Piscataquog River

New Hampshire

WEARE RESERVOIR DAM
DAM - BREAK FLOOD ANALYSIS

March 1986

US Army Corps
of Engineers
New England Division

DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION, CORPS OF ENGINEERS
424 TRAPELO ROAD
WALTHAM, MASSACHUSETTS 02254-9149

REPLY TO
ATTENTION OF
NEDPL-BU

NEARE RESERVOIR DAM
DAM-BREAK FLOOD ANALYSIS

This report was prepared for the State of New Hampshire Water Resources Board by the New England Division, Army Corps of Engineers under the Flood Plain Management Services program. This assistance is authorized under Section 206 of the Flood Control Act of 1960 (Public Law 86-645), which allows the Corps to furnish to others floodplain information and technical assistance needed in planning for the prudent use of floodplain areas. The New Hampshire Water Resources Board requested Corps assistance in developing dam-break flood analyses of State owned and operated dams classified as high hazard structures. This report represents the results of one such analysis, to be used by state and local planners in developing emergency operation and evacuation plans for areas downstream of the subject impoundment.

ACKNOWLEDGEMENTS

This report was prepared for the New England Division, Army Corps of Engineers, under contract by Vollmer Associates, Boston, Mass.

The contract was administered by Mr. Mark Geib, Hydrologic Engineering Section, Water Control Branch, Engineering Division.

Point of contact for this and other Flood Plain Management Services programs is Mr. Mark DeSouza, Long Range Planning Section, Basin Management Branch, Planning Division.

WEARE RESERVOIR DAM
DAM-BREAK FLOOD ANALYSIS

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WEARE RESERVOIR DAM
DAM-BREAK FLOOD ANALYSIS

1. INTRODUCTION AND PURPOSE

This report presents the findings of a dam-break flood analysis performed for Weare Reservoir Dam. The dam is owned, operated and maintained by the New Hampshire Water Resources Board. Included in the report are a description of pertinent features of the dam, the procedure used for the analysis, the assumed dam-break conditions, and the resulting effect on downstream flooded areas. This study was not performed because of any known likelihood of a dam-break at Weare Reservoir Dam. Its purpose is to provide quantitative information for emergency planning use.

2. DAM DESCRIPTION

Identification No.:	NH 00114
Name of Dam:	Weare Reservoir Dam
Town:	Weare
County and State:	Hillsborough, NH
Stream:	Piscataquog River

Weare Reservoir Dam is located on the Piscataquog River at the northern end of Weare Reservoir (also called Lake Horace) in the Town of Weare, New Hampshire, about 23 miles above the Piscataquog's confluence with the Merrimack River in Manchester. The dam is a run-of-the-river concrete gravity dam with a 157 foot long ogee spillway. The north abutment joins with an earth embankment extending a short distance to a steep hillside. The south end of the dam has a 24 foot long stoplog spillway adjacent to a very short embankment anchored on ledge. The crest of the stoplog spillway is two feet below the crest of the ogee spillway. Overall dam length is 340 feet and the maximum height from the top of embankment to the low point in the channel is 34 feet.

3. PERTINENT DATA

Data is taken from "Phase I Inspection Report" for Weare Reservoir Dam dated August 1978. In the September 1938 flood, the north abutment failed about 45 minutes after being overtopped, and completely washed away. The dam was extensively rebuilt in 1939 by the New Hamspshire Water Resources Board. The spillway was doubled in length and the embankments raised two feet. The north embankment was rebuilt with a more substantial design. The improvements served to triple the flow carrying capacity. Their modifications and improvements are included in this report.

a. Drainage Area

Weare Reservoir shown on the U.S.G.S. Quadrangle Sheet (Plates 1 and 2) is located along the Piscataquog River.

It has a total drainage area of 29.04 square miles and the watershed is highly wooded and mountainous.

b. Elevation (N.G.V.D.)

(1) Top of dam - 662.3
(2) Spillway crest - 655.3

c. Reservoir

(1) Length of recreation pool - 14,600 feet

d. Storage (Acre-Feet)

(1) Top of dam - 8,600 acre-feet
(2) Spillway crest - 6,300 acre-feet

e. Reservoir Surface (Acres)

(1) Top of dam - 360 acres
(2) Spillway crest - 326 acres

f. Dam

(1)	Type	Concrete gravity dam, earth/ embankments on ledge and earth
(2)	Length	340 feet
(3)	Height	34 feet
(4)	Top Width	10-feet (north embankment)
(5)	Side Slopes	North embankment
	(a) Upstream	Approximately 1 vertical to 2.5 horizontal
	(b) Downstream	1 vertical to 2 horizontal
(6)	Zoning	North embankment impervious core in center
(7)	Impervious core	soil, D = 0.12 mm
(8)	Cutoff	Portion of embankment on ledge has short concrete cutoff.

g. Spillway

(1)	Type	Two sections: concrete ogee weir and stoplog spillway.
(2)	Length of weir	157.3 feet; stoplog spillway additional 24 feet.

(3)	Crest elevation	Ogee weir - 655.3 Feet N.G.V.D.; Stoplog spillway 24 feet long, crest 2 feet lower than spillway.
(4)	Control mechanism	Stoplogs placed manually from overhead walkway
(5)	U/S Channel	Earth fill against u/s face.

h. *Regulating Outlets*

(1)	Invert	Stoplog spillway crest 653.2 feet N.G.V.D.
(2)	Size	24 feet long depressed sharp crest weir
(3)	Description	Depressed sharp crest weir
(4)	Control mechanism	Stoplogs placed manually from overhead walkway.

4. VALLEY DESCRIPTION

The river valley of the Piscataquog River below Weare Reservoir Dam is generally moderately sloping. The river runs adjacent to the communities of Chase Village and North Weare along State Route 77. The floodplains generally average 100 to 200 feet wide. At approximately five miles downstream from Weare Reservoir Dam, the Piscataquog River enters the flood control storage area (below elevation 416 feet NGVD) of the Hopkinton-Everett Reservoir. This reservoir is an existing US Army Corps of Engineers flood control reservoir on the Piscataquog River. There are no significant dams along the Piscataquog River in the study reach between Weare Reservoir and the Hopkinton-Everett Reservoir. The total study reach is shown on Plates 1 and 2.

5. MODEL DESCRIPTION

The Weare Reservoir Dam-Break Analysis was made using the NWS version, dated July 1984, of the "National Weather Service Dam-Break Flood Forecasting Computer Model", developed by D.L. Fread, Research Hydrologist, Office of Hydrology, National Weather Service, NOAA, Silver Spring, Maryland 20910. Input for the model consisted of: (a) storage characteristics of the reservoir, (b) selected geometry and duration of the breach development, (c) tributary inflows, (d) hydraulic roughness coefficients, and (e) active and

inactive flow regions. Based on the input data, the model computes the dam-break outflow hydrograph and routes it downstream. The analysis provides output on the attenuation of the flood stages, and timing of the flood wave as it progresses downstream.

6. ASSUMED DAM BREAK CONDITIONS

General: The magnitude of a flood resulting from the hypothetical failure of Weare Reservoir Dam is a function of many different parameters including size of breach, initial pool level and storage, rate of breach formation, channel and overbank roughness and antecedent flow conditions. Engineering assumptions of conditions which could be reasonably expected to exist prior to a failure of Weare Reservoir Dam and which were used in the analysis are presented below:

(1) Initial Pool Level: 657.5 feet N.G.V.D., 2.2 feet above spillway crest.

(2) Reservoir Inflow: Maximum known flood at dam site September 1938 = 4,000 cfs. This is an estimated flow which may have been affected by an upstream dam failure. Therefore, a flow of 2,600 cfs was assumed based on regional data.

(3) Breach Invert: 628.0 feet N.G.V.D.

(4) Breach Base Width: 60 feet, vertical side slopes 1V: 0.0 H.

(5) Time To Complete Formation of Breach: 0.5 hour.

(6) Downstream Channel Roughness: Manning's "n" = .050 to .140.

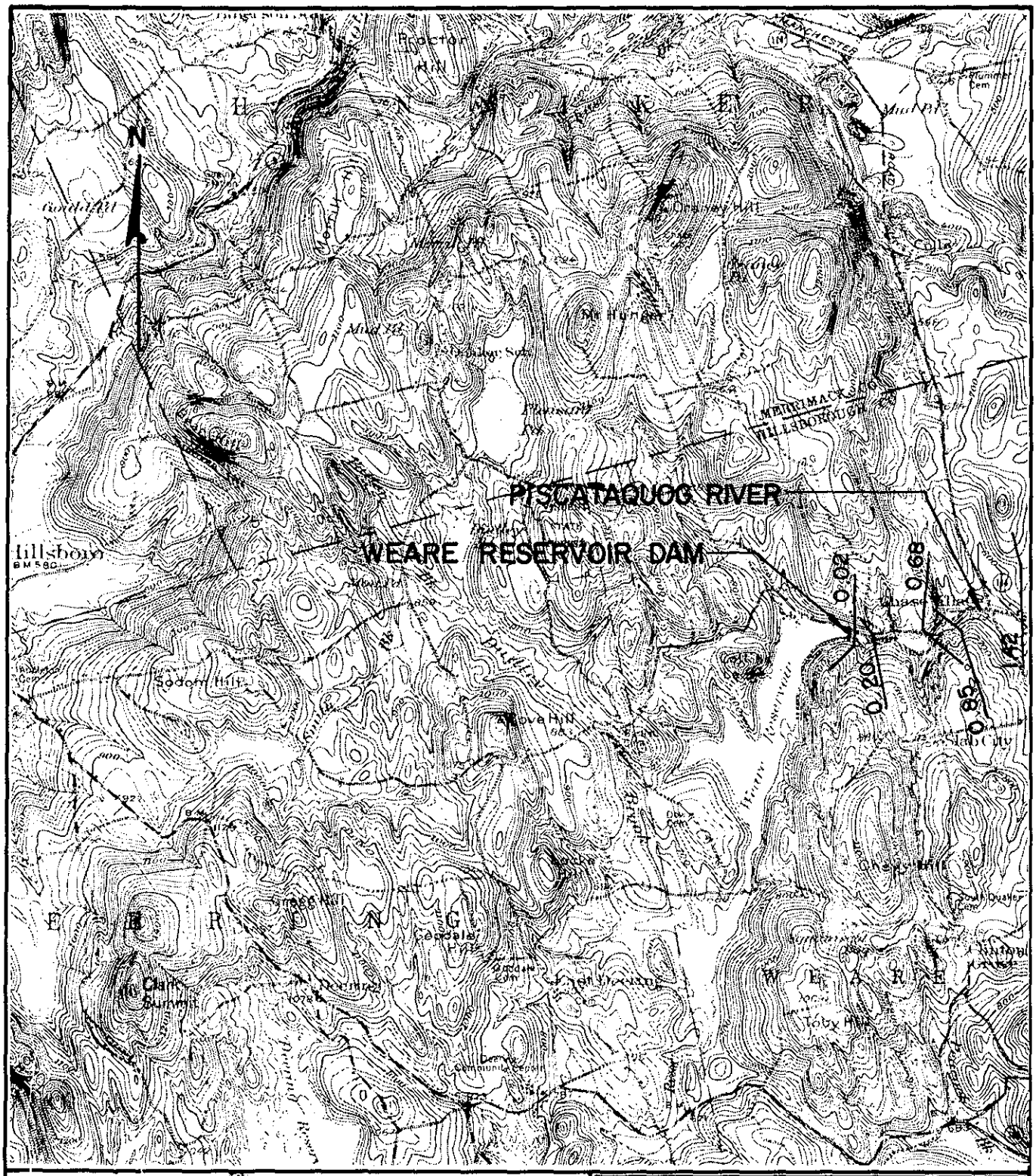
(7) Pre-Breach River Flows: The pre-breach river flow was assumed to be 2,600 cfs based on regional drainage area data acquired from two locations on the Contoocook River.

7. RESULTS

The peak dam break discharge from Weare Reservoir Dam is 27,000 cfs producing a rise of approximately 26.6 feet above NLW river elevation at a point 0.02 miles downstream from the dam. At a distance of 2.38 miles below Weare Reservoir Dam, in the community of North Weare, the peak discharge is 24,420 cfs with an associated rise over NLW stage of about 19.1 feet. Peak discharge, stages and timing for three stations downstream from Weare Reservoir are shown on Plate 5.

The stations are located 0.02, 2.38 and 4.20 miles downstream of the dam. The analysis indicates that the dam break flood does not greatly attenuate in the five mile long study reach. The dam break flood will be attenuated to insignificant levels, however, in the large flood control storage capacity of the Hopkinton-Everett Reservoir.

The input data file is in Appendix A, while Appendix B contains the output file.



MAP BASED UPON U.S.G.S.
HILLSBORO, N.H. QUADRANGLE
1957

CROSS-SECTION LOCATION IN
MILES BELOW DAM

SCALE IN MILES

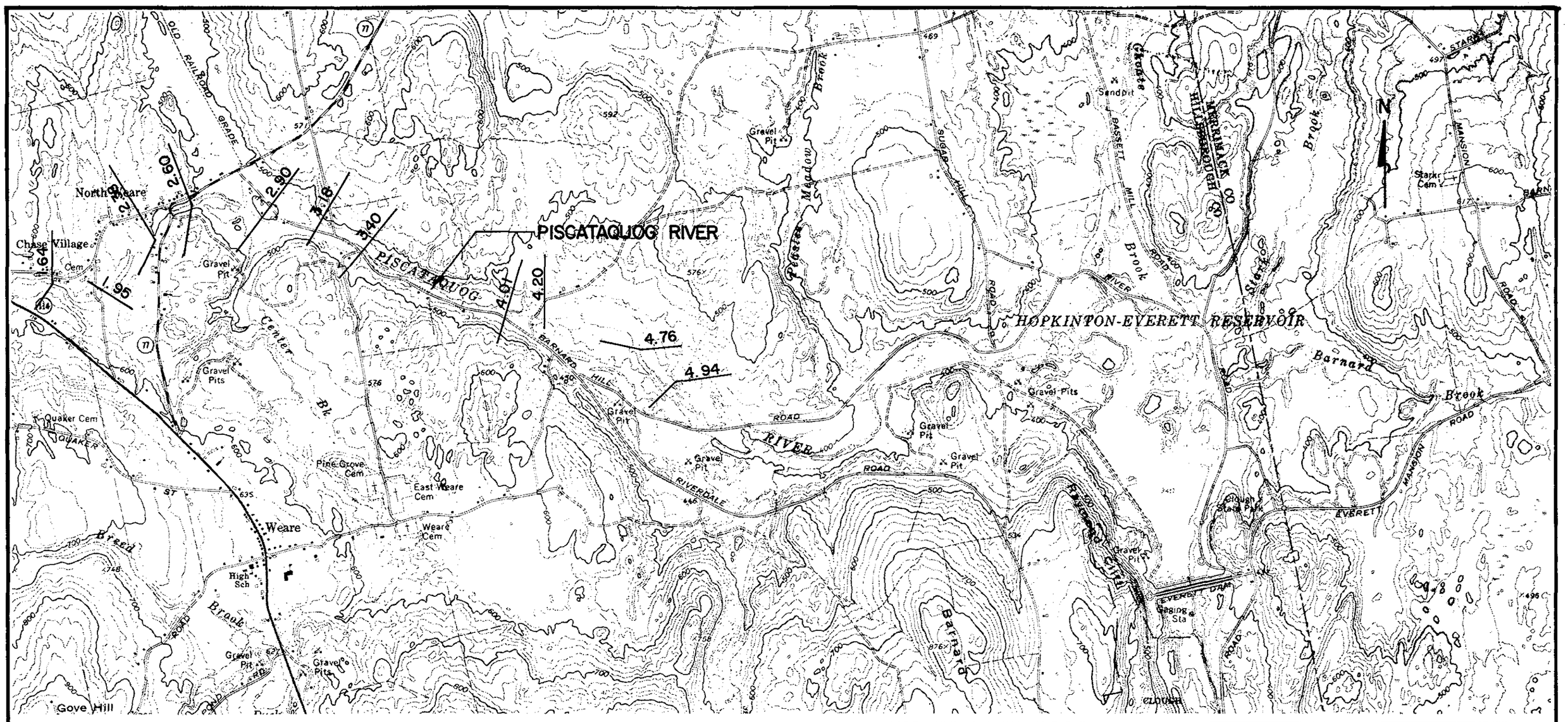
1 0 1

VOLLMER ASSOCIATES CONSULTING ENGINEERS BOSTON, MASS.	DEPARTMENT OF THE ARMY NEW ENGLAND DIVISION CORP OF ENGINEERS WALTHAM, MASS.

WEARE RESERVOIR DAM

DAM-BREAK FLOOD ANALYSIS

INDEX MAP No. 1



MAP BASED UPON U.S.G.S.
WEARE, N.H. QUADRANGLE
1967

CROSS-SECTION LOCATION IN
MILES BELOW DAM

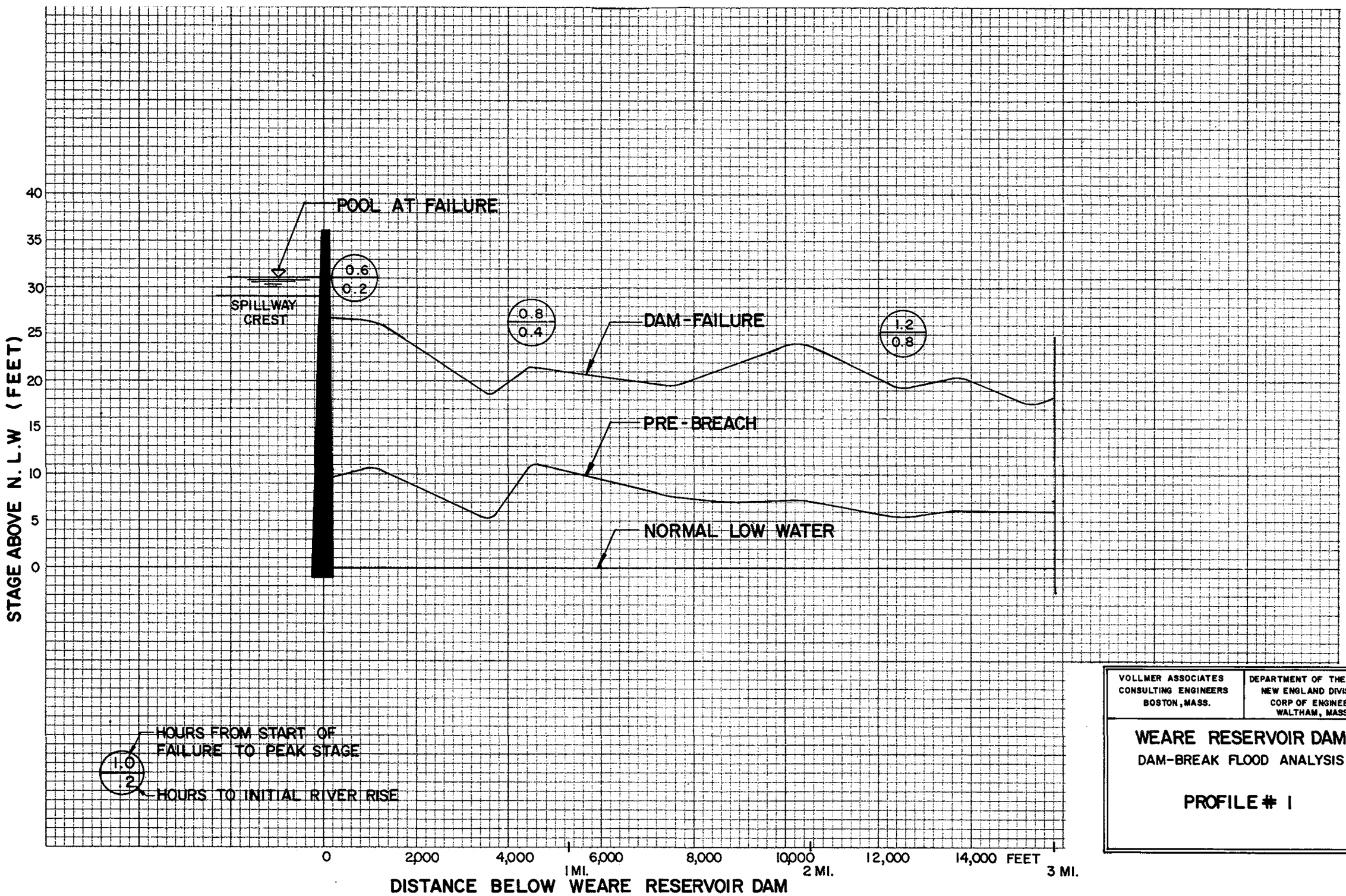
SCALE IN FEET
2000 0 2000

VOLLMER ASSOCIATES CONSULTING ENGINEERS BOSTON, MASS.	DEPARTMENT OF THE ARMY NEW ENGLAND DIVISION CORP OF ENGINEERS WALTHAM, MASS.

WEARE RESERVOIR DAM

DAM-BREAK FLOOD ANALYSIS

INDEX MAP No. 2



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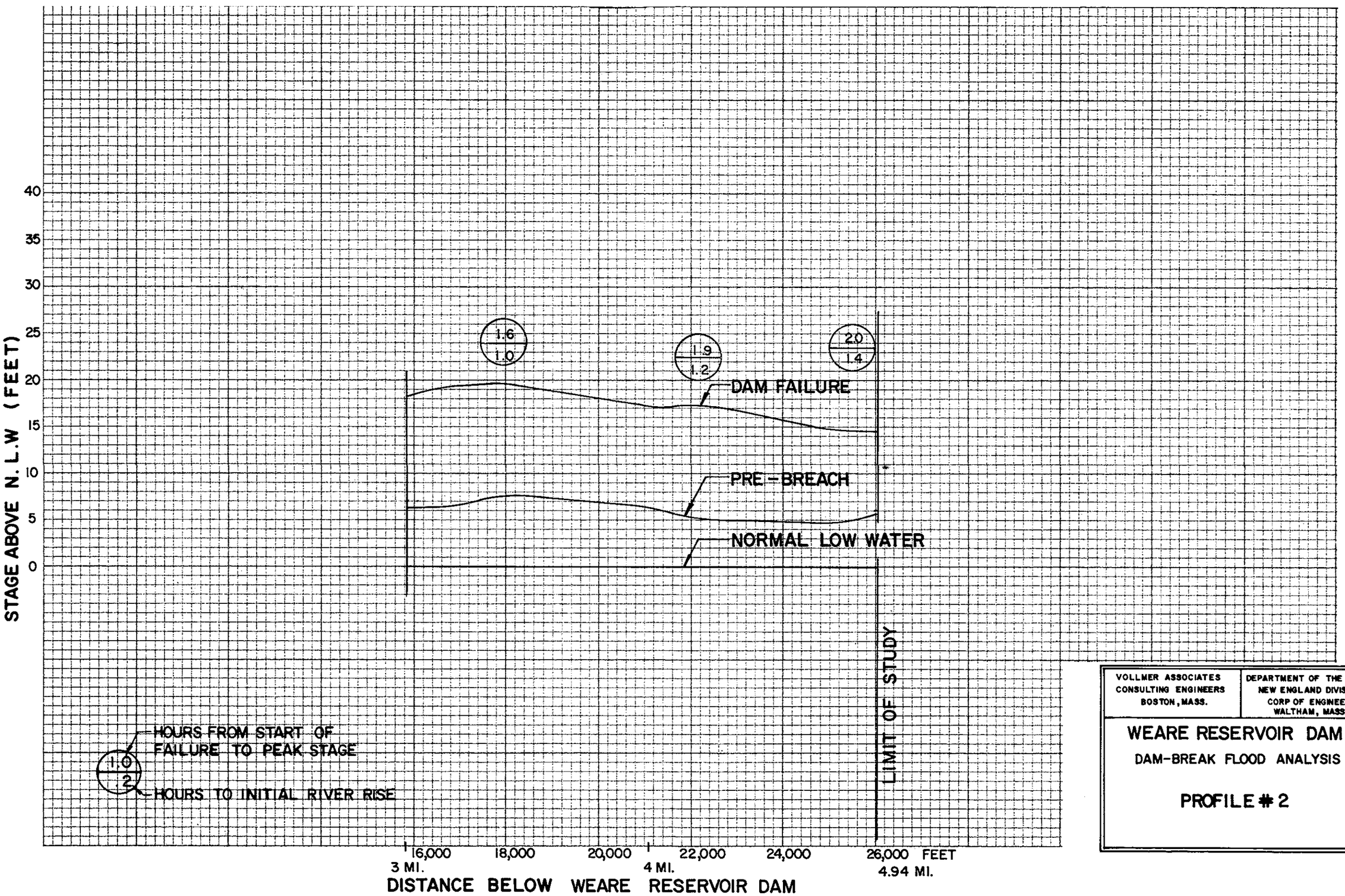
WEARE RESERVOIR DAM

DAM-BREAK FLOOD ANALYSIS

PROFILE # 1

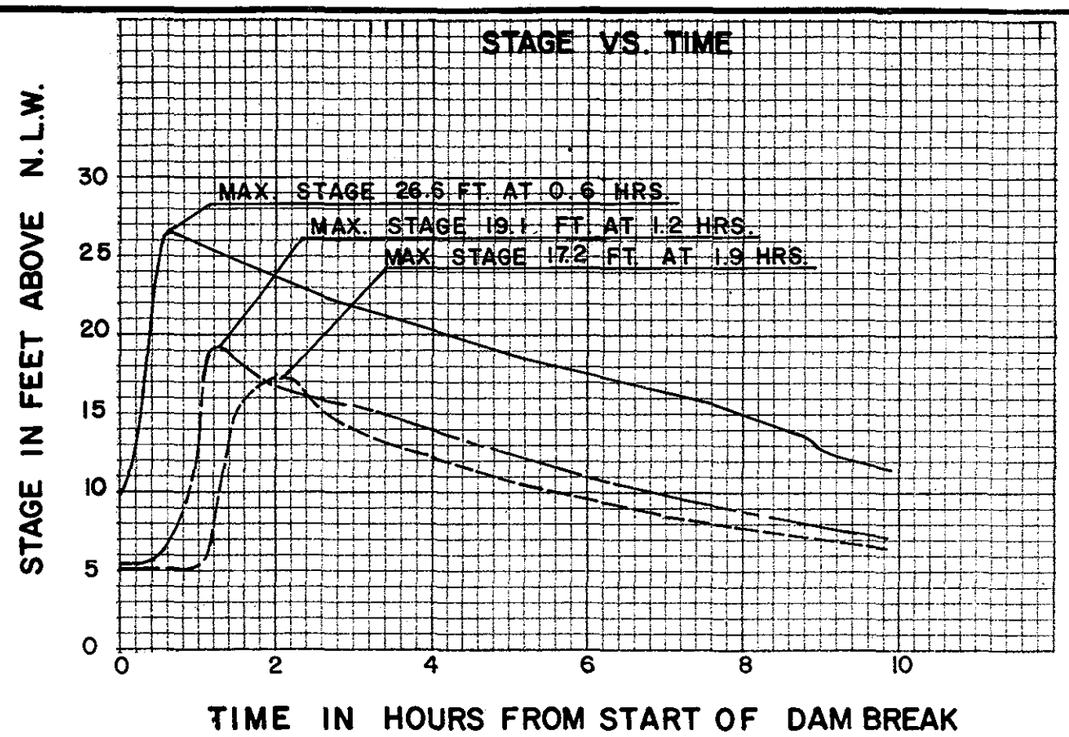


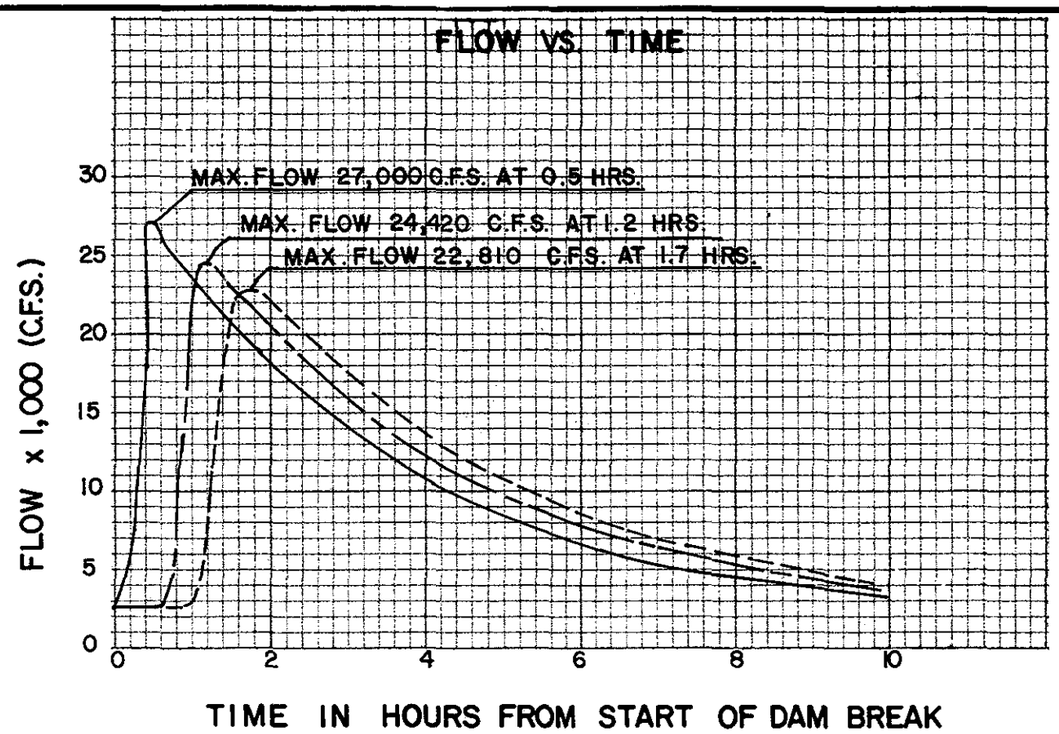
VOLLMER ASSOCIATES CONSULTING ENGINEERS BOSTON, MASS.	DEPARTMENT OF THE ARMY NEW ENGLAND DIVISION CORP OF ENGINEERS WALTHAM, MASS.

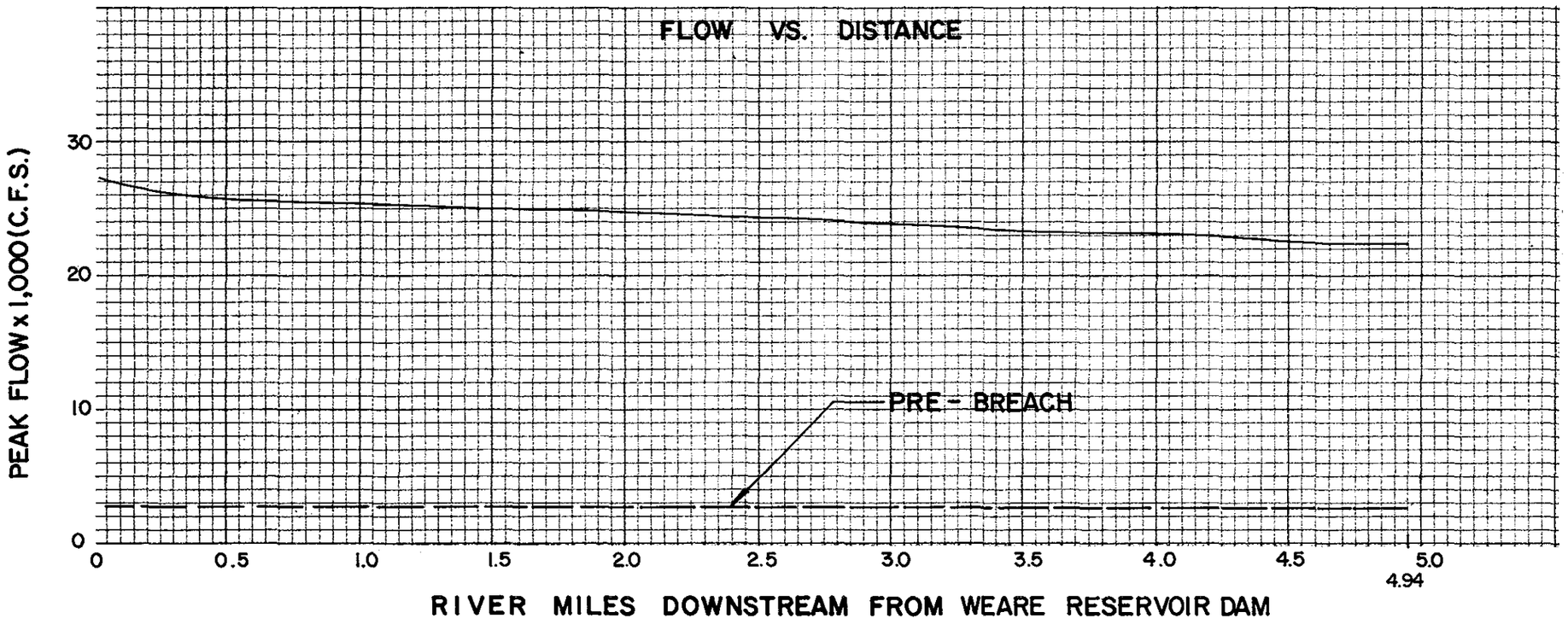
WEARE RESERVOIR DAM

DAM-BREAK FLOOD ANALYSIS

PROFILE # 2







N.L.W. DATUM (FT. N.G.V.D.)

STA. 1 R.M. 0.02 = 626.2 ———
STA. 2 R.M. 2.38 = 497.8 — - —
STA. 3 R.M. 4.20 = 436.0 — — —

VOLLMER ASSOCIATES CONSULTING ENGINEERS BOSTON, MASS.	DEPARTMENT OF THE ARMY NEW ENGLAND DIVISION CORP OF ENGINEERS WALTHAM, MASS.

WEARE RESERVOIR DAM

DAM-BREAK FLOOD ANALYSIS

BASE FLOOD DISCHARGES
STAGES & TIMING

APPENDIX A
INPUT DATA FILE

WEARE RESERVOIR DAM PISCATAQUOG RIVER VOLLMER ASSOCIATES
BOSTON, MA 02116 NOVEMBER 26,1985 #DB1

1	0	0	0	11	0	0	0
11700	11100	10400	9100	7800	6850	6300	0
672	670	668	664	660	657	655.3	628
3.37	657.2	0	628	60	0.5	628	1
657.2	662.3	655.3	0	0	0	0	0
0	2600	6000	8000	10000	12000	16000	18000
0	1.9	4	5	6	6.8	8	8.8
1	10						
2600	2600	2600	2600	2600	2600	2600	2600
2600	2600	2600					
16	5	6	4	0	0	0	
1	4	8	12	14	16		
0.02							
625.7	626.2	635	640	660			
0	20	153	195	440			
0.20							
619.3	620	634	640	660			
0	20	80	440	616			
0.68							
599.3	600	614	620	640			
0	22	140	264	396			
0.85							
579.5	580	588	600	620			
0	30	60	572	630			
1.42							
559.4	560	572	580	600			
0	24	100	880	1540			
1.64							
538.5	539.3	549.4	560	580			
0	26	155	250	450			
1.95							
519	520	534	540	560			
0	40	80	400	1050			
2.38							
496.3	497.8	505.9	520	540			
0	54	105	350	1650			
2.60							
478	480	486	500	520			
0	55	93	180	400			
2.90							
470.5	472.5	478	480	500			
0	55	150	400	800			

3.18							
463.5	465.5	471.5	480	500			
0	55	198	400	575			
3.40							
458	460	466	480	500			
0	30	80	350	800			
4.01							
437.5	440	446	460	480			
0	30	100	675	900			
4.20							
433.5	436	440	450	460			
0	30	250	362	475			
4.76							
421	424	430	440	460			
0	30	169	400	1900			
4.94							
411	414	420	430	440			
0	30	175	263	350			
0.065	0.085	0.100	0.120	0.140			
0.065	0.085	0.100	0.120	0.140			
0.065	0.090	0.100	0.120	0.140			
0.065	0.085	0.090	0.100	0.140			
0.060	0.075	0.085	0.100	0.140			
0.060	0.075	0.085	0.100	0.140			
0.060	0.075	0.085	0.100	0.140			
0.060	0.075	0.085	0.100	0.140			
0.050	0.065	0.070	0.080	0.140			
0.050	0.065	0.070	0.080	0.140			
0.050	0.065	0.070	0.080	0.140			
0.050	0.065	0.070	0.080	0.140			
0.050	0.065	0.070	0.080	0.140			
0.050	0.065	0.070	0.080	0.140			
0.050	0.065	0.070	0.080	0.140			
0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
0.10	0.10	0.10	0.10	0.10	0.10	0.10	
0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	
0	0	0.00	0.00	48	0	0	0

APPENDIX B
OUTPUT DATA FILE

PROGRAM DAMBRK---VERSION-07/18/84

ANALYSIS OF THE DOWNSTREAM FLOOD HYDROGRAPH

PRODUCED BY THE DAM BREAK OF

WEARE RESERVOIR DAM

ON

PISCATAQUOG RIVER

ANALYSIS BY

VOLLMER ASSOCIATES
BOSTON, MA 02116
NOVEMBER 26,1985 #081

BASED ON PROCEDURE DEVELOPED BY

DANNY L. FREAD, PH.D., RESEARCH HYDROLOGIST
HYDROLOGIC RESEARCH LABORATORY

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HYDROLOGIC RESEARCH LABORATORY
W23, OFFICE OF HYDROLOGY
NOAA, NATIONAL WEATHER SERVICE
SILVER SPRING, MARYLAND 20910

1

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******************************
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***                        ***
***  SUMMARY OF INPUT DATA ***
***                        ***
******************************
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INPUT CONTROL PARAMETERS FOR WEARE RESERVOIR DAM

PARAMETER	VARIABLE	VALUE
NUMBER OF DYNAMIC ROUTING REACHES	KKN	1
TYPE OF RESERVOIR ROUTING	KUI	0
MULTIPLE DAM INDICATOR	MULDAM	0
PRINTING INSTRUCTIONS FOR INPUT SUMMARY	KOMP	0
NO. OF RESERVOIR INFLOW HYDROGRAPH POINTS	ITEH	11
INTERVAL OF CROSS-SECTION INFO PRINTED OUT WHEN JNK=9	NPRT	0
FLOOD-PLAIN MODEL PARAMETER	KFL²	0
LANDSLIDE PARAMETER	KSL	0

WEARE RESERVOIR DAM RESERVOIR

TABLE OF ELEVATION VS VOLUME

VOLUME (ACRE-FEET) SA(K)	ELEVATION (FT) HSA(K)

11700.0	672.00
11100.0	670.00
10400.0	668.00
9100.0	664.00
7800.0	660.00
6850.0	657.00
6300.0	655.30
.0	628.00

WEARE RESERVOIR DAM RESERVOIR

TABLE OF ELEVATION VS SURFACE AREA

SURFACE AREA (ACRES) SA(K)	ELEVATION (FT) HSA(K)
346.8	672.00
253.2	670.00
446.8	668.00
203.2	664.00
446.8	660.00
186.5	657.00
460.5	655.30
1.0	628.00

1

WEARE RESERVOIR DAM RESERVOIR AND BREACH PARAMETERS

PARAMETER	UNITS	VARIABLE	VALUE
LENGTH OF RESERVOIR	MI	RLM	3.37
ELEVATION OF WATER SURFACE	FT	YO	657.20
SIDE SLOPE OF BREACH		Z	.00
ELEVATION OF BOTTOM OF BREACH	FT	YBMIN	628.00
WIDTH OF BASE OF BREACH	FT	BB	60.00
TIME TO MAXIMUM BREACH SIZE	HR	TFH	.50
ELEVATION (MSL) OF BOTTOM OF DAM	FT	DATUM	628.00
VOLUME-SURFACE AREA PARAMETER		VOL	1.00

ELEVATION OF WATER WHEN BREACHED	FT	HF	657.20
ELEVATION OF TOP OF DAM	FT	HD	662.30
ELEVATION OF UNCONTROLLED SPILLWAY CREST	FT	HSP	655.30
ELEVATION OF CENTER OF GATE OPENINGS	FT	HGT	.00
DISCHARGE COEF. FOR UNCONTROLLED SPILLWAY		CS	.00
DISCHARGE COEF. FOR GATE FLOW		CG	.00
DISCHARGE COEF. FOR UNCONTROLLED WEIR FLOW		CDO	.00
DISCHARGE THRU TURBINES	CFS	QT	.00

CDO SHOULD NOT BE 0.00 IF OVERTOPPING MAY OCCUR

QSPILL(K,1)	HEAD(K,1)
0.	.0
2600.	1.9
6000.	4.0
8000.	5.0
10000.	6.0
12000.	6.8
16000.	8.0
18000.	8.8

DHF(INTERVAL BETWEEN INPUT HYDROGRAPH ORDINATES) = 1.00 HRS.

TEH(TIME AT WHICH COMPUTATIONS TERMINATE) = 10.0000 HRS.

INFLOW HYDROGRAPH TO WEARE RESERVOIR DAM
****

2600.00	2600.00	2600.00	2600.00	2600.00	2600.00	2600.00	2600.00
2600.00	2600.00	2600.00					

TIME OF INFLOW HYDROGRAPH ORDINATES

.0000	1.0000	2.0000	3.0000	4.0000	5.0000	6.0000	7.0000
8.0000	9.0000	10.0000					

1

CROSS-SECTIONAL PARAMETERS FOR PISCATAQUOG RIVER
BELOW WEARE RESERVOIR DAM

PARAMETER	VARIABLE	VALUE
NUMBER OF CROSS-SECTIONS	NS	16
MAXIMUM NUMBER OF TOP WIDTHS	NCS	5
NUMBER OF CROSS-SECTIONAL HYDROGRAPHS TO PLOT	NTT	6
TYPE OF OUTPUT OTHER THAN HYDROGRAPH PLOTS	JNK	4
CROSS-SECTIONAL SMOOTHING PARAMETER	KSA	0
DOWNSTREAM SUPERCRITICAL OR NOT	KSUPC	0
NO. OF LATERAL INFLOW HYDROGRAPHS	LQ	0
NO. OF POINTS IN GATE CONTROL CURVE	KCG	0

NUMBER OF CROSS-SECTION WHERE HYDROGRAPH DESIRED
(MAX NUMBER OF HYDROGRAPHS = 6)

1 4 8 12 14 16

CROSS-SECTIONAL VARIABLES FOR PISCATAQUOG RIVER
BELOW WEARE RESERVOIR DAM

PARAMETER	UNITS	VARIABLE
LOCATION OF CROSS-SECTION	MI	XS(I)

```
ELEVATION (MSL) OF FLOODING AT CROSS-SECTION FT     FSTG(I)

ELEV CORRESPONDING TO EACH TOP WIDTH        FT     HS(K,I)
TOP WIDTH CORRESPONDING TO EACH ELEV        FT     BS(K,I)
     (ACTIVE FLOW PORTION)
TOP WIDTH CORRESPONDING TO EACH ELEV        FT    BSS(K,I)
     (OFF-CHANNEL PORTION)

SURFACE AREA CORRESPONDING TO EACH ELEV   ACRES   DSA(K,I)
     (ACTIVE FLOW PORTION)
SURFACE AREA CORRESPONDING TO EACH ELEV   ACRES   SSA(K,I)
     (OFF-CHANNEL PORTION)

NUMBER OF CROSS-SECTION                            I
NUMBER OF ELEVATION LEVEL                          K
```

1

```
CROSS-SECTION NUMBER  1
************************

XS(I) =    .020   FSTG(I) =     .00        XSL(I) =     .0        XSR(I) =     .0


HS  ...    625.7   626.2   635.0   640.0   660.0
BS  ...       .0    20.0   153.0   195.0   440.0
BSS ...       .0      .0      .0      .0      .0


CROSS-SECTION NUMBER  2
************************

XS(I) =    .200   FSTG(I) =     .00        XSL(I) =     .0        XSR(I) =     .0


HS  ...    619.3   620.0   634.0   640.0   660.0
BS  ...       .0    20.0    80.0   440.0   616.0
BSS ...       .0      .0      .0      .0      .0


CROSS-SECTION NUMBER  3
************************

XS(I) =    .680   FSTG(I) =     .00        XSL(I) =     .0        XSR(I) =     .0
```

```
HS  ...    599.3   600.0   614.0   620.0   640.0
BS  ...      .0     22.0   140.0   264.0   396.0
BSS ...      .0      .0      .0      .0      .0
```

CROSS-SECTION NUMBER 4
****

XS(I) = .850 FSTG(I) = .00 XSL(I) = .0 XSR(I) = .0

```
HS  ...    579.5   580.0   588.0   600.0   620.0
BS  ...      .0     30.0    60.0   572.0   630.0
BSS ...      .0      .0      .0      .0      .0
```

1

CROSS-SECTION NUMBER 5
****

XS(I) = 1.420 FSTG(I) = .00 XSL(I) = .0 XSR(I) = .0

```
HS  ...    559.4   560.0   572.0   580.0   600.0
BS  ...      .0     24.0   100.0   880.0  1540.0
BSS ...      .0      .0      .0      .0      .0
```

CROSS-SECTION NUMBER 6
****

XS(I) = 1.640 FSTG(I) = .00 XSL(I) = .0 XSR(I) = .0

```
HS  ...    538.5   539.3   549.4   560.0   580.0
BS  ...      .0     26.0   155.0   250.0   450.0
BSS ...      .0      .0      .0      .0      .0
```

CROSS-SECTION NUMBER 7
****

XS(I) = 1.950 FSTG(I) = .00 XSL(I) = .0 XSR(I) = .0

HS ...	519.0	520.0	534.0	540.0	560.0
BS ...	.0	40.0	80.0	400.0	1050.0
BSS ...	.0	.0	.0	.0	.0

CROSS-SECTION NUMBER 8
****

XS(I) = 2.380 FSTG(I) = .00 XSL(I) = .0 XSR(I) = .0

HS ...	496.3	497.8	505.9	520.0	540.0
BS ...	.0	54.0	105.0	350.0	1650.0
BSS ...	.0	.0	.0	.0	.0

1

CROSS-SECTION NUMBER 9
****

XS(I) = 2.600 FSTG(I) = .00 XSL(I) = .0 XSR(I) = .0

HS ...	478.0	480.0	486.0	500.0	520.0
BS ...	.0	55.0	93.0	180.0	400.0
BSS ...	.0	.0	.0	.0	.0

CROSS-SECTION NUMBER 10
****

XS(I) = 2.900 FSTG(I) = .00 XSL(I) = .0 XSR(I) = .0

HS ...	470.5	472.5	478.0	480.0	500.0
BS ...	.0	55.0	150.0	400.0	800.0
BSS ...	.0	.0	.0	.0	.0

CROSS-SECTION NUMBER 11
****

XS(I) = 3.180 FSTG(I) = .00 XSL(I) = .0 XSR(I) = .0

HS ...	463.5	465.5	471.5	480.0	500.0
BS ...	.0	55.0	198.0	400.0	575.0
BSS ...	.0	.0	.0	.0	.0

CROSS-SECTION NUMBER 12
****

XS(I) = 3.400 FSTG(I) = .00 XSL(I) = .0 XSR(I) = .0

HS ...	458.0	460.0	466.0	480.0	500.0
BS ...	.0	30.0	80.0	350.0	800.0
BSS ...	.0	.0	.0	.0	.0

1

CROSS-SECTION NUMBER 13
****

XS(I) = 4.010 FSTG(I) = .00 XSL(I) = .0 XSR(I) = .0

HS ...	437.5	440.0	446.0	460.0	480.0
BS ...	.0	30.0	100.0	675.0	900.0
BSS ...	.0	.0	.0	.0	.0

CROSS-SECTION NUMBER 14
****

XS(I) = 4.200 FSTG(I) = .00 XSL(I) = .0 XSR(I) = .0

HS ...	433.5	436.0	440.0	450.0	460.0
BS ...	.0	30.0	250.0	362.0	475.0
BSS ...	.0	.0	.0	.0	.0

CROSS-SECTION NUMBER 15
****

XS(I) = 4.760 FSTG(I) = .00 XSL(I) = .0 XSR(I) = .0

HS ...	421.0	424.0	430.0	440.0	460.0
BS ...	.0	30.0	169.0	400.0	1900.0
BSS ...	.0	.0	.0	.0	.0

CROSS-SECTION NUMBER 16
****

XS(I) = 4.940 FSTG(I) = .00 XSL(I) = .0 XSR(I) = .0

HS ...	411.0	414.0	420.0	430.0	440.0
BS ...	.0	30.0	175.0	263.0	350.0
BSS ...	.0	.0	.0	.0	.0

1

MANNING N ROUGHNESS COEFFICIENTS FOR THE GIVEN REACHES
(CM(K,I),K=1,NCS) WHERE I = REACH NUMBER
****

REACH 1 ...	.065	.085	.100	.120	.140
REACH 2 ...	.065	.085	.100	.120	.140
REACH 3 ...	.065	.090	.100	.120	.140
REACH 4 ...	.065	.085	.090	.100	.140
REACH 5 ...	.060	.075	.085	.100	.140
REACH 6 ...	.060	.075	.085	.100	.140

REACH 7 ...	.060	.075	.085	.100	.140
REACH 8 ...	.060	.075	.085	.100	.140
REACH 9 ...	.050	.065	.070	.080	.140
REACH 10 ...	.050	.065	.070	.080	.140
REACH 11 ...	.050	.065	.070	.080	.140
REACH 12 ...	.050	.065	.070	.080	.140
REACH 13 ...	.050	.065	.070	.080	.140
REACH 14 ...	.050	.065	.070	.080	.140
REACH 15 ...	.050	.065	.070	.080	.140

1

CROSS-SECTIONAL VARIABLES FOR PISCATAQUOG RIVER
BELOW WEARE RESERVOIR DAM

PARAMETER	UNITS	VARIABLE
MINIMUM COMPUTATIONAL DISTANCE USED BETWEEN CROSS-SECTIONS	MI	DXM(I)
CONTRACTION - EXPANSION COEFFICIENTS BETWEEN CROSS-SECTIONS		FKC(I)

REACH NUMBER	DXM(I)	FKC(I)
1	.100	.000
2	.100	.000
3	.100	.000
4	.100	.000
5	.100	.000
6	.100	.000
7	.100	.000

8	.100	.000
9	.100	.000
10	.100	.000
11	.100	.000
12	.100	.000
13	.100	.000
14	.100	.000
15	.100	.000

1

DOWNSTREAM FLOW PARAMETERS FOR PISCATAQUOG RIVER
BELOW WEARE RESERVOIR DAM

PARAMETER	UNITS	VARIABLE	VALUE
MAX DISCHARGE AT DOWNSTREAM EXTREMITY	CFS	QMAXD	.0
MAX LATERAL OUTFLOW PRODUCING LOSSES	CFS/FT	QLL	.000
INITIAL SIZE OF TIME STEP	HR	DTHM	.0000
INITIAL WATER SURFACE ELEVATION DOWNSTREAM	FT	YDN	.00
SLOPE OF CHANNEL DOWNSTREAM OF DAM	FT/MI	SOM	48.00
THETA WEIGHTING FACTOR		THETA	.00
CONVERGENCE CRITERION FOR STAGE	FT	EPSY	.000
TIME AT WHICH DAM STARTS TO FAIL	HR	TFI	10.00

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*** SUMMARY OF OUTPUT DATA ***
*** ***
****
****

CROSS-SECTION NO.	MILE	BOTTOM ELEVATION FEET	REACH NO.	REACH LENGTH MILES	SLOPE FT/MI	MESAGE
1	.02	625.70				
2	.20	619.30	1	.18	35.56	
3	.68	599.30	2	.48	41.67	
4	.85	579.50	3	.17	116.47	
5	1.42	559.40	4	.57	35.26	
6	1.64	538.50	5	.22	95.00	
7	1.95	519.00	6	.31	62.90	
8	2.38	496.30	7	.43	52.79	
9	2.60	478.00	8	.22	83.18	
10	2.90	470.50	9	.30	25.00	
11	3.18	463.50	10	.28	25.00	
12	3.40	458.00	11	.22	25.00	
13	4.01	437.50	12	.61	33.61	
14	4.20	433.50	13	.19	21.05	
15	4.76	421.00	14	.56	22.32	
16	4.94	411.00	15	.18	55.56	

TOTAL NUMBER OF CROSS SECTIONS (ORIGINAL+INTERPOLATED) (N) = 43 (MAXIMUM ALLOWABLE = 200

SLOPE INFORMATION FOR INPUT REACHES

REACH NO.	WATER ELEVATION FEET	HYDRAULIC DEPTH FEET	BOTTOM SLOPE FT/MI	DYNAMIC SLOPE FT/MI	TOTAL SLOPE FT/MI	CRITICAL SLOPE FT/MI	MANNING'S N
1	622.50	.15	35.56	1.02	36.58	1522.53	.102
1	623.10	.30	35.56	1.41	36.97	1455.75	.112
1	634.50	6.32	35.56	4.26	39.81	599.63	.120
1	640.00	6.15	35.56	4.56	40.12	710.39	.130

1	660.00	19.71	35.56	7.36	42.91	558.71	.140
2	609.30	.18	41.67	.99	42.66	1446.25	.102
2	610.00	.35	41.67	1.38	43.04	1382.84	.112
2	624.00	8.40	41.67	4.33	46.00	545.39	.120
2	630.00	6.56	41.67	4.31	45.97	695.02	.130
2	650.00	21.52	41.67	6.98	48.65	542.56	.140
3	589.40	.15	116.47	.57	117.04	1535.77	.102
3	590.00	.29	116.47	.80	117.27	1534.40	.115
3	601.00	7.55	116.47	2.56	119.03	565.30	.120
3	610.00	7.79	116.47	2.79	119.26	656.42	.130
3	630.00	24.50	116.47	4.46	120.93	519.65	.140
4	569.45	.14	35.26	.99	36.25	1572.69	.102
4	570.00	.27	35.26	1.37	36.64	1503.69	.112
4	580.00	6.99	35.26	4.25	39.51	532.54	.115
4	590.00	6.08	35.26	4.22	39.48	607.45	.120
4	610.00	20.76	35.26	7.52	42.79	549.12	.140
5	548.95	.18	95.00	.65	95.65	1373.99	.100
5	549.65	.35	95.00	.88	95.88	1260.27	.108
5	560.70	6.57	95.00	2.53	97.53	520.29	.112
5	570.00	6.85	95.00	2.72	97.72	583.79	.120
5	590.00	19.57	95.00	4.52	99.52	560.05	.140
6	528.75	.23	62.90	.87	63.77	1256.19	.100
6	529.65	.46	62.90	1.18	64.08	1152.21	.108
6	541.70	7.59	62.90	3.22	66.12	495.81	.112
6	550.00	8.26	62.90	3.52	66.42	548.45	.120
6	570.00	17.91	62.90	5.33	68.23	576.79	.140
7	507.65	.32	52.79	1.06	53.85	1123.63	.100
7	508.90	.64	52.79	1.44	54.23	1030.62	.108
7	519.95	8.35	52.79	3.62	56.41	480.39	.112
7	530.00	8.26	52.79	3.83	56.62	548.60	.120
7	550.00	15.07	52.79	5.47	58.26	610.99	.140
8	487.15	.44	83.18	.94	84.13	1013.85	.100

8	488.90	.88	83.18	1.28	84.46	929.93	.108
8	495.95	5.98	83.18	2.60	85.78	536.99	.112
8	510.00	11.89	83.18	3.50	86.69	485.79	.120
8	530.00	15.66	83.18	4.45	87.63	603.23	.140
9	474.25	.50	25.00	1.70	26.70	875.55	.095
9	476.25	1.00	25.00	2.32	27.32	808.98	.102
9	482.00	4.60	25.00	4.01	29.01	510.45	.105
9	490.00	6.17	25.00	4.65	29.65	507.97	.110
9	510.00	17.82	25.00	8.60	33.60	577.85	.140
10	467.00	.50	25.00	1.70	26.70	875.55	.095
10	469.00	1.00	25.00	2.32	27.32	808.98	.102
10	474.75	4.12	25.00	3.86	28.86	529.67	.105
10	480.00	5.66	25.00	4.51	29.51	522.95	.110
10	500.00	19.11	25.00	8.82	33.82	564.51	.140
11	460.75	.50	25.00	1.70	26.70	875.55	.095
11	462.75	1.00	25.00	2.32	27.32	808.98	.102
11	468.75	4.22	25.00	3.89	28.89	525.20	.105
11	480.00	8.97	25.00	5.29	30.29	448.46	.110
11	500.00	20.35	25.00	9.02	34.02	552.83	.140
12	447.75	.56	33.61	1.52	35.13	841.84	.095
12	450.00	1.13	33.61	2.08	35.68	777.84	.102
12	456.00	4.38	33.61	3.39	36.99	519.05	.105
12	470.00	9.00	33.61	4.54	38.15	447.96	.110
12	490.00	21.45	33.61	7.81	41.41	543.14	.140
13	435.50	.63	21.05	2.00	23.05	812.79	.095
13	438.00	1.25	21.05	2.74	23.79	750.99	.102
13	443.00	2.93	21.05	3.76	24.81	593.36	.105
13	455.00	9.17	21.05	5.86	26.91	445.12	.110
13	470.00	21.41	21.05	10.14	31.19	543.47	.140
14	427.25	.69	22.32	2.00	24.33	787.37	.095
14	430.00	1.38	22.32	2.74	25.06	727.51	.102
14	435.00	2.96	22.32	3.65	25.98	591.37	.105
14	445.00	9.38	22.32	5.72	28.04	441.85	.110
14	460.00	14.45	22.32	8.52	30.84	619.55	.140

15	416.00	.75	55.56	1.31	56.87	764.86	.095
15	419.00	1.50	55.56	1.79	57.34	706.71	.102
15	425.00	3.78	55.56	2.51	58.07	544.73	.105
15	435.00	9.56	55.56	3.62	59.18	439.02	.110
15	450.00	14.40	55.56	5.25	60.81	620.32	.140

TOTAL VOLUME IN RESERVOIR BEHIND
WEARE RESERVOIR DAM = 6889.0 ACRE-FEET

DEFINITION OF VARIABLES IN RESERVOIR DEPLETION TABLE

PARAMETER	UNITS	VARIABLE
TIME STEP FROM START OF ANALYSIS		I
ITERATIONS NECESSARY TO SOLVE FLOW EQUATIONS		K
ELAPSED TIME FROM START OF ANALYSIS	HRS	TTP(I)
TOTAL OUTFLOW FROM DAM	CFS	Q(I)
ELEVATION OF WATER SURFACE AT DAM	FT	H2
ELEVATION OF BOTTOM OF BREACH	FT	YB
EST DEPTH OF FLOW IMMEDIATELY DOWNSTREAM	FT	D
SUBMERGENCE COEFFICIENT		SUB
VELOCITY CORRECTION		VCOR
TOTAL VOLUME DISCHARGED FROM TIME OF BREACH	AC-FT	OUTVOL
BREACH WIDTH FT BB		
RECTANGULAR BREACH DISCHARGE COEFFICIENT		COFR

INFLOW TO RESERVOIR CFS QI(I)

BREACH OUTFLOW CFS QBRECH

SPILLWAY OUTFLOW CFS QSPIL

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RESERVOIR DEPLETION TABLE

I	K	TTP(I)	Q(I)	H2	YB	D	SUB	VCOR	OUTVOL	BB	COFR	QI(I)	QBRECH	QSPIL
***	**	******	********	*******	*******	*******	****	****	*********	****	****	*****	******	*****
1	0	.000	2600	657.20	657.20	634.27	1.00	1.00	.0	.0	3.10	2600.	0.	2600.
2	1	.010	2601	657.20	656.62	634.26	1.00	1.01	2.1	1.2	3.10	2600.	2.	2600.
3	1	.020	2609	657.20	656.03	634.27	1.00	1.00	4.3	2.4	3.10	2600.	9.	2600.
4	1	.030	2625	657.20	655.45	634.29	1.00	1.00	6.5	3.6	3.10	2600.	26.	2600.
5	1	.040	2652	657.20	654.86	634.33	1.00	1.00	8.6	4.8	3.10	2600.	53.	2600.
6	1	.050	2692	657.20	654.28	634.38	1.00	1.00	10.9	6.0	3.10	2600.	93.	2599.
7	1	.060	2745	657.20	653.70	634.45	1.00	1.00	13.1	7.2	3.10	2600.	147.	2599.
8	1	.070	2813	657.20	653.11	634.55	1.00	1.00	15.4	8.4	3.10	2600.	215.	2598.
9	1	.080	2896	657.20	652.53	634.67	1.00	1.00	17.8	9.6	3.10	2600.	301.	2596.
10	1	.090	2997	657.20	651.94	634.81	1.00	1.00	20.2	10.8	3.10	2600.	403.	2594.
11	1	.100	3116	657.19	651.36	634.98	1.00	1.00	22.7	12.0	3.10	2600.	525.	2592.
12	1	.110	3254	657.19	650.78	635.15	1.00	1.00	25.4	13.2	3.10	2600.	666.	2588.
13	1	.120	3411	657.19	650.19	635.34	1.00	1.00	28.1	14.4	3.10	2600.	827.	2584.
14	1	.130	3589	657.18	649.61	635.55	1.00	1.00	31.0	15.6	3.10	2600.	1010.	2579.
15	1	.140	3787	657.18	649.02	635.78	1.00	1.00	34.0	16.8	3.10	2600.	1215.	2573.
16	1	.150	4008	657.18	648.44	636.03	1.00	1.00	37.3	18.0	3.10	2600.	1442.	2566.
17	1	.160	4251	657.17	647.86	636.30	1.00	1.00	40.7	19.2	3.10	2600.	1694.	2557.
18	1	.170	4516	657.16	647.27	636.59	1.00	1.00	44.3	20.4	3.10	2600.	1969.	2547.
19	1	.180	4805	657.15	646.69	636.90	1.00	1.00	48.2	21.6	3.10	2600.	2270.	2536.
20	1	.190	5118	657.14	646.10	637.23	1.00	1.00	52.3	22.8	3.10	2600.	2596.	2522.
21	1	.200	5455	657.13	645.52	637.58	1.00	1.00	56.6	24.0	3.10	2600.	2949.	2507.
22	1	.210	5817	657.12	644.94	637.94	1.00	1.00	61.3	25.2	3.10	2600.	3328.	2490.
23	1	.220	6204	657.10	644.35	638.32	1.00	1.00	66.3	26.4	3.10	2600.	3734.	2470.
24	1	.230	6616	657.09	643.77	638.72	1.00	1.00	71.6	27.6	3.10	2600.	4168.	2448.
25	1	.240	7053	657.07	643.18	639.13	1.00	1.00	77.2	28.8	3.10	2600.	4630.	2423.
26	1	.250	7516	657.05	642.60	639.56	1.00	1.00	83.2	30.0	3.10	2600.	5121.	2396.
27	1	.260	8005	657.03	642.02	640.00	1.00	1.00	89.6	31.2	3.10	2600.	5641.	2365.
28	1	.270	8519	657.00	641.43	640.43	1.00	1.00	96.5	32.4	3.10	2600.	6189.	2331.
29	1	.280	9061	656.98	640.85	640.86	1.00	1.00	103.7	33.6	3.10	2600.	6768.	2294.
30	1	.290	9630	656.95	640.26	641.29	1.00	1.00	111.5	34.8	3.10	2600.	7377.	2254.
31	1	.300	10228	656.92	639.68	641.74	1.00	1.00	119.7	36.0	3.10	2600.	8016.	2212.
32	1	.310	10855	656.88	639.10	642.18	1.00	1.00	128.4	37.2	3.10	2600.	8688.	2168.
33	1	.320	11511	656.85	638.51	642.63	1.00	1.00	137.6	38.4	3.10	2600.	9391.	2121.
34	1	.330	12197	656.81	637.93	643.09	1.00	1.01	147.4	39.6	3.10	2600.	10126.	2072.
35	1	.340	12914	656.78	637.34	643.55	1.00	1.01	157.8	40.8	3.10	2600.	10894.	2021.
36	1	.350	13662	656.74	636.76	644.01	1.00	1.01	168.8	42.0	3.10	2600.	11695.	1967.
37	1	.360	14441	656.70	636.18	644.48	1.00	1.01	180.4	43.2	3.10	2600.	12531.	1911.
38	1	.370	15253	656.65	635.59	644.95	1.00	1.01	192.7	44.4	3.10	2600.	13400.	1853.

39	1	.380	16097	656.61	635.01	645.42	1.00	1.01	205.6	45.6	3.10	2600.	14304.	1793.
40	1	.390	16974	656.56	634.42	645.90	1.00	1.01	219.3	46.8	3.10	2600.	15244.	1731.
41	1	.400	17885	656.52	633.84	646.38	1.00	1.01	233.7	48.0	3.10	2600.	16219.	1666.
42	1	.410	18831	656.47	633.26	646.86	1.00	1.01	248.9	49.2	3.10	2600.	17232.	1600.
43	1	.420	19812	656.42	632.67	647.35	1.00	1.01	264.8	50.4	3.10	2600.	18281.	1531.
44	1	.430	20829	656.37	632.09	647.84	1.00	1.01	281.6	51.6	3.10	2600.	19368.	1461.
45	1	.440	21882	656.31	631.50	648.33	1.00	1.01	299.3	52.8	3.10	2600.	20494.	1389.
46	1	.450	22944	656.26	630.92	648.81	1.00	1.02	317.8	54.0	3.10	2600.	21631.	1314.
47	1	.460	23953	656.20	630.34	649.26	.99	1.02	337.2	55.2	3.10	2600.	22716.	1238.
48	1	.470	24869	656.15	629.75	649.66	.98	1.02	357.3	56.4	3.10	2600.	23709.	1161.
49	1	.480	25681	656.09	629.17	650.00	.97	1.02	378.2	57.6	3.10	2600.	24599.	1083.
50	1	.490	26393	656.03	628.58	650.30	.95	1.02	399.8	58.8	3.10	2600.	25389.	1004.

RESERVOIR DEPLETION TABLE

I	K	TTP(I)	Q(I)	H2	YB	D	SUB	VCOR	OUTVOL	BB	COFR	Q1(I)	QBRECH	QSPIL
***	**	******	********	*******	*******	*******	****	****	*********	****	****	*****	******	*****
51	1	.500	27002	655.98	628.00	650.55	.93	1.02	421.8	60.0	3.10	2600.	26076.	926.
52	1	.510	26888	655.92	628.00	650.50	.93	1.02	444.1	60.0	3.10	2600.	26040.	848.
53	1	.520	26754	655.87	628.00	650.44	.93	1.02	466.3	60.0	3.10	2600.	25981.	773.
54	1	.530	26623	655.81	628.00	650.39	.93	1.02	488.3	60.0	3.10	2600.	25923.	700.
55	1	.540	26496	655.76	628.00	650.34	.93	1.02	510.3	60.0	3.10	2600.	25866.	630.
56	1	.550	26372	655.71	628.00	650.29	.93	1.02	532.1	60.0	3.10	2600.	25812.	561.
57	1	.560	26251	655.66	628.00	650.24	.93	1.02	553.9	60.0	3.10	2600.	25758.	493.
58	1	.570	26133	655.61	628.00	650.19	.93	1.02	575.5	60.0	3.10	2600.	25706.	428.
59	1	.580	26018	655.57	628.00	650.14	.93	1.02	597.0	60.0	3.10	2600.	25655.	363.
60	1	.590	25906	655.52	628.00	650.09	.93	1.02	618.5	60.0	3.10	2600.	25606.	301.
61	1	.600	25796	655.47	628.00	650.05	.94	1.02	639.9	60.0	3.10	2600.	25557.	239.
62	1	.610	25689	655.43	628.00	650.00	.94	1.02	661.1	60.0	3.10	2600.	25510.	179.
63	1	.620	25584	655.39	628.00	649.96	.94	1.02	682.3	60.0	3.10	2600.	25464.	121.
64	1	.630	25481	655.35	628.00	649.91	.94	1.02	703.4	60.0	3.10	2600.	25419.	63.
65	1	.640	25380	655.30	628.00	649.87	.94	1.02	724.5	60.0	3.10	2600.	25374.	6.
66	1	.650	25311	655.26	628.00	649.84	.94	1.02	745.4	60.0	3.10	2600.	25312.	0.
67	1	.660	25247	655.22	628.00	649.82	.94	1.02	766.3	60.0	3.10	2600.	25248.	0.
68	1	.670	25184	655.18	628.00	649.79	.94	1.02	787.1	60.0	3.10	2600.	25184.	0.
69	1	.680	25120	655.14	628.00	649.76	.94	1.02	807.9	60.0	3.10	2600.	25121.	0.
70	1	.690	25057	655.10	628.00	649.74	.94	1.02	828.7	60.0	3.10	2600.	25057.	0.
71	1	.700	24993	655.06	628.00	649.71	.94	1.02	849.3	60.0	3.10	2600.	24994.	0.
72	1	.710	24930	655.02	628.00	649.68	.94	1.02	870.0	60.0	3.10	2600.	24931.	0.
73	1	.720	24867	654.98	628.00	649.65	.94	1.02	890.5	60.0	3.10	2600.	24868.	0.
74	1	.730	24805	654.94	628.00	649.63	.93	1.02	911.1	60.0	3.10	2600.	24805.	0.
75	1	.740	24742	654.90	628.00	649.60	.93	1.02	931.5	60.0	3.10	2600.	24742.	0.
76	1	.750	24679	654.86	628.00	649.57	.93	1.02	952.0	60.0	3.10	2600.	24680.	0.
77	1	.760	24617	654.82	628.00	649.55	.93	1.02	972.3	60.0	3.10	2600.	24617.	0.
78	1	.770	24555	654.78	628.00	649.52	.93	1.02	992.7	60.0	3.10	2600.	24555.	0.
79	1	.780	24492	654.74	628.00	649.49	.93	1.02	1012.9	60.0	3.10	2600.	24493.	0.
80	1	.790	24430	654.70	628.00	649.47	.93	1.02	1033.1	60.0	3.10	2600.	24431.	0.
81	1	.800	24369	654.66	628.00	649.44	.93	1.02	1053.3	60.0	3.10	2600.	24369.	0.

82	1	.810	24307	654.62	628.00	649.41	.93	1.02	1073.4	60.0	3.10	2600.	24307.	0.
83	1	.820	24245	654.58	628.00	649.39	.93	1.02	1093.5	60.0	3.10	2600.	24246.	0.
84	1	.830	24184	654.54	628.00	649.36	.93	1.02	1113.5	60.0	3.10	2600.	24184.	0.
85	1	.840	24122	654.50	628.00	649.33	.93	1.02	1133.5	60.0	3.10	2600.	24123.	0.
86	1	.850	24061	654.46	628.00	649.31	.93	1.02	1153.4	60.0	3.10	2600.	24062.	0.
87	1	.860	24000	654.42	628.00	649.28	.93	1.02	1173.2	60.0	3.10	2600.	24001.	0.
88	1	.870	23939	654.38	628.00	649.25	.93	1.02	1193.0	60.0	3.10	2600.	23940.	0.
89	1	.880	23878	654.34	628.00	649.23	.93	1.02	1212.8	60.0	3.10	2600.	23879.	0.
90	1	.890	23818	654.30	628.00	649.20	.93	1.02	1232.5	60.0	3.10	2600.	23818.	0.
91	1	.900	23757	654.26	628.00	649.17	.93	1.02	1252.2	60.0	3.10	2600.	23758.	0.
92	1	.910	23697	654.22	628.00	649.15	.93	1.02	1271.8	60.0	3.10	2600.	23697.	0.
93	1	.920	23636	654.18	628.00	649.12	.93	1.02	1291.3	60.0	3.10	2600.	23637.	0.
94	1	.930	23576	654.14	628.00	649.09	.93	1.02	1310.8	60.0	3.10	2600.	23577.	0.
95	1	.940	23516	654.10	628.00	649.07	.93	1.02	1330.3	60.0	3.10	2600.	23517.	0.
96	1	.950	23456	654.06	628.00	649.04	.93	1.02	1349.7	60.0	3.10	2600.	23457.	0.
97	1	.960	23397	654.02	628.00	649.01	.93	1.02	1369.1	60.0	3.10	2600.	23397.	0.
98	1	.970	23337	653.99	628.00	648.99	.93	1.02	1388.4	60.0	3.10	2600.	23338.	0.
99	1	.980	23278	653.95	628.00	648.96	.93	1.02	1407.7	60.0	3.10	2600.	23278.	0.
100	1	.990	23218	653.91	628.00	648.93	.93	1.02	1426.9	60.0	3.10	2600.	23219.	0.

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RESERVOIR DEPLETION TABLE

I	K	TTP(I)	Q(I)	H2	YB	D	SUB	VCOR	OUTVOL	BB	COFR	QI(I)	QBRECH	QSPIL
***	**	******	********	*******	*******	*******	****	****	*********	****	****	*****	******	*****
101	1	1.000	23159	653.87	628.00	648.91	.93	1.02	1446.0	60.0	3.10	2600.	23160.	0.
102	1	1.010	23100	653.83	628.00	648.88	.93	1.02	1465.1	60.0	3.10	2600.	23101.	0.
103	1	1.021	23036	653.79	628.00	648.86	.93	1.02	1486.1	60.0	3.10	2600.	23036.	0.
104	1	1.033	22965	653.74	628.00	648.82	.93	1.02	1509.1	60.0	3.10	2600.	22965.	0.
105	1	1.046	22887	653.69	628.00	648.79	.93	1.02	1534.3	60.0	3.10	2600.	22887.	0.
106	1	1.061	22801	653.63	628.00	648.75	.92	1.02	1562.0	60.0	3.10	2600.	22802.	0.
107	1	1.077	22707	653.57	628.00	648.71	.92	1.02	1592.3	60.0	3.10	2600.	22708.	0.
108	1	1.095	22604	653.50	628.00	648.66	.92	1.02	1625.4	60.0	3.10	2600.	22605.	0.
109	1	1.114	22492	653.43	628.00	648.61	.92	1.02	1661.8	60.0	3.10	2600.	22492.	0.
110	1	1.136	22368	653.34	628.00	648.56	.92	1.02	1701.5	60.0	3.10	2600.	22369.	0.
111	1	1.159	22233	653.25	628.00	648.50	.92	1.02	1744.9	60.0	3.10	2600.	22234.	0.
112	1	1.185	22086	653.16	628.00	648.43	.92	1.02	1792.4	60.0	3.10	2600.	22086.	0.
113	1	1.214	21924	653.05	628.00	648.35	.92	1.02	1844.3	60.0	3.10	2600.	21925.	0.
114	2	1.245	21736	652.93	628.00	648.27	.92	1.02	1901.0	60.0	3.10	2600.	21737.	0.
115	2	1.280	21543	652.80	628.00	648.18	.92	1.02	1962.7	60.0	3.10	2600.	21543.	0.
116	2	1.318	21331	652.66	628.00	648.08	.92	1.02	2030.0	60.0	3.10	2600.	21332.	0.
117	2	1.359	21101	652.50	628.00	647.97	.91	1.02	2103.2	60.0	3.10	2600.	21102.	0.
118	2	1.405	20868	652.33	628.00	647.85	.91	1.02	2182.9	60.0	3.10	2600.	20869.	0.
119	2	1.456	20598	652.15	628.00	647.73	.91	1.02	2269.5	60.0	3.10	2600.	20598.	0.
120	2	1.512	20304	651.95	628.00	647.58	.91	1.02	2363.5	60.0	3.10	2600.	20304.	0.
121	2	1.573	19985	651.73	628.00	647.43	.91	1.02	2465.3	60.0	3.10	2600.	19985.	0.
122	2	1.640	19639	651.49	628.00	647.26	.91	1.02	2575.5	60.0	3.10	2600.	19640.	0.
123	2	1.714	19266	651.22	628.00	647.08	.90	1.02	2694.4	60.0	3.10	2600.	19266.	0.
124	2	1.795	18863	650.94	628.00	646.88	.90	1.02	2822.7	60.0	3.10	2600.	18863.	0.

125	2	1.885	18429	650.63	628.00	646.66	.90	1.03	2960.7	60.0	3.10	2600.	18429.	0.
126	2	1.983	17963	650.30	628.00	646.42	.89	1.03	3108.8	60.0	3.10	2600.	17963.	0.
127	2	2.092	17463	649.93	628.00	646.16	.89	1.03	3267.4	60.0	3.10	2600.	17464.	0.
128	2	2.211	16930	649.54	628.00	645.87	.89	1.03	3436.8	60.0	3.10	2600.	16930.	0.
129	2	2.342	16362	649.12	628.00	645.56	.88	1.03	3617.2	60.0	3.10	2600.	16362.	0.
130	2	2.486	15760	648.66	628.00	645.23	.88	1.03	3808.6	60.0	3.10	2600.	15760.	0.
131	2	2.645	15123	648.18	628.00	644.87	.87	1.03	4011.0	60.0	3.10	2600.	15124.	0.
132	2	2.819	14454	647.65	628.00	644.48	.87	1.03	4224.3	60.0	3.10	2600.	14455.	0.
133	2	3.011	13755	647.10	628.00	644.06	.86	1.03	4448.1	60.0	3.10	2600.	13755.	0.
134	2	3.223	13028	646.50	628.00	643.62	.85	1.03	4681.8	60.0	3.10	2600.	13028.	0.
135	2	3.455	12277	645.87	628.00	643.14	.85	1.03	4924.6	60.0	3.10	2600.	12277.	0.
136	2	3.710	11507	645.21	628.00	642.63	.84	1.03	5175.7	60.0	3.10	2600.	11508.	0.
137	2	3.991	10725	644.52	628.00	642.09	.83	1.04	5433.9	60.0	3.10	2600.	10725.	0.
138	2	4.300	9937	643.80	628.00	641.52	.82	1.04	5697.8	60.0	3.10	2600.	9937.	0.
139	2	4.640	9151	643.05	628.00	640.93	.81	1.04	5966.0	60.0	3.10	2600.	9152.	0.
140	2	5.014	8377	642.28	628.00	640.31	.80	1.04	6237.0	60.0	3.10	2600.	8378.	0.
141	2	5.426	7637	641.49	628.00	639.67	.79	1.05	6509.3	60.0	3.10	2600.	7638.	0.
142	1	5.879	6923	640.71	628.00	639.02	.79	1.05	6781.6	60.0	3.10	2600.	6924.	0.
143	1	6.376	6239	639.92	628.00	638.36	.78	1.05	7052.4	60.0	3.10	2600.	6239.	0.
144	2	6.924	5603	639.15	628.00	637.73	.77	1.06	7320.4	60.0	3.10	2600.	5603.	0.
145	2	7.526	5006	638.41	628.00	637.11	.76	1.06	7584.5	60.0	3.10	2600.	5006.	0.
146	2	8.189	4468	637.72	628.00	636.54	.75	1.07	7843.9	60.0	3.10	2600.	4469.	0.
147	3	8.918	4005	637.10	628.00	636.02	.73	1.07	8099.2	60.0	3.10	2600.	4005.	0.
148	3	9.720	3615	636.56	628.00	635.58	.72	1.08	8351.6	60.0	3.10	2600.	3616.	0.
149	3	10.602	3302	636.12	628.00	635.20	.71	1.09	8603.8	60.0	3.10	2600.	3303.	0.

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PARAMETER	UNITS	VARIABLE	VALUE
INITIAL FLOW	CFS	Q(1)	2600.
MAX FLOW	CFS	QM	27002.
FINAL FLOW	CFS	Q(NU)	3303.
TIME TO MAX FLOW	HRS	TP	.50
NUMBER OF TIME STEPS		NNU	149
TOTAL VOLUME DISCHARGED FROM RESERVOIR	AC-FT	DISVOL	8604.

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INITIAL CONDITIONS

I	K	X(I)	YD(I)	GDI(I)	FRD	SOM
43	3	4.940	419.54	2600.04	.42	42.808
43	0	4.940	419.54	2600.04		
42	3	4.760	428.97	2600.04	.52	
41	4	4.648	432.89	2600.04	.28	
40	3	4.536	434.99	2600.04	.27	
39	3	4.424	437.06	2600.04	.27	
38	3	4.312	439.14	2600.04	.27	
37	3	4.200	441.23	2600.04	.27	
36	4	4.010	446.54	2600.04	.47	
35	4	3.908	450.96	2600.04	.37	
34	3	3.807	454.37	2600.04	.37	
33	2	3.705	457.78	2600.04	.37	
32	2	3.603	461.18	2600.04	.37	
31	2	3.502	464.59	2600.04	.38	
30	2	3.400	467.99	2600.04	.38	
29	3	3.290	470.43	2600.04	.24	
28	3	3.180	471.97	2600.04	.24	
27	4	3.040	474.51	2600.04	.34	
26	4	2.900	478.71	2600.04	.34	
25	4	2.800	481.47	2600.04	.31	
24	2	2.700	483.84	2600.04	.34	
23	2	2.600	486.43	2600.04	.36	
22	4	2.490	493.29	2600.04	.64	
21	3	2.380	503.43	2600.04	.46	
20	4	2.273	509.72	2600.04	.42	
19	3	2.165	515.46	2600.04	.45	
18	3	2.057	521.43	2600.04	.45	
17	3	1.950	527.38	2600.04	.46	
16	3	1.847	533.64	2600.04	.47	
15	3	1.743	540.10	2600.04	.45	
14	3	1.640	546.31	2600.04	.43	
13	4	1.530	555.63	2600.04	.70	
12	4	1.420	567.82	2600.04	.51	
11	4	1.306	574.07	2600.04	.32	
10	3	1.192	577.92	2600.04	.33	
9	6	1.078	582.85	2600.04	.34	
8	4	.964	587.49	2600.04	.29	
7	3	.850	591.38	2600.04	.28	
6	4	.680	605.36	2600.04	.97	
5	4	.560	615.57	2600.04	.28	
4	4	.440	619.84	2600.04	.35	
3	3	.320	625.40	2600.04	.35	
2	4	.200	630.92	2600.04	.35	
1	3	.020	636.12	2600.04	.20	

TIME PARAMETERS OF OUTFLOW HYDROGRAPH IMMEDIATELY DOWNSTREAM OF DAM

PARAMETER	UNITS	VARIABLE	VALUE
TIME TO FAILURE	HR	TFH	.500
TIME TO START OF RISING LIMB OF HYDROGRAPH	HR	TFO	.000
TIME TO PEAK	HR	TP	.500
TIME STEP SIZE	HR	DTHI	.025

PROFILE OF CRESTS AND TIMES FOR PISCATAQUOG RIVER
BELOW WEARE RESERVOIR DAM

RVR MILE FROM DAM	MAX ELEV (FT)	MAX FLOW (CFS)	TIME MAX ELEV(HR)	MAX VEL (FT/SEC)	FLOOD ELEV (FT)	TIME FLOOD ELEV(HR)
.020	652.81	27002	.550	5.32	.00	.00
.200	646.27	25989	.600	6.28	.00	.00
.320	641.36	25655	.650	6.25	.00	.00
.440	636.44	25397	.700	6.05	.00	.00
.560	631.39	25324	.700	5.73	.00	.00
.680	618.46	25430	.625	14.31	.00	.00
.850	601.46	25396	.775	5.16	.00	.00
.964	597.37	25260	.800	4.89	.00	.00
1.078	593.35	25121	.850	4.67	.00	.00
1.192	589.40	24985	.900	4.98	.00	.00
1.306	585.64	24890	.925	5.02	.00	.00
1.420	579.52	24866	.925	8.66	.00	.00
1.530	568.80	24819	1.000	11.60	.00	.00
1.640	560.70	24771	1.025	7.73	.00	.00
1.743	555.59	24729	1.050	7.18	.00	.00
1.847	550.07	24689	1.050	7.93	.00	.00
1.950	544.34	24631	1.100	9.12	.00	.00
2.057	538.10	24543	1.150	8.57	.00	.00
2.165	531.41	24479	1.175	7.94	.00	.00
2.273	524.52	24446	1.175	7.35	.00	.00
2.380	516.85	24423	1.200	8.59	.00	.00
2.490	508.63	24392	1.225	9.02	.00	.00

2.600	500.39	24359	1.275	9.93	.00	.00
2.700	496.13	24317	1.300	7.89	.00	.00
2.800	492.21	24182	1.400	6.54	.00	.00
2.900	489.90	23913	1.450	4.50	.00	.00
3.040	487.15	23593	1.500	5.22	.00	.00
3.180	484.83	23446	1.525	4.60	.00	.00
3.290	482.90	23392	1.550	5.10	.00	.00
3.400	479.58	23370	1.550	7.25	.00	.00
3.502	475.65	23356	1.575	6.92	.00	.00
3.603	471.79	23342	1.600	6.64	.00	.00
3.705	467.99	23325	1.625	6.42	.00	.00
3.807	464.23	23307	1.650	6.23	.00	.00
3.908	460.51	23275	1.700	6.11	.00	.00
4.010	456.95	23164	1.825	6.60	.00	.00
4.200	453.23	22813	1.900	5.43	.00	.00
4.312	451.15	22627	1.950	5.35	.00	.00
4.424	448.85	22507	1.975	5.29	.00	.00
4.536	446.27	22441	2.000	5.29	.00	.00
4.648	443.20	22413	2.000	5.58	.00	.00
4.760	438.73	22404	2.025	7.48	.00	.00
4.940	428.56	22395	2.059	9.03	.00	.00

DISCHARGE HYDROGRAPH FOR PISCATAQUOG RIVER ... STATION NUMBER 1
BELOW WEARE RESERVOIR DAM AT MILE .02

GAGE ZERO = 625.70 MAX ELEVATION REACHED BY FLOOD WAVE = 652.81
FLOOD STAGE NOT AVAILABLE
MAX STAGE = 27.11 AT TIME = .550 HOURS
MAX FLOW = 27002 AT TIME = .500 HOURS

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HR   STAGE     FLOW  0     10000     20000     30000     40000     50000
 .0   10.4     2600  I  *     I         I         I         I         I
 .2   13.7     5456  I    *   I         I         I         I         I
 .4   23.4    17886  I        I       * I         I         I         I
 .6   27.0    25797  I        I         I     *   I         I         I
 .8   26.6    24369  I        I         I   *     I         I         I
1.0   26.1    23160  I        I         I  *      I         I         I
1.2   25.7    22003  I        I         I *       I         I         I
1.4   25.3    20896  I        I         I*        I         I         I
1.6   24.9    19845  I        I         *         I         I         I
1.8   24.5    18841  I        I        *I         I         I         I
2.0   24.1    17887  I        I       * I         I         I         I
2.2   23.7    16980  I        I      *  I         I         I         I
2.4   23.4    16121  I        I     *   I         I         I         I
2.6   23.0    15304  I        I    *    I         I         I         I
2.8   22.7    14529  I        I    *    I         I         I         I
3.0   22.3    13798  I        I   *     I         I         I         I
3.2   22.0    13106  I        I  *      I         I         I         I
3.4   21.7    12454  I        I *       I         I         I         I
3.6   21.3    11840  I        I *       I         I         I         I
```

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 3.8   21.0    11258 I        I*       I        I        I        I
 4.0   20.7    10703 I        I*       I        I        I        I
 4.2   20.5    10193 I        *        I        I        I        I
 4.4   20.2     9707 I        *        I        I        I        I
 4.6   19.9     9245 I       *I        I        I        I        I
 4.8   19.6     8822 I       *I        I        I        I        I
 5.0   19.4     8409 I      * I        I        I        I        I
 5.2   19.2     8044 I      * I        I        I        I        I
 5.4   18.9     7686 I      * I        I        I        I        I
 5.6   18.7     7363 I     *  I        I        I        I        I
 5.8   18.4     7048 I     *  I        I        I        I        I
 6.0   18.2     6757 I     *  I        I        I        I        I
 6.2   17.9     6482 I    *   I        I        I        I        I
 6.4   17.6     6212 I    *   I        I        I        I        I
 6.6   17.4     5979 I    *   I        I        I        I        I
 6.8   17.2     5747 I    *   I        I        I        I        I
 7.0   16.9     5528 I    *   I        I        I        I        I
 7.2   16.7     5330 I   *    I        I        I        I        I
 7.4   16.5     5131 I   *    I        I        I        I        I
 7.6   16.2     4946 I   *    I        I        I        I        I
 7.8   15.9     4784 I   *    I        I        I        I        I
 8.0   15.6     4622 I   *    I        I        I        I        I
 8.2   15.2     4463 I  *     I        I        I        I        I
 8.4   14.8     4335 I  *     I        I        I        I        I
 8.6   14.5     4207 I  *     I        I        I        I        I
 8.8   14.0     4080 I  *     I        I        I        I        I
 9.0   13.2     3965 I  *     I        I        I        I        I
 9.2   12.7     3868 I  *     I        I        I        I        I
 9.4   12.6     3771 I  *     I        I        I        I        I
 9.6   12.4     3674 I  *     I        I        I        I        I
 9.8   12.2     3587 I  *     I        I        I        I        I
1
```

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DISCHARGE HYDROGRAPH FOR PISCATAQUOG RIVER    ... STATION NUMBER   7
            BELOW WEARE RESERVOIR DAM  AT MILE      .85

GAGE ZERO =  579.50     MAX ELEVATION REACHED BY FLOOD WAVE =  601.46
                   FLOOD STAGE NOT AVAILABLE
            MAX STAGE =   21.96     AT TIME =     .775 HOURS
            MAX FLOW =    25396    AT TIME =     .725 HOURS

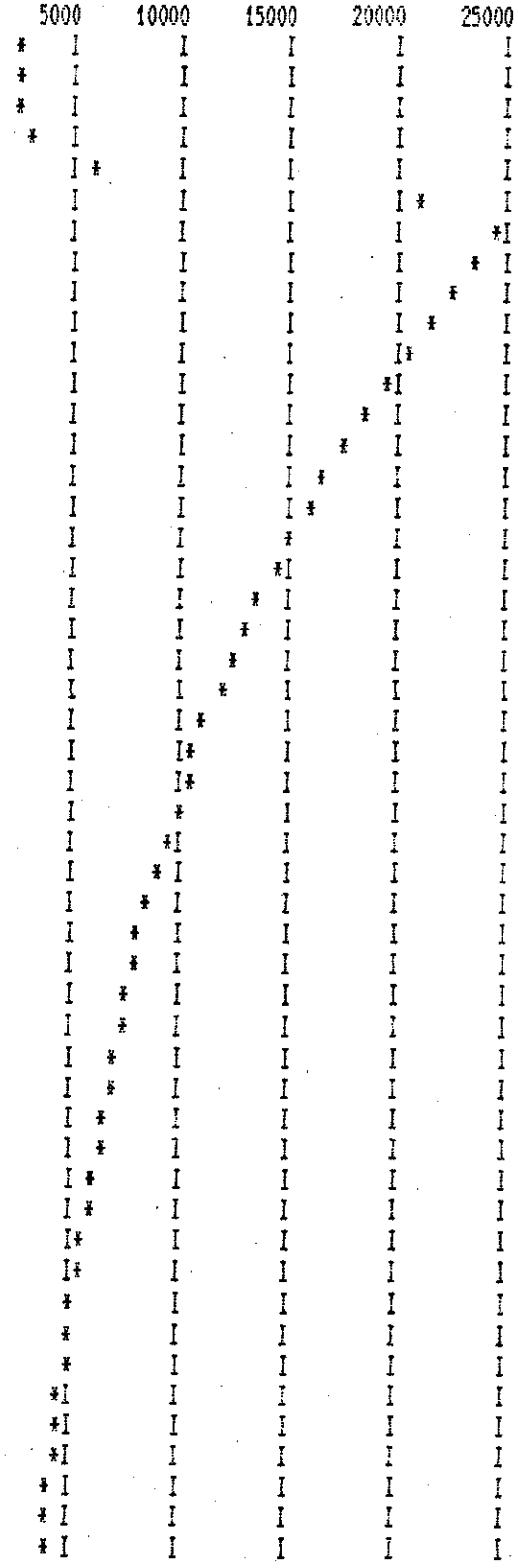
HR   STAGE     FLOW 0     10000     20000     30000     40000     50000
 .0   11.9     2600 I *     I         I         I         I         I
 .2   12.0     2693 I *     I         I         I         I         I
 .4   13.9     4712 I   *   I         I         I         I         I
 .6   20.3    20538 I       I         I*        I         I         I
 .8   22.0    25207 I       I         I   *     I         I         I
1.0   21.7    24071 I       I         I  *      I         I         I
1.2   21.4    22889 I       I         I *       I         I         I
1.4   21.2    21746 I       I         I *       I         I         I
1.6   20.9    20668 I       I         I*        I         I         I
```

```
1.8   20.7   19646 I        I        *        I        I        I
2.0   20.4   18706 I        I       *I        I        I        I
2.2   20.1   17772 I        I      * I        I        I        I
2.4   19.9   16881 I        I     *  I        I        I        I
2.6   19.6   16005 I        I    *   I        I        I        I
2.8   19.3   15195 I        I   *    I        I        I        I
3.0   19.0   14434 I        I  *     I        I        I        I
3.2   18.8   13714 I        I  *     I        I        I        I
3.4   18.5   13033 I        I *      I        I        I        I
3.6   18.3   12390 I        I *      I        I        I        I
3.8   18.0   11783 I        I *      I        I        I        I
4.0   17.8   11224 I        I*       I        I        I        I
4.2   17.6   10700 I        I*       I        I        I        I
4.4   17.3   10198 I        *        I        I        I        I
4.6   17.1    9721 I        *        I        I        I        I
4.8   16.9    9290 I       *I        I        I        I        I
5.0   16.7    8875 I       *I        I        I        I        I
5.2   16.5    8478 I      * I        I        I        I        I
5.4   16.3    8124 I      * I        I        I        I        I
5.6   16.1    7784 I      * I        I        I        I        I
5.8   16.0    7473 I     *  I        I        I        I        I
6.0   15.8    7166 I     *  I        I        I        I        I
6.2   15.6    6873 I     *  I        I        I        I        I
6.4   15.4    6600 I     *  I        I        I        I        I
6.6   15.3    6338 I    *   I        I        I        I        I
6.8   15.1    6100 I    *   I        I        I        I        I
7.0   15.0    5876 I    *   I        I        I        I        I
7.2   14.8    5666 I    *   I        I        I        I        I
7.4   14.7    5478 I   *    I        I        I        I        I
7.6   14.6    5313 I   *    I        I        I        I        I
7.8   14.5    5157 I   *    I        I        I        I        I
8.0   14.3    4968 I   *    I        I        I        I        I
8.2   14.2    4818 I   *    I        I        I        I        I
8.4   14.0    4562 I   *    I        I        I        I        I
8.6   13.9    4408 I  *     I        I        I        I        I
8.8   13.8    4298 I  *     I        I        I        I        I
9.0   13.7    4245 I  *     I        I        I        I        I
9.2   13.6    4062 I  *     I        I        I        I        I
9.4   13.4    3866 I  *     I        I        I        I        I
9.6   13.3    3768 I  *     I        I        I        I        I
9.8   13.2    3673 I  *     I        I        I        I        I
```

DISCHARGE HYDROGRAPH FOR PISCATAQUOG RIVER ... STATION NUMBER 21
BELOW WEARE RESERVOIR DAM AT MILE 2.38

GAGE ZERO = 496.30 MAX ELEVATION REACHED BY FLOOD WAVE = 516.85
FLOOD STAGE NOT AVAILABLE
MAX STAGE = 20.55 AT TIME = 1.200 HOURS
MAX FLOW = 24423 AT TIME = 1.200 HOURS

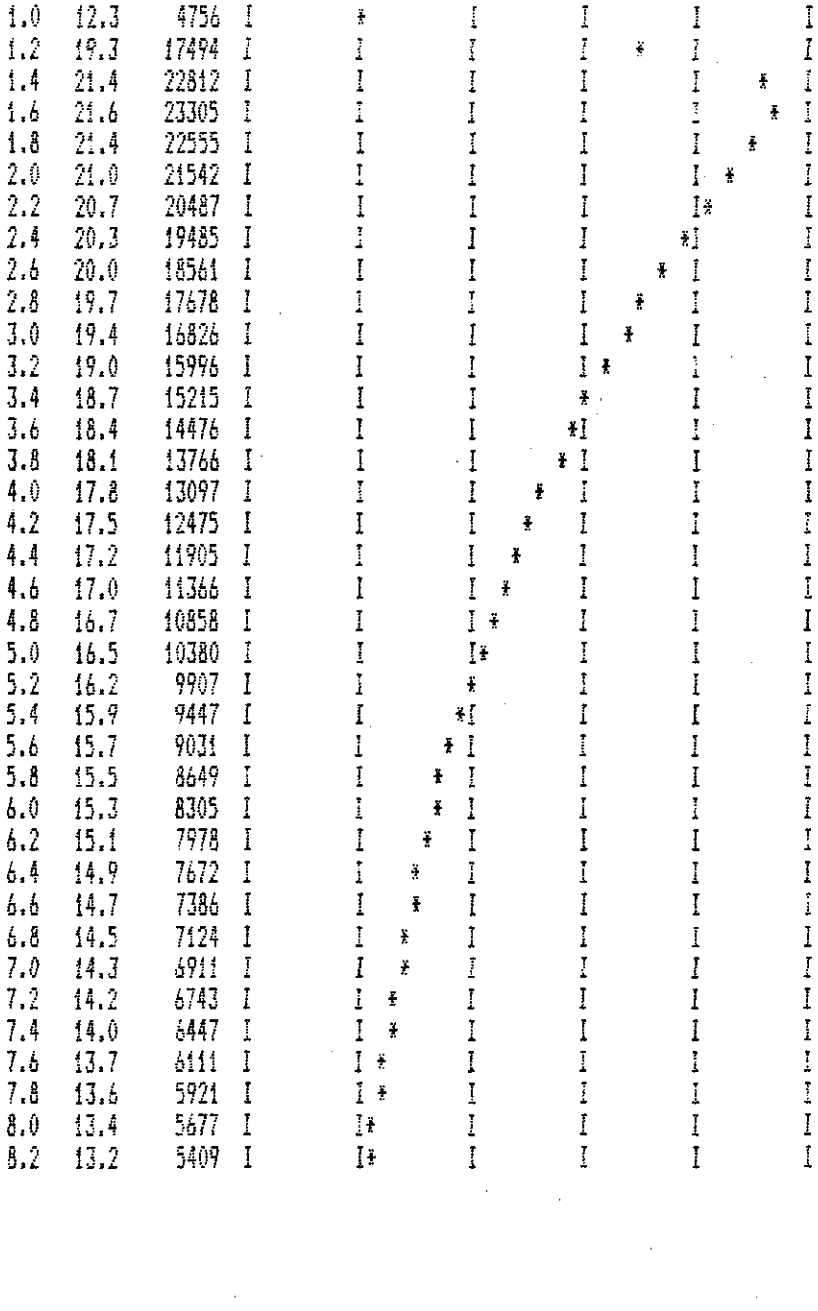
HR	STAGE	FLOW
.0	7.1	2600
.2	7.1	2600
.4	7.1	2604
.6	7.5	2890
.8	10.7	5945
1.0	19.0	20839
1.2	20.5	24423
1.4	20.3	23619
1.6	19.9	22482
1.8	19.4	21375
2.0	19.0	20293
2.2	18.6	19316
2.4	18.2	18423
2.6	17.8	17539
2.8	17.5	16689
3.0	17.1	15850
3.2	16.7	15062
3.4	16.3	14325
3.6	16.0	13630
3.8	15.6	12970
4.0	15.3	12345
4.2	15.0	11773
4.4	14.7	11235
4.6	14.4	10730
4.8	14.1	10260
5.0	13.8	9783
5.2	13.5	9319
5.4	13.2	8913
5.6	13.0	8534
5.8	12.7	8185
6.0	12.5	7862
6.2	12.2	7562
6.4	12.0	7279
6.6	11.8	7024
6.8	11.6	6820
7.0	11.5	6708
7.2	11.2	6298
7.4	10.8	5955
7.6	10.8	5891
7.8	10.4	5529
8.0	10.1	5305
8.2	9.9	5140
8.4	9.7	4953
8.6	9.5	4764
8.8	9.3	4560
9.0	9.1	4406
9.2	9.0	4303
9.4	8.9	4207
9.6	8.8	4049
9.8	8.6	3885



DISCHARGE HYDROGRAPH FOR PISCATAQUOG RIVER ... STATION NUMBER 30
BELOW WEARE RESERVOIR DAM AT MILE 3.40

GAGE ZERO = 458.00 MAX ELEVATION REACHED BY FLOOD WAVE = 479.58
FLOOD STAGE NOT AVAILABLE
MAX STAGE = 21.58 AT TIME = 1.550 HOURS
MAX FLOW = 23370 AT TIME = 1.550 HOURS

HR	STAGE	FLOW
.0	10.0	2600
.2	10.0	2600
.4	10.0	2600
.6	10.0	2600
.8	10.1	2699
1.0	12.3	4756
1.2	19.3	17494
1.4	21.4	22812
1.6	21.6	23305
1.8	21.4	22555
2.0	21.0	21542
2.2	20.7	20487
2.4	20.3	19485
2.6	20.0	18561
2.8	19.7	17678
3.0	19.4	16826
3.2	19.0	15996
3.4	18.7	15215
3.6	18.4	14476
3.8	18.1	13766
4.0	17.8	13097
4.2	17.5	12475
4.4	17.2	11905
4.6	17.0	11366
4.8	16.7	10858
5.0	16.5	10380
5.2	16.2	9907
5.4	15.9	9447
5.6	15.7	9031
5.8	15.5	8649
6.0	15.3	8305
6.2	15.1	7978
6.4	14.9	7672
6.6	14.7	7386
6.8	14.5	7124
7.0	14.3	6911
7.2	14.2	6743
7.4	14.0	6447
7.6	13.7	6111
7.8	13.6	5921
8.0	13.4	5677
8.2	13.2	5409



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 8.4   13.0     5217  I        *        I        I        I        I
 8.6   12.8     5036  I        *        I        I        I        I
 8.8   12.7     4847  I        *        I        I        I        I
 9.0   12.5     4652  I       *I        I        I        I        I
 9.2   12.3     4482  I       *I        I        I        I        I
 9.4   12.2     4356  I       *I        I        I        I        I
 9.6   12.1     4249  I      * I        I        I        I        I
 9.8   11.9     4118  I      * I        I        I        I        I
1
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DISCHARGE HYDROGRAPH FOR PISCATAQUOG RIVER    ... STATION NUMBER  37
              BELOW WEARE RESERVOIR DAM  AT MILE     4.20

GAGE ZERO =  433.50     MAX ELEVATION REACHED BY FLOOD WAVE =  453.23
                     FLOOD STAGE NOT AVAILABLE
              MAX STAGE =   19.73     AT TIME =    1.900 HOURS
              MAX FLOW =    22814    AT TIME =    1.750 HOURS

HR   STAGE     FLOW  0      5000     10000     15000     20000     25000
 .0    7.7     2600  I    *   I         I         I         I         I
 .2    7.7     2600  I    *   I         I         I         I         I
 .4    7.7     2600  I    *   I         I         I         I         I
 .6    7.7     2600  I    *   I         I         I         I         I
 .8    7.7     2601  I    *   I         I         I         I         I
1.0    7.8     2695  I    *   I         I         I         I         I
1.2    9.8     6008  I        I *       I         I         I         I
1.4   15.9    18608  I        I         I         I      *  I         I
1.6   18.6    22317  I        I         I         I         I    *    I
1.8   19.6    22782  I        I         I         I         I     *   I
2.0   19.7    22288  I        I         I         I         I    *    I
2.2   19.3    21391  I        I         I         I         I  *      I
2.4   18.7    20410  I        I         I         I         I*        I
2.6   18.1    19443  I        I         I         I        *I         I
2.8   17.4    18529  I        I         I         I      *  I         I
3.0   16.7    17639  I        I         I         I    *    I         I
3.2   16.1    16710  I        I         I         I  *      I         I
3.4   15.7    15867  I        I         I         I *       I         I
3.6   15.3    15094  I        I         I         *         I         I
3.8   15.0    14364  I        I         I        *I         I         I
4.0   14.7    13664  I        I         I      *  I         I         I
4.2   14.4    13007  I        I         I     *   I         I         I
4.4   14.1    12397  I        I         I    *    I         I         I
4.6   13.8    11834  I        I         I   *     I         I         I
4.8   13.5    11302  I        I         I  *      I         I         I
5.0   13.2    10801  I        I         I *       I         I         I
5.2   13.0    10327  I        I         I*        I         I         I
5.4   12.7     9857  I        I         *         I         I         I
5.6   12.5     9408  I        I        *I         I         I         I
5.8   12.2     8998  I        I       * I         I         I         I
6.0   12.0     8623  I        I      *  I         I         I         I
6.2   11.8     8280  I        I      *  I         I         I         I
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6.4   11.6    7957 I         I     *   I         I         I         I
6.6   11.4    7655 I         I    *    I         I         I         I
6.8   11.3    7372 I         I    *    I         I         I         I
7.0   11.1    7117 I         I   *     I         I         I         I
7.2   11.0    6908 I         I   *     I         I         I         I
7.4   10.8    6719 I         I  *      I         I         I         I
7.6   10.7    6429 I         I  *      I         I         I         I
7.8   10.5    6123 I         I *       I         I         I         I
8.0   10.3    5911 I         I *       I         I         I         I
8.2   10.2    5673 I         I*        I         I         I         I
8.4   10.0    5419 I         I*        I         I         I         I
8.6    9.8    5220 I         *         I         I         I         I
8.8    9.7    5039 I         *         I         I         I         I
9.0    9.6    4852 I         *         I         I         I         I
9.2    9.4    4662 I        *I         I         I         I         I
9.4    9.3    4496 I        *I         I         I         I         I
9.6    9.2    4365 I        *I         I         I         I         I
9.8    9.1    4253 I        *I         I         I         I         I
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DISCHARGE HYDROGRAPH FOR PISCATAQUOG RIVER ... STATION NUMBER 43
BELOW WEARE RESERVOIR DAM AT MILE 4.94

GAGE ZERO = 411.00 MAX ELEVATION REACHED BY FLOOD WAVE = 428.56
FLOOD STAGE NOT AVAILABLE
MAX STAGE = 17.56 AT TIME = 2.059 HOURS
MAX FLOW = 22396 AT TIME = 2.025 HOURS

```
HR   STAGE     FLOW 0      5000     10000     15000     20000     25000
 .0    8.5     2749 I   *    I         I         I         I         I
 .2    8.5     2748 I   *    I         I         I         I         I
 .4    8.5     2748 I   *    I         I         I         I         I
 .6    8.5     2748 I   *    I         I         I         I         I
 .8    8.5     2748 I   *    I         I         I         I         I
1.0    8.5     2749 I   *    I         I         I         I         I
1.2    8.5     2848 I    *   I         I         I         I         I
1.4   12.0     9154 I        I       * I         I         I         I
1.6   16.2    18901 I        I         I         I       * I         I
1.8   17.2    21530 I        I         I         I         I  *      I
2.0   17.6    22381 I        I         I         I         I    *    I
2.2   17.5    22135 I        I         I         I         I   *     I
2.4   17.2    21392 I        I         I         I         I  *      I
2.6   16.9    20489 I        I         I         I         I*        I
2.8   16.6    19567 I        I         I         I        *I         I
3.0   16.2    18574 I        I         I         I      *  I         I
3.2   15.8    17541 I        I         I         I    *    I         I
3.4   15.4    16508 I        I         I         I  *      I         I
3.6   15.1    15677 I        I         I         I*        I         I
3.8   14.8    14918 I        I         I         *         I         I
4.0   14.5    14201 I        I         I       * I         I         I
4.2   14.2    13517 I        I         I      *  I         I         I
```

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4.4   13.9   12875 I        I        I    *  I        I        I
4.6   13.7   12282 I        I        I   *   I        I        I
4.8   13.4   11728 I        I        I  *    I        I        I
5.0   13.2   11207 I        I        I *     I        I        I
5.2   13.0   10715 I        I        I*      I        I        I
5.4   12.8   10245 I        I        *       I        I        I
5.6   12.5    9782 I        I        *       I        I        I
5.8   12.3    9345 I        I       *I       I        I        I
6.0   12.1    8944 I        I      * I       I        I        I
6.2   12.0    8577 I        I     *  I       I        I        I
6.4   11.8    8238 I        I    *   I       I        I        I
6.6   11.6    7921 I        I    *   I       I        I        I
6.8   11.5    7623 I        I   *    I       I        I        I
7.0   11.3    7347 I        I   *    I       I        I        I
7.2   11.2    7099 I        I  *     I       I        I        I
7.4   11.1    6894 I        I  *     I       I        I        I
7.6   11.0    6682 I        I *      I       I        I        I
7.8   10.8    6399 I        I *      I       I        I        I
8.0   10.7    6118 I        I *      I       I        I        I
8.2   10.5    5895 I        I *      I       I        I        I
8.4   10.4    5656 I        I*       I       I        I        I
8.6   10.2    5417 I        I*       I       I        I        I
8.8   10.1    5217 I        *        I       I        I        I
9.0   10.0    5033 I        *        I       I        I        I
9.2    9.9    4847 I        *        I       I        I        I
9.4    9.8    4664 I       *I        I       I        I        I
9.6    9.7    4501 I       *I        I       I        I        I
9.8    9.6    4369 I       *I        I       I        I        I
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DATE: 11/26/85
FILE: WRDDB1.DAT

DAMBRK - Version..10/25/84

CPU Time (HH:MM:SS)....00:12:24

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