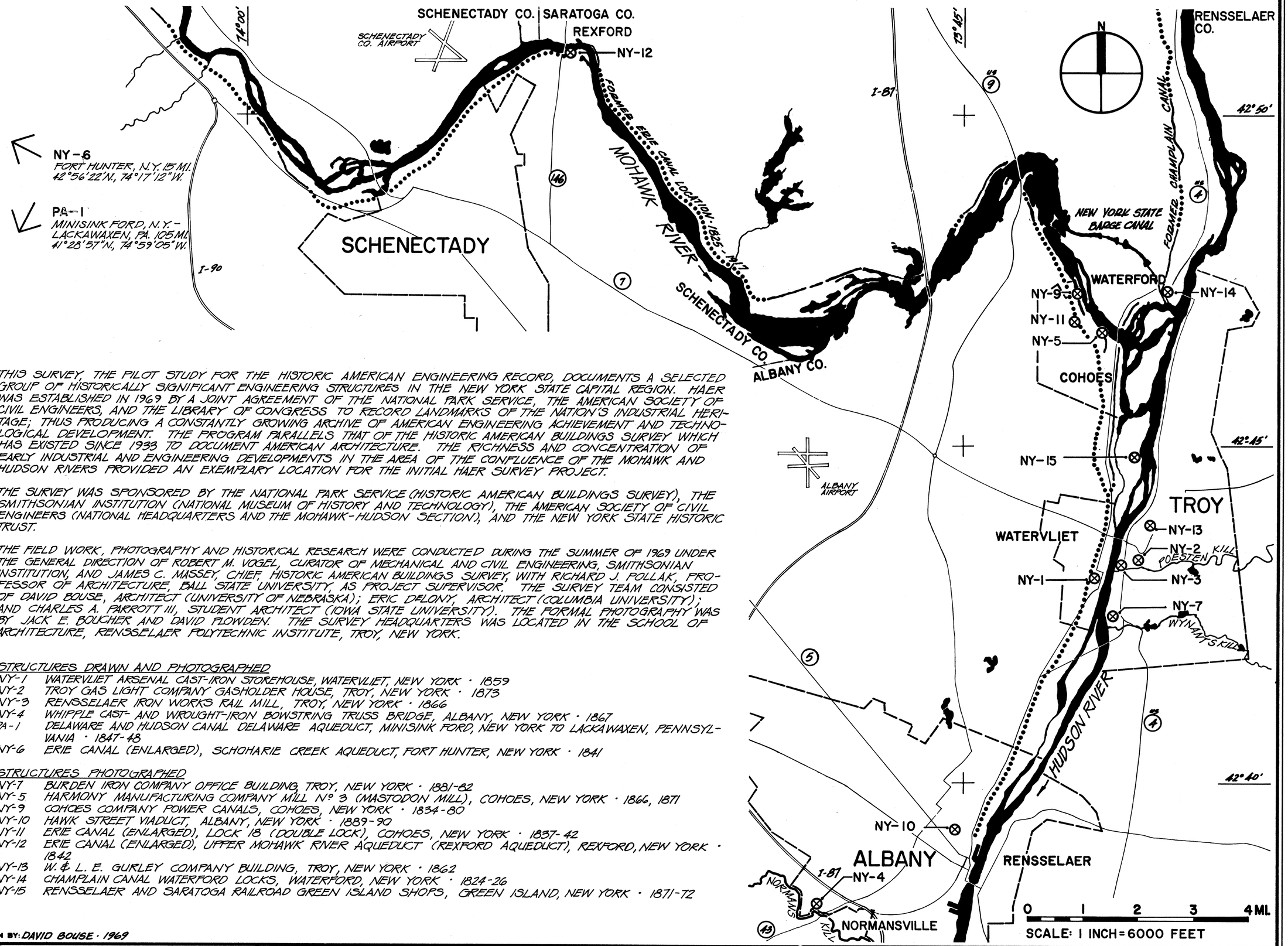
THE MOHAWK - HUDSON AREA SURVEY



THIS SURVEY, THE PILOT STUDY FOR THE HISTORIC AMERICAN ENGINEERING RECORD, DOCUMENTS A SELECTED GROUP OF HISTORICALLY SIGNIFICANT ENGINEERING STRUCTURES IN THE NEW YORK STATE CAPITAL REGION. HAER WAS ESTABLISHED IN 1969 BY A JOINT AGREEMENT OF THE NATIONAL PARK SERVICE, THE AMERICAN SOCIETY OF CIVIL ENGINEERS, AND THE LIBRARY OF CONGRESS TO RECORD LANDMARKS OF THE NATION'S INDUSTRIAL HERITAGE; THUS PRODUCING A CONSTANTLY GROWING ARCHIVE OF AMERICAN ENGINEERING ACHIEVEMENT AND TECHNOLOGICAL DEVELOPMENT. THE PROGRAM PARALLELS THAT OF THE HISTORIC AMERICAN BUILDINGS SURVEY WHICH HAS EXISTED SINCE 1933 TO DOCUMENT AMERICAN ARCHITECTURE. THE RICHNESS AND CONCENTRATION OF EARLY INDUSTRIAL AND ENGINEERING DEVELOPMENTS IN THE AREA OF THE CONFLUENCE OF THE MOHAWK AND HUDSON RIVERS PROVIDED AN EXEMPLARY LOCATION FOR THE INITIAL HAER SURVEY PROJECT.

THE SURVEY WAS SPONSORED BY THE NATIONAL PARK SERVICE (HISTORIC AMERICAN BUILDINGS SURVEY), THE SMITHSONIAN INSTITUTION (NATIONAL MUSEUM OF HISTORY AND TECHNOLOGY), THE AMERICAN SOCIETY OF CIVIL ENGINEERS (NATIONAL HEADQUARTERS AND THE MOHAWK-HUDSON SECTION), AND THE NEW YORK STATE HISTORIC TRUST.

THE FIELD WORK, PHOTOGRAPHY AND HISTORICAL RESEARCH WERE CONDUCTED DURING THE SUMMER OF 1969 UNDER THE GENERAL DIRECTION OF ROBERT M. VOGEL, CURATOR OF MECHANICAL AND CIVIL ENGINEERING, SMITHSONIAN INSTITUTION, AND JAMES C. MASSEY, CHIEF HISTORIC AMERICAN BUILDINGS SURVEY, WITH RICHARD J. POLLAK, PROFESSOR OF ARCHITECTURE, BALL STATE UNIVERSITY, AS PROJECT SUPERVISOR. THE SURVEY TEAM CONSISTED OF DAVID BOUSE, ARCHITECT (UNIVERSITY OF NEBRASKA); ERIC DELONY, ARCHITECT (COLUMBIA UNIVERSITY); AND CHARLES A. PARROTT III, STUDENT ARCHITECT (IOWA STATE UNIVERSITY). THE FORMAL PHOTOGRAPHY WAS BY JACK E. BOUCHER AND DAVID FLOWDEN. THE SURVEY HEADQUARTERS WAS LOCATED IN THE SCHOOL OF ARCHITECTURE, RENSSELAER POLYTECHNIC INSTITUTE, TROY, NEW YORK.

STRUCTURES DRAWN AND PHOTOGRAPHED

- NY-1 WATERVLIET ARSENAL CAST-IRON STOREHOUSE, WATERVLIET, NEW YORK · 1859
- NY-2 TROY GAS LIGHT COMPANY GASHOLDER HOUSE, TROY, NEW YORK · 1873
- NY-3 RENSSELAER IRON WORKS RAIL MILL, TROY, NEW YORK · 1866
- NY-4 WHIPPLE CAST- AND WROUGHT-IRON BOWSTRING TRUSS BRIDGE, ALBANY, NEW YORK · 1867
- PA-1 DELAWARE AND HUDSON CANAL DELAWARE AQUEDUCT, MINISINK FORD, NEW YORK TO LACKAWAXEN, PENNSYLVANIA · 1847-48
- NY-6 ERIE CANAL (ENLARGED), SCHOHARIE CREEK AQUEDUCT, FORT HUNTER, NEW YORK · 1841

STRUCTURES PHOTOGRAPHED

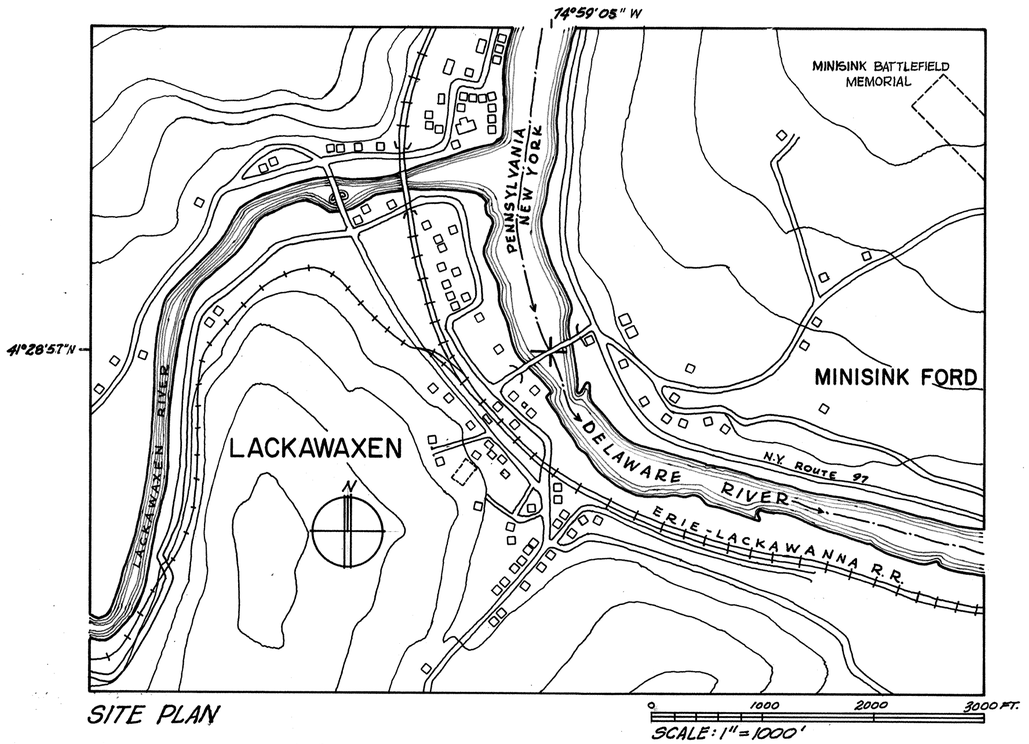
- NY-7 BURDEN IRON COMPANY OFFICE BUILDING, TROY, NEW YORK · 1881-82
- NY-5 HARMONY MANUFACTURING COMPANY MILL N° 3 (MASTODON MILL), COHOES, NEW YORK · 1866, 1871
- NY-9 COHOES COMPANY POWER CANALS, COHOES, NEW YORK · 1834-80
- NY-10 HAWK STREET VIADUCT, ALBANY, NEW YORK · 1889-90
- NY-11 ERIE CANAL (ENLARGED), LOCK 18 (DOUBLE LOCK), COHOES, NEW YORK · 1837-42
- NY-12 ERIE CANAL (ENLARGED), UPPER MOHAWK RIVER AQUEDUCT (REXFORD AQUEDUCT), REXFORD, NEW YORK · 1842
- NY-13 W. & L. E. GURLEY COMPANY BUILDING, TROY, NEW YORK · 1862
- NY-14 CHAMPLAIN CANAL WATERFORD LOCKS, WATERFORD, NEW YORK · 1824-26
- NY-15 RENSSELAER AND SARATOGA RAILROAD GREEN ISLAND SHOPS, GREEN ISLAND, NEW YORK · 1871-72

DRAWN BY: DAVID BOUSE · 1969

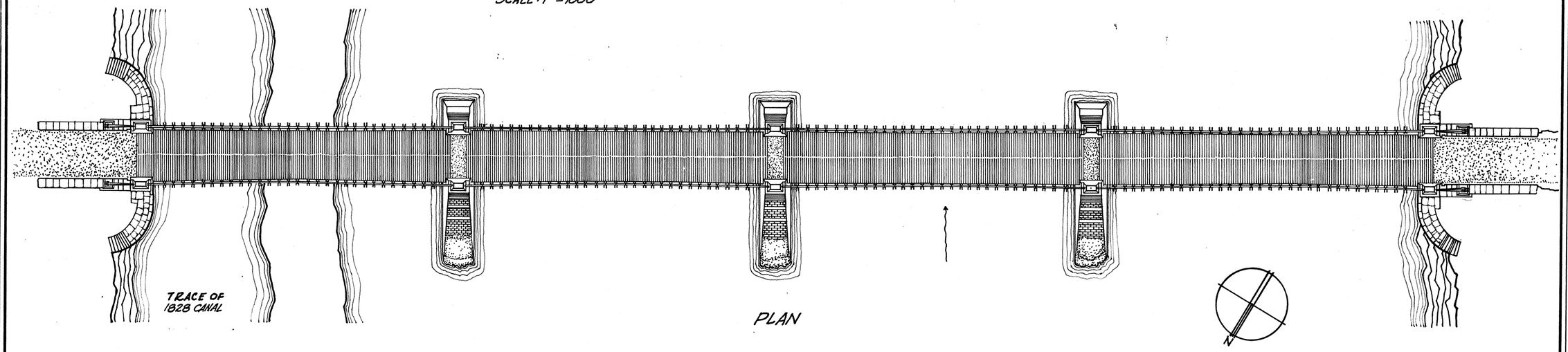
MOHAWK-HUDSON AREA SURVEY UNDER DIRECTION OF THE NATIONAL PARK SERVICE, UNITED STATES DEPARTMENT OF THE INTERIOR	NAME AND LOCATION OF STRUCTURE DELAWARE AND HUDSON CANAL DELAWARE AQUEDUCT DELAWARE RIVER-FROM LACKAWAXEN, PIKE CO., PENNSYLVANIA TO MINISINK FORD, HIGHLAND TOWNSHIP, SULLIVAN CO., NEW YORK	RECORD NO. HAER PA-1	HISTORIC AMERICAN ENGINEERING RECORD SHEET 1 OF 4 SHEETS	LIBRARY OF CONGRESS INDEX NUMBER

DELAWARE AQUEDUCT · DELAWARE AND HUDSON CANAL · 1847-1848

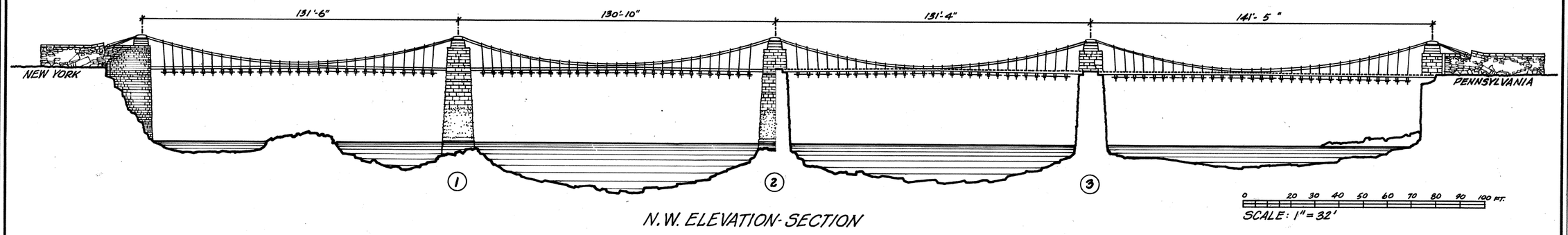
THE DELAWARE AQUEDUCT IS PROBABLY THE OLDEST SUSPENSION BRIDGE IN THE U.S. IT WAS DESIGNED AND BUILT BY JOHN A. ROEBLING, A PIONEER OF SUSPENSION BRIDGE TECHNOLOGY, AFTER HIS COMPLETION OF A SIMILAR STRUCTURE OVER THE ALLEGHENY IN PITTSBURGH. HE FAVORED THE SUSPENSION SYSTEM OVER CONVENTIONAL MASONRY ARCHS OR TIMBER TRUSSES AS THE GREATER PERMISSABLE SPAN LENGTHS REQUIRED FEWER RIVER PIERS, LESSENING IMPEDANCE TO ICE, FLOOD WATERS AND RIVER TRAFFIC. THE DELAWARE AQUEDUCT WAS THE LONGEST OF FOUR BUILT DURING A MAJOR IMPROVEMENT IN THE CANAL AND IS THE SOLE SURVIVOR. AFTER THE CANAL WAS ABANDONED IN 1898, THE AQUEDUCT WAS DEWATERED AND CONVERTED INTO A HIGHWAY TOLL BRIDGE WHICH FUNCTION IT CONTINUES TO SERVE. THE WOOD TRUNK WAS REPLACED BY THE PRESENT DECK SYSTEM FOLLOWING A FIRE IN 1932.



SITE PLAN



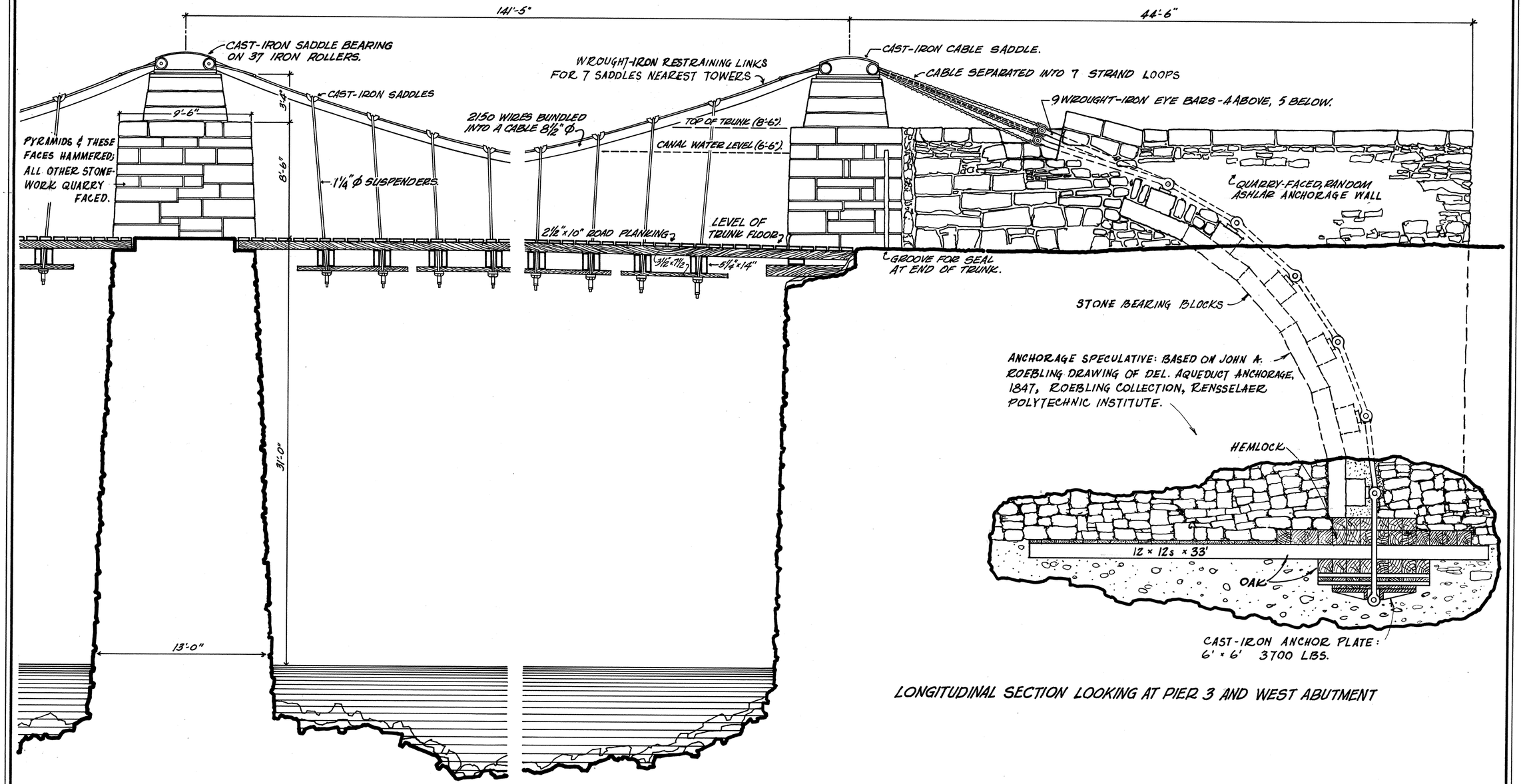
PLAN



N.W. ELEVATION-SECTION

DRAWN BY: ERIC DELONY · 1969

MOHAWK-HUDSON AREA SURVEY UNDER DIRECTION OF THE NATIONAL PARK SERVICE, UNITED STATES DEPARTMENT OF THE INTERIOR	NAME AND LOCATION OF STRUCTURE DELAWARE AND HUDSON CANAL DELAWARE AQUEDUCT DELAWARE RIVER-FROM LACKAWAXEN, PIKE CO., PENNSYLVANIA TO MINISINK FORD, HIGHLAND TOWNSHIP, SULLIVAN CO., NEW YORK	SURVEY NO. HAER PA: 1	HISTORIC AMERICAN ENGINEERING RECORD SHEET 2 OF 4 SHEETS	LIBRARY OF CONGRESS INDEX NUMBER



LONGITUDINAL SECTION LOOKING AT PIER 3 AND WEST ABUTMENT

0 5 10 FT.
SCALE: 3/16" = 1'-0"

DRAWN BY: ERIC DELONY - & ROBERT M. VOGEL 1969

MOHAWK-HUDSON AREA SURVEY
UNDER DIRECTION OF THE NATIONAL PARK SERVICE, UNITED STATES DEPARTMENT OF THE INTERIOR

NAME AND LOCATION OF STRUCTURE
DELAWARE AND HUDSON CANAL DELAWARE AQUEDUCT
DELAWARE RIVER - FROM LACKAWAXEN, PIKE CO., PENNSYLVANIA TO MINISINK FORD, HIGHLAND TOWNSHIP, SULLIVAN CO., NEW YORK

SURVEY NO. HAER PA-1

HISTORIC AMERICAN ENGINEERING RECORD
SHEET 3 OF 4 SHEETS

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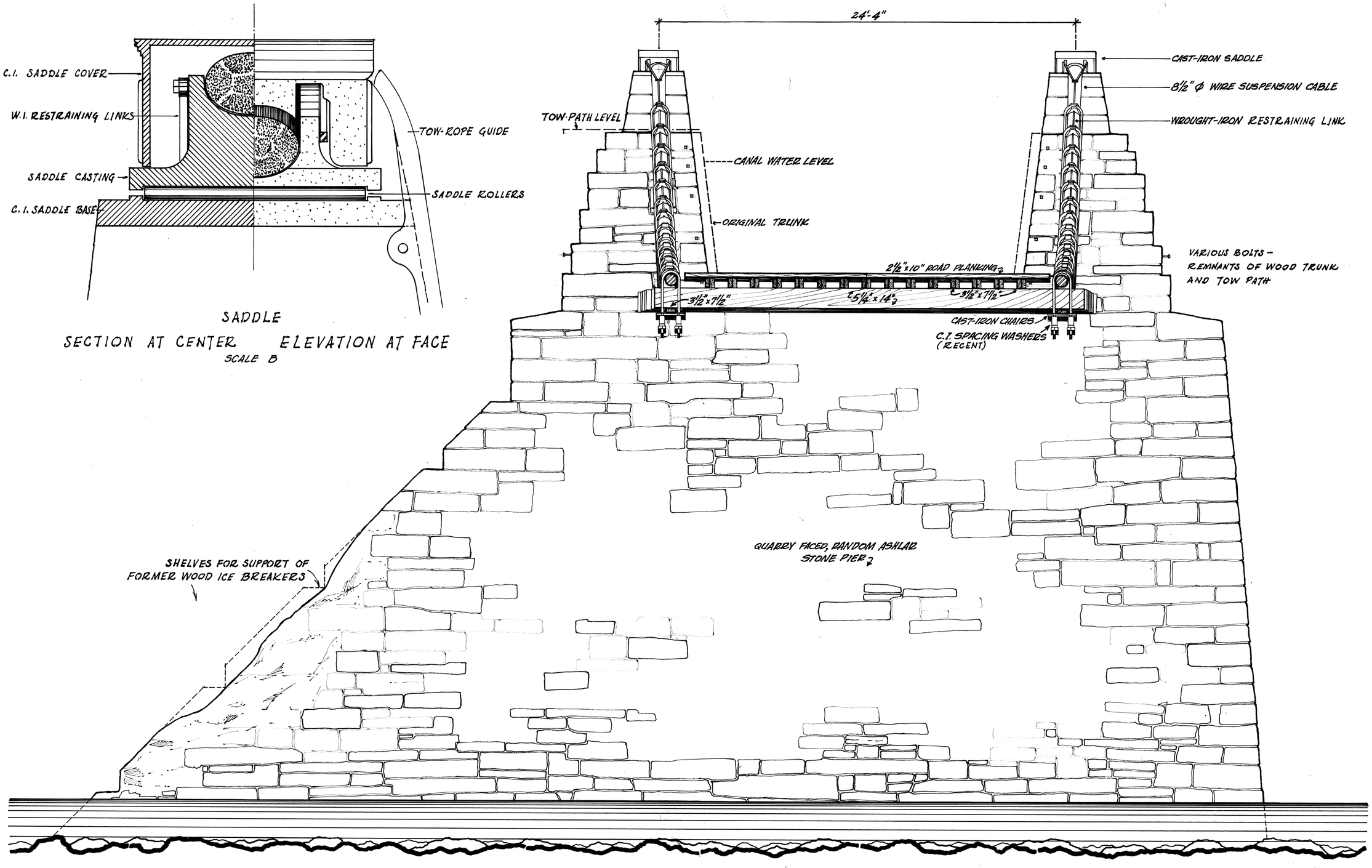
SADDLE

SECTION AT CENTER ELEVATION AT FACE

SCALE B



TYPICAL

PIER ELEVATION

SCALE A

0 5 10 FT.

SCALE A: 1/4" = 1'-0"

0 6 12 IN.

SCALE B: 1/8" = 1"

DRAWN BY: CHARLES PARROTT III. & ROBERT M. VOGEL 1969

MOHAWK-HUDSON AREA SURVEY

UNDER DIRECTION OF THE NATIONAL PARK SERVICE, UNITED STATES DEPARTMENT OF THE INTERIOR

NAME AND LOCATION OF STRUCTURE

DELAWARE AND HUDSON CANAL DELAWARE AQUEDUCT

DELAWARE RIVER-FROM LACKAWAXEN, PIKE, CO., PENNSYLVANIA TO MINISINK FORD, HIGHLAND TOWNSHIP, SULLIVAN CO., NEW YORK

SURVEY NO. HAER PA-1

HISTORIC AMERICAN ENGINEERING RECORD

SHEET 4 OF 4 SHEETS

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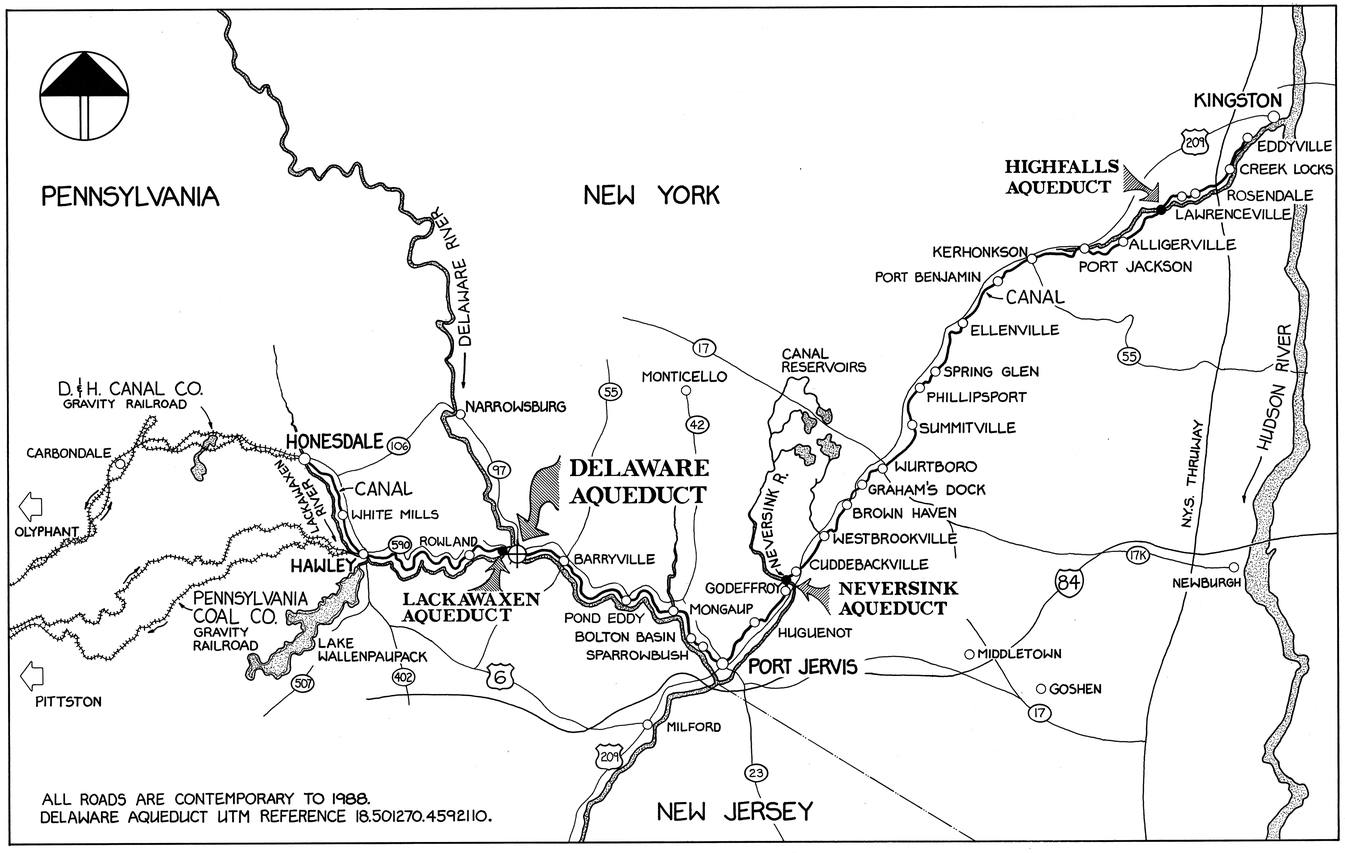
TRIM LINE

ADDENDUM TO
DELAWARE & HUDSON CANAL: DELAWARE AQUEDUCT 1847-49, 1930-31, 1985-87
LACKAWAXEN, PENNSYLVANIA



ALL ROADS ARE CONTEMPORARY TO 1988.
DELAWARE AQUEDUCT UTM REFERENCE 18.501270.4592110.

THE DELAWARE AND HUDSON CANAL AND GRAVITY RAILROAD, 1865

SCALE: 1" = 5 MILES
0 M. 5 10 15 20 25 30 35
0 KM. 10 20 30 40 50 60

MAP SOURCE: ENDSHEET FROM COAL BOATS TO TIDEWATER BY MANVILLE B. WAKEFIELD (LIBRARY OF CONGRESS CATALOG CARD NO. 65-27932).

THE DELAWARE AQUEDUCT WAS ONE OF FOUR SUSPENSION AQUEDUCTS DESIGNED AND BUILT BY JOHN ROEBLING AS PART OF A MAJOR IMPROVEMENT OF THE DELAWARE AND HUDSON CANAL. BECAUSE OF ITS PREEMINENCE IN THE HISTORY OF TECHNOLOGY AS AMERICA'S OLDEST EXISTING SUSPENSION STRUCTURE, THE AQUEDUCT WAS RECORDED IN 1969 AS PART OF THE FIRST HAER SURVEY. THOSE DRAWINGS RECORDED THE MASONRY PIERS, THE SUSPENSION CABLES, AND THE SIMPLE WOODEN DECK WHICH REPLACED THE CANAL TRUNK AFTER THE AQUEDUCT WAS CONVERTED TO A TOLLBRIDGE. IN 1988, FURTHER HAER DOCUMENTATION WAS UNDERTAKEN TO SHOW THE CONSTRUCTION OF THE ORIGINAL AQUEDUCT, AND ITS RECONSTRUCTION AS AN INTERPRETIVE TOOL AND ADAPTIVE REUSE AS A MODERN HIGHWAY BRIDGE.

THE DELAWARE AND HUDSON CANAL: DELAWARE AQUEDUCT RECORDING PROJECT WAS UNDERTAKEN BY THE HISTORIC AMERICAN ENGINEERING RECORD (HAER), AN AGENCY OF THE NATIONAL PARK SERVICE, U.S. DEPARTMENT OF THE INTERIOR, DURING THE SUMMER OF 1988. THE PROJECT WAS COSPONSORED BY THE UPPER DELAWARE SCENIC AND RECREATIONAL RIVER, NARROWSBURG, NEW YORK, JOHN HUTZKY, SUPERINTENDENT, AND THE HISTORIC AMERICAN BUILDINGS SURVEY/HISTORIC AMERICAN ENGINEERING RECORD (HABS/HAER), DR. ROBERT J. KAPSCH, CHIEF. THE FIELD TEAM, UNDER THE DIRECTION OF ERIC DELONY, CHIEF AND PRINCIPAL HAER ARCHITECT, AND BILL LEBOVICH, HAER ARCHITECTURAL HISTORIAN, AND ASSISTED BY SANDRA SPEERS, CHIEF, PLANNING AND SUPPORT SERVICES UDSRR, AND CARLA M. HAUSER, SECRETARY UDSRR, CONSISTED OF BRIAN D. BARTHOLOMEW, ARCHITECTURAL SUPERVISOR (UNIV. OF COLORADO AT DENVER), AND ARCHITECTURAL TECHNICIANS SCOTT BARBER (UNIV. OF WISCONSIN-MILWAUKEE), ANNE GUERETTE (US/ICOMOS AND LAVAL UNIV., QUEBEC) AND ELIZABETH F. KNOWLAN (UNIV. OF HOUSTON), AND HISTORIANS SYLVIE C. BROWNE (US/ICOMOS AND RENSSELAER POLYTECHNIC INSTITUTE) AND NANCY SPIEGEL (WINTERTHUR PROGRAM, UNIV. OF DELAWARE).

DELINEATED BY: BRIAN D. BARTHOLOMEW, SCOTT BARBER, ANNE GUERETTE, ELIZABETH F. KNOWLAN, 1988.

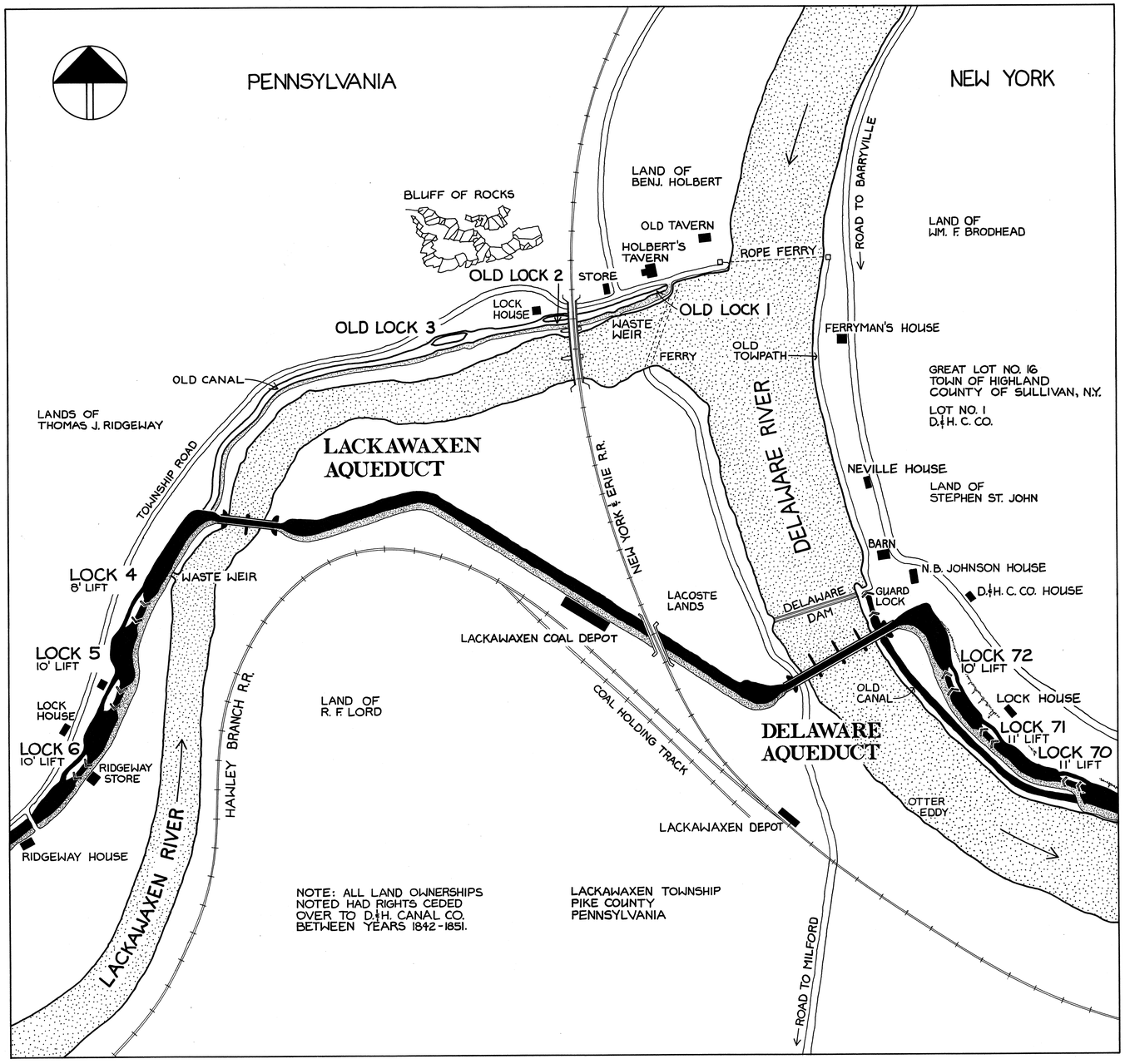
ZANE GREY HOUSE / DELAWARE AQUEDUCT RECORDING PROJECT
HISTORIC AMERICAN ENGINEERING RECORD
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

ADDENDUM TO
DELAWARE AND HUDSON CANAL; DELAWARE AQUEDUCT (ROEBLING BRIDGE) 1847-9, 1930-1, 1985-7
SPANNING THE DELAWARE RIVER BETWEEN LACKAWAXEN, PENNSYLVANIA AND MINISINK FORD, NEW YORK
LACKAWAXEN PIKE COUNTY PENNSYLVANIA MINISINK FORD SULLIVAN COUNTY NEW YORK

HISTORIC AMERICAN ENGINEERING RECORD PA-1

SHEET 1 OF 4

TRIM LINE



DELAWARE AND HUDSON CANAL: DELAWARE AND LACKAWAXEN CONFLUENCE, 1849

SCALE: 1" = 300'

0 FT. 300 900 1500 2100

0 METRES 200 400 600

MAP SOURCE: COAL BOATS TO TIDEWATER BY MANVILLE B. WAKEFIELD, P. 83 (LIBRARY OF CONGRESS CATALOG CARD NO. 65-27932).

THE DELAWARE AND HUDSON CANAL COMPANY WAS INCORPORATED IN 1823 FOR THE PURPOSE OF TRANSPORTING ANTHRACITE COAL FROM PENNSYLVANIA TO NEW YORK CITY. BENJAMIN WRIGHT, CHIEF ENGINEER OF THE NEWLY COMPLETED ERIE CANAL, WAS ENGAGED TO SURVEY AND BUILD THE CANAL ALONG THE LACKAWAXEN, DELAWARE AND NEVERSINK VALLEYS. IT WAS COMPLETED IN 1828.

MAJOR IMPROVEMENTS TO THE SYSTEM WERE UNDERTAKEN THROUGHOUT THE 1840S. THE WORST PROBLEM WAS THE RIVER CROSSING AT THE CONFLUENCE OF THE LACKAWAXEN AND DELAWARE, WHERE THE BOATS HAD TO LEAVE THE CONTROLLED WATERS OF THE CANAL AND BE PULLED BY ROPE FERRY ACROSS THE DELAWARE. THIS CROSSING WAS OFTEN DELAYED BY HIGH WATER AND ICE, AND MADE PERILOUS BY TIMBER RAFTS DRIFTING DOWNSTREAM. THE SOLUTION WAS TO BUILD AN AQUEDUCT TO CARRY THE CANAL OVER THE RIVER. IT WAS ORIGINALLY PLANNED TO REPLACE THE FERRY; HOWEVER, THE PROPERTY OWNER ON THE NORTH SIDE OF THE LACKAWAXEN WANTED TOO MUCH MONEY FOR THE USE OF HIS LAND. CHIEF ENGINEER RUSSEL LORD BOUGHT LACKAWAXEN MANOR ON THE SOUTH BANK FOR THE COMPANY AND REDESIGNED THE CANAL ROUTE TO RUN ACROSS THIS LAND FROM A NEW AQUEDUCT ON THE LACKAWAXEN, TO ANOTHER ON THE DELAWARE JUST BELOW THE SLACK WATER DAM. NEW LOCKS WERE TO BE BUILT AT MINISINK FORD WITH THE OLD CANAL SERVING AS A FEEDER.

IN 1847 THE COMPANY ACCEPTED THE PROPOSAL OF JOHN A. ROEBLING TO BUILD SUSPENSION AQUEDUCTS INSTEAD OF MORE CONVENTIONAL TRUSSED STRUCTURES. A SUSPENSION AQUEDUCT DID NOT REQUIRE FALSEWORK IN THE RIVER DURING CONSTRUCTION AND IT NEEDED ONLY THREE PIERS FOR SUPPORT, LEAVING MORE ROOM FOR THE FLOW OF WATER, ICE AND RIVER TRAFFIC. LORD BUILT THE ANCHORAGES, ABUTMENTS AND PIERS TO ROEBLING'S DESIGN; ROEBLING BUILT THE SUSPENSION SYSTEM AND AQUEDUCT TRUNK. SOON AFTER HE STARTED WORK ON THE DELAWARE, ROEBLING WAS HIRED TO REPLACE SMALLER AQUEDUCTS AT CUDDLEBACKVILLE AND HIGHFALLS WITH SIMILAR SUSPENSION AQUEDUCTS.

THE ENTIRE CANAL WAS ENLARGED SO THAT BY 1852, THE SYSTEM WAS ABLE TO ACCOMMODATE BOATS LARGE ENOUGH TO TRAVEL ON THE HUDSON, THUS SAVING TRAVEL AND TRANSSHIPMENT TIME. TRANSPORTATION OF COAL BY CANAL CONTINUED TO BE A PROFITABLE BUSINESS INTO THE 1870S, AFTER WHICH IT WAS ECLIPSED BY CHEAPER RAIL TRANSPORT. THE D&H HAD ALREADY BUILT ITS OWN RAILROAD NETWORK WHEN THE LAST BOAT PASSED THROUGH THE CANAL IN 1898.

THE DELAWARE AQUEDUCT SURVIVED THE CLOSING OF THE CANAL BECAUSE OF ITS STRATEGIC LOCATION AS A RIVER CROSSING. IT WAS SOLD TO HOLDING COMPANIES INTERESTED IN ITS POTENTIAL AS A RAILROAD BRIDGE, UNTIL 1908, WHEN IT WAS CONVERTED TO A TOLLBRIDGE. MUCH OF THE DELAWARE SECTION OF THE CANAL WAS INCORPORATED INTO THE ROADBED OF NEW YORK STATE ROUTE 97 IN 1933-34. OF THE OTHER THREE AQUEDUCTS ROEBLING DESIGNED, ONLY ABUTMENTS REMAIN.

DELINEATED BY: SCOTT BARBER, BRIAN D. BARTHOLOMEW, ELIZABETH F. KNOWLAN, ANNE GUERETTE, 1988.
ADDENDUM TO
ZANE GREY HOUSE/DELAWARE AQUEDUCT RECORDING PROJECT
HISTORIC AMERICAN ENGINEERING RECORD
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR
DELAWARE AND HUDSON CANAL: DELAWARE AQUEDUCT (ROEBLING BRIDGE) 1847-9, 1930-1, 1985-7
SPANNING THE DELAWARE RIVER BETWEEN LACKAWAXEN, PENNSYLVANIA AND MINISINK FORD, NEW YORK
LACKAWAXEN PIKE COUNTY PENNSYLVANIA MINISINK FORD SULLIVAN COUNTY NEW YORK
HISTORIC AMERICAN ENGINEERING RECORD PA-1
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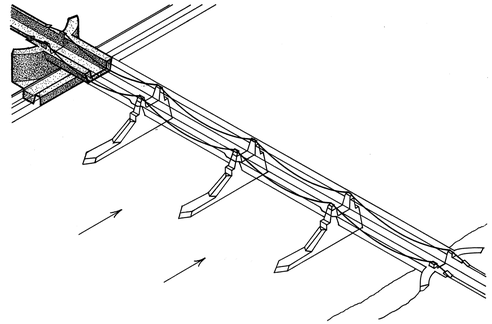
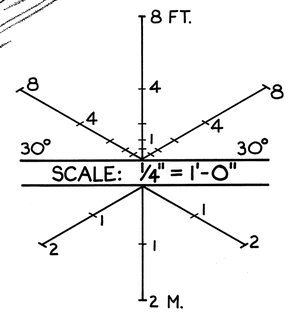
TRIM LINE

ISOMETRIC OF AQUEDUCT AT ABUTMENT, 1849



CONSTRUCTION BEGAN IN 1847. ONCE THE ANCHORAGES, ABUTMENTS, AND PIERS WERE BUILT, THE WIRES WERE SPUN IN SITU, TO GIVE EACH WIRE THE CORRECT SAG SO THAT ALL WOULD SUSTAIN EQUAL LOAD UNDER TENSION. THE WIRES WERE GROUPED INTO SEVEN STRANDS AND THE STRANDS WERE WRAPPED WITH WIRE TO FORM ONE ROUND COMPACT CABLE. FROM THE CABLES WERE HUNG WROUGHT IRON SUSPENDERS AND HANGER PLATES TO SUPPORT THE TIMBER FLOOR BEAMS AND FRAMING FOR THE AQUEDUCT TRUNK. THE SIDES AND BOTTOM OF THIS FRAMING WERE DOUBLY LINED WITH PLANKS LAID DIAGONALLY OPPOSITE TO EACH OTHER TO STIFFEN THE TRUNK SO THAT IT WAS SELF-SUPPORTING AND DID NOT SWAY. THE CABLES HAD ONLY TO SUPPORT THE DEAD LOAD OF THE WATER OR THE CANAL BOATS WHICH DISPLACED IT: THE ONLY LIVE LOADS WERE MULES AND PEDESTRIANS ON THE TOWPATHS. THE AQUEDUCT WAS OPEN FOR BUSINESS IN 1849. IT REPRESENTED THE CULMINATION OF ROEBLING'S STUDIES AND EXPERIMENTS WITH WIRE ROPE AND SUSPENSION AQUEDUCTS. HE INCORPORATED THIS EXPERIENCE IN LATER BRIDGE DESIGNS, INCLUDING THE BROOKLYN BRIDGE.

KEY
1. ABUTMENT
2. FEEDER CANAL
3. CABLE: 2150 WIRES IN SEVEN STRANDS WITH 8½" DIAMETER INCLUDING WRAPPING
4. WROUGHT IRON SUSPENDER (1¼" DIAMETER) AND HANGER PLATE
5. TIMBER FLOOR BEAMS 4'-0" ON CENTER
6. WOODEN TRUNK WALL
7. WOODEN TOWPATH
8. WOODEN CABLE COVERS
9. CAST IRON SADDLE AND COVER
10. CANAL WATER
11. COAL BOAT AND MULE



DELAWARE RIVER

DELINEATED BY: SCOTT BARBER, BRIAN D. BARTHOLOMEW, ELIZABETH F. KNOWLAN, ANNE GUERETTE, 1988. DANA LOCKETT, 1991.

ZANE GREY HOUSE / DELAWARE AQUEDUCT RECORDING PROJECT
HISTORIC AMERICAN ENGINEERING RECORD
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

ADDENDUM TO
DELAWARE AND HUDSON CANAL: DELAWARE AQUEDUCT (ROEBLING BRIDGE) 1847-9, 1930-1, 1985-7
SPANNING THE DELAWARE RIVER BETWEEN LACKAWAXEN, PENNSYLVANIA AND MINISINK FORD, NEW YORK
PIKE COUNTY MINISINK FORD SULLIVAN COUNTY
LACKAWAXEN PENNSYLVANIA NEW YORK

HISTORIC AMERICAN ENGINEERING RECORD
PA-1

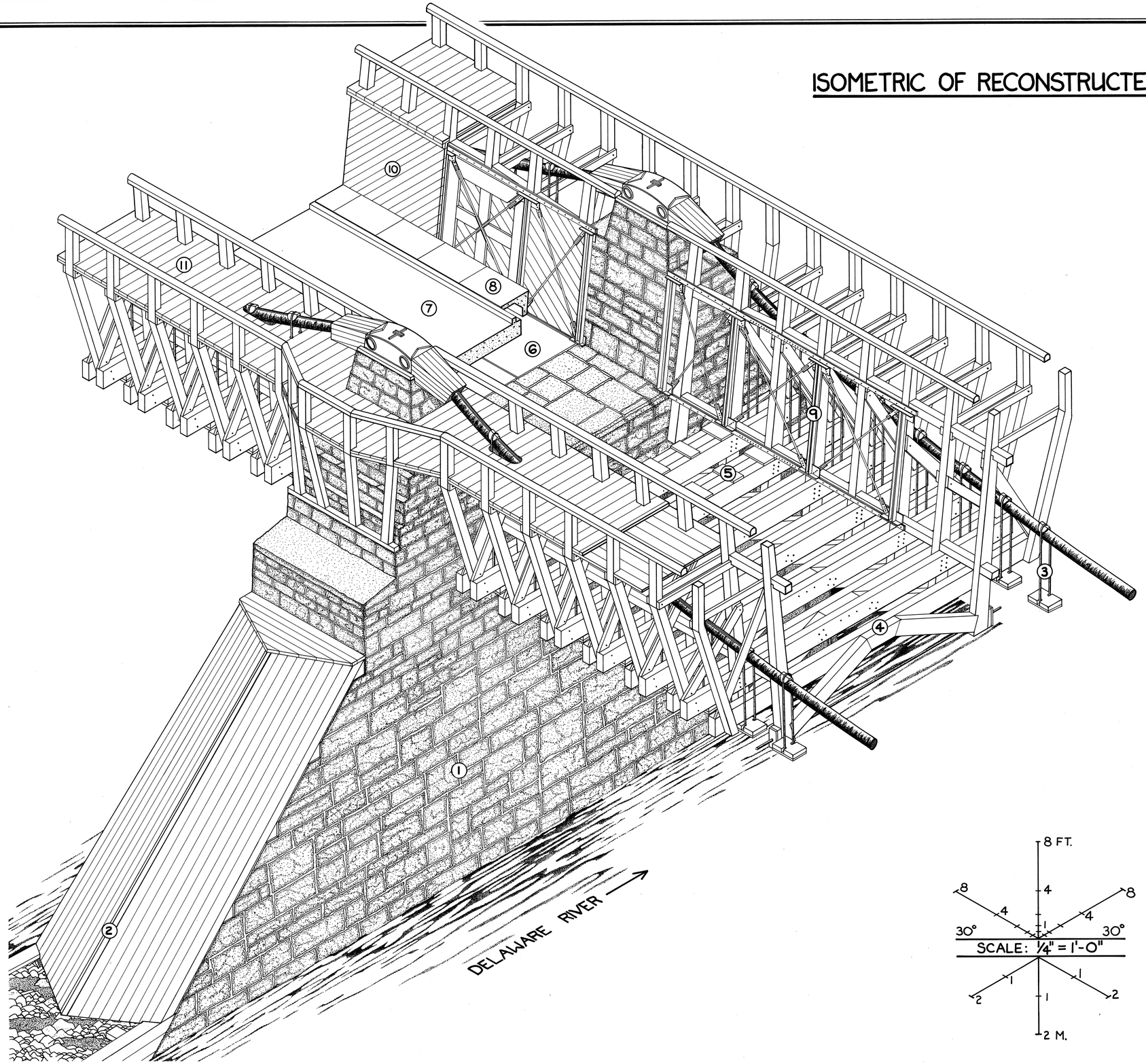
SHEET 3 OF 4

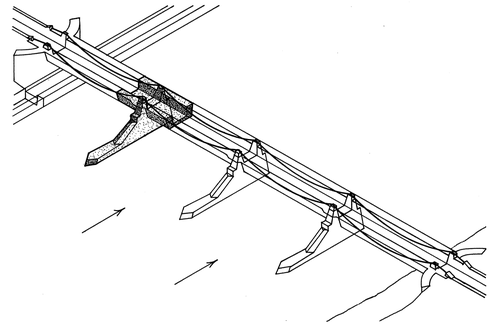
IF REPRODUCED, PLEASE CREDIT: HISTORIC AMERICAN ENGINEERING RECORD, NATIONAL PARK SERVICE. NAME OF DELINEATOR, DATE OF THE DRAWING

TRIM LINE

TRIM LINE

ISOMETRIC OF RECONSTRUCTED AQUEDUCT AT PIER, 1987





THE ROEBLING BRIDGE WAS EXTREMELY DETERIORATED WHEN PURCHASED BY THE NATIONAL PARK SERVICE (NPS) IN 1980. IN RESPONSE TO ITS MISSION TO INTREPRET HISTORIC PROPERTIES AND BECAUSE OF LOCAL PRESSURE TO REOPEN A NEEDED BRIDGE, NPS DECIDED TO COMBINE RECONSTRUCTION OF THE AQUEDUCT WITH MODERN HIGHWAY ENGINEERING. PHASE I BEGAN WITH RESTORATION OF THE CABLES AND PIERS. THE CABLE WIRES WERE CLEANED, PACKED WITH RED LEAD PASTE, AND REWRAPPED WITH STEEL WIRE. STONES WERE RESTORED TO THE PIERS, AND COVERINGS AND SACRIFICIAL ICEBREAKERS WERE RECONSTRUCTED TO PROTECT THE PIERS FROM THE SCOURING OF ICE. PHASE II BEGAN IN 1986. TO RECONSTRUCT THE AQUEDUCT'S HISTORIC APPEARANCE, THE TIMBER FRAMES WERE COPIED ALMOST DIRECTLY FROM ROEBLING'S DESIGN. TO ACCOMODATE HIGHWAY TRAFFIC, THIN STEEL TRUSSES WERE BUILT INTO THE CANAL WALLS TO PROVIDE STIFFENING, AND THE DAMPENING EFFECT OF THE CANAL WATER WAS REPLICATED WITH A NEOPRENE AND CONCRETE ROADBED SO THAT THE LIVE LOAD OF TRAFFIC WAS MINIMIZED. THE TOWPATHS AND TRUNK WALLS WILL BE INSTALLED IN 1992 AS PART OF PHASE III. THE BRIDGE REOPENED IN 1987.

KEY
1. MASONRY PIER
2. WOODEN ICEBREAKER COVER
3. HANGER AND PLATE
4. TIMBER FRAME
5. NEOPRENE PAD ON STEEL BASE
6. 3" REINFORCED PRECAST CONCRETE ROADBED PANEL
7. 12" CAST IN PLACE CONCRETE TOPPING
8. PRECAST CONCRETE SIDEWALK PANEL WITH CONDUIT
9. STEEL TRUSS FOR STIFFENING
10. WOODEN CANAL WALL (PHASE III)
11. WOODEN TOWPATH (PHASE III)

DELINEATED BY: SCOTT BARBER, BRIAN D. BARTHOLOMEW, ANNE GUERETTE, ELIZABETH F. KNOWLAN, 1988. DANA LOCKETT, 1991.

ZANE GREY HOUSE / DELAWARE AQUEDUCT RECORDING PROJECT
HISTORIC AMERICAN ENGINEERING RECORD
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

ADDENDUM TO
DELAWARE AND HUDSON CANAL: DELAWARE AQUEDUCT (ROEBLING BRIDGE) 1847-9, 1930-1, 1985-7
SPANNING THE DELAWARE RIVER BETWEEN LACKAWAXEN, PENNSYLVANIA AND MINISINK FORD, NEW YORK
PIKE COUNTY PENNSYLVANIA MINISINK FORD SULLIVAN COUNTY NEW YORK
LACKAWAXEN

SHEET 4 OF 4

HISTORIC AMERICAN ENGINEERING RECORD PA-1

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TRIM LINE