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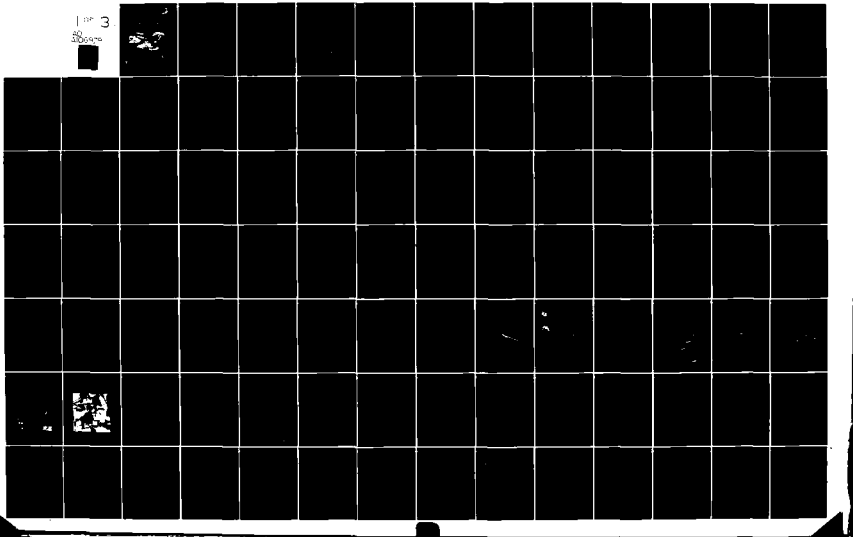

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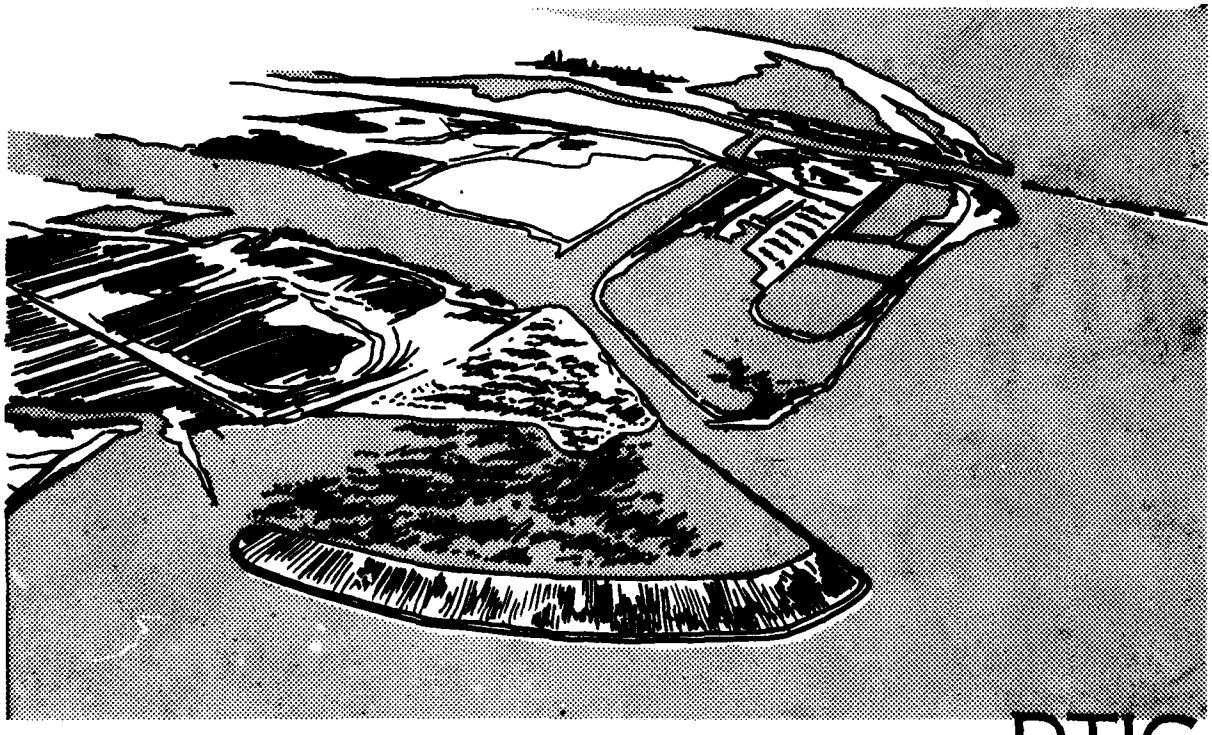
Final Environmental Impact Statement on Modifications to Monroe Harbor, Michigan



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SUMMARY

FINAL ENVIRONMENTAL IMPACT STATEMENT
MODIFICATIONS TO MONROE HARBOR
MONROE COUNTY, MICHIGAN

( ) REVISED DRAFT ENVIRONMENTAL STATEMENT (X) FINAL ENVIRONMENTAL STATEMENT

RESPONSIBLE OFFICE: U.S. ARMY ENGINEER DISTRICT, DETROIT
P.O. Box 1027
Detroit, Michigan 48231
Telephone (313) 226-6413

1. NAME OF ACTION: ( ) ADMINISTRATIVE (X) LEGISLATIVE

2. DESCRIPTION OF ACTION: The proposed plan for harbor modification consists of deepening (27-28 feet below Low Water Datum) and widening (500 feet) of the lake channel and lower river channel of the existing project. It also provides for lengthening the existing channel and for the construction of a turning basin in Lake Erie. The dredged material which is unsuitable for open water disposal would be confined in a crescent shaped disposal facility of approximately 190 acres. A wetland would be created behind the disposal facility by raising the lake bottom with clean fill to approximately Low Water Datum.

3. (A). ENVIRONMENTAL IMPACTS: The deep draft channel would allow larger, more economical vessels into the harbor. The confined disposal facility would protect shore areas from wind and wave attack. The rock-faced disposal facility would create a beneficial habitat for aquatic life. The wetland constructed behind the disposal facility would create feeding and spawning areas for fish, provide nesting, feeding and cover for waterfowl, and provide recreational opportunities for fishermen, hunters and sightseers.
The evaluation of the discharge of dredged or fill material into waters of the United States, including consideration of the Section 404(b)(1) guidelines, has not been completed at this time, and therefore, the Environmental Impact Statement on the project does not include the information required by Section 404(r), Public Law 92-500, as amended. The 404(b)(1) evaluation would be completed during post authorization studies.

3. (B). ADVERSE ENVIRONMENTAL EFFECTS: Benthic organisms would be destroyed in the proposed channel and the dredged disposal area. Construction would cause temporary degradation of the water quality in the immediate construction zone. Associated with construction would be local increases in noise, exhaust fumes as well as temporary inconveniences to commercial and recreational boat traffic.

4. ALTERNATIVES TO THE PROPOSED ACTION:

No Action
Alternative Channel Depths and Channel Alignment
Breakwater Disposal Site
Peninsula Disposal Site
Offshore Island Disposal Site
Pointe Mouillee Disposal Site
Wood Tick Peninsula Disposal Site

5. COMMENTS RECEIVED:

U.S. Department of Health, Education and Welfare
U.S. Department of Transportation - St. Lawrence Seaway Development Corporation
U.S. Environmental Protection Agency
Federal Energy Regulatory Commission
U.S. Department of Agriculture - Soil Conservation Service
U.S. Department of Commerce
U.S. Department of Interior - Bureau of Mines
U.S. Department of Interior - Geological Survey
U.S. Department of Interior - Heritage Conservation Service
Michigan Department of State Highways and Transportation
Michigan Department of Natural Resources
City of Monroe
Lake Erie Advisory Committee
Michigan United Conservation Clubs
Southeast Michigan Council of Governments

6. DRAFT STATEMENT TO U.S. EPA: May 1978

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1. PROJECT DESCRIPTION

Authorization

1.01 The existing project was authorized by the River and Harbor Acts of 24 February 1835, 3 July 1930, 14 July 1932 and 26 August 1937. The authority for this study is contained in the following resolution:

> "RESOLVED BY THE COMMITTEE ON PUBLIC WORKS OF THE UNITED STATES SENATE, that the Board of Engineers for Rivers and Harbors created under Section 3 of the River and Harbor Act, approved June 13, 1902, be and is hereby requested to review the reports of the Chief of Engineers on Monroe Harbor, Michigan, published as House Committee on Rivers and Harbors Document Numbered 45, Seventy-five Contress, first session, and other reports, with a view to determining whether the existing project should be modified in any way at the present time."

Purpose

1.02 The purpose of this project is to provide for passage of the larger, more economical vessels now comprising the Great Lakes bulk cargo fleet.

History of the Project

1.03 The original 1835 authorization provided for a cut-off channel from Lake Erie to the City of Monroe 4,000 feet long and 100 feet wide. It was protected by two parallel jetties in Lake Erie each about 1,200 feet long. About 35 years later, the channel was deepened to 8 and then to 9 feet in two separate authorizations. The authorization of 1930 provided for the existing harbor and that of 1937 for the existing conditions of local cooperation.

Existing Project

1.04 The existing project provides for channels in Lake Erie and in the lower reach of the Raisin River. It also provides for two parallel jetties in Lake Erie at the river mouth, and for a turning basin in the river upstream from the mouth.

1.05 The lake channel is 21 feet deep, 300 feet wide and about 3 miles long. It leads from deep water in Lake Erie northwesterly to the river mouth. The lake and river channels are joined at the harbor mouth by a transition channel that decreases in width from 300 to 200 feet over a distance of 500 feet. The river

channel can be divided into upper and lower reaches. The lower channel is 21 feet deep, 200 feet wide and about 1-½ miles long. It tends generally northwesterly along the river course. The turning basin, located at the head of the lower channel, is 18 feet deep and about 22 acres in area. The remainder of the harbor is inactive, as described below.

1.06 The upper river channel extends from the turning basin upstream a distance of about 0.7 miles. This channel is 9 feet deep and 100 feet wide; however, it is not currently maintained. In addition, the jetties, each about 1,200 feet long, are not maintained and have virtually disintegrated.

Recommended Project Modification

1.07 The recommended plan was formulated to provide the best combination of national economic effectiveness and environmental quality (Plates 1-3). For example, channel depths would be optimised to provide for maximum net benefits in relation to project costs. In addition, the environment for fish and wildlife would be enhanced by the use of construction dredging material to build a marsh protective confined disposal facility (CDF) in Lake Erie. This CDF would confine dredge material from the proposed channel which is considered unsuitable for open water disposal. This is in accordance with Public Law 91-611 and the determination by the U.S. EPA. See Appendix B for criteria and test results. The CDF would protect a potential marsh which would be created behind it (Plate 3). Clean material would be placed behind the CDF to raise the bottomland to LWD to enhance marsh development. This material could be obtained from the unpolluted section of the proposed channel.

1.08 The recommended project modification provides for deepening and widening of the Lake channel and lower river channel of the existing project. It also provides for lengthening the existing channel and for constructing a new turning basin in Lake Erie at the river mouth (Plate 2). Construction dredging material would be confined in a disposal dike located near the river mouth.

1.09 The lake channel would be extended in two sections. The first would be a projection of the existing channel 1-3/4 miles long. The second, about 4 miles long, would be oriented more southerly to join the Toledo Harbor channel near the Maumee Bay Course in Lake Erie. The total lake channel extension would be about six miles long (Plate 1). It would be widened from 300 to 500 feet and deepened from 21 to 28 feet below Low Water Datum.

1.10 The lower river channel would be deepened from 21 to 27 feet below Low Water Datum over the lower 6,000-foot-long section of its length. The remaining 1,700-foot-long upper section would not be deepened. This section abuts the existing turning basin and also would not be improved.

1.11 Widening the lake channel would necessitate enlarging the transition channel, joining the lake and river channels. This section would be increased in flared width from 300 to 500 feet, and lengthened from 500 to 1,000 feet.

1.12 The new turning basin would be constructed in Lake Erie at the mouth of the Raisin River. The general shape of the basin would be trapizoidal, with the long axis located along the southerly lane of the lake channel. The maximum dimensions would be about 2,000 feet long and 1,600 feet wide. Its depth would be 24 feet below Low Water Datum.

1.13 The confined disposal facility (CDF) would be located at the mouth of Plum Creek, which is located southwesterly from the mouth at the Raisin River. The access dike would begin at the westerly bank of the creek and extend lakeward to the confined disposal facility (Plate 3). It would end near the mouth of the channel for La Plaisance Creek, at Bolles Harbor, Michigan. The CDF would be generally crescent shaped, with the convex curve facing lakeward, and have a total length of about 8,250 linear feet by 1,000 linear feet with a surface area of 190 acres.

1.14 The dike would contain a total volume of about 5,000,000 cubic yards of material. This material probably would be delivered to the dike by a powerboosted hydraulic dredge line. The dike probably would be constructed of clay with armor stone on the lake side to protect it against wave erosion. The dike would have a height above Low Water Datum of 14 feet, and contain side slopes of 1 on 2. No lake or river dredging specifically for dike construction is now expected. However, road construction along the shoreline in the vicinity of the dike might be required for this purpose. The detailed design will be prepared in the general design memo phase.

PROJECT BENEFITS AND COSTS

1.15 Benefits arising from the proposed Monroe Harbor improvement occur in the area of waterborne transportation savings on coal receipts by Detroit Edison and overseas iron ore pellet receipts by North Star Steel. These are realized because of two aspects of the proposed plan of improvement: a larger turning basin would make it possible for larger vessels to serve the harbor than is currently possible; and the greater channel depths would make it possible for the entire fleet to load to a greater draft. The interaction of these factors result in a lowering of the cost per ton for the transport of the waterborne commerce.

1.16 With average annual benefits of $28,643,000 and average annual costs of $7,368,000, the B/C ratio for this plan is 3.59. The total Federal first cost is $74,309,000 and the non-federal first cost is $9,260,000. The annual maintenance cost is $940,000. See Appendix F for additional economic data and Appendix B in the U.S. Army Corps of Engineers Survey Report on the Modification to Monroe Harbor, Michigan.

NON-FEDERAL COOPERATION

1.17 The State of Michigan will share the non-federal costs of the project. The items of required local cooperation are contained in the "Survey Report on Modifications to Monroe Harbor, Michigan."

2. ENVIRONMENTAL SETTING WITHOUT THE PROJECT

General Setting

2.01 The Monroe Harbor area lies adjacent to the City of Monroe, and is located in the western basin of Lake Erie, about 3 miles above the River Raisin mouth. It is approximately 17 miles north of Toledo, Ohio, and 36 miles south of Detroit. Lake Erie is shallow in this vicinity with a depth of 6 feet approximately 1,500 feet from shore, and a 12 foot contour about 4,000 feet from shore. Besides the Raisin, there are two other main rivers discharging into the western Lake Erie basin. The Detroit River mouth lies about 14 miles to the north of the project area, while the Maumee discharges approximately 14 miles to the south.

2.02 Shore types in the River Raisin and Lake Erie project area are either artificial fill or marshlands. In the general vicinity there are publicly owned recreational areas and marshlands, as well as concentrations of heavy industry. Many industries are located near the river mouth. Much of the upland area near the river mouth was created from former marshland by filling with municipal and industrial waste.

2.03 Approximately two miles south of the River Raisin is Bolles Harbor, a developed boating and fishing area. Sterling State Park is located approximately 3,600 feet north of the River Raisin mouth.

Drainage Basin

2.04 The River Raisin basin covers 1,063 square miles over relatively flat land. The basin is 60 miles in length, and varies from 2 to 45 miles in width. It includes portions of Hillsdale, Jackson, Washtenaw, Lenawee and Monroe Counties. The river flows in a generally east-southeast direction with a mean discharge of 646 cubic feet per second. Basin headwaters originate about 530 feet above the level of Lake Erie. Elevation falls rapidly in the upstream area, however, which results in flat stream slopes over most of the watershed.

Plum Creek, which is adjacent to the River Raisin, functions almost as a bay of Lake Erie with a base flow of .95 cfs. The drainage basin is very local (34 square miles).

Geology

2.05 The area is located on glacial deposits related to the Pleistocene Ice Age. These deposits average about 30' in thickness and cover Silurian Age limestones and dolomites. They range from clay-rich glacial fill to coarser rock material overlain by early lake deposits and recent sediments of Lake Erie (1).

2.06 The area in the vicinity of Monroe is not well-endowed with mineral resources. No significant metallic mineral deposits are known. The most significant nonmetallic mineral is limestone which is found at some distance from the harbor. Natural gas is available, but the cost is high, compared with costs in other geographical areas.

Air Quality (2)

2.07 In 1976, ambient air quality in Monroe was found to be in violation of Federal standards for particulate matter (1976 National standards allow an annual geometric mean up to 75 micrograms per cubic meter).

2.08 Twelve samplers were operated in the country by Detroit Edison and the Michigan Department of Natural Resources. One location, in the City of Monroe, exceeded primary 24 hour and annual geometric mean standards. Another downtown site was averaging 82 micrograms per cubic meter, but sampling was in operation less than one year.

2.09 Five other sites in the county were found to exceed Federal standards for particulate matter. At one of these locations, dust from open farmlands was believed to have caused the problem.

2.10 There were no sulphur dioxide violations in 1976, for the second consecutive year. The highest levels of sulphur dioxide in the county were found in the City of Monroe. Here, levels averaging up to 60 micrograms were recorded. The eleven analyzing stations in Monroe County together gave an annual average of 30. Federal standards allow for a maximum annual average of 80 micrograms per cubic meter, at each station.

2.11 Intermittent sampling for nitrogen dioxide showed levels well below the annual standard.

Water Quality

2.12 The Detroit and Maumee Rivers together provide almost 99% of the discharge water into the western Lake Erie basin. The Detroit River contributes about 96% of the total annual flow, and the Maumee 2.5%. The River Raisin is the third largest tributary to the

western basin, but contributes less than 1% of the total discharge. The River Raisin does have, however, a strong localized impact on plant and animal life in the study area. This is primarily due to discharges of municipal and industrial wastes, as well as runoff from farmlands. Such discharges cause low levels of dissolved oxygen in this water during early summer and early fall.

2.13 In addition to the adverse impacts on aquatic biota, the high sewage concentrations present a health hazard to the local human population. Fecal coliform bacterial sampling within a 3 mile radius of the river mouth recorded a mean of 542/100 ml, from 1 May to 7 November 1970. A river station 3/4 mile upstream from the mouth over the same time period indicated 146,560/100 ml. (3). According to 1976 EPA Standards for water quality, a mean of 200 fecal coliform colonies/100 ml is the maximum allowable for body contact (swimming).

2.14 Water transparency was also measured in the lake project area. Water was found very turbid with Secchi disc readings at 18 to 36 inches (4). Primarily due to the suspension of solids, turbidity is found to be greatest during spring and fall. At these times, wind velocity is high, causing strong wave action and sediment roiling in the shallow waters. Also, during the spring, particulate matter in river discharges is generally at higher than average levels. The suspended particulate matter contains high concentrations of phosphorus, nitrogen, carbon and other biologically active elements which stimulates algal growth. However, light penetration, and therefore, oxygen production is generally limited to the upper 1.5 meters. Temporary stratification occurs several times during the summer, resulting in low dissolved oxygen levels near the bottom.

Demography (5)

2.15 The population of Monroe County, according to U.S. Census, increased from 101,120 in 1960 to 118,479 in 1970, for a gain of 17,359 or 17.2%. The county is project to reach a population of 179,120 by 1990. Monroe County covers 557 aquare miles and the 1970 average density was 213 persons per square mile. Only 35% of the population lived in communities of over 2,500 persons. Monroe City, the county seat, and largest city in the county, had a population of 23,894 in 1970, an increase of 4% since 1960. Projects indicate that the city's population will reach 27,965 by 1990.*

* 1972-E Obers Projects, State of Michigan

2.16 Of the city's population, 12,883 persons are over 24 years old. Of this number, 2,273 have completed 8 years of education, 3,713 are high school graduates and 902 have college degrees. The median school years completed for persons 25 years of age and over stood at 11.4 years in the county in 1970.

Economy

2.17 Agricultural activities are very important in Monroe County. In 1964, 73.4 percent of the area was devoted to farming. In 1968, Monroe ranked first among Michigan counties in production of soybeans and second in corn. Other important crops include wheat, tomatoes, sugar beets and potatoes.

2.18 Industrial activity is primarily centered in the City of Monroe. It is mainly a paper and automobile parts manufacturing center. Other manufacturing and industrial activities are represented at plants within the basin. These include primary metal industries, fabrication of metal products, machinery and transportation equipment, manufacture of paper and paper products, chemicals and furniture, food processing and dairy related industries. The property on Lake Erie on the north bank of the River Raisin is owned by Ford Motor Company and is occupied by a large stamping plant. Detroit Edison owns some Lake Erie bottomland on the south side of the river mouth and the lake front property on the south bank of the river. This is the world's largest fossil fuel power plant. All land on either side of the river adjacent to the harbor and the Detroit Edison bottomland is zoned for heavy industry.

2.19 Of those employed in 1970, less than one half (48.4%) of the county residents were actually employed within the county (most were working in the adjoining Detroit and Toledo urban centers). Employed residents in Monroe county numbered 41,924 in 1970, for a gain of 9.3% since 1960. During this period, the employment ratio increased from 32.1% to 35.2% of the population. Employment gains were highest in manufacturing, followed by gains in services and retail trades. Employment declined in agriculture, forestry, and fishing during the decade.

2.20 The median family income in the county increased from $5,802 in 1959, to $11,398 in 1970.

2.21 County employment has been directly stimulated by jobs provided at the Port of Monroe. The new industries and commerce attracted by these facilities further benefit the local economy.

Port of Monroe

2.22 The Port of Monroe is a port authority organized in 1932, under Port Districts Act of 1925 and is under the jurisdiction of the Monroe Port Commission. It lies on 600 acres of land within the city limits of Monroe, on the south shore of the River Raisin about one mile west from Lake Erie.

2.23 Waterborne commerce, in tons, using the Federal navigation channel at Monroe for the period 1970 through 1976 is shown in the following table.

TABLE 1

Year	Coal	Fish	Non-Metallic	Coke Pet. Asp.	Total
1970	38,824	211	-	-	39,035
1971	20,943	193	10,000	8,950	40,233
1972	30,130	86	13,700	-	43,978
1973	37,253	147	-	-	37,400
1974	215,438	135	-	-	215,623
1975	1,139,816	393	-	44,480	1,184,689
1976	954,803	373	7,278	10,439	972,893

2.24 As indicated by the table, the major commodity shipped to Monroe Harbor is coal. In 1976, two harbor users accounted for the coal receipts. They were Detroit Edison - 938,656 tons and Ford Motor Company - 26,147 tons. The great increase of coal shipments in 1975 and 76 was due to increased water shipment by Detroit Edison Company. The power plant located at Monroe consumes approximately 7,000,000 tons of coal annually. Until 1974 all of this coal was supplied by unit train from sources in West Virginia. Detroit Edison estimates that coal shipments, by water for the power plant will increase to about 3,800,000 tons annually in 1980 and 8,500,000 tons annually by the year 2000.

Cultural Resources

2.25 Monroe County is rich in historical significance. Various Indian tribal nations, including Chippewa, Algonquin, Ottawa, Pottawatomie, Erie, Wyandotte and Iroquois occupied villages in Monroe County. The French explored the county in the seventeenth and early eighteenth centuries. Farming and permanent settlements followed the fur traders. Early settlements were located near Lake Erie and streams flowing into the lake. With the establishment of the Northwest Territory and the Territory of Michigan, Monroe County was organized in 1817.

2.26 Three principal points of historic interest are located just west of the project area. These include the Old River Trail, the Monroe Paper Project Industry Site and the River Raisin Bridges. The Old River Trail is an Indian Trail from Toledo, to Port Huron. This trail generally is located along the Dixie Highway, and passes over the River Raisin just west of the upstream project limit.

2.27 The National Register of Historic Places has been consulted and lists the Fix House and the Durrocher House as historic sites located in Sterling State Park. (6) These houses date from the midportion of the nineteenth century. An historic, former yacht club dating from the early 20th century exists at the southeastern extreme of the park. The project would not adversely affect these resources. The state Historic Preservation Officer (SHPO) and the Heritage Conservation and Recreation Service were contacted (A-34, A-35). The SHPO stated that no cultural resources would be affected bv the project.

Flora

2.28 The flora of the western shore areas of Lake Erie is affected by the contribution of man-induced nutrients. The types and numbers of primary producers are also affected by turbidity caused by wave and current action. Reduced light penetration, together with shifting, unstable bottom sediments, often prevent the propagation of attached algae and other attached plants. An unattached, floating algal community, therefore, becomes dominant.

2.29 Over 200 species of algae have been identified in the western Lake Erie Basins. Composition consists primarily of green algal and diatoms in the spring with a dramatic increase of blue-green algae in the summer (7). By mid-fall the phytoplankton population is again dominated by green algae and diatoms. The dominant winter species are almost exclusively diatoms.

2.30 Emergent vegetation found in the project area includes cattail (Typus latifolia), the dominant rooted plant in the wetlands of western Lake Erie. Other plants common to the marshes are sago pondweed (Potamogeton pectinatus), floating leaf pondweed (Potamogeton natans), arrowhead (Sagittoria latifolia), soft-stem bulrush (Scirpus validus) and various rushes and sedges.

2.31 Coastal shallow fresh water marshes (13), formerly very common in the area, provide a habitat for fish and wildlife, help to improve the quality of water entering the Lakes, and protect the shore from wave erosion.

2.32 Wetland vegetation is found in areas ranging from water-logged soil to that covered by shallow, standing water.

2.33 Jaworski (15) states that the development of the city of Monroe has had a significant impact on coastal wetlands. In 1916 an estimated (15) 3,666 acres of coastal wetlands were in the Monroe/ La Plaisance Creek area. Of this total only 408 acres today remain unaltered.

Benthos

2.34 In Western Lake Erie, from 1930 to 1961, there had been a sharp decrease in clean water invertebrates (mayflies and caddis flies) and a great increase in oligochaetes and chironomids (14). From 1961 to 1970 mayflies and caddis flies were rarely found in the area and oligochaetes and chironomids had decreased by almost 50 percent (19). No data after 1970 was available. The presence of oligochaetes does not necessarily indicate pollution (certian species of oligochaetes are intolerant to water quality degradation). However, the absence of intolerant macoinvertabrates does indicate a stessed environment.

2.35 The highest numbers of benthic organisms were found in the organically rich sediments of Plum Creek (8). The least numbers were in the wave swept sandy shoals (near shore), and the River Raisin, particularly during summer months.

2.36 Sampling in Monroe harbor has revealed periods of almost total depletion of river benthos. In July to September 1970, this condition was observed along with poor water quality including anaerobic conditions (8).

2.37 Data collected in April 1975, by the EPA, indicated low diversity of taxa with numeric indices averaging .9 in River Raisin.

2.38 Open lake sampling indicated a lower index, and therefore more species diversity. This indicates better water quality in the lake, although no lake station in the project area revealed conditions unaffected by pollution.

Fauna

2.39 Fish populations just off shore of the River Raisin exhibited moderate diversity. More than 20 species were found when sampling at five stations. The lake stations had the greatest number of species and individuals (9). Several species found in the alke were not represented in the river. This lack of diversity in the river, along with the type of fish community present, indicates degraded water quality.

2.40 The eight main species in the project area are: Yellow perch (Perca flavescens), white bass (Roccus chrysops), gold fish (Cerassius auratus), carp (Cyprinus carpio), alewives (Alosa pseudoharengus),

gizzard shad (Dorosoma cepedianum), spottail shiner (Notropis hudsonius), and emerald shiner (Notropis atherinoides) (9).

2.41 Carp, goldfish, and perch are generally most common in the area. Recent reports, however, indicate that white bass and walleye are becoming increasingly common (A-13).

2.42 Commercial fishing was once very intensive in the western basin but has declined drastically with the loss of high value species such as the cisco (Coregonua artedii) and whitefish (Coregonus clupeaformis). The decline of the walleye (Stizostedion vitreum) plus the discovery of toxin uptake in Lake Erie fish has also hurt the fishing industry. Observers, however, have recently noted an apparent increase in the walleye population near Monroe (A-13, App. E).

2.43 The populations of lower value species such as carp, goldfish and sheepshead are still found in large numbers. Sport fishing in the area has been primarily dependent upon perch and carp. However, other species such as walleye, bass and catfish are becoming more important (A-13).

2.44 There are no known fish spawning areas in the vicinity of the proposed project. However, large numbers of larval fish, especially gizzard shad, are known to inhabit the near shore lake waters. This indicates that these relatively shallow waters could be serving as a fish nursery.

2.45 In the western Lake Erie basin, a variety of birds and mammals can still be found. The waterfowl comprise a relatively diverse group.

2.46 Observations made in lake waters adjacent to the City of Monroe in the fall of 1969 revealed intensive waterfowl use (4), at certain times of day and season. This is primarily because of the location of the basin along major migratory routes. One flyway extends from Ontario and Western Quebec to the Gulf Coast area. Another corridor connects northwest Canadian territories to the Atlantic coast.

2.47 The ducks not only use this region as a resting area, but some over winter in Monroe wetlands as well. Over wintering capability depends mainly upon availability of food and open water. Food sources consist of vegetation, aquatic invertebrates, and fish. A stable ice cover therefore, would limit the waterfowl winter population. The sparse aquatic plant community in the area and the limited invertebrate population indicates that the Monroe area lacks sufficient food supply, even without ice cover. Mergansers, however, being fish consumers, are not directly affected by invertebrate populations.

2.48 Six major species found in the Monroe area during the fall of 1969 and 1970, include common merganser (Mergus merganser), black duck (Anas rubrites), lesser scaup (Aythya affinis), ruddy duck (Oxyura jamaicensis), common goldeneye (Bucephala clangula), and American widgeon (Anas americana) (4). Large concentrations of canvasbacks (Aythya valisineria) utilize the area as a feeding ground during the spring and fall migration.

2.49 The migrating waterfowl utilize the nearshore lake area intensively in the fall from September until freeze-up in mid December, and in the spring from early March to early May (4). It has been estimated that a total of over one million diving ducks (scaup goldeneye, ruddy) and perhaps a half-million dabbling ducks (black, mallard widgeon) pass through the Monroe area during spring and fall migration (4). The Common Merganser and Lesser Scaup comprised the bulk of the ducks in the immediate project area during fall and spring migrations respectively, in 1969 and 1970 (4).

2.50 Waterfowl are not the only water-oriented birds found in such abundance in the region. Many species of marsh and shorebirds are to be observed in the Lake Erie marsh lands. Among these are: coots (Fulica americana), gallinules (Gallinula spp.), pied-billed grebes (Podilymbus podiceps), great blue herons (Ardea kerodias), American egrets (Casmerodius albus), black-crowned night herons (Nycticorax nycticorax), double-crested cormorants (Phalacrocorax auritus), herring gulls (Larus argentatus) and spotted sandpipers (Actitis macularia).

2.51 The surrounding urban and wetland areas have such common mammals as the red fox (Vulpes fulva), raccoon (Procyon lotor), woodchuck (Marmota monax), and the muskrat (Ondrata zibethicus) (10). The opossum (Didelphis marsupialis), skunk (Mephitus mephitus), and weasel (Mustela frenata), have also been occasionally observed (10).

Endangered Species

2.52 No threatened or endangered species of wildlife or plants are known to exist immediately adjacent to or at the project site as listed in the 14 July 1977 Federal Register and subsequent updates (11). The Federal Register and Michigan's Endangered and Threatened Species Program lists two endangered fish species that occur in Lake Erie (12). They are the blue pike (Stizostedion vitreum glaucum) and the longjaw cisco (Coregonus alpenae).

2.53 Although listed as endangered, the existence of these species in Lake Erie is questionable. The last longjaw cisco caught in Lake Erie was in 1961. Both of these fish prefer water deeper than that in the project area.

2.54 Michigan birds listed as endangered in the Federal Register include the peregrine falcon (Falco peregrinus) and Kirtland's warbler (Dendroica kirtlandii). These birds have specific habitat requirements not found in Monroe. The peregrine falcon prefers a cliff area for nesting, but the project area lacks this type of terrain. Kirtland's warbler is found in north-Central lower Michigan. It prefers thick stands of jack pines, about 80 acres in size, where the trees are up to 20 years of age.

2.55 There are two endangered species of mammals in Michigan. These are the Indiana bat (Myotis sodalis) and eastern timber wolf (Canis lupus lycaon). The Indiana bat may visit southern Michigan from its habitat in the Eastern U.S. Since these bats prefer caves (occassionally tree cavities) the project is not expected to have any impact on this species. The eastern timber wolf is known to occur only on Isle Royal and possibly in the Upper Peninsula.

2.56 There are two endangered mollusks in Michigan including the mussels (Simpsoniconcha ambigua) and (Obovaria leibii). Both of these have been known to exist in the western end of Lake Erie. A biological survey was conducted in June 1976, to determine if any of these species were still living in the areas of operation. No threatened or endangered species were found during the survey.

2.57 The Michigan Department of Natural Resources lists two endangered species of plants found in south eastern Michigan. They are American lotus (Nelumbo lutea), and American chestnut (Castanea dentata). American chestnut is restricted to woodlands. American lotus occurs along the lower reaches of Swan Creek, Plum Creek Bay, Otter Creek, and Halfway Creek. This species used to exist within the project area. The protective disposal barrier could encourage reestablishment of this species.

3. RELATIONSHIP OF THE PROPOSED ACTION TO LAND USE PLANS

3.01 Monroe is mainly an industrial city, primarily for the manufacutre of paper and automobile parts. An Economic Development Study was conducted in March 1975 by Johnson and Anderson, Inc. to demonstrate the feasibility of developing the harbor to accommodate deep water vessels. The study concluded that deepening and widening the Navigation channels to accommodate larger draft vessels would enhance the desirability of the area for increased industrial use and expansion.

3.02 The existing land use plan that includes the Monroe Harbor Area was developed as an integral element of the Monroe County: Year 2000 Comprehensive General Development Plan. The plan was developed by the Monroe County Regional Planning Commission in September, 1976, and includes recommendations for the general locations of residential, commercial, industrial, agricultural, public, recreation, and open space for Monroe County by the year 2000. The Monroe City Master Plan along with the above plan advise that the general area of the

Ford Motor Company, Detroit Edison Company and the Port of Monroe property holdings should be developed for industrial purposes.

3.03 The proposed project would not conflict with existing land use plans. Approximately 285 acres of bottomland which is owned by Detroit Edison would be utilized for marsh creation. Although zoned industrial, this bottomland would become exempt from future industrial development.

4. THE PROBABLE IMPACT OF THE PROPOSED ACTION ON THE ENVIRONMENT

4.01 Physical Impacts. Dredging would remove approximately 5.5 million cubic yards of bottomland material in constructing the channel. This material which is unsuitable for open water disposal would be placed in a confined disposal facility (CDF) converting 190 acres of lake bottomland to upland.

4.02 Construction activities would cause temporary suspension of material with resultant lowering of oxygen levels, resuspension of pollutants and a decrease in light penetration. Resuspension of nutrients such as nitrogen and phosphorus caused by dredging could make these nutrients more available to aquatic plant life. This in turn could increase the productivity and abundance of these plants in the area. Possibility of algal blooms would become greater. Waves and currents could keep a portion of the nutrients in suspension. Aquatic plant life would use up some of these nutrients and some would resettle on the lake bottom. Resuspension of nutrients is considered a short-term effect of dredging. It should be noted that turbidity in the shallows of Lake Erie is also a natural phenomenon caused by wave action.

4.03 The crescent-shaped CDF would act as a wind and wave barrier to allow 700 acres of open water to be developed into wetlands. The CDF would provide some erosion protection for the adjacent shoreline.

4.04 Biological Impacts. Dredging would remove the existing benthic fauna from the channel. Approximately 5 miles of channel is currently maintained. The species of benthic organisms which are periodically removed during maintenance dredging could be expected to re-inhabit the channel after deepening. Approximately 6 miles of new channel would be dredged. The benthic organisms in this new channel section would be removed. The resultant benthic community could differ from the existing benthic community.

4.05 The confined disposal facility would convert approximately 190 acres of lake bottom land to upland. The benthic organisms in this area would be destroyed. No spawning areas are known at this site. However, usage by fish for feeding, foraging or as a migratory route, would be eliminated. The rock-faced confined disposal facility however, would add new habitat for fish. That portion of

the rock facing lying below water would provide an extremely productive substrate for fish food organisms, fish spawning activity, and shelters for fish. This habitat is not generally available in Michigan waters of the western basin of Lake Erie.

4.06 The confined disposal facility would support a lush growth of plants after the facility is filled. This would create habitat conducive to such wildlife as rabbits, rodents, songbirds, and upland game such as pheasants. It could also function as a resting and/or feeding ground for waterfowl attracted to the nearby marshes.

4.07 Behind the disposal facility the creation of a 700 acre marsh is planned. This would be accomplished by placing clean material in the area raising the bottomland to approximately Low Water Datum. This material is expected to be available from clean portions of the proposed channel. A reconnaissance in the proposed marsh area located two beds of sago pondweed. With wave protection, it is felt that a productive marsh would be naturally established.

4.08 Marshes are considered among the most productive natural habitats for fish and wildlife. Waterfowl would be expected to utilize the marsh for resting, feeding, and nesting. Other birds such as shorebirds, long-legged waders (bitterns, herons, etc.), and songbirds would commonly use this habitat.

4.09 The marsh would create feeding and spawning areas for a variety of fish species.

4.10 The mammal primarily benefitted by the marsh would be the muskrat. Other mammals which would be likely to use the marsh include raccoon and mink.

4.11 A benefit which could be realized with careful planning would be the re-establishment of the American lotus (Nelumbo pentapetala). This water lily was once common in the area, but is now absent. It is considered an endangered plant in Michigan. The lotus would initially need to be established through planting.

4.12 Social Impacts. The deep draft channel would allow larger, more economical vessels into the harbor. These vessels would primarily be carrying coal. The major beneficiary of these larger vessels would be the Detroit Edison Company and its customers. The economic benefits are discussed in Section 1 and Appendix F.

4.13 No major expansion or influx of business or industry is currently anticipated as a result of the project. Although some increases in area property values and tax revenues are

expected, the major social impacts would primarily be derived from the recreational value of the proposed confined disposal facility and marsh.

4.14 Recreational resources would be improved. The confined disposal facility and marsh would benefit fish and wildlife and consequently fishermen, hunters, and sightseers. The confined disposal facility would also protect the Bolles Harbor boat entrance channel from northeastern winds.

4.15 Construction would temporarily cause adverse impacts to the aesthetic quality of the area. In addition, there may be inconvenience to commercial and recreational vessels. The Monroe County area has a large percentage of workers which commute both into and out of the county. Any resulting impact on community cohesion has long been a part of the life style of the area. The anticipated influx of workers during construction of the recommended harbor modifications would have little additional impact on community cohesion.

4.16 The Federal Register of Historic Places, the Michigan State Historic Preservation Officer and the Heritage Conservation and Recreation Service were consulted (Appendix A-34, 35). There are no archaeological or cultural resources known in the project area which would be adversely effected.

Remedial, Protective and Mitigation Measures

4.17 Protective measures to prevent the dredge materials from re-entering the adjacent hydrologic system would be provided by the design of the diked facility. Such measures include an impervious clay liner to contain the dredge material, rock rip-rap to protect the facility from wave attack, weir construction and placement to prevent uncontrolled escape of effluents, and a skimmer to intercept surface oils and other floating debris.

4.18 Water quality at the overflow weir would be monitored to isure compliance with State water quality standards.

4.19 As a result of the crescent-shaped confined disposal facility, a 700 acre area of lake would be protected from wind and waves. In addition, the Bolles Harbor shoreline would be protected from northeast winds. Clean fill material would be placed into this area to create marsh habitat. Marsh vegetation would be established naturally. Some initial planting however, is likely.

4.20 The shape and placement of the disposal facility was designed to: 1) avoid trapping or adversely affecting the flow from Detroit Edison's warm water discharge canal and 2) to create a protected area for the creation of a marsh and 3) to allow public access.

4.21 The contractor would be under guidance of CE 1300 (environmental guidelines for construction contracts) for the elimination or reduction of damage to the environment during and resulting from construction operations.

5. ANY PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

5.01 The crescent-shaped confined disposal facility would permanently convert 190 acres of lake bottomland to upland. This would remove aquatic habitat from bottom-dwelling organisms, fish and waterfowl. Some bottom dwelling organisms would be smothered during the creation of the wetland.

5.02 Benthic organisms in the proposed channel would be removed.

5.03 Construction would cause the temporary degradation of water quality in the immediate construction zone. Associated with construction would be local increases in noise, exhaust fumes, and inconveniences to commercial and recreational boat traffic. Construction equipment would adversely effect the aesthetic quality of the area.

6. ALTERNATIVES TO THE PROPOSED ACTION

6.01 No Action. Access by larger vessels is not now possible. Air quality regulations are requiring the use of low sulfur coal which is being obtained from the western United States. Transporting the western coal by small vessels in the existing channel is much more costly than using the efficient larger vessels. In addition, the projected use of the improved channel by ore vessels would also provide significant cost savings.

6.02 There would be continued erosion of shoreline areas to the south and southwest. The fish and wildlife and recreational potential from the proposed marsh and disposal area would not be realized.

6.03 Alignment and Alternative Project Depths. Alternative channel alignments are very limited because of the existing Monroe channel. This proposed channel was determined by selecting the shortest and most economical alignment between the Monroe channel and the Maumee Bay entrance channel.

6.04 Alternative depths were investigated and the 27-28 foot channel was determined to be the economically optimum depth. Economic details of these various depths can be found in the engineering document Survey Report on Modifications to Monroe Harbor, Michigan.

6.05 Alternative Confined Disposal Sites. Since the material to be dredged is not suitable for openwater disposal, various alternative disposal sites have been evaluated. Six alternative disposal sites have been recommended for analysis by the Monroe Port Study Committee. Each of the proposed facilities would

consist basically of a diked enclosure constructed on Lake Erie bottom land having a storage capacity of about 4,500,000 cubic yards of dredged material (the polluted material obtained during proposed deepening of the harbor channels). These alternatives and their environmental implications are discussed below. A summary of impacts is found in Table 2.

6.06 Impacts Common to All Six Disposal Plans - Installation of the dike perimeter would disturb local sediments, generating temporarily increased turbidity levels, and possible reducing dissolved oxygen levels. Any accidental spillage of oil and construction materials would lower water quality also. These effects are considered short-term.

6.07 Benthic organisms inhabiting any disposal site would be destroyed. Turbidity and reduced dissolved oxygen levels would temporarily disturb fish, phytoplankton, and zooplankton in the construction area. Ther perimeter dikes would provide extensive rock-faced habitat for establishment of an aquatic community. Construction-generated noise and dust would disturb local wildlife. Wildlife inhabiting any marshlands within the diked facility would be destroyed or displaced. Stagnant ponds could form during facility filling providing conditions favorable for mosquitoes and botulism bacterial (endangering waterfowl). This hazard could be minimized or eliminated by providing interior drainage patterns to eliminate the establishment of stagnant ponds, or provide for flushing the facility with fresh water.

Site Specific Impacts

6.08 Site #2 - Breakwater Site. This site is located south of the project channel and would be attached to Detroit Edison shore property. The facility would extend 6,000 feet into the lake and would have a width of 1,000 linear feet, and a surface area of 137 acres. The Michigan Audubon Society proposed this arrangement on the basis that it would reduce the volume of maintenance dredging caused by south to north littoral drift. The net littoral drift, however, is north to south.

6.09 Advantages of this site would be primarily economic as the breakwater would be additional dock area. An alignment north of the channel would be more environmentally sound, but of little economic value. Development of the site commercially could lead to further degradation of aquatic habitats. This alternative is considered infeasible because of objections by Michigan Department of Natural Resources and the U. S. Fish and Wildlife Service. Detroit Edison objected to the facility because of access to it being required through Edison property.

6.10 Site #3 - Peninsula Site. This site is located south of the project channel and attached to Detroit Edison's shoreline. The facility would be approximately 2,100 linear feet by 3,000 linear feet with a surface area of 144 acres. The site was proposed by the Port of Monroe. Impacts of this plan are similar to those for Site #2. This disposal facility would obstruct littoral currents much less than does Site #2, as it still extends only to the Lake Erie 11-foot contour.

6.11 This was rejected also due to objection by the State and by the U. S. Fish and Wildlife Service in that these sites would not provide any significant environmental enhancement.

6.12 Site #4 - Offshore Island Site. This site is an offshore island located at approximately the 21 foot contour. The facility would be 1,700 linear feet by 1,700 linear feet with a surface area of 66 acres. The site was proposed by the Port of Monroe. The dike perimeter would be 19 feet above L.W.D.

The island would provide a limited habitat for some fowl and wildlife. It could designed in a way to facilitate fishing and would provide storm shelter for boaters.

6.13 The total cost of this site was estimated at $96,973,000. This site was rejected due to high cost, low economic benefit and very limited environmental enhancement due to its lack to accessibility.

6.14 Site #5 - Pointe Mouillee Site. This plan proposes construction of two confinement areas approximately 405 and 633 acres in size, located lakeward of the Pointe Mouillee Disposal Barrier Island now under construction. Dredgings would be hauled to the area and deposited within the enclosures to raise the lake bottom alongside the Pt. Mouillee facility.

6.15 The estimated cost is $136,083,000. This plan was rejected due to high cost of hauling the dredged material, as well as environmental considerations. The State of Michigan indicated that an addition to this site would not provide any additional environmental benefit; therefore, the MNDR does not favor this site.

6.16 Site #6 - Wood Tick Peninsula. A proposal by the Michigan DNR involves construction of a confined disposal facility on the Lake Erie side of Wood Tick Peninsula. The facility would act as protection to the peninsula and adjacent marshlands which are being eroded away.

6.17 Wood Tick facility construction would necessitate dredging of a 2 mile long, 200 foot wide access channel. Wood Tick

TABLE 2

SYSTEM OF ACCOUNTS - SUMMARY OF IMPACTS

Alternative Plan Factors	#1 *Selected Plan NED Plan EQ Plan	#2 Breakwater Site	#3 Peninsula Site	#4 Offshore Island	#5 Pt. Mouillee	#6 Wood Tick Peninsula	No Action Plan
1. National Economic Development							
A. Benefit/Cost	3.59	-	-	3.52	2.59	2.55	-
B. Property Values	would increase	same as site #1	same as site #1	same as site #1	same as site #1	same as site #1	values would stay stable
C. Tax Revenue	would increase	same as site #1	same as site #1	same as site #1	same as site #1	same as site #1	would remain the same
D. Public Facilities and Services	would increase due to greater activity in channel	same as site #1	same as site #1	same as site #1	same as site #1	same as site #1	would remain the same
E. Desirable Community Growth	No anticipated effect	same as site #1	same as site #1	same as site #1	same as site #1	same as site #1	growth would continue at the present rate
F. Desirable Regional Growth	No anticipated effect	same as site #1	same as site #1	same as site #1	same as site #1	same as site #1	no effect
G. Employment	may generally increase	same as site #1	same as site #1	same as site #1	same as site #1	same as site #1	no effect
H. Business and Industrial Activity	would increase	same as site #1	same as site #1	same as site #1	same as site #1	same as site #1	North Star Steel would decrease expansion rate; access by larger vessels would be eliminated

TABLE 2 (Cont'd)

SYSTEM OF ACCOUNTS - SUMMARY OF IMPACTS

Alternative Plan Factors	#1 *Selected Plan NED Plan EQ Plan	#2 Breakwater Site	#3 Peninsula Site	#4 Offshore Island	#5 Pt. Mouillee	#6 Wood Tick Peninsula	No Action Plan
I. Displacement of Farms	no effect	no effect	no effect	no effect	no effect	no effect	no effect
2. Environmental Quality							
J. Man-Made Resources	protects shore structures and shoreline to the south	adds to commercial dockage; increases erosion of shore structures to south; could increase maintenance dredging	adds to commercial dockage; may increase erosion of shore structures to south and could increase maintenance dredging	could add to commercial dockage	enlargement of man-made barrier dike	no effect	continued erosion of southwest shoreline areas
K. Archeological Resources	no sites would be affected	no sites would be affected	no sites would be affected	no sites would be affected	no sites would be affected	no sites would be affected	no sites will be affected
L. Natural Resources	destruction of benthic organisms; creation of fish and wildlife habitat and marsh area; minimal interference with currents; structures would change and remove some fish habitat	destruction of benthic organisms; bird resting area; interference with fish migration routes possible; could obstruct longshore currents; development could further degrade aquatic habitats structure would change and remove some fish habitats	destruction of benthic organisms; limited wildlife habitat; could obstruct longshore currents; development could further degrade aquatic habitats structure would change and remove some fish habitat	destruction of benthic organisms; provides limited wildlife habitat; development could further degrade habitats structure would change and remove some fish habitat	destruction of benthic organisms; destruction of fish habitat areas lakeward of present CDF structure would change and remove some fish habitat	destruction of benthic organisms; shelters valuable marsh area; access channel dredging disrupts wildlife aquatic habitats structure would change and remove some fish habitat	continuing erosion of marsh to south

TABLE 2 (Cont'd)

SYSTEM OF ACCOUNTS - SUMMARY OF IMPACTS

Alternative Plan Factors	#1 *Selected Plan NED Plan EQ Plan	#2 Breakwater Site	#3 Peninsula Site	#4 Offshore Island	#5 Pt. Mouillee	#6 Wood Tick Peninsula	No Action Plan
M. Air Pollution	no effect	no effect	no effect	no effect	no effect	no effect	no effect
N. Noise Pollution	construction would create temporary noise	same as site #1	same as site #1	same as site #1	same as site #1	same as site #1	no effect
O. Water Quality	temporary increase in turbidity; possible resuspension of pollutants during construction; filtering and purifying effects of marsh ; possible adverse thermal plume impacts	temporary increase in turbidity; possible resuspension of pollutants during construction; river load deposited further out into lake	temporary increase in turbidity; possible respension of pollutants during construction; industrial use could produce undesirable runoff	temporary increase in turbidity; possible resuspension of pollutants during construction	temporary increase in turbidity; possible resuspension of pollutants during construction	temporary increase in turbidity; possible resuspension of pollutants during construction	no effect
3. Social Well-Being							
P. Displacement of People	no effect	no effect	no effect	no effect	no effect	no effect	no effect

TABLE 2 (Cont'd)

SYSTEM OF ACCOUNTS - SUMMARY OF IMPACTS

Alternative Plan Factors	#1 *Selected Plan NED Plan EQ Plan	#2 Breakwater Site	#3 Peninsula Site	#4 Offshore Island	#5 Pt. Mouillee	#6 Wood Tick Peninsula	No Action Plan
Q. Aesthetic Values	temporary negative effects of construction; long-term positive effects from creation and protection of marsh; increased opportunity for wildlife observations	temporary negative effects of construction; negative effects from increased docking area replacing open lake; possible negative effect view from Sterling State Park lakeward; provides additional lakeshore vista of Lake Erie	temporary negative effects of of construction none from increased docking area and other industrial development	temporary negative effects of construction; island creation; opportunity for wildlife observation limited by lack of access	reduces natural lake area surrounding marsh	introduces man-made island into extensive natural area	Lake Erie would continue natural processes
R. Community Cohesion	Has local support Public recreation benefits	no effect	no effect	no effect	no effect	no effect	no effect
S. Public Health	no effect	no effect	no effect	no effect	no effect	no effect	no effect
T. Recreation	enhances recreational opportunities; hunting and fishing opportunity increased	changes recreational boating routes; off-dock fishing opportunities would increase	no effect; would probably develop for industrial use	could provide boating, fishery site	increased recreational use of new barrier dike area	increased hunting and fishing in some areas of Lake Erie marshes	no effect

TABLE 2 (Cont'd)

SYSTEM OF ACCOUNTS -- SUMMARY OF IMPACTS

Alternative Plan Factors	#1 *Selected Plan NED Plan EQ Plan	#2 Breakwater Site	#3 Peninsula Site	#4 Offshore Island	#5 Pt. Mouillee	#6 Wood Tick Peninsula	No Action Plan
4. Regional Development							
A. Beneficial Impacts							
(1) Employment	Increased thru expanded use of facilities	Same as Plan 1 to a lesser degree	Same as Plan 1 to a lesser degree	Same as Plan 1 to a lesser degree	Same as Plan 1 to a lesser degree	Same as Plan 1 to a lesser degree	NONE
(2) Value of Increased Employment	Increased - no estimate	Same as Plan 1	Same as Plan 1	Same as Plan 1	Same as Plan 1	Same as Plan 1	No effect
(3) Value of Increased Income	Increased - no estimate	Same as Plan 1	Same as Plan 1	Same as Plan 1	Same as Plan 1	Same as Plan 1	No effect
(4) Economic Growth	Greater opportunity for deep draft commerce	Same as Plan 1	Same as Plan 1	Same as Plan 1	Same as Plan 1	Same as Plan 1	No effect
B. Adverse Impacts							
(1) Population Distribution	Greater concentration in urban areas	Same as Plan 1	Same as Plan 1	Same as Plan 1	Same as Plan 1	Same as Plan 1	No effect
(2) Value of Income Lost	No loss expected	No loss expected	No loss expected	No loss expected	No loss expected	No loss expected	No effect
(3) Quantity of Jobs Lost	No loss expected	No loss expected	No loss expected	No loss expected	No loss expected	No loss expected	No effect
(4) Undesirable Growth	No	No	No	No	No	No	No effect

*The NED (National Economic Development) Plan is that plan which is most desirable economically. The EQ (Environmental Quality) Plan is that plan which makes the greatest positive contribution to the EQ account.

Peninsula and surrounding wetlands were designated in 1973 as an Environmental Shoreland Area by the Michigan Natural Resources Commission under the authority of the Shoreland Protection and Management Act of 1970. Protection of the North Maumee Bay wetlands could enhance recreation revenues in the area.

6.18 The cost of this alternative was estimated to be $138,385,000. This alternative was rejected due to high cost of hauling dredgings to the site. In addition, the U. S. Fish and Wildlife Service on environmental grounds objected to the use of this site.

7. RELATIONSHIP BETWEEN SHORT-TERM USE OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

A. Short-Term

7.01 Temporary adverse impacts include increases in turbidity due to dredging and the construction of the confined disposal facility. Dredging activities would resuspend sediments and contaminants, particularly along the sediment-water interface. Benthos occupying the dredging and disposal areas would be destroyed. Minor navigational hazards due to the presence of dredging equipment may interrupt and inconvenience watercraft movement.

B. Long-Term

7.02 The major effect of modifying the River Raisin channel and turning basis would be the opportunity for access by larger vessels to the Port of Monroe. It would aid, in particular, local industries which are dependent upon coal.

7.03 The depostion of dredged material into the confined disposal facility would remove approximately 190 acres of bottomland converting it to upland. The rock exterior of the disposal facility, however, would provide good habitat for some fish species and would be beneficial to the aquatic community.

Creation of a marsh in back of the barrier disposal facility would greatly inhance fish and wildlife productivity. In addition, the marsh and confined disposal facility, which would eventually be the responsibility of the State, would increase recreational opportunities in the area.

8. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES WHICH WOULD BE INVOLVED IF THE PROPOSED ACTION SHOULD BE IMPLEMENTED

8.01 The labor, materials and fuel commited for the dredging, dike construction and disposal operation for Monroe Harbor

are not retrievable and may be considered as commitments of resources for present and future generations.

8.02 Benthic organisms will be eliminated from the dredging area through sediment disruption and from the disposal area through smothering. Temporary reversible disruptions to the aquatic ecosystem would occur during dredging operations, mainly from increases in turbidity and the release of contaminants from the sediments.

8.03 Disposal of the polluted material into the proposed disposal site is considered an irreversible and irretrievable use. The disposal sediments are not in short supply and represent no major natural resources in their present form.

8.04 The confined disposal facility would occupy 190 acres of Lake Erie bottomland. This bottomland would be permanently lost as aquatic habitat.

9. COORDINATION AND COMMENT-RESPONSE

9.01 On 11 June 1969 a pulic meeting was held at Monroe, Michigan. A preliminary plan for port development was presented by the Monroe Port Commission. An additional public meeting was held 27 July 1977. The digest of proceedings is attached in Appendix C.

9.02 A Site Selection Committee consisting of members from the Corps of Engineers, the EPA, the Fish and Wildlife Service and the Michigan Department of Natural Resources was formed to decide on a suitable disposal site for the dredged material. In January 1977, the Mayor of the City of Monroe established the Port Area Development Study Committee in an effort to coordinate the orderly devleopment of the port and to advise the Site Selection Committee. Members of the study committee represent local and business interests, envoronmental groups and representatives from the Corps of Engineers, the Fish and Wildlife Service and the Michigan Department of Natural Resources.

9.03 Seven meetings of the Port Area Development Committee were held since its formation. These meetings were held on 14 February, 28 February, 28 March, 8 August, 12 September, 3 October and 7 November. At the 7 November meeting, the study committee selected the proposed disposal site as the best alternative. The vote was 10 in favor, one opposed, (U.S. Fish & Wildlife Service) and one abstention (Michigan United Conservation Club).

9.04 The Fish and Wildlife Service expressed concern on the filling of lake bottomlands and the possible adverse impact of the thermal plume on the marsh (Appendix C-36). Coordination with the Fish and Wildlife Service has substantially resolved

these concerns by the modification of the CDF and enlargement of the marsh (pg. A-13).

9.05 The EPA has expressed concerns regarding the impacts of the CDF on the thermal discharge. In a coordination meeting with the EPA, it was decided that a study would be undertaken during the general design memo phases to substantiate the present configuration or modify the design to minimize adverse impacts of the thermal plume.

9.06 Local environmental groups support the CDF and marsh creation concept (Appendix C). A final public hearing was held on 22 August 1978. Environmental as well as civic, and business representatives gave verbal support to the proposed project.

9.07 A coordination meeting was held with the Michigan Department of Natural Resources Wetland Committee to discuss the proposed wetland restoration.

9.08 The proposed project has been coordinated with, and is consistent with Michigan's Coastal Zone Management Program (CZMP). The City of Monroe has received approval under the State's CZMP for funding under Section 306, P.L. 92-583 to enable the City to coordinate the Monroe Coastal Area Management Plan. The proposed project is consistent with the local plan.

9.09 Comments and Responses - Pertinent correspondence which outlines the development of the project is contained in Appendix C. The Draft Environmental Statement was sent to Government agencies (State and local) as well as interest groups and private citizens requesting their views and comments. These comments with responses are contained below. Copies of letters received can be found in Appendix A.

FEDERAL AGENCIES

A. Department of Health, Education and Welfare

1. Comment: We have reviewed the subject documents for potential vectorborne disease impacts. The reports show that dredged material will be deposited in terrestrial disposal sites. Disposal sites frequently contribute to mosquito production and require substantial control efforts in order to maintain the mosquito populations at acceptable levels. Provisions should be made in the final EIS to provide for control in the event of a serious mosquito problem.

Response: In the event of a serious mosquito problem in the disposal facility, control measures such as adjustment to the filling rate or acceptable chemical control would be implemented.

B. Department of Transportation - St. Lawrence Seaway Development Corporation

1. Comment: SLSDC has reviewed the statement and has no comments to offer at this time.

C. U.S. Environmental Protection Agency

1. Comment: We have completed our review of the Draft Environmental Impact Statement (EIS) on Modifications to Monroe Harbor, Michigan. The proposed plan for harbor modification consists of deepening (27-28 feet below Low Water Datum) and widening (500 feet) of the lake channel and lower river channel of the existing project. It also provides for lengthening the existing channel and for the construction of a turning basin in Lake Erie. The dredged material, which is unsuitable for open water disposal, would be confined in a crescent shaped disposal facility of approximately 190 acres. A wetland would be created behind the disposal facility by raising the lake bottom with clean fill to approximately Low Water Datum. Through communications with the COE's Detroit District office, we understand that this is a difficult time in project planning, i.e., at the Survey Report stage, to obtain information on and assess very specific or detailed type impacts which may result from the project. However, we still believe that this Draft EIS does not adequately assess the total environmental impacts associated with project. Furthermore, those areas in which the EIS is deficient may present serious environmental problems. We are specifically concerned about a significant reduction of lake bottomland in an already environmentally stressed area, effects of the proposed confined disposal are on the thermal discharge from Detroit Edison's Monroe Power Plant, potential water quality impacts from entrapment of the La Plaisance Creek discharge, and future impacts associated with disposal of maintenance dredged materials. We offer the following comments for your use in preparation of the Revised Draft EIS on the proposed project.

Response: We appreciate your concerns. The basic proposed project involves the deepening and widening of the Monroe Harbor channel. Comments from the public and State and Federal agencies indicates that environmental concerns are primarily restricted to the disposition of the dredged material. EPA shallow grab sampling in 1976 (Appendix B) indicated that nearly all material dredged from the existing channel could not be open lake disposed, but must be confined. The disposal area and marsh concept was suggested by local environmental groups, supported by the Monroe Port Area Study Development Committee and eventually modified and refined by the Fish and Wildlife Service. We believe that restoring marsh habitat in an area where 80%-90% of marsh habitat has been eliminated is a beneficial and worthwhile concept. However, more detailed studies would have to be undertaken to refine the barrier disposal design to eliminate possible adverse effects from the thermal discharge. As noted, this aspect cannot yet be totally assessed.

We are currently engaged in the feasibility stage of project planning. The project must be reviewed by various Federal and State agencies as well as the Corps of Engineers. If the plan is feasible, the proposed project is sent to Congress for authorization. After authorization, Congress must fund the study. If funded, the Phase I and Phase II General Design Memoranda would be prepared. In a project of this scope, the design memo stages are estimated to last 3 years. These stages would include detailed studies including engineering and environmental aspects. Documents including an engineering report and an updated Environmental Impact Statement would be prepared. As in the feasibility stage of planning, these later design stages would be fully coordinated with the public and various State and Federal agencies. Assuming there are no unusual delays, construction could be initiated in 1985.

We feel that deepening, widening, and extending the Monroe Harbor channel in addition to the establishment of a marsh behind a dredge disposal facility is both economically and environmentally worthwhile. Not all questions can yet be answered. However, detailed studies would be undertaken during the general design stages to answer these questions, as well as to further refine the plan to minimize or eliminate adverse environmental impacts. Your detailed comments are considered below.

2. Comment: The sediment data from our survey of October 18, 1976, (copy attached) should be included for completeness. The Draft EIS refers to sediments that are unsuitable for open lake disposal, but doesn't state which areas of the project these are. The pollutional designations of the project areas should be clearly stated. The capacity of the proposed confined disposal facilities will be 5 million cubic yards. On page 21, it is estimated that 5 million cubic yards of material will be dredged in constructing the new channel and turning basin. This means that the confined disposal facility has no excess capacity for future dredging to maintain the project depths. Future maintenance dredging should be quantified, and disposal of that material addressed. The Revised Draft EIS should indicate if dredging to deep draft depths will involve materials that would require special construction techniques, such as blasting, for removal. It should be explained if it is anticipated that any of the construction or maintenance material would not be polluted.

Response: The data from your October 1976 survey are included in Appendix B, as well as data recently taken. The grab samples taken by EPA indicate that the present Monroe channel is polluted to the last 1000 feet. Two samples taken beyond the existing channel (Appendix B-17) indicate that one area does not meet EPA criteria for open lake disposal although another area may. The size of the proposed disposal site is based on the possibility that all of the dredged material will need confining. There is a possibility that that when proper core samples (to the proposed channel depth) are taken and analyzed, the amount of material to be confined may be considerably less than currently anticipated.

The disposal facility does not contain capacity for maintenance dredging. Although maintenance dredging would be required, the need for confinement in 10-20 years cannot be predicted. With the enforcement of State and Federal regulations on discharges into the nations waters, the maintenance dredged material in future years may not require confining. An additional 590,000 cubic yards of maintenace dredging would be performed annually. Other methods of disposal that could be used for Monroe Harbor maintenance dredgings include open water disposal and upland disposal. State and Federal regulatory climate and the quality of sediments to be disposed would be important factors in selecting a disposal method and site. Prior to future maintenance dredging, an environmental assessment would be performed, and an EIS would be prepared if necessary.

No special construction techniques such as blasting is anticipated in deepening the channel. The material used in the construction of the facility would not be polluted.

3. Comment: A sediment analysis is presented in Tables I and II (pages B-6 and B-7). From the analysis, it appears that sediments from certain sampling stations, MON 75-8, 9 and 10, are more grossly contaminated than others. Consideration should be given to developing a dredging program which would remove these grossly contaminated areas first, so that they could be confined in a deep central portion of the confined disposal facility. This type of operation would result in minimizing the environmental input on the proposed marsh area by isolating these contaminants from direct contact with marsh vegetation, aquatic organisms, and water currents.

Response: Sampling data indicates that the material nearer the river mouth is more contaminated. Deep core samples are to be taken in the general design stage. Should the analysis indicate that the near harbor area is more grossly contaminated, dredging could be scheduled to remove the most highly contaminated materials early, and these, therefore, would be placed in the facility first. Regardless, the polluted material would be isolated in the containment facility, and would not be in contact with currents, marsh vegetation, or open water organisms.

4. Comment: It should be indicated in the EIS that the area proposed for confined disposal is already environmentally stressed, due to encroachment and the reduction of wetlands and lake bottomlands; Detroit Edison's Monroe Power Plant's intake and thermal discharge; and other ongoing Federal projects, including confined disposal areas for Bolles Harbor, Monroe Harbor (maintenance) at Sterling State Park, Point Mouillee, and Toledo Harbor.

Response: Mans influence in this area and surrounding areas is clearly evident. It has been estimated that 80%-90% of the Monroe area marshes have been eliminated. Pollutants which end up in rivers and lakes can and do cause an environmental stress on many organisms in the area. A common factor in an environmentally stressed area is the reduction of species. Mans activity however, can also create habitat beneficial to the biological community. Electro-fish sampling in the vicinity of Sterling State Park, Bolles Harbor, and Point Mouillee by the Fish and Wildlife Service in July 1978 indicated that the rock-facing on the disposal sites at Bolles Harbor and Point Mouillee attracted a greater variety of fish than did open water and nearby shore areas. Creating such artificial fish reefs is not an uncommon practice in salt water. The creation of a marsh and the addition of rock substrate is seen as a benefit to the aquatic community not a stress.

5. Comment: The value of lake bottomlands that will be impacted by the project, including 190 acres destroyed by construction of the confined disposal facility; 170 acres lost to marsh establishment; and those areas disturbed by construction of the new turning basin and channel extension will have to be determined. Benthic organisms and use of the area by fish for feeding, foraging, and migration would be eliminated.

Response: A ponar grab sample was taken in the area of the proposed marsh and disposal site (Appendix B). The sediment was primarily composed of fine sand with some silt. The area is extremely shallow (1-2feet) and subject to wave action. There are two patches of sago pondweek in the area, but basically the site is devoid of attached vegetation. Because of the substrate, lack of plant growth and wave impacts, the area does not appear attractive to benthic organisms or fish. Gill net sampling by the Fish and Wildlife Service (Appendix C) in waters 10 feet deep, lakeward of the proposed marsh and disposal site, indicated a fair population of walleye and perch. These desirable species of fish should benefit by the addition of spawning and feeding areas. Additional sampling in the construction zone would be undertaken in the Phase I planning stage to determine the useage of the area by fish. The Fish and Wildlife Service has recommended a confined disposal facility which increases the marsh area to 700 acres. Their proposal has been incorporated into our project plan. Because of the lack of structural diversity in this area, the disposal structure would add additional habitat to the aquatic community. Food, shelter, and spawning habitat would be created for such fish species as walleye, bass, catfish and perch. The marsh also would create additional feeding and spawning grounds for fish such as bass and northern pike.

6. Comment: The impact statement fails to consider the effects of the proposed disposal facility on the dispersion of the thermal plume from the Monroe Power Plant. The U.S. Environmental Protection Agency (U.S. EPA) is now reviewing both the 316(a) and (b) demonstrations for this station. Construction of the disposal facility could cause plume dispersion to change dramatically and exposure times of entrainment will increase, especially when winds are out of the north and east, increasing the adverse effects of the Monroe station on western Lake Erie fish populations. It should be noted that, with implementation of the proposed project, Detroit Edison may be requested to restudy the impact of its facility and to rewrite portions of the 316(a) and (b) demonstrations to address impacts associated with the project.

Response: The effects of the proposed disposal facility on dispersion of the thermal plume is not known. The effects of the existing thermal plume on fish larvae is also unknown and it cannot be stated that increased mortality would result from a change. The current disposal site alignment was suggested by the Fish and Wildlife Service (Appendix A). A member of your staff, the Fish and Wildlife Service and a Corps biologist discussed the possible problems of the dike on the thermal plume. While recognizing a possible problem it was noted that with more detailed hydraulic studies and input from EPA, Fish and Wildlife Service, the Michigan DNR and the Corps, the present configuration could be re-affirmed or re-aligned to minimize the thernal plume problem. The detailed study and final configuration would be coordinated and designed with EPA help so that no additional input to the 316(a) and (b) demonstrations is expected to be required.

7. Comment: The potential for successfully establishing a marsh area in the existing stressed conditions is questionable. Establishment of marsh vegetation on Detroit Edison's fly ash disposal areas does not present a valid comparison, considering the difference in substrate, water quality, and flow characteristics.

Response: The Fish and Wildlife Service creates wetlands quite easily at Shiawassee Flats (Michigan) by raising and lowering water levels with pumps. The area in Plum Creek was at one time part of a productive marsh system. The area previously (See Figure 1) was protected by a barrier type beach. Having been eroded, wind and wave action prohibits the growth of a marsh system. Two patches of sago pondweed in the proposed marsh area indicates that certain marsh plants can already be established. A meeting was held with the Wetlands Committee of the Michigan Department of Natural Resources. They expressed considerable interest in the project and would help design the proposed marsh in the later study phase. As noted in your comment, establishment of a marsh in a flyash pit is not a valid comparison. However, marsh plants are found in flyash pits, roadside ditches, potholes, lake edges, inland damp areas, etc. Noting the adapability of many marsh plants, re-establishment of the marsh is not expect to be difficult. This has been evidenced in other areas by the frequent accidental creation of wetlands as a result of open water disposal of dredged material in low wave energy zones. Also, considerable effort in research has been expended by the Corps' Waterways Experiment Station (See reference section) in the artificial development of wetlands. Such projects are usually successful.

8. Comment: The source for clean material for marsh establishment should be identified in the EIS. A time frame for completion of the disposal facility and the marsh should be estimated. Plans for vegetation of the marsh should be explained, i.e., will specialized planting be planned or natural revegetation be allowed to occur. It is possible that the 170 acres could be lost to production for several years, if not longer.

Response: It is expected that clean sediment from the end of the proposed new channel would be excellent substrate for marsh building. Core samples would be taken during the Phase I planning study to insure its suitability. As indicated in comment response C-1, the estimated time frame for completion of the disposal facility and marsh after the various design phases and review may at a minimum be 10 years or 1988. Actual construction however, is estimated to take 2-3 years. The area would remain productive during construction as noted during the construction of the Point Mouillee disposal facility. Natural marsh establishment would likely begin as soon as the wave energy decreases. Clean fill however, would not be placed in the area until it was protected from wind and wave action. After the CDF is completed and clean fill placed in the proposed wetland area, establishment of marsh plants is expected to be natural. However, during the next study phase, details as to interior design and revegetation would be determined. The Michigan Department of Natural Resources Wetland Committee and the Fish and Wildlife Service are expected to have major inputs into these decisions.

9. Comment: Potential effects of the proposed confined disposal facility on shore erosion and littoral currents will have to be investigated. Considering there is a net littoral drift from north to south in the project area, the potential for the new turning basin to trap sediment and increase shore erosion should also be addressed.

Response: The proposed confined disposal facility would reduce wave energy at the shoreline and have a beneficial impact on shore erosion in the vicinity. The shoreline south of the harbor channel to the proposed location of the confined disposal facility has been protected. No additional erosion problems are expected.

10. Comment: The present water quality of La Plaisance and Plum Creeks should be included in the Draft EIS, and the potential impacts of trapping water discharging from those creeks behind the confined disposal facility assessed.

Response: Water quality data from La Plaisance Creek is included in Appendix B. As noted by data (B-37) collected in September 1976, the water of the creek was slightly degraded exhibiting concentrations of nutrients and solids. In the Great Lakes Basin Framework Study, it was stated that surface waters throughout the basin are high in nutrients and dissolved and suspended solids, with concentrations increasing towards the mouth of the river (Raisin). This is also true of La Plaisance creek. The drainage basin of La Plaisance Creek is 9.5 square miles. The discharge rate has not been measured. The drainage basin of Plum creek is adjacent to La Plaisance Creek and of comparable size. Assuming the discharge rate is comparable, the normal flow is minimal (.95 cfs).

There are no industrial discharges into the creek. Runoff is primarily from open lands and farmlands. Because of the Bolles Harbor dike disposal extending the mouth of the creek, and the almost negligable flow from the creek, little or no impact from these waters on the adjacent marsh is expected. One of the major benefits of marshlands however, is its ability to act as a natural filter, removing sediments and nutrients from the water Lake Erie would be benefitted if in fact, the La Plaisance Creek were allowed to flow through the marsh.

The base discharge rate of Plum Creek was measured at .95 cfs. This indicates that Plum Creek in essence functions as an inland bay of Lake Erie. The re-routing of the Raisin River via the thermal discharge has however, increased the flow, to 3119 cfs. The discharge via the Plum Creek mouth utilizes approximately 80% of their discharge from Lake Erie and 20% from the River Raisin. The water quality data from this discharge has been added to Appendix B. This water would be excluded from the marsh by a rock-faced dike (Plate 3). The prevailing current in La Plaisance Bay and Brest Bay is clockwise which would tend to move the discharge water north, away from the marsh.

11. Comment: It should be noted that, according to SEMCOG (Southeastern Michigan Council on Governments) report "Coastal Areas of Particular Concern in Southeast Michigan," August 1976, the proposed Confined Disposal Facility (CDF) is located in a "floood-risk area of particular concern."

Response: This area is low and therefore subject to seiche flooding. The confined disposal facility would not affect the flooding potential of the area. The facility would be designed to a sufficient height to prevent overtopping by flood waters.

12. Comment: The EIS should address secondary impacts associated with harbor modifications, including the potential for increased intrusion in area wetlands, and particularly the Foleys and Smiths Islands area.

Response: Monroe Harbor and Detroit Edison are prepared to utilize the larger vessels. No modifications would be required. The only substantial area wetland remaining is Ford marsh. It could not be altered unless Federal permits were issued. This includes input from your office. There are no plans for developing the Foleys and Smiths Islands area. In fact these islands are to be protected from ongoing development. The Michigan Department of Natural Resources has expressed interest in these islands. It is doubtful whether these small islands could or would be allowed to be developed.

13. Comment: It is unclear why it is being recommended on page 37 of the Draft EIS that appropriate State permits required for the project be waived. The assumptions used as a basis for this recommendation should be explained. Furthermore, in view of the inadequate assessment of the project to date, U.S. EPA recommends that no waiver of permits be considered.

Response: This paragraph has been deleted. A 404 evaluation would be prepared during the Phase I planning stage and appropriate permits attained or waived.

14. Comment: The section of the EIS on "Coordination" (page 36) is confusing. It should be pointed out that U.S. EPA is not a member of the Port Area Development Committee, and has not voted to concur with the proposed harbor modifications.

Response: The coordination section has been modified. Although EPA did attend several of the Port Area Development Committee meetings, they were not a member of the committee nor did EPA vote on 11 November 1977.

15. Comment: Some aspects of the cost analysis for the proposed project should be explained in the EIS. A comparison should be made of economic benefits to the companies involved to total costs of project implementation, inclusing initial construction and future maintenance activities. Total costs of harbor modifications should also be compared to the difference in costs to Detroit Edison for shipment of western coal with the proposed project, and for shipment of western coal with the most feasible least-cost alternative described in the Preliminary Feasibility Report (i.e., shipment from Superior Harbor to Monroe via transhipment through a port facility at Toledo).

Response: A comparison of economic benefits for the companies involved to the cost of project implementation and future maintenance is the basis for the B/C ratio (3.59 to 1). Additional data has been added to Section 1 and Appendix F in the EIS. However, a more detailed analysis is contained in the accompanying engineering document Survey Report on the Modifications to Monroe Harbor, Michigan. The economic analysis in the Survey Report is based on the comparison of cost savings obtained by deepening the Monroe Harbor channel versus the next lowest cost alternative. The next lowest cost alternative would be using Class 5 and 6 vessels loaded light. Transhipment through Toledo is more costly than light loaded vessels going directly to Monroe.

16. Comment: As indicated in the above discussion, and in accordance with EPA's procedures, we have classified our comments on the Draft EIS as Category 3' that is, we believe that the draft EIS does not adequately assess the environmental impact of the proposed project. The date and classification of our comments will be published in the Federal Register.

Response: Additional data has been added to the document. A meeting was also held with EPA and the Fish and Wildlife Service regarding these comments. EPA is particularly concerned about what effects the disposal area would have on the dispersal of the Detroit Edison thermal effluent. It was noted that this stage of planning much of the detailed work has yet to be done. Both the Fish and Wildlife Service and EPA agreed to work with the Corps during the detailed study phases, to re-affirm or further re-align the disposal facility to avoid possible adverse impacts from the thermal plume.

D. Federal Energy Regulatory Commission

1. Comment: Our review of the statement is principally oriented toward determining the effect of the proposals on matters related to the Commission's responsibilities. These responsibilities pertain to the development of hydroelectric power, the assurance of reliability and adequacy of bulk electric power facilities, and the construction and operation of natural gas pipeline facilities. Since the planned dredging would not pose a major obstacle to the construction or operation of such facilities, and since the Draft Environmental Impact Statement does not indicate that natural gas and electric utilities would be affected, we have no comments.

Response: Your review is appreciated.

E. United States Department of Agriculture

1. Comment: We have reviewed the Draft Environmental Statement and Draft Survey Report concerning deepening, widening and dredge disposal for the River Raisin channel and turning basin at Monroe Harbor, Michigan. We do not have any comment on the statement.

Response: Your review is appreciated.

F. U.S. Department of Commerce

1. Comment: Judging from the data given in the Environmental Impact Statement, Detroit Edison Company is planning to expand greatly the power plant at Monroe. The present coal consumption is approximately seven million tons per year, of which over six million are shipped by rail rail and nearly one million by water. While by 1980, shipment by rail will increase by an unknown but probably minor amount (Paragraph 4.13), the shipment by water will increase to 8.5 million tons. It is estimated here that by 1980, the Monroe Plant coal consumption will be nearly 15 million tons per year. This planned expansion of the Monroe Plant will greatly increase air pollution and thermal input into Lake Erie, and will require additional navigation channel capacity. Instead of handling the plant expansion as a single major project having great impact on the environment, the approach used here is to present the plant expansion needs split in individual actions.

Response: Data given in Table B-1 (Survey Report) indicates that 6.2 million tons of coal are to be used in 1978. It is estimated that approximately 2 million tons would be shiped by water. The total tonnage shipped in 1980 is estimated to be 6.8 million tons not 15 million tons. Although rail transport of coal would remain approximately the same, water shipment of coal would be shifted from eastern coal to western coal. There is no major expansion of the Monroe Plant planned. By the year 2035 total annual consumption of coal is estimated at only 9 million tons. This would be primarily low sulfur western coal which is being used to meet air quality standards. Pollution at the plant would decrease rather than increase.

2. Comment: Improvements for deep draft navigation include addition of six miles of channel to the existing five miles and construction of a diked enclosure on Lake Erie bottom to store five million cubic yards of polluted dredge spoil. Annual costs for a fifty-year project life are 6.4 million dollars (Appendix G-L). It appears that costs of maintenance dredging and the required spoil disposal facilities are not included in project costs. Due to increased channel length, width, and depth, the improved channel will trap much more littoral drift and therefore will cost much more to maintain. Considering that at the present time, it is difficult to find satisfactory spoil disposal sites, future disposal could become problematic. These problems should be fully addressed in the Statement and costs of maintenance should be included in benefit cost evaluation.

Response: The costs of maintenance dredging is included in the annual changes which is part of the B/C ratio. Annual maintenance dredging is estimated to be $940,000. The disposal facility does not contain capacity for maintenance dredging. Although maintenance dredging would be required, the need for confinement in 10-20 years cannot be predicted. With the enforcement of State and Federal regulations on discharges into the nation's waters, the maintenance dredged material in future years may not require confining.

3. Comment: In discussion of alternatives (Paragraph 6.01), two alternatives were found for channel deepening: the non-action alternative and and the deepening alternative. Although, as stated, the trade-off's have been discussed throughout the report, the alternative of shifting costs of construction and maintenance from federal government to the utility was not discussed. It is believed that this approach would provide a realistic economic evaluation of existing choices of rail versus water transport.

Response: The existing Congressional mandate provides for Federal participation in commercial navigation improvements. The economic analysis indicates considerable savings using water transportation instead of rail. A detailed analysis of the economic spects is contained in Appendix B of the accompanying Survey Report on Modifications to Monroe Harbor, Michigan.

4. Comment: Determination that entire dredge spoil is polluted and should be placed in contained facilities was based on samples taken from the bottom of present navigation channel. Since the project involves seven feet of new dredging, it can be assumed that majority of new dredging will be unpolluted and would not require expensive disposal facilities. It is suggested that borings down to the project bottom be used to determine pollution level, if any. The clean spoil should be used in the first place to form marsh areas. Another potential disposal would be along the channel to reduce shoaling.

Response: Please see comment-response C-2. Additional sampling was done (Appendix B). However, deep core samples would be taken during the next study phase, and the results analyzed by the EPA to determine the exact volume required for confinement. The confined disposal facility is currently designed for worst-case possibilities. Clean material is indicated in the outer portion of the proposed channel. As suggested in your letter, this material would be considered for marsh creation. Should there be excess clean material, disposition would be determined after input from the Michigan Department of Natural Resources, the Fish and Wildlife Service and the EPA.

5. Comment: Six alternatives were considered for the disposal of dredge spoil. All of them would provide storage capacity of five million cubic yards with no provision for storage of spoil from subsequent maintenance dredging. The selected location would be south of Monroe Harbor at the mouth of Plumb Creek and would cover 190 acres of Lake Erie bottomland. A wetland of 170 acres would be created behind the disposal dikes. Value of the wetland is disputed. While the Statement claims that creation of a marsh would greatly enhance fish and wildlife productivity, the U. S. Fish and Wildlife Service has reservations regarding the quality of wetlands considering the potential thermal plume problem. That concern was substantiated by a computer modeling (Page C-36). Our analysis of lake currents with the disposal facility in place indicates that for prevailing currents from the north, a clockwise eddy current fed by the thermal effluent will form at the wetland area. Currents from the south

bringing colder lake water would bypass the wetland area. Overall effect on fish and wildlife would depend on the temperature of the effluent at the marsh site. The planned expansion of the power plant must be kept in mind in estimating the water temperature. Large part of the proposed marsh area is owned by Detroit Edison and adjoins Edison's fly ash disposal facilities. The facilities are no longer in use and contain marsh vegetation (Paragraph 4.p3). The Statement gives no indication on Detroit Edison plans for the proposed marsh area, particularly after plant expansion, except that the bottomland would become exempt from future industrial development (Paragraph 3.03).

Response: The proposed wetland area was expanded to 700 acres at the suggestion of the Fish and Wildlife Service. An access dike is being proposed adjacent to the thermal discharge channel to exclude the warm water from the proposed marsh. However, a detailed analysis of this facility and its impact on the thermal plume would be undertaken during the general design memo phase. There is no planned expansion of the power plant.

The bottomland to be converted to marsh contains approximately 285 acres which belong to Detroit Edison. The local sponsor (State of Michigan) would be responsible for obtaining this bottomland. Use of the proposed marsh for other than fish and wildlife purposes is a legally enforceable item of local cooperation. See comment-response H-13.

6. Comment: Another of the alternate sites for spoil disposal would be located south of the project channel. That site was considered infeasible because of objections to the filling of lake bottom and that the access to it would be through the Edison property. The Michigan Audubon Society proposed this arrangement on the basis that it would reduce the volume of maintenance dredging caused by south to north littoral drift. The net littoral drift, however, is north to south (Paragraph 6.05). Review of the above location indicates some advantages. Since channel shoaling is caused by littoral drift both from north and south, a definite reduction in maintenance dredging will be realized. Further reduction of shoaling would be obtained by disposal of clean spoil along the north side of the channel. The problem of filling of lake bottom exists anyway - the selected plan would fill 190 acres and this plan 137 acres. Detroit Edison objections indicate that in case of selected plan, a definite assurance should be obtained that the proposed marsh area on Edison property will remain marsh area and not at some future date be used for Edison needs, say for fly ash storage.

Response: This site was opposed by both the Michigan Department of Natural Resources and the Fish and Wildlife Service as environmentally undesireable. The decrease in maintenance dredging by placing the disposal facility on the south side of the channel would be negligable. Placement of clean material on the north side of the harbor without protection would cause an increase in maintenance dredging as it gradually erodes into the channel. Whereas, the proposed CDF would remove approximately 190 acres of bottomland, the creation of 700 acres of marsh would substantially benefit both fish and wildlife. The marsh could not be utilized for flyash disposal (See comment-response F-5).

7. Comment: In summary, the main objection to the Statement is the presentation and discussion of a single activity taken from a major project, which in its entirety has significant impact on the environment. Comments presented here are for evaluation of what appears questionable items. We expect that a DEIS will be prepared for the planned expansion of Detroit Edison power plant at Monroe, which will include also the proposed improvement of navigation channel.

Response: As pointed out in comment-response F-1, there is no major expansion of Detroit Edison facilities. The deepening of the channel would allow an economical increase in waterborne western coal. The low sulfur western coal would replace the eastern high sulfur coal. This change over would substantially reduce air pollution.

G. U.S. Department of the Interior - Bureau of Mines

1. Comment: Cement, stone, clays, sand and gravel, petroleum, and peat are produced in Monroe County. Bureau of Mines records indicate no active mineral operations within the project area.

The proposed action will increase the efficient utilization of mineral resources shipped to Monroe from other mineral producing areas. The project could lead to increased quarrying activities in the region near the site (p.C-11). We find the statement acceptable as written.

Response: Your comments are noted.

H. U.S. Department of the Interior - Fish and Wildlife Service

1. Comment: Our review of the draft Environmental Statement and Survey Report revealed a potential starting point at attempting to creat an ecologically sound marsh system. Additional information on the methodology necessary to create a wetland ecosystem in a freshwater environment should be included in the final report if it is available.

Response: A meeting has been held with your office and the Michigan Department of Natural Resources Wetland Committee to discuss the potential marsh. During the design memo phase, with input from your office and the MDNR, the design, construction and perhaps seeding will be decided. References on marsh creation have been added.

2. Comment: The exclusion of Detroit Edison's hot water effluent from the marsh creation area is a major, positive step in creating an environmentally sound marsh system. Our review of the proposed location and ocnfiguration of the Monroe Harbor Confined Disposal Facility (CDF) indicates a drawback that could be corrected through engineering design. We recommend that the structure be moved lakeward (see attached map) in an attempt to maximize the marsh creation potential of the structure. The increased depth of the area

will allow for a reduction in the structure size. If, in fact, the Detroit Edison Company does relinquish all ownership to the area designated on Plate 3, adequate compensation for the bottom lands lost would be achieved. Without such compensation, we would find it very difficult to justify the filling of the lake bottom area.

Response: We feel that an environmentally sound marsh system can be created. At your recommendation, the proposed CDF structure was moved lakeward. As currently designed the size of the marsh has been enlarged to approximately 700 acres. This includes approximately 285 acres of Detroit Edison bottomland. The inland portion of the Detroit Edison property would not be relinquished.

3. Comment: All information contained on the Plates in the reports should be updated. Large expanses of wetland area are indicated where only dry landfills or industrial development exist.

Additional historical information on the marsh habitat losses in the Monroe area should be incorporated into the report to provide needed background information.

Response: The Plates have been updated to reflect current conditions. Additional information on the Monroe area marshes has been added to Section 2.31.

4. Comment: Page 4. Paragraph 1.14 - If "no lake or river dredging specifically for dike construction" is expected, we request that the potential location(s) for construction materials be identified in the report to insure that no wetland areas are involved, and that acquisition of such location be included in project costs. Such areas could be used as future disposal sites, or in further attempts to restore additional vital marsh habitat, as authorized by Congress, once removed from the Lake Erie shoreline.

Response: At this stage in the planning process, the location of construction materials has not been determined. However, the source of these materials would come from an approved commercial borrow site. No wetland areas would be acceptable as borrow sites. The current project cost figures include an estimate of commercially supplied construction materials. Detailed information on materials and costs would be prepared during the design memo study phase.

5. Comment: Paragraph 2.04 - Data on the normal flow rates and drainage area of Plum Creek need to be included in this section.

Response: This has been added to paragraph 2.04.

6. Comment: Page 15. Paragraphs 2.39, 2.42 - Additional fish sampling is warranted due to the changing fish population structure in Lake Erie since the 1972 sampling period. The biomas estimates and reference made to a decline of the walleye are no longer accurate. Large sport catches of walleye are presently being made in the Monroe area. Northern pike (esox lucius), immature muskellunge (Essox masquinongy) and sauger (stizostedion canadense) also have been observed in the area.

Response: Additional fish sampling by your office has been included in Appendix E. The apparent increase in such game fish as walleye and perch indicates an increase in aquatic habitat quality in the Monroe area. A statement has been added to paragraph 2.42.

7. Comment: Page 16. Paragraphs 2.41, 2.43 - White bass are now an extremely common species in the area and in the sport fishing catch. Walleye now provide a substantial portion of the sport fishery creel.

Response: These paragraphs have been modified.

8. Comment: Page 16. Paragraph 2.47 - Reference is made to maintaining an open water area for waterfowl. Short stopping waterfowl is a dangerous proposition where the potential for the loss of the open water area, and thereby the food source, due to mechanical failure and loss of hot water flows, could occur. Overwintering waterfowl concentrations should not be encouraged in this area. A large expanse of sago pondweed is flourishing in the area proposed for the marsh creation project. Large concentrations of canvasback ducks utilize the area as a feeding ground during the spring and fall migration.

Response: The statement is not meant to imply that maintaining open water at Monroe is beneficial to waterfowl. In fact it is stated that in the winter"the Monroe area lacks sufficient food supply even without ice cover." The two patches of sago pondweed were located during a Fish and Wildlife Service and Corps of Engineer joint reconnaissance. These pondweed beds are good indicators that a marsh can be developed here, if given protection. A statement of canvasback duck use has been added to paragraph 2.48.

9. Comment: Page 17. Paragraph 250 - The following additional species noted in the area should be incorporated into the list: black-crowned night heron (Nycticorax nycticorax), double-crested cormorant (Phalacrocorax autitus) (threatened species, Michigan list), herring gull (Larus argentatus) and spotted sandpiper (Actitus macularia). Twenty cormorant were observed within the area proposed for the marsh creation project this past May.

Response: The list in paragraph 2.50 cannot be considered exhaustive. The species noted have been added to this paragraph.

10. Comment: Page 18. Paragraph 2.55 - As noted previously the double-crested cormorant has been observed feeding near the potential project shoreline area and should be included in this section. The barn owl (Tyto alba) is also found in this area and should be included. Attempts at management of the barn owl are presently being carried out at Sterling State Park.

Response: Neither the double-created cormorant or the barn owl are considered species endangered nationally. The State of Michigan has prepared a list of endangered, threatened, or scarce species. Neither of these species are considered endangered, although

both the double-crested cormorant and the barn owl are considered threatened species. A pair of barn owls has recently nested at Sterling State Park. While the cormorants have been seen in the area, no nesting has been reported.

11. Comment: Page 19. Paragraph 2.57 - The area known as Ford Marsh also supports a bed of American lotus. At the present time a new bed of lotus is developing within a protion of Sterling State Park. The Michigan threatened plants list for Monroe County contains 20 species. It is recommended that an attempt be made to determine if these species could be impacted.

Response: These lotus beds were started artificially. Other attempts at establishing the American lotus in area marshes is continuing on a local level. The threatened plant list for Michigan was reviewed. No plant as noted on this list is known from the proposed project area. However, as many of these plants are wetland species, the proposed marsh could produce suitable habitat for these species.

12. Comment: Page 20. Paragraph 3.03 - At present, it is unclear if Detroit Edison will be relinquishing all control of the subject real estate or only ensure that no "industrial development" will take place. (A definition of industrial development is needed.)

The Department of the Army should control all properties within the proposed CDF development area before construction begins. This would insure that no new indistrial landfill operation would endanger the benefits hoped for in the marsh creation effort.

Response: Item G in the 'Non-Federal Responsibilities' of the Survey Report on Modifications to Monroe Harbor, Michigan, states that the confined disposal area will be used for recreational purposes and the created marsh will be used for fish and wildlife purposes". No industrial development in the proposed marsh and confined disposal facility would be allowed. The items of local cooperation are enforceable in the appropriate District Court.

The degree of control of this bottomland would depend on the agreement of the local sponsor (State of Michigan) and Detroit Edison.

13. Comment: Page 21. Paragraph 4.01 - In constructing the CDF, it would be beneficial to create small wetland areas within the container if the material is found not to contain high amounts of substances that would be hazardous to wildlife. Such areas could prove invaluable to spring, migrating water birds as courtship areas. Covering highly polluted materials from the river with cleaner materials from the connecting channel could also accomplish the same goal.

Response: Experience has indicated that natural wetland areas are created quite readily and naturally in the CDF. However duck poisoning from botulism is always a threat, as is the hazardous nature of the pollutants. Such details can be determined in the design memo study phase.

14. Comment: Page 21. Paragraph 4.03 Calculations made on the proposed marsh creation area (Plate 3) are not in agreement with the 170 acre wetland area proposed. The Plate in fact illustrates an area of approximately 270± acres while the CDF occupies 200± acres. A recalculation of the potential marsh area creation, or reorientation of the CDF seem necessary so as not to produce a false impression of the potential size of the proposed project. Please refer to our General Comments for an alternative CDF location to that proposed.

Response: Plate 3 which contained the marsh and dredged disposal facility was only approximate. Detailed and more accurate plates would be prepared during the later phase of the study. As a point of clarification, the proposed 170 acre wetland is located on the bottomland not adjacent land owned by Detroit Edison. As suggested by your office, the CDF has been extended lakeward, enlarging the proposed marsh to 700 acres (See Plate 3).

15. Comment: Page 22. Paragraph 4.07 - Unfortunately, no biological evidence is supplied within this report to substantiate the assumption, though probably valid, that a marsh would be created by the placement of clean materials behind the disposal facility. Such evidence, if found, should be included in the final EIS or the statement should be modified.

Response: The statement has been modified. However, recreating a marsh in this area of former marshland should not prove difficult. Old maps (See Figure 1) and photos indicate that an extensive marsh system was formerly in the area. It was protected by a barrier beach. This beach has been eroded away, and now only two patches of sago pondweed are enduring under the present conditions. The CDF would artificially create the former barrier beach. Although natural revegetation of the marsh is expected, initial seeding may be desireable. Details of creating a viable marsh ecosystem would be accomplished in the general design memo study phase.

16. Comment: Page 25. Paragraph 5.01 - The effects of covering 190 acres of bottomland could be lessened by the creation of wetland areas within the CDF if the dredged materials are suitable (safe for wildlife contact). Covering highly polluted materials with cleaner materials obtained from the access channel construction could be a workable alternative.

Response: Please see comment-response 14 (F&WS).

17. Comment: Page 31, L, Natural Resource - Plans 1, 2, 3, 4 and 6 would also cause destruction of fishery habitat in the areas filled.

Response: Although bottomland and open water habitat would be removed, new aquatic habitat would be created. A modified statement has been added to the alternatives.

I. U. S. Department of the Interior - Geological Survey

1. Comment: Detroit Edison's warm-water discharge canal is mentioned (p. 24, par. 4.20) but pertinent information is lacking. The canal or the plume should be identified on one or more of the plates and its effects on water quality in the area should be discussed.

Response: The warm water discharge canal has been identified in Plate 3. Additional data has been added to Appendix B. The impact of the disposal facility on the thermal plume would be investigated in the design memo planning phase.

J. U. S. Department of the Interior - Heritage Conservation and Recreation Service

1. Comment: We feel the statement is an adequate and accurate assessment of those resources within our areas of jurisdiction and expertise.

Response: Your comment is noted.

STATE AGENCIES

K. Department of State Highways and Transportation

1. Comment: These documents contain evidence of an in-depth social and economic study and estensive coordination for the proposed project. However, the environmental inventory and description of related impacts leaves some doubt as to the natural environmental tradeoffs that will occur. For example, several entities and individuals indicated a concern for the filling of marshland. The Statement does not refute this concern in explicit terms, but refers to the disposal site as "lake bottomlands." This apparent contradiction reflects the need for an existing land use/cover map. Such information would not only aid the review process, but also provide documentation for the impact analysis section.

Response: No marshlands would be filled by the project. However, 190 acres of lake bottomland would be converted to upland. In addition 700 acres of lake bottomland would be changed from an open water habitat to marshland. The project map, which previously indicated substantial marsh habitat in the area, has been updated to current conditions.

2. Comment: Other than the described lack of information, the Statement seems to adequately describe the direct or primary impacts. However, the likelihood of significant secondary impacts occurring is implied, but not addressed. For example, the harbor modification will encourage or make it economically feasible to develop adjacent properties, including marshland. While such development would be a positive economic impact, it would also constitute a negative environmetal impact, possibly more significant than the project's direct construction impacts.

Response: As noted in comment-response E-12 there is little or no marshland remaining in the project area. Northland Steel is currently putting in a plant west of Detroit Edison. This development is not dependent upon the proposed project. No expansion by Detroit Edison is contemplated. No development in any adjacent lands is foreseen due to project implementation, nor were economic benefits of such development computed. Please see Appendix B of the accompanying Survey Report on the Modifications to Monroe Harbor, Michigan.

3. Comment: We are calling attention to the secondary development issue due to the potential implications of a recent (April 1978) U.S. District Court ruling that ordered this Department to address the issue for a Federally funded transportation proposal near Flint, Michigan.

Response: Please see comment-response K-2 above.

4. Comment: Page ii, Summary, Part 5, Comments Requested - does not include the Michigan Department of State Highways and Transportation.

Response: This name was inadvertently excluded. The Michigan Department of State Highways and Transportation was added to Comments Received on page ii.

5. Comment: Page 20, Paragraph 3.03 - the statement that the disposal site and created marsh are owned by Detroit Edison is not supported by data shown at Plate 3.

Response: The paragraph and Plate 3 have been clarified.

L. Michigan Department of Natural Resources

1. Comment: Recently your office provided my staff with copies of a Draft Environmental Impact Statement on modifications to the Monroe Harbor dated May, 1978. A copy of a draft survey report on the Monroe Harbor dated May, 1978 was also provided. Since receipt of these documents, members of the Department's Corps of Engineers Project Review Committee have had an opportunity to review these documents as well as visit the site to be intimately familiar with this proposal.

The Department of Natural Resources concurs with the general provisions of this proposal. In this matter I wish to indicate to the Corps of Engineers that the DNR has consistently and now reaffirms its position that in managing the total needs for polluted dredge spoil containment of western Lake Erie that the construction of a facility at Woodtick Peninsula would bring about a major secondary benefit in the protection of the 3,000-acre Erie State Game Area lying adjacent to the Woodtick Peninsula.

This is the only significant marsh system remaining along the shore of Lake Erie in Michigan. Field investigations by staff of our respective agencies find that serious breaching has occurred along the

Woodtick Peninsula which presently gives shelter and protection to the Lake Erie Game Area. The protection of this vast marsh system from the ravages of erosion which occurred at Pointe Mouillee should be a prime objective for the Federal Government as well as the State of Michigan. The Woodtick Peninsula area has been and remains the Department's first choice for the containment of polluted dredge spoils in western Lake Erie.

Response: Your comments are appreciated. As discussed with your staff on several occasions (telephone memo attached on page C-38), the construction of a disposal facility of Woodtick Peninsula may be environmentally desirable. However, the long distance haul from the Monroe channel is extremely costly. In addition, the need for protection at Woodtick Peninsula is immediate. Since we are just completing the survey report, several years would pass before the proposed project, if authorized, reaches the construction phase. There may be a more immediate solution to the protection of Woodtick Peninsula. Maintenance dredging of the Maumee Bay entrance channel is needed in the near future, and would require a confined disposal facility (CDF). Since the Woodtick Peninsula is near this channel, it appears to be a logical site for the CDF.

2. Comment: In the staff's review of the survey report on modifications for Monroe Harbor we believe there is a serious omission in the analysis of benefits attributable to the Woodtick site. We are distressed to learn that the cost-benefit analysis of the alternative sites available for containment of dredgings from the harbor improvements did not include benefits at the Woodtick site which would result from the protection of the Erie State Game Area should a containment system be constructed there.

We appreciate and understand that Congressional authorization and funding for detailed design memorandum studies for the Monroe Harbor modifications will permit a more exhaustive analysis of all the details surrounding such a project. Accordinly I would request that you provide my staff with a continuing opportunity to be involved and fully knowledgeable about the many details of the design memorandum as it would develop for this project.

Response: The benefits to be derived from protecting the Wetlands Erie State Game Area (Woodtick Peninsula) and the wetlands to be created in Plum Creek were not evaluated at this time due to lack of criteria from either the U.S. Fish and Wildlife Service and the Michigan Department of Natural Resources. The MDNR is preparing and will furnish criteria in the future. It is anticipated that during the design memorandum, the wetlands value criteria would be available and could be used to develop economic benefits and to further evaluate wetland protection and/or creation. Your input is essential and will be sought during the continuing progress of this project.

LOCAL INTERESTS

M. City of Monroe Michigan

1. Comment: The City of Monroe has reviewed both the Draft Survey Report and the Environmental Statement on modifications to Monroe Harbor, Michigan. The concepts implied and the recommendations are found to be consistent with the City of Monroe's policies for continued Port expansion and environmentally-sound industrial development.

Response: Your comment is noted.

2. Comment: The construction of contained disposal facilities (CDF) for the maintenance dredgings and harbor deepening projects has been previously supported by the City of Monroe. Continuation and expansion of the Port of Monroe is necessary in order to accomodate local concerns and enhance state and national economic expansion.

Response: Your comments are noted.

3. Comment: The City of Monroe has recently been notified by the Department of Natural Resources that its pre-application for funding under the State of Michigan's Coastal Zone Management Program has been approved. The funding will enable the City to coordinate a "Monroe Coastal Area Management Plan." This plan will serve as a precise management tool shaping land and water development decisions in the coastal area. In order to avoid duplication, the City of Monroe invites the Corps of Engineers to participate in this planning process. In this manner, questions and possible solutions for future development in this coastal area may be discussed and recognized by all interested groups.

Response: The Corps has coordinated with and is coordinating all Michigan projects with the Michigan Coastal Zone Management Program. The proposed project is in accordance with the "Monroe Coastal Area Management Plan". Current and proposed projects in the Monroe area would be fully coordinated with the State and the City of Monroe to insure that the proposal is in agreement with the coastal zone management program.

4. Comment: In summary, the City of Monroe finds no significant impacts associated with the recommendations contained in the Draft Environmental Statement on modifications to Monroe Harbor, Michigan.

Response: Your comment is noted.

N. Lake Erie Advisory Committee -

1. Comment: The Lake Erie Advisory Committee appreciates the opportunity to make comments regarding the Draft Environmental Statement

(DES) on modifications to Monroe Harbor, Michigan dated May 1978. We commend you for the introduction of innovative marsh building as an integral part of confined disposal for dredged materials. We support Site #1 (Selected Plan #1 NED EQ) as described in paragraph 1.13 of the DES.

Response: Your comments and support are noted.

1. Comment: Please note that there are several minor discrepancies in paragraph 1.13 (pg. 4 - DES). The Confined Disposal Facility (CDF) would be located at the mouth of the McMillan Canal which connects Plum Creek Bay and Lake Erie. Plum Creek is misspelled. The correct spelling is Plum Creek. The reference to Raisin River is not correct. The correct designation is River Raisin as in River Seine. Please correct these references in the Final Environmental Statement (FES). Also paragraph 4.19 (pg.24 - DES) should be reviewed carefully for the overall area protected by the proposed CDF. 170 acres seems conservative. The acreage (wave shadow zone and shoreward areas) should be substantially greater when you consider the combined effect of the recently constructed Bolles Harbor CDF and proposed Site #1. The existing Bolles Harbor CDF should also be mentioned in the FES as a contributing factor. A more holistic view needs to be taken of the overall modification project. Presently Edison flyash basins, Plum Creek Bay, McMillan Canal and the islands provide shelter for fish and wildlife which were displaced by industrial activities at the Port of Monroe i.e. North Star Steel, Edison coal handling facilities etc. In the future as the flyash basins on Raisin Point and E. Dunbar Rd. are filled, water oriented wildlife will seek other protected areas. The wetlands created by proposed Site #1 will provide that habitat. It is important to understand this relationship of Harbor areas in displacing wildlife to make way for industrial activity and disposal of dredged material or combustion by-products. Mitigation is a vital factor in this process.

Response: McMillan Canal was created in the mouth of Plum Creek to receive the thermal discharge. Plum Creek discharges into the canal and then into Lake Erie. Nearly all maps list the discharge mouth as Plum Creek. To avoid confusion, this has not been changed.

The document has been reviewed and editorially corrected. The marsh acreage behind the disposal facility has been enlarged to 700 acres. As noted in paragraph 4.14, the CDF and marsh would protect the Bolles Harbor entrance channel. Plate 3 has been modified to show access from the Bolles Harbor CDF to the proposed disposal facility. Paragraph 4.19 has been modified. As noted in your comments, the marsh system to be created would make substantial habitat for fish and wildlife. We feel that using dredged material to protect and restore a marsh ecosystem is worthwhile and beneficial.

2. Comment: Change Site Priorities - use proposed Site #1 for maintenance dredgings instead of Sterling State Park. The polluted nature of maintenance dredgings does not lend itself to public confidence. Such dredgings should not be dumped on a public beach. Proposed Site #1 is better suited for the polluted material because it is in an isolated area and can

withstand the sheer volume of backlogged maintenance dredgings. The cleaner materials from the modification project would benefit Sterling State Park more and preclude any concern for pollution of the public bathing beach. The volume of material from the modification project may be far less for confined disposal because of alternate uses such as road building or upland fill.

Response: Maintenance dredging of the existing channel at Monroe is essential in the near future if the channel is to remain open. The proposed construction of the confined disposal facility (CDF) and marsh, if authorized, is years into the future. A site and configuration for a confined maintenance dredging facility at Sterling State Park was determined after extensive coordination with the Michigan Department of Natural Resources, the Fish and Wildlife Service and the EPA. With substantial input from the Michigan Parks Department, the CDF is being designed to benefit the park and the public. Clean material from the modification project would be utilized in marsh creation. A Draft Environmental Impact Statement on a confined disposal facility for maintenance dredging at Monroe is scheduled for public release in 1980.

3. Comment: Coordinate Plans - Federal consistency requirement under P.L 92 - 583 (Coastal Zone Management Act of 1972) require the U. S. Army Corps of Engineers to coordinate the modification project at Monroe Harbor with with the STate of Michigan Coastal Management Program as recently published by the U. S. Department of Commerce (July 1978 - extract attached). The proposed modification project must be consistent with State plans now being developed under Section 306, P.L. 92-583 and with local plans as funded under Section 306 applications. The Department of Community Development, City of Monroe, has applied to the State of Michigan for funds to implement planning for Monroe Harbor under Section 306, P.L. 92-583. The FES must address this process to the full extent required by Federal consistency rules.

Response: The modification project has been coordinated with the Coastal Zone Management Program and is consistent with the Monroe Coastal Area Management Plan. The City of Monroe has been notified that its pre-application for funding under the State's Coastal Zone Management Program has been approved. See Section 9 and comment-response M-3.

O. Michigan United Conservation Clubs

1. Comment: The Michigan United Conservation Clubs would like to reiterate its support for construction of a confined disposal facility at Raisin Point to contain polluted sediments from the Monroe Harbor area. We have previously outlined reasons for that support and and will not repeat them in this letter. Specifically, we support the position of the U.S. Fish & Wildlife Service to construct a facility south of the McMillan Canal at Plum Creek Bay. We also recommend consideration be given to a second barrier north of the canal to further enhance marsh restoration and minimize hauling costs of dredged materials.

Response: Your comments are noted. There is currently no need for a second barrier north of the canal. In the future, should a site be required, this alternative would be considered.

2. Comment: Because of the intense public recreational use of Sterling State Park, we do not believe disposal of polluted spoils at that location or construction of a major confined disposal facility is in the public interest. In light of the reopening of the beach to swimming after 17 years of polluted waters, we believe any such plan is inappropriate at this time when alternative disposal locations are available.

Response: Your comment refers to the confinement of dredged materials from maintenance dredging at Monroe Harbor. Please see comment-response L-3.

P. Southeast Michigan Council of Governments

1. Comment: As the certified A-95 Clearinghouse for Southeast Michigan, SEMCOG has received and reviewed both the Draft Survey Report and the Draft Environmental Statement refered above. In accordance with standard A-95 review procedures, the following agencies have been contacted requesting their comments:

Michigan Department of Civil Rights
Toledo Metropolitan Area Council of Governments
Monroe County Planning Commission
City of Monroe
Monroe Township
Frenchtown Township

To date, comments have been received from the Monroe County Planning Commission. The Commission endorsed both the Draft Survey Report and the Draft Environmental Statement. Their comments are attached. Any additional comments will be forwarded to you as they are received.

Response: Your review is appreciated.

2. Comment: Our review indicated no apparent conflicts with SEMCOG's plans or policies. However, we have some comments which we hope will be addressed in the Final Survey Report and Final Environmental Statement.

Our comments are:

1) Both reports should include a section describing the material to be initially dredged under the proposed plan. The quantities of both"unsuitable" and "suitable" materials should be estimated. Also the criteria used to identify "unsuitable" material should be explained in each of the reports.

Response: The channel material was sampled and analyzed by the EPA. The results of this analysis is contained in Appendix B. Because only the last 1,000 feet was considered suitable for open lake disposal, 'worst case' conditions were assumed. The current plan assumes that all the material would need to be confined. However, we believe that when proper deep core samples are taken and analyzed, some material would be considered'clean' and available for use in marsh habitat creation. See comment-response C-2.

3. Comment: 2) There was no mention of the disposal method for material "suitable" for open water disposal. It is assumed that this "suitable dredge material is not the same as the "clean fill" for building of the marsh behind the confined disposal facility (CDF). If this assumption is correct the disposal site for the "suitable" dredge material should be identified.

Response: Please see comment-response P-2 above.

4. Comment: The contents and recommendation of the letter from Mr. Conrad J. Kirby, (Chief, Environmental Resource Division, Waterways Experiment Station, Corps of Engineers) on page C-5 of the Draft Environmental Statement should be discussed in both reports and implemented if practical. Mr. Kirby states that the sequence in the dredging operation can have an impact on the contamination of the vegetation growing on top of the finished CDF. The dredging of the most contaminated sections, first, will put this material at the bottom of the CDF.

Response: This will be considered. See comment-response C-3.

5. Comment: It would be helpful if both reports contained a detailed design of the confined disposal facility. It is difficult to visualize the construction without the aid of drawings. On page 4 of the Draft Environmental Statement the height of the CDF is given as " . . . maxiumum height above Low Water Datum of 14 feet,. . .". What is the minimum height? Is the CDF being designed to survive a 1 in 100 year high water level for Lake Erie. Please address these questions in your final report.

Response: Detailed design drawings would be prepared during the next study phases and would be publicly reviewed. The statement on maximum height has been modified (paragraph 1.14). The height of the CDF is of sufficient height to prevent being flooded and is well over the 1 in 100 year water level for Lake Erie.

6. Comment: In closing, we wish to thank the Army Corps of Engineers for the opportunity to comment on these two draft reports. It is our hope that these comments will be of help to the Corps when the final reports are printed and released.

Response: Your comments are noted and your review appreciated. Comments from the Monroe County Planning Commission inclosed with your letter are responded to below.

7. Comment: SECTION 2.15 - The projected population figures used in this section are from the Toledo Regional Area Plan for Action. In the accompanying document, Modifications to Monroe Harbor-Survey Report, the population projections used were produced by the State of Michigan. As the two projects do not agree it would seem adviseable to use one of the projections in both documents. If such a recommendation could be made, staff feels that the State of Michigan project, OBERS-E, is more desireable as it is compatible with the projections made by the Monroe County Planning Department.

Response: The information was changed to reflect the State of Michigan projects as suggested.

8. Comment: SECTION 3.03 - A reference is made to the Comprehensive Development Plan for the Monroe County Region 1966-2000 as the source of information used in development of the land use plan for the Monroe Harbor Area. COMPLAN 2000 is seriously outdated and has been replaced by the three-volume Monroe County: Year 2000 General Development Plan which was produced in September, 1976. As such, it should be used as the correct information source.

Response: Section 3.03 has been changed to reflect the new information.

9. Comment: Staff recommends that the Monroe County Planning Commission endorse this Draft Environmental Impact Statement prepared by the U.S. Army Corps of Engineers for the proposed improvements to Monroe Harbor.

Response: Your comments and recommendations are noted.

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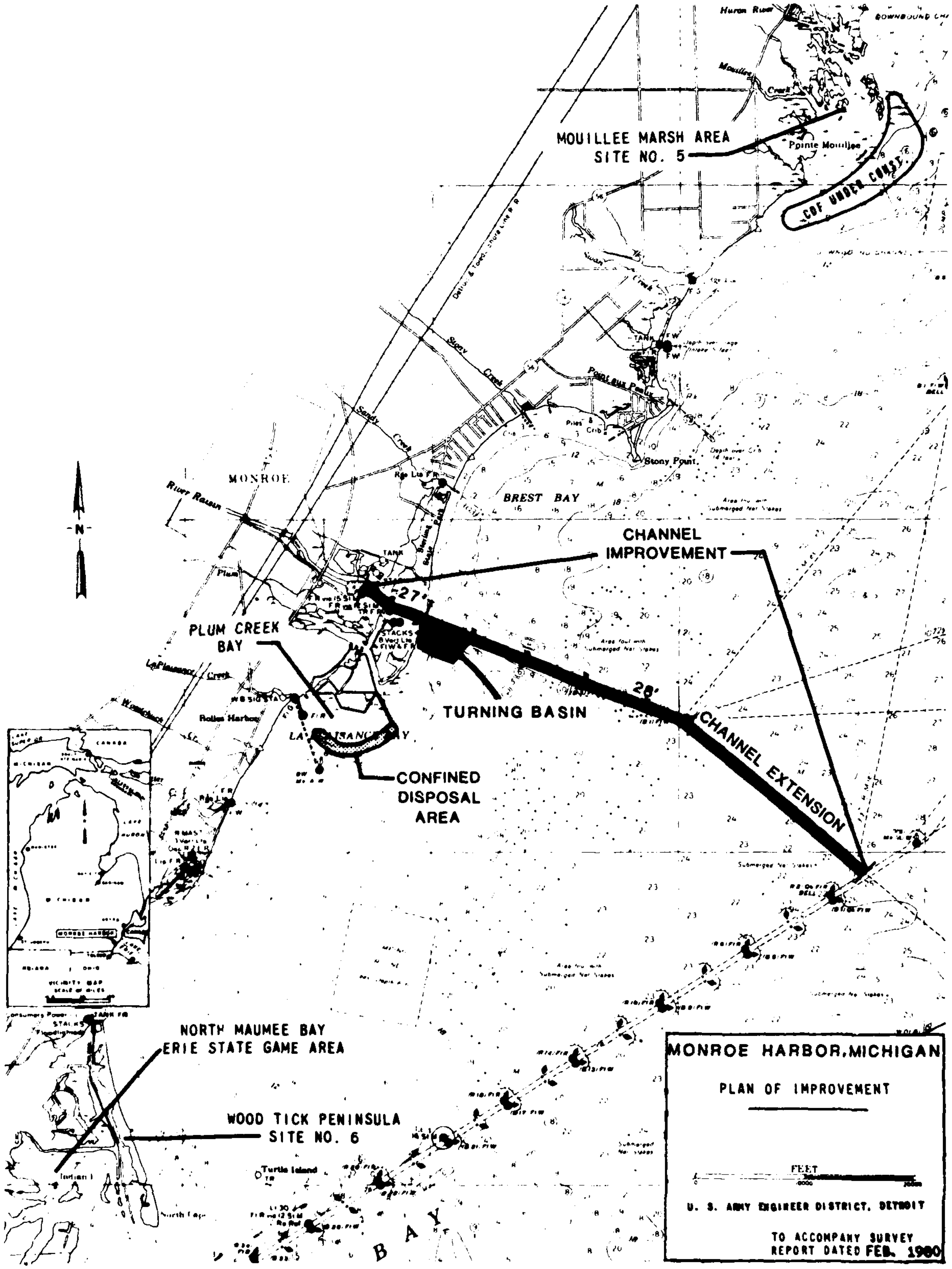
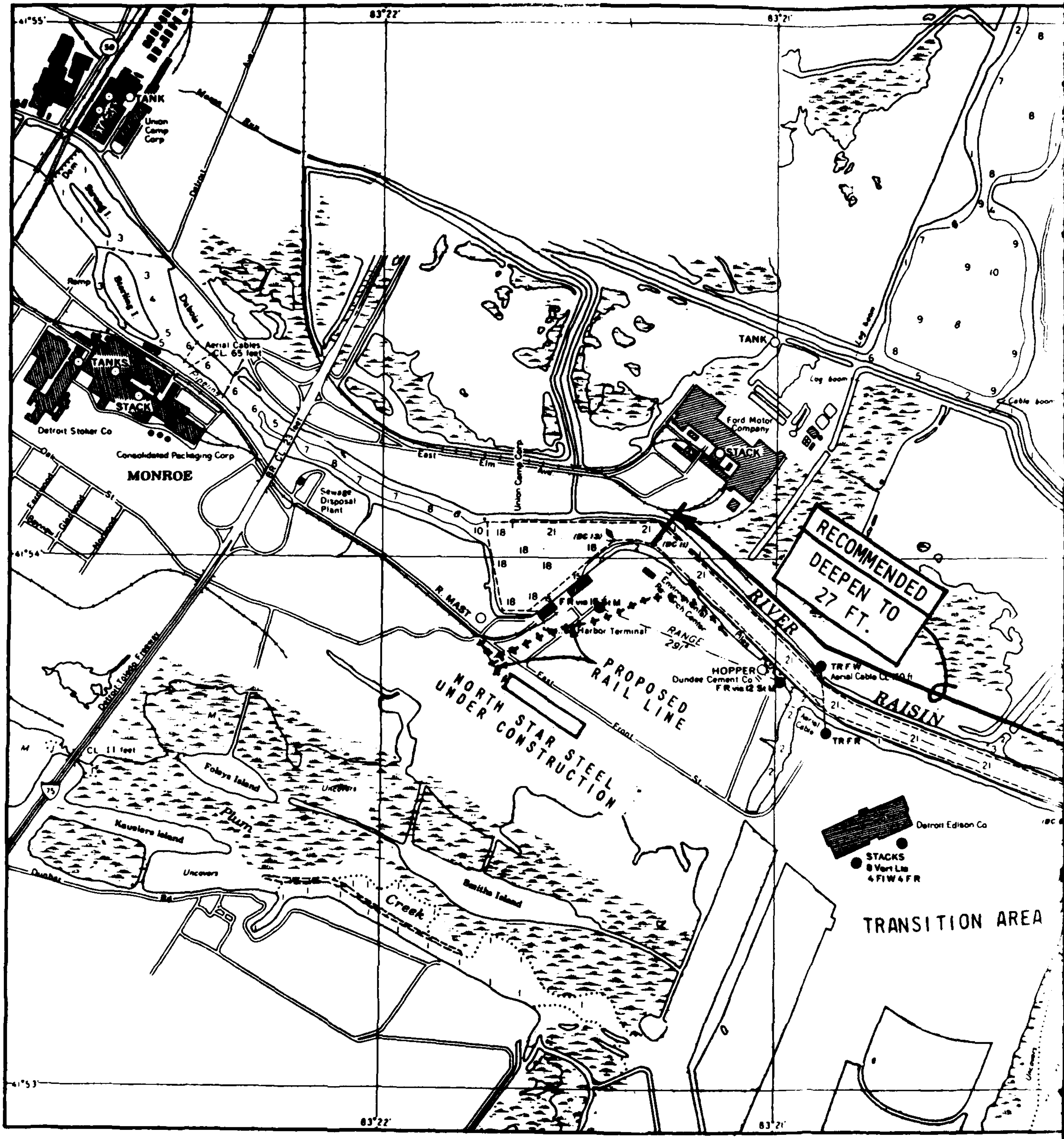

MOUILLEE MARSH AREA
SITE NO. 5
CDF UNDER CONST.
Pointe Mouillee
Huron River
Mouillee Creek
Swan Creek
Stony Creek
Sandy Creek
Point aux Peaux
Stony Point
BREST BAY
MONROE
River Raisin
CHANNEL
IMPROVEMENT
27'
28'
PLUM CREEK
BAY
TURNING BASIN
CHANNEL EXTENSION
CONFINED
DISPOSAL
AREA
Rolles Harbor
NORTH MAUMEE BAY
ERIE STATE GAME AREA
WOOD TICK PENINSULA
SITE NO. 6
Turtle Island
BAY
N
MONROE HARBOR, MICHIGAN
PLAN OF IMPROVEMENT
FEET
U. S. ARMY ENGINEER DISTRICT, DETROIT
TO ACCOMPANY SURVEY
REPORT DATED FEB. 1980

PLATE 1



83°22'
83°21'
41°55'
41°54'
41°53'
TANK
Union Camp Corp
MONROE
TANKS
STACK
Detroit Stoker Co
Consolidated Packaging Corp
Aerial Cables CL. 65 feet
Sterling I.
Dubois I.
Sewage Disposal Plant
East Elm Ave
Union Camp Corp
Ford Motor Company
STACK
TANK
Log boom
Cable boom
RECOMMENDED DEEPEN TO 27 FT.
RIVER
RAISIN
R MAST
Harbor Terminal
RANGE 291°
PROPOSED RAIL LINE
NORTH STAR STEEL UNDER CONSTRUCTION
HOPPER
Dundee Cement Co
TR F W
Aerial Cable
TR F R
East Front St
Detroit Toledo Freeway
CL 11 feet
Foleys Island
Kausler Island
Plum Creek
Smiths Island
Uncovers
Detroit Edison Co
STACKS
TRANSITION AREA

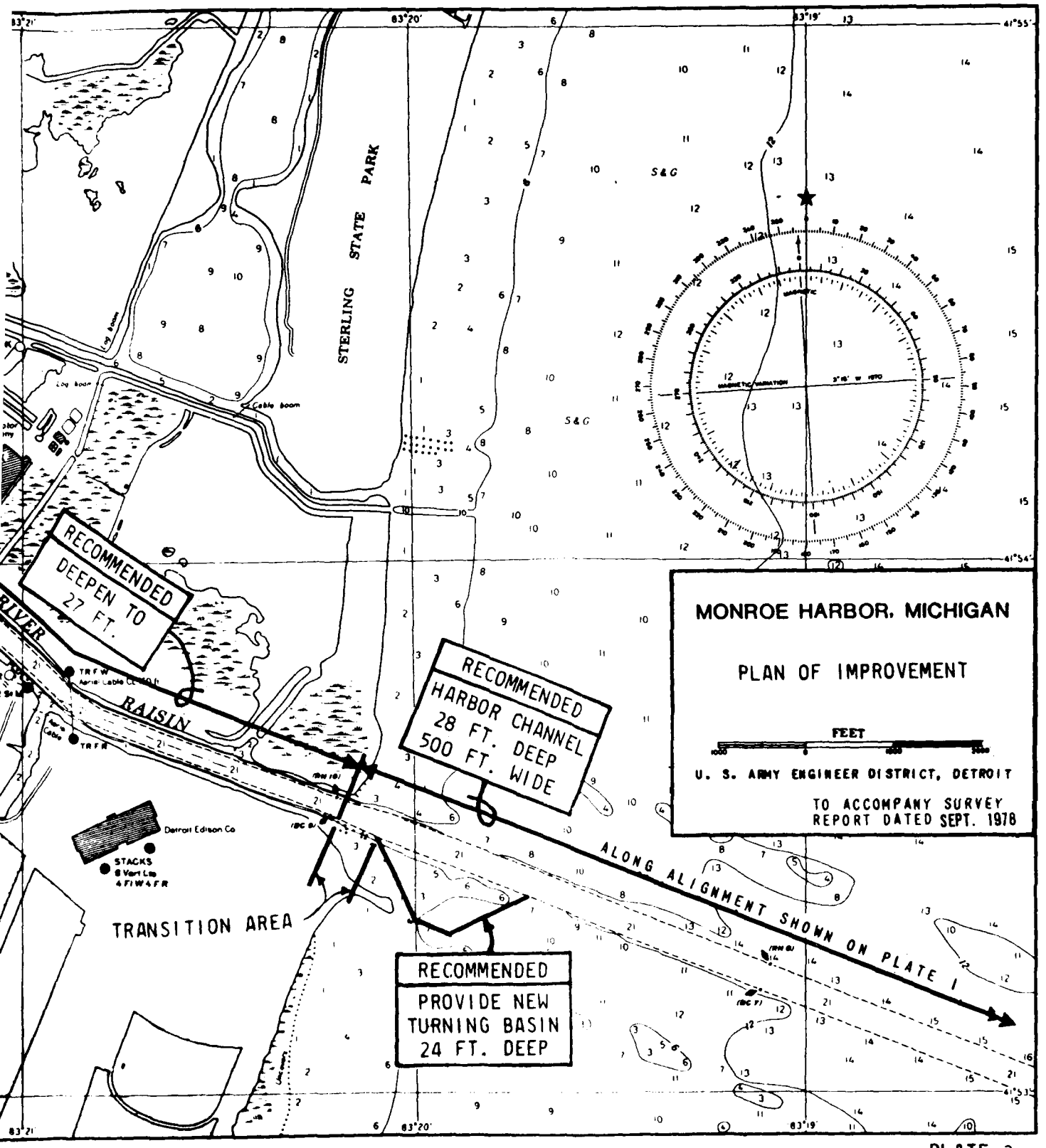
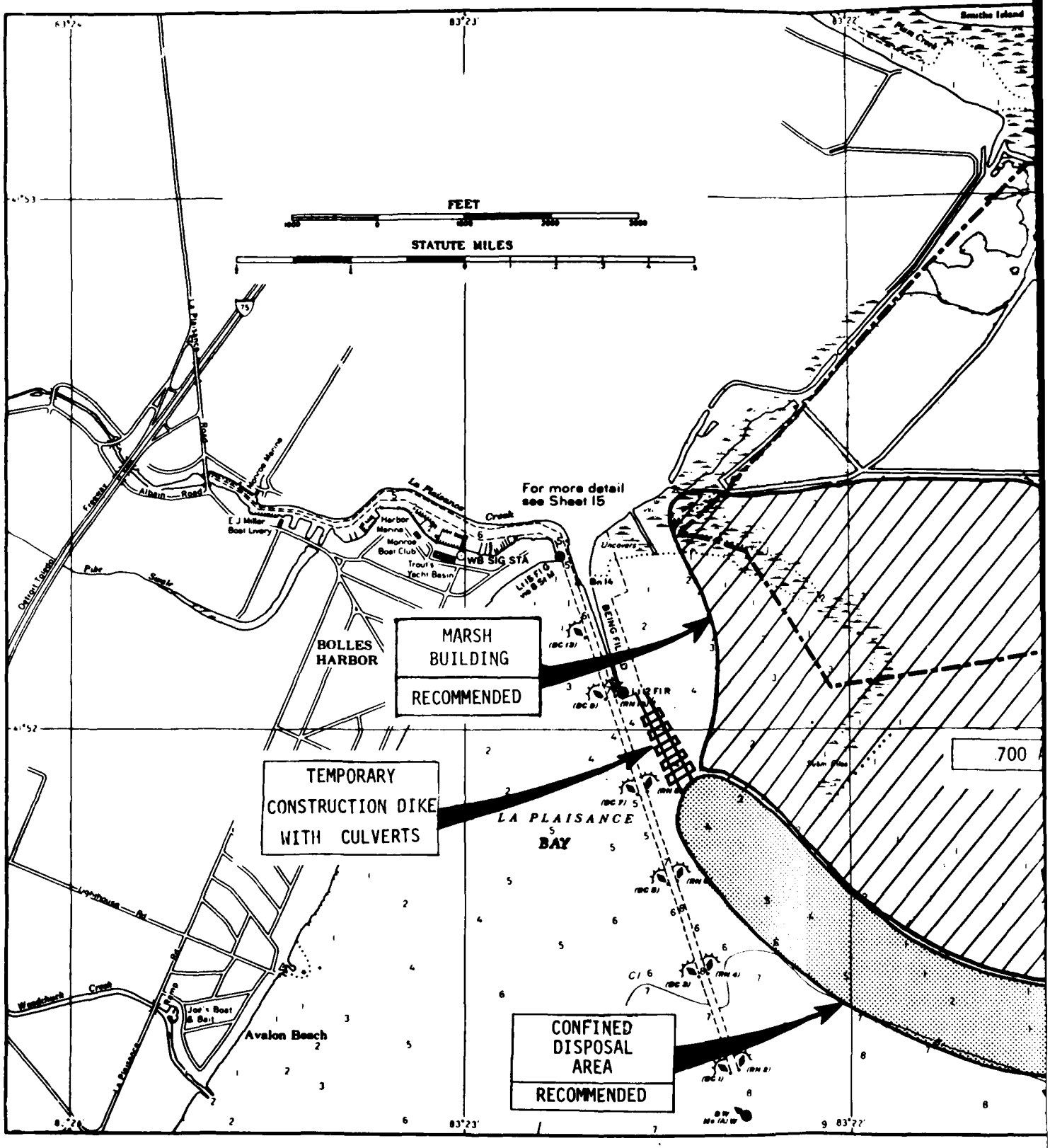

STERLING STATE PARK
S&G
S&G
RECOMMENDED
DEEPEN TO
27 FT.
RECOMMENDED
HARBOR CHANNEL
28 FT. DEEP
500 FT. WIDE
RECOMMENDED
PROVIDE NEW
TURNING BASIN
24 FT. DEEP
RAISIN
RIVER
ALONG ALIGNMENT SHOWN ON PLATE 1
TRANSITION AREA
Detroit Edison Co
STACKS
MONROE HARBOR, MICHIGAN
PLAN OF IMPROVEMENT
FEET
U. S. ARMY ENGINEER DISTRICT, DETROIT
TO ACCOMPANY SURVEY
REPORT DATED SEPT. 1978

PLATE 2

2


FEET
STATUTE MILES
For more detail see Sheet 15
MARSH BUILDING
RECOMMENDED
TEMPORARY CONSTRUCTION DIKE WITH CULVERTS
CONFINED DISPOSAL AREA
RECOMMENDED
BOLLES HARBOR
LA PLAISANCE BAY
Avalon Beach
Monroe Harbor
Harbor Marina
Monroe Boat Club
Trout's Yacht Basin
E J Miller Boat Livery
WB SIG STA
Albain Road
Creek
700

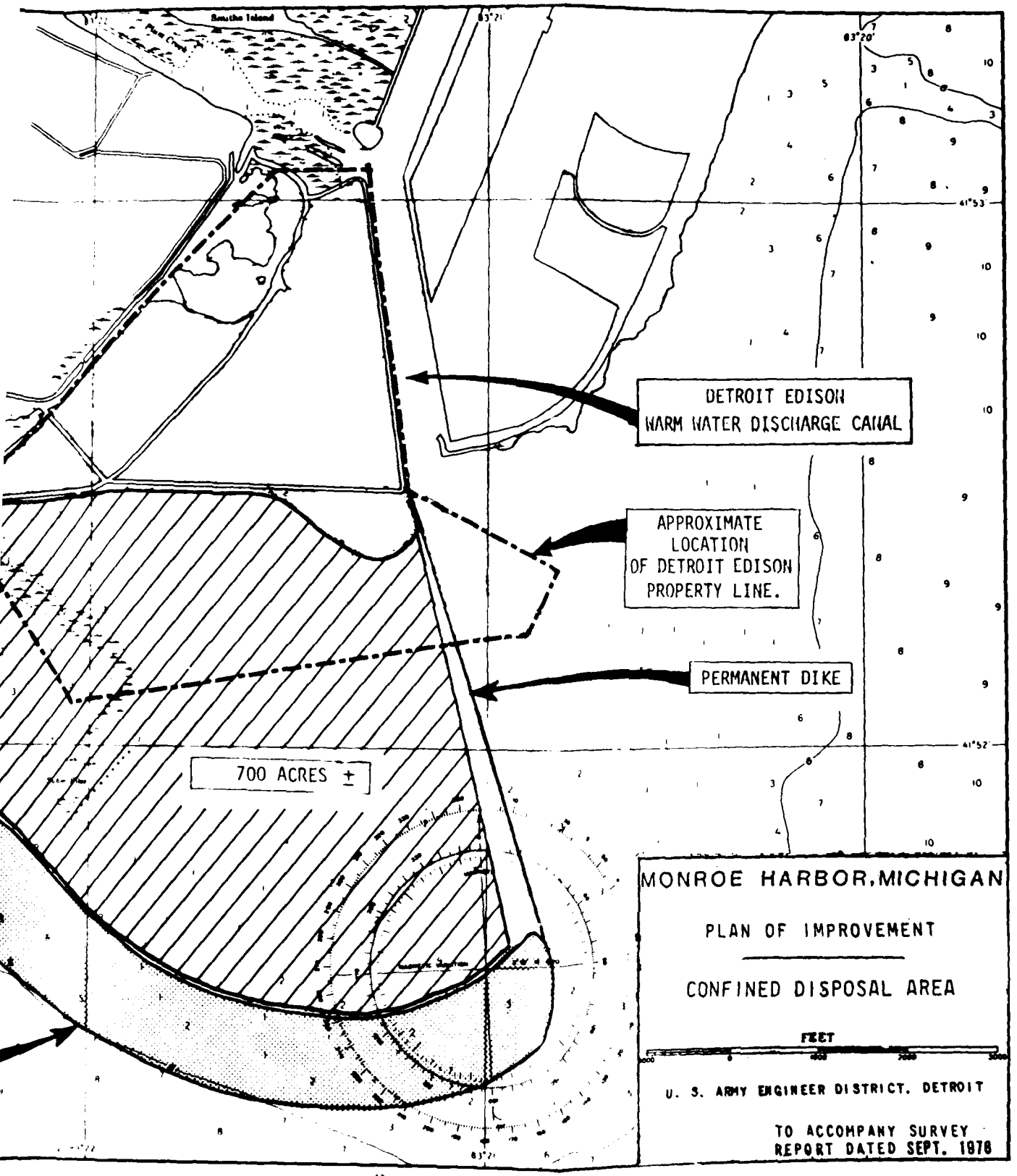

DETROIT EDISON
WARM WATER DISCHARGE CANAL
APPROXIMATE
LOCATION
OF DETROIT EDISON
PROPERTY LINE.
PERMANENT DIKE
700 ACRES ±
MONROE HARBOR, MICHIGAN
PLAN OF IMPROVEMENT
CONFINED DISPOSAL AREA
FEET
U. S. ARMY ENGINEER DISTRICT, DETROIT
TO ACCOMPANY SURVEY
REPORT DATED SEPT. 1976

PLATE 3

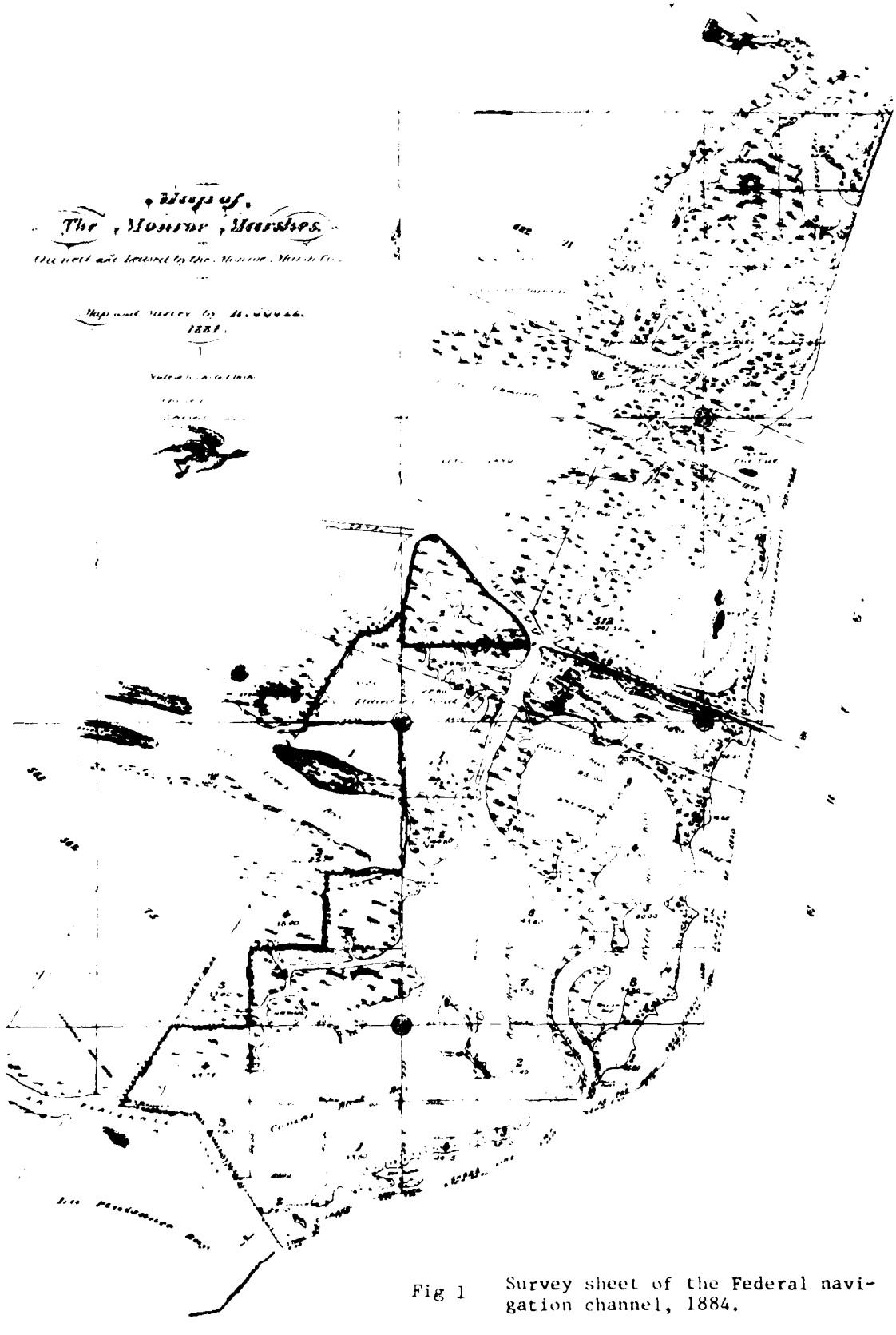


Fig 1 Survey sheet of the Federal navigation channel, 1884.

Aerial photograph of the Monroe

Fig 3 Aerial photograph of the Monroe area, 1975.

APPENDIX A

LETTERS OF RESPONSE TO THE DRAFT ENVIRONMENTAL STATEMENT

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE
CENTER FOR DISEASE CONTROL
ATLANTA, GEORGIA 30333
TELEPHONE: (404) 633-3311

July 28, 1978

U.S. Army Engineer District, Detroit
ATTN: Chief, Environmental Resources Branch
P. O. Box 1027
Detroit, Michigan 48231

Dear Sir:

We have reviewed the draft survey report and environmental statement on Modifications to Monroe Harbor, Michigan. We are responding on behalf of the Public Health Service.

We have reviewed the subject documents for potential vectorborne disease impacts. The reports show that dredged material will be deposited in terrestrial disposal sites. Disposal sites frequently contribute to mosquito production and require substantial control efforts in order to maintain the mosquito populations at acceptable levels. Provisions should be made in the final EIS to provide for control in the event of a serious mosquito problem.

Thank you for the opportunity of reviewing these documents. We would appreciate receiving two copies of the final statement when it is issued.

Sincerely yours,

Vernon N. Houk
for

William H. Foege, M.D.
Assistant Surgeon General
Director

UNITED STATES DEPARTMENT OF AGRICULTURE

SOIL CONSERVATION SERVICE, 1405 SOUTH HARRISON ROAD, ROOM 101, EAST LANSING, MICHIGAN 48823

July 18, 1978

U.S. Army Engineer District, Detroit
P. O. Box 1027
Detroit, Michigan 48231

ATTN: Chief, Environmental Resources Branch

Gentlemen:

We have reviewed the Draft Environmental Statement and Draft Survey Report concerning deepening, widening and dredge disposal for the River Raisin channel and turning basin at Monroe Harbor, Michigan. We do not have any comment on the statement.

Thank you for the opportunity to provide comments.

Sincerely,

Arthur H. Cratty
State Conservationist

cc: R. M. Davis, Administrator, SCS, Washington, D.C.
Coordinator of Environmental Quality Activities, USDA, Washington, D.C.
Director, Office of Federal Activities, EPA, Washington, D.C.

AHC:rms:nm:1759A

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

AUG 30 1978

Colonel Melvyn D. Remus
District Engineer
U.S. Army Engineer District, Detroit
Box 1027
Detroit, Michigan 48231

Dear Colonel Remus:

We have completed our review of the Draft Environmental Impact Statement (EIS) on Modifications to Monroe Harbor, Michigan. The proposed plan for harbor modification consists of deepening (27-28 feet below Low Water Datum) and widening (500 feet) of the lake channel and lower river channel of the existing project. It also provides for lengthening the existing channel and for the construction of a turning basin in Lake Erie. The dredged material, which is unsuitable for open water disposal, would be confined in a crescent shaped disposal facility of approximately 190 acres. A wetland would be created behind the disposal facility by raising the lake bottom with clean fill to approximately Low Water Datum. Through communications with the COE's Detroit District office, we understand that this is a difficult time in project planning, i.e., at the Survey Report stage, to obtain information on and assess very specific or detailed type impacts which may result from the project. However, we still believe that this Draft EIS does not adequately assess the total environmental impacts associated with the project. Furthermore, those areas in which the EIS is deficient may present serious environmental problems. We are specifically concerned about a significant reduction of lake bottomland in an already environmentally stressed area, effects of the proposed confined disposal area on the thermal discharge from Detroit Edison's Monroe Power Plant, potential water quality impacts from entrapment of the La Plaisance Creek discharge, and future impacts associated with disposal of maintenance dredged materials. We offer the following comments for your use in preparation of the Revised Draft EIS on the proposed project.

Dredging

The sediment data from our survey of October 18, 1976, (copy attached) should be included for completeness. The Draft EIS refers to sediments that are unsuitable for open lake disposal, but doesn't state which areas of the project these are. The pollutional designations of the project areas should be clearly stated. The capacity of the proposed confined disposal facility will be 5 million cubic yards. On page 21,

AUG 30 1978

it is estimated that 5 million cubic yards of material will be dredged in constructing the new channel and turning basin. This means that the confined disposal facility has no excess capacity for future dredging to maintain the project depths. Future maintenance dredging should be quantified, and disposal of that material addressed. The Revised Draft EIS should indicate if dredging to deep draft depths will involve materials that would require special construction techniques, such as blasting, for removal. It should be explained if it is anticipated that any of the construction or maintenance material would not be polluted.

A sediment analysis is presented in Tables I and II (pages B-6 and B-7). From the analysis, it appears that sediments from certain sampling stations, MON 75-8, 9 and 10, are more grossly contaminated than others. Consideration should be given to developing a dredging program which would remove these grossly contaminated areas first, so that they could be confined in a deep, central portion of the confined disposal facility. This type of operation would result in minimizing the environmental input on the proposed marsh area by isolating these contaminants from direct contact with marsh vegetation, aquatic organisms, and water currents.

Confined Disposal of Dredged Material and Marsh Establishment

It should be indicated in the EIS that the area proposed for confined disposal is already environmentally stressed, due to encroachment on and reduction of wetlands and lake bottomlands; Detroit Edison's Monroe Power Plant's intake and thermal discharge; and other ongoing Federal projects, including confined disposal areas for Bolles Harbor, Monroe Harbor (maintenance) at Sterling State Park, Point Mouillee, and Toledo Harbor.

The value of lake bottomlands that will be impacted by the project, including 190 acres destroyed by construction of the confined disposal facility; 170 acres lost to marsh establishment; and those areas disturbed by construction of the new turning basin and channel extension will have to be determined. Benthic organisims and use of the area by fish for feeding, foraging, and migration would be eliminated.

The impact statement fails to consider the effects of the proposed disposal facility on the dispersion of the thermal plume from the Monroe Power Plant. The U.S. Environmental Protection Agency (U.S.EPA) is now reviewing both the 316(a) and (b) demonstrations for this station. Construction of the disposal facility could cause plume dispersion to change dramatically and exposure times of entrained fish larvae to increase. Mortality due to plume entrainment will increase, especially when winds are out of the north and east, increasing the adverse effects of the Monroe station on western Lake Erie fish populations. It should be noted that, with implementation of the proposed project, Detroit Edison may be requested to restudy the impact of its facility and to rewrite portions of the 316(a) and (b) demonstrations to address impacts associated with the project.

AUG 30 1978

The potential for successfully establishing a marsh area in the existing stressed conditions is questionable. Establishment of marsh vegetation on Detroit Edison's fly ash disposal areas does not present a valid comparison, considering the difference in substrate, water quality, and flow characteristics.

The source for clean material for marsh establishment should be identified in the EIS. A time frame for completion of the disposal facility and the marsh should be estimated. Plans for vegetation of the marsh should be explained, i.e., will specialized planting be planned or natural revegetation be allowed to occur. It is possible that the 170 acres could be lost to production for several years, if not longer.

Potential effects of the proposed confined disposal facility on shore erosion and littoral currents will have to be investigated. Considering there is a net littoral drift from north to the south in the project area, the potential for the new turning basin to trap sediment and increase shore erosion should also be addressed.

The present water quality of La Plaisance and Plum Creeks should be included in the Draft EIS, and the potential impacts of trapping water discharging from those creeks behind the confined disposal facility assessed.

It should be noted that, according to the SEMCOG (Southeastern Michigan Council on Governments) report "Coastal Areas of Particular Concern in Southeast Michigan," August 1976, the proposed Confined Disposal Facility (CDF) is located in a "flood-risk area of particular concern."

The EIS should address secondary impacts associated with harbor modifications, including the potential for increased intrusion in area wetlands and particularly the Foleys and Smiths Islands area.

General

It is unclear why it is being recommended on page 37 of the Draft EIS that appropriate State permits required for the project be waived. The assumptions used as a basis for this recommendation should be explained. Furthermore, in view of the inadequate assessment of the project to date, U.S. EPA recommends that no waiver of permits be considered.

The section of the EIS on "Coordination" (page 36) is confusing. It should be pointed out that U.S.EPA is not a member of the Port Area Development Committee, and has not voted to concur with the proposed harbor modifications.

Some aspects of the cost analysis for the proposed project should be explained in the EIS. A comparison should be made of economic benefits to the companies involved to total costs of project implementation,

AUG 30 1978

including initial construction and future maintenance activities. Total costs of harbor modifications should also be compared to the difference in costs to Detroit Edison for shipment of western coal with the proposed project, and for shipment of western coal with the most feasible least-cost alternative described in the Preliminary Feasibility Report (i.e., shipment from Superior Harbor to Monroe via transhipment through a port facility at Toledo).

As indicated in the above discussion, and in accordance with EPA's procedures, we have classified our comments on the Draft EIS as Category 3; that is, we believe that the draft EIS does not adequately assess the environmental impact of the proposed project. The date and classification of our comments will be published in the Federal Register.

Thank you for the opportunity to review the subject document. If you have any questions about our comments, please contact Ms. Barbara Taylor, of my staff, at 312/353-2307. Please send us two copies of the Revised Draft EIS when it is filed with the U.S.EPA in Washington, D.C.

Sincerely yours,

Valdas V. Adamkus
Acting Regional Administrator

FEDERAL ENERGY REGULATORY COMMISSION

Washington, D.C. 20426

Federal Building - Room 3130
230 South Dearborn Street
Chicago, Illinois 60604

In reply refer to:
OEPR-CH

July 26, 1978

Your Reference: NCEED-ER

Mr. P. McCallister
Chief, Engineering Division
Department of the Army
Detroit Dist., Corps of Engineers
Box 1027
Detroit, Michigan 48231

Dear Mr. McCallister:

We have reviewed the Draft Environmental Statement on Modifications to Monroe Harbor, Michigan, which was sent to our office for comment by your May 31, 1978 letter. The comments of this office are made in accordance with the National Environmental Policy Act of 1969 and August 1, 1973 *Guidelines* of the Council on Environmental Quality.

Our review of the statement is principally oriented toward determining the effect of the proposals on matters related to the Commission's responsibilities. These responsibilities pertain to the development of hydroelectric power, the assurance of reliability and adequacy of bulk electric power facilities, and the construction and operation of natural gas pipeline facilities.

Since the planned dredging would not pose a major obstacle to the construction or operation of such facilities, and since the Draft Environmental Impact Statement does not indicate that natural gas and electric utilities would be affected, we have no comments.

Very truly yours,

Bernard D. Murphy
Regional Engineer

UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Science and Technology
Washington, D.C. 20230
(202) 377-3111

July 25, 1978

Mr. P. McCallister
Detroit District, Corps of
Engineers
Department of the Army
Post Office Box 1027
Detroit, Michigan 48231

Dear Mr. McCallister:

This is in reference to your draft environmental impact statement entitled, "Modifications to Monroe Harbor, Monroe County, Michigan." The enclosed comments from the National Oceanic and Atmospheric Administration are forwarded for your consideration.

Thank you for giving us an opportunity to provide these comments, which we hope will be of assistance to you. We would appreciate receiving eight (8) copies of the final statement.

Sincerely,

Sidney R. Galler
Deputy Assistant Secretary
for Environmental Affairs

Enclosure Memo from Dr. Eugene J. Aubert
Director, GLERL, RF24

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
ENVIRONMENTAL RESEARCH LABORATORIES

Great Lakes Environmental Research Laboratory
2300 Washtenaw Avenue
Ann Arbor, Michigan 48104

July 5, 1978

TO : Dr. William Aron
Director, Office of Ecology and Conservation, EC

FROM : Dr. Eugene J. Aubert
Director, GLERL, RF24

SUBJECT : DEIS 7806.14 - Modification of Monroe Harbor, Michigan

The subject DEIS prepared by the Corps of Engineers, Detroit District, on modification of Monroe Harbor, Lake Erie, has been reviewed and comments herewith submitted.

Judging from the data given in the Environmental Impact Statement, Detroit Edison Company is planning to expand greatly the power plant at Monroe. The present coal consumption is approximately seven million tons per year, of which over six million are shipped by rail and nearly one million by water. While by 1980, shipment by rail will increase by an unknown but probably minor amount (Paragraph 4.13), the shipment by water will increase to 8.5 million tons. It is estimated here that by 1980, the Monroe Plant coal consumption will be nearly 15 million tons per year. This planned expansion of the Monroe Plant will greatly increase air pollution and thermal input into Lake Erie, and will require additional navigation channel capacity. Instead of handling the plant expansion as a single major project having great impact on the environment, the approach used here is to present the plant expansion needs split in individual actions.

Improvements for deep draft navigation include addition of six miles of channel to the existing five miles and construction of a diked enclosure on Lake Erie bottom to store five million cubic yards of polluted dredge spoil. Annual costs for a fifty-year project life are 6.4 million dollars (Appendix G-L). It appears that costs of maintenance dredging and the required spoil disposal facilities are not included in project costs. Due to increased

channel length, width, and depth, the improved channel will trap much more littoral drift and therefore will cost much more to maintain. Considering that at the present time, it is difficult to find satisfactory spoil disposal sites, future disposal could become problematic. These problems should be fully addressed in the Statement and costs of maintenance should be included in benefit cost evaluation.

In discussion of alternatives (Paragraph 6.01), two alternatives were found for channel deepening: the non-action alternative and the deepening alternative. Although, as stated, the trade-off's have been discussed throughout the report, the alternative of shifting costs of construction and maintenance from federal government to the utility was not discussed. It is believed that this approach would provide a realistic economic evaluation of existing choices of rail versus water transport.

Determination that entire dredge spoil is polluted and should be placed in contained facilities was based on samples taken from the bottom of present navigation channel. Since the project involves seven feet of new dredging, it can be assumed that majority of new dredging will be unpolluted and would not require expensive disposal facilities. It is suggested that borings down to the project bottom be used to determine pollution level, if any. The clean spoil should be used in the first place to form marsh areas. Another potential disposal would be along the channel to reduce shoaling.

Six alternatives were considered for the disposal of dredge spoil. All of them would provide storage capacity of five million cubic yards with no provision for storage of spoil from subsequent maintenance dredging. The selected location would be south of Monroe Harbor at the mouth of Plumb Creek and would cover 190 acres of Lake Erie bottomland. A wetland of 170 acres would be created behind the disposal dikes. Value of the wetland is disputed. While the Statement claims that creation of a marsh would greatly enhance fish and wildlife productivity, the U.S. Fish and Wildlife Service has reservations regarding the quality of wetlands considering the potential thermal plume problem. That concern was substantiated by a computer modeling (Page C-36). Our analysis of lake currents with the disposal facility in place indicates that for prevailing currents from the north, a clockwise eddy current fed by the thermal effluent will form at the wetland area. Currents from the south bringing colder lake water would bypass the wetland area. Overall effect on fish and wildlife would depend on the temperature of the effluent at the marsh site. The planned expansion of the power plant must be kept in mind in estimating the water temperature. Large part of the proposed marsh area is owned by Detroit Edison and adjoins Edison's fly ash disposal facilities. The facilities are no longer in use and contain marsh vegetation (Paragraph 4.03). The Statement gives no indication on Detroit Edison plans for the proposed marsh area, particularly after plant expansion, except that the bottomland would become exempt from future industrial development (Paragraph 3.03).

Another of the alternate sites for spoil disposal would be located south of the project channel. That site was considered infeasible because of objections to the filling of lake botton and that the access to it would be through the

Edison property. The Michigan Audubon Society proposed this arrangement on the basis that it would reduce the volume of maintenance dredging caused by south to north littoral drift. The net littoral drift, however, is north to south (Paragraph 6.05). Review of the above location indicates some advantages. Since channel shoaling is caused by littoral drift both from north and south, a definite reduction in maintenance dredging will be realized. Further reduction of shoaling would be obtained by disposal of clean spoil along the north side of the channel. The problem of filling of lake bottom exists anyway - the selected plan would fill 190 acres and this plan 137 acres. Detroit Edison objections indicate that in case of selected plan, a definite assurance should be obtained that the proposed marsh area on Edison property will remain marsh area and not at some future date be used for Edison needs, say for fly ash storage.

In summary, the main objection to the Statement is the presentation and discussion of a single activity taken from a major project, which in its entirety has significant impact on the environment. Comments presented here are for evaluation of what appears questionable items. We expect that a DEIS will be prepared for the planned expansion of Detroit Edison power plant at Monroe, which will include also the proposed improvement of navigation channel.

United States Department of the Interior

BUREAU OF MINES

4800 FORBES AVENUE

PITTSBURGH, PENNSYLVANIA 15213

ER 78/527

July 25, 1978

Chief, Environmental Resources Branch
U.S. Army Engineer District, Detroit
P.O. Box 1027
Detroit, Michigan 48231

Dear Sir:

Re: Review of Draft Environmental Statement for Modifications to Monroe Harbor, Monroe County, Michigan

The Eastern Field Operations Center has reviewed the subject draft environmental impact statement prepared by the Detroit District of the U.S. Corps of Engineers. The proposed harbor modification consists of widening and deepening the existing lake and lower river channels, lengthening the existing channel, and constructing a turning basin. Dredged material will be used to construct a diked wetland of approximately 190 acres. The proposed action will take place in the western basin of Lake Erie at Monroe Harbor, Michigan.

Cement, stone, clays, sand and gravel, petroleum, and peat are produced in Monroe County. Bureau of Mines records indicate no active mineral operations within the project area.

The proposed action will increase the efficient utilization of mineral resources shipped to Monroe from other mineral producing areas. The project could lead to increased quarrying activities in the region near the site (p.C-11). We find the statement acceptable as written.

Sincerely yours,

William Cochran, for
Robert D. Thomson, Chief
Eastern Field Operations Center

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Federal Building, Fort Snelling
Twin Cities, Minnesota 55111

IN REPLY REFER TO:

AUG 2 1978

Colonel Melvyn D. Remus
U.S. Army Engineer District,
Detroit
P.O. Box 1027
Detroit, Michigan 48231

Dear Colonel Remus:

The Fish and Wildlife Service has reviewed the May, 1978 draft Environmental Statement and draft Survey Report on modifications to Monroe Harbor, Michigan. The following comments on the documents are provided for your further consideration.

GENERAL COMMENTS

Our review of the draft Environmental Statement and Survey Report revealed a potential starting point at attempting to create an ecologically sound marsh system. Additional information on the methodology necessary to create a wetland ecosystem in a freshwater environment should be included in the final report if it is available.

The exclusion of Detroit Edison's hot water effluent from the marsh creation area is a major, positive step in creating an environmentally sound marsh system. Our review of the proposed location and configuration of the Monroe Harbor Confined Disposal Facility (CDF) indicates a drawback that could be corrected through engineering design. We recommend that the structure be moved lakeward (see attached map) in an attempt to maximize the marsh creation potential of the structure. The increased depth of the area will allow for a reduction in the structure size. If, in fact, the Detroit Edison Company does relinquish all ownership to the area designated on Plate 3, adequate compensation for the bottom lands lost would be achieved. Without such compensation, we would find it very difficult to justify the filling of the lake bottom area.

All information contained on the Plates in the reports should be updated. Large expanses of wetland area are indicated where only dry landfills or industrial development exist.

Additional historical information on the marsh habitat losses in the Monroe area should be incorporated into the report to provide needed background information.

SPECIFIC COMMENTS - Draft Environmental Statement

Page 4. Paragraph 1.14 - If "no lake or river dredging specifically for dike construction" is expected, we request that the potential location(s) for construction materials be identified in the report to insure that no wetland areas are involved, and that acquisition of such location be included in project costs. Such areas could be used as future disposal sites, or in further attempts to restore additional vital marsh habitat, as authorized by Congress, once removed from the Lake Erie shoreline.

Page 6. Paragraph 2.04 - Data on the normal flow rates and drainage area of Plum Creek need to be included in this section.

Page 15. Paragraphs 2.39, 2.42 - Additional fish sampling is warranted due to the changing fish population structure in Lake Erie since the 1972 sampling period. The biomass estimates and reference made to a decline of the walleye are no longer accurate. Large sport catches of walleye are presently being made in the Monroe area. Northern pike (Esox lucius), immature muskellunge (Esox masquinongy) and sauger (Stizostedion canadense) also have been observed in the area.

Page 16. Paragraphs 2.41, 2.43 - White bass are now an extremely common species in the area and in the sport fishing catch. Walleye now provide a substantial portion of the sport fishery creel.

Page 16. Paragraph 2.47 - Reference is made to maintaining an open water area for waterfowl. Short stopping waterfowl is a dangerous proposition where the potential for the loss of the open water area, and thereby the food source, due to mechanical failure and loss of hot water flows, could occur. Overwintering waterfowl concentrations should not be encouraged in this area. A large expanse of sago pondweed is flourishing in the area proposed for the marsh creation project. Large concentrations of canvasback ducks utilize the area as a feeding ground during the spring and fall migration.

Page 17. Paragraph 250 - The following additional species noted in the area should be incorporated into the list: black-crowned night heron (Nycticorax nycticorax), double-crested cormorant (Phalacrocorax auritus) (threatened species, Michigan list), herring gull (Larus argentatus) and spotted sandpiper (Actitis macularia). Twenty cormorant were observed within the area proposed for the marsh creation project this past May.

Page 18. Paragraph 2.55 - As noted previously the double-crested cormorant has been observed feeding near the potential project shoreline area and should be included in this section. The barn owl (Tyto alba) is also found in this area and should be included. Attempts at management of the barn owl are presently being carried out at Sterling State Park.

Page 19. Paragraph 2.57 - The area known as Ford Marsh also supports a bed of American lotus. At the present time a new bed of lotus is developing within a portion of Sterling State Park. The Michigan threatened plants list for Monroe County contains 20 species. It is recommended that an attempt be made to determine if these species could be impacted.

Page 20. Paragraph 3.03 - At present, it is unclear if Detroit Edison will be relinquishing all control of the subject real estate or only ensure that no "industrial development" will take place. (A definition of industrial development is needed.)

The Department of the Army should control all properties within the proposed CDF development area before construction begins. This would insure that no new industrial landfill operation would endanger the benefits hoped for in the marsh creation effort.

Page 21. Paragraph 4.01 - In constructing the CDF, it would be beneficial to create small wetland areas within the container if the material is found not to contain high amounts of substances that would be hazardous to wildlife. Such areas could prove invaluable to spring, migrating water birds as courtship areas. Covering highly polluted materials from the river with cleaner materials from the connecting channel could also accomplish the same goal.

Page 21. Paragraph 4.03 Calculations made on the proposed marsh creation area (Plate 3) are not in agreement with the 170 acre wetland area proposed. The Plate in fact illustrates an area of approximately 270± acres while the CDF occupies 200± acres. A recalculation of the potential marsh area creation, or reorientation of the CDF seem necessary so as not to produce a false impression of the potential size of the proposed project. Please refer to our General Comments for an alternative CDF location to that proposed.

Page 22. Paragraph 4.07 - Unfortunately, no biological evidence is supplied within this report to substantiate the assumption, though probably valid, that a marsh would be created by the placement of clean materials behind the disposal facility. Such evidence, if found, should be included in the final EIS or the statement should be modified.

Page 25. Paragraph 5.01 - The effects of covering 190 acres of bottomland could be lessened by the creation of wetland areas within the CDF if the dredged materials are suitable (safe for wildlife contact). Covering highly polluted materials with cleaner materials obtained from the access channel construction could be a workable alternative.

Page 31. L. Natural Resource - Plans 1, 2, 3, 4 and 6 would also cause destruction of fishery habitat in the areas filled.

SPECIFIC COMMENTS - Draft Survey Report

Page 11 - Additional data on the drainage basin of Plum Creek (without power plant discharge) should be presented within the report.

Page 13 - The wetland areas along the Lake Erie shoreline no longer occupy a nearly continuous strip. It has been estimated that 61 percent of the wetland areas in Lake Erie/Detroit River area have been lost since 1916. The Monroe area has experienced an 89% loss in the same time period. The development of the City of

Monroe has had a significant impact on the coastal marsh areas. Only 408 acres of wetland, at last calculation, remain.

The inclusion of additional data on the history of the marsh systems and reasons for the loss would be appropriate to this document as supporting evidence for a marsh creation project.

Page 14 - The canvasback (Aythya valisineria) and redhead (Aythya americana) are other important waterfowl species utilizing the marsh and closely associated open water areas. Large beds of sago pondweed at the recommended CDF location provide a valuable resource for these migrating birds.

Page 50 - The CDF configuration sighted in our opening general comments should be investigated and incorporated into the site alternative process.

Page 54 - Under Systems of Accounts - Summary of Impacts I.
2. Displacement of Farms - Clay materials will be necessary in the construction of the confined disposal facility. The areas from which the materials will be acquired should be identified to ensure that no wetland areas will be involved. All areas used for clay material supply should be acquired as part of the project cost. Such areas could be used as future CDF locations and as potential marsh creation projects.

6. Natural Resources - The large acreages of fish habitat that will be lost by construction activities in Plan 1, 2, 3, 4, and 6 were not addressed under the remarks section.

Page C-1 Environmental Setting Without the Project - The Plum Creek drainage system has been completely ignored in the presentation of pertinent data. Flow water, upstream water quality and basin area should be included within the report. The Plum Creek and Plum Creek Bay areas are separate entities from the River Raisin Basin, but contain essential parts of the wetland habitat remaining in the area.

Page C-9 - Reference is made to sago pondweed within the second paragraph. Sago is spelled incorrectly. The same incorrect spelling was carried forward into the Draft EIS.

Page C-10 - The fishery data presented is not an accurate reflection of the present 1978 fish population structure of the area. Walleye populations have increased dramatically across the entire area. Young muskellunge, northern pike and sauger are also encountered within the study area.

An extensive sport fishery has developed for white bass at Monroe, especially within the Detroit Edison's hot water discharge channel (Plum Creek). More pertinent data on fish populations should be acquired and incorporated into the final report.

Page C-12 - The waterfowl-use data also requires an updating as to species composition and population densities. Canvasback and redhead have been observed utilizing the area during the spring and fall migration periods.

The non-game water bird list should also include the spotted sandpiper (Actitis macularia), the double-crested cormorant (Phalacrocorax auritus), the herring gull (Larus argentatus) and the black crowned night heron (Nycticorax nycticorax).

Page C-14 - Additional attention should be directed toward the State of Michigan's threatened and endangered species lists. Monroe County contains 20 species of plants listed as "threatened". One species, the swamp rose mallow (Hibiscus plustris) was reported to be in an area just north of the project, near Sterling State Park. Other species may also be present. Two threatened species of birds have been observed in the area near the proposed project. Twenty double-crested cormorants were noted feeding at the recommended project site this past spring, and the barn owl (Tyto alba) is being managed at Sterling State Park.

Page C-15 & 16 - Reference made to the 170 acre potential wetland area (Plate 3), should be rechecked. Planimeter calculations of Plate 3 indicate an area behind the CDF of 270 acres. This is a major discrepancy.

Reference is made that the CDF will also provide erosion protection for an old fly ash disposal facility. We believe this to be an error. We believe the area in question to be a soil stock piling area for Detroit Edison. This material is scheduled to be removed and redeposited upon the fly ash and bottom ash disposal areas as a reclamation measure after the areas are no longer in use.

At present, it is unclear if Detroit Edison will relinquish all control of the soil stock pile area, or only ensure "no future industrial development" (a contingency stipulated in the Draft EIS May, 1978) a clarification should be made. Future disposition of all properties adjacent to the proposed CDF location should be enumerated in the survey report.

Additional design consideration should be given to a lakeward relocation of the CDF. Such a move would greatly increase the bottom areas protected from wave attack. As an extensive bed of sago pondweed is now growing within the proposed area, its expansion, due to the protected climate a CDF would afford, could be expected to occur. The internal design and management of the potential marsh area will require further input when designs are finalized.

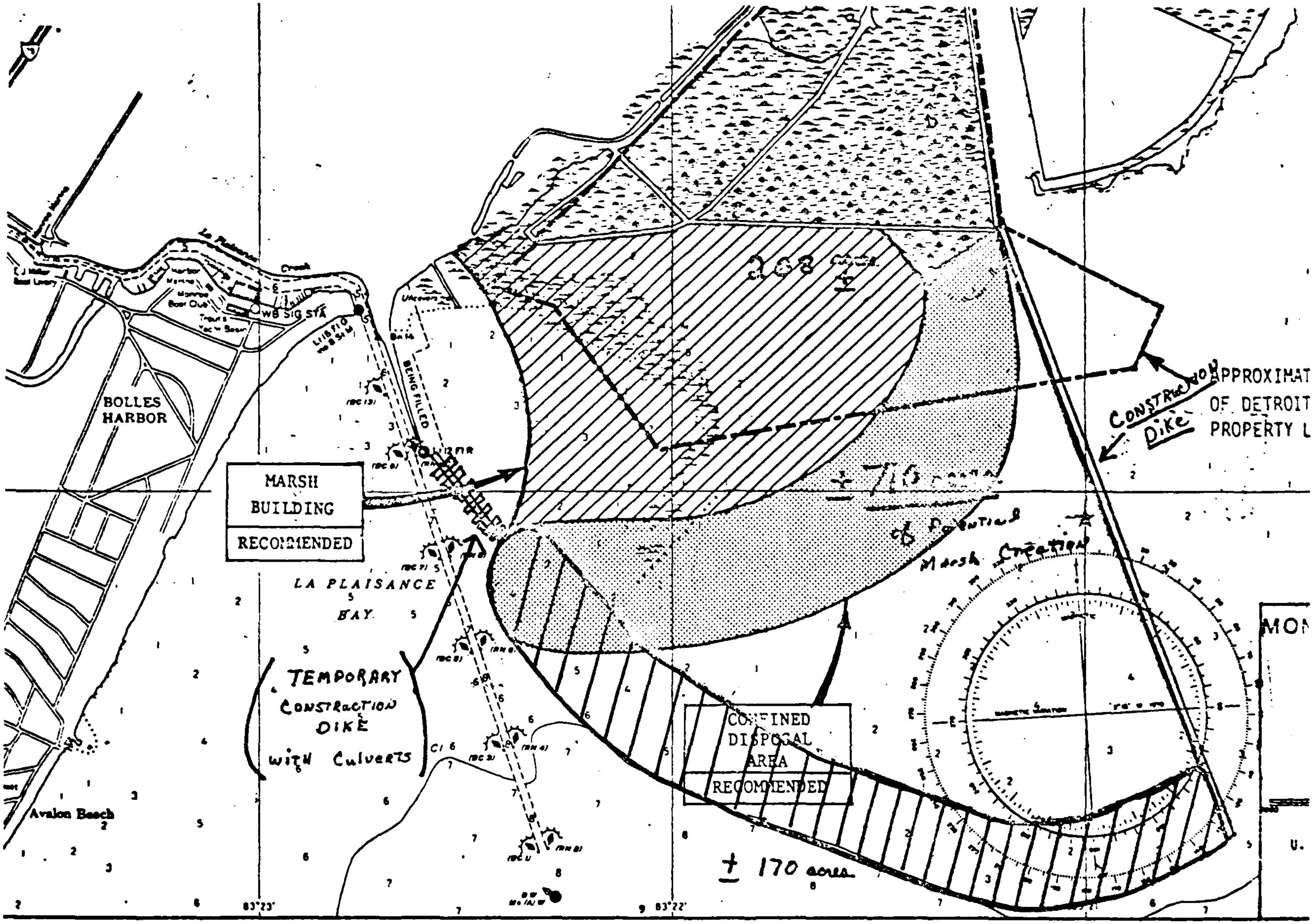
The U.S. Fish & Wildlife Service appreciates the opportunity to provide comments and recommendations on the subject documents. We look forward to future coordination on the development of the marsh proposal.

Sincerely yours,

Charles A. Hughlett

Enclosure

Charles A. Hughlett
Acting Regional Director


BOLLES HARBOR
La Plaisance Creek
WB SIG STA
BEING FILLED
MARSH
BUILDING
RECOMMENDED
LA PLAISANCE
BAY
TEMPORARY
CONSTRUCTION
DIKE
WITH CULVERTS
Avalon Beach
208 ±
± 710
& Potential
Marsh Creation
CONFINED
DISPOSAL
AREA
RECOMMENDED
± 170 acres
CONSTRUCTION
DIKE
APPROXIMAT
OF DETROIT
PROPERTY L
83°23'
83°22'

United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VIRGINIA 22092

In Reply Refer To:
EGS-ER-78/527
Mail Stop 760

JUL 13 1978

U.S. Army Engineer District, Detroit
Attention: Chief, Environmental
Resources Branch
P.O. Box 1027
Detroit, Michigan 48231

Dear Sir or Madam:

We have reviewed the draft environmental statement on modifications to Monroe Harbor, Michigan, as requested in Mr. McCallister's letter of May 31.

Detroit Edison's warm-water discharge canal is mentioned (p. 24, par. 4.20) but pertinent information is lacking. The canal or the plume should be identified on one or more of the plates and its effects on water quality in the area should be discussed.

Thank you for the opportunity to comment.

Sincerely yours,

Harley W. Culler

Acting Director

DEPARTMENT OF TRANSPORTATION
SAINT LAWRENCE SEAWAY DEVELOPMENT CORPORATION
WASHINGTON, D.C. 20591 MASSENA, NEW YORK 13662

June 30, 1978

Mr. P. McCallister
Chief, Engineering Division
Army Engineers, Detroit District
P. O. Box 1027
Detroit, Michigan 48231

Dear Mr. McCallister:

Reference is made to your 31 May 1978 transmittal of the Draft EIS concerning the proposed modifications to Monroe Harbor, Michigan.

SLSDC has reviewed the statement and has no comments to offer at this time.

Sincerely,

Clarke F. Dilks
Chief, Environmental Planning

HIGHWAY COMMISSION
PETER B. FLETCHER
CHAIRMAN
Ypsilanti
CARL V. PELLONPAA
VICE CHAIRMAN
Ishpeming
HANNES MEYERS, JR.
COMMISSIONER
Zeeland
WESTON E. VIVIAN
COMMISSIONER
Ann Arbor

STATE OF MICHIGAN

WILLIAM G. MILLIKEN, GOVERNOR

DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

STATE HIGHWAYS BUILDING, 425 WEST OTTAWA PHONE 517-373-2090
POST OFFICE BOX 30050, LANSING, MICHIGAN 48909

JOHN P. WOODFORD, DIRECTOR

June 29, 1978

Mr. P. McCallister, Chief
Engineering Division
U. S. Army Engineer District, Detroit
Environmental Resources Branch
P. O. Box 1027
Detroit, Michigan 48231

Dear Mr. McCallister:

This is in response to your letter dated May 3, 1978 and received on June 19, 1978 requesting our review and comments on the Draft Environmental Statement and Draft Survey Report on Modifications to Monroe Harbor, Michigan. The following comments are offered for your consideration in preparing the Final Environmental Statement:

These documents contain evidence of an in-depth social and economic study and extensive coordination for the proposed project. However, the environmental inventory and description of related impacts leaves some doubt as to the natural environmental tradeoffs that will occur. For example, several entities and individuals indicated a concern for the filling of marshland. The Statement does not refute this concern in explicit terms, but refers to the disposal site as "lake bottomlands." This apparent contradiction reflects the need for an existing land use/cover map. Such information would not only aid the review process, but also provide documentation for the impact analysis section.

Other than the described lack of information, the Statement seems to adequately describe the direct or primary impacts. However, the likelihood of significant secondary impacts occurring is implied, but not addressed. For example, the harbor modification will encourage or make it economically feasible to develop adjacent properties, including marshland. While such development would be a positive economic impact, it would also constitute a negative environmental impact, possibly more significant than the project's direct construction impacts.

We are calling attention to the secondary development issue due to the potential implications of a recent (April 1978) U.S. District Court ruling that ordered th is Department to address the issue for a Federally funded transportation proposal near Flint, Michigan.

The following two specific comments refer to minor inconsistencies within the Environmental Statement:

1. Page ii, Summary, Part 5, Comments Requested - does not include the Michigan Department of State Highways and Transportation.

2. Page 20, Paragraph 3.03 - the statement that the disposal site and created marsh are owned by Detroit Edison is not supported by data shown at Plate 3.

We appreciate the opportunity to review and comment on this project, and look forward to receiving a copy of the Final Environmental Statement.

Sincerely,

Mark Schrag for

Jan H. Raad, Manager
Environmental Liaison Section
Environmental and Community
Factors Division

August 24, 1978

MICHIGAN UNITED CONSERVATION CLUBS
2101 Wood St. ● P.O. Box 30235 ● Lansing, MI 48909 ● 517-371-1041

U.S. Army Corps of Engineers
Detroit District
P.O. Box 1027
Detroit, MI 48231

ATTENTION: Mr. David Roellig

Dear Mr. Roellig:

RE: Monroe Harbor Survey Study

The Michigan United Conservation Clubs would like to reiterate its support for construction of a confined disposal facility at Raisin Point to contain polluted sediments from the Monroe Harbor area. We have previously outlined reasons for that support and will not repeat them in this letter. Specifically, we support the position of the U.S. Fish & Wildlife Service to construct a facility south of the McMillan Canal at Plum Creek Bay. We also recommend consideration be given to a second barrier north of the canal to further enhance marsh restoration and minimize hauling costs of dredged materials.

Because of the intense public recreational use of Sterling State Park, we do not believe disposal of polluted spoils at that location or construction of a major confined disposal facility is in the public interest. In light of the reopening of the beach to swimming after 17 years of polluted waters, we believe any such plan is inappropriate at this time when alternative disposal locations are available.

Thank you for your consideration of our comments.

Very truly yours,

Wayne A. Schmidt
Staff Ecologist

sm

PAST PRESIDENT
[illegible] Mason, MI 48854

PRESIDENTS
[illegible] New Holland
[illegible]

EXECUTIVE DIRECTOR
THOMAS L. WASHINGTON, P.O. Box 30235, Lansing, MI 48909

TREASURER
DAVID N.C. (Chuck) BURNS, 1210 M.A.C. Drive N.E., R. 3, [illegible]

REGIONAL VICE-PRESIDENTS
WENDELL BRIGGS, 3747 [illegible] N.E., Grand Rapids, MI 49505
GERALD GOODMAN, R. 1, Box [illegible], Iron River, MI 49935
BEATRICE INGLIS, 1445 [illegible], Monroe, MI 48161

CITY OF MONROE
MICHIGAN
Community Development
120 SOUTH MACOMB
48161
(313) 241-5726

August 22, 1978

Mr. David Roelling
DEPARTMENT OF THE ARMY
Corps of Engineers-Detroit District
Post Office Box 1027
Detroit, MI 48231

Dear Mr. Roelling:

The City of Monroe has reviewed both the Draft Survey Report and the Environmental Statement on modifications to Monroe Harbor, Michigan. The concepts implied and the recommendations are found to be consistent with the City of Monroe's policies for continued Port expansion and environmentally-sound industrial development.

The construction of contained disposal facilities (CDF) for the maintenance dredgings and harbor deepening projects has been previously supported by the City of Monroe. Continuation and expansion of the Port of Monroe is necessary in order to accommodate local concerns and enhance state and national economic expansion.

The City of Monroe has recently been notified by the Department of Natural Resources that its pre-application for funding under the State of Michigan's Coastal Zone Management Program has been approved. The funding will enable the City to coordinate a "Monroe Coastal Area Management Plan." This plan will serve as a precise management tool shaping land and water development decisions in the coastal area. In order to avoid duplication, the City of Monroe invites the Corps of Engineers to participate in this planning process. In this manner, questions and possible solutions for future development in this coastal area may be discussed and recognized by all interested groups.

In summary, the City of Monroe finds no significant impacts associated with the recommendations contained in the Draft Environmental Statement on modifications to Monroe Harbor, Michigan.

Sincerely,

John R. Iaccangeli.

A-24

John R. Iaccangeli
Director of Planning
for:
Milton P. Munson, Mayor

JRI:dmh

Southeast Michigan Council of Governments
800 Book Building Detroit, Michigan 48226 (313) 961-4266

August 4, 1978

Mr. Philip McCallister, Chief
Engineering Division
U. S. Army Engineering District, Detroit
P. O. Box 1027
Detroit, Michigan 48231

RE: "Draft Survey Report on Modification to Monroe Harbor, Michigan" and "Draft Environmental Statement on Modification to Monroe Harbor, Michigan"
Monroe County, State Planning Region I
Areawide Clearinghouse Code: EN780496

Dear Mr. McCallister:

As the certified A-95 Clearinghouse for Southeast Michigan, SEMCOG has received and reviewed both the Draft Survey Report and the Draft Environmental Statement referenced above. In accordance with standard A-95 review procedures, the following agencies have been contacted requesting their comments:

Michigan Department of Civil Rights
Toledo Metropolitan Area Council of Governments
Monroe County Planning Commission
City of Monroe
Monroe Township
Frenchtown Township

To date, comments have been received from the Monroe County Planning Commission. The Commission endorsed both the Draft Survey Report and the Draft Environmental Statement. Their comments are attached. Any additional comments will be forwarded to you as they are received.

Our review indicated no apparent conflicts with SEMCOG's plans or policies. However, we have some comments which we hope will be addressed in the Final Survey Report and Final Environmental Statement.

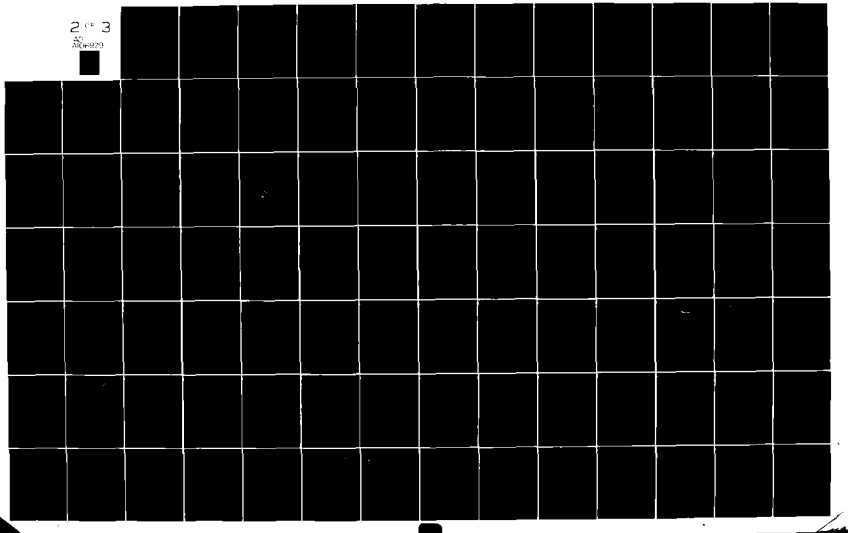
Our comments are:

1) Both reports should include a section describing the material to be initially dredged under the proposed plan. The quantities of both "unsuitable" and "suitable" materials should be estimated. Also

DAVID H. SHEPHERD, Chairperson
Mayor, City of Oak Park
ROBERT L. BOVIA, Vice Chairperson
LAWRENCE P. PERNICK, Vice Chairperson
Commissioner, Oakland County
ROBERT E. SMITH, Vice Chairperson
MARY ELLEN PARROTT, Vice Chairperson
Treasurer, Shelby Township
KATHLEEN M. FOJTIK, Vice Chairperson

AD-A106 979 CORPS OF ENGINEERS DETROIT MI DETROIT DISTRICT F/G 13/2
FINAL ENVIRONMENTAL IMPACT STATEMENT ON MODIFICATIONS TO MONROE--ETC(U)
FEB 80

UNCLASSIFIED NL



the criteria used to identify "unsuitable" material should be explained in each of the reports.

2) There was no mention of the disposal method for material "suitable" for open water disposal. It is assumed that this "suitable" dredge material is not the same as the "clean fill" for building of the marsh behind the confined disposal facility (CDF). If this assumption is correct the disposal site for the "suitable" dredge material should be identified.

3) The contents and recommendation of the letter from Mr. Conrad J. Kirby, (Chief, Environmental Resource Division, Waterways Experiment Station, Corps of Engineers) on page C-5 of the Draft Environmental Statement should be discussed in both reports and implemented if practical. Mr. Kirby states that the sequence in the dredging operation can have an impact on the contamination of the vegetation growing on top of the finished CDF. The dredging of the most contaminated sections, first, will put this material at the bottom of the CDF.

4) It would be helpful if both reports contained a detailed design of the confined disposal facility. It is difficult to visualize the construction without the aid of drawings. On page 4 of the Draft Environmental Statement the height of the CDF is given as a "... maximum height above Low Water Datum of 14 feet,...". What is the minimum height? Is the CDF being designed to survive a 1 in 100 year high water level for Lake Erie. Please address these questions in your final reports.

In closing, we wish to thank the Army Corps of Engineers for the opportunity to comment on these two draft reports. It is our hope that these comments will be of help to the Corps when the final reports are printed and released.

Sincerely,

Edward J. Mustoles, Manager
Environmental Programs

EJH:bjo
cc: Monroe County Planning Commission
City of Monroe

Monroe County Planning Department and Commission

1410 EAST FIRST STREET • MONROE, MICHIGAN 48161
Telephone: (313) 243-6900 Ext. 277

July 13, 1978

)YCE R. MANIKO,
nning Director

RNARD J. FELDER,
mmission Chairman

Southeast Michigan Council of Gov'ts
8th fl. Book Bldg., 1249 Washington Blvd.
Detroit, Michigan 48226

Attn.: Carl D. Harlow

Subject: Letter of Intent - OMB A-95 200.2-6-78-52
Dept. of the Army Detroit District, Corps of Engineers
Areawide Clearinghouse Code: EN 780496

Dear Mr. Harlow:

We have completed our review of the above prefaced subject matter and advise as follows:

> "Moved by Mr. Soda and seconded by Mr. Chapman that the Monroe County Planning Commission endorse the Survey Report, Modifications to Monroe Harbor by the Department of the Army Detroit District, Corps of Engineers from the Department of Defense. Motion carried".

We further enclose a copy of staff memorandum in this regard to indicate the consideration which went into the resolution of this issue.

Thank you for allowing us this opportunity to respond to the subject matter as it affects areawide plans adopted by our Planning Commission.

Sincerely,

Royce R. Maniko

Royce R. Maniko, Director

1 enclosure

RRM:mm

OMB: A-95 REVIEW Monroe County, Michigan

1978

ATTACHMENT K

TE: July 6, 1978

SUBJECT: Case No. 200.2 -6-78-52,
U.S. Army Corps of Engineers;
Modifications to Monroe Harbor--
Survey Report. Areawide Clearinghouse
Code: EN 780496

Memorandum

: Monroe County Planning Commission

OM: Staff

Project Description

The purpose of this survey report is to present the results of a detailed examination of alternatives to provide economic transportation of commodities such as coal, iron pellets, and limestone to Monroe Harbor in large, modern vessels. The study has determined the engineering, economic, environmental, and social feasibility of providing an improved navigation channel in the harbor area.

As a result of the study, the following recommendations are included in the report:

1. deepening of the River Raisin portion of the channel to 27 feet;
2. widening to 500 feet, and deepening to 28 feet, the portion of the channel in Lake Erie;
3. providing a new turning basin near the shore, and south of the channel, to permit turning of vessels up to 1100 feet in length;
4. and, constructing a confined disposal area for the polluted dredge material, which would also provide protection to wetlands in Plum Creek Bay.

The estimated total first cost of the harbor improvement is $71,830,000 of which $66,733,000 is the Federal share and $5,097,000 the local share. Annual operation and maintenance costs will be totally a Federal expense.

Staff Analysis

The improvements to the Monroe Harbor are consistent with the Monroe County General Development Plan and consistent with the intent of the Monroe County Coastal Zone Management Plan.

Staff Recommendation

Staff recommends that the Monroe County Planning Commission endorse this Survey Report by the U.S. Army Corps of Engineers.

Monroe County Planning Department and Commission

1410 EAST FIRST STREET • MONROE, MICHIGAN 48161
Telephone: (313) 243-6900 Ext 277

July 13, 1978

YCE R. MANIKO,
ning Director
NARD J. FELDER,
mission Chairman

RECEIVED
JUL 17 1978
SOUTHEAST MICHIGAN
COUNCIL OF GOVERNMENTS

Southeast Michigan Council of Gov'ts
8th fl.book bldg.,1249 Washington Blvd.
Detroit, Michigan 48226

Attn.: Mr. Carl D. Harlow

Subject: Letter of Intent - OMB A-95 200.2-6-78-51
Dept.of the Army Detroit District, Corps of Engineers
Areawide Clearinghouse Code: EN 780196

Dear Mr.Harlow:

We have completed our review of the above prefaced subject matter and advise as follows:

> "Moved by Mr. Soda and seconded by Mr. Chapman that the Monroe County Planning Commission endorse the draft Environmental Impact Statement on Modification to Monroe Harbor by the Department of the Army Detroit District, Corps of Engineers from the Department of Defense. Motion carried".

We further enclose a copy of staff memorandum in this regard to indicate the consideration which went into the resolution of this issue.

Thank you for allowing us this opportunity to respond to the subject matter as it affects areawide plans adopted by our Planning Commission.

Sincerely,

Royce R. Maniko

Royce R. Maniko, Director

1 enclosure

RRM:mm

OMB: A-95 REVIEW

RECEIVED
JUL 17 1978
SOUTHEAST MICHIGAN COUNCIL OF GOVERNMENTS

1978

Monroe County, Michigan

ATTACHMENT J

DATE: July 6, 1978

SUBJECT: Case No. 200.2-6-78-51

U.S. Army Corps of Engineers;
Modifications to Monroe Harbor--
Draft Environmental Impact Statement.
Areawide Clearinghouse Code:
EN 780496

Memorandum

TO: Monroe County Planning Commission

FROM: Staff

Project Description

The purpose of this report is to state the potential environmental impacts, both beneficial and adverse, which could result from the proposed improvements to Monroe Harbor. In the course of preparing this statement the following were considered:

1. environmental setting without the report;
2. relationship of the proposed action to local and regional land use plans;
3. probable impact of the proposed action on the environment;
4. any probable adverse environmental effects which cannot be avoided;
5. alternatives to the proposed action;
6. the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity;
7. and, any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

As a result of the environmental impact assessment, the following beneficial and adverse environmental impacts were noted:

Beneficial -- The deep draft channel would allow larger, more economical vessels into the harbor. The confined disposal facility would protect shore areas from wind and wave attack. The rock-faced disposal facility would create a beneficial habitat for aquatic life. The wetland constructed behind the disposal facility would create feeding and spawning areas for fish, provide nesting, feeding and cover for waterfowl, and provide recreational opportunities for fishermen, hunters and sightseers.

Adverse -- Benthic organisms would be destroyed in the proposed channel and the dredge disposal area. Construction would cause temporary degradation of the water quality in the immediate construction zone. Associated with construction would be local increases in noise, exhaust fumes as well as temporary inconveniences to commercial and recreational boat traffic.

Staff Analysis

While no comments on the environmental impact assessment methodology are included, the following mistakes in the draft environmental impact statement have been noted:

1. SECTION 2.15 - The projected population figures used in this section are from the Toledo Regional Area Plan for Action. In the accompanying document, Modifications to Monroe Harbor-Survey Report, the population projections used were produced by the State of Michigan. As the two projections do not agree it would seem adviseable to use one of the projections in both documents. If such a recommendation could be made, staff feels that the State of Michigan projection, OBERS-E, is more desireable as it is compatible with the projections made by the Monroe County Planning Department.

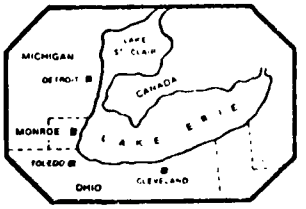
2. SECTION 3.03 - A reference is made to the Comprehensive Development Plan for the Monroe County Region 1966-2000 as the source of information used in development of the land use plan for the Monroe Harbor Area. COMPLAN 2000 is seriously outdated and has been replaced by the three-volume Monroe County: Year 2000 General Development Plan which was produced in September, 1976. As such, it should be used as the correct information source.

Staff Recommendation

Staff recommends that the Monroe County Planning Commission endorse this Draft Environmental Impact Statement prepared by the U.S. Army Corps of Engineers for the proposed inprovements to Monroe Harbor.

Lake Erie Advisory Committee

DEDICATED TO THE PRESERVATION OF
LAKE ERIE, ITS WATERS, FISH AND WILDLIFE



Monroe, Michigan 48161

July 6, 1978

Subject: Draft Environmental Statement on Modifications to Monroe Harbor, Michigan (May 1978)

To: U.S. Army Engineer District, Detroit
Attn: Chief, Environmental Resources Branch
P.O. Box 1027
Detroit, Michigan 48231

Dear Sir:

The Lake Erie Advisory Committee appreciates the opportunity to make comments regarding the Draft Environmental Statement (DES) on modifications to Monroe Harbor, Michigan dated May 1978. We commend you for the introduction of innovative marsh building as an integral part of confined disposal for dredged materials. We support Site #1 (Selected Plan #1 NED EQ) as described in paragraph 1.15 of the DES.

Please note that there are several minor discrepancies in paragraph 1.13 (pg. 4 - DES). The Confined Disposal Facility (CDF) would be located at the mouth of the McMillen Canal which connects Plum Creek Bay and Lake Erie. Plumb Creek is misspelled. The correct spelling is Plum Creek. The reference to Raisin River is not correct. The correct designation is River Raisin as in River Seine. Please correct these references in the Final Environmental Statement(FES). Also paragraph 4.19 (pg. 24 - DES) should be reviewed carefully for the overall area protected by the proposed CDF. 170 acres seems conservative. The acreage (wave shadow zone and shoreward areas) should be substantially greater when you consider the combined effect of the recently constructed Bolles Harbor CDF and proposed Site #1. The existing Bolles Harbor CDF should also be mentioned in the FES as a contributing factor. A more holistic view needs to be taken of the overall modification project. Presently Edison flyash basins, Plum Creek Bay, McMillen Canal and the islands provide shelter for fish and wildlife which were displaced by industrial activities at the Port of Monroe ie North Star Steel, Edison coal handling facilities etc. In the future as the flyash basins on Raisin Point and E. Dunbar Rd. are filled, water oriented wildlife will seek other protected areas. The wetlands created by proposed Site #1 will provide that habitat. It is important to understand this relationship of Harbor areas in displacing wildlife to make way for industrial activity and disposal of dredged material or combustion by-products. Mitigation is a vital factor in this process.

We insist that the following be added to the FES:

1. Change Site Priorities - use proposed Site #1 for maintenance dredgings instead of Sterling State Park. The polluted nature of maintenance dredgings

does not lend itself to public confidence. Such dredgings should not be dumped on a public beach. Proposed Site #1 is better suited for the polluted material because it is in an isolated area and can withstand the sheer volume of backlogged maintenance dredgings. The cleaner materials from the modification project would benefit Sterling State Park more and preclude any concern for pollution of the public bathing beach. The volume of material from the modification project may be far less for confined disposal because of alternate uses such as road building or upland fill.

2. Coordinate Plans - Federal consistency requirements under P.L 92-583 (Coastal Zone Management Act of 1972) require the U.S. Army Corps of Engineers to coordinate the modification project at Monroe Harbor with the State of Michigan Coastal Management Program as recently published by the U.S. Department of Commerce (July 1978 - extract attached). The proposed modification project must be consistent with State plans now being developed under Section 306, P.L. 92-583 and with local plans as funded under Section 306 applications. The Department of Community Development, City of Monroe, has applied to the State of Michigan for funds to implement planning for Monroe Harbor under Section 306, P.L. 92-583. The FES must address this process to the full extent required by Federal consistency rules.

In conclusion, we are indebted to the memory of one of our members, the late Anthony Vincent Collino formerly of 8040 E. Dunbar Rd., Monroe, Michigan 48161, who urged our Committee to support Site #1 and the marsh creation project for the east reach of Plum Creek Bay in Belles Harbor.(obituary notice attached).

2 encl. extract Mich. Coastal Mgt. Program 7.78
obit. 6.15.77

cc U.S. Senator Griffin
Governor Milliken
Dr. Tanner, Director, Mich. DNR
Jack Bails, Enforcement Div., Mich. DNR
Karl Hosford, Land Resource Prog., Mich. DNR
Chris Schafer, Coastal Mgt. Prog., Mich. DNR
Royce Maniko, Monroe County Plng. Dept.
John Iacoangeli, City of Monroe
Jim Jones, Detroit Edison
Wayne Schmidt, MUCC
Clyde Odin, U.S. Fish and Wildlife Svc.
Dean Cousino, Monroe Evening News

Sincerely,

Richard G. Micka

Richard G. Micka
1216 Riverview
Monroe, Michigan 48161

United States Department of the Interior

HERITAGE CONSERVATION AND RECREATION SERVICE
LAKE CENTRAL REGION
ANN ARBOR, MICHIGAN 48107

IN REPLY REFER TO:
D6427GL
ER 78/527

July 20, 1978

Mr. Abram Nicholson, Chief
Environmental Resources Branch
U. S. Army Engineer District, Detroit
P. O. Box 1027
Detroit, Michigan 48231

Dear Mr. Nicholson:

In accordance with your request, we have reviewed the Draft Environmental *Statement for Modifications* to Monroe Harbor, Monroe County, Michigan (ER 78/527).

We feel the statement is an adequate and accurate assessment of those resources within our areas of jurisdiction and expertise.

Sincerely yours,

JOHN D. CHERRY
Regional Director

By: David H. Shonk
David H. Shonk
Acting

MICHIGAN HISTORY DIVISION
ADMINISTRATION, ARCHIVES,
HISTORIC SITES, AND PUBLICATIONS
208 North Capitol Avenue
Lansing, Michigan 48918

517-373-0510

DEPARTMENT OF STATE

May 24, 1978

Mr. P. McCallister
U.S. Army Corps of Engineers, Detroit District
P.O. Box 1027
Detroit, Michigan 48231

Dear Sir:

Our staff has reviewed the following project and concludes that it will have no effect on cultural resources.

Monroe Harbor Modification Project

If you have further questions, please contact Dr. Lawrence Finfer, Environmental Review Coordinator for the Michigan History Division. Thank you for giving us the opportunity to comment.

Sincerely yours,

Martha M. Bigelow
Director, Michigan History Division
and
State Historic Preservation Officer

BY: Michael J. Washo
Deputy State Historic Preservation Officer

MJW/LF/cw

MH-99 (4/78)

NATURAL RESOURCES COMMISSION
CARL T JOHNSON
E M LAITALA
DEAN PRIDGEON
HILARY F SNELL
HARRY H WHITELEY
JOAN L WOLFE
CHARLES G YOUNGLOVE

STATE OF MICHIGAN

WILLIAM G. MILLIKEN, Governor

DEPARTMENT OF NATURAL RESOURCES

STEVENS T MASON BUILDING, BOX 30028, LANSING, MICHIGAN 48909
HOWARD A TANNER, Director

September 19, 1978

Mr. Philip A. McCallister, Chief
Engineering Division
U.S. Corps of Engineers
P. O. Box 1027
Detroit, Michigan 48231

Dear Mr. McCallister:

This response concerns the proposal for improvements to the Monroe Harbor facilities located in Monroe County, Michigan on Lake Erie.

Recently your office provided my staff with copies of a draft Environmental Impact Statement on modifications to the Monroe Harbor dated May, 1978. A copy of a draft survey report on the Monroe Harbor dated May, 1978 was also provided. Since receipt of these documents, members of the Department's Corps of Engineers Project Review Committee have had an opportunity to review these documents as well as visit the site to be intimately familiar with this proposal.

The Department of Natural Resources concurs with the general provisions of this proposal. In this matter I wish to indicate to the Corps of Engineers that the DNR has consistently and now reaffirms its position that in managing the total needs for polluted dredge spoil containment of western Lake Erie that the construction of a facility at Woodtick Peninsula would bring about a major secondary benefit in the protection of the 3,000-acre Erie State Game Area lying adjacent to the Woodtick Peninsula.

This is the only significant marsh system remaining along the shore of Lake Erie in Michigan. Field investigations by staff of our respective agencies find that serious breaching has occurred along the Woodtick Peninsula which presently gives shelter and protection to the Erie State Game Area. The protection of this vast marsh system from the ravages of erosion which occurred at Pointe Mouille should be a prime objective for the Federal Government as well as the State of Michigan. The Woodtick Peninsula area has been and remains the Department's first choice for the containment of polluted dredge spoils in western Lake Erie.

MICHIGAN

R1026 10/76

In the staff's review of the survey report on modifications for Monroe Harbor we believe there is a serious omission in the analysis of benefits attributable to the Woodtick site. We are distressed to learn that the cost-benefit analysis of the alternative sites available for containment of dredgings from the harbor improvements did not include benefits at the Woodtick site which would result from the protection of the Erie State Game Area should a containment system be constructed there.

We appreciate and understand that Congressional authorization and funding for detailed design memorandum studies for the Monroe Harbor modifications will permit a more exhaustive analysis of all the details surrounding such a project. Accordingly I would request that you provide my staff with a continuing opportunity to be involved and fully knowledgeable about the many details of the design memorandum as it would develop for this project.

Sincerely,

Howard A. Tanner

by: Wayne H. Tody
Deputy Director

APPENDIX B

WATER, SEDIMENT AND BENTHIC
SAMPLING DATA

GUIDELINES FOR THE POLLUTIONAL CLASSIFICATION OF GREAT LAKES HARBOR SEDIMENTS

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION V

CHICAGO, ILLINOIS

April, 1977

The pollutional classification of sediments with total PCB concentrations between 1.0 mg/kg and 10.0 mg/kg dry weight will be determined on a case-by-case basis.

a. Elutriate test results.

The elutriate test was designed to simulate the dredging and disposal process. In the test, sediment and dredging site water are mixed in the ratio of 1:4 by volume. The mixture is shaken for 30 minutes, allowed to settle for 1 hour, centrifuged, and filtered through a 0.45 μ filter. The filtered water (elutriate water) is then chemically analyzed.

A sample of the dredging site water used in the elutriate test is filtered through a 0.45 μ filter and chemically analyzed.

A comparison of the elutriate water with the filtered dredging site water for like constituents indicates whether a constituent was or was not released in the test.

The value of elutriate test results are limited for overall pollutional classification because they reflect only immediate release to the water column under aerobic and near neutral pH conditions. However, elutriate test results can be used to confirm releases of toxic materials and to influence decisions where bulk sediment results are marginal between two classifications. If there is release or non-release, particularly of a more toxic constituent, the elutriate test results can shift the classification toward the more polluted or the less polluted range, respectively.

b. Source of sediment contamination.

In many cases the sources of sediment contamination are readily apparent. Sediments reflect the inputs of paper mills, steel mills, sewage discharges, and heavy industry very faithfully. Many sediments may have moderate or high concentrations of TKN, COD, and volatile solids yet exhibit no evidence of man made pollution. This usually occurs when drainage from a swampy area reaches the channel or harbor, or when the project itself is located in a low lying wetland area. Pollution in these projects may be considered natural and some leeway may be given in the range values for TKN, COD, and volatile solids provided that toxic materials are not also present.

c. Field observations.

Experience has shown that field observations are a most reliable indicator of sediment condition. Important factors are color, texture, odor, presence of detritus, and presence of oily material.

Color. A general guideline is the lighter the color the cleaner the sediment. There are exceptions to this rule when natural deposits have a darker color. These conditions are usually apparent to the sediment sampler during the survey.

Texture. A general rule is the finer the material the more polluted it is. Sands and gravels usually have low concentrations of pollutants while silts usually have higher concentrations. Silts are frequently carried from polluted upstream areas, whereas, sand usually comes from lateral drift along the shore of the lake. Once again, this general rule can have exceptions and it must be applied with care.

Odor. This is the odor noted by the sampler when the sample is collected. These odors can vary widely with temperature and observer and must be used carefully. Lack of odor, a beach odor, or a fishy odor tends to denote cleaner samples.

Detritus. Detritus may cause higher values for the organic parameters COD, TKN, and volatile solids. It usually denotes pollution from natural sources. Note: The determination of the "naturalness" of a sediment depends upon the establishment of a natural organic source and a lack of man made pollution sources with low values for metals and oil and grease. The presence of detritus is not decisive in itself.

Oily material. This almost always comes from industry or shipping activities. Samples showing visible oil are usually highly contaminated. If chemical results are marginal, a notation of oil is grounds for declaring the sediment to be polluted.

d. Benthos.

Classical biological evaluation of benthos is not applicable to harbor or channel sediments because these areas very seldom support a well balanced population. Very high concentrations of tolerant organisms indicate organic contamination but do not necessarily preclude open lake disposal of the sediments. A moderate concentration of oligochaetes or other tolerant organisms frequently characterizes an acceptable sample. The worst case exists when there is a complete lack or very limited number of organisms. This may indicate a toxic condition.

In addition, biological results must be interpreted in light of the habitat provided in the harbor or channel. Drifting sand can be a very harsh habitat which may support only a few organisms. Silty material, on the other hand, usually provides a good habitat for sludgeworms, leeches, fingernail clams, and perhaps, amphipods. Material that is frequently disturbed by ship's propellers provides a poor habitat.

Guidelines for the evaluation of Great Lakes harbor sediments, based on bulk sediment analysis, have been developed by Region V of the U.S. Environmental Protection Agency. These guidelines, developed under the pressure of the need to make immediate decisions regarding the disposal of dredged material, have not been adequately related to the impact of the sediments on the lakes and are considered interim guidelines until more scientifically sound guidelines are developed.

The guidelines are based on the following facts and assumptions:

1. Sediments that have been severely altered by the activities of man are most likely to have adverse environmental impacts.

2. The variability of the sampling and analytical techniques is such that the assessment of any sample must be based on all factors and not on any single parameter with the exception of mercury and polychlorinated biphenyls (PCB's).

3. Due to the documented bioaccumulation of mercury and PBC's, rigid limitations are used which override all other considerations.

Sediments are classified as heavily polluted, moderately polluted, or nonpolluted by evaluating each parameter measured against the scales shown below. The overall classification of the sample is based on the most predominant classification of the individual parameters. Additional factors such as elutriate test results, source of contamination particle size distribution, benthic macroinvertebrate populations, color, and odor are also considered. These factors are interrelated in a complex manner and their interpretation is necessarily showewhat subjective.

The following ranges used to classify sediments from Great Lakes harbors are based on compilations of data from over 100 different harbors since 1967.

	NONPOLLUTED	MODERATELY POLLUTED	HEAVILY POLLUTED
Volatile Solids (%)	<5	5 - 8	>8
COD (mg/kg dry weight)	<40,000	40,000-80,000	>80,000
TKN " " "	<1,000	1,000-2,000	>2,000
Oil and Grease (Hexane Solubles) (mg/kg dry weight)	<1,000	1,000-2,000	>2,000
Lead (mg/kg dry weight)	<40	40-60	>60
Zinc " " "	<90	90-200	>200

The following supplementary ranges used to classify sediments from Great Lakes harbors have been developed to the point where they are usable but are still subject to modification by the addition of new data. These ranges are based on 260 samples from 34 harbors sampled during 1974 and 1975.

	NONPOLLUTED	MODERATELY POLLUTED	HEAVILY POLLUTED
Ammonia (mg/kg dry weight)	<75	75-200	>200
Cyanide " " "	<0.10	0.10-0.25	>0.25
Phosphorus " " "	<420	420-650	>650
Iron " " "	<17,000	17,000-25,000	>25,000
Nickel " " "	<20	20-50	>50
Manganese " " "	<300	300-500	>500
Arsenic " " "	<3	3-8	>8
Cadmium " " "	*	*	>6
Chromium " " "	<25	25-75	>75
Barium " " "	<20	20-60	>60
Copper " " "	<25	25-50	>50

*Lower limits not established

The guidelines stated below for mercury and PCB's are based upon the best available information and are subject to revision as new information becomes available.

Methylation of mercury at levels $\geq$ mg/kg has been documented (1,2). Methyl mercury is directly available for bioaccumulation in the food chain.

Elevated PCB levels in large fish have been found in all of the Great Lakes. The accumulation pathways are not well understood. However, bioaccumulation of PCB's at levels $\geq$ 10 mg/kg in fathead minnows has been documented (3).

Because of the known bioaccumulation of these toxic compounds, a rigid limitation is used. If the guideline values are exceeded, the sediments are classified as polluted and unacceptable for open lake disposal no matter what the other data indicate.

	POLLUTED
Mercury	$\geq$ 1 mg/kg dry weight
Total PCB's	$\geq$ 10 mg/kg dry weight

REFERENCES

1. Jensen, S., and Jernelov, A., "Biological Methylation of Mercury in Aquatic Organisms," Nature, 223 August 16, 1969 pp 753-754.

2. Magnuson, J.J. Forbes, A., and Hall, R., "Final Report - An Assessment of the Environmental Effects of Dredged Material Disposal in Lake Superior - Volume 3: Biological Studies," Marine Studies Center, University of Wisconsin, Madison, March, 1976.

3. Halter, M.T., and Johnson, H.E., "A Model System to Study the Release of PCB from Hydrosoils and Subsequent Accumulation by Fish," presented to American Society for Testing and Materials, Symposium on Aquatic Toxicology and Hazard Evaluation," October 25-26, 1976, Memphis, Tennessee

MONROE HARBOR, MICHIGAN

REPORT ON THE DEGREE OF POLLUTION OF BOTTOM SEDIMENTS

SAMPLED: OCTOBER 18, 1976

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION V
GREAT LAKES SURVEILLANCE BRANCH

DISCUSSION OF RESULTS

Background

The previous survey of Monroe Harbor, Michigan (8 April 1975), indicated that sediments from the upstream end of the federal project to Mile 2 were heavily polluted. The federal project extends lakeward about one more mile, but this area was not sampled in the previous survey so this portion of the project was unclassified. The present survey was undertaken to classify this outer portion of the project.

Survey of 18 October 1976

Sediments consisted of very fine silt and clay material from the shoreline to Mile 2 (Station MON76-2), changing to a mixture of sand and clay further offshore (Tables I and II). Some visible oil was noted at site MON76-2.

The bulk sediment analysis results (Table III) show high levels of nearly all parameters measured in the samples from MON76-1 and 2. Sediments from site MON76-3 had light to moderate levels of TKN and manganese; moderate levels of total phosphorus and arsenic; and high levels of lead, zinc, nickel, and copper. At site MON76-4, only lead and nickel were somewhat elevated, lying in the low to moderate range.

The elutriate test results (Table IV) show releases of TKN, ammonia and manganese from all sites. Site MON76-1 and 2 showed the highest releases, while site MON76-4 had the lowest releases.

The benthic community is composed of pollution facultative and tolerant organisms (Table V).

The bulk sediment chemistry PCB and pesticides analysis results (Table VI) for sites MON76-1 and MON76-A show all measured organic compounds are below the laboratory's quantifiable detection limits.

Conclusions

In agreement with the 1975 survey, sediments upstream of Mile 2 are heavily polluted. Sediments lakeward of Mile 2 show a pollution gradient, changing to unpolluted by the end of the federal project. See the map for a more exact delineation. Sediments from the area classified as moderately and heavily polluted are unsuitable for open lake disposal. Sediments from the area classified as unpolluted are suitable for open lake disposal.

TABLE I
FIELD OBSERVATIONS

HARBOR: Monroe, Michigan

SAMPLED: October 18, 1976

STATION NO.	DEPTH (ft.)	OBSERVATIONS				
		COLOR	SAMPLE DESCRIPTION	ODOR	OIL	GENERAL REMARKS
MON76-1	23	Grey	Mud and silt, some sand, clay, and gravel	None	None	-
MON76-1 replicate	23	Grey	Mud and silt, some sand, clay, and gravel	None	None	-
MON76-2	23	Grey	Mud and silt, some sand and clay	None	Light	A few empty snail shells
MON76-3	24	Grey	Clay, some sand	None	None	A few empty finger-nail clam shells
MON76-4	26	Grey over black	Sand, some clay and mud	None	None	Many empty snail and clam shells
MON76-A	24	Grey	Mud and silt, some clay	None	None	-

TABLE II
SIEVE ANALYSIS RESULTS

HARBOR: Monroe, Michigan

SAMPLED: October 18, 1976

SIEVE NO. AND DESCRIPTION	SEDIMENT SIZE ANALYSIS BY PERCENT AT EACH STATION				
	MON76-1	MON76-1 replicate	MON76-2	MON76-3	MON76-4
Retained on #10 Medium Gravel and Larger	<1	2	<1	3	5
Retained on #20 Fine Gravel	<1	3	<1	3	3
Retained on #60 Medium and Coarse Sand	2	8	1	40	52
Retained on #200 Fine Sand	1	6	2	9	10
Passing #200 Silts and Clays	97	81	97	45	30

TABLE III
BULK SEDIMENT ANALYSIS RESULTS

HARBOR: Monroe, Michigan

SAMPLED: October 18, 1976

PARAMETER	MON76-1	MON76-1 replicate	MON76-2	MON76-3	MON76-4
Total Solids %	41.7	43.8	32.5	44.6	67.4
Volatile Solids %	6.6	6.6	7.9	2.6	<1
Chem. Oxy. Demand	99,000	95,000	135,000	36,000	16,000
T. Kjel. Nitrogen	3,200	3,200	4,300	1,000	360
Oil-Grease	2,700	2,800	4,400	700	500
Mercury	0.3	0.4	0.6	0.4	0.2
Lead	125	120	225	150	40
Zinc	273	266	369	213	65
T. Phosphorous	1,200	1,200	1,500	530	380
Ammonia Nitrogen	350	430	380	70	28
Manganese	468	519	548	348	80
Nickel	75	81	99	61	24
Arsenic	8	10	7	6	<2
Cadmium	5.5	5.0	6.5	4.2	1.6
Chromium	102	104	149	93	16
Magnesium	11,800	12,500	12,500	7,900	1,500
Copper	87	89	110	63	11
Iron	14,800	14,800	21,400	10,000	4,550

All values mg/kg dry weight unless otherwise noted.

TABLE IV
ELUTRIATE TEST RESULTS

HARBOR: Monroe, Michigan

SAMPLED: October 18, 1976

PARAMETER	Units	RUN BLANK	ELUTRIATE WATER without SEDIMENT	MON76-1	MON76-1/replicate	MON76-2	MON76-3	MON76-4
COD	(mg/l)	3	12	22	21	10	16	12
TOC	"	3	3	5	3	2	4	4
TKN	"	0.25	0.57	7.60	7.86	3.93	1.76	1.42
Ammonia-N	"	0.03	0.08	7.50	7.39	3.49	1.06	0.72
Nitrate+Nitrite-N	"	<0.03	0.08	0.07	0.08	0.07	0.11	0.08
Total P	"	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02
Cyanide	"	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phenols	(µg/l)	<5	<5	<5	<5	<5	<5	<5
Arsenic	"	<2	<2	2	2	<2	<2	<2
Cadmium	"	<20	<20	<20	<20	<20	<20	<20
Chromium	"	<24	<24	<24	<24	<24	<24	<24
Copper	"	<4	<4	<4	<4	<4	<4	<4
Iron	"	<20	<20	<20	<20	<20	<20	<20
Lead	"	<60	<60	<60	<60	<60	<60	<60
Magnesium	(mg/l)	<0.1	7.9	8.2	7.9	8.0	7.1	7.3
Manganese	(µg/l)	<10	<10	404	231	393	302	67
Mercury	"	<0.1	<0.1	<0.1	0.1	0.4	<0.1	0.1
Nickel	"	<50	<50	<50	<50	<50	<50	<50
Zinc	"	<25	<25	<25	<25	<25	<25	<25
Aluminum	"	<200	<200	<200	<200	<200	<200	<200

TABLE V
MACROINVERTEBRATES

HARBOR: Monroe, Michigan

SAMPLED: October 18, 1976

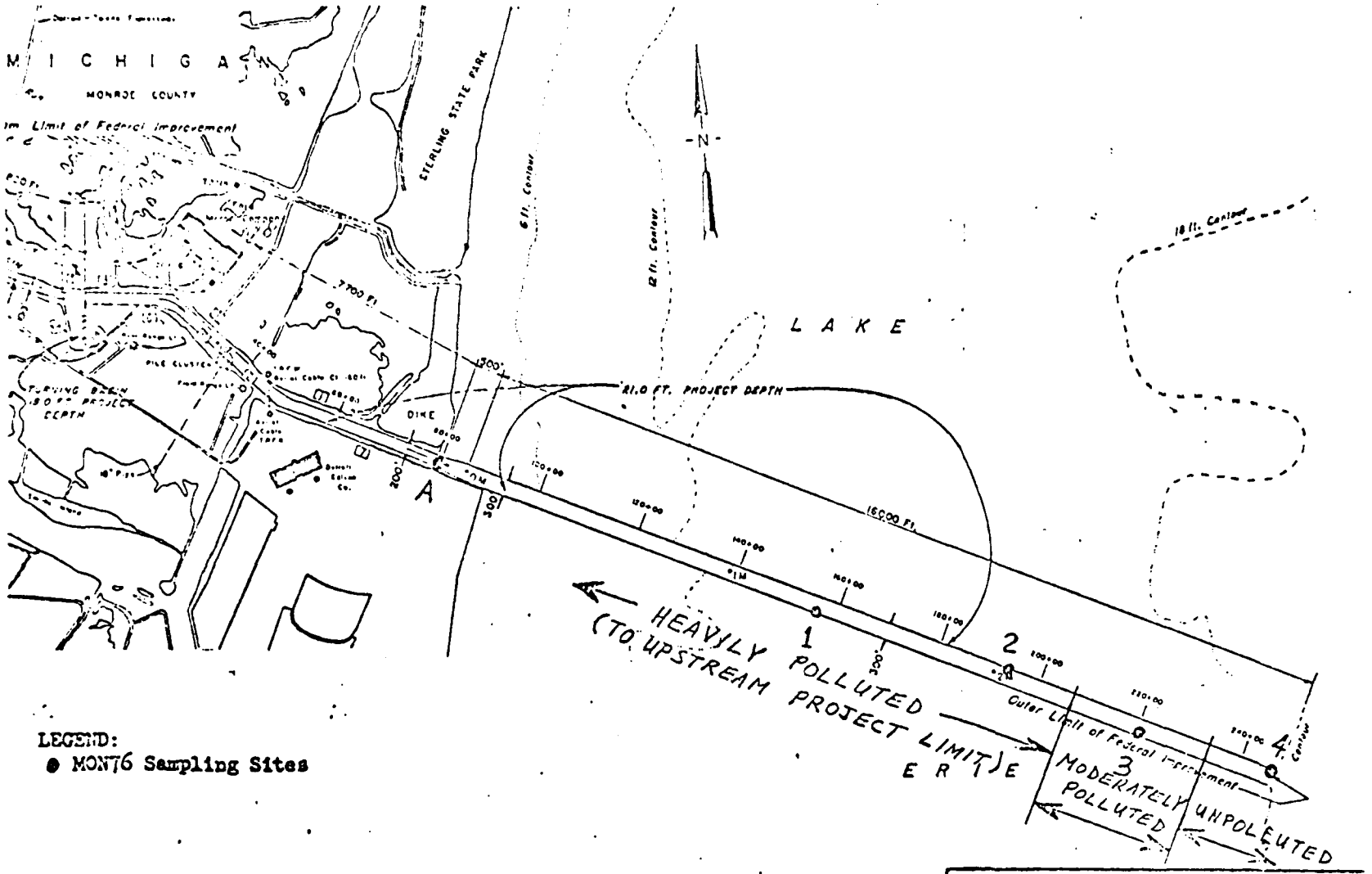
TAXA	NUMBER OF ORGANISMS FOR EACH TAXA			
	MON76-1	MON76-2	MON76-3	MON76-4
DIPTERA				
Chironomus sp.	16			
Cryptochironomus sp.				1
Coelotanypus sp.	12	44	10	
Procladius sp.		12	5	8
HIRUDINEA				
Helobdella elongata			1	1
Helobdella stagnalis				3
OLIGOCHAETA				
Limnodrilus sp.	72	88	59	71
Tubifex sp.	4		2	4
GASTROPODA				
Campeloma sp.	1			1
Total No. of organisms	105	144	77	89
Total No. of taxa	5	3	5	7

TABLE VI
BULK SEDIMENT CHEMISTRY PCB AND PESTICIDES ANALYSIS
(All values are mg/kg dry weight)

HARBOR: Monroe, Michigan

SAMPLED: October 18, 1976

	SAMPLE SITE	
COMPOUND	MON76-1	MON76-A
Hexachlorobenzene	<5	<5
beta Benzenehexachloride	<1	<1
Lindane	<5	<5
Treflan	<5	<5
Aldrin	<1	<1
Heptachlor	<1	<1
Isodrin	<1	<1
Heptachlor Epoxide	<1	<1
gamma Chlordane	<1	<1
o,p -DDE	<2	<2
p,p'-DDE	<2	<2
o,p -DDD	<1	<1
o,p -DDT	<2	<2
p,p'-DDD	<1	<1
p,p'-DDT	<2	<2
Methoxychlor	<2	<2
Mirex	<2	<2
2,4-D, Isopropyl Ester	<1	<1
Di-n-Butyl Phthalate	<5	<5
Endosulfan I	<1	<1
Dieldrin	<1	<1
Di (Ethylhexyl) Phthalate	<10	<10
Endrin	<2	<2
Endosulfan II	<1	<1
DCPA	<1	<1
Tetradifon	<10	<10
Aroclor 1016 (1242)	<1	<1
Aroclor 1248	<1	<1
Aroclor 1254	<1	<1
Aroclor 1260	<1	<1
Total PCB	<1	<1



LEGEND:
● MON76 Sampling Sites

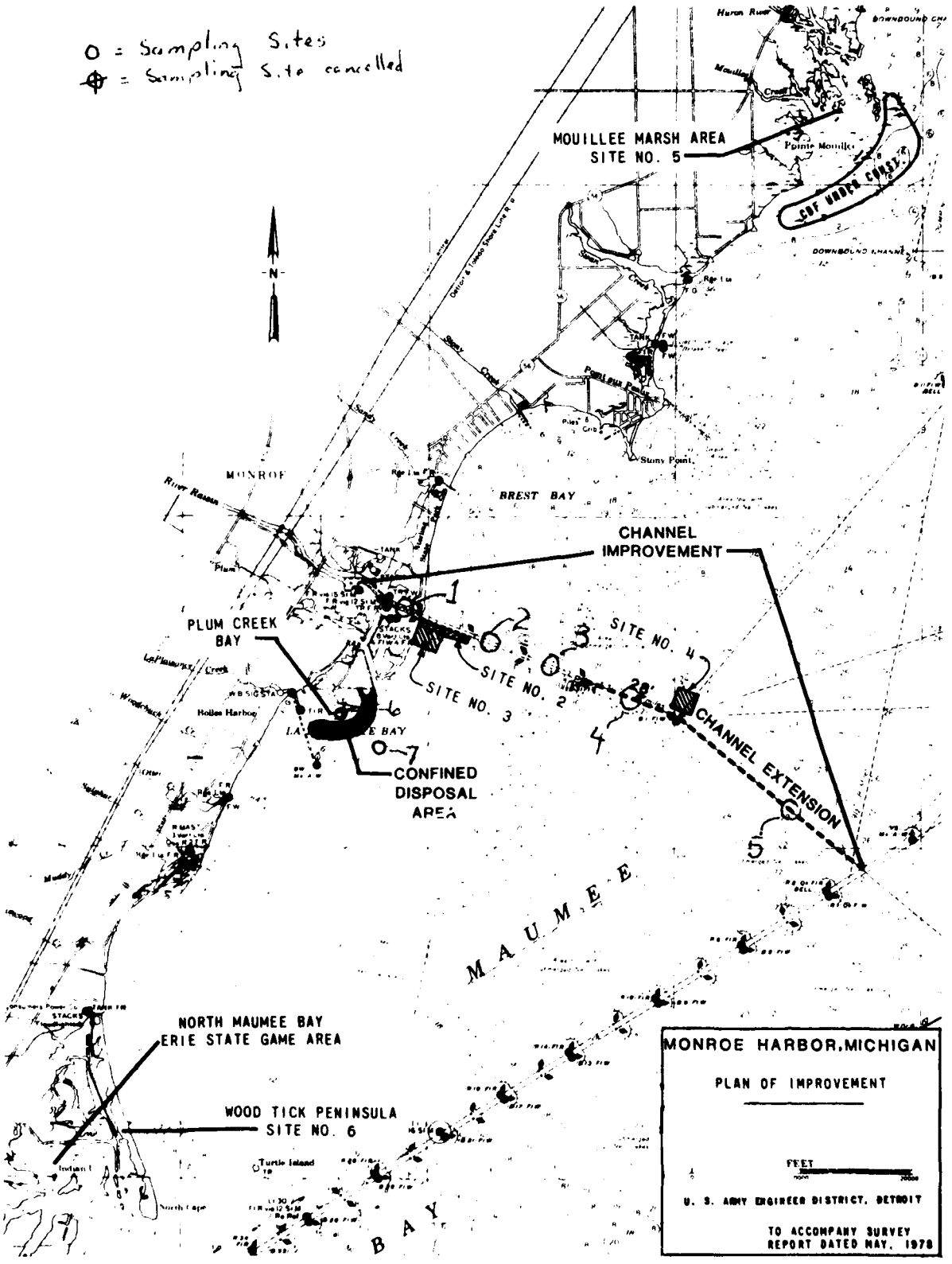
SEDIMENT SURVEY
MONROE HARBOR,
MICHIGAN

U.S. ENVIRONMENTAL PROTECTION AGENCY
GREAT LAKES SURVEILLANCE BRANCH
CHICAGO ILLINOIS

U. S. ARMY CORPS OF ENGINEERS

MONROE HARBOR

8-24-78


O = Sampling Sites
⊕ = Sampling Site cancelled
MOUILLEE MARSH AREA
SITE NO. 5
CHANNEL
IMPROVEMENT
PLUM CREEK
BAY
SITE NO. 1
SITE NO. 2
SITE NO. 3
SITE NO. 4
CHANNEL EXTENSION
CONFINED
DISPOSAL
AREA
NORTH MAUMEE BAY
ERIE STATE GAME AREA
WOOD TICK PENINSULA
SITE NO. 6
MONROE
BREST BAY
MAUMEE
BAY
Stony Point
Pointe Mouillee
Turtle Island
MONROE HARBOR, MICHIGAN
PLAN OF IMPROVEMENT
FEET
U. S. ARMY ENGINEER DISTRICT, DETROIT
TO ACCOMPANY SURVEY
REPORT DATED MAY, 1978
PLATE 1

HYDRO RESEARCH SERVICES

U.S. Army Corps of Engineers — September 11, 1978

Monroe Harbor

Summary of data enclosed:

Station #	Bulk Sediment	Elutriate	Sieve	Benthic
1	X	X	X	
2	X		X	
3	X	X	X	X
4	X		X	X
5	X	X	X	X
7				X

U. S. Army Corps of Engineers September 11, 1978

Monroe Harbor Sampling 8-24-78

Weather conditions - Overcast, windy; waves 12 - 18 inches in height; water temperature 26°C

Sampling techniques:

1) Two ft. core samples were taken at each site with a two inch diameter corer equipped with weights for added penetration. Several cores were taken at each site to insure adequate sample for analysis.

2) Sample locations were determined from maps provided by the Corps of Engineers and matched with much larger official maps of the area. Sounding equipment was utilized to determine exact channel location.

3) A standard ponar dredge was used to take grab samples where required.

4) Sediment samples were placed in one gallon wide mouth glass jars treated the same way as below (#5) but with an additional three rinses of hexane to eliminate any possible PCB contamination.

5) Elutriate water was taken in one gallon glass jugs previously rinsed with concentrated nitric acid; followed by several deionized water rinses and then dried. Caps were teflon lined. Samples were put on ice immediately. Elutriate water was taken at Site #2.

6) Dissolved oxygen and temperature readings were taken using a dissolved oxygen meter with temperature probe at a depth of one foot below the surface.

HYDRO RESEARCH SERVICES

U.S. Army Corps of Engineers
Monroe Harbor 8-24-78

September 11, 1978

Bulk Sediment Analysis

HYDRO NO:		24826	24827	24828	24829	24830
CUST. ID:	Station	#1	#2	#3	#4	#5
Solids, Total, %		45.5	75.7	77.4	53.7	76.1
Solids, Vol., mg/kg		79,600	13,400	10,500	38,000	8,150
C.O.D., mg/kg		98,500	14,900	13,100	45,400	12,600
Oil & Grease, mg/kg		230	66.	117	530	64
Nitrogen, Kjeldahl, N, mg/kg		3,300	630	710	540	350
Nitrogen, Ammonia, N, mg/kg		280	56.	34.	140	38.
Phosphorus, Total, P, mg/kg		720	360	220	810	260
pH		6.0	5.5	6.0	6.0	5.5
Cyanide, Total, mg/kg		<1.1	<.7	<1	<1.8	<.7
Mercury, Total, Hg, mg/kg		0.21	0.12	0.13	0.32	0.07
Nickel, Total, Ni, mg/kg		55.5	21.9	15.9	47.1	16.6
Zinc, Total, Zn, mg/kg		254	202	63.	126	62.
Chromium, Total, Cr, mg/kg		66.7	27.7	23.7	71.0	16.8
Copper, Total, Cu, mg/kg		109.2	35.0	13.8	60.	11.3
Iron, Total, Fe, mg/kg		21,500	10,400	6,500	17,200	5,200
Lead, Total, Pb, mg/kg		31.	14.	14.	40.	15.
Manganese, Total, Mn, mg/kg		413	191	102	297	85.
Arsenic, Total, As, mg/kg		9.6	4.6	2.9	6.6	2.6

Vulcan Laboratories
a ELOW division

HYDRO RESEARCH SERVICES

Army Corps of Engineers
Monroe Harbor

September 11, 1978

Sediment Samples taken 8-24-78

HYDRO NO:	24826	24827	24828	24829	24830
CUST. ID:	#1	#2	#3	#4	#5
PCB, mg/kg					
Aroclor 1242	0.90	0.19	0.09	0.66	0.05
" 1254	--	--	--		
" 1260	0.50	0.10	0.08	0.36	0.08
6% Eluent					
BHC	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
PCNB	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Heptaclor	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Heptaclor epoxide	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
DDE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
DDD	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
DDT	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Mirex	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Aldrin	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Lindane	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Toxaphene	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Strobane	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Chlordane	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

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HYDRO RESEARCH SERVICES

U.S. Army Corps of Engineers
Monroe Harbor 8-24-78

September 11, 1978

Elutriate Analysis

HYDRO NO:	24832	24833	24834	24835
CUST. ID:	Elutriate Background Water	Site #1	Site #3	Site #5
Solids, Diss., mg/l	210	290	260	250
Cyanide, Total, mg/l	<0.02	<0.02	<0.02	<0.02
pH	7.97	7.91	7.80	7.60
Phosphorus, Diss., Total, P, mg/l	<0.02	<0.02	<0.02	<0.02
Nitrogen, Ammonia, N, mg/l	0.10	13.	3.2	2.4
Nitrogen, Kjeldahl, N, mg/l	1.25	13.	4.2	2.4
Cadmium, Total, Cd, mg/l	0.001	0.001	0.001	0.002
Copper, Total, Cu, mg/l	0.004	0.004	0.005	0.003
Chromium, Total, Cr, mg/l	0.002	0.001	0.002	0.003
Nickel, Total, Ni, mg/l	0.01	0.02	0.02	0.01
Lead, Total, Pb, mg/l	0.01	0.02	0.02	0.02
Mercury, Total, Hg, ug/l	<0.1	0.2	0.4	0.4
Total Organic Carbon, mg/l	25	69	43	40
D.O. (on site), mg/l	8.6	--	--	--
Bacteria, Fecal Coli., 44.5°C, col./100 ml	<4	--	--	--
Bacteria, Total Coli., col./100 ml	10	--	--	--
Solids, Susp., mg/l	28	--	--	--

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HYDRO RESEARCH SERVICES

U.S. Army Corps of Engineers

Monroe Harbor 8-24-78

September 11, 1978

ANALYSIS OF BENTHIC ORGANISMS

	SAMPLE SITE			
	3	4	5	7
Chironomidae				
Polypedilum sp.				75.6
Cryptochironomus sp.				18.9
Procladius sp.	18.9	37.8		
Tanypus			18.9	
Amphipoda				
Crangonyx sp		18.9		
Pelecypoda				
Pisidium			37.8	
Oligochaeta				
Peloscolex sp.	94.5		18.9	
Limnodrilus sp.		75.6	75.6	132.3
Potamothrix sp.		18.9	18.9	
Rhyacodrilus sp.			56.7	
Unidentifiable without hair chaetae		75.6	113.4	151.2

Units are numbers/m^2.

Vulcan Laboratories
a CLOW division

HYDRO NO. 24826

PHYSICAL DESCRIPTION: Grayish brown clay; dense, sticky material; musty odor. A very light gray to white layer approximately 2" thick was present 6" from the top. This layer was very dense and sticky.

In-Place Density: 1270 g/l

SIEVE ANALYSIS:

Sieve No.	Dry Gradation				Washed Gradation		
	Acc. Wt. Retained	% Ret.	% Passing	Spec.	Acc. Wt. Retained	% Ret.	% Passing
2"							
1½"							
1"							
3/4"							
½"							
3/8"							
#4							
#8					0	0.0	100.0
#10							
#16							
#20							
#30					2.5	5.4	94.6
#40							
#50					3.5	7.6	92.4
#80					4.5	9.8	90.2
#100					5.0	10.9	89.1
#200					8.5	18.5	81.5
Pan					9.0		
		Washed Thru #200			37.0		80.4
		Total Sample			46.0		

Project: _____

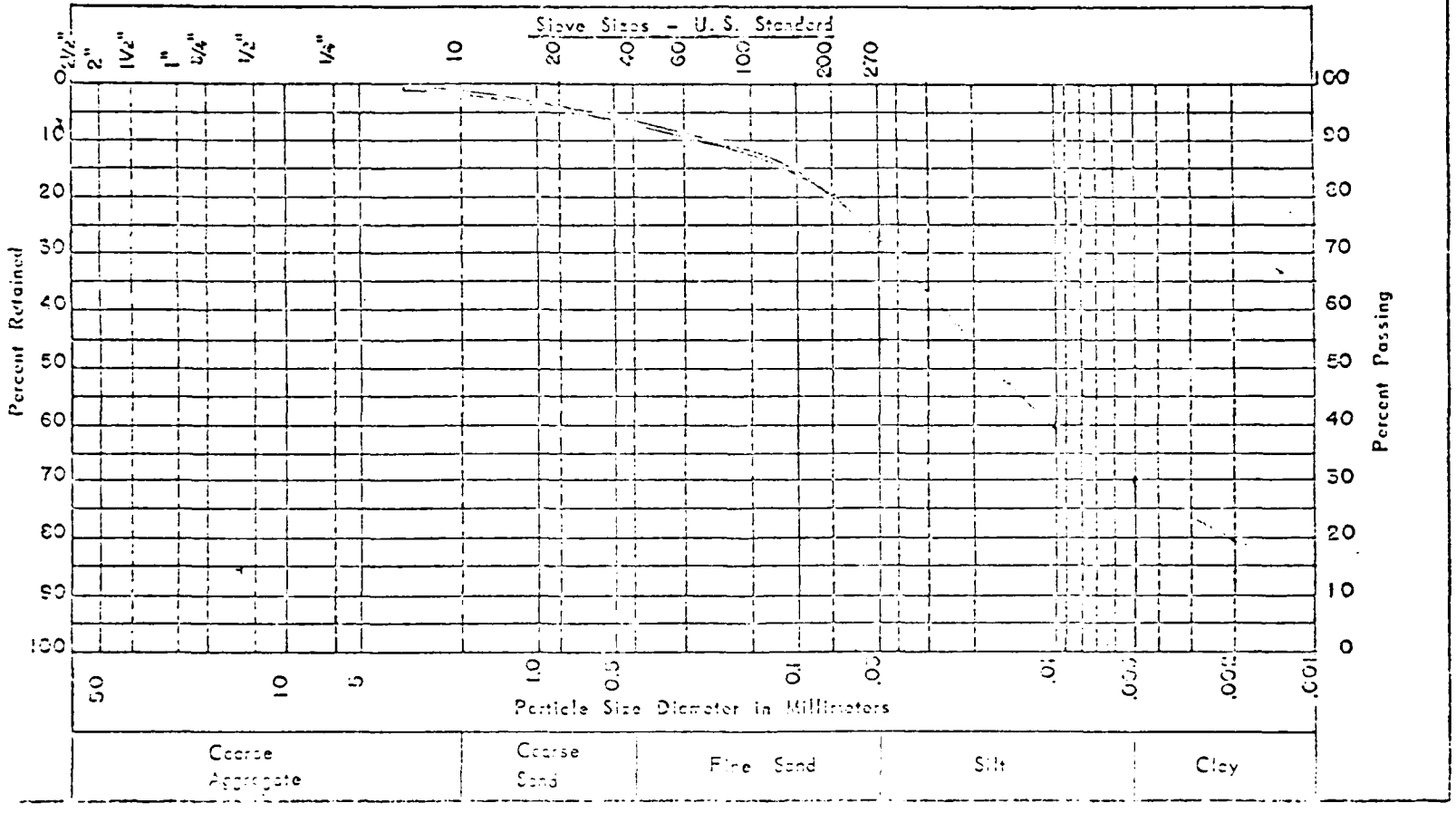
Date: 9-8-78

Sample No. 24626

Tested by: D.C.

Location _____

MECHANICAL ANALYSIS GRAIN SIZE ACCUMULATION CURVE



Site #2

HYDRO NO. 24827

PHYSICAL DESCRIPTION: top half of the sample was a brownish gray sand and silt mixture; the bottom half was a brown clay. The sample had an oily odor.

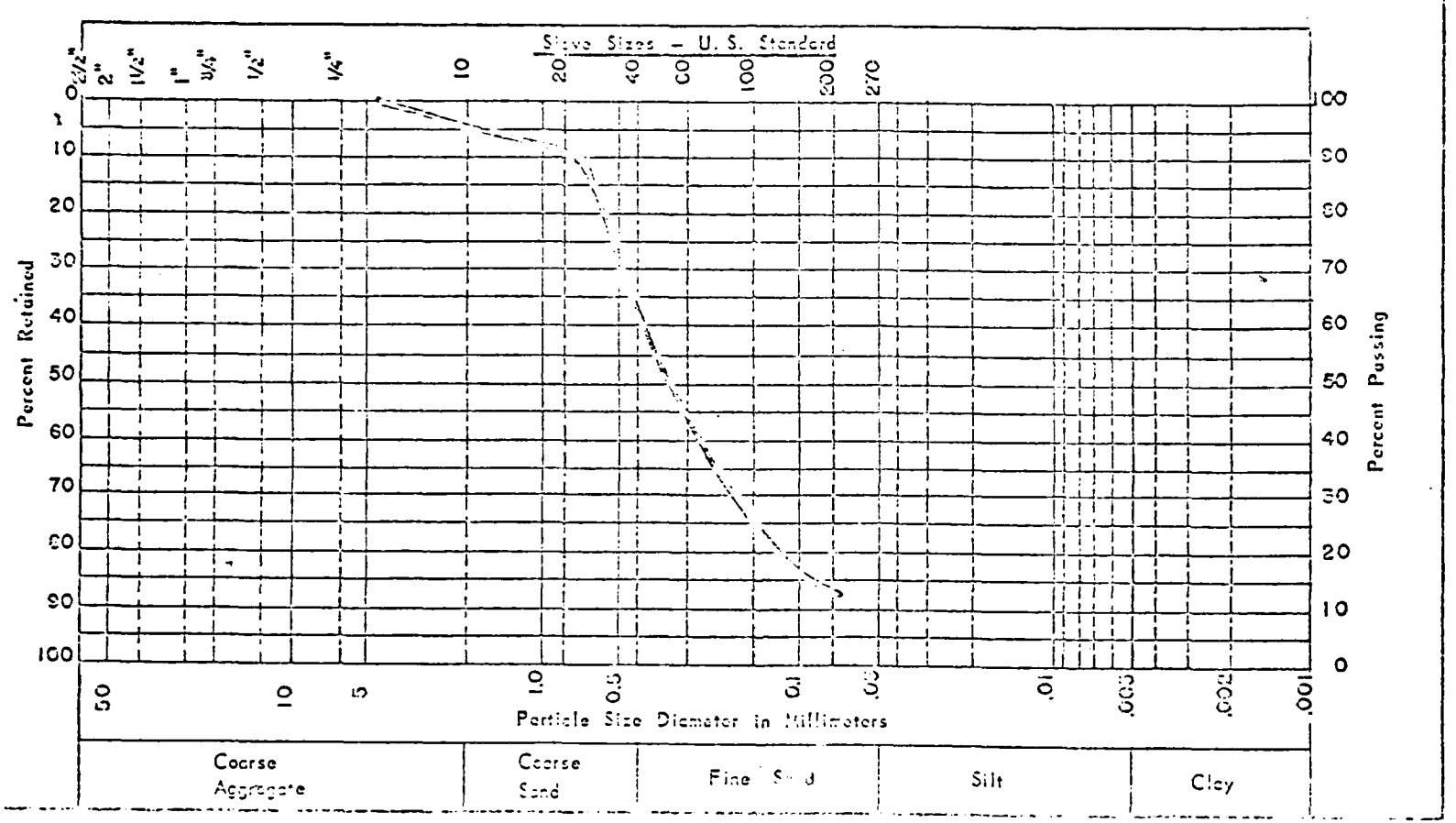
Wet Density: 1760 g/l

SIEVE ANALYSIS:

Sieve No.	Dry Gradation			Spec.	Washed Gradation		
	Acc. Wt. Retained	% Ret.	% Passing		Acc. Wt. Retained	% Ret.	% Passing
2"							
1½"							
1"							
3/4"							
½"							
3/8"							
#4					0.0	0.0	100.0
#8					4.0	3.4	96.6
#10							
#16							
#20							
#30					12.5	10.8	89.2
#40							
#50					49.0	42.2	57.8
#80					77.0	66.4	33.6
#100					85.0	73.3	26.7
#200					101.0	87.1	12.9
Pan					100.0		
		Washed Thru #200			14.0		12.1

Project:	Date: 7-[illegible]-78	Location
	Sample No. 2-B27	
	Tested by: D.C.	

MECHANICAL ANALYSIS GRAIN SIZE ACCUMULATION CURVE



Site #3

HYDRO NO. 24828

PHYSICAL DESCRIPTION: The top 6 - 8" appeared as a gray floc. The sample was gray in color and predominantly silt. Much organic matter and snail shells were evident throughout sample. The organic matter appeared to be detritus. A putrified odor, almost sanitary in nature, was present.

In-Place Density: 1790 g/l

SIEVE ANALYSIS:

Sieve No.	Dry Gradation				Washed Gradation		
	Acc. Wt. Retained	% Ret.	% Passing	Spec.	Acc. Wt. Retained	% Ret.	% Passing
2"							
1½"							
1"							
3/4"							
½"							
3/8"							
#4							
#8					0.0	0.0	100.0
#10							
#16							
#20							
#30					4.5	4.1	95.9
#40							
#50					43.0	39.4	60.6
#80					81.0	74.3	25.7
#100					98.0	89.9	10.1
#200					103.0	94.5	5.5
Pan					103.0		
		Washed Thru #200			6.0		5.5
		Total Sample			109.0		

Project: _____

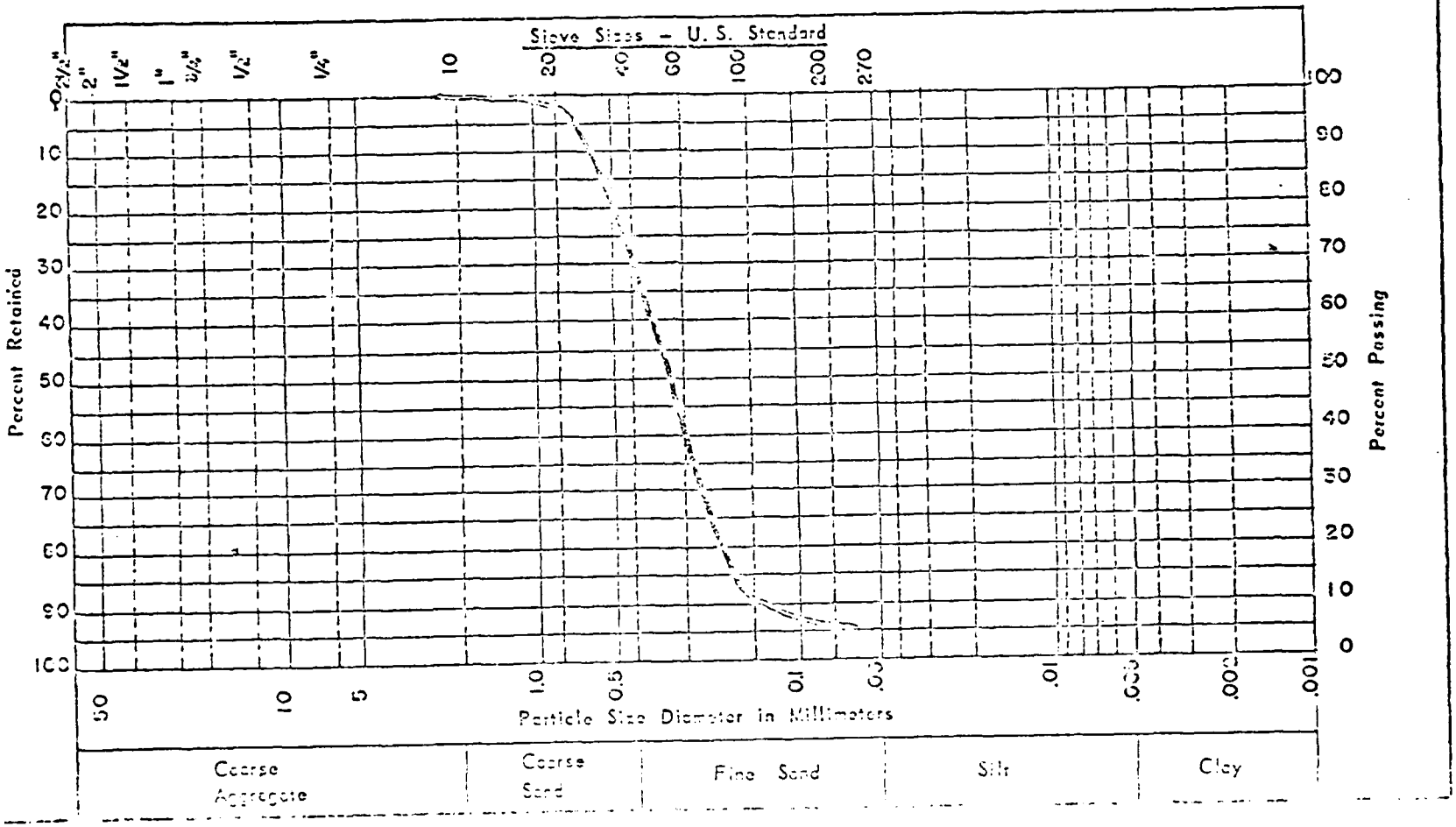
Date: 9-8-78

Sample No. 21328

Tested by: D.C.

Location _____

MECHANICAL ANALYSIS GRAIN SIZE ACCUMULATION CURVE



Site #4

HYDRO NO. 24829

PHYSICAL DESCRIPTION: The sample was predominantly gray silt with a layer of organic matter light brown in color on the top 2 - 3". The sample had an oily smell. Sample sticky and paste-like.

In-Place Density: 1160 g/l

SIEVE ANALYSIS:

Sieve No.	Dry Gradation				Washed Gradation		
	Acc. Wt. Retained	% Ret.	% Passing	Spec.	Acc. Wt. Retained	% Ret.	% Passing
2"							
1½"							
1"							
3/4"							
½"							
3/8"							
#4							
#8					1.1	0.4	99.6
#10							
#16					2.5	0.9	99.1
#20							
#30					5.7	2.2	97.8
#40							
#50					19.7	7.5	92.5
#80							
#100					84.0	31.8	68.2
#200					123.8	46.9	53.1
Pan					125.4		
		Washed Thru #200			138.1		52.4
		Total Sample			263.7		

Project: _____

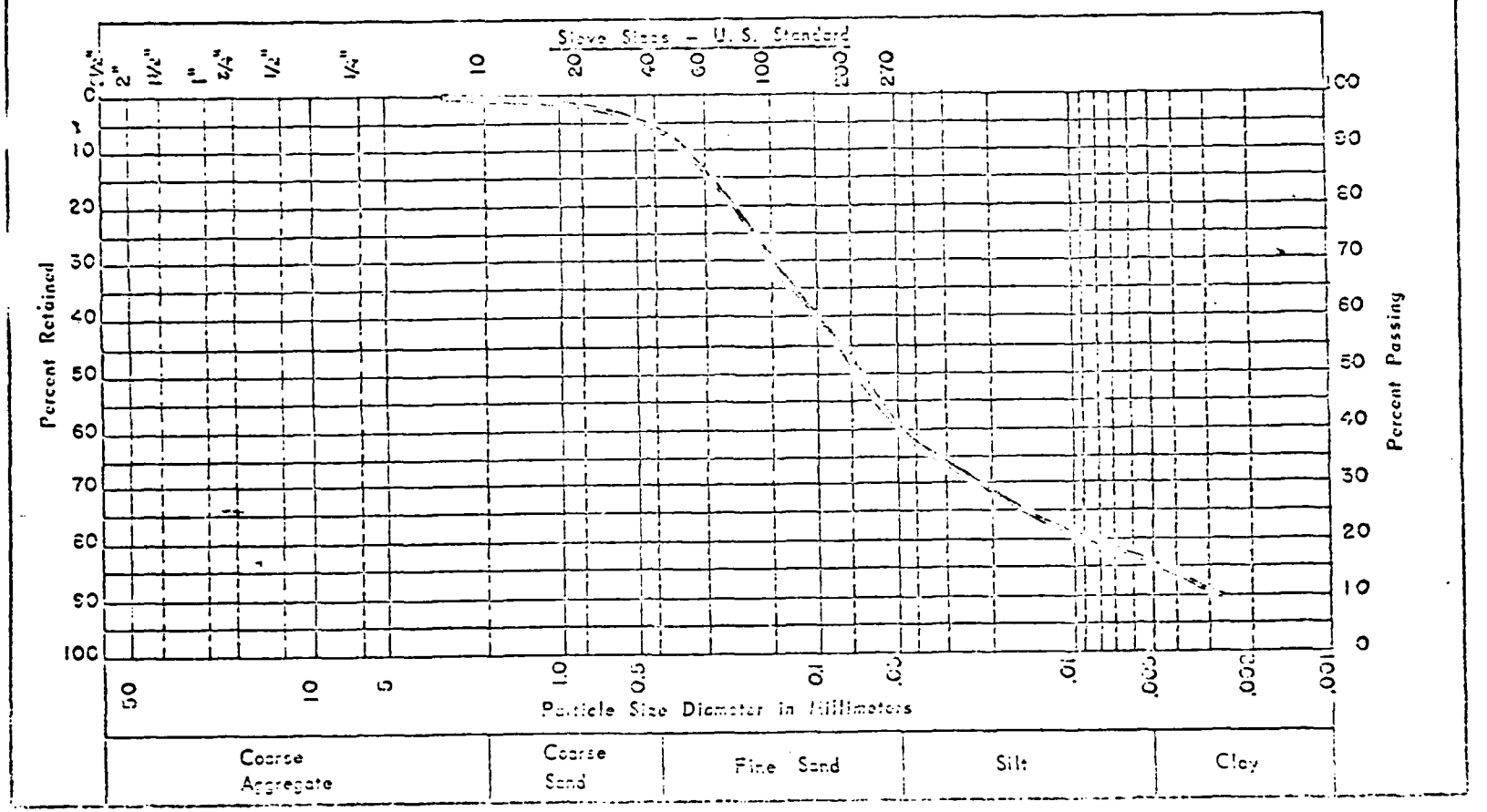
Date: 9-8-78

Sample No. 24839

Tested by: D.C.

Location _____

MECHANICAL ANALYSIS GRAIN SIZE ACCUMULATION CURVE



Site #5

HYDRO NO. 24830

PHYSICAL DESCRIPTION: The top 10 - 12" were primarily a sand and silt mixture with brownish gray silt underneath. This sample appeared to be the cleanest of the five channel samples.

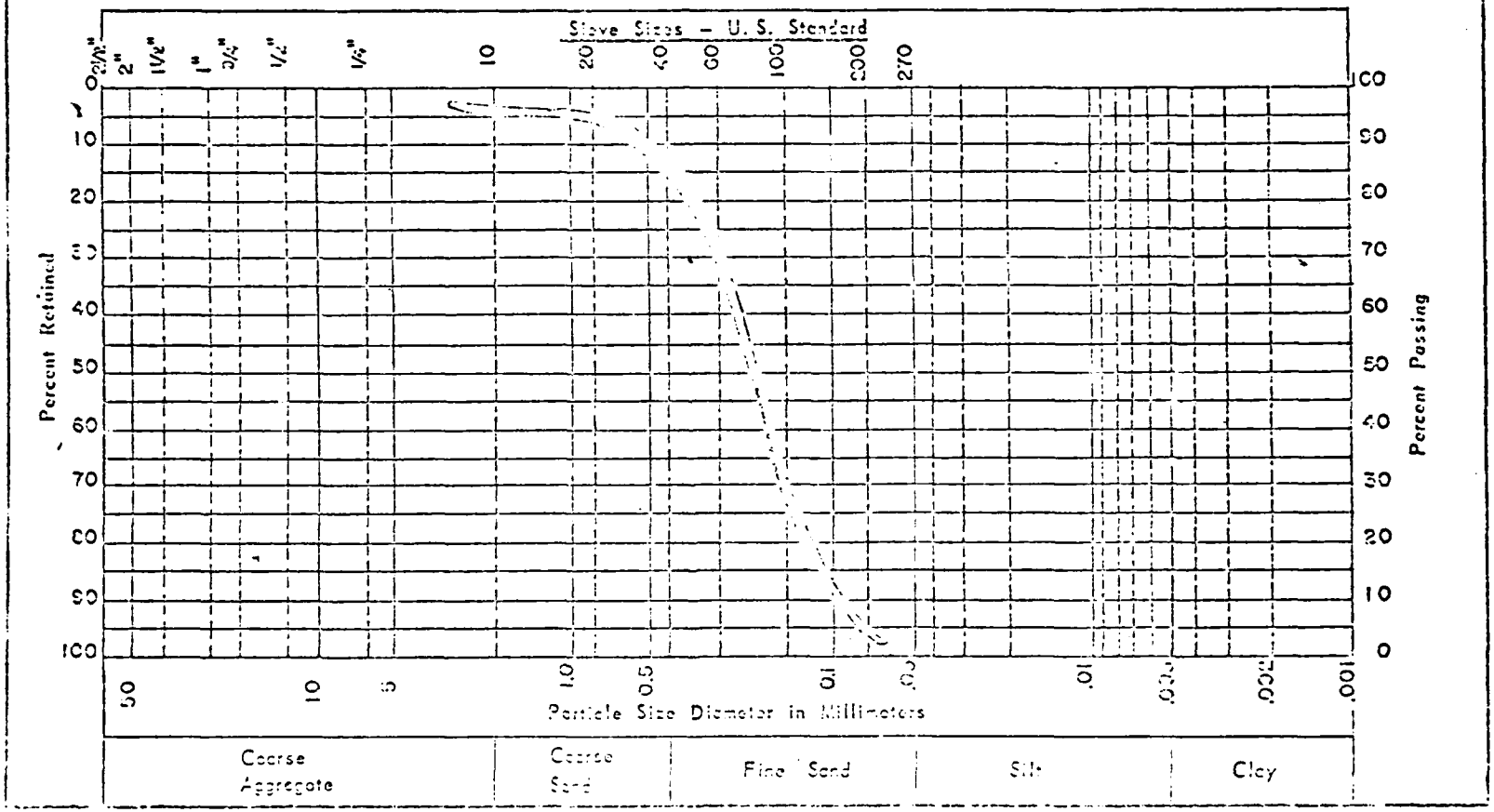
In-Place Density: 1760 g/l

SIEVE ANALYSIS:

Sieve No.	Dry Gradation				Washed Gradation		
	Acc. Wt. Retained	% Ret.	% Passing	Spec.	Acc. Wt. Retained	% Ret.	% Passing
2"							
1½"							
1"							
3/4"							
½"							
3/8"							
#4							
#8					14	3.7	96.3
#10							
#16					15.3	4.1	95.9
#20							
#30					19.9	5.3	94.7
#40							
#50					90.0	23.9	76.1
#80							
#100					268.5	71.4	28.6
#200					359.5	95.6	4.4
Pan					360.2		
		Washed Thru #200			15.3		4.1
		Total Sample			376.0		

Project:	Date: 9-6-78	Location
	Sample No. 21-820	
	Tested by: D.C.	

MECHANICAL ANALYSIS GRAIN SIZE ACCUMULATION CURVE



Site #7

HYDRO NO. 24831

PHYSICAL DESCRIPTION: Predominantly sand with some gray silt and small pebbles 1/8" to 1/4" in diameter. The sample had an earthy odor, like that of sand.

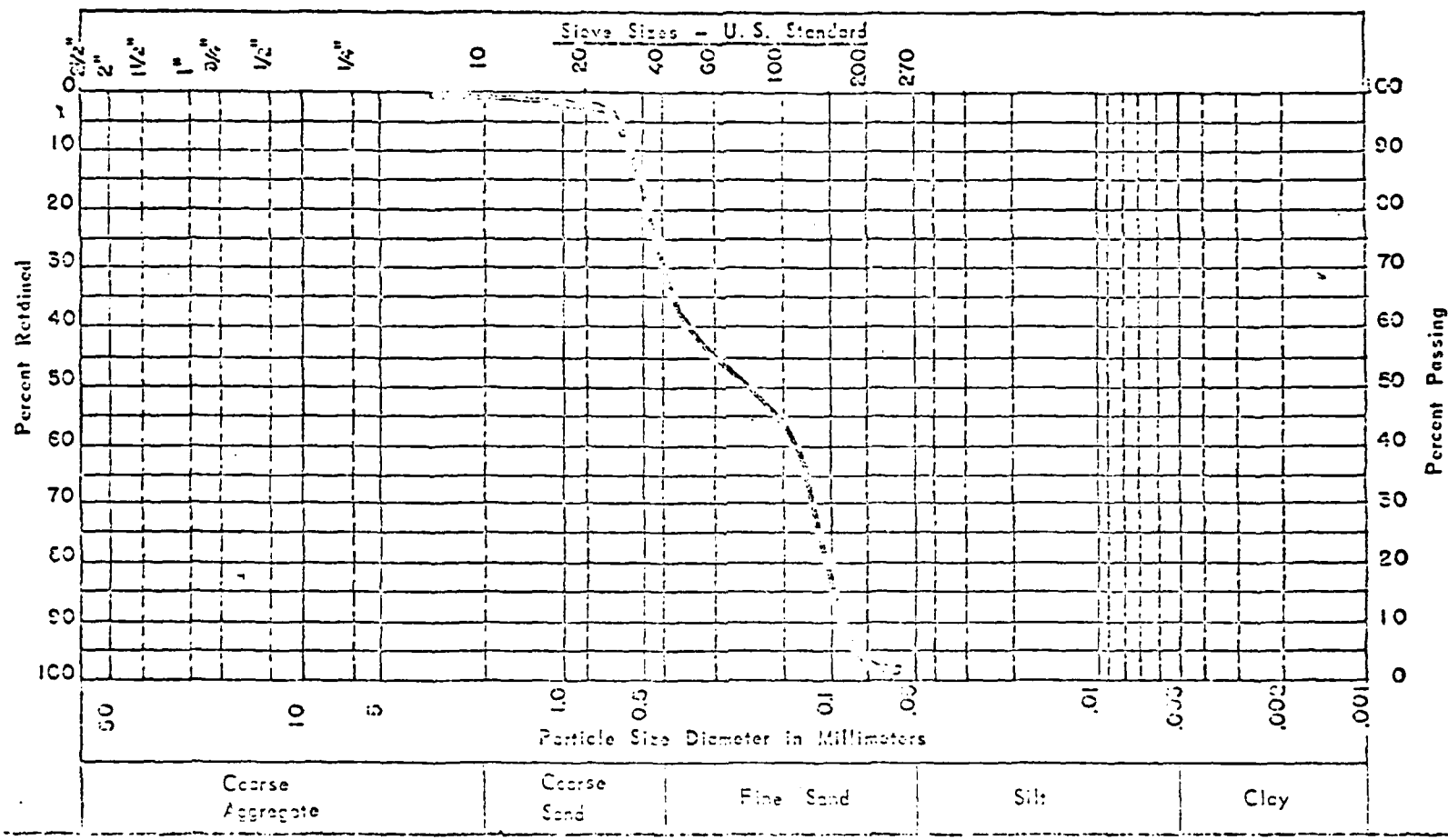
In-Place Density: 1970 g/l

SIEVE ANALYSIS:

Sieve No.	Dry Gradation				Washed Gradation		
	Acc. Wt. Retained	% Ret.	% Passing	Spec.	Acc. Wt. Retained	% Ret.	% Passing
2"							
1½"							
1"							
3/4"							
½"							
3/8"							
#4							
#8					3.5	0.7	99.3
#10							
#16					5.4	1.1	98.9
#20							
#30					18.0	3.6	96.4
#40							
#50					204.9	40.8	59.2
#80							
#100					330.1	66.0	44.0
#200					482.0	96.4	3.6
Pan					488.8		
		Washed Thru #200			10.9		2.0
		Total Sample			500.0		

Project:	Date: 8-8-78	Location
	Sample No. 2-631	
	Tested by: D.C.	

MECHANICAL ANALYSIS GRAIN SIZE ACCUMULATION CURVE



WATER QUALITY-LAPLAISANCE CREEK

September 1976

Water and sediment samples were collected at the sites indicated in the diagram of the sampling area. A total of five water and six sediment samples were collected. Tests for selected chemical parameters were performed using methods prescribed by the Environmental Protection Agency in the Federal Register. Table 5 contains a listing of water quality parameters as well as the values obtained from testing for each sample, while Table 6 contains a listing of parameters and test results for sediment quality.

Table 5. Values for various water quality parameters.

PARAMETER	STATION				
	W-1	W-2	W-3	W-4	W-5
Total Coliform Bacteria no./100ml.	300	300	200	350	436
Dissolved Oxygen mg/l.	9.5	9.3	9.1	8.5	8.4
pH (Hydrogen ion)	8.8	8.7	8.8	8.8	8.7
Nitrate Nitrogen, mg/l.	.03	.04	.13	.11	.08
Total Phosphorus, mg/l.	.06	.12	.92	.66	.08
Total Kjeldahl Nitrogen (mg/l.)	1.6	1.4	1.7	1.6	1.4
Total Dissolved Solids (mg/l.)	166	174	220	248	286
Suspended Solids, (mg/l.)	6	12	21	34	47
Colloidal Solids, (mg/l.)	4	5	8	8	10
Settleable Solids, (mg/l.)	2	7	13	22	37

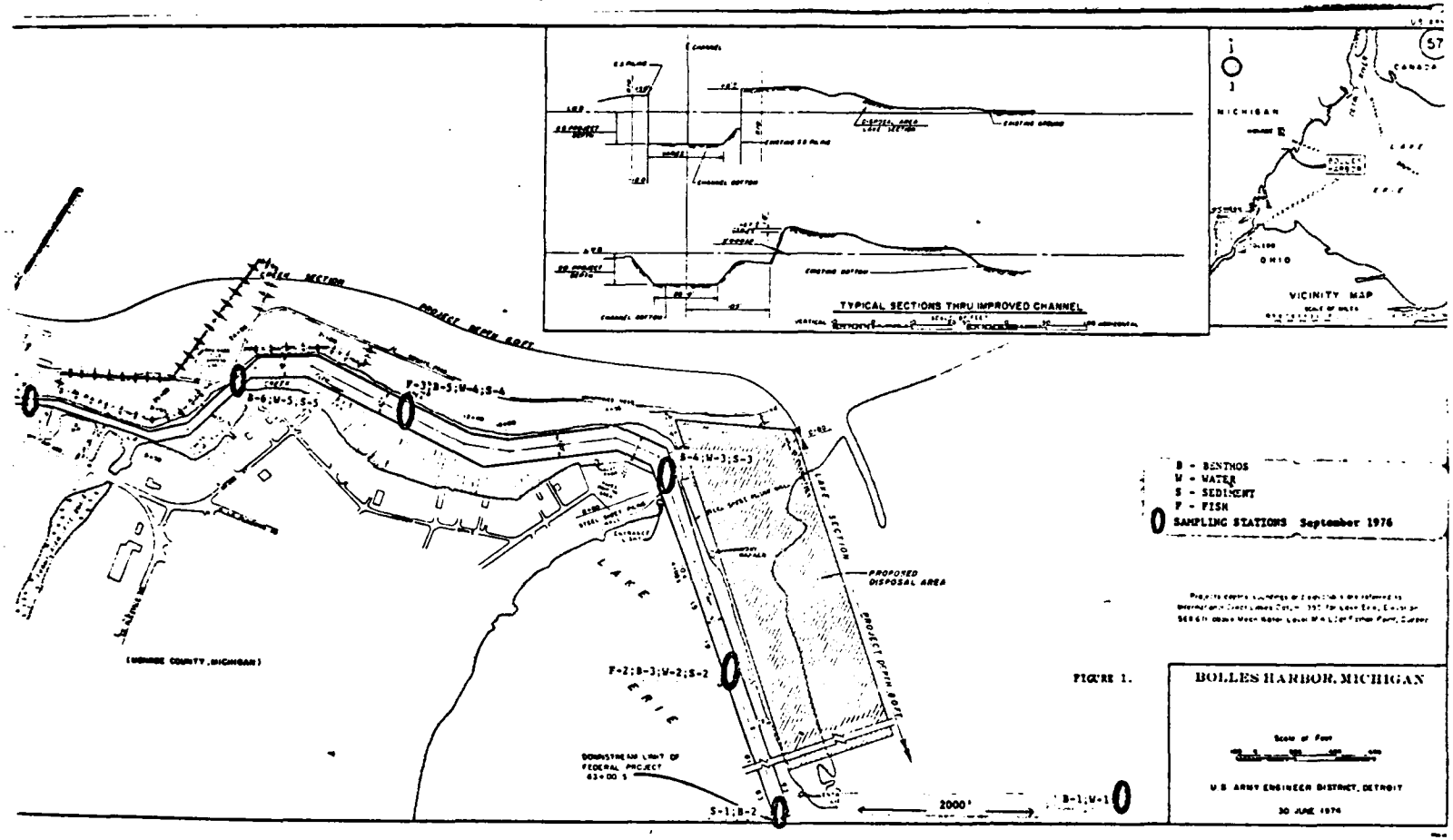

TYPICAL SECTIONS THRU IMPROVED CHANNEL
VICINITY MAP
MICHIGAN
OHIO
LAKE SECTION
PROJECT WIDTH 600'
PROPOSED DISPOSAL AREA
LAKE ERIE
B-6;W-5;S-5
F-3;B-5;W-4;S-4
B-4;W-3;S-3
F-2;B-3;W-2;S-2
S-1;B-2
B-1;W-1
2000'
B - BENTHOS
W - WATER
S - SEDIMENT
F - FISH
SAMPLING STATIONS September 1976
BOLLES HARBOR, MICHIGAN
U.S. ARMY ENGINEER DISTRICT, DETROIT
30 JUNE 1976

FIGURE 1.

WATER QUALITY DATA*
(Mouth of Plum Creek)

Parameter	Value	Date
Total Coliform Bacteria Avg. No/100 ml	1361	1 May to 7 Nov 1970
Streptococci Avg. No/100 ml	123	1 May to 7 Nov 1970
Dissolved Oxygen mg/l	9.9	1 Jul 1971
pH (Hydrogen Ion) 24 hr. range	7.7 to 8.1	3 Jun 1971
Total Alkalinity 24 hr. range	144-146	3 Jun 1971
Nitrate N mg/l	.86	1 May to 7 Nov 1970
Organic N mg/l	.63	"
Ammonia N mg/l	.52	"
Kjeldahl N mg/l	1.15	"
Total N mg/l	2.01	1 May to 7 Nov 1970
Dissolved P mg/l	.07	1 May to 7 Nov 1970
Suspended P mg/l	.03	"
Total P mg/l	.10	1 May to 7 Nov 1970
Suspended Solids mg/l	45.3	1 May to 7 Nov 1970
Inorganic Susp. Solids mg/l	27.3	1 May to 7 Nov 1970
Chloride (mean conc.)	29.0	1 May to 7 Nov 1970

*Cole, R.A. 1972
Technical Report No. 13, Thermal Discharge Series
Institute of Water Research
Michigan State University

APPENDIX C

COORDINATION CORRESPONDENCE AND DIGESTS OF PUBLIC MEETINGS

DIGEST OF PROCEEDINGS
PUBLIC MEETING IN THE INTEREST OF
PROVIDING COMMERCIAL NAVIGATION IMPROVEMENTS
AT MONROE HARBOR, MICHIGAN

A public meeting was held at Monroe, Michigan, on 27 July 1977 to present and discuss the results of preliminary studies. Public views were solicited on the preliminary plans and future detailed studies. The meeting was conducted by Messrs. George Platz and Jim Ropes. Technical support on environmental matters was provided by Mr. Jerry Doline. The meeting was attended by approximately 25 persons representing Federal agencies, local government, industry, local interest groups and individual citizens.

Mr. George Platz presented a history of the study from authorization thru the Plan of Study including study delays. Mr. Ropes discussed the purpose of preliminary feasibility studies and the results of these studies. Mr. Ropes also discussed the detailed studies which will be conducted. This discussion included an explanation of the current cost sharing policies of the Corps as described in a memorandum from the Office of the Secretary of the Army. Mr. Platz concluded the presentation with the steps the study will go thru to authorization and construction. The meeting was open for discussion and the following items were noted.

1. An explanation was requested on the determination of volumes of dredged material with respect to backlog, maintenance, and new work and if rock is included in these volumes. The differences between the on-going studies on maintenance dredging and new work was explained. It was stated that rock will not be involved. Soil borings show rock in the existing turning basin only and present commerce does not justify improvements in that area.

2. A citizen expressed his understanding that utilities may not benefit from Federal funds. Corps representatives stated this will be checked out.

3. Several persons asked if the effects of disposal site location on channel maintenance was considered. It was explained that a preliminary assessment was made and that detailed studies would consider it further.

4. Ford Motor representative offered Ford lakeside property as a disposal site. Other individuals termed this area the "Ford Marsh" and opposed any filling of this area.

5. A question was asked as to the affect of the required additional maintenance on the Corps O&M capabilities. It was explained that every feasibility report recommending a "structural" alternative must address its affect on future manpower and facility requirements.

6. A citizen stated that consideration should be given to providing public access to disposal sites without the need for a boat.

7. The Monroe County Planning Commission representative stated that the commission recommends the Woodtick peninsula (Site 6) be used for Maumee dredgings rather than Monroe material.

8. A lakeshore property owner stated that dredged disposal barriers should be used to protect property and homes.

9. It was questioned if the Corps had considered other transshipment points such as Detroit, St. Clair etc. The answer was yes and the Toledo alternative was the least costly, so it was used as the base condition.

The Pointe Mouillee Waterfowlers Association presented a statement supporting the Toledo transshipment alternative, rather than deepening Monroe. They also support Site 1 for maintenance dredging material. Other recommendations included the use of the existing turning basin as a disposal site as an alternative to filling marshland. They also expressed concern for the orderly development of the Monroe waterfront and the potential of economic development to overshadow environmental quality.

The Lake Erie Advisory Committee presented a statement supporting disposal Site 1 for disposal of dredged material.

General concern was expressed over the use of Federal funds for the benefits of a single user (industry or utility), the filling of marshland and the increased industrial pollution which may result from development.

Several citizens supported the project based on the need for energy, jobs and tax base in the area.

MINUTES
OF THE
PORT AREA DEVELOPMENT STUDY COMMITTEE
NOVEMBER 7, 1977

The meeting was opened at 11:15 a.m. by Mayor Milton P. Munson.

The Mayor introduced Representative Raymond Kehres.

In the minutes of the October 3 meeting is was noted that the Monroe County Rod & Gun Club voted in favor of Site IIIB, not IIIA. The EPA voted for Site IIIB.

Richard Micka of the LEAC read a letter stating their appreciation for the opportunity to participate as a member of the Monroe Port Area Development Study Committee. The letter stated that since February, 1977, they have tried to find an acceptable environmental solution for disposal of polluted maintenance dredgings from the River Raisin navigation channel. A policy must be established by the "Blue Ribbon Committee" for "on-site containment" at the Port of Monroe. Mr. Micka also discussed the progress that has been made up to date and also letters from various concerns on the projects.

Councilman Carl D. Pursell discussed his concerns for the environmental issues. He stated that further growth is in trouble and he is hopeful that a constructive balance can be struck so that our basic economic needs can be met. Local officials, legislators and business officials should achieve an agreement. A compromise should be worked out on a local level.

Mr. Bob Jones from the Corps distributed information on Western Lake Erie dredged material disposal Schemes IIIB & IIIC. Under Scheme IIIB, Monroe dredged material (maintenance & dredging) would be confined both in the Plum Creek Bay Area and offshore at Sterling State Park. Dredged material from the Maumee Sailing Course and the Lake Erie Sailing Course would be confined at Woodtick Penninsula. Dredged material from the Maumee Bay Entrance Channel would be confined in the existing Toledo Disposal Facility. Construction cost - $42,500,000. Haul cost - $61,479,000.

Under Scheme IIIC, Monroe dredged material (maintenance & deepening) would be confined both in the Plum Creek Bay area and offshore at Sterling State Park. Dredged material from the Maumee Sailing Course and the Lake Erie Sailing Course would be confined at Pt. Mouillee. Construction cost - $30,000,000. Haul cost - $47,354,000.

The idea of hauling the Monroe Material to Pt. Mouillee was discussed, but turned down because of the large hauling cost involved.

Lee Emery from Fish & Wildlife is against the use of bottom lands. He prefers upland disposal sites. He stated that the placement of structures will produce marshlands. He cannot agree with the idea of using a number of different sites. As few sites as possible should be used. The environmental aspects are most important.

Representative Kehres discussed enlarging the Pt. Mouillee Area and building a marina.

Questions were asked on the use of a port authority land fill site. Max McCray from the Port of Monroe stated that drawings were presented months ago indicating the south port property could be utilized, but the plan was turned down. The Port is reluctant to place dredgings on their property because of poor material. It would be possible to harden the material.

Dale Granger discussed a Plum Creek Bay heat plume study from the bay into the lake, approximately 2½ miles. Barriers out in the bay would affect how plumes behave. They would trap heated water which would be lethal to fish in the area. The southeast wind would have a similar affect on the heat plume. If Plum Creek Bay is chosen, consideration must be given to this problem.

George Kadar stated that Plum Creek Bay should be chosen because of the clean material.

Richard Micka suggested that the Site Selection Committee review Sites IIIB and IIIC to check on the plume problems.

Representative Kehres stated that if Sterling State Park was chosen as the site, the State would be the sponsor.

It was moved by Max McCray and supported by Richard Micka that Scheme IIIB, off Sterling State Park, Bolles Harbor and Woodtick Penninsula, be reaffirmed and submitted to the Site Selection Committee. Ayes: 10 Nays: 1 Abstain: 1

It was moved by Frank Nagy and supported by Leroy Stein that maintenance dredging be confined to Sterling State Park and deepening be confined to Plum Creek Bay. Ayes: 10 Nays: 1 Abstain: 1

The information will be submitted to the Corps for their review.

Bernard Malamud stated that further discussion is needed. The Environmental Review Committee must decide if the information is acceptable.

Max McCray stated that applications on the port diking project have been submitted to the Corps and to the Federal Economic Development Administration.

The meeting adjourned at 2:53 p.m. until further notice.

DEPARTMENT OF THE ARMY
WATERWAYS EXPERIMENT STATION, CORPS OF ENGINEERS
P. O. BOX 631
VICKSBURG, MISSISSIPPI 39180

IN REPLY REFER TO: WESYR

28 April 1977

Mr. P. McAllister
Chief, Engineering Division
U. S. Army Engineer District, Detroit
P. O. Box 1027
Detroit, Michigan 48231

Dear Mr. McAllister:

In response to your letter of 19 April 1977 requesting an opinion on the suitability of using materials dredged from Monroe Harbor, Michigan, for marsh development, I offer the following advice.

a. The most striking area of contamination is MON-75-8. Of concern in this sample are oil and grease, zinc, nickel, chromium and copper. If all sediment samples along the channel contained similar concentrations of these contaminants as those of MON-75-8, marsh recreation would definitely be questionable. Since the other samples show lower concentrations of contaminants, there is a possibility that the environmental impact of creating a marsh with this material can be reduced.

b. A recommendation that should reduce the effects of contaminants on marsh development would be to begin dredging operations at MON-75-11, MON-75-10, MON-75-9 and MON-75-8 before dredging the remaining areas. This procedure will allow the most contaminated sediments to be either covered by subsequently dredged sediment or mixed and diluted by subsequently less contaminated dredged material. In any event, MON-75-8 sediment should not be one of the last areas to be dredged nor placed on top of previously dredged sediment so that marsh plants would be directly exposed to and planted in this material. The high concentration of oil and grease alone may inhibit plant growth. Therefore, precautions should be taken to either cover this material or mix and dilute it to reduce its potential adverse effects on plants.

c. Marsh creation with this dredged material more likely will result in some degree of marsh plant contamination. However, the levels of contaminants in marsh plants growing on this material may not be significantly higher than existing marsh plants in the vicinity of the disposal area.

28 April 1977

d. Should the decision be made that a marsh should not be created with this dredged material but rather that the material should be placed in a confinement, due to natural invasion of plant species, the above procedure for dredging will still tend to reduce contamination of invading plant species.

I hope this information meets your present needs. Should additional information be required, I suggest you contact Dr. C. R. Lee at 601-636-3111, extension 3585.

Sincerely yours,

Conrad J. Kirby

CONRAD J. KIRBY
Ecologist
Chief, Environmental
Resources Division

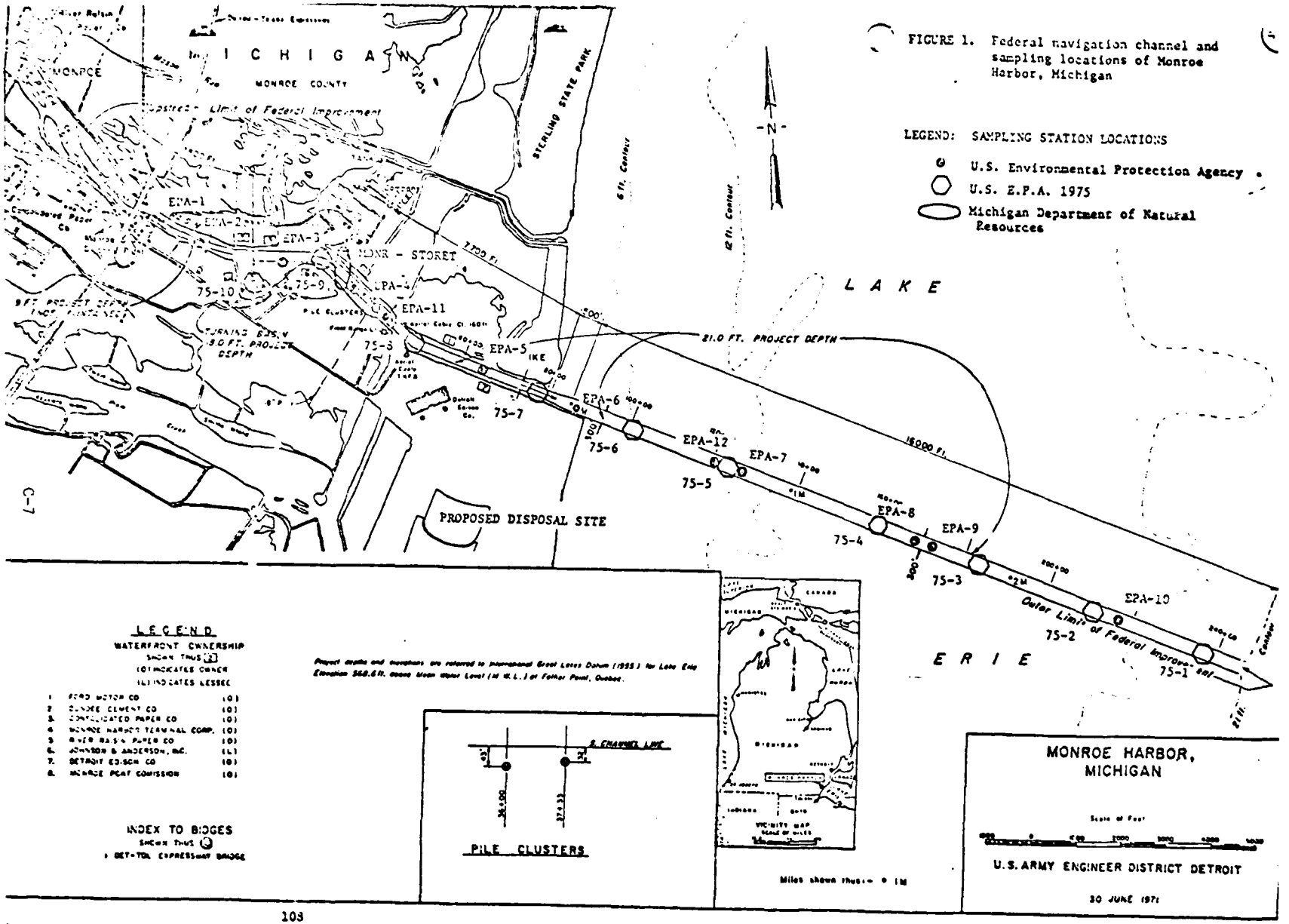


FIGURE 1. Federal navigation channel and sampling locations of Monroe Harbor, Michigan

LEGEND: SAMPLING STATION LOCATIONS

- U.S. Environmental Protection Agency
- U.S. E.P.A. 1975
- Michigan Department of Natural Resources

Watervale
Arcadia, Michigan 49613
May 2, 1977

Ms. Joan Wolfe
Chairman, D.N.R. Commission
3290 Rogue River Drive N. E.
Belmont, Michigan 49306

My dear Ms. Wolfe:

The D.N.R. Advisory Council on Shorelands on April 25 and 26 conducted a field study of the Port of Monroe under the leadership of one of our members, Richard Licka. The other members were so impressed with what appears to be a happy outcome of a classic confrontation that we wish to share our sense of excitement.

Located at the western end of Lake Erie, this area has been a problem in shoreland management because of the conflict of interests among the industrialists, the Corps of Engineers and the environmentalists. The latter were concerned for the preservation of the marshes that were the spawning grounds for sport and commercial fish, wildfowl nesting sites as well as migration resting areas and the largest grounds of the endangered American lotus. The once extensive beds of wild rice have long since vanished.

The industrailists had seen the marshes as areas to be filled with industrial wastes to create new plant sites. The Corps of engineers needed to deepen the harbor for larger ships - but where to dispose of the dredged material? Lastly, the D.N.R. planned a 400 slip marina for the large boating public in the area.

The members of the Advisory Council observed an accommodation of these divergent interests which, when the several plans are implemented, will create a banana shaped barrier dike of enclosed dredged material to protect the harbor and the adjacent marshes from Lake Erie's vicious eastery storms; create new industrial areas; enhance fishing; protect wildfowl areas; and provide improved recreation and boating areas for a large tributary population. If a plan for the Plum Creek Wildlife area is formulated by the D.N.R., the whole complex of the industrial-environmental problems of the Monroe area will have been melded into a workable solutions that ALL can live with.

The Monroe City Commission, the Port Authority, the Detroit Edison with other cooperating industries, and the Corps of Engineers, as well as the dedicated environmentalists are to be commended for working out a viable solution to what had appeared only a few years ago as an insoluble conflict. And we might add that the local Garden Club has been recognized for the tedious undertaking of sprouting and replanting the onve threatened lotus beds.

It is indeed heartening to report such progress to the D.N.R. Commission.

Sincerely yours,

Dorothy V. H. Brooks

Dorothy V. H. Brooks, Chairman
Shorelands Advisory Council

cc: Governor William Milliken
Dr. Howard A. Tanner, Director, Department of Natural Resources
Mr. James Jones, Director of Civic Affairs, Monroe
The Honorable Milton P. Munson, Mayor of Monroe
Mr. Max McCray, Executive Director, Port of Monroe
Mr. Clyde Odin, Great Lakes Fish and Wildlife Service
Mr. Tom Washington, Executive Director, MUCC
Col. Melvin Remus, Detroit District Corps of Engineers
Mrs. Frank Huxtable, The American Land Trust
Mr. Grattan Gray, Editor, The Monroe Evening News
Shorelands Advisory Council

THE FRANCE STONE COMPANY
P.O. BOX 1928
TOLEDO, OHIO 43603
(419) 241-4101

May 20, 1977

Mr. B. Malamud
Acting Chief, Engineering Division
Department of the Army
Detroit District, Corps of Engineers
Box 1027
Detroit, Michigan 48231

Dear Mr. Malamud:

In order to anticipate the use of the Monroe Harbor for the movement of limestone over the next 50 years, a review of the economic benefits to the area is important. Currently, the demand for limestone in the Monroe area is being adequately supplied by local quarries. These quarries provide jobs for many families in the area. In addition, a royalty is paid to Monroe Township and Raisinville Township for every yard of material sold.

Now, if we are to compare this with the economic benefits derived from a dock facility importing stone into the Monroe area, we must examine the number of employees that would operate this dock facility. Generally, a dock facility of this type would employ a minimum of four people. If this operation were to replace only our land based quarries, this would result in a loss of some 36 to 56 jobs in the Monroe area. In addition, the Township would lose the revenue currently being paid. Economically speaking, this type of operation versus the current operation would have a negative impact on the community.

The second thing we must examine is the possibility of exporting stone from the Monroe area. Any exporting movement across these docks would be an economic gain to the community.

In determining the feasibility of exporting limestone, we must examine the economics involved. There are three cost factors that must be considered.

1. Production Cost -- Our industry consists of a basic process in which the cost range between quarries is quite small, providing production is similar at each quarry. On a long-range program we should consider this to be a constant factor. On a short-range basis, a quarry may decide to unload heavy inventories below their cost, but this would only be temporary and should be excluded from any study. In addition, special sizes on Corps of Engineers projects could infrequently move across the docks in areas where the land based quarries nearest to the job decide not to make these special sizes. Again, this would be on a temporary job-to-job basis and not on a permanent one and should be excluded from any study.

2. Transportation Costs -- In the use of a dock facility, the cost increases by the difference between the transportation rate from the quarry closest to the market and the quarry using the dock facility. In an area such as Monroe where there are several quarries, this can be quite substantial.

3. Handling Costs -- This becomes a double handling operation with the use of a dock facility. This factor can represent an increase of 20% to the final cost.

Summarizing, as long as there is a land based quarry within a few miles of the dock facility in the Monroe area, the use of a dock facility would be uneconomical. The exceptions to this, as stated above, would be on special products such as "Corps of Engineers Projects", not produced by the land-based quarry closest to the market. Currently, from New York to Chicago, limestone producers are having a great deal of difficulty supplying materials on Corps of Engineers projects. Because of this, The France Stone Company has adopted a conservative position regarding Corps of Engineers work. If in the future, specifications are written that are more acceptable to our industry, then I could see The France Stone Company as a major exporter across the docks of Monroe of material for Corps of Engineers projects. In order to make a projection into the year 2030, there are several factors that we would have to know. Among the most important factors are:

1. Area Growth.
2. Competitive Conditions.
3. Specifications.
4. Transportation Rate Changes.
5. Vessels Available.

Generally, the growth of an area is from east to west. A close look at what has happened in Detroit is important. As the exploration expanded from east to west, the stone on the docks of Detroit became less competitive with the gravel pits to the west. This same factor will most likely prevail in Monroe.

Competitive conditions, specifications, transportation changes and vessels available are all variable factors that cannot be predicted with any reasonable accuracy. Such questions as what is going to happen with ConRail? What will the weight change be in the trucking industry? What will the road and sewer specifications be in the year 2001, 2002 or 2003? What can be expected regarding new competitive products? This is just a small sample of the questions that must be answered in order to give you the answers that you requested. Because of some of the questions mentioned above, and others, we find it impossible to give you the requested projection for the years 1980 to 2030.

I hope that this has been of some help to you in exploring the Monroe market for the future. If we can be of any additional help to you, please feel free to call us.

Very truly yours,

O. J. Risner
Vice President - Sales

OJR:v

Magnimet

June 7, 1977

Mr. James Ropes, Project Manager
Monroe Harbor Study
U.S. Army Corps of Engineers
Detroit District
P. O. Box 1027
Detroit, Michigan - 48231

Subject: Monroe Harbor Study

Dear Mr. Ropes:

In response to your request for tonnage data regarding the proposed modifications at the port of Monroe. Our company Magnimet is very interested in any projects which would deepen the channel to 27-feet and enlarge the turning basin.

While it is very difficult to project usage over a 50-year period, it is conceivable that a good portion of our present tonnage of scrap iron could move by water if the modifications to the whole port were made.

Our company operates 7 scrap processing plants in Michigan and Ohio and handle approximately 500,000 tons per year of scrap iron. It is conceivable that up to 50 percent of this tonnage could move by water if appropriate modifications to the port were made.

Trusting these figures are of some help, I remain

Yours very truly,

Carey H. May, President

CHM:fc

cc: Monroe Port Commission

Magnimet Corporation
1204 East Third Street P.O. Box 28 Monroe, Michigan 48161 313-241-5110
With divisions in Adrian, Albion, Jackson, Kalamazoo, Monroe, Toledo and Wyandotte

Hickman, Williams & Company

SUITE 1875, 100 RENAISSANCE CENTER • DETROIT, MICHIGAN 48243
313-259-1890

H
W

SINCE 1890

TELEX
HICWILCO DET
NO 23-6432

LEE H ALLEN
PRESIDENT

ROBERT L DAMSCHRODER
VICE PRESIDENT

June 27, 1977

Mr. James Roper,
Project Manager
Monroe Harbor Study
U. S. Army Corp. of Engineers
Post Office Box 1027
Detroit, MI 48231

Dear Mr. Roper:

Hickman, Williams & Company are currently operating a plant at the Port of Monroe and wish to express our vital interest in the proposed upgrading of the channel.

Our company has been supplying the foundry and steel industry with raw materials since 1890. We also handle bulk materials for other industries, such as coal and fluorspar. We are planning to expand our current operation in Monroe as we have developed an excellent market for our products from this plant.

It is difficult to forecast vessel movements over the next 50 years, but we can foresee a great need for this port. We are currently shipping to Detroit various commodities by both lake and ocean vessels which could be transferred to Monroe. Our company would then be able to handle materials across our leased property, instead of working with independent stevedoring company.

During the 1977 Navigation Season we are bringing in European Foundry Coke via ocean vessels to Detroit. We anticipate between 30,000 and 50,000 tons (4 - 5 cargoes) this year. The outlook in the foundry coke industry indicates that there will be a shortage of foundry coke for the next 4 - 5 years. It is felt that this shortage will last for an extended period of time, if our EPA guidelines on coke ovens are not changed. I think one thing we can be certain of is that a continuing market will exist for raw materials for the iron and steel industry over the next 50 years.

MATERIALS FOR THE METALS INDUSTRY

DETROIT • CHICAGO • CINCINNATI • CLEVELAND • PHILADELPHIA • PITTSBURGH • ST. LOUIS

We are currently shipping coal to various power plants in Michigan and have received requests to inventory coal for their account. This is primarily due to inadequate storage facilities on the customer's property. This coal would then be trucked from Monroe to our various customers. It would be reasonable to forecast 2 - 3 cargoes per year for this movement.

We are currently shipping 3 or 4 lake cargoes of pig iron per year to an independent dock in Detroit from which we supply several of our foundry customers. Again this would be an advantage to us to bring this into a port facility in Monroe. We are also offered on a periodic basis pig iron from foreign sources at very attractive prices and could possibly develop a market for this pig iron from the Port of Monroe.

At our present plant in Monroe we will have a requirement for additional metallurgical coke within the next 2 to 3 years. We have located some very attractive prices at other lake ports, such as Chicago and Hamilton, Ontario and would definitely consider bringing this into Monroe by lake vessel. Anticipated volume of this movement would be 15 - 20,000 tons per year.

In addition to the above commodities, a good market exists for fluorspar, ferroalloys and other raw materials used by the iron and steel industry, coupled with a warehouse facility for both bulk and bagged material, a deep water port at Monroe could present some very interesting possibilities.

Trusting the above information is of interest, we look forward to working with you on the future development of the Port of Monroe.

Sincerely,

Robert L. Damschroder

Robert L. Damschroder

RLD/pw

CC: Mr. Max M. McCray
Executive Director
Port of Monroe
3055 East Front Street
P. O. Box 26
Monroe, Mich. 48161

CC: Mr. Lee H. Allen

CC: Mr. R. W. Lambrecht, Jr.

BULTEMA Marine Transportation
559 E. WESTERN AVE. • P.O. BOX 728, MUSKEGON, MI 49443 • PHONE (616) 722-6641

June 30, 1977

Mr. James Ropes, Project Manager
Monroe Harbor Study
U. S. Army Corps of Engineers
Detroit District
Box 1027
Detroit, Michigan 48231

Dear Mr. Ropes:

This is in regards to any future improvements to the Port of Monroe and connecting channel.

Bultema Marine Transportation is extremely interested in any improvements to this area and are hopeful a deep water channel will be maintained in the near future. We are exploring any and all possibilities for expansion of service for towing, tug-barge, and Ro Ro operations, and high capacity self unloader integrated tug-barge units. It is our feeling the factors affecting transportation services lead to the conclusion of increased water related activity. Included in these factors are the following:

1. Nearness of Monroe to major large industries who transport large tonnages yearly.

2. Congestion in the Detroit area and unavailability of increased harbor facilities.

3. Increased activity in larger vessels to transport bulk cargo.

4. While it is impossible to predict tonnages of the types of commodities we are anticipating transporting out of Monroe, we definitely feel that, by 1980, we will be moving approximately one-fourth million tons. We anticipate that this tonnage will continue to increase as the cost of energy increases.

It is our hope that you will seriously consider deepening the channel and improving the turning basin at the Port of Monroe.

Very truly yours,

BULTEMA MARINE TRANSPORTATION

Stanley J. Andrie
President

SJA:cm

CONSOLIDATED PACKAGING CORPORATION

One Illinois Center—111 E. Wacker Dr. Chicago, Illinois 60601 Tel. (312) 565-1800

July 18, 1977

Mr. James Ropes
Project Manager
Monroe Harbor Study
Detroit District, Corps of Engineers
Box 1027
Detroit, Michigan 48231

Dear Mr. Ropes:

Recent developments indicate that there is still a possibility of reviving interest in the project for deepening the channel and enlarging the Monroe harbor turning basin. It is hoped that the interest of the Consolidated Packaging Corporation as shown here in will be entered into the record as favoring the project.

Consolidated operates a large boxboard mill and folding carton plant on the south bank of the River Raisin approximately one mile west (upstream) from the present turning basin. These plants produce a combined total of 90,000 tons of boxboard and converted paperboard products annually, and consume 72,000 tons of paper stock and 70,000 tons of coal each year in the process.

While current marketing plans of finished products do not indicate any volume for export this certainly does not mean that such an outlet would not be considered if the deepwater facilities for opening up such markets could be provided.

Paper stock is obtained within a relatively short distance from the mill and offers no foreseeable potential for water transport. Coal, on the other hand, could become a major item through the Port. Lake steamers were in common use moving coal to Monroe a decade ago, and the service was resumed briefly recently when rail service deteriorated. While extremely attractive in principle, the use of water transport has been limited by the Monroe port facilities. Presently maintained channel depths limit cargo size to 10,000 tons or less, forcing steamer rates (and our cost) artificially upward. Furthermore the ships must be unloaded at leased facilities on the main channel because they cannot proceed as far as the turning basin while under load. If the turning basin was maintained at full channel depth, Consolidated could receive and store cargoes

on its own properties at the western edge of the basin. The proposed improvements should overcome both these disadvantages and make lake coal, with its attendant conveniences, highly competitive with all rail.

While no official corporate projections are available over the longterm as requested in your 21 November letter, I feel that unless the deepening project is undertaken, there would be no further interest on our part in using the Port of Monroe. On the other hand, if the improvements are made, it is quite possible that we could once more bring 50,000-75,000 tons of coal into Monroe via the Port each year.

I trust these data will be of assistance.

Sincerely,

CONSOLIDATED PACKAGING CORPORATION

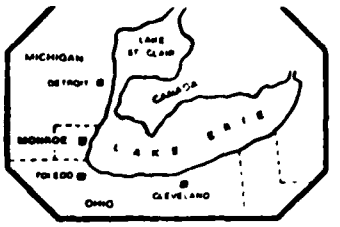
George M. Clute
Director of
Purchasing and Transportation

GMC:fam

cc: Mr. Max M. McCray
Executive Director
Port of Monroe
P. O. Box 26
Monroe, Michigan 48161

Lake Erie Advisory Committee

DEDICATED TO THE PRESERVATION OF
LAKE ERIE, ITS WATERS, FISH AND WILDLIFE



Monroe, Michigan 48161

July 27, 1977

Subject: Public Workshop - Monroe Harbor Feasibility Study

To: U.S. Army Corps of Engineers, Detroit District
P.O. Box 1027
Detroit, Michigan 48231

Dear Sirs:

The Lake Erie Advisory Committee appreciates the opportunity to participate in the Public Workshop on the Monroe Harbor Feasibility Study. We are greatly encouraged by the announcement that Detroit Edison is now classified as a "single user". We agree that industry should share the cost of any modifications to Monroe Harbor, Michigan. This turn of events has assured the development of Plan 1 for maintenance dredgings from the River Raisin navigation channel and the eventual use of Plan 1 as a "recreational window" on Lake Erie.

Now that Edison must pay at least 50% of the cost for modifications to Monroe Harbor it is not in their best interest to accept any maintenance dredgings which are funded 100% by federal participation. Edison must reserve all available bottomlands offshore of the Monroe Power Plant for dredgings from NED Candidate Plan a. as described on Page 35 in the Preliminary Feasibility Report on Modifications to Monroe Harbor, Michigan (See Plate 2, Reach 1, Disposal Site No. 3). Disposal Site No. 3 is the only least cost alternative open to Detroit Edison on the cost sharing basis. It is the least cost for Edison because it requires armor stone on three sides only and extends over the full extent of their riparian ownership dating back to ancient swampland patents which by precedent may be reclaimed under State law. Further, any fast land created in this manner may be used immediately for future "coal blending" operations. This also means that Edison is not likely to grant any additional easements to other interests because the probability of conflict in use is too great.

Needless to say we are elated over these prospects. This assures the development of Plan 1 for maintenance dredgings from the River Raisin navigation channel with 100% federal participation and attendant expenditure of funds under the Water Resources Development Act of 1976 to rebuild wetlands. In a nutshell, this plan provides the recreational harbor at Monroe as we recommended in our August 9, 1976, letter on the Plan of Study for this Preliminary Feasibility Report. Plan 1 also satisfies the [illegible] account by making the restoration of Plum Creek Bay Wildlife Area possible and provides the basis for restoration of the entire Monroe Waterfront as an integral part of a broad land use plan currently being developed by the Office of Program Review and Project Clearance, Michigan Department of Natural Resources. This turn of events goes way beyond even our greatest expectations and we now perceive that environmental mitigation is a reality in this urban monoculture. Our comments in a letter to the Corps dated December 23, 1974, have come full circle. We said it then and we say it now - Detroit Edison must compensate for this convenient use of public waters.

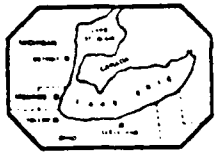
cc Senator Griffin
Congressman Pursell
U.S. Fish and Wildlife Service
MUCC

encl. Ltr. 12.23.74
Ltr. 4.19.76

Lary Leibold
471 Arbor
Monroe, Michigan 48161

Lake Erie Advisory Committee

DEDICATED TO THE PRESERVATION OF
LAKE ERIE, ITS WATERS, FISH AND WILDLIFE



Monroe, Michigan 48161

December 23, 1974

Subject: Maintenance Dredging of Polluted Sediments, Monroe Harbor, Michigan

To: U.S. Army Engineer District, Detroit
P.O. Box 1027
Detroit, Michigan 48231

Dear Sir:

The Lake Erie Advisory Committee (LEAC) regards the draft environmental impact statement on maintenance dredging of polluted sediments at Monroe Harbor, Michigan, as a piecemeal approach to a very knotty, long term problem of gross proportions. The U.S. Army Corps of Engineers, Detroit District, has been totally derelict in its duty to protect the waters of the State of Michigan at the Monroe Harbor disposal site. Containment dikes have been completely ineffective from the first Corps landfill effort when cattails were used to hold back the polluted spoils resulting in pollution of Plum Creek and LaPlaisance Bay on Lake Erie. This contamination of navigable waters is in direct contradiction to sections 313 and 404 of the Federal Water Pollution Control Act (33 U.S.C. 1323 and 1344). The draft impact statement does not allude to this crucial problem of containment even though the State of Michigan has determined that the existing dikes are not adequate. Impermeable dikes to contain the approximate 150,000 cubic yards of polluted spoils projected for 1975 maintenance dredging do not exist. They have never existed and the Corps has polluted Plum Creek and Lake Erie continuously over the last several years.

Pursuant to a letter from Colonel Jerob E. Heye to Senator Robert Griffin (R - Mich.), the Corps of Engineers, Detroit District, is investigating possible locations for the construction of a confinement facility at Monroe Harbor under Public Law 91-611. Since the State of Michigan has declared the present "confinement facility" to be inadequate then maintenance dredging of polluted sediments at Monroe Harbor, Michigan, cannot be conducted during 1975 unless the facility is brought up to the proper standards. LEAC suggests that the time for construction of a new confined disposal area has arrived and we offer the following concepts for consideration (diagrams and descriptions attached).

Further, the Detroit Edison Company is contributing to the shoaling of the navigational channel on the River Raisin. Water demands of the Monroe Power Plant are such as to have reversed the flow of the River by drawing additional water from Lake Erie. This results in hydrological change bringing sand and debris into the ship channel and increased sedimentation where River and Lake waters meet. Detroit Edison must compensate for this convenient use of public waters by installing an evaporative cooling tower for a closed system or by cooperating in a joint venture with the State of Michigan and the Corps to provide a barrier island at their thermal discharge into Lake Erie by utilizing dredgings form the ship channel to build the thermal barrier at the 6-8 foot contour (rubble mound construction).

Attachments - various

Sincerely,

Lawrence Leibold
471 Arbor
Monroe, Michigan 48161
Phone: 1-313-241-1157

cc Governor Milliken
Senator Griffin
Congressman Esch
State Representative Konres
SCAA
U.S. Fish and Wildlife Service
Region V, EPA
Mich. United Conservation Clubs
Monroe County Rod and Gun Club
Lake Erie Clean-up Committee
Monroe Evening News

C-20

SUBJECT: U. S. Army Corps of Engineers - Maintenance Dredging of the Federal Navigation Channel at Monroe Harbor (OMB Circular A-95 Review No. 200.2-4-76-24)

April 19, 1976

TO: Mr. Ronald Nino, Director
Monroe County Planning Commission
1410 E. First
Monroe, Michigan 48161

Dear Mr. Nino:

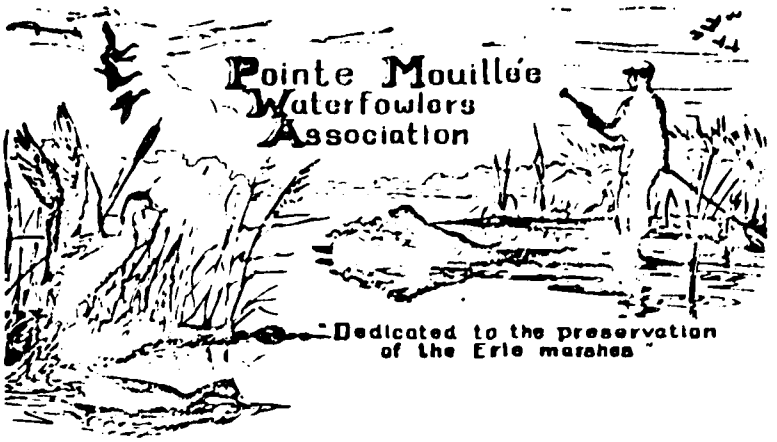
The Lake Erie Advisory Committee appreciates the opportunity to review and comment upon the proposal offered by the U. S. Army Corps of Engineers for maintenance dredging of the Federal Navigation channel at Monroe Harbor (OMB Circular A-95 Review No. 200.2-4-76-24). We have made comments on the draft Environmental Impact Statement published in March 1976 (copies attached). Clearance of the project should be delayed pending a comprehensive plan for restoration of environmental values at Monroe harbor. In our opinion this proposal will only delay the remedial actions which are necessary to provide a "clean harbor" at the Port of Monroe. Should this plan be adopted the present "Cease and Desist" order against the existing containment area for polluted maintenance dredgings from the River Raisin Navigation Channel would have little meaning because the Corps will be allowed to dispose of the material in another part of the Harbor leaving behind a totally inadequate confined disposal facility.

In our opinion, the local and state prerogatives at Monroe Harbor are being pre-empted by Regional concerns. If Monroe is to become a "coal port" then we should have some say in how this comes about. The needs of the region are exemplified by the Monroe Power Plant which is a true regional facility. Super Utility as analogous to Super Sewer. The Region (SE Michigan) benefits while Monroe pays the penalties of flyash disposal, coal piles, sulphur laden emissions, coal trains and maintenance dredgings. Where is the equity? The City of Monroe has an expanded tax base but very little of that goes into "clean harbor" or even improved port conditions. As long as the problems at the Port of Monroe are relegated to a secondary position below the needs of the power interest, the blighted conditions will persist and no meaningful progress will be made in securing a viable development program for Monroe Harbor. The Corps and Detroit Edison are in effect divorcing themselves from Harbor activities with this proposal. They are intent on making a go of it by themselves. The concept of Monroe Harbor as an entity on the waterfront will be grossly eroded. Regional interest will have overshadowed local prerogatives.

Richard G. Micka
1216 Riverview
Monroe, Michigan 48161

4/19/76

2 attachments



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RONALD GORSKI
29277 Lund, Apt. 11
Warren, Michigan 48093
TELEPHONE: 574-1114

July 27, 1977

Subject: Public Workshop - Monroe Harbor Feasibility Study

To: U.S. Army Corps of Engineers, Detroit District
P.O. Box 1027
Detroit, Michigan 48231

Dear Sir:

The Pointe Mouillee Waterfowlers Association, an affiliate of the Michigan United Conservation Clubs (MUCC) appreciates the opportunity to participate in this public forum on the Monroe Harbor Feasibility Study. We note that plans have not been formulated in the Preliminary Feasibility Report on Modifications to Monroe Harbor, Michigan (June 1977) for the inner channel or existing turning basin (referred to as Reach 2 on Plate 2 of the Preliminary Study). We also note that Detroit Edison Company is now classified as a "single user" which limits federal participation in any project which could be construed as to the sole benefit of the Detroit Edison Company. Therefore, we prefer Toledo transshipment as an alternative to deepening Monroe Harbor and we recommend EQ Candidate Plan a. (Page 36, Preliminary Study) for disposal of maintenance dredgings only.

We recognize that a deepening project would automatically take care of maintenance dredging temporarily, however, the expense of deepening the channel for a "single user" is prohibitive when you consider routine maintenance dredging which enjoys 100% federal participation. As an alternative to filling any more marshland in the vicinity of the proposed turning basin (Para. d, Page 31), we recommend that the old turning basin be used as a disposal site because there will be no need to maintain two turning basins. Another benefit of providing a suitable 21 foot draft turning basin near the Edison dock (Reach 1, Plate 2) is that the inner channel and existing turning basin (Reach 2, Plate 2) can be abandoned for commercial traffic. Reach 2 is hazardous to navigate because of sharp bends in the channel. It only seems logical to us that ships should not attempt to navigate upstream when such hazards exist.

Given the immense complexities that face this Preliminary Feasibility Report we are not sure it will survive. Deepening would eliminate maintenance dredging temporarily. Maintenance dredging, however, is required immediately. Only Edison can say if deepening is required immediately or if transshipments from Toledo by truck, train or lighter draft vessels would do the job in a cost effective manner. Will a new turning basin be required to save time and for safety? If so where will dredgings from the new turning basin go? Of what use is the old turning basin if it cannot justify its own existence in the Preliminary Feasibility Report? Why maintain a hazardous channel that leads to a substandard turning basin? It is quite evident that Detroit Edison as a regional utility is going to continue to call the shots at Monroe Harbor for a long time

to come. Deepening the navigation channel can only happen if Edison says so and is willing to pay a share. The Toledo transshipment alternative may be cheaper in the long run as the coal docks in Toledo serve a wide area. There are too many unanswered questions now for the Report to be meaningful without more extensive research and even if the questions were answered in the near future the pending question of "user fees" which is before legislature now would have a dramatic impact on the eventual outcome. The feasibility study has been reduced to guesswork.

Our skepticism may be translated into a concern for the orderly development of the Monroe waterfront. Detroit Edison and the Port of Monroe are only parts of the total waterfront exposure on Lake Erie. There are other factors to be considered for the social well being of our community. The preservation of Lake Erie marshes has been our objective for many years. So much concern has been expressed over the potential of economic development at Monroe Harbor as to overshadow the environmental quality of the Harbor. Is there any natural resource within the Harbor itself worthy of concern? We think so and we have indicated that Plum Creek Bay is an integral part of the Harbor worth saving. The Ford Motor and Union Camp marshes are a part of the Harbor. These are natural wonders well worth saving. They are worth just as much concern as the economic potential of the Harbor. In this day and age it is wise to conserve natural resources because many such as wetlands are not renewable. Whatever becomes of this Preliminary Feasibility Report, we hope that consideration will be given to EQ Candidate Plan a. for maintenance dredgings or deepening should the project remain feasible, and that the EQ Account will be implemented regardless of the outcome.

cc Senator Griffin
Congressman Pursell
U.S. Fish and Wildlife Service
Michigan DNR
MUCC

Sincerely,

Richard G. Micka
1216 Riverview
Monroe, Michigan 48161

Southeast Michigan Council of Governments
800 Book Building Detroit, Michigan 48226 (313) 961-4266

July 29, 1977

Mr. P. McCallister, Chief
Corps of Engineers
Engineering Division
P.O. Box 1027
Detroit, MI 48231

RE: Preliminary Feasibility Report on Modification to Monroe Harbor, Michigan
Monroe County, Michigan
State Planning Region I
Areawide Clearinghouse Code: EN 760486

Dear Mr. McCallister:

As the certified A-95 Clearinghouse for Southeast Michigan, SEMCOG has received and reviewed the report referenced above. In accordance with standard A-95 procedures, the following agencies have been contacted requesting their comments:

Michigan Department of Civil Rights
Monroe County Planning Commission
City of Monroe

To date no comments have been received. As comments are received they will be promptly forwarded to you.

Our comments are as follows:

1. On Table 6, page 38, "Comparison of Annual Benefits and Costs", there is an error in the first incremental Benefit/Cost ratio of NED Plan A. The Table shows the B/C increment between the 24 and 26 foot level as 2.4, when it should be 4.1.

DAVID H. SHEPHERD, Chairperson
Mayor, City of Oak Park
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Commissioner, St. Clair County
ROBERT E. SMITH, Vice Chairperson
President, Livingston
Intermediate School District

2. We find no apparent conflicts with SEMCOG's adopted plans or works in progress with respect to this Preliminary Feasibility Report.

In conclusion, we wish to thank the Army Corps of Engineers for the opportunity to comment on this report.

Sincerely,

Edward J. Hustoles, Manager
Environmental Programs

EJH/CDH/lh

cc: Monroe County Planning Commission

United States Department of the Interior
FISH AND WILDLIFE SERVICE
IN REPLY REFER TO:
East Lansing Area Office
1405 South Harrison Road
East Lansing, Michigan 48823

October 21, 1977

Honorable Milton Munson
Mayor of Monroe
120 S. Macomb Street
Monroe, MI 48161

Dear Mayor Munson:

We would like to apologize for our early departure from the October 3, 1977 Port Area Development Study Committee meeting held in your office. With the last minute flurry of questioning we were unable to be recognized through the chair to explain our early departure to meet an airline flight. At any rate, we would not have been able to give you a definitive position on the sites discussed at that time without a more detailed analysis of the proposals.

Since the October 3 meeting we have reviewed the proposals and have not reached a decision on a definite disposal site(s). Any decision we reach will follow administrative channels and may be reviewed by higher authorities within the U.S. Fish and Wildlife Service (FWS). As a rule, the selection for the final disposal site will be decided at the Site Selection Committee Meeting chaired by the Detroit Corps of Engineers.

The following items are a listing of disposal alternatives which we are presently considering. The numbering of these considerations indicates our preference for the sites at this time, but are subject to change dependent upon additional information.

1. Upland disposal. Upland disposal has been and continues to be a major policy of the FWS, as opposed to openwater disposal. Past history of wetlands destruction in the Monroe area has been grim with destruction of approximately 89% of the wetlands in that area between 1916-1973. The dredging project at Monroe is for the good of the City of Monroe, the Detroit Edison Company, the Monroe Port Authority, and not for fish and wildlife resources. We feel project sponsors should provide a suitable upland disposal site and have continued to press for one since 1974. A review of background data on this project, revealed that most agencies and interest groups were in favor of disposal of dredge materials on the Port Authority landfill site in 1975. The Port Authority, however, did not agree. We prefer disposal of dredge materials on the old Port Authority landfill. Use of this site would certainly be appropriate for an area already designated as a disposal area. Perhaps the

old landfill disposal site could be compartmentalized to allow for some fill and still be compatible with speculated future industrial interests at that site. Perhaps Detroit Edison could offer an upland site to handle materials left over from partial use of the Port Authority landfill site. As pointed out earlier, the Port Authority and Detroit Edison appear to be the direct benefactors of the dredging project, and it seems that as benefactors they could sponsor suitable upland disposal site(s).

Has the city thought of purchasing upland sites for disposal? It may be of interest to note that aside from pumping materials to upland sites, the Detroit Corps has trucked materials 15 miles from a polluted harbor to solve a similar disposal problem.

2. We like the concept of using one container to solve the disposal problem for all of western Lake Erie. A slight expansion and increased height of the Point Mouillee confined disposal facility (CDF) may be an equitable solution to Monroe's disposal problem, as well as all others in western Lake Erie.

3. Use of existing or approved CDF's in Lake Erie. There are presently seven CDF's completed or under construction in western Lake Erie. As outlined by Bob Jones, Detroit CE, raising the Point Mouillee CDF by a height of nine feet is possible with minimal base expansion. Perhaps some other CDF's in western Lake Erie could be raised to contain more materials. By raising the height of CDF's, no additional bottom lands would be destroyed.

The solution to Monroe's problem may be at hand. The more input, the better the chances of solving the problem. We are willing to work with you through the Port Area Development Study Committee to assist you in finding a solution, however, we will not compromise fish and wildlife values in order to resolve the problem.

Sincerely,

Signed: Frank Richardson

Frank Richardson
Area Manager

cc: Clyde R. Odin, East Lansing Field Office
James Jones, Detroit Edison Company
Richard Micka
Dale Granger, Michigan DNR
Max McCray, Monroe Port Commission
Colonel Melvyn D. Remus, CE - Detroit
Wayne Schmidt, M.U.C.C.
Barbara Taylor, USEPA

CITY OF MONROE
MICHIGAN

office of the City Director
DONALD L. FRENCH, P.E.

120 SOUTH MACOMB
48161

241-5975

November 16, 1977

Department of the Army
Detroit District, Corps of Engineers
Box 1027
Detroit, Michigan 48231

Attention: Mr. Phil McCallister, Chief
Engineering Division

Dear Mr. McCallister:

Please be advised that at a meeting of the Port Area Development Study Committee, held on November 7, 1977 in Monroe, Michigan, the following resolution was adopted by all parties except for the Fish and Wildlife Conservation Club, which declined, and the Environmental Protection Agency, which was not represented. The resolution supported the following concept for Monroe Harbor:

1. Monroe maintenance dredging be placed as an off-shore disposal island in the vicinity of Sterling State Park.

2. The Monroe Harbor deepening project material be placed in off-shore facility in the vicinity of Plum Creek Bay.

3. The remainder of the western Lake Erie dredging be placed at Woodtick Peninsula.

It is our understanding that the Corps of Engineers will call for a meeting of the Environmental Review Committee to consider this proposal. The Port Area Development Study Committee anxiously awaits the results of that meeting and will be interested in having several representatives present. As you indicated previously, the timeliness of this project is at hand.

If you have any questions on this matter, please feel free to call us at any time.

Sincerely yours,

Donald L. French, P.E.
City Director

DLF:bb

ecember 12, 1977

MICHIGAN UNITED CONSERVATION CLUBS
2101 Wood St. ● P.O. Box 30235 ● Lansing, MI 48909 ● 517-371-1041

Mr. Jack Hemphill, Director
North Central Region
U.S. Fish & Wildlife Service
Federal Bldg., Fort Snelling
Twin Cities, MN 55111

Dear Mr. Hemphill:

RE: Selection of Disposal Site for Maintenance Dredging Spoils—
River Raisin - Monroe Harbor, Michigan

As you know, the Michigan United Conservation Clubs has long been involved in efforts to secure an environmentally compatible ten-year disposal site for maintenance dredging spoils from the River Raisin at Monroe Harbor, Michigan. The East Lansing Field Office of the Fish & Wildlife Service has, of course, also been involved in negotiations.

The discussions seem bound to continue indefinitely, or until such time that political pressure intervenes to force a decision. We do not believe that decisions reached in such a climate are conducive to sound natural resource management.

It is the position of MUCC that a confined disposal facility constructed on bottomlands of Lake Erie in Plum Creek Bay is the preferred alternative. This site was detailed as "Plan #1" in the May, 1977 report of the Detroit District, U.S. Army Corps of Engineers "Environmental Overview of Alternative Sites--Monroe Diked Disposal Project." We believe this proposal, in conjunction with Section 150, Public Law 94-587 monies, has tremendous potential for enhancement of fish, wildlife, and recreational resources. In addition, it is a cost-effective solution and, with the exception of objections from your agency, seems the most politically acceptable alternative.

This position should not, however, be interpreted beyond this specific site regarding filling of bottomlands of Great Lakes waters.

EXECUTIVE DIRECTOR
TREASURER
REGIONAL VICE PRESIDENTS

We have discussed this problem at length with staff in your East Lansing office. We have been told repeatedly that it is the blanket policy of the F&S to oppose any filling of bottomlands on the Great Lakes and that upland disposal sites are the preferred solution.

That policy seems to our organization to be, in this instance, working at cross-purposes with the potential Plan #1 has for environmental enhancement while solving a critical economic problem, particularly for the Detroit Edison Company and its customers. You are probably familiar with the problems of securing an upland disposal site; we see no indication that those problems will disappear.

In an April 23, 1976 letter from Assistant Regional Director, William E. Martin, to Detroit District Engineer Col. James E. Hayes, he states: "It also is possible to establish marshes by using dredge spoil as a resource and not as a waste product."

We agree, and suggest Monroe is the place to start.

The primary purpose of this letter is to inquire about what is the written policy of the F&S regarding filling of bottomlands of the Great Lakes, particularly as it relates to the construction of confined disposal facilities.

Thank you for your attention to this question and the issue in general. We will, of course, continue working closely with your agency towards a final decision we all can live with.

Very truly yours,

Wayne A. Schmidt
Staff Ecologist

WS: sm

B/C: Dick Hicks
Ex. Comm.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Federal Building, Fort Snelling
Twin Cities, Minnesota 55111

IN REPLY REFER TO:
LWR

FOR YOUR INFORMATION
Wayne Schmidt
Staff Executive
APR 25 1978

JAN 10 1978

Mr. Wayne Schmidt
Michigan United Conservation Clubs
2101 Wood Street
P.O. Box 30235
Lansing, Michigan 48909

Dear Mr. Schmidt:

This responds to your December 12, 1977 letter on behalf of the Michigan United Conservation Clubs regarding the U. S. Fish and Wildlife Service's policy of opposing the filling of Great Lakes bottomlands in conjunction with confined disposal facilities, specifically the Detroit District Corps of Engineers' proposed maintenance dredging project at Monroe Harbor, Michigan.

Operating procedures and policies of the U. S. Fish and Wildlife Service pertaining to Federal water development projects extend back more than a decade. Federal water development projects and related land programs are planned and implemented under provisions of Senate Document No. 97, entitled "Policies, Standards and Procedures in Formulation, Evaluation, and Review of Plans for Use and Development of Water and Related Land Resources". This document was approved by the President in 1962. Additionally, Service policies are spelled out in the Service's River Basin Studies manual. Section 2.350 of this document states in part ". . . the Bureau (formerly Bureau of Sport Fisheries and Wildlife) will oppose any proposal for development or operation of a water project that is not environmentally sound, unless: no alternative is available. . ." and is continued by a list of practices which are frequently harmful to fish and wildlife resources.

More recently, the U. S. Department of the Interior published guidelines in the Federal Register (Vol. 40, No. 231, Dec. 1, 1975) for use by the U. S. Fish and Wildlife Service in reviewing fish and wildlife aspects of proposals in or affecting navigable waters. Under Section 5.2, General Policy Guidelines, it states that "Encroachments into navigable waters and wetlands will be discouraged where such encroachments would significantly damage biologically productive shallows and wetlands or unreasonably infringe on public rights of access, uses and enjoyment". Similarly,

under letter J of the same section, ". . . filling in navigable waters generally will be discouraged and will be strongly objected to where the proposed development is nonwater dependent. . .". It also states that "In-bay, open-water, and deep-water disposal generally will be considered acceptable by the Service only after all upland and other alternative disposal sites have been explored and rejected for good cause.". Although the term "bottomlands" is not mentioned in the above references, the protection of such can be inferred since bottomlands relate to fish and wildlife resources and are found in natural waters.

Over the past several years, our policy has been to oppose the filling of bottomlands on the Great Lakes in preference to upland disposal sites. The cumulative use of confined disposal facilities on Lake Erie will eventually destroy, by piecemeal action, areas of aquatic habitat which will not be replaced. Sponsorship and financial arrangements have aggravated the problems of selecting confined disposal sites. However, our mandate by Congress is not to look for immediate solutions to disposal problems but to protect fish and wildlife resources for present and future generations. This is foremost in our mind as we pursue the selection of a disposal site for Monroe and other projects within our region.

At the present time, we are continuing our investigations into the spoil disposal problem at Monroe Harbor and are working with the Corps of Engineers in an attempt to satisfactorily resolve the problem. Consideration also has been given to a confined disposal facility in Plum Creek Bay. At this time, however, we do not support the Plum Creek site.

We agree that in some situations Section 150 of Public Law 94-587 may hold promise in creating marsh habitat. However, before decisions can be made to implement a marsh project at any site, including the Plum Creek Bay area, there are a number of factors that must be fully weighed and considered. These include specific site locations, existing fish and wildlife habitat, water quality, public use aspects, costs and related aspects.

The U. S. Fish and Wildlife Service appreciates the concerns and good faith efforts of the Michigan United Conservation Clubs in attempting to help resolve the spoil disposal problems at Monroe Harbor. The East Lansing Field Office will continue to work with the Corps of Engineers in an attempt to reach an environmentally acceptable solution acceptable to all concerns.

Should you have questions or have need for additional information, please contact the East Lansing Field Office.

Sincerely yours,

April 5, 1978

MICHIGAN UNITED CONSERVATION CLUBS
2101 Wood St. ● P.O. Box 30235 ● Lansing, MI 48909 ● 517-371-1041

The Honorable Donald W. Riegle, Jr.
Russell Senate Office Bldg.
Washington, DC 20510

Dear Senator Riegle:

RE: Ten-year disposal plan for dredged materials from the River Raisin navigation channel Monroe, Michigan

Based on the meeting held in Detroit on April 28, 1978 of state and federal officials, it appears that efforts to select a ten-year disposal site for maintenance dredgings from the River Raisin at Monroe, Michigan have reached a stalemate. The Michigan United Conservation Clubs has, as you know, been involved for years in efforts to locate a site acceptable to all interests.

MUCC continues to believe that "Plan 1," a confined disposal site at Raisin Point in Plum Creek Bay, has the greatest potential for satisfying all environmental, economic, industrial, and social concerns. We again urge your favorable consideration of this proposal as a compromise to get this project moving. In our opinion, the history of the site selection process has amply demonstrated that there are no alternatives, upland or otherwise, which will be available and acceptable to all interests.

It is our belief that Plan 1 offers great potential for enhancement of fish and wildlife habitat and recreational use of western Lake Erie. Marshes along the lake have been largely destroyed and the shoreline developed. Those marshes served as invaluable buffers to flooding and water pollution and provided unbelievably rich fish and wildlife habitat. We will never reclaim those filled marshes; if any reestablishment

PRESIDENT
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REGIONAL VICE PRESIDENTS
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BEATRICE INGLIS 14415 Inglis Hwy., Millersburg, MI 49759
JOHN WHITMORE 32024 Hull, Farmington Hills, MI 48018
Northern Michigan Office • 8108 Insley Road, Grayling MI 49738 • Phone 517/348-2316

of marshes is to be obtained, it will have to be taken from shallow bottomlands of the lake itself. Section 150 of Public Law 94-587 offers funding for such marsh restoration. We endorse Plan 1 because of the outstanding potential it offers, while satisfying a pressing industrial problem of maintaining navigation in the River Raisin channel.

We have yet to hear any sound reason why Plan 1 should be rejected. Construction and hauling costs of dredged materials are reasonable, and certainly are cheaper than shipping dredged materials to Pointe Mouillee or the Woodtick Peninsula.

The U.S. Fish & Wildlife Service has taken a hard line position against filling of any bottomlands. But we feel that the peculiar mix in this particular controversy of politics, geological and ecological history, and economics justifies Plan 1.

Questions have been raised about problems of stagnation behind the Plan 1 facility of the thermal discharge of the Detroit Edison Company plant. We believe the U.S. Army Corps of Engineers has the capability to design the facility to avoid such problems. And we believe the thermal problem will be short term because of the requirements of Section 316 of the Clean Water Act of 1977 to eliminate adverse impacts (e.g., entrainment and impingment of fish, fry, and eggs) from once-through cooling.

The Detroit District of the Corps has gone to great lengths to involve and satisfy all interests in the site selection process. We understand you are coordinating an on-site review on April 18, 1978 of affected state and federal agencies. I have sent copies of our above stated concerns to those parties. We sincerely hope it will aid in reaching a compromise solution. We are more convinced than ever that Plan 1 has tremendous potential for environmental enhancement and satisfying competing interests at Monroe Harbor.

Very truly yours,

Thomas L. Washington
Executive Director

TW: sm/ws

cc: Mr. Richard Anthony, Detroit Office
bcc: Col Remus

North Star Steel Company

P.O. BOX 43189, 1678 RED ROCK ROAD

SAINT PAUL, MINNESOTA 55164

March 22, 1978

Colonel Melvyn Remus, District Engineer
U. S. Army Corps of Engineers
Detroit District
Post Office Box 1027
Detroit, Michigan 48231

Dear Colonel Remus:

This has reference to your feasibility study intended to evaluate the cost benefit ratio associated with deepening the existing channel serving the Port of Monroe, Michigan.

As you may know, North Star Steel Company and our parent, Cargill, Inc. have previously announced our intention to construct a multi-million dollar mini-steel mill at the Port of Monroe near the River Raisin. In our plans is a direct connection to the Port facilities to accommodate receipt of raw materials and shipment of finished steel products via deep draft vessels. Initial capacity of the mill will be 400,000 tons per year, which is expected to increase to 1,000,000 tons annually in time. It is highly probable that our raw materials needs may be satisfied in ever increasing amounts of beneficiated iron ore pellets. In this instance our raw material tonnages would increase substantially for reason that the iron ore pellets are not 100 percent Fe.

In view of these facts, I would respectfully request that your organization give every consideration to this potential water borne commerce which could commence upon completion of construction of our steel mill. We expect to start construction this spring and complete the mill in two years.

Sincerely,

J. B. Klemp
Chairman & Chief
Executive Officer

JBK/asd

IONE 735-2110 AREA CODE 612

United States Department of the Interior

IN REPLY REFER TO:

FISH AND WILDLIFE SERVICE

East Lansing Area Office
1405 South Harrison Road
East Lansing, Michigan 48823

May 11, 1978

Colonel Melvyn D. Remus
U.S. Army Engineer District
Detroit
P.O. Box 1027
Detroit, Michigan 48231

Dear Colonel Remus:

This responds to your April 21, 1978 letter regarding the Detroit District's proposal to select a confined dredged material disposal facility in Lake Erie near the mouth of Plum Creek. The facility would be used for the disposal of materials associated with the proposed harbor deepening project at Monroe, Michigan.

The Fish and Wildlife Service appreciates the consideration given the prospects of creating important wetlands habitat in Lake Erie in conjunction with the harbor deepening project. There is certainly agreement that it would be desirable to create high quality wetlands while at the same time disposing of contaminated dredged spoil, providing it can be accomplished in an environmentally acceptable manner.

The Fish and Wildlife Service is not categorically opposed to the filling or displacement of lake bottomlands. We do have a policy, however, of discouraging the filling of wetland habitat where there are other more acceptable alternatives. In those instances where it can be demonstrated to our satisfaction that the environment will not be harmed, or that net gains to fish and wildlife resources will result from the filling of lake bottoms, we would support the proposal.

In the case of Plum Creek, the East Lansing Field Office staff has reservations regarding the quality of wetlands that would be created when considering the potential thermal pluma problem stemming from the Detroit Edison Power Plant.

A computer modeling study conducted by the U.S. Environmental Protection Agency at the Grosse Isle Laboratory has substantiated our concern over the possible adverse effect of the hot water discharge from the Detroit Edison Plant.

My staff is quite willing to further discuss the needs for the construction of a biologically sound marsh ecosystem with you and your staff.

Please contact Mr. Ray Oberst of my office if you wish to arrange a meeting. He can be contacted at FTS 374-4206.

Sincerely yours,

David Lockwood

Area Manager

cc: ELFO
RO

TELEPHONE OR VERBAL CONVERSATION RECORD For use of this form, see AR 340-15; the proponent agency is The Adjutant General's Office.		DATE 14 September 1978
SUBJECT OF CONVERSATION NAVIGATION IMPROVEMENT STUDY @ MONROE/FEASIBILITY		
INCOMING CALL		
PERSON CALLING DALE GRANGER	ADDRESS MICHIGAN DEPARTMENT OF NATURAL RESOURCES	PHONE NUMBER AND EXTENSION 8-253-3930
PERSON CALLED A.J. NICHOLSON	OFFICE NCEED-ER	PHONE NUMBER AND EXTENSION 226-6752
OUTGOING CALL		
PERSON CALLING	OFFICE	PHONE NUMBER AND EXTENSION
PERSON CALLED	ADDRESS	PHONE NUMBER AND EXTENSION

SUMMARY OF CONVERSATION

1. Dale Granger called to tell me the MDNR held a meeting today to determine the State's final position on Monroe Deepening Feasibility Study.

2. The MDNR will indorse project, but will ask that more consideration be given to "environmental benefit analysis" of alternatives (specifically, the Woodtick Peninsula) in Phase I. They indorse the concept of "marsh creation" at Plum Creek, and want the feasibility study to proceed into Phase I for ironing out remaining questions.

DA FORM 1 APR 66 751 REPLACES EDITION OF 1 FEB 58 WHICH WILL BE USED.

APPENDIX D

GLOSSARY

Absorption	- Ability to attract and hold, as water in a sponge.
Accretion	- Natural or artificial build-up of land by air or water deposition.
Adsorption	- Ability to attract and hold, as paint on a board.
Aerobic	- Any biologic process which requires oxygen to function.
Alkalinity	- A measure of the capacity of a solution to neutralize hydrogen ions and is associated with pH.
Anadromous	- Type of fish that ascend rivers from the sea to spawn.
Anaerobic	- Any biologic process which does not require oxygen to function.
Anoxic	- Without oxygen. Biological decay of organic and nutrient material in bottom sediments may consume dissolved oxygen in the water and create an anoxic condition at the water-sediment interface.
Aquatic Plants	- Plants that grow in water, either floating on surface, growing up from the bottom of the body of water or growing under the surface of the water.
Artificial Nourishment	- The physical placement of sand at specific locations.
Barge	- A flat bottomed motorless boat used for transporting heavy loads (must be moved by tug or tender).
Baymouth Bar	- A bar extending partially or entirely across the mouth of a bay.
Benthic	- Under water at the bottom of stream, lake or harbor.
Benthic Region	- Bottom of a body of water.
Benthos	- Bottom dwelling organisms.
Biomagnification	- Increasing accumulation of a substance (such as mercury) from organism to organism in a food chain.

Biomass	- Total amount of living material in an area.
Biota	- All the species of plants and animals occurring within a certain area.
BOD	- Biochemical Oxygen Demand. A measure of the amount of oxygen consumed in the biological processes that break down organic matter in water.
Breakwater	- A long narrow [illegible] of rock or a concrete structure in the water designed to break or moderate the effect of storm driven waves. Usually placed out into the water from shore at an entry channel to provide safer boat or ship navigation during stormy weather.
BSFW	- Bureau of Sport Fisheries and Wildlife (Federal).
Bulkhead	- A structure separating land and water areas, primarily designed to resist earth changes.
Bulkhead Line	- A "line" in the harbor beyond which a dock, pier, wharf or filled area may not extend.
CDF	- Confined Disposal Facility. Confined diked disposal area for dredged sediments.
Chelate	- Binding of heavy metal ions to organic (lignin) fibers; the ions may then be transported by the fibers as they float in the water.
Climate	- The average weather over time for a particular place.
COD	- Chemical Oxygen Demand. The amount of oxygen required to oxidize organic and oxidizable inorganic compounds in water.
Coliform	- Any of a number of organisms common to the intestinal tract of man and animals, whose presence is an indicator of pollution.
Conductivity (Specific Conductance)	- A measure of a solution's capacity to convey an electric current.
Contaminant	- Something which will in some way degrade or dirty another thing or a natural system (such as oil in a river).

Conventional Pollutants	- Pheonols, phosphorous, nitrogen, iron, oil and grease, solids and heavy metals other than mercury.
Copper	- Copper (Cu) is a heavy metal which in trace quantities is essential to life, but which in greater amounts is toxic to life.
Cultural	- Produced by man or resulting from man's actions.
Datum Plane	- The horizontal place to which soundings, ground elevations, or water surface elevations are referred. Also REFERENCE PLANE. The plane is called a TIDAL DATUM when defined by a certain phase of the tide.
Depth, Project	- The depth below the official (LWD) lake water level to which navigation channel or basin dredging by the Corps has been authorized by Congress.
Depth, Control	- The actual depth of water that is available between the water surface and the lake or river bottom. It may be greater than project depth immediately after overdredging, or less than project depth if siltation has occurred; usually less than project depth.
Diesel Fuel	- Light fuel oil burned in diesel motors.
Diffusion	- Movement of one substance through another; for example, an odor in the air, a color in the water. Distance from the source results in more diffusion and less intensity.
Dike	- A mound of earth, sand, clay or other substance on land or in the water designed and built to retain something behind it.
Dissolved Solids	- The total amount of dissolved material, organic and inorganic, contained in water or wastes.
DNR	- Department of Natural Resources (State).
DO	- Dissolved Oxygen. The oxygen freely available in water. Unpolluted water will contain more DO than polluted water.
Dock	- A (permanent) structure projecting out from the shore to which a boat or ship can tie up.

AD-A106 979 CORPS OF ENGINEERS DETROIT MI DETROIT DISTRICT F/G 13/2
FINAL ENVIRONMENTAL IMPACT STATEMENT ON MODIFICATIONS TO MONROE--ETC(U)
FEB 80

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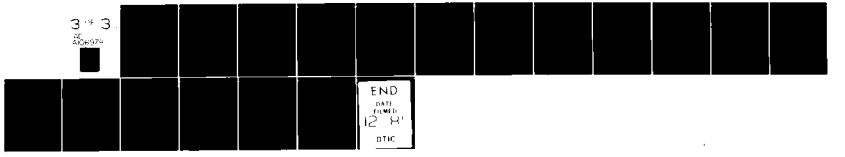


Dredge - [illegible] used to, and/or at the act of, removing muck, sand, gravel or stone sediments from harbor and/or navigation channel bottoms.

Dredge, Dipper - A barge mounted shovel, powered by steam or diesel, which operates by forcing its bucket into bottom sediments and scooping out material. Generally used to dredge sand, gravel and rock. Operates with about 80% solids 20% water.

Dredge, Clam-Shell - A barge mounted crane with a [illegible]-bucket or clam-shell suspended from it, powered by steam or diesel, which operates by dropping its clam-shell to the bottom by gravity where it is closed and lifted, along with the sediments it catches, from the bottom by wire cables. Generally used for dredging soft sediments, sand and gravel.

Dredge, Hydraulic - A barge or ship mounted vacuum suction device, sometimes fitted with an "eggbeater" type cutter head, powered by steam or diesel, which operates by breaking up the sediments with the rotating cutter head and may pump the material from the bottom through pipes to a discharge point at some distance from the equipment, in the water, on land or into a confinement facility. Generally used for dredging muck, soft sediments or sand. Operates with about 20% solids and 80% water.

Dredge, Peterson - A small bottom sediment sampling device which operates somewhat similar to a clam-shell dredge. Usually used to sample hard clay, sand, gravel or stoney bottoms.

Dredge, Ponar - A bottom sediment sampling device, smaller than a Peterson, which operates similar to a clam-shell dredge. Usually used to sample soft muck, sand and fine gravel sediments and associated benthos.

Dredge, Eckman - A bottom sediment sampling device, smaller than a Ponar, which operates similar to a clam-shell dredge, can be operated and retrieved by hand. Usually used to sample soft muck and sand and associated benthos.

Dredging - A method for deepening and widening streams, swamps or coastal waters by scraping and removing solids from the bottom to restore the authorized depths in the established projects.

Dunes	- Ridges, mounds or hills of loose, windblown material, usually sand. Stable dunes are those which are covered with vegetation and generally not readily susceptible to erosion by wind or water runoff. Unstable dunes are those which are bare of vegetation and subject to movement or erosion by both wind and water.
Dynamic	- Active processes - relating to movement.
Ecology	- The study of organisms and their physical environment.
E.I.A.	- Environmental Impact Assessment
E.I.S.	- Environmental Impact Statement. A document prepared by a Federal agency on the environmental impact of its proposals for legislation and other major actions significantly affecting the quality of the human environment. Environmental impact statements are used as tools for decision making and are required by the National Environmental Policy Act (NEPA).
Environment	- Total surroundings. Environment may refer specifically to man or animal, natural or cultural, physical, chemical, biological, social, economic or any combination of the above.
Environmental Impact	- A word used to express the extent or severity of an environmental effect.
EPA	- Environmental Protection Agency.
Erosion	- The wearing away of the land by the action of wind, water, gravity or a combination thereof. Shoreland erosion on the Great Lakes is most often a result of a combination of wind driving waves beating upon the shore and forming littoral currents, and high water levels.
Escarpment	- A high vertical rock cliff or bluff which rises sharply from the water.
Eutrophication	- Natural processes which result in water quality reduction via nutrient enrichment. Eutrophication over time changes open lakes to swamps and eventually to dry land.

Evolution	- Change over time.
Fauna	- Animals on land or in the water.
Fecal Coliform	- A group of organisms common to the intestinal tracts of man and of animals.
Flora	- Plants on land or in the water.
Fluvial	- Relating to sediment deposition by moving (river) water.
Food Chain	- Movement of food and energy from one form of life to another; for example, algae to zooplankton to fish.
Groin (British, GROYNE)	- A shore protective structure (built usually perpendicular to the shoreline) to trap littoral drift or retard erosion of the shore. It is narrow in width, and its length may vary from less than one hundred to several hundred feet (extending from a point landward of the shoreline out into the water). Groins may be classified as permeable or impermeable; impermeable groins having a solid or nearly solid structure, permeable groins having openings through them of sufficient size to permit passage of appreciable quantities of littoral drift.
Groundwater	- Water that exists in a saturation zone of the earths crust.
Harbor	- An area of water along the shoreline which is protected and affords anchorage to commercial and recreational water craft.
Impact	- The effect of one thing upon another. "Environmental" impacts may affect any one or combination of elements in the total environment and may be of positive or negative impact and of long or short duration.
Impermeable	- Able to confine water without any seepage.
Interface	- The point at which two substances, such as water and bottom sediments, come together.
Jetty	- A solid structure (somewhat similar in appearance to a boat dock) which projects from the shore for control of longshore drift erosion or sedimentation of the beach.

Lakers	- "Boats" designed and built specifically for hauling bulk cargo such as iron ore, taconite pellets, coal or grain on the Great Lakes. "Average" present day lakers may be between 600 and 700 feet long and about 80 feet wide and carry 10,000 to 20,000 ton loads. New lakers are being built, however, which are 1,000 feet long, 100 feet wide and able to carry 40 to 50 thousand tons.
Latitude	- Distance in degrees north or south of the Equator (0^{o}).
Leach	- To remove a substance by water filtration or percolation.
Lead	- Lead (Pb) a heavy metal which is toxic to life.
Littoral	- The shallow waters that extend along the edge of a lake or sea.
Littoral Deposits	- Deposits of littoral drift.
Littoral Drift	- The bottom materials moved in the littoral zone under the influence of waves and current. Direction of movement or "transport" of littoral materials depends upon wind and wave direction.
Longitude	- Distance in degrees east or west of a line (0^{o}) which passes from north to south through Greenwich, England.
Longshore Current	- Somewhat similar to littoral drift.
Low Water Datum	- LWD. An approximation to the plane of mean low water that has been adopted as a standard reference plane.
Marsh	- A tract of soft, wet or periodically inundated land, generally treeless and usually characterized by grasses and other low growth.
Methylation	- Change from an inorganic to an organic form usually as a result of bacterial action. For example, the metal mercury is relatively non-toxic if eaten; however, methyl-mercury is extremely toxic if eaten and can be transmitted via food chains.

Mercury	- A heavy metal, highly toxic if breathed or ingested. Mercury is residual in the environment, showing biological accumulation in all aquatic organisms, especially fish and shellfish.
mg/Kg	- Milligram per kilogram.
Monitoring Program	- To study the amount of pollutants present in the environment.
Mooring Facility	- A place where a ship is fastened.
Navigation Aids	- Lights, horns, bells, symbols placed and maintained by the U.S. Coast Guard to aid boat and ship navigation. Navigation aids are often placed on the outermost end of Corps breakwaters and piers.
Nekton	- Swimming aquatic insects and fish.
Nutrient	- Elements or compounds essential as raw materials for organism growth and development; for example, carbon, oxygen, nitrogen, and phosphorus.
Oligotrophic	- (Of a lake) weak in production due to a low supply of nutrients, resulting in a clean and clear body of water; in the past, the Great Lakes have been oligotrophic.
Organic	- Material of life origin; leaves, sticks, animals, fish.
Peninsula	- A "Finger" of land projecting out into, and surrounded on three sides by water.
Percolate	- Downward flow or infiltration of water through the pores or spaces of a rock or soil.
Permeable	- Able to allow water to seep through.
pH	- A measure of the relative acid or alkaline state of water. pH is measured on a scale of 0 to 14. A pH of 7 is neutral, a pH below 7 is acid, a pH above 7 is alkaline. Rainwater is usually slightly acid.

Phenols	- A group of organic compounds that in very low concentrations produce a taste and odor problem in water.
Phosphorus	- An element that while essential to life, contributes to the eutrophication of lakes and other bodies of water.
Phytoplankton	- The plant portion of plankton.
Piers	- Permanent structures constructed of stone, steel, cement or a combination of those materials, which are used to define and stabilize entry channels from the open lake into a harbor.
Plankton	- Small aquatic plants and animals whose movement is controlled by river, harbor and lake currents.
Pocket Harbor	- A harbor which does not have a river or stream flowing through it, which carries and deposits sediment loads.
Pollution	- Any change in water quality that impairs it for the subsequent user. These changes result from contamination of the physical, chemical, or biological properties of water.
Port	- A point (usually a harbor) at which ships load and unload commercial cargo.
ppm	- Parts per million.
ppb	- Parts per billion.
Pumpout Station	- A temporary dock where a connection is made between land and dredge piles; a booster pump may be used.
Revetment	- A permanent structure built of sheet steel piling or concrete placed to keep channel or harbor banks from caving into the water.
Riparian Right	- The right of an owner of land bordering on a stream or lake to have access to, and use of, the shore and water. The use of this water is restricted to riparian landowners, and the right is automatic, not created by use or forfeited through disuse.
Riprap	- A layer, facing, or protective mound of stones randomly placed to prevent erosion, scour, or sloughing of a structure or embankment; also the stone so used.

Scientific nomenclature - Scientific nomenclature of animals requires (1) that each species and genus found in the world shall have a name that is independent of change, such as pertains to common names used in many languages; (2) that each species and genus shall have separate names duplicated by none which refer to some other species or genus; and (3) that different names shall not be applicable to any one species or genus. The following is a breakdown of Categories of Higher Rank than Species and Genus:

Kingdom
Phylum
Class
Order
Family
Tribe
Genus
Species

Scow - A barge equipped with trap-doors in its bottom which is used for moving and dumping dredge spoil.

Secchi Disc - An eight inch diameter disk, divided into alternate black and white quadrants supported from its center by a hand line, which is dropped into the water to visually gauge light penetration.

Sediments - Clay, sand, gravel or stones which have been eroded from the land or from beneath the water, have been transported by river or lake currents, and re-deposited.

Seawall - A structure separating land and water areas primarily designed to prevent erosion and other damage due to wave action.

Seiche - Fluctuations above or below "normal" water level caused by wind, barometric pressure or a combination of both. A seiche usually does not last for more than several hours at any particular time or place.

Sheet Steel Piling - Interlocking lengths of steel driven into a stream, lake or harbor bottom next to the shore to prevent storm, wave or ship damage.

Shoal	- A place where water is shallow, sometimes created by a sandbar, in the shipping channels, created by deposition of eroded material.
Shoreline Protection	- Structural measures designed for placement along the shore to relieve erosion and flooding damages. Examples of structural measures are protective beaches, seawalls, groins and revetments.
Side Casting	- The disposal of dredged sediments off to the side of the channel or basin being dredged. Side cast disposal may be either in the water or on land.
Silt	- Finely divided particles of soil or rock. Often carried in cloudy suspension in water and eventually deposited as sediment.
Spoil	- Sediments which have been dredged from beneath the water.
Stagnation	- Lake of motion in the water that tends to entrap and concentrate pollutants.
Substrate	- Any substance used as an attachment point by a microorganism.
Surface Water	- Atmospheric water that runs off to collect in streams, ponds, or lakes, swamps, etc.
Tender	- A boat smaller and less powerful than a tug, but used in essentially the same way.
Tertiary	- Third in order in terms of importance. Also, refers to a final or ultimate process or effect which is dependent upon those processes or effects which have gone before.
TKN	- Total Kjeldahl Nitrogen. A measure of the ammonia and organic nitrogen, but does not include nitrite and nitrate.
Topography	- The configuration of a surface including its relief, the position of its natural and man-made features.
Tug	- A boat with a powerful motor used to move barges, dredges or other boats or ships.
Turbidity	- A cloudy condition in water due to the suspension of silt or finely divided organic matter.

Volatile Solids (Total)	- A measure of the organic material that could decompose and thus exert an oxygen demand on a body of water.
Van Dorn Bottle	- A glass water sampling device which is constructed differently but is used in essentially the same manner as a Kemmerer.
Water Quality Criteria	- The level of pollutants, with respect to the chemical, physical, and biological characteristics, that affect the suitability of water for a given use.
Wave	- A ridge, deformation, or undulation of the surface of a liquid.
W.E.S.	- Waterways Experiment Station of the U. S. Army Corps of Engineers at Vicksburg, Mississippi.
Wharf	- A (permanent) structure alongside a channel or harbor edge to which a boat or ship can tie up.
Zinc	- Zinc (Zn) is a heavy metal which in trace quantities is essential to life, but which in greater quantities may be toxic to life.
Zooplankton	- Planktonic animals that supply food for fish.

APPENDIX E

FISH AND WILDLIFE SERVICE REPORT

United States Department of the Interior
IN REPLY REFER TO:
FISH AND WILDLIFE SERVICE
EAST LANSING FIELD OFFICE (ES)
Room 301, Manly Miles Building
1405 S. Harrison Road
East Lansing, Michigan 48823

September 13, 1978

Colonel Melvyn D. Remus
U.S. Army Engineer District,
Detroit
P.O. Box 1027
Detroit, Michigan 48231

Dear Colonel Remus:

The following report is provided under the authority of and in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the National Environmental Policy Act of 1969.

A reconnaissance/electro fishing trip was conducted at Monroe Harbor on July 5 and 6, 1978 with personnel from the East Lansing Field Office and the Detroit Corps office participating.

Plum Creek and the LaPlaisance Bay area were randomly sampled with the electro fishing boat. The primary fish species noted were: longnose gar (Lepisosteus osseus), carp (Cyprinus carpio), goldfish (Carassius auratus), young-of-the-year gizzard shad (Dorosoma cepedianum), and white bass (Roccus chrysops). Other fish species noted as present were spottail shiner (Notropis hudsonius), freshwater drum (Aplodinotus grunniens), yellow perch (Perca flavescens), channel catfish (Ictalurus punctatus), pumpkinseed (Lepomis gibbosus), and walleye (Stizostedion vitreum). All sampling was conducted in three feet or less of water.

An extensive bed of sago pondweed (Potamageton pectinatus L.) was noted in the primary area proposed for the confined disposal facility.

Bird species noted during the reconnaisance trip included the great blue heron (Ardea herodias), herring gulls (Larus argentatus), black crown night herons (Nycticorax nyticorax), common egret (Casmerodias albus), mallard (Anas platyrhynchos), killdeer (Charadirus vociferus), spotted sandpiper (Actitis macularia), and common terns (Sterna hirundo).

Additional field trips were conducted during August for the purpose of a preliminary evaluation of the proposed lakeward relocation of the confined disposal facility (CDF). An experimental gill net (475 feet long) was placed in an area of approximately 10 feet of water, adjacent to the proposed CDF location. Eight hundred fish were collected from a one night set (catch data was forwarded under a separate letter September 11, 1978). Additional sampling will be necessary at the

lakeward location to determine yearly fish utilization and benthic presence if it is deemed as a feasible site location. Recreational fishing opportunities from a CDF at this location could be substantial.

Sincerely yours,

David A. Allardyce

David A. Allardyce
Acting Supervisor

United States Department of the Interior
FISH AND WILDLIFE SERVICE
EAST LANSING FIELD OFFICE (ES)
Room 301, Manly Miles Building
1405 S Harrison Road
East Lansing, Michigan 48823

IN REPLY REFER TO:

September 11, 1978

Colonel Melvyn D. Remus
U.S. Army Engineer District,
Detroit
P.O. Box 1027
Detroit, Michigan 48231

Re: Monroe Harbor Modification Project

Dear Colonel Remus:

On August 16, personnel from the East Lansing Field Office conducted fish sampling lakeward of our proposed relocation site for the Confined Disposal Facility (reference our comments on the Draft EIS August 2, 1978).

A 475 foot experimental gill net was placed in 10 feet of water for one night at the location indicated on the attached map (Figure 1).

Catch figures, by mesh size (stretch) are listed in Table 1. All fish were measured (date available on request).

Sincerely yours,

Kenneth A. Multerer
Acting Supervisor

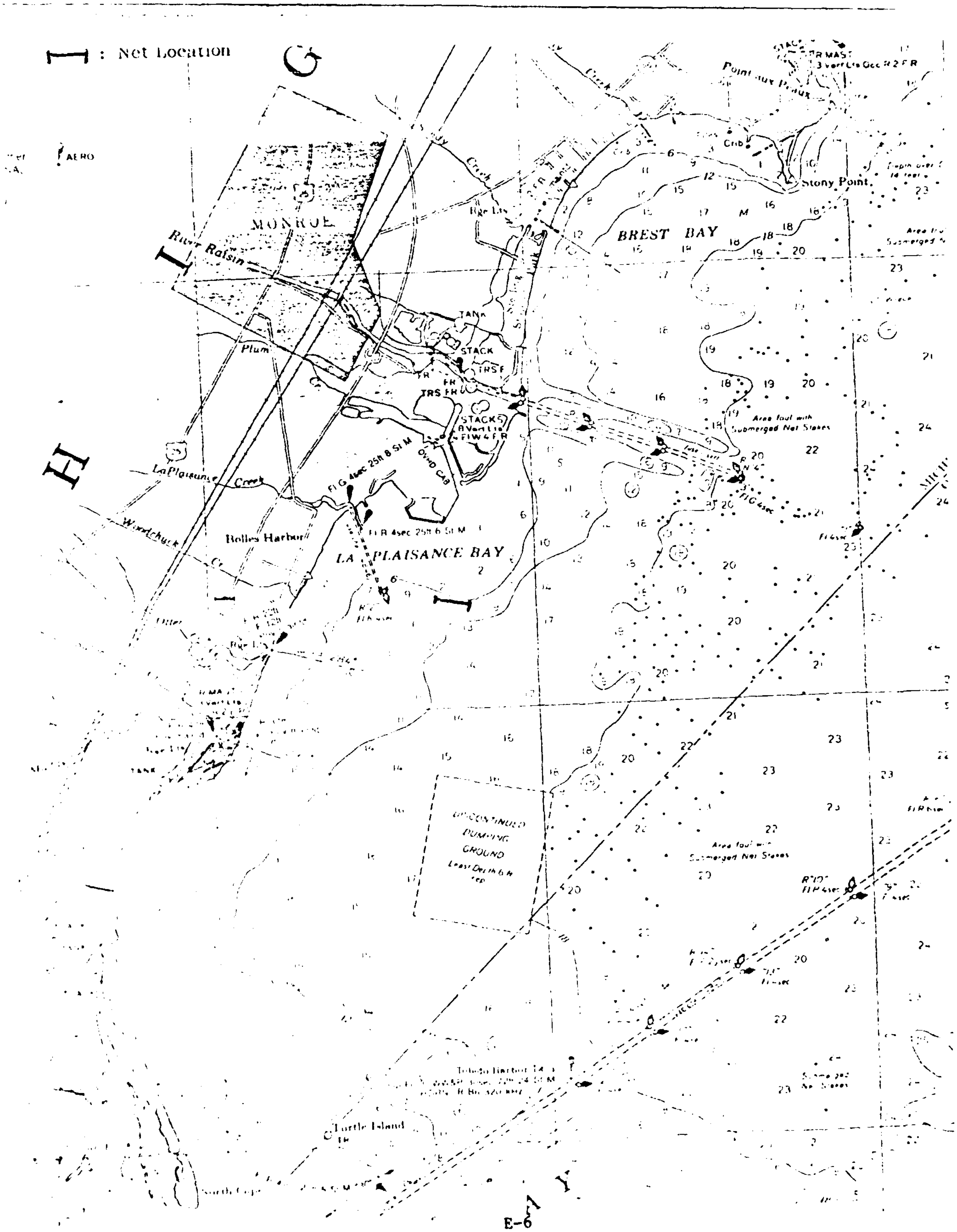
cc: Robert Haas, MDNR, Mount Clemens, MI
Ken Muth, USFWS Research Lab, Sandusky, Ohio
David Borgenson, MDNR, Fisheries Division, Lansing
Edward Bacon, MDNR, District Office, Jackson

Fish Collection, Raisin Point, Lake Erie, Michigan

Number of Fish by Mesh Size

Net Lengths 25' each of 1½" 50' each of remainder	1½"	2"	2½"	3"	3½"	3½"	4"	4"	4½"	5½"	total
								August 16, 1978			
Fish Species											
Walleye	1	31	29	4	5	5	9	4	2	-	(90)
Yellow Perch	49	51	5	5	-	-	-	(4?)	-	-	(114)
Carp	-	1	4	18	6	8	5	6	8	3	(59)
Gizzzard Shad	29	1	1	16	19	19	21	22	11	14	(153)
Freshwater Drum	29	78	56	34	29	23	16	18	11	9	(303)
Channel Catfish	-	5	5	2	2	-	-	-	1	-	(15)
White Bass	-	11	37	1	-	-	1	1	-	-	(51)
Quilliback	-	-	1	2	2	22	2	1	1	-	(3)
Goldfish	-	-	-	1	1	-	-	-	1	-	(3)
Redhorse spp.	-	-	-	-	-	1	-	-	-	-	(1)
									Total Fish		800

Water Depth 10ft.


: Net Location
MONROE
River Raisin
Plum
LaPlaisance Creek
Bolles Harbor
LA PLAISANCE BAY
BREST BAY
Stony Point
Point aux Peaux
STACK
STACKS
TANK
Area foul with Submerged Net Stakes
DISCONTINUED DUMPING GROUND
Turtle Island

APPENDIX F

ECONOMIC DATA

SUMMARY OF ECONOMIC DATA

(Extracted from the U.S. Army Engineers Survey
Report on Modifications to Monroe Harbor Michigan)

At Monroe Harbor, prospective waterborne commerce during the life of the project (1985-2035) is anticipated to consist of Detroit Edison's projected coal receipts of 7,730,000 tons annually and North Star Steel Company's anticipated beneficiated iron ore pellet receipts of 200,000 tons annually. The cost of transporting this commerce under present harbor conditions, i.e., a draft of 19.5 ft. below Low Water Datum and the present turning basin accommodating only Class 5 and 6 size vessels, was calculated. This cost was compared to the lesser costs of transporting the same waterborne commerce to Monroe Harbor at greater vessel drafts. These differentials in the transportation costs of Monroe waterborne commerce at various vessel drafts are considered transportation savings or benefits in this analysis.

These benefits are annualized and compared to the average annual costs of each respective plan of improvement. An interest rate of 7 1/8% and amortization is applied to the costs, as well as interest during the three years of project construction. A fifty-year project life is used for the period of analysis (1985-2035).

The NED plan, or that plan which contributes the most to national economic development, must have a benefit/cost ratio greater than one to be economically justified. In addition, only that plan which exhibits the greatest net benefits (benefits minus costs) is the optimum proposed plan. For this project, a 28 ft. depth in the lake section of the channel, a 27 ft. depth in the river section of the channel, a 24 ft. turning basin, in combination with disposal site #1 is the NED plan. With average annual benefits of $28,643,000 and average annual costs of $7,968,000 the B/C ratio for this plan is 3.59 to 1.0.

END

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