
National Park Service
Cultural Landscapes Inventory
2016



Johnstown Flood NMem Landscape
Johnstown Flood National Memorial

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Inventory Unit Summary & Site Plan

Inventory Summary

The Cultural Landscapes Inventory Overview:

CLI General Information:

Purpose and Goals of the CLI

The Cultural Landscapes Inventory (CLI) is an evaluated inventory of all significant landscapes in units of the national park system in which the National Park Service has, or plans to acquire any enforceable legal interest. Landscapes documented through the CLI are those that individually meet criteria set forth in the National Register of Historic Places such as historic sites, historic designed landscapes, and historic vernacular landscapes or those that are contributing elements of properties that meet the criteria. In addition, landscapes that are managed as cultural resources because of law, policy, or decisions reached through the park planning process even though they do not meet the National Register criteria, are also included in the CLI.

The CLI serves three major purposes. First, it provides the means to describe cultural landscapes on an individual or collective basis at the park, regional, or service-wide level. Secondly, it provides a platform to share information about cultural landscapes across programmatic areas and concerns and to integrate related data about these resources into park management. Thirdly, it provides an analytical tool to judge accomplishment and accountability.

The legislative, regulatory, and policy direction for conducting the CLI include:

National Historic Preservation Act of 1966 (16 USC 470h-2(a)(1)). Each Federal agency shall establish...a preservation program for the identification, evaluation, and nomination to the National Register of Historic Places...of historic properties...

Executive Order 13287: Preserve America, 2003. Sec. 3(a)...Each agency with real property management responsibilities shall prepare an assessment of the current status of its inventory of historic properties required by section 110(a)(2) of the NHPA...No later than September 30, 2004, each covered agency shall complete a report of the assessment and make it available to the Chairman of the Advisory Council on Historic Preservation and the Secretary of the Interior... (c) Each agency with real property management responsibilities shall, by September 30, 2005, and every third year thereafter, prepare a report on its progress in identifying... historic properties in its ownership and make the report available to the Council and the Secretary...

The Secretary of the Interior's Standards and Guidelines for Federal Agency Historic Preservation Programs Pursuant to the National Historic Preservation Act, 1998. Standard 2: An agency provides for the timely identification and evaluation of historic properties under agency jurisdiction or control and/or subject to effect by agency actions (Sec. 110 (a)(2)(A)

Management Policies 2006. 5.1.3.1 Inventories: The Park Service will (1) maintain and expand the following inventories...about cultural resources in units of the national park system...Cultural Landscape Inventory of historic designed landscapes, historic vernacular landscapes,... and historic sites...

Cultural Resource Management Guideline, 1997, Release No. 5, page 22 issued pursuant to Director's Order #28. As cultural resources are identified and evaluated, they should also be listed in the appropriate Service-wide inventories of cultural resources.

Responding to the Call to Action:

The year 2016 marks the 100th anniversary of the National Park Service. A five-year action plan entitled, “*A Call to Action: Preparing for a Second Century of Stewardship and Engagement*” charts a path toward that second century vision by asking Service employees and partners to commit to concrete actions that advance the agency’s mission. The heart of the plan includes four broad themes supported by specific goals and measurable actions. These themes are: Connecting People to Parks, Advancing the NPS Education Mission, Preserving America’s Special Places, and Enhancing Professional and Organizational Excellence. The Cultural Landscape Inventory relates to three of these themes:

Connect People to Parks. Help communities protect what is special to them, highlight their history, and retain or rebuild their economic and environmental sustainability.

Advance the Education Mission. Strengthen the National Park Service’s role as an educational force based on core American values, historical and scientific scholarship, and unbiased translation of the complexities of the American experience.

Preserve America’s Special Places. Be a leader in extending the benefits of conservation across physical, social, political, and international boundaries in partnership with others.

The national CLI effort directly relates to #3, Preserve America’s Special Places, and specifically to Action #28, “Park Pulse.” Each CLI documents the existing condition of park resources and identifies impacts, threats, and measures to improve condition. This information can be used to improve park priority setting and communicate complex park condition information to the public.

Responding to the Cultural Resources Challenge:

The Cultural Resources Challenge (CRC) is a NPS strategic plan that identifies our most critical priorities. The primary objective is to “*Achieve a standard of excellence for the stewardship of the resources that form the historical and cultural foundations of the nation, commit at all levels to a common set of goals, and articulate a common vision for the next century.*” The CLI contributes to the fulfillment of all five goals of the CRC:

- 1) *Provide leadership support, and advocacy for the stewardship, protection, interpretation, and management of the nation’s heritage through scholarly research, science and effective management;*
- 2) *Recommit to the spirit and letter of the landmark legislation underpinning the NPS*

- 3) *Connect all Americans to their heritage resources in a manner that resonates with their lives, legacies, and dreams, and tells the stories that make up America's diverse national identity;*
- 4) *Integrate the values of heritage stewardship into major initiatives and issues such as renewable energy, climate change, community assistance and revitalization, and sustainability, while cultivating excellence in science and technical preservation as a foundation for resource protection, management, and rehabilitation; and*
- 5) *Attract, support, and retain a highly skilled and diverse workforce, and support the development of leadership and expertise within the National Park Service.*

Scope of the CLI

CLI data is gathered from existing secondary sources found in park libraries, archives and at NPS regional offices and centers, as well as through on-site reconnaissance. The baseline information describes the historical development and significance of the landscape, placing it in the context of the landscape's overall significance. Documentation and analysis of the existing landscape identifies character-defining characteristics and features, and allows for an evaluation of the landscape's overall integrity and an assessment of the landscape's overall condition. The CLI also provides an illustrative site plan that indicates major features within the inventory unit and generates spatial data for Geographic Information Systems (GIS). The CLI also identifies stabilization needs to prevent further deterioration of the landscape and provides data for the Facility Management Software System

Inventory Unit Description:

The Johnstown Flood National Memorial was authorized as a unit of the National Park Service in 1964 to commemorate the tragic Johnstown Flood of May 31, 1889. The park is located in southwestern Cambria County, which is situated in south-central Pennsylvania approximately 82 miles east of Pittsburgh and 131 miles west of Harrisburg. The park straddles the South Fork of the Little Conemaugh River, which was dammed in 1853 to supply water to a canal in Johnstown, 12 miles downstream. The dam created what was, at the time it was built, one of the largest artificial lakes in the nation, more than two miles long and nearly a mile wide in some places. The dam failed in 1862 and lie broken and abandoned until it was repaired in 1879-81 by the South Fork Fishing and Hunting Club, a group of wealthy and prominent businessmen from Pittsburgh. The dam's impoundment, named Lake Conemaugh, served as the club's exclusive resort until the dam broke in May 1889 and killed 2,209 people in Johnstown and other villages along the river.

The 178-acre park preserves the remains of the South Fork Dam, which consists of two trapezoidal-shaped earthen and rock abutments cloaked in grasses and trees separated by an opening over 400 feet in length. Traces of the club's carriage road extend across the top of the abutments to overlooks where visitors can view the dam's breach, the river, and the former empty lakebed that stretches upstream from the dam and currently filled with a patchwork of grasses, wetlands, and scattered trees. Trails also cross the dam's spillway on the north abutment side, a rock cut now filled with tall grasses, and pass through the bottom of the breach on the south abutment side, where the river flows past the stone and timber ruins of the dam's original sluice culvert and valve control tower. On a hillside meadow overlooking the dam and lakebed is the Lake View Farm and the Lake View House,

the former farmstead and rehabilitated home of Elias Unger, the club's president at the time of the disaster, as well as a reconstructed spring house. Other historic resources are located in two discontinuous parcels about one mile south of the dam in the village of St. Michael. They include the clubhouse, double cottage, and two cottages associated with the South Fork Fishing and Hunting Club.

The park's visitor center, built in 1988-89, is located at the Lake View Farm and resembles the appearance of the old Unger barn. Here, visitors can view exhibits, watch a film about the flood, and contemplate the panoramic views of the dam and lakebed. The park also includes a picnic area, several parking lots, and a maintenance facility, but they do not significantly detract from the park's historic setting. However, the active railroad line through the lakebed and breach, traffic on Lake Road between the dam and the Lake View Farm, and noise and views associated with the adjacent U.S. 219 highway bridge are distracting.

From 1969 to 2012, the park welcomed 4,282,029 recreational visitors. Yearly visitation was lowest in 1969 with 19,700 visitors and highest in during the centennial anniversary year of the flood (1989) when 333,283 visitors came to the park. Since that time yearly visitation has ranged between 100,000 and 160,000 people per year. Visitation occurs primarily during warmer months (April through October) and drops off in winter. (Yetter et.al. 2014: 16)

HISTORICAL OVERVIEW

The South Fork Fishing and Hunting Club developed Lake Conemaugh as a private resort for Pittsburgh's elite in the 1880s, but its use as a recreational lake then was quite different from its original industrial purpose. In 1834 the Commonwealth of Pennsylvania opened the Main Line of Public Works, a 394-mile system of canals and portage railroads between Philadelphia and Pittsburgh, to transport coal and other resources across the state. As such a large operation required uninterrupted river and railroad operation, the state began constructing the South Fork Dam and Western Reservoir in 1840 to ensure a reliable water supply for the canal section in Johnstown. Funding issues delayed the project's completion, during which time the half-completed dam failed for the first time. When finished, the dam was 931 feet long, 72 feet high, 500 feet wide at the bottom, and 10 feet wide at the top.

The South Fork Dam and Western Reservoir functioned as designed that first year, but the following year the state put the Main Line up for sale due to competition from the expanding railroads. In 1857 the entire system, including the dam and reservoir, was purchased by the Pennsylvania Railroad Company who continued to operate the canal and employed a watchman at the dam. However, the company performed little maintenance or upkeep on the dam, and in 1862 it failed for the second time. The break flooded Johnstown, but damage was minimized because the reservoir was not full at the time. The Pennsylvania Railroad decided not to repair the breach in the dam, and the following year closed the canal and abandoned the dam and reservoir.

Having no use for a broken dam and empty reservoir, the Pennsylvania Railroad Company sold the site to U.S. Congressman John Reilly in 1875. By this time vegetation had returned in the reservoir bed, and continued to thrive during Reilly's ownership as he made no improvements to the dam or bed. The

unused sluice pipes at the bottom of the dam were sold for scrap, and the timber valve control tower that opened and closed the pipes burned down. In 1879 Reilly sold the dam and reservoir to the South Fork Fishing and Hunting Club.

Much to the concern of downstream residents, the club repaired and modified the South Fork Dam and refilled the reservoir, renamed Lake Conemaugh, in 1880-81. At the same time, the club constructed a clubhouse on the lake's southwestern shoreline, about one mile upstream from the dam. After an addition was added in 1886, the two- and three-story clubhouse featured 47 furnished bedrooms, a dining room with seating for 90, an office, billiard room, parlor, kitchen, bakery, and a long covered front porch overlooking the lake. The club also built a separate two-story annex with covered porches and additional guestrooms and apartments for member use. From 1881-88, 16 private cottages (sources vary on the number) were constructed in a row northwest and southeast of the clubhouse and double cottage. Although called "cottages," many of the houses were substantial in size, designed with upwards of seventeen rooms. All featured covered front porches, which looked out over the lake, and connected to a wood boardwalk that paralleled the row of buildings and shoreline. The resort also included boathouses, docks, and stables, as well as two large steam yachts, four sailing boats, and about 50 canoes and rowboats.

Other members of the South Fork Fishing and Hunting Club owned lands bordering Lake Conemaugh, such as club president Elias Unger who built a house and outbuildings on a hill overlooking the dam and lake in 1883-88. A carriage road running along the crest of the dam connected to the Lake View Farm, via a wood bridge across the upper end of the spillway. The carriage road transported club members from the train station in South Fork to the club grounds.

The idyllic scene at the resort came to a tragic end on May 31, 1889 when a slow moving rainstorm pushed water levels in Lake Conemaugh to catastrophic extremes. That morning Unger and others attempted to dig a second spillway and raise the height of the dam with an earthen dike, but the discharge through the spillway could not keep pace with the rising lake. By noon water began flowing over the top of the dam and cutting a channel in its rocky downstream face. At 3:15 pm, the center portion of the dam (the section reconstructed by the club) pushed outward and collapsed, unleashing a torrent of 20 million tons (5 billion gallons) of lake water in the course of about 45 minutes. The 30- to 40-foot high wave of floodwater moved as fast as 40 miles per hour down the narrow Little Conemaugh River valley, inhabited by nearly 38,000 people. The water and debris hit Johnstown around 4:00 pm, devastating the city in less than ten minutes. This third, and final, failure of the South Fork Dam killed 2,209 people, injured hundreds, and left thousands homeless. The tragedy received a massive amount of news coverage and led to an outpouring of help from around the nation and world. Recovery efforts spearheaded by Clara Barton and the American Red Cross in the months following the flood led to the organization's recognition as the premier entity for disaster relief.

Blame for the disaster was quickly aimed at the members of the South Fork Fishing and Hunting Club, as implied several days later in the Johnstown Daily Tribune, "We think we know what struck us, and it was not the hand of Providence. Our misery is the work of man..." Several club members rendered personal services and aided relief efforts, but most disassociated themselves from the club for fear of

litigation. Several lawsuits were filed against the club, but none were successful as the courts interpreted the unprecedented rainfall as an act of Providence. (Degen 2013: 61)

Investigations of the dam's failure by engineers and engineering journals determined that several actions of the South Fork Fishing and Hunting Club had weakened the dam when it was rebuilt in 1880-81. First, the club had lowered the crest in the center portion of the dam to accommodate a carriage road pulloff, which meant that there was only an eight-foot difference between the top of the dam and the maximum water level in the reservoir rather than the original ten-foot difference. Second, the club decided not to reinstall sluice pipes at the bottom of the dam, which eliminated any means to proactively release water from the lake to perform maintenance or in case of an emergency. Lastly, the club's attachment of fish screens on the carriage road bridge at the upper end of the spillway collected debris during the flood and blocked the flow of floodwater through the spillway.

After the Johnstown Flood, the South Fork Fishing and Hunting Club disbanded and members sold their properties. Vegetation once again began to reclaim the drained lakebed, but this time competed with new industrial, transportation, and residential developments. In 1891 a rail line was built in the middle of the lakebed and through the breach in the South Fork Dam. By 1904, roads traced the former shorelines and dipped into the lakebed, one of which passed through the old spillway. In 1907, the coal company town of St. Michael was established in the lakebed fronting the club's former clubhouse and cottages. The Lake View Farm was also sold during this time, and for decades thereafter operated as a family farm.

The growth of St. Michael and other villages in the lakebed and the rise in automobile use lead to the development of State Route 869 southwest of the dam's south abutment in the 1930s and the construction of U.S. Route 219 downstream from the dam abutments in the mid-1960s. These roads dictated the boundary lines of the Johnstown Flood National Memorial, authorized in 1964 and established in 1968. Park lands initially encompassed the dam abutments, a small portion of the adjacent lakebed, and a wooded hillside southwest of the south abutment. Although it was no longer possible to reclaim the entire lakebed, boundary increases in 1972, 1978, and 2004 allowed the park to acquire additional lakebed lands; the Lake View Farm; the clubhouse, double cottage, and two cottages in St. Michael; and other lands to screen incompatible development.

During its stewardship, the National Park Service has constructed a visitor center at the site of the old Unger barn; rehabilitated the Lake View House for park offices; developed picnic, maintenance, and parking facilities; and installed interpretive trails and waysides. The park cleared vegetation in the lakebed in the late 1980s through 2007, but trees have recently made a return and threaten to obscure the important views of the former lake's shoreline.

SIGNIFICANCE SUMMARY

Johnstown Flood National Memorial is significant at the national level under National Register Criterion A in the areas of Social History and Entertainment/Recreation for the remains of the South Fork Dam and portions of the former Lake Conemaugh bed associated with the South Fork Fishing and Hunting

Club and the Johnstown Flood of May 31, 1889. At the time of the breach, the dam was owned by the club, comprised of a group of prominent Pittsburgh business leaders who rebuilt the dam and lake for their exclusive summer resort. The millions of tons of water released in the dam's failure roared through the Little Conemaugh River valley and devastated the communities in its path. The final death toll reached 2,209, more recorded deaths than any other disaster in the country until the Galveston hurricane of 1900 and the greatest loss of life ever caused by a dam break in the United States. The massive amount of news coverage prompted a national disaster relief effort that included the greatest test to date of the effectiveness of the American Red Cross, which had been founded by Clara Barton in 1881, and helped to secure that organization's reputation for prompt emergency response.

The park is also significant at the local level under Criterion C in the area of Architecture for several historic buildings on the former grounds of the South Fork Fishing and Hunting Club. The eclectic styled clubhouse served as the center of the club's social life and featured lodging and dining facilities, a massive fireplace, and a covered porch overlooking the lake. The adjacent double cottage offered additional guestrooms and a two-story covered porch. The three-story Stick style Brown Cottage and the Queen Anne style Lippincott (Moorhead) Cottage feature asymmetrical roof lines and covered front porches.

The period of significance for the park begins with the organization of the South Fork Fishing and Hunting Club in 1879 and ends with the Johnstown Flood of May 31, 1889 and the immediate recovery activities. This time period encompasses the construction of all the resources associated with the club, including the repair of the South Fork Dam for recreational purposes.

ANALYSIS AND EVALUATION SUMMARY AND CONDITION

The physical integrity of Johnstown Flood National Memorial is evaluated by comparing landscape characteristics and features present during the period of significance – 1879 to 1889 – with the existing conditions as assessed in 2013-14. Many of the park's historic characteristics and features remain today. The landforms, hydrology, and topography that made this site ideal for the construction of the South Fork Dam and Western Reservoir in 1840-53 are still evident in the landscape. The remnant abutments and spillway reveal the dam's original design and construction while the breach in the dam and the ruins of the sluice culvert and valve control tower are reminders of poor decisions made during the dam's reconstruction. Upstream from the dam, the park-owned portions of the old lakebed are now a mix of grasslands, shrublands, and woodlands returning to forest. The hill near the south abutment remains forested and includes the trace of the club's carriage road, while the hill overlooking the north abutment is mostly open fields associated with Elias Unger's farm. The park has rehabilitated Unger's Lake View House and spring house, and designed the nearby visitor center to evoke the appearance of the old Unger barn. Views from the visitor center and Lake View House look down at the dam and spillway, and across the lakebed to the clubhouse and cottages that once bordered the lake's southwestern shoreline. Today, the park owns four former club buildings that still retain some of their Victorian-era designs, including the long covered front porches that overlooked the lake. Trails provide access to the top of the dam abutments and passage through the breach on the south side of the river, and a footbridge crosses the upper end of the spillway on the north abutment near where a historic

carriage road bridge once stood.

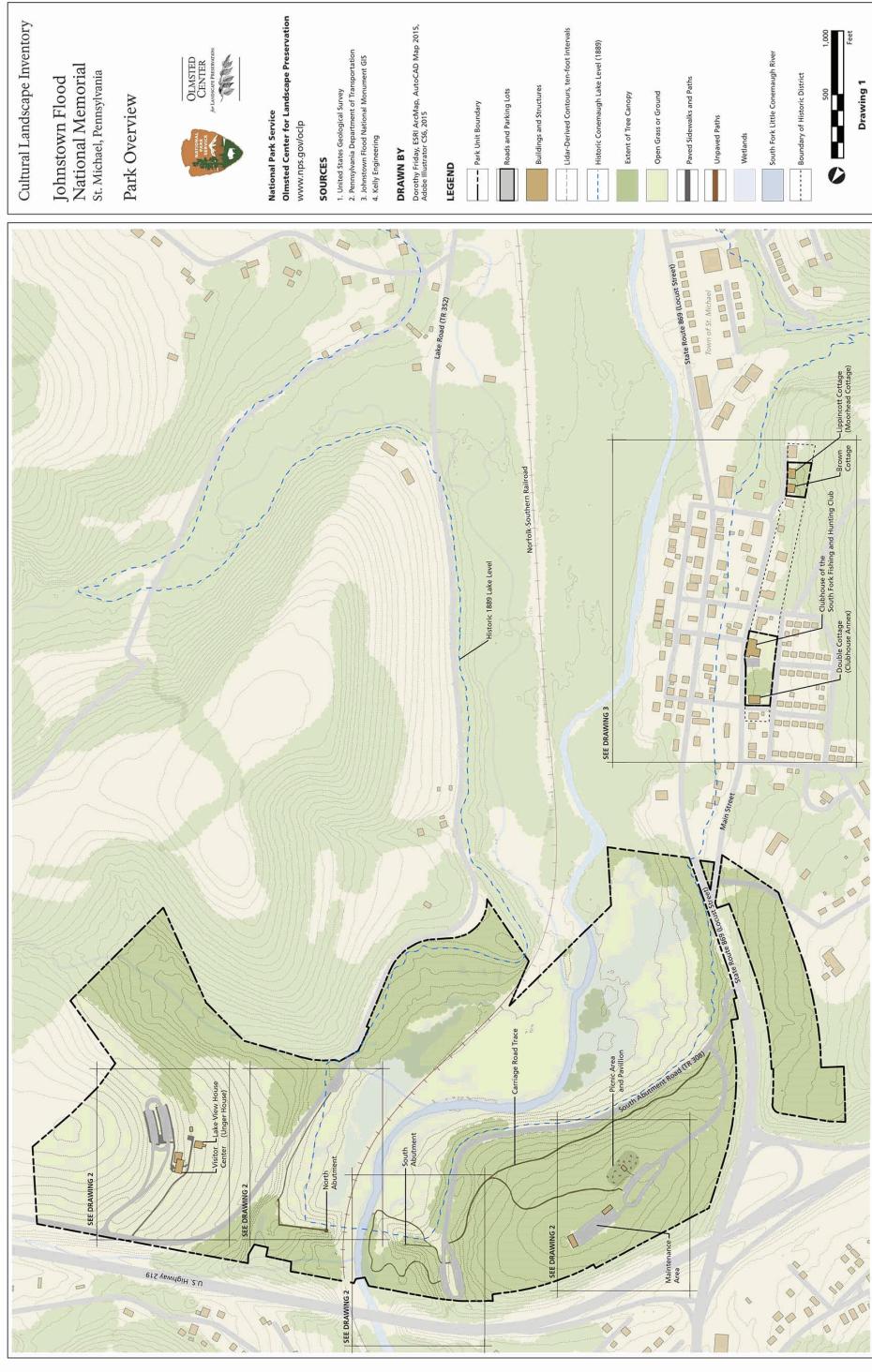
Landscape changes have inevitably occurred in the 127 years that have passed since the May 1889 Johnstown Flood. Within the park's boundaries, an active train line dating to the early 1890s still passes through the gap in the dam and travels along the bottom of the old lake. Its raised bed has long impacted the hydrology of the river and incoming tributaries, and now sustains several wetland areas. Trees that were cleared by the park from 1988 through 2007 have begun to return and threaten to obscure the outline of the lake, which is key to the park's interpretive program. Picnic, parking, and maintenance facilities were built beginning in the early 1970s, but they have been sited to minimize their impact on the park's historic characteristics and features. More significant changes have occurred just beyond park boundaries, including the establishment of St. Michael in the lakebed next to the club buildings and the construction of U.S. Route 219 just downstream from the dam.

Overall, the Johnstown Flood National Memorial landscape is in "fair" condition, primarily because of the reestablishment of trees in the lakebed since the late 1980s and early 1990s. The bed of Lake Conemaugh and the remnants of the South Fork Dam are a destination for visitors to witness and reflect on the cause of the devastating Johnstown Flood of May 31, 1889. The portion of the lake's former shoreline lying within the park boundary is a critical component of the park's interpretive program, but it has become increasingly obscured by vegetation. If left to continue, it will be increasingly difficult for visitors to visualize the size of Lake Conemaugh, understand the volume of water that poured through the dam's breach, and recognize the physical relationship between the dam, lake, and club buildings. The park is currently exploring vegetation management alternatives in the lakebed that balance cultural resource goals with natural resource regulations and practices. In addition, recent (2012-13) condition assessments evaluated the dam spillway as "good," dam abutments and carriage road trace as "fair," and the sluice culvert and valve control tower ruins as "poor."

Johnstown Flood NMem Landscape

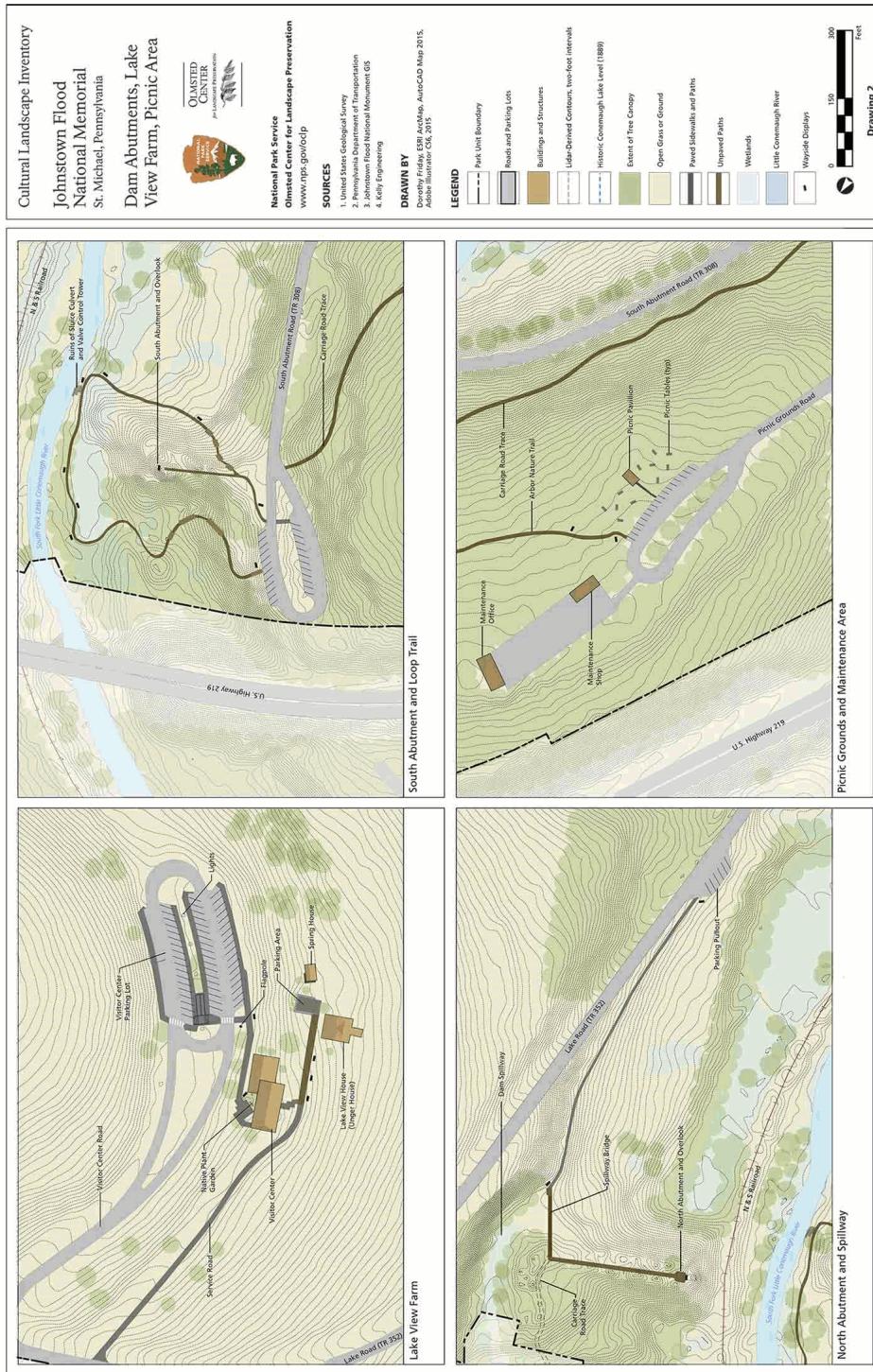
Johnstown Flood National Memorial

Site Plan



Johnstown Flood NMem Landscape

Johnstown Flood National Memorial



Johnstown Flood NMem Landscape

Johnstown Flood National Memorial



*Site plans for Johnstown Flood National Memorial. (Olmsted Center for Landscape
Preservation--hereafter OCLP--2016)*

Property Level and CLI Numbers

Inventory Unit Name: Johnstown Flood NMem Landscape
Property Level: Landscape
CLI Identification Number: 300144
Parent Landscape: 300144

Park Information

Park Name and Alpha Code: Johnstown Flood National Memorial -JOFL
Park Organization Code: 4150
Park Administrative Unit: Fort Necessity National Battlefield

CLI Hierarchy Description

Johnstown Flood National Memorial consists of one landscape, which is coterminous with the park boundaries.

Concurrence Status

Inventory Status: Complete

Completion Status Explanatory Narrative:

Field research for this CLI was undertaken in November 2014 by Jeff Killion, Historical Landscape Architect at the Olmsted Center for Landscape Preservation, and Dorothy Friday, Student Conservation Associate at the Olmsted Center. Text and site plans were finalized by Jeff Killion in May 2016. The park contact for this project was Nancy Smith, Cultural Resource Program Manager/Curator (office telephone, 814-886-6116; e-mail, nancy_smith@nps.gov).

Concurrence Status:

Park Superintendent Concurrence: Yes

Park Superintendent Date of Concurrence: 06/29/2016

National Register Concurrence: Eligible -- Keeper

Date of Concurrence Determination: 08/04/1986

National Register Concurrence Narrative:

This CLI was submitted to the Pennsylvania SHPO for review because it was thought that the park's 1986 National Register documentation was not officially listed in the National Register. The SHPO provided evidence on September 28, 2018 that the documentation had been listed on August 4, 1986. Therefore, for purposes of this CLI the documentation is considered adequate.

The SHPO concurred with the areas of significance and evaluation of resources. The SHPO also provided several editorial comments, namely revising the period of significance to begin in 1853, when the dam was completed. When the update to the National Register documentation is completed and approved, the start date of the period of significance will be revised if needed.

Concurrence Graphic Information:

Johnstown Flood NMem Landscape
Johnstown Flood National Memorial

CULTURAL LANDSCAPES INVENTORY
CONCURRENCE FORM

Johnstown Flood NM Landscape
Johnstown Flood National Memorial

Johnstown Flood National Memorial concurs with the findings of the Cultural Landscape Inventory (CLI) for the Johnstown Flood NM Landscape, including the following specific components:

MANAGEMENT CATEGORY: Must Be Preserved and Maintained

CONDITION ASSESSMENT: Fair

Good: indicates the inventory unit shows no clear evidence of major negative disturbance and deterioration by natural and/or human forces. The inventory unit's cultural and natural values are as well preserved as can be expected under the given environmental conditions. No immediate corrective action is required to maintain its current condition.

Fair: indicates the inventory unit shows clear evidence of minor disturbances and deterioration by natural and/or human forces, and some degree of corrective action is needed within 3-5 years to prevent further harm to its cultural and/or natural values. If left to continue without the appropriate corrective action, the cumulative effect of the deterioration of many of the character defining elements will cause the inventory unit to degrade to a poor condition.

Poor: indicates the inventory unit shows clear evidence of major disturbance and rapid deterioration by natural and/or human forces. Immediate corrective action is required to protect and preserve the remaining historical and natural values.

The Cultural Landscape Inventory for the Johnstown Flood NM Landscape is hereby approved and accepted.

Mark C. n _____

Superintendent, Johnstown Flood National Memorial Date *6/29/16*
JOFL

Park concurrence was received on June 29, 2016.

JOFL Johnstown Flood NMem Landscape CLI_Concurrences 2016

Geographic Information & Location Map

Inventory Unit Boundary Description:

The boundary for the CLI corresponds to the land within the authorized boundary of Johnstown Flood National Memorial and the National Register district boundary. The boundary encompasses 178 acres on six discontiguous parcels of land.

State and County:

State: PA

County: Cambria County

Size (Acres): 178.00

Boundary Coordinates:

Latitude:	40.3520580000
Longitude:	-78.7698280000
Latitude:	40.3513080000
Longitude:	-78.7687220000
Latitude:	40.3491750000
Longitude:	-78.7670790000
Latitude:	40.3470160000
Longitude:	-78.7670730000
Latitude:	40.3448070000
Longitude:	-78.7714040000
Latitude:	40.3431640000
Longitude:	-78.7718740000
Latitude:	40.3433980000
Longitude:	-78.7734590000
Latitude:	40.3417980000
Longitude:	-78.7738580000
Latitude:	40.3411620000
Longitude:	-78.7729150000
Latitude:	40.3403360000
Longitude:	-78.7743250000
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Longitude:	-78.7747600000
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Longitude:	-78.7728510000
Latitude:	40.3370050000
Longitude:	-78.7717840000
Latitude:	40.3350100000
Longitude:	-78.7702790000
Latitude:	40.3346040000

Longitude:	-78.7697970000
Latitude:	40.3343300000
Longitude:	-78.7701720000
Latitude:	40.3348070000
Longitude:	-78.7706020000
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Longitude:	-78.7722960000
Latitude:	40.3376300000
Longitude:	-78.7732350000
Latitude:	40.3396910000
Longitude:	-78.7762320000
Latitude:	40.3412370000
Longitude:	-78.7794790000
Latitude:	40.3409670000
Longitude:	-78.7798090000
Latitude:	40.3416260000
Longitude:	-78.7806340000
Latitude:	40.3422660000
Longitude:	-78.7795100000
Latitude:	40.3441730000
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Johnstown Flood NMem Landscape

Johnstown Flood National Memorial

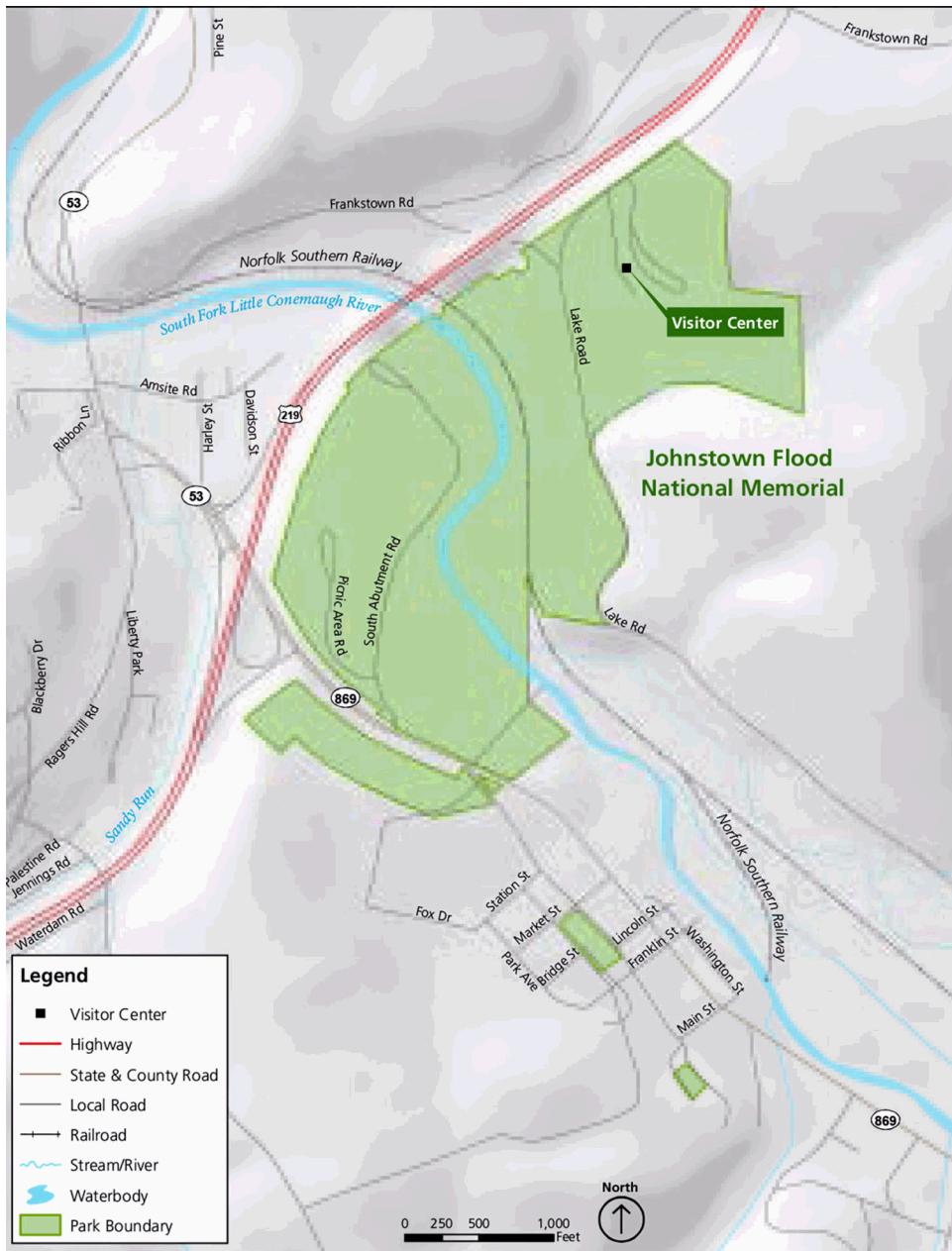
Location Map:



Map of Johnstown Flood National Memorial and its environs. Extents of the former lake are shown in blue. Dark blue arrows show the path of the flood. (National Park Service, Harper's Ferry Center, Johnstown Flood NMem Maps, website accessed 23 May 2016)

Johnstown Flood NMem Landscape

Johnstown Flood National Memorial



Enlargement of Johnstown Flood National Memorial. (From “Foundation Document Overview, Johnstown Flood National Memorial, Pennsylvania,” 2014: 4)

Regional Context:

Type of Context: Cultural

Description:

This region was historically forested, but portions of Cambria County are now in agriculture or have been developed. Urban and suburban expansion is occurring around the park, especially near the western and southern borders, while agriculture surrounds its northern and eastern borders. Mining activities began in the nineteenth century but declined in the mid-twentieth century, although active mining and re-mining are in process.

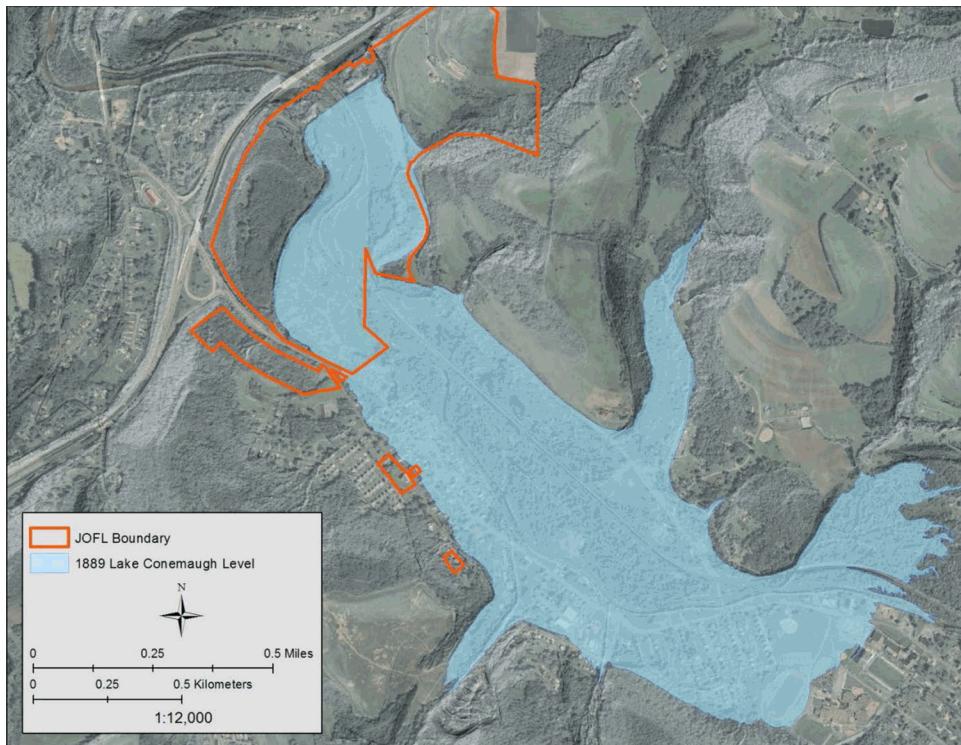
The county's forests have been harvested multiple times in the last two centuries, but the landscape has regrown in areas that have not been developed or farmed. The forests are typically dominated by northern hardwood species and may contain diverse wildflowers, herbaceous plants, and ferns in the understory.

Type of Context: Physiographic

Description:

The park is located in the Allegheny Mountains section of southwestern Pennsylvania. The region's topography is characterized by rolling hills and ridges comprised of resistant Paleozoic sandstone and valleys underlain by less resistant carbonates and shales. Geologic units are typically repetitious sequences of shale, coal, limestone, and sandstone with deep ravines characterizing much of the rugged topography. The large watersheds and narrow valleys make the area prone to flooding.

The South Fork Little Conemaugh River flows through the park and into the Little Conemaugh River near the town of South Fork, then joins with the Stonycreek River to form the Conemaugh River at Johnstown, then to the Kiskiminetas, Allegheny, and Ohio Rivers. The South Fork Dam was built primarily because of the topography of the area (i.e. a steep gorge along the South Fork Little Conemaugh River) and geographic location (i.e. near the Johnstown canal basin) (see Regional Landscape Context map). The historical use of the lake for recreation was also due in part to the surrounding landscape, which offered its residents beautiful scenery and quiet solitude away from industrial centers such as Pittsburgh.



Map of park boundaries (orange) and Lake Conemaugh at pre-flood level (blue) over a shaded relief and aerial background. (Pennsylvania DCNR, Bureau of Topographic and Geologic Survey. From Yetter et.al., "Natural Resource Condition Assessment," 2014: 20)

Type of Context: Political

Description:

Johnstown Flood National Memorial is located in southwestern Cambria County, which is situated in south-central Pennsylvania approximately 90 minutes east of Greater Pittsburgh and 2.5 hours west of Harrisburg. The county covers 688.35 square miles and has a population of 141,584 (2012 census). The county seat is Ebensburg, which is located in Cambria Township, but the county's largest metropolitan city is Johnstown located 10 miles to the southwest (population 20,577 in 2012). The core of the park straddles the Adams and Croyle townships and is bordered by U.S. Route 219 and State Route 869. Two non-contiguous park parcels are located a mile south in the village of St. Michael (population 973 in 2000), which lies within Adams Township and was partially built in the former Lake Conemaugh bed. The village is situated along State Route 869, the main north-south arterial through the county that also leads to the nearby villages of Creslo and Sidman, which were also partly built in the old lakebed. The park shares administrative and management resources with Allegheny Portage Railroad National Historic Site, which is headquartered in Gallitzin about 22 miles northeast from the site.

Tract Numbers:	Original Acreage 1964: 54.18 acres (55.0 authorized) 01-101, 1.54 purchase from Furlong 01-103, 14.72 donation of dam from Cambria County, former lands of Wilmer Coal Co. 01-107, 0.20 purchase from KranyC 01-108, 37.72 purchase from Berwind
	Boundary Increase 1972: 52.76 (53.6 authorized) 01-109, 2.30 donation from Adams Township Authority (road) 01-112, 0.17 purchase from Berwind 01-113, 1.24 scenic easement with C&MA Gospel Tabernacle Church 01-114, 10.28 purchase from Berwind 01-115, 16.37 donation from Adams-Croyle Township Authority 01-116, 8.47 donation from Adams-Croyle Township Authority 01-117, 9.17 donation from Adams-Croyle Township Authority 01-118, 1.34 donation from Adams-Croyle Township Authority 01-119, 1.22 Adams Township Authority (river) 01-120, 2.2 Croyle Township Authority (river)
	Boundary Increase 1978: 56.98 acres (67.00 authorized) 01-127, 21.25 donation from Adams-Croyle Township Authority 01-124, 30.4 purchase from Robert E. Furlong et al. 01-126, 2.13 Commonwealth of PA (public land, right-of-way) 01-129, 3.20 Norfolk-Southern (right-of-way)
	Boundary Increase 2004: 13.68 acres (14.00 authorized) 01-130, 11.38 purchase from Thomas P. Furlong 02-100, 1.65 purchase from 1889 South Fork FHC 02-101, 0.65 purchase from 1889 South Fork FHC
GIS File Name:	jofl.mxd

Management Information

General Management Information

Management Category: Must be Preserved and Maintained

Management Category Date: 06/29/2016

Management Category Explanatory Narrative:

The Johnstown Flood National Memorial meets the criteria for “Must be Preserved and Maintained” management category as defined in the “Cultural Landscapes Inventory Professional Procedures Guide” because of its designation as a national memorial in its enabling legislation on August 31, 1964.

NPS Legal Interest:

Type of Interest:	Fee Simple
Type of Interest:	Less than Fee Simple
Explanatory Narrative:	

Fee acres total 166.12 acres. Less than Fee acres total 1.24 acres

Public Access:

Type of Access:	Other Restrictions
Explanatory Narrative:	

U.S. Route 22 (east-west) and U.S. Route 219 (north-south) serve as the primary access routes to the region. Route 219 is the main highway connection between Johnstown and the Pennsylvania Turnpike. Sections of Route 219 and Route 22 have been improved as limited-access expressways. State Route 869 (Locust Street) extends south from Route 219 through the villages of St. Michael and Sidman.

Park grounds are open from sunrise to sunset, seven days a week all year. The visitor center is open from 9:00 am to 5:00 pm, seven days a week from mid-April to mid-November. During the winter, the visitor center is open from 9:00 am to 5:00 pm on Saturdays and Sundays only (as of 2016). The visitor center and other public facilities are closed on New Year's Day, Martin Luther King's Birthday (observed), President's Day (observed), Thanksgiving Day, and Christmas Day.

Adjacent Lands Information

Do Adjacent Lands Contribute? Yes

Adjacent Lands Description:

Adjacent lands are those lands outside the CLI boundary, including lands inside or outside the park, which contribute the significance of the park. To possess significance, a feature needs to have integrity, which is the ability to convey significance. There are large portions of the former lakebed beyond the park's boundaries, but most of this land has been developed for residential, commercial, transportation, and industrial uses and is unlikely to be reversed. These lands do not have integrity because they no longer convey their significance as a former lakebed. However, there are several extant cottages built for the South Fork Fishing and Hunting Club beyond park boundaries, which are part of the South Fork Fishing and Hunting Club Historic District.

National Register Information

Existing National Register Status

National Register Landscape Documentation:

Entered Documented

National Register Explanatory Narrative:

Johnstown Flood National Memorial (NMem) was authorized on August 31, 1964 and established on June 30, 1969, to commemorate the tragic Johnstown Flood of May 31, 1889. As a national memorial within the National Park System, the park was administratively listed on the National Register of Historic Places on October 15, 1966 with passage of the National Historic Preservation Act. Documentation of the park's current resources for the National Register began in 1986.

On July 31, 1986, documentation for the 5.6-acre South Fork Fishing and Hunting Club Historic District in the town of St. Michael was accepted by the Keeper of the National Register. According to the National Register nomination form, the district possessed local significance "for its collection of buildings that reflected the recreational pursuits of prominent Pittsburgh businessmen" and its concentration of Late Victorian architecture. The form identified significance in the areas of Architecture and Social/Humanitarian for the period 1800-1899. Specific dates were listed as 1879-1889, beginning with the establishment of the club and ending with the collapse of the South Fork dam. Specific contributing resources described in the form included the clubhouse and seven residences, all dating to the early 1880s. Noncontributing resources included two modern houses, a significantly altered house from the historic period, and a church dating to the 1930s.

Documentation for the 163.47-acre Johnstown Flood National Memorial district was sent to the Pennsylvania State Historic Preservation Office (SHPO) in February 1986. Significance was originally identified in the areas of Engineering, Social/Humanitarian, Transportation, and Other (Recreation). The form identified significance for the period 1800-1899. Specific dates were listed as 1838-1889, beginning when the Canal Commissioners identified the need to build the Western Reservoir (later Lake Conemaugh) and ending with the collapse of the dam. However, in a letter dated July 18, 1986 the SHPO recommended Engineering, Transportation, and Other (Disaster) as the areas of significance. Specific contributing resources described in the form included the South Fork Dam, Unger house, spring house, main barn and carriage shed, and fences. Noncontributing resources included the well house, silo, garage, visitor contact station, seven waysides, entrance road, picnic area road, two parking lots, picnic area development, maintenance building and paved/fenced enclosure, park office, well and pump house, restroom building, and split rail fences. The Keeper approved the documentation on August 4, 1986.

The National Park Service has engaged in several consultations with the Pennsylvania State Historic Preservation Office (SHPO) regarding park resources. On December 30, 1996, the SHPO concurred with the National Park Service that several buildings and structures at the park were noncontributing resources, including the visitor center, old State Route 869 culverts and retaining walls, and a pedestrian footbridge over the former spillway. On March 27, 2008, the SHPO concurred that a previously undocumented feature, the Carriage Road Trace, was a contributing resource for its association with the dam, the dam breach, and the resort. The SHPO also reconfirmed that the South Fork Dam,

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overflow sluice ruins, spillway, Unger house, and spring house foundation were contributing resources.

On October 5, 2004, a major boundary revision incorporated several resources of the South Fork Fishing and Hunting Club Historic District into the park, including the clubhouse and clubhouse annex (now double cottage) (Tract 02-100, 1.65 acres), and the Brown Cottage and Moorhead (now Lippincott) Cottage (Tract 02-101, 0.65 acres).

In 2015, an update to the National Register was initiated to document historic resources associated with the South Fork Dam (abutments, spillway, sluice culvert, valve control tower, a portion of the bed of the former Lake Conemaugh), incorporate resources in the boundary increase, and address extensive development since the park's 1986 documentation. The update proposed significance in the areas of Social History and Entertainment/Recreation for the period 1879-1889, beginning with the organization of the South Fork Fishing and Hunting Club and ending with the Johnstown Flood and the immediate recovery activities that followed. In a letter dated September 28, 2016, the Pennsylvania SHPO recommended revising the beginning date of period of significance to 1853, the date the dam was completed. The update is currently in draft form and will address the period of significance.

According to research conducted for this CLI and the categories of National Register documentation outlined in the "CLI Professional Procedures Guide," the areas of significance for Johnstown Flood National Memorial are adequately documented in the 1986 National Register forms and subsequent consultations with the Pennsylvania SHPO. The existing documentation adequately describes the site's historic resources that contribute to its significance. Therefore, for purposes of the CLI, the Johnstown Flood National Memorial is considered "Entered-Documented."

Existing NRIS Information:

Name in National Register:	Johnstown Flood National Memorial
NRIS Number:	66000656
Other Names:	South Fork Fishing and Hunting
Primary Certification Date:	07/31/1986

National Register Eligibility

National Register Concurrence:	Eligible -- Keeper
Contributing/Individual:	Individual
National Register Classification:	District
Significance Level:	National
Significance Criteria:	A - Associated with events significant to broad patterns of our history
Significance Criteria:	C - Embodies distinctive construction, work of master, or high artistic values

Period of Significance:

Time Period:	CE 1879 - 1889
Historic Context Theme:	Creating Social Institutions and Movements
Subtheme:	Social and Humanitarian Movements
Facet:	Emergency Aid And Health Care
Other Facet:	None
Time Period:	CE 1879 - 1889
Historic Context Theme:	Creating Social Institutions and Movements
Subtheme:	Ways of Life
Facet:	Industrial Towns
Other Facet:	None
Time Period:	CE 1879 - 1889
Historic Context Theme:	Creating Social Institutions and Movements
Subtheme:	Recreation
Facet:	General Recreation
Other Facet:	None
Time Period:	CE 1879 - 1889
Historic Context Theme:	Expressing Cultural Values
Subtheme:	Architecture
Facet:	Gothic Revival (1830-1915)
Other Facet:	None
Time Period:	CE 1879 - 1889
Historic Context Theme:	Expressing Cultural Values
Subtheme:	Architecture
Facet:	Queen Anne-Eastlake (1880-1900)
Other Facet:	None
Time Period:	CE 1879 - 1889
Historic Context Theme:	Developing the American Economy
Subtheme:	The Mining Frontier
Facet:	Mining (Coal, Salt Peter, Oil, etc)
Other Facet:	None

Time Period:	CE 1879 - 1889
Historic Context Theme:	Developing the American Economy
Subtheme:	Shipping and Transportation by Water
Facet:	Canals
Other Facet:	None
Time Period:	CE 1879 - 1889
Historic Context Theme:	Developing the American Economy
Subtheme:	Transportation by Land and Air
Facet:	Railroads and Railyards
Other Facet:	None
Time Period:	CE 1879 - 1889
Historic Context Theme:	Transforming the Environment
Subtheme:	The Industrial Revolution
Facet:	Degradation of Natural Environment
Other Facet:	None
Time Period:	CE 1879 - 1889
Historic Context Theme:	Transforming the Environment
Subtheme:	The Industrial Revolution
Facet:	Industrial Innovations
Other Facet:	None

Area of Significance:

Area of Significance Category:	Architecture
Area of Significance Subcategory:	None
Area of Significance Category:	Entertainment - Recreation
Area of Significance Subcategory:	None
Area of Significance Category:	Social History
Area of Significance Subcategory:	None

Statement of Significance:

Johnstown Flood National Memorial is nationally significant under National Register Criterion A in the areas of Social History and Entertainment/Recreation and locally significant under Criterion C in the area of Architecture. The period of significance for the park begins with the organization of the South Fork Fishing and Hunting Club in 1879 and ends with the Johnstown Flood of May 31, 1889 and the immediate recovery activities that followed. This time period encompasses the construction of all the resources associated with the club, including the repair of the South Fork Dam for recreational purposes. (National Register JFNMem, draft 2016, Sec.8: 22)

CRITERION A

Social History and Entertainment/Recreation:

As stated in the 2016 draft National Register documentation for Johnstown Flood National Memorial, the park is nationally significant under Criterion A in the areas of Social History and Entertainment/Recreation for its associations with the South Fork Fishing and Hunting Club and the Johnstown Flood of May 31, 1889, and its aftermath. Ranking among the worst disasters in American history in terms of lives lost, the flood was caused by the failure of the South Fork Dam, which impounded Lake Conemaugh, the recreational centerpiece of a resort developed in the 1880s by members of the exclusive club. The contributing resources within the park are directly associated with the history of the club, which was established in 1879 and included among its members some of the richest men in America. The massive amount of news coverage that tragedy received prompted a national disaster relief effort that included the greatest test to date of the effectiveness of the American Red Cross, which had been founded by Clara Barton in 1881, and helped to secure that organization's reputation for prompt emergency response. The media coverage also fueled class tensions that pitted the members of the club against flood victims who sought compensation for their losses. Although the club never accepted any legal responsibility for the disaster and none of the many civil suits brought

against its members were successful, the event ultimately contributed to a major shift in American tort law toward holding property owners liable for damages incurred as a result of their negligence.

(National Register JFNM, draft 2016, Sec.8: 22)

The park's historical significance is represented by the two remaining abutments of the South Fork dam, the ruins of the overflow sluice, the spillway, and the empty lakebed upstream from the dam. Other historic resources include the house and spring house built by Elias Unger, the club's president, overlooking the lake and dam, and a carriage road trace that traveled atop the dam to the South Fork Fishing and Hunting Club grounds, where the clubhouse, double cottage, Lippincott Cottage, and Brown Cottage still stand. Several wooded areas and open fields contribute to the historic setting, while the lakebed is once again beginning to revert to a mix of forest, shrubland, wetland, and grassland. Views of the dam and former lakebed continue to allow visitors an opportunity to understand the devastation that took place in May 1889.

CRITERION C

Architecture:

As stated in the 1986 draft National Register documentation for the South Fork Fishing and Hunting Club, the buildings associated with the former club are locally significant in the area of Architecture for its collection of buildings reflecting the recreational pursuits of prominent Pittsburgh businessmen. The four park-owned buildings – clubhouse, double cottage, Brown Cottage, and Lippincott (Moorhead) Cottage – were erected along the shoreline to maximize views of the lake. The 1881-86 two-to-three-story clubhouse featured 47 furnished bedrooms, a dining room with seating for 90, an office, billiard room, parlor, kitchen, bakery, and a long covered front porch overlooking the lake. The club's c.1887 two-story double cottage included covered porches and provided additional guestrooms and apartments for four families. In 1881-88, 16 private cottages (sources vary on the number) were constructed in a row northwest and southeast of the clubhouse and double cottage. Constructed in the Queen Anne, Stick/Eastlake, Gothic architectural styles characteristic of the 1880s, the houses were typically three-stories tall with high ceilings, long windows, and covered porches to maximize views of the lake. Although called "cottages," many of the houses were substantial in size, designed with upwards of seventeen rooms.

The National Register documentation noted that the Queen Anne architecture of the Lippincott (Moorhead) Cottage was the best example of its kind in Adams Township and neighboring Croyle and Summerhill Townships. "Its large mass, intricate detailing, and juxtaposition of porches, gables, and turret are far more sophisticated than the plan and rudimentary designs of the few other Queen Anne style houses located in these townships." (National Register SFFHC, 1986, Sec.8: 3)

Chronology & Physical History

Cultural Landscape Type and Use

Cultural Landscape Type:

Historic Site

Current and Historic Use/Function:

Primary Historic Function: Dam - Earthen

Primary Current Use: Interpretive Landscape

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Other Use/Function	Other Type of Use or Function
Single Family House	Historic
Lodge (Inn, Cabin)	Historic
Camp	Historic
Restaurant (Bar, Lounge)	Historic
Clubhouse (Social/Garden)	Historic
Public Works	Historic
Barn	Historic
Woodlot/Forest (Managed)	Historic
Livestock	Historic
Dam - Earthen	Historic
Water Storage Facility	Historic
Family Duplex	Both Current And Historic
Agricultural Field	Both Current And Historic
Forest	Both Current And Historic
View	Both Current And Historic
Automobile	Both Current And Historic
RR Trackage	Both Current And Historic
Leisure-Passive (Park)	Current
Wetland	Current
Meadow	Current
Overlook	Current
Auditorium	Current
Exhibit	Current
Picnic Shelter	Current
Campground/Picnic Area	Current
Interpretive Trail	Current
Trail Bridge	Current
Handicapped Trail	Current

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Current and Historic Names:

Name	Type of Name
South Fork Dam	Both Current And Historic
Western Reservoir	Historic
Lake Conemaugh	Historic
South Fork Dam Abutments	Current
South Fork Fishing and Hunting Club	Both Current And Historic
Johnstown Flood National Memorial	Current

Ethnographic Study Conducted: No Survey Conducted

Chronology:

Year	Event	Annotation
CE 1768	Settled	The region immediately south and east of the Allegheny River, including what is now Cambria County, is negotiated for English settlement as part of the 1768 Boundary Line Treaty concluded at Fort Stanwix, New York.
CE 1769	Settled	Charles Campbell takes out a warrant for 249 acres on the Little Conemaugh and Stonycreek (Stony Creek) rivers in what is now the City of Johnstown.
CE 1800	Platted	Joseph Johns (the city's namesake) begins laying out lots and streets on the Campbell tract.
CE 1826 - 1834	Built	The Commonwealth of Pennsylvania constructs the Main Line of Public Works, a portage railroad and canal system stretching across southern Pennsylvania between Philadelphia and Pittsburgh.
CE 1834	Platted	The Canal Commissioners direct engineer Sylvester Welch to survey potential sites for a reservoir that can supply supplemental water to the Main Line's canal in Johnstown. He selects a site on the South Fork of the Little Conemaugh River, east and upstream from Johnstown.
CE 1839	Designed	The Canal Commissioners name William E. Morris as the principal engineer of the project. Morris concurs with Welch's findings and develops design details for the dam and reservoir.

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CE 1840 - 1853	Built	After years of delays in funding, the state legislature appropriates money for land purchases and construction of the dam. After work begins, subsequent years of funding issues and other problems delay completion of the dam for thirteen years.
CE 1846	Altered	Morris changes the materials of the dam's valve control tower from masonry to timber.
CE 1847	Destroyed	The partially completed South Fork Dam breaks for the first time and causes a minor flood in Johnstown.
CE 1853	Built	The South Fork Dam and Western Reservoir are completed and ready for use.
CE 1857	Purchased/Sold	The Commonwealth of Pennsylvania sells the Main Line system to the Pennsylvania Railroad Company, including the dam and reservoir.
CE 1862	Destroyed	Compounded by years of neglect, the South Fork dam fails for the second time. The sluice culvert collapses and nearly 200 feet of the dam embankment washes out to a depth of 50 feet. Floodwater rises to 2-3 feet in Johnstown.
CE 1863 - 1879	Abandoned	The railroad does not repair the 1862 break and the dam and reservoir are abandoned after the railroad closes the canal in Johnstown in 1863. Vegetation gradually fills the empty reservoir during this period.
CE 1875	Purchased/Sold	The Pennsylvania Railroad Company sells the property, amounting to around 500 acres, to John Reilly.
CE 1878	Destroyed	Around 1878 the dam's abandoned valve control tower for controlling the sluice pipes is destroyed by fire. The five sluice pipes are sold for scrap.
CE 1879	Established	South Fork Fishing and Hunting Club is established by some of Pittsburgh's wealthiest citizens.
	Purchased/Sold	Reilly sells the property to the South Fork Fishing and Hunting Club of Pittsburgh for \$2,000 for development of a private resort and lake.

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CE 1879 - 1881	Reconstructed	The club reconstructs the South Fork Dam and Western Reservoir, which it renames Lake Conemaugh.
CE 1880 - 1881	Altered	The club decides not to replace the missing sluice pipes and instead fills in the sluice culvert, which causes concern amongst many people downstream and those familiar with the construction of dams. The club also lowers the center of the dam by two feet to create a wider space for two carriages to pass.
CE 1881	Built	The club builds two timber trestle bridges over the spillway as part of the carriage road between South Fork and the club grounds. The bridge at the upper end is fitted with wire screens to prevent the loss of fish during periods of high water.
	Built	The club constructs the 2.5-story clubhouse on the lake's southwestern shore, about one mile upstream from the dam.
CE 1882	Purchased/Sold	Elias Unger purchases a hillside farm on the lake's northeastern shoreline next to the dam from Joseph Leckey (Leahy). It comes to be known as the Lake View Farm.
CE 1883 - 1888	Built	Unger constructs a two-story house, called Lake View House. He also builds a spring house, barn, and other outbuildings on the hillside. The house includes a two-story covered porch on its southwest façade, overlooking the dam and lake.
CE 1886	Altered	The club enlarges the clubhouse with a 3-story addition.
CE 1887	Built	The club builds a two-story clubhouse annex, known as the double cottage, just northwest of the clubhouse.
CE 1888	Built	By 1888, there are 16 cottages (sources vary on the number) situated northwest and southeast of the clubhouse and double cottage, set out in a row facing the lake. The houses vary in architectural styles but are typically 3-stories and include covered front porches overlooking the lake.

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CE 1889	Built	A wooden boardwalk extends along the length of the club buildings, paralleling the shoreline, and connects to the clubhouse, cottages, boathouses, and docks.
	Destroyed	Heavy rains and inadequate reconstruction of the dam cause the South Fork Dam to fail for the third time on May 31, killing 2,209 people and destroying much of Johnstown and other towns along the Little Conemaugh River. The flood waters create a gap in the center of the dam measuring around 420 feet at the top and 50-200 feet wide at bottom.
CE 1891	Built	The South Fork Fishing and Hunting Club disbands and lands are eventually sold off, beginning in July 1891 when the South Fork Branch Railroad builds a rail line in the lakebed and through the dam breach.
CE 1896 - 1912	Purchased/Sold	Upon Elias Unger's death, the Lake View Farm property passes to his wife, and then a series of other owners until 1912.
CE 1903	Purchased/Sold	The remaining club properties, totaling 624 acres and 49 acres, are sold to George M. Harshberger.
CE 1904	Built	By this time, a second track is built through the dam break and lakebed, as well as a railyard. A road tracks along the southwestern shoreline (now South Abutment Road and Locust Street/State Route 869). Another road tracks along the northeastern shoreline (now Township Road 352/Lake Road), and passes through the old spillway.
CE 1907	Purchased/Sold	Harshberger sells both the 624-acre and 49-acre properties to George M. Wertz, who in turn has it surveyed and subdivided. Two of these new parcels include a 40.9-acre purchase by the Maryland Coal Company of Pennsylvania and a 30.9-acre purchase by John L. Sechler that also includes the clubhouse. The Maryland Coal Company purchases the former cottages as housing for company management. Most are altered and remodeled to varying degrees by their occupants, and a few are razed in the 1920s.
CE 1907 - 1908	Built	The Maryland Coal Company constructs Mine Shaft No.1 near Topper Run, a stream in the ravine around 1,500 feet south of the clubhouse and cottages.

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CE 1907	Platted	John Sechler lays out a plan of 208 building lots on his property for additional development in the former lakebed. Main Street follows the route of the former boardwalk that once fronted the club buildings. However, in subsequent years many of the small lots are combined.
CE 1907 - 1920	Altered	Sechler converts the former clubhouse into a hotel and tavern, but loses the business in 1920.
CE 1912 - 1949	Farmed/Harvested	The Holsopples operate their family farm at the former Lake View Farm. They grow and sell crops, and plant a vegetable garden and fruit trees.
	Altered	During their tenure the Holsopples modify the previous inventory of buildings and structures. Stairs on the southwest porch of the house are removed, the original northeast porch is replaced with a raised porch, and the building is painted white with black trim. The spring house is used to slaughter and store cured meat. The cupolas on the original barn and carriage/wagon/machine shed are replaced with dormers, and both structures are painted red with white trim.
	Built	The Holsopples add a wooden silo in the “heel” of the L-formed by the barn and the carriage shed, a well house south of the spring house, and a smokehouse and chicken coop uphill from the house. A pig pen and another chicken coop, both present when the Holsopples arrived, stand uphill from the barn. A picket fence surrounds the house.
CE 1920 - 1929	Built	The Maryland Coal Company builds duplexes in a new plat behind (west of) the row of cottages.
CE 1921	Altered	The Maryland Coal Company converts the Brown Cottage into a duplex.
CE 1921 - 1950	Altered	The clubhouse is operated as a hotel by the Cruikshank family until 1950. The double cottage is used as guest rooms, and its two-story front porch is removed after 1940.
CE 1930 - 1939	Removed	The Cruikshank family removes the 1881 two-story block of the clubhouse.

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	Altered	In the 1930s the Maryland Coal Company converts the Lippincott (Moorhead) Cottage into a duplex.
	Built	The road on the lake's southwestern shore is designated State Route 869 and improved with paving, culverts, and retaining walls.
CE 1933	Purchased/Sold	The holdings of the Maryland Coal Company are transferred to the Berwind-White Coal Mining Company. The company acquires the South Fork Dam, portions of the lakebed, and the hill southwest of the dam.
CE 1939 - 1958	Altered	Between 1939-58, the segment of State Route 869 encircling the hill southwest of the dam is abandoned and replaced with a new shorter segment. The abandoned section is retained and renamed Township Road 308.
CE 1950 - 1958	Altered	Albert and Lucy Clement, owners of the clubhouse, add two additions to the rear of the building.
CE 1950 - 1981	Purchased/Sold	The Holsopple family sell the 78.9-acre Lake View Farm property to Robert E. and Lois M. Furlong. The Furlongs continue farm operations through the 1950s and early 1960s, raising field crops and animals.
	Altered	The Furlongs paint the exterior of the house white with green trim, but remove the northeast porch in c.1957 for structural reasons. They use the spring house for cooling milk and the area above the spring house as a slaughtering site.
CE 1960 - 1969	Built	Furlongs build a new garage at the Lake View Farm to replace the deteriorated barn and shed.
CE 1950 - 2016	Altered	The double cottage is used as apartments beginning in 1950.
CE 1955	Purchased/Sold	The Maryland Coal Company sells the cottages, including the Brown and Lippincott (Moorhead) Cottages, to private owners.
CE 1958	Abandoned	Mining at Lake Conemaugh officially ended when Berwind-White closes the mine.

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CE 1962	Built	By 1962 there is a long one-story garage located behind the double cottage.
CE 1964 - 1969	Built	Limited access U.S. Highway 219 is built just downstream from the dam abutments. The highway severs Township Road 308, which is abandoned, while Township Road 352 is relocated from the spillway to a new route on the hillside above the spillway.
	Established	On August 31, 1964, Congress authorizes Johnstown Flood National Memorial and designates up to 55 acres of land for the park. The park is officially established on June 30, 1969 (Tracts 01-101, 103, 107, 108).
CE 1970 - 1979	Abandoned	In the 1970s, the Furlongs move out of the deteriorating Lake View House. The house's southwest porch is removed during this time, and the barn, carriage shed, and silo also are in ruins. The chicken coop structures and the smokehouse are removed.
CE 1972	Expanded	A boundary increase authorizes an addition of around 53.6 acres of land, which encompass a forested area straddling the river in the former lakebed between the railroad tracks and State Route 869, as well as a mostly open area south of State Route 869 (Tracts 01-109, 112, 113-scenic, 114, 115, 116, 117, 118).
CE 1972 - 1973	Built	The park improves abandoned Township Road 308 for use as its entrance road (now South Abutment Road), which ends as a parking lot at the south abutment. The park builds a new road (now Picnic Grounds Road), parking lot, and picnic area at the top of the hill southwest of the south abutment.
CE 1975 - 1979	Built	In the late 1970s, the park builds a hiking trail (now Arbor Nature Trail) between the picnic grounds and the south abutment, a small temporary visitor center on the south side of the parking lot, and a loop trail from the parking lot to the river and around the south abutment. There is also a temporary park office and toilet adjacent to the parking lot.
	Removed	The park clears trees within the lakebed to help define the former shoreline.

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CE 1978	Expanded	A second boundary increase authorizes an addition of around 67 acres of land, which include the Lake View Farm and a forested lakebed area between the railroad tracks and Township Road 352 (Tracts 01-124, 127, 129).
CE 1980 - 1985	Built	In the early 1980s the park builds a one-story shed and work yard for park maintenance operations, just north of the end of the Picnic Grounds Road.
CE 1981	Purchased/Sold	The park purchases the Lake View Farm from the Furlongs.
	Built	A permanent comfort station is built on the west side of the Picnic Grounds Road loop c.1981, replacing a portable toilet.
CE 1986	Established	The clubhouse and seven extant cottages associated with South Fork Fishing and Hunting Club in St. Michael are listed in the National Register of Historic Places.
CE 1988	Established	The 1889 South Fork Fishing and Hunting Club Historical Preservation Society is founded on December 27, 1988. The society acquires the clubhouse, double cottage, Brown Cottage and Lippincott (Moorhead) Cottages in the late 1980s and early 1990s.
CE 1988 - 1989	Built	The visitor center is built at the site of the former Unger barn and carriage shed, in time for the 100th Anniversary of the Johnstown Flood. New plantings are installed in the area. The temporary visitor center and park office at the south abutment are removed.
	Built	The park builds the Visitor Center Road and parking lot uphill from the visitor center. The farm lane is retained for use as the Service Road.
	Restored	The park restores the exterior of the Lake View House to its historic 1889 condition, including the covered two-story southwest porch with its center stair and the northeast porch (and an accessible ramp). The house is painted white with red trim.

Johnstown Flood NMem Landscape
Johnstown Flood National Memorial

	Rehabilitated	The park rehabilitates the collapsing foundation of the spring house and builds a new but smaller structure similar to the style of the original on top of the northwest end of its original foundation.
	Removed	The park removes the Furlong garage and the well house.
	Built	A pedestrian bridge is built across the upper end of the spillway. It connects to a new accessible path that leads to a new parking lot along Township Road 352. A boardwalk is installed on top of the north abutment to improve accessibility.
	Built	A woodchip trail with timber steps traverses the slope between the visitor center parking lot and spring house, and another woodchip trail heads south and west down the hill to Township Road 352. A trail is built along the downstream face of the north abutment. It is abandoned in the late 1990s.
CE 1988 - 1991	Removed	In 1988-91 the park clear cuts and burns approximately 50 acres of vegetation in the lakebed, and then seeds it to promote grassland development. The park also clears stands of timber in around the dam abutments.
CE 1991 - 1992	Restored	The 1889 South Fork Fishing and Hunting Club Historical Preservation Society reconstructs the clubhouse front porch.
CE 1992 - 1993	Rehabilitated	Interior spaces in the Lake View House are upgraded and readapted into park offices, a library, workrooms, and storage areas.
CE 1993	Built	By 1993, additional workspaces and temporary structures are present at the maintenance work yard.
	Removed	By 1993 the east half of the garage behind the double cottage has been removed.
	Built	An open-sided picnic pavilion is constructed at the picnic grounds by 1993.
CE 1996	Built	A two-story maintenance office/two-bay garage is built at the north end of the maintenance yard.

Johnstown Flood NMem Landscape
Johnstown Flood National Memorial

CE 2004	Expanded	A third boundary increase authorizes an addition of around 14 acres of land, which encompass the clubhouse, double cottage, Brown Cottage, and Lippincott (Moorhead) Cottage, as well as a tract southeast of the Lake View Farm (Tracts 01-130, 02-100, 02-101).
	Removed	By 2004 the remaining (west) half of the garage behind the double cottage has been removed. Some of the foundation is retained.
CE 2006	Established	The 1889 South Fork Fishing and Hunting Club Historical Preservation Society change their organizational name to The Friends of the Johnstown Flood National Memorial.
CE 2011	Altered	The maintenance shop is enlarged with a three-bay addition to the north.
CE 2013	Removed	The comfort station at the picnic grounds is removed and replaced with two portable toilets.
	Planned	The park's "Foundation Document" identifies fundamental resources and values.
CE 2015	Abandoned	The Friends of the Johnstown Flood National Memorial disbands.

Physical History:

The following section provides information on the physical development and evolution of the site, organized by time periods. The information is extracted from several secondary sources, including: "Historic Structure Report, Elias J. Unger House" by Harlan Unrau (1986); "Historic Structure Report, The South Fork Dam" by Harlan Unrau (1979); "Historic Structures Report, South Fork Fishing & Hunting Club: Clubhouse, Brown Cottage, Moorhead Cottage, and Clubhouse Annex" by LDA et.al. (1993); National Register documentation for Johnstown Flood National Memorial (draft 2016) and South Fork Fishing and Hunting Club Historic District (1986); the park's website; and a review of historic photographs, maps, and plans.

PRE-HISTORY TO 1834

The cultural and natural resources at Johnstown Flood National Memorial are largely a product of the geologic features and processes that formed this landscape. The park is located along the western edge of the Allegheny Mountains section of the vast Appalachian Plateaus physiographic province, which stretches from northern Alabama to southern New York. The topography of the province is characterized by deep valleys and ravines carved into nearly horizontal sedimentary layers of rock. Over time the layers of rocks, comprised of repetitious sequences of shale, coal, limestone, and sandstone, have eroded to create a rugged and jumbled topographic surface, although the northern parts of the province in Pennsylvania and New York display more rounded hills with gentler slopes. In time the prominent valleys and streams were named, including the Little Conemaugh River. The South Fork Little Conemaugh River flows through the park and was the namesake of the dam and lake that became infamous in May 1889. (Yetter et.al. 2014: 16; Thornberry-Ehrlich 2008: 4,6)

Settlement in the Valley:

European settlement of southwestern Pennsylvania occurred fairly late when compared to eastern portions of the state. Rugged terrain and contentious relations with the resident Native American groups were major deterrents to permanent settlement of the area until the second half of the eighteenth century. The region immediately south and east of the Allegheny River, including what is now Cambria County, was negotiated for English settlement as part of the 1768 Boundary Line Treaty concluded at Fort Stanwix, New York. The treaty was made between the British government, represented by members of the illustrious Penn family, and the Six Nations Confederacy consisting of representatives from the Mohawk, Oneida, Cayuga, Seneca, Onondaga, and Tuscarora nations. Less than five months later, in April 1769, Charles Campbell took out a warrant for 249 acres on the Little Conemaugh and Stoneycreek (Stony Creek) rivers in what is now the City of Johnstown. In 1794 Joseph Johns (the city's namesake) purchased the Campbell warrant (although it had changed hands several times since he owned it) and in 1800 began laying out lots and streets. Cambria County was created as a separate entity in 1804. (National Register JFNM, draft 2016, Sec.8: 75)

The area's natural resources were abundant. Steep headwater streams were large enough to support gristmills, hillsides contained quality timber, and low-lying areas were suitable for cultivation. Slowly, small clearings emerged along the stream valleys and more settlers began to arrive. However, it was the discovery of underground mineral wealth that accelerated

settlement in the area. As early as the 1760s, the region's soft, free-burning bituminous coal was readily available for use in village forges and blacksmith shops. At this time small coal mines served as local suppliers for home heating and cooking, but as coal replaced charcoal in the iron making process, the coal mining in Cambria County began to increase. Johnstown and other small villages along the Little Conemaugh grew quickly, especially after 1834 when the rail lines and canals of the Main Line of Public Works began transporting coal over the Allegheny Mountains. (Yetter et.al. 2014: 6-7) (Yetter et.al. 2014: 6, citing McLaurin 1890: np)

CONSTRUCTION OF THE DAM AND RESERVOIR ON THE SOUTH FORK, 1834-1853

In the nineteenth century, the City of Philadelphia became a major east coast industrial center and railroad hub that grew from an influx of European immigrants. In 1826, at the urging of Philadelphia businessmen, the Commonwealth of Pennsylvania constructed the Main Line of Public Works, a railroad and canal system stretching across southern Pennsylvania between Philadelphia and Pittsburgh to provide access to the rich timber, mining, agricultural, and manufacturing resources of the central and western portions of the state. The five principal sections of the system, from east to west, included the Columbia and Philadelphia Railroad (Philadelphia to the Susquehanna River at Columbia, 81.6 miles), Eastern Division (canal from Columbia to Clarks Ferry along the Susquehanna River, 44.5 miles), Juniata Division (canal from Clarks Ferry to Hollidaysburg along the Juniata River, 127.5 miles), Allegheny Portage Railroad (Hollidaysburg to Johnstown, 36.69 miles), and the Western Division (canal from Johnstown to Pittsburgh, 104.25 miles) (Figure 1). The 394-mile long Main Line was completed in 1834. (Unrau 1979: 2)

As soon as the Main Line's Western Division was put into operation, it became clear that the local streams would be unable to provide a sufficient water supply to the canal during the area's typically dry summer months. The canal section between Johnstown to Blairsville was particularly susceptible to low water, and prompted the Commissioners of the Canal to build a water storage reservoir east of Johnstown. During the summer and fall of 1834, the Canal Commissioners tasked Sylvester Welch, the engineer of the Juniata and Western Divisions, to conduct preliminary surveys for a reservoir. In November Welch reported that the most favorable site for a dam and reservoir would be around 14 miles upstream from Johnstown on the south fork of the Little Conemaugh River, commencing about two miles upstream from its confluence with the north fork, and extending "up the stream about two and a fourth miles." (Unrau 1979: 3-4, citing Welch 1834: 5458)

At this time the proposed site was, with the exception of a small field, covered with timber. According to Welch, "the adjacent country for some miles in extent, is principally a forest, and the land is of comparatively little value." Welch located the dam where the distance across the river valley was less than any other point above or below it, and calculated that a dam here would be 840 feet long and would create an impoundment of 485 million cubic feet of water covering a surface area of 417 acres. He also prepared a section drawing of the dam, which included a sluice at the bottom to release water into the river and a spillway at one end to discharge surplus water created by storm events and snow melts. Welch estimated the total cost for clearing the site and building the dam at \$125,705, and calculated that even after evaporation during the dry season, the reservoir would supply the canal with 458 million cubic

feet of water, “for a period of nearly 130 days without any augmentation from rain.” (Unrau 1979: 3-4, citing Welch 1834: 5458)

In April 1835 the state legislature appropriated \$100,000 for various public works, including “the commencement of a reservoir near Johnstown.” Welch refined his site surveys, increasing the reservoir’s capacity to 524 million cubic feet of water over an area of 465 acres. He also developed additional design details for the dam, constructing it with an embankment and wall of masonry, securing five cast iron sluice pipes in a masonry culvert, and directing spillway water into a creek that emptied into the river just downstream from the dam. The dam and reservoir were reestimated to cost \$113, 330, but the state shifted the entirety of the appropriation to other public works, thus stalling the project. The summer seasons of 1835-37 were not abnormally dry enough to severely hinder canal operations, but low water conditions in the summer of 1838 prompted the Canal Commissioners to restate the need for the Western Reservoir. In July 1839, the state legislature appropriated \$79,000 for construction of the dam and the purchase of land for the reservoir. (Unrau 1979: 6-9, citing Welch 1834: 5458)

In July 1839 the Canal Commissioners named William E. Morris as the principal engineer of the project. Morris conducted additional surveys and calculations that confirmed Welch’s earlier recommendations to build the dam and reservoir on the South Fork Little Conemaugh River, stating that the site, “...is the only one that drains a sufficient extent of country, to render certain a supply of water for the reservoir.” He also concurred with Welch’s stone and earth embankment design for the dam, but revised the reservoir’s capacity to 448 million cubic feet of water over an area of 400 acres, and increased the project’s cost estimate to \$188,000. His plan – along with detailed specifications for tree clearing, dam foundation work, and dam and sluice construction – was accepted by the Canal Commissioners. The plan included a drawing of a masonry valve control tower located in the water on the dam’s upstream side, which housed the mechanisms that opened and closed the five pipes in the sluice culvert (Figure 2). (Unrau 1979: 10-25, citing Morris 1839: 158-164)

With state money in hand, the South Fork Dam and Western Reservoir project was hurriedly put out to bid, and in January 1840 a contract was formally awarded to General James K. Moorhead of Pittsburgh and Judge Hezekiah B. Packer of Williamsport. Moorhead was known as a reputable builder of dams throughout Pennsylvania and Parker was the brother of a future governor of the Commonwealth. Work began in April 1840, and by November enough progress had been made that engineer Morris predicted the reservoir would be ready the following summer if another appropriation of money could be secured. In May 1840 another contract was let for the construction of a brick and stone house and a stable at the reservoir site. The house and stable were intended for the construction supervisor and later for the person charged with the maintenance and operation of the dam and reservoir. A later historic photograph suggests the building may have been located near the south abutment. (Unrau 1979: 28-33)

Deteriorating finances of the Commonwealth of Pennsylvania and the resulting suspension of numerous public works projects hindered work on the dam and reservoir during 1841. In early April 1841 the state legislature passed an act appropriating \$50,000 for all completed work at

the site through the end of the month, but thereafter contractors had to continue their work using their own funds. Despite the sporadic work schedule that followed, a considerable portion of the embankment was completed by the end of 1841, along with installation of some of the sluice pipes. In January 1842 the Canal Commissioners requested a special appropriation from the state to complete the project, citing a loss of state revenue caused by the temporary closure of the canal during the previous dry season. (Unrau 1979: 33-36)

Despite annual pleas from the Canal Commissioners, it was not until the state's economy began to improve in the mid-1840s that funding was restored. In January 1846 the state appropriated \$20,000 for the project, at which time Morris changed the materials for the dam's valve control tower from masonry to wood (Figure 3). The Canal Commissioners received new bids in March to complete the dam and finish clearing the reservoir, including bids from Moorhead and Packer, who argued their January 1840 contract had not been abandoned or rescinded because the work had merely ceased when the appropriation was depleted. However, before the Canal Commissioners could render a decision, a flood in the spring of 1846 caused extensive damage to the Main Line and the state appropriation was redirected toward emergency repairs. In 1847 the partially completed South Fork Dam, which was described as "annually wasting away," broke and caused a minor flood in Johnstown. Work at the dam and reservoir was also halted in 1848 and 1849 by a cholera epidemic that swept through southwestern Pennsylvania. During this period of inactivity, the Canal Commissioners continued to urge the state legislature for money to resume the work. (Unrau 1979: 37-40, citing Storey 1907: 314)

Completion of the South Fork Dam and Western Reservoir finally occurred in the early 1850s. In 1850 the state legislature, at the urging of Governor William F. Johnston, passed a new appropriation of \$45,000 for the completion of the project. Moorhead and Packer again demanded that they be allowed to finish the work under their January 1840 contract. When they threatened to take their case to the state Supreme Court, the Canal Commissioners permitted them to proceed under their original contract, but the delay caused by the controversy resulted in the appropriation reverting to the state's general fund. A new appropriation was passed in April 1851 and construction on the dam and reservoir resumed around May 1. (Unrau 1979: 42-43)

The sum of \$55,000 was still needed to complete the work, and the urging of the Canal Commissioners the state legislature provided the additional money in May 1852, allowing the work to continue apace under Moorhead and Packer. Work on the valve control tower had advanced to a point that on June 10 the sluice pipes were closed to prepare for the dry summer season. By the end of August water in the reservoir had accumulated to a depth of 40 feet above the sluice culvert, enough to provide an ample supply for fully-loaded boats to pass the Western Division of the canal throughout the summer. In the spring of 1853, the contractors completed the work on the dam and reservoir at a cost of \$166,647.50. Since the embankment of the dam was new, it was considered unsafe to fill the reservoir to a height greater than 50 feet above the sluice culvert for the 1853 season. That summer was unusually dry and the reservoir was exhausted before fall. (Unrau 1979: 45-46)

Johnstown Flood NMem Landscape

Johnstown Flood National Memorial

When completed in 1853, the South Fork Dam and Western Reservoir project was hailed as an engineering masterpiece. According to some sources, the dam was considered to be the largest earthen work of its kind in the world and the reservoir was said to be the largest artificial reservoir in the United States. The dam's final "as-built" footprint measured 931 feet in length, 500 feet in width at the bottom and 10 feet at the top, and 72 feet in height. The top of the dam rose ten feet higher than the maximum water level in the reservoir (62 feet). Although limited to a 50-foot depth at the dam, the reservoir still covered an area of 424.85 acres in 1853. (Unrau 1979: 46-48)

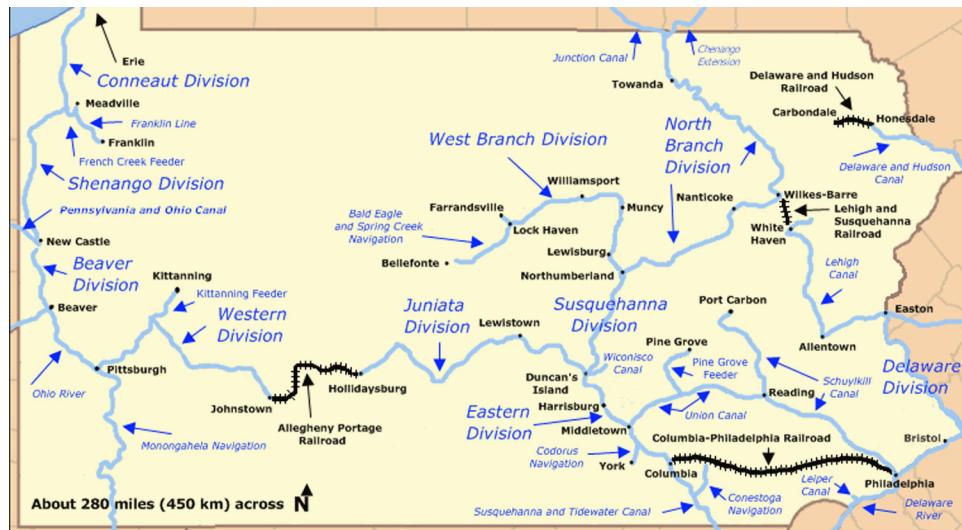
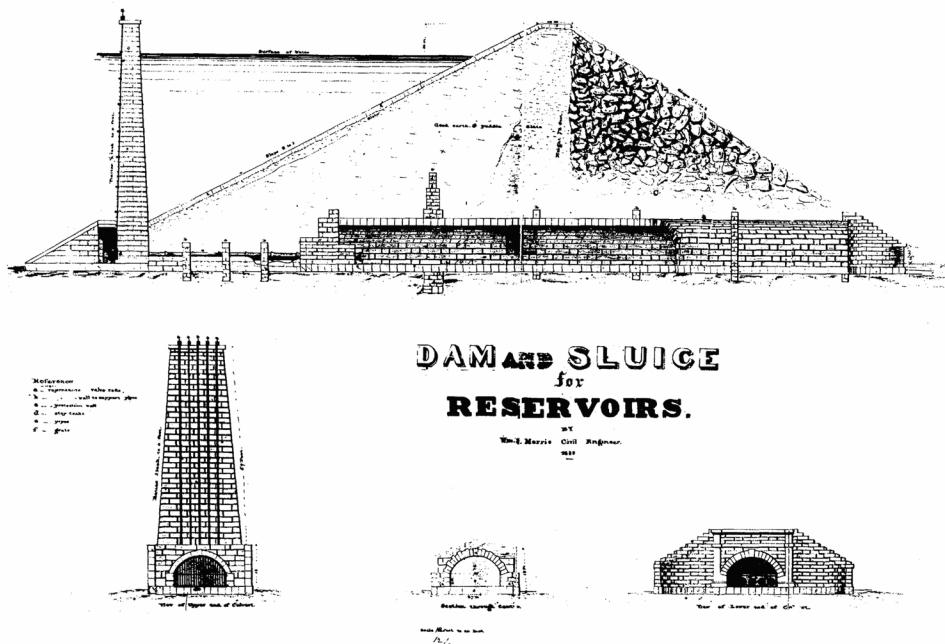


Figure 1. Map showing the Main Line of Public Works, Pittsburgh to Philadelphia, and Johnstown. (Map by Ruhrfisch Finetooth, U.S. Census, 2009. From Wikipedia, "Main Line of Public Works," website accessed 7 April 2016)



*Figure 2. Plan for the dam, sluice culvert, and masonry valve control tower, 1839.
(“Dam and Sluice for Reservoirs by Wm. E. Morris, C.E., 1839, (Original Plan No. 1) for Western Reservoir.” From Unrau 1979: 26)*

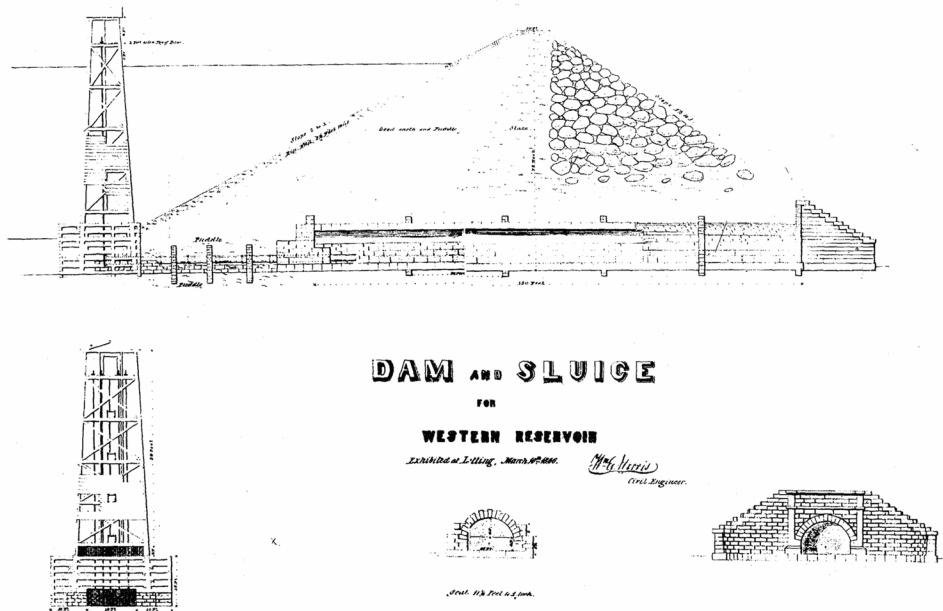


Figure 3. Plan for the dam, sluice culvert, and wooden valve control tower, 1846. ("Dam and Sluice for Western Reservoir, Exhibited at Letting March 10th, 1846, Wm. E. Morris, Civil Engineer." From Unrau 1979: 39)

USE AND ABANDONMENT OF THE DAM AND RESERVOIR, 1853-1879

The South Fork Dam and Western Reservoir was an immediate success in supplying water for the Western Division canal. The Canal Commissioners regularly performed general maintenance operations on the dam, and an inspection in 1856 found it to be in excellent condition. There were, however, periodic scares concerning dam breaks, such as the spring of 1856 when the winter's heavy snowfall melted quickly. The reservoir overflowed through the spillway and a leak in the dam added to the general alarm, but the water soon receded and the leak was repaired. However, the incident led to arrangement whereby the East Conemaugh telegraph office agreed to forward immediate word to Johnstown if the dam broke. (Unrau 1979: 50-51)

At the same time, events were in motion that would soon render the original purpose of the dam and reservoir obsolete. In 1852, the Pennsylvania Railroad Company completed a line from Pittsburgh to Philadelphia, which included the use of two sections of the Main Line: the Columbia-Philadelphia Railroad and the Allegheny Portage Railroad. By February 1854 the railroad built their famous horseshoe curve near Altoona, which eliminated the cumbersome use of the portage over the Allegheny Mountains. Seeing no way to compete with the speed and efficiency of the railroad, the Commonwealth of Pennsylvania attempted to sell the entirety of Main Line in April 1854. No buyers were found until July 1857 when the Pennsylvania Railroad Company purchased the system, including the dam and reservoir, for \$7,500,000. (Unrau 1979: 50-51)

Under the railroad ownership, the old canal sections of the Main Line gradually fell into disuse and its infrastructure, including the South Fork Dam and Western Reservoir, were generally neglected. However, as the reservoir was still supplying water to the canal, the railroad employed a watchman to protect the dam's machinery. In mid-July 1862 the dam and reservoir were observed to be in dangerous condition, including a leak in the sluice culvert outlet and a fallen portion its headwall arch. After a heavy rain on July 26, the culvert collapsed and nearly 200 feet of the dam embankment washed out to a depth of 50 feet. Fortunately, the reservoir was only partially filled because of the dry summer season, and Little Conemaugh River rose by only three feet. Greater catastrophe was also avoided because the watchman had opened the sluice pipes to help relieve the pressure. (Unrau 1979: 53-54)

The railroad did not repair the break in the dam since there were plans to close the Western Division canal between Johnstown and Blairsville, which occurred in May 1863. After this point, the reservoir and dam were left in a state of abandonment. Locals fished in the pools, some around eight feet deep, that remained against the remains of the dam. Neighboring farmers cultivated fields and grazed livestock in the grasses that quickly filled the dried-up southeastern end of the reservoir. According to one writer, the site "simply moldered away up in the hills, visited only by hunters, fishers, and nature-lovers." (Unrau 1979: 55-58, citing O'Connor 1957: 33)

Having little need for the dam and reservoir, the Pennsylvania Railroad Company sold the property, amounting to approximately 500 acres, to former employee and Congressman John Reilly of Altoona in March 1875 for \$2,500. Around 1878 the wooden valve control tower for controlling the sluice pipes caught fire and burned to the ground. Reilly sold the five unused sluice pipes for scrap, but otherwise did nothing with the property and in 1879 sold it to the South Fork Fishing and Hunting Club of Pittsburgh for \$2,000. (Unrau 1979: 58-59,63; Unrau 1986: 19-20; Degan 2013: 14)

SOUTH FORK FISHING & HUNTING CLUB AND LAKE CONEMAUGH, 1879-1889

The formation of the South Fork Fishing and Hunting Club was an outgrowth of efforts by Pittsburgh's leading businessmen to find summer recreation outside of the city. Throughout the 1870s, working class tastes dominated the city's art, music, theater, sports, and other leisure activities, which the wealthy were disinclined to participate. Instead, many left the city for their recreational pursuits, heading to summer resorts at mineral springs in the Allegheny Mountains. However, these resorts were public facilities visited by the wealthy from around the country, and some of Pittsburgh's elite sought out a more exclusive and private setting, as well as a place that offered other types of recreation that the mineral springs did not offer, like boating and fishing. (National Register SFFHC 1986, Sec.8: 1)

In 1879, some of Pittsburgh's most famous men established an exclusive mountain resort near Johnstown, where they aimed to rebuild the South Fork Dam and create a secluded lake. The South Fork Fishing and Hunting Club was organized on March 19 and chartered on November 17, and membership was limited to 100 members and their families. Members bought shares in the non-profit corporation at \$100 apiece, and each family had to pay an \$800 membership fee.

The principal shareholders were Benjamin F. Ruff, a former railroad tunnel contractor and now a coke salesman and real estate broker, and Henry Clay Frick, a millionaire coke industrialist. Ruff served as the club's first president and its main promoter. (Unrau 1979: 63-64; National Register SFFHC 1986, Sec.8: 2)

Upon taking ownership of the 500-acre property in March 1880, the club began reconstruction of the South Fork Dam and Western Reservoir, which it renamed Lake Conemaugh. Ruff, who had no experience in waterworks or dam construction, originally planned to rebuild the dam to a height of about 40 feet and excavate the spillway down another 20 feet to handle the overflow. However, when he found that this would cost considerably more than repairing the old break of July 1862 and restoring the dam to somewhere near its original height, he chose the latter course. Ruff hired Edward Pearson of Pittsburgh as foreman and superintendent of the work, who like Ruff had no engineering training or experience. (Unrau 1979: 65; Unrau 1986: 20)

As the reconstruction project progressed, numerous aspects of the work were criticized. P.F. Brendlinger, a member of the American Society of Civil Engineers, visited the dam in 1880 and was critical of the quality of the repairs and methods of placing rock and earth in the 1862 breach. Daniel J. Morrell, general manager of the Cambria Iron Company in Johnstown, was concerned enough with the quality of the repairs to send John Fulton, a trained geologist and engineer, to inspect the work. Experienced in mining, canal, and railroad works, Fulton echoed Brendlinger's concerns and raised his own, namely the club's decision not to replace the sluice pipes and instead fill in what was left of the sluice culvert. Fulton protested that lowering the lake level to fix leaks would be impossible without the reinstallation of the sluice pipes, but Ruff responded that the leaks were caused by the failure of the arched culvert and that making the dam solid throughout would eliminate the problem. Now even more concerned about the repairs and the "perpetual menace to the lives and the property of those residing in the upper valley of the Conemaugh," Morrell offered to assist Ruff in funding a major overhaul of the dam and installation of a discharge system. The club rejected the offer, despite continued leaks in the dam. (Unrau 1979: 65-71, citing Letter, Morrell to Ruff, 22 December 1880)

Other work at the dam included widening the wagon road along the top of the dam so that two carriages could pass each other. To achieve the necessary width, the crest at the center portion of the dam was lowered by two feet, thus increasing the width of the road in this area from around 10 feet to 20 feet. However, lowering the center of the dam from 72 feet to 70 feet meant that there was only an eight-foot difference between the top of the dam and the maximum water level in the reservoir (62 feet). As part of the carriage road system, the club also constructed two timber trestle bridges across the spillway (Figure 4). To prevent fish from escaping the lake during high water events, wire screens were attached between the support posts of the bridge at the upper end of the spillway, while a V-shaped log boom was installed in front of the spillway and into the lake to prevent debris from blocking the screens. However, in periods of water flow through the spillway, these additions had the potential to impair the flow capacity of the spillway. (Unrau 1979: 74)

Heavy rains and local stream flooding in June 1881 caused "a great deal of uneasiness" among

Johnstown residents. Rumors that the dam was breaking on the morning of June 10 prompted the Cambria Iron Company to send two of its engineers to inspect the dam. They reported that the water in the lake was two feet from the top of the dam and the spillway was carrying off excess water, but there no leaks. Around the same time Robert Pitcairn, the division head of the Pennsylvania Railroad between Altoona and Pittsburgh and a member of the South Fork Fishing and Hunting Club, took several of his engineers to inspect the dam. His primary concern was that the leaks in the bottom of the dam would increase. Ruff accompanied the men and claimed that the rumored leaks were actually springs that came from near the ends of the dam. When Ruff promised to take remedial action, Pitcairn was satisfied although he asked his men to keep a periodic eye on the dam. (Unrau 1979: 78-79)

Ruff and Pearson completed the dam project in 1881 at a cost of around \$17,000, at which time they stocked the lake with 1,000 black bass from Lake Erie. The lake covered 500 acres, more than it had when built as a reservoir for the Main Line. The lake was between 60-65 feet deep at the dam, stretching three miles in length and a mile wide in some areas (see Regional Landscape Context graphic). A historic photograph from the 1880s shows young trees scattered on the downstream faces of the 1853 ends of the dam, but no vegetation on the 1881 rebuilt center face of the dam (Figure 5). (Unrau 1979: 76; Degen 2013: 16)

Development of Club Facilities:

While the reconstruction work on the dam was underway, the South Fork Fishing and Hunting Club began development of its resort facilities, comprised of a clubhouse and cottages. Each club member was permitted two weeks' accommodation for his family at the clubhouse, or could build their own residence on leased lots for more privacy and year round stays. To provide ample space for the clubhouse and cottages, the club amended its charter to allow for an increase in membership, which financed the purchase of around 70 additional acres of land over the next seven years. By 1889 the club's membership numbered 68 and included some of the country's wealthiest and most prominent financers of the time, such as Andrew Carnegie and Andrew Mellon. (Unrau 1979: 76-77; Degen 2013: 17)

Most club members travelled from Pittsburgh on the Pennsylvania Railroad Company line to the station at South Fork, and then travelled two miles by carriage on a new road to the dam. The road crossed the spillway on the wooden bridge near the point where the lower end of the spillway met the creek, and then climbed along the west side of the spillway to top of the dam, where it divided. The left-hand fork of the carriage road crossed the upper end of the spillway on a timber trestle bridge and followed the northeastern shoreline for an unknown distance. The right-hand fork of the road crossed directly over the dam, turned southwest and tracked along a wooded hillside, and continued south to the main club grounds on the southwestern shore of the lake, about one mile upstream from the dam. (Unrau 1979: 76, citing McCullough 1968: 40-41)

At the core of the South Fork Fishing and Hunting Club complex was the clubhouse. Originally a two-and-a-half-story building completed in 1881, the clubhouse was expanded with a larger three-story frame addition to the northwest in 1886. In 1889 the clubhouse featured 47 furnished bedrooms, a dining room with seating for 90, an office, billiard room, parlor, kitchen,

bakery, and a long covered front porch overlooking the lake (Figure 6). In c.1887 the club constructed a two-story double cottage northwest of the clubhouse. The frame building included covered porches and provided additional guestrooms and apartments for four families. There also may have been an outhouse and icehouse between or behind these buildings, but their exact locations have not yet been determined. (National Register JFNM, draft 2016, Sec.8: 77; Review comment, Koozer, 29 June 2016)

By 1888, 16 cottages (sources vary on the number) were situated northwest and southeast of the clubhouse and double cottage, set out in an orderly line facing the lake and only a short distance from the water (Figures 7 and 8). The frame cottages were constructed in the Queen Anne, Stick/Eastlake, Gothic architectural styles characteristic of the 1880s, and were typically three-stories tall with high ceilings, long windows, and covered porches to maximize views of the lake. The houses did not have kitchens because club members typically dined together in the clubhouse, but most presumably included privies; archeological investigations reveal at least two cottages had privies in the back yards. It is also likely that barns and stables were present behind these buildings for the horses and carriages that transported club members from the South Fork train station to the club grounds. In April 1889, the club began installation of a cast iron sewer line from the club buildings to the dam, running along the southwestern shore of the lake. (Unrau 1979:86-88; EA 2007: 37-39,44-45; Degen 2013: 17; Balicki and Stevens 1993: 3,8; LDA et.al. 1993: 19; Review comment, Bosley, 29 June 2016)

Historic photographs of the club grounds show a wooden boardwalk along the shoreline, paralleling the lake-side façades of the cottages (Figure 9, see also Figures 7 and 8). Steps and bridges with rustic railings were built along the boardwalk to overcome the hilly topography, while rock walls and rock banks armored some of the steeper slopes. Shorter sections of boardwalk and steps connected the boardwalk to the houses. Some members also installed raised planters, small gardens, and flagpoles between the walkway and the shoreline. The photographs also show that several mature trees were retained in the vicinity of the buildings, boardwalk, and shoreline.

Other facilities at the resort included boathouses, docks, and stables, as well as two large steam yachts, four sailing boats, and about 50 canoes and rowboats. Occasionally the club hosted special sporting events, such as a two-day shooting match and gala in June 1885. For the most part, however, the summering that occurred at Lake Conemaugh was generally less pretentious than the wealthy resorts at Newport, Tuxedo Park, and Saratoga (Figure 10). One local historian has written:

There was no display at South Fork. The young men wore flannel shirts and crush hats, and the girls plain costumes that would not be injured in scrambling over rugged rocks or fishing in turbulent streams. There were a few modest cottages along the borders of the lake and a clubhouse. It was a comfortable home-like place and was as different from the ordinary fashionable summer resort as could well be conceived. The beautiful sheet of water bore upon its bosom in the soft evenings gay parties of young folks, some of whom would strum the mandolin or guitar...The club was a happy family party, and nothing more. There was an atmosphere of repose over South Fork Lake that it seemed nothing could disturb..." (Unrau 1987: 81,88, citing O'Connor 1957: 34)

Lake View Farm:

Several club members owned farms adjoining the club's property, among them Elias J. Unger, who became president of the club in 1887 after Benjamin Ruff died. One of Unger's purchases was a 103-acre hillside farm from Joseph Leckey (Leahy) in 1882, situated on the lake's northeastern shore adjacent to the dam and spillway. Between 1883-88 Unger constructed a two-story house (now Lake View House) on the hill, around 200 yards east of the dam (Figure 11). Designed in the Gothic Revival style, the house featured a covered two-story porch on its southwest elevation, which overlooked the lake. The complex also included a 2.5-story barn and 1.5-story carriage shed, a two-story spring house, privy, and other outbuildings, all of which were sited uphill from the house. A sloping meadow between the buildings and the lake allowed a clear view of the dam and a distant view of the clubhouse and cottages on the other side of the lake. The Lake View Farm was likely accessed from the carriage road that began at the timber trestle bridge over the upper end of the spillway. A fence was erected on the hillside above the spillway, marking the property line between the club lands and the Unger property, while another fence encircled the house (see Figure 10). (Unrau 1979: 83-84; Unrau 1986: 9,30,35,38-39,50-51,152-154)

Dam Worries Continue:

Periodic heavy rains caused concern among the people living downstream from the South Fork Dam, but it nonetheless withstood several flood events in February 1883, June 1887, and May 1888. Opinions on the stability of the dam varied even among those who lived near it, with some judging it "perfectly safe" and others reporting its "unsafe condition." Speculating what might happen if the dam did break, George Swank, editor of the Johnstown Daily Tribune, implied there was no cause for alarm because the dam would fail in pieces gradually. On June 30, 1887 Swank wrote that a break would not affect Johnstown to any considerable degree unless it "occurred in conjunction with a great flood in the Conemaugh Valley, which is one of the possibilities not worth worrying about." (Unrau 1979: 79,84, citing Johnstown Daily Tribune, 30 June 1887; Degen 2013: 19)

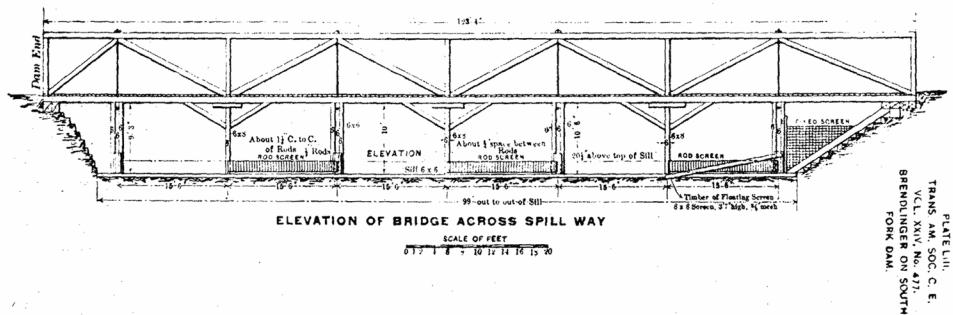


Figure 4. Section view of the timber trestle bridge with wire screens at the upper end of the spillway, c.1881. (Alfred R. Pagan, "The Johnstown Flood Revisited," Civil Engineering, XLIV, August 1974: 61-62. From Unrau 1979: 75)



Figure 5. View looking south at downstream dam face, 1881-89. The blocked outlet of the sluice culvert is at the base and the carriage road is at the top. The foreground road led to the spillway at the northeast end. (Johnstown Flood NMem Archives)



*Figure 6. View looking south at the clubhouse, 1886-89. The 2.5 story part of the building was constructed in 1881 and the 3-story addition was added c.1886.
(Johnstown Area Heritage Association. From National Register JFNMemem, draft 2016,
Sec.9: 92)*



Figure 7. View looking northwest at some of the club cottages on the lakefront, 1881-89. The clubhouse is visible in the distance. (Johnstown Area Heritage Association. From National Register JFNM, draft 2016, Sec.9: 93)



*Figure 8. View looking south at five cottages and boathouse, 1888-89. Second house from right is the Brown Cottage, and third from right is the Lippincott Cottage.
(Johnstown Area Heritage Association. From National Register JFNM, draft 2016, Sec.9: 94)*

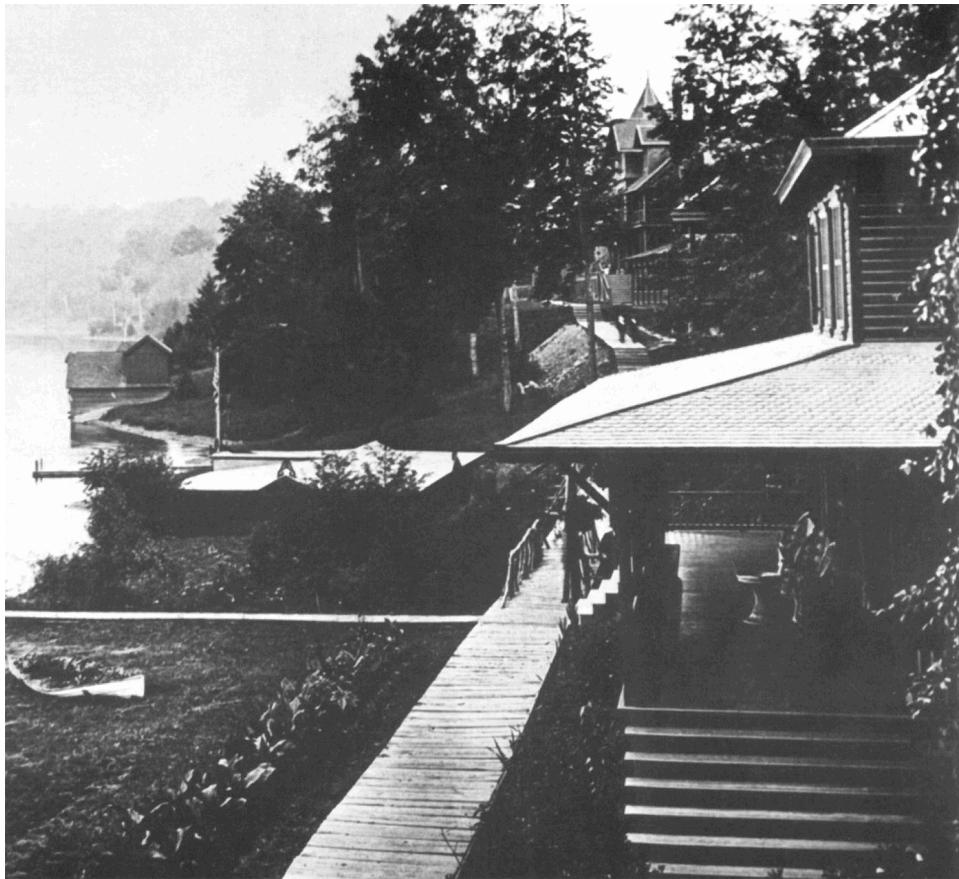


Figure 9. View looking southeast at the cottages, boathouses, and boardwalk, 1888-89. The roof lines of the Lippincott (Moorhead) Cottage are visible in the distance. (Cambria County Library. From Degen 2013: 18)



Figure 10. View looking east at the spillway, 1881-89. The fence at the top of the hill marked the boundary of the Unger property. (Johnstown Area Heritage Association. From National Register JFNMem, draft 2016, Sec.9: 96)

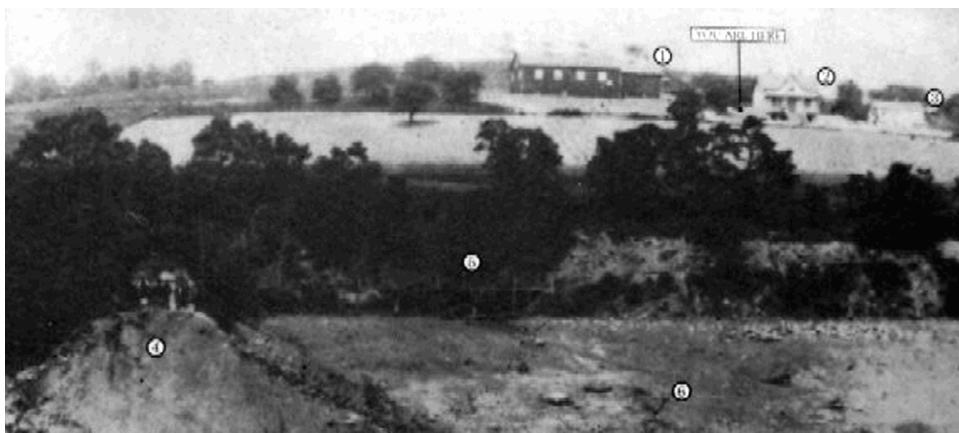


Figure 11. View looking east at the Lake View Farm, 1889. From left is the barn, house, and spring house. The dam remains are at image lower left. (Olmsted Center for Landscape Preservation--hereafter OCLP--2014)

THE JOHNSTOWN FLOOD, MAY 31, 1889

Settled between two rivers and surrounded by forested hillsides and underground wealth, the City of Johnstown owed much of its growth to its location. The city prospered with the building of the Main Line works in the 1830s and the arrival of the Pennsylvania Railroad Company and the Cambria Iron Company in the 1850s. By 1889 Johnstown was a flourishing city of 30,000 people, the majority of whom labored in the Cambria mines and mills. The town was built on the floodplain at the confluence of the Little Conemaugh River and Stony Creek, and by this time had cut trees from the hillsides and narrowed the river channels to gain building space. Each spring the rivers flooded, but never enough to cause real alarm. Every rainy season brought the lingering fear that the South Fork Dam might break, but for some 10 summers fears were put aside, and steel production continued in the thriving company town. (GMP 1980: 14)

Beginning on May 30 and continuing through June 1, a slow-moving rainstorm overspread the entire Commonwealth of Pennsylvania and extended into Maryland, Virginia, West Virginia, New York, and as far west as Cleveland, Ohio. The average rainfall during this three-day period in the South Fork Dam watershed was 6-8 inches, which could not be absorbed in such a short period because the ground was already saturated from above normal rainfalls that had fallen throughout most of that May. Three inches of rain in this mountainous part of Pennsylvania ordinarily produced a flood, and thus many towns such as Johnstown began to prepare. (Unrau 1979: 90-91)

The rains began to fall around 4:00 pm on May 30, just as Memorial Day festivities were concluding in Johnstown. The rain turned into a downpour overnight and the next morning an empty pail left out near the South Fork Dam contained eight inches of water. W.Y. Boyer, the caretaker at the club grounds, John G. Parke, the resident engineer installing the new sewer system, and Elias Unger, the club president, stood at the dam that morning to observe the level of the lake, which had risen around two feet overnight. Parke rode to the other end of the lake to report on how much water was coming in from the tributary streams, and found the upper quarter of the lake covered by debris. At the head of the lake he observed the Muddy Run pouring a large volume of water into the lake, and then rowed over a four-strand barbed-wire fence and a 300-foot-wide submerged meadow on his way to examine South Fork Creek. This stream, ordinarily 75 feet wide and two feet deep, had overflowed its banks and was stripping branches from nearby trees at a height of up to six feet from the ground. Returning to the clubhouse, Parke learned that the level of the lake had nearly reached the crest of the dam. (Unrau 1979: 92-93; Degen 2013: 19)

With the severity of the situation understood and water levels rising nearly one-foot per hour, Unger directed the workmen who had been excavating the sewer line to dig a ditch across the south end of the dam, which he hoped would function as a second spillway and relieve the burden of water flowing through the spillway at the north end. However, the workmen had little success in digging into the tough shale and could only create a ditch two feet wide and fourteen inches deep. When the impounded water rushed into the ditch it soon scooped out a trough 25 feet wide and 20 inches deep. Unger then directed the men to plow a dike along the crest of the dam in hopes of raising a temporary barrier to prevent the rising water from overtopping the dam. (Unrau 1979: 92-94; Unrau 1986: 15; Degen 2013: 20)

At this time, Parke observed that the spillway at the north end of the dam was carrying its full capacity of seven feet. The spillway was unclogged, and even the timber trestle bridge was offering little resistance to the flow of the water. Unger asked Parke to ride to South Fork to telegraph Johnstown about the potential danger of the dam collapsing, but by the time he returned the efforts of building the ditch and dike had proved futile; between 11:00am and noon water began flowing over the dam, first in the center that was slightly lower than the rest of the dam, and then in other places over a 300-foot distance around the center (i.e. the portion that was reconstructed in 1880-81). At this point Unger ordered the laborers to remove the flooring of the timber trestle bridge in an attempt to remove the fish screens, which by this time had become clogged with debris. They also attempted to remove the V-shaped log boom that projected into the lake. (Unrau 1979: 94)

Meanwhile, water flowing over the crest of the dam began cutting its own channel. Parke was convinced that little else could be done to save the dam unless a spillway was cut “through the dam proper at one end and allowed to cut away...towards the center of the dam.” As this course of action would mean “the positive destruction of the dam,” he refused to consider such action, despite his measurements that indicated that the lake level was 7.4 feet above normal and still rising. By early afternoon, the water:

“had washed away several large stones on the outer face, and had cut a hole about ten feet wide on the outer face and about four feet deep. The water running into this hole cut away the breast in the form of a step both horizontally and vertically, and this action went on widening and deepening this hole until it was so near to the body of the water in the lake that the pressure of the water broke through, and then the water rushed through this trough, and cut its way rapidly into the dam at each side and the bottom.” (Unrau 1986: 15; Unrau 1979: 95, citing Letter, Parke to M.J. Becker, 22 August 1889)

The final failure of the dam occurred at 3:15 pm. According to Parke, “The dam did not break. It simply moved away.” Another observer said, “The whole dam seemed to push out all at once. No, not a break, just one big push.” Those on hand estimated the lake was reduced to a stream in around 45 minutes. (Unrau 1979: 97; Degen 2013: 22, no citation)

The 30- to 40-foot high wave of floodwater moved as fast as 40 miles per hour down the narrow mountain valley, inhabited by nearly 38,000 people. It picked up speed and debris as it swept through the unsuspecting towns of South Fork, Mineral Point, East Conemaugh, Woodvale, and Conemaugh Borough on its way to Johnstown, portions of which were already underwater from the heavy rains. The wave struck Johnstown about 4pm, and the devastation of the city itself was over in about ten minutes. (Unrau 1979: 99)

The volume of water pouring out of Lake Conemaugh and into the already-flooded Conemaugh Valley was later computed by various engineering authorities. According to the calculations, the estimated 20 million tons (5 billion gallons) of water in the lake would have made a stream 500 feet wide, 20 feet deep, and 12 miles long. The vast body of water plunging through the valley of the Little Conemaugh River lost some of its energy due to friction and obstructions in its course. But the 404-foot drop in elevation over the 12 to 14 mile distance between South Fork and Johnstown gave it momentum to roll locomotives for almost a mile and enough

strength to break and bend a locomotive tender around a tree. (Unrau 1979: 98, citing McMaster 1993: 231-33, and Engineering News and American Railway Journal, XXI, 22 June 1889: 569-73,578)

Post-Flood Recovery:

The flood killed 2,209 people, injured hundreds, and left thousands homeless. In Johnstown, survivors faced immediate and critical problems; there was no medicine, water, food, or dry clothes. Nearly all stores in town were leveled, and there was no gas or electricity. Fires burned out of control, and telephone and telegraph lines were down. The railroad was destroyed, roads were impassable, and bridges were gone. Corpses of the flood's victims –human beings and animals – posed a threat of disease. In this chaos, those who had managed to find higher ground formed rescue parties and work committees to begin the recovery effort. (Degen 2013: 39-41)

Among the first to spread the news of the disaster was Robert Pitcairn of the South Fork Fishing and Hunting Club, who was a few miles downstream from Johnstown when the flood hit and sent a telegraph to the Pittsburgh Commercial Gazette saying that the city had been annihilated and help was needed. In the days that followed hundreds of reporters and photographers arrived to document the scene. Their accounts were published around the nation and the world and resulted in an enormous outpouring of aid in the form of money, food, clothing, supplies, and services. (Degen 2013:53-54)

The charity that came in was certainly needed; not only were there more than 28,000 survivors, there was also more than 6,000 relief workers to be fed. The massive efforts that were needed to find and dispose bodies, clear the wreckage, restore water and utilities, and distribute provisions and money were coordinated by local relief committees, the Pittsburgh Relief Corps, state militia, and the recently organized American Red Cross. Led by Clara Barton, the Red Cross stayed in Johnstown for five months, building several “Red Cross Hotels” for temporary housing, constructing a warehouse and infirmary, distributing supplies, and directing volunteers. By mid-summer 1889, some of club cottages on the shore of the empty Lake Conemaugh were also used to house flood survivors. (Degen 2013: 54; LDA et.al. 1993: 29)

On June 14, 1889, in the first issue of the Johnstown Daily Tribune to be printed after the devastation, editor George Swank wrote:

It came like a thief, and was upon us before we were aware. Already when it reached us it had numbered the victims by the hundreds. Mineral Point and East Conemaugh were gone, a passenger train was engulfed. Woodvale was swept away. Conemaugh Borough was shaved off as if by the sharp surface of an avalanche; in a moment Johnstown was tumbling all over itself; houses at one end nodded to houses at the other end and went like a swift, deceitful friend to meet, embrace, and crush them. Then on sped the wreck in a whirl, the angry water baffled for a moment, running up the hill with the town and the helpless multitude on its back, the flood shaking with rage, and dropping here and there a portion of its burden crushing, grinding, pulverizing all. Then back with great frame buildings, floating along like ocean steamers, upper decks crowded, hands clinging to every support that could be reached, and so on down to the great stone bridge, where the houses, piled mountain high, took fire, and burned

with all the fury of the hell you read about--cremation alive in your own home, perhaps a mile from its foundation; dear ones slowly consumed before your eyes, and the same fate your own a moment later." (Unrau 1979: 100, citing Johnstown Daily Tribune, 14 June 1889)

The aftermath at Lake Conemaugh was also one of ruin and waste, and the site quickly attracted a variety of reporters and journalists who filed avid descriptions of what they saw (Figures 12, 13, and 14). The gap in the center of the dam measured around 420 feet at the top and 50-200 feet wide at bottom, going "clear down to bedrock in the old bed of the stream and sloping raggedly upon each side to the top." A vast gravel bar lay below the dam, measuring 1,500 feet long, 5-12 feet high, and 160 feet wide, and contained approximately 100,000 cubic yards of material. From the former shoreline, "the cottages looked upon a slimy, oozing gully, no longer the silver expanse that had pleased the eye...days before." (Unrau 1979: 102-103, 136, citing Dieck 1889: 61 and McLaurin 1890: 57-58)

A writer for the New York Times described the scene as follows:

"At the present time the lake looks like a cross between the crater of a volcano and a huge mud puddle, with stumps of trees and rocks scattered over it. There is a small stream of muddy water running through the centre of the lake site...there is but a small portion of the dam left on either side. No damage was done to any of the buildings belonging to the club...There are but one or two small streams showing here and there in the lake. A great many of the workmen carried off basketsful of fish which they caught in the mud." (Unrau 1979: 102-103, citing New York Times, 4 June 1889)

Post-Flood Analysis:

Blame for the disaster was swift and directed to the members of the South Fork Fishing and Hunting Club. Valley residents, public officials, and reporters widely censured the club, including George Swank of the Johnstown Daily Tribune who wrote, "We think we know what struck us, and it was not the hand of Providence. Our misery is the work of man..." (Degen 2013: 61, no citation)

Several club members rendered personal services and gave more than money to the relief cause, but most members tried to disassociate themselves from the club and generally avoided reporters. The fear of lawsuits was a major reason for their collective reticence, and although several lawsuits were filed against the club, none were successful. Historian Harlan Unrau writes that personal negligence would have been almost impossible to prove against individual members for they had no reason to doubt the dam was not structurally sound. As interpreted by the courts, the unprecedented rainfall in the Conemaugh Valley watershed in May 1889 was as an act of Providence. (Unrau 1979: 55,57,61,64-65)

In the 1979 "Historic Structures Report for South Fork Dam," Unrau provides extensive details on the investigations of the dam's failure by engineers and engineering journals. The studies determined that several actions of the South Fork Fishing and Hunting Club had weakened the dam: the lowering of the crest of the dam, the central sag in the crest, the sealing of the bottom culvert after which no means of removing water level existed, and the obstruction of the spillway. The American Society of Civil Engineers concluded that the "failure was due to flow

of water over the top of the earthen embankment, caused by the insufficiency of the [spillway] to discharge the flood water." (Unrau 1979: 106-147; Degen 2013: 62)



Figure 12. View looking southwest at the downstream face of the dam, 1889. Compare this view with Figure 6. The club grounds are faintly visible along the shoreline in the distance, at image left. (Johnstown Flood NMem Archives)



Figure 13. View looking southwest from north abutment, 1889. Remains of the original sluice culvert and valve control tower are at image right. Club buildings are faintly visible in distance. (Ernest Walter Histed, Library of Congress #92509962_17540v)



Figure 14. View looking north-northwest at the former lakebed and dam, 1889. Structure at south abutment may be 1840 house built for the dam's construction supervisor and later the operator. (Ernest Walter Histed, Library of Congress #2008675504_17550u)

DEVELOPMENTS AT THE FORMER LAKE CONEMAUGH, 1889-1964

The South Fork Fishing and Hunting Club disbanded soon after the flood. A few members occasionally returned for short vacations, but the resort never again functioned as it had throughout the 1880s. Club lands were eventually sold off, beginning in July 1891 when the South Fork Branch Railroad, a subsidiary for the main line of the Pennsylvania Railroad, purchased a 14.46-acre tract in the drained Lake Conemaugh. A single track was laid along the river in the old lakebed and through the gap in the dam as part of an eight-mile rail line stretching from the main line in South Fork to Windber to the southwest. The rail line enabled exploitation of the region's bituminous coal lands by the Berwind-White Coal Mining Company in Windber. (Unrau 1979: 150-151)

In June 1901 E.B. Alsop, an attorney and apparent friend of some club members, acquired as trustee nine parcels of club property, by this time totaling around 624 acres. Several members and their heirs deeded their interests in additional land to Alsop over the next eighteen months, who then sold the 624-acre property to George M. Harshberger in February 1903. At the same time, Alsop transferred 49 acres plus "a number of cottages, houses, etc." through a separate deed to Harshberger (possibly the club buildings). The following year the remaining furnishings

associated with club members were sold, with some of the potential buyers arriving at the sale on the South Fork Branch train. (National Register JFNMem, draft 2016, Sec.8: 70; LDA et.al. 1993: 34-35,437-438, citing Cambria County Deed Book, 147: 624-631)

A USGS topographic map from 1904 illustrates other physical changes had taken place at the former lake, including the construction of a second railroad track alongside the original track through the valley, as well as a multi-track railyard in a 34.7-acre tract purchased from Harshberger. There were also public roads encircling the lakebed by this time. On the southwestern shoreline, a new but unimproved road (later called State Route 869/Township Road 305/South Abutment Road) encircled the hill west of the dam, part of which was built just down the hill from the club's old carriage road. The new road continued southeasterly along the shoreline where it joined the club's carriage road. At the club complex, several maps show the road passed directly in front of some of the club buildings and ended around the Brown Cottage (where a hill begins). The road reappeared at a river crossing southeast of the club grounds, where a more substantial road (later called Township Road 352/Lake Road) crossed the railroad tracks (at grade) and traversed along the eastern shoreline to the old spillway, passing directly through it and continuing north. (Cambria County Atlas, 1890; NETR topo, 1907)

Maryland Coal Company and the Village of St. Michael:

By 1907 George Harshberger sold both the 624-acre and 49-acre properties described above to George M. Wertz, who in turn had it surveyed and subdivided (Figure 15). The disposition of Wertz's lands is complex, but two sales in 1907 are relevant to Johnstown Flood National Memorial: a 40.9-acre purchase by the Maryland Coal Company of Pennsylvania and a 30.9-acre purchase by John L. Sechler that also included the clubhouse. (LDA et.al. 1993: 42,438-440)

Bituminous coal mining and coke manufacturing for the iron and steel industry dominated much of western Pennsylvania's economy during the late nineteenth and early twentieth centuries with hundreds of mines scattered across the region. The Maryland Coal Company was formed in 1906 when coal was discovered in the former lakebed, and in 1907-08 constructed Mine Shaft No.1 near Topper Run, a stream in the ravine around 1,500 feet south of the clubhouse and cottages. The mine shaft extended 670 feet below the surface, and at the time was the deepest of all the bituminous coal mines in Pennsylvania. In addition to the mine shaft and colliery, the company established the town of St. Michael, building a company store, bank, and a number of wood-frame houses. The company also constructed a railroad spur from the South Fork Branch Railroad to the mine. At the same time, John Sechler laid out a plan of 208 building lots on his property for additional development in the former lakebed. The new lots were laid out in a rectangular-shaped grid between the river and the club's row of buildings. Main Street, which connected to the unimproved road along the lake's southwestern shoreline, ran along the front of the clubhouse and cottages, but made slight turns due to orientation of the buildings with the former shoreline. The double cottage lot northwest of the clubhouse was identified as "business block," and one of the cottages to the northwest was intended as a school. A street (now Lake Avenue) running behind the clubhouse and cottages provided access to additional lots. This street may have been the location of the club's carriage road

that entered the club grounds from the dam. (Yetter et.al. 2014: 26; Maryland Coal Company of Pennsylvania website, accessed 14 April 2016; Unrau 1979: 152; LDA et.al. 1993: 581-82)

The Maryland Coal Company purchased the former club cottages as housing for company management. Most of the houses were altered and remodeled to varying degrees by their occupants, and a few were razed in the 1920s. Several cottages were eventually reconfigured into duplexes, including the Brown Cottage in 1921 and the Lippincott (Moorhead) Cottage in the 1930s. By 1955 the cottages were transferred to private ownership. The company also erected inexpensive duplexes in the 1920s to house coal miners and their families, primarily in a compactly designed plat behind (west of) the row of cottages. Aerial photographs from 1939 and 1958 show that development in the Sechler lots was considerably less dense than in the company's plat (LDA et.al. 1993: 35,38-39,48-53,121-22,175; EA 2007: 40-43,45-46)

Sechler converted the former clubhouse into a hotel and tavern, but lost the business in a sheriff's sale in 1920. From 1921-50 the hotel business was operated by the Cruikshank family, who removed the building's original two-story block in the 1930s. Two additions were added at the rear of the building's remaining block, either by the Cruikshanks or by the next owners, Albert and Lucy Clement, in 1950-58. Subsequent owners operated the building as a rooming house, restaurant, and lounge. Less is known about ownership of the double cottage to the northwest. The building was used as guest rooms by the Cruikshanks, who removed the two-story front porch after 1940. After 1950 the building was apparently used as apartments, and by 1962 a long one-story garage was located behind the building fronting Lake Avenue. (EA 2007: 37-40,44-45; Balicki and Stevens 1993: 2,5; LDA et.al. 1993: 42, 231; National Register SFFHC 1986, Sec.7: 1)

With the use of cars increasing, the improvements to local roads proceeded concurrently with the growth of St. Michael and surrounding towns. In the 1930s the formerly unimproved road on the southwestern shore of the lake was designated State Route 869. The road was paved, and stone retaining walls and culvert headwalls were constructed along the segment encircling the wooded hill southwest of the dam. The road's route through St. Michael was shifted one block to the east, from Main Street to Locust Street. The road continued southeast through coal company property to the junction with Township Road 352, where another plat of houses was developed (now Sidman). Between 1939-58, the segment of State Route 869 around the hill southwest of the dam was abandoned and replaced with a new shorter segment to the southwest. The abandoned highway segment was retained for local use and renamed Township Road 308. (Pennsylvania State Highways website, accessed 19 April 2016)

The holdings of the Maryland Coal Company were transferred to the Berwind-White Coal Mining Company in 1933, but the mine continued to operate under the old name. The company had also acquired the South Fork Dam, portions of the lakebed, and the hill southwest of the dam. However, during the late 1950s and early 1960s the declining national demand for coal and the availability of cheaper fuels like natural gas and petroleum brought an end to the region's coal mining. In c.1958 mining in the lakebed ended when Berwind-White closed the mine. (Coal Mines of Cambria County website, accessed 22 April 2016; LDA et.al. 1993: 40; IP/SD 1994: 10)

Lake View Farm:

Compared to the dramatic physical changes on the southwestern side of the former lake, the landscape remained essentially intact on the northeastern side, and in particular the Lake View Farm. Upon Elias J. Unger's death in 1896, the 103-acre farm property passed to his wife Annie C. Unger, and then was sold to David E. Unger in 1901. Few improvements were made to the farm during this period. Between 1909-1912, the property transferred three times, to Herman Haupt and the heirs of George Stineman, to George E. Flenner et.ux., and finally to Jacob W. and Elizabeth Holsopple. The farm also reduced in size to 78.9 acres. (Unrau 1986: 89)

From 1912-49, the Holsopples operated a working family farm, raising corn, oats, wheat, barley, and timothy hay, the latter being sold to the local mines for mule feed. A large area toward the spring house was cleared and enriched with manure for a vegetable garden, and apple and pear orchards were located uphill from the barn. The family also sold milk, butter, eggs, apple cider, and apple butter, and raised thoroughbred horses. (Unrau 1986: 50-51,154)

The Holsopples modified the previous inventory of farm buildings and structures during their ownership. At the house, the stairs on the southwest porch were removed, the original northeast porch was replaced with a raised porch, and the building was painted white with black trim. A walk from the northeast porch lead to the privy north of the house, while the spring house was used to slaughter and store cured meat. The family replaced the cupolas on the original barn and carriage/wagon/machine shed with dormers, and painted both structures red with white trim. They also added new structures: a wooden silo in the "heel" of the L-formed by the barn and the carriage shed, which stood slightly taller than the barn; a cinder-block well house just to the south of the spring house; and a smokehouse and chicken coop uphill from the house. A pig pen and another chicken coop, both present when the Holsopples arrived, stood uphill from the barn. Photographs from the late 1910s and early 1920s suggest a picket fence surrounded the house, with a gate in the center of the southwest side. Presumably, there was also a gate in the center of the north side at the bottom of the northeast porch steps. The picket fencing was eventually replaced with barbed wire. (Unrau 1986: 49-51,94-95,102,107-108,143,145-149,152,154)

The Holsopples sold their 78.9-acre farm property to Robert E. and Lois M. Furlong in October 1950. The Furlongs continued farm operations through the 1950s and early 1960s, raising such field crops as corn, oats, hay, and other grains for feed. They also owned cows, horses, and pigs, and at one point had nearly 200 chickens. The Furlongs used the spring house for cooling milk and the area above the spring house as a slaughtering site. (Unrau 1986: 51)

However, the old Lake View House and its dependencies were apparently in declining condition when the Furlongs moved to the property. Although they redecorated the house and painted the exterior white with green trim, the northeast porch had to be removed in c.1957 for structural reasons. Because of the deteriorating condition of the carriage shed, the Furlongs built a new garage in the 1960s for their vehicles near the site of the original privy. The three-bay wide structure was built on fill excavated from the hillside. (Unrau 1986: 51)

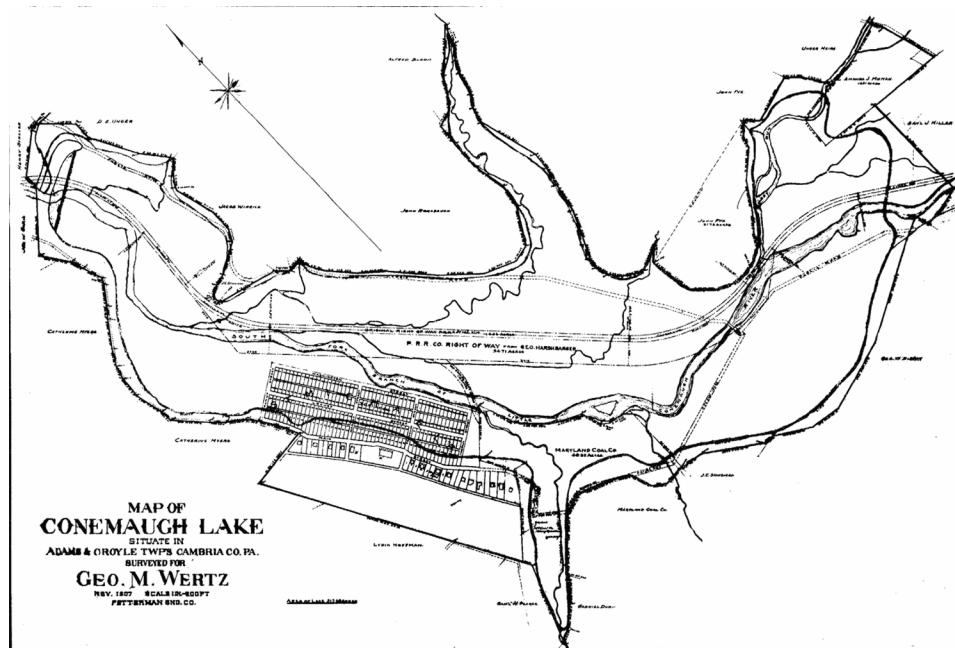


Figure 15. Map of the former Lake Conemaugh, 1907. The thick line represents the former lake shoreline. The clubhouse and cottages are at the southwest edge of the subdivision. (LDA et.al. 1993: 580)

NATIONAL PARK SERVICE MANAGEMENT, 1964-2016

On August 31, 1964, Congress authorized Johnstown Flood National Memorial and Allegheny Portage Railroad National Historic Site (P.L.88-546, 78 Stat.752). The act authorized the Secretary of the Interior to designate up to 55 acres of land for the Johnstown Flood National Memorial for use in commemorating the tragic Johnstown flood of May 31, 1889. It also made possible the development of cooperative agreements to erect and maintain tablets or markers. (GMP 1980: 118-119)

In the time between the park's authorization in 1964 and its official establishment on June 30, 1969, the landscape around the South Fork Dam was dramatically changed by the construction of U.S. Highway 219 just northwest of the dam. The new four-lane highway crossed the river valley on a 70-foot high bridge located around 450 feet downstream from the dam abutments. The highway's right-of-way (and embankments) severed Township Road 308 and Township Road 352 northwest of the dam, and created an interchange with the 1939-58 realignment of State Route 869 (Locust Street). As a result, Township Road 308 was abandoned and Township Road 352 was realigned and reconstructed on the hill above the spillway. (NETR aerials, 1962 and 1972)

The road construction and realignment projects consequently shaped the boundaries of Johnstown Flood NM. At this time, park lands included both abutments of the South Fork Dam and adjacent lakebed (excluding the railroad right-of-way), the spillway (abandoned Township

Johnstown Flood NMem Landscape
Johnstown Flood National Memorial

Road 352), and a wooded hillside area to the southwest bordered by abandoned Township Road 308, State Route 869, and U.S. Route 219. The lands were acquired through purchases and donations, and totaled 54.18 acres (Tracts 01-101, 103, 107, 108). (Dwg.427-92000, 1969)

Initial Park Development:

As the majority of park land was west of the dam, the park entrance was located off of State Route 869 (Figure 16). Park development plans proposed using abandoned Township Road 308 as the entrance road into the park, which would provide access to a hillside picnic area with a parking lot and comfort station, and to another parking lot near the south abutment. The plan indicated a contact station and small comfort station/maintenance building near the south abutment, and a visitor contact shelter at the spillway at the north abutment. Trails with waysides connected both contact stations via an elevated pedestrian bridge attached to the south side of the Highway 219 bridge (not on park property). (Dwg.427-40000A, 1968; Dwg.427-41000, 1968)

Portions of the 1968 plan were constructed in 1972-73. The park entrance road (now South Abutment Road) was improved with steel guardrails, paved gutters, and additional culverts with masonry stone headwalls to match the existing stone headwalls. At the hillside picnic area, trees were removed to construct a curving access road (now Picnic Grounds Road) that terminated as an elongated loop. A 20-space parking lot was built on the east side of the loop next to the picnic sites, but the comfort station was not installed at this time. Barbeque grills and picnic tables were spread out under the shade trees east of the parking lot. At the south abutment, the entrance road terminated as a broad loop at an open area that was formerly a cinder pit and possibly the location of the Main Line's 1840 house. Two parking bays were built here to accommodate 30-spaces. (Dwg.427-41002C, 1970; Dwg.427-80000, 1973; NETR aerial, 1972)

The pedestrian bridge on the Highway 219 bridge was never constructed, but by the late 1970s the park had built several other features shown on the 1968 plan, although some of their locations changed. At the picnic grounds, a small maintenance storage shed was erected north of the parking lot. A hiking trail (now Arbor Nature Trail) was cut through the woods between the picnic grounds and the south abutment. At the south abutment, a small temporary visitor center was located on the south side of the parking lot, an interpretive overlook sign was installed on the abutment, and a loop trail extended from the parking lot to the river and around the abutment. There was also a temporary park office and toilet adjacent to the parking lot. The park also cleared trees within the lakebed to help define the former shoreline. A major flood in 1977 reportedly damaged several trails, footbridges, and walks in the park, which were repaired by park staff and the Youth Conservation Corps. Access to the north abutment at this time was likely along the abandoned portion of Township Road 352. However, the park only owned the section through the spillway and could not develop visitor parking facilities off of the new alignment of Township Road 352 until years later. (GMP 1980: 30-31; National Park Service Newsletter Vol. 12, No. 10 October 1977; IP/DCP 1984: 33-34; NETR aerial, 1972)

Boundary Increases, 1972 and 1978:

Concurrent with these developments, the park was actively pursuing the acquisition of

additional lands to protect the historic integrity of the memorial and improve visitor access and interpretative programs. A boundary increase on April 11, 1972 (P.L.92-272, 86 Stat.120) authorized an addition of approximately 53.6 acres of land to the park through donations and purchases. The new lands encompassed a forested area straddling the river in the former lakebed between the railroad tracks and State Route 869, as well as a mostly open area on the other side (south) of Route 869 (Tracts 01-109, 112, 113-scenic, 114, 115, 116, 117, 118). Much of this land was donated by the Adams-Croyle Recreation Authority, which announced plans to develop a recreation area for picnicking, baseball, and fishing southeast of park lands, in the southeastern end of the lakebed. A second boundary increase on November 10, 1978 (P.L. 95-625, 92 Stat.3477) authorized an addition of approximately 67 acres of land through donations and purchases. The new lands included the mostly open Lake View Farm and a forested lakebed area between the railroad tracks and Township Road 352 (Tracts 01-124, 127, 129). The addition also included the 2,300-foot section of the railroad right-of-way, which would allow for future acquisition if it were abandoned and provide a contiguous land area of the original dam and lakebed. (GMP 1980: 30-31; Dwg.427-40001, 1971; Dwg.427-80002A, 1986; NETR aerials, 1972 and 1991)

Management Plans:

With the acquisition of additional lands, the park updated and developed several planning documents in the early 1980s to guide future actions. Chief among the reports were the “Statement for Management,” a “General Management Plan,” and an “Interpretive Prospectus and Development Concept Plan.” The documents collectively shaped management of existing resources and the development of additional park facilities beginning in the mid-1980s and onward.

Statement for Management.

The park approved a “Statement for Management” in 1980. It stated that “The purpose of the Johnstown Flood National Memorial is to commemorate the tragic Johnstown Flood of May 31, 1889, by preserving the remnants of the South Fork Dam and interpreting the story of its failure and the results that followed.” The report established goals to be completed through future action plans. The goals covered all aspects of management, and those related to the role of the park’s landscape characteristics and features were as follows:

- To identify, evaluate, protect, maintain, and interpret the park’s cultural resources, to preserve their original fabric and workmanship, and where necessary, to stabilize and rehabilitate them in a manner consistent with legislative mandates and National Park Service policies.
- To preserve and maintain the cultural resources and the setting of the South Fork Dam to approximate conditions in c.1889.
- To promote environmental conservation and public awareness of the value of land use planning through interpretation of historic land uses, changes, and activities—such as water storage, mining, and logging—that have left their mark on the park’s historic resources.
- To interpret the relationship of the other floods affecting Johnstown to the 1889 flood and to the topography and human occupation of the valley.
- To provide limited opportunities for recreational activities that are compatible with preservation and interpretation of the park’s historic resources.

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-- To perpetuate natural ecological communities in the park's natural zone and to enhance the value of these lands as aesthetic buffers around significant resources.
(IP/DCP 1984: 2; GMP 1980: 6-7)

General Management Plan.

The new lands identified in the two boundary increases were included in the development of a "General Management Plan (GMP)," completed in 1980. The GMP identified three primary park management zones – natural, historic, and development – but did not elaborate on the management intent (Figure 17). Definitions for the management zones were, however, provided in a 1993 update to the "Statement for Management":

-- Historic Zone: Lands that will be managed for the preservation protection and interpretation of cultural resources and their settings and to provide for their use and enjoyment by the public. The historic zone consists of the historic lakebed, dam abutments, spillway, culvert stones, and the Lake View House.

-- Natural Zone: Lands and waters that will be managed to conserve natural resources and ecological processes and to provide for their use and enjoyment by the public. The natural zone consists of variety of open fields, brush, and forest bordering the historical and developed areas. In this park the natural zone offers buffer to historic resources from intrusive adjacent land uses or activities.

-- Development Zone: Lands that will be managed to provide and maintain facilities serving park visitors and management. The development zone includes the maintenance area, picnic area, the visitor center, the spring house, and associated access roads and parking areas.

(GMP 1980: np, citing Dwg.427-20010B, 1977; SM 1993: 4-6, citing Dwg.427-40012, 1992)

The GMP also recommended two actions to ensure effective preservation, management, and public use and understanding of the Johnstown flood and the South Fork Dam:

--Acquire additional lands to preserve the historic scene surrounding the South Fork Dam.

--Relocate the main interpretive facilities to the vicinity of the north abutment to increase visitor appreciation of the size of the former Lake Conemaugh and to enable visitors to see the historic spillway that played a critical role in the breaking of the dam.

(GMP 1980: 8 and Dwg.423-20010B, 1977)

Describing existing development on the western side of the park as "near maximum," the GMP focused specific development proposals for the recently authorized lands on the eastern side of the park, as follows:

-- Reconstruct the spillway bridge.

-- Build an interpretive facility near the reconstructed bridge so visitors can see the dam abutments, spillway, former lakebed, and club buildings.

-- Encourage the growth of some low-growing native ground cover on the recently cleared lakebed and retain small trees along the railroad tracks to provide screening.

-- Build a parking lot adjacent to interpretive facility.

-- Build trail system connecting interpretive facility, parking lot, spillway bridge, and north abutment.

-- Construct a low-level pedestrian bridge in front of the dam abutments and over the stream, and an at-grade crossing of the railroad tracks to connect the trail system with the north and the

south abutments.

-- Initiate a Historic Structure Report for the Lake View Farm (Lake View Farm) to determine best uses for it.

(GMP 1980: 30-31)

The GMP proposed development of a self-guided auto tour; beginning at the contact station at the south abutment, to the southwestern shoreline and the clubhouse and cottages associated with the South Fork Fishing and Hunting Club in St. Michael, across the river and tracks to the northeastern shoreline on Township Road 352, and ending at the planned interpretive facility at the north abutment. According to the GMP, “visitors will gain an impression of the size of the former reservoir by driving around its edges.” The GMP also proposed realigning Township Road 352 from the west and north sides of the Lake View Farm to the south and east sides.

(GMP 1980: 30-31)

Interpretive Prospectus and Development Concept Plan.

Building on the guidance of the “Statement for Management” and the “General Management Plan,” the park completed an “Interpretive Prospectus and Development Concept Plan” in 1984 that updated details for the visitor program, interpretive techniques and media, and facilities to foster an understanding of the Johnstown flood. The report proposed a facility on the hillside above the north abutment, in the general vicinity of the Lake View Farm buildings, from which visitors could view the dam remains, former lakebed, and distant clubhouse and cottages. The report also proposed configuring and orienting this facility to direct the visitor’s view to these resources and to screen unwanted views of Highway 219. Noting that the Lake View House served as a landmark visible from other areas of the park, the report recommended that the location and exterior form of the visitor facility should complement the house and the hillside location, and that its character should be subdued. (IP/DCP 1984: iii,9,13)

Development at the Picnic Grounds:

In the 1980s and 1990s the park implemented improvements to visitor facilities at the picnic grounds. Up until this time, portable toilets accounted for the only visitor amenity. Although a plan from 1980 proposed a combination comfort station/maintenance shop just north of the Picnic Grounds Road loop, the comfort station part of the structure was not built. Thus, portable toilets were used until c.1981 when the park built a permanent comfort station on the west side of the Picnic Grounds Road loop. By 1993, the park constructed an open-sided picnic pavilion on the east of the loop amongst the picnic tables and grills. By this time there was also a horseshoe pit in the median of the loop. (NETR aerial, 1993; Dwg.427-80003A, 1980; Dwg.427-41004, 1986; Dwg.427-41037, 1993; IP/DCP 1984: 33)

The park’s maintenance facility was initially a collection of shacks set in a work yard north of the Picnic Grounds Road loop. In the early 1980s the park constructed the aforementioned one-story frame maintenance shop as well as a work yard, located off a gravel road extending north from the north end of the loop. By 1993, additional workspaces and structures had been added in the work yard, including a modular trailer office, three frame sheds, and storage tanks. In 1996 a two-story maintenance office/two-bay garage was constructed at the north end of the work yard, and in 2011 the first maintenance shop was enlarged with a three-bay addition to

the north. (Dwg.427-80003A, 1980; Dwg.427-41004, 1986; Dwg.427-41037, 1993)

Development at the Lake View Farm:

The National Park Service purchased the 30.4-acre Lake View Farm property from Robert E. and Lois M. Furlong in August 1981, by which time the Lake View House had been unoccupied for over ten years. By 1969 the house was in such poor condition that the Furlongs had purchased a mobile home, locating it in the large garden area between the house and spring house. The abandoned house consequently deteriorated at an accelerated pace and the west porch was removed. The Furlongs had begun scaling back farming operations by the late 1960s, and in the 1970s the unused silo collapsed, the original barn and carriage shed were in ruins, and the chicken coop structures and the smokehouse were removed. (Unrau 1986: 51,147)

Access into the farm property at the time of federal acquisition was from a gravel driveway heading south from Township Road 352, which forked at the ruins of the barn, carriage/wagon/machine shed, and silo. The lower fork continued south to the Furlong garage, Lake View House, spring house, and well house. Scattered trees and shrubs occupied spaces around the buildings, but the area was mostly open and surrounded by cultivated and abandoned fields. (Dwg.427-25000, 1985; NETR aerials, 1972 and 1993)

The park initially intended to adaptively reuse the interior of the Lake View House for park offices with an addition at the basement level to accommodate a visitor center. However, by 1986 the park had developed plans to construct a new visitor center building at the site of the ruined barn and carriage shed. Completed in 1989 in time for the 100th Anniversary of the Johnstown Flood, the two-story L-shaped structure included exhibit spaces, a film theatre, offices, and restrooms. The new building's form, representing that of the former barn, and its hillside location fulfilled the recommendations set forth in the 1984 "Interpretive Prospectus and Development Concept Plan." With the opening of the new facility, the temporary visitor center and park office at the south abutment were removed. (Unrau 1986: 107-108; Dwg.427-41015, 1990)

The park also addressed the extant buildings at the Lake View Farm, beginning with the restoration of the exterior of the house to its historic 1889 condition for the anniversary. The covered two-story southwest porch with its center stair and the northeast porch (and an accessible ramp) were reconstructed, while the house was painted white with red trim. Interior spaces were upgraded and readapted into park offices, library, workrooms, and storage areas in 1992-93. In 1988-89, the park rehabilitated the collapsing foundation of the spring house and built a new but smaller structure similar to the style of the original on top of the northwest end of the original foundation. Based on recommendations in a 1986 Historic Structure Report, the park removed the Furlong garage (but not the fill) and the well house in the late 1980s. (Unrau 1986: 136-137,149,152; LCS 2016)

Uphill and to the southeast of the visitor center, the park constructed a 65-space asphalt parking lot accessed by a new two-lane asphalt road (now Visitor Center Road) uphill from the farm lane. Like the parking lot at the picnic grounds, this parking lot was designed as a one-way

loop. Concrete sidewalks extended throughout the parking lot and connected to a concrete and stone-paver patio with bench seating at the visitor center entrance. The original farm lane was paved with concrete for use as a service road, which also provided access to a two-space handicap parking area across from the Lake View House where the Furlongs excavated fill for the garage. The driveway was extended around the edge of the yard on the southwest side of the house and terminated at the steps on the southwest porch, near two new wayside signs. A curving woodchip trail with timber steps traversed the slope between the parking lot and spring house, and another woodchip trail headed south and west down the hill to Township Road 352. Park plans proposed an extensive program of new plantings around the visitor center and within the parking lot. Many of the trees were installed but the large number of shrubs was limited to areas along the walks and to screen utilities. (Dwg.427-41004, 1986; Dwg.427-41005A, 1989; NETR aerials, 1993 and 2004)

Management of the Former Lakebed:

The park completed several other proposals recommended in the GMP, most notably the construction of the pedestrian bridge across the top of the spillway in 1988-89 (Figure 18). The 8-foot wide wood bridge measured 146 feet in length with posts spaced around 16 feet apart, similar to the timber trestle bridge present in 1889, although the railing design was different and there were no fish screens (see Figure 4). The south end of the bridge was accessed by a new accessible asphalt path that connected to a five-space asphalt parking lot constructed on the west side of Township Road 352, across from the trail leading from the Lake View Farm. The parking lot was built at the approximate point where the trace of the former alignment of Township Road 352 headed north into the lakebed and toward the spillway. The new paved trail was built upslope from the trace, which was scarified and restored with vegetation. Another woodchip trail was planned to pass under the pedestrian bridge and track through the spillway, and then turn and parallel the downstream toe of the north abutment to the railroad tracks. Except for the spillway portion, this trail was built in the late 1980s and began at the north end of the pedestrian bridge. However, it was not actively maintained and eventually became overgrown. The park also constructed an 8-foot wide boardwalk along the length of the north abutment around this time to improve accessibility. Other improvements included new paving, drainage structures, retaining walls, and timber-faced guardrails along Township Road 352, a wood and stone veneer entrance sign at the beginning of Visitor Center Road, and other directional signs within the park and along adjacent roads. (Dwg.427-41004, 1986; Dwg.427-41005A, 1989; Interview with K. Penrod, November 2014)

After acquiring the Recreational Authority lands in 1984, the park was active in vegetation management in the former lakebed. In 1988-91 the park clear cut and burned approximately 50 acres of vegetation in the lakebed so that visitors could visualize the extent of the former lake, especially from the new visitor center at the Lake View Farm. Much of the lakebed was then seeded to promote grassland development. The park also cleared stands of timber in around the dam abutments to give visitors better appreciation for the size of the impoundment. This work was consistent with the cultural resources management goal of the 1980 GMP: "To preserve and maintain the cultural resources and the setting of the South Fork Dam to approximate conditions in c.1889." It was also the recommendation in the park's 1987 "Resources Management Plan." Aerial photographs from 1972 and 1993 show the dramatic

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reduction in woodland cover in the lakebed. (GMP 1980: 7; SM 1993: 11; Dwg.427-41005A, 1989; NETR aerials, 1972 and 1993; Garrett 1987: 47)

Partnership at the Clubhouse and Cottages:

In July 1986, the clubhouse and seven extant cottages associated with South Fork Fishing and Hunting Club in St. Michael were identified in the National Register of Historic Places as contributing resources of the South Fork Fishing and Hunting Club Historic District. The recognition coincided with the preparation of a “Preservation and Interpretation Plan for the South Fork Fishing and Hunting Club Historic District,” a joint effort completed in 1988 between the residents of St. Michael and the National Park Service. The plan resulted in a partnership to protect, maintain, and manage the district’s buildings. It also established the 1889 South Fork Fishing and Hunting Club Historical Preservation Society as the principal community body working with the National Park Service (the society was renamed Friends of the Johnstown Flood National Memorial in 2006 and disbanded in 2015). (IP/SD 1994: 1; Review comment, Smith, 29 June 2016)

The plan provided concepts and specific guidance for basic visitor services, interpretive directions, and cultural resource preservation and maintenance activities, and suggested ways to promote future economic growth in the St. Michael community. A phased list of improvements included:

- A 10-15 space parking lot near the clubhouse so visitors can park at a central facility and not disturb local property owners.
- Waysides to interpret the story
- Restoring and opening to the public the clubhouse and one or two cottages. Restoration would include structures and historic grounds as much as possible based on research.
- An Interpretive Tour Route Trail to link the story of the flood events between St. Michael and Johnstown.
- Walking tours of the historic district and adjacent lakebed.

(PIP 1988: 13-14,18)

The Preservation Society was founded to preserve the St. Michael Historic District's significant structures and interpret the story of the South Fork Fishing and Hunting Club. The Society obtained ownership of four club buildings in the late 1980s and early 1990s: the clubhouse, double cottage, Brown Cottage, and Lippincott (Moorhead) Cottage. One of the first projects completed was reconstruction of the clubhouse porch in 1991-92. At this time, the clubhouse was still used as a restaurant/bar, the double cottage was under renovation as four rental apartment units, and the cottages were vacant. In 1993 John Milner and Associates completed archeological investigations at the four sites to locate subsurface resources and identify landscape features possibly linked to the club. Milner reported that the artifacts, discrete yard deposits, and landscape features that were found were deposited or created after the club had been disbanded. The investigations also indicated that evidence for the boardwalk that fronted the buildings had not survived. (Balicki and Stevens 1993: 2,5,12; EA 2007: 37-39,44-45; LDA et.al. 1993: 42)

In 1993 and 1994, the National Park Service and the Preservation Society prepared a Historic

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Structures Report and an Interpretive Plan/Schematic Design to update and expand on the earlier recommendations:

- As the former focal point of club life, accurately restore the clubhouse to house most of the public functions, including the visitors/orientation center, exhibit space, a restaurant, and an inn.
- Restore the exterior of the clubhouse annex (double cottage), including reconstruction of the two-story porch.
- The Brown Cottage should be restored on the exterior and renovated on the interior, in keeping with its current duplex configuration, to house two rental units.
- The Moorhead Cottage should be restored on the exterior and the first floor of the interior to house exhibits and a library and to accommodate special events and receptions. Upstairs, it will be renovated into two apartment units, one intended for a caretaker to administer the overall project.
- Portions of the historic boardwalk and the access road behind the cottages should be replicated to provide some sense of the original context of the buildings.

(LDA et.al. 1993: 2; IP/SD 1994: 10)

Boundary Increase, 2004:

The four buildings associated with the South Fork Fishing and Hunting Club were not initially considered for inclusion into Johnstown Flood National Memorial because it was understood that a local entity, such as the 1889 South Fork Fishing and Hunting Club Historical Preservation Society, could adequately provide for their protection and interpretation. However, by the late 1990s the society was struggling to maintain the buildings and simultaneously make mortgage payments. In 2000 the society began working with a non-profit historic property development company to explore private sector interest in purchasing the parcels. The search was unsuccessful, and on October 5, 2004 federal acquisition of the club properties was authorized as part of the park's third boundary increase (P.L. 108-313), which added approximately 14 acres of land through purchases. This area included the three parcels in St. Michael associated with the South Fork Fishing and Hunting Club: clubhouse, double cottage, Lippincott (Moorhead) Cottage, and Brown Cottage. These building were acquired in 2006. It also included additional land east of the Lake View Farm (Tracts 01-130, 02-100, 02-101). (Dwg.427-80008, 2003)

Recent Projects and Plans:

The next chapter of this report, "Analysis and Evaluation of Integrity," identifies the historic and non-historic characteristic and features in the park's landscape. It also describes more recent changes in the park landscape and the current condition and use of its features.

Foundation Document.

The most recent planning document at Johnstown Flood National Memorial is the "Foundation Document," completed in 2013. Foundation documents provide basic guidance for all planning and management decisions. The core components of a foundation document include a brief description of the park as well as the park's purpose, significance, fundamental resources and values, other important resources and values, and interpretive themes.

Fundamental resources and values are those features, systems, processes, experiences, stories,

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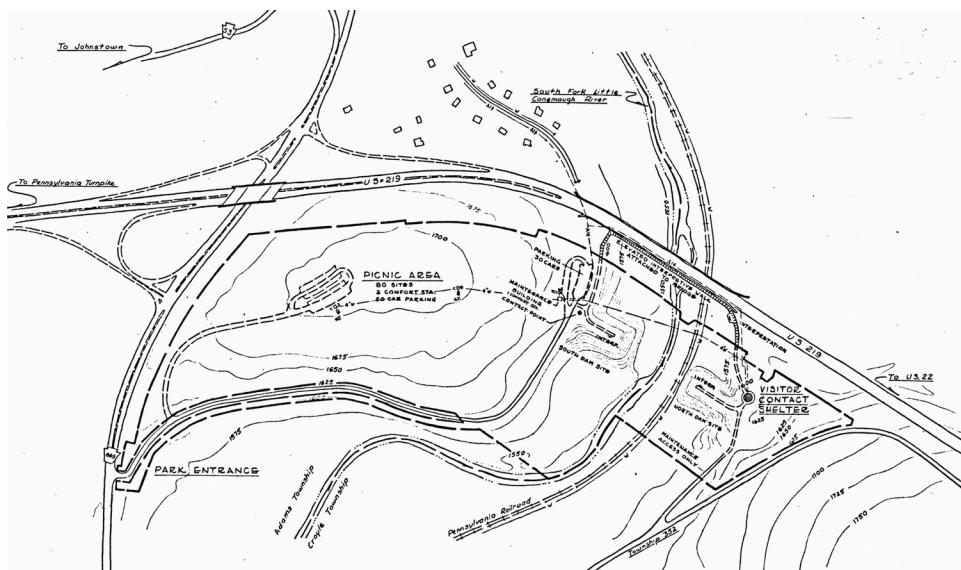
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scenes, sounds, smells, or other attributes determined to warrant primary consideration during planning and management processes because they are essential to achieving the purpose of the park and maintaining its significance. They are closely related to a park's legislative purpose and are more specific than significance statements. Fundamental resources and values help focus planning and management efforts on what is truly significant about the park; if they are allowed to deteriorate, the park purpose and/or significance could be jeopardized.

As stated in the "Foundation Document," the fundamental resources and values that relate to the park's landscape are as follows:

- South Fork Dam ruins: The abutments and spillway that are the remaining ruins of the South Fork Dam, the valve control tower foundation ruins, and the historic carriage road that traversed the abutment and continued upslope.
- The dry bed of Lake Conemaugh: The land below the 1,600-foot contour of the lake, including the South Fork Little Conemaugh River, wetlands, and vegetated slopes.
- South Fork Fishing and Hunting Club Historic District: The South Fork Fishing and Hunting Club clubhouse, annex, and cottages.
- Unger Farm (Lake View Farm): The house, visitor center, spring house, and the fields and the orchard on the hillside above the South Fork Dam.

(FD 2013: 6)



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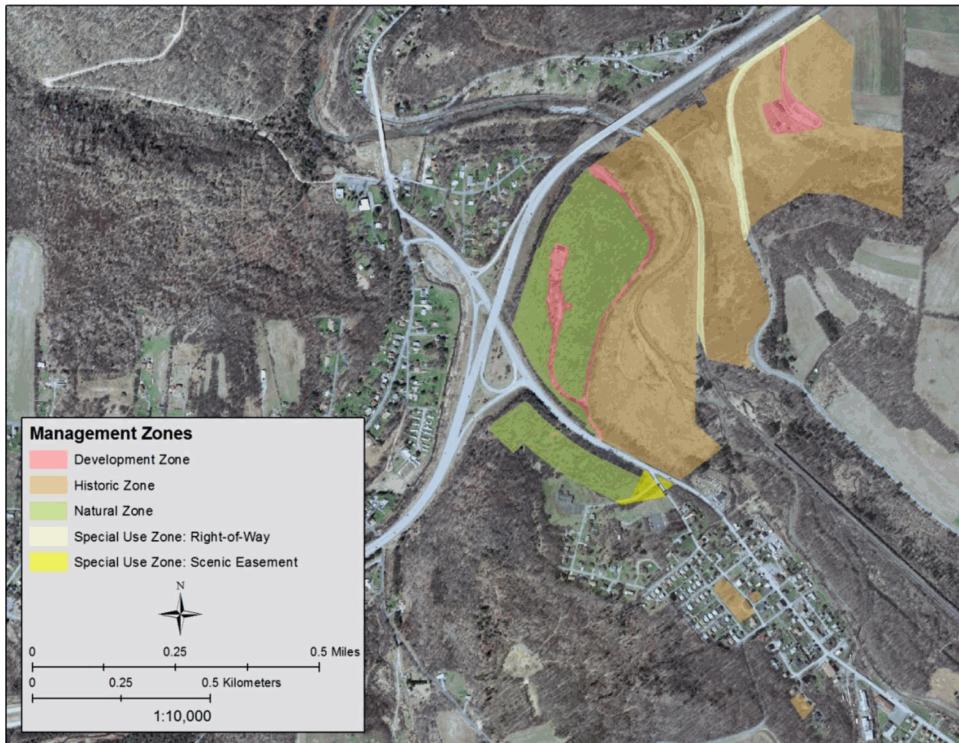


Figure 17. Park management zones, as shown in 2014. (From Yetter et.al., "Natural Resource Condition Assessment," 2014: 39)

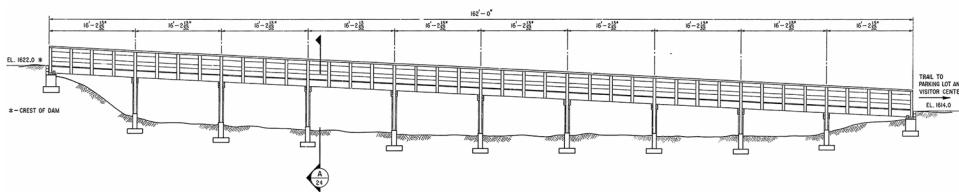


Figure 18. Plan of the pedestrian bridge at the spillway, 1986. Compare this design with Figure 5. (Denver Service Center, eTIC, #427-41004, id42355)

Analysis & Evaluation of Integrity

Analysis and Evaluation of Integrity Narrative Summary:

Landscape characteristics identified for Johnstown Flood National Memorial include natural systems and features, land use, spatial organization, topography, vegetation, constructed water features, circulation, buildings and structures, views and vistas, and small-scale features. Many of these characteristics have associated features that contribute to the site's overall historic significance and character. The features that contribute were either present during the period of significance or are in-kind replacements of historic features.

INTEGRITY

According to the National Register of Historic Places, integrity is the ability of a property to convey its significance through physical resources. The National Register program identifies seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. Retention of these qualities is necessary for a property to convey its significance; however, not all seven aspects must be present for a property to retain integrity. A basic test of integrity is to judge whether a participant in the historic period would recognize the property and its features as they exist today. That is to say, if Elias Unger and other members of the South Fork Fishing and Hunting Club were to return today, would they easily recognize the dam, lakebed, and club grounds?

Johnstown Flood National Memorial retains integrity in the areas and periods of significance. In general, the park conveys its historical significance through its location, setting, design, materials, workmanship, feeling, and association.

Location:

Location is defined by the National Register as the place where the historic property was constructed or the place where the historic event occurred. The park encompasses the abutments of the South Fork dam, spillway, remnants of the sluice culvert and valve control tower, and part of the former lakebed, which is somewhat obscured by the presence of trees. The park owns the hillside farm overlooking the dam and lakebed, once owned by club president Elias Unger who tried to save the dam. The park also includes four former buildings associated with the South Fork Fishing and Hunting Club about one mile from the dam. Here, the location of the buildings in relation to the old shoreline is more difficult to discern because of adjacent residential and commercial development.

Design:

Design is the combination of elements that create the form, plan, space, structure, and style of a property. The original length and width of the trapezoidal-shaped earthen and masonry dam is still visible in the remnant dam abutments, now covered in grasses on the upstream face and dense trees on the downstream face. The cut for the spillway is visible, although it is overgrown with grasses, while the functions of the sluice culvert and valve control tower can be understood in their remnants at the base of the dam. The park has returned the Lake View House and spring house to their approximate 1880s appearances, and the design of the visitor center gestures to the character of the

former Unger barn. Despite the loss of the original block of the clubhouse and alterations by post club period owners, the former club buildings retain many exterior design characteristics, including their front porches that once overlooked the lake.

Setting:

Setting is the physical environment of a property and the general character of the place. The failure of the South Fork dam and subsequent draining of Lake Conemaugh dramatically changed the setting from a quiet and scenic lake resort to a national memorial commemorating the tragic Johnstown flood of May 31, 1889. As such, the remnants of the dam and its associated structures, as well as the vegetated basin of the former lakebed, are consistent with the park's purpose. The rural setting of the Lake View Farm overlooking the dam and lakebed is also appropriate. However, significant alterations to the setting have occurred outside the park boundaries, namely the construction of U.S. Highway 219 bridge and development on adjacent lands. Perhaps the biggest change in setting is at the club grounds, which historically overlooked boathouse and docks on a lake and now overlook residential and commercial development.

Materials:

Materials are the physical features that were combined or deposited during the period of significance in a particular pattern or configuration to give form to the property. This aspect of integrity is most applicable at the South Fork Dam, where visitors can appreciate the structure's original construction, namely the amount and size of stones on the downstream face and the masonry stone and log cribbing at the remnants of the sluice culvert and valve control tower. Original materials are also extant at the Lake View House and at the former club buildings in St. Michael.

Workmanship:

Workmanship is the physical evidence of the crafts and methods of construction used during the specified historic period of significance. Visitors can still experience the quality of workmanship of the original portions of the dam, which are represented in the extant abutments. Especially impressive is the placement of large rocks on the dam's downstream face, accomplished in difficult terrain without the benefit of modern equipment. Conversely, the gap in the dam represents the club's poorly reconstructed portion of the dam.

Feeling:

Feeling is the expression of the aesthetic or historic sense of a particular time resulting from the presence of physical features that, taken together, convey a property's historic character. The feeling of the former secluded private resort is best experienced on the wooded carriage road trace that tracks along the hillside southwest of the south abutment and provides glimpses of the lakebed. The feeling of profound tragedy is evoked in the gap of the South Fork dam and the drained lakebed. Both experiences are hindered by the continued growth of trees in the lakebed, which obscures the size of the former lake and an understanding of how much water flowed through the breach. Continued development in and around the former lakebed beyond park boundaries also threatens to encroach on the overall feeling of the park, including the sight and sound of the busy Highway 219 bridge, through-traffic on Lake Road, and the active Norfolk-Southern line through the lakebed.

Association:

Association is the direct link between an important event or person and the property. The park's historic features represent the core areas associated with the South Fork Fishing and Hunting Club, owners of the South Fork Dam at the time of its breach and subsequent flooding of Johnstown. The Lake View House and spring house retain their connection with the events of May 31, 1889 and Colonel Elias J. Unger, who oversaw the ultimately futile efforts to prevent the dam's failure.

Landscape Characteristic:

This section presents an analysis of landscape characteristics and their associated features and corresponding List of Classified Structures (LCS) and Facility Maintenance Software System (FMSS) names and numbers, if applicable. It also includes an evaluation of whether the feature contributes to the property's National Register eligibility for the historic period (1879-1889); is noncontributing "compatible" (visually congruent with the historic character of the landscape) or "incompatible" (visually incongruent with the historic character of the landscape); is undetermined; or is managed as a cultural resource.

Natural Systems and Features

Historic and Existing Conditions:

Natural systems are the natural aspects that influence the development and physical form of the landscape including physiography, geology, and hydrology (vegetation is evaluated in the Vegetation section below). Johnstown Flood National Memorial is located in the Allegheny Mountains section of the Appalachian Plateaus physiographic province. In southwestern Cambria County, the mountains range in elevation from 1,135 to 2,408 feet (346–734 meters) above sea level. Ridgetops are composed of resistant Paleozoic sandstones and valleys are underlain by less resistant geologic units such as carbonates and shales that have eroded through time. Such processes created a landscape of large watersheds characterized by rolling hills and ridges interspersed with deep ravines and valleys. (Thornberry-Ehrlich 2008: 3,6)

In 1834 the State of Pennsylvania completed a series of canals and portage railroads to transport coal, goods, and passengers over the mountains. To supply water for the canal between Johnstown and Pittsburgh, the state built the South Fork Dam and Western Reservoir amongst the hills and valleys east of Johnstown. Situated in a ravine along the South Fork Little Conemaugh River, this location provided a dependable watershed that could provide water in the dry summer months. However, the large watersheds and narrow valleys in this area were prone to flooding, especially during the spring. These factors, along with a heavy rainfall, aggravated the 1889 Johnstown Flood; the reservoir rose quickly, and when the dam broke the water that was released increased rapidly in speed and volume as it moved downstream through the steep gorge of the Little Conemaugh to Johnstown. (Yetter et.al. 2014: 17)

The flow of the South Fork Little Conemaugh River was significantly altered by the construction of the dam in 1853 and its reconstruction in 1879-81. As originally designed, the impounded water was released into five sluice pipes controlled by valves that regulated the flow

of the river below the dam, but when the dam was rebuilt the sluice pipes and valves were not reinstalled, which severely reduced the river's downstream flow. The catastrophic event of May 31, 1889 also changed the course of the river downstream from the dam, and upstream left behind a barren basin and a muddy river. Within a few years after the dam break, the course of the river and its tributaries was reshaped yet again with the construction of railroad line through the empty lakebed and alongside the river.

Geology and Soils.

Elevations within the park range from 1,540 to 1,855 feet. Bedrock geology varies from the Glenshaw Formation in the former lakebed to the Casselman Formation in the higher elevations. Both are Pennsylvania and Mississippian age marine-derived sediments composed of abundant sandstone and siltstone, some conglomerate layers, shale, and limestone. These geologic units are fossiliferous containing remains of vast marshy peat swamps and wetlands. They also contain significant amounts of coal including the commercially valuable Freeport, Kittanning, and Brookeville-Clarion coal seams. (Yetter et.al. 2014: 19; Thornberry-Erhlich 2008: 16)

Soil types surrounding the South Fork Little Conemaugh River include moderately well-drained floodplain soils (Atkins silt loam and Philo silt loam). The lakebed also contains a combination of well-drained soil (Laidig loam) and poorly-drained soil (Brinkerton silt loam). The park's higher elevations feature poorly-drained to well-drained soils (Wharton silt loam, Cavode silt loam, Blairton silt loam, and Cookport-Ernest sandy loam) associated with upland fields and forest. The remaining portions of the park are mapped as urban soil (Udorthents). (Perles et.al. 2006: 3; Yetter et.al. 2014: 19)

Hydrology.

The park contains a variety of important water resources, including rivers, streams, and wetlands. The main water resource is the South Fork Little Conemaugh River that flows through the old lakebed and bisects the park (Figure 19). The river, which was identified as a fundamental resource and value in the park's 2013 "Foundation Document," is joined by several small tributaries that flow through park property. The course of the river has been altered by the presence of the railroad berm on the east side of the river, which directs drainage from tributaries on the east side of the lakebed into culverts positioned along the berm (see Figure 19). The drainage area of the streams running through the park is 53 square miles in size and contains 102 miles of streams. Much of this area is woodland as well as scattered agricultural and urban lands. Abandoned mine lands occur throughout the watershed, mostly to the south and east of the park. (Yetter et.al. 2014: 20-21; FD 2013: 6)

Streams flowing through the park have been designated "cold water fisheries" but none are considered 'high quality' waters. The entire length of the South Fork Little Conemaugh River running through the park is listed as impaired by pH and metals from abandoned mine drainage by the Pennsylvania 303d list. Other stream segments in the watershed upstream of the park are also impaired from abandoned mine drainage. Topper Run, a tributary just southeast of the former South Fork Fishing and Hunting Club cottages, is said to be the single largest contributor

of pollution in the Little Conemaugh River. However, efforts are underway to mitigate this pollution, including construction of a treatment plant as part of plans to resume mining. (Yetter et.al. 2014: 21-22,27-28)

Wetlands occur throughout the lakebed, and were identified as among the park's fundamental resources and values in the 2013 "Foundation Document." Four wetland associations were identified in the 2006 report, "Vegetation Classification and Mapping at Johnstown Flood National Memorial." They included: Old Field (Wet Meadow subtype) interspersed throughout the lakebed with the other Old Field subtypes and occurring in seasonally saturated areas of the lakebed; Silky Willow Shrub Swamp and Cattail Marsh, which both occur mostly in the impounded areas along the railroad berm; and Riverine Scour Vegetation, which occurs in areas along the river that are underwater for a significant portion of the year and are subject to high flood velocities and scour. (FD 2013: 6; Yetter et.al. 2014: xxi,24, citing Perles et.al. 2006: 21,66)

A 2009 wetland delineation by Keller Engineers reported 15.43 acres, an increase from 7 acres in 1986, most of which were within the former lakebed. Palustrine emergent wetlands covered the largest wetland area, while the remaining area was represented by palustrine scrub shrub wetlands and riverine unconsolidated bottom wetlands along the river. Two small wetlands were also delineated outside the lakebed and downstream from the dam abutments. The 2014 report, "Natural Resource Condition Assessment," provides detailed evaluations of the park's wetlands. (Yetter et.al. 2014: 22-23, citing Keller Engineers 2009: np)

Landscape Characteristic Graphics:



Figure 19. View looking south from dam's north abutment. Culverts take water from the east side of the railroad berm to the river on the west side. Lake Road is at image left and South Abutment Road at image right. (OCLP 2014, photomerge of DSC_0021-0022)

Land Use

Historic Condition (to 1889):

Land use describes the principal activities in a landscape that form, shape, and organize the landscape as a result of human interaction. The South Fork Dam and Western Reservoir were completed in 1853. Their original purpose was to provide a reliable supply of water to the canal in Johnstown, which was part of the state-funded system of canals and railroads stretching between Philadelphia and Pittsburgh. In 1857 the Pennsylvania Railroad Company purchased the entire Main Line works, leaving the dam and reservoir virtually unattended but still

functioning. In July 1862 the dam broke due to a combination of heavy rain and the railroad's lack of maintenance at the dam. The railroad did not repair the dam, as it was planning to close the canal the following year, and the empty lakebed began to revert back to vegetation. In the years that followed farmers cultivated fields and grazed livestock in the lakebed, while locals are said to have fished in pools that remained near the broken dam.

In 1879 the South Fork Fishing and Hunting Club purchased the dam and lakebed for use as a private resort where wealthy industrialists, bankers, lawyers, and businessmen from Pittsburgh could hunt, fish, and enjoy the outdoors. The dam was rebuilt in 1880-81 and the refilled impoundment was named Lake Conemaugh. A clubhouse and private cottages with docks and boathouses were built on the lake's southwestern shoreline, while some members, such as Elias Unger, purchased lands bordering the lake for their homes and farms. This idyllic scene ended with the dam break and flood on May 31, 1889, after which the club disbanded and its property was sold.

Post-Historic and Existing Conditions:

New land uses were introduced in and around Lake Conemaugh soon after the tragic events of May 1889. In 1891, the South Fork Branch Railroad, a subsidiary for the main line of the Pennsylvania Railroad, built a rail line through the bottom of the empty lakebed and the breach in the dam. By 1904, they had added a second track and a multi-track railyard in the southeastern portion of the old lake. On the lake's southwestern shore just southeast of the club cottages, the Maryland Coal Company opened a mine in 1907 and established the company town of St. Michael. The company purchased the former cottages for employee housing and built additional houses nearby. Another developer purchased the clubhouse and possibly the double cottage for use as a hotel and restaurant. On the lake's northeastern shore, the Lake View Farm was sold to a series of owners who worked the fields and raised livestock. Local roads were also built in portions of the lakebed and along the shorelines, some of which were eventually improved as part of the state highway system. During this time, areas of the lakebed that were not developed reverted to woodlands, including one area that was set out as a conifer plantation.

Land uses in the area changed again in the 1950s and 1960s, beginning with the closure of the mine in c.1958 and the construction of U.S. Route 219 northwest of the dam in the mid-1960s. In 1964 Congress authorized Johnstown Flood National Memorial as a unit of the national park system to commemorate the Johnstown flood and to preserve the remains of the dam and portions of the lakebed. The park's initial land acquisitions included the dam abutments, a small portion of the lakebed, and a hill to the southwest where the park developed a picnic area, parking lot, and later a maintenance facility. Two boundary increases in the 1970s allowed the park to acquire additional lands in the lakebed, the former Lake View Farm, and other lands for use as a scenic buffer. Another boundary increase in 2004 added the clubhouse, double cottage, and two private cottages to the park's acreage.

The park now offers interpretive programs and exhibits at the visitor center, waysides along

trails on and around the dam abutments, and a nature trail near the picnic grounds that uses part of the carriage road trace. Other park land uses include four parking lots, park offices at the Lake View House, and maintenance facilities adjacent to the picnic grounds. The park-owned club buildings are used as rental housing units or are currently vacant. The railroad running through the middle of the lakebed is still active and is operated by Norfolk-Southern.

Spatial Organization

Historic Condition (to 1889):

Spatial organization refers to the three-dimensional organization of physical forms and visual associations in a landscape, including the articulation of ground, vertical, and overhead planes that define and create spaces. The core of the South Fork Fishing and Hunting Club was on the southwestern shore of Lake Conemaugh, about one mile upstream from the South Fork Dam. The first building constructed was the clubhouse in 1881, which was built on the lakeshore and oriented northwest-southeast so that its front façade and covered porch would face the lake. In addition to functioning as the center of club activities, the siting of the building also influenced the location of the private cottages that were built in the years that followed. By 1888, four cottages and the club's annex were located northwest of the clubhouse and ten cottages were situated southeast, and like the clubhouse were oriented to the lake and included front porches. Collectively, the buildings formed a row that faced the shoreline. Boathouse structures and numerous docks extended out into the lake, and were connected to the boardwalk with paths. Other utilitarian structures, such as privies, ice houses, and barns, were located on the carriage road behind the row of buildings so as not to block the panoramic lake views. (LDA et.al. 1993: 47)

A similar orientation of buildings and spaces characterized the Lake View Farm, where the house was built on a hillside overlooking the dam and lake. Farm buildings were intentionally located uphill and behind the house so the view from the house and its two-story porch would not be blocked. Fences around the house and outbuildings, and along some of the property lines, further defined spaces.

Post-Historic and Existing Conditions:

The physical arrangement of the club grounds influenced the 1907 plans for the coal company town of St. Michael. In the empty lakebed in front of the clubhouse and row of cottages, a rectangular-shaped grid of streets and lots was laid out parallel to the row. A second plat was later developed just west of the clubhouse and double cottage, its grid also oriented with the club buildings. The alignment of the boardwalk was transformed into Main Street, while the carriage road behind the club buildings was retained for access to the second plat. The row of club buildings itself was also changed; some cottages were razed and not replaced, while others were replaced with new homes, or in one case, with a church. As the use of cars increased, driveways and parking areas were set out in the spaces between the buildings. Today, the historic spatial relationships between the club buildings and the former lake, and within the row itself, are difficult to discern because of the surrounding development.

The Lake View Farm was active and productive for decades after the historic period, and although a few new structures were added, the overall spatial organization of the farm

remained the same. The most significant changes began when farm production declined and several old or unneeded outbuildings were removed, or in the case of the barn and carriage/wagon/machine shed, collapsed. In the late 1980s, the park constructed a new visitor center at the site of the old barn, which offered excellent views of the dam, lakebed, and clubhouse/cottages. Mindful of the important spatial relationship between the Lake View House and the dam and former lakebed, the park located the visitor parking lot and access road uphill from the visitor center so as not to block the historic views down the hill.

Topography

Historic Condition (to 1889):

Topography is the three-dimensional configuration of the landscape surface characterized by slope and orientation. The topography of the landscape that would become Johnstown Flood National Memorial was dramatically altered beginning in 1840 when the state constructed the South Fork Dam and Western Reservoir (see Constructed Water Features below). Additional topographic changes were made in the early 1880s by the South Fork Fishing and Hunting Club to build the carriage road that approached the dam's north abutment, crossed the dam, and continued along the hillside southwest of the dam to the club grounds. Construction of the clubhouse, cottages, boardwalk, and carriage road behind the cottages likely required changes to the topography, especially those southeast of the clubhouse where the terrain was steeper. At the Lake View Farm, the house, barn, and other buildings were built into the hillside, which required the use of walls and steps to address the changes in grade.

Post-Historic and Existing Conditions:

New land uses in the old lakebed and surrounding hillsides resulted in topographic changes. One of the first occurred in 1891 when the South Fork Branch Railroad constructed the rail line on the east side of the river and through the old lakebed and the gap in the dam. The track was constructed on a raised berm to minimize river washouts, and remains in use today. By 1904-05 roads were built along and just below the lake's northeastern shoreline and through the spillway, and just above the southwestern shoreline. In the 1930s, the road on the southwestern shoreline was improved with retaining walls and culverts as part of its designation as State Route 869, and in the 1960s the road on the northeastern shoreline was relocated uphill from the spillway as part of the construction of U.S. Route 219. Since the park was established, landforms have been altered for construction of visitor parking lots, an access road to the picnic grounds, trails, and a new visitor center at the former barn site on the Lake View Farm.

Vegetation

Historic Condition:

Vegetation includes managed individual specimens and masses of deciduous and evergreen trees, shrubs, vines, groundcovers, and herbaceous material, both indigenous and introduced. The park and surrounding region was historically forested with species such as sugar tree (sugar maple), cherry, white walnut (butternut), hickory, chestnut, ash, oak, cucumber, hemlock, and spruce. Beginning in 1840, contracts were let to clear and burn over 400 acres of land for construction of the South Fork Dam and the Western Reservoir. After the dam's first break in 1862, grasses and other vegetation returned in the lakebed, but were underwater again by 1881 when the dam was rebuilt to form Lake Conemaugh. Additional trees were likely removed

along the shoreline as the lake's capacity was increased to around 500 acres. Historic photographs reveal that in 1889, a few young trees were growing on the upstream side of the dam's crest, but were more prevalent on the rocky downstream sides of the dam. There were no trees in the center portion of the dam, which was rebuilt by 1881.

At the South Fork Fishing and Hunting Club, tree clearing presumably occurred to construct the clubhouse and cottages, boardwalk, and carriage road. However, historic photographs indicate some mature trees and shrubs were retained in front of and in between the buildings, and that dense woodlands stood behind the buildings. Some cottages also featured small gardens. At the Lake View Farm, historic photographs show open fields surrounding the farm buildings. There were a few trees and shrubs around the Lake View House, and groups of trees between the barn and spring house and north of the barn.

Post-Historic and Existing Conditions:

Vegetation within park boundaries today reflects its land use history and current management regimes. The descriptions of the park's vegetation that follow are based on the vegetation associations that have been identified in the park. They are organized according to the park's three primary management zones: Historic, Natural, and Developed (see Figure 17).

The 2006 report, "Vegetation Classification and Mapping at Johnstown Flood National Memorial" identified seven vegetation associations (and three subtypes) in the park:

- Red Maple-Black Cherry Successional Forest/Woodland. This association is the park's most common forest type, occurring on moderate to somewhat steep slopes and moderately well to well-drained silt loams and clay loams. Characteristic species include red maple (*Acer rubrum*), black cherry (*Prunus serotina*), and occasionally black locust (*Robinia pseudoacacia*).
- Eastern Hemlock-Northern Hardwood Forest. Occurs on north-facing slopes on the old dam abutments and along a stream near the park's eastern boundary. Characteristic species include Eastern hemlock (*Tsuga Canadensis*), sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), American beech (*Fagus grandifolia*), silver false spleenwort (*Deparia acrostichoides*), and mayapple (*Podophyllum peltatum*).
- Conifer Plantation. Occurs in a few small patches near the south end of the lakebed and in the southeastern portion of the Lake View Farm. Characteristic species include white pine (*Pinus strobus*), Scotch pine (*Pinus sylvestris*), red pine (*Pinus resinosa*), New York fern (*Thelypteris noveboracensis*), Canada mayflower (*Maianthemum canadense*), Canadian white violet (*Viola canadensis*), and ribbed sedge (*Carex virescens*).
- Silky Willow Shrub Swamp. Occurs in the former lakebed, most prominently on the northeast side of the railroad berm, and in small patches in the old field vegetation on the river's west shore. Characteristic species include silky willow (*Salix sericea*), fowl mannagrass (*Glyceria striata*), rice cutgrass (*Leersia oryzoides*), common rush (*Juncus effuses*), fringed loosestrife (*Lysimachia ciliata*), and broadleaf cattail (*Typha latifolia*).
- Cattail Marsh. Occurs in the former lakebed, most prominently on the northeast side of the railroad berm and in small patches in the old field vegetation on the river's west shore. Characteristic species include Broadleaf cattail (*Typha latifolia*), rice cutgrass (*Leersia*

oryzoides), swamp verbena (*Verbena hastate*), wool grass (*Scirpus cyperinus*), and Allegheny monkeyflower (*Mimulus ringens*).

-- Old Field (Wet Meadow subtype). Occurs in low-lying areas of the lakebed. Characteristic species include wrinkleleaf goldenrod (*Solidago rugose*), arrowleaf tearthumb (*Polygonum sagittatum*), purplestem aster (*Sympphyotrichum puniceum*), sedge (*Carex spp.*), rice cutgrass (*Leersia oryzoides*), and spikerush (*Eleocharis spp.*).

-- Old Field (Herbaceous subtype). Occurs throughout the lakebed and on upland areas in the eastern portion of the park. Characteristic species include wrinkleleaf goldenrod (*Solidago rugose*), timothy (*Phleum pretense*), sweet vernalgrass (*Anthoxanthum odoratum*), flat-top goldentop (*Euthamia graminifolia*), and broom sedge bluestem (*Andropogon gerardii*).

-- Old Field (Hawthorn subtype). Occurs on the gentle to steeply sloping fields above the former lakebed and surrounding the park's visitors center. Characteristic species include hawthore (*Crataegus spp.*), apple (*Malus spp.*), black cherry (*Prunus serotina*), red maple (*Acer rubrum*), goldenrods (*Solidago spp.*), timothy (*Phleum pretense*), sweet vernalgrass (*Anthoxanthum odoratum*), flat-top goldentop (*Euthamia graminifolia*), and broom sedge bluestem (*Andropogon gerardii*).

-- Riverine Scour Vegetation. Occurs on low terraces and cobble bars adjacent to the river channel. Species composition is highly variable due to the frequent scour that exposes new substrate and allows new propagules from a variety of sources to establish. (Perles et.al. 2006: 27-64,66)

Historic Zone – Lakebed.

(includes Old Field-Herbaceous, Old Field-Wet Meadow, Cattail Marsh, Silky Willow Shrub Swamp, Riverine Scour Vegetation, Conifer Plantation, Eastern Hemlock-Northern Hardwood Forest, and Red Maple-Black Cherry Successional Forest/Woodland)

After the South Fork Dam broke in 1889, most of the drained lakebed reverted to fields and woodlands, except for areas that were part of a railroad right-of-way beginning in 1891 or lands associated with the Maryland Coal Company and the town of St. Michael beginning in 1907. An aerial photograph from 1939 shows scattered trees throughout the lakebed, as well as a young plantation of conifers on the west side of the river between the old dam and St. Michael. Aerials from the 1950s through the late 1980s indicate much of the lakebed and the dam abutments were covered in forest, and the plantation was thriving.

Little is known about the first 20 years of park management of the lakebed, but by 1986 it was largely characterized by planted stands of Scotch pine, eastern white pine, and red pine, and 16 acres contained mixed conifer-hardwood and northern hardwood forest communities. In 1988-91 the park clear cut and burned approximately 50 acres of vegetation in the lakebed, including areas adjacent to the riverbanks and on the upstream sides of the dam abutments, to open the viewshed so that visitors could visualize the extents of the former lake. Much of the lakebed was then seeded to promote grassland development, but the effort was only partially successful as it was difficult to prevent shrub regrowth. By 1995 one-third of the lakebed was once again dominated by thick growth of early-successional shrubs and tree saplings. Several

invasive species – including Morrow’s honeysuckle, purple crown vetch, Japanese knotweed, and multiflora rose – had also established themselves in the lakebed. An intensive management regime of woody plant removal and herbicide application was employed in 1995-2000, and in 2002-03 volunteers removed invasive woody shrubs. However, in 2004 park management suspended tree removal in the lakebed. In 2007 invasive woody shrubs were removed from non-wetland areas of the old lakebed. Trees have since returned, mostly due to natural succession of forests and woody wetland plants, but also because of an increase in wetland acreage in the lakebed from 7 acres in 1986 to just over 15 acres in 2009. Wetlands are protected by Executive Order 11990, which limits activities in and around them that may cause potential negative effects. (Perles et.al. 2006: 5,71-72, citing Bowersox 1986: np; Yetter et.al. 2014: 24,29,38,175; NETR aerials, 1962 and 1972; Interview with K. Penrod, November 2014; Review comment, Penrod, 29 June 2016)

Today the lakebed is managed primarily as a mosaic of wetlands, grasslands, and shrubland that comprises approximately 43% of the park area (see Figure 19). In addition, a 50-foot forested riparian buffer strip is now allowed to regrow on either side of the river to facilitate floodplain management, wetland growth, erosion reduction, and pollution control. A few patches of conifer plantations have been allowed to remain in the south end of the park-owned portion of the lakebed, along with several acres of hardwood forest along Lake Road and upslope of wetlands. On the downstream sides of the dam abutments, mature hemlocks and maples dominate the south abutment while red maple, black locust, and cherry grow throughout the north abutment. Grasses and low shrubs cover the upstream sides of both abutments except for a few solitary mature trees along the crest. The park’s Natural Resource Manager believes that a large maple tree at the end of the reconstructed spillway bridge leading to the north abutment is a witness tree to the 1889 flood (it appears as a small sapling in the interpretive photo currently at the south abutment viewing platform). A line of red maple, black locust, and hemlock also grows alongside the lakebed side of the South Abutment Road. The 2013 “Foundation Document” identified the lakebed’s “vegetated slopes” as a fundamental resource and value in the park. (Yetter et.al. 2014: 24; Interview with K. Penrod, November 2014; FD 2013: 6; Review comment, Penrod, 29 June 2016)

Historic Zone – Lake View Farm.

(includes Old Field-Herbaceous, Old Field-Hawthorn, Conifer Plantation, and Red Maple-Black Cherry Successional Forest/Woodland)

Fields at the Lake View Farm were cultivated through the late 1960s and then declined until the property was acquired by the park in 1981, after which they were maintained as grassland and meadow to preserve the views to the lakebed and dam. In 2007 the park removed honeysuckle and multiflora rose in the fields. To the southeast of the spring house, a woodlot or orchard comprised of hawthorns and apples was established by 1939, but was reduced in size in the late 1980s by construction of the visitor parking lot. (Yetter et.al. 2014: 175; Interview with K. Penrod, November 2014)

Today, the Lake View Farm fields are mowed every other year (Figure 20, see also Cover). Dominant species are patchy in their distribution and include wrinkleleaf goldenrod, timothy, shiny wedgescale, sweet vernalgrass, flat-top goldenrod, and big bluestem. The woodlot/orchard is no longer actively managed or mowed and is now dominated by tall hawthorns and apples surrounded by thickets. There is also a small area of conifers in the southeastern portion of the farm and an area of red maple-black cherry forest/woodland at the southwest edge of the farm alongside Lake Road. The 2013 “Foundation Document” identified the Unger fields and orchard as fundamental resources and values. (Yetter et.al. 2014: 25; Interview with K. Penrod, November 2014; FD 2013: 6)

Historic Zone – Clubhouse and Cottages.
(includes Red Maple-Black Cherry Successional Forest/Woodland)

After the historic period, scattered trees continued to mature around the former clubhouse and cottages, while the former lakebed that fronted the cottages was transformed into housing lots. A 1939 aerial photograph indicates lawns with scattered trees around the club buildings, similar to the character of the surrounding residential neighborhoods of St. Michael. There was also a small woodlot between the clubhouse and double cottage by this time, some of which may have been present during the historic period. By the late 1950s, most trees at the clubhouse had been removed, while the woodlot between the clubhouse and annex had matured and expanded.

Today, there is small area of red maple-black cherry forest/woodland at the rear of the Brown and Lippincott (Moorhead) Cottages, which is part of a larger wooded area to the south and west. The clubhouse and double cottage are maintained as lawns except for the small woodlot between the two buildings, which has become smaller due to the loss of trees from old age and disease. Additional analysis of historic photographs is recommended to determine if trees may have been present at this location during the historic period.

Natural Zone.
(includes Red Maple-Black Cherry Successional Forest/Woodland and Old Field)

The hill situated southwest of the south abutment remained wooded after 1889, although some trees were removed by 1904-05 for construction of a local road just downhill from the carriage road, as well as a small clearing for mining activities near the dam. Additional trees were taken down along the road in the 1930s when the road was improved and designated State Route 869. By 1958, a corridor of trees was removed on the southwest side of the hill for the new alignment of State Route 869, and in the 1960s a much larger area was removed on the northwest side of the hill for the construction of U.S. Route 219 and its associated engineering features. Under park ownership, trees were removed at the top of the hill in 1972-73 for construction of the Picnic Grounds Road and parking lot, but mature trees were retained in the picnic area itself. Additional trees were cleared for construction of a maintenance facility in the early 1980s and its expansion in the mid-1990s. Unlike the adjacent lakebed, threats from

non-native vegetation were not a major problem, although honeysuckle was removed around 2000 around the lower end of the Picnic Grounds Road. (Yetter et.al. 2014: 29,175)

Today, the hill features mature sugar maple, American beech, red maple, black cherry, and other species. There are still areas of non-native plants, including multiflora rose and more recently garlic mustard. This stand is older than a younger area of similar composition south of the hill, on the south side of State Route 869 that was an open field until the 1970s when the park acquired it as a viewshed buffer. Today this forest/woodland is threatened by the spread of honeysuckle and viburnum leaf beetle. (Yetter et.al. 2014: 175; Interview with K. Penrod, November 2014)

Developed Zone.

Vegetation associated with the Developed Zone is located amongst the buildings at the Lake View Farm, along the South Abutment Road and parking lot, and Picnic Ground Road and parking lot, and maintenance area. The largest area is at the Lake View Farm, which according to the 1939 and 1958 aerials featured trees scattered around the house, between the barn and spring house, and along the driveway. The park explored having local farmers plant and harvest hay between the visitor center and Lake Road but did not maintain that long-term. With the rehabilitation of the Lake View House and construction of the visitor center in the late 1980s, the park installed trees around the buildings and parking lot, including tuliptree, red oak, red maple, sugar maple, American beech, hawthorn, and dogwood. Substantial masses of shrubs and grasses were proposed on the hill between the visitor center and spring house, but not all were installed. The park installed lawns throughout this area. (Review comment, Smith, 29 June 2016)

Today, the developed area landscape at the Lake View Farm is maintained primarily as lawn. A few trees are scattered east of the visitor center, in and around the visitor parking lot, on the north side of the visitor center, and the north side of the spring house. Shrubs are limited and generally used to screen utilities around the buildings. A native plant garden installed by the park, Johnstown High School, and a local artist in c.2012 is located near the entrance to the visitor center. The South Abutment Road and Picnic Grounds Road feature maintained grass shoulders, which extend around their associated parking lot loops and medians, some of which also contain scattered trees. Woods associated with the Natural Zone surround the maintenance and picnic areas; there is no vegetation within the maintenance area but the picnic area is characterized by maintained grass with an overhead canopy of scattered mature trees.

Character-defining Features:

Feature: Lakebed Vegetation (Upstream from Dam)

Feature Identification Number: 176716

Type of Feature Contribution: Non contributing – incompatible

Latitude Longitude

0.0000000000

Johnstown Flood NMem Landscape

Johnstown Flood National Memorial

Feature: Forested Areas on Downstream Face of Dam Abutments

Feature Identification Number: 176718

Type of Feature Contribution: Contributing

Latitude Longitude

0.0000000000

Feature: Trees on Upstream Face of Dam Abutments

Feature Identification Number: 176720

Type of Feature Contribution: Non contributing – incompatible

Latitude Longitude

0.0000000000

Feature: Forest Vegetation on Hill southwest of Dam

Feature Identification Number: 176722

Type of Feature Contribution: Contributing

Latitude Longitude

0.0000000000

Feature: Open Fields at Lake View Farm

Feature Identification Number: 176724

Type of Feature Contribution: Contributing

Latitude Longitude

0.0000000000

Feature: Woodlot/Orchard southeast of Lake View House

Feature Identification Number: 176726

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Plantings and Lawns around Lake View House and Visitor Center

Feature Identification Number: 176728

Type of Feature Contribution: Non contributing – compatible

Johnstown Flood NMem Landscape

Johnstown Flood National Memorial

Latitude Longitude
0.0000000000

Feature: Native Plant Garden

Feature Identification Number: 176730

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude
0.0000000000

Feature: Grass and Trees at South Abutment Road and Parking Lot

Feature Identification Number: 176732

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude
0.0000000000

Feature: Grass and Trees at Picnic Grounds Road and Parking Lot

Feature Identification Number: 176734

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude
0.0000000000

Feature: Lawns and Trees at Picnic Area

Feature Identification Number: 176736

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude
0.0000000000

Feature: Woodland behind Cottages

Feature Identification Number: 176738

Type of Feature Contribution: Contributing

Latitude Longitude
0.0000000000

Feature: Trees between Clubhouse and Double Cottage

Feature Identification Number: 176740

Type of Feature Contribution: Undetermined

Latitude Longitude

0.0000000000

Landscape Characteristic Graphics:



Figure 20. View looking south-southwest at from the porch at the Unger House (now Lake View House). The lakebed and river are at image right. Club buildings in St. Michael are at image center in the distance. (OCLP 2014, DSC_0101)

Constructed Water Features

Historic Conditions (to 1889):

Constructed water features are built features and elements that utilize water for aesthetic or utilitarian functions. The South Fork Dam and Western Reservoir was constructed by the Commonwealth of Pennsylvania for the Main Line of Public Works, a system of canals and rail lines linking Philadelphia and Pittsburgh. Construction began in 1840, but because of inadequate funding was not completed until 1853. The half-completed dam failed during this period, in 1847, and caused a minor flood in Johnstown.

The South Fork Dam and Western Reservoir was designed by civil engineer William E. Morris, and when completed in 1853 was hailed as an engineering masterpiece. The dam was 931 feet long, 72 feet high, more than 500 feet wide at the bottom, and approximately 10 feet wide at the top, which was wide enough for a wagon to pass. The top of the dam was ten feet higher than

the water level of the reservoir. Although preliminary estimates had indicated a central core of masonry, it was instead composed of successive layers of clay earth that was found in the vicinity, each layer having been well rammed or packed down (puddled) by allowing it to sit under a skim of water for a period of time so as to be watertight. This puddled clay core was supported on both sides by stone and gravel layers. The downstream face of the dam was riprapped with heavy loose rocks, while the upstream face was riprapped with a layer of smaller stones 2.5 feet thick. Between the outer riprap and central core was a layer of native slate broken down into a four-inch size pieces. The slope of the downstream face was 1.5 to 1 while that of the upstream face was 2 to 1. (Unrau 1979: 46-47)

The control mechanism for the dam consisted of a sluice gate whose five 24-inch diameter cast iron pipes were secured within a cut stone arch culvert (25 feet wide at the base) that extended entirely through the base width of the dam. Water was discharged from the reservoir through these pipes into the river to ultimately flow 12 to 14 miles downriver to the canal at Johnstown. A wood frame valve control tower, having a log and stone foundation at the bottom of the reservoir, extended about 15 feet above the top of the water surface and was used to regulate the discharge of water. A row boat served as the only access from the dam to the control tower. (Unrau 1979: 47,54)

The south end of the dam was anchored to the hillside by a stone wall 20 feet high and buttressed every 20 feet through the base. At the north end of the dam, a spillway was cut through the solid rock to prevent the water behind the dam from rising to the top and flowing over its crest. At its narrowest width, the spillway was 70 feet wide. The floor of the upper end of the spillway was approximately 10 feet below the crest of the dam. (Unrau 1979: 47)

The reservoir, which was limited to a 50-foot depth at the dam in 1853, covered an area of 424.85 acres, stretched upstream for about 2 miles and was nearly a mile wide in some places. The water in the reservoir was described by Thomas J. Chapman in *The Valley of the Conemaugh* as being sufficient to fill a canal five hundred and 60 miles long, 30 feet wide, and 5 feet deep:

“If filled into hogshead thirty inches in diameter, and standing side by side, they would form a row that would more than encompass the earth; or, if diffused in the form of rain, it would be sufficient to water all of Pennsylvania west of the Alleghenies.” (Unrau 1979: 48, citing Chapman 1865: 90-91)

The Main Line was purchased by the Pennsylvania Railroad Company in 1857. In 1862, following heavy rains compounded by years of neglect, the dam failed for the second time, washing out 200 feet of the dam to a depth of about 50 feet and damaging the sluice culvert. The break destroyed a sawmill downstream and raised the water in Johnstown, but could have been far worse had the dam’s watchman not opened the sluice pipes to help drain the reservoir, which was not full at the time. The railroad had no use for the dam and reservoir after it closed the canal in 1863, in 1875 sold the breached dam and empty reservoir to U.S. Congressman John Reilly. During Reilly’s ownership, the five sluice pipes were sold for scrap and the

abandoned valve control tower burned down. Reilly sold the property to the newly formed South Fork Fishing and Hunting Club in 1879 for use as a private summer resort. (Unrau 1979: 53-54,74)

The club did not employ a professional engineer to supervise reconstruction of the 1862 break, causing others with such qualifications to criticize the repairs. Among their concerns was the club's failure to reinstall sluice pipes, which eliminated the ability to safely remove excess water from the reservoir, and the club's methods used in the repairs and the questionable quality of the materials. Another modification was lowering the crest of the center portion of the dam by two feet to create a place where two carriages could pass each other. This resulted in reducing the maximum flow capacity of the spillway from ten feet to eight feet before water would begin to flow over the top of the dam and on its downstream face. The flow capacity of the spillway was reduced further by a timber trestle bridge built across the upper end of the spillway to carry the carriage road to the lake's northeastern shoreline. In between the bridge supports were twenty-inch high heavy fish screen grids to prevent the loss of stocked fish. In addition, a V-shaped log boom projected into the lake to keep brush and debris from piling against the screens. (Unrau 1979: 65-74)

By 1881, the dam was rebuilt and the reservoir, renamed Lake Conemaugh, was refilled. The lake covered 500 acres, more than it had when used as a reservoir for the Main Line, and stretched around three miles in length. In subsequent years, occasional leaks were observed at the bottom of the dam and periodic heavy rains pushed water levels close to the dam's crest, but the reconstructed dam and spillway functioned as built and held fast. However, during the last week of May 1889 the region experienced extraordinary rainfall that raised water levels in the neighboring tributaries and Lake Conemaugh to unprecedented levels. In the early afternoon of May 31, floodwater began overtopping the slightly depressed center portion of the dam, slowly undermining the downstream face. The excess water discharge through the spillway could not keep pace with the rising water level in the lake because its flow was eventually hindered by debris collecting against the fish screens and bridge. Despite valiant efforts to save the dam, its center section pushed downstream at around 3:15 pm, creating an opening more than 300 feet wide and down to the bottom. A volume of 450 million cubic feet of water poured through the gap and rushed downstream upwards of 40 mph through the narrow Little Conemaugh River valley towards Johnstown.

Post-Historic and Existing Conditions:

After May 1889, the remaining portions of the earthen and stone dam eventually became overgrown with grasses, shrubs, and trees. Remnants of the stone sluice culvert and timber support cushion of the valve control tower remained visible near the streambed that passed through the gap. It is possible that construction of the first railroad track in 1891 through the breach and/or the second track by 1904 may have required the removal of some of the dam ruins in the breach area. Portions of the empty lakebed were developed as part of the village of St. Michael, or reverted to grasslands and woodlands. In 1891, a train line was constructed along the river and through the break in the dam. By 1904 a second rail line was added and a

local road was built through the spillway.

Today, the upstream faces of the dam are covered with grasses, low shrubs, and a few trees, while the downstream faces are covered with stone riprap and primarily covered with trees (Figures 21 and 22, see also Cover). The north abutment measures 20 feet wide by 390 feet long by 72 feet high. The south abutment measures 20 feet wide by 230 feet long by 72 feet in high. The gap between the north and south abutments, marking the section of the dam that collapsed on May 31, 1889, is approximately 250 to 300 feet long. The river, railroad tracks, and a hiking trail extend through the gap. (National Register JFNM, draft 2016, Sec.7: 7)

The spillway is cut through the stone embankment just north of the dam to an approximate depth of 10 feet below the crest of the former dam (Figure 23). The opening is 280 feet long and measures between 60-100 feet in width. The spillway is largely overgrown by grass and shrubs, and includes delineated wetlands. A wood footbridge constructed by the park in 1988-89 crosses over upper end of the spillway to provide access to the north abutment.

(National Register JFNM, draft 2016, Sec.7: 7; Review comment, Penrod, 29 June 2016)

The ruins of the stone sluice culvert and the adjacent wood protective cushion of the valve control tower are located along the streambed just upstream of the breach (Figure 24). The cut, dressed, and coursed stones (each block 2 feet wide by 4 feet long by 1.5 feet high) of the sluice control foundation ruins form a rectangle. The exposed section is 15 feet wide by 21 feet long with a tiered section that is 2 feet wide by 9 feet long by 3 feet high. A 4-foot wide square section remains submerged. Several 6 inch square timbers remain from the 11 by 15- foot wood cushion east of the foundation. (National Register JFNM, draft 2016, Sec.7: 7-8)

Approximately 50 acres of the original 400- to 500-acre lakebed is within park boundaries, between Lake Road on the northeastern side and the South Abutment Road on the southwestern side. The former lakebed is now a mix of grassland, shrubland, wetland, and returning forest woodlands (Figure 19). The South Fork Little Conemaugh River and an 1891 railroad line now owned by Norfolk-Southern traverse almost the entire length of the lakebed. Adjacent to the clubhouse and cottages, the community of St. Michael occupies the portion of the former lakebed between Main Street and the river. (National Register JFNM, draft 2016, Sec.7: 7; Review comment, Penrod, 29 June 2016)

Character-defining Features:

Feature: South Fork Dam Abutments

Feature Identification Number: 176742

Type of Feature Contribution: Contributing

Latitude Longitude

0.0000000000

IDLCS Number: 747

Johnstown Flood NMem Landscape

Johnstown Flood National Memorial

LCS Structure Name: South Fork Dam

LCS Structure Number: JGDAM

Feature: South Fork Dam Spillway

Feature Identification Number: 176744

Type of Feature Contribution: Contributing

Latitude Longitude

0.0000000000

IDLCS Number: 81988

LCS Structure Name: South Fork Dam Spillway

LCS Structure Number: JDAMSLWY

Feature: South Fork Dam Overflow Sluice Ruins

Feature Identification Number: 176746

Type of Feature Contribution: Contributing

Latitude Longitude

0.0000000000

IDLCS Number: 81981

LCS Structure Name: South Fork Dam Overflow Sluice Ruins

LCS Structure Number: JDAMSLRN

Feature: Lakebed

Feature Identification Number: 176748

Type of Feature Contribution: Contributing

Latitude Longitude

0.0000000000

Landscape Characteristic Graphics:

Johnstown Flood NMem Landscape
Johnstown Flood National Memorial



Figure 21. View looking west at (right to left) the upstream face of the north abutment, overlook, breach, railroad tracks, and south abutment. (OCLP 2014, DSC_0032)



Figure 22. View looking southeast at the rocky downstream face of the south abutment, from the loop trail. (OCLP 2014, DSC_0171)



Figure 23. View looking north at the spillway from the pedestrian bridge. (OCLP 2014, DSC_0027)



Figure 24. View looking north at the remnants of the sluice culvert and valve control tower foundation. (OCLP 2014, DSC_0145)

Circulation

Historic Condition (to 1889):

Circulation is comprised of the spaces, features, and materials that make up the network of

pedestrian and vehicular movement. Circulation during the time of the dam's original construction in 1840-53 likely consisted of cart and wagon roads at the dam site and through the proposed lakebed to allow crews to remove vegetation. Drawings of the dam indicate the crest of the dam was wide enough to allow passage of a single wagon, but part of this road was destroyed when the dam failed in 1862. The existence of other circulation features is not known.

The South Fork Fishing and Hunting Club's reconstruction of the dam in 1880-81 restored the road on top of the dam, and lowered the crest in the center portion of the dam so that the road would be wide enough to allow the passage of two carriages. The road on the dam was part of a longer carriage route that transported club members between the train station in South Fork and the club grounds on the lake's southwestern shoreline. From South Fork, the carriage road approached the north downstream end of the dam, crossed the creek and lower end of the spillway on a bridge, and continued up the face of the dam to the upper end of the spillway. At this point the road split, with one fork crossing the upper end of the spillway on a bridge toward the Lake View Farm and the other fork continuing across the dam. At the south upstream end of the dam, the carriage road tracked southwesterly along the east side of a hill and generally paralleled the lake's southwestern shoreline until it reached the club grounds.

Carriages likely continued into the club complex on a road behind the clubhouse and cottages, as a boardwalk occupied the narrow space between the front of the buildings and the shoreline. The boardwalk itself was constructed with wide transversely set boards. Steps and bridges were built along the boardwalk where warranted by the topography, and featured rustic railings inset with branches that formed random patterns of horizontals and diagonals. Paths and wooden walkways connected the houses, boathouses, and numerous wooden docks to the boardwalk. (LDA et.al. 1993: 21-22,47)

Historic circulation features at the Lake View Farm are generally unknown, but a road presumably provided Elias Unger access from the timber bridge at the upper end of the spillway to his farm. Farm lanes within the farm complex likely provided connections to the house, barn, carriage/wagon/machine shed, and surrounding fields.

Post-Historic and Existing Conditions:

One of the first circulation changes after the May 1889 disaster was the construction of a rail line through the center of the lakebed by the South Fork Branch Railroad in 1891, which passed through the break in the dam and eventually included a railyard in the southeastern part of the lakebed. Vehicular circulation patterns also changed at this time because local residents could travel through the empty lakebed rather than having to travel around the filled lake. As such, by 1904 two local roads tracked along the southwestern and northeastern shorelines, occasionally dipping into the lakebed itself, and converging in the southern end of the lakebed. Beginning in 1907, new roads associated with the development of the Maryland Coal Company mine, St. Michael, and later the villages of Creslo and Sidman were built in the lakebed. One of the new roads was Main Street, which was built along the alignment of the former boardwalk

directly in front of the clubhouse and cottages. At the Lake View Farm, topographic maps from the period suggest an unimproved road entered the core farm complex from the north.

The local road near the dam's south abutment was built around the hill southwest of the dam, just downhill from the carriage road. In the 1930s it was designated as State Route 869, paved, and improved with culverts and a retaining wall. The designation also redirected thru-traffic in St. Michael from Main Street to Locust Street. By 1958, the portion of State Route 869 around the hill was relocated to the southwest side of the hill, and the abandoned portion was renamed Township Road 308. The local road near the north abutment, designated Township Road 352, was built directly through the spillway and connected to other roads to the north, some of which may have incorporated portions of the club's carriage road.

In the mid-1960s U.S. Route 219 was constructed just downstream from the dam abutments. The limited access highway spanned the river and railroad tracks via a four-lane bridge, which sat at a slightly higher elevation than the old dam. The highway and its massive embankments severed Township Roads 308 and 352. As a result 308 was abandoned and 352 was rebuilt uphill from the spillway. The configurations of the highway and these roads directly influenced the original boundary of Johnstown Flood NM, as well as subsequent boundary increases. The roads also provided access into and through the park.

Carriage Road Trace.

Segments of the club's carriage road remain today (Figure 25). The longest and most intact segment extends from the intersection with the Picnic Grounds Road to the parking lot at the south abutment. The earthen and grass-surfaced road travels through woodlands and is now used as a pedestrian trail. It connects to the Arbor Nature Trail that leads to the picnic grounds at the top of the hill, and includes a small set of stairs at the parking lot. The crests of the dam abutments are also part of the carriage road route, and both provide access to overlooks where visitors can view the breach, river, and former lakebed. The top of the south abutment is mostly surfaced in grass except at the overlook where the surface is gravel (Figure 26). The top of the north abutment is a boardwalk constructed with plastic lumber installed in 2008 to provide accessible pedestrian access to the dam. Both overlooks were rebuilt in 2009 by the park and the Youth Conservation Corps. The carriage road segment that once descended the downstream face of the dam alongside the spillway is overgrown with vegetation and barely discernable. This segment was once part of a now-abandoned interpretive trail that the park built alongside the downstream toe of the north abutment and down to the river. The 2012 LCS evaluation for the historic carriage road trace was "fair." (LCS, accessed 4 April 2016; PMIS #156246; PMIS #104503)

South Abutment Road and Parking Lot.

This road, formerly State Route 869 and then Township Road 308, served in the park's early years as the primary entrance road. In 1972-73 the road's connection to State Route 869 was reconfigured as a T-intersection to improve safety, while steel guardrails and several new culverts were installed along the length of the road. Adjacent to the south abutment, at the site

of an old cinder pit and possible location of the dam operator's house, the road divided into one-way parking lot loop that was laid out in two levels to conform to the topography. Today, the two-way asphalt-paved road is 20 feet wide with narrow grass shoulders and several paved gutters. The one-way asphalt-paved parking lot is striped for 26 spaces and includes a wood staircase with wood rails that connects the two levels. Both non-historic features are compatible with the historic scene.

Picnic Grounds Road and Parking Lot.

The park built this road and parking lot in 1972-73 to provide access from the South Abutment Road to the picnic grounds on the hilltop southwest of the south abutment. The road included a culvert with a stone headwall and ended as a one-way parking lot loop with enough space for two bays of parking, although only the eastern bay was built. Today the asphalt-paved road is 20 feet wide with grass shoulders and several paved gutters. The asphalt-paved parking lot is striped for 22 spaces. Both non-historic features are compatible with the historic scene.

Lake Road Parking Lot and Trail to North Abutment.

The park constructed this parking lot in the late 1980s, at the point where the alignment of Township Road 352 was shifted from its c.1904 alignment heading toward the spillway to its new 1960s alignment heading around the Lake View Farm hillside. Aerial photographs suggest the old roadbed was retained for use as a trail to the north abutment and spillway until the late 1980s when it was removed and reseeded. At that time the park constructed a new trail between the old and new road alignments. The trail also connected to the footbridge over the spillway and a trail to the Lake View Farm. Today, the asphalt-paved parking is striped for seven vehicles, while the asphalt-paved trail is around six feet wide. Both non-historic features are compatible with the historic scene. However, an analysis of topographic maps and the 1889 shoreline suggests the asphalt trail may approximate the route of the carriage road that presumably led to the Lake View Farm during the historic period. More research on this topic is suggested.

Visitor Center Road, Parking Lot, and Sidewalks.

The park completed the road, parking lot, and sidewalks in the late 1980s in conjunction with the construction of the visitor center at the site of the former Unger barn. The two-way road began north of the farm buildings at Township Road 352 and headed south, briefly paralleling the farm lane before dividing into one-way parking lot loop, which also included a return loop at the north end. The parking lot was laid out in two levels to conform to the hillside terrain, and plans show the lot was designed to be extended to the southeast if needed. Both the road and parking lot included culverts and drop inlet drains. Today, the asphalt-paved road is 20 feet wide and the asphalt-paved parking lot is striped for 59 vehicles and 2 buses. Concrete sidewalks, steps with steel railings, and an accessible ramp with steel railings extend throughout the parking lot and connect to a concrete sidewalk and stone-paver patio at the visitor center entrance. The concrete sidewalks range in width from 6-10 feet, while the stone pavers vary in dimensions (Figure 27). These non-historic features are compatible with the historic scene.

Service Road and Parking Area.

The park converted this earthen and gravel lane, which was once the entrance into the core of the farm, in the late 1980s into a service road after completing the Visitor Center Road and parking lot. At the same time, a small parking area was built into the hillside just east of the Lake View House for staff parking. Today, the northern half of the road is paved in concrete, while the southern half (from the visitor center to the Lake View House) features an earthen and gravel surface with inlaid precast road stabilizer units to minimize erosion (Figure 28). The parking area is surfaced in concrete and supported on three sides by mortared stone retaining walls. These non-historic features are compatible with the historic scene.

South Abutment Loop Trail.

The park constructed a loop trail at the south abutment in the late 1970s for visitors to access the river and the ruins of the sluice. Today, the earthen-grass trail begins near the end of the south abutment, descends the upstream dam face to the river and ruins, passes through the dam break and around the downstream dam face, and then ascends the downstream face to the south abutment parking lot (Figure 29, see also Figure 26). Both ends of the trail traverse steep terrain and thus include numerous wood staircases, some of which include wood railings. Widths of the various surfaces range from 4-8 feet. Funding has recently been secured to rehabilitate and replace decking, stair treads, and risers on the trail. These non-historic features are compatible with the historic scene. (PMIS #177418)

Arbor Nature Trail.

The park likely constructed this trail soon after development of the picnic grounds in 1972-73 to provide a connection between the picnic grounds and the south abutment. The earthen and gravel trail currently extends from the north end of the picnic grounds to the carriage road trace. The trail crosses moderately-steep terrain and is around 8 feet wide. This non-historic feature is compatible with the historic scene.

Maintenance Yard.

In the beginning years of the park, the park's maintenance facility was a collection of shacks set in a work yard north of the picnic access road loop. The first permanent building, a maintenance shop, was constructed in 1985 at the south end of the yard, and in 1996 the yard was extended to the north for construction of the maintenance office. Today, the rectangular-shaped maintenance yard is surfaced in gravel and provides work spaces and storage for materials and vehicles. This non-historic feature is compatible with the historic scene.

Parking Area at Clubhouse.

During the many decades that the clubhouse variously functioned as a hotel, rooming house, and restaurant, the area northwest of the building was presumably used for parking, although the layout of such uses are not known. Today, this earthen/gravel area serves an informal parking area accessed from Main Street. This non-historic feature is compatible with the historic scene.

Character-defining Features:

Johnstown Flood NMem Landscape

Johnstown Flood National Memorial

Feature: Carriage Road Trace

Feature Identification Number: 176750

Type of Feature Contribution: Contributing

Latitude Longitude

0.0000000000

IDLCS Number: 81980

LCS Structure Name: Carriage Road Trace

LCS Structure Number: JTCARRRD

Feature: South Abutment Road and Parking Lot

Feature Identification Number: 176752

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Picnic Grounds Road and Parking Lot

Feature Identification Number: 176754

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Lake Road Parking Lot and Trail to North Abutment

Feature Identification Number: 176756

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Visitor Center Road, Parking Lot, and Sidewalks

Feature Identification Number: 176758

Type of Feature Contribution: Non contributing – compatible

Latitude Lonaitude

0.0000000000

Johnstown Flood NMem Landscape

Johnstown Flood National Memorial

Feature: Service Road and Parking Area

Feature Identification Number: 176760

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: South Abutment Loop Trail

Feature Identification Number: 176762

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Arbor Nature Trail

Feature Identification Number: 176764

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Maintenance Yard

Feature Identification Number: 176766

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Parking Area at Clubhouse

Feature Identification Number: 176768

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Landscape Characteristic Graphics:



Figure 25. View looking south at the carriage road trace. (OCLP 2014, DSC_0216)



Figure 26. View looking north toward the south abutment. The wood stairs in the foreground are part of the upstream portion of the loop trail to the sluice ruins and the river. The north abutment is in the background. (OCLP 2014, DSC_0227)



Figure 27. View looking west from the Visitor Center Road toward the pedestrian circulation at the visitor center entrance. Note the native plant garden next to the building. (OCLP 2014, DSC_0163)



Figure 28. View looking southeast at the Service Road and small parking area in the distance. The visitor center is at image left, spring house is in the distance, and the Lake View House is at image right. (OCLP 2014, DSC_0079)



Figure 29. View looking northeast at the downstream portion of the loop trail to the sluice ruins and the river. (OCLP 2014, DSC_0178)

Buildings and Structures

Historic Condition (to 1889):

Buildings are elements constructed primarily for sheltering any form of human activity in the landscape, while structures are elements constructed for functional purposes other than sheltering human activity. In 1840 a brick and stone house and a stable were constructed at the reservoir site, possibly just northwest of the south abutment. The building housed the dam's construction supervisor and then the person who maintained and operated the dam and reservoir, but its use by the South Fork Fishing and Hunting Club is unknown. On the lake's southwestern shoreline, the club constructed a clubhouse and private cottages, and on the northeastern shoreline club president Elias Unger built a house and various outbuildings. The club also built two timber trestle bridges across the spillway as part of the carriage road between South Fork and the club grounds. Structures directly associated with the South Fork Dam – the sluice culvert and sluice pipes, valve control tower, and spillway – are discussed in the Constructed Water Features section.

The clubhouse served as the focal point of club activities. The original 2.5-story frame building was completed in 1881, and then enlarged with a larger 3-story frame L-shaped addition in 1886. The clubhouse featured 47 furnished bedrooms, a dining room for 90, an office, billiard room, parlor, kitchen, bakery, and a long covered front porch looking across the lake. In c.1887 the club constructed a two-story frame annex building with additional guestrooms and apartments northwest of the clubhouse for member use. The building included a two-story covered front porch facing the lake. A two-story ice house was purportedly located behind the clubhouse, and two-story privy may have been located behind the clubhouse, possibly

connected to it by elevated walkway or a rope bridge, or located behind the double cottage. Archeological investigations have been unable to verify their locations. (EA 2007: 37-39,44-45; Balicki and Stevens 1993: 2,5; LDA et.al. 1993: 42; Review comment, Koozer, 29 June 2016)

Some club members chose to build private cottages, which were set out in a row fronting the lake. By 1888, there were 16 cottages (sources vary on the number) situated northwest and southeast of the clubhouse, including the Lippincott (Moorhead) Cottage (c.1887) and the Brown Cottage (1888). All of the frame cottages were constructed in the Queen Anne, Stick/Eastlake, or Gothic architectural styles characteristic of the 1880s, and typically three-stories tall with high ceilings, long windows, and covered porches to maximize the lake views. At least two, if not all, cottages had privies in the back yards, but none had kitchens because members dined in the clubhouse. Historic photographs show loose stone walls supported some of the steeper slopes around the houses and steps and bridges along the boardwalk. Other structures at the club complex included floating or moored docks and boathouses, including a large multi-slip structure with gable roofs anchored in front of the clubhouse. There was likely a barn or stable somewhere on club property to house the horses and carriages that transported club members to and from the club grounds.

Club member Elias Unger constructed his house on a hillside above the lake's northeastern shoreline sometime between June 1883 and September 1888. The two-story Gothic Revival style frame house was built into the slope of the hill and was painted white with red trim. The building featured a cross-gable roof with two chimneys, a small covered porch on the northeast side, and a larger two-story covered porch on the southwest elevation overlooking the lake and dam. A wide wood staircase descended from the southwest porch to the surrounding lawn. On the hillside above the house, Unger built a spring house, barn, and carriage/wagon/machine shed. The two-story frame and stone spring house had a gable roof, central chimney, and was painted a light color, possibly the same white with red trim as the main house. The 2.5-story barn and 1.5-story shed formed an L shape, leaving the "heel" of the L open. The barn and shed featured gabled roofs with cupolas and heavy timber construction on stone foundations. A photograph taken in 1889 shows both to have been painted a dark color with light trim. The same photograph shows small structures southeast of the shed, possible a smokehouse, chicken coop, or pig pen. There was presumably a privy on the grounds at this time. (Unrau 1986: 50-51,143,145-149,154)

The two timber bridges at the spillway featured a trestle design. The bridge at the upper end of the spillway was 123 feet long and supported by seven supports spaced 15 feet apart and anchored into the floor of the spillway. The ends of the bridge sat on stone abutments or ledge. The wood bridge railings were supported by wood posts with diagonal crossbars. The design and dimensions of the bridge at the lower end of the spillway are not known.

Post-Historic and Existing Conditions:

After the South Fork Fishing and Hunting Club disbanded, most club buildings were sold and altered by subsequent owners, while a few were later torn down. The clubhouse, double

cottage, and seven remaining cottages were included in the South Fork Fishing and Hunting Club Historic District in 1986. In 2006 the National Park Service acquired the clubhouse, double cottage, Brown Cottage, and Lippincott (Moorhead) Cottage.

Several buildings and structures that were present at the Lake View Farm in 1889 are no longer extant. During the Holsopple family period of ownership in 1912-49, they painted the farm's L-shaped barn and carriage/wagon/machine shed red with white trim and replaced the cupolas with dormers. During the Furlong family ownership from 1950-81, the two buildings deteriorated and by 1975 both had collapsed. After 1981 the park removed the ruins and used the site to build the new visitor center and museum. The smokehouse, chicken coop, and pig pen present during the historic period and the Holsopples ownership were removed by the Furlongs. (Unrau 1986: 50-51,145-149,154; National Register JFNM, draft 2016, Sec.7: 10)

The Holsopples and Furlongs also added buildings and structures that have since been removed. The Holsopples constructed a well near the spring house, and when the park took ownership of the property it was marked by a well house made of cinder blocks and topped with a low wood shed-like structure with vertical board siding. The park removed the well in the late 1980s. The Hopsopples also constructed a silo in the heel of the L-shaped barn and shed. The silo stood slightly taller than the barn and featured vertical wood boards with steel staves set on a concrete foundation. It collapsed in the early 1970s, and the foundation was removed in the late 1980s. The Holsopples also constructed a privy, which stood to the north of the house and was connected to it by a short walk. The privy was removed by the Furlongs when they constructed a new garage on the west side of the driveway between the house and barn. The Furlongs built the three-bay garage because the barn and shed were in such poor condition, and used material excavated from the hillside near the house to create a level site. The park removed the garage in the 1980s. (Unrau 1986: 51,149,152,154)

The post-historic history and existing condition of the park's extant buildings and structures are described as follows:

Clubhouse.

In 1907 John Sechler acquired the former clubhouse and converted it into a hotel. The Cruikshank family continued this use when they purchased the building in 1921, but removed its original 1881 building in the 1930s. Two additions were added to the back of the remaining 1886 building by either the Cruikshanks or by the Clement family, who owned the hotel in 1950-58. From 1958 into the 1990s the building was used as a rooming house, restaurant, and lounge. Near the end of this period the building was purchased by the 1889 South Fork Fishing and Hunting Club Historical Preservation Society (Friends of the Johnstown Flood National Memorial), who reconstructed the covered front porch. The park purchased the building in 2006, but the Friends used it for meetings, special events, and briefly a gift shop. The park also removed the two rear additions. (EA 2007: 37-39,44-45; Balicki and Stevens 1993: 2,5: HRS 1993: 42)

Today, the park uses the first floor of the clubhouse for meetings, theater performances, social gatherings, and museum exhibits (Figure 30). The second and third floor rooms are currently vacant and unused. The three-story, L-shaped building features a hip roof and a wide one-story front porch. The main and pent roofs are clad in asphalt shingles and have exposed rafter tails, and corbelled brick interior chimneys are located at the north end of the east and west roof slopes. The walls are clad in beveled shiplap siding, except the east side wall that is clad in coved shiplap siding installed when the older portion of the building was removed. The frame building rests on a stone foundation and piers. The covered porch runs along the north elevation and wraps around the northwest corner of the building. Wide wood steps are located at the porch's east end and at the center of its west side, and a modern wood ramp is attached to the rear of the wraparound portion. The 2015 LCS evaluation for the historic building was "poor." (National Register JFNM, draft 2016, Sec.7: 12-14; LCS, accessed 4 April 2016)

Double Cottage (formerly Clubhouse Annex).

The uses of the double cottage in the years immediately after the club disbanded are unknown, but from 1921-50 the Cruikshank family used it for guest rooms, raising the building and porch two feet in c.1934 for a basement and removing the porch sometime after 1940. Aerial photographs indicate a one-story garage was built along the rear property line by 1962. By 1993 only the west half of the garage was still present, and it was removed by 2004. Portions of the garage foundations are still visible. In c.1995 the building's exterior was resided with vinyl and the interior was renovated for rental units. The park acquired the building in 2006. (EA 2007: 39-40,45: LDA et.al. 1993: 231)

The rehabilitated double cottage currently contains four identical apartments leased to tenants by the National Park Service (Figure 31). The two-story rectangular building features a raised basement and a two-story full-width front porch. It has a truncated end-gable roof with small gables centered on the east and west side elevations, asphalt shingles, and boxed overhanging eaves. The walls are clad in vinyl siding and vertical boards in the gable ends. The front porch has a shallow shed roof and two flights of steps that lead to the main entrance. A one-story gabled porch is centered in the rear elevation. The 2015 LCS evaluation for the historic building was "good." (National Register JFNM, draft 2016, Sec.7: 14; LCS, accessed 4 April 2016)

Brown Cottage.

The Brown Cottage became the property of the Maryland Coal Company in 1907 to house company employees. The company reconfigured the house into two side by side duplex units in 1921. After 1955, subsequent private owners maintained the building as a duplex, continuing to update the northern unit, while allowing the southern unit to remain essentially unaltered. The building's last tenant moved out in 1985 when it was purchased by the Friends. The park acquired it in 2006 and reintroduced long-term tenant leases. (EA 2007: 40-41,45; Balicki and Stevens 1993: 2; LDA et.al. 1993: 39,121-22; Review comment, Smith, 29 June 2016)

Today, the National Park Service uses the Brown Cottage for temporary short-term park

housing needs. (Figure 32). The two-story, modest Stick Style building features an asymmetric, steeply pitched, hipped and gabled roof. The asphalt roof shingles and vinyl siding on the house date to the 1990s. The wood frame is supported by a perimeter foundation of poured-in-place concrete inserted in the late 1940s to replace the original posts or piers. The porch wraps around both corners of the building, with an angled northwest corner and steps at the rear ends of each side porch. A one-story shed-roof rear addition with covered entry porches at each end spans the rear elevation; constructed after 1993, the addition replaced a smaller one-story gable-end wing with side porches. The 2015 LCS evaluation for the historic building was “good.” (National Register JFNMem, draft 2016, Sec.7: 14; LCS, accessed 4 April 2016)

Lippincott Cottage (formerly Moorhead Cottage).

Like the Brown Cottage, the Maryland Coal Company also acquired the Lippincott (Moorhead) Cottage in 1907 for company housing, converting it into a side by side duplex in the 1930s. The company shortened the tower roof and removed a substantial portion of the front porch. The company sold the house in 1955, and when the Preservation Society acquired the property in late 1980s or early 1990s the building was vacant. The park stabilized the house in 2005 and officially purchased it the following year. (EA 2007: 42-43,46; Balicki and Stevens 1993: 2; LDA et.al. 1993: 39,175)

The Lippincott (Moorhead) Cottage remains vacant today and is surrounded by a chain link fence to prevent access (see Figure 32). The three-story, Queen Anne style building features an asymmetric, hipped and gabled roof; a distinctive octagonal tower; and multiple projecting bays and porches. The steeply pitched roofs have asphalt shingles and exposed eaves while the tower has a polygonal roof with flared eaves. The walls are clad in aluminum siding applied irregularly over the original coved wood shiplap siding. Some original wood shingle cladding remains on two sides of the tower at the third-floor level. The foundation is constructed of a series of masonry piers with masonry block or glass block infill. A two-story, end-gabled wing with an enclosed shed-roof porch on the east side extends south from the rear (south) west elevation. A one-story shed-roof porch spans the eastern half of the facade (north) elevation, and a two-story porch continues across the setback northwest portion of the facade. A non-historic set of wood steps leads up to the two-story porch from the road. The 2015 LCS evaluation for the historic building was “poor.” The park has initiated a comprehensive analysis of the building with preservation specialists from the National Park Service’s Northeast Regional Office. (National Register JFNMem, draft 2016, Sec.7: 14-15; LCS, accessed 4 April 2016; PMIS #215390; Review comment, Smith, 29 June 2016)

Lake View House (formerly Elias J. Unger House).

Elias Unger died in 1896 and the house and farm passed to Annie Unger and then to David Unger. The farm was sold and resold from 1909 and 1911, and by 1912 was acquired by Jacob and Elizabeth Holsopple, who transformed what had become an unmaintained property into a working family farm. During their ownership through 1949, the Holsopples added a bathroom, removed the stairs on the house’s southwest covered porch, added a chimney on the west side, replaced the original northeast porch with a raised porch, and painted the building white with

black trim. After 1950, new farm owners Robert and Lois Furlong removed the northeast porch and painted the exterior white with green trim. However, by 1969 the house was in such poor condition that the Furlongs lived in a mobile home located between the house and spring house. While the house was unoccupied, the Furlongs removed the two original chimneys and removed the southwest porch. The park purchased the Unger property in 1981, and in 1987-90 restored the vernacular Gothic Revival exterior to its c.1885 appearance, which involved reconstructing the missing porches and chimneys, removing the non-historic west chimney, and painting the house white with red trim. The park rehabilitated the interior rooms for use as park administrative offices in 1993-94. (Unrau 1986: 49-51,89,94-95,102,107-108)

The Lake View House is currently used as park offices (see Figures 20 and 28). The two-story, wood, balloon-frame building measures 36 feet long and 30 feet wide and features a steep, wood-shingled, cross-gable roof with two brick chimneys along the primary roof ridge. The walls, including the exposed south basement wall, are clad in wood shiplap siding trimmed with corner and eave boards, while the foundation and remaining three basement walls are rubble fieldstone. A one-story pedimented porch shelters an entrance on the northeast elevation and a full-width two-story porch with a low-pitched shed roof spans the southwest elevation. The 2012 LCS evaluation for the historic building was “good.” (National Register JFNMem, draft 2016, Sec.7: 9; LCS, accessed 4 April 2016)

Spring House.

During the 1912-49 Holsopple period of ownership, the spring house was used for slaughtering livestock and storing cured meat. From 1950-81, the Furlongs used the area uphill from the spring house as slaughtering site and used the structure for cooling milk. The park removed the deteriorated upper frame portion of the spring house in 1988-89 and replaced it with one similar in style to the earlier structure but smaller in size for use as storage. The open west end of the remaining stone foundation was also stabilized. (Unrau 1986: 50,143)

Today, the spring house is used as storage (see Figure 28). The original foundation measures 10 feet north-south by 40 feet east-west by 8 feet high and comprises three side walls and one internal wall. The wood-frame upper portion encloses an approximately 10-foot by 20-foot area at the east end of the foundation and features a wood-shingled side-gable roof and vertical board-and-batten walls. A set of concrete steps built into the slope adjacent to the west wall leads up to the first-floor level. The open west half of the rubble fieldstone foundation has a concrete slab floor and metal gates across the east end. The 2012 LCS evaluation for the historic structure was “good.” (National Register JFNMem, draft 2016, Sec.7: 9-10; LCS, accessed 4 April 2016)

Visitor Center.

The visitor center was completed in 1989, the year of the 100th Anniversary of the Johnstown Flood. Designed as a replica of the barn, the two-story building’s hillside location provided expansive views to the dam abutments and former lakebed. Today, the building contains a bookstore, museum exhibits, auditorium, restrooms, and utility areas (see Cover). It features

two offset rectangular blocks with asphalt-shingled side-gable roofs, vertical board walls, and a poured concrete foundation. A stone-clad entrance vestibule with a flat roof projects at an angle from the northeast end, where a small concrete patio and native plant garden are partially enclosed by a low stone retaining wall (see Figures 27 and 28). Doors centered in the southwest wall of the west block provides access from the building's lower level to the farm lane at the rear that leads to the Lake View House and the spring house. Overall, the size, materials, and character of the building evoke the design of the original barn at the site.

(National Register JFNM, draft 2016, Sec.7: 10)

Picnic Pavilion.

Located at the picnic grounds, this structure was constructed in 1989 east of the parking lot loop (Figure 33). The open-sided pavilion has a shallow-pitched end-gable roof with asphalt sheathing supported by eight square metal posts set in a concrete slab. The design and scale of the structure blends in with the picnic grounds. (National Register JFNM, draft 2016, Sec.7: 10)

Maintenance Shop and Maintenance Office.

The park's maintenance facility was initially a collection of shacks set in a work yard north of the picnic access road loop. In 1985 the park constructed a shop and parking area at the south end of the yard. By 1993, additional workspaces and structures had been added to the north, including a modular trailer office, three frame sheds, and storage tanks. In 1996 a maintenance office and garage was constructed at the north end of the yard, and in 2011 the maintenance shop was enlarged with an addition to the north. (Dwg.427-41004, 1986; Dwg.427-41037, 1993)

Today, the maintenance complex contains two buildings, one at each end of a roughly rectangular gravel yard/parking area north of the loop (Figure 34). The maintenance shop is a one-story, side-gable building with a metal roof, vertical board walls, and a concrete slab foundation. Four metal overhead garage doors line the west elevation; the southernmost door is smaller and set back under a slight roof overhang. The maintenance office is a two-story shed-roof building with vertical board walls and a concrete slab foundation, and includes two double-height metal overhead garage doors. The buildings are separated from the picnic grounds, and their light brown color makes them mostly inconspicuous except for the white garage doors. (National Register JFNM, draft 2016, Sec.7: 10)

Portable Restrooms.

A park plan from 1980 depicted a combination comfort station/maintenance building just north of the Picnic Grounds Road loop, but it was not built. Instead, a portable toilet was used at the picnic grounds until a permanent one-story double comfort station was constructed on the west side of the loop by c.1981. The park removed the building in 2013 but not the concrete foundation, and placed two portable restrooms on the foundation (see Figure 33). The appearance of the portable structures is incompatible with the character of the picnic grounds. (NETR aerial, 1993; Dwg.427-80003A, 1980; Dwg.427-41004, 1986; IP/DCP 1984: 33; PMIS #171055)

Culverts and Retaining Wall, South Abutment Road and Parking Lot.

The culverts and retaining walls along the South Abutment Road were built in the 1930s when the local unimproved road was upgraded and paved as part of its designation as State Route 869. The culvert inlets are typically drop-inlets with metal grates and/or metal or concrete curbs, while seven culvert outlets feature headwalls with coursed rough-cut stone. The largest structure measures 13 feet long by 18 inches wide by 6 feet high, and the smallest measures 5 feet long by 18 inches wide by 3 feet high. The retaining wall of coursed, rough-cut fieldstone is located on the east side of the road and measures 79 feet long by 2 feet wide by 5 feet high. The park constructed the parking lot at the south abutment in the 1970s, and connecting some of the parking lot's drainage system into the existing road culverts. The stone headwalls and retaining wall visually harmonize with the surrounding landscape, while the inlet structures are generally inconspicuous. (DOS 1996)

Culvert, Picnic Grounds Road and Parking Lot.

A single culvert structure is situated at the junction of the Picnic Grounds Road and the parking lot. It features a drop-inlet with metal grates and an outlet set in a mortared stone headwall. The structure is inconspicuous in the landscape.

Culverts and Retaining Wall, Visitor Center Road and Parking Lot.

Culvert structures along the road and in the parking lot are typically drop-inlets with metal grates and outlets set in loose rocks. A substantial stone-faced concrete retaining wall defines the east side of the visitor center parking lot. The wall is around 190 feet long and between 4-8 feet high with tapered ends. These structures do not impact the historic scene at the Lake View Farm.

Retaining Walls at Visitor Center.

Constructed in the late 1980s as part of the new visitor center, three retaining walls line the walkway from the parking lot to the building (see Figure 27). Two walls situated on the south side of the walkway are around 2 feet in height to serve as seatwalls. The wall closest to the parking lot is around 45 feet long, while the wall at the entrance is around 40 feet long. Another wall, around 4-5 feet high and 200 feet long, stands along the north side of the walk and then makes a series of turns to support the entrance patio as a shorter seat wall. The walls are clad in stone and blend in with the surrounding landscape.

Retaining Wall at Lake View House Parking Area.

A U-shaped reinforced concrete and stone-faced wall dating to the late 1980s defines three sides of the parking area east of the Lake View House (see Figure 28). The total length of the wall is around 65 feet. The height of the wall tapers upwards to conform to the hillside topography, and ranges in height from 4-8 feet. The stone wall is similar in character to the adjacent stone foundations of the Lake View House and spring house.

Spillway Footbridge.

Johnstown Flood NMem Landscape
Johnstown Flood National Memorial

The club's original timber trestle bridges across the lower and upper ends of the spillway were removed by 1904 when a local road (Township Road 352) was built along the former lake's northeastern shoreline and through the spillway. The park constructed the wood bridge across the upper end of the spillway in 1988-89 to complete the trail from the visitor center to the north abutment. Today the bridge is 12 feet wide by 143 feet long, and sits approximately 14 feet above the spillway floor (Figure 35). It is constructed with pine timbers supported by eight pairs of wood columns set in concrete. Wood handrails stretch along the entire length of the bridge. Although the architecture details of the bridge differ from the historic timber trestle bridge, the structure blends in with the surrounding landscape. (DOS 1996)

Character-defining Features:

Feature: South Fork Fishing and Hunting Clubhouse

Feature Identification Number: 176770

Type of Feature Contribution: Contributing

Latitude Longitude

0.0000000000

IDLCS Number: 757628

LCS Structure Name: South Fork Fishing and Hunting Club

LCS Structure Number: 112

Feature: Double Cottage (Clubhouse Annex)

Feature Identification Number: 176772

Type of Feature Contribution: Contributing

Latitude Longitude

0.0000000000

IDLCS Number: 764672

LCS Structure Name: Clubhouse Annex

LCS Structure Number: 113

Feature: Brown Cottage

Feature Identification Number: 176774

Type of Feature Contribution: Contributing

Latitude Longitude

0.0000000000

IDLCS Number: 764704

Johnstown Flood NMem Landscape

Johnstown Flood National Memorial

LCS Structure Name: Brown Cottage

LCS Structure Number: 106

Feature: Lippincott Cottage (Moorhead Cottage)

Feature Identification Number: 176776

Type of Feature Contribution: Contributing

Latitude **Longitude**

0.0000000000

IDLCS Number: 748636

LCS Structure Name: Moorhead Cottage

LCS Structure Number: 105

Feature: Lake View House (Elias J. Unger House)

Feature Identification Number: 176778

Type of Feature Contribution: Contributing

Latitude **Longitude**

0.0000000000

IDLCS Number: 80057

LCS Structure Name: Elias J. Unger House

LCS Structure Number: JBUNGER

Feature: Lake View Spring House

Feature Identification Number: 176780

Type of Feature Contribution: Contributing

Latitude **Longitude**

0.0000000000

IDLCS Number: 80058

LCS Structure Name: Unger Spring House Foundation

LCS Structure Number: JBSPRING

Feature: Visitor Center

Feature Identification Number: 176782

Type of Feature Contribution: Non contributing – compatible

Johnstown Flood NMem Landscape

Johnstown Flood National Memorial

Latitude Longitude

0.0000000000

Feature: Picnic Pavilion

Feature Identification Number: 176784

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Maintenance Shop

Feature Identification Number: 176786

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Maintenance Office

Feature Identification Number: 176788

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Portable Restrooms

Feature Identification Number: 176790

Type of Feature Contribution: Non contributing – incompatible

Latitude Longitude

0.0000000000

Feature: Culverts and Retaining Wall, South Abutment Road and Parking Lot

Feature Identification Number: 176792

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Culvert, Picnic Grounds Road and Parking Lot

Feature Identification Number: 176794

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Culverts and Retaining Wall, Visitor Center Road and Parking Lot

Feature Identification Number: 176796

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Retaining Walls at Visitor Center

Feature Identification Number: 176798

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Retaining Wall at Lake View House Parking Area

Feature Identification Number: 176800

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Spillway Footbridge

Feature Identification Number: 176802

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Landscape Characteristic Graphics:



Figure 30. View looking south at the clubhouse. (OCLP 2014, DSC_0294)



Figure 31. View looking east at the clubhouse annex (now double cottage). (OCLP 2014, DSC_0281)



Figure 32. View looking east at the Lippincott (Moorhead) Cottage (image foreground) and Brown Cottage (image background). (OCLP 2014, DSC_0232)



Figure 33. View looking west at the picnic grounds from the picnic pavilion. Portable toilets are visible in the background. (OCLP 2014, DSC_0206)



Figure 34. View looking north at the maintenance yard, maintenance shed (image right) and maintenance office (background). (OCLP 2014, DSC_0197)



Figure 35. View looking east at the pedestrian bridge at the upper end of the spillway. The large maple tree at image left is thought to be a witness to the 1889 flood. (OCLP 2014, DSC_0025)

Views and Vistas

Historic Condition (to 1889):

Views are the panoramic or expansive prospect of a broad range of vision, which may be naturally occurring or deliberately contrived. Vistas are controlled aspects of a discrete, linear range of vision, which is deliberately contrived. Views and vistas were not a consideration when the South Fork Dam and Western Reservoir were designed and built to supply water to the canal in Johnstown. However, views and vistas were highly regarded after dam and lake were reconstructed in 1879-81 by the South Fork Fishing and Hunting Club for their lakeside resort.

One of the most important views was from the dam itself, the crest of which was lowered so that two carriages could pass, and presumably stop, to take in the panoramic upstream view of the lake. The top of the dam was the first glimpse resort members had of the lake as they headed to the club grounds from the South Fork train station. Historic photographs show that except for the center portion of the dam (the part that was rebuilt), most of the downstream face of the dam was wooded while a few scattered trees grew along the upper upstream face.

At the club grounds, the clubhouse and cottages were intentionally sited close to the shoreline so members could take in the views across the lake or enjoy a stroll along the boardwalk paralleling the buildings and shore. The front of the buildings featured covered porches, balconies, and long windows to maximize the lake scenery, while utilitarian features like privies, stables, and carriages were kept in the rear so as not to mar the view. Historic photographs show mostly open conditions along the club's shoreline, although some trees were retained, which would have provided framed views.

Club president Elias Unger built his farmstead on the lake's northeastern shoreline, and sited the house in a hillside field so he would have a panoramic view of the dam, lake, and towards the club grounds on the distant shoreline. The southwest side (toward the lake) of the house featured a covered porch from which to take in the view. Other farm buildings were sited up the hill and behind the house so as not to block the view. When Lake Conemaugh drained, the visual contrast between the empty lakebed and the surrounding landforms was distinct and striking – a muddy and lifeless basin bordered by forests, fields, and the row of quaint cottages at the club grounds.

Post-Historic and Existing Conditions:

The remnant dam abutments and barren lakebed became a place where people could witness and reflect on the cause of the May 31 devastation. In time the portions of the old lakebed were redeveloped for industrial, transportation, and residential uses; after 1907, views from the club grounds featured the company houses and streets of St. Michael. Other areas of the lakebed simply reverted to grasslands and forests. The once distinct line of the lakeshore gradually faded away.

In the late 1960s Johnstown Flood National Memorial initially included the dam and nearby lakebed, which at that time were mostly wooded. Although it was no longer possible to reclaim the entirety of the former lakebed, the park began acquiring additional lakebed lands upstream

from the dam with the intent of removing tall vegetation so that visitors could visualize the size of the former lake. The park also obtained several other parcels to screen adjacent development. Some woodland clearing occurred around the dam in the late 1970s, and in the late 1980s and early 1990s around 50 acres were cleared in the lakebed. This effort was in conjunction with the park's construction of the visitor center at the Lake View Farm, which was sited to provide panoramic views of the dam abutments, lakebed, and the remaining club buildings in St. Michael.

Today, the lakebed is once again beginning to revert to a mix of forest, shrubland, wetland, and grassland. Park officials are investigating future treatments of the lakebed that will allow visitors to understand the lakebed's historic extents while balancing natural resource opportunities and regulations. Views of the former lakebed from the dam abutments continue to allow visitors an opportunity to understand the devastation of 1889 (see Figure 19). At the Lake View Farm, the view of the dam is intact, but the view of the lakebed is compromised because of vegetation growth (see Figure 20). The view toward the club grounds is extant, but locating the club buildings is somewhat difficult because they are now situated amongst St. Michael's mid- to late twentieth-century buildings. Views are also impacted by the presence of the U.S. 219 highway bridge.

Character-defining Features:

Feature: View from Dam Abutments to Lakebed

Feature Identification Number: 176804

Type of Feature Contribution: Contributing

Latitude Longitude

0.0000000000

Feature: Views from Lake View Farm to Dam Abutments and Lakebed

Feature Identification Number: 176806

Type of Feature Contribution: Contributing

Latitude Longitude

0.0000000000

Small Scale Features

Historic Condition (to 1889):

Small-scale features include minor built elements that provide detail and function, such as utilities, signs, fences, benches, and other outdoor furnishings. Historic photographs provide some information on small-scale features associated with the South Fork Fishing and Hunting Club, such as a flagpole attached to the top of one of the boathouses. At the dam, the club installed a telegraph line attached to poles across the crest of the dam. The line presumably connected to the club grounds and the railroad station in South Fork, and possibly the Lake

View Farm. The telegraph line across the dam was destroyed in the 1889 flood. The club also began installation of a cast iron sewer line in 1889 along the lakeshore, extending from the clubhouse and cottages to the dam. Work crews on the sewer line aided in the May 31 efforts to save the dam, after which the project was abandoned. (LDA et.al. 1993: 21-22; Unrau 1979: 54)

At the Lake View Farm, several historic photographs show a fence around the house and post and board fencing near the dam and northeastern shoreline. The latter fence was apparently the result of an agreement between Elias Unger and the club to erect and maintain a fence between the Unger property and the club's dam property. Part of this fence ran along the edge of the hill above the spillway. Other portions of club property were reportedly fenced, gated, or signed to prohibit public access, but locations of such features are not known. (LDA et.al. 1993: 22; Unrau 1986: 35)

Post-Historic and Existing Conditions:

After the flood, club property and the Lake View Farm were eventually sold. By the late 1910s during the Holsopple ownership of the farm, a picket fence with gates surrounded the house. The fence was replaced by a barbed wire fence at a later date. As the Holsopple and Furlong families actively farmed the land and raised animals, there were likely fenced barnyards and pastures. (Unrau 1986: 35,152)

The small-scale features present in the park today are primarily related to visitor interpretation and safety, and are not historic. The most visible features are the wayside signs located at the Lake View Farm, at the dam abutments and spillway, along the loop trail to the river, and at the picnic grounds. Most of these signs are constructed with angled framed laminate panels attached to fence railings, or supported by two black metal posts anchored into the ground or into the top of retaining walls. The native plant garden at the entrance to the visitor center features smaller interpretive signs attached to single posts set into the ground. The concrete footing of a wayside sign can still be found at the end of the abandoned trail on the downstream side of the north abutment. Vertical framed laminate information panels with a small gable roof attached to two black metal posts are located at the south abutment parking lot and the picnic grounds parking lot. Four combination wayside/information signs with vertical framed panels and two support posts are located in front of the clubhouse, double cottage, and Brown and Lippincott (Moorhead) Cottages in St. Michael. Numbered wood signposts line the Arbor Nature Trail and a small section of the carriage road trace, and correspond to a brochure describing trees in the park. The park's main entrance sign – comprised of a wood sign and redwood arrowhead emblem mounted to a stone veneer concrete structure – is located on the west side of Lake Road between the parking lot and the Visitor Center Road.

No fences remain at the Lake View Farm except for a split rail fence installed by the park along the west side of Lake Road. The fence approximates the location and character of the fence installed by the South Fork Fishing and Hunting Club along the Unger property line above the spillway. There are also U-shaped sections of split rail fencing with angled top boards at

the end of each dam abutment overlook to protect visitors from the steep slope formed by the dam's breach. A chain link fence enclosure with plastic inserts surrounds part of the maintenance shop at the picnic grounds, and a black metal swing gate marks the entrance to the maintenance yard. A steel-backed wood guardrail lines a portion of Lake Road, and a brown steel guardrail stretches along the western edge of the South Abutment Road.

Wood benches with backs and metal supports are located along the trail to the north abutment, along the south abutment loop trail, and at the south abutment parking lot next to the loop trail. A wood bench with a back and concrete supports can be found along the carriage road trace. At the picnic grounds, a water fountain, metal barbecue grills, stationary wood picnic tables, and movable metal picnic tables are scattered under the trees between the picnic pavilion and parking lot. A horseshoe pit can be found in the parking lot median.

Other miscellaneous features include a wood clothesline behind the double cottage, five black-painted bollard lights alongside the sidewalk to the visitor center and around the entrance patio, a row of four pole-mounted solar-powered lights in the median of the visitor center parking lot, and a black-painted flagpole just southeast of the visitor center, adjacent to the parking lot.

Character-defining Features:

Feature: Wayside Signs, and Information Signs, and Numbered Signposts

Feature Identification Number: 176808

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Park Entrance Sign on Lake Road

Feature Identification Number: 176810

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Split Rail Fence along Lake Road

Feature Identification Number: 176812

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Johnstown Flood NMem Landscape

Johnstown Flood National Memorial

Feature: Split Rail Fences at Dam Abutments

Feature Identification Number: 176814

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Fence and Metal Gate at Maintenance Area

Feature Identification Number: 176816

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Guardrails

Feature Identification Number: 176818

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Benches

Feature Identification Number: 176820

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Drinking Fountain

Feature Identification Number: 176822

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Feature: Grills

Feature Identification Number: 176824

Type of Feature Contribution: Non contributing – compatible

Johnstown Flood NMem Landscape

Johnstown Flood National Memorial

Latitude Longitude
0.0000000000

Feature: Picnic Tables

Feature Identification Number: 176826

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude
0.0000000000

Feature: Horseshoe Pit at Picnic Grounds

Feature Identification Number: 176828

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude
0.0000000000

Feature: Clothesline at Double Cottage

Feature Identification Number: 176830

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude
0.0000000000

Feature: Bollard Lights at Visitor Center

Feature Identification Number: 176832

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude
0.0000000000

Feature: Parking Lot Lights

Feature Identification Number: 176834

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude
0.0000000000

Feature: Flagpole at Visitor Center

Feature Identification Number: 176836

Type of Feature Contribution: Non contributing – compatible

Latitude Longitude

0.0000000000

Archeological Sites

The history of archeological research at Johnstown Flood National Memorial comprises nearly a dozen archeological investigations conducted between 1977 and 2015. Work was undertaken to meet compliance obligations under Section 106 and Section 110 of the National Historic Preservation Act (NHPA) and ranged from identification surveys to data recovery/mitigation excavations. Ten resources are inventoried in the Archeological Sites Management and Information System (ASMIS) for the park, all of which have corresponding LCS identification numbers and are currently listed in the National Register as contributing buildings or structures. Broadly speaking, these ASMIS-inventoried resources consist of park-owned residential properties associated with the South Fork Fishing and Hunting Club – the clubhouse, clubhouse annex (double cottage), Brown and Lippincott (Moorhead) cottages, Unger House (Lake View House), and the South Fork Dam and associated infrastructure. (National Register JFNM, draft 2016, Sec.8: 71-72)

All of the ASMIS-listed resources have undergone some level of archeological investigation, with the Lake View House and clubhouse being the most explored. The results of this work have largely corroborated the archival and photographic record or yielded information that does not provide substantive new insights into the park's 1879-1889 period of significance. For further information, refer to the National Register documentation for Johnstown Flood National Memorial (2016 draft).

Condition

Condition Assessment and Impacts

Condition Assessment: Fair
Assessment Date: 06/29/2016

Condition Assessment Explanatory Narrative:

Overall, the Johnstown Flood National Memorial landscape is in “fair” condition, primarily because of the reestablishment of trees in the lakebed since the late 1980s and early 1990s. The bed of Lake Conemaugh and the remnants of the South Fork Dam are a destination for visitors to witness and reflect on the cause of the devastating Johnstown Flood of May 31, 1889. The lake’s former shoreline is a critical component of the park’s interpretive program, but it has become increasingly obscured by vegetation. If left to continue, it will be increasingly difficult for visitors to visualize the size of Lake Conemaugh, understand the volume of water that poured through the dam’s breach, and recognize the physical relationship between the dam, lake, and club buildings. The park is currently exploring vegetation management alternatives in the lakebed that balance cultural resource goals with natural resource regulations and practices. In addition, recent (2012-13) condition assessments evaluated the dam spillway as “good,” dam abutments and carriage road trace as “fair,” and the sluice culvert and valve control tower ruins as “poor.”

A “fair” condition assessment indicates the property shows clear evidence of minor disturbances and deterioration by natural and/or human forces, and some degree of corrective action is needed within 3-5 years to prevent further harm to its cultural and/or natural values. If left to continue without the appropriate corrective action, the cumulative effect of the deterioration of many of the character defining elements will cause the property to degrade to a poor condition.

Impacts

Type of Impact: Flooding
External or Internal: Both Internal and External
Impact Description: Although Lake Conemaugh and the dam that once held it back are now gone, there is continued risk of damage and loss of resources due to future flooding associated with the South Fork of the Little Conemaugh River and other small streams, springs, and seeps in the vicinity of the park. Floods are most common during spring runoff, and seasonal storm events.

Type of Impact: Vegetation/Invasive Plants
External or Internal: Internal

Impact Description:	Non-native invasive plant species still present in the park are threats to the park's vegetation communities. They include multiflora rose, shrub honeysuckle, knotweed, and wild garlic.
Type of Impact:	Adjacent Lands
External or Internal:	External
Impact Description:	Suburban, industrial, and energy development in adjacent lands may affect viewsheds and the quality of water and air. The highway traffic generated by elevated U.S Route 219 northwest of the dam creates visual and noise intrusions and impacts the aesthetics and interpretation of the area.
Type of Impact:	Pollution
External or Internal:	External
Impact Description:	Past land use activities, especially mining and industry have altered the air and water quality of the region. The South Fork Little Conemaugh River, which runs through the former lakebed, is impaired from abandoned mine drainage, along with several upstream tributaries.
Type of Impact:	Pests/Diseases
External or Internal:	Internal
Impact Description:	The viburnum leaf beetle has been discovered in the park's early successional woodlands, such as the woodland south of SR 869.
Type of Impact:	Erosion
External or Internal:	Internal
Impact Description:	The remains of the dam abutments are at risk of damage from slope failures and frost wedging.
Type of Impact:	Operations On Site
External or Internal:	Both Internal and External
Impact Description:	The Norfolk-Southern railroad line running parallel to the river bisects the park and passes between the dam abutments. The rail line is visual intrusion and greatly impacts the historical integrity of the cultural landscape. The railroad embankment also affects lakebed hydrology and vegetative communities.

Type of Impact:	Deferred Maintenance
External or Internal:	Internal
Impact Description:	The Lippincott Cottage (formerly Moorhead Cottage) is in poor condition and in need of stabilization. The park and preservation specialists with the National Park Service's Northeast Regional Office are conducting analysis on this building.

Stabilization Costs

Landscape Stabilization Cost: 82,000.00

Level of Estimate: C - Similar Facilities

Cost Estimator: Park/FMSS

Landscape Stabilization Cost Explanatory Description:

The following projects pertain to the stabilization of historic resources in the landscape (exclusive of buildings).

-- "Preserve and Rehabilitate North Abutment Trail Bridge and South Abutment Trail Stairs" (PMIS #204030, Cost \$24,041.06, Funding requested for FY2019). This project will address the following items: remove and replace (220) 2-inch X 6-inch X 10-inch decking; apply a wood preservative/sealer; remove and replace (4) staircases (for trail access) 100 linear feet, to include handrail, stringers and treads; replace (60) 8-inch X 8-inch timbers with recycled timbers along trailside retaining walls.

-- "Rebuild Parking Lot Retaining Wall at Annex Cottage" (PMIS #153286, Cost \$18,301.24, Funded in FY2010, project delayed for archeological research, see PMIS #173581 below). The park will reconstruct a collapsed retaining wall adjacent to the historic annex building. This work will include environmental compliance, an engineering assessment and retaining wall design, the de-construction of the existing wall and construction of a new and physically similar wall. The work will be performed in the historic district of St. Michael, Pennsylvania.

-- "Archeological Investigation - Retaining wall Annex Cottage" (PMIS #173581, Cost: \$40,689.63, Funding requested FY2014). A Phase I Archeological investigation is needed prior to construction of a replacement retaining wall behind the clubhouse annex [double cottage] at Johnstown Flood National Memorial. Understanding the activities of members and staff of the South Fork Fishing and Hunting Club in the years prior to the Johnstown Flood of 1889 is a fundamental part of interpreting the context and cause of the flood. The archeology work at the clubhouse annex [double cottage] will add significantly to our limited body of knowledge about the club.

Treatment

Treatment

Approved Treatment:	Rehabilitation
Approved Treatment Document:	General Management Plan
Document Date:	01/01/1980

Approved Treatment Document Explanatory Narrative:

Although the park planning documents have not identified a specific treatment for the landscape, the fact that the dam cannot be rebuilt and the lakebed cannot be rewatered suggests a treatment of rehabilitation. A rehabilitation treatment makes possible an efficient and compatible use of a cultural landscape through repairs, alterations, and additions while preserving those portions or features that convey its historical, cultural, and architectural values.

The rehabilitation approach aligns with the general approach to management of the Johnstown Flood National Memorial landscape, as presented in the park's 1980 "General Management Plan." Based on the purpose of the park, which is to "commemorate the tragic Johnstown Flood of May 31, 1889, by preserving the remnants of the South Fork Dam and interpreting the story of its failure and the results that followed," park management goals include:

Cultural Resources Management.

- To identify, evaluate, protect, maintain, and interpret the park's cultural resources, to preserve their original fabric and workmanship, and where necessary, to stabilize and rehabilitate them in a manner consistent with legislative mandates and National Park Service policies.
- To preserve and maintain the cultural resources and the setting of the South Fork Dam to approximate conditions in c.1889.

Natural Resources Management.

- To perpetuate natural ecological communities in the park's natural zone and to enhance the value of these lands as aesthetic buffers around significant resources.

(GMP 1980: 6-7)

The rehabilitation approach is also consistent with the fundamental resources and values identified in the park's 2013 "Foundation Document," which are essential to achieving the purpose of the park and maintaining its significance:

- South Fork Dam ruins: The abutments and spillway that are the remaining ruins of the South Fork Dam, the valve control tower foundation ruins, and the historic carriage road that traversed the abutment and continued upslope.
- The dry bed of Lake Conemaugh: The land below the 1,600-foot contour of the lake, including the South Fork Little Conemaugh River, wetlands, and vegetated slopes.
- South Fork Fishing and Hunting Club Historic District: The South Fork Fishing and Hunting Club clubhouse, annex, and cottages.
- Unger Farm (Lake View Farm): The house, visitor center, spring house, and the fields and the orchard on the hillside above the South Fork Dam.

(FD 2013: 6)

Approved Treatment Completed: No

Approved Treatment Costs

Cost Date: 01/01/1980

Landscape Approved Treatment Cost Explanatory Description:

The following projects are related to treatment of historic landscape resources and/or the removal of non-historic resources.

-- "Environmental Assessment and Wetlands Statement for Vegetation Management at Former Lakebed of JOFL" (PMIS #201502, Cost \$56,243.20, Funding request not yet submitted). The park manages vegetation at the historic, former lakebed of Conemaugh Lake to meet interpretive goals. Presently, tall woody vegetation is removed to illustrate the location of the former lakebed area to visitors. The environmental assessment for this vegetation management was completed in 1987-88 and is now more than 25 years old. New information was obtained for wetlands in a 2009 delineation of the former lakebed area of the park. Wetland area comprises 15.26 acres of the approximately 55 acre managed area. This project will complete an updated environmental assessment comparing alternative management strategies for the former lakebed area of JOFL and an associated wetlands statement of findings for the selected alternative.

-- "Remove Trees and Shrubs and Treat Stumps from Lakebed" (PMIS #171804, Cost \$286,478.35, Funding requested for FY 2018). This project will remove overgrown trees and shrubs from the historic lakebed. Tree removal was last performed in 2001. Trees and tall shrubs (>15 feet height) will be cut from the historic spillway (sluiceway), wooded knoll and historic dam abutments, historic former lakebed basin, and hillside/cliff between the lakebed/spillway and Lake Road, to maintain the cultural landscape. Cut stumps of hardwood trees and woody shrubs will be chemically treated to prevent re-sprouting; softwood trees such as hemlocks or pines will not need to have stumps treated.

-- "Prepare Cultural Landscape Report for Johnstown Flood National Memorial" (PMIS #178435, Cost \$112,643.64, Funding requested for FY2018). A cultural landscape report will provide detailed landscape documentation for the Johnstown Flood National Memorial according to the format and contents outlined by the Guide to Cultural Landscape Reports, including Part I: Site History, Existing Conditions, Analysis and Evaluation, and Part II: Treatment. The report will provide the park with information about the historic evolution of the property, an inventory of existing site conditions, and an analysis of the significance of landscape characteristics and features based on National Register of Historic Places criteria. Information provided in phase I will provide the necessary foundation to prepare a phase II cultural landscape report to guide treatment of the Johnstown Flood National Memorial landscape. Treatment provides guidance and recommendations for the short and long-term management of the cultural landscape, based on the objective of preserving the landscape characteristics and features that help convey its historical significance. The CLR will also identify deferred maintenance needs in the treatment plan.

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Johnstown Flood NMem Landscape

Johnstown Flood National Memorial

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