

## Public Art in the Sewer: Mary Miss and the Arlington County Water Pollution Control Plant

RENNIE TANG  
JUNE WILLIAMSON  
Mary Miss Studio

"The invisible becomes visible." Mary Miss<sup>1</sup>

Nature and urbanism are being considered together as never before. A new cross-disciplinary language is emerging as design professionals such as public artists, architects, landscape architects and urban designers become increasingly involved in infrastructure projects – by convention the domain of engineers – that shape, restore and restrain the forces of nature. Designers involved in urban infrastructure projects, like wastewater treatment plants, recycling facilities, electrical substations and transportation networks, have been looking beyond the simple merging of form and function to arrive at an ethos of sustainability, environmental consciousness, and social responsibility. Some of the tactics employed to transform and expand the meanings of infrastructural sites are *integration* and *diagramming*.

This paper considers the cross-disciplinary and ethical implications of an ambitious unrealized project by the New York based public artist Mary Miss at the Arlington County Water Pollution Control Plant (ACWPCP) in Arlington, Virginia (Fig. 1). During her 35-year career, Miss has expanded the definition of public art across the disciplines of photography, sculpture, architecture, landscape architecture, and ecology. This recent project (2003-05) focuses on the potential of the wastewater treatment plant to become a locus for urban transformation. Her unique proposal is to transform a public facility – an existing wastewater plant in Arlington, Virginia – into a public *place*. We will examine this approach as a significant step towards bringing a new kind of social, technological, and environmental awareness to urbanism. A related question considered in the paper concerns the hurdles faced in the effort to to realize such complex

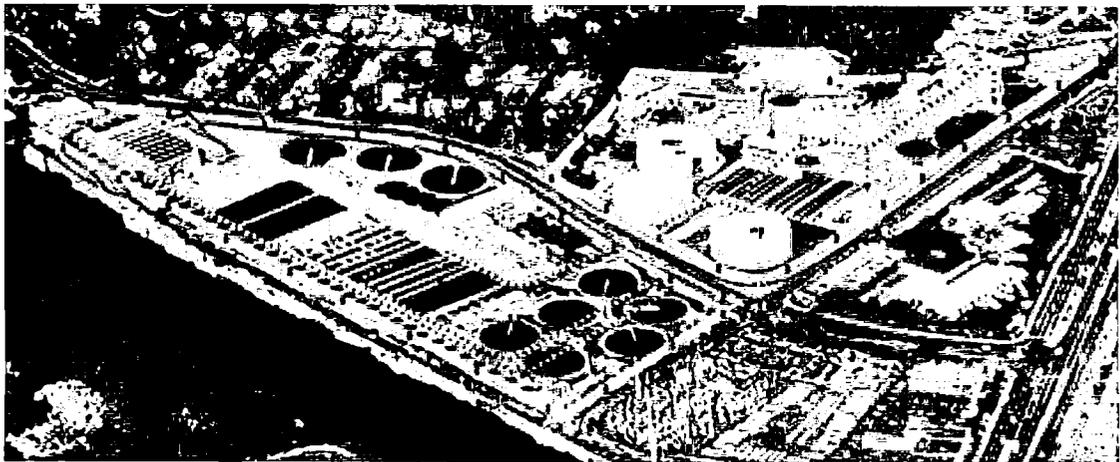


Figure 1. Aerial view of Mary Miss' Artwork Master Plan at the Arlington County Water Pollution Control Plant.

projects. Are the public artists' voices really being heard, or are the public agencies that engage them only paying lip service to the *idea* of public art?

### A NEW ROLE FOR PUBLIC ART

"A new set of questions is surfacing for artists, art institutions and administrators to address: how can we create additional routes that will allow artists' observations and insights about the issues that affect us to be more closely woven into our culture?" Mary Miss<sup>2</sup>

Urban infrastructure as public space is a new cultural paradigm for urban design, where places previously off-limits to the public are being opened up as centers of culture, education and leisure. This paradigm requires a hybrid approach to permit infrastructure and culture – people and their homes, commerce, work, and leisure places – to effectively co-exist. One tactic deployed by public artists when collaborating on projects in the infrastructural public realm is *integration*. The public art contribution is conceived of as integral to the entire facility and its operations, rather than as an addition or overlay. This integrated engagement goes beyond the visual: it embeds environmental consciousness into everyday life, and becomes a catalyst for urban design and regional planning. One of the key points which Miss unfolds in the ACWPCP proposal is the notion that wastewater infrastructure is a vast and extensive network, comprising a critical set of connections between people and their environment. The project is intended to make the citizens of Arlington aware that they are a key part of the ecological community of the Chesapeake Bay watershed.

The convergence of art and infrastructure in the making of public space is not a new phenomenon. In 1972 landscape architect Richard Haag created Gasworks Park in Seattle on the site of a former gas plant. His concept was the preservation and reuse of the industrial structures to serve as iconic reminders of the site's past and to create play structures for children. The project was completed in 1976 and incorporates the only surviving gasification plant of the 1,400 that once were ubiquitous in the American industrial landscape. In Landscape Park Duisburg-Nord in the northern Ruhr district of

Germany, landscape architect Peter Latz turned historical infrastructure from the region's coal mining and steelmaking era into a public park. The project, completed in 1999, comprises a complex choreography of promenades and footbridges on different levels, rebuilt water basins and channels, gardens, and climbing walls. Latz found an innovative way to deal with historical contamination by combining the process of ecological regeneration with the social agenda of a park by inviting visitors to view the areas where clean-up processes take place.<sup>3</sup> The Living Water Garden in Chengdu, China, also built in 1999, demonstrates an alternative to high-tech infrastructure for the purification of polluted water in an urban river. The park, created by environmental artist Betsy Damon in collaboration with landscape architect Margie Ruddick, is designed to use natural processes to clean chemically polluted water generated from the daily byproducts of industry. However, the functional aspect of the project is secondary to its social relevance. The primary impact of the Living Water Garden lies in its effect on people's way of thinking in Chengdu, especially their increased understanding of environmental issues.<sup>4</sup>

A change in attitude towards water treatment plant construction in the United States is evident in projects such as the Lake Whitney Water Treatment Plant in Hamden, Connecticut by architect Stephen Holl in collaboration with landscape architect Michael Van Valkenburgh. Even the idea of hiring noted designers for this type of program suggests a philosophical shift in attitudes toward public utilities. The water treatment plant is reconceived as a public park; a series of gardens recount the phases of water filtration while stages along a public path inform visitors about water processing. A 1993 project for a Waste Transfer Station in Phoenix, Arizona involved artists Michael Singer and Linnea Glatt. They were commissioned to design a new center for recycling waste material that had been separated from trash headed for the landfill. The design concept was to make the facility itself a practical ethical demonstration by using recycled building materials. For example, construction rubble was used to form landscaped banks around the building, which were planted with native desert vegetation. The artists led the design team

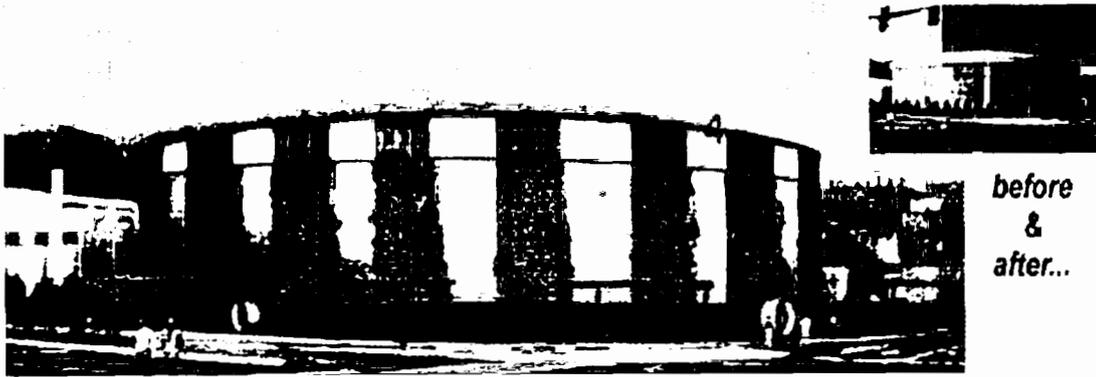


Figure 2. Proposal for planted roofs and screens on digester tanks and kiosks and trellises along perimeter fence.

and collaborated with an engineering firm, a setup that gave them the control needed to ensure that their plans were carried out as intended.

These last two projects represent how cities are rethinking the role of infrastructure. The one fundamental difference between them and the ACWPCP is that Miss' work was intended to integrate into an existing and fully functioning site as opposed to being built from scratch. The challenges presented by this scenario, as well as the demands of a deadline-driven, engineering-led project, intensified the complexity of the artist's task.

For Miss, the merging of infrastructure and art is consistent with many of the ideas she has been exploring over the past four decades. One of the central themes in her work is the notion of revealing elements in a landscape. For Miss, the landscape is an expansive field ranging from naturalistic environments such as forests, rivers or hillsides to urban spaces like inner city plazas, waterfronts and transportation hubs. Apparent throughout her vast body of work is Miss' strong commitment to a set of core objectives: to create personal experiences within the public realm; to explore a wide range of scales through physical engagement with a place; and to stir the memory and imagination. The ethos that is reflected by these ideals began early in her career when she made the decision to reject the gallery scene to work in open, public spaces, believing that art should be accessible to the general public rather than confined to sanctioned art institutions. Her early projects, though sculptural in scale and scope, seem like experimental testing grounds

for later large-scale, cross-disciplinary work to come.<sup>5</sup>

In 1974 she built a temporary outdoor structure entitled "Sunken Pool" in Greenwich, Connecticut. The piece began as a path that passed through a series of environments including a soccer field, a pine grove and a footbridge over a stream. The path arrived at a very simple structure, a galvanized steel circular drum 20-foot in diameter. Aligned with the pathway were two T-shaped openings that allowed the viewer a glimpse inside the drum to discover a pool of water within. This reflective surface created a moment of stillness within the densely vegetated surroundings. Through these simple gestures of path, enclosure, opening and reflection a sense of curiosity was evoked, which drew people through the piece. As Miss continued to strive for ways to expose elements in the landscape, she discovered that urban environments offered a particular richness. Her project for the Milwaukee Riverfront (1998-2001) attempted to make the processes of water visible to pedestrians on a walkway along a previously inaccessible river. The project unfolds through a series of accumulated experiences along the pathway, including stormwater treatment devices and plantings, a viewing shaft into a storm sewer tunnel, markers on an abutment showing water levels from previous years, shallow channels which collect and direct rain water, and oversized numerals indicating the river's depth and width. As a pedestrian moves through these didactic episodes, the river as a functional whole is gradually revealed.<sup>6</sup>

One of the most intense urban sites that Miss has encountered was the Union Square

Subway Station in New York (1992-2000). Her greatest challenge was how to attract even a moment of attention in a dense, noisy, crowded environment where people are always moving. Observing the historical layers of the station through its architectural details – stairs, lighting fixtures, mosaic tiles and turnstiles – which had been installed, replaced or overlaid at different times, she came up with a strategy for calling attention to these features through the idea of “red lining.” Fragments of the station were highlighted using red colored frames embedded in the walls. Peering into the frame, one sees layers of words and a mirrored reflection of oneself and other images. One hundred and twenty-five red frame elements appear throughout the station, inviting commuters in transit to take notice of something new each time they pass through it.<sup>7</sup>

Emerging out of the latter two projects is the notion of *diagramming* that became manifest in a very provocative and literal form in the Arlington proposal. The concept of diagramming is used in Milwaukee as a way to make tangible the processes of the river, and in New York as a way of marking the archaeology of the subway station. Also, as Miss worked on these sites she demonstrated her ability to work in collaboration with a diverse variety of professionals, community groups and public officials. The strategic communication and negotiation skills acquired through these working environments became a great asset for what she was to confront in Arlington.

### FUNCTIONAL AND EDUCATIONAL LANDSCAPES

“...the American landscape ought to be valued less as a scenic and spatial phenomenon than as an active and temporal medium, the construction of which is fluid, mobile and transient... The country is an enormous working quarry, an operational network of exchange, motion, and transmutation.” James Corner<sup>8</sup>

The ACWPCP was built in 1937, on a limited plot of 35 acres of urban land abutting the Four Mile Run Stream, a tributary of the Potomac River that flows into the Chesapeake Bay, and is adjacent to an affluent residential neighborhood. The residents are sensitive to

the plant’s proximity and foul odors and have demanded a “fix.” The reality they face is that the plant, like many such facilities in the region, will never disappear. Due to population growth and stringent environmental regulations, these facilities will only expand. Arlington County took the lead by approaching this problem in a new and innovative way. Along with its latest expansion project (the fifth), which will increase the plant’s capacity from 30 to 40 million gallons per day, the County introduced an additional component not normally associated with wastewater infrastructure – public art. This component of the expansion was initially seen as the most efficient and cost-effective way to placate the neighbors.

In 2003, Mary Miss was chosen from a pool of 53 applicants to work with the engineering team to develop the public art elements of the upgrade plan. Her proposal to transform the plant into a public place is based on the creation of specific experiences that would allow a visitor to engage with the facility at various scales. The primary goal was to change the community’s perception of the plant. Instead of the more conventional technique of hiding or masking infrastructure with landscaping, her intervention aimed to reveal the processes going on behind the facility’s brick walls as a unique form of public education.

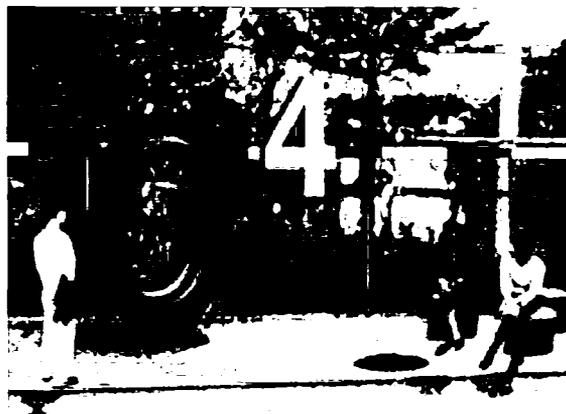


Figure 3. Detail of information kiosk along perimeter fence.

Miss’ integrated scheme combines twenty systems and components that may be roughly grouped into three categories: process diagram, living surfaces, and public nodes. The *process diagram*, which layers over the

site a comprehensive diagrammatic representation of the water treatment processes that occur at the plant, consists of three components: banded pipes, 3D supergraphics, and informational kiosks along the perimeter fence. The *living surfaces* are intended to embody ecological knowledge about passive methods of reducing stormwater run-off. If such methods were more widely used in the County, the need for future expansions of the water treatment plant might be reduced. The living surfaces include planted façade screens and roofs, porous paving, and rain gardens. The third category, *public nodes*, is comprised of points of direct contact for the general public. These elements are components that are familiar to public art such as a viewing tower, an environmental education center, and a series of pavilions and gardens. For example, the project includes a planted canopy at the area where citizens may drop off hazardous materials for disposal and an overlook structure (reminiscent of other Miss projects) at the outfall into Four Mile Run Stream, where the treated water is returned to nature (Fig. 2 & 3).

Miss' proposal expands both physically and conceptually beyond the boundaries of the ostensible site. Physically, the art makes appearances throughout the County, with visual markers appearing at all the neighborhood pump stations and "diagrammatic" native planting schemes at the stream edge, a didactic way of recalling life in the Bay. Back at the plant, in kiosks integrated into the perimeter fence, multiple scales are collapsed into elliptical structures. This form is derived from the actual dimensions (92" x 58") of the Potomac Interceptor, one of the main sewage pipes entering the plant. Allowing the visitor to actually step into a full-size segment of pipe is Miss' way of revealing the underground, everyday world of sewage. Inside the kiosk, the visitor encounters a larger-than-life image of plants, flowers, or wildlife from the Chesapeake Bay. Bringing together these local and regional scales through the tactile act of walking into a pipe exemplifies Miss' gift for creating thought-provoking and engaging human experiences. The Chesapeake Bay Watershed is home to 304 major wastewater treatment plants that collectively pour approximately 1.5 billion gallons of wastewater effluent per day into the Bay

waters. This landscape is a temporal phenomenon, as James Corner suggests. Mapping these facilities on a plan of the Chesapeake Bay reveals a landscape vastly different from that which existed seventy years ago. Even such a map, portraying the Bay as a gigantic sink for collecting the byproducts of modern life, does not depict the actual extent of the wastewater landscape. While the underground pipes that connect the city's built environment to the plant are invisible, the massive buildings, tanks and structures sitting on the site are not (Fig. 4).

An immediate question raised by this proposal might be: what can public art really do for a wastewater treatment plant? Miss demonstrates that a great deal can be done and if implemented the project could have served as a catalyst for others. Sadly, due to budget constraints and entrenched bureaucracy, the project was never realized. Fortunately, the developed project has been extensively documented and thus remains alive as a valuable tool for discourse and inspiration.<sup>9</sup>



Figure 4. Map of water treatment plants in the Chesapeake Bay watershed. Image from [www.cbf.org](http://www.cbf.org)

### QUESTIONING TECHNOLOGY

The ethos of sustainability in the work of Miss, particularly in Arlington, arose out of her ongoing interest in bringing to the surface physical attributes of places and processes.

Her contribution as an artist on the topic of sustainability is the lesson that sustainability is not solely about environmentalism; addressing social issues is equally as critical as the technological ones. For example, green roof technology remains intangible to many because public access to the roofs is often limited. In Arlington, Miss instead focused on making the green roofs as visible as possible. Taking advantage of the facility's large area of roofscape as well as its proximity to an airport and the sloping topography of the neighborhood, Miss conceived of the green roofs as large swaths of vibrant colors when viewed from above. Plants for the roofs were selected based on a balancing of horticultural and ecological requirements with specific criteria for a bold color palette.

Central to Miss' scheme was the idea of the plant as a three-dimensional diagram, with the buildings themselves as vehicles for information. While her main goal is to expose the public to the filtration process, there is an underlying subtext in which she is actually questioning technology itself. Has this highly centralized wastewater treatment technology made us blind to our everyday actions? Daily life in Arlington depends on 465 miles of underground sewer mains, 13,000 manholes, and twelve pump stations located at topographical low points throughout the County. These various elements form the County's wastewater infrastructure. Every day, as much as thirty million gallons of wastewater are channeled from the homes and workplaces of 190,000 citizens, through the ACWPCP and into the Four Mile Run Stream. The facility plays an important role in environmental protection because it prevents harmful contaminants from entering the receiving waters. In a series of mechanical, chemical and biological process, wastewater is transformed into two byproducts, liquid *effluent* and *biosolids*. Unfortunately, the wastewater journey does not end there; the effluent released into the Four Mile Run and the biosolids that are transported out to farm fields come with their own set of environmental evils.

Effluent discharges from wastewater treatment plants contribute greatly to excess nitrogen and phosphorous levels in the receiving waters. The main causes of the Bay's poor water quality and aquatic habitat loss are elevated levels of these two nutrients.

Upgrading facilities with Nutrient Removal Technology (NRT) is the current method used to reduce nitrogen to acceptable levels. At the other end of the wastewater saga is the question of disposing of biosolids, commonly known as sludge. While many farmers say that processed sewer sludge is a cheap and effective fertilizer, there have been reported cases of cows dying after eating hay grown using sludge and of workers made ill from tainted hay used in road-building.<sup>10</sup>

What makes the Arlington project stand apart from projects such as Gasworks Park and Duisberg-Nord is that it does not romanticize the industrial past or attempt to 'fix' an environmental problem. It merely points out the consequences of our actions on the environment. Miss' project operates by first capturing people's curiosity. Once engaged with the project, they can explore further and learn about the processes that take place at the plant. This type of education is necessary if ideas such as recycling graywater or installing waterless toilets are to be taken seriously. While rain gardens, green roofs and porous paving are related to stormwater management rather than reducing wastewater, they do have the ability to prevent further pollution of the Bay waters. These simple technologies represent decentralized methods for absorbing and cleaning stormwater from lawns, streets, parking areas and roofs, thereby reducing the need to increase flow capacity in the system.

#### MAKING PROJECTS HAPPEN

One advantage of this multi-scalar, multi-part, and multi-functional project is its flexibility to fit into the crevices of several interest groups – advocates of a pedestrian-friendly Arlington, environmental curriculums at schools, the Four Mile Run Task Force river restoration initiatives, the plant's outreach programs, etc. – thus giving the scheme a wide base of support. At the same time, however, this multiplicity made the project highly vulnerable, to a point where Miss found the project slipping out of her control. A proposal comprised of many elements runs the risk of being dismantled into a catalogue of parts from which the clients may take the liberty to pick-and-choose. What results is a set of disparate elements that satisfy the interests of specific parties, rather than a coherent and meaningful project.

Arlington was on the verge of a very exciting experiment – the merging of art and infrastructure in a way that could create a great shift in the traditional notions of public space. The fact that Miss' project failed to become realized, leads us to question whether the idea of public art had been misunderstood or underestimated. The public agencies involved were unable to come to terms with the scale and relative cost of the public art components of the plant upgrade. Furthermore, the County may have feared that if this project had been accepted, higher expectations for the funding of the County's Public Art Program may have prevailed in the future. Unwilling to take these risks and unprepared to embrace the idea of integrated art, the County missed a great opportunity to give something special to the community. While the idea of marrying art and infrastructure seems compelling, there is still no clear understanding of how to actualize it. One conclusion to draw from all this is that the parameters and expectations of a project, as well as a clear contractual, financial and ideological framework, must be established early on in the process. The hope is that Miss' Arlington project, although unbuilt, has at least set up a precedent for the making of future projects of this scale and scope. The Artwork Master Plan, even on paper, will serve as an inspiration and conceptual framework for injecting social and ecological meaning into public infrastructure which otherwise will remain forever undesirable next door neighbors.

Note: The authors worked on this project with Mary Miss until it was cancelled for budgetary reasons in August 2005.

## NOTES

<sup>1</sup> Mary Miss, ACWPC project files, Mary Miss Studio, 2003-05. More project information can be found at [www.marymiss.com](http://www.marymiss.com) (October 15, 2005).

<sup>2</sup> Mary Miss, *Mary Miss*, New York: Princeton Architectural Press, 2004, p. 230.

<sup>3</sup> Niall Kirkwood, *Manufacturing Sites*, London and New York: Spon Press, 2001.

<sup>4</sup> Mary Padua, "Teaching the River," *Landscape Architecture*, March 2004.

<sup>5</sup> See Rosalind Krauss, "Sculpture in the Expanded Field," in *The Originality of the Avant Garde and Other Modernist Myths*, Cambridge, Mass.: MIT Press, 1985, pp. 276-290.

<sup>6</sup> Miss, *Mary Miss*, pp. 90-93, 178-185.

<sup>7</sup> *Ibid.*, pp. 194-203.

<sup>8</sup> James Corner and Alex MacLean, *Taking Measures Across the American Landscape*, New Haven: Yale University Press, 1996, p. 21-22.

<sup>9</sup> Arlington County Water Pollution Control Plant, [Brochure], The Arlington County Department of Environmental Services, 1999. For more information about the project see the following: [www.jmt-engineering.com/arlington](http://www.jmt-engineering.com/arlington), [www.arlingtonarts.org/cultural\\_affairs/publicart.htm](http://www.arlingtonarts.org/cultural_affairs/publicart.htm), [www.arlingtonva.us/NewsReleases/Scripts/ViewDetail.asp?Index=1457](http://www.arlingtonva.us/NewsReleases/Scripts/ViewDetail.asp?Index=1457), (October 10, 2005).

<sup>10</sup> Jennifer Lee, "Sludge Spread on Fields Is Fodder for Lawsuits," *The New York Times*, June 26, 2003, p. A20. Environmental Protection Agency, "Biosolids Technology Fact Sheet." Available at [www.epa.gov/own/mtb/landfilling\\_biosolids.pdf](http://www.epa.gov/own/mtb/landfilling_biosolids.pdf) (October 15, 2005).