

fresh perspectives



FreshkillsPark Newsletter — Winter/Spring 2012



305-acre East Mound closure, begun in 2006, now complete

As development of Schmul Park and the Owl Hollow Fields wraps up at the perimeter of Freshkills Park, the largest recently-completed construction project on site might not be as noticeable. But that massive, grassy hill along the site's eastern border is no natural wonder; it is the product of a five-year-long closure process that concluded in November 2011. "It is a common misperception that a landfill is closed when it stops receiving waste," said New York City Department of Sanitation (DSNY) engineer, Richard Napolitano, who managed the day-to-day operations of the closure of East Mound. Closing a landfill requires consideration of its future uses, making engineering design adjustments, and installing a multi-tiered final cover system, or cap, that connects to and safeguards the integrity of the other environmental systems.

The 305-acre East Mound of Fresh Kills Landfill, the second largest of the four mounds with approximately 32 million tons of waste enclosed within, will ultimately become the East Park section of Freshkills Park. Running along the bustling commercial corridor of Richmond Avenue, East Park promises to serve as a front

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Above: East Mound closure in August 2010. The NYC Department of Sanitation completed installation of the landfill cap on the mound in late 2011. Photo by Daniel Avila

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East Mound closure, now complete, was a new kind of undertaking

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door to Freshkills Park—a role that will be reinforced by the public vehicular roadway to be built across its mid-section.

While the mound's closure process was similar in concept to work performed in the 1990s on the North and South Mounds, the details differ significantly, according to Robin Geller, DSNY's Program Manager for Landfill End Use. Like the North and South Mounds, East Mound contains environmental controls for leachate, landfill gas (LFG), and storm water runoff, as well as a multi-layered final cover system that includes a gas venting layer, impermeable liner, drainage layer, barrier protection layer (at least 2 feet of soil), topsoil and a vegetation layer. But the major distinguishing aspects of East Mound's closure are the integration of a foundation, or sub-base, for the future vehicular roadway, the scale and steepness of the mound affecting the size of the storm water management features, and updated topsoil regulations that permit public use of the site as parkland.

ROAD PREPARATION

Approximately two miles of east-west vehicular roadway are planned to stretch across Freshkills Park between Richmond Avenue at Yukon Avenue and Rte. 440, the West Shore Expressway. Preparing the Yukon Avenue Corridor – the 2,150 foot-long section over East Mound from Richmond Avenue to the Main Creek Bridge – is the first step. Integrating the corridor into the DSNY's closure process led to major alterations and regulatory approvals for a new closure design and extended the section's closure schedule, but it also saved an estimated \$40 million in future construction costs.

Because the corridor was underlain with soft garbage, it had to be excavated and filled with soil until the foundation was strong enough to support the traffic conditions of a multi-lane road. The

barrier protection layer of the landfill cap along the corridor was increased from two to four feet to stabilize the road bed and protect the materials below from burrowing animals, erosion, and exposure. Overhead power lines and underground fire fighting water mains were relocated; landfill gas pipes were realigned and reconstructed; and storm water drainage patterns were adjusted. Laying this groundwork has made it feasible to construct a road in the future without damaging the final cover and environmental protection systems already in place.

STORM WATER MANAGEMENT

As on the North and South Mounds, one of the primary engineering goals for the East Mound is to manage storm water run-off: channelizing and safely collecting precipitation in order to protect the integrity of the final cover.

The North and South Mounds move water down their slopes through a series of swales that connect with detention basins. These are also in place on the East Mound, but some of East Mound's slopes, steeper than those on North and South Mounds, also require larger drainage structures that can slow down the velocity of high volumes of water. Installed periodically along the slope of the mound are large gabion downchutes: 40-foot tall structures framed by wire-mesh baskets of rocks stacked in step-like formation down the slope to channel large volumes of run-off.

Ms. Geller said that the dramatic looking downchutes are spectacular to watch after heavy rainstorms, when rivers of rainwater cascade down them like waterfalls.

SOIL AND PUBLIC ACCESS

According to the New York State Department of Environmental

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Mission

As Freshkills Park moves from the planning stages to implementation, we strive to keep community members informed of the progress in bringing this innovative project to reality. Building this park requires many coordinated activities, including the planning and design of the park, engineering for roads and other technical aspects of the park design, environmental assessment and regulatory permitting. The purpose of the Fresh Perspectives newsletter is to provide updates about the project's progress as well as information about the site's history and some of its unique features, resources and complexities.



Left: DSNY's integration of sub-base for the Yukon Avenue road connection within the East Mound landfill cap saved the City millions of dollars in future work but required a host of changes to established capping procedures. Photo courtesy of Tully Construction. **Right:** A downchute on the East Mound allows large volumes of storm water run-off to rush down the slope toward detention basins during storms, without compromising the integrity of the landfill cap. Iron, washed out from the mound's soils and oxidized when exposed to air, has left the orange trail seen here. Official photo of NYC Department of Sanitation

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Conservation (NYSDEC), the agency that oversees regulation of Freshkills Park, barrier protection layer soil and topsoil at Freshkills Park must meet specifications for 'restricted residential' use, as befits a public park, as opposed to 'commercial' or 'industrial' uses. Because the North and South Mounds were closed and capped before the City of New York decided to transform the landfill into a park and before new standards for general public access have been added, new soils must be imported before public access can be provided on those mounds.

However, DSNY changed its soil specifications for the closure construction of East Mound and has met the new public access standard. In addition, DSNY modified the seeding specifications to include more native grasses and vegetation than they did for North and South Mounds. These seemingly minor adjustments have laid considerable groundwork for future public use of the site and will save the City millions of dollars in potential soil and vegetation costs.

THE PARK IN PROCESS

The East Park site has already begun to regenerate as a spectacular wildlife habitat. A vegetated berm was planted in the 1980s to relieve visitors to the Staten Island Mall from the sight of a growing mound of garbage across the street, but has since developed into a

buffer between the busy street edge and the naturalized interior of the site.

Detention basins along the mound's eastern edge are now spawning locations for fish as well as homes and foraging sites for turtles, frogs, herons, egrets, migratory songbirds, raptors, rabbits and deer, among others. Vegetation includes sweet gum, marsh-elder, broad leaf cat-tail, jewel weed and various sedges. Wetland education and boardwalks feature prominently in the plan for East Park.

Because of its size and topography, East Park will also be capable of hosting extensive meadows and trails, fields for pickup games, frisbee and picnicking, large-scale art or energy-generating installations. In 20 to 30 years, pending the settlement of garbage and the satisfaction of regulatory requirements, it may be feasible to install a revenue-generating golf course, as proposed in the Freshkills Park master plan. Preliminary design on the Yukon Avenue road connection will begin this year.

In the near term, the Department of Parks & Recreation is eager to extend its tour program to the East Mound and, as with the North and South Mounds, to build a slate of public programs on site that anticipates park development there. All of this work relies on the complex and state-of-the-art closure procedure undertaken by DSNY since 2006.

More about what's happening underground

For more information about the landfill cap, landfill gas and leachate collection and treatment systems in place on East Mound and throughout Freshkills Park, visit the official park website, nyc.gov/parks/freshkillspark, and click on the 'About the Site' tab.



Renderings of East Park from the 2006 Draft Master Plan for Freshkills Park. **Top:** rendering of an aerial view of wetland boardwalks and a nature education center. **Middle:** rendering of the potential golf course atop the mound. **Above:** rendering of the view along a wetland boardwalk

Freshkills Park preview event draws thousands

The success of the 2010 Freshkills Park preview event, 'Sneak Peak at Freshkills Park,' ensured a follow-up in 2011. 2011's event, held on October 2, was such a success that the Department of Parks & Recreation has decided to make Sneak Peak an annual occurrence.

233 acres of the Freshkills Park were opened for the day to 2,000 eager visitors from across New York City. Activities included walking tours, biking, kayaking, kite flying, crafts, workshops, public art, live music, food trucks, birdwatching and much more.

The event surpassed 2010's in both attendance and offerings. 317 guests kayaked Main Creek over the course of the day, supervised and instructed by a tireless crew of volunteers from Kayak Staten Island, the Downtown Boathouse and the Long Island City Community Boathouse. 14 public art projects were exhibited. Nine tons of e-waste were recycled at a drop-off location operated by the Lower East Side Ecology Center. A new smartphone self-tour was launched: *Freshkills Park+*, a media-based experience built by Carlos Gomez de Llarena that runs on the Layar app. And hundreds of visitors

from Manhattan were transported to the site aboard the first public passenger vessels to dock at the Freshkills Park, operated free of charge by New York Water Taxi.

Though many acres of the site are currently being developed for public access, much of the mammoth site will remain restricted to the public in the coming years. 'Sneak Peak' is an effort of the Department of Parks & Recreation to stoke the public's excitement and support for the ongoing development of Freshkills Park. As construction of the park continues, annual iterations of the event will showcase portions of the site that are next slated for development. The event will again take place in late September or early October of 2012.

Sneak Peak 2011 was presented in partnership with the NYC Department of Sanitation, Pratt Industries, The Home Depot, New York Water Taxi, The Council on the Arts & Humanities for Staten Island, WSIA 88.9 FM, GrowNYC, The College of Staten Island, Wagner College, Showplace Entertainment Center, the Hilton Garden Inn, M & R Hotel Group, Cabot Cheese and Honest Tea.

1

A fleet of kayakers paddled down Main Creek, along the eastern shore of North Park at Freshkills Park. Photo by Daniel Avila

2

Kite flying on top of the mound in North Park. Photo by Raj Kottamasu

3

Pony rides were provided by First Place Ponies. Official photo of NYC Department of Sanitation

4

Free passage to and from Battery Park in Manhattan was offered by New York Water Taxi. Official photo of NYC Department of Sanitation

5

Free birdhouse-building kits were offered by The Home Depot. Photo by Daniel Avila

6

Visitors kept count of the many birds spotted over the course of the day at a hilltop viewing station operated by naturalists from the Staten Island Museum. Photo by Daniel Avila

7

The Event Lot hosted live music, food trucks, workshops and a craft market. Photo by Daniel Avila



1



2



3



4



5



6



7



Above: A rendering of 'Windstalk', a 2010 LAGI competition entry that proposed a field of 55-foot tall carbon fiber stalks generating energy from the wind via piezoelectric and torque generators. Image courtesy of Society for Cultural Exchange

Energy and public art unite in new design competition



Top: A rendering of 'Light Sanctuary', a 2010 LAGI competition entry that proposed using 40km of organic photovoltaic ribbon to create a labyrinth-like installation in the desert. Image courtesy of Society for Cultural Exchange



Above: A rendering of 'FERN (Future / Energy / Renewable / Nature)', a 2010 LAGI competition entry that proposed the use of flexible semitransparent photovoltaics to generate energy while providing shade. Image courtesy of Society for Cultural Exchange

At 2,200 acres, the Freshkills Park site is large enough to accommodate a host of features. The park's master plan envisions expansive, separate sites for reclaimed habitat, large scale public artworks and renewable energy installations. But a new design competition is focused on spurring conversation about the potential to combine these features through striking and spectacular on-site installations.

The competition, called the Land Art Generator Initiative (LAGI), launched in January 2012 and will conclude with the award of a \$15,000 cash prize in October. A separate competition for high school students will result in a \$1,000 cash prize. Entrants to the competition are invited to design large-scale, renewable energy-generating public artworks that complement the emerging landscape at Freshkills Park.

How large is large-scale? The design brief for the competition sets a limit of useable space at 100 acres. According to the non-profit group Society for Cultural Exchange (SCE), which is running the competition, Freshkills Park was selected, in part, because of its capacity to host very large installations that could operate at utility scale. The competition responds to growing public dissatisfaction with the aesthetics of traditional renewable energy infrastructure, especially as that infrastructure is sited closer and closer to where people live. SCE describes the competition as fostering an artistic movement that can "set a course towards aesthetic considerations in sustainable infrastructure."

The 2012 competition is the second for SCE, whose self-described mission is to "promote the arts and sustainability through collaborative inter-disciplinary projects, public art and education." A 2010 LAGI competition focused on three possible sites in the United Arab Emirates, where the organization's two American founders, artist Elizabeth Monoian and architect Robert Ferry, currently live and work. The winning entry in 2010 centered its proposal on a site near Masdar City, which bills itself as the world's first carbon neutral metropolis. SCE reports that the site was included in the competition because it would be essential to have public support for renewable energy infrastructure there in generations to come.

Likewise, SCE set its sights on Freshkills Park not only because of the site's budding identity as a hub of innovative and sustainable land management practices, but also as a future site of both renewable energy installations and large-scale public artworks, as outlined in the park's master plan. The competition was conceived to inspire future decision-making for facilities at the park.

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Wildlife Spotlight: Elusive sightings at Freshkills Park, but prevalent around the world



PHOTO COURTESY LARRY MEADE

Red fox *Vulpes vulpes*

Range: Across the northern hemisphere, from the Arctic Circle to North Africa, Central America and Asia.

Size: Between 5-22 lbs, with females typically weighing 15-20% less than males. Adults measure about 14–20 inches tall at the shoulder and 19–35 inches long, with 21-24 inch-long tails.

Preferred habitat: Most red foxes live in open and densely vegetated areas, though may seek shelter in a burrow to escape inclement weather.

Life span: 1-4 years

The red fox is a lesser-sighted but longtime resident of Freshkills Park. It is a member of the *Canidae* family, which includes dogs, coyotes and wolves. The fox has a long fur coat and a large bushy tail that is spotted black, yellow or gray or has white or black tips. Their forepaws have five digits and hind feet have four. They can jump up to two meters high.

The species breeds once a year, between January and February. Litters range from three to five pups. Babies are born blind, deaf and toothless, with dark brown fluffy fur, and are dependent on their mothers until about three months of age, when they first leave the den to hunt. They may remain near their birthing den throughout their lifetime. They are social animals whose groups are led by a mated pair.

Red foxes primarily feed on small rodents, though they may also target rabbits, game birds, reptiles and invertebrates. They are susceptible to predation by larger animals like wolves and coyotes, but there are no known predators of red foxes at Freshkills Park. Their most notable historic predator has been humans, who have hunted red foxes as pests and for their fur.

The red fox is distinguished from other fox species by its large size, ability to adapt quickly to new environments, and, due to this ability, its common presence in a wide range of places. Unlike other foxes, the red fox maintains a status of "Least Concern" for extinction on the International Union for Conservation of Nature and Natural Resources' (IUCN) list.

Snow tracks at Freshkills Park: How many can you identify?



Top row (left to right): White-tailed deer (photo by Linda Ruth), Red fox (photo by Bryant Olsen), Pheasant (photo by Martin Handley);
Bottom row (left to right): Mourning dove (photo by Reina Pearson), Muskrat (photo by Marlene Frisbie), Robin (photo by Gene Wilburn).



North Mound, viewed from East Mound. Official photo of NYC Department of Sanitation



Northern end of East Mound, viewed from North Mound. Photo courtesy of Society for Cultural Exchange

Design ideas competition begins for energy-generating artworks at Freshkills Park

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Though LAGI is an ideas competition and in no way guarantees construction of winning projects, SCE’s appointed jury will favor projects that could actually be implemented, that complement the park’s master plan and that engage thoughtfully with the environment and the public. Entries must demonstrate capacity to produce renewable energy at utility scale without pollution or negative environmental impact. Moreover, the winning entry must be judged to be beautiful. SCE recommends that entrants form interdisciplinary teams including

artists, architects, engineers and energy scientists.

SCE has, correspondingly, assembled a group of renowned experts in a variety of fields to serve on the jury for competition entries, including: Dr. Henry Kelly, Acting Assistant Secretary for the U.S. Department of Energy’s Office of Energy Efficiency and Renewable Energy; Bjarke Ingels, Danish architect; James Corner, landscape architect and Principal of James Corner Field Operations; Jean Gardner, Professor of Social Ecological History at Parsons, The New School; Melanie Cohn, Director of the Council on

the Arts & Humanities for Staten Island, Alice Aycock, artist representing the City’s Public Design Commission, and Steve Grillo of the Staten Island Economic Development Council. Other jurors will include representatives of the New York City Department of Parks & Recreation and the Department of Sanitation. Though the City has made no commitment to construct winning entries, it is eager to advance a public conversation about the vast opportunities Freshkills Park offers

The design brief for LAGI 2012 is available online, at www.landartgenerator.org.

FreshkillsPark

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Related City Initiatives
PlaNYC 2030
www.nyc.gov/planyc2030

MillionTreesNYC
www.milliontreesnyc.org

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