

United States Department of the Interior
National Park Service
National Register of Historic Places
Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking an "X" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900-a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Allegheny River Lock and Dam No. 5
other names/site number N/A

2. Location

street & number 830 River Road [N/A] not for publication
city or town Freeport [N/A] vicinity
state Pennsylvania code PA county Armstrong code 005 zip code 16229-2031

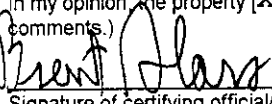
3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended, I hereby certify that this nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property meets does not meet the National Register criteria. I recommend that this property be considered significant nationally statewide locally. (See continuation sheet for additional comments.)

Signature of certifying official/Title _____ Date _____

State or Federal agency and bureau _____

In my opinion, the property meets does not meet the National Register criteria. (See continuation sheet for additional comments.)

 Exec. Dir. 12/31/98
Signature of certifying official/Title _____ Date _____

PA Historical and Museum Commission
State or Federal agency and bureau _____

4. National Park Service Certification

I hereby certify that the property is

<input type="checkbox"/> entered in the National Register	Signature of the Keeper _____	Date of Action _____
<input type="checkbox"/> See continuation sheet	_____	_____
<input type="checkbox"/> determined eligible for the National Register	_____	_____
<input type="checkbox"/> See continuation sheet	_____	_____
<input type="checkbox"/> determined not eligible for the National Register	_____	_____
<input type="checkbox"/> removed from the National Register	_____	_____
<input type="checkbox"/> other, (explain) _____	_____	_____

Allegheny River Lock and Dam No. 5
Name of Property

Armstrong County, PA
County and State

5. Classification

Ownership of Property Property

(Check as many boxes as apply)

- private
 public-local
 public-State
 public-Federal

Category of Property

(Check only one box)

- building(s)
 district
 site
 structure
 object

Number of Resources within

(Do not include previously listed resources)

Contributing	Noncontributing	
<u>1</u>	<u>1</u>	buildings
<u>0</u>	<u>0</u>	sites
<u>3</u>	<u>1</u>	structures
<u>0</u>	<u>0</u>	objects
<u>4</u>	<u>2</u>	Total

Name of related multiple property listing

(Enter "N/A" if a property is not part of a multiple property listing)

Number of contributing resources

previously listed in the National Register

Allegheny River Navigation System, 1739-1948

0

6. Function or Use

Historic Functions

(Enter categories from instructions)

Transportation: water-related: lock and dam

Current Functions

(Enter categories from instructions)

Transportation: water-related: lock and dam

7. Description

Architectural Classification

(Enter categories from instructions)

Moderne

Materials

(Enter categories from instructions)

foundation concrete

walls reinforced concrete

roof rubber membrane

other _____

Narrative Description

(Describe the historic and current condition of the property on one or more continuation sheets)

PLEASE SEE CONTINUATION SHEET: 7 - 1 ON DOCUMENT PAGE 5

8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- A** Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B** Property is associated with the lives of persons significant in our past.
- C** Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- D** Property has yielded, or is likely to yield, information important in prehistory or history.

Areas of Significance

(Enter categories from instructions)

- Transportation
- Maritime History
- Architecture
- Engineering

Period of Significance

1920-1948

Criteria Considerations

(Mark "x" in all the boxes that apply.)

Property is:

- A** owned by a religious institution or used for religious purposes.
- B** removed from its original location.
- C** a birthplace or grave.
- D** a cemetery.
- E** a reconstructed building, object, or structure.
- F** a commemorative property.
- G** less than 50 years of age or achieved significance within the past 50 years.

Significant Dates

1920-1927 (construction)

Significant Person

(Complete if Criterion B is marked above)

N/A

Cultural Affiliation

N/A

Architect/Builder

Lock - Corps of Engineers
Dam - Dravo Construction Company

Narrative Statement of Significance

(Explain the significance of the property on one or more continuation sheets.)

PLEASE SEE CONTINUATION SHEET: 8-1

9. Major Bibliographical References

Bibliography

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

Previous documentation on file (NPS):

- preliminary determination of individual listing (36 CFR 67) has been requested
- previously listed in the National Register
- previously determined eligible by the NR
- designated a National Historic Landmark
- recorded by Historic American Buildings Survey # _____
- recorded by Historic American Engineering Record # _____

Primary location of additional data:

- State Historic Preservation Office
- Other State agency
- Federal agency
- Local government
- University
- Other

Name of repository:

U.S. Army Corps of Engineers, Pittsburgh District

Allegheny River Lock and Dam No. 5
Name of Property

Armstrong County, PA
County and State

10. Geographical Data

Acreeage of Property approximately 33.0 acres

UTM References

(Place additional UTM references on a continuation sheet.) Freeport, PA

1	1	7	6	1	2	6	1	6	4	5	0	4	7	0	5	3	1	7	6	1	2	7	7	8	4	5	0	4	3	4	3
Zone			Easting						Northing						Zone			Easting						Northing							
2	1	7	6	1	2	8	3	5	4	5	0	4	5	4	4	4	1	7	6	1	2	5	3	2	4	5	0	4	5	0	2

[] See continuation sheet

Verbal Boundary Description

(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification

(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title Douglas Dinsmore, Ph.D., Principal Investigator
organization Heberling Associates, Inc. date October 28, 1997
street & number 415 Church Street telephone (814) 643-1795
city or town Huntingdon state PA zip code 16652

Additional Documentation

Submit the following items with the completed form.

Continuation Sheets

Maps

- A **USGS map** (7.5 or 15 minute series) indicating the property's location.
- A **Sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs

Representative **black and white photographs** of the property.

Additional items

(Check with the SHPO or FPO for any additional items)

Property Owner

(Complete this item at the request of SHPO or FPO.)

name _____
street & number _____ telephone _____
city or town _____ state _____ zip code _____

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 *et seq.*).
Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of the form to the Chief, Administrative Services Division, National Park Service, P.O. Box 37127, Washington, DC 20013-7127; and the Office of Management and Budget, Paperwork Reductions Projects (1024-0018), Washington, DC 20503.

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Allegheny River Lock and Dam No. 5

Allegheny River Lock and Dam No. 5 property includes four contributing resources. Lock and Dam No. 5 consists of three structures, the lock, the dam, and esplanade. One building, the Operations Building, contributes to the property. Another building, a 1971 workshop, does not contribute to the property. One structure, a 1988 hydroelectric plant located on the opposite river bank from the lock, does not contribute to the property. A landscape feature is a parking lot on the downstream side of the esplanade.

A navigation facility, the U.S. Army Corps of Engineers constructed Lock and Dam No. 5 in 1920-1927 in the Allegheny River 30.4 miles upstream for its mouth. Built approximately one mile north of the town of Freeport, Lock and Dam No. 5 permitted slackwater navigation to sand and gravel pits upstream that furnished aggregate for construction materials. Located in a rural area, Lock 5 rests in an area of natural grandeur. To the south, the confluence of the Kiskiminetas River with the Allegheny remains visible. The large double-span truss bridge carrying the former Main Line of the Pennsylvania Railroad frames the river beyond the confluence. Lock and Dam No. 5 appears as one of several transportation facilities in this scenic rural area.

Lock

Land and river walls, sills, miter gates, and valve and gate machinery comprise the locks. The land and river walls are reinforced concrete, with the land wall set on bedrock. The river wall rests on timber piles driven into hard shale. The upper and lower guard walls are concrete set on stone-filled timber cribs.

The lock, 56 by 360 feet, has a lift of 11.6 feet, from 745.4 to 757.0 feet. The sidewalls are steel-armored concrete, and mooring pins for securing watercraft are set along the walls. Large hydraulic pistons operate the gates and valves. The electrically-assisted operating controls sit in a box outside the powerhouse.

The valves of Lock 5 operate in the river wall. Sixteen conduits, eight above the dam to fill and eight below the dam to empty, carry water between the river and the lock. The valves are operated by hydraulic pistons (cylinders), one piston for each set.

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Allegheny River Lock and Dam No. 5

The horizontally-framed steel miter gates close against a concrete miter sill. Anode plates diminish the effects of rust, and bubblers in the corners prevent the accumulation of debris and ice in the gate pockets.

Dam

The dam, constructed in 1925-1927 and approximately 22 feet high and 632 feet long, has a slope of 4:1, with a short downstream apron. The upper, concrete portion of the dam rests on stone-filled timber cribs. In an additional effort to stabilize the dam, an additional stone-filled timber crib was added below the apron in 1937, with additional derrick stone placed below the new crib. Because the crest of the dam is the same height across its length, water runs over its entire length. There is no spillway. As a result, the dam itself is nearly invisible when viewed from upstream. Buoys and signs reduce danger to river traffic. A hydroelectric plant was added to the opposite side in 1988.

Esplanade

The esplanade consists of concrete-paved fill between the former river bank and the lock's land wall. The esplanade was resurfaced in 1954. The penstock for the turbine runs beneath the esplanade.

Operations Building

The two-story rubber membrane roofed powerhouse is approximately 15 by 60 feet. In a vernacular version of a Moderne style, the structure has a rounded upstream end and a simple strip cornice. The window and door apertures are inset into the structure. A beam for hoisting equipment to the second floor projects from the second story. Some of the original windows have been replaced. The exterior of the structure was targeted in 1986.

The plain interior exemplifies the utilitarian nature of the powerhouse. The stair treads are open-grate metal with metal railings. An office is on the second story, with an electrically-powered air compressor and back-up diesel generator. Unused fireplaces remain in the building.

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Allegheny River Lock and Dam No. 5

A single water-powered turbine operates a single hydraulic pump, located on the second floor. The shutters that control the water to the turbine are operated by a hand-operated gear on the first floor. Motive power for unpowered tows is now provided by an electric-powered, rail-guided mule. A rail-guided unpowered mule holds the unpowered tows on the upstream side. The local power company provides the electricity for the powered mule, lights, and modern air compressor.

Lock 5 retains its back-up hydraulic pump, now powered by air from the modern air compressor. Originally, a steam boiler powered the back-up pump. The hydraulic system also retains its oil pressure relief valve, also called an automatic bypass.

Noncontributing Buildings and Structures

A noncontributing building and a noncontributing structure exist at Lock and Dam No. 5. The building is a 1971 workshop, built of reinforced concrete and wood. It stands near to the site of a locktender's house, demolished the same year. The other locktender's house, which sat on the opposite end of the esplanade, had been demolished several years prior, circa 1949.

The noncontributing structure is a 1988 hydroelectric generator. The abutment of the dam was removed, and the generator and its equipment added. The generator continues to operate today.

Landscape Features

A single landscape feature is a modern paved parking lot for the Lock and Dam, located just to the south of the esplanade.

Alterations

Repairs have occurred to keep Lock and Dam No. 5 functional. The gates have been repaired at least twice since their installation. Valves received attention in the form of repairs five times since their installation. Additional derrick stone was placed below the dam and around the

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abutment (removed in 1988) in 1937 and again in 1941. The heating system was switched from coal to its present gas in 1959. The lock was pumped out in 1961, and walls, gates, valves, and sills were repaired at that time. The electric air compressor was installed circa 1965. The workshop was constructed in 1971. The powered and unpowered rail-guided mules were installed in 1993. One locktender's house had been demolished circa 1949, the other in 1971.

The design and operation of Lock and Dam No. 5 remain much as it was constructed in 1920-1927. The layout and setting of the facility exhibits continuity. Much of the original machinery remains, as does the original design, layout, and construction.

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Allegheny River Lock and Dam No. 5

Statement of Significance

Allegheny River Lock and Dam No. 5 is significant under National Register Criteria A and C as examples of property types *lock, dam, esplanade, and operations buildings* within the Allegheny River Navigation System Multiple Property Listing. Constructed in 1920-1927, Lock 5 became part of an integral slackwater system built to permit commercial barges and towboat access to 72 miles of the Allegheny River.

Proposed in 1898, construction on Lock 5 did not begin until 1920. Although the 1898 proposal of Major Charles F. Powell received support, and Congressional appropriations were voted by 1912, a 1913 appropriations bill stated that certain bridges on the Allegheny River must be raised before construction could begin on Lock and Dam Nos. 4 and 5. Following delays brought by litigation and World War I, assurances of the intent to raise the bridges occurred in 1919, and construction began the following year (construction to actually raise the bridges was not completed until 1929). By 1927, most of the facility was completed, and it opened on October 27, 1927. Additional construction, including work on the locktenders' houses, continued through 1929.

Lock and Dam No. 5 exhibited a hybrid construction. Like Lock 4, the lock and operations building were built by Corps-hired labor. However, unlike Lock 4, a private contractor, Dravo Corporation, built the dam. Like Lock 4, Corps officials solicited bids for Lock and Dam No. 5. Only the Dravo bid for the dam was deemed appropriate. For the lock, Corps officials hired the labor and directed it themselves (letter of April 27, 1926, Record Group E1288, Box 19, folder 2, at National Archives in Philadelphia).

Although the contractor completed the dam according to Corps specifications, following the St. Patrick's Day flood of 1936, additional reinforcement became necessary. The lock rests on hard shale, or piles driven into hard shale, but the dam rests on stone-filled timber cribbing, anchored with timber piles to the gravel river bed. The relatively gentle slope of the dam added mass to hold it in place. However, in 1937 additional stone-filled cribbing was added below the dam, backed with more stone. Derrick stone was also placed around the abutment and the river side of the lock wall. Additional stone was placed in 1944.

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Since construction, alterations have occurred. The heating system was switched from coal to its present gas in 1959. The electric air compressor was installed circa 1965. The workshop was constructed circa 1966. Electrically-assisted operating controls for the gates and valves were installed in 1974. Powered and unpowered rail-guided mules were added in 1993.

Lock and Dam No. 5 is significant under Criterion A, for its contribution to the long-term maritime history of the Allegheny River. The lock and dam are critical to the continuing river transportation, as outlined in the MPDF *Allegheny River Navigation System, 1739-1948*. An integral part of the Allegheny River Navigation System, Lock and Dam No. 5 has permitted industrial growth along the lower Allegheny in and to the north of Freeport.

Allegheny River Lock and Dam No. 5 is also significant under Criterion C, as a representative example of lock and dam construction of the period 1920-1927. The lock and dam retains its original appearance, machinery, and function. Lock and Dam No. 5 retains a high degree of integrity of location, design, setting, materials, workmanship, feeling, and association.

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Allegheny River Lock and Dam No. 5

Major Bibliographic References

National Register Multiple Property Documentation Form, *Allegheny River Navigation System, 1739-1948*

Survey conducted in June, 1997

Active Files of the U.S. Army Corps of Engineers, Pittsburgh District offices

National Archives, Philadelphia (letter-sized) E1323C and E1288, and
College Park (oversized) Record Group 77

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Allegheny River Lock and Dam No. 5

Verbal Boundary Description

Beginning at a point at the eastern edge of pavement of a country road (LR 03133) approximately 170 feet south-southwest of the entrance to the parking lot for the lock, the boundary follows the edge of pavement and beyond to the north-northeast line for approximately 1,190 feet. The boundary then turns to the southeast across the river for approximately 1,260 feet, then turns to the southwest paralleling the river bank for approximately 1,025 feet.

The boundary then runs to the west-northwest for approximately 325 feet, to a point near the centerline of the tailrace of the hydroelectric turbines. From there, the boundary turns to the northwest for approximately 915 feet, back to the point of origin.

Boundary Justification

The historic property boundary for Lock and Dam No. 5 was drawn to include the primary extant historic components of the lock and dam complex. Although the hydroelectric plant is a modern modification to the dam, it is a noncontributing element of the property.

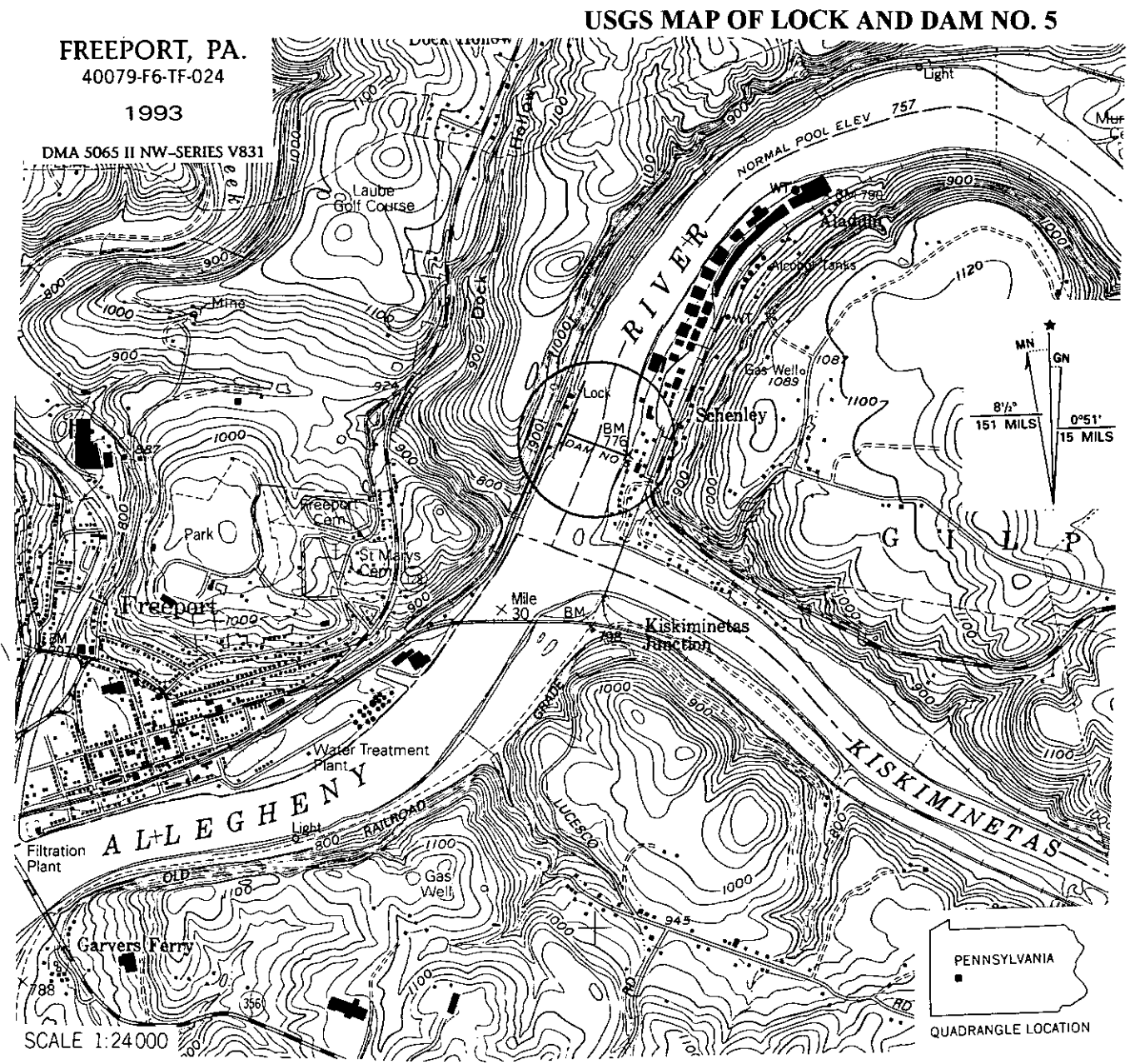
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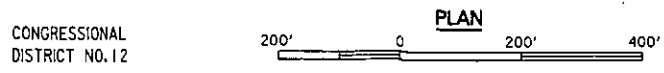
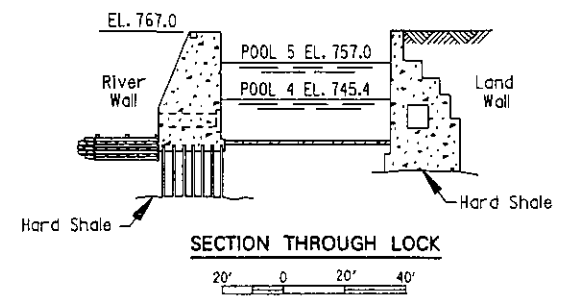
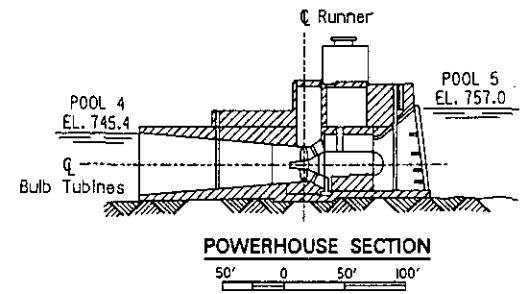
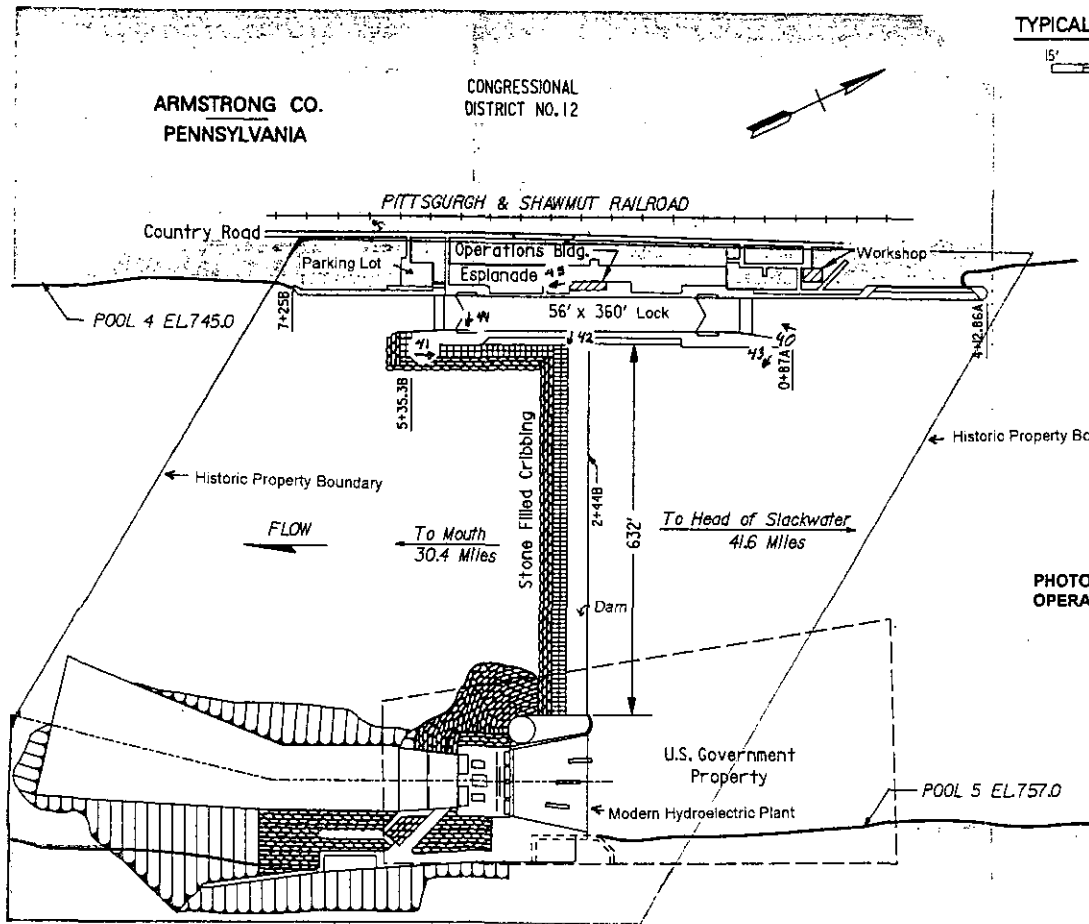
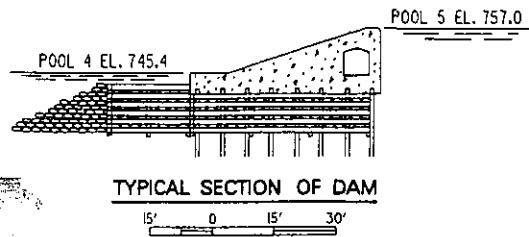
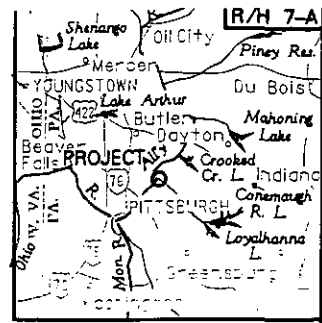
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Allegheny River Lock and Dam No. 5



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ARMSTRONG CO. PENNSYLVANIA

**ALLEGHENY RIVER
LOCK & DAM 5
PLAN AND SECTIONS**
PITTSBURGH DISTRICT, PITTSBURGH, PA.

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