Form No. 10-300 (Rev. 10-74)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY -- NOMINATION FORM

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SEE INSTRUCTIONS IN *HOW TO COMPLETE NATIONAL REGISTER FORMS*
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC
GREAT FALLS OF THE PASSAIC/SOCIETY FOR ESTABLISHING USEFULL MANUFACTURERS

AND/OR COMMON
GREAT FALLS/S.U.M. HISTORIC DISTRICT

2 LOCATION

STREET & NUMBER
See boundary description -item 10 — NOT FOR PUBLICATION

CITY, TOWN
Paterson — VICINITY OF

CONGRESSIONAL DISTRICT

STATE
New Jersey

CODE

COUNTY
Passaic

CODE

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE	
X DISTRICT	— PUBLIC	X OCCUPIED	— AGRICULTURE	— MUSEUM
— BUILDING(S)	— PRIVATE	X UNOCCUPIED	— COMMERCIAL	X PARK
— STRUCTURE	X BOTH	X WORK IN PROGRESS	— EDUCATIONAL	— PRIVATE RESIDENCE
— SITE	**PUBLIC ACQUISITION**	**ACCESSIBLE**	— ENTERTAINMENT	— RELIGIOUS
— OBJECT	X IN PROCESS (portions)	— YES: RESTRICTED	— GOVERNMENT	— SCIENTIFIC
	— BEING CONSIDERED	X YES: UNRESTRICTED	X INDUSTRIAL	— TRANSPORTATION
		— NO	— MILITARY	— OTHER:

4 OWNER OF PROPERTY (Raceways, surrounding land and water rights)

NAME
City Of Paterson

STREET & NUMBER
155 Market Street

CITY, TOWN
Paterson — VICINITY OF

STATE
New Jersey

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.
Passaic County Courthouse

STREET & NUMBER

CITY, TOWN
Paterson,

STATE
New Jersey 07505

6 REPRESENTATION IN EXISTING SURVEYS

TITLE
Historic American Engineering Record

DATE
Summer, 1973; Summer, 1974 — X FEDERAL — STATE — COUNTY — LOCAL

DEPOSITORY FOR SURVEY RECORDS
Library of Congress

CITY, TOWN
Washington, D.C.

STATE

7 DESCRIPTION

CONDITION		CHECK ONE	CHECK ONE
__EXCELLENT	__DETERIORATED	__UNALTERED	X ORIGINAL SITE
X GOOD	__RUINS	__ALTERED	__MOVED DATE_____
__FAIR	__UNEXPOSED		

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

In its original appearance the Great Falls of the Passaic was a geological feature, the basaltic ridge of the Watchung Mountains, through which the Passaic River flowed into an eroded gorge. In its unaltered form, the Falls was a natural site of great beauty. The gorge and waterfall remained substantially unaltered, though a bridge and water pipe cross the gorge, the surrounding area has been gradually developed by harnessing the power of the Passaic River.

The Society for Establishing Usefull Manufactures (S.U.M.) was organized to develop the water power at the Great Falls Site. Construction of the raceway system for direct water power to mill sites began in 1792. The Society made major additions and alterations in the raceway system; in 1800-02, 1807, 1827-28, 1838-40, and 1846. The three-tier raceway system remains substantially unaltered from its 1846 appearance though the S.U.M. added two feet to its dam in 1864 and a concrete sluiceway to supplement the S.U.M. Gatehouse at the river entrance in the 20th Century.

In 1912-14 the S.U.M. cut through the cliff near the falls and built a hydro-electric plant to use the water of the Passaic River, supplementing the function of the raceway system and increasing the power available. The S.U.M. raceway system still functions as a source of industrial process water and as a standby fire protection reservoir. The City of Paterson is developing the area along the raceways as a scenic park, restoring the raceways where necessary. There are over a mile of raceways spread out through the Great Falls/S.U.M. site.

8 SIGNIFICANCE

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW				
__PREHISTORIC	__ARCHEOLOGY-PREHISTORIC	__COMMUNITY PLANNING	__LANDSCAPE ARCHITECTURE	__RELIGION
__1400-1499	__ARCHEOLOGY-HISTORIC	__CONSERVATION	__LAW	__SCIENCE
__1500-1599	__AGRICULTURE	__ECONOMICS	__LITERATURE	__SCULPTURE
__1600-1699	__ARCHITECTURE	__EDUCATION	__MILITARY	__SOCIAL/HUMANITARIAN
X 1700-1799	__ART	X ENGINEERING	__MUSIC	__THEATER
X 1800-1899	__COMMERCE	__EXPLORATION/SETTLEMENT	__PHILOSOPHY	__TRANSPORTATION
__1900-	__COMMUNICATIONS	__INDUSTRY	__POLITICS/GOVERNMENT	__OTHER (SPECIFY)
		__INVENTION		

SPECIFIC DATES 1792-1864, 1912-14 BUILDER/ARCHITECT Pierre Charles L'Enfant & others

STATEMENT OF SIGNIFICANCE

The Great Falls/S.U.M. Raceway System was the first attempt within the United States to harness the entire power of a major river. Stimulated by Alexander Hamilton, the S.U.M. and its raceway system was the engineering embodiment of a political principal. Hamilton and others wished to achieve America's independence from British manufacturers. Hamilton and his friends established the S.U.M. in order to demonstrate the profitability of American manufacturing. On November 22, 1791 the promoters obtained a New Jersey Charter for the Society for Establishing Usefull Manufactures. The authorized capital of the new company was $500,000, an enormous sum for those days. In order to develop large scale manufacturing the S.U.M. needed a major water power development. The 65 foot head available at the Great Falls site offered the opportunity for such a development. William Duer, the first governor of the S.U.M., and a Mr. Allon, an unknown French engineer developed the first plan for the Great Falls Site. They proposed to open a channel above the Great Falls and to build a power and transportation canal all the way to tidewater at the present site of Passaic, New Jersey. The canal would have been 6 miles long. The Duer - Allon plan offered the advantage of transportation from above the Great Falls to tidewater and the development of slightly increased power. However, the plan also would have required enormous capital expenditures. In July of 1792 the directors abandoned this plan as beyond the limited financial and engineering resources of their company.

Alexander Hamilton, his father-in-law, Phillip Schuyler and possibly an Irish engineer Christopher Colles, developed the second plan for the S.U.M. Raceway System. Thomas Marshall, the S.U.M.'s English textile engineer also assisted in developing the plan. The principal obstacles to be overcome were a ravine adjoining the river and a rock ridge beyond the ravine before one reached the proposed mill sites. The new plan called for filling in a dyke, bridging across the ravine or using the ravine as a reservoir and cutting through the rock ridge beyond. The transportation canal was abandoned in this second plan.

Hamilton requested Pierre Charles L'Enfant, a French engineer, who had come to America during the Revolution, to examine the plan proposed by the Society. In August of 1792 L'Enfant came to Paterson, examined the site, criticized the Hamilton - Schyler plan and developed his substitute plan which was accepted by the Society. L'Enfant proposed to open

9 MAJOR BIBLIOGRAPHICAL REFERENCES

Harold C. Syrett, ed., The Alexander Hamilton Papers
Levi Trumbull, History of Industrial Paterson
Historical Society of Pennsylvania, Roswell Colt Papers
Tench Coxe Papers
New York Public Library, Philip Schuyler Papers

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY 108

UTM REFERENCES

	ZONE	EASTING	NORTHING		ZONE	EASTING	NORTHING
A				B			
C				D			

VERBAL BOUNDARY DESCRIPTION

Beginning at the Passaic River Bank where Walker Street extended meets the river, thence east along Walker Street to Reservoir Road extended, Thence south along Reservoir Road to Grand Street, thence east along Grand Street to Morris Street, thence north along Morris Street to Barbour Street, thence east along Barbour Street and Barbour Street extended to former Pine Street, thence north along former Pine Street (cont)

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY	CODE

11 FORM PREPARED BY

NAME / TITLE
RUSSELL I. FRIES, HISTORIAN

ORGANIZATION
HISTORIC AMERICAN ENGINEERING RECORD

DATE
2/9/76

STREET & NUMBER
414 East 42hd Street

TELEPHONE
(201) 684-4082

CITY OR TOWN
Paterson

STATE
New Jersey

12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL ___ STATE ___ LOCAL ___

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

FEDERAL REPRESENTATIVE SIGNATURE

TITLE DATE

FOR NPS USE ONLY
I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DATE

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION
ATTEST: DATE

KEEPER OF THE NATIONAL REGISTER

a channel to the river through the rock using an aqueduct to cross the ravine and blast a gap (now known as La Fontaine's Gap, an obvious corruption of L'Enfant) in the rock ridge to the east. The Society retained L'Enfant as the project engineer and construction began under his direction. Despite progress on the aqueduct and blasting operation, the directors became disappointed with the progress of L'Enfant's plan. The panic of 1792 injured the resources and credit of the Society, and L'Enfant's expenses mounted up at a rapid rate which seemed excessive to the directors. The directors were also displeased by the fact that water was not yet available to operate the mills in early 1793. At a directors' meeting on June 9th the Board dismissed L'Enfant and replaced him with Peter Colt, an American without any significant engineering experience as the superintendent of the Society. The Society felt that an untrained American was better able to carry out an American engineering project than a trained engineer.

L'Enfant's departure from Paterson left Peter Colt in full control of the project, but it certainly did not end the construction problems. Colt followed the simplest and least complicated plan in an attempt to keep both labor costs and engineering requirements low. Instead of carrying water across the ravine, the ravine was used as a reservoir. From the reservoir water passed through the gap in the rocks and into a single raceway which continued only to the site of the Cotton Mill.

Colt abandoned L'Enfant's plan to have an aqueduct serving as a transportation canal, and power canal and carriage way. Peter Colt's plan had the advantage of a low first cost, but ultimately cost more than L'Enfant's because the reservoir leaked and was abandoned in 1846. The raceway system of 1846 (and today) resembles the L'Enfant plan far more than Colt's design.

Peter Colt brought water to the S.U.M. mill during the summer of 1794 and the mill began to turn out cotton textiles. However, the business was not profitable and the factory closed in 1796. The S.U.M. did not go out of existence but simply suspended operations. In 1800 the S.U.M. leased the site of the Essex Mill, a paper manufacturer. Between 1800 and 1802 the S.U.M. constructed an increased length of raceway from the location of the first mill to serve the new factory. In 1807 the demand for mill sites increased and the S.U.M. constructed an entirely new canal level below the original canal. In 1827-28 additional demand forced the S.U.M. to construct a third level raceway above the previous two. The S.U.M. raised the earthen embankment at the end of

of the reservoir and built a channel along the side of the ridge at L'Enfant's Gap. Also at this time the S.U.M. added locks from the river into the reservoir so that the new upper raceway level could be used as a transportation canal from the river. In 1838-40 the S.U.M. abandoned its previous wooden dam and constructed a new masonry dam further down stream towards the Great Falls. In 1846 the leaky reservoir forced the S.U.M. to abandon Colt's design, cut a new channel into the river bed and then carry the water across the ravine on top of the former reservoir embankment. In 1864 the S.U.M. raised the masonry dam by two feet in order to increase the storage and head of the system. In its ultimate form the raceway was capable of developing over 2,000 horsepower. Since an individual mill power was 17 horsepower, the size of this development compared with most previous engineering was enormous.

Use of the water through the raceway system continued to expand into the 20th Century as industries prospered in Paterson. However, by about 1900, it was apparent that the individual water wheel using water from the raceway was generally less efficient than a central station generating hydro-electricity from the river. If the entire machinery of a mill was not turning then the full horsepower of the water wheel driving the machinery was not necessary. As the flow of water through a wheel was decreased the efficiency generally fell markedly. Similarly unless the three raceway levels were using precisely the same quantity of water then there would be a disequilibrium between them and water would be wasted in supplying the one with heaviest demand while the others used only part of the water. In 1910 the S.U.M. developed plans for a hydro-electric station. It persuaded the mill owners to accept electricity from the hydro-electric plant instead of the water at their mill sites. The new hydro-electric plant had a maximum capacity of 6500 horsepower using four boiler-case double-runner Francis turbines by the S. morgan Smith Co., and Westinghouse alternators. Thus the hydro-electric plant further increased the power that could be developed from the Great Falls. In the early 20th Century the S.U.M. constructed a new sluicegate structure behind the S.U.M. Gatehouse where water was admitted from the river into the raceway system. For the most part the raceway system remains as it was in 1846.

Besides the significance of the first major hydraulic power

development in the U.S. the S.U.M. raceway system also shows the gradual perfection of American engineering. The early raceway system wasted much power. The hydro-electric plant wasted almost none.

IMPORTANT STRUCTURES ALONG THE RACEWAYS

1. Site of original S.U.M. Dam and raceway entrance. The approximate location of the dam and locks from the river have been determined. The channels were filled in, in the 1880's and it is hoped future archeological investigations will expose the rock-hewn locks.

2. The second S.U.M. Dam, located approximately 150' upstream from the Great Falls. Built of massive sandstone blocks attached to the river bed by iron cramps the S.U.M. Dam preserves its 1846 appearance, though two feet were added in 1864. The dam has deteriorated due to lack of maintenance. However, restoration to like new condition is part of the plan for reactivating the S.U.M. hydro-electric plant.

3. The S.U.M. gatehouse at the entrance to the canal stands in the same place as it did in 1846. Though the gates have deteriorated and the structure no longer functions the gate machinery (a rack and pinion system) is still in place and probably original. Restoration to new condition is planned.

4. The Ivanhoe Wheelhouse is located near the spillway from the upper to the middle race. Part of the building dates to the 1840's, when it served as a rag storage and sorting house. The rear portion was added during the 1850's when the turbine began to replace the waterwheel. The wheelhouse took water from the upper race via an iron penstock seven feet in diameter. The vertical shaft turbine 87 inch wheel generated over 200 horsepower, the largest single wheel on the raceway. The wheel and penstock went for scrap during World War II, but restoration may be accomplished via a New Jersey Green Acres grant.

5. The single most exciting discovery of the 1973-74 Archeology Salvage Project and the Historic American Engineering Record Survey

was the Market Street underground raceway, arched and covered during the 1850's, sealed and forgotten when the raceway ceased to function as a source of power. At the end closest to Spruce Street the tunnel is made of arched sandstone blocks, with carefully cut dressed sandstone arches at the corner. As the raceway proceeds parallel with Market Street towards Mill Street it increases in height and width, and changes to vaulted brick construction. The tunnel is in almost perfect condition, except for about 15 feet damaged during the Department of Transportation's construction operations in the vicinity.

6. The Essex Mill penstock and reservoir. A late 19th Century iron trunk and a portion of a three foot penstock remain behind the Essex Mill. Remnants of the turbine may exist below the mill floor.

7. Essex Mill spillway. This rebuilt spillway has the date stone, S.U.M. , 1838 on it.

8. Sandstone bridge over the raceway at Passaic Street was built by Miller in 1850.

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IMPORTANT ENGINEERS AND OTHERS INVOLVED IN THE DESIGN AND DEVELOPMENT OF THE SUM RACEWAY SYSTEM

Alexander Hamilton - As the first Secretary of the Treasury Hamilton was deeply involved with the success of the S.U.M. plan. He played a crucial role in choosing the Great Falls site as well as helping in the preliminary design work for the raceways. Hamilton brought Pierre L'Enfant and almost all the principal workmen into contact with the Society.

Thomas Marshall - An English textile machinery engineer, Marshall conducted the survey of possible power sites in the New Jersey area for the S.U.M. He was accompanied by Joseph Mort and William Hall for part of the time, but found Me Allon hopelessly French.

Me Allon - An unknown Frenchman, possible with an engineering background, who developed the Duer - Allon plan for the power/transportation canal to tidewater. He disappears after 1792.

Pierre Charles L'Enfant - Planner of the new capital, L'Enfant was an engineer/architect of high quality. After leaving the Washington project he was suggested by Hamilton to the Society. Though the plan was not completed under his direction it was, in effect, carried out by his successor.

Peter Colt - A former treasurer of the State of Connecticut, Peter Colt was also involved with the ill-fated Hartford Wollen Factory. Colt left the S.U.M. in 1797 when manufacturing operations ceased. He continued his engineering work with Philip Schuyler on the Western Inland Lock Navigation Company, predecessor of the Erie Canal. After 1807 Colt returned to Paterson.

John Colt - Son of Peter Colt, took over as the Society's hydraulic engineer during the period of the Society's greatest growth. Colt and the Society helped sponsor the Franklin Institute's Water wheel study. Colt brought the raceway system to its state of maximum development.

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John H. Cook - Engineer for the S.U.M. , Cook was a recognized professional member of the A.S.C.E. Cook supervised the design and construction of the S.U.M. hydro-electric plant.

Philip Schuyler - Alexander Hamilton's father-in-law, Schuyler was also a technically knowledgeable individual, though not an engineer. Schuyler was involved in the initial engineering surveys around the Great Falls. He assisted in the decision to abandon the Duer - Allon plan, and advised Hamilton on alternate plans. Schuyler later went on to promote the Erie Canal route through his Western Inland Navigation Company until his death in 1807.

Christopher Colles - An immigrant Irish engineer, Colles was responsible for much engineering work in the U.S. He attempted to develop a steam-driven public water system in New York City, but the Revolution aborted it. In 1792 he aided in engineering the locks at South Hadley Falls on the Connecticut River. His involvement in the S.U.M. project is not certain, but he was well known to Philip Schuyler and was in the area at that time.

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List of Illustrations

Plan 1 - Contour Map of Great Falls/S.U.M. Historic District Original Scale 1" = 100'. Historic American Engineering Record

Plan 2 Paterson Raceway System and mills at present - Historic American Engineering Record, Scale 1" = 50', sheet 3 of 5.

Plan 3 Ibid - Sheet 4 of 5

Plan 4 Ibid - Sheet 5 of 5

Plan 5 - Duer - Allon plan - 1792, Historic American Engineering Record.

Plan 6 - Paterson Raceways, 1792-1799, Historic American Engineering Record

Plan 7 Paterson Raceways, 1800-1827, Historic American Engineering Record.

Plan 8 - Paterson Raceways, 1828-1837, Historic American Engineering Record.

Plan 9 Paterson Raceways, 1838- present, Historic American Engineering Record.

Plan 10 - Outline of Historic District

Plate 1 - General overview of Falls S.U.M. Dam and hydro-electric plant, Historic American Engineering Record.

Plate 2 - S.U.M. Hydro-Electric Plant, January 17, 1917, Reid Studio.

Plate 3 - S.U.M. Hydro-Electric Plant interior, 1971 - Historic American Engineering Record.

Plate 4 - Lower Raceway along Van Houten Street, Historic American Engineering Record.

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SIGNIFICANCE

Plate 5 - Danforth Cooke Locomotive Works, Market Street ca 1860's showing portions of raceway in foreground that were later covered. Further up raceway already covered, Livitsanos Photography Studio.

Plate 6 - Historic American Engineering Record team and archeology salvage project in covered tailrace along Market Street, Historic American Engineering Record.

Plate 7 - Ivanhoe Wheelhouse with penstock, April 6, 1916, Reid Studio.

Plate 8 - Upper raceway, spillway and Ivanhoe Wheelhouse under reconstruction, 1973, Historic American Engineering Record.

Plate 9 - A forty-foot iron water wheel under construction in the Danforth-Cooke shop in Paterson , Passaic County Historical Society.

Plate 10 - Middle raceway ca 1860's showing flume trunk from upper race crossing to Passaic Mill No. 2., Passaic County Historical Society.

Plate 11 - Rogers Locomotive Works, Spruce Street showing flume trunks to the Jefferson Mill (1831) and Morris canal in background, Trumball.

Plate 12 - Rogers Works, 1905, showing large factory complex using water- Factory Mutual Assurance Association.

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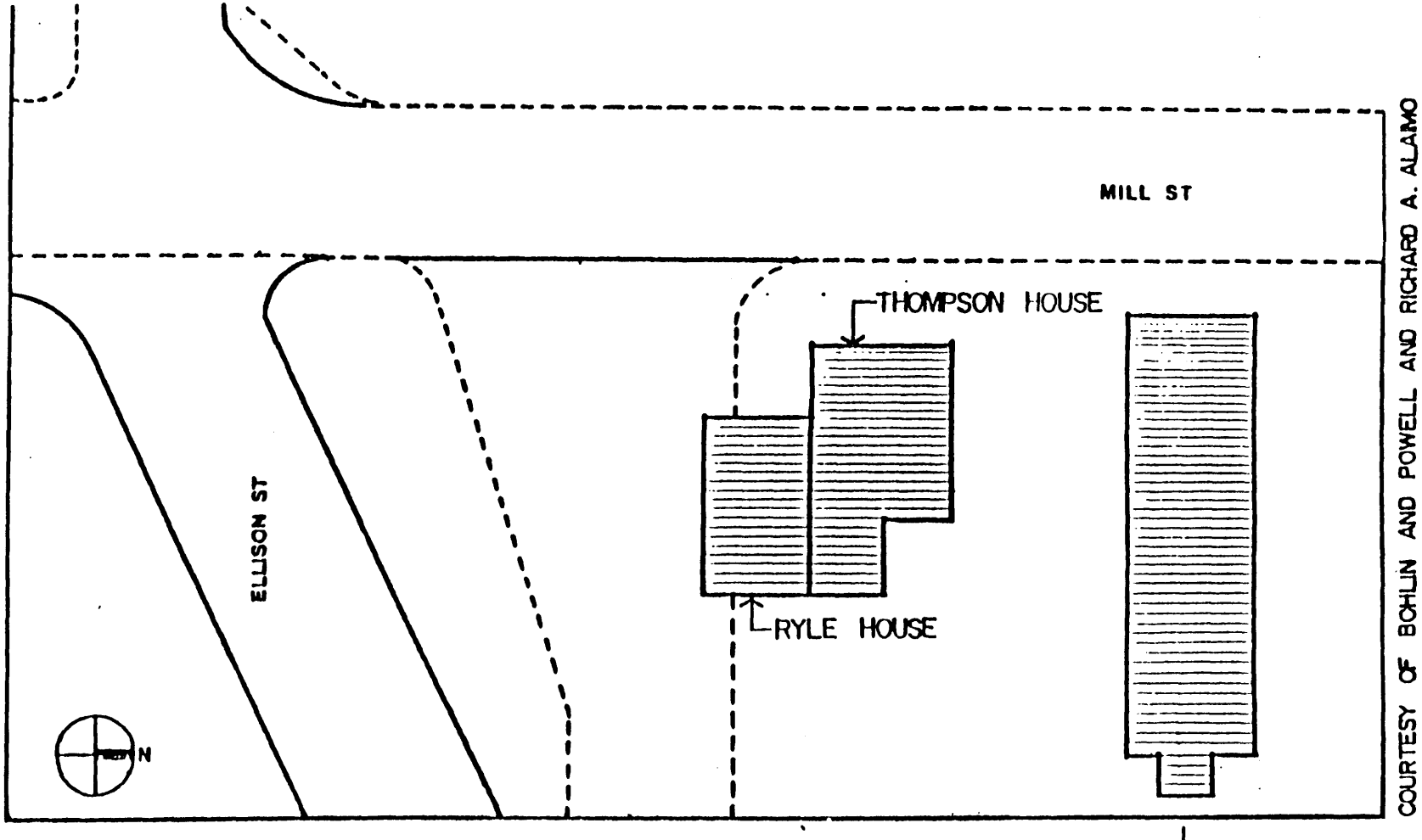
to Oliver Street, thence east along Oliver Street to Mill Street, thence north along Mill Street to Van Houten Street, thence east along Van Houten Street to Curtis Place, thence north along Curtis place to River Street, thence east along River Street to West Broadway, thence northwest along West Broadway and across the Passaic River to Ryle Avenue, thence west along Ryle Avenue to the Valley of the Rocks, thence along the cliff edge of the Valley of the Rocks to Walnut Street, thence west along Walnut Street to Maple Street, thence southwest along Maple Street to Wayne Avenue, thence southeast along Wayne Avenue to the Bank of the Passaic River, thence southwest along the Passaic River to a point on the bank where a line from the first course extended meets said bank, thence across said river to the place of beginning.

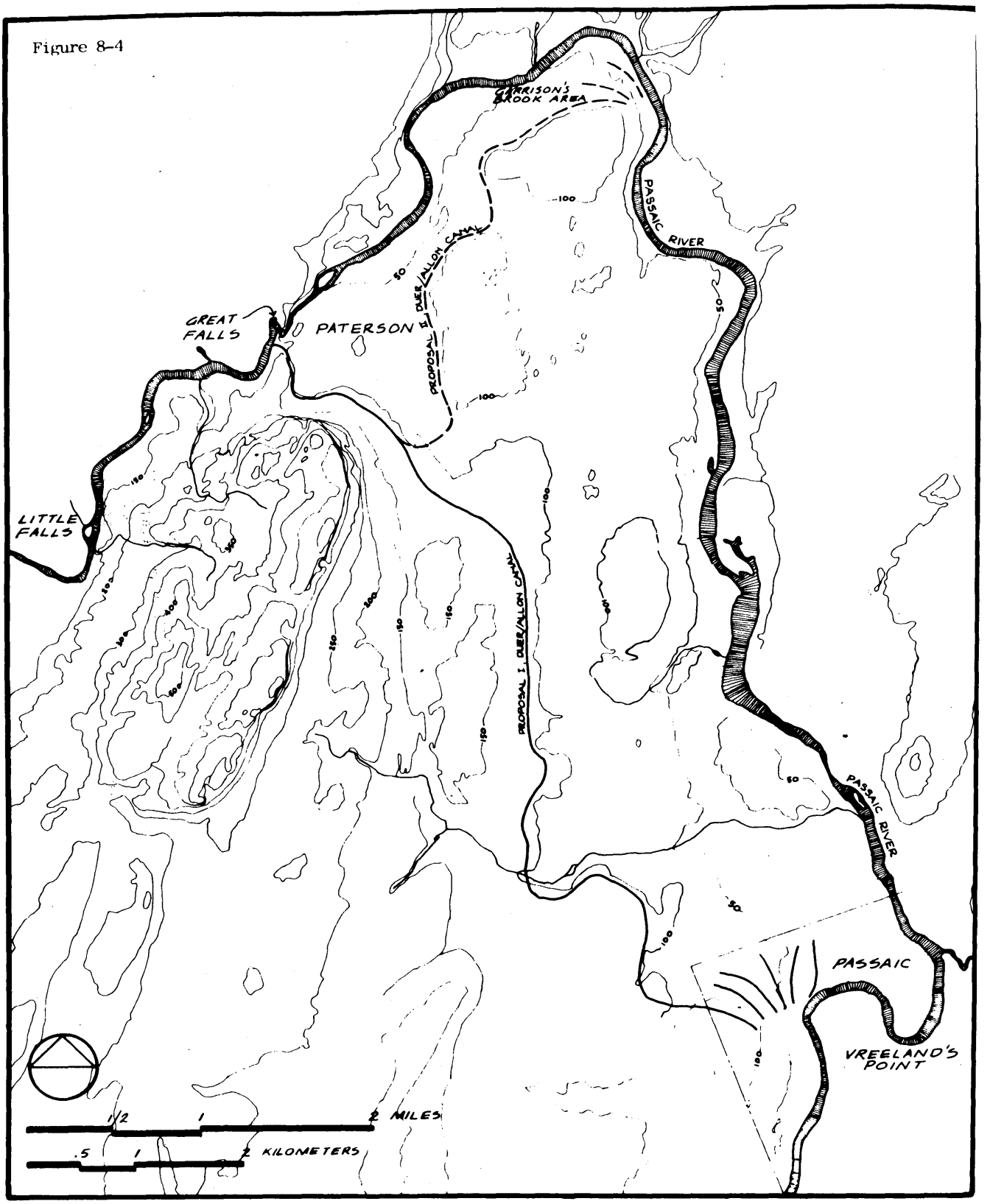


ARGUS MILL
6 Mill Street
Paterson, Passaic Co.
NJ

Figure 8-1

Plan 1 - Contour Map of Great Falls/S.U.M. Historic District
Original Scale 1" = 100'. Historic American Engineering

Figure 8-4

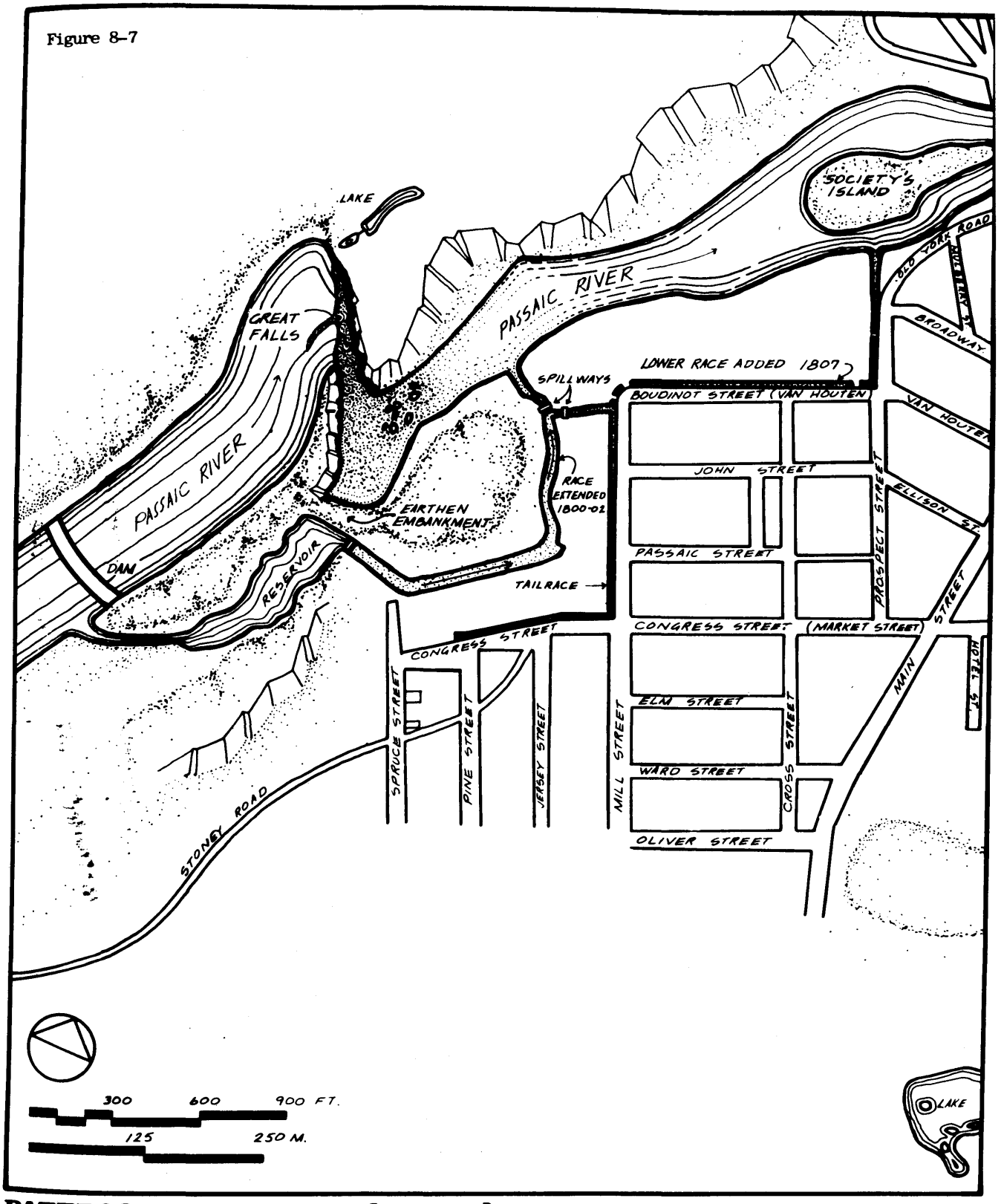


DUER-ALLON PLAN, [1792]

MAP OF THE PASSAIC RIVER BASIN, PATERSON TO TIDEWATER, SHOWING HYPOTHETICAL ROUTE FOR DUER-ALLON CANAL TO VREELAND'S POINT [PASSAIC], NEW JERSEY AND GARRISON'S BROOK [N.E. PATERSON].
SOURCE: TRACED FROM USGS MAP OF PATERSON, 1955.
MAP PREPARED BY THE HISTORIC AMERICAN ENGINEERING RECORD, HAER.

Plan 5 - Duer - Allon Plan - 1792, Historic American Engineering Record.

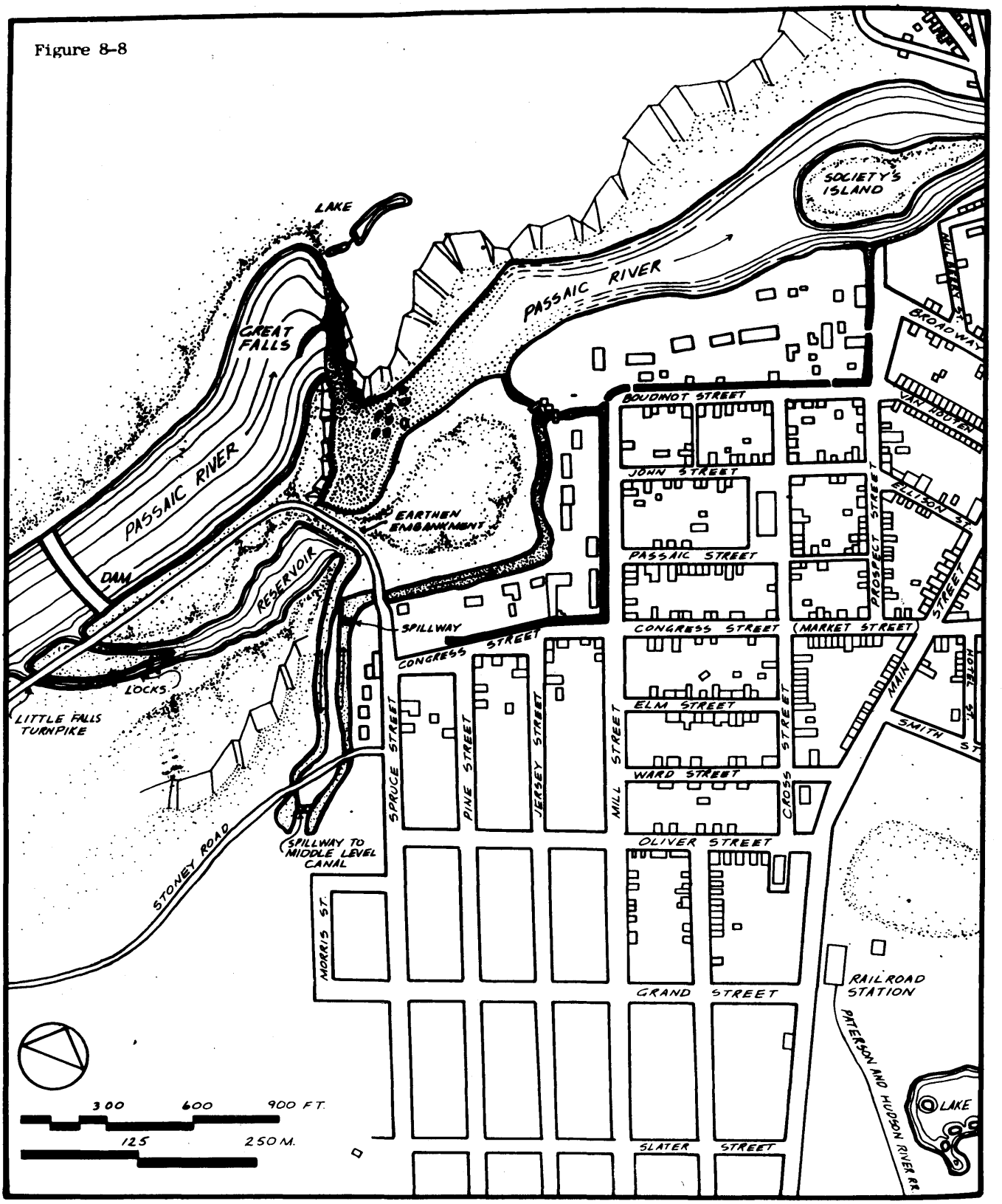
Figure 8-7



PATERSON RACEWAYS, [1800-27]

THIS SHEET SHOWS THE EXPANSION OF THE RACEWAY SYSTEM WHICH BEGAN IN 1800, WITH THE EXTENSION OF THE RACEWAY ALONG THE SIDE OF THE HILL BEYOND THE SITE OF THE FIRST MILL TO SUPPLY THE ESSEX MILL WITH WATER. IN 1807 S.U.M. ADDED A RACEWAY ALONG BOUDINOT (NOW VAN HOUTEN) STREET AND THE TAILRACE ALONG MILL STREET, ELIMINATING THE OLD DRAINAGE DITCH.
SOURCE: CONCEPTUAL MAP BASED ON HISTORICAL DOCUMENTATION AND 1" = 100' MAP.
MAP PREPARED BY THE HISTORIC AMERICAN ENGINEERING RECORD, HAER.

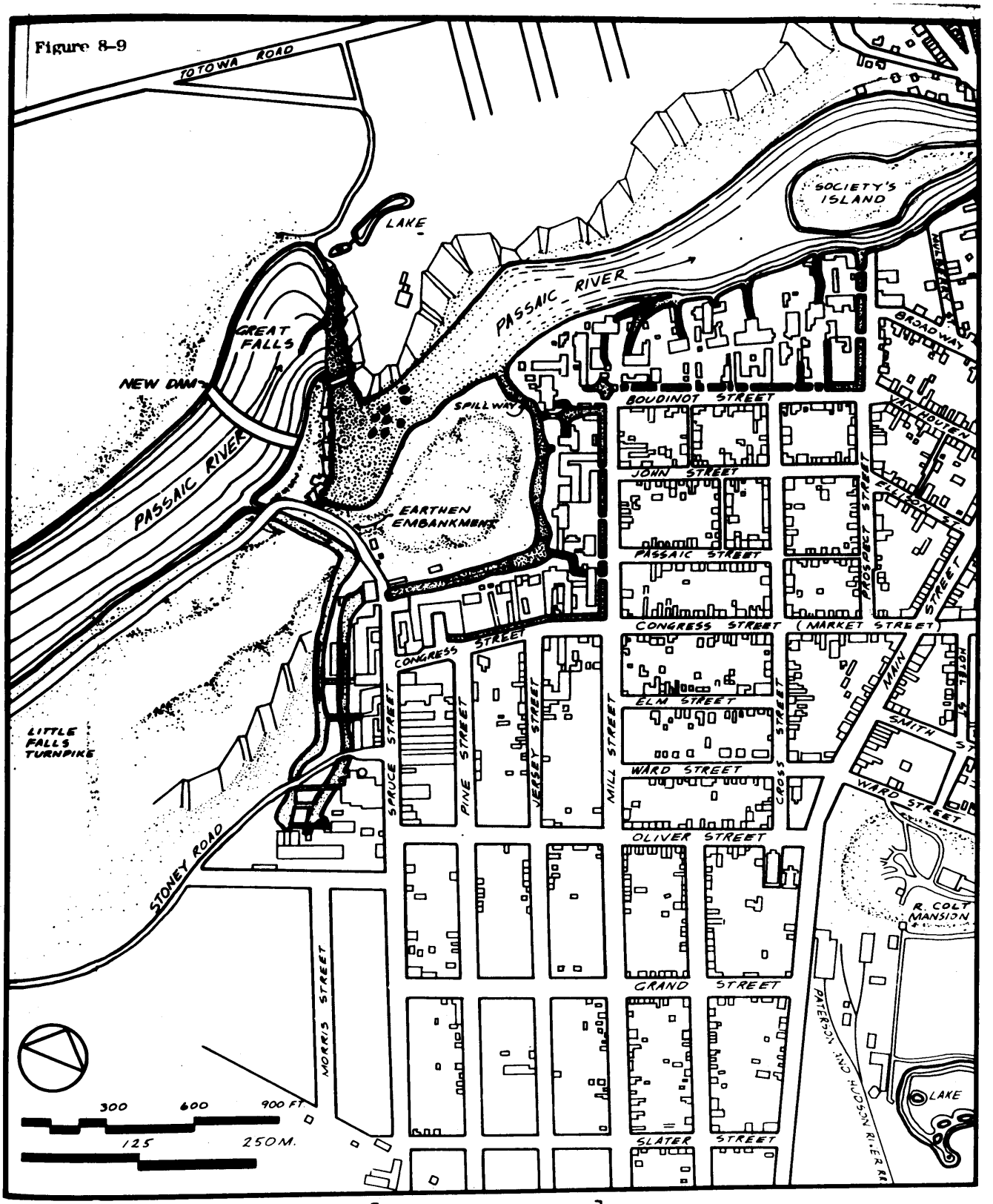
Figure 8-8



PATERSON RACEWAYS, [1828 - 37]

THIS SHEET DEPICTS A MAJOR MODIFICATION IN THE RACEWAY SYSTEM, BEGUN IN 1827, DUE TO A LACK OF WATER FOR ADDITIONAL MILL SITES. THE S.U.M. RAISED THE EARTHEN EMBANKMENT BLOCKING THE RESERVOIR FROM FLOWING INTO THE PASSAIC, THEN TURNED THE WATER AROUND TO THE TIP OF THE ROCKS AT L'ENFANTS GAP INTO A NEW UPPER LEVEL RACEWAY, WITH A PARALLEL TAILRACE BELOW, WHICH LED INTO THE PREVIOUS SYSTEM ALONG A NEW LINE. SOURCE: CONCEPTUAL MAP BASED ON HISTORICAL DOCUMENTATION AND 1" = 100' MAP. MAP CULTURE FROM PATERSON, N.J. MAP, 1850, BY J.C. SIDNEY, PUBLISHED BY M. DRIPPS, NEW YORK, NY. PREPARED BY HAER.

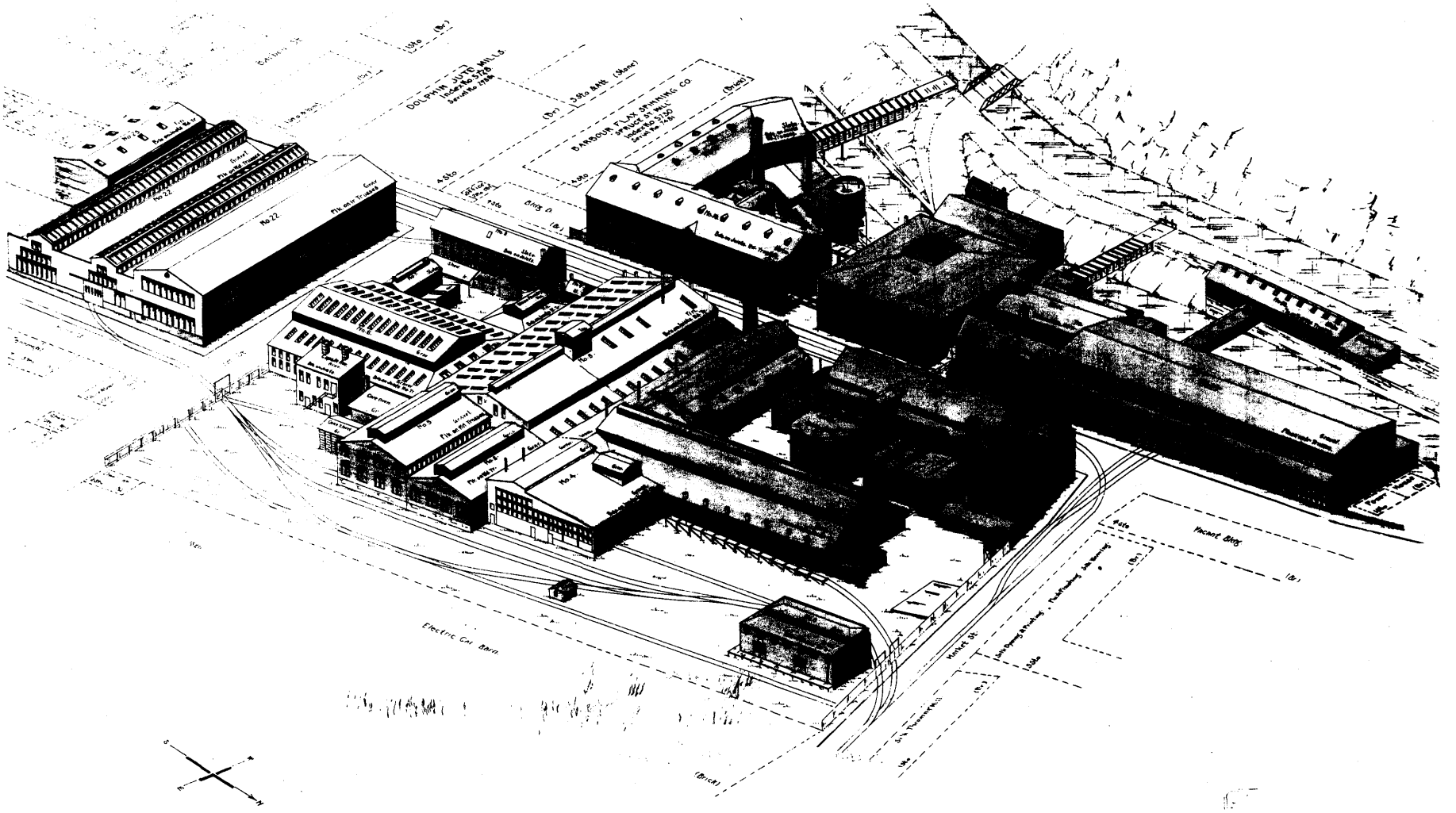
Figure 8-9



PATERSON RACEWAYS, [1838-PRESENT]

THIS SHEET DEPICTS FINAL ALIGNMENT OF THE S.U.M. RACEWAY SYSTEM. LEAKAGE THROUGH THE EARTHEN EMBANKMENT FORCED THE S.U.M. ENGINEER TO ABANDON THE RESERVOIR AND CHANNELS FROM THE RIVER. INSTEAD, HE BUILT A MASONRY DAM DOWNSTREAM AND TURNED THE RIVER INTO THE RACEWAY THROUGH A NEW CHANNEL CUT INTO THE ROCKY RIVER EDGE. THE WATER WAS THEN CARRIED ACROSS THE GULLEY ON TOP OF THE EARTHEN ENBANKMENT WHICH HAD SERVED AS A DAM FOR THE RESERVOIR. IN THE LATE 1800'S S.U.M. FILLED THE RESERVOIR AND SOLD THE LAND. SOURCE: CONCEPTUAL MAP BASED ON HISTORICAL DOCUMENTATION AND 1"=100' MAP CULTURE FROM PATERSON, N.J. MAP, 1850, BY J.C. SIDNEY, PUB. BY M. DRIPPS

Plan 9 - Paterson Raceways, 1838- present, Historic American Engineering Record.



ROGERS LOCOMOTIVE WORKS,

Paterson, N. J.

Surveyed March 28, 1905. Scale, 1 in.—50 ft.

Surveyed & drawn by E. H. Tenney

See R. B. 448, pp. 36-45.

FOR PLAN SEE SHEET SERIAL No 7444

Plate 12 -Rogers Works, 1905, showing large factory complex using water, Factory -· Mutual Assurance Association