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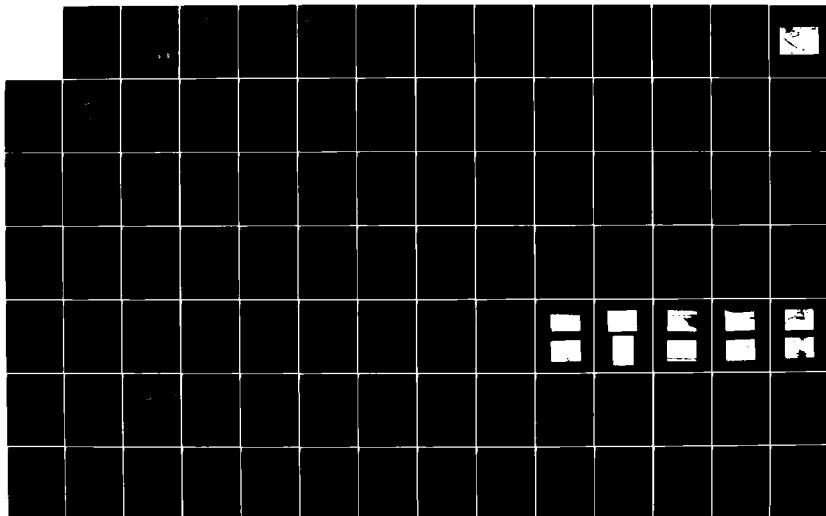
NATIONAL PROGRAM FOR INSPECTION OF NON-FEDERAL DAMS
PEACHAM POND DAM (VT) (U) CORPS OF ENGINEERS WALTHAM MA
NEW ENGLAND DIV MAR 80

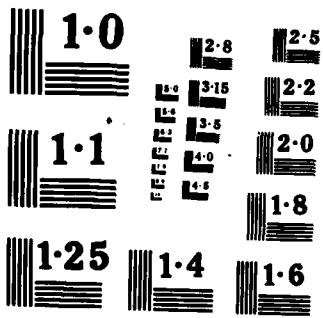
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AD-A157 631

RICHELIEU RIVER BASIN
PEACHAM, VERMONT

PEACHAM POND DAM
VT. 00050

PHASE I INSPECTION REPORT
NATIONAL DAM INSPECTION PROGRAM



DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
WALTHAM, MASS. 02154

MARCH 1980

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) -The dam is a 795 ft. long earth dam with a maximum height of 26 ft. The dam is intermediate in size with a significant hazard potential. The dam was judged to be in fair overall condition. Several seepage areas were observed near the downstream toe of the dam. There are a few recommendations which should be undertaken by the owner.		



DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
424 TRAPELO ROAD
WALTHAM, MASSACHUSETTS 02154

REPLY TO
ATTENTION OF
NEDED

MAY 19 1980

Honorable Richard A. Snelling
Governor of the State of Vermont
State Capitol
Montpelier, Vermont 05602

Dear Governor Snelling:

Inclosed is a copy of the Peacham Pond Dam Phase I Inspection Report, which was prepared under the National Program for Inspection of Non-Federal Dams. This report is presented for your use and is based upon a visual inspection, a review of the past performance and a brief hydrological study of the dam. A brief assessment is included at the beginning of the report. I have approved the report and support the findings and recommendations described in Section 7 and ask that you keep me informed of the actions taken to implement them. This follow-up action is a vitally important part of this program.

A copy of this report has been forwarded to the Department of Water Resources, the cooperating agency for the State of Vermont. In addition, a copy of the report has also been furnished the owner, Green Mountain Power Corporation, Montpelier, Vermont.

Copies of this report will be made available to the public, upon request, by this office under the Freedom of Information Act. In the case of this report the release date will be thirty days from the date of this letter.

I wish to take this opportunity to thank you and the Department of Water Resources for your cooperation in carrying out this program.

Sincerely,


MAX B. SCHEIDER

Colonel, Corps of Engineers
Division Engineer

Incl
As stated

PEACHAM POND DAM

VT 00050

RICHELIEU RIVER BASIN

PEACHAM, VERMONT

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PHASE I INSPECTION REPORT
NATIONAL DAM INSPECTION PROGRAM

NATIONAL DAM INSPECTION PROGRAM

PHASE I INSPECTION REPORT

Identification No: VT00050
Name of Dam: Peacham Pond Dam
Town: Peacham
County and State: Caledonia County, Vermont
Stream: Peacham Pond Brook
Date of Inspection: May 1, 1979

BRIEF ASSESSMENT

The Peacham Pond Dam is a 795-foot long earth dam with a maximum height of 26 feet. The dam contains a 90-foot long concrete sill spillway and a 4-foot diameter concrete outlet conduit with a reinforced concrete intake structure located on the upstream dam embankment. The 362-acre impoundment has a drainage area of 5.87 square miles.

The dam is classified as intermediate with a significant hazard potential in the event of a dam failure. Based on these classifications, the one-half Probable Maximum Flood was selected as the test flood. The test flood inflow was calculated at 10,200 CFS (1740 CSM). After routing, the test flood outflow was computed as 3,400 CFS. The spillway capacity of 4,200 CFS is 124 percent of the routed test flood outflow, with a freeboard of 1.1 feet.

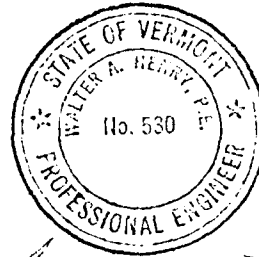
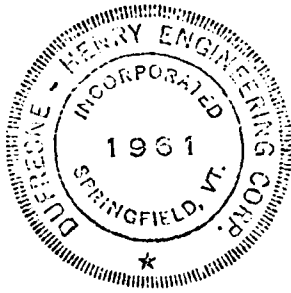
The dam was judged to be in fair overall condition based on the file data and the following visual observations:

1. Concrete is deteriorating on the control tower and outlet conduit.
2. Several seepage areas were observed near the downstream toe of the dam.
3. A considerable amount of floatable debris exists in the reservoir area which may restrict the spillway capacity during high flow periods.

The following recommendations should be instituted under the guidance of a professional engineer qualified in the design of dams, within one year of the receipt of this report:

1. Repair the deteriorated portions of the concrete outlet pipe.

2. Repair the spalling concrete of the control tower.
3. Institute a program of annual technical inspections with particular attention to the seeps at the base of the dam and the debris in the vicinity of the spillway. Spillway debris should be removed on a periodic basis.
4. Institute a formal warning system.



Walter A. Henry

PREFACE

This report is prepared under guidance contained in the Recommended Guidelines for Safety Inspection of Dams, for Phase I Investigations. Copies of these guidelines may be obtained from the Office of Chief of Engineers, Washington, D.C. 20314. The purpose of a Phase I Investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general condition of the dam is based upon available data and visual inspections. Detailed investigation, and analyses involving topographic mapping, subsurface investigations, testing and detailed computational evaluations are beyond the scope of a Phase I Investigation; however, the investigation is intended to identify any need for such studies.

In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions at the time of inspection along with data available to the inspection team. In cases where the reservoir was lowered or drained prior to inspection, such action, while improving the stability and safety of the dam, removes the normal load on the structure and may obscure certain conditions which might otherwise be detectable if inspected under the normal operating environment of the structure.

It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through continued care and inspection can there be any chance that unsafe conditions be detected.

Phase I inspections are not intended to provide detailed hydrologic and hydraulic analyses. In accordance with the established Guidelines, the Spillway Test Flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions thereof. Because of the magnitude and rarity of such a storm event, a finding that a spillway will not pass the test flood should not be interpreted as necessarily posing a highly inadequate condition. The test flood provides a measure of relative spillway capacity and serves as an aid in determining the need for more detailed hydrologic and hydraulic studies, considering the size of the dam, its general condition and the downstream damage potential.

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OVERVIEW OF
PEACHAM POND DAM
PEACHAM, VERMONT

wall at the dam section and an earth training dike joining the retaining wall to original ground below the dam (see Photo 7).

Photo 1 illustrates the condition of the outlet gate control tower. Since the gate was almost fully closed, the inside of the outlet pipe was visually inspected. Photo 9 illustrates a hole found in the concrete inside of the outlet pipe. The hole is approximately 15 inches long by 4 inches wide by 4 inches deep, located 39 feet from the outlet end of the pipe on the right hand side. A crack was also found which was 1-1/4 inches wide and approximately 4 inches deep at a location 41 feet from the outlet end of the pipe. Neither the hole nor the crack penetrated the full thickness of the concrete pipe which is 9 inches. Photo 8 shows the outlet of the concrete pipe. Considerable erosion and spalling have occurred along the pipe invert. The upper concrete surface of the control tower is experiencing some deterioration. Photo 5 shows the spalling at the tower railing supports.

d. Reservoir Area

The reservoir area known as Peacham Pond was originally a smaller pond made larger by constructing a dam across the natural outlet. This results in a large volume of perched water which could not drain out under normal conditions. Prior to the dam construction, the area was apparently not cleared and grubbed because an unusually large amount of stumps and other debris have accumulated along the shoreline. The reservoir is used for recreation with approximately 60 camps located along the reservoir shoreline.

e. Downstream Channel

The downstream channel is a natural stream known as Peacham Brook or Peacham Pond Brook. Photo 10 shows the brook looking downstream from the dam outlet pipe. Approximately 200 feet downstream the brook is backwatered by a beaver dam. Since the areas adjacent to the stream are not developed, the presence of the beaver dam and other debris is of no concern.

Due to the infrequent occurrence of overflows, there is no discernible channel between the emergency spillway and the natural stream channel. Several small gullies were formed during the 1973 overflow, but are now overgrown with brush and small trees.

3.2 Evaluation

The visual inspection indicated that the dam is in fair condition. The following observations indicate potential problems:

SECTION 3 - VISUAL INSPECTION

3.1 Findings

a. General

The on-site inspection of the Peacham Pond Dam was performed on May 1, 1979. At the time of inspection, the water level was approximately one foot below the spillway crest. There were no emergency conditions noted on the day of inspection.

b. Dam

The dam consists of an earth fill embankment approximately 700 feet long with a stone paved spillway approximately 90 feet wide. Photo 2 illustrates the upstream face of the dam, reportedly a 3 to 1 slope, with riprap protection. There apparently has been some downslope movement of riprap, resulting in general bulges in the slope face. Grass and moss constitute most of the vegetation growing between rocks. A slight dip in the crest adjacent to the control tower access bridge indicates some minor settlement or erosion at that point.

Photo 3 illustrates the condition of the downstream face of the dam which reportedly is constructed at a slope of 2 to 1. There is a five-foot wide berm near the toe in the region where the dam section is the highest. Apart from some minor sloughing and erosion, probably caused by trespassers, the slope appears in excellent condition.

Photo 4 illustrates one of two minor seepage areas occurring from the interface between the embankment and original ground in the vicinity of the bend in the dam alignment (see plan). Two other wet areas were noted, but did not have observable flow.

c. Appurtenant Structures

The spillway section of the dam consists of a stone-paved channel approximately 90 feet wide and 85 feet long. A 2-foot wide concrete weir is flush with the spillway channel (see Photos 6 and 7). Grass, brush and some small trees are growing between the stones, and some old tree stumps have been deposited on the spillway surface by previously higher water levels.

To the left of the spillway, a small (3-foot high) earth dike ties the dam into natural ground at the left abutment. The right edge of the spillway consists of a concrete retaining

b. Adequacy

Based on visual observations and available engineering data, the information for this dam is sufficient for a Phase I inspection.

c. Validity

The available engineering data are considered valid on the basis of the visual inspection.

SECTION 2 - ENGINEERING DATA

2.1 Design

The Peacham Pond Dam was designed and constructed by the Trojan Engineering Corporation. The design was reviewed and approved by H. K. Barrows, a consulting engineer for the Vermont Public Service Commission.

2.2 Construction

The dam is constructed of homogeneous earth fill about 700 feet long and 25 feet high at its maximum section. It has a top width of 10 feet and, in general, the upstream slope is 1 on 3 and the downstream slope is 1 on 2. The upstream slope is covered with 12 inches of stone riprap. The downstream slope is covered with sod and is well reinforced with a rock-fill toe. The structure is founded on hardpan (earth).

At the south end of the embankment a spillway section, 90 feet long, is formed between concrete abutments and consists of a vertical cutoff wall 2 feet thick and extends 5 feet into the impervious material. Downstream from the cutoff wall the channel is paved for 55 feet with stones.

Outlet works through the middle of the dam include an intake structure; a concrete gate house with a 5-foot diameter iron sluice gate, manually operated; and a 4-foot diameter concrete conduit extended for 125 feet through the embankment.

Details of the dam and appurtenant structures are contained in Appendix B.

2.3 Operation

The outlet control gate is operated periodically according to flow conditions to maintain the water level at one foot below the spillway crest. When required by prolonged dry periods, the water impounded by Peacham Pond is let down to Mollys Falls Reservoir to augment flow to the power station.

2.4 Evaluation

a. Availability

The design and construction drawings for this dam are on file with the Green Mountain Power Corporation.

j. Regulating Outlets

Located at the center of the dam is a control tower with a manually operated 5-foot diameter sluice gate which discharges into a 4-foot diameter by 125-foot long concrete pipe at invert elevation 1382.2. This concrete pipe outlets into an excavated 5-1/2-foot trapezoidal channel lined with 1 to 2-foot diameter stones. The inspection team was able to gain access to both the pipe and sluice gate as only 1/2 foot of water was flowing in the bottom of the pipe. See Section 7.1.c for visual inspection comments.

The gate and water level are monitored periodically and adjusted to maintain the water level at one foot below the spillway crest.

(5) Side Slopes

Downstream slope - 2:1.
Upstream slope - 3:1.

(6) Zoning

None known.

(7) Impervious Core

None known.

(8) Cutoff

Earth key extends down into hardpan 5 feet.

(9) Grout Curtain

None known.

h. Diversion and Regulating Tunnel

Not applicable.

i. Spillway

(1) Type

Earth trapezoidal channel with concrete cutoff wall.

(2) Length

90 feet at invert of weir.
102 feet at top of dam and spillway.

(3) Elevation of Crest

1,402.3 mean sea level.

(4) Gates

None.

(5) Upstream Channel

90 feet wide earth trapezoidal channel.
45 feet long.

(6) Downstream Channel

90 feet wide earth trapezoidal channel with some evergreen trees growing on base and sides of channel.

(3) Test Flood Pool

4,600

(4) Spillway Crest Pool

2,750

(5) Top of Dam

5,096

f. Reservoir Surface (Acres)*

(1) Top of Dam

480

(2) Test Flood Pool

422

(3) Flood Control Pool

Not applicable.

(4) Recreation Pool

362

(5) Spillway Crest

370

g. Dam

(1) Type

Rolled earth embankment.

(2) Length

795 feet.

(3) Height

22 feet.

(4) Top Width

10 feet.

*Estimated based on USGS topographic maps and visual observations.

(4) Recreation Pool

1401.3 feet.

(5) Full Flood Control Pool

Not applicable.

(6) Spillway Crest

1402.3 feet.

(7) Design Surcharge

Not applicable.

(8) Top of Dam

1408.3 feet.

(9) Test Flood Surcharge

1407.2 feet.

d. Reservoir (Feet)*

(1) Length of Maximum Pool

9,000

(2) Length of Recreation Pool

6,500

(3) Length of Flood Control Pool

Not applicable.

e. Storage (Acre-feet)*

(1) Recreation Pool

2,390

(2) Flood Control Pool

Not applicable.

*Estimated based on USGS topographic maps and visual observations.

b. Discharge at Dam Site

(1) Outlet Works

The outlet works at Peacham Pond are operated by the Green Mountain Power Corporation. The outlet structure is located approximately at the center of the dam and has a 5-foot diameter circular iron sluice gate which discharges into a 4-foot concrete discharge pipe at an invert elevation of 1382.2. This structure has a maximum discharge capacity of 260 CFS at invert of spillway and 305 CFS at top of dam.

(2) Maximum Known Flood at Dam Site

There is a gauging board located on the outlet structure which is read twice weekly by Green Mountain Power personnel. According to Ken Hadd, GMP Superintendent of System Operations, the maximum discharge at the dam was June 30, 1973 when water surface was at elevation 1,402.8 MSL with the spillway discharging 91 CFS and the partly open gate discharging 114 CFS for a total rate of 205 CFS. The only damage was some erosion in the outlet spillway channel.

(3) Spillway Capacity

The emergency spillway is 90 feet long and 6 feet high with concrete cutoff wall. This spillway can discharge 4,200 CFS with the water level at the top of the dam. The spillway capacity of 4,200 CFS represents 124 percent of the routed test flood outflow of 3,400 CFS.

c. Elevations (Mean Sea Level)

The following elevations are based on mean sea level elevations:

(1) Streambed at Centerline of Dam

1,381 feet.

(2) Maximum Tailwater

Not known.

(3) Upstream Portal Invert Diversion Tunnel

Not applicable.

g. Purpose

The dam was originally designed and constructed as part of a future hydroelectric power plant. Company officials now believe that the site is uneconomical for further development. Its present use is to provide additional storage for the Mollys Falls hydro project located downstream, and for recreation.

h. Design and Construction History

The Peacham Pond Dam was designed and constructed in 1929-1930 by the Trojan Engineering Corporation of New York City. The design was reviewed and the construction supervised by Mr. H. K. Barrows of the Public Service Commission.

The dam was constructed at the site of the former Bruce Mill Dam, approximately one mile upstream of the Mollys Falls Reservoir.

State inspections on file with the Public Service Commission were performed in 1949, 1953 and 1954. Both the record data and current visual inspection indicate that the dam is unchanged since its original construction in 1929-1930. The plans prepared for construction were at a local datum which is 691.65 feet lower than mean sea level.

i. Normal Operating Procedure

The primary outlet from Peacham Pond is controlled by a manual gate located on the outlet control tower. According to Green Mountain Power Corporation personnel the site is visited weekly and the gate adjusted depending on weather and flow conditions, to maintain the water level in the pond approximately one foot below the spillway crest. Under prolonged dry conditions the valve is opened further to allow flow to augment the storage in the Mollys Falls Reservoir.

1.3 Pertinent Data

a. Drainage Area

The total drainage area to Peacham Pond Dam is 5.87 square miles and the dam, at normal water surface, impounds 362 acres. The main channel is approximately 2.3 miles long and has an average slope of 410 feet per mile. The watershed is approximately 90 percent wooded. Elevations in the drainage area vary from 2,400 to 2,200 along the basin ridge line to 1,400 at Peacham Pond. The drainage area is mostly wooded rolling hills, with some field and meadows.

b. Description of Dam and Appurtenances

Peacham Pond Dam is an earth dam 795 feet in length and 26 feet maximum height with a concrete sill spillway 90 feet in length. The dam contains an intake structure having a 4-foot diameter concrete conduit through the base of the dam.

c. Size Classification

The Peacham Pond Dam is 26 feet high and has a usable storage volume of 5096 acre-feet. United States Corps of Engineers (USCE) guidelines place dams with heights between 40 and 100 feet and/or storage between 1,000 and 50,000 acre-feet in the intermediate category. Therefore, based on storage, the Peacham Pond Dam is classified as intermediate.

d. Hazard Classification

If the Peacham Pond Dam were to fail under Test Flood conditions for Marshfield #6 Dam (Probable Maximum Flood) it would release a major flood wave into the Mollys Falls Reservoir. Assuming that the Marshfield #6 Dam would not suffer a simultaneous failure the increased flow due to the Peacham Pond Dam failure in the Village of Marshfield would add approximately 4 feet to the flood levels due to the flow prior to a dam failure. This increase in flood level would only add a few more homes to the damage resulting from just the Test Flood flow. Therefore, the Peacham Pond Dam is classified as a significant hazard.

e. Ownership

The present owner of the Peacham Pond Dam is:

Green Mountain Power Corporation
P.O. Box 486, Green Mountain Drive
Montpelier, Vermont 05602

Telephone: 802-223-5235

f. Operator

The dam is operated by the Green Mountain Power Corporation employees under the supervision of:

Kenneth G. Hadd, Superintendent of System Operations
Green Mountain Power Corporation
P.O. Box 486, Green Mountain Drive
Montpelier, Vermont 05602

Telephone: 802-223-5235

NATIONAL DAM INSPECTION PROGRAM
PHASE I INSPECTION REPORT
NAME OF DAM: PEACHAM POND

SECTION 1 - PROJECT INFORMATION

1.1 General

a. Authority

Public Law 92-367, August 8, 1972, authorized the Secretary of the Army, through the Corps of Engineers, to initiate a National Program of Dam Inspection throughout the United States. The New England Division of the Corps of Engineers has been assigned the responsibility of supervising the inspection of dams within the New England Region. Dufresne-Henry Engineering Corporation has been retained by the New England Division to inspect and report on selected dams in the State of Vermont. Authorization and notice to proceed were issued to Dufresne-Henry Engineering Corporation under a letter of November 20, 1978 from Max B. Scheider, Colonel, Corps of Engineers. Contract No. DACW33-79-C-0010 has been assigned by the Corps of Engineers for this work.

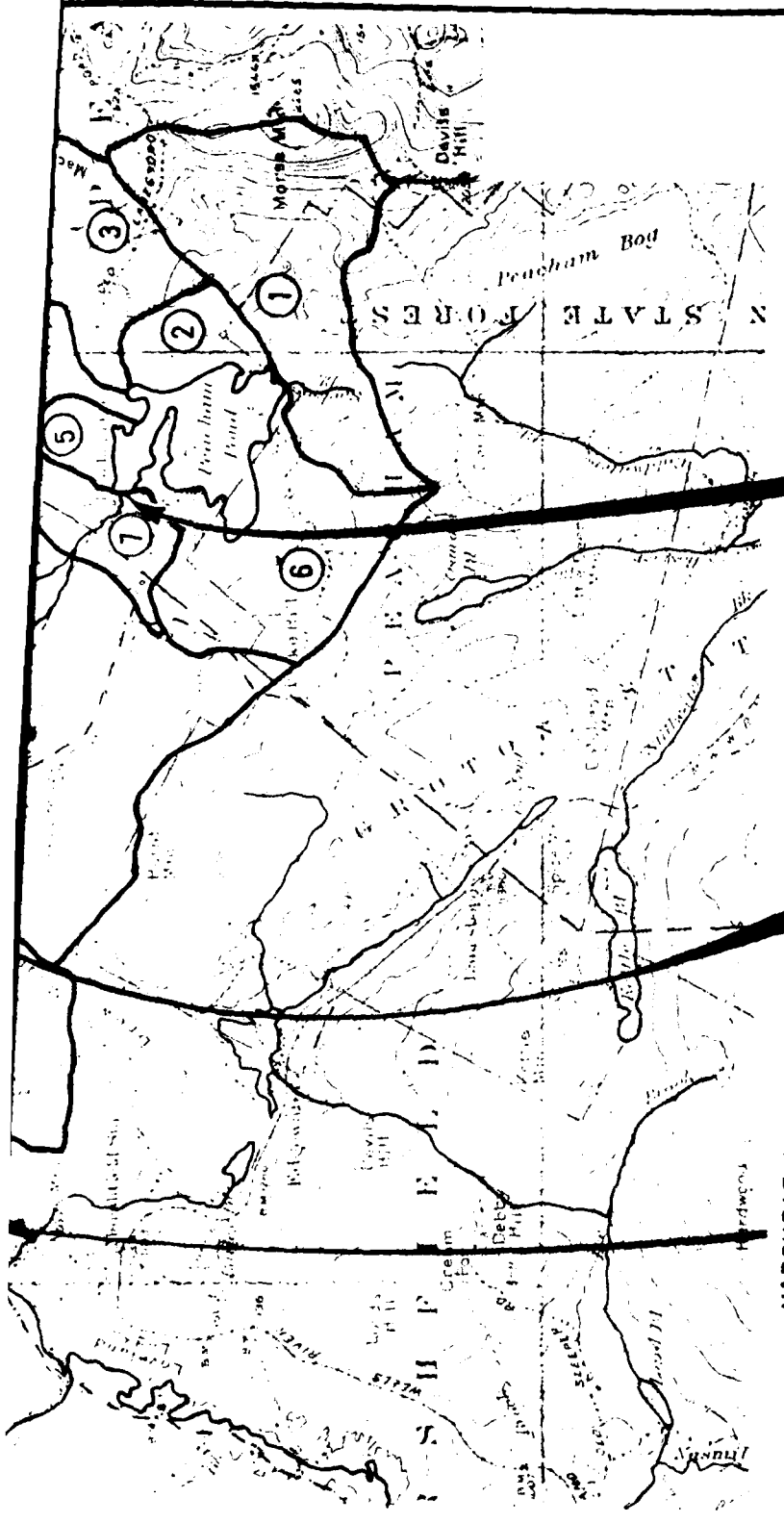
b. Purpose

- (1) Perform technical inspection and evaluation of non-federal dams to identify conditions which threaten the public safety and thus permit correction in a timely manner by nonfederal interests.
- (2) Encourage and prepare the states to initiate quickly effective dam safety programs for nonfederal dams.
- (3) To update, verify and complete the National Inventory of Dams.

1.2 Description of Project

a. Location

The Peacham Pond Dam is located in north central Vermont approximately 21 miles west of St. Johnsbury in the Town of Peacham, Caledonia County. The dam and reservoir are located on Peacham Pond Brook which is tributary to Mollys Falls Reservoir, the Winooski River and Lake Champlain. The map coordinates for the dam are 44°20.0' N, 72°15.9' W.



2

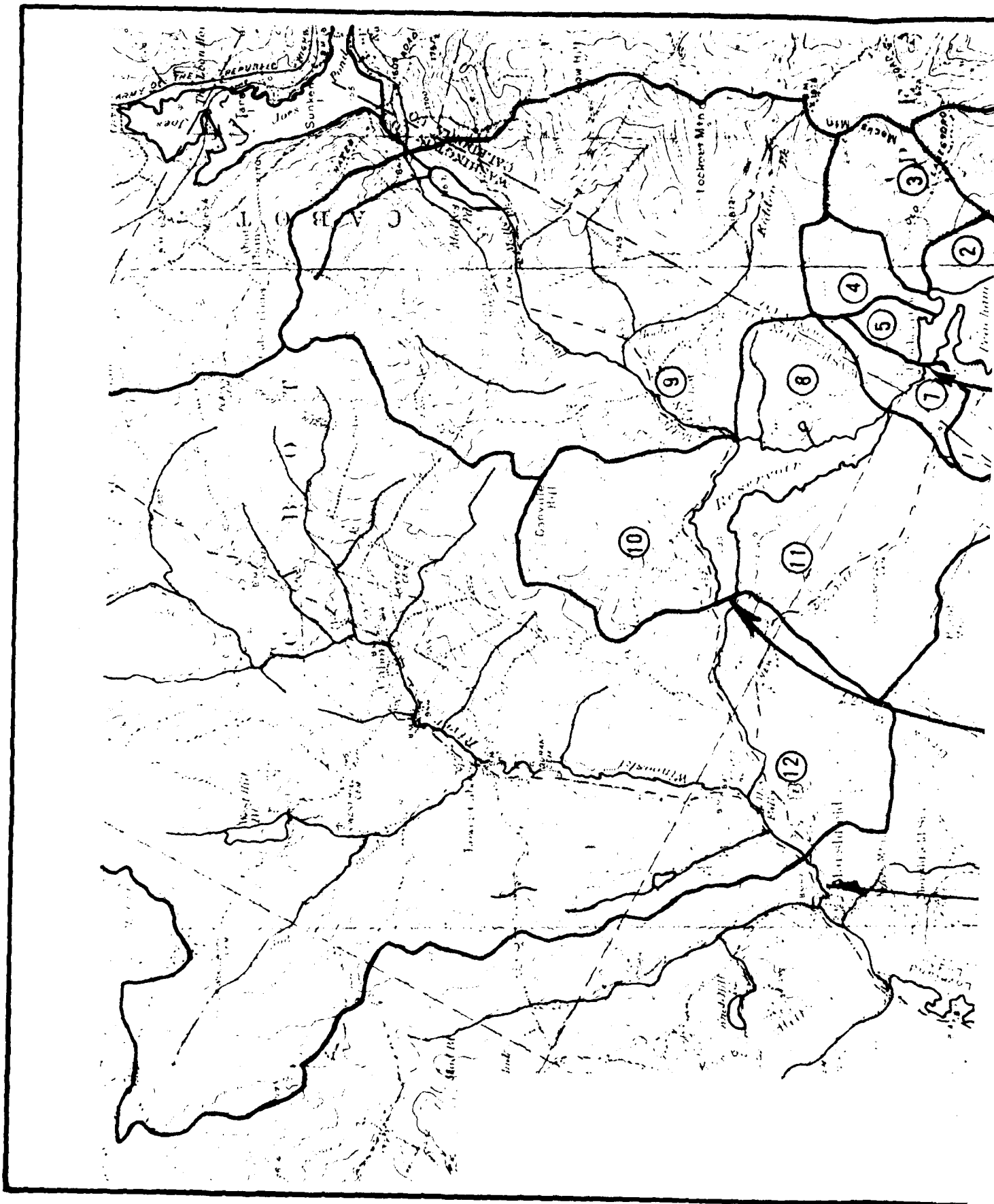
MAGNETIC
NORTH
1953

SOURCE OF MAP:

U.S. GEOLOGICAL SURVEY
PLAINFIELD, VT. &
ST. JOHNSBURY, VT.-N.H.
QUADRANGLES
15 MIN. SERIES
1:62500, 1953 & 1949

DUFRESNE-HENRY ENGINEERING CORP. ARCHITECT-ENGINEER		U.S. ARMY ENGINEER DIV. NEW ENGLAND CORPS OF ENGINEERS WALTHAM, MASS.	
NATIONAL PROGRAM OF INSPECTION OF NON-FED. DAMS			
LOCATION MAP			
PEACHAM POND DAM			
CLIENT NO.	04-0098	SCALE	1"=1 MILE
ENGINEER	S. G. F.	DATE	

LEGEND
⑤ SUB DRAINAGE AREAS FOR HEC 1



1. The concrete outlet control tower is experiencing some spalling and minor deterioration.
2. The outlet pipe is showing signs of deterioration at the downstream end and several interior locations.
3. Several seeps were observed downstream of the dam toe.
4. Debris in the reservoir could cause a blockage of the spillway.
5. Small trees and brush should be removed from the spillway channel and dam embankments.

SECTION 4 - OPERATIONAL PROCEDURES

4.1 Procedures

There are no established procedures for this dam. The dam is visited periodically by GMP personnel to record the water level and adjust the outlet gate if required.

4.2 Maintenance of Dam

Several old tree stumps were observed in the spillway section. At this point it is not known whether the stumps were deposited by high flows or used as campfire wood.

4.3 Maintenance of Operating Facilities

The mechanical gate mechanism has been maintained in good operating condition.

4.4 Description of Warning System

None exists for this dam.

4.5 Evaluation

Recommendations for improved maintenance are outlined in Section 7.

SECTION 5 - HYDROLOGIC/HYDRAULIC EVALUATION

5.1 Evaluation of Features

a. General

The Peacham Pond Dam is a rolled earth embankment dam built as a multipurpose, power and recreation, project. It is a high surcharge storage-low spillage type dam.

b. Design Data

Hydraulic or hydrologic design data for the Peacham Pond Dam was not available. Design drawings were obtained and are included in Appendix B.

c. Experience Data

The dam has not been overtopped in its 50-year life. The flood of record for this reservoir was the June 30, 1973 event when the reservoir level reached 1402.8 feet above MSL. The total estimated outflow for this event was estimated to be 205 CFS according to Green Mountain Power Corporation. The operations report for the June 30, 1973 flood is contained in Appendix B.

d. Visual Observations

The visual inspection revealed that the left abutment of the emergency spillway was obstructed by trees as seen in photograph number 6. Also it was noted that small conifers and floating debris along with material placed by trespassers were accumulating on the emergency spillway.

e. Test Flood Analysis

The dam is classified as intermediate size with a significant hazard potential as defined by the following dam failure analysis. The test flood selected was one-half the Probable Maximum Flood which was developed and routed through Peacham Pond by use of the HEC-1 Generalized Computer Program. The peak inflow of 10,200 CFS (1740 CSM) was reduced to a routed test flood outflow of 3400 CFS. The combined capacity of the emergency spillway and outlet is 4200 CFS which is 124 percent of the test flood. The test flood surcharge at an elevation of 1407.2 leaves a freeboard of 1.1 feet to the top of the dam.

f. Dam Failure Analysis

The failure of Peacham Pond Dam can have significantly different impacts on downstream property depending upon the water levels in the Marshfield #6 reservoir and the river through the Village of Marshfield just prior to the dam failing. For normal water levels in Marshfield #6, the instantaneous peak outflow of 79,800 CFS resulting from the failure of Peacham Pond Dam would be reduced to 6,100 CFS by routing through Marshfield #6 reservoir. This flow would not damage any downstream property. For this condition the hazard classification is low.

For a dam failure at Peacham Pond concurrent with the test flood for Marshfield #6 the additional discharge over the Marshfield #6 Dam would be 48,300 CFS. This additional flow would increase the PMF levels in Marshfield Village by about 4 feet and flood 3 more homes in addition to several structures already inundated. The hazard classification then for this dam is considered to be significant.

SECTION 6 - STRUCTURAL STABILITY

6.1 Evaluation of Structural Stability

a. Visual Observations

The visual inspection did not disclose any immediate stability problems.

b. Design and Construction Data

The available data is not sufficient to perform a formal stability analysis.

c. Operating Records

The file data, including past inspections and reports, contain no indications of stability problems.

d. Post-Construction Changes

Neither the visual inspection nor the file data contain any indication of significant structural changes since the original construction.

e. Seismic Stability

The dam is located in Seismic Zone 2 and in accordance with the recommended Phase I guidelines does not warrant seismic analysis.

SECTION 7 - ASSESSMENT, RECOMMENDATIONS/
REMEDIAL MEASURES

7.1 Dam Assessment

a. Condition

Based on the visual inspection and a review of available data, the dam appears to be in fair condition. Areas of concern include the condition of the concrete of the control tower and outlet pipe, the seepage under the dam and the amount of debris in the reservoir area.

b. Adequacy of Information

The information obtained from the visual inspection and file data was adequate for a Phase I inspection, but not for a formal stability analysis of the dam.

c. Urgency

The recommendations and remedial measures should be completed within one year of the receipt of this report.

d. Need for Additional Information

The Phase I inspection does not require any additional information at this time.

7.2 Recommendations

The following actions should be completed under the guidance of a registered professional engineer, qualified in dam design:

1. Repair the interior and headwall invert of the outlet pipe.
2. Repair the spalling concrete of the control tower.

7.3 Remedial Measures

a. Operation and Maintenance Procedures

1. Institute a program of annual technical inspections.
2. Seeps at the base of the dam should be monitored and condition recorded by Green Mountain Power personnel during weekly visits.
3. Remove brush, small trees and debris from the spillway channel on a regular basis.

4. Institute a formal warning system.

7.4 Alternatives

None.

APPENDIX A
VISUAL INSPECTION CHECK LIST

VISUAL INSPECTION CHECK LIST
PARTY ORGANIZATION

PROJECT PEACHAM POND DAM

DATE May 1, 1979

TIME 1:30 - 4:00

WEATHER Cool, light rain

W.S. ELEV. _____ U.S. _____ DN.S.

PARTY:

- | | | |
|----------------------------------|------------|---|
| 1. <u>Walter A. Henry</u> | <u>D-H</u> | 6. <u>Ken Hadd, Green Mountain Power Corp.</u> |
| 2. <u>James A. Dohrman</u> | <u>D-H</u> | 7. <u>Peter Barranco, State of Vermont, Water Resources</u> |
| 3. <u>Sherward G. Farnsworth</u> | <u>D-H</u> | 8. _____ |
| 4. <u>Gonzalo Castro</u> | <u>GEI</u> | 9. _____ |
| 5. <u>Roger Gardner</u> | <u>GEI</u> | 10. _____ |

PROJECT FEATURE	INSPECTED BY	REMARKS
1. _____		
2. _____		
3. _____		
4. _____		
5. _____		
6. _____		
7. _____		
8. _____		
9. _____		
10. _____		

PERIODIC INSPECTION CHECK LIST

PROJECT PEACHAM POND DAM DATE May 1, 1979
 PROJECT FEATURE _____ NAME _____
 DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>DAM EMBANKMENT</u>	<u>Local Datum</u> (mean sea level elevation)
Crest Elevation	Elev. 716.5 feet (1,408.2)
Current Pool Elevation	Elev. 709.3 feet (1,401.0)
Maximum Impoundment to Date	Elev. 711.1 feet (1,402.8) 2,482 acre-feet
Surface Cracks	None observed.
Pavement Condition	Gravel - good, but with some erosion.
Movement or Settlement of Crest	None observed.
Lateral Movement	None observed.
Vertical Alignment	Good.
Horizontal Alignment	Good.
Condition at Abutment and at Concrete Structures	Good.
Indications of Movement of Structural Items on Slopes	Slight downslope movement of abutment of footbridge to control tower
Trespassing on Slopes	Minor.
Sloughing or Erosion of Slopes or Abutments	Minor erosion due to trespassing on slopes.
Rock Slope Protection - Riprap Failures	None observed.
Unusual Movement or Cracking at or Near Toes	None observed.
Unusual Embankment or Downstream Seepage	Some generalized wet areas.
Piping or Boils	None observed.
Foundation Drainage Features	None known.
Vegetation	Small brush downstream face of dam. Small coniferous trees right spillway abutment.
Toe Drains	Rock drain at toe.
Instrumentation System	Gauge board on control tower.

PERIODIC INSPECTION CHECK LIST

PROJECT PEACHAM POND DAM DATE May 1, 1979

PROJECT FEATURE _____ NAME _____

DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>OUTLET WORKS - CONTROL TOWER</u>	
a. Concrete and Structural	
General Condition	Good.
Condition of Joints	Good.
Spalling	Minor at railing supports.
Visible Reinforcing	None.
Rusting or Staining of Concrete	Minor.
Any Seepage or Efflorescence	Minor efflorescence.
Joint Alignment	Good.
Unusual Seepage or Leaks in Gate Chamber	Seepage around gate, bank; estimate 1-2 cfs.
Cracks	None observed.
Rusting or Corrosion of Steel	None.
b. Mechanical and Electrical	
Air Vents	Not applicable.
Float Wells	Not applicable.
Crane Hoist	Not applicable.
Elevator	Not applicable.
Hydraulic System	Not applicable
Service Gates	Manual operator.
Emergency Gates	Not applicable.
Lightning Protection System	None.
Emergency Power System	Not applicable.
Wiring and Lighting System in Control Chamber	Not applicable.

PERIODIC INSPECTION CHECK LIST

PROJECT PEACHAM POND DAM DATE May 1, 1979

PROJECT FEATURE _____ NAME _____

DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>OUTLET WORKS - TRANSITION AND CONDUIT</u>	
General Condition of Concrete	Fair, poured-in-place, with rat holes; one hole 4" x 4" x 15".
Rust or Staining on Concrete	Minor staining.
Spalling	Rat holes.
Erosion or Cavitation	Some erosion of outlet invert and erosion around gate.
Cracking	Major cracking at several joints, 1-1/4-inch around at 40' in from outlet.
Alignment of Monoliths	Fair.
Alignment of Joints	Fair.
Numbering of Monoliths	
	Leakage at service gate to control tower.

PERIODIC INSPECTION CHECK LIST

PROJECT PEACHAM POND DAM DATE May 1, 1979

PROJECT FEATURE _____ NAME _____

DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>OUTLET CHANNEL</u>	
General Condition of Concrete	
Rust or Staining	
Spalling	
Erosion or Cavitation	
Visible Reinforcing	
Any Seepage or Efflorescence	
Condition at Joints	
Drain Holes	
Channel	Rock lined channel.
Loose Rock or Trees Overhanging Channel	Few.
Condition of Discharge Channel	Excellent

PERIODIC INSPECTION CHECK LIST

PROJECT PEACHAM POND DAM DATE May 1, 1979
 PROJECT FEATURE _____ NAME _____
 DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>OUTLET WORKS - SPILLWAY WEIR, APPROACH AND DISCHARGE CHANNEL</u>	<u>EMERGENCY SPILLWAY</u>
a. Approach Channel	Stone riprap.
General Condition	Good.
Loose Rock Overhanging Channel	None.
Trees Overhanging Channel	None.
Floor of Approach Channel	Earth, some grass and small brush.
b. Weir and Training Walls	
General Condition of Concrete	Good.
Rust or Staining	Minor.
Spalling	None.
Any Visible Reinforcing	None.
Any Seepage or Efflorescence	Minor.
Vegetation	Left abutment, small coniferous trees.
Drain Holes	None observed.
c. Discharge Channel	Stone riprap.
General Condition	Good.
Loose Rock Overhanging Channel	None.
Trees Overhanging Channel	None.
Floor of Channel	Earth, grass, small trees at downstream end of channel.
Other Obstructions	Stumps (see photos).

GREEN MOUNTAIN POWER CORPORATION

INSPECTION REPORT

ON

PEACHAM POND Dam

1. Date of inspection 6-15-54 2. Water conditions Elev. 710.4
Valve open 2"

GENERAL DATA:

3. Location of dam Peacham Brook, Town of Peacham
4. Owner and operator Green Mt. Power Corp.
5. Characteristic features of dam Erbankment dam 25 ft. high with open
crest overflow in original material at south end.
6. Other related data Natural pond source of Winooski River spills into
Molly's Pond

OBSERVATIONS:

7. Condition of structure Satisfactory

8. Condition of equipment Satisfactory

9. Operation Satisfactory

10. Maintenance Spillway section cleared of brush

REMARKS:

Inspected by

J. H. Baker
J. H. Baker
Manager of Operations

*Dam: Hydro
Electric*

INSPECTION REPORT
ON

PEACHAM FORD

Dam

1. Date of inspection April 24, 1953 2. Water conditions Below spillway
Crest

GENERAL DATA:

3. Location of dam Peacham Brook, Town of Peacham
4. Owner and operator Green Mt. Power Corp.
5. Characteristic features of dam Embankment dam 25 ft. high with
open crest overflow in original material at south end.
6. Other related data For a detailed information see PSC case
file 1562 and writer's initial report on structure
(dated May 25, 1949)

OBSERVATIONS:

7. Condition of structure Same amount of seepage as noted
previously. More advanced erosion at discharge end of conduit.
Detected minor slope erosion resulting from rain water wash.
8. Condition of equipment Satisfactory
9. Operation Satisfactory
10. Maintenance Satisfactory

REMARKS:

No change in the status of this dam

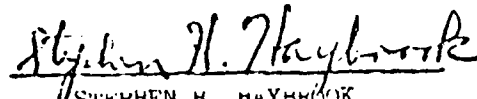
Inspected by Stephen H. Haybrook

PEACHTAM POND DAM CONTINUED:

A beaver-dam obstruction exists in the tailrace of sluiceway.
However, it would not interfere with any flood flow passing the spillway.

Conclusion:

The writer concludes that the dam appears in good condition as far as its safety is concerned.


STEPHEN H. HAYBROOK
HYDRAULIC ENGINEER

Public Service Commission
Montpelier, Vermont
May 25, 1949
SMH:BS

Report No. 57

PEACHAM POND DAM CONTINUED:-

History of the dam:-

Peacham Pond dam was constructed in 1929-30. At that time N. K. Barrows, consulting engineer, was retained by the Commission as engineer for the project. He reviewed the design and supervised the construction. According to his report (filed in P.S.C. case No. 1562) the construction was properly carried out.

This dam was originally designed and constructed as part of a future hydro-electric power plant. Company officials now believe that the site is uneconomical for further development. Thus it remains as a storage reservoir, for developments downstream.

Condition of the dam:

The writer examined the structure on May 10, 1949 and made the following observations:

The pond surface was at a level about a foot below spillway crest. Discharge past the dam was being controlled by means of the intake structure and sluiceway;

Slight seepage was observed, particularly at the center section where the hydrostatic head is the greatest. It is noted that Mr. Barrows observed seepage at the time the dam was built. Indications are that the present quantity of seepage has not materially increased over the seepage existing in 1930. The rock downstream toe, assumed to be graded, serves to stabilize the embankment slope.

In general, the dam and appurtenant structures, appeared in good condition, indicating that proper maintenance is given to the development. The downstream end of the sluiceway conduit showed signs of erosion but the condition was not serious.

REPORT ON PEACHAM POND DAM

Description:

The Peacham Pond dam of the Green Mountain Power Corporation is located on Peacham Brook in the town of Peacham. It supplements the storage capacity of Molly's Falls Reservoir, which is located about one mile below Peacham Pond.

At spillway crest level the surface area of Peacham Pond is about 370 acres and its storage capacity is about 150,000,000 cu. ft. The drainage area is 7 sq. mi.

The dam is constructed of homogeneous earth fill about 700 ft. long and 25 ft. high at its maximum section. It has a top width of 10 ft. and, in general, the upstream slope is 1-on-3 and the downstream slope is 1-on-2. The upstream slope is covered with 12 inches of stone rip-rap. The downstream slope is covered with sod and is well reinforced with a rock-fill toe. The structure is founded on hard-pen (earth).

At the south end of the embankment, a spillway section, 90 ft. long, is formed between concrete abutments; and consists of a vertical cut-off wall 2 ft. thick and extended 5 ft. into the impervious material. Downstream from the cut-off wall the channel is paved for 55 ft. with stone laid dry and finished off with a 5 ft. masonry cut-off.

Outlet works through the middle of the dam include an intake structure, a concrete gate house with a 5 ft. diameter iron sluice gate, manually operated; and a 4 ft. diameter concrete conduit extended for 125 ft. through the embankment.

Details of the dam and appurtenant structure are contained in P.S.C. case file No. 1562.

COMMISSIONS AND RECOMMENDATIONS

This project was designed and supervised by competent engineers and has been well executed. While the spillway and its control are constructed upon earth foundation, this is of large and in various material and the construction is proper for these conditions.

It does not appear likely that wash will occur at the downstream end of the spillway channel, as due to the small reservoir drainage area and its relatively large water area, flow over the spillway will seldom be of any considerable amount. The condition of this spillway channel should however be noted from time to time and any repairs made if necessary.

This dam as constructed in my judgment provides adequately for the public safety and its manner of construction is satisfactory.

Acknowledgments are made to the engineers of the Trojan Engineering Corporation for assistance and courtesies rendered.

Respectfully submitted,



Accompanied by plans

M-92-1

M-92-2

IN SUMMARY

May 15, 1930. After providing four days of work on the spillway, the work was discontinued on May 15, 1930, as the water level had risen to a point where it was no longer possible to continue the work. The height of the water was 17.5 feet.

May 15, 1930. Visited the job with Mr. H. C. Clayton. After an inspection, and while suggestions were being made in regard to the work, principally on the part of Mr. Clayton, the water level rose to a point where it was no longer possible to continue the work. The height of the water was 17.5 feet. All suggestions were carried out.

May 18, 1930. Visited job with Mr. P. A. Shaw of the Insuring Corporation (who constructed the work) and Mr. H. C. Clayton. Work on the embankment nearly completed and well compacted. By working continuously night and day, and also due to good weather conditions, no trouble was experienced with frozen earth fill.

Shortly after this date the embankment was completed and work ceased for the winter.

June 10, 1930. Visited job with Inspector Perry, particularly to note conditions on spillway, where some of the slope was in progress. At this time about 4 inches depth of water was flowing over the spillway and the reservoir was full.

Aug. 18, 1930. Visited job to note conditions at spillway. Reservoir full to near spillway level; no apparent seepage at spillway cutoff and work completed; earth embankment well compacted and only very slight seepage noted at a few points at foot of slope.

Office Work. This has included a study to determine the adequacy of the spillway and its channel and a general review of design. These were found satisfactory.

[illegible][illegible]

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

2000

The dam is constructed of rolled earth fill about 1' high. The dam is 15 ft. in height, with a 15 ft. concrete spillway, all with earth (hard) 1' thick, and a 15' concrete outlet channel, all of which is in the future it can be changed to a concrete lining. A distance of about 1/2 mile, where a power house will install.

The cutting bank face is 10 ft. wide at the top (N. 710.1); it is 1 on 2 slopes to N. 711.3 and 1 on 3 slopes to the bottom, all covered with 1st growth. Its formation is 1 on 2 with a 6 ft. berm at about 11.5 ft. It is constructed of boulders, material of rock having originated near by and at the downstream toe is well reinforced by rock fill.

1. The first step in the process is to identify the problem or issue that needs to be addressed. This involves gathering information and understanding the context of the problem.

1. Mr. J. Edgar Hoover
 Director
 Federal Bureau of Investigation
 Washington, D. C.

APPENDIX B

PROJECT RECORDS AND PLANS

1. Listing of Design, Construction and Maintenance Records
 - a. Estimated Construction Quantities
 - b. Final Construction Report by H. K. Barrows
2. Copies of Past Inspection Reports
 - a. Inspection Report by Vermont Public Service Commission, dated May 25, 1949
 - b. Inspection by Public Service Commission, April 24, 1953
 - c. Inspection by Green Mountain Power Corporation, June 15, 1954
3. FERC application dismissal notification, August 24, 1979

PERIODIC INSPECTION CHECK LIST

PROJECT PEACHAM POND DAM DATE May 1, 1979
 PROJECT FEATURE _____ NAME _____
 DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>RESERVOIR AREA</u>	
Stability of Shoreline	Good, some floating debris, stumps and logs.
Sedimentation	Could not observe.
Changes in Watershed Runoff Potential	None known.
Upstream Hazards	Camps near water.
Downstream Hazards	Increased flow to Marshfield #6, then the Village of Marshfield.
Alert Facilities	Personal observations.
Hydrometeorological Gauges	Gauge board on tower.
Operational and Maintenance Regulations	None known.

PERIODIC INSPECTION CHECK LIST

PROJECT PEACHAM POND DAM DATE May 1, 1979
 PROJECT FEATURE _____ NAME _____
 DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>OUTLET WORKS - SERVICE BRIDGE</u>	
a. Super Structure	
Bearings	Good.
Anchor Bolts	Good.
Bridge Seat	Good.
Longitudinal Members	Good, steel I-beams.
Underside of Deck	Good.
Secondary Bracing	Good.
Deck	Wood, good condition.
Drainage System	Not applicable.
Railings	Fair, anchors are eroding on tower.
Expansion Joints	Not applicable.
Paint	Good.
b. Abutment and Piers	
General Condition of Concrete	Good.
Alignment of Abutment	Slight downslops movement.
Approach to Bridge	Good.
Condition of Seat and Backwall	Good.

PERIODIC INSPECTION CHECK LIST

PROJECT PEACHAM POND DAM DATE May 1, 1979

PROJECT FEATURE _____ NAME _____

DISCIPLINE _____ NAME _____

AREA EVALUATED	CONDITION
<u>OUTLET WORKS - SERVICE BRIDGE</u>	
a. Super Structure	
Bearings	Good.
Anchor Bolts	Good.
Bridge Seat	Good.
Longitudinal Members	Good, steel I-beams.
Underside of Deck	Good.
Secondary Bracing	Good.
Deck	Wood, good condition.
Drainage System	Not applicable.
Railings	Fair, anchors are eroding on tower.
Expansion Joints	Not applicable.
Paint	Good.
b. Abutment and Piers	
General Condition of Concrete	Good.
Alignment of Abutment	Slight downslops movement.
Approach to Bridge	Good.
Condition of Seat and Backwall	Good.

UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION



Green Mountain Power Corporation)

Project Nos. 2439, 2480, and 2653

ORDER DISMISSING APPLICATIONS
FOR LICENSE

(Issued August 24, 1979)

Green Mountain Power Corporation (GMPCO) has filed applications for license for its constructed Molly's Falls Project No. 2439, Middlesex Project No. 2480, and Gorge Project No. 2653, all located on the Winooski River in the State of Vermont.

The Molly's Falls Project was completed in 1929. The project consists of an earth dam 700 feet long and 26 feet high, Peacham Pond Storage Reservoir with 2,867 acre-feet of usable storage capacity, an earthfill dam 980 feet long and 48 feet high, a reservoir with a storage capacity of 8,078 acre-feet, a 6-foot-diameter penstock 8,293 feet in length, a surge tank, and a powerhouse containing a 5,000-kW generating unit. Project power is sold to customers in the Vermont area or transmitted over GMPCO's transmission system to New England Power Company's (NEPCO) interconnected transmission system.

Constructed in 1929, the Middlesex Project consists of a concrete gravity dam 283 feet long and 50 feet high, a reservoir with a surface area of 33 acres, two 9-foot-diameter steel penstocks 80 feet long, a powerhouse containing two generating units with a total installed capacity of 3,200 kW, a 2.3/34.5-kV substation, and a 34.5-kV transmission line 300 feet long. The Middlesex Project power is also sold to customers in the Vermont area or transmitted over GMPCO's system to NEPCO's transmission system.

Completed in 1928, the Gorge Project consists of a stone masonry dam 48 feet high and 95 feet long, a concrete dam 42 feet high and 298 feet long, a reservoir with no appreciable storage capacity, a rock channel 195 feet long,

DC-A-1

Project Nos. 2439,
2480, and 2653

-2-

a short steel penstock and a powerhouse containing a 3,000-kw generating unit. Power from this project too is sold to customers in the Vermont area or transmitted over GMPCO's system to NEPCO's transmission system.

Navigability

Section 23(b) of the Federal Power Act (Act), 16 U.S.C. §817, requires the licensing of projects located on navigable waterways of the United States. The staff has researched the navigability of the Winooski River and found that from its mouth to river mile 9.5 (Winooski Falls), the Winooski was used for logging and boating. The staff has uncovered no evidence, however, that the Winooski is navigable upstream from that point. ^{1/} There is evidence of the existence of numerous sawmills in the area, but no reference has been found to the running of logs above Winooski Falls. Based on the available information here, there is insufficient evidence to find at this time that the Winooski River above river mile 9.5 is navigable within the meaning of Section 3(8) of the Act, 16 U.S.C. §796(8). If new evidence is uncovered in the future showing that the river is navigable, Section 23(b) would, of course, require licensing of the projects; and under Section 4(g) of the Act, 16 U.S.C. §797(g), GMPCO could be ordered to apply for licenses.

Post-1935 Construction

If "post-1935 construction" has occurred at a project and the operation of the project affects the interests of interstate or foreign commerce, Section 23(b) requires licensing of the project even if it is not located on a

^{1/} This reach of the Winooski includes Project No. 2439 located at river mile 79.5, Project No. 2480 at river mile 49.3, and Project No. 2653 at river mile 10.6.

Project Nos. 2439,
2480, and 2653

-3-

navigable waterway. 2/ Generally, post-1935 construction requires work that increases the project's head or its generating or water storage capacity or that otherwise significantly modifies the project's pre-1935 design or operation. See Puget Sound Power & Light Co. v. FPC, 557 F.2d 1311 (9th Cir. 1977).

The Molly's Falls, Middlesex, and Gorge Projects all were constructed before 1935. The record here does not indicate any post-1935 construction at any of the three projects. Therefore, Section 23(b) does not at this time appear to require licensing of the projects, 3/ which do not occupy any federal lands or utilize surplus water or water power from a government dam.

2/ Section 23(b) provides that any person intending to construct any project works across any non-navigable stream subject to Congressional authority under the commerce clause must first file a declaration of his intention to do so. The Commission then investigates the proposed construction and, if it finds that such construction would affect the interests of interstate commerce, the project must be licensed. The courts have held that this portion of Section 23(b) applies only to projects where construction has occurred after August 26, 1935. Farmington River Power Co. v. FPC, 455 F.2d 86 (2d Cir 1972). The kinds of construction that trigger a duty to file a declaration of intention are commonly called "post-1935 construction".

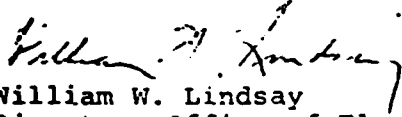
3/ Because there has been no "post-1935 construction", the question of whether any of the projects affects interstate commerce is not reached. If the owner of one of the projects proposed construction in the future, it would have to file a declaration of intention under Section 23(b), at which time the project's effect on interstate commerce would be examined.

Project Nos. 2439,
2480, and 2653

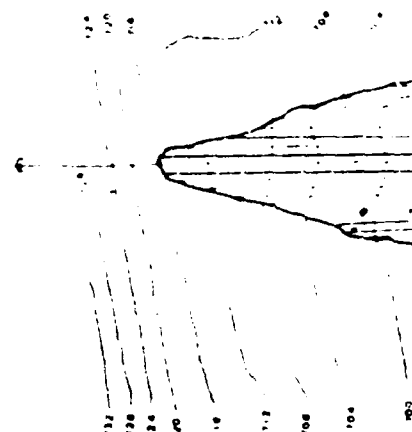
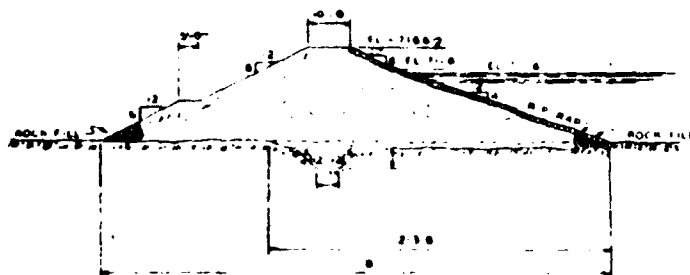
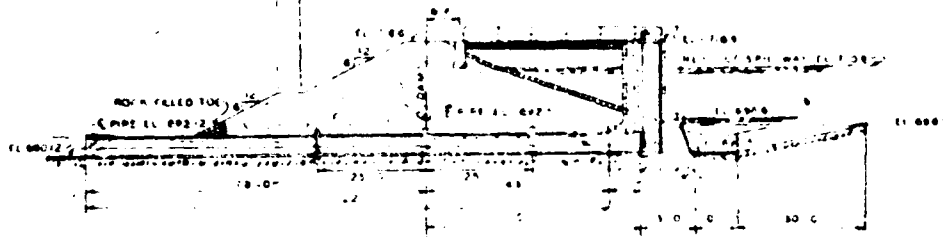
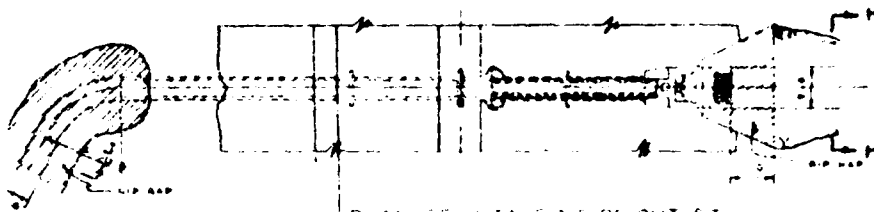
-4-

It is ordered that: 4/

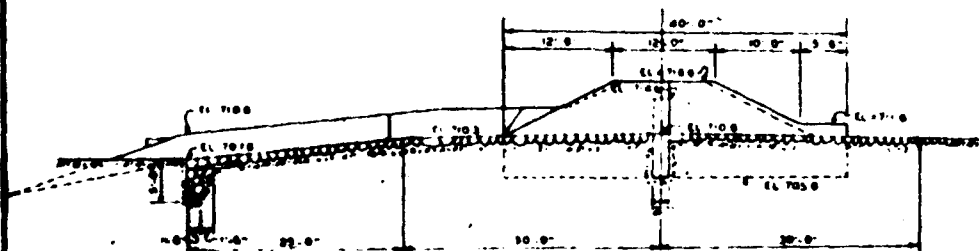
Green Mountain Power Corporation's applications for licenses for the Molly's Falls Project No. 2439, the Middlesex Project No. 2480, and the Gorge Project No. 2653 are dismissed for lack of adequate evidence that they are required to be licensed under Section 23(b) of the Federal Power Act. Their dismissal is without prejudice to any future determination, upon new or additional evidence, that licensing is required.

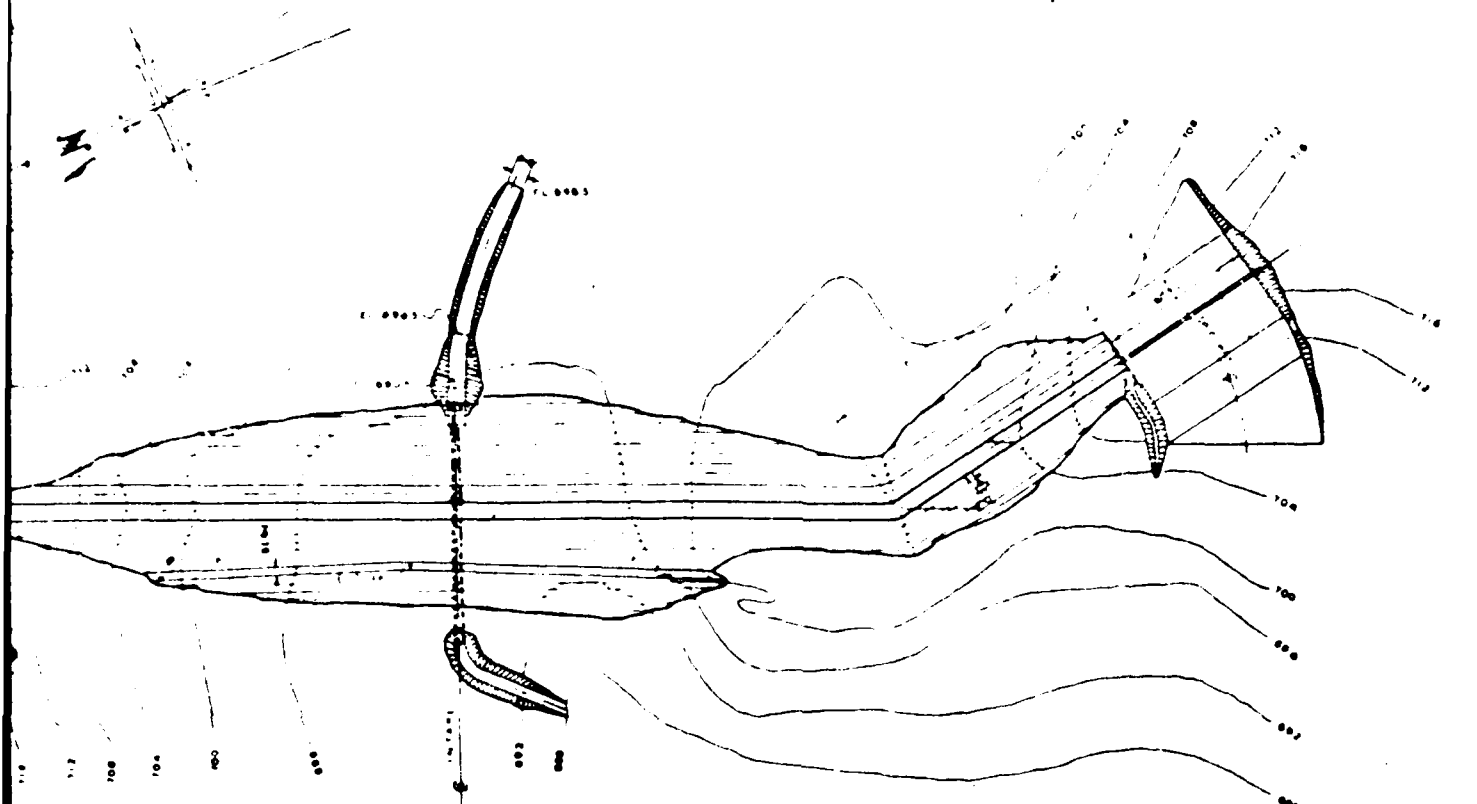

William W. Lindsay
Director, Office of Electric
Power Regulation

4/ This order is issued by delegation of authority under Section 3.5(g) of the Commission's Regulations, 18 CFR 3.5(g), as amended in Docket No. RM 78-19 (August 14, 1978) and Docket No. RM 79-59 (July 23, 1979).

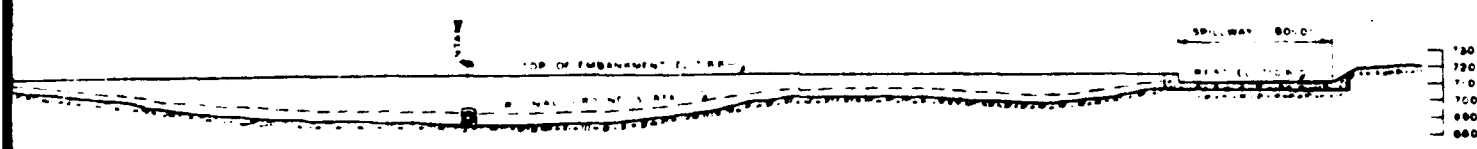
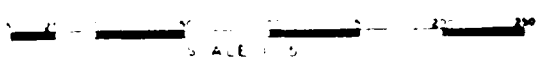


NOTE





PLAN
SCALE 1" = 50'-0"



PROFILE IN CENTER LINE OF DAM
SCALE 1" = 50'-0"

NOTE: ELEVATIONS ARE SHOWN AT LOCAL DATUM
FOR MSL ADD 691.65

DIFRESNI-HENRY ENGINEERING CORP. AS HETI ENGINEERS		U.S. ARMY ENGINEER DIV. NEW ENGLAND CORPS OF ENGINEERS WALTHAM, MASS.	
NATIONAL PROGRAM OF INSPECTION OF NON-FED. DAMS			
PEACHAM POND			
PLAN - SECTIONS			
CLIENT NO	04-0098	SCALE	N T S
ENG.	JAD	DATE	7-26-79

12

APPENDIX C
PHOTOGRAPHS

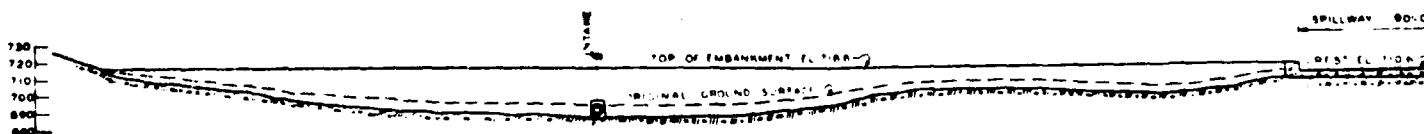
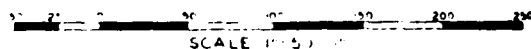
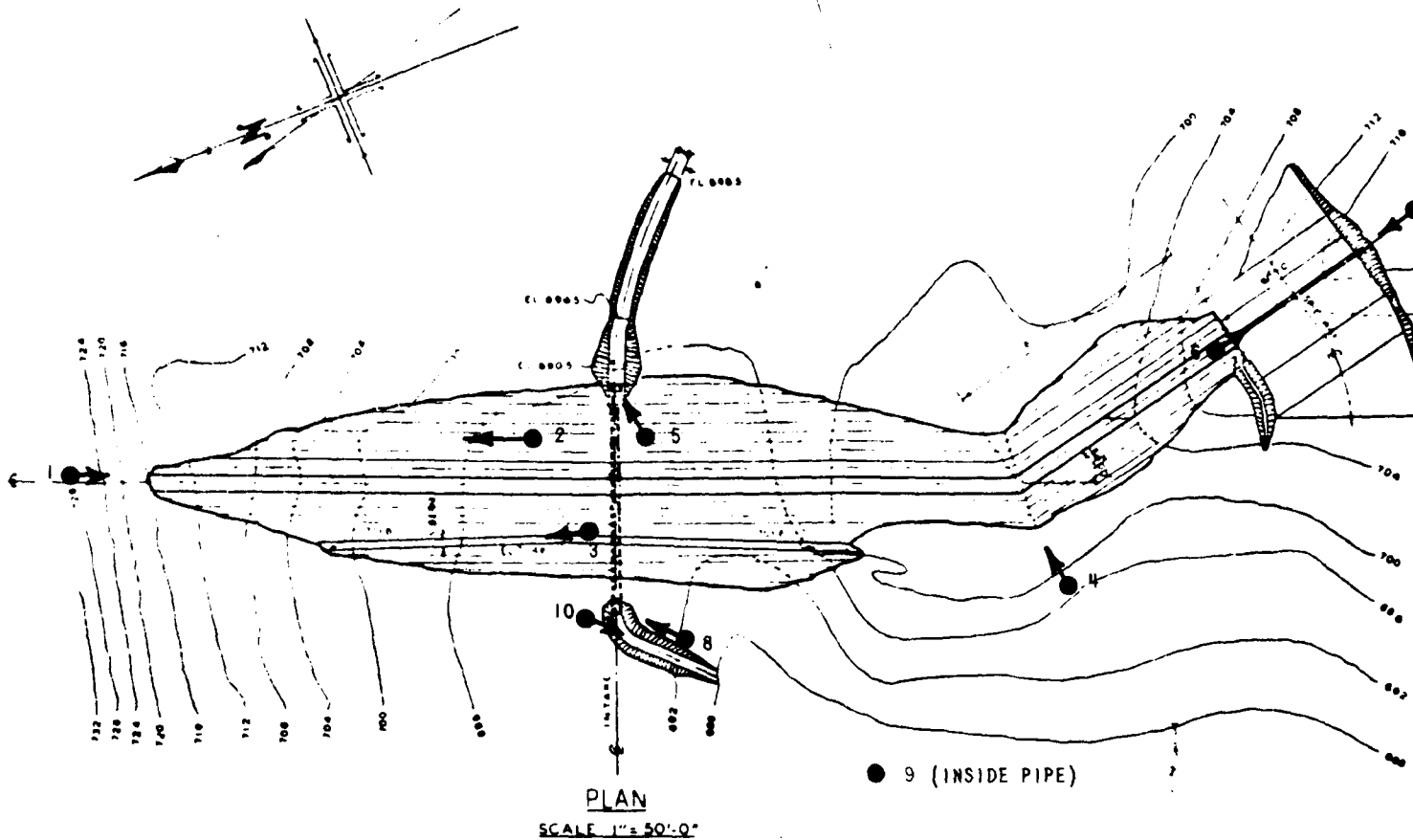
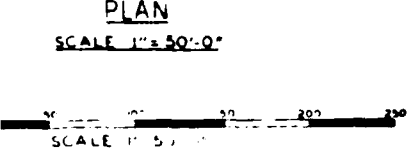
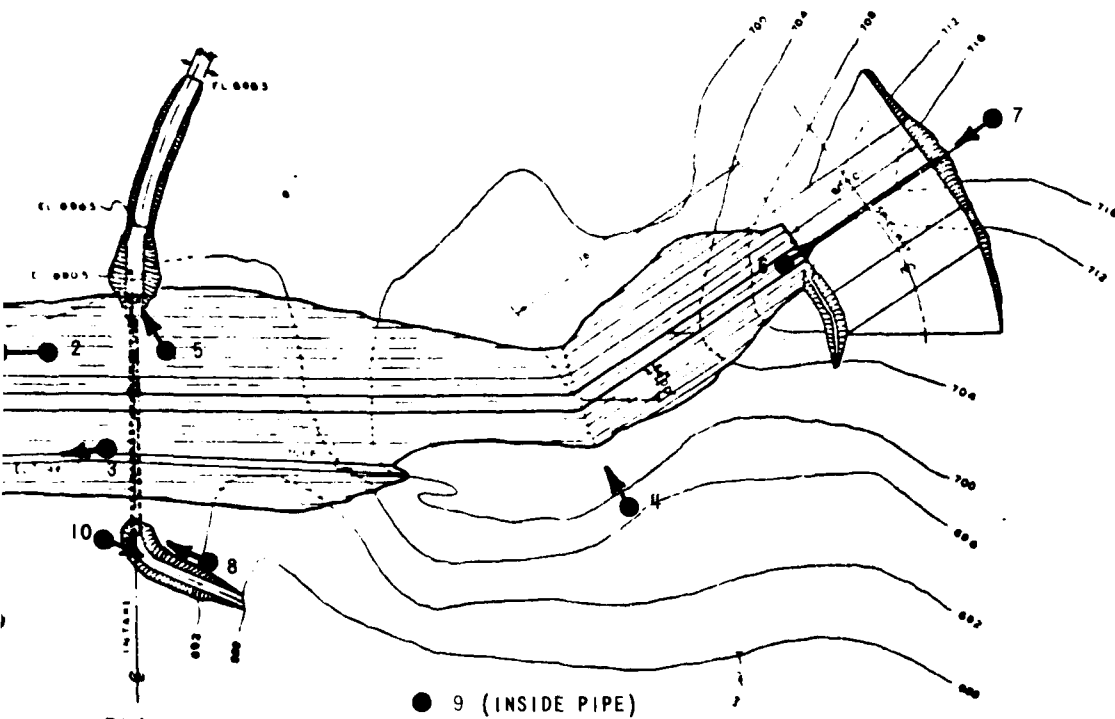


PHOTO LOCATION
AND NUMBER

NOTE: ELEVATIONS ARE SHOWN AT LOCAL DATUM
FOR MSL ADD 691 65

DUFRESNE-HENRY ENGINEERING CORP.		U.S. ARMY ENGINEER CORPS	
ARCHITECT-ENGINEER		WAL	
NATIONAL PROGRAM OF INSPECTION OF			
PEACHAM POND			
PHOTO LOCATION MAP			
CLIENT NO	04-0098	SCALE	N
ENG	JAD	DATE	7-26



DUFRESNE-HENRY ENGINEERING CORP. ARCHITECT-ENGINEER		U.S. ARMY ENGINEER DIV. NEW ENGLAND CORPS OF ENGINEERS WALTHAM, MASS.	
NATIONAL PROGRAM OF INSPECTION OF NON-FED. DAMS			
PEACHAM POND			
PHOTO LOCATION MAP			
CLIENT NO	04-0098	SCALE	N T S
ENG.	JAD	DATE	7-26-79

PHOTO LOCATION
AND NUMBER

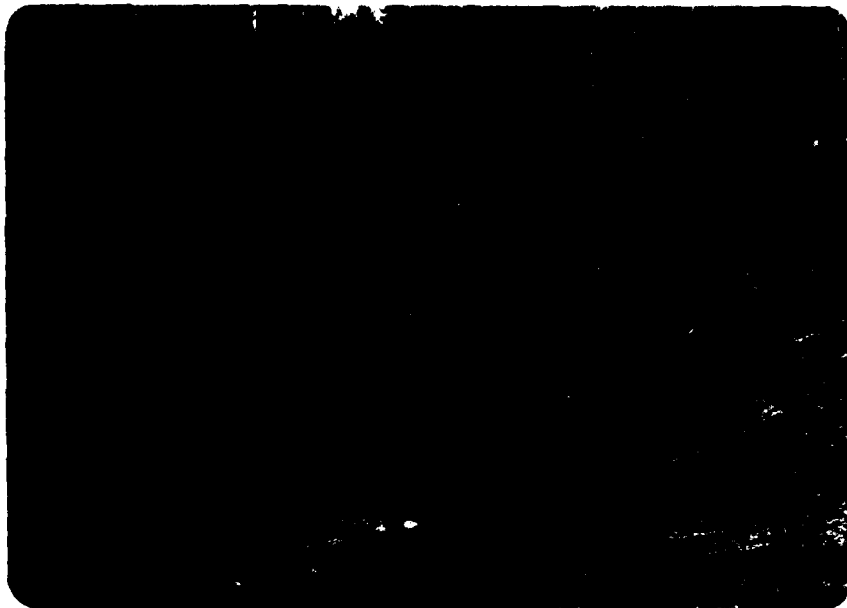
ARE SHOWN AT LOCAL DATUM
) 691 65



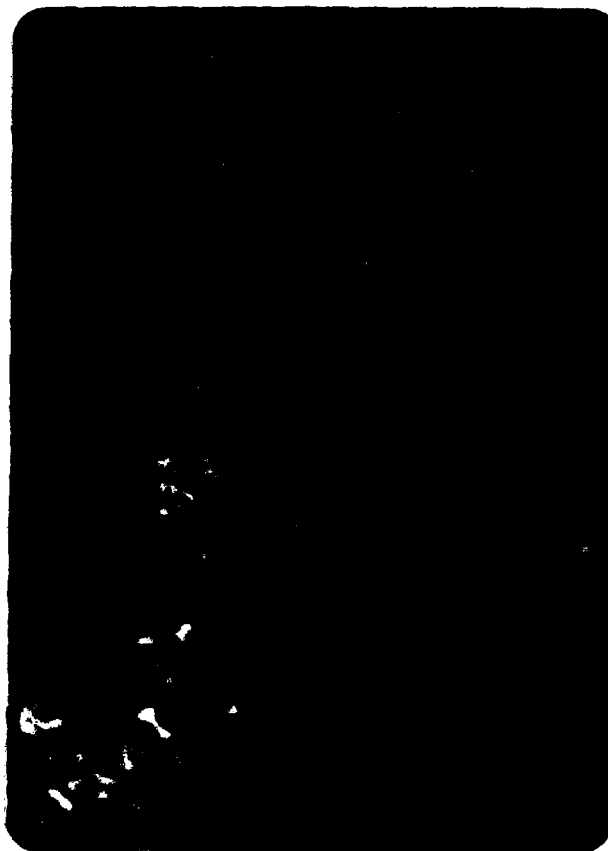
#1. VIEW OF TOP OF DAM, OUTLET CONTROL TOWER AND SERVICE BRIDGE.



#2. VIEW OF UPSTREAM SLOPE WITH RIPRAP.



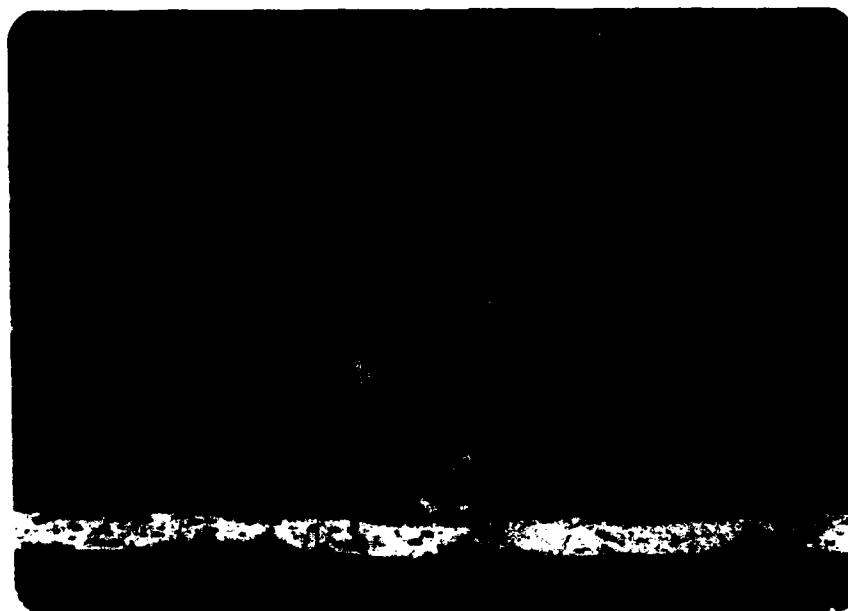
#3. VIEW OF DOWNSTREAM SLOPE SHOWING TOE DRAIN.



#4. VIEW OF SEEP
AREA DOWNSTREAM
OF TOE.



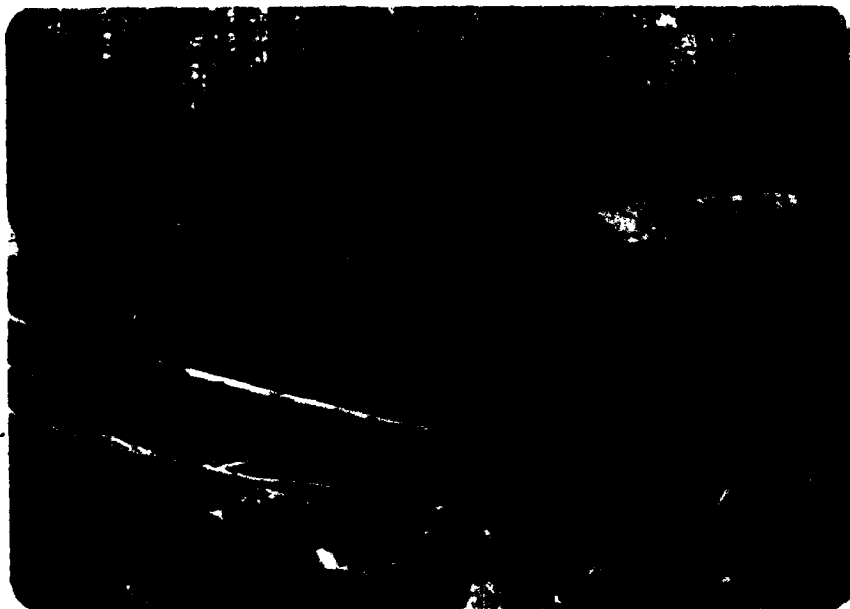
#5. VIEW OF DETERIORATING CONCRETE ON OUTLET
CONTROL TOWER.



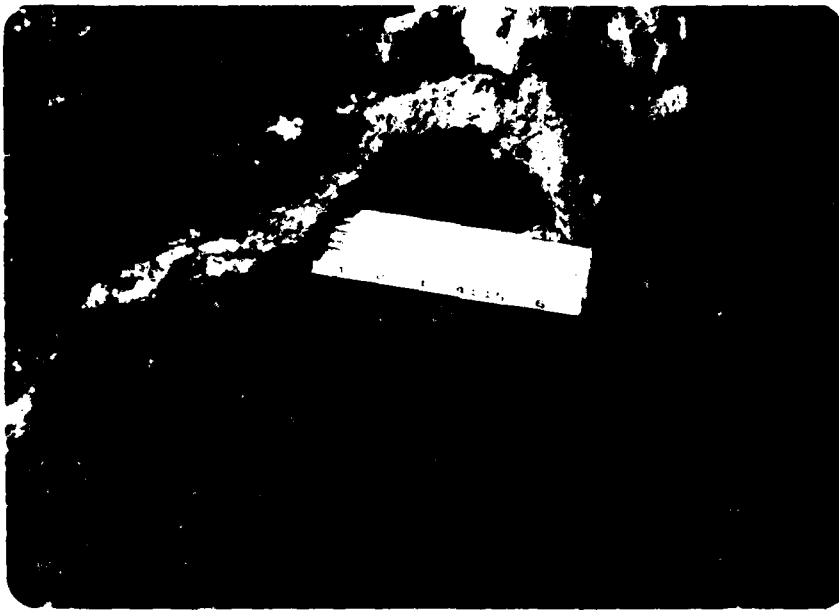
#6. VIEW OF EMERGENCY SPILLWAY LOOKING TOWARD
LEFT ABUTMENT.



#7. VIEW OF EMERGENCY SPILLWAY LOOKING TOWARD
MAIN DAM.



#8. VIEW OF PENSTOCK OUTLET AND BEGINNING OF
DOWNSTREAM CHANNEL.



#9. VIEW OF INTERIOR PENSTOCK WALL SHOWING CONCRETE
DETERIORATION AND INFILTRATION.



#10. VIEW OF DOWNSTREAM CHANNEL.

DUFRESNE-HENRY ENGINEERING CORPORATION

E S.G. FARNSWORTH
DATE 5-9-79

SUBJECT PEACHAM POND DAM
STAGE - AREA & STORAGE

SHEET NO. OF
JOB NO. 04-0098

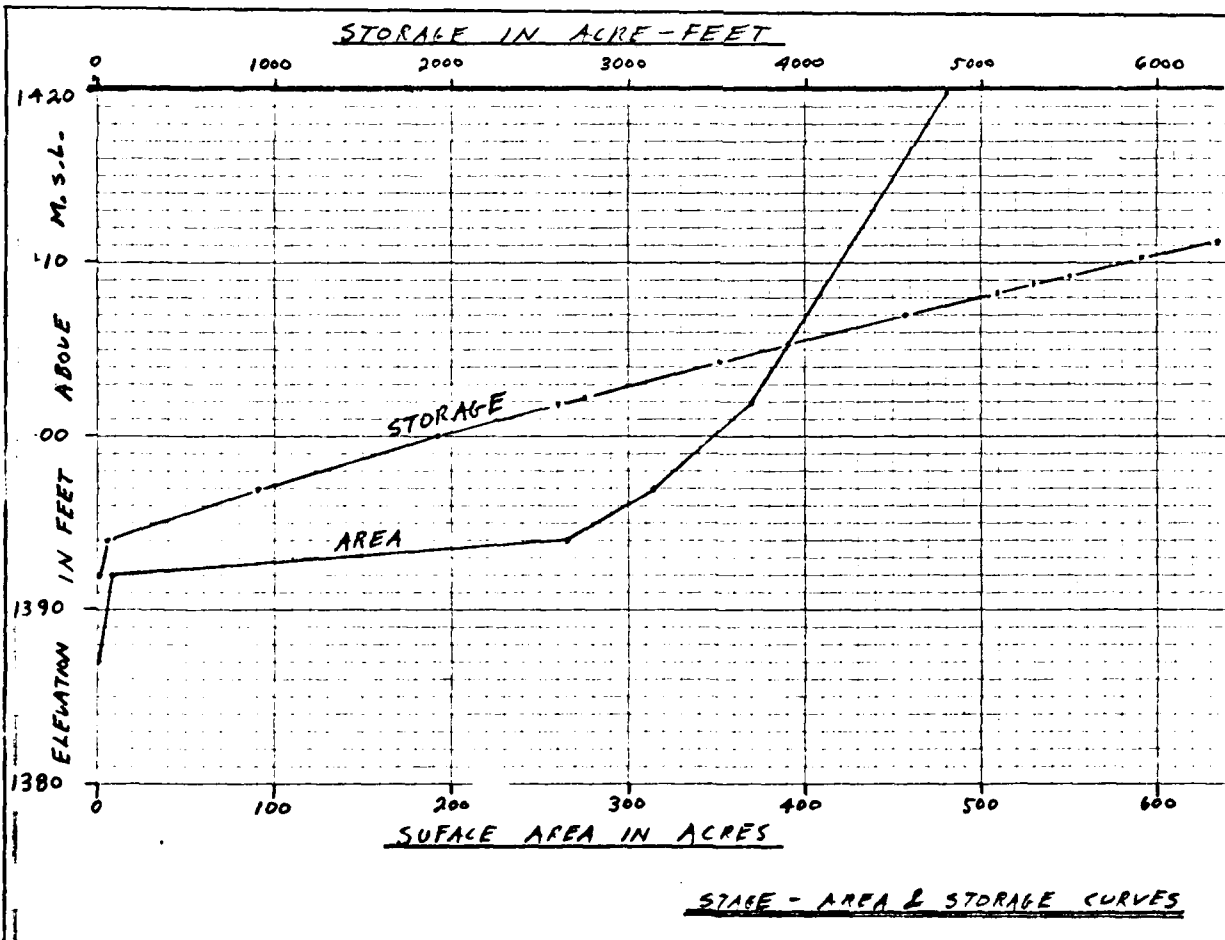
STAGE - AREA TABLE

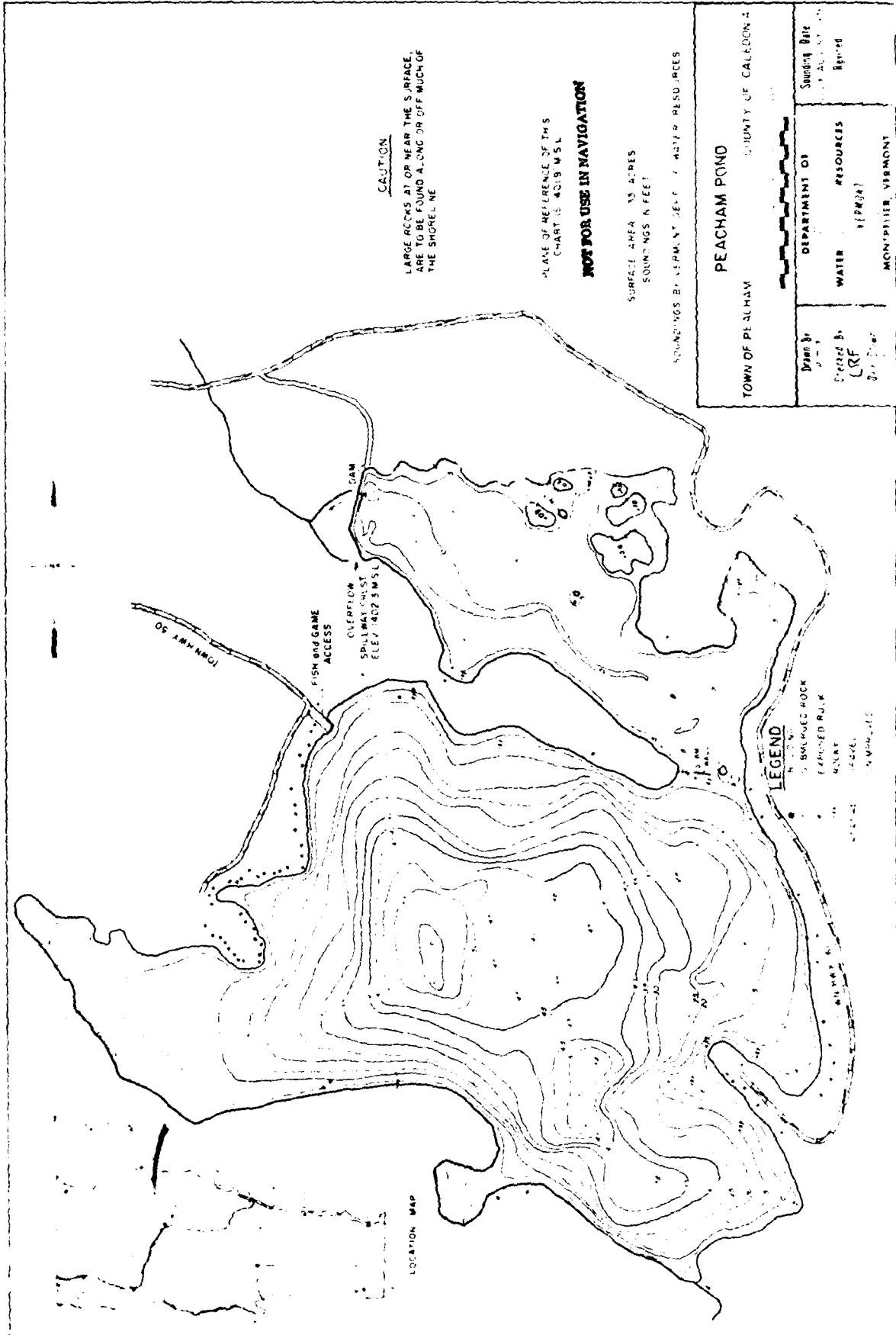
STAGE ELEVATION M.S.L. (ft)	AREA IN ACRES		
	OUTLET POND	MAIN POND	TOTAL AREA
1386.9	0.1	PERCHED *	1
1391.9	8.1	STORAGE	8
1394	30	236	266
1396.9	59	257	316
1401.9	79	290	369
1420.0	→	→	479 **

* ACCORDING TO BOTH
KEN HADD (GMP) AND PETER
BARRANCO (VT. W.R.) THEIR
IS A WEIR IN THE OLD
DAM WHICH LOWERS
THE PERCHED STORAGE
ELEVATION 2.0² FEET
TO 1394.0±.

S&F 5/15/79

** FROM U.S.G.S. SHEET, $(0.77 \text{ IN}^2) (5208 \text{ F}^2/\text{IN})^2 = 43,560 \text{ SF/AC} = 479 \text{ AC}$





CAUTION

LARGE ROCKS AT OR NEAR THE SURFACE ARE TO BE FOUND ALONG OR OFF MUCH OF THE SHORELINE

PLACE OF REFERENCE OF THIS CHART IS 4019 M.S.L.

NOT FOR USE IN NAVIGATION

SURFACE AREA 13 ACRES
SOUNDINGS IN FEET

SOUNDINGS BY VERMONT DEPT. OF NATURAL RESOURCES

TOWN OF PEACHAM		COUNTY OF CALDOON, VERMONT	
Drawn by J. W. B.	Checked by C.R.F.	DEPARTMENT OF WATER RESOURCES	Sounding Date 1954
		MONTPELIER, VERMONT	

DUFRESNE-HENRY ENGINEERING CORPORATION

Y. S.G. FARNSWORTH
DATE 5-2-79

SUBJECT PEACHAM POND DAM
STORAGE

SHEET NO. _____
JOB NO. _____

ELEVATION	DEPTH	LOCATION & DEEP AREA	SURFACE AREA
1401.9		OVER ALL POND **	
1396.9	-5	OUTLET POND AREA $7.15 \text{ IN}^2 \times (600 \text{ FE/IN})^2 \div 43,560 \text{ SF/AC} = 59.1 \text{ AC}$	
1391.9	-10	$0.98 \text{ IN}^2 \times (600 \text{ FE/IN})^2 \div 43,560 \text{ SF/AC} = 8.1$	
1386.9	-15	$0.01 \text{ IN}^2 \times (600 \text{ FE/IN})^2 \div 43,560 \text{ SF/AC} = 0.1$	
1401.9	0	$(10.08 - 0.98 \text{ IN}^2) \times (600 \text{ FE/IN})^2 \div 43,560 \text{ SF/AC} = 79.3$ {MAIN BODY OF POND} **	
1396.9	-5	$31.08 \text{ IN}^2 \times (600 \text{ FE/IN})^2 \div 43,560 \text{ SF/AC} = 256.9$	
1391.9	-10	$26.79 \text{ IN}^2 \times (600 \text{ FE/IN})^2 \div 43,560 \text{ SF/AC} = 221.0$	
1401.9	0	$35.10 \text{ IN}^2 \times (600 \text{ FE/IN})^2 \div 43,560 \text{ SF/AC} = 290$	$290 + 79.3 = 369.4 \text{ AC}$
1	-	U.S.G.S SHEET AREA OF PEACH POND *	
1401		$(.56 \text{ IN}^2) (5208 \text{ FE/IN})^2 \div 43,560 \text{ SF/AC} = 358$	358 AC
1420		$(0.77 \text{ IN}^2) (5208 \text{ FE/IN})^2 \div 43,560 \text{ SF/AC} = 479$	479 AC

SURFACE AREA AT TOP OF DAM, ELEV 1408.3

@ 1401.9 = 369.4 AC

∴ @ 1408.3 = 408 AC

@ 1420 = 479 AC

AREA @ 1394 FOR MAIN POND?

@ 1396.9 , 256.9 AC

∴ @ 1394 , 236 AC

@ 1391.9 , 221 AC

AREA @ 1394 FOR OUTLET POND

@ 1396.9, 59.1

1391.9, 8.1

∴ @ 1394 , 29.5 AC

* REFERENCE: U.S.G.S. QUADRANGLE, PLAINFIELD, VT., 1:62500, 1953

* REFERENCE, VT. DEPT. OF WATER RESOURCES, PEACH POND
DEPTH CONTOUR LINES.

DUFRESNE-HENRY ENGINEERING CORPORATION

S.G. FARNSWORTH
TE 5-14-79

SUBJECT MARSHFIELD #6
SUB-AREA HYDROLOGY DATA

SHEET NO. 2 OF
JOB NO. 09-0097

SUB-AREA #	DRAINAGE AREA A		LENGTH OF STREAM			ELEVATIONS @		S (ft/ft)	Tp (hrs)	REMARKS
	IN ²	SQ. MI.	IN.	MILES	L 10% (min)	10% L (ft)	85% L (ft)			
7	0.53	0.52	0.52	0.51	.05	1230	1270	10.4	0.47	(2-D) 78 = .10
8	1.00	.97	1.00	0.99	.10	1280	1770	6.60	.54	A), 78 = .10
9	10.71	10.42	5.50	5.50	.55	1410	1915	12.2	2.64	(B-S) 78 = .17
10	2.07	2.01	1.95	1.92	.19	1320	1760	3.06	1.02	(B-C) 78 = .10
11	3.78	3.68	1.67	1.65	.17	1280	1630	2.83	0.93	INCLUDES NES.
SUB-TOTAL	-	17.6 SQ. MI.	-	-	-	-	-	-	-	-
TRIBUTARY 1-6	-	5.87	-	-	-	-	-	-	-	-
	-	23.47 SQ. MI.	-	-	-	-	-	-	-	-
12	22.45	28.75	9.00	8.88	.89	875	1350	71	4.2 hrs	78 = .10
D-9										

$$Tp = 2.2 \left[\frac{L L_c}{V^5} \right]^{.37}$$

$$A = 1 \text{ IN}^2 = .973 \text{ SQ. MI.}$$

$$S = \frac{(\text{ELEV}_{0.52} - \text{ELEV}_{10.4})}{(752 L)}$$

$$1 = .06$$

$$A \times T_{10} \rightarrow \frac{.08}{3.60} = .18$$

DUFRESNE-HENRY ENGINEERING CORPORATION

S.G. FARNSWORTH
5-8-79

SUBJECT PEACHAM POND DATA
SUB-AREA HYDROLOGY DATA-NECI

SHEET NO. 1 OF
JOB NO.

SUB-AREA #	DRAINAGE AREA A		LENGTH OF STREAM		ELEVATIONS @		S (ft/mi)	Tp (hrs)	REMARKS
	IN ²	SQ. MI.	IN.	MILES	10% L (ft)	85% L (ft)			
1	1.89	1.84	2.3	2.27	1420	2120	411	1.10	T787.41 6.6/100% 787.11
2	0.38	0.37	0.5	0.99	1430	1800	1007	.3	5.5, 787.12
3	1.05	1.02	1.7	1.68	1470	2140	532	.84	5.5, 787.12
4	0.59	.57	1.35	1.33	1420	1750	331	.77	5.5, 787.12 A 258
5	0.22	.22	.58	.57	1410	1480	144	.47	5.5, 787.12 A 50%
6	1.90	1.85	.80	.79	1425	1605	304	.53	INCLUF5 (POH) 787.12 100% (C)
		5.87 _{MIUS}							

$$Tp = 2.2 \left[\frac{L L_c}{V S} \right]^{.37}$$

$$* 1 \text{ IN}^2 = 0.973 \text{ SQ. MI.}$$

$$S = \frac{(ELEV_{85\%} - ELEV_{10\%})}{(752 L)}$$

$$L = .6 L$$

DUFRESNE-HENRY ENGINEERING CORPORATION

BY S.G. FARNSWORTH

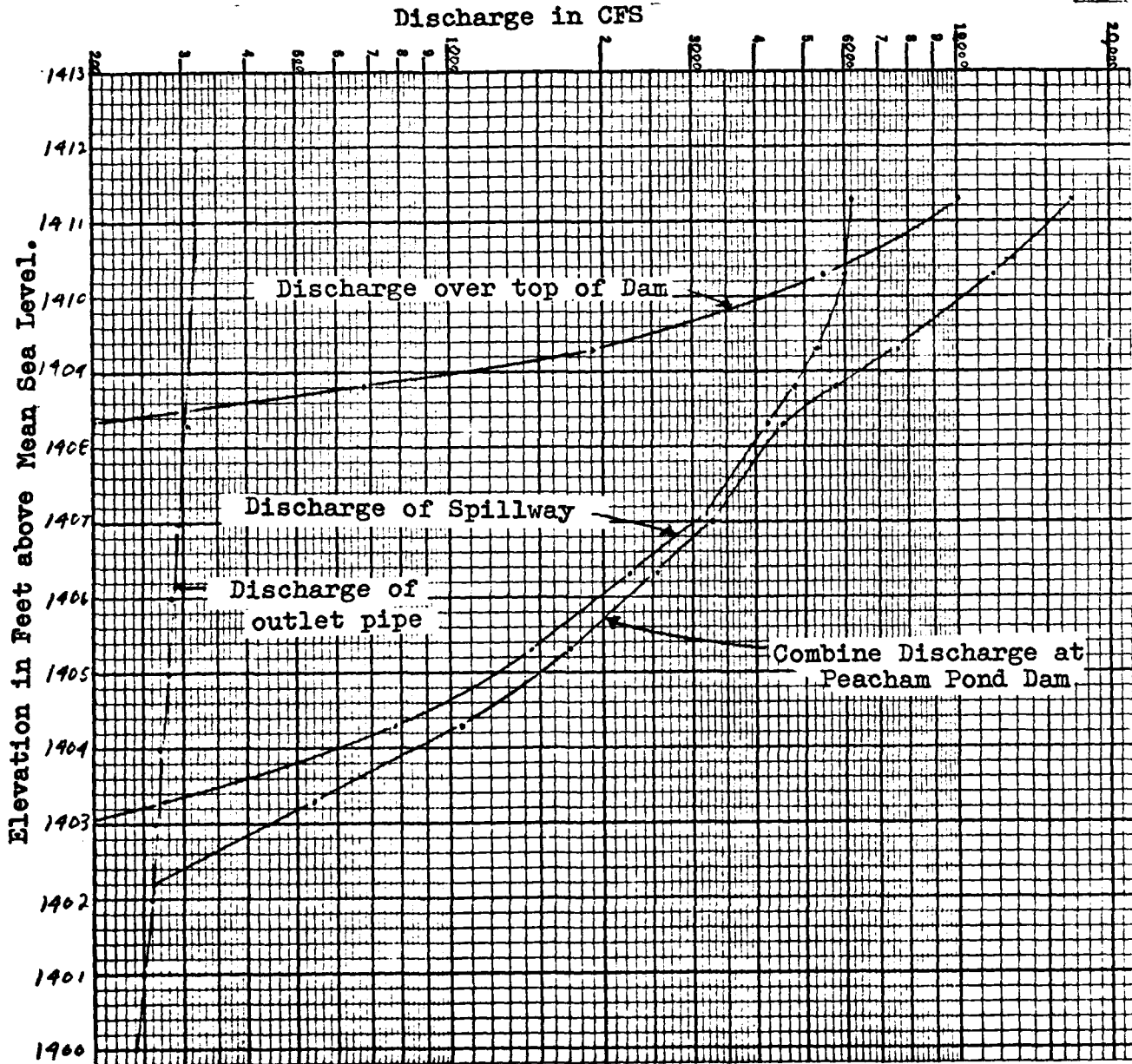
SUBJECT PEACHAM POND DAM

SHEET NO

DATE 5-9-79

DAM, STAGE - DISCHARGE

JOB NO. 09-0098



DUFRESNE-HENRY ENGINEERING CORPORATION

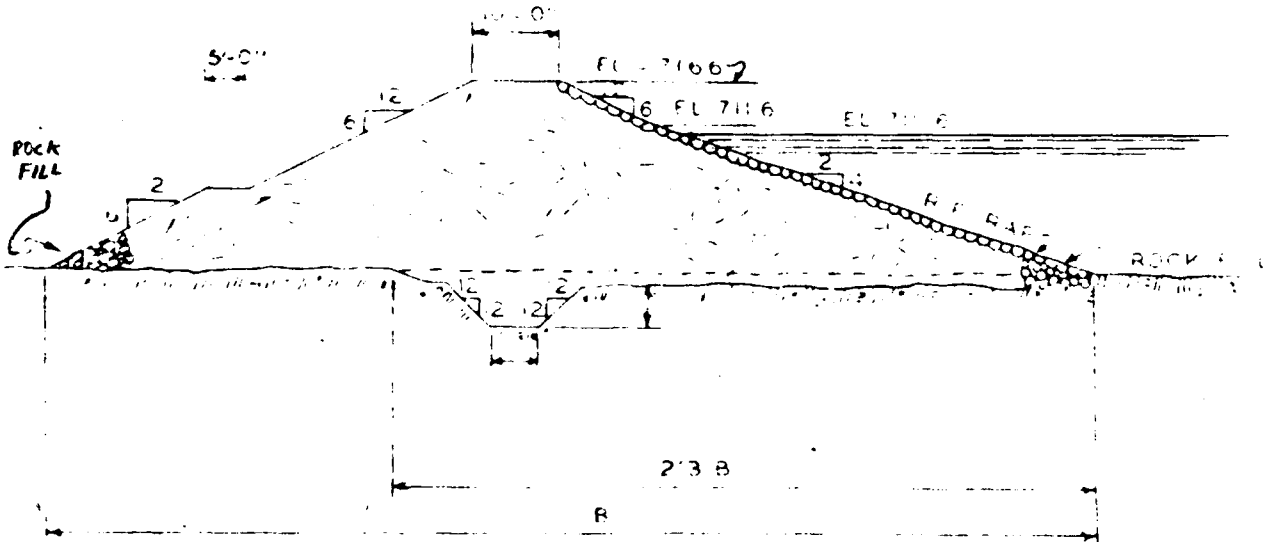
BY S.G. FARNSWORTH
DATE 5-4-79

SUBJECT PEVCHAM FERN DAM
OVER TOPPING HYDRAULICS

SHEET NO.
JOB NO. CA-0098

HYDRAULICS FOR TOP OF DAM

{CROSS SECTION FROM G.M.P. PLANS}
TO CHANGE ELEVATION TO MEAN SEA-
LEVEL ELEVATIONS ADD 691.65



TYPICAL SECTION THRU DAM

SCALE = 20' = 1"

$$Q = CLH^{3/2}$$

ELEVATION IN FEET M.S.L.	H (Ft)	L (Ft)	C	Q (CFS)	$\frac{V^2}{2g}$
1408.3 TOP OF SPILLWAY	0	695	2.78	0	0
1408.8	0.5	"	2.78	683 CFS	.1
1409.3	1.0	"	2.78	1932	.1
1410.3	2.0	"	2.78	5,465	.2
1411.3	3.0	"	2.78	10,040	.4

"C" VALUES FROM KING & BRATEL, HANDBOOK OF HYDRAULICS,
SIXTH EDITION, Pg 5-41, TABLE 5-5 (a), LEVEL CREST
D-6

DUFRESNE-HENRY ENGINEERING CORPORATION

BY S.G. FARNSWORTH
DATE 5-3-79

SUBJECT PEACHAM POND DAM
OUTLET WORKS - HYDRAULICS

SHEET NO. OF
JOB NO. 09-0098

CONTINUE, OUTLET WORKS

STAGE ELEVATION (Ft)	HW (Ft)	Hw/d	Q (CFS) ±	REMARKS
1400.0	17.8	4.5	240	INVERT OF SPILLWAY
1401.0	18.8	4.7	250	
1402.3	20.1	5.03	260	
1402.8	20.6	5.15	265	
1403.3	21.1	5.28	270	
1404.3	22.1	5.53	275	
1405.3	23.1	5.78	280	
1406.3	24.1	6.03	290	
1407.3	25.1	6.28	295	
1408.3	26.1	6.53	300	
1409.3	27.1	6.78	310	TOP OF DAM
1410.3	28.1	7.03	315	
1411.3	29.1	7.28	320	

INVERT @ OF 4.0 CONCRETE PIPE @ ELEV. 1382.2

* REFERENCE: HYDRAULIC CHARTS FOR THE SELECTION OF HIGHWAY CULVERTS, HYDRAULIC ENGINEERING CIRCULAR NO. 5, U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, Pg 5-22

CHECKING FOR OUTLET CONTROL AT ELEV. 1411.3

$$H = \left[1 + K_e + \frac{29 N^2 L}{R^{4/3}} \right] \frac{V^2}{2g} = \left[1 + 0.5 + \frac{29 (0.015)^2 (129)}{(4)^{4/3}} \right] \frac{(320/2.6)^2}{2g} = 23.4$$

$$\& R = D/4$$

$$h_o = \frac{d_o P}{2} = 4.0 \text{ ft} \& \text{ TAIL WATER } \frac{Q N}{d_o^{5/3} S^{1/2}} = \frac{320 (0.05)}{(5.5)^{5/3} (0.25)^{1/2}} = 1.07$$

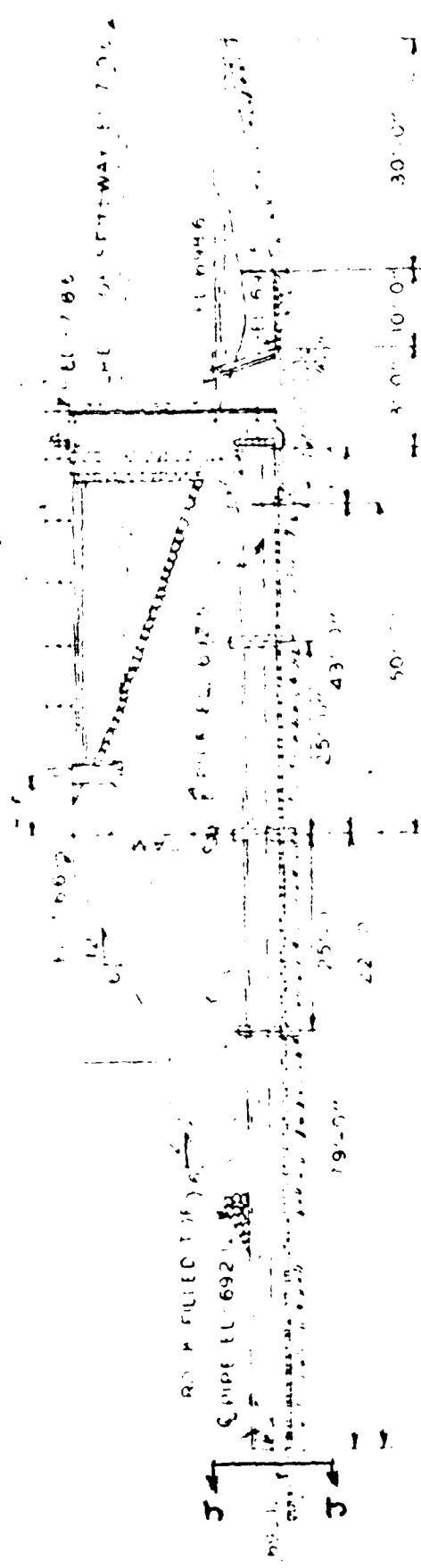
$$\frac{d_o P}{2} > TW, \therefore h_o = 4.0 \text{ ft}$$

$$D/4 = 0.68 \therefore D = 3.7 \text{ ft}$$

$$H_{w0} = H + h_o - L_s + \text{INLET INVERT} = 23.4 + 4.0 - 0.38 + 1382.2 = 1409.2$$

$$1409.2 < 1411.3 \therefore \text{UNDER INLET CONTROL}$$

BI
DA



SECTION ON CENTER LINE OF PIPE

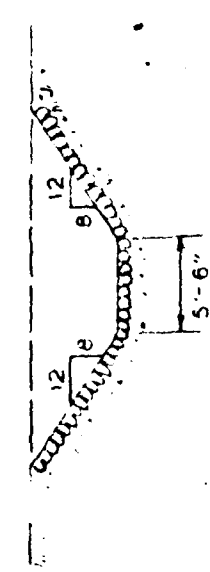
SCALE 1" = 20'-0"

THE ELEVATIONS ARE AT A LOCAL
DATUM, TO CHANGE TO MEAN
SEA LEVEL ELEVATIONS (M.S.L.) ADD 691.65 feet

SHEET NO. _____
JOB NO. 04-0098

M.S.L. ELEVATIONS ARE:

INLET INVERT OF 4' PIPE	1382.2
OUTLET " " "	1381.8
TOP OF SPILLWAY	1402.4
TOP OF EARTH PAWL	1408.3



SECTION J-J

FROM GREEN MOUNTAIN
POLE PLAYS AT
PEACHAM YOND.

DUFRESNE-HENRY ENGINEERING CORPORATION

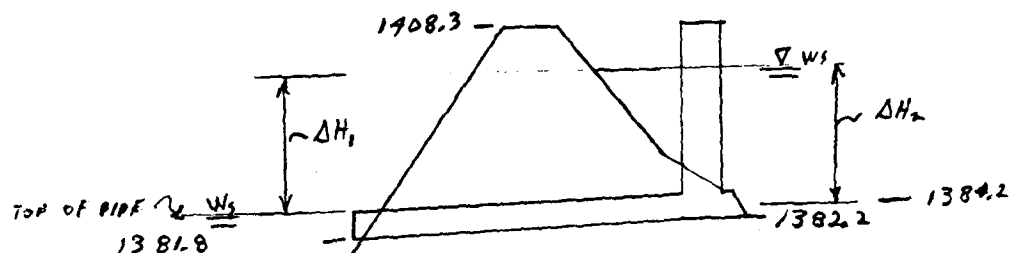
BY S. G. FARNSWORTH
DATE 5-3-79

SUBJECT PEACH HARBOR POND
CUTLET PIPE

SHEET NO. 3
JOB NO. 04-0098

$$Q = CA \sqrt{2g \Delta H}$$

$C = 0.66$ FROM KINZLE BRATEK,
HANDBOOK OF HYDRAULICS,
TABLE 4-11, EQUATION 4-32,
PAGE 4-36, OF SIXTH EDITION
FOR 12" PIPE.



$\Delta H = \Delta H_1$ OR ΔH_2 , WHICHEVER
IS LESS.

ASSUMING $\Delta H_2 < \Delta H_1$, @ ELEV. 1402.4, TOP OF SPILLWAY

$$Q = 0.66 (12.65F) \sqrt{2g (1402.4 - 1384.2)} = 285 \text{ CFS}$$

$$\text{CHECK TW, } \frac{Q}{b^{5/3} \sqrt{S}} = \frac{(285 \text{ CFS}) (0.05)^{18.2}}{(5.5)^{5/3} (-0.25)^{1/2}} = .96, P/B = .64, D = 3.5'$$

$$TW = 1381.8 + 3.5 = 1385.3 > 1384.2, \therefore \Delta H, \text{ CONTROLS}$$

CHECKING INLET CONTROL CHARTS [★] FOR 285 CFS
@ 285 CFS, 48" RCP, $H_w/d = 5.9$, $H_w = 23.6$

$$H_w = 23.6' + 1382.2 = 1405.8 > 1402.4 \therefore$$

INLET CONTROL CHARTS CONTROL

★ FROM HYDRAULIC AND EXCAVATION TABLES, ELEVENTH EDITION,
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION, PAGE 97

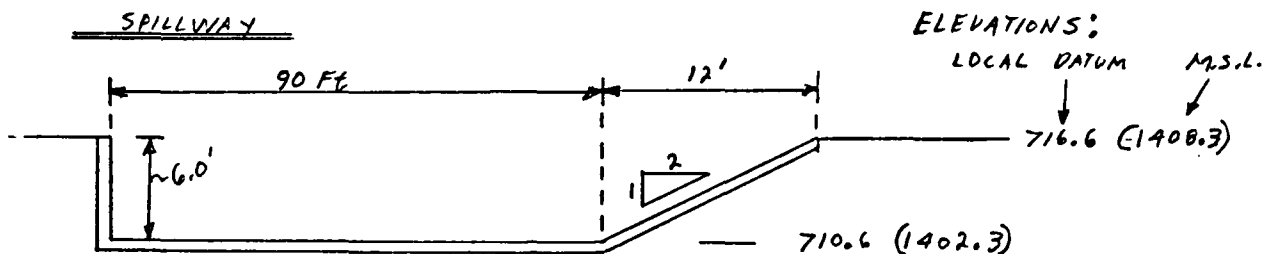
★★ FROM CIRCULAR NO. 5 OF HYDRAULIC ENGINEERING, U.S. DEPARTMENT
OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, A 5-22.

DUFRESNE-HENRY ENGINEERING CORPORATION

BY S.G. FARNSWORTH
DATE 5-3-79

SUBJECT PEACHHART POND DAM
SPILLWAY HYDRAULICS

SHEET NO. 2
JOB NO. 09-0098

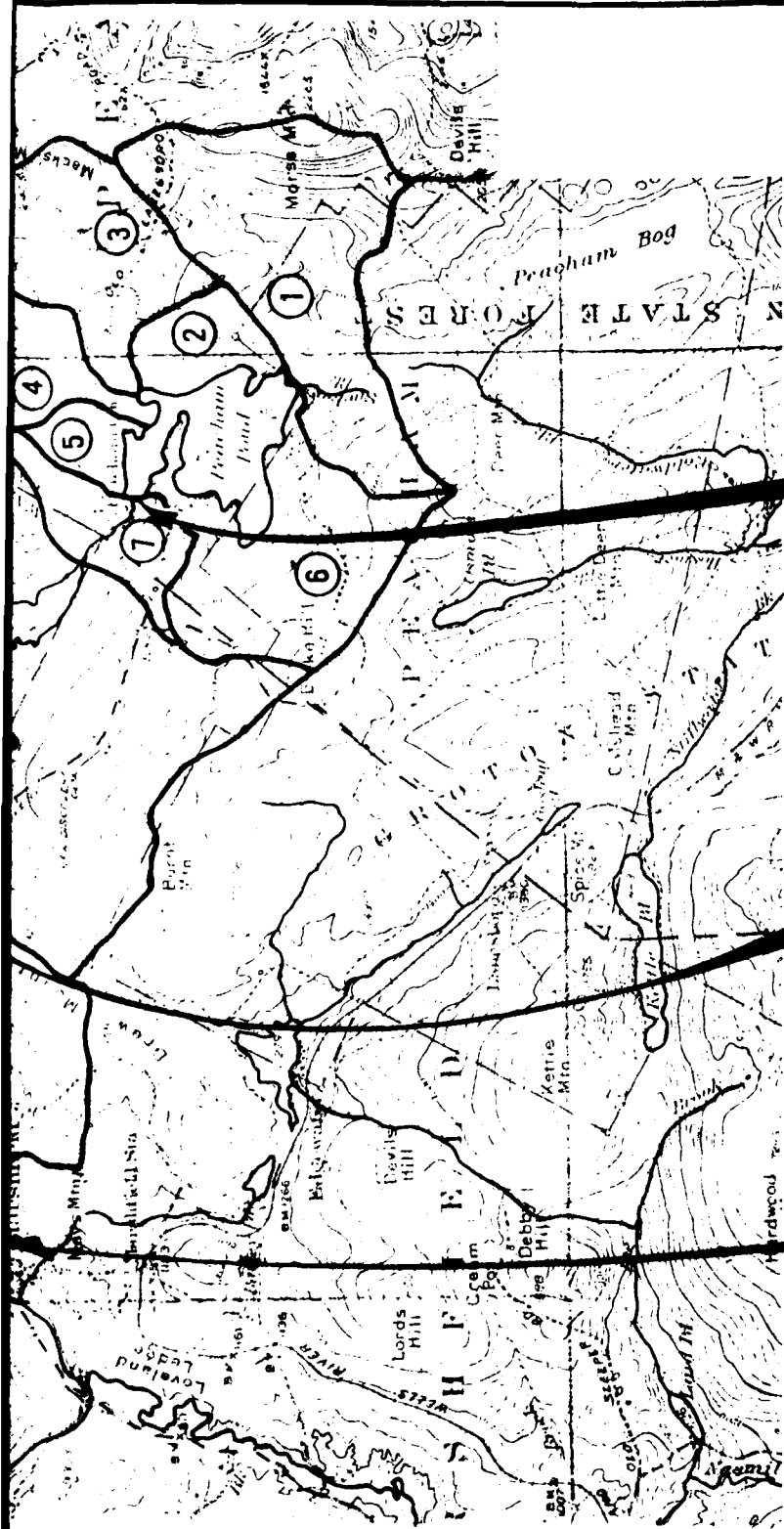


$$Q = C L_{AVE} H^{3/2}$$

VALUES OF C FROM

ELEVATION (FEET M.S.L.)	H	L	L _{AVE}	C *	Q (CFS)	A (SF)	V (FPS)	$\frac{V^2}{2g}$ (FT)
1402.3	0	90	90	-	0	0	0	0
1402.8	.5	91	90.5	3.01	96	45	2.1	.1
1403.3	1.0	92	91	3.01	274	91	3.0	.1
1404.3	2.0	94	92	3.01	783	184	4.3	.3
1405.3	3.0	96	93	3.01	1455	279	5.2	.4
1406.3	4.0	98	94	3.01	2263	376	6.0	.56
1407.3	5.0	100	95	3.00	3184	475	6.7	.7
1408.3	6.0	102	96	2.98	4205	576	7.3	.83
1408.8	6.5	102	96.8	2.97	4764	629	7.6	.89
1409.3	7.0	102	97.3	2.97	5352	681	7.9	.96
1410.3	7.5	102	97.8	2.96	5946	734	8.1	1.0
1411.3	8.5	102	98.1	2.96	7172	839	8.6	1.2

* VALUES OF C FROM KINF & BRATER, HYDRAULICS, SIXTH EDITION, TABLE 5-5(a), CRESE IS SCOPING



MARSHFIELD
VILLAGE

MARSHFIELD #6

PROJECT DAM
PEACHAM POND

MAGNETIC
NORTH
1953

SOURCE OF MAP:

U.S. GEOLOGICAL SURVEY
PLAINFIELD, VT. &
ST. JOHNSBURY, VT.-N.H.
QUADRANGLES
15 MIN. SERIES
1:62500, 1953 & 1949

DUFRESNE-HENRY ENGINEERING CORP.
ARCHITECT-ENGINEER

U.S. ARMY ENGINEER DIV. NEW ENGLAND
CORPS OF ENGINEERS
BALTIMORE, MARY.

NATIONAL PROGRAM OF INSPECTION OF NON-FED. DAMS

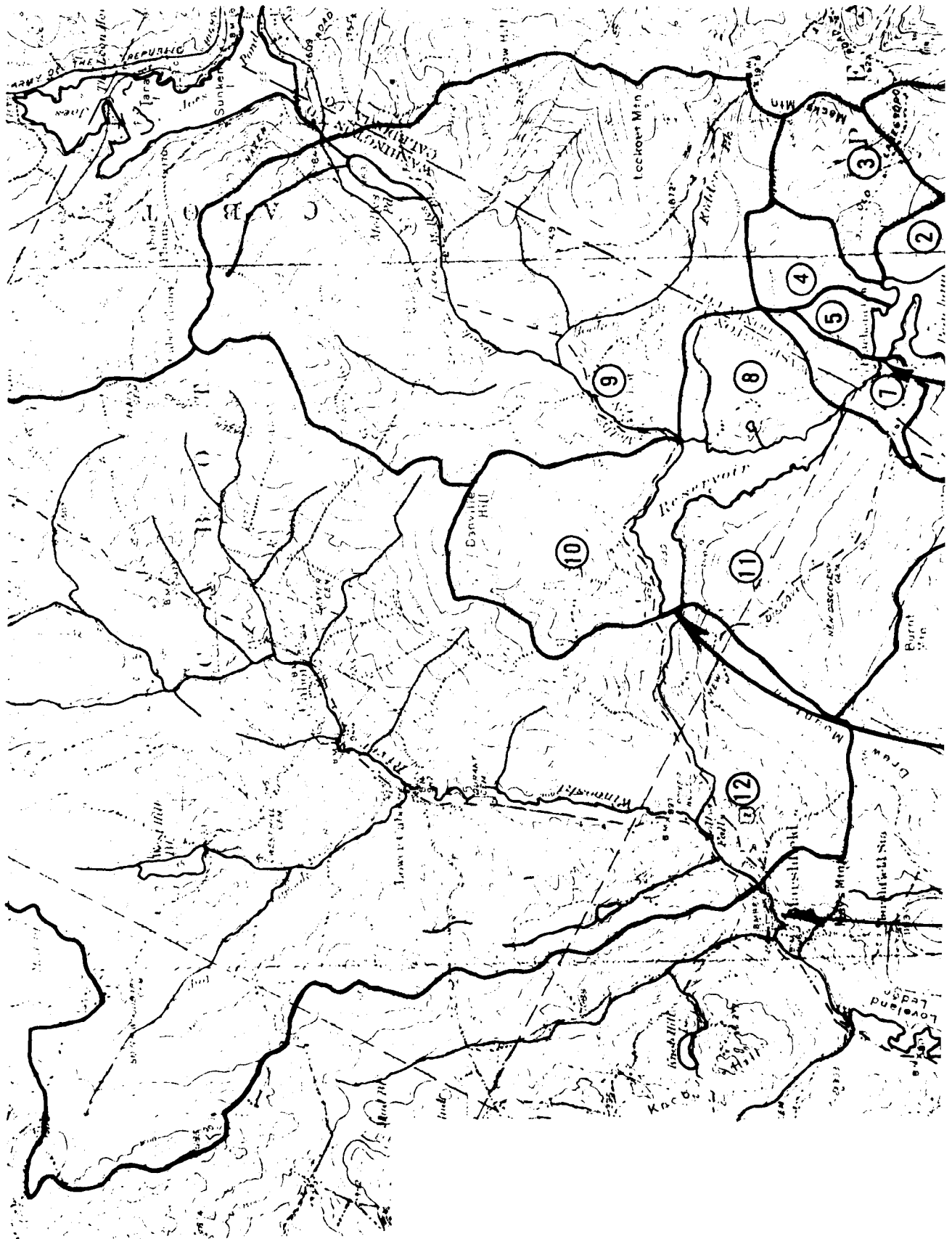
DRAINAGE AREA MAP
PEACHAM POND DAM

LEGEND

(5) SUB DRAINAGE AREAS FOR HEC I

CLIENT NO. 04-0096
ENGINEER S.A.F.

SCALE 1"=1 MILE
DATE



APPENDIX D
HYDROLOGIC AND HYDRAULIC COMPUTATIONS

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DUFRESNE-HENRY ENGINEERING CORPORATION

BY SHERWARD G. FARNSWORTH , SUBJECT PEACHAM POND DAM SHEET NO. OF
 DATE 5-19-79 STAGE - STORAGE & DISCHARGE JOB NO. 04-0098

STAGE - STORAGE TABLE

STAGE ELEVATION (FEET)	ΔH	SURFACE AREA ACRES	STORAGE		REMARKS
			ACRE- FE	SUMMATION (ACRE-FEET)	
1386.9	5.0	0.1	0	0	INVERT OF SPILLWAY
1391.9	4.0	8.1	20	20	
1394.0	1.0	<u>29.5</u> 4 *	40	60	
1396.9	3.1	<u>265.5</u> 4 *	843	903	
1400.0	1.9	316	1025	1928	
1401.9	1.9	345	679	2606	
1402.3	2.0	369.3	148	2755	
1404.3	1.0	372	757	3512	
1405.3	1.0	385	388	3899	
1407.0	1.7	390	672	4571	
1408.3	1.3	400	525	5096	TOP OF DAM
1408.8	0.5	408	206	5302	
1409.3	0.5	415	208	5510	
1410.3	1.0	417	420	5929	
1411.3	1.0	422	424	6354	

* THE MAIN POND IS PERCHED STORAGE AT APPROXIMATE
 ELEVATION 1394'. {SEE LAST SHEET}

STAGE - DISCHARGE SUMMARY TABLE

STAGE ELEV. (FE)	SPILLWAY	OUTLET WORKS	DAM OVER TOPPING	TOTAL	REMARKS
1402.3	0 CFS	260 CFS	-	260 CFS	INVERT OF SPILLWAY
1402.8	96	265	-	361	
1403.3	274	270	-	544	
1404.3	783	275	-	1058	
1405.3	1455	280	-	1735	
1406.3	2263	290	-	2553	
1407.3	3184	295	-	3479	
1408.3	4205	300	0 CFS	4505	
1408.8	4764	305	683	5752	
1409.3	5352	310	1932	7594	
1410.3	5946	315	5,465	11,726	TOP OF DAM
1411.3	7172	320	10,040	17,532	

DUFRESNE-HENRY ENGINEERING CORPORATION

DATE 5-6-79
7-31-79

SUBJECT PEACHAM POND DAM
HAZARD CLASSIFICATION

SHEET NO. OF
JOB NO. 09-0097

PEACHAM POND HAZARD CLASSIFICATION

FLOOD WAVE @ PEACHAM POND DAM:

(WITH WATER AT TOP OF DAM)

$$Q_p = \frac{8}{27} W_0 \sqrt{g} Y_0^{3/2}$$

where Y_0 = HEIGHT OF DAM (22 ft)

W_0 = 40% OF LENGTH OF DAM AT MID HEIGHT (460 ft)

$$Q_p = \frac{8}{27} (460 \text{ ft}) \sqrt{g} (22 \text{ ft})^{3/2} \approx 79800 \text{ CFS}$$

ASSUMING 1/2 PMF @ MARSHFIELD DAM #6 (MILLY'S FALL)

CALCULATING HEIGHT OF FLOODWAVE OVER MARSHFIELD DAM #6:

ACCORDING TO HEC-1 OUTPUT, @ 1/2 PMF, WATER SURFACE IS AT TOP OF DAM, ELEV. 1239.2, AND DISCHARGE IS 7000 CFS.

TRIAL #1

ASSUMING 50,000 CFS OVER DAM: @ ELEV 1245 $\Rightarrow$ STORAGE = 16,435 AC-FT

$$Q_{p2} (\text{TRIAL}) = Q_p \left(1 - \frac{V_{OL}}{STORAGE}\right) = 79800 \text{ CFS} \left(1 - \frac{16,435 - 13,526}{5096 \text{ AC-FT}}\right)$$

$$Q_{p2} = 34,247 \pm \text{CFS VS } 50,000 \text{ CFS}$$

TRIAL #2

ASSUMING 35,000 CFS OVER DAM: @ ELEV. 1243.6 $\Rightarrow$ 15,800 AC-FT

$$Q_{p2} = 79,800 \text{ CFS} \left(1 - \frac{15,800 \text{ AC-FT} - 13,526 \text{ AC-FT}}{5096 \text{ AC-FT}}\right)$$

$$Q_{p2} = 45,760 \pm \text{CFS VS } 35,000 \text{ CFS}$$

TRIAL #3

ASSUMING 40,000 CFS OVER DAM:

@ ELEV. 1244.0 $\Rightarrow$ STORAGE $\Rightarrow$ 15,900 AC-FT

$$Q_{p2} = 79,800 \text{ CFS} \left(1 - \frac{15,922 - 13,526}{5096 \text{ AC-FT}}\right) \approx 42,300 \text{ CFS}$$

TRIAL #4

ASSUMING 41,000 CFS OVER DAM:

@ ELEV 1244.2 $\Rightarrow$ STORAGE = 16,537 AC-FT

$$Q_{p2} = 79,800 \text{ CFS} \left(1 - \frac{16,537 - 13,526}{5096 \text{ AC-FT}}\right) = 41,482 \text{ VS } 41,000 \text{ CFS}$$

D-14

USING 41,000 CFS

DUFRESNE-HENRY ENGINEERING CORPORATION

BY SHERWARD G. FARNSWORTH
DATE 7-31-79

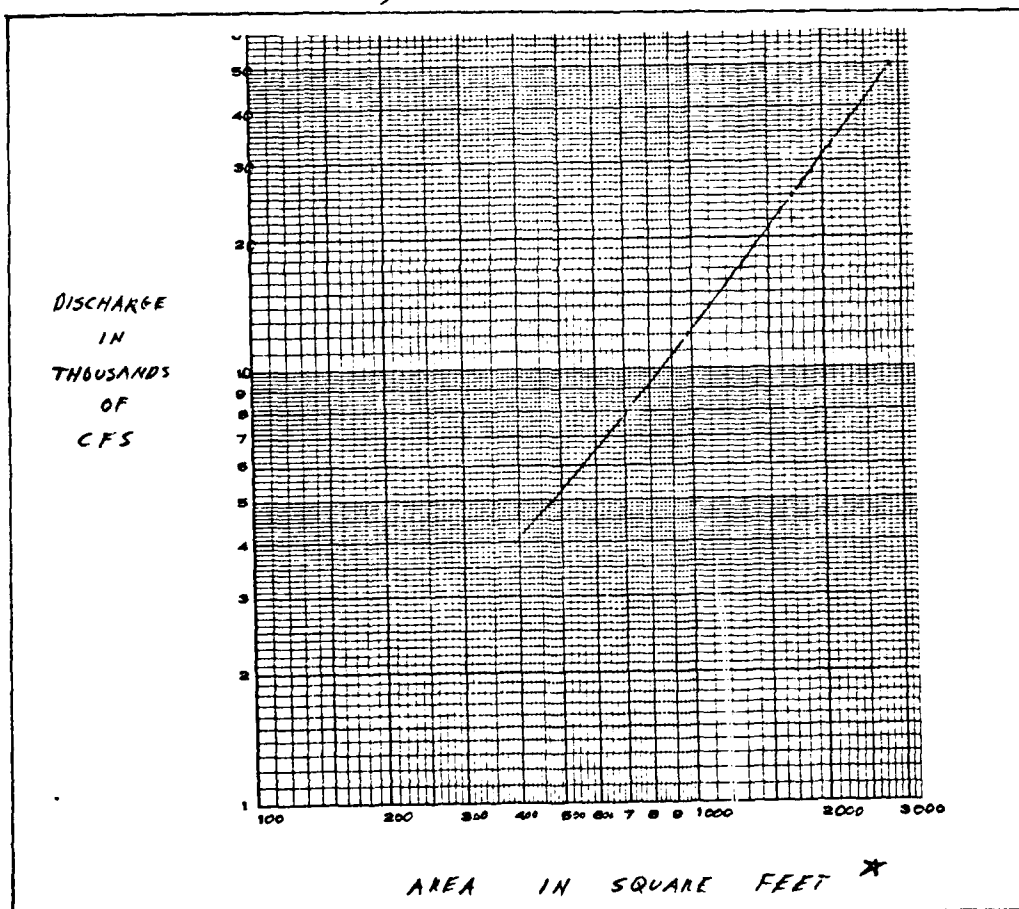
SUBJECT PEAKHART ROAD DAM
HAZARD CLASSIFICATION

SHEET NO. OF
JOB NO. 69-0698

COMBINED OUT FLOW AT MARSHFIELD #16 = 48,200 CFS
WHERE THE FIRST 7000 CFS IS SPILLWAY DISCHARGE
FROM 0.5 PMF.

AREA DOWN STREAM OF MARSHFIELD DAM

48,200 CFS $\Rightarrow$ AREA =



AREAS FOR 48,200 CFS $\Rightarrow$ 2,800 SQ. FT.
7,000 CFS $\Rightarrow$ 620 SQ. FT.
FLOOD WAVE AREA $\Rightarrow$ 2180 SQ. FT.

* AREAS FROM HEC 2 COMPUTER OUTPUT AT SECTION #1.

DUFRESNE-HENRY ENGINEERING CORPORATION

BY SHERWARD G. FARNSWORTH
DATE 7-31-79

SUBJECT PEACHAM POND DAM
HAZARD CLASSIFICATION

SHEET NO. OF
JOB NO. 04-009E

FLOOD WAVE AT MARSHFIELD VILLAGE WITH 1/2 PMF OCCURRING

1/2 PMF @ MARSHFIELD VILLAGE FROM HEC-1 OUTPUT IS 28,000 CFS
CORRESPONDING AREA = 5600 SQ. FT @ ELEV. 851
(FROM NEXT PAGE)

TRIAL #1 ASSUMING 15% OF FLOOD WAVE FROM MARSHFIELD DAM IS STORED IN VALLEY.

$$Q = 85\% (41,200 \text{ CFS}) = 35,000 \text{ CFS}$$

$$\text{AREA @ MARSHFIELD: } 35,000 + 28,000 = 63,000 \text{ CFS}$$

$$\begin{aligned} \text{AREA} &= 9,700 \text{ SQ. FT} \\ \text{AREA}_{\text{WAVE}} &= 9700 \text{ SF} - 5600 \text{ SF} = 4100 \text{ SF} \quad (\text{FROM NEXT PAGE}) \\ \text{VOL} &= (4100 \text{ SF} + 2180 \text{ SF}) / 2 \times 12,150 \text{ FT} \div 43,560 \text{ SF/AC} = 876 \text{ AC-FT} \end{aligned}$$

$$Q_{P2} = Q_P \left(1 - \frac{\text{VOL}}{S}\right) = 41,200 \text{ CFS} \left(1 - \frac{876 \text{ AC-FT}}{5096 \text{ AC-FT}}\right)$$

$$Q_{P2} = 34,118 \text{ CFS VS } 35,000 \text{ CFS} \quad \% \text{ ERROR } 7.3\%$$

TRIAL #2

ASSUMING 34,300 CFS FOR FLOOD WAVE
AREA IN MARSHFIELD FOR (34,300 + 28,000 CFS) 62,300 CFS
EQUALS 9650 SQ. FT (FROM NEXT PAGE)

$$\begin{aligned} \text{AREA OF WAVE} &= 9650 \text{ SQ. FT} - 5600 \text{ SF} = 4050 \text{ SF} \\ \text{VOL} &= (4050 + 2180 \text{ SF}) / 2 \times 12,150 \text{ FT} \div 43,560 \text{ SF/AC} = 869 \text{ AC-FT} \end{aligned}$$

$$Q_{P2} = 41,200 \text{ CFS} \left(1 - \frac{869 \text{ AC-FT}}{5096 \text{ AC-FT}}\right) = 34,175 \text{ CFS VS } 34,300 \text{ CFS}$$

$$\text{FLOOD WAVE USING } 34,200 \text{ CFS, TOTAL FLOW } \therefore = 62,200 \text{ CFS}$$

DURING A 1/2 PMF THE WATER SURFACE ELEVATION WOULD BE APPROXIMATELY AT ELEVATION 851 FEET OR FIRST FLOOR ELEVATIONS. WITH THE ADDITION OF THE PEACHAM FLOOD WAVE THE WATER SURFACE WOULD SUDDENLY RISE TO ELEVATION 856 OR AN INCREASE IN 5 FEET.

DUFRESNE-HENRY ENGINEERING CORPORATION

BY S. G. FARNSWORTH
DATE _____

SUBJECT PEACHAM POND DAM
DAM BREAK EFFECTS

SHEET NO. _____ OF _____
JOB NO. 04-0698

MARSHFIELD DAM #6 MOLLYS FALL DAM

ASSUMING THAT WATER SURFACE IS AT THE TOP OF STOP LOGS,
NORMAL LEVEL. ELEVATION 1237.9

BREAK DISCHARGE AT PEACHAM FROM SHEET #15
79,800 CFS.

FIND MAXIMUM DISCHARGE AND WATER SURFACE:

TRIAL #1

ASSUMING WATER SURFACE JUST REACH TOP OF DAM, ELEV. 1239.2
TOP OF DAM

STORAGE = 13,526 AC-FT @ TOP OF DAM, & 8291 AC-FT @ TOP OF STOP LOGS.
DISCHARGE @ AT TOP OF DAM = 2758

$$Q_p = Q_i \left[1 - \frac{\text{VOL.}}{\text{STORAGE}} \right] = 79,800 \left[1 - \frac{13,526 - 8291}{5096} \right] = 79,800 [1 - 1.027]$$

GREATER THEN ONE %. DOES NOT REACH TOP OF DAM.

TRIAL #2

ELEV. 1239.2 - 0.5 = 1238.7

STORAGE $\Rightarrow$ 13315 AC-FT
& DISCHARGE $\Rightarrow$ 2650 CFS

$$13315 - 8291 = 5024 \text{ AC-FT VS } 5096 \approx$$

$\therefore$ MAXIMUM WATER SURFACE IS 1238.8 $\pm$ WHICH
WITH FLASH BOARDS UP = MAXIMUM DISCHARGE OF
2700 CFS AND STOP LOGS AND FLASH DOORNS DOWN
EQUALS MAXIMUM DISCHARGE OF 6400 CFS.

VILLAGE OF MARSHFIELD, VS. ROUTE 2 BRIDGE

45 FOOT BY 13 FOOT CONCRETE T-BEAM } FROM VERMONT AGENCY
BUILT IN 1927, WATERWAY 585 SQ. FT. } OF TRANSPORTATION
ROUTE LOGS.

USING U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION
HYDRAULIC ENGINEERING CIRCULAR NO. 5,

WITH $H = 13$ FEET, $Q/B = 6400 \text{ CFS} / 45 \text{ FT} = 142$, FOR A 45° WING
FLAP INTRUDE, $H_{w}/L = 1.04 \therefore H_w = 13.5$ FEET

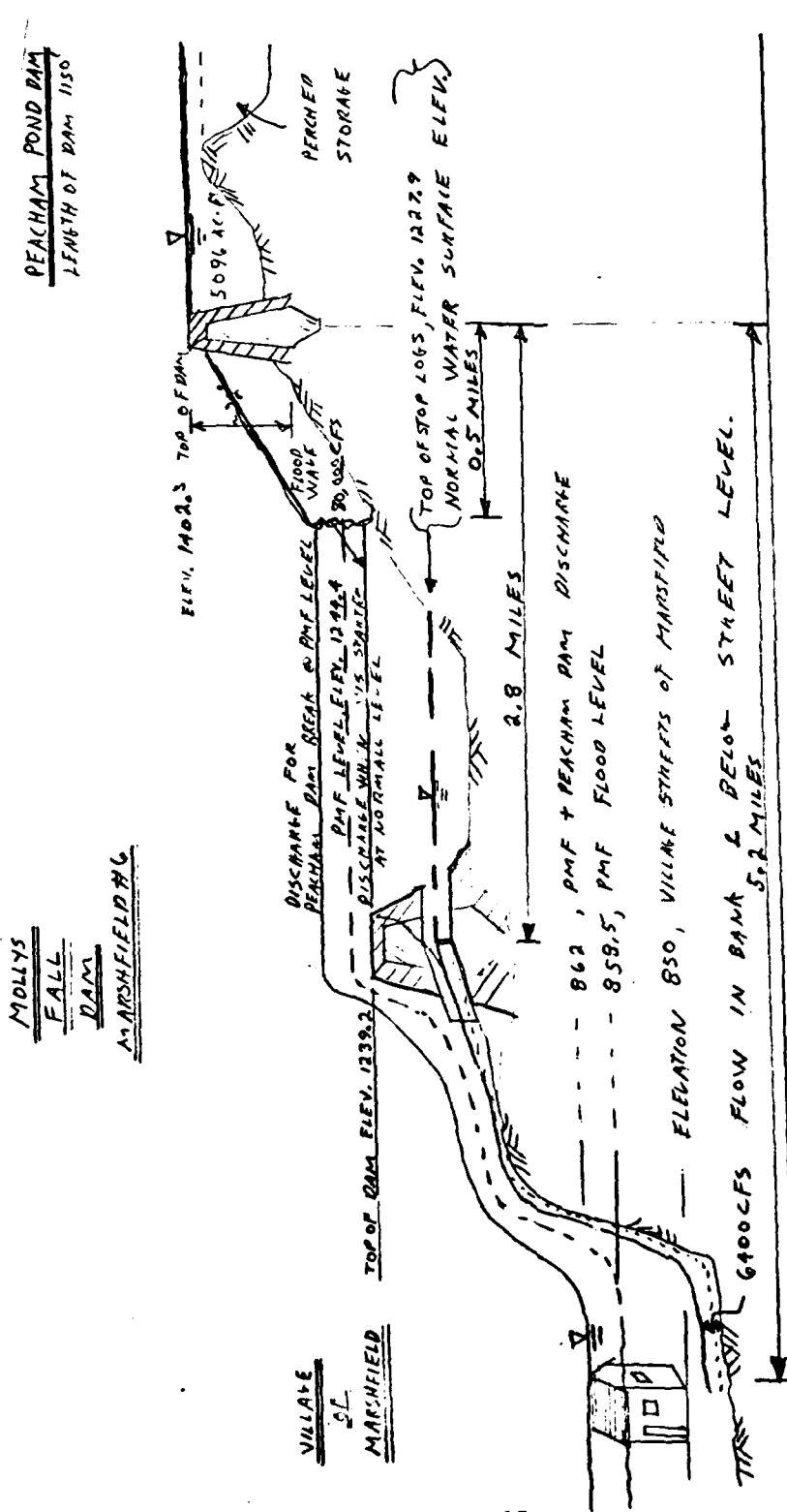
DISCHARGE WOULD NOT FLOOD OUT ANY HOMES OR OVER TOP
U.S. ROUTE 2 IN MARSHFIELD D-17

DUFRESNE-HENRY ENGINEERING CORPORATION

E S.G. FARNSWORTH
DATE 5-29-79

SUBJECT PEACHAM POND DAM
HAZARD CLASSIFICATION
DAM BREAK PROFILE

SHEET NO. 1A OF
JOB NO. 04-0098



DUFRESNE-HENRY ENGINEERING CORPORATION

BY 26. FARASWORTH
DATE 5-21-79

SUBJECT PEACHAM POND DAM
HAZARD CLASSIFICATION

SHEET NO. 15 OF
JOB NO. 04-0097

PEACHAM POND HAZARD CLASSIFICATION

BREAK DISCHARGE OF PEACHAM POND DAM WHEN
WATER IS AT TOP OF DAM:

$$Q_p = \frac{8}{27} W_b \sqrt{g} Y_o^{3/2}$$

$$W_b = 40\% (1150 \text{ ft}) = 460 \text{ ft}$$

$$Y_o = 22 \text{ ft}$$

$$Q_p = \frac{8}{27} (460 \text{ ft}) \sqrt{g} (22)^{1.5} = 79,810 \text{ CFS}$$

CALCULATING HEIGHT OF FLOODWAVE OVER MARSHFIELD
DAM #6, MOLLY'S FALL RESERVOIR.

ASSUMING FULL PMF OVER MOLLY'S FALL ELEV. 1244.4
PMF DISCHARGE @ MOLLY'S FALL DAM = 42,900 CFS.

TRIAL #1 ASSUMING ADDITIONAL DISCHARGE OF 70,000 CFS

∴ TOTAL DISCHARGE = 112,900 CFS @ MARSHFIELD #6
FROM STAGE-DISCHARGE CURVE (FLASH BOARDS UP)

DISCHARGE ELEV.	1249.5	AREA	525 AC
	1244.4	"	510 AC

$$\text{VOLUME} = \frac{525 + 510}{2} \times 5.1 \text{ ft} = 2639 \text{ AC-ft}$$

$$Q_{p2} (\text{TRIAL}) = Q_p \left(1 - \frac{V}{S}\right) = (79,810 \text{ CFS}) \left(1 - \frac{2639}{5096}\right) = 38,450 \text{ CFS}$$

$$70,000 > 38,450 \text{ CFS}$$

TRIAL #2

ASSUMING Q_{p2} OF 38,450 CFS

∴ TOTAL DISCHARGE = 42,900 + 38,450 = 81,350 CFS
DISCHARGE ELEV. 1247.6

AREA	520 AC
"	510 AC

$$\frac{1244.4}{2.2}$$

$$\text{VOLUME} = 515 \text{ AC} \times 2.2 \text{ ft} = 1133 \text{ AC-ft}$$

$$Q_{p2} (\text{TRIAL}) = (79,810 \text{ CFS}) \left(1 - \frac{1133}{5096}\right) = 62,066 \text{ CFS}$$

DUFRESNE-HENRY ENGINEERING CORPORATION

B. J. FARNSLY

SUBJECT PEACHAM ROAD

SHEET NO. 16 OF

DATE 5-22-79

HAZARD CLASSIFICATION

JOB NO. 04-0097

TRIAL #3

ASSUMING 52,000 CFS

TOTAL DISCHARGE 42,900 + 52,000 = 94,900 CFS

ELEV. DISCHARGE $\Rightarrow 1248.6$

1244.4

4.2

522 AC

510 AC

516 AC * 4.2 = 2167 AC-FT

$$Q_{PL} (TRIAL) = (79,810 \text{ CFS}) \left(1 - \frac{2167}{5096}\right) = 45,870 \text{ CFS} < 52,000 \text{ CFS}$$

TRIAL #4

ASSUMING 48,900 CFS

TOTAL DISCHARGE 42,900 + 48,900 = 91,800 CFS

ELEV. " $\Rightarrow 1248.4$

1244.4

4.0

521 AC

510 AC

515.5 AC * 4.0 = 2062 AC-FT

$$Q_{PL} (TRIAL) = (79,810 \text{ CFS}) \left(1 - \frac{2062}{5096}\right) = 47,516 \text{ CFS} < 48,900 \text{ CFS}$$

TRIAL #5

ASSUMING 48,200 CFS

TOTAL DISCHARGE OVER MARSHFIELD #6 48,200 + 42,900 = 91,100 CFS

ELEV. " 1248.3

1244.4

3.9

520

510

515 AC * 3.9 = 2008 AC-FT

$$Q_{PL} (TRIAL) = (79,810) \left(1 - \frac{2008}{5096}\right) = 48,360 \text{ CFS} \approx 48,200$$

SUMMARY AT
MOLLYS FALL
DAM

USING 48,300 CFS AS ADDITIONAL FLOW OVER
TOP OF MARSHFIELD #6 $\Rightarrow$ TOTAL DISCHARGE
IS 91,180 CFS. OR AN INCREASE IN ELEVATION
OF 4.0 FEET TO ELEVATION 859.

HAZARD TO VILLAGE OF MARSHFIELD DUE TO INCREASE WATERS FROM PEACHAM ROAD DAM BREAK

BASED ON THE COMPUTER OUTPUT (HEC 1), THE PEAK PMF
DISCHARGE IN MARSHFIELD VILLAGE IS 80,300 CFS. BASED ON
STATE-DISCHARGE CURVE FOR MARSHFIELD VILLAGE (HEC 2 COMPUTER
RUN) THE WATER SURFACE ELEVATION WOULD BE 859 FEET MSL.
AND WOULD CAUSE THE LOSS OF MANY HOMES AND
BUSINESSES. THE FOLLOWING COMPUTATIONS ARE TO
DETERMINE APPROXIMATELY THE ADDITIONAL DISCHARGE
IN MARSHFIELD VILLAGE AND INCREASE IN WATER
SURFACE WHICH COULD LEAD TO ADDITIONAL LOSS OF
LIFE AND. THEREFORE DETERMINE THE HAZARD

DUFRESNE-HENRY ENGINEERING CORPORATION

BY S.G. FARNSWORTH SUBJECT PEACHAM POND DAM SHEET NO. 17 OF
 DATE 5-24-79 HAZARD CLASSIFICATION JOB NO.

DISCHARGE IN VILLAGE OF MARSHFIELD CAUSE BY PEACHAM DAM BREAK
 WHEN VILLAGE IS UNDER FULL PMF DISCHARGE &
 MARSHFIELD DAM #6 (MOLLYS FALLS) IS AT PMF LEVEL.

FROM SHEET #3 FLOODWAVE DISCHARGE TOTAL
 OVER MOLLYS FALL DAM IS 91,200 CFS OF WHICH
 48,300 CFS IS PART OF FLOODWAVE FROM PEACHAM DAM.

TRIAL #1

BASED ON MARSHFIELD #6 DAM BREAK, ANALYSIS ASSUMING
 85% STORAGE OF INCREASED FLOOD WAVE BETWEEN
 MARSHFIELD #6 DAM & MARSHFIELD VILLAGE

AREA AT SECTION #1, 600 FT DOWNSTREAM OF MOLLYS
 FALL DAM FOR BETWEEN 91,200 CFS & 48,300 CFS:

AREA FOR	91,200 CFS	⇒	4485 SF
TEST ROAD " "	- 42,900 CFS	⇒	- 2525 SF
DAM BREAK ⇒	48,300 CFS	⇒	1960 SF

ASSUMING 85% OF 48,300 CFS ⇒ 41,055 CFS

TOTAL Q @ MARSHFIELD VILLAGE 41,055 CFS + 80,300 CFS = 121,355 CFS

AREA @ VILLAGE FOR	121,355 CFS	=	14,800 SF	} FILE #3
" @ " " "	80,300 CFS	=	11,900 SF	
			2,700 SF	

REACH LENGTH 12,150 FT
 VOLUME = $\left[\frac{(2,900 \text{ SF} + 1,960 \text{ SF})}{2} \right] \times 12,150 \text{ FT} = 43,560 \text{ AC-FT} = 678 \text{ AC-FT}$

$$Q_{p2} (\text{TRIAL}) (41,055 \text{ CFS}) = 48,300 \text{ CFS} \left(1 - \frac{678 \text{ AC-FT}}{5096} \right) = 41,880 \text{ CFS}$$

41,055 CFS ≈ 41,880 CFS, TAKING AVERAGE ≈ 41,500 CFS
 2% ERROR

∴ TOTAL DISCHARGE @ MARSHFIELD VILLAGE WOULD BE
 121,800 CFS OR AN INCREASE IN WATER LEVEL
 DUE TO PEACHAM POND DAM BREAK TO 862 FEET
 OR 3.7 FEET ±.

S.G. FARNSWORTH
5-9-79

MARSHFIELD #6

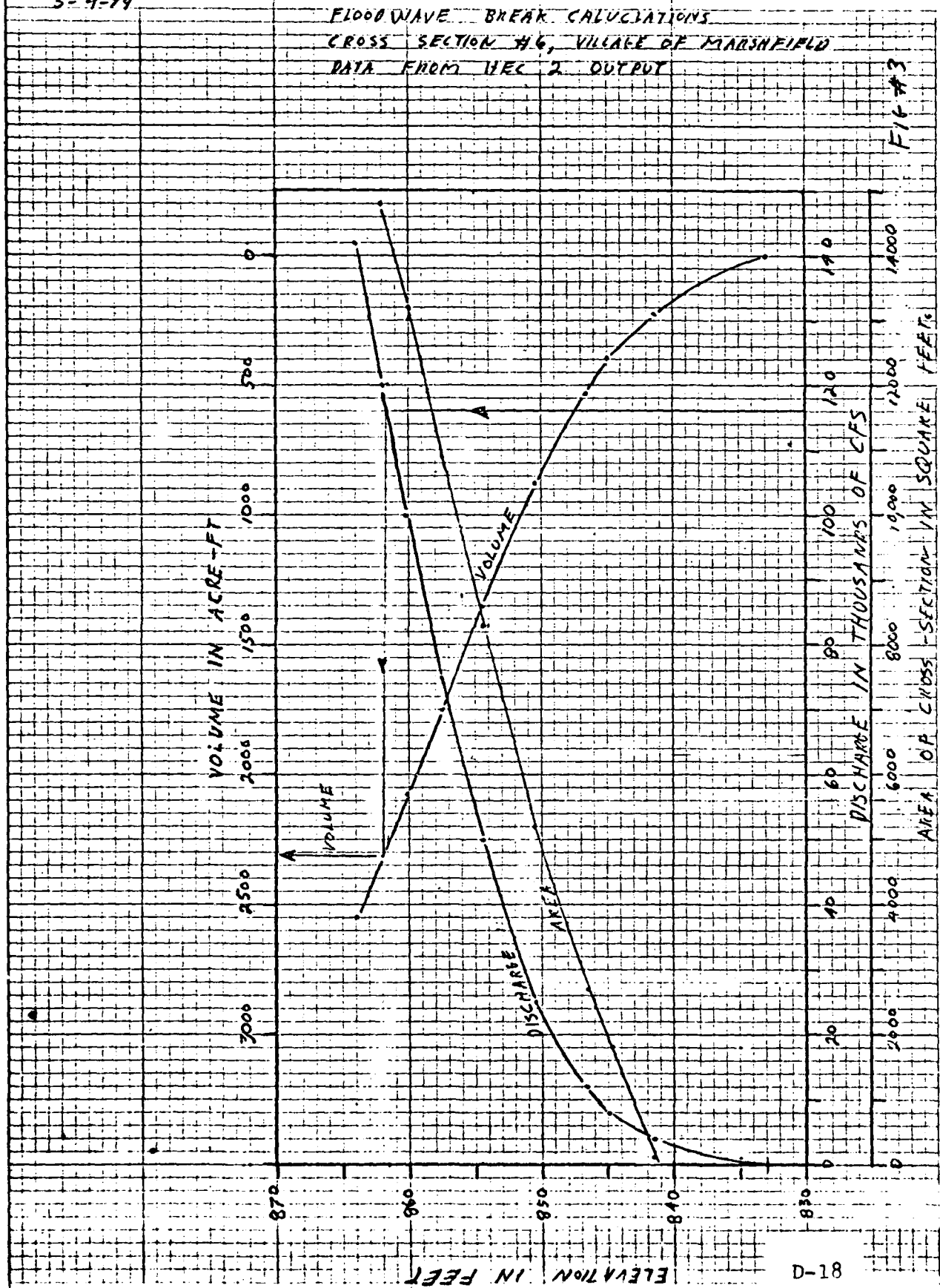
SHEET #

FLOOD WAVE BREAK CALCULATIONS

CROSS SECTION #6, VILLAGE OF MARSHFIELD

DATA FROM HEC 2 OUTPUT

FIG #3



DUFRESNE-HENRY ENGINEERING CORPORATION

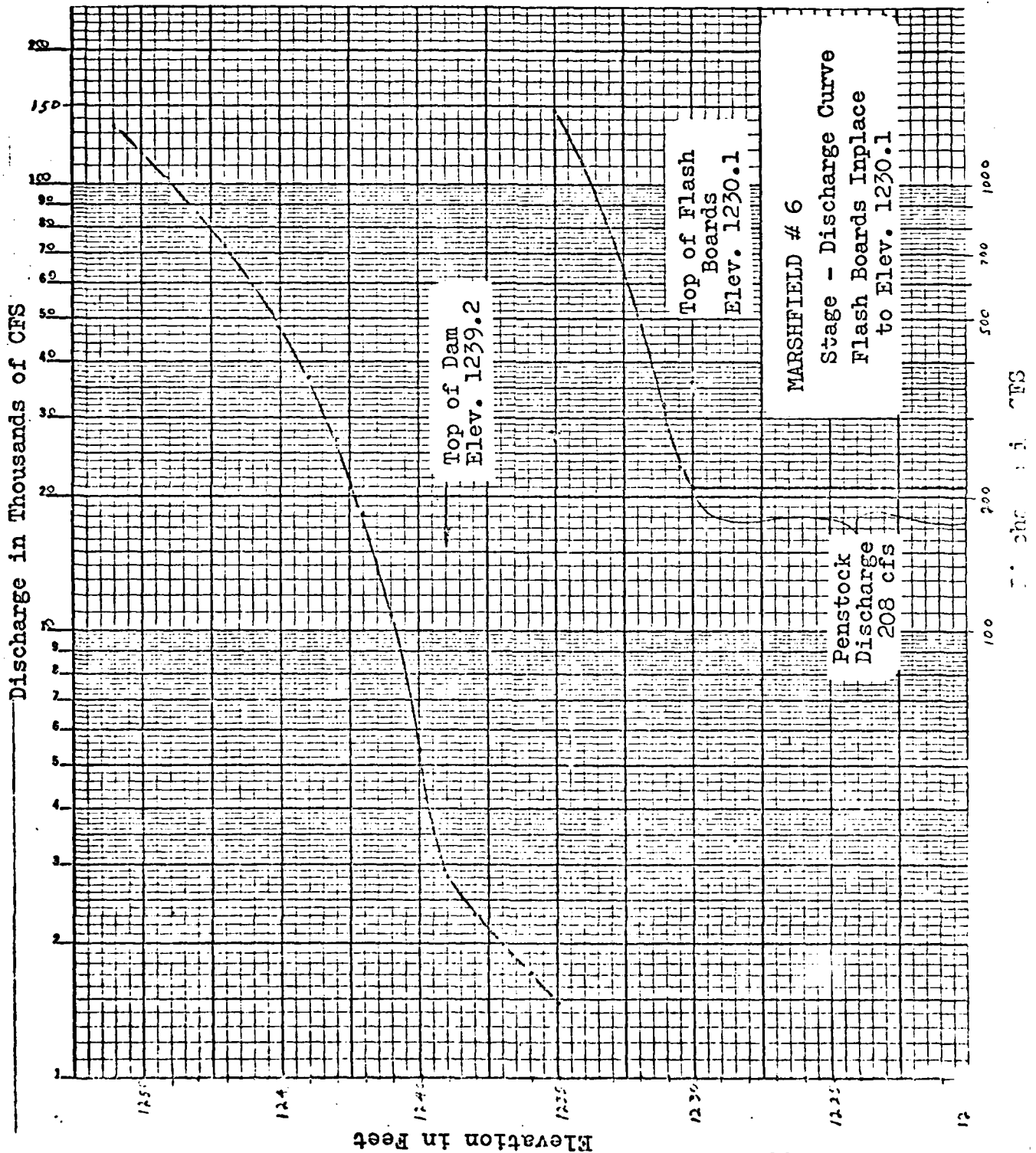
BY SL. FARRNSWORTH

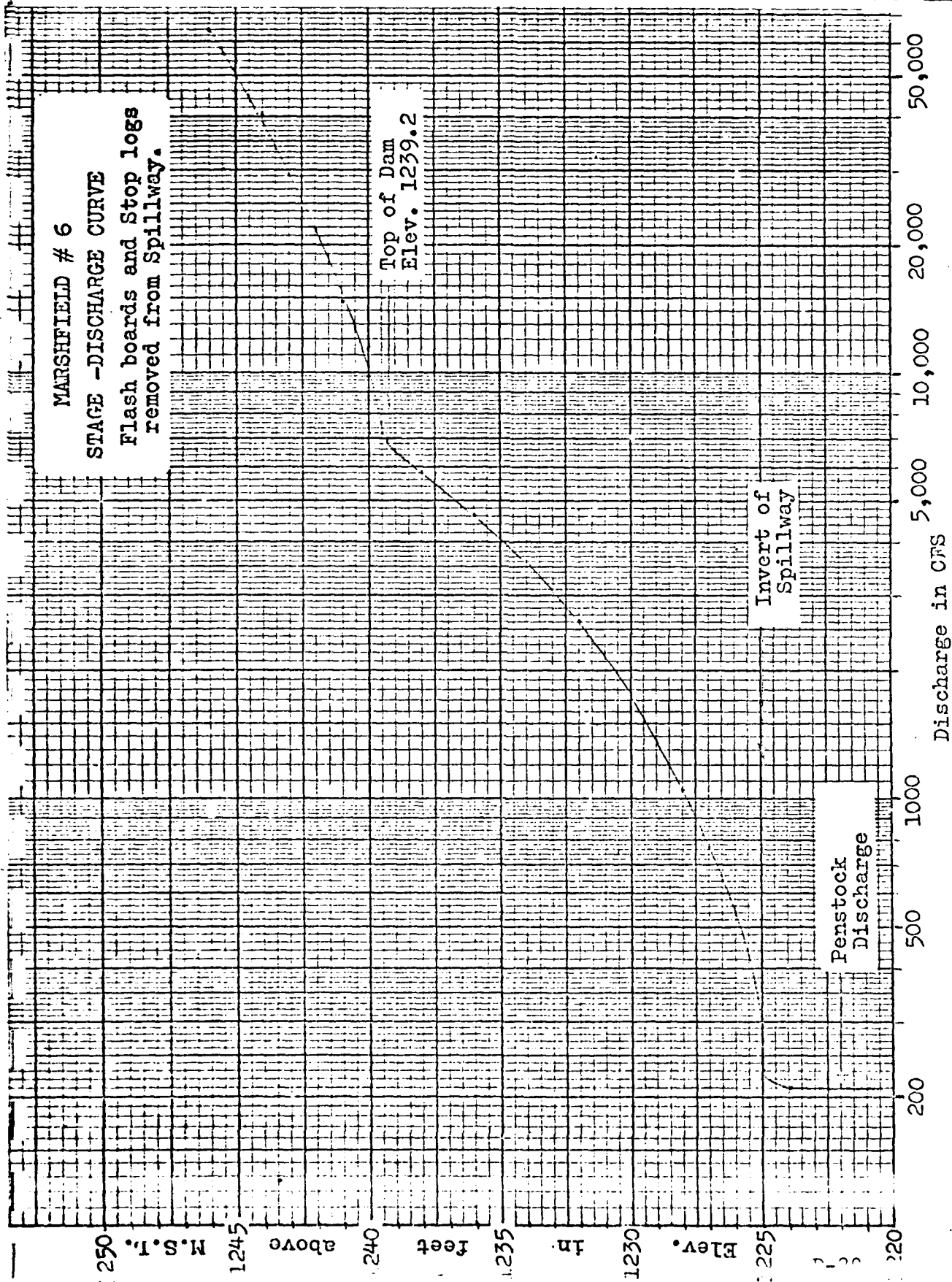
SUBJECT MARSHFIELD #6

SHEET NO. OF

DATE 5-22-79

JOB NO.



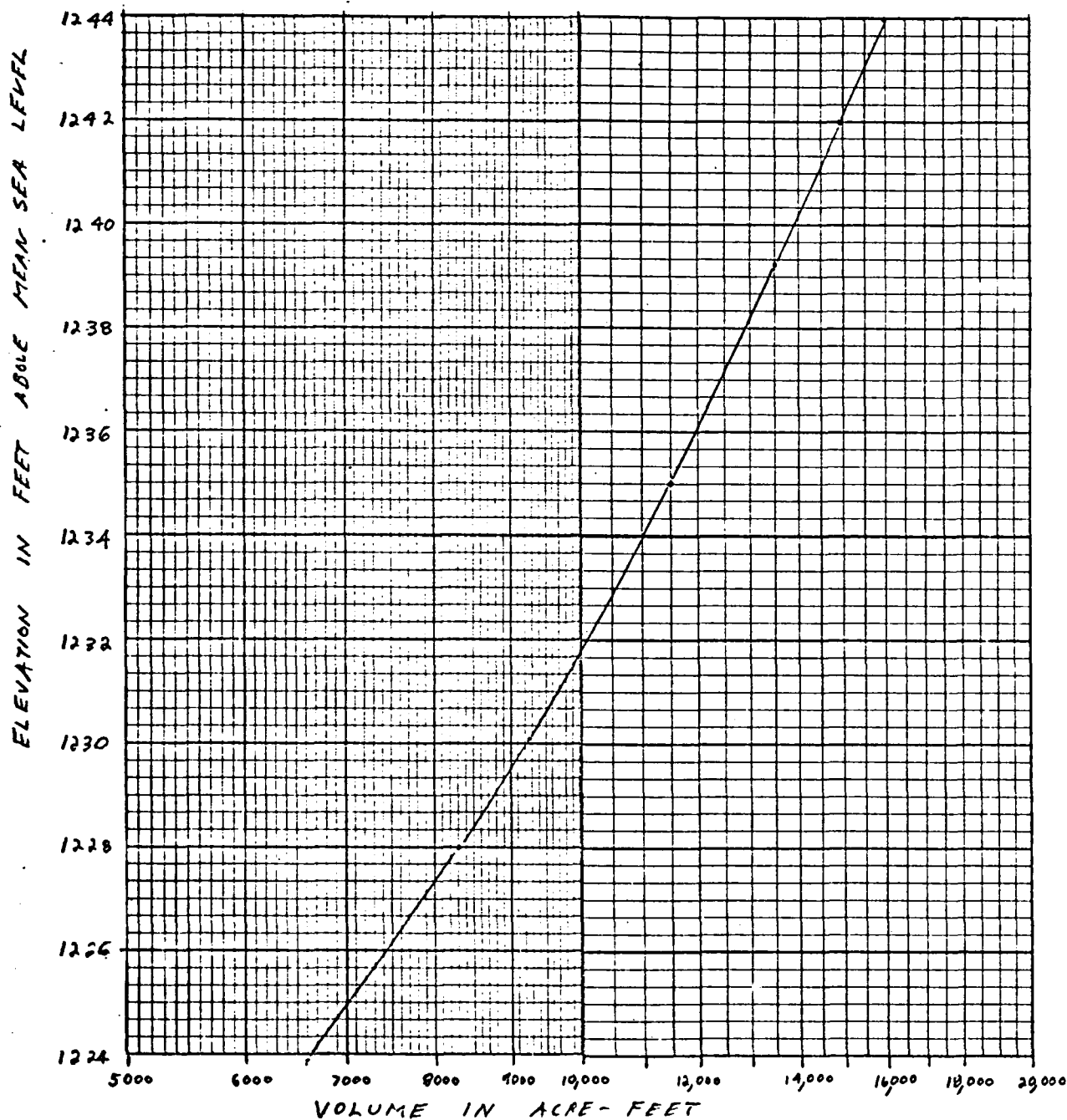


DUFRESNE-HENRY ENGINEERING CORPORATION

Y. S. G. FARNSWORTH
DATE 5-15-79

SUBJECT MANSFIELD #6
STATE - STORAGE CURVE

SHEET NO. OF
JOB NO. 04-0097



SOURCE:

COMPILED BY PHOTOGRAMMETRIC METHODS
MOORE SURVEY & MAPPING CORP

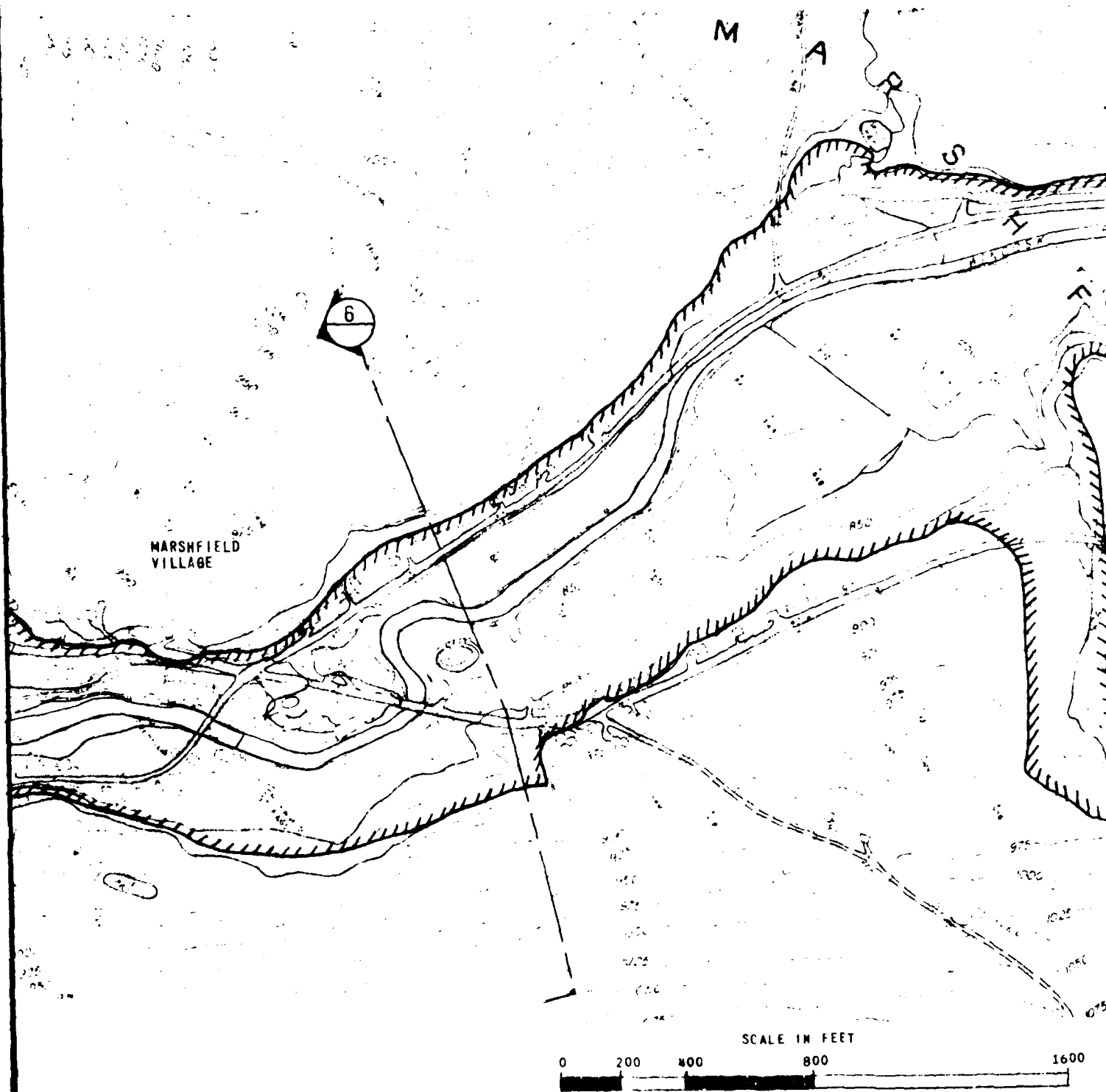
CONTROL BY VT. GEODETIC SURVEY, U.S.C. & G.S. & M.S. & M. CORP.

CONTOUR INTERVAL 5'

DATUM: MEAN SEA LEVEL 1929

2000' GRID BASED ON VERMONT STATE PLANE COORDINATE
TRANSVERSE MERCATOR PROJECTION

 DAM FAILURE FLOOD WAVE LIMITS



AD A157 631

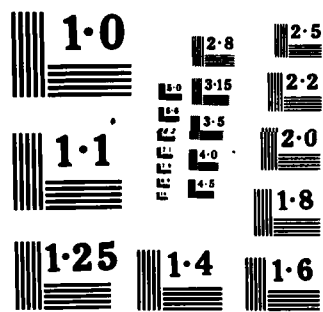
NATIONAL PROGRAM FOR INSPECTION OF NON-FEDERAL DAMS
PEACHAM POND DAM (VT.) (U) CORPS OF ENGINEERS WALTHAM MA
NEW ENGLAND DIV MAR 80

2/2

UNCLASSIFIED

F/G 13/13 NL

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DATE
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9-85



TERNAL 5"
 SEA LEVEL 1929
 STATE PLANE COORDINATE SYSTEM
 TOR PROJECTION

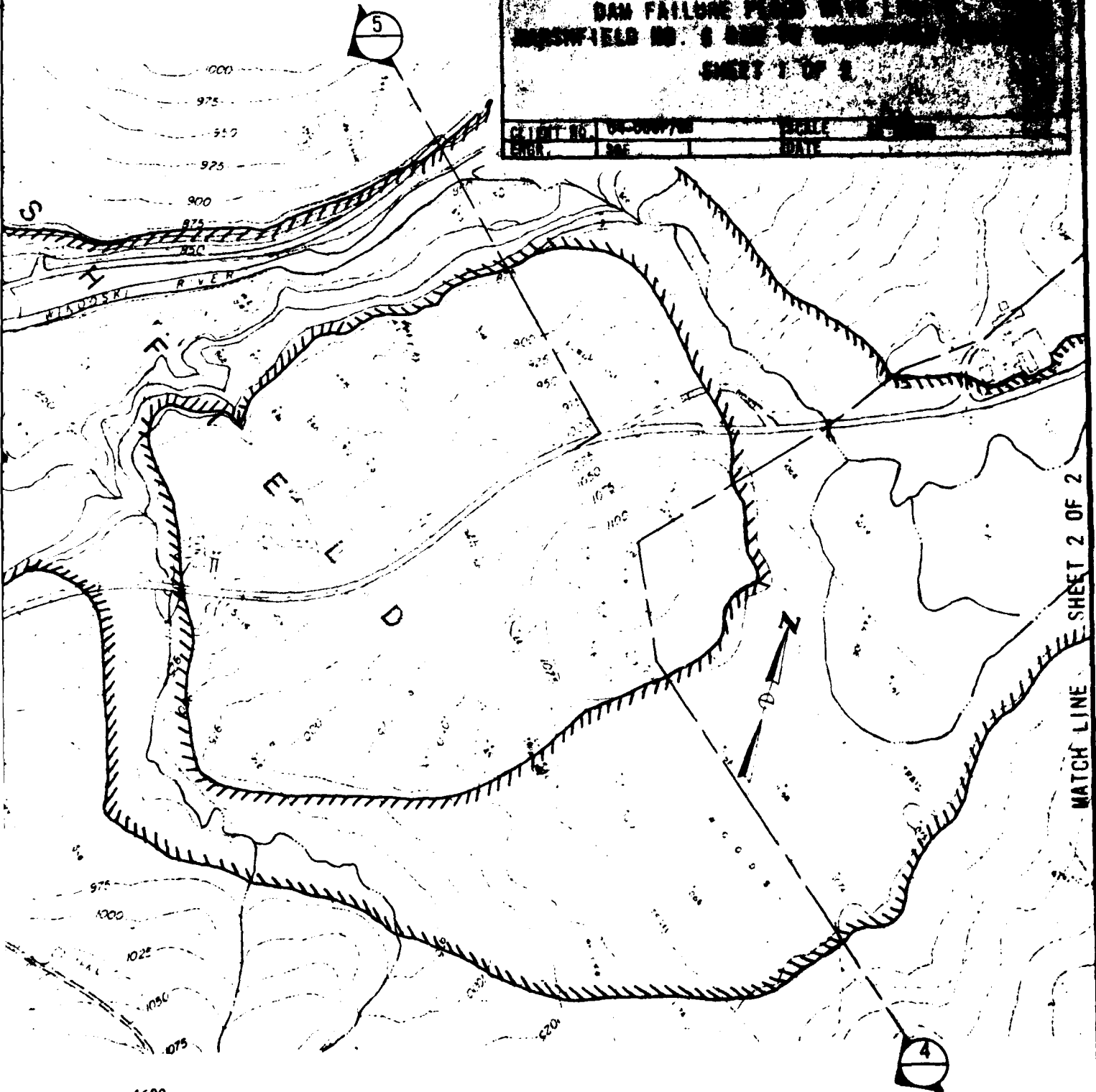
DUPRENE-HENRY ENGINEERING CO.
 ARCHITECT-ENGINEER

NATIONAL PROGRAM OF INSPECTION OF DAMS AND LEAKS

DAM FAILURE FIELD DATA
 HANSHFIELD NO. 3 DAM TO WINDY HOLLOW
 SHEET 1 OF 2

CLIENT NO. 04-000708
 ENGR. SEE DATE

SCALE 1" = 100'
 DATE



SOURCE:

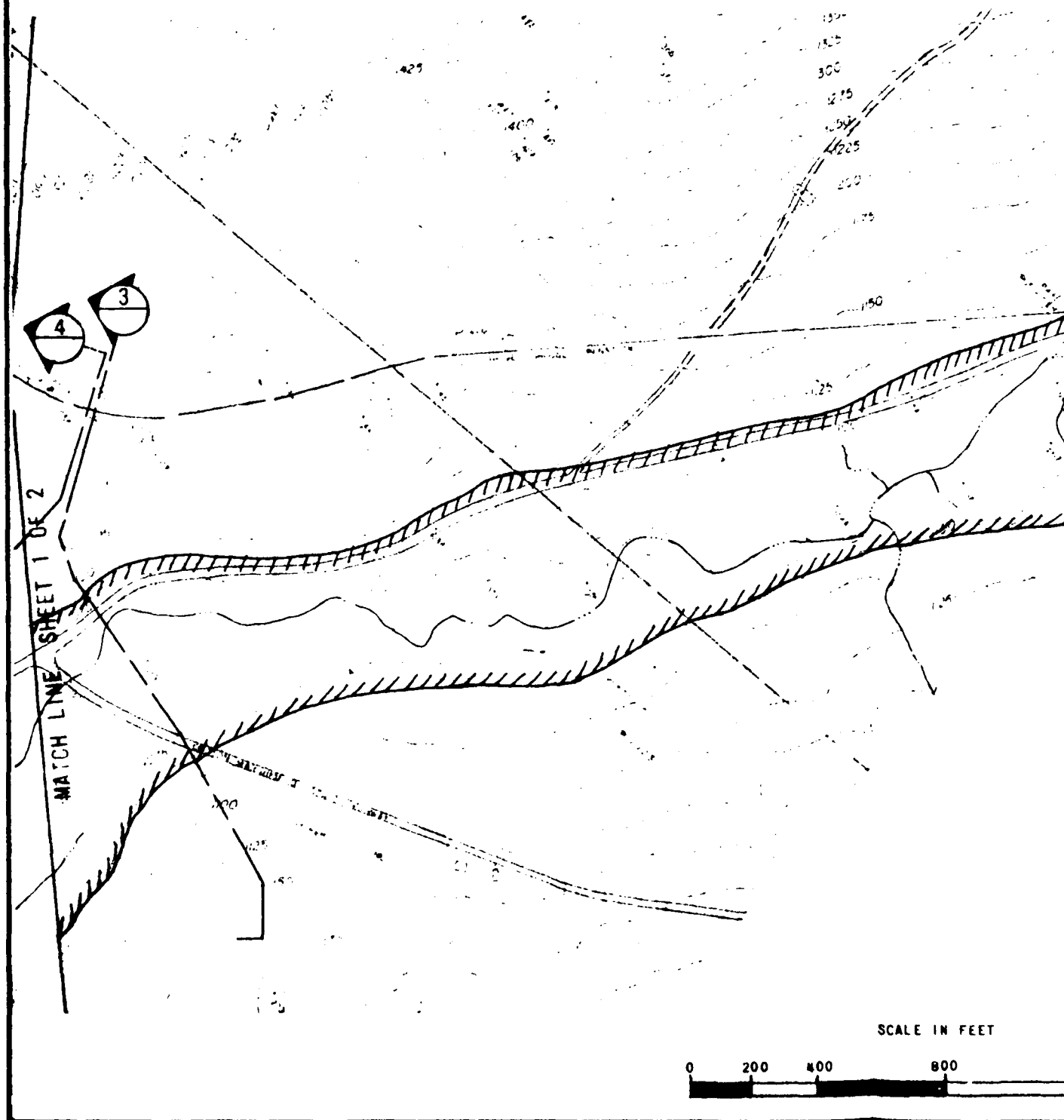
COMPILED BY PHOTOGRAMMETRIC METHODS

MOORE SURVEY & MAPPING CORP.

CONTROL BY VT. GEODETIC SURVEY, U.S.C. & G.S. & M.S. & M. CORP.

CONTOUR INT
DATUM MEAN SEA
2000' GRID BASED ON VERMONT STA
TRANSVERSE MERCAT

 DAM FAILURE FLOOD WAVE LIMITS



INTERVAL 5'
 MEAN LEVEL 1929
 STATE PLANE COORDINATE SYSTEM
 LAMBERT PROJECTION

DUFRESNE-HENRY ENGINEERING CORP.
 ARCHITECT-ENGINEER

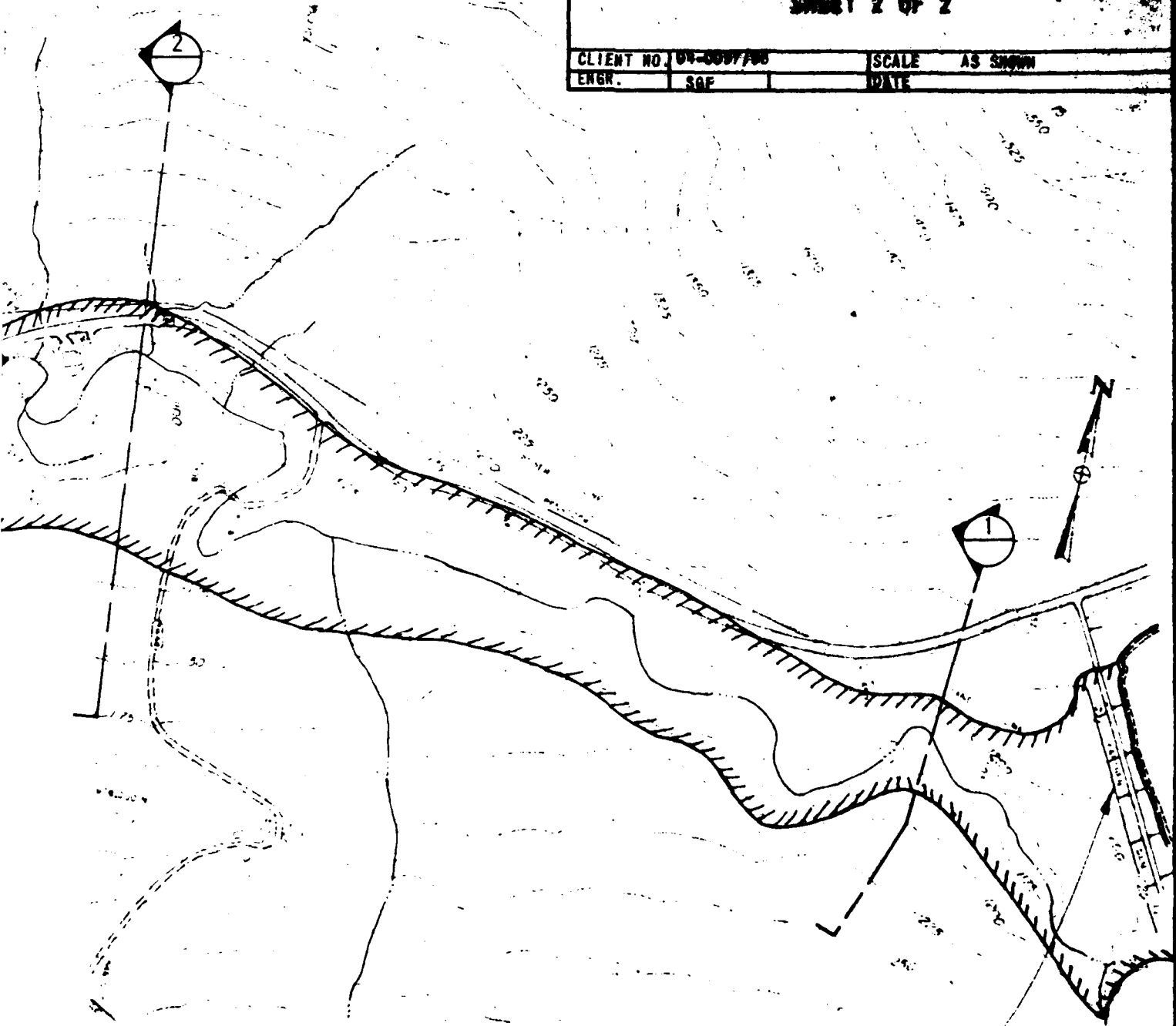
U.S. ARMY ENGINEER DIV. NEW ORLEANS
 CORPS OF ENGINEERS
 BATTALION, MISS.

NATIONAL PROGRAM OF INSPECTION OF NON-FED. DAMS

DAM FAILURE FLOOD WAVE LIMITS
 MARSHFIELD NO. 8 DAM TO MARSHFIELD VILLAGE
 SHEET 2 OF 2

CLIENT NO. 04-0007/00
 ENGR. SGP

SCALE AS SHOWN
 DATE



MARSHFIELD #6
 (MOLLY'S FALL DAM)

 HEC2 VERSION UPDATED JAN 1975
 MODIFICATIONS 01.02.03.04.05.06.07.08
 MODIFICATIONS 52.53.54.55.56.57.58

PARSHFIELD DAM NO.6

J1	ICHECK	INC	INQ	MINV	IDIA	STAT	METRIC	WVINS	Q	USEL	PQ
	Q.	Z.		Q.	Q.	0.003000	0.0	0.0	0.	835.000	0.0
J2	WPGF	1PLOT	PRFVS	ASCEV	ASCEM	FN	ALOC	ISW	CHNIM	ITRACE	
	1.000	0.0	-1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
QT	9.000	4000.000	8000.000	12000.000	25000.000	50000.000	75000.000	100000.000	120000.000	141000.000	
MC	0.070	0.070	0.035	0.100	0.200	0.0	0.0	0.0	0.0	0.0	
X1	4.000	10.000	400.000	1020.000	500.000	500.000	500.000	500.000	0.0	0.0	0.0
GR	975.000	0.0	855.000	400.000	850.000	470.000	840.000	620.000	832.000	630.000	
GR	832.000	700.000	843.000	710.000	850.000	1220.000	860.000	1250.000	950.000	1600.000	
X1	5.000	11.000	500.000	800.000	3300.000	3300.000	3400.000	0.0	0.0	0.0	0.0
GP	1025.000	0.0	950.000	240.000	875.000	470.000	870.000	500.000	845.000	570.000	
GR	845.000	630.000	850.000	640.000	855.000	600.000	875.000	970.000	900.000	1200.000	
GR	1025.000	1503.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
X1	4.000	17.000	363.000	2240.000	1400.000	1600.000	1600.000	0.0	0.0	0.0	0.0
GR	1200.000	0.0	1145.000	360.000	1095.000	700.000	1077.000	1000.000	1083.000	1250.000	
GR	1040.000	1500.000	1045.000	1590.000	1070.000	1730.000	1114.000	2240.000	1090.000	2560.000	
GR	1090.000	2590.000	1100.000	2640.000	1070.000	2800.000	1070.000	3440.000	1075.000	3700.000	
GR	1150.000	4100.000	1200.000	4600.000	0.0	0.0	0.0	0.0	0.0	0.0	
MC	0.070	0.070	0.045	0.100	0.200	0.0	0.0	0.0	0.0	0.0	
X1	3.000	10.000	850.000	1350.000	1900.000	100.000	1150.000	0.0	0.0	0.0	0.0
GP	1175.000	250.000	1150.000	450.000	1125.000	660.000	1075.000	850.000	1060.000	930.000	
GR	1060.000	950.000	1065.000	1240.000	1125.000	1350.000	1150.000	1900.000	1175.000	2075.000	
X1	2.000	10.000	740.000	1390.000	3200.000	3300.000	3300.000	0.0	0.0	0.0	0.0
GP	1225.000	0.0	1150.000	430.000	1115.000	700.000	1110.000	740.000	1095.000	820.000	
GR	1095.000	850.000	1100.000	1170.000	1110.000	1380.000	1175.000	1930.000	1200.000	2070.000	
X1	1.000	12.000	550.000	700.000	2700.000	2700.000	2700.000	0.0	0.0	0.0	0.0
GP	1275.000	0.0	1250.000	200.000	1225.000	290.000	1210.000	440.000	1200.000	490.000	
GR	1175.000	550.000	1155.000	610.000	1155.000	660.000	1165.000	700.000	1157.000	750.000	
GR	1200.000	900.000	1250.000	1330.000	0.0	0.0	0.0	0.0	0.0	0.0	
EJ	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

 WPC2 VERSION UPDATED JAN 1975
 FOR CORRECTIONS 01.02.03.04.05.06.07.08
 MODIFICATIONS 52.53.54.55.56.57.58

T1 WARSHFIELD DAM NO.6

J1	ICHECK	INO	MINV	IDIR	STAT	METRIC	WVINS	Q	WSEL	EO
0.	6.	0.	0.	0.003000	0.0	0.0	0.0	0.	848.000	0.0
J2	WPC2	IPLOT	PPVS	XSCCV	XSECH	PN	ALOC	IBN	CHNM	ITRAGE
5.000	0.0	-1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CCHV	0.100	CEHVB	0.200	WSELK	EG	WV	HL	OLOSS	BANK ELEV
SECNO	DEPTH	CMSEL	CRWS	ALOB	ACH	ANR	VOL	TWA	LEFT/RIGHT
Q	QLOB	QCH	QROB	ANL	ANCM	ANR	WTN	ELMIN	SSTA
TIME	VLOB	VCH	VROB	ITRIAL	IDC	ICONT	CORAR	TOPHID	ENDST
SLOPE	XLOBL	XLCB	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPHID	ENDST
6.00	22.42	854.42	0.0	848.00	854.98	0.56	0.0	0.0	855.00
50000.	0.	0.	50000.	0.	0.	8321.	0.	0.	1025.00
0.0	0.0	0.0	6.01	0.070	0.035	0.070	0.0	832.00	408.11
0.003048	500.	500.	500.	0	0	5	0.0	825.15	1233.26

3301 WV CHANGED MORE THAN WVINS

5.00	18.70	863.70	0.0	0.0	866.56	2.86	11.12	0.46	870.00
50000.	0.	46910.	1040.	0.	3564.	321.	466.	45.	855.00
0.07	0.0	13.72	3.39	0.070	0.035	0.070	0.036	845.00	517.66
0.003630	3300.	3400.	3300.	2	0	1	0.0	356.25	873.90

3685 20 TWTALS USED WSEL.CMSEL

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

3245 DIVIDED FLOW

SECNO	DEPTH	CMSEL	CRWS	WSELK	EG	WV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	ANR	VOL	TWA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	ANL	ANCM	ANR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCB	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPHID	ENDST
4.00	13.56	1073.58	1073.58	0.0	1075.83	2.25	8.17	0.0	1145.00
50000.	0.	35174.	10826.	0.	2919.	2602.	647.	77.	1119.00
0.11	0.0	13.42	4.07	0.070	0.035	0.070	0.035	1060.00	1352.35
0.007438	1400.	1600.	1800.	30	13	1	0.0	1260.40	3626.14

CCMV0 0.100 CMV0 0.200

3301 MW CHANGED MORE THAN HVIMS

SECNO	DEPTH	CMSEL	CRIMS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TNA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	MTA	ELMIN	SSTA
SLOPE	XLGBL	XLCH	XLGBR	ITRIAL	IDC	ICONT	CORAR	TOPHIO	ENDST
3.00	18.22	1078.22	0.0	0.0	1079.09	0.06	3.12	0.14	1075.00
50000.	23.	49933.	45.	20.	6888.	38.	777.	90.	1075.00
0.15	1.15	7.47	1.17	0.070	0.045	0.070	0.038	1060.00	837.74
0.001618	1900.	1150.	100.	3	0	1	0.0	535.91	1373.65

3685 20 TRIALS USED WSELKCMSEL

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

SECNO	DEPTH	CMSEL	CRIMS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TNA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	MTA	ELMIN	SSTA
SLOPE	XLGBL	XLCH	XLGBR	ITRIAL	IDC	ICONT	CORAR	TOPHIO	ENDST
2.00	10.37	1105.37	1105.37	0.0	1108.69	3.32	12.27	0.0	1110.00
50000.	0.	50000.	0.	0.	3421.	0.	1183.	130.	1110.00
0.21	0.0	14.61	0.0	0.070	0.045	0.070	0.040	1095.00	764.67
0.015857	3200.	3300.	3300.	30	11	1	0.0	518.19	1282.86

7185 MIN SPECIFIC ENERGY

3720 ASSUMED CRITICAL DEPTH

SECNO	DEPTH	CMSEL	CRIMS	WSELK	EG	HV	HL	OLOSS	BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TNA	LEFT/RIGHT
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	MTA	ELMIN	SSTA
SLOPE	XLGBL	XLCH	XLGBR	ITRIAL	IDC	ICONT	CORAR	TOPHIO	ENDST
1.00	17.37	1172.57	1172.57	0.0	1178.29	5.73	39.88	0.0	1175.00
50000.	0.	38653.	11347.	0.	1844.	1001.	1357.	154.	1165.00
0.25	0.0	20.96	11.33	0.070	0.045	0.070	0.041	1155.00	557.29
0.011790	2700.	2700.	2700.	17	14	1	0.0	247.02	804.31

SUMMARY PRINTOUT FOR MULTIPLE PROFILES

SECTION NUMBER	CHANNEL LENGTH	MIN EL OF ROADWAY	MAX EL OF LOW CHORC	MIN EL GROUND	DISCHARGE SCFS	CASEL	CRHS	EG	TOP10	LOKS	TIME	VOL
6.00	500.00	0.0	0.0	0.0	832.00	4000.00	841.64	0.0	841.96	198.23	30.05	0.0
4.00	500.00	0.0	0.0	0.0	832.00	8000.00	844.78	0.0	845.08	405.70	30.03	0.0
6.00	500.00	0.0	0.0	0.0	832.00	12000.00	846.67	0.0	846.98	510.53	30.02	0.0
6.00	500.00	0.0	0.0	0.0	832.00	25000.00	850.43	0.0	850.80	757.37	29.90	0.0
6.00	500.00	0.0	0.0	0.0	832.00	50000.00	854.42	0.0	854.98	855.15	30.48	0.0
6.00	500.00	0.0	0.0	0.0	832.00	75000.00	857.50	0.0	858.23	850.82	30.56	0.0
6.00	500.00	0.0	0.0	0.0	832.00	100000.00	860.20	0.0	861.08	868.09	30.10	0.0
6.00	500.00	0.0	0.0	0.0	832.00	120000.00	862.00	0.0	863.02	881.11	30.58	0.0
6.00	500.00	0.0	0.0	0.0	832.00	140000.00	863.92	0.0	865.06	895.01	30.10	0.0
5.00	3400.00	0.0	0.0	0.0	845.00	4000.00	852.29	0.0	852.99	163.78	35.17	0.15
5.00	3400.00	0.0	0.0	0.0	845.00	8000.00	856.91	0.0	855.91	256.94	32.41	0.14
5.00	3400.00	0.0	0.0	0.0	845.00	12000.00	856.34	0.0	857.25	273.16	30.61	0.12
5.00	3400.00	0.0	0.0	0.0	845.00	25000.00	859.65	0.0	861.24	310.54	30.99	0.09
5.00	3400.00	0.0	0.0	0.0	845.00	50000.00	863.69	0.0	866.56	356.25	36.30	0.07
5.00	3400.00	0.0	0.0	0.0	845.00	75000.00	866.62	0.0	870.70	389.24	41.09	0.06
5.00	3400.00	0.0	0.0	0.0	845.00	100000.00	868.95	0.0	874.22	415.67	45.54	0.05
5.00	3400.00	0.0	0.0	0.0	845.00	120000.00	870.57	0.0	876.78	435.72	48.48	0.05
5.00	3400.00	0.0	0.0	0.0	845.00	140000.00	871.98	0.0	879.26	456.20	51.81	0.04
4.00	1600.00	0.0	0.0	0.0	1060.00	4000.00	1065.44	1065.44	1066.79	161.31	132.80	0.20
4.00	1600.00	0.0	0.0	0.0	1060.00	8000.00	1067.16	1067.16	1068.87	227.74	123.60	0.18
4.00	1600.00	0.0	0.0	0.0	1060.00	12000.00	1068.39	1068.39	1070.33	276.12	113.67	0.16
4.00	1600.00	0.0	0.0	0.0	1060.00	25000.00	1071.37	1071.37	1073.17	1086.65	70.42	0.13
4.00	1600.00	0.0	0.0	0.0	1060.00	50000.00	1073.58	1073.58	1075.83	1260.40	74.38	0.11
4.00	1600.00	0.0	0.0	0.0	1060.00	75000.00	1075.32	1075.32	1077.78	1381.92	72.14	0.10
4.00	1600.00	0.0	0.0	0.0	1060.00	100000.00	1076.21	1076.21	1078.37	1410.32	87.61	0.08
4.00	1600.00	0.0	0.0	0.0	1060.00	120000.00	1077.71	1077.71	1080.37	1499.58	75.58	0.08
4.00	1600.00	0.0	0.0	0.0	1060.00	140000.00	1078.46	1078.46	1081.37	1567.73	83.76	0.08
3.00	1150.00	0.0	0.0	0.0	1060.00	4000.00	1068.17	1068.17	1068.23	388.35	3.88	0.36
3.00	1150.00	0.0	0.0	0.0	1060.00	8000.00	1070.49	1070.49	1070.60	426.34	4.93	0.30
3.00	1150.00	0.0	0.0	0.0	1060.00	12000.00	1072.13	1072.13	1072.29	453.22	5.84	0.26
3.00	1150.00	0.0	0.0	0.0	1060.00	25000.00	1075.20	1075.20	1075.57	502.28	9.52	0.20
3.00	1150.00	0.0	0.0	0.0	1060.00	50000.00	1078.22	1078.22	1079.09	535.91	16.18	0.19
3.00	1150.00	0.0	0.0	0.0	1060.00	75000.00	1080.16	1080.16	1081.63	557.46	23.09	0.12
3.00	1150.00	0.0	0.0	0.0	1060.00	100000.00	1081.92	1081.92	1084.01	577.07	28.38	0.11
3.00	1150.00	0.0	0.0	0.0	1060.00	120000.00	1082.50	1082.50	1085.30	583.54	36.46	0.10
3.00	1150.00	0.0	0.0	0.0	1060.00	140000.00	1083.46	1083.46	1086.92	594.24	42.01	0.10
2.00	3300.00	0.0	0.0	0.0	1095.00	4000.00	1098.41	1098.41	1099.38	266.47	244.80	0.48
2.00	3300.00	0.0	0.0	0.0	1095.00	8000.00	1099.63	1099.63	1100.91	350.70	222.26	0.40
2.00	3300.00	0.0	0.0	0.0	1095.00	12000.00	1100.45	1100.45	1102.03	388.62	209.90	0.35
2.00	3300.00	0.0	0.0	0.0	1095.00	25000.00	1102.45	1102.45	1104.83	441.27	185.25	0.27
2.00	3300.00	0.0	0.0	0.0	1095.00	50000.00	1105.37	1105.37	1108.69	518.19	158.57	0.21
2.00	3300.00	0.0	0.0	0.0	1095.00	75000.00	1107.56	1107.56	1111.64	575.87	150.99	0.18
2.00	3300.00	0.0	0.0	0.0	1095.00	100000.00	1109.49	1109.49	1114.14	626.65	142.45	0.16
2.00	3300.00	0.0	0.0	0.0	1095.00	120000.00	1110.68	1110.68	1115.91	651.20	140.02	0.15
2.00	3300.00	0.0	0.0	0.0	1095.00	140000.00	1111.88	1111.88	1117.66	670.50	133.48	0.14
1.00	2700.00	0.0	0.0	0.0	1155.00	4000.00	1160.13	1160.13	1161.92	174.78	174.78	0.55
1.00	2700.00	0.0	0.0	0.0	1155.00	8000.00	1162.39	1162.39	1164.80	154.27	162.46	0.46
1.00	2700.00	0.0	0.0	0.0	1155.00	12000.00	1164.06	1164.06	1166.88	182.21	156.46	0.41
1.00	2700.00	0.0	0.0	0.0	1155.00	25000.00	1167.69	1167.69	1171.69	215.37	145.99	0.32
1.00	2700.00	0.0	0.0	0.0	1155.00	50000.00	1172.57	1172.57	1178.29	247.02	137.90	0.25
1.00	2700.00	0.0	0.0	0.0	1155.00	75000.00	1176.44	1176.44	1183.48	289.54	136.89	0.22
1.00	2700.00	0.0	0.0	0.0	1155.00	100000.00	1179.38	1179.38	1188.00	328.59	127.44	0.19
1.00	2700.00	0.0	0.0	0.0	1155.00	120000.00	1181.78	1181.78	1191.33	362.73	121.00	0.18
1.00	2700.00	0.0	0.0	0.0	1155.00	140000.00	1184.12	1184.12	1194.52	316.48	115.97	0.17

SECTION NUMBER	DISCHARGE CFS	CWSL	CWSL DIFF EACH 0	CWSL DIFF EACH SECTION	CWSL-MSLK	TOP MID	Y. H. DIFF	LENGTH
6.000	4000.000	841.639	0.0	0.0	0.0	198.230	0.0	500.000
6.000	8000.000	844.783	3.144	0.0	0.0	405.702	-207.472	500.000
6.000	12000.000	845.674	1.891	0.0	0.0	530.533	-332.303	500.000
6.000	25000.000	850.433	3.759	0.0	0.0	757.367	-559.137	500.000
6.000	50000.000	854.420	3.987	0.0	0.0	825.147	-626.917	500.000
6.000	75000.000	857.497	3.077	0.0	0.0	850.816	-652.586	500.000
6.000	100000.000	863.196	2.699	0.0	0.0	868.089	-669.859	500.000
6.000	120000.000	862.000	1.804	0.0	0.0	881.111	-682.481	500.000
6.000	141000.000	863.924	1.924	0.0	0.0	895.007	-696.777	500.000
5.000	4000.000	852.292	0.0	10.653	0.0	163.782	0.0	3400.000
5.000	8000.000	854.910	2.618	10.128	0.0	254.943	-91.161	3400.000
5.000	12000.000	856.341	1.430	9.666	0.0	273.156	-105.374	3400.000
5.000	25000.000	859.649	3.309	9.216	0.0	310.541	-146.359	3400.000
5.000	50000.000	863.895	4.046	9.275	0.0	356.245	-192.463	3400.000
5.000	75000.000	866.617	2.522	9.120	0.0	389.244	-225.462	3400.000
5.000	100000.000	863.947	2.331	8.751	0.0	415.669	-251.887	3400.000
5.000	120000.000	870.565	1.618	8.566	0.0	435.715	-271.933	3400.000
5.000	141000.000	871.979	1.413	8.055	0.0	456.198	-292.416	3400.000
4.000	4000.000	1085.436	0.0	213.144	0.0	161.306	0.0	1600.000
4.000	8000.000	1067.145	1.709	212.234	0.0	227.743	-66.437	1600.000
4.000	12000.000	1068.390	1.245	212.049	0.0	276.121	-114.815	1600.000
4.000	25000.000	1071.373	2.983	211.724	0.0	1086.650	-925.345	1600.000
4.000	50000.000	1073.583	2.210	209.888	0.0	1260.397	-1059.092	1600.000
4.000	75000.000	1075.318	1.735	208.701	0.0	1381.922	-1220.616	1600.000
4.000	100000.000	1076.207	0.889	207.259	0.0	1410.315	-1249.010	1600.000
4.000	120000.000	1077.738	1.501	207.143	0.0	1449.575	-1338.270	1600.000
4.000	141000.000	1078.463	0.755	206.484	0.0	1567.727	-1406.421	1600.000
3.000	4000.000	1069.167	0.0	2.731	0.0	388.352	0.0	1150.000
3.000	8000.000	1070.490	2.323	3.345	0.0	426.343	-37.991	1150.000
3.000	12000.000	1072.130	1.640	3.740	0.0	453.219	-64.868	1150.000
3.000	25000.000	1075.205	3.075	3.832	0.0	502.282	-113.930	1150.000
3.000	50000.000	1073.222	3.017	4.639	0.0	535.909	-147.558	1150.000
3.000	75000.000	1080.160	1.938	4.842	0.0	557.461	-169.110	1150.000
3.000	100000.000	1081.921	1.761	5.714	0.0	577.072	-188.721	1150.000
3.000	120000.000	1082.499	0.578	4.791	0.0	583.542	-195.190	1150.000
3.000	141000.000	1083.461	0.962	4.998	0.0	594.237	-205.685	1150.000
2.000	4000.000	1098.410	0.0	30.244	0.0	266.471	0.0	3300.000
2.000	8000.000	1099.525	1.214	29.135	0.0	350.700	-84.229	3300.000
2.000	12000.000	1103.454	0.829	28.324	0.0	388.618	-122.147	3300.000
2.000	25000.000	1102.453	1.999	27.248	0.0	441.266	-174.744	3300.000
2.000	50000.000	1105.374	2.921	27.152	0.0	518.189	-251.718	3300.000
2.000	75000.000	1107.564	2.191	27.404	0.0	575.870	-309.349	3300.000
2.000	100000.000	1109.493	1.929	27.572	0.0	626.653	-360.182	3300.000
2.000	120000.000	1110.680	1.187	28.181	0.0	651.197	-384.725	3300.000
2.000	141000.000	1111.877	1.197	28.416	0.0	670.898	-404.426	3300.000
1.000	4000.000	1160.125	0.0	61.715	0.0	116.320	0.0	2700.000
1.000	8000.000	1162.392	2.267	62.768	0.0	154.271	-37.952	2700.000
1.000	12000.000	1164.063	1.670	63.609	0.0	182.215	-65.895	2700.000
1.000	25000.000	1167.690	3.628	65.238	0.0	215.368	-99.049	2700.000
1.000	50000.000	1172.569	4.878	67.195	0.0	247.017	-130.697	2700.000
1.000	75000.000	1176.144	3.575	68.579	0.0	269.529	-153.209	2700.000
1.000	100000.000	1179.380	3.236	69.887	0.0	288.585	-172.266	2700.000
1.000	120000.000	1181.783	2.403	71.103	0.0	302.734	-186.415	2700.000
1.000	141000.000	1184.117	2.334	72.241	0.0	316.479	-200.159	2700.000

DATA FOR LAST CROSS SECTION

PROFILE	TYPE	ENC	TARGET	TOP WIDTH AREA-ACRES	TOP WIDTH AREA-DIFF
1	0.0	0.0	63.794	0.0	
2	0.0	0.0	87.899	24.105	
3	0.0	0.0	100.063	36.270	
4	0.0	0.0	116.553	72.759	
5	0.0	0.0	153.846	90.052	
6	0.0	0.0	165.406	101.612	
7	0.0	0.0	173.387	105.554	
8	0.0	0.0	180.115	116.321	
9	0.0	0.0	186.134	122.341	

DUFRESNE-HENRY ENGINEERING CORPORATION

BY SHERWARD G. FARNSWORTH

SUBJECT PEACHAM POND DAM TEST FLOOD

SHEET NO. _____ OF _____

DATE 7-31-79

0.5 PMF

JOB NO. 04-0098

TEST FLOOD @ PEACHAM POND DAM
0.5 PMF *

THE FOLLOWING INFORMATION IS FROM HEC 1 COMPUTER OUTPUT
RUNOFF SUMMARY SHEET. (ROUNDED TO NEAREST 1%)

PEACHAM POND DAM: INFLOW $\Rightarrow$ 10,200 CFS } REDUCTION
OUTFLOW $\Rightarrow$ 3,400 CFS } 67%

TEST FLOOD FLEV.: 1407.2 FEET (M.S.L.) } FREE BOARD
TOP OF DAM ELEV.: 1408.3 FEET (M.S.L.) } 1.1 FEET

SPILLWAY CAPACITY:

TOP OF DAM: 4200 CFS

TEST FLOOD: 3400 CFS

% CAPACITY OF TEST FLOOD 124%

TEST FLOOD % OF SPILLWAY CAPACITY 81%

* STARTING WATER SURFACE AT INVERT OF EMERGENCY SPILLWAY.
IT SHOULD BE NOTED THE NORMAL WATER SURFACE FOR PEACHAM
POND DAM IS ONE FOOT BELOW INVERT IN SUMMER & IN
LOWER IN WINTER.

 HEC-1 VERSION DATED JAN 1973
 UPDATED AUG 74
 CHANGE NO. 01

PEACHAM POND DAM 04-0098
 CABOT, VERMONT
 TEST FLOOD ROUTING ---0.5 PMF

JOB SPECIFICATION
 NQ NHR NMIN IDAY IHR IMIN METRC IPLT IPRT NSTAN
 144 0 10 1 0 0 0 2 0 0
 JOPER NWT
 3 0

***** SUB-AREA RUNOFF COMPUTATION *****

SUB-AREA NO. 1
 ISTAQ ICOMP IECUN ITAPE JPLT JPRT INAME
 1 0 0 0 0 0 1

HYDROGRAPH DATA
 IMYDG IUMD TAREA SNAP TRSDA TRSPC RATIO ISNOW ISAME LOCAL
 1 1 1.84 0.0 0.0 1.00 0.500 0 0 0

PRECIP DATA
 SPFE PMS R6 R12 R24 R48 R72 R96
 0.0 16.00 111.00 123.00 133.00 0.0 0.0 0.0

LOSS DATA
 STRKR DTKR RTIOL ERRAIN STRKS RTIUK STRTL CNSTL ALSMX RTIMP
 0.0 0.0 1.00 0.0 0.0 1.00 0.41 0.11 0.0 0.0

UNIT HYDROGRAPH DATA
 TPE 1.10 CP#0.75 NTA# 0

RECESSION DATA
 STRTQ# 4.00 WRCNS# -0.10 RTIUR# 1.50

APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC# 8.09 AND RB 4.06 INTERVALS

UNIT HYDROGRAPH 26 END-OF-PERIOD GRADINATES, LAG# 1.10 HOURS, CP# 0.74 VOL# 1.00
 48. 173. 336. 511. 669. 774. 811. 776. 661. 517.
 404. 315. 246. 192. 150. 117. 92. 72. 56. 44.
 34. 27. 21. 16. 13. 10.

END-OF-PERIOD FLOW

TIME	RAIN	EXCS	COMP Q
1 0 10	0.02	0.00	4.
1 0 20	0.02	0.00	4.
1 0 30	0.02	0.00	4.
1 0 40	0.02	0.00	3.
1 0 50	0.02	0.00	3.
1 0 60	0.02	0.00	3.
1 1 10	0.02	0.00	3.
1 1 20	0.02	0.00	3.
1 1 30	0.02	0.00	3.
1 1 40	0.02	0.00	3.
1 1 50	0.02	0.00	3.
1 1 50	0.02	0.00	2.
1 2 10	0.02	0.00	2.
1 2 20	0.02	0.00	2.
1 2 30	0.02	0.00	2.
1 2 40	0.02	0.00	2.
1 2 50	0.02	0.00	2.
1 2 60	0.02	0.00	2.
1 3 10	0.02	0.00	2.
1 3 20	0.02	0.00	2.
1 3 30	0.02	0.00	2.
1 3 40	0.02	0.00	2.
1 3 50	0.02	0.00	2.
1 3 60	0.02	0.00	2.
1 4 10	0.02	0.00	1.
1 4 20	0.02	0.00	1.
1 4 30	0.02	0.00	1.
1 4 40	0.02	0.00	1.
1 4 50	0.02	0.00	1.
1 4 60	0.02	0.00	1.
1 5 10	0.02	0.00	1.
1 5 20	0.02	0.00	1.
1 5 30	0.02	0.00	1.
1 5 40	0.02	0.00	1.
1 5 50	0.02	0.00	1.
1 5 60	0.02	0.00	1.

1 6 1C	0.05	0.03	3.
1 6 20	0.05	0.03	9.
1 6 30	0.05	0.03	20.
1 6 40	0.05	0.03	38.
1 6 50	0.05	0.03	62.
1 6 60	0.05	0.03	89.
1 7 1C	0.05	0.03	117.
1 7 20	0.05	0.03	144.
1 7 30	0.05	0.03	167.
1 7 40	0.05	0.03	185.
1 7 50	0.05	0.03	199.
1 7 60	0.05	0.03	210.
1 8 10	0.05	0.03	219.
1 8 20	0.05	0.03	226.
1 8 30	0.05	0.03	231.
1 8 40	0.05	0.03	235.
1 8 50	0.05	0.03	238.
1 8 60	0.05	0.03	241.
1 9 10	0.05	0.03	243.
1 9 20	0.05	0.03	244.
1 9 30	0.05	0.03	245.
1 9 40	0.05	0.03	246.
1 9 50	0.05	0.03	247.
1 9 60	0.05	0.03	248.
1 10 10	0.05	0.03	248.
1 10 20	0.05	0.03	248.
1 10 30	0.05	0.03	248.
1 10 40	0.05	0.03	248.
1 10 50	0.05	0.03	248.
1 10 60	0.05	0.03	248.
1 11 10	0.05	0.03	248.
1 11 20	0.05	0.03	248.
1 11 30	0.05	0.03	248.
1 11 40	0.05	0.03	248.
1 11 50	0.05	0.03	248.
1 11 60	0.05	0.03	248.
1 12 10	0.30	0.28	260.
1 12 20	0.30	0.28	302.
1 12 30	0.30	0.28	383.
1 12 40	0.30	0.28	507.
1 12 50	0.30	0.28	670.
1 12 60	0.30	0.28	858.
1 13 10	0.36	0.34	1057.
1 13 20	0.36	0.34	1256.
1 13 30	0.36	0.34	1436.
1 13 40	0.36	0.34	1592.
1 13 50	0.36	0.34	1730.
1 13 60	0.36	0.34	1852.
1 14 10	0.44	0.43	1964.
1 14 20	0.44	0.43	2072.
1 14 30	0.44	0.43	2177.
1 14 40	0.44	0.43	2282.
1 14 50	0.44	0.43	2387.
1 14 60	0.44	0.43	2492.
1 15 10	1.12	1.11	2625.
1 15 20	1.12	1.11	2834.
1 15 30	1.12	1.11	3139.
1 15 40	1.12	1.11	3546.
1 15 50	1.12	1.11	4048.
1 15 60	1.12	1.11	4611.
1 16 10	0.41	0.40	5157.
1 16 20	0.41	0.40	5585.
1 16 30	0.41	0.40	5811.
1 16 40	0.41	0.40	5812.
1 16 50	0.41	0.40	5621.
1 16 60	0.41	0.40	5293.
1 17 10	0.33	0.31	4887.
1 17 20	0.33	0.31	4455.
1 17 30	0.33	0.31	4061.

1 17 40	0.33	0.31	3730.
1 17 50	0.33	0.31	3448.
1 17 60	0.33	0.31	3205.
1 18 10	0.03	0.01	2983.
1 18 20	0.03	0.01	2756.
1 18 30	0.03	0.01	2514.
1 18 40	0.03	0.01	2250.
1 18 50	0.03	0.01	1963.
1 18 60	0.03	0.01	1664.
1 19 10	0.03	0.01	1368.
1 19 20	0.03	0.01	1095.
1 19 30	0.03	0.01	860.
1 19 40	0.03	0.01	676.
1 19 50	0.03	0.01	573.
1 19 60	0.03	0.01	551.
1 20 10	0.03	0.01	529.
1 20 20	0.03	0.01	508.
1 20 30	0.03	0.01	488.
1 20 40	0.03	0.01	468.
1 20 50	0.03	0.01	450.
1 20 60	0.03	0.01	432.
1 21 10	0.03	0.01	415.
1 21 20	0.03	0.01	398.
1 21 30	0.03	0.01	382.
1 21 40	0.03	0.01	367.
1 21 50	0.03	0.01	352.
1 21 60	0.03	0.01	338.
1 22 10	0.03	0.01	325.
1 22 20	0.03	0.01	312.
1 22 30	0.03	0.01	300.
1 22 40	0.03	0.01	288.
1 22 50	0.03	0.01	276.
1 22 60	0.03	0.01	265.
1 23 10	0.03	0.01	255.
1 23 20	0.03	0.01	245.
1 23 30	0.03	0.01	235.
1 23 40	0.03	0.01	226.
1 23 50	0.03	0.01	217.
1 23 60	0.03	0.01	208.

SUM 21.36 18.66 137833.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	5812.	3184.	957.	957.	137835.
INCHES		16.09	19.36	19.36	19.36
AC-FT		1579.	1900.	1900.	1900.

RUNOFF MULTIPLIED BY 0.50

2.	2.	2.	2.	2.	2.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	0.	0.	1.	4.	10.	19.
31.	44.	58.	72.	84.	93.	100.	105.	110.	113.
115.	118.	119.	120.	121.	122.	123.	123.	124.	124.
124.	124.	124.	124.	124.	124.	124.	124.	124.	124.
124.	124.	130.	151.	192.	254.	335.	429.	529.	628.
719.	796.	865.	926.	982.	1036.	1089.	1141.	1194.	1246.
1313.	1417.	1569.	1773.	2024.	2306.	2579.	2792.	2906.	2906.
2811.	2647.	2443.	2228.	2031.	1865.	1724.	1603.	1492.	1378.
1257.	1125.	981.	832.	684.	548.	430.	338.	287.	275.
264.	254.	244.	234.	225.	216.	207.	199.	191.	184.
176.	169.	163.	156.	150.	144.	138.	133.	127.	122.
117.	113.	108.	104.						

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	2906.	1592.	479.	479.	68918.
INCHES		8.05	9.68	9.68	9.68
AC-FT		790.	950.	950.	950.

RUNOFF MULTIPLIED BY 0.50									
3.	5.	9.	13.	16.	18.	19.	20.	20.	20.
20.	20.	20.	20.	20.	20.	20.	20.	20.	20.
20.	20.	20.	20.	20.	20.	20.	20.	20.	20.
20.	20.	20.	20.	20.	14.	24.	38.	63.	91.
113.	125.	132.	136.	138.	140.	140.	141.	141.	141.
141.	140.	140.	140.	140.	140.	140.	140.	140.	140.
140.	140.	140.	140.	140.	140.	140.	140.	140.	140.
140.	140.	171.	276.	452.	651.	805.	896.	953.	1007.
1065.	1123.	1165.	1190.	1213.	1259.	1327.	1402.	1459.	1493.
1598.	1902.	2401.	2962.	3398.	3652.	3703.	3475.	3004.	2446.
2007.	1750.	1592.	1471.	1361.	1263.	1192.	1151.	1095.	956.
733.	485.	364.	350.	336.	323.	310.	297.	286.	274.
263.	253.	243.	233.	224.	215.	207.	198.	190.	183.
175.	169.	162.	155.	149.	143.	138.	132.	127.	122.
117.	112.	108.	104.						

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	3703.	1670.	510.	510.	73476.
INCHES		8.40	10.26	10.26	10.26
AC-FT		829.	1013.	1013.	1013.

COMBINE HYDROGRAPHS

COMBINING SUB-AREAS 1-6

ISTAQ	ICOMP	IECUN	ITAPE	JPLT	JPRT	INAME
20	6	0	0	0	0	1

SUM OF 6 HYDROGRAPHS AT 20

8.	10.	13.	18.	21.	22.	23.	24.	24.	24.
24.	24.	23.	23.	23.	23.	23.	23.	22.	22.
22.	22.	22.	22.	22.	22.	22.	21.	21.	21.
21.	21.	21.	21.	21.	21.	31.	62.	111.	163.
210.	250.	282.	308.	327.	341.	352.	359.	365.	369.
373.	375.	377.	378.	380.	380.	381.	381.	382.	382.
382.	382.	382.	382.	382.	382.	382.	382.	382.	382.
382.	382.	459.	704.	1078.	1463.	1847.	2149.	2411.	2659.
2873.	3395.	3261.	3391.	3520.	3686.	3882.	4073.	4239.	4374.
4698.	5467.	6577.	7759.	8816.	9689.	10162.	9938.	9302.	8417.
7569.	6844.	6229.	5677.	5192.	4791.	4474.	4227.	3947.	3502.
2983.	2434.	2009.	1694.	1422.	1240.	1095.	977.	900.	864.
830.	777.	765.	735.	706.	678.	651.	625.	600.	576.
553.	531.	510.	490.	471.	452.	434.	417.	400.	384.
369.	354.	340.	327.						

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	10162.	5122.	1554.	1554.	223811.
INCHES		8.12	9.85	9.85	9.85
AC-FT		2541.	3084.	3084.	3084.

HYDROGRAPH ROUTING

FLOOD ROUTING PEACHAM POND RESERVOIR

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME
6	1	0	0	0	0	1

ROUTING DATA

QLOSS	CLOSS	AVG	IRES	ISAME
0.0	0.0	0.0	1	0

NSTPS	NSTDL	LAG	AMSKK	X	TSK	STGRA
1	0	0	0.0	0.0	0.0	-1.

STORAGE	2755.	3512.	3899.	4571.	5096.	5302.	5510.	5929.	6354.	0.
OUTFLOW	263.	1060.	1720.	3600.	4500.	5750.	7620.	11765.	16570.	0.

TIME	EUP STOR	AVG IN	EUP OUT
1 0 10	2756.	8.	8.
1 0 20	2755.	9.	263.
1 0 30	2751.	12.	259.
1 0 40	2748.	16.	256.
1 0 50	2745.	19.	252.
1 0 60	2741.	22.	249.
1 1 10	2739.	23.	246.
1 1 20	2735.	24.	243.
1 1 30	2732.	24.	240.

1 10 10	0.05	0.04	281.
1 10 20	0.05	0.04	281.
1 10 30	0.05	0.04	281.
1 10 40	0.05	0.04	281.
1 10 50	0.05	0.04	281.
1 10 60	0.05	0.04	281.
1 11 10	0.05	0.04	281.
1 11 20	0.05	0.04	281.
1 11 30	0.05	0.04	281.
1 11 40	0.05	0.04	281.
1 11 50	0.05	0.04	281.
1 11 60	0.05	0.04	281.
1 12 10	0.30	0.28	343.
1 12 20	0.30	0.28	552.
1 12 30	0.30	0.28	904.
1 12 40	0.30	0.28	1301.
1 12 50	0.30	0.28	1610.
1 12 60	0.30	0.28	1791.
1 13 10	0.36	0.34	1907.
1 13 20	0.36	0.34	2014.
1 13 30	0.36	0.34	2131.
1 13 40	0.36	0.34	2245.
1 13 50	0.36	0.34	2330.
1 13 60	0.36	0.34	2380.
1 14 10	0.44	0.43	2427.
1 14 20	0.44	0.43	2517.
1 14 30	0.44	0.43	2653.
1 14 40	0.44	0.43	2803.
1 14 50	0.44	0.43	2919.
1 14 60	0.44	0.43	2986.
1 15 10	1.12	1.11	3196.
1 15 20	1.12	1.11	3804.
1 15 30	1.12	1.11	4402.
1 15 40	1.12	1.11	5924.
1 15 50	1.12	1.11	6795.
1 15 60	1.12	1.11	7304.
1 16 10	0.41	0.40	7405.
1 16 20	0.41	0.40	6950.
1 16 30	0.41	0.40	6007.
1 16 40	0.41	0.40	4892.
1 16 50	0.41	0.40	4014.
1 16 60	0.41	0.40	3500.
1 17 10	0.33	0.31	3183.
1 17 20	0.33	0.31	2943.
1 17 30	0.33	0.31	2723.
1 17 40	0.33	0.31	2526.
1 17 50	0.33	0.31	2385.
1 17 60	0.33	0.31	2303.
1 18 10	0.03	0.01	2190.
1 18 20	0.03	0.01	1912.
1 18 30	0.03	0.01	1467.
1 18 40	0.03	0.01	971.
1 18 50	0.03	0.01	729.
1 18 60	0.03	0.01	700.
1 19 10	0.03	0.01	672.
1 19 20	0.03	0.01	645.
1 19 30	0.03	0.01	620.
1 19 40	0.03	0.01	595.
1 19 50	0.03	0.01	571.
1 19 60	0.03	0.01	549.
1 20 10	0.03	0.01	527.
1 20 20	0.03	0.01	506.
1 20 30	0.03	0.01	486.
1 20 40	0.03	0.01	466.
1 20 50	0.03	0.01	448.
1 20 60	0.03	0.01	430.
1 21 10	0.03	0.01	413.
1 21 20	0.03	0.01	397.
1 21 30	0.03	0.01	381.
1 21 40	0.03	0.01	366.
1 21 50	0.03	0.01	351.
1 21 60	0.03	0.01	337.
1 22 10	0.03	0.01	324.
1 22 20	0.03	0.01	311.
1 22 30	0.03	0.01	299.
1 22 40	0.03	0.01	287.
1 22 50	0.03	0.01	275.
1 22 60	0.03	0.01	264.
1 23 10	0.03	0.01	254.
1 23 20	0.03	0.01	244.
1 23 30	0.03	0.01	234.
1 23 40	0.03	0.01	225.
1 23 50	0.03	0.01	216.
1 23 60	0.03	0.01	207.

SUM 21.36 19.38 146955.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	7405.	3340.	1021.	1021.	146953.
INCHES		16.79	20.53	20.53	20.53
AC-FT		1657.	2025.	2025.	2025.

SUB-AREA RUNOFF COMPUTATION

SUB-AREA NO. 6 PLUS PEACHAM POND

ISTAQ 6 ICOMP 0 IECON 0 IFAPE 0 JPLT 0 JPRT 0 INAME .1

HYDROGRAPH DATA

IMYDG 1 IUMG 1 TAREA 1.85 SNAP 0.0 TRSDA 0.0 TRSPC 1.00 KAT10 0.500 ISNOW 0 ISANE 0 LOCAL 0

PRECIP DATA

SPFE 0.0 PMS 16.00 R6 111.00 R12 123.00 R24 133.00 R48 0.0 R72 0.0 R96 0.0

LOSS DATA

STRKR 0.0 DLTGR 0.3 RTIOL 1.00 ERAIN 0.0 STRKS 0.0 RTIUK 1.00 STRIL 0.41 CNSTL 0.12 ALSMX 0.0 RTIMP 0.30

UNIT HYDROGRAPH DATA

TPB 0.53 CP#C.75 NTA# 0

RECESSION DATA

STRIC# 4.00 JRCNS# -0.10 RTIUR# 1.50

APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC# 4.26 AND RB 1.76 INTERVALS

UNIT HYDROGRAPH 12 END-OF-PERIOD ORDINATES, LAG# 0.53 HOURS, CP# 0.75 VOL# 1.00

255. 862. 1450. 1638. 1275. 744. 415. 231. 129. 72.
40. 22.

END-OF-PERIOD FLOW

TIME	RAIN	EXLS	CUMP Q
1 0 10	0.02	0.01	5.
1 0 20	0.02	0.01	10.
1 0 30	0.02	0.01	17.
1 0 40	0.02	0.01	26.
1 0 50	0.02	0.01	32.
1 0 60	0.02	0.01	36.
1 1 10	0.02	0.01	38.
1 1 20	0.02	0.01	40.
1 1 30	0.02	0.01	40.
1 1 40	0.02	0.01	40.
1 1 50	0.02	0.01	40.
1 1 60	0.02	0.01	40.
1 2 10	0.02	0.01	40.
1 2 20	0.02	0.01	40.
1 2 30	0.02	0.01	40.
1 2 40	0.02	0.01	40.
1 2 50	0.02	0.01	40.
1 2 60	0.02	0.01	40.
1 3 10	0.02	0.01	40.
1 3 20	0.02	0.01	40.
1 3 30	0.02	0.01	40.
1 3 40	0.02	0.01	40.
1 3 50	0.02	0.01	40.
1 3 60	0.02	0.01	40.
1 4 10	0.02	0.01	39.
1 4 20	0.02	0.01	39.
1 4 30	0.02	0.01	39.
1 4 40	0.02	0.01	39.
1 4 50	0.02	0.01	39.
1 4 60	0.02	0.01	39.
1 5 10	0.02	0.01	39.
1 5 20	0.02	0.01	39.
1 5 30	0.02	0.01	39.
1 5 40	0.02	0.01	39.
1 5 50	0.02	0.01	39.
1 5 60	0.02	0.01	39.
1 6 10	0.05	0.04	48.
1 6 20	0.05	0.04	77.
1 6 30	0.05	0.04	126.
1 6 40	0.05	0.04	182.
1 6 50	0.05	0.04	225.
1 6 60	0.05	0.04	250.
1 7 10	0.05	0.04	264.
1 7 20	0.05	0.04	272.
1 7 30	0.05	0.04	277.
1 7 40	0.05	0.04	279.
1 7 50	0.05	0.04	280.
1 7 60	0.05	0.04	281.
1 8 10	0.05	0.04	281.
1 8 20	0.05	0.04	281.
1 8 30	0.05	0.04	281.
1 8 40	0.05	0.04	281.
1 8 50	0.05	0.04	281.
1 8 60	0.05	0.04	281.
1 9 10	0.05	0.04	281.
1 9 20	0.05	0.04	281.
1 9 30	0.05	0.04	281.
1 9 40	0.05	0.04	281.
1 9 50	0.05	0.04	281.
1 9 60	0.05	0.04	281.

1 17 20	0.33	0.28	306.
1 17 30	0.33	0.28	282.
1 17 40	0.33	0.28	261.
1 17 50	0.33	0.28	250.
1 17 60	0.33	0.28	244.
1 18 10	0.03	0.00	230.
1 18 20	0.03	0.00	189.
1 18 30	0.03	0.00	127.
1 18 40	0.03	0.00	87.
1 18 50	0.03	0.00	83.
1 18 60	0.03	0.00	80.
1 19 10	0.03	0.00	77.
1 19 20	0.03	0.00	74.
1 19 30	0.03	0.00	71.
1 19 40	0.03	0.00	68.
1 19 50	0.03	0.00	65.
1 19 60	0.03	0.00	63.
1 20 10	0.03	0.00	60.
1 20 20	0.03	0.00	58.
1 20 30	0.03	0.00	56.
1 20 40	0.03	0.00	53.
1 20 50	0.03	0.00	51.
1 20 60	0.03	0.00	49.
1 21 10	0.03	0.00	47.
1 21 20	0.03	0.00	45.
1 21 30	0.03	0.00	44.
1 21 40	0.03	0.00	42.
1 21 50	0.03	0.00	40.
1 21 60	0.03	0.00	39.
1 22 10	0.03	0.00	37.
1 22 20	0.03	0.00	36.
1 22 30	0.03	0.00	34.
1 22 40	0.03	0.00	33.
1 22 50	0.03	0.00	32.
1 22 60	0.03	0.00	30.
1 23 10	0.03	0.00	29.
1 23 20	0.03	0.00	28.
1 23 30	0.03	0.00	27.
1 23 40	0.03	0.00	26.
1 23 50	0.03	0.00	25.
1 23 60	0.03	0.00	24.

SUM 21.36 16.50 15568.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	880.	374.	108.	108.	15556.
INCHES		15.81	18.27	18.27	18.27
AC-FT		186.	214.	214.	214.

QVN

RUNOFF MULTIPLIED BY 0.50

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	1.	2.	3.
4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
4.	4.	9.	26.	53.	78.	93.	101.	105.	111.
119.	125.	129.	131.	133.	140.	150.	159.	165.	168.
183.	232.	306.	376.	419.	440.	435.	390.	316.	244.
199.	177.	164.	153.	141.	131.	125.	122.	115.	94.
63.	43.	42.	40.	38.	37.	35.	34.	33.	31.
30.	29.	28.	27.	26.	25.	24.	23.	22.	21.
20.	19.	19.	18.	17.	16.	16.	15.	15.	14.
13.	13.	12.	12.						

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	440.	187.	54.	54.	7778.
INCHES		7.91	9.14	9.14	9.14
AC-FT		93.	107.	107.	107.

1 2 50	0.02	0.00	1.
1 2 60	0.02	0.00	0.
1 3 10	0.02	0.00	0.
1 3 20	0.02	0.00	0.
1 3 30	0.02	0.00	0.
1 3 40	0.02	0.00	0.
1 3 50	0.02	0.00	0.
1 3 60	0.02	0.00	0.
1 4 10	0.02	0.00	0.
1 4 20	0.02	0.00	0.
1 4 30	0.02	0.00	0.
1 4 40	0.02	0.00	0.
1 4 50	0.02	0.00	0.
1 4 60	0.02	0.00	0.
1 5 10	0.02	0.00	0.
1 5 20	0.02	0.00	0.
1 5 30	0.02	0.00	0.
1 5 40	0.02	0.00	0.
1 5 50	0.02	0.00	0.
1 5 60	0.02	0.00	0.
1 6 10	0.05	0.01	1.
1 6 20	0.05	0.01	2.
1 6 30	0.05	0.01	4.
1 6 40	0.05	0.01	6.
1 6 50	0.05	0.01	8.
1 6 60	0.05	0.01	8.
1 7 10	0.05	0.01	8.
1 7 20	0.05	0.01	9.
1 7 30	0.05	0.01	9.
1 7 40	0.05	0.01	9.
1 7 50	0.05	0.01	9.
1 7 60	0.05	0.01	9.
1 8 10	0.05	0.01	9.
1 8 20	0.05	0.01	9.
1 8 30	0.05	0.01	9.
1 8 40	0.05	0.01	9.
1 8 50	0.05	0.01	9.
1 8 60	0.05	0.01	9.
1 9 10	0.05	0.01	9.
1 9 20	0.05	0.01	9.
1 9 30	0.05	0.01	9.
1 9 40	0.05	0.01	9.
1 9 50	0.05	0.01	9.
1 9 60	0.05	0.01	9.
1 10 10	0.05	0.01	9.
1 10 20	0.05	0.01	9.
1 10 30	0.05	0.01	9.
1 10 40	0.05	0.01	9.
1 10 50	0.05	0.01	9.
1 10 60	0.05	0.01	9.
1 11 10	0.05	0.01	9.
1 11 20	0.05	0.01	9.
1 11 30	0.05	0.01	9.
1 11 40	0.05	0.01	9.
1 11 50	0.05	0.01	9.
1 11 60	0.05	0.01	9.
1 12 10	0.30	0.25	19.
1 12 20	0.30	0.25	53.
1 12 30	0.30	0.25	106.
1 12 40	0.30	0.25	155.
1 12 50	0.30	0.25	186.
1 12 60	0.30	0.25	201.
1 13 10	0.36	0.31	211.
1 13 20	0.36	0.31	223.
1 13 30	0.36	0.31	237.
1 13 40	0.36	0.31	250.
1 13 50	0.36	0.31	258.
1 13 60	0.36	0.31	261.
1 14 10	0.44	0.40	267.
1 14 20	0.44	0.40	280.
1 14 30	0.44	0.40	300.
1 14 40	0.44	0.40	318.
1 14 50	0.44	0.40	330.
1 14 60	0.44	0.40	335.
1 15 10	1.12	1.08	367.
1 15 20	1.12	1.08	464.
1 15 30	1.12	1.08	612.
1 15 40	1.12	1.08	751.
1 15 50	1.12	1.08	838.
1 15 60	1.12	1.08	880.
1 16 10	0.41	0.37	870.
1 16 20	0.41	0.37	780.
1 16 30	0.41	0.37	631.
1 16 40	0.41	0.37	488.
1 16 50	0.41	0.37	397.
1 16 60	0.41	0.37	354.
1 17 10	0.33	0.28	329.

SUM 21.36 17.22 41286.

	PEAK 2017.	6-HOUR 977.	24-HOUR 287.	72-HOUR 287.	TOTAL VOLUME 41284.
CFS					
INCHES		15.94	18.72	18.72	18.72
AC-FT		485.	569.	569.	569.

RUNOFF MULTIPLIED BY 0.50

1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
0.	0.	0.	0.	0.	0.	1.	2.	4.	8.
12.	15.	18.	20.	21.	22.	23.	23.	23.	24.
24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
24.	24.	28.	42.	70.	108.	151.	190.	222.	246.
268.	288.	305.	320.	333.	346.	361.	379.	397.	413.
437.	486.	569.	680.	803.	916.	990.	1038.	971.	889.
785.	683.	603.	543.	494.	453.	418.	391.	365.	333.
289.	235.	178.	127.	99.	96.	92.	88.	85.	81.
78.	75.	72.	69.	66.	64.	61.	59.	56.	54.
52.	50.	48.	46.	44.	42.	41.	39.	38.	36.
35.	33.	32.	31.						

	PEAK 1008.	6-HOUR 489.	24-HOUR 143.	72-HOUR 143.	TOTAL VOLUME 20642.
CFS					
INCHES		7.97	9.36	9.36	9.36
AC-FT		242.	284.	284.	284.

SUB-AREA RUNOFF COMPUTATION

SUB-AREA NO. 5

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRY	INAME
5	0	0	0	0	0	1

HYDROGRAPH DATA

IHYDG	IUMG	TAREA	SNAP	TRSCA	TRSPC	RATIU	ISNUM	ISAME	LOCAL
1	1	0.22	0.0	0.0	1.00	0.500	0	0	0

PRECIP DATA

SPFE	PMS	R6	R12	R24	R48	R72	R96
0.0	16.00	111.00	123.00	133.00	0.0	0.0	0.0

LOSS DATA

STRKR	DLTKR	RTIDL	ERAIN	STRKS	RTIOK	STRIL	CNSTL	ALSMX	RTIMP
0.0	0.0	1.00	0.0	0.0	1.00	0.41	0.26	0.0	0.0

UNIT HYDROGRAPH DATA

TP#	CP#	NTA#
0.47	0.75	0

RECESSION DATA

STRIO#	URCSN#	RTIOR#
1.00	-0.10	1.50

APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TCA 3.77 AND R# 1.44 INTERVALS

UNIT HYDROGRAPH 10 END-OF-PERIOD ORDINATES, LAG# 0.47 HOURS, CP# 0.74 VOL# 1.00

43.	141.	217.	205.	128.	62.	30.	14.	7.	3.
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END-OF-PERIOD FLOW

	TIME	RAIN	EXCS	COMP
1	0 10	0.02	0.00	1.
1	0 20	0.02	0.00	1.
1	0 30	0.02	0.00	1.
1	0 40	0.02	0.00	1.
1	0 50	0.02	0.00	1.
1	0 60	0.02	0.00	1.
1	1 10	0.02	0.00	1.
1	1 20	0.02	0.00	1.
1	1 30	0.02	0.00	1.
1	1 40	0.02	0.00	1.
1	1 50	0.02	0.00	1.
1	1 60	0.02	0.00	1.
1	2 10	0.02	0.00	1.
1	2 20	0.02	0.00	1.
1	2 30	0.02	0.00	1.
1	2 40	0.02	0.00	1.

1 9 10	0.05	0.02	48.
1 9 20	0.05	0.02	48.
1 9 30	0.05	0.02	48.
1 9 40	0.05	0.02	48.
1 9 50	0.05	0.02	48.
1 9 60	0.05	0.02	48.
1 10 10	0.05	0.02	48.
1 10 20	0.05	0.02	48.
1 10 30	0.05	0.02	48.
1 10 40	0.05	0.02	48.
1 10 50	0.05	0.02	48.
1 10 60	0.05	0.02	48.
1 11 10	0.05	0.02	48.
1 11 20	0.05	0.02	48.
1 11 30	0.05	0.02	48.
1 11 40	0.05	0.02	48.
1 11 50	0.05	0.02	48.
1 11 60	0.05	0.02	48.
1 12 10	0.30	0.26	56.
1 12 20	0.30	0.26	85.
1 12 30	0.30	0.26	140.
1 12 40	0.30	0.26	216.
1 12 50	0.30	0.26	301.
1 12 60	0.30	0.26	380.
1 13 10	0.36	0.32	443.
1 13 20	0.36	0.32	493.
1 13 30	0.36	0.32	536.
1 13 40	0.36	0.32	575.
1 13 50	0.36	0.32	611.
1 13 60	0.36	0.32	640.
1 14 10	0.44	0.41	665.
1 14 20	0.44	0.41	691.
1 14 30	0.44	0.41	722.
1 14 40	0.44	0.41	757.
1 14 50	0.44	0.41	794.
1 14 60	0.44	0.41	827.
1 15 10	1.12	1.09	874.
1 15 20	1.12	1.09	973.
1 15 30	1.12	1.09	1138.
1 15 40	1.12	1.09	1360.
1 15 50	1.12	1.09	1605.
1 15 60	1.12	1.09	1831.
1 16 10	0.41	0.38	1980.
1 16 20	0.41	0.38	2017.
1 16 30	0.41	0.38	1941.
1 16 40	0.41	0.38	1778.
1 16 50	0.41	0.38	1569.
1 16 60	0.41	0.38	1367.
1 17 10	0.33	0.29	1207.
1 17 20	0.33	0.29	1086.
1 17 30	0.33	0.29	989.
1 17 40	0.33	0.29	906.
1 17 50	0.33	0.29	837.
1 17 60	0.33	0.29	781.
1 18 10	0.03	0.00	731.
1 18 20	0.03	0.00	665.
1 18 30	0.03	0.00	578.
1 18 40	0.03	0.00	471.
1 18 50	0.03	0.00	357.
1 18 60	0.03	0.00	254.
1 19 10	0.03	0.00	199.
1 19 20	0.03	0.00	191.
1 19 30	0.03	0.00	183.
1 19 40	0.03	0.00	176.
1 19 50	0.03	0.00	169.
1 19 60	0.03	0.00	162.
1 20 10	0.03	0.00	156.
1 20 20	0.03	0.00	150.
1 20 30	0.03	0.00	144.
1 20 40	0.03	0.00	138.
1 20 50	0.03	0.00	133.
1 20 60	0.03	0.00	127.
1 21 10	0.03	0.00	122.
1 21 20	0.03	0.00	117.
1 21 30	0.03	0.00	113.
1 21 40	0.03	0.00	108.
1 21 50	0.03	0.00	104.
1 21 60	0.03	0.00	100.
1 22 10	0.03	0.00	96.
1 22 20	0.03	0.00	92.
1 22 30	0.03	0.00	88.
1 22 40	0.03	0.00	85.
1 22 50	0.03	0.00	82.
1 22 60	0.03	0.00	78.
1 23 10	0.03	0.00	75.
1 23 20	0.03	0.00	72.
1 23 30	0.03	0.00	69.
1 23 40	0.03	0.00	67.
1 23 50	0.03	0.00	64.
1 23 60	0.03	0.00	61.

***** SUB-AREA RUNOFF COMPUTATION *****

SUB-AREA NO. 4

ISTAQ 4 ICOMP 0 IECON 0 ITAPE 0 JPLT 0 JPRT 0 INAME 1

HYDROGRAPH DATA

IMYDG 1 IUNG 1 TAREA 0.57 SNAP 0.0 TRSDA 0.0 TRSPC 1.00 RATIO 0.500 ISNOW 0 ISANE 0 LOCAL 0

PRECIP DATA

SPFE 0.0 PMS 16.00 R6 111.00 R12 123.00 R24 133.00 R48 0.0 R72 0.0 R96 0.0

LOSS DATA

STRKR 0.0 DLYKR 0.0 RTIOL 1.00 ERAIN 0.0 STRKS 0.0 RTIOK 1.00 STRTL 0.41 CNSTL 0.19 ALSMX 0.0 RTIMP 0.0

UNIT HYDROGRAPH DATA

TP# 0.77 CP#0.75 NTAS 0

RECESSION DATA

STRTO# 3.00 QRCNS# -0.10 RTIUR# 1.50

APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC# 5.76 AND R# 2.84 INTERVALS

UNIT HYDROGRAPH 19 END-OF-PERIOD ORDINATES, LAG# 0.77 HOURS, CP# 0.74 VOL# 1.00

34. 119. 225. 314. 352. 326. 250. 175. 123. 86.
60. 42. 30. 21. 15. 10. 7. 5. 3.

END-OF-PERIOD FLOW

TIME	RAIN	EXCS	COMP Q
1 0 10	0.02	0.00	3.
1 0 20	0.02	0.00	3.
1 0 30	0.02	0.00	3.
1 0 40	0.02	0.00	3.
1 0 50	0.02	0.00	2.
1 0 60	0.02	0.00	2.
1 1 10	0.02	0.00	2.
1 1 20	0.02	0.00	2.
1 1 30	0.02	0.00	2.
1 1 40	0.02	0.00	2.
1 1 50	0.02	0.00	2.
1 1 60	0.02	0.00	2.
1 2 10	0.02	0.00	2.
1 2 20	0.02	0.00	2.
1 2 30	0.02	0.00	2.
1 2 40	0.02	0.00	2.
1 2 50	0.02	0.00	2.
1 2 60	0.02	0.00	1.
1 3 10	0.02	0.00	1.
1 3 20	0.02	0.00	1.
1 3 30	0.02	0.00	1.
1 3 40	0.02	0.00	1.
1 3 50	0.02	0.00	1.
1 3 60	0.02	0.00	1.
1 4 10	0.02	0.00	1.
1 4 20	0.02	0.00	1.
1 4 30	0.02	0.00	1.
1 4 40	0.02	0.00	1.
1 4 50	0.02	0.00	1.
1 4 60	0.02	0.00	1.
1 5 10	0.02	0.00	1.
1 5 20	0.02	0.00	1.
1 5 30	0.02	0.00	1.
1 5 40	0.02	0.00	1.
1 5 50	0.02	0.00	1.
1 5 60	0.02	0.00	1.
1 6 10	0.05	0.02	1.
1 6 20	0.05	0.02	4.
1 6 30	0.05	0.02	9.
1 6 40	0.05	0.02	16.
1 6 50	0.05	0.02	23.
1 6 60	0.05	0.02	30.
1 7 10	0.05	0.02	36.
1 7 20	0.05	0.02	39.
1 7 30	0.05	0.02	42.
1 7 40	0.05	0.02	44.
1 7 50	0.05	0.02	45.
1 7 60	0.05	0.02	46.
1 8 10	0.05	0.02	47.
1 8 20	0.05	0.02	47.
1 8 30	0.05	0.02	47.
1 8 40	0.05	0.02	48.
1 8 50	0.05	0.02	48.
1 8 60	0.05	0.02	48.

1	22	50	0.03	0.01	149.
1	22	60	0.03	0.01	143.
1	23	10	0.03	0.01	138.
1	23	20	0.03	0.01	132.
1	23	30	0.03	0.01	127.
1	23	40	0.03	0.01	122.
1	23	50	0.03	0.01	117.
1	23	60	0.03	0.01	112.

SUM 21.36 18.48 77031.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	3595.	1790.	535.	535.	77027.
INCHES		16.32	19.51	19.51	19.51
AC-FT		888.	1062.	1062.	1062.

RUNOFF MULTIPLIED BY 0.50									
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	1.	4.	10.	18.
28.	37.	46.	52.	56.	59.	61.	62.	63.	64.
65.	65.	65.	65.	66.	66.	66.	66.	66.	66.
66.	66.	66.	66.	66.	66.	66.	66.	66.	66.
66.	66.	72.	94.	136.	195.	266.	337.	398.	447.
488.	524.	557.	585.	609.	633.	660.	690.	721.	751.
793.	872.	1002.	1178.	1382.	1586.	1738.	1798.	1763.	1649.
1486.	1309.	1153.	1033.	939.	861.	796.	742.	693.	634.
560.	471.	373.	277.	198.	175.	168.	161.	155.	149.
143.	137.	132.	127.	121.	117.	112.	108.	103.	99.
95.	91.	88.	84.	81.	78.	75.	72.	69.	66.
63.	61.	59.	56.						

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	1798.	895.	267.	267.	38514.
INCHES		8.16	9.76	9.76	9.76
AC-FT		444.	531.	531.	531.

1 8 10	0.05	0.03	127.
1 8 20	0.05	0.03	128.
1 8 30	0.05	0.03	129.
1 8 40	0.05	0.03	130.
1 8 50	0.05	0.03	131.
1 8 60	0.05	0.03	131.
1 9 10	0.05	0.03	131.
1 9 20	0.05	0.03	131.
1 9 30	0.05	0.03	131.
1 9 40	0.05	0.03	131.
1 9 50	0.05	0.03	131.
1 9 60	0.05	0.03	131.
1 10 10	0.05	0.03	131.
1 10 20	0.05	0.03	131.
1 10 30	0.05	0.03	131.
1 10 40	0.05	0.03	131.
1 10 50	0.05	0.03	131.
1 10 60	0.05	0.03	131.
1 11 10	0.05	0.03	131.
1 11 20	0.05	0.03	131.
1 11 30	0.05	0.03	131.
1 11 40	0.05	0.03	131.
1 11 50	0.05	0.03	131.
1 11 60	0.05	0.03	131.
1 12 10	0.30	0.28	144.
1 12 20	0.30	0.28	188.
1 12 30	0.30	0.28	271.
1 12 40	0.30	0.28	391.
1 12 50	0.30	0.28	532.
1 12 60	0.30	0.28	674.
1 13 10	0.36	0.34	797.
1 13 20	0.36	0.34	894.
1 13 30	0.36	0.34	976.
1 13 40	0.36	0.34	1049.
1 13 50	0.36	0.34	1114.
1 13 60	0.36	0.34	1170.
1 14 10	0.44	0.42	1219.
1 14 20	0.44	0.42	1267.
1 14 30	0.44	0.42	1320.
1 14 40	0.44	0.42	1380.
1 14 50	0.44	0.42	1442.
1 14 60	0.44	0.42	1502.
1 15 10	1.12	1.10	1587.
1 15 20	1.12	1.10	1745.
1 15 30	1.12	1.10	2007.
1 15 40	1.12	1.10	2356.
1 15 50	1.12	1.10	2765.
1 15 60	1.12	1.10	3171.
1 16 10	0.41	0.39	3476.
1 16 20	0.41	0.39	3595.
1 16 30	0.41	0.39	3526.
1 16 40	0.41	0.39	3299.
1 16 50	0.41	0.39	2972.
1 16 60	0.41	0.39	2618.
1 17 10	0.33	0.31	2307.
1 17 20	0.33	0.31	2066.
1 17 30	0.33	0.31	1877.
1 17 40	0.33	0.31	1722.
1 17 50	0.33	0.31	1591.
1 17 60	0.33	0.31	1484.
1 18 10	0.03	0.01	1385.
1 18 20	0.03	0.01	1268.
1 18 30	0.03	0.01	1120.
1 18 40	0.03	0.01	941.
1 18 50	0.03	0.01	745.
1 18 60	0.03	0.01	555.
1 19 10	0.03	0.01	396.
1 19 20	0.03	0.01	350.
1 19 30	0.03	0.01	336.
1 19 40	0.03	0.01	323.
1 19 50	0.03	0.01	310.
1 19 60	0.03	0.01	298.
1 20 10	0.03	0.01	286.
1 20 20	0.03	0.01	274.
1 20 30	0.03	0.01	263.
1 20 40	0.03	0.01	253.
1 20 50	0.03	0.01	243.
1 20 60	0.03	0.01	233.
1 21 10	0.03	0.01	224.
1 21 20	0.03	0.01	215.
1 21 30	0.03	0.01	207.
1 21 40	0.03	0.01	198.
1 21 50	0.03	0.01	190.
1 21 60	0.03	0.01	183.
1 22 10	0.03	0.01	176.
1 22 20	0.03	0.01	169.
1 22 30	0.03	0.01	162.

***** SUB-AREA RUNOFF COMPUTATION *****

SUB-AREA NO. 3

ISTAQ 3 ICOMP 0 IECON 0 ITAPE 0 JPLT 0 JPRT 0 INAME 1

HYDROGRAPH DATA									
IHYDG	IUHG	TAREA	SNAP	TRSDA	TRSPC	RATIO	ISNOW	ISAME	LOCAL
1	1	1.02	0.0	0.0	1.00	0.500	0	0	0
PRECIP DATA									
SPFE	PMS	R6	R12	R24	R48	R72	R96		
0.0	16.00	111.00	123.00	133.00	0.0	0.0	0.0		
LUSS DATA									
STRKR	DLTKR	RTIOL	ERAIN	STRKS	RTIOK	STRTL	CNSTL	ALSMX	RTIMP
0.0	0.0	1.00	0.0	0.0	1.00	0.41	0.12	0.0	0.0

UNIT HYDROGRAPH DATA
TP# 0.84 CP#0.75 NT# 0

RECESSION DATA

STRIO# 2.00 URCSN# -0.10 RTIUR# 1.50
APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC# 6.35 AND R# 2.90 INTERVALS

UNIT HYDROGRAPH 19 END-OF-PERIOD ORIGINATES, LAG# 0.83 HOURS, CP# 0.74 VOL# 1.00

51.	182.	344.	494.	582.	585.	493.	358.	253.	178.
126.	89.	63.	44.	31.	22.	16.	11.	8.	

END-OF-PERIOD FLOW

TIME	RAIN	EXCS	COMP Q
1 0 10	0.02	0.00	2.
1 0 20	0.02	0.00	2.
1 0 30	0.02	0.00	2.
1 0 40	0.02	0.00	2.
1 0 50	0.02	0.00	2.
1 0 60	0.02	0.00	2.
1 1 10	0.02	0.00	2.
1 1 20	0.02	0.00	1.
1 1 30	0.02	0.00	1.
1 1 40	0.02	0.00	1.
1 1 50	0.02	0.00	1.
1 1 60	0.02	0.00	1.
1 2 10	0.02	0.00	1.
1 2 20	0.02	0.00	1.
1 2 30	0.02	0.00	1.
1 2 40	0.02	0.00	1.
1 2 50	0.02	0.00	1.
1 2 60	0.02	0.00	1.
1 3 10	0.02	0.00	1.
1 3 20	0.02	0.00	1.
1 3 30	0.02	0.00	1.
1 3 40	0.02	0.00	1.
1 3 50	0.02	0.00	1.
1 3 60	0.02	0.00	1.
1 4 10	0.02	0.00	1.
1 4 20	0.02	0.00	1.
1 4 30	0.02	0.00	1.
1 4 40	0.02	0.00	1.
1 4 50	0.02	0.00	1.
1 4 60	0.02	0.00	1.
1 5 10	0.02	0.00	1.
1 5 20	0.02	0.00	1.
1 5 30	0.02	0.00	1.
1 5 40	0.02	0.00	1.
1 5 50	0.02	0.00	0.
1 5 60	0.02	0.00	0.
1 6 10	0.05	0.03	2.
1 6 20	0.05	0.03	8.
1 6 30	0.05	0.03	20.
1 6 40	0.05	0.03	36.
1 6 50	0.05	0.03	55.
1 6 60	0.05	0.03	75.
1 7 10	0.05	0.03	91.
1 7 20	0.05	0.03	103.
1 7 30	0.05	0.03	112.
1 7 40	0.05	0.03	118.
1 7 50	0.05	0.03	122.
1 7 60	0.05	0.03	125.

1 22 40	0.03	0.01	56.
1 22 50	0.03	0.01	54.
1 22 60	0.03	0.01	52.
1 23 10	0.03	0.01	50.
1 23 20	0.03	0.01	48.
1 23 30	0.03	0.01	46.
1 23 40	0.03	0.01	44.
1 23 50	0.03	0.01	42.
1 23 60	0.03	0.01	40.

SUM 21.36 18.48 28973.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	1580.	669.	201.	201.	28967.
INCHES		16.82	20.23	20.23	20.23
AC-FT		332.	399.	399.	399.

RUNOFF MULTIPLIED BY 0.50

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	4.	13.	21.	24.
24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
24.	24.	49.	114.	176.	197.	197.	197.	203.	219.
235.	240.	240.	240.	249.	273.	295.	303.	303.	303.
373.	557.	731.	790.	790.	790.	717.	525.	344.	282.
282.	282.	273.	249.	226.	219.	219.	219.	188.	107.
77.	74.	71.	68.	45.	63.	60.	58.	56.	53.
51.	49.	47.	45.	44.	42.	40.	39.	37.	36.
34.	33.	32.	30.	29.	28.	27.	26.	25.	24.
23.	22.	21.	20.						

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	790.	335.	101.	101.	14483.
INCHES		8.41	10.11	10.11	10.11
AC-FT		166.	200.	200.	200.

1 8 10	0.05	0.03	48.
1 8 20	0.05	0.03	48.
1 8 30	0.05	0.03	48.
1 8 40	0.05	0.03	48.
1 8 50	0.05	0.03	48.
1 8 60	0.05	0.03	48.
1 9 10	0.05	0.03	48.
1 9 20	0.05	0.03	48.
1 9 30	0.05	0.03	48.
1 9 40	0.05	0.03	48.
1 9 50	0.05	0.03	48.
1 9 60	0.05	0.03	48.
1 10 10	0.05	0.03	48.
1 10 20	0.05	0.03	48.
1 10 30	0.05	0.03	48.
1 10 40	0.05	0.03	48.
1 10 50	0.05	0.03	48.
1 10 60	0.05	0.03	48.
1 11 10	0.05	0.03	48.
1 11 20	0.05	0.03	48.
1 11 30	0.05	0.03	48.
1 11 40	0.05	0.03	48.
1 11 50	0.05	0.03	48.
1 11 60	0.05	0.03	48.
1 12 10	0.30	0.28	97.
1 12 20	0.30	0.28	229.
1 12 30	0.30	0.28	352.
1 12 40	0.30	0.28	395.
1 12 50	0.30	0.28	395.
1 12 60	0.30	0.28	395.
1 13 10	0.36	0.34	407.
1 13 20	0.36	0.34	439.
1 13 30	0.36	0.34	469.
1 13 40	0.36	0.34	479.
1 13 50	0.36	0.34	479.
1 13 60	0.36	0.34	479.
1 14 10	0.44	0.42	498.
1 14 20	0.44	0.42	546.
1 14 30	0.44	0.42	591.
1 14 40	0.44	0.42	607.
1 14 50	0.44	0.42	607.
1 14 60	0.44	0.42	607.
1 15 10	1.12	1.10	746.
1 15 20	1.12	1.10	1115.
1 15 30	1.12	1.10	1461.
1 15 40	1.12	1.10	1580.
1 15 50	1.12	1.10	1580.
1 15 60	1.12	1.10	1580.
1 16 10	0.41	0.39	1435.
1 16 20	0.41	0.39	1050.
1 16 30	0.41	0.39	688.
1 16 40	0.41	0.39	564.
1 16 50	0.41	0.39	564.
1 16 60	0.41	0.39	564.
1 17 10	0.33	0.31	546.
1 17 20	0.33	0.31	498.
1 17 30	0.33	0.31	453.
1 17 40	0.33	0.31	437.
1 17 50	0.33	0.31	437.
1 17 60	0.33	0.31	437.
1 18 10	0.03	0.01	376.
1 18 20	0.03	0.01	214.
1 18 30	0.03	0.01	154.
1 18 40	0.03	0.01	148.
1 18 50	0.03	0.01	142.
1 18 60	0.03	0.01	136.
1 19 10	0.03	0.01	131.
1 19 20	0.03	0.01	126.
1 19 30	0.03	0.01	121.
1 19 40	0.03	0.01	116.
1 19 50	0.03	0.01	111.
1 19 60	0.03	0.01	107.
1 20 10	0.03	0.01	103.
1 20 20	0.03	0.01	99.
1 20 30	0.03	0.01	95.
1 20 40	0.03	0.01	91.
1 20 50	0.03	0.01	87.
1 20 60	0.03	0.01	84.
1 21 10	0.03	0.01	81.
1 21 20	0.03	0.01	77.
1 21 30	0.03	0.01	74.
1 21 40	0.03	0.01	71.
1 21 50	0.03	0.01	68.
1 21 60	0.03	0.01	66.
1 22 10	0.03	0.01	63.
1 22 20	0.03	0.01	61.
1 22 30	0.03	0.01	58.

***** SUB-AREA RUNOFF COMPUTATION *****

SUB-AREA NO. 2

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME
2	0	0	0	0	0	1

HYDROGRAPH DATA

IMYDG	IJHG	TAREA	SNAP	TRSDA	TRSPC	RATIO	ISNOW	ISAME	LOCAL
1	1	0.37	0.0	0.0	1.00	0.500	0	0	0

PRECIP DATA

SPFE	PMS	R6	R12	R24	R48	R72	R96
0.0	16.00	111.00	123.00	133.00	0.0	0.0	0.0

LOSS DATA

STRKR	DLTKR	RTIOL	ERAIN	SIRKS	RTIOK	STRTL	CNSTL	ALSMX	RTIMP
0.0	0.0	1.00	0.0	0.0	1.00	0.41	0.12	0.0	0.0

UNIT HYDROGRAPH DATA

TP# 0.30 CP#0.75 NTA# 0

RECESSION DATA

STRTO# 1.00 QRCSN# -0.10 RTIUR# 1.50

CLARK DID NOT CONVERGE TO GIVEN SNYDER COEFFICIENTS

APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC# 2.88 AND R# 0.50 INTERVALS

UNIT HYDROGRAPH 4 END-OF-PERIOD ORDINATES, LAG# 0.30 HOURS, CP# 0.74 VLL# 1.00

205. 541. 509. 175.

END-OF-PERIOD FLOW

TIME	RAIN	EXCS	COMP Q
1 0 10	0.02	0.00	1.
1 0 20	0.02	0.00	1.
1 0 30	0.02	0.00	1.
1 0 40	0.02	0.00	1.
1 0 50	0.02	0.00	1.
1 0 60	0.02	0.00	1.
1 1 10	0.02	0.00	1.
1 1 20	0.02	0.00	1.
1 1 30	0.02	0.00	1.
1 1 40	0.02	0.00	1.
1 1 50	0.02	0.00	1.
1 1 60	0.02	0.00	1.
1 2 10	0.02	0.00	1.
1 2 20	0.02	0.00	1.
1 2 30	0.02	0.00	1.
1 2 40	0.02	0.00	1.
1 2 50	0.02	0.00	1.
1 2 60	0.02	0.00	0.
1 3 10	0.02	0.00	0.
1 3 20	0.02	0.00	0.
1 3 30	0.02	0.00	0.
1 3 40	0.02	0.00	0.
1 3 50	0.02	0.00	0.
1 3 60	0.02	0.00	0.
1 4 10	0.02	0.00	0.
1 4 20	0.02	0.00	0.
1 4 30	0.02	0.00	0.
1 4 40	0.02	0.00	0.
1 4 50	0.02	0.00	0.
1 4 60	0.02	0.00	0.
1 5 10	0.02	0.00	0.
1 5 20	0.02	0.00	0.
1 5 30	0.02	0.00	0.
1 5 40	0.02	0.00	0.
1 5 50	0.02	0.00	0.
1 5 60	0.02	0.00	0.
1 6 10	0.05	0.03	7.
1 6 20	0.05	0.03	25.
1 6 30	0.05	0.03	42.
1 6 40	0.05	0.03	48.
1 6 50	0.05	0.03	48.
1 6 60	0.05	0.03	48.
1 7 10	0.05	0.03	48.
1 7 20	0.05	0.03	48.
1 7 30	0.05	0.03	48.
1 7 40	0.05	0.03	48.
1 7 50	0.05	0.03	48.
1 7 60	0.05	0.03	48.

1 1 40	2729.	24.	236.
1 1 50	2726.	24.	233.
1 1 60	2724.	24.	230.
1 2 10	2721.	24.	227.
1 2 20	2718.	23.	224.
1 2 30	2715.	23.	222.
1 2 40	2712.	23.	219.
1 2 50	2710.	23.	216.
1 2 60	2707.	23.	213.
1 3 10	2705.	23.	210.
1 3 20	2702.	22.	208.
1 3 30	2699.	22.	205.
1 3 40	2697.	22.	202.
1 3 50	2694.	22.	200.
1 3 60	2692.	22.	197.
1 4 10	2690.	22.	195.
1 4 20	2687.	22.	192.
1 4 30	2685.	22.	190.
1 4 40	2683.	21.	187.
1 4 50	2680.	21.	185.
1 4 60	2678.	21.	183.
1 5 10	2676.	21.	180.
1 5 20	2674.	21.	178.
1 5 30	2672.	21.	176.
1 5 40	2670.	21.	173.
1 5 50	2667.	21.	171.
1 5 60	2665.	21.	169.
1 6 10	2663.	26.	167.
1 6 20	2662.	47.	165.
1 6 30	2661.	86.	164.
1 6 40	2660.	137.	164.
1 6 50	2661.	187.	164.
1 6 60	2662.	230.	165.
1 7 10	2663.	266.	166.
1 7 20	2665.	295.	168.
1 7 30	2667.	317.	170.
1 7 40	2669.	334.	173.
1 7 50	2671.	346.	175.
1 7 60	2674.	356.	178.
1 8 10	2676.	362.	181.
1 8 20	2679.	367.	183.
1 8 30	2681.	371.	186.
1 8 40	2684.	374.	189.
1 8 50	2687.	376.	191.
1 8 60	2689.	378.	194.
1 9 10	2692.	379.	197.
1 9 20	2694.	380.	199.
1 9 30	2697.	381.	202.
1 9 40	2699.	381.	205.
1 9 50	2701.	381.	207.
1 9 60	2704.	382.	210.
1 10 10	2706.	382.	212.
1 10 20	2709.	382.	215.
1 10 30	2711.	382.	217.
1 10 40	2713.	382.	219.
1 10 50	2715.	382.	222.
1 10 60	2718.	382.	224.
1 11 10	2720.	382.	226.
1 11 20	2722.	382.	228.
1 11 30	2724.	382.	231.
1 11 40	2726.	382.	233.
1 11 50	2728.	382.	235.
1 11 60	2730.	382.	237.
1 12 10	2733.	421.	240.
1 12 20	2737.	582.	245.
1 12 30	2745.	891.	254.
1 12 40	2760.	1280.	269.
1 12 50	2779.	1665.	289.
1 12 60	2803.	1998.	313.
1 13 10	2829.	2280.	342.
1 13 20	2859.	2535.	373.
1 13 30	2892.	2776.	408.
1 13 40	2928.	2994.	445.
1 13 50	2965.	3178.	485.
1 13 60	3004.	3326.	525.
1 14 10	3044.	3455.	568.
1 14 20	3085.	3603.	611.
1 14 30	3129.	3784.	657.
1 14 40	3174.	3978.	705.
1 14 50	3221.	4156.	755.
1 14 60	3270.	4307.	806.
1 15 10	3321.	4536.	859.
1 15 20	3379.	5082.	920.
1 15 30	3449.	6022.	994.
1 15 40	3533.	7168.	1096.
1 15 50	3631.	8287.	1263.
1 15 60	3740.	9252.	1448.

1 16 10	3855.	9925.	1645.
1 16 20	3969.	10075.	1916.
1 16 30	4074.	9645.	2209.
1 16 40	4164.	8860.	2460.
1 16 50	4238.	7993.	2670.
1 16 60	4300.	7209.	2841.
1 17 10	4350.	6539.	2981.
1 17 20	4390.	5953.	3094.
1 17 30	4421.	5434.	3182.
1 17 40	4446.	4992.	3251.
1 17 50	4464.	4633.	3303.
1 17 60	4479.	4351.	3343.
1 18 10	4489.	4087.	3371.
1 18 20	4493.	3725.	3384.
1 18 30	4492.	3241.	3379.
1 18 40	4482.	2707.	3353.
1 18 50	4467.	2222.	3310.
1 18 60	4447.	1852.	3255.
1 19 10	4425.	1558.	3191.
1 19 20	4399.	1331.	3121.
1 19 30	4373.	1168.	3047.
1 19 40	4346.	1036.	2971.
1 19 50	4318.	939.	2894.
1 19 60	4291.	882.	2818.
1 20 10	4265.	847.	2743.
1 20 20	4238.	814.	2670.
1 20 30	4213.	781.	2599.
1 20 40	4188.	750.	2529.
1 20 50	4164.	720.	2460.
1 20 60	4140.	692.	2393.
1 21 10	4116.	664.	2328.
1 21 20	4093.	638.	2264.
1 21 30	4071.	613.	2202.
1 21 40	4049.	588.	2141.
1 21 50	4028.	565.	2081.
1 21 60	4007.	542.	2023.
1 22 10	3987.	521.	1966.
1 22 20	3967.	500.	1910.
1 22 30	3948.	480.	1856.
1 22 40	3929.	461.	1804.
1 22 50	3911.	443.	1752.
1 22 60	3893.	425.	1709.
1 23 10	3875.	408.	1679.
1 23 20	3857.	392.	1649.
1 23 30	3840.	377.	1619.
1 23 40	3823.	362.	1590.
1 23 50	3805.	347.	1561.
1 23 60	3789.	333.	1533.

SUM

149417.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	3384.	2771.	1038.	1038.	149417.
INCHES		4.39	6.58	6.58	6.58
AC-FT		1375.	2059.	2059.	2059.

SUB-AREA RUNOFF COMPUTATION

SUB-AREA 7 --AREA BETWEEN PEACHAM POND AND HOLLYS

ISTAQ 7 ICOMP 0 IECON 0 ITAPE 0 JPLT 0 JPRT 0 IYANE 1

HYDROGRAPH DATA
IHVDS 1 IUNG 1 TAREA 0.52 SNAP 0.0 TRSOA 0.0 TRSPC 1.00 RATIO 0.500 ISNOW 0 ISAME 0 LOCAL 0

PRECIP DATA
SPFE 0.0 PMS 16.00 R6 111.00 R12 123.00 R24 133.00 R48 0.0 R72 0.0 R96 0.0

LOSS DATA
STRKR 0.0 DLTKR 0.0 RTIUL 1.00 ERAIN 0.0 STRKS 0.0 RTIOK 1.00 STRTL 0.41 CNSTL 0.10 ALSMX 0.0 RTIMP 0.0

UNIT HYDROGRAPH DATA
TPH 0.47 CP#0.75 NTA# 0

RECESSION DATA

STRTON 1.00 URCSN# -0.10 RTIUK# 1.50

APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC# 3.77 AND R# 1.44 INTERVALS

UNIT HYDROGRAPH 10 END-OF-PERIOD ORDINATES, LAG# 0.47 HOURS, CP# 0.74 VOL# 1.00
101. 332. 512. 494. 301. 146. 70. 34. 16. 8.

END-OF-PERIOD FLOW

TIME	RAIN	EXCS	COMP Q
1 0 10	0.02	0.00	1.
1 0 20	0.02	0.00	1.
1 0 30	0.02	0.00	1.
1 0 40	0.02	0.00	1.
1 0 50	0.02	0.00	1.
1 0 60	0.02	0.00	1.
1 1 10	0.02	0.00	1.
1 1 20	0.02	0.00	1.
1 1 30	0.02	0.00	1.
1 1 40	0.02	0.00	1.
1 1 50	0.02	0.00	1.
1 1 60	0.02	0.00	1.
1 2 10	0.02	0.00	1.
1 2 20	0.02	0.00	1.
1 2 30	0.02	0.00	1.
1 2 40	0.02	0.00	1.
1 2 50	0.02	0.00	1.
1 2 60	0.02	0.00	0.
1 3 10	0.02	0.00	0.
1 3 20	0.02	0.00	0.
1 3 30	0.02	0.00	0.
1 3 40	0.02	0.00	0.
1 3 50	0.02	0.00	0.
1 3 60	0.02	0.00	0.
1 4 10	0.02	0.00	1.
1 4 20	0.02	0.00	1.
1 4 30	0.02	0.00	2.
1 4 40	0.02	0.00	2.
1 4 50	0.02	0.00	2.
1 4 60	0.02	0.00	2.
1 5 10	0.02	0.00	2.
1 5 20	0.02	0.00	2.
1 5 30	0.02	0.00	2.
1 5 40	0.02	0.00	2.
1 5 50	0.02	0.00	2.
1 5 60	0.02	0.00	2.
1 6 10	0.05	0.04	6.
1 6 20	0.05	0.04	18.
1 6 30	0.05	0.04	36.
1 6 40	0.05	0.04	53.
1 6 50	0.05	0.04	64.
1 6 60	0.05	0.04	69.
1 7 10	0.05	0.04	72.
1 7 20	0.05	0.04	73.
1 7 30	0.05	0.04	73.
1 7 40	0.05	0.04	74.
1 7 50	0.05	0.04	74.
1 7 60	0.05	0.04	74.
1 8 10	0.05	0.04	74.

1 8 20	0.05	0.04	74.
1 8 30	0.05	0.04	74.
1 8 40	0.05	0.04	74.
1 8 50	0.05	0.04	74.
1 8 60	0.05	0.04	74.
1 9 10	0.05	0.04	74.
1 9 20	0.05	0.04	74.
1 9 30	0.05	0.04	74.
1 9 40	0.05	0.04	74.
1 9 50	0.05	0.04	74.
1 9 60	0.05	0.04	74.
1 10 10	0.05	0.04	74.
1 10 20	0.05	0.04	74.
1 10 30	0.05	0.04	74.
1 10 40	0.05	0.04	74.
1 10 50	0.05	0.04	74.
1 10 60	0.05	0.04	74.
1 11 10	0.05	0.04	74.
1 11 20	0.05	0.04	74.
1 11 30	0.05	0.04	74.
1 11 40	0.05	0.04	74.
1 11 50	0.05	0.04	74.
1 11 60	0.05	0.04	74.
1 12 10	0.30	0.28	98.
1 12 20	0.30	0.28	179.
1 12 30	0.30	0.28	303.
1 12 40	0.30	0.28	420.
1 12 50	0.30	0.28	493.
1 12 60	0.30	0.28	529.
1 13 10	0.36	0.34	552.
1 13 20	0.36	0.34	580.
1 13 30	0.36	0.34	614.
1 13 40	0.36	0.34	645.
1 13 50	0.36	0.34	663.
1 13 60	0.36	0.34	671.
1 14 10	0.44	0.43	684.
1 14 20	0.44	0.43	716.
1 14 30	0.44	0.43	762.
1 14 40	0.44	0.43	806.
1 14 50	0.44	0.43	832.
1 14 60	0.44	0.43	845.
1 15 10	1.12	1.11	920.
1 15 20	1.12	1.11	1149.
1 15 30	1.12	1.11	1500.
1 15 40	1.12	1.11	1830.
1 15 50	1.12	1.11	2035.
1 15 60	1.12	1.11	2134.
1 16 10	0.41	0.40	2111.
1 16 20	0.41	0.40	1898.
1 16 30	0.41	0.40	1545.
1 16 40	0.41	0.40	1207.
1 16 50	0.41	0.40	993.
1 16 60	0.41	0.40	889.
1 17 10	0.33	0.31	830.
1 17 20	0.33	0.31	776.
1 17 30	0.33	0.31	719.
1 17 40	0.33	0.31	671.
1 17 50	0.33	0.31	644.
1 17 60	0.33	0.31	631.
1 18 10	0.03	0.01	595.
1 18 20	0.03	0.01	492.
1 18 30	0.03	0.01	338.
1 18 40	0.03	0.01	212.
1 18 50	0.03	0.01	204.
1 18 60	0.03	0.01	196.
1 19 10	0.03	0.01	188.
1 19 20	0.03	0.01	180.
1 19 30	0.03	0.01	173.
1 19 40	0.03	0.01	166.
1 19 50	0.03	0.01	157.
1 19 60	0.03	0.01	153.
1 20 10	0.03	0.01	147.
1 20 20	0.03	0.01	141.
1 20 30	0.03	0.01	136.
1 20 40	0.03	0.01	130.
1 20 50	0.03	0.01	125.
1 20 60	0.03	0.01	120.
1 21 10	0.03	0.01	115.
1 21 20	0.03	0.01	111.
1 21 30	0.03	0.01	106.
1 21 40	0.03	0.01	102.

1 21 50	0.03	0.01	98.
1 21 60	0.03	0.01	94.
1 22 10	0.03	0.01	91.
1 22 20	0.03	0.01	87.
1 22 30	0.03	0.01	83.
1 22 40	0.03	0.01	80.
1 22 50	0.03	0.01	77.
1 22 60	0.03	0.01	74.
1 23 10	0.03	0.01	71.
1 23 20	0.03	0.01	68.
1 23 30	0.03	0.01	65.
1 23 40	0.03	0.01	63.
1 23 50	0.03	0.01	60.
1 23 60	0.03	0.01	58.

SUM 21.36 19.02 40734.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL	VOLUME
CFS	2134.	937.	283.	283.		40727.
INCHES		16.75	20.24	20.24		20.24
AC-FT		465.	561.	561.		561.

RUNOFF MULTIPLIED BY 0.50

0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	3.	9.	18.	27.
32.	35.	36.	36.	37.	37.	37.	37.	37.	37.
37.	37.	37.	37.	37.	37.	37.	37.	37.	37.
37.	37.	37.	37.	37.	37.	37.	37.	37.	37.
37.	37.	49.	89.	151.	210.	247.	264.	276.	290.
307.	322.	331.	336.	342.	358.	381.	403.	416.	423.
460.	575.	750.	915.	1017.	1067.	1055.	949.	772.	603.
496.	445.	415.	388.	360.	335.	322.	315.	297.	246.
169.	106.	102.	98.	94.	90.	87.	83.	80.	77.
74.	71.	68.	65.	63.	60.	58.	55.	53.	51.
49.	47.	45.	43.	42.	40.	38.	37.	35.	34.
33.	31.	30.	29.						

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL	VOLUME
CFS	1067.	468.	141.	141.		20363.
INCHES		8.38	10.12	10.12		10.12
AC-FT		232.	281.	281.		281.

SUB-AREA RUNOFF COMPUTATION

SUB-AREA 8

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRF	INAME
8	0	0	0	0	0	1

HYDROGRAPH DATA

IMYDC	IUNG	TAREA	SNAP	TRSDA	TRSPC	RATIO	ISNOW	ISAME	LOCAL
1	1	0.97	0.0	0.0	1.00	0.500	0	0	0

PRECIP DATA

SPFE	PMS	R6	R12	R24	R48	R72	R96
0.0	16.00	111.00	123.00	133.00	0.0	0.0	0.0

LOSS DATA

STRKR	DLTKR	RTIOL	ERAIN	STRKS	RTIOK	STKTL	CNSFL	ALSMX	RTIMP
0.0	0.0	1.00	0.0	0.0	1.00	0.41	0.40	0.0	0.0

UNIT HYDROGRAPH DATA

TP# 0.54 CP#0.75 NTA# 0

RECESSION DATA

STRQ# 2.00 QRCNN# -0.10 RTIUR# 1.50

APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE IC# 4.32 AND R# 1.83 INTERVALS

UNIT HYDROGRAPH 12 END-OF-PERIOD ORDINATES, LAG# 0.54 HOURS, CP# 0.75 VOL# 1.00

127.	431.	732.	842.	673.	407.	233.	133.	76.	43.
25.	14.								

END-OF-PERIOD FLOW

TIME	RAIN	EXCS	COMP Q
1 0 10	0.02	0.00	2.
1 0 20	0.02	0.00	2.
1 0 30	0.02	0.00	2.
1 0 40	0.02	0.00	2.
1 0 50	0.02	0.00	2.
1 0 60	0.02	0.00	2.
1 1 10	0.02	0.00	2.
1 1 20	0.02	0.00	1.
1 1 30	0.02	0.00	1.

1	1 40	0.02	0.00	1.
1	1 50	0.02	0.00	1.
1	1 60	0.02	0.00	1.
1	2 10	0.02	0.00	1.
1	2 20	0.02	0.00	1.
1	2 30	0.02	0.00	1.
1	2 40	0.02	0.00	1.
1	2 50	0.02	0.00	1.
1	2 60	0.02	0.00	1.
1	3 10	0.02	0.00	1.
1	3 20	0.02	0.00	1.
1	3 30	0.02	0.00	1.
1	3 40	0.02	0.00	1.
1	3 50	0.02	0.00	1.
1	3 60	0.02	0.00	1.
1	4 10	0.02	0.00	1.
1	4 20	0.02	0.00	1.
1	4 30	0.02	0.00	1.
1	4 40	0.02	0.00	1.
1	4 50	0.02	0.00	1.
1	4 60	0.02	0.00	1.
1	5 10	0.02	0.00	1.
1	5 20	0.02	0.00	1.
1	5 30	0.02	0.00	1.
1	5 40	0.02	0.00	1.
1	5 50	0.02	0.00	0.
1	5 60	0.02	0.00	0.
1	6 10	0.05	0.00	0.
1	6 20	0.05	0.00	0.
1	6 30	0.05	0.00	0.
1	6 40	0.05	0.00	0.
1	6 50	0.05	0.00	0.
1	6 60	0.05	0.00	0.
1	7 10	0.05	0.00	0.
1	7 20	0.05	0.00	0.
1	7 30	0.05	0.00	0.
1	7 40	0.05	0.00	0.
1	7 50	0.05	0.00	0.
1	7 60	0.05	0.00	0.
1	8 10	0.05	0.00	0.
1	8 20	0.05	0.00	0.
1	8 30	0.05	0.00	0.
1	8 40	0.05	0.00	0.
1	8 50	0.05	0.00	0.
1	8 60	0.05	0.00	0.
1	9 10	0.05	0.00	0.
1	9 20	0.05	0.00	0.
1	9 30	0.05	0.00	0.
1	9 40	0.05	0.00	0.
1	9 50	0.05	0.00	0.
1	9 60	0.05	0.00	0.
1	10 10	0.05	0.00	0.
1	10 20	0.05	0.00	0.
1	10 30	0.05	0.00	0.
1	10 40	0.05	0.00	0.
1	10 50	0.05	0.00	0.
1	10 60	0.05	0.00	0.
1	11 10	0.05	0.00	0.
1	11 20	0.05	0.00	0.
1	11 30	0.05	0.00	0.
1	11 40	0.05	0.00	0.
1	11 50	0.05	0.00	0.
1	11 60	0.05	0.00	0.
1	12 10	0.30	0.23	29.
1	12 20	0.30	0.23	128.
1	12 30	0.30	0.23	296.
1	12 40	0.30	0.23	489.
1	12 50	0.30	0.23	643.
1	12 60	0.30	0.23	737.
1	13 10	0.36	0.29	798.
1	13 20	0.36	0.29	854.
1	13 30	0.36	0.29	914.
1	13 40	0.36	0.29	974.
1	13 50	0.36	0.29	1019.
1	13 60	0.36	0.29	1047.
1	14 10	0.44	0.38	1072.
1	14 20	0.44	0.38	1118.
1	14 30	0.44	0.38	1187.
1	14 40	0.44	0.38	1265.
1	14 50	0.44	0.38	1326.
1	14 60	0.44	0.38	1363.
1	15 10	1.12	1.06	1470.
1	15 20	1.12	1.06	1775.
1	15 30	1.12	1.06	2280.

1 15 40	1.12	1.06	2857.
1 15 50	1.12	1.06	3318.
1 15 60	1.12	1.06	3596.
1 16 10	0.41	0.35	3664.
1 16 20	0.41	0.35	3449.
1 16 30	0.41	0.35	2980.
1 16 40	0.41	0.35	2412.
1 16 50	0.41	0.35	1950.
1 16 60	0.41	0.35	1670.
1 17 10	0.33	0.26	1494.
1 17 20	0.33	0.26	1361.
1 17 30	0.33	0.26	1243.
1 17 40	0.33	0.26	1137.
1 17 50	0.33	0.26	1060.
1 17 60	0.33	0.26	1014.
1 18 10	0.03	0.00	960.
1 18 20	0.03	0.00	837.
1 18 30	0.03	0.00	640.
1 18 40	0.03	0.00	419.
1 18 50	0.03	0.00	356.
1 18 60	0.03	0.00	342.
1 19 10	0.03	0.00	328.
1 19 20	0.03	0.00	315.
1 19 30	0.03	0.00	303.
1 19 40	0.03	0.00	291.
1 19 50	0.03	0.00	279.
1 19 60	0.03	0.00	268.
1 20 10	0.03	0.00	258.
1 20 20	0.03	0.00	247.
1 20 30	0.03	0.00	237.
1 20 40	0.03	0.00	228.
1 20 50	0.03	0.00	219.
1 20 60	0.03	0.00	210.
1 21 10	0.03	0.00	202.
1 21 20	0.03	0.00	194.
1 21 30	0.03	0.00	186.
1 21 40	0.03	0.00	179.
1 21 50	0.03	0.00	172.
1 21 60	0.03	0.00	165.
1 22 10	0.03	0.00	158.
1 22 20	0.03	0.00	152.
1 22 30	0.03	0.00	146.
1 22 40	0.03	0.00	140.
1 22 50	0.03	0.00	135.
1 22 60	0.03	0.00	129.
1 23 10	0.03	0.00	124.
1 23 20	0.03	0.00	119.
1 23 30	0.03	0.00	114.
1 23 40	0.03	0.00	110.
1 23 50	0.03	0.00	106.
1 23 60	0.03	0.00	101.

SUM 21.36 15.42 63399.

CFS	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
INCHES	3664.	1555.	440.	440.	63406.
AC-FT		14.91	16.89	16.89	16.89
		771.	874.	874.	874.

RUNOFF MULTIPLIED BY 0.50

1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	15.	64.	148.	244.	322.	368.	399.	427.
457.	487.	510.	523.	536.	559.	596.	632.	661.	682.
735.	808.	1140.	1424.	1659.	1798.	1832.	1724.	1490.	1206.
975.	835.	747.	691.	621.	569.	530.	507.	480.	418.
320.	209.	178.	171.	164.	158.	151.	145.	140.	134.
129.	124.	119.	114.	109.	105.	101.	97.	93.	89.
86.	82.	79.	76.	73.	70.	67.	65.	62.	60.
57.	55.	53.	51.						

CFS	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
INCHES	1832.	777.	220.	220.	31703.
AC-FT		7.46	8.45	8.45	8.45
		386.	437.	437.	437.

SUB-AREA RUNOFF COMPUTATION

SUB-AREA 9--MOLLYS BROOK--

ISTAQ 9 ICOMP 0 IECD 0 ITAPE 0 JPLT 0 JPRT 0 INAME 1

HYDG	IUNG	TAREA	SHAP	HYDROGRAPH DATA		RATIO	ISHW	ISAME	LICAL
1	1	10.42	0.0	TRSDA	TRSPC	0.500	0	0	0
				0.0	1.00				

PRECIP DATA	
SPFE	PMS
0.0	16.00
R4	R12
111.00	123.00
R24	R48
133.00	0.0
R72	R96
0.0	0.0

LOSS DATA	
STRKR	DLTKR
0.0	0.0
RTIOL	ERAIN
1.00	0.0
STRKS	RTIOK
0.0	1.00
STRIL	CNSTL
0.41	0.17
ALSMX	RTIMP
0.0	0.0

UNIT HYDROGRAPH DATA
TP# 2.64 CP#0.75 NTAB 0

RECESSION DATA

STRTO# 20.00 URCSN# -0.10 RTIUN# 1.50

APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC#19.06 AND R# 9.52 INTERVALS

UNIT HYDROGRAPH 62 END-OF-PERIOD ORDINATES, LAG# 2.63 HOURS, CP# 0.75 VOL# 1.00									
34.	128.	258.	410.	573.	745.	922.	1101.	1281.	1459.
1623.	1750.	1847.	1915.	1955.	1966.	1948.	1899.	1810.	1667.
1501.	1351.	1216.	1095.	986.	887.	799.	719.	647.	582.
524.	472.	425.	382.	344.	310.	279.	251.	226.	203.
183.	165.	148.	134.	120.	108.	97.	88.	79.	71.
64.	58.	52.	47.	42.	38.	34.	31.	28.	25.
22.	20.								

END-OF-PERIOD FLOW

TIME	RAIN	EXCS	COMP Q
1 0 10	0.02	0.00	19.
1 0 20	0.02	0.00	18.
1 0 30	0.02	0.00	18.
1 0 40	0.02	0.00	17.
1 0 50	0.02	0.00	16.
1 0 60	0.02	0.00	16.
1 1 10	0.02	0.00	15.
1 1 20	0.02	0.00	14.
1 1 30	0.02	0.00	14.
1 1 40	0.02	0.00	13.
1 1 50	0.02	0.00	13.
1 1 60	0.02	0.00	12.
1 2 10	0.02	0.00	12.
1 2 20	0.02	0.00	11.
1 2 30	0.02	0.00	11.
1 2 40	0.02	0.00	10.
1 2 50	0.02	0.00	10.
1 2 60	0.02	0.00	10.
1 3 10	0.02	0.00	9.
1 3 20	0.02	0.00	9.
1 3 30	0.02	0.00	9.
1 3 40	0.02	0.00	8.
1 3 50	0.02	0.00	8.
1 3 60	0.02	0.00	8.
1 4 10	0.02	0.00	7.
1 4 20	0.02	0.00	7.
1 4 30	0.02	0.00	7.
1 4 40	0.02	0.00	6.
1 4 50	0.02	0.00	6.
1 4 60	0.02	0.00	6.
1 5 10	0.02	0.00	6.
1 5 20	0.02	0.00	5.
1 5 30	0.02	0.00	5.
1 5 40	0.02	0.00	5.
1 5 50	0.02	0.00	5.
1 5 60	0.02	0.00	5.
1 6 10	0.05	0.02	5.
1 6 20	0.05	0.02	8.
1 6 30	0.05	0.02	15.
1 6 40	0.05	0.02	25.
1 6 50	0.05	0.02	39.
1 6 60	0.05	0.02	57.
1 7 10	0.05	0.02	80.

1 7 20	0.05	0.02	108.
1 7 30	0.05	0.02	140.
1 7 40	0.05	0.02	176.
1 7 50	0.05	0.02	216.
1 7 60	0.05	0.02	260.
1 8 10	0.05	0.02	306.
1 8 20	0.05	0.02	354.
1 8 30	0.05	0.02	403.
1 8 40	0.05	0.02	452.
1 8 50	0.05	0.02	500.
1 8 60	0.05	0.02	548.
1 9 10	0.05	0.02	593.
1 9 20	0.05	0.02	634.
1 9 30	0.05	0.02	672.
1 9 40	0.05	0.02	705.
1 9 50	0.05	0.02	736.
1 9 60	0.05	0.02	763.
1 10 10	0.05	0.02	788.
1 10 20	0.05	0.02	810.
1 10 30	0.05	0.02	830.
1 10 40	0.05	0.02	848.
1 10 50	0.05	0.02	864.
1 10 60	0.05	0.02	878.
1 11 10	0.05	0.02	891.
1 11 20	0.05	0.02	903.
1 11 30	0.05	0.02	914.
1 11 40	0.05	0.02	923.
1 11 50	0.05	0.02	932.
1 11 60	0.05	0.02	939.
1 12 10	0.30	0.27	955.
1 12 20	0.30	0.27	992.
1 12 30	0.30	0.27	1060.
1 12 40	0.30	0.27	1165.
1 12 50	0.30	0.27	1308.
1 12 60	0.30	0.27	1493.
1 13 10	0.36	0.33	1723.
1 13 20	0.36	0.33	2001.
1 13 30	0.36	0.33	2330.
1 13 40	0.36	0.33	2711.
1 13 50	0.36	0.33	3141.
1 13 60	0.36	0.33	3611.
1 14 10	0.44	0.42	4119.
1 14 20	0.44	0.42	4662.
1 14 30	0.44	0.42	5237.
1 14 40	0.44	0.42	5838.
1 14 50	0.44	0.42	6459.
1 14 60	0.44	0.42	7091.
1 15 10	1.12	1.10	7746.
1 15 20	1.12	1.10	8449.
1 15 30	1.12	1.10	9220.
1 15 40	1.12	1.10	10073.
1 15 50	1.12	1.10	11019.
1 15 60	1.12	1.10	12060.
1 16 10	0.41	0.39	13174.
1 16 20	0.41	0.39	14318.
1 16 30	0.41	0.39	15463.
1 16 40	0.41	0.39	16595.
1 16 50	0.41	0.39	17692.
1 16 60	0.41	0.39	18729.
1 17 10	0.33	0.30	19675.
1 17 20	0.33	0.30	20500.
1 17 30	0.33	0.30	21181.
1 17 40	0.33	0.30	21702.
1 17 50	0.33	0.30	22056.
1 17 60	0.33	0.30	22247.
1 18 10	0.03	0.00	22261.
1 18 20	0.03	0.00	22068.
1 18 30	0.03	0.00	21661.
1 18 40	0.03	0.00	21069.
1 18 50	0.03	0.00	20321.
1 18 60	0.03	0.00	19450.
1 19 10	0.03	0.00	18496.
1 19 20	0.03	0.00	17508.
1 19 30	0.03	0.00	16511.
1 19 40	0.03	0.00	15504.
1 19 50	0.03	0.00	14491.
1 19 60	0.03	0.00	13479.
1 20 10	0.03	0.00	12479.
1 20 20	0.03	0.00	11500.
1 20 30	0.03	0.00	10551.
1 20 40	0.03	0.00	9634.
1 20 50	0.03	0.00	8756.
1 20 60	0.03	0.00	7923.
1 21 10	0.03	0.00	7143.
1 21 20	0.03	0.00	6429.
1 21 30	0.03	0.00	5787.
1 21 40	0.03	0.00	5209.

1 21 50	0.03	0.00	4688.
1 21 60	0.03	0.00	4220.
1 22 10	0.03	0.00	3748.
1 22 20	0.03	0.00	3418.
1 22 30	0.03	0.00	3072.
1 22 40	0.03	0.00	2761.
1 22 50	0.03	0.00	2480.
1 22 60	0.03	0.00	2228.
1 23 10	0.03	0.00	2138.
1 23 20	0.03	0.00	2053.
1 23 30	0.03	0.00	1972.
1 23 40	0.03	0.00	1893.
1 23 50	0.03	0.00	1818.
1 23 60	0.03	0.00	1746.

SUM 21.36 17.58 702995.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	22261.	15710.	4882.	4882.	702994.
INCHES		14.02	17.43	17.43	17.43
AC-FT		7794.	9688.	9688.	9688.

RUNOFF MULTIPLIED BY 0.50									
10.	9.	9.	9.	8.	8.	8.	7.	7.	7.
10.	6.	6.	6.	5.	5.	5.	5.	5.	4.
6.	4.	4.	4.	4.	3.	3.	3.	3.	3.
4.	3.	3.	3.	2.	2.	2.	2.	2.	2.
3.	2.	2.	2.	2.	2.	2.	2.	2.	2.
19.	29.	40.	54.	70.	88.	108.	130.	153.	177.
201.	226.	250.	274.	296.	317.	336.	353.	368.	382.
394.	405.	415.	424.	432.	439.	446.	452.	457.	462.
466.	470.	477.	496.	530.	582.	654.	747.	861.	1000.
1165.	1356.	1570.	1806.	2060.	2331.	2619.	2919.	3230.	3545.
3873.	4225.	4610.	5037.	5509.	6030.	6587.	7159.	7732.	8297.
8846.	9364.	9937.	10250.	10591.	10851.	11028.	11124.	11131.	11034.
10831.	10535.	10161.	9725.	9248.	8754.	8255.	7752.	7245.	6740.
6240.	5750.	5275.	4817.	4378.	3961.	3571.	3215.	2893.	2604.
2344.	2110.	1899.	1709.	1536.	1380.	1240.	1114.	1069.	1027.
986.	947.	909.	873.						

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	11131.	7855.	2441.	2441.	351496.
INCHES		7.01	8.72	8.72	8.72
AC-FT		3897.	4844.	4844.	4844.

SUB-AREA RUNOFF COMPUTATION

SUB-AREA 10 --DANVILLE HILL BASIN--

10	10	10	10	10	10	10
10	10	10	10	10	10	10

HYDROGRAPH DATA

1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1

PRECIP DATA

SPFE	PMS	R6	R12	R24	R48	R72	R96
0.0	16.00	111.00	123.00	133.00	0.0	0.0	0.0

LOSS DATA

STRKR	DLTKR	RTIOL	ERAIN	STRKS	RTIUK	STRIL	CNSTL	ALSMX	RTIMP
0.0	0.0	1.00	0.0	0.0	1.00	0.41	0.18	0.0	0.0

UNIT HYDROGRAPH DATA

IP# 1.02 CP#0.75 NTA# 0

RECESSION DATA

STAT# 4.00 ORCS# -0.10 RTI# 1.50

APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND IP ARE TCR 7.62 AND KR 3.58 INTERVALS

UNIT HYDROGRAPH 24 END-OF-PERIOD UNDINATES, LAG# 1.01 HOURS, CP# 0.74 VOL# 1.00

44.	230.	442.	664.	850.	951.	958.	896.	677.	511.
386.	291.	220.	166.	125.	95.	71.	54.	41.	31.
23.	17.	13.	10.						

END-OF-PERIOD FLOW

	TIME	RAIN	EXCS	COMP Q
1	0 10	0.02	0.00	4.
1	0 20	0.02	0.00	4.
1	0 30	0.02	0.00	4.
1	0 40	0.02	0.00	3.
1	0 50	0.02	0.00	3.
1	0 60	0.02	0.00	3.
1	1 10	0.02	0.00	3.
1	1 20	0.02	0.00	3.
1	1 30	0.02	0.00	3.
1	1 40	0.02	0.00	3.
1	1 50	0.02	0.00	3.
1	1 60	0.02	0.00	2.
1	2 10	0.02	0.00	2.
1	2 20	0.02	0.00	2.
1	2 30	0.02	0.00	2.
1	2 40	0.02	0.00	2.
1	2 50	0.02	0.00	2.
1	2 60	0.02	0.00	2.
1	3 10	0.02	0.00	2.
1	3 20	0.02	0.00	2.
1	3 30	0.02	0.00	2.
1	3 40	0.02	0.00	2.
1	3 50	0.02	0.00	2.
1	3 60	0.02	0.00	2.
1	4 10	0.02	0.00	1.
1	4 20	0.02	0.00	1.
1	4 30	0.02	0.00	1.
1	4 40	0.02	0.00	1.
1	4 50	0.02	0.00	1.
1	4 60	0.02	0.00	1.
1	5 10	0.02	0.00	1.
1	5 20	0.02	0.00	1.
1	5 30	0.02	0.00	1.
1	5 40	0.02	0.00	1.
1	5 50	0.02	0.00	1.
1	5 60	0.02	0.00	1.
1	6 10	0.05	0.02	2.
1	6 20	0.05	0.02	8.
1	6 30	0.05	0.02	18.
1	6 40	0.05	0.02	33.
1	6 50	0.05	0.02	53.
1	6 60	0.05	0.02	75.
1	7 10	0.05	0.02	98.
1	7 20	0.05	0.02	118.
1	7 30	0.05	0.02	133.
1	7 40	0.05	0.02	145.
1	7 50	0.05	0.02	154.
1	7 60	0.05	0.02	161.
1	8 10	0.05	0.02	166.
1	8 20	0.05	0.02	170.
1	8 30	0.05	0.02	173.
1	8 40	0.05	0.02	175.
1	8 50	0.05	0.02	177.
1	8 60	0.05	0.02	178.
1	9 10	0.05	0.02	179.
1	9 20	0.05	0.02	180.
1	9 30	0.05	0.02	180.
1	9 40	0.05	0.02	181.
1	9 50	0.05	0.02	181.
1	9 60	0.05	0.02	181.
1	10 10	0.05	0.02	181.
1	10 20	0.05	0.02	181.
1	10 30	0.05	0.02	181.
1	10 40	0.05	0.02	181.
1	10 50	0.05	0.02	181.
1	10 60	0.05	0.02	181.
1	11 10	0.05	0.02	181.
1	11 20	0.05	0.02	181.
1	11 30	0.05	0.02	181.
1	11 40	0.05	0.02	181.
1	11 50	0.05	0.02	181.
1	11 60	0.05	0.02	181.
1	12 10	0.30	0.27	197.
1	12 20	0.30	0.27	252.
1	12 30	0.30	0.27	360.
1	12 40	0.30	0.27	521.
1	12 50	0.30	0.27	727.
1	12 60	0.30	0.27	958.
1	13 10	0.36	0.33	1194.
1	13 20	0.36	0.33	1415.

1 13 30	0.36	0.33	1606.
1 13 40	0.36	0.33	1769.
1 13 50	0.36	0.33	1913.
1 13 60	0.36	0.33	2040.
1 14 10	0.44	0.41	2156.
1 14 20	0.44	0.41	2268.
1 14 30	0.44	0.41	2377.
1 14 40	0.44	0.41	2490.
1 14 50	0.44	0.41	2605.
1 14 60	0.44	0.41	2720.
1 15 10	1.12	1.09	2872.
1 15 20	1.12	1.09	3121.
1 15 30	1.12	1.09	3495.
1 15 40	1.12	1.09	4003.
1 15 50	1.12	1.09	4623.
1 15 60	1.12	1.09	5302.
1 16 10	0.41	0.38	5931.
1 16 20	0.41	0.38	6367.
1 16 30	0.41	0.38	6527.
1 16 40	0.41	0.38	6412.
1 16 50	0.41	0.38	6078.
1 16 60	0.41	0.38	5606.
1 17 10	0.33	0.30	5073.
1 17 20	0.33	0.30	4561.
1 17 30	0.33	0.30	4127.
1 17 40	0.33	0.30	3771.
1 17 50	0.33	0.30	3471.
1 17 60	0.33	0.30	3217.
1 18 10	0.03	0.00	2985.
1 18 20	0.03	0.00	2744.
1 18 30	0.03	0.00	2480.
1 18 40	0.03	0.00	2183.
1 18 50	0.03	0.00	1855.
1 18 60	0.03	0.00	1517.
1 19 10	0.03	0.00	1185.
1 19 20	0.03	0.00	896.
1 19 30	0.03	0.00	668.
1 19 40	0.03	0.00	629.
1 19 50	0.03	0.00	604.
1 19 60	0.03	0.00	580.
1 20 10	0.03	0.00	557.
1 20 20	0.03	0.00	535.
1 20 30	0.03	0.00	514.
1 20 40	0.03	0.00	493.
1 20 50	0.03	0.00	474.
1 20 60	0.03	0.00	455.
1 21 10	0.03	0.00	437.
1 21 20	0.03	0.00	419.
1 21 30	0.03	0.00	403.
1 21 40	0.03	0.00	387.
1 21 50	0.03	0.00	371.
1 21 60	0.03	0.00	357.
1 22 10	0.03	0.00	342.
1 22 20	0.03	0.00	329.
1 22 30	0.03	0.00	316.
1 22 40	0.03	0.00	303.
1 22 50	0.03	0.00	291.
1 22 60	0.03	0.00	280.
1 23 10	0.03	0.00	268.
1 23 20	0.03	0.00	258.
1 23 30	0.03	0.00	248.
1 23 40	0.03	0.00	238.
1 23 50	0.03	0.00	228.
1 23 60	0.03	0.00	219.

SUM 21.36 17.40 144538.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	6527.	3413.	1004.	1004.	144542.
INCHES		15.80	18.58	18.58	18.58
AC-FT		1693.	1992.	1992.	1992.

RUNOFF MULTIPLIED BY 0.50									
2.	2.	2.	2.	2.	2.	2.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	1.	1.	1.	1.	1.	1.
1.	1.	1.	1.	0.	0.	1.	4.	9.	17.
27.	38.	49.	59.	67.	73.	77.	81.	83.	85.
87.	88.	88.	89.	90.	90.	90.	90.	90.	91.
91.	91.	91.	91.	91.	91.	91.	91.	91.	91.
91.	91.	98.	125.	180.	260.	364.	479.	597.	708.
803.	885.	957.	1020.	1078.	1134.	1189.	1245.	1303.	1360.
1436.	1561.	1748.	2002.	2312.	2651.	2966.	3184.	3263.	3206.
3039.	2803.	2537.	2280.	2064.	1886.	1736.	1609.	1492.	1372.
1240.	1091.	928.	759.	593.	448.	334.	315.	302.	290.
278.	267.	257.	247.	237.	227.	218.	210.	201.	193.
186.	176.	171.	164.	158.	152.	146.	140.	134.	129.
124.	119.	114.	110.						

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	3263.	1707.	502.	502.	72270.
INCHES		7.90	9.29	9.29	9.29
AC-FT		447.	996.	996.	996.

SUB-AREA RUNOFF COMPUTATION

SUB-AREA 11 --PLUS MOLLYS FALL RESERVOIR AREA

ISTAQ	ICOMP	IECOM	ITAPE	JPLT	JPRT	INAME
11	0	0	0	0	0	1

HYDROGRAPH DATA							
INHYG	INHS	TAREA	SNAP	TRSDA	TRSPC	RATIO	ISNOW
1	1	3.68	0.0	0.0	1.00	0.500	0

PRECIP DATA				
SPFE	PMS	R6	R12	R24
0.0	16.00	111.00	123.00	133.00

LOSS DATA							
STKR	DLTKR	RTIOL	ERAIN	STRKS	RTIUK	STRTL	CNSTL
0.0	0.0	1.00	0.0	0.0	1.00	0.41	0.18

UNIT HYDROGRAPH DATA
TP# 0.93 CP#0.75 NTAB 0

RECESSION DATA
STATION# 7.00 URCSN# -0.10 RTIUR# 1.50
APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC# 6.98 AND RW# 3.37 INTERVALS

UNIT HYDROGRAPH 22 END-OF-PERIOD COORDINATES, LAG# 0.94 HOURS, CP# 0.75 VOL# 1.00							
141.	504.	966.	1432.	1776.	1906.	1806.	1476.
602.	446.	331.	245.	182.	135.	100.	74.
30.	22.						55.

END-OF-PERIOD FLOW			
TIME	RAIN	EXCS	COMP Q
1 0 10	0.02	0.00	7.
1 0 20	0.02	0.00	9.
1 0 30	0.02	0.00	11.
1 0 40	0.02	0.00	16.
1 0 50	0.02	0.00	21.
1 0 60	0.02	0.00	27.
1 1 10	0.02	0.00	33.
1 1 20	0.02	0.00	37.
1 1 30	0.02	0.00	40.
1 1 40	0.02	0.00	43.
1 1 50	0.02	0.00	45.
1 1 60	0.02	0.00	46.
1 2 10	0.02	0.00	47.
1 2 20	0.02	0.00	47.
1 2 30	0.02	0.00	48.
1 2 40	0.02	0.00	48.
1 2 50	0.02	0.00	48.
1 2 60	0.02	0.00	48.
1 3 10	0.02	0.00	48.
1 3 20	0.02	0.00	48.
1 3 30	0.02	0.00	48.
1 3 40	0.02	0.00	48.
1 3 50	0.02	0.00	48.
1 3 60	0.02	0.00	48.
1 4 10	0.02	0.00	48.
1 4 20	0.02	0.00	48.

1	4 30	0.02	0.00	48.
1	4 40	0.02	0.00	48.
1	4 50	0.02	0.00	48.
1	4 60	0.02	0.00	47.
1	5 10	0.02	0.00	47.
1	5 20	0.02	0.00	47.
1	5 30	0.02	0.00	47.
1	5 40	0.02	0.00	47.
1	5 50	0.02	0.00	47.
1	5 60	0.02	0.00	47.
1	6 10	0.05	0.03	51.
1	6 20	0.05	0.03	63.
1	6 30	0.05	0.03	88.
1	6 40	0.05	0.03	124.
1	6 50	0.05	0.03	170.
1	6 60	0.05	0.03	218.
1	7 10	0.05	0.03	264.
1	7 20	0.05	0.03	302.
1	7 30	0.05	0.03	330.
1	7 40	0.05	0.03	351.
1	7 50	0.05	0.03	366.
1	7 60	0.05	0.03	377.
1	8 10	0.05	0.03	386.
1	8 20	0.05	0.03	392.
1	8 30	0.05	0.03	397.
1	8 40	0.05	0.03	400.
1	8 50	0.05	0.03	402.
1	8 60	0.05	0.03	404.
1	9 10	0.05	0.03	406.
1	9 20	0.05	0.03	407.
1	9 30	0.05	0.03	407.
1	9 40	0.05	0.03	408.
1	9 50	0.05	0.03	408.
1	9 60	0.05	0.03	408.
1	10 10	0.05	0.03	408.
1	10 20	0.05	0.03	408.
1	10 30	0.05	0.03	408.
1	10 40	0.05	0.03	408.
1	10 50	0.05	0.03	408.
1	10 60	0.05	0.03	408.
1	11 10	0.05	0.03	408.
1	11 20	0.05	0.03	408.
1	11 30	0.05	0.03	408.
1	11 40	0.05	0.03	408.
1	11 50	0.05	0.03	408.
1	11 60	0.05	0.03	408.
1	12 10	0.30	0.27	442.
1	12 20	0.30	0.27	564.
1	12 30	0.30	0.27	799.
1	12 40	0.30	0.27	1146.
1	12 50	0.30	0.27	1577.
1	12 60	0.30	0.27	2040.
1	13 10	0.36	0.33	2486.
1	13 20	0.36	0.33	2874.
1	13 30	0.36	0.33	3197.
1	13 40	0.36	0.33	3479.
1	13 50	0.36	0.33	3730.
1	13 60	0.36	0.33	3951.
1	14 10	0.44	0.42	4151.
1	14 20	0.44	0.42	4343.
1	14 30	0.44	0.42	4537.
1	14 40	0.44	0.42	4745.
1	14 50	0.44	0.42	4963.
1	14 60	0.44	0.42	5176.
1	15 10	1.12	1.10	5466.
1	15 20	1.12	1.10	5965.
1	15 30	1.12	1.10	6738.
1	15 40	1.12	1.10	7798.
1	15 50	1.12	1.10	9067.
1	15 60	1.12	1.10	10408.
1	16 10	0.41	0.39	11570.
1	16 20	0.41	0.39	12241.
1	16 30	0.41	0.39	12318.
1	16 40	0.41	0.39	11866.
1	16 50	0.41	0.39	11023.
1	16 60	0.41	0.39	9979.
1	17 10	0.33	0.30	8914.
1	17 20	0.33	0.30	7991.
1	17 30	0.33	0.30	7254.
1	17 40	0.33	0.30	6644.
1	17 50	0.33	0.30	6127.

1 17 60	0.33	0.30	5692.
1 18 10	0.03	0.00	5292.
1 18 20	0.03	0.00	4865.
1 18 30	0.03	0.00	4373.
1 18 40	0.03	0.00	3796.
1 18 50	0.03	0.00	3146.
1 18 60	0.03	0.00	2484.
1 19 10	0.03	0.00	1885.
1 19 20	0.03	0.00	1397.
1 19 30	0.03	0.00	1205.
1 19 40	0.03	0.00	1157.
1 19 50	0.03	0.00	1111.
1 19 60	0.03	0.00	1067.
1 20 10	0.03	0.00	1025.
1 20 20	0.03	0.00	984.
1 20 30	0.03	0.00	945.
1 20 40	0.03	0.00	907.
1 20 50	0.03	0.00	871.
1 20 60	0.03	0.00	837.
1 21 10	0.03	0.00	803.
1 21 20	0.03	0.00	772.
1 21 30	0.03	0.00	741.
1 21 40	0.03	0.00	711.
1 21 50	0.03	0.00	683.
1 21 60	0.03	0.00	656.
1 22 10	0.03	0.00	630.
1 22 20	0.03	0.00	605.
1 22 30	0.03	0.00	581.
1 22 40	0.03	0.00	558.
1 22 50	0.03	0.00	536.
1 22 60	0.03	0.00	514.
1 23 10	0.03	0.00	494.
1 23 20	0.03	0.00	474.
1 23 30	0.03	0.00	455.
1 23 40	0.03	0.00	437.
1 23 50	0.03	0.00	420.
1 23 60	0.03	0.00	403.

SUM 21.36 17.94 272989.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	12318.	6351.	1896.	1896.	272990.
INCHES		16.06	19.17	19.17	19.17
AC-FT		3151.	3762.	3762.	3762.

RUNOFF MULTIPLIED BY 0.50									
4.	4.	6.	8.	11.	14.	16.	19.	20.	21.
22.	23.	23.	24.	24.	24.	24.	24.	24.	24.
24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
24.	24.	24.	24.	24.	23.	25.	32.	44.	62.
85.	109.	132.	151.	165.	175.	183.	189.	193.	196.
198.	200.	201.	202.	203.	203.	204.	204.	204.	204.
204.	204.	204.	204.	204.	204.	204.	204.	204.	204.
204.	204.	221.	282.	399.	573.	789.	1020.	1243.	1437.
1599.	1739.	1865.	1976.	2075.	2171.	2269.	2373.	2481.	2588.
2733.	2982.	3369.	3849.	4533.	5204.	5785.	6121.	6159.	5933.
5512.	4990.	4457.	3996.	3627.	3322.	3064.	2846.	2646.	2432.
2186.	1898.	1573.	1244.	943.	699.	603.	519.	556.	534.
512.	492.	472.	454.	436.	418.	402.	386.	370.	356.
342.	328.	315.	302.	290.	279.	268.	257.	247.	237.
228.	219.	210.	202.						

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	6159.	3176.	948.	948.	136495.
INCHES		8.03	9.58	9.58	9.58
AC-FT		1576.	1881.	1881.	1881.

COMBINE HYDROGRAPHS

--COMBINING HYDROGRAPHS 7-11 & PEACHAM POND OUTFLOW--

1STAQ 1CCMP 1ECUN 1TAPE 1JPLT 1JPRT 1NAME
11 6 0 0 0 0 1

SUM OF 6 HYDROGRAPHS AT 11

24.	280.	277.	275.	274.	273.	272.	271.	269.	267.
264.	262.	259.	256.	253.	250.	247.	244.	241.	238.
235.	232.	229.	226.	224.	221.	219.	216.	214.	211.
209.	206.	204.	201.	199.	197.	199.	214.	243.	282.
327.	375.	424.	469.	509.	546.	581.	614.	647.	678.
709.	739.	768.	796.	822.	847.	869.	888.	906.	923.
937.	951.	963.	974.	985.	994.	1003.	1011.	1019.	1026.
1032.	1038.	1100.	1302.	1663.	2139.	2664.	3192.	3718.	4235.
4739.	5234.	5718.	6186.	6659.	7164.	7708.	8276.	8847.	9403.
10096.	11150.	12610.	14377.	16293.	18199.	19870.	21053.	21625.	21706.
21538.	21278.	20974.	20688.	20445.	20213.	19982.	19743.	19417.	18887.
18125.	17193.	16251.	15252.	14232.	13269.	12477.	11845.	11217.	10592.
9976.	9374.	8790.	8225.	7683.	7166.	6678.	6227.	5813.	5435.
5087.	4763.	4476.	4206.	3956.	3725.	3511.	3321.	3227.	3135.
3047.	2961.	2878.	2797.						

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	21706.	15702.	5290.	5290.	761748.
INCHES		6.22	8.39	8.39	8.39
AC-FT		7790.	10498.	10498.	10498.

HYDROGRAPH ROUTING

FLOOD ROUTING MOLLYS FALL DAM --WATER SURFACE AT INVERT OF SPILLWAY

1STAQ 1CCMP 1ECUN 1TAPE 1JPLT 1JPRT 1NAME
21 1 0 0 0 0 1

ROUTING DATA

QLOSS 0.0 CLOSS 0.0 AVG 0.0 IRES 1 ISAME 0

NSTPS 1 NSTDL 0 LAG 0 AMSKK 0.0 X 0.0 TSK 0.0 STORA -1.

STORAGE#	6591.	7060.	7908.	10131.	12950.	13675.	14417.	14912.	15922.	16947.
OUTFLOW#	208.	230.	770.	2612.	5750.	7192.	14780.	22135.	40604.	63793.

	TIME	EOP STOR	AVG IN	EOP OUT
1	0 10	6592.	24.	24.
1	0 20	6593.	152.	208.
1	0 30	6594.	278.	208.
1	0 40	6595.	276.	208.
1	0 50	6596.	275.	208.
1	0 60	6596.	274.	208.
1	1 10	6597.	273.	208.
1	1 20	6598.	272.	208.
1	1 30	6599.	270.	208.
1	1 40	6600.	268.	208.
1	1 50	6601.	266.	208.
1	1 60	6601.	263.	208.
1	2 10	6602.	260.	209.
1	2 20	6603.	257.	209.
1	2 30	6603.	254.	209.
1	2 40	6604.	251.	209.
1	2 50	6605.	248.	209.
1	2 60	6605.	245.	209.
1	3 10	6606.	242.	209.
1	3 20	6606.	239.	209.
1	3 30	6606.	236.	209.
1	3 40	6607.	233.	209.
1	3 50	6607.	231.	209.
1	3 60	6607.	228.	209.
1	4 10	6607.	225.	209.
1	4 20	6608.	222.	209.
1	4 30	6608.	220.	209.
1	4 40	6608.	218.	209.
1	4 50	6608.	215.	209.
1	4 60	6608.	213.	209.

1 5 10	6608.	210.	209.
1 5 20	6608.	208.	209.
1 5 30	6608.	205.	209.
1 5 40	6608.	203.	209.
1 5 50	6608.	200.	209.
1 5 60	6608.	198.	209.
1 6 10	6608.	198.	209.
1 6 20	6607.	207.	209.
1 6 30	6608.	228.	209.
1 6 40	6608.	262.	209.
1 6 50	6610.	305.	209.
1 6 60	6617.	351.	209.
1 7 10	6614.	399.	209.
1 7 20	6618.	446.	209.
1 7 30	6621.	489.	209.
1 7 40	6626.	527.	210.
1 7 50	6631.	563.	210.
1 7 60	6636.	597.	210.
1 8 10	6642.	630.	210.
1 8 20	6648.	662.	211.
1 8 30	6655.	694.	211.
1 8 40	6662.	724.	211.
1 8 50	6669.	753.	212.
1 8 60	6677.	782.	212.
1 9 10	6685.	809.	212.
1 9 20	6694.	834.	213.
1 9 30	6703.	858.	213.
1 9 40	6712.	879.	214.
1 9 50	6721.	897.	214.
1 9 60	6731.	914.	215.
1 10 10	6741.	930.	215.
1 10 20	6751.	944.	215.
1 10 30	6761.	957.	216.
1 10 40	6771.	969.	216.
1 10 50	6782.	980.	217.
1 10 60	6793.	990.	217.
1 11 10	6803.	999.	218.
1 11 20	6814.	1007.	218.
1 11 30	6825.	1015.	219.
1 11 40	6836.	1022.	220.
1 11 50	6847.	1029.	220.
1 11 60	6859.	1035.	221.
1 12 10	6870.	1069.	221.
1 12 20	6884.	1201.	222.
1 12 30	6901.	1482.	223.
1 12 40	6924.	1901.	224.
1 12 50	6954.	2401.	225.
1 12 60	6991.	2928.	227.
1 13 10	7036.	3455.	229.
1 13 20	7087.	3977.	247.
1 13 30	7146.	4487.	284.
1 13 40	7210.	4986.	326.
1 13 50	7281.	5476.	371.
1 13 60	7357.	5952.	419.
1 14 10	7440.	6422.	472.
1 14 20	7528.	6912.	528.
1 14 30	7623.	7436.	588.
1 14 40	7724.	7992.	653.
1 14 50	7831.	8562.	722.
1 14 60	7948.	9125.	803.
1 15 10	8070.	9750.	904.
1 15 20	8203.	10623.	1015.
1 15 30	8352.	11880.	1138.
1 15 40	8521.	13493.	1278.
1 15 50	8714.	15335.	1438.
1 15 60	8930.	17246.	1617.
1 16 10	9169.	19034.	1815.
1 16 20	9424.	20461.	2026.
1 16 30	9689.	21333.	2246.
1 16 40	9955.	21666.	2466.
1 16 50	10217.	21622.	2709.
1 16 60	10473.	21408.	2997.
1 17 10	10720.	21126.	3276.
1 17 20	10960.	20831.	3547.
1 17 30	11193.	20567.	3809.
1 17 40	11419.	20329.	4064.
1 17 50	11638.	20098.	4311.
1 17 60	11850.	19862.	4550.
1 18 10	12056.	19580.	4782.
1 18 20	12252.	19152.	5003.
1 18 30	12437.	18506.	5211.
1 18 40	12607.	17659.	5403.
1 18 50	12762.	16722.	5578.
1 18 60	12901.	15752.	5734.
1 19 10	13023.	14742.	5932.
1 19 20	13130.	13751.	6138.
1 19 30	13221.	12873.	6315.

1 19 40	13301.	12161.	6468.
1 19 50	13370.	11531.	6601.
1 19 60	13428.	10904.	6714.
1 20 10	13477.	10284.	6808.
1 20 20	13516.	9675.	6884.
1 20 30	13545.	9082.	6941.
1 20 40	13567.	8508.	6983.
1 20 50	13580.	7954.	7008.
1 20 60	13586.	7425.	7019.
1 21 10	13584.	6922.	7016.
1 21 20	13577.	6452.	7002.
1 21 30	13563.	6020.	6976.
1 21 40	13545.	5624.	6940.
1 21 50	13522.	5261.	6896.
1 21 60	13495.	4928.	6844.
1 22 10	13465.	4622.	6786.
1 22 20	13432.	4341.	6722.
1 22 30	13396.	4081.	6652.
1 22 40	13358.	3840.	6578.
1 22 50	13317.	3618.	6501.
1 22 60	13276.	3416.	6419.
1 23 10	13233.	3274.	6337.
1 23 20	13190.	3181.	6254.
1 23 30	13147.	3091.	6171.
1 23 40	13104.	3004.	6087.
1 23 50	13061.	2919.	6004.
1 23 60	13018.	2837.	5921.

SUM

296815.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	7019.	6379.	2061.	2061.	296815.
INCHES		2.53	3.27	3.27	3.27
AC-FT		3165.	4090.	4090.	4090.

SUB-AREA RUNOFF COMPUTATION

SUB AREA NO. 12 --WINOESKI RIVER TO CABOT--

ISTAQ	ICUM	IECUN	ITAPE	JPLT	JPRT	INAME
12	0	0	0	0	0	1

HYDROGRAPH DATA									
IHYDG	IJHG	TAREA	SNAP	TKSCA	TRSPC	RATIU	ISNUM	ISAME	LOCAL
1	1	28.70	0.0	0.0	1.00	0.500	0	0	0

PRECIP DATA									
SPFE	PMS	R6	R12	R24	R48	R72	R96		
0.0	16.00	103.00	115.00	126.00	0.0	0.0	0.0		

LOSS DATA									
STKR	DLTKR	RTIOL	ERAIN	STAKS	RTIOL	STRTL	CNSTL	ALSMX	RTIMP
0.0	0.0	1.00	0.0	0.0	1.00	0.41	0.18	0.0	0.0

UNIT HYDROGRAPH DAT

TP# 4.20 CP#0.75 NTA# 0

RECESSION DATA

STRTQ# 50.00 QACSN# -0.10 RTIUR# 1.50

APPROXIMATE CLARK COEFFICIENTS FROM GIVEN SNYDER CP AND TP ARE TC#29.87 AND R#15.22 INTERVALS

UNIT HYDROGRAPH 98 END-OF-PERIOD ORDINATES, LAG# 4.17 HOURS, CP# 0.74 VOL# 1.00

31.	115.	236.	380.	539.	709.	889.	1075.	1266.	1461.
1658.	1857.	2057.	2257.	2457.	2649.	2822.	2972.	3099.	3205.
3289.	3353.	3397.	3422.	3426.	3411.	3374.	3314.	3227.	3100.
2928.	2742.	2567.	2404.	2251.	2108.	1974.	1848.	1731.	1620.
1517.	1421.	1330.	1246.	1167.	1092.	1023.	958.	897.	840.
786.	736.	690.	646.	605.	566.	530.	496.	465.	435.
408.	382.	357.	335.	313.	293.	275.	257.	241.	226.
211.	198.	185.	173.	162.	152.	142.	133.	125.	117.
109.	103.	96.	90.	84.	79.	74.	69.	65.	61.
57.	53.	50.	47.	44.	41.	38.	36.		

END-OF-PERIOD FLOW

TIME	KAIN	EXCS	COMP Q
1 0 10	0.02	0.00	48.
1 0 20	0.02	0.00	46.
1 0 30	0.02	0.00	44.
1 0 40	0.02	0.00	43.

1	0	50	0.02	0.00	41.
1	0	60	0.02	0.00	39.
1	1	10	0.02	0.00	38.
1	1	20	0.02	0.00	36.
1	1	30	0.02	0.00	35.
1	1	40	0.02	0.00	33.
1	1	50	0.02	0.00	32.
1	1	60	0.02	0.00	31.
1	2	10	0.02	0.00	30.
1	2	20	0.02	0.00	28.
1	2	30	0.02	0.00	27.
1	2	40	0.02	0.00	26.
1	2	50	0.02	0.00	25.
1	2	60	0.02	0.00	24.
1	3	10	0.02	0.00	23.
1	3	20	0.02	0.00	22.
1	3	30	0.02	0.00	21.
1	3	40	0.02	0.00	20.
1	3	50	0.02	0.00	20.
1	3	60	0.02	0.00	19.
1	4	10	0.02	0.00	18.
1	4	20	0.02	0.00	17.
1	4	30	0.02	0.00	17.
1	4	40	0.02	0.00	16.
1	4	50	0.02	0.00	15.
1	4	60	0.02	0.00	15.
1	5	10	0.02	0.00	14.
1	5	20	0.02	0.00	14.
1	5	30	0.02	0.00	13.
1	5	40	0.02	0.00	13.
1	5	50	0.02	0.00	12.
1	5	60	0.02	0.00	12.
1	6	10	0.05	0.02	12.
1	6	20	0.05	0.02	14.
1	6	30	0.05	0.02	19.
1	6	40	0.05	0.02	28.
1	6	50	0.05	0.02	40.
1	6	60	0.05	0.02	56.
1	7	10	0.05	0.02	76.
1	7	20	0.05	0.02	101.
1	7	30	0.05	0.02	130.
1	7	40	0.05	0.02	164.
1	7	50	0.05	0.02	202.
1	7	60	0.05	0.02	245.
1	8	10	0.05	0.02	293.
1	8	20	0.05	0.02	346.
1	8	30	0.05	0.02	403.
1	8	40	0.05	0.02	464.
1	8	50	0.05	0.02	530.
1	8	60	0.05	0.02	599.
1	9	10	0.05	0.02	671.
1	9	20	0.05	0.02	746.
1	9	30	0.05	0.02	822.
1	9	40	0.05	0.02	900.
1	9	50	0.05	0.02	979.
1	9	60	0.05	0.02	1059.
1	10	10	0.05	0.02	1139.
1	10	20	0.05	0.02	1218.
1	10	30	0.05	0.02	1297.
1	10	40	0.05	0.02	1374.
1	10	50	0.05	0.02	1449.
1	10	60	0.05	0.02	1521.
1	11	10	0.05	0.02	1589.
1	11	20	0.05	0.02	1653.
1	11	30	0.05	0.02	1713.
1	11	40	0.05	0.02	1769.
1	11	50	0.05	0.02	1821.
1	11	60	0.05	0.02	1870.
1	12	10	0.27	0.24	1923.
1	12	20	0.27	0.24	1992.
1	12	30	0.27	0.24	2084.
1	12	40	0.27	0.24	2206.
1	12	50	0.27	0.24	2360.
1	12	60	0.27	0.24	2550.
1	13	10	0.33	0.30	2780.
1	13	20	0.33	0.30	3053.
1	13	30	0.33	0.30	3373.
1	13	40	0.33	0.30	3743.
1	13	50	0.33	0.30	4163.
1	13	60	0.33	0.30	4635.
1	14	10	0.41	0.38	5163.
1	14	20	0.41	0.38	5750.
1	14	30	0.41	0.38	6401.
1	14	40	0.41	0.38	7116.
1	14	50	0.41	0.38	7893.
1	14	60	0.41	0.38	8726.
1	15	10	1.04	1.01	9631.

1 15 20	1.04	1.01	10639.
1 15 30	1.04	1.01	11768.
1 15 40	1.04	1.01	13027.
1 15 50	1.04	1.01	14422.
1 15 60	1.04	1.01	15954.
1 16 10	0.38	0.35	17603.
1 16 20	0.38	0.35	19331.
1 16 30	0.38	0.35	21113.
1 16 40	0.38	0.35	22930.
1 16 50	0.38	0.35	24763.
1 16 60	0.38	0.35	26594.
1 17 10	0.30	0.27	28403.
1 17 20	0.30	0.27	30175.
1 17 30	0.30	0.27	31903.
1 17 40	0.30	0.27	33578.
1 17 50	0.30	0.27	35184.
1 17 60	0.30	0.27	36703.
1 18 10	0.03	0.00	38107.
1 18 20	0.03	0.00	39369.
1 18 30	0.03	0.00	40465.
1 18 40	0.03	0.00	41381.
1 18 50	0.03	0.00	42112.
1 18 60	0.03	0.00	42657.
1 19 10	0.03	0.00	43014.
1 19 20	0.03	0.00	43183.
1 19 30	0.03	0.00	43167.
1 19 40	0.03	0.00	42965.
1 19 50	0.03	0.00	42578.
1 19 60	0.03	0.00	41996.
1 20 10	0.03	0.00	41209.
1 20 20	0.03	0.00	40222.
1 20 30	0.03	0.00	39063.
1 20 40	0.03	0.00	37758.
1 20 50	0.03	0.00	36340.
1 20 60	0.03	0.00	34851.
1 21 10	0.03	0.00	33336.
1 21 20	0.03	0.00	31819.
1 21 30	0.03	0.00	30305.
1 21 40	0.03	0.00	28799.
1 21 50	0.03	0.00	27310.
1 21 60	0.03	0.00	25843.
1 22 10	0.03	0.00	24407.
1 22 20	0.03	0.00	23007.
1 22 30	0.03	0.00	21647.
1 22 40	0.03	0.00	20331.
1 22 50	0.03	0.00	19065.
1 22 60	0.03	0.00	17858.
1 23 10	0.03	0.00	16721.
1 23 20	0.03	0.00	15657.
1 23 30	0.03	0.00	14660.
1 23 40	0.03	0.00	13727.
1 23 50	0.03	0.00	12853.
1 23 60	0.03	0.00	12034.

SUM 19.98 16.02 1627687.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	43183.	34643.	11303.	11303.	1627683.
INCHES		11.23	14.65	14.65	14.65
AC-FT		17187.	22431.	22431.	22431.

RUNOFF MULTIPLIED BY 0.50

24.	23.	22.	21.	20.	20.	19.	18.	17.	17.
16.	15.	15.	14.	14.	13.	13.	12.	12.	11.
11.	10.	10.	9.	9.	9.	8.	8.	8.	7.
7.	7.	7.	6.	6.	6.	6.	7.	10.	14.
20.	28.	38.	51.	65.	82.	101.	123.	147.	173.
201.	232.	265.	299.	336.	373.	411.	450.	490.	529.
569.	609.	648.	687.	724.	761.	795.	827.	856.	884.
911.	935.	962.	996.	1042.	1103.	1180.	1275.	1390.	1526.
1697.	1871.	2082.	2318.	2581.	2875.	3201.	3558.	3946.	4363.
4816.	5320.	5884.	6514.	7211.	7977.	8801.	9666.	10557.	11465.
12381.	13297.	14202.	15088.	15952.	16789.	17592.	18351.	19054.	19685.
20732.	20690.	21056.	21328.	21507.	21592.	21583.	21483.	21289.	20998.
20604.	20111.	19532.	18879.	18170.	17426.	16668.	15909.	15152.	14400.
13655.	12922.	12204.	11504.	10824.	10166.	9532.	8929.	8361.	7828.
7330.	6863.	6426.	6017.						

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	21592.	17321.	5652.	5652.	813845.
INCHES		5.61	7.33	7.33	7.33
AC-FT		8594.	11216.	11216.	11216.

COMBINE HYDROGRAPHS

COMBINING TOTAL FLOW AT MARSHFIELD VILLAGE

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME
12	2	0	0	0	0	1
SUM OF 2 HYDROGRAPHS AT 12						
48.	231.	230.	229.	229.	228.	227.
724.	224.	223.	223.	222.	222.	221.
219.	219.	219.	218.	218.	217.	217.
216.	216.	215.	215.	215.	215.	216.
229.	237.	247.	260.	275.	292.	311.
412.	443.	477.	511.	548.	586.	624.
784.	825.	864.	903.	941.	978.	1013.
1131.	1156.	1183.	1218.	1265.	1327.	1405.
1971.	2197.	2452.	2737.	3053.	3403.	3789.
5723.	6334.	7022.	7792.	8649.	9594.	10616.
15073.	16294.	17478.	18634.	19761.	20853.	21933.
25444.	26094.	26634.	27063.	27439.	27729.	27898.
27412.	26995.	26473.	25862.	25178.	24445.	23685.
20551.	19766.	18990.	18225.	17476.	16744.	16033.
13501.	12951.	12431.	11938.			

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	27951.	23123.	7713.	7713.	1110659.
INCHES		4.12	5.50	5.50	5.50
AC-FT		11472.	15306.	15306.	15306.

RUNOFF SUMMARY, AVERAGE FLOW

		PEAK	6-HOUR	24-HOUR	72-HOUR	AREA
HYDROGRAPH AT	1	2906.	1592.	479.	479.	1.84
HYDROGRAPH AT	2	790.	335.	101.	101.	0.37
HYDROGRAPH AT	3	1798.	895.	267.	267.	1.02
HYDROGRAPH AT	4	1008.	489.	143.	143.	0.57
HYDROGRAPH AT	5	440.	187.	54.	54.	0.22
HYDROGRAPH AT	6	3703.	1670.	510.	510.	1.85
6 COMBINED	20	10162.	5122.	1554.	1554.	5.87
ROUTED TO	6	3384.	2771.	1038.	1038.	5.87
HYDROGRAPH AT	7	1067.	468.	141.	141.	0.52
HYDROGRAPH AT	8	1832.	777.	220.	220.	0.97
HYDROGRAPH AT	9	11131.	7855.	2441.	2441.	10.42
HYDROGRAPH AT	10	3263.	1707.	502.	502.	2.01
HYDROGRAPH AT	11	6159.	3176.	948.	948.	3.68
6 COMBINED	11	21706.	15702.	5290.	5290.	23.47
ROUTED TO	21	7014.	6379.	2061.	2061.	23.47
HYDROGRAPH AT	12	21542.	17321.	5652.	5652.	23.70
2 COMBINED	12	27951.	23123.	7713.	7713.	52.17

APPENDIX E

Information as Contained in the National Inventory of Dams

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