



PECKMAN PRESERVE STUDY
PASSAIC COUNTY ENVIRONMENTAL SANCTUARY



LITTLE FALLS TOWNSHIP, NEW JERSEY
**PASSAIC COUNTY BOARD
 OF CHOSEN FREEHOLDERS**

JUNE 2010

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 LANDSCAPE ARCHITECTS
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Source: BING maps

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Passaic County has completed the groundwork to guide the preservation and development of the Peckman Preserve in Little Falls Township. The preserve is a significant landscape that includes a combination of woodlands, wetlands, open fields and the Peckman River. Together the natural and cultural landscapes make the Peckman Preserve a unique place to be regenerated, preserved and protected. This delicate landscape also plays a vital role in helping to protect the local watershed. The Preserve can be a tool for learning about conserving, restoring, and improving the environment while serving as a model for the community at large.

PROJECT APPROACH & METHODOLOGY

A sustainable and lasting natural preserve begins with understanding and respecting the natural systems of this landscape. This study inventories the natural systems that affect the site. The inventory informs design guidelines to:

- Connect to and respect natural patterns in and around the Preserve
- Restore, regenerate and preserve natural drainage systems and flood areas
- Enhance surface and groundwater quality entering the Peckman River
- Restore, enhance and preserve native vegetation and associated wildlife diversity
- Provide clear, visible and safe access to the Peckman Preserve and Peckman River corridor
- Understand the ramifications of the NJDEP rules and regulations that affect the development and maintenance of the landscape moving forward

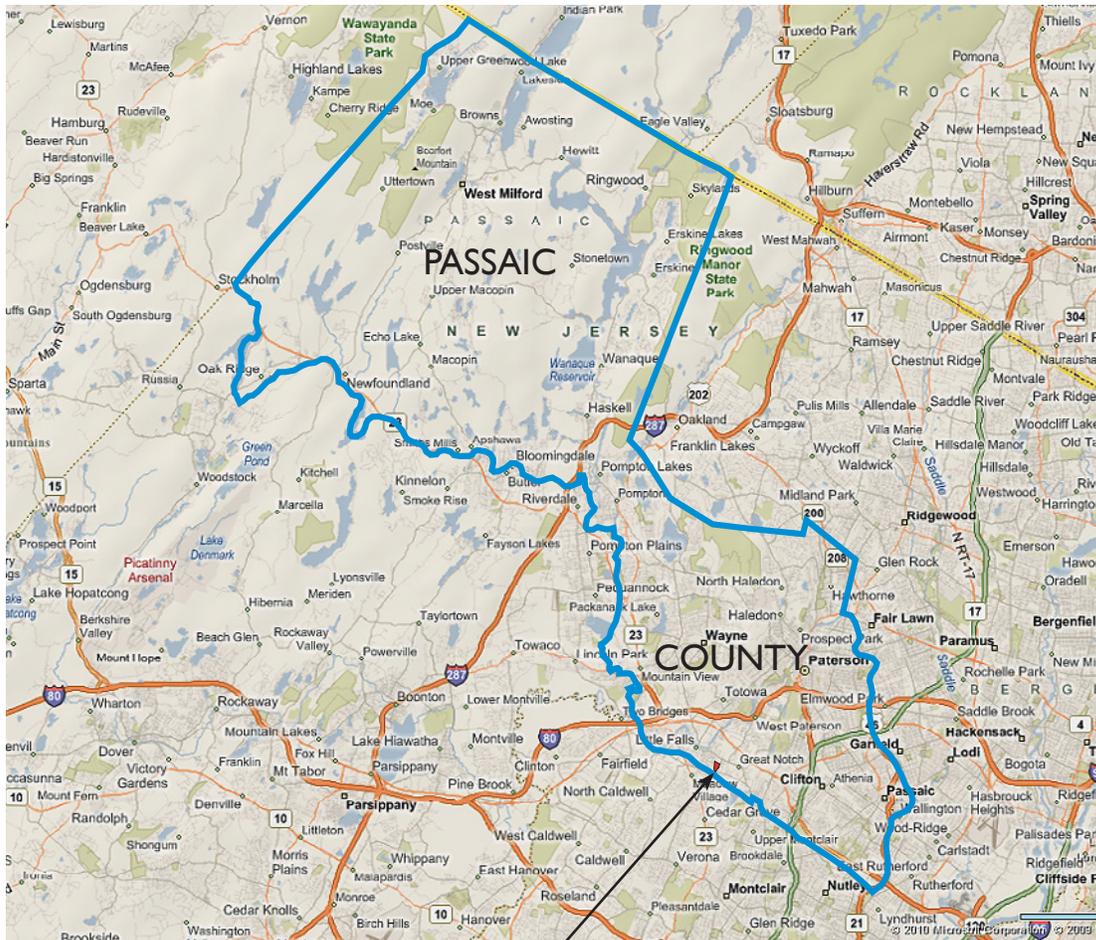
Simultaneously, the approach and methodology allows for an understanding and integration of the cultural and historical interaction with the Preserve and seeks to recognize and establish larger whole systems and reconnect isolated 'green' fragments within Little Falls Township and Passaic County.

Edgewater Design and its consultant have gathered a base of information from site visits, maps, studies and GIS information. The objective was to synthesize the information to evaluate how this Preserve developed ecologically and culturally through time. This study will allow the County to assess the future land use of the landscape, natural resources and regeneration of the Preserve. It will also provide an opportunity for local open space and education on local ecological systems and components, while providing a unique open space for the County and local residents of Little Falls.

The overall goal is to provide an integrated perspective of the natural, historical, cultural and social values that are relevant to the Preserve and Passaic County. Realistic solutions and strategies for implementation of the conceptual plan will come from a thorough understanding of the Preserve as it exists today. The Preserve's biggest hurdle is and remains the degradation of the landscape resulting in invasive and exotic plant species proliferating throughout large areas of the site. Removal and replacement of those areas with native plant species will help rebalance the vegetative communities and bring back some native wildlife including fauna. Deer, although part of the wildlife character, are also a factor in the degradation. Over-browsing of the native understory plants makes a sustained regeneration of the Preserve impossible without taking them into consideration. Lastly, understanding the Peckman Preserve's form and character will lead to strategies to build on assets already in place within the context of the county and within the region.

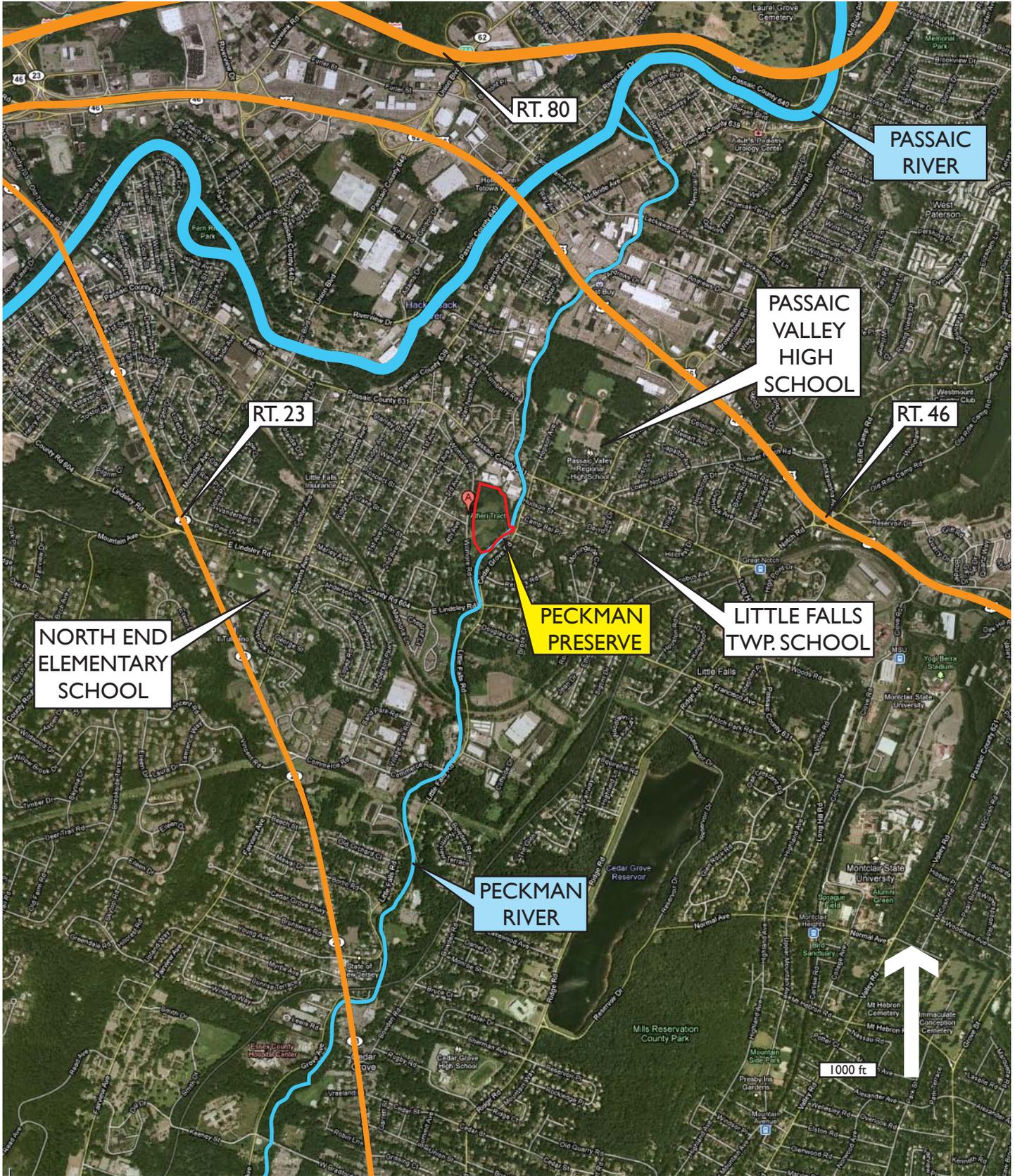
SITE DESCRIPTION

- 12-acre tract, located on Wilmore Road in Little Falls (Passaic County), NJ, is one of the last remaining large undeveloped parcels in the southern portion of Passaic County. The parcel consists of Block 122; lots 48, 57-65, 65.01 and 65.02 in Little Falls Township, NJ. The parcel is located between Wilmore Road (Passaic County Route 637) on the west and the Peckman River and Cedar Grove Rd. (Passaic County Route 617) to the east (page 8). Industrial and manufacturing facilities are located abutting the northern property boundary.
- Former Morris Canal was located along Wilmore Road, on the westerly front of the site.
- Formerly known as the ‘Alfieri Tract’ when being considered for residential development.
- Site is considered undeveloped except for a deteriorated gravel parking area, which serves as a site entrance, located along Wilmore Rd. Residential properties are located east and west of the site and manufacturing facilities are found to the north. The site includes forested areas in the northern portion and paralleling Wilmore Rd. and the Peckman River. The central portions of the site were cleared in the recent past and are currently colonized by early successional vegetation communities. Many of the species within the early successional communities are non native, invasive species. An emergent wetland is established in the north central portion of the site and forested wetland occupied the northern extent of the site. The forested and emergent wetlands are contiguous. This wetland complex appears to be isolated from the Peckman River.

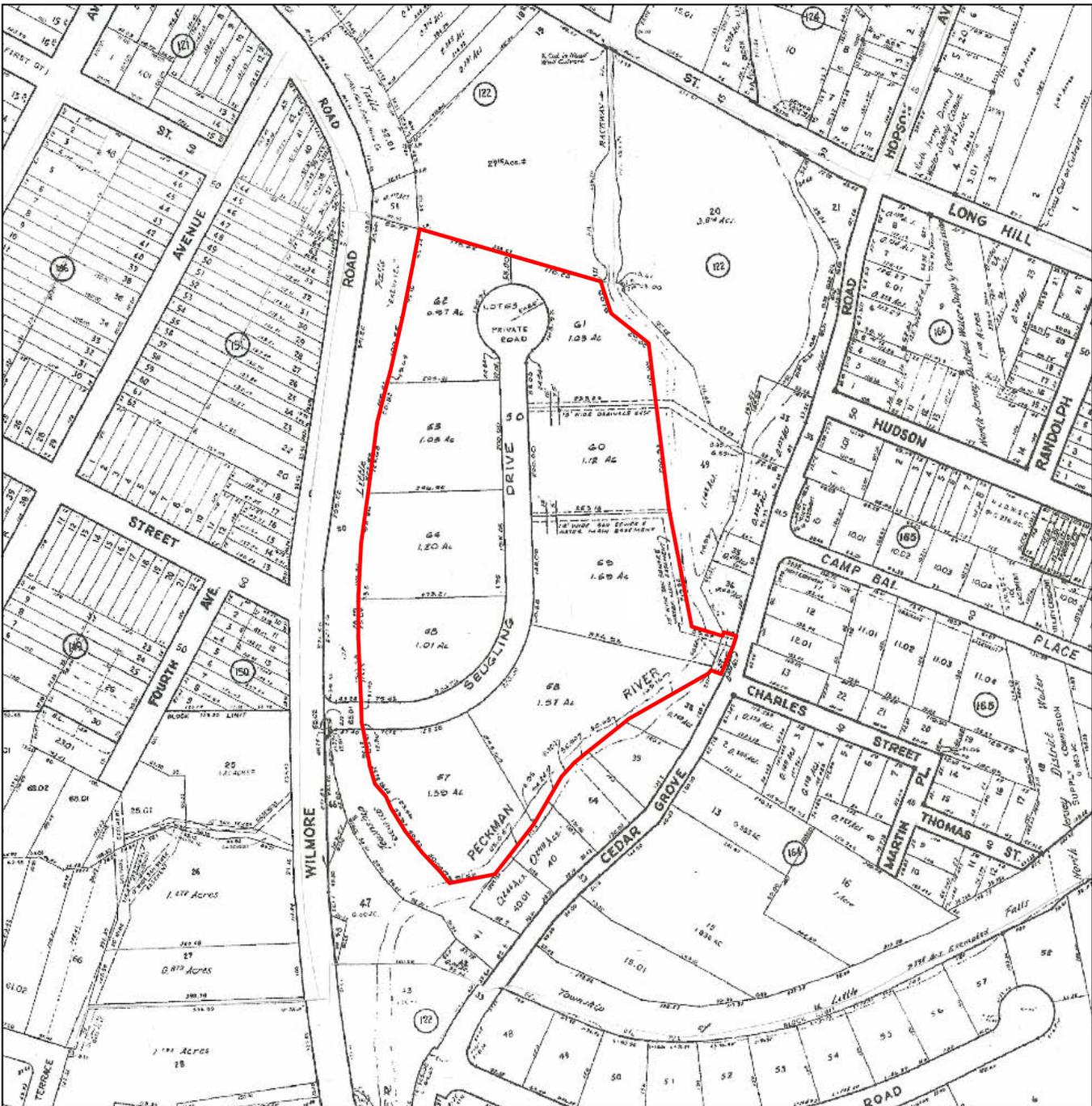


PECKMAN PRESERVE
COUNTY LOCATION MAP

SITE ANALYSIS
LOCATION & CONTEXT

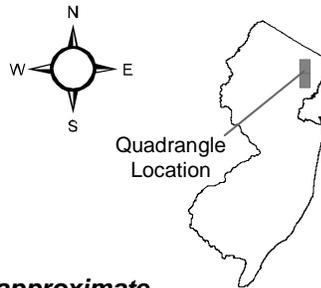


Source: Google Maps



Legend

 Peckman Preserve



Quadrangle
Location

Note: Map scale is approximate

SOURCE:
Tax Map for Township of Little Falls, Passaic County, New Jersey, Sheets 7, 8, 9, 10, and 11,
prepared by John I. Blouvelt, last revised by Robert P. Schilling, February 1998.

**Figure 1
Municipal Tax Map**

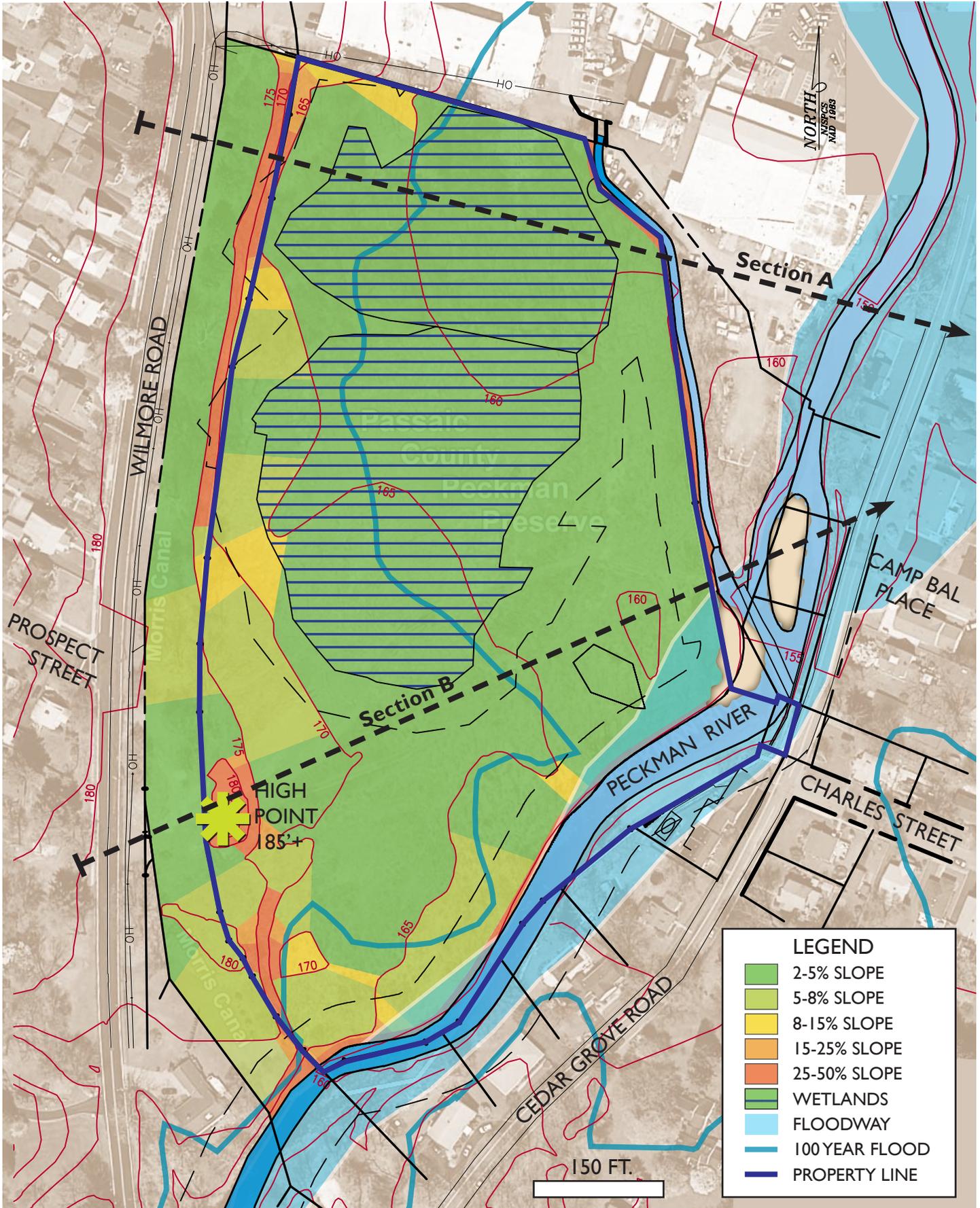
Peckman Preserve
Block 122; Lots 37, 48, 57-65,
65.01 and 65.02
Little Falls Township
Passaic County, New Jersey
ASGECI Project # 3197

250

Feet

 AMY S. GREENE
ENVIRONMENTAL
CONSULTANTS.

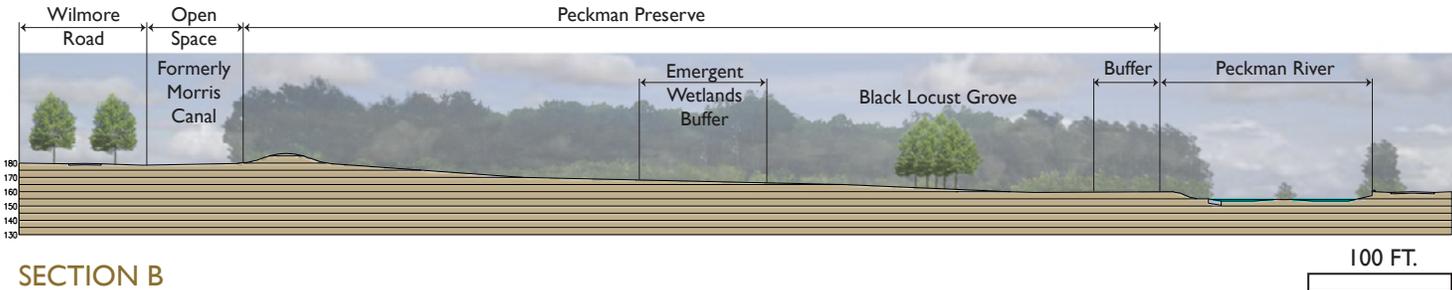
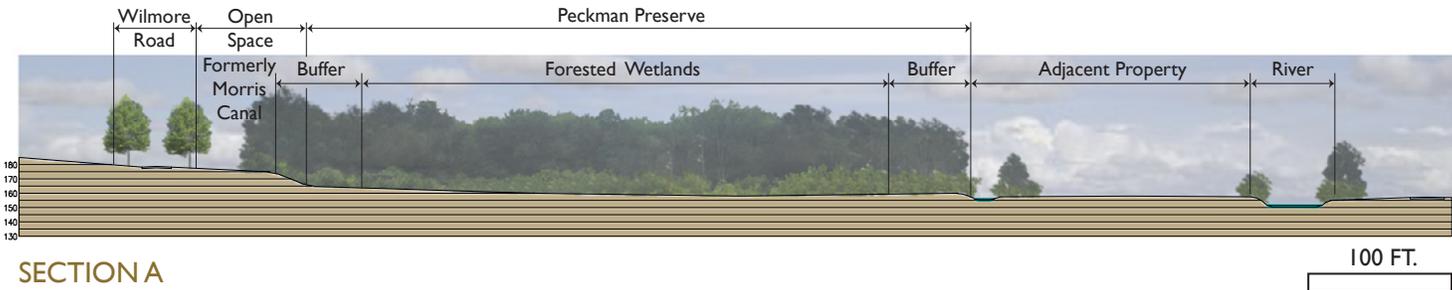
**SITE ANALYSIS
TOPOGRAPHY**



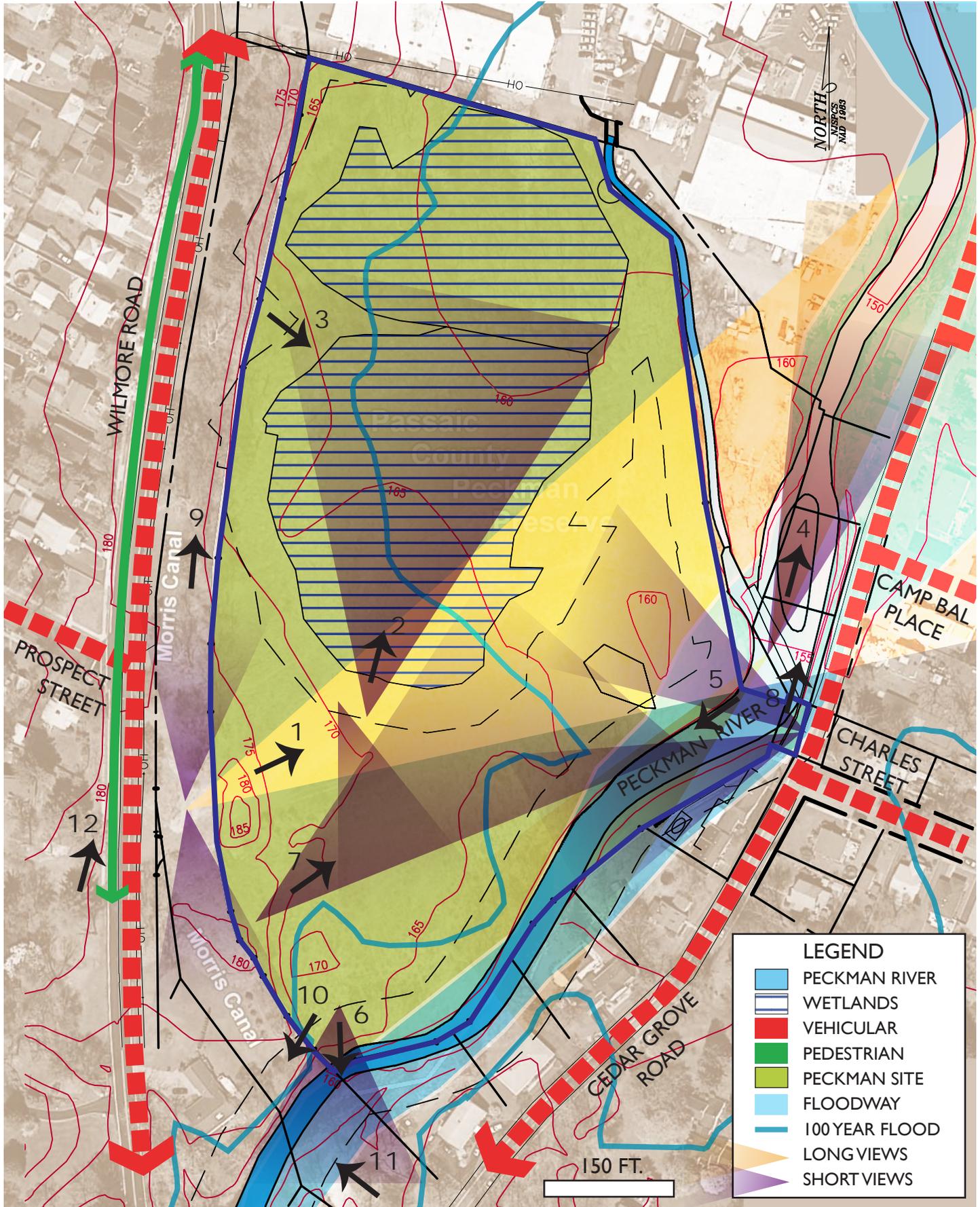
TOPOGRAPHY

- The Peckman Preserve site is within the Piedmont physiographic province. The geology of the Piedmont province is predominantly sedimentary and igneous rocks composed of red sandstone and shale; however, the vicinity of Little Falls is more specifically mapped by NJDEP as underlain by Orange Mountain Basalt.
- The elevations at the site range from about 180+ feet in the vicinity of the gravel entrance area adjacent to Wilmore Rd. and slope gently down to approximately 160- feet along the Peckman River and in the northern, forested portion of the site.
- There are steep slopes along the west property line, likely the result of past filling for Wilmore Road and nearby residential development.
- Topo is currently shown in 5 feet contours and would need verification in future design phases.

SITE CROSS SECTIONS (APPROXIMATE)



SITE ANALYSIS
VIEWS & CIRCULATION





View from the entrance provides the longest view toward east of the site toward Peckman River.



View within the site looking north with the forested wetlands in the background and the wetlands in the foreground.



View from Wilmore Road into the site through woodland edge.



View of Peckman River looking north.



View of Peckman River looking south.



View at south end of site looking across Peckman River toward tributary.

SITE ANALYSIS
VIEWS FROM SITE PERIMETER



7

View from top of slope looking northeast.



9

View looking north on Wilmore Rd. at open space within the Morris Canal Right of Way.



8

View from Cedar Grove Road of river.



10

View of Peckman River looking south at south end of site.



11

View of tributary east of site.



12

View of Wilmore Rd. looking north.

MORRIS CANAL

- In the late 19th century New Jersey utilized man-made water highways called canals to transport people and goods throughout the state. The Morris Canal, as it ran through northern New Jersey, connected the Delaware River on NJ's western border with the Hudson River on its eastern border. The Morris Canal ran through the Passaic County towns of Clifton, Little Falls, Woodland Park and the Mountain View section of Wayne. The Canal was located between Wilmore Road and the westerly boundary of the Peckman Preserve.
- With a renewed interest in historic preservation in New Jersey, many municipalities are utilizing their rich history and resources to provide recreational and public spaces for the community. The resurrection of the Morris Canal in Clifton, Little Falls and Woodland Park, which was long neglected and a forgotten resource, into unique public green spaces that provide new recreational opportunities to the community while making history come alive for all.
- The Morris Canal Park in Little Falls and along the Wilmore Road easement is actually comprised of two pieces. The main park, with its lovely shaded walkway, is located behind the shops and restaurants on Main Street between Union and Stevens Avenues. There is ample parking available at this park location. The second and smaller canal park is located at Main Street and Long Hill Road, and is within walking distance from the larger park.

(Source: www.passaiccountynj.org/ParksHistorical/Historical_Attractions/morriscanal.htm)



No. 14.

Canoeing and bicycling between Little Falls and Mountain View.

(Source: [www.http://www.bellepl.org/photos](http://www.bellepl.org/photos))

SITE ANALYSIS
SURFACE HYDROLOGY & WATER QUALITY

The Peckman River forms the eastern site boundary. The Peckman River originates in West Orange and flows in a northeasterly direction eventually discharging to the Passaic River in the Borough of Woodland Park. According to the New Jersey Department of Environmental Protection (NJDEP) surface Water Quality Standards (N.J.A.C. 7:9B), the river is classified as FW2 non-trout. According to these rules, the designated uses for FW-2 waters are:

1. Maintenance, migration and propagation of the natural and established biota;
2. Primary and secondary contact recreation;
3. Industrial and agricultural water supply;
4. Public potable water supply after conventional filtration treatment (a series of processes including filtration, flocculation, coagulation, and sedimentation, resulting in substantial particulate removal but no consistent removal of chemical constituents) and disinfection; and
5. Any other reasonable uses.

In addition to identifying the designated uses, the water quality classification in part determines the width of the riparian zone, the width of the wetlands transition area associated with wetlands that might drain to the surface water, and certain stormwater management requirements. The surface water quality for the Passaic River at the Riverview Drive crossing in Totowa, approximately 2 miles north of the Peckman Preserve, has also been evaluated using a protocol termed the Ambient Biological Monitoring Network (AMNET). An AMNET sampling site identified as “ANO 274” is located at this location. The AMNET methodology assesses the benthic macroinvertebrate populations for pollution tolerant and intolerant aquatic life forms including insects and insect larvae, mollusks, and crustaceans. Ratings of the stream condition are based on the level of pollution tolerance of the families collected, the ratio of pollution tolerant to pollution intolerant families, and the biodiversity of the system.

The AMNET sampling site (ANO 274) generally indicates that the waters are considered non-impaired for aquatic life for the surface waters of the Passaic River. In addition, the physical attributes of the habitat adjacent to the site ANO 274 were evaluated and have been designated to be “sub-optimal.” The AMNET Assessment Methodology is outlined in the AMNET executive summary at <http://www.nj.gov/dep/wms/bfbm/GenExecSum.html>. In general, the waters of the Peckman River adjacent to the Peckman Preserve can be assumed to be similar in quality to the waters of the Passaic River at the nearby AMNET ANO 274 sampling station.

As mentioned above, the Peckman River along the project site is described as freshwater non-trout, which by default, identifies it as a warm water fish resource. According to an electro fishing survey performed by the NJDEP along the Passaic River, the following fish species were identified:

Common Name	Scientific Name	Common Name	Scientific Name
pumpkinseed sunfish	(<i>Lepomis gibbosus</i>)	banded killifish	(<i>Fundulus diaphanous</i>)
bluegill	(<i>Lepomis gibbosus</i>)	blacknose dace	(<i>Micropterus salmoides</i>)
redbreast sunfish	(<i>Lepomis auritis</i>)	spotted shiner	(<i>Erimystax x-punctatus</i>)
largemouth bass	(<i>Micropterus salmoides</i>)	satinfish shiner	(<i>Notropis analostanus</i>)
tessellated darter	(<i>Etheostoma olmstedii</i>)	golden shiner	(<i>Notemigonus crysoleucas</i>)
brown bullhead	(<i>Ameiurus nebulosus</i>)	American eel	(<i>Anguilla rostrata</i>)
white sucker	(<i>Catostomous commersoni</i>)	black crappie	(<i>Pomoxis alularis</i>)

This sample represents a moderately degraded fish resource and is typical of streams and rivers located within urban environs. The fish resource of the Peckman River can be assumed to support a moderately degraded fish resource similar to that as describe for the Passaic River.

A review of the NJDEP Freshwater wetlands quarterquad mapping for the project area does not indicate any areas of wetland (Figure 3). However, based on our field investigation, emergent and forested wetlands were preliminarily located in the central and northern portions of the site (Figure 2).



Legend

-  Peckman Preserve
- Plant and Wetland Communities**
-  Black Locust Stand
-  Common Reed
-  Emergent Wetland
-  Forested Wetland
-  Knot Weed
-  Mugwort
-  Mugwort Upland

Note: Wetland boundaries are approximate and are based on a preliminary wetland investigation performed by ASGECI, December 11, 2009.

SOURCES:
Plant Communities and Wetlands based on GPS data taken during a preliminary wetland investigation performed by Amy S. Greene Environmental Consultants Inc. on December 11, 2009. New Jersey 2007-2008 High Resolution Orthophotography - JPEG2000 5K Tiles, State of New Jersey - Office of Information Technology (NJ/OIT), Office of Geographic Information Systems (OGIS), Trenton, NJ, October 2008. This (map/publication/report) was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.

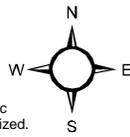
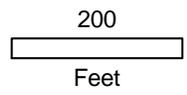


Figure 3 - GPS Plant Communities and Wetlands Map

Peckman Preserve
Block 122; Lots 37, 48, 57-65,
65.01 and 65.02
Little Falls Township
Passaic County, New Jersey
ASGECI Project # 3197



BIOTIC COMMUNITIES

A variety of vegetative communities were identified during our December 11, 2009 field investigation. General wetland areas, surface waters (Peckman River bank), plant communities and any other pertinent landscape features were located and mapped using GPS (Trimble 4000). These general areas are provided on Figure 2.

The majority of plants observed within the Peckman Preserve site were non-native species. However, native species were also noted, particularly within the emergent and forested wetlands, and paralleling the Peckman River. The most common non-native species identified within the upland portions of the site are the two herbaceous plants, common mugwort (*Artemisia vulgaris*) and Japanese knotweed (*Polygonum cuspidatum*); the shrub multiflora rose (*Rosa multiflora*); vines of Japanese honeysuckle (*Lonicera japonica*), and tree-of-heaven (*Ailanthus altissima*) trees. Individuals and small stands of black locust (*Robinia pseudoacacia*) trees were also identified scattered throughout the site. Black locust is native to North America although it is not native to New Jersey. This tree commonly becomes established on disturbed upland soils. The wetland area included a few small areas of two non-native herbaceous plants, common reed (*Phragmites australis*) and reed canary grass (*Phalaris arundinacea*). Reed canary grass was also the dominant species found growing along the roads/paths that leads from the gravel area and into the center of the site.

The biotic communities have been separated into recognizable areas based on plant stage of succession; species composition and landscape position in order to simplify their descriptions. Biotic communities include early successional field; forested riparian floodplain, forested wetland, emergent wetland; and open water.

EARLY SUCCESSIONAL

Early successional fields are generally dominated by herbaceous annuals and perennials that quickly occupy disturbed sites. Within the Peckman Preserve the early successional communities are primarily dominated by extensive monocultures of common mugwort and Japanese knotweed. The common mugwort is found within the drier portions of the site whereas the Japanese knotweed is found growing within the floodplains and riparian areas along the Peckman River. Additional species noted within the areas dominated by common mugwort included curly dock (*Rumex crispus*), orchardgrass (*Dactylis glomerata*), common mullein (*Verbascum thapsus*), and bull thistle (*Cirsium vulgare*). Shrubs and trees identified in this area included tatarian honeysuckle (*Lonicera tatarica*), multiflora rose (*Rosa multiflora*), and tree-of-heaven tree and black locust (*Robinia pseudoacacia*) saplings. The areas dominated by Japanese knotweed included very few if any additional species of plants. A brief description of common mugwort and Japanese knotweed are included in Appendix B.

Late successional communities typically replace (succeed) the early successional communities, represent less disturbance, and generally include both herbaceous and woody species of shrubs and tree saplings. These early successional communities can be expected to eventually succeed to late successional habitats. The tree saplings will ultimately mature and shade out the early and late successional communities.

RIPARIAN FOREST

An intermediate-aged mixed hardwood forest community is located paralleling the Peckman River. These areas receive overflow from the river during periods of high water. Dominant canopy species include tree-of-heaven, black locust, Norway maple (*Acer platanoides*), black cherry (*Prunus serotina*), sycamore (*Platanus occidentalis*), green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*) and a few hackberry (*Celtis occidentalis*). Shrubs noted within the forest understory were primarily multiflora rose and the herbaceous layer was dominated by Japanese knotweed and with a few areas of garlic mustard (*Alliaria petiolata*). The invasive vine Asiatic bittersweet (*Celastrus orbiculatus*) was noted growing within a number of the trees.

The riparian forest understory has been heavily browsed by white tailed deer (*Odocoileus virginiana*). Non-native plants are generally not palatable/less palatable to white-tailed deer. The selective herbivory focuses feeding pressure on the native plants, which favors the proliferation of non-native species, ultimately reducing plant diversity. As a result, the forest understory exhibits limited plant diversity and common plants are typically non-native, invasive species.

“Invasive species” refers to species that become established in a new ecosystem in which they have not co-evolved. These plants proliferate, spread and persist and cause or are likely to cause detrimental impact to the economy, environment or to human health. These plants tend to:

- Produce large numbers of new plants each season
- Tolerate many soil types and weather conditions
- Spread easily and efficiently, usually by wind, water, or animals
- Grow rapidly, allowing them to displace slower growing plants
- Spread rampantly when they are free of the natural checks and balances found in their native range
- Negatively impact native wildlife by reducing habitat variability

Suggested methods for control and treatment of several of the common invasives species that occur on site are provided in Appendix B.

FORESTED WETLANDS

A forested wetland, approximately 1.7 acres in size, was identified within the northern extent of the site. This forested wetland is contiguous with the emergent wetland (discussed below). The forested wetland exhibits temporary pools and ponding, saturated soils, buttressed tree bases, surficial tree roots and water stained leaves. The temporary pools may function as “vernal pools” and support certain amphibians that require this type of habitat. Hydrology for the wetland appears to be derived primarily from shallow groundwater and stormwater runoff from adjacent developed areas. The forested wetland includes intermediate aged trees, with diameters ranging from 6-24 inches diameter at breast height (DBH), and with trees 50-70 feet in height. Common trees noted within the forested wetland included silver maple (*Acer saccharinum*), red maple (*Acer rubrum*), pin oak (*Quercus palustris*), American elm (*Ulmus americana*) and sycamore (*Platanus occidentalis*). The understory was largely devoid of shrubs and with little herbaceous cover except for a few patches of stout woodreed (*Cinna arundinaceae*). The forested wetland has been heavily browsed by white tailed deer which has largely eliminated the shrub and herbaceous layers.

No amphibious wildlife was noted during the site investigation; however, amphibians that may occur in the area and are known to occupy and breed in temporary forest pools include spring peeper (*Pseudacris crucifer*), green frog (*Rana clamitans*) and wood frog (*Rana sylvatica*).

The forested wetland will include a wetland transition area. It is assumed that this buffer will be 50 feet in width.

EMERGENT WETLANDS

A large emergent wetland, approximately 2.6 acres in size, was identified within the north central portion of the site. Hydrology for the wetland appears to be derived primarily from shallow groundwater and surface water runoff from adjacent slopes. Common vegetation in the emergent wetland included common rush (*Juncus effusus*), wool grass (*Scirpus cyperinus*), reed canary grass (*Phalaris arundinaceae*), narrow-leaved mountain mint (*Pycnanthemum tenuifolium*), flat topped aster (*Aster umbellatus*) and blue vervain (*Verbena hastata*). A small area dominated by common reed occurs in the western part of this wetland. Seedlings and saplings of sycamore, sweet gum (*Liquidambar styraciflua*) and pin oak (*Quercus palustris*) trees were also commonly noted. The tree seedlings and saplings are well established and very dense in some locations. These plants have the potential to partially reforest the site.

The onsite emergent and forested wetlands appear to be isolated from the Peckman River. No physical connection to the river or to pipes discharging to the river was identified during the field investigation.

The emergent wetland will include a wetland transition area. It is assumed that this buffer will be 50 feet in width.

As previously stated, a review of the NJDEP Freshwater wetlands quarterquad mapping for the project area does not indicate any areas of wetland (Figure 3). However, based on our field investigation, emergent and forested wetlands were preliminarily located in the central and northern portions of the site (Figure 2). A wetland delineation and Letter of Interpretation will be required from the NJDEP to establish actual wetland and wetland transition area boundaries.

OPEN WATER

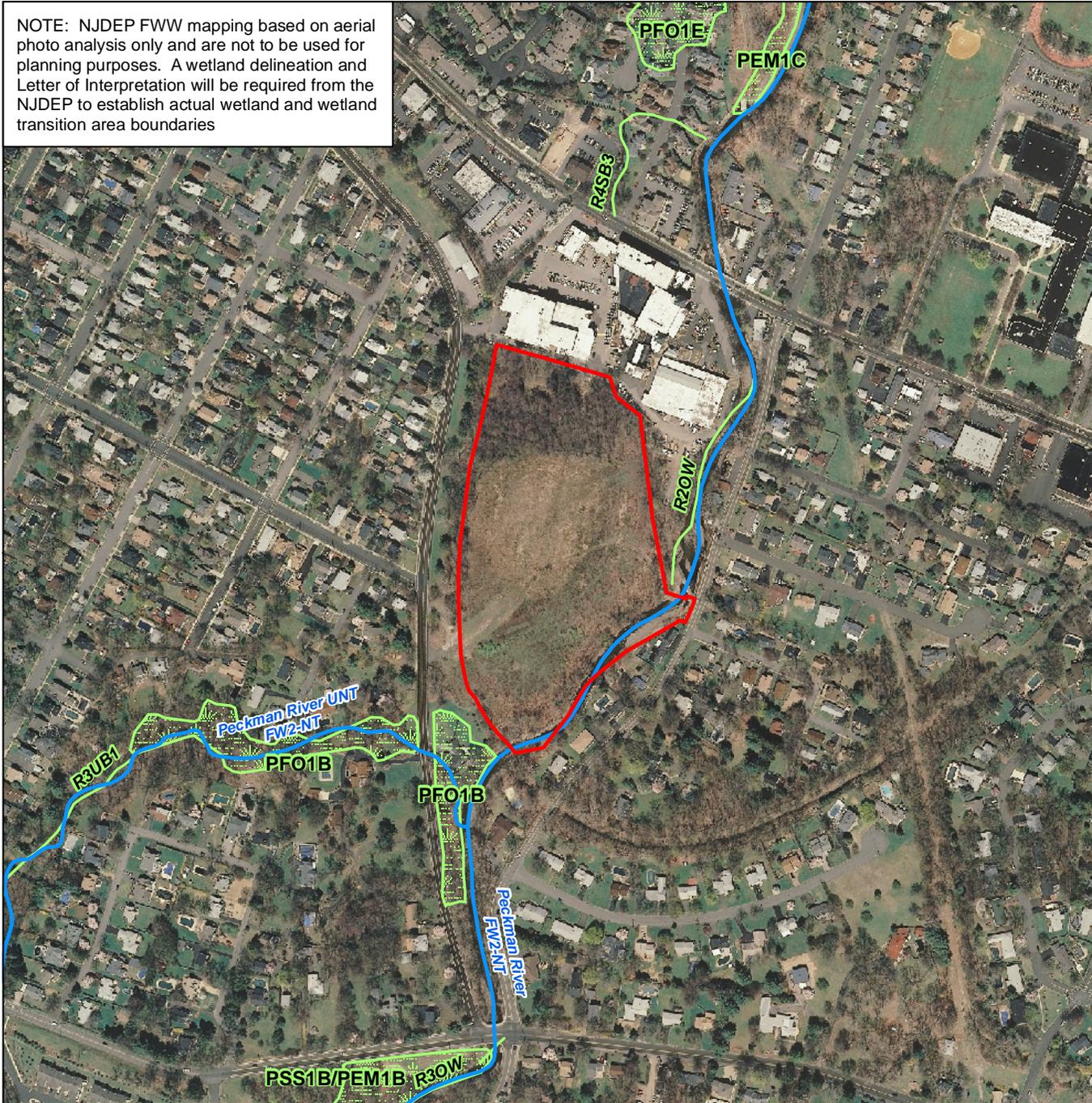
Open water consists of the Peckman River, which serves as the eastern site boundary. The Peckman River is approximately 30-40 feet wide along the site. A former weir, which has been undermined and is partially collapsed is located midway along the site. The banks of the Peckman River within the site have been steepened and reinforced with slabs of concrete and rubble. The riparian zone associated with the Peckman River will be measured beginning at the top of the steep bank. The width of the riparian zone is expected to be 50 feet.

Wildlife observed along the river during the field visit included a great blue heron (*Ardea herodias*) and a kingfisher (*Ceryle alcyon*).

SOILS

The Passaic County SSURGO soils mapping identifies one soil mapping unit on site, an Urban land-Knickerbocker complex, 0 to 8 percent slopes (Figure 4). This series consists of very deep, well and somewhat excessively drained, soils formed in sandy glacio-fluvial deposits. They are nearly level to steep soils on lake plains and terraces. The SCS Soil Survey (Seglin, 1972) identifies the site as underlain by Urban Land-Boonton Complex, gently sloping (URB) soils. This describes a soil that has been altered by man through filling and grading, with as much as 40-80% of the land surface having been disturbed. The soils that are not disturbed are Boonton soils, which are mostly stony and gravelly glacial deposits. Depth to bedrock is typically 3 to 10 feet within the Urban Land-Boonton Complex.

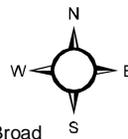
NOTE: NJDEP FWW mapping based on aerial photo analysis only and are not to be used for planning purposes. A wetland delineation and Letter of Interpretation will be required from the NJDEP to establish actual wetland and wetland transition area boundaries



Legend

- ▭ Peckman Preserve
- ~ NJDEP Freshwater Wetlands
- ~ NJDEP Linear Wetlands

- ~ Streams
- WETLAND CLASSIFICATION:
PFO1B: Palustrine, Forested, Broad Leaved Deciduous, Saturated
R2OW: Riverine, Lower Perennial, Open Water, Unknown Bottom



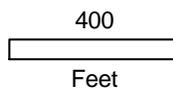
SOURCES:

Surface Water Quality Standards of New Jersey, New Jersey Department of Environmental Protection, Division of Landuse Management, Bureau of Freshwater & Biological Monitoring, Trenton, NJ, May 2009.
NJDEP Wetlands of Passaic County, New Jersey 1986, New Jersey Department of Environmental Protection (NJDEP), Office of Information Resources Management (OIRM), Bureau of Geographic Information and Analysis, NJDEP, Trenton, November 1999.
NJDEP Linear Non-Tidal Wetlands of Passaic County, New Jersey 1986, NJ Department of Environmental Protection (NJDEP), Office of Information Resource Management (OIRM), Bureau of Geographic Information and Analysis (BGIA), NJDEP, Trenton, November 1998.
New Jersey 2007-2008 High Resolution Orthophotography - JPEG2000 5K Tiles, State of New Jersey - Office of Information Technology (NJGIT), Office of Geographic Information Systems (OGIS), Trenton, NJ, October 2008.
This (map/publication/report) was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.

Figure 3
NJDEP Freshwater Wetlands Map

Peckman Preserve
Block 122; Lots 37, 48, 57-65,
65.01 and 65.02
Little Falls Township
Passaic County, New Jersey

ASGECI Project # 3197





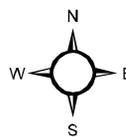
Legend

 Peckman Preserve

SOILS LIST:

USKNKB - Urban land-Kickerbocker complex,
0 to 8 percent slopes

SOURCES:
Soil Survey Geographic (SSURGO) Database for Passaic County, New Jersey,
USDA, Natural Resources Conservation Service, Fort Worth, Texas, December 2004.
New Jersey 2007-2008 High Resolution Orthophotography - JPEG2000 5K Tiles, State of New Jersey - Office of
Information Technology (NJGIT), Office of Geographic Information Systems (OGIS), Trenton, NJ, October 2008.
This (map/publication/report) was developed using New Jersey Department of Environmental Protection Geographic
Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.



**Figure 4
SSURGO Soils Map**

Peckman Preserve
Block 122; Lots 37, 48, 57-65,
65.01 and 65.02
Little Falls Township
Passaic County, New Jersey
ASGECI Project # 3197

300

Feet



WILDLIFE / ENDANGERED AND THREATENED SPECIES

The NJDEP Natural Heritage Program (NJNHP) was contacted to determine if any records of endangered or threatened species have been recorded for the project site. A letter from the NJ NHP dated November 20, 2009 (Appendix C), identifies only the Eastern box turtle (*Terrapene carolina*) as occurring onsite. This species is considered a species of special concern and is not state or federally listed as endangered or threatened. The NJNHP also provides a list of additional species within one-mile of the site. Species identified within one mile include only the great blue heron. The breeding population of the great blue heron is identified as a species of special concern in New Jersey. This means that further population declines will result in a State listing as a threatened species. The great blue heron nests communally in rookeries and constructs large stick nests in tree canopies. No great blue heron rookeries or nests were noted during our field investigation. The NJNHP does not identify any rare plants or natural communities within one mile of the site.

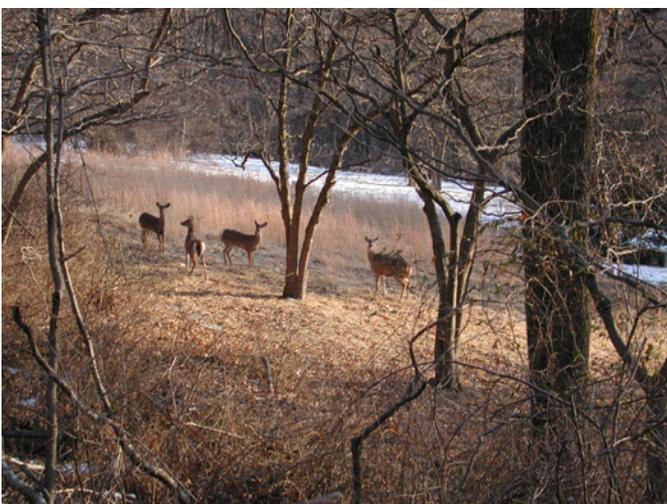
The NJDEP Landscape Project mapping for the site was also reviewed (Figure 5). The NJDEP Endangered and Non-Game Species Program (ENSP) developed the landscape project maps in order to identify critical rare species habitats based on land use classifications, documented rare species locations and habitat models linked to each of the rare, threatened or endangered species. The habitat patches are then assigned a Rank based on the status of the species that inhabit the habitat patches, such as Federal/State Endangered or Threatened and Priority Species. This mapping provides a basis for planning and management guidelines for rare species protection. Our review of the landscape project mapping confirms the results of the NJDEP Natural Heritage Program record search as described above.



Eastern Box Turtle (Image courtesy of Branlon)



Great Blue Heron (Image courtesy of Friends of Pennypack Park)



White Tail Deer (Image courtesy of Branlon)

Other wildlife that has been witnessed by visitors have been rabbits, several bird species and red fox.

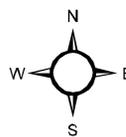
**SITE ANALYSIS
SPECIES MAP**



Legend

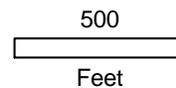
-  Peckman Preserve
- Forest Habitat**
-  Priority Species (2)
- Forested Wetland Habitat**
-  Suitable Habitat (1)

SOURCES:
 NJDEP Forest and Forested Wetland Critical Habitat, Edition: Version 2.1, 200807, New Jersey Department of Environmental Protection, Division of Fish and Wildlife, Endangered Non-Game Species Program, vector digital data, NJ Division of Fish and Wildlife, Trenton, NJ, November 2007.
 New Jersey 2007-2008 High Resolution Orthophotography - JPEG2000 5K Tiles, State of New Jersey - Office of Information Technology (NJ/OIT), Office of Geographic Information Systems (OGIS), Trenton, NJ, October 2008.
 This (map/publication/report) was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.



**Figure 5
Landscape Project Map**

Peckman Preserve
 Block 122; Lots 37, 48, 57-65,
 65.01 and 65.02
 Little Falls Township
 Passaic County, New Jersey
 ASGECI Project # 3197



**AMY S. GREENE
ENVIRONMENTAL
CONSULTANTS.**

DEBRIS PILES AND DISTURBED AREAS

The site has been subject to some disposal and dumping of waste. One pile of stone, approximately 10 cubic yards, was noted on site and the location is provided on Figure 2. As discussed above, the banks of the Peckman River have historically been filled, steepened and reinforced with concrete slabs and stone fill. It is assumed that this was done in an effort to reduce or prevent bank erosion. Areas that have been filled and partially covered with pavement/asphalt were noted adjacent to the river. A groundwater monitoring well was also noted to be in place on site, within an area that has been filled. The areas that are colonized by the invasive species, common mugwort and Japanese knotweed, indicate historic site disturbance such as grading and filling. The stands of black locust also often become established on recently disturbed upland spoil and fill piles. Invasive species are particularly well adapted to becoming established on disturbed soils.

RULES AND REGULATIONS

The project site includes several areas of freshwater wetlands and the Peckman River. The freshwater wetlands and their associated transition areas will be regulated in accordance with NJAC 7:7A Freshwater Wetlands Protection Act rules. The flood plains and riparian zone associated with the Peckman River will be regulated in accordance with the Flood Hazard Area Control Act rules at NJAC 7:13. Any recommendation to construct a trail/pedestrian path within the site will require that design avoid and minimize impacts to the extent possible. NJDEP permits would be required depending on the final selected design. A pre-application conference with the NJDEP may be requested to evaluate the project that may impact regulated areas.

FRESHWATER WETLANDS PROTECTION ACT RULES

The freshwater wetlands protection act (FWPA) rules at NJAC 7:7A include a number of provisions that protect existing wetlands and wetland transition areas. Note that ASGECI has preliminarily identified the wetland boundaries onsite and these approximate boundaries are provided on Figure 2. Based on our best professional judgment the onsite wetlands would likely be classified as intermediate resource value wetlands and would include a standard 50 foot width wetland transition area. Performance of an onsite, detailed wetland delineation and field survey of the wetland delineation, along with locating of the top of bank of the Peckman River, would accurately establish the location of regulatory boundaries within the project site. The NJDEP is the ultimate arbiter with regard to state open water/wetland boundaries and the width of the wetland transition area. A summary of the types of activities that are either regulated or authorized (not-regulated) under the FWPA rules is provided in Appendix D.

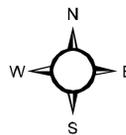
The construction of a trail that will disturb wetlands or wetland transition areas will require authorization under the FWPA rules. A General Permit #17 can be obtained to authorize trails and boardwalks that cross wetlands or wetland transition areas. There is no limit on the area of wetland or wetland transition area that can be disturbed as long as the subject property is publicly owned. In addition, the trail or boardwalk must be no wider than 6 feet in width unless it can be demonstrated that it must comply with barrier free requirement and codes. The trail or boardwalk must be designed to minimize impacts to wetlands and must incorporate educational signage. The trail must also ensure that the trail does not interfere with the natural hydrology of the wetland by providing installation at grade or through the use of cross drains to allow the passage of water.

The NJDEP regulates “the destruction of plant life which would alter the character of a freshwater wetland including killing vegetation by applying herbicides or by other means...” A General Permit #16 for Habitat Creation and Enhancement may need to be obtained to authorize enhancement of existing wetlands. Limited management of vegetation and planting of gardens (2,500 sq ft or less) within wetland transition areas is not a regulated activity.



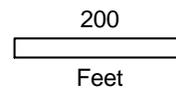
Legend

- ▭ Peckman Preserve
- ▭ 100-year FEMA Floodplain
- ▨ Floodway
- Cross Section
- Base Flood Elevation
- ▭ Peckman River



**Figure 6
FEMA Floodplain Map**

Peckman Preserve
Block 122; Lots 37, 48, 57-65,
65.01 and 65.02
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Passaic County, New Jersey
ASGECI Project # 3197



**AMY S. GREENE
ENVIRONMENTAL
CONSULTANTS.**

SOURCES:
National Flood Hazard Layer, Federal Emergency Management Agency (FEMA), a compilation of all Digital Flood Insurance Rate Map (DFIRM) databases published by FEMA, distributed by FEMA Map Service Center, Washington DC, June 2009.
New Jersey 2007-2008 High Resolution Orthophotography - JPEG2000 5K Tiles, State of New Jersey - Office of Information Technology (NJ-OIT), Office of Geographic Information Systems (OGIS), Trenton, NJ, October 2008.
This (map/publication/report) was developed using New Jersey Department of Environmental Protection Geographic Information System digital data, but this secondary product has not been verified by NJDEP and is not State-authorized.

FLOOD HAZARD AREAS CONTROL ACT RULES

The Flood Hazard Area Control Act (FHACA) rules at N.J.A.C. 7:13 include a number of provisions that protect existing flood hazard areas (flood fringe and floodway) and the adjacent riparian zone. A regulated flood hazard area exists along all waters with a drainage area of 50 acres or more. In addition, a riparian zone exists along every regulated water. The Peckman River within the project area will include both a regulated flood hazard area and a riparian zone. The approximate extent of the flood hazard area is provided on Figure 6, the FEMA Floodplain Map. The value of the mapping is limited unless and until a topographic survey is obtained for the site. ASGECI has determined that the NJDEP flood plain delineation for the Peckman River within Little Falls Twp., Passaic County was repealed as of August 02, 2002, and to date, has not been revised. The delineation was repealed following Hurricane Floyd which indicated inconsistencies between mapped flood hazard area elevations and actual flood hazard area elevations that resulted from flooding.

Based on our best professional judgment, the riparian zone that parallels the Peckman River will be 50 feet in width for the length of the project site. A summary of the types of activities that are either regulated or authorized (not-regulated) under the FHACA rules is provided in Appendix D.

The construction of a pedestrian trail within 50 feet of the top of bank of the Peckman River will require an FHACA Individual Permit. This permit will allow up to 1000 sq feet of disturbance within the 50 foot riparian zone; however, all disturbances would have to be compensated for at a 2:1 ratio; meaning that twice the area of disturbance would have to be replanted, also within 50 feet of the top of bank. We recommend that any pedestrian trail or path be installed at a distance of greater than 50 feet from the top of bank in order to avoid disturbing the regulated riparian zone.

In accordance with N.J.A.C. 7:13-7.2(a)2, the construction of a trail at grade within a flood hazard area is authorized under Permits-by-Rule (PBR), as long as “no vegetation is cleared cut or disturbed within the riparian zone” and no disturbance occurs within 25 feet of the top of bank. This PBR will allow the pedestrian trail to be constructed within flood hazard areas (100 year floodplains) that extend well beyond the 50 foot width riparian zone. Prior written notice to the NJDEP is required for activities under this PBR.

A pre-application conference should be scheduled with the NJDEP prior to developing any final plans that include potential projects that may require NJDEP permits, such as the construction of trails/boardwalks; the removal of invasive species or replanting of native species within wetlands, wetland transition areas, flood hazard areas or the riparian zone.

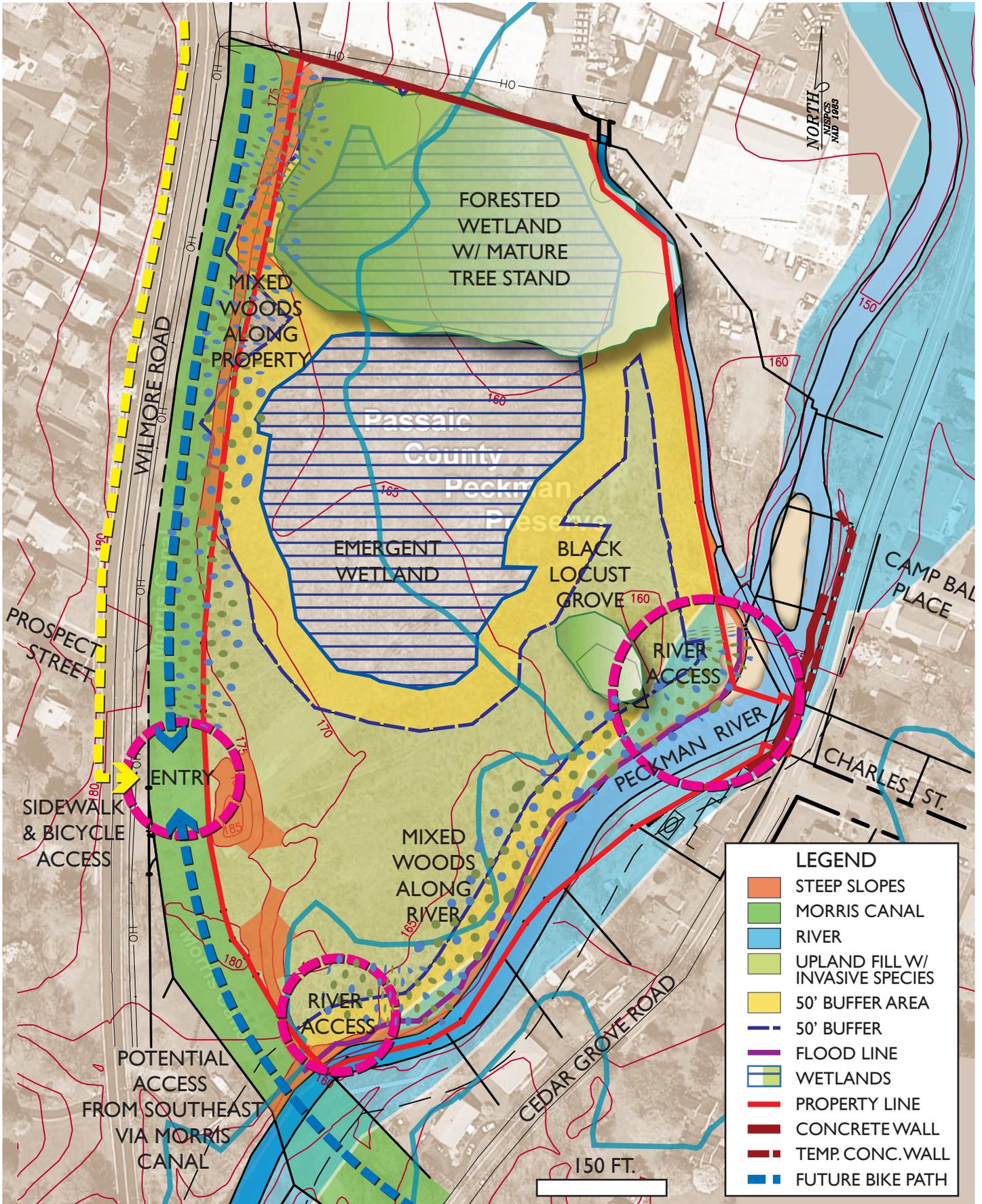
The resource information provided in this report was acquired from existing secondary sources supplemented by a several day qualitative field inventory and assessment, and the potential site improvements considered current NJDEP environmental regulations.

The Peckman Preserve includes a variety of habitats including early successional fields, forested riparian areas paralleling the Peckman River, and emergent and forested wetlands. The Peckman River borders the project site and provides a significant focal point. The site includes a limited range of native plants and wildlife habitats. Non-native, invasive species of plants have become well established throughout all vegetated communities. Invasive species entirely dominate some areas, such as the large monocultures of mugwort and Japanese knotweed. Tree seedlings and saplings were noted in various communities and these have the potential to partially reforest the site. The invasive vine Asiatic bittersweet is found growing in a number of the trees onsite, in particular, within the riparian forest. These vines should be cut at their base to limit the destruction of tree canopies. Site disturbance and herbivory by white tailed deer has contributed to the establishment of the invasive species. A deteriorated parking area is located near the southwestern corner of the site and some debris was noted within the site.

Public access and recreation opportunities might include a walking trail with educational signage. The debris and waste identified during the field investigation should be removed as an initial step in the site restoration.

As discussed above, the FWPA and FHACA rules must be addressed to construct a pedestrian trail within wetlands, wetland transition areas and the flood hazard area. A FWPA General Permit #17 can be obtained to authorize trails and boardwalks that cross wetlands or wetland transition areas. Any pedestrian trail should remain a minimum of 50 feet from the top of bank of the Peckman River in order to minimize permit requirements. In accordance with N.J.A.C. 7:13-7.2(a)2, the construction of a trail at grade within a flood hazard area can be authorized under Permits-by-Rule. Prior written notice to the NJDEP is required for activities under NJAC 7:13-7.2(a)2.

We recommend that a pre-application meeting with the NJDEP be scheduled once the extent of the public access has been determined.



CONSTRAINTS

- The site includes a limited range of native plants and wildlife habitats. Non-native, invasive species of plants have become well established throughout all vegetated communities. Invasive species entirely dominate some areas. Site disturbance and herbivory by white tailed deer has contributed to the establishment of the invasive species.
- A deteriorated gravel area is located near the southwestern corner of the site and some debris was noted within the site.
- Regulations and Permitting for river access and building within floodplain.
- Access from the east and northeast is limited due to private property and the river corridor.
- The debris and waste identified during the field investigation should be removed as an initial step in the site restoration.

OPPORTUNITIES

- The Peckman Preserve includes a variety of habitats including early successional fields, forested riparian areas paralleling the Peckman River, and emergent and forested wetlands.
- Tree saplings were noted in various locations and have the potential to partially reforest the site.
- The Peckman River borders the project site and provides a significant focal point.
- Public access via biking and walking on land formerly Morris Canal.
- Nice views within the site and to nearby eastern ridge.
- Large contiguous open space with close proximity to residents and local schools.
- Unique naturalized experience within an urbanized context.

OPEN SPACE NEEDS

Little Falls, NJ is an 2.8 square mile community located in southern Passaic County. The Preserve is in a mature, suburban neighborhood with medium to high-density residential development. The tract most recently had been slated for up to 25 large homes alongside the Peckman River.

The Peckman River is one of the Passaic's tributaries. In September 1999, during Hurricane Floyd, a nearby resident lost his life to the floodwaters, and as a result, efforts by local residents and County officials to acquire and protect not only the environment but the inhabitants of the neighboring home came to fruition in 2005. Recently, in March 2010, there was also significant flood damage within the town.

ACCESSIBILITY

- Access is available on the western border of the property (Wilmore Road). Because of its proximity to residential neighborhoods and expansive frontage on a public street (with on-street parking), there is no need for a formal paved parking lot.
- Water access is along the south-eastern border of the property, with direct access for environmental education, as well as opportunities such as fishing and bird watching.

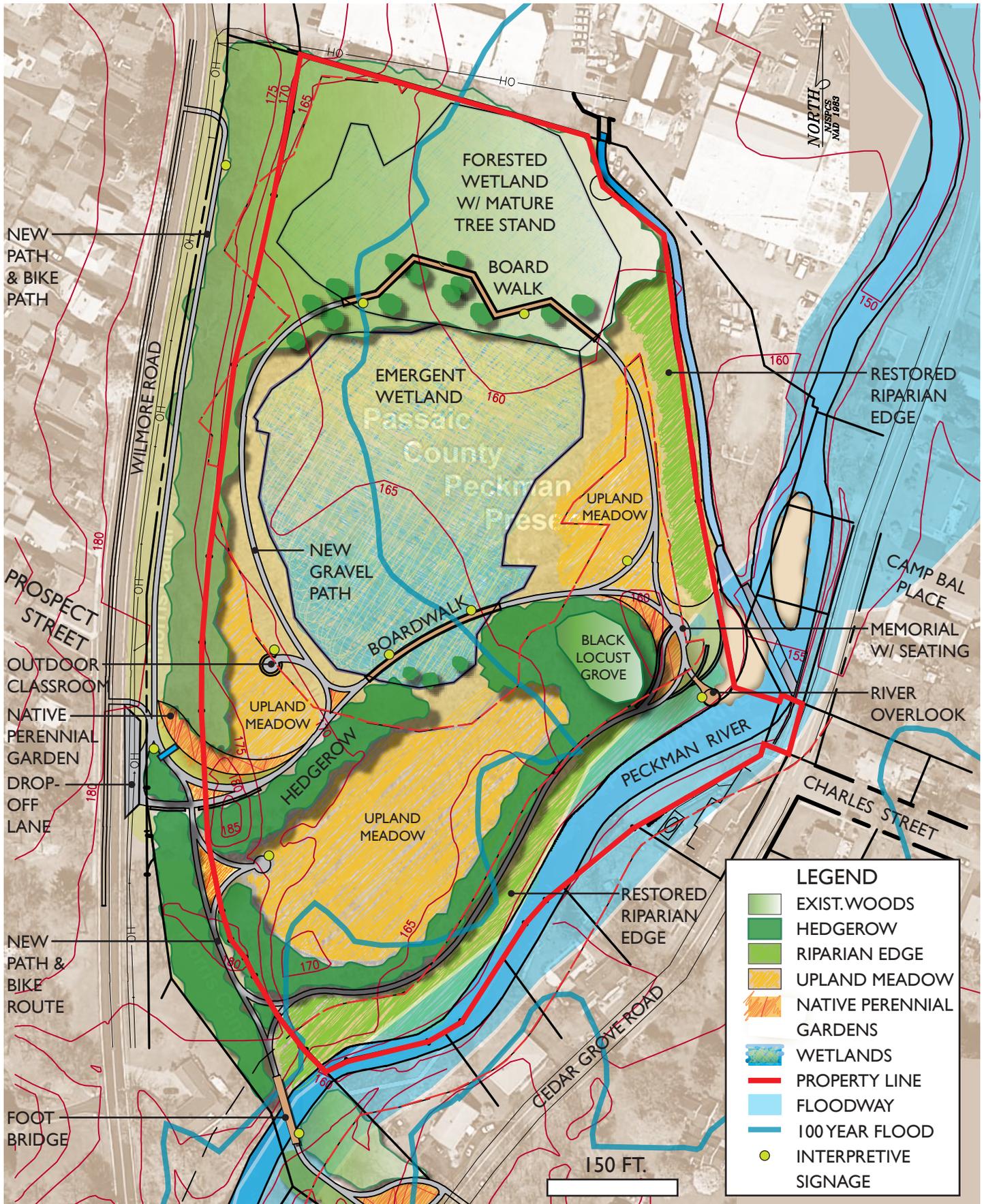
QUALITY OF LIFE ISSUES

- Any improvements must protect limited natural resources still intact at the site.
- With guidance from NJDEP and others, possible creation of a naturalistic 'riverwalk'.
- Walking trails, with native perennial gardens and meadow areas can promote eco-education for local school children, as well as provide habitat for wildlife.
- Possible non-motorized bike paths in less sensitive areas.
- Environmentally sensitive low-impact development of trails and resting benches will protect waterway and encourage introduction of wildlife with companion plantings.
- Preservation has eliminated potential degradation of waterways through erosion, protecting Peckman and Passaic Rivers and their tributaries.
- Enhance possibilities of other activities, i.e., birdwatching, gardening and aesthetics such as photography and other forms of nature appreciation.

FACILITY DESIGN SENSITIVITY AND SITE SUITABILITY

- No structures other than signage, a front gateway and possibly raised wooden walkways are proposed; initial enhancement of site with removal of invasive species along with planting of shade trees and low-maintenance native species.
- All improvements to property will be done with utmost regard to best-management practices (BMPs) and protection of wetlands and waterways.
- Utmost caution will be taken to protect and respect wetland buffers.
- Installation of memorial for local victim of Hurricane Floyd, possibly at main gateway area.
- Although the concept of a County tree farm (or nursery) had originally been considered for a small portion of the property, at the southern end, upon further reflection and more importantly, due to local residents' concerns, this component of the plan has been removed.

CONCEPT DESIGN
PLAN

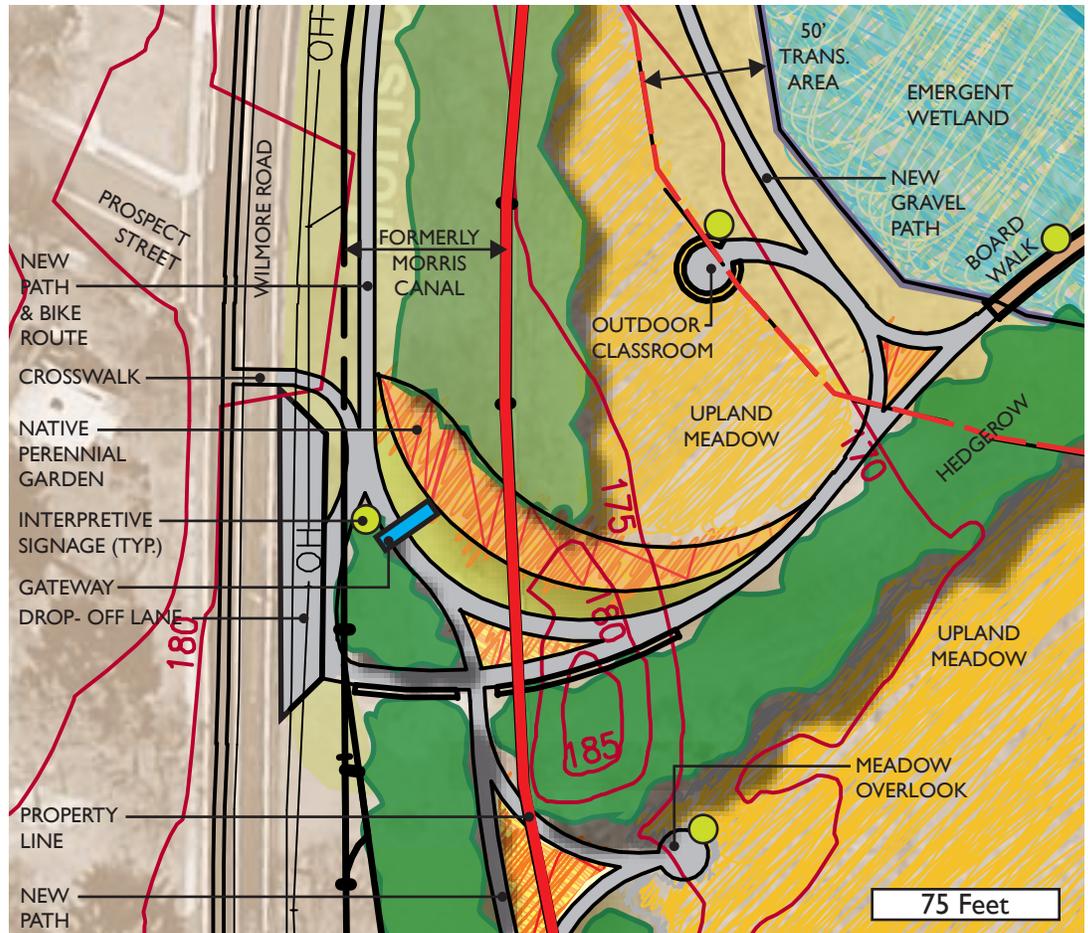


DESIGN INTENT

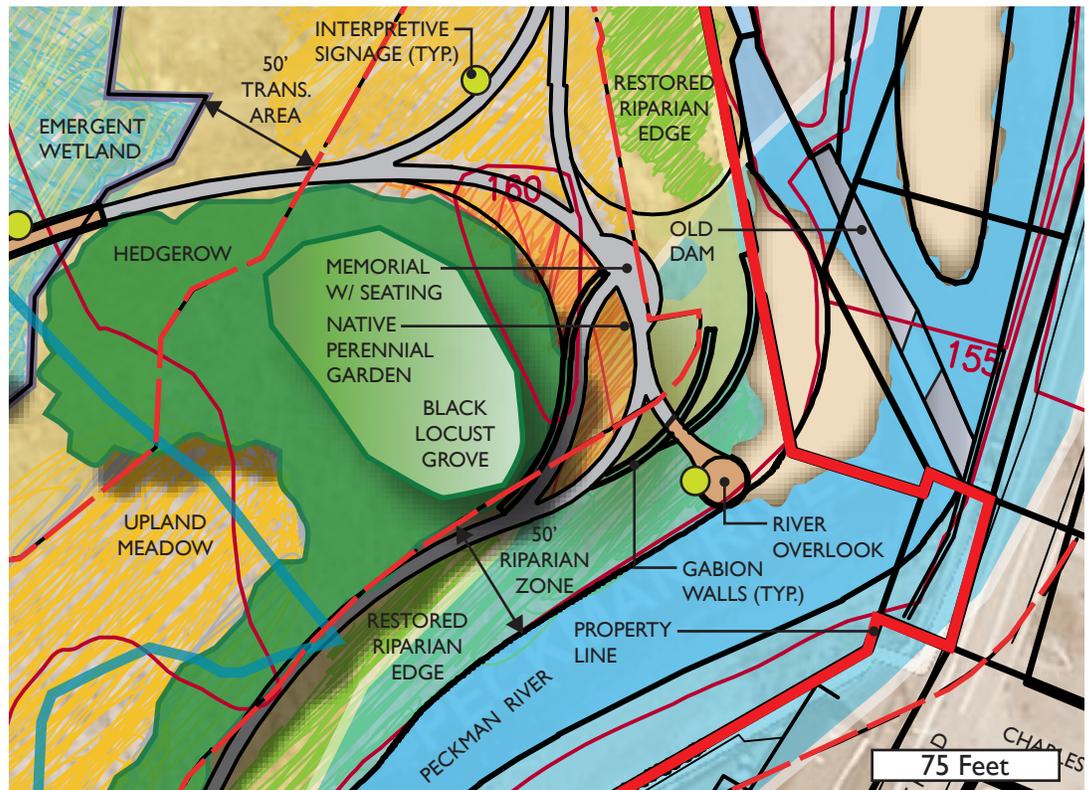
The design concept is to work within the ecological context of the preserve while also providing public access and interaction.

In the concept on the top, the open areas can be transitioned to wet/dry meadows and native perennial gardens to minimize disturbance to soils, wetlands and wildlife which inhabit the site. Low impact paths can be established to interact with the distinct ecotones and down to the river. New access points can come from Wilmore Road and potentially from Cedar Grove Road via a footbridge on the Morris Canal land.

In the concept on the bottom, river views and access can be located at the river bend as well as along a river walk at the southeast of the preserve. Seating and interpretive signage can be provided here and throughout the preserve for resting and viewing. The memorial for the victim of Hurricane Floyd could also be at home here.

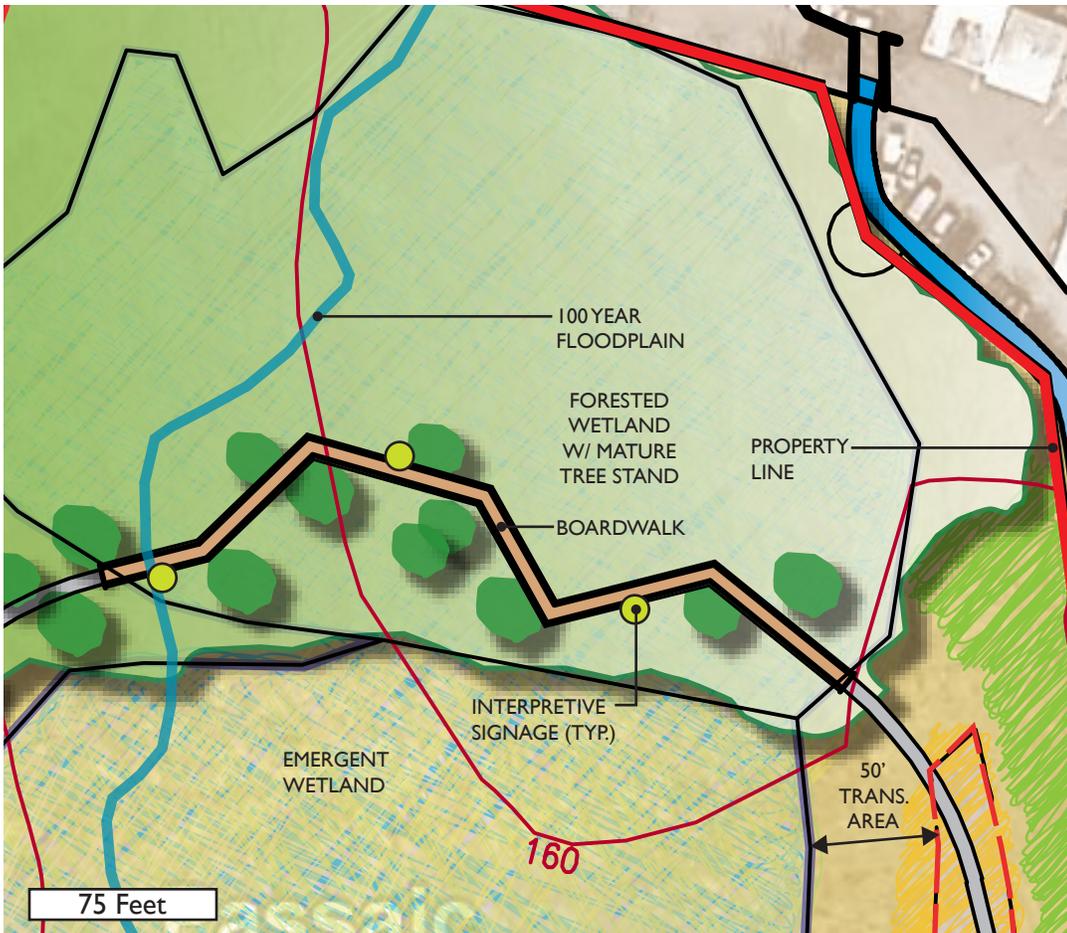


Entrance to Peckman Preserve

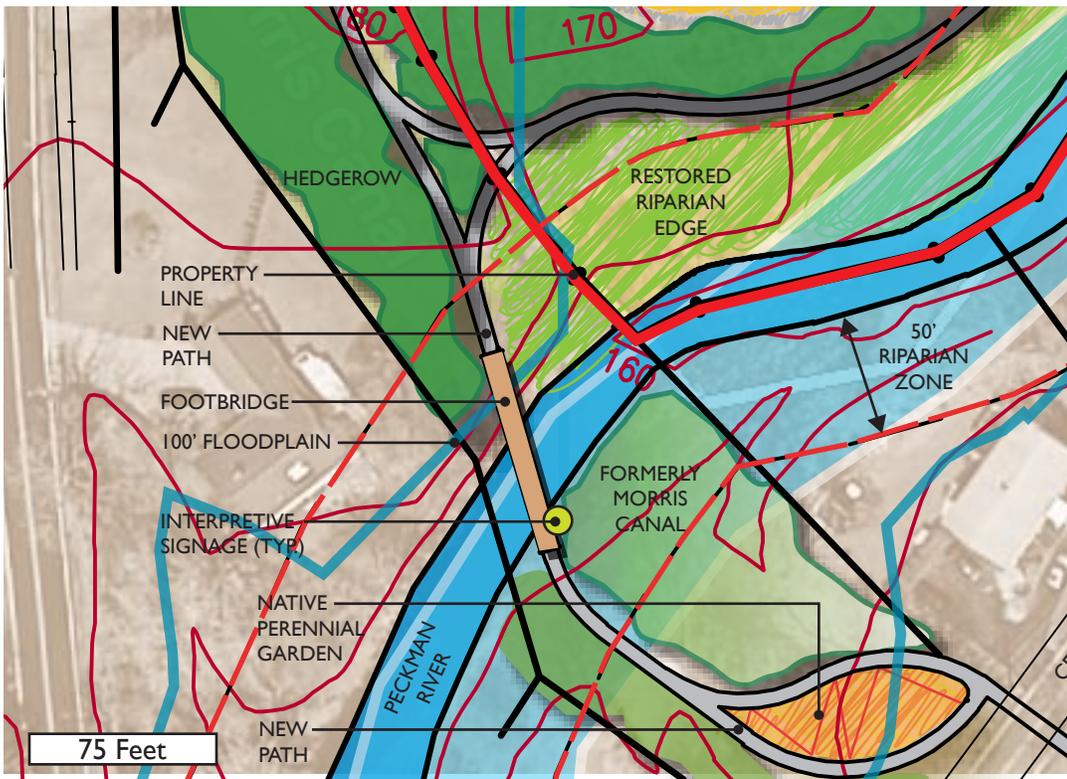


Peckman River Access

- LEGEND**
- EXIST. WOODS
 - HEDGEROW
 - RIPARIAN EDGE
 - UPLAND MEADOW
 - NATIVE PERENNIAL GARDENS
 - WETLANDS
 - PROPERTY LINE
 - FLOODWAY
 - 100 YEAR FLOOD
 - INTERPRETIVE SIGNAGE



Boardwalk through Forested Wetlands



Peckman River Crossing

DESIGN INTENT

The design concept is to work within the ecological context of the preserve while also providing public access and interaction.

In the concept on the top left, an elevated boardwalk can meander amongst the existing canopy trees within the Forested Wetland. Interpretive signage can give detailed descriptions and imagery describing the ecological value of the plants and wildlife within this area as well as the importance of restoration. This experience will be unique within the Peckman Preserve.

In the concepts on the bottom left, an elevated footbridge can provide access to residents from across the Peckman River and enhance views to the north and south. This footbridge would link up to a pathway system that leads to the preserve entrance on Wilmore Road and further into down town Little Falls.

LEGEND

- EXIST. WOODS
- HEDGEROW
- RIPARIAN EDGE
- UPLAND MEADOW
- NATIVE PERENNIAL GARDENS
- WETLANDS
- PROPERTY LINE
- FLOODWAY
- 100 YEAR FLOOD
- INTERPRETIVE SIGNAGE

INFRASTRUCTURE

These heavily trafficked areas of the site require materials that can withstand heavy traffic from pedestrians and bicyclists. These materials are an opportunity to recognize and reinforce traditional building practices found locally and introduce architectural elements into the design.



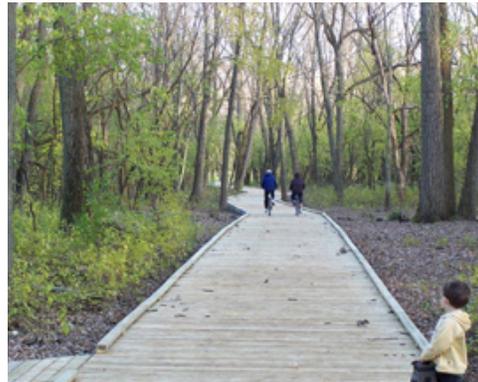
Source: <http://asla.org>

Wood foot bridge



Source: <http://www.moosmanbridge.com>

Wood and steel foot bridge



Source: <http://wickcraft.com>

Wood boardwalk with metal frame



Source: <http://chronicle.com>

Wood and steel overlook with metal frame

RIVERINE EDGE

These materials must be selected to withstand the most frequent flooding on-site while also being a natural barrier between seating and walking areas and the riverbank. These materials should be beautiful, natural and resistant to flooding.



Source: Edgewater Design, LLC

Rip Rap (with planting)



Source: Michael Lipko

Soft gravel path through forest



Source: Mianus River Nature Conservancy

Boulders and rock seats and bridges



Source: <http://www.ncaonline.org>

Soft mulch path through woods

CONCEPT DESIGN COMPONENTS



Source: <http://www.peripheryprojects.com>

Wood and steel rod tunnel - Welsyan University, NY



Source: <http://www.asia.org>

Reclaimed wood landscape folly - Chile

NATURE + ART

Opportunity to include landscape follies and focal points constructed with natural materials and some man-made materials can add interesting cultural and artistic expressions within the larger landscape experience and provide fun for school age children. These features also allow for hands-on community involvement with the design and construction and can help in stimulating interest in the rejuvenation of the Preserve.



Source: <http://1.bp.blogspot.com>

Sticks and branches play sculpture by Patrick Dougherty at Morris Arboretum, Philadelphia



Source: <http://seararoundyou.com>

Stone serpentine wall by Andy Goldsworthy at Storm King, New York

EDUCATION + WAYFINDING

The opportunity for locating interpretive and wayfinding signage throughout the Peckman Preserve can aid in educating the community to the merits of ecological conservation and restoration. Wayfinding signage can help direct people through the preserve and to highlights and path experiences.



Source: <http://sightworksexhibits.com>



Source: Michael Lipko



Source: <http://www.naturalkansans.org>



Source: <http://uvtrails.files.wordpress.com>



Source: <http://www.taylorstudios.com>

GENERAL DESIGN GUIDELINES FOR PATH DEVELOPMENT

The objective of the proposed improvements is to encourage passive recreational activity within the preserve and foster responsible use. The primary goal of management is to confine the impacts of the path to the path itself. The strategies to accomplish this are both physical, as well as programmatic.

A great path or trail is memorable and worth returning to year after year, season after season. The most successful paths are those that were purposefully planned to foster a rich visitor experience. The well-maintained path is especially successful. The Peckman Preserve paths and associated amenities should comprise a system that affords access and influences the nature of the visitor's experience.

As the plan for the path and amenities are refined and implemented over time the following guidelines should be met:

- Create well-defined trailheads that have good connections
- Provide access points and gateways to adjacent neighborhoods
- Provide regional trail system map.

PATH FEATURES

The proposed path features include signage, maps, benches, boardwalks, bird houses and landscape restoration.

- Trailheads are the welcoming entrances to the path. This is where visitor information about use and destinations is available. Controlled access of bicycles to the path is necessary at trail heads.

Two materials are proposed for the path surfaces:

1. Boardwalk - sturdy and durable wood such as cedar, ipe or mahogany.
2. Compacted Stone fines which are permeable.

- Residents who presently utilize the Preserve will enjoy new overlooks and river access for birdwatching, fishing and scenic viewing.

HABITAT RESTORATION & LANDSCAPE MANAGEMENT

“Restoration is not a one time thing, any more than raising a child is.” - *Leslie Sauer, Landscape Architect, excerpt from the “The Once and Future Forest”*

The development of the Peckman Preserve will result in opportunities to improve the ecological aesthetic of the area immediately adjacent to the river and its amenities; raise awareness of regional native plant species; and increase the biodiversity of the land. The “restoration” of the landscape will be incremental, just as it has been throughout the history of the land, by managing the process of ecological succession.

“Ecosystem integrity and function set the necessary conditions for biodiversity to flourish by achieving stability.” - *Dennis Martinez, Society for Ecological Restoration, 1995*

The Peckman Preserve only partially resembles the typical Piedmont physiography, especially along the Peckman River edge. Invasive plants species have taken over and deer browsing has removed most of the native understory tree saplings, shrubs and perennials. The restoration / landscape strategies in these areas, therefore, cannot use a former state as a model. Rather, the successful landscape restoration plan must reflect current conditions of soil, availability of moisture, and exposure in conjunction with the policies that affect the daily operations of the preserve.

This plan outlines several typical conditions for the preserve and suggests a set of Landscape Design and Management Principles as outlined below:

LANDSCAPE DESIGN AND MANAGEMENT GUIDELINES

- Consider undertaking soil reworking and massive planting efforts only where the landscape is in collapse, overwhelmed by non-native invasive species, or extensively eroded.
- Specify native plant species. Wherever possible, contract to grow plant material from local seed. Utilize native plant species that may be missing from the area where they are appropriate.
- Do not displace or modify any relatively healthy natural system.
- Minimize disturbance to any natural area.
- Do not compromise natural and cultural resources such as geological formations, stream corridors by activities that threaten their character and preservation.
- Protect and expand remaining wetlands wherever possible. Reestablish natural drainage patterns and hydrologic regimes where they have been disturbed.
- Establish missing links and provide connectivity, such as forest edges where possible.
- Follow the NJDEP rules regarding wetlands, wetland transition areas and riparian zones.

EMERGENT WETLAND MEADOW

Common Name	Genus and species name
Small Trees and Shrubs	
Winterberry	<i>Ilex verticilata</i>
Arrowwood	<i>Viburnum dentatum</i>
Summersweet	<i>Clethra alnifolia</i>
Perennials	
Swamp Milkweed	<i>Asclepias incarnata</i>
New England Aster	<i>Aster novae-angliae</i>
Blue Joint	<i>Calamagrostis canadensis</i>
Purple Joe-Pye-Weed	<i>Eupatorium maculatum</i>
Blue Flag	<i>Iris versicolor</i>
Swamp Rose Mallow	<i>Hibiscus moscheutos</i>
Greenheaded Coneflower	<i>Rudbeckia laciniata</i>
Bog Goldenrod	<i>Solidago uliginosa</i>
New York Ironweed	<i>Veronia noveboracensis</i>



JOE PYE WEED



SWAMP ROSE



BLUE FLAG



MARSH MARIGOLD



CARDINAL FLOWER

FORESTED WETLAND

Common Name	Genus and species name
Trees	
Red Maple	<i>Acer rubrum</i>
Sweet birch	<i>Betula lenta</i>
Ironwood	<i>Carpinus caroliniana</i>
Sweet Gum	<i>Liquidambar styraciflua</i>
Black Gum	<i>Nyssa sylvatica</i>
Swamp White Oak	<i>Quercus bicolor</i>
Pin Oak	<i>Quercus palustris</i>
American Elm	<i>Ulmus americana</i>
Small Trees and Shrubs	
Shadbush	<i>Amelanchier canadensis</i>
Silky Dogwood	<i>Cornus amomum</i>
Winterberry	<i>Ilex verticilata</i>
Witch Hazel	<i>Hamamelis virginiana</i>
Spicebush	<i>Lindera benzoin</i>
Swamp Azalea	<i>Rhododendron viscosum</i>
Highbush Blueberry	<i>Vaccinium corymbosum</i>
Arrowwood	<i>Viburnum dentatum</i>
Perennials	
Jack-in-the-Pulpit	<i>Arisaema triphyllum</i>
Marsh Marigold	<i>Caltha palustris</i>
Crested Fern	<i>Dryopteris cristata</i>
Blue Flag	<i>Iris versicolor</i>
Cardinal Flower	<i>Lobelia cardinalis</i>
Canada Mayflower	<i>Maianthemum canadense</i>
Cinnamon Fern	<i>Osmunda cinnamomea</i>
Interrupted Fern	<i>Osmunda claytonia</i>
Royal Fern	<i>Osmunda regalis</i>
Skunk Cabbage	<i>Symplocarpus foetidus</i>

CONCEPT DESIGN
SUGGESTED PLANT SPECIES

RIPIRIAN FOREST EDGE

Common Name *Genus and species name*

Trees

Red Maple	<i>Acer rubrum</i>
River Birch	<i>Betula nigra</i>
White Ash	<i>Fraxinus americana</i>
Sycamore	<i>Platanus occidentalis</i>
Black Willow	<i>Salix nigra</i>
American Elm	<i>Ulmus americana</i>

Small Trees and Shrubs

Smooth Alder	<i>Alnus serrulata</i>
Silky Dogwood	<i>Cornus amomum</i>
Rosebay Rhododendron	<i>Rhododendron maximum</i>
Common Elder	<i>Sambucus canadensis</i>
Arrowwood	<i>Viburnum dentatum</i>

Perennials

Broomsedge	<i>Andropogon gerardii</i>
Jewelweed	<i>Impatiens capensis</i>
Cardinal Flower	<i>Lobelia cardinalis</i>
Switchgrass	<i>Panicum virgatum</i>
New York Ironweed	<i>Veronia noveboracensis</i>



WINTERBERRY



CINNAMON FERN



SWITCH GRASS



ROYAL FERN



HIGHBUSH BLUEBERRY

WETLAND MEADOW TRANSITION AREA

Common Name *Genus and species name*

Trees

Sweet Gum	<i>Liquidambar styraciflua</i>
Sycamore	<i>Platanus occidentalis</i>
Swamp White Oak	<i>Quercus bicolor</i>

Small Trees and Shrubs

Black Chokeberry	<i>Aronia melanocarpa</i>
Summersweet	<i>Clethra alnifolia</i>
Winterberry	<i>Ilex verticillata</i>
Sweetbay Magnolia	<i>Magnolia virginiana</i>
Highbush Blueberry	<i>Vaccinium corymbosum</i>
Arrowwood	<i>Viburnum dentatum</i>

Perennials

Broomsedge	<i>Andropogon gerardii</i>
Swamp Milkweed	<i>Asclepias incarnata</i>
New England Aster	<i>Aster novae-angliae</i>
Blue Joint	<i>Calamagrostis canadensis</i>
Blue Flag	<i>Iris versicolor</i>
Blue Lobelia	<i>Lobelia syphillitica</i>
Bee Balm	<i>Monarda didyma</i>
Switchgrass	<i>Panicum virgatum</i>
Greenheaded Coneflower	<i>Rudbeckia laciniata</i>
Bog Goldenrod	<i>Solidago uliginosa</i>

PRELIMINARY OPINION OF COST & DEVELOPMENT STRATEGY SUMMARY

A phased approach is recommended for the preserve. Part One should focus on invasive species removal, landscape restoration and development within the preserve itself and Part Two can focus on periphery components that connect the preserve to the neighborhood, Wilmore Road, Cedar Grove Road and the planned Morris Canal greenway.

PART ONE

Amenities Include:	Overlook structure at Peckman River	\$ 40,000
	Gabion Walls at Peckman River	\$ 75,000
	Forested Wetland Boardwalk	\$ 50,000
	Emergent Wetland Boardwalk	\$ 35,000
	Invasive Species Removal	\$ 40,000
	Landscape Restoration	\$ 350,000
	River Restoration / Cleanup	\$ 100,000
	Stormwater/Erosion Controls	\$ 50,000
	Outdoor Classroom	\$ 35,000
	Path Surface - Compacted Stone Fines	\$ 90,000
	Interpretive Signage with Lighting	\$ 45,000
	Benches	\$ 10,000
	Utilities (if required)	\$ 40,000
	SUBTOTAL PART ONE	\$ 960,000
	15% Contingency	\$ 144,000
	15% Design, Engineering & Permitting Contingency	\$ 144,000
	OPINION OF COST PART ONE	\$ 1,248,000

PART TWO

Amenities Include:	Landscape Restoration (Wilmore & Cedar Grove Road)	\$ 150,000
	Invasive Species Removal	\$ 25,000
	Stormwater/Erosion Control	\$ 25,000
	Path Surface - Compacted Stone Fines	\$ 60,000
	Interpretive Signage	\$ 20,000
	Footbridge at Peckman River	\$ 90,000
	Utilities	\$ 30,000
	SUBTOTAL PART TWO	\$ 400,000
	15% Contingency	\$ 60,000
	15% Design, Engineering & Permitting Contingency	\$ 60,000
	OPINION OF COST PART TWO	\$ 520,000

TOTAL FOR TWO PARTS **\$ 1,768,000**

NOTE:

In providing opinions of probable construction cost, the Client understands that Edgewater Design, LLC has no control over the cost or availability of labor, equipment or materials, or over market conditions or the Contractor's method of pricing, and that Edgewater Design's opinions of probable construction costs are made on the basis of professional judgment and experience. Edgewater Design, LLC makes no warranty, express or implied, that the bids or the negotiated cost of the Work will not vary from the opinion of probable construction cost. Edgewater Design, LLC suggests the Client independently employ a professional cost estimator for greater reliability and precision.

CONCEPT DESIGN

GRANT FUNDING OPPORTUNITIES

Restoration of natural systems at the Peckman Preserve could be a significant capital investment over time. Fortunately some of these costs could be covered with grant money. An investigation into available grants revealed that the preserve contains all the requirements needed to qualify for the grants.

For example, grants that deal with habitat improvement may have the following requirements:

- Abandoned fields (yes)
- Contains invasive species (yes)
- Size of 5 or more acres (12 acre preserve)
- Home to rare, threatened, or endangered species (Eastern Box Turtle)
- Adjacent to protected open space (Morris Canal)
- Contains a stream (Peckman River)

Here are some potential grants worth investigating further:

LANDOWNER INCENTIVE PROGRAM (U.S. FISH & WILDLIFE)

- Grassland enhancement
- Critical migratory stopover areas
- Adjacent to protected open space
- Provides 75% of project cost

website: <http://wsfrprograms.fws.gov>

WILD HABITAT INCENTIVE PROGRAM (NRCS)

- Bog Turtle habitat
- Grassland enhancement
- Riparian vegetation restoration
- Invasive exotic vegetation control
- School-site habitat development projects for environmental education
- Provides 75% of project cost

website: <http://www.nrcs.usda.gov/programs/whip/>

WETLANDS RESERVE PROGRAM (NRCS)

- Eligibility - Former wetlands drained for agriculture, lands adjacent to wetlands, previously restored wetlands in need of long-term protection
- Restoration cost share agreements pay up to 75% of cost

website: <http://www.nrcs.usda.gov/programs/wrp/>

PARTNERS FOR FISH AND WILDLIFE (U.S. FISH & WILDLIFE)

- For habitat protection, enhancement, and restoration
- 50% cost-sharing (or more if deemed valuable enough)

website: <http://njfieldoffice.fws.gov/>

ENVIRONMENTAL EDUCATION GRANT PROGRAM (U.S. EPA)

- Funds available for projects that raise public awareness, knowledge, and skills to make informed decisions about environmental quality

- Most grants range from \$15-\$25,000

website: www.epa.gov/enviroed/grants.html

WETLAND PROGRAM DEVELOPMENT GRANTS (U.S. EPA)

- Grants available for improvements to wetland quality and quantity

website: www.epa.gov/owow/wetlands/grant_guidelines/

WETLANDS PROTECTION PROJECT GRANTS (U.S. EPA)

- Watershed-based wetland management and restoration projects

- \$20,000 average grants available

website: www.epa.gov/owow/wetlands/restore/5star/

COMMUNITY-BASED HABITAT RESTORATION PROJECT GRANTS (NOAA)

- To catalyze locally-driven habitat restoration programs

- Up to \$250,000 grants available

website: www.nmfs.noaa.gov/habitat/restoration/funding_opportunities/funding.html

NEXT STEPS

Time is a crucial component of proper ecological site management. Acting quickly can be the most economical and successful course of action. Ecological systems are linked and all of the problems identified at the Peckman Preserve are interrelated and require to be handled as such, instead of individual pieces. The following next steps should be considered to stabilize the preserve to allow for successful development and management in the future:

- Pre-application interview with NJDEP.
- Complete a new topographic survey to include elevations, wetland delineation, significant trees and tree stands, native tree sapling areas and the edge of the Peckman River to establish the mandated riparian zone.
- Refine the inventory of plant species on the property.
- Submit a Concept Plan to NJDEP for initial review comments and recommendations.
- Determine potential sources of funding for Phase I improvements.
- Identify and remove invasive plant species from the proposed tree nursery, forested areas and upland areas. The most difficult of these include Japanese Knotweed, Mugwort, Tree-of-Heaven, Asiatic Bittersweet, Phragmites and Norway Maple. Failure to eliminate these invasive plant communities will make them harder to remove in the future.

ACKNOWLEDGEMENTS

While it could never be possible to identify each and every person who has played a part in shaping the future of the The Peckman Preserve — efforts that have made this Study real today and possible for tomorrow—the following people are gratefully acknowledged:

STATE OF NEW JERSEY

Office of Bill Pascrell, U.S. Congressman

PASSAIC COUNTY BOARD OF CHOSEN FREEHOLDERS

Bruce James, Freeholder Director
Pat Lepore, Deputy Director
Deborah E. Ciambrone, Freeholder
Terry Duffy, Freeholder
Greyson P. Hannigan, Freeholder
Michael Marotta, Freeholder
Edward O’Connell, Freeholder

Anthony J. DeNova, III, County Administrator
Timothy J. Cunningham, Deputy County Administrator

TOWNSHIP OF LITTLE FALLS

Michael DeFrancisci, Mayor
Paul Huggins, Council Member
William Liess, Council Member
Joseph Sisco, President, Township Council
Christie Y. Huh, Council Member
Louis Fontana, Council Member

PASSAIC COUNTY PLANNING DEPARTMENT

Michael La Place, AICP, PP, Planning Director
Kathleen Caren, Open Space Coordinator
Michael Lysicatos, Senior Planner
Jennifer Gonzalez, Environmental Planner

PASSAIC COUNTY COMMUNITY FORESTRY CONSULTANT

L. Ted Szczawinski
N.J. Certified Tree Expert #340
Sterling Consultants, LLC



View northwest of emergent wetland within northern central portion of site dominated by common rush.



View facing northeast of forested wetland within northern portion of site. Common trees include red maple, silver maple, sycamore and American elm.



View east of early successional field dominated by mugwort, an invasive, non-native plant.



View facing southwest of dense monoculture of Japanese knotweed within eastern portion of site. Japanese knotweed commonly occurs in flood hazard areas and riparian zones.



E

Sycamore, sweetgum and pin oak saplings are found growing well within portions of the site.



F

View facing north of riparian zone along Peckman River. Common tree species include black locust and Norway maple. Japanese knotweed is common but less dense due to shading.



G

Photo showing Asiatic bittersweet vine girdling black cherry tree within riparian zone. Asiatic bittersweet vines should be cut to promote health of trees.



H

View facing north of Peckman River along eastern site boundary. Bank is reinforced with slabs of concrete and asphalt which reduces wildlife habitat and opportunities for plant establishment.

INVASIVE SPECIES DESCRIPTIONS AND RECOMMENDATIONS FOR CONTROL

Mugwort (*Artemisia vulgaris*)

This plant was introduced by European settlers in the mid 1800's largely for medicinal uses. It grows along roads, meadows and agricultural fields and prefers open sunny locations. The plant grows from an underground root network. The seeds are reported not to be viable in the northern parts of the U.S. The plant forms dense stands that restrict the growth of natives, reducing plant diversity. Mugwort was found as a monoculture within the early successional field communities.

Management:

Small infestations can be dugout however any root fragments will reroot. Repeated monthly mowing can control the spread and reduce populations. The most effective control is the application of Glyphosate or clopyralid. Several repeated applications may be required to provide good control.

Japanese Knotweed (*Polygonum cuspidatum*)

Japanese knotweed was introduced in the 1800's as an ornamental and for erosion control. This plant tolerates a wide range of soil, shade, moistures and temperature conditions. It is most commonly found in riparian areas along streams and in floodplains. Once established it is extremely persistent. This perennial grows to about 10 feet in height during summer and dies back to below ground rhizomes during winter. Japanese knotweed spreads via the stout rhizomes which can extend 45 to 60 feet from the plant, or via seed. It prefers full sun but tolerates shade. Japanese knotweed was found as an extensive monoculture within eastern portions of the site, paralleling the Peckman River.

Management:

Repeated pulling of stems, 3 or more times a growing season, will exhaust the rhizome, but this may take up to ten years. Cutting and spraying the resprouts in late summer/early fall provides effective control.

Common Reed (*Phragmites australis*)

Both native and non-native (Haplotype M) forms of common reed occur in the U.S. The native plant is considered rare by some researchers. The plant typically colonizes wetlands, marshes, floodplains, wet meadows and ditches and can tolerate brackish water. It can grow to 15 feet in height and forms dense monocultures that eliminate plant diversity and inhibit wildlife. Stands of common reed pose a fire hazard. The seeds have a very low germination rate. Spread is often via plant parts (stem or root tissue) or the aggressive rhizomes that will grow overland 30 feet or more in a single growing season. It is found in all 48 lower States. The plant does provide excellent water quality treatment. Common reed only occurs as a small stand within the western portion of the emergent wetland.

Management:

Common reed can be difficult to control. Small stands can be repeatedly mowed and disked. Larger areas require mowing followed by spraying with herbicides. Spraying is most effective when performed during the late summer/early fall season. Animals can be fenced to graze areas and will substantially reduce the plant vigor and population.

Tree-of-Heaven (*Ailanthus altissima*)

Tree-of-heaven, native to China, is a fast growing tree that can attain heights of 80 feet and with a girth of several feet in diameter. Male and female trees are separate. A single female tree can produce up to 300,000 winged seeds in late summer, and the seeds have a good rate of germination. It tolerates a wide range of soils and thrives in disturbed soils. It is not very shade tolerant. The tree releases allelopathic compounds from the roots that prevent the growth of other nearby plants. This tree will take over sites, forming thickets and replace native vegetation. Individuals and thickets of tree-of-heaven were identified scattered throughout the site.

Management:

Cutting this species encourages the development of root and stump sprouts and trunks left on the ground in contact with soil can resprout. A weed wrench can be used when the soil is moist to remove this species and small trees can be removed by hand. Root fragments left behind can result in sprouts. The most effective method of control is with the use of an herbicide (i.e. Roundup, Rodeo, Garlon) applied to the leaves, green stems, sprouts and suckers. If trees are too large for foliar spraying, the trees may be cut and an herbicide applied immediately to the cut stump or the herbicide can be applied to notches hacked with an ax into the trunk. Follow up spraying will be needed to control stump sprouts and root suckers that may emerge. Girdling may also be used on larger trees if cutting is not possible. This may kill the upper parts of the tree but spraying will still be needed for sprouts and stems.

Multiflora Rose (*Rosa multiflora*)

Multiflora rose was introduced to the Eastern U.S. in 1866 as rootstock for ornamental roses. In the 1930's the U.S. Soil Conservation Service promoted it for use in erosion control and as a living fence. It is tolerant of a wide range of soil moisture and light conditions and can invade many types of habitats. This plant grows aggressively and produces numerous fruits that are dispersed by birds. A single plant can produce up to a million seeds that will survive in the soil seed bank for 20 years. The arching tips of shoots will also root into the ground. Dense thickets of shrubs exclude most other plants although they do provide nest sites for birds. A dense thicket of multiflora rose was found fringing the emergent wetlands and the adjacent early successional field community to the east.

Management:

Individual plants can be cut or pulled out with a weed wrench. One effective method for working on multiflora rose is to have one person hold the arching canes back with a pitch fork while another person cuts the base of the plant. The plant base can then be grubbed out or treated with an herbicide. Glyphosate (Roundup™) is extremely effective if it is applied to the foliage after the plant flowers in the early spring. Rose rosette disease, a disease native to the Western U.S., has spread east and is affecting multiflora rose. The disease is spread by mites. Unfortunately, this disease will also affect all native roses as well.



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Parks and Forestry
Office of Natural Lands Management
Natural Heritage Program
P.O. Box 404
Trenton, NJ 08625-0404
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JON S. CORZINE
Governor

MARK N. MAURIELLO
Acting Commissioner

November 20, 2009

John Pabish
Amy S. Greene Environmental Consultants, Inc.
4 Walter E. Foran Boulevard, Suite 209
Flemington, NJ 08822

Re: Peckman Preserve Proposed Park Project - ASGECI # 3197 (Block 122, Lots 48, 49 & 57-65)

Dear Mr. Pabish:

Thank you for your data request regarding rare species information for the above referenced project site in Little Falls Township, Passaic County.

Searches of the Natural Heritage Database and the Landscape Project (Version 3 in the highlands region, Version 2.1 elsewhere) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the topographic map(s) submitted with the Request for Data into our Geographic Information System. We do not typically verify that your project bounds are accurate, or check them against other sources.

We have checked the Natural Heritage Database and the Landscape Project habitat mapping for occurrences of any rare wildlife species or wildlife habitat on the referenced site. Please see Table 1 for species list and conservation status.

Table 1 (on referenced site).

Common Name	Scientific Name	Federal Status	State Status	Grank	Srank
eastern box turtle	<i>Terrapene carolina carolina</i>		SC	G5T5	S3

We have also checked the Natural Heritage Database and the Landscape Project habitat mapping for occurrences of any rare wildlife species or wildlife habitat within one mile of the referenced site. Please see Table 2 for species list and conservation status. This table excludes any species listed in Table 1.

Table 2 (additional species within one mile of referenced site).

Common Name	Scientific Name	Federal Status	State Status	Grank	Srank
great blue heron	<i>Ardea herodias</i>		SC/S	G5	S3B,S4N

We have also checked the Natural Heritage Database for occurrences of rare plant species or ecological communities. The Natural Heritage Database does not have any records for rare plants or ecological communities on the site or for rare plant species covered by the Flood Hazard Area Control Act rule within one mile of the site.

The Natural Heritage Database has records for occurrences of rare plant species and ecological communities that may be present on the Paterson and Orange USGS quadrangles. The attached lists provide additional information about these occurrences. A list of rare plant species and ecological communities that have been documented from Passaic County can be downloaded from <http://www.state.nj.us/dep/parksandforests/natural/heritage/countylist.html>. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes_2008.pdf.

In order to red flag the general locations of occurrences of rare and endangered plant species and ecological communities, we have prepared computer generated Natural Heritage Index Maps. Enclosed please find these maps for the Paterson and

Orange USGS quadrangles. If individual projects are to be located in the areas of these maps that contain letter codes, the Natural Heritage Program can be contacted for additional information.

If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive I-Map-NJ website at the following URL, <http://www.state.nj.us/dep/gis/depsplash.htm> or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292 9400.

PLEASE SEE 'CAUTIONS AND RESTRICTIONS ON NHP DATA', which can be downloaded from <http://www.state.nj.us/dep/parksandforests/natural/heritage/newcaution2008.pdf>.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,



Herbert A. Lord
Data Request Specialist

cc: Robert J. Cartica
NHP File No. 09-4007482-3683

SUMMARY OF WETLAND RULES & REGULATIONS & FLOOD HAZARD AREA CONTROL ACT RULES

The following types of activities are “regulated” within wetlands:

1. The removal, excavation, disturbance or dredging of soil, sand, gravel, or aggregate material of any kind;
2. The drainage or disturbance of the water level or water table so as to alter the existing elevation of groundwater or surface water, regardless of the duration of such alteration;
3. The dumping, discharging or filling with any materials;
4. The driving of pilings;
5. The placing of obstructions, including depositing, constructing, installing or otherwise situating any obstacle which will affect the values or functions of a freshwater wetland; and
6. The destruction of plant life which would alter the character of a freshwater wetland, including killing vegetation by applying herbicides or by other means, the physical removal of wetland vegetation, and/or the cutting of trees.

The following activities are authorized (not regulated) in wetlands:

1. Surveying or wetlands investigation activities, for the purpose of establishing or reestablishing a boundary line or points, which use only hand held equipment and do not involve the use of motorized vehicles;
2. The placement of temporary structures (such as observation blinds, waterfowl blinds, artificial nesting structures, or sign posts) for observing, managing, or harvesting fish or wildlife;
3. Placement of one or more small guy anchors that screw into the ground to secure a guy wire supporting a utility pole;
4. Hand trimming of trees or other vegetation, provided the trimming does not alter the character of the freshwater wetland; and
5. The driving of one or more pilings in a State open water, if the pilings are not regulated by the ACOE under the Federal 404 program.

The following types of activities are “regulated” within wetland transition areas:

1. Removal, excavation, or disturbance of the soil;
2. Dumping or filling with any materials;
3. Erection of structures;
4. Placement of pavements; and
5. Destruction of plant life which would alter the existing pattern of vegetation.

The following activities are authorized (not regulated) in wetland transition areas:

1. Mowing of existing lawns. The conversion of a field to a lawn by planting, seeding, frequent mowing or any other means requires a transition area waiver;
2. Maintenance of existing fields;
3. Pruning of trees and shrubs;
4. Selective cutting of trees;
5. Replacement of existing non-native plants with either native or non-native species that will not significantly change the character of the existing vegetational community of the transition area;
6. Limited supplemental planting of non-native plant species that will not significantly change the character of the existing vegetational community of the transition area. The creation of a lawn is not considered supplemental planting;
7. Planting of native species, that is, plants naturally occurring in transition areas in the local region (the county agricultural agent may be consulted to obtain information regarding these species);

8. Continued cultivation of existing gardens; and the development of new gardens provided that the new garden is:
 - (A) No larger than 2,500 square feet in size;
 - (B) Located in a non-forested transition area; and
 - (C) Located in a transition area not subject to a conservation restriction or easement; and
9. Maintenance of artificial features including the repair, rehabilitation, replacement, maintenance or reconstruction of any previously authorized, currently serviceable structure, lawfully existing prior to July 1, 1989.

The following types of activities are “regulated” within the flood hazard area and riparian zone:

1. The alteration of topography through excavation, grading and/or placement of fill;
2. The clearing, cutting and/or removal of vegetation in a riparian zone;
3. The creation of impervious surface;
4. The storage of unsecured material;
5. The construction, reconstruction and/or enlargement of a structure; and
6. The conversion of a building into a private residence or a public building.

The FHACA rules at NJAC 7:13-7.2(b) allow the disturbance of vegetation in a riparian zone for “normal property maintenance,” including:

1. Pruning;
2. Selective tree cutting;
3. Planting indigenous, non-invasive vegetation;
4. Maintaining a field, lawn, park and/or easement that was lawfully established prior to October 2, 2006, and that has been maintained (such as through periodic mowing) since that date;
5. The removal of trash, debris and dead vegetation by hand; and
6. Maintaining a garden that was lawfully established prior to October 2, 2006.

Normal property maintenance does not include:

1. Mowing an area that was not lawfully mowed prior to October 2, 2006, or which was lawfully mowed prior to this date but has since been allowed to revert to its natural vegetative state;
2. Removing vegetation to create a new lawn, garden, field or park;
3. Burning vegetation;
4. Applying herbicide;
5. Grading and other changes in topography; and,
6. Constructing structures, or placing fill or impervious surfaces.