. I met with the stormwater committee and visited many sites but settled on a town owned boat ramp on the Mattituck Inlet, which feeds into Long Island Sound, right off a major county road. It had a serious grading problem that allowed road runoff to scour ditches beside the boat ramp, flowing directly into the Inlet and washing out the Spartina aterniflora growing there. Phragmites Australis was overtaking the disturbed shoreline, further degrading the area.

I approached many local scientists and stormwater experts with the WATERWASH concept and found solid response to my ideas. Previous projects using the ecological restoration approach had proven the validity of low tech solutions carefully applied to specific stormwater problems. Scientists from Cornell

Cooperative Extension, the Natural Resources Conservation Service, and DEC Restoration, Stormwater, and Shellfish departments all contributed to developing the site plan.

Many meetings with town officials and the stormwater committee resulted in only luke warm reception since there were certainly places with more serious stormwater problems. But there was enough support for the town board to approve our application with its MS4 educational component for a matching grant from the Long Island Sound Study. When we actually received the grant, the challenges intensified. Eventually, the town admitted it could not fulfill its matching obligations in the midst of economic meltdown. Fortunately, Group for the East End, an environmental advocacy organization for Eastern Long Island, was willing to take over as fiscal sponsor. They were included in the grant proposal originally to provide the native plants and volunteer coordination. They planned to cover costs from nearby Glover Perennials, growers of the native plants, some even from locally collected seed. With a mountain of paperwork and help from National Fish and Wildlife Foundation assistant regional director Lynn Dwyer, we were able to switch the federal grant from the town to the Group. It has been a pleasure working with their energetic staff facilitating the first WATERWASH and continuing to support similar future projects.

The permitting process was one that challenged my abilities, since the skill to negotiate bureaucracy is rarely found in an artist's toolbox. In addition, I spent a long time researching permeable pavement options and meeting installers to find a company on a similar wavelength. The owner of Excav Services has a degree in geology and experience with environmental restoration, so he was not the usual "earth mover". He followed through enthusiastically with all our challenges and agreed to do it ," just this once " for the funds we had budgeted, far less than his usual fee. He also discovered the Filterpave™ permeable pavement on line, a new material that appealed to us both for several reasons. Made from the cleaned post consumer glass that clogs our landfills and a urethane comprised of 60% plant material, Filterpave™ was a win/win solution with more varied design opportunities than porous pavers. At a pre-approval meeting, the Department of Environmental Conservation asked us questions about the suggested yearly vacuum maintenance and the flow through rate that was lower than usually required. Allowances were made considering the entire scope of WATERWASH. After all, it is a total system with 3 buffer zones beyond the parking area: the vegetated swale, a steel weir adequate to distribute overflow evenly in a 5 year storm, and the sizable strip of Phragmites that would be harvested quarterly. When we actually submitted the paperwork, asking for speedy processing due to grant scheduling, the DEC permit was obtained in record time.

The five-member Southold town board of Trustees, which owns the park and has juristiction over all construction within 100 feet of the waterfront, also had to issue a permit. The president, a lobsterman residing on the Inlet, was initially skeptical, thinking it would contribute little water quality improvement. Though he had seen

the drawings and engineering plans, the trustees seemed to have a hard time visualizing the proposal until it was nearly finished. But I persisted in calling him to discuss progress and eventually provoked his participation by incorporating his suggestions into the "Wildlife Habitat" sign. This was one of three "film strip" format signs ("Stormwater Solutions" and "Native Plants") designed to engage viewers who might not normally be drawn to reading interpretive signage. His juicy facts draw a contrast of an area widely recognized in the 19th century as a prime source of the tastiest oysters to an area that now has been closed to shellfishing in recent decades. Many efforts are being made by local agencies to find ways that baymen can return to harvesting in the creek. In fact, there was a previous Suffolk county project that spent over a million dollars to put in a retention pond, that few people even know exists, let alone its purpose. That 2003 project did improve water quality in the far end of the creek, where fish die offs due to hypoxia had occasionally occurred. But there was still much more to be done on this town owned lot that required permits.

Final permission needed to be obtained from the town board. Most of them were familiar with my community organizing to save Great Pond Wetlands and knew my dedication to the Land Preservation committee. However, they still had reservations about liability and other issues even though the project would actually cost them nothing. In preparation for that meeting, I had met with Mattituck stakeholders, obtained an endorsement from the Chamber of Commerce, and arrived with the president of the Group for the East End. The town supervisor introduced me with a soundbite about my determination, echoed in a WATERWASH newspaper article, and mentioned again at our opening press event. It always gets a laugh, but the reality is that many artists are uniquely prepared to follow through in the face of adversity. It makes them the right personality type for such ventures as well as bringing the ability to think creatively outside the box. Without that tenacity, I wonder how anything can be accomplished in the web of bureaucracy surrounding such efforts. So, as you may have guessed, we did eventually get permission to proceed from both the Trustees and the Town board.

The area was graded and some of the resulting clean sand was used to restore the ditch beside the boat ramp and the scoured spot behind the swale. Both Spartina patens and Spartina alterniflora were planted there amongst the jute and hay netting and secured by substantial chinked bluestones. Swale planting was rushed into action in early July, with the native plant survival facilitated by neighboring Mattituck Park District's water (the boat ramp had no facilities of its own). It was barely the outer time limit for planting warm weather grasses like the Panicum virgatum and Schizazachyrium scoparium. For the bottom of the swale, Hibiscus moscheutos was used since it thrives in our freshwater wetlands along with contrasting Chelone glabra. Mattituck High School volunteers helped with the plantings as well as cutting the Phragmites. Community support became even more apparent: a site survey was donated, Woodwrights offered us wood for the Leopold benches, and free dumpsters appeared from Mattituck Sanitation.

Much discussion followed with the excavator and supplier about the actual execution of the plans, insertion of the WATERWASH text, and curvaceous wave form. Great care was taken to engineer adequate uptake across the site with specific pavement percolation through the sand substrate and upper layer of local pea gravel. I wanted everything naturally curved which was novel for the installers. Unfortunately, my original designs had to be adapted at the last minute because the previously ordered cobalt blue glass from Wisconsin was unavailable. There was a large audience of asphalt and concrete applicators from NYC, curious to see how the new material would work in its first North East installation. The Filterpave advisors manipulated controls on a large mixing truck trying to get the required glass/urethane mix but the material was actually applied in several sections by a crew working with it for the first time. In subsequent months, it spalled or shed loose glass for a variety of reasons. Fortunately, Filterpave improved the technology and agreed to redo it. The original wave design was finally executed with glass trucked from Albany, well within the 500-mile requirement for LEED certification. A new method of tinting the urethane allows for more uniform color control and actually improves the reflective qualities that contribute to less CO2 absorbtion. In any case, it is a new material with excellent potential to solve many problems simultaneously.

The final piece of the puzzle has not been easy to find. Water quality testing is integral to gauging the success of the stormwater remediation on water quality. Prior to construction, DEC shellfish tested 2 locations in Southern Mattituck Creek, and will continue to test after significant storms. Their samples are collected within 24 hours of the rain event and test for fecal coliform only but it is too early to show much improvement. We are still looking for collaborators from a university to coordinate testing for heavy metals and dissolved oxygen on a regular basis.

November 9th, 2009 the Opening Press event, attended by over 70 people, was a satisfying finale to the saga. Public officials applauded the progressive nature of WATERWASH and asked if we'd work on several other very difficult sites. Interest remains high, so the cost/benefit questions we answered from visitors on site still continue long after completion. I realize the actual investment in time and energy means future sites must be carefully chosen. So many of the predicaments we're asked to look at arise from unsuccessful previous attempts, engineering miscalculations, or landscaping that masks the real problems. Final impacts cannot be assessed without considering cultural relationships or until ecological processes are truly embraced.

How can we possibly measure a place's value to the inhabitants inspired by it? When I watch the school children reading the WATERWASH signs, or see a boat returning with happy fisherfolk, or catch kayakers lunching on the benches adapted from Aldo Leopold's plans, I see the landscape in action. There between form and function, lies an opportunity for artist and scientist alike to involve the community in restoring natural resources.

Lillian Ball, November 2009

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