



Sebewaing Park Master Plan

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Sebewaing Park Master Plan

Huron County Road Commission

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Huron County Road Commission

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Table of Contents

<u>SECTION</u>	<u>PAGE</u>
I. INTRODUCTION	1-5
Purpose	1
Plan Objectives	1-2
Planning Process	2-4
Sebewaing Coastal Area Profile	4-5
II. STUDY AREA INVENTORY AND ANALYSIS	6-15
Natural Resources	6-11
Physical Resources	11-13
Wetlands Regulations and Development Capability	13-15
III. PROGRAM AND DEVELOPMENT GOALS	16-17
IV. ALTERNATIVE CONCEPT PLANS	18-22
Alternative One - Camping Use Intensive	18-20
Alternative Two - Minimized Wetland Intrusion	20-22
V. PUBLIC INPUT AND ALTERNATIVE EVALUATION	23-24
VI. SEBEWAING PARK MASTER PLAN	25-29
Overview	25-27
Engineering Details	27-29
VII. IMPLEMENTATION STRATEGY	30-36
Proposed Development Costs	30-32
Phasing	33-34
Funding Sources and Mechanisms	34-36
Summary	36
VIII. APPENDIX	

List of Figures

<u>SECTION</u>		<u>PAGE</u>
Figure 1	Planning Process	2
Figure 2	Location of the Proposed Sebewaing Park	
Figure 3	Plant Species Found within the Study Area	9
Figure 4	Typical Fish Species Saginaw Bay and Sebewaing River	9
Figure 5	Spawning Requirements and Habitat Preferences of the Primary Sportfish of Saginaw Bay	10
Figure 6	Interpretative Trail through Wetlands	18
Figure 7	Response to Development Goals	24
Figure 8	Section: Relationship of Campground to other Site Features	25
Figure 9	Preliminary Cost Estimates	30-31
Figure 10	Potential Funding Sources	34

List of Maps

<u>SECTION</u>		<u>PAGE</u>
Map 1	Site Analysis Map	7
Map 2	Wetlands Map	14
Map 3	Alternative Concept One	19
Map 4	Alternative Concept Two	21
Map 5	Sebewaing Park Master Plan	26



Introduction

I. INTRODUCTION

PURPOSE

In 1986, the Huron County Board of Commissioners acquired approximately 14 acres of land located in the northwest portion of the Village of Sebewaing, Michigan. The parcel of land is bordered by the Sebewaing River and Saginaw Bay. Following this acquisition the Huron County Road Commission received funds from the Michigan Coastal Zone Management Program to conduct a study of the recreation use potential of the property.

The purpose of this study is to develop a master development plan for a proposed recreation camping and boat docking park. The plan will analyze the coastal area, explore alternative design schemes, develop final site designs, and propose implementation programs.

PLAN OBJECTIVES

Several work objectives can be identified to guide the study process. These objectives are as follows:

- o Analyze the coastal resources and land uses to determine the opportunities and constraints for new development.
- o Solicit input from Huron County officials and the Village of Sebewaing residents in order to develop a plan which reflects the interests of the community.
- o Develop a master plan for the study area which will offer recreational opportunities to residents and tourists while providing new impetus to the local economy.

- o Develop an implementation strategy which will provide cost estimates, identify funding sources, and include plans for phasing of development activities.

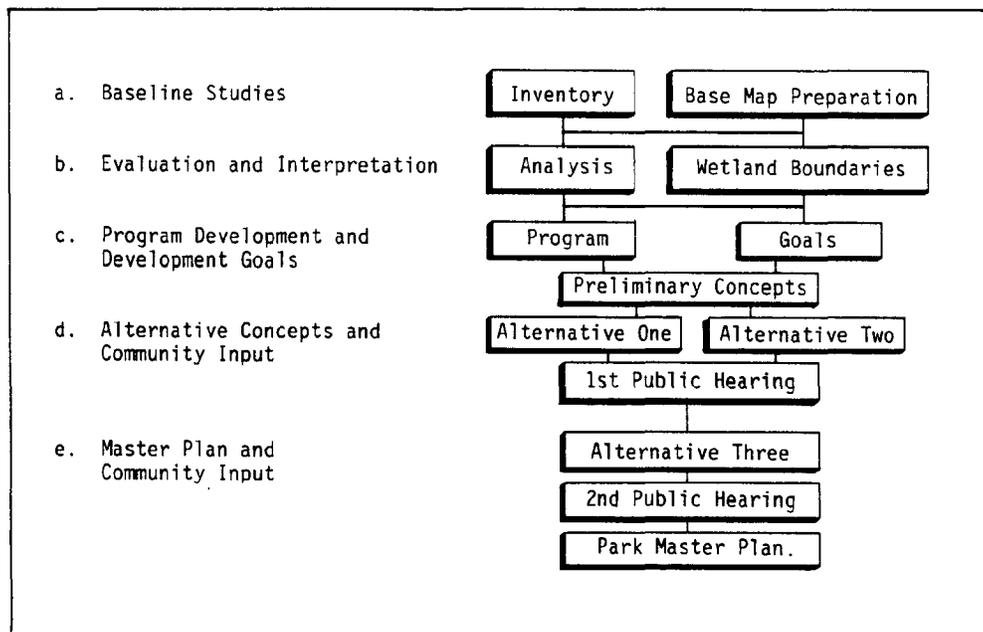
PLANNING PROCESS

The planning process for the proposed Sebewaing Park followed a five step procedure:

- a. baseline studies
- b. evaluation and interpretation
- c. program development and development goals
- d. alternative concept plan development and community input
- e. master planning and community input.

The components of each step in the planning process are summarized in the accompanying diagram (Figure 1).

Figure 1 Planning Process



The first step in the planning process involved extensive data collection. A base map was prepared from information gathered from site inspections and from aerial photographs. Soundings were taken within the channels and the Sebewaing River to determine channel and river bottom depths. In addition, discussions with local officials, local residents, representatives of the Michigan Department of Natural Resources and the U.S. Army Corps of Engineers also occurred.

Evaluation and interpretation of the gathered data was the next step in the planning process. During this analysis phase, regulated wetland areas within the proposed park site were identified with the assistance of field staff from the Michigan Department of Natural Resources and the U.S. Army Corps of Engineers. Reaching a consensus on the boundary determination of regulated wetland areas within the park site was a time-consuming yet, extremely important facet of the overall planning process. Identification of the regulated wetland boundaries was necessary for assessing the development capability of the site.

Following the analysis of the site, a program of acceptable uses for the park site was discussed. The initial general program of uses for the park included RV campsites, boat slips and a nature trail. The information acquired during the first two steps of the planning process was beneficial to addressing specific programming issues such as the number of campsites, boat slips, and parking spaces that should be provided, should day-use recreational activities be offered, and, which utility services should be provided for park users. Several preliminary concept plans were prepared during this phase of the process to assist the planning team in visualizing the relationships between activities such as parking, boat launching, camping, residential use and sight-seeing.

Also, during this programming step a set of developments goals was determined. These goals were designed to guide the preparation of alternative concept plans.

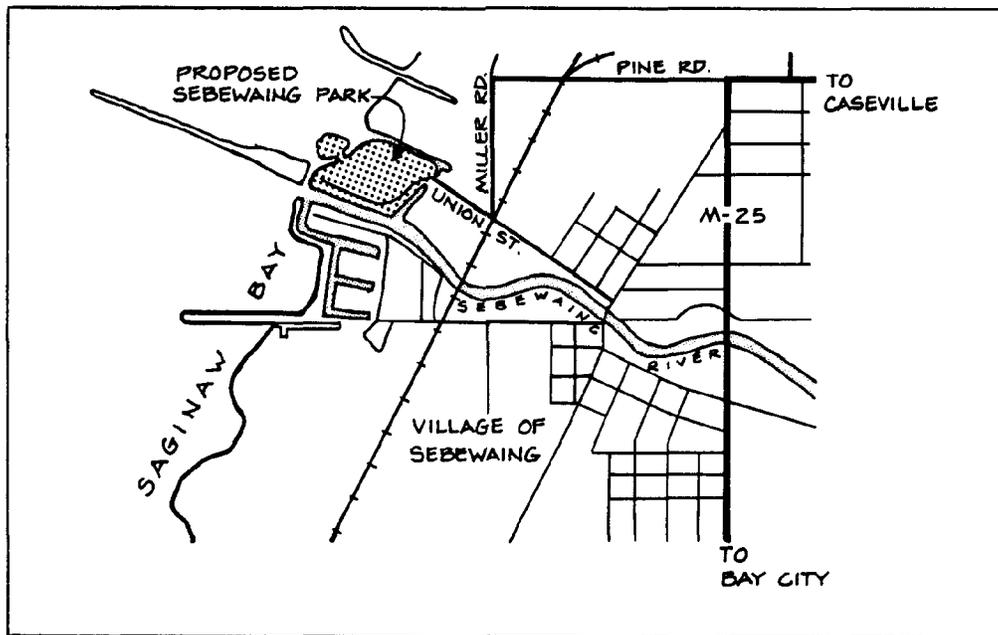
The fourth step of the planning process involved refining the preliminary concept plans based on the development goals and discussions with the Huron County Parks Superintendent. Two alternative concept plans were prepared for public review.

In the final step, the comments and questions generated during the first public hearing were used to develop a third, preferred alternative. The three alternatives were presented at a second public hearing. The third alternative was modified following the second public hearing and was then selected as the Sebewaing Park Master Plan.

SEBEWAING COASTAL AREA PROFILE

The Village of Sebewaing, located in the southwest corner of Huron County, is a community comprised of approximately 2100 persons.

Figure 2 Location of the Proposed Sebewaing Park



The name of the Village, Sebewaing, is a Chippewa word meaning "crooked river".¹ The Sebewaing River meanders through the center of the Village and empties into the Saginaw Bay.

¹ Coastal Area Profile information provided by the Sebewaing Chamber of Commerce.

There are three different business areas found in Sebewaing: the north business district located on M-25, the downtown business district, and the south end business district. There are a variety of retail, service and office uses located within the Village and the downtown area.

Light industry is also a very prominent land use within the Sebewaing area. Many local residents are employed by light industrial businesses such as Acme Roll Forming Company, Michigan Sugar Company, Sebewaing Industries, and Sebewaing Tool and Engineering.

Sebewaing is also known as a leader in agricultural products. The principle farming activities include sugar beets, navy beans and soy beans, corn, wheat, oats and barley. In addition, there are egg farms, feeder pigs, feeder cattle and dairy farms located in the area.

A variety of active service organizations and clubs help to enrich the Sebewaing community. These include the Chamber of Commerce, Rotary Club, Lions Club, Senior Citizens Club, JayCees, and Sportsman Club. In addition, there are many church groups and an active athletic booster club.

The availability of recreational opportunities is very important to Sebewaing residents, too. There are currently five parks within the Village: Main Park, South Main Park, Muellerweiss Senior Citizen's Park, Northside Neighborhood Park and Sebewaing Boat Launching Ramp and Park. Located just south of the Village is the Fish Point Wildlife Refuge. This State protected area provides endless opportunities for waterfowl and wildlife watching.

The proposed Sebewaing Park will offer additional recreational opportunities to local residents within a very short drive of downtown Sebewaing. The park will also attract tourist and sportsmen to the area and consequently increase restaurant and retail activity in the Village business areas. It is estimated that boat campers will spend \$20 to \$60 per day for local goods or services. Successful development of this facility will be an important component of the local economy.

||

Study Area

==== **Inventory and Analysis** ==

II.
STUDY AREA INVENTORY AND ANALYSIS

The information gathered during the inventory and analysis step of the planning process is essential for generating workable site design recommendations. Special emphasis will be given to wetland boundary determination within the proposed Sebewaing Park.

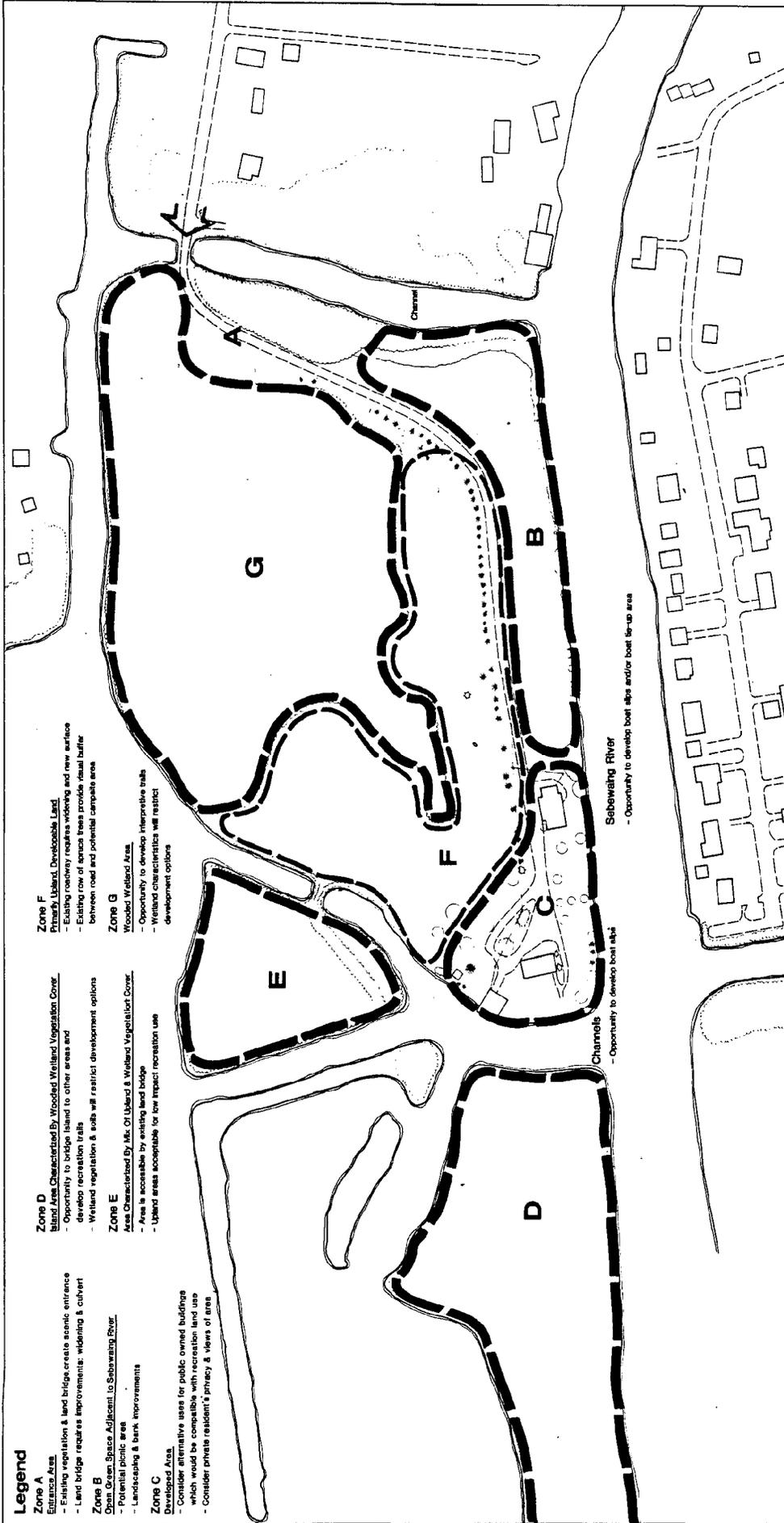
NATURAL RESOURCES

Natural features and environmental systems will play a very important role in the development of the Sebewaing Park. The character of the water resources, soils, vegetation, fish and wildlife species present within the study area must be examined. A site analysis (Map 1) of the study area is presented on the following page.

Water Resource Characteristics/Hydraulics

The study area is bordered on the southwest by the Sebewaing River and to the north and west by Saginaw Bay. A finger channel connected to the Sebewaing River borders the eastern edge of the study site. In addition, several finger channels are located within the western portion of the site creating island areas.

The Sebewaing River is maintained by the U.S. Army Corps of Engineers. The River bottom is maintained at approximately six feet below low water datum between the mouth of the Sebewaing River and the Pere Marquette Railroad Bridge. The railroad bridge is located approximately one half mile upstream from the mouth of the River.



MAP 1
Analysis Plan
Sebewaing Park

↗ Ayres, Lewis, Norris and May, Inc.
engineers
planners

Huron County Road Commission



Water Quality

Water quality of the Sebewaing River and Saginaw Bay as reported by the Michigan Department of Natural Resources is generally rated as good. The finger channels bordering the eastern and western portions of the study area, however, appear stagnant. The River and associated channels support a variety of fish and wildlife species.



Soils

Approximately half of the study area consists of wetland soils. Most of the study area has been artificially filled and smoothed with dredge material from the Sebewaing River bottom. Silty-sand is the common soil type found within upland areas.

Vegetation

Plant species within the study area vary in response to the wetness or dryness of the soils and as a result of human activities. Four main zones of vegetation have been inventoried. These are submergent, emergent, wooded wetland and upland. Plant species found within the study area are displayed in Figure 3.

**Figure 3
Plant Species
Found with the Study Area**

Asters	Honeysuckle	American Elm	Grape Vine
Reed Canary Grass	Cottonwood	Boxelder	Red Maple
Sedges	Red Ash	Black Locust	Silver Maple
Willow	Juniper	Sumac	Norway Maple
Red-Twig Dogwood	Cedar	Rose	White Spruce
Am. Cranberry Bush	Gray Dogwood	Mulberry	Red Pine

Fish Species

Saginaw Bay, the Sebewaing River and the associated marsh areas support a variety of fish species. Some species migrate through the area as the seasons change and as they enter different periods in their life cycle. Others are found in the area year round. A typical list of fish species found in the area is presented in Figure 4. Fish habitat preferences are noted in Figure 5.

**Figure 4
Typical Fish Species
Saginaw Bay and Sebewaing River**

<u>Salmonoids</u>	<u>Non-Salmonoids</u>
Steelhead Trout	Yellow Perch
Rainbow Trout	Walleye
Brown Trout	Northern Pike
	Bluegill
<u>Forage Species</u>	Pumpkinseed
Carp	Crappie
Redhorse Sucker	Smallmouth Bass
White Sucker	Channel Catfish
Bowfin	Rock Bass

The marsh type wetlands found within the northwest portion and bordering the northern perimeter of the study area provide a valuable habitat for freshwater fish. Several species of freshwater fish feed upon wetland produced food and use wetland areas as nursery grounds. Wetlands produce detritus, which is a form of decayed organic matter. The material consists primarily of dead vegetative materials which are extensively colonized by bacteria and fungi. Detritus serves as the primary base of the food chain in wetlands, and numerous macroinverte-

Figure 5
 Spawning Requirements and Habitat Preferences
 of the
 Primary Sportfish of Saginaw Bay

Species	Timing and Location of Spawning	Feeding and Cover	Year Round (Y) Migratory (M)
<u>Yellow Perch</u>	April-May, after Pike; spawn in shallow water over submerged vegetation and brush	throughout the area, especially channel fringes and marshes and marshes	Y
<u>Walleye</u>	April	channels, marsh fringes, open lake	M
<u>Northern Pike</u>	late May -April;	protected bays, marshes	Y
<u>Bass</u> Smallmouth	mid-May to mid-June deep cattail marshes	marshes (in reeds & cattails, channel edges)	Y
<u>Panfish</u> <u>Bluegill</u> Pumpkinseed	late June, after Bass; cattail marsh "shoreline"	throughout area (especially channel fringe & marshes)	Y
<u>Salmonoids</u> <u>Brown Trout</u> Rainbow Trout	(stocked)	channels; spring and fall migrants; Steelhead and Browns more extended periods	M

brates rely completely on it as their food source. In turn, macroinvertebrates are an important food source to fish, in addition to amphibians, reptiles, birds and mammals.

The Sebewaing area is rapidly becoming well known for its perch and walleye fishing. Saginaw Bay is stocked annually by the Michigan Department of Natural Resources with walleye and salmonoid species such as brown trout, rainbow trout, and steelhead trout. Walleye stocking information for Saginaw Bay is presented in the Appendix.

Waterfowl and Terrestrial Life

Shallow water feeding waterfowl such as mallards, blue-winged teals, pintails and other dabbling ducks are commonly seen in the area. Wood ducks and geese are also known to inhabit the area.

Typical wildlife found within the study areas includes muskrat, mink, weasel, ground hog and skunk. Other urban mammals such as raccoon, squirrel and mice may be found within the study site.

Wildlife users change with the fluctuation of water level. During periods of low water, the red-winged blackbird, short-billed marsh wren, mallard, blue-winged teal, and the muskrat are more common. Dabbling ducks may feed and breed near the remaining open water areas.

During high water levels, wildlife diversity increases. Macroinvertebrates, amphibians, and reptiles may increase in abundance due to the increased availability of their preferred habitat (submergent vegetation in open water areas). They in turn are consumed by birds and some fish species.

PHYSICAL RESOURCES

Access and Circulation

M-25 is the main State highway connecting the Village of Sebawaing to Bay City and other coastal communities in the thumb region. The proposed Sebawaing Park may be accessed from M-25 via Pine Road to Miller Road to Union Street. This proposed route avoids downtown Sebawaing by circling the northern portion of the Village. An alternative route would be to follow M-25 to Center Street to Union Street. This route traverses the business district and passes through an industrialized area along Union Street.

The entrance point to the study area is marked by a land bridge bordered by two finger channels. These channels are not currently connected. A culvert is proposed to eliminate their stagnant water quality condition. Widening of the land bridge is also needed to accommodate future two-way traffic.

In the future, consideration should be given to acquiring land immediately east of the entrance point to create a more park like entrance way. Presently, the land use bordering Union Street between Miller Road and the study site entrance point is low density older residential.

Structures/Land Use

There are three structures located within the study area: a private residence, a county owned residence and a county owned building currently being remodelled for use as a Senior's Meal Center. The county owned residence or possibly the private residence may be used in the future to house an on-site caretaker.

Utilities and Services

The study area currently has limited utilities to service the proposed park. Potable water within the study area is obtained from wells. Electricity and telephone lines currently extend to the southwest portion of the study area to service the private residence, the proposed Senior Center building and the County owned residence. An 8" sanitary sewer line has been installed to service the future Senior Center.

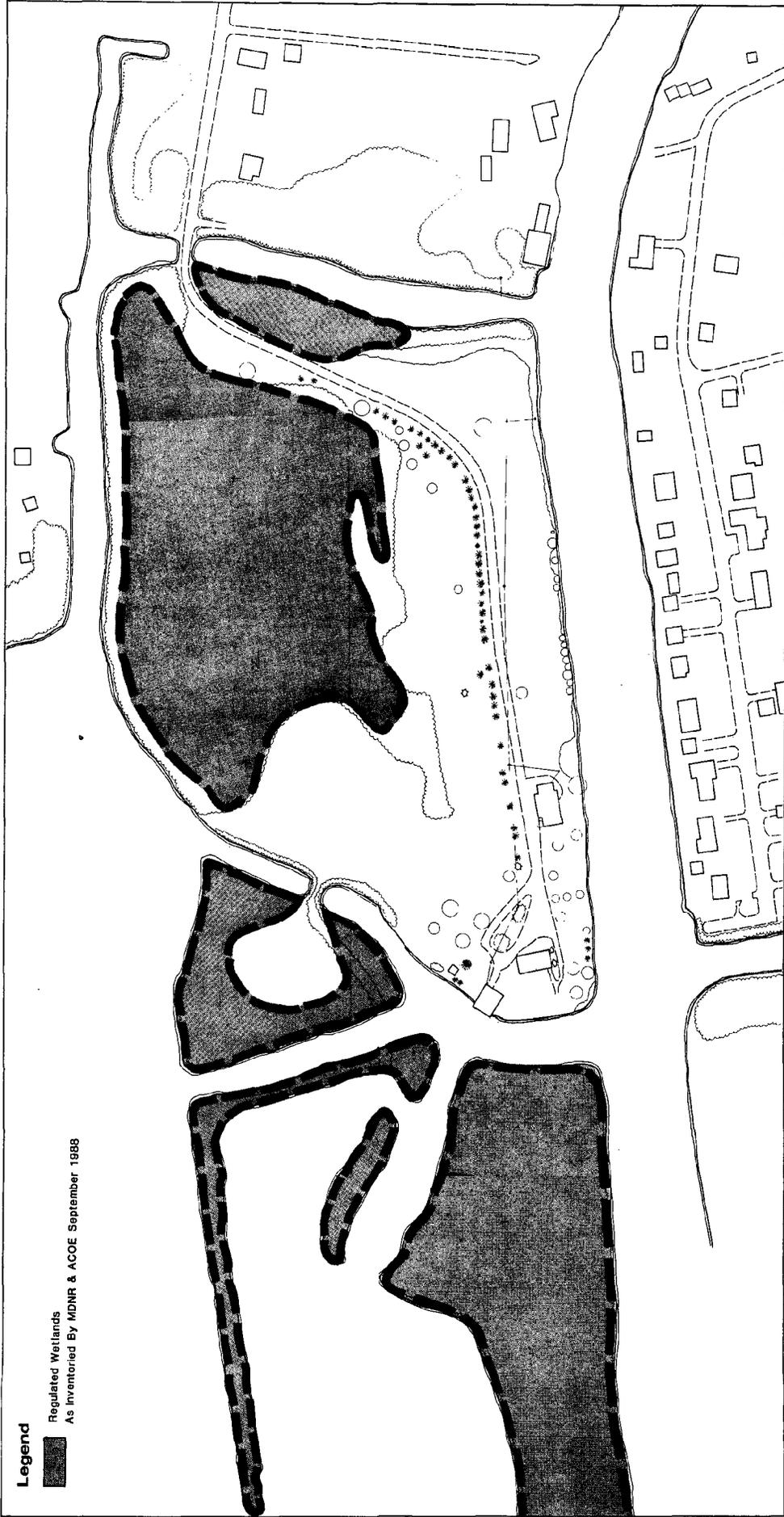
WETLANDS REGULATIONS AND DEVELOPMENT CAPABILITY

A major task during the inventory and analysis phase of the planning process was to determine the boundaries of regulated wetlands within the study area. This information was critical for determining the development capability of the site.

Since the study area borders Saginaw Bay, both the Michigan Department of Natural Resources and the U.S. Army Corps of Engineers (ACOE) are responsible for regulating development activities within designated wetland areas.

Initially, representatives from the MDNR and the A.C.O.E. independently inventoried the regulated wetland boundaries within the study area. Although the boundaries determined by each agency were similar, there was some disagreement. A consensus was needed, however, to allow the planning team to develop workable concept plans for the proposed park.

As a result of several conversations and a second site visit with MDNR and A.C.O.E. representatives, a final determination of the regulated wetland boundaries was reached. A diagram illustrating the location of regulated wetland boundaries is presented in Map 2.



Legend



Regulated Wetlands
As Invented By MDNR & ACOE September 1988

**MAP 2
Regulated Wetlands**

Sebewaing Park

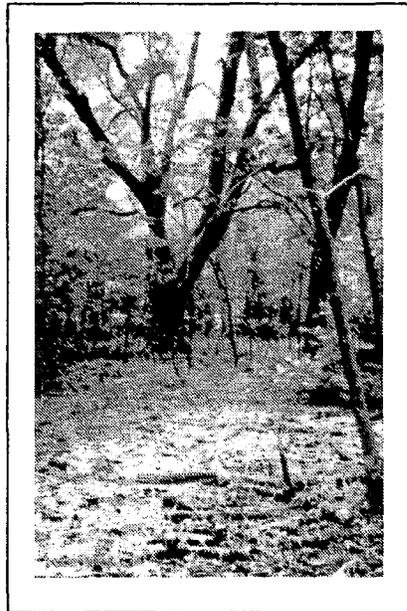
↕ **Ayras, Lewis, Norris and May, Inc.**
engineers planners

Huron County Road Commission



Nearly fifty percent of the proposed park site is considered regulated wetlands under the Wetland Protection Act, P.A. 203, 1979. Most of these wetland areas are characterized by cottonwood, willow, dogwood, and other wooded wetland species.

The wetland designation creates both an obstacle and an opportunity to development. Any dredging or filling activities within the wetland areas or the channels will require approval from the Michigan Department of Natural Resources and the U.S. Army Corps of Engineers.



A goal of the Wetland Protection Act, P.A. 203, 1979 is to only allow activities within wetland areas which are "similar in nature, will cause only minimal adverse environmental effects when performed separately, and will have only minimal cumulative adverse effect on the environment." An activity such as developing interpretative nature trails through a wetland area is an opportunity for park development and is generally considered to have minimal adverse environmental effects on a wetland system.

The use of the wetland areas within the proposed park site for nature study and recreational walking/jogging trails should be viewed as an important park amenity. The preservation of the existing wooded wetland vegetation will also add to the scenic quality of the proposed camping and boat docking facilities.



**Program and
Development Goals**



III. PROGRAM AND DEVELOPMENT GOALS

Program

The purpose of this study, as noted earlier, is to develop site plans for a fisherman's campground facility. Before such site plans can be developed, however, a detailed program of uses for the proposed park must be identified.

The anticipated primary users of the park will be visitors coming into the area for sport fishing on Saginaw Bay and Lake Huron. In addition, local residents may utilize the park facilities if opportunities for day-use activities are provided.

One of the conclusions drawn from the analysis phase is that nearly 50% of the site is regulated wetlands. Within these wetland areas an opportunity exists for developing day-use nature trails which may be used by local residents in addition to visitors. Similarly, tent camping would be a low impact use of environmentally sensitive areas within the proposed park.

Since the primary users of the park are expected to be over-night camping fishermen or possibly duck hunters, a boat launch area will be provided. This boat launch facility will only be available to campsite users. A public boat launch facility is located within the Village of Sebawaing Park southeast of the proposed camping/fishing park.

Another conclusion made from the analysis work is that one of the county owned buildings within the proposed park will be used in the future as a Senior's Meal Center. The parking and circulation needs of users of the proposed Center must be addressed in the concept plans.

Development Goals

Upon completion of the inventory, analysis and program development of the proposed park, several goals were identified to guide the preparation of alternative concept plans. These goals include:

1. provide important opportunities for recreation, sport fishing and tourism;
2. where possible, avoid road, building, campsite and boat slip development in wetland areas;
3. develop sufficient campsites to offset development and future maintenance costs;
4. separate vehicular and pedestrian circulation wherever possible;
5. provide parking in close proximity to the proposed Senior's Center;
6. maintain the private resident's views to the River and Bay as much as possible;
7. provide parking near boat slips for user's convenience;
8. protect scenic views and provide access to scenic vistas;
9. provide a significant degree of privacy to each campsite through sensitive design lay-out; and
10. recognize the importance of wetland areas for wildlife habitat and opportunities for natural resource interpretation.



IV

Alternative

Concept Plans

IV. ALTERNATIVE CONCEPT PLANS

Two alternative concept plans were developed as a result of the inventory and analysis work and, numerous work sessions held with the Huron County Park Superintendent and staff personnel from the MDNR and A.C.O.E. Both of the alternative concept plans reflect the development goals previously presented. Alternative One proposes a camping use intensive park. Alternative Two, however, proposes less development within the proposed park and less intrusion on wetlands. A detailed description of each of the alternative concept plans follows.

ALTERNATIVE ONE - CAMPING USE INTENSIVE

There are a number of advantages to the concept proposed in Alternative One (Map 3). First, a looped road layout for campsite users, for example, will reduce the amount of vehicular and boat trailer traffic passing by the private residence and the proposed Senior's Center.

Second, an extensive nature/exercise trail, associated pedestrian bridges, boardwalks, and fishing/-viewing decks are proposed within the regulated wetland areas. The development of a small area of the wooded wetland as marsh type wetland is also proposed. The marsh type wetland would support a wider variety of animal life compared with the wooded wetland. A boardwalk is proposed for the small marsh area as part of

Figure 6 Interpretative Trail through Wetlands



the trail system. Interpretive signs could be posted along the trail to educate the park users about the Village of Sebewaing and its sensitive natural resources.

Third, a boat launch area is proposed adjacent to the eastern finger channel and near the park entrance. This location will provide convenient access to the boat launch upon arrival and departure from the park. Several parking spaces are provided in close proximity to the boat launch to accommodate temporary parking of vehicles and boat trailers while use of the boat launch.

Similarly, a wastewater disposal facility is proposed near the entrance/exit point for the park user's convenience.

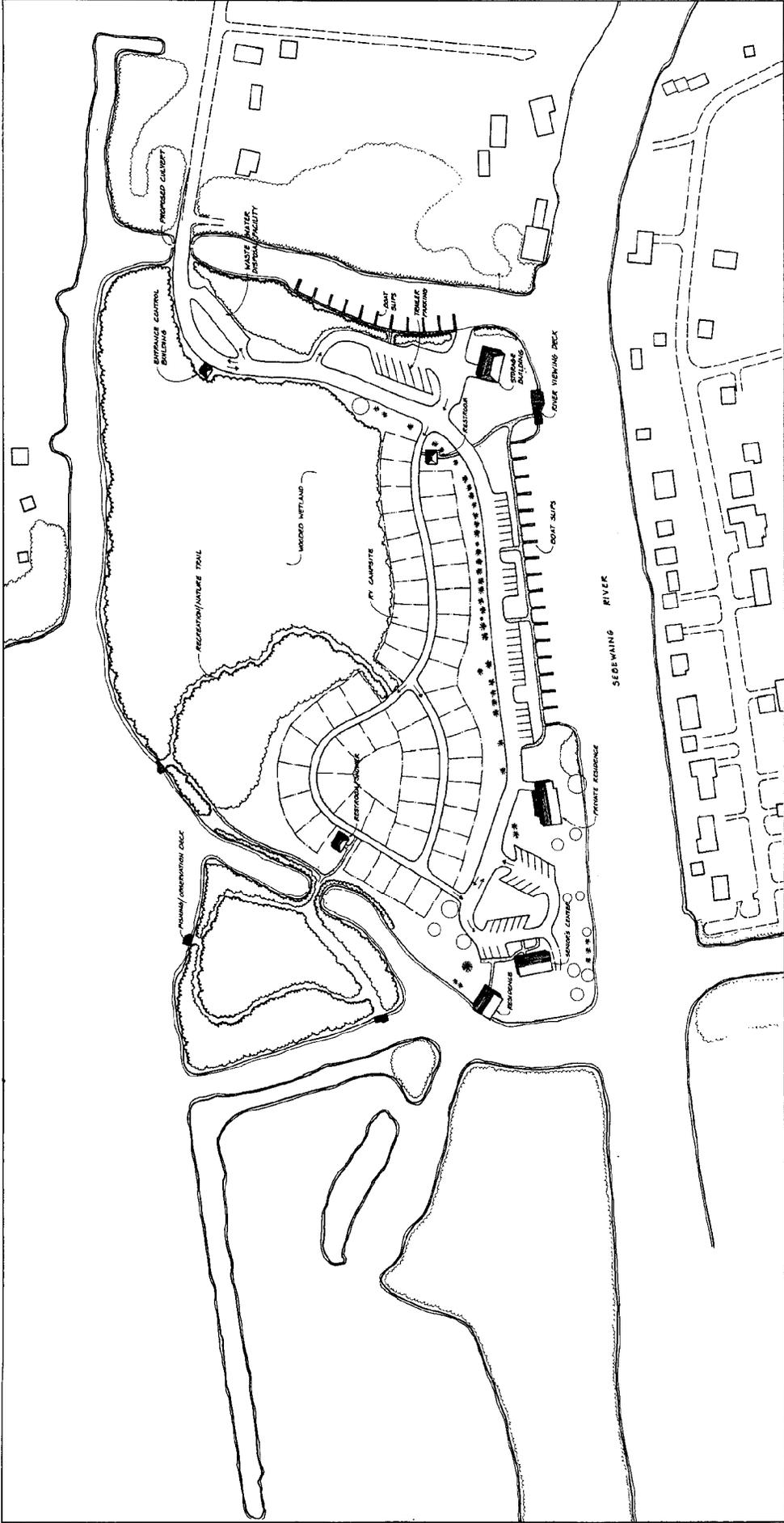
Lastly, tent camping is proposed for the island area within the northwestern portion of the site. Tent camping would provide a rustic alternative to the proposed RV campsites.

A main disadvantage of Alternative One is that it proposes significant encroachment on regulated wetland areas. Several of the proposed RV campsite locations would necessitate filling within the wetland areas. Furthermore, the development of the proposed boat slips along the northwestern finger channel would require extensive dredging in an area that is considered to be valuable fish and wildlife habitat by the U.S. Army Corps of Engineers. The location of the boat slips in Alternative One, however, may be considered advantageous in terms of its impact on boat traffic along the Sebewaing River.

ALTERNATIVE TWO - MINIMIZED WETLAND INTRUSION

The main advantage of Alternative Two (Map 4) is that it almost completely avoids proposing development in regulated wetland areas. Campsite and boat slip development is proposed within upland areas only.

There are at least two disadvantages, however, to Alternative Two. First, the road layout for the campground utilizes the main two-way road leading to the Senior's Center. This would result in all campsite traffic passing by the private



MAP 4
Alternative Two
Sebewaing Park

↕ **Ayres, Lewis, Norris and May, Inc.**
 engineers
 planners

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residence on its departure from the campground. The impact to the private residence from increased noise, dust and views of passing campers and boat trailers was considered a negative aspect of this concept.

A second disadvantage of this concept is the cost involved with developing and maintaining boat slips along the Sebewaing River. Winter and early spring ice flows may cause damage to the boat slip piers. Seasonally removable boat slip piers, however, are proposed.

A summary of the amenities proposed in each of the two alternatives follows:

Alternative One - Camping Use Intensive

- 60 Recreation Vehicle Camp Sites
- 8 Tent Camp Sites
- 3 Recreation/Pedestrian Bridges (accommodating service vehicles)
- 52 Boat Slips
- 16 Boat Tie-Up Spaces
- 68 Car Parking Spaces
- 7 Car and Trailer Parking Spaces

Extensive trails through wetlands and islands
Better separation of recreation vehicles from private residence

Alternative Two - Minimized Wetland Intrusion

- 50 Camp (RV) Sites
- 49 Car Parking Spaces
- 7 Car and Trailer Parking Spaces
- 54 Boat Slips

Use of existing land bridge to connect islands
Limited trails through wetlands
No tent camping

V

**Public Input and
Alternative Evaluation**

V.
PUBLIC INPUT AND ALTERNATIVE EVALUATION

On November 9, 1988 a public hearing was held at the Village Hall in the Village of Sebewaing, Michigan. The purpose of the public hearing was to present the alternative concept plans to the public to generate useful questions and comments.

The public hearing was extremely successful in generating public interest in the proposed park and in producing important feedback concerning the two plans. A comment received several times during the public hearing was the approval of the proposed interpretive nature trails and fishing/viewing decks; which would be accessible by local residents in addition to camp site users.

In contrast, an issue which received mixed response was the proposed locations for boat slip development. In Alternative Two, boat slips are proposed along the Sebewaing River. Several local residents felt that the boat slips along the River would create congestion problems and be visually unappealing from their residences across the River. Others felt that by locating the boat slips along the River, the wetland habitat within the northwest finger channel could be better preserved.

After the public hearing an evaluation was made concerning how well each of the alternative concept plans responds to the development goals. Figure 7 illustrates the differences between the two alternatives.

Figure 7
Response to Development Goals

Degree to which an alternative achieves a particular development goal.

- High
- ⊖ Medium
- Low

<u>Development Goals</u>	<u>Alternative One Camping Use Intensive</u>	<u>Alternative Two Minimized Wetland Intrusion</u>
1) provide important opportunities for recreation, sport fishing and tourism;	●	⊖
2) avoid road, building, campsite and boat slip development in wetland areas;	⊖	●
3) develop sufficient campsites to offset development and future maintenance costs;	●	⊖
4) Separate vehicular and pedestrian circulation;	●	●
5) provide parking in close proximity to the proposed Senior's Center;	●	●
6) maintain the private resident's views to the River and Bay;	●	⊖
7) provide parking near boat slips;	●	●
8) protect scenic views and provide access to scenic vistas; and	●	●
9) provide a significant degree of privacy to each campsite through sensitive design lay-out.	⊖	●

VI

Sebewaing

Park Master Plan

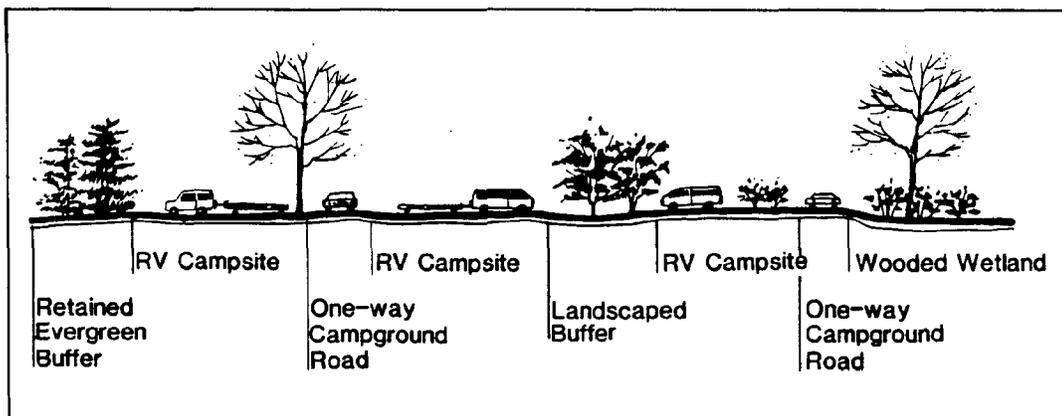
VI.
SEBEWAING PARK MASTER PLAN

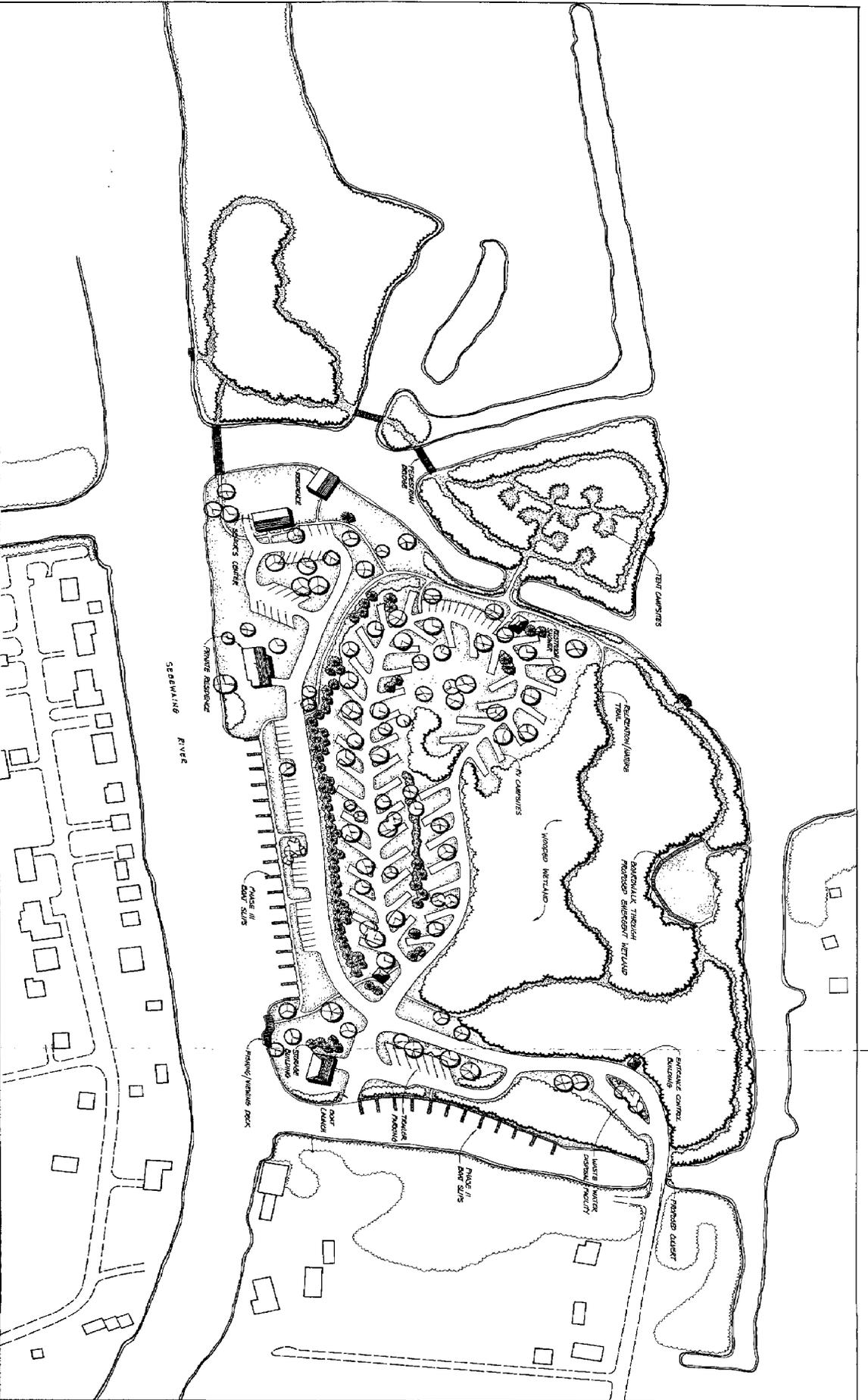
OVERVIEW

In response to the comments received during the first public hearing and the evaluation of the two alternative concept plans, a third alternative was developed. Following a second public hearing held on December 1, 1988 within the Village of Sebewaing, the third, preferred alternative was amended and accepted as the Sebewaing Park Master Plan (Map 5).

The Park Master Plan reflects many of the positive features displayed in the first two alternative concepts. The row of spruce trees bordering the main two-way road within the study area, for example, will be retained to provide a visual buffer between the private residence and the proposed campsites. In addition, a looped one-way road layout is proposed for the campground area. Campsite development in wetland areas, however, is minimized in this plan.

Figure 8 Relationship of Campground to other Site Features





**MAP 5
Park Master Plan**

Sebewaing Park

Huron County Road Commission

↔ **Ayres, Lewis, Norris and May, Inc.**
engineers planners



Similar to Alternative One, the Park Master Plan proposes tent camping on the island-like area located in the northwestern portion of the site. In addition, extensive trails, decks, boardwalks, and bridges are proposed throughout the wetlands. Boat slips are not proposed within the western finger channel in order to minimize disturbance of wetland associated fish, waterfowl and wildlife.

A description of the Park Master Plan follows:

Park Master Plan - Preferred Alternative

- 50 Recreation Vehicle Camp Sites
- 8 Tent Camp Sites
- 2 Recreation/Pedestrian Bridges
- 56 Boat Slips
- 4 Fishing/Viewing Decks
- 60 Car Parking Spaces
- 7 Car and Trailer Parking Spaces

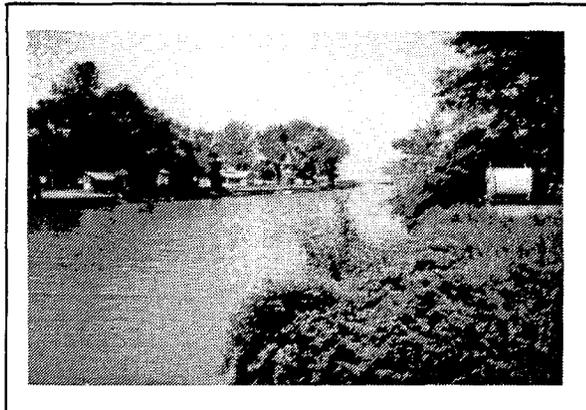
Use of existing land bridge to connect islands
Extensive trails through wetlands and islands

ENGINEERING DETAILS

Boat Slip Development

Because the park primary users are anticipated to be sport fishermen, the docks and facilities are designed for power boats ranging in length from 16 to 20 feet. The decision to target this size boat is important because of the impacts on the design and costs. These impacts primarily effect dredging quantities, because of the different draft requirements for various boat types and the surface area required for different boat sizes.

The location of the proposed park at the mouth of the Sebewaing River provides easy access to the main channel of the river. This channel is maintained by the U.S. Army Corps of Engineers at six feet below low water datum (LWD) for Lake Michigan - Huron. Data obtained from soundings taken in June, 1988 are presented in the appendix.



The design boat population, of 16 to 20 foot power boats, has a maximum draft of approximately three feet. Dredging of an interior channel for the boat slip development would require the draft of the vessel plus wave height and a safety clearance. In this sheltered location a one foot wave on the interior channel will be assumed and a one foot safety clearance will be used. Therefore, the interior channel bottom elevation will be set at five feet below low water datum.

The dredge material can be disposed of at the U.S. Army Corps of Engineers facility which is located nearby. The cost of dredging, excavation and disposal are presented in the Implementation section of this report.

Shore Protection

The types of shore protection available for use in the Sebewaing River and interior channels are quite varied. After reviewing several alternatives, the use of rock revetments along the interior channels and associated docking areas appears most favorable. This alternative requires more land than steel sheet piling, but it will also act as a wave absorber to reduce reflected waves within the docking area. The proposed cross section and sizes are shown in the appendix.

For the shoreline along the main river channel, there are also several options available to provide shore protection. However, because of the potential forces from ice flows on the river, either steel sheet piling or a rock revetment would be the most cost effective. Steel sheet piling is proposed for the boat slip area along the River because less cutting into the bank would be needed compared with the use of rock revetment.

Access Road and Parking

The access to the proposed park is over an existing earthen embankment at the north east corner of the site. This embankment would have to be widened from its present width of approximately 12' to 24' to accommodate two way vehicular traffic. In addition, a culvert should be installed to improve the water circulation and aeration in the channels bordering both sides of the embankment. There would be approximately 3,000 linear feet of road within the park and 10,000 square feet of parking. All roads and parking areas should eventually be paved to reduce dust and noise produced by vehicles entering and leaving the park.

VII

==== **Implementation Strategy** ==

VII.
IMPLEMENTATION STRATEGY

PROPOSED DEVELOPMENT COSTS

A comparison is made of the proposed development costs for the Park Master Plan and the two alternative concepts. These estimated costs are presented in Figure 9.

Figure 9
Sebewaing Park
Preliminary Cost Estimates

	Park Master Plan	Concept No. 1	Concept No. 2
Number of RV campsites	50	60	50
Average Square Footage of Each Lot	1800 sq ft	1800 sq ft	1800 sq ft
RV Campsite Amenities Cost:			
Parking Pad (gravel) 40'x15', \$250			
Picnic Table (wood), \$250			
Fire Pit or Grate, \$150			
Electric Hookup, \$150			
Water Hookup (3/4"), \$400			
Landscaping (seeding, trees, etc.), \$500			
Total Site Cost, \$1700	\$85,000	\$102,000	\$85,000
Length of Road (20' wide x 6" thick)	3000 lft	3000 lft	2500 lft
Tons of Gravel	2000 ton	2000 ton	1700 ton
@ \$15/ton	\$30,000	\$30,000	\$25,000
Parking Spaces			
Tons of Gravel	400 ton	450 ton	350 ton
@ \$15/ton	\$6,000	\$6,750	\$5,250
Length of Sanitary Sewer	300 ft	300 ft	300 ft
6" PVC @ \$18/ft	\$5,400	\$5,400	\$5,400
4' Manholes	1 ea	1 ea	1 ea
@ \$1500/each	\$1,500	\$1,500	\$1,500
Length of Water Service	2500 ft	2500 ft	2500 ft
3" Iron @ \$15/ft	\$37,500	\$37,500	\$37,500
Length of Electric Service	2500 ft	2500 ft	3000 ft
@ \$8/ft	\$20,000	\$20,000	\$24,000
1 Restroom	\$50,000	\$50,000	\$50,000
1 Restroom/Bathouse	\$100,000	\$100,000	\$100,000
Gate House	\$15,000	\$15,000	\$15,000
1 Storage Building	\$50,000	\$50,000	\$50,000

	Park Master Plan	Concept No. 1	Concept No. 2
Screening Landscaping	\$15,000	\$15,000	\$15,000
Dredging @ \$8/cyd	6500 cyd	10,600 cyd	6500 cyd
\$20/cyd Disposal	\$182,000	\$296,800	\$182,000
Excavation @ \$5/cyd	6000 cyd	6000 cyd	6000 cyd
	\$30,000	\$30,000	\$30,000
Steel Sheet Piling @ \$15/sq ft	\$525,000	\$577,500	\$525,000
Rock Revetment	\$25,500	\$64,500	\$25,500
Docks	\$94,500	\$91,000	\$94,500
Nature Trails/Tent Camping/Boardwalk	\$6,000	\$6,000	\$2,000
Bridges and Fishing Decks	\$55,000	\$60,000	\$20,000
Subtotal	\$1,333,400	\$1,558,950	\$1,292,650
Engineering (10%)	\$133,400	\$155,900	\$129,300
Contingencies (10%)	<u>\$133,400</u>	<u>\$155,900</u>	<u>\$129,300</u>
TOTAL	\$1,600,200	\$1,870,750	\$1,551,250

PHASING

The development of the proposed Sebewaing Park may be divided into three phases. In Phase I, development of roads, utilities, day-use car parking, a bathhouse, RV campsites, gatehouse, trails, fishing decks, the storage building and landscaping activities would occur. Phase II developments will include the boat launch, trailer parking, the 22 boat slips bordering the east interior channel, tent camp sites, a restroom and landscaping activities. In Phase III the boat slips bordering the Sebewaing River would be constructed. A description of the three development phases follows:

Phase I - Short Term Developments

- Road Development
- Culverts
- Sanitary Sewer
- Bathhouse
- Storage Building
- Electric Service
- Campsites
- Gatehouse
- Trails/Fishing Decks/Bridges
- Landscaping
- Engineering (10%)
- Contingencies (10%)

Cost Estimate: \$425,200

Phase II - Medium Term Developments

- Boat Launch
- Trailer Parking/Road

- 22 Boat Slips
 - dredging
 - rock revetment

Tent Campsites

Restroom

Landscaping

Engineering (10%)

Contingencies (10%)

Cost Estimate: \$300,000

Phase III - Long Term Development

- 34 Boat Slips
 - dredging
 - sheet piling

Landscaping

Engineering (10%)

Contingencies (10%)

Cost Estimate: \$875,000

FUNDING SOURCES AND MECHANISMS

The costs of implementation will necessitate reliance upon a variety of Federal, State and possibly private grant resources. In addition, local funds will be needed for a significant portion of the project costs.

The Huron County Road Commission Parks Division will be the agency responsible for preparing grant proposals and overseeing the construction of the park. The grant programs listed on the following page will be important resources for the future development of the Sebewaing Park Master Plan.

Figure 10
Sebewaing Park
Potential Funding Sources

Program	Agency	Type of Assistance	Applicable Projects
Land & Water Conservation Fund	National Park Service, MDNR	project grants	Recreation facilities, landscaping, camp-grounds, fishing decks
Local Waterways Assistance	MDNR Waterways Division	project grants	Boat slips, parking and restrooms
Coastal Zone Management Program	NOAA/MDNR	project grants	Planning (possible low-cost construction)
Natural Resources Trust Fund	MDNR	project grants	Recreation development and/or acquisition
Coastal Assistance Projects	U.S. Army Corps of Engineers	project grants/ technical assistance	Miscellaneous waterfront improvements

Funds for the routine maintenance of the park are expected to be obtained from campsite and boatslip fees. The Parks Division will determine the amount of revenue needed to adequately maintain the park facilities and grounds.

Volunteer efforts should not be overlooked. Concerned citizens can do a number of worthwhile, low cost improvements within the park, such as:

- interpretative signs
- general landscaping
- clean-up programs

SUMMARY

The Sebewaing Park Master Plan emphasizes the importance and sensitivity of Huron County's coastal resources. The Plan attempts to recommend an appropriate use and site design for the study area. It should be noted, however, that this study does not represent the final planning effort for the proposed Sebewaing Park. County and Village officials in addition to local residents must continue to evaluate the details of proposals for development, such as the engineering and construction plans, and make sound judgements regarding the future management of the park.

VIII

Appendix

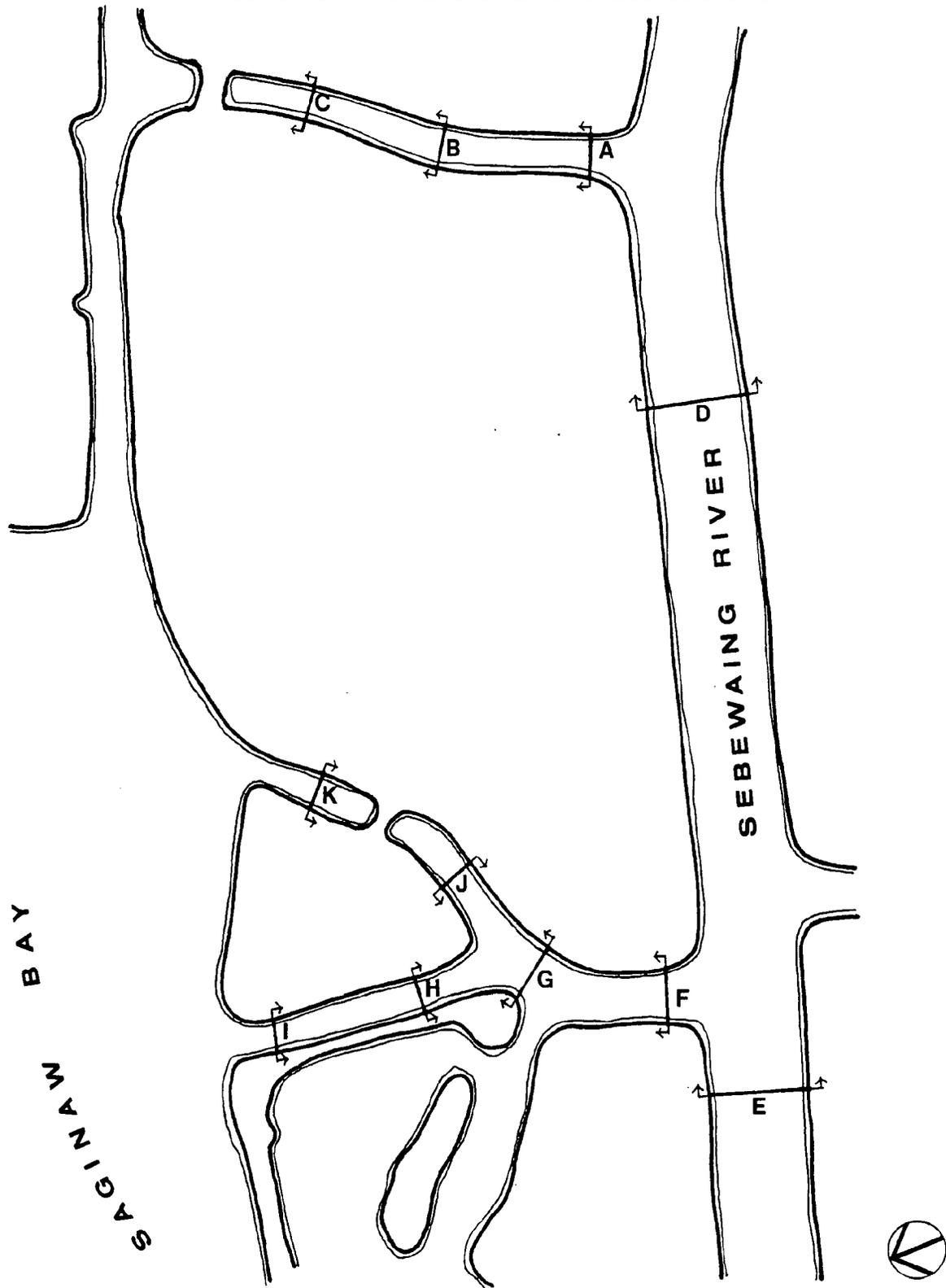
MDNR Saginaw Bay Walleye Plants

	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
<u>Arenac County</u>									
AuGres R. mouth	-----	59,400	-----	81,450	138,540	254,000	152,620	193,152	77,000
Rifle R. mouth	-----	17,490	3,660	31,106	25,000	36,590	20,000	-----	-----
<u>Bay County</u>									
Pinconning R. mouth	20,000	53,295	2,779	-----	-----	56,930	72,595	159,762	85,650
Nayanquing Pt.	-----	2,227	-----	-----	-----	-----	-----	-----	-----
Linwood Rd.	-----	166,815	3,550	107,500	-----	292,150	242,869	265,351	348,753
Kawkawlin R. mouth	5,000	35,200	-----	2,000	-----	150,000	29,605	-----	64,994
<u>Tuscola County</u>									
Quanicasse R. mouth	-----	-----	-----	72,000	-----	25,720	17,412	128,045	30,025
Thomas Cut PAS	-----	-----	-----	-----	30,100	27,895	39,084	-----	32,795
Fish Pt.-Wiscoggin Drain	-----	-----	-----	600	3,700	2,450	3,200	1,267	5,270
<u>Huron County</u>									
Sebewaing VFW	-----	-----	-----	-----	8,900	23,406	7,411	6,521	-----
Sumac Island PAS (Geiger Rd.)	-----	-----	-----	-----	63,300	-----	-----	-----	30,301
<u>Iosco County</u>									
Tawas Bay	-----	-----	-----	-----	-----	-----	363,000	200,120	196,475
TOTALS:	25,000	334,427	9,989	294,656	269,540	869,390	947,796	954,218	871,263

===== 9 Year Total (1978-1986) = 4,576,279 =====

Source: Michigan Department of Natural Resources.

Location of River and Channel Cross Sections



River and Channel Cross Sections

0 sta. is on west side of old river

A.	0'	7'	25'	30'	39'	41'	47'	49'	55'
	589.5	581.3	579.4	578.0	577.9	578.2	579.0	580.0	582.2

B.	0'	8'	15'	25'	40'	59'	68'	71'	80'
	581.9	579.3	575.5	574.3	573.4	574.0	575.5	577.3	578.1

0 sta. is on east side of old river

C.	0'	2'	15'	35'	59'	65'	72'	80'
	581.5	580.0	578.2	577.5	577.7	578.5	579.7	583.5

0 sta. is north side of main River

Sta. 156 is seawall

D.	0'	1'	11'	40'	80'	131'	139'	149'	156'
	583.5	576.9	575.7	573.4	572.3	575.5	578.2	580.9	586.5

0 sta. south seawall

E.	0'	2'			84'	120'	135'	
	583.0	576.3			574.7	575.5	576.7	588.0

0 sta. west side of cut

F.	0'	10'	25'	59'	69'	94'		seawall
	588.0	583.1	578.6	577.2	576.7	575.6		581.11

G.	0'	11'	18'	30'	64'	90'	
	581.5	579.0	577.8	576.8	575.8	574.7	

sta. 0 east side of cut

H.	0'	10'	18'	25'	40'	49'	70'
	582.8	578.4	577.4	575.2	574.8	575.8	578.5

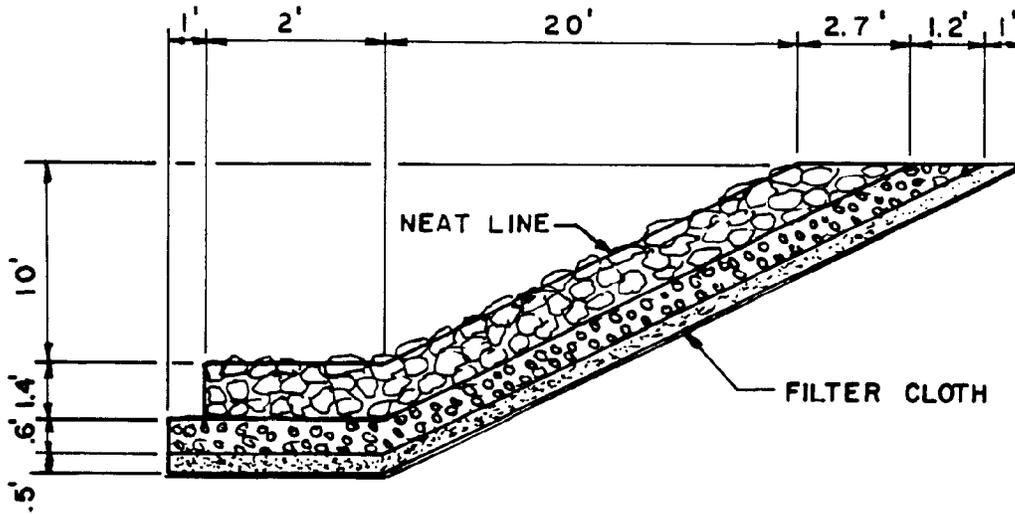
I.	0'	11'	20'	30'	40'	49'	60'
	579.8	578.2	575.8	574.7	575.8	578.2	580.1

J.	0'	7'	17'	31'	45'	57'	67'	70'
	582.6	579.9	578.9	578.2	578.5	579.0	580.6	583.26

K.	0'	11'	25'	28'	45'	60'	68'	70'
	580.9	578.9	577.9	577.7	578.0	578.9	579.5	581.3

Flow line elevation on sewer is 573.95 USGS
 sewer line is 10" dia at park entrance
 Elevations IGLD

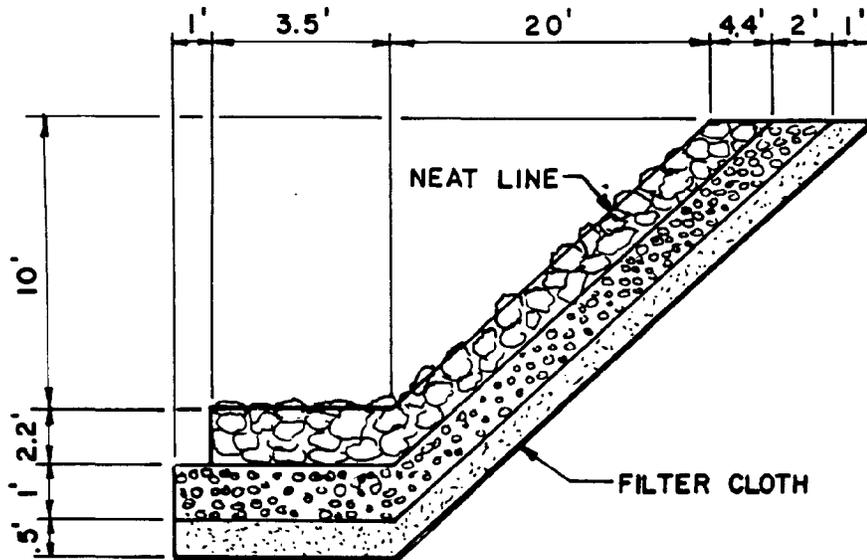
INTERIOR CHANNEL



LEGEND

	ARMOR STONE	40 - 90 LBS
	UNDERLAYER STONE	4 - 10 LBS
	BEDDING STONE	0.5 - 2 LBS

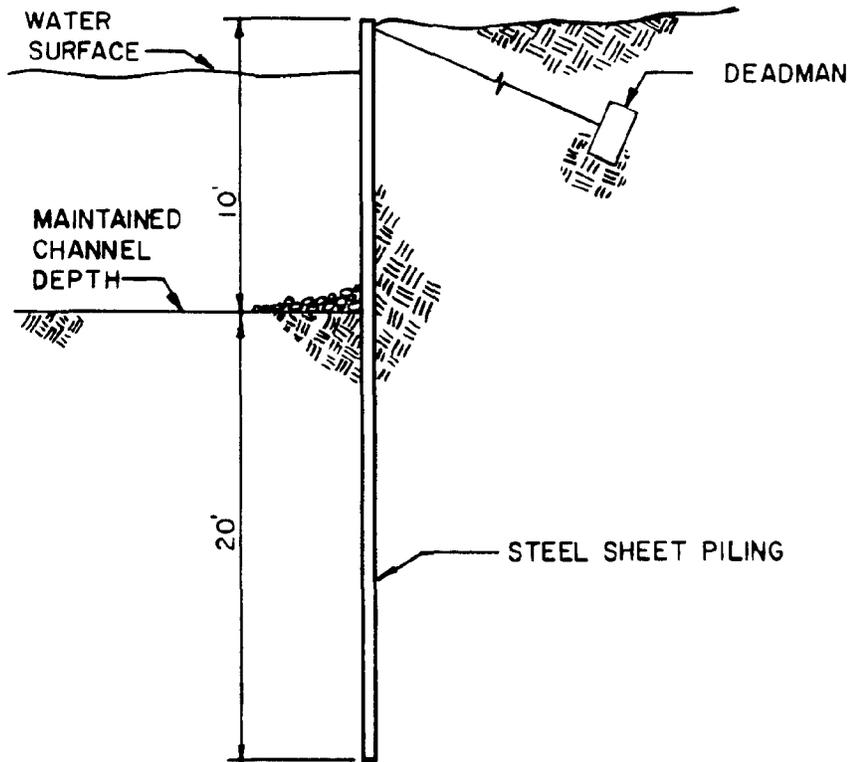
SHORE LINE



LEGEND

	ARMOR STONE	165 - 385 LBS
	UNDERLAYER STONE	15 - 40 LBS
	BEDDING STONE	0.5 - 2 LBS

SHORE LINE



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