# MILL CREEK ACCESSIBLE TRAIL

## GRANT NO. 95 CE - 9.01

COASTAL MANAGEMENT PROGRAMS
LAND AND WATER MANAGEMENT DIVISION
DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE OF MICHIGAN

SUBMITTED BY
MACKINAC ISLAND STATE PARK COMMISSION
MACKINAC ISLAND, MICHIGAN

FEBRUARY 15, 1996

| | |
|---|---|
| TOTAL PROJECT | $74,059.07 |
| COASTAL MANAGEMENT PROGRAM (Provided by the Coastal Land Management Act of 1972 administered by the Office of Coastal Zone Management, National Oceanic and Atmospheric Administration.) | $25,000.00 |
| MACKINAC ISLAND STATE PARK COMMISSION | $49,059.07 |

February 15, 1996

Mill Creek Accessible Trail
Grant No. 95 EC - 9.01

Final Report
by
David A. Armour, Deputy Director
Mackinac Island State Park Commission
Project Supervisor

Mill Creek State Historic Park, a registered National Historic Site, is a major historic and recreational resource in Michigan. It is located three miles east of Mackinaw City on the west side of U.S. 23. It is the site of an early industrial complex of saw and grist mills and agricultural activities which supported 18th and early century development in the Mackinac Straits area.

A 25 foot bluff divides the site into lower and upper levels of interpretive programming. The three miles of nature trails, including the interesting beaver dam and forest management interpretive area, parallel each side of the creek on the upper level bluff were not accessible to people using wheelchairs. The buildings and trails at the foot of the bluff are accessible.

It was the intent of this project to provide handicap accessibility to the upper nature trails. To accomplish this, an access route up the bluff on the east side of Mill Creek was needed. It was hoped to improve an old logging trail cut to lengthen the hill so that the grade of 1 to 20 could be achieved.

The first task was to select a professional designer to assess the site and develop an access plan. Requests for proposals were sent out to a dozen Michigan landscape design firms and six proposals were received. Based on their extensive experience and also the affordable price, the firm of Design 3 of East Lansing, Michigan was selected as the designer.

After survey of the site, it was apparent that the route which had been initially proposed would not be feasible. Due to the slope of the land on the upper level, it proved impossible to achieve the needed 1 in 20 rise. Consequently a new route paralleling the face of the bluff was chosen. A switchback was added to the plan to lengthen the ramp in order to achieve the desired grade. There was, however, a benefit to the new plan in that it eliminated most of the planned trail on the upper level from the ramp head to the existing overlook location. The new location also provided a number of raised platforms which presented

interesting vistas of the historic mill and demonstration area.

Pressure treated wood was chosen as the material with which to construct a hard surface ramp. The ramp was designed to provide resting areas at the end of every 30 feet of slope. Railings were required along both sides of the five foot wide ramp. Two inch square balusters spaced four inches apart provided protection to keep small children from falling through the railing.

At the three major overlooks on the ramp, benches were constructed and spaces for future interpretive signs were designated. The finished ramp, including the overlooks, was 337 feet long. In addition, 60 feet of wooden boardwalk led from the upper part of the ramp across moist areas. Similarly, 100 feet of boardwalk was necessary at the lower end of the ramp to bridge areas where seasonal runoff water crossed the trail.

Water running from the top of the bluff where it was trapped by heavy clays proved a major design concern. During the Spring many small streams which run down the bluff and across the lower level cross the route of the ramp and the approach trail. The ramp had to bridge over these stream gullies and bridges and culverts had to be constructed on the trail to permit the water to pass. Moreover the access road to the east side of Historic Mill Creek Park had to be improved with road gravel and culverts to permit construction materials to be transported to the work site.

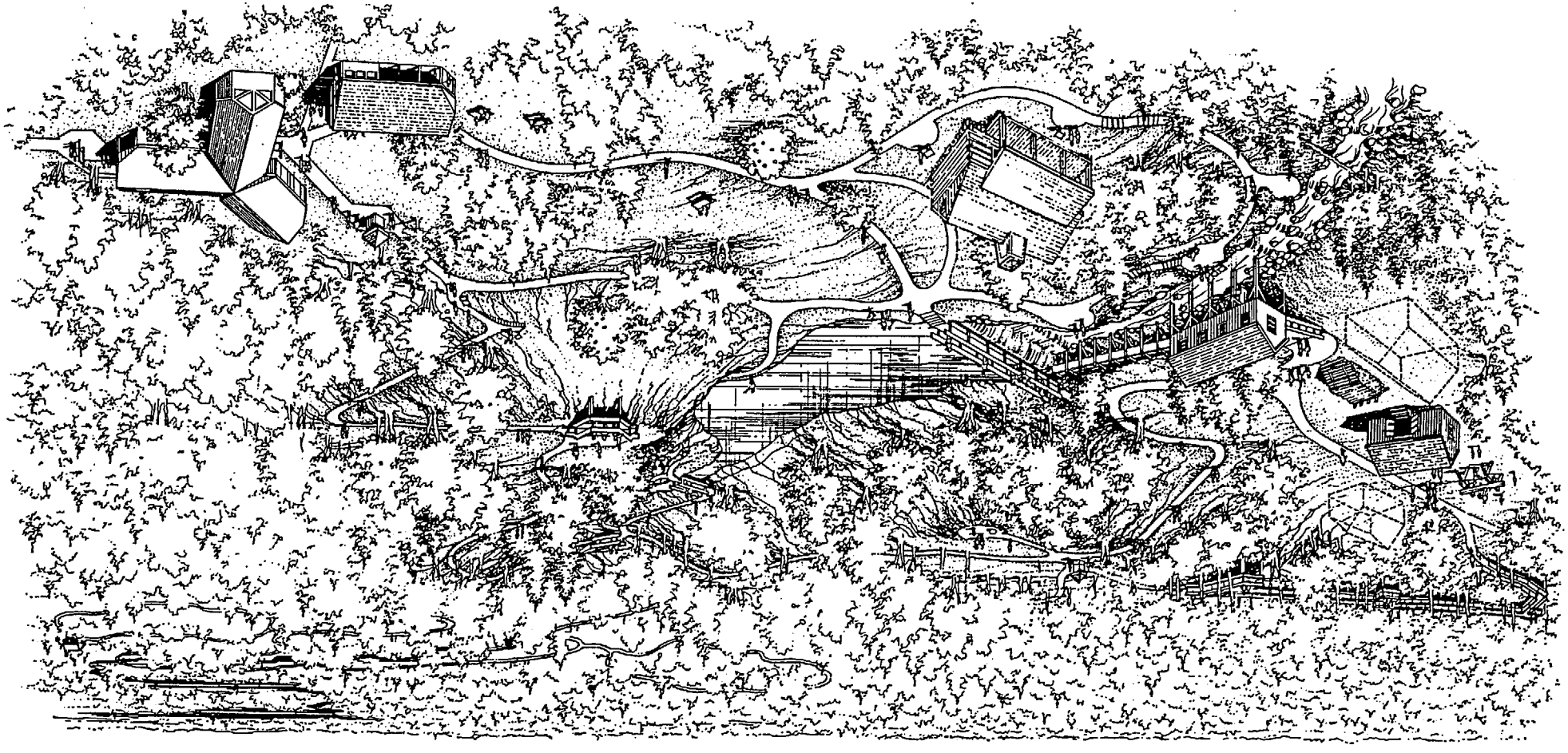
Because Historic Mill Creek is a very significant archaeological site whose resources are not completely known, it was necessary to have our staff archaeologist, Dr. Lynn Morand, monitor each area of soil disturbances. Dirt from postholes was examined and sifted. The project was completed with minimal archaeological impact. Few cultural remains were recovered, and most of those were associated with a twentieth century dump. At the extreme northwestern edge of the affected area, some colonial and nineteenth century artifacts, including a broken hammer from a c.1800 British musket were recovered.

Due to the onset of winter weather and the expenditure of the grant funds, the trail improvements were not all completed. Trail surfacing material was stockpiled and trail signs designed. During the winter twelve benches will be fabricated for installation in the Spring. At that time an additional 200-300 feet of boardwalk will be laid on the upper trail to bridge wet areas. Trail signs will also be set in place.

When Historic Mill Creek opens in May, persons with disabilities will have access the nature trail system for the first time.

Financial Summary:

| | |
|---|---|
| Salaries | $48,910.52 |
| Supplies, Materials and Contracts | 25,148.55 |
| TOTAL | $74,059.07 |

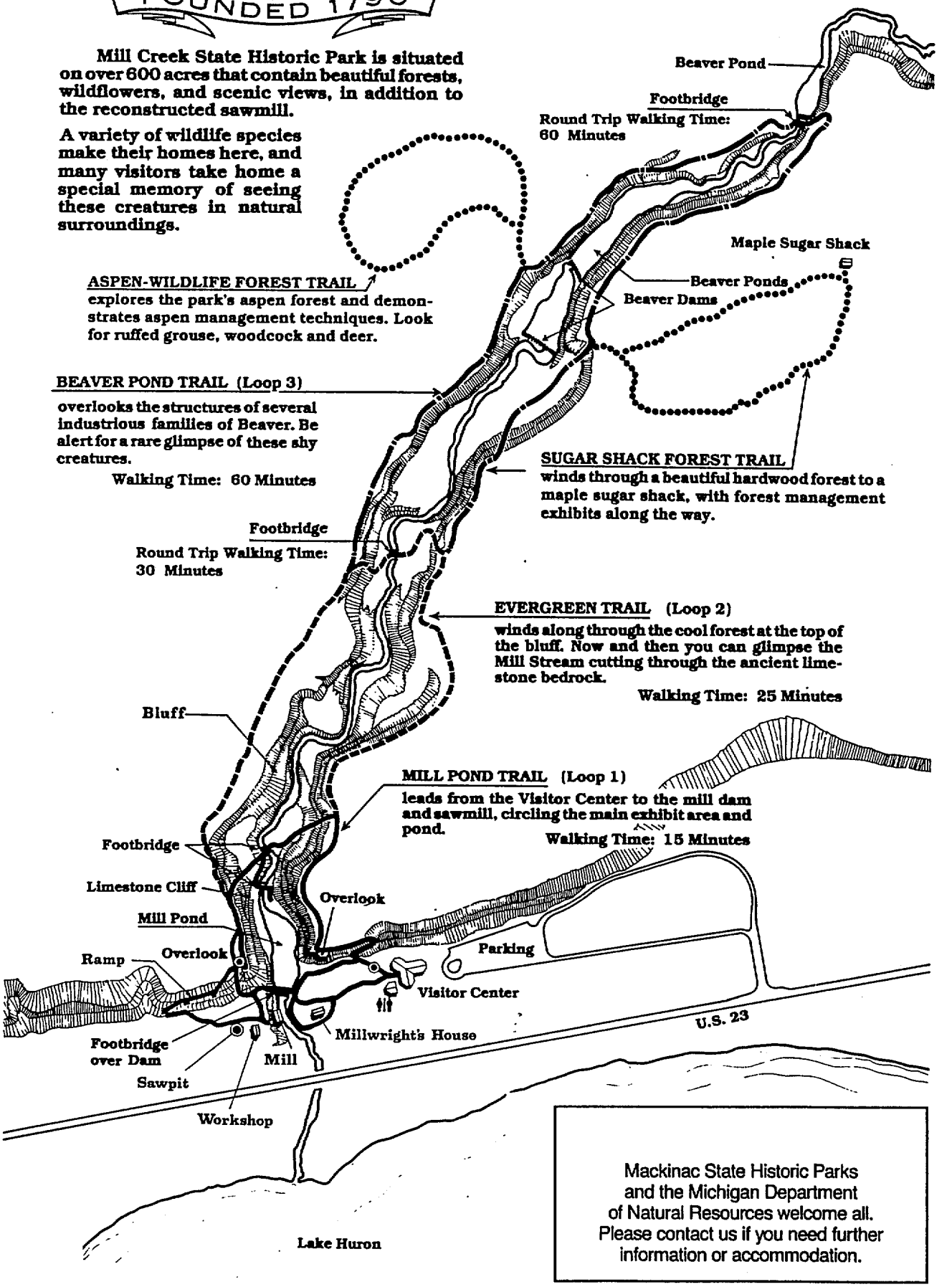


# MILL CREEK

FOUNDED 1790

**Mill Creek State Historic Park is situated on over 600 acres that contain beautiful forests, wildflowers, and scenic views, in addition to the reconstructed sawmill.**

**A variety of wildlife species make their homes here, and many visitors take home a special memory of seeing these creatures in natural surroundings.**




Mackinac State Historic Parks and the Michigan Department of Natural Resources welcome all. Please contact us if you need further information or accommodation.

# Mill Creek State Historic Park

CHEBOYGAN COUNTY . MICHIGAN

## Barrier-free Ramp

SITE / LOCATION PLAN

Date: 12/12/94
Revised: 1/31/95

Sheet: S

NOTES:

1. THIS PLAN DEPICTS APPROXIMATE LOCATION OF ELEMENTS ONLY— ACTUAL LOCATION & ALIGNMENT FIELD STAKED BY DESIGN 3.
2. FOR CONSTRUCTION, USE FIELD STAKED ALIGNMENT AND DECK ELEVATIONS, IN CONJUNCTION WITH DETAIL PLANS FOR RAMP, DECKS, PATHS, ETC.

PATH & DRAINAGE CROSSINGS
5' MIN. WIDTH
SELECT APPROPRIATE DETAIL WHERE PATH CROSSES DRAINAGE FLOW.

TYPICAL BOARDWALK UNIT
AS REQUIRED BY TRAIL CONDITIONS TO CROSS DRAINAGE SWALES
MAX. SLOPE 1 IN 12.
MAX. SPANS 12'

NEW PATH
5' WIDE W/ MAX. SLOPE

EXISTING KIOSK
646.3 TOP OF CONCRETE BASE

REGRADE EXISTING PATHS
AS REQUIRED TO PROVIDE UNIFORM SURFACES WITH MAX. SLOPE 1 IN 20.

PATH (70'±) w/ EDGING
COMPACTED AGGREGATE
MAX. SLOPE = 1 IN 20

RAMP STRUCTURE
5'-6" WIDE / 380' LENGTH
MAX. SLOPE 1 IN 12 FOR 30' RUNS

CUT EXISTING GRADE, AS REQUIRED TO INSTALL RAMP STRUCTURE AND PROVIDE DRAINAGE BERM

SWALE

6'@ SLOPE

PATH FLUSH W/ RAMP

OVERLOOK PLATFORM
10'x10'

30' MAXIMUM RAMP SECTION BETWEEN LANDINGS

DRAINAGE SWALES

DISPLAY PANELS

BENCHES (5')

FILL SWALE

RAILINGS

OVERLOOK PLATFORM 'C'
12'x10'

OVERLOOK PLATFORM 'A'

RECEPTACLE

BOLLARD

5' LANDINGS MINIMUM LENGTH

PATH FLUSH W/ RAMP SURFACE

PATH (100'±)
COMPACTED AGGREGATE
5' MIN. WIDTH W/ EDGING
MAX. SLOPE = 1 IN 20 LINEAR
MAX. SIDE SLOPE OF FILL = 1:3

CONSTRUCT NEW 12'D SWALE TO DIVERT DRAINAGE TO BELOW RAMP STRUCTURE

TRAILHEAD SIGN

EXISTING APPLE TREE

REGRADE & RESURFACE EXISTING TRAIL, AS REQUIRED, TO PROVIDE UNIFORM SURFACE

EXISTING OVERLOOK

EXISTING PATH

EXISTING BRIDGE

TO VISITOR CENTER

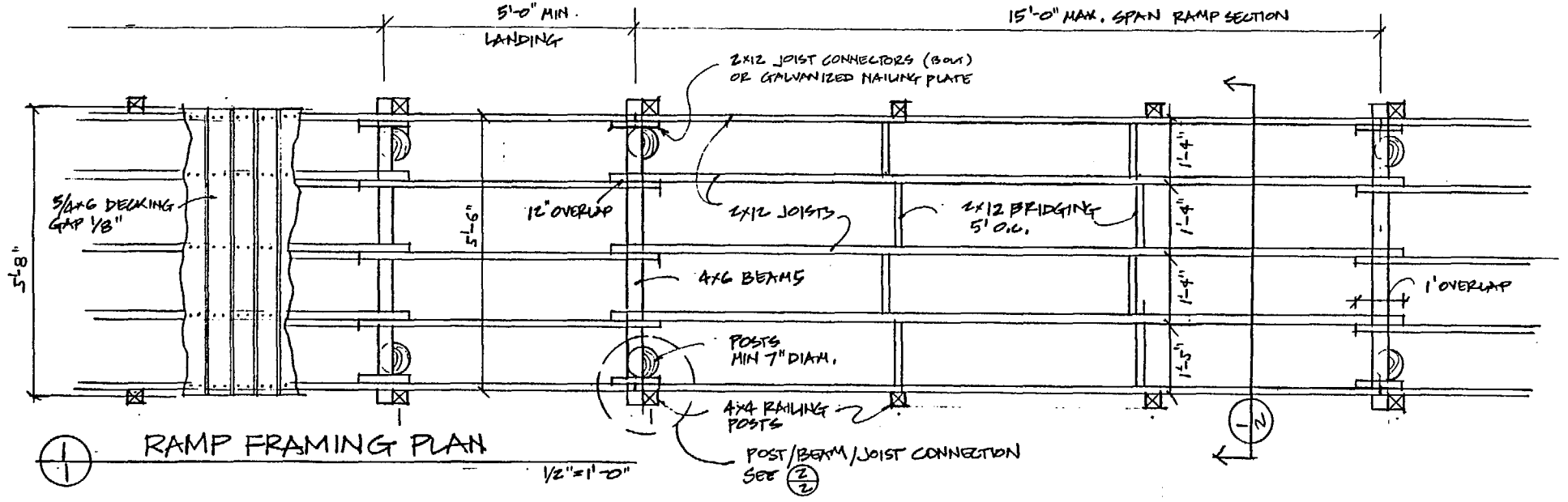
N-PATH

BASE INFORMATION:

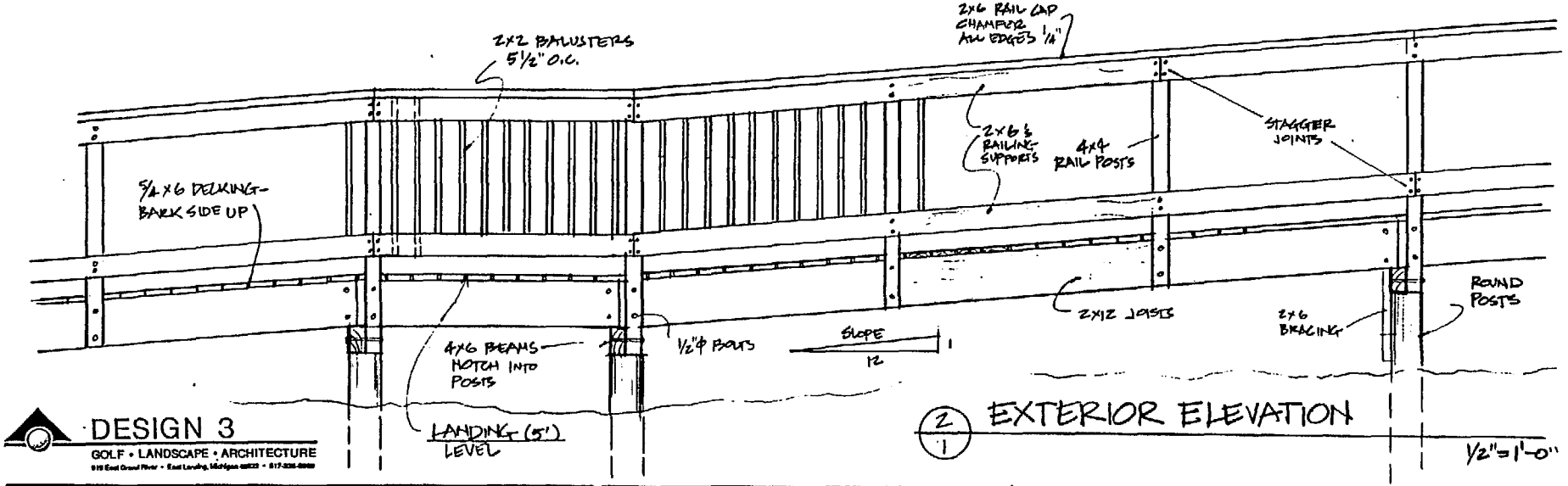
BASE TOPOGRAPHY COMPILED FROM — 1. AERIAL TOPOGRAPHIC MAPPING BY ABRAMS AERIAL SURVEY (1994) 2. FIELD SURVEY BY V. HELMREICH & R. SCHAEFER (1994).

**3 WORKING DAYS BEFORE YOU DIG CALL "MISS DIG" 1-800-482-7171**

DESIGN 3
GOLF • LANDSCAPE • ARCHITECTURE




1/1 RAMP FRAMING PLAN

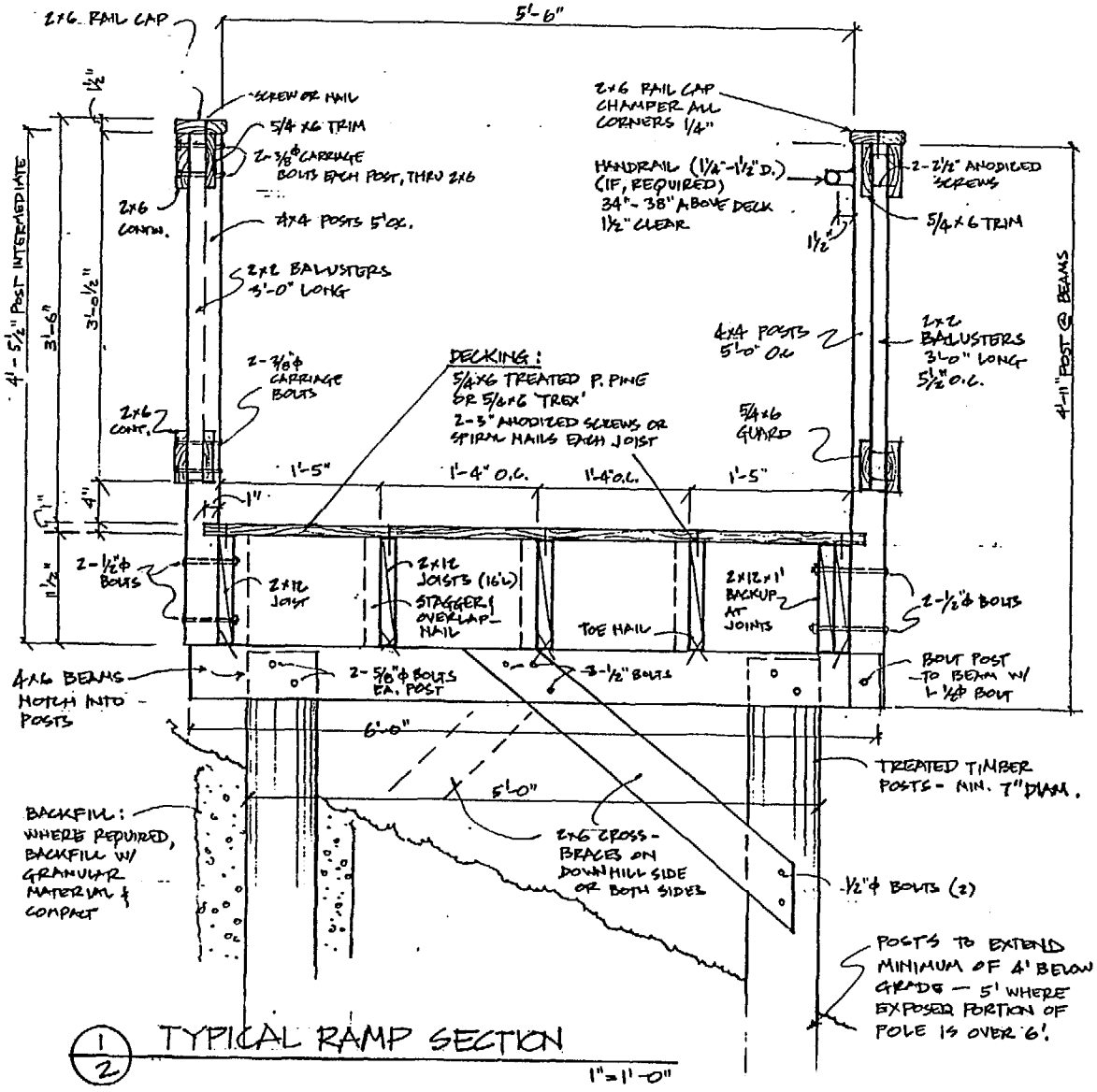



2/1 EXTERIOR ELEVATION

1/2"=1'-0"

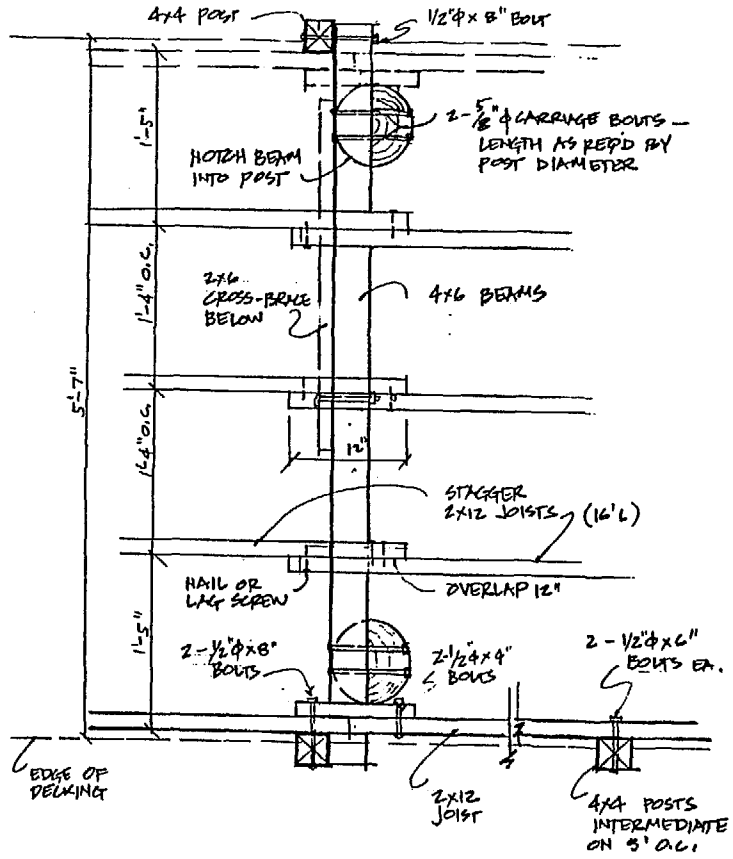
DESIGN 3
GOLF • LANDSCAPE • ARCHITECTURE

| | | | | | |
|---|---|---|---|---|---|
| **Mill Creek State Historic Park**<br>CHEBOYGAN COUNTY, MICHIGAN<br>MACKINAC STATE HISTORIC PARKS | **Access Ramp & Trail Improvements** | RAMP FRAMING & ELEVATION | DATE: 1/31/95 | REVISIONS: | SHEET: 1 |




1/2 TYPICAL RAMP SECTION

1"=1'-0"




2/2 FRAMING PLAN @ POSTS/BEAM

1"=1'-0"

NOTES:

1. DESIGN LOAD: LIVE LOAD OF 60#/SQUARE FOOT UNIFORMLY DISTRIBUTED.
2. DECKING TO BE PLACED W/ BARK (GROWTH) SIDE UP. GAP DECKING ⅛".
3. FIELD TREAT ALL EXPOSED LUMBER CUTS.

**Mill Creek State Historic Park**
CHEBOYGAN COUNTY, MICHIGAN
MACKINAC STATE HISTORIC PARKS

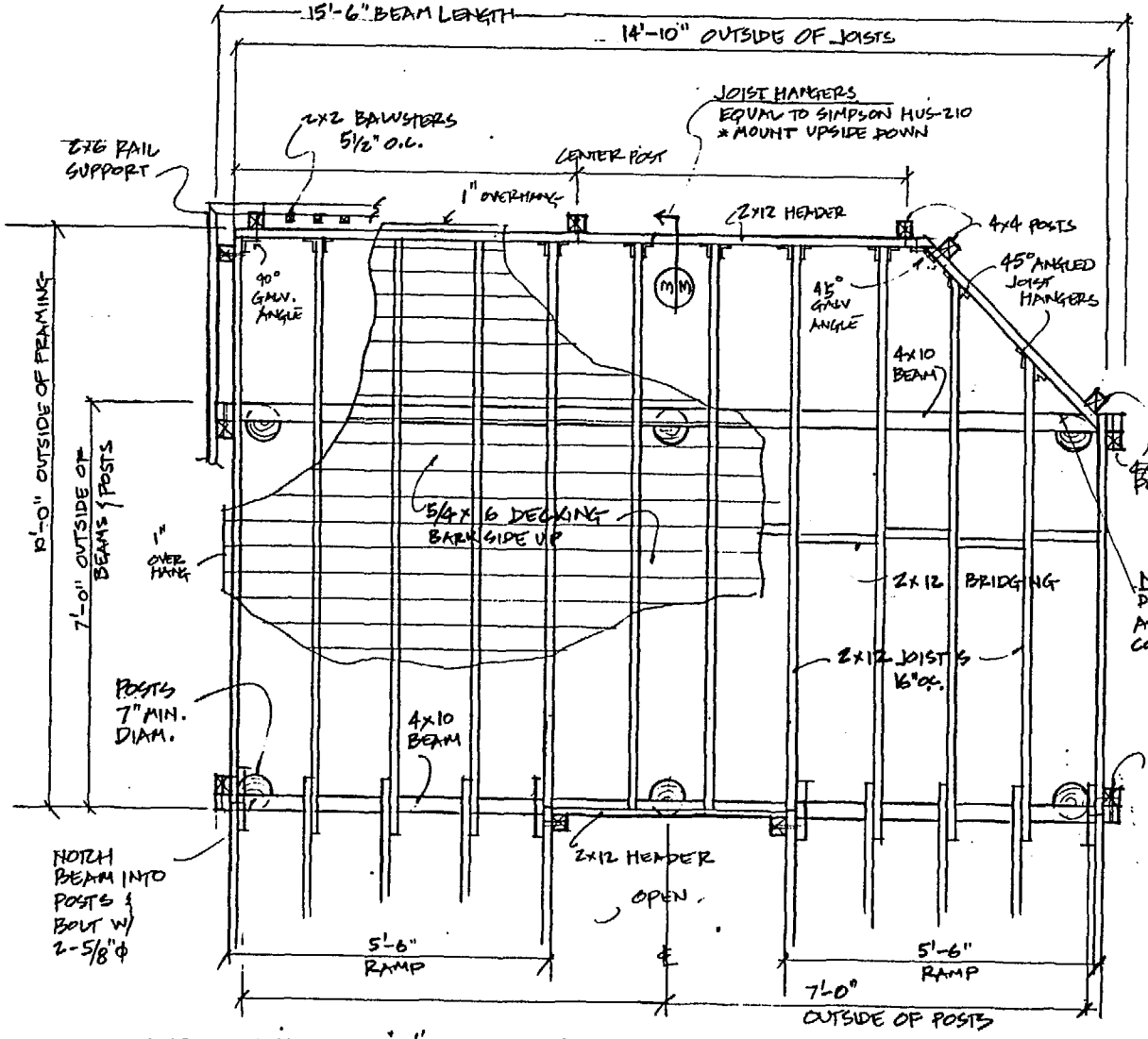
**Access Ramp & Trail Improvements**

RAMP DETAILS

DATE: 1/31/95

REVISIONS: 10/5/95

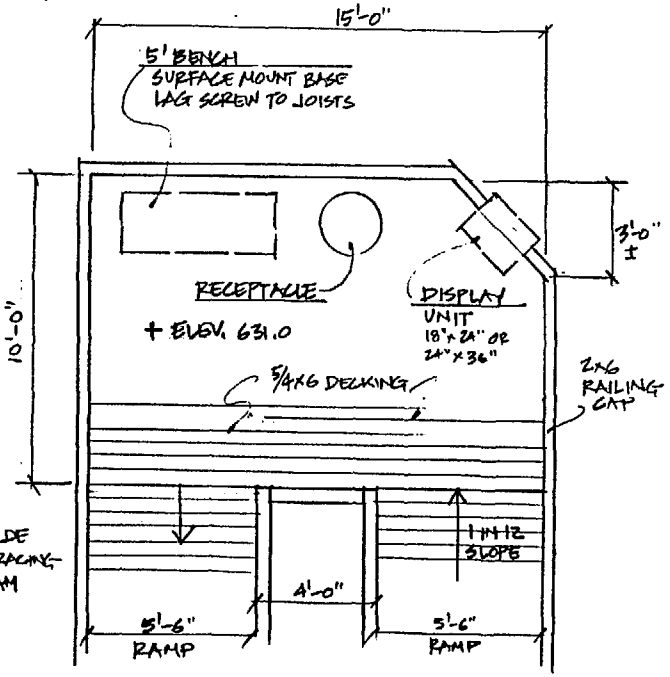
SHEET: 2




1/3 OVERLOOK 'A' - FRAMING PLAN

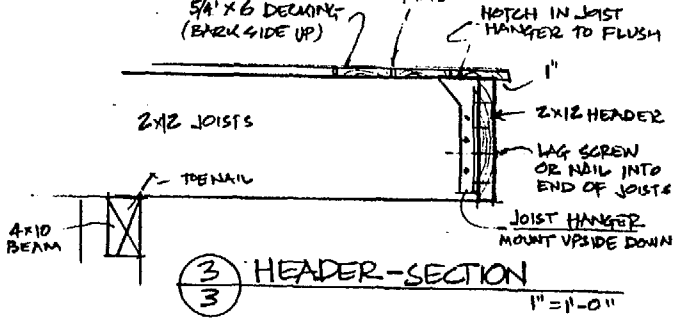
DESIGN LOAD: 60 LBS. PER S.F. LIVE LOAD, UNIFORMLY DISTRIBUTED

1/2"=1'-0"




2/3 OVERLOOK 'A' - PLAN

1/2" = 1'-0"

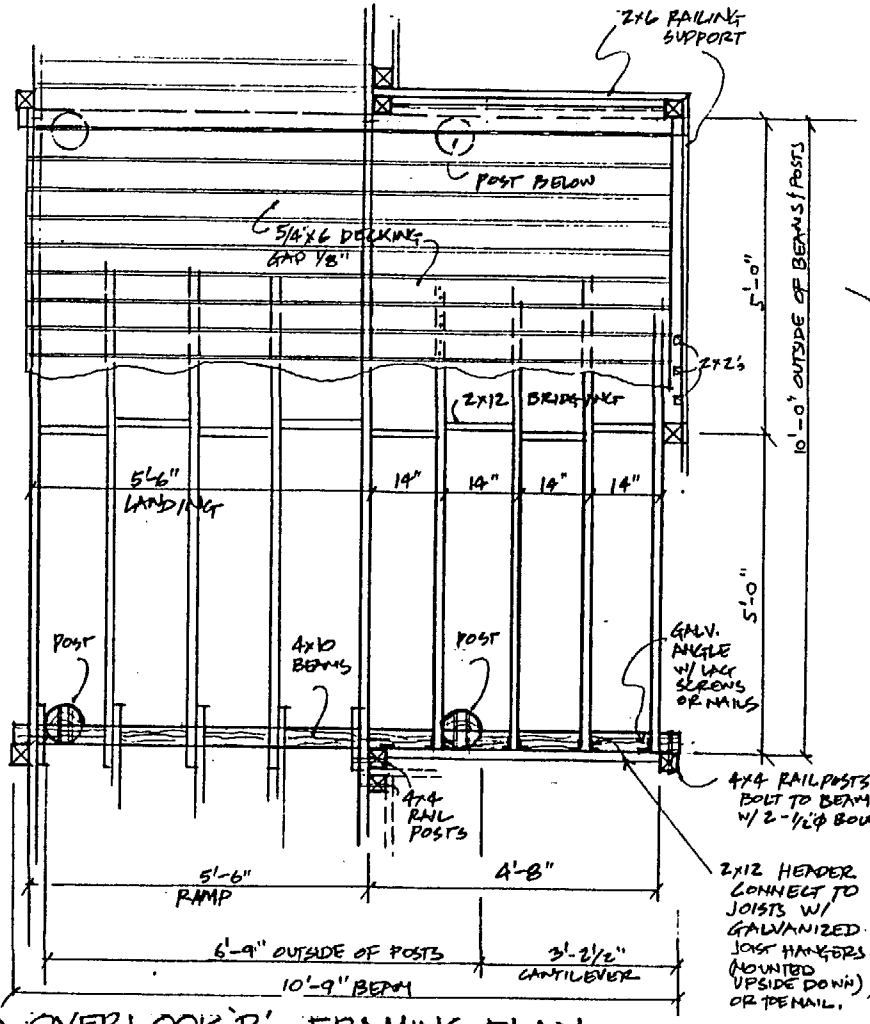



3/3 HEADER-SECTION

1" = 1'-0"

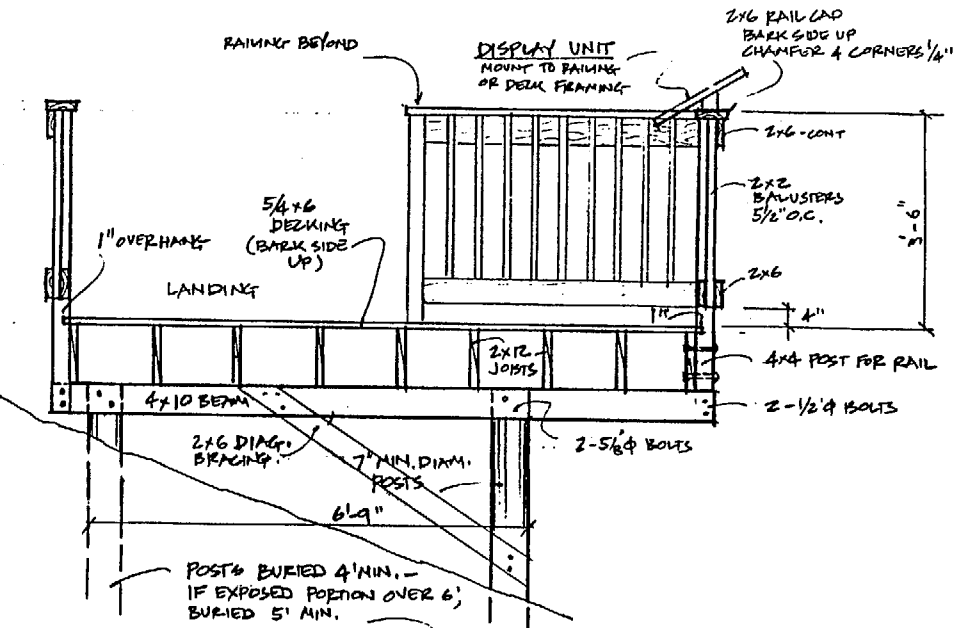
| | | | | | |
|---|---|---|---|---|---|
| **Mill Creek State Historic Park**<br>CHEBOYGAN COUNTY, MICHIGAN<br>MACKINAC STATE HISTORIC PARKS | **Access Ramp & Trail Improvements** | OVERLOOK 'A' | DATE: 1/31/95 VN | REVISIONS: | SHEET: 3 |

DESIGN LOAD: 60# PER S.F. UNIFORMLY DISTRIBUTED LIVE LOAD



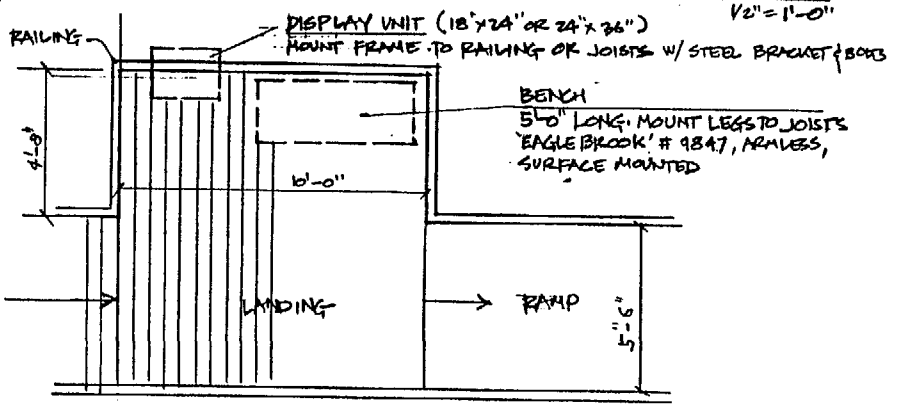

1/4 OVERLOOK 'B' - FRAMING PLAN

1/2"=1'-0"




2/4 OVERLOOK - TYPICAL SECTION

1/2"=1'-0"




3/4 OVERLOOK B - PLAN

1/4"=1'-0"

**Mill Creek State Historic Park**
CHEBOYGAN COUNTY, MICHIGAN
MACKINAC STATE HISTORIC PARKS

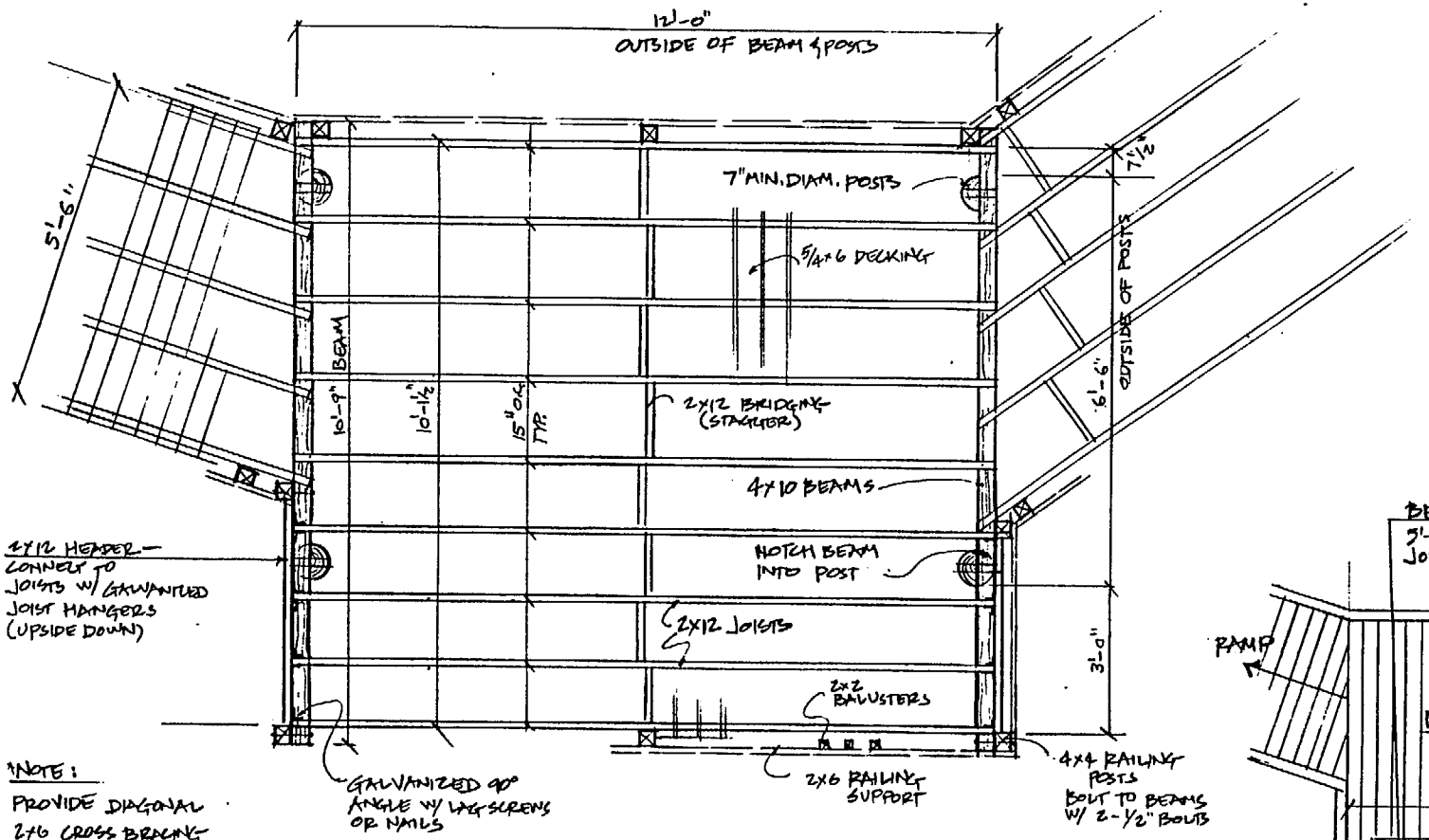
**Access Ramp & Trail Improvements**

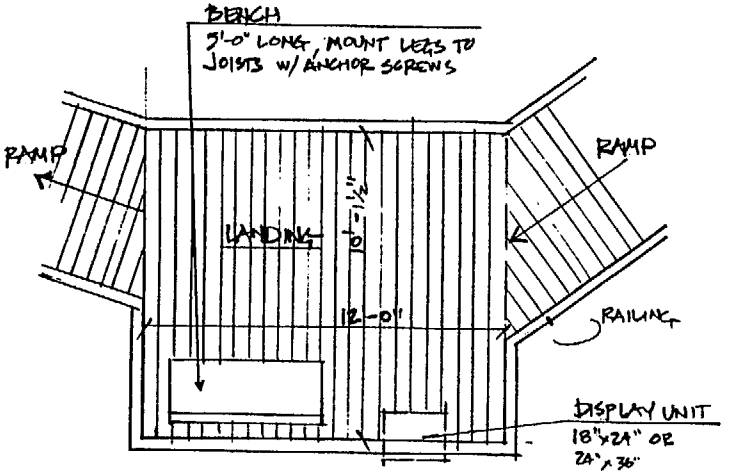
OVERLOOK 'B'

DATE: 1/31/95

REVISIONS:

SHEET: 4




(1/5) OVERLOOK 'C' - FRAMING PLAN

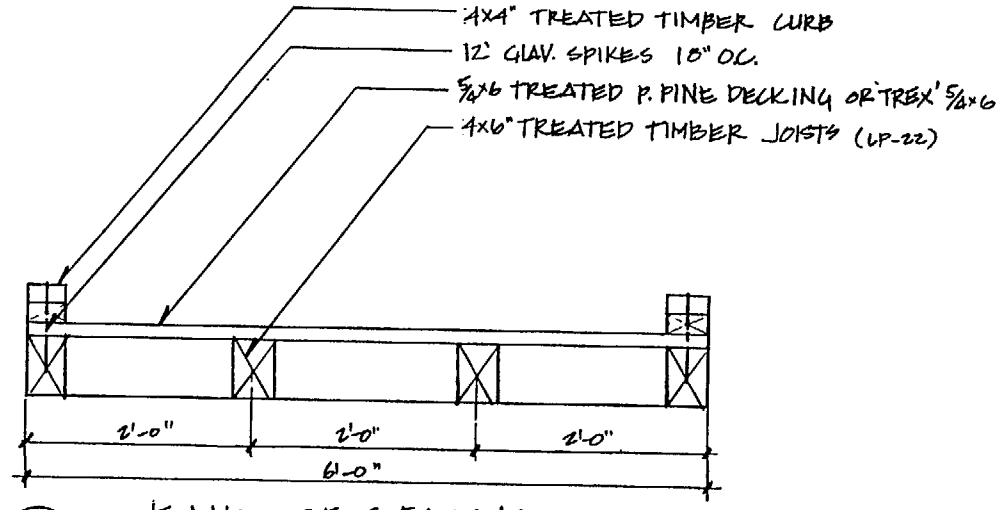
DESIGN LOAD: LIVE LOAD 60#/SQUARE FOOT

½"=1'-0"

(2/5) OVERLOOK 'C' - PLAN

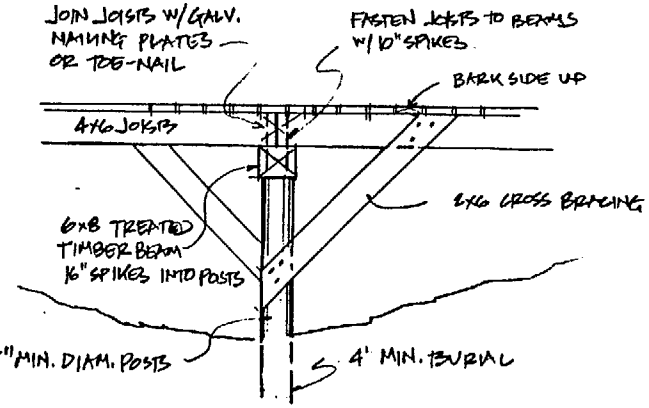
¼"=1'-0"

| | | | | | |
|---|---|---|---|---|---|
| **Mill Creek State Historic Park**<br>CHEBOYGAN COUNTY, MICHIGAN<br>MACKINAC STATE HISTORIC PARKS | **Access Ramp & Trail Improvements** | OVERLOOK 'C' | DATE: 1/31/95 | REVISIONS: | SHEET: 5 |



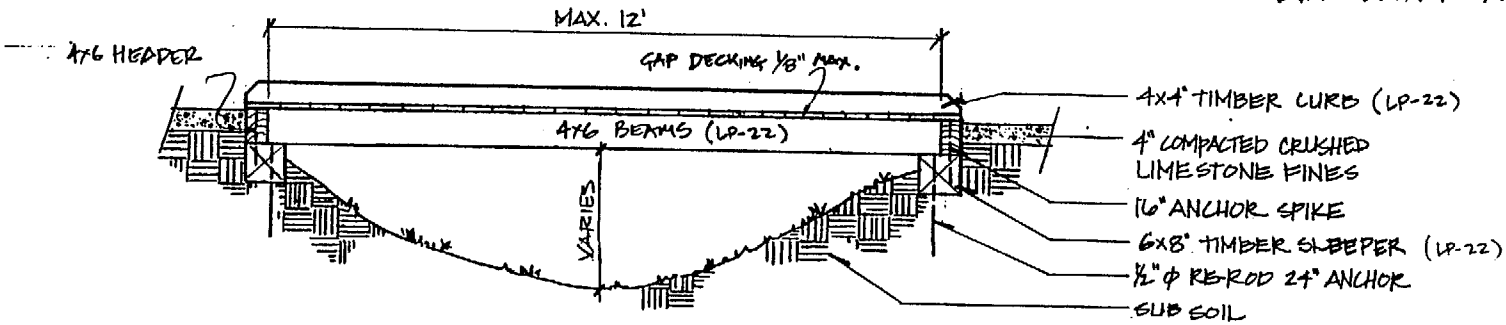

2/6 END SECTION:

SCALE: 1" = 1'-0"




3/6 SUPPORT DETAIL - MULTI-SPAN BOARDWALK

1/2" = 1'-0"

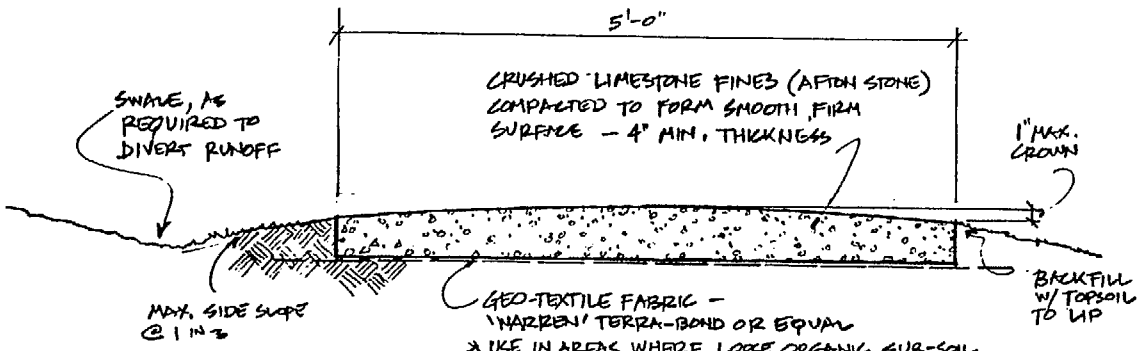



1/6 TYPICAL PATH WITH BOARD WALK:

SCALE: 1/2" = 1'-0"

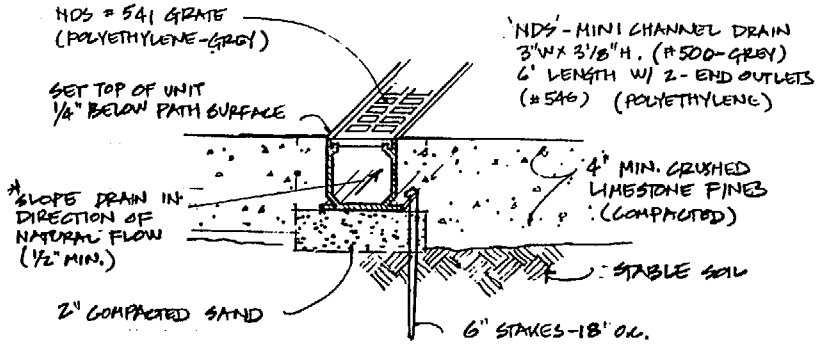
DESIGN LOAD: 60 POUNDS PER S.F. LIVE LOAD., UNIFORMLY DISTRIBUTED

| | | | | | |
|---|---|---|---|---|---|
| **Mill Creek State Historic Park**<br>CHEBOYGAN COUNTY, MICHIGAN<br>MACKINAC STATE HISTORIC PARKS | **Access Ramp & Trail Improvements** | BOARDWALKS | DATE: 1/31/95 | REVISIONS: | SHEET: 6 |



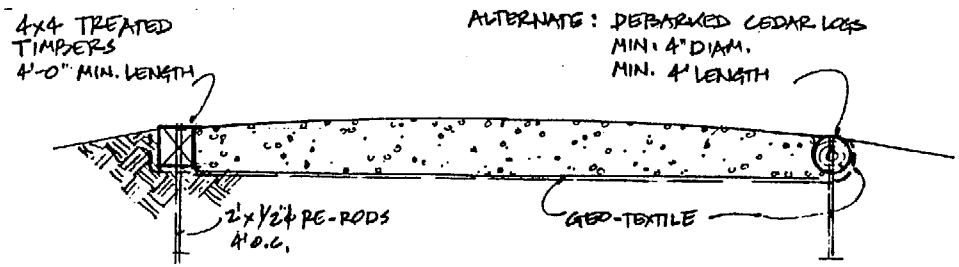

1/7 TYPICAL TRAIL - SECTION

1"=1'-0"




3/7 CHANNEL DRAIN - TRAIL SECTION

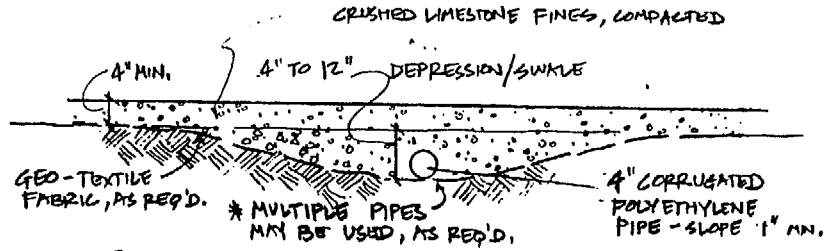
NO SCALE




2/7 TRAIL EDGING – SECTION

USE AT LOWER & UPPER RAMP APPROACHES

1"=1'-0"



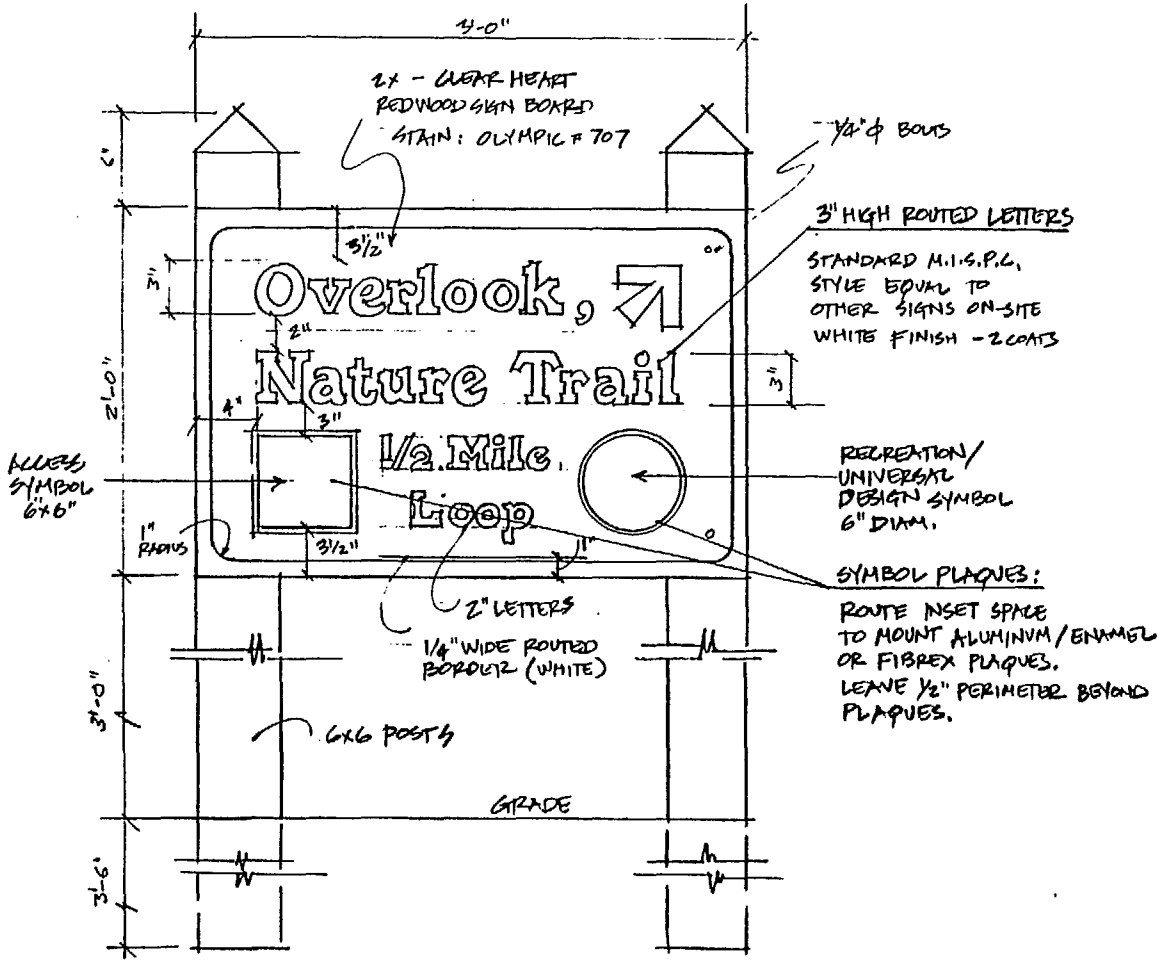

4/7 TRAIL CROSSING @ MINOR SWALES

1/2" = 1'-0"

NOTES:

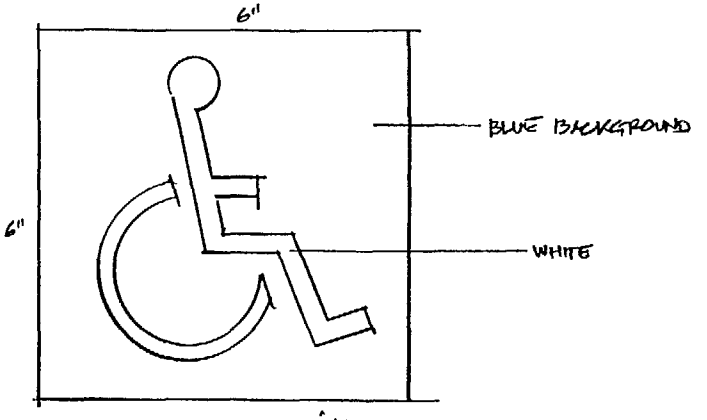
1. MAXIMUM SLOPE OF TRAILS TO BE 5% (1 IN 20), SUBSTAINED.
2. MAXIMUM CROSS SLOPE TO BE 3%.
3. IN AREAS WHERE LOOSE, ORGANIC SUB-SOILS EXIST USE GEO-TEXTILE FABRIC AS A BASE FOR CRUSHED LIMESTONE.
4. USE (3/7) CHANNEL DRAIN WHERE TRAIL CROSSES DRAINAGE ON LEVEL GROUND.
5. USE (4/7) TRAIL CROSSING WHERE TRAIL CROSSES MINOR DRAINAGE SWALE OR DITCH.

| | | | | | |
|---|---|---|---|---|---|
| **Mill Creek State Historic Park**<br>CHEBOYGAN COUNTY, MICHIGAN<br>MACKINAC STATE HISTORIC PARKS | **Access Ramp & Trail Improvements** | TRAIL DETAILS | DATE: 1-31-95 | REVISIONS: | SHEET: 7 |




1/8 TRAILHEAD SIGN

1 1/2" = 1'-0"




SCALE: 1/2 ACTUAL SIZE


BLUE BACKGROUND
WHITE LETTERS

6" DIAMETER

SCALE: 1/2 ACTUAL SIZE

| | | | | | |
|---|---|---|---|---|---|
| **Mill Creek State Historic Park**<br>CHEBOYGAN COUNTY, MICHIGAN<br>MACKINAC STATE HISTORIC PARKS | **Access Ramp & Trail Improvements** | SIGN | DATE: 1/31/95 | REVISIONS: | SHEET: 8 |

MILL CREEK ACCESSIBLE TRAIL

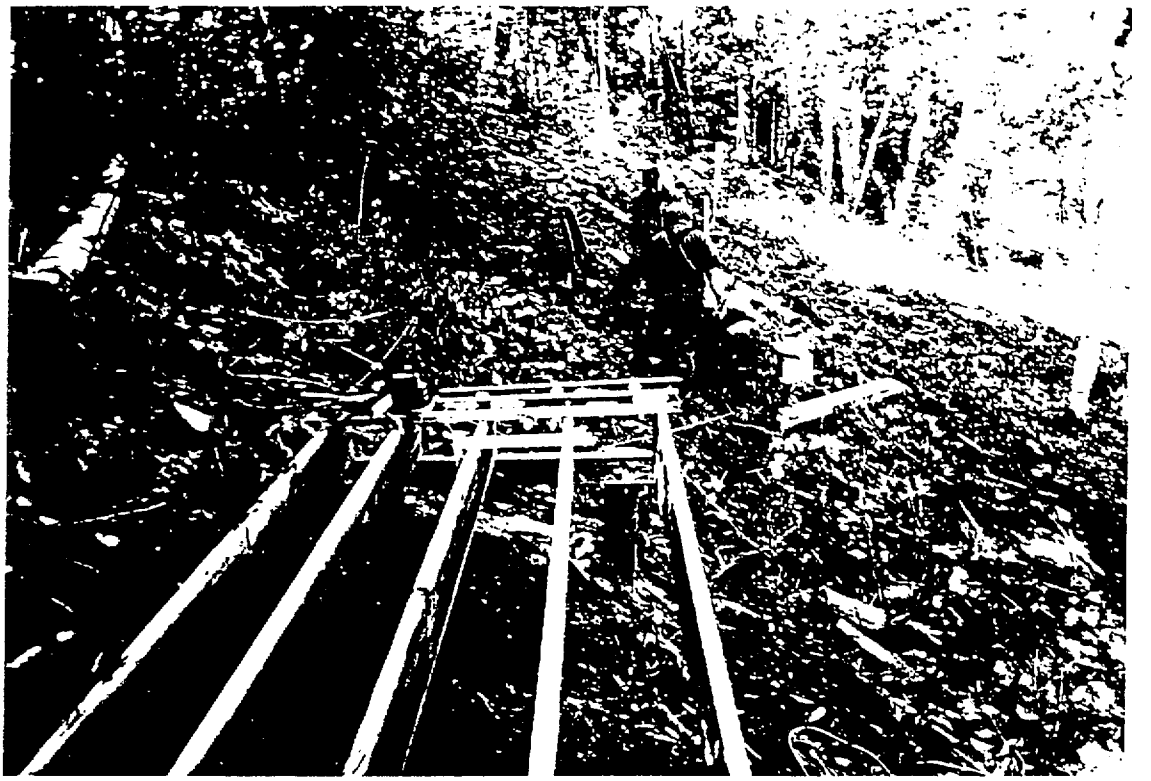
1.

General site views of bluff and
beginning of ramp construction

2.

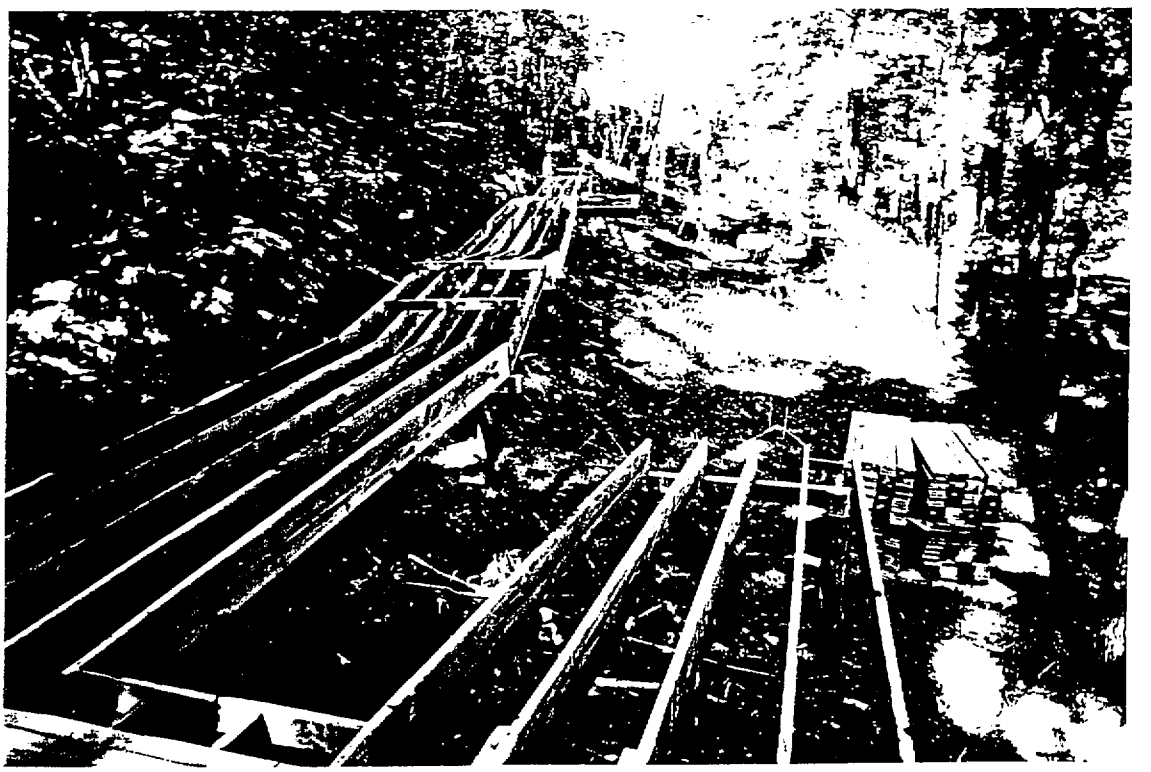
MILL CREEK ACCESSIBLE TRAIL

3.



Post hole digging

4.



Stringers for ramp

MILL CREEK ACCESSIBLE TRAIL

5.

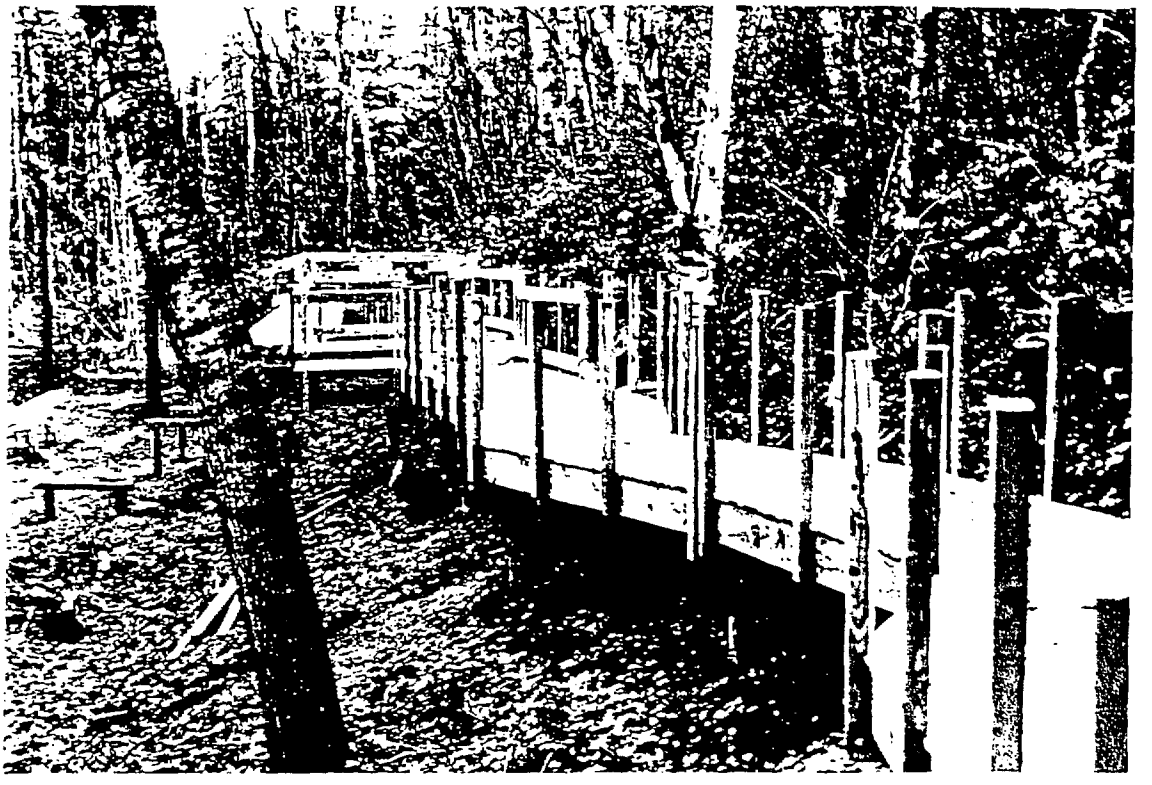
Stringers in place and beginning of decking

6.

Decking being put in place

MILL CREEK ACCESSIBLE TRAIL

7.



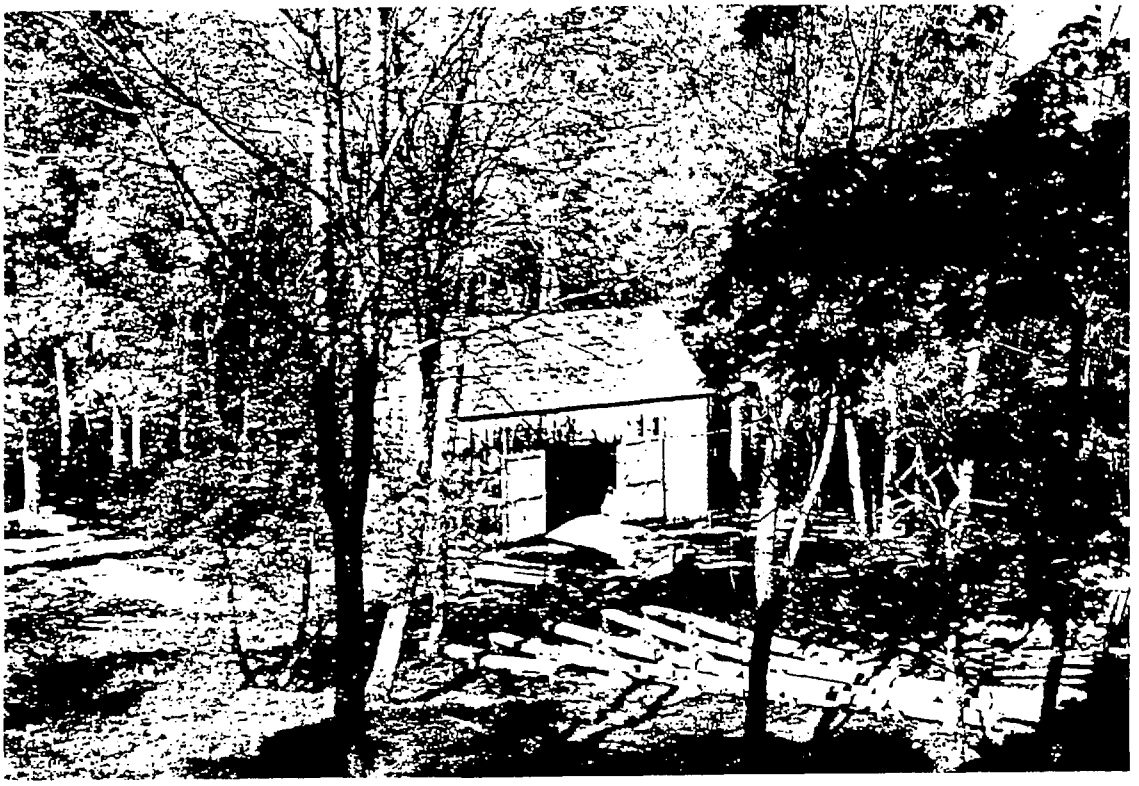
Handrails being installed

8.

Upper overlook - looking toward dam

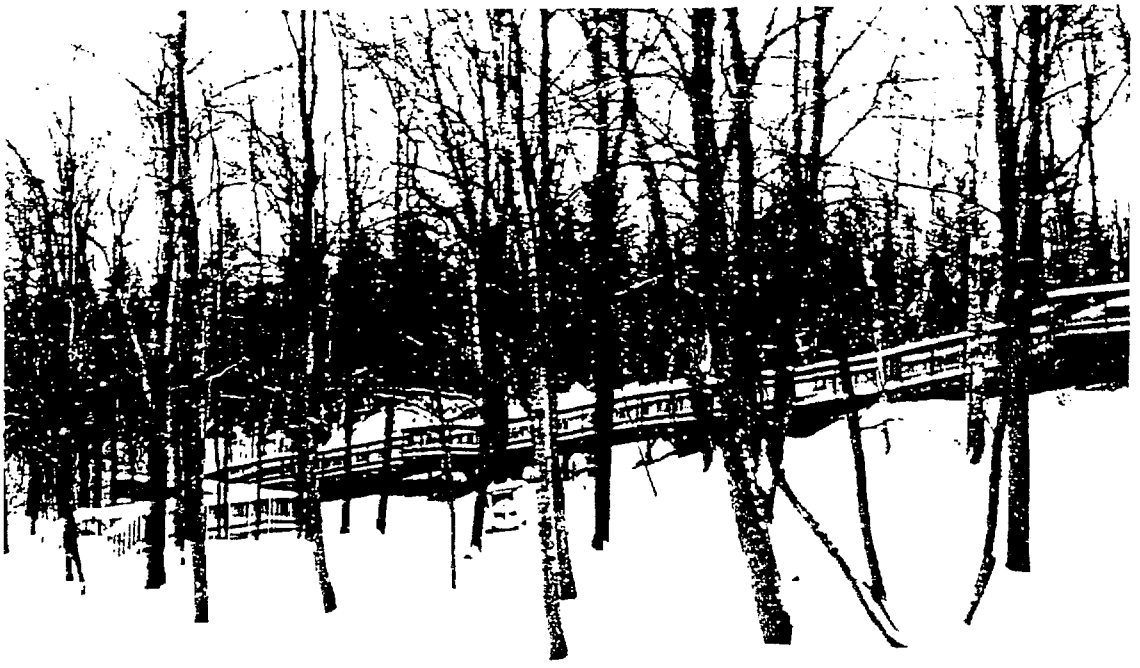
MILL CREEK ACCESSIBLE TRAIL

9.



View of colonial barn from upper overlook

10.



Completed access ramp