NPS Form 10-900 OMB No. 1024-0018
(Rev. 10-90)

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
REGISTRATION FORM

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

1. Name of Property

historic name Chicago Sanitary and Ship Canal Historic District
other names/site number Chicago Drainage Canal

2. Location (see continuation sheets for additional information: Pages 1–3)

street & number Illinois Waterway mi. 290.0–321.7; bounded by the embankment edge _ not for publication N/A
city or town Chicago vicinity X
state Illinois code IL county Cook code 031 zip code 60608

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ____ nomination ____ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ____ meets ____ does not meet the National Register Criteria. I recommend that this property be considered significant ___ nationally ___ statewide ___ locally. (___ See continuation sheet for additional comments.)

Signature of certifying official Date

State or Federal agency and bureau

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

Signature of commenting or other official Date

State or Federal agency and bureau

4. National Park Service Certification

I, hereby certify that this property is:

____ entered in the National Register ________________________ __________
___ See continuation sheet.
____ determined eligible for the National Register ________________________ __________
___ See continuation sheet.
____ determined not eligible for the National Register ________________________ __________
____ removed from the National Register ________________________ __________

____ other (explain): __________________

____________________________________ ________________________ __________
Signature of Keeper Date of Action

5. Classification

Ownership of Property (Check as many boxes as apply)

___ private
_X_ public-local
___ public-State
_ _ public-Federal

Category of Property (Check only one box)

___ building(s)
_X_ district
___ site
___ structure
___ object

Number of Resources within Property

Contributing	Noncontributing	
2	3	buildings
1		sites
6	41	structures
		objects
9	44	Total

Number of contributing resources previously listed in the National Register 5

Name of related multiple property listing (Enter "N/A" if property is not part of a multiple property listing.) Illinois Waterway Navigation System Facilities

6. Function or Use

Historic Functions (Enter categories from instructions)

Cat:	Sub:
Transportation	water-related
Extraction	energy facility
Extraction	waterworks
Government	public works

Current Functions (Enter categories from instructions)

Cat:	Sub:
Transportation	water-related
Extraction	waterworks
Government	public works
Extraction	energy facility

7. Description

Architectural Classification (Enter categories from instructions)

- Other: canal
- Other: dam
- No style: controlling works

Materials (Enter categories from instructions)

foundation	Brick
roof	Ceramic tile
walls	Stone: limestone
	Masonry: quartzite brick
other	Concrete
	Metal: steel

Narrative Description (Describe the historic and current condition of the property on one or more continuation sheets.)
Pertinent information is available on the continuation sheets: Pages 4–35.

8. Statement of Significance

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

_X__ A Property is associated with events that have made a significant contribution to the broad patterns of our history.

____ B Property is associated with the lives of persons significant in our past.

_X__ C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

_X__ D Property has yielded or it is likely to yield information important in prehistory or history.

Criteria Considerations (Mark "X" in all the boxes that apply.)

____ A owned by a religious institution or used for religious purposes.

____ B removed from its original location.

____ C a birthplace or a grave.

____ D a cemetery.

____ E a reconstructed building, object, or structure.

____ F a commemorative property.

____ G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance (Enter categories from instructions)
Community Planning and Development
_Maritime History
_Transportation
_Engineering
_Commerce
_Architecture

Period of Significance _1892–1951

Significant Dates _1892
_1895
_1908

Significant Person (Complete if Criterion B is marked above)
_N/A

Cultural Affiliation _N/A

Architect/Builder _Randolph, Isham
_Wisner, G. M.

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

Pertinent information is available on the continuation sheets: Pages 36–45.

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9. Major Bibliographical References

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

Pertinent information is available on the continuation sheets: Pages 46 and 47.

Previous documentation on file (NPS)
___ preliminary determination of individual listing (36 CFR 67) has been requested.
_ _ previously listed in the National Register
___ previously determined eligible by the National Register
___ designated a National Historic Landmark
___ recorded by Historic American Buildings Survey # __________
___ recorded by Historic American Engineering Record # __________

Primary Location of Additional Data
___ State Historic Preservation Office
___ Other State agency
_X_ Federal agency
___ Local government
___ University
___ Other
Name of repository: _U.S. Army Corps of Engineers, Rock Island District_

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10. Geographical Data

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Acreage of Property _1,128.4 ac_

UTM References (Place additional UTM references on a continuation sheet)
Beginning at the southwest corner of the district and moving clockwise: NAD 83

	Zone	Easting	Northing		Zone	Easting	Northing
1	16	410,079	4,600,867	3	16	410,994	4,604,673
2	16	410,182	4,602,906	4	16	411,470	4,608,245

_X_ See continuation sheet. Page 48

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

Pertinent information is available on the continuation sheets: Pages 48 and 49.

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

Pertinent information is available on the continuation sheets: Page 50.

11. Form Prepared By

name/title _Branden K. Scott/ Archeologist, Principal Investigator

e-mail address_branden@bearcreekarcheology.com_

organization _Bear Creek Archeology, Inc.___________ date_01/11/2010_ __________

street & number _P.O. Box 347______________________ telephone_(563) 547-4545__

city or town _Cresco_________________________ state _IA zip code _52136_______

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets

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

Photographs
Representative black and white photographs of the property.

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

Property Owner

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

street & number___________________________________ telephone_________________

city or town__________________________________ state_____ zip code __________

Section 2: Location

The Chicago Sanitary and Ship Canal Historic District encompasses area in multiple counties in the Chicago Metropolitan area. Only one address is available for the district, the address of the Lockport Lock, Dam, and Power House, is 2502 Channel Drive, Lockport, Illinois, 60441. This address occurs near the southern terminus of the district. The eastern extent of the Chicago Sanitary and Ship Canal Historic district is the South Branch of the Chicago River. The joining of the Chicago Sanitary and Ship Canal to the South Branch of the Chicago River occurs approximately 75 m (246.1 ft) east of the Ashland Avenue Bridge.

The Chicago Sanitary and Ship Canal Historic District resides in Cook County (County Code 031), DuPage County (County Code 043), and Will County (County Code 197), all within the state of Illinois. The historic district is better defined as the navigable Illinois Waterway river miles 290.0 to 321.7 (Figures 1 and 2.1–2.13).

The Chicago Sanitary and Ship Canal Historic District passes through many zip codes. Table 1 below outlines these city locations. The historic district has only one location where an address is available (see above), and the rest of the canal's stretch is in the vicinity of the communities listed below.

Table 1. Cities and counties associated with the Chicago Sanitary and Ship Canal Historic District

City	State	State Code	County	County Code	Zip Code
Chicago	Illinois	IL	Cook	031	60608
Chicago	Illinois	IL	Cook	031	60623
Chicago	Illinois	IL	Cook	031	60632
Stickney	Illinois	IL	Cook	031	60804
Forest View	Illinois	IL	Cook	031	60402
Lyons	Illinois	IL	Cook	031	60402
Lyons	Illinois	IL	Cook	031	60525
Summit	Illinois	IL	Cook	031	60501
Hodgkins	Illinois	IL	Cook	031	60525
Justice	Illinois	IL	Cook	031	60458
Willow Springs	Illinois	IL	Cook	031	60480
Lemont	Illinois	IL	Cook	031	60439
Lemont	Illinois	IL	DuPage	043	60439
Romeoville	Illinois	IL	Will	197	60441
Lockport	Illinois	IL	Will	197	60441

Table 2 itemizes the Chicago Sanitary and Ship Canal Historic District's contributing resources, contributing elements, and non-contributing elements. Non-contributing resources and exact locations of contributing/non-contributing elements are described elsewhere.

Table 2. Resources and elements along the Chicago Sanitary and Ship Canal Historic District

Contributing Resource	Contributing Elements	Non-Contributing Elements/Structures	River Mile(s)
Main Channel (n=1 structure)	Rock cut walls Earthen walls Laid-up limestone walls Commemorative plaque Original spoil piles Main Channel Extension	**Structures:** Bridge abutments (n=6) Unassociated development (n=2) Bridges (n=34) **Elements:** Sheet pile walls Sunken barges Riprap Timber walls Concrete walls Vegetation	290.0–321.7
Lockport Lock, Dam, and Power House Historic District (n=2 buildings, n=3 structures)	Previously documented resources (Sanitary District of Chicago Lock, New Lock, Control Station, Lockport Dam, Lockport Power House)	**Structures:** Garage (n=1) Maintenance building (n=1)	291.1
Willow Springs Spillway (n=1 structure)	Arched intakes Spillway crest Laid-up limestone walls	**Elements:** Vegetation Fill behind spillway	307.3
Butterfly dam remnant (n=1 site)	Dam foundation Dam house foundation	None	293.1
Lockport Controlling Works (n=1 structure)	Sluice gates Sluice gate bays Bear trap dam remnant	**Elements:** Small steel addition	293.2

Section 7: Description

The Chicago Sanitary and Ship Canal Historic District is comprised of nine contributing resources. These resources include four newly described resources and five resources listed on the National Register of Historic Places as the Lockport Lock, Dam, and Power House Historic District[1]. The contributing resources include the Main Channel, Lockport Controlling Works, Butterfly Dam remnant, Willow Springs Spillway, Lockport Lock, Dam, and Power House Historic District, Chicago Sanitary District Lock, New Lock, Lockport Power House, Lockport Dam, and Lockport Controlling Station. The Main Channel has multiple contributing elements including rock and earthen walls, a commemorative plaque, laid-up limestone walls, original spoil piles, and the Main Channel Extension (incorporated into the Main Channel). Non-contributing elements of the Main Channel are many and include sheet pile walls, sunken barges, riprap, timber walls, concrete walls, overgrown earthen walls, unrelated storage tanks and sheds, industrial/commercial buildings, bridge abutments, and bridges that span the canal but are not incorporated into the canal design or directly associated with the Chicago Sanitary and Ship Canal or Illinois Waterway. The Lockport Lock, Dam, and Power House Historic District has two non-contributing buildings, a garage and maintenance building.

Spanning approximately 51 km (31.7 mi) between Illinois Waterway River miles 290.0 and 321.7, the Chicago Sanitary and Ship Canal Historic District crosses through the cities of Lockport, Romeoville, Lemont, Willow Springs, Justice, Hodgkins, Summit, Lyons, Forest View, Stickney, and Chicago. The district is approximately 120 m (393.7 ft) wide, incorporating not only the canal but also much of the area used during the canal's construction. The canal resides at 578 ft according to the National Geodetic Vertical Datum and maintains this elevation throughout most of the channel. The district occurs in two Illinois physiographic regions: Chicago Lake Plain and Wheaton Morainal Plain. The Chicago Lake Plain is a relatively flat region formed by glacio-lacustrine deposits from glacial Lake Chicago. The Wheaton Morainal Plain is comprised of gently rolling Wisconsinan-age moraines that have a typical orientation parallel to Lake Michigan. Glacial deposits cover much of the district's area. These glacial deposits are underlain by undifferentiated Silurian-Devonian dolomite and limestone as well as Ordovician shale from the Maquoketa Shale Group. The basal bedrock for the entire region consists of Precambrian granite. The overall topography of the area surrounding the district is flat (due to lake sediments) with slightly undulating areas near the southwestern segment of the district (glacial drift and moraines). The Chicago Sanitary and Ship Canal is fed by the South Branch of the Chicago River at Ashland Avenue (Illinois Waterway river mile

321.6), which unnaturally derives much of its water from Lake Michigan. The canal is further fed by the Cal-Sag Channel, which enters the system northwest of Lemont (Illinois Waterway river mile 303.4). The canal eventually drains into the Des Plaines River at Lockport (Illinois Waterway river mile 290.0). Because the Chicago Sanitary and Ship Canal Historic District spans a large area, a mosaic of rural, industrial, and urban landscapes are visible from the canal banks. Beginning at Lockport, the canal flows through rural areas marked with the occasional industrial development. Industry along the banks increases around Romeoville. The rural landscape returns north of Lemont, where industrial elements reduce in quantity. This type of landscape is present north of Willow Springs as well. The area surrounding the canal changes drastically upstream, representing a bustling urban and industrial area with its beginning north of Lyons-Sumner Road/Archer Avenue stretching east through Chicago. Vegetation along the canal is variable. In rural settings, vacant ground, trees, brush, and grasses are present near the banks. In industrial and urban areas, industrial buildings, docks, slips, vacant areas, some trees, brush, and grasses flank the canal. Near the confluence of the Chicago Sanitary and Ship Canal and Cal-Sag Channel, a park-like setting consisting of grass with interspersed trees and brush occurs at the Metropolitan Water and Reclamation District Filtration Plant. The area north of Lyons-Summit Road/Archer Avenue has grass covering portions of the canal banks, industry built along the channel, slips, docks, and some abandoned/sunken barges, many of which were used as sailing clubs in the recent past. Near Cicero Avenue, industrial trash, metal mooring bits, and stair remnants litter the canal banks. As the Chicago Sanitary and Ship Canal Historic District snakes its way through most of the Chicago Metropolitan area, the sights and sounds along the canal evolve drastically. Physiographic regions change, vegetation is altered, and the current land-use shifts from nearly undeveloped areas to a lively and thriving urban landscape. A more detailed assessment of the resource’s setting is provided in each resource description. For the sake of organization, the setting of the canal itself is described by each major construction segment.

To accomplish the goals for the description section of this nomination, each contributing resource will be described in detail and an argument will be made for the inclusion of each contributing resource to the Chicago Sanitary and Ship Canal Historic District. The contributing resources to be discussed (by order of construction) are the Main Channel, Lockport Controlling Works, Butterfly Dam remnant, Willow Springs Spillway, and Lockport Lock, Dam, and Power House Historic District. Following the discussion of each contributing resources, the non-contributing resources of the district as a whole are presented as well as the alterations affecting the district.

Main Channel

The Main Channel is the largest resource in the Chicago Sanitary and Ship Canal Historic District (Figure 1). It extends approximately 51 km (31.7 mi) between Illinois Waterway river miles 290.0 and 321.7. It inhabits a variety of settings including relatively rural areas, urban neighborhoods/commercial centers, and industrial zones. The Main Channel nearly bisects the city of Chicago as it follows alongside the Des Plaines River. The canal is fed by Lake Michigan via the Chicago River. This required not only the connection of the canal to the river, but also the flow reversal of the Chicago River away from Lake Michigan toward the Illinois Waterway. The Main Channel of the Chicago Sanitary and Ship Canal opened a navigable route from the Great Lakes to the Mississippi River, allowing commerce and trade to prosper throughout the Illinois Waterway Navigation System. The canal was constructed between 1892 and 1899 under the principal direction of Chief Engineer Isham Randolph, who was employed by the Sanitary District of Chicago[2]. The facilities operated by the Metropolitan Sanitary District of Greater Chicago (the successor of the Sanitary District of Chicago) were named one of the seven engineering marvels of the United States by the American Society of Civil Engineers in 1955[3]. The construction methods devised to build the canal (colorfully named the Chicago School of Earth Moving) were used on larger earth-moving projects, with the most notable being the Panama Canal. The Main Channel has multiple contributing elements, including cut natural rock walls, laid-up limestone walls, a commemorative plaque, original spoil piles, Main Channel Extension, and original earthen walls. The canal was constructed in various segments with sections beginning at Lockport and making its terminus at the South Branch of the Chicago River. The excavation segments include the rock wall segment (of which the Main Channel Extension is included), earth and rock segment, and earth segment. The descriptions of these various segments are presented as they were originally completed. Alterations to the Main Channel are described by excavation segment.

Rock Wall Segment

The rock wall segment of the Chicago Sanitary and Ship Canal extends between Illinois Waterway river miles 290.0 and 307.8, between Lockport and Willow Springs Road (Figures 1 and 3–8). In the rock cut segment, the canal has a width of 48.8 m (160 ft) at the base of the canal and 49.4 m (162 ft) at the water line. The depth of the canal is approximately 6.7 m (22 ft). The defining characteristics of this segment are the cut, Niagaran dolomite and limestone walls, and laid-up limestone walls. The natural limestone walls are relatively smooth vertical planes. Slightly angled laid-up limestone rubble and mortared stones were used when the bedrock was not near enough to the surface for the structural demands of the channel. Occasionally, former stream crossings and seeps cut into the rock cut walls, particularly near river mile 294.3. These erosional features have been filled with laid-up stone and concrete thought to date to the time of the Main Channel Extension (1903–1908)[4]. Concrete wall handholds are also visible in the canal wall. These handholds occur around river mile 292.9 and extend past river mile 293.7. At Illinois Waterway river mile 299.0, a contributing feature to the Main Channel resource occurs on the right descending side of the canal (Figure 2.5). At this location, a commemorative tablet made from polished granite has raised lettering reading “THE SANITARY DISTRICT OF CHICAGO SECTION 10 GROUND BROKEN SEPTEMBER 3, 1892 COMPLETED SEPTEMBER 3, 1895”. Additionally, the Lockport Controlling Works (described below) occurs in the rock wall segment and Willow Springs Spillway (described below) occurs in the transitional zone between the rock wall segment and earth and rock segment.

The construction of the rock segment of the Main Channel consisted of removing glacial drift overlying the bedrock and then cutting through the bedrock. This construction project was opened for bid in June of 1892. “Shovel Day”, marking the beginning of construction (although construction had already begun) occurred on September 3, 1892[5]. Because of the cost of the project (just under $13,000,000 on this segment alone), the rock wall segment was split into 14 sections with a 15th section added later[6]. To remove the rock, channel machines were employed to cut vertical slots in the rock. Blasting powder was then inserted into the cuts. An estimated 9,175,000 m^3 (12,000,000 yd^3) of rock was cut and blasted from this segment[7]. The first contract for section 15 was awarded in the fall of 1894[8]. This extended the canal 6.4 km (4 mi) upstream from the canal’s downstream terminus near Lockport. While construction of the rock segment of the canal was hindered by an earthquake in 1895, contractor delays, violence and vandalism caused by disappointed job seekers, and unintended combustion of organic soil, the rock wall segment of the Main Channel was completed in 1899[9]. A second phase of the rock segment began in 1903. This segment, known as the Main Channel Extension, included a 3.3 km (2 mi) canal extension, Lockport Powerhouse, and Sanitary District of Chicago Lock. Construction of the Main Channel Extension ended in 1908.

The present condition of the rock wall segment is good, and the area surrounding the canal is variable in development and vegetation (Figures 2.1–2.8). Beginning at the southwestern extent at Lockport and proceeding upstream, the right descending side of the canal has some concrete rubble and some trees around Illinois Waterway river miles 290 and 291 between the Des Plaines River and Chicago Sanitary and Ship Canal. Proceeding north and east along the canal, the Lockport Lock, Dam, and Power House Historic District is encountered. The left descending side is tree lined and the trees mask railroad tracks and the I & M Canal. The railroad tracks exist just outside the boundaries of the district. Proceeding upstream on the right descending side (between Illinois Waterway river miles 292 and 294), trees dominate the vegetation between the Des Plaines River and Chicago Sanitary and Ship Canal. Two structures jet into the water outside the district boundaries just south of West 9th Street. The right descending side of the canal remains tree-lined between the river and canal between Illinois Waterway river miles 292.0 and 296.0, but commercial development is present behind the tree line. These commercial structures exist outside the district boundaries. North of the Lockport Controlling Works, industrial areas take hold of the right descending side in addition to quarries. Adjacent to the edge of the canal, concrete occurs, and the industrial and quarry elements fall outside the district boundaries. On the left descending side, trees hide the I & M canal, which exists outside the district boundaries. Additionally, trees and grasses hide industrial areas and railroad tracks on the left descending side. Continuing upstream between Illinois Waterway river miles 296.0 and 299.0, north of Romeoville Road on the right descending side, trees and brush cover the bankline and extend toward the Des Plaines River. This tree and brush cover grades to thicker trees. The trees continue until the Veteran's Memorial Bridge (under construction) where the bankline opens to an industrial area east of the bridge. On the left descending side of this segment, railroad tracks and industrial areas reside between the Chicago Sanitary and Ship Canal and I & M Canal. By river mile 299.0, the left descending side has become primarily industrial. Between Illinois Waterway river miles 299.0 and 301.0, industry dominates both sides of the canal. On the right descending side, Industrial Park Drive and railroad tracks occur. Some of this area is brush/grass covered while other parts are covered in concrete. The left descending side is similar to the right descending side, except when the canal reaches Lemont Bridge. Northeast of Lemont Bridge, trees take over the bankline vegetation. Between Illinois Waterway river miles 301.0 and 304.0, industrial development dominates the right descending side. The left descending side is mostly brushy with some gravel. These areas become tree covered closer to river mile marker 304. Southwest of Kingery Highway Sanitary and Ship Canal Bridge, Cal-Sag Channel enters the canal, and a water treatment plant exists at the confluence of these two engineered waterways. The water treatment plant is outside the current district boundaries. Between Illinois Waterway river miles 304.0 and 308.0, the right descending side of the canal consists of tree cover between the canal and Des Plaines River, and the left descending side of the canal is mostly tree covered with some minor industrial areas. Additionally, the Centennial and I & M Trail System wraps its way between the Chicago Sanitary and Ship Canal Historic District and I & M Canal. Considering the setting of the rock wall segment, trees mask most of the commercial and industrial areas beyond the district boundaries. Because the

Chicago Sanitary and Ship Canal was used as both a sanitary canal and transportation waterway, it is not surprising that some industry exists along this segment. It was anticipated by the engineers that this waterway would be used for commercial waterway traffic, as the presence of this type of development corresponds to the motives of the builders.

Alterations have been made to the canal during its history. These alterations include the addition of concrete riprap, concrete walls, and concrete caps over the original rock walls along some stretches of the channel. Additionally, some portions of the original rock walls have been removed or deteriorated. Many of the bridges along this segment of the canal have been removed (described elsewhere), and vegetation is growing along parts of the canal. The vegetation is mentioned because it was not an aspect of the original canal design. Many of these alterations are too small to map with precision, although some are notable. Of particular note are larger portions of the canal wall that have failed and/or have been repaired. The first instance of this occurs on the left descending side of the canal between river miles 291.0 and 291.4. At this location, concrete walls exist. On the left descending side between river miles 292.2 and 294.0, concrete walls exist. Sheet pile and concrete walls exist at Romeoville Road at river mile 296.1 on the right descending side. Between river miles 300.7 and 300.9 on the left descending side, failed laid-up limestone walls occur. Finally, between river miles 301.1 and 301.3, concrete walls exist between a few slips on the right descending side. Further descriptions of canal wall alterations are presented elsewhere. While parts of the rock wall segment of the canal have been altered, the majority of the canal's walls has not been modified and reflects the design intentions of the principal engineer.

Earth and Rock Segment

The earth and rock segment of the Chicago Sanitary and Ship Canal begins at Illinois Waterway river mile 307.8 and extends 8.5 km (5.3 mi) to river mile 313.1 (Figures 1, 9, and 10). In reference to street landmarks, this segment begins at Willow Springs Road and proceeds upstream to Lyons-Summit Road/Archer Avenue. When viewing this segment of the canal in cross-section, the basal width of the canal is 61.6 m (202 ft) and the width at the waterline is 91.1 m (299 ft). The canal is approximately 6.7 m (22 ft) deep. This segment of the canal was cut through dry glacial drift with some limestone occurring. The walls in the earth and rock segment are principally natural or earthen, but laid-up limestone walls do occur on the downstream section near Willow Springs Road. At river mile 310.4, an old overflow from the I & M Canal enters Chicago Sanitary and Ship Canal on the right descending side.

To construct this segment of the canal, it first was necessary to divert the Des Plaines River. This feat was accomplished by constructing a levee. The levee separating the Des Plaines River and canal remains visible on the north and west sides of the canal[10]. The earth and rock segment was split into six sections. Contracts for this segment of the canal were first awarded in 1892. Typically, dredges were used to remove the glacial drift. The excavated sediment was then transported to spoil piles on the sideslopes flanking the canal. No channeling machinery was used on this segment to remove rock. In areas where rock was encountered, explosives were used to aid in cutting the channel[11]. A clear description of the methodology used to construct this segment of the canal is presented by Richard Lanyon in his 1999 history "So They Reversed the River". According to Lanyon, horses and mules pulled scrapers and wagons to remove the first few feet of the glacial materials. Steam shovels were then used to load railcars that were pulled by locomotives to the spoil areas. Locomotives were also used to move equipment, as most of the larger equipment was mounted on steel wheels and rails. As the excavation deepened, inclines with steam hoists pulled material out of the canal and moved the material up to the spoil piles. The contractors excavating this segment often used innovative machinery to remove material. Some contractors used elaborate conveyors on trusses or cableways that spanned the full width of the channel and spoil piles. The same methodology for transporting excavated glacial drift was used for transporting the small amount of rock excavated in this segment. Rock revetment paving was accomplished by placing the stones with steam-powered derricks[12].

Multiple challenges are faced with any large-scale construction endeavourer, and the construction of the earth and rock segment was no exception. Wet and soft soils were frequently encountered and levees sometimes failed. While contractor disputes are common during construction projects of this magnitude, one particular dispute is noteworthy. During the canal excavation, "hard materials" were unexpectedly encountered. Construction documents dated February 1894 indicated the scrapers and steam shovels could not excavate the material and explosives were needed to break up the material. The contractor on this segment believed the material to be solid rock, but because of the costs associated with removing rock, the Sanitary District of Chicago Board disagreed. The dispute on what constituted glacial drift led to the formation of a committee known as the Special Committee on Settlement of the Difficult Material Controversy. The Chief Engineer, Isham Randolph, denied requests from the contractors for additional funding, and the contractors refused to proceed with the channel construction. The contractors were replaced and excavation of the canal continued[13]. Multiple equipment problems occurred during the construction of the earth and rock segment. In 1895, a truss conveyor was wrecked, a dredge burned, and an incline conveyor failed. In 1896, an incline collapsed and an equipment shed was destroyed. Additional problems occurred in 1897 when a truss conveyor collapsed and an immense steam shovel tipped over falling to the bottom of the excavation[14]. While difficulties arose during the construction of the earth and rock segment, this portion of the canal was completed in 1899.

The earth and rock segment of the canal retains much of the characteristics exhibited at its completion. Overall, the condition of this segment of the canal is good. Beginning at Illinois Waterway river mile 308 and extending to mile 309, the right descending side of the channel is covered with trees, although an industrial area (outside of the district) occurs between the Des Plaines River and the canal that is hidden by the tree line. On the left descending side, trees exist on the bankline and hide the Centennial and I & M Canal Trail System between the Chicago Sanitary and Ship Canal and the I & M Canal. Between Illinois Waterway river miles 309 and 313, the right descending side of the canal has tree-covered banks hiding industrial areas, and the left descending side of the canal has similar tree line cover, with some industrial areas visible at the bankline. West of Harlem Avenue on the right descending side of the canal, a frontage road exists that is visible from the district. A consideration of the setting of the earth and rock segment of the canal suggests that much of the area in this segment is not exposed to industrial or commercial development. The tree-lined banks that hide this type of development lend a rural feeling to the area. The slight industrial areas that are visible outside the district boundaries are not surprising, as a primary reason for this canal’s construction was to promote industrial and commercial development that would use the canal for commercial transportation.

Because this canal remains a usable waterway, alterations have occurred that were not part of the original canal design. The area surrounding this segment is highly industrial. The industry, however, is masked by recent vegetation that was not included in the original canal design. Various materials have been added to the canal banks for stabilization, including concrete riprap and sheet piling. Because riprap is used to stabilize a bankline and it could be removed if needed, riprap along the canal walls does not necessarily mean that the original wall behind the riprap is not eligible, just that the riprap is a non-contributing element to the canal. In places, parts of the original canal walls have been removed or they have deteriorated. On the left descending side of the canal between river miles 307.9 and 309.3, riprap exists. Riprap also exists between river miles 309.4 and 310.5 on the right descending side. Timber sheet pile and concrete walls occur between river miles 309.4 and 311.6 on the left descending side. Sheet pile walls exist on the right descending side between river miles 310.5 and 311.3. Following the sheet pile walls on the right descending side, riprap exists between river miles 311.3 and 312.3. Riprap also occurs on the left descending side between river miles 311.6 and 312.3. Sheet pile again occurs on the right descending side between river miles 312.6 and 313.0. Riprap is variously spread between river miles 312.5 and 314.5 on the left descending side. Riprap also occurs on the right descending side at river mile 313.0. These alterations are also tabulated below in the description of non-contributing elements section of this nomination. Some of the bridges along this segment of the canal have been replaced; while their abutments only mark others (see below). The aforementioned changes are non-contributing elements of the canal. While these alterations have affected portions of this segment of the canal, the majority of the earth and rock segment conforms to the original design devised by the Sanitary District of Chicago.

Earth Segment

The earth segment of the Chicago Sanitary and Ship Canal is located between Lyons-Summit Road/Archer Avenue and Ashland Avenue (Figures 1, 11–14). This segment of the canal occurs along a 12.6 km (7.8 mi) stretch extending between Illinois Waterway River miles 313.1 and 321.7. The basal width of this canal segment is 49.4 m (162 ft) and the width at the waterline is 71.3 m (234 ft). The earth segment of the canal was excavated through the Chicago Lake Plain and this segment of the canal has slightly inclined walls. The depth of the channel at this location is approximately 6.7 m (22 ft). Between Damen and Ashland Avenues, a segment of the channel known as the Collateral Channel connects the canal to the West Fork of the South Branch of the Chicago River.

The canal design for this segment was selected in May of 1893. Similar to the rock wall and earth and rock segments of the canal, the earth segment was divided into sections and bids were taken for each segment. Bids were placed under the assumption that all excavation would occur in dry sediments[15]. Sediment in the earth segment was relatively uniform and no rock was encountered. A combined 22,000,000 m^3 (29,000,000 $ft.^3$) of earth was removed from both the earth and rock segment and earth segment[16]. One of the marvels resulting from the earth segment excavation was the design and construction of the Mason and Hoover conveyor. This conveyor was designed specifically for the Chicago Sanitary and Ship Canal project and was used in Section H of the earth segment. The machine spanned the entire width of the channel and had cantilever arms that extended over the spoil pile. The machine was designed to be self-loading, reducing the amount of labor needed to transport excavated sediment from the channel. The Mason and Hoover conveyor began operation in September of 1894. The machine had an output of 719 m^3 (940 yd^3) of excavated material per 10 hour shift. The machine was so efficient that an electric plant was installed so operation could continue for two working shifts a day. Disaster struck on November 8, 1894 when one of the cantilever arms broke, causing breaking, buckling, and the collapse of the entire machine. The conveyor was fixed by the end of January 1895, but the combination of strong winds on January 21, 1895 and insufficient anchoring moved the structure to the end of the railroad tracks, resulting in the leading trucks falling to the ground and overturning of the entire structure. The resulting damage left both cantilever arms broken. During repairs on the Mason and Hoover Conveyor, steam shovels and inclines continued the excavation. In June of 1895, the Mason and Hoover conveyor returned to operation and was used until August of 1896. Unfortunately, the damages incurred over previous years significantly reduced the machine's efficiency.

The condition of the earth segment of the canal is good, with minimal alterations to the original construction design. The areas surrounding the earth segment are a mixture of urban and industrial development. East of Harlem Avenue between waterway river miles 313 and 315, grass and brush covered areas occur on the right descending side of the canal at industrial and commercial development sites. The left descending side of the canal is tree-lined, hiding Canal Bank Drive. Heading upstream (at river mile 315), the trees thin, and they give way to a grassy industrial area. The majority of the areas surrounding the district from river mile 315 to 321.7 are industrial areas, with concrete, gravel, and some grass dominating the areas outside of the district boundaries. Concrete and gravel increases northeast of Cicero Avenue. Outside of a pump house, the industrial development occurs outside of the district boundaries. The setting of the earth segment of the canal reflects an urbanized, industrial area, the same type of setting that was intended by the canal developers. The occurrence of gravel and concrete near the edges of the district should not be viewed as something that detracts from its historic integrity, nor should the occurrence of industrial development. Rather, the occurrence of industrial and commercial development was an intended consequence of the canal construction and should be viewed as the Chicago Sanitary and Ship Canal's continued importance to local, state, and national commerce and transportation.

Some changes have occurred along this stretch of the canal including vegetation growth, addition of materials to the canal banks for stabilization, deterioration of portions of the canal, and the removal/replacement of some of the bridges. Materials introduced to the canal walls include riprap, concrete, and sheet piling. Riprap occurs on the left descending side of the canal between river miles 316.2 and 316.8 as well as between river miles 320.5 and 320.9. Concrete walls occur on the right descending side of the canal at river miles 314.0–314.1 and between river miles 315.6–315.9. At river miles 314.5–315.6, 316.1–316.7, 318.4–318.9, 320.0–320.3, 320.8–320.9, and 321.1–321.6 on the right descending side, sheet pile walls exist. On the left descending side sheet pile walls occur at river miles 315.0–315.1, 316.1–316.2, and 320.9–321.0. Also on the left descending side, concrete and sheet pile walls exist between river miles 321.3 and 321.6. Between river miles 317.1 and 318.4 on the right descending side, a mixture of sheet pile walls and riprap are encountered. Between river miles 320.0 and 320.5, and 321.1 and 321.3 on the left descending side, timber walls are present. Between river miles 320.6 and 320.8, as well as 321.2 and 321.3, concrete walls exist on the right descending side. At river mile 316.1 and 318.8, old barges have been capped with concrete and used to form the wall. On the right descending side of the canal at river mile 321, major erosion is occurring on the earth wall. The aforementioned alterations to the canal wall are considered non-contributing elements to the canal. These alterations are tabulated below. One should be mindful that riprap can be removed, and the original walls of the canal are likely still intact but eroded. While these alterations detract from the original condition of the canal, a large portion of the original canal walls remain intact.

Spoil Piles

Along the Main Channel, multiple spoil piles exist associated with the original construction of the Chicago Sanitary and Ship Canal (Figures 15 and 16). Much of the spoil obtained during the canal excavation was used for bank construction. Some of the spoil piles are difficult to map. The largest concentrations of excavated spoil occur between river miles 296.0 and 298.5. Along this stretch of canal, two large spoil piles are present. These spoil piles are denoted on the USGS topographic map as “Spoil Banks”. All of the original spoil piles occur within 76.2 m (250 ft) of the canal centerline. They are included as contributing elements to the Chicago Sanitary and Ship Canal Historic District because they are directly related to the construction of the canal and they form portions of the canal walls. At least one later spoil pile is located along the banks of the canal. This more recent material is located between river miles 319.5 and 321.7, and because it was not excavated for the original canal construction, it is not a contributing element to the district.

The Main Channel forms the backbone of the Chicago Sanitary and Ship Canal Historic District. The Main Channel provides water that feeds every contributing and non-contributing waterway structure and building along the canal. Additionally, this canal served the sanitary needs of Chicago residents as well as provided a navigable resource for barge traffic. Because it is an integral component to the Sanitary District of Chicago’s efforts to provide adequate waste disposal in the late nineteenth and early twentieth centuries, it is rightfully included as a contributing resource to the Chicago Sanitary and Ship Canal Historic District.

Lockport Controlling Works

The Lockport Controlling Works is located at Illinois Waterway River Mile 293.2 (Figures 2.2, 17–21). This structure occurs approximately 3.4 km (2.1 mi) upstream from the Lockport Lock, Dam, and Power House Historic District. This structure forms the ending point for the initial Main Channel of the Chicago Sanitary and Ship Canal. The Lockport Controlling Works were constructed to regulate the discharge from the canal into the Des Plaines River, and this structure extends across the initial canal. The Lockport Controlling Works contained multiple elements; including a bear trap dam, seven vertical sluice gates, and eight sluice gate bays. The Lockport Controlling Works were constructed using brick, metal, concrete, and black quartzite brick. The overall condition of the Lockport Controlling Works is excellent, with minimal modification from its original design.

The Lockport Controlling Works was constructed between August 1895 and July 1896 under the supervision of Isham Randolph. The Lockport Controlling Works was placed into operation in August of 1899, and on January 17, 1900, Sanitary District of Chicago officials opened water flow through the Controlling Works, beginning the operation of the Chicago Sanitary and Ship Canal[21]. The bear trap dam was 48.8 m (160 ft) long. According to Currey's 1912 book[22], the bear trap dam had a 5.2 m (17 ft) vertical oscillation. The dam worked by utilizing two large, metal hinges that rested upon each other. They were kept in place by water pressure. The downstream, buoyant hinge was secured to a very heavy foundation. The solid, upstream hinge was used to create a barrier for the water. The dam was operated by allowing water to travel through valve-controlled conduits on both the upstream and downstream sides. To raise the crest of the dam, water was pushed underneath the hinges while water discharge was shut off. Alternately, to lower the dam, water was shut off on the upstream side of the dam and discharged on the downstream side. The seven vertical sluice gates are 9.1 m (30 ft) wide. The sluice gate piers were constructed using black quartzite brick, off-white stone blocks, and red glazed brick. A catwalk connects the tops of the 16 piers. The eight sluice gate bays were constructed in a similar fashion as the aforementioned sluice gates and they were constructed for future use if needed. Five protection cells are located along the sluice gates to protect them from ships and barges. The slide gates are metal and are oriented vertically, allowing water to pass underneath the gates. Based on Richard Lanyon's history of the Main Channel published in 1999[23], the slide gates are 6.1 m (20 ft) high and the top of the gates are 1.5 m (5 ft) above the Chicago Datum. The top of the gates are positioned at the same vertical height as the channel walls. The seven sluice gates remain in use.

The area surrounding the Lockport Controlling Works is typical of the area surrounding the Chicago Sanitary and Shipping Canal Historic District generally (Figure 17). North of the controlling works on the right descending side of the canal, an industrial area extends to the district boundaries. This industrial area is mostly gravel and concrete. South of the controlling works, tree cover is encountered. The left descending side of the canal at the controlling works also has a tree-covered bankline. The setting of the Lockport Controlling Works has changed since its construction, but these changes (vegetation growth and industrial development) do not detract from the structure's historical significance because this structure was designed to aid in commercial waterway traffic along the canal. It is only natural that industry would develop along the canal that would use the waterway. Overall, this structure is in nearly the same condition as it was when placed into operation in 1899. In fact, the original sluice gates are still in use. A few alterations have been made, however. In 1938, A Works Project Administration crew removed the bear trap dam. Today, only two of the dam's abutments remain, one of which retains some metal that was part of the dam hinge. Additionally, a small, newer addition has been added on the southwest end of the active sluice gates. Unfortunately, the small addition does not match the original design of the controlling works, and it is considered a non-contributing element to the structure.

The Lockport Controlling Works marks the end of construction for the original Chicago Sanitary and Ship Canal. The construction and completion of the Lockport Controlling Works occurred during the period of significance for the Chicago Sanitary and Ship Canal Historic District. The opening of the Controlling Works also signified the opening of the Chicago Sanitary and Ship Canal. The Lockport Controlling Works regulated the water flow from the channel into the Des Plaines River. Further water control was added with the later construction of the movable dams and the Lockport Power House. Following the construction of the Lockport Power House, the bear trap dam was deemed unnecessary and was removed. While a few changes have occurred that have affected the integrity of the Lockport Controlling Works, the structure is in nearly the same condition as when constructed. Because of the importance of the Lockport Controlling Works to the overall historic function of the Chicago Sanitary and Ship Canal and because the Lockport Controlling Works was part of the original design, this is a contributing resource to the Chicago Sanitary and Ship Canal Historic District.

Butterfly Dam Remnant

The only archeological site contributing to the significance of the Chicago Sanitary and Ship Canal Historic District is the Butterfly Dam remnant (Figures 2.2 and 22–25). The Butterfly Dam remnant is located approximately 152.4 m (500 ft) below the Lockport Controlling Works at Illinois Waterway River Mile 293.1. The remaining structural evidence of the dam is located on the right descending side of the canal. The Butterfly Dam is comprised of two remaining features, the dam foundation along the canal wall, and the foundation of the dam house on the north bank. Resting above the waterline are a few sand piles and sparse deciduous trees. The Butterfly Dam was designed to completely shut-off the flow of the Main Channel Extension in case of emergency. The dam was constructed using poured concrete and steel. The dam house foundation rests atop the wall. From the dam house, a tunnel was constructed that led beneath the canal to a control house on the dam.

While specific physical evidence of the dam is lacking, valuable descriptions are given in the 1907 article "The Work of the Sanitary District of Chicago" by Isham Randolph, the 1912 publication *Chicago: Its History and Its Builders*, penned by Josiah S. Currey, and a 1928 publication entitled *Engineering Works* completed by the Sanitary District of Chicago[24]. Engineered by Isham Randolph and constructed between 1903 and 1907, the Butterfly Dam was opened at 3:00 am on August 27, 1907 when the cofferdam that held back the waters of the Main Channel was blown up. The dam, which resembled a large lock gate, was a steel structure that pivoted at its center, leaving the open gate in the center of the channel. The bottom pivot had a diameter of 81 cm (32 in) and it was anchored in the rock at the base of the channel. A fixed Pratt-truss bridge extending over two concrete piers supported the upper pivot. The movable steel leaf of the dam was 9.1 m (30 ft) high and 56.1 m (184 ft) long. Because the dam was used only in case of emergency, the gate was typically left open and aligned with the water flow of the channel. This left a navigable route for passing boats and barges. When open, the ends of the movable leaf were protected by concrete piers that supported the fixed bridge holding the top pivot. To open and close the dam, 12 valves were used to direct the force of the current. Each valve was 2 m (6.4 ft) long and 1.2 m (4.1 ft) high. To close the channel, the dam was started by a rack and pinion mechanism, throwing the movable leaf into the current. Six valves were opened while the remaining six valves were closed. This forced pressure onto the leaf, swinging the movable leaf to lugs attached to the concrete sidewalls of the channel. To open the dam, the valve configurations were reversed. When the dam was closed, it is estimated 1,739,000 lbs of pressure was exerted on the top pivot while 7,776,000 lbs of pressure was exerted on the bottom pivot. At the time of Currey's publication, this was the only dam of its type in existence, and according to the engineer, the total cost of the Butterfly Dam was $207,000. It was removed in 1985. Little is known about the construction design of the dam house that resided approximately 1.5 m (4.9 ft) from the edge of the canal. What is known is that the dam house has a poured concrete foundation measuring approximately 4.8 x 4.8 m (15.7 x 15.7 ft) or 23 m^2

(247.6 ft.^{2}). From the dam house, a tunnel was constructed underneath the canal to the north concrete pier that held the control house. The tunnel has been filled and is no longer accessible.

The Butterfly Dam has undergone significant changes in its history when contrasting the original appearance of the structure to the visible remains of today. The major alterations include the removal of the dam, control house, bridge, and small dam house. Additionally, the tunnel connecting the dam house to the control house has been filled. All that remains of this dam are indentations on the concrete bank walls where the dam used to lock in place and the foundation of the dam house. The setting of the Butterfly Dam remnant has not changed significantly since its construction. The area surrounding the dam site is mostly covered with sparse trees. Industrial development does not intrude into this site, and the rubble visible on the surface surrounding the dam house foundation is associated with the dam’s use. Viewed from this location are the canal walls, Lockport Controlling Works, and some sparse trees, all of which would have been present during the dam’s period of construction and use. Although little remains of this dam, setting, location, and a few features associated with this structure remain.

The Butterfly Dam served as a safety mechanism for potential floodwaters along the Chicago Sanitary and Ship Canal and it was an integral architectural feature to the district as a whole. While little remains of this structure, this innovative structure was a notable landmark within the larger engineering marvel of the Chicago Sanitary and Ship Canal. The construction of the Butterfly Dam was part of the Main Channel Extension project and it is incorporated in the Chicago Sanitary and Ship Canal Historic District’s period of significance between 1892 and 1951. The Butterfly Dam remnant offers the only remaining evidence of emergency waterway control along the Chicago Sanitary and Ship Canal. Much of the information concerning this resource may be underwater. As this site represents the primary data concerning early emergency dam construction in the early twentieth century for the waterway, it is a contributing resource to the Chicago Sanitary and Ship Canal Historic District.

Willow Springs Spillway

The Willow Springs Spillway (also known as the Des Plaines River Spillway) is located at Illinois Waterway river mile 307.3, approximately .9 km (.6 mi) southwest of Willow Springs Road on the right descending side of the canal (Figures 2.8 and 26–28). Used to divert rising floodwaters from the Des Plaines River into the Main Channel, the 61 m (200 ft) long structure was constructed using poured concrete and started approximately 2.3 m (7.5 ft) above the waterline. The Willow Springs Spillway has 22 uncontrolled arched intakes atop the straight-drop spillway crest. The intakes are flanked by two poured concrete rectangular abutments extending above the vertical height of the arched intakes[25]. The spillway is situated on top of, and surrounded by, the laid-up limestone walls of the Main Channel. When ascending the channel to the Willow Springs Road Bridge, the canal design changes from laid-up limestone walls to the earthen canal design. Unlike many spillways, the Willow Springs Spillway does not have a chute descending into the canal, allowing the Des Plaines River floodwaters to flow directly over the canal wall.

Engineered by G. M. Wisner, the Willow Springs Spillway was constructed in 1908. In order to complete this project, Wisner used the Keltie Stone Contractors, a contracting company local to the Lockport area. The Willow Springs Spillway was placed into operation in 1909 and acted as a spillway until 1955, when the forebay/”reservoir” was purposely filled with dirt and debris[26].

The setting of the Willow Springs Spillway has been minimally altered. The only alterations to the setting are the growth of trees next to and behind the structure. The area surrounding the spillway is tree-covered, and no commercial development has occurred. At present, the poured concrete spillway is in good condition with limited structural flaws including minimal cracking and erosion. The original design of the structure and materials used to construct the spillway are the same as when completed in 1909. Two major differences in the present and original appearance are notable. Fill material was placed on the Des Plaines River side of the spillway to ensure the structure would no longer divert floodwaters into the Main Channel. Secondly, the fill material has provided suitable sediment for trees and other vegetation to grow around the spillway and out of the intakes. While the vegetation was not part of the original design, the spillway is remarkably intact and visible along the canal wall.

The 1903–1907 Main Channel Extension and construction of the powerhouse at Lockport are directly linked with the 1908 construction of the Willow Springs Spillway. In 1903, the Illinois General Assembly amended legislation authorizing the Chicago Sanitary and Ship Canal to allow the Sanitary District of Chicago to construct a powerhouse and sell electricity to local residents. As water levels rose in the Des Plaines River during flooding, the spillway diverted water into the canal’s Main Channel and subsequently into the Lockport Power House. With increased water flow, the Sanitary District of Chicago was able to generate (and sell) more electricity. While not a significant structure individually, Willow Springs Spillway contributes to the design, function, and temporal designation associated with Lockport Lock, Dam, and Power House Historic District and Chicago Sanitary and Ship Canal Historic District proposed for listing herein.

Lockport Lock, Dam, and Power House Historic District

The Lockport Lock, Dam, and Power House Historic District is located at Illinois Waterway river mile 291.1 (Figures 2.1 and 29). With more specificity, the Lockport Lock, Dam, and Power House Historic District is located at 2502 Channel Drive, Lockport, Illinois. This historic district forms the downstream boundary for the larger Chicago Sanitary and Ship Canal Historic District. As was stated previously, the Lockport Lock, Dam, and Power House Historic District is already listed on the National Register of Historic Places and was nominated in the 2002 *National Register of Historic Places Multiple Property Submission, Illinois Waterways Navigation System Facilities* prepared by Barbara J. Henning[27]. The structural and temporal information presented below is derived from this earlier registration form. Because this district is already listed on the National Register of Historic Places, less detail will be given here to describe the resources. While providing summaries of the resources, the ultimate goal of this descriptive section is to present information pertaining to its contribution to the Chicago Sanitary and Ship Canal Historic District. Additionally, alterations affecting this property following its previous nomination will be discussed as well as the current condition of the property. It is infrequent that a recognized district is included within the boundaries of another district. However, the Lockport Lock, Dam, and Power House Historic District contains resources associated with Sanitary District of Chicago construction projects between 1905 and 1910 as well as resources constructed by the State of Illinois between 1923 and 1933.

The Lockport Lock, Dam, and Power House Historic District has five contributing resources. These resources include three structures known as the Lockport Dam, Sanitary District of Chicago Lock, and New Lock and two buildings known as the Lockport Power House and Control Station. Two minor buildings are also present, but were not counted in the 2002 nomination because their physical appearance and role in the lock and dam operations were minimal. These buildings included small control stands and an emergency generator building. The previously recorded period of significance for the Lockport Lock, Dam, and Power House Historic District is 1892–1951. Some of these structures and buildings also correspond to the construction efforts of the Chicago Sanitary and Ship Canal between 1892 and 1908. Two noncontributing buildings are also present on this property. The noncontributing buildings include a significantly altered garage that was constructed in 1933 and a maintenance building constructed in 1995.

The Sanitary District of Chicago Lock (Figures 29–31) was engineered by Isham Randolph and constructed between 1905 and 1910. The lock consists of a tailrace wall, concrete guide walls, and wooden miter gates in various stages of deterioration. This lock was constructed to provide an improved, navigable waterway and hydroelectric power to the city of Chicago. This lock has a chamber 39.6 m (130 ft) long is 6.7 m (22 ft) wide. The miter gates are both upstream and downstream. The tailrace wall and guide wall is approximately 304.8 m (1,000 ft) in length. The first 152.4 m (500 ft) of the walls extend the river wall of an earlier, replaced lock dating to 1900. These walls were essential to barge traffic because they countered out-draft from water derived from the powerhouse draft tubes and dam gates between the lock and powerhouse. At the end of this first 152.4 m (500 ft), the wall extension angles northwest to the powerhouse. Within the first 45.7 m (150 ft) of this portion of the wall, .6–1.2 m (2–4 ft) of the top of the wall is above the water level. The tailrace wall and old lock guide wall form a triangular shape subsequently filled with earth. A large section of this wall approximately 61 m (200 ft) is submerged. The upstream guide wall section of the 1905–1910 lock consists of a 45.7 m (150 ft) long series of reinforced concrete arches extending north from the river wall of the 1900 lock. These arches were used to protect the powerhouse from barges pulled into the facility by the suction created by the powerhouse. The arched design allowed the guide wall to remain functional without obstructing water movement. The ability for water to flow uninhibited reduced the amount of ice build-up on the upstream miter gates of the lock and dam. Use of the Sanitary District of Chicago Lock ceased in 1933 with the construction of a new lock.

Construction of the New Lock (Figures 29, 32, and 33) began in 1923, and the majority of construction phases were completed by the State of Illinois. The lock was completed by the federal government and placed into operation in 1933. The New Lock is an Ohio River Standard navigation lock with a 33.5 x 182.9 m (110 x 600 ft) chamber. The lock was constructed with reinforced concrete walls and steel miter gates. The upstream gates are cable driven and the downstream gates are controlled by gears and electric motor assemblies. The New Lock has the largest lift (12.2 m [40 ft] of lift) in the Illinois Waterway. The single-leaf, vertical-lift main and emergency gates are located upstream and a single set of miter gates are located downstream. This is the only operating historic lock with single-leaf, submergible vertical-lift gates in the U.S. and therefore is a rare example of lock gate technology used for very high lift lock gates. Tunnels in the walls control the watering of the lock. Four Tainter valves control these tunnels. One valve is located at each end of the main penstock and extends the full length of each wall. Upstream and downstream guide wall extensions connecting to the land wall aid in navigating barges through the lock.

The Lockport Dam (Figures 29, 34, and 35) was constructed between 1923 and 1933. The dam is an integral component to the operation of the New Lock and the powerhouse. This dam controls the upstream depth of the Chicago Sanitary and

Ship Canal. The dam is approximately 36.6 m (120 ft) long. The concrete dam connects to the Sanitary District of Chicago Lock at its upstream end and extends to the headrace of the powerhouse. Typically speaking, this is a non-navigable dam. The east 15.2 m (50 ft) of the dam is a non-movable dam while the 21.3 m (70 ft) on the west end consists of a moveable pier dam. The pier dam contained a 14.6 m (48 ft) wide bear trap sector gate with a 3.7 m (12 ft) vertical oscillation, a 3 m (10 ft) wide pier, and a 3.7 m (12 ft) wide bear trap sector gate. The 3 m (10 ft) wide pier dam also contains a small, yet distinctive pier house. The pier house displays Italian Renaissance detail with a ceramic tile roof, concrete walls, dentil and egg-and-dart courses, and bay windows on either side. The pier house was designed to mimic the design of the powerhouse.

The Lockport Power House (Figures 29, 36, and 37), also known as the Lockport Hydroelectric Generating Station, was designed by Frederick L. Barrett and constructed between 1905 and 1907. The powerhouse was placed into operation in 1908. The building is 117.3 m (385 ft) in length and 21.3 m (70 ft) in width. The powerhouse was designed in Italian Renaissance style. It has a hipped, low-pitched ceramic tile roof, arcades of full-length windows, pilasters, and classical details including dentil and egg-and-dart courses. The building has a symmetrical façade. Concrete has been cast in large blocks and laid with narrow mortar, simulating stonework. The south façade is divided into 10 bays by pilasters, and above each bay are three arched windows and small squared windows. Differentiating the square windows from the arcades is a narrow, continuous sill. The decorative motifs continue without the pilasters for the five arched windows on the east and west elevations. Corresponding to the edge of the water, the south façade is two stories high. The north façade is one story high. The north façade also contains two utilitarian sections set next to each other. One of these sections has a hipped roof and the smaller section has a flat roof. The powerhouse has turbines and generators run by water entering from the center bay of the headrace. The electricity generated at the powerhouse is carried 48.3 km (30 mi) to a transformer house south of the Chicago Sanitary and Ship Canal at Western Avenue, Chicago, by a 33,000 volt line.

The Control Station (Figures 29 and 38) is a key functional element to the operation of the lock and dam system. The Control Station (also known as the control house and lock house) was designed by the State of Illinois in conjunction with the Illinois Waterway project. The building was constructed between 1923 and 1933. The Control Station is a one story building placed on a raised basement. The building can be described as rectangular, but it has a centered gabled bay on the lock side and a gable on the landward side as well. Henning described this building as being “reminiscent of the Jacobethan style,” because the structure has gables with concrete parapets. However, given the utilitarian nature of the Control Station, this may be a stretch on what constitutes English Revival design. The utilitarian design is highlighted by the placement of the windows and a series of contrasting concrete belt courses for the sills, lintels, and watercourse. On the centered bay of the Control House, a commemorative metal plaque stands to mark the opening of the lock on June 22, 1933 as well as to pay homage to Mortimer G. Barnes, who as the Chief Engineer for the Division of Waterways for the State of Illinois oversaw the initial design and construction of the facility.

As these facilities remain actively used, it is expected that the structures and buildings have been altered to meet the current needs of the Chicago residents and for navigation needs. While alterations have occurred, the design and operation of the Lockport Lock, Dam, and Power House are nearly the same as when the facilities opened in 1933. Alterations to the new lock include machinery upgrades and replacement of the lock's vertical lift gate in 1967. Small cable houses along the lock replaced larger metal mechanisms that crossed the lock ends in 1985. Alterations to the dam include the replacement of the 14.6 m (48 ft) wide bear trap gate with a 6.1 m (20 ft) wide motorized vertical lift sluice gate in 1986. The installation of the sluice gate required that stationary concrete dams be used to fill gaps on either side of the gate. The 3.7 m (12 ft) bear trap gate was replaced with a stationary concrete dam with a walkway. To accommodate the walkway, a concrete staircase was added west of the pier house. The Lockport Power House has undergone continued alterations, many of which are related to historical events. After the 1930 U.S. Supreme Court ruling in the case of Wisconsin vs. Illinois, 281 U.S. 696, changes were made to the operating equipment to reduce the amount of water drawn from Lake Michigan. The four west turbines were replaced with two vertical Kaplan-style turbines in chambers 1 and 2 and sluice gates 3 and 4. Turbine 7 was removed in the 1960s. Additionally, transformer banks were built west of the powerhouse. Recent renovations reflect ongoing maintenance needs for the facility. These alterations include rebuilt piers on the riverside, masonry and coping repairs, window replacement, some roof tile replacement, removal of electrical insulators, installation of exhaust fans along the canal side windows, and introduction of two new turbines. The Control Station has also undergone alterations. Asphalt shingles replaced the original tile roof, windows were replaced, and a small, flat-roofed entry canopy was added. Glass block inserts were placed in the basement windows, and a new door and vertical paneling were installed at the basement entry.

While already listed on the National Register of Historic Places as the Lockport Lock, Dam, and Power House Historic District, it is a contributing property to the Chicago Sanitary and Ship Canal Historic District. The reasoning for the inclusion of this district into the larger Chicago Sanitary and Ship Canal

Historic District is that firstly, the Sanitary District of Chicago Lock and the Lockport Power House were constructed by the Sanitary District of Chicago during the second phase of canal construction (1903–1908). Secondly, many of the contributing resources constructed at earlier dates along the Main Channel (such as Willow Springs Spillway) were designed with the eventual construction of the Lockport Lock, Dam, and Power House in mind. Thirdly, these structures and buildings are the result of the 1903 Illinois General Assembly legislation that also provided for the Main Channel Extension. The Chicago Sanitary and Ship Canal is a continuous system, beginning upstream near Ashland Avenue and meeting its downstream terminus below the Lockport Lock, Dam, and Power House Historic District where the Main Channel Extension empties into the Des Plaines River.

Non-Contributing Structures, Elements, and Alterations

Three buildings, 41 structures, and a series of elements associated with the contributing properties are considered non-contributing resources for the Chicago Sanitary and Shipping Canal Historic District. Two non-contributing buildings occur in the Lockport Lock, Dam, and Power House Historic District. These buildings include a garage and maintenance building[28]. These resources are located away from, and are easily differentiated from, the contributing resources of the district. The garage was constructed in the 1930s, but has subsequently undergone significant alterations that have reduced its historical integrity. These changes include updated siding and replacement of the garage doors and windows. The maintenance building was constructed in 1995. This building was constructed using the same materials and architectural design as the control station. The maintenance building is a single story building with a hipped roof. The building is faced with red-brown bricks that are placed soldier-style at the base and along the cornice line. Along the Main Channel of the canal, a few non-bridge buildings/structures exist. At river mile 318.7 on the left descending side, a concrete block pump house exists on a pier in the channel. This pump house is roughly located at 3631 South Hamlin Avenue in Chicago. This location marks an industrial complex, and the pump house is likely the smallest structure on this property. No other structures/buildings associated with this industrial property exist in the district boundaries. The pump house is a small rectangular building with a flat roof. It is approximately 5 m (16.4 ft) in length and 2.5 m (8.2 ft) in width. According to records held at the Cook County Assessor's Office, the industrial buildings were built at least 50 years ago, but there is no specific date of construction for the pump house. The sole building existing along the Main Channel is a railroad switch house at Lockport. This building is located at river mile 290.0. The building is rectangular and was constructed using block concrete. It has a hipped roof with asphalt shingles. The switch house is approximately 10 m (32.8 ft) in length and 8 m (26.2 ft) in width. No known construction date is associated with this building, and the Will County Assessor’s records are lacking in their descriptions of railroad properties. Based on the design of the building, it is likely this switch house is older than 50 years, but is unassociated with the construction or use of the Chicago Sanitary and Ship Canal.

Bridge Abutments

Multiple bridge abutments are located along the Main Channel and are structures that are non-contributing properties to the Main Channel. They are considered non-contributing structures because bridges spanned the canal and did not have an impact on the construction or use of the canal as a sanitary canal or waterway transportation route. To organize this section, the bridge abutments will be addressed by Illinois Waterway river miles beginning downstream and working upstream toward the South Branch of the Chicago River.

The Old Division Street/16th Street Bridge is represented only by the remaining concrete abutments (Figures 2.1 and 39). The bridge abutments occur at river mile 292.1. The bridge was designed by American Bridge Company and constructed between 1904 and 1905. This bridge was constructed during the period of the Main Channel Extension (1903–1908). The was a concrete and metal swing span bridge. The bridge had a pier in the middle of the channel, allowing it to swing to accommodate boat and barge traffic. Removal of the bridge occurred in 1986. Continuing upstream, the 9th Street/Old Lockport Bridge located at river mile 292.8 is represented by a stone abutment on the west side of the canal (Figures 2.2 and 40). The bridge was constructed by the American Bridge Company between 1904 and 1905. The bridge was removed in the early 1960s. The Romeoville Bridge (river mile 296.1) is one of the oldest bridges that once existed along the canal. Constructed in 1899, the only remaining features of this bridge are the original stone bridge abutments (Figures 2.3 and 41). The bridge was a swing truss bridge that had a length of 92 m (302 ft). The bridge was removed from its original location in 1996 and placed on the I & M bike trail west of the canal. Only the abutments remain. The Lemont Street Bridge was located at river mile 300.5 (Figures 2.5 and 42). This bridge was constructed in 1899. It is unclear what type of bridge existed at this location and was likely removed in the 1950s[18]. However, given the requirements for navigability along the canal, this bridge was likely a swing truss bridge similar to the Romeoville Bridge. Within the historic district, only the stone abutments represent the Lemont Street Bridge. At river mile 308.0, stone abutments (Figures 2.8 and 43) represent the Willow Springs Bridge. This bridge was constructed in 1898 and electrical service to this bridge ceased in 1951 (presumably near the time of its removal)[19]. All that is known about the design of this structure is that it was a Pratt Truss swing bridge. Continuing upstream, a stone bridge abutment indicating the former location of the Lyons-Summit Road/Archer Avenue Bridge is present at river mile 313.1 (Figures 2.10 and 14). The bridge was a swing bridge that was completed in 1899[20]. In 1943, the Standard Oil tanker “San Joaquin” badly damaged this bridge, fixing it into a fully open position. The bridge was removed sometime after 1951.

Other non-contributing structures associated with the Main Channel are new bridges used to replace the original bridges that once spanned the canal, existing bridges that span but do not incorporate the canal in their design, and railroad bridges that are not incorporated into the canal design. These structures either have no direct relationship to the Chicago Sanitary and Ship Canal or the Illinois Waterway (i.e., they were not constructed for the purpose of navigational aids), or they extend over the canal and are not incorporated into the canal walls.

Thirty-four bridges span the canal. The bridges extend over the canal, beginning at Lockport and proceeding to Ashland Avenue. The first bridge encountered is the Joliet North Railroad Bridge. The Joliet Northern Railroad Bridge is a steel vertical lift truss that was constructed in 1902. The bridge has four steel stringer approach spans. The bridge is 18.6 m (61 ft) in length, 5 m (16.3 ft) wide, and has a vertical clearance of the channel of 4.2 m (13.8 ft). The West 9th Street Bridge occurs at river mile 292.7. This is a recent (constructed in the 1960s) poured concrete girder bridge. The bridge has a span over the canal of approximately 134.1 m (440 ft) and a width of 13.5 m (44.3 ft). The Romeoville Road Bridge was constructed in the 1990s using poured concrete. This girder bridge has a span of approximately 368 m (1,207.3 ft) and a width of approximately 16.9 m (55.4 ft). The Romeoville Road Bridge occurs at river mile 296.2. The Veterans Memorial Toll Way (under construction at river mile 299.0) is going to be a poured concrete girder bridge. It is unclear at this point what the span or width of the bridge will be as it is still under construction. The Lemont Road Bridge is a girder bridge that was constructed out of poured concrete in the 1950s. This bridge occurs at river mile 300.4. The length of the bridge is approximately 628.8 m (2,063 ft) and the width is approximately 22.9 m (75.1 ft). The Lemont Railroad Bridge carries the Burlington Northern Santa Fe Railroad over the canal at river mile 300.5. This bridge is a metal pinned Pratt through truss featuring V-lacing and lattice. The bridge is a movable swing bridge that was constructed in 1898. It is 122.6 m (402.2 ft) in length and 9.7 m (31.8 ft) in width. The Kingery Highway Sanitary and Ship Canal Bridge is located at river mile 304.0. This metal riveted Parker through truss was constructed in 1934. The structure has 18 steel approach spans. The bridge has a length of 344.4 m (1,130 ft), width of 13.4 m (44 ft) and vertical clearance of the channel of 11.5 m (37.7 ft). The Gilbert Avenue Bridge located at river mile 307.9 was constructed less than 50 years ago using poured concrete. This girder bridge is 149.6 m (490.9 ft) in length and 20.4 m (66.9 ft) in width. The I-294/Tristate Toll Way is a poured concrete girder bridge located at river mile 309.2. This bridge was constructed less than 50 years ago, it is 373.4 m (1,225 ft) in length, and it has a width of 47.1 m (154.5 ft). The La Grange Road Bridges (n=2) occur at river mile 309.4. It is unclear when these bridges were constructed, but likely constructed in the 1950s. The bridges are both poured concrete girders, 400.8 m (1,315 ft) in length, and a width of 12.2 m (40 ft). The Summit Railroad Bridge is a steel Warren truss type bridge constructed at an unknown date. The bridge is located at river mile 312.3, has a length of 104.2 m (342 ft), and a width of 7.6 m (25 ft). The Illinois 171/Archer Avenue Bridges (n=3) are located at river miles 313.0–313.1. All of the bridges are poured concrete girder bridges less than 50 years old. The southern and middle bridges are each 253 m (830 ft) long and 10.7 m (35 ft) wide. The northern bridge is 221 m (725 ft) long and 7.9 m (26 ft) wide. The I-55 Bridge is located at river mile 313.4. This bridge is a poured concrete girder bridge that is less than 50 years old. The bridge is 240.8 m (790 ft) long and 45.7 m (150 ft) wide. The Harlem Avenue Bridges (n=2) are movable metal riveted Warren deck truss bridges located at river mile 314.0. The northbound bridge was constructed in 1931, has a length of 139.1 m (456.4 ft), and a width of 17.1 m (56 ft). The southbound bridge was constructed in 1966, has a length of 136.8 m (448.8 ft), and a width of 12.8 m (42 ft). The Harlem Avenue Railroad Bridge is located at river mile 314.8. This date of bridge construction is unknown, but it was likely constructed in the early part of the twentieth century. This bridge is a metal pinned Pratt through truss swing bridge. It is 114.9 m (377 ft) in length and 11 m (36 ft) in width. The Central Avenue Bridge is a poured concrete girder bridge located at river mile 316.2. The bridge is less than 50 years old, has a length of 422.1 m (1,385 ft), and a width of 27.1 m (89 ft). The Cicero Avenue Bridge is a movable metal riveted Pratt pony truss bridge that was constructed in 1927. While designed to move, this bridge is now stationary. The bridge occurs at river mile 317.3, has a length of 92.7 m (304 ft), a width of 22.6 m (74 ft), and a vertical height over the channel of 4.5 m (14.8 ft). The Cicero Avenue Railroad Bridge occurs at river mile 317.5. This is a metal pinned Pratt through truss swing bridge. The bridge was constructed in 1900. It has a length of 102.7 m (337 ft) and a width of 16.5 m (54 ft). The Pulaski Road Bridge is located at river mile 318.4. This poured concrete girder bridge is less than 50 years old. The bridge is 160.3 m (526 ft) in length and 21.3 m (70 ft) in width. The Kedzie Avenue Burlington-Northern-San Francisco Bridge is a metal pinned Pratt through truss bridge that swings. It is located at river mile 318.9 southwest of Kedzie Avenue. The bridge was constructed in the 1890s. The bridge is 102.7 m (337 ft) in length and has a width of 9.8 m (32 ft). The Kedzie Avenue Bridge is located at river mile 319.4. This bridge is a poured concrete girder bridge that is less than 50 years old. The bridge is 106.7 m (350 ft) in length and 22.9 m (75 ft) in width. The Kedzie Avenue Chicago-Northern Bridge is located at river mile 319.6. This is a swinging metal pinned Pratt through truss bridge. It was constructed in the 1890s. It is approximately 143.3 m (470 ft) long and has a width of 10.1 m (33 ft). The California Avenue Bridge is located at river mile 320.0. The bridge was constructed in 1926 and is a bascule movable bridge. The design of the bridge is metal riveted Pratt pony truss that has three stringers. The length of the bridge is 95.7 m (314 ft) and the width is 11.6 m (38 ft). The bridge has a 4.5 m (14.8 ft) vertical clearance of the channel. The Western Avenue Railroad Bridges (n=4) are located at river mile 320.4. These four bridges are metal riveted Warren through truss bridges with bascule movement. The bridges were constructed between 1909 and 1910 by the Chicago Bridge and Iron Works of Chicago. The bridges are each 42.7 m (140 ft) in length, 9.8 m (32 ft) in width, and each have a vertical channel clearance of 4.9 m (16 ft). The Western Avenue Bridge occurs at river mile 320.5. This bridge was constructed in 1940 by the Strubel Construction Company. The bridge is a metal through girder 89.9 m (295 ft) long and 32.6 m (107 ft) wide. This bridge has a 6.7 m (22 ft) vertical clearance of the channel. At river mile 321.1, the Damen Avenue bridge occurs. This bridge is a poured concrete girder bridge less than 50 years old. The bridge is 274.3 m (900 ft.) long and has a width of 19.8 m (65 ft). The final bridge spanning the canal is the South Ashland Avenue Bridge located at river mile 321.6. This bridge is a metal riveted Pratt pony truss that was constructed by the Ketler-Elliott Company in 1938. This bridge is a movable bascule bridge. The bridge is 95.1 m (312 ft) in length and 17.4 m (57 ft) wide.

Table 3. Non-contributing buildings and structures locations within the historic district

Type	# of Resources	Description	River Mile
Bridge abutment (structure)	1	Old Division St./16th St. Bridge abutment	292.1
Bridge abutment (structure)	1	9th St./Old Lockport Bridge abutment	292.8
Bridge abutment (structure)	1	Romeoville Bridge abutment	296.1
Bridge abutment (structure)	1	Lemont St. Bridge abutment	300.5
Bridge abutment (structure)	1	Willow Springs Bridge abutment	308.0
Bridge abutment (structure)	1	Lyons-Summit Rd./Archer Ave. Bridge abutment	313.1

Table 3. Non-contributing buildings and structures locations within the historic district, continued

Type	# of Resources	Description	River Mile
Bridge (structure)	1	Joliet North Railroad Bridge	290.0
Bridge (structure)	1	West 9th St. Bridge	292.7
Bridge (structure)	1	E. Romeoville Rd. Bridge	296.2
Bridge (structure)	1	Veterans Memorial Toll Way (under construction)	299.0
Bridge (structure)	1	Lemont Rd. Bridge	300.4
Bridge (structure)	1	Lemont Railroad Bridge	300.5
Bridge (structure)	1	Kingery Highway Sanitary & Ship Canal Bridge	304.0
Bridge (structure)	1	Gilbert Ave. Bridge	307.9
Bridge (structure)	1	I-294/Tri-State Toll Way Bridge	309.2
Bridge (structure)	2	LaGrange Rd. Bridges	309.4
Bridge (structure)	1	Summit Railroad Bridge	312.3
Bridge (structure)	3	Highway 171/Archer Ave. Bridges	313.0–313.1
Bridge (structure)	1	I-55 Bridge	313.4
Bridge (structure)	2	Harlem Ave. Bridges	314.0
Bridge (structure)	1	Harlem Ave. Railroad Bridge	314.8
Bridge (structure)	1	Central Ave. Bridge	316.2
Bridge (structure)	1	Cicero Ave. Bridge	317.3
Bridge (structure)	1	Cicero Ave. Railroad Bridge	317.5
Bridge (structure)	1	Pulaski Rd. Bridge	318.4
Bridge (structure)	1	Kedzie Ave. BNSF Railroad Bridge	318.9
Bridge (structure)	1	Kedzie Ave. Bridge	319.4
Bridge (structure)	1	Kedzie Ave. CN Railroad Bridge	319.6
Bridge (structure)	1	California Ave. Bridge	320.0
Bridge (structure)	4	Western Ave. Railroad Bridges	320.4
Bridge (structure)	1	Western Ave. Bridge	320.5
Bridge (structure)	1	Damen Ave. Bridge	321.1
Bridge (structure)	1	South Ashland Ave. Bridge	321.6
Pump house (structure)	1	Concrete industrial pump house on a pier, left descending side	318.7
Switch house (building)	1	Block concrete railroad switch house near the Joliet North Railroad Bridge	290.0

Table 3. Non-contributing buildings and structures locations within the historic district, continued

Type	# of Resources	Description	River Mile
Garage (building)	1	Altered garage at the Lockport Lock, Dam, and Power House Historic District	291.0
Maintenance building (building)	1	Maintenance building at the Lockport Lock, Dam, and Power House Historic District	291.1

Non-contributing elements are present within the Main Channel of the Chicago Sanitary and Shipping Canal Historic District. Areas of non-contributing elements are sometimes difficult to map and occur alongside the contributing elements of the canal. These non-contributing elements were added to the Main Channel walls and/or are recent (less than 50 years old). Throughout the Main Channel, however, the original materials used for construction, the construction techniques, and design are the most prevalent elements. The non-contributing elements associated with the Main Channel are sheet pile walls, sunken barges, riprap walls, timber walls, concrete walls, and overgrown earthen walls. These elements were typically additions to repair deteriorating canal walls and therefore are not consistent with the original canal design. While nature is often difficult to control, overgrown vegetation along the earthen walls have affected the integrity of the original canal design, and in places, this vegetation growth has masked, altered, or destroyed portions of the original canal. The locations and types of elements are presented below in Table 4.

Table 4. Non-contributing elements along the Main Channel

Canal Side*	River Miles	Description	Canal Segment
LDS	291.0–291.4	Concrete walls	Rock
LDS	300.7–300.9	Failed laid-up limestone walls	Rock
LDS	292.2–294.0	Concrete walls	Rock
RDS	296.1	Sheet pile and concrete walls	Rock
RDS	301.1–301.3	Concrete walls between slips	Rock
LDS	307.9–309.3	Riprap	Earth and rock
LDS	309.4–311.6	Timber sheet pile and concrete walls	Earth and rock
LDS	311.6–312.3	Riprap	Earth and rock
LDS	312.5–314.5	Riprap at various locations	Earth and rock; Earth
RDS	309.4–310.5	Riprap	Earth and rock

Table 4. Non-contributing elements along the Main Channel, continued

Canal Side*	River Miles	Description	Canal Segment
RDS	310.5–310.6	Sheet pile walls	Earth and rock
RDS	310.7–311.3	Sheet pile walls	Earth and rock
RDS	311.3–312.3	Riprap	Earth and rock
RDS	312.6–313.0	Sheet pile walls	Earth and rock
RDS	313.0	Riprap	Earth and rock
LDS	315.0–315.1	Sheet pile walls	Earth
LDS	316.1	Old barge capped with concrete to form wall	Earth
LDS	316.1–316.2	Sheet pile walls	Earth
LDS	316.2–316.6	Riprap	Earth
LDS	316.7–316.8	Riprap	Earth
LDS	318.8	Old barge capped with concrete to form wall	Earth
LDS	320.0–320.5	Timber walls	Earth
LDS	320.5–320.9	Riprap	Earth
LDS	320.9–321.0	Sheet pile walls	Earth
LDS	321.1–321.3	Sheet pile and timber walls	Earth
LDS	321.3–321.6	Concrete and sheet pile walls	Earth
RDS	314.0–314.1	Concrete walls	Earth
RDS	314.5–315.6	Sheet pile walls	Earth
RDS	315.6–315.9	Concrete walls	Earth
RDS	316.1–316.7	Sheet pile walls	Earth
RDS	317.1–318.4	Sheet pile walls and riprap	Earth
RDS	318.4–318.9	Sheet pile walls	Earth
RDS	320.0–320.3	Sheet pile walls	Earth
RDS	320.6–320.8	Concrete walls	Earth
RDS	320.8–320.9	Sheet pile walls	Earth
RDS	321.1–321.2	Sheet pile walls	Earth
RDS	321.2–321.3	Concrete walls	Earth
RDS	321.3–321.6	Sheet pile walls	Earth

* LDS = left descending side, RDS = right descending side

The Chicago Sanitary and Ship Canal Historic District is today much the same as when the Main Channel and the Lockport Lock, Dam, and Power House Historic District were opened in the early twentieth century. However, some alterations have occurred during the district's history. As a whole, the Chicago Sanitary Ship Canal Historic District has undergone upgrades and repairs that are not consistent with the original design plans. Along the Main Channel, areas of the canal wall have been shored using a variety of materials including riprap, sheet piling, timber, abandoned/sunken barges, and concrete. This is not surprising given that the canal remains in use. Deterioration of some of the canal walls also occurs, but to a minimal degree. Bridges that once spanned the canal have been removed. The Lockport Controlling works has also undergone some minor alterations. The bear trap dam at this location was removed in 1938, and a small addition has been added to the facility. The Butterfly Dam has undergone significant changes, principally the removal of the dam, control house, bridge, and dam house. All that remains of this once impressive structure are the walls that once held the dam in place and the foundation of the control house. The Willow Springs Spillway has had fill placed behind it to stop overflow from the Des Plaines River. The Lockport Lock, Dam, and Power House Historic District has undergone the most alterations due to its continued function for providing navigability of the Illinois Waterway and as a power supply for the Chicago Metropolitan area. Mechanical equipment was replaced; the Sanitary District of Chicago Lock is no longer in use; and the bear trap gates were replaced with sluice gates and concrete dams. The Lockport Power House has undergone similar changes as well as repairs/additions to the facilities. Vegetation has also taken hold in areas along the Chicago Sanitary and Ship Canal Historic District. While the district has had some alterations, the contributing resources of this district remain in context, the overall condition of the district (within the district boundaries) mirrors that of its appearance in the late 1800s and early 1900s, and some of the resources in the district continue to operate with their original intended purposes. The overall condition of this district is good.

Notes to Section 7

[1] Henning, Barbara J. *National Register of Historic Places Multiple Property Submission, Illinois Waterway Navigation System Facilities*. Prepared for the U.S. Army Corps of Engineers. Springfield: Illinois State Museum Society Landscape History Program, 2002.

[2] Henning, Barbara J. *Phase I Architectural and Engineering Inventory of Properties within the Chicago Sanitary and Ship Canal, Cook, DuPage, and Will Counties, Illinois between River Miles 290.0 and 321.7.* Prepared for the U.S. Army Corps of Engineers. Springfield: Illinois State Museum Society

Landscape History Program, 2003, pp. 3.9, 4.1–4.2.

[3] Ibid, p. 2.2.

[4] Ibid, p. 4.10.

[5] Currey, Josiah S. *Chicago: Its History and Its Builders*. Chicago: The S.J. Clark Publishing Company, 1912, p. 118; Foote, Lorien. "Bring the Sea to Us. The Chicago Sanitary and Ship Canal and the Industrialization of the Midwest, 1885–1929." *Journal of Illinois History* (Spring 1999), pp. 40–41.

[6] Henning 2003, p. 2.5.

[7] Ibid, p. 2.7.

[8] Ibid, p. 2.6.

[9] Ibid.

[10] Lanyon, Richard. "So They Reversed the River." Prepared for the Metropolitan Water Reclamation District of Greater Chicago, 1999, pp. 6-1 to 6-10.

[11] Henning 2003, p. 2.6.

[12] Lanyon 1999, p. 6-8.

[13] Henning 2003, pp. 2.6–2.7; Lanyon 1999, pp. 6-6 to 6-7.

[14] Henning 2003, p. 2.6; Lanyon 1999, pp. 6-8 to 6-10.

[15] Henning 2003, p. 2.7; Hill, Libby. *The Chicago River. A Natural and Unnatural History*. Chicago: Lake Claremont Press, 2000, p. 129; Lanyon 1999, pp. 7-1 to 7-12.

[16] Henning 2003, p. 2.7.

[17] Armstrong, Ellis et al., eds. *History of Public Works in the United States, 1776–1976*. Chicago: American Public Works Association, 1976, p. 7.8; Henning 2003, pp. 2.8–2.9; Lanyon 1999, p. 7-7.

[18] Unknown. *Authority, Agreements and Proceedings References covering Bridges*

and Subways Built within the Jurisdiction of the Sanitary District of Chicago. Manuscript on file, Metropolitan Water Reclamation District of Greater Chicago, 1951, pp. 25–26.

19 Ibid, pp. 22–23.

20 Ibid, pp. 18–20.

21 Henning 2003, p. 4.46.

22 Currey 1912, p. 125.

23 Lanyon 1999, p. 5-12.

24 Currey 1912, pp. 134–135; Randolph, Isham. "The Work of the Sanitary District of Chicago: The Already Accomplished and Yet Contemplated below the Controlling Works at Lockport." *Journal of the Western Society of Engineers* XII (July and August 1907), pp. 524–529; Sanitary District of Chicago. *Engineering Works*. Manuscript on file, Metropolitan Water Reclamation District of Greater Chicago, 1928.

25 Henning 2003, p. 4.42.

26 Henning 2003, p. 4.42.

27 Henning 2002.

28 Henning 2002.

Section 8: Statement of Significance

The Chicago Sanitary and Ship Canal Historic District is significant under National Register Criteria A, C, and D as examples of the property types *dam, lock, control station,* and *powerhouse* on the original Illinois Waterway Navigation System multiple property listing[1], and as examples of the property types *canal, spillway,* and *control works* on the amended Illinois Waterway Navigation System multiple property submission. Overseen by the Sanitary District of Chicago, construction of the Chicago Sanitary and Ship Canal commenced in 1892 and ended 1908. Three structures were added in the Lockport Lock, Dam, and Power House Historic District after the construction of the Chicago Sanitary and Ship Canal. These structures (New Lock, Lockport Dam, and Lockport Control Station) were completed by the State of Illinois but legislated and designed as part of the Chicago Sanitary and Ship Canal's Main Channel Extension project in 1903[2]. The construction of the Chicago Sanitary and Ship Canal marks the beginning of major community planning efforts to aid in handling municipal and industrial wastes in thriving urban environments. The Chicago Sanitary and Ship Canal represents a milestone in wastewater treatment and control that brought together public officials, engineers, and scientists to solve Chicago's waste problems (Criterion A). Additionally, the construction of the canal added to a navigable channel connecting the Great Lakes to the Gulf of Mexico, easing waterway transportation, and increasing commerce throughout Illinois (Criterion A). As the largest public works project undertaken up to 1892, the scope of the plan and the construction techniques used created new standards that were implemented in many other rapidly developing urban areas (Criterion C). The innovative equipment and techniques employed during the construction of the Chicago Sanitary and Ship Canal were reportedly used in other large excavation projects, most notably, the Panama Canal. In the case of the Butterfly Dam remnant site and the Willow Springs Spillway, these resources contribute significant information through their continued existence (Criterion D). As there are very few written accounts of these resources, the significant information that they provide for emergency water control structures along the Chicago Sanitary and Ship Canal is only available through field investigations of the structure and site.

Development of the Chicago Sanitary and Ship Canal Historic District

The history leading to the development of the Chicago Sanitary and Ship Canal is complex and begins with earlier projects that attempted to deal with Chicago's ever-growing sanitation problems. As shallow wells became polluted by the 1830s, local entrepreneurs began selling drinking water drawn from Lake Michigan.

Following multiple cholera epidemics, the city of Chicago decided the public instead of private sector should control the water and sewage systems of Chicago. City voters approved a $400,000 bond issue creating the Chicago City Hydraulic Company in 1852. Following the 1854 cholera epidemic, the Illinois General Assembly authorized the creation of the Chicago Board of Sewerage Commissioners[3].

To address the sanitation problems of Chicago, the commissioners hired Boston's city engineer, Ellis S. Chesbrough. Constructing a sewer system and ensuring a safe water supply was a monumental feat in the 1850s, as no major American cities had sewer systems[4]. The water and sanitary system developed required the construction of massive tunnels under Lake Michigan with intake cribs placed 3.2 km (2 mi) offshore that would bring unpolluted water to the city. The tunnels were put into operation in 1865[5]. Chesbrough devised many plans to remove sewage and floodwaters from Chicago, one of which was to direct the unwanted water and sewage into the Des Plaines and Illinois rivers through the Chicago River and a new canal. Because of costs, however, the engineer advised that waste and water runoff be drained into the Chicago River, where it would be diluted before reaching Lake Michigan[6]. Creating a single storm water and sewage system for the entire city required large sewers to be constructed beneath the city streets, with gravity moving the water and sewage into the river. Unfortunately, Chicago was built on a low, flat lake plain, and the city had to be raised to accommodate the gravity-based system. The raising of the city began in 1856, and the project continued for about 20 years. The streets and buildings were raised between .6 and 2.4 m (2–8 ft)[7]. With even larger population increases in Chicago, the drinking water from Lake Michigan again became contaminated. To solve the contamination problem, the intake cribs were moved farther into the lake. In addition, the Chicago River was reversed in 1862, directing polluted water away from Lake Michigan[8]. Between 1865 and 1871, wastewater from the Chicago River was directed into the deepened Illinois and Michigan Canal. This system worked under normal conditions, but failed during extraordinary events such as periodic heavy rainfall. Following the Chicago Fire of 1871, and during the 1870s, Chicago was reported to have the highest mortality rate of any city in the United States. According to several scholars, waterborne diseases increased during this time due to backflow of the stressed sanitation system into Lake Michigan[9]. While disagreements occur among scholars as to how many people died from waterborne diseases during this period, it is known that the overloaded sanitary system was an immediate health concern for the citizens and the elected officials. Because of frequent contaminations to the city's water supply, the Chicago Citizens' Association appointed a "Committee on the Main Drainage and Water Supply of Chicago" to investigate the problem. The efforts of this committee, under the leadership of Northwestern University's civil engineering professor Lyman Cooley, led to new plans and proposals and eventually the Chicago Sanitary and Ship

Canal[10].

By the latter half of the nineteenth century, Chicago had blossomed into a major American city, reaching a population of nearly 350,000 by 1870. Chicagoans proposed the construction of a new canal large enough and deep enough to manage floodwaters, sewage, and large freight vessels. Chicagoans argued that a new canal would benefit downstream communities because it would provide access for larger barges than the Illinois and Michigan Canal could handle[11]. On May 29, 1889, the Illinois General Assembly authorized the creation of sanitary districts throughout Illinois. The legislation also addressed the concerns of Chicago, specifying that a new canal be built that could handle a flow of 283 m^3 (10,000 $ft.^3$) per second. Five thousand people petitioned for a vote on the creation of the Sanitary District of Chicago[12]. According to William's 1919 legal history of the Sanitary District of Chicago, when voters assembled on November 5, 1889, 70,958 people voted in favor of the formation of the sanitary district[17] while 242 people opposed its creation. Following the vote, the Sanitary District of Chicago was created to oversee the needs of a 479 km^2 (185 mi^2) district. The Sanitary District of Chicago oversaw the construction of the Chicago Sanitary and Ship Canal, with "Shovel Day" occurring on September 3, 1892 in Lemont to a crowd of 1,200 people[14].

The plans for the Chicago Sanitary and Ship Canal included moving the Des Plaines River to the west side of its valley, digging a new drainage canal from the Chicago River at Robey Street (Damen Avenue) to the Des Plaines River at Lockport, making the Chicago River and new canal flow away from the lake and building intercepting sewers along the lakefront that would carry their load to the drainage canal[15]. The canal between Lockport and Ashland Avenue was known as the Main Channel. The Main Channel was originally 45.1 km (28 mi) long and as previously mentioned split into three construction segments. Bids for excavation on the rock section of the canal were collected in June 1892. Six different contractors were selected for the excavation of this segment, and the total cost of the rock section excavation was $13,000,000. The excavation of the rock section was reportedly the first time channeling machines were employed on a large scale[16]. The first contract for Section 15 of the canal was awarded in the fall of 1894 and included the Lockport Controlling Works. Lockport Controlling Works required only one person to operate its dam, an unusual labor requirement for late nineteenth century dams[17]. Excavation of the rock segment of the Main Channel continued until 1899. Contracts were first awarded for the earth and rock segment of the Main Channel late in 1892. No channeling machines were used in this segment and contractors typically used dredges. Excavation of the earth and rock segment ended in 1899. In May 1893, the Sanitary District of Chicago Board decided to create a new large capacity channel segment known as the earth segment[18]. Excavation of the earth segment ended in 1899.

While Chicago residents were elated at the prospect of having a reasonable solution to their sanitation woes, other communities were dreading the opening of the Chicago Sanitary and Ship Canal. Communities along Lake Michigan were concerned that the water level of the lake would fall dramatically as waters were diverted into the Chicago River. St. Louis, Missouri feared the sewage being added to the Illinois River would pollute their downstream waters. Officials at the Sanitary District of Chicago, aware of possible court action, allowed a small amount of water from the Chicago River into the canal on January 2, 1900 in an attempt to sidestep possible litigation that would prohibit the opening of the canal. The Sanitary District of Chicago also acted swiftly in countering injunctions opposing the canal. On January 17, 1900, the dam at the Lockport Controlling Works was lowered, thus formally opening the canal. An injunction had been filed on behalf of St. Louis, but was too late to stop the opening of the canal[19].

When the Chicago Sanitary and Ship Canal opened in 1900, it served the dual purpose of a sanitation canal and navigable channel. Unfortunately, the navigable channel extended only to Lockport, where it ended in a non-navigable tailrace. To extend the Main Channel to the navigable Des Plaines River channel, the 1903 Illinois General Assembly passed legislation that extended the corporate limits of the Sanitary District of Chicago and authorized the construction of additional elements including dams and power generating stations. Specifically, the legislation adopted in May 1903 authorized the construction of the 6.4 km (4 mi) Main Channel Extension, Butterfly Dam[20], Lockport Power House, and Sanitary District of Chicago Lock. The Willow Springs Spillway was constructed in 1908 to add to the powerhouse's generating capabilities. The small Sanitary District of Chicago Lock had an 11 m (36 ft) lift, making it the highest ever built up to that time[21]. The Main Channel Extension project lasted from 1903 to 1908 and cost $7,114,000.

The creation of the Chicago Sanitary and Ship Canal required the development of new excavation equipment. By the end of the project, over 22,172,000 m^3 (29,000,000 yd^3) of earth and 9,175,000 m^3 (12,000,000 yd^3) of rock were excavated[22]. To accomplish this monumental earthmoving task, contractors employed dredges, channeling machines, and conveyors. Enormous steam-powered shovels removed the rock and soil, and at least two of these shovels (specifically designed for the Chicago Sanitary and Ship Canal) weighed 65.3 metric tons (72 short tons). Special grading machines were also developed. These grading machines required 12–16 horses to pull the machines and subsequently deposit the sediment in a revolving apron. Large conveyors were also developed during this construction project including the Heidenreich incline, Mason and Hoover conveyor, and Bates conveyor[23]. The self-loading Mason and Hoover conveyor was one of the most colossal machines used. The machine spanned the channel and had two cantilever arms with the distance between the tips being 195.1 m (640 ft). The Mason and Hoover conveyor first operated in September 1894, and fell into disrepair on November 8, 1894 when one of the arms broke, and again on January 21, 1895 when strong winds pushed the machine over[24]. The machines designed for the construction of the canal took on the collective name of the "Chicago School of Earth Moving"[25].

The Sanitary District of Chicago became the Metropolitan Sanitary District of Greater Chicago in 1955. In 1955, the American Society of Civil Engineers named the Metropolitan Sanitary District of Greater Chicago's facilities one of the seven engineering wonders of the United States. In 1989, the Metropolitan Sanitary District of Greater Chicago was renamed the Metropolitan Water Reclamation District of Greater Chicago. A few wastewater treatment facilities were added after the major canal construction efforts. These additional facilities were constructed in the 1920s and 1930s and continue to release their (treated) outflow into the Chicago Sanitary and Ship Canal.

The goal of the Illinois Waterway (of which the Chicago Sanitary and Ship Canal is a part of) was to create a navigable waterway link between the Great Lakes and Gulf of Mexico. While the completion of the Chicago Sanitary and Ship Canal and its extension in 1908 was a significant step in creating this waterway, the project was far from complete. In 1908, the State of Illinois issued $20,000,000 in bonds to fund the waterway in Illinois. Construction did not commence until 1920[26]. The State funded portion of the Illinois Waterway consisted of a 98.2 km (61 mi) canal that utilized the Des Plaines and Illinois rivers. Five lock and dams occurring at Lockport, Brandon Road at Joliet, Dresden Island, Marseilles, and Starved Rock, and a short canal around the Marseilles rapids were planned along the upper Illinois River. These lock and dams were previously listed to the National Register of Historic Places[28]. At the close of 1929, the Illinois Waterway project was at 75% completion, and the State of Illinois ran out of funding. Federal involvement in the Illinois Waterway began with the passage of the Rivers and Harbors Act of 1930. This brought the necessary funds to complete the project and moved the jurisdiction of the Illinois Waterway to the U.S. Army Corps of Engineers. The Rivers and Harbors Act of 1930 also reduced the amount of water diverted from Lake Michigan. Continuing their legal recourse, shoreline communities around Lake Michigan persisted in claiming that Chicago was drawing too much lake water. In the 1930 case of Wisconsin vs. Illinois, 281 U.S. 696, the U.S. Supreme Court ruled the Sanitary District of Chicago had been diverting too much lake water from Lake Michigan since the opening of the Chicago Sanitary and Ship Canal in 1900. The U.S. Army Corps of Engineers completed and opened the Illinois Waterway in 1933[29]. The openings of the Illinois Waterway and Chicago Sanitary and Ship Canal created an important navigable transportation system that allowed products to flow from the Great Lakes to the Gulf of Mexico. While the Chicago Sanitary and Ship Canal and Illinois Waterway are separate entities, they are connected and integral components to the Illinois Waterway Navigation System.

Context of the Chicago Sanitary and Ship Canal Historic District

The period of significance for the Chicago Sanitary and Ship Canal Historic District (1892–1951) is based on the dates of construction for the canal and its associated facilities under the direction of the Sanitary District of Chicago. 1951 is chosen as the close date because that is the date of significance given for the incorporated Lockport Lock, Dam, and Power House Historic District. Most of the structures and buildings listed as contributing resources to this district were constructed during the building efforts of the Chicago Sanitary and Ship Canal (1892–1908). This is not the case at the Lockport Lock, Dam, and Power House Historic District, where the New Lock, Lockport Dam, and Control Station were built after the construction period of the Chicago Sanitary and Ship Canal. The justification for including these buildings and structures as contributing resources as they are a part of an already listed historic district that shares significant resources (i.e., Lockport Power House and Sanitary District of Chicago Lock) with the Chicago Sanitary and Ship Canal Historic District. Few alterations have affected the district since the canal's opening in 1900 and the opening of the Main Channel Extension in 1908. The Chicago Sanitary and Ship Canal Historic District maintains the original construction methods and designs developed by the late nineteenth century/early twentieth century engineers. The property has exceptional integrity of location, design, setting, materials, feeling, and association. Because the Chicago Sanitary and Ship Canal Historic District remains in operation, a few changes have occurred, including patching the canal walls, upgrades to the machinery, removal of bridges, vegetation growth, and removal of Butterfly Dam. As usable facilities, many of the upgrades reflect the changing electrical needs (as is observed at the Lockport Power House) and transportation needs (as suggested by canal repairs and industrial development) of the Chicago Metropolitan residents. These upgrades/changes have not detracted from the significance of the district, as the majority of the contributing resources remain unchanged and in good to very good condition. The occurrence of industrial development along its banks is a testament to the canal's historic and continuing significance to U.S. waterway navigation and commerce. Without this type of development, the canal would not have served one of its primary functions; to promote local economies through waterway transport.

Surrounded by a sprawling urban environment, the Chicago Sanitary and Ship Canal Historic District is a window into activities that shaped the modern metropolitan area. The contrast between the late nineteenth century and the present is most prevalent within the Chicago stretch of the canal, where modern is mixed with the past, and shared community history radiates from the canal's waters. While historic contrasts are most evident in urban areas, the Chicago Sanitary and Ship Canal Historic District is a cohesive property that maintains its architectural integrity from its beginning at Ashland Avenue to its terminus at Lockport. The district is definable from its surrounding space by waterway structures such as the Willow Springs Spillway, Lockport Controlling Works, Butterfly Dam remnant, and Lockport Lock, Dam, and Power House Historic District, all of which are found along the earthen, laid-up, and cut limestone walls of the canal.

The Chicago Sanitary and Ship Canal Historic District represents significant developments in community planning and development, maritime history, transportation, engineering, architecture, and commerce. In consideration of National Register Criterion A, the district has achieved significance in multiple ways. The Chicago Sanitary and Ship Canal was the largest, most integrated, and first community planning and development effort conducted by a major U.S. city to address sanitary concerns of its populace. Additionally, the district is significant to local, state, and U.S. maritime history as it is a segment of a larger transportation route (Illinois Waterway) that opened a navigable channel from the Great Lakes to the Mississippi River (and by extension, Gulf of Mexico). The canal also opened up wider commercial markets, allowing people of Chicago, the state of Illinois, and all other states along the Mississippi River and Gulf Coast the ability to move cheaply and efficiently goods such as coal, petroleum, and grain to previously untapped markets. The district is also significant through National Register Criterion C because the property represents early U.S. large-scale canal building methods and designs, many of which were freshly implemented for this construction project. These designs and methods included the construction of the three-segment canal, reversal of the Chicago River, and use of innovative lock and dam equipment. The property is also significant because of the architectural style of the Lockport Power House, a building that has been previously listed on the National Register of Historic Places whose significance is described elsewhere[30]. The construction of the Chicago Sanitary and Ship Canal led to improved health and infrastructure for Chicago residents, provided commercial transportation routes for the state of Illinois and the U.S., and provided a model for sanitation and canal projects throughout the U.S. and construction projects abroad. Some resources in the district are also eligible under Criterion D. The Butterfly Dam remnant and Willow Springs Spillway are both eligible under this criterion because their current existence is the primary source of information pertaining to these resources. The data available through careful examination of the site and structure will yield significant information concerning emergency water management for the Chicago Sanitary and Ship Canal Historic District; data not available elsewhere and adds to the significance of the district as a whole. Without the incorporation of these resources into the district, key aspects concerning navigational control of the district will be absent.

Notes to Section 8

1 Henning, Barbara J. *National Register of Historic Places Multiple Property Submission, Illinois Waterway Navigation System Facilities*. Prepared for the U.S. Army Corps of Engineers. Springfield: Illinois State Museum Society Landscape History Program, 2002.

2 Busfield, J.L. "The Chicago Drainage Canal. A Review of the Historical, Technical, Financial and International Features." *The Engineering Journal* IX (May 1926), p. 242; Henning, Barbara J. *Phase I Architectural and Engineering Inventory of Properties within the Chicago Sanitary and Ship Canal, Cook, DuPage, and Will Counties, Illinois between River Miles 290.0 and 321.7*. Prepared for the U.S. Army Corps of Engineers. Springfield: Illinois State Museum Society Landscape History Program, 2003, p. 210; Hughes, Charles E. "Notes on the Sanitary Canal System," in *The River that Runs Uphill*. Chicago: Sanitary District of Chicago, 1928, p. 24.

3 Armstrong, Ellis, *et al., eds. History of Public Works in the United States, 1776–1976*. Chicago: American Public Works Association, 1976, p. 226; Hill, Libby. *The Chicago River. A Natural and Unnatural History*. Chicago: Lake Claremont Press, 2000, p. 98; Walker, Ward. The Seventh Wonder of America. Pamphlet, 1959, p. 6.

4 Armstrong *et al.* 1976, p. 672.

5 Armstrong *et al.* 1976, p. 227; Henning 2003, p. 2.2.

6 Henning 2003, p. 2.2; Hill 2000, p. 99.

7 Hill 2000, p. 100.

8 Armstrong *et al*. 1976, p. 229; Cain, Louis P. "The Creation of Chicago's Sanitary District and Construction of the Sanitary and Ship Canal." *Chicago History* (October 1979), p. 98; Hill 2000, p. 105; Walker 1959, p. 6.

[9] Henning 2003, p. 2.1.

[10] Foote, Lorien. "Bring the Sea to Us. The Chicago Sanitary and Ship Canal and the Industrialization of the Midwest, 1885–1929." *Journal of Illinois History* (Spring 1999), pp. 40–41.

[11] Henning 2003, p. 2.1.

[12] Cain 1979, p. 103; Hill 2000, p. 120.

[13] Williams, C. Arch. *The Sanitary District of Chicago: History of Its Growth and Development*. Chicago: Sanitary District of Chicago, 1919, p. 17.

[14] Henning 2003, p. 4.10.

[15] Walker 1959, p. 7.

[16] Henning 2003, p. 2.5.

[17] Lanyon, Richard. "So They Reversed the River." Prepared for the Metropolitan Water Reclamation District of Greater Chicago, 1999, pp. 5–11 to 5-14.

[18] Hill 2000, p. 129; Lanyon 1999, pp. 7-1 to 7-3.

[19] Henning 2003, p. 2.9; Hill 2000, pp. 129–132.

[20] Hughes 1928, p. 24.

[21] Hill 2000, pp. 133–134.

[22] Armstrong *et al*. 1976, pp. 7–8; Henning 2003, p. 2.7.

[23] Cain 1979, pp. 104–105; Henning 2003, p. 2.8.

[24] Lanyon 1999, p. 7-7.

[25] Henning 2003, p. 2.9.

[26] Henning 2002, pp. E10–E11.

[27] Henning 2002.

[28] Ibid.

[29] Ibid, pp. E10–E11.

[30] Ibid.

Section 9: Major Bibliographic References

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Section 10: Geographical Data

ADDITIONAL UTM REFERENCES

Continuing clockwise from the previously defined UTM references noted in Section 10:

UTM #	Zone	Easting	Northing	UTM #	Zone	Easting	Northing
5	16	412,089	4,612,085	20	16	443,918	4,632,289
6	16	415,205	4,614,018	21	16	441,777	4,631,398
7	16	419,137	4,615,665	22	16	438,090	4,629,894
8	16	422,660	4,617,730	23	16	434,543	4,628,407
9	16	426,406	4,620,335	24	16	431,313	4,625,871
10	16	429,506	4,623,516	25	16	428,862	4,622,493
11	16	431,924	4,626,931	26	16	425,073	4,619,257
12	16	435,495	4,628,923	27	16	421,391	4,616,815
13	16	439,175	4,630,435	28	16	417,711	4,615,005
14	16	442,701	4,631,877	29	16	414,080	4,613,481
15	16	443,849	4,632,458	30	16	411,771	4,610,868
16	16	444,601	4,632,806	31	16	411,420	4,607,060
17	16	444,927	4,632,767	32	16	410,756	4,603,702
18	16	444,743	4,632,577	33	16	410,169	4,602,051
19	16	444,426	4,632,661	34	16	410,179	4,600,839

VERBAL BOUNDARY DESCRIPTION

An aerial map is used to define the boundaries of the Chicago Sanitary and Ship Canal Historic District (Figures 1 and 2.1–2.13). In addition to the boundaries identified on the map, a verbal description is used to aid in determining the extents of the historic district.

The Chicago Sanitary and Ship Canal Historic District includes only the areas managed by the Sanitary District of Chicago during the period of significance between 1892 and 1951. The district includes the navigable channel and right-of-way on either side of the canal historically associated with the canal between Illinois Waterway river miles 290.0 and 321.7. The historic right-of-way was between 45.7 m (150 ft) and 61 m (200 ft), although around the spoil piles, the area extends to approximately 76.2 m (250 ft) off the canal centerline. These boundaries include the canal prism, canal walls, embankments/excavated material, dredge material, and lands owned by the Metropolitan and Water Reclamation District associated with the construction of the corridor, historic sanitary and navigation uses of the canal, and maintenance of the Chicago Sanitary and Ship Canal Historic District.

The Chicago Sanitary and Ship Canal Historic District begins below the Lockport Lock and Dam where the canal drains into the Des Plaines River. The district follows the direction of the canal north and then it proceeds west-northwest approximately 1.2 km (.7 mi) north of East Romeoville Road/East 135th Street, Romeoville. The district proceeds northwest and is spanned by the Interstate 355 Bridge where it enters into Cook County. The canal district continues northwest and enters into DuPage County approximately 1.8 km (1.1 mi) northwest of the State Street Bridge. The Cal-Sag Channel enters into the Chicago Sanitary and Ship Canal Historic District approximately .6 km (.4 mi) southwest of the Kingery Highway Sanitary and Ship Canal Bridge. The bridge spans the canal and marks the approximate location where the historic district reenters Cook County. Continuing northwest, the district is crossed by Willow Springs Road at Willow Springs, Interstate 294, and Illinois State Highway 171 at Summit. The district follows Stevenson Expressway/Interstate 55 on the northwest side of the road. It passes under South Harlem Avenue, South Central Avenue, South Cicero Avenue, South Pulaski Road, South Kedzie Avenue, South California Avenue, South Western Avenue, Damen Avenue, and the district ends approximately 22.9 m (75 ft) southwest of South Ashland Avenue where the Chicago Sanitary and Shipping Canal meets with the South Branch of the Chicago River.

As previously stated, the historic district boundaries extend between Illinois Waterway river miles 290.0 and 321.7, and has an approximate width between 45.7 m (150 ft) and 61 m (200 ft) either side of the canal centerline. The Chicago Sanitary and Ship Canal is a notable geographic feature on the U.S. Geological Survey maps, and because it is a machine-cut, reinforced canal, it is not subject to channel meandering. Therefore, the canal itself can be viewed as a fixed reference point throughout the Chicago Metropolitan area. This outlined district area includes the Main Channel, Lockport Controlling Works, Butterfly Dam remnant, Willow Springs Spillway, and the Lockport Lock, Dam, and Power House Historic District. These boundaries also include the cut natural walls, laid-up limestone walls, commemorative tablet, original spoil piles, Main Channel Extension, and original earthen walls; all contributing elements associated with the Main Channel.

BOUNDARY JUSTIFICATION

The Chicago Sanitary and Ship Canal Historic District boundary was drawn to include all of the properties and associated elements that contribute to the significance of the continuous district. The Lockport Lock, Dam, and Power House Historic District is included in the boundaries because it is a contributing property to the Chicago Sanitary and Ship Canal Historic District.

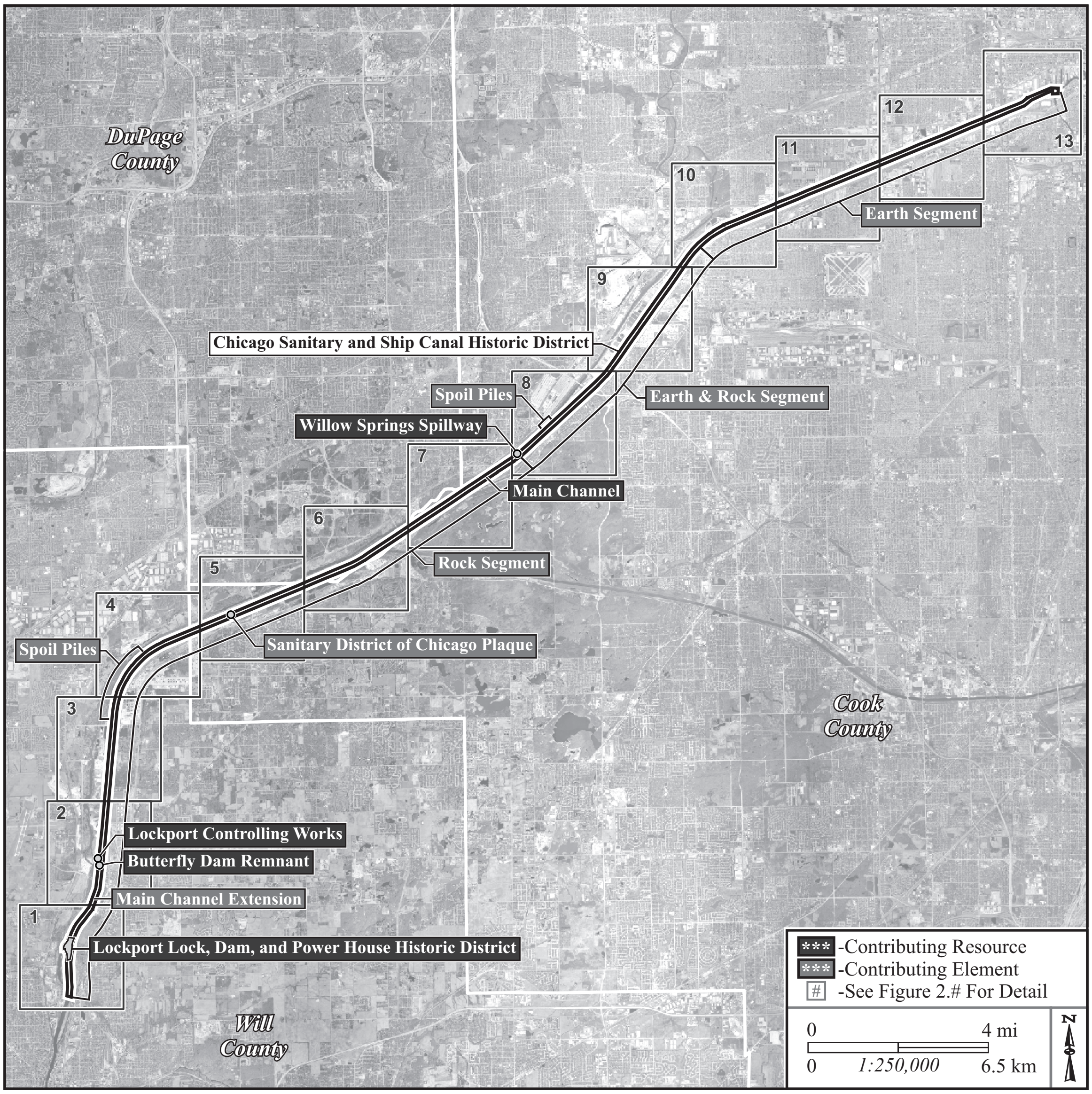

Figure 1: The Chicago Sanitary and Ship Canal Historic District.

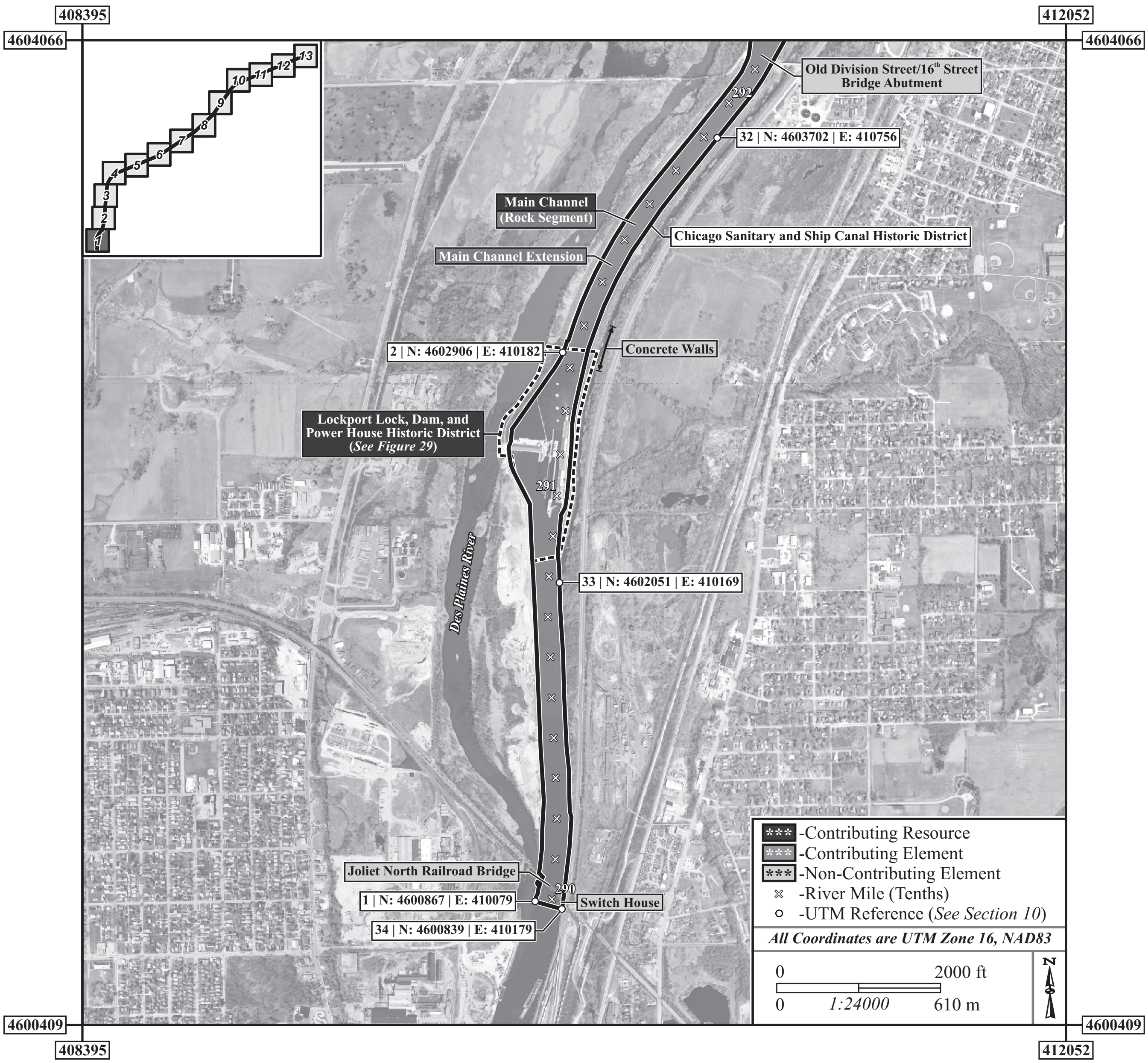

Figure 2.1: Scale map of a portion of the Chicago Sanitary and Ship Canal Historic District.

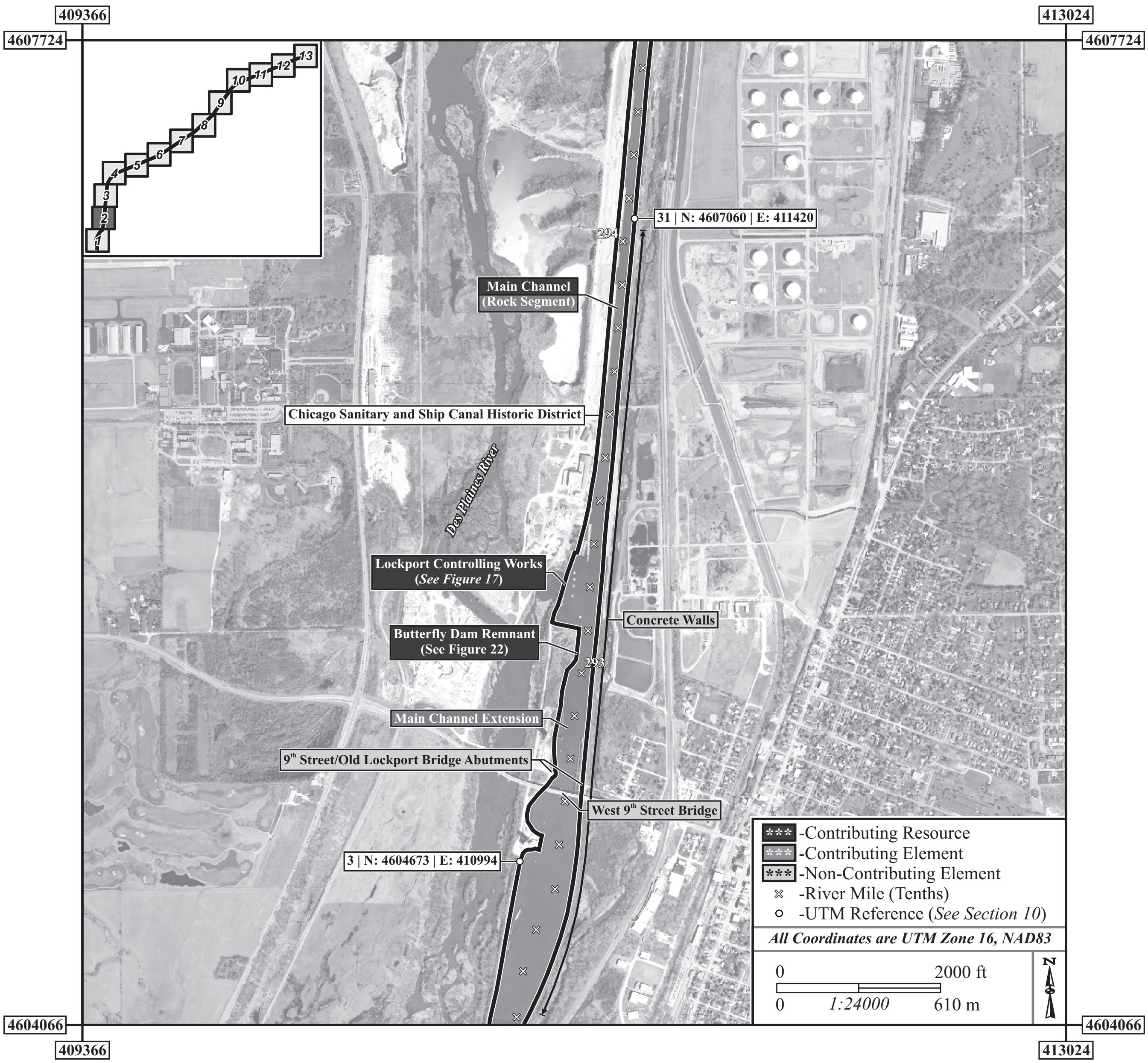

Figure 2.2: Scale map of a portion of the Chicago Sanitary and Ship Canal Historic District.

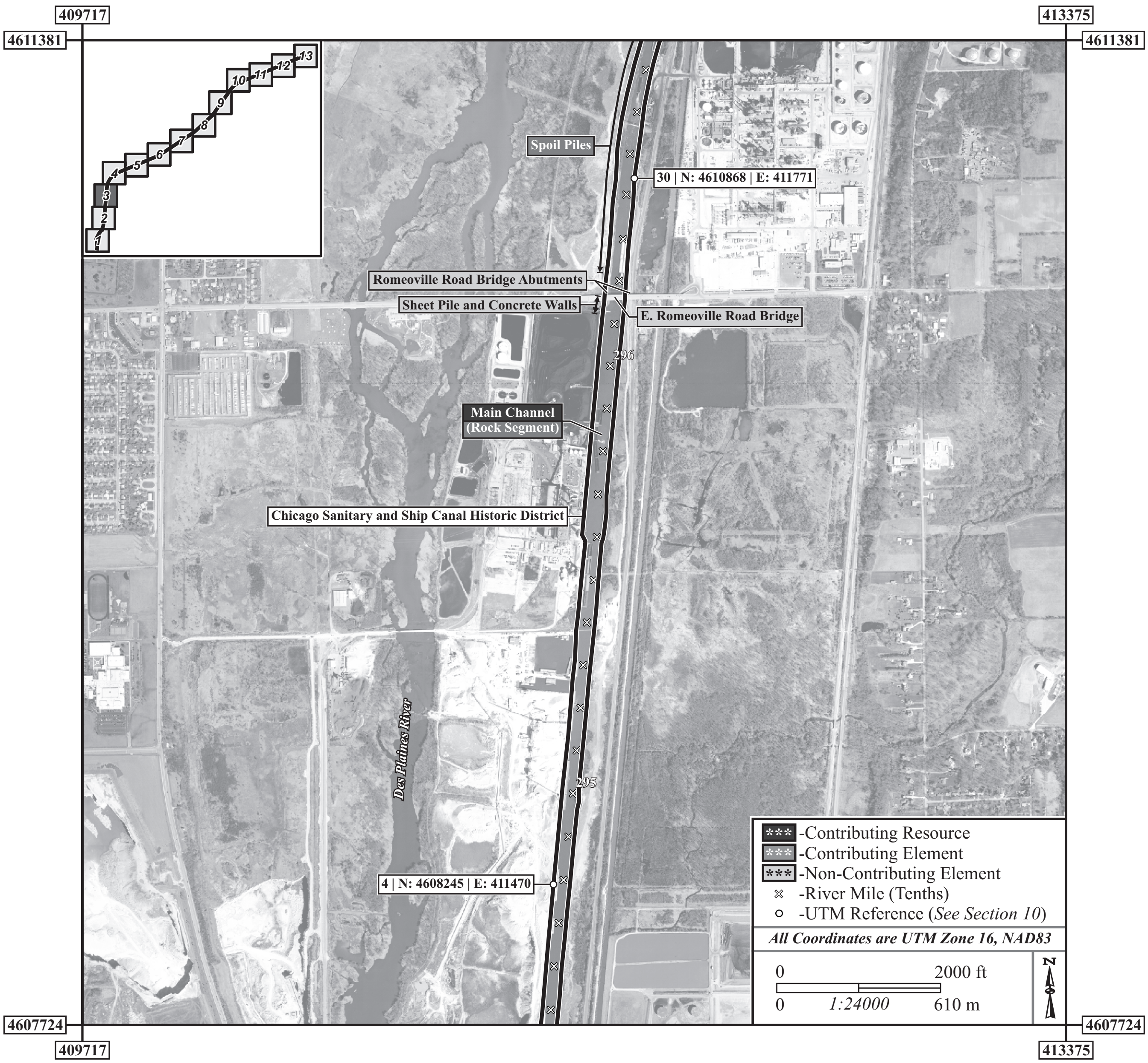

Figure 2.3: Scale map of a portion of the Chicago Sanitary and Ship Canal Historic District.

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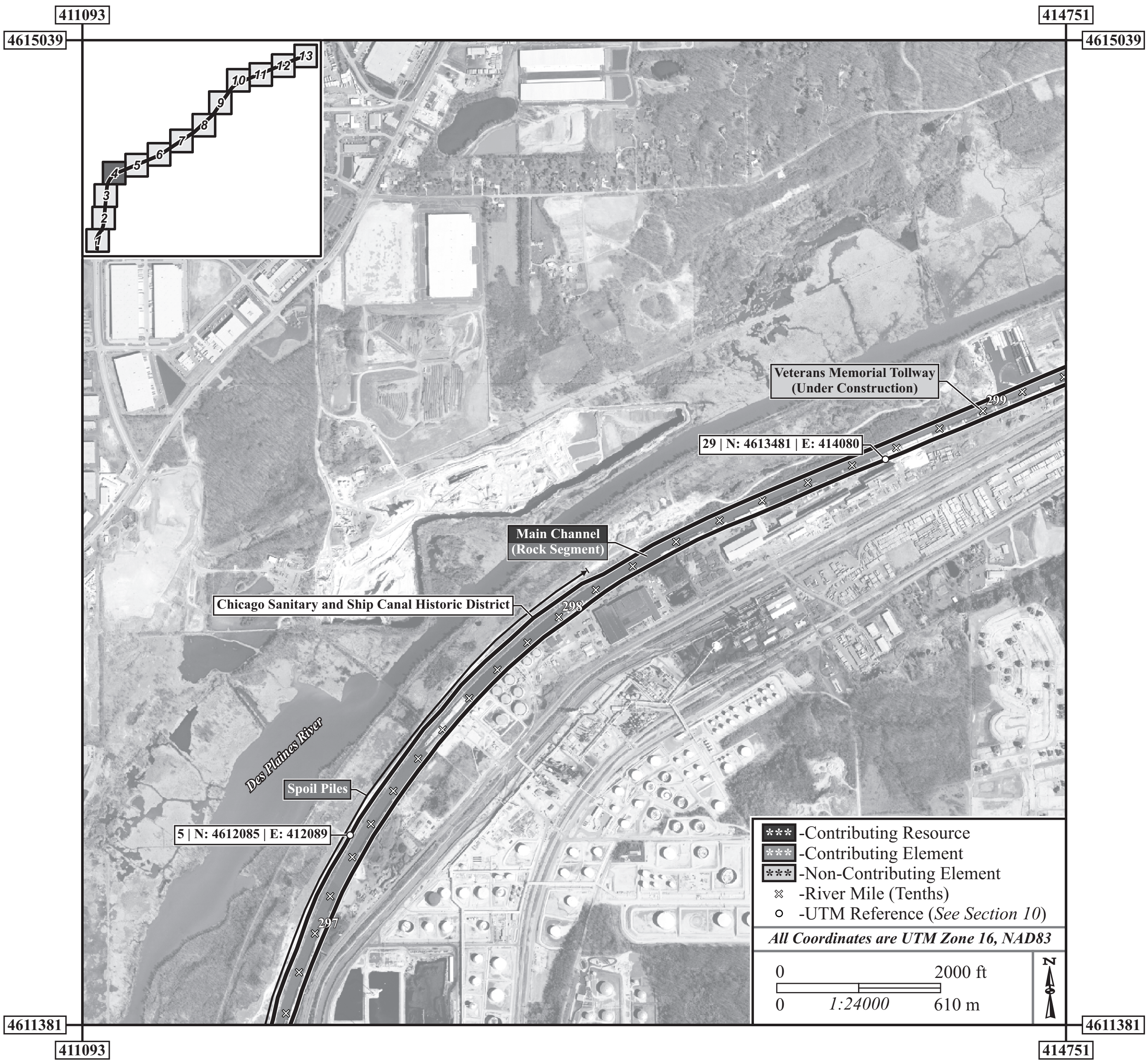

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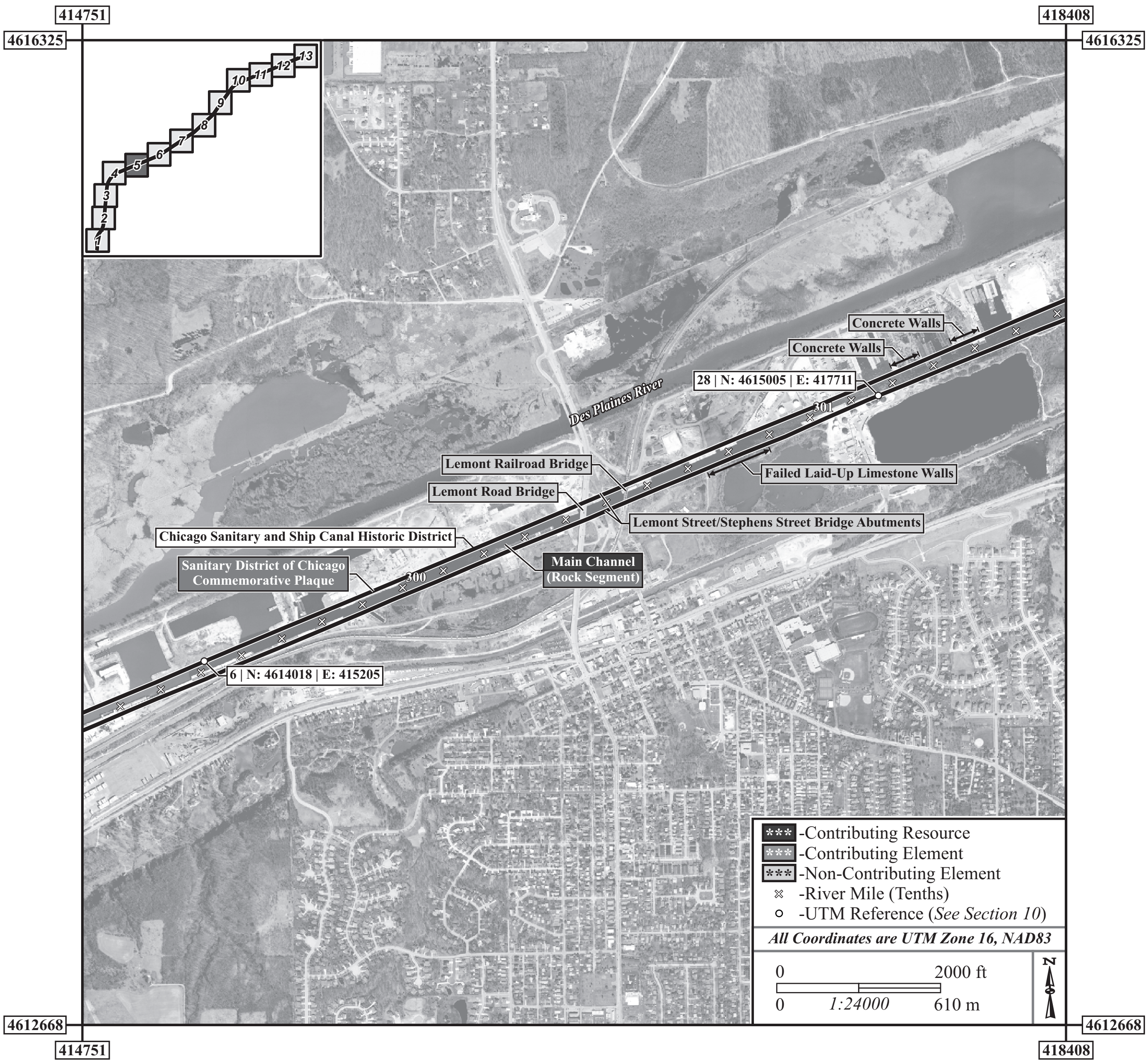

Figure 2.5: Scale map of a portion of the Chicago Sanitary and Ship Canal Historic District.

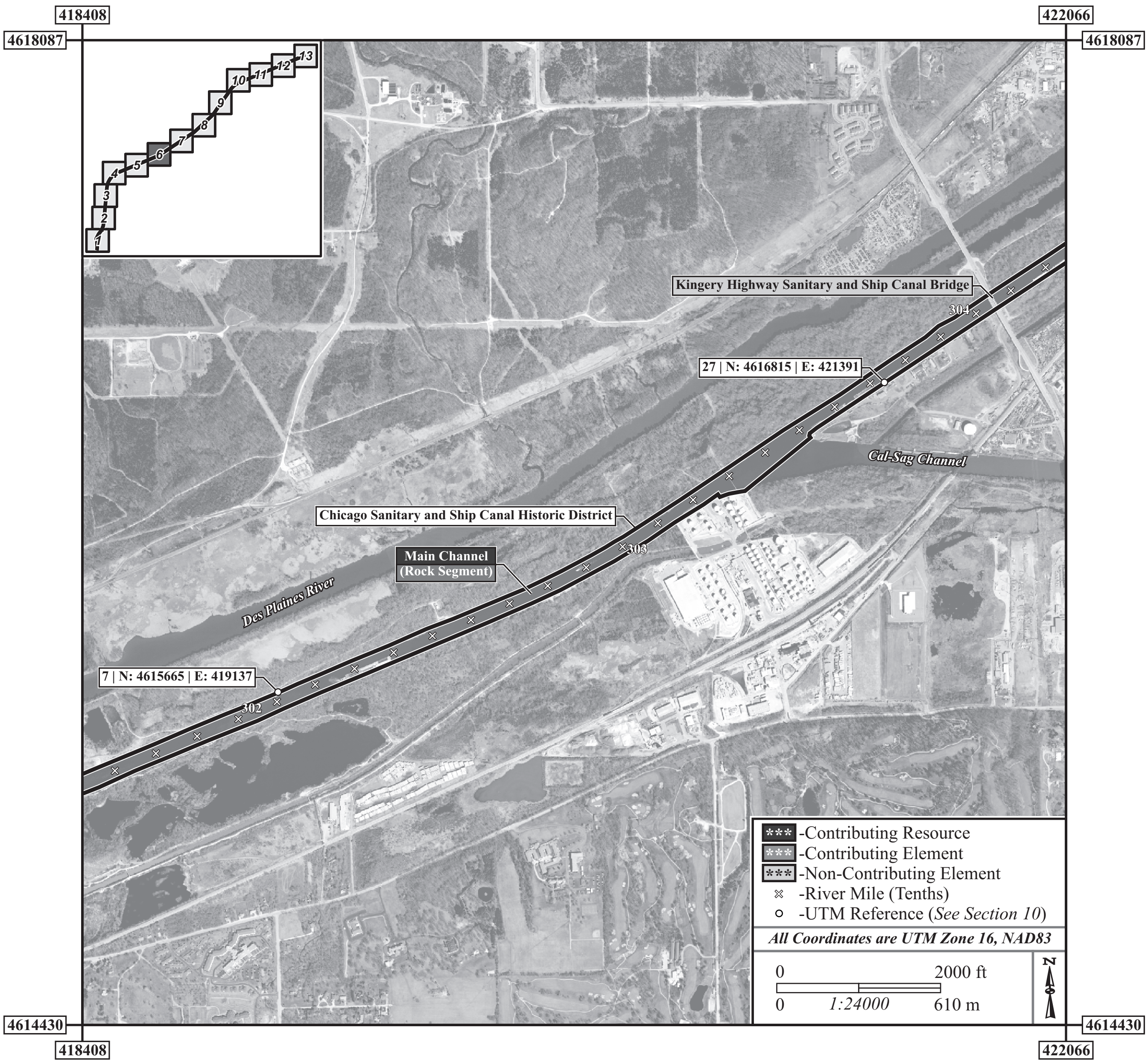

Figure 2.6: Scale map of a portion of the Chicago Sanitary and Ship Canal Historic District.

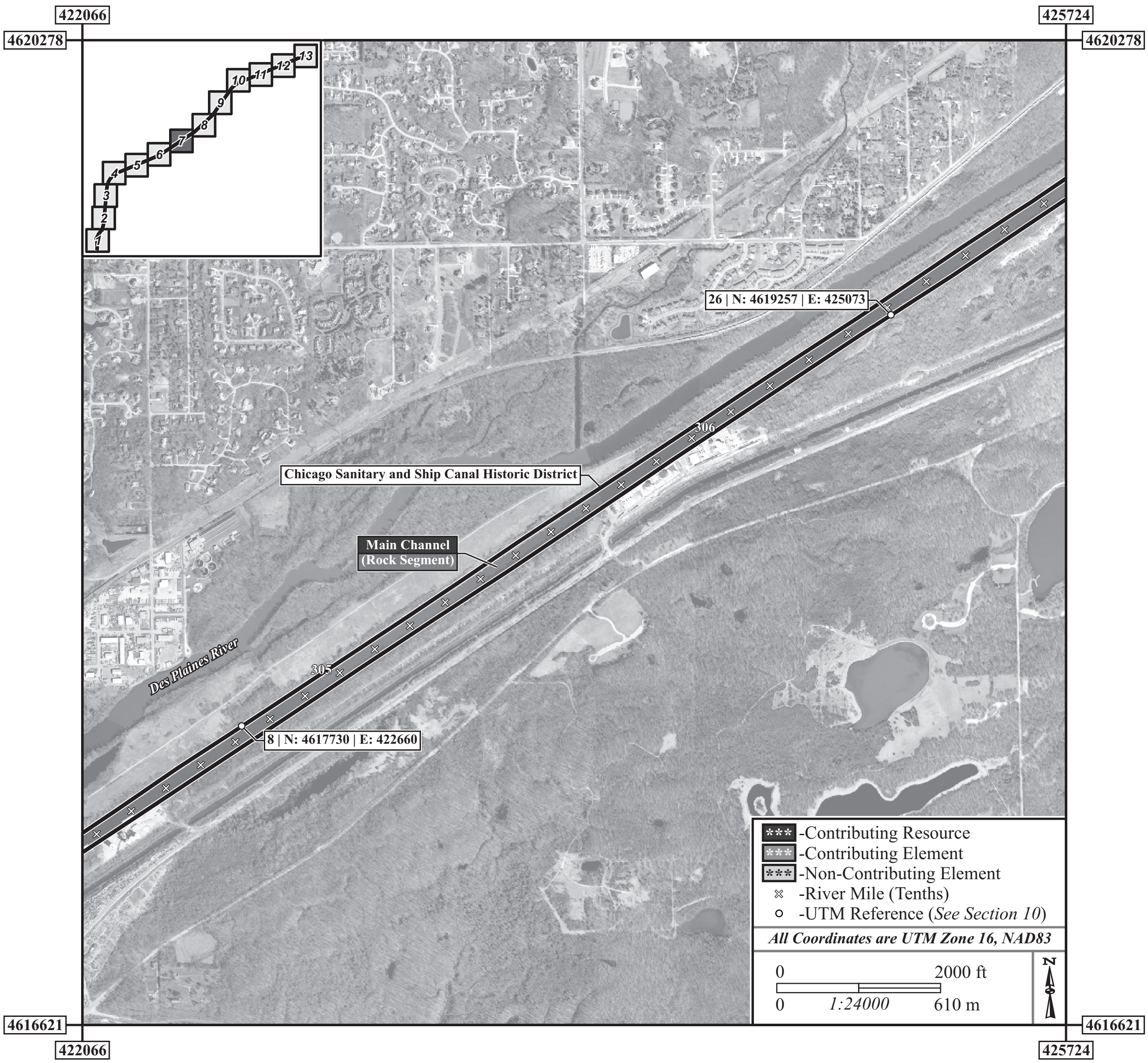

Figure 2.7: Scale map of a portion of the Chicago Sanitary and Ship Canal Historic District.

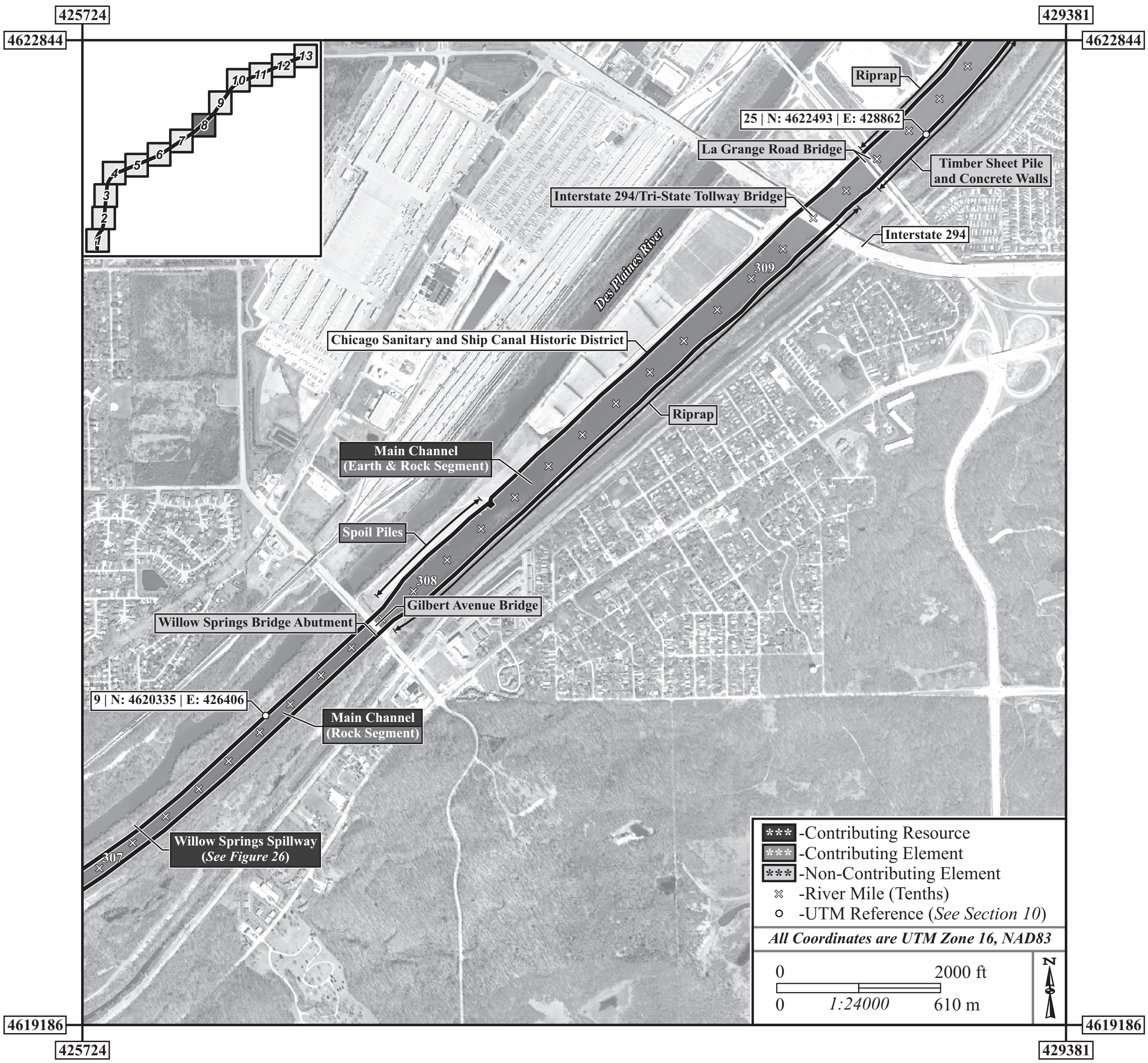

Figure 2.8: Scale map of a portion of the Chicago Sanitary and Ship Canal Historic District.

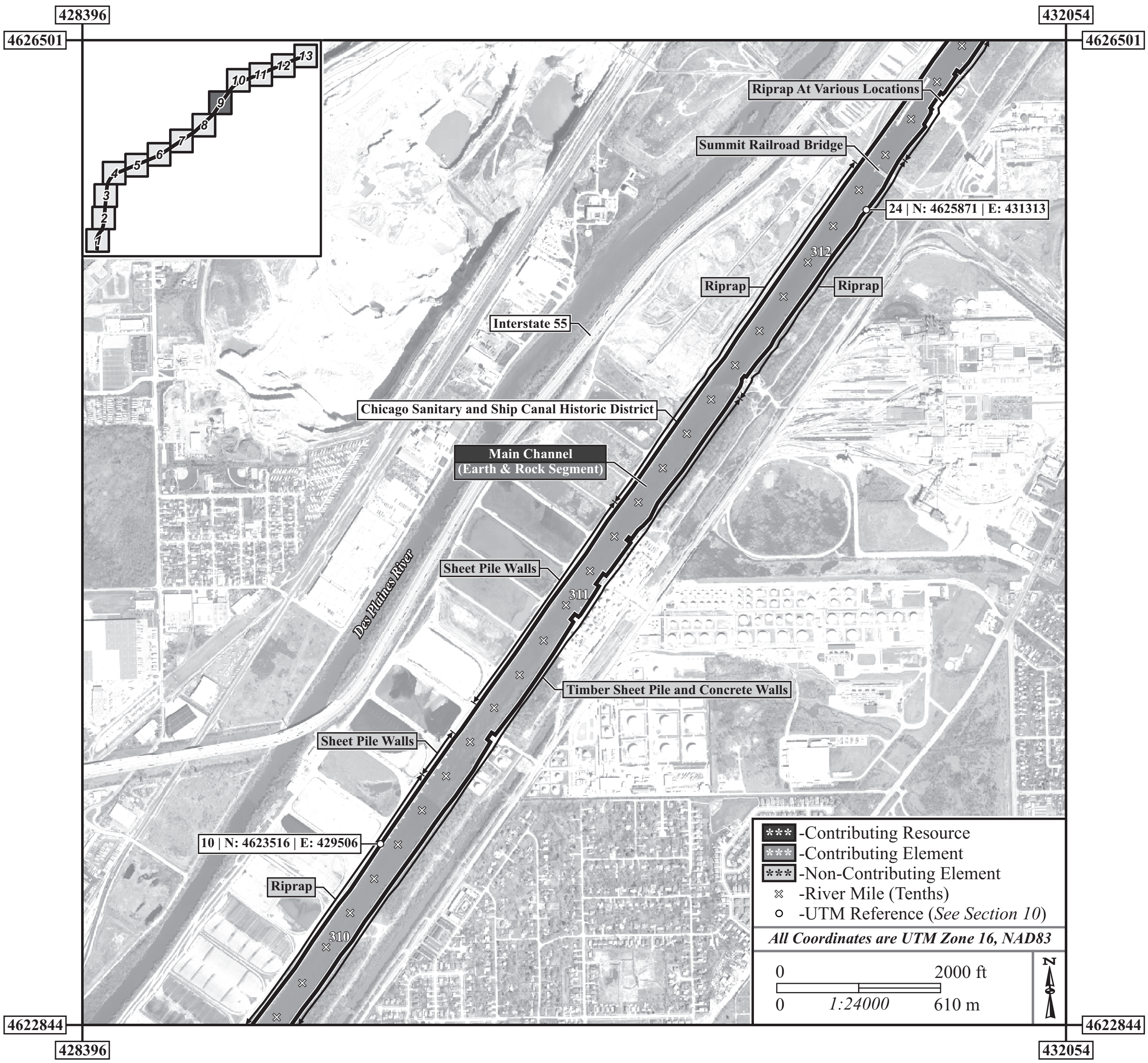

Figure 2.9: Scale map of a portion of the Chicago Sanitary and Ship Canal Historic District.

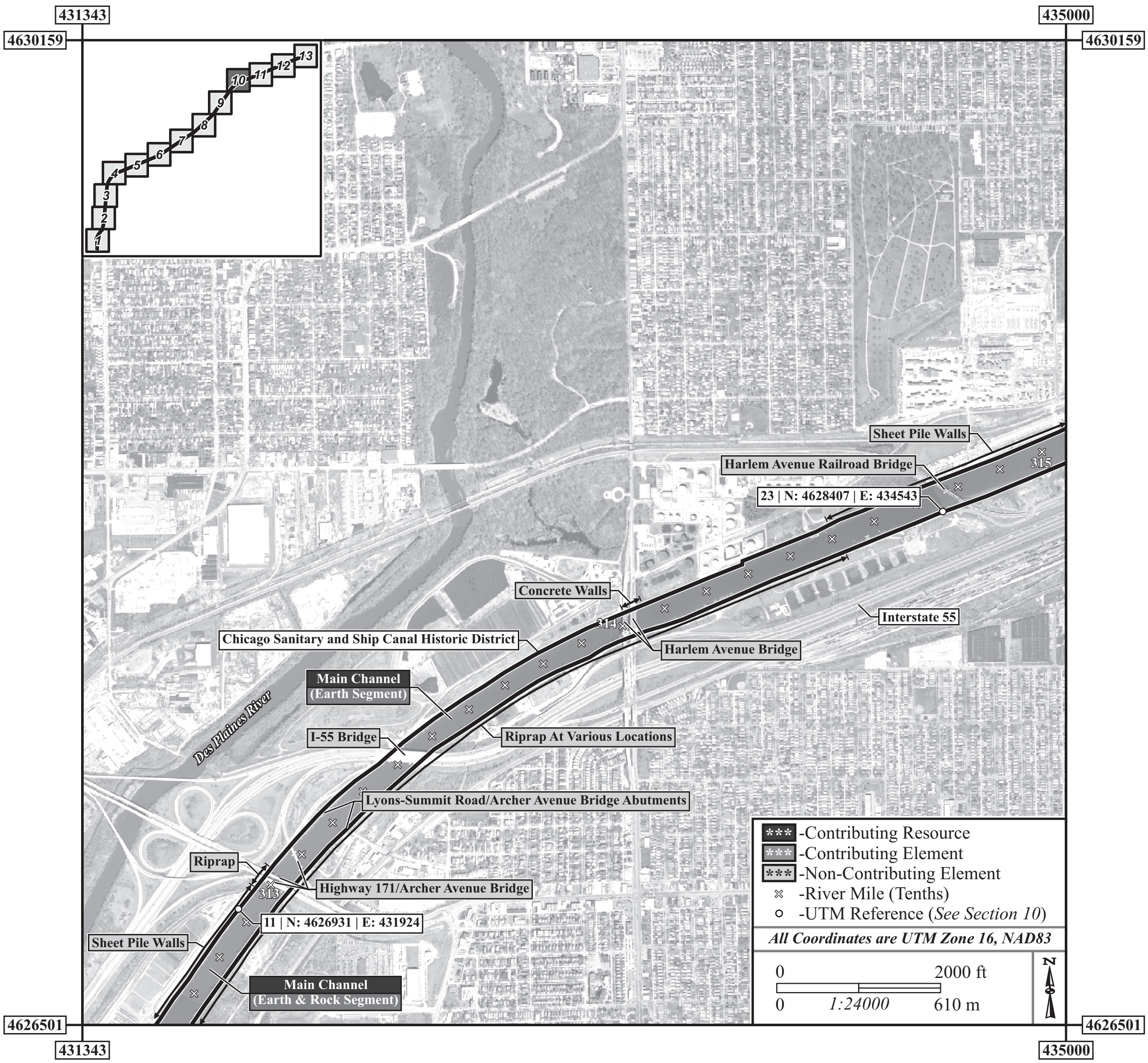

Figure 2.10: Scale map of a portion of the Chicago Sanitary and Ship Canal Historic District.

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(8-86)

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section Figures Page 62 Chicago Sanitary and Ship Canal Historic District
name of property
Cook, DuPage, and Will Counties, Illinois
county and State
Illinois Waterway Navigation System Facilities
name of multiple property listing

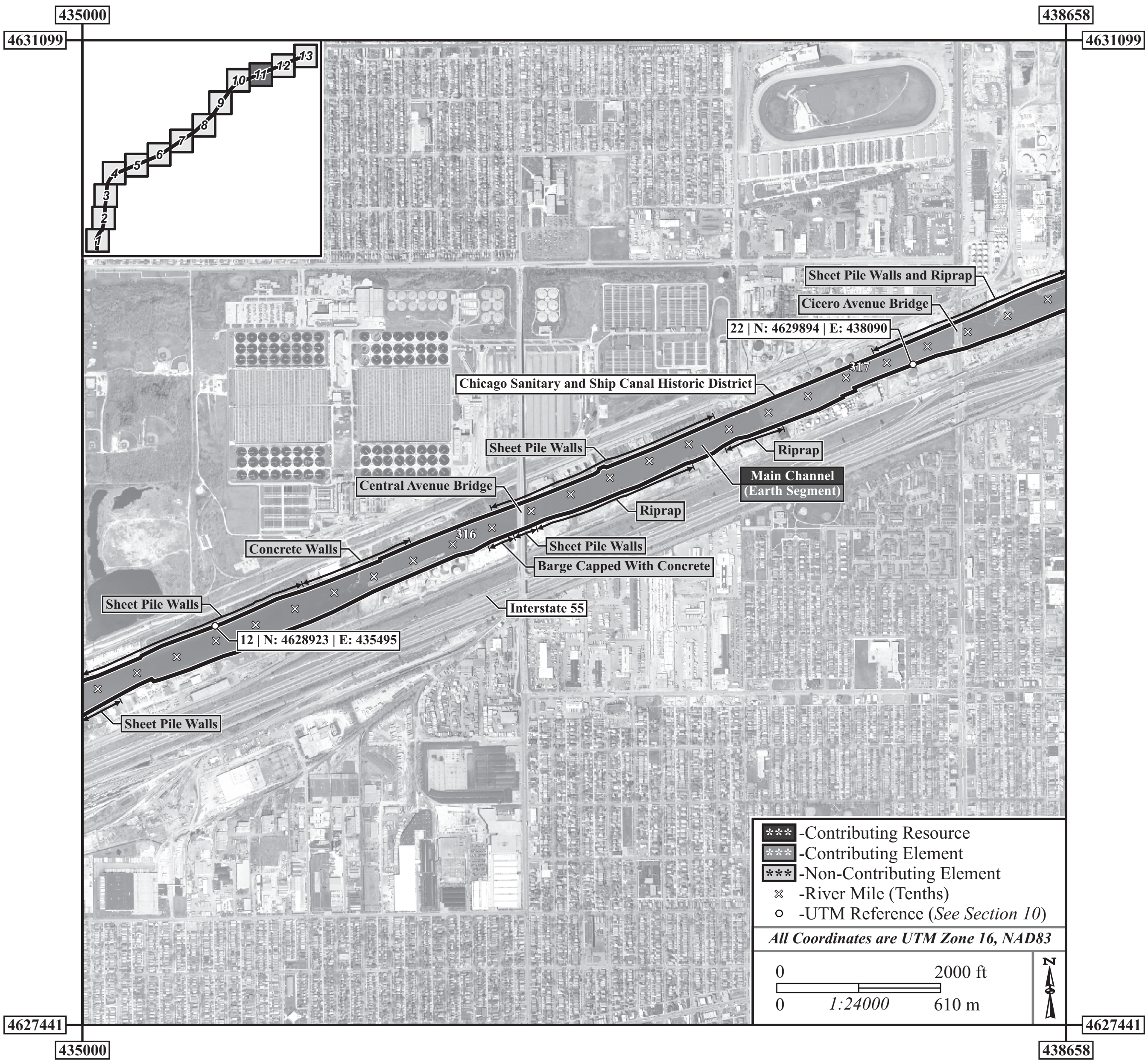

Figure 2.11: Scale map of a portion of the Chicago Sanitary and Ship Canal Historic District.

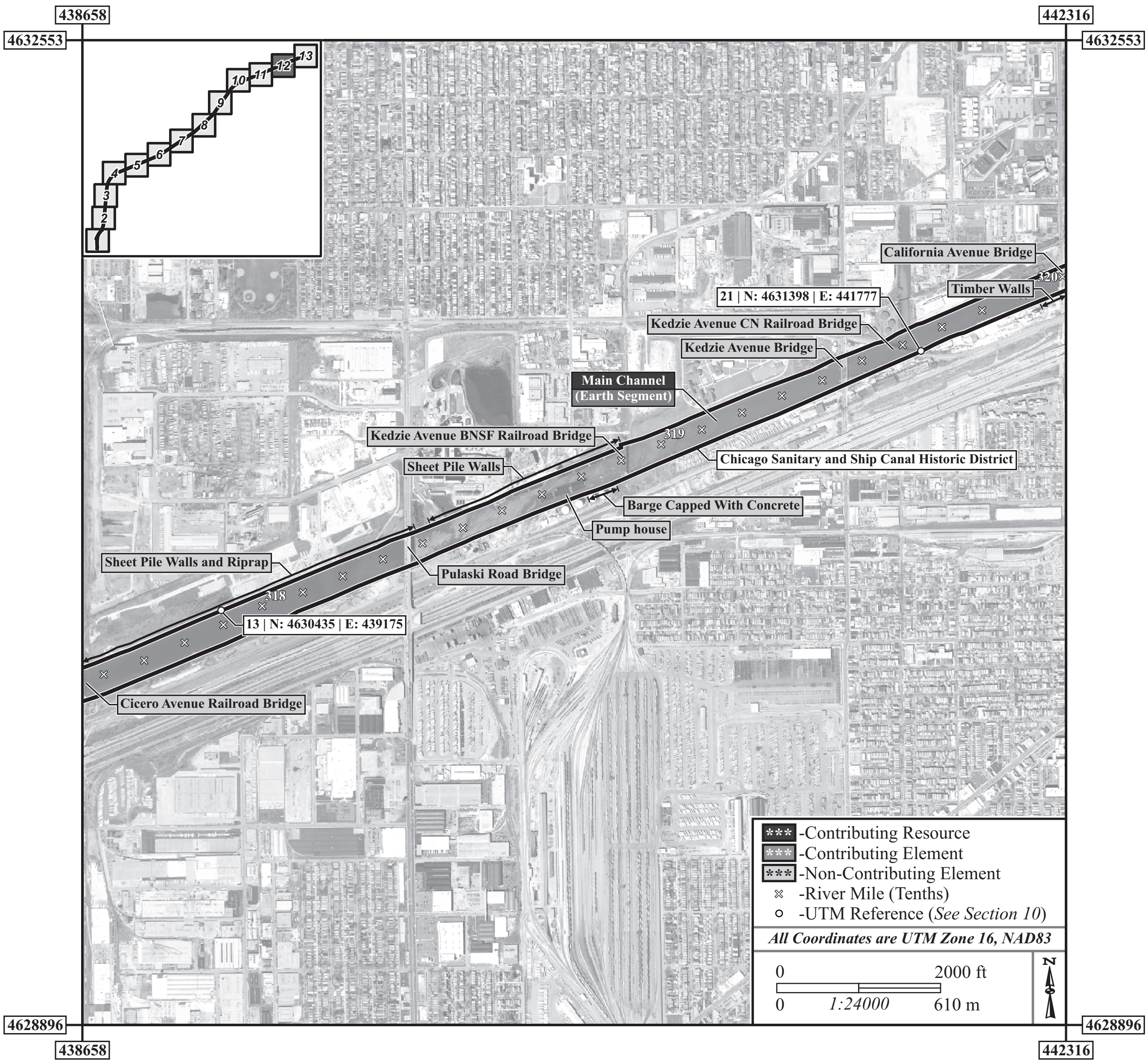

Figure 2.12: Scale map of a portion of the Chicago Sanitary and Ship Canal Historic District.

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United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section Figures Page 64

Chicago Sanitary and Ship Canal Historic District
name of property
Cook, DuPage, and Will Counties, Illinois
county and State
Illinois Waterway Navigation System Facilities
name of multiple property listing

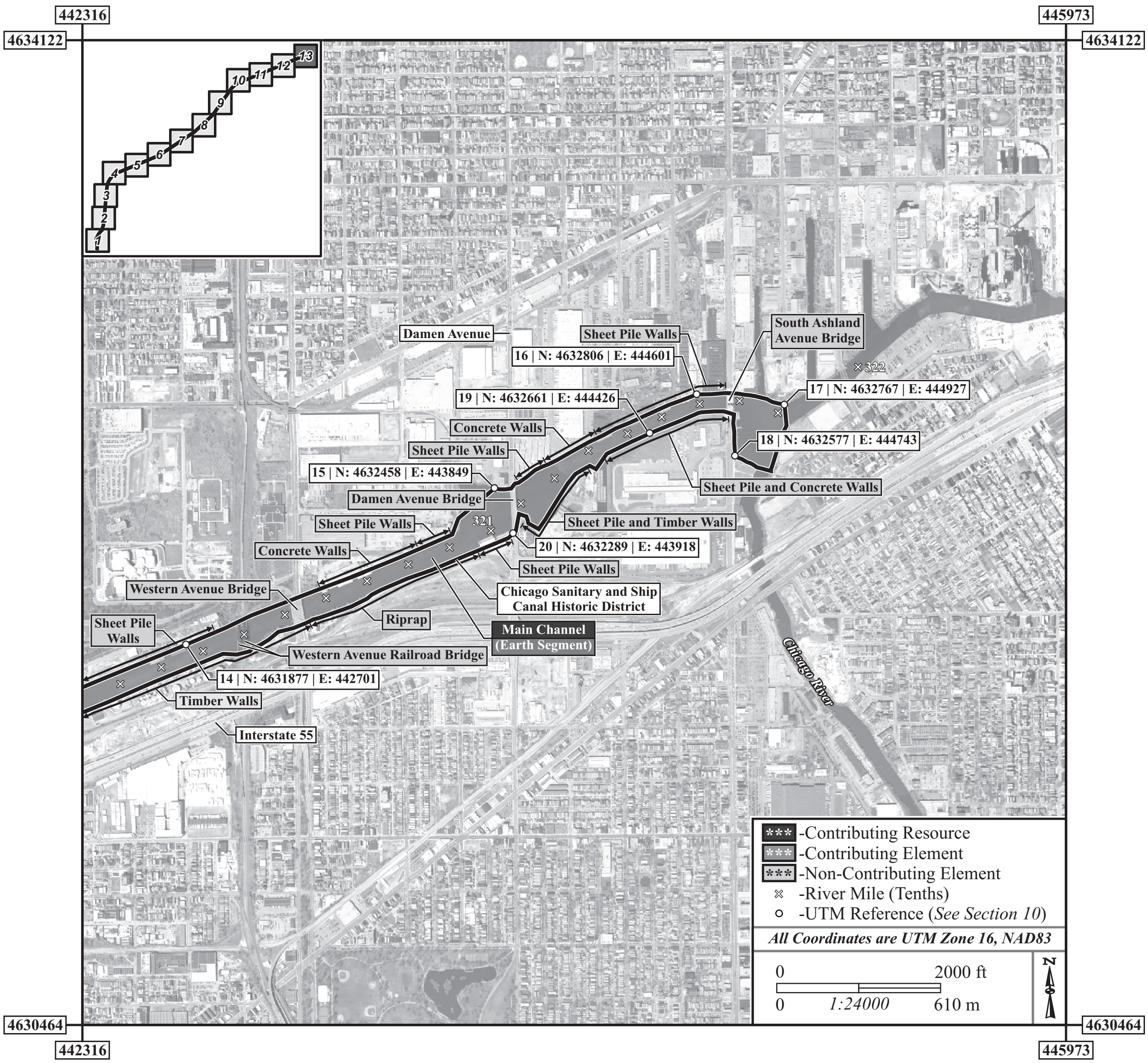

Figure 2.13: Scale map of a portion of the Chicago Sanitary and Ship Canal Historic District.

Figure 3: Historic photograph of the rock segment with a cableway in the background, Will County, Illinois. Unknown view. (Unknown photographer, July 7, 1899). Image on file at the U.S. Army Corps of Engineers, Rock Island District.

Figure 4: Historic photograph of the rock segment with the full depth of the rock cut and sloping inclines on each side, Will County, Illinois. Unknown view. (Unknown photographer, March 21, 1895). Image on file at the U.S. Army Corps of Engineers, Rock Island District.

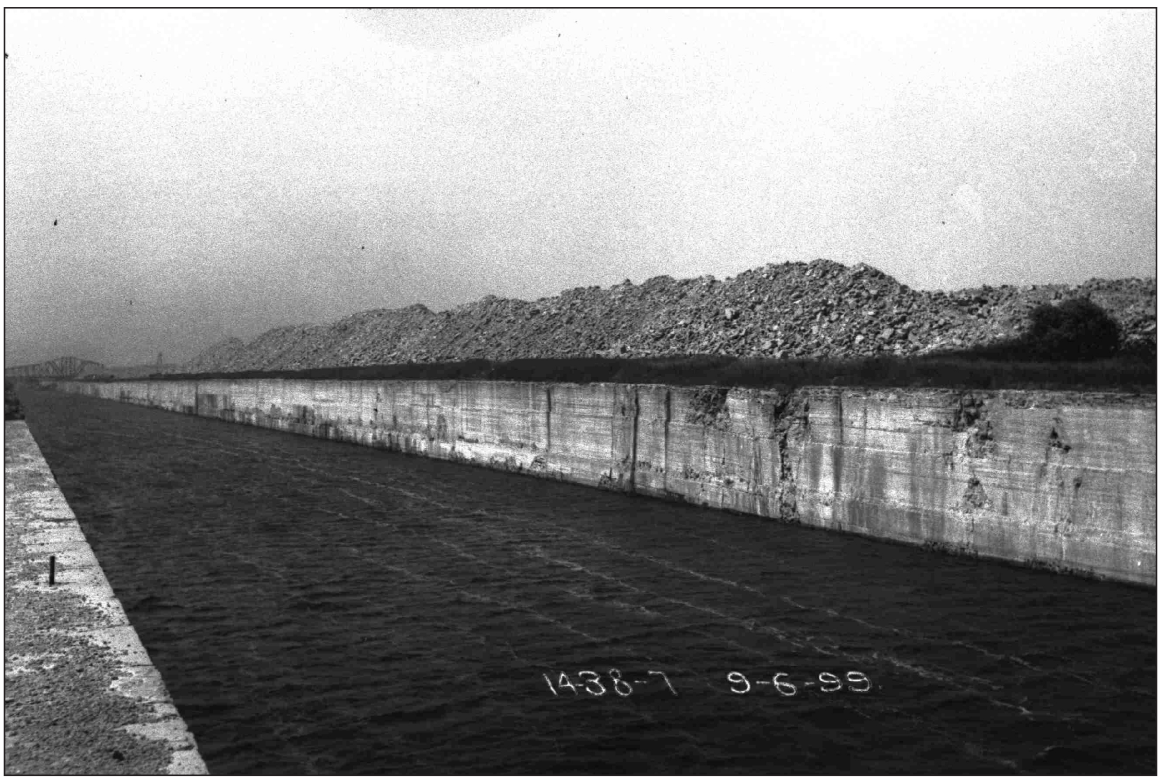

Figure 5: Historic photograph of the rock segment from the south canal wall, Will County, Illinois. View to the northwest. (Unknown photographer, September 6, 1899). Image on file at the U.S. Army Corps of Engineers, Rock Island District.

Figure 6: Cut limestone wall in the rock segment of the Main Channel south of the Romeo Road Bridge abutment on the right descending side, Will County, Illinois. View to the west. *(Photographed by Eyan Bond, April 22, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

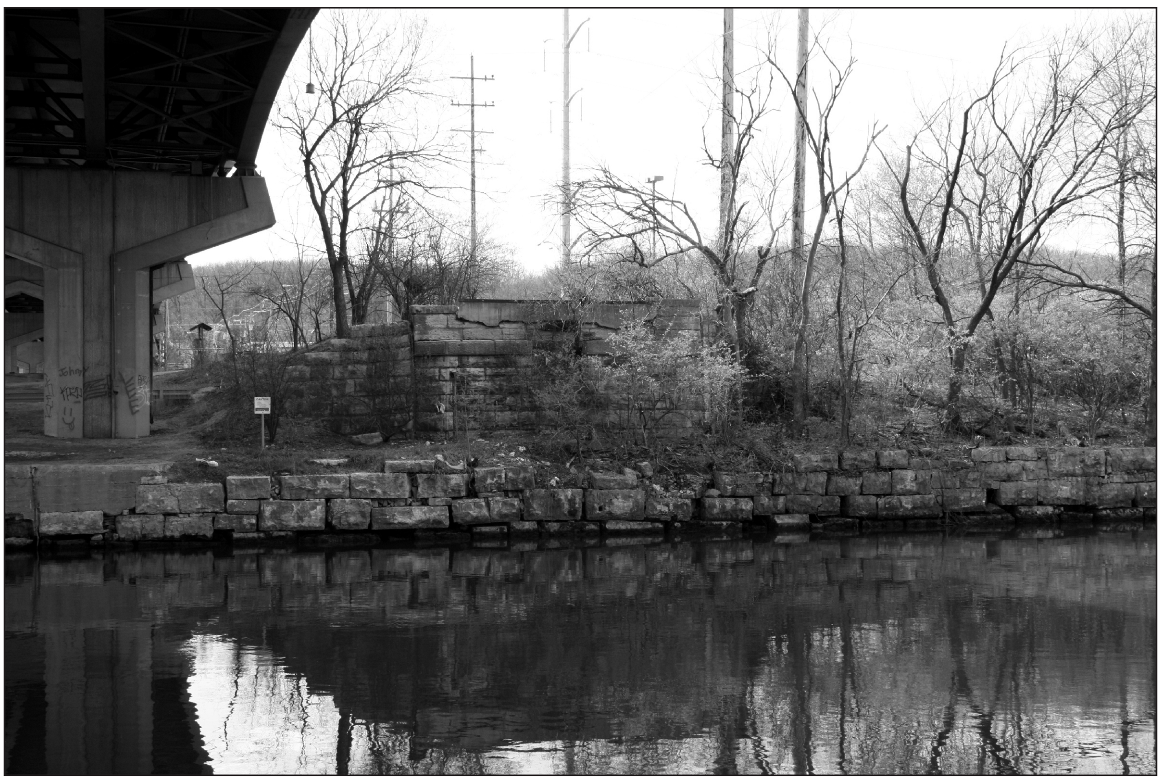

Figure 7: Laid-up limestone walls on the left descending side in the rock segment of the Main Channel south of Willow Springs Road, Cook County, Illinois. View to the southeast. *(Photographed by Eyan Bond, April 23, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 8: Main Channel Extension in the rock segment of the Main Channel as viewed from the Butterfly Dam remnant, Will County, Illinois. View to the south. *(Photographed by Eyan Bond, April 22, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 9: Laid-up limestone walls on the left descending side of the canal in the earth and rock segment of the Main Channel near the Willow Springs Spillway, Cook County, Illinois. View to the southeast. *(Photographed by Eyan Bond, April 23, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 10: Earth and rock segment of the Main Channel near the Willow Springs Bridge abutment, Cook County, Illinois. View to the south. *(Photographed by Eyan Bond, April 23, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 11: Historic photograph of the earth segment excavation with hoppers being loaded under cableways, Cook County, Illinois. Unknown view. (Unknown photographer, August 17, 1896). Image on file at the U.S. Army Corps of Engineers, Rock Island District.

Figure 12: Historic photograph of the earth segment with a view of Kedzie Avenue and Madison and Northern railroad bridges, Cook County, Illinois. View to the northeast. (Unknown photographer, December 30, 1899). Image on file at the U.S. Army Corps of Engineers, Rock Island District.

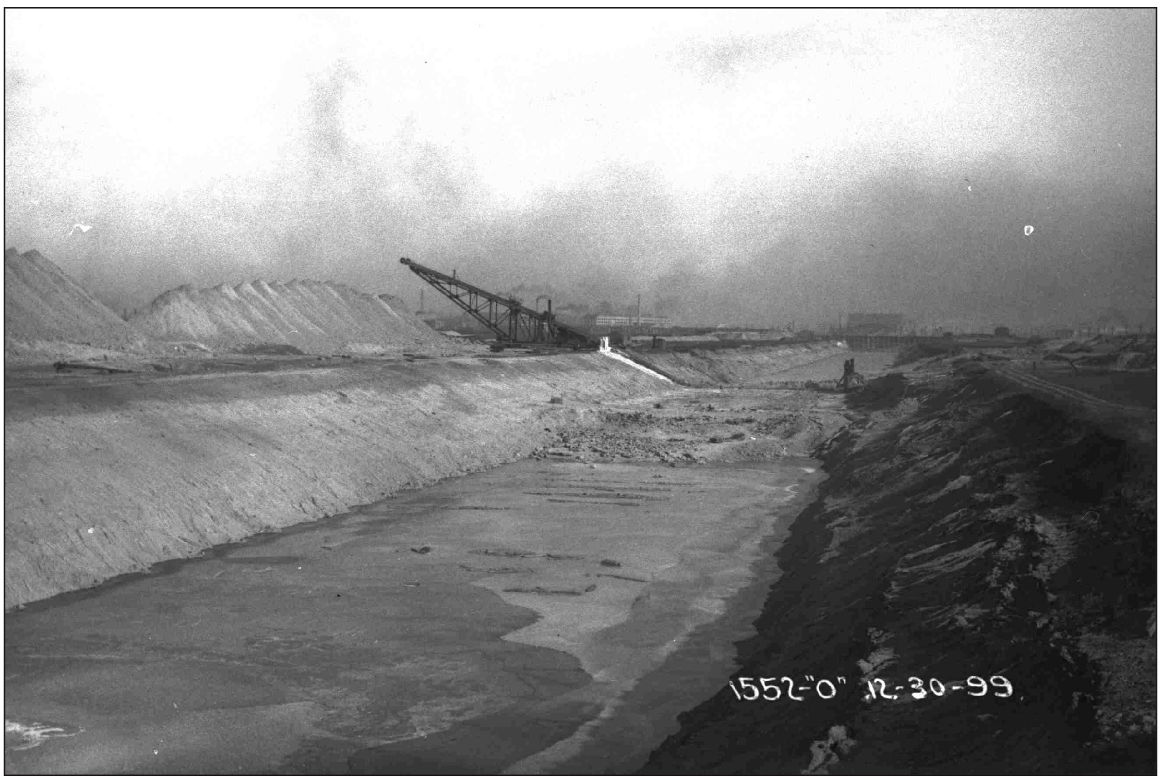

Figure 13: Historic photograph of the earth segment, Cook County, Illinois. View to the northeast. (Unknown photographer, December 30, 1899). Image on file at the U.S. Army Corps of Engineers, Rock Island District.

Figure 14: Earth segment of the Main Channel on the right descending side with riprap and the Lyons-Summit Road/Archer Avenue Bridge abutment, Cook County, Illinois. View to the northwest. *(Photographed by Eyan Bond, April 23, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 15: Spoil piles north of the Willow Springs Bridge on the right descending side of the canal, Cook County, Illinois. View to the northwest. *(Photographed by Eyan Bond, April 23, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 16: Spoil piles north of the Willow Springs Bridge on the right descending side of the canal, Cook County, Illinois. View to the north. *(Photographed by Eyan Bond, April 23, 2009)*. Digital image on file at Bear Creek Archeology, Cresco, Iowa.

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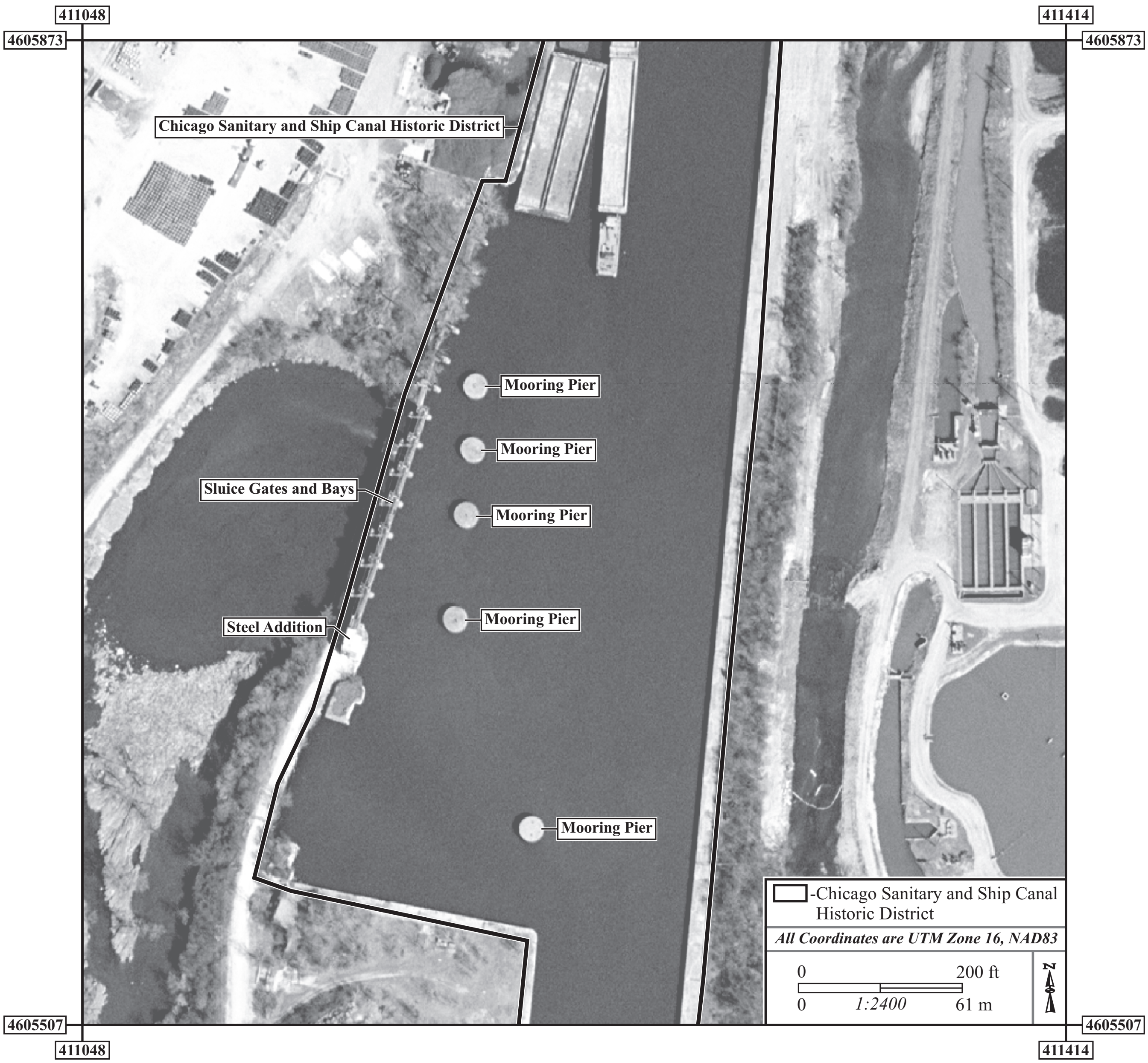

Figure 17: Scale map of the Lockport Controlling Works.

Figure 18: Historic photograph of the Lockport Controlling Works showing the north pier of the bear trap dam and sluice gates, Will County, Illinois. View to the north-northwest. (Unknown photographer, February 27, 1900). Image on file at the U.S. Army Corps of Engineers, Rock Island District.

Figure 19: Historic photograph of the Lockport Controlling Works on the downstream side, Will County, Illinois. View to the north-northwest. (Unknown photographer, September 29, 1899). Image on file at the U.S. Army Corps of Engineers, Rock Island District.

Figure 20: Lockport Controlling Works showing the sluice gates, mooring piers, and former location of the bear trap dam, Will County, Illinois. View to the west-northwest. *(Photographed by Eyan Bond, April 22, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 21: Sluice gates and mooring piers at the Lockport Controlling Works, Will County, Illinois. View to the northwest. *(Photographed by Eyan Bond, April 22, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

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United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
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Cook, DuPage, and Will Counties, Illinois
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Illinois Waterway Navigation System Facilities
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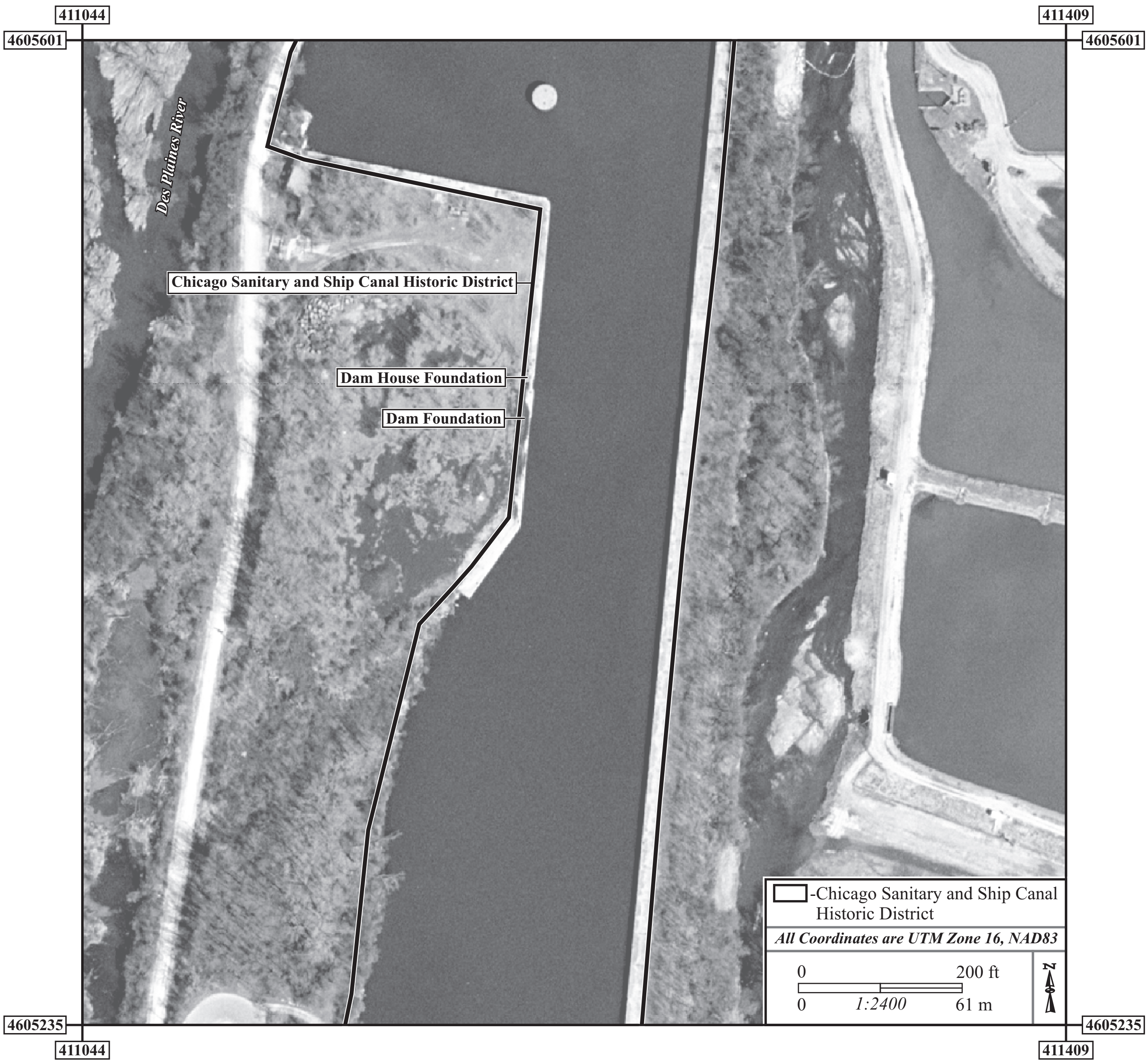

Figure 22: Scale map of the Butterfly Dam remnant.

Figure 23: Current condition of the Butterfly Dam remnant on the right descending side of the canal, Will County, Illinois. View to the southwest. *(Photographed by Eyan Bond, April 22, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 24: Concrete wall of the Butterfly Dam remnant on the right descending side of the canal showing an example of handholds, Will County, Illinois. View to the east. *(Photographed by Eyan Bond, April 22, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 25: Remnants of the dam house at the Butterfly Dam on the right descending side of the canal, Will County, Illinois. View to the south. *(Photographed by Eyan Bond, April 22, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

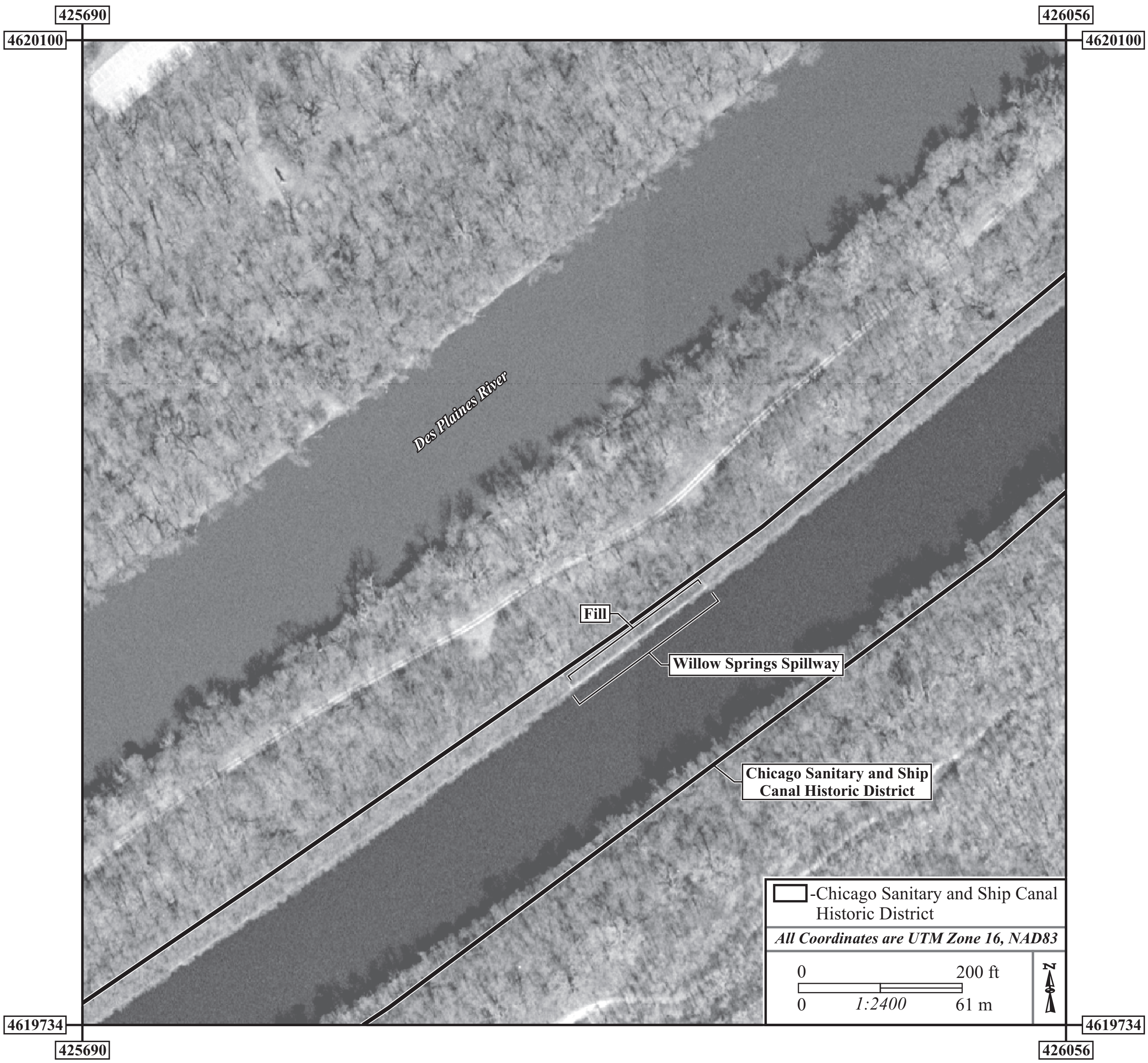

Figure 26: Scale map of the Willow Springs Spillway.

Figure 27: Current condition of the Willow Springs Spillway on the right descending side of the canal, Cook County, Illinois. View to the north. *(Photographed by Eyan Bond, April 23, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

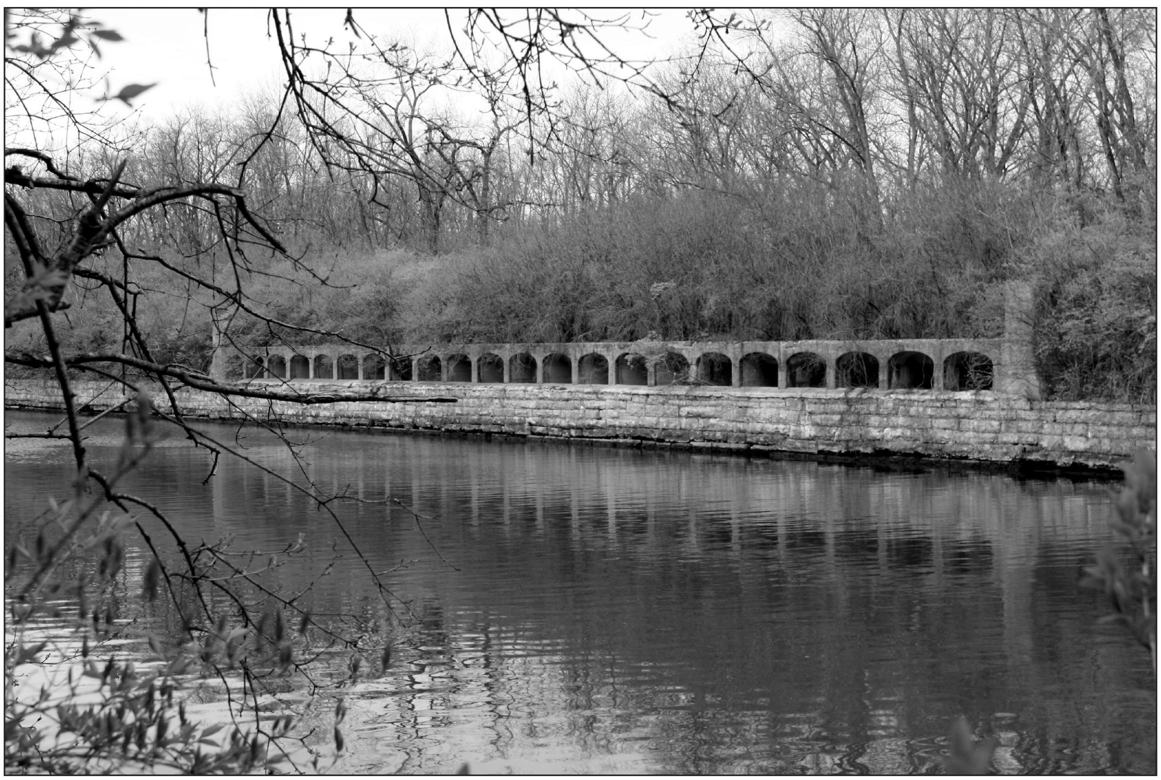

Figure 28: Current condition of the Willow Springs Spillway on the right descending side of the canal, Cook County, Illinois. View to the northwest. *(Photographed by Eyan Bond, April 23, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

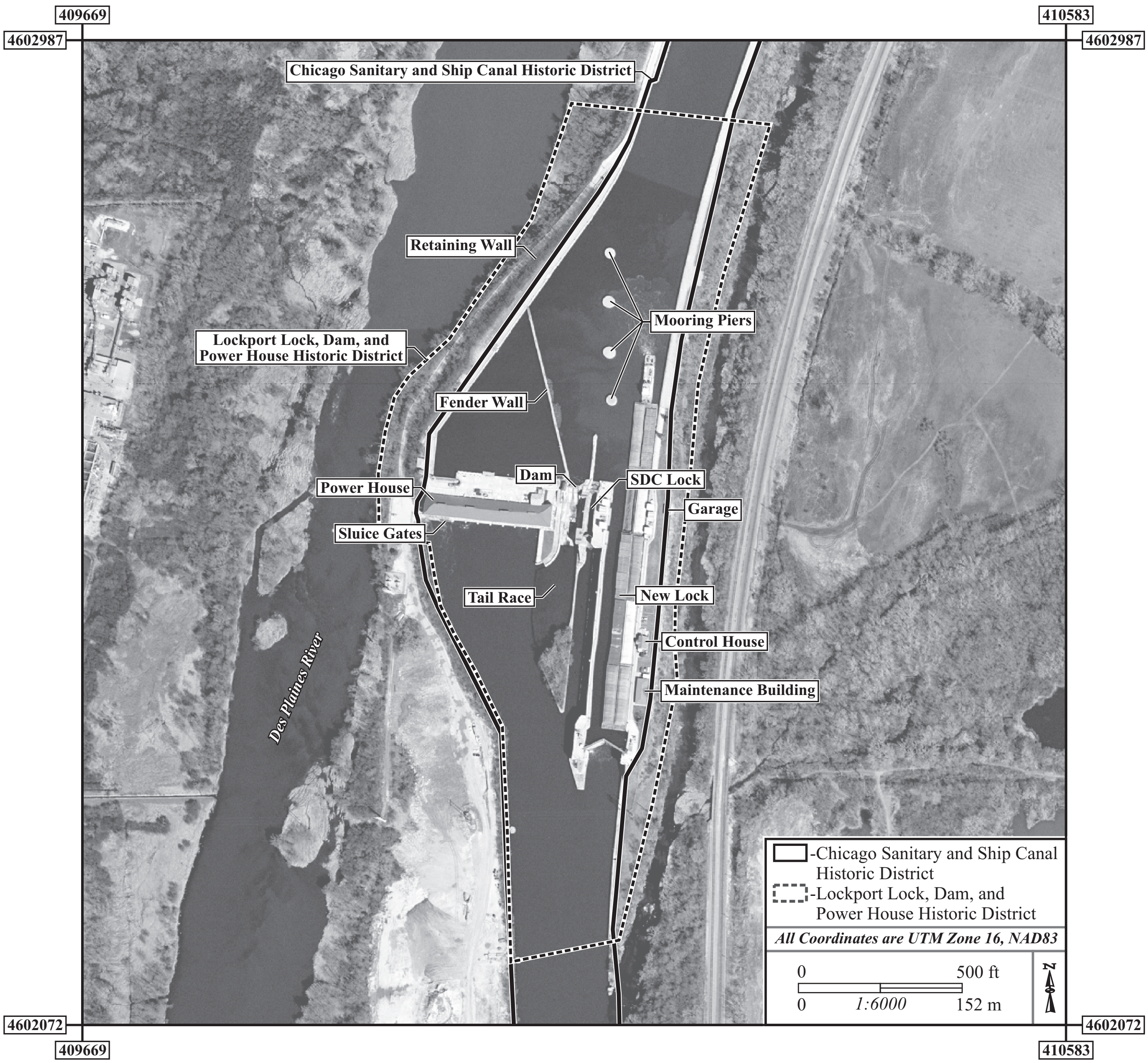

Figure 29: The Lockport Lock, Dam, and Power House Historic District.

Figure 30: North gate of the Sanitary District of Chicago Lock, Will County, Illinois. View to the north. *(Photographed by Eyan Bond, April 22, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 31: South gate of the Sanitary District of Chicago Lock, Will County, Illinois. View to the south. *(Photographed by Eyan Bond, April 22, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 32: Upstream gate of the New Lock at Lockport, Will County, Illinois. View to the north. *(Photographed by Eyan Bond, April 22, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 33: Downstream gate of the New Lock at Lockport, Will County, Illinois. View to the south. *(Photographed by Eyan Bond, April 22, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 34: Lockport Dam adjacent to the Lockport Power House, Will County, Illinois. View to the north. *(Photographed by Eyan Bond, April 22, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 35: Close-up view of the Lockport Dam, Will County, Illinois. View to the north. *(Photographed by Eyan Bond, April 22, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 36: South façade of the Lockport Power House also showing the Sanitary District of Chicago Lock, Will County, Illinois. View to the northwest. *(Photographed by Eyan Bond, April 22, 2009)*. Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 37: Interior of the Lockport Power House showing the original generators, Will County, Illinois. View to the west. *(Photographed by Eyan Bond, April 22, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 38: South façade of the Lockport Control Station, Will County, Illinois. View to the north. *(Photographed by Eyan Bond, April 22, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 39: Old Division Street Bridge/16th Street Bridge abutment on the right descending side of the canal, Will County, Illinois. View to the northwest. *(Photographed by Eyan Bond, April 22, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 40: 9th Street Bridge/Old Lockport Bridge abutment on the right descending side of the canal, Will County, Illinois. View to the west. *(Photographed by Eyan Bond, April 22, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 41: Romeoville Bridge abutment on the right descending side of the canal with the original Romeoville Bridge visible at its new location in the background, Will County, Illinois. View to the northwest. *(Photographed by Eyan Bond, April 22, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 42: Lemont Street/Stephens Street Bridge abutment on the left descending side of the canal, Cook County, Illinois. View to the southwest. *(Photographed by Eyan Bond, April 23, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.

Figure 43: Willow Springs Bridge abutment on the left descending side of the canal, Cook County, Illinois. View to the southeast. *(Photographed by Eyan Bond, April 23, 2009).* Digital image on file at Bear Creek Archeology, Cresco, Iowa.