

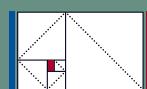
Planning and Design for:

# Peekskill's Southern Waterfront Park and Trail Master Plan

Final Design Report

**City of Peekskill, New York**

**July, 2009**



**SYNTHESIS**

This report was prepared for the New York State Department of State Division of Coastal Resources with funds provided under Title 11 of the Environmental Protection Fund.



**Simpson Gumpertz & Heger Inc.**

# Peekskill's Southern Waterfront Park and Trail Master Plan

City of Peekskill, Westchester County, New York  
July 2009

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# Tab - Section 1

## Summary of Plan

# Planning and Design for Peekskill's Southern Waterfront

## Section 1 Summary of Plan

### Introduction

This plan was prepared for the City of Peekskill and the New York State Department of State, Division of Coastal Resources, with funds provided under Title 11 of the Environmental Protection Fund. This summary describes the final schematic design that was developed for Peekskill's Southern Waterfront, from Riverfront Green Park to Lent's Cove. It summarizes the approach that was used and the components that were developed in creating the final product.

This report is organized into sections beginning with a narrative and maps of the six segments that comprise the final schematic design plan. The maps are followed by supporting information that describes the approach to shoreline stabilization, best management practices, anticipated phasing, preliminary cost estimates, and regulatory requirements. This summary supplements the Site Reconnaissance Report that describes the existing conditions of the waterfront area, completed in April 2008.

### Summary of Waterfront Park and Trail Master Plan

The Schematic Design Plan for Peekskill's Southern Waterfront was formulated through a collaborative process that includes the Peekskill Common Council, the City's Parks Advisory Board, City, State and Federal agencies, and the general public. This has been accomplished through a series of public meetings that solicited input from all parties, and valuable ideas have been incorporated into the final plan.

Plan concepts are based on extensive studies and analyses that have taken place since the study commenced in late 2007, including topographic surveys, extensive site analyses, shoreline stabilization methods, and State and Federal permit regulations. The Site Reconnaissance Report dated April 2008 contains all the background information that was used to develop the concepts. Plan maps, images and renderings present the visual layout of the plan components. In addition, the Shoreline Stabilization Summary and Best Management Practices describe the erosion control methods that have been discussed extensively with the permitting agencies. Finally, a Phasing Plan and preliminary cost estimates provide guidance for plan implementation.

The primary goal of the plan is to develop a continuous multi-use waterfront walkway from McGregory Brook to Peekskill's southern border with Buchanan. This walkway will be designed according to Westchester County's RiverWalk standards. Along the walkway, public amenities will be provided, such as picnic areas, kayak launches, viewpoints, and improvements to the existing parkland. The plan recognizes that this 1.5 mile long waterfront trail does not exist in isolation. The City's waterfront promenade will continue to the north over the existing McGregory Brook footbridge onto Peekskill Landing, where a pedestrian overpass is proposed to cross the railroad tracks to North Water Street with access to Central Avenue and the downtown. The shoreline trail continues to the north through Annsville Preserve Park and connects with the Paddlesport Center in Cortlandt. At its southern end, the trail will continue past Lent's Cove along Westchester County's planned RiverWalk.

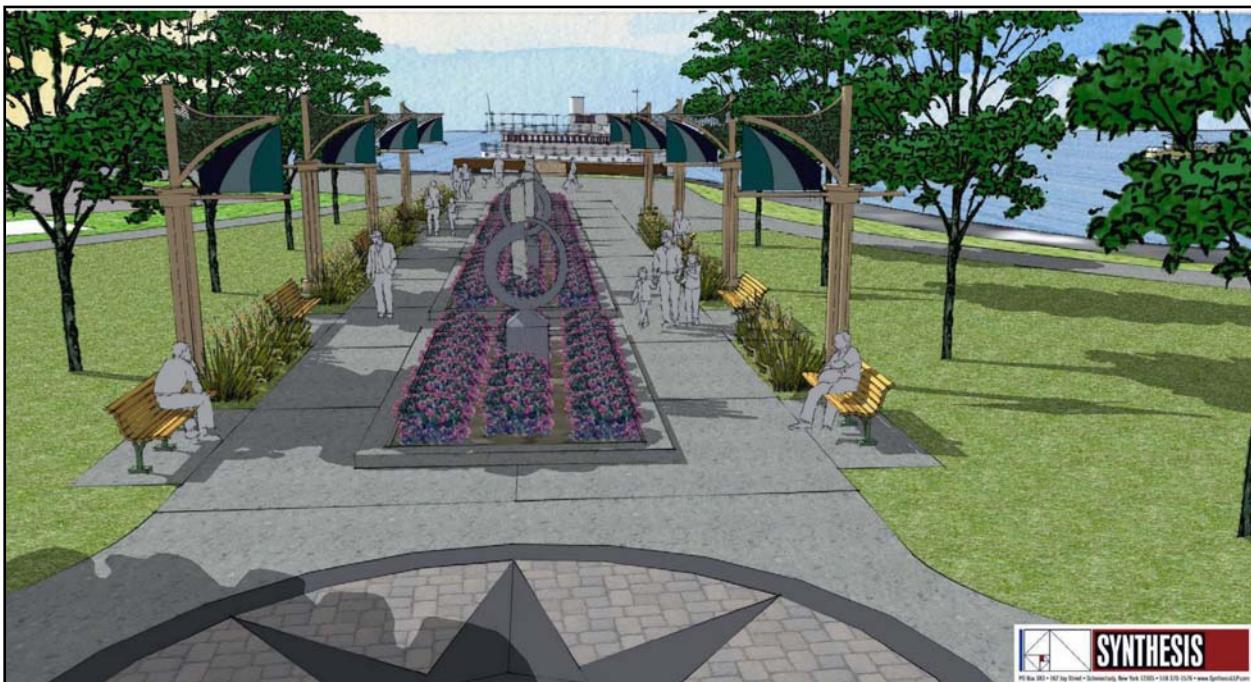
The Peekskill Southern Waterfront study area is divided into six (6) segments. From north to south, the segments are: Riverfront Green Park, Riverfront Green South, Travis Point, Travis Cove, RESCO and Lent's Cove. A number of alternative concepts were explored during the extensive public review period. In addition, reviews by City staff, the Parks Advisory Board, the NYS Department of State and the NYS Department of Environmental Conservation have helped shape the final plan concepts. The Master Plan

maps in section 2 illustrate the final design that has been developed as a result of extensive input from the public and agency staff.

### **Riverfront Green (Map #1)**

Riverfront Green is Peekskill's premier waterfront park, with excellent views of the Hudson Highlands and extensively used park facilities. What the park lacks, however, is a continuous path for walking and biking along the river.

To accomplish the goal of increasing recreational opportunities, the City must first focus on improving and repairing its shoreline. The plan recommends a bio-engineered stabilization method for Riverfront Green and McGregory Brook that is designed to protect the shoreline from future erosion and destructive wave action, while maintaining the natural look at the water's edge. The permanency of this stabilization



**Enhanced Gateway with Ferry Dock**

method is not guaranteed, however, and future repairs may be necessary to protect the new walkway along Riverfront Green. Its longevity will depend largely on the type and amount of vegetation that is established along the waterfront, and this will be determined during the construction document phase.

Once stabilization is undertaken, the 10 foot wide multi-use trail way can be constructed, starting at the pedestrian bridge to Peekskill Landing, overlooking McGregory Brook, and extending south to the existing walkway beyond the floating docks. An overlook sitting area with a gazebo will be developed at the mouth of McGregory Brook, and the beach area will be formalized and replenished. The floating dock will be replaced with a more formal public docking facility for daily transient boat usage. The eroding rip rap below the dock area will be repaired to prevent further erosion. A new ferry dock appears on the plan as an extension to the main pathway from Hudson Avenue to accommodate the Commander and other cruise ships contemplated for the future.



Interactive Spray Park on Riverfront Green (conceptual)



Band Shell with Canopy on Riverfront Green

The new seasonal recreational component includes a small spray ground located just north of the playground near the pavilion. This will be a popular attraction that will increase playground attendance on hot summer days. The cul-de-sac and parking area at the north end of the park would be improved as a drop off location for Peekskill Landing, since access will be limited to pedestrians. Existing improvements that will remain in place on Riverfront Green include the new playground, the refurbished restrooms, the picnic pavilion, and upgraded volley ball courts.

This pathway will be improved as an enhanced gateway, with inviting features such as a sculpture garden, flags, and a light tower. This entrance would be designed so as not to obscure the view to the water but to provide a sense of entry into the main park area. The Sam Oitice Heroes Remembered Memorial is located along this central spine for easy access and visibility, yet it is tucked behind a row of mature trees and faces the water for privacy and contemplation. A future concept would be to remove the little-used drop off area at the park entrance and construct a small ferry terminal that could also function as a waterfront information center, with possible supply, gift shop or beverage center. The park plan contains a series of secondary paths from one end of Riverfront Green to the other, so that the public use areas are interconnected and the park is more inviting and fully used for strolling. The entrance to the park at Hudson Avenue will be more welcoming with formalized gardens, and the plan maintains view sheds for those wishing to park and remain in their cars. A new permanent bandshell will replace the show mobile and enhance the park experience. The open air design of the bandshell with canopy is intended to compliment the waterfront nautical theme. A



Riverfront Green South rendering with multi use trail, gazebo, trellis swings and picnic areas



Riverfront Green South rendering looking north toward Riverfront Green



Aerial Rendering of Riverfront Green Park and Riverfront Green South

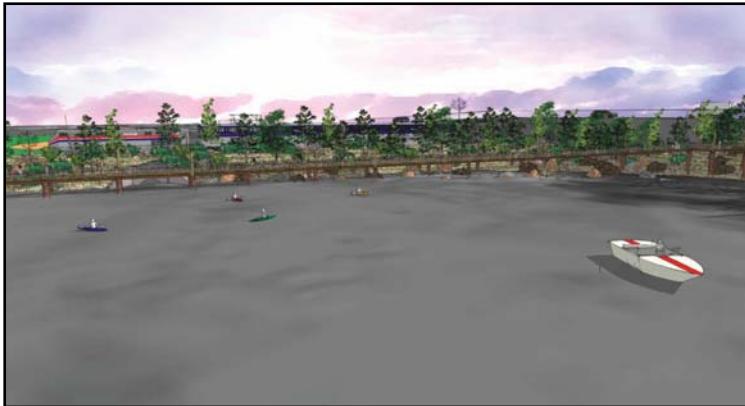
side of the multi-use trail to prevent undermining along the edge of the intertidal zone. A rendering of the overall shoreline looking northeast shows the link between Riverfront Green South and Riverfront Green as one continuous park with shoreline trail.

## Riverfront Green South (Map #2)

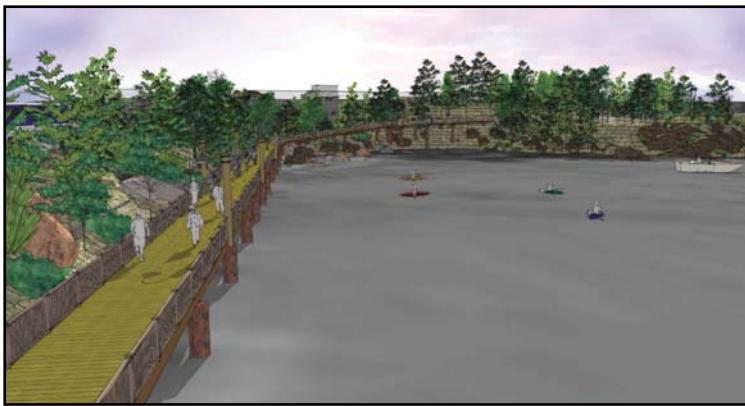
The low lying area south of the boat ramp requires extensive improvements in order to be used as parkland on a regular basis. These improvements require that the shoreline receive bio-engineered stabilization and grading before park amenities are installed. The rip rap would be reshaped to raise the elevation just above the high tide line, with the ground elevation tapered upward to prevent the frequent flooding that occurs presently.

Applications for permits will be submitted to State regulatory agencies for this work. Park improvements for Riverfront Green South include a continuous waterfront walkway that meanders through open lawn and picnic areas with overlook gazebos, sculpture gardens and native planting beds. The existing crescent beach near the boat launch will be re-nourished and maintained to continue as a kayak and personal watercraft launch area. In order to accommodate the waterfront trail at this location, a small section of the current roadway and parking area needs to be shifted closer to the railroad tracks with the cooperation of Metro North.

A small retaining wall would be needed on the shoreline



Travis Cove walkway (the view from the water)



Travis Cove walkway (the view at high tide)



Travis Cove walkway (the view at low tide)

### Travis Point (Map #3)

The trail will continue south by following the existing roadway between the railroad tracks and the Peekskill Yacht Club boat yard. A new tree-lined path will be built adjacent to the reconstructed parking lot that has been discussed by the City and yacht club for shared use. The trail will bypass the clubhouse to a new gazebo adjacent to their restroom facility; both structures are proposed for shared public use. The trail will proceed along the shoreline to a public dock in Travis Cove with a possible kayak launch and sculpture pavilion, and then on to the Travis Cove raised walkway. A viewpoint is proposed via an informal overlook path on top of the Travis Point knoll, which will offer excellent views of the Hudson with some selective clearing.

### Travis Cove (Map #4)

The raised walkway (boardwalk) has been discussed with the permitting agencies and with Metro North and appears to be an acceptable concept, although permits have yet to be issued. The ten foot wide boardwalk would be approximately four feet above mean high water, and constructed on piles installed in the rocky shoreline adjacent to the railroad bed's steep slope. The boardwalk would follow an upward slope until it parallels Louisa Street, and then continue as a paved path to the entrance of Charles Point Pier Park. Two significant features will overlook Travis Cove; an historic overlook

platform on top of a steep rocky promontory with exceptional views of the Hudson Highlands, and a fishing pier that extends out into Travis Cove at the location of the former water intake structure for the Fleishmann Distillery. Both these viewpoints will offer interpretive signage.

### **Charles Point (Map #5)**

While Charles Point Pier Park was completed several years ago, minor shoreline stabilization improvements are proposed to ensure the upper bank's long term stability. In addition, improvements will be made to Fleishmann Pier, including partial widening, a covered shelter feature, and the restoration of the outermost section that is presently closed. A 10' wide section of the RESCO property high above the Hudson River will be used to continue the waterfront trail around the fenced Wheelabrator facility, connecting to the Charles Point Marina. This will be an interpretive trail, with attractive signage that illustrates the history of Peekskill's industrial waterfront.

### **Lent's Cove (Map #6)**

The trail will continue along the public boardwalk at the Charles Point Marina, and an improved trail will be constructed onto the City-owned peninsula in Lent's Cove. An overlook structure is planned, as well as a kayak launch to access Lent's Cove and Dickey Brook. The waterfront trail will continue behind the Bertoline building and along John Walsh Boulevard. This section will be constructed in conjunction with the approved Bertoline building expansion. The City will work with Buchanan officials to connect the trail to Lent's Cove Park along John Walsh Boulevard. The roadway may need to be reconfigured slightly so that a 10' wide multi-use path can be constructed on the western side of the roadway, overlooking Lents Cove.

### **Vehicular and Pedestrian Access**

Vehicular access to the waterfront trail and parkland will be enhanced with directional signage that indicates the locations of accessible public parking areas. Strategic locations for signage include Hudson Avenue near Route 9 to access Riverfront Green Park, Riverfront Green South and the proposed new Travis Point parking area. Lower South Street and Louisa Street provide access to parking at Charles Point Pier Park, Fleishmann Pier, the proposed Travis Cove Walkway and the RESCO trail. Welcher Avenue and John Walsh Boulevard are entry points for parking at the Charles Point Marina to access the Charles Point Boardwalk, the proposed Peninsula Trail and the walkway to Lents Cove Park. Riverwalk or other signage should be added at these entry points to indicate trailhead parking locations. Effective pedestrian access can be accomplished by adding crosswalks and signage at major roadway intersections, such as along South Water Street, Hudson Avenue, Lower South Street, Louisa Street and John Walsh Boulevard. These improvements will help regional and local residents to locate their desired starting point for their visit to the Hudson River shoreline.

### **Next Steps**

This plan provides the concepts and methods that will guide subsequent planning and implementation of the new trail and park improvements along Peekskill's Southern Waterfront. The next step is for more detailed design plans to be formulated for each segment in the form of construction documents. These documents are currently being prepared to stabilize the shoreline and to construct the trailway and parkland improvements for certain segments. Construction will take place as funds become available.



## CITY OF PEEKSKILL SOUTHERN WATERFRONT MASTER PLAN

JUNE 29, 2009 VICINITY MAP



THIS MAP WAS PREPARED FOR THE NEW YORK STATE DEPARTMENT OF STATE DIVISION OF COASTAL RESOURCES WITH FUNDS PROVIDED UNDER TITLE 11 OF THE ENVIRONMENTAL PROTECTION FUND.



## Tab - Section 2 Master Plan Maps



**CITY OF PEEKSKILL SOUTHERN WATERFRONT MASTER PLAN  
MAY 4, 2009 RIVERFRONT GREEN MAP #1**

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THIS MAP WAS PREPARED FOR THE NEW YORK STATE DEPARTMENT OF STATE DIVISION OF COASTAL RESOURCES WITH FUNDS PROVIDED UNDER TITLE 11 OF THE ENVIRONMENTAL PROTECTION FUND.







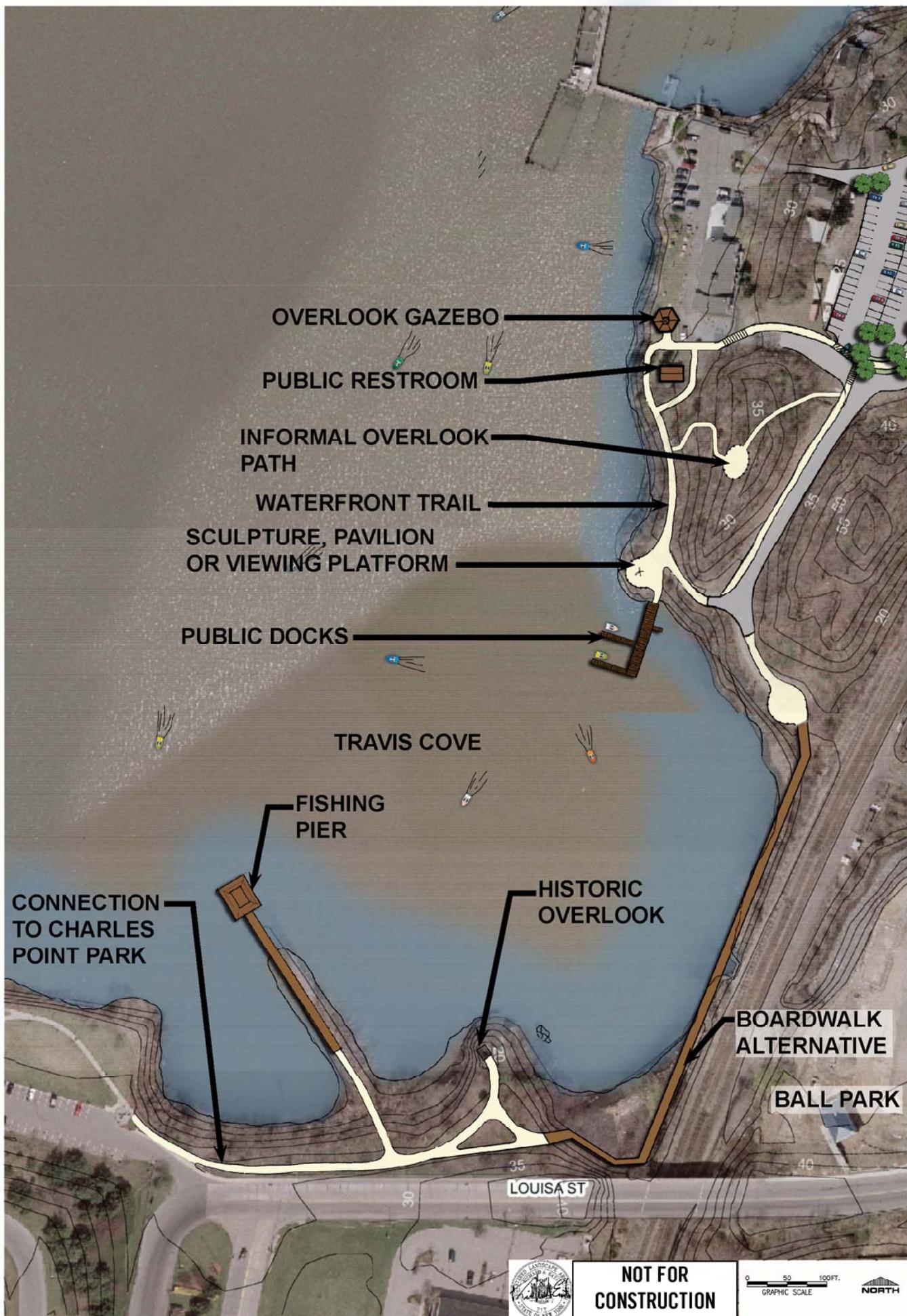
CITY OF PEEKSKILL SOUTHERN WATERFRONT MASTER PLAN  
MAY 4, 2009

TRAVIS POINT MAP #3



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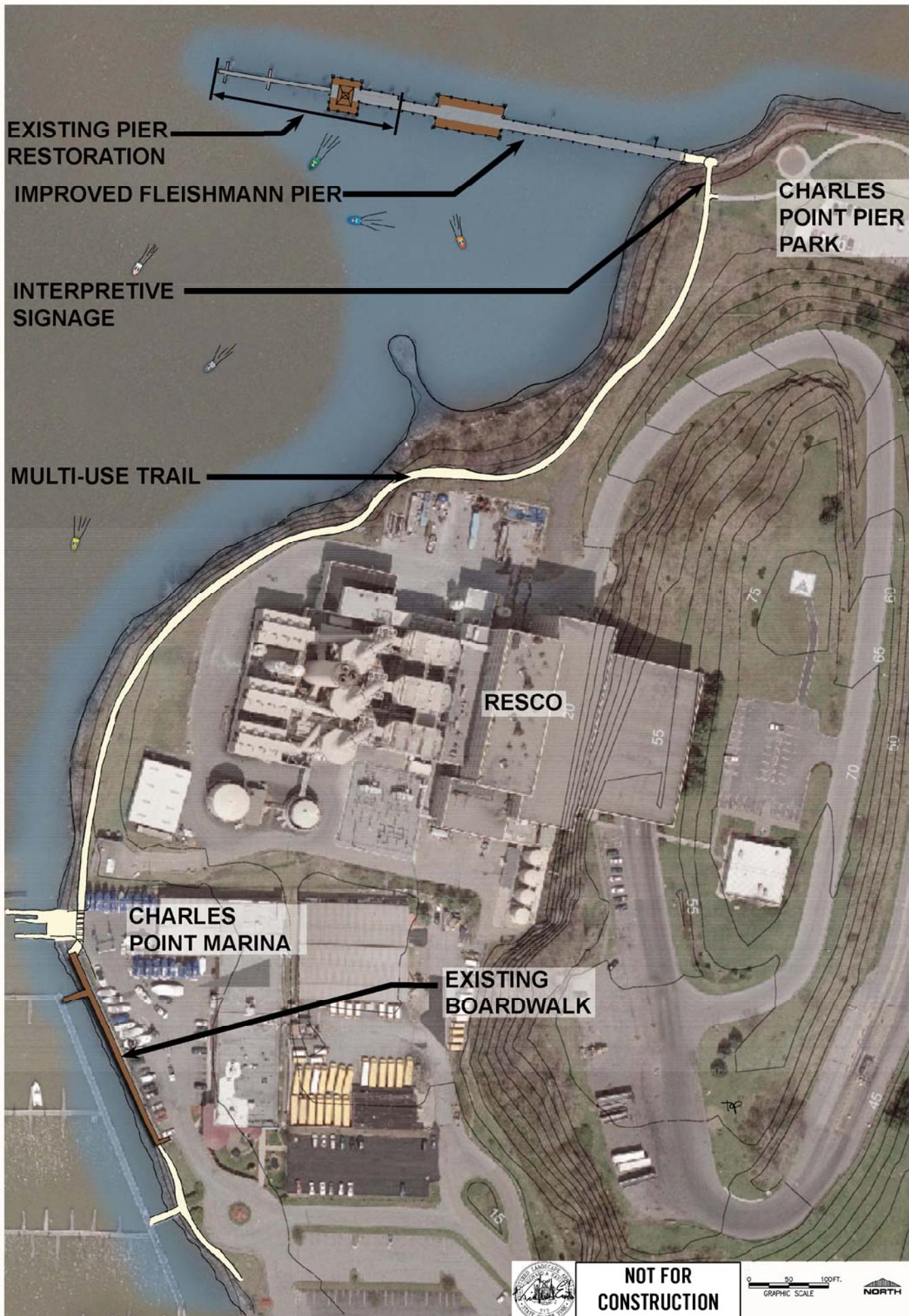
SYNTHESIS  
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Engineering  
Simpson Gumpertz & Heger Inc.



CITY OF PEEKSKILL SOUTHERN WATERFRONT MASTER PLAN  
MAY 4, 2009



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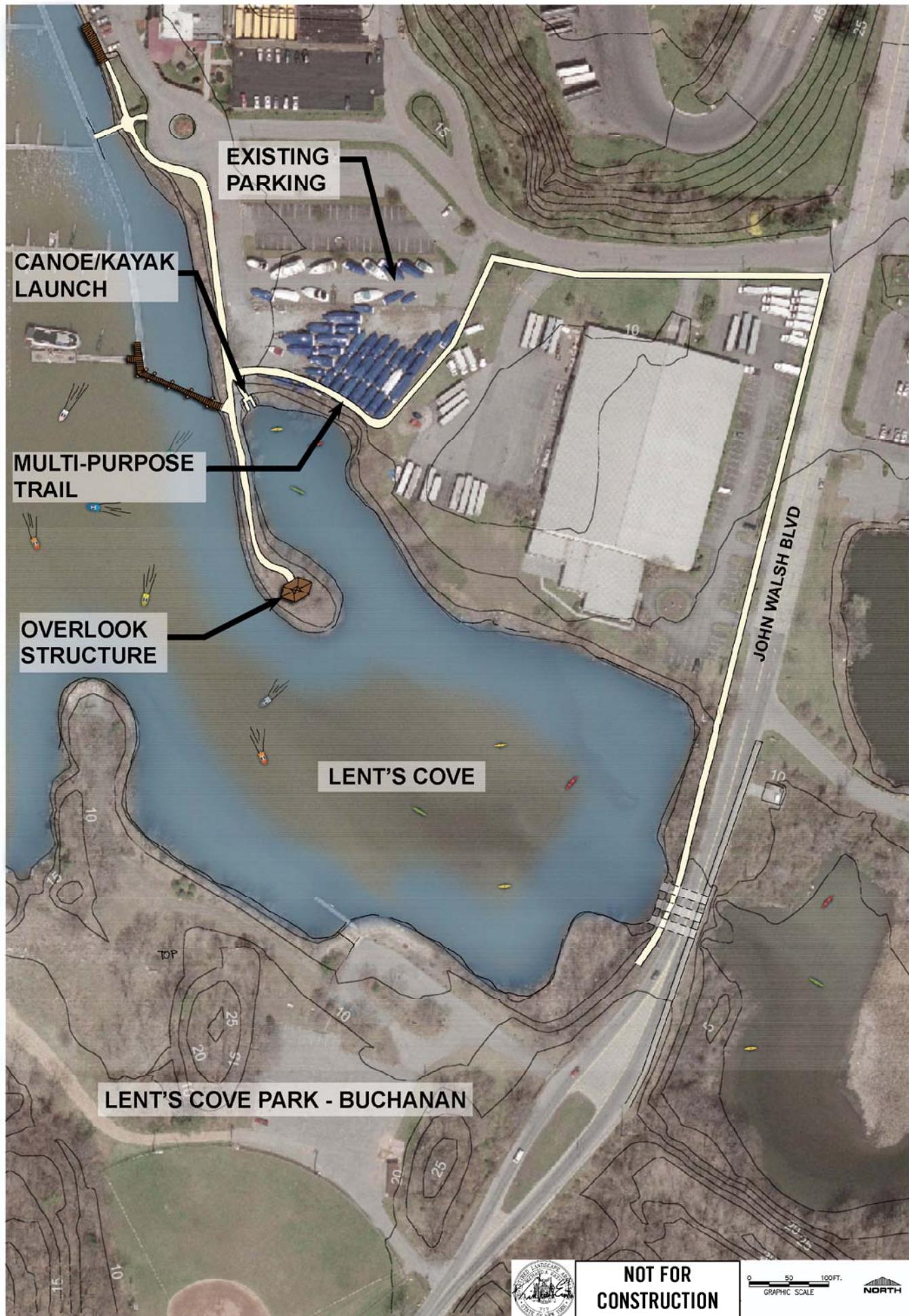


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## Tab - Section 3

### Shoreline Stabilization

## **Section 3 Shoreline Stabilization Summary**

This section provides a summary of shoreline stabilization measures, which in general are targeted toward ensuring a relatively stable waterfront while providing a textured, natural substrate favorable to the growth and activity of a variety of fish, macro-invertebrates and other wildlife species. The primary objective of shoreline stabilization measures is to create a variety of textures from a mix of large and small rocks, coarse fill, topsoil and vegetation that provides varied spaces for protective cover and a source of food for colonizing species and primary consumers.

The following shoreline stabilization measures will be employed for McGregory Brook and Peekskill Bay (subject to permitting):

### **McGregory Brook**

The erosion along much of the brook is relatively minor and slowly progressing such that the spot treatment with supplemental trees and shrubs would suffice. In other areas, where trees and shrubs are lacking, the addition of a biodegradable Coir geotextile that protects a supplemental soil layering would provide an improved planting medium for quick-growing shrubs. Supplemental trees and shrubs would also be applied to the upper bank in these areas.

The lower segment of the channel just above the confluence with the Hudson River has experienced much more erosion, due to the mixing and churning that occurs during storm events when the tide is rising, the general tidal and wave action and the lack of woody vegetation atop the bank.

The portion of the stream bank nearest the river that has been washed out will be rehabilitated by supplementing the stone base that is presently exposed to create a barrier behind which can be placed layers of soil wrapped with geotextile fabric. A Coir log positioned at the top of the bank, protected by rip-rap at the face and underlain with a Coir wrapped soil layer, will promote the growth of herbaceous and woody vegetation immediately behind the rip-rap face. Additional live stakes will further anchor the soil layer encased with heavy Coir geotextile fabric and promote the growth of woody shrubs. The entire slope will be seeded with native grasses and the top of the bank will be planted with trees and shrubs to ensure long-term stability of the bank. The bio-engineered soil layers, while subject to a level of tidal and wave action should, with the growth of herbaceous and woody vegetation, become completely enveloped and disappear from view. Concept detail 1/L300 enclosed herewith illustrates the approach to restoring and stabilizing this portion of the McGregory Brook stream bank.

### **Riverfront Green Park Shoreline**

The approach to stabilizing the shoreline just south of McGregory Brook would focus more on re-shaping the existing shoreline to the level required to stop the erosion than on restoring areas that disappeared decades ago. The approach to reclamation will incorporate existing underlying material to re-build the riverbank and will be enhanced with a combination of placing some larger pieces of rock, coir logs, finer soils and sediments and low growing woody shrubs. The

approach to stabilizing this portion of the shoreline can be similar to that for the lower end of McGregory Brook (1/L300), however if the upper surface is to remain open with only grasses and herbaceous vegetation, the use of TRM in combination with rip-rap shoreline protection may be necessary. Some minor repair work to the existing rip-rap shoreline will take place south of the ferry dock, where the underlying construction fabric has been exposed.

### **Launch Area Crescent**

The crescent shaped pea stone beach situated just west and south of the boat launch has experienced periodic erosion from tidal and wave action. This has been most prevalent along the innermost stretch near the parking lot, which has a north/south bearing.

The pea stone and underlying soil placed there by the City has eroded away, exposing a utility pipe. The maintenance of this area includes the occasional clean-up of displaced beach material and rack, along with periodic re-nourishment of the pea stone surface.

A permanent retaining wall or pile will be installed at or slightly above the high tide line, avoiding the inter-tidal zone. In order to provide enough room for a minimum 10-foot wide multi-use trail, the parking lot and associated drive isle will be re-aligned. It appears there is some room available between the parking lot and railroad, but the exact amount, and ability to move it closer to the railroad will necessarily be reviewed and approved by the Metro North authorities. The retaining wall would provide protection against further erosion and avoid permanent fill within the existing inter-tidal zone. The City will continue periodic beach nourishment within the framework of this approach. Concept detail 2/L300 enclosed herewith illustrates the approach to restoring and stabilizing the launch area crescent. Other options will be considered if the roadway cannot be realigned.

### **Riverfront Green South**

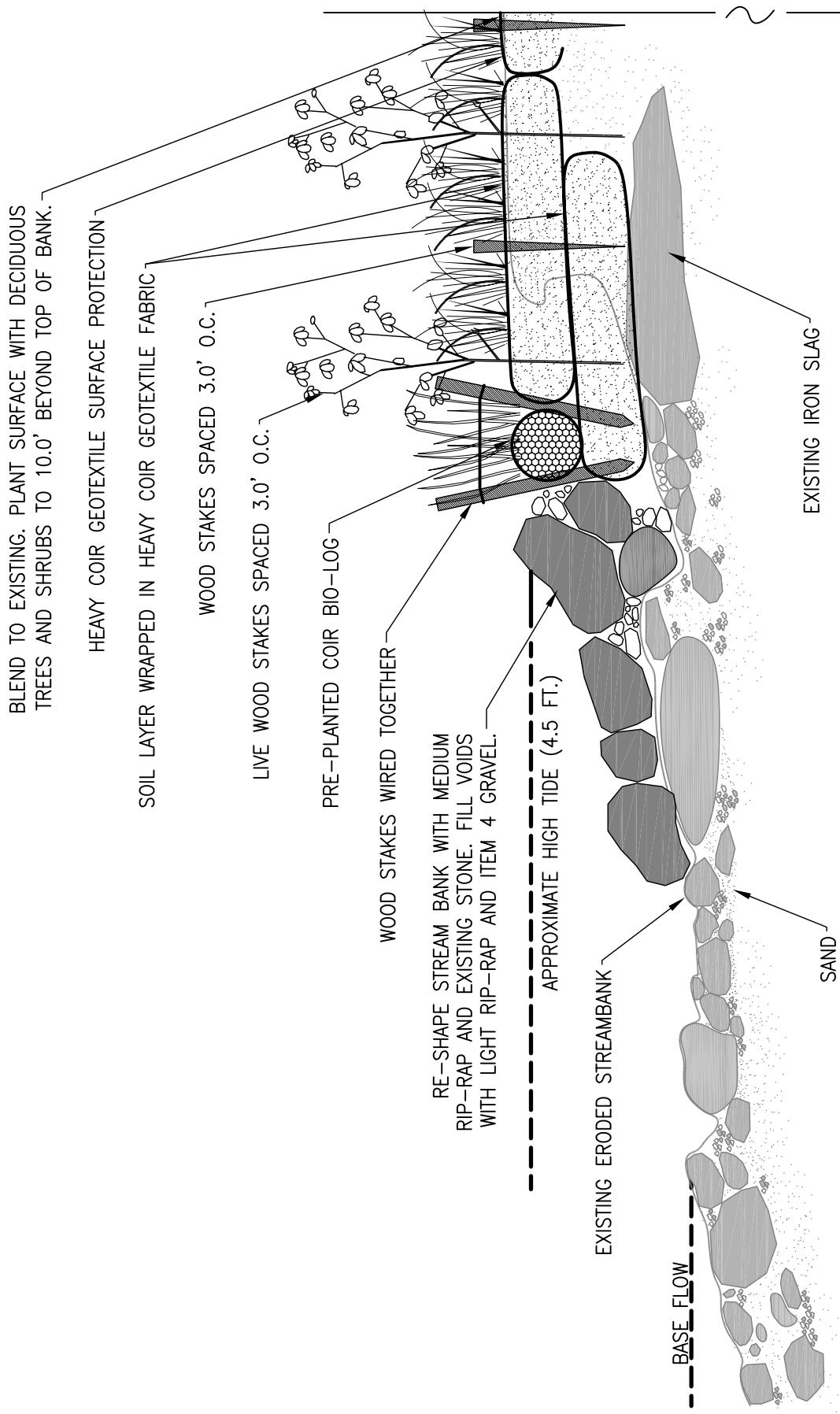
Nearly the entire length of the Riverfront Green South shoreline features a haphazard mix of boulders, rip-rap, concrete and other debris. The apparent result is wave action crashing over the high barriers at or near the shoreline loosening the granular material that is held loosely together by a patchwork grassy groundcover and carrying it back into the river. This has created a series of cut-out depressions where the low lying ground has been removed, leaving a coarse mix of rubble, stone and boulders where soil once existed.

Since the shoreline is already comprised of a mix of boulders, concrete and rip-rap, the approach to stabilization involves the re-shaping and infilling of the shoreline armoring that raises the elevation to just above the high tide line, or approximately five (5) feet above mean sea level. This re-build will at points along the shoreline, leave lower ground that would by virtue of wave action, be susceptible to erosion if left unprotected. In order to protect the landward area, the ground elevation will be raised to an elevation equal to or slightly higher than the armored shoreline. In order to prevent the entrapment of flood water or breaking waves, the ground surface will be tapered to meet the 100-year floodplain elevation. Concept detail 3/L300 enclosed herewith illustrates the approach to stabilizing the Riverfront Green South shoreline.

## **General**

There have been a number of options considered for shoreline stabilization, with the general consensus being that a bio-engineered approach is preferred. The area just south of McGregor Brook would receive the least aggressive treatment, effectively restoring a previously rocky shoreline, but with some potential bio-engineered soil layers or TRM protection above the high-tide line. A similar approach to shoreline stabilization will be employed along the Riverfront Green South waterfront, whereby the rip-rap protection is rehabilitated and bio-engineered soil stabilization techniques are employed above the high tide elevation.

The approach to stabilizing the shoreline has been the subject of extensive review by the Department of State and NYS Department of Environmental Conservation, however this work has yet to receive permits. Specific shoreline stabilization details will be shown in construction documents, subject to permit requirements from the DOS, DEC and Army Corps of Engineers.

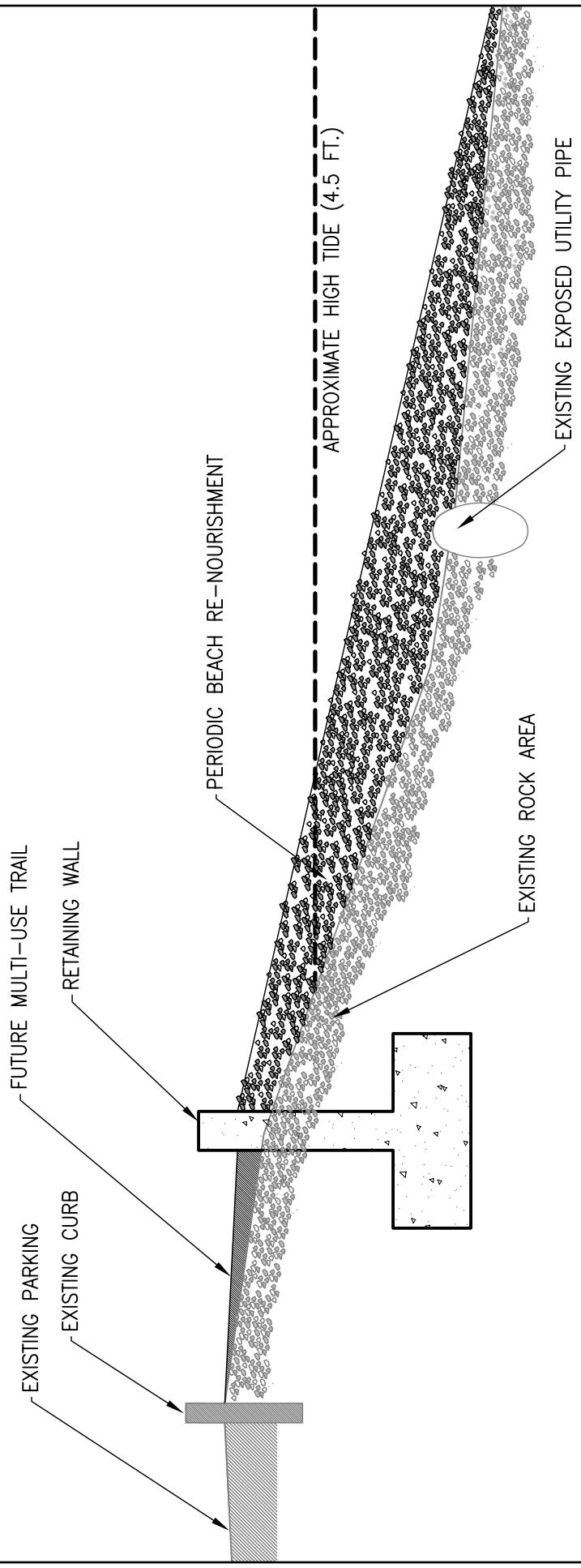


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SYNTHESIS

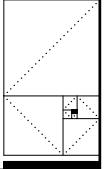


Peekskill Southern Waterfront – Shoreline Stabilization Details  
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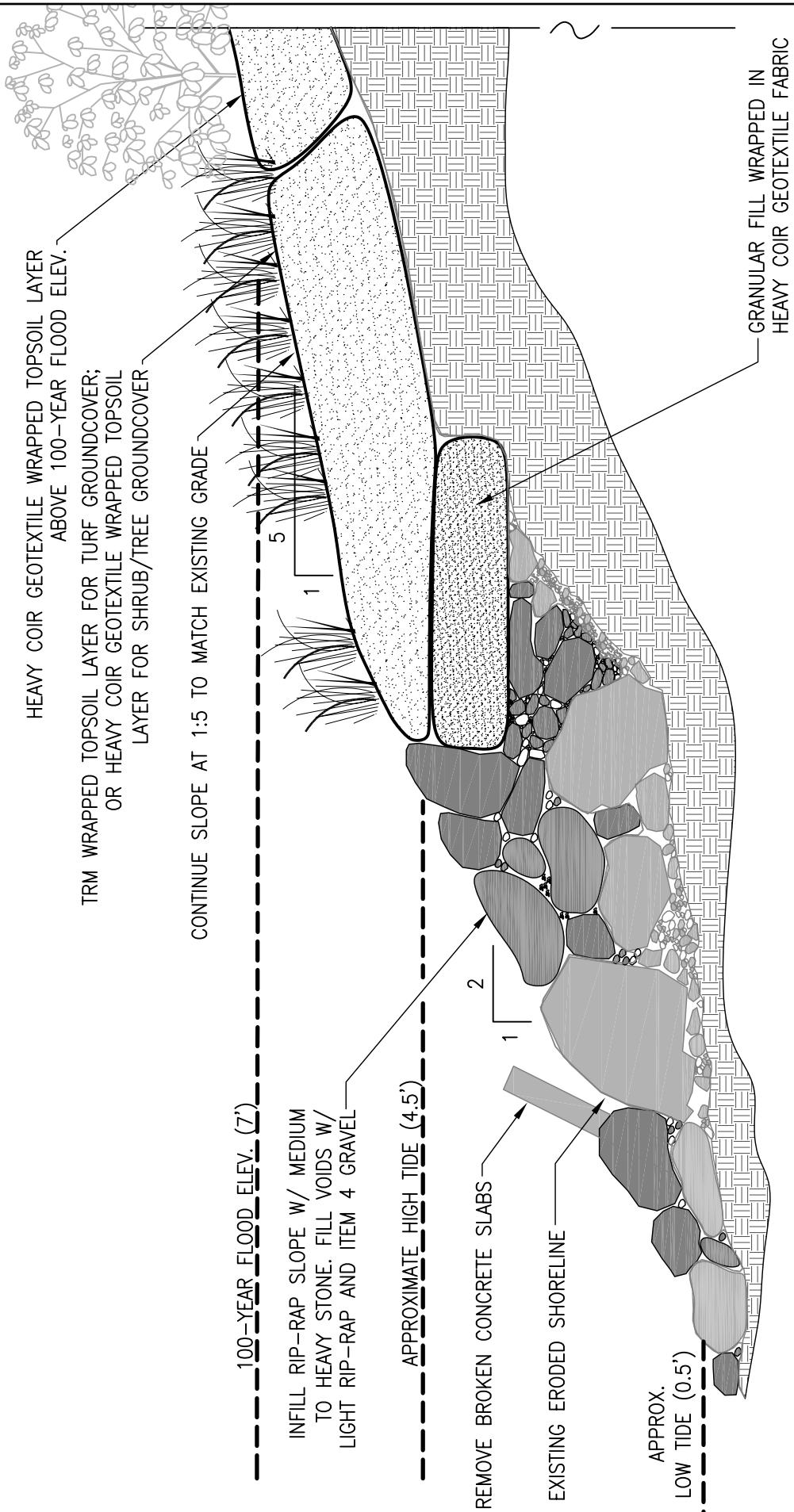


## Launch Area Crescent Beach

**SYNTHESIS**



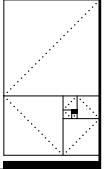
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## Riverfront Green South Shoreline Stabilization

**SYNTHESIS**



Peekskill Southern Waterfront – Shoreline Stabilization Details  
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## Tab – Section 4

# Best Management Practices and Impacts

## Section 4 Best Management Practices and Impacts

This section provides a summary of Best Management Practices (BMPs) for shoreline stabilization and impacts to State-designated Significant Coastal Fish and Wildlife, Scenic Areas of Statewide Significance, other Coastal Management Program special management areas or other sensitive resources. Generally, the BMPs are targeted to ensuring a relatively stable waterfront while providing a textured, natural substrate favorable to the growth and habits of a variety of fish, macro-invertebrates and other wildlife species. The primary objective of shoreline stabilization measures would be to create a variety of textures from a mix of large and small rocks, coarse fill, topsoil and vegetation that provides varied spaces for protective cover and a source of food for colonizing species and primary consumers.

Best Management Practices incorporated into the concept design are relatively straightforward, with due consideration to the above-mentioned objectives. The following list of BMP's is illustrative of those measures incorporated into the overall design of the Peekskill Southern Waterfront shoreline stabilization plan.

1. First and foremost in the design approach is the principle that the existing degraded sections of shoreline would be re-built in the same position as presently exists, avoiding the furtherance of impacts to the inter-tidal zone.
2. Vertical hardened shoreline protection devices would not be included in any component of the stabilization design.
3. A mix of textural components would be included to supplement the existing shoreline remnants.
4. Foreign objects, such as iron slag, steel and concrete slabs that do not fit within the context of a natural shoreline habitat will be buried or removed from the site.
5. Hardened shoreline stabilization measures such as rip-rap would be used sparingly as needed, with a vegetated component incorporated to the extent practicable beginning at the high-tide elevation or lower.
6. Native vegetation will be used to reclaim the impacted shoreline that is presently relatively devoid of vegetation. Areas that currently exhibit an abrupt transition from lawn to rip-rap will be replaced with a transition that includes a mix of woody and herbaceous native plant species.
7. Wherever possible, stabilization measures will incorporate bio-degradable geotextiles that are incorporated into the substrate over time.
8. Apart from the rock treatment, non-biodegradable components would be limited to sub-grade reinforcement to ensure longevity of the rooting zone.
9. The use of local material suppliers will reduce the energy consumption otherwise necessary for transport from remote supplier locations.
10. The plant selection will be coordinated with the regional NYS Department of Environmental Conservation Estuaries division personnel to ensure optimal local native vegetative species are selected and applied to the shoreline.
11. The shoreline will be maintained to ensure long-term coverage and stability of the native vegetation. Management practices will avoid the use of non-target weed killers, with invasive or non-native colonizers removed mechanically or with careful application of targeted chemical control that is deemed safe for the aquatic habitat.

12. The use of vegetated geo-lifts along the upper bank of McGregory Brook and other areas designated for complete naturalization will replace a relatively un-natural vegetative condition.
13. Native trees planted along the McGregory Brook corridor will provide a natural backup to those that may one day die or fall at the edge of the stream bank, reducing the need for artificial protection measures.

Whenever property adjacent to a water body is developed, there are inherent potential impacts associated with increased runoff, changes in water quality due to erosion and sediment deposition and possible thermal discharges. The following list of BMP's is illustrative of those measures incorporated into the overall design of the Peekskill Southern Waterfront upland area improvements. The goal of all parkland improvements is to reduce water quality impairments from upland runoff or in-water activities and to mitigate impacts to fish and wildlife habitat areas, scenic areas and other sensitive resources.

1. The upland improvements will be protective of the aquatic environment primarily by means of maintaining and improving the vegetated buffer between actively used areas and the shoreline.
2. The use of native vegetation that includes a mix of woody and herbaceous species will reduce the present dominance of lawn grasses along the most frequently visited portions of the shoreline.
3. The re-introduction of carefully placed trees and shrubs will provide needed shade and enhance the viewshed experience that includes framing important views.
4. The additional shade provided by the proposed trees will help cool the ground and paved surfaces, reducing the thermal discharge.
5. The use of a self-contained spray park facility will eliminate the potential for additional runoff.
6. The walkway along the shoreline of Travis Cove will be positioned as close to the shoreline as possible, and not within the area of existing SAV beds.
7. The piers of the walkway will help buffer the ice scour action near the shoreline, which will improve the capacity of the substrate to support plant life.
8. Any additional building or paving improvements are subject to the requirements of the NYS Department of Environmental Conservation Stormwater Pollution Prevention Plan regulation.
9. An Erosion and Sediment Control Plan will be implemented over the course of construction, preventing excessive erosion and intercepting any mobile sediment originating from work areas.
10. An increase in shoreline and near shoreline vegetation will not only help in the filtration of water originating from the uplands, but also help in preventing erosion and sedimentation that would otherwise be generated by storm, wave and tidal action of the River itself.
11. Increasing the bio-mass along the shoreline will also improve the in-water habitat by elevating the prey species numbers.

Generally, the improvements to the waterfront park are designed for compatibility with the existing aesthetic and natural resources along the river including the Hudson Highlands Scenic

Area of Statewide Significance. The park components will add a relatively minor amount of impervious surface, as the goal would be to limit the paved trail to that which is necessary to provide multi-purpose access by the general public. Existing naturalized areas will be preserved as the improvements are primarily situated on previously disturbed or lawn areas. Increasing the textural nature of existing vegetation will enhance the park experience for visitors by providing shade and visual interest, while improving the natural environment that borders the river.

The most notable mitigating measure to the minor increase in paved surface is the cooling affect of the trees and shrubs that will be strategically placed. The shade trees will be positioned, for example, adjacent to the existing play structure, which is presently directly exposed to the sun's rays. Additional trees will be planted at strategic locations along the paved walkway to provide needed shade. The existing shoreline condition, wherever the recently applied rip-rap armor exists, is bordered by a sparsely vegetated open grass field. The mix of trees and shrubs positioned along the rip-rap will also help cool the surfaces and reduce the thermal discharge.

Scenic areas and vistas will be preserved by strategic selection and placement of plant materials. The planting strategy will be mindful of the need to preserve existing viewsheds from parking areas, while enticing others to walk the gateway or promenade to reach a rewarding view, or position themselves where a view is framed by native trees and shrubs. Varied vegetative treatments will be used, ranging from the natural untouched, to a semi-natural managed, to a formal ornamental, to open lawn. Existing important upland resources will be preserved; as there are minimal changes proposed that would disturb any areas not already significantly altered by man's activities. Existing in-water resources will be preserved, with minimal docking that is of the floating type. There will be no new piles or jetties installed for the purposes of mooring or docking boats.

The overall plan would avoid the furtherance of impacts on the intertidal zone and any nearby SAV beds. As such, the proposed measures would avoid adverse impacts to State-designated Significant Coastal Fish and Wildlife. The proposed measures are actually designed to restore and enhance these valuable resources while mitigating potential impacts to water quality.

## Tab – Section 5

### Phasing Plan and Map

## **Section 5 Phasing Plan for Waterfront Improvements and Stabilization**

This is the preferred phasing plan based on the primary objective of creating a continuous multi-use trail along the Peekskill waterfront. However, actual phasing will depend on the availability of grant and other funding and related priorities.

### **Phase 1 – Riverfront Green Park Shoreline Stabilization and Walkway**

All shoreline and bank stabilization measures along and adjacent to the mouth of the shoreline of McGregory Brook and Riverfront Green will be installed prior to any other site improvements. The multi-use path along McGregory Brook and Riverfront Green (up to the Ferry Dock) will be constructed in accordance with RiverWalk standards.

### **Phase 2 – Riverfront Green South**

The Riverfront Green South (RGS) shoreline stabilization measures will be installed from south to north. Any proposed grade changes abutting and within twenty (20) feet the shoreline will be accomplished at this time. Grade changes affecting portions of RGS further inland will not be implemented until all shoreline stabilization measures are in place. The existing crescent beach near the boat launch will be re-nourished and a retaining wall installed above the intertidal zone in the vicinity of the parking area where the multi-use trail will pass. Limited space is available for the multi-use trail as a result of bank erosion at this location. The retaining wall will prevent further erosion of property lying above the intertidal zone.

The upland portion of Riverfront Green South will contain the waterfront trail, as well a secondary path system with decorative lighting, expanded launch parking, entry plaza's, overlook deck with trellis and seat wall, overlook gazebo, trellis swings, public art installation, tree and shrub planting, picnic table installation and directional signage. All improvements within Riverfront Green South will be installed following the shoreline stabilization.

The existing roadway approach to Travis Point, which the multi-use trail will abut, will be re-graded to ensure a maximum 5% slope. This will ensure unimpeded access to Travis Point and points south along the multi-use trail system.

### **Phase 3 – Travis Cove Elevated Walkway**

The enhancements at Travis Cove will involve an improved trail approach from the existing gravel roadway, which leads to a “boardwalk” connection to Charles Point across Travis Cove. The establishment of transitional grades at the south end of Travis Cove will facilitate a trail connection running roughly parallel with Louisa Street. This trail will connect with the sidewalk approach that enters Charles Point Pier Park.

### **Phase 4 – RESCO Trail Construction**

The multi-use trail connection extending from Charles Point Park to Charles Point Marina, behind the RESCO facility will be constructed in close coordination with RESCO management.

The existing RESCO border fence will be re-located such that the trail remains outside the RESCO area of control. This trail will be developed as an interpretive trail, with information about the industrial waterfront.

### **Phase 5 – Riverfront Green Park Amenities**

All internal paths, landscaping, fences, entry plazas & gateway features, bandshell or performance platform, overlook plaza, trellis swings, public art installation, tree and shrub planting, park benches, information kiosk and directional signage, secondary path system, decorative lighting, floating dock, spray ground, bus loop/parking and ferry terminal will be installed within the confines of Riverfront Green Park extending to the existing boat launch.

### **Phase 6 – Travis Point**

The enhancements at Travis Point will include the re-grading and construction of a public parking area, overlook gazebo, improved rest rooms, an elevated overlook and trail in the eastern wooded area, an overlook plaza and day-use docking at Travis Cove. An existing footpath along the shoreline from the rest rooms to the gravel roadway will be improved according to RiverWalk standards.

### **Phase 7 – Travis Cove Overlooks**

A secondary trail would provide a link to an overlook atop the large boulder adjacent to Travis Cove. Additionally, a boardwalk and deck fishing pier could be constructed out to the historic foundation of the Fleischmann Factory Water Pump.

### **Phase 8 – Fleischmann Pier Renovation**

Renovations to Fleischmann Pier include partial widening, a shelter feature and restoration of the outermost extension that is presently closed to the public.

### **Phase 9 – Lent's Cove Trail Connection**

Improvements will be made to connect the Charles Point Marina boardwalk to the Bertoline site property. The Peninsula Trail will be installed to access a small overlook shelter in Lent's Cove and provide access to a kayak launch. The multi-use trail connection will connect the Charles Point Marina to a point on John Walsh Boulevard via the Bertoline property. The trail will be constructed along the north and east edge of this private property. A new sidewalk/trail connection will extend to the Buchanan border, possibly extending to Lent's Cove Park in coordination with Buchanan officials.

## **Phasing Plan Map**

The phasing plan map illustrates the various elements, some of which will be included in the construction documents for the current funding phase contained in the Master Plan summary. Overall, priorities include stabilizing the riverbank and extending the multi-use trail connection. It is also important to provide waterfront access where none currently exists, such as at Travis Cove and along the RESCO shoreline. Ultimately, the timing of construction will depend on the availability of grant funding and associated priorities.

PHASE 8

FLEISCHMANN PIER RENOVATION (SEE MAP #5)

PHASE 9

LENTS COVE (SEE MAP #6)

- PENINSULA TRAIL
- OVERLOOK SHELTER
- KAYAK LAUNCH

PHASE 1 ● ● ● ● ● ● ●

SHORELINE STABILIZATION AND  
MULTI-PURPOSE TRAIL CONSTRUCTION

PHASE 5 ■ ■ ■ ■ ■ ■ ■

COMPLETE CONSTRUCTION OF  
RIVERFRONT GREEN PARK  
ENHANCEMENTS:

- FERRY TERMINAL
- PERFORMANCE PLATFORM
- PATH SYSTEM
- SPRAY PARK
- GATEWAY
- OVERLOOK ENHANCEMENT
- BUS DROP OFF AND TURN AROUND
- PUBLIC DOCKING
- FERRY DOCKING

PHASE 2 ■ ■ ■ ■ ■ ■ ■

COMPLETE CONSTRUCTION OF RIVERFRONT  
GREEN SOUTH ENHANCEMENTS:

- WALKWAYS
- OVERLOOK GAZEBO
- OVERLOOK DECKING AND TRELLIS
- EXPANDED LAUNCH PARKING
- PUBLIC ART INSTALLATION
- LANDSCAPING

PHASE 6 ■ ■ ■ ■ ■ ■ ■

TRAVIS POINT ENHANCEMENTS:

- OVERLOOK GAZEBO
- HILLTOP OVERLOOK AND TRAIL
- IMPROVED RESTROOM FACILITY
- TRAVIS COVE OVERLOOK AND DAY-USE DOCKING
- SHARED PARKING AREA

PHASE 3 ● ● ● ● ● ● ●

ELEVATED WALKWAY AT TRAVIS COVE TO

LINK TRAVIS POINT TO CHARLES POINT

PHASE 7 ■ ■ ■ ■ ■ ■ ■

TRAVIS COVE OVERLOOK

AND BOARDWALK CONNECTION

TO HISTORIC WATER PUMP

STRUCTURE

PHASE 4 (SEE MAP #5)

RESCO TRAIL CONSTRUCTION  
WITH INTERPRETIVE SIGNAGE

## Tab – Section 6

# Site Cost Estimates

**Section 6 Opinion of probable cost for  
City of Peekskill Waterfront Master Plan**

**Rough cost projections based on schematics by Synthesis:**

09-19-08 (Rev. 02-10-09)(Rev. 02-22-09)(Rev. 05-08-09)(Rev. 06-12-09)

\* Indicates items that can be substituted with item in alternate estimate

**PHASE 1-Riverfront Green Stabilization and Walkway:**

	#	Item Total
Survey Layout	1	\$5,000.00
Pedestrian/Vehicular Traffic Safety	1	\$5,000.00
Unclassified Excavation	2342	\$43,327.00
2.5" Bituminous Paving Multi-purpose Path	140	\$28,000.00
6" Subbase (Bit. paving) (incl. 20% Comp.)	203	\$10,150.00
McGregory Brook Stabilization (includes supplemental tree planting)	250	\$75,000.00
Riverfront Green Shoreline Stabilization	290	\$87,000.00
Erosion Control during construction	1	\$25,000.00
<b>Sub-total: PHASE 1- Riverfront Green Stabilization and Walkway:</b>		<b>\$278,477.00</b>
		<b>15% Contingency: \$41,771.55</b>
		<b>Total: \$320,248.55</b>

**PHASE 2-Riverfront Green South Stabilization: Path and Amenities**

	#	Item Total
Survey Layout	1	\$5,000.00
Pedestrian/Vehicular Traffic Safety	1	\$5,000.00
Unclassified Excavation	966	\$17,871.00
General Excavation (FILL)	415	\$7,677.50
Concrete Walks	5400	\$37,800.00
6" Subbase (conc. paving) (incl. 20% Comp.)	120	\$6,000.00
2.5" Bituminous Paving Multi-purpose Path	240	\$36,000.00
6" Subbase (Bit. paving) (incl. 20% Comp.)	340	\$17,000.00
4.5" Bituminous Paving in Revised Parking Lot Area	30	\$4,500.00
8" Subbase (Bit. paving) (incl. 20% Comp.)	32	\$1,600.00
6.0" Bituminous Paving in Improved Roadway Between RGS and TP	257	\$38,550.00
12" Subbase (Bit. paving) (incl. 20% Comp.)	307	\$15,350.00
Granite Curb	240	\$8,400.00
Pedestrian Light Pole Base	16	\$24,000.00
Pedestrian Park Lights	16	\$72,000.00
Parking Lot Lights	4	\$18,000.00
Light Pole Base	4	\$5,000.00
Overlook Gazebo	1	\$125,000.00
Park Benches	10	\$20,000.00
Picnic Tables	6	\$12,000.00
Trash Receptacles	6	\$6,000.00
Trelliss Swings	2	\$15,000.00
Reinf. Conc. Overlook Retaining Wall @ Deck	40	\$14,000.00
Circular Overlook Deck	1	\$50,000.00
Overlook Retaining Wall Railing @ Gazebo	60	\$9,000.00
Reinf. Conc. Overlook Retaining Wall @ Gaz.	40	\$14,000.00
Overlook Trelliss	1	\$60,000.00
Reinf. Concrete Seatwall under Trelliss	33	\$11,550.00
Signage (Directional)	2	\$10,000.00
Interpretive Signage	1	\$25,000.00
Public Art Installation	1	\$25,000.00
Shade Trees ( small)	8	\$4,000.00
Shade Trees (large)	16	\$12,800.00
Flowering Trees	12	\$7,200.00
Miscellaneous Landscaping (shrubs, groundc.)	1	\$20,000.00
Topsoil	1200	\$54,000.00
Fine Grading & Seeding	9500	\$33,250.00
Fill & Berming	550	\$10,175.00
Large Landscape Boulders	8	\$8,000.00
Medium Landscape Boulders	10	\$5,000.00

Erosion Control during construction	1	\$25,000.00
Redi-Roc Retaining Wall at Beach	150	\$6,000.00
Habitat Restoration (includes topsoil, Geotextile Fabric and plantings)	910	\$273,000.00
Shoreline Stabilization	910	\$273,000.00
<b>Sub-total: PHASE 2-Riverfront Green South: Stabilization, Path and Amenities</b>		<b>\$1,447,723.50</b>
		<b>15% Contingency:</b> <b>\$217,158.53</b>
		<b>Total:</b> <b>\$1,664,882.03</b>
<b>PHASE 3-Travis Cove Walkway:</b>		
	#	Item Total
Survey Layout	1	\$5,000.00
Unclassified Excavation	203	\$3,755.50
Unclassified Fill	569	\$10,526.50
2.5" Bituminous Paving Multi-purpose Path	127	\$19,050.00
6" Subbase (Bit. paving) (incl. 20% Comp.)	243	\$12,150.00
Fixed Pier / Boardwalk (10'w)	6731	\$437,515.00
Marine Piles - 25' Spacing	58	\$319,000.00
Railing (both sides)	1386	\$207,900.00
Boardwalk Lighting	13	\$45,500.00
Slope Modifications	1	\$50,000.00
Erosion Control during construction	1	\$25,000.00
<b>Sub-total: PHASE 3-Travis Cove Walkway</b>		<b>\$1,135,397.00</b>
		<b>15% Contingency:</b> <b>\$170,309.55</b>
		<b>Total:</b> <b>\$1,305,706.55</b>
<b>PHASE 4- RESCO Trail Construction :</b>		
	#	Item Total
Survey Layout	1	\$5,000.00
Pedestrian/Vehicular Traffic Safety	1	\$2,500.00
Unclassified Excavation	360	\$6,660.00
2.5" Bituminous Paving Multi-purpose Path	220	\$33,000.00
6" Subbase (Bit. paving) (incl. 20% Comp.)	304	\$15,200.00
Interpretive Signage and Miscellaneous	1	\$74,000.00
Erosion Control	1	\$25,000.00
<b>Sub-total: PHASE 4- RESCO Trail Construction</b>		<b>\$161,360.00</b>
		<b>15% Contingency:</b> <b>\$24,204.00</b>
		<b>Total:</b> <b>\$185,564.00</b>
<b>PHASE 5- Riverfront Green Park Amenities</b>		
	#	Item Total
Survey Layout	1	\$5,000.00
Pedestrian/Vehicular Traffic Safety	1	\$5,000.00
Unclassified Excavation	2342	\$43,327.00
Granite Curbing	1500	\$52,500.00
*Concrete Walks (internal paths)	49000	\$343,000.00
*6" Subbase (conc. paving) (incl. 20% Comp.)	1100	\$55,000.00
Erosion Control during construction	1	\$25,000.00
Shade Trees ( small)	20	\$10,000.00
Shade Trees ( large)	30	\$24,000.00
Flowering Trees	15	\$9,000.00
Miscellaneous Landscaping (shrubs, groundc.)	1	\$20,000.00
Topsoil	500	\$22,500.00
Fine Grading & Seeding	13600	\$47,600.00
Large Landscape Boulders	6	\$6,000.00
Medium Landscape Boulders	6	\$3,000.00
Modifications to Existing Planters	6	\$9,000.00
Small Spraypark	1	\$150,000.00
New Planters Along Pedestrian Spine	3	\$12,000.00
Pedestrian Spine Gateway Feature	10	\$250,000.00
Bandshell Platform with Permanent Canvas	1	\$250,000.00
Volley Ball Court Resurfacing	2	\$10,000.00

Public Docking	1	\$85,000.00
New Ferry Dock	1	\$65,000.00
Pedestrian Light Pole Base	18	\$27,000.00
Pedestrian Park Lights	18	\$81,000.00
Parking Lot Lights	14	\$63,000.00
Light Pole Base	14	\$17,500.00
Interactive Digital Information Kiosk	1	\$100,000.00
Overlook Gazebo	1	\$125,000.00
Trelliss Swings	3	\$22,500.00
Modifications to Existing Planters	6	\$9,000.00
Public art in planters	6	\$30,000.00
Signage (Directional )	2	\$10,000.00
Traffic Signage	10	\$5,000.00
Crosswalk Striping	4	\$1,200.00
Handicap Curb Transitions	10	\$7,500.00
<b>Sub-total: PHASE 5- Riverfront Green Park Amenities</b>		<b>\$2,000,627.00</b>
		<b>15% Contingency:</b> <b>\$300,094.05</b>
		<b>Total:</b> <b>\$2,300,721.05</b>

#### RG Park Additional Amenities

	#	Item Total
4.5" Bituminous Paving Bus Loop	414	\$62,100.00
2' Bituminous Patching along Curb line	85	\$12,750.00
12" Subbase Bit. Pav. (Incl. 20% Comp.)	700	\$35,000.00
Ferry Terminal Building	1	\$1,000,000.00
<b>Sub-Total</b>		<b>\$1,109,850.00</b>
		15.00% \$166,477.50
		<b>Total</b> <b>\$1,276,327.50</b>

**Total for RG Park with Additional Amenities** **\$3,577,048.55**

#### Total Riverfront Green Path Alternative

*2.5" Bituminous Path (interior path system)	760	\$114,000.00
*6" Subbase (Bit. Path) (incl. 20% Comp.)	1100	\$55,000.00
<b>Sub-Total</b>		<b>\$169,000.00</b>

#### PHASE 6- Travis Point Trail, Parking and Amenities:

	#	Item Total
Survey Layout	1	\$5,000.00
Pedestrian/Vehicular Traffic Safety	1	\$5,000.00
Unclassified Excavation	1030	\$19,055.00
Concrete Walks	4200	\$29,400.00
6" Subbase (conc. paving) (incl. 20% Comp.)	92	\$4,600.00
2.5" Bituminous Paving Multi-purpose Path	186	\$27,900.00
6" Subbase (Bit. paving) (incl. 20% Comp.)	242	\$12,100.00
4.5" Bituminous Paving Parking/Drive	1300	\$260,000.00
12" Subbase (Bit. paving) (incl. 20% Comp.)	2050	\$102,500.00
Overlook Gazebo	1	\$30,000.00
Public Restroom Improvements	1	\$25,000.00
Park Benches	8	\$16,000.00
Picnic Tables	2	\$4,000.00
Trash Receptacles	2	\$2,000.00
Interpretive Signage	1	\$10,000.00
Emergency Call Boxes	10	\$17,000.00
Day-use Docking	1	\$30,000.00
Elevated Overlook and Trail	1	\$15,000.00
Pedestrian Light Pole Base	10	\$15,000.00
Pedestrian Park Lights	10	\$45,000.00
Parking Lot Lights	5	\$22,500.00

Light Pole Base	5	\$6,250.00
Erosion Control during construction	1	\$25,000.00
Shade Trees ( small)	20	\$10,000.00
Miscellaneous Landscaping (shrubs, groundc.)	1	\$5,000.00
Topsoil	75	\$3,375.00
Fine Grading & Seeding	700	\$2,450.00
<b>Sub-total: PHASE 6-Travis Point Trail, Parking and Amenities:</b>		<b>\$749,130.00</b>
		<b>15% Contingency:</b> <b>\$112,369.50</b>
		<b>Total:</b> <b>\$861,499.50</b>
<b>PHASE 7-Travis Cove Overlooks:</b>		
	#	Item Total
Survey Layout	1	\$5,000.00
Unclassified Excavation	120	\$2,220.00
Unclassified Fill	189	\$3,496.50
2.5" Bituminous Paving Multi-purpose Path	103	\$20,600.00
6" Subbase (Bit. paving) (incl. 20% Comp.)	83	\$4,150.00
Fixed Pier / Boardwalk (10'w)	4269	\$277,485.00
Marine Piles - 25' Spacing	32	\$176,000.00
Railing (both sides)	814	\$122,100.00
Boardwalk Lighting	7	\$24,500.00
Miscellaneous	1	\$150,000.00
Slope Modifications	1	\$50,000.00
Railing atop Rock Overlook	30	\$3,600.00
Habitat Restoration (includes topsoil, Geotextile Fabric and plantings)	400	\$120,000.00
Erosion Control during construction	1	\$25,000.00
<b>Sub-total: PHASE 7-Travis Cove Overlooks</b>		<b>\$984,151.50</b>
		<b>15% Contingency:</b> <b>\$147,622.73</b>
		<b>Total:</b> <b>\$1,131,774.23</b>
<b>PHASE 8- Fleishmann Pier Renovation:</b>		
	#	Item Total
Pier Improvements (decking, rails, lighting)	1	\$150,000.00
<b>Sub-total: PHASE 8- Fleishmann Pier Renovation</b>		<b>\$150,000.00</b>
		<b>15% Contingency:</b> <b>\$22,500.00</b>
		<b>Total:</b> <b>\$172,500.00</b>
<b>Phase 9- Lents Cove Trail Connection:</b>		
(Note: It will be Bertoline's cost for trail around their building)	#	Item Total
Survey Layout	1	\$5,000.00
Pedestrian/Vehicular Traffic Safety	1	\$5,000.00
Unclassified Excavation	388	\$7,178.00
2.5" Bituminous Paving Multi-purpose Path	206	\$41,200.00
6" Subbase (Bit. paving) (incl. 20% Comp.)	320	\$16,000.00
Canoe/ Kayak Launch	1	\$50,000.00
Overlook Gazebo	1	\$50,000.00
Park Benches	3	\$6,000.00
Miscellaneous	1	\$50,000.00
Erosion Control	1	\$25,000.00
<b>Sub-total Lents Cove Trail Connection</b>		<b>\$255,378.00</b>
(Note: This estimate does not include re-alignment of John Walsh Blvd.)		<b>15% Contingency:</b> <b>\$38,306.70</b>
		<b>Total:</b> <b>\$293,684.70</b>

## Tab – Section 7

### Regulatory Requirements Summary

## Section 7 Regulatory Requirements Summary

The following is a list of permits likely necessary in the event that any appreciable fill is proposed below the mean high water mark, docks, moorings or platforms are proposed, or proposed work affects the bed or banks of a classified stream channel. Special conditions may be warranted for work in the waterway that potentially impacts any threatened, endangered or special concern wildlife or special habitat areas.

All Docks, Raised Walkways, Fishing Platform, Improvements to Fleishmann Pier

- Federal Section 10 Rivers and Harbors Act for work within a navigable waterway, administered by the U.S. Army Corps of Engineers (Joint Application for Permit).
- NYS Department of Environmental Conservation Article 15 Protection of Waters Permit (Joint Application for Permit).
- NYS Department of Environmental Conservation Article 15 Title 5 Docks, Moorings or Platforms (Joint Application for Permit, Supplement D-2)

Any land disturbance within 100-feet of the NYSDEC Wetland near Lent's Cove

- NYS Department of Environmental Conservation Article 24 Freshwater Wetlands (Joint Application for Permit).

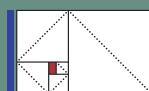
All shoreline stabilization work affecting the intertidal zone

- NYS Department of Environmental Conservation Article 25 Tidal Wetlands Permit (Joint Application for Permit).
- NYS Department of Environmental Conservation Article 34 Coastal Erosion Control Permit (Joint Application for Permit)

General, for all land and water improvements

- NYS Department of Environmental Conservation 6 NYCRR Part 502, Floodplain Management Criteria for State Projects, compliance review.
- NYS Department of Environmental Conservation Stormwater Pollution Prevention Plan (SWPPP) for land disturbance in excess of one acre.
- NYS Department of Environmental Conservation 6 NYCRR Part 617 State Environmental Quality Review Act (SEQRA).
- NYS Department of State Coastal Management Program, Federal Consistency Assessment Form.
- NYS Office of General Services Public Lands Law for work on underwater lands owned by the State of New York.
- Section 14.09 of the NYS Parks, Recreation and Historic Preservation Law of 1980 and Section 106 of the National Historic Preservation Act, for projects that are funded, licensed or approved by state or federal agencies. Requires NYS Office of Parks, Recreation and Historic Preservation Office (OPRHP) review.

A Joint Application for Permit would initiate review of the Federal Section 10 permit and the State Article 15, Article 25 and Article 34 permits. A Notice of Intent is required along with a Stormwater Pollution Prevention Plan for construction activity that exceeds one (1) acre of land disturbance. The permit applications would necessarily be accompanied by a narrative description of the action, its potential impacts and mitigation measures, and a set of design drawings that illustrate the prospective improvements and allow for an accurate computation of cuts, fills or other improvements within or adjacent to the regulated waterway. The NYS OPRHP would be provided the Phase 1 Archeological Survey and a copy of the plans for review under State Section 14.09 and Federal Section 106.



# SYNTHESIS

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