U.S. Army Corps
of Engineers
St. Paul District

UPPER MISSISSIPPI RIVER SYSTEM

ENVIRONMENTAL MANAGEMENT PROGRAM

SUPPLEMENTAL DEFINITE PROJECT REPORT/

ENVIRONMENTAL ASSESSMENT (SP-3A)

POOL 9 ISLAND CONSTRUCTION

HABITAT REHABILITATION AND ENHANCEMENT PROJECT

POOL 9
UPPER MISSISSIPPI RIVER
CRAWFORD COUNTY, WISCONSIN

MAIN REPORT

JULY 1993

EXECUTIVE SUMMARY

The island complex in the project area of Lower Pool 9 has been identified by river resource managers as an especially critical habitat area where a project could provide significant biological benefits in relation to the habitat needs of the river system. Islands in the project area have severely eroded since inundation. The island landmass has decreased from 38 acres in 1938 to 3.5 acres in 1984, representing a 91-percent loss. Since 1984, the landmass has decreased to less than one acre. Loss of the islands permits suspended sediment from the main Mississippi River channel and shallow backwater areas of Lake Winneshiek to routinely enter the project area. Wave action uproots aquatic vegetation and resuspends the sediment in the shallow backwater area, resulting in loss of existing growth and reduced light penetration that diminishes aquatic plant growth. The sediment movement also fills in the deeper areas that provide desirable fish habitat.

The ultimate goal in the project area is to preserve, enhance, and restore the existing aquatic plant beds for fish and wildlife habitat. The primary objectives of the project are to provide a stable barrier that will prevent the direct movement of flow through the project area and to provide protected, shallow habitat in the backwater that will increase light penetration and subsequent aquatic plant beds in the area. Secondary objectives of the project include protecting the backwater area from boat-generated waves to improve water clarity, providing predator-free island habitat for migratory waterfowl, and providing additional deep water fish habitat in the backwater area.

The plan formulation process developed alternative plans that would provide the best use, or combination of uses, of water and land resources to meet the project objectives. The alternatives considered to accomplish the objectives included various island locations, alignments, and designs. The plans were developed to be compatible with existing project site features (remnant islands, sloughs, deeper areas, etc) and economic considerations. The alternative plans varied from one to three islands, 5 to 100 feet wide, 1/2-foot below to 8-1/2 feet above the normal water surface, 3,600 to 8,400 feet in total length, and $1/2 to $4 million in cost. The use of berms and vegetation, riprap, or rockfill was considered for selected reaches of the islands.

The original plan recommended construction of a 4,000-foot-long island in the backwater area along 3,000 feet of the main channel. The upper end of the island extended into the backwater about 1,000 feet and the upstream side was stabilized with rock riprap. The island had a 50-foot top width at a final elevation 6.5 feet above the normal water surface. Berms 20 to 30 feet wide and one foot above the water surface were to be constructed on each side to stabilize the island, except where rock riprap was used. Fine sediments dredged from the backwater area were to be placed in the center portion of the island and on the berms for topsoil. Side slopes of the main portion of the island were 1 vertical on 3 horizontal and 1 vertical on 6 horizontal for the berms. The total direct construction cost was estimated to be $527,000 and operation and maintenance (performed by the U.S. Fish and Wildlife Service) was estimated to be $3,500 annually. However, public involvement, additional engineering and design studies, and local contractor availability resulted in the need to make significant design and cost changes to this plan. Therefore, the project was reformulated and a habitat evaluation analysis of the alternatives was performed.

The revised selected plan proposes that three connected islands with a top width of 5 feet be constructed of rockfill to 1 foot above normal pool elevation. The island complex would parallel the main channel for 3,000 feet and extend into the backwater a distance of 1,600 feet at the upper end and 1,900 feet at the lower end. It is expected that channels 65 feet wide and 6 feet deep would be dredged along much of the interior of the islands for access to build the island complex. The dredged material would be transported by barge to a channel maintenance placement site about 9 miles upstream near Lansing, Iowa, and also about 6 miles further upstream to Blackhawk Park. The material would be used to revegetate dikes at the placement site and cover dredged sand at the park. Total construction cost is estimated to be $1,393,000.

The major project accomplishments include the elimination of direct sediment-laden flows through about 140 acres of backwater during normal flow conditions and the reduction of wave action in about 180 acres of the backwater. The island complex would provide a stable barrier to sediment-laden flows in project area. With the islands constructed to a top elevation of the 1-year flood frequency, flow (and sediment) directly entering the project area would be reduced. Protection from wave action and river current would lead to an increase in shallow zone vegetation in areas that are currently unprotected. Reduced wind fetch would diminish resuspension of bottom sediment and, together with reduced main channel and backwater sediment inflows, would increase the photic zone in the 180-acre area to encourage the growth of aquatic plants.

The existing deeper areas of the backwater would be protected from sediment deposition and would continue to provide deep water habitat for aquatic organisms and fish. Excavation of fine sediments for construction access would provide additional deep water for fish habitat and the rock substrate of the island would provide more diverse fish habitat. Placement of fine sediments at the Lansing and Blackhawk Park placement sites would provide for growth of vegetation that would improve habitat conditions for wildlife. The high quality habitat that would be protected and the more stable conditions resulting from the project would allow the area to maintain a consistent and vital role as a major migratory waterfowl staging area. This would contribute toward attaining the wildlife management goals of the area.

Plans to monitor the project for performance evaluation purposes were designed to measure the degree of attainment of project objectives. The proposed monitoring parameters include flow velocity, wave height, water clarity, aerial photos, and vegetation and bathymetric surveys. Most monitoring would be conducted once pre- and 1, 3, and 10 years post-construction. The estimated average annual cost of the evaluation is $440.

The St. Paul District Engineer reviewed the project accomplishments and has determined that implementation of the selected plan is a justified expenditure of Federal funds. Therefore, approval to construct the pool 9 island project for habitat rehabilitation and enhancement is recommended by the District Engineer at a 100-percent Federal construction cost estimated to be $1,393,000. Preparation of plans and specifications would be scheduled to begin in fiscal year 1993. Project construction would be initiated in fiscal year 1994 and be completed in fiscal year 1995.

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ST. PAUL DISTRICT, CORPS OF ENGINEERS
180 KELLOGG BLVD E, RM 1421
ST. PAUL, MINNESOTA 55101-1479
JULY 1993

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AUTHORITY

The authority for this report is provided by Section 1103 of the Water Resources Development Act of 1986 (Public Law 99-662). The proposed project would be funded and constructed under this authorization. Section 1103 is summarized as follows:

Section 1103. UPPER MISSISSIPPI RIVER PLAN

(a)(1) This section may be cited as the Upper Mississippi River Management Act of 1986.

(2) To ensure the coordinated development and enhancement of the Upper Mississippi River system, it is hereby declared to be the intent of the Congress to recognize that system as a nationally significant ecosystem and a nationally significant commercial navigation system....The system shall be administered and regulated in recognition of its several purposes.

(e)(1) The Secretary, in consultation with the Secretary of the Interior and the states of Illinois, Iowa, Minnesota, Missouri, and Wisconsin, is authorized to undertake, as identified in the Master Plan -

(A) a program for the planning, construction, and evaluation of measures for fish and wildlife habitat rehabilitation and enhancement....

A design memorandum (or implementation document) did not exist at the time of the enactment of Section 1103. Therefore, the North Central Division, U.S. Army Corps of Engineers, completed a "General Plan" for implementation of the Upper Mississippi River System Environmental Management Program (UMRS-EMP) in January 1986. The U.S. Fish and Wildlife Service (USFWS), Region 3, and the five affected States (Illinois, Iowa, Minnesota, Missouri, and Wisconsin) participated through the Upper Mississippi River Basin Association. Programmatic updates of the General Plan for budget planning and policy development are accomplished through Annual Addendums.

Coordination with the States and the USFWS during the preparation of the General Plan and Annual Addendums led to an examination of the Comprehensive Master Plan for the Management of the Upper Mississippi River System. The Master Plan, completed by the Upper Mississippi River Basin Commission in 1981, was the basis of the recommendations enacted into law in Section 1103. The Master Plan report and the General Plan identified examples of potential habitat rehabilitation and enhancement techniques. Consideration of the Federal interest and Federal policies has resulted in the conclusions below:

Project Eligibility Criteria -

a. (First Annual Addendum). The Master Plan report...and the authorizing legislation do not pose explicit constraints on the kinds of projects to be implemented under the UMRS-EMP. For habitat projects, the main eligibility criterion should be that a direct relationship should exist between the project and the central problem as defined by the Master Plan; i.e., the sedimentation of backwaters and side channels of the Upper Mississippi River System (UMRS). Other criteria include geographic proximity to the river (for erosion control), other agency missions, and whether the condition is the result of deferred maintenance....

b. (Second Annual Addendum).

(1) The types of projects that are definitely within the realm of Corps of Engineers implementation authorities include the following:

- backwater dredging
- dike and levee construction
- island construction
- bank stabilization
- side channel openings/closures
- wing and closing dam modifications
- aeration and water control systems
- waterfowl nesting cover (as a complement to one of the other project types)
- acquisition of wildlife lands (for wetland restoration and protection) Note: By letter of 5 February 1988, the Office of the Chief of Engineers directed that such projects not be pursued.

(2) A number of innovative structural and nonstructural solutions that address human-induced impacts, particularly those related to navigation traffic and operation and maintenance of the navigation system, could result in significant long-term protection of UMRS habitat. Therefore, proposed projects which include such measures will not be categorically excluded from consideration, but the policy and technical feasibility of each of these measures will be investigated on a case-by-case basis and the measures will be recommended only after consideration of system-wide effects.

REFERENCE

This report is a supplement to the Definite Project Report/Environmental Assessment (SP-3) for Pool 9 Island Construction, Habitat Rehabilitation and Enhancement Project, dated June 1989.

PROJECT SELECTION PROCESS

Projects are nominated for inclusion in the District's habitat program by the respective State natural resource agency and the U.S. Fish and Wildlife Service based on agency management objectives. In September 1986, the States and USFWS agreed to utilize the expertise of the Fish and Wildlife Work Group (FWWG) of the River Resources Forum (RRF) to assist the District in the project selection process. The FWWG consists of field level biologists responsible for managing the river for their respective agency. The FWWG were directed to consider critical habitat needs along the Mississippi River and prioritize nominated projects on a biological basis.

In phase one, the individual projects proposed by the various Federal and State agencies were ranked within each pool according to the prioritized resource problems that the individual projects addressed and other ranking factors. The resource problems identified and prioritized in a pool included (in order of importance): backwater sedimentation; water quality; shoreline erosion; lack of important habitat; lack of habitat protection; and lack of public land base. The other ranking factors included anticipated fishery benefits, wildlife benefits, habitat diversity, ease of implementation, potential for innovative or experimental construction techniques, project longevity, maintenance, and socioeconomic benefits. The second phase of the evaluation involved the development of a prioritized list of the top 20 projects from the entire river system within the St. Paul District. The prioritized list was based on the following factors: numerical ranking from phase one; the desire to implement and evaluate a variety of habitat rehabilitation and enhancement techniques; the application of the LTRM component to habitat project development; and the evaluation of existing habitat projects and those under construction. This biological ranking was forwarded to the RRF for consideration of the broader policy perspectives and river management objectives of the agencies involved. The RRF submitted the coordinated ranking to the District and each agency officially notified the District of its views on the ranking. The District then formulated and submitted a program consistent with the overall program guidance as described in the UMRS-EMP General Plan, Annual Addenda, and additional guidance provided by the North Central Division, Corps of Engineers. New habitat project proposals continue to be submitted to the FWWG for ranking and the prioritized list is updated annually to guide the project selection process for each budget cycle.

Projects consequently have been screened by biologists closely acquainted with the river. Resource needs and deficiencies have been considered on a pool-by-pool basis to ensure that regional needs are being met and that the best expertise available is being used to optimize the habitat benefits created at the most suitable locations. Through this process the Pool 9 Island Construction project was recommended and supported as capable of providing significant habitat benefits because it would directly address the major problem in the Upper Mississippi River system of backwater sedimentation.

The Pool 9 Island Construction project was introduced for study by the Wisconsin Department of Natural Resources in 1986. Pool 9 was the first pool to be used in the development of the biological ranking process by the FWWG. In November 1986, the Pool 9 Island project was included in the initial ranking of ten proposed projects in pool 9. The ranking process by the FWWG

resulted in the project being ranked as the highest priority in pool 9 (it received the highest score). Early in 1987, the Pool 9 Island project was ranked along with other proposed habitat projects for the entire St. Paul District. The total FWWG score would have placed the project in the top 20 of the prioritized list. However, the project had already been selected by the EMP participants for fiscal year 1987 funding based on prior qualitative analysis. Therefore, the Pool 9 Island project was never included in an official prioritized list. Other habitat projects that also received funding to begin general design in fiscal year 1987 included: Indian Slough, Wisconsin; Goose Lake, Minnesota; and Bussey Lake and Lansing Big Lake, Iowa. The Goose Lake project has since been deferred because of the inability of the State of Minnesota to provide cost sharing responsibilities. The other projects are either under construction or will be in 1993.

PARTICIPANTS AND COORDINATION

Participants in the project planning process included the Wisconsin and Iowa Departments of Natural Resources, the U.S. Fish and Wildlife Service (Upper Mississippi River Wildlife and Fish Refuge and Region 3 Office), local citizens, and the St. Paul District, U.S. Army Corps of Engineers (COE). The U.S. Fish and Wildlife Service (USFWS) was a cooperating agency throughout the process as required by regulations developed by the Council on Environmental Quality for the implementation of the National Environmental Policy Act (40 CFR 1500-1508). The study team met at the project site and other locations several times to discuss project objectives, designs, and reformulation. Correspondence was initiated between the agencies to coordinate the development of the project. Drafts of the original report were sent to the agencies and the public for review and comment. The comments received and the results of meetings with the agencies and public were used to formulate and develop the original selected plan. The draft of this Supplemental Definite Project Report/Environmental Assessment and/or public notice was sent to the agencies and interests listed in attachment 8. Comments received from the state agencies are included in attachment 5. Public meetings were held on May 23, 1989, and June 4, 1992. Over 45 people at the first meeting and 25 at the second heard about the project and the reformulation. Their comments were received and questions answered (see sign-in sheet in attachment 5). An informational meeting was held on June 17, 1993, in Lansing, Iowa, where additional information was exchanged with the public.

The following study team members have visited the project site and/or discussed problems and objectives and were involved in the preparation of this report (additions or changes to team members are in parenthesis):

Don Powell	Project Manager	COE
Gary Palesh/Teri Sardinas	Fisheries Biologist	COE
(John Shyne)	" "	
Jon Hendrickson	Hydraulic Engineer	COE
Jerry Blomker	Civil Engineer	COE
Mark Paulus	Cost Engineer	COE
Al Kean	Geotechnical Engineer	COE
(Joel Face)	" "	
Keith Beseke	EMP Coordinator	USFWS
Jim Lennartson	Refuge Manager	USFWS
John Lyons	Biologist	USFWS
Hannibal Bolton	Fisheries Biologist	USFWS
Rick Berry	Refuge Complex Manager	USFWS
(Jim Fisher)	" " "	
David Kennedy/Pam Thiel	EMP Coordinator	WDNR
(Jeff Janvrin)	" "	WDNR
John Wetzel	Wildlife Biologist	WDNR
Steve Johnson	Biologist	MDNR
(Mike Davis)	Fisheries Biologist	MDNR
Gary Ackerman	Fisheries Biologist	IDNR
Jim Ripple	Wildlife Biologist	IDNR
(Art Roseland)	Wildlife Biologist	IDNR
Dean Dalziel	Wildlife Biologist	IDNR
Dave Moeller	Fisheries Biologist	IDNR

PURPOSE OF REPORT

The purpose of this supplemental report is to provide a review of the original selected plan from the referenced report and to document the reasons for the changes in scope and cost of the original project. It also explains the rationale used to formulate new alternatives (including island design and layout), displays the relative costs of the alternatives, and recommends a plan for implementation. A preliminary draft of this report was sent to the U.S. Fish and Wildlife Service and the States of Wisconsin and Minnesota for review and comment. The comments that were received and the results of meetings with the agencies and individuals were used to select and develop the final plan. This report includes a new environmental assessment for the selected plan, Finding of No Significant Impact (attachment 2), and Section 404(b)(1) Evaluation (attachment 3). The draft of this Supplemental Definite Project Report/Environmental Assessment and/or public notice was sent to the agencies and interests listed in attachment 8. The comments received are included in attachment 5. In response to the comments, revisions were made to this report concerning the placement sites for access dredged material. The project construction costs were also updated.

PROJECT LOCATION AND PURPOSE

The planning study area is a 7,000-foot-long and 3,000-foot-wide backwater located along the left descending bank of the main channel of the Mississippi River, in pool 9 between river miles 654.7 and 656.0 (see plate 1). The navigation channel in this area borders the Iowa shoreline. The Iowa side of the river is characterized by steep wooded bluffs with a few scattered homes present. A large, open backwater area, Lake Winneshiek, lies between the project area and the Wisconsin shoreline. The project area is entirely within the Upper Mississippi River Wildlife and Fish Refuge and is located in Crawford County, Wisconsin.

The purpose or goal of the project is to protect the backwater in order to preserve and enhance the existing aquatic plant beds of the project area which provide diverse habitat for fish and wildlife. These plant beds and deeper areas were historically afforded protection by islands that bordered about 3,000 feet of the main navigation channel of the Mississippi River in the study area of lower pool 9. Portions of these islands, which are remnants of preinundation floodplain forest, continue to protect the project area, but their landmass has been reduced substantially over time, primarily because of erosion from the effects of wave action and overtopping during flood events.

FISH AND WILDLIFE MANAGEMENT GOALS AND OBJECTIVES

Fish and wildlife management goals and objectives for the area fall under those more broadly defined for the Upper Mississippi River Wildlife and Fish Refuge as a whole (USFWS 1988). The management objectives that most directly apply to the project area include:

Migratory Birds

+ Restore species that are in critical condition (such as canvasbacks) and achieve national population or distribution objectives.

+ Maintain or improve habitat of migrating waterfowl using the Upper Mississippi River.

+ Contribute to achievement of national population and distribution objectives identified in the North American Waterfowl Management Plan and flyway management plans.

Fisheries and Aquatic Resources

+ Maintain and enhance, in cooperation with the states, the habitat of fish and other aquatic life on the Upper Mississippi River.

Because the project area is within the Upper Mississippi River Wildlife and Fish Refuge, these management objectives, together with additional input from state and federal agency natural resource managers, were used to guide the development of specific project objectives. However, this project is only one part of a larger cooperative natural resource management effort on the river. The long term effectiveness of the project will eventually be evaluated from such a system-wide perspective.

PHYSICAL SETTING

Pool 9 is part of the Upper Mississippi River system and was created by lock and dam 9, located between Genoa and Lynxville, Wisconsin. The river valley in this pool is about 2 to 3 miles wide and is bordered on either side by weathered bluffs. The Mississippi River Commission surveys of the early 1900's and the Brown surveys of the 1930's both showed the project area to consist of a group of islands intertwined with sloughs, lakes, and ponds. One of these sloughs is still evident, paralleling the main channel between two of the island remnants at the project site (see plate 2). Pease Boys Lake and an unnamed pond or depression (additional features of the Brown surveys) are also evident in recent bathymetric surveys. The main river channel lies between the remnant islands and the bluffs on the Iowa side. The project area itself consists of shallow open water habitat ranging in depths from less than 1 foot to 5 feet. A few island remnants are present that support some willows and a few dying trees. The islands rise only about one foot or less above the normal pool elevation and about one acre of land is exposed. The older survey maps do not show any preinundation farming on, or access roads to, the islands. Bottom sediments are primarily soft silts and clays. Some firmer sands and silts are present in the areas of the island remnants. A slough approximately 50 feet wide and 8 to 10 feet deep runs adjacent to and riverward of the old island remnants. The area is shown on plate 2.

WATER RESOURCES

Like the rest of the Upper Mississippi River, the project area experiences annual high water, generally between March and July. The primary source of floodwaters is spring snowmelt combined with the increased precipitation that usually occurs during these months. Flooding has contributed to the degradation of the islands by exposing the upland vegetation to wave action, river currents, and inundation. This has been especially severe in recent years because of record high precipitation in portions of the Upper Mississippi River drainage basin upstream of pool 9. A tributary enters the Mississippi River just upstream of the project site on the river's right descending bank (the Iowa side). However, this stream has a relatively small watershed and flows directly into the main channel. It does not appear to be a factor in the degradation of the islands. A discussion of the hydrodynamics in the project area is included in appendix A.

In general, the project area is a shallow, open pool (part of Lake Winneshiek). Within the project area are a few island remnants, found primarily along the main channel border. Water depths in the project area range from 0 at the island remnants to 6 feet in backwater areas that were lakes before inundation. The average depth is about 3 feet. The main channel is up to 19 feet deep in the project area.

GEOLOGY AND SOILS

Geology - The most significant geologic event explaining the nature of the Mississippi River within pool 9 occurred at the end of the Pleistocene glaciation approximately 10,000 years ago. Tremendous volumes of glacial meltwater, primarily from the Red River Valley's Glacial Lake Agassiz, eroded the preglacial Minnesota and Mississippi River valleys. As meltwaters diminished, the deeply eroded river valleys aggraded substantially to about the present levels. Since post-glacial times, a braided stream environment has dominated this reach of the Mississippi River, due to the river's low gradient and over-supply of sediment from its tributaries. Prior to impoundment of pool 9 in 1938, the broad floodplain of the river was characterized by this braided stream system that consisted of swampy depressions, sloughs, natural levees, islands, and shallow lakes. Since impoundment, a relatively thin veneer of silts, clays, or sands have been deposited over most of the river bottom within the pool.

Soils - During May 1987, six soil borings were taken to assess the suitability of the riverbed as a foundation for islands, to determine the location of suitable material for island construction, and to determine material characteristics and properties in areas of possible dredging to improve fish habitat. In 1990, eleven more borings were taken to search for acceptable construction material in the backwater area. Plate 3 shows the boring locations in the project area and plate 4 shows the boring logs. Borings that were taken near the existing island remnants encountered very loose, silty, fine sands and/or very soft, organic silty clay within the upper layers. Loose to medium-dense silty fine sand and silt were found below the upper layer. These materials represent typical components of the islands that have been eroding in the project area. Farther off the channel, eastward into the backwater area, the borings show thick upper layers of very soft, highly plastic clay and organic clay/silt which would not support a steeply sloped island. Similar materials were found in the deeper areas of the backwater. These materials are considered too fine for island construction material but could be used to provide topsoil. Beneath the thick upper clay and silt layers were found silty sand strata with occasional layers of clean sand (less than 5 percent fines). None of the off-channel areas explored were found to be suitable borrow sites for island fill material because the material would have to be placed in an aquatic environment and would not be able to be shaped to provide a stable island structure. The one boring taken in the main channel showed a water depth of about 19 feet and fine sand with a trace of gravel to a depth of 11 feet below the river bottom. Silty sand extended to the bottom of the boring, 40 feet below the water surface. The upper 11 feet of this main channel material would be suitable for island construction.

Sediment Analysis - Sediment samples were also taken at potential dredge and placement sites and tested for the presence of chlorinated hydrocarbons, total available cyanide, ammonia nitrogen, total solids, volatile solids, total organic carbon, heavy metals, percent moisture, and particle size. The organic samples were obtained using a stainless steel core sampler and the metals samples were obtained with a plastic-lined core sampler. A ponar dredge was used to collect the sample from the main channel border because of the water depth. Composite samples for metals, organics, and a bioassay were placed in plastic containers (for the metals) and glass (for the organics and bioassay) and sent to a contracted laboratory at 4 degrees Celsius for analysis.

Concentrations of chlorinated hydrocarbons were all less than 5 ug/kg (parts per billion). Total available cyanide was less than 0.5 mg/kg (parts per million or ppm) and ammonia nitrogen was between 0.11 and 2.43 ppm. Volatile solids concentrations ranged from 0.57% to 4.5%. Total organic carbon concentrations ranged from 1.74% to 5.61%.

Metals concentrations in the sample obtained from the main channel were relatively low, as would be expected based on data obtained by the U.S. Fish and Wildlife Service in 1979 and 1980. Most of the backwater metals concentrations were within expected ranges for backwater sediments on the Upper Mississippi River. Cadmium concentrations ranged from less than 0.1 to 6 ppm; chromium from 10 to 20 ppm; copper from 11 to 18 ppm; lead from 10 to 29 ppm; mercury concentrations were all less than 0.0003 ppm; nickel ranged from less than one to 55 ppm; zinc from 24 to 88 ppm; and manganese from 430 to 880 ppm. Laboratory results for arsenic and selenium were questionable and could not be substantiated when cross checked with another laboratory. Additional sediment samples will be obtained and analyzed for metals concentrations during the final design phase to confirm that the metals concentrations are within expected ranges. Samples would be taken from borrow sites that are being considered at that time. The proposed sampling and analyses will be coordinated with the involved agencies.

NATURAL RESOURCES

Habitat Types and Distribution - Lower pool 9 (Lake Winneshiek in particular) is a broad expanse of open water extending from the Wisconsin side of the pool to strips of island remnants bordering the main channel. The main channel follows the Iowa shoreline until it angles toward the Wisconsin side just downstream of the project area.

Aerial photography obtained in 1973 and interpreted during the Great River Environmental Action Team environmental study show about 60 percent of the backwater area to be either a slough or a lake. The remaining 40 percent of the backwater area includes vegetated shallows. The vegetated shallows are dominated by a mix of wild celery and pondweeds.

The dominant habitat type in the project area is comprised of unprotected, shallow habitat with submergent aquatic plant beds. The beds are found throughout the project area, much of which is an average of 3 feet deep. The area is exposed to river current and wind- and boat-generated wave action. Within the project area there is about 50 acres of deeper, unprotected habitat that includes Pease Boys Lake, an unnamed depression just upstream of Pease Boys Lake, and a slough that parallels the main channel. These areas are subject to high flows and suspended sediment from the main channel. About 11 acres of shallow habitat that is minimally protected from boat-generated waves exists behind the island remnants.

The island remnants shown on plate 2 provide limited, biologically nonproductive upland habitat because they are frequently overtopped. Less than one acre of upland habitat remains above normal pool elevation (619.5 NGVD, 1912). The islands rise less than one foot above the water. Sparse, if any, vegetation is found on the island remnants. Snags are found on these remnants and provide perches for raptors and other birds.

Vegetation - Lowland hardwood forests were common to the islands in lower pool 9 prior to inundation and are found on nearby intact islands. Along sandbars and mudflats, black willow and cottonwood are commonly found. River birch and swamp oak are the dominant species at the upland edge of the floodplain. Silver maple and American elm are found in both of the above locations as the plant communities mature. A few of the trees have attained large size. Common understory species include wood nettle, poison ivy, wild grape, and woodbine. Within the project area, most of the woody vegetation and understory on the island remnants have died because of erosion and frequent, prolonged inundation.

Submerged plant species found at the project area include sago pondweed, coontail, water stargrass, wild celery, lotus, and pond lilies. Emergent species include river bulrush, bur reed, and arrowhead. A bed of wild celery is found in the 35-acre backwater known as Pease Boys Lake. Wild celery is also found throughout the remaining backwater area interspersed with other submergent vegetation.

Fish and Wildlife - The project area has aquatic vegetation and silt bottom substrates that are important for invertebrate populations, but little of the coarser substrates that would provide more habitat diversity. Wing dams are found on the small channelward island remnant. Important groups of invertebrates within the project area include aquatic insects and freshwater mussels. Immature stages of mayflies, midges, and caddis flies are commonly found in these areas on the river. The mayfly nymphs contribute significantly to the conversion of detritus to high quality fish food. Caddis flies are abundant in aquatic habitats with submerged woody vegetation, like the stumps remaining on the eroded islands.

A mussel survey conducted in 1979 within the main channel adjacent to the project site found species present that included threeridge, pimpleback, deertoe, fawnfoot, maple leaf, and hickory nut. Mussels were sampled by the Wisconsin Department of Natural Resources (WDNR) in July 1987 in a portion of the project area. Species found in the project area included: fragile papershell, threeridge, pimpleback, floater, deertoe, pigtoe, fawnfoot, and fat mucket. There was an apparent lack of mussels and mussel beds within the area sampled. One specimen of the Federally-endangered Higgins' eye pearly mussel was found during one of the runs. It was the only mussel specimen found during that particular 5-minute brail run. Because of the apparent lack of mussel beds at the collection site, the Higgins' eye seemed to be an isolated find. However, there has been little dredging in the main channel adjacent to the project site and there could be beds in the deeper water that were not sampled during this survey. Habitat suitable, and recommended for classification as essential, for Higgins' eye is located between river miles 655.5 and 658.5. Part of this area lies directly across the main channel from the project site.

About 80 species of fish are commonly found in pool 9. Fish presently expected to be using the project area include sunfish, crappies, bullhead, carp, and forage species.

Because of the lack of habitat, relative inaccessibility to the islands, and frequent overtopping of the remnant islands, few mammalian species are commonly found in the project area.

The great variety of bird species that use the pool 9 area can be attributed to its location within the Mississippi flyway and the overlap of the ranges of eastern and western species. Many species of migratory waterfowl have been known to use the project area in the recent past. Canvasbacks, ring-necked ducks, and scaup use the deeper areas of the backwater while mallards, widgeon, blue-winged teal, and wood ducks use the shallower areas near the islands. The canvasbacks that use pools 7, 8, and 9 have been estimated to represent up to 90% of the continental population west of the Rockies. Most of the eastern population of tundra swans (80,000 birds) also use the pool 7, 8, and 9 wetland complex. Because of the reduced island landmass, less of the backwater is protected from wave action. In general, the use of the area by waterfowl has declined in the past 15 years. While waterfowl populations have declined, the decline in use at this site has seemed to mirror the erosion of the islands and the resulting reduction in protected backwater area.

THREATENED AND ENDANGERED SPECIES

The project area is within the known ranges of the bald eagle (Haliaeetus leucocephalus), a federally-listed threatened species, and the peregrine falcon (Falco peregrinus) and Higgins' eye pearly mussel (Lampsilis higginsi), federally-listed endangered species. There are no known nesting sites within the project area for either of the raptors, but they may be sighted during migration. An active bald eagle nest exists about one mile upstream of the project area. As stated above, a mussel survey in the summer of 1987 revealed one specimen of the endangered mussel species. This specimen, a female, was marked and returned to suitable habitat across the main channel from the project area after consultation with both the Iowa and Wisconsin Departments of Natural Resources and the U.S. Fish and Wildlife Service.

CULTURAL RESOURCES

Past surveys have shown many prehistoric and historic archaeological sites on islands in the Mississippi River. The eroded condition and low height of the remaining islands in the project area reduce the probability of finding undisturbed deposits that would contain artifacts.

RECREATION/AESTHETIC RESOURCES

The beach maintenance plan endorsed by the River Resources Forum (RRF) for pool 9 does not include any recommended beach maintenance actions below Lansing, Iowa, which would include this project area. The lower pool physical characteristics make it undesirable for beach development because of the lack of islands with sandy beaches and overstory shade trees. Endorsement by the RRF, an interagency advisory group, means that the plan is not in conflict with channel maintenance activities and that it includes the use of dredged material for beach enhancement wherever possible.

The St. Paul District, with assistance from Region 3 of the U.S. Fish and Wildlife Service and various regional, State, and local agencies that have an interest in the river, developed a land use allocation plan for the Upper Mississippi River. The purpose of the plan is to balance and enhance public recreational use and fish and wildlife management while maintaining the river navigation system. This plan shows that islands near the project area are allocated for wildlife management, not recreational use.

There are no parks on the bluffs overlooking the project area. Main roads lie inland while a gravel road leads to a small community of permanent and mobile homes at the base of the bluff on the Iowa side of the river. A railroad parallels the river, riverward of the road. A boat launch on the Iowa side of the river is about 1 mile downstream of the project area. Across the river in Wisconsin lies Cold Spring Landing, a popular boat launch area for local fishing enthusiasts. A railroad and State Highway 35 parallel the riverbank on the Wisconsin side and offer a relatively unobstructed view of the entire project area, about 2 miles across the river valley.

SOCIOECONOMIC RESOURCES

The project area is about 10 miles downstream of Lansing, Iowa. The blufftops just west of the project area are cultivated fields with a few homesteads. About 30 frame and mobile homes are located along a 1-1/2 mile stretch of gravel road at the base of the bluff on the first terrace above the river. The Wisconsin blufftops, about 2 miles east of the project area, are also primarily cultivated fields with a few homesteads.

PROBLEM IDENTIFICATION

HISTORICALLY DOCUMENTED CHANGES IN HABITAT

The plant beds and deeper areas in the project area were historically afforded protection by islands that bordered about 3,000 feet of the main navigation channel of the Mississippi River in the study area. Portions of these islands, which are remnants of preinundation floodplain forest, continue to protect the project area, but their landmass has been reduced substantially over time, primarily because of erosion from the effects of wave action and overtopping during flood events. Shortly after inundation in 1938, the island complex in the project area comprised 38 acres. By 1984, only 3.5 acres were left, representing a 91-percent loss of landmass. Currently, only a few trees and brush can be seen protruding above the water at normal pool elevation. The remaining islands have a current estimated total area of less than 1 acre at normal pool.

FACTORS INFLUENCING HABITAT CHANGE

The factors potentially influencing the habitat changes in the project area are numerous, complex, and interrelated, but the primary factors are wave action and its resultant erosion of the existing islands and resuspension of fine sediments reducing light penetration in the unprotected backwater area. Overtopping of the islands during floods has been frequent since impoundment

caused by the construction of lock and dam 9. This, combined with wind- and boat-generated wave action, has reduced the island landmass significantly. According to Peck and Smart (1986), navigation-induced resuspension of sediments and transport into backwaters readily occurs during low flows when trapping efficiencies are highest in the backwaters. The aquatic macrophytes are adversely affected by these conditions. The increased trapping efficiency can result in reduced acreage of important fish habitat (deep water with little or no current).

The major habitat component in the project area, aquatic vegetation, is influenced by the loss of these islands. The islands no longer prevent sediment-laden water from routinely entering the backwater areas. Wave action resuspends the sediment in the shallow backwater areas, can physically uproot aquatic vegetation, and can flush floating plants from the backwater. Vegetation is indirectly affected by sediment resuspension which results in reduced light penetration. The resuspension leads to a decrease in the photic zone which can have a large impact on the available bottom substrate capable of supporting aquatic plant growth. An example of how changes in suspended sediment can affect vegetative growth is demonstrated by Korschgen's (USFWS, unpublished) analysis of lower pool 8 data that showed a two-fold increase in ambient suspended sediment concentrations (increase from 20 mg/l to 40 mg/l) would decrease the 1% photic depth from 133 cm to 105 cm (a 27% decrease).

As breaks in the island chain formed, suspended sediments from the main channel and shallow backwater areas of Lake Winneshiek have been able to readily enter the project area. The movement of the sediments tends to fill in the deeper areas that provide desirable fish habitat.

EXISTING HABITAT DEFICIENCIES

The most visible habitat deficiency is the lack of about 3,000 linear feet of stable island landmass to protect the backwater area from both sediment-laden main channel flows and boat-generated wave action. The existing remnant island landmass is expected to completely disappear within about 5 years. The use of the area by migratory waterfowl has declined. Losses of the vegetation beds behind the islands are also occurring, although the rate of loss has not been as accurately identified as the loss of landmass. There has been a documented loss of vegetation (primarily wild celery) in pool 8 where a loss of island landmass similar to pool 9 has occurred. In the project area of pool 9 there is a deficiency of at least 90 acres of shallow aquatic habitat directly protected from boat-generated waves and about 40 acres from wind-generated waves. Reduction of the commercial fishing in pool 9 reflects the deficiency of adequate deep water for fish in the project area. Most of the backwater within the project area averages 3 feet deep. These shallow areas don't provide desirable winter habitat for fish because of ice formation and possible oxygen deficits.

The loss of land mass in the backwater has also contributed to the deterioration of aquatic vegetation in the backwater. A relatively dense aquatic plant bed approximately 20 acres in size covers a portion of the project area. Species in the bed include pondweeds, coontail, wild celery, and watermilfoil. This aquatic bed is located in an area that was protected by the remnant islands. Now that the islands have eroded away it is expected that if no action were taken, this plant bed would disappear over the next 10 to 15 years due to wave action. The major habitat component in the project area, aquatic vegetation, is influenced by the loss of these islands. The islands no longer prevent sediment-laden water from routinely entering the project area. Wave action resuspends the sediment in the shallow backwater area, can physically uproot aquatic vegetation, and can flush floating plants from the backwater. Vegetation is indirectly affected by sediment resuspension which results in reduced light penetration. The resuspension leads to a decrease in the photic (lighted) zone which can have a large impact on the available bottom substrate capable of supporting aquatic plant growth.

ESTIMATED FUTURE HABITAT TYPES AND DISTRIBUTION

The erosion of the remaining islands would continue until no landmass remains if there was no stabilization effort. The historic rate of island loss suggests that the remaining landmass could disappear within the next 5 years. As the islands continued to erode, sediment-laden water from the main channel and Lake Winneshiek would reach the project area more frequently. The sediment introduced during flood events and that sediment already present in Lake Winneshiek would be readily resuspended throughout the backwater by wind- and boat-generated waves and would fill in the deeper areas, resulting in a 2- to 3-foot deep pool with little bathymetric or topographic diversity. The relatively small area of shallow habitat that is protected from boat-generated wave action would disappear as the islands erode. In the project area there would eventually be a deficiency of about 40 acres of protected, shallow habitat that provides a submergent vegetation community for the support of benthic organisms and fish. In addition to the loss of vegetation, there would be increased sedimentation in the deeper areas of the backwater, resulting in additional deficiencies in fish habitat, especially in the 40-acre Pease Boys Lake and a 5-acre unnamed depression just upstream. During the critical early growing season, reduced light penetration and the physical effects of wave action would adversely affect the establishment of aquatic plant beds.

During years of low flow, sediment load in suspension is less, turbidity is lower, and light penetration increases. Increased light penetration leads to increases in primary production. Under these conditions, aquatic plant beds become established and will usually maintain themselves for a few years, even when followed by periods of average or slightly above average flow. However, without some form of barrier like that provided by islands, these aquatic plant beds would be reduced in size and vigor or disappear altogether, even under ideal river conditions. The lack of protection from wave action would result in increased turbidity, reduced light penetration, and disruption of the vegetation during the early part of the growing season.

Presently, the project area provides moderate value habitat for a variety of fish species such as largemouth bass, bluegill, gizzard shad, white bass, and others. The aquatic plant bed and the remnant slough are the features that provide the best fish habitat in the area. If the aquatic plant bed slowly disappears, as is projected, the habitat value of the project area for fish will also decline to the point where the area will provide only marginal fish habitat. Deficiencies of desirable habitat will vary from year to year depending on flood intensity, sediment loads, and wave action. Over the next 50 years, the average deficiency of each habitat type in the project area will likely result in the following scenario.

In summary, the cumulative effects of sedimentation and loss of protection by the islands will lead to a net loss of desired aquatic habitats in the area and an overall decline in habitat quality in the project area. With the exception of periods of low flow and the immediate years thereafter, this decline would be substantial. As deeper areas fill in with sediment, the area of available fish habitat will decline. Large areas of low quality habitat will ultimately result. Under this situation, the attainment of the fish and wildlife management goals for the area would not be realized.

PLANNING OPPORTUNITIES

The principal purpose of plan formulation is to develop a plan that provides the best use, or combination of uses, of water and land resources to meet the project objectives. The plan formulation process must also consider the identified planning opportunities and constraints.

Planning opportunities are physical conditions, plans by others, and available resources considered in formulating alternative plans to address the management objectives for the project area. Characteristics of the project area were considered during design of the islands. Whenever possible, the existing physical conditions and material availability should be used to conserve non-renewable resources and in the design of project features. The islands were designed to take advantage of the remaining island landmass as a buffer.

Depending on the island design, coarse material (sand) may be necessary for island stability and to minimize turbidity during in-water placement. The nearby main channel was considered to be the most economical material source and was used as a basis for island design. Coarse dredged material for constructing islands is also available at dredged material placement sites near Lansing, Iowa, about 9 miles upstream of the project site. Transport of the material by barge could be economical for this project and would be analyzed during the next phase of project development. Investigations in the backwater were made to see if suitable island fill material was available from off-channel areas of the backwater so that additional deep water fish habitat could be realized. This is discussed later in this report. Rock for island structures may be available at no cost from a proposed stockpile area at Clayton, Iowa, in pool 10. Island cross sections could be developed that would minimize riprap requirements by utilizing low berms and woody vegetation for wave dissipation in the less exposed areas.

Topsoil could be obtained from the backwater in the project area.

PLANNING CONSTRAINTS

Any structures must be designed with consideration of the hydrologic regime and water regulation of pool 9, must not induce increased flood elevations of more than 0.01 feet during a 100-year recurrence interval flood event on the Mississippi River, and must not cause unacceptable current patterns. Structures should be designed to withstand forces of water currents and wave action associated with a 50-year project life.

ENGINEERING

Any dredged material must be placed at an approved site or used beneficially. Construction material must be adequate to provide a stable structure and construction procedures must be environmentally acceptable. Construction access must be possible for normal construction equipment. Project features must be designed for a minimum 50-year life and operation and maintenance requirements must be minimized.

NATURAL RESOURCES

There is a chance of encountering habitat for Higgins' eye pearly mussel in the main channel near the proposed project area. Therefore, the areas would have to be surveyed for the Higgins' eye and avoided if encountered.

ECONOMIC

The cost of project features must be reasonable for the specific site when compared to the estimated habitat improvements. A proposed project has to be incorporated into the overall EMP funding limitations.

INSTITUTIONAL

The project area is located within the Upper Mississippi River Wildlife and Fish Refuge and, as such, must be compatible with the primary purposes of the Refuge and be consistent with the management objectives. The Master Plan for the Refuge includes island construction and rehabilitation projects in pool 9 to improve water quality in the backwater. The Upper Mississippi River Land Use Allocation Plan prepared by the St. Paul District, Corps of Engineers shows that the U.S. Fish and Wildlife Service owns the islands and that their land use allocation is for wildlife management. This allocation is for the islands only and not the backwater area. The proposed project does not conflict with the goals of the Refuge Master Plan.

LEGAL

The plan must comply with all Federal and State laws and regulations. Project features must be constructed on federal government or local sponsor lands or else long-term easements must be obtained for use of private land.

PROJECT OBJECTIVES

The ultimate purpose or goal of the project is to preserve, enhance, and restore the existing aquatic plant beds which provide diverse habitat for fish and wildlife. The primary objectives of the project are to provide a stable barrier that will prevent the direct movement of flow through the project area adjacent to the main channel and to provide protected, shallow habitat in the backwater that will increase light penetration and subsequent aquatic plant beds in the area. Secondary objectives of the project include protecting the backwater area from boat-generated waves to improve water clarity, providing predator-free island habitat for migratory waterfowl resting, and providing additional deep water fish habitat in the backwater area.

For the purposes of design and future evaluation, project objectives were carefully selected. Specific physical/chemical goals are required to arrive at an engineered solution to the habitat problems that are present. Current guidance on project evaluation indicates that the prime focus of this effort should be on measurable chemical and physical parameters, with limited direct monitoring of biological features (i.e. vegetation studies only). Therefore, the stated project objectives were narrowly defined to reflect those aspects of the project that could be designed for and then monitored and evaluated in the future. Meeting these objectives is not expected to be the only end products that result from construction of a project in the area. Net positive effects should be experienced outside the immediate project area. A detailed description of these can be found in subsequent sections of this report. Based on the establishment of design criteria and future project performance assessment, the specific project objectives shown in table DPR-1 were identified.

Table DPR-1 - Project Objectives

OBJECTIVE #	Description	PHYSICAL CHARACTERISTICS Existing	Goal
1	Reduce flow through a reach of the backwater area	0 ft	3000 ft
2	Provide protected, shallow habitat in the backwater area for vegetation	0 ac	40 ac
3	Protect the backwater area from boat-generated waves	11 ac*	100 ac
4	Provide island habitat for migratory waterfowl	0 ac	10 ac
5	Provide additional deep water fish habitat	5 ac*	7 ac

*This quantity will decrease to zero for future conditions.

ORIGINAL PLAN FORMULATION

The principal purpose of plan formulation is to develop a plan that would provide the best use, or combination of uses, of water and land resources to meet the project objectives. Much discussion by the project participants and design effort centered around achieving the desired project objectives with the lowest first costs, and yet minimal maintenance requirements. The risk and consequences of island erosion by river currents and wave action were of particular concern. Island locations, alignments, and cross section designs were developed to best meet these sometimes conflicting desires, based on the past and growing experience of the project participants. The selected design project life of 50 years was an early product of the plan formulation process that helped guide the detailed design efforts.

ORIGINAL ALTERNATIVES CONSIDERED

Seven alternative designs were considered in detail during the original plan formulation process, including the no-action alternative and six island construction alternatives. These and other preliminary designs are described below.

NO ACTION

With this alternative, no project would be implemented using Federal funds. Specific details of future conditions with no action have been described in previous sections.

ISLAND RESTORATION/CONSTRUCTION ALTERNATIVES

The original island configurations were developed by the Wisconsin Department of Natural Resources in the early stages of the planning process. The design included one island paralleling the main channel and a horseshoe-shaped island. In order to offer protection from the wind fetch, the island alignment extended out into the backwater. This design was reworked to be compatible with existing project site features and became plan 1 below. Early in the planning process, another general island layout was discussed. This consisted of constructing an island across the slough that lies between the two existing major island remnants. This alternative was abandoned as it would have greatly reduced the flow through the existing submerged slough and the island could be subject to relatively high flow velocities when overtopped because of the location adjacent to the main channel. Alternative plan 2 was developed as a less extensive plan to reduce the quantity of dredging and subsequent costs. After cost analyses of the first two plans were completed and a coordination meeting was held with the involved agencies, plans 3, 4, 5, and 6 were formulated to further reduce the cost of the project, with the main emphasis on meeting the primary project objectives.

Plan 1 - This plan includes the construction of two islands. One would lie completely along an alignment parallel to the main channel. It would form a 100-foot-wide, 2,000-foot-long barrier preventing main channel wave action from entering the adjacent parallel slough area. The second island would be wishbone-shaped, and part of it would lie on the remains of islands that have eroded, forming a 100-foot-wide, 4,200-foot-long barrier to sediment from main channel waters. The rest of the island would extend into the backwater area to create an additional 2,200-foot barrier against wind-generated wave action. The slough would continue to flow between the two proposed islands. Approximately 1,400,000 cubic yards of material would be required to construct these islands. See plate 5 for the proposed island configurations. About 8,000 linear feet of the islands most susceptible to wave action would be riprapped. Vegetation would be used to stabilize the island tops. The seed mixture used would include switchgrass, brome, perennial rye, and sand dropseed.

About 32 acres of island habitat would be created with the construction of the two islands. About 10 acres of backwater would be deepened to about 6 feet to provide topsoil for the islands and improved habitat for fish. This would yield about 71,000 cubic yards of fine material. One area that was considered for use as a source for topsoil was Pease Boys Lake. This is the deepest section behind the existing islands and has access to the main channel at its south end. However, this location was found to have some well-established beds of wild celery, an important waterfowl food, so it was dropped from consideration.

Island 1 would protect about 164 acres of the backwater from boat-generated waves. In the areas within and beyond the island arms, about 80 acres would be sheltered from the predominate northerly wind-generated wave action. In the area between Islands 1 and 2, about 33 acres would be protected from boat-generated waves and about 19 acres from wind waves. The estimated cost of this plan was $3,953,000.

Plan 2 - Plan 2 consisted of the construction of a reduced portion of the wishbone-shaped island only. This second plan was developed in order to investigate a less costly island construction scenario while still accomplishing the project objectives. In this proposal, a 50-foot-wide, 3,400-foot-long hook-shaped island arm would form a barrier to wind fetch across pool 9 to reduce turbidity. The second arm, which would be the same width but 2,200 feet long, would prevent sediment-laden main channel water from entering the backwater area. See plate 6 for a plan view of the alternative. About 5,700 linear feet of the island would be riprapped and vegetation would be used as in plan 1 to stabilize the island top.

About 15 acres of island habitat would be created. Fine material would be dredged to provide about 12,000 cubic yards of topsoil for the island and deepen 2 acres for fish habitat. The area protected from boat-generated waves would be about 148 acres. Because the island would be hook-shaped, the area protected from wind-generated wave action would be about 83 acres. The slough would not be protected from the main channel and only partially from wind fetch across pool 9 with this plan. Approximately 155,000 cubic yards of material would be required to construct this island. The cost for this plan was estimated to be $1,513,000.

Plan 3 - This plan was developed to make use of the most recent innovative designs for island construction; that is, locating the new islands adjacent to the backside of the existing remnant islands and using berms and woody vegetation (rather than riprap) to maintain the structural integrity of the main portion of the new islands. The remnant islands would act as a buffer as boat-generated waves approach the newly constructed islands. The berms would be covered with fine sediment, and vegetation would be planted to protect the main portion of the islands from erosion. These berms would be permitted to erode and would eventually form a gentle, more stable beach (approximately 1 vertical on 10 horizontal) to maintain the structural stability of the main portion of the islands. The height of the islands above normal pool (6 feet) is about 2 feet lower than for plans 1 and 2 so that moisture to establish protective vegetation on the islands is more readily available to the plants. Typical island cross-sections are shown on plate 10. Duration curves showing the percent of time water is at or above elevation 626 (5-year flood elevation) were examined. From 1940 to 1988, this elevation was reached or exceeded 0.7% of the time during March, 5.3% of the time during April, 1.4% of the time during May, 0.1% of the time during September, and 0.5% of the time during October, for an annual average of 0.7% of the time.

Two islands roughly parallel to the main channel would be located on the east side of the remnant islands (see plate 7). The upstream island (Island 1) would be 2,200 feet long and the upstream end of the island would curve into the backwater area about 1,100 feet to protect a 45-acre area within the hook-shaped island and for a short distance downstream from northerly wind-generated waves. Another island (Island 2) about 1,800 feet long would be located about 600 feet downstream of the first island on the east side of the remnant islands, generally parallel to the main channel. A slight curve into the backwater area on the upstream end of the island would further protect the backwater area from main channel waves and associated sediment. No riprap would be necessary on Island 2, but 30-foot-wide berms would be used on both sides of the island, except a 20-foot berm would be used where remnant islands exist. The reason for this berm is described above. A much smaller island (Island 3) about 750 feet long would be located between the main channel and the natural submerged slough west of Island 1. Island 3 would also use a remnant island as a buffer. The top width of all the islands would be 50 feet at top elevation 626. About 1,400 linear feet of the hook on Island 1 and the entire channel side of Island 3 (about 1,000 linear feet) would be riprapped. The 30-foot-wide berm on the backside of the islands would be about 1-1/2 feet above normal pool. In those reaches on the front-side of the islands where riprap was deemed unnecessary because of the additional protection afforded by remnant islands, a similar berm would be used to provide protection and vegetative cover. The center portion of the islands would be constructed to form a dish-shaped area. This would allow a 3-foot-depth of fine sediments to be placed on the islands for vegetative purposes. The fine sediments would be dredged from the backwater area adjacent to the existing 5-acre unnamed depression to provide additional deep-water fish habitat. The berms would also be dish-shaped to receive a foot of fine sediment to permit the establishment of vegetation on the berms. Woody vegetation (such as willows) and possibly species of wet shrubs would be planted and secured on the berms to reduce erosion, while a seed mix including sand dropseed, perennial rye, brome, and switchgrass would be used on the island tops.

About 14 acres of island habitat would be created. Fine sediment from near the existing unnamed depression in the backwater area would be dredged to provide topsoil for the islands and deepen about 3 acres for improved fish habitat. The water area protected from boat-generated wave action would be about 160 acres. Approximately 148,000 cubic yards of granular material would be required to construct the islands and about 20,000 cubic yards of fine material would be used as topsoil. The cost for this plan was estimated to be $895,000.

Plan 4 - This plan is identical to plan 3 as shown on plate 7 except that Island 3 was deleted because it did not appear to provide significant protected area benefits and the large quantity of riprap made it relatively high cost. About 12 acres of island habitat would be created. The requirement for about 17,000 cubic yards of topsoil for the islands would mean dredging of about 3 acres, creating fish habitat. The area protected from boat-generated wave action would be about 144 acres and from wind-generated waves about 41 acres. Approximately 125,000 cubic yards of granular material would be required to construct the islands and about 17,000 cubic yards of fine material would be used as topsoil. The cost for this plan was estimated to be $731,000.

Plan 5 - This plan was a continuous island located in the same general area as plan 4 with a tighter bend in the hook on the upstream end of the island. A plan view is shown on plate 8. Total length of the island is 4,000 feet. About 1,000 feet of the upper end of the island would be riprapped. The remainder of the island would use the berm and remnant island buffer design described for plan 3. About 12 acres of island habitat would be created. About 2 acres of the backwater area would be deepened to provide topsoil for the island and improve fish habitat. The area protected from boat-generated waves would be about 140 acres and about 40 acres would be protected from wind-generated waves. Approximately 126,000 cubic yards of granular material would be needed to construct the islands and about 13,000 cubic yards of fine material would be used as topsoil. The cost of this plan was estimated to be $615,000.

Plan 6 - This plan is a combination of plans 4 and 5. It consists of two islands: the 1,800-foot-long Island 2 as in plan 4 and an 1,800-foot-long upstream island with the same hook as for plan 5. This plan is shown on plate 9. About 11 acres of island habitat would be created, about 124 acres protected from boat-generated wave action, and about 36 acres protected from wind-generated wave action. About 1.7 acres of backwater area would be deepened for fish habitat and topsoil for island topsoil. Approximately 112,000 cubic yards of granular material would be needed to construct the islands and about 11,000 cubic yards of fine material would be used as topsoil. The cost of this plan was estimated to be $587,000.

Plan Summary - All of the alternative plans would provide a complete or partial barrier during normal flows between the main channel and the backwater area to address the primary objective of providing a stable barrier to stop sediment from reaching the backwater area. The alternative plans would meet, in varying degrees, the other primary objective of reducing wave action in the backwater area. A summary of the habitat affected and the material requirements for each alternative plan are shown in table DPR-2.

Table DPR-2 - Summary of Alternative Plans

PLAN	# OF ISL	ISL LENGTH* TOTAL/BARRIER ft	AREA PROTECT** BOAT ac	AREA PROTECT** WIND ac	HABITAT RESTORED ISL ac	HABITAT RESTORED FISH ac	ISLAND FILL cy	TOP-SOIL cy	ROCK RIPRAP cy	TOTAL COST $
1	2	8400/4200	197	99	32	10	617,000	71,000	27,000	3,953,000
2	1	5600/3300	148	83	15	2	155,000	12,000	18,000	1,513,000
3	3	4750/2900	160	45	14	3	148,000	20,000	5,000	895,000
4	2	4000/2900	144	41	12	3	125,000	17,000	3,700	731,000
5	1	4000/3000	140	40	12	2	126,000	13,000	2,300	615,000
6	2	3600/2600	124	36	11	1.7	112,000	11,000	2,300	587,000

*Total island length / Effective length of barrier parallel to main channel.
**Area protected from boat- and wind-generated waves.

ORIGINAL SELECTED PLAN OF ACTION

The original project recommended in the referenced Definite Project Report included construction of one continuous island as described above in alternative plan 5 and shown on plate 11. It included a 4,000-foot-long island in the same area as the remnant islands. The proposed island would be built to a height of 6.5 feet above the normal water surface with a 50-foot top width (see Plate 2). The upstream end of the island would extend into the backwater about 1,000 feet and would be stabilized with rock riprap. The remainder of the island would be stabilized by using berms 20 to 30 feet wide and planted with vegetation to prevent erosion of the main body of the island. Fine sediments dredged from the backwater area would be placed in the center portion of the island and on the berms for topsoil. The island location and design would result in a reduction of the effects of boat- and wind-generated waves which, in turn, would reduce turbidity. The island would also prevent direct sediment-laden main channel flows from entering the backwater in the project area. The project would restore some of the lost island landmass, increasing habitat diversity. The total direct Federal construction cost was estimated to be $527,000 and operation and maintenance (conducted by the U.S. Fish and Wildlife Service) estimated to be $3,500 annually. The participants in the planning process provided written and verbal suggestions that were considered fully during plan development and selection. Their written comments, a compatibility statement for the Upper Mississippi Wildlife and Fish Refuge, and a letter concurring with the Corps' original recommendations are included in attachment 4.

The River Resources Forum (a consortium of Federal and State agencies with responsibilities to oversee activities related to the Upper Mississippi River) endorsed implementation of the proposed project. The proposed project was presented at a public meeting on May 23, 1989, in Ferryville, Wisconsin. Several people encouraged the use of adjacent backwater material to construct the island. Others commented on the need to also rehabilitate other areas of pool 9.

The selected plan was approved by the Chief of Engineers for construction in memorandum dated 20 December 1989 (attachment 4).

PROJECT DESIGN AND COST CHANGES

Public involvement, additional engineering and design studies, and local contractor availability resulted in design and cost changes to the original selected plan described above.

PUBLIC INVOLVEMENT

A public meeting was held on May 23, 1989, at Ferryville, Wisconsin, (just east of the project area) to discuss the proposed project and obtain local input. At that meeting the local residents desired that more island construction material be obtained from the backwater to provide deep water habitat for fish. It was explained that backwater material was generally not suitable to construct islands because it normally consists of too high a percentage of fine material to build a stable structure. It was agreed to search the backwater area for suitable material. Numerous soil borings were obtained in the area, but no suitable construction material (sand) near the surface of any of the borings was found. At the public meeting there was also a concern about possible erosion of the island. During the initial design, it was anticipated that the island would not need to be protected on the backside, only selected reaches of the upstream end and main channel side. It was decided that a reanalysis of the island design was needed because of the vulnerability of the island in the wide open reach of pool 9 and the desire to incorporate additional backwater material into the design.

ENGINEERING AND DESIGN STUDIES

As described above, additional engineering and design studies were initiated subsequent to the completion of the referenced final Definite Project Report and the public meeting to evaluate island stability and layout and maximize the use of fine backwater material. The islands proposed for pool 8 were also being reanalyzed at the same time because of public desires to maximize the use of backwater material. Therefore, it was decided to concentrate efforts on the optimization of the Pool 8 island design, with the idea of using a similar design for the Pool 9 project. After the Pool 8 design was completed, an analysis of the Pool 9 project area was made and a new island design and layout was developed.

The project location is in the open expanse of pool 9 and is subjected to waves generated not only from boats in the main channel and winds from the northwest, but also waves generated by winds in the 3-mile-long fetch from the southeast. The alignment of the original selected plan would not protect the backwater in the project area from the southeast and the east side of the proposed island would not be protected from wave erosion. Further engineering analysis and field investigations also indicated that sediment-laden flow from the main channel may not be as great a factor in sedimentation of the project area as initially assumed. There are no defined side channels entering the project area so there is not a concentrated filling with sediment, but an overall shallowing of the project area is occurring over time.

LOCAL CONTRACTOR AVAILABILITY

Changes in contractor availability in the project vicinity have caused significant changes in the estimates of unit cost for island fill. Pool 9 was one of the first island construction projects submitted for approval. When the cost estimate for the original design was forwarded to higher authority, it was prior to the time when M-CACES was standard operating procedure for cost estimating. The estimate was based on historical information available from other dredging contracts. The estimate assumed that fill material could be placed hydraulically for a cost of $2.50 per cubic yard because, at that time, a local hydraulic dredging contractor in the area was accomplishing dredging for this price. This is no longer the case since that contractor is no longer in business. The lowest quote received late in 1990 for the Pool 8 project from non-local hydraulic dredgers was $4.50 per cubic yard with little interest in bidding the project because of the relatively small quantity of material involved. The actual unit price bid by the low bidder for the Pool 8 project in September 1991 was $5.46 for sand fill and $6.95 for fines fill. Other bidders were as high as $6.80 for sand and $9.60 for fines. Therefore, it was obvious that the Pool 9 project cost presented in the final Definite Project Report was too low and the estimated project cost would increase substantially for the original project design.

REFORMULATION OF ALTERNATIVES

The project design and cost changes described above made it necessary to reformulate the project. This involved layout and design changes to better address the project objectives and a value engineering study to determine if there were lower cost alternatives to address the objectives. A habitat evaluation analysis was also performed for each of the alternatives considered.

LAYOUT AND DESIGN CHANGES

The layout and cross-section design of the Pool 9 island project was revised based on the Pool 8 island design, additional engineering studies and site visits, and additional knowledge gained from recently constructed habitat projects. The revised island layout was based on the following factors: a) the island(s) should maximize benefits to fish and wildlife; b) the existing island remnants should be used for shoreline protection by constructing the island(s) on the sheltered side of the remnants; c) the island(s) should follow shallow depths as much as possible to reduce material quantities and associated costs; and, d) the island(s) should be positioned so that the maximum amount of existing emerged aquatic vegetation is sheltered. This criteria resulted in a proposed project with 3 islands (see plate 12) rather than the one continuous island as originally proposed.

The cross-section of the island design was also changed. The main differences from the original design are: the rock riprap thickness was increased from 24 to 27 inches; a greater length of the islands are protected with riprap; the berm width was increased from 30 to 40 feet; and a greater amount of fine material to be dredged from the backwater is incorporated into construction of the island (see plate 13).

ALTERNATIVE EVALUATION

The original study did not include a habitat based analysis of the alternatives because the project was formulated before habitat evaluation procedures had been adopted for quantifying habitat benefits for EMP habitat projects. The procedures for developing habitat projects were still evolving. For this reformulation and alternative evaluation, an abbreviated habitat evaluation analysis was performed using habitat evaluation procedures to better quantify the habitat benefits. Details of the analysis, a discussion of habitat values, and rational for the selection of Habitat Suitability Index's are included in appendix C.

INCREMENTAL ANALYSES

The islands were evaluated individually and in combination with each other in order to determine the cost and habitat benefits associated with each alternative. Islands A and B were examined as a unit because, when combined, the two islands can protect the interior area from both southeast and northwest winds. Island C can be included as an independent element of the project because of its location, but Island B also acts to protect Island C from the southeast. The quantities of material needed to construct the revised project, the estimated range of total direct construction costs, the average annual gain in habitat units computed for each island alternative, and the associated annual project cost per habitat unit for each island and combination are shown in table DPR-3.

Table DPR-3 - Sand and Fines Islands

ISLAND	Quantities - CY Sand	Fines	Rock	Construction Cost Range (1000s)	AAHU Gain	Cost/AAHU*
A	82,000	15,000	8,300	$800 to $1000	24	$3,376
B	56,000	10,000	6,000	$600 to $800	18	$3,501
C	78,000	12,000	4,300	$600 to $800	8	$7,878
A & B	138,000	25,000	14,300	$1400 to $1800	47	$3,065
A, B & C	216,000	37,000	18,600	$2000 to $2600	55	$3,765

*Cost based on the median construction cost within the cost range shown.

The average annual cost per habitat unit for the sand and fines islands shown above were considered to be relatively high to rehabilitate habitat in the project area. Therefore, a value engineering team was designated to analyze the plan and develop an alternative design that would satisfy the primary objectives of preventing sediment from entering the backwater area and reducing wave action in the backwater area. The value engineering team developed a rockfill structure with the same layout as the above alternatives. This design would use only rockfill for the construction of the islands (see plate 14). The only dredging required by the design would be for construction access. It was proposed that this dredged material (initially estimated to be less than 10,000 cubic yards) would be transported to an undetermined on-land site for drying and be made available for use as topsoil. The rockfill island would provide additional diverse aquatic habitat for species such as smallmouth bass and the access dredging would provide additional deep water habitat (about 2 acres) for other centrarchids. An incremental analysis of the various rockfill island proposals was done, similar to that shown in table DPR-3 above. The habitat unit gains for the rockfill islands (value engineering design) would be the same as stated for the sand and fines islands shown in table DPR-3; only the cost per habitat unit would change.

The preliminary habitat unit and cost analyses and environmental considerations for all the alternatives considered lead to the conclusion that the combined alternative of rockfill Islands A and B would provide the greatest habitat benefits for the dollars invested. A slight increase in deep water habitat (about 2 acres) for fish would be realized by dredging of the backwater for construction access. A meeting of the project participants was held on May 31, 1991, to discuss the design changes. Concerns were voiced at the meeting about the revised design not preventing sediment from entering the project area. It was agreed that this was a legitimate concern that needed to be addressed, so Island D was added parallel to the main channel, connecting Islands A and B. The Island D combinations are also shown in table DPR-4. Three openings in Island D were also included to allow fresh flow into the area to assure adequate levels of dissolved oxygen in the project area. A graphical display of the incremental habitat analysis is shown in figure DPR-1 below. A complete summary of the alternatives, including quantities, costs, the area of habitat improved, and the estimated cost per average annual habitat unit was provided to the project participants for their review and comments and is included in this report as attachment 6. The summary includes details on the estimated costs for each of the plans considered.

The quantity of rock, range of estimated direct construction cost, area impacted by the islands, average annual habitat unit (AAHU) gain, and average annual cost per AAHU for each of the rockfill island alternatives are shown in table DPR-4.

Table DPR-4 - Rockfill Islands

ISLAND	Rock Quantity	Construction Cost Range (1000s)	Acres Impacted	AAHU Gain	Cost/AAHU**
A	12,000 CY	$450 to $550	90	24	$1,880
B	8,000 CY	$275 to $350	70	18	$1,570
C	9,000 CY	$375 to $450	30	8	$4,650
A & B	20,000 CY	$725 to $900	180*	47	$1,560
A, B & C	29,000 CY	$1100 to $1350	210*	55	$2,010
B & D	14,000 CY	$550 to $675	90*	24	$2,300
A, B & D	25,000 CY	$1000 to $1225	180*	63	$1,590

*Includes additional 20 acres protected by the combination.
**Cost based on the median construction cost within the cost range shown.

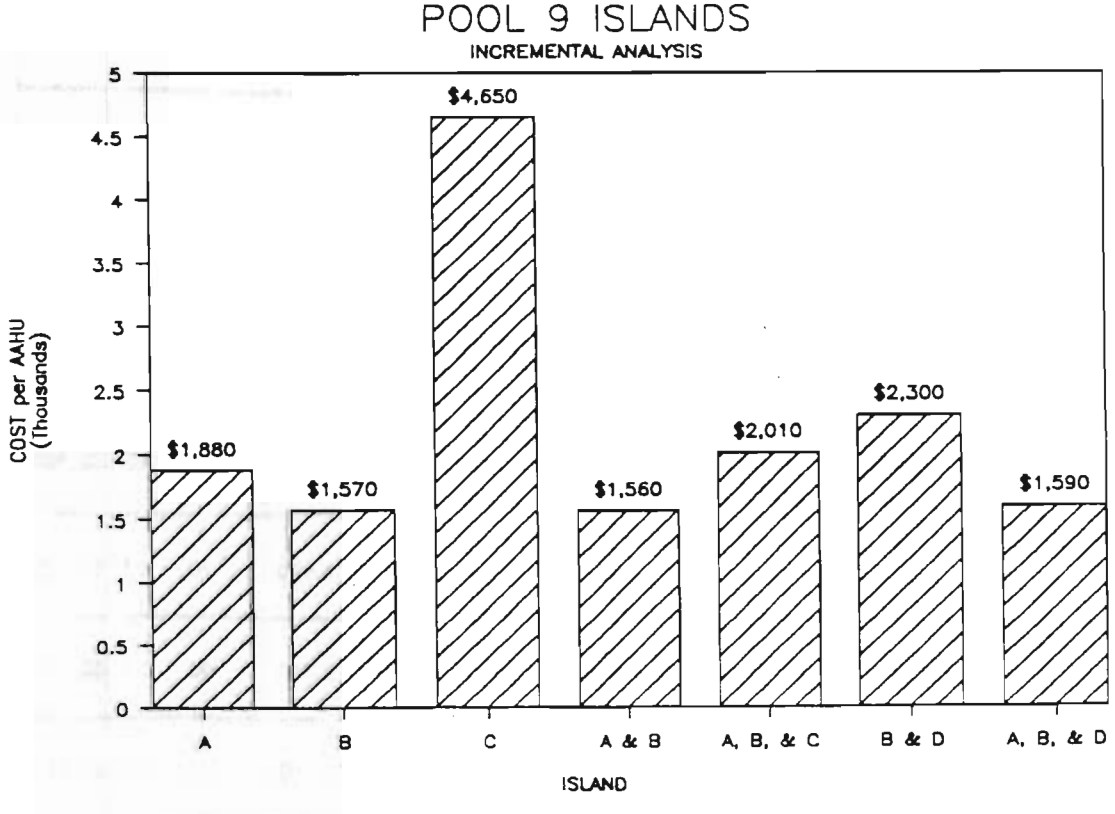


Figure DPR-1

Table DPR-5 provides a summary of the original design from the referenced final Definite Project Report (plans 1 and 2), the revised design using sand and fine material (plans 3 and 4), and the value engineered design using rockfill (plans 5 through 9). An incremental analysis is included on the table showing the cost per average annual habitat unit for the various combinations. All of the alternative plans would provide a complete or partial barrier during normal flows between the main channel and the backwater area to address the primary objective of reducing flow through the project area and the associated sedimentation. The alternative plans would meet, in varying degrees, the other primary objective of reducing wave action in the backwater area.

Table DPR-5 – Summary of Alternatives
Pool 9 Island Project

Plan #	Description of Alternative	Material		Cost Analysis							Habitat Analysis		
		Sand/ Fines(CY)	Rock (CY)	Const. ($1000)	Cont. ($1000)	PEDC* ($1000)	Total ($1000)	Average Annual $	Annual O&M $	Total Annual $	Acres Impr.	AAHU Gain	Cost/ AAHU
1	Orig. DPR (Orig. $ Est.) One hook-shaped island	126,000/ 13,000	2,300	434	111	135	680	61,220	3,500	64,720	80	18	$3,596
2	Orig. DPR (New $ Est.) One hook-shaped island	126,000/ 13,000	2,300	1,020	396	340	1,756	158,090	3,500	161,590	80	18	$8,977
3	Revised Design Sand/fines Islands A, B, & C	216,000/ 37,000	18,600	2,347	904	781	4,032	363,000	4,500	367,500	210	55	$6,682
4	Revised Design Sand/fines Islands A & B	139,000/ 25,000	14,300	1,593	614	529	2,736	246,320	3,500	249,820	180	47	$5,315
5	VE Design Sand/fines Island A, rockfill Island B	62,000/ 13,000	14,900	939	365	313	1,617	145,580	3,000	148,580	180	47	$3,161
6	VE Design Sand/fines Island A, rockfill Islands B & D	62,000/ 13,000	21,300	1,111	432	370	1,913	172,230	3,500	175,730	180	63	$2,789
7	VE Design Rockfill A, B, & D (2' above norm pool)	0	25,100	678	264	226	1,168	105,160	2,500	107,660	180	63	$1,709
8	VE Design Rockfill B & D (2' above norm pool)	0	13,800	372	145	124	641	57,710	2,000	59,710	90	24	$2,488
9	VE Design Rockfill A & B (2' above norm pool)	0	18,700	506	197	169	872	78,510	2,200	80,710	180	47	$1,717

*Based on construction cost percentages of 17% for planning, engineering, and design and 6% for construction management.

PRELIMINARY ALTERNATIVE SELECTION

Coordination with the participating agencies resulted in the Islands A, B, & D alternative (plan #7 on table DPR-5) being the preferred plan. This is shown on plate 15. However, the openings in Island D were deleted because problems with dissolved oxygen in the project area would not be expected since the east side of the area would be open to the backwater and it was considered more important to prevent flow through the area at normal pool elevation. Although connecting Islands A and B with Island D results in one continuous island, each segment will still be referred to as A, B, and D for clarity in discussing each island segment. All islands would be constructed of rockfill. Island A would be 1,900 feet long, Island B would be 1,600 feet long, and Island D would be 3,000 feet long to connect Islands A and B. The islands would have a 5-foot top width with a top elevation of 621.5 (2 feet above the normal pool elevation in the project area). Selection of this top elevation was based on building a structure that would effectively break-up wave action. Overtopping was not a concern because of the inherent structural stability of the rockfill. Anticipated settlement is an average of 2 feet. A typical island cross-section is shown on plate 14. During plan formulation, it was estimated that about 9,000 cubic yards of backwater material would need to be dredged for access to construct the islands. To accommodate this material, a 500-foot-long rockfill dike was proposed at the intersection of Islands B and D to form a 1.5-acre triangular-shaped containment area at the upstream end of the island complex. This containment area would be filled to the same elevation as the rockfill island structure (El. 621.5) and allowed to revegetate naturally, providing about 2 acres of upland habitat for nesting and resting of migratory waterfowl.

Further analysis of the access dredging requirements indicated that access channels along the entire length of Islands A and B and spot locations along Island D would be needed. In order to construct the rockfill islands, access channels 65 feet wide and 6 feet deep would be required for the construction equipment. To contain the material dredged for access, rockfill containment dikes would be constructed at both the upper and lower ends of the island complex. Access dredging would also be required to build the containment dikes. The total estimated quantity of access dredging would be about 34,000 cubic yards. This large quantity also meant that the containment area dikes would need to be built about one and a half feet higher than the rest of the island complex to provide the required containment capacity, resulting in a greater quantity of rockfill to build the structure. An update of the costs for placing the rockfill and dredging indicated a total estimated construction cost of this plan of $2,412,000 (see plan #10 in table DPR-6). The additional access dredging and containment requirements caused a significant increase in cost compared to the cost estimated for plan #7 described above. Based on professional judgment and field experience, it was becoming questionable whether or not expenditures of this magnitude would be reasonable for a project of this size and location in pool 9. Therefore, it was decided that the design and layout needed to be analyzed further to see if modifications could be made to the design or layout to reduce costs. Further analyses indicated that changes to the layout were not possible because the layout already optimized the use of existing land and aquatic features. In addition, project objectives would not be met with alternate layouts. However, changes in the placement of the dredged material and reductions in the height of the rockfill islands would be possible.

It was decided to analyze transporting the material dredged for access to another placement site, rather than trying to contain it at the project site. Transporting the material away from the project site negated the need for a containment dike and made it unnecessary to build portions of the island complex to higher elevations. Deleting the rock containment dike reduced the total estimated access dredging quantity to about 28,300 cubic yards. The first option analyzed was to transport the dredged material to the upstream end of an existing island at Crooked Slough, about 2 miles downstream of the project area. The material would be placed on the backside of the existing head of the island in a naturally protected area and allowed to revegetate naturally for stabilization. Top elevation at the placement site would be the same as the existing island (about 2 feet above normal pool elevation). Placement of material at the island would provide up to 5 acres of additional island habitat. Estimated construction cost of the project would be $1,888,000 (see plan #12 in table DPR-6). However, it was found that the island site would have to be protected with riprap and would also be environmentally unacceptable for placement of the dredged material. Another option for placement of access dredged material was a channel maintenance placement site about 9 miles upstream of the project site near Lansing, Iowa. The material would be used to topsoil and revegetate existing channel maintenance dredged material at the placement site. Material would be placed at the site in a manner that would prevent the material from being washed into adjacent aquatic habitat. Formal diking of the material at the site would not be necessary because the material would be dredged mechanically and transported by barge. The additional distance to transport the material to the Lansing site instead of Crooked Slough would increase the cost by about $1 per cubic yard of dredged material. However, the cost estimate for using the Crooked Slough did not include the cost to protect the site with riprap, so the actual difference in costs between Crooked Slough and Lansing would likely be insignificant. The estimated construction cost of the project with placement of the dredged material at the Lansing placement site is $1,934,000 (see plan #11 in table DPR-6).

Further cost savings could be realized by reducing the height of the rockfill islands. The initial design (plan #7) of 2 feet above normal pool elevation was evaluated at 1 foot above and at normal pool elevation with resulting construction costs of $1,565,000 and $1,266,000, respectively (see plan #13 and plan #14 in table DPR-6). However, constructing the islands only to the normal pool elevation would not be effective in keeping sediment and flow out of the area because it would be overtopped several times during a normal season. The degree of habitat gain would be less and the associated average annual cost per habitat unit gained would increase. A minimum top elevation of 1 foot above normal pool elevation is considered necessary for an effective barrier and wave dissipater. It would provide essentially the same habitat benefits as the islands 2 feet above normal pool elevation because of the time of year overtopping would occur in relation to the aquatic plant growing season.

A final alternative was evaluated that would keep the sediment out of the area and would also dissipate waves. Islands B and D would be constructed to 1 foot above normal pool and Island A would be constructed to one-half foot below normal pool elevation (submerged). Islands B and D would break up wave action and keep sediment and flow out of a large part of the project area except during the spring and during occasional high water events. The purpose of Island A is to protect the area from southerly waves. The submerged design of Island A would still effectively accomplish this objective. However, the submerged island would allow the flow around Island B to be drawn into the protected area to a much greater extent than if Island A was not submerged, thereby reducing the effectiveness of sediment reduction and wave attenuation in the project area. The flow into the project area would result in a reduction of the acres improved for habitat and the associated habitat value. The construction cost of this alternative was estimated to be $1,418,000 (see plan #15 in table DPR-6).

A tabular summary comparing the quantities, costs, and habitat gains for all the variations in placement sites and/or island heights considered for the Island A, B, & D complex is shown in table DPR-6. The detailed habitat analysis for plans #13, #14, and #15 is included in appendix C.

Table DPR-6

Plan #7 Variations

(Rockfill Islands A, B, and D)

Plan #	Description of Alternative	Access Dredging (CY)	Rock (CY)	Cost Analysis ($1000) Const.	Cont.	PEDC*	Total	Average Annual $	Annual O&M $	Total Annual $	Habitat Analysis Acres Impr.	AAHU Gain	Cost/ AAHU
10	Rockfill A, B, & D; access containment at project site	34,000	37,600	1,424	537	451	2,412	217,150	2,600	219,750	180	63	$3,488
11	Rockfill A, B, & D; access containment at Lansing site	28,300	27,800	1,145	428	361	1,934	174,120	2,500	176,620	180	63	$2,803
12	Rockfill A, B, & D; access containment at Crooked Slough	28,300	27,800	1,117	418	353	1,888	169,980	2,500	172,480	180	63	$2,738
13	Rockfill A, B, & D; 1' above norm pool; contain at Lansing	28,300	22,100	973	359	306	1,638	147,470	2,400	149,870	180	63	$2,379
14	Rockfill A, B, & D; at normal pool el.; contain at Lansing	28,300	16,300	799	289	250	1,338	120,460	2,300	122,760	180	50	$2,455
15	Rockfill A, B, & D; A=1/2' below and B&D=1'abv norm pl; contain at Lansing	28,300	19,250	888	325	279	1,492	134,320	2,200	136,520	180	55	$2,482

*Based on construction cost percentages of 17% for planning, engineering, and design and 6% for construction management.

REVISED SELECTED PLAN

The revised selected plan proposes that Islands A, B, and D be constructed of rockfill to a top elevation of 620.5 (1 foot above normal pool elevation) with a 5-foot top width. This is shown as plan #13 in table DPR-6. Islands A and B would be placed perpendicular to the main navigation channel and about 3,000 feet apart. Island D would connect the west ends of the islands and be parallel to the main channel. The length of Islands A, B, and D would be 1,900 feet, 1,600 feet, and 3,000 feet, respectively. Markers would be placed at the end(s) of the islands to warn recreational craft of the island structure. The selected plan is shown on plate 16. Channels would be dredged 65 feet wide and 6 feet deep on the interior of Islands A and B and along reaches of Island D where access to construct the islands is necessary. All of the dredged material (estimated at 28,255 cubic yards) was initially proposed to be transported to a channel maintenance placement site about 9 miles upstream of the project site near Lansing, Iowa, for use as topsoil to revegetate the side slopes of the placement site dikes. The material would be spread to a 9-inch thickness and worked into the surface of the existing dike. However, in response to comments from the state agencies (see attachment 5), further analysis of the placement site showed that it does not have the capacity to contain the total estimated quantity to be dredged for construction access. Less than 4,300 cubic yards of material could be used at the Lansing placement site. Therefore, it was necessary to locate an alternate or additional site. The site selected is Blackhawk Park, about 6 miles further upstream from the Lansing site. The access dredged material would be off-loaded from barges at the Corps' recreation area and used to cover and revegetate dredged sand that has been placed at the park for expansion and development purposes. The location can easily accommodate the remaining 24,000 cubic yards of access dredged material. As a result of the modification to the dredged material placement site, the cost analysis was updated based on the most current unit costs. Therefore, the current estimated cost differs from that shown in plan #13 in table DPR-6. However, the cost update would not affect the cost and habitat analysis done to select the final plan. Total construction cost is estimated to be $1,201,000, not including planning, engineering, and design costs.

The revised selected plan would meet project objectives in providing wave protection from the northwest and southeast and serve as a barrier to most flows through the area for the reduction of sediment deposition. Rockfill islands would provide some habitat for benthic fish-food organisms. The loss of shallow water habitat from the dredging for construction access and disposal of dredged material would be offset by the revegetation of the placement sites and the deep water fish habitat created at the project site.

The plan is supported by the U.S. Fish and Wildlife Service (USFWS) and the Wisconsin and Iowa Departments of Natural Resources (see letters of support in attachment 5). Note that the May 18, 1992, letter from the Wisconsin DNR includes a commitment to assure operation and maintenance of the proposed project. This responsibility has been superseded by the Water Resources Development Act of 1992 which gives the responsibility to the USFWS as explained later in the Cost Apportionment section of this report. A determination was made in May, 1992, by the USFWS that the revised plan would be compatible with purposes for which the Upper Mississippi River National Wildlife and Fish Refuge was established (see attachment 5).

CONSTRUCTION METHODS

Island rockfill can be obtained from several limestone quarries located near the Mississippi River valley in the vicinity of the proposed project. The rock would be loaded into barges, transported to the island construction site, and mechanically unloaded to construct the islands. Where equipment access is needed to construct the islands, an access channel would be mechanically dredged and the dredged material would be placed in barges and transported to the placement sites upstream.

REAL ESTATE REQUIREMENTS

No land needs to be permanently acquired for the project since the proposed project area is located on land owned or managed by the U.S. Fish and Wildlife Service. Appropriate agreements would be made with the U.S. Fish and Wildlife Service to construct the project on the refuge.

ESTIMATED FUTURE HABITAT CONDITIONS WITH THE PROJECT

The major project accomplishments include the elimination of direct sediment-laden flows through about 140 acres of backwater during normal flow conditions and the reduction of wave action in about 180 acres of the backwater. The islands would provide a stable barrier between the backwater area and the sediment-laden water of the main channel and also prevent flow from the backwater area toward the main channel. With the islands constructed to an elevation of the 1-year flood elevation, the frequency of flood flows (and sediment) directly entering the backwater area would also be reduced. The islands would also reduce wave action behind the island caused by river traffic. Islands A and B would primarily reduce the effects of northerly and southerly wind-generated wave action in the area immediately behind it. Protection from wave action and river current will lead to an increase in shallow zone vegetation in areas that are currently unprotected. Reduced wind fetch would diminish resuspension of bottom sediment and, together with reduced main channel and backwater sediment inflows, would increase the photic zone in the 180-acre area.

Improved vegetative conditions are expected within 1 to 2 years after construction of the project. Although growth, diversity, and interspersion of aquatic vegetation will never remain constant in such a dynamic riverine environment, the large fluctuations (and associated waterfowl use) in vegetative coverage that have occurred and are expected without the project, should be greatly reduced. The high quality habitat that will be protected, and the more stable conditions resulting from the project, will allow the area to maintain a consistent and vital role as a major migratory waterfowl staging area. This will contribute toward attaining the management goals of the area.

The project would provide benefits in addition to those that meet the basic project purposes. Benefits to fish are realized by the deep water provided by dredging of backwater material for access to build the islands. About 6 acres of deep water habitat for centrarchid species would be provided by the construction access dredging. Also, more diverse habitat for fish such as smallmouth bass would be provided by the rock substrate of the island. Benefits to wildlife are obtained by maximizing the area of protected, shallow

aquatic habitat and preventing direct flows into the area from the main channel during most of the season. This will promote the growth of aquatic vegetation. The layout of the island complex would provide about 180 acres of protected, shallow water area. Placement of access dredged material at the Lansing and Blackhawk Park placement sites would provide for revegetation that would improve habitat conditions for wildlife. The changes to the project area should also lead to other positive affects on the surrounding physical and biological communities.

ENVIRONMENTAL ASSESSMENT

An environmental assessment has been conducted for the proposed action. A discussion of the impacts on habitat conditions follows. As specified by Section 122 of the 1970 Rivers and Harbors Act, the categories of impacts in the impact assessment matrix (table DPR-7) were reviewed and considered in arriving at the final determination. In accordance with Corps of Engineers regulations (33 CFR 323.4(a)(2)), a Section 404(b)(1) evaluation was prepared (attachment 3). Application was made to the State of Wisconsin regarding water quality certification under section 401 of the Clean Water Act. The state will grant water quality certification during the preparation of plans and specifications for the project (attachment 5). The public review did not uncover any significant impacts of the proposed action. The additional placement site for access dredged material does not constitute a significant change in the proposed project. Therefore, the Finding of No Significant Impact (attachment 2) has been signed.

NATURAL RESOURCES

Water Quality - There would be short term localized adverse water quality effects associated with the project due to the dredge and fill actions of access channel dredging and island construction. Most of these effects would be in the form of short term increases in turbidity from the dredging operations. The construction of the islands out of rock would have negligible water quality effects.

The construction related water quality effects of the project as now proposed should be reduced from those associated with the original design because of a reduction in the amount of dredging and material placement. The original project called for the placement of 139,000 cubic yards of sand and fine materials for island construction while the current design would require the dredging of 28,000 cubic yards of fine material and the placement of 22,000 cubic yards of rock.

Over the long term the project would be expected to provide some beneficial water quality effects by reducing wave induced turbidity in the areas protected by the island complex. The beneficial effects of the revised selected plan are expected to be greater than those associated with the original project because a larger area will receive a higher degree of protection from wave action.

Table DPR-7 – IMPACT ASSESSMENT MATRIX

NAME OF PARAMETER	MAGNITUDE OF PROBABLE IMPACT						
	<——— INCREASING BENEFICIAL IMPACT			NO APPRECIABLE	INCREASING ———> ADVERSE IMPACT		
A. SOCIAL EFFECTS	SIGNIFICANT	SUBSTANTIAL	MINOR	EFFECT	MINOR	SUBSTANTIAL	SIGNIFICANT
1. Noise Levels					X		
2. Aesthetic Values			X				
3. Recreational Opportunities				X			
4. Transportation				X			
5. Public Health and Safety				X			
6. Community Cohesion (Sense of Unity)				X			
7. Community Growth & Development				X			
8. Business and Home Relocations				X			
9. Existing/Potential Land Use				X			
10. Controversy				X			
B. ECONOMIC EFFECTS							
1. Property Values				X			
2. Tax Revenues				X			
3. Public Facilities and Services				X			
4. Regional Growth				X			
5. Employment				X			
6. Business Activity				X			
7. Farmland/Food Supply				X			
8. Commercial Navigation				X			
9. Flooding Effects				X			
10. Energy Needs and Resources				X			
C. NATURAL RESOURCE EFFECTS							
1. Air Quality				X			
2. Terrestrial Habitat			X				
3. Wetlands				X			
4. Aquatic Habitat		X					
5. Habitat Diversity and Interspersion		X					
6. Biological Productivity			X				
7. Surface Water Quality			X				
8. Water Supply				X			
9. Groundwater				X			
10. Soils				X			
11. Threatened or Endangered Species				X			
D. CULTURAL EFFECTS							
1. Historic Architectural Values				X			
2. Pre-Hist & Historic Archeological Values				X			

Fish and Wildlife - The proposed islands would provide wave protection for approximately 180 acres of shallow aquatic habitat, including a 20-acre existing aquatic plant bed. Approximately 45 acres would be protected solely from northwest waves, 35 acres from southeast waves, and 100 acres from waves from both directions. In addition, the 100-acre area will also be protected from wave and current action from the main navigation channel.

A comparison of the acres protected from various wave action for the original project and and the redesigned project is shown below. The project as now designed substantially increases the acres of habitat protected from wind induced wave action with no difference in terms of acres protected from channel waves and sediment inputs.

	Original Project	Redesigned Project
Protected only from NW waves	40	45
Protected only from SE waves	10	35
Protected from both NW & SE waves	0	100
	50	180
Protected from channel waves	140	140

The overall effect should be a reduction in the physical effects of wave action, a reduction in turbidity, and an increase in light penetration in the project area. This, in turn, is expected to increase aquatic plant growth over the 180-acre area being affected, but especially in the 100-acre area protected on three sides by the proposed islands. It is estimated that overall habitat quality in the project area will increase by 50 to 75 percent over existing conditions.

Reduction of river currents and wave action in the backwater will allow the existing plant beds to remain stable. With an area of stable habitat comes a variety of improvements for fish and wildlife. Benthic organisms can remain established in an area where wave action and sedimentation are reduced. The stability of the plant beds and benthic communities leads to increased use by fish and wildlife because of the food and shelter they provide. Additional benefits include the waterfowl resting habitat the island would provide. While construction would replace about 3 acres of existing aquatic plant beds in these shallows with rockfill, the vegetation should re-establish itself in the shallows adjacent to the new island. It is anticipated that vegetation from the existing beds would colonize areas where the beds have been disturbed. Species that should do well include wild celery and sago pondweed, both important plants for waterfowl.

The island would provide a 40-acre protected "shadow" for the growth of submergent aquatic plants for the fishery of the area and for the other fauna using the island. Up to 6 acres of the backwater would be deepened to 6 feet for construction access and would provide additional habitat for fish. Fish would benefit from the food and cover provided by the vegetation beds and deeper water provided by the dredged areas.

The proposed project would result in the direct conversion of approximately 2 acres of open water habitat to rockfill. This compares to 12 acres of similar conversion with the original project. In addition to converting less aquatic habitat, the redesigned project limits encroachment onto the existing aquatic plant bed to less than 1 acre. The original project would have encroached upon 12 to 15 acres of the aquatic plant bed.

The proposed rockfill islands would increase habitat diversity in the project area by adding habitat types that are currently not present in the area and by creating additional edge and interspersion. Species likely to benefit include sunfish, crappies, largemouth bass, and northern pike. The project would provide 6,500 linear feet of rockfill island that would provide additional fishery habitat, both in terms of providing niches for food organisms and in providing cover, current protection, and structural orientation for fish themselves. Fish species that would be expected to benefit the most from this type of rock habitat on the river would include smallmouth bass, rock bass, walleye, and sauger. Island D located along the remnant slough should be especially valuable because it would provide fish with two preferred habitat components (deeper flowing water and rock structure) adjacent to each other. Rock for construction of the islands would be obtained from riverside stockpiles or from active quarries in the river valley. The rock would be loaded into barges for transport to the site and mechanically unloaded. Since the rock is already stockpiled, or would be readily available, no adverse effects would be expected to the natural or human environment. No new sources of rock would be developed, so no conversion of land would occur and no habitat would be disturbed.

The proposed markers to warn recreational craft of the islands would provide limited roosting sites for bird species, such as cormorants and eagles.

THREATENED AND ENDANGERED SPECIES

A specimen of Higgins' eye pearly mussel (Lampsilis higginsi), an endangered species, was collected from the east side of the main channel near the smallest, channelward remnant island during a survey done in July 1987. Previous mussel surveys downstream of the project site recorded few mussels and no endangered species, and noted that the area had been dredged only twice and neither event was recent (Fuller, 1980, Freshwater Mussels of the Upper Mississippi River). Additional surveying would be done in the areas where dredging for access may be done to ensure that no adverse impacts on the Higgins' eye would occur. Dredging would be permitted only in those areas where beds are not found.

The project should not affect the bald eagle or peregrine falcon, as there is no habitat for either species in the project area.

AIR QUALITY

There would be minor, short-term impacts to air quality during access dredging and rock placement operations caused by the construction equipment. Odor from the access dredging of fine material should not be a problem.

CULTURAL RESOURCES

In accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, the National Register of Historic Places has been consulted. As of August 1, 1988, there were no sites listed on or eligible for inclusion on the National Register that would be affected by the proposed project. Because of past surveys of islands, the State Historic Preservation Officer (SHPO) recommended that all areas that have not been disturbed beyond normal agricultural practices and would be disturbed by the project be surveyed. The St. Paul District responded with additional information on the existing condition and elevation of the islands. The District indicated that there was little potential for the existing islands to have undisturbed deposits, and that there was not a need to complete an intensive archaeological survey at the project site. The SHPO concurred and will not pursue its request (see attachment 4). The project currently proposed impacts the same general area as the original selected plan, but covers a smaller area and protects a larger area.

SOCIOECONOMIC RESOURCES

The proposed project would have minimal or no impacts on the following Section 122 (Rivers and Harbors Act) socioeconomic categories: transportation, public health and safety, community cohesion, community growth and development, business or home relocations, land use, property values, tax revenues, regional growth, employment, business activity, food supply, navigation, flooding effects, or energy resources. This is because the project would be on federally-owned land and would be entirely federally funded. Socioeconomic impacts would potentially be experienced in these areas: temporary effects on noise levels and longer term effects on aesthetic values and recreational opportunities.

Noise Levels - The construction of the project would involve the use of heavy equipment such as dredging and other marine equipment. This would result in a temporary increase in local ambient noise levels. Homes are located on the Iowa shoreline and the residents would be temporarily affected by the increase in noise. The effects of the project as now proposed on noise levels would be less than those associated with the original project because of the smaller quantities of materials to dredge and place and work would likely be done only during daylight hours.

Aesthetic Values - The initial construction would have some minor adverse effect on aesthetic values because of the presence and operation of the dredging and marine construction equipment. However, the location of the project away from major highways and population centers would help to minimize these short term effects. Over the long term, the project is expected to have a positive effect by adding to the visual diversity in the project area.

Recreational Opportunities - The effect of the construction on recreation should be negligible because recreational use of the main channel of the river in this area is relatively low. The island complex is not expected to attract recreational use Past surveys indicate the most desirable beach characteristics to be sand and an overstory of shade trees. The proposed rockfill island complex would have neither of these characteristics. However, the effect of the proposed project would increase fishing opportunities in the project area.

RELATIONSHIP TO ENVIRONMENTAL REQUIREMENTS

The proposed action would comply with all applicable Federal environmental laws, executive orders, and policies, and State and local laws and policies including the Clean Air Act, as amended; the Clean Water Act of 1977, as amended; the Endangered Species Act of 1973, as amended; the Land and Water Conservation Fund Act of 1965, as amended; the National Environmental Policy Act of 1969, as amended; the Fish and Wildlife Coordination Act of 1958, as amended (see March 22, 1993, letter in attachment 5); the National Wildlife Refuge System Administration Act; Executive Order 11988 - Floodplain Management; and Executive Order 11990 - Protection of Wetlands. The proposed action would not result in the conversion of farmland to non-agricultural uses. Therefore, the Farmland Protection Policy Act of 1981 does not apply to this project.

PROJECT REQUIREMENTS

OPERATION AND MAINTENANCE

After construction of the project, annual operation and maintenance (O&M) of the project would be the responsibility of the U.S. Fish and Wildlife Service (USFWS). Generally, it is anticipated that O&M requirements would include annual inspection of the island with periodic minor repair of displaced rockfill. An O&M manual detailing specific operation and maintenance requirements would be prepared by the Corps during the plans and specifications phase. Development of the manual would be coordinated with the USFWS and Wisconsin Department of Natural Resources. Over the 50-year project life, the average estimated annual O&M cost of the project is shown below.

Inspection and reports (1 mn-dy/yr @ $300/mn-dy)	=	$ 300
Rockfill replacement (average 20 CY/year @ $60/CY)	=	1,200
TOTAL ANNUAL O&M COST FOR SELECTED PLAN		$1,500

COST ESTIMATE

A cost estimate for the project is shown in table DPR-8. Quantities and unit costs have been updated and refined, so the costs will differ from the alternative evaluation presented earlier in this report and in the public review draft. The costs shown below represent the latest cost estimate available for the selected plan. A detailed cost estimate and narrative summary are included in appendix D.

Table DPR-8 - Cost Estimate for the Revised Selected Plan

Item	Quantity	Unit Cost	Amount	Contingency
Mob & demobilization	1 LS	40,000.00	40,000	4,000
Access dredging				
(haul to Lansing site)	4,255 CY	8.10	34,000	12,000
(haul to Blackhawk)	24,000 CY	6.55	157,000	55,000
Rockfill	22,100 CY	29.00	641,000	257,000
Subtotal			873,000	328,000
Total direct construction costs				$1,201,000
Engineering and design (10.5%)				114,000
Construction management (6.5%)				78,000
Total				$1,393,000

Prior allocations of $156,000 for planning and general design have been expended. Annualized first costs (based upon a 50-year economic life and an 8-1/4% discount rate) would amount to $117,100. With the addition of annual operation and maintenance costs as indicated above, the total average annual costs are estimated to be $121,100. This results in a cost of $1,922 per average annual habitat unit gained by construction of the project. Performance evaluation costs are shown and discussed in the next section of this report.

PERFORMANCE EVALUATION

The principal types, purposes, and responsibilities of project monitoring and performance evaluation are shown in table DPR-9. Plans to monitor the project for performance evaluation purposes were designed to directly measure the degree of attainment of project objectives. For each objective, an appropriate monitoring parameter was chosen. The parameter to be measured for each objective is shown in table DPR-10. Monitoring activities would be closely coordinated with any similar efforts by the Long Term Resource Monitoring program component and could be modified in the future based on field observations. Some limited ecological monitoring of the response to modified habitat conditions may also be done in a separate study of island projects on the Upper Mississippi River. The study would: (1) determine the direct effects of islands on physical and chemical conditions; (2) explore interactions between physical/chemical conditions and the aquatic plant community; and (3) support the development of predictive models of the effect of islands on physical and chemical conditions. This component is currently under development by the participating agencies.

Table DPR-9

UMRS-EMP Monitoring and Performance Evaluation Matrix

Type of Activity	Purpose	Responsible Agency	Implementing Agency	Funding Source	Remarks
Sedimentation Problem Analysis	System-wide problem definition [to PA(S)9]*. Evaluate planning assumptions.	USFWS	USFWS (EMTC)	LTRM	Lead into pre-project monitoring; define desired conditions for plan formulation.
Pre-project Monitoring	Identify and define problems at specific sites.	Sponsor	Sponsor	Sponsor	Should attempt to begin defining baseline.
Baseline Monitoring	Establish baselines for performance evaluation.	Corps	Field stations or sponsors thru Cooperative Agreements, or Corps.**	LTRM ****	Should be over several years to reconcile purturbations.
Data Collection for Design	1. Identify project objectives. 2. Design of project. 3. Develop Performance Evaluation Plan.	Corps	Corps	HREP	After fact sheet. Data may aid in defining baseline.
Construction Monitoring	Assure permit conditions met.	Corps	Corps	HREP	
Performance Evaluation Monitoring	Determine success of projects.	Corps	Field stations or sponsors thru Cooperative Agreements, sponsor thru O&M***, or Corps.**	LTRM ****	After construction.
Analysis of Biological Responses to Projects	1. Determine critical impact levels, cause-effect relationships, and long-term losses of significant habitat.	USFWS	USFWS (EMTC)	LTRM	Biological Response Study tasks beyond scope of Performance Evaluation, Problem Analysis, and Trend Analysis.
	2. Demonstrate success or response of biota.	Corps	Corps/USFWS (EMTC)/Others	LTRM ****	

*Refers to Sedimentation Problem Analysis Tasks, pages 35-36, LTRM Operating Plan

**Choice depends on logistics. When done by the States under a Cooperative Agreement, the role of the EMTC will be to: (1) advise and assist in assuring QA/QC consistency, (2) review and comment on reasonableness of cost estimates, and (3) be the financial manager. If a private firm or state is funded by contract, coordination with the EMTC is required to assure QA/QC consistency.

***Some limited reporting of information for some projects (e.g., waterfowl management areas) could be furnished by on-site personnel as part of O&M.

****Requires a transfer of allocations from the Habitat Project account to the LTRM account.

Table DPR-10
Pre- and Post-construction Measurements

#	Project Objective	Enhancement Feature	Unit of Measure	Measurement Plan	Monitoring Interval	Cost per Effort	Field Observations
1	Reduce flow thru backwater area	Islands	ft/sec	Measure flow velocity once during summer at normal pool in the protected area.	Once pre- and 1, 3, 10, and 25 years post-construction	$700	Island height, width and structural integrity
2	Provide protected, shallow habitat	Islands	acres feet	Vegetation survey, use aerial photos to map vegetation. Read Secchi disk inside & outside protected area.	Once pre- and 1, 3, and 10 years post-construction	$2,500	Vegetation Water clarity
3	Protect area from boat generated waves	Islands	feet	Measure wave height inside & outside protected area during boat passage.	Once pre- and 1 and 3 years post-construct	$300	Wave action
4	Provide island habitat	Islands Placement site	acres	Field inspect; record vegetation growth at placement site.	Once pre- and 1, 3, and 10 yrs post-constr	$400	Island integrity, bird use, wildlife response
5	Provide deep water habitat	Access dredging	acres > 5' deep	Sound the area(s) dredged for access.	Once 1 and 10 yrs post-constr	$3,000	Presence of fish

Average annual monitoring cost over the 50-year project life = $440

PROJECT IMPLEMENTATION

DIVISION OF PLAN RESPONSIBILITIES

The responsibilities for plan implementation and construction fall to the Corps of Engineers as the lead Federal agency. Operation and maintenance (including minor repair and replacement) of the completed project would be the responsibility of the U.S. Fish and Wildlife Service. Should rehabilitation of the project which exceeds the annual maintenance requirements be needed (as a result of a specific storm or flood event) the Federal share will be a responsibility of the Corps of Engineers. Project performance evaluation and major rehabilitation would be the responsibility of the Corps of Engineers. Some project performance monitoring (field observations) may be accomplished by the USFWS and the Wisconsin and Iowa Departments of Natural Resources during their normal management efforts in the area. Specific responsibilities will be coordinated and defined in the future O&M manual.

COST APPORTIONMENT

Construction - All project construction activities would be conducted on lands managed as part of the Upper Mississippi River National Wildlife and Fish Refuge. Therefore, in accordance with Section 906(e)(3) of Public Law 99-662, the first costs for construction of the project would be 100-percent Federal and would be borne by the Corps of Engineers.

Operation and Maintenance - After construction of the project, annual management operations would be conducted by the U.S. Fish and Wildlife Service. The U.S. Fish and Wildlife Service has provided a letter of intent (attachment 4) to assure that operation, maintenance, and repair are carried out in accordance with Section 107(b) of the Water Resources Development Act of 1992. A draft Memorandum of Agreement (MOA) for operation and maintenance is included as attachment 7. The MOA would be executed prior to solicitation for contract bids. Specific operation and maintenance features would be defined in a project O&M manual which would be prepared by the Corps of Engineers and coordinated with the involved agencies during the plans and specifications phase.

Rehabilitation - Rehabilitation of the project cannot be accurately estimated. The Corps of Engineers will be responsible for 100-percent of the cost of rehabilitation work that is mutually agreed upon and determined necessary for the project or functional portion. The USFWS would be responsible for the operation, maintenance, and repair of any rehabilitation features implemented, in accordance with Section 107(b) of the Water Resources Development Act of 1992.

STEPS PRIOR TO PROJECT CONSTRUCTION

After submittal of this supplemental report to higher authority, funds for preparing plans and specifications can be provided by the Office of the Chief of Engineers prior to approval of the project by the Assistant Secretary of the Army (Civil Works). The current schedule is to initiate preparation of plans and specifications in fiscal year 1993. Advertisement for bids, contract award, and initiation of construction would take place in fiscal year 1994. Construction would be substantially completed in fiscal year 1995.

RECOMMENDATION

I have weighed the accomplishments to be obtained from this habitat improvement project against its cost and have considered the alternatives, impacts, and scope of the proposed project. In my judgment, the proposed project is a justified expenditure of Federal funds. I recommend that the Secretary of the Army approve this island construction project for habitat rehabilitation and enhancement at pool 9 in Crawford County, Wisconsin. The total estimated construction cost of the project is $1,393,000, which amount would be a 100-percent Federal cost according to Section 906(e)(3) of Public Law 99-662.

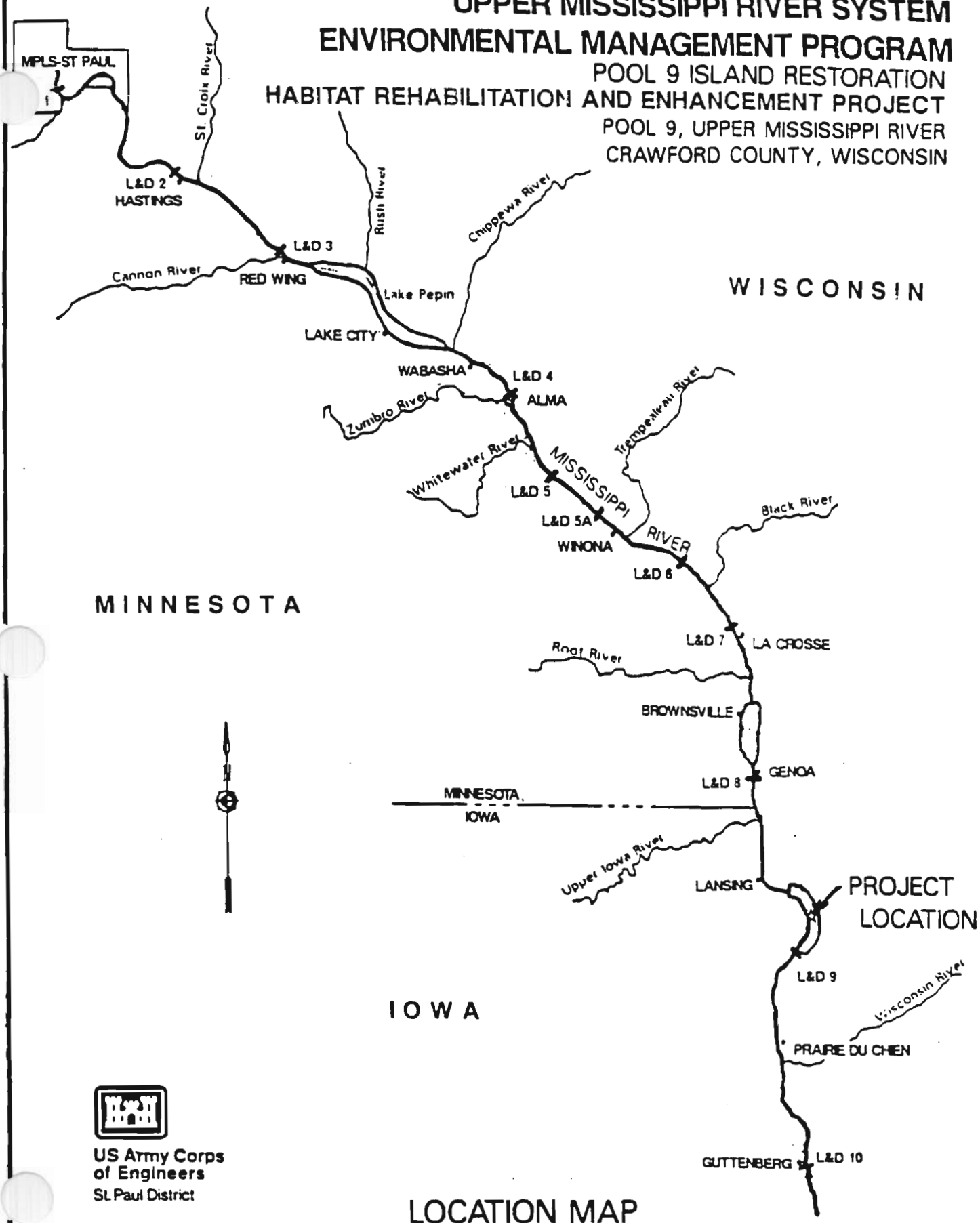
for CW Rogers MAJ, EN
Richard W. Craig
Colonel, Corps of Engineers
District Engineer

Attachments:
1. Plates:
   1 - Location Map
   2 - Project Area Features
   3 - Boring Locations
   4 - Boring Logs
   5 - Plan 1 - Plan View
   6 - Plan 2 - Plan View
   7 - Plans 3 and 4 - Plan View
   8 - Plan 5 - Plan View
   9 - Plan 6 - Plan View
  10 - Typical Cross-Sections
  11 - Original Selected Plan
  12 - Revised Island Layout
  13 - Revised Island Cross-Sections
  14 - Rockfill Island Cross-Section
  15 - Islands A, B, and D Alternative
  16 - Revised Selected Plan
2. Finding of No Significant Impact
3. Section 404(b)(1) Evaluation
4. Letter of Intent
5. Correspondence
6. Summary of Alternatives
7. Memorandum of Agreement for O&M
8. Distribution List

Attachment 1

Plates

UPPER MISSISSIPPI RIVER SYSTEM
ENVIRONMENTAL MANAGEMENT PROGRAM
POOL 9 ISLAND RESTORATION
HABITAT REHABILITATION AND ENHANCEMENT PROJECT
POOL 9, UPPER MISSISSIPPI RIVER
CRAWFORD COUNTY, WISCONSIN



US Army Corps
of Engineers
St. Paul District

LOCATION MAP

POOL 9 EMP

PLATE 1

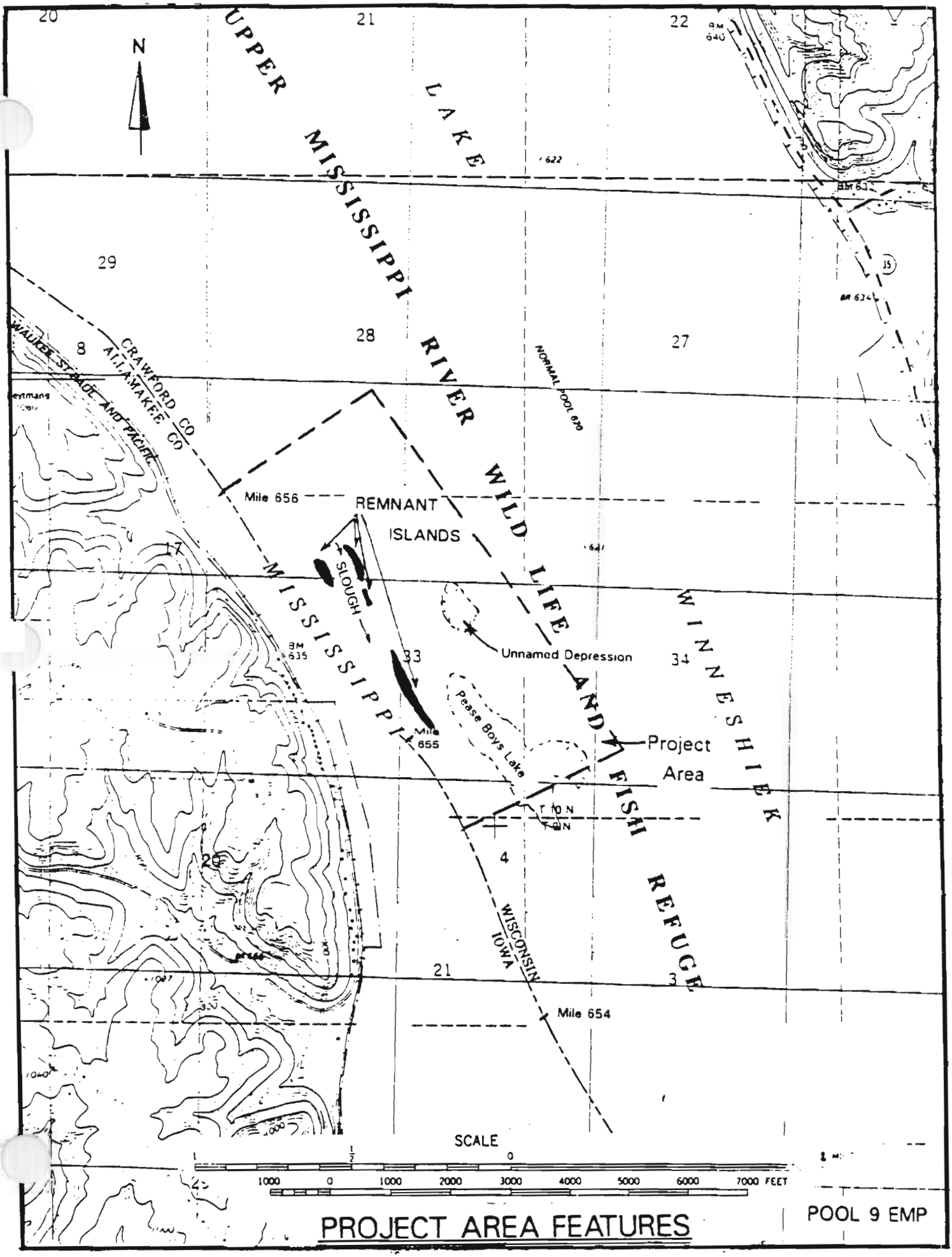

UPPER MISSISSIPPI RIVER WILD LIFE AND FISH REFUGE
WINNESHIEK
LAKE
MISSISSIPPI
N
20
21
22
29
28
27
8
17
33
34
4
3
21
CRAWFORD CO
ALLAMAKEE CO
WAUKEE, ST PAUL AND PACIFIC
NORMAL POOL 670
Mile 656
REMNANT
ISLANDS
SLOUGH
Unnamed Depression
Pease Boys Lake
Mile 655
Project
Area
T 100 N
R 9 W
WISCONSIN
IOWA
Mile 654
BM 640
BM 635
SCALE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
PROJECT AREA FEATURES
POOL 9 EMP

PLATE 2

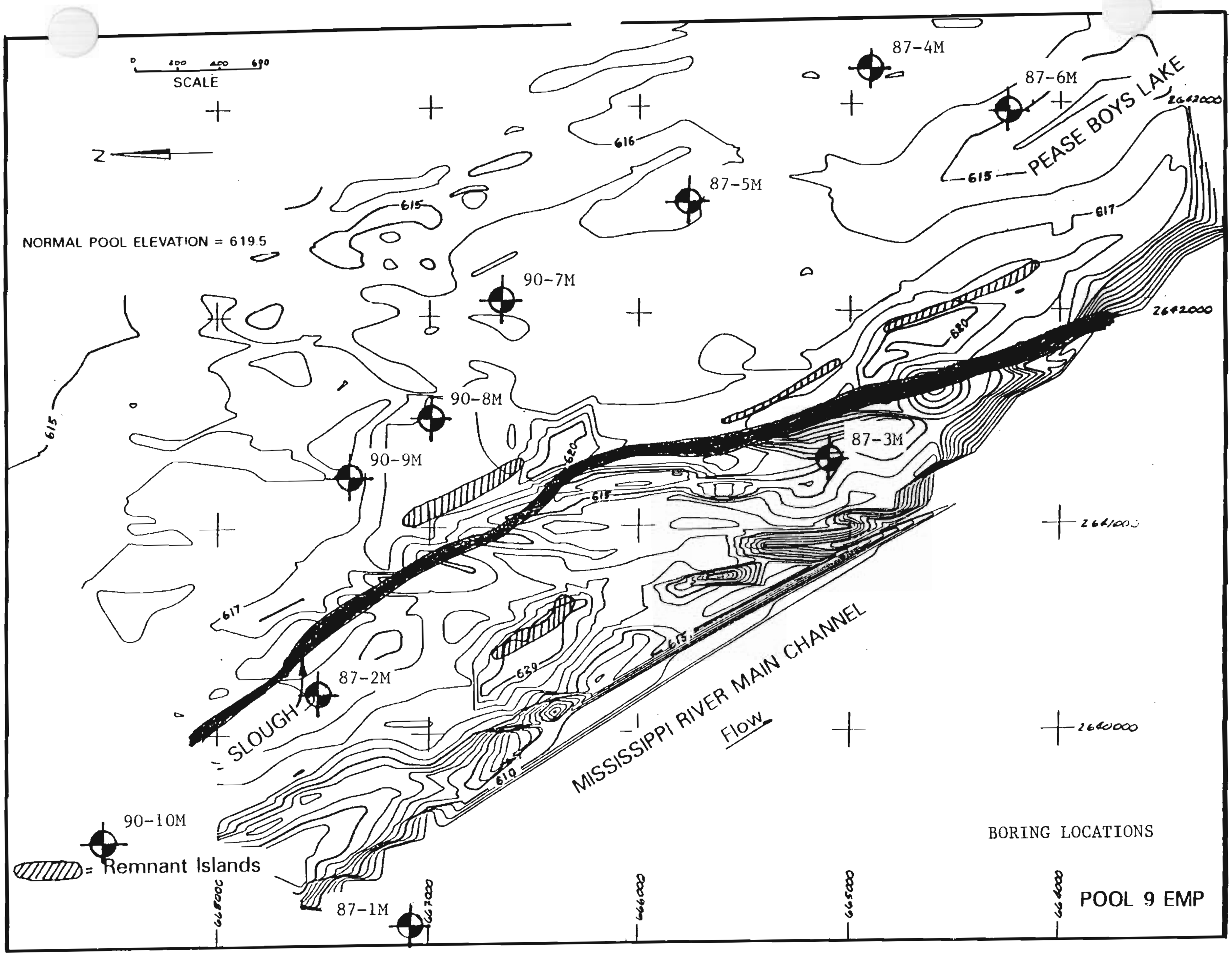
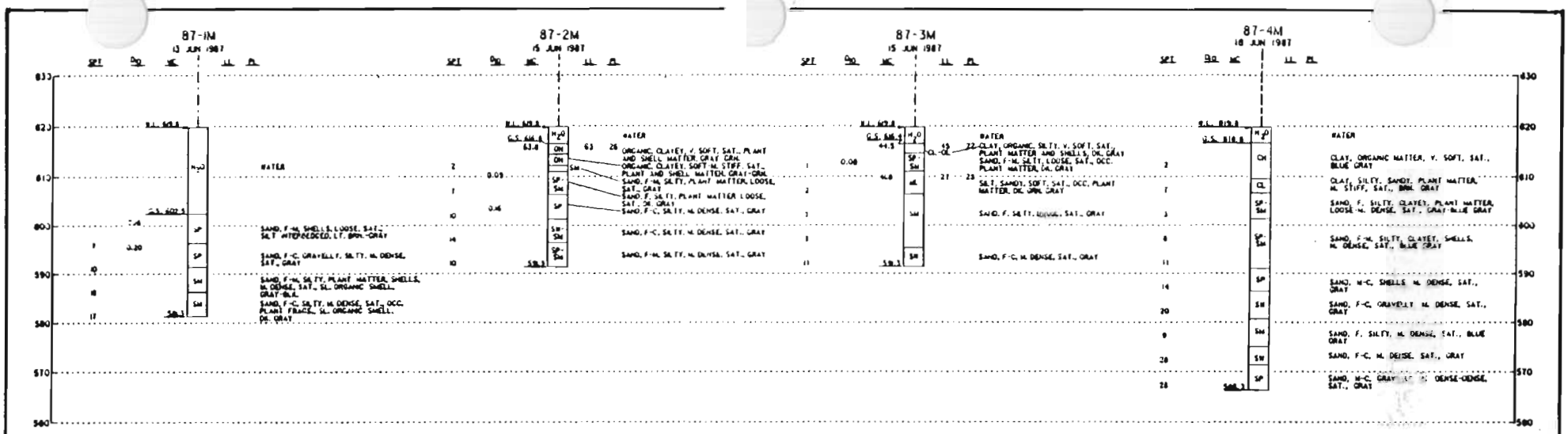
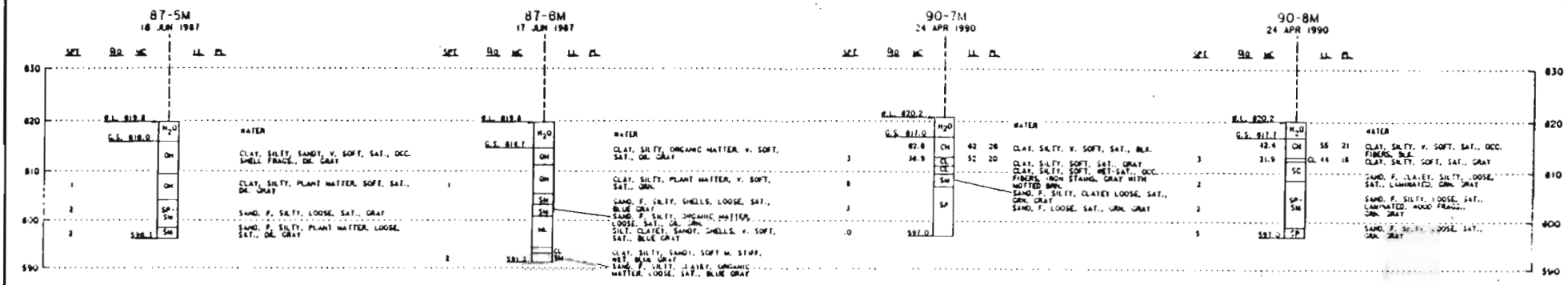
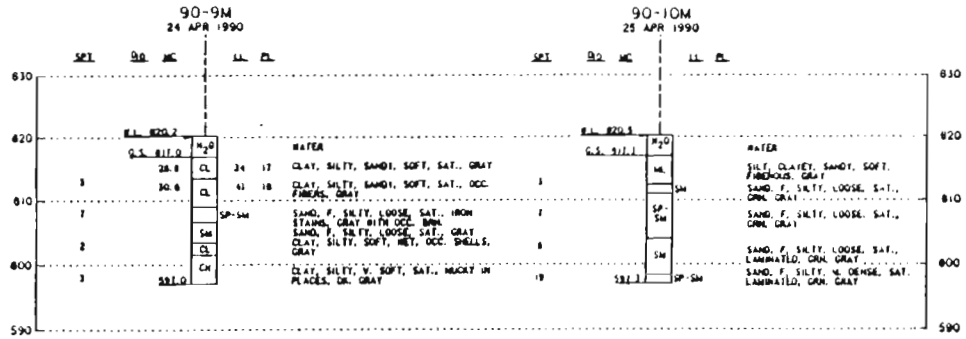

SCALE
0 200 400 600
NORMAL POOL ELEVATION = 619.5
87-4M
87-6M
PEASE BOYS LAKE
87-5M
90-7M
90-8M
90-9M
87-3M
87-2M
87-1M
90-10M
SLOUGH
MISSISSIPPI RIVER MAIN CHANNEL
Flow
615
616
617
620
610
2642000
2641000
2640000
668000
667000
666000
665000
664000
= Remnant Islands
BORING LOCATIONS
POOL 9 EMP

PLATE 3







BORING LOGS

POOL 9 EMP

PLATE 4

GENERAL BORING NOTES

1. GENERAL: THE UNIFIED SOIL CLASSIFICATION SYSTEM IS USED TO IDENTIFY BASIC SOIL TYPE. THE LEGEND REPRESENTS ONLY THE BASIC SOILS. TO COMPLETE THE CLASSIFICATION, PERTINENT INFORMATION IS ADDED TO THE RIGHT OF THE BORING STAFF. NOTES PERTAINING TO A SPECIFIC BORING ARE SHOWN BELOW THE BORING STAFF.
2. MOISTURE CONTENT: THE NATURAL MOISTURE CONTENT IN PERCENT OF DRY WEIGHT (MC) IS SHOWN TO THE LEFT OF THE BORING STAFF.
3. BLOW COUNT (SPT): BLOW COUNTS ARE SHOWN TO THE LEFT OF THE BORING STAFF AND, EXCEPT AS NOTED, ARE THE NUMBER OF BLOWS NECESSARY TO DRIVE THE SAMPLER USED A DISTANCE OF 12". STANDARD BLOW COUNTS ARE FOR A STANDARD PENETRATION TEST (SPT) USING A 1-3/8" I.D. X 2" O.D. SAMPLER, 140 LB. HAMMER AND A 30" DROP. FOR NON-STANDARD BLOW COUNTS, SAMPLER SIZE, HAMMER WEIGHT AND HEIGHT OF DROP ARE AS SHOWN.
4. ATTERBERG LIMITS: LIQUID LIMIT (LL) AND PLASTIC LIMIT (PL) ARE SHOWN TO THE RIGHT OF THE BORING STAFF.
5. D_{10} SIZE: THE GRAIN SIZE IN MILLIMETERS OF WHICH 10% OF THE SAMPLE IS FINER IS SHOWN TO THE LEFT OF THE BORING STAFF.

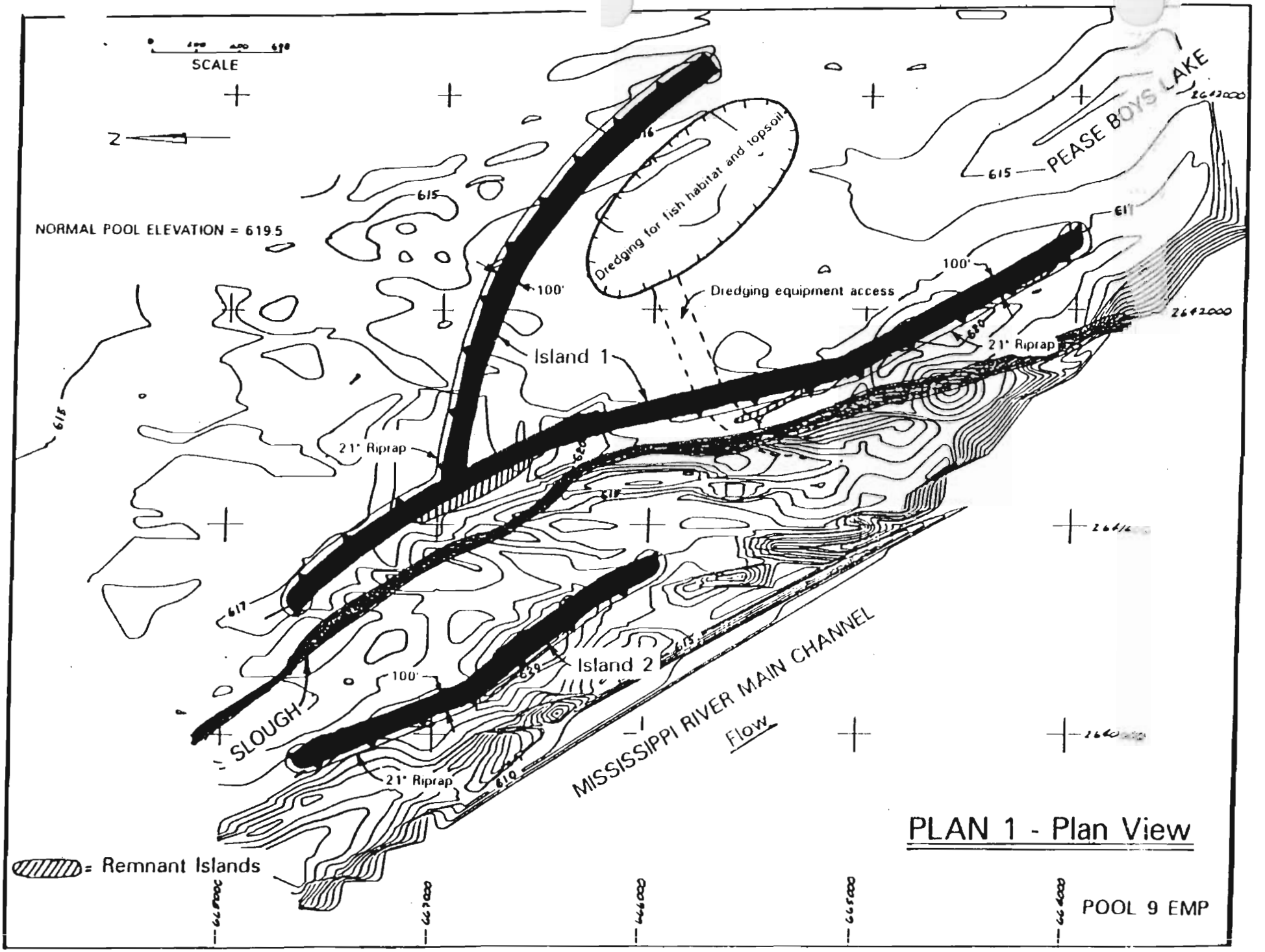


PLATE 5

PLAN 1 - Plan View

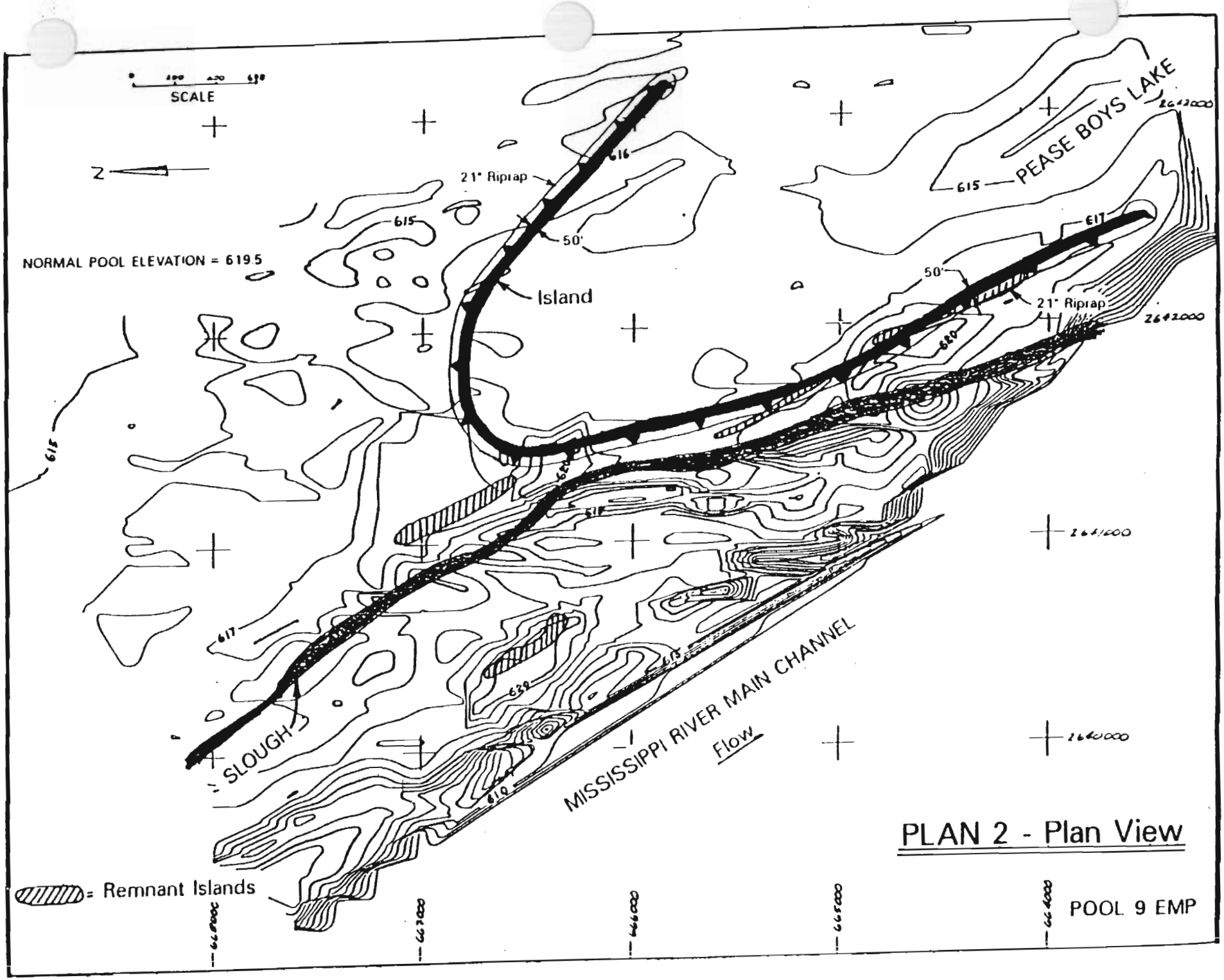
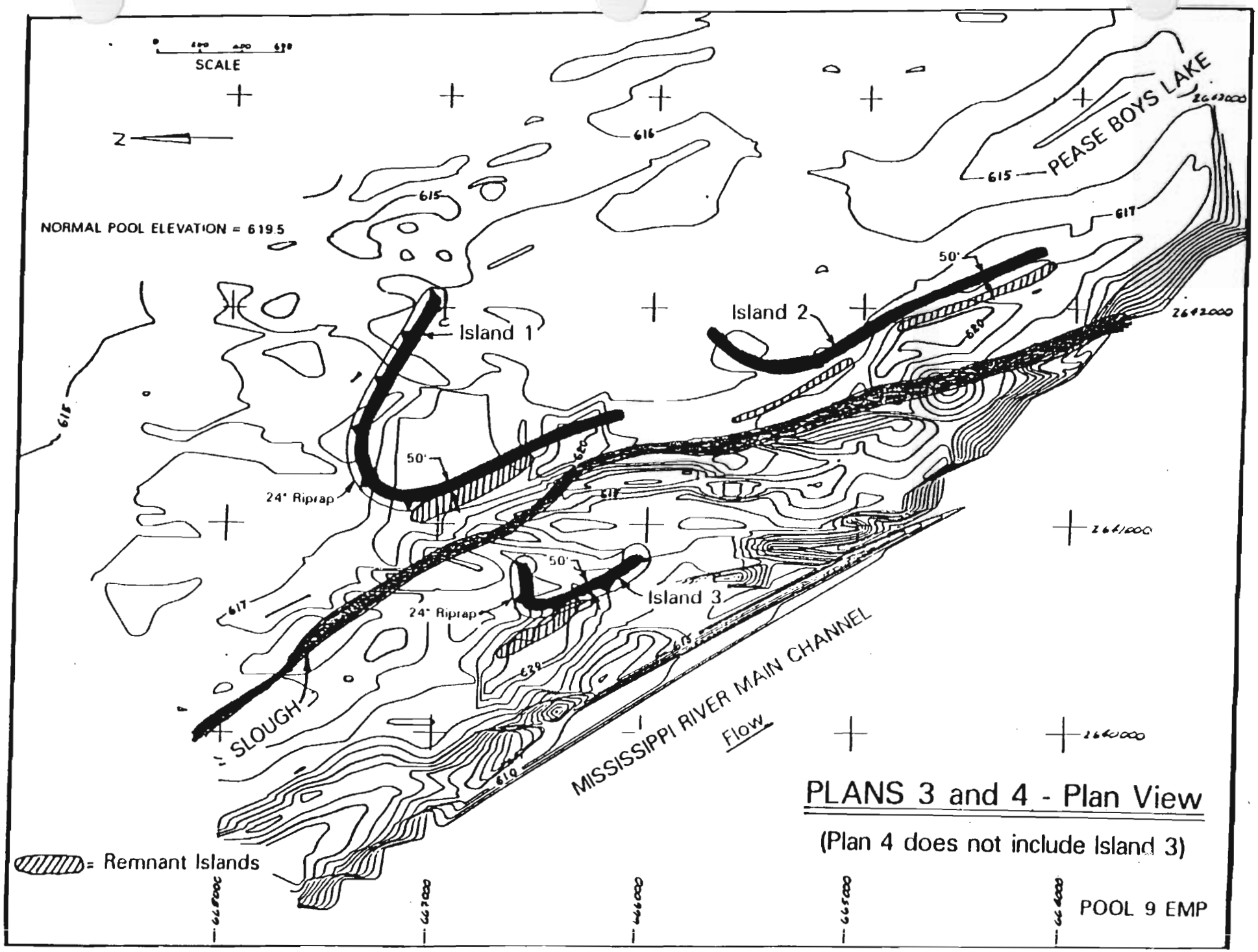

SCALE
N
NORMAL POOL ELEVATION = 619.5
21" Riprap
50'
Island
PEASE BOYS LAKE
615
616
617
620
639
610
SLOUGH
MISSISSIPPI RIVER MAIN CHANNEL
Flow
= Remnant Islands
PLAN 2 - Plan View
POOL 9 EMP

PLATE 6



PLANS 3 and 4 - Plan View

(Plan 4 does not include Island 3)

PLATE 7

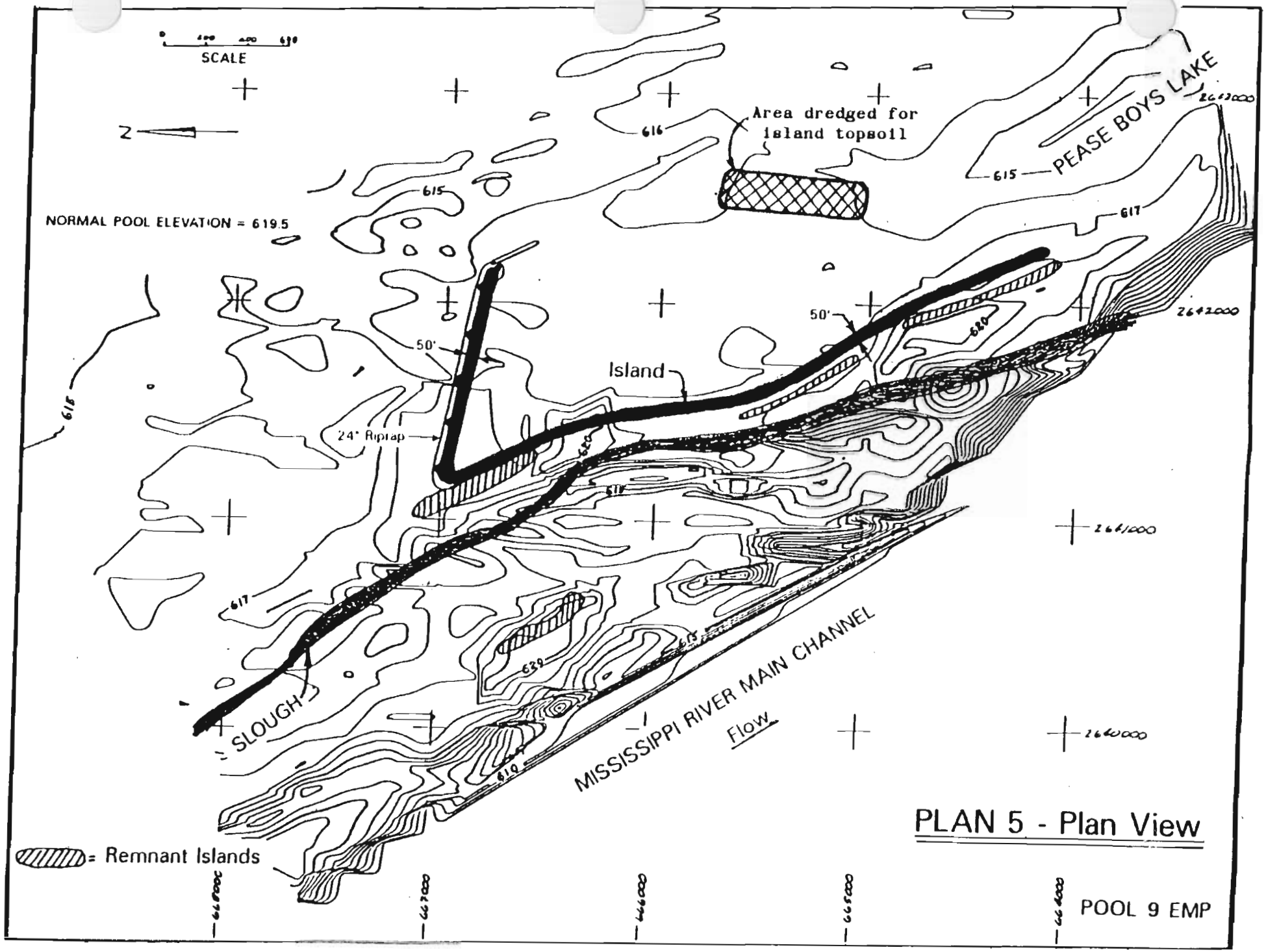


PLATE 8

PLAN 5 - Plan View

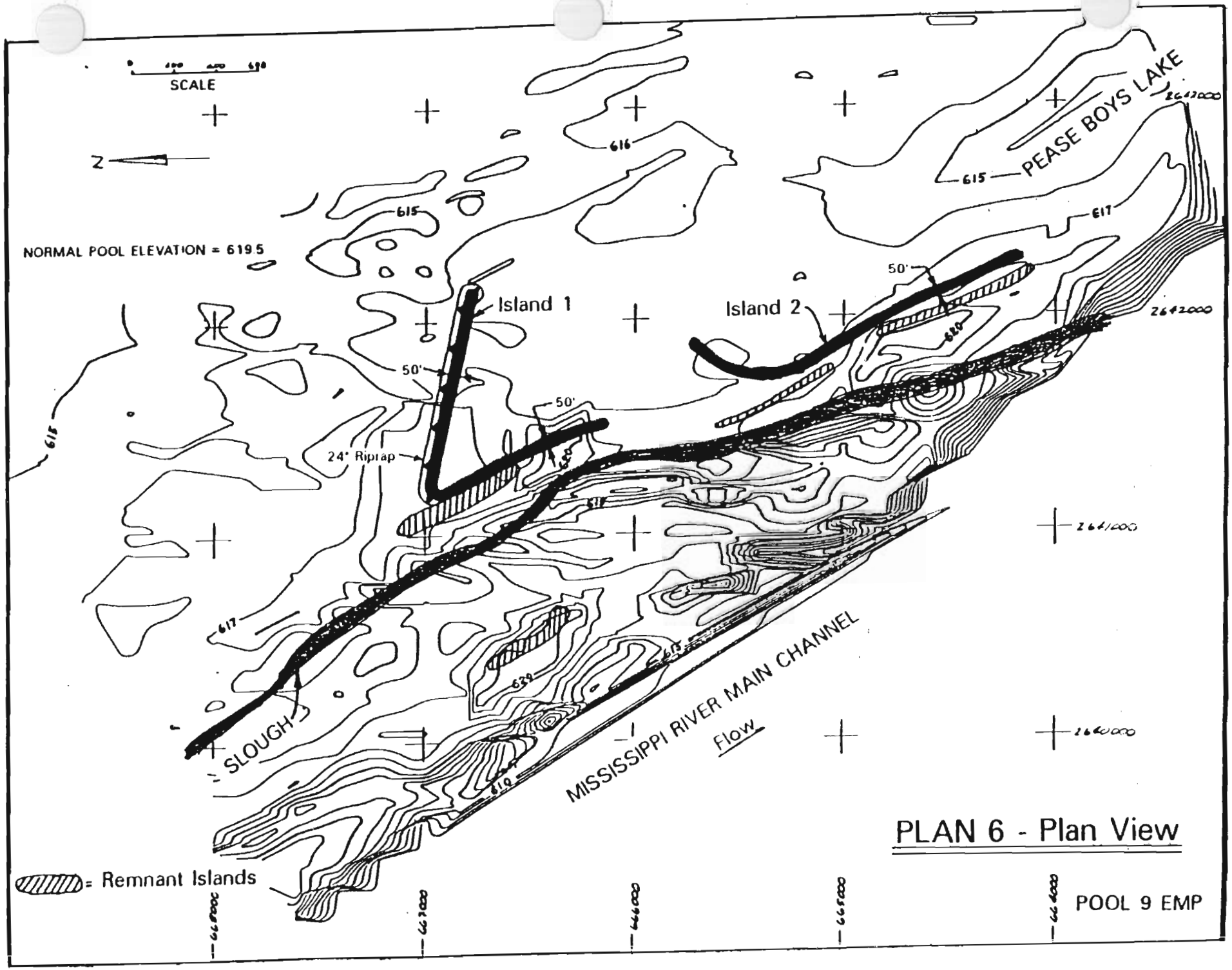
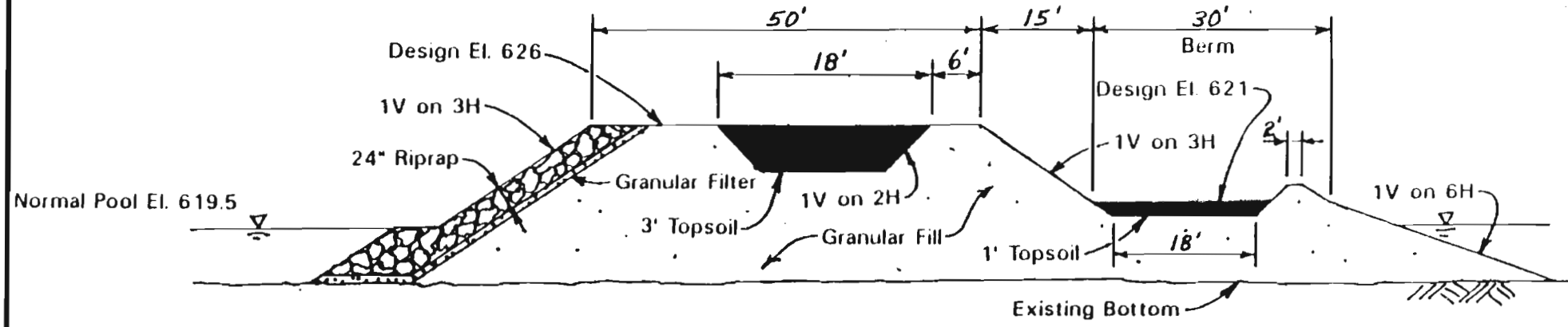
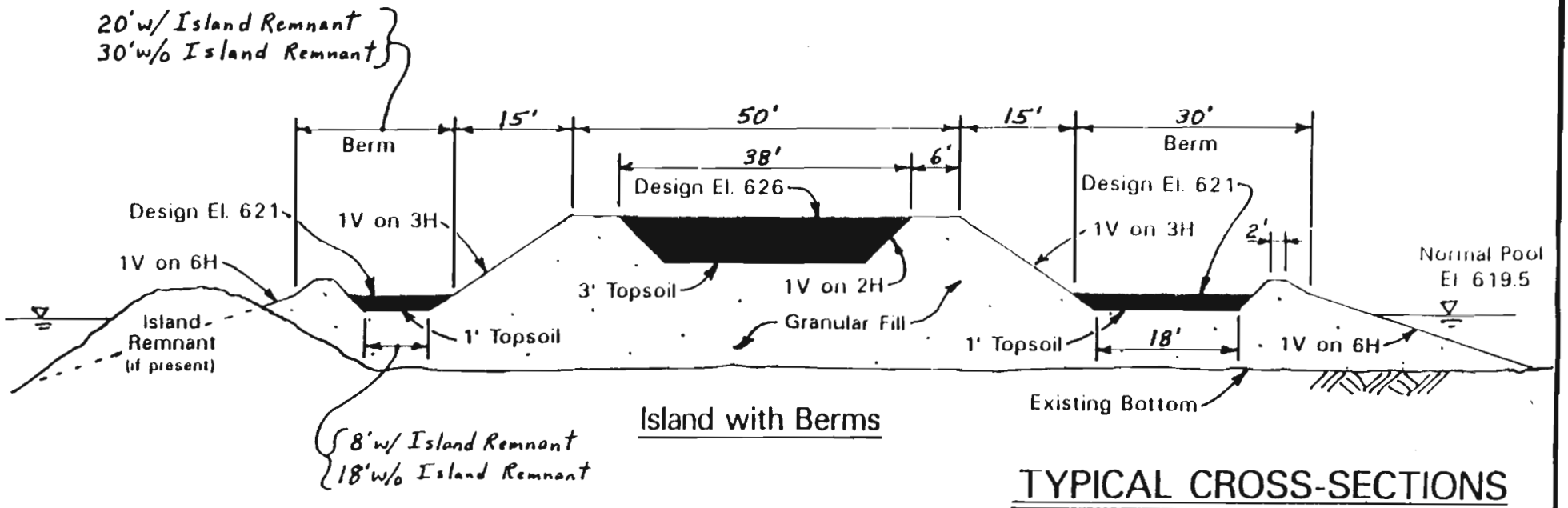


PLATE 9

PLAN 6 - Plan View



Island with Riprap

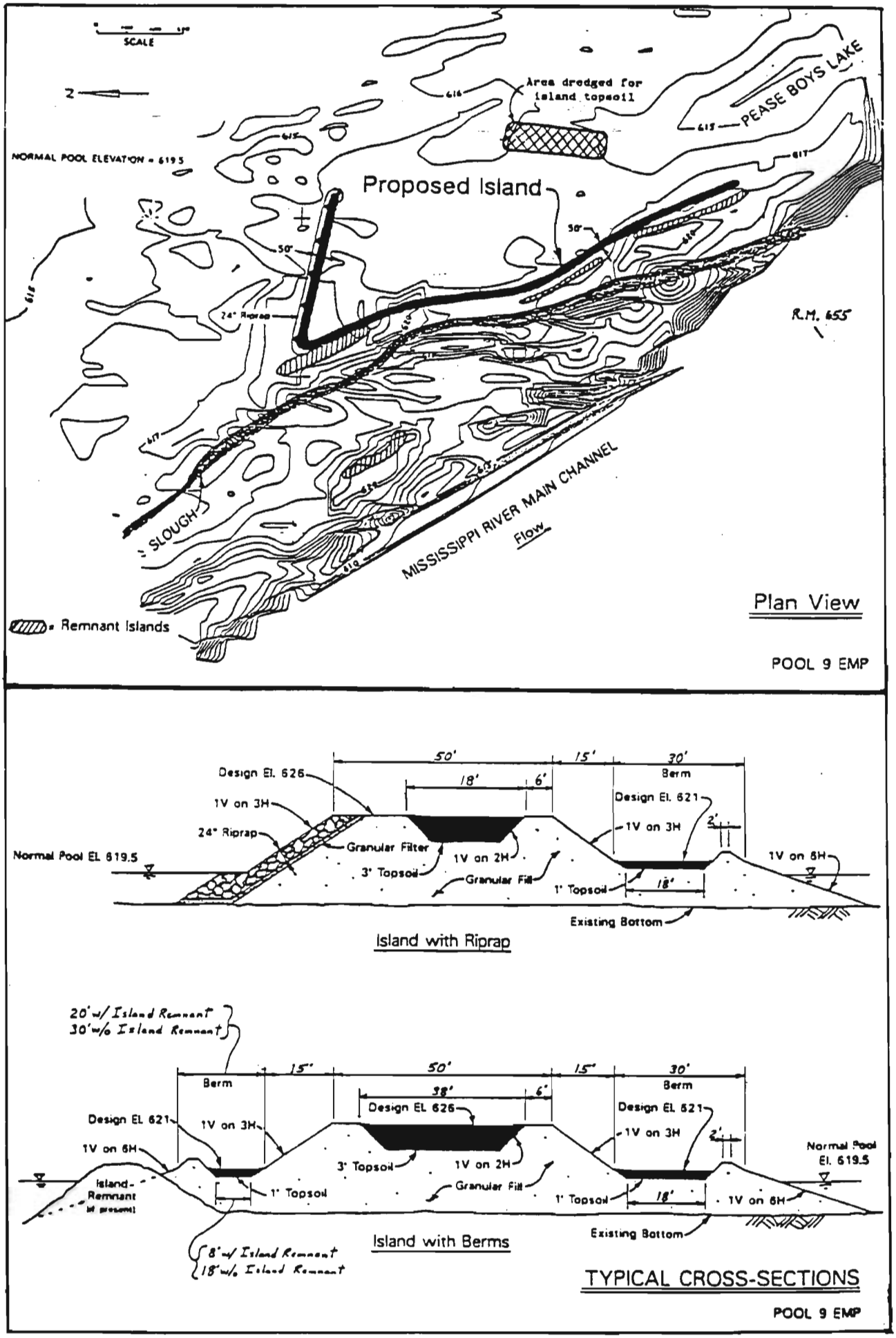


Island with Berms

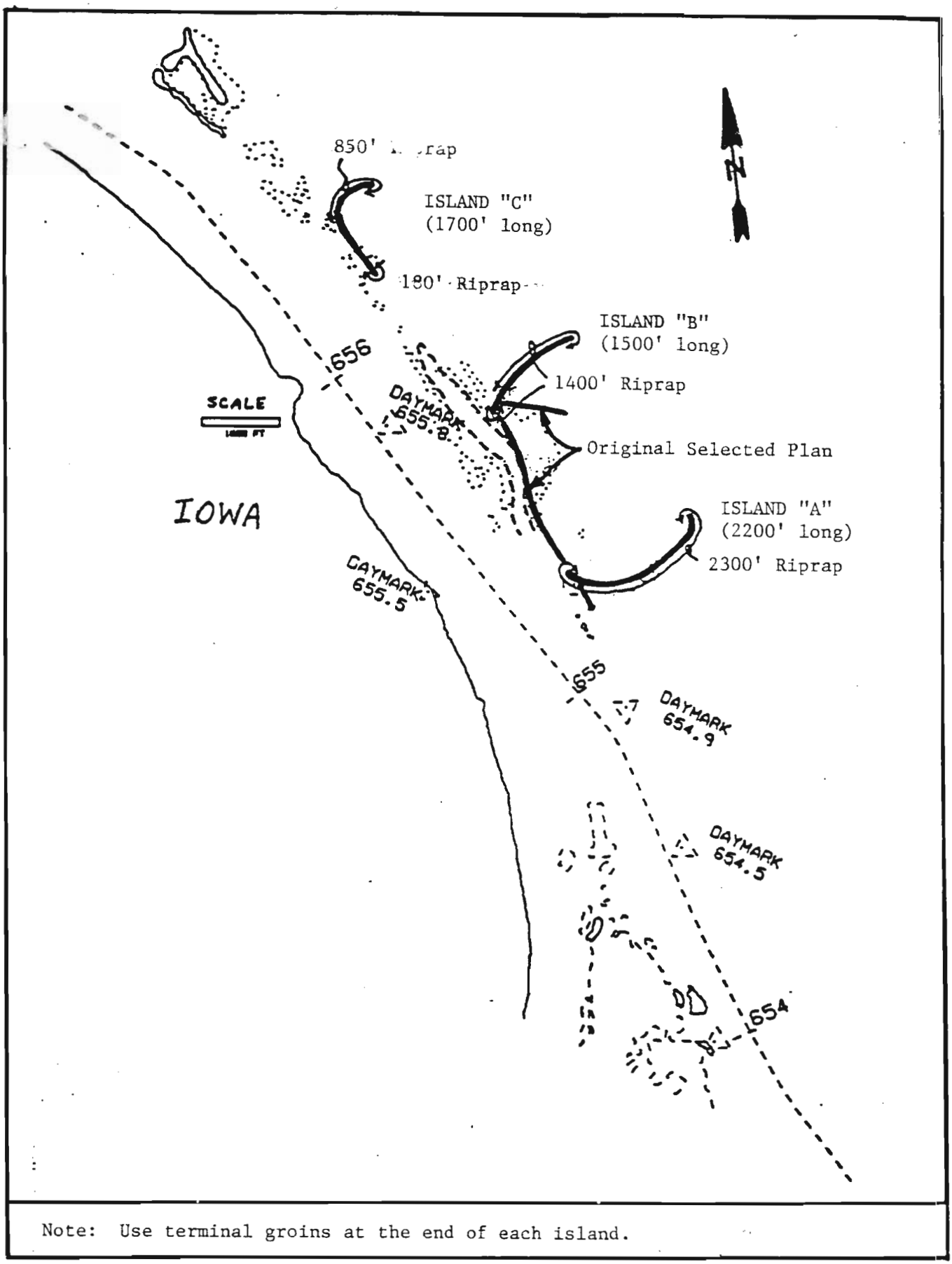
TYPICAL CROSS-SECTIONS

POOL 9 EMP

PLATE 10



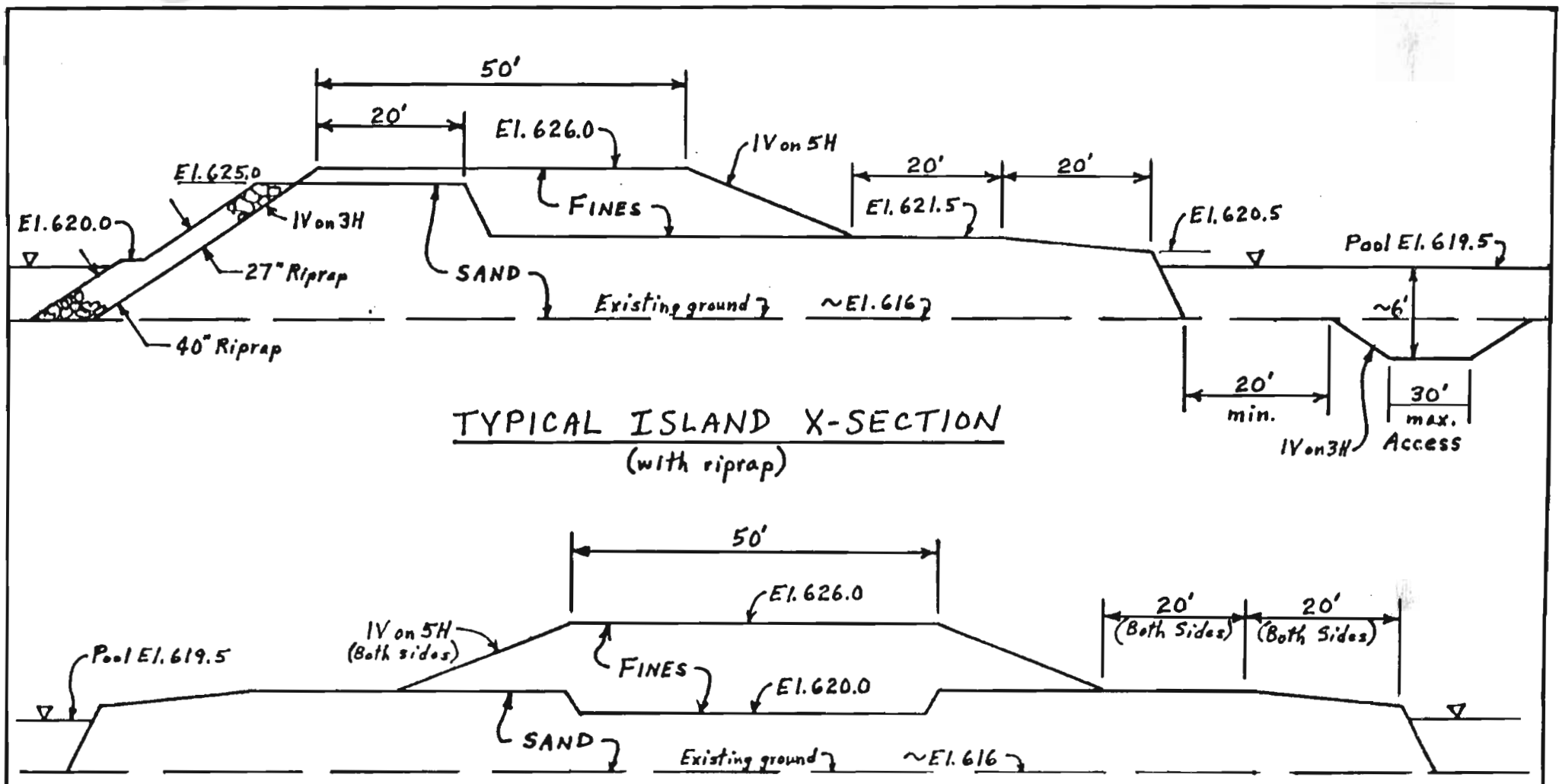
ORIGINAL SELECTED PLAN PLATE 11



Note: Use terminal groins at the end of each island.

REVISED ISLAND LAYOUT
(using sand & fines)

PLATE 12



TYPICAL ISLAND X-SECTION
(with riprap)

TYPICAL ISLAND X-SECTION
(without riprap)

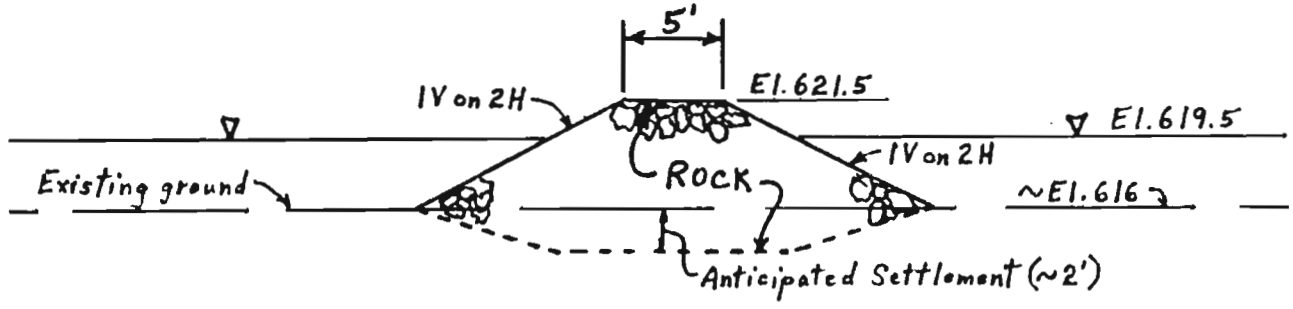
SCALE

20' Horizontal

10' Vertical

REVISED ISLAND CROSS-SECTIONS (using sand & fines)

PLATE 13

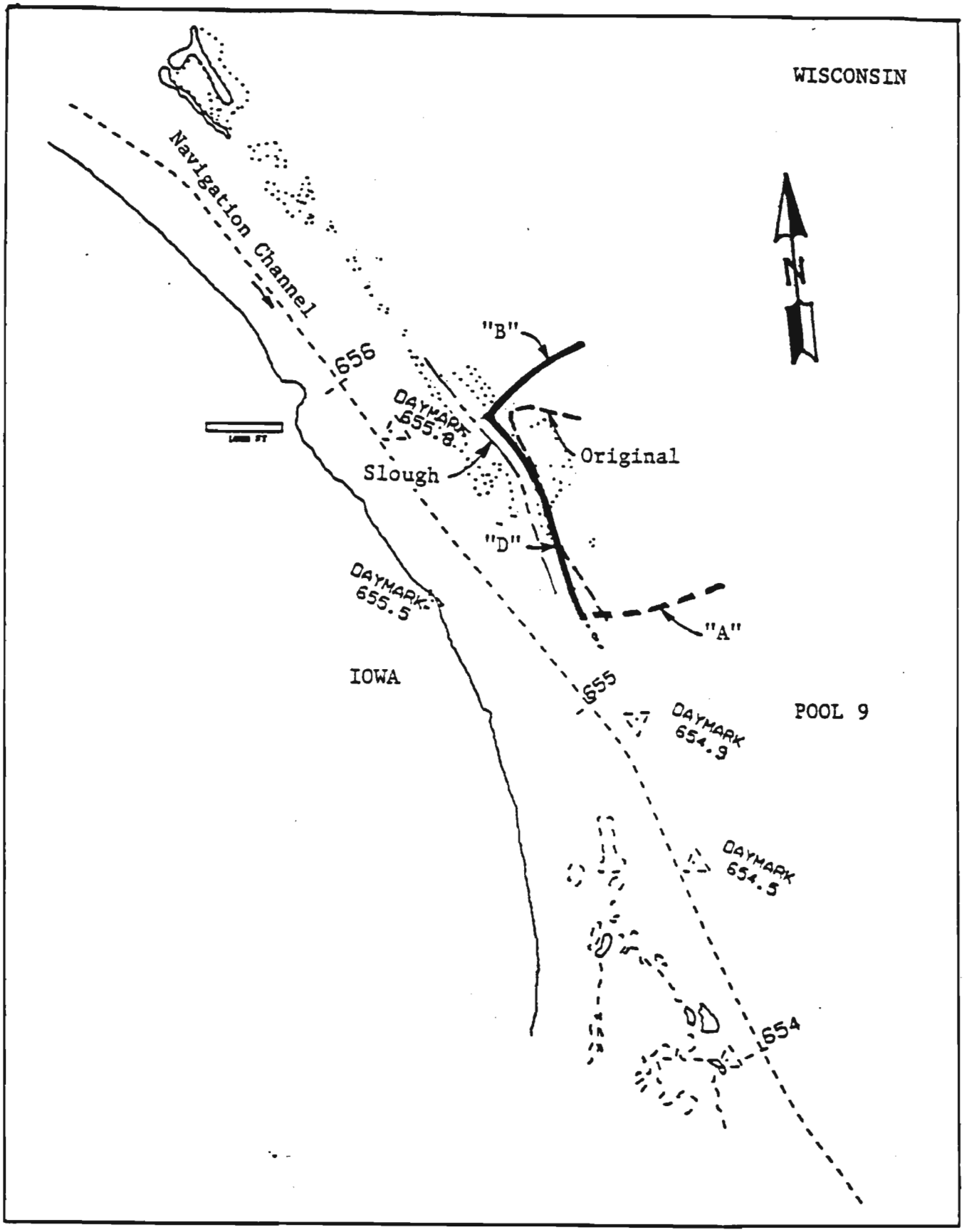


TYPICAL X-SECTION

10'
SCALE

ROCKFILL ISLAND
CROSS-SECTION
(value engineering design)

PLATE 14



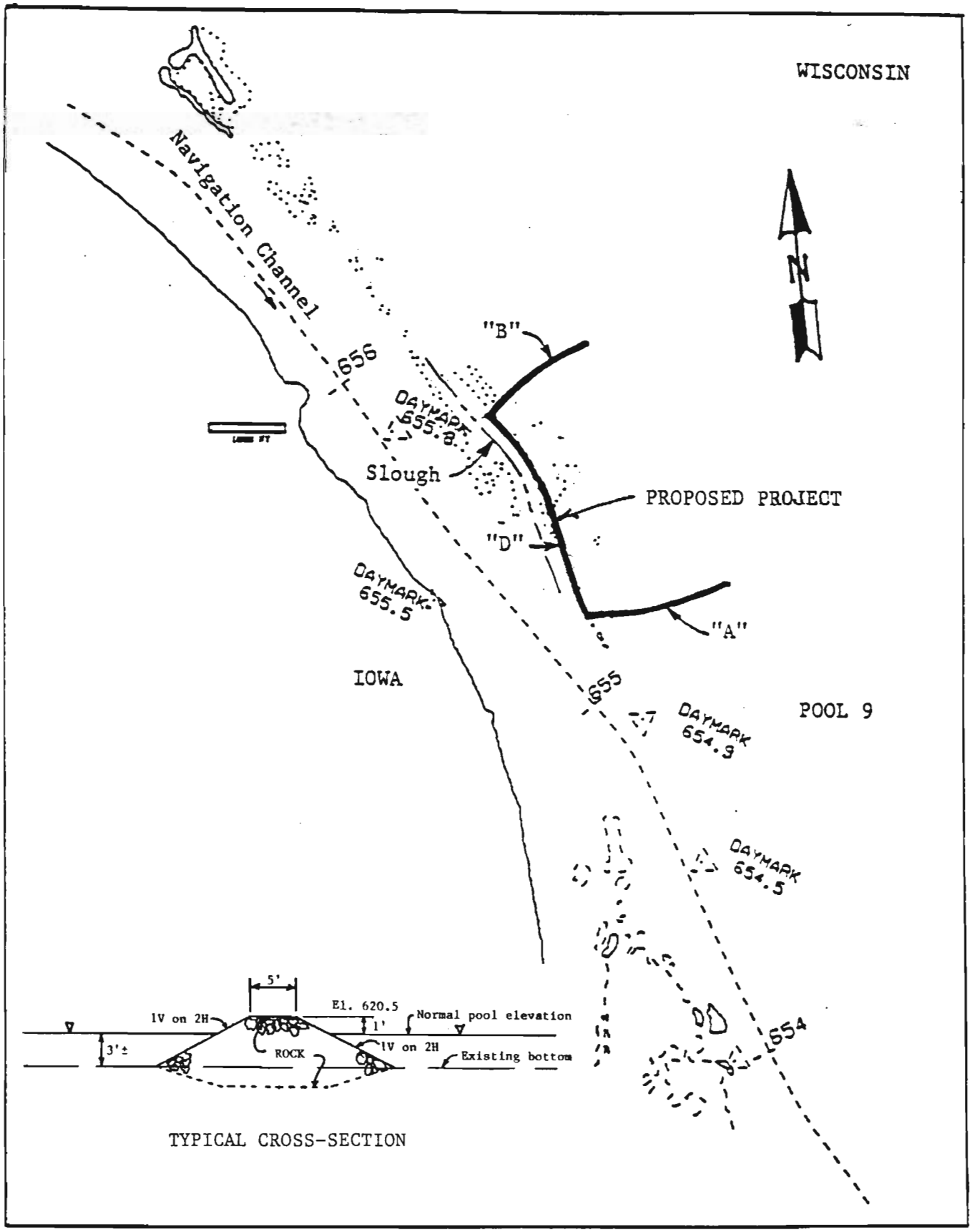
POOL 9 ISLANDS

HABITAT PROJECT

UMRS-EMP

ISLANDS A, B, & D ALTERNATIVE

PLATE 15



POOL 9 ISLANDS

HABITAT PROJECT

UMRS-EMP

REVISED SELECTED PLAN

PLATE 16

Attachment 2

Finding of No Significant Impact

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
1421 U.S. POST OFFICE & CUSTOM HOUSE
ST. PAUL, MINNESOTA 55101-1479

REPLY TO
ATTENTION OF

Planning Division
Environmental Resources

FINDING OF NO SIGNIFICANT IMPACT

In accordance with the National Environmental Policy Act of 1969, the St. Paul District, Corps of Engineers, has assessed the environmental impacts of the following proposed project:

DESIGN MODIFICATIONS FOR THE POOL 9 ISLAND HABITAT REHABILITATION AND ENHANCEMENT PROJECT POOL 9, UPPER MISSISSIPPI RIVER CRAWFORD COUNTY, WISCONSIN

The proposed action involves the construction of 6500 linear feet of rock mound islands feet in the lower reaches of pool 9 of the Upper Mississippi River. The purpose of the project is to reduce wind- and boat-generated wave action and prevent sediment from entering a backwater area in Pool 9 to promote the growth of aquatic plants in shallow aquatic habitat. This would increase habitat quality and diversity for fish and wildlife in about 180 acres of backwater. A description of the proposed action is contained in the alternatives section of the environmental assessment.

The finding of no significant impact is based on the following factors: (1) construction related disturbances would be minor and temporary, and (2), the project would result in improved habitat condition for fish and wildlife. The environmental effects of the proposed project are discussed in the environmental effects section of the environmental assessment.

The environmental review process indicates that the proposed action does not constitute a major Federal action significantly affecting the quality of the human environment. Therefore, an environmental impact statement will not be prepared.

2 Aug 93
Date

for Richard W. Craig MAJ, EN
Colonel, Corps of Engineers
District Engineer

Attachment 3

Section 404(b)(1) Evaluation

SECTION 404(B)(1) EVALUATION
DESIGN MODIFICATIONS FOR THE POOL 9 ISLAND CONSTRUCTION
HABITAT REHABILITATION AND ENHANCEMENT PROJECT
POOL 9, UPPER MISSISSIPPI RIVER
CRAWFORD COUNTY, WISCONSIN

I. PROJECT DESCRIPTION

A. LOCATION

The proposed project is located in pool 9 of the Upper Mississippi River at about river mile 655.5. The project area is located approximately 1,500 feet off the main channel of the river on the Wisconsin or left descending side.

B. GENERAL DESCRIPTION

The project involves the construction of 6,500 feet of emergent rockfill islands in a shallow open water area. The island complex would be constructed with rockfill obtained from local operating quarries. Fine sediments dredged from construction access channels would be transported and placed at a channel maintenance placement site near Lansing, Iowa, about 9 miles upstream from the project area.

C. AUTHORITY AND PURPOSE

The authority for the project is Section 1103 of the Water Resources Development Act of 1986.

The purpose of the project is protect shallow backwater habitat from the effects of wind and wave action to enhance growing conditions for aquatic plants. This would improve habitat conditions for the variety of fish and waterfowl species that inhabit or migrate through this portion of the Upper Mississippi River.

D. GENERAL DESCRIPTION OF DREDGED/FILL MATERIAL

1. General Characteristics of the Material - The islands will be constructed of rock in the size range of about 15 to 1000 pounds.

2. Quantity of Material - Construction of the islands will require 22,000 cubic yards (CY) of rock. Approximately 28,300 CY of material dredged for construction access will be placed at the Lansing channel maintenance placement site.

3. Source of the Material - The rock for island construction will come from a local operating quarry or from a proposed rock stockpile along the riverbank at Clayton, Iowa.

E. DESCRIPTION OF THE PROPOSED DISCHARGE SITE

1. Location - The proposed discharge site is a shallow water area approximately 1,500 feet off the main channel of the Upper Mississippi River at river mile 655.5.

The material dredged for construction access will be used to topsoil an existing channel maintenance placement site near Lansing, Iowa, for revegetation of the site at river mile 664.

2. Size - The base of the islands will cover approximately 2 acres of aquatic and less than an acre of terrestrial habitat. About 1.3 acres of the island will be above the water surface at normal water levels.

The existing dredged material placement site near Lansing of about 10 acres would be covered with fine sediments.

3. Type of Site - The proposed discharge site is a shallow open water area with water depths in the range of 1 to 5 feet. Some of the rockfill islands will be constructed along the edge of a submergent aquatic plant bed that covers a portion of the project area.

The proposed placement site for material dredged for construction access is an existing placement site filled with sand from channel maintenance dredging.

4. Types of Habitat - The habitat at the project site is shallow open water with a silt/clay bottom. There is a submergent aquatic plant bed in the project area that will be semi-enclosed by the completed structures. The project area currently provides moderate value habitat for fish and waterfowl. The habitat value of the area is in decline because of the decline in aquatic plants in the area.

The placement site is integrated with an existing island. The site is naturally protected and does not provide valuable habitat for either fish nor waterfowl because of the clean, sandy composition of the dredged material.

5. Timing and Duration - Construction would take place during the 1994 and 1995 construction seasons.

F. DESCRIPTION OF DISPOSAL METHOD

The rock obtained from quarries would be transported by barges and placed at the island site by mechanical equipment. Dredging of fine material for construction access would be done mechanically, placed into barges, hauled to the placement site, and unloaded mechanically and spread with a dozer. Use of hydraulic dredging equipment is not anticipated.

II. FACTUAL DETERMINATIONS

A. PHYSICAL SUBSTRATE DETERMINATIONS

The substrate at the proposed discharge site is fine silts and clays. Construction of the island will cover 3 acres of this substrate, 1.3 acres of which will be elevated to the point that it will be above the normal pool elevation.

B. WATER CIRCULATION, FLUCTUATION, AND SALINITY DETERMINATIONS

1. Water

a. Salinity - Not applicable.

b. Water Chemistry - The proposed discharge activities should have no impact on water chemistry.

c. Clarity - During construction there may be localized short term reductions in water clarity due to turbidity. Over the long term, water clarity in the area protected by the structures should show some improvement.

d. Color - The proposed discharge activities should have no impact on water color.

e. Odor - The proposed discharge activities should have no impact on water odor.

f. Taste - The proposed discharge activities should have no impact on water taste.

g. Dissolved Gas Levels - The proposed discharge activities should have no impact on dissolved gas levels.

h. Nutrients - The proposed discharge activities should have no impact on nutrient levels.

i. Eutrophication -The proposed discharge activities should have no impact on eutrophication.

j. Temperature - The proposed discharge activities should have no impact on water temperature.

2. Current Patterns and Circulation

a. Current Patterns and Flow - The proposed project will alter current patterns and reduce water flows though the project area. This is one of the purposes of the project and is expected to have a beneficial effect on the project area. No adverse effects on adjacent areas is expected because of the large dispersal area for the deflected flows.

b. Velocity - Current velocities over much of the protected area should be reduced. No adverse effects on adjacent areas is expected because of the large dispersal area for the deflected flows.

c. Stratification - The proposed discharge activities should have no impact on stratification.

d. Hydrologic Regime - The proposed discharge activities should have no impact on the hydrologic regime.

3. Normal Water Level Fluctuations - The proposed discharge activities should have no impact on normal water level fluctuations.

4. Salinity Gradients - Not applicable.

C. SUSPENDED PARTICULATE/TURBIDITY DETERMINATION

The placement of the rock for the islands would result in negligible increases in turbidity during construction.

The fine sediments transported to the Lansing placement site would be contained using material at the site and would not result in any increase in turbidity in the aquatic environment.

D. CONTAMINANT DETERMINATION

Backwater sediment samples were collected in the project area in 1987 and 1990. No chlorinated hydrocarbon pesticides or PCB's were detected. Concentrations of metals and nutrients were found at the slightly elevated levels typical of Upper Mississippi River backwater sediments. Because the fine materials will be placed at the existing Lansing placement site, no release of chemical contaminants is expected from this component of the proposed action.

The rock for the islands will come from a quarry and should be relatively contaminant free. There would be no contaminant effects associated with the placement of the rock to construct the islands.

E. AQUATIC ECOSYSTEM AND ORGANISM DETERMINATION

There would be an absolute loss of about 2 acres of aquatic habitat due to conversion to island. The benthos in these areas would be covered and lost.

While the project will result in a quantitative loss of aquatic habitat, the overall purpose is improve the habitat quality of the remaining aquatic habitat in the project area. The project should result in a substantial improvement in aquatic habitat quality over an area covering approximately 180 acres.

F. PROPOSED DISPOSAL SITE DETERMINATION

1. Mixing Zone Determination - Because the area of impact is expected to be very small and limited to the immediate area of construction, no mixing zone was calculated.

2. Determination of Compliance with Applicable Water Quality Standards - It is expected that the proposed action will comply with state water quality standards. Water quality certification will be obtained from the state of Wisconsin and any conditions imposed to minimize adverse effects will be complied with.

3. Potential Effects on Human Use Characteristics - The proposed action is not expected to have any adverse effect on human use of the project area. However, it may be necessary to mark the islands to prevent boats from striking the islands during periods of higher water levels. There will be beneficial effects in terms of increased use of the area for recreational fishing.

G. DETERMINATION OF CUMULATIVE EFFECTS ON THE AQUATIC ECOSYSTEM

The proposed project would result in the conversion of approximately 2 acres of aquatic habitat to upland to improve the habitat quality of approximately 180 acres of aquatic habitat. Given the relatively small size of the project area in comparison to the overall size of lower pool 9, the project represents a small step in attempting to offset the natural decline of habitat quality in this pool.

H. DETERMINATION OF SECONDARY EFFECTS ON THE AQUATIC ECOSYSTEM

The proposed project is not expected to have any adverse secondary effects on the aquatic ecosystem.

III. FINDINGS OF COMPLIANCE

The proposed discharge of dredged material would comply with the Section 404 (b) (1) guidelines of the Clean Water Act. There are no alternatives to the proposed project that would accomplish the project purpose without involving the discharge of dredged and fill material. The project has been designed to minimize any adverse effects of the placement of dredged and fill material while maximizing aquatic habitat benefits.

The proposed discharge of dredged material would comply with all State of water quality standards, Section 307 of the Clean Water Act, and the Endangered Species Act of 1973, as amended. The proposed action would have no adverse impacts on human health or welfare, including municipal and private water supplies, recreational and commercial fishing, plankton, fish, wildlife, and special aquatic sites. The life stages of aquatic organisms and other wildlife would not be adversely affected. No significant adverse effects on aquatic ecosystem diversity, productivity and stability, or on recreational, aesthetic, and economic values would occur.

On the basis of this evaluation, I specify that the proposed action complies with the requirements of the guidelines for discharge of dredged material.

2 Aug 93
Date

for Richard W. Craig
Colonel, Corps of Engineers
District Engineer

Attachment 4

Letter of Intent

Attachment 5

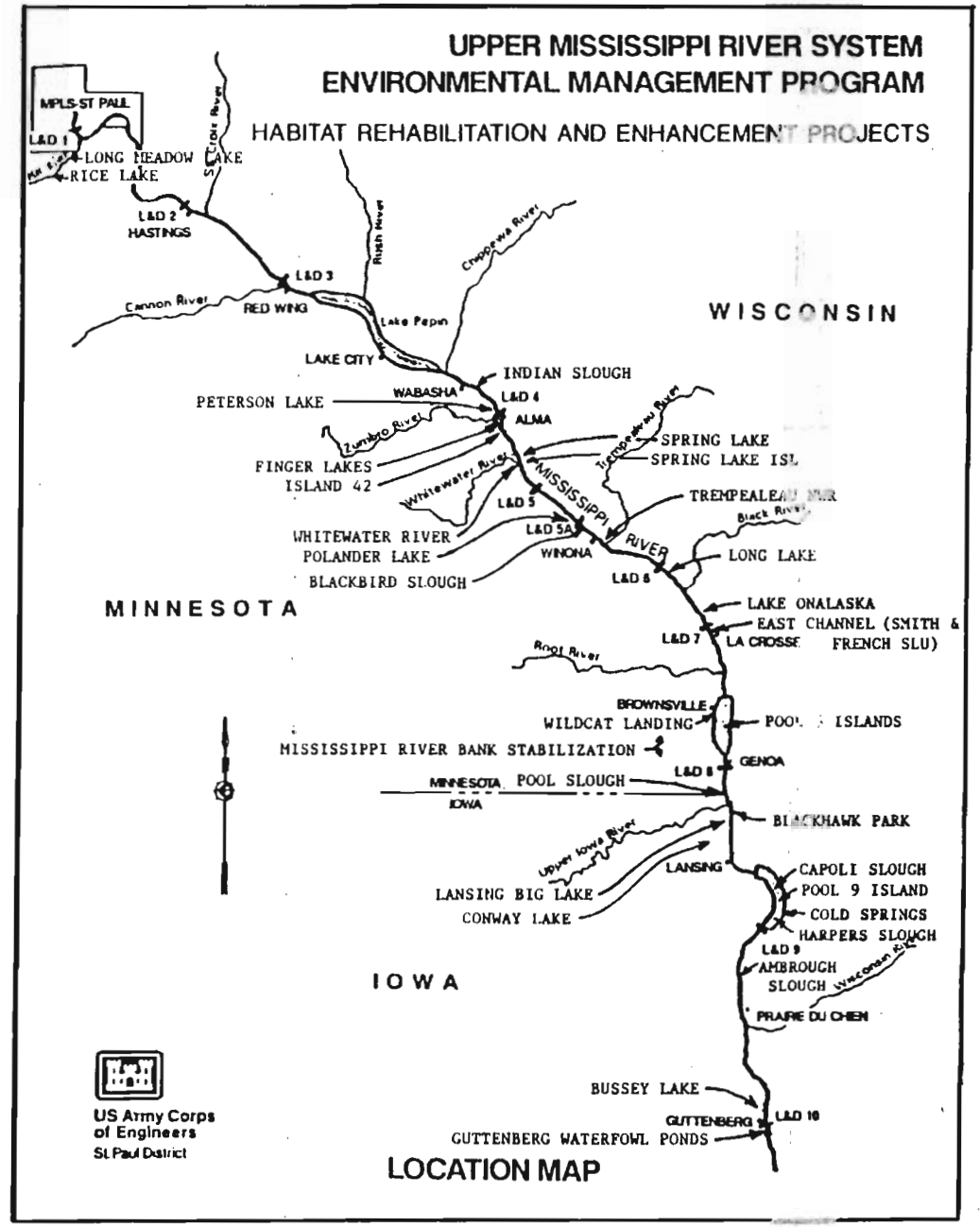
Correspondence

PUBLIC INFORMATION MEETING

UPPER MISSISSIPPI RIVER SYSTEM

ENVIRONMENTAL MANAGEMENT PROGRAM

A public information meeting is scheduled for Thursday, June 17, 1993, at 7:30 pm at the **Kee High School** in Lansing, Iowa. Representatives from the Corps of Engineers, U.S. Fish and Wildlife Service, and State Departments of Natural Resources will be there to give a status report on habitat rehabilitation and enhancement projects that are being constructed as part of the **UPPER MISSISSIPPI RIVER SYSTEM ENVIRONMENTAL MANAGEMENT PROGRAM** (EMP). Slides of habitat projects that have been constructed or are in the planning and design stages will be shown. This informal meeting will provide an opportunity for you to see the progress on habitat projects, to ask questions about the EMP, and to give your comments. Some of the projects that will be discussed are the Guttenberg Ponds, Bussey Lake, Blackhawk Park, Pool 8 and Pool 9 Islands, Cold Springs, Lansing Big Lake, Lake Onalaska, and Bank Stabilization. The meeting will be in the multi-purpose room in the high school at 569 Center Street. If you have any other questions, please contact Don Powell at 612-220-0402 or at the Corps of Engineers, St. Paul District, 180 Kellogg Blvd E, Rm 1421, St. Paul, Minnesota 55101-1479. We hope to see you at the meeting.



Corps of Engineers' Responses to Comment Letters
on the
Draft Supplemental Definite Project Report/Environmental Assessment
for
POOL 9 ISLAND CONSTRUCTION
March 1993

Iowa Department of Natural Resources (5/10/93)

A more detailed analysis of the proposed placement site at Lansing was conducted. The fine material dredged from the Pool 9 Island Construction site would be transported by barge to the placement site for use as topsoil to revegetate the dikes. It was found that only about 4,000 cubic yards could be used at the site. This assumed spreading the material on the top and outside slope of the dike around the placement site to a depth of 9 inches. It would then be mixed into the surface of the existing dike material and seeded. An additional placement site was located for the remaining 24,000 cubic yards of material dredged for construction access. The site is at Blackhawk Park, approximately 6 miles further upstream from the Lansing site. The material would be unloaded at the park in an area that would be bermed from the river to prevent any runoff into the river. The material would then be moved to an area in the park that received dredged sand in the past. The park manager says that all the fine material could be used for revegetation purposes. With this proposed method of disposal there should be no significant impact on adjacent aquatic areas at either placement site. The final Supplemental DPR has been revised to include the additional placement site discussion.

Wisconsin Department of Natural Resources (5/4/93 & 6/2/93)

The intent of the alignment of the southern leg of the island complex is to avoid the Pease Boy Lake area as recommended.

In response to comments about the placement site for access dredged material, see response above. The proposed disposal method will not preclude future use of the Lansing site for beneficial purposes.

William Howe (4/29/93 & 5/10/93)

A public information meeting was held at Lansing, Iowa, on June 17, 1993. The Pool 9 Island Construction project was discussed at the meeting as well as all the other habitat projects that are being pursued in the St. Paul District. No additional comments or suggestions relating to the Pool 9 project were received from more than 35 people present.

STATE OF IOWA
TERRY E. BRANSTAD, GOVERNOR
DEPARTMENT OF NATURAL RESOURCES
LARRY J. WILSON, DIRECTOR

May 10, 1993

Colonel Richard W. Craig
U.S. Army Engineers, St. Paul District
180 E. Kellogg Blvd. -- Room 1421
St. Paul, MN 55101-1479

Dear Colonel Craig:

Iowa Department of Natural Resources staff reviewed the May 1993 Definite Project Report/Environmental Assessment (DPR) for the proposed Pool 9 Island Construction Project under the Environmental Management Program (EMP). We concur with the placement and design of the proposed islands, but we cannot endorse the entire project without more information on the placement of fine material on the containment site for channel maintenance near Lansing, Iowa.

The DPR calls for 28,000 cubic yards of fine material being placed on the containment site "in a manner that would prevent the material from being washed into adjacent aquatic habitats". No further details are provided in the DPR. The Iowa DNR cannot endorse this project until the following questions and concerns are satisfactorily addressed.

1. Does enough capacity exist for 28,000 cubic yards of fine material on the backslope of the containment site? If so, how deep will the fine material be and what plant species will be used for revegetation? In other words, the DPR should contain specifications for fine material placement and revegetation.

2. Are we correct in assuming that fine material will not be placed inside the containment site? If this assumption is incorrect, what limitations will the fine material create for using the site for emergency and temporary situations relating to channel maintenance? Could it entirely preclude the site from being used for channel maintenance in the future? Placement of the fine material must be closely coordinated with channel maintenance uses of the site.

3. What impacts, both short and long term, will the disposal operation have on adjacent aquatic areas? The DPR must specifically address the need or lack thereof for a Section 401 Water Quality Certification from the State of Iowa.

4. Have other alternatives for placement of the fine material been identified and assessed?

MAY 17 1993

WALLACE STATE OFFICE BUILDING / DES MOINES, IOWA 50319 / 515-281-5145 / TDD 515-242-5967 / FAX 515-281-8895

I presented these same concerns in a letter to you dated May 18, 1992, which is included in the Correspondence Section (Attachment 5) of the DPR. The DPR as currently written does not adequately address the concerns. I am confident that the issues will be resolved so the Iowa DNR can endorse the Pool 9 Island EMP project in its entirety.

Sincerely,

Paulin (for)
DON PAULIN

LARRY J. WILSON
DIRECTOR
IOWA DEPARTMENT OF NATURAL RESOURCES

WISCONSIN
DEPT. OF NATURAL RESOURCES

George E. Meyer
Secretary

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

3550 Mormon Coulee Rd
State Office Building
La Crosse, WI 54601
TELEPHONE 608-785-9000
TELEFAX 608-785-9990

June 2, 1993

Colonel Richard Craig, District Engineer
St. Paul District, Corps of Engineers
180 Kellogg Boulevard East, Room 1421
St. Paul, MN 55101-1479

Dear Colonel Craig:

We are writing to provide additional comments on the draft Supplemental Definite Project Report/Environmental Assessment for the Pool 9 Islands Construction, Habitat Rehabilitation and Enhancement Project. We request that the following comments be added to the record along with our previous comments on the Pool 9 Islands HREP provided to the St. Paul District, Corps of Engineers in a letter addressed to Mr. Don Powell, dated May 4, 1993.

The Iowa Department of Natural Resources has provided us with a copy of a letter dated May 10, 1993, they sent to you. This letter provided Iowa DNR's comments on the Pool 9 Islands HREP. In their letter, the Iowa DNR raised several questions regarding the feasibility of using a channel maintenance containment site near Lansing, Iowa, as a disposal site for approximately 28,000 cubic yards of fine material dredged for construction access to the Pool 9 Islands project site. This fine material is proposed to be used to cap and revegetate a portion the Lansing channel maintenance containment site.

We have reviewed the comments made by the Iowa DNR regarding this issue and concur with their statement that the current draft of the Pool 9 Islands DPR does not adequately address the feasibility of disposing of the fine material at this site. Therefore, we recommend that a more detailed discussion regarding the disposal of fine materials dredged during construction activities of the Pool 9 Islands HREP be provided in the final DPR. Answers to the comments and questions provided by the Iowa DNR in the May 10, 1993, letter should be included in the final DPR.

We do not support the use of the Lansing temporary disposal site for disposal of fine material dredged from Pool 9 Islands construction if capping and revegetation of the Lansing disposal site with fines precludes excavation of the site for a beneficial use demand in the future.

Please contact me at (608) 785-9005 if you have any questions regarding our comments.

Sincerely,

Jeffrey A. Janvrin
Mississippi River Habitat Specialist

WISCONSIN
DEPT. OF NATURAL RESOURCES.
George E. Meyer
Secretary

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

3550 Mormon Coulee Road
State Office Buildi:
La Crosse, WI 54601
TELEPHONE 608-785-9000
TELEFAX 608-785-9990

May 4, 1993

St. Paul District, Corps of Engineers
Floodplain Management and Small Projects, Planning Division
ATTN: Mr. Don Powell
180 Kellogg Boulevard East, Room 1421
St. Paul, MN 55101-1479

Dear Mr. Powell:

We have completed review of the draft Supplemental Definite Project Report/Environmental Assessment for the Pool 9 Islands Construction, Habitat Rehabilitation and Enhancement Project. The Wisconsin Department of Natural Resources has endorsed the proposed changes to the Pool 9 Islands HREP in letters to your agency dated September 16, 1991, and May 18, 1992. It is unfortunate and frustrating that this project is progressing at such a slow pace given that our initial support of the Pool 9 Islands HREP was sent to your office July 19, 1989.

Since we have been involved in formulation of the selected alternative and this alternative was presented and accepted at a public meeting on June 4, 1992, we have few additional comments to make regarding the report. The only comment we have relates to the placement of the southern leg of the island (island "A"). We recommend that the alignment of this section of the island not enter into the deeper water referred to as Pease Boys Lake.

We will provide an updated letter granting water quality certification for this project during preparation of plans and specs. We look forward to the completion of the Pool 9 Islands Construction HREP in the near future. If you have any questions regarding our comments, please contact me at the above address or call (608) 785-9005.

Sincerely,

Jeffrey A. Janvrin
Mississippi River Habitat Specialist

c: Keith Beseke, FWS
Gary Ackerman and Art Roseland, Iowa DNR
John Lyons, FWS

howe printing co., inc.
P.O. BOX [illegible], PRAIRIE DU CHIEN, WIS. 53821 / (608) 326-2441

May 10, 1993

Col. Richard W. Craig
U.S. Army Corps of Engineers
St. Paul District
180 East Kellogg Blvd. Room 1421
St. Paul, Minnesota 55101-1479

Dear Col. Craig:

Why and then again why not? The Corps of Engineers has the why on the changes of their plans for backwater improvements. The public wants to have the the insight of why not use this approach.

There are two projects which could benefit from public meetings on these new plans of backwater accomplishment; the Pool Nine (9) islands in the Ferryville-Lynxville area and the Finger Lakes project in the Trempealeau area.

As a member of the Wisconsin Concervation Congress River Committee and the Minnesota-Wisconsin Boundary Area Commission, my desires are improved public awareness of the good accomplishments of the St. Paul Corps' planning efforts.

A public meeting provides confidence in the agency's abilities to adapt in using public comments. This last review might also provide some small weave of the fabric of confidence in the projects.

Unfortunately, there hasn't been much public notice provided on either of these projects. There isn't a news story of where the documents can be reviewed. My goal is to provide for the continued public support of each of the Corps' efforts. When asked why, the Corps staff provides the solid answers; they also respond with delligence to the why nots.

Please continue to work for public support.

Sincerely,

W.H. "Bill" Howe

WHH/afg

howe printing co., inc.
P.O. BOX 14 / PRAIRIE DU CHIEN, WIS. 53821 / (608) 326-2441

April 29, 1993

Col. Richard W. Craig
Corp of Engineers
St. Paul District
180 Kellogg Blvd. E. Room 1421
St. Paul, MN 55101

Dear Col Craig:

The Water Resources Branch Planning Division has circulated the public notice on the pool 9 island construction Habitat Rehabilitation and Enhancement. This is one of the first major projects in pool 9.

We of the Wisconsin Conservation Congress River Study Committee, are pleased to notice the advancement of this project.

We respectively request there be a public meeting provided on the pool 9 project this year. Our suggestion is to have the meeting at either of the communities of Lansing, Iowa, Ferryville or Lynxville, Wis. Each of the smaller communities has meeting rooms which would provide for the open public discussion.

Thanks for your assistance in directing the Corps staff to conduct such a public meeting. The details of the project could be thus explained in the details which will assist both the Corps and the public in providing reasonable comments on this rehabilitation effort.

Sincerely,

William H. Howe

William Howe, Secretary
River Committee Wisconsin Conservation Congress

WH:gn

State Historical Society of Wisconsin
Division of Historic Preservation
816 State Street • Madison, Wisconsin 53706-1488
☎ (608) 264-6500 • FAX (608) 264-6404

April 28, 1993

Mr. Richard Craig
U.S. Army Corps of Engineers
1421 U.S. Post Office and Custom House
St. Paul, Minnesota 55101

IN REPLY PLEASE REFER TO SHSW: #88-0951/CR

RE: Pool 9 Island Construction Habitat Rehabitation and Enhancement

Dear Mr. Craig:

We have reviewed the above-referenced project as required for compliance with Section 106 of the National Historic Preservation Act and 36 CFR Part 800: Protection of Historic Properties, the regulations of Advisory Council on Historic Preservation governing the Section 106 review process.

There are no archeological or architectural properties in the National Register of Historic Places located within the area of potential effect of the proposed undertaking. Furthermore, we are not aware of any properties that may be eligible for the National Register in this area.

We have no further knowledge of historic properties in the project area. Information may exist, however, which has not come to our attention. We remind you that 36 CFR 800.4 includes the requirement that you seek information, as appropriate to the undertaking, from parties likely to have knowledge of or concerns with historic properties in the project area - such as Indian tribes, local governments, and public and private organizations.

If there are any questions concerning this matter, please contact Gretchen Block of my staff at (608) 264-6505.

Sincerely,

Richard W. Dexter
Chief, Compliance Section
DIVISION OF HISTORIC PRESERVATION

RWD/GB/gb

US Army Corps of Engineers
St Paul District

Public Notice

Project: Pool 9 Island Construction - Habitat Rehabilitation and Enhancement, Pool 9, Upper Mississippi River

Date: April 12, 1993

In Reply Refer to: Water Resources Branch Planning Division

1. Project Location. The project is located in pool 9 of the Mississippi River at about river mile 655.5, about 7 miles downstream of Lansing, Iowa (see attached map). It lies within the Upper Mississippi River Wildlife and Fish Refuge and is located in Crawford County, Wisconsin.

2. Project Authority. Section 1103 of the Water Resources Development Act of 1986 (Public Law 99-662) provides authorization and appropriations for an environmental management program for the Upper Mississippi River system that includes fish and wildlife habitat rehabilitation and enhancement. The proposed project would be funded and constructed under this authorization.

3. Project Purpose. The proposed island construction would provide a stable barrier to reduce the movement of flow from the main channel and the backwater area through the project area. It would provide a 180-acre protected, shallow habitat in this backwater area that would increase light penetration and subsequent aquatic plant beds in the area. The island construction would also protect the backwater area from wind and boat-generated waves to improve water clarity. Additional deepwater fish habitat would be provided by dredging access channels in order to construct the island complex.

4. Proposed Project. The selected plan of action consists of constructing an island complex adjacent to the main river channel to replace barrier islands that have disappeared because of erosion. The complex would consist of a C-shaped island complex (Islands A, B, and D) to prevent flow from entering the backwater and to break up waves in 180 acres of the backwater. The island would be parallel to the main river channel for about 3,000 feet and extend into the backwater area 1,600 feet at the upstream end and 1,900 feet at the downstream end (see attached map). The island would be constructed entirely with about 22,000 cubic yards of rockfill. The island would have a 5-foot top width and be 1 foot above the normal pool elevation. It is anticipated that access channels to construct the island complex would be dredged 65 feet wide and 6 feet deep. The dredged areas would provide about 6 acres of deepwater fish habitat. The estimated 28,000 cubic yards of dredged material would be transported about 9 miles upstream to a historic dredged material placement site near Lansing, Iowa, for use as topsoil at the site.

5. Permits/Coordination.

a. General. The proposed project has been coordinated with the U.S. Fish and Wildlife Service, the Wisconsin and Iowa Departments of Natural Resources, and the State Historical Society of Wisconsin.

b. State. The filling required for the project is subject to regulation by the Wisconsin Department of Natural Resources in accordance with Section 401 and 404(t) of the Clean Water Act. A request for water quality certification has been made to the State of Wisconsin and is pending.

c. Federal. An environmental assessment and Finding of No Significant Impact have been prepared in accordance with the requirements of the National Environmental Policy Act. If the public review uncovers significant impacts, a revised NEPA document may be prepared. The U.S. Fish and Wildlife Service was a cooperating agency throughout the process required by the Act. A Section 404(b)(1) evaluation has been prepared in compliance with the Clean Water Act of 1977.

6. Summary of Environmental Impacts.

a. General. Stated in Project Purpose Section.

b. Water Quality. The project would have short-term construction related adverse effects due to the dredge and fill actions of access channel dredging and island construction. This is expected to cause an increase in suspended particulates during construction. No increase in contaminants in the aquatic environment is expected from the proposed placement of island rockfill. Long-term beneficial impacts on water clarity in the backwater area protected by the island should occur as a result of the island construction.

c. Benthos. Island creation would have a deleterious effect on the existing benthos because approximately 2 acres of aquatic vegetated area would be removed from benthic production. It is anticipated that vegetation from the existing aquatic plant beds would colonize other areas where the beds are disturbed. The only impacts of material removal in the project area would be experienced where construction access is needed (about 6 acres). Placement of the dredged material at the historic placement site near Lansing would have no impact on benthos.

d. Fish. The shallow area protected by the island would provide good spawning and nursery areas. Dredging for construction access would provide an additional 6 acres of fish habitat for such species as sunfish, crappies, largemouth bass, and northern pike. The 6,500 linear feet of rockfill island would provide more diversity of habitat for species such as smallmouth bass, rock bass, walleye, and sauger.

e. Wildlife. The stability of the aquatic plant beds protected by the island complex would lead to increased use by waterfowl because of the food provided. The island would also increase habitat diversity. Using the access dredged material for topsoil at the Lansing site would revegetate up to 10 acres of an existing sandy area.

f. Archaeological-Historical. No known archaeological or historical sites would be affected by the proposed project.

g. Noise Pollution, Air Quality. Minor noise and air quality impacts would occur during project construction but would be short-term. Residences located on the Iowa shore about 2,000 feet from the project site would be temporarily affected by the increase in noise.

7. Applicable Federal Laws and Regulations.

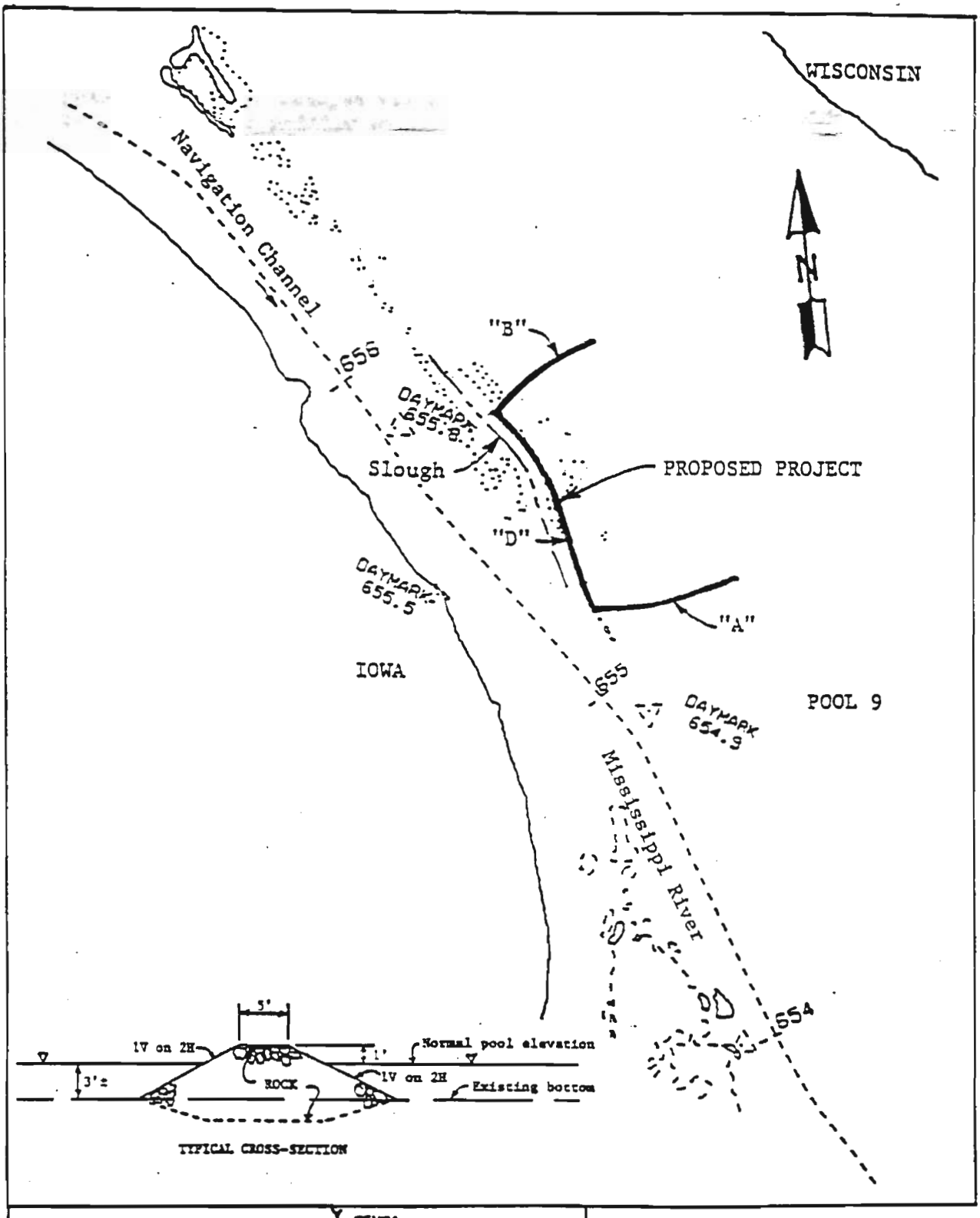
National Historic Preservation Act of 1966, as amended
Clean Air Act, as amended
Clean Water Act of 1977, as amended
National Environmental Policy Act of 1969, as amended
Fish and Wildlife Coordination Act of 1958, as amended
Endangered Species Act of 1973, as amended
National Wildlife Refuge System Administration Act
Land and Water Conservation Fund Act of 1965, as amended
Executive Order 11988, Floodplain Management, May 24, 1977
Executive Order 11990, Protection of Wetlands, May 24, 1977

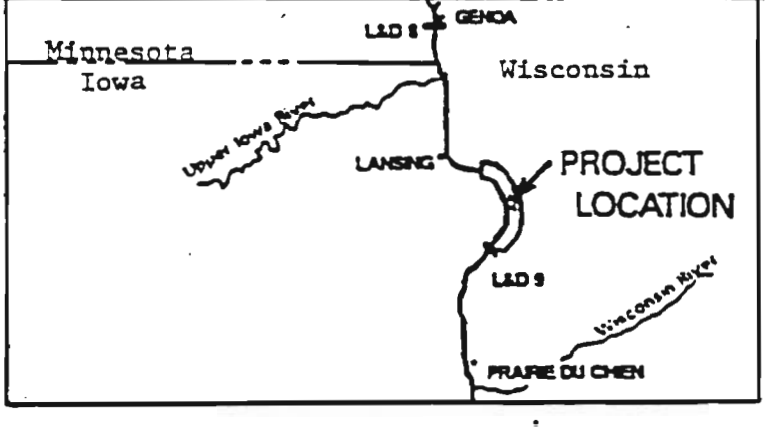
8. Report. A Supplemental Definite Project Report/Environmental Assessment (SP-3A) describes the project and environmental impacts in detail. The report includes a complete discussion of the project formulation and evaluation process, project drawings, a Finding of No Significant Impact, a Section 404(b)(1) evaluation, and letters of coordination with the U.S. Fish and Wildlife Service and the Wisconsin and Iowa Departments of Natural Resources. Appendixes discussing the hydraulic and geotechnical designs and the habitat evaluation procedures are also available. A free copy of this report or additional information can be obtained by writing to the address below or contacting Mr. Don Powell at (612) 220-0402.

9. Request for a Public Hearing. Any person may request a public hearing on the project. The request must be submitted in writing to the District Engineer within 30 days of the date of this notice. The request must clearly set forth the interest that may be affected and how the interest may be affected by this activity.

10. Public Comment Period. Interested parties are invited to submit to this office written facts, arguments, or objections to this project within 30 days of the date of this notice. These statements should bear upon the suitability of the location and the adequacy of the plans and should, if appropriate, suggest any changes deemed desirable. All statements, oral or written, will become part of the official project file and will be available for public examination. All replies should be addressed to the District Engineer, St. Paul District, Corps of Engineers, 180 Kellogg Blvd E, Rm 1421, St. Paul, Minnesota 55101-1479, ATTN: CENCS-PD-WR.

Richard W. Craig
Colonel, Corps of Engineers
District Engineer





POOL 9 ISLANDS

HABITAT PROJECT

UMRS-EMP

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

State Office Building, Room 104
3550 Mormon Coulee Road
La Crosse, WI 54601
TELEPHONE 608-785-9000
TELEFAX 608-785-9990

Carroll D. Besadny
Secretary

May 6, 1992

St. Paul District, Corps of Engineers
Floodplain Management and Small Projects, Planning Division
ATTN: Mr. Don Powell
180 Kellogg Boulevard East, Room 1421
St. Paul, MN 55101-1479

Dear Mr. Powell:

We have completed review of the draft Supplement to the Definite Project Report/Environmental Assessment (SP-3), Pool 9 Island Construction Habitat Rehabilitation and Enhancement Project, dated March 1992. The design change presented is consistent with options identified during past meetings with the EMP partners. We are supportive of the project as described and suggest the following comments for your consideration.

Page 7: First paragraph, third to last sentence. Reference to "...access dredging would provide additional deep water habitat (about 2 acres)..." is inconsistent with the 6 acre additional deep water referenced on page 11, para. 2, second sentence. Please make the appropriate correction.

Page 11: Revised Selected Plan. Recent discussions with the FWS, Iowa DNR, Wisconsin DNR and your office have raised some concerns about the feasibility of placing fines at the island downstream of the project area. If this site were chosen, we would recommend that the material be stabilized with rip-rap and filter fabric. It is our understanding that this stabilization would raise the cost of disposal at this site, making it more cost efficient to use the channel maintenance placement site above Lansing. Please contact the FWS and Iowa DNR to obtain their position on this subject and make appropriate corrections to the supplement DPR.

We also request that a more detailed description of how the material will be used at the Lansing disposal site be provided. Will the fines be stockpiled at the site for use by channel maintenance to revegetate the site, or will EMP money be used to do the final grading and revegetation?

Page 15: Second paragraph, last sentence. Reword to read "...(deeper flowing water and rock structure)..."

Page 18: Performance evaluation. One of the objectives is to enhance conditions for aquatic vegetation. We suggest that light penetration also be measured to determine if there is a difference between the area protected by the island and conditions in adjacent areas not directly affected by the project (ie. main channel and areas east of the island).

We appreciated the opportunity to provide comments on the Supplement DPR for Pool 9 Island Construction. If you have any questions concerning our comments, please contact me at (608) 785-9005.

Sincerely,

Jeffrey A. Janvrin
Mississippi River Habitat Specialist

cc: Art Roseland, Iowa DNR
Gary Ackerman, Iowa DNR
Mike Davis, Minnesota DNR
Keith Beseke, USFWS
John Lyons, USFWS

THE STATE HISTORICAL SOCIETY OF WISCONSIN

H. Nicholas Muller III, Director

816 State Street
Madison, Wisconsin 53706
608 262-3266

July 24, 1991

Robert J. Whiting
Chief, Environmental Resources Branch
Department of the Army
St. Paul District, Corps of Engineers
1421 U.S. Post Office & Custom House
St. Paul, Minnesota 55101-1479

IN REPLY PLEASE REFER TO:
SHSW: #88-0951

RE: Modify Two Islands in Pool 9 of the Mississippi River

Dear Mr. Whiting:

We have reviewed the above-referenced project as required for compliance with Section 106 of the National Historic Preservation Act and 36 CFR Part 800: Protection of Historic Properties, the regulations of Advisory Council on Historic Preservation governing the Section 106 review process.

There are no properties in the National Register of Historic Places located within the area of potential effect of the proposed undertaking. Furthermore, we are not aware of any properties that may be eligible for the National Register in this area.

We have no further knowledge of historic properties in the project area. Information may exist, however, which has not come to our attention. We remind you that 36 CFR 800.4 includes the requirement that you seek information, as appropriate to the undertaking, from parties likely to have knowledge of or concerns with historic properties in the project area - such as Indian tribes, local governments, and public and private organizations.

If there are any questions concerning this matter, please contact Gretchen Block of my staff at (608) 262-2732.

Sincerely,

Richard W. Dexter
Chief, Compliance Section
DIVISION OF HISTORIC PRESERVATION

RWD:lks
EA 2
cc: Dave Berwick, Army Corps

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
180 E. KELLOGG BLVD., ROOM 1421
ST. PAUL, MINNESOTA 55101-1479

REPLY TO
ATTENTION OF
CENCS-PD-WR

PUBLIC MEETING

AT THE

DE SOTO HIGH SCHOOL

De Soto, Wisconsin

THURSDAY, JUNE 4, 1992

AT

7:00 PM

WHAT'S THE MEETING FOR? To discuss the POOL 9 ISLAND CONSTRUCTION PROJECT.

WHAT'S THE PROJECT FOR? It's a proposed habitat rehabilitation and enhancement project to restore aquatic plant beds for the benefit of fish and wildlife. It would be constructed as part of the Environmental Management Program (EMP).

WHERE'S THE PROJECT LOCATED? In pool 9 of the Mississippi River about 7 miles downstream of Lansing, Iowa, on the Wisconsin side of the navigation channel.

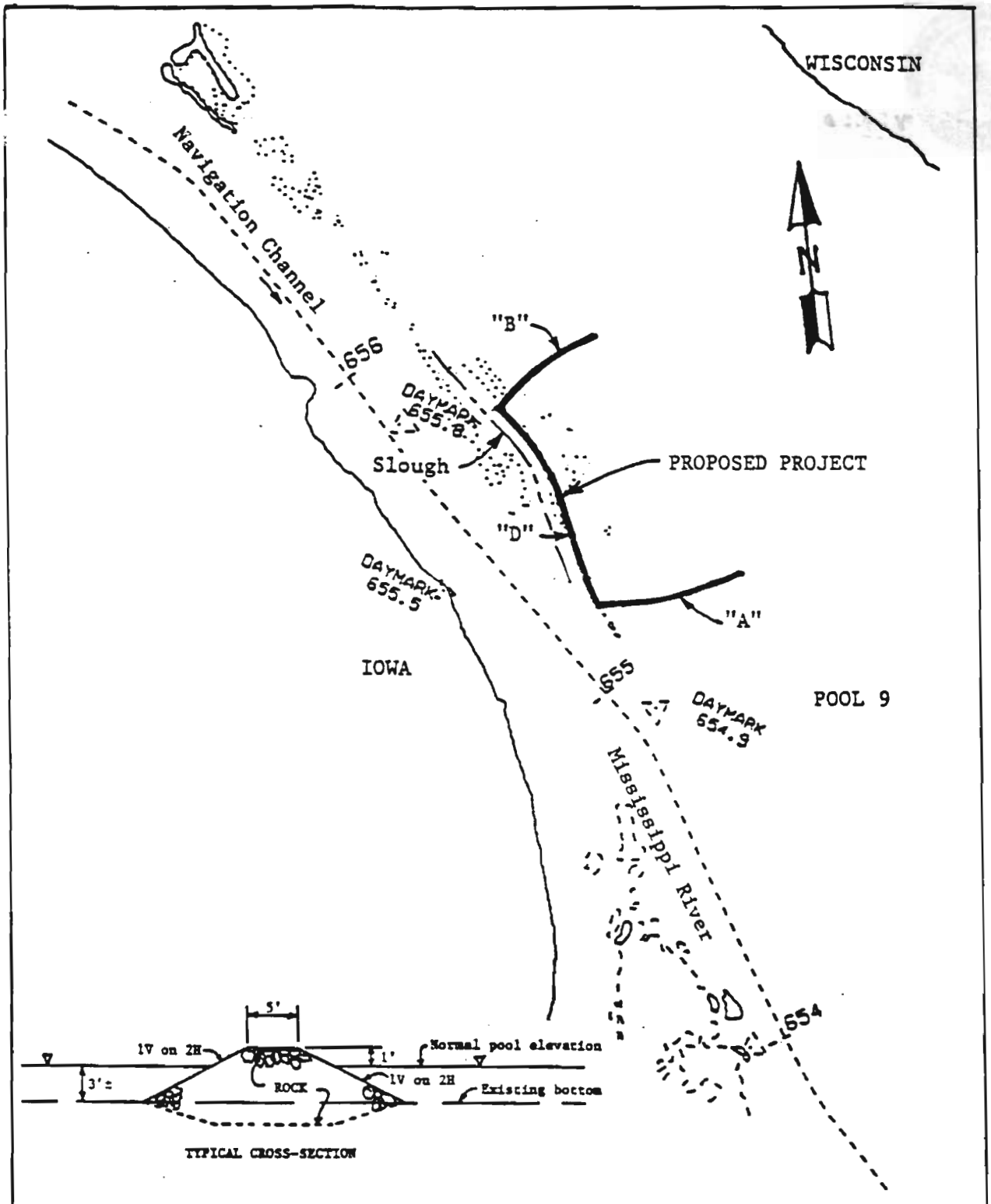
WHAT WOULD THE PROJECT LOOK LIKE? The rockfill island complex would be C-shaped and about 6,500 feet in total length. The top of the island would be 1 foot above the normal pool elevation and 5 feet wide.

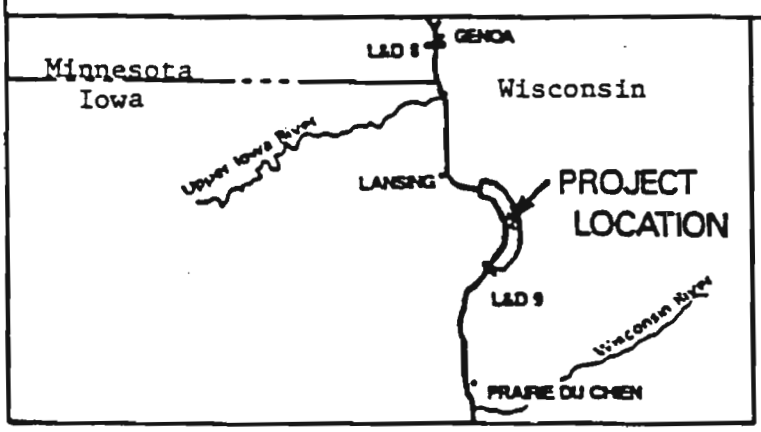
WHAT WOULD THIS PROJECT ACCOMPLISH? It would prevent direct flows into the backwater area and provide a protected, shallow area to promote the growth of aquatic vegetation. Some deepwater fish habitat would also be created as a result of dredging for construction access.

WHO'S DOING ALL THIS? It's a team effort by the Corps of Engineers, the Wisconsin and Iowa Departments of Natural Resources, and the U.S. Fish and Wildlife Service.

WHO SHOULD ATTEND THE MEETING? Anyone that wants to know more about the proposed project or that would like to provide input for further development of the project.

We hope to see you at the meeting. If you are not able to attend, you can send your comments to the District Engineer at the above address or contact Don Powell at 612-220-0402.





POOL 9 ISLANDS

HABITAT PROJECT

UMRS-EMP

US Army Corps of Engineers
St Paul District

Public Notice

Project: Pool 9 Island Construction - Habitat Rehabilitation and Enhancement, Pool 9, Upper Mississippi River

Date: May 8, 1992

In Reply Refer to: Water Resources Branch, Planning Division

1. Project Location. The project is located in pool 9 of the Mississippi River at about river mile 655.5, about 7 miles downstream of Lansing, Iowa. It lies within the Upper Mississippi River Wildlife and Fish Refuge and is located in Crawford County, Wisconsin.

2. Project Authority. Section 1103 of the Water Resources Development Act of 1986 (Public Law 99-662) provides authorization and appropriations for an environmental management program for the Upper Mississippi River system that includes fish and wildlife habitat rehabilitation and enhancement. The proposed project would be funded and constructed under this authorization.

3. Project Purpose. The proposed island construction would provide a stable barrier to prevent the direct movement of normal river flow from the main channel into a backwater area. It would provide a protected, shallow habitat in this backwater area that would increase light penetration and subsequent aquatic plant beds in the area. The island construction would also protect the backwater area from wind and boat-generated waves to improve water clarity and provide additional deepwater fish habitat in the backwater area.

4. Proposed Project. The selected plan of action consists of constructing an island complex adjacent to the main river channel to replace barrier islands that have disappeared because of erosion. The complex would consist of one continuous island to prevent flow from entering the backwater and to break up waves in 180 acres of the backwater. The island would be parallel to the main river channel for about 3,000 feet and extend into the backwater area 1,600 feet at the upstream end and 1,900 feet at the downstream end. The island would be constructed entirely with about 22,000 cubic yards of rockfill. The island would have a 5-foot top width and be 1 foot above the normal pool elevation. It is anticipated that access channels to construct the island complex would be dredged 65 feet wide and 6 feet deep. The dredged areas would provide about 6 acres of deepwater fish habitat. The estimated 28,000 cubic yards of dredged material would be transported about 9 miles upstream to a historic dredged material placement site near Lansing for use as topsoil at the site.

5. Permits/Coordination.

a. General. The proposed project has been coordinated with the U.S. Fish and Wildlife Service, the Wisconsin and Iowa Departments of Natural Resources, and the State Historical Society of Wisconsin.

b. State. The filling required for the project is subject to regulation by the Wisconsin Department of Natural Resources in accordance with Section 401 and 404(t) of the Clean Water Act. A request for water quality certification has been made to the State of Wisconsin and is pending.

c. Federal. An environmental assessment and Finding of No Significant Impact have been prepared in accordance with the requirements of the National Environmental Policy Act. The U.S. Fish and Wildlife Service was a cooperating agency throughout the process required by the Act. A Section 404(b)(1) evaluation has been prepared in compliance with the Clean Water Act of 1977.

6. Summary of Environmental Impacts.

a. General. Stated in Project Purpose Section.

b. Water Quality. The project would have short-term construction related adverse effects due to the dredge and fill actions of access channel dredging and island construction. This is expected to cause an increase in suspended particulates during construction. No increase in contaminants in the aquatic environment is expected from the proposed placement of island rockfill. Long-term beneficial impacts on water clarity in the backwater area protected by the island should occur as a result of the island construction.

c. Benthos. Island creation would have a deleterious effect on the existing benthos because approximately 2 acres of aquatic vegetated area would be removed from benthic production. It is anticipated that vegetation from the existing aquatic plant beds would colonize other areas where the beds are disturbed. The only impacts of material removal in the project area would be experienced where construction access is needed (about 6 acres). If an existing island downstream of the project is used for placement of the dredged material, about 5 acres would be removed from benthic production. Alternate placement of the dredged material at the historic placement site near Lansing would have no impact on benthos.

d. Fish. The shallow area protected by the island would provide good spawning and nursery areas. Dredging for construction access would provide an additional 6 acres of fish habitat for such species as sunfish, crappies, largemouth bass, and northern pike. The 6,500 linear feet of rockfill island would provide more diversity of habitat for species such as smallmouth bass, rock bass, walleye, and sauger.

e. Wildlife. The stability of the aquatic plant beds protected by the island complex would lead to increased use by waterfowl because of the food provided. The island would also increase habitat diversity. If dredged material is placed at the island site downstream of the project, an additional 5 acres of island habitat for waterfowl resting would be provided, which would be beneficial to a variety of wildlife.

f. Archeological-Historical. No known archeological or historical sites would be affected by the proposed project.

g. Noise Pollution, Air Quality. Minor noise and air quality impacts would occur during project construction but would be short-term. Residences located on the Iowa shore about 2,000 feet from the project site would be temporarily affected by the increase in noise.

7. Applicable Federal Laws and Regulations.

National Historic Preservation Act of 1966, as amended
Clean Air Act, as amended
Clean Water Act of 1977, as amended
National Environmental Policy Act of 1969, as amended
Fish and Wildlife Coordination Act of 1958, as amended
Endangered Species Act of 1973, as amended
Land and Water Conservation Fund Act of 1965, as amended
Executive Order 11988, Floodplain Management, May 24, 1977
Executive Order 11990, Protection of Wetlands, May 24, 1977

8. Report. A Supplement to the Definite Project Report/Environmental Assessment describes the project and environmental impacts in detail. The report includes project drawings, a Finding of No Significant Impact, a Section 404(b)(1) evaluation, and letters of coordination with the U.S. Fish and Wildlife Service and the Wisconsin and Iowa Departments of Natural Resources. A copy of this report or additional information can be obtained by writing to the address below or contacting Mr. Don Powell at (612) 220-0402.

9. Request for a Public Hearing. Any person may request a public hearing on the project. The request must be submitted in writing to the District Engineer within 30 days of the date of this notice. The request must clearly set forth the interest that may be affected and how the interest may be affected by this activity. A public meeting to discuss the proposed project and respond to questions is scheduled for June 4, 1992 at De Soto, Wisconsin.

10. Public Comment Period. Interested parties are invited to submit to this office written facts, arguments, or objections to this project within 30 days of the date of this notice. These statements should bear upon the suitability of the location and the adequacy of the plans and should, if appropriate, suggest any changes deemed desirable. All statements, oral or written, will become part of the official project file and will be available for public examination. All replies should be addressed to the District Engineer, St. Paul District, Corps of Engineers, 180 Kellogg Blvd E, Rm 1421, St. Paul, Minnesota 55101-1479, ATTN: CENCS-PD-WR.

Richard W. Craig
Colonel, Corps of Engineers
District Engineer

RECORD OF ATTENDANCE

Meeting – Pool 9 Island, Wisconsin, EMP at De Soto   Date – June 4, 1992

This information will be used for the purpose of knowing who attended this meeting.
Please include your address if you wish to be on the project mailing list. Thank you.

NAME (please print)	ADDRESS (optional)	REPRESENTING
Carl Noel	Prairie du Chien	208 N. State
David Miller	Prairie Du Chien	"
John Lyons	FWS McGregor	
George Blood	R1 Box 217 Genoa Wi. Conn Fish 54632	self
Jack Black	R1 Box 217 Genoa Wi Com fish 54632	Town of Genoa Conservation Congress
John H Driel	" "	"
Gerald R. Sendey	Box 14, DeSoto	Vernon County
Benj. Jullin	Box 467 – Waukon, Ia.	Allamakee Co.
William Howe	Bx 149 P/C	Wisconsin Cons Congress
AD Roseland	DNR Guttenberg, IA	IA. DNR
Ron Leys	Route 2, Box 166 Gays Mills, Wis., 54631	Conservation Congress
Ken Dulik	McGregor	USFWS

RECORD OF ATTENDANCE

Meeting – Pool 9 Island, Wisconsin, EMP at De Soto Date – June 4, 1992

This information will be used for the purpose of knowing who attended this meeting.
Please include your address if you wish to be on the project mailing list. Thank you.

NAME (please print)	ADDRESS (optional)	REPRESENTING
BILL BURKE	BOX 399 LANSING IA	SELF
Bernard PATTISON	BOX 670 FAYETTE 52142	SELF
Gary Ackerman	Box 25 Guttenberg IA	IA DNR
Mark Endris	3550 Mormon Coulee Rd La Crosse, WI	W DNR
John Diehl	R2 ~~Box~~ 266 Ferryville WI 54628	UMVFC
J.W. Bouchner	RT 1 Bx 87 LANSING, IA 52151	Self
Richard Frank	~~Rt 1 Cedar~~ 18 RIVER RIDGE RD CEDAR FALLS IOWA 50613	[illegible]
Pete Brenengen	Box 117 54626 Eastman wis	Falling Rock walleye club
Larry Padden	Rt 1 Eastman	Falling Rock Waleye Club
Mathew Burgin	LYNXVILLE WIS PO BOX 145	Lynxville
Donald D. Weymiller	Box 400 Lansing, Ia	
Gus Kerndt (Kerndt)	BOX 370, LANSING, IA 52151	

RECORD OF ATTENDANCE

Meeting – Pool 9 Island, Wisconsin, EMP at De Soto Date – June 4, 1992

This information will be used for the purpose of knowing who attended this meeting.
Please include your address if you wish to be on the project mailing list. Thank you.

NAME (please print)	ADDRESS (optional)	REPRESENTING
Gary Knutson	Box 155 Ferryville, Wi 54628	Wis. Cons. Congress –
Truman Anderson	Ferryville Wis 54628	

WISCONSIN
DEPT. OF NATURAL RESOURCES
Carroll D. Besadny,
Secretary

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

State Office Building, Room 104
3550 Mormon Coulee R
La Crosse, WI 54
TELEPHONE 608-785-90
TELEFAX 608-785-9990

May 18, 1992

Colonel Richard Craig, District Engineer
St. Paul District, Corps of Engineers
180 Kellogg Boulevard East, Room 1421
St. Paul, MN 55101-1479

Dear Colonel Craig:

A letter, dated July 19, 1989, was sent to your office which stated our initial support of the Pool 9 Island Construction, Habitat Rehabilitation and Enhancement Project, Pool 9, Upper Mississippi River, Crawford County, Wisconsin. Recent changes have been made in the project design to reduce construction costs of the islands while meeting the original objective of enhancing and protecting aquatic vegetation in the area. The Wisconsin Department of Natural Resources supports the proposed design changes to the Pool 9 Island Construction described in the draft Supplement to the Definite Project Report/Environmental Assessment (SP-3), dated March 1992.

We also still support the statement in the July 19, 1989 letter, which stated "Upon completion and final acceptance of the project by the Corps of Engineers and the Fish and Wildlife Service, the Department agrees to cooperate with the Fish and Wildlife Service and the Corps of Engineers to assure that operation, maintenance, and any mutually agreed upon rehabilitation as described in the Definite Project Report, will be accomplished in accordance with Section 906(e) of the Water Resources Development Act of 1986."

I look forward to seeing the project completed and the benefits it will provide to the Mississippi River System.

Sincerely,

C. D. Besadny
Secretary

cc: John Rogers - USFWS, Acting Regional Director
Don Winter - WD
Terry Moe - La Crosse
Doug Fendry - PM/4

STATE OF IOWA

LARRY E. BRANSTAD, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
LARRY J. WILSON, DIRECTOR

May 18, 1992

Colonel Richard Craig
St. Paul Corps of Engineers
1421 U.S. Post Office & Custom House
St. Paul, MN 55101-1479

Attn: Planning Division

Dear Colonel Craig:

Iowa Department of Natural Resources staff reviewed the Supplement to the Definite Project Report/Environmental Assessment for the Pool 9 Island habitat rehabilitation and enhancement project under the Environmental Management Program (EMP). We concur with the proposed design of the project and support its construction.

I understand that up to 29,000 cubic yards of material may need to be excavated from the river bottom to gain access to the island development site. The original plans were to place this dredged material on land accessible through Crooked Slough. The additional cost of accessing this site and stabilizing the dredged material has prompted the identification of alternative disposal sites that would be available to the contractor. The back side of the containment area used for channel maintenance activities immediately upriver of Lansing has been identified as one alternative. More information on how the material would be placed on this site must be provided to the Iowa DNR before we can endorse its use. Of particular concern is preventing the material from moving into the adjacent backwaters during and after the disposal operation. Therefore, the material will likely need to be seeded down to prevent secondary movement. Also, other alternatives in the vicinity must be considered and Iowa DNR staff will assist in their identification and assessment.

In summary, the Iowa DNR supports the island construction portion of the project, but further coordination will be needed on the placement of material that is dredged to gain access to the island site.

Sincerely,

LARRY J. WILSON
DIRECTOR
IOWA DEPARTMENT OF NATURAL RESOURCES

WALLACE STATE OFFICE BUILDING / DES MOINES, IOWA 50319 / 515-281-5145 / TDD 515-242-5967 / FAX 515-281-8895

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Twin Cities Field Office
4101 East 80th Street
Bloomington, Minnesota 55425-1665

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
FWS/AFWE-TCFO

MAR 22 1993

Mr. Don Powell
U.S. Army Corps of Engineers
1135 U.S. Post Office and Custom House
St. Paul, Minnesota 55101-1479

Dear Mr. Powell:

This concerns the Supplement to the Definite Project Report and Environmental Documentation (SP-3) for the Pool 9 Island Construction Habitat Rehabilitation and Enhancement Project on the Upper Mississippi River. The project is proposed for implementation under the Environmental Management Program (EMP). Comments concerning the Fish and Wildlife Coordination Act are contained in the attached May 14, 1992 letter. Please view that letter as the draft Fish and Wildlife Coordination Act Report for your planning purposes.

We appreciate the opportunity to review the Pool 9 Project.

Sincerely,

James F. Smith

for Lynn M. Lewis
Field Supervisor

Attachment

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Upper Mississippi River Refuge Complex
51 East 4th Street
Winona, Minnesota 55987

May 14, 1992

Mr. Don Powell
St. Paul District, Corps of Engineers
1135 U.S. Post Office & Custom House
180 E. Kellogg Boulevard
St. Paul, Minnesota 55101

Dear Mr. Powell:

This provides U.S. Fish and Wildlife Service (Service) comments on the supplement to the Definite Project Report and Environmental Documentation (SP-3) for the Pool 9 Island Construction Habitat Rehabilitation and Enhancement Project.

The project is being built on federal lands managed as part of the Refuge, therefore, a Refuge compatibility determination and Refuge approval is required before the project can be constructed. The previous compatibility document given to you for the Pool 9 Island Definite Project Report does not adequately describe the revised project. A revised compatibility determination for the new alternative has been forwarded to our Regional Director for signature. This will be sent to your office when completed. Approval of the project will be formally provided by the Regional Director after completion of the final supplemental project report.

We support the selected plan provided that the alternative disposal site for the access channel dredged material at the Lansing placement site be selected. The Crooked Slough site discussed in this supplemental report is not stable. This Crooked Slough site could only be used if rock protection is provided. The placement of the dredged material at Crooked Slough would also consume five acres of aquatic habitat without providing any additional benefits whereas, placement at the alternative site (the Lansing disposal area) will remove the material from the impact of most floods in addition to being used beneficially to revegetate this old sand disposal area, thus enhancing its terrestrial habitat values.

It is our understanding that because of the project's substantial changes an additional public meeting will be held. We support this decision and will assist you in these efforts if that would be helpful.

The Final Draft Definite Report must include a copy of the draft Memorandum of Agreement for the operation, maintenance, and rehabilitation. In accordance with the Fifth Annual Addendum the Service will cover operation and maintenance responsibilities in conformance with Section 906(e) of the Water

Resources Development Act of 1986. The Regional Director's letter on the Final Draft Definite Project Report will include the certification of support for operation and maintenance.

This report illustrates the cooperation evident between the U.S. Army Corps of Engineers and the Service. These efforts at working together on this project as well as the environmental management program as a whole help ensure the success of mutual concerns for improvements on the Upper Mississippi River System.

Sincerely,

Richard F. Berry

Richard F. Berry
Complex Manager

Enclosure

cc: TCFO
EMTC
Winona FRO
WDNR
McGregor District
R.O.--SS

UPPER MISSISSIPPI RIVER NATIONAL
WILDLIFE AND FISH REFUGE
Established 1924

COMPATIBILITY STUDY
POOL 9 ISLANDS
(Revised)

Establishment Authority

Public Law No. 268, 68th Congress, The Upper Mississippi River Wildlife and Fish Refuge Act.

Purpose for Which Established

"The refuge shall be established and maintained (a) as a refuge and breeding place for migratory birds included in the terms of the convention between the United States and Great Britain for the protection of migratory birds, concluded August 16, 1916, and (b) to such extent as the Secretary of Agriculture may by regulations prescribe, as a refuge and breeding place for other wild birds, game animals, fur-bearing animals, and for the conservation of wild flowers and aquatic plants, and (c) to such extent as the Secretary of Commerce may by regulations prescribe a refuge and breeding place for fish and other aquatic animal life."

Description of Proposed Use

The proposal is a Habitat Rehabilitation and Enhancement Project authorized by the Water Resources Development Act of 1986 (Pub. L. 99-662). The project area is a backwater habitat located along the left descending bank of the main channel of the Mississippi River, Pool 9, between river miles 654.7 and 656. The proposal involves the construction of three islands to a top elevation of 620.5 (one foot above normal pool elevation). The length of the islands would be 1900, 1600, and 3000 feet. The islands would be constructed out of rock. The purpose of the project is to prevent sediment from moving into the backwater in order to preserve and enhance the existing aquatic plant beds of the project area. Complete details of the project, including maps, are contained in the draft report entitled, "Upper Mississippi River Environmental Documentation (SP-3) Pool 9 Island Construction Habitat Rehabilitation and Enhancement Project, Pool 9, Upper Mississippi River, Crawford County, Wisconsin prepared by the St. Paul District, Corps of Engineers, February 1989 and in the supplement to this Pool 9 Island Construction Report (SP-3), March, 1992.

Anticipated Impacts on Refuge Purposes

As a result of the project the fishery, migratory bird, aquatic plant and other wildlife populations should increase which will be a direct benefit toward maintaining and accomplishing refuge purposes. The above-mentioned report contains detailed information on the project's impacts on fish, wildlife, and plant species.

Justification

The proposed project works toward the accomplishment of stated objectives and purposes of the refuge.

Determination

The proposed project is compatible with purposes for which the refuge was established.

Determined by Richard F. Berry — Project Leader — 5/14/92 Date

Reviewed by [signature] — Actg WAM — 5-20-92 Date

Concurred by [signature] — Acting Regional Director — 5/22/92 Date

WISCONSIN
DEPT. OF NATURAL RESOURCES

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Carroll D. Besadny
Secretary

State Office Building, Room 10
3550 Mormon Coulee Rd
La Crosse, WI 54601
TELEPHONE 608-785-9000
TELEFAX 608-785-9990

September 16, 1991

File Ref: 1600-1-3

Mr. Don Powell
St. Paul District, Corps of Engineers
Planning Division
180 Kellogg Blvd., East, Room 1479
St. Paul, MN 55101-1479

Dear Mr. Powell:

The Wisconsin Department of Natural Resources has reviewed the proposed design changes to the Pool 9 Islands habitat rehabilitation and enhancement project outlined in the COE memo dated September 3, 1991. We support the construction of islands A, B, and D using the rock-mound design. Using this design for the construction of the islands will meet project objectives of providing a protected area to promote aquatic plant growth, limit the amount of main channel water entering the backwaters in this area and provide some deepwater habitat for fish. We also approve of constructing a small containment area somewhere along the south side of island B for placement of material dredged to gain access to the construction site.

We look forward to the completion of the Pool 9 Islands HREP. If you have any questions or would like more information, please contact me at (608) 785-9005.

Sincerely,

Jeffrey A. Janvrin
Mississippi River Habitat Specialist

c: Ron Benjamin, WDNR
Gary Ackerman, Iowa DNR
John Lyons, FWS
Keith Beseke, FWS

CECW-PC

20 DEC 1989

MEMORANDUM FOR Commander, North Central Division, ATTN: CENCD-PD

SUBJECT: Upper Mississippi River System Environmental Management Program (UMRS-EMP); Approval of Projects for Construction

1. Reference:

a. CENCD-DE memorandum, 26 Jul 89, Upper Mississippi River System Environmental Management Program (UMRS-EMP); Dresser Island, MO

b. CENCD-DE memorandum, 18 Sep 89, Upper Mississippi River System Environmental Management Program (UMRS-EMP); Big Timber, IA

c. CENCD-DE memorandum, 31 Aug 89, Upper Mississippi River System Environmental Management Program (UMRS-EMP); Pool 8 Island, WI

d. CENCD-DE memorandum, 20 Sep 89, Upper Mississippi River System Environmental Management Program (UMRS-EMP); Pool 9 Island, WI

2. The referenced projects are approved for construction. Funds in the amounts requested in references 1a-1d have been provided for preparation of Plans and Specifications (P&S), which we understand have been substantially completed for each project. The amounts requested for Fiscal Year 1990 funding for construction will be provided by separate action.

3. Please provide a copy of the signed Memorandum of Agreement, ATTN: CECW-LN.

JIMMY F. BATES
Chief, Policy and Planning Division
Directorate of Civil Works

CF:
CECW-BC
CELMS-PD
CENCR-PD
~~CENCS-PD~~

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Carroll D. Besadny
Secretary

BOX 7921
MADISON, WISCONSIN 53707

July 19, 1989

File Ref:
1660-1

Colonel Roger Baldwin
U.S. Army Corps of Engineers
St. Paul District
1135 U.S. Post Office & Custom House
St. Paul, MN 55101

Dear Colonel Baldwin:

The Wisconsin Department of Natural Resources supports the Environmental Management Program Pool 9 Island Construction Project in the Upper Mississippi River System.

Upon completion and final acceptance of the project by the Corps of Engineers and the Fish and Wildlife Service, the Department agrees to cooperate with the Fish and Wildlife Service and the Corps of Engineers to assure that operation, maintenance, and any mutually agreed upon rehabilitation as described in the Definite Project Report, will be accomplished in accordance with Section 906(e) of the Water Resources Development Act of 1986.

Sincerely,

C.D. Besadny
Secretary

cc: Brigadier General Theodore Vander Els
James Gritman
James Lissack - WD
Terry Moe - La Crosse

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES
Western District Headquarters
1300 West Clairemont Avenue
Call Box 4001
Eau Claire, WI 54702-4001

Carroll D. Besadny
Secretary

June 8, 1989 File Ref: 3500

District Engineer
St. Paul District, Corps of Engineers
1421 U.S. Post Office & Customs House
St. Paul, MN 55101-1479
Attn: CENCS - PD-FS

Dear Sir/Madam:

The Wisconsin Department of Natural Resources has examined the application of the Corps of Engineers for water quality certification for the Pool 9 HREP Project. This project involves the restoration and construction of an island adjacent to the main channel of the Mississippi River in order to protect a large open backwater area called Lake Winneshiek. This project would reduce erosion due to wave action and would aid in preventing suspended sediments from entering the backwater complex.

The Department is granting water quality certification because there is reasonable assurance that the activity will be conducted in a manner that will not violate the standards enumerated in NR 299.05(1).

The certification is granted provided the following conditions are met:

1. Follow-up sediment sampling for trace elements conducted for the proposed borrow sites shall fall within ranges typically found in backwater areas of the Mississippi River. The follow-up sampling program shall be approved by the Department.

2. Particle size analysis on borrow sites for hydraulic construction of islands should not exceed an average P200 content of 10 percent (90% sand). A minimum of 3 borings per borrow site shall be collected. The P200 content shall be determined at 2-4 foot intervals to the project depth plus 2 feet.

3. A carriage water return plan for fine material placement on the island shall be submitted and approved by the Department. Carriage water discharge associated with fine material placement shall be designed and controlled such that Wisconsin's 80 mg/l guideline is met within 2000 feet downstream of the point of discharge to the river.

4. At least five working days prior to the beginning of the discharge, the applicant shall notify the Department of intent to commence dredging. Please notify John Sullivan at La Crosse, Wisconsin (608) 789-9995.

5. Within five working days after the completion of the discharge, the applicant shall notify the Department of the completion. Please notify John Sullivan at La Crosse, Wisconsin (608) 789-9995.

6. The applicant shall allow the Department reasonable entry and access to the discharge site in order to inspect the discharge for compliance with the certification and applicable laws.

7. The project shall be completed and designed as described.

Sincerely,

Edward J. Bourget
District Water Management Supervisor

c: John Sullivan - La Crosse
Terry Moe - La Crosse

WZ6\EB005.ebm

US Army Corps
of Engineers
St. Paul District

May 8, 1989

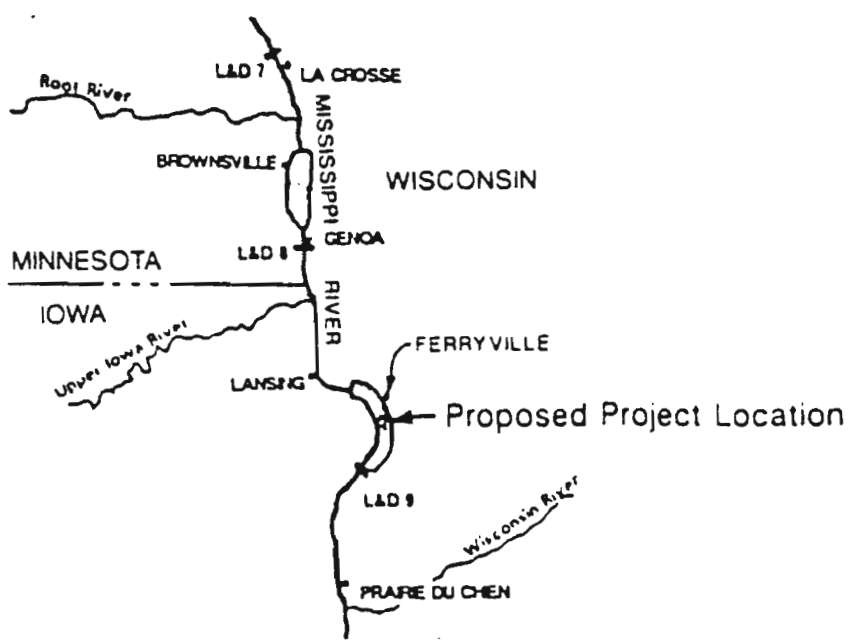
PUBLIC MEETING NOTICE

POOL 9 ISLAND CONSTRUCTION
HABITAT REHABILITATION AND ENHANCEMENT PROJECT
UPPER MISSISSIPPI RIVER SYSTEM
ENVIRONMENTAL MANAGEMENT PROGRAM (EMP)

A public meeting to discuss the proposed pool 9 island construction project is scheduled for Tuesday, May 23, 1989, at 7:00 pm in the Community Center at Ferryville, Wisconsin. This will be an opportunity to learn about the "EMP" and the proposed project in pool 9. You will be able to ask questions and provide your input. Representatives from the Corps of Engineers, Wisconsin and Iowa Departments of Natural Resources, and U.S. Fish and Wildlife Service will be present.

The pool 9 island construction project is part of the Upper Mississippi River System - Environmental Management Program. The long-term program was established by Congress in 1986 to protect the resources of the Upper Mississippi River and guide future river management. It includes the development of many habitat rehabilitation and enhancement projects on the Mississippi River from the Twin Cities in Minnesota to Cairo, Illinois. The pool 9 project consists of constructing a 4,000-foot-long by 50-foot-wide island on the east side of the main river channel to prevent the direct movement of normal river flow into a backwater area. It would also protect this backwater area from wind- and boat-generated waves. In this backwater area, the project would increase light penetration and aquatic plant beds, improve water clarity, and provide additional habitat for migratory waterfowl and fish.

We encourage you to attend the meeting and tell others who might be interested in learning about the pool 9 habitat project. If you are unable to attend the meeting, feel free to send your comments to the District Engineer, St. Paul District, Corps of Engineers, 1421 USPO and Custom House, St. Paul, Minnesota 55101-1479, ATTN: CENCS-PD-FS, or contact Don Powell at 612-220-0402.



RECORD OF ATTENDANCE

Meeting Pool 9 EMP

Date May 23, 1989

This information will be used for the purpose of knowing who attended this meeting. Please include your address if you wish to be placed on the study mailing list. Thank you.

NAME (please print)	REPRESENTING (self or org.)	ADDRESS (optional)
~~George &~~ GEORGE BLASK	SELF	R1 GENOA WIS
JACK BLASK	"	"
LISSA BLASK	"	MIN MIN
Ray Taylor	Taylor Fishing Tackle	RR#1 Box 149 Lansing Ia
W A Dean	Self	RR1 Box 109 Ferryville
Jim Harrison	MN-Wis Boundary Area Commission	Hudson, Wis.
Gwen Stendel		"
Stan Hagerud	Self.	Lynxville Wis
ORVILLE "PORKY" Meyer	Research Angling	Lansing IA
Larry Knutson	Wis Cons. Congress	Ferryville Wi
Ray Dean		
J. W. Bowker	Self.	Harpers Ferry Landing Ia.
Tim Jones	Self	Boscobel, WI. 53805 547 2E. OAK ST.
Fritz Bechtel	Self	Ferryville 54628
Dennis Brown	Self	Ferryville 54628
George A. Ball	SELF	Ferryville 54628
Dean Dalziel	IOWA DNR	RT. 2, Box 269, Manchester, Iowa 52057
William McCormick	self	Box 278 Ferryville, Wis 54628

RECORD OF ATTENDANCE

Meeting Pool 9 EMP

Date May 23, 1989

This information will be used for the purpose of knowing who attended this meeting. Please include your address if you wish to be placed on the study mailing list. Thank you.

NAME (please print)	REPRESENTING (self or org.)	ADDRESS (optional)
Tom Sacia	Congressman Steve Gunderson	
[illegible]		P du Chien
Carl Noel		
Bob & Rosella Coleman		Lynxville, Wi
Vera McCormick		Ferryville
Doris M. Lund	self	Harpers Ferry, Iowa 52146
Carl B. Lund	"	Lunds Camp. Harpers Ferry Iowa 52146
Jim Ripple	IDNR	903 Commerce Dr. Decorah, Ia 52101
BOB MOODY	WI DNR	
Mark Withey	Self	311 Spring St Lynxville, WI 54640
Ken Withey		311 Spring St Lynxville Wi 54640
[illegible] Cayo	[illegible]	421 Beach Lynxville 54640
John H Diehl	UMVFG	Ferryville Wi
Robert Hagensick	Wis Cons Congress	Lynxville Wis. 54640
Stuart Johnston	self	Ferryville Wis
Don & Marie Hempy		Ferryville
S. Cerniak		Ferryville.
DENNIS KIRSCHBAUM	WIS DNR	PRAIRIE DU CHIEN, WI 53821

US Army Corps of Engineers
St. Paul District

Public Notice

Project: Pool 9 Island Construction - Habitat Rehabilitation and Enhancement Project Pool 9, Upper Mississippi River

Date: April 27, 1989

In Reply Refer to: Flood Plain Management and Small Projects Branch Planning Division

1. Project Location. The project is located in pool 9 of the Mississippi River, about 7 miles downstream of Lansing, Iowa. It lies within the Upper Mississippi River Wildlife and Fish Refuge and is located in Crawford County, Wisconsin.

2. Project Authority. Section 1103 of the Water Resources Development Act of 1986 (Public Law 99-662) provides authorization and appropriations for an environmental management program for the Upper Mississippi River system that includes fish and wildlife habitat rehabilitation and enhancement. The proposed project would be funded and constructed under this authorization.

3. Project Purpose. The proposed island construction would provide a stable barrier to prevent the direct movement of normal river flow from the main channel into a backwater area and would provide a protected, shallow habitat in this backwater area that would increase light penetration and subsequent aquatic plant beds in the area. The island construction would also protect the backwater area from boat-generated waves to improve water clarity, provide predator-free island habitat for migratory waterfowl resting, and provide additional deep water fish habitat in the backwater area.

4. Proposed Project. The selected plan of action consists of constructing one continuous island parallel to the main river channel for about 3,000 feet with a hook on the upstream end that extends into the backwater area about 1,000 feet. The hooked end would be protected from erosion with about 2,300 cubic yards of rock riprap. The remainder of the island would utilize protection from existing remnant islands and a 20- to 30-foot-wide berm. The main portion of the island would have a 50-foot top width and be 6-1/2 feet above the normal pool elevation. Pervious material to build the island would be obtained from one of three sources: the main channel, an off-channel backwater area, or a dredged material placement site about 9 miles away. The total quantity of pervious fill required to build the island is estimated to be 126,000 cubic yards. The center portion of the island top and berms would be constructed to form a dish-shaped area, 3 feet deep on the main portion of the island and 1 foot deep on the berms, to allow for placement of topsoil for vegetative purposes. About 13,000 cubic yards of topsoil would be obtained by dredging fine sediments from the backwater area, providing about 2 acres of improved fish habitat. The proposed construction may require minimal dredging for equipment access to the project site. This material would be temporarily placed on a barge and either worked into the pervious fill or used as topsoil, depending on its composition.

5. Permits/Coordination.

a. General. The proposed project has been coordinated with the U.S. Fish and Wildlife Service, the Wisconsin and Iowa Departments of Natural Resources, and the State Historical Society of Wisconsin.

b. State. The filling required for the project is subject to regulation by the Wisconsin Department of Natural Resources in accordance with Section 401 and 404(t) of the Clean Water Act. A request for water quality certification has been made to the State of Wisconsin and is pending.

c. Federal. An environmental assessment and Finding of No Significant Impact have been prepared in accordance with the requirements of the National Environmental Policy Act. The U.S. Fish and Wildlife Service was a cooperating agency throughout the process required by the Act. A Section 404(b)(1) evaluation has been prepared in compliance with the Clean Water Act of 1977.

6. Summary of Environmental Impacts.

a. General. Stated in Project Purpose Section.

b. Water Quality. The project would have short-term construction related adverse effects due to the open water disposal of coarse dredged material at the island site and the possible effluent return from fine material placed on the island. This is expected to cause an increase in suspended particulates during construction. No increase in contaminants in the aquatic environment is expected from the proposed placement of island fill. Long-term beneficial impacts on water clarity in the backwater area protected by the island should occur as a result of the construction of the island.

c. Benthos. Island creation would have a deleterious effect on the existing benthos because approximately 12 acres of aquatic vegetated area would be removed from benthic production. It is anticipated that vegetation from the existing aquatic plant beds would colonize other areas where the beds are disturbed. If main channel or off-channel material is used to construct the island, up to 25 acres of benthic organisms would be lost or disturbed. If a dredged material placement site near Lansing, Iowa, is used for island fill, the only impacts of material removal in the project area would be experienced where construction access is needed and in about 2 acres of the backwater where fine sediments would be dredged for use as island topsoil.

d. Fish. The shallow area protected by the island would provide good spawning and nursery areas. Dredging for construction access and about 2 acres of backwater for island topsoil would provide additional fish habitat for such species as sunfish, crappies, largemouth bass, and northern pike. Use of an off-channel borrow area for island fill would provide 10 to 25 acres of additional fish habitat diversity.

e. Wildlife. The island would provide about 12 acres of predator-free habitat for waterfowl resting. The stability of the aquatic plant beds protected by the island would lead to increased use by waterfowl because of the food provided. The island would also increase habitat diversity, which would be beneficial to a variety of wildlife.

f. Archeological-Historical. No known archeological or historical sites would be affected by the proposed project.

g. Noise Pollution, Air Quality Minor noise and air quality impacts would occur during project construction but would be short-term. No adverse impacts to the general public would occur because the construction site is far from any residences.

7. Applicable Federal Laws and Regulations.

National Historic Preservation Act of 1966, as amended
Clean Air Act, as amended
Clean Water Act of 1977, as amended
National Environmental Policy Act of 1969, as amended
Fish and Wildlife Coordination Act of 1958, as amended
Endangered Species Act of 1973, as amended
Land and Water Conservation Fund Act of 1965, as amended
Executive Order 11988, Floodplain Management, May 24, 1977
Executive Order 11990, Protection of Wetlands, May 24, 1977

8. Report. A Definite Project Report/Environmental Documentation is available to the public that describes the project and environmental impacts in detail. The report includes project drawings, a Finding of No Significant Impact, a Section 404(b)(1) evaluation, and letters of coordination with the U.S. Fish and Wildlife Service, Wisconsin and Iowa Departments of Natural Resources, and the State Historical Society of Wisconsin. A copy of this report or additional information can be obtained by writing to the address below or contacting Mr. Don Powell at (612) 220-0402.

9. Request for a Public Hearing. Any person may request a public hearing on the project. The request must be submitted in writing to the District Engineer within 30 days of the date of this notice. The request must clearly set forth the interest that may be affected and how the interest may be affected by this activity. A public meeting to discuss the proposed project and respond to questions is scheduled for May 1989. As soon as the exact date and location are established, a notice will be sent to the interests receiving this public notice.

10. Public Comment Period. Interested parties are invited to submit to this office written facts, arguments, or objections to this project within 30 days of the date of this notice. These statements should bear upon the suitability of the location and the adequacy of the plans and should, if appropriate, suggest any changes deemed desirable. All statements, oral or written, will become part of the official project file and will be available for public examination. All replies should be addressed to the District Engineer, St. Paul District, Corps of Engineers, 1421 U.S. Post Office and Custom House, St. Paul, Minnesota 55101-1479, ATTN: CENCS-PD-FS.

LTC, CE, DDE

Roger L. Baldwin
Colonel, Corps of Engineers
District Engineer

for

United States Department of the Interior

FISH AND WILDLIFE SERVICE

ST. PAUL FIELD OFFICE (ES)
50 Park Square Court
400 Sibley Street
St. Paul, Minnesota 55101

IN REPLY REFER TO
SPFO

April 24, 1989

Mr. Don Powell
U.S. Army Corps of Engineers
1135 U.S. Post Office and Custom House
St. Paul, Minnesota 55101-1479

Dear Mr. Powell:

This concerns the Definite Project Report and Environmental Documentation for the Pool 9 habitat rehabilitation and enhancement project on the Upper Mississippi River. The project is proposed for implementation under the Environmental Management Program (EMP). Comments concerning the Fish and Wildlife Coordination Act are contained in the attached April 5, 1989 letter. Please view that letter as the draft Fish and Wildlife Coordination Act Report for your planning purposes.

We appreciate the opportunity to review the Pool 9 project.

Sincerely,

James L. Smith

James L. Smith
Assistant Field Supervisor

Attachment

bcc: UMRNWFR, Winona, MN

United States Department of the Interior

FISH AND WILDLIFE SERVICE
UPPER MISSISSIPPI RIVER REFUGE COMPLEX
P. O. Box 2484
LaCrosse, Wisconsin 54601

IN REPLY REFER TO:

April 5, 1989

Mr. Don Powell
St. Paul District, Corps of Engineers
1135 U.S. Post Office and Custom House
180 E. Kellogg Blvd.
St. Paul, Minnesota 55101

Dear Mr. Powell:

This provides U.S. Fish and Wildlife Service (Service) comments on the Definite Project Report and Environmental Documentation (SP-3) for the Pool 9 Island Construction Habitat Rehabilitation and Enhancement Project.

This project is being built on lands managed as part of the Upper Mississippi River National Wildlife and Fish Refuge (Refuge), therefore, a refuge compatibility determination and refuge approval is needed before the project can be constructed. Enclosed is a compatibility determination based on the selected alternative discussed in this draft report. Approval of the project will be formally provided by the Regional Director after completion of the final project report.

The cooperative agency status of the Service is clearly stated on page 3 of the report, however, the real estate statement on page 17 is not correct. The entire project area is Service fee title lands.

We are concerned about island stability. Conditions in this part of the pool are severe. We must make sure in our efforts to reduce cost we do not compromise island integrity. These concerns can be resolved during development of the plans and specifications for this project.

Plan 5 does not show location of fish habitat dredging, depth, dimensions or connection to other deep water. This is important as our interest in littoral area development might be affected differently by each alternative.

The report does not adequately address the contaminant-related aspects of the proposed project. We therefore, suggest that the Corps of Engineers and the Service work together during the plans and specification phase of this project to eliminate this as a possible issue. During this phase we request you implement the following sediment and analytical procedures in order to develop the information necessary for an adequate evaluation of project-related contaminant issues:

1. Collection of one sediment core extended to one foot below the proposed dredged depth at each of three randomly selected locations within the backwater area. If proposed depth of dredging is two feet or greater, each core sample should be split into a two-foot section. Half of the section should come from the finished project depth (± 1 foot) and the other half of the core sample can come from anywhere in the remainder of the sediment profile. Each core section should then be homogenized and sediment samples taken from each for trace metal and total PCB analysis. Blind samples with high and low PCB concentrations should also be submitted for analysis. Implementation of the above would result in no more than six samples for metals analysis and eight for total PCB analysis.

2. At least one surface sediment grab sample (0-6 inch depth) from the backwater area should also be collected. This sample material should be homogenized and split into two individual samples for metals analysis only.

Because sediment from the two-acre backwater area is expected to be fairly homogeneous at equal depths, comparisons of analytical results for equivalent core samples should allow a reasonable estimate of analytical precision without the need for additional split samples.

Results of analysis of the split surface grab samples can be compared with analytical data from two nearby surface grab samples collected in 1985 by the Service.

The review draft report section on operation and maintenance must be rewritten to be consistent with the decisions made by Regional Director Gritman and Brigader General Vander Els. At this time the Service gives preliminary approval to the operations and maintenance functions outlined in your report (page 21) of February 1989. Final approval will be provided by the Regional Director in his comment letter on the final approved project report. The Service does not agree to any rehabilitation costs that exceed project design criteria.

If you have any questions please contact Keith Beseke, Environmental Management Program Coordinator at 507-452-4232.

Sincerely,

Richard F. Berry

Richard F. Berry
Complex Manager

Enclosure

cc: John Lyons, McGregor
Hannibal Bolton, FAO
Chuck Gibbons, RO-SS
Jim Lennartson, UMR
Bob Welford, SPFO
Pam Thiel, WIDNR

Upper Mississippi River National
Wildlife and Fish Refuge
Established 1924
Compatibility Study
Pool 9 Islands

Establishment Authority:

Public Law No. 268, 68th Congress, The Upper Mississippi River Wildlife and Fish Refuge Act.

Purpose for Which Established:

"The refuge shall be established and maintained (a) as a refuge and breeding place for migratory birds included in the terms of the convention between the United States and Great Britain for the protection of migratory birds, concluded August 16, 1916, and (b) to such extent as the Secretary of Agriculture may by regulations prescribe, as a refuge and breeding place for other wild birds, game animals, fur-bearing animals, and for the conservation of wild flowers and aquatic plants, and (c) to such extent as the Secretary of Commerce may by regulations prescribe a refuge and breeding place for fish and other aquatic animal life."

Description of Proposed Use:

The proposal is a Habitat Rehabilitation and Enhancement Project authorized by the Water Resources Development Act of 1986 (Pub. L. 99-662). The project area is a backwater habitat located along the left descending bank of the main channel of the Mississippi River, in Pool 9 between river miles 654.7 and 656. The proposal involves the construction of one hooked island with a total length of about 4000 feet. The island would be constructed using approximately 126,000 cubic yards of granular material and about 13,000 cubic yards of fine material used as a topsoil. The island would have a 50-feet top width with a final elevation of 626. This elevation is 6.5 feet above the average water surface in the project area and corresponds to a 20 percent frequency flood. The purpose of the project is to prevent sediment from moving into the backwater in order to preserve and enhance the existing aquatic plant beds of the project area. Complete details of the project, including maps, are contained in the draft report entitled, "Upper Mississippi River Environmental Documentation (SP-3) Pool 9 Island Construction Habitat Rehabilitation and Enhancement Project, Pool 9, Upper Mississippi River, Crawford County, Wisconsin prepared by the St. Paul District, Corps of Engineers, February 1989.

Anticipated Impacts on Refuge Purposes:

As a result of the project the fishery, migratory bird, aquatic plant and other wildlife populations should increase which will be a direct benefit toward maintaining and accomplishing refuge purposes. The above mentioned report contains detailed information on the project's impacts on fish, wildlife and plant species.

Justification:

The proposed project works toward the accomplishment of stated objectives and purposes, of the refuge.

Determination:

The proposed project is compatible with purposes for which the refuge was established.

Determined by: James R. Lumsden — Project Leader — 3/27/89 — Date

Reviewed by: R. E. Tabb — 3/30/89 — Date

Concurred by: James A. Pulliman — Regional Director — 3/30/89 — Date

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
1135 U.S. POST OFFICE & CUSTOM HOUSE
ST. PAUL, MINNESOTA 55101-1479

REPLY TO
ATTENTION OF

April 24, 1989

Flood Plain Management and
Small Projects Branch
Planning Division

Mr. Richard F. Berry
U.S. Fish and Wildlife Service
Upper Mississippi River Refuge Complex
P.O. Box 2484
La Crosse, Wisconsin 54601

Dear Mr. Berry:

Thank you for your comments on the preliminary draft of the "Definite Project Report/Environmental Documentation (SP-3) for the Pool 9 Island Construction Habitat Rehabilitation and Enhancement Project." We offer the following responses to your specific comments.

1. The real estate statement has been corrected to indicate that the project area is owned by the Service.

2. The island has been designed to be stable under the conditions expected to occur in the project area, and it would be expected to be an effective barrier for the 50-year project life. Changes may be made to the proposed project during the final design to insure island stability. We will continue to coordinate the final design with your staff and will seek your input regarding planting plans for erosion control.

3. The proposed dredging area for obtaining island topsoil has been added to plate 8.

4. The sediment discussion in the report has been rewritten for clarity and to provide more detail on the results of the sediment analysis. My staff will continue to work with your agency to avoid problems associated with the contaminant-related aspects of the project. The sediment and analytical procedures you requested would be performed after both our staffs have had the opportunity to discuss the concerns.

5. The operation and maintenance section of the report was rewritten based on discussion with your staff.

The draft definite project report is scheduled to be sent to the public by the end of April 1989. Your comment letter will be included in that report. Participation by your agency representative(s) in a public meeting that will be held in May 1989 would be appreciated. My staff will be contacting Mr. Keith Beseke to coordinate this effort. Thank you for your continued support and input.

Sincerely,

for Louis Kowalski
Chief, Planning Division

United States Department of the Interior

FISH AND WILDLIFE SERVICE

ST. PAUL FIELD OFFICE (ES)
50 Park Square Court
400 Sibley Street
St. Paul, Minnesota 55101

IN REPLY REFER TO:

April 6, 1988

Mr. Louis Kowalski
Chief, Planning Division
U.S. Army Corps of Engineers
1135 U.S. Post Office and Custom House
St. Paul, Minnesota 55101-1479

Dear Mr. Kowalski:

This replies to your March 29, 1988 letter concerning potential impacts on federally endangered or threatened species from the proposed Lower Pool 9 Island Protection Project located in Pool 9 of the Upper Mississippi River. The project is proposed for implementation under the Environmental Management Program.

Based on information contained in your above referenced letter and the nature of the proposed project, its location, and the habitat requirements of the federally threatened bald eagle (Haliaeetus leucocephalus), endangered peregrine falcon (Falco peregrinus), and the endangered Higgins' eye pearly mussel (Lampsilis higginsi), we support your determination that the proposed project will not affect federally listed endangered or threatened species. This precludes the need for further action on this project as required under Section 7 of the Endangered Species Act of 1973, as amended. Should this project be modified or new information from the mussel survey indicates that listed species may be affected, consultation with this office should be reinitiated.

These comments have been prepared under the authority of and in accordance with provisions of the Endangered Species Act of 1973, as amended.

Sincerely,

Robert F. Welford
Field Supervisor

cc: MN Dept. of Natural Resources, Lake City
MN Dept. of Natural Resources, St. Paul
WI Dept. of Natural Resources, LaCrosse
WI Dept. of Natural Resources, Madison

March 29, 1988

Environmental Resources Branch
Planning Division

Mr. Robert Welford
St. Paul Field Office
U.S. Fish and Wildlife Service
Suite 50
Park Square Court
400 Sibley Street
St. Paul, Minnesota 55101

Dear Mr. Welford:

In accordance with the Endangered Species Act, we wish to obtain your comments on the potential impacts upon Federally designated threatened and endangered species of proposed island construction activities. The islands would be constructed in lower Pool 9 under the Upper Mississippi River Environmental Management Program. The project area is at river mile 654.5 to 655.5 on the Upper Mississippi River.

The proposed plan includes hydraulic dredging of channel sand from the main channel to a shallow area adjacent to the main channel to construct the islands. The islands would create a "shadow," or area protected from wind- and navigation-induced wave action. An area within the shadow would be deepened to improve fish habitat and to provide top dressing for the island. Two alternative designs have been considered. One alternative is the construction of two islands; the other includes only one island. About 1,400,000 cubic yards of sand would be required for one alternative; the second alternative would require about 650,000 cubic yards of sand.

We are conducting a biological assessment of the proposed activities to determine their potential effects upon the following species: Higgins' eye pearly mussel (Lampsilis higginsi), peregrine falcon (Falco peregrinus), and bald eagle (Haliaeetus leucocephalus).

A mussel survey along the Wisconsin side of the main channel bank was conducted in July 1987 by the Wisconsin Department of Natural Resources. During that survey, one female Higgins' eye was found on the Wisconsin side of the main channel near river mile 655.7. After consulting with State and Federal endangered species staff, the surveyors numbered the mussel and returned it to the Iowa side of the main channel. Previous surveys done downstream near the Crooked Slough daymark, river mile 654.9, recorded few mussels and noted that the area had been dredged only twice, moderately, and neither event was recent (Fuller, 1980, Freshwater Mussels of the Upper Mississippi

River). While brail surveys have not revealed extensive beds in the project area, but that does not mean they are not present. During the next phase of planning, the St. Paul District will survey the main channel areas within one-half mile of the project site for mussels. The dredge cuts will then be located in areas where there are no mussel beds.

Peregrine falcons have been extirpated from the river valley but are being reintroduced. They are not known to frequent the proposed project area. Bald eagles are known to nest 2 miles upstream of the project site and use the dead trees on the existing islands within the project area as hunting perches. To reduce potential adverse effects on these species, construction could be scheduled to minimize any disturbance to nesting activities.

Based upon these determinations and findings, we conclude that, contingent upon being able to locate the dredge cuts in areas where there are no mussel beds, the proposed action would have no impacts on threatened or endangered species. We would appreciate your comments on this conclusion. Please contact Teri Sardinas at (612) 220-0269 if you have any questions.

Sincerely,

Enclosures

Louis Kowalski
Chief, Planning Division

cf: Mr. Keith Beseke
U.S. Fish and Wildlife Service
51 East 4th Street
Winona, Minnesota 55987

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

State Office Building, Room 104
3550 Mormon Coulee Road
La Crosse, WI 54601
608-785-9000

March 15, 1989

1600-1-3

Mr. Louis Kowalski
U.S. Army Corps of Engineers
Planning Division
1135 U.S. Post Office and Custom House
St. Paul, MN 55101-1479

Dear Mr. Kowalski:

We support the implementation of the Pool 9 Island Habitat Rehabilitation and Enhancement Project, but we offer the following constructive comments. We feel that these changes and/or additions will make the document more salable to your Chicago and Washington offices. If desirable, we can withdraw this letter and provide you with a shorter letter of support after our concerns have been addressed. In order to prepare our water quality certification letter we have requested additional data. Upon receipt of that information, we will be developing the water quality certification letter.

DPR-4 Duplicate Setting: Pool 9 is between Genoa and Lynxville. The project is located between Ferryville and Lynxville

DPR-5 Soils: We would like a definition of "dirty sands" in terms of particle size analysis (i.e. P200 content).

Sediment Analysis: Cite a reference for what contaminant data was considered (i.e. historic data) in making the sediment contaminant evaluation.

DPR-7 Threatened and Endangered Species: This would be the appropriate section to note the proximity of the project to the recommended essential habitat for L. higginsi.

DPR-8 Historical Documented Changes in Habitat: We can make a stronger case by incorporating the statement "The movement of the sediments tends to fill-in the deeper areas that provide habitat for the fishery in the area." in other segments of the report.

DPR-9 Existing Habitat Deficiencies: Pool 8 should be changed to Pool 9.

DPR-11 Project Objectives: The objectives should be more specific. We suggest an approach similar to the Pools 8 and 11 Island HREP Problem Objective statements (Pool 11 enclosed). By strengthening this section we will have a better and more salable product. Well defined project objectives are necessary in order to develop effective and meaningful project evaluation monitoring.

DPR-16 Construction Methods: In other parts of the report, only material from the main channel is mentioned for use in island construction. The other potential borrow areas should also be discussed elsewhere. This at least gives the possibility of additional habitat benefits.

What is the desired particle size or the percent of fines that is desired for island construction?

DPR-17 Fish and Wildlife: In this section and in a plate, the proposed dredged fish habitat and how it connects to deep water should be indicated.

DPR-20 Cultural Resources: We applaud you for your good work with SHPO.

DPR-21 Compliance with Environmental Laws and Regulations: Has an evaluation been made on how much the island will raise flood levels?

DPR-22 Cost Estimate: Is the reason that there is no item listed for project evaluation because it will be funded through LTRM?

Performance Evaluation: This section, like the objective section, needs to be further defined and coordinated. Island stability should be included in the evaluation. How will island revegetation be determined, through aerial photography? Vegetation behind the island should also be evaluated. A criteria should be developed for when the three sampling times occur, such as river stage, season, and wind speed. Is three sampling times adequate?

404(b)(1), I. Project Description, D.2. Some discussion as to the quality (P200 content) of sand needed to construct the island should be added.

404(b)(1), I. Project Description, F, Disposal Methods. More information is needed on how the carriage water would be handled when five materials are placed on the island.

404(b)(1), II. Factual Determinations, A.4, Physical Effects on Benthos. There should also be a fish section. The rock riprap will also provide habitat for fish.

404(b)(1), II. Factual Determinations, A.5. We suggest that the word "some" be omitted from the last sentence.

404(b)(1), II. Factual Determinations, B.1.b. The 404 presumes that the sand will be taken from the main channel. Additional borings may provide us with dredging sites outside of the main channel. The results of "good" sediment data should be listed in the report. The location and methods of sediment sampling for contaminant analysis should be stated. Any reference to other contaminant data should be provided in a summary table similar to that provided in the DPR for Lake Onalaska.

404(b)(1), II. Factual Determinations, F.2, Determination of Compliance with Applicable Water Quality Standards. Wisconsin's 80 mg/l TSS

guideline should be referenced. Would it be possible to state the expected distance from the island this guideline would be exceeded during each phases (island construction and topsoil addition) of this project. Would it be feasible to require a minimum decant time (2-4 hours) before discharge occurs from the fine disposal cells in the island and berms? Would it be possible to maximize hydraulic detention time (during topsoil addition) by routing carriage water from island cells to berm-cells before discharging (i.e. decanting) to the river?

Having a public meeting on this project before their is support from your Chicago and Washington offices would be a tactical error. We want to have assurance that the project will be funded before enticing the public. It would be a grave public relations faux pas to do otherwise.

We will be glad to assist you in developing a refined DPR. If we can provide you with any additional information or answer any questions, contact Pam Thiel at 608-795-9000.

Sincerely,

Terry Moe / jb

Terry Moe
Western Boundary Rivers Coordinator

TM:Jb

Enc.

cc: Kevin Szcodronski, IDNR
Dave Moeller, IDNR
Keith Beseke, FWS
John Lyons, FWS
Tom Hempfling, COE - Chicago

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
1421 U.S. POST OFFICE & CUSTOM HOUSE
ST PAUL, MINNESOTA 55101-1479

April 24, 1989

REPLY TO
ATTENTION OF

Flood Plain Management
and Small Projects Branch
Planning Division

Mr. Terry Moe
Wisconsin Department of Natural Resources
3550 Mormon Coulee Road
La Crosse, Wisconsin 54601

Dear Mr. Moe:

Thank you for your comments on the preliminary draft of the "Definite Project Report/Environmental Documentation (SP-3) for the Pool 9 Island Construction Habitat Rehabilitation and Enhancement Project." We offer the following responses to your comments and have made the modifications as stated to the draft report for public review.

Duplicate Setting: The report has been corrected to read "between Genoa and Lynxville."

Soils: The reference to "dirty sands" has been deleted. The paragraph has been rewritten to better describe the soils investigation.

Sediment Analysis: The paragraph has been rewritten to include the results of the analysis.

Threatened and Endangered Species: Proximity noted and documented in report.

Historically Documented Changes in Habitat: Section has been rewritten to more clearly define and explain the changes.

Existing Habitat Deficiencies: Correct as written, but the statement has been rewritten to clarify.

Project Objectives: This section of the report has been significantly modified and strengthened to better define project objectives.

Construction Methods: The report has been modified to include discussion of other possible borrow areas. The desired island fill material composition is sand that has less than 5 percent fines.

Fish and Wildlife: The report and plate have been modified as suggested.

Cultural Resources: Comment noted.

Compliance with Environmental Laws and Regulations: The project is of small enough scope and extent so that no measurable raise in flood levels would occur.

Cost Estimate: A final decision on the funding source for performance evaluation is currently being discussed and will be made prior to final design. The average estimated annual cost has been added to the Performance Evaluation section.

Performance Evaluation: This section has been significantly modified to better define monitoring parameters. The parameters include monitoring of island stability, island vegetation mapping, aquatic vegetation surveys, and aerial photos of the project area. Details of the monitoring parameters would be developed during final design in coordination with your agency and the U.S. Fish and Wildlife Service and would be included in the operation and maintenance manual for the project.

404,I,D.2: This section has been modified to include a statement that the desired material would contain less than 5 percent fines.

404,I,F: This section has been rewritten to better explain the construction procedures and options. The construction procedures will need to be refined during the final design.

404,II,A.4: Concur. A fish and wildlife discussion has been included as paragraph II,E.3.

404,II,A.5: Concur. The word "some" has been omitted.

404,II,B.1.b: Discussion of other possible borrow sites has been included in the document. The contaminants discussion has also been revised.

404,II,F.2: The total suspended solids guideline reference has been included. More refined construction procedures would be developed during the final design.

Public meeting: We feel that the recommended alternative is justifiable and adequately addresses the project objectives. Therefore, we are working with your staff to schedule a public meeting for the proposed project in May 1989.

The draft definite project report is scheduled to be sent to the public by the end of April 1989. Your comment letter will be included in that report. Our responses to your comments have also been discussed with Ms. Pam Thiel of your staff. Thank you for your continued support of the proposed project and your assistance in the study process.

Sincerely,

Louis Kowalski
Chief, Planning Division

THE STATE HISTORICAL SOCIETY OF WISCONSIN

H. Nicholas Muller III, Director

816 State Street
Madison, Wisconsin 53706
608/262-3266

HISTORIC PRESERVATION DIVISION

February 16, 1989

Mr. Charles E. Workman
Chief, Environmental Resources Branch
St. Paul District, Corps of Engineers
1135 U.S. Post Office & Custom House
St. Paul, Minnesota 55101-1479

SHSW: 88-0951
RE: Rehabilitation of Two Islands In Pool 9 Of the Mississippi River

Dear Mr. Workman:

Thank you for your letter of December 20, 1988, in which you described the existing conditions of the Pool 9 islands proposed for rehabilitation.

Under the circumstances you described, we agree that intensive archeological survey of the island remnants is not warranted. We also agree that inspection of the remnants for artifacts in the water should be done if the opportunity to do so exists, and we look forward to receiving a report of the results of such an inspection if it is conducted.

If there are any questions concerning this matter, please contact me at (608) 262-2732.

Sincerely,

Richard W. Dexter
Chief, Compliance and Archeology Section

RWD:lkr

cc: Dave Berwick

1478N

December 20, 1988

Environmental Resources Branch
Planning Division

Mr. Jeff Dean
State Historical Preservation Officer
State Historical Society of Wisconsin
816 State Street
Madison, Wisconsin 73706

Dear Mr. Dean:

On August 1, 1988 you responded to a request from our office on the impacts of our Pool 9 island rehabilitation project on cultural resources (your reference no. 88-0951). Because the addition of dredge material to existing island could potentially impact unknown archeological resources, you recommended that the area be surveyed prior to construction.

During this past summer the project biologist inspected the project area and the existing islands. At the time of this inspection the pool was at its normal elevation, but the existing islands did not extend to the water surface. While the former islands may have had some potential to include archeological remains, the existing remnants have little potential for undisturbed deposits. If there is an opportunity to inspect the remnants of the island this summer for artifacts located in the water, we will do this and provide you with the results. However, at this time we do not see a need to complete an intensive archeological survey of this project.

Should you have any comments on our taking this course of action, please contact Mr. David Berwick at (612) 220-0261.

Sincerely,

Charles E. Workman
Chief, Environmental Resources Branch
Planning Division

THE STATE HISTORICAL SOCIETY OF WISCONSIN

H. Nicholas Muller III, Director

816 State Street
Madison, Wisconsin 53706
608/262-3266

HISTORIC PRESERVATION DIVISION

August 1, 1988

Mr. Charles E. Workman
St. Paul District, Corps of Engineers
1135 U.S. Post Office & Custom House
St. Paul, Minnesota 55101-1479

SHSW: 88-0951
RE: Modify Two Islands in Pool 9 of the Mississippi River

Dear Mr. Workman:

Thank you for your letter of June 8, 1988 in which you described a proposal to modify two islands in Pool 9 of the Mississippi River.

We have reviewed the above-referenced project as required for compliance with Section 106 of the National Historic Preservation Act and the "Procedures for the Protection of Historic and Cultural Properties" (36 CFR 800).

There are no structures listed in the National Register of Historic Places located within the area of the proposed undertaking. Furthermore, we are not aware of any structures that may be eligible for the National Register in this area.

There are no KNOWN archeological sites in the project area, but the area has never been surveyed for such resources. As the Corps is aware, there are many prehistoric and historic archeological sites located on islands in the Mississippi River, and the project areas have high archeological potential. We recommend, therefore, that all areas to be disturbed by the proposed modifications that have not been previously disturbed beyond normal agricultural practices be surveyed by a qualified archeologist to locate and evaluate the significance of any archeological sites that may be present. When the survey has been completed, a copy of the archeologist's report should be forwarded to our office for our review and comments.

If there are any questions concerning this matter, please contact me at (608) 262-2732.

We are sorry for the delay in our response to your request for our comments.

Sincerely,

Richard W. Dexter
Chief, Compliance and Archaeology Section

RWD:lkr

cc: Mr. Dave Berwick
Corps

1012N

STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
LARRY J. WILSON, DIRECTOR

Department of Natural Resources
R.R. #2, Box 269
Manchester, IA 52057

April 3, 1989

Louis Kowalski
U.S. Army Corps of Engineers
Planning Division
1135 U.S. Post Office & Custom House
St. Paul, MN 55101-1479

Dear Mr. Kowalski:

This letter is in response to your February 17, 1989 correspondence and the second draft of the Definite Project Report/Environmental Documentation for the Pool 9 Island Construction HREP work that is proposed by the Wisconsin DNR. Field staff of the Iowa DNR's Wildlife Bureau offer the following comments relative to the draft of the Definite Project Report:

DPR-7 - There is an active Bald Eagle nest at river mile 657.0 that is approximately one mile outside of the project limits; however, we do not believe that the proposed work would have a significant impact on the nesting eagles in that area. Consideration could be given to scheduling some aspects of the construction work after the young eagles have fledged.

DPR-10 - We believe additional consideration should be given to utilizing some of the course sand spoil that is located at the Lansing disposal sites (seven miles upstream). Perhaps some O&M funding could be used to lower the costs associated with the EMP work. The sand spoil may, or may not, be utilized for other EMP projects in the vicinity. It would be preferable to use the Lansing area sand spoil in a constructive manner rather than dredge large quantities of additional material from the river.

DPR-19 - Threatened & Endangered Species (second paragraph). We would recommend changing the text to read, "The project <u>should</u> not affect roosting or nesting habitat of the bald eagle or peregrine falcon..."

We concur with the Wisconsin Department of Natural Resources' project objectives to reduce sediment movement into the backwaters, and reduce wave action and re-suspension of sediments in that general area. Important wetland habitat will be improved by this action thus benefiting the fish and wildlife resources associated with this portion of the Mississippi River.

Sincerely,

Dean Dalziel

Dean Dalziel
District Wildlife Supervisor
Iowa Dept. of Natural Resources

DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
1135 U.S. POST OFFICE & CUSTOM HOUSE
ST. PAUL, MINNESOTA 55101-1479

April 24, 1989

REPLY TO
ATTENTION OF

Flood Plain Management
and Small Projects Branch
Planning Division

Mr. Dean Dalziel
District Wildlife Supervisor
Iowa Department of Natural Resources
R.R. #2, Box 269
Manchester, Iowa 52057

Dear Mr. Dalziel:

Thank you for your April 3, 1989, letter with comments on the preliminary draft of the "Definite Project Report/Environmental Documentation (SP-3) for the Pool 9 Island Construction Habitat Rehabilitation and Enhancement Project." We offer the following responses to your specific comments.

1. We have included the reference to the bald eagle nest in the report. Efforts would be made to schedule construction work so that minimal impacts to the nesting eagles would occur. The scheduling would be coordinated with your office.

2. Dredged material placement sites upstream of Lansing have been investigated for possible use. It appears that it may be justifiable to use this material, and the report has been revised to include this as a viable option for consideration during final design. However, the Wisconsin Department of Natural Resources currently would prefer an off-channel site as a means of gaining additional deep water for fish habitat. All options for borrow material will be analyzed further during final design.

3. The text has been changed as suggested for the bald eagle and peregrine falcon.

The draft definite project report is scheduled to be sent to the public by the end of April 1989. Your comment letter will be included in that report. We will continue to coordinate the final design of this project with your office. Your participation in a public meeting for the project in May 1989 would be appreciated. My staff will be discussing this with you soon. If you have any questions, please contact Mr. Don Powell at 612-220-0402.

Sincerely,

Louis Kowalski
Chief, Planning Division

Copy furnished:
Kevin Szcodronski, IDNR, Wallace State Office Bldg, Des Moines, IA 50319

Attachment 6

Summary of Alternatives

DESCRIPTION OF TABLES 1 THRU 9
September 3, 1991

DEFINITIONS OF COLUMN HEADINGS IN TABLES

Conting. = Construction contingencies

Average Annual $ = Average annual cost based on 8-7/8% interest and 50-year life

Annual O&M $ = Estimated average annual operation and maintenance cost

Acres Imp. = Acres of backwater that would be improved by the project

AAHU Gain = Average annual habitat units gained by constructing the project

Cost/AAHU = Computed cost per average annual habitat unit gained by constructing the project

Table 1 - Design, quantities, and costs as shown in the original DPR dated June 1989. This is the project approved for construction by the Chief's office.

Table 2 - An update of the original DPR unit prices and associated costs. This is the current estimate for the approved project.

Table 3 - Revised design based on optimizing use of fine material and protecting the area from southeasterly wind generated waves. Includes an additional island (Island C) to protect a larger area. Dredging of the backwater would provide the fine material for island construction.

Table 4 - Same design as in Table 3, but without Island C.

Table 5 - A Value Engineered (VE) design that accomplishes the primary project objectives, but using a lower cost design for a large portion of the project. Island B and the last 300 feet of Island A would be constructed of rockfill (rock mound) to reduce cost but still protect the area. It would not block sediment that may move into the area from the main channel. Dredging of access for construction and the backwater would provide the fine material for construction of Island A.

Table 6 - Same as in Table 5, but with the addition of Rockfill D to block main channel sediments.

Table 7 - A VE design using rockfills for the entire project as a means of protecting the backwater area and blocking main channel sediments. No dredging of sand or fines would be included in the island construction. Dredging would likely be required for access to construct the rockfills. The dredged material would be mechanically loaded into barges and transported to an upland or existing confined site.

Table 8 - Same as in Table 7, but without Rockfill A. This would provide a project similar to the project approved in the original DPR, but at a lower cost.

Table 9 - Same as in Table 7, but without Rockfill D to block main channel sediments.

TABLE 1

POOL 9

Original DPR (Original cost) – One hook-shaped island

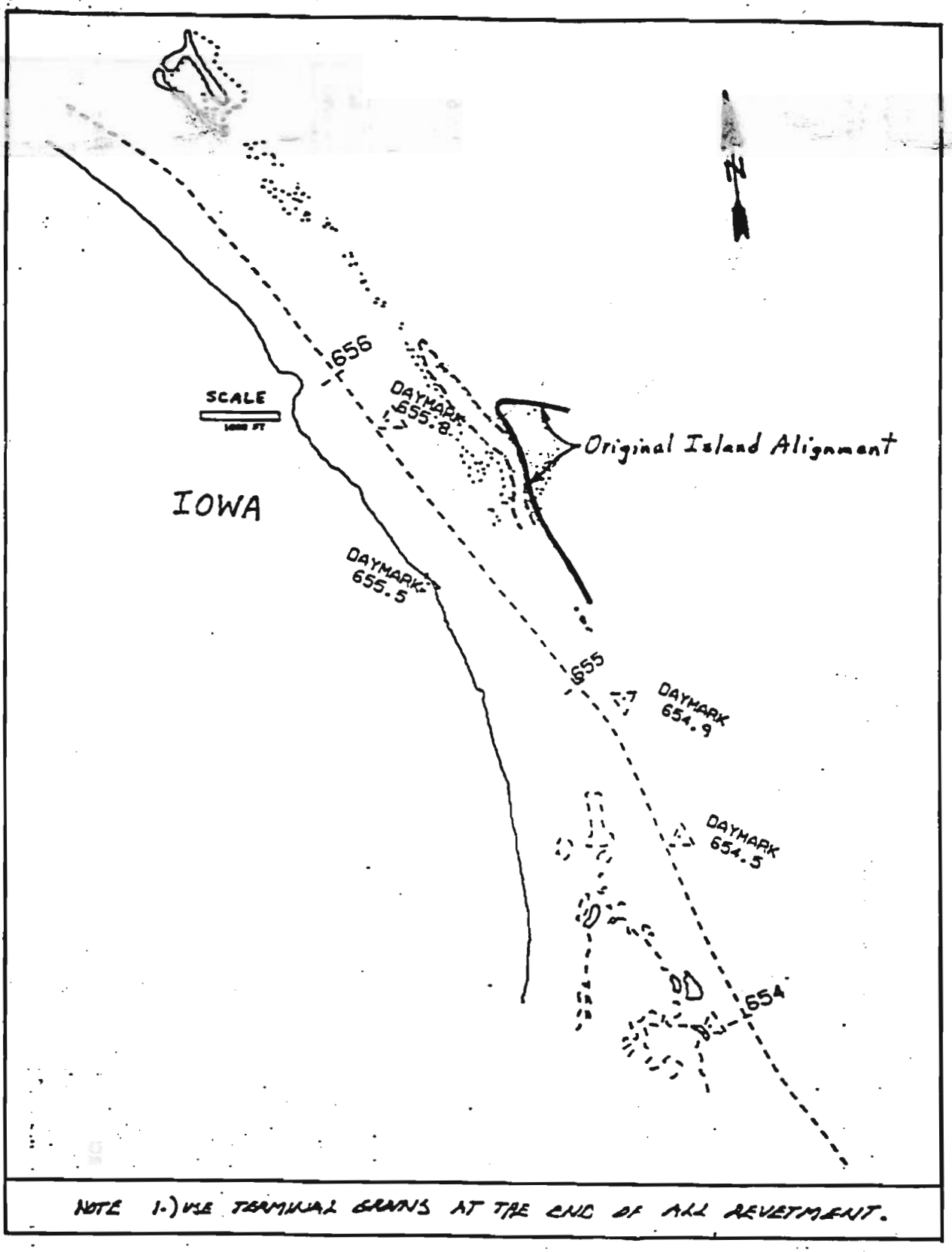
Work Item	Quantity	Unit Price	Amount	Conting.	Total	Average Annual $	Annual O&M $	Total Annual $	Acres Imp.	AAHU Gain	Cost/ AAHU
Mob & Demob					0						
Previous Fill	126,000 CY	2.50	315,000	78,800	393,800						
Fill, fines	13,000 CY	3.00	39,000	10,500	49,500						
Rockfill					0						
Riprap	2,300 CY	25.00	57,500	15,000	72,500						
Bedding	920 CY	18.00	16,560	4,600	21,160						
Geotextile					0						
Seeding	6 Acres	1,000.00	6,000	1,600	7,600						
Landscaping					0						
Subtotal Construction Costs			434,000								
Subtotal Contingencies				111,000							
TOTAL CONSTRUCTION					$545,000						
PLANNING, ENGINEERING, & DESIGN					$95,000						
CONSTRUCTION MANAGEMENT					$40,000						
TOTAL					$680,000	$61,220	$3,500	$64,720	80	18.0	$3,596

TABLE 2

POOL 9

Original DPR (New cost) – One hook-shaped island

Work Item	Quantity	Unit Price	Amount	Conting.	Total	Average Annual $	Annual O&M $	Total Annual $	Acres Imp.	AAHU Gain	Cost/ AAHU
Mob & Demob	1 JOB	65,000.00	65,000	16,300	81,300						
Previous Fill	126,000 CY	6.00	756,000	302,400	1,058,400						
Fill, fines	13,000 CY	7.00	91,000	36,400	127,400						
Rockfill					0						
Riprap	2,300 CY	30.00	69,000	27,600	96,600						
Bedding	920 CY	22.00	20,240	8,100	28,340						
Geotextile					0						
Seeding	6 Acres	2,500.00	15,000	3,800	18,800						
Landscaping	700 Each	6.00	4,200	1,100	5,300						
Subtotal Construction Costs			1,020,000								
Subtotal Contingencies				396,000							
TOTAL CONSTRUCTION					$1,416,000						
PLANNING, ENGINEERING, & DESIGN					$241,000						
CONSTRUCTION MANAGEMENT					$99,000						
TOTAL					$1,756,000	$158,090	$3,500	$161,590	80	18.0	$8,977



POOL 9 ISLAND
ORIGINAL DPR PROPOSAL
TABLES (1) + (2)

PLATE 1

TABLE 3

POOL 9

Revised Design – Island A, B, and C

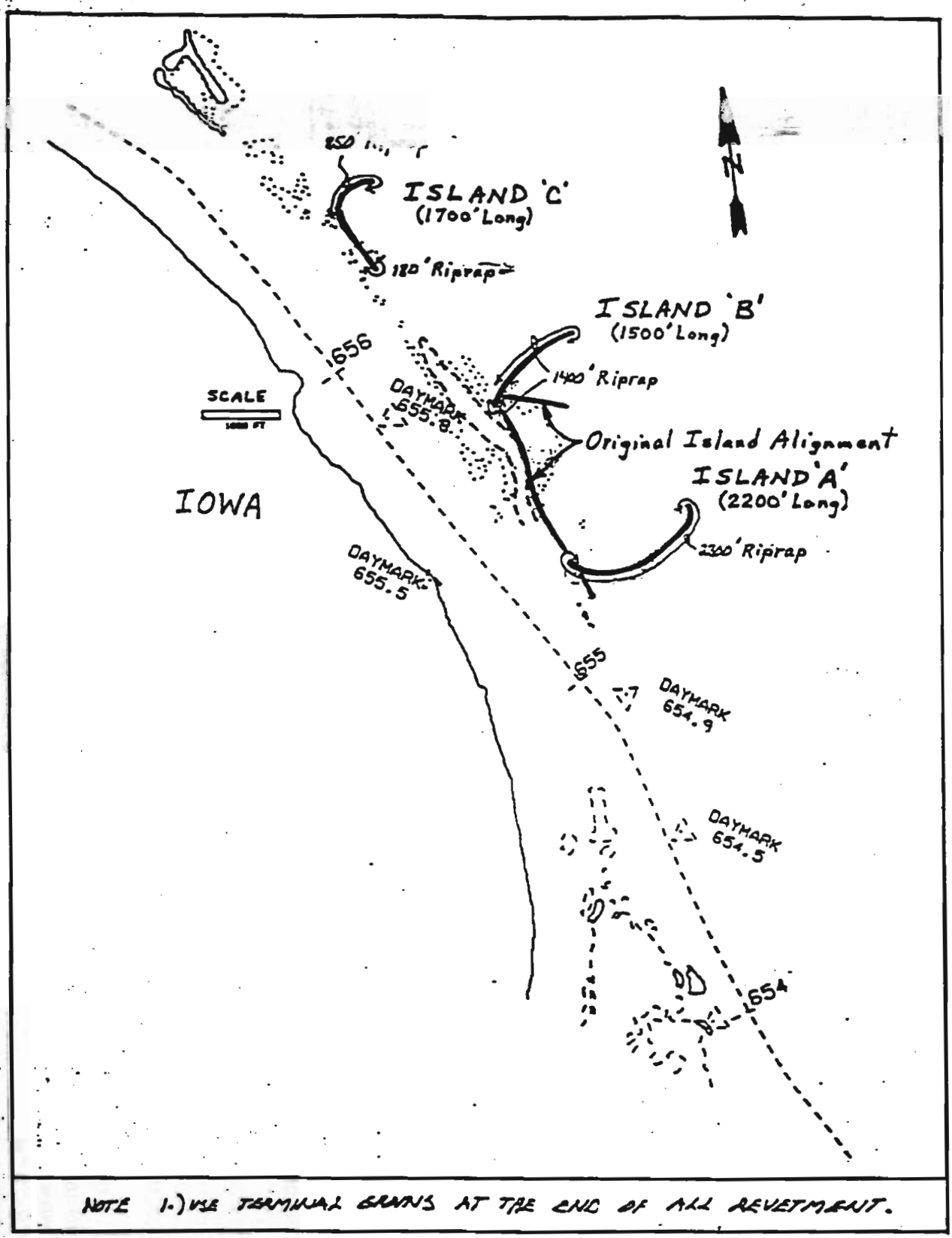
Work Item	Quantity	Unit Price	Amount	Conting.	Total	Average Annual $	Annual O&M $	Total Annual $	Acres Imp.	AAHU Gain	Cost/ AAHU
Mob & Demob	1 JOB	165,000.00	165,000	41,300	206,300						
Previous Fill	216,300 CY	6.00	1,297,800	519,100	1,816,900						
Fill, fines	36,900 CY	7.00	258,300	103,300	361,600						
Rockfill					0						
Riprap	18,600 CY	30.00	558,000	223,200	781,200						
Bedding					0						
Geotextile	18,300 SY	3.00	54,900	13,800	68,700						
Seeding					0						
Landscaping	2100 Each	6.00	12,600	3,300	15,900						
Subtotal Construction Costs			2,347,000								
Subtotal Contingencies				904,000							
TOTAL CONSTRUCTION					$3,251,000						
PLANNING, ENGINEERING, & DESIGN					$553,000						
CONSTRUCTION MANAGEMENT					$228,000						
TOTAL					$4,032,000	$363,000	$4,500	$367,500	210	55.6	$6,610

TABLE 4

POOL 9

Revised Design – Island A and B

Work Item	Quantity	Unit Price	Amount	Conting.	Total	Average Annual $	Annual O&M $	Total Annual $	Acres Imp.	AAHU Gain	Cost/ AAHU
Mob & Demob	1 JOB	115,000.00	115,000	28,800	143,800						
Previous Fill	138,700 CY	6.00	832,200	332,900	1,165,100						
Fill, fines	24,600 CY	7.00	172,200	68,900	241,100						
Rockfill					0						
Riprap	14,300 CY	30.00	429,000	171,600	600,600						
Bedding					0						
Geotextile	12,200 SY	3.00	36,600	9,200	45,800						
Seeding					0						
Landscaping	1400 Each	6.00	8,400	2,200	10,600						
Subtotal Construction Costs			1,593,000								
Subtotal Contingencies				614,000							
TOTAL CONSTRUCTION					$2,207,000						
PLANNING, ENGINEERING, & DESIGN					$375,000						
CONSTRUCTION MANAGEMENT					$154,000						
TOTAL					$2,736,000	$246,320	$3,500	$249,820	180	47.5	$5,259



NOTE 1.) USE TERMINAL GRUNS AT THE END OF ALL REVETMENT.

POOL 9 ISLAND
REVISED DESIGN
TABLES ③+④

PLATE 2

TABLE 5

POOL 9

VE Design – Island A and Rockfill B

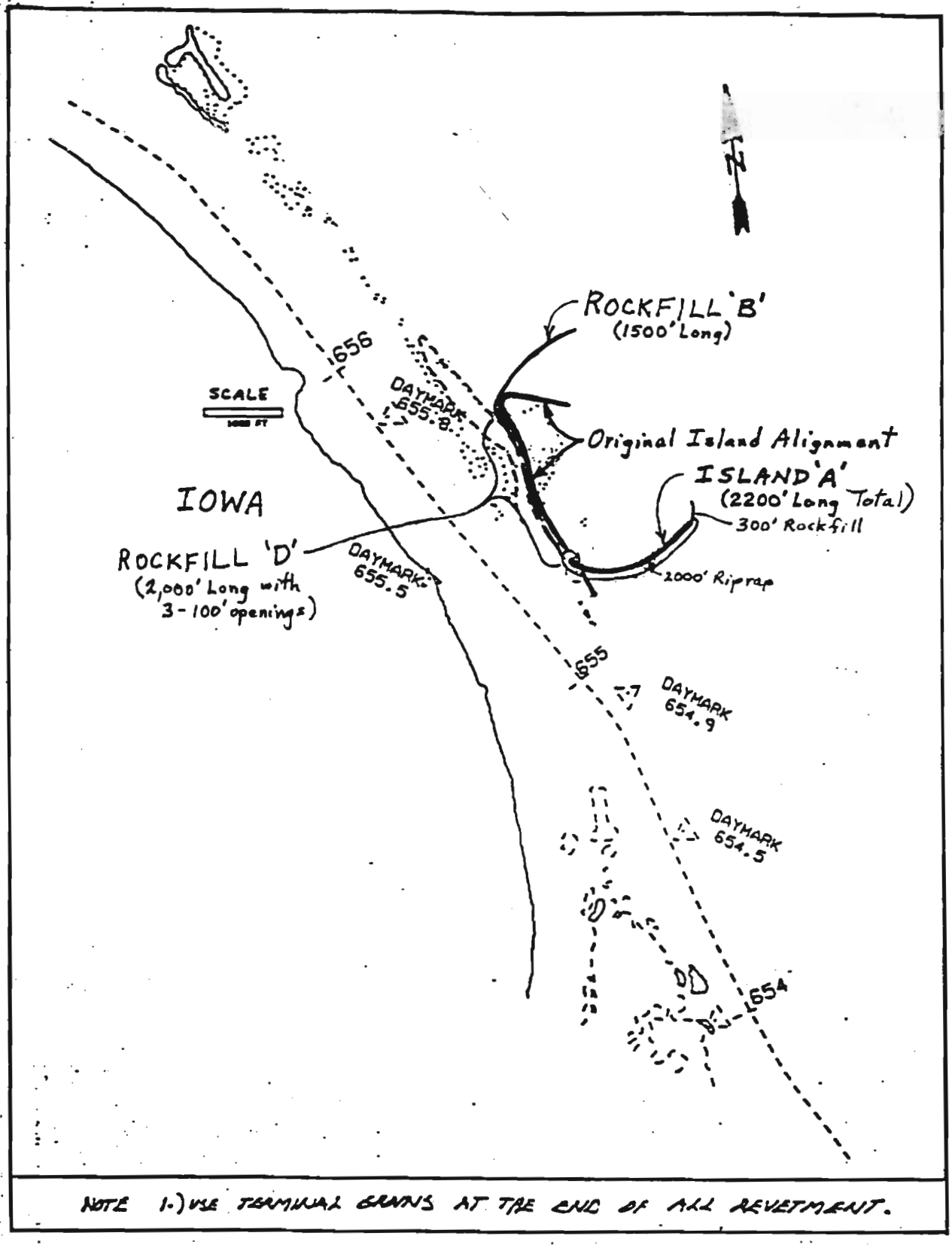
Work Item	Quantity	Unit Price	Amount	Conting.	Total	Average Annual $	Annual O&M $	Total Annual $	Acres Imp.	AAHU Gain	Cost/ AAHU
Mob & Demob	1 JOB	50,000.00	50,000	12,600	62,600						
Previous Fill	62,000 CY	6.00	372,000	148,800	520,800						
Fill, fines	13,100 CY	7.00	91,700	36,700	128,400						
Rockfill	8,900 CY	25.00	222,500	89,000	311,500						
Riprap	6,000 CY	30.00	180,000	72,000	252,000						
Bedding					0						
Geotextile	6,100 SY	3.00	18,300	4,600	22,900						
Seeding					0						
Landscaping	700 Each	6.00	4,200	1,100	5,300						
Subtotal Construction Costs			939,000								
Subtotal Contingencies				365,000							
TOTAL CONSTRUCTION					$1,304,000						
PLANNING, ENGINEERING, & DESIGN					$222,000						
CONSTRUCTION MANAGEMENT					$91,000						
TOTAL					$1,617,000	$145,580	$3,000	$148,580	180	47.5	$3,128

TABLE 6

POOL 9

VE Design – Island A and Rockfill B & D

Work Item	Quantity	Unit Price	Amount	Conting.	Total	Average Annual $	Annual O&M $	Total Annual $	Acres Imp.	AAHU Gain	Cost/ AAHU
Mob & Demob	1 JOB	62,000.00	62,000	15,600	77,600						
Previous Fill	62,000 CY	6.00	372,000	148,800	520,800						
Fill, fines	13,100 CY	7.00	91,700	36,700	128,400						
Rockfill	15,300 CY	25.00	382,500	153,000	535,500						
Riprap	6,000 CY	30.00	180,000	72,000	252,000						
Bedding					0						
Geotextile	6,100 SY	3.00	18,300	4,600	22,900						
Seeding					0						
Landscaping	700 Each	6.00	4,200	1,100	5,300						
Subtotal Construction Costs			1,111,000								
Subtotal Contingencies				432,000							
TOTAL CONSTRUCTION					$1,543,000						
PLANNING, ENGINEERING, & DESIGN					$262,000						
CONSTRUCTION MANAGEMENT					$108,000						
TOTAL					$1,913,000	$172,230	$3,500	$175,730	180	63.7	$2,759



POOL 9 ISLAND
VE DESIGN
TABLES ⑤+⑥

PLATE 3

TABLE 7

POOL 9

VE Design – Rockfill A, B & D

Work Item	Quantity	Unit Price	Amount	Conting.	Total	Average Annual $	Annual O&M $	Total Annual $	Acres Imp.	AAHU Gain	Cost/ AAHU
Mob & Demob	1 JOB	50,000.00	50,000	12,600	62,600						
Previous Fill					0						
Fill, fines					0						
Rockfill	25,100 CY	25.00	627,500	251,000	878,500						
Riprap					0						
Bedding					0						
Geotextile					0						
Seeding					0						
Landscaping					0						
Subtotal Construction Costs			678,000								
Subtotal Contingencies				264,000							
TOTAL CONSTRUCTION					$942,000						
PLANNING, ENGINEERING, & DESIGN					$160,000						
CONSTRUCTION MANAGEMENT					$66,000						
TOTAL					$1,168,000	$105,160	$2,500	$107,660	180	63.7	$1,600

TABLE 8

POOL 9

VE Design – Rockfill B & D

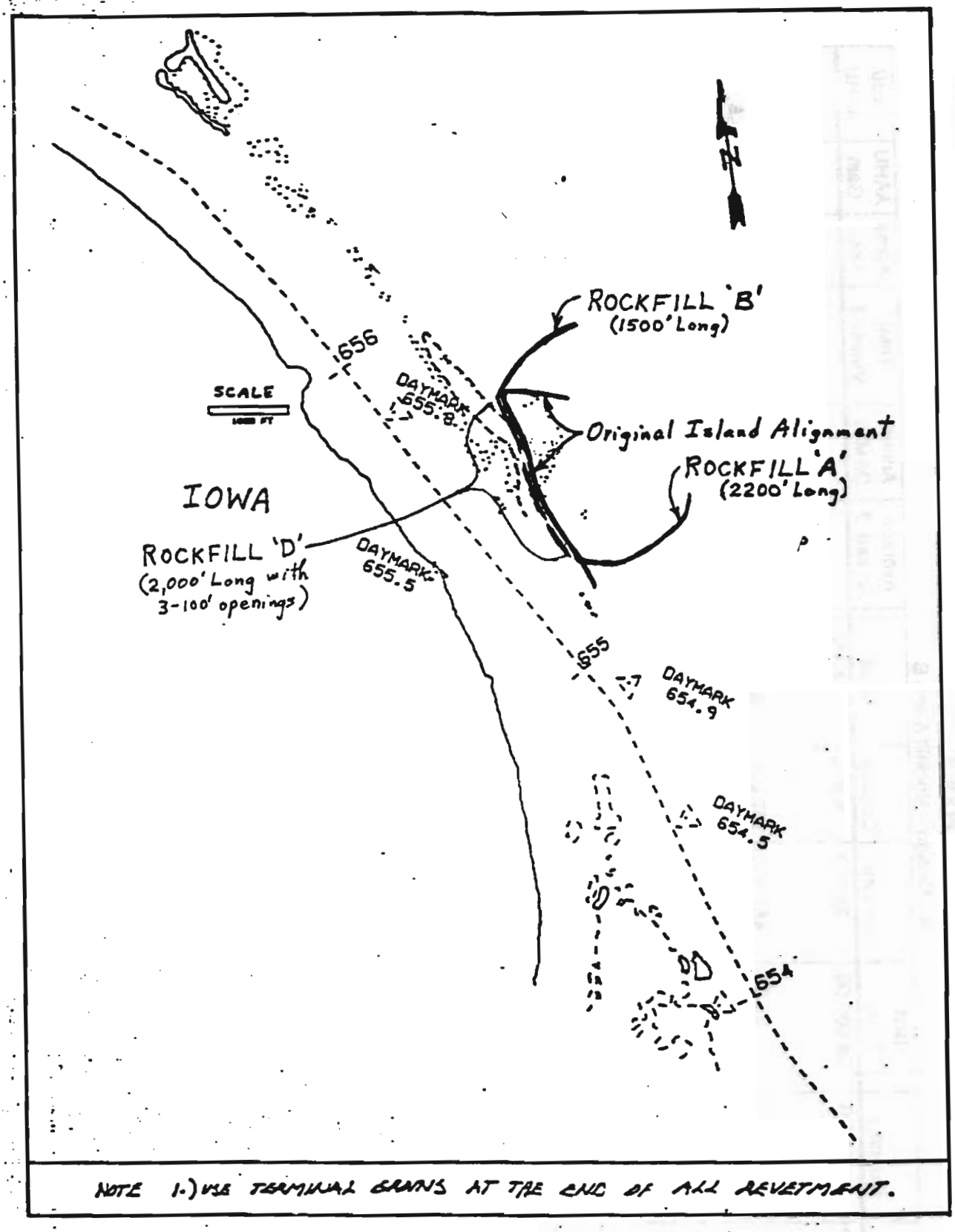
Work Item	Quantity	Unit Price	Amount	Conting.	Total	Average Annual $	Annual O&M $	Total Annual $	Acres Imp.	AAHU Gain	Cost/ AAHU
Mob & Demob	1 JOB	27,000.00	27,000	6,800	33,800						
Previous Fill					0						
Fill, fines					0						
Rockfill	13,800 CY	25.00	345,000	138,000	483,000						
Riprap					0						
Bedding					0						
Geotextile					0						
Seeding					0						
Landscaping					0						
Subtotal Construction Costs			372,000								
Subtotal Contingencies				145,000							
TOTAL CONSTRUCTION					$517,000						
PLANNING, ENGINEERING, & DESIGN					$88,000						
CONSTRUCTION MANAGEMENT					$36,000						
TOTAL					$641,000	$57,710	$2,000	$59,710	90	23.2	$2,574

TABLE 9

POOL 9

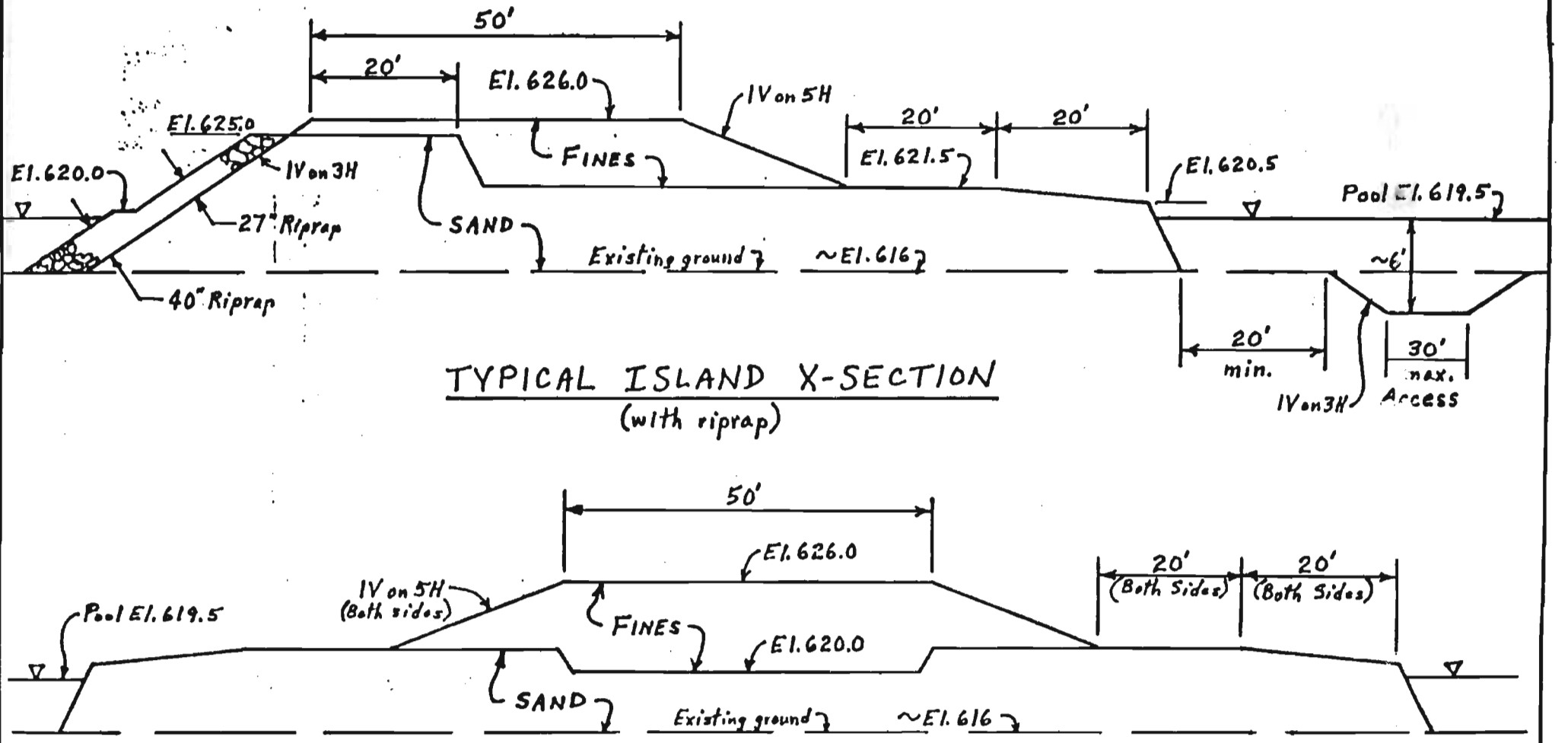
VE Design – Rockfill A and B

Work Item	Quantity	Unit Price	Amount	Conting.	Total	Average Annual $	Annual O&M $	Total Annual $	Acres Imp.	AAHU Gain	Cost/ AAHU
Mob & Demob	1 JOB	38,000.00	38,000	9,600	47,600						
Previous Fill					0						
Fill, fines					0						
Rockfill	18,700 CY	25.00	467,500	187,000	654,500						
Riprap					0						
Bedding					0						
Geotextile					0						
Seeding					0						
Landscaping					0						
Subtotal Construction Costs			506,000								
Subtotal Contingencies				197,000							
TOTAL CONSTRUCTION					$703,000						
PLANNING, ENGINEERING, & DESIGN					$120,000						
CONSTRUCTION MANAGEMENT					$49,000						
TOTAL					$872,000	$78,510	$2,200	$80,710	180	47.5	399



POOL 9 ISLAND
VE DESIGN
TABLES ⑦, ⑧, + ⑨

PLATE 4



TYPICAL ISLAND X-SECTION
(with riprap)

TYPICAL ISLAND X-SECTION
(without riprap)

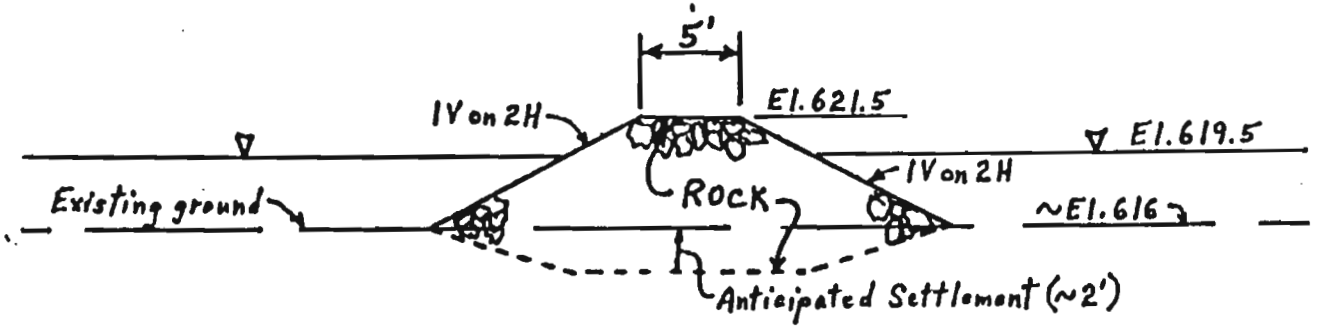
SCALE

20' Horizontal

10' Vertical

SAND & FINES ISLANDS

PLATE 5



TYPICAL X-SECTION

10'
SCALE

ROCK MOUND ISLANDS

PLATE 6

Attachment 7

Memorandum of Agreement for O&M

DRAFT

MEMORANDUM OF AGREEMENT

BETWEEN

THE UNITED STATES FISH AND WILDLIFE SERVICE

AND

THE DEPARTMENT OF THE ARMY

FOR

ENHANCING FISH AND WILDLIFE RESOURCES

OF THE

UPPER MISSISSIPPI RIVER SYSTEM

AT THE

POOL 9 ISLAND CONSTRUCTION

CRAWFORD COUNTY, WISCONSIN

I. PURPOSE

The purpose of this Memorandum of Agreement (MOA) is to establish the relationships, arrangements, and general procedures under which the U.S. Fish and Wildlife Service (USFWS) and the Department of the Army (DOA) will operate in constructing, operating, maintaining, repairing, and rehabilitating the Pool 9 Island separable element of the Upper Mississippi River System - Environmental Management Program (UMRS-EMP).

II. BACKGROUND

Section 1103 of the Water Resources Development Act of 1986, Public Law 99-662, authorizes construction of measures for the purpose of enhancing fish and wildlife resources in the Upper Mississippi River System. The project area is managed by the USFWS and is on land managed as a national wildlife refuge. Under conditions of Section 906(e) of the Water Resources Development Act of 1986, Public Law 99-662, all construction costs of those fish and wildlife features for the Pool 9 Island Construction project are 100 percent Federal, and pursuant to Section 107(b) of the Water Resources Development Act of 1992, Public Law 102-580, all costs of operation and maintenance for the Pool 9 Island Construction project are 100 percent Federal.

III. GENERAL SCOPE

The project to be accomplished pursuant to this MOA shall provide a stable barrier between the Pool 9 backwater area and the main channel, eliminating direct flow through about 140 acres of backwater during normal river flows. The project also reduces boat- and wind-generated waves in the 140-acre area to improve conditions for the establishment of aquatic plant beds.

IV. RESPONSIBILITIES

A. DOA is responsible for:

1. Construction: Construction of the project which consists of building a 6,500-foot-long island complex in the backwater area along 3,000 feet of the main channel. The upper end of the island would extend into the backwater about 1,600 feet and the lower end 1,900 feet. The island complex would be constructed entirely of rockfill. Fine sediments dredged from the backwater for construction access would be placed at a channel maintenance placement site near Lansing, Iowa (about 9 miles upstream).

2. Major Rehabilitation: The Federal share of any mutually agreed upon rehabilitation of the project that exceeds the annual operation and maintenance requirements identified in the Supplemental Definite Project Report and that is needed as a result of specific storm or flood events.

3. Construction Management: Subject to and using funds appropriated by the Congress of the United States, and in accordance with Section 906(e) of the Water Resources Development Act of 1986, Public Law 99-662, DOA will construct the Pool 9 Island project as described in the Supplemental Definite Project Report/Environmental Assessment, Pool 9 Island Construction, Habitat Rehabilitation and Enhancement Project, dated xxxx 1993, applying those procedures usually followed or applied in Federal projects, pursuant to Federal laws, regulations, and policies. The USFWS will be afforded the opportunity to review and comment on all modifications and change orders prior to the issuance to the contractor of a Notice to Proceed. If DOA encounters potential delays related to construction of the Project, DOA will promptly notify USFWS of such delays.

4. Maintenance of Records: The DOA will keep books, records, documents, and other evidence pertaining to costs and expenses incurred in connection with construction of the project to the extent and in such detail as will properly reflect total costs. The DOA shall maintain such books, records, documents, and other evidence for a minimum of three years after completion of construction of the project and resolution of all relevant claims arising therefrom, and shall make available at its offices, at reasonable times, such books, records, documents, and other evidence for inspection and audit by authorized representatives of the USFWS.

B. USFWS is responsible for operation, maintenance, and repair: Upon completion of construction as determined by the District Engineer, St. Paul, the USFWS shall accept the project and shall operate, maintain, and repair the project as defined in the Supplemental Definite Project Report/Environmental Assessment entitled "Pool 9 Island Construction, Habitat Rehabilitation and Enhancement Project," dated xxxx 1993, in accordance with Section 107(b) of the Water Resources Development Act of 1992, Public Law 102-580.

V. MODIFICATION AND TERMINATION

This MOA may be modified or terminated at any time by mutual agreement of the parties. Any such modification or termination must be in writing. Unless otherwise modified or terminated, this MOA shall remain in effect for a period of no more than 50 years after initiation of construction of the project.

VI. REPRESENTATIVES

The following individuals or their designated representatives shall have authority to act under this MOA for their respective parties:

USFWS: Regional Director
U.S. Fish and Wildlife Service
Bishop Henry Whipple Federal Building
1 Federal Drive
Fort Snelling, Minnesota 55111-4056

DOA: District Engineer
U.S. Corps of Engineers, St. Paul District
180 Kellogg Blvd E, Rm 1421
St. Paul, Minnesota 55101-1479

VII. EFFECTIVE DATE OF MOA

This MOA shall become effective when signed by the appropriate representatives of both parties.

THE DEPARTMENT OF THE ARMY

BY: _____
(signature)
RICHARD W. CRAIG
Colonel, Corps of Engineers
St. Paul District

Date _____

THE U.S. FISH AND WILDLIFE SERVICE

BY: _____
(signature)
SAM MARLER
Regional Director
U.S. Fish and Wildlife Service

Date _____

Attachment 8

Distribution List

This Supplemental Draft Definite Project Report/Environmental Assessment and/or public notice will be sent to the following agencies and interests:

Congressional
Rep. Jim Nussle, 2nd Dist (Wash)*
Sen. Russell Feingold (Wash)*
Sen. Herbert Kohl (Madison)*
Rep. Steve Gunderson (Wash, Black River Falls)*
Sen. Tom Harkin (Des Moines)*
Sen. Charles Grassley (Davenport)*

Federal
Department of Transportation (Chicago, Kansas City)*
Environmental Protection Agency (Chicago)
U.S. Coast Guard (St. Louis)*
U.S. Fish and Wildlife Service (La Crosse - Korschgen*; Onalaska - Delaney; Bloomington - Lewis*, Wege; Winona - Beseke, Fisher, Lennartson; McGregor - Lyons; Twin Cities - Marler*, Gibbons, Dobrovolny; Rock Island - Davis*, Duyvejonck*)
U.S. Geological Survey (St. Paul*; Madison*; Iowa City*)
National Park Service (Omaha)*
Soil Conservation Service (Madison)*
Advisory Council on Historic Preservation (Wash DC)*
Office of Environmental Compliance - DOE (Wash DC)*
Office of Environmental Project Review - DOI (Wash DC)*
Corps of Engineers (NCD - Albert; NCR - Skalak; LMS - Cotner; LMV - Arnold; Fountain City - Krumholz; LaCrescent - Otto; La Crosse - Thomsen; Winona - Shortridge*; OCE - Moeslein; St. Paul - Blomker, Cin*, Face, Heide, Hendrickson, M. Paulus, Powell, Shyne)

State of Wisconsin
Governor Tommy Thompson (Madison)*
Department of Administration (Madison)*
Department of Agriculture (Madison)*
Department of Health and Social Services (Madison)*
Department of Natural Resources (Madison - Meyer*; La Crosse - Janvrin, Moe, Wetzel; Eau Claire - Bourget; Prairie du Chien - Welke)
Department of Transportation (La Crosse)*
State Historic Preservation Officer (Madison)
State Archeologist (Madison)
Bureau of Water Reg & Zoning (Madison)*

State of Iowa
Department of Natural Resources (Des Moines - Farris, Szcodronski, Wilson*; Guttenberg - Ackerman, Roseland; Manchester - Dalziel)
Department of Transportation (Ames)*
State Historic Preservation Officer (Des Moines)*
State Archeologist (Iowa City)*
Department of Administration (Des Moines)*

State of Minnesota
Department of Natural Resources (Lake City - Davis; St. Paul - Johnson)

*Public Notice Only

Local

Allamakee Co. Bd of Superv (Waukon)*
Allamakee Co. Engineer (Waukon)*
Crawford Co. Com (Prairie du Chien)*
Crawford Co. Eng (Prairie du Chien)*
City of Lansing*
Lansing Public Library*
Lansing Post Office*
City of McGregor*
McGregor Public Library*
McGregor Post Office*
City of Marquette*
Marquette Post Office*
Ferryville Post Office*
Desoto Post Office*
Harpers Ferry Post Office*
Allamakee Co. Econ Dev Com (Waukon)*

Other Interests

Upper Miss Riv Cons Com (Rock Island)
Sierra Club (Madison)*
Izaak Walton League (Mpls)*
MN/WI Bound Area Commission (Hudson)
National Audubon Society (Mpls)*
Upper Miss Riv Basin Assoc (St. Paul)*
La Crosse Tribune*
Courier Press (Prairie du Chien)*
Miss Riv Reg Planning Com (La Crosse)*
Lansing Marina*
Vernon Co Broadcaster-Censor (Viroqua)*
North Iowa Times (McGregor)*
Waukon Newspapers*
Allamakee Jrnl/Lansing Mir (Lansing)*
Richland Observer (Richland Center)*
WPRE Radio (Prairie du Chien)*
KNEI Radio (Waukon)*
WQJY,WKTY,WLSU,WLXR Radio (La Crosse)*
WXOW,WKBT,WLAX TV (La Crosse)*
Guttenberg Press (Guttenberg)*
Bass Masters (La Crosse)*
La Crosse Co Ext. Office (La Crosse)*
Ducks Unlimited (La Crosse)*
Badger State Sportsmen (La Crosse)*

Individuals

Clarence Bierman (Lansing)*
J. W. Bowker (Lansing)*
Bob Hagensick (Lynxville)*
Gus Kerndt (Lansing)*
Jim Kexel (Elm Grove)*
Larry Knutson (Ferryville)*
Leslie Livingood (Lansing)*
Orville Meyers (Lansing)*
Paul Porvaznik (Prairie du Chien)*
Keri Schaller (Brownsville)*
James Volk (Ferryville)*
Bob Ziel (Prairie du Chien)*
Art Lotz (La Crosse)*
Harry Meinking (La Crosse)*
John Wilber (Genoa)*
Harold Bogert (Marion)*
Allen Christensen (Eastman)*
Carl Noel (Prairie du Chien)*
Ron & Rosella Coleman (Lynxville)*
William & Vera McCormick (Ferryville)*
Carl & Doris Lund (Harpers Ferry)*
Mark & Ken Withey (Lynxville)*
Clint Cayo (Lynxville)*
John Diehl (Ferryville)*
Stuart Johnston (Ferryville)*
Don & Marie Hempy (Ferryville)*
S. Cerniak (Ferryville)*
George & Jack Blask (Genoa)*
Ray Taylor (Lansing)*
W. A. Dean (Lansing)*
Tim Jones (Boscobel)*
Stan Hagensick (Lynxville)*
Fritz Bechtel (Ferryville)*
Denis Brown (Ferryville)*
Fred Funk (Onalaska)*
Mohn (Lansing)*
C. E. Loomis (Lansing)*
Mc Donald (Lansing)*
Sloan (Lansing)*
David Miller (Prairie du Chien)*
William Howe (Prairie du Chien)*
Ron Leys (Gays Mills)*
Bill Burke (Lansing)*
Bernard Pattison (Fayette)*
Truman Anderson (Ferryville)*
George Olson (Ferryville)*
Barr (Lansing)*
Richard Frink (Eastman)*
Pete Biermenapp (Eastman)*
Larry Paddin (Eastman)*
Nathan Burgin (Lynxville)*
Donald D. Weymiller (Lansing)*
D. J. Delaney (Lansing)*
Ivan & Donna Miller (Lansing)*
Paul Sampson (Ferryville)*

*Public Notice Only