

# **Fox River Navigational System Authority**

## **Biennial Report**

### **2021**



Kaukauna Locks 3 – 4 – 5

**Fox River Navigational System Authority**

1008 Augustine St  
Kaukauna, WI 54130

Jeremy Cords, CEO  
Telephone: 920-309-4501



Subject: Fox River Navigational System Authority – Biennial Report

Dear Reader.

Enclosed please find the Fox River Navigational System Authority Biennial Report 2021. The submittal of this Biennial Report is in accordance with requirements set forth in Wisconsin State Statute 15.04(1)d and addresses the performance and operations of the Authority.

If after review, you have any questions or concerns feel free to our offices at 920-309-4501. We have expended significant effort in the preparation of this plan and feel it provides sound direction for the Authority.

Thank you for your consideration and attention to the enclosed documents.

Respectfully,

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

Jeremy Cords  
Chief Executive Officer  
920-309-4501  
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Fox River Navigational System Authority  
Biennial Report 2021  
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**Executive Summary**

This report is prepared by the Fox River Navigational System Authority (Authority) to satisfy the requirements of Wisconsin State Statute 15.04(1) d. The mission of the Authority is to serve the citizens of the Fox River area and the State of Wisconsin by rehabilitating, maintaining, developing, and operating the navigational system. The 2021 Biennial Report updates all the previous FRNSA Biennial Reports.

The Authority's initial strategy in 2005 was to "restore the Fox Locks Navigation System in a phased manner consistent with long-term financial sustainability." In 2015 the basic locks restoration was completed. Our current 2021-22 strategy includes: continued support, maintenance, and operations of the restored locks, creation of the Kaukauna Interpretive Trail, developing a solution to the Menasha Lock closure, continuously monitoring AIS in the Fox River and small portions of Lake Winnebago, as well as stabilization of remaining lock tender houses while creating partnerships with local municipalities to facilitate access for transient boaters. The Authority has also prepared per Wis. ss. Chapter 237 an abandonment/closure plan that will in the case of closure preserve the public rights in the Fox River, ensure safety, and protect life, health, and property."



## **Fox River Navigation System Authority Biennial Report 2021**

### **Changes to Chapter 237**

The Authority requested that the Wisconsin Legislature change several sections of ss. 237. The Legislature completed those changes in early 2015 and the Governor signed the 237 revisions in April of 2016. The changes address FRNSA's ability in conjunction with the DOA to own and/or trade land.

### **Agency Description**

The Authority, created in 2001 under Wisconsin State Statute Chapter 237 (Appendix B) is charged with the responsibility and authority to repair, rehabilitate, replace, operate, and maintain the navigational system (Appendix A). The transfer of the locks system from the federal government (Army Corps of Engineers) to the State of Wisconsin occurred September 17, 2004.

The Authority creates and develops an annual management plan and implements an annual budget to manage monies received, from the federal government, State of Wisconsin and local fundraising, to ensure that sufficient funds are available for sustainable repair and rehabilitation of the system. The authority has also partnered with local organizations to provide funding required to match the federal and state monies received.

The authority is governed by a nine-member board of directors, six of whom are appointed by the Governor. Members represent the three-county geographical area associated with the Fox River. Other board members consist of the secretaries or their representatives of the Departments of Natural Resources and Transportation, and the Director of the State Historical Society.

### **Mission**

The mission of the authority is to serve the citizens of the Fox River area and the State of Wisconsin by rehabilitating, maintaining, developing, and operating the navigational system to:

- Restore, maintain, and improve the scenic, physical, historic, and environmental character of the Fox River Navigational System
- Manage the system for sustainability
- Promote tourism, recreational and commercial use of the navigational system stressing heritage planning and management
- Promote opportunities to educate the public about the historic and cultural heritage of the Lower Fox River Navigational System



**Program, Goals, Objectives, and Activities**

The Authority has adopted goals and objectives to its short and long-term program activities including the following:

**2020-21 Fiscal Years Goals and Objectives**

| Pro<br>gra<br>m<br>No. | Goal  | Goal 2020   | Actual 2020  | Goal 2021   | Actual 2021  |
|------------------------|---|---|--|---|--|
| 1.                     | Develop and implement a comprehensive management plan.              | Management plan implementation, updates, and future visioning               | Early stages of plan implementation  | Implementation of approved Management plan, update annually while making future considerations concerning projects and budget | Implemented and updated Management plan                            |
| 1.                     | Operate restored locks  | 9 locks operated  | 9 locks operated   | Operate 10 locks  | 15 locks operated  |
| 1.                     | Days of lock operations   | 150 Days  | 135 days Covid Delay   | 550 in 2020<br>649 in 2021 days   | 649 days   |
| 1.                     | # of seasonal lockage permits sold                                  | 60  | 56   | 2020 Goal of 60 season passes 56 were sold<br>2021 Goal of 60   | 53 season passes sold as of 7-12-21                                |
| 1.                     | # of daily lockage permits sold                                     | 1100  | 1370   | 2020 Goal was 1,100. 1,370-day passes were sold<br>2021 Goal was 1100   | As of 7-12-21 572-day passes have been sold<br>Goal is 1100        |
| 1.                     | Monitor invasive species  | 4 sites monitored   | 4 sites monitored  | 4 sites annually  | 5 sites were monitored   |
| 1.                     | Design, develop and construct a positive AIS barrier at the Menasha | Gain necessary approvals from DNR, for implementation of electronic barrier | Additional Round Goby Studies commissioned to fill data gap at DNR request | Complete Data gap studies regarding Round Goby, gain necessary  | Data Gap studies continue and propose completion in Spring of 2022 |



| Pro<br>gra<br>m<br>No. | Goal   | Goal 2020  | Actual 2020  | Goal 2021  | Actual 2021 |
|------------------------|--|--|--|--|-------------|
|                        | Lock to allow reopening of the Lock while preventing AIS transmission                      | at the Menasha Lock  |  | approvals from DNR   |             |
| 1.                     | Rapid Croche: design and develop positive AIS Barrier at the Rapid Croche Transfer Station | Incorporate new and emerging solutions into consideration of the positive AIS Barrier. | Focusing on positive AIS barrier technology development for Menasha Lock | Incorporate new and emerging solutions into consideration of the positive AIS Barrier. | same        |

**Strategy Statement**

The Authority has prepared an initial strategy for future management of the Fox River Navigation System. The initial approach was to “restore the Fox Locks Navigation System in a phased manner consistent with long-term financial sustainability.” This approach was dependent upon adequate funding and concentrated on the restoration, long term maintenance and operation of the three major deteriorated lock segments in Appleton, Little Chute and Kaukauna. This approach also included the continued maintenance and operation of the three continuously operating locks at De Pere, Little Kaukauna and Menasha and the maintenance of the sea lamprey barrier at Rapide Croche lock site.

The updated strategy includes the operation of the restored locks, design, and construction of AIS Barrier at the Menasha Lock, evaluation of technology tested at Kaukauna Lock #2 by USGS for potential use in conjunction with AIS needs, construction of an interpretive trail spanning the five Kaukauna Locks, rehabilitation of lock tender houses and recreational features of the locks system.

Sustainability is key to the Authority’s strategy, having adequate finances to operate and rebuild the system over a 30-year planning period. While the Authority’s lease expires in 2034 the management strategy includes system sustainability for another 20 years. The financial plan justifies continued capital maintenance of the system through year 2054.

The strategy also includes an abandonment alternative that is required by Chapter 237 to shut down the navigation system in 2034 if necessary and dispose of the property.



## **Funding and Financial Requirements**

The Authority's management strategy is predicated upon financial sustainability of funding for the 30-year lease period. To accomplish this, the Authority has established an investment approach that provides a base funding mechanism to support the short-term capital development (restoration) of the system and long-term operating and maintenance funds. This approach relies on the initial base funding realized in the Army Corps/State transfer agreement but contains flexibility to adjust for expenditures and additional funding sources.

### *Capital Development (Restoration and Major Project) Funding*

The basic initial financing for the Authority was provided through a funding formula outlined in the Corps/State transfer agreement. The Corps provided an initial 11.8 million dollars that has been deposited with the Authority in November 2004. At its December 1, 2004, meeting the Authority allocated the 11.8 million dollars to a special long-term (escrow) investment funds. The Corps has also agreed to provide an additional 5.6 million dollars within a 10-year period provided the State and local area provide a 5.6-million-dollar match. The State obligated 2.8 million dollars (\$400,000/yr.) over a seven-year period and the local area, through three community foundations, has also obligated 2.8 million dollars through donations. At its January 5, 2005, meeting the Authority requested the first (2005) additional funding installment of \$800,000 from the Corps, \$400,000 from the State, and \$400,000 from the community foundations. The final base federal and state payments were received in 2014. The Corps, based on the 2001 MOA, will also pay an inflationary clause of 2.112 million dollars in 2015 on interest accrued during the MOA payment period.

The Authority has entered into agreement with the Green Bay, Fox Cities and Oshkosh Community Foundations to serve as its financial investor as well as the nexus for fundraising. A memorandum of agreement between the Authority and the 3 foundations was approved. An investment plan has been prepared by the foundations and financial transaction mechanisms between the foundations and the Authority have also been prepared. The 2.8-million-dollar local cost share has been raised and invested as of June 30, 2011.

A proactive fundraising effort with local groups and individuals is still underway. The intent of this effort is to commit additional dollars beyond the initial 2.8 million to address additional capital projects.

Additional sources of restoration funding are possible through government and private grant programs. Several grant sources have been identified including the USDOT transportation enhancement program and the Fox Cities Convention and Visitors Bureau Capital Development Fund. In 2006 the Fox Cities Convention and Visitors Bureau provided a \$250,000 grant to be paid over a three-year period for the initial fund-raising effort. In 2008 a USDOT transportation enhancement grant was awarded for the rehabilitation of Kaukauna Lock #5. In 2010 a transportation stimulus grant was received for the exterior preservation of eight historic lock tender houses.

### Operations Funding

The Authority has established a funding process for administration, operation, and annual maintenance. Sources of this income include:

Lockage user fees: Fee schedules are established by the Authority and historically average \$20,000 income annually.





**Rental income:** The Authority is re-evaluating the rental potential of future rehabilitated Lock Tender Houses previously occupied by the Army Corps of Engineers.

**Out Grant/property Income:** The Authority manages over 95 acres of real property and approximately 70 previous inherited Corps of Engineers out grants consisting of leases and easements. New out grant requests are being addressed and previous out grants are being reviewed for renewal and may also present a minor amount of income.

**State funding Assistance:** The Authority has received State funding assistance for start-up and on-going operations. The State has historically provided \$125,400 in annual operating assistance to the Authority. The Authority is requesting continuation of this allocation to offset operational costs.

**Capital fund Income:** The capital fund investment is generating interest and equity income providing partial sustainability of the Authority and its responsibilities. A portion of this income is scheduled to offset other sources of operating income.

### **Financial Plan Schedule**

The Authority initially prepared two series of financial plan (cost/income) schedules, one for the basic scheduled restoration over seven years and one for accelerated restoration over five years. These schedules outlined different phasing and cost assumptions for locks restoration. Under any schedule, sufficient funds need to be retained in escrow to financially sustain the operation and maintenance of the system. In 2010 the accelerated strategy was dropped due to the lack of accelerated fundraising, a delayed Corps funding schedule and the 2008 economic downturn. In 2010 the basic schedule was then modified for the completion of the lock restoration in 2015.

The updated financial plan schedule includes lock restoration, rehabilitation, management, and operations. Assumptions in the projections include an inflation factor for capital inflation of two percent, operation inflation of three percent and income of 6.95 per cent.

The Authority has also specified that sufficient funds will be reserved to abandon the system should action be required. As an example, if a decision were made in 2015 to abandon the 17 locks 11.3 million dollars would be required according to an engineering study. If during the period to 2034 a decision for abandonment were made, the escrow account would require sufficient funds for closure. The amount of funds depends upon how much of the system is closed and the timing of closure. In 2016, the Authority re-evaluated the funding necessary to close the system and because significant rehabilitation procedures have been completed the fund has been reduced from 11.3 million to 6.5 million dollars.

The Authority has developed a financial plan (cost-income) schedule for closure and abandonment if required in 2034. The closure plan calls for a fixed crest gravity dam option which maintains the basic integrity of the lock masonry. The estimated cost of closure for 2034 is 6.5 million dollars. The closure analysis is included in Appendix I.



## **Restoration Process**

The restoration process involves phasing construction for major lock segments over a period of time. During 2005, preliminary work for restoration of the Appleton segment began and the Little Chute and Kaukauna segments were stabilized to prevent major deterioration prior to eventual restoration. The initiation of each succeeding phase is dependent upon adequate financial resources. In 2006 the major restoration phases began with proposed completion of all phases in 2010. Due to the economy of 2008 and other financial implications the construction schedule was set back. The completion of the locks rehabilitation, except for Rapid Croche was achieved in 2016.

The restoration process involved reconstruction of navigation dependent features of the system. Detailed engineering reports for both restoration and closure have been completed. In 1995 and 1996 Mead & Hunt completed reports outlining alternatives. In 2004 Mead & Hunt updated the restoration report, re-evaluating the system status, alternatives, and costs. For each lock segment, the report describes immediate stabilization needs, initial restoration work, supplemental lock wall rebuilding, and canal and dike rebuilding. The report recommends major lock wall rebuilding for Appleton Lock #1, and Kaukauna Locks #1, #3 and #4. In early 2005 a benchmark monitoring system was installed to determine the structural stability of all lock chambers. Based upon the annual monitoring of the lock benchmarks, these lock walls may not require complete re-construction, thus saving substantial cost.

**Stabilization Work:** The lock system was evaluated to determine immediate stabilization needs. Various portions of infrastructure were beginning to collapse and pose either a safety hazard or, if not addressed, will lead to greater restoration costs. Examples are lock gates that may collapse, pop-outs in stone walls, and sink holes in dikes. The primary work is directed to the Kaukauna and Little Chute segments. The itemized list was used to prepare a short-term contract proposal on a time and materials basis. The contract maximum was targeted for \$100,000. A contractor was selected, and initial work completed in 2005 and 2006. Additional minor stabilization and maintenance projects were completed annually.

**Appleton Phase:** The Appleton locks 1-4 were restored in 2006. The Authority utilized a "design/build" contract for this reconstruction. A Request For Qualifications (RFQ) was prepared in June, 2005. A Request for proposals was prepared during June and July 2005. Contractor selection was completed in November 2005 with starting in December 2005.

**Cedars Lock:** The Cedars Lock was restored in 2007. The Authority utilized a "design/build" contract for this reconstruction. A Request For Proposals was prepared during November, 2006. Contractor selection was completed in February 2007 with construction starting in June 2007.

**Little Chute Levee:** The Little Chute Levee was re-built in 2007. Design work was completed in February 2007 and bids let in May 2007. Construction began in August 2007 and was completed in May 2008.

**Little Chute Phase:** The Little Chute Locks were re-stored in 2008. A Request For Proposals was prepared during December, 2007. Contractor selection was completed in February 2008 with construction starting in June 2008.

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Lock Tender Houses: Restoration of the exterior of eight lock tender houses was completed in 2010. A Federal stimulus grant was received through the WDOT in July 2009.

Kaukauna Phase: The Kaukauna locks 1-4 were restored in 2015. A WDOT enhancement grant for restoration was received in 2010. The Kaukauna Lock 5 restoration was completed in 2017.

The Authority has used the Mead & Hunt engineering information to prepare the restoration strategy and schedule. To validate the Mead & Hunt study, a major local contractor with historic lock reconstruction experience evaluated Appleton Locks 1 & 2 in 2005. The analysis considered cost validation, constructability and risks. The contractor indicated that cost estimates appeared to be within 10 percent of the initial estimates. As new detailed plans, costs and contracts are prepared, alternative restoration proposals may reflect additional cost savings.

### **Operation, Maintenance and Administration**

The continued day-to-day management of the system contains three primary elements: operation of the locks, annual maintenance of the facilities and grounds, and general administration. The cost basis for lock tender operation of the locks was initially estimated from the historical records of the Fox River Management Commission. The number of locks, staffing, hours of operation and wages change as additional locks are restored and come into operation. The cost basis has been standardized after nearly 10 years of operation. The capital and operational budgeted cost for FY 2019-20 was approximately \$1,070,825, FY 2020-21 was \$2,442,910. The current FY 2021-22 Approved Annual Budget is \$1,297,521 and is included in Appendix C.

The annual maintenance of the facilities and grounds was previously provided by the Corps except for minor grounds keeping at the operating locks. While the Corps staff provided some minor maintenance of the facilities, more major items such as lawn mowing and construction (i.e. levee repairs) was contracted out. Adequate historical records from the Corps for calculating annual costs were not available or are not suitable because some of these costs were dam maintenance and others had significant overhead costs.

The 1995 Mead & Hunt Report described annual maintenance items and costs associated with the restoration of the system. Annual maintenance items include grass mowing and landscape care, dike repair, canal and retaining wall repair, minor building maintenance, access road and parking area maintenance, minor lock structure maintenance, and safety and lighting maintenance. Based upon these activities' costs have been calculated for labor and materials. Labor may be provided by both Authority staff and independent contractors. The on-going maintenance cost over years have been significantly less than original Mead & Hunt estimates.

General administration includes the management functions of the Authority. Administrative salaries and agency overhead are included costs. Overhead costs were estimated from Corps specific expense records for the office. Current insurance costs, and projected office and administrative operating costs were estimated by the Authority CEO.



## **Potential Locks Abandonment or Closure**

State Statutes Chapter 237.14 requires a management strategy for closure of the system. If abandonment of the system is proposed, a closure plan will be submitted to both the Department of Administration and the Department of Natural Resources to “determine that the plan for abandonment will preserve the public rights in the Fox River, will ensure safety, and will protect life, health, and property.” The basis for selecting and costing specific closure options is included in the Mead & Hunt Report *Lower Fox River Locks Abandonment Study, Final Report, and August 1994*. The report describes three primary closure options including Alternative A – Return to Natural Condition, Alternative B – Earth Filled Lock Chambers, and Alternative C – Fixed Crest Gravity Dam. The Corps of Engineers, in determining the closure method for a potential federal closure, selected the Earth Filled Lock Chamber alternative.

The Authority has selected a closure alternative. If closure is needed, the closure option is Alternative C, Fixed Crest Gravity Dam. This option has less initial cost but higher long-term maintenance cost. This alternative assumes the Authority makes the decision to close the navigation system partially or totally, properly abandoning the infrastructure and disposing the property to public and/or private interests. The Authority has updated the original closure cost estimates. Since system restoration improvements have been made that modified the original abandonment needs. A new engineering analysis has been prepared with updated cost estimates.

While the abandonment of the system is the worst-case option, partial closure is the preferred practical alternative recommended by the Authority. The De Pere, Little Kaukauna and Menasha locks are structurally sound and have low maintenance costs. They also have the most use in the system. The permanent closure costs of nine hundred and ten thousand three hundred and sixty dollars (\$910,360) associated with these locks would not be cost effective when compared to their long-term maintenance costs. If these locks are not closed, they would reduce the system closure cost.

## **Management Timeline**

The short-term strategy timeline at agency start-up included:

- Formal organization of the Authority – October, 2004 (completed)
  - Bylaws
  - Budget
  - Insurance
  - Corps rental agreement
  - Foundation MOA
- System management plan – May, 2005 (completed)
  - On-site infrastructure survey, October, 2004
  - Financing plan, March, 2005
  - Management recommendations, May, 2005
- Office establishment – April/June, 2005
  - Telecommunications, March, 2005 (completed)
  - Staffing, April, 2005 (completed)



The long-term strategy timeline included:

- Continued lock operation – 2005 to present
- Preventative Locks Maintenance and Stabilization – 2005 (on-going)
  - Contract preparation, bid – June, 2005
  - Infrastructure stabilization (Cedars, Lt. Chute, Kaukauna locks) – (Includes checking and repairing the stop logs, gates, hardware, lock walls, and longevity maintenance as needed, etc.) June - October, 2005
- Begin Appleton Restoration Phase – 2005 (completed)
  - Contract preparation, bid – October, 2005
  - Lock restoration, November - December, 2006
  - Begin seven lock operation – 2008 Regular operation for De Pere, Lt. Kaukauna, Menasha
  - Limited (3 or 5 day) operation for Appleton segment (delayed to 2009)
- Little Chute Restoration Phase – 2007 & 2008 (completed)
  - Contract preparation, bid – spring 2007 & spring 2008
  - Cedars Lock and levee restoration, November 2007 – remaining locks, December, 2008
- Begin operation of 8 locks – 2008
  - Regular operation for De Pere, Little Kaukauna, Menasha
  - Limited (3 or 5 day) operation for Appleton, Cedars segment (delayed to 2009)
- Kaukauna Restoration Phase – 2015 (completed)
  - Contract D/B #4 preparation, bid – October 2010
  - Contract D/B #1, #2, #3 preparation, bid – July 2012
  - Contract (traditional) #5 preparation – July 2010
  - Lock restoration completion, September 2011 to August 2015
- Lock operations – 2019
  - Regular operation of 9 Locks
  - Limited operation (3 or 5 day) operation for Appleton, Lt Chute and Kaukauna segments
- 2019 Kaukauna's Veteran's Bridge issues/barrier resolved
  - Once bridge is rehabilitated, Kaukauna Locks 1-5 are accessible
- 2020 Ongoing design, evaluation, and negotiations of Menasha AIS Barrier
- 2020 Ongoing evaluation, design and negotiations regarding the future construction of the FRNSA Visitor/Interpretive Center



- 2021 Ongoing design, negotiations with other State Agencies and stakeholder, regarding the construction, opening and operation of Menasha Lock
- 2021 Operation of 15 locks began 7-17-21 upon successful completion of Kaukauna's Veteran's Memorial Bridge rehabilitation
- 2021 Fall – begin construction of Kaukauna Locks Interpretive Trail with anticipated opening in Spring of 2022
- 2022 Evaluation of Round Goby research for approval by the DNR and implementation into the electronic barrier system plans for the Menasha Lock.
- 2022 Evaluation of Kaukauna Lock Tender House 1 for rehabilitation

### **Rapide Croche Lock Aquatic Species Barrier**

As required by the Corps/State Memorandum of Agreement, Wisconsin Statute Chapter 237.10, and the State Lease Agreement, the Authority will maintain the sea lamprey barrier at the Rapide Croche Lock. The barrier shall be maintained "according to the specifications of the Department of Natural Resources to prevent sea lampreys and other aquatic nuisance species from moving upstream. The Corps of Engineers/State of Wisconsin/Authority Partnership Agreement specifies cooperative procedures for barrier responsibility. Under this agreement the Corps of Engineers maintained the sea lamprey barrier at Rapide Croche until the transfer of the locks system was made for Authority control.

The Authority maintains a stop log barrier and concrete barrier, installed in 2013. A permanent barrier will remain and be incorporated into future considerations of the proposed solutions. The Authority is dedicated to exotic species control and management and will incorporate management practices on the navigation system wherever feasible. According to Ss. 237.10(2) "If the Authority decides to construct a means to transport watercraft around the Rapide Croche lock, the Authority will develop a plan for the construction that includes steps to be taken to control sea lampreys and other aquatic nuisance species. The Authority will submit plans to the Department of Natural Resources for consideration and approval."

The Authority has approved the preparation of an aquatic species management plan. Preliminary objectives of the plan are included in (Appendix D). The Authority has also printed an aquatic species prevention informational brochure for distribution to boaters and the public.

The Authority prepared a feasibility plan for the installation of a boat lift/ cleansing station at Rapid Croche. This planning process was initiated in 2005 under the oversight of a special committee. The planning process included:

- Created AIS Committee in June 2005
- Annual monitoring for AIS by Lawrence University above and below Rapide Croche is being managed by Professor Bart De Stasio – 2006 to 2019. Monitoring is now being conducted by UWGB.
- Developed AIS Management Plan for Rapide Croche



- Developed FAQ (Frequently Asked Questions) brochure
- Presented initial AIS Management Plan to DNR
- Received initial DNR Response to AIS Management Plan
- Modified AIS Management Plan
- STS Consultants developed Rapide Croche Boat Transfer Station Study Report
- Developed model of Rapide Croche Transfer and Cleansing Station
- Conducted informal public forums
- Conducted five community formal public forums with DNR presence
- STS/AECOM developed Preliminary Engineering Study Report for Rapide Croche Boat Transfer Station
- Developed and reviewed Jack Nelson's alternative transfer station in the channel
- UW Madison Proposal design for Transfer Station
- Thermal limits study of AIS by Bart DeStasio
- Publication of thermal limit study results in a peer reviewed journal (J. Beyer, P. Moy and B. DeStasio. 2010. Acute upper thermal limits of three aquatic invasive invertebrates: hot water treatment to prevent upstream transport of invasive species. Environmental Management, 47:67-76).
- Saint Norbert College Boater Survey
- FRNSA Boater Survey
- Preparation of an environmental assessment report by FRNSA
- Preparation of Historic Preservation report by FRNSA
- Preparation of environmental impact assessment by WDNR
- Determination of impact by WDNR Secretaries Director
- Preparation of final design – December 2015
- Construction bid let – December 2016

The cost of construction of the transfer station was estimated at four million dollars however proposals were received in the 8-9-million-dollar range. These proposals were cost prohibitive.

### **Annual Budget**

The annual budget is scheduled for adoption at the annual Board of Directors meeting held the last Tuesday in June. The development of a preliminary budget is scheduled each January. Due to initial year start-up activities an operating fund was established on September 9, 2004 and the first annual FY budget was adopted in June 2005. The adopted FY 2020-21 budget is included in (Appendix C).

### **Property Insurance**

The Authority has been self-insuring property. The only structure with a property value estimate at the time of transfer was the Authority's office/shop complex. No values were available for the locks, lock tender houses or outbuildings. While property insurance is available through the Department of Administration, early discussions with State Risk Management determined that coverage and cost based upon the values of the property be evaluated after restoration of the locks and determination of the future uses of the lock tender houses and out buildings.



## **Liability Insurance**

Liability insurance is required as part of the lease agreement with the State. The Authority has cooperated with the State Risk Assessment Office to obtain liability insurance. Based upon the characteristics and needs of the Authority the criteria for liability insurance include:

- General liability including any marine exposures related to the operation of the locks, one million dollars in coverage.
- Public official's liability for the board members of the Authority, one million dollars in coverage.
- Hired and non-owned auto coverage, one million dollars in excess of personal liability coverage.
- Umbrella coverage with five million dollars in limits.

Liability insurance was obtained through the AON Mutual Insurance Company. The AON provided the required levels of coverage however they also required a deductible of fifty thousand dollars.

## **Employees**

The Authority may employ staff and contract services to carry out the functions of the agency. The Authority may hire employees, define their duties, and fix their rate of compensation. The Authority may also enter into contractual agreements for the operation and maintenance of the system where employee services are not practical or feasible. As of October 14, 2021, FRNSA employs three (3) fulltime employees with the remainder LTE staff approximately (4 in off season and 25 in operational season). Where qualifying, employees are entitled to Wisconsin Employee Trust Fund benefits. The Table of Organization (Appendix E) lists the number and positions of employees.

## **DOA Audit Process**

The State Lease Agreement requires the submittal of an annual audit to the Department of Administration and the Department of Natural Resources. The financial statement shall include the sources and amounts of funding received from the Department of Natural Resources under Ss. 237.08(2) and from contributions raised from the foundations under Ss. 237.08(3).

The Authority has contracted an independent firm to maintain the financial accounting system. The Authority has also selected an independent financial auditor to perform the annual audit required in Ss. 237.07. The Authority has selected the State Fiscal Year of July 1<sup>st</sup> through June 30<sup>th</sup>. The annual audit is prepared in August and reviewed in September.

## **Inter-agency Coordination**

The Authority is coordinating its activities with state, federal and local agencies. A Cooperative Agreement (Appendix F) has been approved between the Authority, U.S. Army Corps of Engineers, and Wisconsin Department of Administration. These agencies have been cooperating on several activities and annual formal cooperative meetings are scheduled.

Because the Authority has rights of an Authority and/or a State Agency, the Authority has cooperative agreements with the Department of Administration Division of State Facilities, the Department of Natural Resources, the Department of Transportation, and the State Historical Society. The Authority is also working with various municipalities and local organizations.



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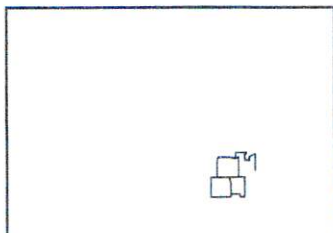
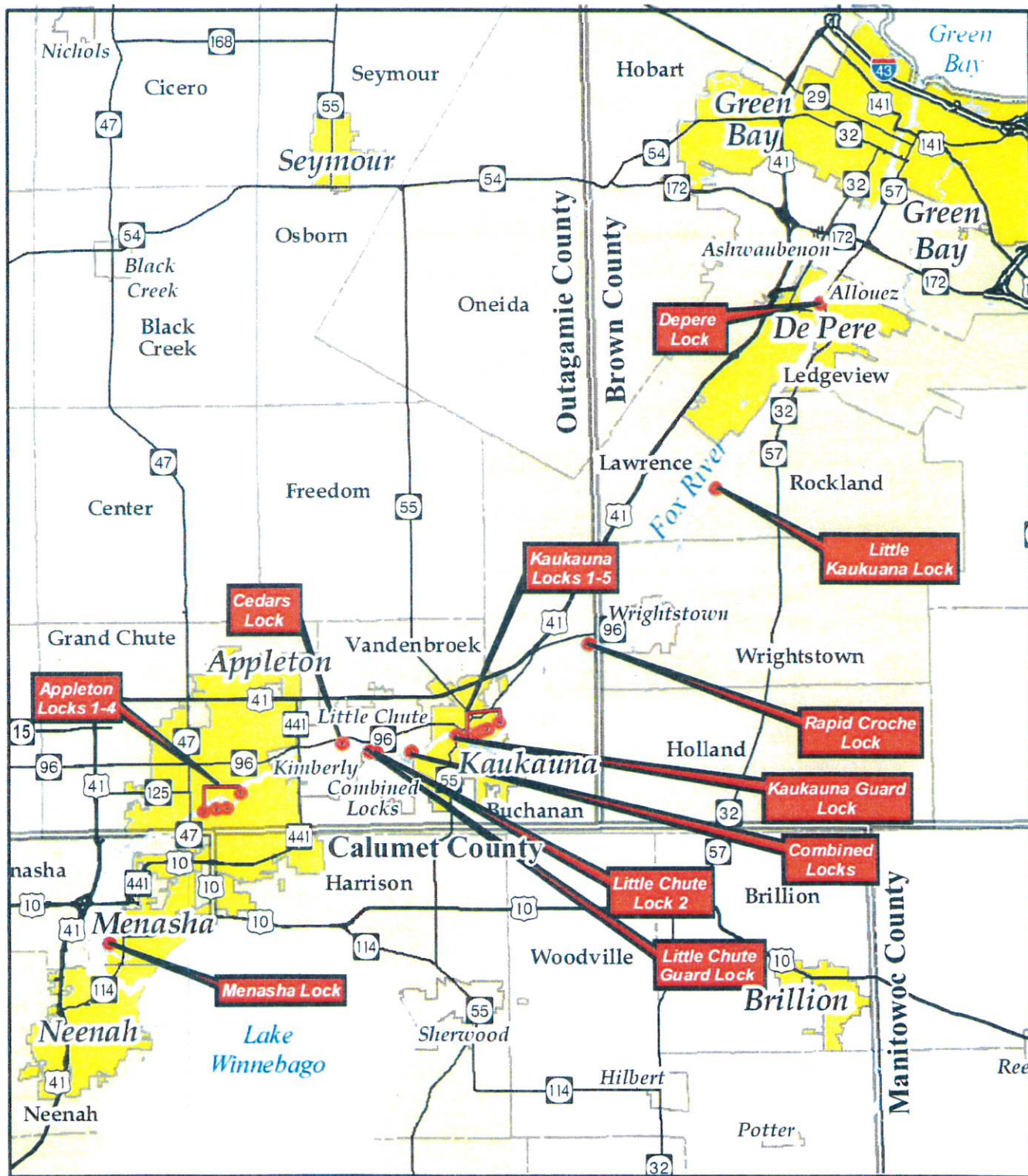


**Administrative Matters**

Wisconsin State Statute 237 describes the basic requirements, authority, and functions of the Authority. Additional requirements and guidelines are also listed in a variety of statutes under state agency and municipal citations. The base Statutes and additional citations are listed in (Appendix B).

The Authority has adopted various responses to its statutory obligations including an affirmative action statement (Appendix G), bylaws (Appendix H) and a Lower Fox Abandonment Study (Appendix I). The Authority has applied and is recorded as a state agency under the State of Wisconsin Retirement System.

# Lower Fox River Study Area



### Key

- Interstate Highway
- US Highway
- State Highway
- Water Features
- Cities
- Villages
- Fox Wisconsin Parkway
- Corridor Boundary



Map Prepared April 2010  
By the East Central Wisconsin  
Regional Planning Commission.

Base Data provided by

## CHAPTER 237

## FOX RIVER NAVIGATIONAL SYSTEM AUTHORITY

|        |   |
|--------|---|
| 237.01 | Definitions.                            |
| 237.02 | Creation and organization of authority. |
| 237.03 | Duties of authority.                    |
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|        |  |
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**237.01 Definitions.** In this chapter:

(1) “Authority” means the Fox River Navigational System Authority.

(2) “Board of directors” means the board of directors of the authority.

(3) “Fiscal year” means the period beginning on July 1 and ending on the following June 30.

(4) “Lock” includes any spillway associated with the lock.

(5) “Navigational system” means locks, harbors, real property, structures, and facilities related to navigation that are located on or near the Fox River, including locks, harbors, real property, structures, and facilities that were under the ownership or control of the federal government on April 1, 1984. “Navigational system” does not include dams on the Fox River.

History: 2001 a. 16 ss. 1337, 3128; 2001 a. 104.

**237.02 Creation and organization of authority.**

(1) There is created a public body corporate and politic to be known as the “Fox River Navigational System Authority.” The board of directors of the authority shall consist of the following members:

(a) Six members nominated by the governor, and with the advice and consent of the senate appointed, for 3-year terms.

(b) The secretary of natural resources, or his or her designee.

(c) The secretary of transportation, or his or her designee.

(d) The director of the state historical society, or his or her designee.

(1m) (a) Two of the 6 members appointed under sub. (1) (a) shall be residents of Brown County, 2 shall be residents of Outagamie County, and 2 shall be residents of Winnebago County.

(b) At least one of the 2 members appointed from each of the counties specified in par. (a) shall be a resident of a city, village, or town in which is located a lock that is part of the navigational system.

(2) A vacancy on the board of directors shall be filled in the same manner as the original appointment to the board of directors for the remainder of the unexpired term, if any.

(3) A member of the board of directors may not be compensated for his or her services but shall be reimbursed for actual and necessary expenses, including travel expenses, incurred in the performance of his or her duties.

(4) No cause of action of any nature may arise against and no civil liability may be imposed upon a member of the board of directors for any act or omission in the performance of his or her powers and duties under this chapter, unless the person asserting liability proves that the act or omission constitutes willful misconduct.

(5) The members of the board of directors shall annually elect a chairperson and may elect other officers as they consider appropriate. Five voting members of the board of directors constitute a quorum for the purpose of conducting the business and exercising the powers of the authority, notwithstanding the existence of

any vacancy. The board of directors may take action upon a vote of a majority of the members present, unless the bylaws of the authority require a larger number.

(6) The board of directors shall appoint a chief executive officer who shall not be a member of the board of directors and who shall serve at the pleasure of the board of directors. The authority may delegate by resolution to one or more of its members or its executive director any powers and duties that it considers proper. The chief executive officer shall receive such compensation as may be determined by the board of directors. The chief executive officer or other person designated by resolution of the board of directors shall keep a record of the proceedings of the authority and shall be custodian of all books, documents, and papers filed with the authority, the minute book or journal of the authority, and its official seal. The chief executive officer or other person may cause copies to be made of all minutes and other records and documents of the authority and may give certificates under the official seal of the authority to the effect that such copies are true copies, and all persons dealing with the authority may rely upon such certificates.

History: 2001 a. 16.

**237.03 Duties of authority.** (1) GENERAL DUTIES. In addition to all other duties imposed under this chapter, the authority shall do all of the following:

(a) Adopt bylaws and policies and procedures for the regulation of its affairs and the conduct of its business.

(b) Contract for any legal services required for the authority.

(c) Establish the authority’s annual budget and monitor the fiscal management of the authority.

(d) Procure liability insurance covering its officers and employees and procure insurance against any loss in connection with its property and other assets.

(e) Make every reasonable effort to contract with one or more corporations to provide the services specified under s. 237.09 (2).

(f) Establish an escrow account with moneys sufficient to dispose of the visitor center authorized under s. 237.04 (11) and to terminate any lease under s. 237.04 (7) associated with the visitor center.

(2) DUTIES UPON LEASING. Upon entering into the lease under s. 237.06, the authority shall rehabilitate, repair, replace, operate, and maintain the navigational system.

History: 2001 a. 16; 2015 a. 357.

**237.04 Powers of authority.** The authority shall have all the powers necessary or convenient to carry out the purposes and provisions of this chapter. In addition to all other powers granted by this chapter, the authority may:

(1) Incur debt, except as restricted under s. 237.05 (1).

(2) Sue and be sued.

(3) Hire employees, define their duties, and fix their rate of compensation.

(4) Have a seal and alter the seal at pleasure; have perpetual existence; and maintain an office.

(5) Appoint any technical or professional advisory committee that the authority finds necessary to assist the authority in exercising its duties and powers. The authority shall define the duties of the committee, and provide reimbursement for the expenses of the committee.

(6) Enter into contracts with 3rd parties as are necessary for the rehabilitation, repair, replacement, operation, or maintenance of the navigational system.

(7) Acquire, lease, subject to s. 237.05 (2), and dispose of property as is necessary for the rehabilitation, repair, replacement, operation, or maintenance of the navigational system or the construction, operation, and maintenance of a navigational system visitor center. A lease agreement for the construction, operation, and maintenance of a navigational system visitor center shall not be subject to building commission approval, notwithstanding any contrary provision of law.

(8) Accept gifts and other funding for the rehabilitation, repair, replacement, operation, or maintenance of the navigational system.

(9) Charge user fees for services the authority provides to the operators of watercraft using the navigational system.

(10) Charge fees for use of facilities of the navigational system as provided in s. 16.845.

(11) Construct, operate, and maintain a navigational system visitor center. Facilities constructed under this subsection are not required to be enumerated or approved by the building commission and are not subject to the design, bidding, or construction requirements of subch. V of ch. 16.

History: 2001 a. 16; 2015 a. 357.

**237.05 Restrictions on authority.** (1) The authority may not issue bonds.

(2) The authority may not sublease all, or any part of, the navigational system without the approval of the department of administration.

History: 2001 a. 16.

**237.06 Lease.** Upon transfer of the ownership of the navigational system by the federal government to the state, the department of administration on behalf of the state and the authority shall enter into a lease agreement under which the state shall lease the navigational system to the authority for nominal consideration. The secretary of administration shall determine the amount of the rental payments.

History: 2001 a. 16.

**237.07 Management plan; financial statements.** (1) (a) The authority shall submit to the department of administration a plan that does all the following:

1. Addresses the costs of and funding for the rehabilitation, repair, replacement, operation, and maintenance of the navigational system.

2. Describes how the authority will manage its funds to ensure that sufficient funding is available to abandon the navigational system if the operation of the navigational system is no longer feasible.

3. Describes the escrow account required under s. 237.03 (1) (f).

(b) The authority shall submit the plan under par. (a) within 180 days after the date on which the state and the authority enter into the lease agreement specified in s. 237.06.

(2) The authority shall update and resubmit the plan under sub. (1) upon the request of the department of administration.

(3) (a) For each fiscal year, the authority shall submit to the department of administration an audited financial statement of the funding received by the authority from contributions and other funding accepted by the authority under s. 237.08 (3).

(b) The financial statement under par. (a) shall include notes that explain in detail the specific sources of funding contained in the financial statement.

(4) For each fiscal year in which moneys are to be released to the authority by the department of natural resources under s. 237.08, each corporation specified in s. 237.09 shall submit to the authority an audited financial statement of the amount raised by the corporation under s. 237.09 (2) (b) for that fiscal year.

History: 2001 a. 16; 2015 a. 55, 357.

**237.08 Sources of funding.** (1) **FEDERAL FUNDING.** The authority shall accept federal funding for the rehabilitation, repair, replacement, operation, and maintenance of the navigational system and shall agree with any conditions attached to the funding.

(3) **OTHER FUNDING.** The authority shall encourage and may accept contributions and funding for the rehabilitation, repair, replacement, operation, or maintenance of the navigational system. The authority shall also accept funding raised by each corporation under s. 237.09 (2).

History: 2001 a. 16; 2015 a. 55.

**237.09 Requirements for nonprofit corporations.**

(1) Each corporation contracted with under s. 237.03 (1) (e) shall be a nonprofit corporation as described in section 501 (c) (3) of the Internal Revenue Code that is exempt from federal income tax under section 501 (a) of the Internal Revenue Code and shall be based in one or more of the counties in which the navigational system is located.

(2) Each corporation contracted with under s. 237.03 (1) (e) shall do all of the following:

(a) Provide marketing and fund-raising services for the authority.

(b) Make every reasonable effort to raise \$2,750,000 of local or private funding for the rehabilitation and repair of the navigational system.

(c) Accept for investment moneys received by the authority for rehabilitation and repair under s. 237.08 and invest the moneys at a rate of return that the authority finds adequate to enable the authority to exercise its duties and powers in rehabilitating and repairing the navigational system.

(3) If the authority contracts with more than one corporation under s. 237.03 (1) (e), all of the corporations shall make the effort to raise the total of \$2,750,000.

History: 2001 a. 16.

**237.10 Rapide Croche lock.** (1) Upon entering into the lease under s. 237.06, the authority shall maintain the sea lamprey barrier at the Rapide Croche lock according to specifications of the department of natural resources in order to prevent sea lampreys and other aquatic nuisance species from moving upstream.

(2) If the authority decides to construct a means to transport watercraft around the Rapide Croche lock, the authority shall develop a plan for the construction that includes steps to be taken to control sea lampreys and other aquatic nuisance species. The authority shall submit the plan to the department of natural resources and may not implement the plan unless it has been approved by the department.

History: 2001 a. 16, 104.

**237.11 Political activities.** (1) No employee of the authority may directly or indirectly solicit or receive subscriptions or contributions for any partisan political party or any political purpose while engaged in his or her official duties as an employee. No employee of the authority may engage in any form of political activity calculated to favor or improve the chances of any political party or any person seeking or attempting to hold partisan political office while engaged in his or her official duties as an employee or engage in any political activity while not engaged in his or her official duties as an employee to such an extent that the person's efficiency during working hours will be impaired or that he or she

will be tardy or absent from work. Any violation of this section is adequate grounds for dismissal.

(2) If an employee of the authority declares an intention to run for partisan political office, the employee shall be placed on a leave of absence for the duration of the election campaign and if elected shall no longer be employed by the authority on assuming the duties and responsibilities of such office.

(3) An employee of the authority may be granted, by the chief executive officer, a leave of absence to participate in partisan political campaigning.

(4) Persons on leave of absence under sub. (2) or (3) shall not be subject to the restrictions of sub. (1), except as they apply to the solicitation of assistance, subscription, or support from any other employee in the authority.

History: 2001 a. 16, 104.

**237.12 Liability limited.** (1) Neither the state nor any political subdivision of the state nor any officer, employee, or agent of the state or a political subdivision who is acting within the scope of employment or agency is liable for any debt, obligation, act, or omission of the authority.

(2) All of the expenses incurred by the authority in exercising its duties and powers under this chapter shall be payable only from funds of the authority.

History: 2001 a. 16.

**237.13 Exemption.** (1) In this section, “lock structure” includes a spillway of a lock and excludes the canal body of a lock.

(2) Any activity or work that is performed on a lock structure that is part of the navigational system is exempt from any permit or other approval required under ch. 30 or 31.

History: 2001 a. 16.

**237.14 Abandonment.** If the authority determines the operation of the navigational system is no longer feasible, the authority shall submit a plan to the department of administration and to the department of natural resources describing the steps the authority will take in abandoning the navigational system. The navigational system may not be abandoned unless both the department of administration and the department of natural resources determine that the plan for abandonment will preserve the public rights in the Fox River, will ensure safety, and will protect life, health, and property.

History: 2001 a. 16.

## FY 21 22 Budget Adopted 5-25-21 jcx

| Account #  | Account Description                           | Adopted 5-25-21<br>21/22  | FY Budget<br>20/21 | Actual 6-30-<br>2020 | Actual 6-30-<br>2019 |
|--|---|---------------------------|--------------------|----------------------|----------------------|
| <b>Revenues</b>  |   |                           |                    |                      |                      |
| Account #  | Account Description                           | Adopted 5-25-<br>21 21/22 | FY Budget<br>20/21 | Actual 6-30-<br>2020 | Actual 6-30-<br>2019 |
| 48900  | Interest Income - Other                       |                           | \$ -               | \$ -                 | \$ -                 |
| 49200  | Miscellaneous Income                          |                           | \$ -               | \$ -                 | \$ -                 |
| 60N00  | Unlock the Fox Fund (UTF) Income (Loss)       | \$ 1,313,000              | \$ -               | \$ (340,508)         | \$ 979,483           |
| 46980  | Bridge Operation Reimbursement                | \$ 15,500                 | \$ 15,852          | \$ 15,852            | \$ 11,322            |
| 46991  | State Admin Request                           | \$ 125,400                | \$ 125,400         | \$ 125,400           | \$ 125,400           |
| 46994.2  | Federal Grants                                |                           | \$ -               | \$ -                 | \$ -                 |
| 48501<br>48508<br>48312<br>49420                                     | Lockage Fees & Other Receipts                 | \$ 21,500                 | \$ 21,500          | \$ 21,456            | \$ 19,680            |
| 48313  | Lease Income                                  | \$ 8,790                  | \$ 8,790           | \$ 8,790             | \$ 4,954             |
| 49000,<br>46910  | Fundraising, Donations                        |                           | \$ -               | \$ 10,098            | \$ 1,237             |
|  | <b>Total Revenues</b>                         | \$ 1,484,190              | \$ 171,542         | \$ (158,911)         | \$ 1,142,076         |
|  | Total drawn from Unlock the Fox Fund          | \$ -                      | \$ 822,000         | \$ 822,000           | \$ -                 |
|  | Total Revenue & Cash Flow Unlock the Fox Fund | \$ 1,484,190              | \$ 993,542         | \$ 663,089           | \$ 1,142,076         |
|  | Total Expenses                                | \$ 1,297,521              | \$ 2,442,910       | \$ 1,070,825         | \$ 1,157,362         |
|  | Net Income (Loss)                             | \$ 186,669                | \$ (1,449,368)     | \$ (407,736)         | \$ (15,286)          |
| <b>Operations and Capital Accounts total withdrawn and carryover</b> |   |                           |                    |                      |                      |
| 49992  | Operations Draw - Unlock the Fox Fund         | \$ -                      | \$ 440,000         | \$ 440,000           |                      |
| 49994  | Operations Acct - Carryover                   | \$ -                      | \$ -               | \$ 62,036            |                      |

FY 21 22 Budget Adopted 5-25-21 jcx

| Account #                                 | Account Description                       | Adopted 5-25-21 21/22 | FY Budget 20/21 | Actual 6-30-2020 | Actual 6-30-2019 |
|---|---|-----------------------|-----------------|------------------|------------------|
| 49992.2                                   | Capital Draw - Unlock the Fox Fund        | \$ -                  | \$ 382,000      | \$ 382,000       |                  |
| 49994.2                                   | Capital Acct - Carryover                  | \$ -                  | \$ -            | \$ 38,290        |                  |
|   | Total                                     | \$ -                  | \$ 822,000      | \$ 922,327       | \$ -             |
| <b>Expenses</b>                           |   |                       |                 |                  |                  |
| <b>Staffing Expenses (Operations)</b>     |   |                       |                 |                  |                  |
| Account #                                 | Account Description                       | Adopted 5-25-21 21/22 | FY Budget 20/21 | Actual 6-30-2020 | Actual 6-30-2019 |
|   | Staffing Expense Summary                  | \$ 668,521            | \$ 515,804      | \$ 485,909       | \$ 538,020       |
| <b>Utility Expenses (Operations)</b>      |   |                       |                 |                  |                  |
| Account #                                 | Account Description                       | Adopted 5-25-21 21/22 | FY Budget 20/21 | Actual 6-30-2020 | Actual 6-30-2019 |
|   | <b>All Utilities</b>                      | \$ 25,800             | \$ 26,406       | \$ 25,492        | \$ 26,125        |
| <b>Admin/Maint./Supplies (Operations)</b> |   |                       |                 |                  |                  |
| Account #                                 | Account Description                       | Adopted 5-25-21 21/22 | FY Budget 20/21 | Actual 6-30-2020 | Actual 6-30-2019 |
|   | <b>Admin/Maint./Supplies (Operations)</b> | \$ 223,200            | \$ 231,800      | \$ 240,380       | \$ 196,020       |
| <b>Capital Projects - Special Studies</b> |   |                       |                 |                  |                  |
| 52739.2                                   | Account Description                       | Adopted 5-25-21 21/22 | FY Budget 20/21 | Actual 6-30-2020 | Actual 6-30-2019 |
| 52800.2                                   |   |                       |                 |                  |                  |

## FY 21 22 Budget Adopted 5-25-21 jcx

| Account #  | Account Description                   | Adopted 5-25-21 21/22 | FY Budget 20/21 | Actual 6-30-2020 | Actual 6-30-2019 |
|--|---------------------------------------|-----------------------|-----------------|------------------|------------------|
| 52739.2<br>52800.2                               | <b>Total Special Studies/Projects</b> | \$ 110,000            | \$ 116,200      | \$ 97,411        | \$ 109,051       |
| <b>Capital Projects and Maintenance Expenses</b> |                                       |                       |                 |                  |                  |
| Account #  | Account Description                   | Adopted 5-25-21 21/22 | FY Budget 20/21 | Actual 6-30-2020 | Actual 6-30-2019 |
| 54200.2  | Machinery/Equipment Purchases         | \$ 32,000             | \$ 45,000       | \$ 226           | \$ 49,909        |
| 52740.2  | Owners Rep & Misc.                    | \$ 28,000             | \$ 25,000       | \$ 22,321        | \$ 15,072        |
|  | Unplanned Lock Repair Budgeted        | \$ 100,000            | \$ 102,200      | \$ -             | \$ -             |
| Lock 1<br>52701.2                                | Menasha Lock Summary:                 |                       |                 |                  |                  |
|  | Menasha Lock Summary Total            | \$ -                  | \$ 40,000       | \$ 27,670        | \$ 155,756       |
| Lock 2<br>52702.2                                | Appleton 1 Summary:                   | \$ -                  | \$ 60,000       | \$ -             |                  |
|  | Appleton 1 Summary Total              | \$ -                  | \$ 60,000       | \$ 5,084         | \$ 16,793        |
| Lock 3<br>52703.2                                | Appleton 2 Summary                    |                       | \$ 5,000        | \$ -             |                  |
|  | Appleton 2 Summary Total              | \$ -                  | \$ 5,000        | \$ -             | \$ 2,701         |
| Lock 4<br>52704.2                                | Appleton 3 Summary:                   | \$ -                  | \$ 30,000       | \$ -             |                  |
|  | Appleton 3 Summary Total              | \$ -                  | \$ 80,000       | \$ -             | \$ -             |



## FY 21 22 Budget Adopted 5-25-21 jcx

| Account #          | Account Description               | Adopted 5-25-21 21/22 | FY Budget 20/21 | Actual 6-30-2020 | Actual 6-30-2019 |
|--------------------|-----------------------------------|-----------------------|-----------------|------------------|------------------|
| Lock 5<br>52705.2  | Appleton 4 Summary:               |                       |                 |                  |                  |
|                    | Appleton 4 Summary Total          | \$ -                  | \$ 7,500        | \$ 62,061        | \$ 1,488         |
| Lock 6<br>52706.2  | Cedars Lock Summary:              |                       |                 |                  |                  |
|                    | Cedars Lock Summary Total         | \$ 20,000             | \$ 19,000       | \$ 5,769         | \$ -             |
| Lock 7<br>52707.2  | Little Chute Guard Lock Summary:  |                       | \$ 21,000       | \$ -             |                  |
|                    | L. Chute Guard Lock Summary Total | \$ -                  | \$ 21,000       | \$ 22,329        | \$ 529           |
| Lock 8<br>52708.2  | Little Chute Lock 2 Summary:      |                       |                 |                  |                  |
|                    | Little Chute Lock 2 Summary Total | \$ 10,000             | \$ 319,500      | \$ 1,496         | \$ 3,896         |
| Lock 9<br>52709.2  | Combined Locks Summary:           |                       |                 |                  |                  |
|                    | Combined Locks Summary Total      | \$ -                  | \$ 383,500      | \$ 5,769         | \$ 2,624         |
| Lock 10<br>52710.2 | Kaukauna Guard Lock Summary:      | \$ -                  | \$ 200,000      | \$ -             |                  |
|                    | Kauk. Guard Lock Summary Total    | \$ -                  | \$ 200,000      | \$ -             | \$ -             |
| Lock 11<br>52711.2 | Kaukauna Lock 1 Summary:          |                       |                 |                  |                  |

## FY 21 22 Budget Adopted 5-25-21 jcx

| Account #          | Account Description               | Adopted 5-25-21 21/22 | FY Budget 20/21 | Actual 6-30-2020 | Actual 6-30-2019 |
|--------------------|-----------------------------------|-----------------------|-----------------|------------------|------------------|
|                    | Kaukauna Lock 1 Summary Total     | \$ -                  | \$ 57,000       | \$ -             | \$ 407           |
|                    |                                   |                       |                 |                  |                  |
| Lock 12<br>52712.2 | Kaukauna Lock 2 Summary:          |                       |                 |                  |                  |
|                    | Kaukauna Lock 2 Summary Total     | \$ 15,000             | \$ 65,000       | \$ 35,921        | \$ 1,926         |
|                    |                                   |                       |                 | \$ -             |                  |
| Lock 13<br>52713.2 | Kaukauna Lock 3 Summary:          |                       |                 |                  |                  |
|                    | Kaukauna Lock 3 Summary Total     | \$ -                  | \$ 12,000       | \$ 20,989        | \$ 15,539        |
|                    |                                   |                       |                 |                  |                  |
| Lock 13<br>52713.2 | Kaukauna Lock 3 Dry Dock Summary: |                       |                 |                  |                  |
|                    | Kauk. Lock 3 Dry Dock Sum. Total  | \$ -                  | \$ -            | \$ -             | \$ -             |
|                    |                                   |                       |                 |                  |                  |
| Lock 13<br>52713.2 | Kaukauna Lock 3 Office            |                       |                 |                  |                  |
|                    | Kaukauna Lock 3 Office Total      | \$ 25,000             | \$ 34,000       | \$ 404           | \$ -             |
|                    |                                   |                       |                 |                  |                  |
| Lock 14<br>52714.2 | Kaukauna Lock 4 Summary:          |                       |                 |                  |                  |
|                    | Kaukauna Lock 4 Summary Total     | \$ -                  | \$ 20,000       | \$ -             | \$ -             |
|                    |                                   |                       |                 |                  |                  |
| Lock 15<br>52715.2 | Kaukauna Lock 5 Summary:          |                       |                 |                  |                  |
|                    | Kaukauna Lock 5 Summary Total     | \$ -                  | \$ 7,000        | \$ 5,769         | \$ -             |
|                    |                                   |                       |                 |                  |                  |

## FY 21 22 Budget Adopted 5-25-21 jcx

| Account #          | Account Description  | Adopted 5-25-21 21/22 | FY Budget 20/21 | Actual 6-30-2020 | Actual 6-30-2019 |
|--------------------|--|-----------------------|-----------------|------------------|------------------|
| Lock 16<br>52716.2 | Rapide Croche Lock Summary:  |                       |                 | \$ -             |                  |
|                    | Rapide Croche Lock Summary Total                                   | \$ -                  | \$ 10,000       | \$ -             | \$ 100           |
| Lock 17<br>52717.2 | Little Kaukauna (Rapids) Lock:                                     |                       |                 | \$ -             |                  |
|                    | Little Kaukauna (Rapids) Lock Total                                | \$ -                  | \$ 5,000        | \$ 5,769         | \$ 1,488         |
| Lock 18<br>52718.2 | De Pere Lock Summary:  |                       |                 | \$ -             |                  |
|                    | De Pere Lock Summary Total   | \$ 40,000             | \$ 35,000       | \$ 57            | \$ 19,918        |
|                    | Total Locks  | \$ 110,000            | \$ 1,380,500    | \$ 199,085       | \$ 223,165       |
|                    |  | Adopted 5-25-21 21/22 | FY Budget 20/21 | Actual 6-30-2020 | Actual 6-30-2019 |
|                    | Capital - Projects, Studies, Maintenance Expense                   | \$ 380,000            | \$ 1,668,900    | \$ 319,043       | \$ 397,197       |
|                    | Operations - (Staff, Utilities, Admin Maintenance Supplies)        | \$ 917,521            | \$ 774,010      | \$ 751,781       | \$ 760,165       |
|                    | Total Expenses (Capital, Special Studies & Projects, & Operations) | \$ 1,297,521          | \$ 2,442,910    | \$ 1,070,825     | \$ 1,157,362     |

**Proposed AIS Control and Monitoring Plan  
for the  
Rapide Croche Boat Transfer Station**

Prepared by Philip B. Moy, Ph.D.  
University of Wisconsin Sea Grant Institute

## **Executive Summary**

State statute 237 authorizes the Fox River Navigational System Authority to repair and re-open 16 of the 17 locks on the lower Fox River. Reopening the Fox River locks brings the potential for economic development and revitalization of the river communities but also increases concern for the risk of upstream spread of aquatic invasive species. The lock at Rapide Croche is the site of a fixed barrier to prevent the upstream migration of sea lampreys into the Lake Winnebago chain of lakes. This lock will not be functional. Instead, a boat lift and transfer station will move boats overland from the downstream side of the lock and clean them prior to placement on the upstream side. Protecting the Lake Winnebago sturgeon population and native fisheries from the potential adverse impacts of aquatic invasive species (AIS) must be the primary consideration in the operation of the transfer station and at other system access points.

Boaters wishing to move upstream will have to comply with certain requirements prior to approaching the boat transfer station. The hull must be free of accumulated debris and fouling organisms. Live fish and bait must not be moved above the Rapide Croche lock. Each boat will be completely separated from the downstream water and will be washed with hot water prior to being moved upstream. Removal from the water will ensure that no fish are moved upstream during the transfer operation.

All upstream-bound boats will be first rinsed with sprayed upstream water to dislodge loosely adhering debris from the hull. The boat will then be floated in 110°F water for at least one minute. Water at this temperature will instantaneously kill zebra and quagga mussels as well as most other aquatic organisms. During the boat washing procedure, equipment onboard the boats will be removed, sprayed with a pressure washer then immersed in a tub of 110°F water for at least one minute. The measures recommended in this document will ensure that no live fish, invertebrates or plants are moved upstream at the transfer station. The station cleansing equipment will be designed such that additional cleansing agents can be added to the cleaning procedure as warranted by emerging Great Lakes AIS threats. An Aquatic Invasive Species Hazard Analysis and Critical Control Point (AIS-HACCP) plan and checklists will be developed for quality assurance of the boat cleansing protocol at the site.

Monitoring for aquatic invasive species will take place from May to September. The monitoring will be performed by Lawrence University students under the direction of Dr. Bart DeStasio and will include sampling in the navigation pools up and downstream from Rapide Croche Lock. Sampling methods will target fish and invertebrates. Monitoring has already begun to establish a baseline before the transfer operation commences.

Despite the significant effort proposed herein to prevent the spread of AIS at the Rapide Croche boat transfer station, AIS may still be introduced to the Lake Winnebago system because Rapide Croche is not the sole access point. Over 60 boat access points around the lakes and upper and lower Fox River offer potential entry sites for invasive species on trailered boats. The connection with the Wisconsin River at Portage may also allow AIS access to the system. Law enforcement, education, outreach and cooperation with upstream anglers and boaters are essential for the overall success of the AIS prevention effort.

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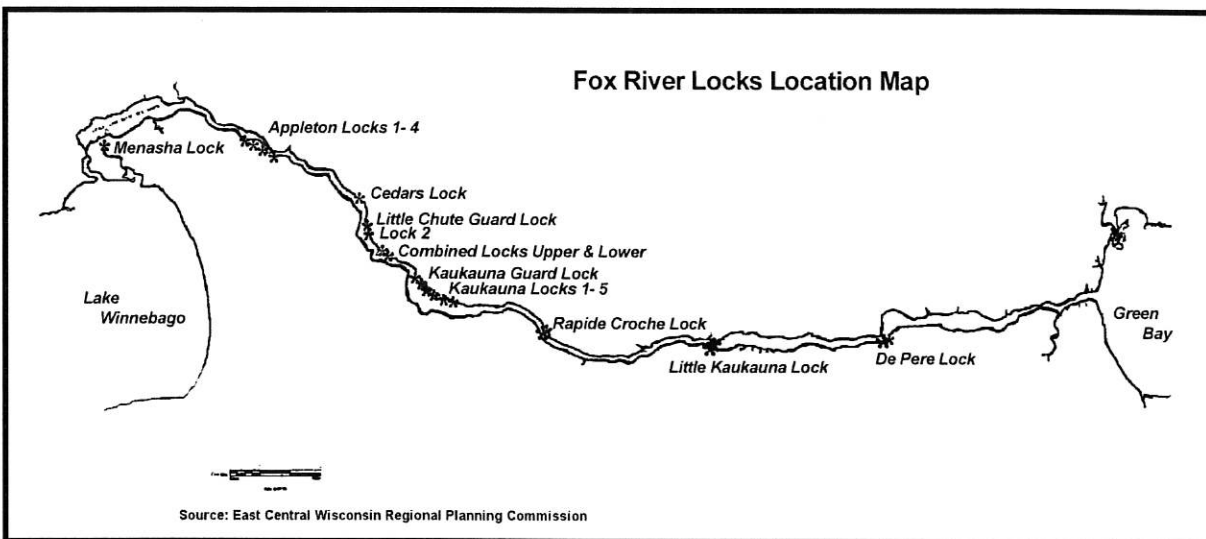
## AIS Control and Monitoring Plan for the Rapide Croche Boat Transfer Station

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University of Wisconsin Sea Grant Institute

### Introduction

Prior to May, 2007, fourteen of the seventeen locks on the Fox River had not been operated since 1988. State statute 237 authorizes Fox River Navigational System Authority (FRNSA) to repair and re-open 16 of the 17 locks for navigation. Rehabilitation of the navigational system may provide economic benefits for the communities along the waterway and their residents (LDR Int'l. 993). The Authority has refurbished four of the locks and over the next several years the FRNSA will be rehabilitating nine of the seventeen locks on the Fox River between Lake Winnebago and Green Bay.

The Rapide Croche Lock (Figure 1) is the site of a fixed barrier that prevents upstream migration of spawning sea lamprey (*Petromyzon marinus*) into Lake Winnebago. At 137,708 acres, Lake Winnebago is the largest inland lake in Wisconsin. Lake Winnebago is home for one of the strongest populations of lake sturgeon (*Acipenser fulvescens*) in North America (Fred Binkowski, pers. comm.) and supports a strong walleye fishery (WI DNR 2006). Protecting the Lake Winnebago ecosystem, the lake sturgeon and walleye populations from sea lamprey and from the spread of other AIS is a primary consideration in developing a boat transfer facility at the Rapide Croche lock.



**Figure 1. Map of the Fox River locks. North is towards the right of the map.**

**Goal:** Prevent the upstream spread of aquatic invasive species (AIS) and safely transfer boats at the Fox River Rapide Croche Lock.

**Objectives:**

- 1) Maintain the effectiveness of the lamprey barrier currently in place at the Rapide Croche Lock
- 2) Move boats overland in an environmentally safe manner without moving AIS
- 3) Ensure that the boat cleansing process at the Rapide Croche transfer station meets or exceeds the Wisconsin State and Aquatic Nuisance Species Task Force recreational boating guidelines for AIS prevention.
- 4) Monitor for the presence of fish and invertebrate AIS above and below the Rapide Croche boat transfer station
- 5) Educate system users about AIS prevention

## **Aquatic Invasive Species**

Species currently in the Great Lakes that should be prevented from spreading into the Lake Winnebago System include: lamprey, round goby, smelt, white perch, ruffe, and Great Lakes trout and salmon. Invertebrates include the quagga mussel and the non-indigenous waterfleas (fishhook and spiny waterfleas), rusty crayfish and the bloody red shrimp; plants should be removed because non-native organisms may be entrained with or attached to them. Pathogens that could be moved with fish include spring viremia of carp virus, infectious pancreatic necrosis, bacterial kidney disease and others. Other non-indigenous species or organisms of concern should be added to the list as they appear in Green Bay or the lower Fox River.

The spiny waterflea (*Bythotrephes cederstroemi*) will likely not thrive in the Lake Winnebago system or in Green Bay. This tiny, planktonic crustacean requires deep lakes that offer a summer thermal refuge. The shallow waters of lakes Winnebago, Winneconne, Poygan and Butte des Morts do not provide such refuge and so are unlikely to offer habitat suitable for this invasive zooplankton. Some shallow New York lakes in contact with spiny waterflea infested rivers have not yet exhibited invasive waterflea populations (Ed Mills pers. comm.) The fishhook waterflea (*Cercopagis pengoi*) can tolerate warm waters therefore reasonable steps to prevent the introduction of these nonnative crustaceans will be taken. The FRNSA recommends that similar precautions be implemented at the other Winnebago system access points.

This document considers the organisms most likely to be transferred with boats – those floating in the water column and likely to adhere to or become entrained on boats or associated with fish or aquatic vegetation. Benthic organisms such as New Zealand Mudsnaills or the diatom called “didymo” or “rock snot” (*Didymosphenia geminata*) are more likely to be spread via trailers or anglers as they come in contact with the bottom substrate of lakes and streams rather than by a floating boat.

## ***Target Organisms***

### **Fish**

Prohibiting the movement of fish with boats is most easily accomplished by preventing the movement of bait and harvested fish, removing the vessel from the water for transfer and fencing the site to close it during off hours. A greater challenge lies in prohibiting the movement of microscopic resting eggs, larvae or pathogens that could remain in water adhering to equipment on board, the sides, interior spaces and crevices of the vessel. This challenge will be met through an aggressive vessel cleaning protocol that exceeds Wisconsin State and ANS Task Force recommendations.

No fish or bait live or dead will be transported above the Rapide Croche lock. Bait will be confiscated and discarded in the trash. Water in live wells, bilge and motors will be drained and flushed and the hull of the vessel and equipment will be rinsed with 110°F water prior to moving the boat and associated equipment to the upstream side of the lock. Boats moving downstream will not be inspected or cleaned prior to transfer but owners of boats moving downstream will be informed that they will have to meet the AIS prevention requirements to move the boat back upstream.

### **Quagga and Zebra Mussels**

The application of sufficiently heated water can quickly exceed the thermal tolerance of organisms causing mortality within a very short time. The Rapide Croche transfer station will use water at 110°F to assure instantaneous kill of quagga mussels. McMahon et al (1993) determined that at raw water intake structures the maximum temperature required for instantaneous mortality of *Dreissena* is 43°C (109°F) when mussels were acclimated to 30°C and subjected to a “rapid” heating rate of 1°C/min. The temperature required for instantaneous mortality is reduced with lower acclimation temperatures. McMahon et al (1994) further established an equation for lethal temperatures for 15mm long zebra mussels based on acclimation temperature. Time in hours to achieve 100 percent mortality in *Dreissena* is described by the following equation:

$$\text{Total Mortality in Hrs} = 40.002 + 0.0514(\text{acclimation temp } ^\circ\text{C}) - 1.126(\text{test temp } ^\circ\text{C})$$

At the boat transfer site, the acclimation temperature would be the temperature of the river water; the test temperature would be the temperature of the wash water. Maximum summer water temperature for the Fox River at Rapide Croche Dam in 2005 was 85°F (29°C). At this maximum “acclimation” temperature the treatment temperature required for instantaneous mortality (death in zero hours) of zebra mussels would be about 98.6°F (37°C). Though similar information is not available for quagga mussels, it is likely this congeneric species has similar thermal tolerance.

### **Spiny Waterfleas**

Spiny waterfleas, both *Bythotrephes* and *Cercopagis* are present in Green Bay. These species can reproduce parthenogenetically (without males). During most of the year they do not require males to establish a new population. In the fall as water temperatures fall below 61°F, males



appear and females produce resting eggs (Makarewicz et al 2002, MacNeill et al 2004). Resting eggs can survive desiccation for twelve hours before dying and can tolerate hotter water temperatures than adult zebra mussels. At Rapide Croche we need to prevent the movement of adult spiny and fishhook waterfleas and avoid the movement of resting eggs.

The upper lethal limit for spiny waterflea (*Bythotrephes longimanus*) has been documented as 74°F (23°C) (Yurista, 1999) due to inactivation of respiratory enzymes. The thermal tolerance of adult fishhook waterfleas is not precisely known (MacIsaac, pers. comm.; Aladin, pers. Comm.) Aladin reported the optimum temperature for fishhook waterfleas (*Cercopagis pengoi*) is 52-72°F (11-22°C) and that this cladoceran may be able to tolerate water temperatures as high as 102.2°F (39°C). However, in Russia, MacIsaac did not find adults in nuclear cooling reservoirs where water temperatures reach 95°F (35°C) and suggested 86°F (30°C) may be an ecological maximum for the organism (pers. comm.).

To avoid moving adult spiny and fishhook waterfleas into the upper Fox River basin, the boat hull, fittings, motor, live wells and water-cooled engine of the boat will be first sprayed with upstream water to dislodge any water fleas on the hull. The boat will then be floated in 110°F (43°C) water with motor and pumps running to insure that waterfleas interior systems are flushed out prior to moving the boat upstream. To avoid moving resting eggs the boat transfer station will not operate past Labor Day. This will avoid moving boats upstream as water temperatures begin to fall spurring the production of resting eggs. Early September water temperatures in Green Bay are still around 70°F. In the Fox River, early September water temperatures are around 75°F.

### **Other Invertebrates**

The bloody red shrimp, *Hemimysis*, is a strong swimmer and is not likely to become entrained with a boat during operation. Rusty crayfish will be removed with other live bait.

### **Pathogens**

Fish pathogens are most likely to move with fish or bait either dead or alive so preventing the movement of fish at Rapide Croche Lock will prevent the movement of most pathogens (Gary Whelan, MI DNR, pers. comm.). Equipment, for example nets that come into contact with fish are the next most likely vector for pathogen transfer. Nets and fishing equipment will be sprayed with a pressure washer and immersed in the hot water bath prior to being returned to the upstream-bound boat.

### **Plants and Algae**

Fish larvae or other immature vertebrates are unlikely to adhere to the hull and if entrained in the motor or bilge will not survive the hot water bath. The pelagic invertebrates of concern are addressed above; benthic invertebrates are unlikely to be moved with a boat or will be washed off with sediment during the spray operation. Algae will be washed off to the extent possible during the initial spray-down of the vessel. It is possible that some algal cells will be missed and will not be killed in the hot water immersion step; however algae will remain a potential threat for introduction by other vectors as well. Macrophytes (large, visible plants) will be manually removed or washed off during the hull spraying portion of the cleansing operation.

## **Future AIS Risks**

Until the influx of aquatic invasive species into the Great Lakes is stemmed, future introductions of new species may pose a risk for spread into the Lake Winnebago System. As these threats arise, the transfer station operation and cleansing protocol should be reviewed and modified as necessary to assure only clean boats are moved at the Rapide Croche boat transfer station and pose no additional threat for AIS introduction.

## ***Other Vectors***

Even with these stringent measures to prevent the movement of AIS at the Rapide Croche boat transfer station, at least two other significant AIS vectors remain: trailered boats access ramps and the canal connection at Portage. Recent AIS introductions into Lake Winnebago including Eurasian watermilfoil (*Myriophyllum spicatum*), zebra mussels (*Dreissena polymorpha*) and viral hemorrhagic septicemia virus (VHS) are logically attributable to introduction by trailered boats or anglers. There is a total of over 60 access points for boats on lakes Winnebago, Poygan, Butte des Morts, Winneconne, Little lake Butte des Morts, the upper Fox River to Eureka and the lower Fox River to Rapide Croche Dam. Unless boaters and anglers take precautions to prevent the spread of AIS from lake to lake via trailered boats, this vector will remain a serious threat to the Lake Winnebago ecosystem. Further, the number of trailered boats entering the Lake Winnebago system annually will greatly exceed the number of vessels passing through the Rapide Croche boat transfer station.

As long as there is an aquatic connection between the Wisconsin River and the Fox River invasive species in the Mississippi River drainage could enter the Winnebago system. At this time, Asian carps are the greatest AIS threat that could use this entry route. The round goby will eventually move into the Mississippi River and could use this backdoor to gain access to the Winnebago system, further there is concern regarding the use of gobies as bait. Serious consideration should be given to permanently closing the man-made connection to prevent the spread of invasive species to or from the Winnebago system.

## **Boat Transfer Options**

Lifting boats by water is a proven, safe and economical means to move freight and passengers with the vessel in a controlled chamber. However, when considering a means of lifting a boat without moving AIS, the impracticality of treating or disinfecting large volumes of water and how to handle the discharge of the treated water becomes immediately apparent. For that reason boats passing upstream and downstream at the Rapide Croche Lock will be moved via mechanical means. Boat lift options are described in detail elsewhere in this proposal but include sling-type lifts, fork lifts, trailers, self-propelled trailers, and other bunk-type lifts.

## **Boat Cleansing Alternatives**

### ***Chemicals***

Options considered as alternatives for the boat cleansing operation included chemicals such as chlorine, iodine, Vircon-S, Peroxyguard and ozone, high pressure water spray and hot water. Application of chemicals was not fully considered due to the cost and potential hazards

associated with storage and application. Chemicals must be either collected for disposal or detoxified (if possible) prior to discharge. Purchase of the chemical represents an additional cost for operation of the boat transfer facility as well as cost for disposal of a potentially hazardous waste. Further, some of the chemicals are not effective on all target organisms and treatment of the boat with a chemical would require some additional rinse take place prior to placement of the cleaned boat on the upstream side of the lock. Chemical treatment can be added at a later date if required by changing conditions.

### ***High Pressure Spray***

High pressure water spray has the potential to remove ablative paint from some boat hulls and can potentially damage some hulls made of relatively fragile materials. Also, some additional treatment would be required to address through-hull fittings, pumps and motor cooling water.

### ***Hot Water***

Hot water has the most desirable characteristics and the fewest drawbacks. Water is amply available onsite from the upstream side of the lock, can be heated, is not toxic and at moderate temperatures is not hazardous. At high enough temperatures, hot water is an effective cleansing agent on all organisms and all life stages.

Application of hot water to the boat and equipment for the required duration by spraying the hull is possible but requires additional steps to flush the motor cooling system and other on-board pumps, the bilge and through-hull fittings. A combination of spray with immersion in a pool of heated water allows thorough flushing of the motor and pumps with the hot water. Separate treatment of equipment in hot water, a chemical bath or high pressure spray will kill, remove or inactivate potential AIS threats.

One issue with very hot water is the potential effect on paint, gaskets and some hull materials. Some of the boat manufacturers contacted indicated immersion of the vessel in a water bath of 145°F or more even for a relatively short duration (2 minutes) could adversely affect gaskets, hull finish and would violate the warranty.

### ***Recommended Approach***

Given the array of organisms, their various tolerance for chemical and hot water treatments, it is clear a combination of cleansing methods incorporated into a boat transfer system is required to assure that to the greatest extent possible, no non-indigenous species are moved with boats from the downstream to the upstream side of Rapide Croche Lock. Operating the boat transfer station only during times of the year when resistant life stages are absent and using cleansing methods effective on target organisms will allow safe transfer of boats over the sea lamprey barrier. The cleansing station should be designed such that application of a chemical disinfectant phase can be added in the future if necessary.

In terms of options to treat the boat to remove AIS in an environmentally sound manner, hot water is the preferred method for this operation. Hot water is the method recommended by the Aquatic Nuisance Species Task Force in the Recreational Boating Guidelines for AIS removal:

- Inspect and remove aquatic plants animals and mud from the boat, trailer and equipment
- Drain all water from the equipment (boat, motor, bilges, transom wells, live wells etc.)
- Dispose of unwanted bait in the trash, not in the water
- Rinse the boat and equipment with hot (>104°F) and/or high pressure water OR
- Let the boat dry in the sun for five days

## **Boat Transfer Station Operation**

The Rapide Croche boat transfer station will have posted hours and will not operate unless a trained transfer station staff member is present. The boat transfer station will be fenced such that no one may pass beyond the boat transfer station, including canoes and kayaks, when a boat transfer station staff member is not present. To facilitate the cleaning process, the approach channel should be kept free of vegetation to the maximum extent possible.

The lifting or transfer device will completely separate the boat from the water and allow inspection and treatment of the hull such that no organisms attached to the hull or lifting apparatus will go unnoticed during the transfer process. Water draining from the boat while it is being cleaned must not be allowed to drain to the upstream side of the transfer station.

### ***Preparing the Boat for Transfer***

Boaters wishing to have their boats transferred at the station will have to clean their hulls, bilge and equipment prior to approaching the transfer station. Live wells and bait buckets should be empty. Boats with hulls heavily encrusted with algae or organisms will be turned away. Boats with bladder bags, regardless of condition, will not be permitted to move above the transfer station. Fishing presents an elevated risk for transfer of organisms due to live wells, bait buckets and bait wells and associated fishing gear. These items will require particularly close attention prior to movement upstream.

### ***Cleansing the Boat***

Once the boat meets the established criteria to move above the Rapide Croche Lock, the boat will be lifted from the water by fork lift, hoist or some other mechanism. The boat will be moved to a location for the cleaning process that ensures the released water is not discharge to the upstream side of the transfer station.

### **The Hull**

The transfer station is intended to be a disinfection station not a boat cleaning station; there will not be time for scrubbing or scraping of the hull. As such, boats with hulls heavily fouled with zebra or quagga mussels or thick encrustations of other organic matter will not be allowed to use the boat transfer station so only recently settled dreissenid mussels and minimal accumulations of other dried-on organisms should be present on the boat hull. The hull will be thoroughly sprayed to dislodge spiny waterfleas and other adhering AIS prior to being set in 110°F water for one minute which will kill more tightly attached dreissenid mussels. Wong (1991) reported that water pressure at 3000 psi will remove zebra mussels but not their byssal threads that can cause corrosion. For this reason the U.S. Army Corps of Engineers recommends that water pressure of 4,000 psi or greater be used to remove the zebra mussels. Ackerman et al (1995) determined that the force required to remove newly settled quagga mussels from various substrates was about

two orders of magnitude less than that required to remove adult dreissenid mussels. Applying this conversion factor (0.01) to the Army Corps recommended pressure for removing adult zebra mussels (3000 to 4000 psi) results in a suggests water pressure of 30 to 40 psi, roughly equal to that of tap water will be sufficient for the Rapide Croche boat washing facility.

Water at 30 to 40 psi will remove newly settled quagga mussels as well as zooplankton that may be adhering to the surfaces of the boat while avoiding removal of ablative anti-fouling paint and possible damage to boat hulls. Special attention will be paid to hull fittings, outdrives, lower units, sailboat centerboards, centerboard trunks and water intake and exhaust ports. Canoes and kayaks will be thoroughly rinsed inside and out then fully immersed in the 110°F water. The heat of the water will instantaneously kill any zebra or quagga mussels on the hull and will kill attached spiny waterfleas in the one-minute contact time.

### **Propulsion Systems**

Lower units, outdrives and other protruding items with cracks or crevices that may house AIS will be sprayed with water then set in 110°F water to ensure removal and/or death of the organism. Jet skis or jet boats will be run for a few seconds to ensure removal of entrained vegetation and water in the drive system. The jet drive intake and exhaust ports must then be flushed with the hot water.

### **Intake and Exhaust Ports & Cooling System**

Intake and exhaust ports of the cooling system on inboard motors must be sprayed thoroughly. Mechanical propulsion systems of all vessels will be operated while floating in the 110°F water bath to ensure removal of larval or planktonic organisms. Cooling systems of motors will be operated with the 110°F water to ensure removal or mortality of AIS. Other raw water systems will be operated while in the bath to ensure flushing of these systems.

### **Bilge**

Water in the bilge could harbor invasive organisms. If the boat construction allows access to the bilge compartments the bilge will be visually inspected. If the bilge compartments cannot be visually inspected, the bilge plug will be removed from the boat prior to placement in the hot water bath.

### **Fishing Equipment, Anchors, Ropes, Chains, Skis etc**

Equipment onboard including ropes, anchor, chains, water skis, rods, reels, lines, downriggers, tackle and lures must be visually checked by the transfer station staff. It must be dry and free of debris or encrusting organisms. All nets and equipment that is not dry or free of encrusting organisms clean must be sprayed with high pressure wash water then immersed in the 110°F water bath for one minute before being allowed to move upstream of the transfer site.

### **Live Wells & Bait Buckets**

No live bait will be permitted to move upstream from below the Rapide Croche boat transfer station. Live wells and bait wells must be emptied. Once the boat is lifted from the water, the live well system will be flushed and operated with 110°F water. Bait brought in buckets may be emptied into a holding facility for distribution to downstream-headed boats. All bait buckets will be rinsed then immersed in the 110°F water bath for one minute.

### ***Lifting Device***

The lifting device will be treated with 110°F water for one minute along with the boat to ensure it too is free of AIS before being immersed in the upstream water. Alternatively, two lifting devices may be used, one for removing and replacing boats on the downstream side of the lock and a second for removing and placing boats on the upstream side of the lock. If a second boat is waiting to move downstream, the lifting device must be sprayed down and treated in the hot water bath

### ***Quality Assurance - Hazard Analysis and Critical Control Point Plan***

Once a method is finalized for lifting and washing the boats, detailed protocols will be developed for each vessel type. In addition, an Aquatic Invasive Species Hazard Analysis and Critical Control Point (AIS-HACCP) plan and a protocol checklist should be developed for the Rapide Croche boat transfer station for quality assurance. The plan will clearly delineate the cleaning protocol to be followed for each type of craft, i.e. sailboat, cruiser, runabout, kayak, or fishing boat. A checklist should be completed for each craft transferred at the station. The AIS- HACCP plan should include thermal parameters for the heated pool, inspection points for each type of craft and equipment cleansing procedures.

### **Moving the Boat Upstream**

Once the boat and equipment are cleaned, the boat will be moved to the upstream side of the lock, checked to ensure that the bilge plug is replaced and returned to the river. Equipment removed from the hot water bath should be allowed to cool and returned to the boat operator.

### **Operation of the Other Locks**

When the doors of a lock remain open between lockages, fish and other organisms have an opportunity to enter the lock and be moved upstream with the next vessel that locks through. As an added step to slow the upstream spread of AIS, the downstream lock doors at the locks between Rapide Croche and Green Bay will remain closed except when a vessel is entering the lock. Though this is not a 100% effective prevention method, it significantly reduces the amount of time an organism has to enter the lock to move upstream.

### **Monitoring for AIS**

Monitoring is essential to determine the effectiveness of any prevention effort. Monitoring for AIS will be carried out by Lawrence University students under the direction of Dr. Bart DeStasio. One student will be dedicated to the project throughout the summer months. Monthly sampling at stations in the Rapide Croche pool and the upstream and downstream navigation pools from May to September began in 2006. The monitoring effort includes sampling for invertebrates and fishes. Sampling methods include substrate samples, settling plates, minnow traps and seining. Periodic reports on the monitoring results will be submitted to FRNSA and forwarded to the Department of Natural Resources. Results of the monitoring effort will be posted on the FRNSA (or Friends of the Fox) website and will be presented at state or regional meetings.

If a new invasive species is located downstream of the lock, the HACCP plan and transfer protocol will be reviewed to ensure that the methods applied at the transfer station are adequate

to prevent the upstream movement of the organism. If the methods are determined to be inadequate, the HACCP plan and cleaning protocol will be modified appropriately.

If the monitoring effort finds a new aquatic invasive species in the pool above the Rapide Croche Lock, the Wisconsin DNR will be immediately notified. Though the source of the organism may be a trailered boat, if the organism is confined to the Rapide Croche pool consideration should be given to closing the Kaukauna Lock and to closing any boat ramps on the pool to prevent potential upstream spread of the organism until its distribution and appropriate response action can be determined (see AIS response below).

## **AIS Response**

Because there are more than 60 access points on the Lake Winnebago system, presence of a new AIS in the Lake Winnebago system is not indicative of a failure in the boat transfer cleansing protocol. The monitoring program for the transfer station samples sites in the pools immediately above and below the Rapide Croche Lock. This monitoring program should be used to determine whether the source of the new species was indeed the transfer station. Discovery of the species farther upstream suggests another vector was involved.

The initial response if a new AIS that has been confirmed in the pool immediately downstream of the transfer station is then detected immediately upstream from the Rapide Croche boat transfer station should be to close the next lock upstream, Kaukauna Lock 5 and to suspend operation of the boat transfer station pending review of the transfer protocol. Planning for a rapid response should begin well in advance of full restoration and operation of the lock system so that swift action can be taken in the event of a new AIS discovery. Rapid response options are extremely limited and depend on the type of organism. Planning for the action will at a minimum include representatives of the Fox River Navigation System Authority and the FRNSA AIS Committee, the Friends of the Fox River, the Wisconsin Department of Natural Resources, U.S. Fish and Wildlife Service, Great Lakes Fishery Commission, communities that draw drinking water from the river and recreational interests on the river including Walleyes For Tomorrow, Sturgeon For Tomorrow, and the Winnebago Lakes Council.

## **Education and Outreach**

Boaters on the Fox River will need to know about the boat transfer and cleaning procedure before they approach the Rapide Croche boat transfer station. They will need to have a clean hull and be prepared to allow their boat to be inspected, lifted and washed. They must be aware that fishing gear and ski equipment etc. will be removed and submerged in hot water.

Materials describing how boaters can prevent the spread of AIS should be available for distribution at all the FRNSA locks. A kiosk will be erected at the boat transfer station that includes educational materials about AIS, their impacts and preventing their spread, the lock system, the Fox River, Lake Winnebago ecosystem and the lake sturgeon.

Prevention at other access points must engage upper lakes' residents, anglers, boaters and other users in the AIS prevention effort. This will involve coordination with upstream partners such as UW Extension, angling clubs, marinas, bait shops, and schools to help in the effort. Distribution of information including posters, pamphlets, watch cards and the FRNSA FAQ brochure to ramp

owners, bars, restaurants and tackle shops around the lake and on the river will help disseminate the information. Engaging sportsmen's groups and educating them about the Rapide Croche boat transfer station will be an important project component. Dr. Bart DeStasio will help engage elementary, middle and high school students in AIS prevention. Dr. DeStasio leads the JASON project, a middle school outreach program in the Green Bay area. He has offered to work with local schools to enlist their participation on the Fox River AIS monitoring and control effort.



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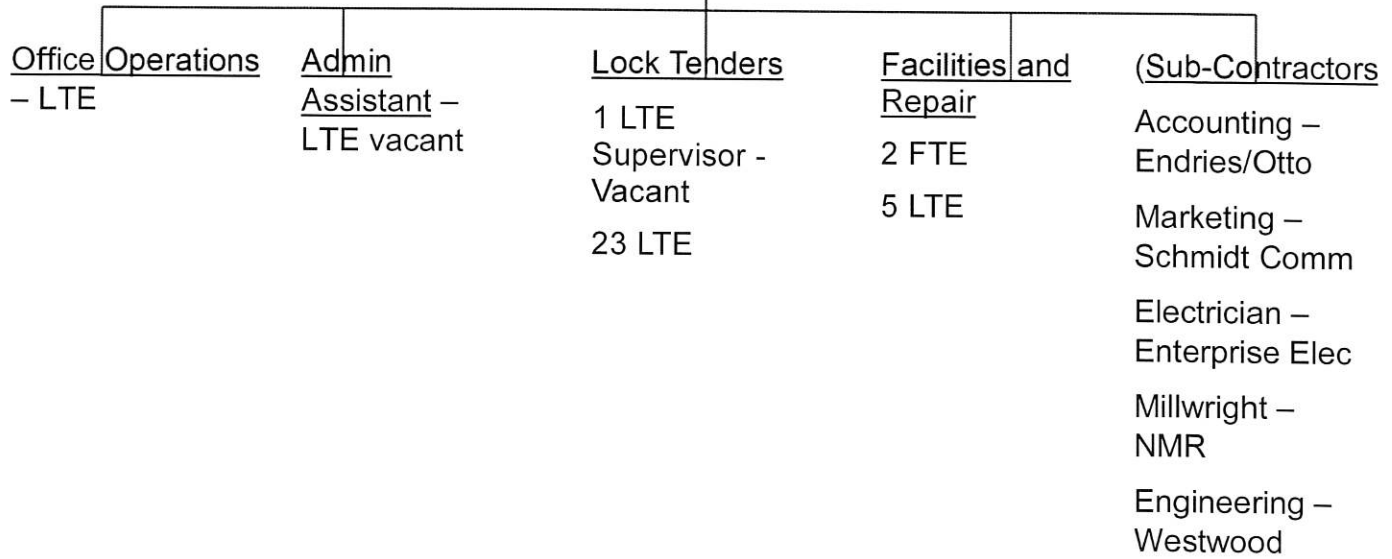
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PARTNERSHIP AGREEMENT  
BETWEEN THE U.S. ARMY CORPS OF ENGINEERS, DETROIT DISTRICT  
AND  
THE STATE OF WISCONSIN, FOX RIVER NAVIGATIONAL SYSTEM  
AUTHORITY  
FOR ACTIVITIES ASSOCIATED WITH THE TRANSFERRED NAVIGATION  
PORTION OF THE FOX RIVER SYSTEM, WISCONSIN

This Partnership Agreement is entered into this 30th day of September 2004, by and between the U.S. Army Corps of Engineers, Detroit District, (hereinafter "the Corps") represented by the District Engineer, and the State of Wisconsin, Fox River Navigational System Authority (hereinafter "the State"), represented by the Chairman, Fox River Navigational System Authority.

WITNESSETH, THAT:

WHEREAS, on September 15, 2004, the Corps transferred to the State the locks and appurtenant features of the navigation portion of the Fox River System, Wisconsin, extending from Green Bay, Wisconsin to Lake Winnebago, Wisconsin, per the intention of the parties as provided in the Memorandum of Agreement entered into on 11 September 2000 by and between the Corps and the State; and

WHEREAS, the Corps and the State have the full authority and capability to perform as hereinafter set forth in accordance with the terms of this agreement.

NOW, THEREFORE, the Corps and the State agree as follows:

ARTICLE I. GENERAL PROVISIONS

- A. The State and the Corps shall meet once per calendar year in the Green Bay/Fox River, Wisconsin area to discuss the State's planned and/or proposed operational programs of the navigation portion of the Fox River System and the Corps' planned and/or proposed operational programs of the water regulation features of the Fox River System.
- B. It is the intent of the Corps to provide the State with information and/or institutional knowledge on the workings of the navigation portion of the Fox River System, Wisconsin.
- C. To discuss, as needed, any proposed real estate lease/license action that may impact either party at any lock and/or water regulation feature (dam).
- D. Either party may request in writing the need for additional meetings within the calendar year.

E. Each party is responsible for their own costs associated with participating in the meeting(s).

ARTICLE II. POINTS OF CONTACT

To schedule meetings and/or to facilitate in the transfer of information between the Corps and the State, the individuals listed below will be the primary points of contact:

Corps

Charles A. Uhlarik  
Project Manager, USACE, Detroit District  
477 Michigan Avenue  
Detroit, MI 48231  
Phone: 313-226-6753  
Cell: 313-319-3093

State


Ron Van De Hey  
Interim Chairman of the Fox River  
Navigational System Authority  
1008 Augustine Street  
Kaukauna, WI 54130  
Phone: 920-740-6545

ARTICLE III. AMENDMENT AND TERMINATION

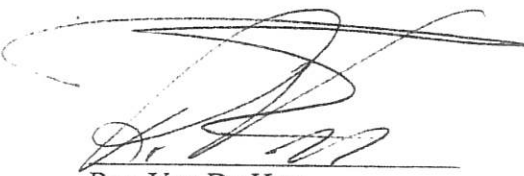
- A. This agreement may be amended by written agreement of both parties.
- B. Either party may terminate this agreement by written notice giving 100 days notice.

IN WITNESS HEREOF, the parties thereto have executed this agreement, which shall become effective upon the date it is signed by the Corps and the State.

DETROIT DISTRICT,  
CORPS OF ENGINEERS

  
\_\_\_\_\_  
Donald P. Lauzon  
Lieutenant Colonel, U.S. Army  
District Engineer

STATE OF WISCONSIN

  
\_\_\_\_\_  
Ron Van De Hey  
Interim Chairman, Fox River  
Navigational System Authority

Date: 30 sep 04

Date: SEP 30, 04

## RESOLUTION NO. 4-04

### **ADOPTION OF THE AFFIRMATIVE ACTION PROGRAM FOR EQUAL EMPLOYMENT OPPORTUNITIES.**

**WHEREAS**, it is the policy of the Fox River Navigational System Authority not to discriminate against any employee or applicant for employment because of age, race, color, creed, sex, national origin or handicap, and

**WHEREAS**, job applicants and present employees shall be recruited, trained, assigned, promoted and compensated without discrimination as to age, race, color, creed, sex, national origin, or handicap, and

**WHEREAS**, it is recognized that the agency needs to maintain constant vigilance of its hiring practices and its past hiring experience, and

**WHEREAS**, the Authority is subject to non-discrimination policies as listed in Wisconsin Statutes 16.765, 104.39, 230.03 and 230.80 now therefore

### **BE IT RESOLVED BY THE FOX RIVER NAVIGATIONAL SYSTEM AUTHORITY:**

Section 1: That the Authority adopts the following affirmative steps to promote equal employment opportunity within the agency:

1. The Authority's equal employment opportunity policy will be communicated to all employees, supervisors and management and to potential sources of employees. Officials who make the hiring, placement and promotion decisions will be instructed that minority applicants for all jobs, regardless of type, or applicants for promotion are to be considered without discrimination as to age, race, color, creed, sex, national origin or handicap.
2. The Chief Executive Officer is designated as the agency's Affirmative Action Officer responsible for coordination of its equal employment opportunity efforts.
3. The Authority establishes a goal to recruit applicants and hire employees in balance with the prevailing employment structure of the Appleton-Oshkosh-Neenah MSA and Green Bay MSA to the extent possible.
4. The Authority will take such steps as the following in its recruitment to assure non-discrimination:
  - a. Place employment advertisements in newspapers which serve the largest number of minority group people within the Authority's recruiting area and with the Wisconsin Job Service Center.


RESOLUTION No. 4-04

- b. Notice of staffing needs will be sent to schools and universities having substantial portions of minority students.
  - c. Systematic contacts will be made with minority and human relations organizations, leaders and spokesmen to encourage referral of qualified minority applicants to the Authority.
  - d. Present employees are to be encouraged to refer minority applicants to the Authority.
  - e. Recruitment sources will be informed that qualified minority members are being sought for consideration for professional, sub-professional, office and manual work whenever the Authority hires.
5. All persons on the staff involved in making recommendations or decisions on hiring will be personally informed by the Affirmative Action Officer that minority applicants for all jobs are to be considered without discrimination.
7. The Authority will not practice discrimination with regard to placement and promotion of any employee.
- a. All members of the staff who are concerned with placement and promotion decisions will be instructed to act without discrimination toward minority employees.
  - b. The promotion of minority employees who have increased their skills and job potential will be consistent with the promotion of all other employees.
8. The Authority will assure non-discriminatory pay, other compensation and working conditions by taking such steps as:
- a. Examining rates of pay and fringe benefits for present employees with equivalent duties, and adjusting any inequities found.
  - b. Not reducing the compensation of existing employees who have been converted to on-the-job training status.

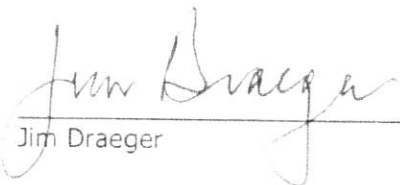
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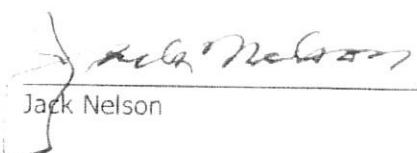
9. The Authority will not discriminate in its contracting and where possible will take appropriate steps such as encouraging minority group contractors and contractors with minority representation among their employees to submit proposals for contract work in order to promote equal opportunity.
10. The Authority will require all contractors to provide equal employment opportunity assurances.
11. The Authority will follow through by questioning, verifying, and making whatever changes or additions to this Equal Employment Opportunity Program as may be necessary to assure its effectiveness.


Effective Date: October 6, 2004


  
\_\_\_\_\_  
Ronald Van De Hey, Chair


\_\_\_\_\_  
Will Dorsey

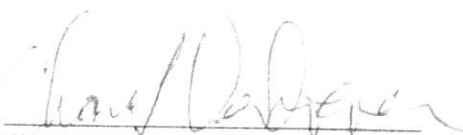
  
\_\_\_\_\_  
Jim Draeger

  
\_\_\_\_\_  
Jack Nelson

  
\_\_\_\_\_  
William Raaths

  
\_\_\_\_\_  
Robert Stark

  
\_\_\_\_\_  
Will Stark

  
\_\_\_\_\_  
Charles Verhoeven

  
\_\_\_\_\_  
Billy Willis





## Bylaws

### ARTICLE I. OFFICES

- 1.01 Principle and Business Offices. The principle office of the Authority shall be in Kaukauna, Wisconsin. The Authority may have such other business offices, within or without the State of Wisconsin, as the Members may designate or as the business of the Authority may require from time to time.

### ARTICLE II. MEMBERS

- 2.01 General Powers. The business and affairs of the Authority shall be managed by its Members consistent with Chapter 237 of the Wisconsin Statutes.
- 2.02 Tenure. Each Member shall hold office until his or her successor shall have been appointed, or until his or her prior death, resignation or removal. There shall be six (6) public members nominated by the Governor and with the advice and consent of the Senate appointed for staggered three (3) year terms commencing on the dates their predecessors' terms expire. If the Governor makes a provisional appointment of a Member and the appointee files the required oath of office, the appointee qualifies as a Member and may exercise all of the powers and duties of a Member. A provisional appointment shall lapse if the appointment is withdrawn or rejected by the Senate. If a Member's term expires and no successor shall have been appointed and qualifies, the Member shall continue to hold office until such time as the successor is appointed and qualifies. A member may resign at any time by filing his or her written resignation with the Secretary of the Authority at the Authority's principal offices. The secretary of the Department of Natural Resources, Secretary of the Department of Transportation, and director of the State Historical Society or their designees shall also serve as members.
- 2.03 Regular Meetings. A regular annual meeting of the Members shall be held on the fourth Tuesday in June at a time and place within the State of Wisconsin determined by a resolution of the Members or at such other time as set by resolution of the Members. Other regular meetings shall be held at times and places within or without the State of Wisconsin as may from time to time be determined by a resolution of the Members.
- 2.04 Special Meetings. Special meeting of the Members may be called by or at the request of the Chairperson, Secretary or any two Members. The Chairperson or Secretary calling any special meeting of the Members may fix any place, either within or without the State of Wisconsin, as the place for holding any special meeting of the Members called by them, and if no other place is fixed (and in the case of a special meeting called by Members) the place of meeting shall be the principal office of the Authority.
- 2.05 Notice: Waiver. Notice of such meeting of the Members (unless otherwise provided in or pursuant to Section 2.03) shall be given by written notice delivered personally or mailed or given by e-mail to each Member at his or her business address or at such other address as such Member shall have designated in writing and filed at the Authority's

principal offices. If mailed, such notice shall be deemed to be delivered when deposited in the United States mail so addressed, with postage thereon prepaid. If notice be given by e-mail, such notice shall be deemed to be delivered when the e-mail is sent. Whenever any notice whatever is required to be given to any Member of the corporation under the bylaws or any provision of law, a waiver thereof, in writing, signed at any time, whether before or after the time of meeting, by the Member entitled to such notice, shall be deemed equivalent to the giving of such notice. The attendance of a Member at a meeting shall constitute a waiver of notice of such meeting, except where a Member attends a meeting and objects thereto to the transaction of any business because the meeting is not lawfully called or convened.

- 2.06 Quorum. Except as otherwise provided by these bylaws, a majority of the Members then in office shall constitute a quorum for the transaction of business at any meeting of the Members, but a majority of the Members present (though less than such quorum) may adjourn the meeting.
- 2.07 Manner of Acting. The act of the majority of the Members present at a meeting or present by means of a telephone conference call over a speaker telephone, at which a quorum is present, either in person or by telephone, shall be the act of the Members, unless the act of a greater number is required by these bylaws. A Member, in writing, may appoint a temporary alternate representative for a specific meeting. The voting on all questions at a meeting shall be by voice vote, unless a Member requests a roll call, in which case the Yeas/Nays shall be entered upon the minutes of the meeting. All resolutions shall be presented in writing or reduced to writing during or immediately after the meeting and shall be entered in full upon the minutes of the meeting.
- 2.08 Conduct of Meetings. The Chairperson, and in his or her absence, the Vice Chairperson, and in his or her absence, any Member chosen by the Members present, shall call meetings of the Members to order and shall act as chairperson of the meeting. The Secretary of the Authority shall act as secretary of all meetings of the Members, but in the absence of the Secretary, the presiding officer may appoint any Member or other person present to act as secretary of the meeting.
- 2.09 Presumption of Assent. A Member who is present at a meeting of the Members or a committee thereof of which he or she is a member at which action on any Authority matter is taken shall be presumed to have assented to the action taken unless his or her dissent shall be entered in the minutes of the meeting or unless he or she shall file his or her written dissent to such action with the person acting as the secretary of the meeting before the adjournment thereof or shall forward such dissent by registered mail to the Secretary of the Authority immediately after the adjournment of the meeting. Such right to dissent shall not apply to a Member who voted in favor of such action.
- 2.10 Committees. The Members by resolution adopted by the affirmative vote of a majority of the Members then in office may designate one or more standing committees, each committee to consist of two or not more than four members appointed by the Chairperson. Each such standing committee shall fix its own rules governing the conduct of its activities and shall make such reports to the Members of its activities as the Members may request.

The Members by resolution adopted by the affirmative vote of a majority of the Members then in office may designate one or more technical or advisory committees for a specified term, each committee to consist of not more than four Board Members and any number of non-Board members. The Chairperson shall have the authority to appoint the committee members. Each such technical or advisory committee shall fix its own rules governing the conduct of its activities and shall make such reports to the Members of its activities as the Members may request.

- 2.11 Unanimous Consent Without Meeting. Any action required or permitted by the bylaws or any provision of law to be taken by the Members at a meeting or by resolution may be taken without a meeting if a consent in writing, setting forth the action so taken, shall be signed by all of the Members then in office.

### ARTICLE III. OFFICERS

- 3.01 Number. The principal officers of the Authority shall be a Chairperson, a Vice Chairperson, a Secretary, a Treasurer, a Chief Executive Officer, and a Chief Operating Officer.
- 3.02 Election, Appointment and Term of Office. The Chairperson, Vice Chairperson, Secretary and Treasurer shall be elected by the Members from among the Members. Such other officers and assistant officers as may be deemed necessary may be elected or appointed by the Members. Any two or more offices may be held by the same person, except the offices of Chairperson and Vice Chairperson. The officers of the Authority to be elected by the Members shall be elected annually by the Members at the regular annual meeting of the Members. If the election of officers shall not be held at such meeting, such election shall be held as soon thereafter as conveniently may be. Each elected officer shall hold office until his or her successor shall have been duly elected or until his or her death, resignation or removal.
- 3.03 Removal. The Chairperson, Vice Chairperson, Secretary or Treasurer may be removed by the Members whenever in their judgment the best interest of the Authority will be served thereby, but such removal shall be without prejudice to the contract rights, if any, of the person so removed. Election or appointment shall not of itself create contract rights.
- 3.04 Vacancies. A vacancy in the principal offices of Vice Chairperson, Secretary and Treasurer because of death, resignation, removal, or otherwise, shall be filled by the Chairperson for the unexpired portion of the term. A vacancy in the principal office of Chairperson shall be filled by the Members by special election at the next meeting.
- 3.05 Chairperson. The Chairperson shall, when present, preside at all meetings of the Members. He or she shall have authority, subject to such rules as may be prescribed by the Members, to appoint agents and employees. He or she shall have authority to sign, execute and acknowledge, on behalf of the Authority, all deeds, contracts, leases, reports and all other documents or instruments necessary or proper to be executed in the course of the Authority's regular business, or which shall be authorized by resolution of the Members; and except as otherwise provided by law or the Members, he or she may authorize any Vice Chairperson or other officer or agent of the Authority to sign, execute and acknowledge such documents or instruments in his or her place and stead. In general, he or she shall perform all duties incident to the office of Chairperson and

such other duties as may be prescribed by the Members from time to time; provided, however, that the Chairperson shall not be deemed hereby to participate in operating management of the Authority.

- 3.06 The Vice Chairperson. In the absence of the Chairperson or in the event of his or her death, inability or refusal to act, or in the event for any reason it shall be impracticable for the Chairperson to act personally, the Vice Chairperson shall perform the duties of the Chairperson, and when so acting, shall have all the powers of and be subject to all the restrictions upon the Chairperson. The Vice Chairperson may sign, with the Secretary or Assistant Secretary, notes of the Authority; and shall perform such other duties and have such authority as from time to time may be delegated or assigned to him or her by the Chairperson or by the Members. The execution of any instrument of the Authority by the Vice Chairperson shall be conclusive evidence, as to third parties, of his or her authority to act in the stead of the Chairperson.
- 3.07 The Secretary. The Secretary shall: (a) keep the minutes of the meetings of the Members in one or more books provided for that purpose; (b) see that all notices are duly given in accordance with the provisions of these bylaws or as required by law; (c) be custodian of the Authority records and of the seal of the Authority and see that the seal of the Authority is affixed to all documents the execution of which on behalf of the Authority under its seal is duly authorized; (d) act as registrar for the bonds of the Authority; (e) sign with the Chairperson or the Vice Chairperson, debt securities of the Authority, the issuance of which shall have been authorized by resolution of the Members; and (f) in general, perform all duties and exercise such authority as from time to time may be delegated or assigned to him or her by the Chairperson or by the Members.
- 3.08 The Treasurer. The Treasurer shall: (a) have charge and custody of and be responsible for all funds and securities of the Authority; (b) receive and give receipts for moneys due and payable to the Authority from any source whatsoever, and deposit all such moneys in the name of the Authority in such banks as shall be selected in accordance with the provisions of Section 4.04; and (c) in general, perform all of the duties incident to the office of Treasurer and have such other duties and exercise such other authority as from time to time may be delegated or assigned to him or her by the Chairperson or by the Members. If required by the Members, the Treasurer shall give a bond for the faithful discharge of his or her duties in such sum and with such sureties as the Members shall determine, the cost to be paid by the Authority.
- 3.09 Chief Executive Officer. The Chief Executive Officer shall be the principal executive officer of the Authority, be hired by the Authority members, be subject to the control of the Members, and shall in general supervise and control all of the business and affairs of the Authority. He or she shall have authority to sign, execute and acknowledge documents or instruments co-extensive with the Chairperson. He or she shall perform all duties prescribed by the Members from time to time.
- 3.10 Chief Operating Officer. The Chief Operating Officer is the secondary officer of the Authority, is approved by the Authority members, be subject of control by the Executive Director, and shall supervise and control all day-to-day business and affairs of the Authority. He or she shall have the authority to sign, execute, and acknowledge documents and instruments in the absence of the Chief Executive Officer.

3.11 Other Personnel. The Chief Executive Officer may, from time to time, appoint and employ a system operation supervisor and such other personnel as may be deemed necessary to exercise the powers, duties and functions of the Authority. The qualifications, duties and numbers of such personnel shall be consistent with the policies determined by the Members.

3.12 Salaries. The salary of the Chief Executive Officer and Chief Operating Officer shall be fixed from time to time by the Members or a duly authorized committee thereof. Salaries of other personnel shall be fixed from time to time by the Chief Executive Officer or by a duly authorized committee of Members and shall be consistent with policies determined by the Members. No officer or other employee or agent shall be prevented from receiving such salary by reason of the fact that he or she is also a Member of the Authority; provided, however, that Members of the Authority shall serve as such without compensation but shall be entitled only to reimbursement of actual expenses.

#### ARTICLE IV. CONTRACTS, LOANS, CHECKS AND DEPOSITS: SPECIAL AUTHORITY ACTS.

4.01 Contracts. The Members may authorize any officer or officers, agent or agents, to enter into any contract or execute or deliver any instrument in the name of and on behalf of the Authority, and such authorization may be general or confined to specific instances. In the absence of other designation, all deeds and instruments of assignment or pledge made by the Authority shall be executed in the name of the Authority by the Chairperson, Vice Chairperson or the Chief Executive Officer, Chief Operating Officer; the Secretary, when necessary or required, shall affix the Authority seal thereto; and when so executed no other party to such instrument or any third party shall be required to make any inquiry into the authority of the signing officer or officers.

4.02 Loans. No indebtedness for borrowed money shall be contracted on behalf of the Authority and no evidences of such indebtedness shall be issued in its name unless authorized by or under the authority of a resolution of the Members. Such authorization may be general or confined to specific instances.

4.03 Checks, Drafts, Etc. All checks, drafts or other orders for the payment of money, notes or other evidences of indebtedness issued in the name of the Authority, shall be signed or otherwise authenticated and verified by two officers or agents of the Authority and in such manner as shall from time to time be determined by or under the authority of a resolution of the Members.

4.04 Deposits. All funds of the Authority not otherwise employed shall be deposited from time to time to the credit of the Authority in such bank or banks, as may be selected by or under the authority of a resolution of the Members.

4.05 Investment Fund. The Authority will develop an investment fund Memorandum of Agreement (MOA) with the foundation consortium including the Green Bay, Fox Cities and Oshkosh Community Foundations.

4.06 The Authority will develop a Financial Plan and adopt an annual budget.

## ARTICLE V. EVIDENCE OF INDEBTEDNESS

- 5.02 Facsimile Signatures and Seal. The seal of the Authority on any evidences of indebtedness may be a facsimile. The signatures of the Chairperson, Vice Chairperson, Secretary, Chief Executive Officer, Chief Operating Officer upon any evidence of indebtedness may be facsimiles provided that either: any one such signature appearing on the evidence is manually affixed; or the evidence is manually countersigned by the registrar. All signatures on coupons which are part of an evidence of indebtedness may be facsimiles.
- 5.03 Signatures by Former Officers. In case any officer, who has signed or whose facsimile signature has been placed upon any evidence of indebtedness, shall have ceased to be such officer before such evidence is issued, it may be issued by the Authority with the same effect as if he or she were such officer at the date of its issue.
- 5.08 Regulations. The Members shall have the power and authority to make all such further rules and regulations not inconsistent with the statues of the State of Wisconsin as it may deem expedient concerning the issue, transfer and registration of evidence of indebtedness of the Authority.

## ARTICLE VI. SEAL

- 6.01 The Members shall provide an Authority seal which shall be circular in form and shall have inscribed thereon the name of the Authority.

## ARTICLE VII. AMENDMENTS

- 7.01 Express Amendments. These bylaws may be altered, amended or repealed and new bylaws may be adopted by the Members by affirmative vote of a majority of the number of Members present at any meeting at which a quorum is in attendance.
- 7.02 Implied Amendments. Any action taken or authorized by the Members which would be inconsistent with the bylaws then in effect but is taken or authorized by affirmative vote of not less than the number of Members required to amend the bylaws so that the bylaws would be consistent with such action, shall be given the same effect as though the bylaws had been temporarily amended or suspended so far, but only so far, as is necessary to permit the specific action so taken or authorized.

## ARTICLE VIII. FISCAL YEAR

- 8.01 Fiscal Year. The fiscal year of the Authority shall commence on the first day of July in each year and close on the next succeeding June 30.

## ARTICLE IX. RESOLUTIONS

- 9.01 Severability. Unless otherwise expressly provided, if any one or more of the provisions of any resolution of the Authority should be determined by a court of competent jurisdiction to be contrary to law, then such provision or provisions shall be deemed and construed to be servable from the remaining provisions therein contained and shall in no way affect the validity of the other provisions of such resolution.

- 9.02 Headings. Any heading preceding the texts of the several articles and sections of any resolution of the Authority, and any table of contents or marginal notes appended thereto, shall be solely for convenience of reference and shall not constitute a part of such resolution, nor shall they affect its meaning, construction or effect.
- 9.03 Effective Date. Unless otherwise expressly provided, each resolution of the Authority shall take effect immediately upon its adoption in the manner provided by law.
- 9.04 Priority. Unless otherwise expressly provided, each resolution of the Authority shall be deemed to rescind and repeal all prior resolutions, rules or other actions, or part thereof, of the Authority in conflict with such subsequent resolution insofar (and only insofar) as such conflict exists. This provision shall not apply to conflicts between resolutions and bylaws of the Authority.
- 9.05 No Recourse Under Resolutions. All covenants, stipulations, promises, agreements and obligations of the Authority contained in any resolution of the Authority shall be deemed to be the covenants, stipulations, promises, agreements and obligations of the Authority and not of any member, officer or employee of the Authority in his or her individual capacity, and no recourse shall be had for any claim based on any resolution of the Authority against any member, officer or employee of the Authority.
- 9.06 Authority Complete. The officers of the Authority, attorneys, agents or employees of the Authority shall be automatically authorized to do all acts and things required of them by any resolution of the Authority of the full, punctual and complete performance of all of the provisions of such resolution.

## ARTICLE X. INDEMNIFICATION OF MEMBERS AND OFFICERS

- 10.01 Mandatory Indemnification. The Authority shall indemnify any person who was or is a party or is a party or threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (including an action by or in the right of the Authority) by reason of the fact that expenses, including attorney's fees, judgments, fines and amounts paid in settlement actually and reasonably incurred by him or her in connection with such action, suit or proceeding; provided, that there is a determination that such person acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interest of the Authority, and, with respect to any criminal action or proceeding, had not reasonable cause to believe his or her conduct was unlawful. If such determination is not made by final adjudication in such action, suit or proceeding, it shall be made by arbitration in Madison, Wisconsin, in accordance with the rules then prevailing of the American Arbitration Association by panel of three arbitrators. One of the arbitrators will be selected by the Members by a majority vote of a quorum consisting of Members who were not parties to such action, suit or proceeding (or, if such a quorum is not obtainable, by independent legal counsel), the second by the officers and Members who may be entitled to indemnification, and the third by the two arbitrators selected by the parties. The termination of any action, suite or proceeding by judgment, order, settlement, conviction, or upon a plea of nolo contendere or its equivalent, shall not, of itself, create a presumption that the person did not act in good faith and in a manner which he or she reasonably believed to be in or not opposed to

the best interests of the Authority, and, with respect to any criminal action or proceeding, had reasonable cause to believe that his or her conduct was unlawful.

10.01 Advance Payment. Expense, including attorney's fees, incurred in defending a civil or criminal action, suit or proceeding may be paid by the Authority in advance of the final deposition of such action, suit, or proceeding upon receipt of an undertaking by or on behalf of the Member or officer to repay such amount unless it shall ultimately be determined that he or she is entitled to be indemnified by the Authority in accordance with this Article.

10.02 Other Rights. The indemnification provided by this Article shall not be deemed exclusive of any other indemnity which the Members, or this Authority, may lawfully grant or any other rights to which any officer, Member, employee or agent may be entitled, and shall continue as to a person who has ceased to be a Member or officer and shall inure to the benefit of the heirs, executors and administrators of such a person.

10.04 Insurance. The Authority shall purchase and maintain insurance on behalf of any person who is or was a Member, officer, employee or agent of the Authority, against any liability asserted against him or her and incurred by him or her in any such capacity or arising out of his or her status as such, whether or not the Authority would be obligated to indemnify him or her against such liability under the provisions of this Article. Such insurance may, but need not, be for the benefit of all Members, officers, employees and agents.



## LOWER FOX ABANDONMENT STUDY

### Executive Summary

#### GENERAL

The Lower Fox Abandonment Study was completed in 1994. The study identified and evaluated abandonment strategies that could be used in case of lock closures. The preferred closure alternative was constructing a concrete or stone masonry fixed crest-gravity dam at the downstream end of each lock chamber.

In 2015, the Fox River Navigational System Authority (FRNSA) commissioned OMNNI Associates and Boldt Construction to update some of the costs identified in the 1994 study. Specifically, Boldt updated costs associated with the fixed crest-gravity dam construction. On a lock by lock basis, Boldt updated costs for general conditions; site work and restoration; removals, disposals, and disconnects; concrete fill of valve chamber, concrete gravity dam and precast access concrete bridge. OMNNI Associates updated costs relating to shoreland stability (rip-rap installation).

The attached spreadsheet illustrates the update. Operation and maintenance costs were not included in the update.

#### FINANCIAL ANALYSIS

##### A. Updated construction costs

Using 2034 as an end date for the analysis, the 2015 construction cost is extrapolated to 2034 using a 2% rate of construction inflation.

| 2015 Construction Cost | 2034 Construction Cost |
|------------------------|------------------------|
| \$4,500,000            | \$6,500,000            |

##### B. Ongoing Operation and Maintenance (O&M) costs

The 1994 Abandonment Study used a sinking fund over a 50 year life. The following analysis looks at O&M costs for a \$75,000, \$150,000, and \$225,000 annual expenditures scenarios starting at 2015 \$. A sinking fund would need to be established to provide the future dollars for O&M.

| Yearly O&M Expenditure (\$ 2015) | Fund Requirement | 2034 Fund Balance |
|----------------------------------|------------------|-------------------|
| \$75,000                         | \$1,600,000      | \$1,900,000       |
| \$150,000                        | \$3,200,000      | \$3,800,000       |
| \$225,000                        | \$4,800,000      | \$5,700,000       |

(Assuming growth at 6%, construction inflation at 2%, and a residual fund balance of \$0.)

**Lower Fox Abandonment Study**

**2015 Cost Updates**

| Item | Description                          | Menasha 1<br>Cost | Appleton 1<br>Cost | Appleton 2<br>Cost | Appleton 3<br>Cost | Appleton 4<br>Cost | Cedars<br>Cost | Little Chute 2<br>Cost | Combined<br>Cost | Kaukauna 1<br>Cost | Kaukauna 2<br>Cost | Kaukauna 3<br>Cost | Kaukauna 4<br>Cost | Kaukauna 5<br>Cost | Rapid Croche<br>Cost | Little Kaukauna<br>Cost | Del<br>Cost |
|------|--------------------------------------|-------------------|--------------------|--------------------|--------------------|--------------------|----------------|------------------------|------------------|--------------------|--------------------|--------------------|--------------------|--------------------|----------------------|-------------------------|-------------|
|      | <b>SUBTOTAL</b>                      | \$ 211,635.63     | \$ 213,154.88      | \$ 198,534.25      | \$ 211,315.00      | \$ 204,743.00      | \$ 213,154.88  | \$ 220,833.13          | \$ 206,793.75    | \$ 190,373.25      | \$ 187,940.88      | \$ 194,868.00      | \$ 204,949.50      | \$ 214,817.88      | \$ 55,955.00         | \$ 215,213.00           | \$          |
| 7    | CONTINGENCY (10%)                    | \$ 21,163.56      | \$ 21,315.49       | \$ 19,853.43       | \$ 21,131.50       | \$ 20,474.30       | \$ 21,315.49   | \$ 22,083.31           | \$ 20,679.38     | \$ 19,037.33       | \$ 18,794.09       | \$ 19,486.80       | \$ 20,494.95       | \$ 21,481.79       | \$ 5,595.50          | \$ 21,521.30            | \$          |
| 8    | CONSTRUCTION FEE (2.5%)              | \$ 5,819.98       | \$ 5,861.76        | \$ 5,459.69        | \$ 5,811.16        | \$ 5,630.43        | \$ 5,861.76    | \$ 6,072.91            | \$ 5,686.83      | \$ 5,235.26        | \$ 5,168.37        | \$ 5,358.87        | \$ 5,636.11        | \$ 5,907.49        | \$ 1,538.76          | \$ 5,918.36             | \$          |
| 9    | DESIGN & ENGINEERING (15%)           | \$ 35,792.88      | \$ 36,049.82       | \$ 33,577.11       | \$ 35,738.65       | \$ 34,627.16       | \$ 36,049.82   | \$ 37,348.40           | \$ 34,973.99     | \$ 32,196.88       | \$ 31,785.50       | \$ 32,957.05       | \$ 34,662.08       | \$ 36,331.07       | \$ 9,463.39          | \$ 36,397.90            | \$          |
| 10   | SHORELAND STABILITY RIP RAP (VARIES) | \$ 10,000.00      | \$ 65,000.00       |                    |                    |                    |                | \$ 165,000.00          |                  |                    |                    |                    | \$ 50,000.00       |                    |                      |                         | \$          |
|      | TOTAL LOCK COST                      | \$ 284,412.04     | \$ 341,381.94      | \$ 257,424.47      | \$ 273,996.31      | \$ 265,474.89      | \$ 276,381.94  | \$ 451,337.75          | \$ 268,133.95    | \$ 246,842.72      | \$ 243,688.84      | \$ 252,670.72      | \$ 315,742.65      | \$ 278,538.23      | \$ 72,552.65         | \$ 279,050.56           | \$          |
|      | TOTAL CONSTRUCTION COST              | \$ 4,454,526.37   |                    |                    |                    |                    |                |                        |                  |                    |                    |                    |                    |                    |                      |                         |             |

For River Navigational System Authority  
2015 Abandonment Study  
Fixed Crest Gravity Dam Option  
Menasha Lock No. 1

| Item                   | Description  | Qty  | Units | Cost/Unit    | Cost              |
|------------------------|--|------|-------|--------------|-------------------|
| <b>1</b>               | <b>GENERAL CONDITIONS</b>                                  |      |       |              |                   |
| 1a                     | Mobilization/Demobilization                                | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00      |
| 1b                     | Project Manager  | 15   | hour  | \$ 75.00     | \$ 1,125.00       |
| 1c                     | Site Superintendent  | 160  | hour  | \$ 90.00     | \$ 14,400.00      |
| 1d                     | Project Coordinator  | 10   | hour  | \$ 65.00     | \$ 650.00         |
| 1e                     | Crane  | 4    | weeks | \$ 2,500.00  | \$ 10,000.00      |
| 1f                     | Equipment  | 4    | weeks | \$ 1,200.00  | \$ 4,800.00       |
| 1g                     | Hand Tools and Consumables                                 | 4    | weeks | \$ 500.00    | \$ 2,000.00       |
| <b>2</b>               | <b>SITE WORK AND RESTORATION</b>                           |      |       |              |                   |
| 2a                     | Install and Remove Cofferdam                               | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00      |
| 2b                     | Dewatering   | 4    | weeks | \$ 2,500.00  | \$ 10,000.00      |
| 2c                     | Soil Fill and Grading                                      | 100  | cuyd  | \$ 25.00     | \$ 2,500.00       |
| 2d                     | Topsoil  | 50   | cuyd  | \$ 35.00     | \$ 1,750.00       |
| 2e                     | Seed, Mulch and Fertilizer                                 | 400  | sqyd  | \$ 9.00      | \$ 3,600.00       |
| 2f                     | Fencing  | 300  | lnft  | \$ 15.00     | \$ 4,500.00       |
| <b>3</b>               | <b>REMOVALS, DISPOSALS AND DISCONNECTS</b>                 |      |       |              |                   |
| 3a                     | Remove/Dispose Lock Gates                                  | 4    | each  | \$ 3,000.00  | \$ 12,000.00      |
| 3b                     | Remove/Dispose Gears, Valves, Spurs, Tripods, Misc. Metals | 1    | lsum  | \$ 8,000.00  | \$ 8,000.00       |
| 3c                     | Remove/Dispose Framed Buildings                            | 2    | each  | \$ 1,000.00  | \$ 2,000.00       |
| 3d                     | Electrical Disconnect                                      | 1    | lsum  | \$ 1,000.00  | \$ 1,000.00       |
| <b>4</b>               | <b>CONCRETE FILL OF VALVE CHAMBER</b>                      |      |       |              |                   |
| 4a                     | Erect and Strip Forming                                    | 400  | sqft  | \$ 30.00     | \$ 12,000.00      |
| 4b                     | Lean Concrete Fill (2000 psi)                              | 160  | cuyd  | \$ 100.00    | \$ 16,000.00      |
| <b>5</b>               | <b>CONCRETE GRAVITY DAM</b>                                |      |       |              |                   |
| 5a                     | Steel Reinforcement  | 15   | ton   | \$ 1,550.00  | \$ 23,540.63      |
| 5b                     | Water Stop   | 68   | lnft  | \$ 75.00     | \$ 5,100.00       |
| 5c                     | Erect and Strip Forming                                    | 1139 | sqft  | \$ 30.00     | \$ 34,170.00      |
| 5d                     | Cast-in-Place Concrete (4000 psi)                          | 225  | cuyd  | \$ 100.00    | \$ 22,500.00      |
| <b>6</b>               | <b>PRECAST CONCRETE ACCESS BRIDGE</b>                      |      |       |              |                   |
| 6a                     | Precast Deck   | 0    | sqft  | \$ 25.00     | \$ -              |
| 6b                     | Railing  | 0    | lnft  | \$ 35.00     | \$ -              |
| <b>SUBTOTAL</b>        |  |      |       | <b>\$</b>    | <b>211,635.63</b> |
| <b>7</b>               | <b>CONTINGENCY (10%)</b>                                   |      |       | <b>\$</b>    | <b>21,163.56</b>  |
| <b>8</b>               | <b>CONSTRUCTION FEE (2.5%)</b>                             |      |       | <b>\$</b>    | <b>5,819.98</b>   |
| <b>9</b>               | <b>DESIGN &amp; ENGINEERING (15%)</b>                      |      |       | <b>\$</b>    | <b>35,792.88</b>  |
| <b>10</b>              | <b>SHORELAND STABILITY 200' OF RIP RAP @ \$50/FT</b>       |      |       | <b>\$</b>    | <b>10,000.00</b>  |
| <b>TOTAL LOCK COST</b> |  |      |       | <b>\$</b>    | <b>284,412.04</b> |

|                           |                        |
|---------------------------|------------------------|
| <b>Total Project Cost</b> | <b>\$ 4,470,176.64</b> |
|---------------------------|------------------------|

For River Navigational System Authority  
2015 Abandonment Study  
Fixed Crest Gravity Dam Option  
Appleton Lock No. 1

| Item      | Description  | Qty  | Units | Cost/Unit    | Cost                 |
|-----------|--|------|-------|--------------|----------------------|
| <b>1</b>  | <b>GENERAL CONDITIONS</b>                                  |      |       |              |                      |
| 1a        | Mobilization/Demobilization                                | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00         |
| 1b        | Project Manager  | 15   | hour  | \$ 75.00     | \$ 1,125.00          |
| 1c        | Site Superintendent  | 160  | hour  | \$ 90.00     | \$ 14,400.00         |
| 1d        | Project Coordinator  | 10   | hour  | \$ 65.00     | \$ 650.00            |
| 1e        | Crane  | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 1f        | Equipment  | 4    | weeks | \$ 1,200.00  | \$ 4,800.00          |
| 1g        | Hand Tools and Consumables                                 | 4    | weeks | \$ 500.00    | \$ 2,000.00          |
| <b>2</b>  | <b>SITE WORK AND RESTORATION</b>                           |      |       |              |                      |
| 2a        | Install and Remove Cofferdam                               | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00         |
| 2b        | Dewatering   | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 2c        | Soil Fill and Grading                                      | 100  | cuyd  | \$ 25.00     | \$ 2,500.00          |
| 2d        | Topsoil  | 50   | cuyd  | \$ 35.00     | \$ 1,750.00          |
| 2e        | Seed, Mulch and Fertilizer                                 | 400  | sqyd  | \$ 9.00      | \$ 3,600.00          |
| 2f        | Fencing  | 300  | lnft  | \$ 15.00     | \$ 4,500.00          |
| <b>3</b>  | <b>REMOVALS, DISPOSALS AND DISCONNECTS</b>                 |      |       |              |                      |
| 3a        | Remove/Dispose Lock Gates                                  | 4    | each  | \$ 3,000.00  | \$ 12,000.00         |
| 3b        | Remove/Dispose Gears, Valves, Spurs, Tripods, Misc. Metals | 1    | lsum  | \$ 8,000.00  | \$ 8,000.00          |
| 3c        | Remove/Dispose Framed Buildings                            | 1    | each  | \$ 1,000.00  | \$ 1,000.00          |
| 3d        | Electrical Disconnect                                      | 1    | lsum  | \$ 1,000.00  | \$ 1,000.00          |
| <b>4</b>  | <b>CONCRETE FILL OF VALVE CHAMBER</b>                      |      |       |              |                      |
| 4a        | Erect and Strip Forming                                    | 400  | sqft  | \$ 30.00     | \$ 12,000.00         |
| 4b        | Lean Concrete Fill (2000 psi)                              | 160  | cuyd  | \$ 100.00    | \$ 16,000.00         |
| <b>5</b>  | <b>CONCRETE GRAVITY DAM</b>                                |      |       |              |                      |
| 5a        | Steel Reinforcement  | 13   | ton   | \$ 1,550.00  | \$ 19,564.88         |
| 5b        | Water Stop   | 67   | lnft  | \$ 75.00     | \$ 5,025.00          |
| 5c        | Erect and Strip Forming                                    | 1120 | sqft  | \$ 30.00     | \$ 33,600.00         |
| 5d        | Cast-in-Place Concrete (4000 psi)                          | 187  | cuyd  | \$ 100.00    | \$ 18,700.00         |
| <b>6</b>  | <b>PRECAST CONCRETE ACCESS BRIDGE</b>                      |      |       |              |                      |
| 6a        | Precast Deck   | 320  | sqft  | \$ 25.00     | \$ 8,000.00          |
| 6b        | Railing  | 84   | lnft  | \$ 35.00     | \$ 2,940.00          |
|           | <b>SUBTOTAL</b>  |      |       |              | <b>\$ 213,154.88</b> |
| <b>7</b>  | <b>CONTINGENCY (10%)</b>                                   |      |       |              | \$ 21,315.49         |
| <b>8</b>  | <b>CONSTRUCTION FEE (2.5%)</b>                             |      |       |              | \$ 5,861.76          |
| <b>9</b>  | <b>DESIGN &amp; ENGINEERING (15%)</b>                      |      |       |              | \$ 36,049.82         |
| <b>10</b> | <b>SHORELAND STABILITY 1,300' OF RIP RAP @ \$50/FT</b>     |      |       |              | \$ 65,000.00         |
|           | <b>TOTAL LOCK COST</b>                                     |      |       |              | <b>\$ 341,381.94</b> |

1994 Abandonment Study included \$1,164,200 for dike restoration and bank slope stabilization.  
Much of that work has been completed. The update includes \$65,000 for bank slope stabilization (RIP RAP).

For River Navigational System Authority  
2015 Abandonment Study  
Fixed Crest Gravity Dam Option  
Appleton Lock No. 2

| Item                   | Description  | Qty  | Units | Cost/Unit    | Cost                 |
|------------------------|--|------|-------|--------------|----------------------|
| <b>1</b>               | <b>GENERAL CONDITIONS</b>                                  |      |       |              |                      |
| 1a                     | Mobilization/Demobilization                                | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00         |
| 1b                     | Project Manager  | 15   | hour  | \$ 75.00     | \$ 1,125.00          |
| 1c                     | Site Superintendent  | 160  | hour  | \$ 90.00     | \$ 14,400.00         |
| 1d                     | Project Coordinator  | 10   | hour  | \$ 65.00     | \$ 650.00            |
| 1e                     | Crane  | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 1f                     | Equipment  | 4    | weeks | \$ 1,200.00  | \$ 4,800.00          |
| 1g                     | Hand Tools and Consumables                                 | 4    | weeks | \$ 500.00    | \$ 2,000.00          |
| <b>2</b>               | <b>SITE WORK AND RESTORATION</b>                           |      |       |              |                      |
| 2a                     | Install and Remove Cofferdam (at Appleton Lock No. 1)      | 0    | lsum  | \$ 10,000.00 | \$ -                 |
| 2b                     | Dewatering   | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 2c                     | Soil Fill and Grading                                      | 100  | cuyd  | \$ 25.00     | \$ 2,500.00          |
| 2d                     | Topsoil  | 50   | cuyd  | \$ 35.00     | \$ 1,750.00          |
| 2e                     | Seed, Mulch and Fertilizer                                 | 400  | sqyd  | \$ 9.00      | \$ 3,600.00          |
| 2f                     | Fencing  | 300  | lnft  | \$ 15.00     | \$ 4,500.00          |
| <b>3</b>               | <b>REMOVALS, DISPOSALS AND DISCONNECTS</b>                 |      |       |              |                      |
| 3a                     | Remove/Dispose Lock Gates                                  | 4    | each  | \$ 3,000.00  | \$ 12,000.00         |
| 3b                     | Remove/Dispose Gears, Valves, Spurs, Tripods, Misc. Metals | 1    | lsum  | \$ 8,000.00  | \$ 8,000.00          |
| 3c                     | Remove/Dispose Framed Buildings                            | 2    | each  | \$ 1,000.00  | \$ 2,000.00          |
| 3d                     | Electrical Disconnect                                      | 1    | lsum  | \$ 1,000.00  | \$ 1,000.00          |
| <b>4</b>               | <b>CONCRETE FILL OF VALVE CHAMBER</b>                      |      |       |              |                      |
| 4a                     | Erect and Strip Forming                                    | 400  | sqft  | \$ 30.00     | \$ 12,000.00         |
| 4b                     | Lean Concrete Fill (2000 psi)                              | 160  | cuyd  | \$ 100.00    | \$ 16,000.00         |
| <b>5</b>               | <b>CONCRETE GRAVITY DAM</b>                                |      |       |              |                      |
| 5a                     | Steel Reinforcement  | 14   | ton   | \$ 1,550.00  | \$ 21,134.25         |
| 5b                     | Water Stop   | 69   | lnft  | \$ 75.00     | \$ 5,175.00          |
| 5c                     | Erect and Strip Forming                                    | 1190 | sqft  | \$ 30.00     | \$ 35,700.00         |
| 5d                     | Cast-in-Place Concrete (4000 psi)                          | 202  | cuyd  | \$ 100.00    | \$ 20,200.00         |
| <b>6</b>               | <b>PRECAST CONCRETE ACCESS BRIDGE</b>                      |      |       |              |                      |
| 6a                     | Precast Deck   | 0    | sqft  | \$ 25.00     | \$ -                 |
| 6b                     | Railing  | 0    | lnft  | \$ 35.00     | \$ -                 |
| <b>SUBTOTAL</b>        |  |      |       |              | <b>\$ 198,534.25</b> |
| <b>7</b>               | <b>CONTINGENCY (10%)</b>                                   |      |       |              | <b>\$ 19,853.43</b>  |
| <b>8</b>               | <b>CONSTRUCTION FEE (2.5%)</b>                             |      |       |              | <b>\$ 5,459.69</b>   |
| <b>9</b>               | <b>DESIGN &amp; ENGINEERING (15%)</b>                      |      |       |              | <b>\$ 33,577.11</b>  |
| <b>TOTAL LOCK COST</b> |  |      |       |              | <b>\$ 257,424.47</b> |

For River Navigational System Authority  
2015 Abandonment Study  
Fixed Crest Gravity Dam Option  
Appleton Lock No. 3

| Item                   | Description  | Qty  | Units | Cost/Unit    | Cost                 |
|------------------------|--|------|-------|--------------|----------------------|
| <b>1</b>               | <b>GENERAL CONDITIONS</b>                                  |      |       |              |                      |
| 1a                     | Mobilization/Demobilization                                | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00         |
| 1b                     | Project Manager  | 15   | hour  | \$ 75.00     | \$ 1,125.00          |
| 1c                     | Site Superintendent  | 160  | hour  | \$ 90.00     | \$ 14,400.00         |
| 1d                     | Project Coordinator  | 10   | hour  | \$ 65.00     | \$ 650.00            |
| 1e                     | Crane  | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 1f                     | Equipment  | 4    | weeks | \$ 1,200.00  | \$ 4,800.00          |
| 1g                     | Hand Tools and Consumables                                 | 4    | weeks | \$ 500.00    | \$ 2,000.00          |
| <b>2</b>               | <b>SITE WORK AND RESTORATION</b>                           |      |       |              |                      |
| 2a                     | Install and Remove Cofferdam (at Appleton Lock No. 1)      | 0    | lsum  | \$ 10,000.00 | \$ -                 |
| 2b                     | Dewatering   | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 2c                     | Soil Fill and Grading                                      | 100  | cuyd  | \$ 25.00     | \$ 2,500.00          |
| 2d                     | Topsoil  | 50   | cuyd  | \$ 35.00     | \$ 1,750.00          |
| 2e                     | Seed, Mulch and Fertilizer                                 | 400  | sqyd  | \$ 9.00      | \$ 3,600.00          |
| 2f                     | Fencing  | 300  | lnft  | \$ 15.00     | \$ 4,500.00          |
| <b>3</b>               | <b>REMOVALS, DISPOSALS AND DISCONNECTS</b>                 |      |       |              |                      |
| 3a                     | Remove/Dispose Lock Gates                                  | 4    | each  | \$ 3,000.00  | \$ 12,000.00         |
| 3b                     | Remove/Dispose Gears, Valves, Spurs, Tripods, Misc. Metals | 1    | lsum  | \$ 8,000.00  | \$ 8,000.00          |
| 3c                     | Remove/Dispose Framed Buildings                            | 2    | each  | \$ 1,000.00  | \$ 2,000.00          |
| 3d                     | Electrical Disconnect                                      | 1    | lsum  | \$ 1,000.00  | \$ 1,000.00          |
| <b>4</b>               | <b>CONCRETE FILL OF VALVE CHAMBER</b>                      |      |       |              |                      |
| 4a                     | Erect and Strip Forming                                    | 400  | sqft  | \$ 30.00     | \$ 12,000.00         |
| 4b                     | Lean Concrete Fill (2000 psi)                              | 160  | cuyd  | \$ 100.00    | \$ 16,000.00         |
| <b>5</b>               | <b>CONCRETE GRAVITY DAM</b>                                |      |       |              |                      |
| 5a                     | Steel Reinforcement  | 14   | ton   | \$ 1,550.00  | \$ 20,925.00         |
| 5b                     | Water Stop   | 71   | lnft  | \$ 75.00     | \$ 5,325.00          |
| 5c                     | Erect and Strip Forming                                    | 1260 | sqft  | \$ 30.00     | \$ 37,800.00         |
| 5d                     | Cast-in-Place Concrete (4000 psi)                          | 200  | cuyd  | \$ 100.00    | \$ 20,000.00         |
| <b>6</b>               | <b>PRECAST CONCRETE ACCESS BRIDGE</b>                      |      |       |              |                      |
| 6a                     | Precast Deck   | 320  | sqft  | \$ 25.00     | \$ 8,000.00          |
| 6b                     | Railing  | 84   | lnft  | \$ 35.00     | \$ 2,940.00          |
| <b>SUBTOTAL</b>        |  |      |       |              | <b>\$ 211,315.00</b> |
| <b>7</b>               | <b>CONTINGENCY (10%)</b>                                   |      |       |              | \$ 21,131.50         |
| <b>8</b>               | <b>CONSTRUCTION FEE (2.5%)</b>                             |      |       |              | \$ 5,811.16          |
| <b>9</b>               | <b>DESIGN &amp; ENGINEERING (15%)</b>                      |      |       |              | \$ 35,738.65         |
| <b>TOTAL LOCK COST</b> |  |      |       |              | <b>\$ 273,996.31</b> |

For River Navigational System Authority  
2015 Abandonment Study  
Fixed Crest Gravity Dam Option  
Appleton Lock No. 4

| Item                   | Description  | Qty  | Units | Cost/Unit    | Cost                 |
|------------------------|--|------|-------|--------------|----------------------|
| <b>1</b>               | <b>GENERAL CONDITIONS</b>                                  |      |       |              |                      |
| 1a                     | Mobilization/Demobilization                                | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00         |
| 1b                     | Project Manager  | 15   | hour  | \$ 75.00     | \$ 1,125.00          |
| 1c                     | Site Superintendent  | 160  | hour  | \$ 90.00     | \$ 14,400.00         |
| 1d                     | Project Coordinator  | 10   | hour  | \$ 65.00     | \$ 650.00            |
| 1e                     | Crane  | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 1f                     | Equipment  | 4    | weeks | \$ 1,200.00  | \$ 4,800.00          |
| 1g                     | Hand Tools and Consumables                                 | 4    | weeks | \$ 500.00    | \$ 2,000.00          |
| <b>2</b>               | <b>SITE WORK AND RESTORATION</b>                           |      |       |              |                      |
| 2a                     | Install and Remove Cofferdam                               | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00         |
| 2b                     | Dewatering   | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 2c                     | Soil Fill and Grading                                      | 100  | cuyd  | \$ 25.00     | \$ 2,500.00          |
| 2d                     | Topsoil  | 50   | cuyd  | \$ 35.00     | \$ 1,750.00          |
| 2e                     | Seed, Mulch and Fertilizer                                 | 400  | sqyd  | \$ 9.00      | \$ 3,600.00          |
| 2f                     | Fencing  | 300  | lnft  | \$ 15.00     | \$ 4,500.00          |
| <b>3</b>               | <b>REMOVALS, DISPOSALS AND DISCONNECTS</b>                 |      |       |              |                      |
| 3a                     | Remove/Dispose Lock Gates                                  | 4    | each  | \$ 3,000.00  | \$ 12,000.00         |
| 3b                     | Remove/Dispose Gears, Valves, Spurs, Tripods, Misc. Metals | 1    | lsum  | \$ 8,000.00  | \$ 8,000.00          |
| 3c                     | Remove/Dispose Framed Buildings                            | 2    | each  | \$ 1,000.00  | \$ 2,000.00          |
| 3d                     | Electrical Disconnect                                      | 1    | lsum  | \$ 1,000.00  | \$ 1,000.00          |
| <b>4</b>               | <b>CONCRETE FILL OF VALVE CHAMBER</b>                      |      |       |              |                      |
| 4a                     | Erect and Strip Forming                                    | 400  | sqft  | \$ 30.00     | \$ 12,000.00         |
| 4b                     | Lean Concrete Fill (2000 psi)                              | 160  | cuyd  | \$ 100.00    | \$ 16,000.00         |
| <b>5</b>               | <b>CONCRETE GRAVITY DAM</b>                                |      |       |              |                      |
| 5a                     | Steel Reinforcement  | 10   | ton   | \$ 1,550.00  | \$ 15,903.00         |
| 5b                     | Water Stop   | 65   | lnft  | \$ 75.00     | \$ 4,875.00          |
| 5c                     | Erect and Strip Forming                                    | 1050 | sqft  | \$ 30.00     | \$ 31,500.00         |
| 5d                     | Cast-in-Place Concrete (4000 psi)                          | 152  | cuyd  | \$ 100.00    | \$ 15,200.00         |
| <b>6</b>               | <b>PRECAST CONCRETE ACCESS BRIDGE</b>                      |      |       |              |                      |
| 6a                     | Precast Deck   | 320  | sqft  | \$ 25.00     | \$ 8,000.00          |
| 6b                     | Railing  | 84   | lnft  | \$ 35.00     | \$ 2,940.00          |
| <b>SUBTOTAL</b>        |  |      |       |              | <b>\$ 204,743.00</b> |
| <b>7</b>               | <b>CONTINGENCY (10%)</b>                                   |      |       |              | \$ 20,474.30         |
| <b>8</b>               | <b>CONSTRUCTION FEE (2.5%)</b>                             |      |       |              | \$ 5,630.43          |
| <b>9</b>               | <b>DESIGN &amp; ENGINEERING (15%)</b>                      |      |       |              | \$ 34,627.16         |
| <b>TOTAL LOCK COST</b> |  |      |       |              | <b>\$ 265,474.89</b> |

1994 Abandonment Study included \$18,750 for dike restoration and bank slope stabilization.  
Much of that work has been completed.

For River Navigational System Authority  
 2015 Abandonment Study  
 Fixed Crest Gravity Dam Option  
 Cedars Lock

| Item                   | Description  | Qty  | Units | Cost/Unit    | Cost                 |
|------------------------|--|------|-------|--------------|----------------------|
| <b>1</b>               | <b>GENERAL CONDITIONS</b>                                  |      |       |              |                      |
| 1a                     | Mobilization/Demobilization                                | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00         |
| 1b                     | Project Manager  | 15   | hour  | \$ 75.00     | \$ 1,125.00          |
| 1c                     | Site Superintendent  | 160  | hour  | \$ 90.00     | \$ 14,400.00         |
| 1d                     | Project Coordinator  | 10   | hour  | \$ 65.00     | \$ 650.00            |
| 1e                     | Crane  | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 1f                     | Equipment  | 4    | weeks | \$ 1,200.00  | \$ 4,800.00          |
| 1g                     | Hand Tools and Consumables                                 | 4    | weeks | \$ 500.00    | \$ 2,000.00          |
| <b>2</b>               | <b>SITE WORK AND RESTORATION</b>                           |      |       |              |                      |
| 2a                     | Install and Remove Cofferdam                               | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00         |
| 2b                     | Dewatering   | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 2c                     | Soil Fill and Grading                                      | 100  | cuyd  | \$ 25.00     | \$ 2,500.00          |
| 2d                     | Topsoil  | 50   | cuyd  | \$ 35.00     | \$ 1,750.00          |
| 2e                     | Seed, Mulch and Fertilizer                                 | 400  | sqyd  | \$ 9.00      | \$ 3,600.00          |
| 2f                     | Fencing  | 300  | lnft  | \$ 15.00     | \$ 4,500.00          |
| <b>3</b>               | <b>REMOVALS, DISPOSALS AND DISCONNECTS</b>                 |      |       |              |                      |
| 3a                     | Remove/Dispose Lock Gates                                  | 4    | each  | \$ 3,000.00  | \$ 12,000.00         |
| 3b                     | Remove/Dispose Gears, Valves, Spurs, Tripods, Misc. Metals | 1    | lsum  | \$ 8,000.00  | \$ 8,000.00          |
| 3c                     | Remove/Dispose Framed Buildings                            | 1    | each  | \$ 1,000.00  | \$ 1,000.00          |
| 3d                     | Electrical Disconnect                                      | 1    | lsum  | \$ 1,000.00  | \$ 1,000.00          |
| <b>4</b>               | <b>CONCRETE FILL OF VALVE CHAMBER</b>                      |      |       |              |                      |
| 4a                     | Erect and Strip Forming                                    | 400  | sqft  | \$ 30.00     | \$ 12,000.00         |
| 4b                     | Lean Concrete Fill (2000 psi)                              | 160  | cuyd  | \$ 100.00    | \$ 16,000.00         |
| <b>5</b>               | <b>CONCRETE GRAVITY DAM</b>                                |      |       |              |                      |
| 5a                     | Steel Reinforcement  | 13   | ton   | \$ 1,550.00  | \$ 19,564.88         |
| 5b                     | Water Stop   | 67   | lnft  | \$ 75.00     | \$ 5,025.00          |
| 5c                     | Erect and Strip Forming                                    | 1120 | sqft  | \$ 30.00     | \$ 33,600.00         |
| 5d                     | Cast-in-Place Concrete (4000 psi)                          | 187  | cuyd  | \$ 100.00    | \$ 18,700.00         |
| <b>6</b>               | <b>PRECAST CONCRETE ACCESS BRIDGE</b>                      |      |       |              |                      |
| 6a                     | Precast Deck   | 320  | sqft  | \$ 25.00     | \$ 8,000.00          |
| 6b                     | Railing  | 84   | lnft  | \$ 35.00     | \$ 2,940.00          |
| <b>SUBTOTAL</b>        |  |      |       |              | <b>\$ 213,154.88</b> |
| <b>7</b>               | <b>CONTINGENCY (10%)</b>                                   |      |       |              | \$ 21,315.49         |
| <b>8</b>               | <b>CONSTRUCTION FEE (2.5%)</b>                             |      |       |              | \$ 5,861.76          |
| <b>9</b>               | <b>DESIGN &amp; ENGINEERING (15%)</b>                      |      |       |              | \$ 36,049.82         |
| <b>TOTAL LOCK COST</b> |  |      |       |              | <b>\$ 276,381.94</b> |

1994 Abandonment Study included \$174,170 for dike restoration and bank slope stabilization. Much of that work has been completed.



For River Navigational System Authority  
2015 Abandonment Study  
Fixed Crest Gravity Dam Option  
Little Chute Lock No. 2

| Item                   | Description  | Qty  | Units | Cost/Unit    | Cost                 |
|------------------------|--|------|-------|--------------|----------------------|
| <b>1</b>               | <b>GENERAL CONDITIONS</b>                                  |      |       |              |                      |
| 1a                     | Mobilization/Demobilization                                | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00         |
| 1b                     | Project Manager  | 15   | hour  | \$ 75.00     | \$ 1,125.00          |
| 1c                     | Site Superintendent  | 160  | hour  | \$ 90.00     | \$ 14,400.00         |
| 1d                     | Project Coordinator  | 10   | hour  | \$ 65.00     | \$ 650.00            |
| 1e                     | Crane  | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 1f                     | Equipment  | 4    | weeks | \$ 1,200.00  | \$ 4,800.00          |
| 1g                     | Hand Tools and Consumables                                 | 4    | weeks | \$ 500.00    | \$ 2,000.00          |
| <b>2</b>               | <b>SITE WORK AND RESTORATION</b>                           |      |       |              |                      |
| 2a                     | Install and Remove Cofferdam                               | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00         |
| 2b                     | Dewatering   | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 2c                     | Soil Fill and Grading                                      | 100  | cuyd  | \$ 25.00     | \$ 2,500.00          |
| 2d                     | Topsoil  | 50   | cuyd  | \$ 35.00     | \$ 1,750.00          |
| 2e                     | Seed, Mulch and Fertilizer                                 | 400  | sqyd  | \$ 9.00      | \$ 3,600.00          |
| 2f                     | Fencing  | 300  | lnft  | \$ 15.00     | \$ 4,500.00          |
| <b>3</b>               | <b>REMOVALS, DISPOSALS AND DISCONNECTS</b>                 |      |       |              |                      |
| 3a                     | Remove/Dispose Lock Gates                                  | 4    | each  | \$ 3,000.00  | \$ 12,000.00         |
| 3b                     | Remove/Dispose Gears, Valves, Spurs, Tripods, Misc. Metals | 1    | lsum  | \$ 8,000.00  | \$ 8,000.00          |
| 3c                     | Remove/Dispose Framed Buildings                            | 1    | each  | \$ 1,000.00  | \$ 1,000.00          |
| 3d                     | Electrical Disconnect                                      | 1    | lsum  | \$ 1,000.00  | \$ 1,000.00          |
| <b>4</b>               | <b>CONCRETE FILL OF VALVE CHAMBER</b>                      |      |       |              |                      |
| 4a                     | Erect and Strip Forming                                    | 400  | sqft  | \$ 30.00     | \$ 12,000.00         |
| 4b                     | Lean Concrete Fill (2000 psi)                              | 160  | cuyd  | \$ 100.00    | \$ 16,000.00         |
| <b>5</b>               | <b>CONCRETE GRAVITY DAM</b>                                |      |       |              |                      |
| 5a                     | Steel Reinforcement  | 17   | ton   | \$ 1,550.00  | \$ 25,633.13         |
| 5b                     | Water Stop   | 73   | lnft  | \$ 75.00     | \$ 5,475.00          |
| 5c                     | Erect and Strip Forming                                    | 1330 | sqft  | \$ 30.00     | \$ 39,900.00         |
| 5d                     | Cast-in-Place Concrete (4000 psi)                          | 245  | cuyd  | \$ 100.00    | \$ 24,500.00         |
| <b>6</b>               | <b>PRECAST CONCRETE ACCESS BRIDGE</b>                      |      |       |              |                      |
| 6a                     | Precast Deck   | 0    | sqft  | \$ 25.00     | \$ -                 |
| 6b                     | Railing  | 0    | lnft  | \$ 35.00     | \$ -                 |
| <b>SUBTOTAL</b>        |  |      |       |              | <b>\$ 220,833.13</b> |
| <b>7</b>               | <b>CONTINGENCY (10%)</b>                                   |      |       |              | <b>\$ 22,083.31</b>  |
| <b>8</b>               | <b>CONSTRUCTION FEE (2.5%)</b>                             |      |       |              | <b>\$ 6,072.91</b>   |
| <b>9</b>               | <b>DESIGN &amp; ENGINEERING (15%)</b>                      |      |       |              | <b>\$ 37,348.40</b>  |
| <b>10</b>              | <b>SHORELAND STABILITY 3,300' OF RIP RAP @ \$50/FT</b>     |      |       |              | <b>\$ 165,000.00</b> |
| <b>TOTAL LOCK COST</b> |  |      |       |              | <b>\$ 451,337.75</b> |

1994 Abandonment Study included \$1,008,750 for dike restoration and bank slope stabilization.  
Much of that work has been completed. The update includes \$165,000 for bank slope stabilization (RIP RAP).

**For River Navigational System Authority  
2015 Abandonment Study  
Fixed Crest Gravity Dam Option  
Combined Locks**

| Item                   | Description  | Qty  | Units | Cost/Unit    | Cost                 |
|------------------------|--|------|-------|--------------|----------------------|
| <b>1</b>               | <b>GENERAL CONDITIONS</b>                                  |      |       |              |                      |
| 1a                     | Mobilization/Demobilization                                | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00         |
| 1b                     | Project Manager  | 15   | hour  | \$ 75.00     | \$ 1,125.00          |
| 1c                     | Site Superintendent  | 160  | hour  | \$ 90.00     | \$ 14,400.00         |
| 1d                     | Project Coordinator  | 10   | hour  | \$ 65.00     | \$ 650.00            |
| 1e                     | Crane  | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 1f                     | Equipment  | 4    | weeks | \$ 1,200.00  | \$ 4,800.00          |
| 1g                     | Hand Tools and Consumables                                 | 4    | weeks | \$ 500.00    | \$ 2,000.00          |
| <b>2</b>               | <b>SITE WORK AND RESTORATION</b>                           |      |       |              |                      |
| 2a                     | Install and Remove Cofferdam (at Little Chute No. 2)       | 0    | lsum  | \$ 10,000.00 | \$ -                 |
| 2b                     | Dewatering   | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 2c                     | Soil Fill and Grading                                      | 100  | cuyd  | \$ 25.00     | \$ 2,500.00          |
| 2d                     | Topsoil  | 50   | cuyd  | \$ 35.00     | \$ 1,750.00          |
| 2e                     | Seed, Mulch and Fertilizer                                 | 400  | sqyd  | \$ 9.00      | \$ 3,600.00          |
| 2f                     | Fencing  | 300  | lnft  | \$ 15.00     | \$ 4,500.00          |
| <b>3</b>               | <b>REMOVALS, DISPOSALS AND DISCONNECTS</b>                 |      |       |              |                      |
| 3a                     | Remove/Dispose Lock Gates                                  | 6    | each  | \$ 3,000.00  | \$ 18,000.00         |
| 3b                     | Remove/Dispose Gears, Valves, Spurs, Tripods, Misc. Metals | 1    | lsum  | \$ 8,000.00  | \$ 8,000.00          |
| 3c                     | Remove/Dispose Framed Buildings                            | 1    | each  | \$ 1,000.00  | \$ 1,000.00          |
| 3d                     | Electrical Disconnect                                      | 1    | lsum  | \$ 1,000.00  | \$ 1,000.00          |
| <b>4</b>               | <b>CONCRETE FILL OF VALVE CHAMBER</b>                      |      |       |              |                      |
| 4a                     | Erect and Strip Forming                                    | 400  | sqft  | \$ 30.00     | \$ 12,000.00         |
| 4b                     | Lean Concrete Fill (2000 psi)                              | 160  | cuyd  | \$ 100.00    | \$ 16,000.00         |
| <b>5</b>               | <b>CONCRETE GRAVITY DAM</b>                                |      |       |              |                      |
| 5a                     | Steel Reinforcement  | 13   | ton   | \$ 1,550.00  | \$ 19,878.75         |
| 5b                     | Water Stop   | 74   | lnft  | \$ 75.00     | \$ 5,550.00          |
| 5c                     | Erect and Strip Forming                                    | 1368 | sqft  | \$ 30.00     | \$ 41,040.00         |
| 5d                     | Cast-in-Place Concrete (4000 psi)                          | 190  | cuyd  | \$ 100.00    | \$ 19,000.00         |
| <b>6</b>               | <b>PRECAST CONCRETE ACCESS BRIDGE</b>                      |      |       |              |                      |
| 6a                     | Precast Deck   | 0    | sqft  | \$ 25.00     | \$ -                 |
| 6b                     | Railing  | 0    | lnft  | \$ 35.00     | \$ -                 |
| <b>SUBTOTAL</b>        |  |      |       |              | <b>\$ 206,793.75</b> |
| <b>7</b>               | <b>CONTINGENCY (10%)</b>                                   |      |       |              | <b>\$ 20,679.38</b>  |
| <b>8</b>               | <b>CONSTRUCTION FEE (2.5%)</b>                             |      |       |              | <b>\$ 5,686.83</b>   |
| <b>9</b>               | <b>DESIGN &amp; ENGINEERING (15%)</b>                      |      |       |              | <b>\$ 34,973.99</b>  |
| <b>TOTAL LOCK COST</b> |  |      |       |              | <b>\$ 268,133.95</b> |

1994 Abandonment Study included \$42,000 for dike restoration and bank slope stabilization. Much of that work has been completed.

For River Navigational System Authority  
2015 Abandonment Study  
Fixed Crest Gravity Dam Option  
Kaukauna Lock No. 1

| Item                   | Description  | Qty  | Units | Cost/Unit    | Cost              |
|------------------------|--|------|-------|--------------|-------------------|
| <b>1</b>               | <b>GENERAL CONDITIONS</b>                                  |      |       |              |                   |
| 1a                     | Mobilization/Demobilization                                | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00      |
| 1b                     | Project Manager  | 15   | hour  | \$ 75.00     | \$ 1,125.00       |
| 1c                     | Site Superintendent  | 160  | hour  | \$ 90.00     | \$ 14,400.00      |
| 1d                     | Project Coordinator  | 10   | hour  | \$ 65.00     | \$ 650.00         |
| 1e                     | Crane  | 4    | weeks | \$ 2,500.00  | \$ 10,000.00      |
| 1f                     | Equipment  | 4    | weeks | \$ 1,200.00  | \$ 4,800.00       |
| 1g                     | Hand Tools and Consumables                                 | 4    | weeks | \$ 500.00    | \$ 2,000.00       |
| <b>2</b>               | <b>SITE WORK AND RESTORATION</b>                           |      |       |              |                   |
| 2a                     | Install and Remove Cofferdam (at Kaukauna Guard)           | 0    | lsum  | \$ 10,000.00 | \$ -              |
| 2b                     | Dewatering   | 4    | weeks | \$ 2,500.00  | \$ 10,000.00      |
| 2c                     | Soil Fill and Grading                                      | 100  | cuyd  | \$ 25.00     | \$ 2,500.00       |
| 2d                     | Topsoil  | 50   | cuyd  | \$ 35.00     | \$ 1,750.00       |
| 2e                     | Seed, Mulch and Fertilizer                                 | 400  | sqyd  | \$ 9.00      | \$ 3,600.00       |
| 2f                     | Fencing  | 300  | lnft  | \$ 15.00     | \$ 4,500.00       |
| <b>3</b>               | <b>REMOVALS, DISPOSALS AND DISCONNECTS</b>                 |      |       |              |                   |
| 3a                     | Remove/Dispose Lock Gates                                  | 4    | each  | \$ 3,000.00  | \$ 12,000.00      |
| 3b                     | Remove/Dispose Gears, Valves, Spurs, Tripods, Misc. Metals | 1    | lsum  | \$ 8,000.00  | \$ 8,000.00       |
| 3c                     | Remove/Dispose Framed Buildings                            | 1    | each  | \$ 1,000.00  | \$ 1,000.00       |
| 3d                     | Electrical Disconnect                                      | 1    | lsum  | \$ 1,000.00  | \$ 1,000.00       |
| <b>4</b>               | <b>CONCRETE FILL OF VALVE CHAMBER</b>                      |      |       |              |                   |
| 4a                     | Erect and Strip Forming                                    | 400  | sqft  | \$ 30.00     | \$ 12,000.00      |
| 4b                     | Lean Concrete Fill (2000 psi)                              | 160  | cuyd  | \$ 100.00    | \$ 16,000.00      |
| <b>5</b>               | <b>CONCRETE GRAVITY DAM</b>                                |      |       |              |                   |
| 5a                     | Steel Reinforcement  | 12   | ton   | \$ 1,550.00  | \$ 18,623.25      |
| 5b                     | Water Stop   | 67   | lnft  | \$ 75.00     | \$ 5,025.00       |
| 5c                     | Erect and Strip Forming                                    | 1120 | sqft  | \$ 30.00     | \$ 33,600.00      |
| 5d                     | Cast-in-Place Concrete (4000 psi)                          | 178  | cuyd  | \$ 100.00    | \$ 17,800.00      |
| <b>6</b>               | <b>PRECAST CONCRETE ACCESS BRIDGE</b>                      |      |       |              |                   |
| 6a                     | Precast Deck   | 0    | sqft  | \$ 25.00     | \$ -              |
| 6b                     | Railing  | 0    | lnft  | \$ 35.00     | \$ -              |
| <b>SUBTOTAL</b>        |  |      |       | <b>\$</b>    | <b>190,373.25</b> |
| <b>7</b>               | <b>CONTINGENCY (10%)</b>                                   |      |       | \$           | 19,037.33         |
| <b>8</b>               | <b>CONSTRUCTION FEE (2.5%)</b>                             |      |       | \$           | 5,235.26          |
| <b>9</b>               | <b>DESIGN &amp; ENGINEERING (15%)</b>                      |      |       | \$           | 32,196.88         |
| <b>TOTAL LOCK COST</b> |  |      |       | <b>\$</b>    | <b>246,842.72</b> |

1994 Abandonment Study included \$67,200 for dike restoration and bank slope stabilization.  
Much of that work has been completed.

For River Navigational System Authority  
2015 Abandonment Study  
Fixed Crest Gravity Dam Option  
Kaukauna Lock No. 2

| Item                   | Description  | Qty  | Units | Cost/Unit    | Cost              |
|------------------------|--|------|-------|--------------|-------------------|
| <b>1</b>               | <b>GENERAL CONDITIONS</b>                                  |      |       |              |                   |
| 1a                     | Mobilization/Demobilization                                | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00      |
| 1b                     | Project Manager  | 15   | hour  | \$ 75.00     | \$ 1,125.00       |
| 1c                     | Site Superintendent  | 160  | hour  | \$ 90.00     | \$ 14,400.00      |
| 1d                     | Project Coordinator  | 10   | hour  | \$ 65.00     | \$ 650.00         |
| 1e                     | Crane  | 4    | weeks | \$ 2,500.00  | \$ 10,000.00      |
| 1f                     | Equipment  | 4    | weeks | \$ 1,200.00  | \$ 4,800.00       |
| 1g                     | Hand Tools and Consumables                                 | 4    | weeks | \$ 500.00    | \$ 2,000.00       |
| <b>2</b>               | <b>SITE WORK AND RESTORATION</b>                           |      |       |              |                   |
| 2a                     | Install and Remove Cofferdam (at Kaukauna Guard)           | 0    | lsum  | \$ 10,000.00 | \$ -              |
| 2b                     | Dewatering   | 4    | weeks | \$ 2,500.00  | \$ 10,000.00      |
| 2c                     | Soil Fill and Grading                                      | 100  | cuyd  | \$ 25.00     | \$ 2,500.00       |
| 2d                     | Topsoil  | 50   | cuyd  | \$ 35.00     | \$ 1,750.00       |
| 2e                     | Seed, Mulch and Fertilizer                                 | 400  | sqyd  | \$ 9.00      | \$ 3,600.00       |
| 2f                     | Fencing  | 300  | lnft  | \$ 15.00     | \$ 4,500.00       |
| <b>3</b>               | <b>REMOVALS, DISPOSALS AND DISCONNECTS</b>                 |      |       |              |                   |
| 3a                     | Remove/Dispose Lock Gates                                  | 4    | each  | \$ 3,000.00  | \$ 12,000.00      |
| 3b                     | Remove/Dispose Gears, Valves, Spurs, Tripods, Misc. Metals | 1    | lsum  | \$ 8,000.00  | \$ 8,000.00       |
| 3c                     | Remove/Dispose Framed Buildings                            | 0    | each  | \$ 1,000.00  | \$ -              |
| 3d                     | Electrical Disconnect                                      | 1    | lsum  | \$ 1,000.00  | \$ 1,000.00       |
| <b>4</b>               | <b>CONCRETE FILL OF VALVE CHAMBER</b>                      |      |       |              |                   |
| 4a                     | Erect and Strip Forming                                    | 400  | sqft  | \$ 30.00     | \$ 12,000.00      |
| 4b                     | Lean Concrete Fill (2000 psi)                              | 160  | cuyd  | \$ 100.00    | \$ 16,000.00      |
| <b>5</b>               | <b>CONCRETE GRAVITY DAM</b>                                |      |       |              |                   |
| 5a                     | Steel Reinforcement  | 12   | ton   | \$ 1,550.00  | \$ 17,890.88      |
| 5b                     | Water Stop   | 67   | lnft  | \$ 75.00     | \$ 5,025.00       |
| 5c                     | Erect and Strip Forming                                    | 1120 | sqft  | \$ 30.00     | \$ 33,600.00      |
| 5d                     | Cast-in-Place Concrete (4000 psi)                          | 171  | cuyd  | \$ 100.00    | \$ 17,100.00      |
| <b>6</b>               | <b>PRECAST CONCRETE ACCESS BRIDGE</b>                      |      |       |              |                   |
| 6a                     | Precast Deck   | 0    | sqft  | \$ 25.00     | \$ -              |
| 6b                     | Railing  | 0    | lnft  | \$ 35.00     | \$ -              |
| <b>SUBTOTAL</b>        |  |      |       | <b>\$</b>    | <b>187,940.88</b> |
| <b>7</b>               | <b>CONTINGENCY (10%)</b>                                   |      |       | \$           | 18,794.09         |
| <b>8</b>               | <b>CONSTRUCTION FEE (2.5%)</b>                             |      |       | \$           | 5,168.37          |
| <b>9</b>               | <b>DESIGN &amp; ENGINEERING (15%)</b>                      |      |       | \$           | 31,785.50         |
| <b>TOTAL LOCK COST</b> |  |      |       | <b>\$</b>    | <b>243,688.84</b> |

1994 Abandonment Study included \$5,600 for dike restoration and bank slope stabilization.  
Much of that work has been completed.

For River Navigational System Authority  
 2015 Abandonment Study  
 Fixed Crest Gravity Dam Option  
 Kaukauna Lock No. 3

| Item                   | Description  | Qty  | Units | Cost/Unit    | Cost                 |
|------------------------|--|------|-------|--------------|----------------------|
| <b>1</b>               | <b>GENERAL CONDITIONS</b>                                  |      |       |              |                      |
| 1a                     | Mobilization/Demobilization                                | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00         |
| 1b                     | Project Manager  | 15   | hour  | \$ 75.00     | \$ 1,125.00          |
| 1c                     | Site Superintendent  | 160  | hour  | \$ 90.00     | \$ 14,400.00         |
| 1d                     | Project Coordinator  | 10   | hour  | \$ 65.00     | \$ 650.00            |
| 1e                     | Crane  | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 1f                     | Equipment  | 4    | weeks | \$ 1,200.00  | \$ 4,800.00          |
| 1g                     | Hand Tools and Consumables                                 | 4    | weeks | \$ 500.00    | \$ 2,000.00          |
| <b>2</b>               | <b>SITE WORK AND RESTORATION</b>                           |      |       |              |                      |
| 2a                     | Install and Remove Cofferdam (at Kaukauna Guard)           | 0    | lsum  | \$ 10,000.00 | \$ -                 |
| 2b                     | Dewatering   | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 2c                     | Soil Fill and Grading                                      | 100  | cuyd  | \$ 25.00     | \$ 2,500.00          |
| 2d                     | Topsoil  | 50   | cuyd  | \$ 35.00     | \$ 1,750.00          |
| 2e                     | Seed, Mulch and Fertilizer                                 | 400  | sqyd  | \$ 9.00      | \$ 3,600.00          |
| 2f                     | Fencing  | 300  | lnft  | \$ 15.00     | \$ 4,500.00          |
| <b>3</b>               | <b>REMOVALS, DISPOSALS AND DISCONNECTS</b>                 |      |       |              |                      |
| 3a                     | Remove/Dispose Lock Gates                                  | 4    | each  | \$ 3,000.00  | \$ 12,000.00         |
| 3b                     | Remove/Dispose Gears, Valves, Spurs, Tripods, Misc. Metals | 1    | lsum  | \$ 8,000.00  | \$ 8,000.00          |
| 3c                     | Remove/Dispose Framed Buildings                            | 2    | each  | \$ 1,000.00  | \$ 2,000.00          |
| 3d                     | Electrical Disconnect                                      | 1    | lsum  | \$ 1,000.00  | \$ 1,000.00          |
| <b>4</b>               | <b>CONCRETE FILL OF VALVE CHAMBER</b>                      |      |       |              |                      |
| 4a                     | Erect and Strip Forming                                    | 400  | sqft  | \$ 30.00     | \$ 12,000.00         |
| 4b                     | Lean Concrete Fill (2000 psi)                              | 160  | cuyd  | \$ 100.00    | \$ 16,000.00         |
| <b>5</b>               | <b>CONCRETE GRAVITY DAM</b>                                |      |       |              |                      |
| 5a                     | Steel Reinforcement  | 13   | ton   | \$ 1,550.00  | \$ 20,088.00         |
| 5b                     | Water Stop   | 69   | lnft  | \$ 75.00     | \$ 5,175.00          |
| 5c                     | Erect and Strip Forming                                    | 1136 | sqft  | \$ 30.00     | \$ 34,080.00         |
| 5d                     | Cast-in-Place Concrete (4000 psi)                          | 192  | cuyd  | \$ 100.00    | \$ 19,200.00         |
| <b>6</b>               | <b>PRECAST CONCRETE ACCESS BRIDGE</b>                      |      |       |              |                      |
| 6a                     | Precast Deck   | 0    | sqft  | \$ 25.00     | \$ -                 |
| 6b                     | Railing  | 0    | lnft  | \$ 35.00     | \$ -                 |
| <b>SUBTOTAL</b>        |  |      |       |              | <b>\$ 194,868.00</b> |
| <b>7</b>               | <b>CONTINGENCY (10%)</b>                                   |      |       |              | \$ 19,486.80         |
| <b>8</b>               | <b>CONSTRUCTION FEE (2.5%)</b>                             |      |       |              | \$ 5,358.87          |
| <b>9</b>               | <b>DESIGN &amp; ENGINEERING (15%)</b>                      |      |       |              | \$ 32,957.05         |
| <b>TOTAL LOCK COST</b> |  |      |       |              | <b>\$ 252,670.72</b> |

1994 Abandonment Study included \$22,400 for dike restoration and bank slope stabilization. Much of that work has been completed.

For River Navigational System Authority  
2015 Abandonment Study  
Fixed Crest Gravity Dam Option  
Kaukauna Lock No. 4

| Item                   | Description  | Qty  | Units | Cost/Unit    | Cost                 |
|------------------------|--|------|-------|--------------|----------------------|
| <b>1</b>               | <b>GENERAL CONDITIONS</b>                                  |      |       |              |                      |
| 1a                     | Mobilization/Demobilization                                | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00         |
| 1b                     | Project Manager  | 15   | hour  | \$ 75.00     | \$ 1,125.00          |
| 1c                     | Site Superintendent  | 160  | hour  | \$ 90.00     | \$ 14,400.00         |
| 1d                     | Project Coordinator  | 10   | hour  | \$ 65.00     | \$ 650.00            |
| 1e                     | Crane  | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 1f                     | Equipment  | 4    | weeks | \$ 1,200.00  | \$ 4,800.00          |
| 1g                     | Hand Tools and Consumables                                 | 4    | weeks | \$ 500.00    | \$ 2,000.00          |
| <b>2</b>               | <b>SITE WORK AND RESTORATION</b>                           |      |       |              |                      |
| 2a                     | Install and Remove Cofferdam (at Kaukauna Guard)           | 0    | lsum  | \$ 10,000.00 | \$ -                 |
| 2b                     | Dewatering   | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 2c                     | Soil Fill and Grading                                      | 100  | cuyd  | \$ 25.00     | \$ 2,500.00          |
| 2d                     | Topsoil  | 50   | cuyd  | \$ 35.00     | \$ 1,750.00          |
| 2e                     | Seed, Mulch and Fertilizer                                 | 400  | sqyd  | \$ 9.00      | \$ 3,600.00          |
| 2f                     | Fencing  | 300  | lnft  | \$ 15.00     | \$ 4,500.00          |
| <b>3</b>               | <b>REMOVALS, DISPOSALS AND DISCONNECTS</b>                 |      |       |              |                      |
| 3a                     | Remove/Dispose Lock Gates                                  | 4    | each  | \$ 3,000.00  | \$ 12,000.00         |
| 3b                     | Remove/Dispose Gears, Valves, Spurs, Tripods, Misc. Metals | 1    | lsum  | \$ 8,000.00  | \$ 8,000.00          |
| 3c                     | Remove/Dispose Framed Buildings                            | 1    | each  | \$ 1,000.00  | \$ 1,000.00          |
| 3d                     | Electrical Disconnect                                      | 1    | lsum  | \$ 1,000.00  | \$ 1,000.00          |
| <b>4</b>               | <b>CONCRETE FILL OF VALVE CHAMBER</b>                      |      |       |              |                      |
| 4a                     | Erect and Strip Forming                                    | 400  | sqft  | \$ 30.00     | \$ 12,000.00         |
| 4b                     | Lean Concrete Fill (2000 psi)                              | 160  | cuyd  | \$ 100.00    | \$ 16,000.00         |
| <b>5</b>               | <b>CONCRETE GRAVITY DAM</b>                                |      |       |              |                      |
| 5a                     | Steel Reinforcement  | 13   | ton   | \$ 1,550.00  | \$ 19,669.50         |
| 5b                     | Water Stop   | 69   | lnft  | \$ 75.00     | \$ 5,175.00          |
| 5c                     | Erect and Strip Forming                                    | 1168 | sqft  | \$ 30.00     | \$ 35,040.00         |
| 5d                     | Cast-in-Place Concrete (4000 psi)                          | 188  | cuyd  | \$ 100.00    | \$ 18,800.00         |
| <b>6</b>               | <b>PRECAST CONCRETE ACCESS BRIDGE</b>                      |      |       |              |                      |
| 6a                     | Precast Deck   | 320  | sqft  | \$ 25.00     | \$ 8,000.00          |
| 6b                     | Railing  | 84   | lnft  | \$ 35.00     | \$ 2,940.00          |
| <b>SUBTOTAL</b>        |  |      |       |              | <b>\$ 204,949.50</b> |
| <b>7</b>               | <b>CONTINGENCY (10%)</b>                                   |      |       |              | \$ 20,494.95         |
| <b>8</b>               | <b>CONSTRUCTION FEE (2.5%)</b>                             |      |       |              | \$ 5,636.11          |
| <b>9</b>               | <b>DESIGN &amp; ENGINEERING (15%)</b>                      |      |       |              | \$ 34,662.08         |
| <b>10</b>              | <b>SHORELAND STABILITY 1,000' OF RIP RAP @ \$50/FT</b>     |      |       |              | \$ 50,000.00         |
| <b>TOTAL LOCK COST</b> |  |      |       |              | <b>\$ 315,742.65</b> |

For River Navigational System Authority  
2015 Abandonment Study  
Fixed Crest Gravity Dam Option  
Kaukauna Lock No. 5

| Item                   | Description  | Qty  | Units | Cost/Unit    | Cost                 |
|------------------------|--|------|-------|--------------|----------------------|
| <b>1</b>               | <b>GENERAL CONDITIONS</b>                                  |      |       |              |                      |
| 1a                     | Mobilization/Demobilization                                | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00         |
| 1b                     | Project Manager  | 15   | hour  | \$ 75.00     | \$ 1,125.00          |
| 1c                     | Site Superintendent  | 160  | hour  | \$ 90.00     | \$ 14,400.00         |
| 1d                     | Project Coordinator  | 10   | hour  | \$ 65.00     | \$ 650.00            |
| 1e                     | Crane  | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 1f                     | Equipment  | 4    | weeks | \$ 1,200.00  | \$ 4,800.00          |
| 1g                     | Hand Tools and Consumables                                 | 4    | weeks | \$ 500.00    | \$ 2,000.00          |
| <b>2</b>               | <b>SITE WORK AND RESTORATION</b>                           |      |       |              |                      |
| 2a                     | Install and Remove Cofferdam (at Kaukauna Guard)           | 0    | lsum  | \$ 10,000.00 | \$ -                 |
| 2b                     | Dewatering   | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 2c                     | Soil Fill and Grading                                      | 100  | cuyd  | \$ 25.00     | \$ 2,500.00          |
| 2d                     | Topsoil  | 50   | cuyd  | \$ 35.00     | \$ 1,750.00          |
| 2e                     | Seed, Mulch and Fertilizer                                 | 400  | sqyd  | \$ 9.00      | \$ 3,600.00          |
| 2f                     | Fencing  | 300  | lnft  | \$ 15.00     | \$ 4,500.00          |
| <b>3</b>               | <b>REMOVALS, DISPOSALS AND DISCONNECTS</b>                 |      |       |              |                      |
| 3a                     | Remove/Dispose Lock Gates                                  | 4    | each  | \$ 3,000.00  | \$ 12,000.00         |
| 3b                     | Remove/Dispose Gears, Valves, Spurs, Tripods, Misc. Metals | 1    | lsum  | \$ 8,000.00  | \$ 8,000.00          |
| 3c                     | Remove/Dispose Framed Buildings                            | 1    | each  | \$ 1,000.00  | \$ 1,000.00          |
| 3d                     | Electrical Disconnect                                      | 1    | lsum  | \$ 1,000.00  | \$ 1,000.00          |
| <b>4</b>               | <b>CONCRETE FILL OF VALVE CHAMBER</b>                      |      |       |              |                      |
| 4a                     | Erect and Strip Forming                                    | 400  | sqft  | \$ 30.00     | \$ 12,000.00         |
| 4b                     | Lean Concrete Fill (2000 psi)                              | 160  | cuyd  | \$ 100.00    | \$ 16,000.00         |
| <b>5</b>               | <b>CONCRETE GRAVITY DAM</b>                                |      |       |              |                      |
| 5a                     | Steel Reinforcement  | 15   | ton   | \$ 1,550.00  | \$ 22,912.88         |
| 5b                     | Water Stop   | 72   | lnft  | \$ 75.00     | \$ 5,400.00          |
| 5c                     | Erect and Strip Forming                                    | 1278 | sqft  | \$ 30.00     | \$ 38,340.00         |
| 5d                     | Cast-in-Place Concrete (4000 psi)                          | 219  | cuyd  | \$ 100.00    | \$ 21,900.00         |
| <b>6</b>               | <b>PRECAST CONCRETE ACCESS BRIDGE</b>                      |      |       |              |                      |
| 6a                     | Precast Deck   | 320  | sqft  | \$ 25.00     | \$ 8,000.00          |
| 6b                     | Railing  | 84   | lnft  | \$ 35.00     | \$ 2,940.00          |
| <b>SUBTOTAL</b>        |  |      |       |              | <b>\$ 214,817.88</b> |
| <b>7</b>               | <b>CONTINGENCY (10%)</b>                                   |      |       |              | \$ 21,481.79         |
| <b>8</b>               | <b>CONSTRUCTION FEE (2.5%)</b>                             |      |       |              | \$ 5,907.49          |
| <b>9</b>               | <b>DESIGN &amp; ENGINEERING (15%)</b>                      |      |       |              | \$ 36,331.07         |
| <b>TOTAL LOCK COST</b> |  |      |       |              | <b>\$ 278,538.23</b> |

1994 Abandonment Study included \$16,800 for dike restoration and bank slope stabilization. Much of that work has been completed.

For River Navigational System Authority  
2015 Abandonment Study  
Fixed Crest Gravity Dam Option  
Rapid Croche Lock

| Item                   | Description  | Qty | Units | Cost/Unit    | Cost             |
|------------------------|--|-----|-------|--------------|------------------|
| <b>1</b>               | <b>GENERAL CONDITIONS</b>                                  |     |       |              |                  |
| 1a                     | Mobilization/Demobilization                                | 1   | lsum  | \$ 10,000.00 | \$ 10,000.00     |
| 1b                     | Project Manager  | 10  | hour  | \$ 75.00     | \$ 750.00        |
| 1c                     | Site Superintendent  | 80  | hour  | \$ 90.00     | \$ 7,200.00      |
| 1d                     | Project Coordinator  | 5   | hour  | \$ 65.00     | \$ 325.00        |
| 1e                     | Crane  | 2   | weeks | \$ 2,500.00  | \$ 5,000.00      |
| 1f                     | Equipment  | 2   | weeks | \$ 1,200.00  | \$ 2,400.00      |
| 1g                     | Hand Tools and Consumables                                 | 2   | weeks | \$ 500.00    | \$ 1,000.00      |
| <b>2</b>               | <b>SITE WORK AND RESTORATION</b>                           |     |       |              |                  |
| 2a                     | Install and Remove Cofferdam                               | 0   | lsum  | \$ 10,000.00 | \$ -             |
| 2b                     | Dewatering   | 0   | weeks | \$ 2,500.00  | \$ -             |
| 2c                     | Soil Fill and Grading                                      | 0   | cuyd  | \$ 25.00     | \$ -             |
| 2d                     | Topsoil  | 0   | cuyd  | \$ 35.00     | \$ -             |
| 2e                     | Seed, Mulch and Fertilizer                                 | 0   | sqyd  | \$ 9.00      | \$ -             |
| 2f                     | Fencing  | 0   | lnft  | \$ 15.00     | \$ -             |
| 2g                     | Filling Hot Water Dip Tank                                 | 232 | cuyd  | \$ 40.00     | \$ 9,280.00      |
| <b>3</b>               | <b>REMOVALS, DISPOSALS AND DISCONNECTS</b>                 |     |       |              |                  |
| 3a                     | Remove/Dispose Lock Gates                                  | 0   | each  | \$ 3,000.00  | \$ -             |
| 3b                     | Remove/Dispose Gears, Valves, Spurs, Tripods, Misc. Metals | 0   | lsum  | \$ 8,000.00  | \$ -             |
| 3c                     | Remove/Dispose Framed Buildings                            | 0   | each  | \$ 1,000.00  | \$ -             |
| 3d                     | Electrical Disconnect                                      | 0   | lsum  | \$ 1,000.00  | \$ -             |
| 3e                     | Equipment Removal  | 1   | lsum  | \$ 20,000.00 | \$ 20,000.00     |
| <b>4</b>               | <b>CONCRETE FILL OF VALVE CHAMBER</b>                      |     |       |              |                  |
| 4a                     | Erect and Strip Forming                                    | 0   | sqft  | \$ 30.00     | \$ -             |
| 4b                     | Lean Concrete Fill (2000 psi)                              | 0   | cuyd  | \$ 100.00    | \$ -             |
| <b>5</b>               | <b>CONCRETE GRAVITY DAM</b>                                |     |       |              |                  |
| 5a                     | Steel Reinforcement  | 0   | ton   | \$ 1,550.00  | \$ -             |
| 5b                     | Water Stop   | 0   | lnft  | \$ 75.00     | \$ -             |
| 5c                     | Erect and Strip Forming                                    | 0   | sqft  | \$ 30.00     | \$ -             |
| 5d                     | Cast-in-Place Concrete (4000 psi)                          | 0   | cuyd  | \$ 100.00    | \$ -             |
| <b>6</b>               | <b>PRECAST CONCRETE ACCESS BRIDGE</b>                      |     |       |              |                  |
| 6a                     | Precast Deck   | 0   | sqft  | \$ 25.00     | \$ -             |
| 6b                     | Railing  | 0   | lnft  | \$ 35.00     | \$ -             |
| <b>SUBTOTAL</b>        |  |     |       | <b>\$</b>    | <b>55,955.00</b> |
| <b>7</b>               | <b>CONTINGENCY (10%)</b>                                   |     |       | <b>\$</b>    | <b>5,595.50</b>  |
| <b>8</b>               | <b>CONSTRUCTION FEE (2.5%)</b>                             |     |       | <b>\$</b>    | <b>1,538.76</b>  |
| <b>9</b>               | <b>DESIGN &amp; ENGINEERING (15%)</b>                      |     |       | <b>\$</b>    | <b>9,463.39</b>  |
| <b>TOTAL LOCK COST</b> |  |     |       | <b>\$</b>    | <b>72,552.65</b> |



For River Navigational System Authority  
2015 Abandonment Study  
Fixed Crest Gravity Dam Option  
Little Kaukauna Lock

| Item                   | Description  | Qty  | Units | Cost/Unit    | Cost              |
|------------------------|--|------|-------|--------------|-------------------|
| <b>1</b>               | <b>GENERAL CONDITIONS</b>                                  |      |       |              |                   |
| 1a                     | Mobilization/Demobilization                                | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00      |
| 1b                     | Project Manager  | 15   | hour  | \$ 75.00     | \$ 1,125.00       |
| 1c                     | Site Superintendent  | 160  | hour  | \$ 90.00     | \$ 14,400.00      |
| 1d                     | Project Coordinator  | 10   | hour  | \$ 65.00     | \$ 650.00         |
| 1e                     | Crane  | 4    | weeks | \$ 2,500.00  | \$ 10,000.00      |
| 1f                     | Equipment  | 4    | weeks | \$ 1,200.00  | \$ 4,800.00       |
| 1g                     | Hand Tools and Consumables                                 | 4    | weeks | \$ 500.00    | \$ 2,000.00       |
| <b>2</b>               | <b>SITE WORK AND RESTORATION</b>                           |      |       |              |                   |
| 2a                     | Install and Remove Cofferdam                               | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00      |
| 2b                     | Dewatering   | 4    | weeks | \$ 2,500.00  | \$ 10,000.00      |
| 2c                     | Soil Fill and Grading                                      | 100  | cuyd  | \$ 25.00     | \$ 2,500.00       |
| 2d                     | Topsoil  | 50   | cuyd  | \$ 35.00     | \$ 1,750.00       |
| 2e                     | Seed, Mulch and Fertilizer                                 | 400  | sqyd  | \$ 9.00      | \$ 3,600.00       |
| 2f                     | Fencing  | 300  | lnft  | \$ 15.00     | \$ 4,500.00       |
| <b>3</b>               | <b>REMOVALS, DISPOSALS AND DISCONNECTS</b>                 |      |       |              |                   |
| 3a                     | Remove/Dispose Lock Gates                                  | 4    | each  | \$ 3,000.00  | \$ 12,000.00      |
| 3b                     | Remove/Dispose Gears, Valves, Spurs, Tripods, Misc. Metals | 1    | lsum  | \$ 8,000.00  | \$ 8,000.00       |
| 3c                     | Remove/Dispose Framed Buildings                            | 1    | each  | \$ 1,000.00  | \$ 1,000.00       |
| 3d                     | Electrical Disconnect                                      | 1    | lsum  | \$ 1,000.00  | \$ 1,000.00       |
| <b>4</b>               | <b>CONCRETE FILL OF VALVE CHAMBER</b>                      |      |       |              |                   |
| 4a                     | Erect and Strip Forming                                    | 400  | sqft  | \$ 30.00     | \$ 12,000.00      |
| 4b                     | Lean Concrete Fill (2000 psi)                              | 160  | cuyd  | \$ 100.00    | \$ 16,000.00      |
| <b>5</b>               | <b>CONCRETE GRAVITY DAM</b>                                |      |       |              |                   |
| 5a                     | Steel Reinforcement  | 13   | ton   | \$ 1,550.00  | \$ 20,088.00      |
| 5b                     | Water Stop   | 68   | lnft  | \$ 75.00     | \$ 5,100.00       |
| 5c                     | Erect and Strip Forming                                    | 1152 | sqft  | \$ 30.00     | \$ 34,560.00      |
| 5d                     | Cast-in-Place Concrete (4000 psi)                          | 192  | cuyd  | \$ 100.00    | \$ 19,200.00      |
| <b>6</b>               | <b>PRECAST CONCRETE ACCESS BRIDGE</b>                      |      |       |              |                   |
| 6a                     | Precast Deck   | 320  | sqft  | \$ 25.00     | \$ 8,000.00       |
| 6b                     | Railing  | 84   | lnft  | \$ 35.00     | \$ 2,940.00       |
| <b>SUBTOTAL</b>        |  |      |       | <b>\$</b>    | <b>215,213.00</b> |
| <b>7</b>               | <b>CONTINGENCY (10%)</b>                                   |      |       | <b>\$</b>    | <b>21,521.30</b>  |
| <b>8</b>               | <b>CONSTRUCTION FEE (2.5%)</b>                             |      |       | <b>\$</b>    | <b>5,918.36</b>   |
| <b>9</b>               | <b>DESIGN &amp; ENGINEERING (15%)</b>                      |      |       | <b>\$</b>    | <b>36,397.90</b>  |
| <b>TOTAL LOCK COST</b> |  |      |       | <b>\$</b>    | <b>279,050.56</b> |

For River Navigational System Authority  
2015 Abandonment Study  
Fixed Crest Gravity Dam Option  
DePere Lock

| Item                   | Description  | Qty  | Units | Cost/Unit    | Cost                 |
|------------------------|--|------|-------|--------------|----------------------|
| <b>1</b>               | <b>GENERAL CONDITIONS</b>                                  |      |       |              |                      |
| 1a                     | Mobilization/Demobilization                                | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00         |
| 1b                     | Project Manager  | 15   | hour  | \$ 75.00     | \$ 1,125.00          |
| 1c                     | Site Superintendent  | 160  | hour  | \$ 90.00     | \$ 14,400.00         |
| 1d                     | Project Coordinator  | 10   | hour  | \$ 65.00     | \$ 650.00            |
| 1e                     | Crane  | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 1f                     | Equipment  | 4    | weeks | \$ 1,200.00  | \$ 4,800.00          |
| 1g                     | Hand Tools and Consumables                                 | 4    | weeks | \$ 500.00    | \$ 2,000.00          |
| <b>2</b>               | <b>SITE WORK AND RESTORATION</b>                           |      |       |              |                      |
| 2a                     | Install and Remove Cofferdam                               | 1    | lsum  | \$ 10,000.00 | \$ 10,000.00         |
| 2b                     | Dewatering   | 4    | weeks | \$ 2,500.00  | \$ 10,000.00         |
| 2c                     | Soil Fill and Grading                                      | 100  | cuyd  | \$ 25.00     | \$ 2,500.00          |
| 2d                     | Topsoil  | 50   | cuyd  | \$ 35.00     | \$ 1,750.00          |
| 2e                     | Seed, Mulch and Fertilizer                                 | 400  | sqyd  | \$ 9.00      | \$ 3,600.00          |
| 2f                     | Fencing  | 300  | lnft  | \$ 15.00     | \$ 4,500.00          |
| <b>3</b>               | <b>REMOVALS, DISPOSALS AND DISCONNECTS</b>                 |      |       |              |                      |
| 3a                     | Remove/Dispose Lock Gates                                  | 4    | each  | \$ 3,000.00  | \$ 12,000.00         |
| 3b                     | Remove/Dispose Gears, Valves, Spurs, Tripods, Misc. Metals | 1    | lsum  | \$ 8,000.00  | \$ 8,000.00          |
| 3c                     | Remove/Dispose Framed Buildings                            | 1    | each  | \$ 1,000.00  | \$ 1,000.00          |
| 3d                     | Electrical Disconnect                                      | 1    | lsum  | \$ 1,000.00  | \$ 1,000.00          |
| <b>4</b>               | <b>CONCRETE FILL OF VALVE CHAMBER</b>                      |      |       |              |                      |
| 4a                     | Erect and Strip Forming                                    | 400  | sqft  | \$ 30.00     | \$ 12,000.00         |
| 4b                     | Lean Concrete Fill (2000 psi)                              | 160  | cuyd  | \$ 100.00    | \$ 16,000.00         |
| <b>5</b>               | <b>CONCRETE GRAVITY DAM</b>                                |      |       |              |                      |
| 5a                     | Steel Reinforcement  | 22   | ton   | \$ 1,550.00  | \$ 34,630.88         |
| 5b                     | Water Stop   | 82   | lnft  | \$ 75.00     | \$ 6,150.00          |
| 5c                     | Erect and Strip Forming                                    | 1656 | sqft  | \$ 30.00     | \$ 49,680.00         |
| 5d                     | Cast-in-Place Concrete (4000 psi)                          | 331  | cuyd  | \$ 100.00    | \$ 33,100.00         |
| <b>6</b>               | <b>PRECAST CONCRETE ACCESS BRIDGE</b>                      |      |       |              |                      |
| 6a                     | Precast Deck   | 320  | sqft  | \$ 25.00     | \$ 8,000.00          |
| 6b                     | Railing  | 84   | lnft  | \$ 35.00     | \$ 2,940.00          |
| <b>SUBTOTAL</b>        |  |      |       |              | <b>\$ 259,825.88</b> |
| <b>7</b>               | <b>CONTINGENCY (10%)</b>                                   |      |       |              | \$ 25,982.59         |
| <b>8</b>               | <b>CONSTRUCTION FEE (2.5%)</b>                             |      |       |              | \$ 7,145.21          |
| <b>9</b>               | <b>DESIGN &amp; ENGINEERING (15%)</b>                      |      |       |              | \$ 43,943.05         |
| <b>10</b>              | <b>SHORELAND STABILITY 200' OF RIP RAP @ \$50/FT</b>       |      |       |              | \$ 10,000.00         |
| <b>TOTAL LOCK COST</b> |  |      |       |              | <b>\$ 346,896.73</b> |

1994 Abandonment Study included \$109,300 for dike restoration and bank slope stabilization.  
Much of that work has been completed. The update includes \$10,000 for bank slope stabilization (RIP RAP).