APPENDIX C - CULTURAL RESOURCES

CULTURAL RESOURCES SUMMARY BY ROOM

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This appendix, along with the enclosed digital photographs on CD-ROM, provides a brief summary of cultural resources and other features located within and adjacent to the boundaries of Great Falls State Park. The appendix has been segmented into various "Rooms" consistent with the master plan. The Rooms are presented in a counterclockwise loop, beginning at the Overlook Plaza, Balcony and Steam Plant and ending with the Upper Raceway. The descriptions also contain a brief historical narrative where appropriate and/or where data was readily available.

Unless otherwise indicated, the photographs were taken by Mary Delaney Krugman, JD, MSHP, on one of the following dates: November 11, 2005; June 7, 2007; and July 18, 2007. Gianfranco Archimede, Executive Director of the Paterson Historic Preservation Commission, provided great assistance to the project team in the compilation of data by generously making available his digital photograph and map collections and providing historical information. For this and for all the other assistance he provided this team, we are enormously grateful.
OVERLOOK PLAZA, BALCONY, AND STEAM PLANT
(CODE: "BOT")

1. Aerial of Balcony and Overlook Terrace, looking W (HAER 1973). Overlook Park was created in 1964 during the administration of former Mayor Frank X. Graves, Jr. In a campaign spearheaded by Harry B. Haines, publisher of the Paterson News. The Park was first called "Halmen Park" in its honor. At the time Paterson was first founded this area was part of the rocky hill known as "Mount Morris," which was quarried through the 19th C. to below the river's high-water mark, leaving only the rocky outcrops that are still visible at the eastern edge of the Quarry Lawn Room.

2. Overlook Park, surface Parking area, underground concrete structure from former auxiliary electric plant (steam plant), SUM Administration Building, and Alexander Hamilton statue, looking SE. The SUM steam plant was constructed in 1915 to generate steam when the river was too low to run the hydro-plant at the water power station. Map this site as both a steam power station (Muller 1915) and as an "auxiliary electric plant" (Sanborn 1915) with a generating capacity of some 1000 kilowatts. This lower level concrete structure is all that remains of the steel frame, red brick masonry superstructure that stood at the corner of McBride and Spruce Streets. The date of demolition of the above-ground part of the plant is not known from available data.

3. Overlook Park and SUM Administration Building (background right), SUM Hydroelectric Plant on right, and pool below the falls, looking S.

4. Alexander Hamilton plaza and concrete façade of the former steam plant, looking S. Proposed site for amphitheatre is at far right.

5. View of proposed site for amphitheatre and stairs to Alexander Hamilton plaza from lower terrace, looking SW. Prior to the complex of the retaining wall c. 1915 for the new steam plant, a strip of wood frame "bathhouses" were located at the water's edge near the current site of the Hydroelectric plant (Robinson map, 1890).

6. Lower terrace of Balcony at riverfront from middle terrace, looking SW.

7. SUM Hydroelectric plant and lower terrace of Balcony, looking SW. The SUM Hydroelectric Plant was completed in 1894 to meet the electrical power needs of the mill and factory owners and tenants in the mill area, and superseded the raceway system of hydropower.

8. View of lower terrace of Balcony, Hydroelectric Plant (on left) and Great Falls dam, from McBride Avenue, looking NW. After the hydroelectric plant was completed, the area adjacent to the plant was neglected and a small Park created having a lawn area and curvilinear path terminating at a fountain and overlook.

9. View of Passaic River looking downstream from top of Balcony (McBride Avenue), looking NE. This view appears in a number of historic photos from the late 1800s - early 1900s, which also show two stone weirs across the river below the Falls and a rocky shoreline.

10. SUM Administration Building, looking W. The exact date of construction of this building is not known from available data, but it appears on a 1939 tax map of the area, as does another structure just west of this one, it now houses the offices of the Paterson Historic Preservation Commission, among others.

11. Overlook Terrace surface Parking area, looking NW.

12. Alexander Hamilton Statue at Overlook Terrace, looking SW. Photograph by Matthew Trump (2004) from http://commons.wikimedia.org/wiki/... This statue was the work of Franklin Simmons (1899-1913), the prominent 19th C. American sculptor. It was first installed in front of Paterson's City Hall and unveiled on Memorial Day in 1907. It's likely that it moved to this location during the creation of Overlook Park in 1964. It was near here in 1780 that Alexander Hamilton and the Society for the Establishment of Useful Manufactures (SUM) first envisioned turning the power of the Great Falls into horsepower, running the mills that made the dream of American industrial might a reality. SUM developed a three-tiered raceway system to deliver water to the factories; the Upper, Middle and Lower Raceway system define one side of Paterson State Park.


14. Aerial of Balcony and Overlook Terrace.

15. Section of Cultural Resources Map showing cultural resources in the Balcony and Overlook Terrace Areas.

ARCHEOLOGICAL FEATURES IN THE VICINITY OF THE BALCONY AND OVERLOOK PARK AREA

- Bathhouses site (along south bank of river, below falls) - a strip of wood frame bathhouses appeared on a map of 1888, evidence of the recreational uses of the pool below the Falls. Historic postcards show a "swimming pool" with piers extending into the basin below the falls, which are likely to be associated with the bathhouses. It is likely that little archaeological evidence exists of the site remains of the bathhouses after the construction of the retaining wall in 1914-1916, but perhaps some remains of the pier structures related to the "swimming pool" in the basin still exist.

- Site of various small 19th C. structures that appear on historic maps from as early as 1860 through 1898 near the northwest corner of the McBride Avenue and Spruce Street intersection.

- The site of the auxiliary steam plant (now forming the foundation for the surface parking lot at Overlook Park).

- Dam site A dam was built downstream from the Falls between 1861 and 1877 and spanned the river just downstream from the point across to the River Walk near Mount Morris; it was gone before 1899. Dam ruins might exist along the riverbank.

CULTURAL RESOURCE CONCERNS

There has been insufficient background research into this area to date. A Phase I Cultural Resources Survey should be conducted before this area of the State Park is developed to determine if any archaeological remains associated with the auxiliary electric plant, dam, 19th C. structures, and/or prehistoric cultures are present. A Cultural Landscape Survey should also be conducted of this area before the State Park is developed to identify and document the landscape characteristics and evaluate their significance. Recommendations can then be made as to what landscape characteristics, vistas, and view sheds should be retained and/or restored as part of the State Park.
Map source is J.C. Sidney, Surveyor, Map of Paterson N.J. (New York M. Dripps, 1850), traced by the Works Progress Administration, New Jersey, Division of Women's and Professional Projects, Project No. 1-1049 and annotated by M. Krugman. Copy in collections of H.C.; original at Passaic County Historical Society, Paterson, N.J.
THE QUARRY LAWN ROOM
(CODE: "Q")

1. Aerial view of Quarry Room (HAER 1973). The called the "Quarry Lawn Room" in the Park plan was the former location of a rocky hill known as "Mount Morris." During the 19th C., this hill was quarried, leaving a flat area near the river, where additional mills were constructed, for the most part, during the early 20th C., until the area was completely filled with industrial structures.

2. 1979 View of the Quarry and the River Wall. This historic view shows the gradual filling of the land as the stone was removed, and the River Wall, which protected the site and the mills beyond from possible floodwaters. From the Collections of the Paterson Historic Preservation Commission.

3. Quarry Lawn and River Wall, looking NE from Mary Ellen Kramer Park. The River Wall, shown here in a 2006 photo, is currently being rehabilitated. The Quarry Lawn area beyond shows little evidence of the mill buildings that were once located there.

4. Passaic River and access point to Quarry from lower terrace of Overlook Park, looking NE. The entrance to the Quarry Lawn area from Overlook Park is currently fenced off from public access.

5. Ruins of Kipnicker & Maass House, looking NW. These ruins are part of a dye house built between 1887 and 1899 by the Kipnicker & Maass Silk Dyeing Co. The structure was continuously used as a dye house into the late 20th century.

6. Ruins of Kipnicker & Maass Dye House, looking S. The concrete pad is associated with the 20th-century development of the site by Standard Silk Dyeing Co. It was later part of Allied Textiles Printers (ATP), the last occupant of the site.


9. Rocky outcrop (remains of Mt. Morris) and perimeter site fencing, looking SE. Rocky outcrops in the rear are the remains of Mt. Morris, looking SE. Mt. Morris was quarried for basalt in the late 19th century. The operation included rock crushing mills, which probably prepared the stone for use in concrete or as railroad or highway ballast.

10. Rocky outcrop (remains of Mt. Morris) and concrete pads for 20th C. building ruins, looking SE (Courtesy of Gianfranco Archimeo, Paterson HPC, 2008). Vertical cliffs and outcrops from the quarry are prominent features in the Quarry Lawn Room.

11. Another view of the concrete pad of the 20th C. buildings in the Quarry Lawn Room, looking N towards the northern portion of the ATP site.

12. 2007 Aerial of Quarry Lawn Room.

13. Quarry Lawn section of the Cultural Resources Map, showing locations of various resources.

ARCHEOLOGICAL FEATURES IN THE VICINITY OF THE QUARRY LAWN ROOM (shown on CR Map) (No Photos)

- Along the northern boundary of the Quarry Lawn Room, the subsurface portion of the Colt Gun Mill's diversion of the Middle Tailrace lies buried between the sandstone outcrop adjacent to the Colt Gun Mill and its exit at the River.
- Sandstone/masonry foundations above and below ground and adjacent to the buried Middle Tailrace noted above.
- Sandstone outcrop upon which the flume from the Colt Gun Mill diversion of the Middle Raceway spilled, above the buried portion of the Middle Raceway noted above. Two semi-ruined 20th C. pump houses and associated machinery are situated on the outcrop.

MIDDLE RACEWAY
(CODE: "MR")

1. Aerial View, Middle Raceway, looking SW (HAER 1973). The Middle Raceway extends from the spillway from the Upper Raceway near the restored Ivanhoe Wheelhouse (Spruce Street) to the spillway behind the Essex Mill on Flat Street. According to HAER maps (1973), there were also auxiliary raceways that extended along Congress Street (now Market Street) to Mill Street, where they eventually joined the Lower Raceway near the Essex Mill at the corner of Van Houten Street.

2. Historic View, Middle Raceway south of Spruce Street, looking NE. The Middle Raceway fed the Hamilton, Franklin and Essex Mills, before it dropped over the spillway to the Lower Raceway and on to Van Houten Street. From the Collections of the Paterson Historic Preservation Commission.

3. View of the restored spillway near the Ivanhoe Wheelhouse, looking S. The 5-acre Upper Raceway Park was restored in the late 1990s and early 2000s. It was reopened to the public in May 2003 by Mayor Lawrence "Pete" Kramer, in one of his last official acts in office. The restoration of this spillway and pedestrian bridge, as well as that of the nearby Ivanhoe Wheelhouse were among the first highly visible projects that signaled the beginnings of the revitalization of the Great Falls Historic District.

4. View of the east wall of the Middle Raceway, looking S (HAER 1974). The prism of the raceway system was constructed using brown sandstone – a material that was readily available from local quarries nearby. Much of the original masonry of the walls of the raceways is still intact.

5. The Middle Raceway north of Spruce Street, looking S. The Middle Raceway today offers a pleasant greenway for pedestrians traveling between Spruce and Mill Streets. This section runs between Spruce Street and the McBride Avenue Extension.

6. The northern leg of the Middle Raceway, looking W. This leg of the Middle Raceway is also offers a quiet green space to the neighborhood. It runs at the rear of the former Essex and Franklin Mills. The former raceway is for the most part, dry. There is currently no cut-out for pedestrians at the other end, so visitors must return to McBride Avenue Extension along the same path.

7. The northern leg of the Middle Raceway, looking W. This photograph was taken during a time when the raceway was filled with water. On those occasions, it becomes an even more pleasant spot. There is still evidence of the original masonry walls in this location.

8. The spillway from the Middle Raceway at the rear of Essex Mill, looking SW (HAER 1974). This spillway marked the end of the Middle Raceway.

9. Spillway from the Middle Raceway at the rear of Essex Mill, looking SW. This section of the raceway is currently filled with silt and, for the most part, is obscured from public view during the summer months.

10. 2007 Aerial of vicinity of Middle Raceway.

11. Section of Cultural Resources Map showing resources in the vicinity of the Middle Raceway.

ARCHEOLOGICAL FEATURES IN THE VICINITY OF THE MIDDLE RACEWAY (shown on CR Map) (No Photos)

- The Middle Raceway passes northeast of the remains of Mount Morris, which may still have information potential.

- Several mill buildings and related manufacturing activities are in the vicinity of the Middle Raceway: the Union Works Mill, the site of the Great Locomotive Works, and the former Danforth-Cooke & Company. In the late 19th and early 20th Centuries, industrial buildings were constructed on the opposite bank of the Middle Raceway, including W. H. Hayco Copper, Brass and Sheet Iron Works (before 1887), and Colonial Ribbon, Sandzow, Inc. in the 20th C.

- A section of the Middle Race passed south of the Colt Gun Mill, which used its water to power its operations, then released it into a talc race the emptied into the Passaic River.
2. Q. Photograph looking northeast toward Quarry (1879). From the Collections of the Paterson Historic Preservation Commission.

2. MR. Photograph of Middle Raceway (1899). From the Collections of the Paterson Historic Preservation Commission.
INDUSTRIAL ARCHAEOLOGY ROOM
(CODE: "IA")

1. Aerial view of Industrial Archaeology Room (HAER 1973). This area of the Great Falls Historic District contained mills that were occupied by a variety of tenants and owners over a 200-year period, powered by first by the raceway system, then steam, and finally electric power. The Allied Textile Printing Company (ATP) gradually acquired and occupied all of the buildings in this location, including the historic Colt Gun Mill, one of the oldest structures on the site.

2. Aerial Map with Key to names of structures, ruins, and sites in the IA and Quarry Lawn Rooms in 1996 (Courtesy Gianfranco Archimede, Paterson HPC). This aerial of the former ATP site shows the remains of the mill buildings after a series of devastating fires destroyed much of the area in the 1960s and 1990s.

3. View of ATP site looking S. Visible in left foreground are the ruins of Waverly Mill and, at center behind stack and ruins of power plant, the Colt Mill (stabilized ruins). The exposed concrete slabs in the Quarry Room are shown at far right (to the right of the stack).

4. Panorama of ATP ruins looking W (Courtesy of Gianfranco Archimede, Paterson HPC, 2006). Paterson Mill and Power Plant (#10 on aerial map) are in left foreground. Storage building and mill are in background at right (#6 on aerial map). The ruins visible today are associated with the 20th century development of the mill lot by Standard Silk Dyeing and ATP. However, earlier mill structures have occupied this mill lot since 1826.

5. Stabilized ruins of Colt Mill (#9 on aerial map), looking N (Courtesy of Gianfranco Archimede, Paterson HPC, 2006). The Gun Mill was built in 1836 on the site of an 1813 rolling mill and nail factory. Revolvers were made here by Samuel Colt until 1842; later uses included textile manufacture. The first sewing silk in the United States was reportedly made here.

6. Stabilized ruins of Colt Mill, looking W (Courtesy of Gianfranco Archimede, Paterson HPC, 2006). This one-story ruin is all that remains of a three-story mill. The Gun Mill was the only mill to use firepower from the northern channel of the Middle Raceway.

7. View of Boiler Plant (#7 on the aerial map), looking N (Courtesy of Gianfranco Archimede, Paterson HPC, 2006). The Boiler Plant is portion of a larger complex of buildings that date back to the earliest history of the site. This structure was originally built at this location by Knipscher & Maass Silk Dyeing Co. between 1887 and 1899; it supplied steam for industrial purposes as well as heat. It was substantially remodeled around the 1930s, including the addition of steel windows. The extant structure dates to 1951-1955; however, portions of earlier construction have been incorporated into the later building. The original boiler stack was demolished and a new stack built by Standard Silk prior to 1930, which still stands. Standard Silk Dyeing Company's initials, "SSD Co." have been worked into the stack with yellow brick. This location may also be the site of what is touted as Paterson's first water-powered mill: a saw mill powered by the 1794 raceway system.

8. Ruins of Waverly Mill, looking N (Courtesy of Gianfranco Archimede, Paterson HPC, 2006). This textile mill was built by David G. Scott in 1857 after his first mill, which was erected between 1853 and 1855, burned.

9. Ruins of Waverly Mill, looking NW (2007). The brick work and round-headed window and door openings added a touch of elegance to this early mill building. The faux quoins and a brown sandstone keystone for each arched opening were among the architectural elements that still visible, although the remainder of the structure was destroyed by fire.

10. Bridge over Lower Raceway near Colt Mill, looking SE. The Lower Raceway was added in 1807 and water from this race powered the Millory, Waverly, Passaic and Todd Mills in the IA Room, as well as several mills outside the IA Room.

11. Obscured view of Middle Raceway between IA Room and Essex Mill with spillway in background, looking W. The flow could be regulated at the spillway to maintain the proper level of water in the raceway, as well as control any excess wastewater. At this location, a portion of water was diverted from the Middle Raceway into its northern channel, which powered the Colt Gun Mill. The aperture where the water entered the channel from the Middle Raceway was filled in with concrete, and can be seen today.

12. Stack of Passaic Mill in foreground (#10 on aerial map) and power plant in background (#7 on aerial map), looking SW.

13. Ruins of Passaic Mill (#8 on aerial map) with stack, looking W. The ruins and boiler stack were once part of two large connected dye houses that were built by the Standard Silk Dyeing Company between 1889 and 1915. The connected dye houses had a saw-toothing that allowed for the maximum amount of sunlight into the mill.

14. Ruins of Todd Mill (a/k/a Todd & Rafferty Mill; #11 on aerial map), looking NW. The right portion was built in 1872; the partially obscured section on the left dates to 1855. A foundry was built on the site in 1850 for making textile machinery.

15. Detail of ruins of Todd Mill, looking NW. This loading dock was built between 1958 and 1955.

16. Ruins of Todd Mill (foreground, #11 on aerial map) and storage/mill building on Passaic Mill lot (rear, #8 on aerial map), looking NW. The Todd building was used primarily as a machine shop. Following the Todd Company, it was used by silk manufacturers. The building on the Passaic Mill lot was built around 1957.

17. 2007 Aerial of Industrial Archaeology Room.

18. Detail of Cultural Resources map showing resources in Industrial Archaeology Room.

ARCHEOLOGICAL FEATURES IN THE VICINITY OF THE INDUSTRIAL ARCHEOLOGY ROOM (shown on CR Map) (No Photos)

- Because of the intense development on this site over such an extended historical period, the entire site is regarded as archaeologically sensitive. Previous excavations located the Northern Channel of the Middle Raceway, mill raceways, and other features.

  - Along the northern boundary of the Quarry Lawn Room, the subsurface portion of the Colt Gun Mill's diversion of the Middle Talrace lies buried between the sandstone outcrop adjacent to the Colt Gun Mill and its exit at the River.

  - Sandstone/masonry foundations above and below ground and adjacent to the buried Middle Talrace noted above.

  - Sandstone outcrop upon which the flume from the Colt Gun Mill diversion of the Middle Raceway spilled, above the buried portion of the Middle Raceway noted above. The semi-ruined 20th C. pump houses and associated machinery are situated on the outcrop.
LOWER RACEWAY
(CODE: "LR")


2. View of spillway from Middle Raceway behind Essex Mill, looking S. This section of the Lower Raceway begins here, then flows north along the side of the Essex Mill.

3. View of Lower Raceway at Essex Mill on Mill Street, looking E. The Lower Raceway has become clogged with silt and filled with plant growth, unlike its appearance during the historic period, when the mills were in operation.

4. Concrete and steel bridge over the Lower Raceway into the Colt Gun Mill site, looking W.

5. View of the bridge into the Waverly/Mallory Mills site, from the Colt Gun Mill bridge, looking N.

6. View of the Lower Raceway along Van Houten Street near the Congdon Mill, looking SW (HAER 1973). Even as late as the 1970s, the Lower Raceway was generally free of silt and plant material, and the prism contained much more water than is now present in the system.

7. View of the Lower Raceway along VanHouten Street near the Todd Mill site, looking SW (2005). Today, the Lower Raceway is empty in most places, or filled with silt and plant materials.

8. Detail of Lower Raceway prism as it approaches the Congdon Mill, looking NE. At this location, the Lower Raceway passes under the Congdon Mill and emerges on the other side of the building, continuing its passage to the river.

9. Detail of types of biological growth currently found in the Lower Raceway, looking NE.

10. 2007 Aerial of vicinity of Lower Raceway. Historic maps show a section of the Lower Raceway passing along Congress (now Market) Street to Mill Street, then along Mill until it meets Van Houten Street, where it makes a right turn and continues up to the north end of the mill district along Memorial Drive, where it empties into the Passaic River.

11. Section of Cultural Resources Map showing resources in the vicinity of the Lower Raceway.

RIVER ROOM
(CODE: "RR")

1. Aerial of vicinity of River Room (HAER 1872). The River Room consists of the bank of the Passaic River in the vicinity of the ATP site, where public access to the waterfront is envisioned. The river at this location was both historically inaccessible to pedestrians, and was also not visible from any public right of way.

2. Passaic River looking upstream and SW towards the River Room from Memorial Drive and Mulberry Street. SUM Island is at right.


4. Passaic River looking downstream (NW) of the River Room, with River Wall and part of Quarry Room at the bend in the river. The cliffs of the Valley of the Rocks is visible in the distance.

5. View of riverbank looking upstream towards River Room from West Broadway Bridge, looking W. The Mulberry Street Bridge to SUM Island is in foreground. In the middle ground is the former Beaver Mill, now part of the Salvation Army facility, both outside the proposed Park grounds.

6. Remains of stone wall and outlet of tail race in River Room section (Field Operations 2007). The hydropower system of each mill consisted of a headrace, a power seat and a tailrace. After the water was utilized to power the mill operations, it was emptied back into the Passaic River by way of a tailrace. Several tailrace outlets are visible along the River Wall.

7. River bank adjacent to building wall in River Room section, looking W (Field Operations 2007). The building was built around 1957.

8. Detail of building foundation on river bank in River Room section, looking S (Field Operations 2007).


10. 2007 Aerial of River Room.

11. Section of Cultural Resources Map showing vicinity of River Room.

ARCHEOLOGICAL FEATURES IN THE VICINITY OF THE LOWER RACEWAY (shown on CR Map) (No Photos)

- The Lower Raceway passes by the ATP site (Industrial Archaeology Room). Mill buildings, related manufacturing activities, and evidence of the power supply infrastructure are located near the raceway.

- Various feeder races led off the Lower Raceway to power the mills of the ATP site and tailraces emptied into the river at several locations.

ARCHEOLOGICAL FEATURES IN THE VICINITY OF THE RIVER ROOM (shown on CR Map) (No Photos)


- A second dam site spanned the river just downstream from the outlet of the Middle Raceway tailrace to the opposite bank. This dam is reportedly linked to John Ryle's water pumping operation, which was part of the first state of the Passaic Water Commission's water supply development on the north side of the river. Water impounded here was pumped up the face of the cliff to the Middle Reservoir. Just below the dam site is the former location of the "Broomstick Bridge" - a bridge that carried a pipe across the river. After the bridge was washed away by an ice floe c. 1867, the pipe was pinned to the riverbed by stones and masonry.
1. Panorama of SUM Island in undeveloped state, circa 1910, looking E (Photographer unknown; printed in Views of Paterson. Quakembush & Co: Paterson, NJ 1907). The island today is much larger than it was — even as late as the 1960s, although the exact cause of the change in size is unknown. It is likely the result of fill added by the owners over time, which reduced the size of the auxiliary channel to a shallow drainage channel. It could also be the result of a natural shifting of river currents that diverted the river towards the main channel.


3. Auxiliary channel of Passaic River, northside of SUM Island, looking W.

4. Another location along auxiliary channel of Passaic River on the North side of SUM Island, looking W. This channel passes by the former Addy Mill, now vacant (also not within Park boundaries).

5. West Broadway Avenue Bridge plaque #1, mounted on railing, looking E. The West Broadway Bridge (formerly called “West Street Bridge”) this maker’s plaque described it as a concrete and metal span designed and built by the Paterson firm of Keepers & Thacher in 1897.

6. West Broadway Avenue Bridge, looking E. This bridge was described in the New Jersey Historic Bridge Survey as a “well-proportioned 3-span elliptical deck arch bridge with a patented Melan reinforcing system encased in concrete.” It was found eligible for the National Register of Historic Places by the New Jersey Historic Preservation Office in 2002. This bridge is currently undergoing a comprehensive rehabilitation.

7. Bridge between River Street and SUM Island, looking W. This contemporary steel bridge joins Memorial Drive to the privately-owned island, which is occupied by a commercial operation. Its modern name is “Alfano Island,” after the owner. The bridge is also privately owned.

8. 2007 Aerial of SUM Island.

9. Section of Cultural Resources map showing SUM Island and nearby resources.

ARCHAEOLOGICAL FEATURES IN THE VICINITY OF SUM ISLAND (shown on CR Map) (No Photos)

- Theater, located there when the island was known as “Little Coney Island.”


2. Historic View: Auxiliary channel of the Passaic River, looking W towards the Outdoor Exercise Room (Courtesy of Gianfranco Archinaca, Paterson HPC). Visible at right are portions of the Addy Mill and, at the top of the cliff, the Soldiers Monument.

3. Ryle Road, looking NE towards Ryle Avenue. National Silk Dyeing Co. buildings, with their saw-tooth roofs, are on the left. The building on the right was built at the former location of the Church of Totowa Cemetery (1795-1845). This silk dyeing mill dates to the late 19th century.

4. Rear of former National Silk Dyeing mill building, looking NE along Ryle Road. This building is located on the SE corner of Ryle Rd and Ryle Avenue. This photo shows the joint point of the open pavilion, which is partially within the Park boundary, to older portion of building.

5. Modern open pavilion associated with former National Silk Dyeing mill building, looking N.

6. Ryle Road from open pavilion, looking SW. South of the National Silk Dyeing Mill property and, for the most part, between Ryle Road and the river were located the horse paddock and other buildings related to the Passaic Water Co. These included such things as a blacksmith shop, stable, pump house, carriage house, storeroom, carpenter’s shop, among others. Vertical cliffs and outcrops from quarrying operations along the western edge of the area, as seen in the center of this photo, are prominent features in the Outdoor Exercise Room.

7. Base of cliff, Valley of Rocks from path, looking N. This area was quarried for sandstone, used throughout Paterson for houses and mills. Quarrying began after the Revolutionary War and continued until around 1900.

8. 2007 Aerial of Outdoor Exercise Room vicinity.

9. Section of Cultural Resources Map showing resources in the vicinity of the Outdoor Exercise Room.

ARCHEOLOGICAL FEATURES IN THE VICINITY OF THE OUTDOOR EXERCISE ROOM (shown on CR Map) (No Photos)

- Small structures associated with the adjacent National Silk Dyeing Co. complex. This building might have been incorporated into later construction.

- Passaic Water Company holdings. This area could hold the remains of a service building or buildings.
1_ODE: Aerial of Outdoor Exercise Room vicinity, looking N, HAER photo (1973)

Historical Map. 1850 map source is J.C. Sidney, Surveyor, Map of Paterson N.J. (New York: M. Dripps, 1850), traced by the Works Progress Administration, New Jersey, Division of Women's and Professional Projects, Project No. 1-1049 and annotated by M. Krugman. Copy in collection of HCl; original at Passaic County Historical Society, Paterson, NJ.
FOREST ROOM
(CODE: "FR")


3. Historic view: road at base of cliff, Valley of Rocks, in 1899, looking NE towards outbuildings (from the Collections of the Paterson Historic Preservation Commission). What appears to be a residence with outbuildings can be seen in the distance. These buildings possibly were incorporated into the holdings of the Passaic Water Company.

4. Historic view: Road and the quarrying operation at base of cliff in the Valley of Rocks in 1899 (Collections of Paterson HPC). Also visible in background are the Soldier's Monument (1870) and retaining wall of Totowa Reservoir (1873-1920).

5. Historic view: Buildings on west side of river near the Valley of Rocks in 1899, showing downstream dam and environs (Collections of Paterson HPC). Children play on the reservoir pump house of the Passaic Water Co. The pump house was built between 1874 and 1887 to pump water up to the Company's reservoirs. It was abandoned when steam power was more feasible.

6. View of western end of Forest Room, near Great Falls Chasm, looking NE.

7. View from base of cliff at point below Mary Ellen Kramer Park, looking SW to the "Balcony" area (Courtesy of Gianfranco Archimele, Paterson HPC, 2007). Dumps and cultural material deposits are located in this area, below site of the Cottage-on-the-Cliff.

8. View of mounds at base of cliff below Mary Ellen Kramer Park, looking SE towards "Quarry Lawn Room" (Courtesy of Gianfranco Archimele, Paterson HPC, 2007).


10. Railroad ties stairs installed into hillside from Passaic River near Mary Ellen Kramer Park, looking N (Courtesy of Gianfranco Archimele, Paterson HPC, 2007).

11. Concrete retaining wall below Hinchcliffe Stadium, looking N. This was the near the location of the Sam Braen Quarry, which operated from 1910 to 1914, solely to supply stone and gravel to make concrete for the construction of the Hydroelectric Plant at the base of the Great Falls.

12. Modern upstream concrete drain outlet at bank of Passaic River, looking N (Courtesy of Gianfranco Archimele, Paterson HPC, 2007). This construction of this outlet impacted a portion of the northeast headrace for the Passaic Water Company reservoir pump house.


14. Path at base of cliff, Valley of the Rocks, looking NE.

15. Second concrete drain pipe outlet, downstream of first (# 12 above), looking NE.

16. Brick arch ruin feature, looking SW. This feature was identified by archaeologist Ed Rutsch during his 1973 investigations (see description at FR-17 and FR-18 below). It was labeled "Old tailrace" on a 1915 Passaic Water Company map; however, it is not yet known who built it, when, or for what purpose.

17. Drawing of area of Rutsch archaeological investigations (1973) showing location of brick arch ruin feature.


19. Concrete retaining wall south of path along river in the Valley of the Rocks, looking E.

20. Detail, concrete retaining wall south of path along river, Valley of the Rocks, looking E.

21. Detail, cut stone retaining wall north of path along river in Valley of the Rocks, looking N.

22. Face of cliff, Valley of the Rocks, looking NE.

23. North end of path through the Valley of the Rocks, looking NE.

24. North end of path through Valley of the Rocks, looking SW.

25. Base of cliff at southern end of Valley of Rocks, looking N.

26. Structures associated with Louis Fava Animal Shelter on Ryle Road, looking SE.

27. South end of Ryle Road, looking SW.

28. Vacant 1-story concrete block building on Ryle Road, northeast of Louis Fava Animal Shelter complex, looking SW.

29. Late 19th – early 20th C. brick masonry building on east side of Ryle Road, looking SE. This is the southernmost of 2 brick masonry buildings in this vicinity. It is 1-story with a hipped roof; it appears to be somewhat earlier of the two. A corbelled cornice and a round window at the front add architectural interest to this otherwise modest building. It is possible that they were associated with the Passaic Water Company. It is currently vacant; window and door openings have been somewhat secured, and the windows on the southern facade (the only ones visible) have been infilled with concrete block.

30. Early 20th C. brick masonry building, looking NE. This is the second of two brick buildings in this vicinity of the Forest Room. This one is a 2-story, five-bay rectangular building with a flat roof. A rolling metal garage door is found at its northern end. Plywood panels have been installed over all the other visible window and door openings. It appears to be vacant, but it may be currently used for storage. It is possible that this was also associated with the Passaic Water Company operations at some point.

31. Ryle Road from east end of Forest Room, looking NE towards Ryle Avenue.

32. 2007 Aerial of Forest Room vicinity.

33. Section of Cultural Resources Map showing vicinity of Forest Room.
ARCHEOLOGICAL FEATURES IN THE VICINITY OF THE FOREST ROOM (shown on CR Map) (No Photos)

- Small structures associated with the adjacent National Silk Dyeing Co. complex. This building might have been incorporated into later construction.

- Early cemetery of the Dutch Reformed Church at Totowa, south of Ryle Road and east of Ryle Ave. The cemetery was no longer in use by 1845 and graves were removed to accommodate the construction of the Valley Silk Works later part of National Silk Dyeing Co. (Rutsh, et al. 1973: 16-17, 21). The cemetery site appears to be entirely north of the Forest Room.

- Small structures associated with the Valley Works, which became part of the National Silk Dyeing Company c. 1907. The remains of these structures may be located north of the Forest Room.

- Passaic Water Company Buildings and Features, which included a variety of buildings and structures, including sheds, shops, a carriage house, a blacksmith shop, and pump house. Other areas of Passaic Water Company holdings, which could hold the remains of a horse paddock, cement and pipe sheds and a lantern house.

- Reservoir pump house, built between 1874 and 1887 to pump water up to the company's reservoirs; system components included a dam, headrace, pump house with wheel, tailrace and pipes to reservoirs. It was abandoned when steam power was more practical. A portion of the headrace impacted by the construction of modern storm sewer outlet.

- Sam Breen Quarry, located east of Hinchcliffes Stadium. It operated between 1910 and 1914 supplying stone and gravel to make concrete for the Hydroelectric Plant. Remains of the stone crusher could still exist.

- Dump(s) and cultural material deposits, located at base of cliff below the site of the "Cottage on the Cliff." The Valley of the Rocks was filled with debris from the Paterson fire of 1902.

- Two dams, one crossing the river near the Knipscher & Maass dye house, the other farther upstream (south), near the point marking the entrance to the Great Falls chasm. Remains of north end of one of the structures along riverbank; built between
SKY ROOM (MARY ELLEN KRAMER PARK)  
(CODE: “SKY”)

1. Aerial of Park and Great Falls chasm since 1930 (Collection of Paterson HPC, 2007).  
Photographer unknown, ca 1980.  
Collection of the Historic Preservation Commission, City of Paterson, NJ.  
Bequest of Grace M. George). The Park overlooking the Great Falls was first opened in September 1972 at a four-day “Great Falls Festival.” Governor William T. Cahill had the honor of also opening the new 70-foot high pedestrian bridge over the Great Falls chasm. Mary Ellen Kramer, wife of then Mayor Lawrence “Pat” Krames, along with a dedicated group of activists had reclaimed the Parkland from what had been a barren, fenced off trash dump behind the Passaic Water Company pumping station. The Park was renamed in honor of Mrs. Kramer after her death in 1993 at the age of 86.

2. Historic view: Great Falls chasm and Passaic Water Company pumping station buildings ca. 1900.  
Historic postcard from the collections of William Sandy. According to available maps, buildings first started to appear at this location around 1877, although the first reservoir made its appearance around 1856. It is reported that historic photos from the 1860s show structures in that area. The first three structures were possibly wood frame but by 1889 the pumping station had grown to a collection of approximately seven buildings – some wood frame and some masonry. By 1915, these were reduced to 5 masonry buildings, including the two that remain on the site today, although it is reported that one of the two extant buildings was constructed in the 1920s, following demolition of most of the pumping station complex.

3. View of chasm and upstream from Park overlook, looking SW (Courtesy of Gianfranco Archimede, Paterson HPC, 2007). One of the greatest amenities of the Sky Room is the view of the Great Falls cascade, which has drawn visitors from at least as early as the first decades of the 19th Century and, according to a 19th C. historian, in the prehistoric and Colonial period as well. As early as 1835, maps indicated that a spot known as “Forest Garden,” which also boasted some small accessory buildings, was a place for leisure visitors. The Great Falls was a remarkable phenomenon that drew sightseers to the Park for rest and relaxation. The use of the upper Parkland continued through the 1860s, enhanced by the presence of a refreshment pavilion overlooking the river called the “Cottage on the Cliff,” which had been in operation since at least 1835.

4. View of Great Falls and cleft in rock from Park overlook, looking S (Courtesy of Gianfranco Archimede, Paterson HPC, 2007). This cleft in the rock offered a viewpoint onto the cascade from the pumping station in the 19th C. It is now proposed for a stairway into the chasm so that the power of the Great Falls can be appreciated in a new way by visitors.

5. Paths around Mary Ellen Kramer Park, looking SW. Before the Park was opened in 1972, this land was off limits to visitors. Mary Ellen Kramer spearheaded the campaign to reclaim the Parkland, which was championed by influential supporters in the civic and business community. Today, it remains a rare urban oasis in the community. The uneven topography lent itself to the curvilinear pathways that now traverse the site, as if a small version of a Olmsted Park – reported to be the original circulation pattern. Historically, the Park at the top of the falls was much larger, encompassing the three reservoirs – the Lower and Middle Reservoirs and the Totowa Reservoir, and the Soldiers’ Monument, which looked down onto the Passaic River across from the ATP site from “Monument Heights.” Later, the Lower Reservoir was filled in and by 1915 a race track and other entertainments were built where Hinchliffe stadium now stands.

6. Entrance gate to Mary Ellen Kramer Park near Passaic Water Company buildings, looking S (Courtesy of Gianfranco Archimede, Paterson HPC, 2007). Near the entrance gate, two 19th Century brick masonry buildings from the PWC pumping station still stand. For a time, one served as the small office for the Great Falls activists who were promoting the Park and the creation of the Great Falls Historic District. The exact date of construction of the entrance gate and wrought iron fencing cannot be determined from available historic maps and documentation; further research is necessary to establish their significance to the site.

7. One of two extant brick masonry buildings associated with Passaic Water Company pumping station (built circa 1970), looking S (Courtesy of Gianfranco Archimede, Paterson HPC, 2007). The actual uses for the two extant buildings on the site of the PWC were not found in available data.

8. View of the larger PWC building and Passaic River view near Wayne Avenue Bridge (in background), looking S.

9. View of the smaller of the two brick buildings associated with the PWC pumping station built ca. 1875, looking N (Courtesy of Gianfranco Archimede, Paterson HPC, 2007). Although these buildings were utilitarian in nature, their uses did not diminish the care taken in their design and construction. Perhaps the buildings were made especially attractive given that the pumping station was highly visible to tourists, who came to admire the Great Falls, walk in the “Forest Garden” or on the promontory, and take refreshment at the “Cottage on the Cliff.”

10. Detail of brickwork on smaller brick building associated with PWC, looking S (Courtesy of Gianfranco Archimede, Paterson HPC, 2007). Although these buildings were utilitarian in nature, their uses did not diminish the care taken in their design and construction. Perhaps the buildings were made especially attractive given that the pumping station was highly visible to tourists, who came to admire the Great Falls, walk in the “Forest Garden” or on the promontory, and take refreshment at the “Cottage on the Cliff.”

11. Manhole cover installed near crest of the promontory at Mary Ellen Kramer Park (Courtesy of Gianfranco Archimede, Paterson HPC, 2007). This manhole cover is one of the few remaining artifacts of the SUW infrastructure – other than its buildings – that is evident around the Great Falls Historic District today.

12. 2007 Aerial of vicinity of Mary Ellen Kramer Park.

13. Section of Cultural Resources Map showing resources in the vicinity of the Sky Room.

ARCHEOLOGICAL FEATURES IN THE VICINITY OF THE SKY ROOM (shown on CR Map) (No Photos)

- The former site of the “Cottage on the Cliff.” The promontory on the western side of the river has had a long history as a public amenity and tourist attraction. Among the sites is this one, which, among other things helped create trash middens at the base of the escarpment, which may contain archaeological information that will help interpret that history.

- The former site of the lower reservoir (ca. 1850 – 1900) and later racing grounds and “amusement Park” (ca. 1900 – 1920). The amusement Park, labeled “The Falls Grounds” on a 1915 map, boasted a race track with seating, a structure that may be a carousel or bandstand, and several other wood frame structures on the site of the lower reservoir.

- Remains associated with Revolutionary War parade ground.

- Additional Passaic Water Company Buildings (no longer
The PWR site consisted of a number of 19th C. structures, many of which are no longer extant. A partially-buried brick building related to the Passaic Water Company pumping station is adjacent to and partially underneath Maple Avenue and is marked with a large stone tablet inscribed with “John Ryle 1878” installed vertically in place to block a former entrance.

- The site and masonry foundations of the demolished buildings of the PWR pumping station.
- The Pumping Station building, constructed between 1857 and 1867 with a turbine system. Hoxey’s arch, a stone arch that is visible at low water in the fault of the Falls’ cliff, is believed to be the tailrace outlet of this system. A steam pump was added in 1879; another steam engine was added in 1880 to increase pumping capacity. It ceased operating in 1899.
- “Dyers line” was a water line built c. 1905 by the East Jersey Water Company (formerly the Passaic Water Co.) to supply clean water to the Paterson silk dyers. Remains of the 42-inch iron conduit could still exist. The Conduit Gate House is part of this system.
- Water mains of the water delivery system and the water intake system leading to the company’s reservoirs could still be present. Based on prior research of Historic Conservation & Interpretation, Inc.

Cultural Resource map, prepared by MDKA, 2007

2_Sky: Great Falls Chasm and Passaic Water Company pumping station, ca. 1900. Historic postcard from the collections of William Sandy.
RIVER PARK ROOM
(CODE: "RPH")

1. Aerial view of River Park and Great Falls circa 1980 (Photographer unknown; Courtesy of Paterson HPC, bequest of Grace M George). The area called the "River Park Room" has remained, for the most part, undeveloped. Situated very close to the river, it was vulnerable to flooding and, for much of its 19 C. history, was inundated by the "forebay" of the Passaic Water Company.

2. Historic View: Great Falls and vicinity of River Park (in background) (Reid in Shriner). This historic photo shows the network of paths that traversed this triangle of land, which was owned by the Passaic Water Company for much of its history.

3. South end of River Park, with Wayne Avenue Bridge, spillway, and water control pedestrian bridge, looking W. The bridge over the Passaic River immediately upstream from the Great Falls is owned by Passaic County and joins the City of Paterson and the Borough of Totowa. It is a concrete and steel bridge (BIN 1600018) that was originally constructed in 1931 and underwent a major rehabilitation in 1983. It replaced an earlier crossing that was built at some point between 1850 and 1860, when building lots began to be platted in Totowa on the north bank of the river. The bridge joined Spruce Street in Paterson with Wayne Avenue in Totowa, at a point farther downstream than the earlier crossing. The 1973 HAER photograph shows the original appearance of the 1931 concrete span.

4. Dam above the Great Falls at high water levels (HAER 1973). This masonry weir is called "The Great Falls Dam" in state records (N.J. ID No. 2668). It is classified a "low hazard" dam. According to NJDEP-Dam Safety Section files, it was constructed ca. 1840. Historic maps show a dam in this vicinity as early as 1850, but its western end was aligned in a more northerly direction than the existing one, which is aligned in a predominately East-West direction. It is not known who first constructed this dam, but it is likely it was first used to impound water for the raceway system after the dismantling of the raceway near McBride Avenue and Spruce Street. A concrete spillway was constructed at its western end in the early part of the 20th C., perhaps around the same time as the hydroelectric plant (1914). The full story of this dam cannot be understood from available documentation, but perhaps additional research will help establish its provenance. It is currently owned by the City of Paterson and impounds water for the hydroelectric plant.

5. Detail of concrete spillway and metal truss bridge for pedestrian access on western bank of Passaic River at River Park Room. This bridge was constructed at some point as an additional control feature for the weir and the impounded water. The additional flashboards were installed at some point on the top of the dam (date unknown from available data).

6. View of the Great Falls Dam, looking downstream and N towards the former PWC buildings (background). Here, too, the flashboards are visible, although the system has clearly been compromised over the years. Historic photos ca. 1900 reveal an earlier attempt to control the flow of water over the falls in the form of a masonry "crown" of sorts installed at its crest.

7. Maple Street, the western edge of River Park Room, looking N. Streets on the north bank of the Passaic River near the falls were mapped as early as 1850, although no houses appeared until 1860 - and then near the lower reservoir (no Totowa Road). By 1877, a few houses had been built on Walnut Street, one block up the hill from the waterfront. The first structure to appear on Maple Street was a wood frame stable, which was located across the street from the entrance to the pumping station, but by 1889, Maple Street terminated at the facility. Given the steep slope on the west side of the street and the forebay to the pumping station on the right, Maple Street was not the optimum spot to build a house. At present, one apartment building was recently constructed on Maple Street - the only one between Wayne Avenue and the north end of the street.

8. Intersection of Maple Street and Wayne Avenue, the SW corner edge of River Park Room, looking SW. These wood frame dwellings along Wayne Avenue were constructed, for the most part, between 1877 and 1895. Part of the Borough of Totowa, they line the far southwestern edge of the proposed Parkland. Across the street is a former ice cream stand, now vacant.

9. 2007 Aerial of vicinity of River Park Room.

10. Section of Cultural Resources Map showing resources in the vicinity of the River Park Room.

ARCHAEOLOGICAL FEATURES IN THE VICINITY OF THE RIVER PARK ROOM (shown on CR Map) (No Photos)

- In the vicinity of the River Park Room are perhaps remains of a masonry dam that was constructed along the crest of the Falls in the late 1800s by the Passaic Water Company to impound water for pumping into the three reservoirs above.

GREAT FALLS ROOM / CHASM
(CODE: "CHM")

1. View of Great Falls chasm and pedestrian bridge, looking NW from Overlook Park. The Great Falls of Paterson was designated a National Natural Landmark by the U.S. Secretary of the Interior in 1967. It is the second largest waterfall in volume east of the Mississippi, after Niagara Falls. Together with Garrett Mountain, the Great Falls provides an excellent illustration of the jointed basaltic lava flow which began a period of extrusion and intrusion throughout eastern North America in the early Mesozoic, influencing present day landforms in this region. It is owned by the City of Paterson.

2. Great Falls chasm, top of "Balcony," and Hydroelectric Plant, looking N from McBride Avenue. The Hydroelectric Plant (built 1912-1914), frames current views of the Falls from the Balcony and Overlook Terrace. It was built as part of the transition away from the use of a gravity system of hydropower using the historic raceways, to one using steam, then finally electric power. The hydroelectric plant is still in operation and has a generating capacity of some 10,000 KW.

3. View of PWC buildings (background) and Great Falls, looking N. The 19th C. brick masonry buildings of the former Passaic Water Company pumping station were often featured in historic views of the Falls taken around 1900.

4. Details view of stone outlet at north end of chasm associated with PWC pumping station (defunct), looking N. There were three large reservoirs at the top of the cliff above the Valley of the Rocks which impounded the river water received from the pumping station below. Some vestiges of this operation still are visible to Park visitors near the Chasm.

5. Historic View: brick masonry building associated with PWC pumping station at top of cliff in chasm rock. (Photographer
unknown, ca 1910; Courtesy of the NJ Historical Society, Newark, NJ).

6. Base of Great Falls, looking down from pedestrian bridge over chasm. The pedestrian bridge was constructed and was officially opened to the public by Governor William Cahill when what is now Mary Ellen Kramer Park was dedicated in 1972.

7. 2007 Aerial of vicinity of Chasm.

8. Section of Cultural Resources Map showing resources in the vicinity of the Chasm.

ARCHAEOLOGICAL FEATURES IN THE VICINITY OF THE GREAT FALLS/CHASM ROOM (shown on CR Map) (No Photos)

- Possible remains of Passaic Water Company, which may include undocumented features associated with the Company’s pumping and water delivery systems in the vicinity of the Great Falls.

- In the vicinity of the Chasm are the remains of a masonry dam at the crest of the Falls, constructed in the late 1800s by the Passaic Water Company to impound water for pumping into the three reservoirs above.

5. CHM: Historic View: brick masonry building associated with PWC pumping station at top of cleft in chasm rock. From the collections of Paterson Historic Preservation Commission.

Historic View: Great Falls and vicinity of River Park (in background). From the collections of Paterson Historic Preservation Commission.
LANDING
(CODE: "LND")

1. Aerial view of Landing, showing Field House and SUM Hydroelectric Plant (1914), circa 1980 (photographer unknown; collection of Paterson HPC; bequest of Grace M. George).


5. View of cliff face of Landing after construction of SUM Hydroelectric Plant (1914), looking NW (Courtesy of Gianfranco Archimede, Paterson HPC). The hydroelectric plant is currently operated by Algonquin Power Systems, Inc. under the name "Great Falls Hydroelectric Company, a subsidiary of the Algonquin Power Income Fund. It has a generating capacity of approximately 10,800 KW.

6. View of Wayne Avenue façade of Field House, looking E (Courtesy of Gianfranco Archimede, Paterson HPC, 2007). This 1-story brick masonry building may have been constructed sometime around 1915, according to available maps.

7. Entrance to Landing near Field House, looking NW (Courtesy of Gianfranco Archimede, Paterson HPC, 2007).


9. View of pedestrian bridge, intake channel and sluice gates from rear yard of Field House, looking NE (Courtesy of Gianfranco Archimede, Paterson HPC, 2007).

10. Brick utility building at rear of Field House and pedestrian bridge over intake channel (at right), looking S (Courtesy of Gianfranco Archimede, Paterson HPC, 2007).

11. Path and approach to pedestrian bridge over Great Falls chasm, looking N (Courtesy of Gianfranco Archimede, Paterson HPC, 2007).

12. 2007 Aerial of vicinity of Landing.

13. Section of Cultural Resources Map showing resources in the vicinity of the Landing.

ARCHAEOLOGICAL FEATURES IN THE VICINITY OF THE LANDING (shown on CR Map) (No Photos)
- Four buildings built before 1835; these were gone by 1840. Hydroelectric plant and related intake channel and sluice gates built in this area (1912 - 1914).
- Union House, which was built before 1840, was gone by 1860. Hydroelectric plant construction likely impacted site.
- In the vicinity of the Landing are perhaps remains of a masonry dam at the crest of the Falls, constructed in the late 1800s by the Passaic Water Company to impound water for?

UPPER RACEWAY ROOM
(CODE: "UR")

1. Aerial of Upper Raceway Park, looking N (HAER 1973). The raceway system was established by the S.U.M. in 1792. "Raceway Park" was opened to the public in June 1972, after a research and rehabilitation project that spanned around five years. It was the first stage of what was envisioned as a comprehensive rehabilitation of the Great Falls Historic District.

2. The Upper Raceway, looking E, HAER NJ-2 (1974). The raceway system was fed by the waters drawn off from the Passaic River from the early 1800s, first into a reservoir near McBride Avenue and Spruce Street (1792 - 1799) into what is now the Middle Raceway. The Upper Raceway was part of the 1820s realignment of the raceway system to supply power to additional mills along Spruce Street.

3. Historic Photo: Morris Canal above Upper Raceway circa 1900. The Morris Canal system operated from the Delaware River to the Hudson River from the 1830s to its abandonment in 1874. A section of the Canal ran along what is now Grand Street near Garret Mountain and just south of Lou Costello Pool and a feeder roadway to the Canal extended southward from the reservoir at McBride and Spruce Street. Courtesy of Paterson History (http://patersonhistory.com/pictures/pictures/pats3.jpg).

4. Upper Raceway spillway and pedestrian bridge near Ivanhoe Mill, Spruce St. (rehabilitated ca. 1979). The Upper Raceway followed the contour of the hill eastward to supply power to what is now known as the Barchus Flax Mill. At the same time, this spillway allowed water to pass on to the Middle Raceway. A gashouse for the Ivanhoe sluice spanned the spillway at some point; part of the 1930s rehabilitation of the area for the creation of Upper Raceway Park, this pedestrian bridge was constructed.

5. Ivanhoe Wheelhouse, looking E (unknown photographer ca. 2002). The Ivanhoe Mill was one of the earliest industrial complexes built along Spruce Street; this brick masonry wheelhouse was one of the few of its buildings to remain standing. It was restored in the 1970s.

6. SUM Gatehouse (built 1846), looking NW (Steven Warfel, 1977). Due to the leaking of the reservoir that fed the raceway system, a channel was cut directly from the River in 1838, followed in 1846 later by this gatehouse fitted with sluice gates to better control the flow.

7. SUM Gatehouse, looking SW (Steven Warfel, 1977).

8. Stony Road, looking W (Steven Warfel, 1977). Stony Road appears an 1820 map, which is the earliest known map of Paterson. It led from Congress (now Market) Street southeastward and eventually became the Little Falls Road (now Valley Road). Stephen Warfel for A Cultural Resource Management Program for the Great Falls Upper Raceway Park, Paterson, NJ, Project #1606-04-067 (1977), Collections of the NJHPO file No. PAS B21, Doc. 0727.

9. Stony Road: detail of paving (Steven Warfel, 1977). Although likely a dirt path at first, this road appears to have been paved at an early date in the 19th C. This road was the main road from Paterson to points south, including Great Notch, now part of Clifton, Montclair, and the Oranges.

10. Lou Costello Pool and Pool House, 257 Grand St, Paterson, NJ, looking E. The date of original construction for this pool house was not found in available research, but a major renovation of it and the surrounding landscaping was carried out ca. 1979 as part of Upper Raceway Park. The complex was named for Lou
Costello (1904-1959), who was reportedly born in Canada but considered a "native son" of Paterson. Costello's own infant son drowned in his back yard pool in 1943.

11. 2007 Aerial of Upper Raceway Room. Conditions in Upper Raceway Park have remained about the same since the opening of the Park in 1982.

12. Section of Cultural Resources Map showing resources in the Upper Raceway Room.

ARCHAEOLOGICAL FEATURES IN THE VICINITY OF THE UPPER RACEWAY Park (shown on CR Map) (No Photos)

- Morris Canal Race (cuts across entire area). This feeder race ran from the Passaic River to the Canal through Upper Raceway Park according to maps of the 1840s.

- Reservoir site (near southeastern corner of McBride Avenue and Spruce Street Intersection). This reservoir drew off and impounded water from the Passaic River to provide the Raceway system with an uninterrupted flow (1792 - 1799). It was abandoned in the late 1820s, filled in and later sold.

- Ivanhoe Paper Mill. Only the restored warehouse remains.

- Areas adjacent to both the Upper Raceway and Upper Raceway Tailrace. The masonry ruins of several brick support structures for sluice and/or penstocks are noteworthy, as well as the remains of the Ivanhoe Mill bleach house and drying house, the Rogers warehouse penstock and storage buildings.

- Opposite the Stony Road Bridge crossing over the Upper Tailrace are the masonry ruins of an oil house related to the Rogers Locomotive Works.

- Immediately south of the weir from the Upper Raceway to the UR tailrace is the original weir and related works. Although it is currently outside the Park boundary and remains in private hands, it still offers information potential that would aid in the interpretation of the area's history.


4_LND: At left, the cliff-face of the Landing circa 1899. From the Collections of Paterson Historic Preservation Commission.
BIIBLIOGRAPHY

Mary Delaney Krugman Associates, Inc.

Abbreviations

HCI - Historic Conservation Interpretation, Inc., Sussex, NJ
NHPPO - New Jersey Historic Preservation Office, Trenton, NJ
PHPC - Paterson Historic Preservation Commission, Paterson, NJ


City of Paterson. "Great Falls Historic District Area Request for Proposals." City of Paterson Department of Community Development, 2005. Collections of PHPC.


City of Paterson, Division of Economic Development, [date unknown]. Collections of PHPC.


City of Paterson, Passaic County, New Jersey. Great Falls Historic District Area Request for Proposals (2006). RFP regarding various properties in and around the GTHD. Collections of PHPC.


Todd and Rafferty Machina Company. HAER No. NJ-5 Washington DC: Historic American Engineering Record, National...


--- An Archaeological Management Proposal for the Upper Raceway Tailrace Investigation, Proposal prepared for the City of Paterson, Department of Community Development (1978). Collections of HCl.


MAPS


Bird’s Eye View of Paterson, New Jersey, 1875. Copy in collections of HCl. No scale.

City of Paterson Department of Community Development. Great Falls/S.U.M. Historic District Outer Boundary, Paterson, N.J.: City of Paterson Department of Community Development, Division of Planning and Zoning, 1974. Copy in collections of HCl: Scale: 1"


Freeman, U.W., Surveyor. Map of the Town of Paterson N.J. 1836. Traced by the Works Progress Administration, New Jersey, Division of Women's and Professional Projects, Project No. 15-2146. Collections of HCl. Scale: 1" = 50'.

Freeman, U.W., Surveyor. Map of the Town of Paterson N.J. 1836. Traced by the Works Progress Administration, New Jersey, Division of Women's and Professional Projects, Project No. 15-2146. Collections of HCl. Scale: 1" = 50'.

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Millner, William A. Paterson, New Jersey, 1874. Scale: [unknown].


Paterson, City of [N.J]. Tax Maps. Compiled by the Works Progress Administration, Project No. 7195-0, A-61. May 9, 1939.


Paterson Mills, 1864. New York: William Barr (missing) (or Peris [missing]), 1864. Copy in collections of HCl from original found in Danforth Free Public Library, Paterson, N.J. Scale: 1" = 40'.


Shriver, Charles A. Paterson, New Jersey; Its advantages for manufacturing and residence; its industries, prominent men, banks, schools, churches, etc. Press & Printing Co. Paterson, N.J. 1890.


Views of Paterson, Quakerbush & Co. Paterson, NJ, 1907
APPENDIX D - STRUCTURAL ISSUES
STRUCTURAL ISSUES AND FEASIBILITY
Moffatt & Nichol Engineers

GEOLOGY

The rock formations that are present at the Great Falls site are principally basalt (known as Orange Mountain Basalt) and brownstone (Passaic Formation). Both layers are utilized as local building material. The basalt, or traprock, is generally crushed and used as aggregate for roadbeds as well as railroad ballast. The brownstone is a well-known building material in this area used for foundations and facades on buildings. At this site the brownstone is overlain by a thick basalt layer. These layers are slightly tilted, with the brownstone and basalt dipping to the west and rising to the east. At the Great Falls, only the basalt layer is visible, while further to the east near the animal shelter the brownstone layer penetrates the crust at the base of the cliff. The falls themselves spill over the harder more resistant ridge of basalt into a chasm carved in the power flow of the Orange Mountain Basalt that overlies the upper contact of the Passaic Formation.

The Orange Mountain Basalt is a dark greenish gray to black, fine-grained, dense, hard basalt composed mostly of calcic plagioclase and clinopyroxene. Basalt is a volcanic rock which locally contains subaqueous tuffular gas escape vesicles near flow tops, some filled by zecchite minerals, quartz, or calcite. At the Paterson site the basalt is known as columnar basalt which means that it has formed into vertical, polygonal, columns or joints. These columns form where gases vent from volcanic vents and vents. Vertical columns can form the basaltic chimneys and craters during the cooling process. Well-developed columns result from homogeneous lava cooling at a uniform rate. Examples of well-developed columns include Devils Tower in Wyoming and the Giants Causeway in Ireland, see Photo 1. The basalt at the Great Falls does not exhibit the same well-developed columns as those two examples but it does have shrinkage cracks or joints throughout the formation which are clearly visible at the cliff near the animal shelter.

In addition to the columnar joints this site also exhibits tectonic joints in the basalt. The tectonic joints are commonly obscured by the more pervasive cooling joints, however at the Great Falls the tectonic joints are very pronounced. The tectonic joints are typically planar, well-formed, smooth to slightly irregular, and vary in width and depth. In the immediate proximity of a tectonic joint (commonly referred to as a fault) the joints are spaced on the order of a few inches to 1 foot. The most pronounced example of a tectonic joint is the cliff that forms the back wall of the power plant, extending from McBride Avenue north past the power plant to the footbridge adjacent to the Great Falls.

Tunnel Option

One alternative being investigated at this site is the construction of a tunnel through a portion of the Orange Mountain Basalt Formation. Preliminary investigations, discussions with Richard Volker, a State Geologist, confirm our original assumption that a tunnel can be constructed through the basalt layer. As mentioned earlier the basalt is a hard rock and as a result cannot be easily excavated. The technique that will most likely be required to construct the tunnel will consist of drilling holes into the face of the rock to permit explosive charges to be set so the rock can be blasted out. This process will be repeated several times until the tunnel has been completed.

The previously mentioned tectonic faults and columnar joints in the basalt will further complicate the work. First the blasting will have to be done carefully and with small charges as the vibrations from the blasting could result in loss of some of the exterior face of the cliff due to shear failure in the rock at a joint location. In addition, as joints will most likely be encountered in the tunneling process, it is presently believed that the tunnel will have to be reinforced using drilled in rock anchors and a shotcrete lining. This technique will help prevent rock failure which could result in injury to pedestrians. The rock anchors are threaded steel rods that are fastened into the solid rock by means of an expansive and sleeve is inserted into holes drilled into the rock face of the tunnel. After the anchor has been secured a steel plate is placed over the exposed end of the threaded rod and a nut attached to secure the plate. This assembly is then protected from corrosion by encasing the assembly in concrete liner that is shot onto the interior face of the tunnel wall. None of this constitutes an unusual tunneling or mining technique, but certainly will add to the overall cost and time to construct.

As the basalt rock is jointed and fractured, it is likely to lose small to large sections periodically due to freeze thaw expansion of water in the joints. This is more likely to be a problem during early winter and spring. Therefore, to protect the public, the walkway leading into and out of the tunnel, for viewing of the Great Falls, should be protected from falling debris by means of a chain link (wire) mesh. This wire mesh is typically anchored into the rock face by means of rock anchors, similar to those described above. In this case however they would not be protected by shotcrete, but rather exposed to the elements as is the mesh.

The Chasm Walkway

One of the tectonic joints discussed in the geologic portion above, forms a natural chasm immediately to the east of the Great Falls. This fault has created a natural opening that extends from the top of the cliff to the water level of the upper pool running in a generally north south direction. At the top of the cliff the chasm is in contact with the opposite wall and gradually opens up to a width of 6 to 8 feet and a depth of over 60 feet at the upper pool. As this is a tectonic joint, it was noted that joints on the west wall were closely spaced at 4 to 30 inches.

One of the ideas being explored is to install a walkway within the fault to create an opportunity to get down close to the upper pool and view the falls from a unique vantage point. It seems very probable that a walkway could be installed within this natural chasm. It would consist of a series of slabs and landings that would be supported by cross beams anchored into the wall of the chasm using rock bolts. The rock bolts are inserted into the joints such that the cross beams would be constructed of steel with steel framing between and steel or fiberglass grating placed over the framing. All steel elements would be galvanized to protect from corrosion as this walkway will run deep into the chasm and will therefore get little sunlight to dry it off from the roof of the waterfall. A series of steps will be made using non-skid high friction surfaces. In some limited areas the chasm is too narrow to fit a walkway of the desired width. However, as the rock fractures have developed in vertical plains it will be easier to widen the chasm in these areas.

As with the walkway adjacent to the tunnel, there are concerns regarding the fractures or joints in the basalt. Here we would recommend that the anchors to support the walkway be embedded much deeper into the rock face to reduce the likelihood of failure of a support at a joint in the rock. Initial consideration would be to install rock bolts up to four feet into the basalt to insert them past the closely spaced joints and anchor them into solid rock. In addition, when the walkway down into the chasm reaches a depth of approximately 5 feet it is recommended that a wire mesh be installed along the rock face to catch and direct straight down any rocks which may dislodge from the cliff face due to effects of freeze thaw cycles on the rock joints. This is to prevent weathered rock from falling onto pedestrians during early winter and spring freeze thaw cycles.

Walkways next to the cliff

The walk adjacent to the cliff is will be supported by a vertical member with a 1 inch back to the cliff. The support members are proposed to be constructed from galvanized or coated steel members. These will be anchored back into the rock cliff using rock bolts that are drilled into the rock face approximately four feet to penetrate the exterior columnar joints an reach solid rock. To permit proper bearing of the steel support frame adjacent to the cliff a high strength grout base will be installed between the rock and the steel bearing plates.

The walkway surface can be one of many alternative surfaces. Concrete deck, galvanized steel grate deck or a timber deck could.
be utilized. The choice of surfaces will depend upon the cost of the each option as well as the aesthetics with the other Park features. Each material offers pluses and minuses related to the durability, cost, and pedestrian comfort. The concrete deck is solid, providing a level of security to the pedestrian, while the extra weight will increase the size or number of support frames required. Steel grating is still very solid and lighter than concrete but being able to view rock surface and water below through the grating can be disconcerting to many pedestrians (and a threat to others). The timber deck is the lightest option but not as solid a feel as either the steel or concrete. This type of walking surface can become uneven over time due to warping and does permit some limited views of the rock and water below through the joints in the board that are typically provided. A final decision will have to consider all these aspects.

As the walkway is adjacent to the cliff a wire mesh screen will be required on the rock cliffs here as well. This screen will help to prevent possible injury to pedestrians due to falling rock as a result of water seeping into the columnar joints and expanding during the freeze thaw cycles of winter and spring. As opposed to the cliff walkway, the wire mesh will be generally hidden from public view (other than when you are walking down the cliff), the mesh for these other walkways will be visible from more areas of the Park. This will also need to be considered when selecting where to install these walkways.

Balconies

The balconies are located on the east shore of the Passaic River at the historic wall. The historic wall rises approximately 20 feet from the exposed brownstone formation at the river level to create a vertical edge defining the river from the historic industrial sites behind. The historic wall itself was actually used as a back wall for several of the industrial buildings. Within this wall are the remains of old larger-clearstory windows that once lit the interior of these buildings. To take advantage of this feature, Field Operations has proposed that the balconies be installed that project beyond the historic wall and allow people the opportunity to view the river and the wall from a new perspective.

As the condition of the historic wall is unknown, the plan is to cantilever the balconies out through the windows without having them supported by the historic wall. This will eliminate the need to do a detailed inspection and evaluation of the historic wall while also avoiding potential damage to the wall due to the application of new loads. It is proposed that the balconies be constructed from concrete to create a stable, maintenance free structure. The balcony itself will be constructed of a single 8 foot wide by 25 foot long panel of prestressed concrete. The prestressing will allow the panel to be as thin as possible, thus reducing the weight of the cantilevered element. In addition, prestressing the panel will help eliminate the development of cracks in the concrete panel, thus reducing the pathways into the concrete where moisture and oxygen could cause corrosion. This will provide a longer service life with reduced maintenance requirements.

To support the panel it is proposed that a concrete beam be extended through a slit cut in the wall. The concrete beam will act like a tie bar to the balcony panel acting as a load at one end and a rock anchoring it to the other and a spread footing acting as the full center near the middle. Between the historic wall and the beam, a compressible joint material will be used to minimize any possible load application to the wall. The rock anchor at the far end and of the beam will be drilled and grouted into the brownstone bedrock which is approximately 20 feet below the surface. The spread footing will be located behind the historic wall. Some additional study will be required to determine if the spread footing will impart too great a lateral load on the historic wall and if so then a concrete pile could be drilled and cast-in-place to transfer the vertical load at the full center point to the under pinning bedrock.

Pedestrian Bridge

The pedestrian bridge is located at the east end of the Park, spanning over the Passaic River. This bridge will be the link between the south half of the Park and the north half. The bridge offers an interesting engineering challenge in that it is curved with about a 170 foot radius. This is a tight radius, but as we are supporting only pedestrian loads it can be economically constructed. The plan calls for two interior bents to support these equal spans of about 56 foot each. One of the interior bents will be located on the island in the river while the other will be located in the river channel. The plan presently calls for the pedestrian bridge to be 10 feet wide.

It is envisioned that the pedestrian bridge will consist of a concrete deck surface that is supported by curved steel plate girders. The end bents will be solid structures designed to retain the fill behind at both shores. The interior bents will be either steel or concrete structures. The preferred material would be concrete due to possible corrosion and maintenance issues associated with steel. However, if a concrete foundation is constructed to an elevation above the normal pool elevation of the Passaic River, then a steel structure could be constructed from the concrete footing to the steel superstructure. This would provide plenty of access and opportunity to record the steel supports during normal maintenance cycles.

Historic River Wall

The existing masonry river wall is in poor condition and in need of repair to maintain the stability of the structure and extend its useful life. At the present time there is a contract with The Louis Berger Group to inspect the masonry river wall and prepare construction documents for repair of the wall. The total length of masonry wall included in this contract is approximately 600 feet and extends to the northeast from the cast-in-place concrete wall which terminates approximately 200 feet northeast of the hydroelectric power plant. The 800 feet of masonry wall in this contract represents the tallest segment of the wall. Additional masonry wall extends beyond the end of this contract but is a lower level wall. The maximum height of masonry wall is approximately 33 feet from river level to top of wall. This section of the wall terminates above the existing grade, behind the wall, by about 13 feet. It is these sections of wall where windows and doorways still exist that balconies are being proposed. Typically the masonry wall extends to grade or just a little above grade and is about 20 feet tall.

During the site investigation by Field Operations and Moffatt & Nichol we observed significant areas of deterioration of the wall that if unattended to would jeopardize the long term stability of the wall. At the base of the wall the river has undermining of the wall due to occur. Approximately 300 feet of the 800 foot long section of wall is undermined and is scheduled to be repaired by placing concrete between the exposed bedrock and the bottom of the masonry wall. Throughout the wall trees grow and weather have deteriorated the masonry joints and several of the stones. The joints and deteriorated stone are presently included in the repair work under design. Another long term impact to the wall has been the growth of plants between the masonry joints. In some instances two to three inch caliber trees are growing through the wall. In these cases the masonry block will need to be removed and the tree roots traced and removed to prevent further deterioration of the wall. Once the roots have been removed the original blocks will be replaced, assuming they are found to be in good condition.

Overall, upon completion of the scheduled repairs the condition of the masonry wall could be upgraded to fair. It is our opinion that this wall should not be raised upon to support any significant additional vertical or lateral load. The volume and the retention behind the wall should be done to minimize additional lateral pressure on the wall. This could be achieved by removing an equivalent weight of soil and vegetation equal to the weight of the riverwalk to be installed. Further study is needed, but it is believed the masonry wall can accommodate the live load due to pedestrians utilizing the riverwalk.
NOTE:
1. LENGTH OF TUNNEL ~22'.
2. TUNNEL WILL BE CONSTRUCTED AT 2% SLOPE TO PROMOTE PROPER DRAINAGE.
3. ROCK ANCHOR WILL BE PROVIDED AS NECESSARY TO STABILIZE JOINTS IN NATIVE CRAGGY MOUNTAIN BASALT FORMATION.

NOTE:
1. PROVIDE CHAIN LINK MESH TO ROCK FACE WHEN WALKWAY REACHES 8' BELOW RM OF CHASM.
2. SLOPE WALKWAY FROM TOP OF 12' FT TO ELEV XX.XX.

TUNNEL PORTAL
1° = 3°

SECTION AND CHASM
1° = 3°