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APPENDICES

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Brandon Road Lock & Dam Feasibility Study
Real Estate Plan
1. Purpose

The purpose and need for the Great Lakes and Mississippi River Interbasin Study at Brandon Road (GLMRIS-BR) is to evaluate structural and nonstructural options and technologies near the Brandon Road Lock and Dam (BRLD) site, in order to prevent the upstream transfer of aquatic nuisance species (ANS) from the Mississippi River Basin into the Great Lakes Basin to the maximum extent possible, while minimizing impacts to existing waterway uses and users.

ANS are a growing threat throughout the United States, causing losses in biodiversity, changes in ecosystems, and impacts to economic enterprises such as fisheries, power production, and international trade. An “invasive species” is a species that is “1) non-native to the ecosystem under consideration, and 2) whose introduction causes or is likely to cause economic or environmental harm or harm to human health” (Executive Order 13112 of February 3, 1999). The Nation as well as individual states have undertaken multiple initiatives to address the control and management of aquatic invasive species.

As Bighead and Silver Carp populations have progressed northward up the Illinois River, the threat of these species gaining access to Lake Michigan and the rest of the Great Lakes Basin has become a concern to many in the environmental community as well as among federal, state, and local government agencies. There is a potential for ecological and economic consequences should reproducing populations of Bighead and Silver Carp become established in the Chicago Area Waterway System, Lake Michigan, in the other Great Lakes, and connected tributaries. Although there are uncertainties as to the level of environmental and economic impact, federal and state partners are currently taking action to reduce the risk that a sustainable population of Bighead and Silver Carp could establish in the Great Lakes Basin.

The GLMRIS-BR Report is a feasibility study that is building on the foundation of the Great Lakes and Mississippi River Interbasin Study (GLMRIS) Report released in January 2014. The GLMRIS Report identified several alternatives to address the problem of interbasin transfer of ANS, but full implementation of several of the alternatives would require a substantial investment of time and money. Given the potential urgency of the threat and in response to a growing consensus, the Secretary of the Army has determined that a formal evaluation of potential control options and technologies to be applied near the BRLD is an appropriate next step. The BRLD provides singular advantages for further study. The approach channel and lock provide a unique opportunity to control waterway flows over a high-head dam, and the only potential upstream passage is through a lock. These maximize the efficiency of applied technologies, and minimize the associated costs for implementation and operation. Establishing a control point near BRLD for upstream transfer of Mississippi River ANS does not adversely impact flood risk or water quality of the Chicago Area Waterway System and provides for additional defense-in-depth for particular species of concern, Bighead and Silver Carp, when combined with the current Chicago Sanitary and Ship Canal Electric Dispersal Barriers located in Romeoville, Illinois.

2. Description of the Lands, Easements, and Rights-of-Way (LER) Required for Construction, Operation, and Maintenance of the Project

This Project requires a combination of existing U.S.-controlled land at the BRLD, the downstream approach channel, mooring area, and privately owned land near the lock. The BRLD is located 27 miles southwest of Chicago and 2 miles southwest of Joliet, Illinois, near Rockdale. This location is also the junction of the Des Plaines River and the Illinois and Michigan Canal at River Mile 286 of the Illinois Waterway.
The private land required for the Project is owned by NRG Energy and is located on the north side of the lower approach channel, south of Channahon Road, and west of Brandon Road.

NRG owns three parcels of land totaling approximately 42 acres. The real estate is located in Sections 20, 21 & 30, Township 35 North, Range 10 East of the Third Principal Meridian, in Will County, Illinois as shown in the inset in Figure J-1. The project would require approximately 17.6 acres consisting of a 200-foot strip along and adjacent to the downstream approach channel to the BRLD (12.6 acres), and a 5-acre adjoining tract for construction staging and additional work area at the upstream end of the NRG property, all as shown on Figure J-2. U.S.-controlled lands would be used at the upstream end of the right descending bank alongside the lock to temporarily place, dry and store dredged material from the engineered channel until it could be moved to a proper disposal site.

The selected Technology Alternative is Acoustic Fish Deterrent with Electric Barrier and includes the following measures: nonstructural activities, acoustic fish deterrent, air bubble curtain, engineered channel, electric barrier, flushing lock and physical barrier blocking the Illinois & Michigan Canal. See Appendix H, Engineering, for more detail on the alternatives.

The construction work on the fee parcels to be acquired will require excavation to construct the electric barrier control building, access road, and utilities to support the acoustic fish deterrent and electric barrier measures. No utility surveys have been conducted at this point in feasibility. These features can be adjusted in location in order to accommodate utilities if they are found on site during detailed design.

1). Nonstructural Measures: Nonstructural measures require no construction and could commence as soon as authorization of the project is received and funds are appropriated. Nonstructural measures only monitor and remove Bighead & Silver Carp, such as commercial fishing. In order to facilitate effective monitoring and emergency response in the area of Brandon Road, new boat launches are proposed near the Lock in Brandon Road and Dresden Island Pools.

2). Engineered Channel: This measure will create an engineered structure in the existing lock channel to hold ANS barrier measures (e.g., air bubble curtain, electric barrier, acoustic fish deterrent) and would be constructed first. Construction of the engineered channel includes pre-blast survey, excavation and installation of reinforced concrete lined walls and bottom of channel. As Brandon Road, County Highway 42, crosses over the lower approach channel to the lock, there may be construction impacts to the Brandon Road Bridge and traffic patterns. It is unknown at this time what type of coordination/permits may be needed from the Will County Highway Department should the Project have impacts within road right-of-way or to bridge operations.

3). Air Bubble Curtain: Construction of the air bubble curtain is expected to occur concurrently with construction of the engineered channel. Construction would include the water jet system (jets and pumping system) and associated building for pump house and controls.

4). Acoustic Fish Deterrent: Construction of the Complex technology would require the placement of speakers potentially within the engineered channel and lock chamber. Construction of a building would also be required for housing of control equipment.

5). Electric Barrier: At the time of this evaluation, the electric barrier was determined to be the most effective technology for preventing fish passage, not including physical barriers. An electric dispersal barrier would be located within the approach channel downstream of Brandon Road Lock and Dam (Figure J-2) at the southernmost end of the approach channel to minimize safety concerns for tow and barge personnel, as well as lock personnel, and influence of the electric dispersal barrier on the lock structure. An electric barrier consists of steel electrodes mounted across the floor of the downstream
approach channel and on-land power generation and distribution equipment. The on-land equipment creates an electric field in the water that repels and stuns fish, preventing them from entering the lock chamber while allowing vessels to pass freely.

6). **Flushing Lock:** Construction of the flushing lock would require dewatering of the lock, plugging of the existing ports and drilling of the new port holes.

7). **Mooring Area:** A mooring area will need to be constructed approximately 1.8 miles downstream of the BRLD, near River Mile 284. This area will allow for tows to reconfigure closer to the lock in light of possible restrictions due to the electric barrier. Construction of the new mooring area would require dredging of sediments to a depth of greater than 9 feet and construction of new mooring cells. Dredged material will be barged to the fee parcels where the western portion of the site will be set up for sediment treatment and dewatering. Material will be continually dewatered and moved off the site to a final landfill location regulated to accept contaminated materials due to the potential for the material to contain pollutants. This will occur during other construction activities in the approach channel and on the remainder of the fee parcels. Once the new mooring area is dredged, two new mooring cells will be installed. At the mooring cells north of the lock, repairs will be conducted to the existing mooring cells, working on a few at a time while leaving the remainder open for navigation. The Federal Government’s right of navigation servitude will apply to all construction activities associated with the mooring area.

The number of owners, acres and type of estates required are as follows:

<table>
<thead>
<tr>
<th>Number of Tracts</th>
<th>No. &amp; Type of Owner</th>
<th>Acres</th>
<th>Type of Estate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1 – U.S.A. Control</td>
<td>Approx. 27</td>
<td>Same as fee – See Section 6</td>
</tr>
<tr>
<td>3</td>
<td>1 – NRG Energy</td>
<td>Approx. 17.6</td>
<td>Fee</td>
</tr>
<tr>
<td>1</td>
<td>1 – Will County</td>
<td>Approx. 2</td>
<td>Potential Permit to temp. occupy road ROW</td>
</tr>
</tbody>
</table>

The standard estate proposed over NRG lands is fee simple title. The estate language is included below:

**FEE**
The fee simple title to (the land described in Schedule A) (Tracts Nos. , and ), Subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines.

3. **Sponsor-Owned Lands**

The GLMRIS authority directs completion of study activities at full federal expense. As of 11 June 2018, the State of Illinois has tentatively agreed to become the Non-Federal Sponsor (NFS) for this project.

Chapter 9.12 of the Feasibility Report further describes the implementation responsibilities of a NFS. In summary, the implementation of the Recommended Plan could not proceed unless a NFS is identified or the statutory authorization for implementation of the Recommended Plan specifically changes these requirements. Normally, following authorization for construction of a project, the NFS would enter into a Project Partnership Agreement (PPA) to define the responsibilities of each party. The NFS must normally agree, but is not limited, to the following:

- Provide without cost to the United States all lands, easements, rights-of-way, relocations, and disposal areas (LERRDs) necessary for the construction and subsequent maintenance of the project.
• Provide without cost to the United States all necessary alterations of buildings, utilities, highways, bridges, sewers, and related and special facilities.
• Hold and save the United States free from damages due to the construction and subsequent maintenance of the project, except damages due to the fault or negligence of the United States or its contractors.
• Maintain and operate the project after completion without cost to the United States.
• Prevent future encroachment, which might interfere with proper functioning of the project.
• Assume responsibility for all costs in excess of applicable Federal cost limitations.

4. Non-Standard Estates

The proposed Project does not currently require the use of any non-standard estate.

5. Existing Federal Project Within the Lands, Easements, and Rights-of-Way Required for the Project

The proposed Project includes a portion of lands utilized for the BRLD. The BRLD was one of five designed and partially constructed by the State of Illinois. The State began construction of the lock and dam complex in 1927 and it was approximately 70 percent complete when the Federal Government took over the Illinois Waterway in 1930 due to the financial difficulties of the State of Illinois. The Federal Government, by the authority of the River and Harbor Act of 1930, completed construction of the Brandon Road Lock and opened it with the Waterway in 1933. The Project area consists of U.S. controlled lands on both sides of the lock, with narrow areas extending downstream below the gates (See Figure J-1, Real Estate Map).

6. Existing Federally-owned Land

In 1928, the State of Illinois acquired the lands for the improvement of the BRLD. The United States did not acquire a real estate interest in the lands necessary for the construction, operation and maintenance of the project. The Constitution of the State of Illinois, as written at that time, forbade the sale or lease of any State owned waterway or canal “until the specific proposition for the sale or lease thereof shall first have been submitted to a vote of the people of the State at a general election, and have been approved by a majority of all the votes polled at such election.” In a brief to the Secretary of War dated 19 March 1930, the Governor of the State of Illinois states: “that, upon adoption of the Illinois Waterway by the Federal Government, and upon an appropriation being made for its completion, the Federal Government will acquire as full and complete jurisdiction and control of said waterway and its necessary appurtenances, as if, by appropriate authority, conveyance of title had been made by the State of Illinois.”

Therefore, while the State of Illinois did not convey fee title to the real property necessary for the construction, operation and maintenance of the waterway, it was the understanding and intent of both the United States and the State of Illinois that the United States would have complete control of the waterway upon the project being authorized by Congress, as if title had been conveyed. The lands necessary for this project are under the permanent control of the United States Federal Government, with the underlying fee title being vested in the State of Illinois. The BRLD is operated and maintained by the Rock Island District Corps of Engineers.
7. **Navigation Servitude**

Navigable waters are administratively defined to mean waters that have been used in the past, are now used, or are susceptible to use as a means to transport interstate or foreign commerce up to the head of navigation. The Des Plaines River reach associated with this Project falls within the Regulatory boundaries of the Chicago District and has been determined to be “navigable waters of the United States” within Chicago District boundaries. This includes the area of the Des Plaines River located immediately upstream and downstream of the Brandon Road Lock and Dam. At this time, LER required for the Project includes areas below the ordinary high water mark (OHWM). Counsel found a sufficient link to the navigation mission to utilize navigation servitude over Project lands located below the OHWM. This includes areas downstream of the lock, referred to as the engineered channel and mooring area. Engineer Regulation (ER) 405-1-12, Paragraph 12-7 c. states, “As a general rule, the Government does not acquire interests in real property that it already possesses or over which its use or control is or can be legally exercised.”

8. **Map Depicting the Area**

The Real Estate Map and Recommended Plan are attached as Figures J-1 and J-2.

9. **Induced Flooding**

There will be no induced flooding caused by the construction, operation and maintenance of the Project.

10. **Baseline Cost Estimate**

“Cost estimates should be used for projects in which the value of real estate (lands, improvements, and severance damages) is not expected to exceed 10 percent of total project costs (total cost to implement project). Because Cost Estimates are not appraisals, value conclusions from Cost Estimates are not intended to be utilized in approval decision, project authorization, or funding documents, except CAP projects. If Cost Estimates are used in decision or funding documents, the Project Managers, Realty Specialists, or other decision makers doing so need to confirm in writing that they understand the increased risks associated with using Cost Estimates in this manner.” ER 405-1-04, Real Estate, Appraisal, 29 Jan 2016, Paragraph 4-17, Page 4-10.
The land cost estimate is shown in Table J-1.

<table>
<thead>
<tr>
<th>Table J-1: Land Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Cost Estimates</td>
</tr>
<tr>
<td>Incidental Acquisition Costs</td>
</tr>
<tr>
<td>a. Acquisition labor</td>
</tr>
<tr>
<td>b. Land Survey</td>
</tr>
<tr>
<td>c. Title Evidence</td>
</tr>
<tr>
<td>d. Appraisal</td>
</tr>
<tr>
<td>e. Negotiations/Closing</td>
</tr>
<tr>
<td>f. Administrative</td>
</tr>
<tr>
<td>Total NFS land costs</td>
</tr>
<tr>
<td>Government Oversight of NFS acquisition</td>
</tr>
<tr>
<td>Total Land Cost</td>
</tr>
<tr>
<td>8% contingency</td>
</tr>
<tr>
<td>Total Land Cost with Contingency</td>
</tr>
</tbody>
</table>

11. Public Law (Pl) 91-646 Residence/Business Relocation Assistance Benefits

The Project does not require any relocation of persons, farms, or businesses; therefore, there are no anticipated Public Law 91-646 Relocation Assistance Benefit payments.

12. Mineral Activity in the Project Area

No known mineral activity or timber harvesting that may affect construction, operation, or maintenance of the proposed Project is occurring or anticipated to occur within the Project area.

13. Non-Federal Sponsor’s Legal and Professional Acquisition Capability To Acquire LER

As stated in paragraph 3 above, the State of Illinois tentatively agreed to become the NFS for this project on 11 June 2018. The State of Illinois will have its Department of Natural Resources be the lead State Agency representing the State on the project. The State has Constitutional eminent domain authority, statutory quick take authority, extensive real estate acquisition experience and sufficient personnel to be able to complete all acquisitions required for this project. The State has refused to fill out a Sponsor Assessment form and further, refused to provide necessary information requested in the form.

14. Zoning Ordinances

No known zoning ordinances are proposed.

15. Schedule of Land Acquisition

A reasonable and detailed schedule of land acquisition will be developed after approval of the Report with the advice and consent of the NFS.
16. Facility/Utility Relocations

Since an access agreement with NRG has not been reached, Corps employees have not been allowed onto NRG property for survey and exploration purposes and have not been able to determine whether any facility or utility relocations are necessary.

17. Impacts of Suspected or Known Contaminants

The following summary contains excerpts from a memorandum dated 29 February 2016 and appears as Attachment 1 to Appendix G - Phase 1 Environmental Site Assessment (HTRW).

A preliminary investigation, for the purposes of identifying HTRW and non-HTRW issues within the Project area, was completed for the Brandon Road Lock and Dam in May 2015. That investigation documented the results from a review of historical information, database search, and interviews with staff. This information noted that additional investigation may be needed and that there were some questions regarding the history of the land just north of the approach channel to the lock. Now that alternatives have been identified, the previous investigation was reviewed to determine if any locations require additional investigation.

At least three alternatives would include the construction of supporting facilities (buildings, storage areas, and roads) upland and adjacent to the existing approach channel. The area of interest is on the north side of the approach channel and lock, south of Channahon Road, and west of Brandon Road. This consists of three parcels of land currently owned by NRG Energy (Midwest Generation LLC). See Figure J-1. Possible future work for these parcels could include the construction of support buildings with foundations, roads, storage areas, and other supporting features such as utilities. Construction of these features would require excavation along the approach channel, across all three parcels currently owned by NRG, as shown by the current footprint shown in Figure J-2.

<table>
<thead>
<tr>
<th>Parcel Identification Number</th>
<th>Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-07-20-300-007-0000 (Lot 17)</td>
<td>NRG / Midwest Generation LLC</td>
</tr>
<tr>
<td>30-07-20-215-001-0000 (Lot 18)</td>
<td>NRG / Midwest Generation LLC</td>
</tr>
<tr>
<td>30-07-20-215-002-0000 (Lot 19)</td>
<td>NRG / Midwest Generation LLC</td>
</tr>
</tbody>
</table>

For the area of interest defined above, the most conclusive information on past usage comes from historical aerial photos. These photos begin in 1939, after the Brandon Road lock and dam was constructed.

The area in question is variously referred to in historical documents as “the Commonwealth Edison Clay Pit” (USACE, 2001), as “the USACE landfill” (NIPR, 1988), and commonly as the “Joliet Station” property. An environmental disclosure statement includes the three parcels, when the land ownership was transferred from the Commonwealth Edision Company to Unicom Investment Inc. (Midwest Generation LLC). This disclosure indicates that the parcels being transferred, which include more than the three parcels of interest to the current project, were used for handling and storage of various petroleum, hazardous substances, special wastes, or other materials potentially covered under the Resource Conservation and Recovery Act and Illinois Environmental Protection Act. More specifically, the various parcels may have been used for a landfill, surface impoundment, waste pile or containerized or tank storage. Unfortunately, there is no information included on the specific location (which parcel) or nature of any of these activities.
Site visits have not been conducted on NRG lands as requests for a Right-of-Entry for Survey and Exploration have been denied. Based on the information available, several conclusions can be made at this time:

a. The area of interest (the three parcels listed above) have been greatly disturbed over the last century. It is unlikely that the site contains native soils or historical artifacts in good condition, due to previous wide-scale excavation and filling activities.

b. The area of interest may have been used for the disposal of materials that would now be regulated or would be cause for environmental concern, but the nature of any fill materials placed on this property is not known.

c. Because the proposed use of the land would require excavation for foundations and other constructed features, the parcels of interest require additional investigation (soil borings or test pits) to obtain information on both the geotechnical properties and the environmental quality of the materials.

It is recommended that a phase II investigation be conducted on this property prior to planning any development. The investigation should identify the nature and extent of materials within the footprint of the land that USACE would use, including the horizontal and vertical extent. Assuming that the land was filled with anthropogenic materials, samples should be taken for chemical analysis, to determine whether the material is characteristically hazardous and to determine the appropriate disposition of any excavated materials. It is recommended that a geotechnical investigation be conducted in conjunction with the environmental investigation, so that a complete set of conditions is available for future planning.

NRG has refused to sign a proffered standard Corps Right of Entry for Survey and Exploration, and has instead offered their standard Right of Entry (ROE). OC has reviewed the NRG’s ROE and determined that it would not be acceptable due to required insurance provisions and a hold harmless agreement contained in it. We have met with NRG as late as February 2018 to fully explain the project to them and again request the right to enter their property.

It has been determined by Mississippi Valley Division Real Estate that this phase II investigation may be deferred until the PED and engineering phase of the project.

18. Landowners Support or Opposition to the Project

At this time, the support or opposition of adjoining or nearby landowners is not known. As stated in paragraphs 16 and 17 of this Plan, Corps employees have not been allowed onto NRG property for survey and exploration purposes. While negotiations for Right-of-Entry with NRG have not been successful, NRG has never expressed any opposition to the proposed project.

19. Risks of Acquiring Lands Before Execution of the PPA

The NFS will be notified in writing concerning the risks associated with acquiring land prior to the execution of a Project Partnership Agreement in accordance with ER 405-1-12 paragraph 12-31 as soon as one is definitely identified.
20. Other Real Estate Issues Relevant to the Project

Significant project schedule delays may occur due to the need for a phase II HTRW investigation and the landowners’ reluctance to allow such testing as set forth in paragraph 17 above. There are also unknowns associated with controlling and mitigating the electrical effects caused by the operation of electrical fish barriers. Stray current from the elevated electric field on land and structures may cause shock hazards from metal objects, also increasing life safety risks to waterway users and BRLD operations personnel.

Portions of U.S. Controlled and NRG lands have previously been used for the placement of dredged materials. Rock Island District records indicate that the majority of placement occurred on the left descending embankment of the lower approach channel but historic events have utilized both descending bank lines. It should be noted that currently the only record of dredge material placement on NRG lands happened in 1988 and approximately 4,667 cubic yards were placed. Placement of dredged or other fill materials on portions of U.S. Controlled lands below BRLD would present further issues that would have to be addressed.

One planned feature is the augmentation and building up of the U.S.-controlled land to the left of the lock channel where the engineered channel will be built. This land is currently controlled by the US as stated in paragraph 6 above. The ownership of any built up lands would have to be determined by the Rock Island District’s Office of Counsel and additional real estate rights might have to be obtained for such built up lands.

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MVD Regional Real Estate Division North,
Rock Island District
FIGURE J-2,
BRANDON ROAD RECOMMENDED PLAN

Legend
- Brandon Road Lock & Dam
- Brandon Road Tentatively Selected Plan

Brandon Road Lock & Dam Feasibility Study
Real Estate Plan
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