Upper Mississippi River - Illinois Waterway
System Navigation Study

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Inventory of Hydrographic Survey and Cross-Section Data Available on the Upper Mississippi River and Illinois Waterway at the U.S. Army Engineer Districts, St. Paul, Rock Island, and St. Louis

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Interim report

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Preface

The work reported herein was conducted as part of the Upper Mississippi River - Illinois Waterway (UMR-IWW) System Navigation Study. The information generated for this interim report will be considered as part of the plan formulation process for the System Navigation Study.

The UMR-IWW System Navigation Study is being conducted by the U.S. Army Engineer Districts, Rock Island, St. Louis, and St. Paul under the authority of Section 216 of the Flood Control Act of 1970. Commercial navigation traffic is increasing, and in consideration of existing system lock constraints, will result in traffic delays that will continue to grow in the future. The system navigation study scope is to examine the feasibility of navigation improvements to the Upper Mississippi River and Illinois Waterway to reduce delays to commercial navigation traffic. The study will determine the location and appropriate sequencing of potential navigation improvements on the system, prioritizing the improvements for the 50-year planning horizon from 2000 through 2050. The final product of the System Navigation Study is a Feasibility Report, which is the decision document for processing to Congress.

This report was written by Dr. Rebecca Seal Soileau, River Engineering Branch, Rivers and Structures Division, Coastal and Hydraulics Laboratory, Vicksburg, MS, U.S. Army Engineer Research and Development Center (ERDC), and formatted by Dr. Lisa Hubbard, also of the River Engineering Branch. The work was conducted under the supervision of Mr. James R. Leech, Chief, River Engineering Branch; and Mr. Thomas W. Richardson, Director, Coastal and Hydraulics Laboratory.

The author would like to thank the following points of contact in the districts for providing the data for this inventory: Messrs. Jon S. Hendrickson and Al Santos, St. Paul District; Mr. Blake Nelson, Fountain City Channel Maintenance Facility, St. Paul District; Messrs. Clint Beckert, Ken Barr, Kevin Anderson, Nick Davila, Scott Pettis, Ron Diess, Mike Cox, and Sam Bjorkmann, and Mmes. Barbara Kimler and Mary Craig, Rock Island District; Messrs. Claude Strausser, Al Berman, and Ron Yarbrough, St. Louis District; Rob Davenroy, Applied River Engineering Center, St. Louis District; and Mr. Paul Clouse, River Environmental Engineering Geospatial Information System, St. Louis District.

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1 Introduction

This report describes data that are available in a variety of formats from the U.S. Army Engineer Districts of St. Paul, Rock Island, and St. Louis on the Upper Mississippi River from St. Anthony Falls to Lock and Dam 26 and the Illinois Waterway. This compilation of metadata was prepared in response to recommendations from a meeting held to discuss Add-On Environmental Studies as a part of Upper Mississippi River-Illinois Waterway (UMRS-IWW) Navigation Studies (17-18 January 1996 in Davenport, IA).

At this meeting it was determined that data were needed to provide for professional assessment of the trajectory of the river environment and what effect this will have on the mosaic of habitats and organisms. It was agreed that a panel of experts under the name the Cumulative Impact Assessment Group (CIAG) would assess the existing information and make educated predictions regarding future river conditions. It was also agreed that in order to inform this panel of existing data resources, an inventory of existing information should be compiled. The task of compiling an inventory of existing information was divided among the attendees of the meeting based on their knowledge and access to the data. The author of this report was tasked with compiling an inventory of hydrographic surveys and cross sections for the Upper Mississippi River from St. Anthony Falls to Lock and Dam 26.

The bulk of the inventory is presented in Appendices A-F. Samples of some of the surveys, maps, and charts are in labeled mailing tubes and boxes for use by the CIAG. Additional references provided by the districts are listed in the Annotated Bibliography (Appendix G). Copies of some of the title pages, tables of contents, and in some cases the full reference were provided to the CIAG in a binder organized by district.

2 St. Paul District

The data managed by the St. Paul District on the Upper Mississippi River from St. Anthony Falls to Pool 10 is stored in two locations: the St. Paul District Map Library at the downtown St. Paul office and the Fountain City Channel Maintenance Facility in Fountain City, WI. Both offices were visited and data inventory begun in February 1996.

St. Paul District Office

A meeting was held with a representative of the St. Paul District to discuss the types of data, formats, and points of contact (POCs) for Upper Mississippi River data available through that office. The goals of the inventory were twofold: first to get a listing of all of the data available on the Upper Mississippi River, regardless of format, that could be accessed directly through their office, and second, to begin identifying a possible subset of data that could be used by the CIAG for evaluating and predicting geomorphic changes on the Mississippi River.

The District also provided a number of references that contain information on the sediments and hydraulic characteristics of the Upper Mississippi River (UMR). Reports and other written materials are listed in Appendix G. References include Hendrickson, Haase, and Hoff (1994), McHenry and Ritchie (1975), McHenry, Ritchie, and Cooper (1978b), McHenry and Ritchie (1978), McHenry, Ritchie, and Cooper (1977), McHenry and Ritchie (1977), McHenry, Ritchie, and Cooper (1978a), Hendrickson (1990), and Rose (1992). There is also a one-page listing of UMRS-Environmental Management Program (EMP) Status of Habitat Projects in the St. Paul District as of August 28, 1995, in the St. Paul section of the reference binder provided to the CIAG.

The POC for the Map Library in the St. Paul District gave a rough estimate of the number of charts containing topographic and cross-sectional data at around 3000. This inventory included only those sheets that show data for the main channel and backwater areas and not those that deal with specific scour or erosion problems around the locks or specific dikes. Appendix A contains tables of Hydrographic Survey Summary data in digital format downloaded from the Fountain City Maintenance Facility computer. Appendix B contains tables listing data and materials located at the St. Paul District office. Appendix C presents nondigital information found at the Fountain City Maintenance Facility.

Appendix D is a breakdown of data available for trend pools 4 and 8 and miscellaneous data that might be relevant to the cumulative impacts effort at both locations.

Fountain City Maintenance Facility

Most of the data at Fountain City are from the main navigation channel with some EMP work done in back channels and on specific projects such as the Weaver Bottoms Project. The navigation channel cross-section surveys are done with a Ross sweep system with a total of nine transducers divided among two lateral booms and one on the vessel. A sonar fires every second, and computer software generates 3-m (10-ft) cells and designates the shallowest depth found within each cell to that cell. Sweep dimensions can be 12 by 300 m (40 by 1000 ft) with considerable overlap.

All of the data since 1988 are kept on 3.5-in. diskettes, but the data on the older disks are degrading. The personnel at Fountain City have generated a listing of the files on the disks but not a complete catalog. The computer system used has changed from an HP 520 to a NEC Multisinc xe21 with new software by Coastal Oceanographics rather than the old Ross software (Dolphin Survey System, Ross Laboratories, Middlefield, CT, Seattle, WA). The old software package was designed for the hardware specifically, and only one machine is left on which to read it.

Lists of surveys done from 1989 to present are in spreadsheet files with river mile, operator, and recommendations for the area among other data (Appendix A). Data prior to 1988 were mostly "fired" or destroyed because of lack of storage space and interest. They no longer destroy old surveys. There are scattered flat sheets in Mylar, paper, and other forms extending back to 1969 with one case in 1953. These older maps are restricted to areas of particular interest to dredging. Each flat file is organized with data from the top of the pool to the dam, top down in the stack. Most of the data is from the '80s and '90s with more in the latter than the former. Since the data focus on areas that need repeated dredging, there are whole sections of the river that are not surveyed on a regular basis.

Definitions

The North American Datum (NAD) used for all maps prior to the summer of 1995 was NAD 1927. Post-1995 will be on NAD 1983.

Continuous surveys are taken a maximum of 6-8 times a year both before and after dredging activities.

Miscellaneous surveys are for localized concerns such as scour downstream of locks and areas that are needed to stabilize railways.

The District takes on the order of a total of 300 surveys a year. They would do more general surveys if they were not requested for so many project surveys during the year.

Master maps are at the 1"-200' or 1"-100' scale and are used as inputs for all of the data drawings. They consist of aerial photograph maps, blueprints, hand sketches, and survey charts dating from the early 1980s to 1992.

General Inventory of Cabinets

There are 60 flat files at the Fountain City Maintenance Facility with the following general contents:

a. Displays

b. Project maps

c. 1981 Base Maps (Prints) Mississippi River Lock and Dam 2 – Lock and Dam 10

d. 1973 Base Maps (Mylars) Mississippi, St. Croix, and Chippewa Rivers

e. 1975 Base Maps (Mylars) Mississippi River Lock and Dam 2 – Lock and Dam 10

Note: These base maps have no sounding data but are typically 1"-400' scale, which is standard for later years and may be used for overlay studies of geomorphology.

f. Continuous Surveys (1938). Pools 1 - 10 are each in a separate drawer. These are continuous surveys of the whole river and can be copied in the same room with a blueline copier. Some backwater area spot elevations are included, and there are occasional gaps in pool coverage. The surveys are restricted in the main channel by wing dam shallows.

g. Master Maps

(1) Material placement sites

(2) Harbors

(3) Locks and dams, spillways

(4) Minnesota and St. Croix Rivers

(5) Pools St. Anthony Falls (SAF) and 1

(6) Pool 2

(7) Pools 3, 4, 5

(8) Pools 5A, 6, 7, 8

(9) Pool 9

(10) Pool 10

h. Quad Maps

i. Minnesota and St. Croix Rivers

j. Miscellaneous Surveys

(1) SAF

(2) Pools 1, 2, 3

(3) Pool 4

(4) Pool 5

(5) Pools 5A, 6

(6) Pools 7, 8

(7) Pool 9

(8) Pool 10

k. Harbors and special projects

l. Lock and dam scour surveys

m. Lake of the Woods, Zippel Bay, and Baudette

n. Dakota 1973

o. Lake of the Woods, Warroad

p. Job safety analysis

q. Weaver Bottoms

r. Harbor projects

s. Western reservoirs

t. Current year

(1) Minnesota and St. Croix Rivers

(2) Pools SAF, 1, 2, 3

(3) Pools 4, 5, 5A, 6

(4) Pools 7, 8, 9, 10

(5) Dredging Projects

General Inventory of Continuous Survey Files

These bins were examined briefly and charts listed that were noteworthy either for their age or their possible applicability to studies due to backwater or shore to shore data, or that give a general overview of drawer contents:

a. Minnesota and St. Croix Rivers

b. Pools SAF and 1, 1995 data

c. Pool 2

(1) 1"=200' 1991 and 1981 Pine Bend

(2) EMP on Spring Lake

d. Pools 3, 4

(1) 1986 RM 805 some data that go shoreline to shoreline

(2) 1968 chart

e. Pools 5, 5A, Belvedere-Weaver Bottoms 1993 1"=400'

f. Pools 6, 7

(1) DeSoto Summer Chute

(2) EMP Sedimentation 1993-1996 is from the Environmental Management Technical Center (EMTC) data redrawn in 1994. Fountain City is doing the 1996 surveys. (Note: There is a perception that larger barges keep areas clean of sediments that previously required a lot of maintenance.)

(3) RM 707.7 1993 some backwater survey information

g. Pool 8

(1) 1994 above Lacrosse River Bridge

(2) Soundings between the railroad bridge and I-90, 6-8 years since the last sounding

(3) RM 698-699.5 2/year

(4) 1993

(5) Brownsville 689-691 is heavily studied

(Note: The Root River does not contribute much silt to the channel as seen by lack of delta or bar growth in the immediate vicinity. However, there have been a lot of changes at the head of Mormon Slough. The main island has receded measurably as seen by comparing the 1938 and 1993 masters. The changes may be attributed to lack of maintenance of the riprap and bank protection.)

h. Pool 9

(1) Bathymetry data below the power plant for 1979 and 1981

(2) 1988 by Victory, Battle Island, and Black Hawk Path

(3) Bathymetry data collected 4-5 times a year at Indian Camp Lake

(4) 1995

(5) 1970 Crooked Slough

i. Pool 10

(1) Cross-section survey data on the east channel related to the clam beds controversy

(2) February 1981 hand-drawn bathymetry charts of the Marquette Bridge area

(3) 1984 bathymetry chart

(4) July 1969 Hovie Island RM 622-623

(5) RM 617 to 619 is sounded every year

(6) June 23 1953 RM 613.9 to 615 cross sections including some shoreline information in Pool 10

j. Pool 11, Gutemsing-work commissioned by Rock Island District

k. Material Movement Study. The material movement study records the changes in the Chippewa River delta between 1987 and 1988

3 Rock Island District

Introductory Meeting

At an introductory meeting held 22 January 1997, it was established that the following data were available for the Rock Island District.

a. Much of the historical data is in Plane Table map formats for this district.

b. EMP projects may have backwater boring data as well as information on levee construction.

c. Topographic information is restricted to dredged material placement whether on islands or shorelines.

d. Responsibility for the Illinois Waterway (IWW) was transferred from the Chicago District in the late 1970's. Much of the material was lost or archived in the transfer, and the attempt is being made to reconstruct time and placement of dredged materials from scattered notes and sources.

e. Pool 13 data gathering has been conducted extensively at Rock Island District.

f. The Illinois State Water Survey and Natural History Survey has information on the Illinois Waterway.

g. Argonne National Laboratory did sediment surveys in the late 1970's on the IWW for contaminant information. The Rock Island District has a copy of the report.

h. Grain size information on the main channel is available.

i. The EMTC is analyzing 6-8 surveys of data in Pool 13 for the Sediment Range data under contract. The trend pools in this district include 13, LaGrange, and the open river. The district covers Pools 10-24 and all but the last 129 km (80 miles) of the IWW, which St. Louis District covers at the confluence of the Mississippi and Illinois Rivers.

j. An EMP project in Pool 11 called the Islands Project may have sediment data as well as aerial photography of the area.

k. Geotechnical Branch has sediment boring information related to EMPs primarily. The boring analysis may include depth of overlying sediments and visual assessment of sediment type, i.e., clay silt. The analysis uses the Universal Soil Classification System.

Bed Material Sample Data

Bed material sample data were collected on the Illinois River primarily to obtain dredging permits and disposal permits. The goal was to identify sand and fine content. Sand material is considered to be uncontaminated for 401 purposes. On the Illinois, mapping the fine material for possible contaminant sources is important. Approximately 1400-1500 samples were collected near the Peoria Pool and upstream. Information in the database includes the date of sample collection, river mile, grain size descriptive information, and which side of the channel the sample was taken.

One could go to old dredge cut data to determine spatial distribution of sediment sizes. It is known that River Mile 121 has the finest sediment primarily because of changes in slope that occur. The information is in an Excel spreadsheet, and dredge cut maps are being digitized.

Organization and Preservation of Historical Data

From 1866 to 1915 the Upper Mississippi River charts, sometimes called Warren Charts, named after the Chief of Engineers at the time, are the oldest in their records. The earliest soundings of the Mississippi were taken in 1866, copies of which can be sent via interlibrary loans. The records are kept in the vault in the Planning and Development area.

For Pool 13 in the LaCrosse-Onalaska area the Townsend Charts of 1903-1905 are a record of wing dam construction. These also may be obtained through an interlibrary loan.

Rock Island has all the Upper Mississippi River data starting in the 1800s.

Periodically through history Authorities were written and passed to establish changes in the management of the waterways. Typically, a new complete survey was done of the river for each new Authority. In 1878 the first Authority was to establish a 1.4-m (4-1/2-ft) channel.

There is some Geographic Information System (GIS) coverage of terrestrial landforms from 1985 archeology fieldwork where post-settlement alluvium is being studied. The archaeologist is also involved in cataloging all of the historical data on the river from the late 1920s to early 1930s to the present including pre-lock and dam data.

Survey Branch Data

Survey Branch has hydrographic survey and sediment range information. Some of the sediment range information is monumented and some is not. There is a lack of consistency in the sediment range data both in the level of detail and extensiveness of detail of the surveys. This is also true for the hydrographic survey data. Pool 22 has the most sediment range data. Pool 15 data were taken every year or two in the 1950s; however, it is not as dynamic as the pool has a rock bottom. There is also sediment range data for the Illinois River (Appendix E).

The actual files containing the surveys and the handwritten records of when and where surveys are conducted were made available. Copies were made of their records to use in the Cumulative Impact Study (CIS).

EMP Data

An example EMP and a listing of the types of information in completed EMPs were obtained. A copy is included in the reference binder.

Other References

Other references for Rock Island District include the following:

- Anderson et al. (1996a)
- Anderson et al. (1996b)
- Demissie, Keefer, and Xia (1992)
- Griffin and Griffin (1995)
- Hajic, Martin, and Wiant (1996)
- Nakato (1981)
- Niles (1996)
- Rathbun (1996)
- U.S. Army Engineer District, Rock Island (1996a)
- U.S. Army Engineer District, Rock Island (1996b)
- Wilson (1965)
- Wright (1884)

4 St. Louis District

Available Information

The St. Louis data (Appendix F) are kept at two locations: the District office and the Applied River Engineering Center (AREC). Survey data from 1989 to the present are digitized and stored at the District office. Old sediment range surveys and hydrographic surveys were essentially "fired" or destroyed similar to those at the St. Paul District due to lack of space unless someone saved them for a specific reason. Some historical hydrographic surveys, flood photos, gage notes, and old Board Examination sheets are being archived in a locked room at AREC. Also at AREC are ice photos, which show flow patterns and give evidence of bottom morphology on both the Illinois and Mississippi Rivers. These photos are taken at irregular intervals—only when there are problems with ice dams, etc.

River Environmental Engineering GIS (REEGIS) is composed of modules that allow access to many different layers of data, including digitized hydrographic survey information. A copy of the home page for REEGIS as well as a data dictionary and schema are included in the reference binder. An inventory of survey information that is already in REEGIS is listed in the following tabulation. Data sets need to be carefully reviewed as hydrographic surveys taken at different stages give different results that may change or be averaged out over time.

Year	Location	Description
1880	Mile 0-300	Soundings, NGVD
1908	Mile 0-190	Soundings, NGVD
1989	Mile 0-197	Soundings, NGVD; Shading, LWRP
1993	Mile 0-300	Shading, LWRP
1995	Mile 0-300	Shading, LWRP
1995 IWW	Mile 0-800	Soundings and Shadings

Note:
NGVD = National Geodetic Vertical Datum.
LWRP = Low Water Reference Pool, 1,529 cu m/sec (54,000 cu ft/sec).

1989 was a drought year and 1993 and 1995 were flood years. 1993 and 1995 data were taken fairly continuously while the 1989 data were not. The 1989 and 1990s data are related to a common datum, while the 1880 and 1908 data have been adjusted to NGVD after some trial and error. Prior to 1989, data may exist in hard copy format on Mylar or in booklet form. It takes approximately 500 man-hours per year to digitize historic nondigital survey data.

Recent hydrographic surveys go through extensive editing before being put into design files to reduce the data from the original sweep surveys. Because hydrographic surveying is expensive, about one-third of the 0-300 miles on the Mississippi River are surveyed each year. This District surveys only the lower 129 km (80 miles) of the Illinois River. In addition they do dredge surveys and multigigabytes of sweep surveys on the weir fields each year.

1904 marks the earliest survey of record on the IWW. Some were done in the 1940s and again recently. The survey ranges are now taken each year at the same locations, every 305 m (1,000 ft).

Literature Review Notes on Two Reports

Technical Report M-77-1

The following information is taken from Technical Report M-77-1, "Inventory of Sediment Sample Collection Stations in the Mississippi River Basin" (Keown, Dardeau, and Kennedy 1977).

Because of the increased sediment present in the streams due to intensive land use for agricultural purposes during the later part of the 19th century and early part of the 20th century, the design life of flood-control reservoirs was reduced, navigation channels became shallow or impassable, water supply purification became more expensive, and water quality in general deteriorated. The inventory was to determine where reliable data have been taken that could be used for characterizing the basin sediment flow regime including all first-, second-, and third-ordered streams.

Break points (locations above which sediment transport is not considered to be significant compared with the sediment being transported by the stream below this point) for the basin:

a. *The Ohio River above the confluence of the Big Sandy River.* The major sources of sediment below this point are the channel bottom and caving banks. All of the downstream tributaries from this point are minor sediment contributors.

b. *The Upper Mississippi at Winona, Minnesota.* Examination of available sediment load data indicated that downstream from Winona, Minnesota, the Root, Wapsipinicon, Rock, Cedar, Iowa, Skunk, Des Moines, and Illinois Rivers contribute significant amounts of sediment to the load of the Mississippi River with respect to the local sediment regime.

c. *The Missouri River at Gavins Point Dam, South Dakota*. Examination of available sediment load data indicated that downstream from Gavins Point Dam there is significant contribution of sediment to the load of the Missouri River by the Floyd, Little Sioux, Boyer, Platte, Nishnabotna, Big Nemaha, Nodaway, and Kansas Rivers, and tributaries of the Kansas River. The break points on the Kansas River tributaries are Perry

Dam on the Delaware River, Tuttle Creek Dam on the Big Blue River, Milford Dam on the Republican River, Glen Edler Dam on the Solomon River, Wilson Dam on the Saline River, and Kanopolis Dam on the Smoky Hill River.

d. *The Arkansas River at Dardanelle Dam*. The major sources of sediment below this point are the channel bottom and caving banks. All of the downstream tributaries of the Arkansas from this point are minor sediment contributors.

e. *The Red River below Denison Dam, Texas*. The major sources of sediment below this point are the channel bottom and caving banks. All of the downstream tributaries of the Red from this point are minor sediment contributors.

Copies were made of portions of Tables 1, 2, and 3 as well as the narratives for the Root River and one from the Illinois River as examples of the larger data set found in this volume.

Potamology Program Report 1

The following information is taken from Potamology Program (P-1) Report 1, "Characterization of the Suspended-Sediment Regime and Bed-Material Gradation of the Mississippi River Basin" (Keown, Dardeau, and Causey 1981).

This reference contains graphical representations of sediment concentration and grain size gradation data for each of the subbasins as well as the basin as a whole. It contains information on soil types, channel slopes, watershed vegetation, cultural and economic changes, and land use in acres. It presents maps of runoff, dams, population, area, elevations, precipitation in subbasins, amounts of bed material removed in reaches, sediment sample stations, boundaries of basins, soil maps, physiography, sediment yield, and locations of dams. Also included are graphs of discharge and suspended sediment and bed material gradation probability curves.

Other References

Other references from St. Louis include the following:

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- Bellrose, Paveglio, and Steffeck (1979)
- Bellrose et al. (1983)
- Funk and Robinson (1974)

- Humes (1974)
- Keevin (1996)
- LaGarde and Winfrey (1974)
- Laustrup (1995)
- Lee (1978)
- Mills, Starrett, and Bellrose (1966)
- Moody and Meade (1992)
- Moore and Dunn (1997)
- MRC/LMVD (1996)
- Mueller and Dardeau (1990)
- Neher and Gates (1996)
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- Simons et al. (1975)
- Sparks (1984)
- Theiling and Dunn (1996)
- U.S. Department of Agriculture (1982)
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Appendix A
Hydrographic Survey Summary, St. Paul District at Fountain City, 1989-1995, Digital

Note: The contents of Appendix A are derived from data loaded to disk from the Fountain City Maintenance Facility computer. The district has inventoried their Continuous and Miscellaneous Surveys since 1989 in this way.

Lch. = launch that performed the survey
WS El = water-surface elevation
LCP = Low Control Pool Elevation

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Table A1
Hydrographic Survey Summary
U.S. Army Engineer District, St. Paul, Maintenance Branch, Navigation Section, Hydrographic Survey Unit
Annual Update, Time Period: 1989 Navigation Season

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
1	Dakota, MN	19	4/10/89	705.7 - 706.6	639.6	638.5	60.6		Survey Wing Dam 6, rock pile area
2	Winters Landing	19	4/11/89	707.8 - 709.3	641.0	638.5	142.4		New channel survey for dredging
3	Kinnikinnic Bar	53	4/22/89	SC 6.2 - 6.7	678.5	675.0	24.8		Dredging, Imminent Closure
4	Grand Encampment	53	4/24/89	755.3 - 757.3	667.1	666.7	63.1		No dredging recommended
5	Above Brownsville	19	4/26/89	689.8 - 691.0	631.6	630.6	113.6		Resurvey in July 1989
6	Brownsville	19	4/27/89	688.1 - 689.2	630.8	630.6	104.7		No action required
7	Lower Zumbro	53	4/28/89	743.7 - 744.9	659.9	659.8	119.4		Resurvey July 1989
8	Head of Raft Channel	19	4/28/89	687.1 - 689.2	730.7	630.5	185.9		No action required
9	Below Head of Raft Channel	19	4/29/89	686.1 - 687.1	630.7	630.4	86.0		No action required
10	Below Crats Island	53	4/30/89	757.7 - 758.7	667.7	666.8	98.3		No action required
11	McMillan Island	19	5/3/89	617.6 - 619.2	610.5	610.4	153.0		Resurvey July 1989
12	Wilds Bend	53	5/7/89	729.6 - 731.2	650.6	650.2	132.0		No action required
13	Island 58	53	5/9/89	733.0 - 734.7	651.1	650.6	149.5		No action required
14	Betsy Slough	53	5/9/89	731.1 - 732.1	650.7	650.0	70.2		Resurvey within 7 days of dredging
15	Wilds Bend	53	5/10/89	730.1 - 730.6	650.5	650.2	54.0		No action required
16	Boulanger Bend Lower Light	53	5/17/89	819.0 - 820.0	686.3	686.6	88.8		No action required
17	Boulanger Bend	53	5/18/89	820.4 - 821.1	686.7	686.7	40.0		Resurvey ASAP Extend downstream
18	Above Petersons Bar	53	5/19/89	M11.7 - M12.2	688.6	687.2	17.1		Survey next map upstream
19	Coulter's Island	53	5/20/89	801.2 - 801.9	674.4	674.3	47.1		Dredging required
20	Beef Slough	53	4/29/89	753.6 - 754.5	666.8	666.6	77.1		Dredging required
21	Diamond Bluff	53	5/24/89	799.3 - 800.1	674.4	674.2	77.2		Dredging required
22	Above Cargill	53	5/25/89	M12.2 - M12.4	688.6	687.2	8.3		Dredging required
23	Pine Bend Foot Light	53	5/26/89	823.3 - 823.8	687.0	6868.0	41.8		No action required
24	Mule Bend	53	6/2/89	747.8 - 749.2	660.8	660.0	120.8		Resurvey
25	West Newton	16	6/6/89	747.4 - 747.8	660.8	660.0	52.0		No action required
26	West Newton	16	6/6/89	747.4 - 748.3	660.6	660.0	99.2		Dredging required
27	Wilds Bend	16	6/8/89	730.0 - 730.8	650.2	650.2	82.6		Dredging required

Note: Material from U.S. Army Engineer District, St. Paul.

(Sheet 1 of 5)

Table A1 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
28	Below 4-Mile Cut-Off	53	6/6/89	M3.6 - M4.0	687.7	687.2	10.3		No action required
29	4-Mile Cut-Off	53	6/6/89	M4.0 - M4.3	687.2	687.2	10.7		No action required
31	Below ST. Paul Daymark 849.1	53	6/7/89	848.0 - 849.0	724.1	722.8	84.6		Dredging required
32	Mule Bend	16	6/8/89	747.8-748.2	660.2	660.0	26.0		Dredging required
33	Lower Winona R.R. Bridge	16	6/9/89	723.1-723.8	645.2	645.2	59.5		Dredging required
34	Homer, MN	16	6/9/89	720.4 - 721.2	644.9	644.8	59.5		No action required
35	Winters Landing (New Channel)	16	6/12/89	707.8 - 708.3	639.3	638.5	148.8		No action required
36	Dakota, MN	16	6/14/89	707.1 - 708.0	639.0	638.5	60.6		No action required
37	Mule Bend	16	6/15/89	747,8 - 748.2	660.2	660.0	35.1		Dredging required
38	La Crosse	53	6/15/89	698.2 - 698.7	631.0	631.0	48.2		Dredging required
39	Fisher Island	16	6/16/89	745.1 - 745.6	660.0	659.9	71.6		Dredging required
40	La Crosse	53	6/20/89	698.6 - 698.7	631.4	631.0	7.5		Resurvey of dredge cut area
41	Above West Newton	16	6/20/89	747.4 - 747.9	660.2	660.0	48.2		Dredging required
42	Chippewa River Delta	53	6/21/89	763.5 - 763.7	667.2	667.0	30.3		No action required
43	Betsy Slough	16	6/22/89	731.1 - 731.2	650.6	650.3	3.2		Resurvey of dredge cut area
44	West Newton	16	6/21/89	746.5 - 747.4	660.0	659.9	101.2		No action required
45	Fisher Island	16	6/26/89	745.6 - 746.5	660.0	659.9	69.7		No action required
46	Below Winona R.R. Bridge	19	6/27/89	723.4 - 723.6	645.5	645.1	11.3		Resurvey of dredge cut area
47	Head of Dresbach Island	19	6/28/89	704.7 - 705.7	639.0	638.5	53.7		Dredging required
48	Lower Richmond Island	19	6/28/89	711.4 - 712.1	639.5	638.5	67.7		No action required
49	Grand Encampment	16	6/27/89	756.6 - 757.3	666.8	666.8	91.6		No action required
50	Teepeeota Point	16	6/27/89	757.3 - 757.7	666.9	666.8	36.7		No action required
51	Below Crats Island	16	6/28/89	757.7 - 758.7	666.9	666.9	97.3		No action required
52	Above Crats Island	16	6/28/89	758.7 - 759.6	666.9	666.9	87.8		No action required
53	Dakota, MN	53	6/30/89	706.6 - 707.3	639.1	638.5	40.2		No action required
54	Above Reads Landing	16	6/29/89	762.8 - 763.8	6673.0	667.0	88.2		No action required
55	Diamond Bluff	16	7/6/89	799.3 - 800.2	675.2	674.2	73.5		Dredging required
56	Coulter's Island	16	7/6/89	801.1 - 802.0	675.4	674.3	48.3		Dredging required
57	Below Plymouth Ave. Br.	16	7/11/89	854.4 - 855.0	799.2	796.6	19.3		No action required
58	Above Plymouth Ave. Br.	16	7/11/89	855.0 - 855.3	799.2	796.5	20.7		No action required
59	Below Broadway Ave. Br.	16	7/11/89	855.2 - 855.4	799.0	796.5	13.8		No action required
60	Above Broadway Ave. Br.	16	7/10/89	855.4 - 855.8	799.0	796.5	19.6		No action required
61	Below Lowry Ave. Br.	16	7/11/89	855.8 - 856.4	799.0	796.5	23.0		No action required

(Sheet 2 of 5)

Table A1 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
62	Above Lowry Ave. Br.	16	7/10/89	856.4 - 857.2	799.1	796.5	29.7		Dredging required
63	Turning Basin	16	7/10/89	857.2 - 857.6	799.2	796.5	24.8		Dredging required
64	Dakota, MN	19	7/13/89	707.2 - 707.9	639.0	638.5	119.4		No action required
65	Above L&D 7	19	7/14/89	702.6 - 703.3	639.1	638.5	54.5		Resurvey in September
66	Below La Crosse R.R. Br.	19	7/17/89	698.8 - 699.5	631.0	631.0	71.6		No action required
67	Below Lower St. Anthony L&D	16	7/21/89	853.2 - 853.4	725.3	722.8	8.0		Scour study
68	Pine Bend Foot Light	53	7/24/89	822.7 - 823.7	687.1	686.8	27.6		Dredging required
69	Below St. Paul Daymark 849.1	16	7/19/89	847.9 - 849.0	725.1	722.8	69.1		No action required
70	Above Lake Street Bridge	16	7/20/89	849.9 - 851.0	725.0	722.8	63.2		
71	Below Franklin Ave. Bridge	16	7/20/89	851.0 - 851.7	725.0	722.8	35.8		
72	Island 126	19	7/26/89	677.4 - 677.9	620.8	620.0	68.0		Dredging required
73	Above Brownsville	19	7/27/89	690.2 - 690.9	631.0	630.6	76.5		No action required
74	Brownville, MN	19	7/28/89	688.1 - 689.2	631.1	630.5	104.7		No action required
75	Boulanger Bend	53	7/25/89	820.5 - 820.9	687.2	686.7	30.3		No action required
76	Minnesota River Mile 23	53	7/26/89	M23.0 - M23.1			7.1		No action required
77	Minnesota River Mile 24	53	7/26/89	M24.0 - M24.1			6.7		No action required
78	Below Head of Raft Channel	19	7/31/89	686.7 - 687.2	631.2	630.4	40.4		No action required
79	Lower Approach L&D 8	19	8/1/89	678.8 - 679.2	620.5	620.0	18.4		Dredging required
80	Battle Island	19	8/2/89	670.7 - 671.4	620.5	620.0	56.2		No action required
81	Lansing Upper Light	19	8/3/89	663.4 - 664.5	620.3	620.0	80.7		No action required
82	Coulter's Island	16	8/4/89	801.8 - 801.9	675.2	674.3	11.5		Dredging required
83	Coulter's Island	53	8/4/89	801.8 - 801.9	675.2	674.3	12.4		Dredging required
84	L&D 1 Scour, Upper	16	8/3/89	847.6	724.9	722.8	15.6		
85	Abv & Blw Smith Ave Br.	16	8/3/89	840.1 - 840.7	687.4	687.2	35.4		No action required
86	Hay Point	19	8/10/89	645.7 - 646.7	611.5	611.0	86.8		No action required
87	Indian Camp Light	19	8/9/89	664.6 - 666.4	620.2	620.0	153.3		Resurvey in October 1989
88	Smith Bar Upper Light	16	8/18/89	805.4 - 805.9	675.1	674.6	66.1		Dredging required
89	Lower Approach L&D 2	16	8/21/89	814.8 - 815.1	675.2	675.0	19.3		Dredging required
90	Gray Cloud Slough	16	8/17/89	827.5 - 828.0	687.1	686.9	18.9		No action required
91	McMillan Island	19	8/17/89	617.6 - 619.2	611.2	610.3	149.3		No action required
92	Wacouta Point	16	8/22/89	784.3 - 785.2	667.2	667.0	60.6		No action required
93	L&D 2 Scour, Lower	16	8/8/89	815.0	674.9	675.0	27.6		
94	L&D 2 Scour, Upper	16	9/8/89	815.0	687.2	686.5	32.5		
95	L&D 3 Scour, Lower	16	8/23/89	796.9	667.6	667.0	31.3		

(Sheet 3 of 5)

Table A1 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
96	L&D 3 Scour, Upper	16	8/30/89	796.9	674.9	674.0	19.7		
97	L&D 10 Scour, Lower	19	8/25/89	615.2	604.2	603.0	26.9		
98	L&D 10 Scour, Upper	19	8/23/89	615.2	611.1	610.0	28.1		
99	L&D 3, Jetty Area	16	8/30/89	797.0 - 797.7	674.9	674.1	65.3		Survey requested by Engineering
100	Harriet Island	16	9/7/89	839.1 - 839.5	687.2	687.2	70.6		No action required
101	Below Lafayette Bridge	16	9/6/89	838.5 - 839.1	687.2	687.2	31.0		No action required
102	Below Smith Ave. Bridge	16	9/6/89	840.0 - 840.4	687.2	687.2	30.8		No action required
103	Turkey River Light, RI Dist.	19	8/29/89	609.0 - 609.5	603.5	603.0	35.8		Dredging required
104	Jackson Island	19	9/8/89	644.0 - 645.0	613.7	611.0	97.3		Resurvey in early 1990 season
105	Fisher Island	53	9/15/89	744.9 - 745.1	660.1	659.9	5.2		Dredging required
106	Smith Bar Upper Light	53	9/19/89	805.3 - 805.5	675.0	674.6	11.9		Dredging required
107	Head of Lake Pepin	16	9/20/89	785.2 - 786.2	667.4	667.0	74.4		No action required
108	Lower Approach L&D 2	16	9/15/89	815.0	675.2	675.0	3.2		Dredging required
109	Lower Approach L&D 2	53	9/20/89	815.0	675.4	675.0	4.6		Dredging required
110	Sturgeon Lake	53	9/28/89	Backwater	675.0	674.1	103.2		
111	Turkey River Light	53	10/2/89	609.0 - 609.5	603.9	603.0	35.8		Dredging required
112	Lower Zumbro	16	9/29/89	743.3 - 743.7	660.2	659.8	102.8		No action required
113	Lake Onalaska	53	10/10/89	Backwater	639.2	638.5	57.0		
114	L&D 8 Scour, Lower	19	10/13/89	679.4	620.7	620.0	35.8		
115	L&D 8 Scour, Upper	19	10/19/89	679.4	630.8	630.0	24.8		
116	L&D 7 Scour, Lower	19	9/21/89	702.2	631.2	631.0	35.8		
117	L&D 7 Scour, Upper	19	9/21/89	702.2	639.1	638.5	29.0		
118	Beef Slough	16	10/23/89	753.5 - 754.5	666.6	666.6	82.6		No action required
119	L&D 5A Scour, Upper	19	10/5/89	728.6	651.1	650.0	20.7		
120	L&D 5A Scour, Lower	19	10/5/89	728.6	645.7	645.5	22.7		
121	Crats Island	16	10/24/89	758.7 - 759.5	667.1	666.9	95.4		No action required
122	Below Crats Island	16	10/25/89	757.3 - 757.8	667.1	666.8	57.9		No action required
123	L&D 4 Scour, Lower	16	9/26/89	752.8	660.2	660.0	47.8		
124	L&D 4 Scour, Upper	16	9/28/89	752.8	667.2	666.5	43.6		
125	Coulter's Island	53	10/29/89	801.6 - 801.9	675.1	674.3	35.8		Resurvey early in 1990 season
126	Belvidere Slough , Area 1	16	10/17/89	Backwater	660.2	660.0	18.4		Monitoring program
127	Belvidere Slough, Area 2	53	10/23/89	Backwater	660.2	660.0	27.3		Monitoring program
128	Belvidere Slough, Area 3	53	10/24/89	Backwater	660.2	659.9	32.1		Monitoring program
129	Belvidere Slough, Area 4	53	10/25/89	Backwater	660.2	659.9	30.0		Monitoring program

(Sheet 4 of 5)

Table A1 (Concluded)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
130	Belvidere Slough, Area 5	53	10/26/89	Backwater	660.2	659.9	52.8		Monitoring program
131	Belvidere Slough, Area 9	53	10/27/89	Backwater	660.2	659.9	11.5		Monitoring program
132	Below Teepeeota Point	16	10/26/89	756.6 - 757.3	666.9	666.8	82.9		No action required
133	Grand Encampment	16	10/27/89	755.7 - 756.6	667.0	666.7	88.3		No action required
134	L&D 5 Scour, Upper	16	10/10/89	737.9	660.2	659.5	52.4		
135	L&D 5 Scour, Lower	16	10/11/89	737.9	651.0	651.0	68.8		
136	L&D 6 Scour, Upper	19	9/27/89	714.4	645.2	644.5	53.0		
137	L&D 6 Scour, Lower	19	9/27/89	714.4	639.5	638.5	44.6		
138	L&D 9 Scour, Upper	19	9/7/89	648.1	620.3	619.0	29.2		
139	L&D 9 Scour, Lower	19	9/7/89	648.1	613.5	611.0	39.4		

(Sheet 5 of 5)

Table A2
Hydrographic Survey Summary
U.S. Army Engineer District, St. Paul, Maintenance Branch, Navigation Section, Hydrographic Survey Unit
Update: 20 November 1990, Time Period: 1990 Navigation Season

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
1	Dakota	53	3/27/90	705.7 - 706.6	639.0	638.5	90.9	JOE,BOB	USCG Set buoys
2	Grand Encampment	16	3/29/90	755.5 - 756.2	666.7	666.7	45.0	JIM,SES,JOE	Dredging required
3	Grand Encampment	16	4/2/90	756.2 - 756.6	666.7	666.7	36.7	STEVE,JOHN	USCG Set buoys
4	Grand Encampment	16	4/3/90	756.5 - 757.2	666.8	666.8	67.5	STEVE,JOHN	Possible dredging
5	Below Crat's Island	16	4/4/90	757.2 - 757.6	666.8	666.8	54.6	STEVE,JOHN	Area looks good
6	Indian Camp Lite	19	4/5/90	664.6 - 665.3	620.1	620.0	56.5	JIM,KEVIN	Area looks good
7	Indian Camp Lite	19	4/5/90	665.3 - 665.8	620.1	620.0	38.6	JIM,KEVIN	Little tite upper end
8	Indian Camp Lite	19	4/4/90	665.8 - 666.4	620.1	620.0	56.4	JIM,KEVIN	Little tite lower end
9	Beef Slough	16	4/5/90	753.9 - 754.7	667.0	666.6	59.8	STEVE,JOHN	Possible dredging
10	Lansing Upper Lite	19	4/6/90	663.3 - 664.2	619.8	620.0	56.5	JIM,KEVIN	Possible dredging
11	Teepeeota below Crats	16	4/4/90	757.6 - 758.3	667.1	668.8	58.5	STEVE,JOHN	Area looks good
12	Crat's Island	16	4/9/90	758.7 - 759.6	667.1	666.9	105.6	STEVE,JOHN	No dredging required
13	Lansing Upper Lite	19	4/10/90	664.2 - 664.6	620.5	620.0	29.6	JIM,KEVIN	Dredging required
14	Mule Bend	19	4/12/90	748.3 - 749.2	660.0	660.0	110.2	STEVE,JOHN	Resurvey July 1990
15	Chippewa Delta	53	4/12/90	763.6	667.5	667.0	27.3	BRYAN,BOB	Dredging required
16	Mule Bend above West Newton	16	4/13/90	747.4 - 748.3	659.9	660.0	88.2	STEVE,JOHN	No dredging required
17	Chippewa Delta	53	4/16/90	763.6	667.1	667.0	7.4	BOB,BRYAN	Dredging required
18	Fisher Island	16	4/16/90	745.6 - 746.5	659.5	659.9	73.5	JOHN,JIMMY	Dredging required
19	Below West Newton	16	4/17/90	746.5 - 746.9	659.6	659.9	59.7	JOHN, JIMMY	No dredging required
20	Fisher/west Newton	16	4/20/90	744.9 - 745.6	659.7	659.8	73.5	JOHN, JIMMY	Dredging required
21	Somerfield	16	4/20/90	742.6 - 743.5	660.0	659.7	84.5	JOHN,JIMMY	No dredging required
22	Lower Zumbro	16	4/24/90	743.3 - 744.9	660.3	658.8	143.3	JOHN,JIMMY	No dredging required
23	Betsy Slough	19	4/25/90	730.8 - 732.0	651.1	650.4	117.5	KEVIN,SES	No dredging required
24	Wilds Bend	19	4/26/90	729.6 - 730.3	651.1	650.2	55.1	KEVIN,SES	No dredging required
25	Wilds Bend	19	4/25/90	730.3 - 730.8	651.1	650.2	69.8	KEVIN,SES	No dredging required
26	Wacouta Pt.	16	4/26/90	784.3 - 785.6	668.0	667.0	106.1	JOHN,JIMMY	Dredging required
27	Homer, MN	19	5/1/90	720.4 - 721.1	645.5	644.8	64.3	KEVIN,SES	No dredging required
28	Cannon River	16	5/27/90	792.3 - 793.2	668.7	667.0	71.6	JOHN,JIMMY	No dredging required
29	Trenton "B"	16	4/30/90	793.2 - 794.2	669.9	667.0	77.1	JOHN,JIMMY	Dredging required

Note: Material from U.S. Army Engineer District, St. Paul.

(Sheet 1 of 7)

Table A2 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
30	Trenton "A"	16	5/1/90	794.2 - 794.8	670.0	667.0	62.4	JOHN,JIMMY	No dredging required
31	Dakota "B"	19	5/2/90	706.6 - 707.2	639.6	638.5	57.9	KEVIN,SES	No dredging required
32	Above & below Lake St. Br	16	5/5/90	849.7 - 850.5	726.1	722.8	47.0	JOE,SES,BOB	Resound 12 - 13 May 1990
33	Dakota "A"	19	5/2/90	705.8 - 706.6	638.8	638.5	79.0	KEVIN, SES	Resurvey
34	Dakota "C"	19	5/8/90	707.2 - 708.0	639.6	638.5	101.0	SES, KRIESEL	Resurvey
35	Winters Landing	19	5/9/90	707.7 - 709.7	639.9	638.5	265.2	SES,KRIESEL	No dredging required
36	Nicollett Island	16	5/9/90	854.1 - 854.5	799.7	796.5	17.5	JIMMY,JOHN	No dredging required
37	Below Plymouth Avenue	16	5/9/90	854.9 - 855.1	799.7	796.5	22.7	JIMMY, JOHN	No dredging required
38	Above Plymouth Avenue Br	16	5/10/90	855.1 - 855.3	799.3	796.5	20.2	ESING,JIMMY	No dredging required
38	Below Broadway Bridge	16	5/10/90	855.3 - 855.4	799.3	796.5	13.8	ESING,JIMMY	No dredging required
39	Above Broadway Bridge	16	5/10/90	855.4 - 855 8	799.3	796.5	22.4	ESING,JIMMY	No dredging required
40	Below Lowry Ave Bridge	16	5/10/90	855.8 - 856.4	799.2	796.5	24.8	ESING,JIMMY	No dredging required
41	Above Lowry Ave Bridge	16	5/11/90	856.4 - 857.1	799.1	796.5	29.7	ESING,JIMMY	No dredging required
42	Upper Turning Basin	16	5/11/90	857.1 - 857.3	799.1	796.5	16.5	ESING,JIMMY	No dredging required
43	Above L&D 7	19	5/15/90	702.7 - 703.5	639.2	638.5	59.5	KEVIN,SES	No dredging required
44	Dresbach "A"	19	5/16/90	703.4 - 704.2	639.0	638.5	51.4	KEVIN,SES	Dredging required
45	Dresbach "B"	19	5/16/90	703.4 - 704.2	639.1	638.5	56.2	KEVIN,SES	No dredging required
46	Armour	16	5/16/90	833.5 - 834.1	687.4	687.2	58.5	JOHN,JIMMY	No dredging required
47	Beef Slough (Class 1)	53	5/17/90	753.9 - 754.4	666.6	666.6	38.8	ESING,RCH	Dredging required
48	Dresbach	19	5/17/90	704.8 - 705.5	638.6	638.5	51.0	SES,RESSIE	No dredging required
49	Lake Street Bridge	16	5/18/90	849.9 - 850.0	724.9	722.8	5.6	JIMMY,JOHN	No dredging required
50	Grey Cloud Slough	16	5/15/90	827.5 - 828.0	687.3	686.9	33.8	JIMMY,JOHN	Dredging required
51	Below St Paul Daymark	16	5/17/90	848.2 - 849.0	725.2	722.8	35.8	JIMMY,JOHN	No dredging required
52	Above and below Franklin Ave Br	16	5/16/90	851.0 - 851.7	725.1	722.8	40.3	JIMMY,JOHN	No dredging required
53	Above Lake Street Br	16	5/17/90	850.7 - 851.0	725.4	722.8	16.1	JIMMY,JIMMY, JOHN	No dredging required
54	Lower Approach L&D 6	19	5/21/90	713.6 - 714.0	641.3	638.5	74.4	KEVIN,SES	Dredging required
55	Dakota	19	5/26/90	705.8 - 706.6	725.2	722.8	70.7	JOE,RCH,JRM	Dredging required
56	Below St Paul Day Mark	16	5/24/90	847.9 - 848.2	725.3	722.8	39.9	JIMMY,JOHN	No dredging required
57	Below Lake Street Bridge	16	5/24/90	848.9 - 849.8	725.4	722.8	59.3	JIMMY,JOHN	No dredging required
58	Above Ford Parkway Bridge	16	5/24/90	847.8 - 848.0	725.3	&722.8	11.5	JIMMY,JOHN	No dredging required
59	Lower Approach LSAF	16	5/23/90	853.4	725.6	722.8	1.0	JIMMY,JOHN	No dredging required
60	Head of Raft Channel "A"	19	5/30/90	687.5 - 688.1	631.0	630.5	27.6	SES,KEVIN	No dredging required
61	Head of Raft Channel "B"	19	5/30/90	687.5 - 688.1	631.0	630.5	62.4	SES,KEVIN	No dredging required

(Sheet 2 of 7)

Table A2 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
62	Below Continental Grain	16	5/30/90	M14.4 - M14.7	689.7	687.2	10.9	JIMMY,JOHN	No dredging required
63	Continental Grain	16	5/30/90	M14.7 - M15.0	689.7	687.2	7.6	JIMMY, JOHN	No dredging required
64	Peterson's Bar "A"	16	5/31/90	M11.7 - M12.0	690.0	687.2	10.9	JIMMY, JOHN	No dredging required
65	Peterson's Bar "B"	16	5/31/90	M12.0 - M12.2	690.1	687.2	7.1	JIMMY, JOHN	No dredging required
66	Above Brownsville "B"	19	5/31/90	689.7 - 690.3	631.1	630.6	45.0	SES, KEVIN	Resurvey Aug. 1990
67	Brownsville "C"	19	6/1/90	688.1 - 689.2	631.1	630.6	104.7	SES, KEVIN	Dredging required
68	Above Brownsville "C"	19	5/31/90	690.3 - 690.9	631.1	630.6	76.5	SES. KEVIN	Resurvey Aug. 1990
69	Deadman's Slough "A"	19	6/4/90	686.1 - 686.7	630.5	630.4	49.8	SES, KEVIN	No dredging required
70	Deadman's Slough "B"	19	6/4/90	686.7 - 687.1	630.5	630.4	42.9	SES, KEVIN	No dredging required
71	Head of Lake Pepin	53	6/6/90	785.3 - 785.5	669.5	667.0	7.6	RCH,SES,BP	Class 1 dredge cut
72	Pine Bend Foot Lite	16	6/6/90	822.6 - 823.6	687.3	686.8	86.8	BRN, JOHN	
73	Above Brownsville	19	6/6/90	689.1 - 689.8	631.2	630.6	72.2	SES, KEVIN	
74	Island 126	19	6/6/90	677.4 - 677.9	623.6	620.0	76.5	SES, KEVIN	
75	Trenton	16	6/13/90	693.1 - 693.5	671.1	667.0	22.5	JRM, JB	Dredging canceled
76	Diamond Bluff	16	6/12/90	799.3 - 800.1	674.4	674.2	73.5	JRM, JB	
77	Above Diamond Bluff	16	6/12/90	800.1 - 801.1	674.6	674.2	93.7	JRM, JB	
78	L&D 6 Emergency Scour Upper	19	6/14/90	714.3	644.7	644.5	6.0	SES,KEVIN	L&D 6 scour - partial
79	Coulters Island	16	6/13/90	801.4 - 802.0	674.8	674.3	55.1	JRM, JB	
80	Dresbach "A"	19	6/27/90	703.2 - 704.0	639.3	638.5	69.1	SES, KEVIN	
81	Grey Cloud Slough	16	6/28/90	827.6 - 828.4	688.7	686.9	70.7	JRM, JB	
82	Dakota "A"	19	6/28/90	705.8 - 706.7	640.0	638.5	132.2	SES, KEVIN	
83	Lower Approach L&D 6	19	6/29/90	713.6 - 714.0	642.3	638.5	74.4	SES, SAM	
84	Dakota "B"	19	7/2/90	706.6 - 707.2	639.9	638.5	73.5	SES,SAM,KRIESEL	
85	Grey Cloud Slough	53	7/5/90	827.7	687.1	686.9	13.7	RCH, BP	Class 1 dredge cut
86	Upper Approach L&D 7	19	7/3/90	702.7 - 703.5	639.0	638.5	82.6	SES, KEVIN	
87	Below West Newton	19	7/6/90	746.2 - 746.8	660.4	659.9	62.4	KEVIN, BAURES	
88	Boulanger Bend	16	7/3/90	819.0 - 819.5	686.4	686.7	34.4	JRM, BAURES	
89	Fisher Island	19	7/9/90	745.6 - 746.5	660.5	659.9	39.6	JRM,KEV	
90	Mule Bend	19	7/9/90	747.9 - 748.2	660.7	660.0	33.0	JRM,KEV	
91	Chippewa River Delta	53	7/9/90	763.6	668.5	667.0	47.5	E. SING,RCH	
92	Minnieska	19	7/11/90	742.5 - 743.3	659.9	659.7	88.1	JRM,KEV	
93	Lower Zumbro	19	7/13/90	743.3 - 744.9	660.1	659.8	137.7	JRM,SAM,KEV	
94	Above Ford Ave. Br.	53	7/11/90	847.8 - 848.0	724.3	722.8	14.9	RCH, ESING	
95	Below St. Paul Daymark	53	7/11/90	847.9 - 848.2	724.3	722.8	49.0	RCH, ESING	

(Sheet 3 of 7)

Table A2 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
96	Boulanger Bend	16	7/10/90	818.1 - 819.1	686.5	686.6	73.9	BRN,JOHN	
97	Pine Bend Foot Light "A"	16	7/11/90	823.6 - 824.1	686.5	686.8	38.6	BRN,JOHN	
98	Pine Bend Foot Light "B"	16	7/12/90	824.0 - 824.6	686.7	686.8	49.8	BRN, JOHN	
99	Lower Approach L&D 2	16	7/13/90	814.8 - 815.1	676.3	675.0	19.3	BRN, JOHN	
100	Fisher Island	19	7/16/90	744.9 - 745.6	659.8	659.8	64.3	JRM,KEV,SAM	
101	Above West Newton	19	7/16/90	747.4 - 748.3	660.2	660.0	51.4	JRM,KEV,SAM	
102	Mule Bend	19	7/17/90	748.3 - 749.2	660.2	660.0	88.2	JRM,KEV,SAM	
103	Smith Bar Upper Light	16	7/16/90	805.3 - 805.9	674.7	674.6	74.4	SES, JOHN	
104	Below Broadway Bridge	53	7/17/90	855.3 - 855.4	798.4	796.5	13.8	JAL,RCH	
105	Above Lowry Ave	53	7/17/90	856.4 - 857.1	798.8	796.5	38.3	JAL,RCH	
106	Upper Turning Basin	53	7/16/90	857.1 - 857.3	798.9	796.5	27.6	JAL,RCH	
107	Grand Encampment	16	7/19/90	755.5 - 756.2	666.9	666.8	82.6	JRM,KEV,SAM	
108	Coulters Island	16	7/19/90	801.0 - 801.9	674.3	674.3	86.3	SES, JOHN	
109	Above Grand Encampment "B"	19	7/20/90	756.5 - 757.2	666.9	666.8	65.4	JAL,RCH,SAM	
110	Coulters Island	16	7/20/90	801.9 - 802.3	674.5	674.3	64.3	SES,BAURES	
111	Below Crats Island	19	7/23/90	752.2 - 757.7	666.8	666.8	57.9	JRM,KEV	
112	Diamond Bluff "A"	16	7/23/90	798.8 - 799.4	674.2	674.2	51.4	SES, BAURES	
113	Petersons Bar	53	7/18/90	11.7 - 12.0	687.7	687.2	10.9	RCH, JAL	
114	Continental Grain	53	7/18/90	14.7 - 15.0	687.9	687.2	8.3	RCH,JAL	
115	Dakota Dredge Cut 1	53	7/24/90	707.1 - 707.2	638.8	638.5	8.3	RCH, SAM	
116	Trenton	16	7/24/90	793.9 - 794.5	667.7	667.0	70.3	SES, BAURES	
117	Below Crats Island "B"	16	7/25/90	757.6 - 758.3	666.8	666.8	51.7	SES, BAURES	
118	Crats Island "C"	16	7/25/90	758.7 - 759.6	666.9	666.9	88.2	SES, BAURES	
119	Below La Crosse RR Br.	19	7/24/90	698.2 - 699.6	630.8	631.0	128.5	JRM, KEV	
120	Above Brownsville	19	7/26/90	689.7 - 690.9	630.9	630.6	117.5	JRM, KEV	
121	Lower Winona RR. Bridge	53	7/26/90	623.2 - 623.8	645.4	645.1	63.7	RCH, SAM	
122	Wilds Bend "A"	16	7/27/90	729.6 - 730.3	650.7	650.2	55.1	SES, BAURES	
123	Head of Raft Channel "C"	19	7/27/90	688.1 - 689.2	630.7	630.6	104.7	JRM, KEV	
124	Head of Raft Channel "B"	19	7/30/90	687.5 - 688.1	631.8	630.5	54.6	JRM, KEV	
125	Head of Raft Channel "A"	19	7/30/90	687.1 - 687.5	631.8	630.5	26.2	JRM, KEV	
126	Wilds Bend	16	7/30/90	730.3 - 731.0	651.0	650.2	69.8	SES, BAURES	
127	Dakota Dredge Cut 2	53	7/31/90	706.0 - 706.3	639.8	638.5	12.4	RCH, JAL	
128	Winters Landing "A"	53	7/24/90 7/31/90	707.6 - 708.4	638.9	638.5	110.2	RCH, JAL	

(Sheet 4 of 7)

Table A2 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
129	Below Head of Raft "A"	19	7/31/90	686.1 - 686.7	631.4	630.4	42.7	JRM, KEV	
130	Below Head of Raft "B'	19	7/31/90	686.7 - 687.1	631.4	630.4	37.9	JRM, KEV	
131	Betsey Slough "A"	16	7/31/90	730.8 - 732.0	651.0	650.4	99.6	SES, BAURES	
132	Dresbach Islands Cuts 1&2	53	8/11/90	703.6	638.9	638.5	15.5	RCH,JAL	
133	Above Lansing "C"	19	8/3/90	663.5 - 664.2	621.3	620.0	55.1	JRM,KEV	
134	Above Lansing "D"	19	8/2/90	664.2 - 664.6	621.6	620.0	30.3	JRM,KEV	
135	Indian Camp Lite "A"	19	8/2/90	664.6 - 665.4	621.6	620.0	48.2	JRM,KEV	
136	Indian Camp Lite "B"	19	8/2/90	665.4 - 665.8	621.6	620.0	44.9	JRM,KEV	
137	Indian Camp Lite "C"	19	8/1/90	665.8 - 666.4	622.0	620.0	54.6	JRM,KEV	
138	Below Robinson Rock	53	8/2/90	825.7 - 826.4	688.3	686.9	47.4	RCH,JAL	
139	Island 58	16	8/2/90	734.0 - 734.8	651.5	650.9	84.9	SES,JRB	
140	Upper Approach L&D 9	53	8/10/90	647.3 - 647 8	619.3	619.0	43.6	RCH,JAL	
141	Lower Approach L&D 9	53	8/9/90	647.3 - 647.8	615.3	611.0	53.7	RCH,JAL	
142	Hay Point	53	8/10/90	646.7 - 647.5	615.1	611.0	44.8	RCH,JAL	
143	L&D 4 Scour Lower Side	16	8/14/90	752.8	660.0	660.0	44.8	SES,JRB	
144	L&D 5 Scour Lower Side	16	8/15/90	738.1	650.8	651.0	55.2	SES, JRB	
145	Head Richmond Dredge Cut	53	8/21/90	713.8	640.5	638.5	18.8	RCH,BDP	
146	McMillian Island "A"	19	8/21/90	617.6 - 618.2	610.9	610.3	62.0	JRM,KEV	
147	McMillian Island "B"	19	8/21/90	618.2 - 618.7	611.0	610..3	46.8	JRM,KEV	
149	McMillian Island "C"	19	8/22/90	618.7 - 619.2	611.6	610.4	62.0	JRM,KEV	
150	L&D 4 Scour Upper	16	8/10/90	752.8	666.7	666.5	44.7	JRB,SES	
151	L&D 5 Scour Upper	16	8/7/90	738.1	659.6	659.5	48.2	JRB,SES	
152	Dresbach Dredge Cut	53	8/27/90	703.6	638.8	638.5	15.5	RCH ,JAL	
153	Brownsville (Pre-dredge)	19	8/29/90	688.8 - 689.1	630.8	630.6	11.9	JRM,KLR	
154	Wabasha Br. Sweep	16	8/28/90	760.1 - 760.2	667.6	667.0	9.2	SES,JRB	
155	Pepin Harbor (Entrance)	16	8/27/90		668.2	667.0	4.1	SES,JRB	
156	Betsey Slough (Pre-dredge)	19	9/17/90	731.2 - 731.5	650.6	650.3	18.3	JRM,KLR	
157	Petersons Bar Minn River	16	9/6/90	11.7 - 12.2	687.4	687.2	12.0	SES,JRB	
158	Four Mile Cutoff (Minn River)	16	9/6/90	4.0 - 4.3	687.5	687.2	10.7	SES,JRB	
159	Hennipen Ave. Br Sweep	16	9/12/90	854.3	799.4	796.1	7.8	SES,JRB	
160	West Newton (Pre-dredge)	53	9/25/90	746.4 - 746.6	659.7	659.9	7.8	RCH,BP	
161	L&D 1 Scour Upper Side	16	9/19/90	847.6	724.9	722.8	15.6	SES,JRB	
162	Minneiska (Pre-dredge)	53	10/1/90	742.8 - 743.0	659.6	659.7	6.5	RCH,JRB	
163	L&D 1 Scour Lower Side	16	9/27/90	847.6	687.7	687.2	0.8	SES,JRB	

(Sheet 5 of 7)

Table A2 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
164	Mouth Minn River	16	9/26/90	M0.0 - M0.4	687.6	687.2	18.6	SES,JRB	
165	L&D 2 Scour Upper Side	16	9/5/90	815.2	686.8	686.5	27.6	SES,JRB	
166	L&D 2 Scour Lower Side	16	10/3/90	815.2	675.0	675.0	24.8	SES,JRB	
167	L&D 3 Scour Upper Roll Gates	16	10/3/90	796.9	674.9	674.0	14.2	SES,JRB	
168	L&D 3 Scour Upper Main Chamb	16	10/3/90	796.9	674.9	674.0	6.4	SES,JRB	
169	L&D 3 Scour Lower Roll Gates	16	8/30/90	796.9	669.5	667.0	16.9	SES,JRB	
170	L&D 3 Scour Lower Side	16	8/29/90	796.9	669.4	667.0	11.0	SES,JRB	
171	L&D 6 Scour Upper Side	19	9/14/90	714.3	644.8	644.5	41.3	JRM,KLR	
172	L&D 6 Scour Lower Side	19	9/18/90	714.3	640.2	638.5	33.1	JRM,KLR	
173	Minneiska "A"	16	10/9/90	741.4 - 742.4	659.9	659.7	91.3	SES,JRB	
174	Prairie du Chien Comm Harbor	19	10/16/90	634.8	612.4	611.0	5.0	JRM,KLR	
175	Abel Island Mooring Location	19	9/12/90	616.8 - 617.3	611.2	610.3	44.1	JRM,KLR	
176	L&D 9 Scour Upper Side	19	9/25/90	647.9	619.2	619.0	26.4	JRM,KLR	
177	L&D 9 Scour Lower Side	19	9/25/90	647.9	613.2	611.0	31.6	JRM,KLR	
178	L&D 10 Scour Upper Side	19	9/27/90	615.1	611.0	610.0	34.4	JRM,KLR	
179	L&D 10 Scour Lower			615.1					
180	Below West Newton	16	10/18/90	746.5 - 747.4	660.1	659.9	99.2	SES,JRB	
181	L&D 7 Scour Upper Side	16	10/25/90	702.5	639.3	638.5	31.6	SES,JRB	
182	L&D 5A Scour Upper Side	16	10/23/90	729.5	650.8	650.0	19.5	SES,JRB	
183	Wisc Channel Red Wing	53	10/24/90	793.0	669.3	667.0	12.4	RCH,BDP	
184	Kramers Slough	16	11/5/90	706.3	638.5	639.1	28.9	BDP,JRB	
185	Belvedere Slough Job "1"	53	10/28/90	WEAVER	660.2	660.0	32.1	RCH,SES	
186	Belvedere Slough Job "2"	53	10/28/90	WEAVER	660.2	659.9	25.7	RCH,SES	
187	Belvedere Slough Job "3"	53	10/30/90	WEAVER	660.2	659.9	54.6	RCH,SES	
188	Spring Lake Co-op Dock	53	10/17/90	823.5	687.1	686.8	41.8	RCH,BDP	
189	Pine Bend Backwater	53	10/23/90	823.1 - 823.4	687.1	686.8	7.6	RCH,BDP	
190	Pine Disposal Sdgs	53	10/23/90	823.4 - 823.9	687.2	686.8	19.6	RCH,BDP	
191	L&D 7 Scour Lower Side	16	11/13/90	702.5	631.5	631.0	34.4	SES,JRB	
192	Belvedere Slough Job "4"	53	10/31/90	WEAVER	660.0	659.9	64.3	RCH,JRB	
193	Belvedere Slough Job "5"	53	10/31/90	WEAVER	660.0	659.9	51.7	RCH,SES	
194	Belvedere Slough Job "9"	53	11/7/90	WEAVER	659.7	659.9	11.0	SES,JRB	
195	Belvedere Slough Job "6"	53	11/5/90	WEAVER	660.0	659.9	99.2	BRN,SES	

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Table A2 (Concluded)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
196	Belvedere Slough Job "7"	53	11/5/90	WEAVER	659.9	659.9	57.9	BRN,SES	
197	Belvedere Slough Job "8'	53	11/6/90	WEAVER	659.5	659.8	40.4	SES,JRB	
198	L&D 5A Scour Lower Side	16	11/15/90	729.5	645.8	645.5	42.2	SES,JRB,BRN	
199	L&D 8 Scour Upper Side	19	11/13/90	679.1	630.1	630.0	22.7	JRM,KLR	
200	L&D 8 Scour Lower Side	19	11/14/90	679.1	621.6	620.0	31.7	JRM,KLR	
201	Lasf Scour Lower Side	16	9/11/90	853.4	725.3	722.8	7.6	SES,JRB	
202	Dam Scour Usaf-lsaf	16	9/11/90	853.4	750.6	749.3	20.2	SES,JRB	
203	Usaf Dam Scour Upper	16	9/12/90	853.8	799.4	796.5	2.6	SES,JRB	
204	Jackson Island Wing Dams	19	11/6/90	644.0 - 644.6	613.6	11.0	72.3	JRM,KLR	
205	Mississippi Gardens Wing Dams	19	11/6/90	644.0 - 644.4	613.6	611.0	57.9	JRM,KLR	
206	L&D 9 Mooring Site	53	11/8/90	649.1 - 649.7	619.5	619.1	186.9	RCH,JRB	
207	Chippewa Delta	53	11/15/90	761.9	667.1	667.0	27.3	RCH,BDP	

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Table A3
Hydrographic Survey Summary
U.S. Army Engineer District, St. Paul, Maintenance Branch, Navigation Section, Hydrographic Survey Unit
Update: 31 October 1991 Time Period: 1991 Navigation Season

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
1	Spring Lake (Pool 2)	53	4/2/91	823.3	687.3	686.8	55.1	RCH,JRB,SES	Slough closure project
2	Beef Slough	16	4/12/91	753.9 - 754.6	666.8	666.6	61.1	RCH,JRB	Resurvey in June
3	Grand Encampment "A"	16	4/16/91	753.6 - 756.4	667.3	666.7	99.2	RCH,JRB	Resurvey late May
4	Chippewa Delta	16	4/17/91	763.4	670.8	667.0	71.6	RCH,JRB	Resurvey late May
5	Grand Encampment "B"	16	4/18/91	756.5 - 757.2	668.1	666.8	78.5	RCH,JRB	Resurvey late May
6	Teepeota Point "A"	16	4/22/91	757.2 - 757.6	668.1	666.8	54.6	RCH,JRB	Resurvey late May
7	Below Crats Island "B"	16	4/23/91	757.6 - 758.3	668.4	666.8	54.7	RCH,JRB	Resurvey late May
8	Crats Island "D"	16	4/23/91	758.7 - 759.6	668.9	666.9	89.8	RCH,JRB	Resurvey late May
9	Dakota (Kramer Slough)	53	4/25/91	706.3	640.0	638.5	67.1	BDP,SES	No action required
10	Walts	16	4/24/91	759.3	669.3	666.9	6.4	RCH,JRB	No action required
11	Reads Landing	16	4/24/91	762.1 - 762.9	671.2	667.0	78.1	RCH,JRB	Resurvey late May
12	Reads Landing	16	4/25/91	762.9 - 763.7	671.1	667.0	55.1	RCH,JRB	Resurvey late May
13	Betsy Slough	53	4/29/91	732.0	651.4	650.4	28.9	BDP,SES	No action
14	Wilds Bend	19	4/29/91	729.6 - 730.3	650.9	650.2	55.1	JRM,KLR	No action
15	Wilds Bend	19	4/30/91	730.3 - 731.0	650.9	650.3	74.4	JRM,KLR	No action
16	Above West Newton	16	4/30/91	747.4 - 748.3	661.6	660.0	99.2	RCH,JRB	Resurvey June
17	Betsy Slough	19	5/1/91	730.8 - 731.6	650.9	650.3	59.5	JRM,KLR	Resurvey June
18	Mule Bend	16	5/1/91	748.3 - 749.2	661.8	660.0	121.2	RCH,JRB	Resurvey June
19	Betsy Slough	19	5/2/91	731.5 - 732.1	651.3	650.4	45.0	JRM,KLR	Resurvey June
20	Upper Approach L&D 5A	16	5/6/91	728.6 - 729.5	650.1	650.0	99.2	RCH,JRB	No action
22	Lower Winona RR Br.	19	5/7/91	723.2 - 724.0	647.7	645.2	75.3	JRM,KLR	No action
23	Fountain City	16	5/7/91	732.1 - 733.1	652.1	650.5	99.4	JRM,KLR	No action
22	Upper Approach L&D 7	19	5/8/91	702.7 - 703.5	639.2	638.5	86.6	JRM,KLR	No action
23	Island 58 "A"	16	5/8/91	733.1 - 734.0	653.0	650.7	90.9	RCH.JRB	No action
24	Island 58 "B"	16	5/9/91	734.0 - 734.8	654.1	650.9	89.8	RCH,JRB	Resurvey June 1991
25	Weaver Bottoms	53	5/7/91	744+-	660.2	659.9	168.7	BDP,SES	Locate dredge cuts
26	Winona small boat harbor	53	5/9/91	726.2	649.5	645.4	4.7	BDP,SES	No action
27	Winters Landing "A"	19	5/14/91	707.8 - 708.4	642.2	638.5	81.4	SES,KLR	
28	Winters Landing "B"	19	5/15/91	708.4 - 709.4	642.1	638.5	85.9	SES,KLR	

Note: Material from U.S. Army Engineer District, St. Paul.

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Table A3 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
29	Winters Landing "C"	19	5/16/91	709.4 - 709.9	642.8	638.5	77.4	JRM,KLR	
30	Horseshoe Box Dam "A"	16	5/14/91	734.8 - 735.9	656.0	651.0	104.8	RCH,JRB	No action
31	Horseshoe Box Dam "B"	16	5/15/91	735.9 - 736.8	656.4	651.0	106.5	RCH,JRB	No action
32	Below L&D 5	16	5/16/91	736.8 - 737.7	656.8	651.0	95.5	RCH,JRB	No action
33	Homer	19	5/21/91	720.4 - 721.1	647.5	644.8	63.7	BRN,KLR	
34	Minneiska "A"	16	5/20/91	741.0 - 741.8	660.5	659.6	104.2	RCH,JRB	
35	Minneiska "B"	16	5/22/91	741.8 - 742.6	660.0	659.7	78.7	RCH,JRB	Dredge area as shown
36	Homer - Blacksmith Slough B	19	5/22/91	719.3 - 720.5	647.0	644.7	81.5	JRM,KLR	
37	Blacksmith Slough "A"	19	5/23/91	718.2 - 719.5	646.7	644.7	92.1	JRM,KLR	
38	Minneiska "C"	16	5/23/91	742.6 - 743.5	660.1	646.7	80.0	RCH,JRB	
39	Warroad (profile)	53	5/21/91	Lake of Woods	1058.7	1056.0	13.9	BDP,SES,GSK	
40	Warroad (cross-sects)	53	5/21/91	Lake of Woods	1058.7	1056.0	13.9	BDP,SES,GSK	
41	Zippel Bay Entr Chan	53	5/22/91	Lake of Woods	1058.1	1056.5	4.5	BDP,SES,GSK	
42	Wilds Bend	19	5/28/91	729.6 - 730.3	650.1	650.2	53.4	JRM,KLR	No action
43	Below Lock & Dam 5A	19	5/29/91	727.4 - 728.3	649.4	645.5	66.0	JRM,KLR	No action
44	Island 71	19	5/30/91	726.6 - 727.4	649.7	645.5	70.0	JRM,KLR	No action
45	Upper approach L&D 5	16	5/30/91	738.3 - 738.9	659.8	659.5	95.7	RCH,RCH,JRB	
46	Reichtmans Lite	16	6/3/91	738.9 - 739.9	660.2	659.5	182.8	SES,JRB,SC	No action
47	Above Winona "C"	19	6/4/91	725.9 - 726.9	650.2	645.4	57.6	RCH,PP,KLR	
48	Winona "B"	19	6/5/91	725.2 - 726.0	650.6	645.4	77.6	RCH,POJ,KLR	
49	Mount Vernon Lite "B"	16	6/4/91	739.9 - 740.9	660.4	6596.0	164.4	SES,JRB,SC	No action
50	Winona "A"	19	6/6/91	725.5 - 725.2	651.0	645.4	84.1	RCH,KLR,POJ	
51	Abv Lower Winona RR Br.	19	6/7/91	723.9 - 724.6	650.8	645.2	55.2	RCH,NK,POJ	
52	Fort Snelling Cutoff	53	6/5/91	846.4 - 847.0	695.6	687.2	17.1	JRM,BDP	
56	Blw Winona RR Bridge	19	6/10/91	722.4 - 723.2	648.3	645.1	97.4	RCH,NK,POJ	
57	Fort Snelling Cutoff	53	6/10/91	846.0 - 846.4	696.1	647.6	20.1	JRM,MSS	
58	Gravel Point "B"	19	6/11/91	721.1 - 722.0	696.1	687.2	99.7	RCH,NK,POJ	
59	Gravel Point "C"	19	6/11/91	722.0 - 722.4	647.6	644.9	43.4	RCH,NK,POJ	
60	Sommerfield "A"	16	6/12/91	743.3 - 744.2	660.3	659.8	70.5	SES,SC,JRB	
61	Battle Slough	53	6/13/91	670.0 - 670.3	624.9	620.0	25.2	JRM,MS	Access to Blackhawk Park
62	Lower Zumbro	16	6/13/91	744.2 - 744.9	660.6	659.8	71.7	SES,SC,JRB	Dredge area as shown
63	Upper approach L&D 6	19	6/12/91	714.5 - 715.5	644.7	644.5	134.6	RCH,NK,POJ	
64	Above L&D 6	19	6/13/91	715.5 - 716.2	644.7	644.6	84.7	RCH,NK,POJ	
64	Chippewa Delta	16	6/22/91	763.1 - 763.6	671.7	667.0	86.7	SES,JRB,SC	

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Table A3 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
65	Upper approach L&D 4	16	6/20/91	753.0 - 753.6	666.6	666.5	43.9	SES,JRB,SC	
66	Minneiska "C"	19	6/22/91	742.6 - 743.1	660.1	659.7	41.2	RCH,KLR,JAL	Dredge area as shown
67	Blw Head of Raft Channel "A"	19	6/25/91	686.1-686.7	631.0	630.4	49.9	RCH,KLR,PJ	
68	Blw Head of Raft Channel "B"	19	6/25/91	686.6 - 687.1	631.0	630.4	49.9	RCH,KLR,PJ	
69	Beef Slough "A"	16	6/25/91	753.6 - 754.5	667.1	666.6	94.7	SES,JRB,SC	
70	Grand Encampment "A"	16	6/26/91	755.5 - 756.5	667.5	666.7	83.6	SES,JRB,SC	
71	Head of Raft Channel "A"	19	6/26/91	687.1 - 687.5	631.0	630.5	25.8	RCH,KLR,PJ	
71	Head of Raft Channel "B"	19	6/26/91	687.5 - 688.1	631.1	630.5	55.2	RCH,JRB.PJ	
72	Brownsville, Head Raft "C"	19	6/27/91	687.9 - 688.4	631.2	630.5	92.8	RCH,KLR,PJ	
73	Abv Grand Encampment	16	6/27/91	756.5 - 757.2	668.0	666.8	100.2	SES,JRB,SC	
74	Teepeota Point	16	6/28/91	757.2 - 757.6	668.1	666.8	57.1	SES,JRB,SC	
75	Abv. Brownsville "A"	19	6/27/91	689.1 - 698.1	631.7	630.6	69.8	RCH,KLR,PJ	
76	Abv Brownsville "B"	19	6/27/91	689.7 - 690.3	631.9	630.6	43.1	RCH,KLR,PJ	
77	Abv Brownsville "C"	19	6/28/91	690.3 - 690.9	632.0	630.6	43.1	RCH,KLR,PJ	
78	Below Crats Island	16	6/29/91	757.6 - 758.3	668.2	666.8	52.3	SES,JRB,DK	
79	Above Crats Island	16	6/29/91	758.7 - 759.6	669.0	666.9	79.3	SES,JRB,DK	Dredge area as shown
80	Upper Turning Basin	53	6/26/91	857.1 - 857.3	800.3	796.5	27.6	JAL,MS	No action
81	Dresbach "A"	19	7/1/91	703.5 - 704.0	638.9	638.5	45.4	RCH,KLR,POJ	
82	Dresbach "B"	19	7/1/91	704.0 - 704.6	638.9	638.5	55.0	RCH,KLR,POH	
83	Above Lowry Ave. Br.	53	6/28/91	856.4 - 857.1	800.2	796.5	30.7	JAL,MS,JRM	Dredge area as shown
84	Below Lowry Ave. Br.	53	6/28/91	855.8 - 856.4	800.2	796.5	29.9	JAL,MS,JRM	Dredge area as shown
85	Below Broadway Ave. Br.	53	6/28/91	855.3 - 855.4	799.7	796.5	14.4	JAL,JRM,MS	No action
86	Below West Newton	53	7/2/91	746.3 - 746.8	661.0	659.9	45.4	JRM,MS	Dredge area as shown
87	Minneiska	16	7/2/91	742.6 - 743.5	660.2	659.7	58.3	JB,BP,SS	
88	Nicollet Island	53	6/29/91	854.1 - 854.4	799.7	796.5	15.0	JAL,JRM,MS	No action
89	Above Plymouth Ave. Br.	53	6/29/91	855.1 - 855.3	799.7	796.5	19.5	JAL,JRM,MS	No action
90	Below Plymouth Ave. Br.	53	6/29/91	854.9 - 855.1	799.7	796.5	23.3	JAL,JRM,MS	No action
91	Fisher Island	16	7/3/91	744.9 - 745.6	661.0	659.8	65.6	SES,JRB	No action
92	Above Broadway Br.	53	6/28/91	855.4 - 855.8	800.2	796.5	20.9	JAL,JRM,MS	
93	Dresbach "C"	19	7/2/91	704.6 - 705.6	639.2	638.5	66.3	RCH,KLR,POJ	
94	Dakota "A"	19	7/2/91	705.8 - 706.6	639.4	638.5	92.7	RCH,KLR,POJ	Resurvey wider to slough
95	Dakota "B"	19	7/3/91	706.5 - 707.3	639.9	638.5	48.3	RCH,KLR,POJ	No action
96	Dakota "C"	19	7/3/91	707.2 - 708.0	640.1	638.5	51.0	RCH,KLR,POJ	No action
97	Blw West Newton (pre-dredge)	16	7/9/91	746.6	661.2	659.9	14.6	SES,JRB	Dredge area as shown

(Sheet 3 of 7)

Table A3 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
98	Fisher Island	16	7/9/91	745.6 - 746.5	661.1	659.9	60.0	SES,JRB	No action
99	Betsy Slough	19	7/9/91	730.8 - 731.5	651.5	650.4	45.1	RCH,KLR,POJ	No action
100	Betsy slough	19	7/10/91	730.8 - 731.4	651.2	650.4	33.6	RCH,KLR,POJ	No action
101	Minneiska	16	7/10/91	742.6 - 743.5	659.9	659.7	84.3	SES,JRB	No action
102	Mule Bend	16	7/11/91	748.3 - 749.0	662.0	660.0	70.3	SES,JRB,RCH	No action
103	Above West Newton	16	7/11/91	747.4 - 748.3	661.1	660.6	79.6	SES,JRB,RCH	No action
104	Betsy Slough	19	7/12/91	731.3 - 731.7	651.3	650.4	31.5	RCH,KLR,POJ	No action
105	Teepeota Pt. Cut 1 (Post)	16	7/12/91	757.2 - 757.6	667.8	666.8	43.4	SES,JRB	
106	Beef Slough (Pre-dredge)	16	7/15/91	753.6 - 754.5	666.6	666.6	84.5	JRM,JRB	
107	Winters Landing (Pre-dredge)	19	7/16/91	708.0 - 708.8	640.2	638.5	68.5	RCH,KLR	
108	Dresbach (Pre-dredge)	19	7/16/91	705.1 - 705.5	639.3	638.5	23.7	RCH,KLR	
109	Crats Island (Post-dredge)	16	7/17/91	758.8 - 759.4	668.5	666.9	47.2	JRB, TR	
110	Homer/Blacksmith Slough	19	7/17/91	719.3 - 720.5	646.0	644.7	70.9	RCH,KLR,POJ	
111	Minneiska (Post dredge)	16	7/19/91	742.7	659.8	659.7	4.0	RCH,PJ	
112	Winters Landing	16	7/23/91	708.0 - 708.8	640.6	638.5	61.8	SES,JRB,TR	
113	Lansing Upper Lite	19	7/23/91	663.5 - 664.2	621.1	620.0	61.3	RCH,KLR,POJ	
114	Lansing Upper Lite	19	7/23/91	664.2 - 664.6	621.6	620.0	34.5	RCH,KLR,POJ	
115	Indian Camp Lite	19	7/24/91	664.6 - 665.4	621.9	620.0	658.1	RCH,JRM,POJ	
116	Indian Camp Lite	19	7/24/91	665.4 - 665.8	622.1	620.0	41.8	RCH,JRM,POJ	
117	Winters Landing (Post-dredge)	53	7/25/91	708.2 - 708.4	640.2	638.5	9.0	BDP,SES	
118	Gr Encampment Post dr cut 2	16	7/25/91	756.4 - 756.8	667.3	666.8	33.1	JRB,BDP	
119	Dresbach Post-dredge	53	7/29/91	705.1 - 705.6	639.1	638.5	13.8	JRM,BDP	
120	Wacouta Point	16	7/29/91	785.1 - 785.8	669.2	667.0	59.6	SES,JRB,TR	
121	Wacouta Point	16	7/30/91	784.1 - 785.1	669.0	667.0	83.3	SES,JRB.TR	
122	Indian Camp Lite	19	7/30/91	665.8 - 666.4	621.2	620.0	53.3	RCH,KLR,POJ	
123	Gr Encampment Post-dredge 1	53	7/31/91	755.8 - 756.1	667.0	666.7	22.1	JRM, BDP	
124	Cannon River	16	7/31/91	792.4 - 793.2	669.7	667.0	69.3	SES,JRB,TR	
125	Winters Post Dr cuts 1-2-3	53	8/2/91	708.0 - 708.6	639.7	638.5	42.1	BDP, RCH	
126	Blw West Newton Post-dredge	16	7/16/91	746.4 - 746.6	660.7	659.9	14.6	JRM,JRB	
127	Homer-Blacksmith Pre-dredge	53	8/6/91	720.1 - 720.4	645.2	644.7	10.9	RCH,KLR	
128	L&D 4 Scour Upper	19	8/7/91	752.9 - 753.0	666.7	666.6	46.8	RCH,KLR	
129	Dresbach Post-dredge	53	8/8/91	705.1 - 705.6	639.4	638.5	13.8	RCH,KLR	
130	Betsey Slough Pre-dredge	53	8/13/91	731.3 - 731.4	650.4	650.3	8.0	RCH,POJ	

(Sheet 4 of 7)

Table A3 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
131	Blw Layfayette Br.	16	8/8/91	838.7	688.3	687.2	1.5	JRM<JRB	
132	Behind Navy Island	16	8/7/91	839.1-839.5	688.0	687.2	10.8	JRM,JRB,TR	
133	Dresbach Post-dredge RE-SURVEY	53	8/14/91	705.1 - 705.6	638.9	638.5	13.8	BDP,RCH	
134	L&D 4 Scour Lower	19	8/14/91	752.6 - 752.8	661.0	660.0	40.4	SES,KLR,POJ	
135	Lansing Up Lite Pre-dredge	53	8/15/91	664.5 - 664.7	620.4	620.0	33.0	RCH,POJ	
136	Homer-Blacksmith Post-dredge	53	8/16/91	856.4 - 857.1	645.5	644.7	11.0	BDP,BRN	
139	Above Lowry A. Pre-dredge	16	8/15/91	856.4 - 857.1	799.5	796.5	22.9	JRM,JRB,TR	
140	Above Ford Bridge	16	8/12/91	847.7 - 847.9	724.1	722.8	10.3	JRM,JRB,TR	
141	Blw St. Paul Daymark "A"	16	8/12/91	847.9 - 848.2	723.9	722.8	36.6	JRM,JRB.TR	
142	Blw St. Paul Daymark "B"	16	8/13/91	848.2 - 849.0	724.0	722.8	33.1	JRM,JRB,TR	
143	Blw Lake St. Bridge	16	8/13/91	848.9 - 849.5	724.1	722.8	36.2	JRM,JRB,TR	
144	Blw Lake St. Br.	16	8/13/91	849.5 - 850.0	724.2	722.8	23.6	JRM,JRB,TR	
145	Abv Lake St. Br.	16	8/14/91	849.9 - 850.7	723.6	722.8	44.8	JRM,JRB,TR	
146	Abv Lake St. Br.	16	8/14/91	850.7 - 851.0	723.7	722.8	13.0	JRM,JRB,TR	
147	Abv-Blw Franklin St. Br.	16	8/14/91	851.0 - 851.7	723.7	722.8	34.3	JRM,JRB,TR	
148	Beef Slough (Pre-dredge)	53	8/21/91	753.8 - 754.1	666.6	666.6	7.6	JAL,RCH	
149	Betsy Slough (Post-dredge)	53	8/22/91	731.3 - 731.4	650.4	650.3	8.0	RCH,SES	
150	Abv Lake St (Pre-dredge)	16	8/23/91	850.1 - 850.3	725.2	722.8	15.3	JRM,JRB,TRR	
151	Upper Approach USAF	16	8/21/91	854.3 - 854.5	798.9	796.5	4.9	JRM,JRB,TRR	
152	Abv I-94 Br.	16	8/22/91	851.7 - 852.3	725.2	722.8	20.1	JRM,JRB,TRR	
153	Blw Plymouth Ave. Br.	16	8/21/91	854.9 - 855.1	798.9	796.5	22.4	JRM,JRB,TRR	
154	Abv Plymouth Ave. Br.	16	8/21/91	855.1 - 855.3	799.0	796.5	18.5	JRM,JRB,TRR	
155	Blw Broadway Br.	16	8/21/91	855.3 - 855.4	799.0	796.5	12.5	JRM,JRB,TRR	
156	Abv. Broadway Br.	16	8/21/91	855.4 - 855.8	799.0	796.5	18.3	JRM,JRB,TRR	
157	Blw Lowrey Ave	16	8/21/91	855.8 - 856.4	799.0	796.5	21.2	JRM,JRB,TRR	
158	Upper Turning Basin	16	8/20/91	857.1 - 857.3	799.3	796.5	22.4	JRM,JRB,TRR	
159	Beef Slough (Post-dredge)	53	8/27/91	753.8 - 754.1	666.6	666.6	7.5	JAL,SES	
160	Continental	16	8/28/91	M 14.7 - 15.2	690.0	687.2	7.0	JRM,JRB,TRR	
161	Blw Continental	16	8/28/91	M 14.4 - 14.7	690.0	687.2	10.0	JRM,JRB,TRR	
162	Petersons Bar	16	8/27/91	M 11.7 - 12.2	689.6	687.2	16.1	JRM,JRB,TRR	
163	Fort Snelling Cutoff	16	8/26/91	846.0 - 847.0	688.2	687.2	31.5	JRM,JRB,TRR	
164	Lansing Upper (Post-dredge)	19	8/29/91	664.3 - 664.7	620.1	620.0	30.6	KLR,SES	
165	Zipple Bay (Pre-dredge)	53	8/29/91	Lake Woods	1058.9	1056.5	4.4	JAL,BRN	

(Sheet 5 of 7)

Table A3 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
166	Abv. I 94 Br. (Pre-dredge)	16	8/29/91	851.7 - 851.9	725.1	722.8	6.0	JRM,JRB,TRR	
167	McMillians Island	19	9/3/91	617.6 - 618.2	611.2	610.3	58.8	JRM,SES,POJ	
168	Continental	16	9/4/91	M 14.6 - 14.8	688.6	687.2	5.2	RCH,JR,TRR	
169	L&D 10 Scour (Lower)	19	9/4/91	615.0	604.3	603.0	26.6	SES,JRM,POJ	
170	L&D 10 Scour (Upper)	19	9/5/91	615.3	610.9	610.0	31.1	JRM,SES,POJ	
171	L&D 5A Scour (Upper)	19	8/19/91	728.6	650.0	650.0	19.4	KLR,SES	
172	L&D 5A Scour (Lower)	19	8/21/91	728.3	646.3	645.5	23.8	KLR,SES	
173	Abv Lake St. (Post-dredge)	53	9/9/91	850.1 - 850.3	726.0	722.8	16.0	RCH,JRB,TR	
174	Petersons Bar (Pre-Dredge)	53	9/10/91	M11.7 - M12.0	688.8	687.2	5.2	RCH,JRB,TR	Cuts 1 & 2
175	Petersons Bar (Pre-Dredge)	53	9/10/91	M12.0 - M12.2	688.8	687.2	8.6	RCH,JRB,TR	Cuts 3 & 4
176	Abv Franklin (Post-dredge)	53	9/12/91	851.7 - 851.9	726.8	722.8	6.0	RCH,JRB,TR	
177	McMillian's Island	19	9/10/91	618.3 - 619.3	611.4	610.3	97.3	JRM,SES	
178	Mississippi Gardens	19	9/12/91	643.4 - 644.0	614.4	611.0	57.0	JRM,SES	
179	Mississippi Gardens	19	9/12/91	642.6 - 643.4	614.4	611.0	69.4	JRM,SES	
180	McDonald Slough	19	9/13/91	646.4	615.7	611.0	20.5	JRM,SES	
181	Jackson Island	19	9/11/91	644.0 - 645.0	614.2	611.0	92.1	JRM,SES	
182	Harriet Island Sm Bt Harbor	53	9/11/91	639.6	687.9	687.2	6.8	RCH,JRB,TR	
183	L&D 6 Scour (upper)	19	8/21/91	714.4	644.6	644.5	40.1	SES,KLR	
184	L&D 8 Scour (upper)	19	8/28/91	679.3	630.2	630.0	24.6	SES,KLR	
185	L&D 1 Scour (upper)	16	9/5/91	847.7	724.7	722.8	16.5	RCH,JRB,TR	
186	Zippel Bay (Post-dredge)	53	9/22/91	Low	1058.9	1056.5	2.4	JAL,BRN,RCH	
188	Pine Bend Foot Lite (A)	16	9/20/91	822.6 - 823.6	687.2	686.8	71.7	JRM,JRB,TR	
189	Pine Bend Foot Lite (B)	16	9/19/91	823.6 - 824.0	687.0	686.8	34.5	JRM,JRB.TR	
190	Pine Bend Foot Lite (C)	16	9/19/91	824.0 - 824.6	687.1	686.8	54.3	JRM,JRB.TR	
191	Below Robinson's Rock	16	9/18/91	825.5 - 826.4	687.9	686.9	50.1	JRM,JRB,TR	
192	Grey cloud Slough	16	9/18/91	827.5 - 828.2	688.6	687.0	72.3	JRM,JRB,TR	
193	Abv Lowry Ave (post dredge)	53	9/24/91	856.4 - 856.8	801.2	796.5	18.8	RCH,BDP	
194	Lower Approach L&D 2	16	9/24/91	814.8 - 815.1	678.8	675.0	19.0	JRM,JRB,POJ	
195	L&D 2 Scour (Lower)	16	9/24/91	815.0	679.0	675.0	23.8	JRM,JRB,POJ	
196	L&D 2 Scour (Lower)	16	9/23/91	815.3	686.6	686.5	29.7	JRM,JRB,POJ	
197	Boulanger Bend "A"	16	9/26/91	819.0 - 819.5	686.7	686.6	36.5	JRM,JRB,POJ	
198	Boulanger Bend "B"	16	9/26/91	819.5 - 820.5	687.0	686.7	74.0	JRM,JRB,POJ	
199	Boulanger Bend "C"	16	9/25/91	820.5 - 821.0	687.0	686.7	32.8	JRM,JRB,POJ	
200	Lower Zumbro	53	10/9/91	743.9 - 744.6	659.7	659.8	35.4	BP,KR	

(Sheet 6 of 7)

Table A3 (Concluded)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
201	Abv Lowrey Post-dredge	16	10/3/91	856.4 - 857.1	800.6	796.5	17.2	JRM,BDP,JRB	
202	L&D 1 Scour (Lower)	16	10/1/91	847.5	690.4	687.2	3.2	JRM,JRB,POJ	
203	L&D 7 Scour (Upper)	16	10/11/91	702.6	639.1	638.5	29.0	RCH,JRB	
204	L&D 7 Scour (Lower)	16	10/15/91	702.3	631.6	631.0	35.8	RCH,JRB	
205	L&D 3 Scour (Lower Mn Chamb)	16	10/8/91	796.8	668.9	667.0	10.3	RCH,JRB	
206	L&D 3 Scour (Lower Rlr Gates)	16	10/8/91	796.9	668.9	667.0	13.1	RCH,JRB	
207	L&D 3 Scour (Upper)	16	10/8/91	797.1	674.3	674.0	17.4	RCH,JRB,POJ	
208	USAF Scour (Upper)	16	10/2/91	854.1	799.7	796.5	2.3	JRM,JRB,POJ	
209	Intermediate Pool Scour	16	10/2/91	856.4 - 856.7	750.5	749.3	14.0	JRM,JRB,POJ	
210	L&D 6 Scour (Lower)	16	10/16/91	714.2	640.0	638.5	31.7	RCH,JRB,POJ	
211	Brownsville	53	10/21/91	688.7 - 689.4	631.2	630.6	75.3	RCH,POJ	
212	Coulters Island	53	10/23/91	801.1 - 801.9	675.3	674.3	50.1	RCH,POJ	
213	Brownsville	16	10/28/91	688.7 - 689.4	630.9	630.6	55.1	BRN, JRB	
214	Brownsville (Pre-dredge)	16	10/29/91	688.9 - 689.4	631.1	630.6	49.5	BDP,JRB,POJ	

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Table A4
Hydrographic Survey Summary
U.S. Army Engineer District, St. Paul
Updated: 16 November 1992, Time Period: 1992 Navigation Season

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
1	Head of Raft Channel	16	3/17/92	687.6 - 688.4	631.8	630.5	71.4	JRB,SES	Resurvey when flows decline
2	Brownsville "C"	16	3/18/92	688.7 - 689.4	631.9	630.6	58.8	JRB,SES	Resurvey when flows decline
3	Dakota "A"	16	3/24/92	705.7 - 706.5	640.6	638.5	162.6	JRB,SES	Wing Dam Survey
4	Dakota "B"	16	3/27/92	706.5 - 707.3	640.4	638.5	154.0	JRB,SES	Wing Dam Survey
5	Island 58	16	4/6/92	733.1 - 733.8	652.0	650.7	59.7	JRB,SES	No action needed
6	Peterson Lake EMP	53	4/3/92	753.9 - 755.2	667.0	666.6	815.5	CL,MS,NK	EMP Project
7	Peterson Lake EMP	53	4/6/92	753.0 - 753.9	666.6	666.6	105.6	CL,MS,NK	EMP Project
8	Minneiska "A"	16	4/8/92	741.0 - 741.8	660.2	659.6	79.1	JRB,SES	No action
9	Wilds Bend "B"	19	4/10/92	730.3 - 730.8	650.1	650.2	39.0	RCH,KLR	Dredge as shown
10	Diamond Bluff	53	4/9/92	799.0 - 799.5	674.3	674.2	44.8	BP,JA,DK	Resurvey at a later date
11	Coulters Island "B"	53	4/10/92	801.5 - 802.1	675.1	674.3	55.3	BP,JA,DK	Resurvey at a later date
12	Coulters Island "A"	53	4/8/92	801.1 - 801.5	674.8	674.3	26.0	BP,JA,DK	Resurvey at a later date
13	Lower Zumbro "A"	16	4/10/92	743.3 - 744.2	660.0	659.8	60.7	JRB.SES	Resurvey later
14	Lower Zumbro "B"	16	4/11/92	744.2 - 744.9	660.5	659.8	68.4	JRB,SES	Resurvey later
15	Above Minneiska "C"	16	4/10/92	742.6 - 743.5	660.0	658.7	79.5	JRB,SES	Dredge as shown
16	Wilds Bend "A"	19	4/13/92	729.6 - 730.3	650.1	650.2	49.1	RCH,KLR	Dredge as shown
17	Fisher Island "A"	16	4/13/92	744.9 - 745.6	660.7	659.8	68.0	JRB,SES	Resurvey later
18	Fisher Island "B"	16	4/13/92	754.6 - 746.5	659.9	659.9	66.4	JRB,SES	Resurvey later
19	Minneiska "B"	16	4/9/92	741.8 - 742.6	659.9	659.7	73.0	JRB,SES	No action
20	Betsey Slough	19	4/13/92	730.8 - 731.6	650.8	650.3	56.0	RCH,KLR	No action
21	Below West Newton	16	4/14/92	746.5 - 747.4	660.7	659.9	105.9	JRB,SES	Resurvey later
22	Harriet Island SBH	53	4/18/92	839.5	688.9	687.2	6.4	BRN,JAL,BDP	Dredge as shown
23	Grand Encampment "A"	16	4/18/92	755.6 - 756.5	667.2	666.7	83.4	JRB,SES	Resurvey later
24	Grand Encampment "B"	16	4/18/92	756.5 - 757.2	667.6	666.8	72.7	JRB,SES	Resurvey later
25	Chippewa Delta	16	4/17/92	703.6	669.8	667.0	81.0	JRB,SES	No action
26	Beef Slough "A"	16	4/20/92	753.6 - 754.5	667.0	666.6	45.3	JRB,SES	No action
27	Lansing Upper Lite	19	4/17/92	663.7 - 664.2	620.9	620.0	51.8	RCH,KLR	Dredge as shown
28	Lansing Upper Lite	19	4/17/92	664.2 - 664.6	621.0	620.0	33.8	RCH,KLR	Dredge as shown
29	Indian Camp Lite "A"	19	4/18/92	664.6 - 665.4	621.3	620.0	62.2	RCH,KLR	Dredge as shown

Note: Material from U.S. Army Engineer District, St. Paul.

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Table A4 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
30	Indian Camp Lite "B"	19	4/21/92	665.4 - 665.8	623.0	620.0	32.2	RCH,KLR	Dredge as shown
31	Indian Camp Lite "C"	19	4/21/92	665.8 - 666.4	623.0	620.0	54.0	RCH,KLR	Resurvey later
32	Teepeeota Point "A"	16	4/21/92	757.2 - 757.6	667.9	666.8	48.1	SES,BRN	Resurvey later
33	Below Crats Island "B"	16	4/21/92	757.6 - 758.3	668.1	666.8	52.6	SES,BRN	Resurvey later
34	Crats Island "D"	16	4/22/92	758.7 - 759.6	669.5	666.9	80.7	SES,BRN	Dredge as shown
35	Upper Approach L&D 7	19	4/28/92	702.7 - 703.5	639.0	638.5	69.2	RCH,KLR,POJ	No action
36	Alma Lower Lite	16	4/28/92	751.8 - 752.5	665.6	660.0	101.4	SES,JRB	No action
37	Above Crats Island "D"	16	4/30/92	758.7 - 759.6	670.1	666.9	78.9	SES,JRB	Dredge as shown
38	Teepeeota Point	16	4/30/92	757.2 - 758.0	669.0	668.9	129.4	SES,JRB,MS	Dredge as shown
39	Upper Approach L&D 9 "A"	19	5/1/92	648.1 - 648.9	622.2	619.0	99.5	RCH,KLR,POJ	No action
40	Upper Approach L&D 9 "B"	19	5/4/92	648.9 - 649.7	621.0	619.1	85.2	RCH,KLR,POJ	No action
41	Crats Island Pre-Dredge	16	5/5/92	758.7 - 759.6	669.3	666.9	78.1	SES,JRB,JA	Dredge as shown
42	Lynxville	19	5/5/92	649.7 - 650.4	621.0	619.1	94.6	RCH,KLR,POJ	No action
43	Boulanger Bend Lite Lwr	16	5/8/92	818.1 - 819.1	686.8	686.6	77.4	SES,JRB	No action
44	Lynxville "B"	19	5/5/92	650.4 - 651.3	621.1	619.2	97.7	RCH,KLR,POJ	No action
45	Lansing Upper Lite "C"	19	5/7/92	663.6 - 664.3	622.0	620.0	56.2	RCH,KLR,POJ	Resurvey later
46	Lansing Upper Lite "D"	19	5/8/92	664.3 - 664.7	622.2	620.0	39.5	RCH,KLR,POJ	Resurvey later
47	Picayune Island "C"	19	5/12/92	692.5 - 693.3	631.1	630.7	71.1	RCH,KLR,POJ	No action
48	Boulanger Bend "B"	16	5/11/92	819.0 - 819.5	686.6	686.6	52.0	SES,JRB	No action
49	Teepeeota Point Pre-Dredge	53	5/13/92	757.3 - 757.8	667.0	666.8	35.8	JAL,JA	Dredge as shown
50	Above Brownsville	19	5/13/92	689.7 - 690.3	630.8	630.6	42.8	RCH,KLR,POJ	Dredge as shown
51	Above Brownsville "C"	19	5/13/92	690.3 - 690.9	630.9	630.6	70.4	RCH,KLR,POJ	Dredge as shown
52	Above Brownsville "A"	19	5/14/92	689.1 - 689.8	630.7	630.6	65.1	RCH,KLR,POJ	Dredge as shown
53	Boulanger Bend "C"	16	5/12/92	819.4 - 820.4	686.9	686.7	82.6	SES,JRB	No action
54	Boulanger Bend "D"	16	5/12/92	820.4 - 820.9	687.0	686.7	38.3	SES,JRB	No action
55	Above Lansing Pre-Dredge	19	5/16/92	663.6 - 664.3	620.4	620.0	50.5	BP, JL,KLR	Dredge as shown
56	Fisher Island Pre-Dredge	53	5/15/92	745.3 - 745.7	660.1	659.8	27.3	CL,NK	Dredge as shown
57	Fisher Island Pre-dredge	53	5/15/92	746.4 - 746.6	660.3	659.9	11.1	CL,NK	Dredge as shown
58	Abv Gr Encam (pre-dredge)	53	5/14/92	756.5 - 756.8	666.9	666.8	32.4	JL,CL,NK	Dredge as shown
59	Lansing Upper Lite	19	5/18/92	664.3 - 664.7	620.7	620.0	38.0	RCH,KLR,POJ	Dredge as shown
60	Teepeeota Point	53	5/19/92	757.3 - 757.8	667.3	666.8	20.2	JL,BP,CL	Dredge as shown
61	Minneiska (pre-dredge)	53	5/9/92	742.6	659.8	659.7	6.9	BP,SES	Dredge as shown
62	Minneiska (post dredge)	53	5/19/92	742.6	659.7	659.7	7.8	CL,NK	No action
63	McMillian Island	19	5/19/92	617.6 - 618.2	610.5	610.3	58.4	RCH,KLR,POJ	Dredge as shown

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Table A4 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
64	Head of Raft Channel "A"	19	5/15/92	687.1 - 687.5	630.4	630.5	25.1	RCH,KLR,POJ	No action
65	Head of Raft Channel "B"	19	5/15/92	678.5 - 688.1	630.5	630.5	55.9	RCH,KLR,POJ	Dredge as shown
66	Head of Raft Channel	19	5/14/92	688.1 - 689.2	630.7	630.5	90.5	RCH,KLR,POJ	Dredge as shown
67	St Paul Barge Term. "A"	16	5/18/92	837.0 - 837.7	688.1	687.2	65.8	SES,JRB	Dredge as shown
68	St Paul Barge Term. "B"	16	5/19/92	637.6 - 638.0	688.1	687.2	20.8	SES,JRB	Dredge as shown
69	Teepeeota Pt. pre cut 7	53	5/20/92	757.3	667.3	666.8	13.8	CL,NK	Dredge as shown
70	Fort Snelling Cutoff "A"	16	5/20/92	846.2 - 846.6	689.0	687.2	13.3	SES,JRB	No action
71	McMillian Island "B"	19	5/20/92	618.3 - 619.3	610.6	610.3	111.3	RCH,KLR,POJ	Dredge as shown
72	Jackson Island	19	5/21/92	644.0 - 645.0	615.7	611.0	81.4	RCH,KLR,POJ	No action
73	Grand Encampment Pre-Dre	53	5/21/92	755.8 - 756.2	667.1	666.7	31.0	CL,NK	Dredge as shown
74	Lansing Upper Post-Dr A	53	5/26/92	663.9 - 664.2	620.0	620.0	23.3	JRM,CL,NK	No action
75	Lansing Upper Post-Dr B	53	5/26/92	664.3 - 664.6	620.0	620.0	18.3	JRM.CL,NK	Dredge as shown
76	Teepeeota Post-Dredge	53	5/27/92	757.4 - 757.6	667.0	666.8	32.1	JRM,NK	No action
77	Indian Camp Lite Pre-Dre	19	5/28/92	665.4 - 665.8	620.7	620.0	48.5	RCH,KLR,POJ	Dredge area as shown
78	Betsy Slough	53	5/28/92	730.8 - 731.6	650.3	650.3	41.3	JRM,NK	WID Dredge as shown
79	Grand Encampment Post-Dr	53	5/29/92	756.6 - 756.8	666.9	666.8	32.5	JRM,NK	No action
80	Above Ford Ave Br.	16	5/28/92	847.7 - 847.9	724.5	722.8	11.5	SES,JRB	No action
81	Blw St Paul Daymarchk "A"	16	5/28/92	847.9 - 848.2	724.5	722.8	45.1	SES,JRB	No action
82	Blw St Paul Daymarchk "B"	16	5/28/92	848.2 - 849.0	724.5	722.8	35.3	SES,JRB	No action
83	Abv Lake St Br "A"	16	5/27/92	849.9 - 850.5	724.7	722.8	35.1	SES,JRB	No action
84	Abv Lake St Br "B"	16	5/27/92	850.7 - 851.0	724.7	822.8	16.4	SES,JRB	Dredge as shown
85	Blw Franklin Ave Br	16	5/27/92	851.0 - 851.5	724.7	722.8	24.7	SES,JRB	Dredge area as shown
86	Above I-94 Br.	16	5/27/92	851.7 - 852.3	724.7	722.8	22.6	SES,JRB	No action
87	Coal Dock	16	5/26/92	852.8 - 853.2	724.6	722.8	18.6	SES,JRB	No action
88	Blw Head Raft Chan. "B"	19	6/1/92	686.7 - 687.1	630.6	630.4	34.8	JRM,KLR,POJ	No action
89	Lower Zumbro Pre-Dredge	53	6/2/92	744.1 - 744.7	659.8	659.8	64.0	SES,CL,NK	Dredge as shown
90	Blw Head of Raft Ch "A"	19	6/2/92	686.1 - 686.7	630.6	630.4	39.3	JRM,KLR,POJ	Dredge as shown
91	Deadmans Slough	19	6/2/92	685.2 - 686.0	630.5	630.4	62.0	JRM,KLR,POJ	No action
92	Grand Encamp. (Post-Dr)	53	6/3/92	755.8 - 756.2	667.1	666.7	25.5	SES,NK	No action
93	Abv Brownsville Post-Dr	19	6/3/92	689.9 - 690.4	630.7	630.7	30.3	JRM,KLR	No action
94	Head Raft C.(pre-dredge)	19	6/3/92	688.8 - 689.2	630.6	630.6	28.1	JRM,KLR,POJ	Dredge as shown
95	Teepeeota Pt. (pre-dredge)	53	6/4/92	757.3 - 757.8	666.8	666.8	52.2	SES,NK	Dredge as shown
96	Head Raft Ch. (pre-dredge)	19	6/4/92	687.9 - 688.1	630.5	630.5	8.2	JRM,POJ	Dredge as shown
97	Hennipen Ave Br. "A"	16	6/4/92	854.1 - 854.5	798.6	796.5	16.7	RCH,JRB,KMF	No action

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Table A4 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
98	Hennipen Ave Br. "B"	16	6/3/92	854.9 - 855.1	798.6	796.5	21.9	RCH,JRB,KF	No action
99	Abv Plymouth Ave Br. "C"	16	6/3/92	855.1 - 855.3	798.7	796.5	16.8	RCH,JRB,KF	No action
100	Blw Broadway Br. "A"	16	6/2/92	855.3 - 855.4	798.7	796.5	13.9	RCH,JRB,KF	No action
101	Abv Broadway Br. "B"	16	6/2/92	855.4 - 855.8	798.5	796.5	19.4	RCH,JRB,KF	Dredge as shown
102	Blw Lowry Ave Br "C"	16	6/2/92	855.8 - 856.4	798.5	796.5	22.3	RCH,JRB,KF	Dredge as shown
103	Abv Lowry Ave Br.	16	6/2/92	856.4 - 857.1	798.7	796.5	34.4	RCH,JRB,KF	Dredge as shown
104	Upper Turning Basin	16	6/2/92	857.1 - 857.3	798.7	796.5	22.1	RCH,JRB,KF	Dredge as shown
105	Robucks cut (post-dredge)	53	6/5/92	746.5 - 746.6	659.9	659.9	11.1	SES,JRM,NK	No action
106	Fisher Island (post-dredge)	53	6/8/92	744.9 - 745.6	659.5	659.8	18.5	SES,NK	No action
107	Indian Camp (post-dredge)	53	6/11/92	665.4 - 665.8	620.0	620.0	15.7	SES,NK	No action
108	Dresbach "A"	19	6/11/92	703.5 - 704.0	639.0	638.5	42.9	JRM,KLR	Dredge as shown
109	Continental Grain	16	6/8/92	M14.7 - M15.0	688.0	687.2	8.2	JRB,POJ,KF	Dredge as shown
110	Blw Continental Grain	16	6/9/92	M14.4 - M14.7	688.6	687.2	9.5	JRB,POJ,KF	No action
111	Petersons Bar "A"	16	6/9/92	M11.7 - M12.0	688.8	687.2	11.1	JRB,POJ,KF	Dredge as shown
112	Petersons Bar "B"	16	6/9/92	M12.0 - M12.2	688.8	687.2	5.0	JRB,POJ,KF	Dredge as shown
113	Fourmile Cutoff	16	6/10/92	M04.0 - M04.3	687.6	687.2	10.4	JRB,POJ,KF	No action
114	Mouth Minn River	16	6/10/92	M00.0 - M00.4	687.6	687.2	16.9	JRB,POJ,KF	No action
115	Reads Landing	53	6/13/92	762.3 - 762.8	667.5	667.0	31.5	BRN,JRM,SES	Dredge as shown
116	Picayune Island	19	6/12/92	692.5 - 693.3	631.0	630.7	57.2	JRM,KLR	No action
117	Brownsville (Pre & Post)	19	6/15/92	688.8 - 689.2	631.3	630.6	28.3	JRM,KLR	Dredge as shown
118	Lower Zumbro (Post)	53	6/15/92	744.3 - 744.6	659.9	659.8	30.5	CL,SES,NK	No action
119	Winters Landing "A"	19	6/16/92	708.0 - 708.8	639.2	638.5	63.4	JRM,KLR	No action
120	Diamond Bluff	16	6/16/92	799.3 - 800.1	674.7	674.2	64.6	JRB,POJ,KF	Dredge as shown
121	Coulters Island	16	6/16/92	801.0 - 801.9	674.7	674.3	63.1	JRB,POJ,KF	Dredge as shown
122	Teepeeota Pt. (Post)	53	6/17/92	757.5 - 757.8	667.2	666.8	23.4	SES,NK	No action
123	Winters Landing "B"	19	6/17/92	708.8 - 709.6	639.4	638.5	104.2	JRM.KLR	No action
124	Dakota "A"	19	6/18/92	706.0 - 706.4	639.5	638.5	42.3	JRM,KLR	No action
125	Head Raft (Post)	53	6/18/92	688.0	631.0	630.5	11.7	SES,NK,CL	No action
126	Dakota "B"	19	6/18/92	706.9 - 707.2	639.5	638.5	23.7	JRM,KLR	No action
127	Dresbach "D"	19	6/18/92	704.5 - 705.6	639.4	638.5	69.7	JRM,KLR	No action
128	Pine Bend "C"	16	6/18/92	824.0 - 824.6	687.3	686.8	57.7	JRB,POJ,KF	No action
129	Dresbach "B"	19	6/17/92	704.0 - 704.6	639.2	638.5	44.8	JRM,KLR	No action
130	Lower Approach L&D 6	19	6/19/92	713.7 - 714.1	640.1	638.5	18.9	JRM,KLR	No action
131	Brownsville (post-dredge)	53	6/22/92	689.0 - 689.2	630.8	630.6	18.1	RCH,CRL,NK	No action

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Table A4 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
132	Homer "A"	19	6/22/92	720.4 - 721.4	644.9	644.8	47.3	JRM,KLR	No action
133	Reads Landing (post-dredging)	53	6/23/92	762.3 - 762.7	668.5	667.0	37.4	RCH,CRL,NK	No action
134	Coulters Is. (pre-dredging)	53	6/24/92	801.2 - 801.9	675.3	674.3	27.8	RCH,NK	Dredge as shown
135	Grey Cloud Landing	16	6/23/92	820.9 - 821.9	687.3	686.7	56.8	JRB,POJ,KF	No action
136	Grey Cloud Landing	16	6/24/92	821.9 - 822.6	686.8	686.8	44.2	JRB,POJ,KF	No action
137	Pine Bend Foot Lite "A"	16	6/23/92	822.6 - 823.6	687.4	686.8	77.9	JRB,POJ,KF	No action
138	Pine Bend Foot Lite "B"	16	6/22/92	823.6 - 824.0	687.4	686.8	33.1	JRB,POJ,NK	No action
139	L&D 2 scour test 1st run	16	6/25/92	815.2 - 815.3	677.9	675.0	5.7	JRB,RCH,POJ	Test for Engineering Analysis
140	L&D 2 scour test 2nd run	16	6/25/92	815.2 - 815.3	677.9	675.0	5.7	JRB,RCH,POJ	Test for Engineering Alalysis
141	Lower approach L&D 2	16	6/24/92	814.8 - 815.1	678.1	675.0	18.9	JRB,RCH,POJ	No action-resurvey 93
142	Clayton	53	6/29/92	623.5 - 623.9	612.6	610.9	88.9	JRM,CRL,POJ	No action
143	Boulanger Bend (Pier)	16	7/1/92	818.5 - 819.2	686.5	686.6	57.0	JRB,RCH,KF	Dredge as shown
144	Cannon River	16	6/30/92	792.4 - 793.2	670.4	667.0	67.5	JRB,RCH,POJ	Dredge as shown
145	Brownsville	53	7/3/92	688.9 - 689.4	630.9	630.6	23.1	JRM,SES	Resurvey July 92
146	Diamond Bluff (pre-dredging)	16	7/6/92	799.7 - 799.9	674.9	674.2	21.2	JRB,RCH,POJ	Dredge as shown
147	Trenton "A"	16	7/7/92	793.2 - 794.2	671.5	667.0	81.9	RCH,JRB,KF	Resurvey spring 1993
148	Big Lake (Indian Slough)	53	7/7/92	758.5	668.2	666.9	45.0	CRL,NK,SES	Indian Slough EMP Dredge cut
149	Wacouta Point "B"	16	7/8/92	785.1 - 785.8	669.5	667.0	55.6	RCH,JRB,KF	No action
150	Brownsville	19	7/13/92	688.8 - 689.4	631.5	630.6	49.0	JRM,KLR,POJ	
151	Cannon River (pre-dredging)	53	7/14/92	792.4 - 793.2	672.5	667.0	19.0	BDP,SES,NK	Dredge as shown
152	Coulters Is (post-dredging)	53	7/14/92	801.5 - 801.9	675.6	674.3	18.5	BDP,SES,NK	No action
153	Head Raft Channel	19	7/14/92	631.5 - 630.5	631.5	630.5	46.1	JRM,KLR,POJ	
154	Betsy Slough (pre-dredging)	16	7/16/92	730.8 - 731.3	651.0	650.3	50.7	RCH,JRB,KF	Dredge as shown
155	Picayune Island	19	7/15/92	692.5 - 693.3	632.3	630.7	54.7	JRM,KLR,POJ	
156	Lower Winona RR Br.	53	7/16/92	723.9 - 724.6	647.4	645.2	56.2	SES,NK	
157	Diamond Bluff (post-dredging)	53	7/20/92	799.7 - 799.9	674.6	674.2	9.3	CK,NK	No action
158	Head of Raft Channel	19	7/21/92	688.1 - 688.8	630.9	630.5	62.4	JRM,POJ	
159	Lower Zumbro (pre-dredging)	16	7/22/92	734.5 - 744.4	660.0	659.8	89.9	SES,JRB,KF	Water Injection Dredging
160	Cannon River (pre-dredging)	53	7/23/92	792.3 - 792.5	670.6	667.0	9.2	BRN,BDP	No dredging necessary
161	Lower Zumbro Daily Cond	16	7/27/92	743.8 - 744.4	659.7	659.8	42.5	RCH,JRB,KF	Daily condition survey (WID)
162	Diamond Bluff (pre-dredging)	53	7/28/92	800.1 - 800.6	674.2	674.2	48.1	BDP,JOP	Dredge as shown
163	Freeborn Light	53	7/29/92	818.7 - 818.9	686.6	686.6	9.4	BP,POJ	Dredge as shown
164	Cannon River (Post c 1)	53	7/24/92	793.0	670.4	667.0	4.7	BDP,SES	No action
165	McMillians Is (pre-dredging)	19	7/23/92	617.7 - 618.2	610.7	610.3	39.5	JRM,POJ	Dredge as shown

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Table A4 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
166	McMillians Is (pre-dredging)	19	7/23/92	618.3 - 619.0	610.8	610.3	75.8	JRM,POJ	Dredge as shown
167	Diamond Bluff (post-dredging)	53	7/30/92	800.1	674.2	674.2	5.4	BDP,POJ	No action
168	Upper Appr. L&D 4	16	8/4/92	753.0 - 753.6	666.5	666.5	56.4	JRB,POJ	No action
169	Coulters Is. (pre-dredging)	53	8/5/92	803.0 - 803.3	674.4	674.4	22.3	CL,NK	No action
170	Cannon River C 2 (Post)	53	8/4/92	792.8 - 793.1	668.5	667.0	19.4	CL,NK	No action
171	Beef Slough "A"	16	8/5/92	753.6 - 754.5	666.6	666.6	92.3	JRB,POJ	No action
172	Savanna (pre-dredging) Job "A"	19	8/1/92	537.8 - 538.4	584.0	583.0	75.1	JRM,KLR,KF	Dredge as shown
173	Savanna (pre-dredging) Job "C"	19	8/2/92	539.0 - 539.3	584.1	583.0	36.0	JRM,KLR,KF	Dredge as shown
174	Savanna (post-dredging) "C"	19	8/9/92	539.0 - 539.3	583.6	583.0	36.0	JRM,KLR,KF	
175	Abv Lowry Ave (pre-dredging)	53	8/13/92	856.7 - 857.1	798.4	696.5	26.7	RCH,NK,KF	No action
176	Savanna (pre-dredging) "B"	19	8/3/92	538.4 - 539.3	584.0	583.0	79.3	JRM,KLR,KF	Dredge as shown
177	Coulters Is (pre-dredging)	53	8/16/92	802.2 - 803.1	674.3	674.3	51.4	BP,SES,RCH	Dredge as shown
178	Blw Winona RR Br.	53	8/12/92	723.4 - 724.2	645.0	645.2	87.5	RCH,NK,KF	No action
179	Abv Broadway (pre-dredging)	53	8/20/92	855.4 - 855.7	798.2	796.5	11.1	RCH,NK	Dredge as shown
180	Blw Lowry (pre-dredging)	53	8/20/92	856.0 - 856.3	798.3	796.5	8.2	RCH,NK	Dredge as shown
181	Blw LaCrosse RR Br.(pre-dredging)	16	8/21/92	698.4 - 699.7	631.0	631.0	81.2	RCH,NK,BDP	Dredge as shown
182	Coulters Is (pre-dredging)	53	8/19/92	802.4 - 803.0	674.4	674.3	54.6	RCH,NK	Dredge as shown
183	Coulters Is	53	8/5/92	803.0 - 803.3	674.4	674.4	22.3	CL,NK	Reposition Buoys
184	Turning Basin (post-dredging)	53	8/21/92	857.1 - 857.5	798.5	796.5	23.8	RCH,NK	No action
185	Savannah (WID) "A"(Post)	19		537.8 - 538.4	583.6	583.0	75.1	JRM,KLR,KF	No action
186	Savannah (WID) "B"(Post)	19		538.4 - 539.3	583.6	583.0	79.3	JRM,KLR,KF	No action
187	Savannah (WID) "C"(Post)	19			583.7	583.0		JRM,KLR,KF	No action
188	Savannah (WID) "C"(Pre)	19			583.6			JRM,KLR,KF	No action
189	Abv West Newton	16	8/19/92	747.4 - 748.3	659.7	660.0	82.4	JRB,JRM,KF	No action
190	Lower Zumbro (WID Cond)	16	8/17/92	743.9 - 744.2	659.7	659.8	18.8	JRB,JRM,KF	No action
191	Big Lake (Pool 4 EMP)	53	8/11/92	758.5	666.7	666.9	46.2	RCH,SES,NK	No action
192	East Channel "A"	19	8/20/92	633.0 - 633.7	612.3	611.0	83.7	KLR,SES,POJ	No action
193	East Channel "B"	19	8/18/92	633.7 - 634.9	613.1	611.0	119.8	KLR,SES,POJ	No action
194	East Channel "C"	19	8/28/92	634.9 - 635.4	613.5	611.0	46.8	KLR,SES,POJ	No action
195	Coulters Island (Post)	53	8/27/92	802.2 - 803.1	674.4	674.3	62.0	RCH,NK	No action
196	McMillians Is "A"(Post)	19	8/27/92	617.6 - 618.2	611.2	610.3	51.8	SES,KLR,POJ	No action
197	McMillians Is "B"(Post)	19	8/27/92	618.3 - 619.3	611.3	610.3	76.1	SES,KLR,POJ	No action
198	Turning Basin (pre-dredging)	53	7/31/92	856.9 - 857.4	798.4	796.5		CL,PJ,NK	Dredge as shown
199	East Channel "D"	19	7/26/92	635.3 - 636.4	612.3	611.0	94.9	SES,KLR,POJ	No action

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Table A4 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
200	East Channel gut Area	19	7/25/92	636.5	612.1	611.0	27.8	SES,KLR,POJ	No action
201	East Channel Bay Area	19	8/25/92	636.5	612.1	611.0	36.5	SES,KLR,POJ	No action
202	Abv Beef Slough	16	8/6/92	754.5 - 755.6	666.7	666.6	147.5	RCH,JRB,POJ	No action
203	Grand Encampment "A"	16	8/14/92	755.6 - 756.5	666.9	666.7	108.3	JRB,JRM,KF	No action
204	Abv Grand Encampment "B"	16	8/20/92	756.5 - 757.2	666.7	666.8	96.2	JRB,KF,JRM	No action
205	Teepeeota Point	16	8/21/92	757.2 - 757.6	666.7	666.8	61.6	JRB,JRM,KF	No action
206	Blw Crats Island	16	8/26/92	757.6 - 758.3	667.1	666.8	68.8	JRM,JRB,KF	No action
207	Blw Crats Island	16	8/27/92	758.3 - 758.7	667.2	666.8	50.3	JRM,JRB,KF	No action
208	Abv Lowry Ave (post-dredging)	53	9/2/92	856.7 - 857.1	799.4	796.5	24.0	RCH,NK	No action
209	Turning Basin (post-dredging)	53	8/21/92	857.1 - 857.4	798.5	796.5	23.8	RCH,NK	No action
210	Crats Island	16	8/28/92	758.7 - 759.6	667.3	666.9	106.9	JRM,JRB,KF	No action
211	Blw LaCrosse RR Br (Post)	19	9/5/92	698.6 - 699.0	631.9	631.0	32.5	BRN,JRM,BDP	No action
212	L&D 10 Scour (Lower side)	19	8/31/92		604.4	603.0	28.1	SES,KLR,POJ	No action
213	L&D 10 Scour (Upper side)	19	8/31/92		611.2	610.0	32.6	SES,KLR,POJ	No action
214	L&D 9 Scour (Lower side)	19	9/1/92		613.2	611.0	28.5	SES,KLR,POJ	No action
215	L&D 9 Scour (Upper side)	19	9/2/92		619.8	619.0	24.7	SES,KLR,POJ	No action
216	Blw Wabasha Bridge	16	9/9/92	759.6 - 760.2	667.2	667.0	61.5	JRM,JRB	No action
217	L&D 8 Scour (Lower side)	19	9/3/92		621.4	620.0	31.8	SES,KLR,POJ	No action
218	L&D 7 Scour (Lower side)	19	9/7/92		632.2	631.0	34.1	SES,KLR,POJ	No action
219	Abv Wabasha Br	16	9/10/92	760.2 - 761.0	667.3	667.0	72.2	JRM,JRB	No action
220	Continental Grain	53	9/10/92	MN14.7 - 15.0	689.1	687.2	9.1	RCH,NK	
221	Blw Continental	53	9/10/92	Mn14.4 - 14.7	689.1	687.2	9.4	RCH,NK	
222	Petersons Bar	53	9/9/92	Mn11.7 - 12.0	690.0	687.2	10.6	RCH,NK	
223	Petersons Bar	53	9/9/92	Mn12.0 - 12.2	690.0	687.2	6.6	RCH,NK	
224	Blw Franklin Av(pre-dredging)	53	9/14/92	850.8 - 851.0	725.0	722.8	14.3	RCH,NK	No action
225	Indian Slough "A"	53	9/15/92	760 +-	667.1	667.0	18.7	RCH,NK	Dredge as shown
226	Indian Slough "B"	53	9/14/92	760 +-	667.1	667.0	8.5	RCH,NK	Dredge as shown
227	Gantenbien Lake	53	9/1/92	796.3	668.3	667.0	??	RCH,NK	Erosion sections
228	L&D 7 Scour (Upper)	19	9/9/92		639.2	638.5	26.7	SES,KLR,POJ	No action
229	L&D 6 Scour (Lower)	19	9/11/92		639.7	638.5	31.8	SES,JRB	No action
230	L&D 6 Scour (Upper)	19	9/15/92		645.3	644.5	42.5	SES,JRB	No action
231	Drury Island	16	9/14/92	760.9 - 761.6	667.3	667.0	69.6	JRM,JRB	No action
232	Abv Drury Island	16	9/15/92	761.6 - 762.0	667.1	667.0	44.3	JRM,JRB	No action
233	Reads Landing	16	9/16/92	762.1 - 762.9	668.3	667.0	76.4	JRM,JRB	No action

(Sheet 7 of 9)

Table A4 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
234	Abv Broadway Ave (Post)	53	9/16/92	855.4 - 855.7	799.5	796.5	9.3	RCH,NK	No action
235	Blw Lowry Ave (post-dredging)	53	9/17/92	856.0 - 856.3	799.5	796.5	6.9	RCH,NK	No action
236	Abv Reads Ldg	16	9/17/92	762.9 - 763.7	668.8	667.0	123.0	JRM,POJ	No action
237	Coulters Island	53	8/27/92	802.2 - 803.1	674.4	674.3	62.0	RCH,NK	No action
238	L&D 5 Scour (Upper)	19	9/17/92		660.3	659.5	44.6	SES,POJ	No action
239	L&D 4 Scour (upper)	16	9/21/92		666.4	666.5	42.6	JRM,JRB	No action
240	Reads Landing	16	9/24/92	762.1 - 762.9	668.1	667.0	65.1	JRM,JRB	No action
241	Belvedere Slough	16	9/23/92		660.3	659.9	50.0	JRM,JRB	No action
242	Grand Encampment	16	9/25/92	755.6 - 756.5	666.7	666.7	66.2	JRM,JRB	No action
243	Abv Lake Street	53	9/28/92	849.9 - 850.5	722.6	722.8	36.7	RCH,NK	No action
244	Teepeeota Point	16	9/28/92	757.4 - 757.9	666.9	666.8	41.4	JRM,JRB	No action
245	Petersons Bar (Pre) A	53	9/29/92	Mn11.7 - Mn12.2	689.6	687.2	14.1	RCH,NK	Dredge as shown
246	Petersons Bar (Pre) B	53	9/29/92	Mn12.0 - Mn12.2	689.6	687.2	8.0	RCH,NK	Dredge as shown
247	Reads Landing	16	9/29/92	762.1 - 762.9	667.2	667.0	62.9	JRM,JRB	No action
248	Blw Franklin (post-dredging)	53	10/1/92	850.7 - 851.1	725.1	722.8	14.7	RCH,NK	No action
249	L&D 3 Scour Upper	16	10/1/92	796.6 - 797.0	674.5	674.0	19.6	JRM,JRB,POJ	No action
250	L&D 3 Jetty Upper	16	10/1/92	797.1 - 797.7	674.5	674.0	79.3	JRM,JRB,POJ	No action
251	L&D 3 Scour Lower	16	10/2/92	796.9 - 797.0	667.9	667.0	10.4	JRM,JRB,POJ	No action
252	L&D 3 Scour Lower Rollers	16	10/5/92	796.9 - 797.0	667.7	667.0	19.5	JRM,JRB,POJ	No action
253	Continental (pre-dredging)	53	10/6/92	Mn 14.7 - Mn15.0	687.7	687.2	7.5	BDP,NK	Dredge as shown
254	L&D 5A Scour Lower	19	10/7/92		645.9	645.5	23.1	RCH,KLR,NK	No action
255	L&D 5A Scour Upper	19	10/7/92		650.7	650.0	18.7	RCH,KLR,NK	No action
256	Lwr appr L&D 2 (pre-dredging)	16	10/8/92	814.8 - 815.1	675.2	675.0	18.4	SES,JRM	Dredge as shown
257	Petersons Bar (Post)	16	10/9/92	Mn 12.0 - Mn12.2	688.9	687.2	4.7	JRM,SES	No action
258	Petersons Bar (Post)	16	10/9/92	Mn 11.7 - Mn11.9	688.9	687.2	4.9	JRM,SES	No action
259	L&D 2 Scour Lower	16	10/6/92		675.1	675.0	25.8	JRM,SES	No action
260	L&D 5 Scour Lower	19	10/13/92		652.4	651.0	53.6	RCH,KLR	No action
261	Continental (post-dredging)	16	10/14/92		693.9	687.2	8.6	BDP,JRM	No action
262	L&D 4 Scour Lower	19	10/15/92		661.6	660.0	38.8	RCH,KLR	No action
263	L&D 8 Scour Upper	19	10/20/92		629.8	630.0	23.0	RCH,JRM,NK	No action
264	L&D 5 Scour (Partial Up)	19	10/22/92		651.4	651.0	15.7	JRM,KLR	No action
265	Indian Slough	53	10/22/92		667.3	667.0	6.6	CL,NK	Post-construction survey
266	L&D 1 Scour Lower	16	10/20/92		688.3	687.2	3.2	SES.JRB	No action
267	L&D 1 Scour Upper	16	10/19/92		724.2	722.8	15.6	SES,JRB	No action

(Sheet 8 of 9)

Table A4 (Concluded)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
268	L.S.A.F. Scour Lower	16	10/21/92		725.1	722.8	5.9	SES,JRB	No action
269	U.S.A.F. Scour Lower	16	10/21/92		750.6	749.3	21.6	SES,JRB	No action
270	U.S.A.F. Scour Upper	16	10/12/92		799.2	796.5	2.4	SES,JRB	No action
271	L&D 2 Scour Upper	16	10/26/92		686.9	686.5	29.3	SES,JRB	No action
272	Above L&D 3	16	10/28/92	797.8 - 798.6	674.4	674.1	90.8	SES,JRB	No action
273	Lwr Appr L&D 2 (post-dredging)	16	10/29/92	814.8 - 815.1	675.3	675.0	10.5	SES,JRB	No action
274	L&D 3 Bendway Weir Study	16	11/4/92	796.4 - 796.7	669.2	667.0	24.4	SES,JRB	No action
275	L&D 3 Bendway Weir Study	16	11/4/92	796.2 - 796.4	669.2	667.0	27.7	SES,JRB	No action
276	L&D 3 Bendway Weir Study	16	11/3/92	796.0 - 796.7	669.0	667.0	49.6	SES,JRB	No action
277	La Carosse West Chan	53	11/6/92	697.0	631.6	631.0	2.3	JRM,KLR	No action
278	Polander Lake	53	11/3/92	728.7 - 729.6	650.7	650.0	236.4	JRN,KLR	No action
279	Polander lake	53	11/9/92	729.6 - 730.3	650.2	650.2	230.3	JRM,KLR	No action
280	Lower Zumbro	16	11/10/92	743.8 - 744.3	659.8	658.8	41.0	SES,JRB	no action
281	Lower Zumbro (WID cut)	16	11/12/92	744.2 - 744.3	660.2	659.8	24.1	SES,JRB	No action
282	Betsy Slough	16	11/13/92	730.8 - 731.3	650.3	650.3	46.5	SES,JRB	No action

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Table A5
Hydrographic Survey Summary
U.S. Army Engineer District, St. Paul, Navigation Branch, Maintenance Section, Hydrographic Survey Unit
Updated: 30 November 1993 (Final), Time Period: 1993 Navigation Season
Total Number of Jobs = 283, Total Acres Surveyed = 15,181.4

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
1	Harriet Island SBH	53	3/30/93	839.3	689.4	687.2	6.7	JRM,SES	Resurvey when water recedes
3	Belvedere Slough "8"	16	4/6/93	745.0	661.1	659.8	39.8	RCH,SES,JRB	No action
4	Belvedere Slough "7"	16	4/7/93	745.0	661.2	659.8	28.3	RCH,SES,JRB	No action
8	Dakota Backwater "B"	53	4/12/93	706.3	641.7	638.5	7.8	JRM,BDP	No action
2	Betsy Slough	16	4/12/93	730.8 - 731.6	654.6	650.3	69.0	RCH,SES,JRB	No action
5	Belvedere Slough "6"	16	4/13/93	745.0	662.1	659.9	93.9	RCH,SES,JRB	No action
7	Dakota Backwater "A"	53	4/14/93	706.0	642.1	638.5	46.6	JRM,BDP	No action
6	Belvedere Slough "5"	16	4/14/93	745.0	662.1	659.9	51.1	RCH,SES,JRB	No action
9	Sand Run (Weaver)	16	4/15/93	745.0	662.1	659.9	14.8	RCH,SES,JRB	No action
12	Belvedere Slough "3"	16	4/15/93	745.0	662.1	659.9	54.9	RCH,SES,JRB	No action
10	Belvedere Slough "4"	16	4/15/93	745.0	662.1	659.9	77.5	RCH,SES,JRB	No action
11	Belvedere Slough "9"	16	4/16/93	745.0	663.5	659.9	9.0	RCH,SES,JRB	No action
14	Belvedere Slough "1"	16	4/16/93	745.0	664.3	660.0	32.5	RCH,SES,JRB	No action
13	Belvedere Slough "2"	16	4/16/93	745.0	664.1	659.9	27.4	RCH,SES,JRB	No action
15	Dakota Backwater "C"	53	4/19/93	706.5	641.8	638.5	4.0	JRM,BDP	No action
17	L&D 6 Wing Dam	19	4/22/93	713.6 - 714.0	645.4	638.5	43.9	RCH,KLR	No action
16	West Channel Cl Dam	19	4/22/93	699.2	639.3	631.0	23.9	RCH,KLR	No action
18	Upper Zumbro	16	4/23/93	750.6 - 751.8	665.6	660.0	131.0	SES,JRB	No Action
19	Weaver Islands	53	4/23/93	742.0	662.0	659.9	165.7	BDP,JRM	No action
20	Abv LaMoile Lite "A"	19	4/27/93	716.2 - 717.2	645.3	644.6	105.2	RCH,KLR	Dredge as shown
21	Abv LaMoille Lite "B"	19	4/28/93	717.2 - 718.4	646.2	644.6	119.0	RCH,KLR,JRM	No action
22	St Paul Barge Terminal "A"	16	4/29/93	836.8 - 837.7	693.4	687.2	92.1	SES,NK	No action
23	St Paul Barge Terminal "B"	16	4/30/93	837.6 - 838.0	693.3	687.2	24.8	SES,NK	No action
25	Black River (Boat Course)	19	4/30/93	Blw I-90 Br.	635.6	631.0	63.2	RCH,KLR	No action
24	Queens Bluff "A"	19	5/3/93	709.6 - 710.3	642.1	638.5	97.0	RCH,JRB	No action
27	Queens Bluff "C"	19	5/4/93	711.2 - 711.9	642.9	638.5	91.1	RCH,KLR	No action
26	Queens Bluff "B"	19	5/4/93	710.3 - 711.2	642.4	638.5	100.4	RCH,KLR	No action
30	Upper Appr L&D 1	16	5/4/93	847.0 - 847.5	695.7	687.2	3.4	SES,JRB	Resurvey when flows drop off

Note: Material from U.S. Army Engineer District, St. Paul.

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Table A5 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
31	Above Lake St. Br. "A"	16	5/5/93	849.9 - 850.7	726.4	722.8	51.1	SES,JRB	Resurvey July 93
28	Head Richmond Island "A"	19	5/5/93	711.9 - 712.8	643.4	638.5	86.7	RCH,KLR	Resurvey July 93
32	Above Lake St. Br. "B"	16	5/5/93	850.7 - 851.0	726.5	722.8	18.4	SES,JRB	Resurvey June 93
29	Head Richmond Island "B"	19	5/6/93	712.8 - 713.5	644.1	638.5	78.1	RCH,KLR	Resurvey when flows drop off
33	Lower Approach L&D 6	19	5/10/93	713.5 - 714.0	644.4	638.5	71.3	RCH,RGR	Resurvey when flows drop off
34	Dakota "A"	19	5/11/93	705.8 - 706.6	640.3	638.5	84.2	RCH,RGR	Resurvey when flows drop off
42	Upper Turning Basin	16	5/11/93	857.1 - 857.3	801.8	796.5	27.6	SES,JRB	Resurvey when flows drop off
41	Abv Lowry Ave Br.	16	5/11/93	856.4 - 857.1	801.7	796.5	39.8	SES,JRB	Resurvey when flows drop off
35	Dakota "B"	19	5/12/93	706.5 - 707.3	640.7	638.5	51.5	RCH,RGR	Resurvey when flows drop off
38	Blw Broadway Ave Br.	16	5/12/93	855.3 - 855.4	801.4	796.5	14.8	SES,JRB	Resurvey when flows drop off
39	Abv Broadway Ave Br.	16	5/12/93	855.4 - 855.8	801.5	796.5	22.0	SES,JRB	Resurvey when flows drop off
40	Blw Lowry Ave Br.	16	5/12/93	855.8 - 856.4	801.6	796.5	324.3	SES,JRB	Resurvey when flows drop off
43	Picayune Island "A"	19	5/13/93	691.0 - 692.1	632.4	630.7	113.0	RCH,RGR	No action
36	Blw Plymouth Ave Br.	16	5/13/93	854.6 - 855.1	801.2	796.5	23.1	SES,JRB	No action
37	Abv Plymouth Ave Br.	16	5/13/93	855.1 - 855.3	801.3	796.5	19.9	SES,JRB	No action
44	Picayune Island "B"	19	5/14/93	692.0 - 693.2	633.0	630.7	125.3	RCH,RGR	No action
50	Blw St Paul Daymark "B"	16	5/17/93	848.2 - 849.0	726.4	722.8	35.6	SES,JRB	No action
49	Blw St Paul Daymark "A"	16	5/17/93	847.9 - 848.2	726.4	722.8	53.9	SES,JRB	No action
45	Root River	19	5/17/93	691.3 - 694.0	634.0	630.8	76.0	RCH,KLR	Resurvey when flows drop off
51	Blw Franklin Ave Br.	16	5/18/93	851.0 - 851.5	726.6	722.8	25.3	SES,JRB	Resurvey when flows drop off
46	Sand Slough "B"	19	5/18/93	694.0 - 694.8	634.4 - 630.8	630.8	89.7	RCH,KLR	Resurvey when flows drop off
48	Abv Ford Ave Br.	16	5/18/93	847.8 - 848.0	726.2	722.8	12.6	SES,JRB	Resurvey when flows drop off
62	Abv I-94 Br.	16	5/18/93	851.7 - 852.3	726.8	722.8	22.6	SES,JRB	Resurvey when flows drop off
52	Abv Franklin Ave Br.	16	5/18/93	851.5 - 851.7	726.7	722.8	15.9	SES,JRB	Resurvey when flows drop off
55	Broken Arrow Slough "A"	19	5/19/93	695.5 - 696.3	635.2	631.0	83.9	RCH,KLR	No action
54	Blw Washington Ave Br.	16	5/19/93	852.7 - 853.3	726.9	722.8	13.4	SES,JRB	No action
47	Sand Slough "C"	19	5/19/93	694.8 - 695.5	634.8	630.9	102.1	RCH,KLR	Resurvey when flows drop off
53	Above Showboat	16	5/19/93	852.6 - 852.7	726.9	722.8	10.4	SES,JRB	Resurvey when flows drop off
56	Broken Arrow Slough "B"	19	5/20/93	696.3 - 697.3	635.6	631.0	103.3	RCH,KLR	Resurvey when flows drop off
57	Blw Head Raft Channel "A"	19	5/24/93	686.1 - 686.7	631.3	630.4	44.4	RCH,NK	Resurvey when flows drop off
58	Blw Head Raft Channel	19	5/25/93	686.7 - 687.1	631.4	630.4	36.9	RCH,NK	No action
63	Zumbro River	16	5/25/93	749.9 - 750.6	663.6	660.0	92.1	SES,JRB	No action
60	Head of Raft Channel “B”	19	5/25/93	687.5 - 688.1	631.6	630.5	48.7	RCH,NK	No action

(Sheet 2 of 10)

Table A5 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
59	Head of Raft Channel " A"	19	5/25/93	687.1 - 687.5	631.5	630.5	23.9	RCH,NK	No action
66	Deadmans Slough "A"	19	5/26/93	684.2 - 685.2	630.6	630.3	79.3	RCH,NK	Resurvey when flows drop off
61	Winona Small Boat Harbor	53	5/26/93	726.2	649.1	645.4	3.4	BP,JRM	No action
65	Head Raft Channel	19	5/26/93	688.1 - 689.2	631.4	630.5	103.3	RCH,NK	No action
64	Upper Zumbro	16	5/27/93	749.1 - 749.9	663.0	660.0	94.8	SES,JRB	No action
67	Deadmans Slough "B"	19	5/27/93	685.2 - 686.0	630.9	630.4	66.2	RCH,NK	No action
68	Head of Betsy Slough	53	6/1/93	730.8 - 731.3	652.2	650.3	36.4	RCH,BP,KF	No action
70	Chippewa River Delta	16	6/2/93	763.6	672.4	667.0	118.4	JRM,JRB	Resurvey when flows drop off
71	Coulters Island "A"	53	6/2/93	801.0 - 801.9	676.6	674.3	89.4	RCH,BDP	Resurvey when flows drop off
69	Above Brownsville	19	6/2/93	689.1 - 689.8	632.0	630.6	68.9	SES,JA,KF	Resurvey when flows drop off
74	Above Brownsville "B"	19	6/3/93	689.7 - 690.3	632.3	630.6	54.0	SES,JA,KF	Resurvey when flows drop off
72	Coulters Island "B"	53	6/3/93	801.9 - 802.3	677.3	674.4	73.7	RCH,BDP	Resurvey when flows drop off
73	Coulters Island "C"	53	6/3/93	802.3 - 803.2	677.7	674.4	54.8	RCH,BDP	Resurvey when flows drop off
75	Above Brownsville "C"	19	6/4/93	690.3 - 690.9	632.7	630.6	74.0	SES,JA,KF	Resurvey when flows drop off
76	Dresbach "A"	19	6/8/93	703.5 - 704.0	638.8	638.5	45.3	SES,NK,KF	Resurvey when flows drop off
77	Dresbach "B"	19	6/9/93	704.0 - 704.6	639.2	638.5	53.8	SES,NK,KF	Resurvey when flows drop off
79	Wilds Bend "A"	16	6/10/93	729.6 - 730.3	651.6	650.2	53.3	JRN,RC	No action
78	Dresbach "C"	19	6/10/93	704.6 - 705.6	639.4	638.5	72.9	SES,KF	Resurvey when flows drop off
81	Wilds Bend "B"	16	6/11/93	730.0 - 730.3	651.9	650.2	72.0	JRM,RC	Resurvey when flows drop off
80	Big Lake (post-dredge)	53	6/11/93	747.0	666.9	667.8	52.3	RCH,BDP	Resurvey when flows drop off
83	Dakota "A"	19	6/14/93	705.7 - 706.5	640.5	638.5	140.4	SES,KF	Resurvey when flows drop off
82	Island 58	16	6/14/93	733.1 - 733.8	653.3	650.7	67.1	JRM,RC	Resurvey when flows drop off
85	Dakota "B"	16	6/15/93	706.5 - 707.3	640.9	638.5	120.6	SES,NK,KF	Resurvey when flows drop off
86	Below West Newton "C"	16	6/16/93	746.5 - 747.4	662.6	659.9	76.0	JRM,RC	Resurvey when flows drop off
84	Dakota "C"	19	6/17/93	707.2 - 708.0	640.9	638.5	81.5	SES,KF	Resurvey when flows drop off
88	Winters Landing	19	6/18/93	707.8 - 708.7	641.2	638.5	113.8	SES,KF	Dredge as shown
87	Fisher Island "B"	16	6/18/93	745.6 - 746.5	661.8	659.9	52.0	JRM,RC	No action
89	Winona Small Boat Harbor	16	7/21/93	726.0	652.4	645.4	10.0	JRM,JRB,KF	No action
90	Pool 5 Wing Dams	16	7/23/93	738.6 - 739.0	659.3	659.5	37.1	JRM,JRB,KF	No action
92	Lower Zumbro (Wing Dam 48)	16	7/27/93	743.8	660.8	659.8	2.4	JRM,JRB,KF	No action
91	Lower Zumbro "A"	16	7/27/93	743.4 - 744.2	660.8	659.8	60.5	JRM,JRB,KF	No action
94	Fisher Island	16	7/28/93	744.9 - 745.6	661.7	659.8	55.8	JRM,JRB,KF	No action
93	Lower Zumbro "B"	16	7/28/93	744.3 - 744.9	661.4	659.8	58.4	JRM,JRB,KF	No action
96	Minneiska "C"	16	7/29/93	742.6 - 743.5	660.5	659.7	73.4	JRM,JRB,KF	No action

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Table A5 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
95	Betsy Slough “A”	19	7/29/93	730.8 - 731.6	652.9	650.3	56.7	KR,MS	Resurvey when flow drops off
97	Betsy Slough	19	7/30/93	731.5 - 732.1	652.8	650.4	50.2	SES,MS	No action
98	Wilds Bend "B"	19	7/31/93	730.3 - 731.0	652.2	650.2	67.8	SES,MS	No action
99	Wilds Bend "A"	19	7/31/93	729.9 - 730.3	652.0	652.2	19.2	SES,MS	Dredge as shown
100	Fisher Island "A"	19	8/1/93	745.5 - 746.5	661.8	659.9	94.4	SES,MS	No action
101	St Paul Barge Terminal "A"	16	8/2/93	836.8 - 837.7	693.3	687.2	93.5	JRM,JRB,KF	Dredge as shown
103	Minnieska "B"	19	8/4/93	741.8 - 742.6	659.9	659.7	63.1	SES,KLR	No action
102	Pine Bend Foot Light "A"	16	8/4/93	823.1 - 824.0	688.5	686.8	60.9	JRM,JRB,KF	No action
104	Below West Newton "B"	19	8/5/93	746.5 - 747.4	661.9	659.9	101.8	SES,KLR	No action
105	Above West Newton "A"	19	8/6/93	747.4 - 748.3	662.1	660.0	83.5	SES,KLR	Dredge as shown
106	Mule Bend "B"	19	8/6/93	748.3 - 749.3	662.3	660.0	85.5	SES,KLR	Dredge as shown
107	Beef Slough "A"	19	8/7/93	753.6 - 754.5	667.0	666.6	84.7	SES,KLR,RCH	Dredge as shown
108	Reads Landing	16	8/7/93	762.1 - 762.9	671.0	667.0	74.9	JRM,JRB,KF	Dredge as shown
111	Above Crats Island "C"	16	8/8/93	758.7 - 759.6	669.1	666.9	80.5	JRB,JRM,LF	Dredge as shown
109	Grand Encampment "A"	19	8/8/93	755.6 - 756.5	667.7	666.7	78.6	SES,BDP,MS	No action
110	Below Grand Encampment "B"	19	8/8/93	756.5 - 757.2	667.9	666.8	87.7	SES,BDP,MS	Dredge as shown
132	Lower Zumbro (pre-dredge)	53	8/8/93	745.2 - 744.6	660.8	659.8	60.0	RCH,NK	Dredge as shown
114	Teepeeota Point "A"	16	8/9/93	757.2 - 757.6	688.0	688.0	47.7	JRM,JRB,KF	Dredge as shown
112	Lower Zumbro	19	8/9/93	743.8 - 744.7	660.8	659.8	85.5	SES,KLR,MS	Resurvey in 30 days
113	Below Crats Island "B"	16	8/9/93	757.6 - 758.7	668.7	666.8	93.5	JRM,JRB,KF	No action
115	Betsy Slough	19	8/10/93	730.8 - 731.5	651.7	650.3	62.6	SES,KLR,	No action
116	Diamond Bluff "A"	16	8/11/93	799.3 - 800.2	675.8	674.2	67.8	JRM,JRB,KF	Dredge area as shown
118	Smith Bar Upper Lite	16	8/12/93	805.2 - 803.2	678.4	674.6	50.0	JRM,JRB,KF	No action
121	Homer	19	8/12/93	719.5 - 720.4	646.8	644.7	71.1	SES,KLR	No action
119	Head of Raft Channel "D"	19	8/12/93	688.6 - 689.3	631.5	630.5	73.0	SES,KLR,JL,RCH	No action
117	Coulters Island "A"	16	8/12/93	802.6 - 803.2	676.7	674.4	44.5	JRM,JRB,KF	No action
122	Head Raft Channel "B"	19	8/13/93	687.5 - 688.1	631.3	630.5	56.7	SES,KLR	No action
123	Head Raft Channel "C"	19	8/13/93	688.1 - 688.6	631.5	630.5	42.8	SES,KLR	No action
120	Minneiska (post-dredge)	53	8/13/93	742.7 - 742.9	660.3	659.7	16.5	RCH,NK	Resurvey in 30 days
125	Coulters Island "B"	16	8/13/93	801.5 - 802.3	676.2	674.3	78.2	JRM,JRB,KF	No action
126	Diamond Bluff "B"	16	8/13/93	800.1 - 800.6	675.5	674.2	38.4	JRM,JRB,KF	No action
127	Lower Approach L&D 2	16	8/14/93	814.8 - 815.1	680.5	675.0	18.4	JRM,JRB,KF	No action
124	Above Brownsville "A"	19	8/14/93	689.1 - 689.8	631.8	630.6	65.1	SES,RCH	No action
129	Beef Slough (pre-dredge)	53	8/16/53	754.0 - 754.4	667.0	666.6	31.0	RCH,NK	No action

(Sheet 4 of 10)

Table A5 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
128	Crafts Island	53	8/16/93	758.8 -759.2	669.2	666.9	31.5	RCH,NK	Dredge as shown
130	Raft Channel Brownsville	19	8/16/93	688.6 - 689.3	631.9	630.6	64.3	JL,SES,KLR	Resurvey larger area
131	Fisher Island	53	8/17/93	745.2 - 745.9	661.1	659.9	60.6	RCH,NK	Dredge area as shown
134	Above Brownsville (pre-dredge)	19	8/18/93	689.7 - 690.3	632.0	630.6	45.5	SES,KLR	Dredge area as shown
135	Above Brownsville (pre-dredge)	19	8/18/93	690.3 - 690.9	632.2	630.6	63.8	SES,KLR	No action
133	Fisher Island/Roebucks (post-dredge)	53	8/18/93	746.5 - 746.7	661.4	659.9	14.3	RCH,NK	Dredge as shown
136	Reads Landing	16	8/18/93	762.1 - 762.9	670.5	667.0	66.0	JRM,JRB,KF	No action
137	Teepeopta Point (pre-dredge)	16	8/18/93	757.2 - 758.1	668.0	666.2	85.6	JRM,JRB,KF	Dredge as shown
138	Upper approach L&D 7	19	8/19/93	702.7 - 703.5	639.2	638.5	78.6	SES,KLR	Dredge as shown
140	Grand Encampment "B"	16	8/20/93	756.3 - 756.9	667.6	666.8	56.4	JRM,JRB,KF	No action
143	Dresbach "A"	19	8/20/93	703.5 - 704.0	639.4	638.5	46.6	SES,KLR	No action
144	Dresbach "B"	19	8/20/93	704.0 - 704.6	639.5	638.5	53.7	SES,KLR	No action
139	Grand Encampment "A"	16	8/20/93	755.6 - 756.3	667.5	666.7	55.7	JRM,JRB,KF	No action
142	Fisher Island	16	8/21/93	746.2 - 746.8	661.4	659.9	55.1	JRM,JRB,KF	Dredge as shown
145	Dresbach "C"	19	8/21/93	704.6 - 705.6	639.4	638.5	70.5	SES,KLR	No action
141	Somerfield "A'	16	8/21/93	743.4 - 744.0	660.3	659.8	55.7	JRM,JRB,KF	Dredge as shown
146	Beef Slough (Post dredge)	16	8/22/93	754.0 - 754.4	666.9	666.6	19.2	JRM,JRB,KF	Dredge as shown
149	Crats Island (post-dredge)	16	8/23/93	758.9 - 759.4	669.0	666.9	37.7	JRM,JRB	No action
148	Dakota "B"	19	8/23/93	705.8 - 706.6	640.4	640.4	52.5	KF,KLR	Dredge as shown
147	Dakota "A"	19	8/23/93	705.8 - 706.6	640.0	638.5	92.3	KF,KLR	No action
150	Mule Bend	16	8/23/93	747.8 - 748.3	662.3	660.0	34.2	JRM,JRB	Dredge as shown
151	Dakota "C"	19	8/24/93	707.2 - 708.0	640.6	638.5	66.9	SES,KLR	No action
156	Lansing Upper Light "D"	53	8/24/93	664.3 - 664.7	623.0	620.0	51.2	RCH,KF	Dredge as shown
155	Lansing Upper Light "C"	53	8/24/93	663.6 - 664.3	622.7	620.0	62.9	RCH,KF	No action
152	Winters Landing "A"	19	8/24/93	707.8 - 708.7	640.9	638.5	99.7	SES,KLR	Dredge as shown
157	Indian Camp Light "A"	53	8/25/93	664.6 - 665.1	622.9	620.0	53.0	RCH,KF	Dredge as shown
158	Indian Camp Light "B"	53	8/25/93	665.1 - 665.8	623.1	20.0	57.7	RCH,KF	Dredge as shown
153	Winters Landing "B"	19	8/25/93	708.8 - 709.6	641.4	638.5	102.6	SES,KLR	Dredge as shown
159	Indian Camp Light "C"	53	8/26/93	665.8 - 666.4	623.7	620.0	68.1	RCH,KF	Dredge as shown
154	Lower Approach L&D 6	19	8/26/93	713.6 - 714.0	643.5	638.5	64.9	SES,KLR	No action
160	Betsy Slough "A"	19	8/28/93	730.8 - 731.5	652.1	650.3	60.4	SES,KLR	Dredge as shown
164	Lower Zumbro (post-dredge)	16	8/30/93	743.5 - 744.6	660.8	659.8	62.4	JRM,JRB	Dredge as shown

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Table A5 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
161	Head of Raft Channel (post-dredge)	19	8/30/93	688.6 - 689.3	631.9	630.5	84.4	SES,KLR	No action
163	Head of Raft Channel	19	8/31/93	687.5 - 688.1	631.6	630.5	58.4	SES,KLR	Dredge as shown
162	Reads Landing (pre-dredge)	16	8/31/93	762.1 - 762.9	671.1	667.0	64.3	JRM,JRB	No action
166	Upper approach L&D 6	19	9/1/93	714.4 - 714.8	644.6	644.5	57.3	SES,KLR	Dredge as shown
167	Homer "A"	19	9/1/93	720.4 - 721.1	647.0	644.8	59.0	SES,KLR	Dredge as shown
165	Above Crats Island	16	9/1/93	758.7 - 759.6	669.0	666.9	84.7	JRM,JRB	Dredge as shown
168	St. Paul Barge Terminal (pre-dredge)	16	9/2/93	836.9 - 837.8	692.0	687.2	105.3	JRM,JRB	No action
169	Winters Landing (pre-dredge)	19	9/2/93	707.8 - 708.7	640.9	638.5	95.7	SES,KLR	Dredge as shown
172	Grey Cloud Landing "B" (pre-dredge)	16	9/4/93	820.9 - 821.8	687.3	686.7	58.3	JRM,BRN,JAL	Dredge as shown
171	Boulanger Bend "A" (pre-dredge)	16	9/5/93	820.4 - 820.9	687.2	686.7	32.1	JRM,BRN,JAL	No action
173	Boulanger Bend "B"	16	9/5/93	819.0 - 819.5	687.2	686.6	47.5	JRM,BRN,JAL	No action
170	Pine Bend Foot Light "C"	16	9/6/93	824.0 - 824.6	688.0	686.8	49.9	JRM,BRN,JAL	No action
174	Boulanger Bend "C"	16	9/6/93	819.4 - 820.4	687.2	686.7	80.8	JRM,BRN,JAL	No action
175	Pine Bend Head Lite	16	9/8/93	824.6 - 825.2	688.1	686.9	47.8	JRM,JRB	No action
176	Pine Bend Foot Lite "B"	16	9/8/93	823.1 - 824.0	687.9	686.8	56.4	JRM,JRB	No action
178	Dakota "A"	19	9/9/93	639.8 - 638.5	639.8	638.5	91.8	SES,KLR	No action
177	Boulanger Bend "A"	16	9/9/93	818.1 - 819.1	686.9	686.8	62.7	JRM,JRB	Dredge as shown
179	Dresbach "A"	19	9/10/93	703.2 - 704.0	639.1	638.5	66.0	SES,KLR	Dredge as shown
183	McMillan Island "B"	53	9/11/93	618.3 - 618.7	610.7	610.3	48.2	RCH,BRN	No action
180	Winters Landing "A" (pre-dredge)	19	9/11/93	707.8 - 708.7	640.0	638.5	88.6	JAL,BDP,SGK	No action
182	McMillan Island “C”	53	9/12/93	618.7 - 619.3	611.1	610.4	58.5	RCH,BRN	No Action
181	Pine Bend Foot Lite (pre-dredge)	16	9/12/93	824.0 - 824.6	687.4	686.8	52.8	JRM,JRB	No action
184	McMillan Island "A"	53	9/12/93	618.2 - 618.7	610.7	610.3	52.6	BRN,RCH	No action
185	McMillan Island "C"	53	9/13/93	618.7 - 619.3	611.2	610.4	56.9	BRN,RCH	Dredge as shown
189	Below Robinsons Rock	16	9/14/93	825.7 - 826.4	687.3	686.9	42.4	JRM,JRB	Deferred for higher priority
186	Grey Cloud Slough	16	9/14/93	827.7 - 828.5	687.5	687.0	58.0	JRM,JRB	Dredge as shown
188	Pine Bend Foot Lite	16	9/15/93	822.6 - 823.2	687.2	686.8	45.8	JRM,JRB	Dredge as shown
187	McMillan Island "C" (pre-dredge)	53	9/15/93	618.7 - 619.3	610.5	610.4	55.6	RCH,SES	Resurvey later date
193	Lansing Upper Lite	19	9/16/93	663.6 - 664.2	620.9	620.0	52.3	SES,KLR	No action

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Table A5 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
191	Indian Camp Lite (pre-dredge)	19	9/17/93	665.5 - 666.6	621.6	620.0	97.4	SES,KLR	No action
192	Above Lansing	19	9/17/93	664.3 - 665.1	621.3	620.0	73.0	SES,KLR	No action
193	Diamond Bluff "B"	16	9/18/93	800.1 - 801.1	674.5	674.2	62.3	JRM,JRB	No action
194	Coulters Island "A"	16	9/18/93	801.0 - 801.9	674.8	674.3	56.5	JRM,JRB	No action
195	Diamond Bluff "A"	16	9/18/93	799.3 - 800.2	674.4	674.2	69.4	JRM,JRB	Dredge as shown
196	Betsy Slough (post-dredge)	53	9/18/93	731.0 - 731.2	620.9	620.0	25.8	SES,JAL	No action
197	McMillan's Island (post-dredge)	19	9/19/93	618.7 - 619.2	610.8	610.4	55.6	JAL,BRN,KLR	No action
198	Grand Encampment "A" (post-dredge)	53	9/19/93	755.8 - 756.1	666.8	666.7	16.2	RCH,SES	No action
199	Grand Encampment "B" (post-dredge)	53	9/19/93	756.5 - 756.8	666.8	666.7	22.0	RCH,SES	No action
200	Coulters Island "B"	16	9/19/93	801.9 - 802.7	674.9	674.3	57.7	JRM,JRB	Dredge as shown
201	Coulters Island "C"	16	9/20/93	802.7 - 803.2	675.2	674.4	42.3	JRM,JRB	Dredge as shown
202	Smith Bar Upper Lite	16	9/20/93	805.3 - 805.9	676.0	674.6	53.4	JRM,JRB	Dredge as shown
203	Lower Approach L&D 6 (pre-dredge)	53	9/21/93	713.6 - 714.1	641.5	638.5	65.1	JAL,RCH	No action
204	Above Ford Bridge	16	9/22/93	847.8 - 848.0	725.1	722.8	10.5	JRM,JRB	Dredge as shown
205	Below Lake Street Bridge "A"	16	9/22/93	848.9 - 849.5	725.2	722.8	29.4	JRM,JRB	No action
206	Reads Landing (pre-dredge)	53	9/22/93	762.4 - 762.8	669.3	667.0	63.9	JAL,RCH	No action
207	Below St. Paul Daymark "B"	16	9/22/93	848.2 - 849.0	721.5	722.8	29.8	JRM,JRB	No action
208	Below Lake Street Bridge "B'	16	9/22/93	849.5 - 850.0	725.2	722.8	24.0	JRM,JRB	No action
209	Blw Wyalusing Lower Lite	19	9/22/93	627.1 - 628.0	614.3	611.0	84.2	SES,KLR	No action
210	Below St. Paul Daymark	16	9/22/93	848.2 - 849.0	725.1	722.8	33.4	JRM,JRB	No action
211	Abv SOO RR Br.	16	9/23/93	850.7 - 851.0	725.0	722.8	12.7	JRM,JRB	Dredge as shown
212	Below Lowry Ave. Br. "C"	16	9/23/93	855.8 - 856.4	799.6	796.5	23.4	RCH,JRB	No action
213	Above Plymouth Ave Br.	53	9/23/93	855.1 - 855.3	799.6	796.5	17.9	RCH,JAL	No action
214	Blw Franklin Ave Br.	16	9/23/93	851.0 - 851.5	725.1	722.8	21.6	JRM,JRB	No action
215	Abv Franklin Ave Br.	16	9/23/93	851.5 - 851.7	725.1	722.8	14.4	JRM,JRB	No action
216	Abv Lake Street Br. "A"	16	9/23/93	849.9 - 850.7	725.0	722.8	37.9	JRM,JRB	No action
217	Below Broadway Bridge "A"	53	9/23/93	855.3 - 855.4	799.6	796.5	13.5	RCH,JAL	Dredge as shown
218	Turning Basin (pre-dredge)	16	9/24/93	857.1 - 857.3	799.8	796.5	24.2	JRM,RCH	No action
219	Above Broadway Br.	16	9/24/93	855.4 - 855.9	799.5	796.5	19.1	RCH,JRB	No action
220	Abv I-94 Br.	16	9/24/93	851.7 - 852.3	724.6	722.8	20.5	JRM,JRB	Dredge as shown
221	Above Lowry Ave. (pre-dredge)	16	9/24/93	856.4 - 857.1	799.7	796.5	26.9	RCH,JRB	No action

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Table A5 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
222	Above Upper St. Anthony Falls	16	9/25/93	854.1 - 854.2	799.6	796.5	4.3	JRM,JRB,JAL	No action
223	Pine Bend (post-dredge)	16	9/25/93	824.4 - 824.6	687.3	686.8	29.4	RCH,JRM	No action
224	Coulters Island (pre-dredge)	16	9/26/93	801.6 - 802.0	674.9	674.3	26.6	JRM,RCH	No action
225	Grey Cloud Landing (post-dredge)	16	9/26/93	820.6 - 821.3	687.0	686.7	42.2	RCH,JRM	No action
226	L&D 3 Scour Upper Side	16	9/27/93	796.9	674.3	674.0	16.3	JRM,JRB	No action
227	Smith Bar Upper Lite (pre-dredge)	16	9/28/93	805.3 - 805.9	676.0	674.6	53.5	JRM,JRB	No action
228	Indian Camp Lite (post-dredge)	19	9/29/93	665.5 - 665.7	621.3	620.0	26.5	SES,KLR	No action
229	Above Crats Island "D"	16	9/29/93	758.7 - 759.6	667.7	666.9	79.8	JRM,JRB	No action
230	Above Brownsville (post-dredge)	19	9/30/93	690.3 - 690.9	631.3	630.6	64.0	SES,KLR	No action
231	Mule Bend	16	9/30/93	747.8 - 748.3	660.7	660.0	38.4	JRM,JRB	No action
232	Above Brownsville (post-dredge)	19	9/30/93	689.7 - 690.3	631.1	630.6	47.7	SES,KLR	No action
233	Lansing Upper Lite	19	10/1/93	664.1 - 664.9	620.8	620.0	56.9	RCH,KLR	No action
234	Fisher Island	16	10/1/93	744.9 - 745.7	660.3	659.8	68.8	JRM,JAL	Dredge as shown
235	Head of Raft Channel	19	10/2/93	688.1 - 689.2	630.9	630.5	100.1	RCH,JAL	No action
236	Reads Landing (post-dredge)	16	10/4/93	762.4 - 762.8	668.5	667.0	46.7	RCH,JRB	No action
237	Coulters Island (post-dredge)	16	10/5/93	801.6 - 802.0	674.4	674.3	26.3	RCH,JRB	No action
238	Dresbach (post-dredge)	19	10/5/93	703.6 - 703.9	639.2	638.5	25.1	JRM,JAL	No action
239	Diamond Bluff	16	10/5/93	799.9 - 800.4	674.1	674.2	38.5	RCH,JRB	No action
240	Dresbach (post-dredge)	19	10/5/93	704.9 - 705.3	639.2	638.5	20.2	JRM,JAL	No action
241	Dakota (post-dredge)	19	10/5/93	706.1 - 706.4	639.5	638.5	19.1	JRM,JAL	Dredge as shown
242	Dakota "B"	19	10/6/93	706.8 - 707.1	639.6	638.5	11.8	JRM,KLR,JAL	Dredge as shown
243	Smith Bar Upper Lite (post-dredge)	16	10/6/93	805.3 - 805.9	675.5	674.6	29.2	RCH,JRB	No action
244	Cannon River	16	10/6/93	792.4 - 793.2	669.6	667.0	65.2	RCH,JRB	No action
245	Trenton	16	10/7/93	794.2 - 794.8	669.8	667.0	55.5	RCH,JRB	No action
246	Trenton "A"	16	10/7/93	793.2 - 794.2	669.7	667.0	72.2	RCH,JRB	No action
247	Pine Bend Foot Lite	16	10/9/93	823.1 - 824.0	687.4	686.8	47.9	RCH,JRM,SES	Dredge as shown
248	Lower Appr L&D 6 (post-dredge)	19	10/12/93	713.7 - 714.0	640.6	638.5	18.2	JRM,KLR	No action

(Sheet 8 of 10)

Table A5 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
249	Grey Cloud Slough (post-dredge)	16	10/12/93	827.5 - 828.1	687.3	687.0	29.6	RCH,JRB	No action
250	Winters Landing (post-dredge)	19	10/12/93	707.8 - 708.1	639.7	638.5	34.8	JRM,KLR	No action
251	L&D 3 Scour Lower Rollers	16	10/13/93	796.9 - 797.0	669.3	667.0	13.4	RCH,JRB	No action
252	Jackson Island	19	10/15/93	644.0 - 645.0	615.0	611.0	76.9	JRM,KLR	No action
253	Indian Slough	53	10/20/93	760.0	667.3	667.0	3.8	BDP,BRN	No action
254	Below Mendota Bridge	16	10/20/93	Mn 1.1 - Mn 1.7	688.8	687.2	15.6	RCH,JRM	No action
255	Mouth Minnesota River	16	10/20/93	Mn 0.0 - Mn 0.4	688.6	687.2	18.6	RCH,JRB	No action
256	Abv Mouth Minnesota River	16	10/20/93	Mn 0.5 - Mn 1.1	688.7	687.2	17.2	RCH,JRB	No action
257	Blw Continental Grain	16	10/21/93	Mn 14.4 - Mn 14.7	690.3	687.2	10.0	RCH,JRB	No action
258	Abv Petersons Bar	16	10/21/93	Mn 12.2 - Mn 12.7	690.0	687.2	16.8	RCH,JRB	No action
259	Mississippi Gardens	19	10/21/93	643.4 - 644.0	614.8	611.0	50.5	JRM,KLR	No action
560	Petersons Bar	16	10/21/93	Mn 11.7 - Mn 12.2	689.9	687.2	17.9	RCH,JRM	Dredge as shown
261	Continental Grain	16	10/21/93	Mn 14.7 - Mn15.0	690.4	687.2	9.7	RCH,JRB	Relocate RED BUOY
262	St. Paul Barge Term (Post Dredge Cut 1)	16	10/25/93	836.6 - 837.2	687.5	687.2	23.5	RCH,JRB	No action
263	East Channel	19	10/26/93	835.4	613.6	611.0	44.9	JRM,SES	No action
264	Cannon River	16	10/26/93	792.4 - 793.2	669.0	667.0	68.6	RCH,JRB	No action
265	Trenton (pre-dredge)	16	10/26/93	793.0 - 793.5	669.0	667.0	49.0	RCH,JRB	No action
267	Covil Park Fleeting Area	16	10/27/93	788.5 - 789.1	668.3	667.0	53.3	RCH,JRB	No action
268	East Channel	19	10/27/93	635.4 - 636.4	613.6	611.0	111.8	JRM,SES,JAL	No action
269	Harriet Island SBH (post-dredge)	53	10/29/93	840.0	687.5	687.2	6.5	RCH,JRB	No action
270	Turning Basin (post-dredge)	53	11/1/93	857.1 - 857.3	799.6	796.5	11.7	RCH,JRB	No action
271	Trenton (post-dredge)	16	11/3/93	793.0 - 793.6	668.7	667.0	36.1	RCH,JRB	No action
272	DeSoto	19	11/5/93	667.6 - 668.5	620.6	620.0	136.1	JAL,JRM,KLR	No action
273	Diamond Bluff (post-dredge)	53	11/5/93	800.1 - 800.3	674.2	674.2	13.4	RCH,JRB	No action
274	West Newton Chute	16	11/8/93	749.9	660.5	660.0	23.6	SES,JRB	No action
275	L&D 8 Lower Scour Hole	19	11/9/93	679.4	622.6	620.0	2.2	SES,JRB	Dredge as shown
276	Minnesota River (pre-dredge)	53	11/10/93	Mn 0.5 - Mn 1.1	688.4	687.2	6.5	JAL,JRB	No action
277	Petersons Bar (post-dredge)	53	11/15/93	Mn 11.7 - Mn 12.2	690.0	687.2	9.9	JRM,KLR	No action
278	Above Petersons Bar (post-dredge)	53	11/15/93	Mn 12.3 - Mn 12.5	690.0	687.2	5.6	JRM,KLR	No action
279	Petersons Bar (post-dredge)	53	11/15/93	Mn 12.0 - Mn 12.2	690.0	687.2	5.9	JRM,KLR	No action

(Sheet 9 of 10)

Table A5 (Concluded)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
280	St. Paul Barge Term. (post-dredge)	53	11/16/93	837.1 - 837.7	688.1	687.2	45.2	JRM,KLR	No action
281	Mouth Minn River (post-dredge)	53	11/17/93	Mn 0.7 - Mn 1.1	689.5	687.2	4.6	JRM,KLR	No action
282	L&D 7 Scour (Upper)	19	11/19/93	707.2	639.4	638.5	25.7	JRM,JRB	No action
283	L&D 7 Scour (Lower)	19	11/22/93	707.2	633.1	631.0	34.2	JRM,KLR	No action

(Sheet 10 of 10)

Table A6
Hydrographic Survey Summary
U.S. Army Engineer District, St. Paul, Navigation Branch, Waterways Unit, Hydrographic Surveys
Updated: 2 December 1994 (Final), Time Period: 1994 Navigation Season
Total Number of Jobs = 408, Total Acres Surveyed = 18,091.4

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
1	Wilds Bend	19	3/28/94	729.6 - 730.3	650.2	650.2	51.5	RCH,KLR	Resurvey late spring
2	Lower Zumbro	16	3/29/94	743.4 - 744.3	660.3	659.8	56.8	JRB,JRM	Resurvey midsummer
3	Minneiska	16	3/29/94	742.6 - 743.5	659.8	659.7	63.4	JRB,JRM	Resurvey late spring
4	Lower Zumbro	16	3/30/94	744.3 - 744.9	660.6	659.8	50.6	JRB,JRM	Resurvey late spring
5	Fisher Island A	16	3/30/94	744.9 - 745.6	660.8	659.9	48.0	JRB,JRM	Resurvey late spring
6	Fisher Island B	16	3/31/94	745.6 - 746.5	660.9	659.9	54.0	JRB,JRM	Resurvey late spring
7	Below West Newton	16	4/1/94	746.5 - 747.4	661.2	659.9	72.9	JRB,JRM	Resurvey late spring
8	Mule Bend	16	4/4/94	747.4 - 788.3	661.3	660.0	66.7	JRB,JRM	Resurvey mid-May
9	Wilds Bend "B"	19	4/4/94	730.3 - 731.0	650.8	650.2	65.3	RCH,KLR	Resurvey mid-May
10	Betsy Slough "A"	19	4/4/94	730.8 - 732.1	651.1	650.3	85.1	RCH,KLR	Resurvey mid-May
11	Homer-Blacksmith Slough	19	4/6/94	719.5 - 720.4	646.2	644.7	82.3	RCH,KLR	Resurvey mid-May
12	Homer "A"	19	4/6/94	720.4 - 721.1	646.3	644.8	60.5	RCH,KLR	Resurvey mid-May
13	Homer-Gravel Point "B"	19	4/7/94	721.1 - 722.0	646.3	644.9	75.5	RCH,KLR	No action
14	Gravel Point	19	4/7/94	722.0 - 722.4	646.3	644.9	32.2	RCH,KLR	No action
15	Beef Slough	16	4/5/94	753.6 - 754.5	666.8	666.6	64.5	JRM,JRB	No action
16	Grand Encampment "A"	16	4/6/94	755.6 - 756.5	667.2	666.7	66.0	JRM,JRB	Resurvey mid-May
17	Grand Encampment "B"	16	4/6/94	756.5 - 757.2	667.5	666.8	55.6	JRM,JRB	Resurvey mid-May
18	Teepeeota Point "A"	16	4/7/94	757.2 - 757.6	667.6	666.8	39.7	JRM,JRB	Resurvey mid-May
19	Below Crats Island "B"	16	4/8/94	757.6 - 758.3	668.0	666.8	40.5	JRM,JRB	Resurvey mid-May
20	Above Crats Island "D"	16	4/8/94	758.7 - 759.6	668.6	666.9	64.0	JRM,JRB	Resurvey mid-May
21	Winona Small Boat Harbor	53	4/11/94	726.0	647.8	645.4	7.6	SES,NK	Dredge as shown
22	Upper Approach L&D 7	19	4/11/94	702.7 - 703.5	639.1	638.5	77.5	RCH,KLR	No action
23	Reads Landing	16	4/12/94	762.1 - 763.2	670.0	667.0	88.0	JRM,JRB	No action
24	Chippewa River Delta	16	4/11/94	763.2 - 763.8	670.2	667.0	111.0	JRM,JRB	No action
25	Dresbach "A"	19	4/12/94	703.5 - 704.0	693.2	638.5	46.8	RCH,KLR	Resurvey late May
26	Dresbach "B"	19	4/12/94	704.0 - 704.8	639.3	638.5	52.7	RCH,KLR	Resurvey late May
27	Dresbach "C"	19	4/13/94	704.8 - 705.8	639.3	638.5	71.4	RCH,KLR	Resurvey late May
28	McMillian Island	53	4/13/94	617.8 - 618.4	611.1	610.3	56.6	CRL,SES	Resurvey late May

Note: Material from U.S. Army Engineer District, St. Paul.

(Sheet 1 of 15)

Table A6 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
29	Dakota "A"	19	4/13/94	705.8 - 706.6	639.5	638.5	85.1	RCH,KLR	Resurvey late May
30	Betsy Slough	53	4/14/94	731.0 - 731.3	650.8	650.3	22.0	CRL,SES	Resurvey mid-May
31	Dakota "B"	19	4/14/94	706.5 - 707.3	639.9	638.5	53.4	RCH,KLR	Resurvey late May
32	Dakota "C"	19	4/14/94	707.2 - 708.0	640.1	638.5	48.6	RCH,KLR	Resurvey late May
33	Diamond Bluff "A"	16	4/14/94	799.3 - 800.2	674.5	674.2	58.0	JRM,JRB	Resurvey mid-May
34	Diamond Bluff "B"	16	4/14/94	800.1 - 801.0	674.9	674.3	59.0	JRM,JRB	Resurvey mid-May
35	Coulters Island "A"	16	4/15/94	801.0 - 801.9	675.3	674.3	58.0	JRM,NK	Resurvey late May
36	Winters Landing "A"	19	4/14/94	707.8 - 708.9	640.3	638.5	80.8	RCH,KLR	Resurvey late May
37	Winters Landing "B"	19	4/15/94	708.8 - 709.6	640.5	638.5	78.2	RCH,KLR	Resurvey late May
38	Blw. Head of Raft Channel "A"	19	4/16/94	686.1 - 686.7	631.2	630.4	44.4	RCH,KLR	Resurvey late May
39	Blw. Head of Raft Channel "B"	19	4/16/94	686.7 - 687.1	631.3	630.4	29.7	RCH,KLR	Resurvey late May
40	Grand Encampment	53	4/18/94	755.8 - 756.1	667.5	666.7	31.2	SES,CRL	Resurvey late April
41	Coulters Island "B"	16	4/19/94	801.9 - 802.5	676.8	674.3	50.0	JRM,JRB	Resurvey late May-early June
42	Coulters Island "C"	16	4/19/94	802.3 - 803.2	677.4	674.4	39.4	JRM,JRB	Resurvey mid-May
43	Smith Bar Upper Lite	16	4/18/94	805.1 - 805.9	678.3	674.6	52.3	JRM,JRB	Resurvey late May
44	Head of Raft Channel "A"	19	4/19/94	687.1 - 687.5	631.5	630.5	24.5	RCH,KLR	Resurvey mid-May
45	Head of Raft Channel "B"	19	4/19/94	687.5 - 688.1	631.6	630.5	51.3	RCH,KLR	Resurvey mid-May
46	Deadmans/Crosby Slough "A"	19	4/18/94	684.2 - 685.2	631.0	630.3	75.7	RCH,KLR	Resurvey when water recedes
47	Deadmans/Crosby Slough "B"	19	4/18/94	685.2 - 686.0	631.2	630.4	67.8	RCH,KLR	Resurvey when water recedes
48	Lower Approach L&D 1	53	4/19/94	847.4 - 847.5	696.6	687.2	1.7	SES,CRL	Resurvey early June
49	Harriet Island Small Boat Harbor	53	4/20/94	839.5	692.7	687.2	6.5	SES,CRL	Resurvey early June
50	Brownsville "C"	19	4/20/94	688.1 - 689.2	631.9	630.5	94.7	RCH,KLR	Resurvey mid-May
51	Above Brownsville "A"	19	4/20/94	689.1 - 689.8	632.1	630.6	65.8	RCH,KLR	No action
52	Above Brownsville "B"	19	4/21/94	689.7 - 690.3	632.3	630.6	44.2	RCH,KLT	Resurvey late May
53	Above Brownsville "C"	19	4/21/94	690.2 - 690.9	632.5	630.6	59.5	RCH,KLR	No action
54	Pine Bend Foot Lite "B"	16	4/21/94	823.1 - 824.0	688.2	686.8	54.0	JRM,JRB	No action
55	Pine Bend Foot Lite "C"	16	4/20/94	824.0 - 824.6	688.4	686.8	45.1	JRM,JRB	No action
56	Robinsons Rock "C"	16	4/21/94	827.5 - 826.4	689.0	686.7	37.1	JRM,JRB	No action
57	Pine Bend Head Lite	16	4/22/94	824.6 - 825.2	688.6	686.9	44.1	JRM,JRB	No action
58	Grey Cloud Slough	16	4/21/94	827.5 - 828.2	689.6	687.0	53.2	JRM,JRB	No action
59	Wing Dams 7-02	19	4/25/94	705.1 - 705.3	640.6	638.5	13.1	RCH,KLR,BDP	No action
60	Big Lake Dredge Cut	53	4/26/94	858.7	667.9	666.9	55.9	CL,NK,SES	No action
61	Winona Commercial Harbor	53	4/29/94	726.3	651.0	645.4	12.9	CL,NK,SES	No action
62	Diamond Bluff Wing Dams	16	4/28/94	800.8 - 800.9	677.0	674.3	3.5	JRM,KLR	No action

(Sheet 2 of 15)

Table A6 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
63	Brownsville Wing Dams	19	5/3/94	688.5 - 689.0	632.8	630.5	56.5	RCH,KLR,JHJ	No action
64	Above Brownsville Wing Dams	19	5/3/94	689.2 - 689.5	632.9	630.6	17.7	RCH,KLR,JHJ	No action
65	Above Brownsville Wing Dams	19	5/3/94	689.7 - 690.1	633.0	630.6	14.7	RCH,KLR,JHJ	No action
66	Coulters Island Wing Dams	16	5/3/94	801.1	679.1	674.3	5.4	BP,JRB	No action
67	Diamond Bluff Wing Dam 26	16	5/3/94	801.0	679.1	674.3	3.1	BP,JRB	No action
68	Diamond Bluff Wing Dam 28	16	5/3/94	800.9	678.9	674.3	2.5	BP,JRB	No action
69	I-90 Bridge La Crosse	53	5/3/94	701.7	638.7	631.0	4.0	CL,NK,SES	No action
70	I-90 Bridge La Crosse	53	5/3/94	701.7	638.7	631.0	10.3	CL,NK,SES	No action
71	Coulters Island Wing Dams	16	5/4/94	802.4 - 802.8	679.6	674.4	15.1	JRM,JRB	No action
72	Coulters Island Wing Dams	16	5/4/94	802.6 - 802.8	679.6	674.4	7.0	JRM,JRB	No action
73	Coulters Island Wing Dams	16	5/4/94	802.6 - 802.8	679.6	674.4	7.0	JRM,JRB	No action
74	Big River Wing Dams	16	5/4/94	803.7 - 803.9	680.5	674.5	11.0	JRM,JRB	No action
75	Above Brownsville Wing Dams	19	5/4/94	690.7 - 691.0	634.0	630.6	14.9	RCH,KLR,JHJ	No action
76	Above Brownsville Wing Dams	19	5/3/94	690.5 - 690.9	634.0	630.6	33.2	RCH,KLR,JHJ	No action
77	Coulters Island Wing Dams	16	5/5/94	801.8 - 802.0	679.3	674.3	2.8	JRM,JRB	No action
78	Big River Wing Dams	16	5/5/94	803.7 - 803.9	680.2	674.5	1.5	JRM,JRB	No action
79	Big River Wing Dams	16	5/5/94	804.0 - 804.3	680.4	674.5	15.7	JRM,JRB	No action
80	Big River Wing Dams	16	5/5/94	804.4 - 804.6	680.5	674.5	5.8	JRM,JRB	No action
81	Big River Wing Dams	16	5/5/94	804.7	680.6	674.6	0.7	JRM,JRB	No action
82	Smith Bar Wing Dams	16	5/5/94	805.2	680.9	674.6	1.6	JRM,JRB	No action
83	Coulters Island Wing Dams	16	4/29/94	801.8 - 801.9	678.1	674.3	7.3	JRM,JRB	No action
84	Coulters Island Wing Dams	16	4/29/94	801.9 - 802.1	678.2	674.3	14.0	JRM,JRB	No action
85	Coulters Island Wing Dams	16	4/29/94	801.2 - 801.4	678.0	674.3	12.0	JRM,KLR	No action
86	La Crosse "A"	19	5/5/94	697.6 - 698.2	636.2	631.0	87.1	BDP,KLR,JHJ	No action
87	La Crosse Rail Road Bridge "B"	19	5/6/94	700.4 - 701.5	638.8	631.0	104.0	BDP,KLR,JHJ	No action
88	Big River Wing Dams	16	5/6/94	804.9 - 805.2	680.7	674.6	18.0	JRM,JRB	No action
89	Smith Bar Wing Dams	16	5/5/94	805.4	680.9	674.6	1.0	JRM,JRB	No action
90	Smith Bar Wing Dams	16	5/5/94	805.9 - 806.1	681.1	674.6	14.6	JRM,JRB	No action
91	Smith Bar Wing Dams	16	5/5/94	805.6 - 805.9	681.1	674.6	25.0	JRM,JRB	No action
92	La Crosse HREP Area "E"	53	5/5/94	701.3	638.5	631.0	8.9	CL,NK	No action

(Sheet 3 of 15)

Table A6 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
93	La Crosse HREP Area "A"	53	5/4/94	701.4 - 701.7	638.7	631.0	25.0	CL,NK	No action
94	Above & Below La Crosse RR Bridge	19	5/10/94	699.3 - 700.3	637.0	631.0	99.9	RCH,KLR,BDP	No action
95	Below I-94 Bridge Hudson	16	5/10/94	STC 16.2	683.0	675.0	37.2	JRM,JRB	No action
96	Above I-94 Bridge Hudson	16	5/10/94	STC 16.2	683.0	675.0	51.6	JRM,JRB	No action
97	Lower Approach L&D 7	19	5/11/94	701.5 - 702.2	637.8	631.0	107.7	RCH,KLR,BDP	No action
98	Minneiska	16	5/12/94	742.3 - 743.2	660.4	659.7	72.2	JRM,JRB	Resurvey when water recedes
99	Heytmans Landing	53	5/10/94	655.0 - 655.3	622.9	619.5	382.0	CL,SES,NK	No action
100	Bussey Lake "A"	53	5/13/94	616.5	612.7	610.1	59.7	CRL,SES,NK	No action
101	La Crosse	19	5/17/94	698.2 - 699.4	634.9	631.0	111.0	RCH,KLR	No action
102	Grand Encampment Wing Dams	16	5/18/94	755.6 - 756.2	667.3	666.7	30.7	JAL,JRB	No action
103	Grand Encampment Wing Dams	16	5/18/94	755.6 - 756.5	667.3	666.7	31.6	JAL,JRB	No action
104	Grand Encampment Wing Dams	16	5/19/94	756.6 - 757.0	667.4	666.8	23.4	JRB,JRM	No action
105	Grand Encampment Wing Dams	16	5/19/94	756.6 - 757.0	667.4	666.8	19.4	JRB,JRM	No action
106	Grand Encampment Wing Dams	16	5/19/94	756.3 - 756.5	667.3	666.7	8.0	JRB,JRM	No action
107	Betsy Slough	16	5/20/94	730.8 - 732.1	651.6	650.3	84.0	JRM,JRB	Dredge as shown
108	Bussey Lake	53	5/17/94	616.5	611.8	610.1	36.8	SES,CRL,NK	No action
109	Beef Slough	53	5/23/94	753.6 - 754.5	666.8	666.6	81.8	CRL,SES,NK	Dredge as shown
110	Wilds Bend	16	5/23/94	730.3 - 731.0	650.8	650.2	63.0	JRM,JRB,MS	No action
111	Upper Approach L&D 7	19	5/23/94	702.7 - 703.5	639.2	638.5	74.5	RCH,BDP,JHJ	No action
112	Dresbach "A"	19	5/23/94	703.5 - 704.0	639.3	638.5	44.8	RCH,BDP,JHJ	No action
113	Dresbach "B"	19	5/24/94	704.0 - 704.8	639.3	638.5	53.9	RCH,BDP,JHJ	No action
114	Dresbach "C"	19	5/24/94	704.8 - 705.6	639.5	638.5	73.1	RCH,BDP,JHJ	Dredge as shown
115	Grand Encampment	53	5/25/94	755.6 - 756.1	667.1	666.8	51.0	SES,NK,CRL	Dredge as shown
116	Dakota	19	5/25/94	705.8 - 706.6	639.7	638.5	80.2	RCH,KLR,JHJ	No action
117	Dakota "B"	19	5/25/94	706.5 - 707.3	639.8	638.5	52.4	RCH,KLR,JHJ	No action
118	Grand Encampment "B"	53	5/26/94	756.1 - 756.5	667.0	666.8	48.2	SES,CRL,NK	Dredge as shown
119	Grand Encampment "C"	53	5/26/94	756.4 - 756.8	667.0	666.8	49.8	SES,CRL,NK	Dredge as shown
120	Minneiska	16	5/26/94	742.2 - 743.1	660.0	659.7	71.0	JRM,JRB	Dredge as shown
121	Dakota "C"	19	5/25/94	707.2 - 708.0	640.0	638.5	46.1	RCH,KLR,JHJ	No action
122	Winters Landing "A"	19	5/27/94	707.8 - 708.7	640.2	638.5	75.0	RCH,KLR,JHJ	Dredge as shown

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Table A6 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
123	Teepeeota Point	53	5/27/94	757.2 - 757.6	667.1	666.8	65.7	CRL,SES,NK	No action
124	Lower Zumbro "A"	16	5/27/94	743.2 - 744.3	660.1	659.8	75.0	JRM,JRB	No action
125	Homer/ Blacksmith Slough	19	5/27/94	719.5 - 720.4	646.0	644.7	73.9	JHJ,KLR	No action
126	Homer	19	5/27/94	720.4 - 721.1	644.8	645.7	52.6	JHJ,KLR	No action
127	Lower Zumbro "B"	16	5/28/94	744.3 - 744.9	660.1	659.8	49.0	JRM,MS,NK	Dredge as shown
128	Fisher Island	16	5/28/94	744.9 - 745.6	660.2	659.8	52.0	JRM,MS,NK	Dredge as shown
129	Head of Raft Channel "A"	19	5/29/94	687.1 - 687.5	630.7	630.5	23.5	BDP,KLR,JHJ	No action
130	Head of Raft Channel "B"	19	5/29/94	687.5 - 688.1	630.8	630.5	49.1	BDP,KLR,JHJ	No action
131	Brownsville "C"	19	5/28/94	688.1 - 689.2	631.1	630.5	87.6	BDP,KLR,JHJ	Dredge as shown
132	Fisher Island "B"	16	5/29/94	745.7 - 746.2	660.3	659.9	28.0	JRM,NK,MS	Dredge as shown
133	Fisher Island "C"	16	5/29/94	746.3 - 746.8	660.5	659.9	37.0	JRM,MS,NK	Resurvey wider later
134	Mule Bend Above West Newton	16	5/29/94	747.4 - 748.3	661.0	660.0	59.0	JRM,MS,NK	No action
135	Above Brownsville "B"	19	5/29/94	689.7 - 690.3	631.2	630.6	43.5	BDP,KLR,JHJ	No action
136	Above & Below Crats Island	16	5/30/94	757.5 - 757.9	667.4	666.8	37.0	JRM,NK,MS	No action
137	Above Crats Island	16	5/30/94	758.7 - 759.6	667.9	666.9	60.0	JRM,NK,MS	Dredge as shown
138	Above Brownsville "A"	19	5/30/94	689.1 - 689.5	631.2	630.6	39.7	BDP,KLR,JHJ	Dredge as shown
139	Above Brownsville "C"	19	5/30/94	690.2 - 690.9	631.1	630.6	43.5	KLR,JHJ	No action
140	Diamond Bluff "A"	16	6/1/94	799.0 - 800.2	674.6	674.2	89.6	RCH,JRB,	Dredge as Shown
141	Lansing Upper Lite	19	6/1/94	663.6 - 664.2	620.3	620.0	50.6	SES,KLR,JHJ	No action
142	Diamond Bluff "B"	16	6/2/94	800.1 - 801.1	674.9	674.3	64.1	RCH,JRB	Dredge as shown
143	Smith Bar Upper Lite	16	6/2/94	805.3 - 805.9	676.1	674.6	59.3	RCH,JRB	Dredge as shown
144	Lansing Upper Lite	19	6/1/94	664.3 - 665.1	620.6	620.0	62.9	SES,KLR,JHJ	Dredge as shown
145	Indian Camp Lite	19	6/2/94	665.1 - 665.5	621.1	620.0	25.8	SES,KLR,JHJ	No action
146	Indian Camp Lite	19	6/2/94	665.5 - 666.5	621.3	620.0	86.4	SES,KLR,JHJ	Dredge as shown
147	Lower Approach L&D 1	53	6/2/94	847.4 - 847.5	691.6	687.2	3.2	JRM,KF	Dredge as shown
148	Harriet Island SBH	53	6/1/94	839.5	689.4	687.2	6.5	JRM,KF	Dredge as shown
149	Lansing Upper Lite	19	6/3/94	663.1 - 663.7	620.4	620.0	62.7	SES,KLR,JHJ	No action
150	Coulters Island "A"	16	6/2/94	801.0 - 801.9	675.0	674.3	61.5	RCH,JRB	Dredge as shown
151	Coulters Island "B"	16	6/3/94	80-1.9 - 802.5	674.7	674.3	50.5	RCH,JRB	No action
152	West Newton	53	6/4/94	747.4 - 747.8	660.4	660.0	44.8	JAL,BDP	Dredge as shown
153	Mule Bend "B"	53	6/3/94	747.8 - 748.3	660.6	660.0	42.2	JAL,BDP	Dredge as shown
154	Brownsville	19	6/4/94	688.6 - 689.5	631.0	630.6	52.4	JAL,BDP	
155	Grey Cloud Slough "A"	16	6/4/94	826.8 - 827.5	687.0	686.9	48.1	RCH,KLR,JHJ	No action
156	Grey Cloud Slough "B"	16	6/4/94	827.6 - 828.6	687.2	687.0	63.8	RCH,KLR,JHJ	Dredge as shown

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Table A6 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
157	Below Robinson Rock	16	6/4/94	825.8 - 826.8	687.0	686.9	68.4	RCH,KLR,JHJ	Resurvey mid July
158	Pine Bend Foot Lite "C"	16	6/5/94	824.0 - 824.6	687.3	686.8	49.0	RCH,KLR,JHJ	Resurvey early July
159	Pine Bend Head LIte "A"	16	6/5/94	824.6 - 825.2	687.4	686.9	42.7	RCH,KLR,JHJ	Resurvey mid-July
160	Mule Bend "C"	53	6/6/94	748.3 - 748.7	660.0	660.0	44.4	JRM,KF	No action
161	Pine Bend Foot Lite "A"	16	6/6/94	822.6 - 823.2	687.0	686.8	42.9	JRB,RCH	Resurvey early July
162	Pine Bend Foot Lite "B"	16	6/6/94	832.1 - 824.0	687.1	686.8	51.7	JRB,RCH	Resurvey early July
163	Grey Cloud Landing "A"	16	6/7/94	820.9 - 821.8	687.1	685.7	57.6	JRB,RCH	Dredge as shown
164	Grey Cloud Landing "B"	16	6/7/94	821.8 - 822.6	687.2	686.8	48.6	RCH,JRB	No action
165	Coulters Isl. (Pre-Dredge)	16	6/8/94	801.1 - 802.0	674.9	674.3	70.9	RCH,JRB	
166	Head of Raft Channel "B"	19	6/8/94	687.5 - 688.1	631.1	630.5	49.3	KLR,JHJ	No action
167	Brownsville "B"	19	6/8/94	688.1 - 689.4	631.1	630.5	73.3	KLR,JHJ	Resurvey late July
168	Boulanger Bend "D"	16	6/7/94	820.4 - 820.9	687.0	686.7	30.2	JRB,RCH	Dredge as shown
169	Brownsville Head Raft Channel	19	6/9/94	688.1 - 689.2	631.1	630.5	97.6	KLR,JHJ	
170	Boulanger Bend "A"	16	6/9/94	818.1 - 819.1	687.1	686.6	58.8	RCH,JRB	Dredge as shown
171	Boulanger Bend "B"	16	6/9/94	819.0 - 819.5	687.2	686.6	48.1	RCH,JRB	No action
172	Boulanger Bend "C"	16	6/9/94	819.4 - 820.4	687.2	686.7	77.4	RCH,JRB	No action
173	Wilds Bend	16	6/11/94	730.3 - 730.8	650.3	650.2	61.8	JRM,KLR,KF	Dredge as shown
174	Minneiska	16	6/16/94	742.3 - 743.2	660.0	659.7	61.9	JAL,LRM,KF	
175	Mule Bend (Pre-Dredge)	16	6/15/94	747.4 - 748.3	660.5	660.5	65.9	JRM,JAL,KF	
176	Betsy Slough	16	6/14/94	630.8 - 632.1	650.4	650.3	80.2	JRM,KF	Resurvey wider on bend mid July
177	Brownsville	19	6/17/94	688.5 - 689.4	630.9	630.5	88.1	KLR,JNJ	Dredge as shown
178	McMillan Island "A"	19	6/14/94	617.6 - 618.2	611.1	610.3	53.0	KLR,JNJ	Resurvey wider on bend late July
179	McMillan Island "B"	19	6/19/94	618.3 - 619.3	611.2	610.4	99.1	KLR,JNJ	Resurvey wider on bend late July
180	Jackson Island	19	6/16/94	644.0 - 645.0	615.1	611.0	72.6	KLR,JHJ	Monitor conditions as water drops off
181	Mississippi Gardens	19	6/15/94	642.6 - 643.3	615.1	611.0	57.1	KLR,LHL	Low priority
182	Fisher Island "A"	19	6/19/94	744.9 - 745.6	660.0	659.8	64.8	KLR,JHJ	Dredge as shown
183	Fisher Island "B"	19	6/19/94	745.6 - 746.5	660.1	659.9	56.2	KLR,JHJ	Dredge as shown
184	Upper turning basin	16	6/19/94	857.1 - 857.5	799.2	796.5	24.0	RCH,JRM,JRB	Dredge as shown
185	Above Lowry Ave. Bridge	16	6/19/94	856.4 - 857.1	799.2	796.5	35.0	RCH,JRB,JRM	Dredge as shown

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Table A6 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
186	Crats Island	19	6/20/94	758.7 - 759.6	667.6	666.9	86.6	KLR,JHJ	Dredge as shown
187	Reads Landing	19	6/21/94	762.1 - 763.3	688.7	667.0	104.3	KLR,JHJ	No action
188	McMillan Island Wing Dams	53	6/19/94	618.6	611.4	610.3	15.0	JRM,KMF	No action
189	Grand Encampment "A"	19	6/22/94	755.6 - 756.5	666.8	666.7	76.5	KLR,JHJ	Resurvey in 2 weeks
190	Grand Encampment "B"	19	6/22/94	756.5 - 757.2	666.9	666.8	73.2	KLR,JHJ	Resurvey in 2 weeks
191	Teepeeota Point	19	6/22/94	757.2 - 758.0	666.4	666.8	75.9	KLR,JHJ	Dredge as shown
192	McMillan's Island Wing Dam 49	19	6/22/94	618.4	611.3	610.3	5.0	KLR,JHJ	No action
193	Mule Bend Post Dredge Cut 2 (WAT)	53	6/23/94	747.4 - 747.6	660.5	660.0	19.7	JRM,KMF	No action
194	Mule Bend Post Dredge Cut 1 (WAT)	53	6/23/94	747.8 - 748.2	660.5	660.0	29.6	JRM,KMF	No action
195	Above Ford Ave. Bridge	16	6/23/94	847.8 - 848.0	725.1	722.8	12.5	RCH,JRB	No action
196	Below St. Paul Daymark Job "A"	16	6/23/94	847.9 - 848.2	725.1	722.8	38.1	RCH,JRB	Dredge as shown
197	Below St. Paul Daymark Job "B"	16	6/23/94	848.2 - 849.0	725.1	722.8	32.5	RCH,JRB	Dredge as shown
198	Below Lake St. Bridge Job "A"	16	6/23/94	848.9 - 849.5	725.1	722.8	36.4	RCH,JRB	Dredge as shown
199	Coulters Island Post Dredge (contract)	19	6/23/94	801.4 - 802.0	675.0	674.3	35.1	KLR,JAL,JHJ	No action
200	Below Lake St. Bridge Job "B"	16	6/22/94	849.5 - 850.0	725.2	722.8	25.6	RCH,JRB	No action
201	Above Lake St. Bridge Job "A"	16	6/22/94	849.9 - 850.7	725.2	722.8	44.7	RCH,JRB	Dredge as shown
202	Below Plymouth Ave. Bridge Job "B"	16	6/20/94	854.6 - 855.1	799.2	796.5	23.6	RCH,JRB	No action
203	Hennepin Ave Job "B"	16	6/22/94	854.1 - 854.5	799.2	796.5	15.2	RCH,JRB	No action
204	Above Plymouth Ave. Bridge Job "C"	16	6/19/94	855.1 - 855.3	799.2	796.5	15.8	RCH,JRB	Dredge as shown
205	Lower Winona R.R. Bridge	53	6/24/94	723.3 - 724.0	646.1	645.2	55.9	JAL,JRM	Dredge as shown
206	Below Broadway Ave. Bridge Job "A"	16	6/20/94	855.3 - 855.4	799.3	796.5	13.1	RCH,JRB	Dredge as shown
207	Above Broadway Ave. Bridge Job "B"	16	6/20/94	855.4 - 855.8	799.3	796.5	18.9	RCH,JRB	Dredge as shown
208	Below Lowry Ave. Bridge Job "C"	16	6/20/94	855.8 - 856.4	799.3	796.5	25.8	RCH,JRB	No action
209	Lower Winters	19	6/29/94	707.6 - 708.5	639.8	638.5	82.5	KLR,JHJ	Resurvey Aug 1994
210	Disposal Site	19	6/29/94	713.1 - 713.2	640.9	638.5	9.3	KLR,JHJ	No action

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Table A6 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
211	McMillan's Island Wing Dam 11	19	6/28/94	619.3	611.3	610.4	8.6	JRM,KMF	
212	McMillan"s Island Wing Dams 10,19	19	6/28/94	618.8 - 619.0	611.3	610.4	18.8	JRM,KMF	
213	McMillan's Island Wing Dam 36	19	6/27/94	619.1	611.3	610.4	6.7	JRM,KMF	
214	Indian Camp Lite Wing Dams 8,9,10	19	6/29/94	665.5 - 665.9	620.9	620.0	16.1	JRM,KMF	
215	Below Winona RR Brdg. Pre-dredge con.	19	6/30/94	723.2 - 724.0	646.1	645.2	54.2	KLR,JHJ	Dredge as shown
216	Above RR Bridge	16	6/27/94	850.7 - 851.0	725.7	722.8	13.8	RCH,JRB	Dredge as shown
217	Above & Below Franklin Ave. Job "A"	16	6/27/94	851.0 - 851.5	725.8	722.8	39.2	RCH,JRB	Dredge as shown
218	Above I-94 Bridge Job "B"	16	6/27/94	851.7 - 852.3	725.9	722.8	17.2	RCH,JRB	No action
219	Showboat Job "A"	16	6/27/94	852.6 - 852.7	726.1	722.8	20.6	RCH,JRB	No action
220	Washington Ave. Bridge Job "B"	16	6/27/94	852.7 - 853.2	726.2	722.8	30.9	RCH,JRB	No action
221	Mouth of Minn River	16	6/28/94	Mn 0.0 - 0.5	691.7	687.2	19.6	RCH,JRB	No action
222	Above Mouth Minn River	16	6/28/94	Mn 0.5 - 1.1	691.7	687.2	18.1	RCH,JRB	Resurvey Aug 94
223	Below Mendota Bridge	16	6/28/94	Mn 1.1 - 1.7	691.7	687.2	16.0	RCH,JRB	No action
224	Airport Bridge	16	6/28/94	Mn 3.7 - 4.0	692.5	687.2	16.2	RCH,JRB	No action
225	Four Mile Cut Off	16	6/28/94	Mn 4.0 - 4.3	692.6	687.2	16.3	RCH,JRB	No action
226	Peterson's Bar	16	6/29/94	Mn 11.7 - 12.2	694.2	687.2	16.6	RCH,JRB	Resurvey Aug 94
227	Above Peterson's Bar	16	6/29/94	Mn 12.2 - 12.7	694.2	687.2	15.3	RCH,JRB	Resurvey Aug 94
228	Below Continental	16	6/29/94	Mn 14.4 - 14.7	694.7	687.2	11.1	RCH,JRB	Resurvey Aug 94
229	Minneiska Post Dredge (Contract)	19	7/2/94	741.8 - 742.6	660.1	659.7	10.8	KLR,JHJ	No action
230	Continental	16	6/29/94	Mn 14.7 - 15.0	694.7	687.2	6.6	RCH,JRB	Resurvey Aug 94
231	Above Crats Job "A" Post WAT	53	7/1/94	758.6 - 759.3	667.8	666.9	22.2	JRM,JHJ	No action
232	Above Crats Job "B" Post WAT	53	7/1/94	758.6 - 759.3	667.8	666.9	31.1	JRM,JHJ	No action
233	Betsy Slough Pre-Dredge WAT	19	7/5/94	730.8 - 732.1	650.6	650.3	51.7	KLR,JHJ	Dredge as shown
234	Diamond Bluff Job "A"	16	7/5/94	799.0 - 800.2	674.6	674.2	84.3	JRM,JRB,KMF	Dredge as shown
235	Diamond Bluff Job "B"	16	7/7/94	800.1 - 801.1	674.7	674.3	61.4	JRM,JRB,KMF	Dredge as shown
236	Cannon River	16	7/7/94	792.4 - 793.2	670.6	667.0	62.9	JRM,JRB,KMF	Dredge as shown

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Table A6 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
237	Brownsville Post (WAT)	19	7/7/94	688.1 - 688.4	631.0	630.5	43.6	KLR,JHJ	No action
238	Wacouta Point Job "A"	16	7/8/94	784.1 - 785.1	669.6	667.0	67.7	JRM,JRB	Dredge as shown
239	Wacouta Point Job "B"	16	7/8/94	785.1 - 785.8	669.6	667.0	48.5	JRM,JRB	Dredge as shown
240	Scour Survey L&D 8 Rt. Side DS	19	7/7/94	679.0	624.4	667.0	0.6	KLR,JHJ	
241	Dresbach Pre-Dredge (Contractor)	19	7/8/94	704.8 - 705.6	639.5	638.5	34.8	KLR,JHJ	Resurvey Aug 94
242	Trenton	16	7/7/94	793.2 - 794.4	671.5	667.0	110.1	JRM,JRB	Dredge as shown
243	Indian Camp Lite Wing Dam 3	53	6/29/94	665.2	620.9	620.0	5.3	JRM,KMF	
244	Winona Small Boat Harbor	19	7/6/94	726.0	646.7	645.4	4.0	KLR,JHJ	No action
245	Grand Encampment	16	7/12/94	755.6 - 756.9	667.1	666.7	103.1	RCH,JRB,KMF	Resurvey Sept 94
246	Lansing Upper Lite	19	7/12/94	664.0 - 664.8	621.4	620.0	67.5	KLR,JHJ	Dredge as shown
247	Beef Slough Pre-Dredge (contractor)	16	7/12/94	753.6 - 754.5	666.9	666.6	39.2	RCH,JRB,KMF	Dredge as shown
248	Lower Zumbro Job "A"	16	7/13/94	743.2 - 744.3	660.0	659.8	72.9	RCH,JRB,KMF	No action
249	Upper Approach L&D 8	19	7/13/94	679.4 - 680.3	630.4	630.0	82.3	KLR,JHJ	No action
250	Lower Zumbro Job "B"	16	7/14/94	744.3 - 744.9	660.0	659.8	52.3	JRB,KMF	Dredge as shown
251	Lower Winona RR Bridge Post (contractor)	16	7/16/94	623.6	646.3	645.2	14.3	JRM,JRB	No action
252	Indian Camp Lite Job "B"	19	7/15/94	665.5 - 666.5	622.0	620.0	86.4	RCH,JHJ	
253	Indian Camp Lite Job "A"	19	7/14/94	664.7 - 665.5	621.7	620.0	51.9	RCH,JHJ	
254	Lansing Upper Lite "B" Pre-Dredge WAT	19	7/18/94	663.6 - 664.2	620.3	620.0	51.1	KLR,JHJ	Dredge as shown
255	Head of Raft Channel Job "A"	19	7/19/94	687.1 - 687.5	630.7	630.5	24.6	KLR,JHJ	
256	Head of Raft Channel Job "B"	19	7/19/94	687.5 - 688.1	630.7	630.5	49.8	KLR,JHJ	Dredge as shown
257	Wilds Bend Pre-Dredge WAT	16	7/20/94	730.0 - 730.6	650.2	650.2	42.3	JRM,JRB	Dredge as shown
258	Above Brownsville Job "B"	19	7/20/94	689.7-690.3	631.1	630.6	48.8	KLR,JHJ	No action
259	Above Brownsville Job "C"	19	7/20/94	690.2 - 690.9	631.1	630.6	57.4	KLR,JHJ	No action
260	Lower Approach L&D 8	19	7/21/94	678.0 - 679.1	623.8	620.0	101.0	KLR,JHJ	No action
261	Roebucks Cut Job "B"	53	7/22/94	746.3 - 746.8	660.1	659.9	50.9	JRM,KMF	Dredge as shown
262	Diamond Bluff Cut 1 Pre-Dredge (Con)	16	7/26/94	800.1 - 801.1	674.4	674.2	60.3	RCH,JRB,KMF	Dredge as shown
263	Diamond Bluff Cut 2 Pre-Dredge (Con)	16	7/26/94	799.0 - 800.2	674.4	674.2	76.2	RCH,JRB,KMF	Dredge as shown
264	Coon Slough Job "A"	19	7/26/94	680.1 - 681.1	630.2	630.1	94.2	KLR,JHJ	No action

(Sheet 9 of 15)

Table A6 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
265	Beef Slough Post Dredge (contractor)	53	7/27/94	754.0 - 754.4	666.9	666.6	8.8	RCH,KLR,JHJ	
266	Beef Slough Post Dredge (contractor)	16	7/29/94	754.0 - 754.5	666.7	666.6	31.0	RCH,JRB,KMF	No action
267	Fisher Island Job "A"	16	7/28/94	744.9 - 746.1	660.4	659.8	91.3	RCH,JRB,KMF	Dredge as shown
268	Coon Slough Lite Job "B"	19	7/28/94	681.1 - 682.2	630.4	630.2	77.3	KLR,JHJ	No action
269	Head of Raft Channel Job "B" Post WAT	19	7/28/94	687.5 - 688.1	631.0	630.5	24.7	KLR,JHJ	No action
270	Wilds Bend Post WAT	16	7/29/94	730.4 - 730.6	650.3	650.2	23.0	JRB,KMF	No action
271	Betsy Slough Post WAT	16	7/29/94	731.0 - 731.2	650.5	650.4	10.0	JRB,KMF	No action
272	Warners Landing Job "A"	19	8/1/94	682.1 - 683.5	630.5	630.2	83.9	JRM,KLR,JHJ	No action
273	Above Lowry Ave Pre-Dredge (Con)	16	8/2/94	856.4 - 857.2	799.4	796.5	38.5	RCH,JRB	Dredge as shown
274	Mississippi Gardens Job "B"	19	8/3/94	642.6 - 643.4	614.2	611.0	55.6	KLR,JHJ	
275	Mississippi Gardens Job "C"	19	8/3/94	643.4 - 644.0	614.3	611.0	54.7	KLR,JHJ	
276	Jackson Island	19	8/3/94	644.0 - 654.0	614.3	611.0	63.3	JRM,KLR,JHJ	
277	Diamond Bluff Cut 1 Post (con)	16	8/4/94	800.2 - 800.5	674.5	674.2	18.0	RCH,JRB,KMF	
278	Diamond Bluff	16	8/5/94	799.6 - 800.3	674.4	674.2	44.5	RCH,JRB,KMF	No action
279	Lansing Upper Lite Post WAT	19	8/4/94	663.6 - 664.2	620.0	620.0	46.8	JRM,KLR,JHJ	No action
280	Above & Below Red Wing Bridge	16	8/4/94	790.1 - 790.9	668.8	667.0	46.3	RCH,JRB,KMF	
281	Red Wing	16	8/4/94	790.9 - 791.7	668.8	667.0	63.7	RCH,JRB,KMF	
282	Above Red Wing	16	8/5/94	791.7 - 792.4	669.1	667.0	47.9	RCH,JRB,KMF	
283	Cannon River Pre-Dredge (Con)	16	8/4/94	792.4 - 793.2	668.9	667.0	68.4	RCH,JRB,KMF	Dredge as shown
284	Lansing Upper Lite Job "C"	19	8/8/94	664.3 - 665.1	620.0	620.0	67.2	KLR,JHJ	No action
285	Grey Cloud Slough	16	8/8/94	827.6 - 828.3	687.3	687.0	46.3	RCH,JRB,SES	Resurvey Sept 94
286	Trenton Job "A"	16	8/10/94	793.2 - 794.4	668.8	667.0	107.3	RCH,JRB,SES	No action
287	Cannon River Cut 1 Pre-Dredge (Con)	16	8/11/94	792.4 - 793.2	669.3	667.0	36.9	RCH,JRB,SES	
288	Diamond Bluff Post (Con)	16	8/11/94	799.2 - 799.3	669.3	667.0	18.9	RCH,JRB,SES	No action
289	Below Battle Island Post Survey	19	8/10/94	669.3	620.7	620.0	2.8	JRM,KLR,JHJ	
290	Warners Landing	19	8/11/94	683.3 - 684.4	630.9	630.3	83.5	JRM,JHJ	No action

(Sheet 10 of 15)

Table A6 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
291	Roebucks Cut Post WAT	16	8/16/94	746.5 - 746.7	659.9	659.9	17.7	JRB,KMF	No action
292	Pine Bend Foot Lite	16	8/21/94	823.1 - 823.8	687.1	686.6	41.7	SES,JRB,GSK	
293	Jackson Island	19	8/17/94	645.0 - 646.0	614.3	611.0	64.3	JRM,KLR,JHJ	
294	Mississippi Gardens	19	8/17/94	642.0 - 642.7	615.0	611.0	58.2	JRM,KLR,JHJ	
295	Upper Approach L&D 9	19	8/16/94	648.0	619.2	619.0	22.7	JRM,KLR,JHJ	Mooring Cells
296	Dakota (Somers Chute)	19	8/22/94	706.4	639.3	638.5	25.3	JRM,KLR	
297	Pine Bend (Shiely Entrance)	16	8/22/94	825.0	687.0	686.9	51.0	SES,JRB	
298	St Paul Upper Barge Terminal	16	8/23/94	836.8 - 837.7	687.7	687.2	100.1	SES,JRB	
299	Below Cudahy	16	8/24/94	830.7 - 831.5	687.2	687.1	56.5	SES,JRB	No action
300	494 Bridge	16	8/24/94	831.5 - 832.6	687.4	687.1	73.1	SES,JRB	No action
301	Above 494 Bridge	16	8/24/94	832.6 - 833.5	687.5	687.2	70.2	SES,JRB	No action
302	Above Lowry Ave (post-dredge)	16	8/29/94	856.4 - 857.2	799.0	796.5	34.6	SES,JRB	No action
303	Harriet Island SBH (pre-dredge)	53	8/29/94	639.5	687.8	687.2	6.3	RCH,KF	Dredge as shown
304	Above Lowry Avenue (Post-dredge)	16	8/29/94	856.4 - 857.2	799.0	796.5	34.6	SES,JRB	
305	Cannon River (post-dredge)	53	9/1/94	792.6 - 793.2	668.6	667.0	36.5	RCH,KF	No action
306	Lower Approach L&D 2	16	9/1/94	847.5	688.9	687.2	1.5	SES,JRB	No action
307	L&D 1 Scour Upper side	16	9/1/94	847.5	724.2	722.8	15.5	SES,JRB	No action
308	L&D 1 Scour Lower side	16	9/1/94	847.6	688.9	687.2	2.8	SES,JRB	No action
309	USAF Scour (Upper)	16	8/29/94	853.7	798.7	796.5	2.7	SES,JRB	No action
310	USAF/LSAF Scour	16	8/31/94	853.4	750.7	749.3	28.8	SES,JRB	No action
311	Lower Approach L&D 1 (pre-dredge)	16	9/6/94	847.4 - 847.6	688.3	687.2	4.6	SES,JRB	Dredge as shown
312	Peterson Lake	19	8/29/94	754.4 - 755.0	666.8	666.6	111.6	JRM,KLR	No action
313	L&D 3 Scour Upper	16	9/8/94	796.9	674.3	674.0	16.9		No action
314	L&D 3 Scour Lower Rollers	16	9/8/94	796.9	668.7	667.0	12.9	SES,JRM	No action
315	L&D 3 Scour Lower Approach Gates	16	9/8/94	796.9	668.7	667.0	9.3	SES,JRB	No action
316	L&D 2 Scour Upper	16	9/7/94	815.2	686.8	686.5	29.4	SES,JRB	No action
317	Upper Turning Basin (pre-dredge)	53	9/8/94	857.1 - 857.5	799.3	796.5	27.8	RCH,JRM	Dredge as shown
318	Below Franklin Ave. (pre-dredge)	53	9/9/94	850.7 - 851.0	724.5	722.8	14.0	RCH,JRM	Dredge as shown
319	L&D 2 Scour Lower	16	9/7/94	815.2	675.6	675.0	27.3	SES,JRB	No action

(Sheet 11 of 15)

Table A6 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
320	Above & Below Washington Ave.	16	9/13/94	853.2 - 853.5	724.5	722.8	10.8	SES,JRB	No Action
321	L&D 4 Scour Lower	19	9/15/94	752.8	660.6	660.0	37.2	JRM,KLR	No Action
322	L&D 4 Scour Upper	19	9/15/94	752.8	667.3	666.5	37.8	JRM,KLR	No action
323	Lower Approach L&D 1 (post-dredge)	16	9/15/94	847.4 - 847.5	689.3	687.2	4.5	SES,JRB	No Action
324	Above Lowry Ave. (post-dredge)	16	9/15/94	856.4 - 857.2	799.3	796.5	34.0	SES,JRB	No action
325	Below Hwy 5 Bridge Job "A'	16	9/15/94	845.0 - 845.6	689.0	687.2	20.5	SES,JRM	No action
326	Above Hwy 5 Bridge Job "B"	16	9/15/94	845.6 - 846.1	689.0	687.2	17.6	SES,JRB	No action
327	Harriet Island SBH (post-dredge)	16	9/13/94	639.0	687.7	687.2	4.6	SES,JRB	No action
328	L&D 5 Scour Upper	19	9/16/94	738.1	660.4	659.5	42.9	JRM,JRB	No action
329	Winona Commercial Harbor	19	9/19/94	726.1 - 726.5	647.4	645.4	46.4	JRM,JRB	No action
330	Cliff Station Daymark Job "A"	16	9/20/94	843.1 - 843.8	688.1	687.2	35.0	SES,JRB	No action
331	Mouth of Minn. River	16	9/20/94	843.8 - 844.1	688.2	687.2	25.9	SES,JRB	No action
332	Pike Island	16	9/20/94	844.0 - 845.1	688.3	687.2	40.7	SES,JRB	No action
333	Above Wabasha Bridge	16	9/21/94	839.5 - 839.7	687.9	687.2	7.7	SES,JRB	
334	Above Lake St. Bridge Pre Dredge (Con)	16	9/22/94	849.9 - 850.7	725.0	722.8	42.1	SES,JRB	Dredge as shown
335	Below Smith Ave. Bridge	16	9/21/94	839.9 - 840.5	688.0	687.2	40.6	SES,JRB	No action
336	Above Smith Ave. Bridge	16	9/21/94	840.5 - 841.0	688.1	687.2	24.2	SES,JRB	No action
337	Below Omaha RR Bridge	16	9/21/94	841.0 - 841.5	688.2	687.2	28.0	SES,JRB	No action
338	Above Omaha RR Bridge	16	9/21/94	841.5 - 842.2	6883.0	687.2	24.7	SES,JRB	No action
339	Gasoline Alley	16	9/21/94	842.1 -842.7	688.3	687.2	34.9	SES,JRB	No action
340	Lily Dale	16	9/21/94	842.7 - 843.1	688.8	687.2	24.3	SES,JRB	No action
341	Broadway Bridge (pre-dredge)	16	9/27/94	855.2 - 855.8	799.8	796.5	32.1	SES,JRB	Dredge as shown
342	Above Armour	16	9/28/94	833.5 - 834.3	687.3	687.2	61.4	SES,JRB	No action
343	Reads Landing	19	9/28/94	762.1 - 763.3	669.7	667.0	90.3	JRM,KLR	No action
344	Abv Wabasha St. Bridge (post-dredge)	16	9/26/94	839.5 - 839.7	688.1	687.2	7.8	SES,JRB	No action
345	Drury Island "A"	19	9/30/94	761.6 - 762.2	669.2	667.0	42.9	RCH,KLR	No action
346	Above Reads Landing "C"	19	9/30/94	663.3 - 663.8	669.2	667.0	65.1	RCH,KLR	No action
347	Drury Island	19	10/3/94	760.0 - 761.6	667.8	667.0	63.9	RCH,KLR	No action
348	Above Crats Island	19	10/3/94	758.7 - 759.6	667.8	666.9	69.8	RCH,KLR	No action

(Sheet 12 of 15)

Table A6 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
349	Above Plymouth Ave. (pre-dredge)	16	10/3/94	855.1 - 855.3	799.5	796.5	19.2	JRM,JRB	
350	Turning Basin (Post dredge)	16	10/3/94	857.1 - 857.3	799.7	796.5	23.6	JRM,JRB	No action
351	Below Franklin Ave Bridge (post-dredge)	16	10/3/94	850.8 - 851.1	724.9	722.8	17.6	JRN,JRB	No action
352	Teepeeota point "A"	19	10/4/94	757.2 - 757.6	667.5	666.8	39.0	RCH,JRB	No action
353	Below Crats Island	19	10/4/94	757.7 - 758.7	667.7	668.8	76.4	RCH,KLR	No action
354	Lamberts Landing (Lt Des Side)	16	10/4/94	838.9 - 839.2	687.9	687.2	4.8	JRM,JRB	
355	Grey Cloud Slough	16	10/4/94	827.6 - 828.1	687.1	687.0	36.4	JRM,JRB	Dredge as shown
356	Grand Encampment "A"	19	10/5/94	755.6 - 756.5	667.1	666.7	61.7	RCH,KLR	No action
357	Grand Encampment "B"	19	10/5/94	756.5 - 757.2	667.2	666.8	60.7	RCH,KLR	Dredge as shown
358	Boulanger Bend "A"	16	10/5/94	818.1 - 819.1	686.6	686.6	61.5	JRM,JRB	Dredge as shown
359	Boulanger Bend "D"	16	10/5/94	820.4 - 821.0	686.7	686.7	38.1	JRM,JRB	Dredge as shown
360	Grey Cloud Landing	16	10/5/94	820.9 - 821.4	686.7	686.7	41.7	JRM,JRB	Dredge as shown
361	Upper Approach L&D 2	16	10/6/94	815.3 - 815.7	686.7	686.5	20.1	JRM,JRB	Resurvey (see remarks)
362	Upper Approach L&D 4	19	10/6/94	753.0 - 753.6	666.7	666.6	40.9	RCH,KLR	No action
363	Beef Slough "A"	19	10/6/94	753.6 - 754.5	666.8	666.6	63.6	RCH,KLR	No action
364	Beef Slough "B"	19	10/6/94	754.5 - 755.7	667.0	666.6	87.4	RCH,KLR	No action
365	Minneiska	19	10/11/94	742.3 - 743.2	659.9	659.7	67.8	RCH,KLR	No action
366	Below Lake Street Br. (Pre dredge)	16	10/12/94	849.0 - 849.3	724.8	722.8	28.8	JRM,JRB	Dredge as shown
367	Above Broadway Ave (post-dredge)	16	10/12/94	855.2 - 855.8	799.6	796.5	24.6	JRM, JRB	No action
368	Lower Zumbro "A"	19	10/12/94	743.2 - 744.3	660.1	659.9	71.4	RCH, KLR	No action
369	Lower Zumbro "B"	19	10/12/94	744.3 - 744.9	660.1	659.8	57.3	RCH, KLR	No action
370	Fisher Island "A"	19	10/13/94	744.9 - 746.1	660.3	659.9	84.0	RCH,KLR	No action
371	Roebucks Cut "B"	19	10/17/94	746.6	660.4	659.9	44.3	RCH,KLR	No action
372	Wilds Bend "A"	19	10/17/94	729.6 - 730.3	650.1	650.2	46.8	RCH,KLR	No action
373	Wilds Bend "B"	19	10/17/94	730.3 - 730.8	650.1	650.2	60.1	RCH,KLR,JRM	No action
374	Grand Encampment (Pre-Dredge)	16	10/19/94	756.3 - 756.9	667.2	668.8	32.4	JRM,JRB	Dredge as shown
375	Betsey Slough	19	10/18/94	730.8 - 732.1	650.4	650.3	90.4	JRM,KLR,RCH	No action
376	Grey Cloud Slough (Pre-Dredge)	53	10/19/94	827.6 - 827.9	687.6	687.0	9.9	RCH,BDP	Dredge as shown
377	Minneiska	53	9/26/94	742.0 - 742.7	659.9	659.7	17.4	JRM,KLR	No action

(Sheet 13 of 15)

Table A6 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
378	Above Lake Street (post-dredge)	53	10/18/94	850.0 - 850.4	725.1	722.8	12.8	RCH,BDP	No action
379	L&D 5A Scour Upper	19	10/18/94	728.5	650.1	650.0	18.7	JRM,KLR	No action
380	Sommers Chute	19	10/20/94	639.6	639.6	638.5	19.8	RCH,JRM	No action
381	Above Plymouth Ave. (post-dredge)	53	10/25/94	855.1 - 855.3	800.9	796.5	16.0	SES,JRM	No action
382	Goose Chute	53	10/26/94		640.0	638.5	0.7	SES,JRM	No action
383	Gibbs Chute	53	10/26/94		640.0	638.5	1.1	SES,JRM	No action
384	Proud Foot Slough	53	10/26/94		640.0	638.5	1.6	SES,JRM	No action
385	Indian Camp Lite (post-dredge)	19	10/27/94	665.4 - 665.8	621.0	620.0	27.7	RCH,KLR	No action
386	Lower side L&D 8 storage yard rock repair	19	10/27/94		625.0	620.0	1.5	RCH,KLR	No action
387	Blw Lake Street (post-dredge)	53	10/28/94	849.1 - 849.3	726.2	722.8	18.0	SES,BDP,JRB	No action
388	Grand Encampment (post-dredge)	16	11/4/94	756.5 - 756.8	666.9	666.7	12.7	JRM,JRB	No action
389	Peterson Lake "B"	53	11/4/94		666.0	666.0	25.1	RCH,SES	No action
390	Betsy Slough	16	11/8/94	730.8 - 732.0	650.4	650.4	88.6	JRM,JRB	No action
391	Peterson Lake "A"	53	11/8/94		666.9	666.6	35.7	SES,MS	No action
392	Peterson Lake "D"	53	11/9/94		666.8	666.6	17.5	SES,MS	No action
393	Betsy Slough (pre-dredge) WAT	16	11/14/94	730.8 - 732.0	650.3	650.4	42.2	JRB,MS	Dredge as shown
394	Lock & Dam 6 Scour Upper	16	11/9/94		644.5	644.5	42.6	JRM,JRB	No action
395	Lock & Dam 8 Scour Upper	19	11/14/94		630.1	630.0	24.1	JRM,KLR	No action
396	Lock & Dam 8 Scour Lower	19	11/15/94		622.9	620.0	32.3	JRM,KLR	No action
397	Lock & Dam Scour Lower	16	11/15/94		640.4	638.5	30.0	RCH,JRB	No action
398	Lock & Dam 7 Scour Upper	16	11/16/94		639.0	638.5	29.8	RCH,JRB	No action
399	Lock & Dam 7 Scour Lower	16	11/17/94		632.2	631.0	33.7	RCH,KLR	No action
400	Betsy Slough Post Dredge	16	11/18/94	731.2 - 731.4	650.2	650.3	13.4	JRB,SES	No action
401	Lock & Dam 5A Scour Lower	16	11/18/94		646.0	645.5	23.7	RCH,SES,JRB	No action
402	Bussey Lake (Willow Island) Pool 10	53	11/25/94	615.4 - 616.0	610.9	610.0	168.9	JAL,BDP	No action
403	L&D 9 Scour Upper Side	19	11/23/94		619.5	619.0	24.1	RCH,KLR	No action
404	L&D 9 Scour Lower Side	19	11/22/94		615.3	611.0	29.3	RCH,KLR	No action
405	L&D 10 Scour Upper Side	19	11/21/94	615.0	611.0	610.0	29.2	RCH,KLR	No action
406	L&D 10 Scour Lower Side	19	11/21/94	615.0	606.5	603.0	29.1	RCH,KLR	No action

(Sheet 14 of 15)

Table A6 (Concluded)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
407	Below Head Raft Channel	19	11/29/94	686.6 - 687.0	631.0	630.4	29.5	RCH,KLR	No action
408	L&D 5 Scour Lower	16	11/29/95		651.6	651.0	53.8	JRB,BDP	No action

(Sheet 15 of 15)

Table A7
Hydrographic Survey Summary
U.S. Army Engineer District, St. Paul, Mississippi River Project Office
Updated: 15 November 1995 - Final For Season, Time Period: 1995 Navigation Season
Total Number of Jobs = 352, Total Acres Surveyed = 19,550.6

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
300	Minnesota River	16	9/23/95	Mn 7.6 - 8.1	1058.6	1056.5	3.7	JRM,RCH,KLR	Sent to Headwaters PM
299	Minnesota River	16	9/23/95	Mn 5.7 - 6.1	1058.9	1056.0	37.6	JRM,RCH,KLR	Sent to Headwaters PM
298	Minnesota River	16	9/23/95	Mn 3.5 - 4.0	1058.7	1056.5	6.5	RCH,BRN	Dredge as shown
297	Above Pike Island	16	9/23/95	Mn 1.1 - 1.7	799.2	796.5	26.6	RCH,JHJ	
302	Minnesota River	16	9/24/95	Mn 14.6 - 15.0	799.0	796.5	22.2	RCH,JHJ	
301	Minnesota River	16	9/24/95	Mn 14.1 - 14.6	798.8	797.5	24.1	RCH,JHJ	
328	Above Petersons Bar (post-dredge)	53	10/5/95	Mn 12.2 - 12.6	798.3	796.5	25.0	RCH,JHJ	
304	Above Petersons Bar	16	9/24/95	Mn 12.1 - 12.7	798.5	796.5	20.2	RCH,JHJ	
311	Above Petersons Bar	16	9/26/95	Mn 12.1 - 12.7	798.1	796.5	21.9	RCH,JHJ	
319	Petersons Bar	53	10/5/95	Mn 12.0 - 12.2	800.1	796.5	14.1	RCH,JHJ	
331	Petersons Bar (post-dredge)	53	10/17/95	Mn 11.7 - 12.2	799.9	796.5	19.9	RCH,JHJ	
294	Petersons Bar	16	9/24/95	Mn 11.6 - 12.2	799.9	796.5	28.5	RCH,JHJ	
296	Pike Island	16	9/23/95	Mn 0.5 - 1.2	725.7	722.8	31.8	RCH,JHJ	
295	Mouth Minnesota River	16	9/23/95	Mn 0.0 - 0.5	725.6	722.8	36.3	RCH,JHJ	
1	Zipple Bay Entrance Channel		2/21/95	Lake of the Woods	724.5	722.8	30.9	RCH,JHJ	
2	Warroad Harbor		2/23/95	Lake of the Woods	724.4	722.8	35.9	RCH,JHJ	
284	Zipple Bay (pre-dredge)	53	9/7/95	Lake of the Woods	724.2	722.8	11.0	RCH,JHJ	
217	Upper Turning Basin	53	6/29/95	857.1 - 857.3	688.8	687.2	62.4	SES,JRB	No action required
216	Above Lowry Ave. Bridge "C"	53	6/29/95	856.7 - 857.2	688.7	687.2	67.8	SES,JRB	No action required
215	Above Lowry Ave. Bridge "B"	53	6/29/95	856.4 - 856.7	687.8	687.0	68.1	SES,JRB	No aaction required
211	Above NP RR Bridge "C"	53	6/28/95	855.8 - 856.3	687.7	687.0	31.8	SES,JRB	No action required
214	Below Lowry Ave. Bridge "A"	53	6/28/95	855.7 - 856.4	689.9	687.0	67.0	RCH,JRB	Resurvey when flows drop off
210	Above Broadway Ave. "B"	53	6/28/95	855.4 - 855.8	688.7	687.0	52.5	SES,JRB	Dredge as shown
199	Blw Broadway Ave Bridge	53	6/20/95	855.3 - 855.4	689.3	686.9	85.1	RCH,JRB	Resurvey when flows drop off
198	Abv Plymouth Ave Bridge	53	6/20/95	855.1 - 855.3	688.4	686.9	81.4	SES,JRB	Dredge as shown
197	Blw Plymouth Ave Bridge	53	6/20/95	854.6 - 855.1	688.7	686.9	46.0	RCH,JRB	Resurvey when flows drop off
309	Washington Avenue Bridge	16	9/27/95	852.0 - 853.4	688.1	686.9	52.9	SES,JRB	Dredge as shown

Note: Material from U.S. Army Engineer District, St. Paul.

(Sheet 1 of 12)

Table A7 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
308	Franklin Avenue Bridge	16	9/27/95	851.0 - 852.1	687.1	686.8	23.6	SES,JRB	No action
306	Above Lake Street Bridge	16	9/27/95	849.9 - 851.0	687.5	686.8	59.3	SES,JRB	Dredge as shown
236	Below Lake Street Bridge	53	7/13/95	849.5 - 850.0	688.5	686.8	50.4	RCH,JRB	Resurvey when flows drop off
235	Below Lake Street Bridge	53	7/12/95	848.9 - 849.5	688.0	686.8	50.7	SES,JRB	Dredge as shown
307	Below Lake Street Bridge	16	9/28/95	848.8 - 849.9	688.4	686.8	20.7	RCH,JRB	No action required
228	Below St Paul Daymark "B"	53	7/6/95	848.2 - 849.0	687.1	686.8	23.3	SES,JRB	No action
305	St. Paul Daymark	16	9/28/95	847.9 - 849.0	687.5	686.8	39.8	SES,JRB	Dredge as shown
227	Below St Paul Daymark “A”	53	7/6/95	847.9 - 848.2	688.2	686.8	55.1	RCH,JRB	Resurvey when flows drop off
226	Above Ford Avenue Bridge	53	7/5/95	847.8 - 848.0	687.8	686.8	54.2	SES,JRB	No action
310	Upper approach L&D 1	16	9/28/95	847.4 - 847.9	686.9	686.8	24.7	SES,JRB	No action
320	Harriet Island	53	10/4/95	839.1	687.4	686.8	73.3	SES,JRB	Dredge as shown
318	St Paul Barge Terminal (post-dredge)	53	10/4/95	837.3 - 837.6	687.9	686.8	49.8	RCH,JRB	Resurvey when flows drop off
287	St. Paul Barge Terminal	16	9/14/95	837.1 - 838.1	687.6	686.8	49.6	SES,JRB	Dredge as shown
288	St. Paul Barge Terminal	16	9/14/95	836.3 - 837.2	687.6	686.8	46.3	RCH,JRB	Resurvey when flows drop off
253	Above Arnour	16	7/26/95	833.5 - 834.4	687.5	686.8	46.3	SES,JRB	No action required
252	Above 4984 Bridge	16	7/26/95	832.6 - 833.5	687.5	686.7	57.7	RCH,JRB	Resurvey when flows drop off
234	Merrimac Island	16	7/12/95	828.8 - 829.8	687.2	686.7	57.0	JRB,SES	
53	Grey Cloud Slough	16	4/5/95	827.5 - 828.6	686.9	686.8	42.6	SES,JRB	No action
175	Grey Cloud Slough (pre-dredge)	16	6/13/95	827.4 - 828.2	687.2	686.7	86.2	SES,JRB	Dredge as shown
231	Grey Cloud Slough (post-dredge)	16	7/12/95	827.4 - 828.2	687.4	686.7	30.6	RCH,JRB	Resurvey when flows drop off
52	Robinsons Rock	16	4/5/95	825.7 - 826.8	687.1	686.7	29.4	RCH,JRB	Resurvey when water drops off
174	Below Robinsons Rock "C"	16	6/13/95	825.7 - 826.8	687.2	686.7	29.3	JRB,SES	
51	Pine Bend Head Lite "A"	16	4/6/95	824.6 - 825.2	686.8	686.7	56.2	RCH,JRB	Dredge as shown
173	Pine Bend Head Lite "A"	16	6/13/95	824.6 - 825.2	687.6	685.7	71.4	RCH,JRB	Resurvey when flows drop off
283	Pine Bend "C"(Post Dredge WAT)	16	9/9/95	824.2 - 824.7	687.2	686.7	73.5	JRB,SES	
260	Pine Bend Foot Lite (pre-dredge)	16	7/27/95	824.0 - 824.8	687.5	686.6	47.8	RCH,JRB	Resurvey when flows drop off
50	Pine Bend Foot Lite "C"	16	4/5/95	824.0 - 824.6	687.2	686.6	46.6	JRB,SES	
179	Pine Bend Foot Lite "C"	16	6/14/95	824.0 - 824.6	686.8	686.7	69.4	SES,JRB,LAJ	Dredge as shown
56	CF Industries	16	4/6/95	823.7	686.5	686.6	23.0	RCH,JRB	No action

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Table A7 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
282	Pine Bend "B" (Post Dredge WAT)	16	9/6/95	823.5 - 823.8	687.3	686.6	59.6	RCH,JRB	Resurvey when flows drop off
250	Pine Bend Foot Lite (pre-dredge)	16	7/26/95	823.4 - 824.0	687.1	686.6	58.8	JRB,SES	
49	Pine Bend Foot Lite "B"	16	4/4/95	823.1 - 824.0	686.9	686.6	64.0	SES,RCH	Dredge as shown
178	Pine Bend Foot Lite "B"	16	6/14/95	823.1 - 824.0	686.9	686.6	68.2	RCH,JRB	No action required
281	Pine Bend "A" (Post Dredge WAT)	16	9/5/95	822.7 - 823.2	686.9	686.6	108.6	SES,JRB	
248	Pine Bend Foot Lite (pre-dredge)	16	7/25/95	822.6 - 823.4	686.8	686.6	94.2	JRB,SES	
48	Pine Bend Foot Lite "A"	16	4/4/95	822.6 - 823.2	681.9	674.9	97.5	RCH,JRB	Resurvey when flows drop off
177	Pine Bend Foot Lite "A"	16	6/14/95	822.6 - 823.2	678.1	674.6	69.9	RCH,JRB	Resurvey when flows drop off
47	Grey Cloud Landing "B"	16	4/4/95	821.8 - 822.6	676.2	674.6	102.1	SES,JRB	
176	Grey Cloud Landing "B"	16	6/12/95	821.8 - 822.6	676.1	674.5	78.1	SES,JRB	
46	Grey Cloud Landing "A"	16	4/3/95	820.9 - 821.8	676.7	674.4	86.3	SES,JRB	No action
168	Grey Cloud Landing "A"	16	6/8/95	820.9 - 821.8	675.3	674.4	45.4	SES,JRB	No action
280	Boulanger (Post Dredge WAT)	16	9/5/95	820.8 - 821.4	676.2	674.3	58.6	RCH,JRB	Resurvey when flows drop off
251	Boulanger Bend	16	7/25/95	820.4 - 821.5	675.3	674.3	57.8	SES.JRB	Dredge as shown
45	Boulanger Bend "D"	16	4/3/95	820.4 - 820.9	674.9	674.3	60.1	SES,JRB	
68	Boulanger Bend "D"	16	4/14/95	820.4 - 820.9	675.2	674.3	51.0	RCH,SES	
167	Boulanger "D"	16	6/8/95	820.4 - 820.9	675.0	674.3	26.8	SES,JRB	
277	Boulanger (Pre Contr)(Post WAT)	16	9/1/95	819.7 - 820.9	674.6	674.3	85.3	SES,JRB	Dredge as shown
38	Boulanger Bend "C"	16	4/1/95	819.4 - 820.4	676.1	674.3	65.1	RCH,JRB	Resurvey when flows drop off
166	Boulanger Bend "C"	16	6/9/95	819.4 - 820.4	675.1	674.3	67.2	SES,JRB	Dredge as shown
37	Boulanger Bend "B"	16	4/1/95	819.0 - 819.5	674.7	674.3	58.0	SES,JRB	
165	Boulanger Bend "B"	16	6/9/95	819.0 - 819.5	675.1	674.3	60.9	RCH,SES	
225	Boulanger Bend (pre-dredge)	16	7/7/95	818.9 - 821.0	675.4	674.2	65.8	RCH,JRB	Resurvey when flows drop off
278	Ninninger (post-dredge)	16	9/1/95	818.2 - 819.1	674.7	674.2	54.1	SES,JRB	
36	Boulanger Bend "A"	16	4/1/95	818.1 - 819.1	674.8	674.2	56.9	SES,JRB	Dredge as shown
164	Boulanger Bend "A"	16	6/7/95	818.1 - 819.1	674.7	674.2	57.7	SES,RCH	Dredge as shown
243	Ninninger (pre-dredge)	16	7/20/95	818.1 - 819.1	675.3	674.2	85.4	RCH,JRB	Resurvey when flows drop off
59	Ninninger	16	4/10/95	817.0 - 818.1	674.7	674.2	66.8	SES,JRB	Dredge as shown
239	Freedom Island	16	7/11/95	816.2 - 817.3	674.6	674.2	63.8	SES,RCH	Dredge as shown
238	Upper Approach L&D 2	16	7/11/95	815.2 - 816.3	674.6	674.1	103.7	SES,JRB	

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Table A7 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
55	Prescott	16	4/6/95	810.0 - 811.3	673.8	667.0	101.9	RCH,JRB	Resurvey when flows drop off
60	Smith Bar Upper Lite	16	4/11/95	805.3 - 805.9	669.5	667.0	109.5	SES,JRB	
194	Smith Bar Upper Lite "A"	16	6/22/95	805.2 - 806.3	670.6	667.0	121.9	SES,RCH	
291	Smith Bar	16	9/13/95	805.1 - 805.9	673.5	667.0	65.8	RCH,JRB	Resurvey when flows drop off
292	Smith Bar (pre-dredge)	16	9/21/95	805.1 - 805.6	669.4	667.0	69.8	SES,JRB	
312	Smith Bar (post-dredge)	16	9/29/95	805.1 - 805.4	669.8	667.0	111.0	KLR,SES	Dredge area as shown
192	Big River "B"	16	6/21/95	804.2 - 805.2	672.4	667.0	79.5	RCH,JRB	Resurvey when flows drop off
189	Big River	16	6/20/95	803.2 - 804.2	648.7	645.4	6.5	RCH,KLR	No action required
188	Coulters Island	16	6/20/95	802.5 - 803.1	671.6	667.0	94.5	RCH,JRB	Resurvey when flows drop off
62	Coulters Island "B"	16	4/12/95	801.9 - 802.5	670.2	666.9	54.8	RCH,JRB	Dredge as shown
187	Coulters Island "B"	16	6/19/95	801.9 - 802.5	669.2	666.9	49.9	RCH,JRB	No action required
222	Coulters Island "B"	16	7/6/95	801.9 - 802.5	670.1	666.9	93.1	RCH,JRB	Resurvey when flows drop off
246	Coulters Island "B"	16	7/20/95	801.9 - 802.5	669.3	666.9	87.3	SES,KLR	Dredge as shown
233	Coulters Island (post-dredge)	16	7/13/95	801.5 - 801.9	668.6	666.8	57.7	SES,KLR	Dredge as shown
279	Coulters Island (pre-dredge)	16	9/7/95	801.4 - 802.6	669.4	666.8	86.0	RCH,JRB	Resurvey when flows drop off
61	Coulters Island "A"	16	4/12/95	801.0 - 801.9	668.4	666.8	37.7	RCH,JRB	No action required
186	Coulters Island "A"	16	6/19/95	801.0 - 801.9	668.7	666.8	52.8	RCH,KLR	Resurvey when flows drop off
220	Coulters Island "A"	16	7/5/95	801.0 - 801.9	667.8	666.8	91.5	SES,KLR	Dredge as shown
245	Coulters Island "A"	16	7/19/95	801.0 - 801.9	668.2	666.8	71.6	RCH,JRB	Resurvey when flows drop off
66	Diamond Bluff "B"	16	4/13/95	800.1 - 801.1	667.6	666.7	78.1	SES,KLR	Dredge as shown
158	Diamond Bluff	16	6/6/95	799.8 - 800.6	667.7	666.7	21.6	SES,KLR	No action required
181	Diamond Bluff "B"	16	6/15/95	799.8 - 800.6	668.2	666.7	107.1	RCH,JRB	Resurvey when flows drop off
242	Diamond Bluff (pre-dredge)	16	7/19/95	799.8 - 800.6	667.8	666.7	76.1	RCH,JRB	Resurvey when flows drop off
65	Diamond Bluff "A"	16	4/13/95	799.0 - 800.2	667.2	666.7	42.0	SES,KLR	Dredge as shown
180	Diamond Bluff "A"	16	6/15/95	799.0 - 799.9	666.9	666.6	36.9	RCH,JRB,MS	Dredge area as shown
241	Diamond Bluff (pre-dredge)	16	7/19/95	799.0 - 799.9	667.0	666.6	30.6	RCH,JRB	No action required
223	Above Lock & Dam 3	16	7/6/95	797.6 - 798.8	666.6	666.5	180.0	JRM,MS	Resurvey when flows drop off
314	Trenton	16	10/2/95	793.3 - 794.8	666.5	666.5	82.5	JRM,MS	Resurvey when flows drop off
74	Trenton "A"	16	4/18/95	793.2 - 794.4	666.2	666.5		JRM,MS	No action required
206	Trenton "A"	16	6/29/95	793.2 - 794.4	667.0	666.6	81.1	RCH,JRB	Resurvey when flows drop off
240	Trenton (pre-dredge)	16	7/18/95	793.1 - 794.4	667.2	666.6	81.8	RCH,JRB	Resurvey when flows drop off
75	Cannon River	16	4/18/95	792.4 - 793.2	663.5	660.0	81.2	RCH,JRB	Resurvey when flows drop off
205	Cannon River	16	6/29/95	792.4 - 793.2	662.6	660.0	81.1	RCH,JRB	
290	Cannon River	16	9/13/95	792.3 - 793.3	661.2	660.0	26.0	JRM,KLR	Dredge as shown

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Table A7 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
315	Wacouta Point	16	10/3/95	784.1 - 786.0	661.4	660.0	17.0	RCH,JRB	
275	Chippewa Delta (pre-dredge)	53	8/29/95	763.6	662.9	662.9	32.5	RCH,JRB	Resurvey when flows drop off
30	Chippewa Delta	16	3/30/95	763.5	663.0	60.0	81.5	RCH,JRB	Resurvey when flows drop off
313	Chippewa Delta (post-dredge)	53	9/29/95	763.0	662.4	660.0	82.6	RCH,JRB	
118	Winona Small Boat Harbor	16	5/11/95	762.2	662.6	659.9	20.1	RCH,MS	No action required
77	Reads Landing	16	4/20/95	762.1 - 763.4	662.4	659.9	54.4	RCH,MS	No action required
93	Crats Island (pre-dredge)	16	5/1/95	758.9 - 759.4	661.7	659.9	25.0	RCH,JRB	
111	Crats Island (post-dredge)	16	5/9/95	758.9 - 759.4	661.7	659.9	9.8	RCH,JRB	No action required
25	Above Crats Island "C"	16	3/29/95	758.7 - 759.6	662.0	659.9	68.4	RCH,MS	No action required
72	Crats Island "C"	19	4/18/95	758.7 - 759.6	662.1	659.9	110.3	RCH,JRB	Resurvey when flows drop off
317	Crats Island	16	10/4/95	758.5 - 759.5	661.6	659.9	107.4	RCH,JRB	Dredge area as shown
71	Below Crats Island "B"	19	4/18/95	757.9 - 758.7	661.8	659.9	54.3	RCH,MS	No action required
24	Below Crats Island "B"	16	3/29/95	757.7 - 758.7	661.4	659.9	7.4	RCH,JRB	No action required
316	Below Crats Island	16	10/5/95	757.5 - 758.6	661.5	659.8	30.9	RCH,JRB	
95	Teepeeota Point (post-dredge)	16	5/2/95	757.2 - 757.8	661.5	659.9	81.3	RCH,MS	No action required
330	Below Crats Island (pre-dredge)	16	10/16/95	757.2 - 757.8	661.6	659.8	94.4	RCH,JRB	Resurvey when flows drop off
23	Teepeeota Point "A"	16	3/28/95	757.2 - 757.6	661.6	659.8	94.5	Dredge as shown	Dredge area as shown
70	Teepeeota point "A"	19	4/17/95	757.0 - 757.9	660.9	659.8	38.6	RCH,JRB	No action required
22	Above Grand Encampment "B'	16	3/28/95	756.5 - 757.2	660.9	659.8	38.6	RCH,JRB	No action required
293	Grand Encampment	53	9/25/95	756.4 - 756.9	661.2	659.8	25.7	RCH,JRB	No action required
323	Grand Encampment (pre-dredge)	16	10/6/95	756.2 - 757.5	660.9	659.8	59.0	RCH,JRB	Resurvey when flows drop off
69	Grand Encampment "B"	19	4/17/95	756.1 - 757.0	661.4	659.8	82.5	RCH,JRB	Dredge as shown
73	Grand Encampment (post-dredge)	19	4/18/95	755.8 - 756.1	661.0	659.8	28.9	RCH,JRB	No action required
329	Grand Encampment (pre-dredge)	16	10/16/95	755.7 - 757.0	660.7	659.8	57.8	RCH,JRB	Resurvey when flows drop off
80	Grand Encampment (post-dredge)	16	4/25/95	755.6 - 756.9	661.2	659.8	74.0	RCH,JRB	Dredge area as shown
19	Grand Encampment "A"	16	3/27/95	755.6 - 756.5	661.1	661.1		JRM,MS	Resurvey when flows drop off
67	Grand Encampment (pre-dredge)	19	4/14/95	755.6 - 756.2	661.2	659.8		JRM,MS	No action required
322	Grand Encampment (pre-dredge)	16	10/6/95	755.5 - 756.2	660.2	659.7	69.1	RCH,JRB	Resurvey when flows drop off

(Sheet 5 of 12)

Table A7 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
96	Beef Slough (pre-dredge)	16	5/3/95	754.0 - 754.5	660.1	659.7	53.7	RCH,JRB	No action required
126	Beef Slough (post-dredge)	16	5/16/95	754.0 - 754.5	660.2	659.7	39.4	SES,KLR	Resurvey when flows drop off
40	Peterson Lake "A"	53	3/31/95	754.0	660.4	659.7	25.6	RCH,MS	Dredge Cut Check
39	Peterson Lake "B"	53	4/1/95	754.0	660.4	659.7	27.3	RCH,JRB	Dredge Cut Check
104	Peterson Lake (Portion)	53	5/5/95	754.0	660.3	659.7	26.9	RCH,JRB	Dredge Cut Check
18	Beef Slough	16	3/27/95	753.6 - 754.5	660.0	659.7	54.3	RCH,JRB	No action required
79	Beef Slough	16	4/21/95	753.6 - 754.5	653.3	650.9	78.9	RCH,JRB	No action required
321	Beef Slough	16	10/10/95	753.4 - 754.5	653.0	650.7	64.2	RCH,JRB	No action required
12	Mule Bend "B"	16	3/25/95	748.3 - 749.3	650.2	650.4	18.6	RCH,JHJ	
141	Mule Bend "B"	16	5/23/95	748.3 - 749.3	651.9	650.4	98.9	RCH,JRB	
161	West Newton (pre-dredge)	19	6/8/95	747.5 - 747.8	652.7	650.3	49.0	SES,KLR	Resurvey when flows drop off
185	Mule Bend (post-dredge)	53	6/16/95	747.5 - 747.7	652.1	650.3	73.2	SES,KLR	Resurvey when flows drop off
81	Belvedere Slough "1"	16	4/25/95	747.5	650.8	650.4	43.9	JRM,KLR	
11	Mule Bend "A"	16	3/25/95	747.4 - 748.3	652.2	650.2	66.7	SES,KLR	Resurvey when flows drop off
140	Mule Bend "A"	16	5/23/95	747.4 - 748.3	651.7	650.2	65.1	RCH,JRB	No action rquired
84	Belvedere Slough "2"	16	4/26/95	747.4	650.6	650.2	68.9	JRM,KLR	
83	Belvedere Slough "3"	16	4/26/95	747.0	650.3	650.2	62.2	JHJ,KLR	No action required
145	Fisher Isl. Roebucks (post-dredge)	16	5/24/95	746.5 - 746.7	650.3	650.2	42.8	JHJ,KLR	Dredge as shown
106	Belvedere Slough "9"	16	5/5/95	746.5	650.4	650.2	53.2	JRM,KLR	
82	Belvedere Slough "4"	16	4/26/95	746.4	650.1	650.1	38.1	RCH,SES	Dredge area as shown
10	Fisher Island "B"	16	3/24/95	746.0 - 747.3	652.0	650.2	52.4	SES,KLR	Resurvey when flows drop off
127	Belvedere Slough (pre-dredge)	16	5/10/95	746.0 - 747.3	651.4	650.2	44.4	RCH,JRB	No action required
85	Belvedere Slough "5"	16	4/27/95	745.6	648.2	645.2	75.3	SES,KLR	Resurvey when flows drop off
107	Belvedere Slough (Sand Run "10")	16	5/4/95	745.5	648.0	645.2	74.7	RCH,JRB	Resurvey when flows drop off
333	Fisher Island	16	10/18/95	745.3 - 747.0	646.0	645.2	74.6	JHJ,KLR	Dredge as shown
142	Fisher Island (post-dredge)	16	5/22/95	745.3 - 745.7	647.0	645.2	28.6	KLR,JHJ	No action
86	Belvedere Slough "6"	16	4/27/95	745.0	645.8	645.2	68.8	BP,SES,SGK	
9	Fisher Island "A"	16	3/24/95	744.9 - 746.1	646.6	644.9	78.2	SES,KLR	Resurvey when flows drop off
108	Fisher Island (pre-dredge)	16	5/5/95	744.9 - 746.1	646.4	644.8	55.1	SES,KLR	Resurvey when flows drop off
129	Lower Zumbro (post-dredge) Cuts 2-3	16	5/17/95	744.8 - 745.3	646.8	644.8	55.0	JRB,RCH	

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Table A7 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
128	Lower Zumbro (post-dredge) Cut 1	16	5/17/95	744.8 - 745.3	645.6	644.8	37.6	RCH,SES,JHJ	No action
97	Belvedere Slough 7	16	5/3/95	744.4	646.1	644.7	86.9	SES,KLR	Resurvey when flows drop off
5	Lower Zumbro "B"	16	3/23/95	744.3 - 744.9	646.5	644.7	73.3	JRB,RCH	
332	Lower Zumbro (pre-dredge)	16	10/18/95	744.2 - 745.3	645.9	644.7	44.8	JRB,KLR	Dredge area as shown
99	Lower Zumbro "B" (pre-dredge)	16	5/4/95	744.2 - 745.2	646.3	644.7	94.1	JRB,RCH	
105	Belvedere Slough "8"	16	5/4/95	743.6	686.7	686.5	9.8		No action
4	Lower Zumbro "A"	16	3/23/95	743.4 - 744.3	641.5	638.5	78.0	SES,KLR	Resurvey when flows drop off
98	Lower Zumbro "A"	16	5/4/95	743.2 - 744.2	640.0	638.5	35.6	JHJ,KLR	Dredge area as shown
325	Lower Zumbro (pre-dredge)	16	10/11/95	743.2 - 744.2	641.4	638.5	82.0	SES,KLR	Resurvey when flows drop off
27	Weaver Bottoms	53	3/29/95	743.0	640.3	638.5	25.6	SES,KLR	No action
31	Weaver Bottoms	53	3/30/95	743.0	641.0	638.5	25.3	RCH,KLR	
3	Minneiska "C"	16	3/22/95	742.6 - 743.5	641.0	638.5	93.9	SES,KLR	Dredge area as shown
110	Minneiska "C"	16	5/8/95	742.6 - 743.3	639.5	638.5	89.6	KLR,JHJ	Dredge area as shown
76	Minneiska "C"	19	4/20/95	742.1 - 742.6	641.1	638.5	50.8	SES,KLR	Resurvey when flows drop off
87	Minneiska Dredge Cut Check	16	4/28/95	742.0 - 742.6	640.8	6638.5	51.8	SES,KLR	No action required
92	Minneiska Dredge Cut Check	16	5/1/95	742.0 - 742.6	639.4	638.5	51.3	KLR,JHJ	No action
94	Minneiska Dredge Cut Check	16	5/2/95	742.0 - 742.6	740.5	638.5	8.6	SES,KLR	No action required
324	Minneiska	16	10/11/95	741.8 - 743.2	640.8	638.5	51.7	SES,KLR	Resurvey when flows drop off
109	Minnieska "B"	16	5/8/95	741.8 - 742.6	640.5	638.5	59.1	SES,KLR	No action required
124	Island 58 "B" Ft City	16	5/15/95	733.9 - 734.8	639.4	638.5	52.9	KLR,JHJ	No action
123	Island 58 "A" Ft City	16	5/15/95	733.1 - 733.8	640.0	638.5	17.8	SES,KLR	No action required
200	Betsy Slough (post-dredge)	53	7/27/95	731.0 - 731.3	640.0	638.5	44.0	SES,KLR	No action required
131	Betsy Slough (pre-dredge)	16	5/18/95	730.8 - 732.0	640.0	638.5	114.8	SES,KLR	Dredge area as shown
8	Betsy Slough "A"	19	3/24/95	730.8 - 731.5	639.2	638.5	86.5	RCH,JHJ,KLR	Dredge as shown
78	Betsy Slough	19	4/21/95	730.8 - 731.5	639.3	638.5	98.7	KLR,JHJ	No action
162	Betsy Slough	19	6/8/95	730.8 - 731.4	640.4	638.5	88.1	SES,KLR	Resurvey when flows drop off
7	Wilds Bend "B"	19	3/23/95	730.3 - 730.8	639.8	638.5	70.0	SES,KLR	Resurvey when flows drop off
135	Wilds Bend "B"	16	5/19/95	730.3 - 730.8	639.4	638.5	69.3	SES,KLR	Dredge area as shown
163	Wilds Bend "B"	19	6/9/95	730.3 - 730.8	639.4	638.5	67.8	JRM,KLR	Dredge as shown
256	Wilds Bend "B"	19	7/25/95	730.3 - 730.8	638.9	638.5	46.9	RCH,JHJ,KLR	
255	Wilds Bend "A"	19	7/25/95	729.6 - 730.5	638.8	638.5	35.5	JRM,KLR	Dredge area as shown
169	Wilds Bend "A"	19	6/12/95	729.6 - 730.4	639.0	638.5	75.4	JRM,KLR	No action required

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Table A7 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
272	Wilds Bend (pre-dredge)	16	8/24/95	729.6 - 730.4	639.5	638.5	52.3	SES,KLR	Resurvey when flows drop off
6	Wilds Bend "A"	19	3/23/95	729.6 - 730.3	639.2	638.5	52.6	JRM,KLR	Resurvey July
134	Wilds Bend "A"	16	5/19/95	729.6 - 730.3	639.2	638.5	38.6	SES,KLR	Resurvey when flows drop off
289	Wilds Bend (post-dredge)	53	9/14/95	729.1 - 730.2	639.1	638.5	45.6	SES,KLR	Dredge as shown
303	Winona Small Boat Harbor	53	9/26/95	726.2	639.2	638.5	34.4	RCH,KLR	
57	Lower Winona RR Bridge	19	4/10/95	723.2 - 724.0	638.9	638.5	45.7	JRM,KLR	No action required
116	Lower Winona RR Bridge	16	5/11/95	723.2 - 724.0	639.0	638.5	66.5	SES,KLR	No action required
247	Lower Winona (pre-dredge)	19	7/24/95	723.2 - 724.0	638.7	638.5	69.0	SES,KLR	Dredge area as shown
269	Lower Winona (post-dredge)	19	8/21/95	723.2 - 724.0	636.3	631.0	53.6	SES,NK	Resurvey when flows drop off
230	Lower Winona	19	7/14/95	723.0 - 724.0	635.8	631.0	124.2	SES,NK	Resurvey when flows drop off
64	Homer/Gravel Point "B"	19	4/13/95	721.1 - 722.0	632.0	631.0	104.5	JRM,KLR	
63	Homer	19	4/13/95	720.4 - 721.1	623.3	630.6	58.6	SES,KLR	Resurvey when flows drop off
154	Homer/Gravel Point "A"	16	5/30/95	720.4 - 721.1	631.9	630.6	58.8	JHJ,KLR	
271	Homer	19	8/23/95	720.4 - 720.8	630.6	630.6	59.1	JRM,KLR	
58	Homer/Blacksmith	19	4/11/95	719.5 - 720.4	631.3	630.6	30.4	JHJ,KLR	No action required
153	Homer/Blacksmith "B"	16	5/31/95	719.5 - 720.4	632.2	630.6	47.1	SES,KLR	Resurvey when flows drop off
270	Blacksmith Slough	19	8/16/95	718.5 - 719.5	631.8	630.6	54.4	SES,KLR	
152	Homer/Blacksmith Slough	16	5/31/95	718.2 - 719.5	630.6	630.6	46.6	JRM,KLR	
159	L&D 2 Upper Aux Gates	16	6/7/95	715.3	631.4	630.6	37.1	RCH,JHJ,KLR	No action required
54	Winters Landing "B"	19	4/7/95	708.7 - 709.6	632.1	630.6	51.5	SES,KLR	Resurvey when flows drop off
268	Winters Landing (pre-dredge)	19	8/15/95	707.9 - 708.4	631.8	630.6	60.8	SES,KLR	
44	Winters Landing "A"	19	4/5/95	707.8 - 708.7	630.6	630.6	51.3	JRM,KLR	
276	Winters Landing (post-dredge)	53	8/30/95	707.8 - 708.3	630.9	630.6	44.2	KLR,JHJ	Erroneous survey
146	Winters Landing (post-dredge)	16	5/25/95	707.8 - 708.2	631.9	630.5	108.0	SES,KLR	Resurvey when flows drop off
125	Winters Landing	19	5/16/95	707.7 - 708.7	631.3	630.5	110.3	SES,KLR	
264	Winters Landing "A"	19	8/8/95	707.7 - 708.7	630.5	630.5	106.8	JRM,KLR	
43	Dakota "C"	19	4/5/95	707.2 - 707.8	631.6	630.5	49.6	SES,KLR	Resurvey when flows drop off
122	Dakota "C"	19	5/15/95	707.2 - 707.8	631.6	630.5	56.4	SES,KLR	
266	Dakota "C"	19	8/9/95	707.2 - 707.8	630.5	630.5	52.8	JRM,KLR	
120	Dakota Island Disposal Access	19	5/15/95	706.6	630.8	630.5	75.8	KLR,JHJ	Erroneous survey
42	Dakota "B"	19	4/5/95	706.5 - 707.3	631.7	630.5	22.2	SES,KLR	Resurvey when flows drop off

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Table A7 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
121	Dakota "B"	19	5/15/95	706.5 - 707.3	631.5	630.5	30.1	SES,KLR	
265	Dakota "B"	19	8/9/95	706.5 - 707.3	630.5	630.5	27.7	JRM,KLR	
119	Somer Chute	19	5/11/95	706.3	631.2	630.4	36.4	SES,KLR	
114	Dresbach "B"	19	5/9/95	705.8 - 706.8	630.4	630.4	33.1	JRM,KLR	
115	Dakota "A"	19	5/10/95	705.8 - 706.8	631.4	630.4	24.7	SES,KLR	Resurvey when flows drop off
249	Dakota (pre-dredge)	19	7/27/95	705.8 - 706.8	631.3	630.4	41.8	SES,KLR	Resurvey when flows drop off
267	Dakota (post-dredge)	19	8/10/95	705.8 - 706.8	631.1	630.4	46.4	SES,KLR	
41	Dakota "A"	19	4/3/95	705.8 - 706.6	630.4	630.4	40.9	JRM,KLR	
35	Dresbach "C"	19	4/1/95	704.8 - 705.7	631.3	630.4		JRM,JHJ	
117	Dresbach "C"	19	5/11/95	704.8 - 705.7	631.4	630.4		JRM,MS	No action required
157	Dresbach (pre-dredge)	19	6/6/95	704.8 - 705.7	626.9	620.0	19.6	JRM,KLR	Resurvey when water recedes
224	Dresbach (post-dredge)	19	7/7/95	704.8 - 705.7	624.2	620.0	99.8	SES,JRM	Resurvey when flows drop off
212	Dresbach "C" (pre-dredge)	19	6/30/95	704.7 - 705.2	622.8	620.0	98.7	JHJ,KLR	
171	Dresbach "B"	19	6/13/95	704.0 - 705.0	620.6	620.0	52.5	JRM,KLR	
34	Dresbach "B"	19	4/1/95	704.0 - 704.8	620.9	620.0	33.7	RCH,KLR,JHJ	No action required
156	Dresbach "B"	19	6/6/95	704.0 - 704.8	621.4	620.0	55.8	JRM,KLR	Dredge as shown
33	Dresbach "A"	19	4/1/95	703.5 - 704.0	624.0	620.0	23.8	SES,JRM	Resurvey when flows drop off
113	Dresbach "A"	19	5/9/95	703.5 - 704.0	622.9	620.0	28.7	JHJ,KLR	
147	Dresbach (Dredge Cut Check)	16	5/25/95	703.2 - 703.7	620.3	620.0	37.1	JHJ,KLR	
170	Dresbach (post-dredge)	19	6/13/95	703.2 - 703.7	620.4	620.0	16.4	KLR,JHJ	No action
32	Upper Approach L&D 7	19	3/31/95	702.7 - 703.5	623.8	620.0	70.5	SES,JRN	Resurvey when flows drop off
112	Upper Approach L&D 7	19	5/8/95	702.7 - 703.5	622.3	620.0	73.2	KLR,JHJ	
263	Lower Land wall L&D 7	19	8/8/95	702.5	621.2	620.0	70.2	JRM,KLR	No action
29	Above LaCrosse RR Bridge	19	3/30/95	699.8 - 700.3	620.8	620.0	66.4	JRM,KLR	Dredge area as shown
28	LaCrosse "B"	19	3/30/95	698.2 - 699.4	620.5	620.0	59.6	JRM,KLR	Dredge as shown
229	Below LaCrosse RR Bridge	19	7/11/95	698.2 - 699.4	620.3	620.0	13.3	RCH,JHJ	No action required
26	Above Brownsville "C"	19	3/29/95	690.2 - 690.9	623.6	620.0	54.1	SES,JRM	Resurvey when flows drop off
144	Above Brownsville "C"	19	5/24/95	690.2 - 690.9	622.1	620.0	55.1	KLR,JHJ	
213	Above Brownsville "C"	19	6/30/95	690.2 - 690.9	620.7	620.0	50.9	JRM,KLR	Dredge area as shown
254	Above Brownsville (post-dredge)	19	7/27/95	690.2 - 690.9	620.3	620.0	49.4	JRM,KLR	Dredge as shown
21	Above Brownsville "B"	19	3/28/95	689.7 - 690.3	620.9	620.0	78.1	SES,JRB	No action
139	Above Brownsville "B"	19	5/23/95	689.7 - 690.3	622.0	619.8	40.0	SES,KLR	No action required
209	Above Brownsville "B"	19	6/29/95	689.7 - 690.3	622.0	619.7	92.8	SES,KLR	No action required

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Table A7 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
258	Above Brownsville (post-dredge)	19	7/29/95	689.7 - 690.3	622.0	619.6	112.9	JRM,MS	No action required
20	Above Brownsville "A"	19	3/28/95	689.1 - 689.8	622.1	619.6	108.1	SES,KLR	No action required
138	Above Brownsville "A"	19	5/23/95	689.1 - 689.8	610.9	610.4	13.5	RCH,JHJ	No action
208	Above Brownsville "A"	19	6/29/95	689.1 - 689.8	611.1	610.4	107.2	JAL,BDP,RCH	Dredge as shown
274	Brownsville "B"	19	8/25/95	688.4 - 689.2	610.8	610.3	122.8	JRM,KLR	No action required
15	Head of Raft Channel "C"	19	3/26/95	688.1 - 694.4	610.9	610.3	107.2	JHJ,KLR	
130	Brownsville "C"	19	5/17/95	688.1 - 689.4	611.1	610.4	122.8	SES,KLR	Erroneous survey
201	Brownsville "C"	19	6/27/95	688.1 - 689.4	610.7	610.3	42.2	RCH,JHJ,KLR	
13	Head of Raft Channel "B"	19	3/25/95	687.5 - 688.1	610.7	610.3	53.5	JRM,KLR	No action required
137	Head of Raft Channel "B"	19	5/22/95	687.5 - 688.1	610.8	610.3	55.0	JHJ,KLR	
207	Head of Raft Channel "B"	19	6/29/95	687.5 - 688.1	611.0	610.3	52.6	SES,KLR	Erroneous survey
273	Head of Raft Channel	19	8/25/95	687.4 - 688.4	632.8	631.0	3.1	KLR,JHJ	No action
14	Head of Raft Channel "A"	19	3/26/95	687.1 - 687.5	687.3	687.3	92.1	RCH,JRB	Dredge area as shown
136	Head of Raft Channel "A"	19	5/22/95	687.1 - 687.5	687.3	687.2	24.8	RCH,JRB	No action
202	Head of Raft Channel "A"	19	6/28/95	687.1 - 687.5	650.3	650.2	3.4	SES,JAL	No action
132	Blw Head Raft Channel "B"	19	5/18/95	686.7 - 687.2	669.1	667.0	64.7	RCH,JRB	Dredge as shown
204	Below Head of Raft Channel "B"	19	6/28/95	686.7 - 687.2	675.2	674.6	65.7	RCH,JRB	Dredge area as shown
17	Blw Head of Raft Channel "B"	19	3/27/95	686.6 - 687.1	74.8	674.6	55.3	SES,BDP,KLR	Dredge area as shown
16	Blw Head of Raft Channel "A"	19	3/27/95	686.1 - 686.7	666.8	666.8	31.7	SES,JRB	Dredge area as shown
133	Blw Head Raft Channel "A"	19	5/18/95	686.1 - 686.7	687.9	687.2	9.9	RCH,KLR	No action
203	Below Head of Raft Channel "A"	19	6/28/95	686.1 - 686.7	687.5	687.2	15.2	RCH,KLR	No action
160	Pool 8 Phase 1	53	5/31/95	686.0	687.5	687.2	16.4	RCH,KLR	No action
143	Pool 8 Islands Phase 1	53	4/5/95	685.0	687.6	687.2	15.8	RCH,KLR	No action
155	Lower Approach L&D 8	19	6/1/95	678.9 - 679.1	687.6	687.2	15.5	RCH,KLR	No action
91	Indian Camp Lite "B"	19	4/26/95	665.5 - 666.5	687.6	687.2	15.6	RCH,KLR	No action
151	Indian Camp Lite "B"	19	5/31/95	665.5 - 666.5	687.5	687.2	15.5	RCH,KLR	No action
218	Indian Camp Lite (pre-dredge)	19	7/5/95	665.5 - 666.5	688.1	687.2	10.3	RCH,KLR	No action
259	Indian Camp Lite Post Dredge)	19	7/29/95	665.5 - 665.9	688.1	687.2	6.9	RCH,KLR	No action
182	Indian Camp Lite (pre-dredge)	19	6/16/95	665.3 - 665.9	645.5	645.5	11.7	JAL,SES	No action
90	Indian Camp Lite	19	4/27/95	665.1 - 665.5	687.9	687.2	16.4	RCH,KLR	No action
150	Indian Camp Lite "A"	19	5/30/95	665.1 - 665.5	723.2	722.8	19.3	RCH,KLR	Dredge area as shown

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Table A7 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
237	Lansing Upper Lite (post-dredge)	53	7/17/95	664.4 - 664.8	723.7	722.8	15.5	RCH,KLR	Dredge area as shown
244	Lansing Upper Lite (post-dredge)	53	7/20/95	664.4 - 664.8	723.3	722.8	45.5	RCH,KLR	No action
8 9	Lansing Upper lite "D"	19	4/27/95	664.3 - 665.1	723.8	722.8	47.4	RCH,KLR	Dredge area as shown
149	Lansing Upper Lite "D"	19	5/26/95	664.3 - 665.1	723.9	722.8	45.0	RCH,KLR	Dredge area as shown
190	Lansing Upper Lite "D"	19	6/20/95	664.3 - 665.1	723.1	722.8	10.4	RCH,KLR	No action
195	Lansing Upper Lite (pre-dredge)	19	6/23/95	664.3 - 665.1	687.5	687.2	11.9	RCH,KLR	
221	Lansing Upper Lite (pre-dredge)	19	7/6/95	664.3 - 665.1	674.4	674.6	25.3	RCH,KLR	No action
232	Lansing Upper Lite (post-dredge)	19	7/14/95	664.1 - 664.3	667.3	667.0	64.0	SES,BRN	No action
88	Lansing Upper Lite "C"	19	4/27/95	663.6 - 664.2	668.3	667.0	109.4	RCH,KLR	Dredge area as shown
148	Above Lansing "C"	19	5/25/95	663.6 - 664.2	668.0	667.0	134.5	RCH,KLR	No action
193	Lansing Upper Lite (pre-dredge)	19	6/22/95	663.6 - 664.2	667.2	666.8	74.4	RCH,KLR	Dredge area as shown
219	Lansing Upper Lite (pre-dredge)	19	7/5/95	663.6 - 664.2	667.5	666.9	90.0	RCH,KLR	Dredge area as shown
191	Lansing "B"	19	6/20/95	663.1 - 663.7	688.7	687.2	16.9	SES,JAL	No action
102	Capoli Bluff "B"	19	5/4/95	658.5 - 658.9	690.6	687.2	12.4	SES,JAL	Dredge area as shown
103	Capoli Bluff "A"	19	5/1/95	657.4 - 658.5	688.9	687.2	4.8	SES,JAL	Dredge area as shown
100	Capoli Slough	53	5/2/95	656.4 - 658.2	667.0	666.6	92.5	RCH,JRB	No action
101	Above Heitmans	19	5/1/95	656.3 - 657.4	667.0	666.7	62.7	RCH,KLR	Dredge area as shown
334	Boulanger Bend	16	10/20/95	819.7 - 820.9	686.9	686.7	82.1	RCH,JRB	
336	Coulters Island (post-dredge)	16	10/23/95	801.4 - 802.5	675.1	674.3	79.9	RCH,JRB	No action
335	Reads Ldg Holding area (post-dredge)	16	10/19/95	762.0	670.2	667.0	11.5	RCH,JRB	
351	Teepeeota Point (post-dredge)	16	11/1/95	758.9 - 759.3	668.9	666.9	29.8	RCH,JRB	
350	Crats Island (post-dredge)	16	11/1/95	757.3 - 757.7	668.2	666.8	31.3	RCH,JRB	
342	Mule Bend	16	10/25/95	747.5 - 748.8	661.1	660.0	115.7	RCH,JRB	No action
343	Below West Newton	16	10/25/95	747.0 - 747.5	661.0	660.0	51.4	RCH,JRB	
352	Below Minneiska	16	11/3/95	741.0 - 741.6	660.0	659.7	64.3	SES,JRB	No action
349	Above Brownsville "C"	19	10/31/95	690.2 - 691.0	631.8	630.6	65.9	SES,KLR	
347	Above Brownsville "B"	19	10/31/95	689.8 - 690.2	631.7	630.6	41.8	SES,KLR	
348	Above Brownsville "A"	19	10/31/95	689.0 - 689.8	631.6	630.6	65.9	SES,KLR	

(Sheet 11 of 12)

Table A7 (Concluded)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
345	Head of Raft Channel	19	10/27/95	688.2 - 689.2	621.2	620.6	77.1	SES,KLR	No action
344	Head of Raft Channel	19	10/26/95	686.9 - 688.2	620.9	620.5	131.8	SES,KLR	No action
346	Below Head of Raft Channel	19	10/30/95	686.4 - 687.2	631.4	630.4	65.7	SES,KLR	
341	Indian Camp Lite	19	10/25/95	665.4 - 666.6	621.3	620.0	68.9	SES,KLR	No action
340	Indian Camp Lite	19	10/25/95	664.9 - 665.4	621.2	620.0	37.8	SES,KLR	No action
339	Lansing Upper Lite	19	10/25/95	664.3 - 665.0	621.0	620.0	53.7	SES,KLR	No action
338	Lansing Upper Lite	19	10/24/95	663.6 - 664.3	620.9	620.0	55.1	SES,KLR	No action
337	Jackson Island	19	10/23/95	643.9 - 645.0	616.5	611.0	74.5	SES,KLR	No action
196	McMillan Island (post-dredge)	53	6/25/95	618.8 - 619.0	667.2	666.8	106.0	RCH,KLR	Dredge area as shown
172	McMillan Island "C"	53	6/13/95	618.7 - 619.3	661.2	659.7	118.9	RCH,KLR,JRB	Dredge area as shown
184	McMillan Island "B"	19	6/15/95	618.3 - 619.5	661.4	659.8	70.7	RCH,KLR,JRB	Dredge area as shown
262	McMillan Island "C"	19	7/31/95	618.3 - 619.5	611.2	610.3	41.3	SES,KLR	No action
327	McMillan Island (post-dredge)	19	10/12/95	618.2 - 619.5	611.4	610.4	104.5	SES,KLR	No action
286	McMillans Island "B"	19	8/28/95	618.2 - 619.2	690.6	687.2	12.6	RCH,JRB	No action
257	McMillan Island	19	7/30/95	618.0 - 618.5	667.3	666.7	120.5	RCH,JRB	Dredge area as shown
326	McMillan Island (post-dredge)	19	10/12/95	617.7 - 618.2	667.6	666.8	60.6	RCH,JRB	Dredge area as shown
183	McMillan Island "A"	19	6/15/95	617.6 - 618.2	692.9	687.2	16.1	RCH,JRB	No action
261	McMillan Island "A"	19	7/31/95	617.6 - 618.2	660.6	659.8	90.0	RCH,JRB	Dredge area as shown
285	McMillan Island "A"	19	8/28/95	617.6 - 618.2	661.0	659.9	144.6	RCH,JRB	No action

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Table A8
Hydrographic Survey Summary
U.S. Army Engineer District, St. Paul, Waterways Section, Survey and Dredge Inspection
Updated: 13 December 1995 - Continuous Update

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
	USAF Turning Basin		6/29/95	857.1.- 857.3	799.2	796.5			
	Above Lowry Ave Bridge		6/29/95	856.4 - 857.1	799.0	796.5			
	Below Lowry Ave Bridge		6/28/95	855.8 - 856.4	798.3	796.5			
	Abv. & Blw. Broadway Ave. Br.		6/28/95	855.3 - 855.8	798.1	796.5			
	Abv. & Blw. Plymouth Ave. Br.		6/20/95	854.9 - 855.3	799.9	796.5			
	Above Nicolett Island		6/20/95	854.5 - 854.9	799.1	796.5			
	Nicolett Island		6/20/94	854.1 - 854.5	799.2	796.5			
	Upper Apprch USAF L&D		5/26/05	854.0 - 854.1		796.5			
	Intermediate Pool		9/14/89	853.4 - 854.0	750.1	749.3			
	Lower Appch LSAF		9/13/94	853.2 - 853.4	724.5	722.8			
	Blw Washington Ave.		6/27/94	852.7 - 852.8	726.2	722.8			
	Abv & Blw Washington Br.		9/27/95	852.0 - 853.4	728.9	722.8			
	Below Franklin Ave. Br.		9/27/95	851.0 - 852.1	723.8	722.8			
	Above Lake Street Bridge		9/27/95	849.9 - 851.0	723.7	722.8			
	Below Lake Street Bridge		9/28/95	849.0 - 849.9	723.3	722.8			
	St Paul Daymark		9/28/95	847.9 - 849.0	723.2	722.8			
	Upper Approach L&D 1		9/28/95	847.4 - 847.9	723.1	722.8			
	Lower Approach L&D 1		9/14/94	847.4 - 847.5	689.3	687.2			
	Fort Snelling Cutoff "B"		8/26/91	846.4 - 847.0	688.2	687.2			
	Fort Snelling Cutoff "A"		5/20/92	846.2 - 846.6	689.0	687.2			
	Above Highway 5 Bridge		9/9/94	845.6 - 846.1	689.0	687.2			
	Below Highway 5 Bridge		9/9/94	845.1 - 845.6	688.9	687.2			
	Pike Island		9/21/94	844.0 - 845.1	688.3	687.2			
	Above & Below Mouth Minnesota River		9/21/94	843.8 - 844.1	688.2	687.2			
	Abv. & Blw. Hwy 35 E Br.		9/21/94	843.1 - 843.8	688.1	687.2			
	Lillydale / Gasoline Alley		9/21/94	842.1 - 843.1	688.4	687.2			
	Abv. & Blw. Omaha RR BR.		9/21/94	841.0 - 842.2	688.3	687.2			
	Abv. & Blw. Smith Ave. Br.		9/21/94	839.9 - 841.0	688.2	687.2			

Note: Material from U.S. Army Engineer District, St. Paul.

(Sheet 1 of 11)

Table A8 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
	Above Harriet Island		9/21/94	839.5 - 839.7	687.9	687.2			
	Harriet Island		4/20/94	839.1 - 839.5	692.7	687.2			
	Abv. & Blw. Lafayette Br.		9/6/89	838.0 - 839.1	687.2	687.2			
	St. Paul Barge Terminal "A"		9/14/95	837.2 - 838.1	687.3	687.2			
	Lower St. Paul Barge Terminal		9/14/95	836.0 - 837.2	687.3	687.2			
	Abv. & Blw. Beltline RR Br.		8/10/82	835.1 - 836.0	687.4	687.2			
	Blw Beltline RR Br.			834.4 - 835.1		686.2			
	Armour / Abv 494 Bridge		7/26/95	833.5 - 834.4	687.2	687.2			
	Above 494 Bridge		7/26/95	832.6 - 833.5	688.7	687.2			
	494 Bridge		8/24/94	831.5 - 832.6	687.5	687.2			
	Blw Cudahy/494 Br.		8/24/94	830.5 - 831.5	687.2	687.1			
	Merimac Island Daymark			829.5 - 830.5		687.1			
	St. Paul Park		7/12/95	828.8 - 829.8	687.8	687.0			
	Grey Cloud Slough		6/13/95	827.6 - 828.4	688.7	687.0			
	Above Robinson's Rock		6/4/94	826.8 - 827.6	687.0	686.9			
	Below Robinsons Rock		6/13/95	825.6 - 826.8	688.4	686.9			
	Pine Bend Foot Light "D"		6/13/95	824.6 - 825.2	688.1	686.9			
	Pine Bend Head Lite "C"		6/14/95	824.1 - 824.6	688.0	686.8			
	Pine Bend Foot Lite "B"		6/14/95	823.1 - 824.1	687.8	686.8			
	Pine Bend Foot Lite "A"		6/14/95	822.6 - 823.1	687.6	686.8			
	Grey Cloud Landing		6/12/95	821.9 - 822.6	687.5	686.8			
	Grey Cloud Landing		6/8/95	821.0 - 821.9	687.2	686.8			
	Boulanger Bend		7/25/95	820.5 - 821.5	687.2	686.7			
	Boulanger Bend "B"		10/20/95	819.7 - 820.9	686.9	686.7			
	Boulanger Bend Lower Lite		6/9/95	819.1 - 819.5	687.2	686.6			
	Boulanger Bend "A"		6/7/95	818.1 - 819.1	687.1	686.6			
	Above Ninninger			817.5 - 818.1		686.6			
	Freeborn lite		7/11/95	816.2 - 817.3	686.9	686.6			
	Upper Approach L&D 2		7/11/95	815.3 - 815.8	686.8	686.6			
	Lower Approach L&D 2		8/14/93	814.8 - 815.3	680.5	675.0			
	Above Hastings			814.0 - 814.8		675.0			
	Hastings			813.4 - 814.0		675.0			
	Below Hastings			812.5 - 813.4		674.9			
	Above Point Douglass			812.1 - 812.5		674.9			

(Sheet 2 of 11)

Table A8 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
	Point Douglass		10/4/83	811.5 - 812.1	675.4	674.9			
	Mouth St. Croix River			811.3 - 811.5		674.9			
	Prescott		4/6/95	810.0 - 811.3	681.9	674.9			
	Below Prescott			809.2 - 810.0		674.8			
	Four Mile Island		9/27/83	808.0 - 809.2	674.8	674.8			
	Below Four Mile Island			807.0 - 808.0		674.7			
	Above Smith Bar			805.9 - 807.0		674.7			
	Smith Bar Upper Lite		9/13/95	805.2 - 806.3	675.2	674.6			
	Above Big River		6/21/95	804.2 - 805.2	674.5	674.5			
	Big River		5/30/84	803.2 - 804.2	675.7	674.5			
	Coulter's Island "C"		6/20/95	802.3 - 803.2	675.3	674.4			
	Coulters Island "B"		7/20/95	801.9 - 802.5	675.2	674.4			
	Coulters Island "A"		7/19/95	801.1 - 801.9	675.1	674.3			
	Above Diamond Bluff		6/15/95	800.1 - 801.1	674.7	674.3			
	Diamond Bluff		6/15/95	799.0 - 800.1	674.7	674.2			
	Below Diamond Bluff			798.6 - 799.0		674.2			
	Above L&D 3		7/6/95	797.7 - 798.6	674.6	674.1			
	L&D 3		8/30/92	796.7 - 797.7	674.9	674.1			
	Below L&D 3 Main Channel		11/3/92	796.0 - 796.7	669.0	667.0			
	Trenton, Wisc.		10/2/95	793.2 - 794.8	668.3	667.0			
	Cannon River		9/13/95	792.3 - 793.2	669.1	667.0			
	Above Red Wing		8/5/94	791.7 - 792.4	669.1	667.0			
	Red Wing		8/4/94	790.9 - 791.7	668.9	667.0			
	Below Red Wing Highway Br.		8/4/94	790.1 - 790.9	668.8	667.0			
	Above Goose Bay		10/27/93	788.8 - 789.1	688.3	667.0			
	Goose Bay		5/9/68	787.6 - 788.8	668.2	667.0			
	Below Goose Bay		5/8/68	786.5 - 787.6	668.3	667.0			
	Above Wacouta Point			786.0 - 786.5		667.0			
	Head Lake Pepin/Wacouta Pt.		10/3/95	784.1 - 786.0	668.0	667.0			
	Above Mouth Chippewa River			763.8 - 764.5		667.0			
	Chippewa River Delta		11/11/95	763.1 - 763.8	669.3	667.0			
	Abv Reads Landing		6/2/93	762.9 - 763.8	672.4	667.0			
	Reads Landing		4/20/95	762.1 - 763.3	671.6	667.0			
	Abv Drury Island		9/15/92	761.6 - 762.1	667.1	667.0			

(Sheet 3 of 11)

Table A8 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
	Drury Island		10/3/94	761.0 - 761.6	667.8	667.0			
	Abv Wabasha Br.		9/10/92	760.2 - 761.0	667.3	667.0			
	Wabasha		9/9/92	759.5 - 760.2	667.2	667.0			
	Abv Crats Island		10/4/95	758.5 - 759.5	667.5	666.9			
	Below Crats Island		10/5/95	757.8 - 758.6	667.2	666.8			
	Teepeeota/Below Crats Island "A"		10/16/95	757.2 - 757.8	667.6	666.8			
	Grand Encampment		10/6/95	756.5 - 757.2	667.2	666.8			
	Below Grand Encampment		10/16/95	755.6 - 757.0	667.3	666.7			
	Abv Beef Slough		10/5/94	754.6 - 755.6	667.0	666.6			
	Beef Slough		10/10/95	753.6 - 754.6	667.0	666.6			
	Upper Approach L&D 4		10/6/94	753.0 - 753.6	666.7	666.5			
	Lower Approach L&D 4			752.5 - 753.0		660.0			
	Alma Lower Lite		4/28/92	751.8 - 752.5	665.6	660.0			
	Upper Zumbro		4/23/93	750.6 - 751.8	665.6	660.0			
	Zumbro River		5/25/93	749.9 - 750.6	663.6	660.0			
	Upper Zumbro		5/27/93	749.1 - 749.9	663.0	660.0			
	Above Mule Bend			749.2 - 749.1		660.0			
	Mule Bend		5/23/95	748.3 - 749.2	662.6	660.0			
	Mule Bend		10/25/95	747.5 - 748.8	661.1	660.0			
	Below West Newton		10/25/95	747.0 - 747.5	661.0	659.9			
	Fisher Island		3/24/95	746.1 - 746.5	662.1	659.9			
	Fisher Island		10/18/95	745.3 - 747.0	661.0	659.9			
	Lower Zumbro		10/18/95	744.2 - 745.3	660.6	659.8			
	Lower Zumbro/Somerfield		10/11/95	743.2 - 744.2	661.4	659.8			
	Minneiska "B"		10/11/95	741.8 - 743.2	661.2	659.7			
	Below Minneiska "A"		11/3/95	741.0 - 741.6	660.0	659.6			
	Mount Vernon Lite		6/4/91	739.9 - 741.0	660.4	659.6			
	Richtman Lite		6/3/91	738.9 - 739.9	660.2	659.5			
	Upper Approach L&D 5		5/30/91	738.3 - 738.9	659.8	659.5			
	L&D 5		10/5/89	738.0 - 738.3		659.5			
	Below L&D 5		5/16/91	736.8 - 738.0	656.8	651.0			
	Box Dam		5/15/91	735.9 - 736.8	656.4	651.0			
	Horseshoe Bend		5/16/91	734.8 - 735.9	656.0	651.0			
	Above Island 58		5/9/91	733.8 - 734.8	653.3	650.9			

(Sheet 4 of 11)

Table A8 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
	Island 58		5/15/95	733.1 - 733.8	653.0	650.7			
	Fountain City		5/7/91	732.1 - 733.1	652.1	650.5			
	Betsy Slough		6/8/95	730.8 - 732.1	650.8	650.4			
	Wilds Bend "B"		7/25/95	730.3 - 730.8	650.2	650.2			
	Wilds Bend "A"		7/25/95	729.6 - 730.3	650.3	650.2			
	L&D 5A		5/6/91	728.5 - 729.6	650.1	650.0			
	Below L&D 5A		5/29/91	727.4 - 728.3	649.4	645.5			
	Island 71		5/30/91	726.9 - 727.4	649.7	645.5			
	Above Winona		6/4/91	726.0 - 726.9	650.2	645.4			
	Winona		6/5/91	725.2 - 726.0	650.6	650.6			
	Winona "A"		6/6/91	724.5 - 725.2	651.0	645.4			
	Abv Lower Winona RR Br.		7/16/92	724.0 - 724.5	647.4	645.2			
	Lower Winona RR Br.		7/14/95	723.2 - 724.0	645.8	645.2			
	Blw Lower Winona RR Br		8/12/92	722.4 - 723.2	645.0	645.1			
	Gravel Point "C"		4/7/94	722.0 - 722.4	646.3	644.9			
	Gravel Point "B"		4/13/95	721.1 - 722.0	646.7	644.9			
	Homer		8/23/95	720.4 - 721.1	645.6	644.8			
	Blacksmith Slough		5/31/95	719.5 - 720.4	646.5	644.7			
	Blacksmith Slough		5/31/95	718.4 - 719.5	646.3	644.7			
	Above LaMoile Lite "B"		4/28/93	717.2 - 718.4	646.2	644.6			
	Above LaMoile Light "A"		4/27/93	716.2 - 717.2	645.3	644.6			
	Above L&D 6		6/13/91	715.5 - 716.2	644.7	644.6			
	Upper Approach L&D 6		9/1/93	714.5 - 714.8	644.6	644.5			
	Lower Approach L&D 6		9/21/93	713.6 - 714.5	641.5	638.5			
	Tremp. Lower Daymark			713.3 - 713.6		638.5			
	Above Richmond Island		5/6/93	712.6 - 713.3	644.1	638.5			
	Head Richmond Island		5/5/93	711.8 - 712.6	643.4	638.5			
	Lower Richmond Island		5/4/93	711.3 - 711.8	642.9	638.5			
	Queens Bluff Daymark		5/4/93	710.3 - 711.3	642.4	638.5			
	Winters Landing "C"		5/3/93	709.6 - 710.3	642.1	638.5			
	Winters Landing "B"		4/7/95	708.7 - 709.6	641.0	638.5			
	Winters Landing "A"		8/8/95	707.8 - 708.7	639.5	638.5			
	Dakota "C"		8/9/95	707.2 - 707.8	639.4	638.5			
	Dakota "B"		8/8/95	706.7 - 707.2	639.4	638.5			

(Sheet 5 of 11)

Table A8 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
	Dakota "A"		5/10/95	705.7 - 706.5	640.0	638.5			
	Dresbach "C"		5/11/95	704.8 -705.7	639.4	638.5			
	Dresbach "A"		6/13/95	704.0 - 704.8	639.0	638.5			
	Dresbach "B"		5/9/95	703.5 - 704.0	639.1	638.5			
	Upper Approach L&D 7		5/8/95	702.7 - 703.5	638.7	638.5			
	Lower Approach L&D 7		8/8/95	701.8 - 702.7	632.8	631.0			
	Below I-90 Bridge		5/11/94	701.5 - 702.2	637.8	631.0			
	La Crosse Rail Road Bridge		5/6/94	700.4 - 701.5	638.8	631.0			
	Above La Crosse RR Bridge		3/30/95	699.3 - 700.3	636.3	631.0			
	La Crosse/Below La Crosse RR Bridge		7/11/95	698.2 - 699.3	632.0	631.0			
	Below La Crosse		5/5/94	697.6 - 698.2	636.2	631.0			
	Broken Arrow "B"		5/20/93	696.3 - 697.3	635.6	631.0			
	Broken Arrow "A"		5/19/93	695.5 - 696.3	635.2	631.0			
	Above Sand Slough		5/19/93	694.8 - 695.5	634.8	630.9			
	Sand Slough		5/18/93	694.1 - 694.8	634.4	630.8			
	Root River		5/17/93	693.3 - 694.1	634.0	630.8			
	Below Picayune Island "A"		5/14/93	692.1 - 693.3	633.0	630.7			
	Below Picayune Island "B"		5/13/93	691.0 - 692.1	632.4	630.7			
	Above Brownsville Daymark		10/31/95	690.3 - 690.9	631.8	630.6			
	Above Brownsville		10/31/95	689.8 - 690.3	631.7	630.6			
	Above Brownsville Daymark		10/31/95	689.2 - 689.8	631.6	630.6			
	Brownsville "C"		6/27/95	688.2 - 689.2	630.5	630.6			
	Head of Raft Channel "B"		5/22/95	687.5 - 688.1	631.6	630.5			
	Below Head of Raft Channel "A"		10/26/95	686.9 - 688.2	630.9	630.5			
	Below Head of Raft Channel "B"		10/26/95	686.4 - 687.2	631.4	630.4			
	Henning Lite & Daymark "A"		6/28/95	686.1 - 686.7	630.4	630.4			
	Deadmans Slough		4/18/94	685.2 - 686.1	631.2	630.4			
	Crosby Slough		4/18/94	684.2 - 685.2	631.0	630.3			
	Below Crosby Slough		8/11/94	683.3 - 684.4	630.9	630.3			
	Warners Landing		8/1/94	682.1 - 683.5	630.5	630.2			
	Above Coon Slough Light		7/28/94	681.1 - 682.2	630.2	630.1			
	Coon Slough Lite		7/26/94	680.1 - 681.1	630.2	630.1			

(Sheet 6 of 11)

Table A8 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
	Upper Approach L&D 8		7/13/94	679.4 - 680.3	630.4	630.1			
	Lower Approach L&D 8		7/21/94	678.0 - 679.1	620.0	620.0			
	Above Island 126			677.9 - 678.8		620.0			
	Island 126		6/5/90	677.4 - 677.9	623.6	620.0			
	Above Twin Island			677.0 - 677.4		620.0			
	Twin Island		6/1/81	675.9 - 677.0	620.0	620.0			
	Bad Axe Bend		6/20/83	675.0 - 675.9	623.2	620.0			
	Below Bad Axe Bend			674.0 - 675.0		620.0			
	Above Victory "A"			673.1 - 674.0		620.0			
	Above Victory "B"			672.1 - 673.1		620.0			
	Victory			671.4 - 672.1	620.5	620.0			
	Battle Island		8/2/89	670.7 - 671.4	620.5	620.0			
	Below Battle Island "A"			670.3 - 670.7		620.0			
	Below Battle Island "B"		6/13/91	670.0 - 670.3	624.9	620.0			
	Above DeSoto "A"			668.5 - 670.0		620.0			
	Above DeSoto "B"		11/5/93	667.8 - 668.5	620.6	620.0			
	Desoto		7/6/87	667.1 - 667.8	620.3	620.0			
	Below DeSoto			666.5 - 667.1		620.0			
	Indian Camp Lite "B"		10/25/95	665.5 - 666.5	621.3	620.0			
	Indian Camp Lite "A"		10/25/95	664.9 - 665.4	621.2	620.0			
	Lansing Upper Lite "D"		10/25/95	664.2 - 665.1	621.0	620.0			
	Lansing Upper Lite "C"		10/24/95	663.6 - 664.2	620.9	620.0			
	Below Lansing Highway Bridge		6/20/95	663.1 - 663.7	620.9	620.0			
	Atchafalaya Bluff		5/19/88	659.5 - 661.3	620.2	619.8			
	Below Atchafalaya Bluff		5/4/95	658.5 - 658.9	622.0	619.8			
	Above Capoli Bluff		5/4/95	657.4 - 658.5	622.0	619.7			
	Capoli Bluff		5/1/95	656.3 - 657.4	622.1	619.7			
	Above Heytmans Landing		10/8/87	655.6 - 656.1	620.2	619.6			
	Above Crooked Slough "A"		10/9/87	654.7 - 655.6	620.1	619.5			
	Above Crooked Slough "B"			653.6 - 654.6		619.4			
	Above Crooked Slough "C"			652.6 - 653.6		619.3			
	Crooked Slough		7/13/70	651.6 - 652.6	619.9	619.3			
	Above Lynxville "A"			651.3 - 651.6		619.3			
	Lynxville "B"		5/5/92	650.4 - 651.3	621.1	619.2			

(Sheet 7 of 11)

Table A8 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
	Upper Approach L&D 9 "C"		5/5/92	649.7 - 650.4	621.0	619.1			
	Upper Approach L&D 9 "B"		5/4/92	648.9 - 649.7	621.0	619.1			
	Upper Approach L&D 9 "A"		5/1/92	648.1 - 648.9	622.2	619.0			
	Lower Approach L&D 9		8/9/90	647.8 - 648.1	615.3	611.0			
	Hay Point		8/9/90	647.3 - 647.8	615.1	611.0			
	Below Hay Point			646.3 - 647.3		611.0			
	Above Jackson Island		8/17/94	645.0 - 646.0	615.3	611.0			
	Jackson Island		10/23/95	644.0 - 645.0	616.5	611.0			
	Mississippi Gardens		8/3/94	643.4 - 644.0	614.3	611.0			
	Below Mississippi Gardens		8/3/94	642.6 - 643.4	614.2	611.0			
	Above Johnsonport Daymark		8/17/94	642.0 - 642.7	615.0	611.0			
	Johnsonport Daymark		7/8/70	639.9 - 642.0	611.8	611.0			
	Below Johnsonport Daymark			639.0 - 639.9		611.0			
	Above Yellow River			638.0 - 639.0		611.0			
	Scrogum Island			637.0 - 638.0		611.0			
	Scrogum Island Daymark			636.0 - 637.0		611.0			
	Marquette			635.0 - 636.0		611.0			
	Below Marquette			634.0 - 635.0		611.0			
	McGregor		9/27/84	633.3 - 634.0	612.1	611.0			
	Bergman Island			632.5 - 633.3		611.0			
	McGregor Lower Lite			631.5 - 632.5		611.0			
	Mouth of Wisconsin River			630.5 - 631.5		611.0			
	Wisconsin Bend Lite			629.5 - 630.5		611.0			
	Wyalusing Bend Lite		6/3/85	628.6 - 629.5	613.2	611.0			
	Wyalusing		6/3/85	628.0 - 628.6	613.2	611.0			
	Below Wyalusing "A"		9/22/93	627.1 - 628.0	614.3	611.0			
	Below Wyalusing "B"			625.0 - 626.0		611.0			
	Above Clayton			623.9 - 625.0		611.0			
	Clayton		6/29/92	623.5 - 623.9	612.6	610.9			
	Above Hovie Island Daymark			623.0 - 623.5		610.8			
	Hovie Island Daymark			622.6 - 623.0		610.7			
	Hovie Island		7/11/69	621.9 - 622.6	611.3	610.7			
	Below Hovie Island			620.9 - 621.9		610.6			
	French Island Daymark			619.9 - 620.9		610.6			

(Sheet 8 of 11)

Table A8 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
	Above McMillan Island		6/13/95	618.7 - 619.3	611.1	610.4			
	McMillan Island "B"		10/12/95	618.2 - 619.5	611.4	610.3			
	McMillan Island "A"		10/12/95	617.6 - 618.2	611.2	610.3			
	Abel's Island			616.6 - 617.6		610.2			
	Below Abel's Island			616.0 - 616.6		610.2			
	Guttenberg		6/29/87	615.6 - 616.0	611.2	610.1			
	Upper Approach L&D 10			615.2 - 615.6					
	Lower Approach L&D 10		5/26/53	614.0 - 615.2	608.8	603.0			
	Turkey River Lite (RID)		10/2/89	609.0 - 609.9	603.9	603.0			
	Upper East Channel PDC		10/27/93	Alt. Channel	613.6	611.0			
	Middle East Channel PDC		10/26/93	Alt. Channel	613.5	611.0			
	Lower East Channel PDC		8/28/92	Alt. Channel	613.5	611.0			
	Chippewa River Delta		11/11/95	763.1 - 763.6	670.2	667.0			
	Minnesota River								
	Below Continental Grain		9/24/95	M14.4 - M14.7	688.1	687.2			
	Continental Grain		9/24/95	M14.7 - M15.2	688.1	687.2			
	Peterson's Bar "B"		10/5/95	M12.3 - M12.7	690.6	687.2			
	Peterson's Bar "A"		9/24/95	M11.7 - M12.2	687.9	687.2			
	Four Mile Cutoff		9/23/95	M4.0 - M4.3	692.6	687.2			
	Airport Bridge		9/23/95	M3.7 - M4.0	687.6	687.2			
	Mouth Minnesota River		9/23/95	M0.0 - M0.4	687.5	687.2			
	Above Mouth Minnesota River		9/23/95	M0.4 - M1.1	687.5	687.2			
	Below Mendota Bridge		9/23/95	M1.1 - M1.7	687.6	687.2			
	Minnesota River		9/23/95	M5.7 - 6.1	687.6	687.2			
	Lock & Dam Scour								
	USAF		8/29/94	853.7	798.7	796.5			
	LSAF		8/31/94	853.4	725.1	722.8			
	L&D 1 Upper		9/1/94	847.6	724.2	722.8			
	L&D 1 Lower		9/1/94	847.6	688.9	687.2			
	L&D 2 Upper		9/7/94	815.2	686.8	686.5			
	L&D 2 Lower		9/7/94	815.2	675.6	675.0			

(Sheet 9 of 11)

Table A8 (Continued)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
	L&D 3 Upper		9/8/94	674.3	674.3	674.0			
	L&D 3 Lower		9/8/94	669.3	668.7	667.0			
	L&D 4 Upper		9/15/94	752.9	667.4	666.5			
	L&D 4 Lower		9/14/94	752.9	660.6	660.0			
	L&D 5 Upper		9/16/94	738.1	660.4	659.5			
	L&D 5 Lower		11/29/94	738.1	651.6	651.0			
	L&D 5A Upper		10/10/94	728.3	650.1	650.0			
	L&D 5A Lower		11/18/94	728.3	646.0	645.5			
	L&D 6 Upper		11/9/94	714.2	644.5	644.5			
	L&D 6 Lower		11/15/94	714.2	640.4	638.5			
	L&D 7 Upper		11/16/94	702.2	639.0	638.5			
	L&D 7 Lower		11/17/94	702.2	632.3	631.0			
	L&D 8 Upper		11/14/94	679.1	630.1	630.0			
	L&D 8 Lower		11/15/94	679.1	621.4	620.0			
	L&D 9 Upper		11/21/94	647.9	619.5	619.0			
	L&D 9 Lower		11/22/94	647.9	615.3	619.0			
	L&D 10 Upper		11/21/94	615.1	611.0	610.0			
	L&D 10 Lower		11/21/94	615.1	606.5	603.0			
	Small Boat Harbors								
	Harriet Island Small Boat Harbor		10/4/95	839.6	688.9	687.2			
	Hastings Small Boat Harbor		1/5/94	813.2	676.1	675.0			
	Red Wing Small Boat Harbor		1/3/94	791.2	668.7	667.0			
	Red Wing Commercial Harbor		3/8/93	791.4	668.6	667.0			
	Lake City Small Boat Harbor		1/10/94	772.8	667.5	667.0			
	Pepin Small Boat Harbor		8/27/90	767.0	668.2	667.0			
	Alma Small Boat Harbor		1/11/94	754.0	666.5	666.6			
	Wabasha Small Boat Harbor		1/6/93	760.5	667.1	667.3			
	Winona Small Boat Harbor		9/26/95	726.2	645.5	645.4			
	Winona Commercial Harbor		9/19/94	726.3	647.4	645.4			
	Lansing Small Boat Harbor		2/4/92	663.6	620.4	620.0			
	Prairie du Chien Commercial Harbor		10/16/90	East Channel	612.4	611.0			

(Sheet 10 of 11)

Table A8 (Concluded)

No.	Site	Lch.	Date	River Mile	WS El	LCP	Acres	Party	Remarks
	Prairie du Chien Small Boat Harbor		1/15/93	East Channel	612.8	611.0			
	Zipple Bay Entrance Channel		2/25/95	LWD 1056.5	1058.6	1052.0			
	Warroad		2/28/95	LWD 1056.0	1095.0	1046.5			
	Spillways								
	5A Spillway L&D 5A		12/95						
	6 Spillway L&D 6		12/95						
	Onalaska Spillway L&D 7		1/96						
	French Island Spillway L&D 7		1/96						
	Hastings Slough Spillway L&D 8		1/96						
	Reno Spillway L&D 8		1/96						
	L&D 9 Spillway		1/96						
	L&D 10 Spillway		1/96						

(Sheet 11 of 11)

Table A9
Hydrographic Survey Summary - Miscellaneous Survey Update
1989 Season

Job Name	Purpose	Start	Complete	Person Days
L/D 4 Dewatering Sys	O&M	8/12/88	20/02/89	31 EST
L/D 4 Lock Floor Mapping	O&M	13/12/88	17/12/88	15
L/D 4 Gate Pre-stress	O&M	21/02/89	02/03/89	9
Lake Onalaska (Original)	EMP	07/02/89	06/03/89	49
Indian Slough (Map & SDG)	EMP	06/02/89	27/03/89	117
Smallboat (Install & Train)	O&M	10/03/89	20/03/89	27
Indian Slough Wingdams (Map)	EMP	02/05/89	02/05/89	8
Ft City Disposal (Boundary)	O&M	26/05/89	27/05/89	8
Finger Lakes (X-SEC)	EMP	07/03/89	10/03/89	12
Lamberts Landing	ED	20/03/89	23/03/89	14
Blackhawk (Up & Low Green Lk)	O&M	06/03/89	14/03/89	21
Blackhawk Boundary	O&M	03/89	03/89	9 EST
L/D 5 Align/Settle/P BOB	O&M	12/88	01/89	120
L/D 10 Align/Settle/P BOB	O&M	Canceled	02/89	30
L/D 9 Align/Settle/P BOB	O&M	07/02/89	16/02/89	17
L/D 8 Align/Settle/P BOB	O&M	02/89	03/89	24
L/D 7 Align/Settle/P BOB	O&M	03/89	03/89	21
Sturgeon Lake (Soundings)	ED-O&M	26/09/89	29/09/89	8
Lake Onalaska after Dredge	EMP	07/10/89	10/10/89	14
Belvedere Slough (Weaver)	O&M	16/10/89	31/10/89	14
Spring Lake Area Gages	O&M	11/06/89	11/89	4
Weaver Gages	O&M		04/89	12
Lansing	O&M	12/88	01/89	30 EST
Weaver	O&M	12/88	02/89	44 EST
Wilds Bend	O&M		04/89	6
L/D 5 Dewatering Prep	O&M		10/89	2
L/D 10 Dewatering Prep	O&M		10/89	2
L/D 5 Monitoring	O&M		12/89	16
Drury Island Sections	O&M	12/19/89	12/26/89	12
L/D 5A Spillway Sections	O&M	11/01/89	11/03/89	9
L/D 6 Spillway Sections	O&M	11/04/89	11/07/89	6
L/D 7 Spillway Sections (Fr. Is.)	O&M	11/09/89	11/12/89	6
L/D 7 Spillway (Ona.)	O&M	11/14/89	11/17/89	6
L/D 8 Spillways (Both)	O&M	11/18/89	11/26/89	12
L/D 9 Spillway Sections	O&M	11/27/89	11/30/89	6
L/D 10 Spillway Sections	O&M	12/02/89	12/06/89	6
L/D 2 GPS Survey (ETL Assist)	O&M	12/01/89	12/04/89	16
Ft City Disposal Boundary	O&M	05/23/89	05/27/89	9
Launch #16 Repair	O&M	05/12/89	05/26/89	23
Indian Slough Mapping	O&M	02/07/89	03/23/89	116
Warner/Shepard Road St Paul	O&M	03/20/89	03/23/89	14

Note: Material from U.S. Army Engineer District, St. Paul

Table A10
Mississippi River Stages
U.S. Army Engineer District, St. Paul
20 December 1995

Station	Today's WS El	Previous WS El 19 Dec 95	LCP El	Change from Previous WS El	Height Abv./Blw. LCP El	Natl. W. Serv. Gage "0"	Natl. W. Serv. Gage @ LCP	Natl. W. Serv. Flood Stage	Today's Natl. W. Serv. Stage
Upper Pool	798.7	798.6	796.5	0.1	2.2	794.9	1.6		No WS
Intermed. Pool	749.7	750.0	749.3	-0.3	0.4		No Gage		
Lower SAF	725.3	725.2	722.8	0.1	2.5		No Gage		
Pool 1	724.6	724.4	722.8	0.2	1.8		No Gage		
TW 1	690.0	689.9	687.2	0.1	2.8		No Gage		
St. Paul	688.1	688.1	687.2	0	0.9	684.2	3.0	14	No WS
So. St. Paul	687.7	687.6	687.2	0.1	0.5		No Gage		
Pool 2	686.8	686.6	686.5	0.2	0.3		No Gage		
TW 2	676.4	676.5	675.0	-0.1	1.4	670.7	4.4	15	5.8
Prescott	676.3	676.4	675.0	-0.1	1.3		No Gage		
Pool 3	674.2	674.3	674.0	-0.1	0.2		No Gage		
TW 3	669.4	669.4	667.0	0	2.4		No Gage		
Lake City	668.2	668.2	667.0	0	1.2	661.1	5.9	16	7.1
Wabasha	667.5	667.5	667.0	0	0.5	660.0	7.0	12	7.5
Pool 4	666.6	666.6	666.5	0	0.1		No Gage		
TW 4	661.3	661.3	660.0	0	1.3	656.0	4.0	16	5.3
Alma	660.6	660.6	660.0	0	0.6		No Gage		
Pool 5	659.7	659.6	659.5	0.1	0.2		No Gage		
TW 5	651.9	651.9	651.0	0	0.9		No Gage		
Pool 5A	650.0	650.0	650.0	0	0.0		No Gage		
TW 5A	647.2	647.2	645.5	0	1.7		No Gage		
Winona	646.7	646.7	645.5	0	1.2	640.1	5.4	13	6.6
Pool 6	644.5	644.5	644.5	0	0.0		No Gage		
TW 6	641.2	641.2	638.5	0	2.7		No Gage		
Dakota			638.5	No WS	No WS		No Gage		
Pool 7	639.1	639.0	638.5	0.1	0.6		No Gage		
TW 7	632.9	633.0	631.0	-0.1	1.9		No Gage		
La Crosse	632.3	632.4	631.0	-0.1	1.3	626.3	4.7	12	6.0
Brownsville	630.9	631	630.5	-0.1	0.4		No Gage		
Pool 8	630.1	630.3	630.0	-0.2	0.1		No Gage		
TW 8	623.3	623.3	620.8	0	2.5		No Gage		
Lansing	620.6	620.6	620.0	0	0.6	612.3	7.7	18	8.3
Pool 9	619.3	619.3	619.0	0	0.3		No Gage		
TW 9	616.5	616.5	611.0	0	5.5		No Gage		
McGregor/PDC	615.0	615.0	611.0	0	4.0	605.3	5.7	16	9.7
Clayton			611.0	No WS	No WS	602.6	8.4		8.4
Pool 10	611.2	611.3	610.0	-0.1	1.2		No Gage		
TW 10	607.3	607.3	603.0	0	4.3	600.0	3.0	15	7.3
Jordan MN River	712.6	712.6	707.1	0	5.5	710.0			
Stillwater St Croix	676.5	676.5	675.0	0	1.5	687.0			

Note: Material From U.S. Army Engineer District, St. Paul

Appendix B
Inventory of Historical Data, Lock Construction, Projects in GIS, St. Paul District

Note: The contents of Appendix B were compiled from multiple sources at the St. Paul District Office. One set of files is also found at the Fountain City Maintenance Facility and is so noted. Items are assumed to be at the District Office unless labeled otherwise.

List of Tables

Table B1. Locks and Dams in U.S. Army Engineer District, St. Paul B2

Table B2. Summary of Digitized Project Areas in GIS, U.S. Army Engineer District, St. Paul B3

Table B3. Inventory of Historical Data Related to Hydrographic Surveys, Cross-section, and Topography on the Upper Mississippi River, St. Paul District B4

Table B1
Locks and Dams in U.S. Army Engineer District, St. Paul

Lock & Dam	Miles above Ohio River	Nearest Town	Chamber Width (ft)	Chamber Length (ft)	Lift	Upper Normal Pool Elevation	Year Opened to Navigation	Estimated Cost of Each Lock & Dam
St. Anthony Falls, Upper	853.8	Minneapolis	56	400	49.2	799.2	1963	$18,203,000
St. Anthony Falls, Lower	853.4	Minneapolis	56	400	26.0	750.1	1959	$12,382,000
Lock & Dam 1	847.6	Mpls/St.Paul	56	400	35.9	725.1	1917 * 1930/32	$5,661,629
Lock & Dam 2	815.2	Hastings	110	600	12.2	687.2	1930 * 1948	$8,455,143
Lock & Dam 3	796.9	Red Wing	110	600	8.0	675.0	1938	$4,871,327
Lock & Dam 4	752.8	Alma, WI	110	600	7.0	667.0	1935	$4,871,327
Lock & Dam 5	738.1	Minneiska,MN	110	600	9.0	660.0	1935	$5,088,946
Lock & Dam 5a	728.5	Red Wing, MN	110	600	5.5	651.0	1936	$4,558,005
Lock & Dam 6	714.3	Trempealeau, WI	110	600	6.5	645.5	1936	$4,881,301
Lock & Dam 7	702.5	Dresbach, MN	110	600	8.0	639.0	1937	$5,587,201
Lock & Dam 8	679.2	Genoa, WI	110	600	11.0	631.0	1937	$6,076,325
Lock & Dam 9	647.9	Lynnville, WI	110	600	9.0	620.0	1938	$6,560,252
Lock & Dam 10	615.1	Gutenberg, IA	110	600	8.0	611.0	1936	$4,802,286

Note: * years modified

Note: Material from the Office of the Chief of Engineers Annual Report, 1972, pp.29-36.

Table B2
Summary of Digitized Project Areas in GIS
U.S. Army Engineer District, St. Paul

Description	Format	Pool	Date	U.R.M	D.R.M	Nav. Chart No.	Scale
Springlake	gis	2	1989	823.5	815.3	14 - 15	
Clear Lake	gis	2	1989	847.6 *	815.3 *	11 - 15 *	
Goose Lake	gis	2	1989	847.6 *	815.3 *	11 - 15 *	
Archeological sites	gis	3	1992	815.3 *	797.0 *	15 - 18 *	
Miesville							
Welch							
Bluff							
Cannon							
UMR Improvement		4	1995	753.3	751.0	24	400
Beef Slough		4	1995	755.4	753.4	24	
Peterson Lake	gis	4	1992	797.0 *	752.8 *	18 - 24 *	
Big Lake	gis	4	1992	797.0 *	752.8 *	18 - 24 *	
Drury Lake	gis	4	1990	797.0 *	752.8 *	18 - 24 *	
Polander Lake	gis	5	1990	752.8 *	738.2 *	24 - 26 *	
Whitewater River	gis	5	1993	752.8 *	738.2 *	24 - 26 *	
Spring Lake	gis	5	1995	752.8 *	738.2 *	24 - 26 *	
Pool 5	gis	5	1990	752.8 *	738.2 *	24 - 26 *	
Whitewater Delta 1974	gis	5	1990	752.8 *	738.2 *	24 - 26 *	
Lake Onalaska Veg.	gis	7	1991	708.0	702.5	29 - 30	
Pool 8 dem. reclass.	gis	8	1991	702.5 *	679.2 *	31 - 34 *	
Pool 8 great	gis	8	1991	702.5 *	679.2 *	31 - 34 *	
Real Estate Inf.	gis	9	1990	679.2 *	647.9 *	34 - 39 *	
Real Est. & USFWS	gis	9	1990	679.2 *	647.9 *	34 - 39 *	
Big Lake	gis	9	1989	663.4	667.8	36	
Cold Springs	gis	9	1990	679.2 *	647.9 *	34 - 39 *	
Prairie Du Chien Subs/Bathy	gis/aerial	9	1992	679.2 *	647.9 *	34 - 39 *	
Bussey Lake	gis/depth	10	1991	647.9 *	615.1 *	39 - 44 *	
Archeologicals	gis	10	1990	647.9 *	615.1 *	39 - 44 *	
Pool 10 Base Data	gis	10	1990	647.9 *	615.1 *	39 - 44 *	
Prairie Du Chien dock Bath	gis	10	1990	647.9 *	615.1 *	39 - 44 *	

Note: Material from U.S. Army Engineer District, St. Paul

* River Miles and Navigation Chart Number is for the entire Pool

Table B3
Inventory of Historical Data Related to Hydrographic Surveys, Cross-section, and Topography on the Upper Mississippi River
St. Paul District

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Miss. River Comm. Drawings Look like Cross-sections	**Summary M-Z-0/2 (101-189) (201-278)**	**Cairo-Mpls Mpls-Itasca**	**1895 1895**	**979.0 854.0**	**854.0**	**130 - 10 10 - -**	**20,000" 10,000"**			**gloscloth gloscloth**	**1912 1912**	**20,000 10,000**		**Located at St. Paul District & Fountain City**
Chart No. 170		8	1895	685.0	673.0	35 & 34	20000				1912			
Chart No. 171		8	1895	693.0	685.0	34 & 33	20000				1912			
Chart No. 172		8	1895	700.0	693.0	32	20000				1912			Located at Fountain City
Chart No. 173		8	1895	710.0	700.0	31 & 30	20000				1912			Located at Fountain City
Chart No. 177		4	1895	742.0	732.0	27 & 26	20000				1912			Located at Fountain City/ Channel & Topo inf. inc. side channels & backwater xsec w/depths
Chart No. 178		4	1895	750.0	742.0	25	20000				1912			Located at Fountain City
Chart No. 179		4	1895	760.5	750.0	24 & 23	20000				1912			Located at Fountain City
Chart No. 180		4	1895	765.0	760.5	23	20000				1912			Located at Fountain City
Chart No. 182		4	1895	787.0	776.0	21 & 19	20000				1912			Located at Fountain City
Chart No. 183		4	1895	797.5	787.0	19 & 18	20000				1912			Located at Fountain City
Brown's Surveys - Hastings MN to Guttenberg IA Guttenberg IA to Grafton IL	**Summary (Sheets 1-43 (Sheets 44-129**	**1-10 11-26**	**1929-30 1929-30**	**815.3 583.0**	**615.2 203.0**	**15 - 44 48 - 104**	**12,000 12,000**					**1929 1929**		**In booklet, sheet, and aerial photo formats**

(Sheet 1 of 8)

Table B3 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
(Sheet No. 35		8	1929-30	705.5	700.0	31	12000		5	paper map	1912			Channel surveys every 2000' x-100' some topo contours & Boring Log
(Sheet No. 36		8	1929-30	700.0	697.0	32	12000				1912			Boring Log
(Sheet No. 37		8	1929-30	697.0	691.5	32 & 33	12000				1912			
(Sheet No. 38		8	1929-30	691.5	687.5	33	12000				1912			
(Sheet No. 39		8	1929-30	687.5	679.0	33 & 34	12000				1912			
(Sheet No. 40		9	1929-30	679.0	674.0	34 & 35	12000				1912			
9 foot project			**1932**				**1000**							
Flowage surveys 34sh		**4**	**1932**	**753.0**		**24**	**400**							
Flowage Surveys	**Summary M-S8 (212-103)**	**8**	**1933, 36**	**702.5**	**679.0**	**31 - 34**	**400**		**pt, 5**	**gloscloth /hand**	**1912**			**Root River US of Hwy 16 inc. Old Root R. app. 400' spacing**
	210			700.5	699.0	32								Minnesota Is. West to RR
	209			699.0	697.5	32	400							Blue Lake, Pine Cr. 61 s to Marsh L. w to RR. land & marsh only
	208			699.2	697.0	32								Barron Is and west.
	207													Old Root R North of 212 bounded by Hwy 16
	206			697.5	695.8	32							no	Target Lake area
Root River (45 of 53)(149-53)	204	8	1936	693.8	695.5	32	400				1912		yes	Broken Arrow Sl. to Root R. mouth west
Lawrence Lake N (44 of 53) (149-44)	203	8	1936	693.5	692.0	33	400				1912		yes	Lawrence Lake North

(Sheet 2 of 8)

Table B3 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Lawrence Lake S (43 of 53)(149-43)	202	8	1936	692.0	690.2	33	400				1912		yes	Lawrence Lake south
Lawrence Lake S tip (42 of 53) (149-42)	201	8	1936	690.5	689.0	33	400				1912		yes	Lawrence Lakes tip
W of raft channel (39 of 53)(149-39)	198	8	1936	685.0	684.0	34	400				1912		yes	West of Raft Channel
Around dike line (35 of 53)(149-35)	194	8	1936	681.5	680.5	34	400				1912		yes	Both sides of dike line
Raft channel E (23 of 53)(149-23)	182	8	1936	687.5	686.5	33	400				1912		yes	South end of Island 120
MS E (21 of 53) (149-21)	180	8	1936	688.7	687.5	33	400				1912		yes	Island 120
Mid Slough E to RR (20 of 53) (149-20)	179	8	1936	690.5	689.0	33	400				1912		yes	Eastern ran.bac.seds
MS R E to Mid slough (19 of 53) (149-19)	178	8	1936	690.5	689.0	33	400				1912		yes	Mid slough & eastern ran.bac.seds
Mid slough to RR (18 of 53)(149-18)	177	8	1936	692.0	690.5	33	400				1912		yes	Eastern edge around county boundary
MS R to mid Slough (17 of 53) (149-17)	176	8	1936	692.0	690.5	33	400				1912		yes	Mid slough around county boundary
Mid slough to RR (16 of 53)(149-16)	175	8	1936	693.5	692.5	32	400				1912		yes	Southern eastern edge Mormon slough
MS R to mid slough (15 of 53)(149-15)	174	8	1936	693.5	692.5	32	400				1912		may	
Mid slough to RR (14 of 53)(149-14)	173	8	1936	695.5	693.6	32	400				1912		yes	Mid Mormon slough and north into green is.
MS R to mid slough (13 of 53)(149-13)	172	8	1936	695.5	693.6	32	400				1912		yes	Mid Mormon slough and north into green is.
Mid slough to RR (12 of 53)(149-12)	171	8	1936	697.4	695.5	32	400				1912		yes	Mid R is. and northern green

(Sheet 3 of 8)

Table B3 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
MS R to mid slough	170	8	1936	697.4	695.5	32	400				1912		yes	Mid R is. and northern green
MS R to E of Black R (7of 53)(149-7)	166	8	1936	700.5	698.5	32	400				1912		yes	French Slough and Lake Seds
Slough to Black R (5 of 53)(149-5)	164	8	1936	~700		32 & 31	400				1912		yes	French Lake seds
Index Map (2 of 53)(149-2A)	161	8	1936	693.0	679.0	34 & 33	3000							
Index Map (1of 53)(149-1A)	160	8	1936	702.5	693.0	32 & 31	3000							
Hard Copy Index (2of 53)(149-2)	104	8	1936	693.0	679.0	34 & 33	3000							
Hard Copy Index (1of 53)(149-1)	103	8	1936	702.5	693.0	32 & 31	3000							
Land & Flowage Rights		**8**												
(4 of 5)(MISS L&D 8/7-4)	287	8	1935	699.0	694.5	32	1000				1912			
(3 of 5)(MISS L&D 8/7-4)	286	8	1935	694.5	689.5	33 & 32	1000				1912			
(2 of 5)(MISS L&D 8/7-4)	284	8	1934	689.5	683.0	34 & 33	1000				1912			
Continuous Surveys	**Summary**	**8**	**1938**	**702.5**	**679.2**	**31 - 34**	**400**			**Mylar /hand**	**1912 MSD**	**Flowage Survey Traces**	**yes**	**9 sheets, every 200' xsects. USACE**
(Sheet 9		8	1938	681.6	679.2	34	400			Mylar /hand	1912 MSD			Main channel x sects & marsh topography
(Sheet 8		8	1938	684.2	681.6	34	400			Mylar /hand	1912 MSD			Main channel x sects & marsh topography
(Sheet 7		8	1938	686.9	684.2	33 & 34	400			Mylar /hand	1912 MSD			Main channel x sects & marsh top. 1 sect.

(Sheet 4 of 8)

Table B3 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Sheet 6	M-S8-13/7	8	1938	689.2	686.9	33	400			Mylar /hand	1912 MSD			Some blockage by wing dams
Sheet 5	M-S8-13/6	8	1938	691.6	689.2	33	400			Mylar /hand	1912 MSD			Same as for Sheet 6
Sheet 4	M-S8-13/5	8	1938	694.0	691.6	32 & 33	400			Mylar /hand	1912 MSD			Same as for Sheet 6
Sheet 3	M-S8-13/4	8	1938	697.0	694.0	32	400			Mylar /hand	1912 MSD			Same as for Sheet 6
Sheet 2	M-S8-13/3	8	1938	700.0	697.0	32	400			Mylar /hand	1912 MSD			Add. Mouth of Black River
Sheet 1		8	1938	702.5	700.0	31	400			Mylar /hand	1912 MSD			Incomplete between islands
Sounding Ranges	**Summary**	**8**	**1968**	**700.0**	**693.0**	**32**	**500**	**10**		**glossy /plot**	**1912**			**Index map M-S8-10/43 1968, 3 sheets**
Sheet 3														Essentially levee to levee
Range 11													yes	Isle Laplume RR to RR inc. Target Lake
Range 12													yes	Isle LaP. to Hwy 16 inc. Targ. Lake
Range 13														Side Track Rd to Hwy 16 inc. West Channel
Sheet 2 Range 9														East to Hwy 16 inc. Taylor Isl., Black R, MS R and MS R West
Range 10														East to RR inc. Barron Is. Pet.Bone Park, MS R, MS R West
Range 11														RR to RR inc. MSR and MSRW
Sheet 1 Ranges 1-5														Black River X-sects.
Ranges 6-8														Black & MS River Xsects

(Sheet 5 of 8)

Table B3 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Index Map of Cross Sections	**M-S8-10/43 (91)**	**8**	**1968**	**700.0**	**693.0**	**32**	**1000**			**Mylar /hand**	**1912**			**Map for cross sections**
Cross sections, 336 Lacrosse River 18/ page MS River La Plume slough etc.		8	1968	700.0	693.0	32	50	10		gr.papr /hand	1912			34 (Sheets Dike to Dike See LaCrosse Topos for xsect. locations
Topography Flood Control	**M-S8-10/42-15 (90-63)**	**8**	**1968**	**701.0**	**697.5**	**31 & 32**	**50**		**2**	**Mylar /hand**	**1912**			**Topo plots from 100' pts on 200' spacing around Black & Lacrosse R's includes near bank MS R from I-90 to S16 (63-79) 80 through 83 fall along the bankline from N of S16 down to the head of LaPlume Slough 85 to 90 cover the lakes region of the SW side of LaCrosse R.**
Topography Flood Control	**M-S8-10/11-2 (59-50)**	**8**	**1965**	**698.0**	**697.0**	**32**	**5020100**		**2**	**Mylar /plot**	**1912**			**Ebner Coulee, State Road Coulee Different sheets at different scales**
Goose Island	56	8	1961	692.0	690.0	33	40			paper/plot	1912		no	Goose Is. borders topos
Stoddard Landing	55	8		687.0	685.0	33	40			paper/plot	1912		no	Stoddard Landing borders
Topography Flood Control	**M-S8-10/56-48 (36-28)**	**8**	**1969**	**700.0**	**698.0**	**32**	**50**		**2**	**Mylar /hand**	**1912**			**LaCrosse River Xsects & surronding Topo up to 1000 ft distant from Hwy 35 to Hwy 16. Essentially the flood plain**

(Sheet 6 of 8)

Table B3 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Upper MS R 9-foot channel	**M-ZP-0/66**	**1-9**	**1973**	**847.8**	**648.0**	**11 - 39**	**500**					**1981**		**Env. project comparisons of land and vegetation from 1929, 1939, and 1973 IAHE Remote Sensing Lab. Forestry U of M**
L&D Scour Study		**8**	**1953**	**679.2**		**34**	**10**	**10**		**Mylar /hand**				**Above and below lock**
Isle La Plume Topo	**M-S8-10/45 (91b)**	**8**	**1970**	**697.5**	**695.0**	**32**	**100**		**2**	**Mylar /plot**		**1970**		**aero-metric of islands**
L&D Scour Study		**8**	**1971**							**Mylar /hand**				**Close to dam only**
L&D Topography	**M-S4-10/38**	**8 & 4**	**1986**	**679.4**	**679.0**	**34**	**50**		**1**	**Mylar /plot**	**1912**			**L&D is sectioned 16 times for topo.**
L&D No.4 Upper Reaches (16)	**M-S4-1/9**	**4**	**1945**	**753.0**		**24**	**400**			**gloscloth**	**1912**			**xsects every 200' in channels and lakes**
Geological Data Boring Logs	**M-P4-10/12**	**4**	**1995**	**753.0**		**24**								**Peterson Lake EMP**
Env. Management Project		**8**												
Boring Loc. Phase 1 Stage 2	M-P8-10/11	8	1991	~ 690		32	2000							
Boring Loc. Phase 1 Stage 2	M-P8-10/12	8	1991	~684-686		33	2000							
Boring Logs. Phase 1 Stage 2	M-P8-10/18	8	1991	Logs 91-39M	91-33M						1912 NGVD			
EMP Phase 1 Stage 2		8	1992							Mylar /hand	1912 NGVD			16 sheets of app. islands

(Sheet 7 of 8)

Table B3 (Concluded)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
EMP Phase 1 Stage 2		8	1992							Mylar /hand				7 sheets d.s. x-sects.
Aerial Ph. Monument cntrl	**M-ZP-18**	**2-10**	**1981**	**815.3**	**615.2**	**15 - 44**	**400**			**Mylar**				

(Sheet 8 of 8)

Appendix C
Inventory of Historical Data, St. Paul District at Fountain City

Table C1
Inventory of Historical Data Related to Hydrographic Surveys, Cross-section, and Topography on the Upper Mississippi River Fountain City

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Miss. River Comm. Drawings Look like Cross-sections	**Summary M-Z-0/2 (101-189) (201-278)**	**Cairo-Mpls Mpls-Itasca**	**1895 1895**	**979.0 854.0**	**854.0**	**130 - 10 10 - -**	**20,000" 10,000"**			**gloscloth gloscloth**	**1912 1912**	**20,000 10,000**		**Located at St. Paul District & Fountain City**
Chart No. 170		8	1895	685.0	673.0	35 & 34	20000				1912			Located at St. Paul District
Chart No. 171		8	1895	693.0	685.0	34 & 33	20000				1912			Located at St. Paul District
Chart No. 172		8	1895	700.0	693.0	32	20000				1912			
Chart No. 173		8	1895	710.0	700.0	31 & 30	20000				1912			
Chart No. 177		4	1895	742.0	732.0	27 & 26	20000				1912			Channel & Topo inf. inc. side channels & backwater xsec w/depths
Chart No. 178		4	1895	750.0	742.0	25	20000				1912			
Chart No. 179		4	1895	760.5	750.0	24 & 23	20000				1912			
Chart No. 180		4	1895	765.0	760.5	23	20000				1912			
Chart No. 182		4	1895	787.0	776.0	21 & 19	20000				1912			
Chart No. 183		4	1895	797.5	787.0	19 & 18	20000				1912			
POOL 4 Continuous Surveys	**Summary**	**4**	**1968, 1995**	**791.0**	**753.0**									
Soundings, Sweep		**4**	13/9/95	793.2	792.5	18 & 19	400			Dig & Mylar	1983	1992	none	USACE
Soundings, Sweep		**4**	4/8/94	793.5	790.5	18 & 19	400			Dig & Mylar	1927	1981	none	
Soundings, Cross sections		**4**	7/5/68	790.5	789.1	19	400			Paper	1927			Cross Sections around Carlson Is. Little R.
Soundings, Cross sections		**4**	8/5/68	787.7	786.4	19	400			Paper	1927			Shore to shore cross sections

(Sheet 1 of 5)

Table C1 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int. Int.t.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Soundings, Cross sections		4	9/5/68	788.8	787.7	19	400			Paper	1927			Shore to shore cross sections
Pool 8 Continuous Surveys	**Summary**	**8**	**1988>**	**702.5**	**679.0**	**31 - 34**								**See files/tables. Everything is recent and will be in disk files.**
Pool 4 Miscellaneous Surveys	**Summary**	**4**	**1976,1989 - 95**	**757.5**	**753.3**	**23 & 24**								
Below Crats island		4	8/11/92, 93, 94	757.5	759.6	23 & 24	400			Mylar				
Grand Encampment		4	5/18/94	755.3	757.3	24	400			Mylar				
Beef Slough		4	94, 95, 92	753.4	755.4	24								
L&D 4 - Alma Lower right			95, 92	751.0	753.3	24								
Big Lake		4	4/26/94, 8/11/92				100							
Indian Slough		4	2/11/91, 89,				100	50		Mylar, Hand				
Whorehouse Slough		4	89							Hand				
Wabasha		4	10/20/93, 92, 90	759.6	761.5	23	400			Mylar				
Cannon River - Redwing		4	10/24/90	790.5	793.2	18 & 19	400			Mylar				
Cannon River Wing		4	10/24/90											
Above-below Crats Island		4	89, 90, 91	757.5	759.6	23 & 24	400			Paper				Comparison contours!

(Sheet 2 of 5)

Table C1 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Pepin Breakwater		4	12/13/91							Hand				
Miss. River Commission Pepin		4	1895				20,000			Mylar, Hand				Cross sections
Lake Pepin Soundings		4	1976				1000			Mylar, Hand				
Vegetation map in containment area		4												
Reads landing disposal/s		4												
Pool 8 Miscellaneous Surveys		**8**												
DS of I-90 Bridge, Sweep		8	4/30/93	701.8	701.0	31	100			Dig & con.			no	Multiple (Sheets of contours on sweep data
French Lake Aeration, xsect		8	7/0/93	701.0		31	50			By Hand			maybe	Hand-drawn cross sections
Pool 7 & 8 misc. surveys		**7 & 8**												
Bullet Chute			10/26/78	708.4		30	200			Hand				
Winters Landing			87, 88, 89, 83	710.0	707.8	30	400			Dig & Mylar				
Kramers Slough			91				100			Mylar				
Dakota Mn ((Sheet 7-03)			90, 91, 93	708.0	705.7	30 & 31	400			Mylar	1912			
Lake Onalaska			89,	708.0	702.5	30 & 31	200			Mylar				
EMP			1994	703.3	701.6	31								
Isle La Plume			1981											Xsects from channel onto island, dams?

(Sheet 3 of 5)

Table C1 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int. Int.t.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Sand slough - Root River ((Sheet 8-09)			1993	695.6	693.3	32	400				1927 NAD (1912 MSL)			
Below head of Raft Channel			1995	687.1	686.1	33	400			Mylar				
Sand Slough - Root River Soundings (Sheet 8-09		**8**	**1993**	**695.6**	**693.3**	**32**	**400**				**1927 NAD (1912 MSL adj.)**			
WEAVER BOTTOMS		**5**												
Cross sections			3/29/ 95				400			Mylar, ?		1981		
Lower Zumbro-Somerfield Island			5/8/ 95, 93, 88, 84, 85, 90	743.5	745.3	25	400			Mylar, sweep				
Mule Bend			4/24/ 95, 93, 88, 89, 84, 85, 81	747.5	749.7	25								
Fisher Island			4/26/ 95, 93, 90, 88, 84, 85	745.5	747.2	25								
Weaver Bottoms			5/15/ 90, 93											
Belvidere Slough			1990	743.5	745.3	25								

(Sheet 4 of 5)

Table C1 (Concluded)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
White Water xsec			3/93, 89				100			Hand				
Mallard Island			1990				100			Hand				
Swan Island			1990				100			Hand				
Minneisda			1990	741.0	743.3	25 & 26								
Murphy's Cut			1992, 88				50	100						
As builts														
Dakota Mn., Topography (Sheet 7-03		**7**	**1993**	**708.0**	**705.7**	**30 - 31**	**400**				**MSL 1912 adj.**			
Masters, Photography		**8 & 4**												
Pool 4		4	92, 81	753.0		24								
Pool 8		8	92, 94, 81	679.2		34								

(Sheet 5 of 5)

Appendix D
Inventory of Historical Data, Pool 4, Pool 8, and Miscellaneous Pools, St. Paul District

List of Tables

Table D1. Inventory of Historical Data Related to Hydrographic Surveys, Cross-section, and Topography on the Upper Mississippi River, Pool 4 . . . . . D3

Table D2. Inventory of Historical Data Related to Hydrographic Surveys, Cross-section, and Topography on the Upper Mississippi River, Pool 8 . . . . . D7

Table D3. Inventory of Historical Data Related to Hydrographic Surveys, Cross-section, and Topography on the Upper Mississippi River, Miscellaneous Pools D16

Table D1
Inventory of Historical Data Related to Hydrographic Surveys, Cross-section, and Topography on the Upper Mississippi River, Pool 4

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Miss. River Comm. Drwings Look like Cross-sections	**Summary M-Z-0/2 (101-189) (201-278)**	**Cairo-Mpls Mpls-Itasca**	**1895 1895**	**979.0 854.0**	**854.0**	**130 - 10 10 - -**	**20,000" 10,000"**			**gloscloth gloscloth**	**1912 1912**	**20,000 10,000**		**Located at St. Paul District & Fountain City**
Chart No. 177		4	1895	742.0	732.0	27 & 26	20000				1912			Fountain City/ Channel & Topo inf. inc. side channels & backwater xsec w/depths
Chart No. 178		4	1895	750.0	742.0	25	20000				1912			Fountain City
Chart No. 179		4	1895	760.5	750.0	24 & 23	20000				1912			Fountain City
Chart No. 180		4	1895	765.0	760.5	23	20000				1912			Fountain City
														Fountain City
Chart No. 182		4	1895	787.0	776.0	21 & 19	20000				1912			Fountain City
Chart No. 183		4	1895	797.5	787.0	19 & 18	20000				1912			Fountain City
Brown's Surveys - Hastings MN to Guttenberg IA Guttenberg IA to Grafton IL	**Summary (Sheets 1-43 (Sheets 44-129**	**1-10 11-26**	**1929-30 1929-30**	**815.3 583.0**	**615.2 203.0**	**15 - 44 48 - 104**						**1929 1929**		**St. Paul District/ In booklet, sheet, and aerial photo formats**
														St. Paul District
9 foot project			1932				1000							St. Paul District
Flowage surveys 34sh		4	1932	753.0		24	400							St. Paul District
POOL 4 Continuous Surveys	**Summary**	**4**	**1968, 95**	**791.0**	**753.0**	**18 & 19**	**400**							**Fountain, WI**
Soundings, Sweep		4	13/9/ 95	793.2	792.5	18 & 19	400			Dig & Mylar	1983	1992	none	Fountain, WI/ USACE
Soundings, Sweep		4	4/8/94	793.5	790.5	18 & 19	400			Dig & Mylar	1927	1981	none	Fountain, WI

(Sheet 1 of 4)

Table D1 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Soundings, Cross sections		4	7/5/68	790.5	789.1	19	400			Paper	1927			Fountain, WI/ Cross Sections around Carlson Is. Little R.
Soundings, Cross sections		4	8/5/68	787.7	786.4	19	400			Paper	1927			Fountain, WI/ Shore to shore cross sections
Soundings, Cross sections		4	9/5/68	788.8	787.7	19	400			Paper	1927			Fountain, Wi/ Shore to shore cross sections
Pool 4 Miscellaneous Surveys		**4**												**Fountain, WI**
Below Crats Island		4	8/11/ 92, 93, 94	757.5	759.6	23 & 24	400			Mylar				Fountain, WI
Grand Encampment		4	5/18/ 94	755.3	757.3	24	400			Mylar				Fountain, WI
Beef Slough		4	94, 95, 92	753.4	755.4	24								Fountain, WI
L&D 4 - Alma Lower right		4	95, 92	751.0	753.3	24								Fountain, WI
Big Lake		4	4/26/ 94, 8/11/ 92				100							Fountain, WI
Indian Slough		4	2/11/ 91, 89				100	50		Mylar, hand				Fountain, WI
Whorehouse Slough		4	89							Hand				Fountain, WI
Wabasha		4	10/20/ 93, 92, 90	759.6	761.5	23	400			Mylar				Fountain, WI
Cannon River - Redwing		4	10/24/ 90	790.5	793.2	18 & 19	400			Mylar				Fountain, WI
Cannon River Wing		4	10/24/ 90											Fountain, WI

(Sheet 2 of 4)

Table D1 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Above-below Crats Island		4	89, 90, 91	757.5	759.6	23 & 24	400			Paper				Fountain, Wi/ Comparison contours!
Pepin Breakwater		4	12/13/ 91							Hand				Fountain, WI
Miss. River Commission Pepin		4	1895				20,000			Mylar, hand				Fountain, WI/ Cross sections
Lake Pepin Soundings		4	1976				1000			Mylar, hand				Fountain, WI
Vegetation map in containment area		4												Fountain, WI
Reads landing disposal/fs		4												Fountain, WI
Upper MS R 9-foot channel	**M-ZP-0/66**	**1-9**	**1973**	**847.8**	**648.0**	**11 - 39**	**500**					**1981**		**St. Paul District/ Env. project comparisons of land and vegetation from 1929, 1939, and 1973 IAHE Remote Sensing Lab. Forestry U of M**
L&D Topography 9 sh.	**M-S4-10/38**	**8&4**	**1986**	**679.4**	**679.0**	**34**	**50**		**1**	**Mylar/ plot**	**1912**			**St. Paul District/ L&D is sectioned 16 times for topo.**
L&D No.4 Upper Reaches (16)	**M-S4-1/9**	**4**	**1945**	**753.0**		**24**	**400**			**Gloscloth**	**1912**			**St. Paul District/ xsects every 200' in channels and lakes**
Geological Data Boring Logs	**M-P4-10/12**	**4**	**1995**	**753.0**		**24**								**St. Paul District/ Peterson Lake EMP**
Masters, Photography		**8 & 4**												**Fountain, WI**
Pool 4		4	92, 81	753.0		24								Fountain, WI

(Sheet 3 of 4)

Table D1 (Concluded)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Aerial Ph. Monument cntrl	M-ZP-18	2-10	1981	815.3	615.2	15 - 44	400			Mylar				St. Paul District

(Sheet 4 of 4)

Table D2
Inventory of Historical Data Related to Hydrographic Surveys, Cross-section, and Topography on the Upper Mississippi River, Pool 8

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Miss. River Comm. Drawings Look like Cross-sections	**Summary M-Z-0/2 (101-189) (201-278)**	**Cairo-Mpls Mpls-Itasca**	**1895 1895**	**979.0 854.0**	**854.0**	**130 - 10 10 - -**	**20,000" 10,000"**			**Gloscloth Gloscloth**	**1912 1912**	**20,000 10,000**		**Located at St. Paul District & Fountain City**
Chart No. 170		8	1895	685.0	673.0	35 & 34	20000				1912			St. Paul District
Chart No. 171		8	1895	693.0	685.0	34 & 33	20000				1912			St. Paul District
Chart No. 172		8	1895	700.0	693.0	32	20000				1912			Fountain City
Chart No. 173		8	1895	710.0	700.0	31 & 30	20000				1912			Fountain City
Brown's Surveys - Hastings MN to Guttenberg IA Guttenberg IA to Grafton IL	**Summary (Sheets 1-43 (Sheets 44-129**	**1-10 11-26**	**1929-30 1929-30**	**815.3 583.0**	**615.2 203.0**	**15 - 44 48 - 104**						**1929 1929**		**St. Paul District In Booklet, sheet, and aerial photo formats**
(Sheet No. 35		8	1929-30	705.5	700.0	31	12000		5	paper map	1912			St. Paul District/ Channel surveys every 2000' x-100' some topo contours & Boring Log
(Sheet No. 36		8	1929-30	700.0	697.0	32	12000				1912			St. Paul District/ Boring Log
(Sheet No. 37		8	1929-30	697.0	691.5	32 & 33	12000				1912			St. Paul District
(Sheet No. 38		8	1929-30	691.5	687.5	33	12000				1912			St. Paul District
(Sheet No. 39		8	1929-30	687.5	679.0	33 & 34	12000				1912			St. Paul District
(Sheet No. 40		9	1929-30	679.0	674.0	34 & 35	12000				1912			St. Paul District
Flowage Surveys	**Summary M-S8 (212-103)**	**8**	**1933, 36**	**702.5**	**679.0**	**31 - 34**	**400**		**pt, 5**	**Gloscloth /hand**	**1912**			**St. Paul District/ Root River US of Hwy 16 inc. Old Root R. app. 400' spacing**

(Sheet 1 of 9)

Table D2 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
	210			700.5	699.0	32								St. Paul District/ Minnesota Is. West to RR.
	209			699.0	697.5	32	400							St. Paul District/ Blue Lake, Pine Cr. 61 s to Marsh L. w to RR. land & marsh only
	208			699.2	697.0	32								St. Paul District/ Barron Is and west.
	207													St. Paul District/ Old Root R North of 212 bounded by Hwy 16
	206			697.5	695.8	32							no	St. Paul District/ Target Lake area
Root River (45 of 53)(149-53)	204	8	1936	693.8	695.5	32	400				1912		yes	St. Paul District/ Broken Arrow Sl. to Root R. mouth west
Lawrence Lake N (44 of 53) (149-44)	203	8	1936	693.5	692.0	33	400				1912		yes	St. Paul District/ Lawrence Lake North
Lawrence Lake S (43 of 53)(149-43)	202	8	1936	692.0	690.2	33	400				1912		yes	St. Paul District/ Lawrence Lake south
Lawrence Lake S tip (42 of 53) (149-42)	201	8	1936	690.5	689.0	33	400				1912		yes	St. Paul District/ Lawrence Lake s tip
W of raft channel (39 of 53)(149-39)	198	8	1936	685.0	684.0	34	400				1912		yes	St. Paul District/ West of Raft Channel
Around dike line (35 of 53)(149-35)	194	8	1936	681.5	680.5	34	400				1912		yes	St. Paul District/ Both sides of dike line
Raft channel E (23 of 53)(149-23)	182	8	1936	687.5	686.5	33	400				1912		yes	St. Paul District/ South end of Island 120

(Sheet 2 of 9)

Table D2 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
MS E (21 of 53) (149-21)	180	8	1936	688.7	687.5	33	400				1912		yes	St. Paul District/ Island 120
Mid Slough E to RR (20 of 53) (149-20)	179	8	1936	690.5	689.0	33	400				1912		yes	St. Paul District/ Eastern ran.bac.seds
MS R E to Mid slough (19 of 53) (149-19)	178	8	1936	690.5	689.0	33	400				1912		yes	St. Paul District/ Mid slough & eastern ran.bac.seds
Mid slough to RR (18 of 53)(149-18)	177	8	1936	692.0	690.5	33	400				1912		yes	St. Paul District/ Eastern edge around county boundary
MS R to mid Slough (17 of 53) (149-17)	176	8	1936	692.0	690.5	33	400				1912		yes	St. Paul District/ Mid slough around county boundary
Mid slough to RR (16 of 53)(149-16)	175	8	1936	693.5	692.5	32	400				1912		yes	St. Paul District/ Southern eastern edge mormon slough
MS R to mid slough (15 of 53) (149-15)	174	8	1936	693.5	692.5	32	400				1912		may	St. Paul District
Mid slough to RR (14 of 53)(149-14)	173	8	1936	695.5	693.6	32	400				1912		yes	St. Paul District/ Mid Mormon slough and north into green is.
MS R to mid slough (13 of 53) (149-13)	172	8	1936	695.5	693.6	32	400				1912		yes	St. Paul District/ Mid Mormon slough and north into green is.
Mid slough to RR (12 of 53)(149-12)	171	8	1936	697.4	695.5	32	400				1912		yes	St. Paul District/ Mid R is. and northern green
MS R to mid slough	170	8	1936	697.4	695.5	32	400				1912		yes	St. Paul District/ Mid R is. and northern green
MS R to E of Black R (7 of 53)(149-7)	166	8	1936	700.5	698.5	32	400				1912		yes	St. Paul District/ French Slough and Lake Seds

(Sheet 3 of 9)

Table D2 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Slough to Black R (5 of 53)(149-5)	164	8	1936	~700		32 & 31	400				1912		yes	St. Paul District/ French Lake seds
Index Map (2 of 53) (149-2A)	161	8	1936	693.0	679.0	34 & 33	3000							St. Paul District
Index Map (1 of 53) (149-1A)	160	8	1936	702.5	693.0	32 & 31	3000							St. Paul District
Hard Copy Index (2 of 53)(149-2)	104	8	1936	693.0	679.0	34 & 33	3000							St. Paul District
Hard Copy Index (1 of 53)(149-1)	103	8	1936	702.5	693.0	32 & 31	3000							St. Paul District
Land & Flowage Rights		**8**												**St. Paul District**
(4 of 5) (MISS L&D 8/7-4)	287	8	1935	699.0	694.5	32	1000				1912			St. Paul District
(3 of 5) (MISS L&D 8/7-4)	286	8	1935	694.5	689.5	33 & 32	1000				1912			St. Paul District
(2 of 5) (MISS L&D8/7-4)	284	8	1934	689.5	683.0	34 & 33	1000				1912			St. Paul District
Continuous Surveys	**Summary**	**8**	**1938**	**702.5**	**679.2**		**400**			**Mylar/ hand**	**1912 MSD**	**Flowage Survey Traces**	**yes**	**St. Paul District/ 9 sheets, every 200' xsects. USACE**
(Sheet 9		8	1938	681.6	679.2	34	400			Mylar/ hand	1912 MSD			St. Paul District/ Main channel x sects & marsh topography
(Sheet 8		8	1938	684.2	681.6	34	400			Mylar/ hand	1912 MSD			St. Paul District/ Main channel x sects & marsh topography
(Sheet 7		8	1938	686.9	684.2	33 & 34	400			Mylar/ hand	1912 MSD			St. Paul District/ Main channel x sects & marsh top. 1 sect. Crosby Slough
(Sheet 6	M-S8-13/7	8	1938	689.2	686.9	33	400			Mylar/ hand	1912 MSD			St. Paul District/Some blockage by wing dams

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Table D2 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Sheet 5	M-S8-13/6	8	1938	691.6	689.2	33	400			Mylar/ hand	1912 MSD			St. Paul District/ Same as Sheet 6
Sheet 4	M-S8-13/5	8	1938	694.0	691.6	32 & 33	400			Mylar/ hand	1912 MSD			St. Paul District/ Same as Sheet 6
Sheet 3	M-S8-13/4	8	1938	697.0	694.0	32	400			Mylar/ hand	1912 MSD			St. Paul District/ Same as Sheet 6
Sheet 2	M-S8-13/3	8	1938	700.0	697.0	32	400			Mylar/ hand	1912 MSD			St. Paul District/ Add. Mouth of Black River
Sheet 1		8	1938	702.5	700.0	31	400			Mylar/ hand	1912 MSD			St. Paul District/ Incomplete between islands
Pool 8 Continuous Surveys	**Summary**	**8**	**1988>**	**702.5**	**679.0**	**31 - 34**								**Fountain, WI/ See files/tables. Everything is recent and will be in disk files.**
Pool 8 Miscellaneous Surveys		**8**												**Fountain, WI**
DS of I-90 Bridge, Sweep		8	4/30 /93	701.8	701.0	31	100			Dig & con.			no	Fountain, WI/ Multiple sheets of contours on sweep data
French Lake Aeration, xsect		8	7/0/93	701.0		31	50			By hand			maybe	Fountain, WI/ Hand-drawn cross sections
Pool 7 & 8 misc. surveys		**7 & 8**												**Fountain, WI**
Bullet Chute			10/26/ 78	708.4		30	200			Hand				Fountain, WI
Winters Landing			87, 88, 89, 83	710.0	707.8	30	400			Dig & Mylar				Fountain, WI
Kramers Slough			91				100			Mylar				Fountain, WI

(Sheet 5 of 9)

Table D2 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Dakota Mn (Sheet 7-03)			90, 91, 93	708.0	705.7	30 & 31	400			Mylar	1912			Fountain, WI
Lake Onalaska			89,	708.0	702.5	30 & 31	200			Mylar				Fountain, WI
EMP			1994	703.3	701.6	31								Fountain, WI
Isle La Plume			1981											Fountain, WI/ Xsects from channel onto island, dams?
Sand slough - Root River (Sheet 8-09)			1993	695.6	693.3	32	400				1927 NAD 1912 MSL			Fountain, WI
Below head of Raft Channel			1995	687.1	686.1	33	400			Mylar				Fountain, WI
Sounding Ranges	**Summary**	**8**	**1968**	**700.0**	**693.0**	**32**	**500**	**10**		**Glossy/ plot**	**1912**			**St. Paul District/ Index map M-S8-10/43 1968, 3 sheets**
Sheet 3														St. Paul District/ Essentially levee to levee
Range 11													yes	St. Paul District/ Isle Laplume RR to RR inc. Target Lake
Range 12													yes	St. Paul District/ Isle LaP. to Hwy 16 inc. Targ. Lake
Range 13														St. Paul District/ Side Track Rd to Hwy 16 inc. West Channel
Sheet 2 Range 9														St. Paul District/ East to Hwy 16 inc. Taylor Isl., Black R, MS R and MS R West
Range 10														St. Paul District/ East to RR inc. Barron Is. Pet.Bone Park, MS R, MS R West

(Sheet 6 of 9)

Table D2 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Range 11														St. Paul District/ RR to RR inc. MSR and MSRW
Sheet 1, Ranges 1-5														St. Paul District/ Black River X-sects.
Ranges 6-8														St. Paul District/ Black & MS River Xsects
Sand Slough - Root River Soundings (Sheet 8-09		**8**	**1993**	**695.6**	**693.3**	**32**	**400**				**1927 NAD (1912 MSL adj.)**			
Index Map of Cross Sections	**M-S8-10/43 (91)**	**8**	**1968**	**700.0**	**693.0**	**32**	**1000**			**Mylar/ hand**	**1912**			**St. Paul District/ Map for cross sections**
Cross sections, 336 Lacrosse River 18/ page MS River La Plume slough etc.		8	1968	700.0	693.0	32	50	10		Gr.papr/ hand	1912			St. Paul District/ 34 (Sheets Dike to Dike See LaCrosse Topos for xsect. locations
Topography Flood Control	**M-S8-10/42-15 (90-63)**	**8**	**1968**	**701.0**	**697.5**	**31 & 32**	**50**		**2**	**Mylar/ hand**	**1912**			**St. Paul District/ Topo plots from 100' pts on 200' spacing around Black & Lacrosse R's includes near bank MS R from I-90 to S16 (63-79) 80 through 83 fall along the bankline from N of S16 down to the head of LaPlume Slough 85 to 90 cover the lakes region of the SW side of LaCrosse R.**

(Sheet 7 of 9)

Table D2 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Topography Flood Control	**M-S8-10/ 11-2 (59-50)**	**8**	**1965**	**698.0**	**697.0**	**32**	**5020100**		**2**	**Mylar/ plot**	**1912**			**St. Paul District/ Ebner Coulee, State Road Coulee Different sheets at different scales**
Goose Island	56	8	1961	692.0	690.0	33	40			Paper/plot	1912		no	St. Paul District/ Goose Is. borders topos
Stoddard Landing	55	8		687.0	685.0	33	40			Paper/plot	1912		no	St. Paul District/ Stoddard Landing borders
Topography Flood Control	**M-S8-10/ 56-48 (36-28)**	**8**	**1969**	**700.0**	**698.0**	**32**	**50**		**2**	**Mylar/ hand**	**1912**			**St. Paul District/ LaCrosse River Xsects and surrounding Topo up to 1000ft distant from Hwy 35 to Hwy 16. Essentially the flood plain**
Upper MS R 9-foot channel	**M-ZP-0/6 6**	**1-9**	**1973**	**847.8**	**648.0**	**11 - 39**	**500**					**1981**		**St. Paul District/ Env. project comparisons of land and vegetation from 1929, 1939, and 1973 IAHE Remote Sensing Lab. Forestry U of M**
L&D Scour Study		**8**	**1953**	**679.2**		**34**	**10**	**10**		**Mylar/ hand**				**St. Paul District/ Above and below lock**
Isle La Plume Topo	**M-S8-10/ 45 (91b)**	**8**	**1970**	**697.5**	**695.0**	**32**	**100**		**2**	**Mylar/ plot**		**1970**		**St. Paul District/ aero-metric of islands**

(Sheet 8 of 9)

Table D2 (Concluded)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
L&D Scour Study		**8**	**1971**							**Mylar/ hand**				**St. Paul District/ Close to dam only**
L&D Topography	**M-S4-10/3 8**	**8 & 4**	**1986**	**679.4**	**679.0**	**34**	**50**		**1**	**Mylar/ plot**	**1912**			**St. Paul District/ L&D is sectioned 16 times for topo.**
Env. Management Project														**St. Paul District**
Boring Loc. Phase 1 Stage 2	M-P8-10/1 1	8	1991	~ 690		32	2000							St. Paul District
Boring Loc. Phase 1 Stage 2	M-P8-10/1 2	8	1991	~684-68 6		33	2000							St. Paul District
Boring Logs. Phase1 Stage 2	M-P8-10/1 8	8	1991	Logs 91-39M	91-33M						1912 NGVD			St. Paul District
EMP Phase 1 Stage 2		8	1992							Mylar/ hand	1912 NGVD			St Paul District/ 16 sheets of app. islands
EMP Phase 1 Stage 2		8	1992							Mylar/ hand				St. Paul District/ 7 sheets d.s. x-sects.
Masters, Photography		**8**												**Fountain, WI**
Pool 8		8	92, 94, 81	679.2		34								Fountain, WI
Aerial Ph. Monument cntrl	**M-ZP-18**	**2-10**	**1981**	**815.3**	**615.2**	**15 - 44**	**400**			**Mylar**				**St. Paul District**

(Sheet 9 of 9)

Table D3
Inventory of Historical Data Related to Hydrographic Surveys, Cross-section, and Topography on the Upper Mississippi River, Miscellaneous Pools

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Upper MS R 9-foot channel	**M-ZP-0/66**	**1-9**	**1973**	**847.8**	**648.0**	**11 - 39**	**500**					**1981**		**St. Paul District/ Environmental project compari-sons of land vege-tation from 1929, 1939, and 1973 IAHE Remote Sensing Lab. Forestry U of M**
Aerial Ph. Monument cntrl	**M-ZP-18**	**2-10**	**1981**	**815.3**	**615.2**	**15 - 44**	**400**			**Mylar**				**St. Paul District**
Brown's Surveys - Hastings MN to Guttenberg IA Guttenberg IA to Grafton IL	**Summary Sheets 1-43 Sheets 44-129**	**1-10 11-26**	**1929-30 1929-30**	**815.3 583.0**	**615.2 203.0**	**15 - 44 48 - 104**						**1929 1929**		**St. Paul District/ In booklet, sheet, and aerial photo formats**
Weaver Bottoms		**5**												
Cross sections			3/29/95				400			Mylar, ?		1981		Fountain, WI
Lower Zumbro-Somerfield Island			5/8/95, 93, 88, 84, 85, 90	743.5	745.3	25	400			Mylar, sweep				Fountain, WI
Mule Bend			4/24/95, 93, 88, 89, 84, 85, 81	747.5	749.7	25								Fountain, WI

(Sheet 1 of 3)

Table D3 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Fisher Island			4/26/ 95, 93, 90, 88, 84, 85	745.5	747.2	25								Fountain, WI
Weaver Bottoms			5/15/ 90, 93											Fountain, WI
Belvidere Slough			1990	743.5	745.3	25								Fountain, WI
White Water xsec			3/93, 89				100			Hand				Fountain, WI
Mallard Island			1990				100			Hand				Fountain, WI
Swan Island			1990				100			Hand				Fountain, WI
Minneisda			1990	741.0	743.3	25 & 26								Fountain, WI
Murphy's Cut			1992, 88				50	100						Fountain, WI
As builts														Fountain, WI
Pool 7 & 8 misc. surveys		**7 & 8**												**Fountain, WI**
Bullet Chute			10/26/ 78	708.4		30	200			Hand				Fountain, WI
Winters Landing			87, 88, 89, 83	710.0	707.8	30	400			Dig & Mylar				Fountain, WI
Kramers Slough			91				100			Mylar				Fountain, WI
Dakota Mn (Sheet 7-03)			90, 91, 93	708.0	705.7	30 & 31	400			Mylar	1912			Fountain, WI
Lake Onalaska			89,	708.0	702.5	30 & 31	200			Mylar				Fountain, WI
EMP			1994	703.3	701.6	31								Fountain, WI
Isle La Plume			1981											Fountain, WI/Xsects from channel onto island, dams?
Sand slough - Root River (Sheet 8-09)			1993	695.6	693.3	32	400				1927 NAD 1912 MSL			Fountain, WI

(Sheet 2 of 3)

Table D3 (Concluded)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Below head of Raft Channel			1995	687.1	686.1	33	400			Mylar				Fountain, WI
Miss. River Comm. Drawings Look like cross-sections	**Summary M-Z-0/2 (101-189)**	**Cairo-Mpls**	**1895**	**979.0**	**854.0**	**130 - 10**	**20,000"**			**Gloscloth**	**1912**	**1894**		**St. Paul District**
	(201-278)	**Mpls-Itasca**	**1895**	**854.0**		**10 - -**	**10,000"**			**Gloscloth**	**1912**	**1894**		**St. Paul District**

(Sheet 3 of 3)

Appendix E
Inventory of Historical Data, Mississippi River and Illinois Waterway, Rock island District

List of Tables

Table E1. Inventory of Historical Data Related to Hydrographic Surveys and Cross-sections on the Mississippi River Rock Island District - Mississippi River E3

Table E2. Inventory of Historical Data Related to Hydrographic Surveys, Cross-sections on the Mississippi River Rock Island District - Illinois Waterway E16

Table E1
Inventory of Historical Data Related to Hydrographic Surveys and Cross-sections on the Mississippi River
Rock Island District - Mississippi River

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Upper Mississippi River Locks & Dams - Construction History	**MO-9/311 File GU-6**	1 - 26	Base 1939	847.6	202.8	11 - 104	2 miles				MSL 1912 adj			Dam locations, contractor, cost, etc.
Mississippi River Annual Hydrographic Survey Record Pool No. 11 to 22		**11 to 22**	**1945-63**	**615.1**	**301.2**	**44 - 90**	**2 miles**							**Dredging performed, special survey, sedimentation survey, tracing available, control in field, and channel survey, etc.**
Pool No. 11 - 2 sheets		11	1945-63	615.1	583.0	44 - 48	2 miles							
Pool No. 12 - 2 sheets		12	1945-63	583.0	556.7	48 - 52	2 miles							
Pool No. 13 - 2 sheets		13	1945-63	556.7	522.5	52 - 57	2 miles							
Pool No. 14 - 2 sheets		14	1945-63	522.5	493.3	57 - 61	2 miles							
Pool No. 15 - 2 sheets		15	1945-63	493.9	482.9	61 - 63	2 miles							Photographs
Pool No. 16 - 2 sheets		16	1945-63	482.9	457.2	63 - 66	2 miles							
Pool No. 17 - 2 sheets		17	1945-63	457.2	437.1	66 - 69	2 miles							
Pool No. 18 - 2 sheets		18	1945-63	437.1	410.5	69 - 73	2 miles							
Pool No. 19 - 2 sheets		19	1945-63	410.5	387.5	73 - 76	2 miles							
Pool No. 19 - 2 sheets		19	1945-63	387.5	364.2	76 - 80	2 miles							
Pool No. 29 - 2 sheets		20	1945-63	364.5	343.2	80 - 83	2 miles							

(Sheet 1 of 13)

Table E1 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Pool No. 21 - 2 sheets		21	1945-63	343.2	324.9	83 - 86	2 miles							
Pool No. 22 - 2 sheets		22	1945-62	324.9	301.2	86 - 90	2 miles							
Mississippi River Hydrographic Survey Record Pool No. 11 to 24		**11 to 24**	**1964/ 77/84**	**615.1**	**298.0**	**44 - 90**	**1 mile**							**Dredging performed, special survey, sedimentation survey, tracing available, control in field, channel survey, and structure stability, etc.**
Mississippi River Hydrographic Survey Record Pool No. 11 to 24		**11 to 24**	**1985 - date**	**615.1**	**298.0**	**44 - 90**	**1 mile**							**Dredging performed, special survey, sedimentation survey, tracing available, control in field, channel survey, and structure stability, etc.**
Mississippi River Soundings, Rock Isl. IL to LeClaire, IA, In 7 sheets		**15**	**1982**	**494.0**	**487.2**		**400**				**MSL, 4thGA**			**Soundings in ft below Flat Pool Elevation 561.0**
4 of 7	15/4.2	15	1982	489.0	487.2	62	400				MSL, 4thGA			Soundings in ft below Flat Pool Elevation 561.0
5 of 7	15/5.2	15	1982	490.7	488.9	62	400				MSL, 4thGA			Soundings in ft below Flat Pool Elevation 561.0
6 of 7	15/6.2	15	1982	492.4	490.5	61 - 62	400				MSL, 4thGA			Soundings in ft below Flat Pool Elevation 561.0

(Sheet 2 of 13)

Table E1 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
7 of 7	15/7.3	15	1982	494.0	492.4	61	400				MSL, 4thGA			Soundings in ft below Flat Pool Elevation 561.0
Mississippi River Quad Maps - Sedimentation Range Index	**Summary**	**13**		**555.3**	**523.0**	**53 - 57**	**24000**		**20 ft**		**MSL**	**1966**		
Clinton NW, Iowa ILL - RS530.0-523.0	1	13	1967	530.0	523.0	56 - 57	24,000		20 ft		MSL	1966		
Thomson, Illinois - RS528.0-523.0	1A	13	1985 - Prov.	528.0	523.0	56 - 57	24,000		20 ft		MSL	1966		
Savanna, ILL - Iowa - RS 540.0-530.0	2	13	1967/ 90 Photo inj.	540.0	530.0	55 - 56	24000		20 ft		MSL	1966		
Wacker, Illinois	2A	13	1985 - Prov.				24,000		20 ft		MSL	1966		
Blackhawk, ILL - Iowa - RS545.2-540.0	3	13	1953/ 75 Photo Rev.	545.2	540.0	54 - 55	24,000		20 ft		MSL	1966		
Green Island, Iowa - ILL - RS552.7-545.2	4	13	1953/ 75 Photo Rev.	552.7	545.2	53 - 54	24,000		20 ft		MSL	1966		
Springbrook, Iowa - ILL - RS555.3-552.7	5	13	1980	555.3	552.7	53	24,000		20 ft		MSL	1966		
Bellevue, Iowa - ILL - RS555.3	6	13	1968	555.3		53	24,000		20 ft		MSL	1966		
Hanover, ILL - RS555.3	6A	13	1968	555.3		53	24,000		20 ft		MSL	1966		

(Sheet 3 of 13)

Table E1 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Mississippi River Maintenance channel dredging Summary table - project 1 to 24	**Summary 13-16/18-22/24**	**13 - 24**	**1967**	**547.6**	**300.4**	**54 - 90**	**500**				**MSL 1912 adj**			**Dredging location, date, amount, survey, remarks**
Wisconsin R. to Clarksville Missouri Hydrographic survey pre-dredge		13 - 24	1967	547.6	300.4	54 - 90	500				MSL 1912 adj			
Project 1 - Sheet No. 45.25		13	1967	547.6	547.2	54	500				MSL 1912 adj			
Project 2 - Sheet No. 109.35		18	1967	425.9	425.7	71	500				MSL 1912 adj			
Project 3 - Sheet No. 159.22 -160.23		21	1967	333.3	331.4	85	500				MSL 1912 adj			
Project 4 - Sheet No. 161A.19		21	1967	327.8	327.0	86	500				MSL 1912 adj			
Project 5 - Sheet No. 165.29 missing & 165.25		22	1967	320.2	319.7	87	500				MSL 1912 adj			
Project 6 - Sheet No. 176.13		24	1967	300.8	300.4	90	500				MSL 1912 adj			
Project 7 - Sheet No. 168.18		22	1967	316.4	316.0	87	500				MSL 1912 adj			
Project 8 - Sheet No. 167.23		22	1967	316.8	316.5	87	500				MSL 1912 adj			
Project 9 - Sheet No. 158.24		21	1967	336.7	336.0	85	500				MSL 1912 adj			

(Sheet 4 of 13)

Table E1 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Project 10 - Sheet No. 157.3		21	1967	337.3	336.8	84 - 85	500				MSL 1912 adj			
Project 14 - Sheet No. 159.20&160.21		21	1967	333.3	331.4	85	500				MSL 1912 adj			
Project 15 - Sheet No. 154.27		21	1967	343.2	342.8	83 - 84	500				MSL 1912 adj			
Project 18 - Sheet No. 150.16		20	1967	351.5	351.3	82	500				MSL 1912 adj			
Project 19 - Sheet No. 148.31&149.30		20	1967	355.9	354.6	81- 82	500				MSL 1912 adj			
Project 20 - Sheet No. 119.32		19	1967	406.4	406.0	73	500				MSL 1912 adj			
Project 21 - Sheet No. 105.12		18	1967	434.1	433.6	69 - 70	500				MSL 1912 adj			
Project 22 - Sheet No. 81.7		16	1967	481.4	481.2	63	500				MSL 1912 adj			
Project 24	62.7	14	1967	514.3	513.9	58	500				MSL 1912 adj			
Mississippi River - Pool No. 15 Sedimentation Survey - Silt Ranges Index Map	**Summary 15-S-67**	**14 - 16**	**1952**	**493.0**	**483.1**	**61 - 63**	**2000**							**Base Map 1944**

(Sheet 5 of 13)

Table E1 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
MS. R - Wisconsin R. to Clarksville Missouri														
Sheet 74 - RS493.0-492.5		14 & 15	1952	494.1	492.1	61	400				MSL 1912			Base Map 1943
Sheet 75 - RS492.0-490.5		15	1952	492.1	490.2	61 - 62	400				MSL 1912			Base Map 1943
Sheet 76 - RS490.0-488.5		15	1952	490.2	488.3	62	400				MSL 1912			Base Map 1943
Sheet 77 - RS488.5-487.0		15	1952	488.7	486.8	62	400				MSL 1912			Base Map 1943
Sheet 78 - RS487.0-485.39		15	1952	487.2	485.4	62	400				MSL 1912			Base Map 1943
Sheet 79 - RS485.2-483.35		15	1952	485.3	485.3	62	400				MSL 1912			Base Map 1943
Sheet 79 - Sylvan Slough - RS 548.72-548.86		15					400				MSL 1912			Base Map 1943
Sheet 80 - RS483.23-482.9		15 & 16	1952	483.4	481.3	62 - 63	400				MSL 1912			Base Map 1943
Sheet 80 - Sylvan Slough		15 & 16					400				MSL 1912			Base Map 1943 - map/profile/x-secs locations
Mississippi River - Pool 15 Comparative Cross-sections Cross-section index map Sheet 1 of 9	**Summary 1-11-132/ H-4-1**	**15**	**1938**	**493.3**	**483.0**	**61 - 62**	**500**	**5**						**Several copies, one has miles extended to Sylvan Slough. Ranges covered R1 - 485.94 to R24 - 483.03 & R1A to 6A on other side of Benhams Isl. Cross-sections are available for miles 493.0 to 483.0 in file no. sheets 1-9 Survey Dates -**
DAM 14 - Mile 493.3	1	15					500	5						1930/38/44/46/48

(Sheet 6 of 13)

Table E1 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Range No. 493.0 / 492.5	2	15												1930/38/44/46/48
Range No. 492.0 / 491.5 / 491.0	3	15												1930/38/44/46/48 Campbell Isl. included
Range No. 490.5 / 490.0 / 489.5	4													1930/38/44/46/48 Campbell Isl. included
Range No. 489.0 / 488.5 / 488.0	5	15												1930/38/44/46/48 Range No. 488.5 - 1930/38/44/46/48/49
Range No. 490.0 / 489.5 / 489.0	6	15												1944/46/48 Replotted
Range No. 488.5 / 488.0 / 487.5	7	15									15			1944/46/48 Replotted
Range No. 487.5 / 487.0 / 486.5	8	15												1930/38/44/46/48
DAM 15 - Mile 482.9 & Range No. 25 - Mile 483.0	9	15												1930/38/44/46/48
Range No. 1 - 4 M485.94, 485.74, 485.58, 485.39 Sheet 2 of 9	9	15	1938										9	1930/38/44/46/48
Range No. 5 - 7 M485.20, 485.07, 484.92 Sheet 3 of 9	10	15	1938										10	1930/38/44/46/48
Range No. 24, 1A - 6A M483.08, 485.94, 485.74, 485.58, 485.39, 485.20, 485.07 Sheet 9 of 9	11	15	1938										11	1930/38/44/46/48 6A-1930/38/44
Range No. 8 -10 M484.75, 484.62, 484.49 Sheet 4 of 9	12	15	1938										12	1930/38/44/46/48 Replot of file no. 13
Range No. 8 -10 M484.75, 484.62, 484.49 Sheet 4 of 9	13	15	1938										13	1930/38/44/46

(Sheet 7 of 13)

Table E1 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Range No. 11 - 13 M-, -, 484.27 Sheet 5 of 9	14	15	1938										14	1930/38/44/46/48 Replot of Range No. 11, 12, 20
Range No. 11 - 13 M-, -, 484.27 Sheet 5 of 9	15	15	1938										15	R11 - 1930/38/44 R12 - 1930/38 R13 - 1930/38/44/46/48
Range No. 14 - 16 M484.24, 484.21, 484.18 Sheet 6 of 9	16	15	1938										16	1930/38/44/46/48
Range No. 17 - 20 M484.15, 483.96, 483.80, 483.65 Sheet 7 of 9	17	15	1938										17	1930/38/44/46/48 R20 - 1930/38
Range No. 21 - 23 M483.48, 483.35, 483.23 Sheet 8 of 9	18	15	1938										18	1930/38/44/46/48
Mississippi River - Pool 15 Sedimentation Comparative Cross-sections - 14 sheets	**Summary 1 - 14**	**15**	**1948/ 50/52**	**493.3**	**482.9**	**61 - 63**	**50/100**	**5**						
Range 483.0 No. 25 / 482.9 Sheet 1 of 14		15					50	5						1948/50/52
Range 483.35, No. 22 / 483.23, 23 / 483.08, 24 Sheet 2 of 14		15					50	5						1948/50/52
Range 483.48, No. 21 / 483.65, 20 / 483.80, 19 Sheet 3 of 14		15					50, 50, 100	5						1948/50/52
Range 484.21, No. 15 / 484.15, 17 / 483.96, 18 Sheet 4 of 14		15					100	5						1948/50/52

(Sheet 8 of 13)

Table E1 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Range 484.49, No. 10 / 484.35, 11 / 484.27, 13 Sheet 5 of 14		15					100	5						1948/50/52
Range 484.92, No. 7 / 484.75, 8 / 484.62, 9 Sheet 6 of 14		15					50	5						1948/50/52
Range 485.39, No. 4 / 485.20, 5 / 485.07, 6 Sheet 7 of 14		15					50	5						1948/50/52
Range 485.94, No. 1 / 485.74, 2 / 485.58, 3 Sheet 8 of 14		15					100	5						1948/50/52
Range 485.94, No. 1A / 485.74, 2A / 485.58, 3A / 485.39, 4A / 485.20, 5A / 485.07, 6A Sheet 9 of 14		15					50	5						1948/50/52 Range 485.20, No. 5A - 1948/52
Range 487.5, 487.0, 486.5 Sheet 10 of 14		15					100	5						1948/50/52
Range 489.0,488.5, 488.0 Sheet 11 of 14		15					100	5						1948/50/52
Range 490.5, 490.0, 489.5 Sheet 12 of 14		15					*100	5						1948/50/52 Campbell Slu. - Range 490.5, 490.0 (*Campbell Slu. Range 490.5 - Hoz. scale 1"= 50ft)
Range 492.0, 491.5, 491.0 Sheet 13 of 14		15					100	5						1948/50/52 Range 491.0 - Campbell Slu.
Range 493.3, 493.0, 492.5 Sheet 14 of 14		15					100	5						1948/50/52

(Sheet 9 of 13)

Table E1 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Mississippi River - Pool 15 Sedimentation - 1954 Flood Study Comparative Cross-sections		**15**	**1954**			**62**	**100**	**5**						
Range 10 - sheet 5		15	1948/50/ 52/54	484.5			100	5						
Range 11 - sheet 5		15	1948/50/ 52/54	484.4			100	5						
Range 13 - sheet 5		15	1948/50/ 52/54	484.3			100	5						
Mississippi River - Pool 22 Sedimentation Survey - Silt Ranges Index Map	**Summary 22-S-89.1**	**21 - 22, 24**	**1944**	**324.1**	**301.3**	**86 - 90**	**400**							
MS. R. - Wisconsin R. to Clarksville, MO														
Sheet 163 - RS324.1		21 & 22		326.0	323.6	86	400				MSL 1912			
Sheet 164 - RS323.1		22		323.6	321.6	86 - 87	400				MSL 1912			
Sheet 165 - RS321.5-320.4		22	1943	322.1	320.2	87	400				MSL 4thGA			
Sheet 166 - RS319.0		22	1943	320.2	318.2	87	400				MSL 4thGA			
Sheet 167 - RS318.0-317.0		22	1943	318.2	316.1	87	400				MSL 4thGA			
Sheet 168 - RS316.0-315.0		22	1943	316.1	314.0	87 - 88	400				MSL 4thGA			
Sheet 169 - RS314.0-313.0		22	1943	314.6	312.8	88	400				MSL 4thGA			

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Table E1 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Sheet 170 - RS312.0-311.0		22		312.8	310.8	88	400				MSL 1912			
Sheet 171 - RS311.0-310.0				311.3	309.2	88	400				MSL			
Sheet 172 - RS309.0-307.5		22		309.2	307.3	88 - 89	400				MSL 1912			
Sheet 173 - RS307.0-305.5		22	1943	307.3	305.3	89	400				MSL 4thGA			
Sheet 174 - RS305.1-303.6		22	1943	305.3	303.3	89	400				MSL 4thGA			
Sheet 175 - RS301.3-301.9		22	1943	303.3	301.4	89	400				MSL 4thGA			
Sheet 176 - RS301.3		22 & 24	1943	301.4	299.5	89 - 90	400				MSL 4thGA			
Mississippi River - Pool 22 Sedimentation Comparative Cross-sections - 19 sheets	**Summary 1 - 19**	**22**	**1938/ 54/69/ 75**	**324.1**	**301.3**	**86 - 89**	**200**	**5**						**Includes xsec at L&D 21 TW - Mile 324.8 & at L&D 22 TW - Mile 301.1**
Range 301.3 Sheet 1 of 19		22					200	5						1938/54/69/75
Range 302.4, 301.9 Sheet 2 of 19		22					200	5						1938/54/69/75
Range 303.6, 303.1 Sheet 3 of 19		22					200	5						1938/54/69/75
Range 304.5, 304.0 Sheet 4 of 19		22					200	5						1938/54/69/75
Range 305.5, 305.1 Sheet 5 of 19		22					200	5						1938/54/69/75
Range 306.5, 306.0 Sheet 6 of 19		22					200	5						1938/54/69/75
Range 307.5, 307.0 Sheet 7 of 19		22					200	5						1938/54/69/75
Range 309.0, 308.0 Sheet 8 of 19		22					200	5						1938/54/69/75

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Table E1 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Range 310.0 Sheet 9 of 19		22					200	5						1938/54/69/75
Range 311.0 Sta. PI11+75-69+27.5, 311.0 Sta. 0+00-PI11+75 Sheet 10 of 19		22					200	5						1938/54/69/75
Range 313.0, 312.0 Sheet 11 of 19		22					200	5						1938/54/69/75
Range 314.0 Sheet 12 of 19		22					200	5						1938/54/69/75
Range 315.0 Sheet 13 of 19		22					200	5						1938/54/69/75
Range 316.0 Sheet 14 of 19		22					200	5						1938/54/69/75
Range 317.0 Sheet 15 of 19		22					200	5						1938/54/69/75
Range 319.0, 318.0 Sheet 16 of 19		22					200	5						1938/54/69/75
Range 321.5, 320.4 Sheet 17 of 19		22					200	5						1938/54/69/75
Range 323.1 Sheet 18 of 19		22					200	5						1938/54/69/75
Range 324.1 Sheet 19 of 19		22					200	5						1938/54/69/75
Mississippi River Quad City Backwater Study Survey Range Date		**14 - 16**	**1976**	**494.1**	**476.1**	**61 - 63**	**500**							
Sheet No. 74 - RS492.91-492.4		14 & 15	1976	494.1	492.1	61	500							
Sheet No. 75 - RS491.84-490.35		15	1976	492.1	490.2	61 - 62	500							

(Sheet 12 of 13)

Table E1 (Concluded)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Sheet No. 76 - RS489.9-488.7		15	1976	490.2	488.3	62	500							
Sheet No. 77 - RS488.0-487.28		15	1976	488.7	486.8	62	500							
Sheet No. 78 - RS486.78-485.5		15	1976	487.2	485.4	62	500							
Sheet No. 79 - RS485.04-483.42		15	1976	485.3	483.4	62	500							
Sheet No. 80 - RS483.42-481.72		15 & 16	1976	483.4	418.3	62	500							
Sheet No. 81 - RS481.72-480.4		16	1976	482.1	480.0	63	500							
Sheet No. 82 - RS479.8-478.2		16	1976	480.0	478.1	63	500							
Sheet No. 83 - RS477.7		16	1976	478.0	476.1	63	500							
Sylvan Slough Water surface profiles			**1952**	**488.0**	**482.4**	**62 - 63**	**1=0.25m**	**1**						
Mississippi River Landform Sediment Assemblages							**190,000 m**							**Plus supporting literature**

(Sheet 13 of 13)

Table E2
Inventory of Historical Data Related to Hydrographic Surveys and Cross-sections on the Mississippi River
Rock Island District - Illinois Waterway

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Illinois Waterway Sounding Record	**Summary**	**Marseilles, Peoria, La Grange**	**1955 -date**	**331.0**	**75.0**	**18 - 76**	**1 mile**							**Dredging performed, special survey, channel sounding survey.**
Chicago River	A/		1986-89	333.0	322.0	69 - 71	1 mile							
Chicago sanitary & ship canal	2		1966-89	321.0	309.0	66 - 69	1 mile							
C.S & S.C.	3		1951-89	309.0	296.0	64 - 66	1 mile							
Calumet Sag Channel - Little Calumet R.	C-1 - C-3		1955-94	328.0	316.0	74 - 76	1 mile							
Lockport L&D and Brandon Rd L&D	4/4A/4B	Lockport	1979-96	296.0	283.0	62 - 64	1 mile							
Dresden Isl. L&D	5/5A/5B	Dresden Isl.	1979-96	283.0	270.0	59 - 62	1 mile							
Marseilles Pool	6/6A	Marseilles	1980-96	270.0	257.0	57 - 59	1 mile							
Marseilles L&D	7/7A/7B	Marseilles	1980-96	257.0	244.0	54 - 57	1 mile							
Starved Rock L&D	8/8A/8B	Starved Rock	1978-96	244.0	231.0	51 - 54	1 mile							
Peoria Pool	9/9A/9B	Peoria	1946-96	231.0	218.0	48 - 51	1 mile							
Peoria Pool	10/10A/10B	Peoria	1946-96	218.0	205.0	45 - 48	1 mile							
Peoria Pool	11/11A	Peoria	1936-96	205.0	192.0	43 - 45	1 mile							
Peoria Pool	12/12A	Peoria	1936-96	192.0	179.0	40 - 43	1 mile							
Peoria Pool	13/13A	Peoria	1976-96	179.0	166.0	35 - 40	1 mile							
Peoria L&D	14/14A/14B	Peoria	1965-96	166.0	153.0	32 - 35	1 mile							

(Sheet 1 of 6)

Table E2 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
La Grange Pool	15/15A/15 B	La Grange	1975-96	153.0	140.0	30 - 32	1 mile							
La Grange Pool	16/16A/16 B	La Grange	1975-96	140.0	127.0	27 - 30	1 mile							
La Grange Pool	17/17A/17 B	La Grange	1971-96	127.0	114.0	25 - 27	1 mile							
La Grange Pool	18/18A/18 B	La Grange	1975-96	114.0	101.0	23 - 25	1 mile							
La Grange Pool	19/19A/19 B	La Grange	1975-96	101.0	88.0	20 - 23	1 mile							
La Grange L&D	20/20A/20 B	La Grange	1966-96	88.0	75.0	18 - 20	1 mile							
Soundings Illinois Waterway - Peoria Lake In 4 Sheets	**Summary**	**Peoria**	**1988/ 89 & 96**	**183.2**	**162.3**	**34 - 42**	**1000**					**1988**		**Soundings in ft below Flat Pool Elevation 440.0 Control Points are listed - number, co-ordinates and elevation (but blank).**
1 of 4		Peoria	1988/ 89 & 96	167.7	162.3	34 - 36	1000					1988		Soundings in ft below Flat Pool Elevation 440.0
2 of 4		Peoria	1988/ 89 & 96	172.8	167.7	36 - 38	1000					1988		Soundings in ft below Flat Pool Elevation 440.0
3 of 4		Peoria	1988/ 89 & 96	177.8	172.8	38 - 39	1000					1988		Soundings in ft below Flat Pool Elevation 440.0
4 of 4		Peoria	1988/ 89 & 96	183.2	177.8	39 - 42	1000					1988		Soundings in ft below Flat Pool Elevation 440.0
Soundings Illinois Waterway in 56 Sheets	**Summary**	**Peoria La Grange**	**1937-85**	**158.2**	**80.6**	**19 - 33**	**200**				**MSL 1929 adj**	**1988**		

(Sheet 2 of 6)

Table E2 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
La Grange & Peoria Pool	M-47/1	Peoria	1948-58	158.2	156.8	33	200				MSL 1929 adj			
La Grange Pool	M-47/2 - M-47/55	La Grange	37/38/ 39/42/ 45 48/50/ 51/52/ 53/55 56/58/ 63/66/ 76/85	156.8	80.6	19 - 33	200				MSL 1929 Adi			
Soundings Illinois Waterway in 56 Sheets	**Summary**	**Peoria La Grange**	**1996**	**158.2**	**80.2**	**19 - 33**	**200**				**MSL 1929 adj**	**1988**		**Soundings in ft below Flat Pools**
La Grange & Peoria Pool	M-54/1	Peoria	1996	158.2	156.8	33	200				MSL 1929 adj			Soundings in ft below Flat Pool Elevation 430.0/440.0
La Grange Pool	M-56/2 - M-56/56	La Grange	1996	156.8	80.2	19 - 33	200				MSL 1929 Adj			Soundings in ft below Flat Pool Elevation 429.9 at Mile 156.8 ending Elatio 429.0/419.6 at Mile 80.2
Illinois Waterway - Brandon Road Pool Index Map for Silting Ranges - 4 Sheets	**Summary 9.1.3/J-18**	**Brandon Rd**	**1958**	**291.10**	**285.80**	**62 - 63**	**1600**							**Survey Dates**
Silting Range #1 - Sheet 2 of 4	9.1.3/J-19	Brandon Rd	1956	286.46		62	40	4						1937/41/51/56/61
Silting Range #1 - Sheet 2A of 4	9.1.3/J-19 A	Brandon Rd	1964	286.46		62	40	4						1961
Silting Range #2 & 3 - Sheet 3 of 4	9.1.3/J-20	Brandon Rd	1956	287.87	286.60	62 - 63	40	4						#2&3 1937/41/51/56/61

(Sheet 3 of 6)

Table E2 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Silting Range #2 & 3 - Sheet 3A	9.1.3/J-20 A	Brandon Rd	1956	287.87	286.60	62 - 63	40	4						#2 1961 #3 1961/64/66
Silting Range #4 & 5 - Sheet 4 of 4	9.1.3/J-21	Brandon Rd	1956 Revised 1961	289.88	288.82	63	40	2						#4&5 1937/41/51/56/61
Silting Range #4 & 5 - Sheet 4A	9.1.3/J-21 A	Brandon Rd	1964	289.88	288.82	63	40	2						#4&5 1961/64/66
Illinois Waterway - Dresden Island Pool Index Map for Silting Ranges - 13 Sheets	**Summary 9.1.4/J-34**	**Dresden Isl.**	**1958**	**286.00**	**271.30**	**59 - 62**	**1600**							**Survey Dates**
Silting Range #1 - Sheet 1 of 13	9.1.4/J-35	Dresden Isl.	1961	271.84		59	40	2						1937/41/51/56/61
Silting Range #2 - Sheet 2 of 13	9.1.4/J-36	Dresden Isl.	1961	272.31		59 - 60	40	2						1936/41/51/56/61/73
Silting Range #3 - Sheet 3 of 13	9.1.4/J-37	Dresden Isl.	1961	272.87		60	40	2						1935/41/51/56/61
Silting Range #4 - Sheet 4 of 13	9.1.4/J-38	Dresden Isl.	1961	273.49		60	40	2						1935/41/51/56/61
Silting Range #5 - Sheet 5 of 13	9.1.4/J-39	Dresden Isl.	1961	275.19		60	40	2						1935/41/51/56/61/73
Silting Range #6 - Sheet 6 of 13	9.1.4/J-40	Dresden Isl.	1961	276.86		60 - 61	40	2						1935/41/51/56/61
Silting Range #7 - Sheet 7 of 13	9.1.4/J-41	Dresden Isl.	1961	277.33		61	40	2						1935/41/51/56/61
Silting Range #8 - Sheet 8 of 13	9.1.4/J-42	Dresden Isl.	1961	278.24		61	40	2						1937/41/51/56/61
Silting Range #9 - Sheet 9 of 13	9.1.4/J-43	Dresden Isl.	1961	279.50		61	40	2						1937/41/51/56/61
Silting Range #10 - Sheet 10 of 13	9.1.4/J-44	Dresden Isl.	1961	280.56		61	40	2						1937/41/51/56/61/66
Silting Range #11 - Sheet 11 of 13	9.1.4/J-45	Dresden Isl.	1961	282.05		62	40	2						1937/41/51/56/61/66

(Sheet 4 of 6)

Table E2 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Silting Range #12 - Sheet 12 of 13	9.1.4/J-46	Dresden Isl.	1961	283.76		62	40	2						1937/41/51/56/61/66/73
Silting Range #13 - Sheet 13 of 13	9.1.4/J-47	Dresden Isl.	1961	285.16		62	40	2						1966/73 & 5 lines not labeled
Illinois Waterway - Marseilles Pool Index Map for Silting Ranges - 17 Sheets	**Summary 9.1.5/J-41 & 42**	**Marseilles**	**1958 1958**	**259.00 271.80**	**244.50 259.00**	**54 - 57 57 - 59**	**1600 1600**							**Survey Dates**
Silting Range #1 - Sheet 1 of 17	9.1.5/J-58	Marseilles	1961	245.00		55	40	2						1939/41/51/56/61/66/73
Silting Range #2 - Sheet 2 of 17	9.1.5/J-59	Marseilles	1961	245.89		55	40	2						1937/41/51/56/61/66/73
Silting Range #3 - Sheet 3 of 17	9.1.5/J-60	Marseilles	1961	247.21		55	40	2						1937/41/51/56/61/66/73
Silting Range #4 - Sheet 4 of 17	9.1.5/J-61	Marseilles	1961	247.52		55	40	2						1937/41/51/56/61/66/73
Silting Range #5 - Sheet 5 of 17	9.1.5/J-62	Marseilles	1961	248.30		55	40	2						1937/41/51/56/61/66/73
Silting Range #6 - Sheet 6 of 17	9.1.5/J-63	Marseilles	1961	249.96		55	40	2						1939/41/51/56/61/66/73
Silting Range #7 - Sheet 7 of 17	9.1.5/J-64	Marseilles	1961	251.92		56	40	2						1939/41/51/56/61/66
Silting Range #8 - Sheet 8 of 17	9.1.5/J-65	Marseilles	1961	253.61		56	40	2						1939/41/56/61/66/73
Silting Range #9 - Sheet 9 of 17	9.1.5/J-66	Marseilles	1961	254.90		56	40	2						1939/41/51/56/61/66/73
Silting Range #10 - Sheet 10 of 17	9.1.5/J-67	Marseilles	1961	256.23		57	40	2						1939/41/51/56/61/66
Silting Range #11 - Sheet 11 of 17	9.1.5/J-68	Marseilles	1961	257.85		57	40	2						1939/41/51/56/61/66/73
Silting Range #12 - Sheet 12 of 17	9.1.5/J-69	Marseilles	1961	260.07		57	40	2						1939/41/51/56/61/66/73
Silting Range #13 - Sheet 13 of 17	9.1.5/J-70	Marseilles	1961	261.89		57 - 58	40	2						1939/41/51/56/61/66/73

(Sheet 5 of 6)

Table E2 (Concluded)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Comments
Silting Range #14 - Sheet 14 of 17	9.1.5/J-71	Marseilles	1961	263.98		58	40	2						1939/41/51/56/61/66/73
Silting Range #15 - Sheet 15 of 17	9.1.5/J-72	Marseilles	1961	266.00		58	40	2						1939/41/51/56/61/66/73
Silting Range #16 - Sheet 16 of 17	9.1.5/J-73	Marseilles	1961	267.99		59	40	2						1939/41/51/56/61/66/73
Silting Range #17 - Sheet 17 of 17	9.1.5/J-74	Marseilles	1961	270.01		59	40	2						1939/41/51/56/61/66/73
Illinois Waterway - Starved Rock Pool Index Map for Silting Ranges - 11 Sheets	**Summary 9.1.6/J-36**	**Starved Rk**	**1958**	**244.50**	**231.00**	**51 - 54**	**1600**							**Survey Dates**
Silting Range #1 - Sheet 1 of 11	9.1.6/J-50	Starved Rk	1961	231.51		51	40	2						1935/41/51/56/61
Silting Range #2 - Sheet 2 of 11	9.1.6/J-51	Starved Rk	1961	232.37		51	40	2						1935/41/51/56/61
Silting Range #3 - Sheet 3 of 11	9.1.6/J-52	Starved Rk	1961	232.95		51	40	2						1935/41/51/56/61
Silting Range #4 - Sheet 4 of 11	9.1.6/J-53	Starved Rk	1961	233.79		51	40	2						1935/41/51/56/61
Silting Range #5 - Sheet 5 of 11	9.1.6/J-54	Starved Rk	1961	234.63		52	40	2						1935/41/51/56/61 Includes Left Bank Flue
Silting Range #6 - Sheet 6 of 11	9.1.6/J-55	Starved Rk	1961	236.62		52 - 53	40	2						1936/41/51/56/61
Silting Range #7 - Sheet 7 of 11	9.1.6/J-56	Starved Rk	1961	238.09		53	40	2						1937/41/51/56/61
Silting Range #8 - Sheet 8 of 11	9.1.6/J-57	Starved Rk	1961	239.09		53	40	2						1937/41/51/56/61
Silting Range #9 - Sheet 9 of 11	9.1.6/J-58	Starved Rk	1961	240.76		54	40	2						1937/41/51/56/61/66 Includes Back Channel
Silting Range #10 - Sheet 10 of 11	9.1.6/J-59	Starved Rk	1961	242.74		54	40	2						1937/41/51/56/61/66
Silting Range #11 - Sheet 11 of 11	9.1.6/J-60	Starved Rk	1961	243.92		54	40	2						1937/41/51/56/61/66

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Appendix F
Inventory of Historical Data, Mississippi River and Illinois Waterway, St. Louis District

List of Tables

Table F1. Inventory of Hydrographic Survey Data and Navigation Map Books on the Upper Mississippi River, St. Louis District - Mississippi River F3

Table F2. Inventory of Miscellaneous Surveys and Maps on the Upper Mississippi River, St. Louis District - Mississippi River F7

Table F3. Inventory of Hydrographic Surveys and Charts on the Upper Mississippi River, St. Louis District - Illinois Waterway F11

Table F1
Inventory of Hydrographic Survey Data and Navigation Map Books on the Upper Mississippi River, St. Louis District - Mississippi River

Description	Map File ID	Pool	Date	U.R.M.	D.R.M.	Nav. Chart No.	Hor. Scale (1"=(xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Continuous Surveys Hydro-graphic Survey Data Entered into REEGIS at SLD			**1880/ 1908/ 89/93/ 95**	**300.0**	**0.0**	**90 - 130**				**REEGIS**	**NGVD & LWRP**			**St. Louis District / Soundings or Shadings**
			1880	300	0	90-130				REEGIS	NGVD			St. Louis District / Soundings
			1908	190	0	105-130				REEGIS	NGVD			St. Louis District / Soundings
			1989	197.0	0.0	104-130				REEGIS	NGVD			St. Louis District / Soundings(NGVD) and Shading(LWRP)
			1993	300.0	0.0	90-130				REEGIS	LWRP			St. Louis District / Shading
			1995	300.0	0.0	90-130				REEGIS	LWRP			St. Louis District / Shading
Continuous Surveys Hydrographic Survey Data Prior to 1989 Hardcopies are listed below. Much has been 'Fired'														St. Louis District
Continuous Surveys Hydrographic Survey Data Post 1989, data is in digital data base at SLD.														St. Louis District

Note; The mileages on the UMR are denoted AOR (above Ohio River). The mileages from Cairo to Head of Passes are denoted AHP (above Head of Passes). I denoted BHP (below Head of Passes) to the Gulf. AREC stands for Applied River Engineering Center.

(Sheet 1 of 4)

Table F1 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M.	Nav. Chart No.	Hor. Scale (1"=(xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Miscellaneous Surveys Board on Examination and Survey of Mississippi River Sheets 1 - 17	Summary	St. Louis, MO Cairo, IL	1908	191.0	0.0	105-130	1000		5 ft	Glossy sheet	Memphis			St. Louis District & AREC /Elevations are given in feet above the Memphis datum plane which is 6.8 feet below mean Gulf level at Biloxi, MS.
Miscellaneous Surveys 1944 Survey of the Mississippi River Between the Ohio & Missouri Rivers. Sheets 1 - 72	Summary Rt wall, Bot.Left.# 54	Ohio - Missouri	1944	194.9	0.0	105-130	9600			Booklet	1927			St. Louis District & AREC / Blue line Hydrographic surveys w/side channel.
Hydrographic Survey Maps Of the Miss. River Mouth of Ohio RM 0 to Mile 300 Sheets 1 - 69	Summary Rt wall, Bot.Left.# 54		1956	298.2	0.0	90-130	9600			Booklet	1927			St. Louis District & AREC
Hydrographic Survey Maps of the Mississippi River Plates 1 - 82	Summary Lft. Wall, 3rd Set, 3rd fr bot.		1970	202.0	0.0	140-130	400 ft			Booklet	MSL	1968		St. Louis District & AREC / Aerial Photo with survey overlay
Hydrographic Survey Maps of the Mississippi River Plates 82-110	Summary Rt. Wall, Bot. Mid. #17		1971	300.0	202.0	90-104	400 ft			Booklet	MSL	1968		St. Louis District & AREC

(Sheet 2 of 4)

Table F1 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M.	Nav. Chart No.	Hor. Scale (1"=(xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Hydrographic Survey Maps Mississippi River Plates 1 - 74	**Summary Lft. Wall, 3rd Set, 3rd fr bot.**		**1982**	**202.0**	**0.0**	**14-130**	**400 ft**			**Booklet**	**NGVD**	**1976**		**St. Louis District & AREC / Aerial Photo with survey overlay**
Hydrographic Survey Maps Mississippi River Plates 1 - 82	**Summary Lft. Wall, 3rd Set, 3rd fr bot.**		**1986-87**	**300.0**	**200.0**	**90-104**	**400 ft**			**Booklet**	**NGVD**	**1983**		**St. Louis District & AREC / Aerial Photo with survey overlay**
Hydrographic Survey Maps Mississippi River Plates 1 - 82	**Summary Lft. Wall, 3rd Set, 3rd fr bot.**		**1986, 1987, 1988**	**200.0**	**0.0**	**104-130**	**400 ft**			**Booklet**	**NGVD**	**1983**		**St. Louis District & AREC / Aerial Photo with survey overlay**
Navigation and Flood Control Map Books		**Open River**	**1960's/ 70's/ 80,s/ 90's**											**St. Louis District & AREC**
Flood Control and Navigation Maps Cairo, IL, to Gulf of Mexico		Open River	1994	953.8	28 BHP		62,500"		5 ft	Book	1929			St. Louis District & AREC
			1992											St. Louis District & AREC
			1990				62,500"							St. Louis District & AREC
			1989											St. Louis District & AREC
			1986				62,500"				1929			St. Louis District & AREC
			1982				62,500"							St. Louis District & AREC
			1981											St. Louis District & AREC
			1976								MSL			St. Louis District & AREC

(Sheet 3 of 4)

Table F1 (Concluded)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M.	Nav. Chart No.	Hor. Scale (1"=(xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
			1974								MSL			St. Louis District & AREC
			1973								MSL			St. Louis District & AREC
			1969								MSL			St. Louis District & AREC
			1968								MSL			St. Louis District & AREC
			1961								MSL			St. Louis District & AREC
Small Boat Navigation Charts Navigation Pools 24, 25, & 26 Mississippi River & Illinois Waterway Index + 14 sheets			**1987**				**40234**			**Booklet**				**St. Louis District & AREC**
Mississippi River		24, 25, 26	1987	300.0	202.9	90 - 104	40234			Booklet				St. Louis District & AREC / Includes locations for services, dikes, underwater hazards, gages, and harbors
Illinois Waterway			1987	80.2	0.0	1 - 24	40234			Booklet				St. Louis District & AREC

(Sheet 4 of 4)

Table F2
Inventory of Miscellaneous Surveys and Maps on the Upper Mississippi River, St. Louis District - Mississippi River

Description	Map File ID	Pool	Date	U.R.M.	D.R.M.	Nav. Chart No.	Hor. Scale (1"=(xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Detail Charts of the Miss Riv. from Cairo, IL, to Hannibal, MO Sheets 101 - 128	Left wall, 3rd set, 3rd fr bot.		1876 - 1881				20000		5	Photo-copies	Memphis			St. Louis District & AREC / Memphis datum plane is 6.63 ft below Mean Gulf level at Biloxi
Detail Map of the LMR from Mouth of the Ohio River to Head of Passes, LA. Sheets 1 - 86			1882 - 1915	953.8	0.0		20000		5	Large book	Memphis			St. Louis District & AREC / Cross sections, topography & hand colored/coded 1920's channel changes.
Mississippi River Second Field Area Survey Sheets 1 - 32, & 1 - 34	Summary Rt wall, Bot.Left.# 54	26 to Open River	1939	197.6	8.7	104-130	9600			Booklet	1927			St. Louis District & AREC / Cross-sections including some side channels hand colored showing proposed dikes and revetments
Maps of the Flood Plain of the Mississippi River Between the Mouths of the Ohio and Missouri Sheets 1 - 43			1940	191.0	0.0		24,000" 1000		5 ft	Book	1929 (MSL)	1936		St. Louis District & AREC / Contours were taken from the topographic survey of 1908 and later USGS surveys

(Sheet 1 of 4)

Table F2 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M.	Nav. Chart No.	Hor. Scale (1"=(xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Proposed 12 ft. Waterway - Mississippi River Layout Missouri to Ohio Rivers Sheets 1 - 70			**1944**	**194.9**	**0.0**	**105-130**	**9600**			**Booklet**	**NAD 1927**			**St. Louis District & AREC / Soundings on 500 ft spacing and hand written notes on channel 'improvements'**
Miss. River Maint. & Oper. Program Existing Project Between Mile 0 And Mile 300 above mouth of Ohio			**1955**	**300.0**	**0.0**	**90-130**								**St. Louis District & AREC**
Memphis District Channel Stabilization Program Sheets 1 - 22		**Open River**	**1967**	**953.8**	**597**	**37278**	**62500**		**5 ft**	**Booklet**	**1929 (MSL)**			**St. Louis District & AREC / Maps of Revetment, Dikes, and Dredging Placement for FY 's 1969, 1970, 1971, & after 1971**
Dike Survey Profiles			**1969**											**St. Louis District & AREC**
				1969	133.3	108.9	114-117							St. Louis District & AREC
			1969	47.0	0.0	126-130								St. Louis District & AREC
				98.4	68.3	119-123								St. Louis District & AREC
Regulating Works Required To Maintain a 9-foot Channel In pools 24,25, & 26		**24, 25, 26**	**1970**	**302.0**	**200.0**	**35-53**				**Booklet**				**St. Louis District & AREC / Hand edited nav. Charts showing proposed works**

(Sheet 2 of 4)

Table F2 (Continued)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M.	Nav. Chart No.	Hor. Scale (1"=(xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Vegetation Cover Maps Miss. River Floodplain between St. Louis, Mo., & Cairo, IL. Plates 1 - 68	Summary Rt. Wall, Bot. Mid. #17		1972	171.2	0.0	108-130	400 ft			Booklet	MSL			St. Louis District & AREC / Red line on aerial photo by: older stand, younger, early secondary succession
Levees Alton - Gale IL Miss River Sheets 1 - 43	Summary Rt wall,Bot.Left.#54		1974	202.0	45.0	104-126	1000ft			Booklet				St. Louis District & AREC / Flood Fight Maps
Upper Miss. River Water Surface Profiles River Mile 0.0 to 847.5 Plates 1 - 17		2 to Open River	1979	847.5	0.0	11-130	1 RM	2		Booklet	1912/ 29			St. Louis District & AREC / Technical Floodplain Management Task Force 5,10,50,100,200,500, &UDF Levels
OTHER MISCELLANEOUS FILES														
Aerial Photo Mosaics			1969, 1993,											St. Louis District & AREC
Flood Photos	Lft Wall, 3rd Set, Top 3		1993											St. Louis District & AREC
Sounding Ranges						32	500	10		Glossy/ plot	1912			St. Louis District & AREC
Gage Records														St. Louis District & AREC

(Sheet 3 of 4)

Table F2 (Concluded)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M.	Nav. Chart No.	Hor. Scale (1"=(xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Monthly Hydrographs														St. Louis District & AREC
Discharge and Stage Records														St. Louis District & AREC MS R, MS R West
Env. Management Project														St. Louis District & AREC

(Sheet 4 of 4)

Table F3
Inventory of Hydrographic Surveys and Charts on the Upper Mississippi River, St. Louis District - Illinois Waterway

Description	Map File ID	Pool	Date	U.R.M.	D.R.M.	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Continuous Surveys Hydrographic Survey Data Entered into REEGIS at SLD			1995	800.0	0.0					REEGIS	NGVD & LWRP			St. Louis District / Soundings & Shadings
Continuous Surveys Hydrographic Survey Data Prior to 1989 Hard copies are listed below. Much has been 'Fired'														St. Louis District
Continuous Surveys Hydrographic Survey Data Post 1989, data is in digital data base at SLD.														St. Louis District
Hydrographic Surveys Maps of the Illinois River Plates 1 - 60	Summary Rt. Wall, Bot. Mid. #17		1986, 1987, 1988	80.0	0.0	37274	200 ft			Booklet	MSL	1984		St. Louis District & AREC / Copy Collected. Aerial photo with Survey overlay
Hydrographic Survey Maps of the Illinois River Plates 1 - 60	Summary Rt. Wall, Bot. Mid. #17		1982	80.0	0.0	37274	200 ft			Booklet	MSL	1984		St. Louis District & AREC

(Continued)

Table F3 (Concluded)

Description	Map File ID	Pool	Date	U.R.M.	D.R.M.	Nav. Chart No.	Hor. Scale (1"=xft)	Vert. Scale (1"=zft)	Contour Int.	Format	NAD	Photo Date	Sediment Range Tran-secs	Location/ Comments
Hydrographic Survey Maps of the Illinois River Inspection Trip 4-29-87 Plates 1 - 60	Summary Rt. Wall, Bot. Mid. #17			80.0	0.0	37274	200 ft			Booklet		1975		St. Louis District & AREC / Handwritten notes from trip on Survey Maps
Hydrographic Surveys of the Illinois River Plates 1 - 60	Summary Rt. Wall, Bot. Mid. #17		1977	80.0	0.0	37274	200 ft			Booklet	MSL	1975		St. Louis District & AREC
Illinois River Waterway Mapping 160 Sheets	Summary		1981	427.7	0.0	1-77+	400 ft		2 ft	Booklet Contour-ed Aerial Photos	NGVD 1929	1978-79		St. Louis District & AREC / Prepared for Chicago District using Photo-grammetric instru-ments. Grid based on IL Plane Coordi-nate System West Zone. Also contains gage information.
Charts of the Illinois Waterway From MS R at Grafton, IL, to Lake MI at Chicago & Calumet Harbors	Summary Left Wall, 3rd Set, 3rd shelf from bottom		1965 1974	333.0	0.0	1-77	1000 ft			Booklet				St. Louis District & AREC / Basic Nav. Charts with Bridge and Industrial Information.

Appendix G
Annotated Bibliography

1. Anderson, J. D., et al. (1996a). "Landform Sediment Assemblage (LSA) Units in the Upper Mississippi River Valley, United States Army Corps of Engineers, Rock Island District, Vol. 1," Technical Report No. 95-1004-11b, Illinois State Museum, Research and Collections Center, Quaternary Studies Program.

The set of U.S.G.S. quadrangle maps accompanying this report depict landform sediment assemblages (LSA) within the Mississippi River valley and the lower reaches of tributary valleys mapped at 1:24,000 scale. The maps were designed to be compatible with the Historic Properties Management Plan (HPMP) for land under the jurisdiction of the Corps of Engineers within the Rock Island District. LSA units on the maps are refined versions of the same units defined in Appendix C of the HPMP Upper Mississippi River (UMR) Database and Management Plan, as amended.

The maps are intended to be guidelines to the landforms in the Mississippi Valley, and revisions are expected during future field studies. The objective of the maps is to provide the Corps with baseline geologic information for assessing and managing the valley's resources. This objective will be best met if the LSA units as presently mapped are regarded as "best estimates" rather than absolute definitions, and if allowances are made for frequent updating and revisions based on new information derived from field investigations.

2. Anderson, J. D. et al. (1996b). "Landform Sediment Assemblage (LSA) Units in the Upper Mississippi River Valley, United States Army Corps of Engineers, Rock Island District, Vol. 2 - Appendices A & B," Technical Report No. 95-1004-11b, Illinois State Museum, Research and Collections Center, Quaternary Studies Program.

Contains Scope of Work and project correspondence.

3. Balding, G. O. (1992). "Water-Resources Activities of the U.S. Geological Survey in Illinois, 1990," Open-File Report (No. 92-451), U.S. Geological Survey.

List of Contents and Tables provided.

4. Bellrose, F. C., Paveglio, F. L., and Steffeck, D. W. (1979). "Waterfowl Populations and the Changing Environment of the Illinois River Valley," *Illinois Natural History Survey Bulletin* 32, Article 1, 1-54.

The value of the Illinois River Valley for waterfowl lies in its bottomland lakes that flank the relatively narrow river channel between Spring Valley and Meredosia and between Pearl and Grafton.

Includes sedimentation rate information.

5. Bellrose, F. C., Havera, S. P., Paveglio, F. L., Jr., and Steffeck, D. W. (1983). "The Fate of Lakes in the Illinois River Valley," Biological Notes No. 119, Illinois Natural History Survey, Department of Energy and Natural Resources, Natural History Survey Division, Champaign, IL.

Today, the appearance of the Illinois Valley is a far cry from its appearance in the early 1900's. A glimpse of its near-pristine condition is available in maps prepared by J. W. Woermann between 1902 and 1904 for the U.S. Army Corps of Engineers, Chicago Office. Woermann made wonderfully detailed maps of the river, its lakes, and the floodplain as far back as the valley bluffs.

Using the Woermann maps as a base, we compared the physical nature of the bottomland lakes and the adjacent floodplain of the Illinois Valley in the early 1900's with present conditions and projected our analyses into the early 21st century. This paper is an extension of an earlier report (Bellrose et al. 1979) that evaluated the effect of sedimentation on waterfowl food plants and waterfowl populations.

We examined the status of bottomland water areas because they formed the basis for one of the great inland commercial and sport fisheries as well as for unexcelled waterfowl hunting. Unfortunately for fish and wildlife, the lakes and lesser bottomland water areas have changed drastically in the ensuing 80 years as man has expanded his cultural activities.

6. Demissie, M., Keefer, L., and Xia, R. (1992). "Erosion and Sedimentation in the Illinois River Basin," Final Report ILENR/RE-WR-92/04, Illinois State Water Survey, Office of Sediment and Wetland Studies.

Includes data on erosion and sediment yield, sedimentation in the Illinois River Valley, land use, climate data, and management strategies for erosion control and sediments.

7. Funk, J. L., and Robinson, J. W. (1974). "Changes in the Channel of the Lower Missouri River and Effects on Fish and Wildlife." Aquatic Series No. 11.

Documentation of the general physiographic changes to the Missouri River since 1879 and the subsequent changes in the fish and wildlife diversity and quantity.

8. Griffin, D. W., and Griffin, M. A. (1995). "A Plan for the Preservation of Historic Documents, U.S. Army Corps of Engineers, Rock Island District," Hennepin Associates.

Ten preliminary inventories of Rock Island District historic documents and artifacts were completed over a four-year period beginning in July 1991 and continuing into August 1994. (Two additional inventory reports submitted in 1992 and 1995 were incomplete.) The documents are stored in 12 lock and dam sites on the Mississippi River, 9 sites on the Illinois Waterway, and in 2 buildings at district headquarters. The historic documents--photographs, survey map sheets, plans and diagrams--reflect Corps of Engineers responsibilities and activities associated with navigation improvement and flood protection and control from before the Civil War to 1950. The body of the plan contains the historic activities which produced the documents; a summary of the preliminary inventory results with emphasis on document subject matter, quantity, condition, and storage environment; and three appendices and a bibliography.

9. Hajic, E. R., Martin, C. F., and Wiant, M. D. (1996). "Historic Property Potential and Geomorphological Assessment Along the Illinois Waterway for the Rock Island District of the United States Army Corps of Engineers," Technical Report 95-939-20, Illinois State Museum, Research and Collections Center, Quaternary Studies Program.

The Illinois State Museum Society compiled a land-use history of Corps facilities, principally locks and dams, along the Illinois River. The evaluations included geomorphic assessment of the lock facility and its geomorphic context in the Illinois River Valley; and examination of plans for lock construction and modification of lock infrastructure. Archaeological assessment is recommended for small selected areas at five of the facilities including Dresden Island, Starved Rock, Peoria, and LaGrange.

10. Hendrickson, J. S. (1990). "Whitewater River EMP Project Hydraulic/ Sediment Analysis," Summary Report, U.S. Army Engineer District, St. Paul.

The reach of the Mississippi River included in the study area extends from River Mile 738.2 (Lock and Dam 5) to River Mile 752.8 (Lock and Dam 4). The main study area essentially is the lower 7 miles of the Whitewater River and the Weaver Bottoms Area. Since this study deals with sediment loading from the Whitewater River to Weaver Bottoms, the entire Whitewater watershed is included in the study area. Besides the Whitewater River, the other major tributaries that affect the study area include the Zumbro River, which enters at River Mile 750.2 (6 miles upstream of the Weaver Bottoms area), and East Indian Creek, which enters Weaver Bottoms approximately 2 miles northwest of the Whitewater River mouth.

11. Hendrickson, J. S., Haase, F. R., and Hoff, M. T. (1994). "Upper Mississippi River Hydrodynamics: Discharge Distribution in Pool 8, 1987-93," U.S. Army Engineer District, St. Paul.

A current trend in many reaches on the Upper Mississippi River is one of increased hydraulic conveyance through backwater areas with subsequent decreases in navigation channel flows. This increases both the sediment load to backwaters and the amount of navigation channel shoaling requiring maintenance dredging. During the last 20 years several projects have been implemented by the St. Paul District Corps of Engineers to reverse this trend. As part of the study and design of these projects, discharge measurements have been done to quantify flow distributions.

12. Humes, J. H., Jr. (1974). "A Geomorphic History of Degenhardt Island--Miles 238.5 on the Mississippi River," M.S. thesis, Southern Illinois University, Edwardsville Campus.

Paraphrased Introduction: The primary purpose of the study is to identify the contributing factors to the development of Degenhardt Island. The island has formed and stabilized in the 30 years prior to the study. The secondary purpose was to initiate a long-term monitoring program of the growth and deposition that is occurring on the island. Structural modifications that contribute to the form of Degenhardt Island include wing dams, Lock and Dam 25, dredging operations, and the construction of a drainage canal near Old Monroe. Natural influencing factors are primarily the Cuivre River, the Cap au Gris bedrock high, sediment yield (increasing from agricultural and urban development), flooding, and vegetation growth.

This paper includes maps of the island through time and data on sediments and botanical composition.

13. Keevin, T. M. (1996). "The Environmental Effects of River Training Structures," St. Louis District, 8.

Reference list includes the following subheadings: Hydraulic Engineering, Environmental Engineering/Planning, Habitat, Aquatic Organisms - General, Invertebrates, Fish, Vertebrates (Other than fish).

14. Keown, M. P., Dardeau, E. A., Jr., and Causey, E. M. (1981). "Characterization of the Suspended-Sediment Regime and Bed-Material Gradation of the Mississippi River Basin," Potamology Program (P-1), Report 1, Volume 1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

The Mississippi River drains an area in excess of one million square miles, covering part or all of 31 states and 2 Canadian provinces. Even prior to settlement the main stem was probably a heavy sediment carrier due to the character of the climate and soils in the basin. If the stream had been left to itself, the Mississippi would probably be building a new main-stem delta in what is now the Atchafalaya drainage. Several cultural impacts over the past two centuries have shaped the current character of the Mississippi main-stem suspended-sediment regime:

a. Much of the basin that once had been primarily forest and grasslands was turned to agricultural activities.

b. The old river structures became operational in 1963 preventing unregulated flow from the Mississippi to the Red-Atchafalaya system.

c. Sediment-retention structures were constructed (1953-1967) and channel improvement features were placed on the Missouri River and its tributaries.

d. Sediment-retention structures were constructed (1963-1970) and channel improvement features were placed on the Arkansas River and its tributaries.

In addition improved land-use management practices and the placement of numerous streambank protection works and sediment retention structures on high-order streams throughout the Mississippi River basin have undoubtedly reduced main-stem suspended-sediment loads, although these impacts are difficult to quantitatively assess.

Copy of Abstract and Contents in files. The study is a component of the Potamology Program (P-1) of the U.S. Army Engineer Division, Lower Mississippi River. The Potamology Program is a comprehensive study of physical forces that influence the flood-carrying capacity and navigability of the lower Mississippi River. The purpose of the Potamology Program is to define cause-and-effect relationships that result in short-term and long-term changes in the lower Mississippi River's stage-discharge relationships and to develop improved design concepts and criteria for construction of channel stabilization works which will improve flood control and navigation along the lower Mississippi River. The Potamology Program is composed of two major components: Sedimentation, MRB, and Aggradation and Degradation, MR. This study is one item under the Sedimentation component. Future studies will be directed toward development and utilization of a flow sediment model capable of detailed investigations of short- and long-term sedimentation trends, locally and throughout the main-stem Mississippi River. 1977-1980

15. Keown, M. P., Dardeau, E. A., Jr., and Kennedy, J. G. (1977). "Inventory of Sediment Sample Collection Stations in the Mississippi River Basin," Technical Report M-77-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

An inventory of the sediment sample collection stations in the Mississippi River Basin (MSRB) pertinent to the mission of the Corps of Engineers was conducted; 433 stations were located. Data for the 433 stations are presented in tables. For stations on the Arkansas, Atchafalaya, Kansas, Mississippi, Missouri, Ohio, Old, and Red Rivers, these data include river mile, water resource region, Corps of Engineers District, Office of Water Data Coordination (OWDC) station number, agency station number, station name, geographic coordinates of the station location, type of water body on which the station is

located, period of record of the station, frequency and types of data collected at the station, method used to collect sediment samples, and agency reporting to the OWDC regarding sediment collection activities at the station. For other streams in the basin on which stations are located, the data in the tables include the Corps of Engineers District, OWDC station number, station name, period of record, and agency reporting to the OWDC. In addition, narrative summaries were prepared for 74 key stations selected on the basis of location, period of record, and reliability of reported data. The summaries are presented in Appendix A, and include information on the station site location, the collection and laboratory analysis of sediment samples taken at the station, and the reduction and reporting of the resulting data.

The purpose of the effort was to update previous U.S. Army Engineer Waterways Experiment Station sediment investigations. This study includes a general discussion of the effects of physiographic and cultural conditions on the sediment flow in the Mississippi River basin, a comprehensive inventory of sediment sample collection stations pertinent to the Corps mission in the Mississippi River basin, and narrative summaries (Appendix A) for key stations selected from the inventory. The stations tabulated in the inventory include those that have data that would be useful for evaluating the effectiveness of various techniques used to reduce the sediment load in the streams of the basin or for assessing new methods for reducing sediment loads.

16. LaGarde, V. E., and Winfrey, S. J. (1974). "Computer-Calculated Geometric Characteristics of Middle Mississippi River Side Channels, Volume 1: Procedures and Results," Technical Report M-74-5, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

This study encompassed the definition, development, and use of a general procedure to quantify geometric characteristics of 18 Middle Mississippi River side channels from St. Louis, Missouri, to Cairo, Illinois. Parameters selected to quantitatively describe the geometric characteristics included center-line length, average width between high banks, water volume, shoreline length, water surface area, shoreline development, rate of change of water surface area with respect to water elevation, ratio of water surface area to volume, ratio of shoreline length to water surface area, bottom surface area underwater, and finally, water cross-sectional area, all as a function of water elevation. This volume contains reduced reproductions of computer-calculated and plotted contour maps. All maps contain 5-ft interval contours with elevation relative to mean sea level.

17. Laustrup, M. (1995). "Geospatial Application: Evaluation of Multidate Landsat Multispectral Scanner Data for Determining Changes between Aquatic and Terrestrial Habitats on the Upper Mississippi River System," Program Report, Long Term Resource Monitoring Program (No. 95-P009), National Biological Service, Environmental Management Technical Center.

Landsat Multispectral Scanner data representing conditions in 1972, 1984, and 1992 were processed to identify open water conditions. The study area included the Upper Mississippi River floodplain between Genoa, Wisconsin, and

south of Dubuque, Iowa. Data were analyzed to identify changes that occurred over the 20-year period, and these changes have been combined to represent gains and losses. Gains generally equate to a loss of aquatic plant beds and islands in the lower pools (erosion), while losses are generally restricted to off-channel habitats and represent the effects of sedimentation. Between 1972 and 1992, gains totaled 6959 hectares; losses totaled 6321 hectares.

18. Lee, M. T. (1978). "Sediment Conditions in the Batchtown Wildlife Management Area--The Implications of Future Management," Illinois State Water Survey.

The purpose of this study was to determine the sedimentation rate and pattern in the Batchtown Area and to evaluate the performance of levees as a management alternative.

19. McHenry, J. R., and Ritchie, J. C. (1975). "Sedimentation of Fines in the Pools and Backwater Lakes of Lock and Dam No. 4 through No. 10 on the Upper Mississippi River, Final Report for 1975," Sedimentation Laboratory, Oxford, MS.

The Sedimentation Laboratory was charged with determining the amounts and rates of sediment deposition occurring in Pools No. 4 through No. 10 utilizing the cesium-137 technique developed at the Sedimentation Laboratory.

A preliminary report was prepared in February 1976, detailing the work undertaken in 1975 and the results of analytical tests as of that date. This report expands the scope of the preliminary report and discusses the results and considers the feasibility of further studies.

20. McHenry, J. R., and Ritchie, J. C. (1977). "An Assessment of the Sediment Accumulation in Pool 9 of the Upper Mississippi River," Sedimentation Laboratory, Oxford, MS.

In 1976 the Sedimentation Laboratory was charged with determining the amounts and rates of sediment accumulation occurring in the backwater areas behind Lock and Dam No. 9 (Pool 9). The survey was primarily in the region between Lock and Dam No. 9 and Highway 82 bridge at Lansing, Iowa. This report discusses the results of this 1976 survey.

21. McHenry, J. R., and Ritchie, J. C. (1978). "An Assessment of the Sediment Accumulation in Lake Onalaska, Pool 7, of the Upper Mississippi River," Sedimentation Laboratory, Oxford, MS.

The GREAT I, Sediment and Erosion Work Group, Mr. Chester A. Weldon, Chairman, initiated an environmental study in 1975 of the rates of sedimentation in the Upper Mississippi River corridor, from Lock and Dam No. 10 (Guttenburg, Iowa) to Minneapolis, Minnesota. A number of state and federal agencies, including the USDA Sedimentation Laboratory at Oxford, MS, are cooperating in the GREAT program.

In 1975, the USDA Sedimentation Laboratory conducted a survey of sediment deposition rates in Pools 4 through 10 utilizing the Cesium-137 technique for dating recent sediment. In 1976 the studies were concentrated in Pool 9. Similar studies were conducted in 1977 in Pool 8. In 1977 the Sedimentation Laboratory was charged also with determining the sediment deposition rates in Lake Onalaska, Pool 7. Not directly concerned with these efforts was a cooperative study done in 1977 on Lake Pepin that involved measurements of sediment volume, density, and age.

This report covers the work done by the Sedimentation Laboratory on Lake Onalaska. Most of the data was collected in 1977; however, some profiles were sampled in 1975 and these data are reported again to fully characterize Lake Onalaska sedimentation.

22. McHenry, J. R., Ritchie, J. C., and Cooper, C. M. (1977). "Recent Sedimentation Rates in Lake Pepin," Sedimentation Laboratory, ARS, USDA, Oxford, MS.

In January 1977, 11 sediment profiles, in 5 ranges, were sampled in Lake Pepin. The ranges were established at river mile 767, 770, 773, 779, and 782. Sediment cores from the sampled profiles were analyzed for particle-size distribution and cesium-137 concentration to a depth of 60 cm in 7.5-cm increments. The cesium-137 analyses indicate the sedimentation rates for fines in the upper end of Lake Pepin (mile 782) have exceeded 2.4 cm per year since 1955. This deposition rate decreased downstream, and at the lower end of the lake (mile 767) the sedimentation rate for fines was less than 0.5 cm/year.

23. McHenry, J. R., Ritchie, J. C., and Cooper, C. M. (1978). "An Assessment of the Sediment Accumulation in Pool 8 of the Upper Mississippi River," Sedimentation Laboratory, Oxford, MS.

In 1977, the Sedimentation Laboratory was charged with determining the amounts and rates of sediment accumulation occurring in the backwater areas behind Lock and Dam No. 8 (Pool 8). The survey was primarily in the region between Lock and Dam No. 8 and Brownsville, Minnesota. This report discussed the results of this 1977 survey.

24. McHenry, J. R., Ritchie, J. C., and Cooper, C. M. (1978). "Lake Pepin Sedimentation Studies Final Report," USDA Sedimentation Laboratory, Oxford, MS.

In January 1977, 11 sediment profiles, in 5 ranges, were sampled in Lake Pepin. The ranges were established at river mile 767, 770, 773, 779, and 782. Sediment cores from the sampled profiles were analyzed for particle-size distribution and cesium-137 concentration to a depth of 60 cm in 7.5-cm increments. The cesium-137 analyses indicate the sedimentation rates for fines in the upper end of Lake Pepin (mile 782) have exceeded 2.4 cm per year since 1955. This deposition rate decreased downstream, and at the lower end of the lake (mile 767) the sedimentation rate for fines was less than 0.5 cm/year.

25. Mills, H. B., Starrett, W. C., and Bellrose, F. C. (1966). "Man's Effect on the Fish and Wildlife of the Illinois River," Biological Notes No. 57, Illinois Natural History Survey, Urbana, IL.

This is a documented report on changes in the Illinois River, primarily in the past 75 years, with emphasis on the biological modifications which have occurred and are occurring as a result of man's activities. The river has not shown steady changes from year to year. For example, the acreage of water, which went up greatly due to diversion from Lake Michigan in 1900, was reduced almost to its pre-1900 surface by 1913. This reduction was due to the development of levee districts, which claimed and drained large areas of the floodplain, and subsequently to decreased lake water diversion in the 1930s. Most of the observations in this publication relate to the main stream and its lateral bottomland lakes, but these areas are only what the basin makes them.

26. Moody, J. A., and Meade, R. H. (1992). "Hydrologic and Sedimentologic Data Collected During Three Cruises at Low Water on the Mississippi River and Some of Its Tributaries, July 1987 - June 1988," Open-File Report 91-485, U.S. Geological Survey.

Water, suspended-sediment, and bed-sediment samples were collected for physical (particle size and mineralogy) and chemical (radioactive elements, trace metals, nutrients, petrochemical hydrocarbons, organic volatiles, pesticides, detergents, organic carbon, and humic substances) analysis from 21 sites on the Mississippi River and its main tributaries. Three cruises were made at low water during a 1-year period from July 18, 1987, to June 7, 1988. The maximum measured discharge was about 10,400 cubic meters per second on December 15, 1987, at Vicksburg, Mississippi, and the maximum measured suspended-sediment discharge was 354,000 metric tons per day in the Missouri River at Hermann, Missouri, on July 20, 1987. The equal-width-increment (equal-transit-rate), depth integration method was used at 10-40 verticals across the river to collect between 70 and 137 liters of river water with an isokinetic sampler (made of Teflon).

This report contains the following hydrologic data associated with the suspended-sediment samples: cross-sectional area of the river; mean depth; mean velocity; water discharge; particle sizes; concentrations of the suspended sand, silt, and colloid fractions; and surface temperature and conductivity at 10-40 locations across the river.

Copies can be purchased from:

U.S. Geological Survey
Books and Open-File Reports Section
Box 25425, Mail Stop 517
Federal Center
Denver, CO 80225-0425

27. Moore, M., and Dunn, H. (1997). "Final Report: Macroinvertebrates Associated with Carl Baer Bendway Weirs in the Mississippi River," Final Report (ESI Project 96-022), Ecological Specialists, Inc.

As a part of Measure A-19, the U.S. Army Corps of Engineers (USCOE) constructed a bendway weir channel maintenance structure in April 1996, which consisted of five weirs at the Carl Baer Bendway, near Mississippi River mile (MRM) 163.5 near St. Louis, Missouri. The weirs were designed to increase the effective width of the Mississippi River navigation channel by scouring the channel at the outer edge and reducing point bar development on the inner side of the bend. In addition to their channel maintenance function, the weirs add bottom structure and create complex flow patterns. State and Federal natural resource management agencies feel that the creation of complex habitats in the relatively homogeneous main channel is beneficial to the ecosystem. However, these structures are relatively new and monitoring is needed to confirm the benefits. Fishery resources were monitored at several bendway weirs, but aquatic macroinvertebrate community monitoring is lacking. Therefore, a monitoring project was implemented at the Carl Baer Bendway Weir Field to investigate invertebrate species community composition associated with the weirs. Since this was a newly built weir field, USCOE was also interested in determining how rapidly weir substrates colonize and assessing the efficacy of sampling methods.

28. MRC/LMVD, USACE. (1996). "River Engineering and Environmental Geographic Information System (REEGIS) Data Dictionary and Schema." St. Louis District, Memphis District, Vicksburg District, New Orleans District, USACE Mississippi River Commission/Lower Mississippi Valley Division.

REEGIS is a comprehensive geospatial database that integrates project design, construction, and management functions with integrated CADD and GIS functionality. The REEGIS dictionary/schema was developed to standardize relational database table formats, units of measure, and graphic symbology. REEGIS is organized according to MGE requirements. Graphic data are divided into 28 categories, e.g., river engineering structures. Each category comprises graphic features (Microstation graphic elements) that represent mapped objects, e.g., a levee. Only features from one category are contained in a map (.dgn) file. Features are linked to records in relational database (attribute) tables. For example, a dike feature would be linked to a table record having data about the structure, e.g., construction date, cost, and tons of stone. Supplemental data tables that are not linked to graphic features are also used.

29. Mueller, D. S., and Dardeau, E. A., Jr. (1990). "Impact of Changes in Suspended-Sediment Loads on the Regime of Alluvial Rivers," Potamology Program (P-1), Report 6, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

This investigation was Phase IV of a four-phase study of the sediment regime of the MRB. Phase I, conducted under the earlier LMVD Potamology Program (T-1), resulted in the publication of US Army Engineer WES TR M-77-1, 1977. The product of Phase II was LMVD Potamology Program (P-1) Report 1, 1981. The Phase II study identified a downward trend in Mississippi River suspended-sediment loads that apparently began around the middle of the 20th century. Phase III dealt with suspended-sediment sampling, analysis, and load-computation procedures used at key stations on major streams in the MRB and the possible correlation of these procedures with the downward trend in suspended-sediment loads. In this Phase IV study existing regime equations were examined in light of their applicability to major alluvial river systems. The principal focus was the examination of the effects of changes in suspended-sediment loads as they relate to the regime of alluvial rivers.

30. Nakato, T. (1981). "Sediment-Budget Study for the Upper Mississippi River, GREAT II Reach," IIHR Report 227, Iowa Institute of Hydraulic Research, The University of Iowa.

The principal objective of this study was to analyze the sediment budget along the Mississippi River (MR) for the GREAT II reach between Guttenberg, Iowa, and Saverton, Missouri. The analysis was undertaken to trace overall sediment movement on a pool-by-pool basis including sediment inputs and outputs on each pool boundary, and sediment deposition (or scour) or dredging within the pool.

31. Neher, L., and Gates, D. (1996). "Upper Mississippi River System-Environmental Management Program (UMRS-EMP) Post-Construction Evaluation Report for Clarksville Refuge Habitat Rehabilitation and Enhancement Project (HREP), Pool 24, Mississippi River, Pike County, Missouri," U.S. Army Engineer District, St. Louis.

This report summarizes all available monitoring data, project inspections, and project observations made by the U.S. Army Corps of Engineers- St. Louis and the Missouri Department of Conservation for the period from 1990 to 1994 on the performance of the Clarksville Refuge EMP project. It reviews the site management plan for possible revisions and reviews engineering performance criteria to aid in design of future projects. It includes data on sedimentation rates, water level control, food production, and wetland values for waterfowl, operation and maintenance costs, project features and construction summary, and the management plan.

32. Niles, D. (1996). "Cottonwood Island Habitat Rehabilitation and Enhancement, Pool 21, Mississippi River, Miles 328.5-331.0, Lewis and Marion Counties, Missouri," Upper Mississippi River System Environmental

Management Program Definite Project Report with Integrated Environmental Assessment (No. R-16F), U.S. Army Engineer District, Rock Island.

The goals of the proposed project are to restore aquatic overwintering, main channel border, and wetland habitats. A sedimentation study was conducted to evaluate Cottonwood Island sedimentation during the period 1938 through 1994. The scope of this study consisted of determining the net sedimentation from 1938 (pre-lock and dam) through 1994, evaluating proposed project impacts on sedimentation.

33. Nordin, C. F., and Queen, B. S. (1992). "Particle Size Distributions of Bed Sediments Along the Thalweg of the Mississippi River, Cairo, Illinois, to Head of Passes, September 1989," Potamology Program (P-1), Report 7, Department of Civil Engineering, Engineering Research Center, Colorado State University.

Changes in Mississippi River bed material gradations between Cairo, IL, and Head of Passes, LA, between 1932 and 1989 were determined. In September 1989, bed material samples were collected from the thalweg of the river along the 955-mile reach. In all, 504 samples were collected at 417 locations. Results were compared to a similar sampling program conducted in 1932. In general, the 1989 bed contained less coarse sand and gravel and less very fine sand than the 1932 bed. Upstream of the Old River Structure near river mile 300 the bed was generally finer in 1989 than in 1932. Downstream from river mile 300 the median grain size was about the same, but the distribution was more uniform with less very fine sand.

34. Rathbun, M. Y. (1996). "Architectural and Engineering Resources of the Illinois Waterway between 130th Street in Chicago and La Grange, Volume I," Cultural Resources Management Report 300, Rathbun Associates, Hollandale, WI.

This report presents the results of limited fieldwork and modification to "Phase I System Wide Survey of the Architecture and Engineering Structures on Federally Owned or Operated Lands Along the Illinois Waterway Under the Jurisdiction of the U.S. Army Corps of Engineers, Rock Island District," a November 1993 report prepared by Rathbun Associates. As its predecessor, this report focuses on identification, evaluation, and documentation of historic resources.

The report is organized in two volumes. Volume I contains the narrative portion of the report, plus illustrations, endnotes, and a bibliography. Volume II is composed of revised versions of 208 of the 212 inventory forms completed during this project. The forms are organized according to the properties along the Illinois Waterway, ten of which the Rock Island District is responsible for and one that the City of Canton, Illinois, owns. The volume also includes maps of the properties with the potential National Register district boundaries, if any, marked on them and historic photographs.

35. Rose, W. J. (1992). "Sediment Transport, Particle Sizes, and Loads in Lower Reaches of the Chippewa, Black, and Wisconsin Rivers in Western Wisconsin," Water-Resources Investigations Report 90-4124, U.S. Geological Survey.

Hydraulic and sediment data were collected at three sites on the Chippewa River; at one site near Galesville on the Black River; and at one site at Muscoda on the Wisconsin River during water years 1976-83. This report summarizes an interpretation of those data by providing (1) a description of the relation of suspended sediment, bedload, and total-sediment discharge to water discharge; (2) a description of particle size characteristics of bed material, bedload and suspended sediment; and (3) estimates of annual and average annual suspended load, bedload, and total-sediment load for water years 1974-83. Direct measurement with a Helley-Smith bedload sampler and calculations by the modified-Einstein procedure were used to estimate bedload.

36. Science Review Committee. (1996). "Second Science Review Committee report on the Long Term Resource Monitoring Program Environmental Management Technical Center," Report presented to the Environmental Management Technical Center, Onalaska, Wisconsin, December 1996.

37. Simons, D. B., Schumm, S. A., and Stevens, M. A. (1974). "Geomorphology of the Middle Mississippi River," Engineering Research Center, Colorado State University, Fort Collins, CO.

Selected sections on sediment discharge, side channels, and man-made side channels are included.

In order to ascertain how developments are changing the river morphology and behavior, the form and behavior of the river in its natural or undeveloped state have been studied. Herein, the history of development and modification of the Middle Mississippi River is reviewed.

We have focused on the channel position riverbed area, water and sediment flows, stages, cross-sectional area, channel bed elevations, and the stage versus discharge relation for the Middle Mississippi River.

Most side channels are being filled with sediments carried by the river. The rates of filling are variable. No new natural side channels are being formed.

38. Simons, D. B., et al. (1975). "Environmental Inventory and Assessment of Navigation Pools 24, 25, and 26, Upper Mississippi and Lower Illinois Rivers, A Geomorphic Study," Contract Report Y-75-3, prepared by Colorado State University for U.S. Army Engineer District, St. Louis.

This report is a study of the past and present geomorphic features of the reach of the Upper Mississippi River which includes Pools 24, 25, and 26 and the lower reach of the Illinois River. In addition, the report presents the anticipated future geomorphic changes that will result from past, present, and

planned future developments of these reaches. The study was based primarily on data collected by the Corps of Engineers, aided by a mathematical model of the river system. On the basis of this study of the past geomorphic changes in Pools 24, 25, and 26 and with the mathematical simulation of future river response, it was concluded that 50 years from now the study area will be essentially as it is today. The present-day manner of operation does not have any serious detrimental effects on the geomorphology or hydraulics of the river system in the study area. The mathematical model is a 1-D mass and momentum conservation model for gradually varied unsteady flow.

39. Sparks, R. E. (1984). "The Role of Contaminants in the Decline of the Illinois River: Implications for the Upper Mississippi." *Contaminants in the Upper Mississippi River, Proceedings of the 15th Annual Meeting of the Mississippi River Research Consortium.* J. G. Weiner, R. V. Anderson, and D. R. McConville, ed., Butterworth, Boston, 368.

This paper will develop the following theses: (1) The Illinois River and the Upper Mississippi River have a similar geological origin and history, which set the stage for development of a common biota in reaches of the two rivers that fall within the same latitude. (2) Characteristics of the two rivers diverged in recent times because of the greater adverse impacts of man on the smaller Illinois River. (3) From 1900 to 1955 the Illinois River exhibited a pattern of increased productivity, degradation, and recovery, in response to organic pollution, waste treatment, and flow augmentation, but between 1955 and 1960 certain adverse changes occurred, which now appear to be practically irreversible. (4) The Upper Mississippi River appears susceptible to the same impacts. Its resistance to stress should be determined and not exceeded, to prevent the unexpected, rapid, and persistent degradation that occurred on the Illinois River.

40. Theiling, C., and Dunn, H. (1996). "Macroinvertebrates Associated with Chevron Dikes in Pool 24 of the Mississippi River - Seasonal Comparisons, 1995," Contract Report (ESI 95-006), Ecological Specialists, Inc.

Three chevron dikes were constructed in Pool 24 of the Mississippi River near MRM 289.5 in October 1993. Although it was generally agreed that the dikes should enhance river habitat, monitoring was established to confirm benefits to fish and invertebrates. Monitoring was initiated in November 1994. The 1994 study characterized the invertebrate communities on the exterior dike face, on the interior dike face, and in the interior substrate. Continued monitoring reported herein was conducted to examine seasonal differences (spring versus fall). Additionally, 1994 and 1995 results were compared to determine macroinvertebrate community changes as the dike structures age.

41. U.S. Army Engineer District, Rock Island. (1996). "Section 216 Initial Appraisal, Illinois Waterway System Ecosystem Restoration and Sedimentation Illinois, August 1996," Rock Island, IL.

The Illinois Waterway river system has been extensively altered for navigation purposes over time beginning as early as 1822. The current Nine-Foot Channel Navigation Project was completed in 1933.

Although the impoundment of the river system originally created some additional aquatic habitat, over time the overall habitat of the system has become less diverse and degraded. In particular, sediment deposition rates and turbidity levels which were altered by the construction of the 9-foot channel have contributed considerably to the ecological changes in the system.

This initial appraisal presents evidence of significant physical and economic changes in the study area since the original construction of the Nine-Foot Channel Navigation Project. The report documents a need to update data on the environmental condition of the system. Further examination of economics and engineering issues related to potential ecosystem restoration activities is also warranted.

42. U.S. Army Engineer District, Rock Island. (1996). "Section 216 Initial Appaisal, Upper Mississippi River System Ecosystem Restoration and Sedimentation Illinois, Iowa, Minnesota, Missouri, and Wisconsin, November 1996," Rock Island, IL.

The impoundment of the river system created some deep-water aquatic habitat. However, over time the system has evolved with more rare deep-water aquatic habitat succeeding to more abundant shallow water and terrestrial habitat. In particular, the sediment deposition and turbidity levels that have occurred since the construction of the 9-foot channel have contributed to ecological changes in the system.

43. U.S. Army Engineer District, St. Louis. (1990). "Upper Mississippi River System Environmental Management Program Definite Project Report (SL-3) with Integrated Environmental Assessment, Pharrs Island, Wetland Habitat Rehabilitation, Pool 24, Mississippi River, Pike County, Missouri," Definite Project Report SL-3, St. Louis, MO.

Enclosure includes Executive Summary, Table of Contents, List of Tables, List of Figures, Design Considerations, Habitats.

The Comprehensive Master Plan for the Management of the Upper Mississippi River System identified sedimentation as the most significant resource problem affecting the river system. The Great River Environmental Action Team estimated that most off-channel habitats within the Pools 20-25 reach of the river would be completely filled with sediments within the next century. Compared to other UMRS pools, Pool 24 has little existing off-channel water habitat.

44. U.S. Department of Agriculture. (1982). "GREAT III Erosion and Sediment Inventory (Saverton, Missouri, to Cairo, Illinois) June 1982," USDA Soil Conservation Service.

Enclosure for impact study includes Contents, List of Tables and Figures, Introduction, Table 1: Discharge Summary, Conclusions, Recommendations, and References.

45. Wilson, W. K., Jr. (1965). "Improvement of Rivers and Harbors," Letter from the Chief of Engineers, Department of the Army, 18 February 1965.

Portions copied included UMR and IWW.

A letter from the Chief of Engineers, Department of the Army, dated 18 February 1965, submitting a compilation of Preliminary Examination, Survey, and Review Reports on River and Harbor, and Flood Control Improvements, Authorized by Section 107 of the River and Harbor Act Approved October 23, 1962.

46. Wright, H. G. (1884). "Appropriations and Expenditures for Rivers and Harbors," Communication (Ex. Doc. No. 64), Office of the Chief of Engineers, United States Army.

Includes copies of the expenditures for the IWW and UMR.

47. Yarbrough, R. (1996). "Avoid and Minimize Measures, Design Memorandum #24, Melvin Price Locks and Dam Mississippi River - Missouri and Illinois," Progress Report, U.S. Army Engineer District, St. Louis.

In October 1992, the St. Louis District issued Design Memorandum No. 24, "Avoid and Minimize Measures." The document was developed as a commitment made in the Record of Decision (1988) attached to the Melvin Price Locks and Dam EIS for the Second Lock. St. Louis District set aside O&M funds from 1989 to 1995 to implement some elements recommended by the 1995 Progress report. In Fiscal Year 1996, the A&M program was fully funded and the planned major implementation began. The planning and implementation team consisted of staff from the St. Louis District, U.S. Fish and Wildlife Service (FWS) - Rock Island, Illinois Department of Natural Resources (IDNR), River Industry Action Committee Monitoring Station (RIAC), Missouri Department of Conservation (MDOC), and the Long-Term Resource Monitoring Station (LTRM/MDOC) at Cape Girardeau, Missouri. Each group contributed staff time to plan and attend meetings, collect data as part of the monitoring program, and spent considerable time in the micro-model lab at District Facilities.

48. Yarbrough, R. E., and Hensley, M. S. (1979). "Quantitative Report Upper Mississippi and Lower Illinois Rivers Pools 24, 25, and 26 Terrestrial and Aquatic Land Use and Habitat Change as a Result of the Nine-Foot Channel Project," Draft, U.S. Army Engineer District, St. Louis.

This report contains a quantitative acreage and spatial (map) analysis of the land use and terrestrial and aquatic habitat changes that have occurred as a result of the construction of the nine-foot navigation project in Pools 24, 25, and 26,

Upper Mississippi and Lower Illinois Rivers. The study area extends from Locks and Dam No. 26, Alton, IL (mile 203), to the base of Lock and Dam No. 22 near Saverton, MO (mile 301), on the Mississippi River and the Illinois River portion of Pool 26 from Grafton, IL (mile 0), to the base of the lock and dam at LaGrange, IL (mile 80). The lateral boundaries of the study area vary, but usually stop at a major levee, road, or railroad grade. In some cases, the availability of old air photography limited the lateral boundaries adjacent to the rivers. Fifteen base maps at a scale of 1:24,000 were prepared for the report which will overlay the 15 pre-impoundment and 15 post-impoundment color-coded land use maps. Each land use type cell (polygon) was planimetered and acreage calculated in tabular and graphical form by 5-mile reach, by pool, and for the total study area.

49. Yarbrough, R., et al. (1992). "Design Memorandum No. 24, Avoid and Minimize Measures, Melvin Price Locks and Dam, Upper Mississippi River Basin, Mississippi River - Missouri and Illinois," U.S. Army Engineer District, St. Louis.

This design memorandum presents a plan to avoid and minimize (A&M) the possible environmental impacts of increased navigation traffic on the Upper Mississippi River System due to the second lock at the Melvin Price Locks and Dam. The Corps of Engineers, the U.S. Coast Guard, and the towing industry have included environmental sensitivity in standard operation and maintenance procedures for many years to reduce the impacts of channel improvement, lock and dam, and navigation operations on the river ecosystems. ER 1105-2-100, Policy and Planning, Guidance for Conducting Civil Works-Planning Studies, 28 Dec 90, defines avoid and minimize under the term mitigation. Mitigation includes (1) avoiding the impact altogether by not taking a certain action or part of an action; and (2) minimizing impacts by limiting the degree or magnitude of the action and its implementation. Avoiding and minimizing environmental impacts is the first level of mitigation in planning and developing Corps projects.

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14. ABSTRACT

An inventory of existing hydrographic survey and cross-section data on the Upper Mississippi River and Illinois Waterway was taken at the U.S. Army Engineer Districts of St. Paul, Rock Island, and St. Louis. This data compilation was requested in support of the Cumulative Impact Assessment Group (CIAG) effort to assess existing information to make predictions regarding future river conditions. General descriptions of the data sets and where they are located as well as other references pertaining to sediments are included in the text of the report. The metadata for the data sets are found in the appendices arranged by district. An annotated bibliography of relevant references found at the districts is also included as an appendix.

15. SUBJECT TERMS

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Sedimentation
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