LI Sound Futures Fund 2010 - Water Quality - Submit Final Programmatic Report (Activities)
Grantee Organization: City of Stamford, Connecticut
Project Title: Mill River Stormwater Retention and Treatment Infrastructure (CT)

Project Period	01/03/2011 - 12/31/2012
Award Amount	$500,000.00
Matching Contributions	$1,806,230.00
Project Location Description (from Proposal)	Mill River, City of Stamford, Fairfield County, Connecticut Latitude: N 41° 3' 8.7508" Longitude: W 73° 32' 41.1179"
Project Summary (from Proposal)	Improve water quality and restore and protect degraded riparian areas on the lower Rippowam (Mill) River watershed which drains 37.5 square miles from the New York border to Long Island Sound.
Summary of Accomplishments	The stormwater treatment unit and all drainage infrastructure has been installed including four infiltration swales, three of which are rain gardens. The west rain garden drains approximately one half square mile of roadways west of the park. The underdrains, infiltration substrates and soils and planting have been completed. Throughout the park all new soils have been installed and seeded and all trees and shrubs have been installed.
Lessons Learned	The City of Stamford issued Tax Increment Financing (TIF) revenue bonds to fund the balance of the $11.5 million Phase 1 construction of Mill River Park in October 2011. The City experienced significant delays in issuing the bonds. This was Stamford's first issuance of TIF bonds. Because of the delays, a nine-month extension in the grant period was requested. The City of Stamford encountered more contaminated soil than anticipated and this added nearly $200,000 in additional costs to the project.Other than the funding and contaminated soil delays, this project has been completed as planned.

Conservation Activities	See Narrative - Not Required
Progress Measures	Other Activity Metric
Value at Grant Completion	Not Required


newly installed soils, trees, shrubs


installed soils, trees over treatment unit


Completed planting

OPENING 2015

STEVEN AND ALEXANDRA COHEN SKATING CENTER AND FOUNTAIN

Steven and Alexandra Cohen Skating Center & Fountain, will be a year-round attraction on the east side of Mill River Park. During winter months, a seasonal ice skating center will offer outdoor skating for area residents. From spring through fall an interactive fountain will offer entertainment for all ages. The Cohen's generous capital campaign gift will also provide subsidized admissions, lessons and skate rentals for disadvantaged children. This initiative is a reflection of the Cohens' concern and the Foundation's emphasis on children's health, education and welfare.

PARK BUILDING

A multi-purpose building adjacent to the skating center will house skate rentals and changing facilities, food concessions and space for educational and community programming.

OPENING 2016

TOPIARY FROGS

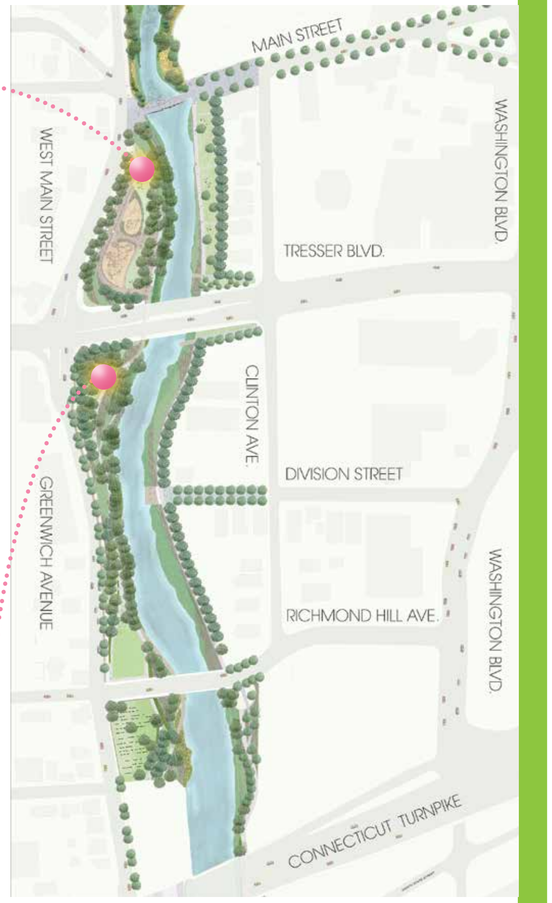
The Royce Topiary Frogs, two giant living sculptures, will enclose the comfort stations for Mill River Playground. They are an example of the Collaborative's commitment to make all architecture in the park art as well. The frogs' eyes will allow natural light in during the day and will glow gently at night.

AMPHITHEATER

Designed as an Amphitheater in the Woods at the corner of Tresser Boulevard and Greenwich Avenue, the Amphitheater will be the perfect space for small concerts and plays to be performed outdoors.

PHASE 2

Stretching from West Main Street to the historic cemetery at Richmond Hill Avenue, Phase 2 will extend the greenway nearly to I-95 with park spaces and greenway paths on both sides of the river.



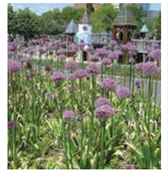
BROCHURE BY DOTWORKS: DOTWORKSDESIGN.COM PHOTOS BY SUE SWEENEY, DAVE WINSTON, MILL RIVER COLLABORATIVE & SHUTTERSTOCK

Discover Mill River Park

Mill River Collaborative, formed in 2002 and incorporated in 2006 as a 501(c)(3) nonprofit corporation, is providing the leadership and resources to create and maintain Mill River Park. Mill River Collaborative is a public/private partnership of government, corporate and community interests who are committed to both building an inviting and exciting park and greenway, and assuring its enduring success.

The Collaborative board is comprised of representatives from a variety of stakeholder groups including Stamford's City government, the business community, West Side community, the Downtown Special Services District, the Urban Redevelopment Commission and other civic volunteer leaders. In 2008, the Collaborative entered into a ten-year contract with the City of Stamford to manage the development, operations and maintenance of Mill River Park & Greenway that is modeled after the Central Park Conservancy's contract with New York City.

Construction of Phase 1 of Mill River Park began in September 2011 and this largest area of the park will open to the public in May 2013, bringing 12 acres of parkland to Stamford's urban core. For more information visit ***www.millriverpark.com***



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OPENING 2013

WEST PROMENADE & OVERLOOK

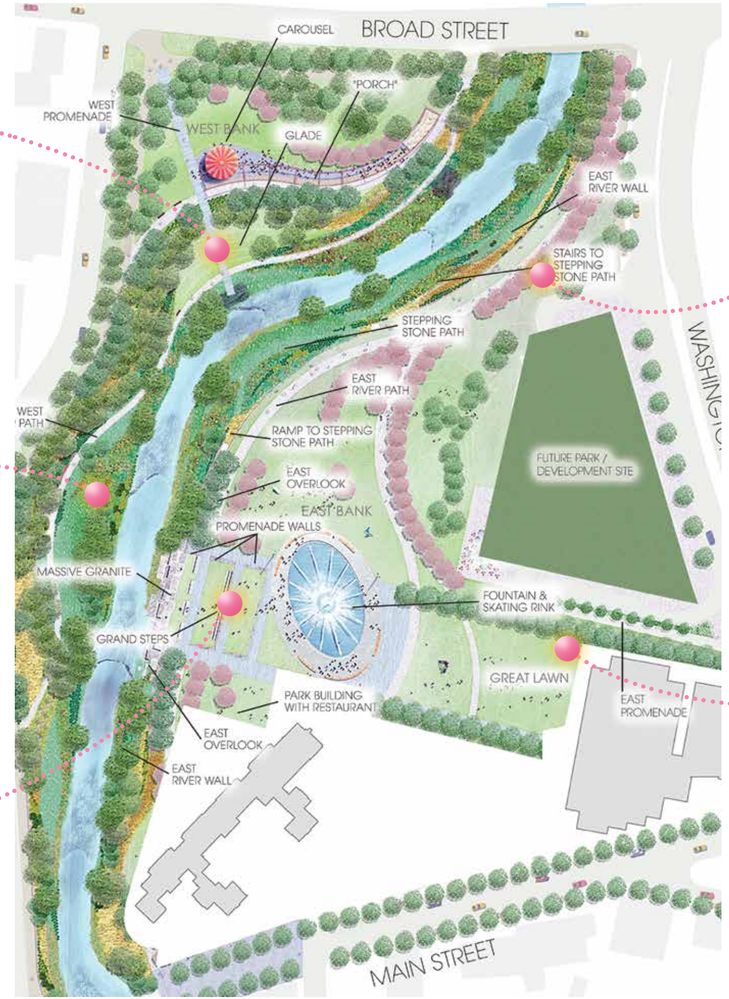
The West Promenade slants down from the Carousel Entrance at Mill River and West Broad Streets to the West Overlook at the river's edge where visitors can trade the sounds of urban traffic for the sounds of rippling water and songbirds in the river meadows.

FLOODPLAIN MEADOWS

The Nestle Waters Flood Plain Meadows are a major element of the habitat restoration of the former Mill Pond site. Composed exclusively of native species, they provide food and shelter for songbirds, small mammals, butterflies and other pollinators that are essential players in restoring the environment.

GRAND STEPS

Composed of granite stairs and turf terraces, the Grand Steps transition from highly refined granite to natural stone at the river's edge. The Grand Steps are a great venue for smaller more formal events, creating a natural amphitheater facing the sunset, where the sounds of the city no longer intrude. (Shown here during construction.)



CHERRY TREE GROVES

Mill River Park will have three cherry tree groves. The Eliot and Roslyn Jaffe Legacy Cherry Tree Grove on the west side of the park will include original trees planted by Junzo Nojima as well as trees propagated from them. The largest grove, the First County Bank Cherry Tree Grove on the east side of the park will contain over fifty new Yoshino cherry trees and nine Kwanzan cherry trees that have been propagated from Mr. Nojima's trees. Finally, a smaller grove around the Grand Steps will feature Autumn Higan Cherry Trees.

GRAND ALLEE & GREAT LAWN

The Grand Allee of yellowwood trees lines the East Promenade as it proceeds from the City Entrance on Washington Boulevard to the Steven and Alexandra Cohen Ice Skating Center & Fountain. These trees with their dramatic trailing blossoms create an enchanting passageway from the world outside. The allee lines the Great Lawn, where passive recreation of all types will prevail during the day and Stamford's largest cultural events can occur at night.

OPENING 2014

CAROUSEL

The David & Marian Nissen Carousel will provide four-season entertainment for children of all ages. Its 30 hand-carved horses and animals and two handicapped accessible features will make sure every child participates in the joy of the carousel ride. Mill River Collaborative has chosen Carousel Works, the highest quality carousel supplier, to assure that this feature matches the high quality standards of the entire park.

CAROUSEL AND EVENT PAVILION

The artistically rendered pavilion will provide protection from the elements and four-season enjoyment of the carousel. In addition, it will provide event space for parties, wedding receptions and events of all types. Surrounded by a terrace and the legacy cherry tree grove, the pavilion will offer the best setting in Stamford for both private and public events. On regular days the pavilion will provide seating inside and out where you can enjoy quality food or just, sit, talk or work.

PORCH SCULPTURAL CANOPY

The "Porch" is the northwest section of the park that sits above the floodplain. It offers great views down the river and across to the east side. The award-winning sculptural canopy designed by Gray Organschi Architects frames the top edge of the flood plain twisting, rising and falling in a study in energy and tension. Beneath its dappled shade you can sun bathe, play chess and picnic. A grouping of irregular mounds provide a great backrest, hiding places and a landscape for imaginative play.

MILL RIVER PARK

— native wildflower mix —

Prarie Phlox
Phlox pilosa

Black-Eyed Susan
Rudbekia hirta

Eastern Silvery Aster
Aster concolor

Perennial Lupine
Lupinus perennis

Butterfly Weed
Asclepias tuberose

Gayfeather
Liatris spicata

Wild Columbine
Aquilegia canadensis

Blue Mistflower
Eupatorium coelestinu

Showy Goldenrod
Solidago speciosa

Blue False Indigo
Baptisia australis

Blanket Flower
Gallardia artistata

New York Ironweed
Vernonia noveboracensis

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TOP FLAP

MILL RIVER PARK

— native wildflower mix —

Mill River Collaborative is a non-profit, private/public partnership committed to creating and sustaining Mill River Park & Greenway. Bringing together local businesses, city, state and federal governments, and private citizens, the Collaborative is building and maintaining a vibrant, world-class urban park and river greenway for Stamford, CT.

You can make a piece of the Park yours.
Please log on to www.millriverpark.com to help.

Mill River Park's Nestlé Waters Floodplain Meadows have been planted with native grasses, wildflowers, shrubs and trees to restore the indigenous ecosystem of a Connecticut riverbank. This packet contains a mixture of easy to grow, colorful wildflower seeds pictured on the front. Please use the Mill River Park wildflower seed mix to create a colorful natural border attractive to birds, bees and butterflies.

WHEN TO PLANT

Plant in late spring, after all frost, summer or early fall.

PLANTING INSTRUCTIONS

Find a sunny place, remove existing grass and other growth and spread the seeds evenly. Do not bury; simply compress into the surface of the bare soil. Keep soil moist until seedlings are 4-6" high. Most will grow to 3' to 4' tall and some taller. Enjoy!

SIDE FLAP

MILL RIVER
COLLABORATIVE
WWW.MILLRIVERPARK.COM

MILL RIVER
COLLABORATIVE

MILL RIVER PARK

— native wildflower mix —

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Final Programmatic Report Narrative

Instructions: Save this document on your computer and complete the narrative in the format provided. The final narrative should not exceed ten (10) pages; do not delete the text provided below. Once complete, upload this document into the on-line final programmatic report task as instructed.

1. Summary of Accomplishments

The stormwater treatment unit and all drainage infrastructure has been installed including four infiltration swales, three of which are rain gardens. The west rain garden drains approximately one half square mile of roadways west of the park. The underdrains, infiltration substrates and soils and planting have been completed. Throughout the park all new soils have been installed and seeded and all trees and shrubs have been installed.

2. Project Activities & Outcomes

ACTIVITIES

The City of Stamford issued Tax Increment Financing (TIF) revenue bonds to fund the balance of the $11.5 million Phase 1 construction of Mill River Park in October 2011. The City experienced significant delays in issuing the bonds. This was Stamford's first issuance of TIF bonds. Because of the delays, a six-month extension in the grant period is being requested.

$2,700,830 in local matching funds have been contributed by Mill River Collaborative and appropriated by the City of Stamford. These funds were raised from the private sector as part of the Collaborative's $20 million capital campaign for Mill River Park. At the time of this reports' completion, the Collaborative had raised $13.7 million.

Construction of the entire Phase one area of Mill River Park was substantially completed by May 1, 2013. The City will held a grand opening of the park on May 2, 2013.

Infiltration: The topography of Mil River Park directs the majority of surface drainage to four infiltrations areas or to sheet flow over land and through scuppers in the East River Wall to the river. Three infiltrations areas are on the east side of the park: Infiltration swale 1 captures flow overland from the lawn areas before it hits the east river path and allows it to percolate into a grass covered depression at the west side of the north lawn. Underdrains have been installed under the swale and a clean-out is at the end to allow accumulated sediment to be removed from the underdrain over time. Infiltration swale 2 lies parallel and further east on the east side of the knoll. It is grass covered and captures overland flow from the knoll and from the 2-acre site fronting on Washington Boulevard. Stormwater from a future park building will also discharge to infiltration swale 2. Rain garden 2 covers a quarter acre and receives the excess flow from infiltration swale 2. It is covered with wood bark mulch and planted with hundreds of clumping grasses that will grow to contain massive biomass and capacity for stormwater uptake. Rain Garden 1 on the West side is the result of daylighting a 24-inch storm drain that formerly flowed directly into the Mill Pond. This storm drain carries the runoff from eight blocks of streets on the west side of the park. The west side of the park is the natural side and this garden is planted with a diversity of native vegetation that gives it an attractive and changing flora through the growing season. We have to actively manage the cattails there to preserve the diversity of the rain garden vegetation. At the discharge point into the swale, road debris accumulates and we remove it annually. At the downstream end of the swale a low dam that is heavily vegetated impounds the stormwater where it settles into the ground. Most of the overland flow from the middle of the west side of the park flows toward rain garden 1.

The granite planking promenades that lead from the sidewalks to the river are all semi-pervious. They are set in crushed stone on concrete foundations that drain to the aggregate sub-base along one curb. Heavy rains carry too much water to percolate through. The same is true of the stone fines paths. In both of these areas on the east side catch basins have been installed that lead to the stormwater treatment unit, an oil and grit separator that has the capacity to treat the first inch or more of rainfall.

Natural Runoff Patterns: Most other areas of the park flow directly toward the river over the landscape. The two asphalt river paths on each side of the river are the only completely impervious surfaces inside the park. They are asphalt so they can be easily cleaned after flooding. They drain toward the river and stormwater from upslope areas drains across them. On the east side the stormwater flows toward the east river wall with its scuppers spaces every 20 feet or so. Stormwater drains through the scuppers and across the wide riparian buffer between the wall and the river that contains dozens of trees and hundreds of shrubs and two acres of floodplain meadows planted with native grasses and wildflowers.

On the west side of the river all areas on the interior of the sidewalks drain toward the river over turf at the north and through meadows, trees and shrubs throughout. After crossing the west river path 2-6 feet above the bank full elevation of the river these flows enter densely planted meadows along the river edge that have dense areas of trees and shrubs to the north and south. There are over 4 acres of floodplain meadows on the west side of the river.

Soils: Four different soil mixes were used in Mill River Park Phase 1.

Mix 1 for trees and shrubs – installed to depths of 3 feet in tree areas and 18 inches in shrub areas.
Mix 2 for meadow areas – installed to 12 inch depth
Mix 3 for turf – installed to 9 inch depth
Mix 4 for infiltration areas – especially formulated for percolation and installed to varying depths based on the topography of the swale

All of the original topsoil was removed from the site and replaced with a total of 29,828 cubic yards of new specially formulated soil mixes designed to support maximum vegetative performance.

Plantings: Over four hundred new trees and 1,500 shrubs were planted in the Phase 1 area of Mill River Park. Some were planted immediately following the river restoration work to help stabilize the immediate banks of the river. During the recent contract 245 new trees and 675 shrubs were installed plus 300 live alder stakes that failed and are being replaced with alder tublings. 125 vines have been installed along the fence along the east and south edges of the park. Approximately 3.5 acres are covered with turf, all in upland areas at street elevation over 10 feet above the typical water surface elevation. Turf areas are all separated from the river by the floodplain meadows. We manage our turf (lawns) organically.

OUTCOMES

200 tons of topsoil have been removed and replaced with five new soil mixes specifically designed, for trees, shrubs, turf, infiltration areas and meadows at an installed cost of $1,867,830.

Installed plant material includes:

	Installed Cost	
Riparian Plantings	$	185,000
lawns and grasses	$	76,000
trees	$	427,000
shrubs	$	51,000
herbaceous plants	$	94,000
Total plant material	$	833,000

The match covered the new soils and plant material throughout the area under construction and they have all been installed. The local match is $2,700,830 rather than the $1,860,320 in the grant application.

To date the City has paid nineteen contractor invoices totaling $11,049,565.40.

Stamford's long-term water quality goal is to implement a watershed wide system of green and engineered stormwater treatment infrastructure to protect the river and Long Island Sound from the continuing growth in auto use and to mitigate the impacts of landscape chemicals and herbicides on the aquatic environment. This project is one small component of a larger plan. It seeks to implement water quality infrastructure during the construction of Phases 2, 3 and 4 of Mill River Park & Greenway. The specific goal is to treat the first inch of stormwater that falls on the park, surrounding properties and adjacent impervious surfaces.

We encountered more contaminated soil than anticipated and this added time and nearly $200,000 in additional costs to the project.

3. Lessons Learned
Other than the funding and contaminated soil delays, this project has been completed as planned.

4. Dissemination

- Mill River Park is being developed as a demonstration of sustainable stormwater and watershed management. The Collaborative is in the process of selecting a signage and digital information consultant to interpret the environmental processes that are taking place in the park including:

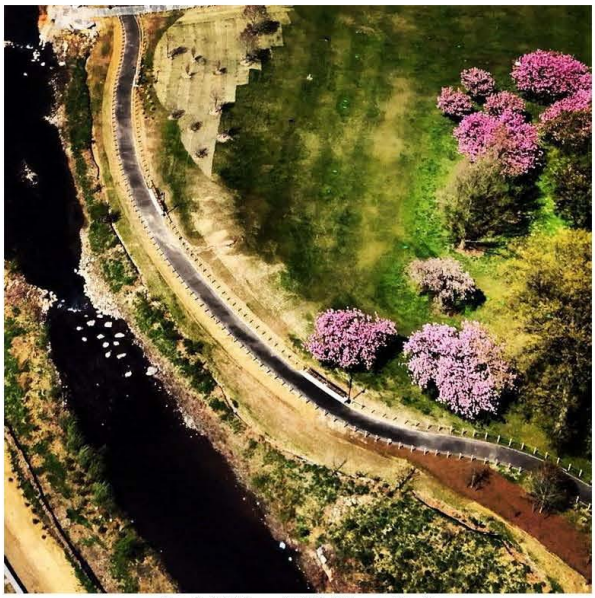
    - Stormwater infiltration
    - Restoration of native plant communities and host species for native pollinators]
    - The symbiotic relationships between species that makes up a restored ecosystem
    - How local property owners can implement some of the best practices demonstrated in the park on their own properties

In the coming years this information will be available in signage and on the web. Website: www.millriverpark.com.

5. Project Documents
Include in your final programmatic report, via the Uploads section of this task, the following:

- 2-10 representative photos from the project. Photos need to have a minimum resolution of 300 dpi and must be accompanied with a legend or caption describing the file name and content of the photos;
- report publications, GIS data, brochures, videos, outreach tools, press releases, media coverage;
- any project deliverables per the terms of your grant agreement.

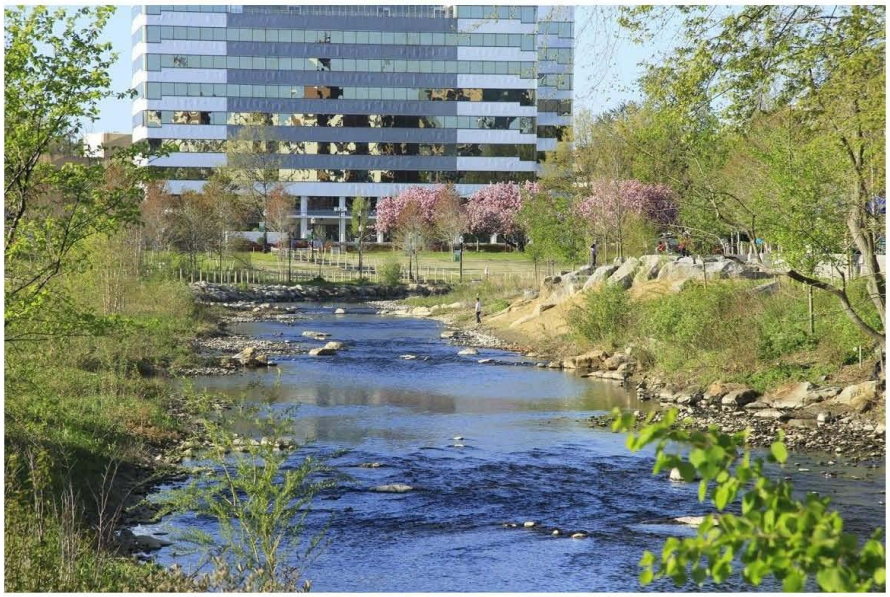
POSTING OF FINAL REPORT: *This report and attached project documents may be shared by the Foundation and any Funding Source for the Project via their respective websites. In the event that the Recipient intends to claim that its final report or project documents contains material that does not have to be posted on such websites because it is protected from disclosure by statutory or regulatory provisions, the Recipient shall clearly mark all such potentially protected materials as "PROTECTED" and provide an explanation and complete citation to the statutory or regulatory source for such protection.*



Aerial View Mill River Park

Mill River Park East Side of Park

Mill River Park Movie Night

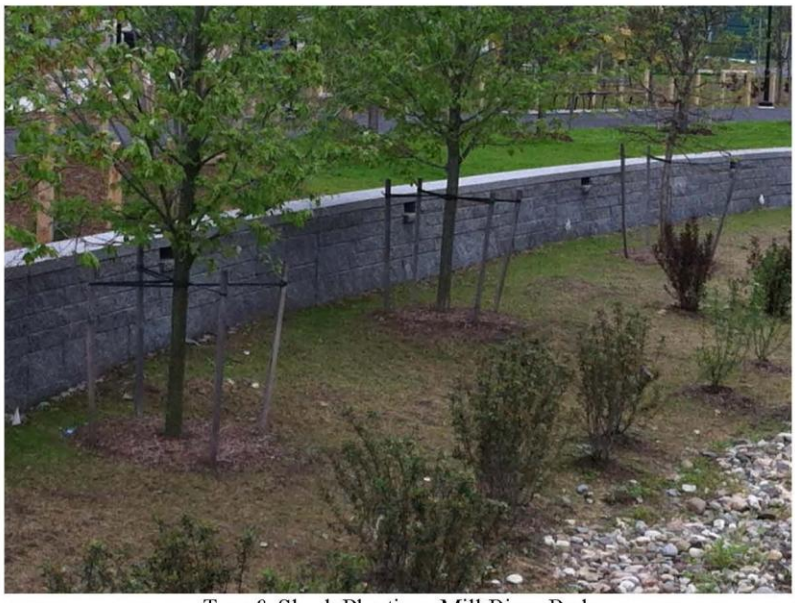


Mill River Park View from South

Plantings Mill River Park

Drainage Areas Mill River Park

Tree Plantings Mill River Park



Tree & Shrub Plantings Mill River Park

Rain Garden 1 on the West Side of Mill River Park

Walkway down to the River Mill River Park