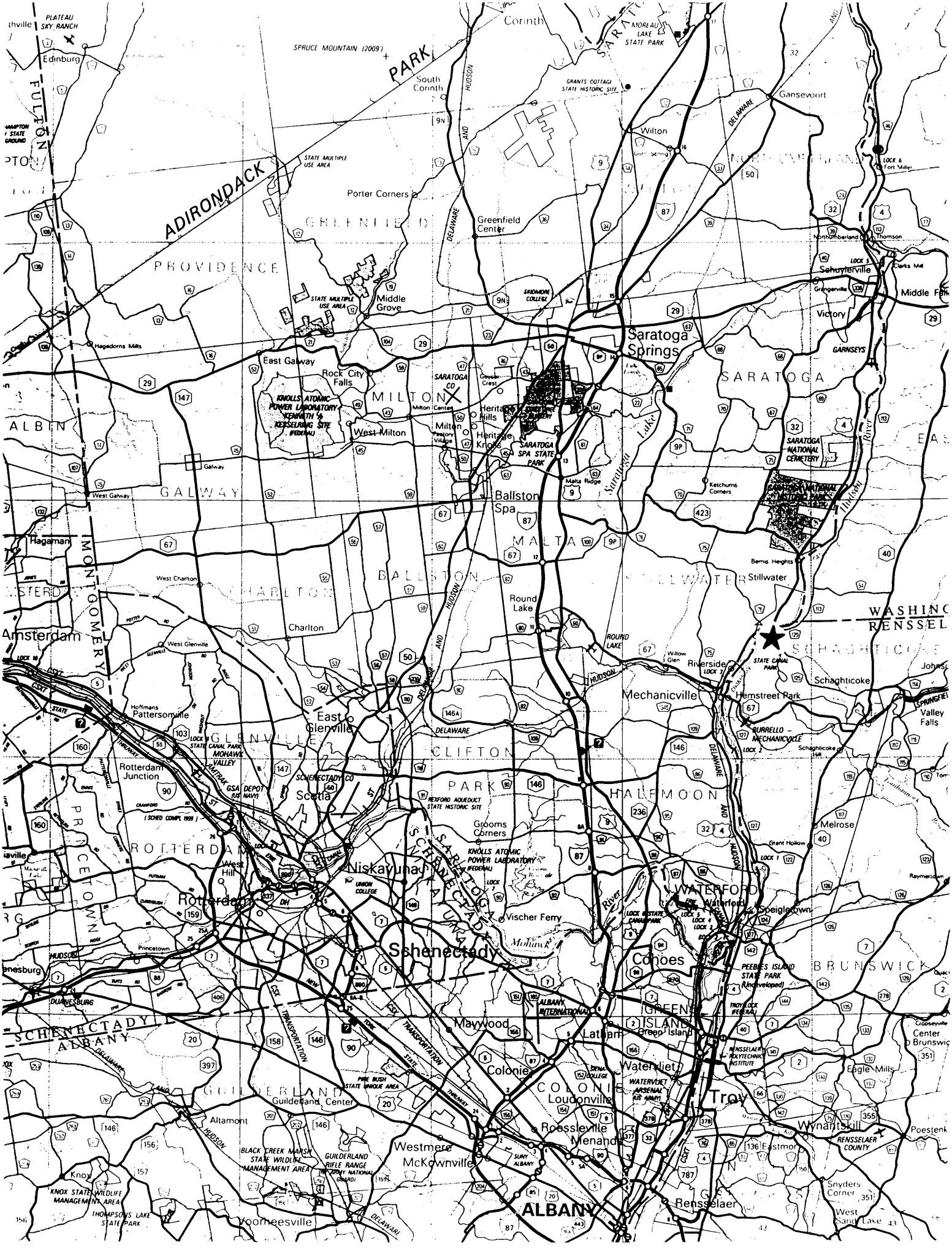
A Landscape Transformed: Lock 4 Canal Park

The Construction of Champlain Barge Canal Lock 4, and the Alteration of the Junction of the Hoosic and Hudson Rivers

Rensselaer-Taconic Land Conservancy
2000


PLATEAU SKY RANCH
Edinburg
FULTON
SPRUCE MOUNTAIN (2009)
PARK
South Corinth
Corinth
MORELAU LAKE STATE PARK
GRANTS COTTAGE STATE HISTORIC SITE
Gansevoort
Wilton
ADIRONDACK
STATE MULTIPLE USE AREA
Porter Corners
GREENFIELD
Greenfield Center
PROVIDENCE
Middle Grove
SKIDMORE COLLEGE
Saratoga Springs
Hagedorns Mills
East Galway
Rock City Falls
SARATOGA CO
MILTON
KNOLLS ATOMIC POWER LABORATORY KENNETH A. KESSELRING SITE (FEDERAL)
West Milton
Milton Center
Heritage Hills
Heritage Knolls
SARATOGA SPA STATE PARK
SARATOGA
ALBIN
Galway
West Galway
GALWAY
Ballston Spa
Malta Ridge
Ketchums Corners
SARATOGA NATIONAL CEMETERY
Hagaman
MONTGOMERY
MALTA
West Charlton
BALLSTON
CHARLTON
Round Lake
Stillwater
Bemis Heights
Amsterdam
West Glenville
Charlton
HUDSON
Mechanicville
Riverside
Schaghticoke
Hemstreet Park
Hoffmans
Pattersonville
East Glenville
GLENVILLE
CLIFTON PARK
HALFMOON
Rotterdam Junction
MOHAWK VALLEY
GSA DEPOT (US NAVY)
Scotia
SCHENECTADY CO
REXFORD AQUEDUCT STATE HISTORIC SITE
Grooms Corners
KNOLLS ATOMIC POWER LABORATORY (FEDERAL)
Melrose
Grant Hollow
Niskayuna
UNION COLLEGE
WATERFORD
Waterford
Speigletown
Rotterdam
West Hill
Vischer Ferry
Mohawk
Schenectady
Cohoes
PEEBLES ISLAND STATE PARK (Undeveloped)
TROY LOCK (FEDERAL)
BRUNSWICK
Princetown
DUANESBURG
SCHENECTADY
ALBANY
Maywood
ALBANY INTERNATIONAL
Latham
GREEN ISLAND
Green Island
Colonie
Watervliet
WATERVLIET ARSENAL (US ARMY)
Troy
RENSSELAER POLYTECHNIC INSTITUTE
Eagle Mills
COLONIE
Loudonville
GUILDERLAND
Guilderland Center
PINE BUSH STATE UNIQUE AREA
Altamont
Roosevelt
Menands
Wynantskill
Poestenk
Westmere
McKownville
BLACK CREEK MARSH STATE WILDLIFE MANAGEMENT AREA
GUILDERLAND RIFLE RANGE (ARMY NATIONAL GUARD)
Knox
KNOX STATE WILDLIFE MANAGEMENT AREA
THOMPSONS LAKE STATE PARK
Voorheesville
ALBANY
Rensselaer
Snyders Corner
West Sand Lake
RENSSELAER COUNTY

Lock 4 Canal Park, owned by the New York State Canal Corporation, is located in the Town of Schaghticoke, Rensselaer County, at Lock 4 of the Champlain division, where the Hoosic River enters the Hudson opposite Stillwater. Before the construction of the Lock in 1908-1912, three shale bluff islands existed at this confluence. The canal construction significantly altered the landscape, transforming two of these islands into part of the mainland. While the area is still highly scenic, the configuration and use of the land has changed markedly. Barge Canal records held by the New York State Archives are used to document these land changes and the canal construction process.

The New York State Canal System we know today had its roots in the Western and Northern Inland Lock Navigation companies, which established a crude transportation system in the late Eighteenth and early Nineteenth centuries. This route followed navigable rivers and streams, connected in places by rather short artificial canal passages. Interest in developing a statewide canal system developed about the time of the War of 1812, and work began on the first Erie and Champlain Canals in 1817. The Erie Canal was finally completed between Albany and Buffalo in 1825 and the Champlain Canal was completed between Cohoes and Whitehall in 1823. The Erie Canal was used so heavily in its early years that it was enlarged, and in some places relocated, between 1835 and 1862. A number of lateral canals were constructed in the Nineteenth Century as well, mostly connecting to the Erie Canal.

By the 1890s the canal system had become outdated and another major enlargement project was begun in 1895. This project was halted three years later, and then Governor Theodore Roosevelt authorized a study, issued in 1900, which recommenced the construction of an entirely new modern canal system. This culminated in the construction and operation of the New York State Barge Canal System, which was completed in 1918. The construction of the Barge Canal came under the jurisdiction of the State Engineer and Surveyor, State Superintendent of Public Works, and State Canal Board. In 1992 jurisdiction over the Barge Canal system was transferred from the State Department of Transportation to the New York State Thruway Authority, which operates the present-day canals through a subsidiary, the New York State Canal Corporation. The name "Barge Canal" was dropped and the entire network is now known as the New York State Canal System.

The Erie Canal of the Nineteenth Century has become famous for the remarkable role it played in expanding commerce and developing communities in central and western New York, and has been memorialized in literature, lore and song. Its sister canal, the Champlain Canal of the same era, is far less known and renowned. The Barge Canal system is also far less famous, possibly because of its creation in a more modern, technological era lacking the drama and romance associated with the old Erie Canal. Only two major published works have been devoted to the Barge Canal System: Noble Whitford's *History of the Barge Canal System of New York State*, a state document issued in 1922, and Michele McFee's recent illustrated history, *A Long Haul, the Story of the New York State Barge Canal*, published in 1998.

In one way, the Twentieth Century Barge Canal more closely resembled the early inland water navigation system than the old Erie and Champlain canals. While the Nineteenth Century canals were largely self-contained, the Barge Canal system followed rivers and other navigable waterways wherever possible. In many places, rivers such as the Hudson and Mohawk required damming and dredging to provide a dependable channel deep enough for vessels. The Champlain division of the Barge Canal followed the Hudson River from Lansingburgh/Waterford as far north as Fort Miller and Fort Edward, where it followed an artificial channel to its terminus at Whitehall. A series of seven dams and associated locks were constructed in the section, and for the most part the course of the Hudson River was not greatly altered. These dams were largely located at the site of older dams in the Hudson, where low rapids were present in the river.

This was the case at Champlain Locks 1, 2, and 3 located between Rensselaer and

Saratoga counties. At Locks 1 and 2, small islands were incorporated into the lock infrastructure, but the general course of the river remained unchanged. The highly scenic islands in the "horseshoe bend" in the Hudson immediately below Lock 1 appear today as they have from the times they were used first by Native American and later by local Nineteenth Century farmers. This was not the case, however, at Champlain Lock 4 opposite Stillwater, where the construction of the Barge Canal lock led to a significant alteration of the landscape.

The subject of our study is Lock 4 Canal Park, the largest park operated by the Canal Corporation, comprising about 91 acres of land located at the junction of the Hoosic and Hudson Rivers. The park includes a picnic area, observation platform at the lock, a canoe launch, and short nature trails. The area is highly scenic, where shale bluffs overlook the Hoosic River raging over a series of rapids immediately before entering the Hudson. The park has been identified by the New York State Natural Heritage Program and the Rensselaer-Taconic Land Conservancy as a significant plant habitat, containing a wide diversity of species, including some state-listed rare plants. The park is located entirely within the Town of Schaghticoke, Rensselaer County, while the adjacent privately-owned Green Island is located in the Town of Stillwater.

Green Island is the only remaining island not substantially altered by the lock construction. The other two original islands, sometimes known as Parry's Island and Vandenbergh's (or Bulson's) Island, have become peninsulas attached to the mainland. These islands first appear on "A Map of the Corporation Lands at Schatikooke," copied for Harmen Gansevoort in the 1790s by Simeon De Witt, one of the Survey Maps of Lands in New York State. This map seems to depict four islands, where in reality only three appear to have ever existed. Of particular interest is a former channel between the mainland and Vandenbergh's Island known as the "Dwaas Kill," a name of Dutch origin meaning a stream that flows at a transverse angle to another watercourse. Local legend recalls that water in the Dwaas Kill flowed either from the Hoosic to the Hudson, or in the other direction, depending on water flow in both rivers, creating a series of dangerous rapids. Even with the construction of a low dam at Stillwater, this landscape remained unchanged until the Barge Canal construction took place.

While these islands do not appear on most 19th century maps, the area is shown in great detail on five of the so-called "Egg-shell Maps" (Erie and Champlain canals topographic survey maps), which date from shortly after 1900, and are held by the State Archives. These maps also show the proposed route of the Barge Canal cut, which bisected Vandenbergh's Island. As the computer-generated maps indicate, the passage between Parry's and Vandenbergh's islands was blocked, and the low area is today a wetland. The Dwaas Kill was also blocked off and was nearly obliterated. A new bridge was constructed at Stillwater and an access road to the lock was opened. The Kipp house, located close to the canal cut at its north end, was demolished.

The Barge Canal work was accomplished primarily through contract #68, issued to the firm of Shanley-Morrissey, Inc. of New York City in 1908 for $947,813. Dredging of the Hudson from Lock 2 north to Lock 4 was begun in 1909 under contract #72 for $618,900 by the same firm, but they were not able to complete this job. As a result, contracts 72A (for $1,515,095) and 72B (for $92,517) were awarded to another New York City firm, James Stewart & Co., in 1913 and 1916 respectively. This work also included widening the prism at the mouth of the Hoosic River.

The New York State Archives holds a number of series of records relating to the design and construction of the Barge Canal system. Sample records from the following eight series are reproduced here:

14068. Erie and Champlain canals topographic survey maps ("egg shell maps"), ca. 1904-1915.

B0391. Barge Canal contract location maps, ca. 1904-1905.

10448. Maps, drawings and blueprints related to State waterways and canals, ca. 1851-1941.

B0214 Barge Canal Land Appropriation Maps, 1910-25 (recent accretion)

B0392. Charts and maps of the State canal system, ca. 1923.

B0213. Barge Canal contract files, 1907-1944.

B1009. New York State Barge Canal plans, 1920.

11833. Barge Canal construction photographs, 1905-1921.

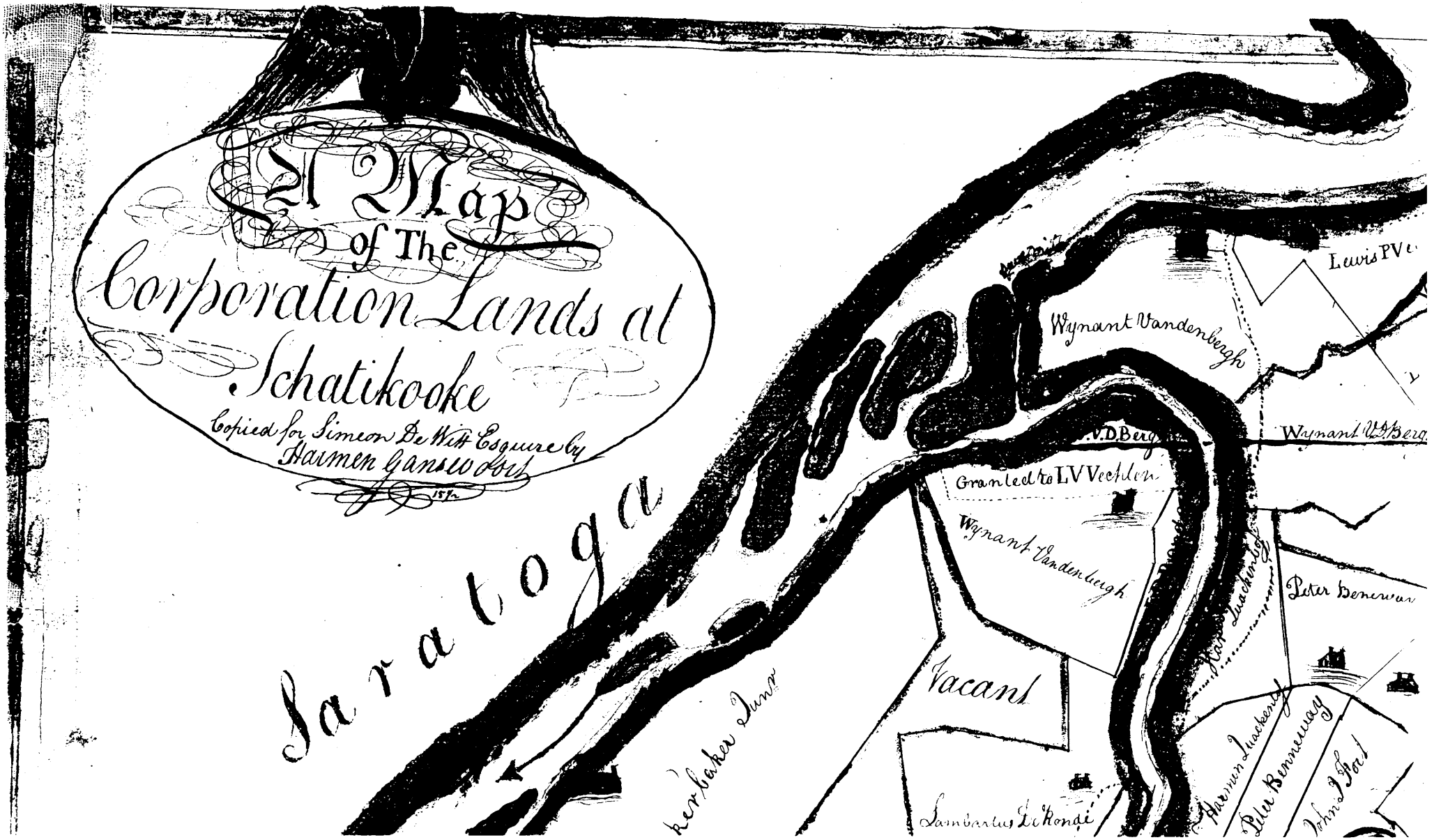
Descriptions of these records are taken from the New York State Archives publication *The Mighty Chain* (1992).

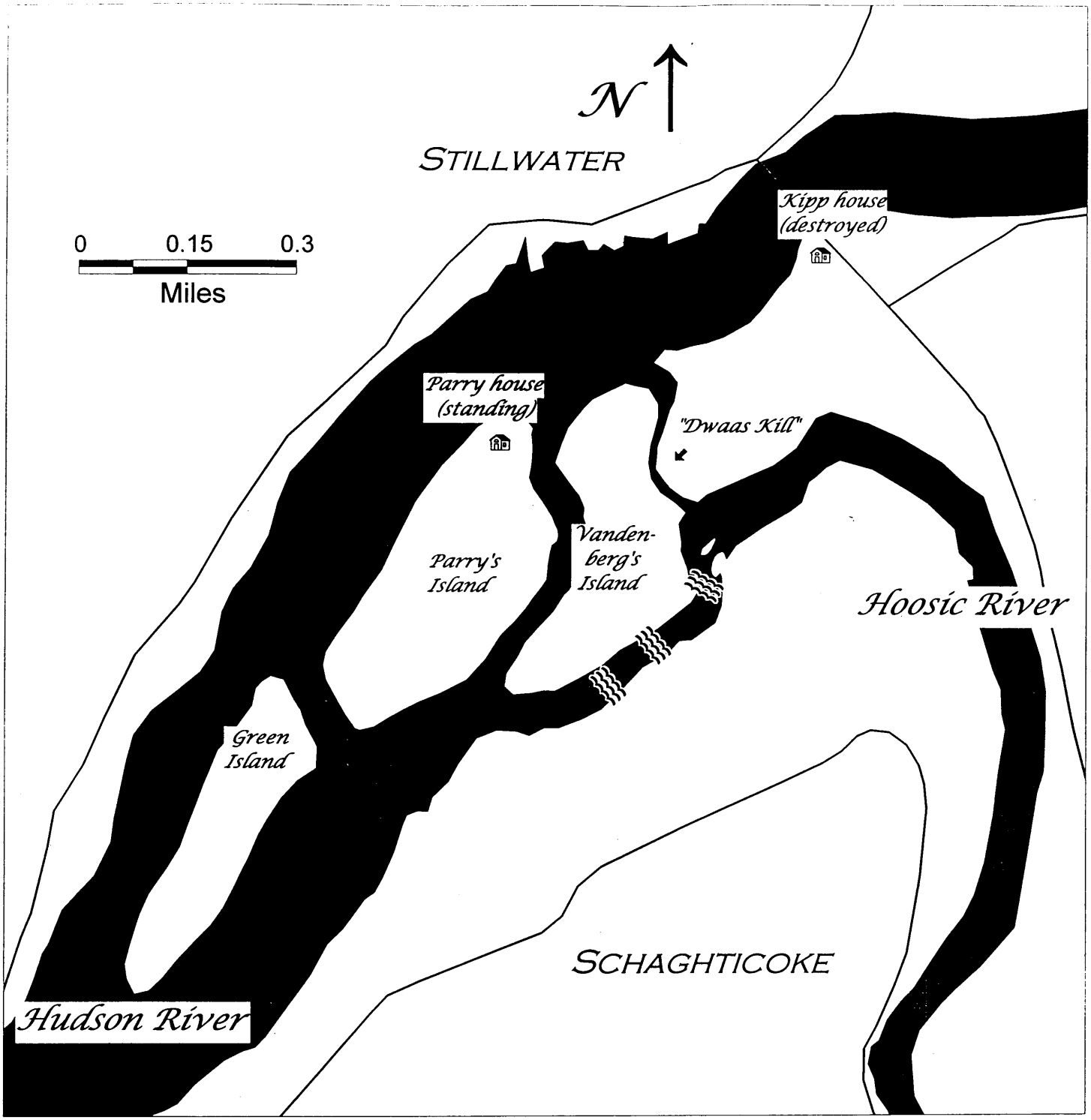
> coffer dam: an artificial structure used to keep water away from an enclosed area when underwater construction is taking place.
>
> prism: as used in this context, an artificial cut or bore through earth and rock which becomes part of a canal when completed.

At the conclusion of this publication are listed other selected series of records relating to the Barge Canal system. While these series do not contain significant information on the construction of Champlain Lock 4, they are very useful in documenting the planning and construction of other parts of the Barge Canal system. Most all canal records held by the New York State Archives are described in the New York State Archives publication *The Mighty Chain: A Guide to Canal Records in the New York State Archives* (1992). Only a few examples from the ca. 700-800 cubic feet of records held by the New York State Archives relating to the Barge Canal are shown here. Using this study as an example, I recommend that New York State residents use these series of the New York State Archives records and other original documentary source materials to unlock the fascinating history of the development, construction and use of the Barge Canal system across the state.

compiled by Warren F. Broderick
March, 2000

A portion of "A Map of the Corporation Lands at Schaghticoke, copied by Simeon De Witt, Esquire by Harmen Gansevoort," (ca. 1790-1800), shows the islands at the confluence of the Hoosic and Hudson Rivers. Note the "saw mill" located near the Dwaas Kill. The Wynant Vandenbergh house shown nearby, constructed in 1732, stands today on River Road (County Route 120) just north of Stillwater Bridge Road (County Route 125). Office of State Engineer and Surveyor, Survey Maps of Lands in New York State ("Surveyor General Maps"), New York State Archives, Series # A0293, map # 97.





Lock 4 Canal Park

view before construction of Barge Canal

Computer-generated maps, created in the R-TLC's geographic information system (G.I.S.), show the area before and after the construction of the Barge Canal between 1908 and 1918. While the landscape was significantly altered by this project, the wild, scenic character of the junction of the rivers and portions of the three islands remain.

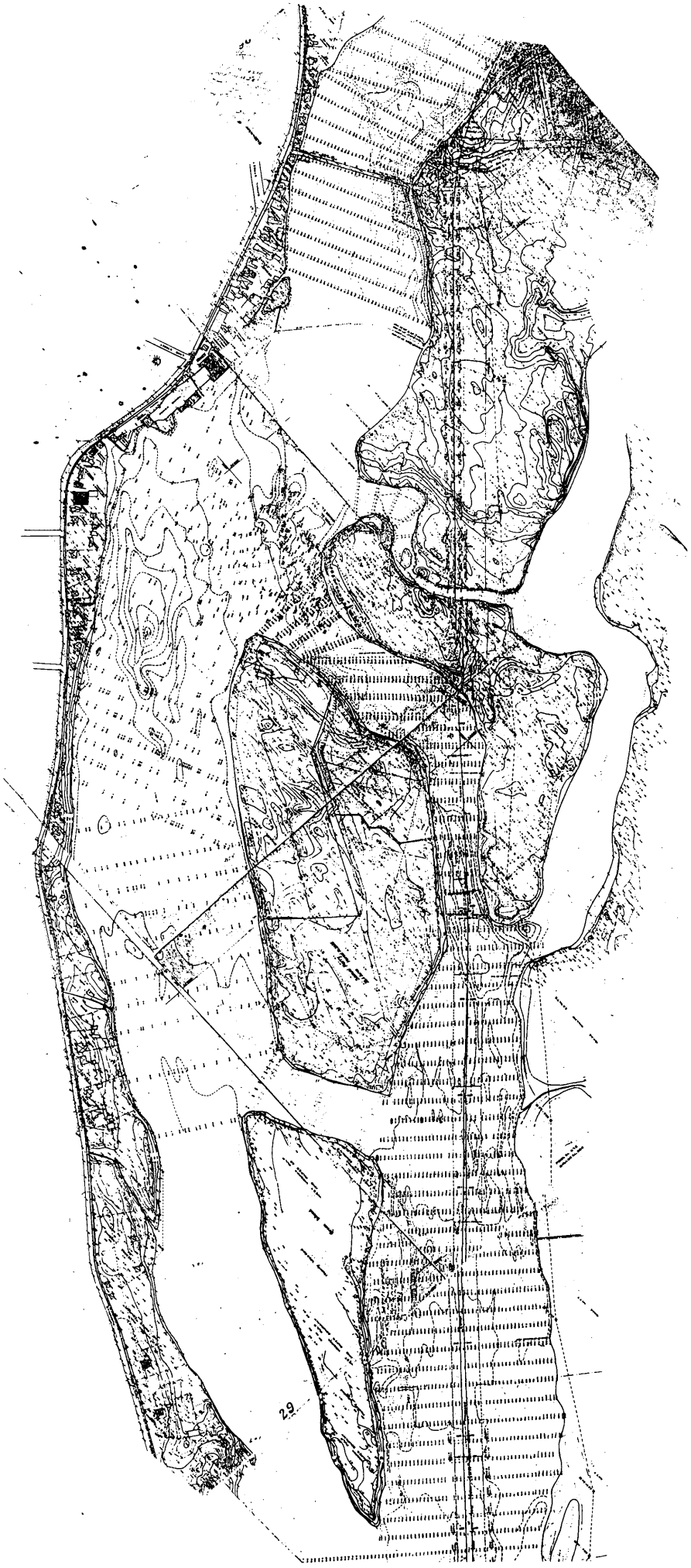
Series # 14068. Erie and Champlain canals topographic survey maps ("egg shell maps"), ca. 1904-1915. 40 cu. ft. Arrangement: By canal, then numerical by assigned number.

Commonly referred to as "egg shell maps" because of the paper on which they were executed, these maps depict in minute detail lands adjacent to the Erie and Champlain canals during the time of their enlargement and improvement as the Barge Canal. The maps apparently date from the time of the initial Barge Canal Law of 1903 (Chapter 147). They show the routes of the proposed new canals, and often the existing canals as well.

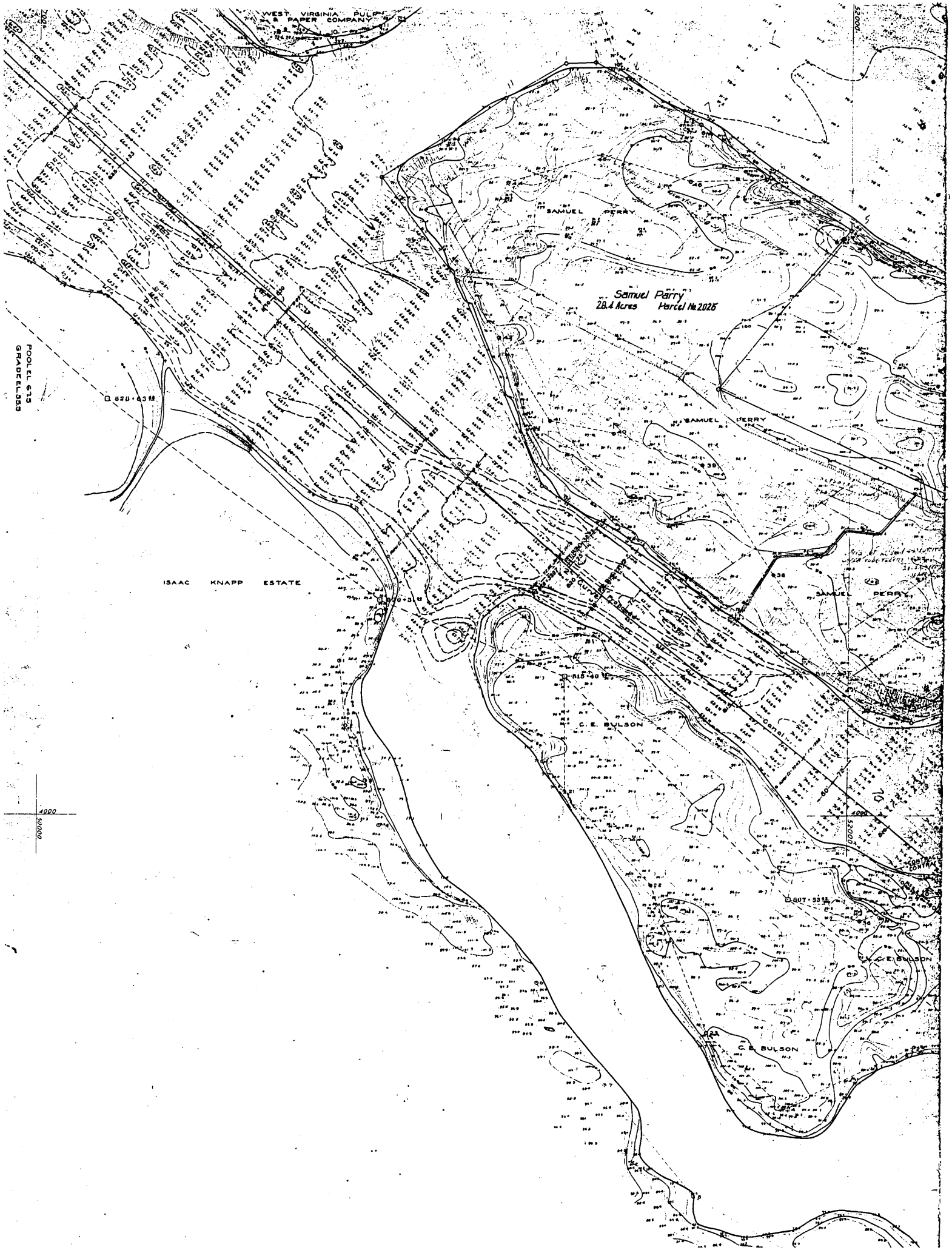
The purpose of these maps appears to have been to provide an accurate depiction of the land taken up by and surrounding the canal in order to determine both private and State ownership of land, and to provide the most accurate survey measurements possible for the canal enlargement and improvement. The maps show blue lines representing State-owned land; red lines representing the inner line of the towpath; green lines representing a new channel line (when dotted) or a potential flood line (when solid); contour lines, land elevations, and depths of bodies of water; and lines showing boundaries of specific work contracts.

Some maps occasionally depict property lines, parcel numbers, and names of property owners; outlines of buildings, sometimes with names; location of existing canal structures and railroad and telegraph lines; and swamps, fens, and other natural phenomena. One hundred two maps depict the Erie Canal from Waterford to Morris Island (just west of Pattersonville). Fifty-four maps depict the Champlain Canal from Northumberland to 101st Street in Lansingburgh. Most maps appear to have a scale of 1 inch = 100 feet, although some have a scale of 1 inch = 50 feet.

The following map is a montage of five maps from this series, depicting the area which would become Lock 4 of the Champlain Division. Both rivers, three islands and the passages between them are clearly visible. This map was used to create the computer-generated map showing the area before Barge Canal construction. The location of the path of the proposed canal is drawn on these maps, including the portion where the prism needed to be blasted through the shale rock.



Map # 28 of the "Eggshell Maps" shows the junction of the Hoosic and Hudson Rivers, at the former Vandenbergh's (Bulson's) and Parry's islands. The bluff on the southern end of Vandenbergh's Island (currently a peninsula) now features a nature trail where one may view the rapids in the adjacent Hoosic River.


WEST VIRGINIA PULP & PAPER COMPANY
SAMUEL PERRY
Samuel Perry
28.4 Acres Parcel No 2026
SAMUEL PERRY
SAMUEL PERRY
ISAAC KNAPP ESTATE
C. E. BULSON
C. E. BULSON
C. E. BULSON
POOL EL 615
GRADE EL 555
1000
50000
52000

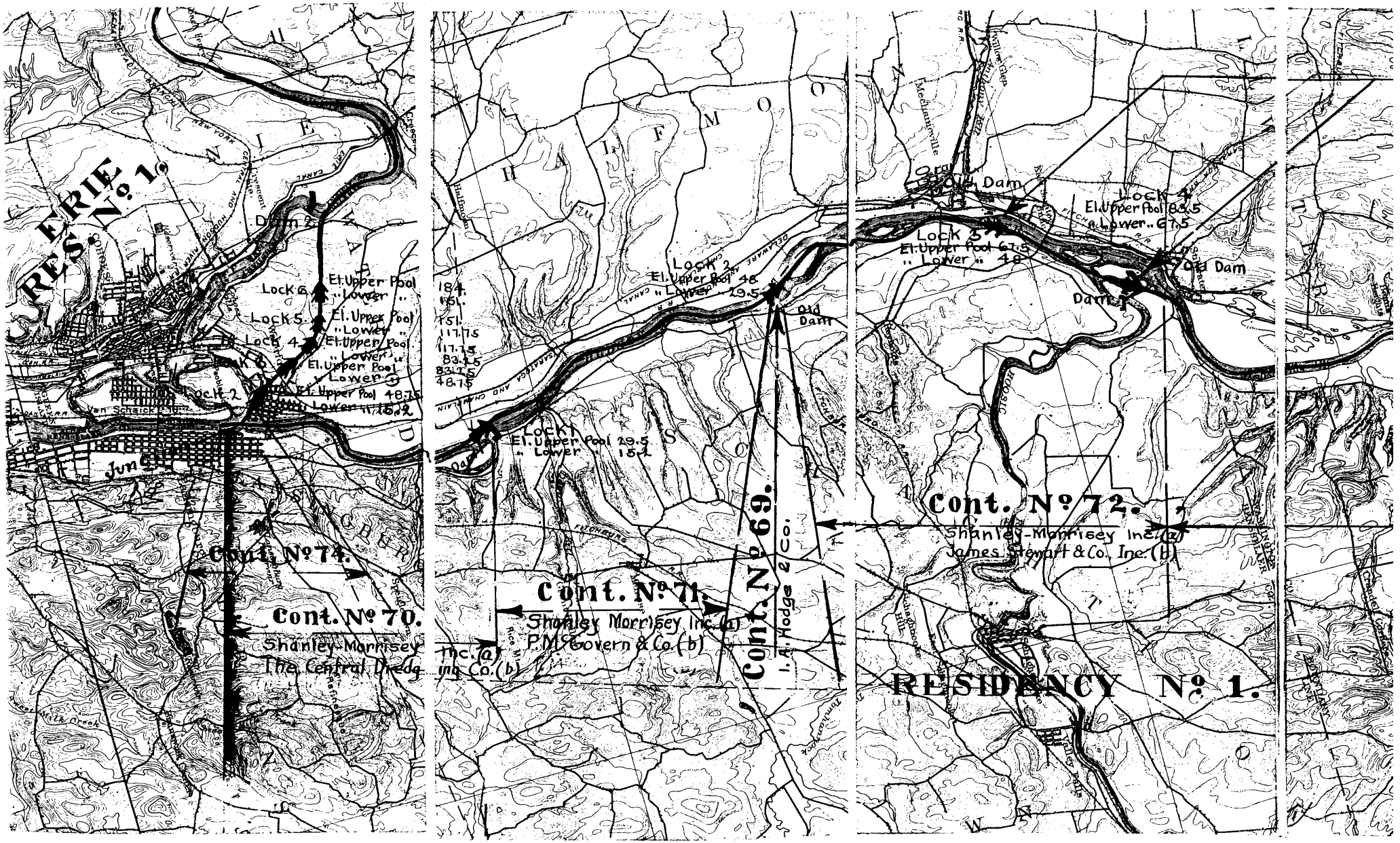
Series # B0391. Barge Canal contract location maps, ca. 1904-1905. 2 cu. ft. (18 volumes consisting of one colored map in numerous sections on 18 sheets)

The series consists of cut up sections of a printed U.S. Geological Survey topographic map of New York State that has been annotated to locate the areas covered by Barge Canal contracts. The map sections are undated but the series apparently complies with specific requirements of section four of the Barge Canal Law (Laws of 1903, Chapter 147). This law directed that all authorized canal work be done by contract, and that before any contract could be made the State Engineer must divide the whole work into sections suitable for contracting, and make maps, plans, and specifications for the work to be done.

Each of the three canal divisions and the separate canals on each division were divided into residencies, with work in each residency done under the direction of a resident engineer or an assistant engineer in charge. In 1904 the canal line was divided into 15 sections or residencies for conducting work in the field; the presence of residency numbers dates the series from approximately that time.

Annotations are by hand and in color, and were apparently made on a single topographic map of the entire State that was subsequently cut up. Contract numbers and the area covered by each contract are marked in red, with the names of respective contractors marked below them in black. Maps also provide residency numbers and these areas are marked by bars of color that remain constant throughout all map sections.

This map shows the entire route of the proposed Barge Canal between its beginning in the Hudson River opposite Lansingburgh, northward to the county line. The location of the site of the remarkable "Waterford Flight" of locks on the Erie Division is also visible. Note the remains of an old dam, since washed out, on the Hoosic River near the Dwaas Kill entrance. This dam may have been used to divert water to the early saw mill shown on the Gansevoort/De Witt map shown on page 5.

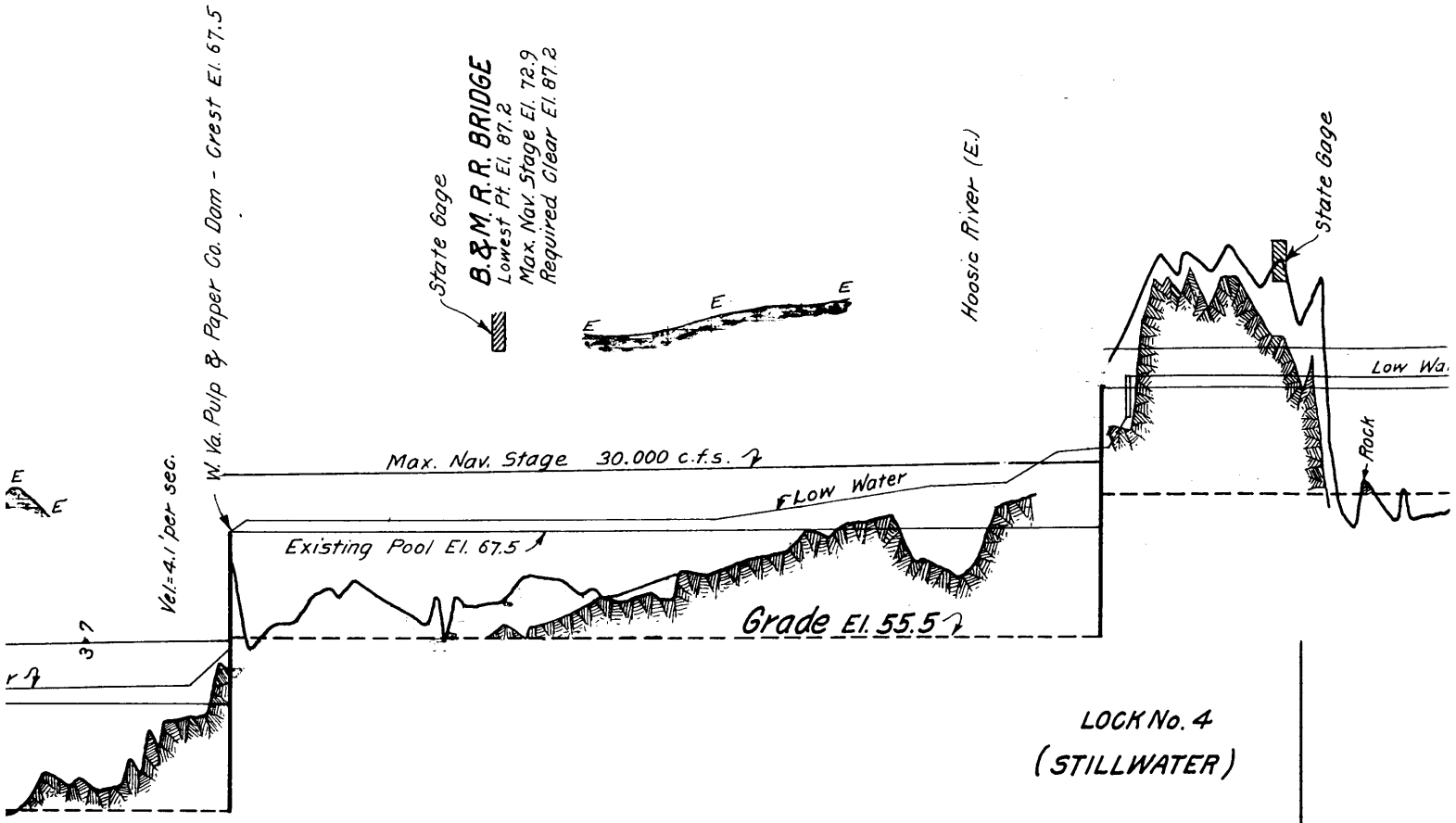

ERIE
RES. No. 1
Dam 2
Lock 6
El. Upper Pool
" Lower "
Lock 5
El. Upper Pool
" Lower "
Lock 4
El. Upper Pool
" Lower "
Lock 3
El. Upper Pool
" Lower "
Lock 2
El. Upper Pool 48.75
" Lower " 15.02
Cont. No. 74.
Cont. No. 70.
Shanley-Morrisey
The Central Dredg
Lock 2
El. Upper Pool 48
" Lower " 29.5
Old Dam
Lock 1
El. Upper Pool 29.5
" Lower " 15.1
Cont. No. 71.
Shanley Morrisey Inc. (a)
P.McGovern & Co. (b)
Cont. No. 69.
Lock 4
El. Upper Pool 82.5
" Lower " 67.5
Lock 3
El. Upper Pool 67.5
" Lower " 48
Old Dam
Cont. No. 72.
Shanley-Morrisey Inc. (a)
James Stewart & Co. Inc. (b)
RESIDENCY No. 1.

Series # 10448. Maps, drawings and blueprints related to State waterways and canals, ca. 1851-1941. 24.8 cu. ft. Arrangement: None. Finding aids: Item list.

This series is an assortment of maps, profiles, tracings, sketches, plans, drawings, blueprints, and a small quantity of related charts and correspondence relating to the State's canals, feeders, and/or various waterways. Proximity to canals and/or placement of the lands, structures, and watercourses adjacent to them is the only common element apparent in these varied representations.

The series includes profiles of canals and rivers; cross sections of actual and proposed canal and railroad lines; canal section maps showing centerline and survey offset lines and measurements; maps showing city, county, and town railroads and street railways in relation to canals, including one distinctive group that highlights several railroads along the Erie Canal and also shows adjacent land for a considerable distance; construction and improvement plans for a myriad of projects such as dredging water bottoms, altering or extending railway or canal lines or routes, deepening or changing canal channels, or building related structures; operating diagrams and blueprints for proposed and existing reservoirs, dams, locks, spillways, piers, lighthouses, docks, pipelines, roads, etc.; general location maps of aqueducts, bridges, buoys, etc.; sketches of harbors, slips, basins, and terminals; maps or tracings of reservoirs, rivers, and other bodies of water; drawings of bridges crossing canals; detailed sketches of the location of canals, drainage patterns, and areas of cultivated land, sometimes showing names of property owners, specific crops, and/or condition of land; representations of characteristics (elevations, water levels, catchment areas) and related structures (bridges, dams) of various creeks, rivers, lakes, and watersheds.

This series of miscellaneous documents includes a "profile map," showing in this section the canal route in the Mechanicville-Stillwater area, showing water depths and pool levels between Locks 2 and 4. The contract areas are also shown, as well as the vertical lift necessary at each lock.



LOCK No. 3.

(UPPER MECHANICVILLE)

LOCK No. 4

(STILLWATER)

CONTRACT No. 68

CONTRACT No. 68

THERN LIMIT OF CONTRACT No. 72

THERN LIMIT OF CONTRACT No. 73

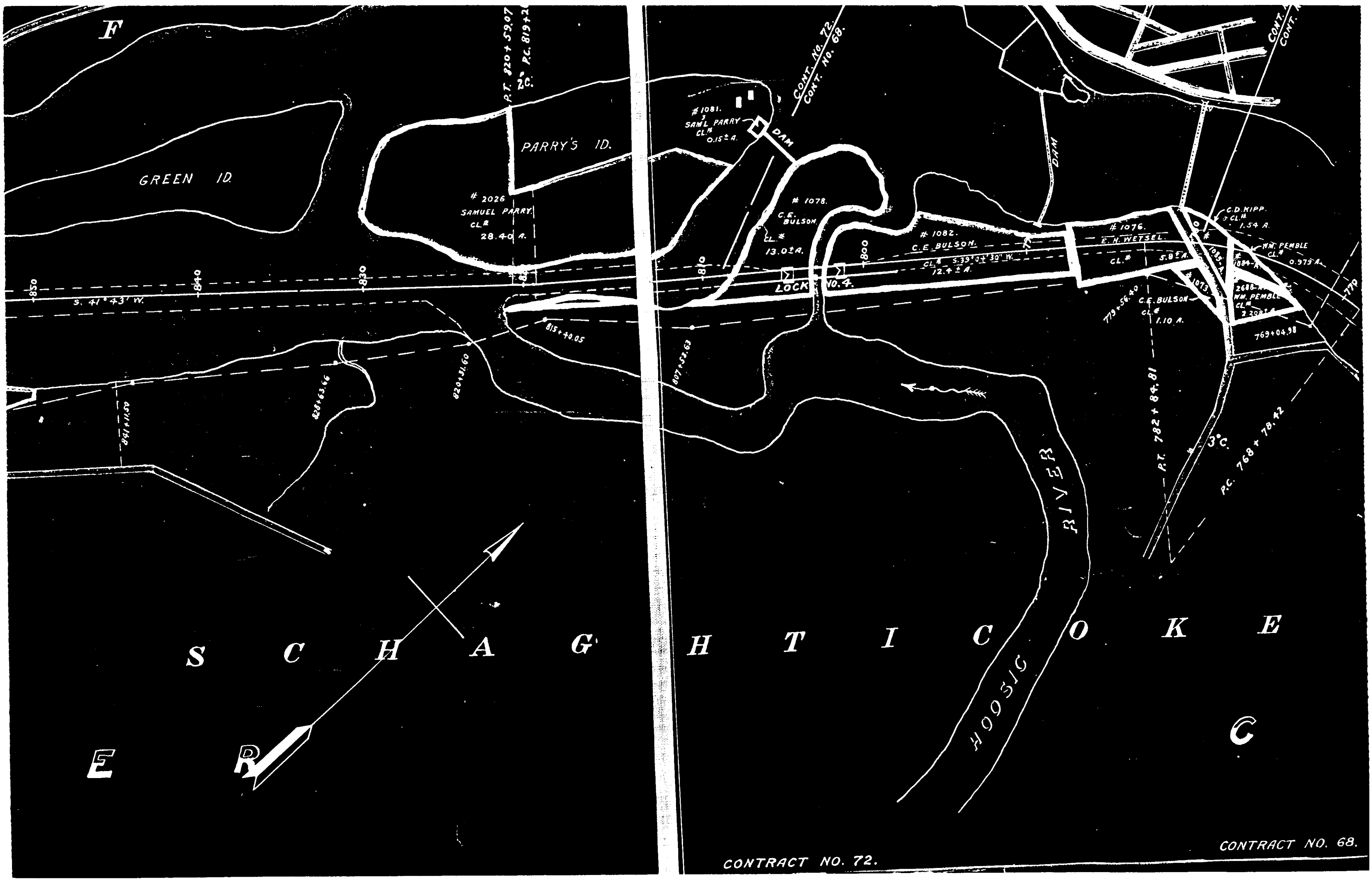
Series # B0214. Barge Canal Land Appropriation Maps, 1910-25. 15 cu. ft. Arrangement: Numerical by contract number. Finding aids: Container list.

This series documents the responsibilities of the Superintendent of Public Works relating to the appropriation of land for canal use. The series consists of duplicates of the original appropriation maps filed in county clerks' offices; descriptions of lands to be appropriated; county clerks' certificates of filing; notices to be served on property owners (informing them that the State Engineer and Surveyor has filed the necessary appropriate documents with the Superintendent of Public Works); and affidavits of service.

The maps provide a detailed view of the property to be appropriated. Each map includes the names of property owners (or reputed owners) and often the names of adjoining property owners; a detailed narrative description of the lands to be appropriated, written directly onto each map; and a standard title that includes the town and county of the land to be appropriated. In addition, the maps sometimes include land acreage; statements relating parcels to numbered line stations; an indication of iron pipes (from which parcel measurements were taken); the monumented base line (a line parallel to the center of the improved Erie Canal); and lines designating proposed pipe lines, the old Erie Canal, the improved Erie Canal and other features such as railroad lines.

The recent accretion (transferred from the New York State Canal Corporation) consists of approximately 475 blueprint maps (ca. 81/2 x 11") mounted on linen backing. The maps are divided by the traditional canal divisions (Eastern, Middle and Western) and then organized into so-called "books" by the specific canal name. Each "book" includes a key map of the particular geographic area it covers. Individual maps show the right of way of the Barge Canal and the property acquired by the State for its construction including name of the property owner, claim number, and acreage of the parcel. Most of the maps are drawn to the scale of 1" = 500 ft.

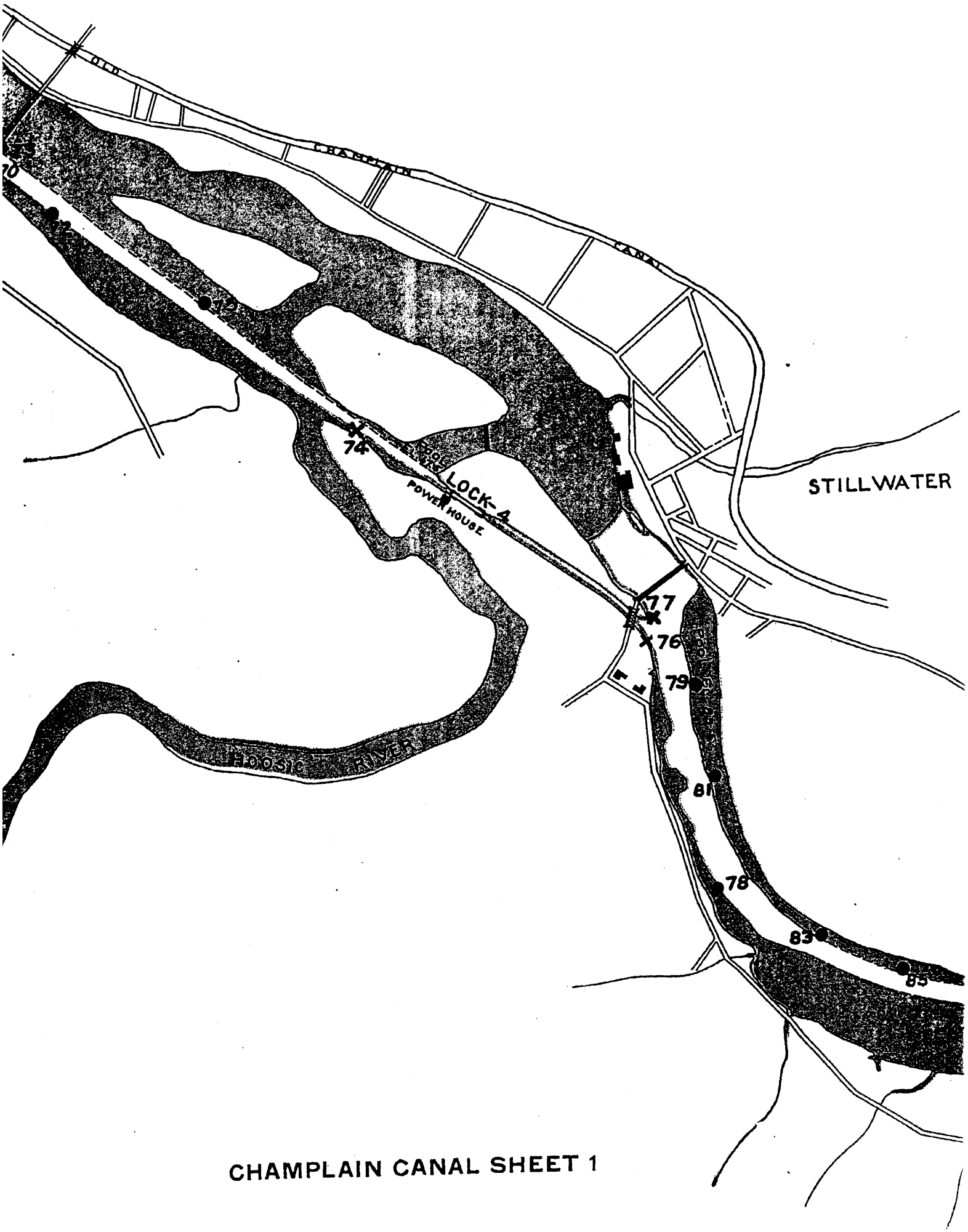
This map (from the recent accretion) provides an excellent overview of the study area, while showing the lands appropriated for the Barge Canal construction. Only a portion of Parry's Island was appropriated; one part of the island remains in private hands, while the other became part of Lock 4 Canal Park.


GREEN ID.
PARRY'S ID.
2026
SAMUEL PARRY
CL.#
28.40 A.
P.T. 820+59.07
P.C. 819+2
2°C.
1081.
SAM'L PARRY
CL.#
0.15± A.
DAM
CONT. NO. 72.
CONT. NO. 68.
1078.
C.E. BULSON
CL.#
13.0± A.
1082.
C.E. BULSON.
CL.# S.39°0'±30" W.
12.4± A.
LOCK NO. 4.
1076.
E.H. WETSEL.
CL.#
5.8± A.
C.D. KIPP.
CL.#
1.54 A.
WM. PEMBLE
CL.#
0.975 A.
WM. PEMBLE
CL.#
C.E. BULSON
CL.#
1.10 A.
769+04.98
779+56.40
P.T. 782+84.81
P.C. 768+78.42
3°C.
S. 41°43' W.
850
840
830
810
800
815+40.05
807+52.63
820+31.60
828+63.66
841+11.50
HOOSIC RIVER
F
S C H A G H T I C O K E
E R
C
CONTRACT NO. 72.
CONTRACT NO. 68.

Series # B0392. Charts and maps of the State canal system, ca. 1923. 1 cu. ft. (1 volume containing 64 colored maps and charts) Arrangement: Numerical by map number and roughly geographical from eastern to western New York.

This series consists of 64 charts and copies of maps of the Erie Canal from Waterford to Buffalo, and of the Champlain, Oswego, and Cayuga-Seneca canals. They were apparently prepared to aid ships or boats in navigating canal waterways. Original navigation charts are mixed with copies of survey maps that might have been intended to aid production of charts for additional uncharted canal areas. All of the navigation charts follow a similar format. Printed base maps prepared from surveys made by the State Engineer and Surveyor date from 1917 to 1925. The base maps show city, village, town, and county boundaries, bodies of water and islands, roads and bridges, railroads, and streets and buildings, and are hand annotated to show location and type of buoys and buoy numbers. In addition, there are unannotated blueprint copies of survey maps. These pick up where the charts leave off, at a geographical point near Palmyra where the Erie Canal leaves the Seneca River, the point where the artificial cut of the canal begins.

Map #53 shows the Champlain division of the Barge Canal between Lansingburgh/Waterford and Stillwater. The portion showing the Lock 4 area is reproduced here.



CHAMPLAIN CANAL SHEET 1

Series # B0213. Barge Canal contract files, 1907-1944.
85 cu. ft. Arrangement: By type of contract, then numerical by contract number. Finding aids: Container list.

These files concern the review, implementation, administration, and supervision of contracts entered into by the State for construction of the Barge Canal and canal terminals. Types of records routinely found within the files include contracts; correspondence; memoranda; contract specifications and alterations; general contract descriptions; estimates (both preliminary and final); calculations; bid proposals; inspectors' reports; engineers' monthly reports; employee time rolls; results of chemical and physical tests on construction materials; photographs of construction in progress; copies of engineering journals; construction equipment catalogs; invoices; and surveys.

Selected documents from this very important series are reproduced here. The first, "Estimated Values of Appropriated Lands" for Contract # 68, describes the property condemned for the canal construction. On the Kipp property, only a small piece of land was not directly affected, rendering the house remaining there of little value. Therefore the house was purchased and razed by the State.

S. C. FORM [illegible]

ESTIMATED VALUES OF APPROPRIATED LANDS (Barge Canal)

Contract No. 68 Location: Town Schaghticoke County Rensselaer

No.	NAME OF REPUTED OWNER		No. of Acres	ASSESSED VALUATION Per Acre	Value of Land	Value of Buildings	Total	APPRAISERS' VALUATION Per Acre	Value of Land	Value of Buildings	Total	ENGINEER'S APPRAISAL [illegible] Eng'r. Per Acre	Value of Land	Value of Buildings	Total	APPRAISER'S OPTION Am't of Option	Date of Option	Date Approved by Canal Board	Per cent. of Ass'd Val. to Option Val.	Rental Value on 10% Basis	REMARKS
1084	William Pemble	(a)	0.9	29.00	26.00		26.00					100	30.00		30.00						No damage.
1085	G.D. Kipp.	(b)	1.14	187.50	213.75		213.75					400	456.00		456.00						All that remains of this property is a house which will probable be taken under contract 70, so that no consequential damage has been allowed here although its value has been practically destroyed by the work done under this contract.
1076	E.H. Wetsell		5.8 (whole property taken)				3000.00					300	1740.00	4500	6240.00						Whole property taken. No damage.
1073	G.E. Bulson	(c)	1.1	24.00	26.40		26.40					250	275.00		275.00						No consequential damage.
1082	G.E. Bulson	(c)	12.4	24.00	297.60		297.60					200	2480.00		2480.00						No consequential damage.
1078	G.E. Bulson	(c)	13.0	24.00	312.00		312.00					75	975.00		975.00						No consequential damage.
1081	Samuel Parry		0.15									125	18.75		18.75						No consequential damage
1218	West Virginia Pulp and Paper Co.	(e)	1.6	54.42	87.07		87.07					80	128.00		128.00						The building of Lock 3 will render any future development of power at the site of this company's dam more expensive, but it is not possible at this time to estimate just what amount would be awarded them. No allowance has been made in making up this estimate.
															10162.75						
															[illegible] 14 246.5[illegible]						

(a) Farm including house and barns and 121 acres is assessed at $5000 – Say house and barns $1500 and land $3500
(b) Property including house and barn and 1.6 acres of land is assessed at $1800. Say house and barn $1500 and land $300. It is intended to take the remainder of this property.
(c) Farm including house and barns and 91 acres of land is assessed at $4000 – Say house and barns $1800 and land $2200.

(e) Property includes 147 acres of land assessed at $8000.

Contract files typically contain preliminary estimates for materials used in the construction project, and sometimes an overall structure sketch. The Preliminary Estimate of Quantities and Cost gives an idea of the total of materials needed for the construction of Champlain Locks 3, 4 and 5. The summary of quantities provides a more detailed breakdown.

ITEMIZED PROPOSAL—CONTRACT No. 65—(Continued).

Item No.	Quantities	Items	Price		Amount	
			Dolls.	Cts.	Dolls.	Cts.
27	1,150	Lin. Ft. Wooden Fence.....Per Lin. Ft.		20	230	00
28	1,300	Lin. Ft. Drilling Bolt Holes in Rock.....Per Lin. Ft.		60	780	00
29	.....	For Raising Bridge Superstructures...Per Lump Sum	2,000	00	2,000	00
30	.....	For Maintaining Highway Traffic.....Per Lump Sum	2,000	00	2,000	00
31	3	Store Houses.....Each	800	00	2,400	00
32	2	Office Buildings.....Each	250	00	500	00
33	.....	Coffer-dams, Pumping, Bailing and Draining.....Per Lump Sum	25,000	00	25,000	00
		Total.....	.....	....	1,175,623	00

1-VV

B. C. Form 102

CONTRACT NO. 68 Champlain CANAL, SECTION 1

PRELIMINARY ESTIMATE.

SUMMARY OF QUANTITIES

Page Reference		Unit of Meas.	Computed Quantities	Rounded Quantities.
N-1	Embankment (Wet). Prism near Lock No. 4.	Cu. Yd.	28795	30000
	Embankment (Dry)			
E-1	Lock No. 4	Cu. Yd.	2754	2850
F-A	Upper Guide Wall - Lock No. 4.	" "	4205	4350
K-1	Lock No. 5.	" "	6736	7000
L-1	Upper Guide Wall Lock No. 5	" "	13512	14000
M-1	Prism near Lock No. 4	" "	5835	6050
N-1	" " " " 5	" "	5759	6000
	Bridge department.	" "	2650	2750
			41451	43000
	Lining Bridge Department.	Cu. Yd.	465	510
	Sawed Lumber (Y.P. or D.F.) Bridge Department.	M.F.B.M.	5	5.6
	Sawed Lumber (Y.P. or D.F.) in Needles. Bridge Department	M.F.B.M.		14
	Sawed Lumber (W.O.) in Sills and Gates.	M.F.B.M.		
B-A	Lock No. 3.	" " " "	1.251	1.3
E-1	" " 4	" " " "	1.251	1.3
K-1	" " 5	" " " "	1.251	1.3
	Bridge Department.	" " " "	20.	21.1
			23.75	25.0
	Foundation Piles.			
K-1	Lock No. 5.	Lin. Ft.	780	870
L-1	Upper Guide Wall - Lock No. 5.	" "	1920	2130
			2700	3000

Computed by B. J. Courmskin.

Checked by

CONTRACT NO. 68 Champlain CANAL, SECTION 1

PRELIMINARY ESTIMATE.

SUMMARY OF QUANTITIES

Page Reference		Unit of Meas.	Computed Quantities	Rounded Quantities.
	Second Class Concrete			
A-1	Lower Guide Wall - Lock No. 3.	Cu. Yd.	1316	1440
B-A	Lock No. 3	" "	17000	18600
C-1	Upper Guide Wall - Lock No. 3	" "	2919	3200
D-1	Lower " " " No. 4	" "	1323	1440
E-1	Lock No. 4	" "	13235	14500
F-A	Upper Guide Wall - Lock No. 4	" "	1143	1250
G-1	Dam between Perry & Bulsons Ids.	" "	1961	2150
H-1	Lower Guide Wall - Lock No. 5	" "	1788	1960
K-1	Lock No. 5	" "	18902 (19422)	21260
L-1	Upper Guide Wall - Lock No. 5	" "	1629	1780
	Bridge Department.	" "	386	420
			(62122) 61602	68000
	Reinforced Concrete			
B-A	Lock No. 3.	Cu. Yd.	370	400
E-1	Lock No. 4	" "	370	400
K-1.	Lock No. 5	" "	584 (593)	630
	Bridge Department	" "	60	70
			(1393) 1384	1500
	First Class Masonry Coping.			
	Bridge Department	Cu. Yd.		5
	Wash-wall.			
M-1	Prism near Lock No. 4	Cu. Yd.	454	250
N-1	" " " No. 5	" "	3266	1750
			3720	2000
	Third Class Stone Paving.			
	Bridge Department.	Sq. Yd.	62	72
	Fourth Class Rip-rap			
	For Contingencies (D. A. Watt)	Cu. Yd.		200

Computed by [illegible]

B. C. Form 102

CONTRACT NO. 68 Champlain CANAL, SECTION 1

PRELIMINARY ESTIMATE.

SUMMARY OF QUANTITIES

Page Reference		Unit of Meas	Computed Quantities	Rounded Quantities
	Structural Steel			
A-1	Lower Guide Wall - Lock No. 3.	Lbs.	131	160
B-A	Lock No. 3	"	8936	10600
C-1	Upper Guide Wall - Lock No. 3	"	118	140
D-1	Lower " " " " 4	"	288	350
E-1	Lock No. 4.	"	7433	8840
F-A	Upper Guide Wall - Lock No. 4	"	99	120
H-1	Lower " " " " 5	"	157	190
K-1	Lock No. 5	"	8825 7878	9360
L-1	Upper Guide Wall Lock No. 5	"	198	240
	Bridge Department.	"		150000
				180000
	Metal Reinforcement.			
A-1.	Lower Guide Wall - Lock No. 3.	Lbs	1203	1450
B-A	Lock No. 3	"	9451	11300
C-1	Upper Guide Wall Lock No. 3	"	3610	4300
D-1	Lower " " " " 4	"	2380	2850
E-1	Lock No. 4	"	8857	10600
F-A	Upper Guide Wall Lock No. 4.	"	833	1000
K-1	Lock No. 5	"	23374 18770	22500
	Bridge Department.			7000
				61000
	Iron Casting (Plain)			
A-1 ✓	Lower Guide Wall - Lock No. 3	Lbs.	1500	1670
B-A ✓	Lock No. 3	"	2700	3000
C-1 ✓	Upper Guide Wall - Lock No. 3	"	1500	1670
D-1 ✓	Lower " " " " 4	"	2400	2660
E-1 ✓	Lock No. 4	"	3900	4340
F-A ✓	Upper Guide Wall - Lock No. 4	"	6000	6660
H-1 ✓	Lower " " " " 5	"	1200	1330
K-1 ✓	Lock No. 5	"	4200	4670
L-1 ✓	Upper Guide Wall Lock No. 5	"	1800	2000
			25200	28000

Computed by B. J. Courmetin

Checked by

CONTRACT NO. 68 Champlain CANAL, SECTION 1

PRELIMINARY ESTIMATE.

SUMMARY OF QUANTITIES

Page Reference		Unit of Meas.	Computed Quantities	Rounded quantities
	Iron Castings (Machined) Bridge Department	Lbs.		26000
	Metal in Lock Gates. Bridge Department	Lbs		770000
	Metal in Buffer Beams Bridge Department	Lbs.		240000
	Metal in Lock Valves. Bridge Department	Lbs.		100000
	Wooden Pavement 4" Thick Bridge Department	Sq.Yd.		360
	Wooden Fence. Bridge Department	Lin.Ft.	1050	1150
	Drilling Bolt Holes in Rock			
C-1	Upper Guide Wall Lock No. 3	Lin.Ft.	630	700
D-1	Lower " " " " 4	" "	400	440
F-A	Upper " " " " 5	" "	140	160
			1170	1300

Contract files also contain more detailed estimates, along with schematic drawings, for individual parts of the contract. These sheets demonstrate how needed quantities of concrete and other materials were estimated for construction of the upper guide wall at Lock 4.

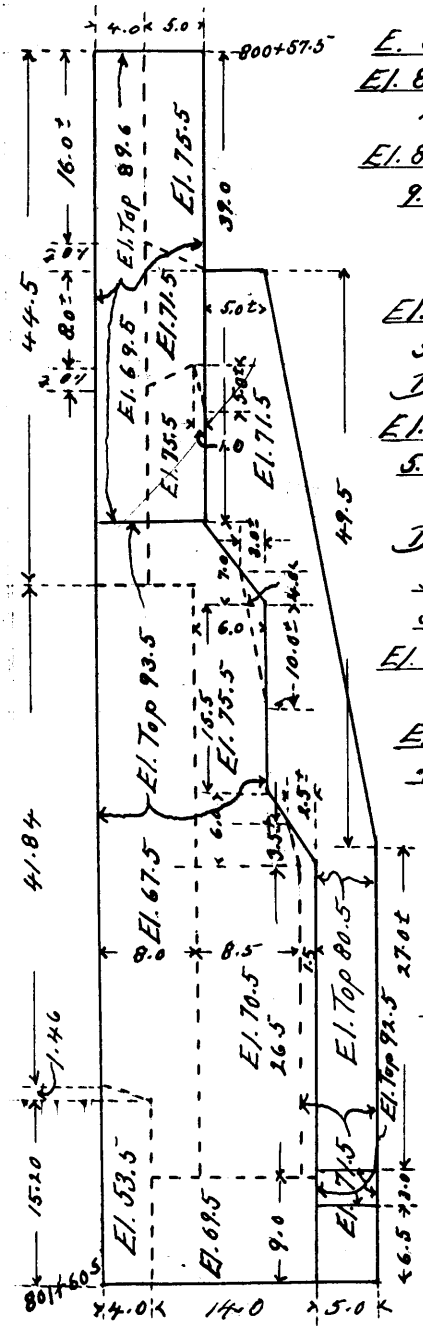
B. C. Form 104. 1-11-08-5000 (6-7877)

CONTRACT NO. 68 Champlain CANAL, SECTION 1

PRELIMINARY ESTIMATE.

2nd Class Concrete Lock #4

FACTORS	Sta.	Area	Dist.	Cu. Ft.	Cu. Yds.
E. Upper Thrust Wall Etc.					
El. 89.6 - 69.5					
4.0 x 39.0 =		1560	20.1	3,136	
El. 89.6 - 71.5					
$\frac{9.0+8.0}{2}$ x 5.0 =	42.5				
$\frac{1.0 \times 4.0}{2}$ =	2.0				
$\frac{1.0 \times 5.0}{2}$ =	2.5	47.0	18.1	851	
El. 89.6 - 75.5					
5.0 x 39.0 =	195.0				
Deduct	47.0	148.0	14.1	2087	
El. 80.5 - 71.5					
$\frac{5.0+14.0}{2}$ x 49.5 =	470.25				
$\frac{14.0 \times 36.5}{2}$ =	511.0	981.25			
Deduct.					
$\frac{35.5+41.5}{2}$ x 4.0 =	154.0				
$\frac{57.0+64.0}{2}$ x 5.0 =	302.5	456.5			
El. 93.5 - 69.5		524.75	9.0	4723	
4.0 x 5.5		22.0	24.0	528	
El. 93.5 - 67.5					
41.84 + 43.30 x 4.0 =	170.28				
$\frac{49.5 \times 4.0}{2}$ =	198.0	368.28	26.0	9575	
El. 93.5 - 53.5					
16.66 + 15.20 x 4.0 =		63.72	40.0	2549	
El. 93.5 - 69.5					
9.0 x 14.0 =		126.0	24.0	3024	
El. 93.5 - 70.5					
8.5 x 26.5 =		225.25	23.0	5181	
El. 93.5 - 71.5					
1.5 x 26.5 =	39.75				
1.5 x 3.5 =	2.63				
$\frac{10.0 \times 3.0}{2}$ =	15.0	57.38	22.0	1262	
El. 93.5 - 75.5					
$\frac{10.0+6.0}{2}$ x 6.0 =	48.0				
8.0 x 15.5 =	93.0				
$\frac{6.0+1.0}{2}$ x 7.0	24.5	169.87	18.0	3058	
4.0 x 5.5	22.0				



E-16

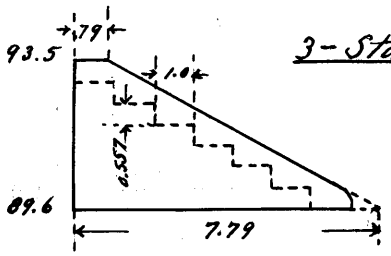
B. C. Form 104. 1-11-08-5000 (6-7877)

CONTRACT NO. 68 Champlain CANAL, SECTION 1

PRELIMINARY ESTIMATE.

2nd Class Concrete Lock #4

FACTORS	Sta.	Area	Dist.	Cu. Ft.	Cu. Yds.

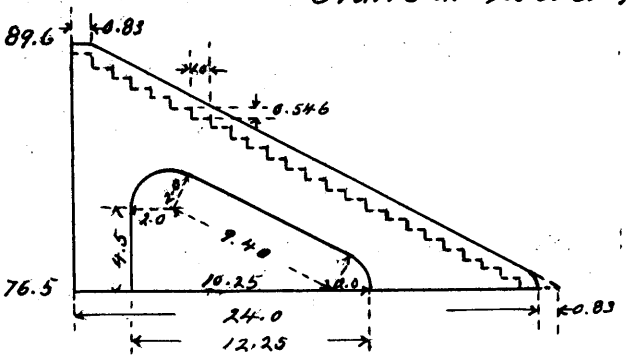


3-Stairs at Upper Thrust Wall

$\frac{0.79+7.79}{2} \times 3.9 =$ 16.73 6.0 100

$0.557\Sigma(1+2\cdots+6)$ 11.70 10.00 117

Stairs at Lower Thrust Wall



$\frac{0.83+24.83}{2} \times 13.1 =$ 168.07

Deduct.

$\frac{2.0+10.25}{2} \times 4.5 =$ 27.56

9.4×2.0 18.8

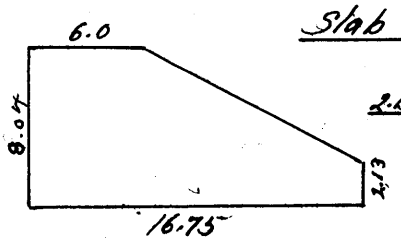
Semicircle 2.0 Rad = 6.28 52.64

115.43 115.4 2.0 231

Deduct

$(0.83+0.5) \times 13.1$ 17.42

98.01 4.0 392



Slab on back of Stairs

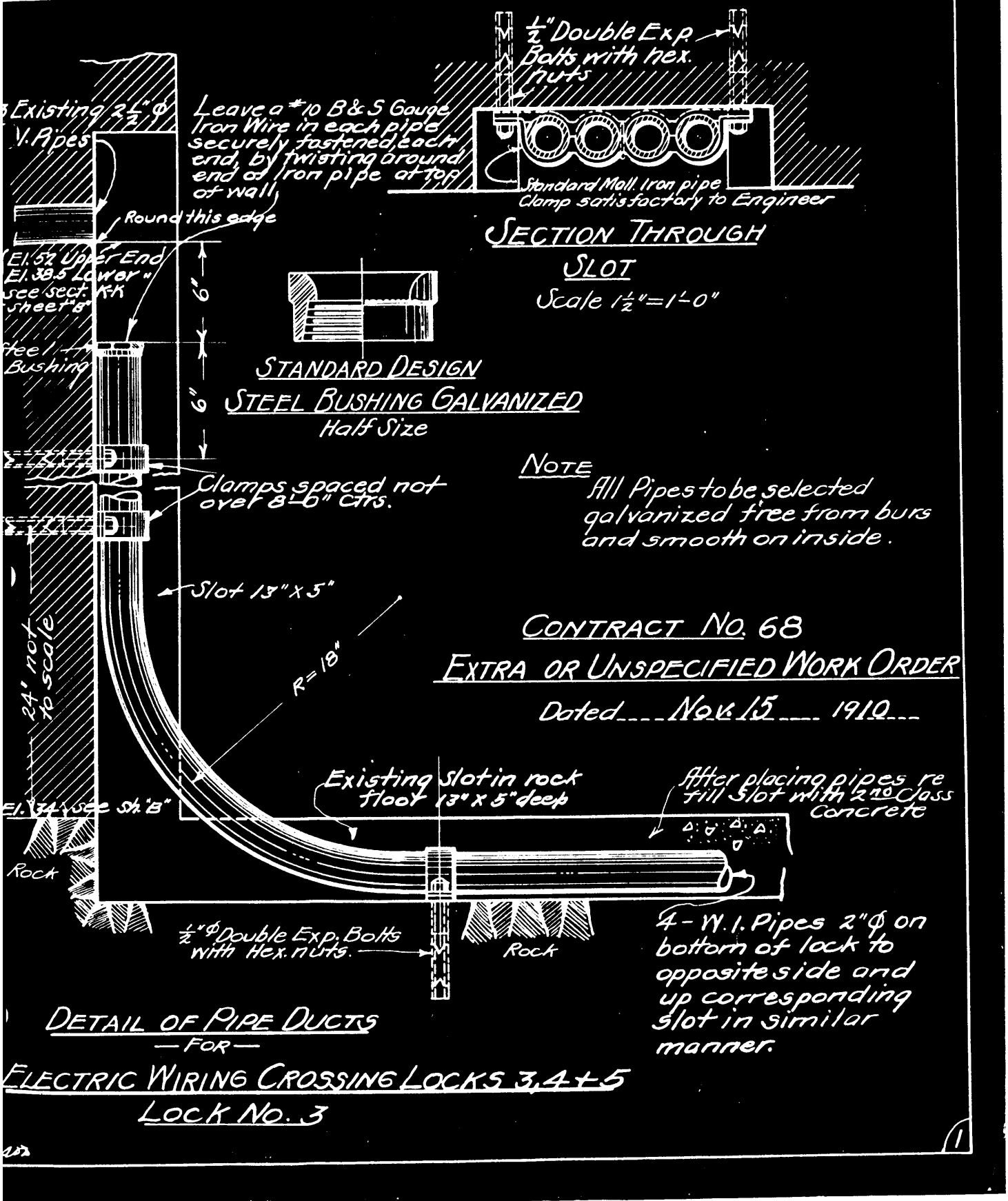
$\frac{2.13+8.04}{2} \times 10.75 = 54.7$

$6.0 \times 8.04 = 48.24$

102.94 1.5 154

994

Computed by C W Irish.



SECTION THROUGH SLOT

Scale 1½" = 1'-0"

STANDARD DESIGN STEEL BUSHING GALVANIZED

Half Size

NOTE

All Pipes to be selected galvanized free from burs and smooth on inside.

CONTRACT NO. 68

EXTRA OR UNSPECIFIED WORK ORDER

Dated Nov. 15 1910

DETAIL OF PIPE DUCTS

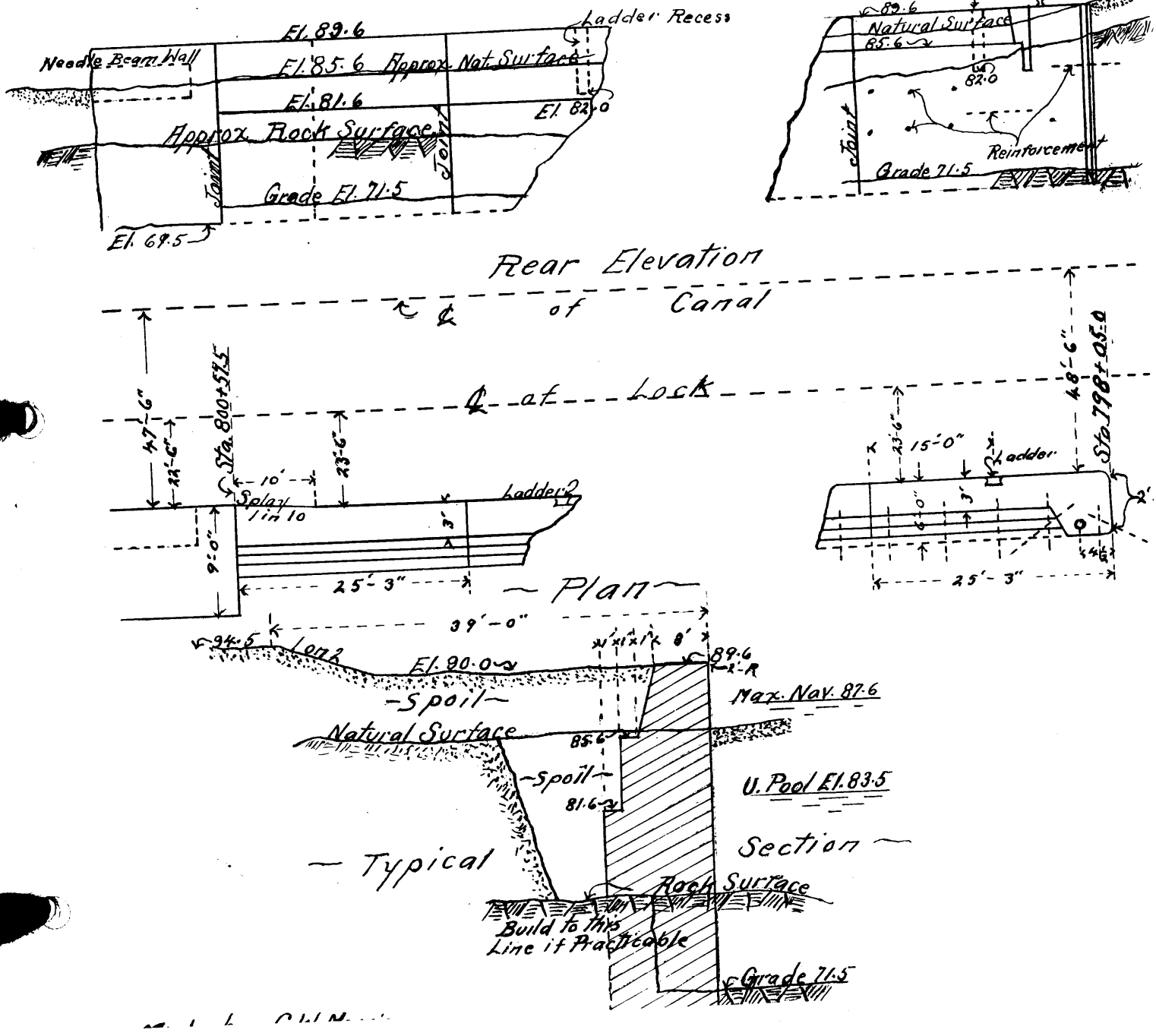
— FOR —

ELECTRIC WIRING CROSSING LOCKS 3, 4 & 5

LOCK NO. 3

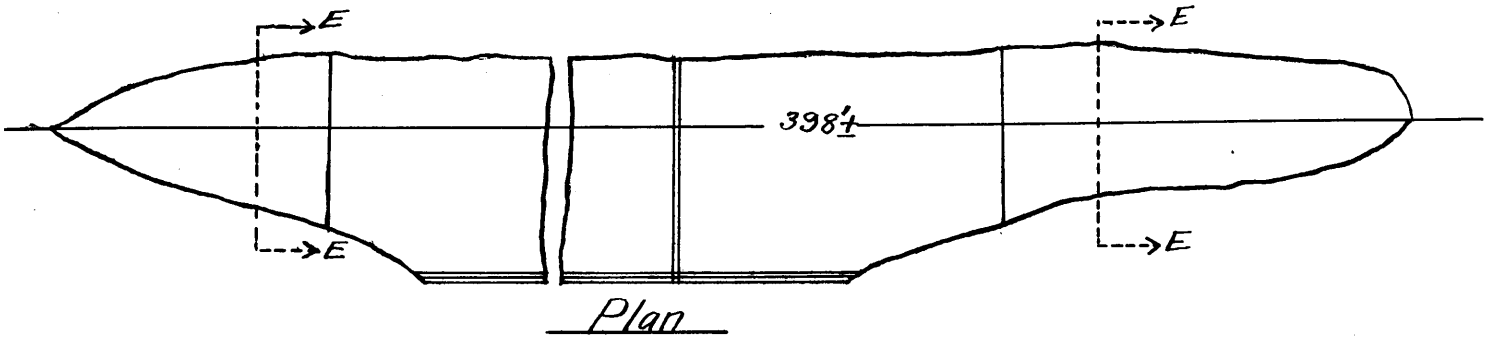
1

Contract 68
Lock-4
Upper Guide Wall
Print - 22

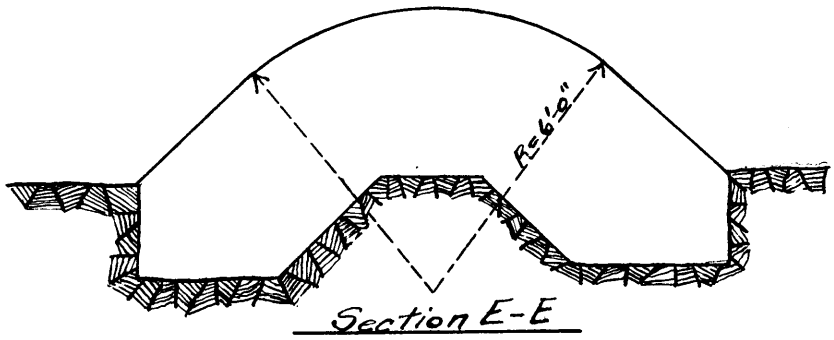


Contract No 68. Champlain Canal Section 1.

Dam
between
Perry's and Bulson's Island



Plan



Section E-E

Made by G.B.Kelley
Checked by ----------

Of particular interest are documents showing the planned dam to close off the channel between Bulson's (Vandenburgh's) Island and Parry's Island.

CONTRACT NO. 68 Champlain CANAL, SECTION 1

PRELIMINARY ESTIMATE.

SUMMARY OF QUANTITIES

Page Ref.	Meas.	Item	Computed Quantity	Rounded Quantity	Contr. Price	Amount
		Dam between Bulson & Perry Islands.				
G-2.	Cu.Yds.	Excavation	264	280	0.75	210
	Cu.Yds.	Embankment	—	—		
G-3.	Cu.Yds.	Second Class Concrete	1961	2150	6.25	13437 50

Computed by B. J. Lowrustein.
Checked by D. W. Overocker

Equally revealing are records documenting the construction of the new bridge over the Hudson River at Stillwater. This bridge was only replaced in recent years.

B. C. Form 85

11-1-07-2000 (6-6118)

(5)

STATE OF NEW YORK

IMPROVEMENT OF THE ERIE, OSWEGO AND CHAMPLAIN CANALS

BILL OF MATERIAL FOR STEEL AND IRON

CONTRACT NO. 68

SHEET NOS. Summary for Estimate of Sub Structure for Stillwater Bridge.

MEMBER	NUMBER	KIND	SIZE	LENGTH OF ONE PIECE FEET	LENGTH OF ONE PIECE INCHES	TOTAL LENGTH FEET	TOTAL LENGTH INCHES	WEIGHT PER FOOT	WEIGHT
Excavation									
Roadway (Appr.)			see P. 10			12			Cbyd
S.E. Abutment			" " 10			154			"
N.W. "			" " 11			560			" 726 cbyd
Embankment									
Roadway (Appr.)			" " 9			2036			Cbyd
Backfilling S.E. Ab.			" " 10			128			"
" " N.W.			" " " 11			478			" 2642 cbyd
Lining									
Roadway (Appr.)			9			438			Cbyd
" (Abt.)			7			14			"
" (Pav. S.E. Abt.)			" 7			11			" 463 cbyd
3rd. Class Paving									
S.E Abutment			" " 7						62 sq. yds.
2nd. Class Concrete			" 7						86 Cbyd.
Coping Stone			7						2.1 Cbyd
Reinforced Concrete			" 6						56 Cbyd
Reinforcement (Steel)			8						5000 lbs
Wooden Railing			8						1050 Lin.ft.
Asphalt Paint for 4 Joints									

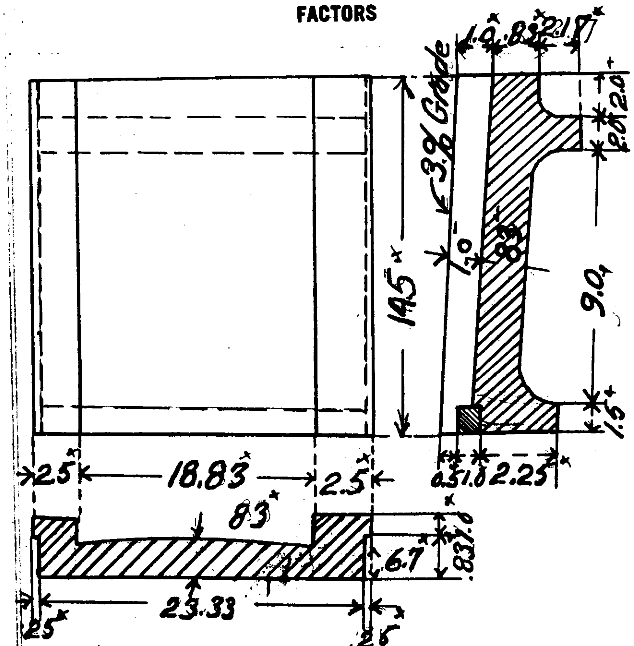
B. C. FORM 104. 1-11-08-5000 (6-7877)

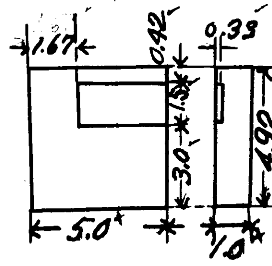
CONTRACT No. 68 Champlain CANAL, SECTION

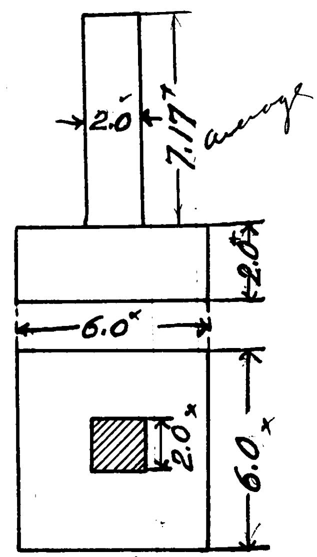
PRELIMINARY ESTIMATE.

Abutments for Stillwater Bridge

FACTORS	Sta.	Area	Dist.	Cu. Ft.	Cu. Yds.







Av. 0.75×18.83 = 14.12
2×2.25×1.83 = 8.23
2×1.00×.25 = 0.5 } 8.73
8.73−2×.33×2.25 } 22.85
7.25

Pedestal Cap
5.0×4.92 = 24.6 1.0 24 6
Back Post
2.0×2.0 = 4.0 7.17 28 7
6.0×6.0 = 36.0 2.0 72 0
125 3

2@ 125.3 = 250 6
Slab 22.85 13 297 0
7.25 1.5 10 9

BackGird. Av. 2.26×2 = 4.52 + .17 4.69 23.33 109 4
Front " " 2.25×1.5 = 3.38 + .42 3.80 23.33 88 7
756 6 28 0

2nd Class Reinf. Concrete for
2 Abutments @ 28.0 56 0

Computed by E. Bie
Checked by H. E. Brainard
2nd [illegible]

Contract No.68 - Alteration No.2

Under this alteration the East Abutment for the highway bridge at Stillwater is carried down to the prism grade and is anchored to rock face; the posts under the reinforced slab are carried down to rock and the size of the pedestals under the posts is changed. The West Abutment is set on the rock as uncovered and is made thicker, eliminating the reinforced slab and the 3rd class paving.

All the quantities except those for the metal superstructure are affected.

The entire quantity for Wash Wall is taken from the Original Contract and put under this alteration, with the necessary increase.

CONTRACTOR'S ACCOUNT OF LABOR AT LOCK NO.4 - UNDER EXTRA WORK ORDER DATED NOV.15,1910 - CONTRACT 68

Drilling Bolt Holes for Galvanized Pipe in Valve Well Recess, putting Pipe in place, placing Pull Boxes in Valve Well Recess and Excavating for Pipes across floor of Lock, covering with concrete, placing Pull Boxes in floor of Lock, etc.

1911		
March 9.	1 Mechanic @ $3.60 per day.....	$3.60
	1 Carpenter @ $3.20 per day.....	3.20
March 11.	1 Mechanic @ $3.60 per day.....	3.60
	1 Carpenter @ $3.20 per day.....	3.20
March 12.	1 Mechanic @ $3.60 per day	3.60
	1 Carpenter @ $3.20 per day	3.20
March 13.	1 Mechanic @ $3.60 per day.....	3.60
	1 Carpenter @ $3.20 per day.....	3.20
March 14.	1 Mechanic @ $3.60 per day.....	2.00
	1 Carpenter @ $3.20 per day.....	3.60
	1 Helper @ $2.00 per day.....	3.20
March 15.	1 Mechanic @ $3.60 per day.....	2.00
	1 Carpenter @ $3.20 per day.....	3.60
	1 Helper @ $2.00 per day.....	3.20
March 16.	1 Mechanic @ $3.60 per day.....	2.00
	1 Carpenter @ $3.20 per day.....	3.20
	1 Helper @ $2.00 per day.....	3.20
March 17.	1 Carpenter @ $3.20 per day.....	2.00
March 20.	1 Carpenter @ $3.20 per day.....	3.20
	1 Helper @ $2.00 per day.....	4.00
March 21.	1 Carpenter @ $3.20 per day.....	6.40
	2 Helpers @ $2.00 per day.....	3.20
March 22.	2 Carpenters @ $3.20 per day.....	2.00
March 23.	1 Carpenter @ $3.20 per day.....	4.80
	1 Helper @ $2.00 per day.....	3.20
	3 Laborers @ $1.60 per day.....	2.00
March 24.	1 Carpenter @ $3.20 per day.....	3.20
	1 Helper @ $2.00 per day.....	3.20
March 25.	1 Carpenter @ $3.20 per day.....	2.00
March 26.	1 Carpenter @ $3.20 per day.....	3.20
	1 Helper @ $2.00 per day.....	2.00
March 27.	1 Carpenter @ $3.20 per day.....	3.20
	1 Helper @ $2.00 per day.....	4.00
April 1.	1 Carpenter @ $3.20 per day.....	
	2 Helpers @ $2.00 per day.....	
	Carried Forward /..	$111.60

Contract files include information on salaries paid to skilled workers and laborers to perform specific tasks.

(Sheet 2)

CONTRACTOR'S ACCOUNT OF LABOR AT LOCK NO. 4 - UNDER EXTRA WORK ORDER DATED NOV/ 15, 1910 - CONTRACT 68

1911		
	Brought forward.....	$ 111.60
April 3.	1 Carpenter @ $3.20 per day.....	3.20
	1 Helper at $2.00 per day.....	2.00
	1 Laborer @ $1.60 per day.....	1.60
April 4.	1 Carpenter @ $3.20 per day.....	3.20
	1 Laborer @ $1.60 per day.....	1.60
April 6.	1 Carpenter @ $3.20 per day.....	3.20
	1 Laborer @ $1.60 per day.....	1.60
April 7.	2 Carpenters @ $3.20 per day.....	6.40
April 8.	2 Carpenters @ $3.20 per day.....	6.40
April 10.	2 Carpenters @ $3.20 per day.....	6.40
	2 Carts @ $3.00 per day.....	6.00
April 11.	2 Carpenters @ $3.20 per day.....	6.40
April 12.	2 Carpenters @ $3.20 per day	6.40
	1 Laborer @ $1.60 per day	1.60
April 13.	1 Carpenter @ $3.20 per day.....	3.20
	4 Laborers @ $1.60 per day.....	6.40
	Total.....	$ 177.20

STATE OF NEW YORK :
:ss.
COUNTY OF Saratoga :

On this 10 day of NOV 1911, before me personally appeared John P. Parsons to me known, who being by me duly sworn, did declare that the above is a just and accurate statement and that the labor shown therein was duly performed.

(Signature) John P. Parsons Secretary.
SHANLEY-MORRISSEY
INCORPORATED.

Ivan A. Stalker
Asst. to Division Engineer

I certify that the above account is correct.
W L Caler.

STATE OF NEW YORK

IMPROVEMENT OF THE ERIE, OSWEGO AND CHAMPLAIN CANALS

PRELIMINARY ESTIMATE OF QUANTITIES AND COST

CONTRACT No. 68

Description: For constructing in the Hudson river, Lock No. 3 at Mechanicville; Lock No. 4 at Stillwater; d Lock No. 5 at Northumberland, together with accompanyng land lines and all appertaining construction.

Length about 1.4 miles. Sheets 1 to 65 inclusive.

Chapter 147, Laws of 1903
And Amendatory Laws.

ALBANY, *July* 14, 1908

EM O.	QUANTITIES	ITEMS	PRICE Dolls.	PRICE Cts.	AMOUNT Dolls.	AMOUNT Cts.
1	.....	Clearing.....Per Lump Sum	100	00	100	00
2	4,800	Cu. Yds. Grubbing.....Per Cu. Yd.		35	1,680	00
3	550,000	Cu. Yds. Excavation.....Per Cu. Yd.		90	495,000	00
4	50	M. Ft. B. M. Sheeting and Bracing...Per M. Ft. B. M.	50	00	2,500	00
4a	1,000	Lin. Ft. Round Timber Bracing.....Per Lin. Ft.		25	250	00
5	170,000	Sq. Ft. Channeling.....Per Sq. Ft.		18	30,600	00
6	30,000	Cu. Yds. Embankment, wet.....Per Cu. Yd.		05	1,500	00
7	43,000	Cu. Yds. Embankment, dry.....Per Cu. Yd.		12	5,160	00
8	510	Cu. Yds. Lining.....Per Cu. Yd.	1	50	765	00
9	5.6	M. Ft. B. M. Sawed Lumber (Yellow Pine or Douglas Fir).....Per M. Ft. B. M.	55	00	308	00
10	14	M. Ft. B. M. Sawed Lumber in Needles.....Per M. Ft. B. M.	100	00	1,400	00
11	25	M. Ft. B. M. White Oak Lumber in Miter Sills and Gates.....Per M. Ft. B. M.	100	00	2,500	00
12	3,000	Lin. Ft. Foundation Piles.....Per Lin. Ft.		35	1,050	00
13	68,000	Cu. Yds. Second-class Concrete.....Per Cu. Yd.	7	25	493,000	00
14	1,500	Cu. Yds. Reinforced Concrete.....Per Cu. Yd.	9	00	13,500	00
15	5	Cu. Yds. First-class Masonry Coping.....Per Cu. Yd.	30	00	150	00
16	2,000	Cu. Yds. Wash Wall.....Per Cu. Yd.	2	50	5,000	00
17	72	Sq. Yds. Third-class Stone Paving.....Per Sq. Yd.	1	25	90	00
18	200	Cu. Yds. Fourth-class Rip-rap .....Per Cu Yd.	2	50	500	00
19	180,000	Lbs. Structural Steel.....Per Lb.		05	9,000	00
20	61,000	Lbs. Metal Reinforcement.....Per Lb.		04	2,440	00
21	28,000	Lbs. Iron Castings, plain.....Per Lb.		035	980	00
22	26,000	Lbs. Iron Castings, machined.....Per Lb.		06	1,560	00
23	770,000	Lbs. Metal in Lock Gates.....Per Lb.		06	46,200	00
24	240,000	Lbs. Metal in Buffer Beams.....Per Lb.		06	14,400	00
25	100,000	Lbs. Metal in Lock Valves.....Per Lb.		12	12,000	00
26	360	Sq. Yds. Wooden Pavement, 4″ thick.....Per Sq. Yd.	3	00	1,080	00

CONTRACT NO. 68 Champlain CANAL, SECTION 1

PRELIMINARY ESTIMATE.

SUMMARY OF QUANTITIES

Page Reference		Unit of Meas.	Computed Quantity	Rounded Quantity.
	Clearing	#	100.00	100.00
	Grubbing			
E-1	Lock No. 4	Cu. Yds.	322	360
L-1	Upper Guide Wall Lock No. 5.	" "	633	700
M-1	Prism near Lock No. 4.	" "	1277	1420
N-1	" " " " 5.	" "	2092	2320
			4324	4800
	Excavation			
A-1	Lower Guide Wall Lock No. 3	Cu. Yds.	942	1000
B-A	Lock No. 3	" "	44297	46400
C-1	Upper Guide Wall Lock No. 3	" "	2522	2630
D-1	Lower " " " No. 4.	" "	4510	4700
E-1	Lock No. 4.	" "	34020	35500
F-A	Upper Guide Wall Lock No. 4.	" "	2083	2170
G-1	Dam between Bulson & Perry's Ids.	" "	264	280
H-1	Lower Guide Wall - Lock No. 5	" "	9103	9500
K-1	Lock No. 5	" "	44480	46600
L-1	Upper Guide Wall - Lock No. 5	" "	4264	4450
M-1	Prism near Lock No. 4	" "	232219	242000
N-1	" " " No. 5	" "	147868	154000
	Bridge Department.	" "	730	770
			527302	550000
	Sheeting and Bracing. From Mr. D.A. Watt	M.Ft.B.M.		50
	Round Timber Bracing. From Mr. D.A. Watt.	Lin. Ft.		1000
	Channeling.			
A-1	Lower Guide Wall Lock No. 3	Sq. Ft.	2016	2180
B-A	Lock No. 3	" "	12180	13100
D-1	Lower Guide Wall - Lock No. 4.	" "	8568	9220
E-1	Lock No. 4	" "	26302	28400
F-A	Upper Guide Wall - Lock No. 4	" "	2876	3100
M-1	Prism near Lock No. 4			

Note: For Bridge Room Estimate see sheets Following Sheet No 9

B. C. Form 10
9-22-08-3000 (6-11584)

Final Account

CHAMPLAIN Canal Section 1 Contract No. 68

Quantities	Items	Contract Price	Amounts	Totals
	Amount brought forward			
25 96736	Lbs. Metal in Lock Valves Per Lb.	12	11608 32	
26 360	Sq.Yds. Wooden Pavement 4" thick Per Sq.Yd.	3 00	1080 00	
27 960	Lin.Ft. Wooden Fence " Lin.Ft.	20	192 00	
28 484	Lin.Ft. Drilling Bolt Holes in Rock Per Lin.Ft.	60	290 40	
30 1	Maintaining Highway Traffic Per Lump Sum	2000 00	2000 00	
31 3	Storehouses Each	800 00	2400 00	
32 2	Office Buildings "	250 00	500 00	
33 1	Coffer-dams, Pumping, Bailing and Draining Per Lump Sum	25000 00	25000 00	
1c 978	Cu.Yds. Taking up and relaying Wash Wall Per Cu.Yd.	1 50	1467 00	949352 86
	Deduct			
16.744	M.Ft.B.M. Sheeting and Bracing re-used Per M.Ft.B.M.	20 00	334 88	
1d 1	For Coffer-dams, Pumping, Bailing and Draining not required Per Lump Sum	2850 00	2850 00	3184 88
				946167 98

Approved by resolution of the Canal Board adopted [illegible]

[illegible]
Secretary of the Canal Board.

B. C. Form 18.
8-20-15-20,000 (6-9362)

CANAL IMPROVEMENT
DEPARTMENT OF STATE ENGINEER AND SURVEYOR

RESIDENT ENGINEER'S MONTHLY REPORT OF CONTRACT WORK ON RESIDENCY NO. 1.

CONTRACT No. 72-B James Stewart & Co. Inc., CONTRACTOR, Champlain CANAL

MONTH ENDING September 30th, 1916.

WORK DONE

Drill boat 62 worked from Station 833 to Station 831+20. On September 6th, the contractor began using a drill scow with six tripod drills on it for the shallow drilling from Station 831+ 20 to north end of contract. This drill scow was supplied with steam, water, etc., from drill boat 62. This drill scow was used until September 22nd, when 62 resumed drilling.

Dredge worked during month between Station 820 and Station 846. The excavated material was placed in scows and dumped along Green Island, the dredge then cast material up on island.

Dredge and drill boats worked three shifts.

Excavation for month; 15451 Cubic yards.

Average force; 1st. Shift 64 Men worked 7 days.
2nd " 29 " " 7 "
3rd. " 29 " " 7 "

Percentage of work to date. 56.4

E. N. Payne
Resident Engineer.

The following selected documents describe one of the supplemental contacts for completing the dredging, which the firm of James Stewart & Co. undertook after Shanley and Morrissey ran into financial difficulties. Contract 72B involved widening the canal prism at the mouth of the Hoosic River. Notice the volume of dirt and rock which required excavation, the detailed description of the work to be performed, and the roster of workers involved in the project.

4-27-16-50 (6-16306)

STATE OF NEW YORK

IMPROVEMENT OF THE

Erie, Oswego and Champlain Canals

Chapter 147, Laws of 1903,
And Amendatory Laws

Champlain Canal **CONTRACT NO. 72-B** **Section 1**

For widening the canal prism in the Hudson River from the mouth of the Hoosic River to the south end of Green Island.

Length 0.74 mile. Sheets 1 to 3 inclusive.

CONTRACT

STATE OF NEW YORK

IMPROVEMENT OF THE ERIE, OSWEGO AND CHAMPLAIN CANALS

MEMORANDUM OF AGREEMENT

Made between James Stewart & Company, Inc., of New York City,

hereinafter referred to as the " Contractor," and the People of the State of New York, hereinafter referred to as the " State," this 7th day of July 191 6, by which the Contractor covenants and agrees to furnish all work, labor and services and material of every kind, and to do and perform each and every act and thing necessary or proper for the improvement of the Champlain canal, by widening the canal prism in the Hudson River from the mouth of the Hoosic River to the south end of Green Island, as embraced in Contract No. 72-B, Barge Canal,

in accordance with the plans and specifications for said work hereto annexed and forming a part hereof, and to fully complete said improvement in accordance with the true intent and meaning of said plans and specifications without any further, other or different expense of any nature whatsoever to the State, excepting the consideration to be paid therefor by the State, as hereinafter more particularly mentioned.

1. It being understood and agreed that the Contractor shall make said improvements and conduct the work in compliance with all laws of the State of New York and the ordinances of any city, village or town and the lawful directions of the officers, agents or representatives of the State or of said city, village or town.

2. The Contractor further stipulates and agrees pursuant to Section 3, Article II, of the Labor Law, that no laborer, workman or mechanic in the employ of the Contractor, sub-contractor or other person doing or contracting to do the whole or a part of the work contemplated by this contract, shall be permitted or required to work more than eight hours in any one calendar day, except in case of extraordinary emergency caused by fire, flood or danger to life or property.

3. The Contractor further stipulates and agrees that the wages to be paid for a legal day's work as hereinbefore defined, to all classes of such laborers, workmen or mechanics employed by him or by any sub-contractor or other person on, about or upon said work or upon any material to be used upon or in connection therewith, shall not be less than the prevailing rate of wages for a day's work in the same trade or occupation in the locality within the State where such public

FAITHFUL PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS

That we James Stewart & Co., Inc., of New York City

Contractor and National Surety Company, a Corporation under the Laws of the State of New York

surety are held and jointly and severally firmly bound unto THE PEOPLE OF THE STATE OF NEW YORK in the sum of Ten thousand , eight hundred and fifty-four dollars

($ 10,854.00) lawful money of the United States, to be paid to the said, the People of the State of New York or to their certain attorney or attorneys or assigns, for which payment, well and truly to be made, we bind ourselves, our successors, heirs, executors, administrators and assigns, jointly and severally, firmly by these presents.

SEALED with our seals. Dated this 7th day of July

In the year of our Lord one thousand nine hundred and sixteen

WHEREAS the above bounden Contractor has covenanted and agreed to furnish all work, labor and services and material of every kind, and to do and perform each and every act and thing necessary and proper for the improvement of the canal by widening the canal prism in the Hudson River from the mouth of the Hoosic River to the south end of Green Island, as embraced in Contract No. 72-B, Barge Canal,

in accordance with the plans and specifications for said work adopted by the Canal Board of the State of New York, or in accordance with said plans and specifications as the same may be altered by the proper officers or agents of the State of New York from time to time.

THE CONDITION OF THIS OBLIGATION IS SUCH that if the said Contractor, ~~his, their~~ *its*, ~~their~~ successors, executors, administrators, or assigns, or either of them shall faithfully and completely perform said contract, then this obligation to be void, otherwise to remain in full force and effect. The said surety hereby stipulates and agrees that no change, extension, alteration or revision of the terms of said contract or of the plans and specifications accompanying the same shall in any way affect ~~his, their~~ *its* obligation on this bond.

(Seal) James Stewart & Company, Inc., (Seal)

Per A. M. Stewart, President (Seal)

National Surety Company (Seal)

by Howard Abrahams Vice-President

B. C. Form 8. 10-6-09-5000 (6-7303)

CONTRACT NO. 72-B Champlain CANAL, SECTION 1

Widening Prism Preliminary ESTIMATE.

- Excavation -

Cross Sec. Bk. Pg.	Sta.	Length of Section	Area	Cu. Ft.	Cu. Yds.	Cross Sec. Bk. Pg.	Sta.	Length of Section	Area	Cu. Ft.	Cu. Yds.
	820+00		0								
	821+00	100	264	13200							
	822+00	100	550	40700							
	823+00	100	700	62500							
	824+00	100	700	70000							
	825+00	100	700	70000							
	827+00	200	695	139500							
	829+00	200	645	134000							
	831+00	200	590	123500							
	833+00	200	600	119000							
	835+00	200	590	119000							
	837+00	200	500	109000							
	839+00	200	538	103800							
	841+00	200	490	102800							
	843+00	200	425	91500							
	845+00	200	400	82500							
	847+00	200	465	86500							
	849+00	200	300	76500							
	851+00	200	300	60000							
	853+00	200	275	57500							
	855+00	200	250	52500							
	857+00	200	150	40000							
	859+00	200	16	16600							
	859+20	20	0	160							
				1770760							

65584 Cu. Yds.

Computed by Tighe Copied by Westfall " Overwicker

Checked by Sparr

D. C. Form 05
2-13-15-5000 (6-4536)

CANAL IMPROVEMENT
DEPARTMENT OF STATE ENGINEER AND SURVEYOR.

RESIDENT ENGINEER'S MONTHLY REPORT OF ENGINEER FORCE ON CONTRACT No. 72B.

RESIDENCY No. 1. Champlain CANAL

Jas. Stewart & Co., Inc., CONTRACTOR MONTH ENDING September 30, 1916.

NAME	RANK	DATES—Inclusive From	To	
W. L. Caler,	Assistant Engineer	1	30	27
N. D. Hyde,	Junior Engineer	1	4	4
		9	30	22 26
Floyd F. Baker,	Rodman	1	30	28
D. J. Begley,	Chainman	1	30	29
James Sim,	Inspector of Masonry	1	14	12
Willard Joslin,	Boatman	21	30	9
Geo. C. Schafer,	"	1	30	30

6-15-15-10,000 (6-7.6

MONTHLY ESTIMATE

Champlain CANAL SECTION 1, Eastern DIVISION

ESTIMATE No. 8 of work done up to April 1, 1917,

by Jas. Stewart & Co., Inc., Contractor, under Contract No. 72B,

dated July 7, 1916 under Chapter 147, Laws 1903 and Amendatory Laws.

For widening the canal prism in the Hudson river from the mouth of the Hoosic river to the south end of Green Island. Length, 0.74 mile.

QUANTITIES		ITEMS	CONTRACT PRICE	AMOUNTS	TOTALS
Increase	Total to date				

There has been no increase in the quantities of work done on Contract No. 72B during March, 1917.

The quantities of the various items estimated to April 1, 1917, are the same as in Estimate No. 5, dated January 1, 1917. For details of present estimate see Estimate No. 5.

In the Summary below is shown the total estimate of work done to date.

SUMMARY

Original Contract, ...	$90123 84
SAY	$90120 00

and 4-11-17

Special Deputy State Engineer

B. C. Form 7

ENGINEERS' CERTIFICATES TO MONTHLY ESTIMATE

Champlain CANAL, SECTION 1 CONTRACT NO. 72-B

STATE OF NEW YORK
COUNTY OF Saratoga } ss:

I, W. L. Caler Assistant Engineer of the Department of the State Engineer and Surveyor, hereby certify under oath, that to the best of my knowledge and belief, there is now due by the State to Jas. Stewart & Co. Inc. Contractors, Eight Thousand Five Hundred fifty-nine and 00/100 ($8559.00) dollars for work done and not before included in any estimate, up to the 1st day of November 1916, under Contract No. 72-B dated July 7, 1916, on the Eastern Division Champlain Canal

For widening the canal prism in the Hudson River from the mouth of the Hoosic River to the south end of Green Island. Length 0.74 miles.

and I further certify that the said amount has been estimated from actual measurements and inspections by me made, as Assistant Engineer, of all work done and not included in the last previous estimate and of all work done during my official connection with the said contract, and from the official notes of measurements made by my predecessors of work done under them, and believe it to be correct and in strict accordance with the terms of the contract.

Subscribed and sworn before me this 4th day of November 1916

[signature]
Asst. to Division Engineer

W. L. Caler
Assistant Engineer

I, E. V. R. Payne Resident Engineer on that portion of the canals embracing Contract No. 72-B above specified, hereby certify that I have caused careful measurements to be made by my sworn assistants, as far as practicable supervised the same, and from time to time have made personal inspections of the work done under said contract, up to the 1st day of November 1916, and from the facts thus obtained have made an estimate of the cost thereof with reference to the prices contained in the contract; and that the amount of the work done, up to the date aforesaid, not before included in any estimate, according to such estimate amounts to the sum of Nine Thousand Five Hundred ten and 00/100 - - - - - ($9510.00) dollars.

And which amount I believe does not exceed the actual quantities and value of the amount of work done by the aforesaid contractors, in strict accordance with the terms of the said contract.

Dated November 4, 1916.

E V R Payne
Resident Engineer

I, Geo. D. Williams Division Engineer of the Department of the State Engineer and Surveyor, hereby certify that I have carefully examined the estimate referred to in the above certificates, and as far as practicable examined the work covered by it, and believe it to be correct and in strict accordance with the contract.

Dated Nov. 8 1916

Geo D Williams
Division Engineer

EXAMINED AND APPROVED NOV 1916

Special Deputy State Engineer

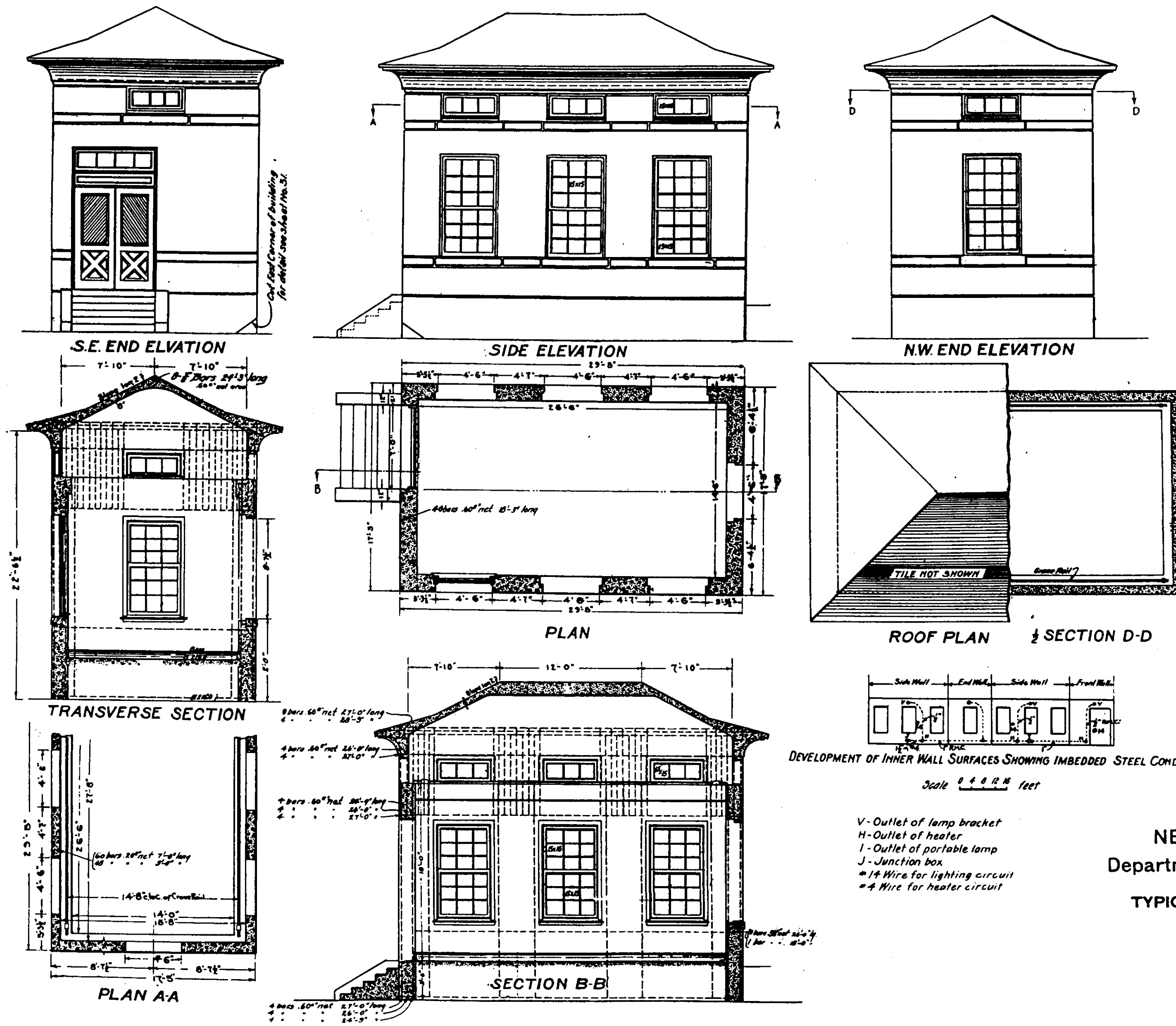
ɛries # B1009. New York State Barge Canal plans, 1920. .1 cu. ft. (1 volume containing 156 ates) Indexes: A list of plates in front of volume functions as an index.

ıese plates of plans, drawings, profiles and location maps relate to the improvement and ılargement of the Barge Canal. The volume was issued as a supplement to the State Engineer ıd Surveyor's 1920 annual report with the express intent to preserve the work of the engineers volved, to "be of lasting benefit to the engineering profession" and to assist in the design of ture public or private works.

ıe plates show typical work done as well as some features special or unique to the Barge Canal oject. Two examples of unique engineering problems documented are Cohoes Falls, which sulted in the greatest series of high lift locks then known in the world; and the gorge near edina at Oak Orchard Creek, which required an unusually high channel and walls bordering e gorge--after plans for the largest (at that time) single span concrete structure ever devised ere given up. Since locks and dams were the most important structures in the project they, ong with bridges, are most frequently represented in the volume.

enerally the plates depict the following structures: typical channel sections, prism walls and e types of wall and bank protection employed; locks; power plants; fixed and movable dams ıcluding a dam with automatic crest that originated in the course of designing the canal); guard ıtes; siphon spillways (which also originated with barge canal design, providing automatic ırting and stopping of the flow of water); culverts and aqueducts (notably the largest one in e barge system, which did not have the long aqueducts found in the old canal system); bridges .ft, bascule, and steel arch types); terminal piers and dockwalls; and navigation aids (lighthouse wers, tankhouses, etc.). The few maps found in the volume are strictly for location and are aced within the larger general plan.

ıe plans reproduced here are generic to many Barge Canal locks, including Champlain Lock They include overview of buildings or large sections of the lock, as well as details of gate ınstruction, a hydroelectric generator, pile foundations and electric circuitry.



SIZES OF POWER-HOUSES

The power-houses built vary in size to suit the local conditions and machinery used.

The following table shows the sizes built at the various locks where vertical-shaft generators directly connected to hydraulic turbines are employed.

Canal	Lock No.	Contract No.	Floor Space	Canal	Lock No.	Contract No.	Floor Space
Erie	*	91	20'-6" x 49'-0"	Champlain	1	92	20'-0" x 40'
"	7	92	14'-6" x 26'-6"	"	2	92	19'-10" x 40'
"	16	92	16'-0" x 23'-7½"	"	3	92	20'-0" x 40'
"	17	92	19'-0" x 23'-0"	"	4	92	20'-0" x 40
"	18	92	20'-0" x 35'-0"	"	5	92	20'-5" x 40
"	19	92	20'-0" x 33'-0"	"	6	92	18'-0" x 28'
"	20	93	16'-0" x 24'-6"	"	9	90	20'-0" x 27'
"	21	93	15'-0" x 35'-0"	"	11	90	22'-6" x 26'
"	27	94	20'-0" x 34'-0"	Oswego	2	90-A	13'-9" x 35'
"	28-A	94	20'-0" x 30'-6"	"	5	93	18'-6" x 34'
"	28-B	94	20'-0" x 30'-6"	"	6	93	18'-6" x 34'
"	29	94	20'-0" x 44'-0"	"	7	90-A	19'-0" x 30'
"	33	94	17'-6" x 32'-0"	Cayuga & Seneca	2	M	17'-0" x 54'
"	34	94	20'-0" x 26'-3"	"	4	M	20'-0" x 30'

* At Crescent dam.

Four houses have been built for horizontal-shaft generators connected to vertical-shaft turbines through bevel gearing. The following table shows the sizes of these houses.

Erie	23	93	22'-0" x 42'-0"	Champlain	8	92	20'-0" x 36'-
"	24	90	20'-0" x 35'-0"	"	12	90	16'-0" x 26'-

Three houses have been built for sub-stations: Two for the Waterford series, Erie locks 2 to 6, contract No. 92, and one at lock No. 1, Oswego canal, contract No. 90-A. These are 20'-0" x 30'-0" inside at floor level.

Eleven houses have been built for gasoline-electric stations At locks Nos. 8, 9, 10, 11, 12, 13, 14, 15, 25 and 26, Erie canal, and lock No. 1, Cayuga and Seneca canal.
These houses are all 20'-0" x 30'-0" inside at floor level.

All concrete on this sheet to be first-class reinforced concrete.
All edges to be rounded to a radius of ½" unless otherwise noted.
Walls to be of monolithic construction.

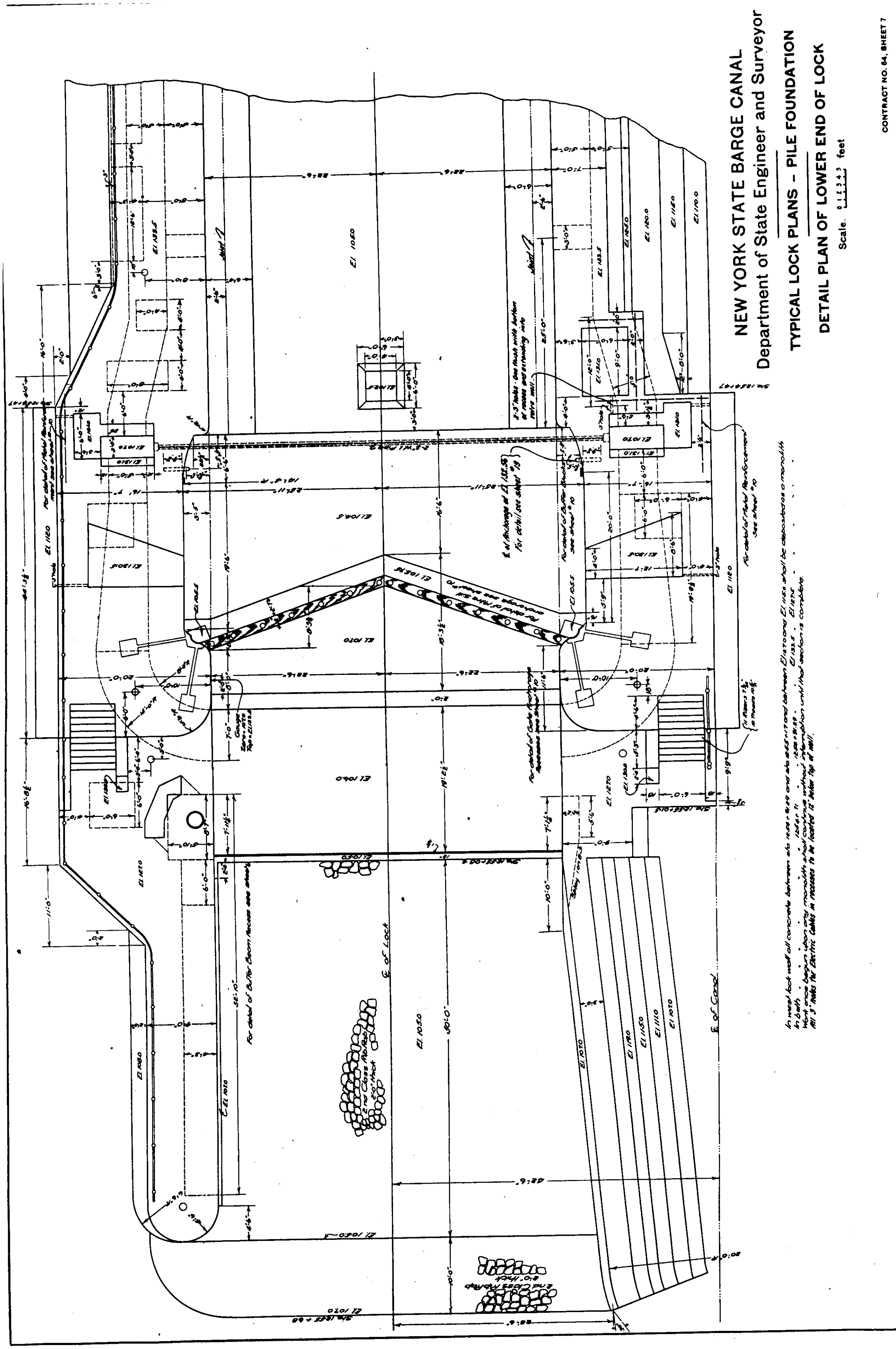
NEW YORK STATE BARGE CANAL

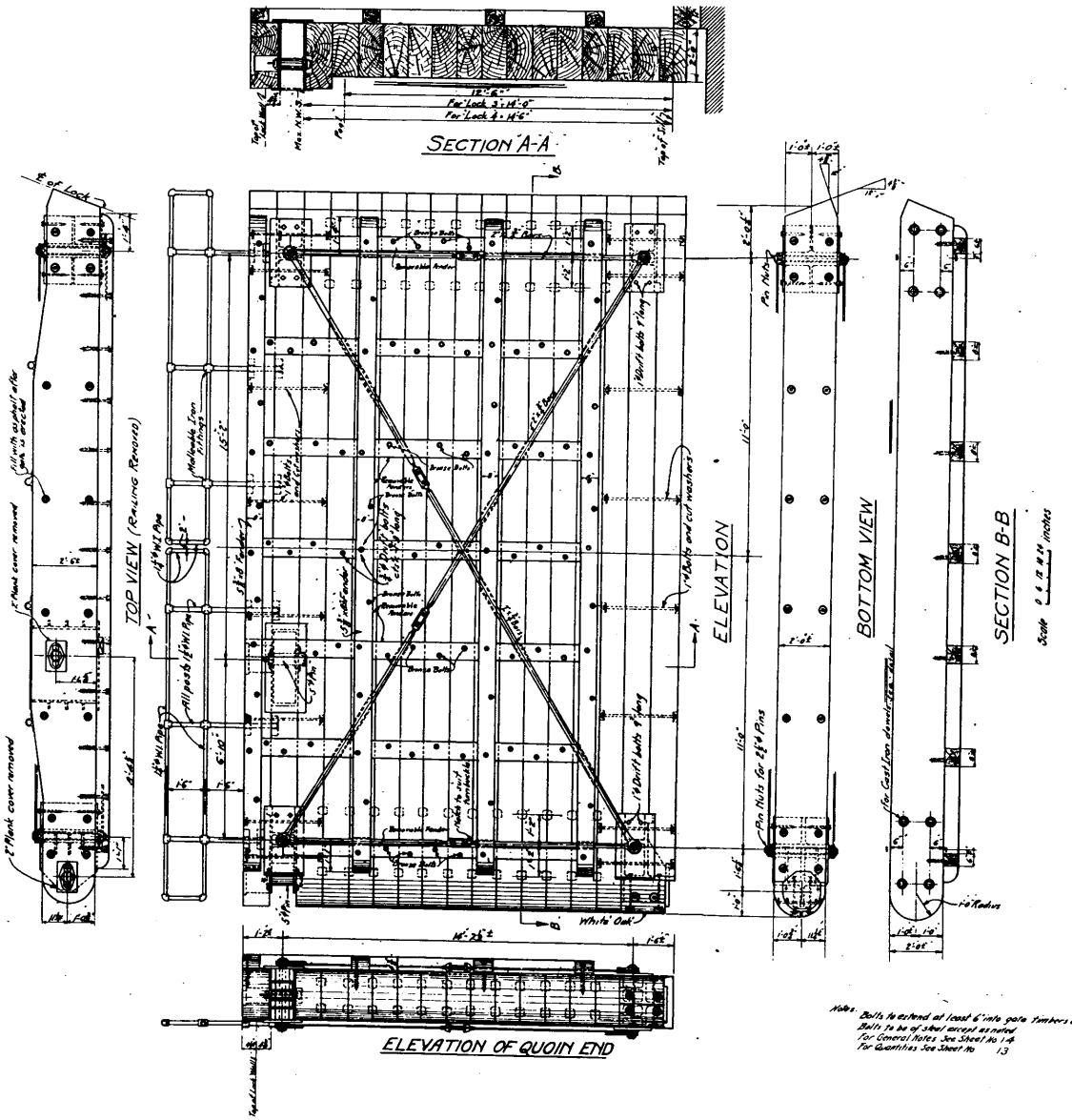
Department of State Engineer and Surveyor

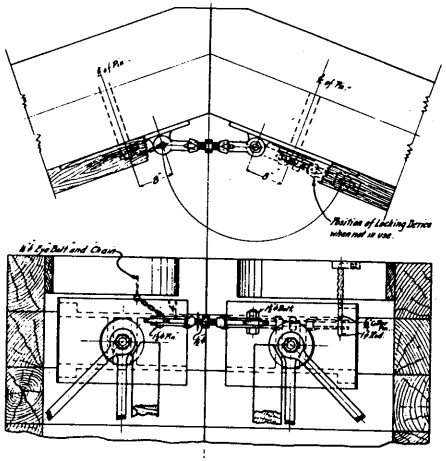
TYPICAL HYDRO-ELECTRIC POWER-PLANT

GENERAL PLAN OF BUILDING

Scale 0 1 2 3 4 feet
except as noted


NEW YORK STATE BARGE CANAL
Department of State Engineer and Surveyor
TYPICAL LOCK PLANS – PILE FOUNDATION
DETAIL PLAN OF LOWER END OF LOCK
Scale. 0 1 2 3 4 5 feet
CONTRACT NO. 64, SHEET 7
℄ of Lock
℄ of Canal
For detail of Metal Reinforcement see sheet #10
For detail of Buffer Blocks see sheet #10
For detail of Gate Anchorage Recesses see sheet #10
℄ of Anchorage at El. 133.58 For detail see sheet #13
2nd Class Rip Rap 2'0" thick





-Detail Showing Locking Device-
-For Upper Gates-
Scale 0 3 6 9 12 inches

Approximately 16000 lbs. of Cast Iron Counterweight will be required on each leaf of the upper gates. Details of Counterweights and connection to gates will be furnished later.

Cast Iron Counterweights will be paid for at the Contract Price of Cast Iron Counterweights and Keys.

If the gate is constructed as shown on Sheet 9 the counterweight will be reduced by the weight of the keys and bolts.

See Sheet 9 for details of built-up timbers. This sheet shows an alternate detail using single timbers. The State reserves the right to construct the gates of timbers in sizes not over 12"×12". See Specifications para 2a. The vertical dimension of each timber may be varied subject to the approval of the Engineer and as shown on the detail drawings to be submitted by the Contractor for approval.

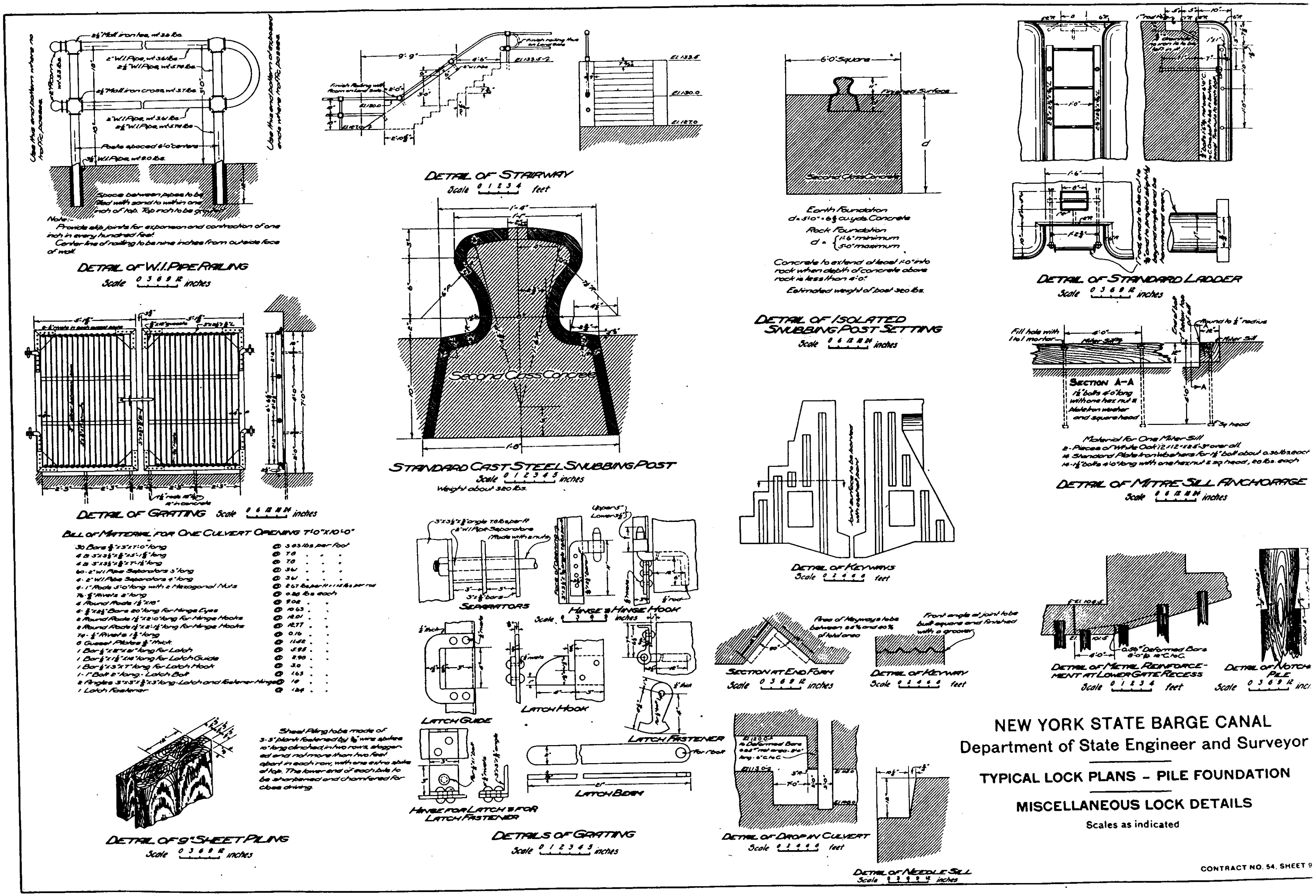
Notes. Bolts to extend at least 6" into gate timbers and are ¾" Bolts to be of steel except as noted.
For General Notes See Sheet No 14
For Quantities See Sheet No 13

NEW YORK STATE BARGE CANAL
Department of State Engineer and Surveyor

WOODEN LOCK-GATE PLANS

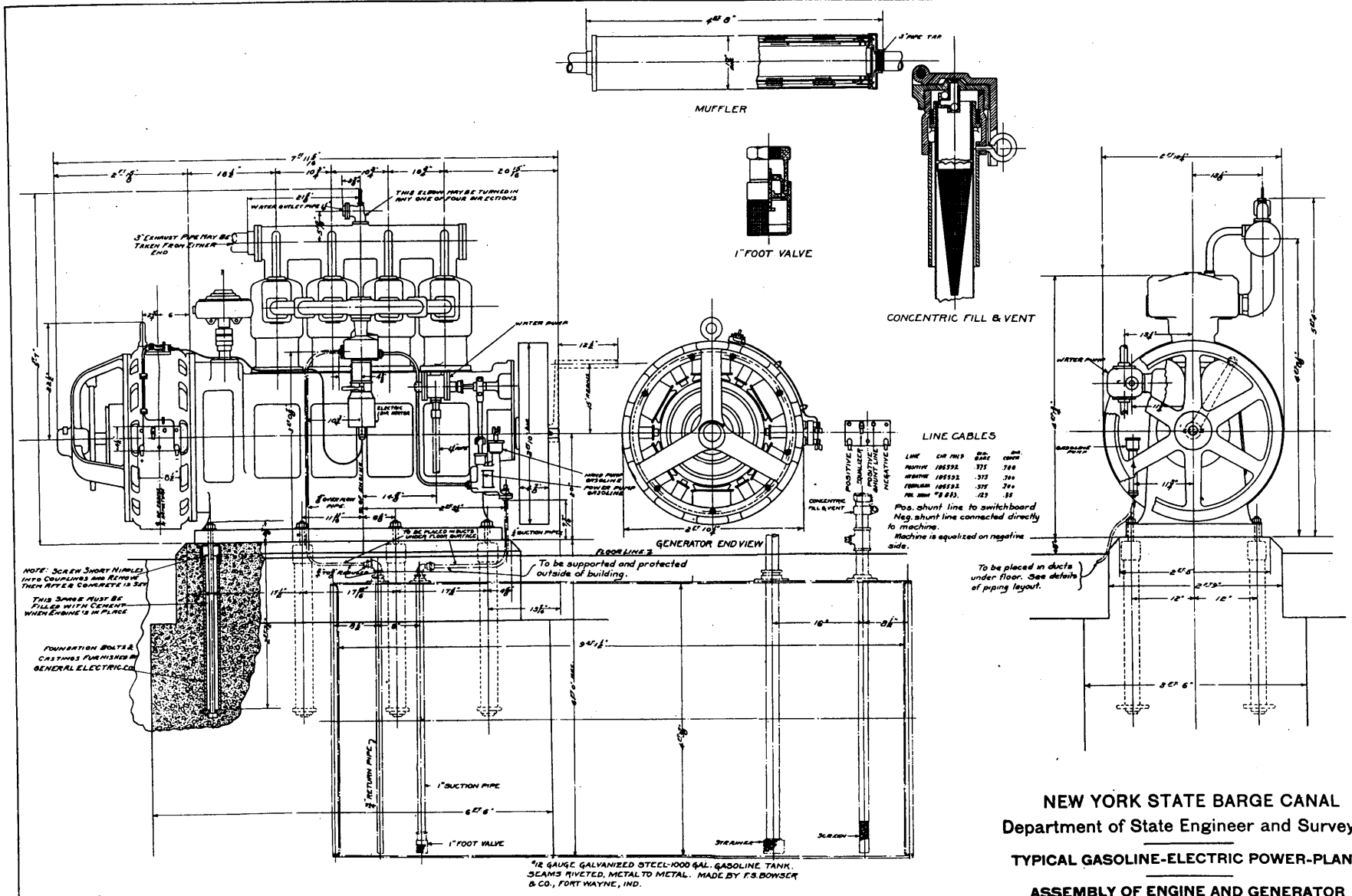
DETAIL PLANS OF UPPER GATES

Scales as indicated



NEW YORK STATE BARGE CANAL
Department of State Engineer and Surveyor
TYPICAL LOCK PLANS - PILE FOUNDATION
MISCELLANEOUS LOCK DETAILS
Scales as indicated
CONTRACT NO. 54, SHEET 9
DETAIL OF W.I. PIPE RAILING
DETAIL OF STAIRWAY
STANDARD CAST STEEL SNUBBING POST
Weight about 320 lbs.
DETAIL OF ISOLATED SNUBBING POST SETTING
Second Class Concrete
Concrete to extend at least 1'-0" into rock when depth of concrete above rock is less than 4'-0".
Estimated weight of post 320 lbs.
DETAIL OF STANDARD LADDER
DETAIL OF MITRE SILL ANCHORAGE
SECTION A-A
DETAIL OF GRATING
BILL OF MATERIAL FOR ONE CULVERT OPENING 7'-0" X 10'-0"
DETAIL OF KEYWAYS
SEPARATORS
HINGE & HINGE HOOK
LATCH GUIDE
LATCH HOOK
LATCH FASTENER
LATCH BEAM
HINGE FOR LATCH & FOR LATCH FASTENER
DETAILS OF GRATING
SECTION AT END FORM
DETAIL OF KEYWAY
DETAIL OF METAL REINFORCEMENT AT LOWER GATE RECESS
DETAIL OF NOTCH PILE
DETAIL OF DROP IN CULVERT
DETAIL OF NEEDLE SILL
DETAIL OF 9" SHEET PILING

PLATE 48



#12 GAUGE GALVANIZED STEEL-1000 GAL. GASOLINE TANK. SEAMS RIVETED, METAL TO METAL. MADE BY F.S. BOWSER & CO., FORT WAYNE, IND.

NEW YORK STATE BARGE CANAL

Department of State Engineer and Surveyor

TYPICAL GASOLINE-ELECTRIC POWER-PLANT

ASSEMBLY OF ENGINE AND GENERATOR

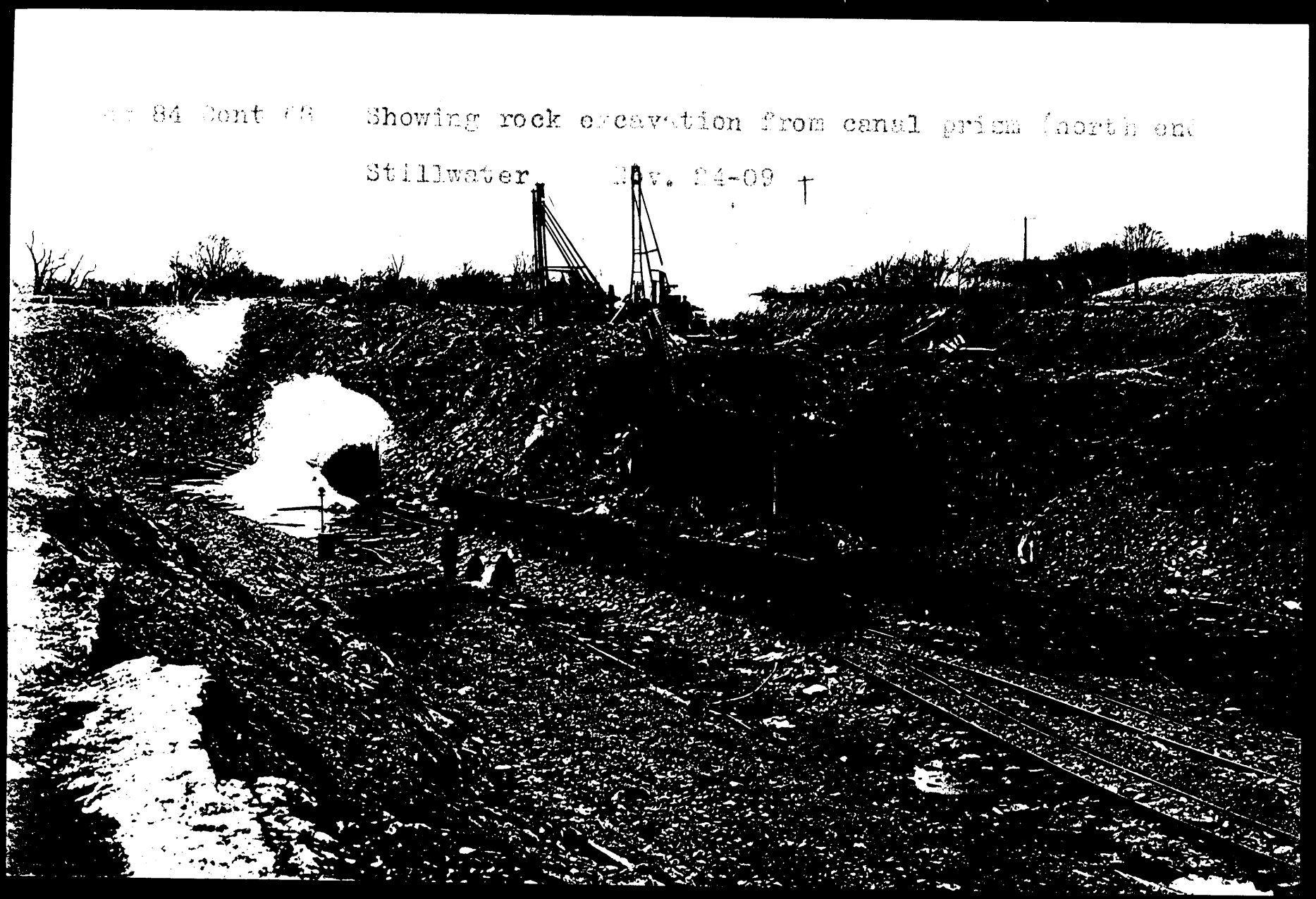
CONTRACTS NOS. 92, 93 & 94, SHOP DRAWINGS

Series # 11833. Barge Canal construction photographs, 1905-1921. 21.3 cu. ft.

These photographs appear to have been submitted to the State Engineer and Surveyor by the Board of Consulting Engineers, a board of five civil engineers appointed to follow the progress of work on the canal system and to report on it to the State Engineer and Surveyor. Photographs were taken at the end of each month just before monthly cost estimates of work to be done were made.

Photographs show canals; locks; dams; bridges; piers; nearby buildings; damages needing repair; and dredging, excavation, repairs, and construction work in progress. Included are photographs of Barge Canal terminal structures in Buffalo. Captions typed or written on most photographs provide date of photograph; negative number; contract number; and location. Series B0727 (page 39) contains related glass plate negatives of western division Barge Canal construction.

The first three photos, taken on November 24, 1909, show the prism excavation in its early stages. Note the steam locomotive in use on a temporary railroad in removal of tons of crushed shale rock.



84 Cont (8 Showing rock excavation from canal prism (north end

Stillwater Nov. 24-09 †

Log 66 Cont 68 South end of cut showing lock site

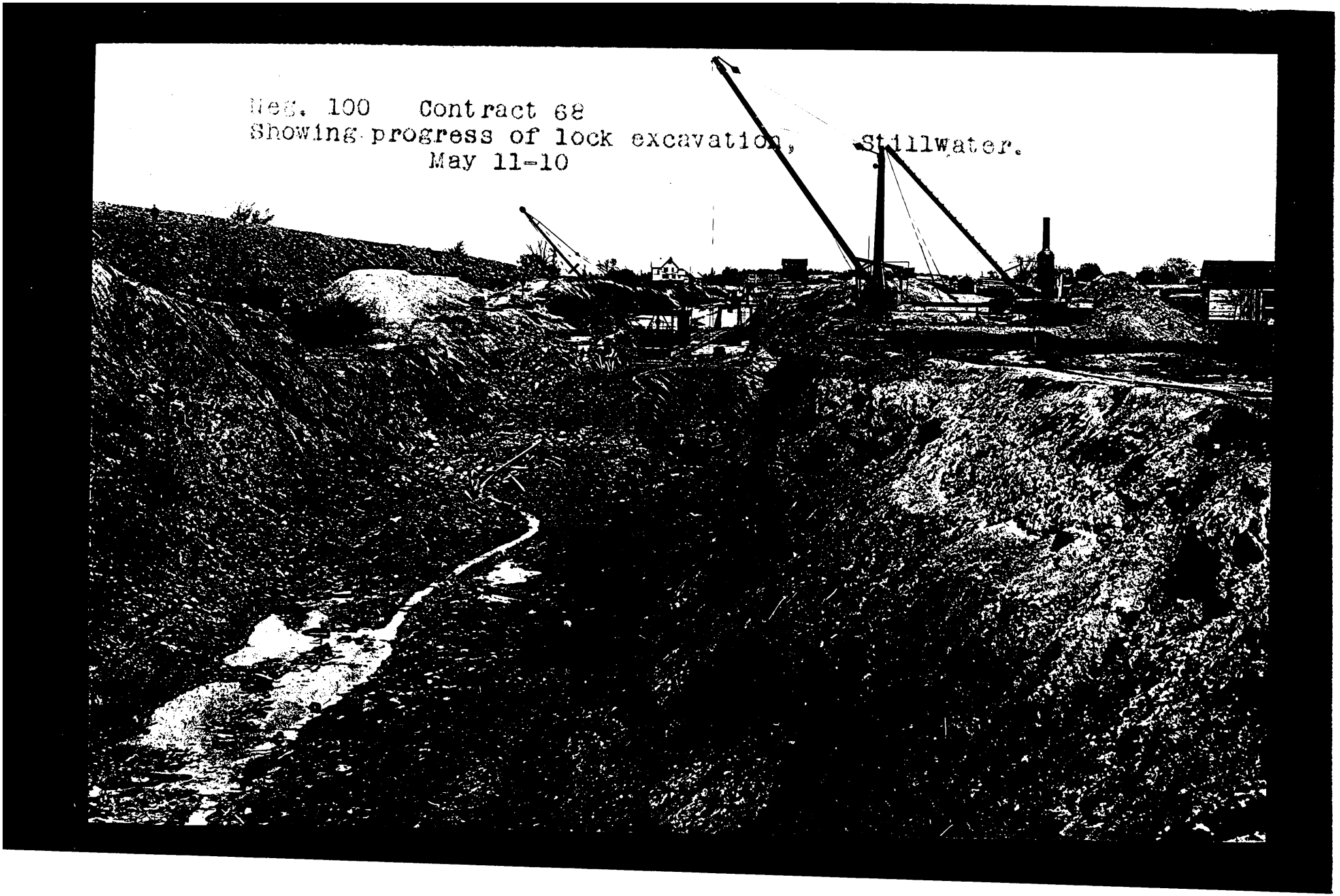
Stillwater Nov. 24-09

Per 32 Cont 68 Showing rock excavation from canal prism
(north end of cut looking south)

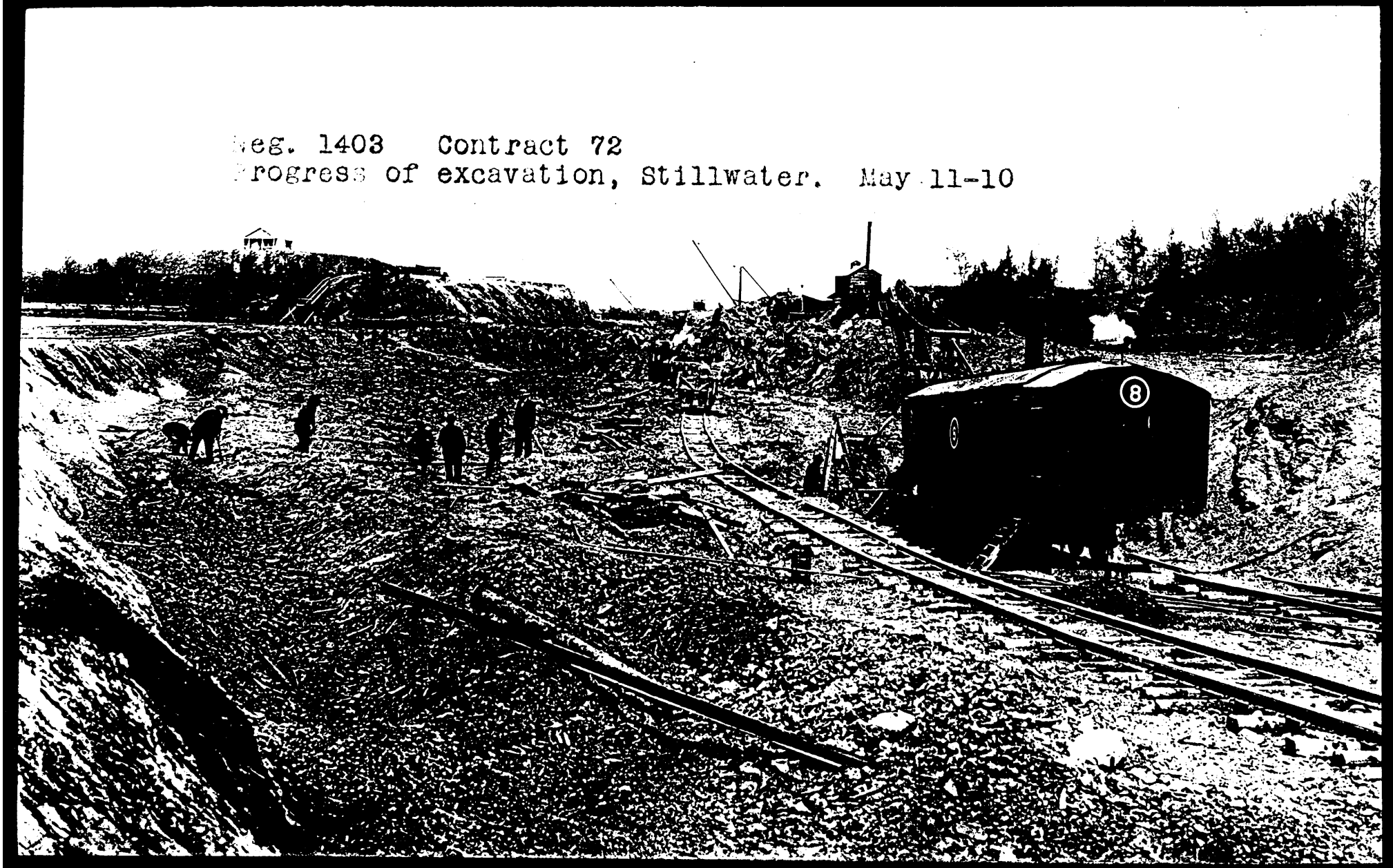
Stillwater Nov. 24-09

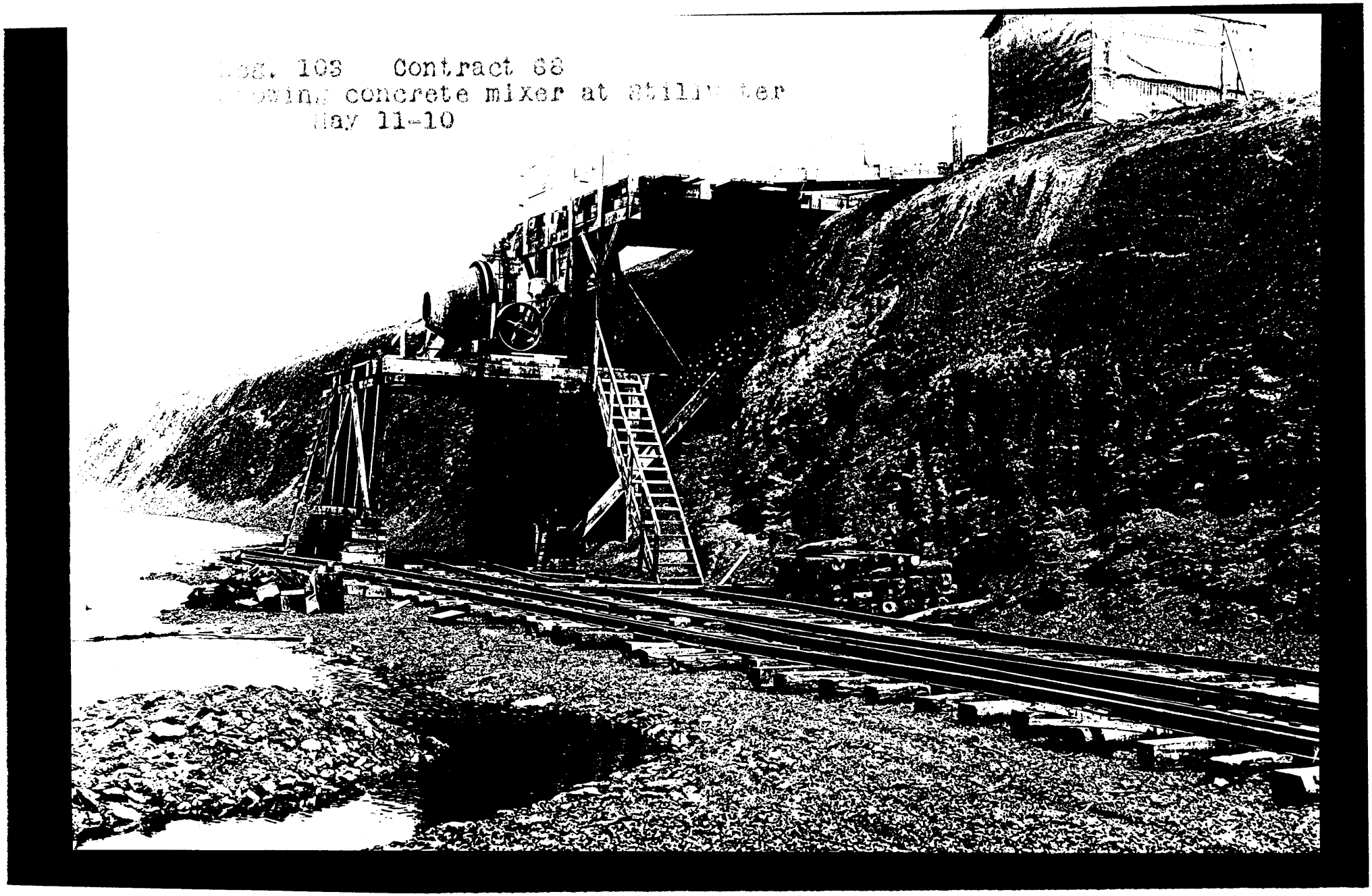
Showing rock excavation from canal prism

Four photos taken on May 11, 1910 show that additional progress has been made. Note the steam-powered cranes and shovels, and the early concrete mixer. The rock was removed both by machine and manual labor. The Kipp house shows in the background of the first photo, which looks north. Work on the abutments of the new Stillwater Bridge was just under way.


Neg. 100 Contract 68
Showing progress of lock excavation, Stillwater.
May 11-10

Neg. 1403 Contract 72
Progress of excavation, Stillwater. May 11-10

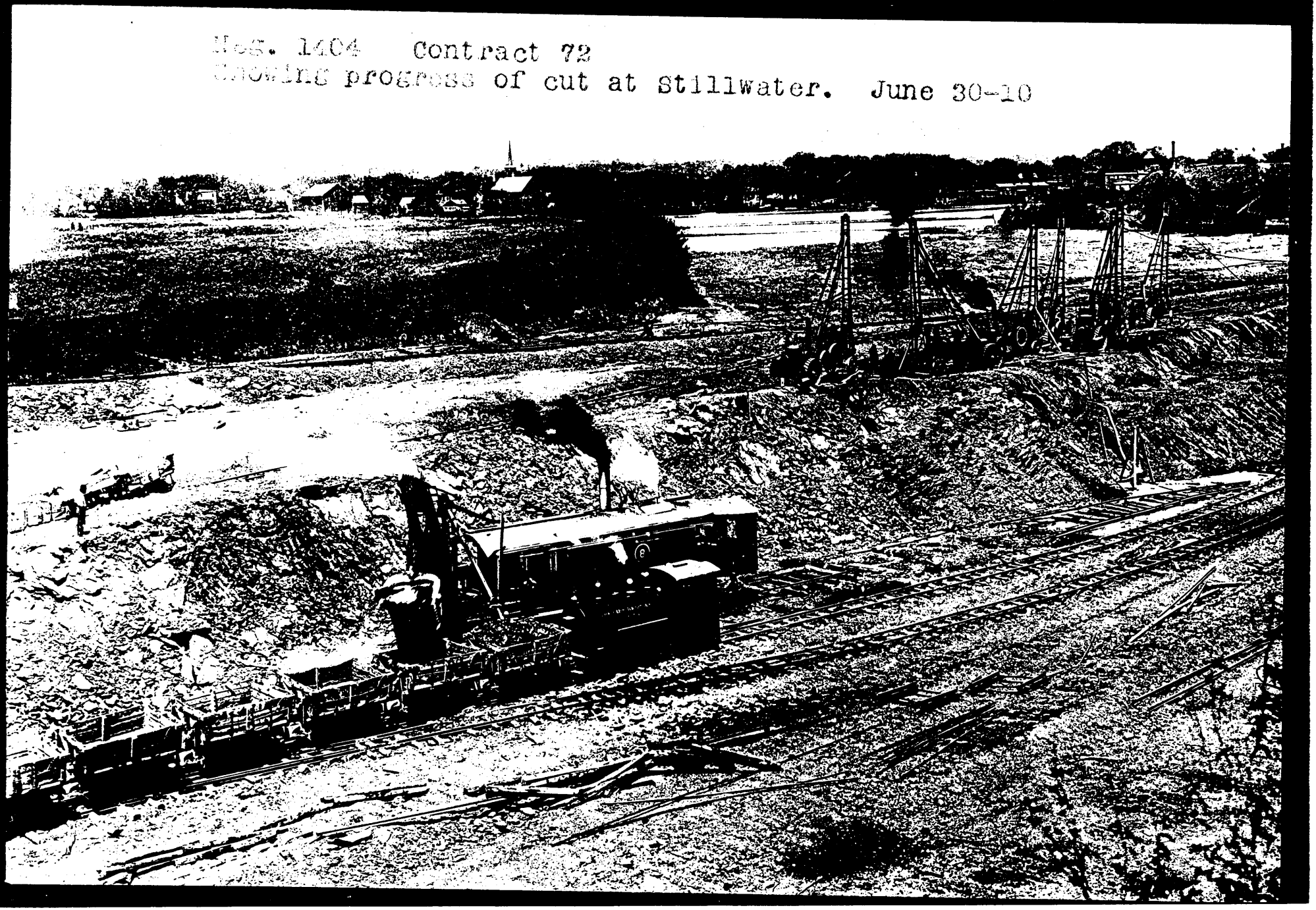



Contract 68
concrete mixer at
May 11-10

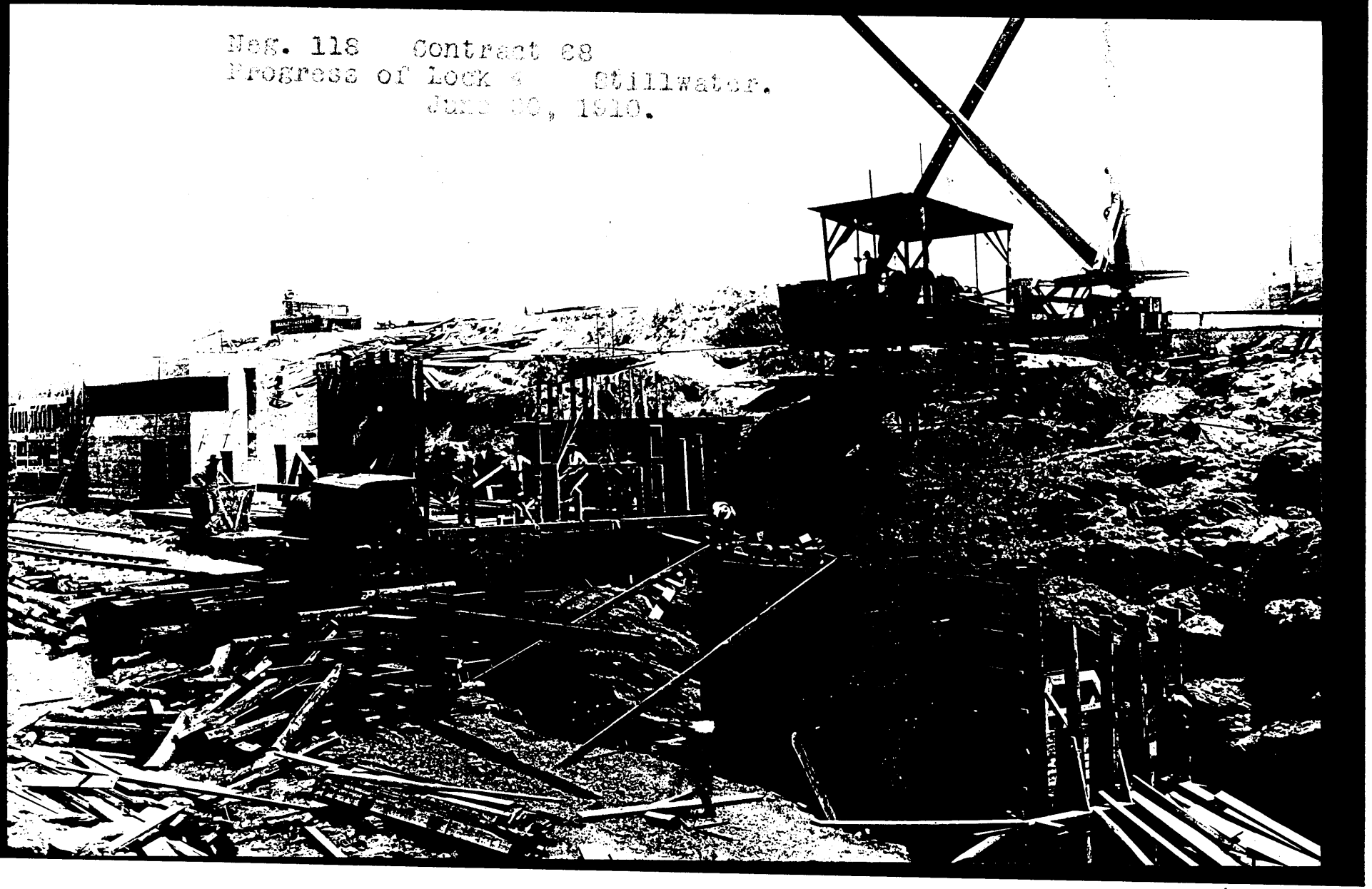

Neg. 101 Contract No. 68
Showing forms for east bridge abutment Stillwater
May 11-10

By the time the next five photos were taken on June 30th, work had progressed significantly. The first photo shows a steam shovel working on the prism south of the lock; the view looks west between Green and Parry's islands towards Stillwater. The next three photos show construction of the lock progressing, including a finished guide wall. In the final photo, the eastern abutment of the bridge to Stillwater is nearly completed.

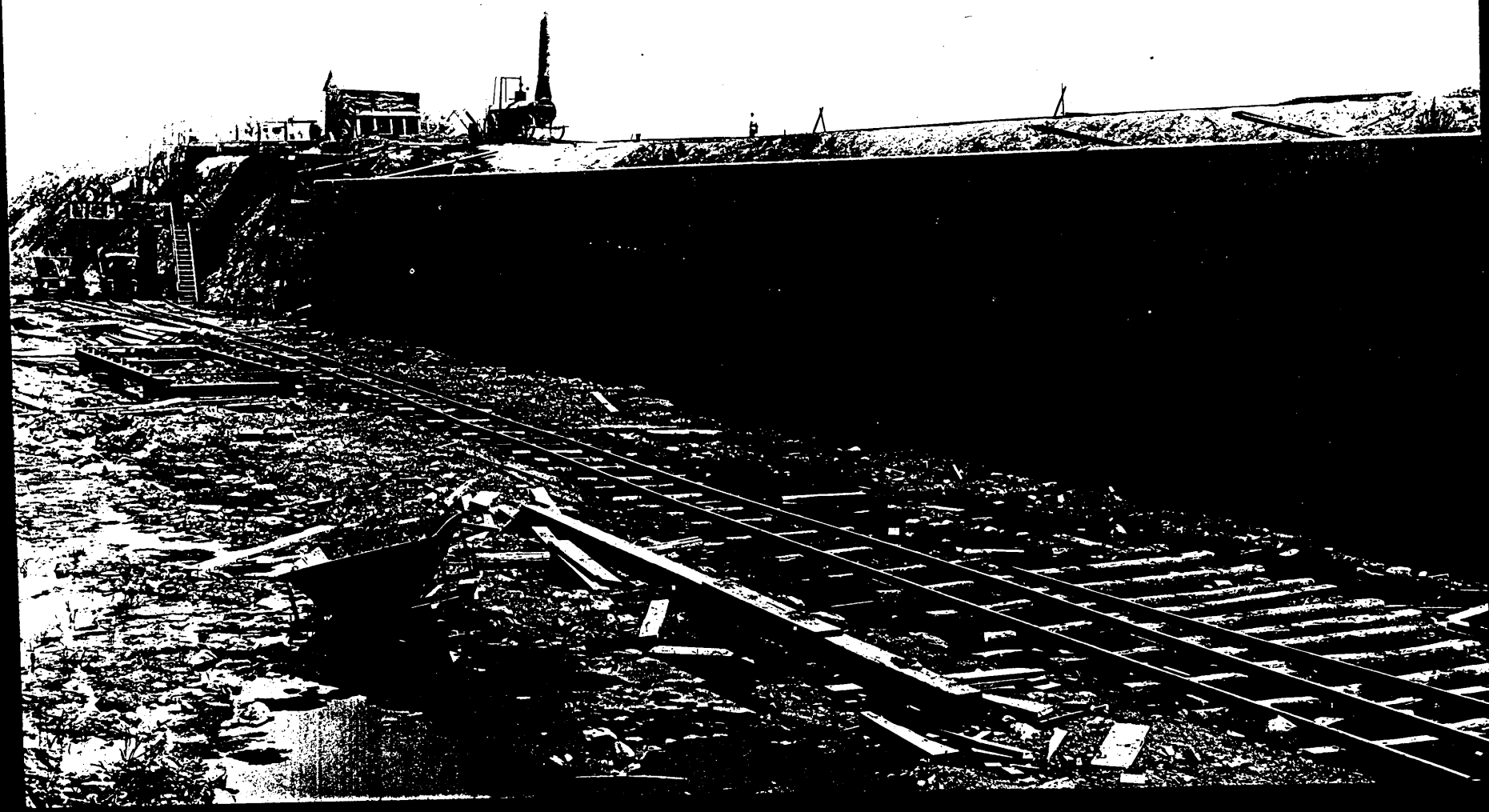
Nos. 1404 Contract 72
Showing progress of cut at Stillwater. June 30-10



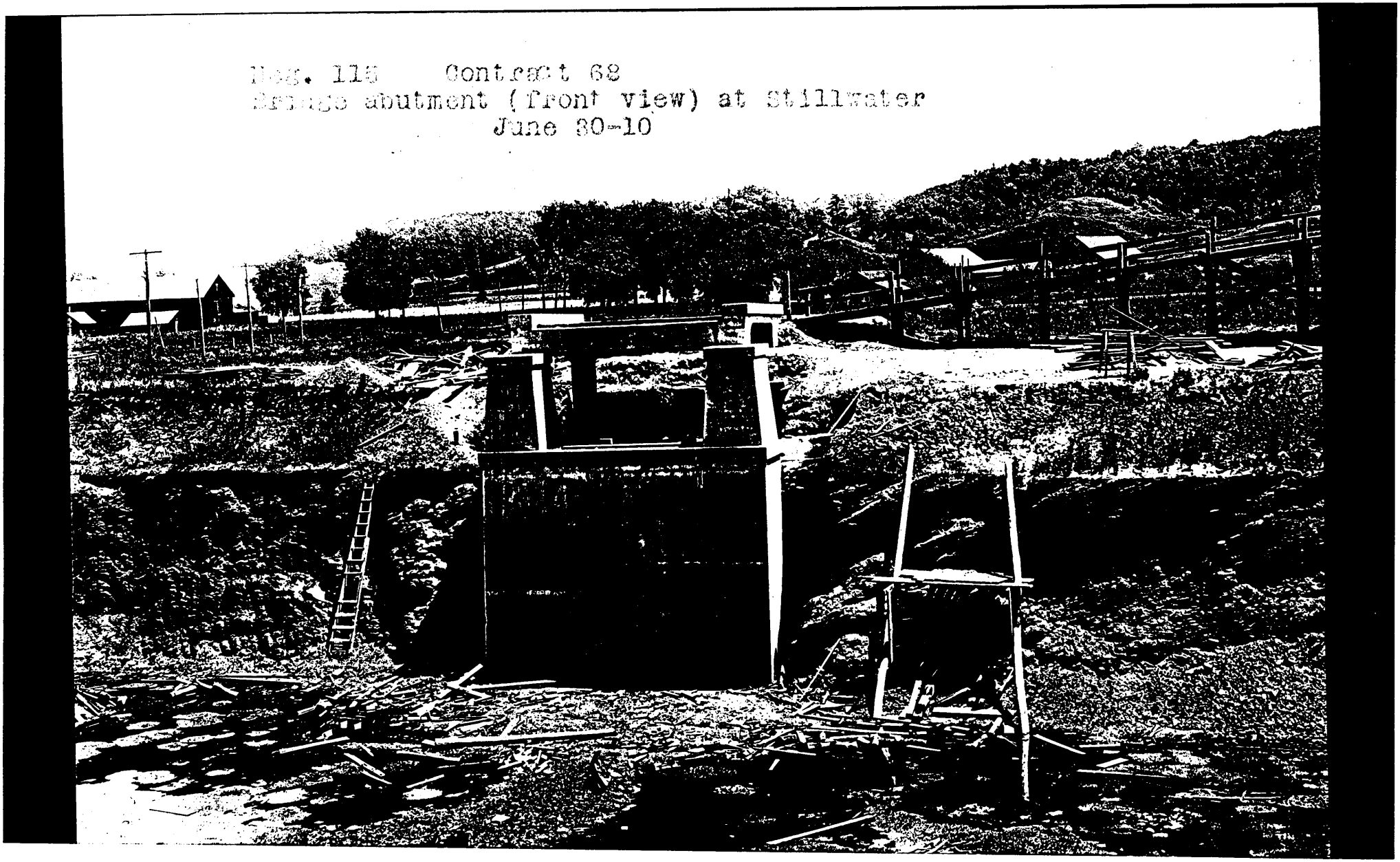

Neg. 117 Contract 68
Progress of Lock 4 at Stillwater.
June 30-10


Neg. 118 Contract 68
Progress of lock 4 Stillwater.
June 30, 1910.

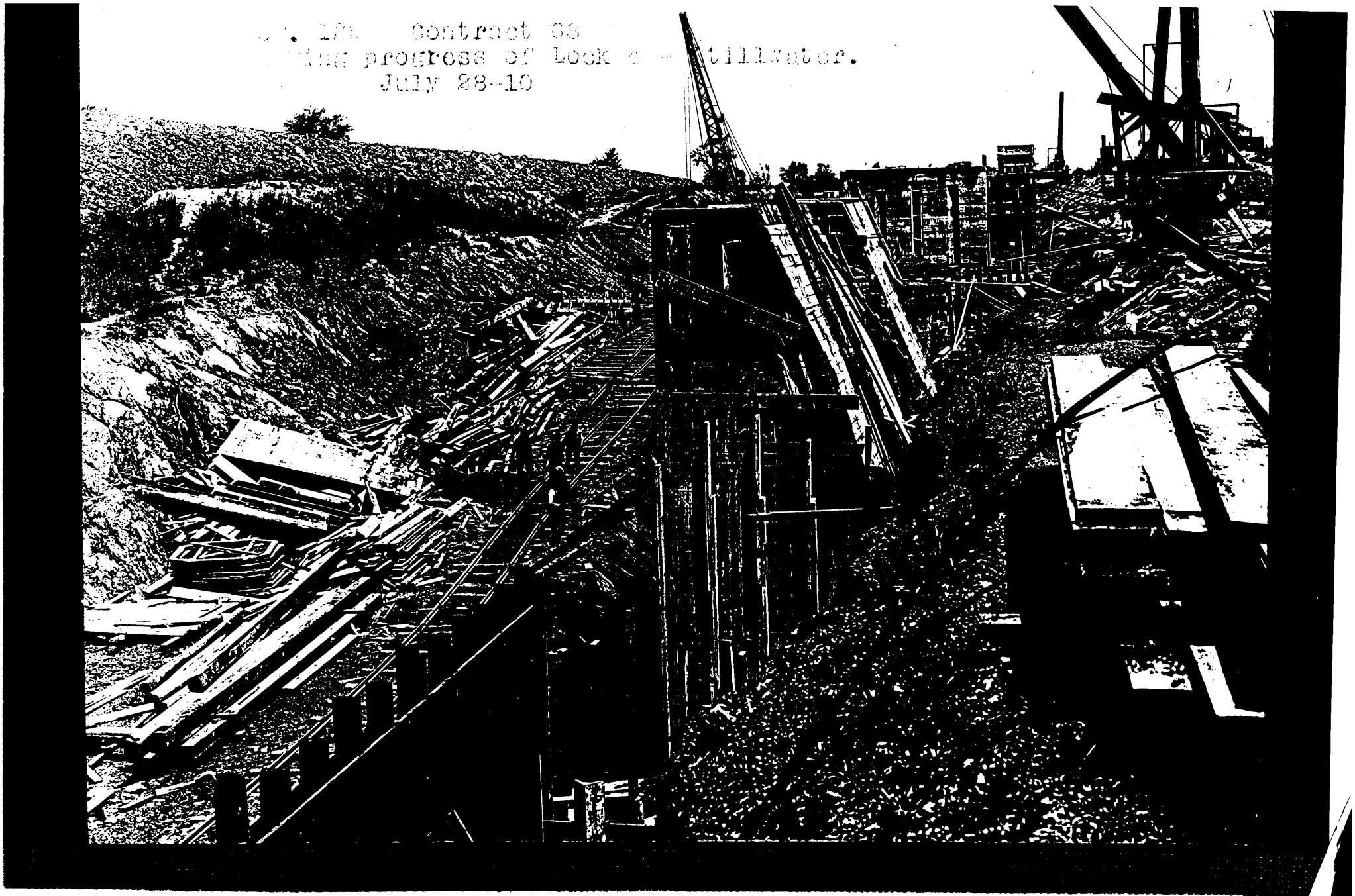
Neg. 116 Contract 68
Showing guide wall for Lock 4 at Stillwater.
June 30-10



Neg. 114 Contract 68
Bridge abutment (front view) at Stillwater
June 30-10

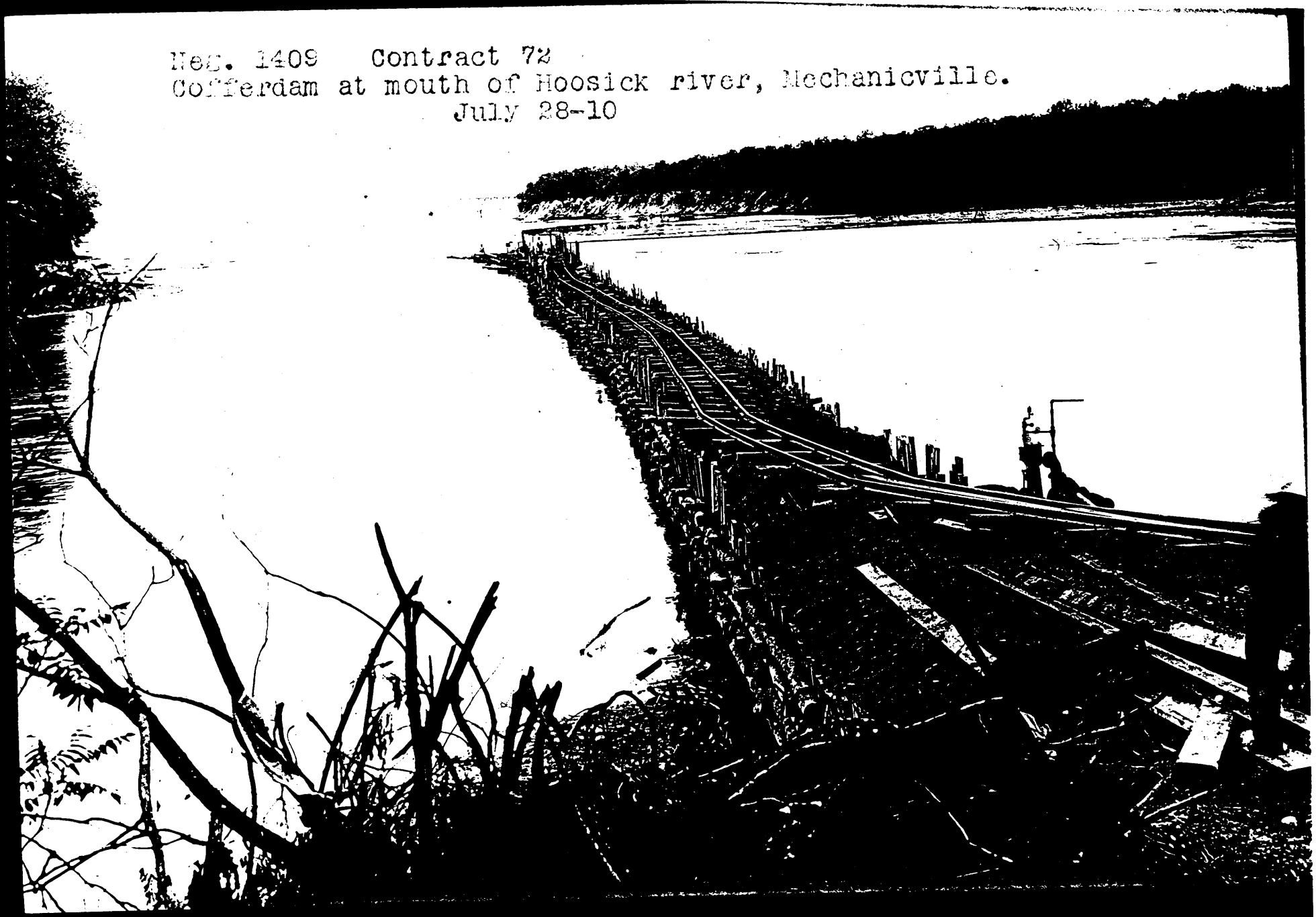


Photos taken on July 28th show the actual lock beginning to take shape, as well as a cofferdam at the mouth of the Hoosic River, where dredging was taking place.

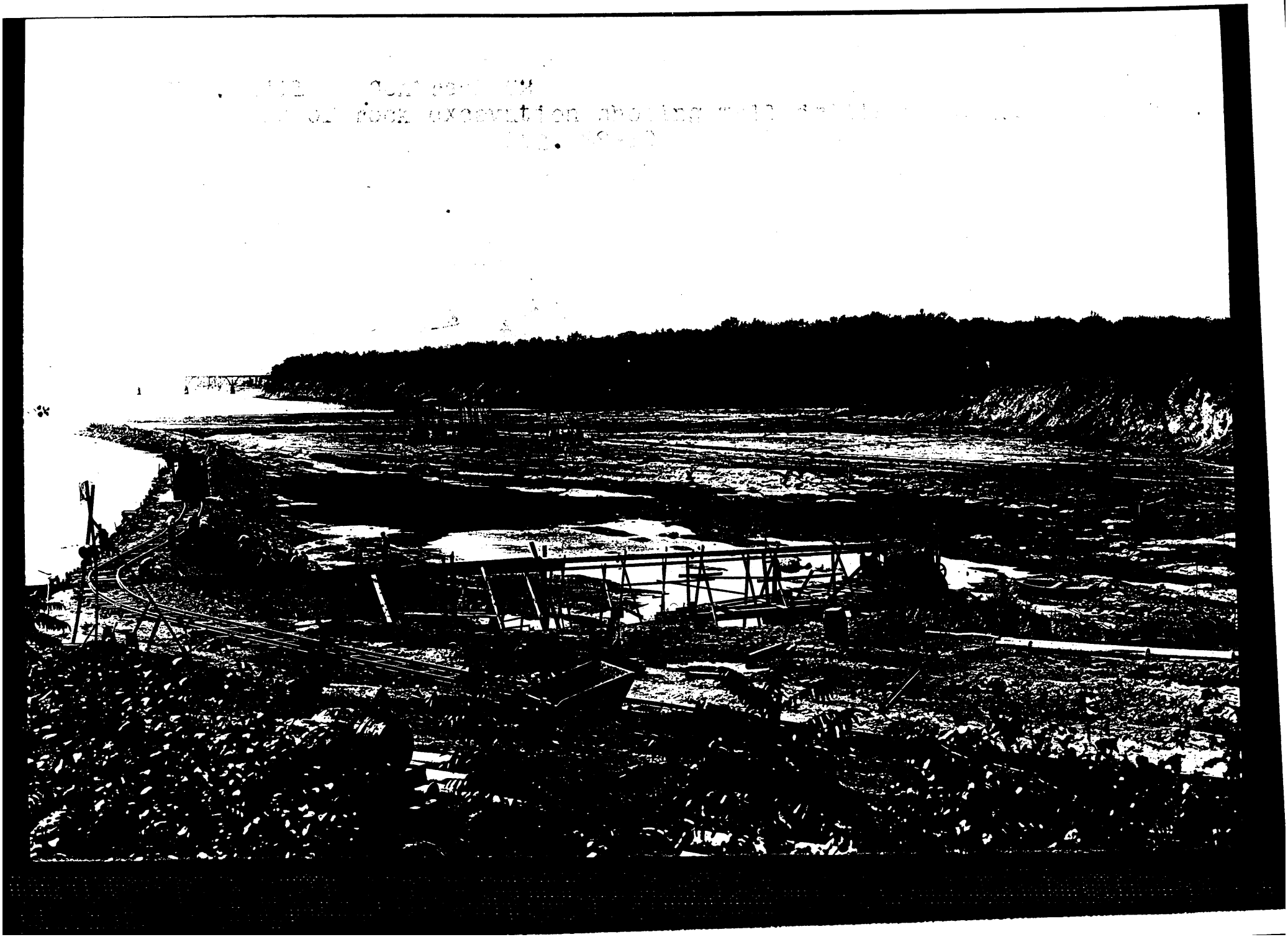

Contract 66
progress of Lock
July 28-10
tillwater.


Contract 28

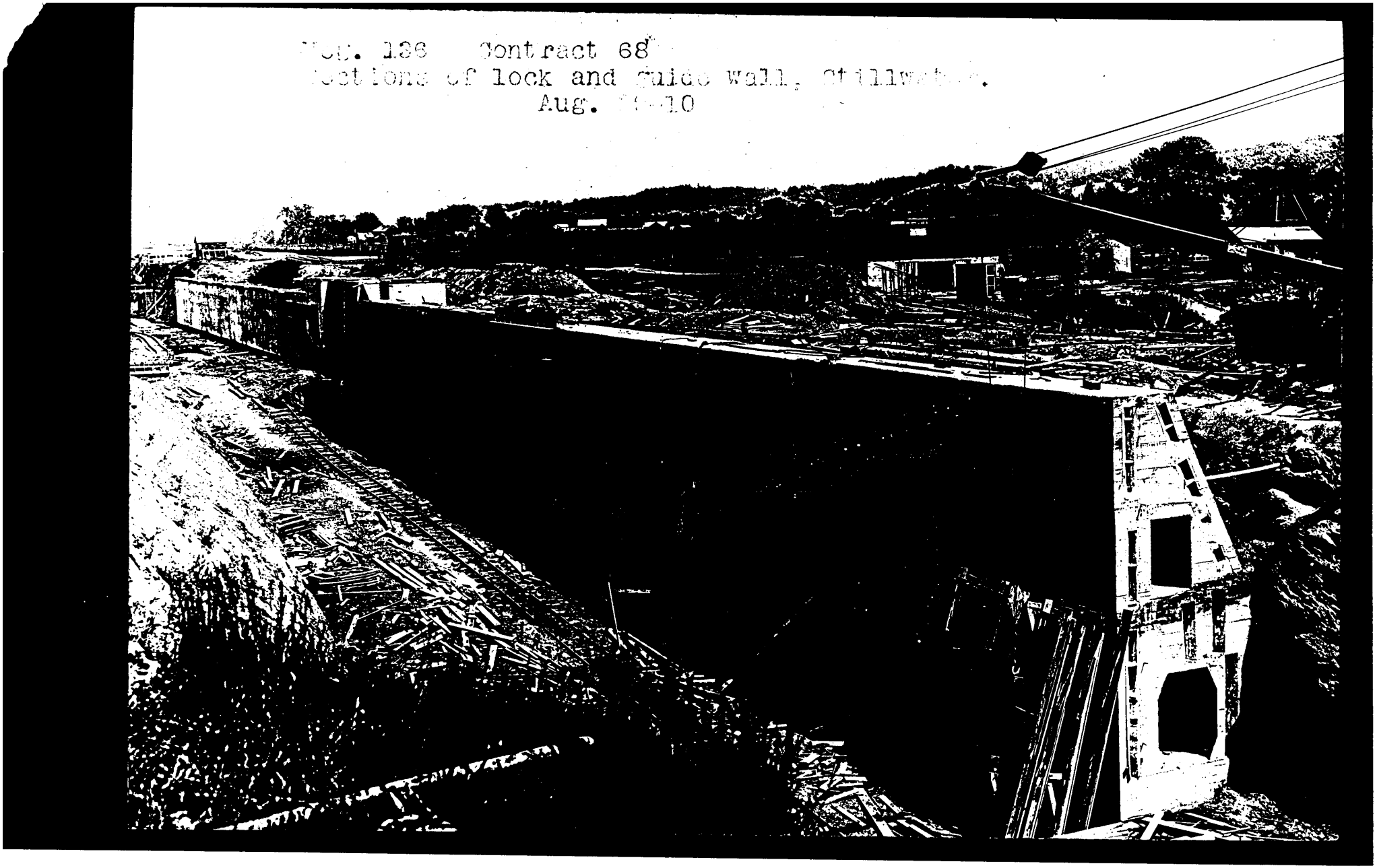
Neg. 1409 Contract 72
Cofferdam at mouth of Hoosick river, Mechanicville.
July 28-10

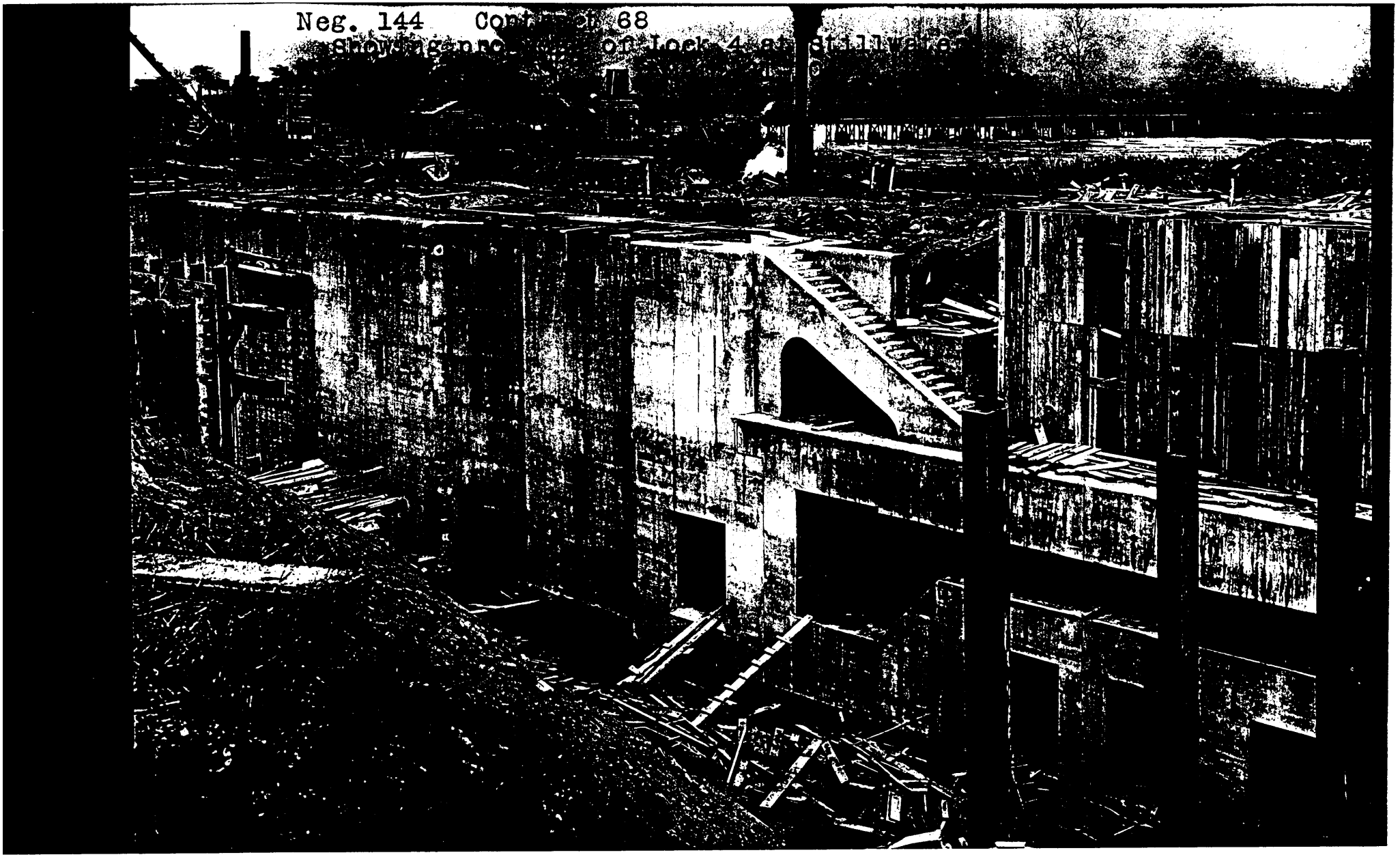


The first August 29 photo shows the excavation at the confluence of the rivers, showing Green Island and the Boston and Maine Railroad bridge in the distance. The guide and lock walls are now closer to completion.



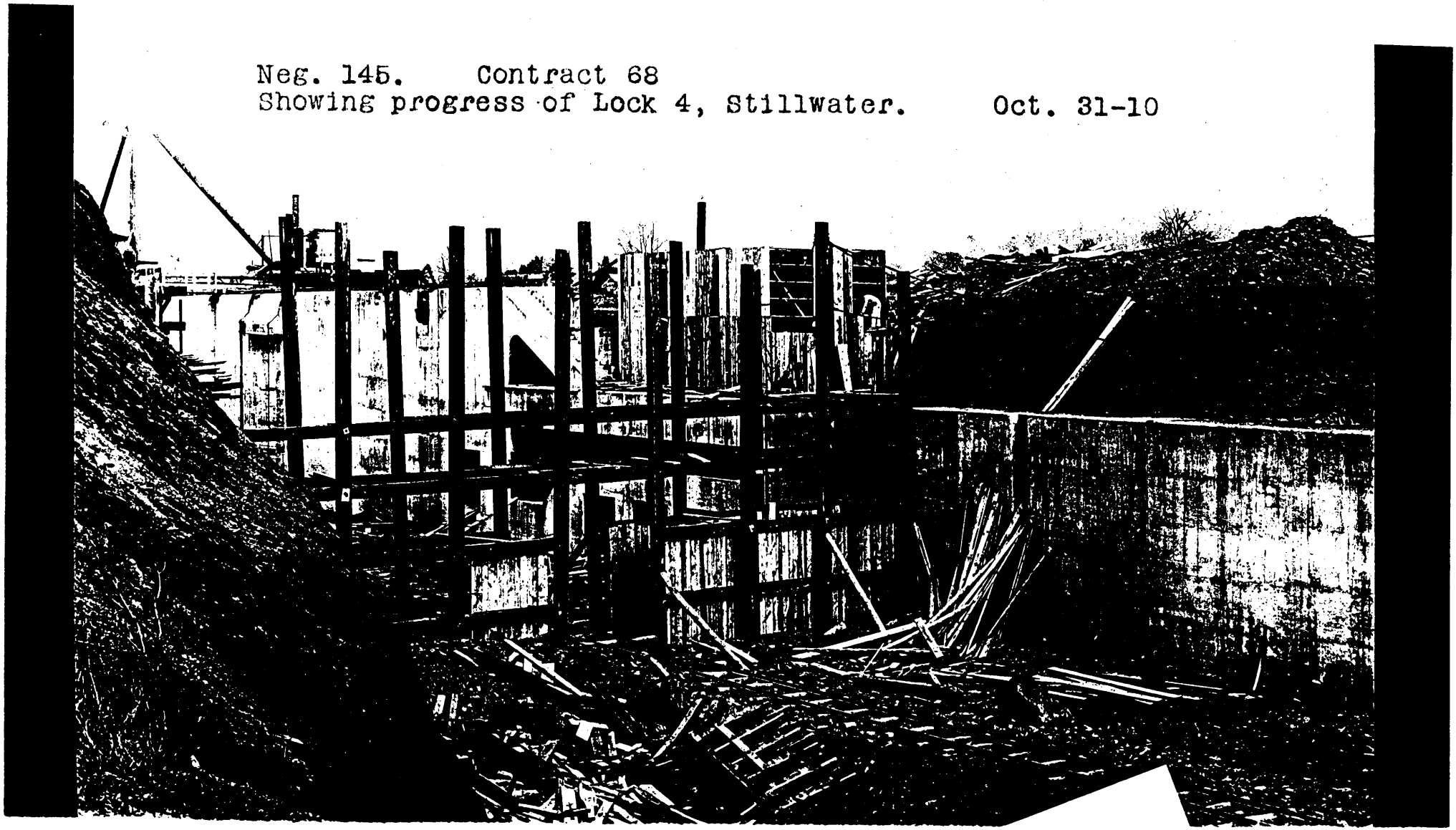

Contract 68
wing construction of guide walls, Stillwt
Aug. 29-10


Contract 68
Aug. 7-10

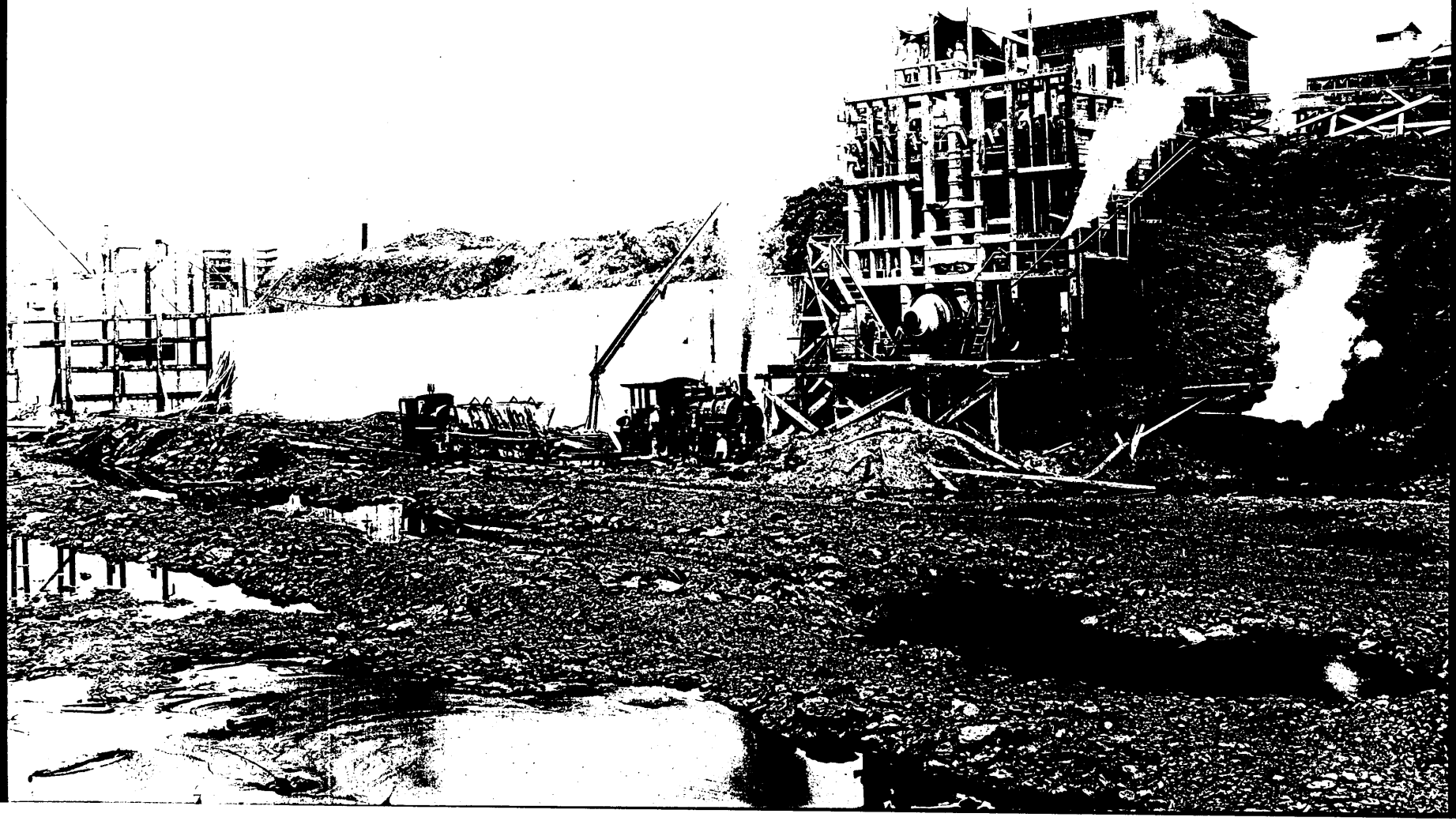

Neg. 144 Cont
68
on Lock 4 at Stillwater

Four photos taken on October 31 show the actual lock construction progressing well.

Neg. 145. Contract 68
Showing progress of Lock 4, Stillwater. Oct. 31-10



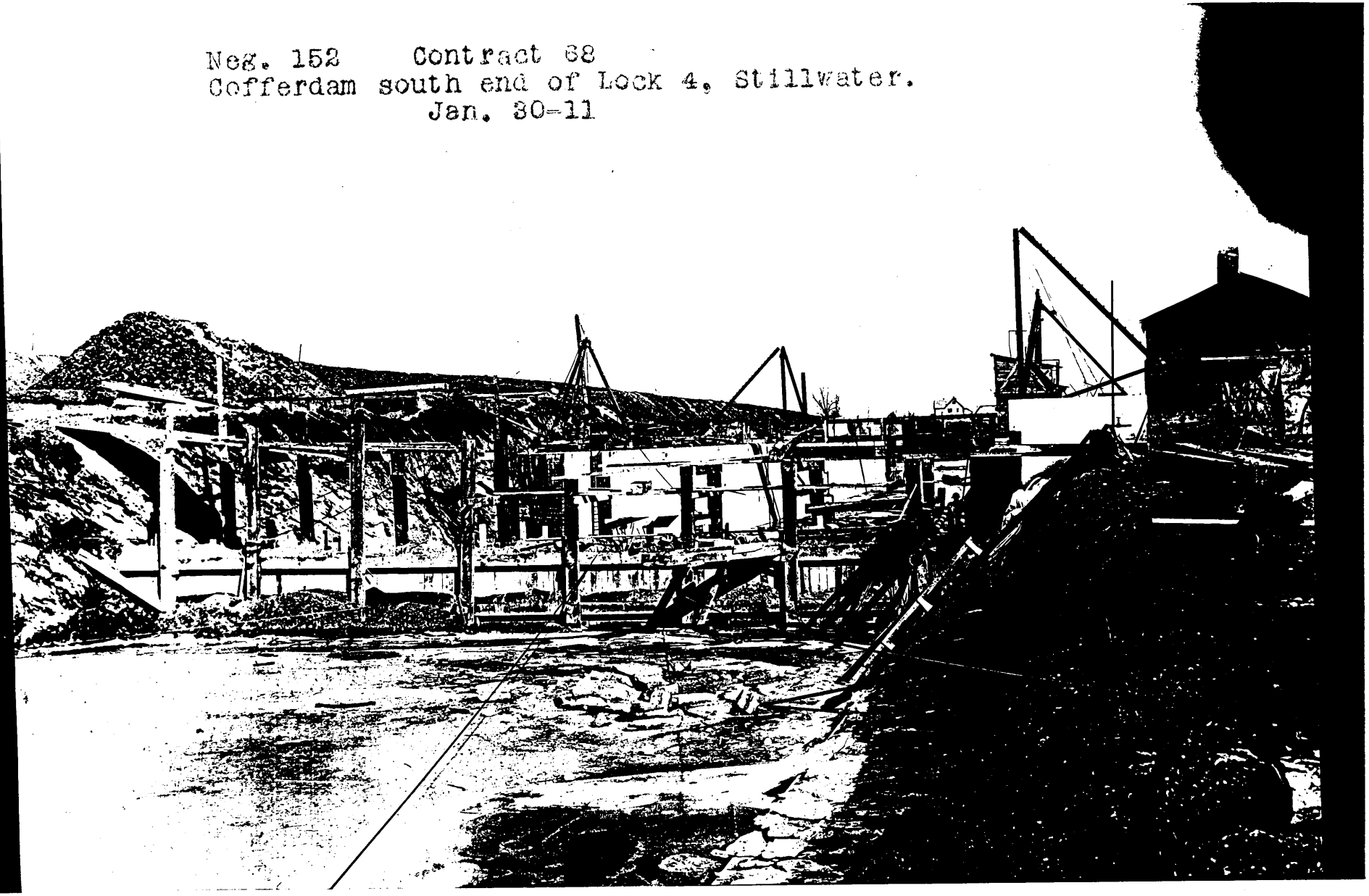
Neg. 146 Contract 68
Showing progress of Lock 4 Stillwater
Oct. 31-10




Neg. 147 Contract 68
Showing progress of Lock 4 at Stillwate
Oct. 31-10

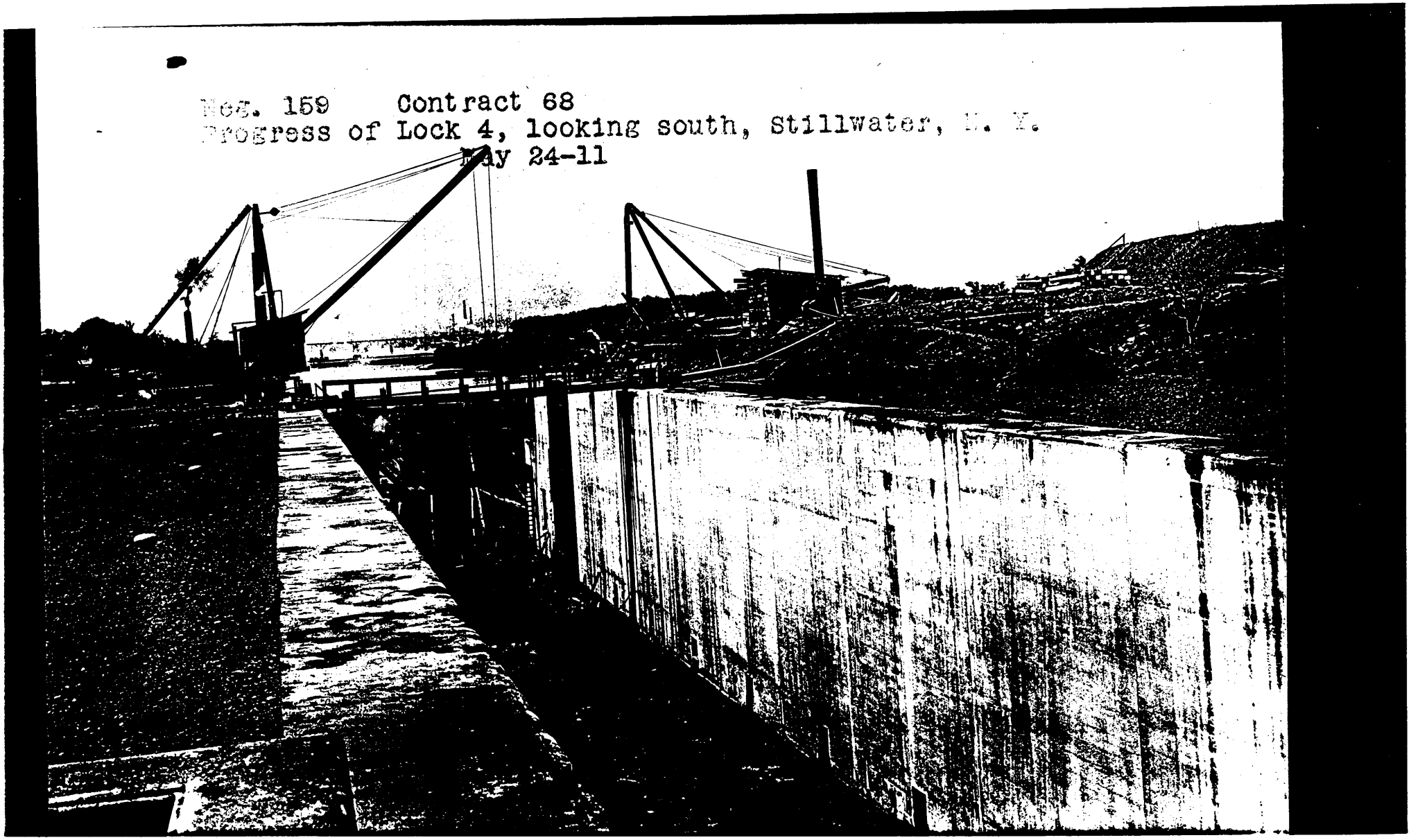
The first photo taken on January 30, 1911 shows a cofferdam to keep water from entering the south end of the lock. One span of the new steel highway bridge is now in place at this time, and work is beginning on the lock superstructure.

Neg. 152 Contract 68
Cofferdam south end of Lock 4, Stillwater.
Jan. 30-11

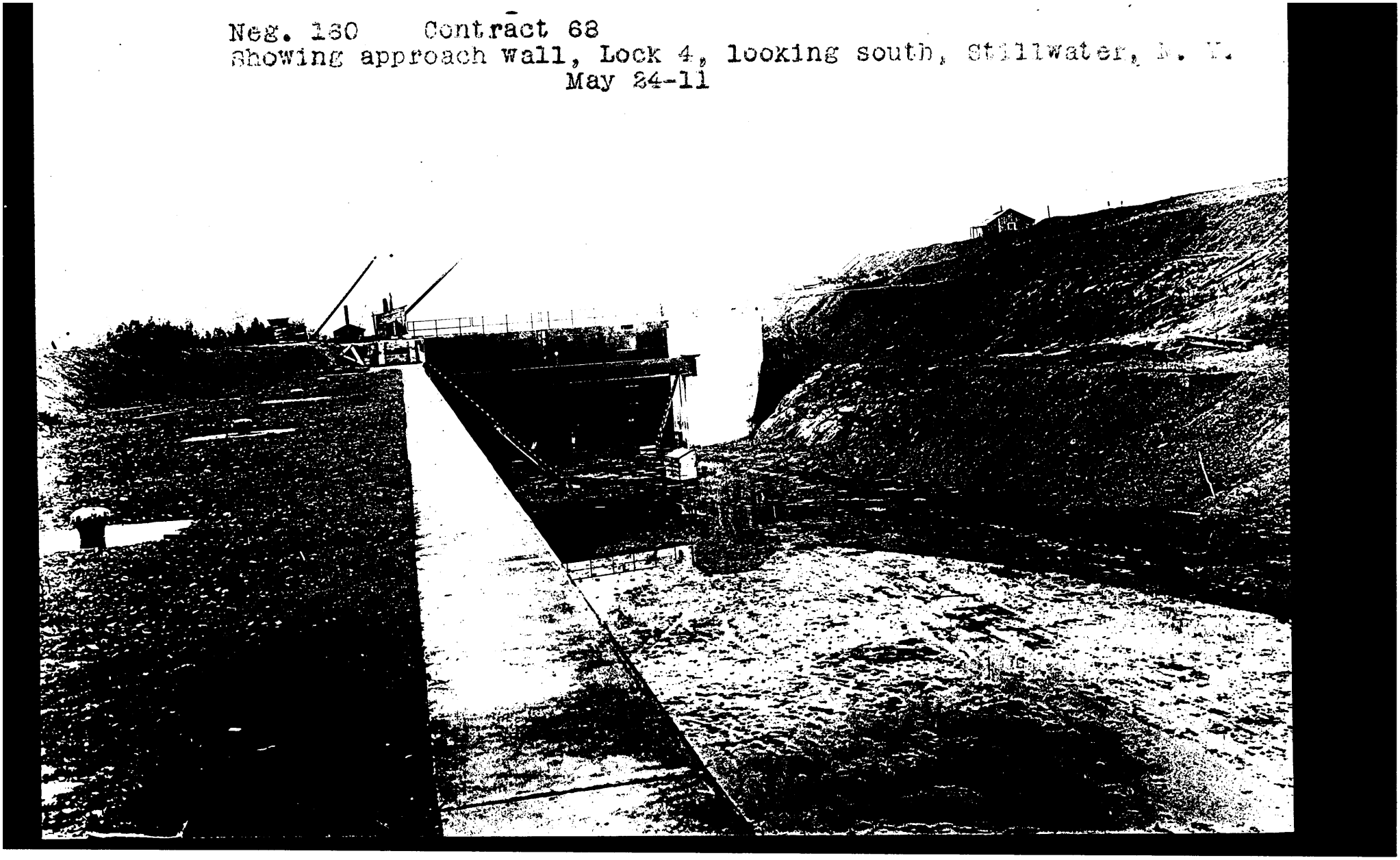


Neg. 154 Contract 68
General view of Lock 4. Stillwater.
Jan. 30-11

By the time these five photos were taken on May 24th, the lock was nearing completion. The huge doors were in place and final work was being done on the superstructure and the adjacent prisms.

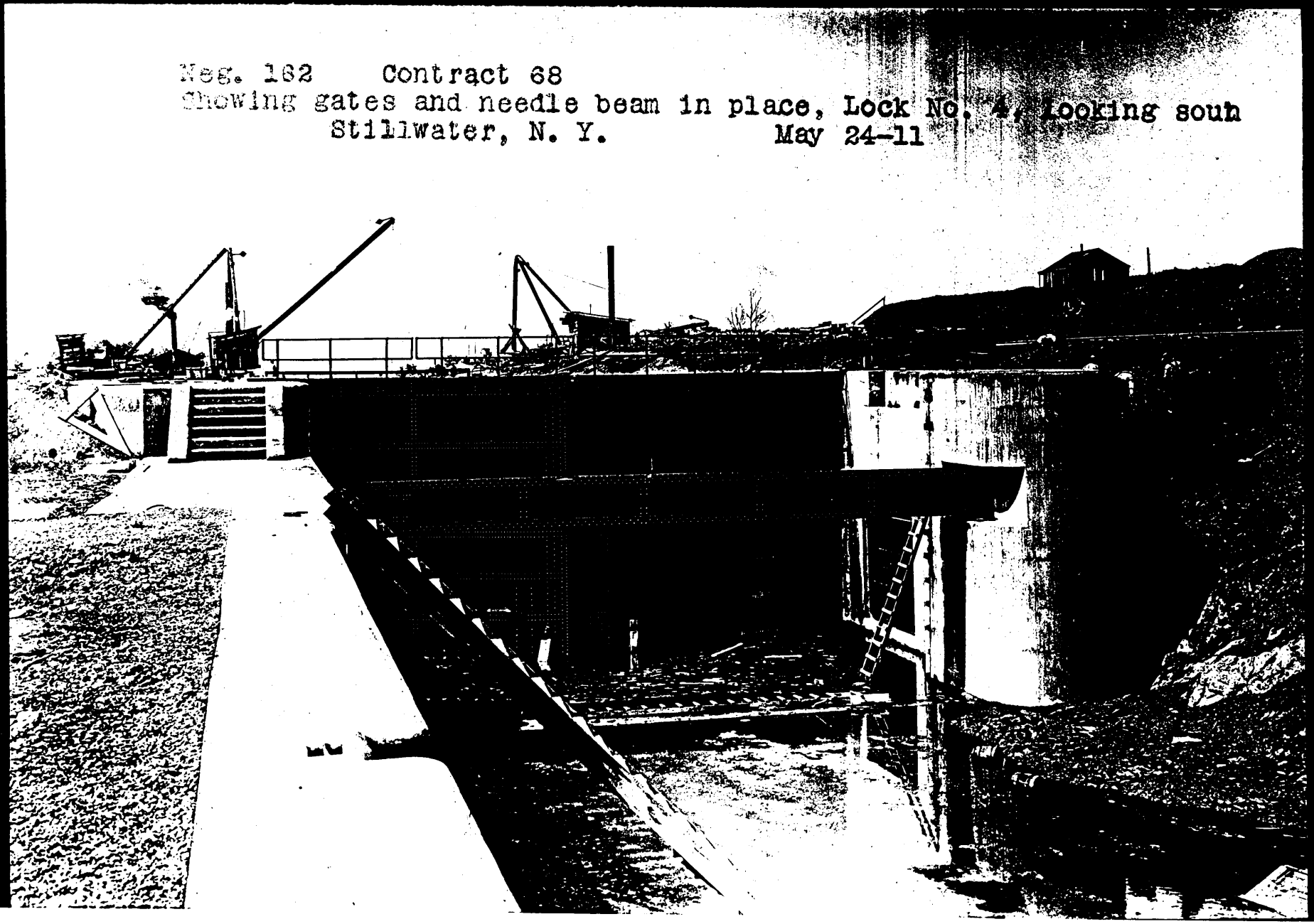

Neg. 159 Contract 68
Progress of Lock 4, looking south, Stillwater, N. Y.
May 24-11

Neg. 180 Contract 68
Showing approach wall, Lock 4, looking south, Stillwater, N. Y.
May 24-11

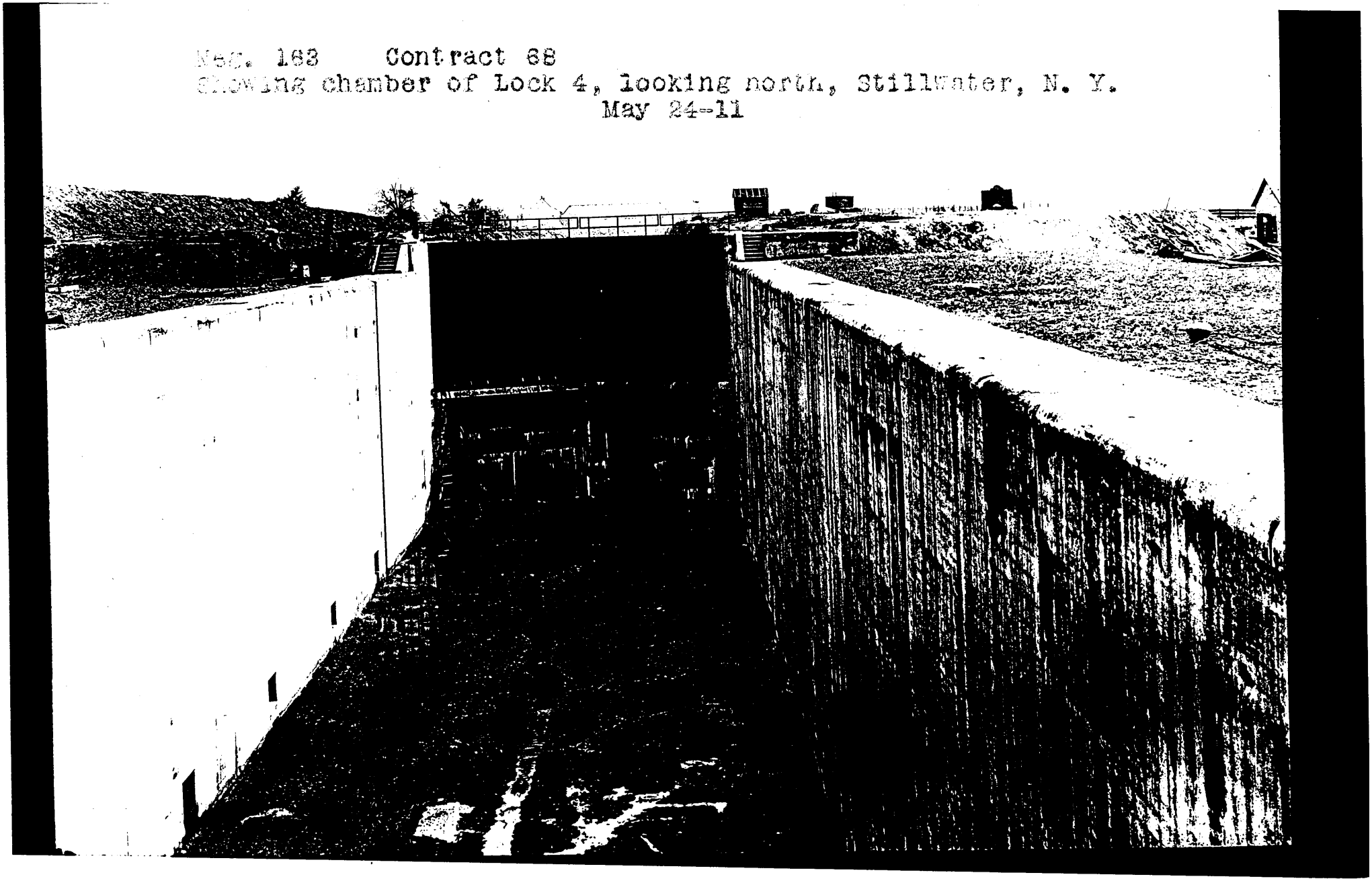


Neg. 161 Contract 68
Showing prism north of Lock 4, looking south, Stillwater, N. Y.
May 84-11

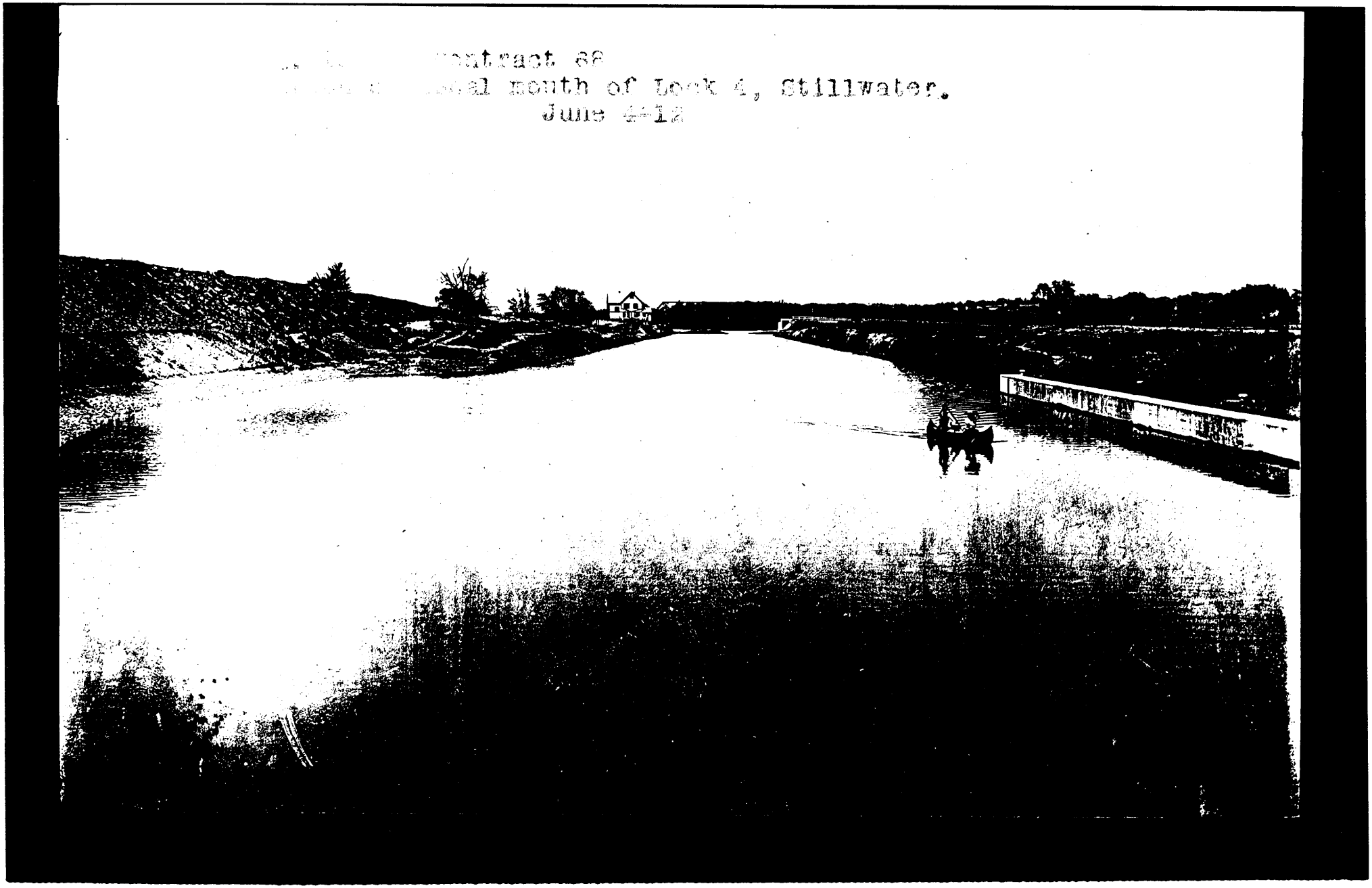
Neg. 182 Contract 68
Showing gates and needle beam in place, Lock No. 4, Looking south
Stillwater, N. Y. May 24-11



Neg. 183 Contract 68
Showing chamber of Lock 4, looking north, Stillwater, N. Y.
May 24-11



Work has been completed when the final photos were taken on June 24th, 1912. The first view looks east and shows the generating building which has been erected. The remains of the former Dwaas Kill are visible to the left. In the final view, looking towards the new Stillwater bridge and the old Kipp house, not yet demolished, canoeists enjoy the flat water in the canal prism.


Contract 66
Canal South of Lock 4, Stillwater.
June 4-12

Other Barge Canal Records Held By the New York State Archives

The New York State Archives holds series of records relating to New York State's Barge Canal that are not reproduced in this publication. Of these records, the following series are recommended for the information they contain relative to the canal's development and actual construction:

Series # B0253. Barge Canal sectional maps ("Schillner Maps"), ca. 1896. ca. 132 cu. ft. (71 maps) Arrangement: By location.

This series consists of 71 manuscript maps depicting land along the Erie, Champlain, and Oswego canals acquired by the State for canal purposes up to 1896. The maps are apparently the product of surveys conducted by the office of the State Engineer and Surveyor in response to Chapter 79 of the Laws of 1895, which appropriated nine million dollars for the improvement of the canals. These maps contain only selected information from the even more detailed surveys (see series B0396, page 44). Each sectional map provides detailed information on State-owned property, depicted as the area between two solid blue lines. The maps are especially important because they show, within dotted blue lines, the locations of the 1825 canal alignment and the related structures which had since been obliterated, such as locks, slips, dams, bridges, and roads. In addition they show city, town and county lines; streams, rivers, bodies of water and islands; property lines, along with names of owners and sometimes acreage of land; and streets, railroad lines, businesses and civic landmarks (ice companies, mills, cemeteries, etc.). The maps are commonly referred to as the "Schillner Maps" after George L. Schillner, who apparently supervised their execution in 1896. No scale is given, but figures mark canal frontage and survey measurements by number of chains (1 chain = 66 feet).

Series # A0867. Whiteprint copies of maps of lands permanently appropriated by the State for canal purposes ("blue line maps"), 1917-1948. 28 cu. ft. (69 portfolios containing ca. 850 maps) Arrangement: Geographical by portfolio and therein numerical by map number. Finding aids: A portfolio list provides inclusive map numbers and brief description of canal and geographic area.

This series consists of whiteprint copies of original survey maps, commonly referred to as "blue line maps," of land appropriated by the State for canal purposes. The maps depict in minute detail lands acquired for canal purposes up to and including the time of construction of the Barge Canal. The Department of Public Works (earlier the State Engineer and Surveyor) produced and retained the original maps and submitted whiteprint copies to the Comptroller and Secretary of

State. This set of maps was filed with the Comptroller. Laws of 1910 (Chapter 199) and 1917 (Chapter 51) authorized the production of "blue line maps" (the blue lines indicated boundaries of State-owned lands along the Erie, Champlain, Oswego, Black River, and Cayuga and Seneca canals) to minimize property disputes resulting from the construction of the Barge Canal. The maps depict inner angles of the towpaths on the old canal; property owned by the State prior to Barge Canal construction; property appropriated by the State for the Barge Canal project; locations of the old canal lines; location of the proposed Barge Canal; and various structures, roads, streets, and other landmarks and the names of owners of private property adjacent to the canal.

Series # B0171. Maps, blueprints, tracings, drawings, plans, and cross sections of canal structures and sites, ca. 1830-1947. 250 items Arrangement: None.

These records primarily concern the Barge Canal system and its feeders. There are also items depicting the old Erie Canal and lesser canals such as the Black River Canal. The majority of maps depict various canal structures such as bridges, diversion channels, dams, sewers, locks, culverts, stop gates, and aqueducts. The remaining records show land patents, locations of towns and villages, land claims, towpath locations, and streets in cities where canals were situated.

Series # A1277. Notices of service upon owners of lands appropriated for the Barge Canal, 1906-1916. .8 cu. ft. (3 volumes)

Series # B0338. Depositions regarding notices of land appropriations for Barge Canal purposes, 1913-1916. .3 cu. ft. (1 volume) Arrangement: Chronological by date of deposition.

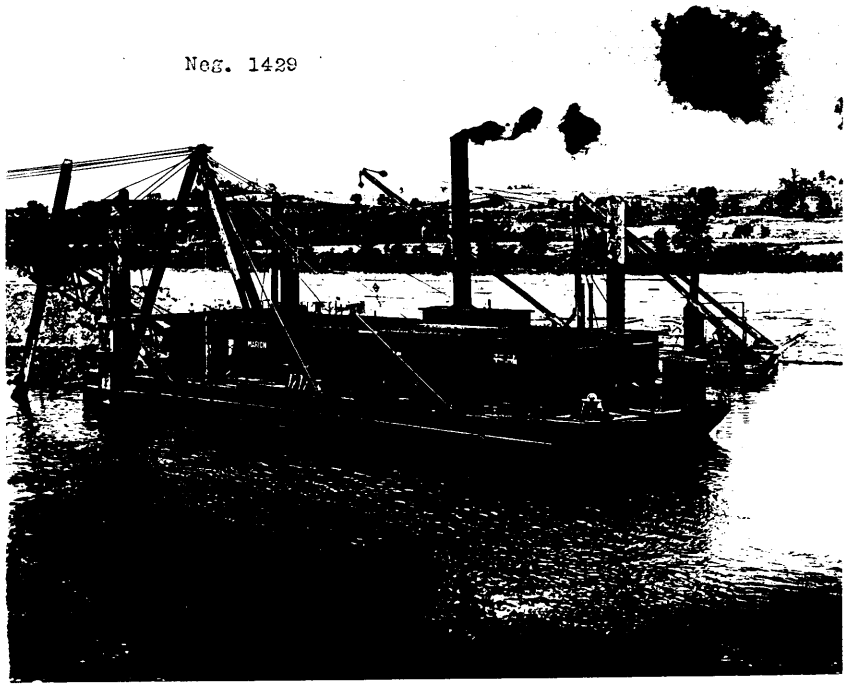
Three volumes contain carbon copies of affidavits of annexed notices of appropriations of property by the State. The affidavit is signed by an employee of the Department of Public Works (on behalf of the Superintendent of Public Works) and states that the Department under a law of 1903 has annexed the lands described and is thereby informing the owner of the land in writing as the Department has been unable to reach the owner in person. These affidavits contain detailed descriptions of the land to be appropriated by the State for Barge Canal purposes pursuant to laws of 1903, 1909, and 1911. An insert in the beginning of volume 1905-1911 dated March 13, 1905 entitled "Procedure in taking possession of lands under Chapter 147 of the Laws of 1903" describes in detail the procedures and policies involved.

Series # B0233. Card index to locations of Barge Canal construction records, 1917-1921. 1

cu. ft. Arrangement: Alphabetical by subject.

These 5" x 7" and 5" x 8" index cards list locations of various Barge Canal construction records, including maps; terminal field books; final estimates for both terminal and Barge Canal contracts; Barge Canal field computation, construction, and cross section books; and unidentified "sheets." The office of State Engineer and Surveyor apparently compiled the index to account for the whereabouts of the working documents relating to construction of the Barge Canal. It is not known exactly which series are being indexed. Most of the field, computation, construction, and cross section books indexed are held by the State Archives. Cards indexing the field, computation, construction, and cross section books provide book number, to whom given, date, purpose, and "where now filed." Cards indexing terminal and Barge Canal contract final estimates provide a brief description of what comprises the estimates, number of pages, total number of "sheets," location, and usually the date when the inventory occurred. Index cards to the maps provide a description of the map and an unidentified set of numbers.

The steam dredge "Marion" was constructed on-site at Mechanicville and used to deepen and widen the channel between Lock 3 and Lock 4 under Contract #72.



Visit Lock 4 Canal Park

Lock 4 Canal Park is open when the State Canal System is operative, usually between ;ay 1 and November 30. Visit the park and hike the 1.5 mile nature trail along the bluff 'erlooking the junction of the Hoosic and Hudson Rivers. Bring a picnic lunch and watch)ats "lock through" from an observation platform. Explore the passages between the ainland and islands by canoe, using the canoe launch at Stillwater just below the dam and 'droelectric plant. The scenery is most impressive in spring when water is running over the oosic River rapids, and in the fall when foliage color has arrived. Explore the gorge of oosic River when the water level is low in summer, and fish from the tip of the peninsula ' the former Vandenburgh's Island, at the end of the nature trail.

To visit one the state's lesser-known but highly scenic state parks, enter from County)ute 125, also known as Stillwater Bridge Road. Just east of the canal crossing the ıtrance road leads south to the lock and park. (NOTE: Do not take the road south of CR !5 immediately east of the Hudson River bridge and west of the canal bridge.) In spite of ajor changes to the natural landscape resulting from the canal's construction, time has :aled the wounds created by the massive excavation shown in the ca. 1910 construction ıotos, and the area is a scenic and serene place again today.

For further information on the New York State Canal system, contact the New York ate Canal Corporation, 200 Southern Boulevard, PO Box 189, Albany, NY 12201-0189 hone: 1-800-422-6254 or 518-471-5011) (website: http://www.canals.state.ny.us) The ıone number for Champlain Lock 4 is 518-664-5261.