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NATIONAL DAM SAFETY PROGRAM. DAVIDSONS MILL POND DAM (NJ00516),--ETC(U)
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LEVEL II

RARITAN RIVER BASIN

LAWRENCE BROOK, MIDDLESEX COUNTY

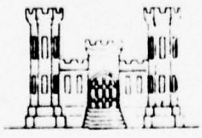
NEW JERSEY

DAVIDSONS MILL POND DAM

PHASE I INSPECTION REPORT

NATIONAL DAM SAFETY PROGRAM

NJ 00516



DEPARTMENT OF THE ARMY
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS
CUSTOM HOUSE - 2D & CHESTNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

REPORT DOCUMENTATION PAGE

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1. REPORT NUMBER: NJ00516	2. GOVT ACCESSION NO.
3. RECIPIENT'S CATALOG NUMBER	
4. TITLE *(and Subtitle)*: Phase I Inspection Report National Dam Safety Program Davidson's Mill Pond Dam Middlesex County, N.J.	5. TYPE OF REPORT & PERIOD COVERED: (9) FINAL rept.
	6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s): (10) F. Keith Jolls, P.E.	8. CONTRACT OR GRANT NUMBER(s): (15) DACW61-78-C-0124
9. PERFORMING ORGANIZATION NAME AND ADDRESS: Louis Berger & Associates, Inc. 100 Halsted St. East Orange, N.J. 410850	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS: (12) 62p.
11. CONTROLLING OFFICE NAME AND ADDRESS: U.S. Army Engineer District, Philadelphia Custom House, 2d & Chestnut Streets Philadelphia, Pennsylvania 19106	12. REPORT DATE: Aug[illegible]1978
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	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT *(of this Report)*

Approved for public release; distribution unlimited.

17. DISTRIBUTION STATE

(6) National Dam Safety Program. Davidsons Mill Pond Dam (NJ00516), Raritan River Basin, Lawrence Brook, Middlesex County, New Jersey. Phase 1 Inspection Program.

DDC RECEIVED SEP 19 1978

18. SUPPLEMENTARY NOTES

Copies are obtainable from National Technical Information Service, Springfield, Virginia, 22151.

19. KEY WORDS *(Continue on reverse side if necessary and identify by block number)*

Dams--New Jersey
National Dam Safety Program Phase I
Dam Safety
Davidson's Mill Pond Dam, N.J.

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

This report cites results of a technical investigation as to the dam's adequacy. The inspection and evaluation of the dam is as prescribed by the National Dam Inspection Act, Public Law 92-367. The technical investigation includes visual inspection, review of available design and construction records, and preliminary structural and hydraulic and hydrologic calculations, as applicable. An assessment of the dam's general condition is included in the report.

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

410 891

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

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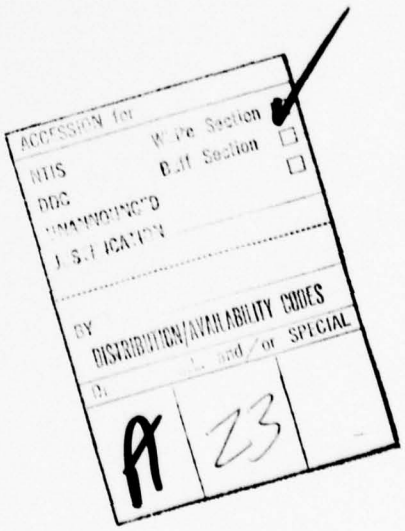

DEPARTMENT OF THE ARMY
PHILADELPHIA DISTRICT, CORPS OF ENGINEERS
CUSTOM HOUSE—2D & CHESTNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106

IN REPLY REFER TO
NAPEN-D

Honorable Brendan T. Byrne
Governor of New Jersey
Trenton, New Jersey 08621

30 AUG 1978

Dear Governor Byrne:

Inclosed is the Phase I Inspection Report for Davidsons Mill Pond Dam in Middlesex County, New Jersey which has been prepared under authorization of the Dam Inspection Act, Public Law 92-367. A brief assessment of the dam's condition is given on the first three pages of the report.

Based on visual inspection, available records, calculations and past operational performance, the Davidsons Mill Pond Dam, initially listed as a high hazard potential structure but reduced to a significant hazard potential structure, is judged to be in fair overall condition. However, the dam's spillway is considered seriously inadequate since 21 percent of one half of the Probable Maximum Flood (1/2 PMF) would overtop the dam. To insure adequacy of the structure, the following actions, as a minimum, are recommended:

a. The spillway's adequacy should be determined by a qualified professional consultant engaged by the owner using more sophisticated methods, procedures and studies within six months from the date of approval of this report. Any remedial measures necessary to insure the adequacy of the spillway and to prevent overtopping should be initiated within calendar year 1979. In the interim, a detailed emergency operation plan and warning system, should be promptly developed. Also, during periods of unusually heavy precipitation, around-the-clock surveillance should be provided.

b. Within six months from the date of approval of this report, engineering studies and analysis should be performed to determine the dams foundation conditions and structural stability. Any remedial measures found necessary should be initiated within calendar year 1979.

c. Within one year of the date of approval of this report the following actions should be initiated:

(1) Place rip-rap at the toe of the east auxiliary side channel.

(2) Extend the wall at the west abutment in a southerly direction to protect the left abutment and road.

(3) Repoint mortared joints.

(4) Devlop a periodic maintenance procedure.

A copy of the report is being furnished to Mr. Dirk C. Hofman, New Jersey Department of Environmental Protection, the designated State Office contact for this program. Within five days of the date of this letter, a copy will also be sent to Congressman Edward Patton of the Fifteenth District. Under the provisions of the Freedom of Information Act, the inspection report will be subject to release by this office, upon request, thirty days after the date of this letter.

Additional copies of this report may be obtained from the National Technical Information Services (NTIS), Springfield, Virginia, 22161 at a reasonable cost. Please allow four to six weeks from the date of this letter for NTIS to have copies of the report available.

An important aspect of the Dam Safety Program will be the implementation of the recommendations made as a result of the inspection. We accordingly request that we be advised of proposed actions taken by the State to implement our recommendations.

Sincerely yours,

James G. Ton

1 Incl
As stated

JAMES G. TON
Colonel, Corps of Engineers
District Engineer

Cy furn:
Mr. Dirk C. Hofman, P.E.
Department of Environmental Protection

DAVIDSONS MILL POND DAM (NJ00516)

CORPS OF ENGINEERS ASSESSMENT OF GENERAL CONDITIONS

This dam was inspected on various dates in June and July by Louis Berger and Associates, Inc. under contract to the State of New Jersey. The state, under agreement with the U. S. Army Engineer District, Philadelphia, had this inspection performed in accordance with the National Dam Inspection Act, Public Law 92-367.

The Davidsons Mill Pond Dam, initially listed as a high hazard potential structure but reduced to a significant hazard potential structure, is judged to be in fair overall condition. However, the dam's spillway is considered seriously inadequate since 21 percent of one half of the Probable Maximum Flood (1/2 PMF) would overtop the dam. To insure adequacy of the structure, the following actions, as a minimum, are recommended:

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(2) Extend the wall at the west abutment in a southerly direction to protect the left abutment and road.

(3) Repoint mortared joints.

(4) Devlop a periodic maintenance procedure.

APPROVED: James G. Ton

JAMES G. TON
Colonel, Corps of Engineers
District Engineer

DATE: 30 Aug 78

PHASE I REPORT
NATIONAL DAM INSPECTION PROGRAM

Name of Dam Davidsons Mill Pond Dam NJ 00516

State Located New Jersey
County Located Middlesex
Coordinates Lat.4024.8 - Long.7429.9
Stream Lawrence Brook
Date of Inspection 27 June 1978

ASSESSMENT OF GENERAL CONDITIONS

The dam is in fair structural condition but the spillway capacity is seriously inadequate. No engineering data is available and it is recommended that the owner provide stability computations and cross sectional data in the near future and further stability studies be undertaken.

Remedial actions recommended are:

1) Place riprap at the toe of the east auxiliary side channel.

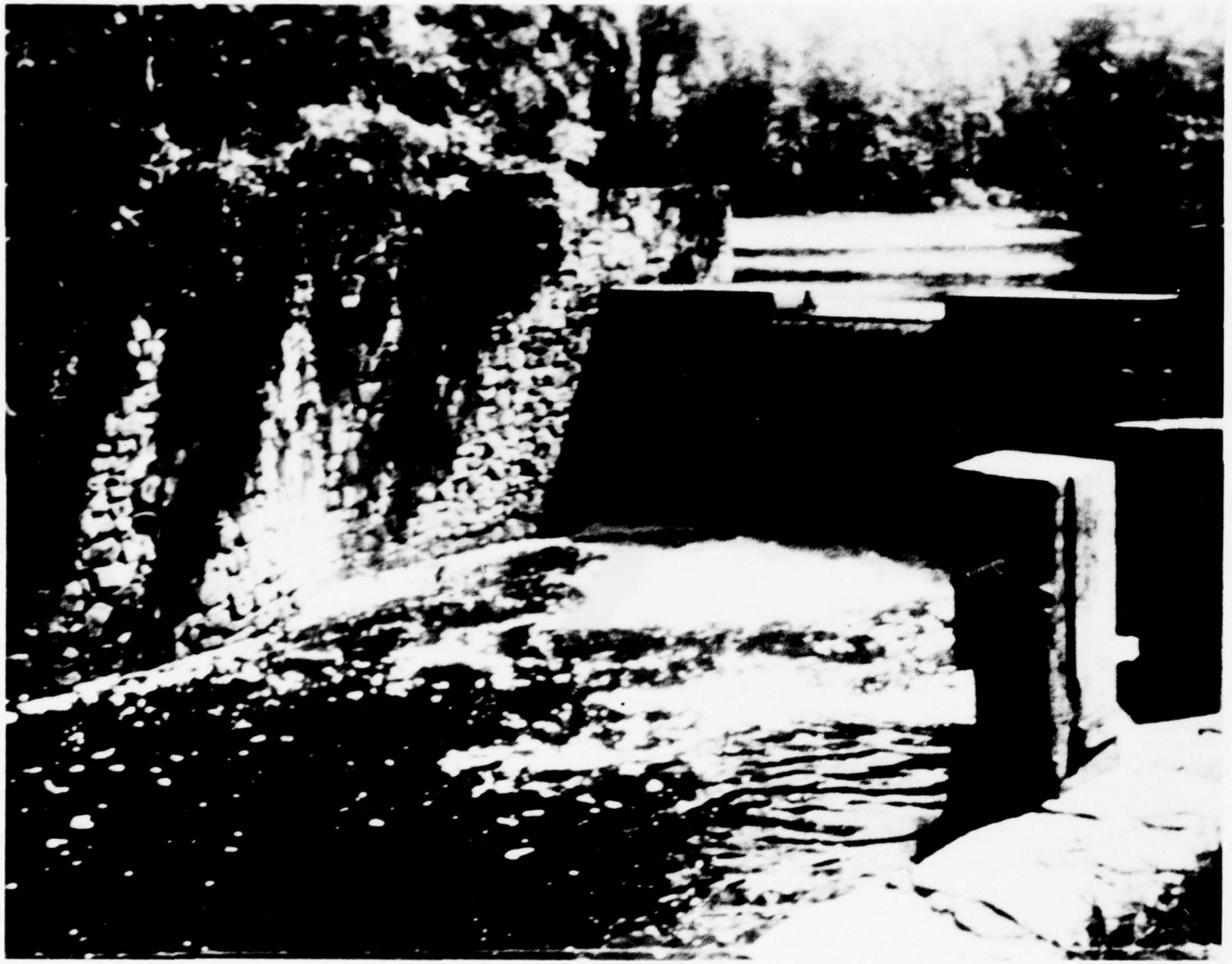
2) Extend the wall at the west abutment in a southerly direction to protect the left abutment and road.

3) Repoint mortared joints.

This dam has a seriously inadequate spillway capacity for its downgraded significant hazard category being able to transmit only 20% of the design flood.

F. Keith Jolls P.E.
Project Manager

Rudolph Wrubel P.E.
Vice President, Engineering



JUNE 1978

OVERVIEW OF DAVIDSONS MILL POND DAM

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PHASE I INSPECTION REPORT
NATIONAL DAM INSPECTION PROGRAM
NAME OF DAM DAVIDSONS MILL POND DAM ID# NJ 00516

SECTION 1 - PROJECT INFORMATION

1.1 GENERAL

a. Authority

This report is authorized by the Dam Inspection Act, Public Law 92-367, and has been prepared in accordance with Contract FPM-36 between Louis Berger & Associates, Inc. and the State of New Jersey and its Department of Environmental Protection, Division of Water Resources. The State, in turn, is under agreement with the U.S. Army Corps of Engineer District, Philadelphia, to have this inspection performed.

b. Purpose

The purpose of this inspection is to evaluate the structural and hydraulic condition of the Davidsons Mill Pond Dam and appurtenant structures and to determine if the dam constitutes a hazard to human life or property.

1.2 DESCRIPTION OF PROJECT

a. Description of Dam and Appurtenances

The Davidsons Mill Pond Dam is a very old ashlar masonry gravity wall structure approximately 135 feet in length divided into two sections of spillways (west 25 feet, east 70 feet) by a stone-walled island. The dam is the remnant of an old grinding mill facility reputedly over 130 years old. There are two spillways, one on the left abutment and an auxiliary side channel on the eastern end. The spillway in the west side is on two levels, the first being 7 feet wide at an elevation of 60.0, the second totalling 18 feet in width at an elevation

of 61.0. The side channel spillway on the eastern side is 70 feet in length at an elevation of 61.0. The center island is surrounded by a masonry wall with a top elevation of 65.4. There is an extremely old bridge 60 feet downstream on Riva Road which severely constricts the downstream channel below the dam.

b. Location

The Davidsons Mill Pond Dam is located in North Brunswick, Middlesex County, 60 feet upstream from the bridge on Riva Road. It is 2,000 feet southwest of the headwaters of Farrington Lake.

c. Size Classification

The maximum height of the dam is approximately 9.5 feet and the conservation storage is estimated to be 170 acre feet. Therefore the dam is in the small size category as defined by the Recommended Guidelines for Safety Inspection of Dams.

d. Hazard Classification

Two bridges lie a short distance downstream from the dam. The first on Riva Avenue while the other is on Davidsons Mill Road. Both of these structures are at a depressed elevation sufficiently low so they are very likely overtopped during heavy storms. Additionally, there is a small number of houses downstream close to the probable flood plain. As a result of the field inspection, the classification is recommended to be downgraded from high hazard as established by the Corps of Engineers to significant hazard. A failure would cause only minimal damage as the height is low and its impoundment volume is moderate.

e. Ownership

The dam is owned by the City of New Brunswick, City Hall, New Brunswick, New Jersey.

f. Purpose of Dam

The dam is used for backup storage for the City of New Brunswick water supply.

g. Design and Construction History

There is no information on the design and construction of this dam. The dam was originally owned by the Davison family, whose farmlands in this area date back to pre-Revolutionary times. It was given to the City by the Nixon family early in the 1900's.

h. Normal Operational Procedures

See Section 4 for information on operational procedures.

1.3 PERTINENT DATA

a. Drainage Area

The drainage area for the Davidsons Mill Pond Dam is 15.2 square miles.

b. Discharge at Dam Site

No discharge records are available for this site. According to appended calculations, using 1/2 probable maximum flood (P.M.F.), the discharge would be 22500 cfs over the spillway. Using a 100-year flood frequency the discharge over the spillway crest would be 3200 cfs.

c. Elevation (M.S.L.)

Top of dam	-	65.4
Maximum pool	-	63.75
Recreation pool	-	60.0

d. Reservoir

Length of maximum pool	- 5500 feet (estimated)
Length of recreation pool	- 5300 feet

e. Storage

Maximum pool	- 345 acre feet (estimated)
Recreation pool	- 170 acre feet

f. Reservoir Surface

Maximum pool (top of dam) - 43 acres
Recreation pool (spillway crest) - 28 acres

g. Dam

Type - Masonry wall with earth embankment on upstream face.
Length - 135 feet
Height (maximum) 9.5 feet
Freeboard between normal reservoir and the top of the dam - 5.4 feet
Width - 3 feet
Zoning - Unknown

h. Diversion and Regulating Tunnel

None

i. Spillway

Type - narrow crests
Length of weirs - 95 feet (70 + 25)
Crest elevation - 60.0 /61.0

j. Regulatory Outlets

None

SECTION 2 - ENGINEERING DATA

2.1 DESIGN
2.2 CONSTRUCTION
2.3 OPERATION

No data or information is available. The City of New Brunswick filed plans in 1940 for the construction of a new dam at this site but World War II interrupted the work before it was started.

2.4 EVALUATION

Inasmuch as no engineering drawings were available, no evaluation can be made regarding the stability. However, the major portions of the dam have withstood numerous overtoppings for over 100 years.

SECTION 3 - VISUAL INSPECTION

3.1 FINDINGS

a. General

The overall physical condition of Davidsons Mill Pond dam is fair. The surrounding embankment is stable with little evidence of seepage but is highly irregular with natural variations in slopes.

b. Dam

The ashlar masonry walls of the dam are in fair condition with due respect to their age. The masonry work appears to have been laid up at two different times. Concrete caps have been placed on the tops of the walls each side of the westerly weir notch. The auxiliary side channel wall is buttressed on the upstream face completely by a earth embankment to within about a foot of the top of the wall.

c. Appurtenant Structures

An abandoned 21" gate exists in the west wall just above the original site of the milling facilities. This possibly fed an undershot mill wheel but only portions of the original foundations remain. The pipe is completely plugged up.

d. Reservoir Area

The reservoir area is heavily silted up to within 3 to 4 feet of the dam crest elevation for most of the pond except right at the face of the west spillway where the depth of water exceeds 10 feet. As to be expected, most of the siltation occupies the upper reaches of the reservoir.

e. Downstream Channel

The channel is severely restricted immediately downstream by the Riva Road bridge which is only about 30 feet wide. Low steel is one foot below the reservoir level. Below that, Lawrence Brook flows unimpeded about one half mile to the headwaters of Farrington Lake. The banks of the channel are heavily wooded and considerable drift was observed along the stream.

3.2 EVALUATION

The major items of concern of the inspection team were:

a. The seepage and undercutting on the downstream side of the east auxiliary side channel.

b. The potential hazard of the dam in relation to the bridge immediately downstream.

c. The unknown nature of the masonry wall foundations(whether or not they are founded on bedrock).

SECTION 4 - OPERATIONAL PROCEDURES

4.1 PROCEDURES

No official posting of operational procedures is maintained except periodic inspections by City of New Brunswick Water Department personnel.

4.2 MAINTENANCE OF DAM

No maintenance is in evidence except the periodic removal of trash that collects at the notch weir.

4.3 MAINTENANCE OF OPERATING FACILITIES
4.4 DESCRIPTION OF ANY WARNING SYSTEM IN EFFECT

There are no operational facilities or warning systems at this site.

4.5 EVALUATION

Referring to the above paragraphs, little exists to evaluate regarding operational procedures. Discussions were held with Mr. Robert C. Kane, City Engineer, on July 19, 1978 to confirm the unavailability of data and records of formal O/M procedures.

SECTION 5 - HYDRAULIC/HYDROLOGIC

5.1 EVALUATION OF FEATURES

a. Design Data

According to the Recommended Guidelines for Safety Inspection of Dams, the dam at Davidsons Mill Pond is of small size and significant hazard. Thus, the spillway design flood of 1/2 PMF was selected. The inflow hydrograph was calculated using precipitation data from Hydrometeorological Report No. 33. The inflow hydrograph was obtained utilizing the HEC-1 program as directed by the Corps of Engineers. In this manner, a peak inflow of 24,840 cfs was obtained for 1/2 the PMF. Accordingly, the inflow was routed through the pond which resulted in an insignificant decrease in the peak discharge to 24,160. The maximum spillway discharge capacity is approximately 5000 cfs or 20% of the SDF.

b. Experience Data

Although there is a gaging station located at the outlet of Davidsons Mill Pond, it is a low flow partial record station which has only been in operation since 1973. There is however a continuous record station about 4 miles downstream at Farrington Dam. Log-Pearson Type III flood frequency analysis of this site yields 100 and 500-year flood discharges of 4760 cfs and 7930 cfs respectively.

A 100 and 500-year frequency flood discharge for Davidsons Mill Pond was transposed from the downstream data utilizing the ratio of the square root of the drainage areas. Accordingly, discharges obtained for 100 and 500-year frequency floods are 3200 cfs and 5300 cfs respectively. The spillway capacity will accommodate this 100-year flood although it would be overtopped slightly by the 500-year event.

c. Visual Observations

The spillways in both the eastern and western sections of the dam appear to be in satisfactory condition. The spillway in the west section seems to be of more recent construction, although there are no records to verify this. There is evidence of scour at the base of the downstream side of the eastern auxiliary side channel. The main constriction to flow would occur at the bridge that lies 60 feet downstream. This would create a backwater which could reduce the spillway discharge if a flood occurred.

d. Overtopping Potential

Based on the results of the hydraulic analyses, the capacity of the combined spillways is inadequate to accommodate the SDF. The design spillway discharge for one half the Probable Maximum Flood would be 24,160 cfs with a spillway capacity of 5,000 cfs; therefore overtopping would occur. Thus, the capacity of the spillway will handle only 20% of the design flood (SDF) although it appears adequate to accommodate a flood potential equal to the 500-year frequency event.

e. Drawdown

No drawdown is possible at Davisons Mill Dam since the stem and wheel for the gate of the 21" discharge pipe is missing making the gate inoperative.

SECTION 6 - STRUCTURAL STABILITY

6.1 EVALUATION OF STRUCTURAL STABILITY

a. Visual Observations and Data Review

The stone masonry construction is in fair condition but a large percentage of the mortared joints are in poor condition and require repointing. In view of their age, the walls were undoubtedly laid up without any present-day design considerations. Although a failure was reported in July 1927, it is unknown exactly which portions of the dam were rebuilt.

The soil conditions surrounding this dam site consist of silty sand to sandy silt with varying amounts of intermixed gravel which becomes increasingly abundant with depth.

There are indications to the west of the dam that the depth to a diabase bedrock is less than ten feet. This rock is described in general as a hard, massive igneous rock, commonly called "trap" and usually irregularly jointed and fractured. These joints and fractures usually allow the free passage of seepage water. The underlying formations are shale and sandstone at great depth.

To the east of the dam, there are indications that the depth of the soil described above is greater than ten feet. In all cases, the surface drainage conditions are described as good to excellent.

From the 1940 Application to the State Water Policy Commission, it is inferred that the foundation material is composed of "gravel" as cut-off walls were dictated in the design.

b. Design and Construction Data
c. Operating Records

No information was available on the above.

d. Post Construction Changes

Concrete caps have been poured on the tops of the west spillway wall but no records exist as to when this was done. These sills protect the tops of the masonry from damage from debris or ice.

e. Seismic Stability

As the dam is located in Zone 1, only a minor hazard exists from earthquake forces and the potential vulnerability affecting stability is negligible.

SECTION 7 - ASSESSMENTS/RECOMMENDATIONS/REMEDIAL MEASURES

7.1 DAM ASSESSMENT

a. Conditions

On the basis of the Phase I visual examination the Davidsons Mill Pond Dam is in fair condition and is functioning adequately as a secondary impoundment for the City of New Brunswick water supply system. However, the present spillway capacity is seriously inadequate to accommodate the spillway design flood without overtopping. Overtopping to such a degree would undoubtedly cause significant damage and jeopardize the structural stability of the dam. Except for its inadequate spillway capacity, no detrimental assessment can be made regarding its physical condition except that seepage was noted thru and around the easterly side channel spillway. However, the condition of such an old dam remains extremely questionable.

b. Adequacy of Information

The availability of data was deemed to be inadequate since absolutely no engineering data or records exist. Assessment of the adequacy of design and the structural stability is therefore based on visual observations, general soil reports of the area and engineering judgement. Hydraulic and hydrologic assessments are considered more reliable since the results obtained could be compared with gage station information on the same stream.

c. Urgency

Further investigations should be undertaken in the near future as a collapse of this dam could conceivably washout the Riva Road bridge immediately downstream.

d. Necessity for Further Study

Due to the unknown conditions of the foundations and structural configuration of the masonry walls, obtaining additional information and further study is recommended.

7.2 RECOMMENDATIONS/REMEDIAL MEASURES

It is recommended that further studies be initiated in the near future regarding foundation and structural conditions as this dam is classified in the significant hazard category and its spillways are able to pass only 20% of the design flood of 1/2 PMF. This information is considered essential to completely assess the continued stability and to determine if the dam constitutes a hazard to human life and property.

a. Alternatives

On the basis of visual examination and hydraulic calculations, improvements to the spillway capacity are warranted. The easterly auxiliary side channel should be regraded and protected with cyclopean stone riprap as a major portion of a flooding overflow discharges into this channel. Secondly, the reentrant stonewall on the west bank should be extended in a southwesterly direction to a point on the shoulder of Riva Road where the elevation exceeds the top of the dam. This will effectively prevent peak flow discharges from penetrating behind, and possibly undermining, the west abutment. Lastly, the mortared joints should be raked out and repointed.

b. O&M Maintenance and Procedures

As the City of New Brunswick presently maintains and monitors this dam, a check list for periodic maintenance inspections should be developed for keeping records of all findings and repairs.

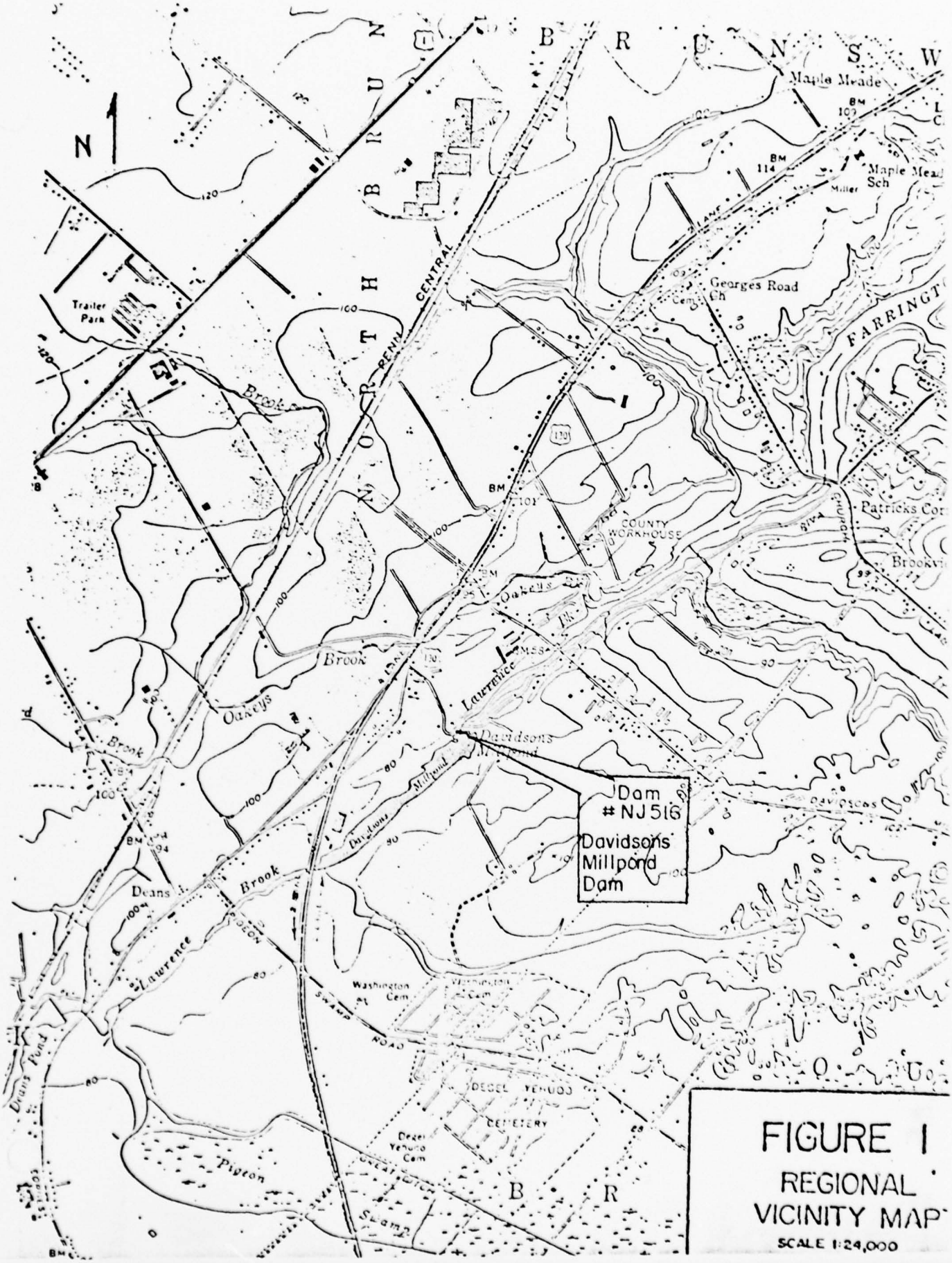
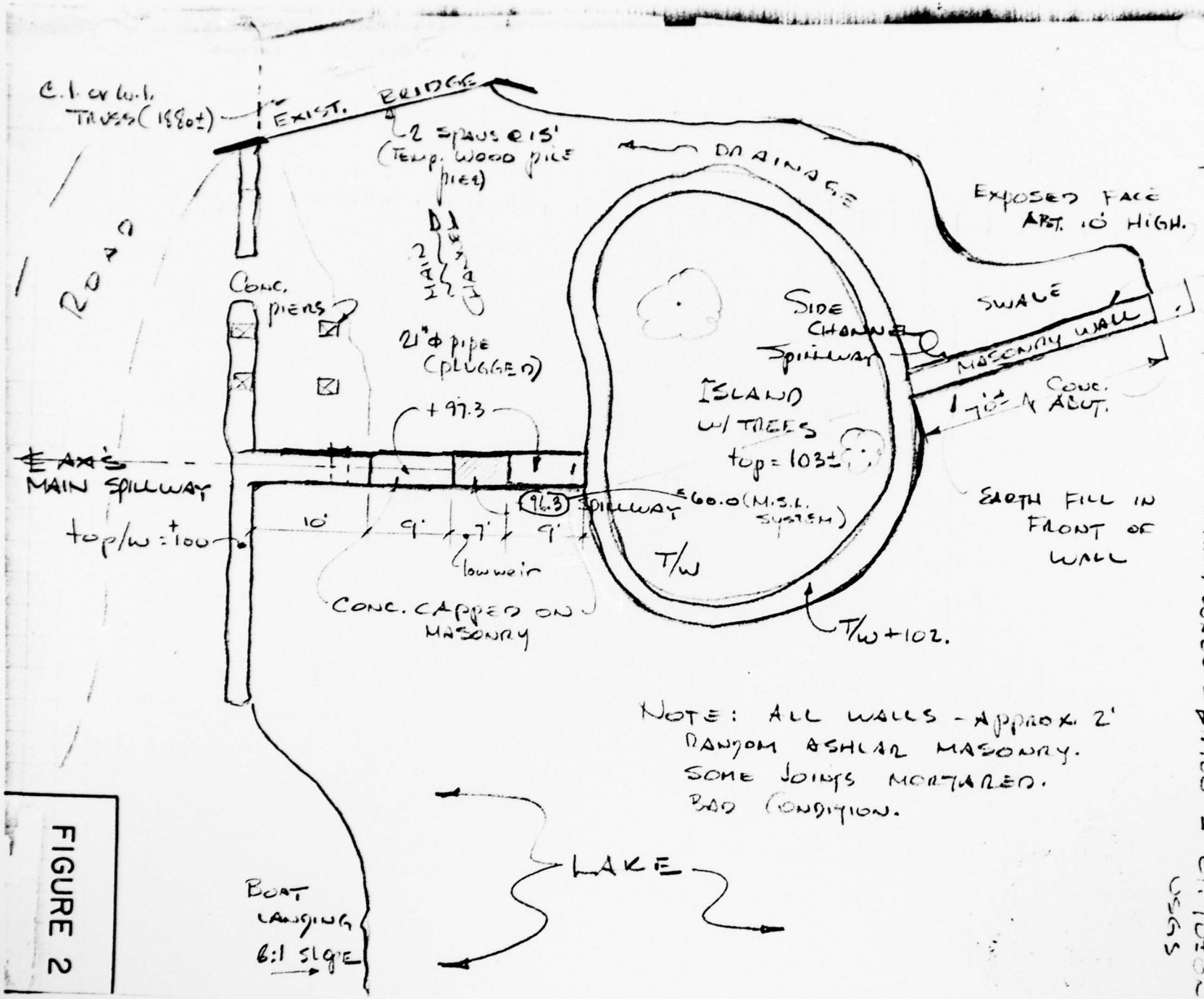


FIGURE 1

REGIONAL VICINITY MAP

SCALE 1:24,000



NOTE: ALL WALLS - APPROX. 2' RANDOM ASHLAR MASONRY. SOME JOINTS MORTARED. BAD CONDITION.

TEMP. B.M. TOP OF WEST FISHING WALL = EL. 100 = EL. 7.01 on USGS

LOUIS BERGER & ASSOCIATES INC.
BY _____ DATE _____
CHKD. BY _____ DATE _____
SUBJECT DEPOSE DAM INSPECTION
DIVIDENDS MILL
SHEET NO. 2222 OF
PROJECT

FIGURE 2

Check List
Visual Inspection
Phase 1

Name Dam Davidsons Mill Pond County Middlesex State New Jersey Coordinators NJDEP

Date(s) Inspection June 14,15,27 July 20, 1978 Weather Sunny Temperature 80°F

Pool Elevation at Time of Inspection 60.2 M.S.L. Tailwater at Time of Inspection 51± M.S.L.

Inspection Personnel:

M. Carter C. Hoffman

T. Chapter R. Lang

K. Jolls

K. Jolls Recorder

CONCRETE/MASONRY DAMS

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
SEEPAGE OR LEAKAGE	Seepage thru east wall and abutment.	Entire dam random ashlat stone.
STRUCTURE TO ABUTMENT/EMBANKMENT JUNCTIONS	Satisfactory	Gravel and roadstone at left abutment. Right abutment brush covered. No compaction.
DRAINS	None	
WATER PASSAGES	None	
FOUNDATION	Unknown (bedrock fairly close to ground surface)	Dimensional survey required for entire dam 1) thicknesses of walls 2) footings

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
SURFACE CRACKS CONCRETE SURFACES	Masonry joints (open)	Joints should be repointed
STRUCTURAL CRACKING	N/A	Unusual geometry (old mill site)
VERTICAL AND HORIZONTAL ALIGNMENT	Ok	Straight walls Buttressed in middle by stone island.
MONOLITH JOINTS	N/A	
CONSTRUCTION JOINTS	N/A	

EMBANKMENT

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
SURFACE CRACKS		
UNUSUAL MOVEMENT OR CRACKING AT OR BEYOND THE TOE	No	
SLOUGHING OR EROSION OF EMBANKMENT AND ABUTMENT SLOPES	Minor	
VERTICAL AND HORIZONTAL ALINEMENT OF THE CREST	Satisfactory	
RIPRAP FAILURES	No riprap	Riprap required at right auxiliary side channel.

EMBANKMENT

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
JUNCTION OF EMBANKMENT AND ABUTMENT, SPILLWAY AND DAM	See page 2	
ANY NOTICEABLE SEEPAGE	Yes, at east abutment and lower portions of east spillway wall.	
STAFF GAGE AND RECORDER	None	
DRAINS		

OUTLET WORKS

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
CRACKING AND SPALLING OF CONCRETE SURFACES IN OUTLET CONDUIT	N/A	
INTAKE STRUCTURE	21"± Ø gate at base of wall.	Blocked and abandoned.
OUTLET STRUCTURE		
OUTLET CHANNEL		
EMERGENCY GATE	N/A	

UNGATED SPILLWAY

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
CONCRETE WEIR	At center of west wall, spillway	1' x 7'
APPROACH CHANNEL	None	
DISCHARGE CHANNEL	Natural river channel	
BRIDGE AND PIERS	Old piers in channel (from mill structure-destroyed)	

GATED SPILLWAY

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
CONCRETE SILL	N/A	
APPROACH CHANNEL	N/A	
DISCHARGE CHANNEL	N/A	
BRIDGE AND PIERS	N/A	
GATES AND OPERATION EQUIPMENT		

INSTRUMENTATION

VISUAL EXAMINATION	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
MONUMENTATION/SURVEYS	None	
OBSERVATION WELLS	None	
WEIRS	None	
PIEZOMETERS	None	
OTHER	Partial record station (2 readings in last 4 years).	

RESERVOIR

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
SLOPES	Very flat	
SEDIMENTATION	Appears to be heavily silted up. Silting much worse in upper end of reservoir.	

DOWNSTREAM CHANNEL

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
CONDITION (OBSTRUCTIONS, DEBRIS, ETC.)	Constricted by bridge just down stream.	
SLOPES	Natural. Heavily wooded.	
APPROXIMATE NO. OF HOMES AND POPULATION	10±	
ADDITIONAL COMMENTS/OBSERVATIONS	Owned by New Brunswick. Downstream bridge limits outlet capacity. Given to city by Nixon family. Early owner: Davison (sic) family Revolutionary War period.	

CHECK LIST
ENGINEERING DATA
DESIGN, CONSTRUCTION, OPERATION
DAVIDSONS MILL POND DAM

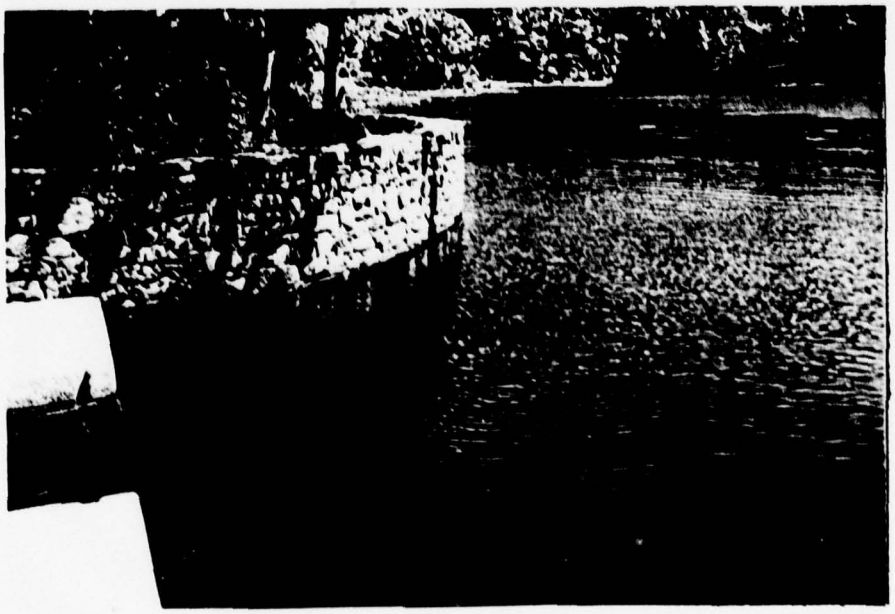
ITEM	REMARKS
PLAN OF DAM	Not available
REGIONAL VICINITY MAP	Available
CONSTRUCTION HISTORY	Not available
TYPICAL SECTIONS OF DAM	None available
HYDROLOGIC/HYDRAULIC DATA	None available
OUTLETS - PLAN	None available
- DETAILS	None available
-CONSTRAINTS	None available
-DISCHARGE RATINGS	None available
RAINFALL/RESERVOIR RECORDS	Available (partial record station)

ITEM	REMARKS
DESIGN REPORTS	None available
GEOLOGY REPORTS	None available
DESIGN COMPUTATIONS HYDROLOGY & HYDRAULICS DAM STABILITY SEEPAGE STUDIES	None available
MATERIALS INVESTIGATIONS BORING RECORDS LABORATORY FIELD	Not available
POST-CONSTRUCTION SURVEYS OF DAM	Not available
BORROW SOURCES.	Unknown

ITEM	REMARKS
MONITORING SYSTEMS	None
MODIFICATIONS	Unknown
HIGH POOL RECORDS	Unknown
POST CONSTRUCTION ENGINEERING STUDIES AND REPORTS	Unknown
PRIOR ACCIDENTS OR FAILURE OF DAM DESCRIPTION REPORTS	None
MAINTENANCE OPERATION RECORDS	None available

ITEM	REMARKS
SPILLWAY PLAN	None available
SECTIONS	None available
DETAILS	None available
OPERATING EQUIPMENT PLANS & DETAILS	None available

Upstream view of dam



View of pond

JUNE, 1978

Downstream of Spillway

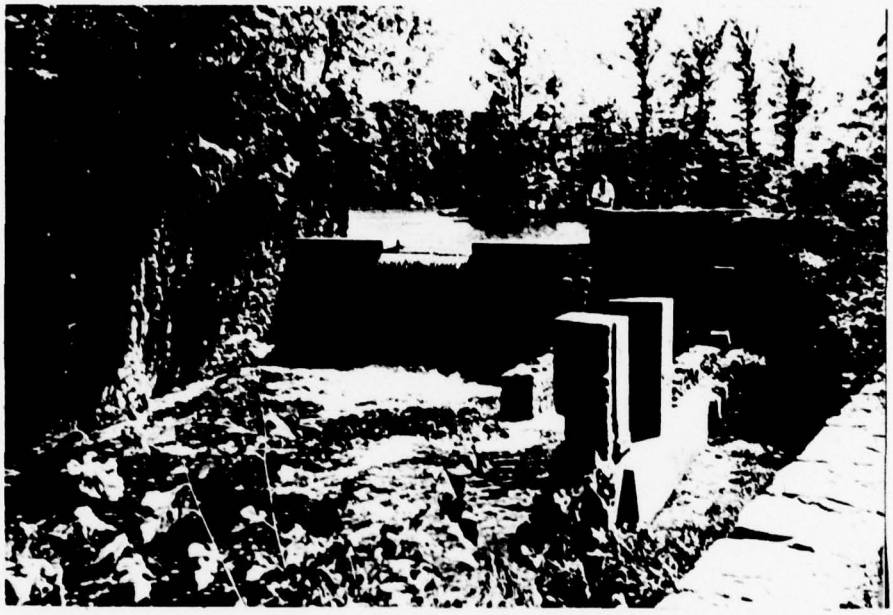
Spillway

JUNE, 1978

Old power channel

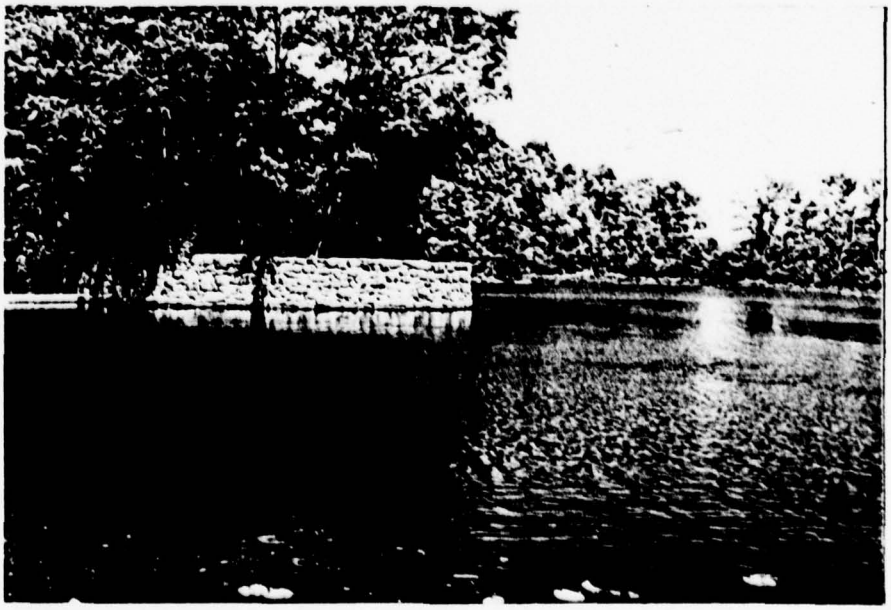
Downstream of Spillway

JUNE, 1978



Downstream view of Spillway

JUNE, 1978



View of Pond

JUNE, 1978

CHECK LIST
HYDROLOGIC AND HYDRAULIC DATA
ENGINEERING DATA

DRAINAGE AREA CHARACTERISTICS: Area: 15.2 sq.mi.

ELEVATION TOP NORMAL POOL (STORAGE CAPACITY): 60.0 (170 acre-ft.)

ELEVATION TOP FLOOD CONTROL POOL (STORAGE CAPACITY): Unknown

ELEVATION MAXIMUM DESIGN POOL: 63.75 (M.S.L.-Typ.)

ELEVATION TOP DAM: 65.4 (Center Island)

CREST:

a. Elevation 60.0 (w. spillway) 61.0 (east spillway)
b. Type Narrow Crest Weir
c. Width 3 feet
d. Length 95 feet
e. Location Spillover
f. Number and Type of Gates

OUTLET WORKS: 21" Ø pipe (not operational)

plus
a. Type -
b. Location near left abutment
c. Entrance inverts Unknown
d. Exit inverts 51+
e. Emergency draindown facilities None

HYDROMETEOROLOGICAL GAGES: Partial discharge record at dam outlet.
a. Type Continuous recording
b. Location 4 miles downstream at Farrington Dam
c. Records 1973 - to present

MAXIMUM NON-DAMAGING DISCHARGE: 5000 cfs (spillway capacity)

BY_____ DATE_____ **LOUIS BERGER & ASSOCIATES INC.** SHEET NO. A1

CHKD. BY_____ DATE_____ DAVIDSON MILL DAM INSPECTION PROJECT 6222

SUBJECT PRECIPITATION DATA

Drainage Area = 15.2 Sq miles

Watershed condition II Soil group B Considerable swamp

$$Tc = \left(\frac{11.9 \times 5^3}{80}\right)^{.385} = 3.08 \text{ hours}$$

Significant hazard - use ½ PMP

PMP 6 hour 10 sq mile point rainfall = 26"

Zone 6 15.2 sq miles : 96% × 26 = 24.96"

USE ZONE 2 DISTRIBUTION

Time hr.	Rainfall miles	Rainfall inches	Δ	Drainage Δ	Cumulative	Runoff Curve #65	Δ Runoff
0.5	30	7.49	7.49	0.74	0.74	0	0
1.0	50	12.48	4.99	1.00	1.74	0.09	0.09
1.5	58	14.48	2.00	1.00	2.74	0.40	0.31
2.0	65	16.22	1.74	1.25	3.99	1.00	0.60
2.5	71	17.72	1.50	1.25	5.24	1.82	0.82
3.0	76	18.97	1.25	1.50	6.74	2.89	1.07
3.5	81	20.22	1.25	7.49	14.23	9.75	6.86
4.0	85	21.22	1.00	4.99	19.22	14.00	4.25
4.5	89	22.22	1.00	2.00	21.22	15.90	1.90
5.0	93	23.22	1.00	1.74	22.96	17.30	1.40
5.5	97	24.22	1.00	1.00	23.96	18.30	1.00
6.0	100	24.96	0.74	1.00	24.96	19.30	1.00

BY R J M DATE 8-76 **LOUIS BERGER & ASSOCIATES INC.** SHEET NO A2 OF

CHKD. BY ____ DATE ____ DAVIDSON'S MILL DAM INSPECTION PROJECT C222

SUBJECT ____

Drainage area = 15.2 sq miles

L = 5 miles H = 80 feet

$$T_c = \left(\frac{11.9 \times 5^3}{80}\right)^{0.385} = 3.08 \text{ hours}$$

$$T_p = 0.25 + 0.6 \times 3.08 = 2.098 \text{ hours}$$

$$T_s = \frac{T_p}{0.85} \approx 2.47 \text{ hours}$$

HD-9
(10-55)
Bureau of Reclamation

A3

DERIVATION OF DIMENSIONLESS OR APPLIED UNITGRAPH

Unitgraph {derived / for application to} DAVIDSONS MILL DAM

Unit time, t_s = 0.5 hrs. lag = 2.22 hrs. t_s = lag + ½ t_s = 2.47

Area = 15.2 sq. mi. DSF {observed / for 1 inch, = 26.89 X area} 408.7

Comp. by _____ Ck. by _____ Date _____

Hours	% t_s $\left(\frac{100}{t_s} \cdot \right)$	Dimensionless ordinate $Q \frac{t_s}{DSF}$	Q cfs $\left(\frac{DSF}{t_s}\right)$		
0.5	20.24	1.9	315		
1.0	40.48	8.2	1357		
1.5	60.72	16.7	2763		
2.0	80.96	20.8	3442		
2.5	101.20	19.6	3243		
3.0	121.44	15.2	2515		
3.5	141.68	10.9	1804		
4.0	161.92	7.8	1291		
4.5	182.16	5.5	910		
5.0	202.40	3.8	629		
5.5	222.64	2.6	430		
6.0	242.88	1.8	298		
6.5	263.12	1.3	209		
7.0	283.36	0.9	146		
7.5	303.60	0.6	104		
8.0	323.84	0.46	76		
8.5	344.08	0.32	53		
9.0	364.32	0.24	40		
9.5	384.56	0.18	30		
10.0	424.80	0.15	25		
10.5	425.04	0.12	20		

BY _____ DATE _____ **LOUIS BERGER & ASSOCIATES INC.** SHEET NO. A4 OF _____

CHKD. BY _____ DATE _____ PROJECT C222

SUBJECT BUREAU OF RECLAMATION DEFINITION OF TERMS USED IN UNITGRAPH

L, LAG TIME AS DEFINED BY THE SCS IS THE TIME IN HOURS FROM THE MIDPOINT OF EXCESS RAINFALL, TO THE TIME OF PEAK DISCHARGE

L, LAG TIME AS DEFINED BY THE BUREAU OF RECLAMATION IS FROM THE CENTER OF MASS OF RAINFALL TO THE CENTER OF MASS OF RUNOFF.

T_c IS EQUAL TO $\left(\frac{11.9\,L^3}{H}\right)^{0.385}$ FROM THE CALIFORNIA CULVERTS PRACTICE

SCS L IS APPROXIMATELY 0.6 T_c

EXAMPLES OF DETERMINING L (LAG) BY BUREAU OF RECLAMATION DEFINITION,

$$L = \frac{T_p - (D/2)}{0.85}$$ WHERE D IS THE TIME INTERVAL OF THE UNITGRAPH

THE SCS CURVELINEAR UNIT HYDROGRAPH CAN BE DERIVED BY FIRST TAKING BUREAU OF RECLAMATION L, (LAG) PLUS $\frac{D}{2}$ AFTER BEING DIVIDED BY 100, THEN

MULTIPLIED BY EACH ABSCISSA (IN HOURS) BY THE QUOTIENT. THEN READING THE DIMENSIONLESS ORDINATE FOR THE GIVEN PERCENTAGES FROM THE PREVIOUSLY DETERMINED SCS CURVELINEAR DIMENSIONLESS GRAPH, (COPY ATTACHED)

TO OBTAIN Q IN CFS FOR EACH ORDINATE MULTIPLY EACH DIMENSIONLESS ORDINATE BY A FACTOR OBSERVED FOR ONE INCH,

$$26.89 \times \text{AREA}$$

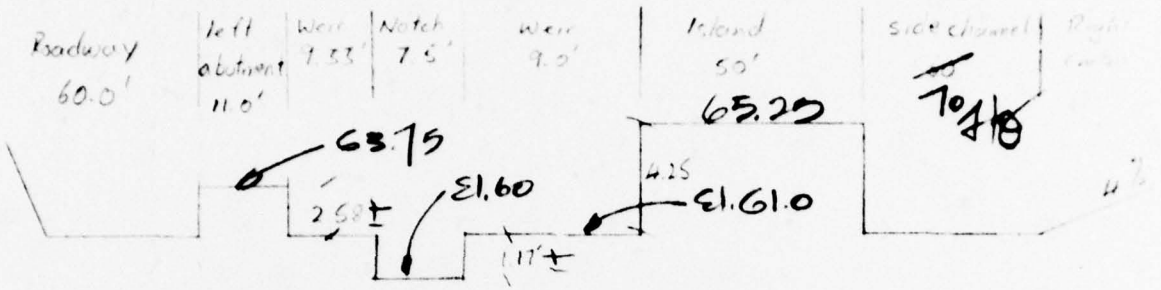
SCS Curvilinear Dimensionless Graph A5

T.	0	1	2	3	4	5	6	7	8	9
0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.4
10	0.4	0.5	0.6	0.7	0.9	1.0	1.2	1.3	1.4	1.6
20	1.8	2.0	2.2	2.5	2.8	3.1	3.3	3.6	3.9	4.2
30	4.5	4.8	5.1	5.4	5.8	6.2	6.5	6.9	7.2	7.6
40	8.0	8.4	8.8	9.2	9.6	10.0	10.4	10.8	11.3	11.7
50	12.2	12.6	13.1	13.5	14.0	14.5	14.9	15.2	15.6	16.0
60	16.4	16.7	17.0	17.3	17.7	18.0	18.2	18.5	18.7	19.0
70	19.2	19.4	19.6	19.8	20.0	20.2	20.3	20.4	20.5	20.7
80	20.8	20.8	20.9	20.9	21.0	21.0	20.9	20.9	20.8	20.8
90	20.7	20.6	20.5	20.5	20.4	20.3	20.2	20.1	20.0	19.9
100	19.8	19.6	19.4	19.2	19.1	18.9	18.7	18.5	18.3	18.1
110	17.9	17.6	17.4	17.1	16.9	16.6	16.4	16.2	16.0	15.7
120	15.5	15.2	15.0	14.7	14.5	14.2	14.0	13.8	13.6	13.4
130	13.2	13.0	12.8	12.6	12.4	12.2	12.0	11.8	11.6	11.5
140	11.3	11.1	10.9	10.7	10.5	10.4	10.2	10.0	9.9	9.8
150	9.6	9.4	9.3	9.1	9.0	8.8	8.7	8.5	8.4	8.2
160	8.1	8.0	7.8	7.7	7.5	7.4	7.3	7.2	7.0	6.9
170	6.8	6.7	6.6	6.5	6.4	6.2	6.1	6.0	5.9	5.8
180	5.7	5.6	5.5	5.4	5.3	5.2	5.1	5.0	5.0	4.9
190	4.8	4.7	4.6	4.6	4.5	4.4	4.3	4.2	4.2	4.1
200	4.0	3.9	3.8	3.8	3.7	3.6	3.6	3.5	3.4	3.4
210	3.3	3.2	3.2	3.1	3.1	3.0	3.0	2.9	2.8	2.8
220	2.7	2.7	2.6	2.6	2.6	2.5	2.5	2.4	2.4	2.3
230	2.3	2.2	2.2	2.2	2.1	2.1	2.0	2.0	2.0	1.9
240	1.9	1.8	1.8	1.8	1.7	1.7	1.7	1.6	1.6	1.6
250	1.6	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.3	1.3
260	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1
270	1.1	1.0	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9
280	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7
290	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6
300	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5
310	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4
320	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
330	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
340	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2
350	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
360	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
370	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1
380	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
390	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
400	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
410	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
420	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
430	0.1	0.1	0.1	0.0						

BY C H DATE 7-78 **LOUIS BERGER & ASSOCIATES INC.** SHEET NO. A6

CHKD. BY DATE DAVIDSONS MILL DAM INSPECTION PROJECT 6222

SUBJECT RISHARD DATA



	Notch L = 7.5'			Weir L = 18.33			Left abut L = 11'			Side channel		
Elev.	H	C	Q	H	C	Q	H	C	Q	H	L	C
0	0	0	0									
0.5	0.5	2.9	8									
1.17	1.17	3.0	22	0						0	60	
1.67	1.67	3.1	50	0.5	3.0	19				0.5	64	2.9
2.17	2.17	3.1	74	1.0	3.1	55				1.0	66	2.9
3.75	3.75	3.1	169	2.58	3.1	235	0			2.58	81.5	2.8
5.42	5.42	3.1	293	4.25	3.1	498	1.67	3.0	71	4.25	95	2.7
6.42	6.42	3.1	378	5.25	3.1	684	2.67	3.0	146	5.25	104	2.6
7.42	7.42	3.1	470	6.25	3.1	888	3.67	3.0	232	6.25	112	2.5
12.00	12.00	3.3	1029	10.83	3.3	2156	8.25	3.3	860	10.83	150	2.8
16.00	16.00	3.3	1584	14.83	3.3	3455	12.25	3.3	1556	14.83	184	3.0

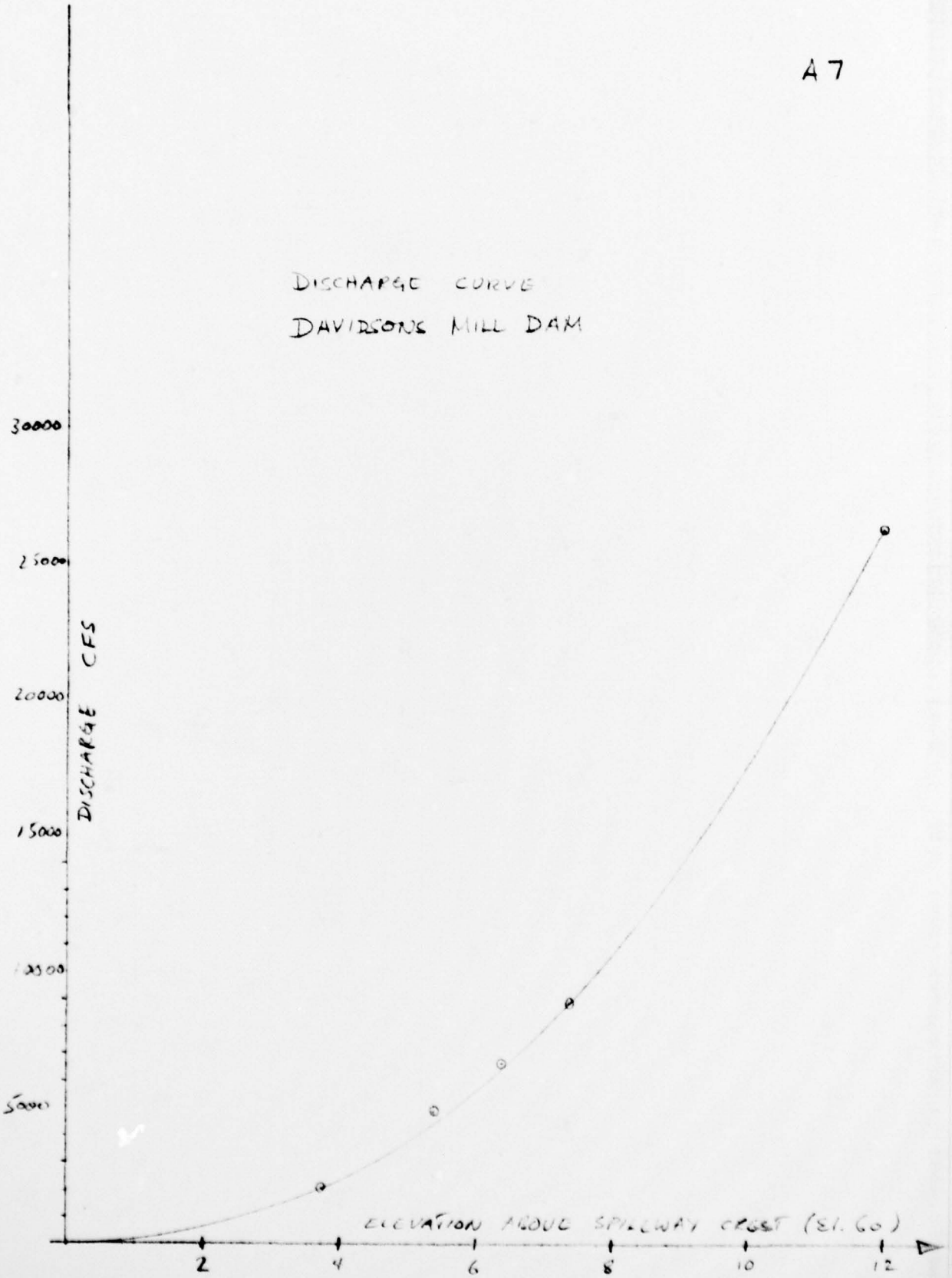
	Roadway			Island			
Elev.	H	C	Q	H	C	Q	Σ Q
0							0
0.5							8
1.17	0						28
1.67	0.5	2.8	59				144
2.17	1.0	2.8	168				496
3.75	1.58	2.8	696				2045
5.42	4.25	2.8	1472	0			4818
6.42	5.25	2.8	2021	1.0	1.5	75	6555
7.42	6.25	2.8	2622	2.0	1.5	212	8602
12.00	10.83	2.8	5988	6.58	1.5	1266	26270
16.00	14.83	3.0	10279	10.58	1.5	1720	50119

(2' above top of dam)

A 7

DISCHARGE CURVE

DAVIDSONS MILL DAM



BY D.J.M. DATE 8-78 **LOUIS BERGER & ASSOCIATES INC.** SHEET NO. 18

CHKD. BY ____ DATE ____ DAWSON'S MILL DAM INSPECTION PROJECT ____

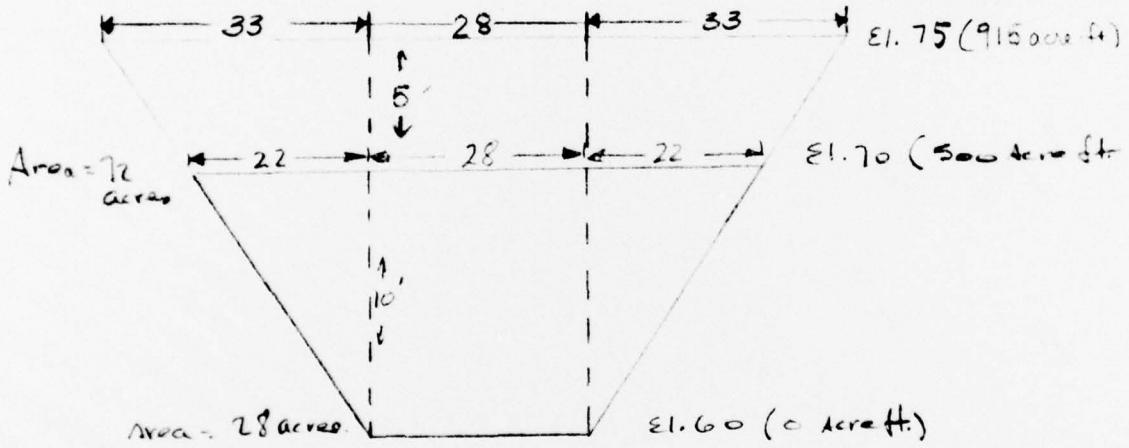
SUBJECT STORAGE CAPACITY

Area of lake at El. 60.0 = 28 acres

Area of lake at El. 70.0 = 72 acres (planimeter)

Take storage at El. 60.0 = 0

∴ Storage at El. 70.0 :-

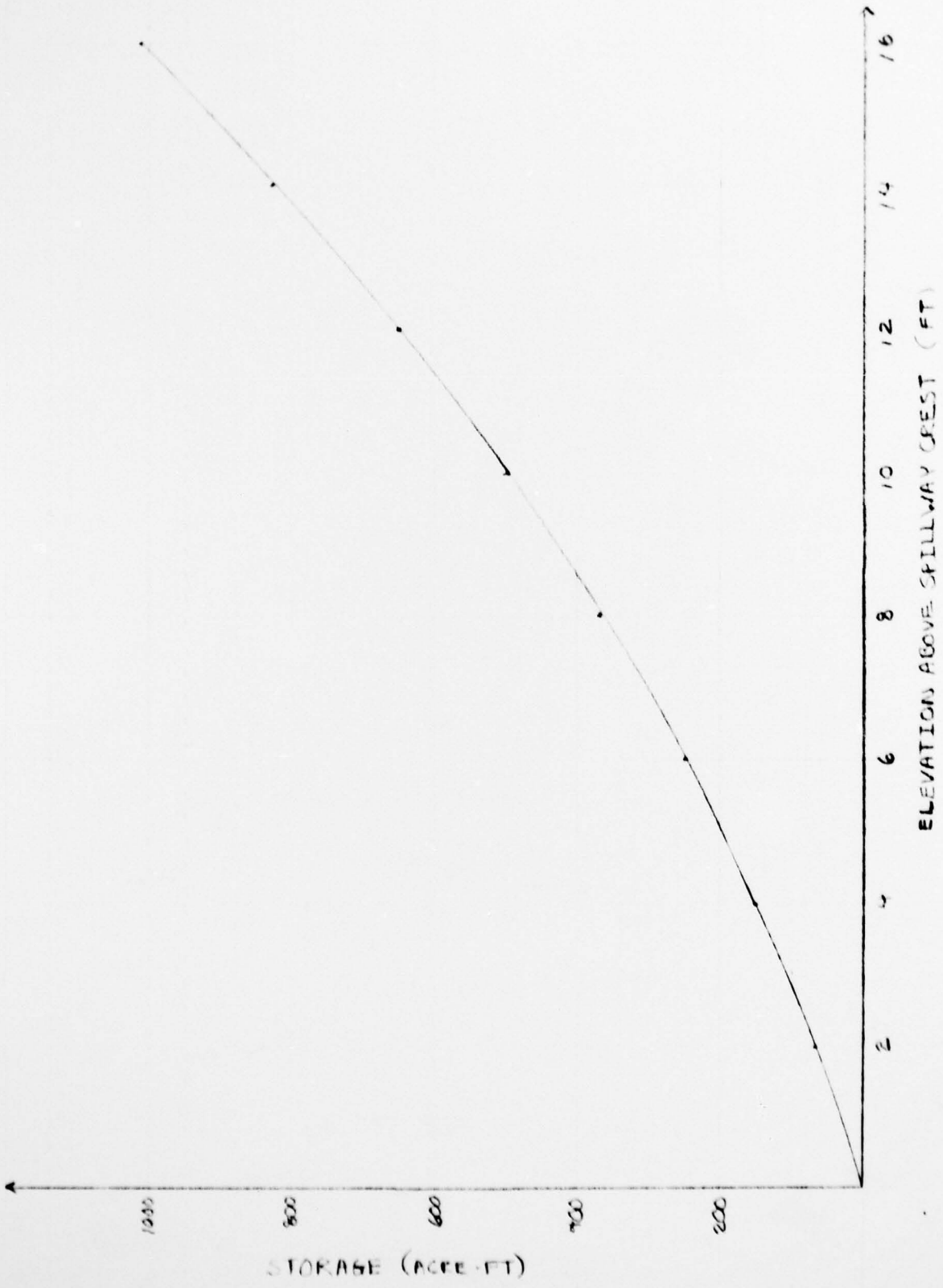


= 28 × 10 + 22 × 10 = 50 × 10

= 500 Acre feet

See storage curve overleaf.

STORAGE CURVE



BY PJM DATE 8-78

CHKD. BY _____ DATE _____

SUBJECT _____

LOUIS BERGER & ASSOCIATES INC.

DAVIDSONS MILL DAM

Summary of Storage & Discharge data

SHEET NO. A 10 OF

PROJECT C222

Height above Spillway (El. 6)	Discharge cfs	Storage acre feet
1'	25	30
2'	480	65
3'	1350	115
4'	2350	147
5'	3700	198
6'	5500	247
7'	7800	300
8'	10500	365
10'	17500	500
12'	26270	653

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

DAVIDSONS MILL DAM INSPECTION JOB#C222
BY D.J.MULLIGAN
FRIDAY JULY 21ST 1978

JOB SPECIFICATION

NQ	NHR	NMIN	IDAY	IHR	IMIN	METRC	IPLT	IPRT	NSTAN
50	0	30	0	0	0	0	0	0	0

JOPER	NWT
3	0

********** ********** ********** ********** **********

SUB-AREA RUNOFF COMPUTATION

INFLOW HYDROGRAPH

ISTAQ	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME
6	0	0	0	2	0	1

HYDROGRAPH DATA

IHYDG	IUHG	TAREA	SNAP	TRSDA	TRSPC	RATIO	ISNOW	ISAME	LOCAL
0	-1	15.20	0.0	15.20	0.0	0.500	0	0	0

PRECIP DATA

NP	STORM	DAJ	DAK
12	0.0	0.0	0.0

PRECIP PATTERN

0.0	0.09	0.31	0.60	0.82	1.07	6.86	4.25	1.90	1.40
1.00	1.00								

LOSS DATA

STRKR	DLTKR	RTIOL	ERAIN	STRKS	RTIOK	STRTL	CNSTL	ALSMX	RTIMP
0.0	0.0	1.00	0.0	0.0	1.00	0.0	0.0	0.0	0.0

GIVEN UNIT GRAPH, NUHGG= 21

369.	1357.	2763.	3442.	3243.	2515.	1804.	1291.	910.	629.
430.	298.	209.	146.	104.	76.	53.	40.	30.	25.
20.									

UNIT GRAPH TOTALS 19754. CFS OR 1.01 INCHES OVER THE AREA

RECESSION DATA

STRTQ= 0.0 QRCSN= 0.0 RTIOR= 1.00

END-OF-PERIOD FLOW

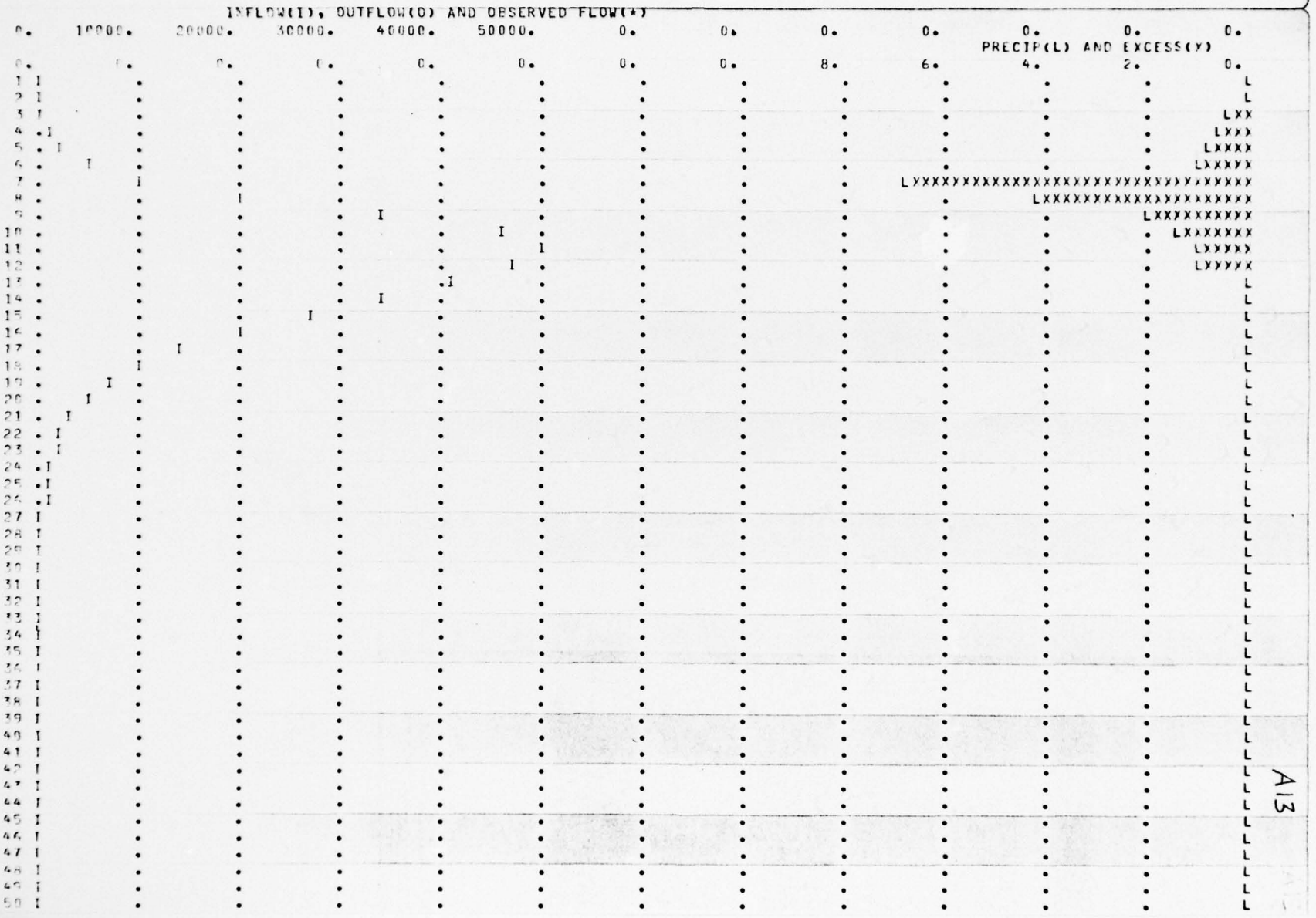
TIME	RAIN	EXCS	COMP Q
1	0.0	0.0	0.
2	0.09	0.09	33.
3	0.31	0.31	237.
4	0.60	0.60	891.
5	0.82	0.82	2283.
6	1.07	1.07	4524.
7	6.86	6.86	9546.
8	4.25	4.25	19544.
9	1.90	1.90	33949.

10	1.40	1.40	45547.
11	1.00	1.00	43678.
12	1.00	1.00	44633.
13	0.0	0.0	40430.
14	0.0	0.0	33906.
15	0.0	0.0	26645.
16	0.0	0.0	19803.
17	0.0	0.0	14095.
18	0.0	0.0	9870.
19	0.0	0.0	6906.
20	0.0	0.0	4818.
21	0.0	0.0	3368.
22	0.0	0.0	2378.
23	0.0	0.0	1684.
24	0.0	0.0	1209.
25	0.0	0.0	876.
26	0.0	0.0	651.
27	0.0	0.0	485.
28	0.0	0.0	267.
29	0.0	0.0	143.
30	0.0	0.0	83.
31	0.0	0.0	45.
32	0.0	0.0	20.
33	0.0	0.0	0.
34	0.0	0.0	0.
35	0.0	0.0	0.
36	0.0	0.0	0.
37	0.0	0.0	0.
38	0.0	0.0	0.
39	0.0	0.0	0.
40	0.0	0.0	0.
41	0.0	0.0	0.
42	0.0	0.0	0.
43	0.0	0.0	0.
44	0.0	0.0	0.
45	0.0	0.0	0.
46	0.0	0.0	0.
47	0.0	0.0	0.
48	0.0	0.0	0.
49	0.0	0.0	0.
50	0.0	0.0	0.
SUM	19.30	19.30	361252.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	43678.	29196.	7943.	7625.	381251.
INCHES		17.87	19.44	19.44	19.44
AC-FT		14485.	15762.	15762.	15762.

A12

STATION 6



A13

RUNOFF MULTIPLIED BY 0.50

0.	17.	118.	445.	1142.	2262.	4773.	9772.	16975.	22773.
24839.	21469.	20415.	16953.	13323.	9902.	7048.	4935.	3453.	2409.
1484.	1189.	942.	805.	438.	325.	243.	134.	71.	41.
27.	10.	0.	0.	0.	0.	0.	0.	0.	0.
0.	0.	0.	0.	0.	0.	0.	0.	0.	0.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	24839.	14598.	3971.	3813.	190625.
INCHES		8.93	9.72	9.72	9.72
AC-FT		7242.	7881.	7881.	7881.

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STATION 6

INFLOW(I), OUTFLOW(O) AND OBSERVED FLOW(*)

0. 4000. 8000. 12000. 16000. 20000. 24000. 28000.

HYDROGRAPH ROUTING

FLOOD ROUTING

ISTAG	ICOMP	IECON	ITAPE	JPLT	JPRT	INAME
66	1	0	0	2	0	1

ROUTING DATA

GLOSS	CLOSS	AVG	IRES	ISAME
0.0	0.0	0.0	1	0

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

STORAGE=	10.	65.	115.	147.	198.	247.	300.	365.	500.	653.
OUTFLOW=	0.	480.	1350.	2350.	3700.	5500.	7800.	10500.	17500.	26270.

TIME	EOP STOR	AVG IN	EOP OUT
1	31.	0.	0.
2	30.	8.	29.
3	32.	67.	45.
4	39.	282.	145.
5	60.	793.	420.
6	100.	1702.	1083.
7	164.	3518.	2813.
8	271.	7272.	6558.
9	416.	13373.	13167.
10	548.	19874.	20231.
11	615.	23806.	24108.
12	616.	24154.	24158.
13	574.	21942.	21755.
14	516.	18684.	18425.
15	451.	15138.	14982.
16	384.	11612.	11496.
17	319.	8475.	8599.
18	262.	5991.	6152.
19	217.	4194.	4405.
20	180.	2931.	3235.
21	149.	2046.	2395.
22	125.	1436.	1648.
23	107.	1016.	1216.
24	92.	723.	956.
25	79.	521.	726.
26	69.	382.	544.
27	60.	284.	421.
28	53.	188.	322.
29	46.	103.	229.
30	40.	56.	156.
31	36.	32.	104.
32	33.	16.	67.
33	31.	5.	41.
34	30.	0.	23.
35	29.	0.	13.
36	29.	0.	8.
37	28.	0.	4.
38	28.	0.	3.
39	28.	0.	1.

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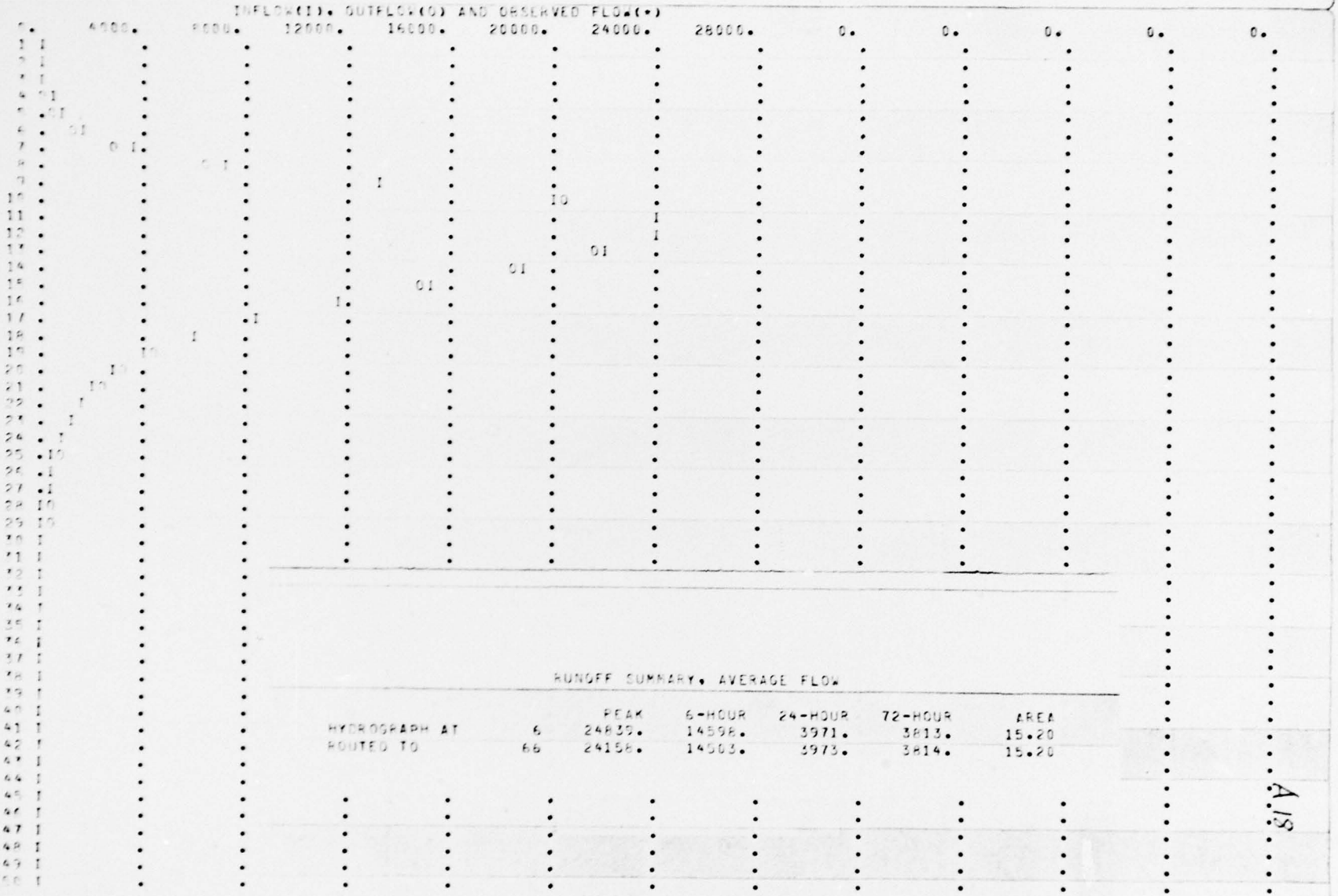
40	28.	0.	1.
41	28.	0.	0.
42	28.	0.	0.
43	28.	0.	0.
44	28.	0.	0.
45	28.	0.	0.
46	28.	0.	0.
47	28.	0.	0.
48	28.	0.	0.
49	28.	0.	0.
50	28.	0.	0.
SUM			190684.

	PEAK	6-HOUR	24-HOUR	72-HOUR	TOTAL VOLUME
CFS	24158.	14503.	3973.	3814.	190684.
INCHES		8.88	9.72	9.72	9.72
AC-FT		7195.	7884.	7884.	7884.

STATION 66

INFLOW(I), OUTFLOW(O) AND OBSERVED FLOW(*)



RUNOFF SUMMARY, AVERAGE FLOW

		PEAK	6-HOUR	24-HOUR	72-HOUR	AREA
HYDROGRAPH AT	6	24839.	14598.	3971.	3813.	15.20
ROUTED TO	66	24158.	14003.	3973.	3814.	15.20

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