



GLMRIS – Brandon Road

Appendix G - Phase I HTRW Site Assessments



August 2017



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Rock Island &
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**GREAT LAKES AND MISSISSIPPI RIVER INTERBASIN STUDY –
BRANDON ROAD**

APPENDIX G - PHASE I HTRW SITE ASSESSMENTS

March 2017

List of Attachments

- Attachment 1: Memorandum – Update to the HTRW and non-HTRW Report for Brandon Road Lock and Dam, Great Lakes and Mississippi River Interbasin Study (GLMRIS)
- Attachment 2: Hazardous, Toxic and Radioactive Waste (HTRW) and Non-HTRW Investigation

Attachment 1:

Memorandum – Update to the HTRW and non-HTRW Report for Brandon Road Lock and Dam, Great Lakes and Mississippi River Interbasin Study (GLMRIS)

MEMORANDUM FOR CELRC-PM-PM (Heath) and CELRC-PM-PL (Potthoff)

SUBJECT: Update to the HTRW and non-HTRW Report for Brandon Road Lock and Dam, Great Lakes Mississippi River Interbasin Study (GLMRIS)

1. A preliminary investigation, for the purposes of identifying HTRW and non-HTRW issues within the project area, was completed for the Brandon Road Lock and Dam in May 2015. At that time, project alternatives had not been fully developed, so it was not possible to fully evaluate the conditions for any specific plan. Now that alternatives have been identified, the previous investigation was reviewed to determine if any locations require additional investigation.
2. At least three alternatives would include the construction of supporting facilities (buildings, storage areas, roads) upland and adjacent to the existing approach channel. The area of interest is on the north side of the approach channel and lock, south of Channahon Road, and west of Brandon Road. This consists of three parcels of land currently owned by NRG (Midwest Generation LLC). Figure 1 shows the parcels. Possible future work for these parcels could include the construction of support buildings with foundations, roads, storage areas, and possible other supporting features such as utilities. Construction of these features would require excavation along the approach channel, across all three parcels owned by NRG.

PIN	Owner
30-07-20-300-007-0000	Midwest Generation LLC
30-07-20-215-001-0000	Midwest Generation LLC
30-07-20-215-002-0000	Midwest Generation LLC

3. A Phase I investigation of the project area was completed in May 2015, although at that time a proposed work location and activities had not been determined. That investigation documented the results from a review of historical information, database search, and interviews with staff. This information noted that additional investigation may be needed and that there were some questions regarding the history of the land just north of the approach channel to the lock.
4. For the area of interest defined above, the most conclusive information on past usage comes from the historical aerial photos. These photos begin in 1939, after the Brandon Road lock and dam have been constructed. One new historical aerial was found, for 1970, to add to the progression.
 - a. Starting in 1939, there appears to be an open water or excavation area along the south end of the approach channel. The dark appearance and drainage patterns on the south end of the dark spot are consistent with an open water

- area.
- b. From 1939 through 1962 the dark area appears to be filled with water and getting larger over time.
 - c. In 1970 (Figure 2), the area in question is still dark, but the southern end appears to have haul roads and is being filled in. The northern end of the area appears to be water still, but possibly with vegetation growing in an island. The area being filled is dark, which could indicate water, topsoil, or other materials such as fly ash. From the aerial photo, it is not possible to tell what the fill material is.
 - d. Starting in 1974, the area has been filled in and appears to be all earth with no surface water.
 - e. In 1978 the land appears to contain some undulating piles, which could be excess fill. The piles are lighter colored and similar to the surrounding ground, which would indicate that the material is soil.
 - f. By 1983 and afterwards, the land is flat and appears to be grassed, with little or no activity and no significant land disturbance.
5. The historical topographic records for this area do not provide additional information, and the area in question is at the divide between two quadrangle maps and is not shown clearly. There are no Sanborn maps for this area, indicating a lack of commercial or industrial buildings, which is consistent with the aerial photograph information.
 6. The area in question is variously referred to in historical documents as “the Commonwealth Edison Clay Pit” (USACE, 2001), as “the USACE landfill” (NIPR, 1988), and commonly as the “Joliet Station” property. An environmental disclosure statement includes the three parcels, when the land ownership was transferred from Commonwealth Edison Company to Unicom Investment Inc. (Midwest Generation, LLC). This disclosure indicates that the parcels being transferred, which include more than the three parcels of interest to the current project, were used for handling and storage of various petroleum, hazardous substances, special wastes, or other materials potentially covered under the Resource Conservation and Recovery Act and Illinois Environmental Protection Act. More specifically, the various parcels may have been used for a landfill, surface impoundment, waste pile or containerized or tank storage. Unfortunately, there is no information included on the specific location (which parcel) or nature of any of these activities.
 7. A site visit was not conducted on the property, as the current land owner (Midwest Generation) has not provided right of entry. The previous investigation also did not include a site visit. The property is visible from the existing lock and dam, but appears to be only a vegetated field. No details are visible from a distance.
 8. Based on the information available, several conclusions can be made at this time:
 - a. The area of interest (the three parcels listed above) have been greatly disturbed over the last century. It is unlikely that the site contains native soils or historical artifacts in good condition, due to previous wide-scale excavation and filling

- activities.
- b. The area of interest may have been used for the disposal of materials that would now be regulated or would be cause for environmental concern, but the nature of any fill materials placed on this property is not known.
 - c. Because the proposed use of the land would require excavation for foundations and other constructed features, the parcels of interest require additional investigation (soil borings or test pits) to obtain information on both the geotechnical properties and the environmental quality of the materials.
9. It is recommended that a phase II investigation be conducted on this property prior to planning any development. The investigation should identify the nature and extent of materials within the footprint of the land that USACE would use, including the horizontal and vertical extent. Assuming that the land was filled with anthropogenic materials, samples should be taken for chemical analysis, to determine whether the material is characteristically hazardous and to determine the appropriate disposition of any excavated materials. It is recommended that a geotechnical investigation be conducted in conjunction with the environmental investigation, so that a complete set of conditions is available for future planning.
10. Questions about this memorandum should be addressed to Dr. Jennifer Miller, jennifer.miller@usace.army.mil or 312-846-5505.

JAY SEMMLER, PE
Chief, Hydraulic and Environmental
Engineering Section

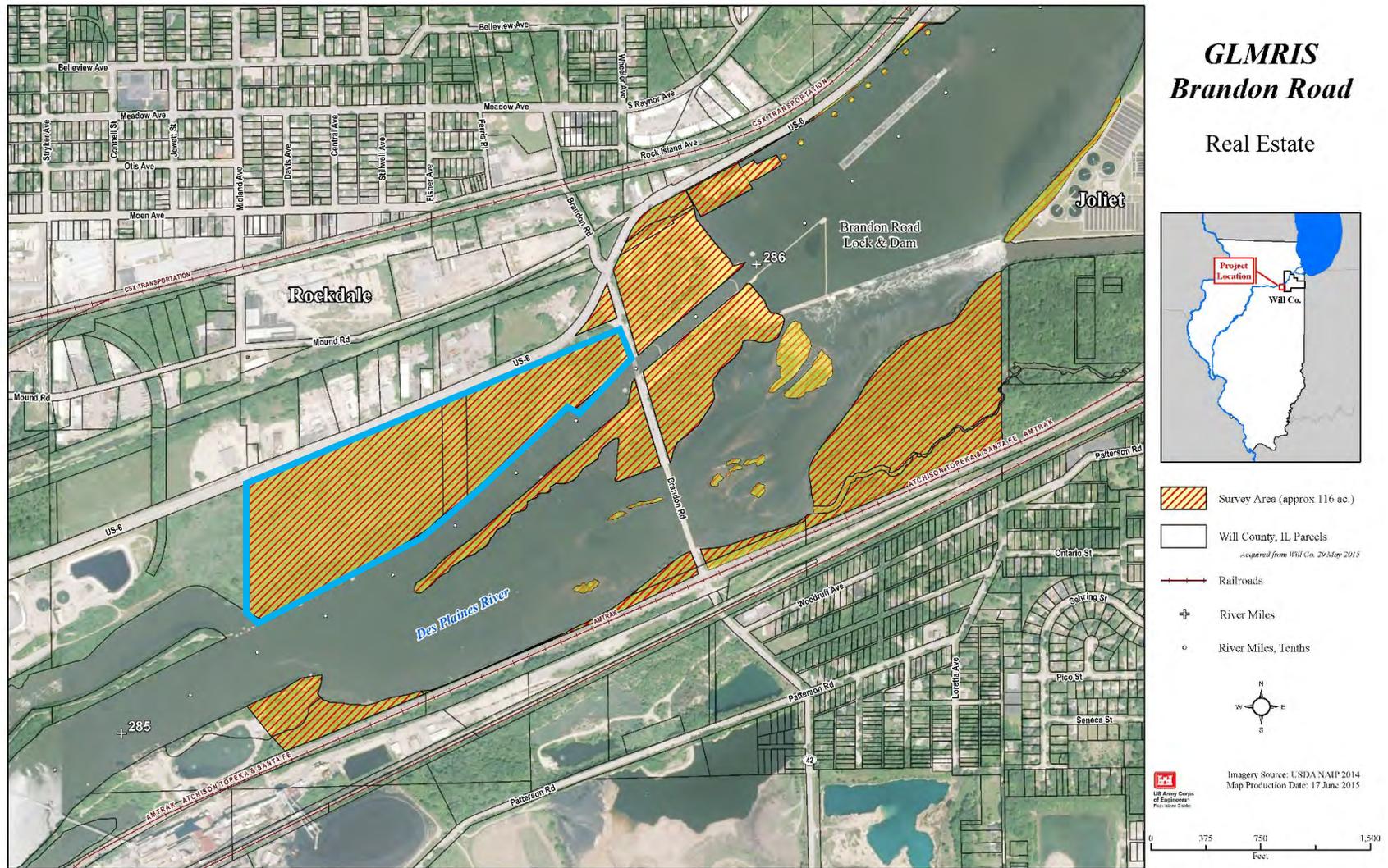


Figure 1: Parcels of Interest for Possible Future Use. Parcels of interest for this discussion are outlined in blue.

Figure 2: 1970 Aerial Photo, with parcels of interest outlined in blue. Note the haul roads on the property.



Attachment 2:

Hazardous, Toxic and Radioactive Waste (HTRW) and Non-HTRW Investigation

CELRC-TS-DH**MEMORANDUM FOR CELRC-PM-PM (Heath) and CELRC-PM-PL (Potthoff)**

SUBJECT: HTRW and non-HTRW Report for Brandon Road Lock and Dam, Great Lakes Mississippi River Interbasin Study (GLMRIS)

1. Enclosed is the HTRW investigation report for the Brandon Road Lock and Dam, Great Lakes Mississippi River Interbasin Study (GLMRIS). The investigation was conducted during the feasibility phase of the project and is based on an existing information review, database research, historical topographic map and aerial photograph review, interviews and a site visit. Results of the HTRW investigation are summarized in the “Site Summary” section of the report. This assessment identified two concerns in connection to hazardous substances, HTRW, or other regulated contaminants on site:
 - a. Sediment quality
 - b. Possible historical landfill
2. Sediment in the study area, collected by MWRD from 2008 to 2011, exceeded Illinois Clean Construction Demolition Debris (CCDD) reference criteria for five parameters: cadmium, chromium, iron, lead, and manganese and exceeded Illinois Tiered Approach to Corrective Action Objectives (TACO) criteria for lead. In 2008, sediment chemistry data collected by Patrick Engineering for Northern Illinois Hydropower exceeded Illinois TACO criteria for arsenic, chromium, lead and mercury. One polychlorinated biphenyl (PCB) contaminant, Aroclor 1242, was also detected, at concentrations up to 2.82 mg/kg. An Environmental Assessment completed by USACE in 2000 also detected total PCBs at concentrations up to 6.4 mg/kg. If sediment dredging or disturbances will be part of the project implementation, it is recommended that a tiered investigation, following the Inland Testing Manual, be conducted to determine the best means of handling sediment, and to conform to the Clean Water Act §404(b)(1) requirements.
3. The Illinois EPA and the Statewide Inventory of Land-Based Disposal Sites, published in 1988 by the Northeast Illinois Planning Commission, list a solid waste landfill owned by USACE on the vacant land south of Route 6 and west of Brandon Road. Historical aerial photos also suggest land disturbance in this area. In a report evaluating dredged material placement alternatives, this area was identified as the “Commonwealth Edison clay pit” (USACE, 2001). No further documentation about the clay pit or its current contents was found, and therefore no definitive conclusion could be reached regarding the nature of the historical land disturbances on this property. If measures are selected for implementation at this location, it is recommended that the soils be further investigated to determine if there was a landfill or not. Soil samples should be collected and analyzed to characterize any fill materials that may have been placed in the area.

4. Questions regarding this HTRW investigation can be directed to Jennifer Miller at (312) 846-5505.

JAY A. SEMMLER, P.E.
Chief, Hydraulics & Environmental
Engineering Section

Enclosure

Fleer 215-656-6166

TS-D-HE

**HAZARDOUS, TOXIC AND RADIOACTIVE WASTE (HTRW)
AND NON-HTRW INVESTIGATION**

**Brandon Road Lock and Dam
Great Lakes Mississippi River Interbasin Study (GLMRIS)**

Hydraulic and Environmental Engineering Section (TS-DH)
U.S. Army Corps of Engineers, Chicago District

May 2015

**HAZARDOUS, TOXIC AND RADIOACTIVE WASTE (HTRW)
AND NON-HTRW INVESTIGATION
Brandon Road Lock and Dam
Great Lakes Mississippi River Interbasin Study (GLMRIS)**

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- Attachment A – EDR Database Search Results
- Attachment B – Historical Topographic Maps
- Attachment C – Historical Aerial Photos
- Attachment D – Interviews
- Attachment E – Sediment Data
- Attachment F – Site Visit Photos

1. INTRODUCTION

The purpose of this report is to discuss the hazardous, toxic, and radioactive waste (HTRW) investigation for the Brandon Road Lock and Dam site, as part of the Great Lakes Mississippi River Interbasin Study (GLMRIS). This report identifies both HTRW and non-HTRW environmental issues, and presents appropriate measures to resolve these issues. The methods used in performing the investigation are described in detail. Conclusions and recommendations regarding potential impacts due to HTRW, non-HTRW, and recognized environmental conditions (RECs) associated with the project site are provided.

2. AUTHORITY

Engineer Regulation (ER) 1165-2-132, Hazardous, Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works projects, requires that a site investigation be conducted as early as possible to identify and evaluate potential HTRW problems. According to ER 1165-2-132, non-HTRW issues that do not comply with the federal, state, and local regulations should be discussed in the HTRW investigation along with HTRW issues. Therefore, HTRW and non-HTRW issues identified are discussed in this report.

The HTRW investigation presented in this report was conducted during the feasibility phase of the project. This report was performed at the level of detail required for a Reconnaissance Phase investigation and relies on existing information, observations made through database research, a site visit, and a historical aerial photograph and topographic map review. As stated in the ER-1165-2-132, an initial assessment as appropriate for a Reconnaissance Study should be conducted as a first priority for projects with no prior HTRW consideration. If the initial assessment indicated the potential for HTRW, testing, as warranted, and analysis similar to a Feasibility Study should be conducted prior to proceeding with the project design.

No HTRW investigation can wholly eliminate uncertainty regarding the potential for HTRW associated with a project area. Performance of the HTRW investigation is intended to reduce, but not eliminate, uncertainty regarding the potential for HTRW in connection with a project area, and this practice recognizes time and cost constraints.

3. GUIDANCE

Supplemental guidance was provided by the Standard Practice for Environmental Assessments: Phase I Environmental Site Assessment Process (Designation: E 1527-13) prepared by the American Society for Testing of Materials (ASTM). These standards include a records review, site visit, interviews, and report preparation. This report followed many of the ASTM E 1527-13 guidelines but not to the same level of detail described by the ASTM E 1527-13 guidance.

Hazardous, Toxic, and Radioactive Waste

The objective of ER 1165-2-132 is to outline procedures to facilitate early identification and appropriate consideration of HTRW problems. This investigation, therefore, identifies potential

HTRW problems and discusses resolutions and/or provides recommendations regarding the HTRW problems identified.

Non-Hazardous, Toxic, and Radioactive Waste

According to ER 165-2-132, non-HTRW environmental issues that do not comply with federal, state, and local regulations should be discussed in the HTRW investigation along with HTRW issues. For example, solid waste is a non-HTRW issue considered, in addition to petroleum releases from Leaking Underground Storage Tanks (LUSTs), because of the potential to impose environmental hazards. Non-HTRW and RECs identified during the investigation are also discussed in this report, along with resolutions and/or recommendations for resolving any open issues.

4. LAWS AND REGULATIONS

Federal

The definition of HTRW according to ER 1165-2-132, page 1, paragraph 4(a) is as follows: “Except for dredged material and sediments beneath navigable waters proposed for dredging, for purposes of this guidance, HTRW includes any material listed as a ‘hazardous substance’ under the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. 9601 et seq (CERCLA). (See 42 U.S.C. 9601(14).) Hazardous substances regulated under CERCLA include ‘hazardous wastes’ under Sec. 3001 of the Resource Conservation and Recovery Act, 42 U.S.C. 6921 et seq; ‘hazardous substances’ identified under Section 311 of the Clean Air Act, 33 U.S.C. 1321, ‘toxic pollutants’ designated under Section 307 of the Clean Water Act, 33 U.S.C. 1317, ‘hazardous air pollutants’ designated under Section 112 of the Clean Air Act, 42 U.S.C. 7412; and ‘imminently hazardous chemical substances or mixtures’ on which EPA has taken action under Section 7 of the Toxic Substance Control Act, 15 U.S.C. 2606; these do not include petroleum or natural gas unless already included in the above categories. (See 42 U.S.C. 9601(14).)”

As stated in the definition of hazardous substance in the Environmental Statutes, 1988 Edition, the term does not include petroleum, including crude oil or any fraction thereof, which is not otherwise specifically listed or designated as a hazardous substance under the definition. Underground Storage Tanks (USTs) are federally regulated under 40 CFR Part 280, which includes technical standards and corrective action requirements for owner and operators of USTs.

State

The State of Illinois regulates USTs under Illinois Administrative Code, Title 35, Subtitle G, Chapter I, Subchapter D, Part 731, Underground Storage Tanks. The definition of a regulated substance under this regulation is any “hazardous substance” or “petroleum.” A hazardous substance UST is defined as an UST system that contains a “hazardous substance,” or any mixture of “hazardous substances” and “petroleum” which is not a petroleum UST system. The petroleum UST means any UST system that contains petroleum or a mixture of petroleum with

minimal quantities of other regulated substances. Owners and operators of petroleum or hazardous substance UST systems must comply with the requirements of Part 731, except for USTs excluded under Section 731.110(b), and UST systems subject to RCRA corrective action requirements under 35 Ill. Adm. Code 724.200, 724.296, 725.296 or 725 Subpart G.

5. SITE DESCRIPTION

The Brandon Road Lock and Dam is located at the southwest edge of Joliet, Illinois, 27 miles southwest of Chicago. The structure contains one lock chamber and a dam. The lock is 600 feet long and 110 feet wide, with a nominal lift of 34 feet. The dam is 2,391 feet long and contains eight operational headgates and 21 tainter gates. The lock opened in 1933 as part of a 9-foot-deep Channel Navigation project that extended down the Upper Mississippi River from Minneapolis–St. Paul to its confluence with the Ohio River and up the Illinois Waterway to the Thomas J. O’Brien Lock in Chicago.

This study evaluates potential measures to control the transfer of aquatic nuisance species through the navigation lock at Brandon Road. Components of a future project at this site could be constructed in the lock chamber, the approach channel, or on the lands adjacent to the lock chamber and approach channel, all shown in Figure 1 below. The land on either side of the lock chamber is owned by the US Army Corps of Engineers, as is the peninsula southeast of the approach channel. On the northwest side of the approach channel, the land adjacent to the Des Plaines River and west of Brandon Road is owned by Midwest Generation/NRG Energy. A lock house, parking lot, and various appurtenances to the lock facility are located on either side of the lock chamber. The land on either side of the approach channel is undeveloped and vegetated. Significant grading, soil and non-native fill excavation, and sediment management activities may be conducted to complete the proposed project.

6. GENERAL METHODS

The following sections contain information that was requested and gathered in accordance with ER 1165-2-132 for this assessment. The information was obtained from:

- Records review: Regulatory documentation; sediment and water quality data; historical topographic maps and aerial photographs, etc.
- Interviews: Owners/occupants and local government staff, including: Lockmaster Perry Jones; Office of the State Fire Marshal; Joliet Fire Department Hazardous Materials Team.
- Site reconnaissance

This information was used to determine if the ANS control measures for Brandon Road Lock and Dam will have an impact on any HTRW occurrences that may exist in the surrounding areas, and if HTRW problems will have an impact on the implementation of the project. The information gathered from the above list of sources is detailed in the following sections.



Figure 1. Location Map (Will County, Illinois 2015).
 Area of interest is highlighted yellow.

PIN	Owner
30-07-20-216-001-0000	US Army Corps of Engineers
30-07-20-300-007-0000	Midwest Generation LLC
30-07-20-215-001-0000	Midwest Generation LLC
30-07-20-215-002-0000	Midwest Generation LLC

7. USER PROVIDED INFORMATION

Interviews

Owners/occupants and local government staff were interviewed in order to obtain additional information about potential recognized environmental conditions on or adjacent to the project site. CELRC-TS-DH Staff (Fleer) interviewed Lockmaster Perry Jones on October 2, 2014. The Office of the State Fire Marshal Underground Storage Tank (UST) Coordinator and Joliet Fire Department Hazardous Materials Team were contacted by mail. Thomas Dumoulin, Stephen Gustafson, and Mark Cornish of the Corps of Engineers Rock Island District (CEMVR) also provided information about the subject site by both phone and email.

Lockmaster Perry Jones described the current and historical uses of the subject property. When asked about recognized environmental conditions at or adjacent to the subject property, he reported that lead-based paint had been detected on the handrail surrounding the lock chamber, on the catwalks over the dam, and on the head gates. Mr. Jones also reported that lock house is monitored twice each week for radon, and that the monitoring data dating back to 2006 is available at the USACE Peoria office. At one point the lock house was scheduled for demolition because of the radon issue. Instead, the basement floor was partially excavated and a radon reduction system was installed, which vents to the outdoors as shown in Photos 33-35 (Attachment F). Mr. Jones also stated that USACE has conducted dredging operations just downstream of the lock chamber and placed the material east of the approach channel on the island separating the lock and dam tailwaters. The last dredging event he recalled, shown in Figure 2, took place in 2002. Aside from the lead paint, radon and dredged material, Mr. Jones reported no past land uses that would have resulted in the generation, treatment, storage, or disposal of hazardous wastes at the Brandon Road Lock and Dam property. The lockmaster also said that he had never observed pits, ponds or lagoons on or adjacent to the property suggestive of recognized environmental conditions. Mr. Jones had no knowledge of the landfill mentioned in the EDR report (Attachment A). A full interview report is provided in Attachment D.

Rock Island District Environmental Engineer Stephen Gustafson provided a Phase I Environmental Site Assessment prepared in support of the project to maintain authorized navigation depths in the Illinois Waterway (USACE, 2002). The main HTRW concern noted in the 2001 Phase I report was the use of lead-based coatings on the movable Brandon Road bridge. Lead was a major ingredient in many types of exterior paint until enactment of the Lead-Based Paint Poisoning Prevention Act of 1971. Given the nature of lead-based coatings to “chalk,” or lose some of their surface material, it was expected that lead dust and chips washed off and may have accumulated in the soil and sediments around the coated structure. All other recognized environmental conditions identified in the Phase I report were judged to be *de minimis* impacts.

The Phase I report indicated that the channel downstream of the Brandon Road Lock was dredged 11 times during the period from 1974 to 2001. The dredged material was placed on either side of the lock tailwater, as shown in Figure 3. Chemical analysis of the dredged material is discussed in an Environmental Assessment (USACE, 2005) and is summarized in Paragraph 8.4 of this document. Rock Island District Biologist Mark Cornish provided two additional documents concerning the placement of material dredged from the navigation channel downstream of the Brandon Road Lock (USACE 2001, 2005). The documents state that historic

dredged material placements were upland placement on the left descending bank, and that more recent placements were on the east descending bank. The dredged material is mainly bedrock stone of 6-12 inches in diameter, with boulders up to two cubic yards in size.

Rock Island District Geotechnical Engineer Thomas Dumoulin provided information about the four monitoring wells located in the dam embankments at the north end of the subject property. The purpose of the monitoring wells is to monitor the seepage through the foundation and the effectiveness of the cutoff walls. CEMVR staff manually collect water surface elevation data from the wells each quarter.

Office of the State Fire Marshal Underground Storage Tank (UST) Coordinator provided documentation confirming the removal of two underground storage tanks on the subject property. The Joliet Fire Department Hazardous Materials Team indicated by phone that they had no record of any emergency response activities at or near the site.

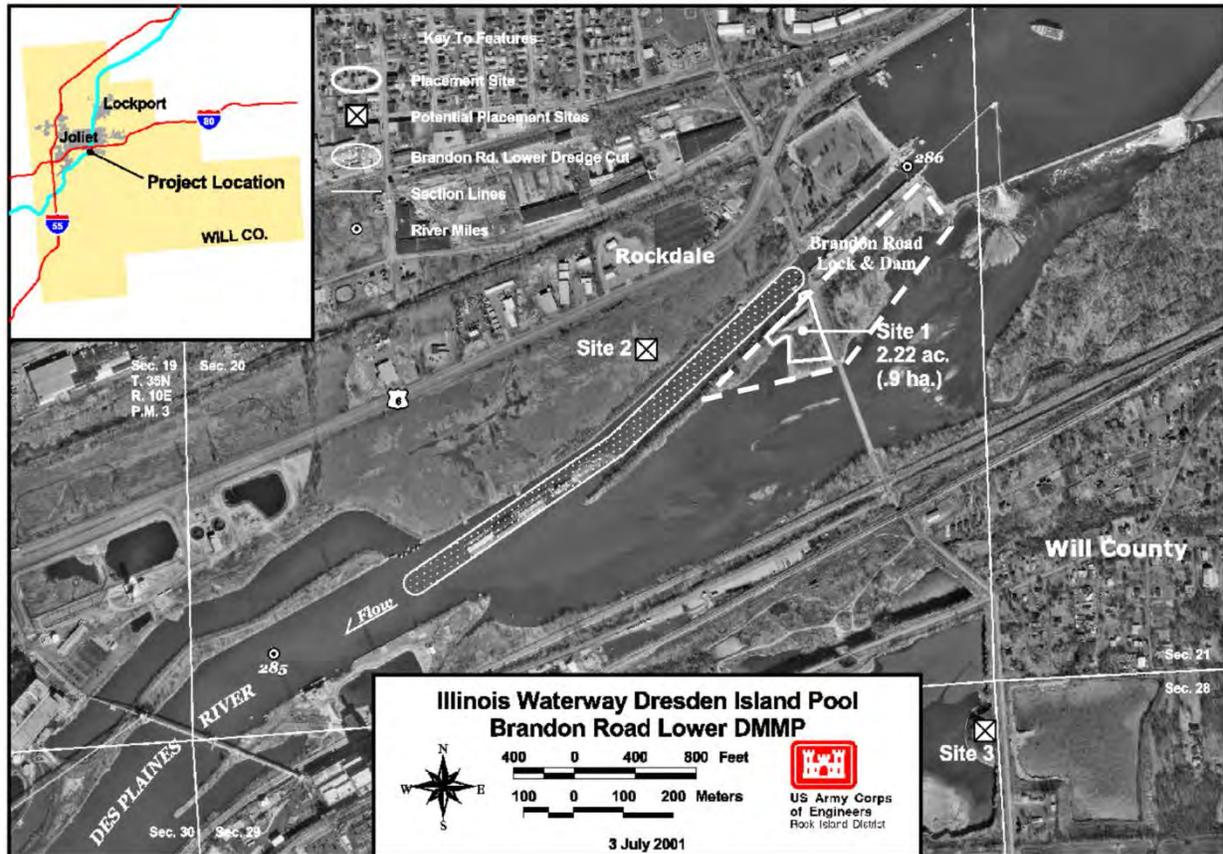


Figure 2. Dredge cut and placement location map

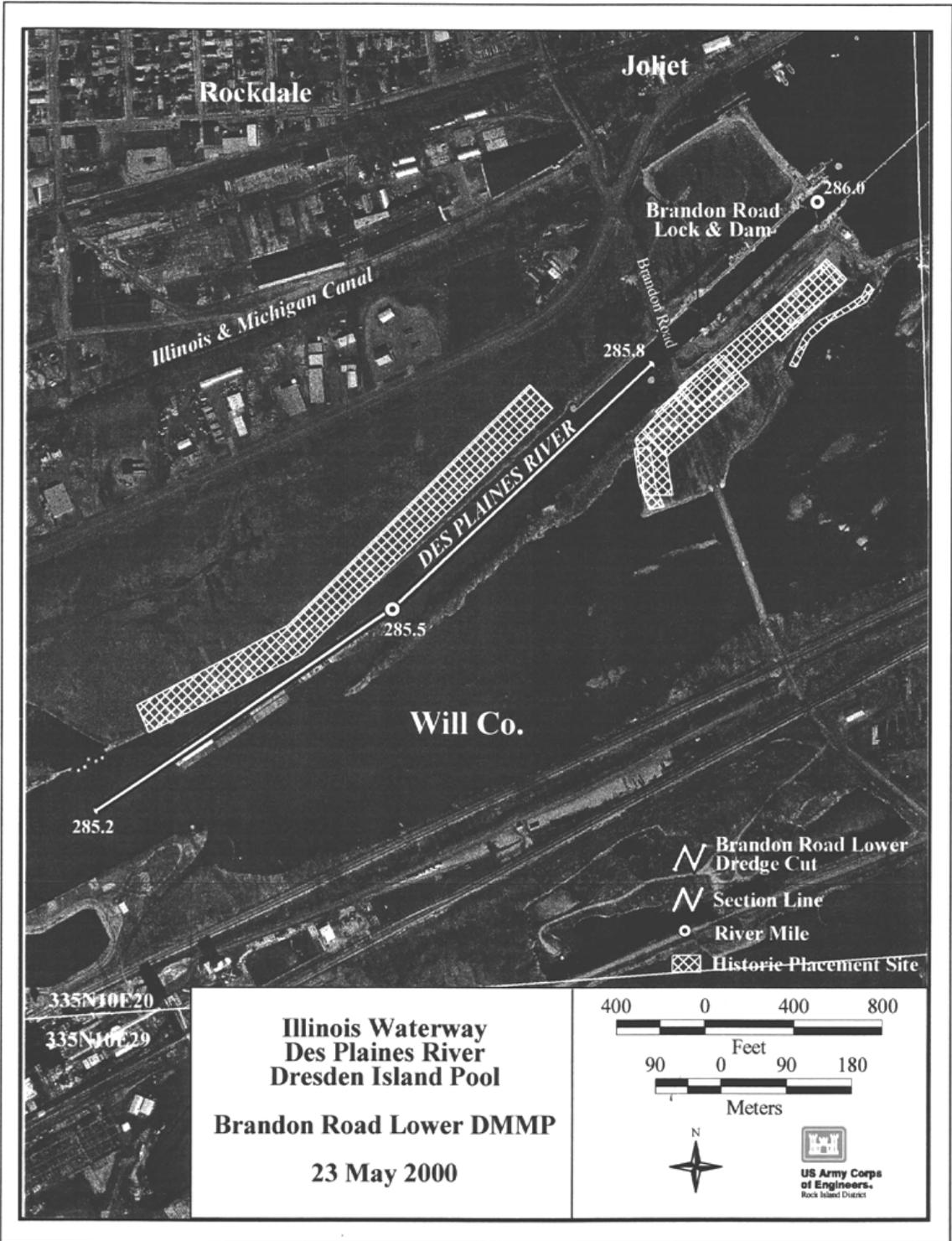


Figure 3. Historic Dredged Material Placement sites

8. RECORDS REVIEW

8.1 Historical Map and Aerial Photography Review

Historical aerial photographs, topographic maps, and Sanborn maps provide valuable information about the history of residential and commercial development at and near potential project sites. Changes in topography, vegetation, and land use over time may provide evidence of fill and dumping activities or potential recognized environmental conditions. Historical topographic maps were provided by Environmental Data Resources (EDR) for the following years: 1892, 1918, 1953, 1954, 1962, 1973, 1993, 1998 and 1999. Historical aerial photos were also reviewed, from 1939, 1946, 1952, 1956, 1962, 1974, 1978, 1983, 1988, 1993, 1998, and nearly every year after 2000.

The earliest topographic maps, shown in Figure 4, show the alignment of the Des Plaines River prior to construction of the lock and dam. The Illinois and Michigan Canal and the Chicago and Rock Island Pacific Railroad run parallel to the Des Plaines River near the project site. The Brandon Road Lock and Dam were constructed from 1927-1933. Dam construction altered the natural geography of the area substantially, by creating a pool upstream of the structure as shown in Figure 5. Historical aerial photographs suggest a history of significant earthwork activities just north of the approach channel downstream of the lock chamber. Figure 4 shows a series of aerial photos taken from 1939 through 1974 of the vacant land north of the approach channel, south, south of Route 6/Channahon Road and west of Brandon Road. The photos show significant changes to the land surface over time, suggesting either earthwork activities or dredged material disposal. No significant elevation change can be discerned from the topographic maps. After this period, the property becomes increasingly vegetated.

The Joliet Generating Station is located just southwest of the lock and dam. Unit 6 was built on the south side of the river in 1959 and units 7 and 8 were constructed on the north side of the river in 1965 and 1966, respectively (Midwest Generation, 2009). Between 1954 and 1973, a backwater pond connected to the larger Des Plaines River was further excavated to draw cooling water further inland to the power station site. It is not clear where the spoils from this excavation were placed.

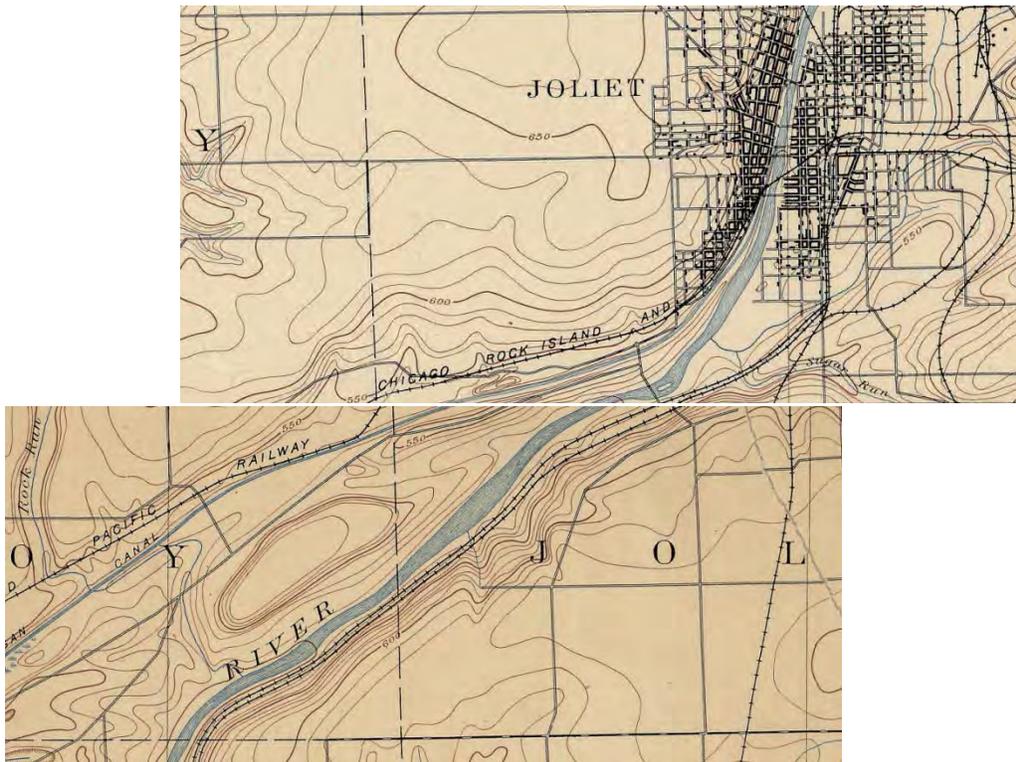


Figure 4. 1890 Topographic Map showing river alignment prior to dam construction

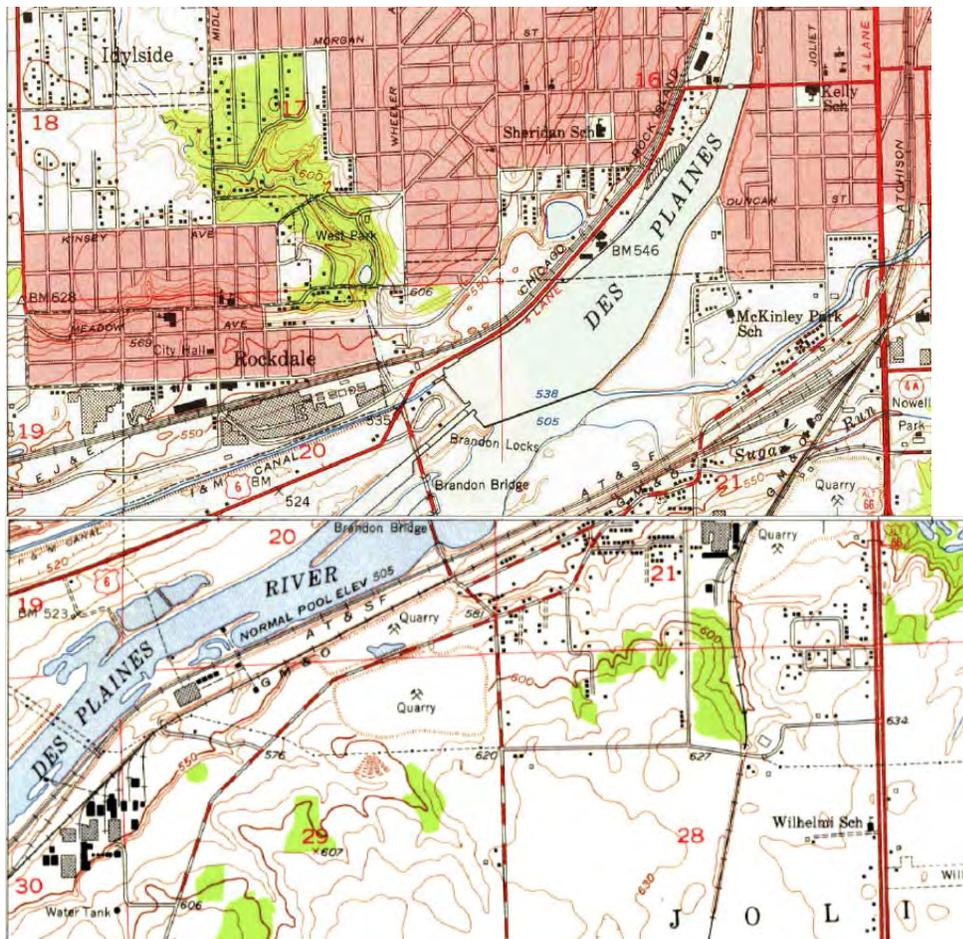


Figure 5. 1954 Topographic Map showing stream geometry following lock construction



1939 Aerial Photo

1952 Aerial Photo



1962 Aerial Photo

1974 Aerial Photo

Figure 6. Historical aerial photographs suggesting land disturbances north of approach channel

8.2 Database Search

The database search conducted for the Brandon Road project location was conducted by Environmental Data Resources, Inc. (EDR) in 2014. EDR searched federal and state databases using the minimum search distances provided in the ASTM E1527-13 guidelines. Table 1 notes the recommended ASTM search distance for federal and state databases. A description of information included in each database is included below.

Table 1. ASTM recommended search radii for database searches

Database	Approximate Minimum Search Distance (mi)
Federal NPL Site List	1.0
Federal CERCLIS List	0.5
Federal CERCLIS NFRAP site list	Property and Adjoining Properties
Federal RCRA CORRACTS Facilities List	1.0
Federal RCRA non-CORRACTS TSD Facilities List	0.5
Federal RCRA Generators List	Property and Adjoining Properties
Federal ERNS List	Property Only
State Equivalent NPL	1.0
State Equivalent CERCLIS	0.5
State Landfill/Solid Waste Disposal Site Lists	0.5
State LUST Lists	0.5
State registered UST List	Property and Adjoining Properties

CERCLIS

The Comprehensive Environmental Response, Compensation, and Liability, Information System (CERCLIS) contains data on any potential hazardous waste site that has been reported by states, municipalities, private companies, or private persons pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Two CERCLIS sites were identified within 1 mile of the barrier site: Carlstrom Landfill and Purex Corporation/Turco Products. Purex Corporation/Turex Products was assessed to be a low priority in 1984 and no further remedial action is planned. The Carlstrom Landfill site is located at 639 Rock Island Avenue in Rockdale, Illinois, approximately 0.3 miles northeast of the proposed project location. The site address is shown by a red dot in Figure 7, below. The lat/long coordinates given in the EPA Envirofacts database are also shown in Figure 7. The exact extents of the landfill are unknown, but may be as large as the blue and purple polygons together. The facility was entered in CERCLIS in 1979 and assigned a high priority for further assessment in 1986. An expanded site inspection was completed in 2004 and the site was recommended for HRS (Hazard Ranking System) scoring. No records of decision or other information about the nature or extent of contamination on site was readily available. While the impacts on site are unknown, the site is not adjacent to the potential GLMRIS project. A railroad, the Brandon Road Pool, and the Illinois and Michigan Canal lie between the Carlstrom Landfill and the proposed project sites. Therefore, no impacts to the projects would be expected.



Subject property

Map	Property	Owner
	30-07-16-327-006-0000 30-07-16-328-003-0010 30-07-20-210-018-0010 30-07-20-210-018-0020 30-07-20-210-018-0030	Glosky, Frank and Palmer, William Bolingbrook, IL
	30-07-16-325-015-0000	Orlando RV Park, Inc. Chicago, IL
	30-07-16-326-005-0000	Normanbhoy IRA LLC Cupertino, CA

Figure 7. Carlstrom Landfill location

RCRIS

The Resource Conservation and Recovery Information System (RCRIS) lists sites which generate, transport, store, and/or dispose of hazardous waste defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. The environmental records search located three SQG and four CESQG sites within the recommended search distance of the proposed project, as shown in Table 2. No violations were reported for any of the sites. No RCRA Corrective Action sites were located within the recommended search distance. Because there are no violations noted, it is unlikely that these site have impacted the proposed project area.

SWF/LF

The database search results located three landfill sites in proximity to the proposed GLMRIS project. Persico Landfill and M&W Landfill #3 are both located 0.33 miles north of the subject property and both are now closed. The closed landfills are hydraulically isolated from the subject property and therefore not likely to impact the proposed project.

The Illinois EPA and the Statewide Inventory of Land-Based Disposal Sites, published in 1988 by the Northeast Illinois Planning Commission, also list a SWF/LF owned by USACE on the vacant land south of Route 6. Interviews with USACE staff did not confirm a former disposal site at this location. Historical aerial photos are difficult to discern but do suggest land disturbance in this area in the 1970s. Historical topographic maps do not show significant elevation change in the area over time, which would be expected for a conventional landfill operation. In a report evaluating dredged material placement alternatives, this area was identified as the “Commonwealth Edison clay pit” (USACE, 2001). An Environmental Assessment authored for the dredging project further states that the Commonwealth Edison clay pit was “near capacity” (USACE, 2005). No further documentation about the clay pit or its current contents was found. No definitive conclusion could be reached regarding the nature of the historical land disturbances on this property. However, the available constellation of facts suggests the possibility that clay was extracted from the site and the pit was backfilled and listed as a landfill. If measures are selected for implementation on the property south of Route 6 and west of Brandon Road, now owned by NRG Energy, it is recommended that the soils be further investigated to determine if there was a landfill or not. Soil samples should be collected from the area of historic land disturbances and analyzed to characterize any fill materials that may have been placed in the area.

LUST/UST

Two LUST sites were identified within the recommended search distance of the proposed project site. The diesel LUST owned by Gary Richter was issued a NFR letter in 1999. The second site, Meade Electric Company, Inc., is a gasoline LUST located approximately 0.27 miles north of the project location, north of the Illinois and Michigan Canal. It was discovered in 1997 and was listed as high priority for cleanup. A corrective action plan for cleanup was submitted to the Illinois EPA, and a NFR letter was issued in March of 2011. USTs listed for the subject property and adjacent properties, Amoco Chemical Corp, Central Transport, and UIC Inc., have all been removed. USTs at Unit Step Co and Best Environmental, Inc are still in place and are exempt from registration.

IL SRP

The Site Remediation Program (SRP) database lists all voluntary remediation projects administered through the pre-notice site clean-up program (1989 to 1995) and the site remediation program (1996 to present). The database search located no SRP sites within a mile of the subject property.

Table 2. Database Search Results

Database	Map ID	Site Name	Proximity to Site	Status
CERCLIS	1	Carlstrom Landfill	0.31 mi NE	Assigned a high priority for further assessment. Recommended for HRS scoring in 2004. Across the river from the property of interest, so unlikely to have impacted the site.
CERCLIS-NFRAP, RCRA-NonGen	4	Purex Corp. Turco Products	0.33 mi N	Site archived 08/26/1993.
RCRA-SQG	2	Rockdale Automotive	0.22 mi N	No violations found.
RCRA-SQG	7	Mapco, Inc.	0.22 mi N	No violations found.
RCRA-SQG	7	Texas Truck Service	0.22 mi N	No violations found.
RCRA-CESQG	5	US Army Corps of Engineers LD3	0.12 mi N	No violations found.
RCRA-CESQG	6	Varlen Instruments	0.09 mi N	No violations found.
RCRA-CESQG	6	Chemtech Services Inc.	0.09 mi N	No violations found.
RCRA-CESQG, UST	5	Central Transport	0.12 mi N	No violations found. Two diesel USTs, both removed.
SWF/LF	4	M&W Landfill #3	0.33 mi N	Closed final cover. Permitted.
SWF/LF	4	Persico Landfill	0.33 mi N	Closed final cover. Unpermitted Unauthorized.
SWF/LF, UST	9, 12	US Army Corps of Engineers	Adjacent to the north	Landfill reported south of Brandon Road and Route 6, though no supporting information was found. One diesel and another fuel tanks, both removed.
LUST	11	Richter, Gary	0.15 mi NW	Diesel LUST. NFA/NFR letter: 7/27/1999
RCRA-SQG, LUST	3	Meade Electric Company, Inc.	0.27 mi N	Gasoline LUST identified as a high priority for cleanup. NFA/NFR letter: 3/22/2011.
UST	11	Amoco Chemical Corp	0.15 mi NW	Three fuel tanks, all removed.
UST	6	Unit Step Co	0.09 mi N	Gasoline USTs exempt from registration.
UST	6	UIC Inc.	0.09 mi N	Diesel UST removed.
UST	10	Best Environmental Inc.	0.06 mi N	Gasoline UST exempt from registration.

8.3 Water Quality

The Lower Des Plaines River is classified for General Use water quality standards, which are designed to be protective of aquatic life, wildlife, agricultural use, secondary contact use, and most industrial uses (35 IAC Subtitle C, Chapter 1, Part 302). Water quality in the Lower Des Plaines River is impaired for two of these designated uses. Upstream of the dam (G-23), concentrations of dissolved oxygen, iron, manganese, and total dissolved solids impair use of the waterway for aquatic life. Both upstream and downstream of the dam (G-12), mercury and PCB concentrations impair use of the waterway for fish consumption (Illinois EPA 2015). Both segments support Indigenous Aquatic Life.

Neither segment is listed as biologically significant, however segment G-12 has been given a category “B” diversity rating and a category “D” integrity rating in the 2008 Illinois Department of Natural Resources publication, *Integrating Multiple Taxa in a Biological Stream Rating System* (Illinois DNR 2008). Segment G-23 has not been given diversity or integrity ratings.

8.4 Sediment Quality

The Metropolitan Water Reclamation District (MWRD) regularly collects water quality, sediment quality, and biological data from throughout the Chicago Area Waterway System and the Illinois Waterway. On the Illinois Waterway System, Stations 1 through 4 are located upstream of the Brandon Road Lock and Dam and stations 5 through 49 are located downstream, as shown in Attachment A. The most recent and proximate sediment data were collected from stations 2 and 5 in 2008, 2009 and 2011. Station 2 is located just below the Lockport Lock and Dam and Station 5 is located just below the Brandon Road Lock and Dam. Sediment data collected by MWRD are shown in Attachment E.

Screening criteria and remediation objectives for sediment have not yet been published for by either federal or state environmental protection agencies. For discussion purposes, the Maximum Allowable Concentrations of chemical constituents allowed in “Uncontaminated Soil” and Illinois Clean Construction Demolition Debris (CCDD) are provided in Table A-1 as a point of comparison. The Illinois Tiered Approach to Corrective Action Objectives (TACO) criteria for residential are also provided, though they were developed to serve as land-based remediation objectives and are not necessarily valid for sediment. Sediment data collected by MWRD from 2008 to 2011 exceed the Illinois CCDD reference criteria for five parameters: cadmium, chromium, iron, lead, and manganese. Illinois TACO reference criteria were exceeded for lead.

Additional sediment data were collected above Brandon Road Lock and Dam in 2008. In 2009 and again in 2014, Northern Illinois Hydropower (NIH) requested water quality certification under Section 401 of the Clean Water Act from Illinois EPA for a hydropower project at Brandon Road Lock and Dam. NIH’s proposed activities included dredging sediment impounded above the dam, so they collected and analyzed six sediment samples in August 2008. Four samples were collected from within the skimmer wall just upstream of the dam and lock chamber, and two additional samples were collected just above the dam. Sampling locations and results are also shown in Attachment E.

The NIH/Patrick analysis found: arsenic at 22.6 mg/kg; chromium up to 836 mg/kg; lead up to 724 mg/kg; and mercury up to 1.14 mg/kg. One polychlorinated biphenyl (PCB) contaminant, Aroclor 1242, was detected, up to 2.82 mg/kg. No pesticides, VOCs or PAHs were found to exceed reference criteria. Metals concentrations in the sediment exceeded the Illinois EPA's Tiered Approach to Corrective Action Objectives (TACO) Tier 1 Soil Remediation Objectives as well as Illinois CCDD criteria.

An Environmental Assessment completed for the Illinois Waterway navigation project presents the results of sediment sampling and analysis completed in 2000 (USACE, 2005). In this analysis, metals did not exceed either Illinois TACO or CCDD criteria. PCB concentrations (up to 6.4 mg/kg) were detected in channel sediment, which exceeds both state and federal remediation objectives.

Further sediment collection and analysis may be needed to determine potential impacts to the proposed project. It is recommended that if proposed project activities will involve dredging or significant sediment work, a separate sediment quality investigation, following the Inland Testing Manual, be conducted.

9. SITE RECONNAISSANCE

CELRC Environmental Engineering staff (Fleer) visited the subject property on October 2, 2014 in order to conduct site reconnaissance as described in ASTM E1527-13. The objective of the site reconnaissance is to obtain information indicating the likelihood of identifying recognized environmental conditions in connection with the property. During the site visit, staff walked the lock and dam site and adjacent properties when not obstructed by dense vegetation and tall fences.

The periphery of the property was observed from Channahon Road/Route 6 and Brandon Road, and the interior of the site was observed on foot. The area located east of Brandon Road and both north and south of the lock chamber was thoroughly observed, as shown in Photos 14 through 67, Attachment F. Lock staff maintain supplies of hydraulic oil, fuel, and lawn care chemicals on site as needed for site operations and maintenance. Two above-ground storage tanks are located on the site. A 250 gallon tank containing diesel is located outside the lock house and a 250 gallon tank of gasoline is located on the northeast corner of the lock chamber, by the electrical shop. Paints and herbicides are stored in lockers by the electrical house. Small containers of gasoline are stored in a fire cabinet in a garage near the lock house. Fifty-five gallon drums of hydraulic oil are stored near the electrical shop and are in use at each of the four corners of the lock chamber. No evidence of spills was observed.

The southeast side of the lock chamber is an island bisected by Brandon Road. The northeastern section of this island consists of lock and dam structures. The western section of this island is densely vegetated. Dredged material has been placed just downstream of the lock chamber, on the east side of the approach channel. The last dredged material placement at Brandon Road took place in 2001-02. The lockmaster mentioned that local residents use this area for fishing, which was consistent with the proliferation of empty beer cans and other garbage observed on

site. Despite some litter, past uses of the property do not appear to involve the use, treatment, storage, disposal, or generation of hazardous substances or petroleum products.

The large parcel located north of the approach channel, west of Brandon Road and South of Channahon Road was also littered with debris as shown in Photos 70 through 74, Attachment F. Aside from the minor illegal dumping activities that have clearly taken place, no visual evidence of a historical landfill was observed. However, observations of this area were limited by the density of vegetation present on site.

10. SITE SUMMARY

This investigation was performed to determine if the selected measures will have an impact on any HTRW occurrences that may exist in the surrounding areas, and if RECs will have an impact on the implementation of the project.

The Carlstrom Landfill, located at 639 Rock Island Avenue in Rockdale, Illinois, is listed in CERCLIS. The landfill is located upstream of the Brandon Road Lock on the northwest side of the Des Plaines River. Information available in the EPA Envirofacts and CERCLIS databases indicate that an expanded site inspection was completed in 2004 and that the property is awaiting a Hazard Ranking System scoring. No additional information about the nature or extent of contamination on site was readily available. While the impacts on the site are unknown, the site is not adjacent to the potential GLMRIS project and is hydraulically isolated by the Des Plaines River and I&M canal, so impacts to the project are not likely.

The Illinois EPA and IL NIPC list a landfill owned by the US Army Corps of Engineers, west of Brandon Road and south of Route 6/Channahon Rd. The Brandon Road Lockmaster did not corroborate this information, and no landfill was reported at this location in earlier site documentation. Historical photos do suggest changes to the land cover over time, but the historical topographic maps do not show changes in ground elevation as you would expect from a conventional landfill operation. Two historical documents reference a clay pit at this location, which may have been backfilled and covered. During the site visit, some dumping of furniture and other garbage was observed in this area. From the available information, it remains unclear whether or not a landfill may have been operated at this site. If measures are selected for implementation on the property now owned by NRG Energy, south of Route 6 and west of Brandon Road, it is recommended that the soils be further investigated to determine if there was a landfill or not. Test pits or borings could be done in the area of historic land disturbances to determine if fill materials have been placed in the area.

Sediment data collected by MWRD from 2008 to 2011 exceed the Illinois CCDD reference criteria for five parameters: cadmium, chromium, iron, lead, and manganese. Illinois TACO reference criteria were exceeded for lead. Sediment data collected by Northern Illinois Hydropower in 2008 exceeded Illinois TACO reference criteria for arsenic, chromium, lead and mercury. NIH also detected the presence of Aroclor 1242, a PCB congener, at concentrations up to 2.82 mg/kg. Sediment data collected by USACE in 2002 detected total PCBs at concentrations up to 6.4 mg/kg. Water quality at the project site is impaired. Concentrations of dissolved oxygen, iron, manganese, and total dissolved solids impair the use of the waterway for

aquatic life and mercury and PCB concentrations impair use of the waterway for fish consumption. If sediment dredging or disturbances will be part of the project implementation, it is recommended that a tiered investigation, following the Inland Testing Manual, be conducted to determine the best means of handling sediment, and to conform to the CWA 404(b)(1) requirements.

This report contains the results of the HTRW and non-HTRW investigations for the Brandon Road Lock and Dam site located in Will County, Illinois, as part of the Great Lakes Mississippi River Interbasin Study (GLMRIS). No HTRW investigation can wholly eliminate uncertainty regarding the potential for HTRW associated with a project area. Performance of the HTRW investigation is intended to reduce, but not eliminate, uncertainty regarding the potential for HTRW in connection with a project area.

11. REFERENCES

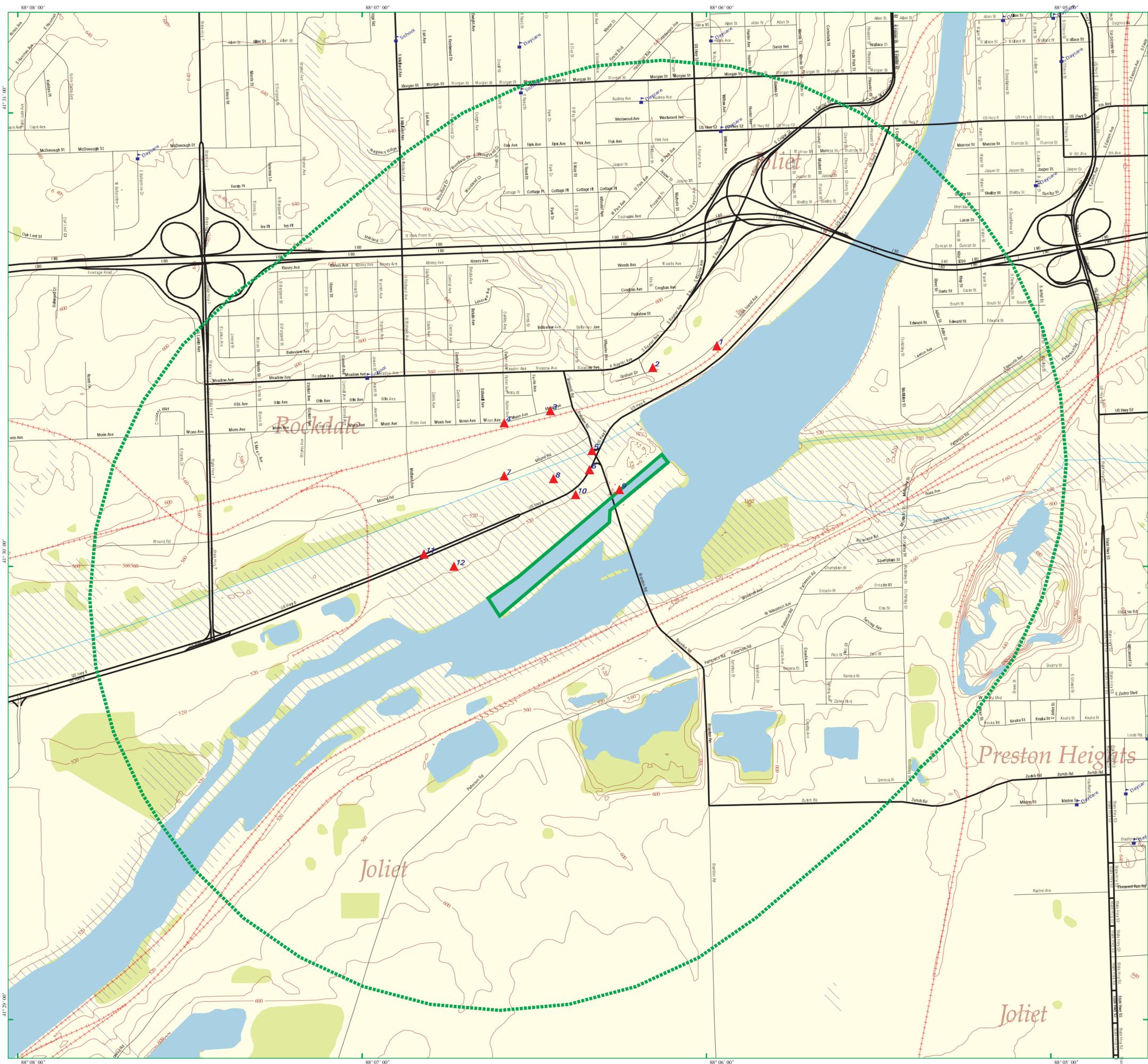
- Illinois Department of Natural Resources (IDNR). 2008. *Integrating Multiple Taxa in a Biological Stream Rating System*.
<http://www.dnr.illinois.gov/conservation/BiologicalStreamratings/Documents/StreamRatingReportSept2008.pdf>.
- Illinois Environmental Protection Agency (IEPA). 2015. "Illinois Integrated Water Quality Report and Section 303(d) List." Accessed April 27.
<http://www.epa.illinois.gov/topics/water-quality/watershed-management/tmdls/303d-list/index>.
- Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). 2009. "Water and Sediment Quality Along the Illinois Waterway from the Lockport Lock to Peoria During 2008." Report No. 09-46.
- Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). 2010. "Water and Sediment Quality Along the Illinois Waterway from the Lockport Lock to Peoria During 2009." Report No. 10-50.
- Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). 2012. "Water and Sediment Quality Along the Illinois Waterway from the Lockport Lock to the Peoria Lock During 2011." Report No. 12-35.
- Midwest Generation, LLC, "[Annual Report to the U.S. Securities and Exchange Commission for the year to December 31, 2008](#)", Filed March 2, 2009.
<http://www.sec.gov/Archives/edgar/data/1134016/000104746909002059/a2190917z10-k.htm>
- Patrick Engineering. 2008. Report of Investigation - Sediment Sampling. Lisle, IL.
<http://www.nihydropower.com/files/Brandon%20DLA/07-Draft%20Exhibit%20E%20Brandon%202-2-09.pdf>

- U.S. Army Corps of Engineers, Rock Island District. 2001. "Final Placement Alternative Report, Brandon Road Lower, Dresden Island Pool." Prepared by Harding ESE, Inc., St. Louis, Missouri.
- U.S. Army Corps of Engineers, Rock Island District. 2002. "Phase I Environmental Site Assessment: Illinois Waterway, Dresden Island Pool, Brandon Road Lower Reach." Completed by Daily & Associates, Engineers, Inc., Contract No. DACW 25-98-D-0019-0022.
- U.S. Army Corps of Engineers, Rock Island District. 2005. "Environmental Assessment, Dredged Material Placement Site for Brandon Road Lower Dredge Cut, Dresden Pool, Illinois Waterway River Miles 285.2-285.8."
- Will County, Illinois. 2015. "County of Will - GIS Viewer." Accessed May 4. <http://apps.willcogis.org/SilverlightViewer/?Viewer=Base%20Map>.

Attachment A
EDR Database Search Results

EDR DataMap® Area Study

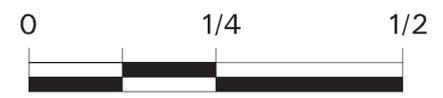
Brandon Road



- Listed Sites
- Earthquake Epicenters (Richter 5 or greater)
- Search Boundary
- Roads
- Major Roads
- Waterways
- Railroads
- Contour Lines
- Pipelines
- Fault Lines
- Water
- Superfund Sites
- Federal DOD Sites
- Indian Reservations BIA
- 100-Yr Flood Zones
- National Wetland Inventory



Joliet, IL



Scale in Miles



Attachment B
Historical Topographic Maps



Brandon Road

Brandon Road
Joliet, IL 60436

Inquiry Number: 4099641.3

October 09, 2014

The EDR Aerial Photo Decade Package



6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
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www.edrnet.com

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Date EDR Searched Historical Sources:

Aerial Photography October 09, 2014

Target Property:

Brandon Road
Joliet, IL 60436

<u>Year</u>	<u>Scale</u>	<u>Details</u>	<u>Source</u>
1939	Aerial Photograph. Scale: 1"=500'	Flight Date: January 01, 1939	USGS
1946	Aerial Photograph. Scale: 1"=750'	Flight Date: July 22, 1946	EDR
1952	Aerial Photograph. Scale: 1"=500'	Flight Date: April 16, 1952	EDR
1956	Aerial Photograph. Scale: 1"=1000'	Flight Date: June 02, 1956	EDR
1962	Aerial Photograph. Scale: 1"=500'	Flight Date: January 01, 1962	USGS
1974	Aerial Photograph. Scale: 1"=500'	Flight Date: January 01, 1974	USGS
1978	Aerial Photograph. Scale: 1"=500'	Flight Date: January 01, 1978	USGS
1983	Aerial Photograph. Scale: 1"=500'	Flight Date: April 20, 1983	EDR
1988	Aerial Photograph. Scale: 1"=500'	Flight Date: January 01, 1988	USGS
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2011	Aerial Photograph. Scale: 1"=500'	Flight Year: 2011	USDA/NAIP
2012	Aerial Photograph. Scale: 1"=500'	Flight Year: 2012	USDA/NAIP



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YEAR: 1939

| = 500'



G-38

INQUIRY #: 4099641.3

YEAR: 1946



| = 750'





INQUIRY #: 4099641.3

YEAR: 1952

| = 500'



G-40



INQUIRY #: 4099641.3

YEAR: 1956

|—————| = 1000'



G-41



INQUIRY #: 4099641.3

YEAR: 1962

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G-42



INQUIRY #: 4099641.3

YEAR: 1974

| = 500'



G-43



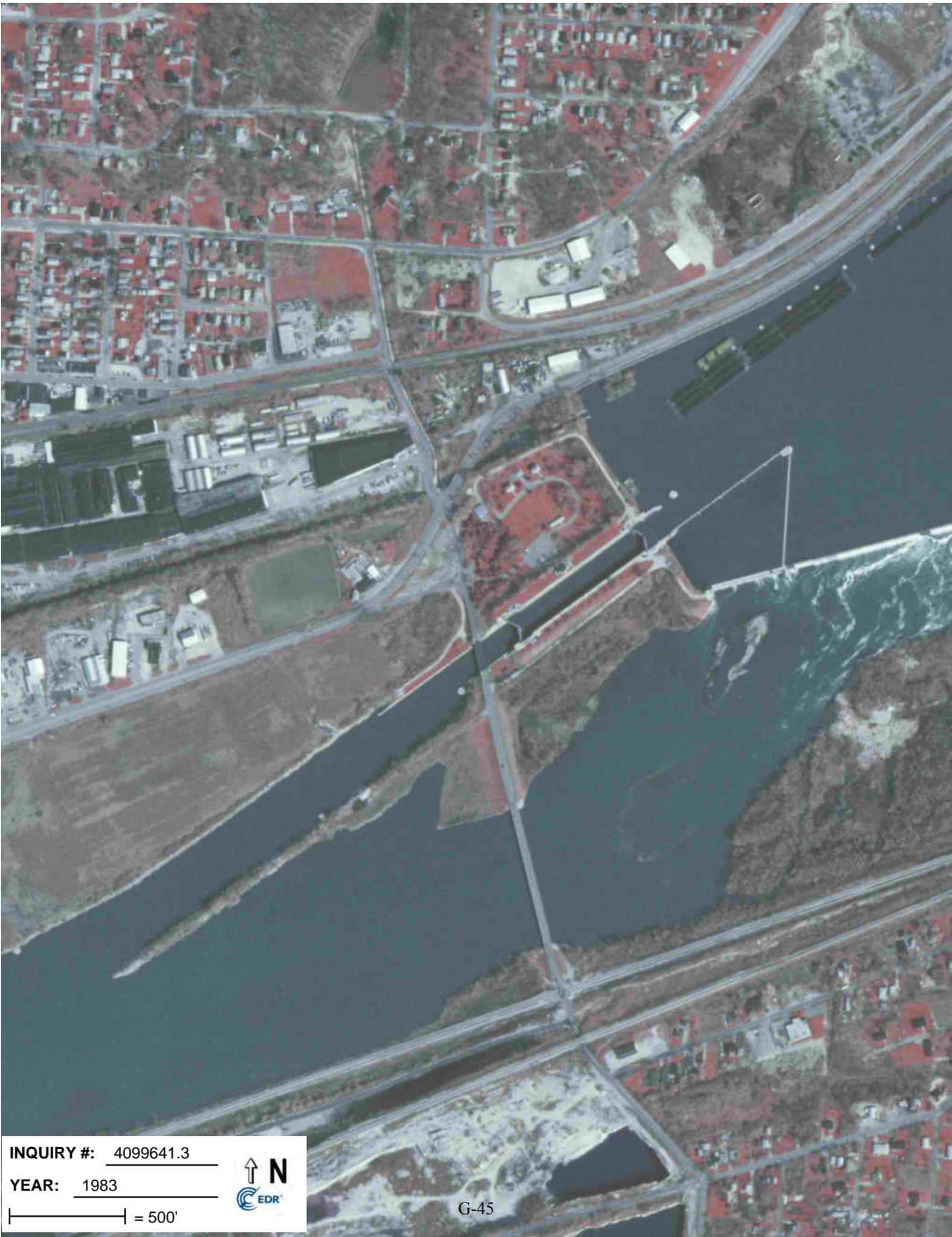
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G-44



INQUIRY #: 4099641.3

YEAR: 1983

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G-45



INQUIRY #: 4099641.3

YEAR: 1988

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G-46



INQUIRY #: 4099641.3

YEAR: 1993

| = 500'



G-47



INQUIRY #: 4099641.3

YEAR: 1998

| = 500'



G-48



INQUIRY #: 4099641.3

YEAR: 2002

| = 500'



G-49



INQUIRY #: 4099641.3

YEAR: 2005

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G-50



INQUIRY #: 4099641.3

YEAR: 2006

| = 500'



G-51

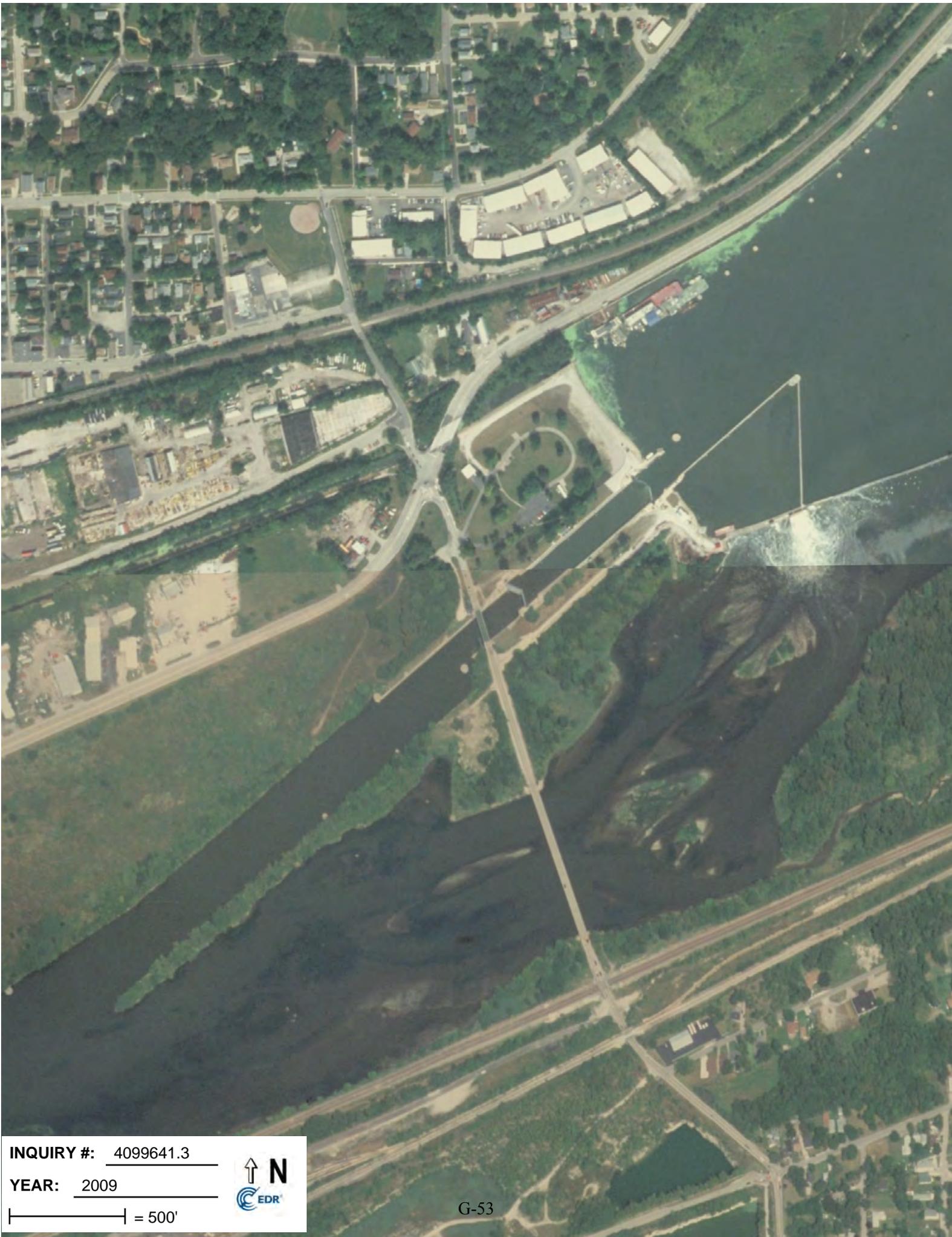


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YEAR: 2007

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INQUIRY #: 4099641.3

YEAR: 2009

| = 500'



G-53



INQUIRY #: 4099641.3

YEAR: 2010

| = 500'



G-54



INQUIRY #: 4099641.3

YEAR: 2011

| = 500'



G-55



INQUIRY #: 4099641.3

YEAR: 2012

| = 500'



G-56

Attachment C
Historical Aerial Photos



Brandon Road

Brandon Road

Joliet, IL 60436

Inquiry Number: 4099641.4

October 08, 2014

EDR Historical Topographic Map Report



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Shelton, Connecticut 06484
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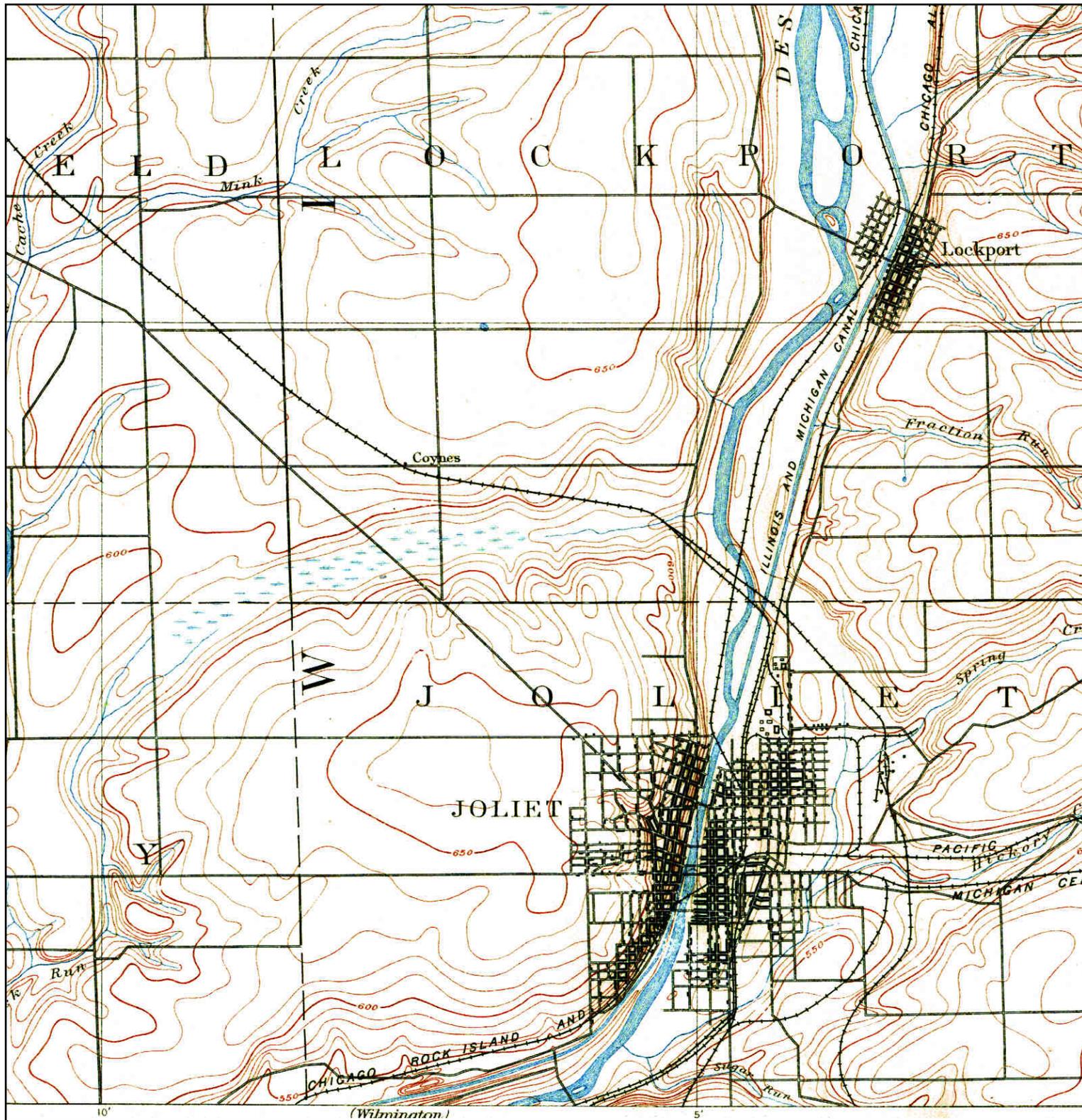
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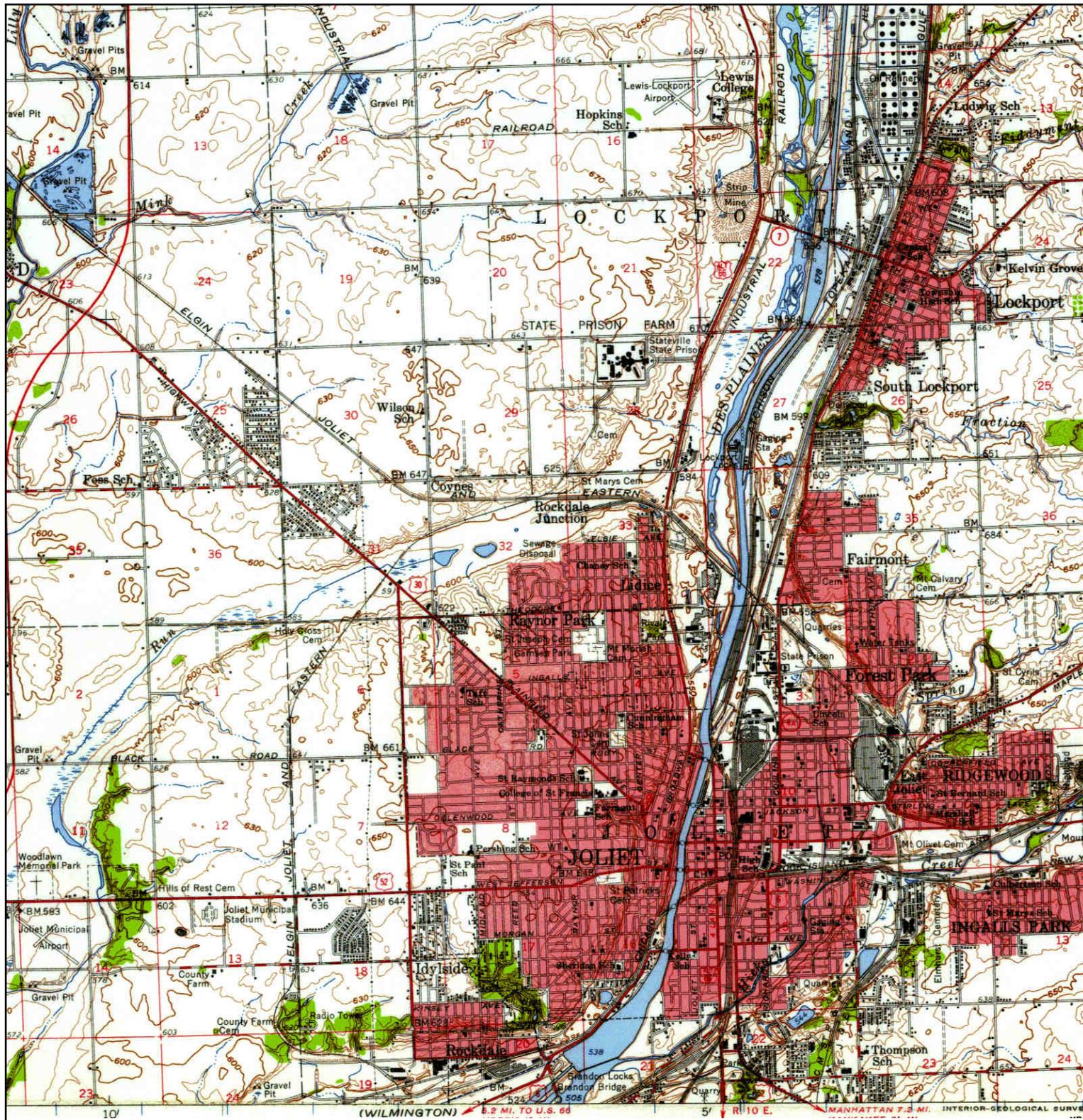
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Historical Topographic Map



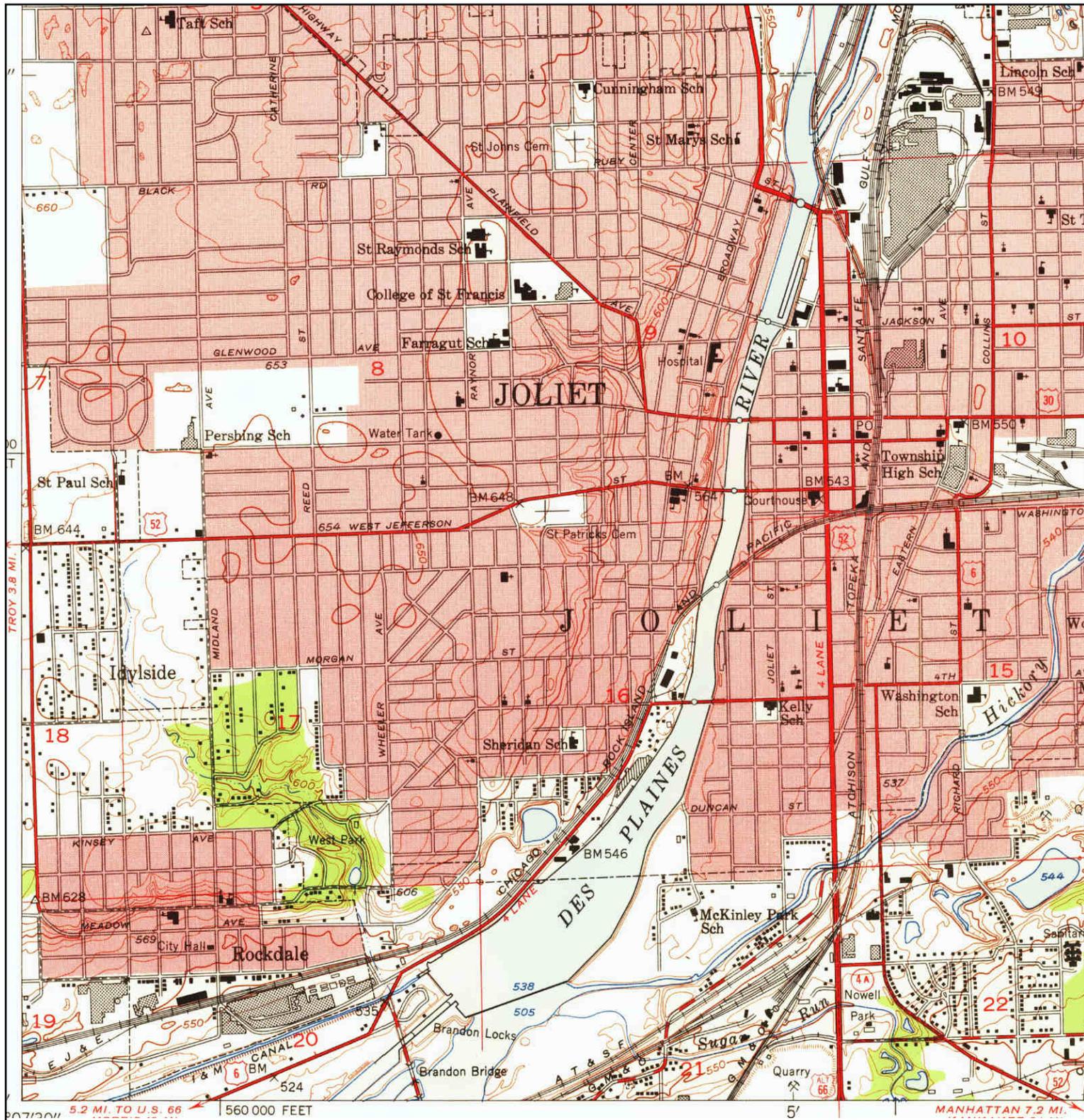
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	<p>SERIES: 15 SCALE: 1:62500</p>		

Historical Topographic Map



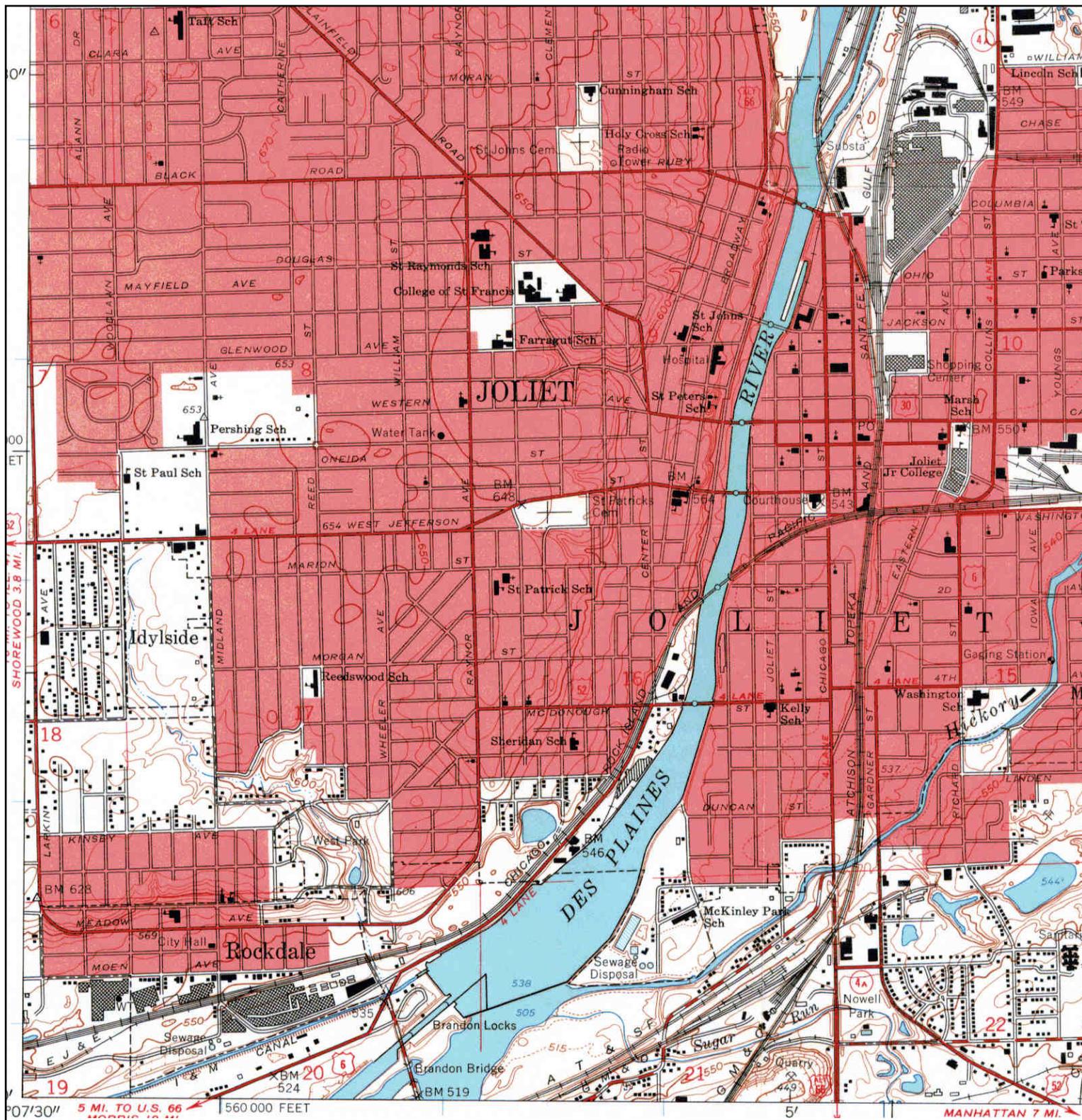
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	MAP YEAR: 1954	LAT/LONG: 41.5024 / -88.1046	INQUIRY#: 4099641.4
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Historical Topographic Map



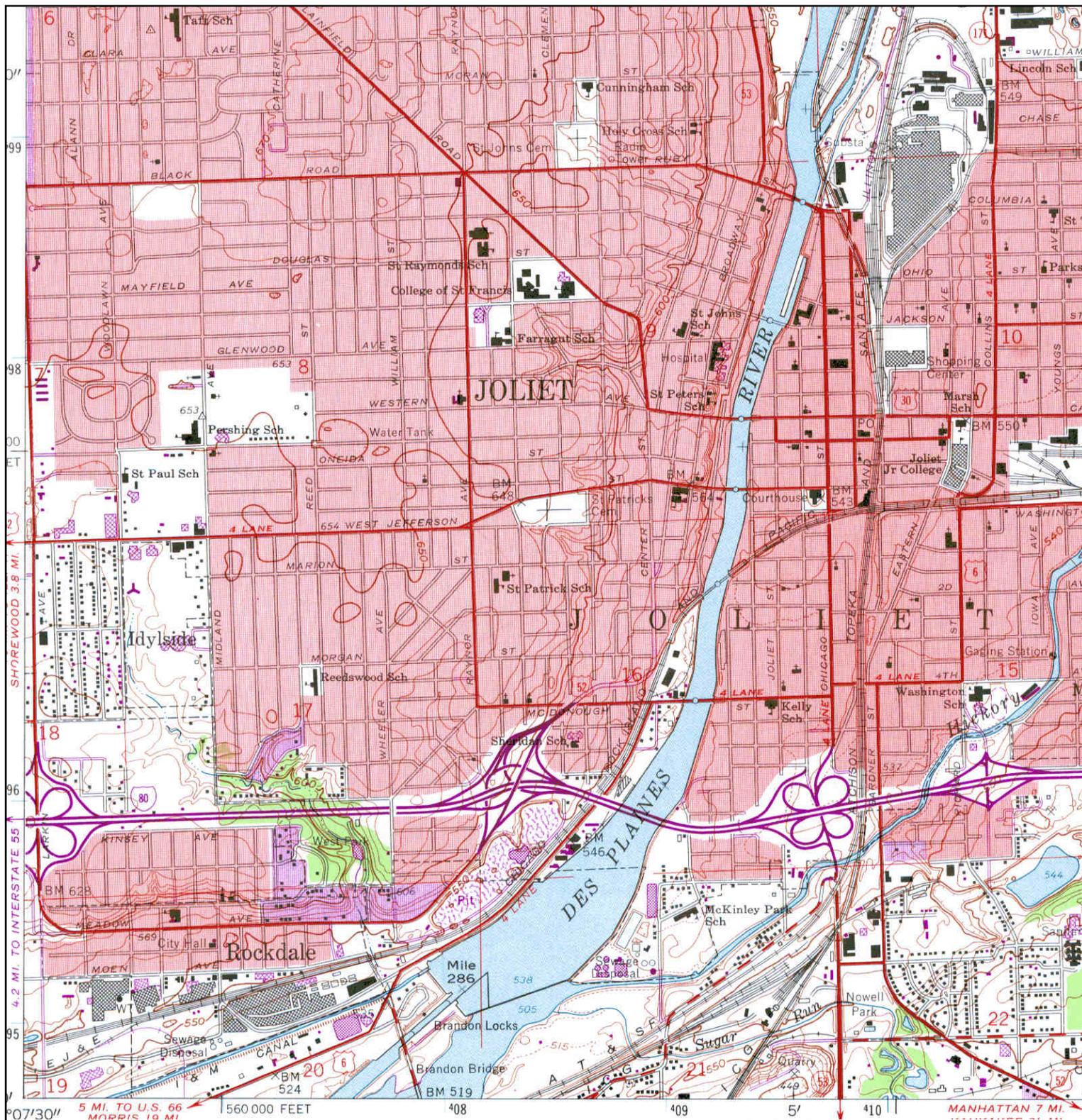
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Historical Topographic Map



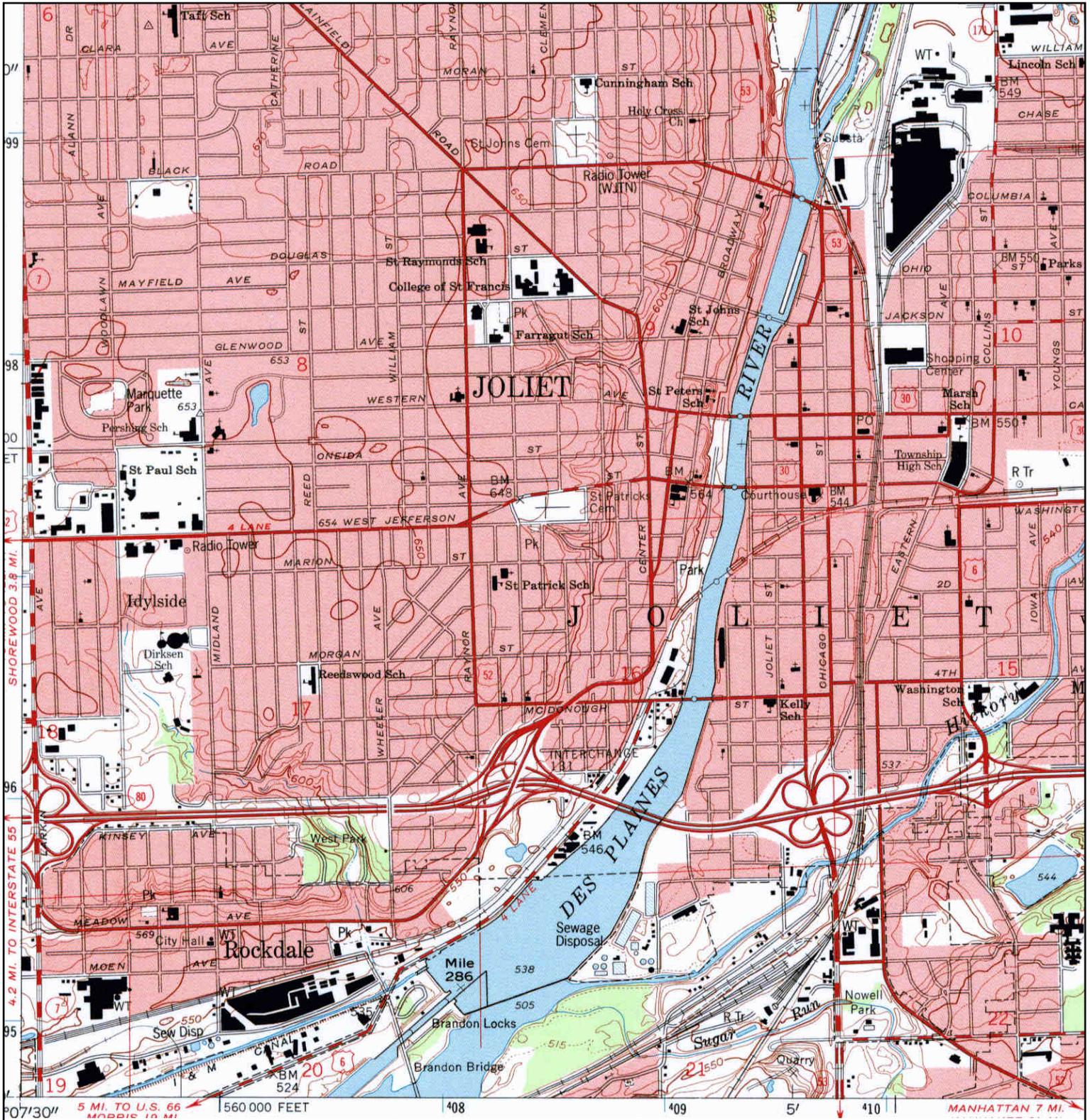
<p>N ↑</p>	<p>TARGET QUAD NAME: JOLIET MAP YEAR: 1962</p>	<p>SITE NAME: Brandon Road ADDRESS: Brandon Road Joliet, IL 60436 LAT/LONG: 41.5024 / -88.1046</p>	<p>CLIENT: U.S. Army Corps of Engineers CONTACT: Lauren Fleer INQUIRY#: 4099641.4 RESEARCH DATE: 10/08/2014</p>
	<p>SERIES: 7.5 SCALE: 1:24000</p>		

Historical Topographic Map



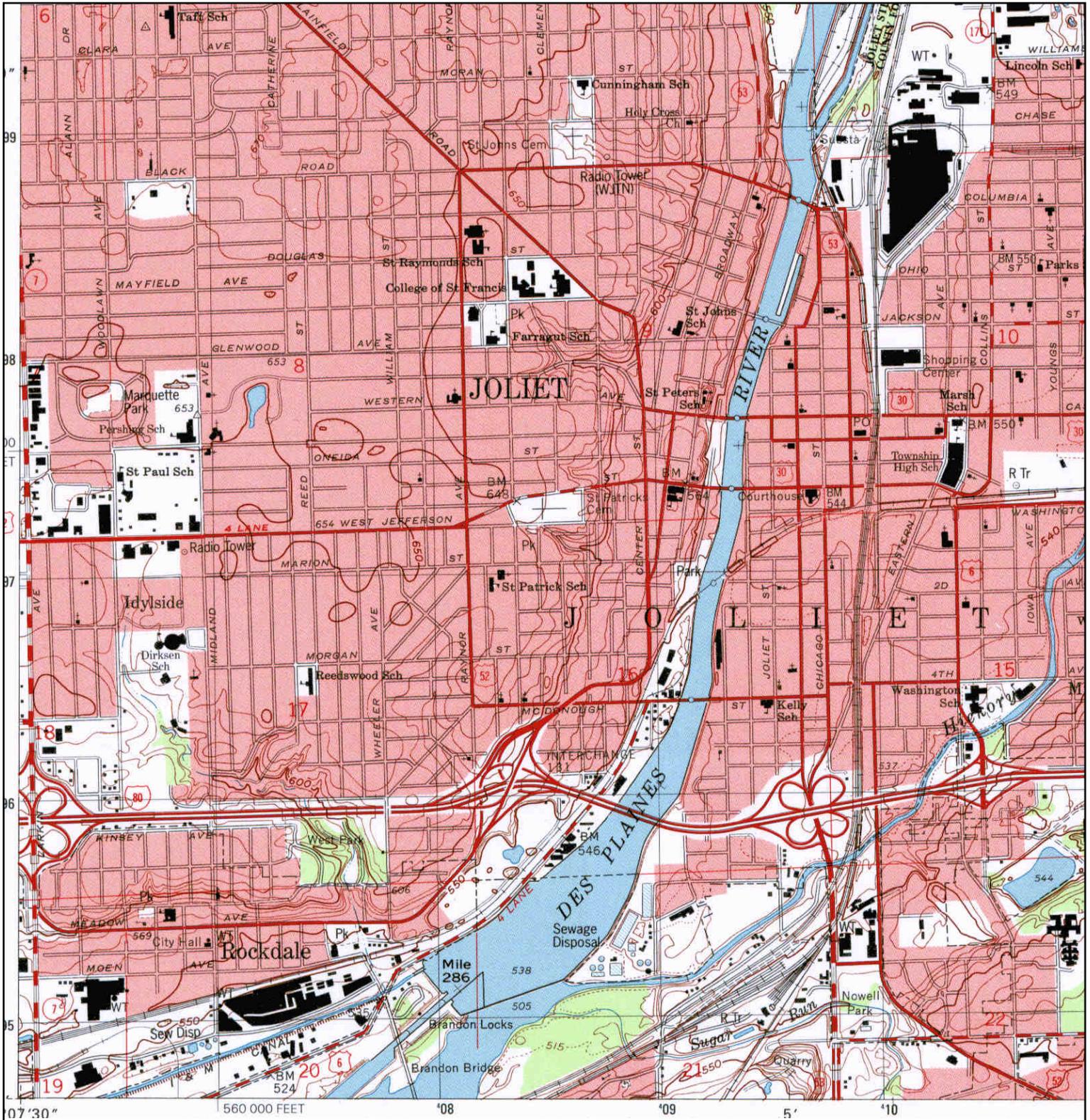
	TARGET QUAD	SITE NAME: Brandon Road	CLIENT: U.S. Army Corps of Engineers
	NAME: JOLIET	ADDRESS: Brandon Road	CONTACT: Lauren Fleer
	MAP YEAR: 1973	Joliet, IL 60436	INQUIRY#: 4099641.4
	PHOTOREVISED FROM :1962	LAT/LONG: 41.5024 / -88.1046	RESEARCH DATE: 10/08/2014
	SERIES: 7.5		
	SCALE: 1:24000		

Historical Topographic Map



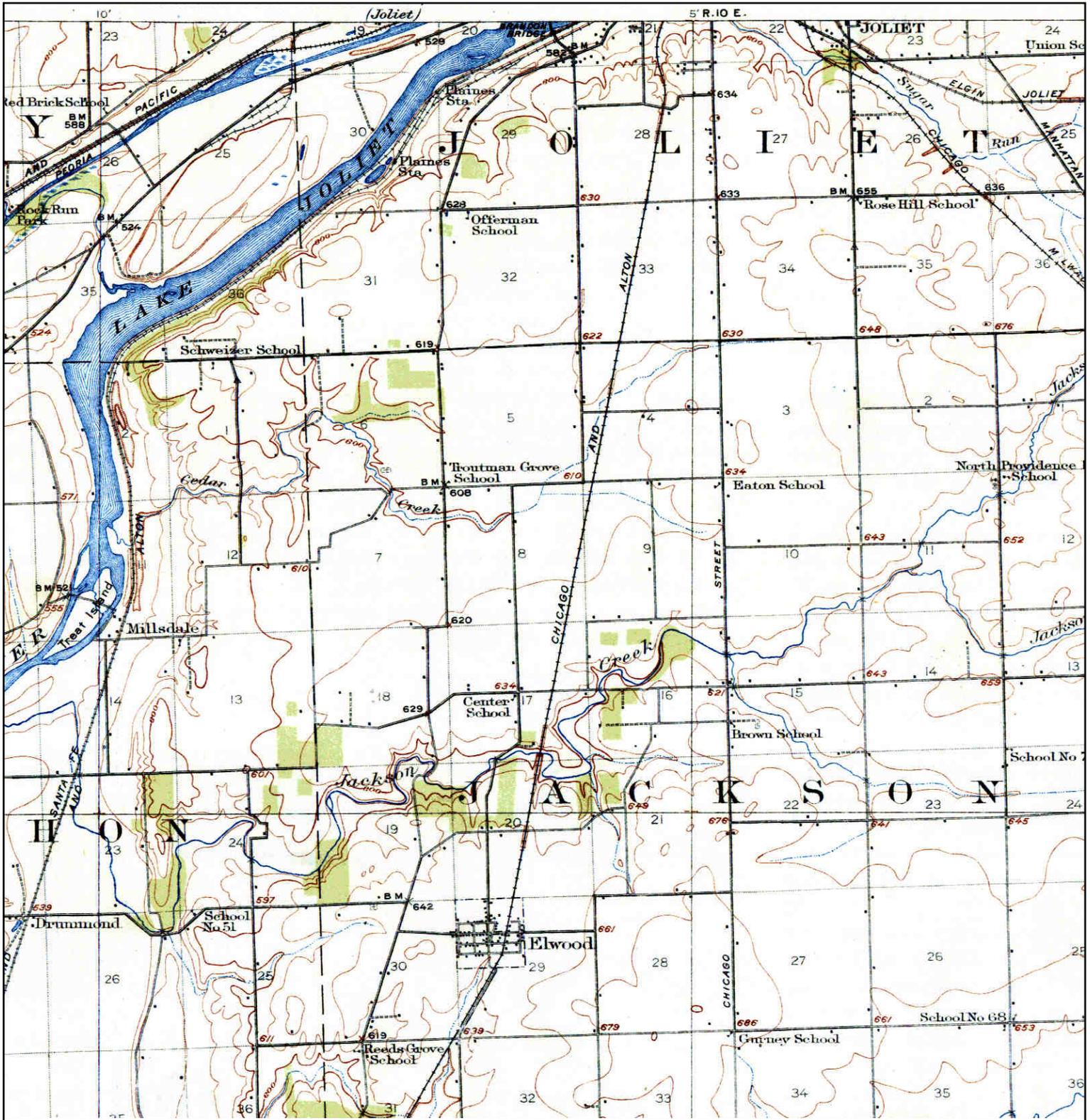
	TARGET QUAD	SITE NAME: Brandon Road	CLIENT: U.S. Army Corps of Engineers
	NAME: JOLIET	ADDRESS: Brandon Road	CONTACT: Lauren Fleer
	MAP YEAR: 1993	Joliet, IL 60436	INQUIRY#: 4099641.4
	SERIES: 7.5	LAT/LONG: 41.5024 / -88.1046	RESEARCH DATE: 10/08/2014
	SCALE: 1:24000		

Historical Topographic Map



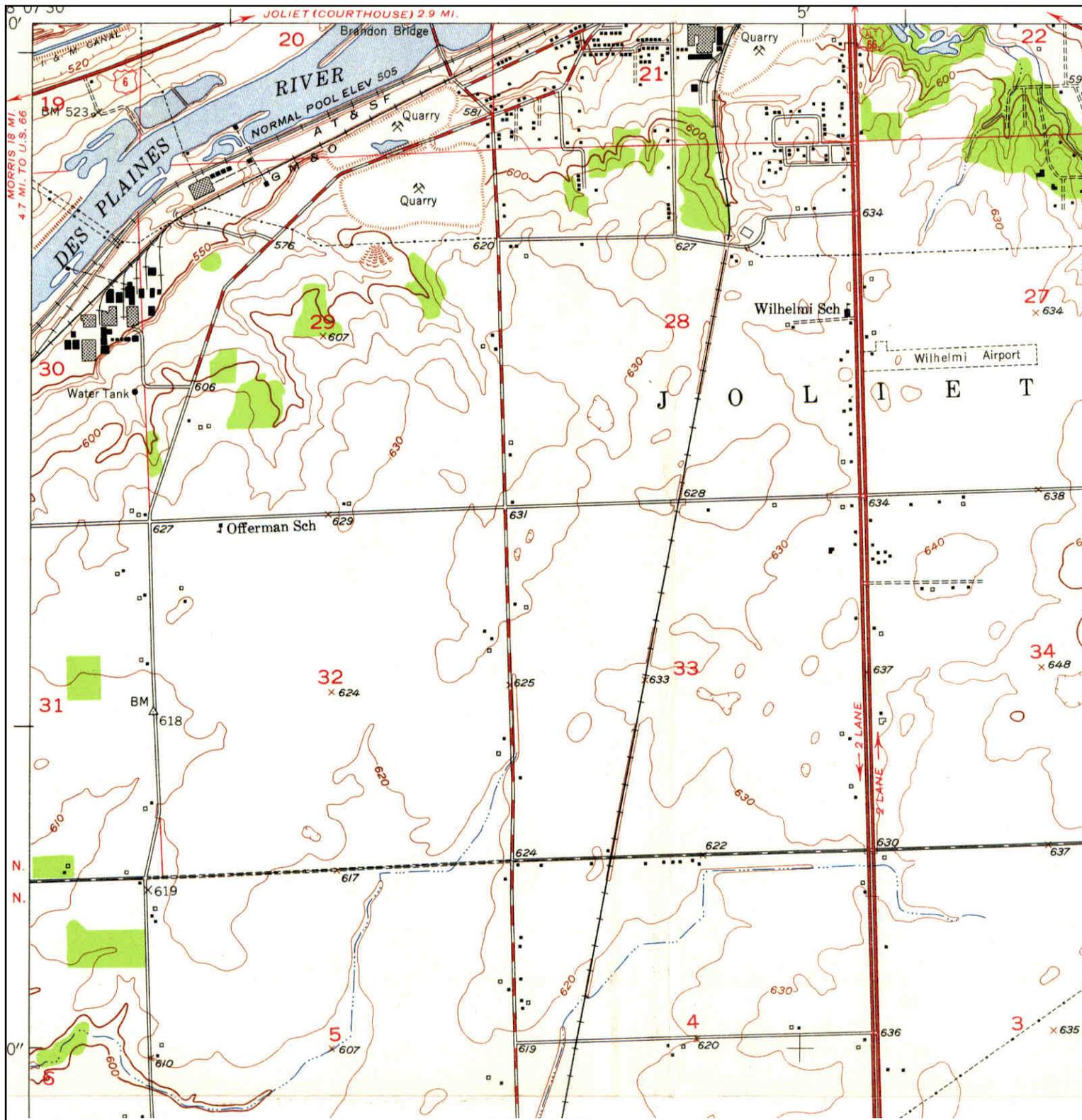
	TARGET QUAD	SITE NAME: Brandon Road	CLIENT: U.S. Army Corps of Engineers
	NAME: JOLIET	ADDRESS: Brandon Road	CONTACT: Lauren Fleer
	MAP YEAR: 1998	Joliet, IL 60436	INQUIRY#: 4099641.4
		LAT/LONG: 41.5024 / -88.1046	RESEARCH DATE: 10/08/2014
	SERIES: 7.5		
	SCALE: 1:24000		

Historical Topographic Map



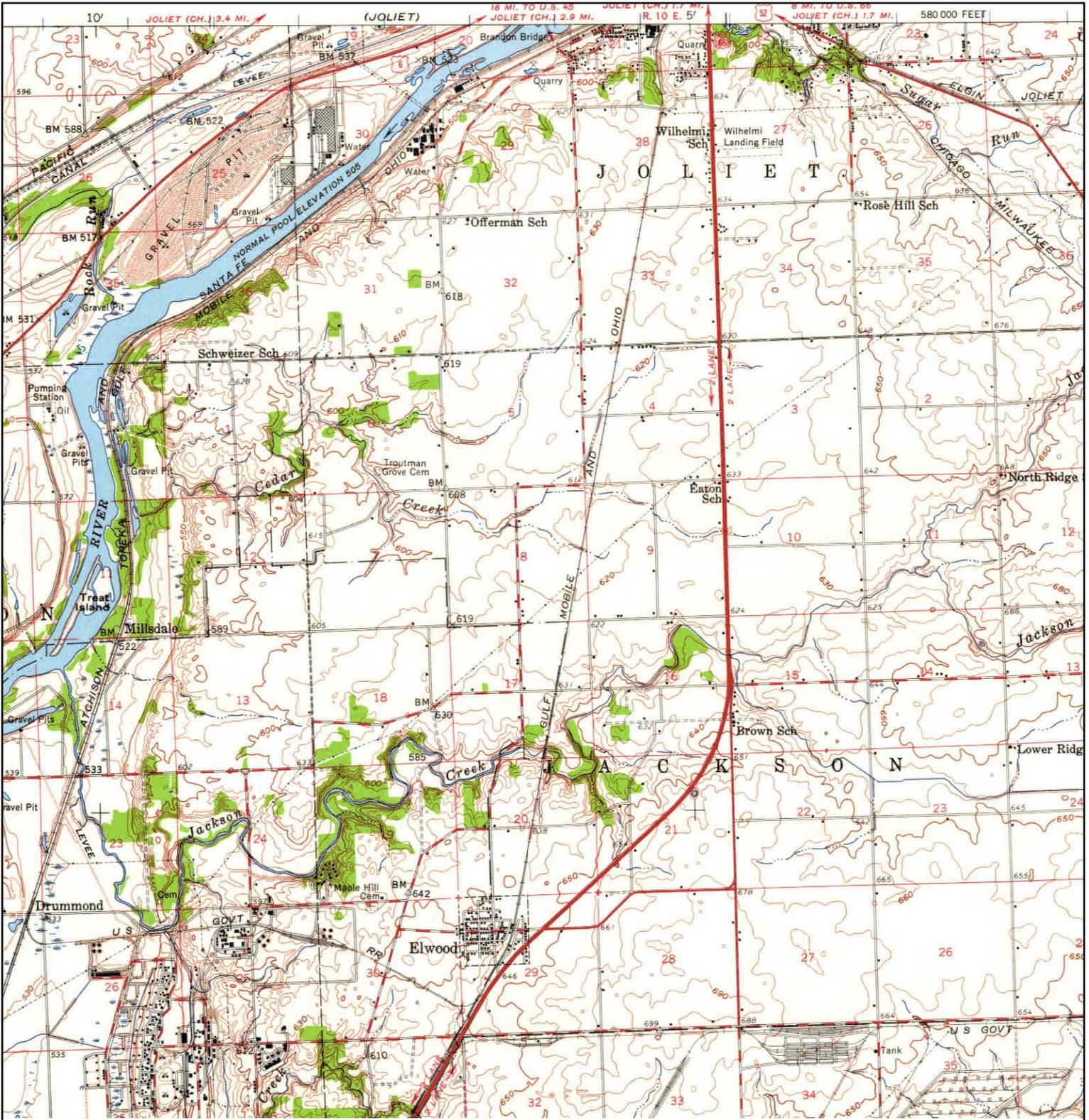
N 	ADJOINING QUAD	SITE NAME:	CLIENT:
	NAME: WILMINGTON	Brandon Road	U.S. Army Corps of Engineers
	MAP YEAR: 1918	ADDRESS: Brandon Road Joliet, IL 60436	CONTACT: Lauren Fleer
	SERIES: 15	LAT/LONG: 41.5024 / -88.1046	INQUIRY#: 4099641.4
SCALE: 1:62500		RESEARCH DATE: 10/08/2014	

Historical Topographic Map



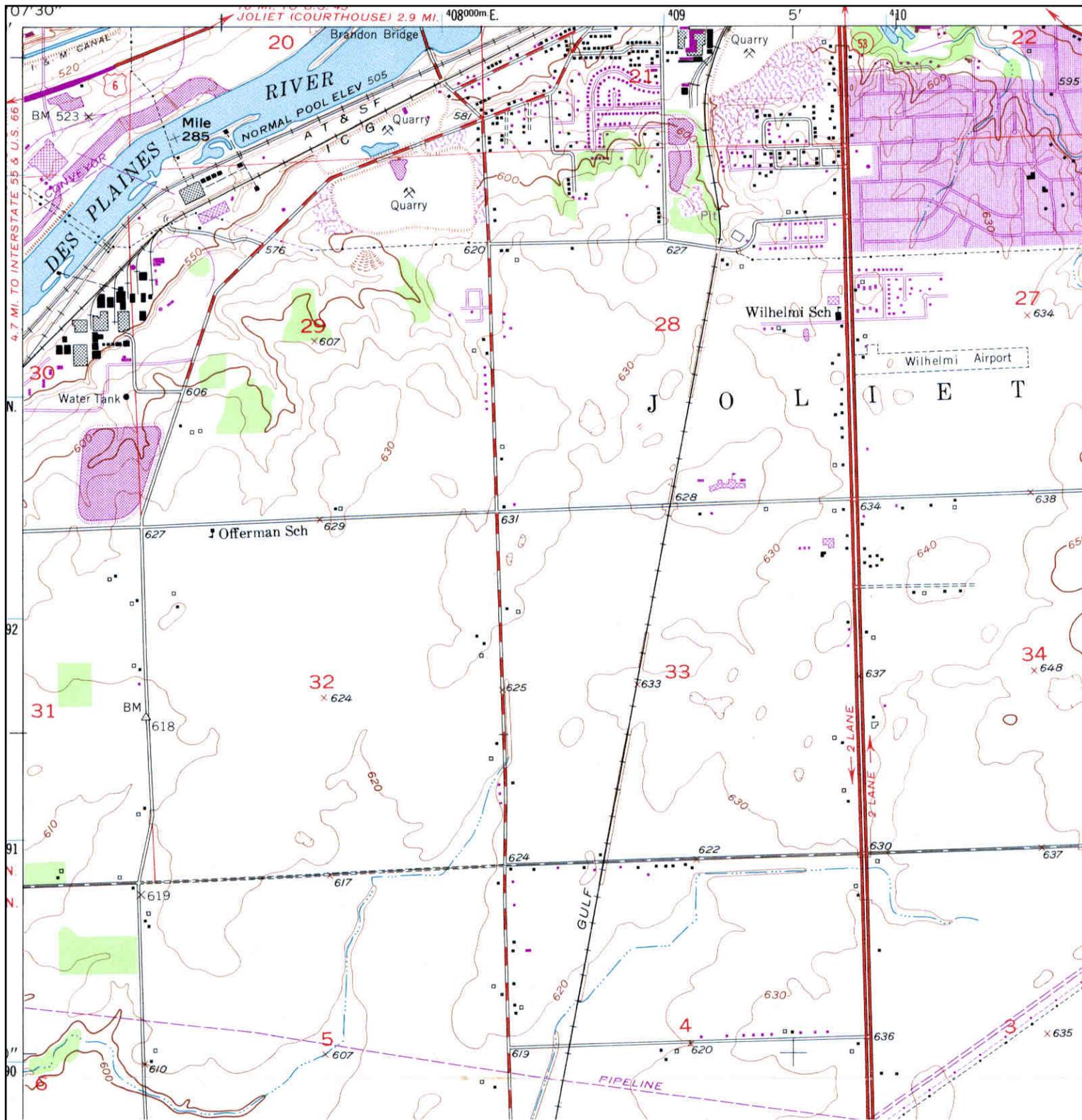
	ADJOINING QUAD			
	NAME: ELWOOD	SITE NAME: Brandon Road		CLIENT: U.S. Army Corps of Engineers
	MAP YEAR: 1953	ADDRESS: Brandon Road Joliet, IL 60436		CONTACT: Lauren Fleer
	SERIES: 7.5	LAT/LONG: 41.5024 / -88.1046		INQUIRY#: 4099641.4
	SCALE: 1:24000	RESEARCH DATE: 10/08/2014		

Historical Topographic Map



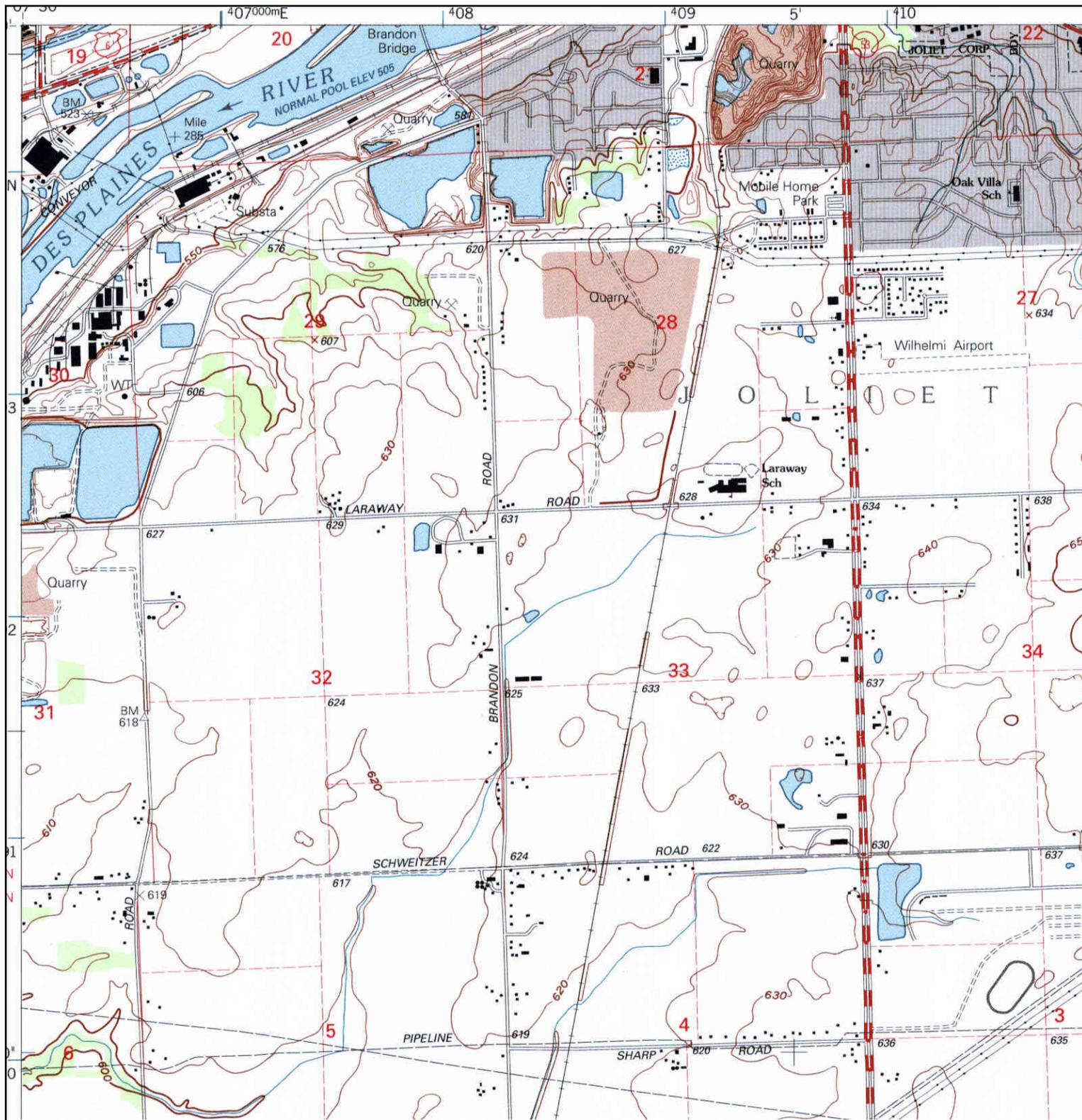
	ADJOINING QUAD		CLIENT: U.S. Army Corps of Engineers
	NAME: WILMINGTON	SITE NAME: Brandon Road	CONTACT: Lauren Fleer
	MAP YEAR: 1954	ADDRESS: Brandon Road Joliet, IL 60436	INQUIRY#: 4099641.4
	SERIES: 15	LAT/LONG: 41.5024 / -88.1046	RESEARCH DATE: 10/08/2014
	SCALE: 1:62500		

Historical Topographic Map



 N	ADJOINING QUAD	SITE NAME: Brandon Road	CLIENT: U.S. Army Corps of Engineers
	NAME: ELWOOD	ADDRESS: Brandon Road	CONTACT: Lauren Fleer
	MAP YEAR: 1973	JOLIET, IL 60436	INQUIRY#: 4099641.4
	PHOTOREVISED FROM :1953	LAT/LONG: 41.5024 / -88.1046	RESEARCH DATE: 10/08/2014
	SERIES: 7.5		
	SCALE: 1:24000		

Historical Topographic Map



	ADJOINING QUAD			
	NAME: ELWOOD	SITE NAME: Brandon Road		CLIENT: U.S. Army Corps of Engineers
	MAP YEAR: 1999	ADDRESS: Brandon Road Joliet, IL 60436		CONTACT: Lauren Fleer
	SERIES: 7.5	LAT/LONG: 41.5024 / -88.1046		INQUIRY#: 4099641.4
	SCALE: 1:24000	RESEARCH DATE: 10/08/2014		

Attachment D
Interviews

US Army Corps of Engineers
Chicago District
Phase I Environmental Site Assessment Interview

Interviewer: Lauren Fleer, Environmental Engineer, CELRC-TS-DH
Interview Media: In Person
Date: 2-Oct-2014
Person interviewed: Perry Jones, Lockmaster
Address: Brandon Road Lock & Dam, 1100 Brandon Road, Joliet, IL 60436
Telephone: 815-744-1714, 815-258-4175
E-mail: Perry.Jones@usace.army.mil

Subject Property

1. What are the current uses of the subject property?

Navigation lock since 1933. Vacant land to the south and east.

2. What were the past uses of the subject property and the time periods of each use?

No known previous uses.

3. Are structures (i.e. bridges, buildings, roads, etc.) present or were they ever present on the subject site? If yes provide the information below.

Two houses, residences for the lockmaster and mechanic, formerly stood on the lower lock site. They were both demolished prior to 1998. Structures still present on site include: lock, dam, lock house, transformer, garage, control houses, electrical shop, pump house, access road, and parking lot.

The lock house is monitored twice each week for radon. Radon monitoring data is available going back to 2006. At one point the lock house was scheduled for demolition. Instead, the basement floor was partially excavated and a radon reduction system was installed, which vents the radon outside.

4. Are any of the following associated with any structures on the subject property?

a. Lead-based coatings

Lead has been detected on the handrail surrounding the lock chamber, on the catwalks over the dam and on the head gates. The Peoria USACE office holds records of lead testing.

b. Asbestos materials – No

c. PCBs – No

5. Are you aware of any dry, irrigation, injection, abandoned, or drinking water wells on the subject property?

Four wells are located at the north side of the lock chamber, two on the east side and two on the west side. They are monitored monthly by Derek Clark and Tom Dumoulin of the USACE Rock Island District. There is a fifth well near the pump house. Water is pumped from this well and used for cleaning, flushing toilet, etc. The lock staff once used this well for drinking water but they now buy bottled water. The well water was last characterized in 2007.

6. Has there ever been a septic system on the subject property? If yes provide the location.

No, sanitary waste discharges to sewer owned by the City of Joliet.

7. Did past uses of the subject property result in the generation, treatment, storage, or disposal of hazardous wastes?

No.

8. Have you ever observed: pits, ponds, or lagoons on the subject property suggestive of the treatment or disposal of hazardous waste? No.
9. Are there above ground or underground storage tanks on the subject property or have above ground or underground storage tanks been removed from the subject property? If yes provide further information below.

Two above ground storage tanks are located on the site. A 250 gallon tank containing diesel is located outside the lock house and a 250 gallon tank of gasoline is located on the northeast corner of the lock chamber, by the electrical shop.

10. Are the following stored on the subject property?

- a. Industrial drums – 55 gallon drums of hydraulic oil are stored near the electrical shop and are in use at each of the four corners of the lock chamber.
- b. Sacks of chemicals – No.
- c. Damaged or discarded automotive or industrial batteries – No.
- d. Pesticides, Herbicides, Paints or Other Chemical in Individual Containers greater than five (5) gallons in volume or fifty (50) gallons in the aggregate? Paints and herbicides are stored in lockers by the electrical house. Small containers of gasoline are stored in a fire cabinet in a garage near the lock house.

11. Has soil or other debris been disposed of on the subject property, or been removed from the subject property?

- a. Fill material – Dredged material has been placed just downstream of the lock chamber, on the east side of the approach channel. The last dredged material placement at Brandon Road took place in 2001-02. John Hayes and Nicole Manasco (MVR) would be able to provide additional information.
- b. Location of source – Contact MVR for source information.
- c. Location of placement – Downstream of the lock chamber, on the east side of the approach channel.

12. Are you aware of areas of stressed vegetation, stained soil, or foul odor on the subject property; where on the subject property have you observed these characteristics? No.

13. Do you know of any spills or other chemical releases that have taken place at the property? No.

14. Do you know of any environmental cleanups that have taken place at the property? No.

15. Based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contaminant releases at the property? No.

Adjoining property

1. What are the current uses of adjoining property
 - a. North – Des Plaines River
 - b. South – Vacant, owned by State of Illinois
 - c. East – City of Joliet Sewage Plant
 - d. West – Route 6
2. What were the past uses of adjoining property and the time periods for each use?
 - a. Vacant
 - b. Residential
 - c. Industrial
 - d. Commercial
3. Are there structures or were there ever structures on adjoining properties? If yes provide details below.

No structures have existed on the State of Illinois land just south of the lock, nor on the land east of the lock chamber and approach channel.
4. Did past uses of adjoining property result in the generation, treatment, storage, or disposal of hazardous wastes? No.
5. Have you ever observed pits, ponds, or lagoons on adjoining property suggestive of the treatment or disposal of hazardous waste? No.

Have investigations/remedial actions occurred?

What permits do you have and have there been violations?

Have any known spills/releases occurred?

Has site been subject to any EH&S regulatory action?

Has site been subject to any EH&S complaints or lawsuits?

Are there any active/abandoned septic systems?

Are there any wells at the site? Use?

Does the property have any ASTs or USTs? How many? Ages?

Where does stormwater discharge to?

Does facility discharge air pollutants? Have air pollution controls?

CELRC-TS-DH

Captain Fred Offerman
Hazardous Materials Team
Joliet Fire Department
101 East Clinton
Joliet, Illinois 60432

Dear Mr. Offerman:

The U.S. Army Corps of Engineers, Chicago District, is conducting a Phase I Environmental Site Assessment of the Brandon Road Lock and Dam, located at 1100 Brandon Road in southwest Joliet, Illinois. The purpose of this investigation is to identify any recognized environmental conditions at or adjacent to the Brandon Road Lock and Dam, shown in the figure below. We would like to request any records your office may have on file pertaining to environmental health and safety at this site. Records of interest include documentation of: inspections related to hazardous material; chemical spills; installation or removal of underground storage tanks; or any calls for emergency assistance at the site.

Thanks in advance for your assistance with this investigation. Please contact the undersigned at 312-846-5501 or at lauren.a.fleer@usace.army.mil with any questions.

Sincerely,

A handwritten signature in black ink that reads "Lauren A. Fleer". The signature is written in a cursive, flowing style.

Lauren Fleer
Environmental Engineer

CELRC-TS-DH

David Culp
Office of Health Protection
Illinois Department of Public Health
525 W. Jefferson St., 2nd Floor
Springfield, IL 62761-0001

Dear Dr. Culp:

The U.S. Army Corps of Engineers, Chicago District, is conducting a Phase I Environmental Site Assessment of the Brandon Road Lock and Dam site in southwest Joliet, Illinois. The purpose of this investigation is to identify any recognized environmental conditions at or adjacent to the Brandon Road Lock and Dam, shown in the figure below. We would like to request any records your office may have on file pertaining to environmental health and safety at this site. Records of interest include documentation of: active or abandoned septic systems; wells; lead, asbestos, or other hazardous materials; or any other potential exposure to environmental hazards.

Thanks in advance for your assistance with this investigation. Please contact the undersigned at 312-846-5501 or at lauren.a.fleer@usace.army.mil with any questions.

Sincerely,

Lauren Fleer
Environmental Engineer

CELRC-TS-DH

Chief Joe Formhals
Joliet Fire Department
101 East Clinton
Joliet, Illinois 60432

Dear Chief Formhals:

The U.S. Army Corps of Engineers, Chicago District, is conducting a Phase I Environmental Site Assessment of the Brandon Road Lock and Dam site in southwest Joliet, Illinois. The purpose of this investigation is to identify any recognized environmental conditions at or adjacent to the Brandon Road Lock and Dam, shown in the figure below. We would like to request any records your office may have on file pertaining to environmental health and safety at this site. Records of interest include documentation of: inspections related to hazardous material; chemical spills; installation or removal of underground storage tanks; or any calls for emergency assistance at the site.

Thanks in advance for your assistance with this investigation. Please contact the undersigned at 312-846-5501 or at lauren.a.fleer@usace.army.mil with any questions.

Sincerely,

Lauren Fleer
Environmental Engineer

Brandon Road

Lauren Fler, 312-846-5501
lauren.a.fler@usace.army.mil

Legend



Google earth

G-80

2000 ft



Attachment E
Sediment Chemistry Data

Table E-1. Chemical characteristics and trace metals in sediment collected from monitoring stations in the Brandon Road and Dresden Island, pools of the Illinois Waterway

In mg/L unless otherwise noted. Highlighted cells exceed one or more of the reference criteria shown.

	2008 ^a	2008 ^a	2009 ^b	2009 ^b	2011 ^c	Reference criteria	
	Sta. 2 Brandon Road	Sta. 5 Dresden Island	Sta. 2 Brandon Road	Sta. 5 Dresden Island	Sta. 2 Brandon Road	Illinois CCDD	Illinois TACO
Total Solids (%)	43	70	41	74	47	--	--
Total Volatile Solids (%)	15	4	9	17	16	--	--
Ammonia Nitrogen	296	7	234	13	59	--	--
Total Kjeldahl Nitrogen	3,335	709	5,415	584	2,268	--	--
Nitrite + Nitrate	6	3	11	3	25	--	--
Total Phosphorus	6,069	1,863	10,143	926	8,058	--	--
Total Cyanide	0.147	0.089	1.236	0.188	--	--	--
Phenols	1.779	0.254	0.166	0.058	0.346	100	23,000
Arsenic	<25	<25	<25	<25	<10	13	750
Cadmium	6	<2	7	<2	5.2	5.2	78
Chromium	95	32	82	21	62	21	230
Copper	127	35	119	23	111	2,900	2,900
Iron	36,446	20,037	31,236	12,208	32,302	15,900	--
Lead	171	72	148	506	124	107	400
Manganese	862	493	773	292	845	636	1,600
Mercury	<1.250	<1.250	<1.250	<1.250	0.48	0.89	23
Nickel	33.8	28.5	29	13	29	100	1,600
Silver	<1	<1	<1	<1	2.5	4.4	390
Zinc	649	264	593	178	491	5,100	23,000

^a Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). 2009. "Water and Sediment Quality Along the Illinois Waterway from the Lockport Lock to Peoria During 2008." Report No. 09-46.

^b Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). 2010. "Water and Sediment Quality Along the Illinois Waterway from the Lockport Lock to Peoria During 2009." Report No. 10-50.

^c Metropolitan Water Reclamation District of Greater Chicago (MWRDGC). 2012. "Water and Sediment Quality Along the Illinois Waterway from the Lockport Lock to the Peoria Lock During 2011." Report No. 12-35.

Table E-2. Chemical Analysis Results from Bed Sediment Samples Collected from the Brandon Road Lower Dredge Cut (USACE, 2005)

In mg/kg dry wt. Highlighted cells exceed one or more of the reference criteria shown.

ANALYTE	RM 285.3R	RM 285.4R	SSL ¹		PEL ²	TEL ³	CBSG ⁴	Illinois CCDD	Illinois TACO
			Ingest	Inhale					
Arsenic	<18	<13	0.4	750	17.0	5.9	9.79	13	750
Chromium ⁵	32.0	20.0	390	270	90.0	37.3	43.4	21	230
Copper	31.5	22.5	---	---	197	35.7	31.6	2,900	2,900
Lead	73	59	400	---	91.3	35	35.8	107	400
Mercury	<0.18	< 0.13	---	---	0.486	0.174	0.18	0.89	23
Zinc	260	180	23,000	---	315	123	121	5,100	23,000
PCBs ¹	1.1	6.4	1	---	0.277	0.0341	0.059	1	1

¹ SSL - U.S. EPA Soil Screening Level based on human health

² PEL - Canadian Sediment Quality Guidelines based on ecological receptors

³ TEL - sediment quality assessment values for freshwater ecosystems (Smith et al. 1996)

⁴ CBSG - Consensus-based Sediment Guidelines for freshwater (MacDonald et al. 2000)

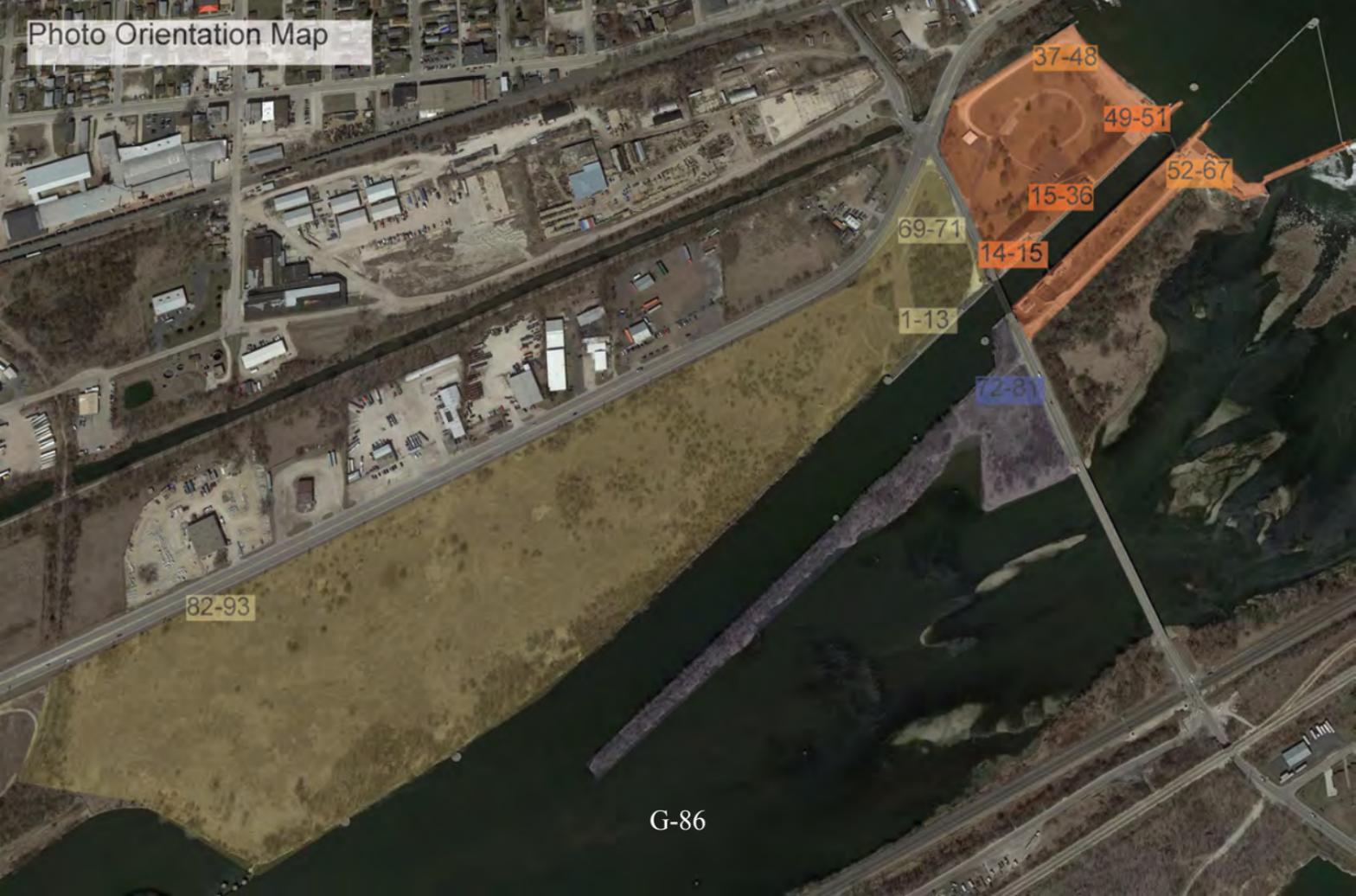
⁵ Total chromium or total PCBs

Attachment F
Site Visit Photos

**Brandon Road Lock and Dam
HTRW Site Visit
2-Oct-2014**

Lauren Fler, CELRC-TS-DH

Photo Orientation Map



82-93

69-71

1-13

72-81

14-15

15-36

49-51

52-67

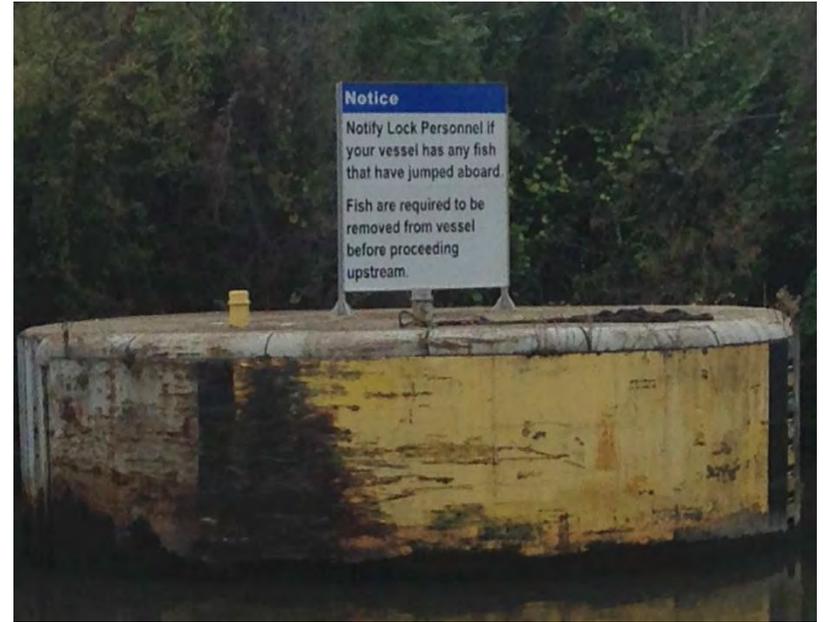
37-48

G-86

14th



1. Looking north into lock chamber, lower gates open



2. Fish passage warning sign, south of Brandon Road bridge



3. Facing east, west of Brandon Road bridge



4. West of lock chamber, facing east along fence line.



5. West of lock chamber, facing east along fence line



6. West of dam, facing west toward Joliet Generating Station



7. West of dam, facing south across approach channel



8. West of dam, facing east during barge passage



9. Lower tow haulage.



10. Brandon Road draw bridge control house



11. Chemical barge exiting lock chamber.



12. Breaker panel outside bridge control house.



13. Electrical equipment outside Brandon Road Bridge control house.



14. Electrical panel on southwest corner of lock chamber.



15. Southwest corner of lock chamber, safety signage for emptying valve.



16. Electrical panel west of lock chamber.



17. Mechanical equipment, southwest corner of lock chamber.



18. Hydraulic oil, southwest corner of lock chamber.



19. Desiccant breather to isolate lubricants from humidity. Polyester, silica gel filter media.



20. Mechanical equipment, southwest corner of lock chamber.



21. Signage showing drawbridge hours.



22. Garage south of lock house.



23. Fire cabinet, garage south of lock house.



24. Gasoline storage, garage south of lock house



25. Spill kit, garage south of lock house.



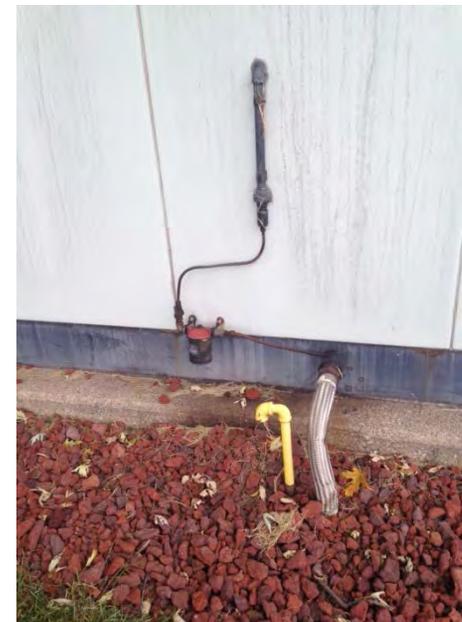
26. Transformer south of lock house



27. Transformer south of lock house



28. Diesel storage tank south of lock house, 250 gal.



28. Rear of transformer



29. South of lock house



30. South of lock house, facing power pole, parking lot



31. Diesel storage south of lock house



32. Rear of lock house



33. Radon reduction system, south of lock house



34. Radon vent, south of lock house



34. Radon reduction system, south of lock house



35. Radon reduction system, north side of lock house



36. Herbicides in use the day of site visit.



37. View north from abandoned I&M canal.



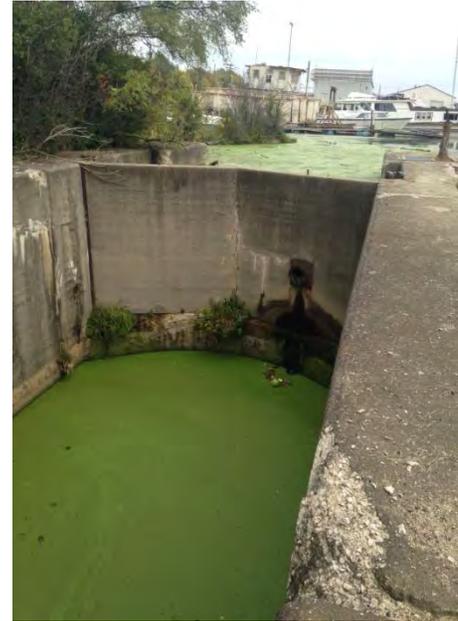
38. Bulkhead blocking I&M canal



39. View northeast from abandoned I&M canal lock chamber



40. View south at I&M canal



41. View north from I&M canal.



42. Leaking valve in bulkhead



43. View south on I&M canal



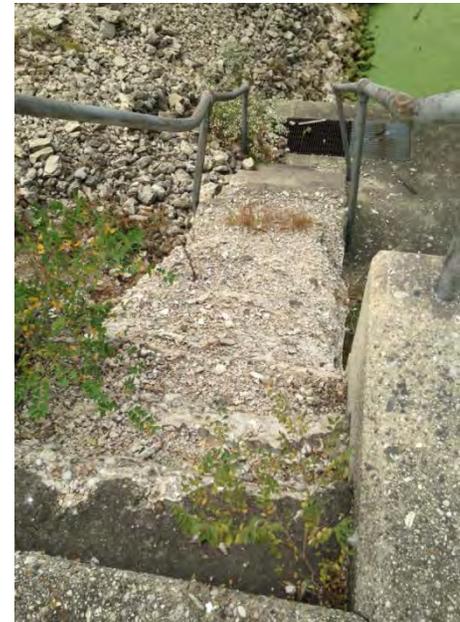
44. View south at I&M canal



45. View west at abandoned lock chamber, overgrown fence.



46. View facing west at abandoned lock chamber, overgrown staircase



47. Deteriorated staircase, east side of abandoned lock chamber



48. View south to lower lock site



49. At the northwest corner of lock chamber. Used for storing racks, shovels, axes and other spare tools.



50. North gate control shed.



51. Facing northeast from concrete slab west of electrical shop.



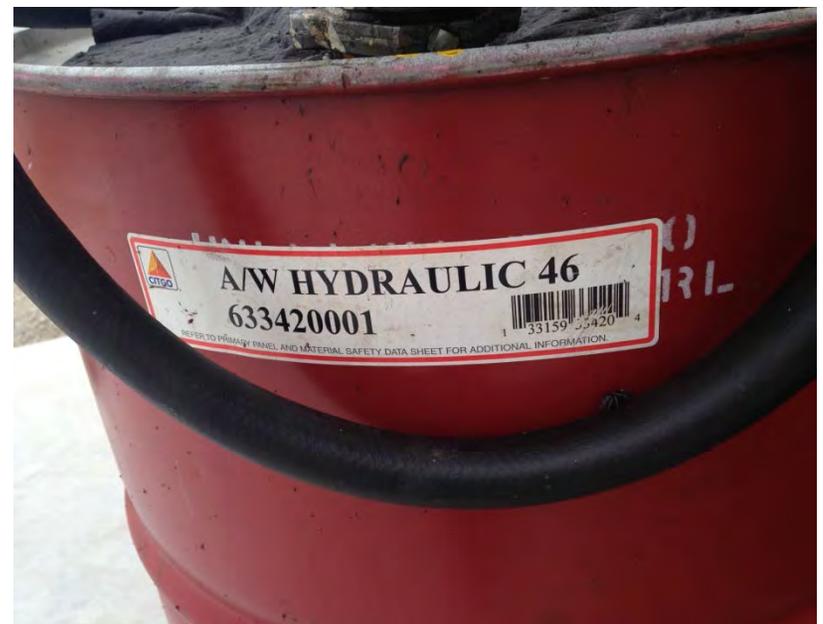
52. Drums stored on concrete pad outside electrical shop.



53. Drums stored on concrete pad outside electrical ship.



54. Hydraulic oil stored outside electrical shop



55. Hydraulic oil stored outside electrical shop



56. Vintage drum containing ?



57. Additional material storage outside electrical shop



58. East side of electrical shop



59. Hydraulic oil stored on the east side of the electrical shop



60. Label for hydraulic oil



61. Electrical shop



62. Material storage lockers south of electrical shop



63. 250 gallon tank of gasoline



64. East of electrical shop. Contain 55-gallon drums of hydraulic fluid.



65. Electrical manhole and garbage can south of electrical shop



66. South of electrical shop



67. Access road on the southeast side of the lock chamber



68. Handrail around lock chamber, tested positive for lead



69. Asphalt turnout west of Brandon Road on north side of river, across from USACE facility entrance



70. Dirt road proceeds west beyond asphalt turnaround, debris



71. Dirt road heading west from Brandon Road into State-owned vacant land, north of river



72. Abandoned couches, west of Brandon Road on north side of river



73. Signage found west of Brandon Road on north side of river



74. Signage found west of Brandon Road on north side of river



75. Gravel road, vegetation west of Brandon Road on north side of river



76. West of Brandon Road, south of river, facing east



77. Debris, hunting paraphernalia west of Brandon Road, south side of river.



78. West of Brandon Road, south side of river, facing north.



79. Garbage, steel member west of Brandon Road, south of river



80. West side of Brandon Road, south of river, facing west



81. West side of Brandon Road, south of river, facing west



82. View east from Route 6, south of Brandon Road. Access restricted.



83. View east from Route 6, south of Brandon Road. Access restricted..



84. View east from Route 6, south of Brandon Road. Access restricted.



85. View east from Route 6. Generating station in background.



86. Neighbor to the west of large vacant property, Joliet Generating Station



87. Neighbor to the west of large vacant property, Joliet Generating Station



88. Neighbor to the west of large vacant property, Joliet Generating Station



89. Fence line between large vacant property and Joliet Generating Station



90. Neighbor to the west of large vacant property, Joliet Generating Station



91. Neighbor to the west of large vacant property, Joliet Generating Station



92. Neighbor to the west of large vacant property, Joliet Generating Station



93. Neighbor to the west of large vacant property, Joliet Generating Station