

**Compensatory Mitigation
And
Enhancement Plan
Summary**

**Middle Bass Island State Park
Marina and Campground Development
Project**

Ohio Department of Natural Resources

On-site Mitigation and Enhancement at Middle Bass Island State Park

Water Quality

Water quality in the new marina basin will be greatly improved as a result of better water circulation.

Wetland Preservation

Deed restrictions will be placed on a total of 12.26 acres of wetland habitat to prevent future development of buildings and other non conservation related projects.

Wetland 4	2.07 acres
Wetland A	2.08 acres
Wetland B	0.38 acres
Wetland 1a	4.87 acres
<u>Wetland D</u>	<u>2.86 acres</u>
Total Preservation	12.26 acres

Wetland Enhancement

The large Category 3 wetland on the north side of the marina will be enhanced through the removal of phragmites and improved hydrology.

Wetland D	2.86 acres
<u>Wetland 1a</u>	<u>4.87 acres</u>
Total Enhancement	7.73 acres

Fisheries

The fisheries in the new basin will be enhanced by improving the substrate (gravel, cobble & boulders) for smallmouth bass spawning habitat, construction of a shallow shelf at base of the crib wall, and improved water circulation.

Aquatic Vegetation Beds

Provide a 1:1 or higher ratio of impacted:restored aquatic beds. Areas with phragmites will be replaced with American lotus and other native species. Depending on post construction monitoring results, some credit may be needed from the Middle Harbor Restoration site.

Beach Nourishment

Place clean sand in the nearshore waters off the east breakwall and remove metal pieces. Install a self mitigating jetty to protect the sandy beach.

Education

Maintain a wetland trail and provide Lake Erie Water Snake (LEWS) signs and brochures.

Lake Erie Water Snake (LEWS)

Implement the following list of avoidance and minimization measures. Install new riprap and crib wall habitat at greater than a 1:1 ratio (existing:improved marina). Install higher coastal breakwall that will provide a safer and improved habitat during severe storm events. Provide experimental wintering habitat in approved area(s).

List of Lake Erie Water Snake (LEWS) Avoidance and Minimization Measures for the ODNR Middle Bass Island State Park Marina and Campground Project

1. Begin dewatering basin slowly Oct 1, 2007 (possibly September 1) after constructing a snake barrier around the entire perimeter of the new marina basin/construction area.
2. Monitoring should be conducted before and during construction by someone trained to identify Lake Erie water snakes. The site will be walked daily prior to any earthmoving activity to ensure no snakes are within the work area. If the snakes are encountered in the work area, their locations will be marked on a topographic map, and they will be moved outside the work limits.
3. Follow approved seasonal restrictions, except for areas within the work zone. It is permissible to excavate the marina basin without restriction once the marina has been dewatered and a snake barrier in place.
4. Educate all construction contractors on the identification and importance of the LEWS and how to avoid a "taking" during construction.
5. Include LEWS Avoidance and Minimization Measures in the construction documents for the new MBISP Marina.
6. Place fill in only approved areas.
7. Drive construction equipment and other vehicles in only approved routes/staging areas.
8. Design the marina to minimize LEWS interactions with boaters and visitors when the marina is completed.
9. Continue to follow the ODNR LEWS Management Plan for Middle Bass Island State Park after the project is completed.
10. Have on site educational materials for the LEWS.
11. Have new marina entrance breakwalls and east revetment constructed by March 10, 2008 for LEWS habitat.

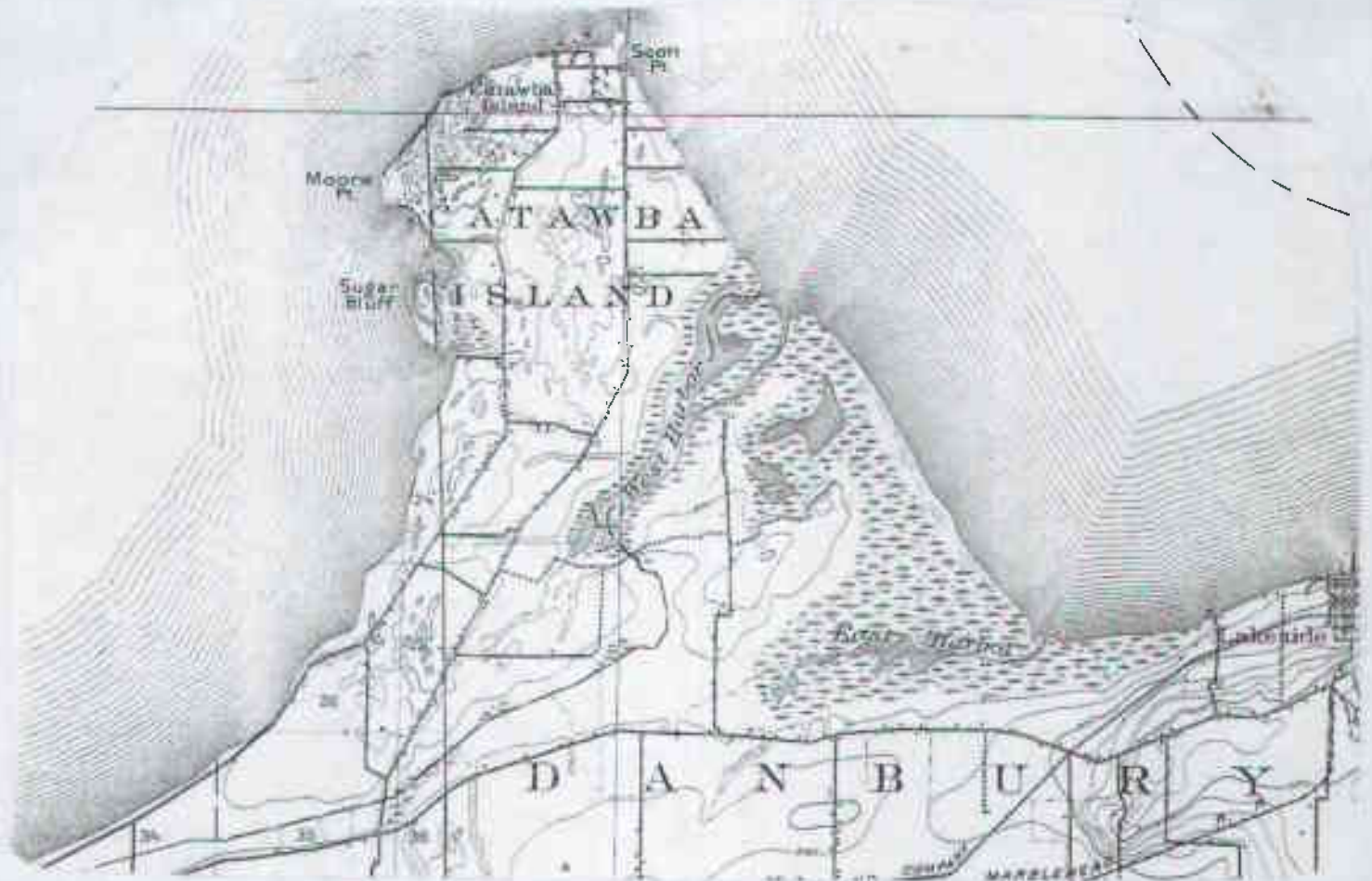
Off-site Mitigation and Enhancement at East Harbor State Park or an Approved Wetland Bank

One of the following two options will be needed to meet the "no net loss" of impacted wetlands. Option A would provide restoration at a ratio greater than 3:1, while Option B would meet the minimal 1:1.

Option A (Preferred): Restore approximately 39 acres of coastal wetland and fisheries habitat in Middle Harbor (East Harbor State Park) through beneficial use of dredge material from East Harbor. Project includes construction of a Middle Harbor Habitat Restoration Unit (HRU) and improved hydrological connection (approximately 250 acres of Middle Harbor) to Lake Erie through East and West Harbors. Restoration to impact ratio > 3:1. The project could begin in the summer of 2006 and be completed by the fall of 2008 before impacts occur. Another very positive aspect of this project is the in-kind mitigation for the original wetland that was modified for the existing marina. A Nationwide 27 permit for Wetland Restoration would likely be needed from the USACE. A proposed design for the project is attached.

Option B: Purchase approximately 9 acres of credit at an existing approved inland Wetland Mitigation Bank (restoration to impact ratio 1:1).

Middle Harbor Habitat Restoration Unit (HRU) Project

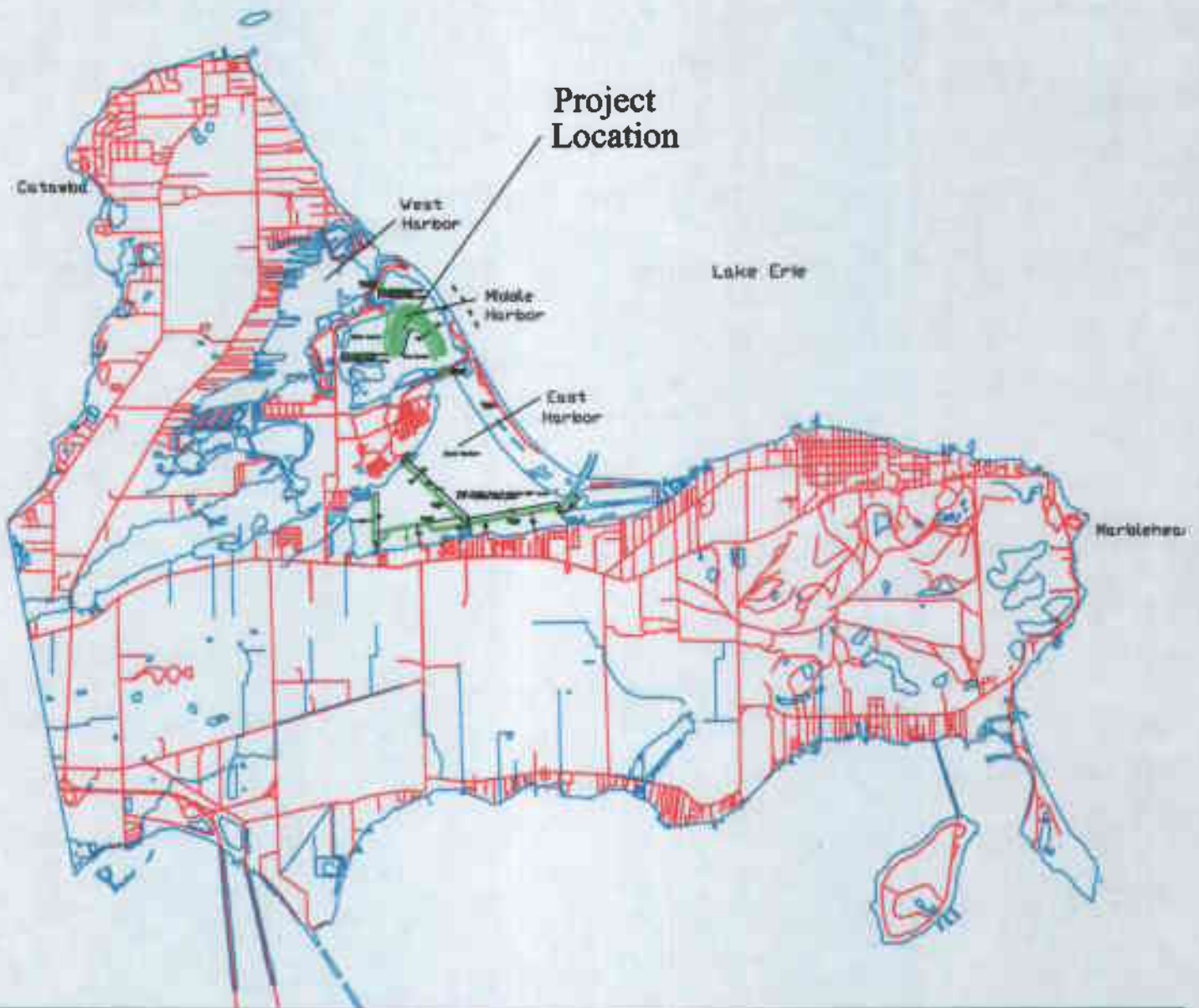


Proposed Mitigation for the Middle Bass Island State Park Marina and Campground Project

Ohio Department of Natural Resources



Middle Harbor / East Harbor Coastal Restoration Project



Ohio Department of Natural Resources

Proposed Activity: Coastal Restoration

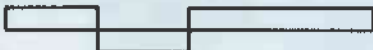
Waterway: East Harbor State Park

Address: 1169 N. Buck Rd., Lakeside-

County: Ottawa. Marblehead, Oh 43440

Date: June 2005

Scale: Not to Scale



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**Proposed Off Site Mitigation
For the Middle Bass Island
State Park Marina**

Middle Harbor Habitat Restoration Unit (HRU)

Environmental Benefits

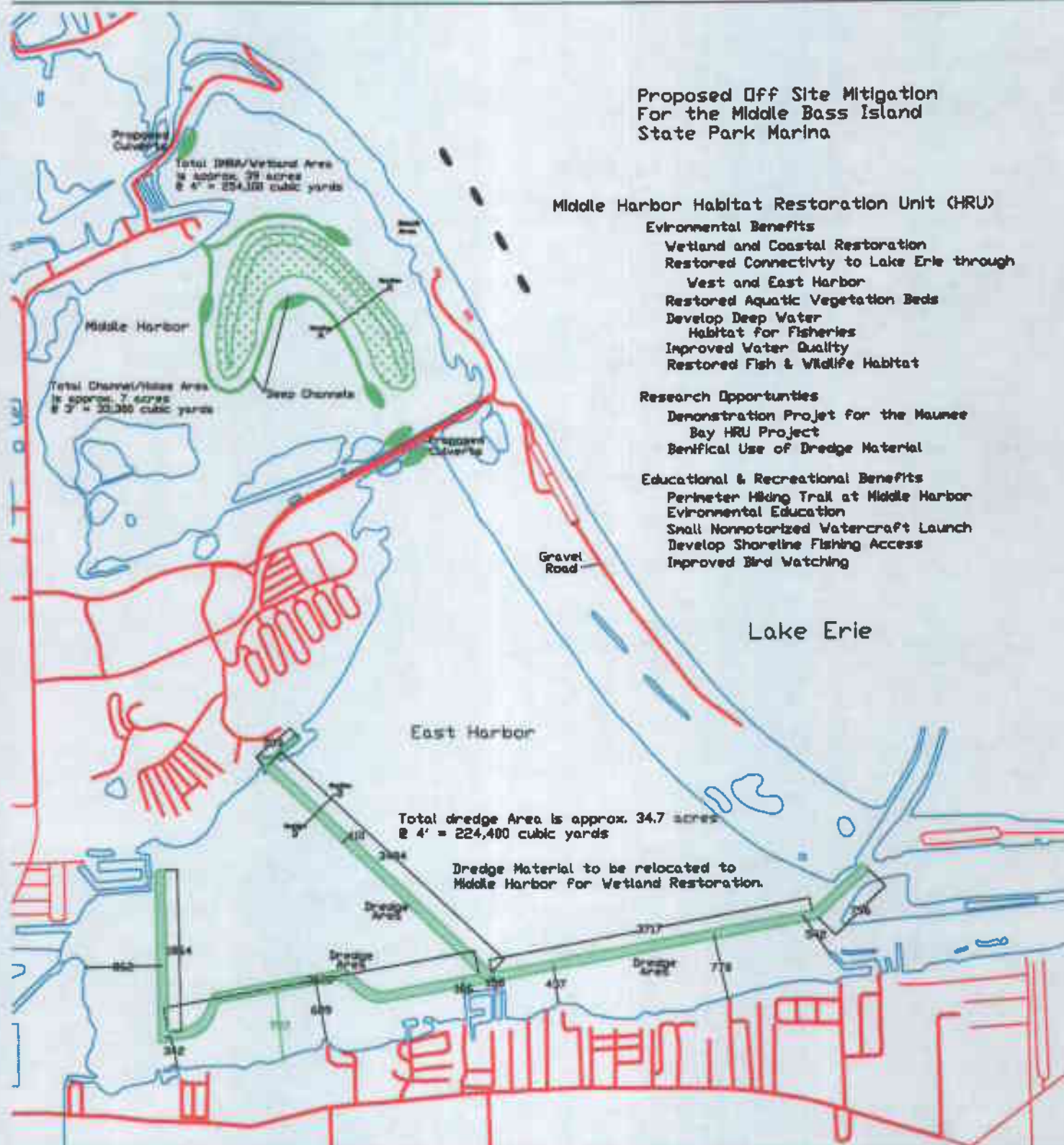
- Wetland and Coastal Restoration
- Restored Connectivity to Lake Erie through West and East Harbor
- Restored Aquatic Vegetation Beds
- Develop Deep Water Habitat for Fisheries
- Improved Water Quality
- Restored Fish & Wildlife Habitat

Research Opportunities

- Demonstration Project for the Maumee Bay HRU Project
- Beneficial Use of Dredge Material

Educational & Recreational Benefits

- Perimeter Hiking Trail at Middle Harbor
- Environmental Education
- Small Nonmotorized Watercraft Launch
- Develop Shoreline Fishing Access
- Improved Bird Watching



Ohio Department of Natural Resources

Proposed Activity: Coastal Restoration

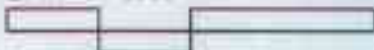
Waterway: East Harbor State Park

Address: 1169 N. Buck Rd., Lakeside-

County: Ottawa. Marblehead, Oh 43440

Date: June 2005

Scale: 1" = 1500'



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Middle Harbor Habitat Restoration Unit (HRU)

Proposed Off Site Mitigation For the Middle Bass Island State Park Marina

Environmental Benefits

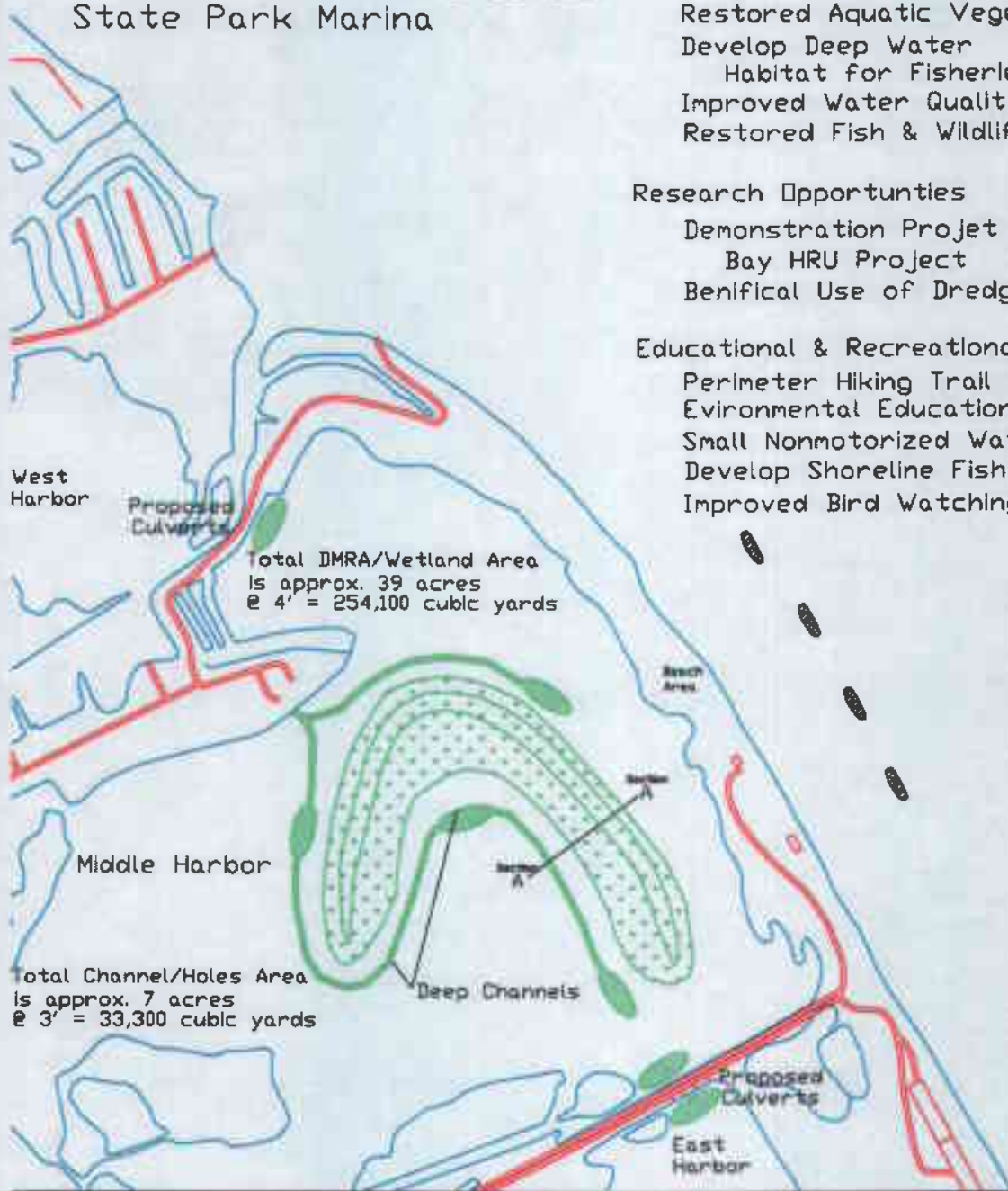
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Ohio Department of Natural Resources

Proposed Activity: Coastal Restoration

Location: East Harbor State Park

Address: 1169 N. Buck Rd., Lakeside-

County: Ottawa. Marblehead, Oh 43440

Date: June 2005

Scale: 1" = 1000'

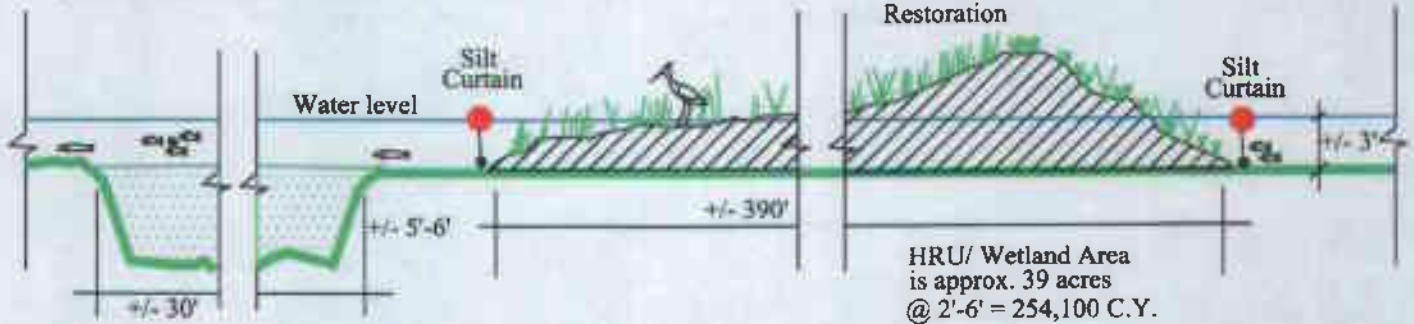


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Typical Sections

Middle Harbor Wetland Restoration

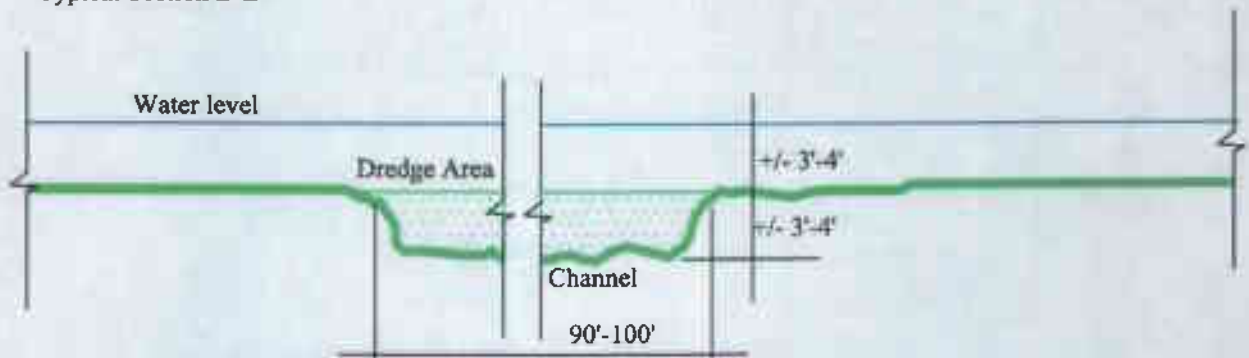
HRU/Wetland Area
Typical Section A-A



Channel/Holes - 5'-6 deep.
@ 3' removed = 33,300 cubic yards
Approx. 7 acres

East Harbor Proposed Dredging

Dredge Area
Typical Section B-B



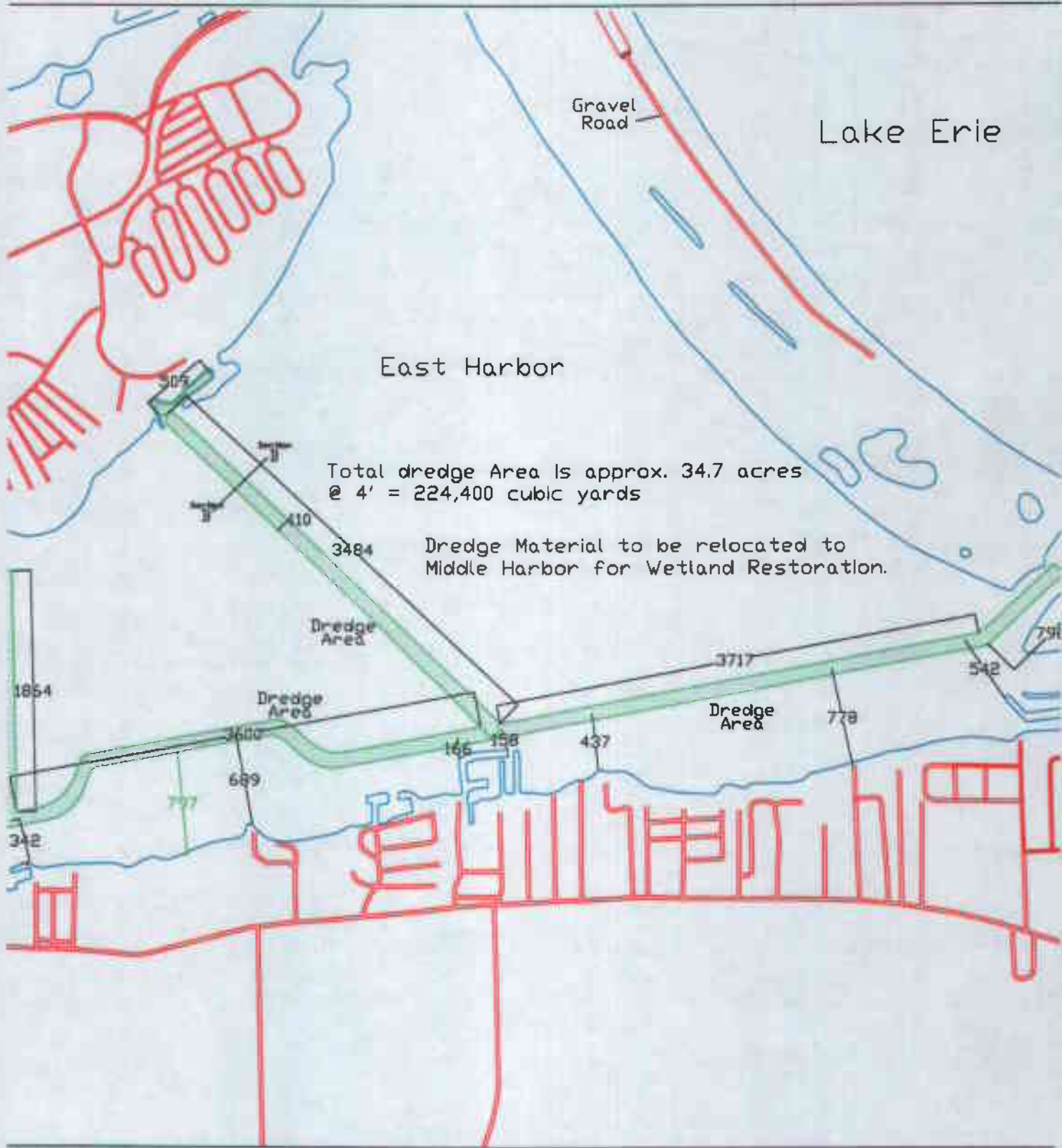
Total dredge area is approx. 34.7 acres
@ 4' = 224,400 C.Y.

Ohio Department of Natural Resources
Division of Parks and Recreation

Proposed Activity: Coastal Restoration
Waterway: East Harbor State Park
Address: 1169 N. Buck Rd., Lakeside
County: Ottawa. Marblehead, Oh 43440
Date: June 2005

Scale: NTS





Ohio Department of Natural Resources

Proposed Activity: Maintenance Dredge

Location: East Harbor State Park

Address: 1169 N. Buck Rd., Lakeside-

County: Ottawa. Marblehead, Oh 43440

Date: June 2005

Scale: 1" = 1000'



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