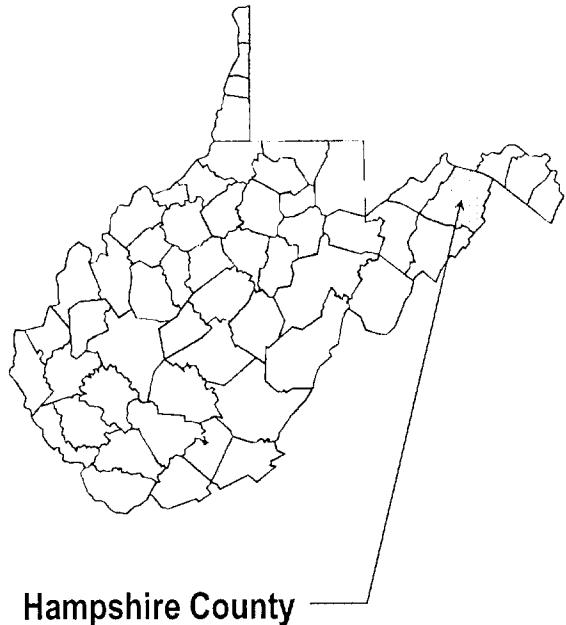


# FLOOD INSURANCE STUDY



## HAMPSHIRE COUNTY, WEST VIRGINIA AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
CAPON BRIDGE, TOWN OF	540046
HAMPSHIRE COUNTY (UNINCORPORATED AREAS)	540226
ROMNEY, TOWN OF	540276



EFFECTIVE:  
NOVEMBER 7, 2002



Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER  
54027CV000A

**NOTICE TO  
FLOOD INSURANCE STUDY USERS**

Communities participating in the National Flood Insurance Program (NFIP) have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study (FIS) may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

Part of all of this FIS may be revised and republished at any time. In addition, part of this FIS may be revised by the Letter of Map Revision (LOMR) process, which does not involve republication or redistribution of the FIS. It is, therefore, the responsibility of the user to consult with community officials and to check the community repository to obtain the most current FIS components.

Initial Countywide FIS Effective Date: November 7, 2002

Revised Countywide FIS Dates:

## TABLE OF CONTENTS

	<u>Page</u>
1.0 <u>INTRODUCTION</u>	1
1.1    Purpose of Study	1
1.2    Authority and Acknowledgments	1
1.3    Coordination	2
2.0 <u>AREA STUDIED</u>	2
2.1    Scope of Study	2
2.2    Community Description	4
2.3    Principal Flood Problems	4
2.4    Flood Protection Measures	5
3.0 <u>ENGINEERING METHODS</u>	5
3.1    Hydrologic Analyses	5
3.2    Hydraulic Analyses	8
3.3    Vertical Datum	9
4.0 <u>FLOODPLAIN MANAGEMENT APPLICATIONS</u>	9
4.1    Flood Boundaries	10
4.2    Floodways	10
5.0 <u>INSURANCE APPLICATIONS</u>	26
6.0 <u>FLOOD INSURANCE RATE MAP</u>	28
7.0 <u>OTHER STUDIES</u>	28
8.0 <u>LOCATION OF DATA</u>	28
9.0 <u>BIBLIOGRAPHY AND REFERENCES</u>	30

## TABLE OF CONTENTS - continued

	<u>Page</u>
<u>FIGURES</u>	
Figure 1 - Floodway Schematic	26
<u>TABLES</u>	
Table 1 - Flooding Sources Studied by Detailed Methods	2
Table 2 - Scope of Revision	3
Table 3 – Summary of Discharges	6-7
Table 4 – Summary of Roughness Coefficients	8
Table 5 – Floodway Data	12-25
Table 6 – Community Map History	29

## EXHIBITS

### EXHIBIT 1 – Flood Profiles

Big Run	Panels 01P-08P
Cacapon River	Panels 09P-10P
Green Spring Run	Panels 11P-13P
Little Cacapon River	Panel 14P
Mill Branch	Panels 15P-19P
North Fork Little Cacapon River	Panels 20P-22P
North River	Panels 23P-27P
South Branch Potomac River	Panels 28P-34P
South Fork Little Cacapon River	Panels 35P-36P

### EXHIBIT 2 – Flood Insurance Rate Map Index Flood Insurance Rate Map

**FLOOD INSURANCE STUDY**  
**HAMPSHIRE COUNTY, WEST VIRGINIA AND INCORPORATED AREAS**

**1.0 INTRODUCTION**

**1.1 Purpose of Study**

This countywide Flood Insurance Study (FIS) investigates the existence and the severity of flood hazards in, or revises previous Flood Insurance Rate Maps (FIRMs) for, the geographic area of Hampshire County, West Virginia, including: the Towns of Capon Bridge and Romney and the unincorporated areas of Hampshire County (hereinafter referred to collectively as Hampshire County).

This Flood Insurance Study aids in the administration of the National Flood Insurance Act of 1968, and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates. This information will be used by Hampshire County to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP), and by local and regional planners to further promote sound land use and floodplain development. Minimum floodplain management requirements for participation in the National Flood Insurance Program are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some States or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

**1.2 Authority and Acknowledgments**

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

This FIS was prepared to include the incorporated communities within Hampshire County into a countywide FIS. For this FIS, the hydrologic and hydraulic analyses were prepared by Hayes, Seay, Mattern and Mattern, Inc., for the Federal Emergency Management Agency (FEMA) under Contract No. EMW-97-CO-0140. This work was completed in June 2000.

Base map information shown on the FIRM was derived from U.S. Geological Survey (USGS) Digital Orthophoto Quadrangles produced at a scale of 1:12,000 from photography dated 1989 or later. These files were supplemented with planimetric base map and contour information provided in digital format by Continental Aerial Survey for the detailed study stream corridors. These files were compiled at a scale of 1:4,800 from aerial photographs dated 1998. This information was used to map all detailed study stream flood boundaries to National Geodetic Vertical Datum (NGVD 29). Countywide contours were obtained from USGS 7.5-minute Quadrangle maps. This information was used to

delineate Zone A boundaries on all streams with over a 1 square mile drainage area.

### 1.3 Coordination

Consultation Coordination Officer's (CCO) meetings may be held for each jurisdiction in this countywide FIS. An initial CCO meeting is held typically with representatives of FEMA, the community, and the study contractor to explain the nature and purpose of a FIS, and to identify the streams to be studied by detailed methods. A final CCO meeting is held typically with representatives of FEMA, the community, and the study contractor to review the results of the study.

For this revision, an initial Consultation and Coordination Officer's (CCO) meeting was held on May 5, 1998, with representatives of Hampshire County; Hayes, Seay, Mattern and Mattern, Inc.; and FEMA.

In the course of this study, the West Virginia Department of Transportation, the U.S. Geological Survey (USGS), FEMA, and the U.S. Army Corps of Engineers (USACE) were contacted to supply relevant information concerning the study streams.

A final CCO meeting was held on July 28, 2000, and was attended by representatives of Hampshire County; the Towns of Capon Bridge and Romney; Hayes, Seay, Mattern and Mattern; and FEMA.

## 2.0 AREA STUDIED

### 2.1 Scope of Study

This Flood Insurance Study covers the geographic area of Hampshire County, West Virginia.

The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development and proposed construction.

All or portions of the flooding sources listed in Table 1, "Flooding Sources Studied by Detailed Methods," were studied by detailed methods. Limits of detailed study are indicated on the Flood Profiles (Exhibit 1) and on the FIRM (Exhibit 2).

TABLE 1 - FLOODING SOURCES STUDIED BY DETAILED METHODS

Big Run	North Fork Little Cacapon River
Cacapon River	North River
Green Spring Run	South Branch Potomac River
Little Cacapon River	South Fork Little Cacapon River
Mill Branch	

As part of this countywide FIS, updated analyses were included for the flooding sources shown in Table 2, "Scope of Revision."

TABLE 2 - SCOPE OF REVISION

<u>Stream</u>	<u>Limits of Revised or New Detailed Study</u>
Big Run	From the confluence with South Branch Potomac River to a point approximately 475 feet upstream of Grassy Lick Road
Cacapon River	From approximately 1.6 miles downstream of U.S. Route 50 to a point approximately 1.9 miles upstream of U.S. Route 50
Green Spring Run	From CSX Transportation to a point approximately 4.2 miles upstream of Green Spring Valley Road
Little Cacapon River	From a point approximately 1.1 miles downstream of Little Cacapon River Road to a point immediately upstream of Little Cacapon Road
Mill Branch	From confluence with Cacapon River to a point approximately 2.5 miles upstream of U.S. Route 50.
North Fork Little Cacapon River	From confluence with Little Cacapon River to a point approximately 1.1 miles upstream of Heide Cooper Road
North River	From a point approximately 7.2 miles downstream of U.S. Route 50 to a point approximately 3.3 miles upstream of U.S. Route 50
South Branch Potomac River	From a point approximately 150 feet upstream of confluence with Potomac River to a point approximately 2.8 miles upstream of confluence of Big Run
South Fork Little Cacapon River	From confluence with Little Cacapon River to a point approximately 1.9 miles upstream of U.S. Route 50

Numerous flooding sources in the county were studied by approximate methods. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and Hampshire County. All flood boundaries for streams not studied by detailed methods were restudied using approximate methods.

## 2.2 Community Description

Hampshire County, with a total land area of 642 square miles, lies in northeast West Virginia. It is bounded on the north by Morgan County, West Virginia, and Allegany County, Maryland; on the west by Mineral County, West Virginia; on the east by Frederick County, Virginia; and, on the south by Hardy County, West Virginia. According to U.S. Census Bureau figures, Hampshire County had a 1998 population of 19,041 (U.S. Department of Commerce, Bureau of the Census). The economy of the area is based primarily on government and services industry.

The county has a diverse topography, predominantly consisting of mountainous slopes. Elevations range from mountain peaks at 3,000 feet above sea level, to floodplains of the large rivers at 600 feet above sea level. Average elevation in the County is estimated at 1,500 feet.

The Potomac River and the South Branch Potomac River provide major natural drainage. The South Branch Potomac River flows northeasterly across Hampshire County from the southwest corner to the northern boundary. The Cacapon River and the North River also provide major drainage for the county. Both rivers flow from the southern end of the county to the northern end.

A majority of the land in Hampshire County is rural farmland and timberland, with small portions urbanized. The primary urban center is the Town of Romney, the county seat of Hampshire County. Other urban areas include the Town of Capon Bridge. No significant future urbanized growth is expected. Existing floodplain development in the unincorporated county areas can be found along the South Branch Potomac River near the Town of Romney. Development along the river around Romney generally consists of single-family residences with a few commercial establishments.

Soils in Hampshire County are predominately of the Berks and Dekalb soil series and are characterized by well-drained soils on uplands.

The climate of northeast West Virginia is temperate. Average monthly temperatures range from 74 degrees Fahrenheit ( $^{\circ}$ F) in the summer to 30 $^{\circ}$ F in the winter. Average annual precipitation for the region is 16 inches. Average annual snowfall is approximately 23 inches.

## 2.3 Principal Flood Problems

Areas subject to flooding in Hampshire County include stretches of land along the South Branch Potomac River and the Cacapon River and their tributaries. Most noticeable during any excessive rainy period is flooding on the South Branch Potomac River around Romney particularly in the fall and spring during snowmelt.

Information on the past floods was obtained by reviewing gage records, searching newspaper files, and interviewing local residents. The great floods that occurred in Hampshire County in 1985 and 1996 were caused by widespread heavy rainfall.

## 2.4 Flood Protection Measures

There are no flood protection measures existing at this time in Hampshire County.

## 3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the county, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-, year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1-percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

### 3.1 Hydrologic Analyses

Hydrologic analyses were performed to establish the peak discharge frequency relationships for each flooding source studied in detail affecting Hampshire County. For this study, the USACE HEC-1 Flood Hydrograph Package was used for the hydrologic method (USACE, HEC-1 Flood Hydrograph Package, June 1998). The SCS dimensionless unit hydrograph is used as the method to calculate the hydrograph for each subbasin. The normal depth channel routing is used for the routing methodology. The raw data for drainage areas, curve numbers, lag and routing times are obtained from USGS Quadrangle maps (U.S. Department of the Interior, 7.5-Minute Series Topographic Maps, 1973, et cetera). The hypothetical storm information is obtained from Technical Paper No. 40 (U.S. Department of Commerce, 1961).

The detailed study is divided into 8 categories: South Branch Potomac River Watershed, Cacapon River Watershed, Little Cacapon River Watershed, Mill Branch Watershed, and North River Watershed. One stream gage exists on the South Branch Potomac River in the detailed study area. A log-Pearson Type III analysis was performed on the stream gage and the hydrologic model was calibrated as close as possible to the LP-III results and high-water marks. Due to a lack of stream gages in the remaining watersheds, the hydrologic models were calibrated to historical floods using hydraulic models and historical high-water elevations along studied streams.

A summary of the drainage area-peak discharge relationships for the streams studied by detailed methods are shown in Table 3, "Summary of Discharges."

TABLE 3 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-YEAR	50-YEAR	100-YEAR	500-YEAR
<b>BIG RUN</b>					
At confluence with South Potomac River	5.0	2,055	3,657	4,519	7,387
Approximately 830 feet upstream of U.S. Route 50	2.1	1,156	2,157	2,677	4,420
<b>CACAPON RIVER</b>					
Approximately 4,000 feet downstream of confluence of Dillons Run	369.8	26,723	43,479	52,222	79,913
Approximately 4,200 feet downstream of confluence of Mill Branch	368.7	26,892	43,916	52,774	80,854
Approximately 4,200 feet upstream of confluence of Dillons Run	348.3	26,666	43,618	52,432	80,388
Approximately 5,200 feet downstream of Kale Hallow	340.9	26,557	43,472	52,279	80,233
<b>GREEN SPRING RUN</b>					
Approximately 4,400 feet downstream of CSX Transportation	11.8	2,822	5,039	6,251	10,311
Approximately 2,100 feet downstream of Unnamed Secondary Highway	8.8	3,094	5,177	6,300	9,938
<b>LITTLE CACAPON RIVER</b>					
Approximately 1,000 feet downstream of confluence of South Fork Little Cacapon River	30.1	11,956	18,916	22,390	33,119
At confluence of North Fork Little Cacapon River	29.0	11,904	18,784	22,245	32,943

TABLE 3 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs)			
		10-YEAR	50-YEAR	100-YEAR	500-YEAR
<b>MILL BRANCH</b>					
Approximately 4,200 feet downstream of confluence of Dillons Run	12.7	1,216	2,371	3,111	5,845
Approximately 8,800 feet upstream of State Route 4	5.6	1,030	2,190	2,815	5,042
<b>NORTH FORK LITTLE CACAPON RIVER</b>					
Approximately 17,600 feet downstream of confluence of Camp Run	15.2	6,721	10,568	12,496	18,439
At confluence of North Fork	13.6	6,894	10,798	12,766	18,831
Approximately 4,200 feet upstream of confluence of Camp Run	10.1	5,314	8,240	9,702	14,176
<b>NORTH RIVER</b>					
Approximately 2,200 feet downstream of confluence of Tear Coat Creek	157.4	6,316	12,537	16,835	33,378
At confluence of Tear Coat Creek	154.9	6,358	12,671	17,083	34,185
Approximately 200 feet downstream of U.S. Route 50	112.9	6,051	12,211	16,435	32,760
Approximately 300 feet downstream of North River Road	104.8	6,125	12,442	16,649	32,742
<b>SOUTH BRANCH POTOMAC RIVER</b>					
At confluence with Potomac River	1,478.1	104,553	157,340	184,035	264,900
<b>SOUTH FORK LITTLE CACAPON RIVER</b>					
At confluence with Little Cacapon River	13.8	5,409	8,634	10,254	15,286
Approximately 4,000 feet upstream of U.S. Route 50	12.9	5,370	8,548	10,160	15,174

### 3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Users should be aware that flood elevations shown on the FIRM represent rounded whole-foot elevations and may not exactly reflect the elevations shown on the Flood Profiles or in the Floodway Data tables in the FIS report. For construction and/or floodplain management purposes, users are encouraged to use the flood elevation data presented in this FIS in conjunction with the data shown on the FIRM.

The cross-section geometries were obtained from field surveys and topographic information. All bridges, dams, and culverts were field surveyed to obtain elevation data and structural geometry. The channel sections were located at close intervals upstream and downstream of structures. The overbank cross-section data for the backwater analyses were obtained from four-foot contour interval orthophotographic maps, prepared by Continental Aerial Survey for this study (Continental Aerial Survey, 1998). The contours generated are strictly along the stream corridors that were part of this study's detailed study stream reaches.

Water-surface elevations of floods of the selected recurrence intervals were computed through use of the USACE HEC-RAS step-backwater computer program (USACE, October 1997). These computer models were calibrated using historic high-water data collected during field investigations.

Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals. Starting water-surface elevations for the detailed study limits were obtained by using the slope area option of the HEC-RAS step-backwater computer program.

The channel and overbank "n" values for the streams studied are shown in Table 4, "Summary of Roughness Coefficients."

TABLE 4 – SUMMARY OF ROUGHNESS COEFFICIENTS

<u>Stream Name</u>	<u>Channel "n" Value</u>	<u>Overbank "n" Value</u>
Big Run	0.030	0.09-0.11
Cacapon River	0.031-0.036	0.08-0.16
Green Springs Run	0.055-0.058	0.10-0.20
Little Cacapon River	0.052	0.10-0.20
Mill Branch	0.030-0.046	0.09-0.17
North Fork Little Cacapon River	0.055	0.09-0.17
North River	0.031-0.033	0.08-0.16
South Branch Potomac River	0.032-0.054	0.08-0.20
South Fork Little Cacapon River	0.052	0.08-0.16

The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29). Elevation reference marks (ERMs) used in this study, and their descriptions, are shown on the FIRM. ERMs shown on the FIRM represent those used during the preparation of this and previous FISs. The elevations associated with each ERM were obtained and/or developed during FIS production to establish vertical control for determination of flood elevations and floodplain boundaries shown on the FIRM. Users should be aware that these ERM elevations may have changed since the publication of this FIS. To obtain up-to-date elevation information on National Geodetic Survey (NGS) ERMs shown on this map, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their website at [www.ngs.noaa.gov](http://www.ngs.noaa.gov). Map users should seek verification of non-NGS ERM monument elevations when using these elevations for construction or floodplain management purposes.

### 3.3 Vertical Datum

All FISs and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum in use for newly created or revised FISs and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD 29). With the finalization of the North American Vertical Datum of 1988 (NAVD 88), many FIS reports and FIRMs are being prepared using NAVD 88 as the referenced vertical datum.

All flood elevations shown in this FIS report and on the FIRM are referenced to NGVD 29. Structure and ground elevations in the community must, therefore, be referenced to NGVD 29. It is important to note that adjacent communities may be referenced to NAVD 88. This may result in differences in base flood elevations across the corporate limits between the communities.

For more information on NAVD 88, see Converting the National Flood Insurance Program to the North American Vertical Datum of 1988, FEMA Publication FIA-20/June 1992, or contact the Vertical Network Branch, National Geodetic Survey, Coast and Geodetic Survey, National Oceanic and Atmospheric Administration, Rockville, Maryland 20910 (Internet address <http://www.ngs.noaa.gov>).

## 4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. To assist in this endeavor, each FIS provides 100-year floodplain data, which may include a combination of the following: 10-, 50-, 100-, and 500-year flood elevations; delineations of the 100-year and 500-year floodplains; and 100-year floodway. This information is presented on the FIRM and in many components of the FIS, including Flood Profiles, Floodway Data tables, and Summary of Stillwater Elevation tables. Users should reference the data presented in the FIS as well as additional information that may be

available at the local community map repository before making flood elevation and/or floodplain boundary determinations.

#### 4.1 Flood Boundaries

To provide a national standard without regional discrimination, the 1 percent annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance (500-year) flood is employed to indicate additional areas of flood risk in the community. For streams studied in detail, the 100- and 500-year floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:4,800 with a contour interval of four feet that were prepared by Continental Aerial Survey for this study (Continental Aerial Survey, 1998).

The 100- and 500-year floodplain boundaries are shown on the Flood Insurance Rate Map (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 500-year floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 100- and 500-year floodplain boundaries are close together, only the 100-year floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, only the 100-year floodplain boundary is shown on the FIRM (Exhibit 2).

Flood boundaries for areas evaluated by approximate methods were delineated using USGS quadrangles at a scale of 1:24,000, with a contour interval of 10 feet (USGS, 1973, et cetera).

#### 4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, the concept of a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this study were computed on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The results of these computations are tabulated for selected cross sections (Table 5). The computed floodways are shown on the Flood Insurance Rate Map (Exhibit 2). In cases where the floodway and 100-year floodplain boundaries are either close together or collinear, only the floodway boundary has been shown.

Encroachment into areas subject to inundation by floodwaters having hazardous velocities aggravates the risk of flood damage, and heightens potential flood hazards by further increasing velocities. A listing of stream velocities at selected cross sections is provided in Table 5, "Floodway Data." In order to reduce the risk of property damage in areas where stream velocity is high, the community may wish to restrict development in areas outside the floodway.

Near the mouths of streams studied in detail, floodway computations are made without regard to flood elevations on the receiving water body. Therefore, "Without Floodway" elevations presented in Table 5 for certain downstream cross sections of Big Run, Mill Branch, North Fork Little Cacapon River, and South Fork Little Cacapon River are lower than the regulatory flood elevations in that area, which must take into account the 100-year flooding due to backwater from other sources.

The area between the floodway and 100-year floodplain boundaries is termed the floodway fringe. The floodway fringe encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 1.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Big Run								
A	2,477	292	1,773	2.6	680.0	670.5 <sup>2</sup>	670.6	0.1
B	2,985	192	737	6.1	680.0	673.4 <sup>2</sup>	674.3	0.9
C	3,346	212	757	6.0	680.8	680.8	681.6	0.8
D	3,853	183	823	5.5	688.3	688.3	689.2	0.9
E	4,653	215	835	5.4	703.4	703.4	703.8	0.4
F	5,158	164	724	6.2	711.3	711.3	711.5	0.2
G	5,563	155	646	7.0	719.3	719.3	719.5	0.2
H	6,344	165	672	6.7	738.1	738.1	738.4	0.3
I	6,807	140	952	4.8	744.8	744.8	745.7	0.9
J	7,169	110	629	7.2	751.6	751.6	752.1	0.5
K	7,618	113	625	7.2	761.9	761.9	762.1	0.2
L	8,063	111	584	7.7	771.4	771.4	771.6	0.2
M	8,523	139	536	8.4	781.6	781.6	781.6	0.0
N	8,994	375	931	4.9	795.8	795.8	795.8	0.0
O	9,874	38	287	15.8	812.2	812.2	812.2	0.0
P	10,280	101	428	10.6	827.1	827.1	827.3	0.2
Q	10,754	123	574	7.9	835.4	835.4	835.5	0.1
R	11,330	89	385	11.7	849.0	849.0	849.0	0.0
S	11,700	183	669	6.8	856.7	856.7	856.7	0.0
T	12,100	163	541	8.4	868.1	868.1	868.1	0.0
U	12,558	101	491	9.2	878.8	878.8	878.9	0.1
V	13,169	80	404	11.2	894.3	894.3	894.3	0.0
W	13,547	116	538	8.4	904.5	904.5	904.5	0.0
X	13,916	106	468	9.7	916.3	916.3	916.4	0.1
Y	15,138	182	717	6.3	959.9	959.9	959.9	0.0
Z	15,865	126	770	5.9	986.0	986.0	986.0	0.0

<sup>1</sup>Feet above mouth

<sup>2</sup>Elevation computed without consideration of backwater effects from South Branch Potomac River

## HAMPSHIRE COUNTY, WV AND INCORPORATED AREAS

### FLOODWAY DATA

FEDERAL EMERGENCY MANAGEMENT AGENCY

TABLE 5

BIG RUN

FLOODING SOURCE		FLOODWAY				BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)		
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Big Run (continued)								
AA	16,143	58	364	12.4	993.4	993.4	993.6	0.2
AB	16,438	117	664	6.8	1,003.6	1,003.6	1,004.1	0.5
AC	16,975	93	352	7.6	1,025.0	1,025.0	1,025.5	0.5
AD	17,407	59	265	10.1	1,043.1	1,043.1	1,043.4	0.3
AE	17,625	40	197	13.6	1,056.9	1,056.9	1,056.9	0.0
Cacapon River								
A	149,120	385	7,433	7.0	806.7	806.7	807.5	0.8
B	151,153	1,649	26,977	1.9	808.9	808.9	809.8	0.9
C	152,506	1,970	26,620	2.0	809.2	809.2	810.0	0.8
D	154,111	620	10,408	5.0	810.0	810.0	810.5	0.5
E	155,657	1,070	14,641	3.6	811.3	811.3	811.9	0.6
F	156,666	1,080	13,072	4.0	811.8	811.8	812.3	0.5
G	160,146	1,597	24,993	2.1	817.1	817.1	817.8	0.7
H	161,554	855	14,452	3.7	817.2	817.2	817.8	0.6
I	162,628	755	15,274	3.5	817.6	817.6	818.6	1.0
J	163,707	620	9,397	5.6	817.8	817.8	818.7	0.9
K	164,543	490	8,013	6.5	818.0	818.0	819.0	1.0
L	165,485	540	8,477	6.2	818.8	818.8	819.8	1.0
M	166,488	302	6,023	8.7	819.3	819.3	820.3	1.0
N	167,421	208	4,781	10.9	820.1	820.1	821.1	1.0

<sup>1</sup>Feet above mouth

**HAMPSHIRE COUNTY, WV  
AND INCORPORATED AREAS**

**TABLE 5**

**FLOODWAY DATA**

**BIG RUN - CACAPON RIVER**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Green Spring Run								
A	9,190	755	3,651	1.7	560.0	560.0	560.5	0.5
B	10,332	295	2,182	2.9	564.2	564.2	564.8	0.6
C	10,913	350	2,376	2.6	566.6	566.6	567.5	0.9
D	11,661	500	3,445	1.8	568.5	568.5	569.4	0.9
E	12,644	360	2,341	2.7	571.0	571.0	571.8	0.8
F	13,441	470	3,089	2.0	574.3	574.3	575.3	1.0
G	13,722	390	2,414	2.6	574.8	574.8	575.7	0.9
H	14,385	280	1,964	3.2	576.9	576.9	577.9	1.0
I	15,176	330	2,160	2.9	580.5	580.5	581.5	1.0
J	16,164	330	2,265	2.8	584.0	584.0	585.0	1.0
K	16,753	380	2,354	2.7	585.9	585.9	586.9	1.0
L	17,411	290	1,830	3.4	588.2	588.2	589.2	1.0
M	17,899	210	1,070	5.8	590.7	590.7	591.5	0.8
N	18,754	295	1,499	4.2	595.3	595.3	596.2	0.9
O	19,514	390	2,224	2.8	599.0	599.0	599.9	0.9
P	20,170	240	1,460	4.3	601.2	601.2	602.2	1.0
Q	20,951	275	1,975	3.2	607.6	607.6	608.5	0.9
R	21,328	300	1,959	3.2	609.0	609.0	610.0	1.0
S	22,227	365	2,357	2.7	614.9	614.9	615.9	1.0
T	23,235	440	3,170	2.0	621.8	621.8	622.8	1.0
U	23,602	330	2,196	2.9	623.0	623.0	623.6	0.6
V	24,362	495	3,187	2.0	628.0	628.0	629.0	1.0
W	25,151	250	1,591	4.0	634.1	634.1	635.1	1.0
X	25,946	200	1,132	5.6	643.0	643.0	644.0	1.0
Y	26,429	325	1,617	3.9	649.1	649.1	650.1	1.0

<sup>1</sup>Feet above mouth

**HAMPSHIRE COUNTY, WV  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**GREEN SPRING RUN**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**TABLE 5**

FLOODING SOURCE		FLOODWAY				BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)		
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Little Cacapon River								
A	109,220	415	4,926	4.5	977.0	978.0	1.0	
B	109,783	585	6,031	3.7	979.2	980.2	1.0	
C	110,737	440	4,879	4.6	983.9	984.8	0.9	
D	111,573	463	4,653	4.8	988.3	989.2	0.9	
E	112,335	590	5,894	3.8	991.6	992.6	1.0	
F	113,048	635	5,626	4.0	995.5	996.4	0.9	
G	113,780	670	5,451	4.1	998.2	999.0	0.8	
H	114,483	580	4,871	4.6	1,002.9	1,003.4	0.5	
I	114,938	470	4,488	5.0	1,006.9	1,007.2	0.3	
Mill Branch								
A	1,085	82	291	10.7	811.7	811.4 <sup>2</sup>	0.5	
B	2,165	68	274	11.4	846.5	846.5	0.0	
C	2,702	70	346	9.0	881.7	881.9	0.2	
D	3,266	85	416	7.5	894.0	894.1	0.1	
E	3,981	210	1,576	2.0	899.7	900.4	0.7	
F	5,271	224	1,328	2.3	901.4	902.3	0.9	
G	5,908	260	1,630	1.9	901.8	902.6	0.8	
H	6,508	262	1,645	1.9	902.0	903.0	1.0	
I	6,860	176	1,034	3.0	902.2	903.1	0.9	
J	7,393	283	987	3.2	903.2	903.9	0.7	
K	8,206	306	954	3.3	904.5	905.3	0.8	
L	8,933	236	871	3.6	905.9	906.8	0.9	
M	9,548	166	663	4.7	907.5	908.1	0.6	
N	10,377	166	856	3.6	910.8	911.5	0.7	
O	10,833	260	1,285	2.4	912.1	912.6	0.5	

<sup>1</sup>Feet above mouth  
<sup>2</sup>Elevation computed without consideration of backwater effects from Cacapon River

**HAMPSHIRE COUNTY, WV  
AND INCORPORATED AREAS**

**TABLE 5**

**FLOODWAY DATA**

**LITTLE CACAPON RIVER - MILL BRANCH**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Mill Branch (continued)	P	11,430	280	1,031	3.0	913.3	913.7	0.4
	Q	11,965	260	1,081	2.9	914.6	915.5	0.9
	R	12,457	356	1,609	1.9	916.0	916.9	0.9
	S	13,297	200	1,062	2.9	916.8	917.6	0.8
	T	14,443	365	2,691	1.2	921.8	922.1	0.3
	U	15,692	389	1,975	1.6	922.2	922.9	0.7
	V	16,527	480	1,718	1.8	923.0	923.0	0.0
	W	17,526	227	1,087	2.9	925.6	925.6	0.5
	X	18,582	220	1,018	3.1	929.5	929.5	0.6
	Y	19,967	400	1,604	1.9	931.4	931.4	0.0
	Z	21,265	410	2,011	1.6	933.7	933.7	0.8
	AA	22,350	180	746	4.2	934.7	935.7	1.0
	AB	22,982	390	1,764	1.8	936.7	937.6	0.9
	AC	23,778	230	1,022	3.0	939.3	939.8	0.5
	AD	24,281	280	1,169	2.7	940.5	941.3	0.8
	AE	24,767	280	823	3.8	942.7	942.9	0.2
	AF	25,356	215	975	3.2	946.0	946.2	0.2
	AG	25,896	310	1,681	1.7	947.1	947.8	0.7
	AH	27,103	130	545	5.2	949.4	950.3	0.9

<sup>1</sup>Feet above mouth

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**HAMPSHIRE COUNTY, WV  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**MILL BRANCH**

**TABLE 5**

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
North Fork Little Cacapon River	A	354	225	1,581	7.9	1,010.7	1,009.1 <sup>2</sup>	1.0
	B	1,377	250	2,690	4.7	1,023.0	1,023.0	1.0
	C	2,140	310	2,624	4.8	1,025.8	1,025.8	1.0
	D	2,726	325	1,919	6.5	1,030.0	1,030.0	1.0
	E	3,451	305	1,978	6.3	1,038.0	1,038.0	1.0
	F	3,756	290	2,170	5.8	1,040.9	1,040.9	1.0
	G	4,313	320	2,445	5.1	1,045.2	1,045.2	0.5
	H	4,906	342	2,349	5.3	1,049.9	1,049.9	0.6
	I	5,542	215	1,570	8.0	1,054.1	1,054.1	1.0
	J	6,142	360	2,697	4.6	1,059.8	1,059.8	1.0
	K	6,728	197	1,253	10.0	1,064.1	1,064.1	0.1
	L	8,121	362	2,389	5.3	1,079.2	1,079.2	0.3
	M	8,572	266	1,843	6.9	1,084.4	1,084.4	0.9
	N	9,008	212	1,786	7.2	1,090.3	1,090.3	1.0
	O	9,411	221	2,188	5.8	1,094.7	1,094.7	0.9
	P	9,879	250	2,466	5.2	1,098.5	1,098.5	0.7
	Q	10,461	225	1,479	8.6	1,104.5	1,104.5	0.2
	R	11,183	300	2,546	5.0	1,113.2	1,113.2	1.0
	S	11,944	165	1,255	10.2	1,122.5	1,122.5	0.4
	T	12,367	230	1,751	5.5	1,129.4	1,129.4	1.0
	U	12,786	135	1,291	7.5	1,133.0	1,133.0	0.2
	V	13,376	98	795	12.2	1,141.7	1,141.7	0.5

<sup>1</sup>Feet above mouth  
<sup>2</sup>Elevation computed without consideration of backwater effects from Little Cacapon River

## HAMPSHIRE COUNTY, WV AND INCORPORATED AREAS

### FLOODWAY DATA

TABLE 5

## NORTH FORK LITTLE CACAPON RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
North River	A	111,711	90	1,163	14.5	822.2	822.8	0.6
	B	112,903	520	4,047	4.2	827.9	828.4	0.5
	C	113,997	480	2,974	5.7	830.0	830.2	0.2
	D	115,041	520	3,551	4.7	831.8	832.8	1.0
	E	115,921	453	3,870	4.4	833.5	834.5	1.0
	F	116,600	500	3,917	4.3	835.5	835.9	0.4
	G	116,974	452	3,403	5.0	835.5	836.3	0.8
	H	118,202	576	2,950	5.7	837.3	838.2	0.9
	I	119,226	600	4,979	3.4	840.6	840.6	0.9
	J	121,405	365	3,390	5.0	842.5	843.3	0.8
	K	122,056	305	2,924	5.8	843.2	844.0	0.8
	L	123,000	359	3,247	5.2	845.1	845.5	0.4
	M	124,310	400	3,964	4.3	846.5	846.5	0.0
	N	125,243	715	4,986	3.4	847.6	847.6	0.9
	O	126,623	523	5,898	2.9	849.0	849.0	0.0
	P	128,217	318	2,016	8.5	849.1	849.1	0.0
	Q	129,202	367	3,276	5.2	853.3	853.3	0.0
	R	129,802	455	4,305	4.0	854.5	855.5	0.9
	S	130,346	457	4,806	3.6	855.2	856.1	0.9
	T	131,441	219	2,171	7.9	855.8	856.8	1.0
	U	132,093	350	3,358	5.1	857.5	858.4	0.9
	V	132,794	309	3,306	5.2	858.6	859.6	1.0
	W	133,384	400	4,080	4.2	859.6	860.6	1.0
	X	133,984	751	6,502	2.6	860.6	861.6	1.0
	Y	135,028	1,095	8,886	1.9	861.5	862.3	0.8
	Z	136,668	980	7,151	2.4	862.2	862.9	0.7

<sup>1</sup>Feet above mouth

**TABLE 5**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**HAMPSHIRE COUNTY, WV  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**NORTH RIVER**

FLOODING SOURCE	CROSS SECTION	FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION (FEET NGVD)			
		DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY
North River (continued)								
AA	138,147	1,096	7,324	2.3	863.5	863.5	864.1	0.6
AB	139,868	785	5,564	3.1	864.9	864.9	865.5	0.6
AC	140,722	450	3,677	4.7	865.8	865.8	866.5	0.7
AD	141,610	280	2,614	6.5	866.9	866.9	867.6	0.7
AE	142,498	365	3,891	4.4	869.4	869.4	870.1	0.7
AF	143,942	467	4,401	3.9	871.9	871.9	872.2	0.3
AG	144,623	247	3,082	5.5	872.4	872.4	872.8	0.4
AH	145,209	277	3,044	5.6	872.9	872.9	873.4	0.5
AI	146,701	395	4,458	3.8	874.9	874.9	875.6	0.7
AJ	147,363	257	2,596	6.6	875.4	875.4	875.9	0.5
AK	148,404	225	2,285	7.5	877.9	877.9	878.5	0.6
AL	149,390	480	5,018	3.4	880.7	880.7	881.0	0.3
AM	150,550	477	4,726	3.5	882.9	882.9	883.3	0.4
AN	151,545	225	2,059	8.0	883.1	883.1	883.7	0.6
AO	152,305	197	2,115	7.8	883.8	883.8	884.6	0.8
AP	153,509	517	3,415	4.8	886.0	886.0	886.6	0.6
AQ	154,380	377	3,981	4.1	887.7	887.7	888.3	0.6
AR	155,424	257	2,778	5.9	889.3	889.3	890.2	0.9
AS	156,593	277	3,380	4.9	891.1	891.1	891.9	0.8
AT	157,809	317	3,211	5.1	892.2	892.2	893.1	0.9
AU	159,171	500	6,008	2.7	896.3	896.3	897.3	1.0
AV	160,462	557	5,222	3.2	897.1	897.1	897.9	0.8
AW	161,315	540	4,740	3.5	897.5	897.5	898.3	0.8
AX	162,543	860	5,882	2.8	898.5	898.5	899.4	0.9
AY	163,616	800	4,542	3.6	899.4	899.4	900.3	0.9
AZ	164,591	505	2,229	7.5	900.3	900.3	900.6	0.3
BA	165,872	295	2,592	6.4	904.7	904.7	905.6	0.9
BB	167,066	295	2,338	7.1	906.4	906.4	907.4	1.0

<sup>1</sup>Feet above mouth

## HAMPSHIRE COUNTY, WV AND INCORPORATED AREAS

### FLOODWAY DATA

NORTH RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TABLE 5

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
South Branch Potomac River	A	876	1,120	29,174.8	6.3	558.7	558.9	0.2
	B	2,521	1,090	27,129.8	6.8	559.4	559.6	0.2
	C	3,607	1,150	26,762.5	6.9	559.8	560.1	0.3
	D	5,030	721	19,535.3	9.4	560.1	560.2	0.1
	E	6,107	781	20,360.8	9.0	561.1	561.5	0.4
	F	7,368	661	18,645.2	9.9	561.7	562.4	0.7
	G	8,931	760	21,242.9	8.7	563.6	563.6	0.7
	H	10,398	1,025	26,320.0	7.0	565.0	565.0	0.8
	I	11,449	1,230	31,544.2	5.8	566.1	566.8	0.7
	J	12,692	1,590	35,522.3	5.2	567.0	567.7	0.7
	K	14,195	1,840	35,312.3	5.2	567.7	568.5	0.8
	L	15,802	1,730	27,997.0	6.6	568.2	568.9	0.7
	M	16,981	1,110	24,185.6	7.6	569.1	569.7	0.6
	N	18,042	945	23,087.8	8.0	569.8	570.5	0.7
	O	19,272	795	19,948.8	9.2	570.9	571.2	0.3
	P	20,124	755	20,254.7	9.1	571.5	572.0	0.5
	Q	21,453	1,085	26,410.4	7.0	572.7	573.6	0.9
	R	23,270	1,140	26,852.6	6.9	573.5	574.5	1.0
	S	24,725	660	17,525.5	10.5	573.7	574.7	1.0
	T	26,190	830	23,638.0	7.8	575.5	576.2	0.7
	U	27,705	1,170	28,284.7	6.5	576.6	577.4	0.8
	V	29,148	790	23,262.6	7.9	576.7	577.5	0.8
	W	31,328	912	23,641.3	7.8	579.0	579.7	0.7
	X	32,377	907	23,447.6	7.9	580.7	581.4	0.7
	Y	33,599	917	21,145.9	8.7	581.5	582.5	1.0
	Z	35,026	980	22,767.6	8.1	582.7	583.5	0.8

<sup>1</sup>Feet above mouth

## HAMPSHIRE COUNTY, WV AND INCORPORATED AREAS

TABLE 5

## FLOODWAY DATA

## SOUTH BRANCH POTOMAC RIVER

FLOODING SOURCE		FLOODWAY				BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)		
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
South Branch Potomac River (continued)	AA	36,962	1,230	30,192.7	6.1	586.0	586.7	0.7
	AB	38,530	1,550	36,387.4	5.1	586.9	587.9	1.0
	AC	40,090	1,460	38,354.9	4.8	587.8	588.8	1.0
	AD	41,544	1,530	41,220.8	4.5	588.4	589.4	1.0
	AE	42,783	1,360	37,211.3	5.0	588.8	589.8	1.0
	AF	44,045	1,200	32,016.4	5.8	589.0	590.0	1.0
	AG	45,771	1,540	38,089.8	4.8	590.2	591.1	0.9
	AH	47,434	1,550	37,446.1	4.9	591.4	592.2	0.8
	AI	48,485	1,384	34,141.7	5.4	591.9	592.7	0.8
	AJ	50,487	1,780	42,963.6	4.3	592.9	593.8	0.9
	AK	51,918	1,735	43,237.3	4.3	593.4	594.4	1.0
	AL	53,266	1,365	33,689.5	5.5	593.6	594.5	0.9
	AM	54,592	1,050	35,205.6	5.2	594.4	595.4	1.0
	AN	56,202	2,240	54,345.7	3.4	595.6	596.5	0.9
	AO	57,572	1,710	40,217.0	4.6	595.6	596.6	1.0
	AP	59,043	1,830	37,870.7	4.9	596.2	597.2	1.0
	AQ	60,538	1,700	46,952.1	3.9	597.3	598.2	0.9
	AR	62,276	1,470	39,576.5	4.7	597.4	598.3	0.9
	AS	63,920	1,150	28,614.6	6.4	597.8	598.7	0.9
	AT	64,953	1,470	34,195.6	5.4	598.5	599.4	0.9
	AU	66,037	665	19,364.4	9.5	598.5	599.2	0.7
	AV	67,154	730	20,214.4	9.1	598.9	599.8	0.9
	AW	68,410	670	18,656.5	9.9	599.7	600.6	0.9
	AX	69,499	940	25,774.7	7.1	601.5	602.4	0.9
	AY	71,341	940	27,093.4	6.8	605.0	605.8	0.8
	AZ	71,731	870	27,398.7	6.7	605.5	606.1	0.6

<sup>1</sup>Feet above mouth

**HAMPSHIRE COUNTY, WV  
AND INCORPORATED AREAS**

**FEDERAL EMERGENCY MANAGEMENT AGENCY**

**TABLE 5**

## FLOODWAY DATA

## SOUTH BRANCH POTOMAC RIVER

FLOODING SOURCE		FLOODWAY				BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)		
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
South Branch Potomac River (continued)								
BA	72,849	1,080	30,689.4	6.0	606.0	606.8	0.8	
BB	74,093	1,006	30,204.5	6.1	607.3	608.0	0.7	
BC	75,244	1,320	35,679.2	5.2	608.0	608.7	0.7	
BD	76,587	1,140	34,944.9	5.3	608.5	609.2	0.7	
BE	77,771	1,330	34,174.8	5.4	608.9	609.7	0.8	
BF	78,894	970	27,319.9	6.7	608.9	609.8	0.9	
BG	80,322	858	22,547.8	8.2	609.8	610.6	0.8	
BH	81,629	790	20,368.0	9.0	610.4	611.3	0.9	
BI	82,932	638	18,412.9	10.0	611.8	612.5	0.7	
BJ	84,732	1,230	33,565.8	5.5	614.7	615.5	0.8	
BK	85,935	1,260	30,922.2	6.0	614.9	615.9	1.0	
BL	87,248	1,000	29,533.7	6.2	615.8	616.7	0.9	
BM	88,683	900	27,475.4	6.7	616.9	617.7	0.8	
BN	89,920	766	24,841.1	7.4	617.4	618.4	1.0	
BO	91,667	865	25,011.0	7.4	618.5	619.4	0.9	
BP	93,280	810	26,241.4	7.0	619.4	620.4	1.0	
BQ	95,235	1,651	45,070.3	4.1	621.0	622.0	1.0	
BR	97,374	1,710	48,164.3	3.8	621.7	622.7	1.0	
BS	99,044	1,530	39,846.8	4.6	622.1	623.1	1.0	
BT	100,839	870	23,078.7	8.0	622.4	623.4	1.0	
BU	102,479	785	17,622.4	10.4	623.6	623.7	0.1	
BV	104,051	863	24,928.8	7.4	627.6	628.5	0.9	
BW	105,958	970	25,439.4	7.2	629.4	630.2	0.8	
BX	107,323	870	23,754.3	7.8	631.0	631.9	0.9	
BY	108,565	802	22,214.2	8.3	632.3	633.2	0.9	
BZ	109,992	1,552	37,657.9	4.9	634.3	635.1	0.8	

<sup>1</sup>Feet above mouth

## HAMPSHIRE COUNTY, WV AND INCORPORATED AREAS

## FLOODWAY DATA

SOUTH BRANCH POTOMAC RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TABLE 5

FLOODING SOURCE		FLOODWAY				BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)		
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
South Branch Potomac River (continued)								
CA	110,955	1,672	39,699.1	4.6	634.8	635.6	635.6	0.8
CB	113,045	1,650	43,723.7	4.2	636.6	636.6	637.3	0.7
CC	114,161	1,230	34,518.0	5.3	637.0	637.0	637.5	0.5
CD	115,459	1,030	29,363.5	6.3	637.6	637.6	637.9	0.3
CE	116,923	1,150	32,109.2	5.7	638.1	638.1	638.9	0.8
CF	118,472	1,080	32,395.6	5.7	638.7	638.7	639.6	0.9
CG	119,837	1,720	42,020.4	4.4	639.5	639.5	640.4	0.9
CH	121,317	1,590	49,349.4	3.7	640.2	640.2	641.2	1.0
CI	122,360	1,390	40,536.8	4.5	640.4	640.4	641.4	1.0
CJ	123,450	1,070	29,452.2	6.3	640.4	640.4	641.4	1.0
CK	124,262	680	20,540.5	9.0	640.4	640.4	641.4	1.0
CL	125,820	1,240	33,711.7	5.5	643.5	643.5	644.4	0.9
CM	126,877	1,052	29,767.5	6.2	643.8	643.8	644.7	0.9
CN	127,937	772	23,356.6	7.9	644.0	644.0	644.9	0.9
CO	128,867	622	19,925.4	9.2	644.3	644.3	645.2	0.9
CP	129,887	852	25,367.6	7.3	645.4	645.4	646.3	0.9
CQ	130,813	1,112	32,468.5	5.7	646.6	646.6	647.4	0.8
CR	132,253	2,303	60,808.2	3.0	648.4	648.4	649.2	0.8
CS	133,985	1,571	37,781.5	4.9	649.3	649.3	649.9	0.6
CT	135,293	1,230	34,380.6	5.4	651.1	651.1	651.5	0.4
CU	136,574	1,426	39,517.9	4.7	652.5	652.5	653.3	0.8
CV	138,001	1,394	39,605.3	4.7	654.5	654.5	655.5	1.0
CW	139,779	1,248	35,637.4	5.2	656.3	656.3	657.2	0.9
CX	140,970	1,730	51,959.3	3.5	658.1	658.1	658.9	0.8
CY	142,350	2,202	66,344.2	2.8	658.8	658.8	659.8	1.0
CZ	144,075	1,885	53,886.8	3.4	659.6	659.6	660.5	0.9

<sup>1</sup>Feet above mouth

**HAMPSHIRE COUNTY, WV  
AND INCORPORATED AREAS**

**TABLE 5**

**FLOODWAY DATA**

**SOUTH BRANCH POTOMAC RIVER**

FEDERAL EMERGENCY MANAGEMENT AGENCY

FLOODING SOURCE		FLOODWAY				BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)	
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY
South Branch Potomac River (continued)							
DA	145,661	1,804	50,982.3	3.6	660.7	660.6	661.6
DB	147,019	1,290	29,025.8	6.3	661.3	661.3	662.1
DC	148,239	514	18,719.9	9.8	663.5	663.5	664.4
DD	149,375	556	19,066.1	9.7	666.4	666.4	667.4
DE	150,635	551	19,200.2	9.6	669.0	669.0	669.9
DF	151,363	600	22,634.6	8.1	671.2	671.2	671.7
DG	152,658	960	33,663.2	5.5	673.3	673.3	674.0
DH	154,422	1,822	59,568.5	3.1	674.6	674.6	675.6
DI	155,712	2,504	76,772.8	2.4	675.2	675.2	676.2
DU	157,496	2,272	68,450.1	2.7	675.6	675.6	676.6
DK	159,005	2,285	68,527.2	2.7	676.2	676.2	677.2
DL	160,443	1,829	56,597.1	3.3	676.8	676.8	677.8
DM	161,417	1,434	47,380.3	3.9	677.3	677.3	678.3
DN	162,576	1,602	50,272.1	3.7	678.1	678.1	679.1
DO	163,625	1,414	46,814.4	3.9	678.7	678.7	679.7
DP	164,852	2,558	72,141.7	2.6	679.6	679.6	680.6
DQ	166,846	2,243	77,807.6	2.4	680.2	680.2	681.2
DR	168,098	2,060	74,644.2	2.5	680.5	680.5	681.4
DS	169,473	1,807	61,081.7	3.0	680.8	680.8	681.8
DT	171,129	1,986	61,097.1	3.0	681.7	681.7	682.7
DU	172,496	2,789	75,148.0	2.5	682.2	682.2	683.3
DV	173,803	2,683	67,876.3	2.7	682.6	682.6	683.7
DW	175,631	2,271	61,018.5	3.0	683.5	683.5	684.5
DX	177,028	2,010	55,802.8	3.3	684.2	684.2	685.2
DY	180,129	2,682	72,807.4	2.5	685.8	685.8	686.6

<sup>1</sup>Feet above mouth

## HAMPSHIRE COUNTY, WV AND INCORPORATED AREAS

## FLOODWAY DATA

## SOUTH BRANCH POTOMAC RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

TABLE 5

FLOODING SOURCE		FLOODWAY				BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)		
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
South Fork								
Little Cacapon River								
A	354	330	2,180	4.7	1,010.7	1,009.7 <sup>2</sup>	1,009.8	0.1
B	1,413	360	1,914	5.4	1,018.3	1,018.5	1,018.5	0.2
C	1,750	318	1,911	5.4	1,021.7	1,021.7	1,021.7	0.0
D	2,318	300	1,594	6.4	1,027.3	1,027.3	1,027.5	0.2
E	2,880	397	2,588	4.0	1,032.4	1,032.4	1,033.3	0.9
F	3,381	230	1,289	8.0	1,036.1	1,036.1	1,036.5	0.4
G	3,855	278	1,477	6.9	1,043.3	1,043.3	1,044.2	0.9
H	4,195	300	2,451	4.2	1,047.3	1,047.3	1,048.3	1.0
I	4,709	280	1,453	7.1	1,051.6	1,051.6	1,052.1	0.5
J	5,135	295	2,349	4.3	1,056.9	1,056.9	1,057.8	0.9
K	5,788	180	1,195	8.5	1,064.6	1,064.6	1,065.0	0.4
L	6,653	190	1,168	8.7	1,073.4	1,073.4	1,073.9	0.5
M	7,188	210	1,699	6.0	1,080.2	1,080.2	1,081.1	0.9
N	7,663	220	1,181	8.6	1,085.6	1,085.6	1,085.7	0.1
O	8,098	200	1,613	6.3	1,091.5	1,091.5	1,092.2	0.7
P	8,600	250	1,711	5.9	1,096.3	1,096.3	1,096.9	0.6
Q	9,041	220	1,494	6.8	1,101.0	1,101.0	1,101.9	0.9
R	9,716	210	1,361	7.5	1,109.0	1,109.0	1,110.0	1.0
S	10,867	180	1,417	7.2	1,122.5	1,122.5	1,123.5	1.0
T	11,361	250	1,953	5.2	1,128.5	1,128.5	1,129.5	1.0

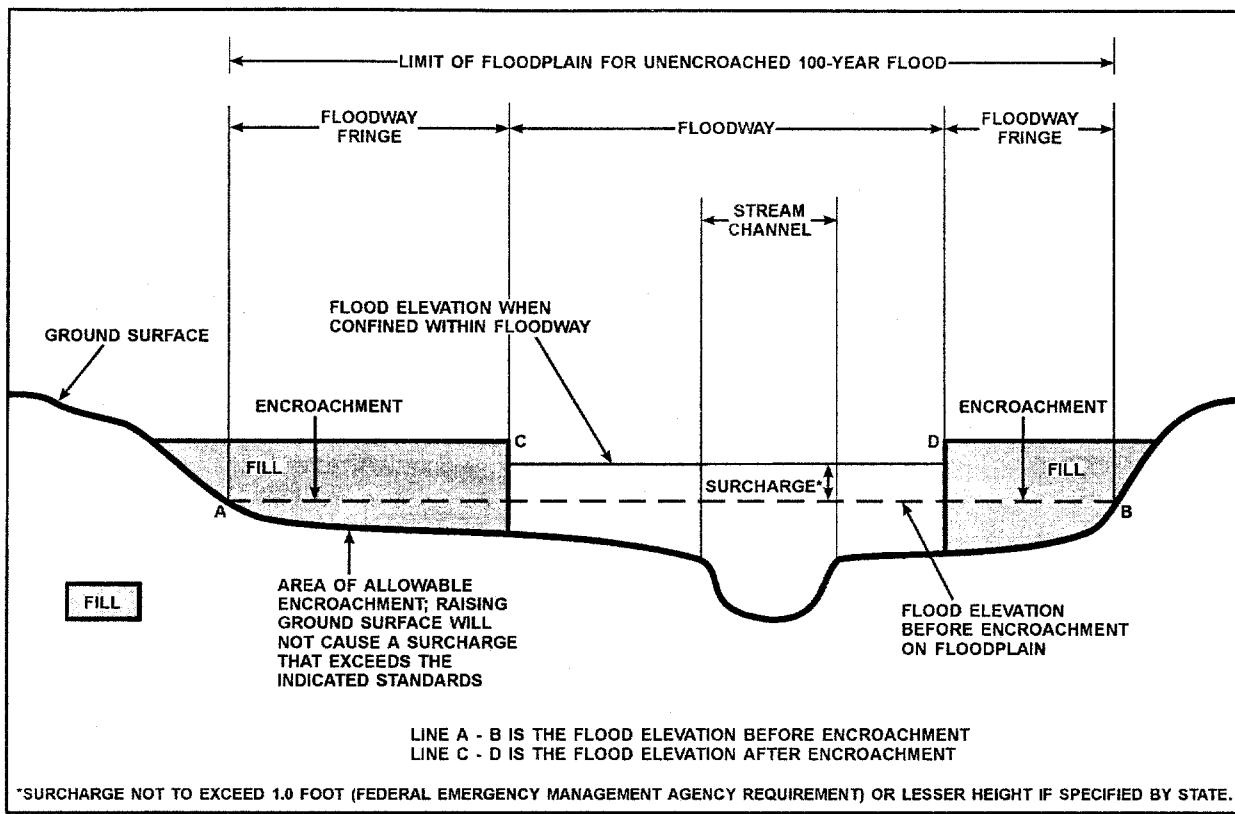
<sup>1</sup>Feet above mouth  
<sup>2</sup>Elevation computed without consideration of backwater effects from Little Cacapon River

**HAMPSHIRE COUNTY, WV  
AND INCORPORATED AREAS**

**TABLE 5**

**FLOODWAY DATA**

**SOUTH FORK LITTLE CACAPON RIVER**



**FLOODWAY SCHEMATIC**

Figure 1

## 5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. The zones are as follows:

### Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations or depths are shown within this zone.

### Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. In most instances, whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

### Zone AH

Zone AH is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually areas of ponding) where average depths are between 1

and 3 feet. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

#### Zone AO

Zone AO is the flood insurance rate zone that corresponds to the areas of 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-depth derived from the detailed hydraulic analyses are shown within this zone.

#### Zone AR

Area of special flood hazard formerly protected from the 1% annual chance flood event by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood event.

#### Zone A99

Zone A99 is the flood insurance rate zone that corresponds to areas of the 100-year floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or depths are shown within this zone.

#### Zone V

Zone V is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no base flood elevations are shown within this zone.

#### Zone VE

Zone VE is the flood insurance rate zone that corresponds to the 100-year coastal floodplains that have additional hazards associated with storm waves. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

#### Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain, areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

## Zone D

Zone D is the flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

## 6.0 FLOOD INSURANCE RATE MAP

The FIRM is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100-and 500-year floodplains. Floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations are shown where applicable.

The current FIRM presents flooding information for the entire geographic area of Hampshire County. Previously, separate FIRMs were prepared for each identified flood-prone incorporated community and the unincorporated areas of the county. Historical data relating to the maps prepared for each community, up to and including this countywide FIS, are presented in Table 6, "Community Map History."

## 7.0 OTHER STUDIES

FISs have been prepared for the unincorporated areas of Allegany County, Maryland (FEMA, 1989), Unincorporated Areas of Frederick County, Virginia (FEMA, 1978), Unincorporated Areas of Hardy County (FEMA, 1990), and Mineral County, West Virginia (FEMA, 1999), and Morgan County, West Virginia and Incorporated Areas (FEMA, 2000).

This countywide FIS supersedes the Flood Insurance Rate Maps for the Town of Capon Bridge (FEMA, April 1, 1988), Town of Romney (FEMA, June 15, 1988), and unincorporated areas of Hampshire County (FEMA, August 1, 1987).

## 8.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this FIS can be obtained by contacting FEMA, Federal Insurance and Mitigation Division, One Independence Mall, Sixth Floor, 615 Chestnut Street, Philadelphia, Pennsylvania 19106-4404.

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Capon Bridge, Town of Hampshire County (Unincorporated Areas)	August 16, 1974	January 30, 1976	April 1, 1988	November 7, 2002
Romney, Town of	January 31, 1975  May 6, 1977	July 2, 1982  None	August 1, 1987  June 15, 1988	November 7, 2002  November 7, 2002

**TABLE 6**

**HAMPSHIRE COUNTY, WV  
AND INCORPORATED AREAS**

**COMMUNITY MAP HISTORY**

FEDERAL EMERGENCY MANAGEMENT AGENCY

## 9.0 BIBLIOGRAPHY AND REFERENCES

Continental Aerial Survey. (1998). Topographic maps compiled from aerial photography dated 1998 at a scale of 1:4,800, with a contour interval of 4 feet.

Federal Emergency Management Agency. (April 1, 1988). Flood Insurance Rate Map, Town of Capon Bridge, West Virginia. Washington D.C.

Federal Emergency Management Agency. (August 1, 1987). Flood Insurance Rate Map, Hampshire County, West Virginia (Unincorporated Areas). Washington D.C.

Federal Emergency Management Agency. (December 15, 1990). Flood Insurance Study, Hardy County, West Virginia (Unincorporated Areas). Washington, D.C.

Federal Emergency Management Agency. (June 15, 1988). Flood Insurance Rate Map, Town of Romney, West Virginia. Washington D.C.

Federal Emergency Management Agency. (May 18, 2000, Flood Insurance Rate Map; March 5, 1996, Flood Insurance Study). Flood Insurance Study, Morgan County, West Virginia and Incorporated Areas. Washington, D.C.

Federal Emergency Management Agency. (October 20, 1999). Flood Insurance Study, Mineral County, West Virginia (Unincorporated Areas). Washington, D.C.

Federal Emergency Management Agency. (September 29, 1989). Flood Insurance Study, Allegany County, Maryland (Unincorporated Areas). Washington, D.C.

Federal Emergency Management Agency. Federal Insurance Administration. (July 17, 1978, Flood Insurance Rate Map; January 17, 1978, Flood Insurance Study). Flood Insurance Study, Frederick County, Virginia (Unincorporated Areas). Washington, D.C.

U.S. Army Corps of Engineers, Hydrologic Engineering Center. (October 1997). HEC-RAS River Analysis System, Version 2.2, Generalized Computer Program. Davis, California.

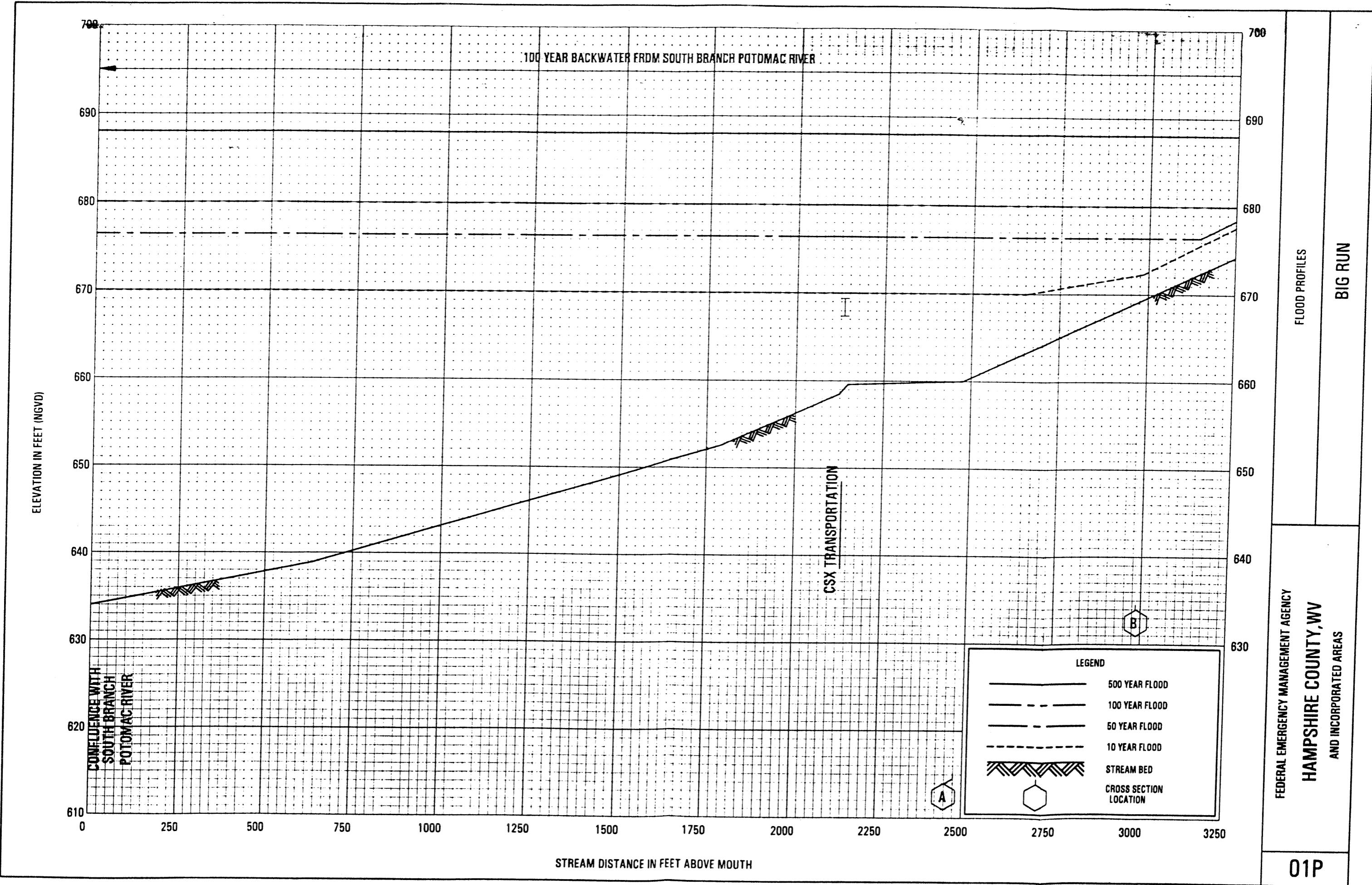
U.S. Army Corps of Engineers, Hydrologic Engineering Center. (June 1998). HEC-1 Flood Hydrograph Package, Generalized Computer Program. Davis, California.

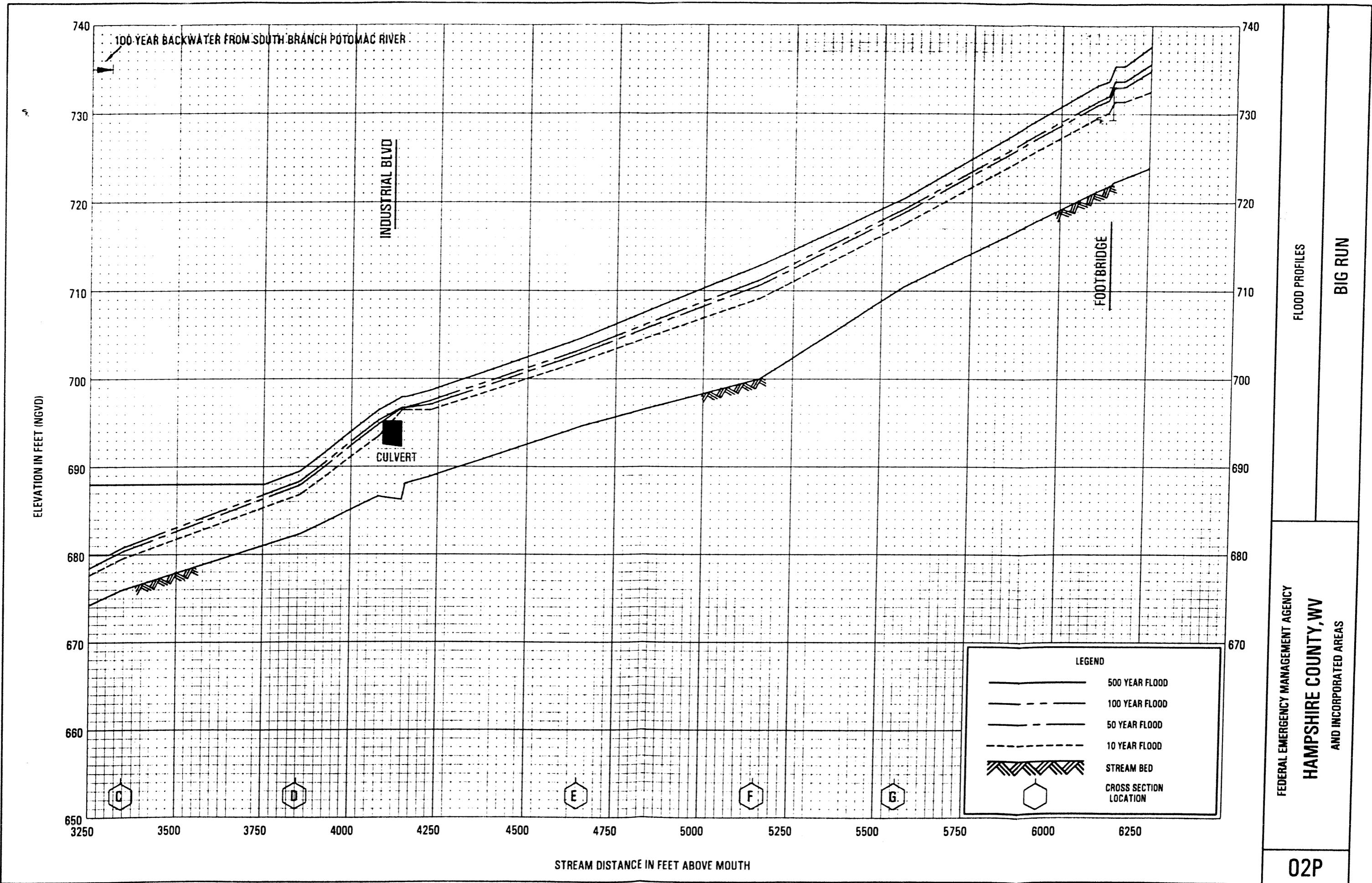
U.S. Department of Commerce, Bureau of the Census, <http://www.census.gov/>.

U.S. Department of Commerce, Weather Bureau. (1961, Revised 1963). Technical Paper No. 40, Rainfall Frequency Atlas of the United States, Washington, D.C.

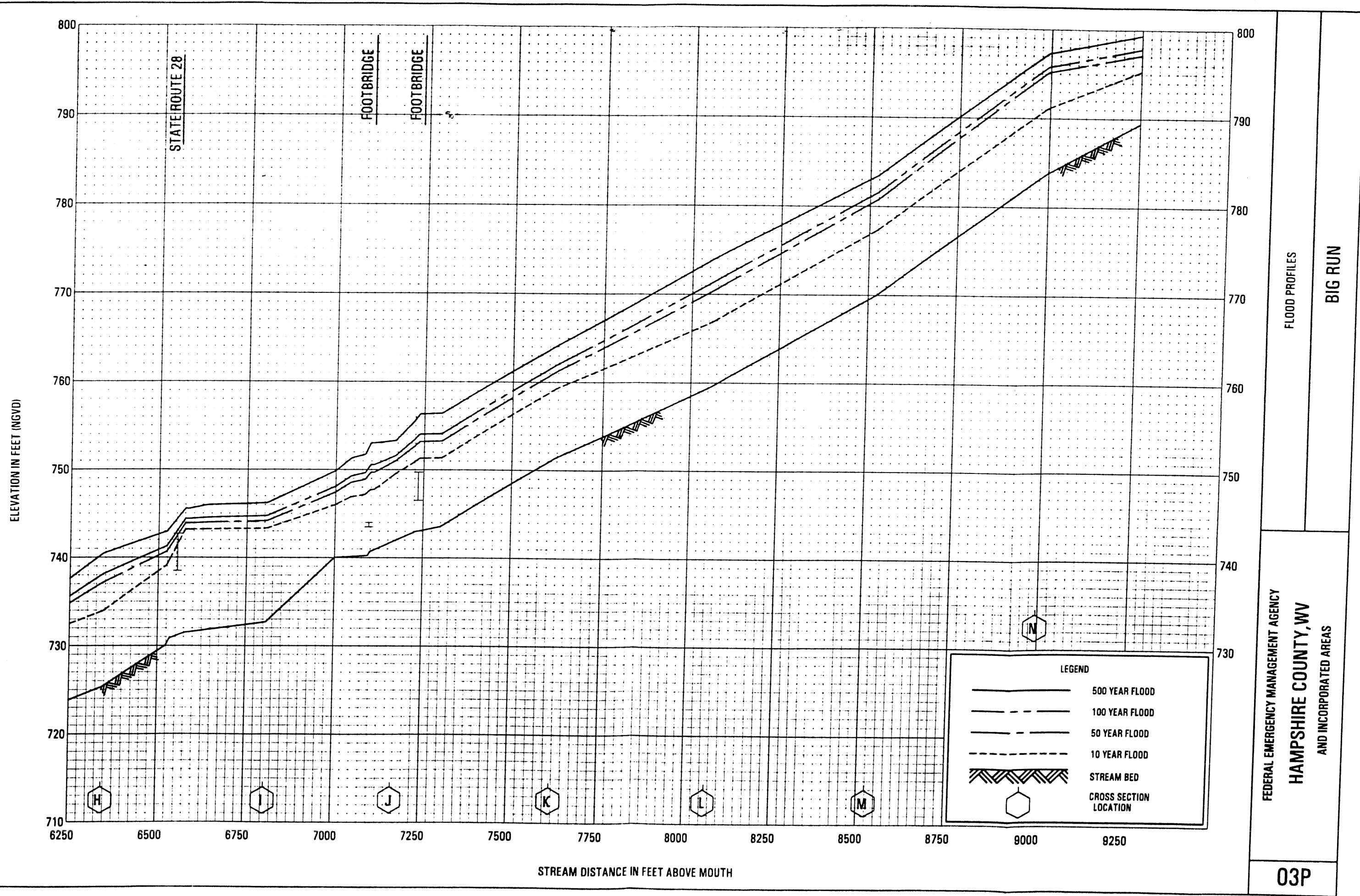
U.S. Department of the Interior, Geological Survey. (Augusta, West Virginia, 1973, Photoinspected 1979; Baker, Virginia, West Virginia, 1971; Burlington, West Virginia, 1972, Photoinspected 1979; Capon Bridge, West Virginia, Virginia, 1965, Photorevised 1986; Capon Springs, Virginia, West Virginia, 1965, Photorevised 1987; Gore, Virginia, West Virginia, 1987; Hanging Rock, West Virginia, 1973; Headsville, West Virginia, 1973; Largent, West Virginia, 1973; Levels, West Virginia, 1973; Mountain Falls, Virginia, West Virginia, 1965, Photoinspected 1972); Old Fields, West Virginia, 1970;

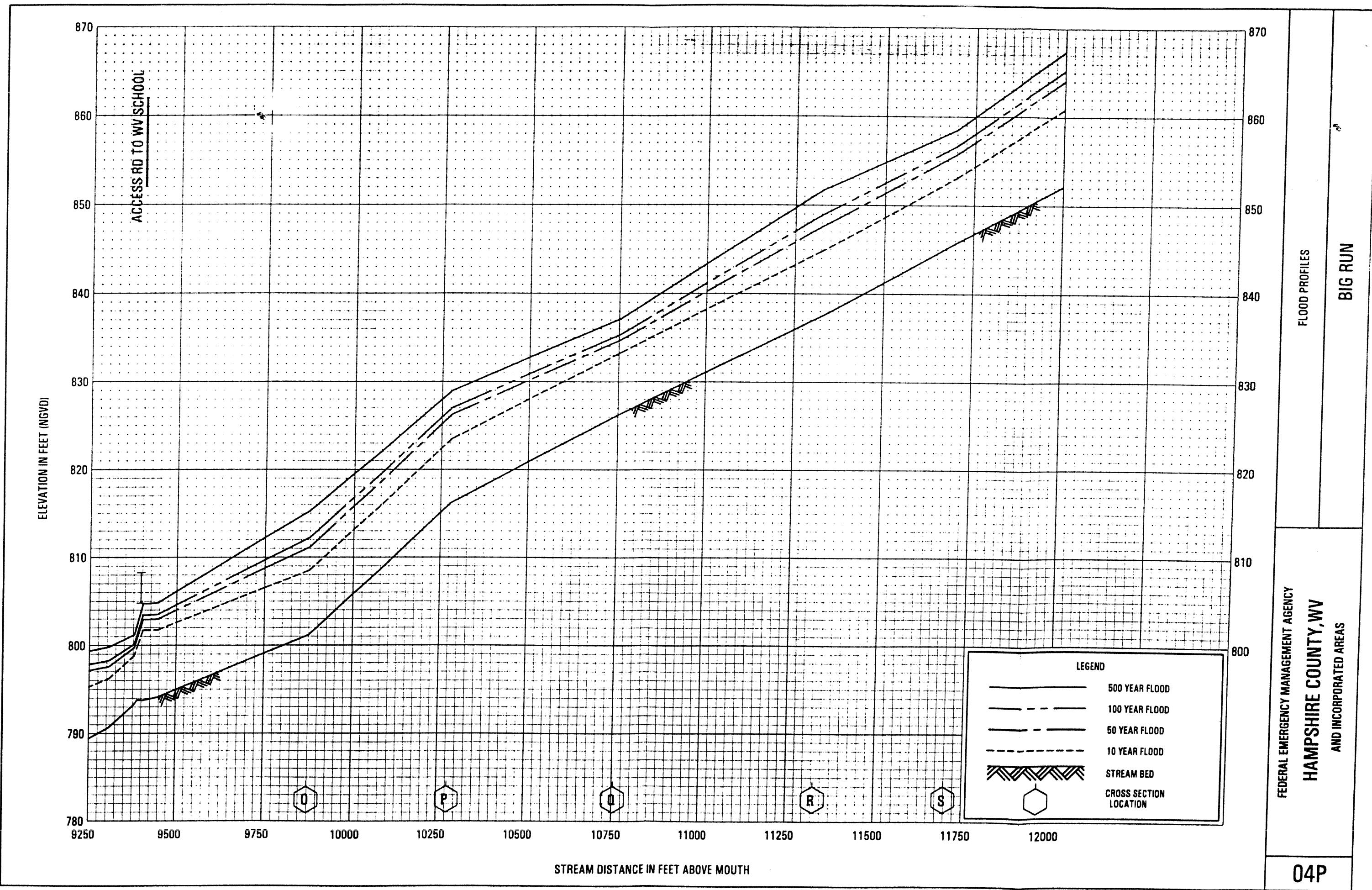
OldTown, West Virginia, 1950, Photorevised 1974; Patterson Creek, Maryland, West Virginia, 1949, Photorevised 1974; Paw Paw, West Virginia, Maryland, 1950, Photorevised 1974; Ridge, West Virginia, Virginia, 1986; Rio, West Virginia, 1970; Romney, West Virginia, 1973; Sector, West Virginia, 1971; Springfield, West Virginia, 1973, Photoinspected 1979; Wardensville, West Virginia, Virginia, 1965, Photoinspected 1984; Yellow Spring, West Virginia, 1970). 7.5-Minute Series Topographic Maps. Scale 1:24,000, Contour Interval 10 Feet.

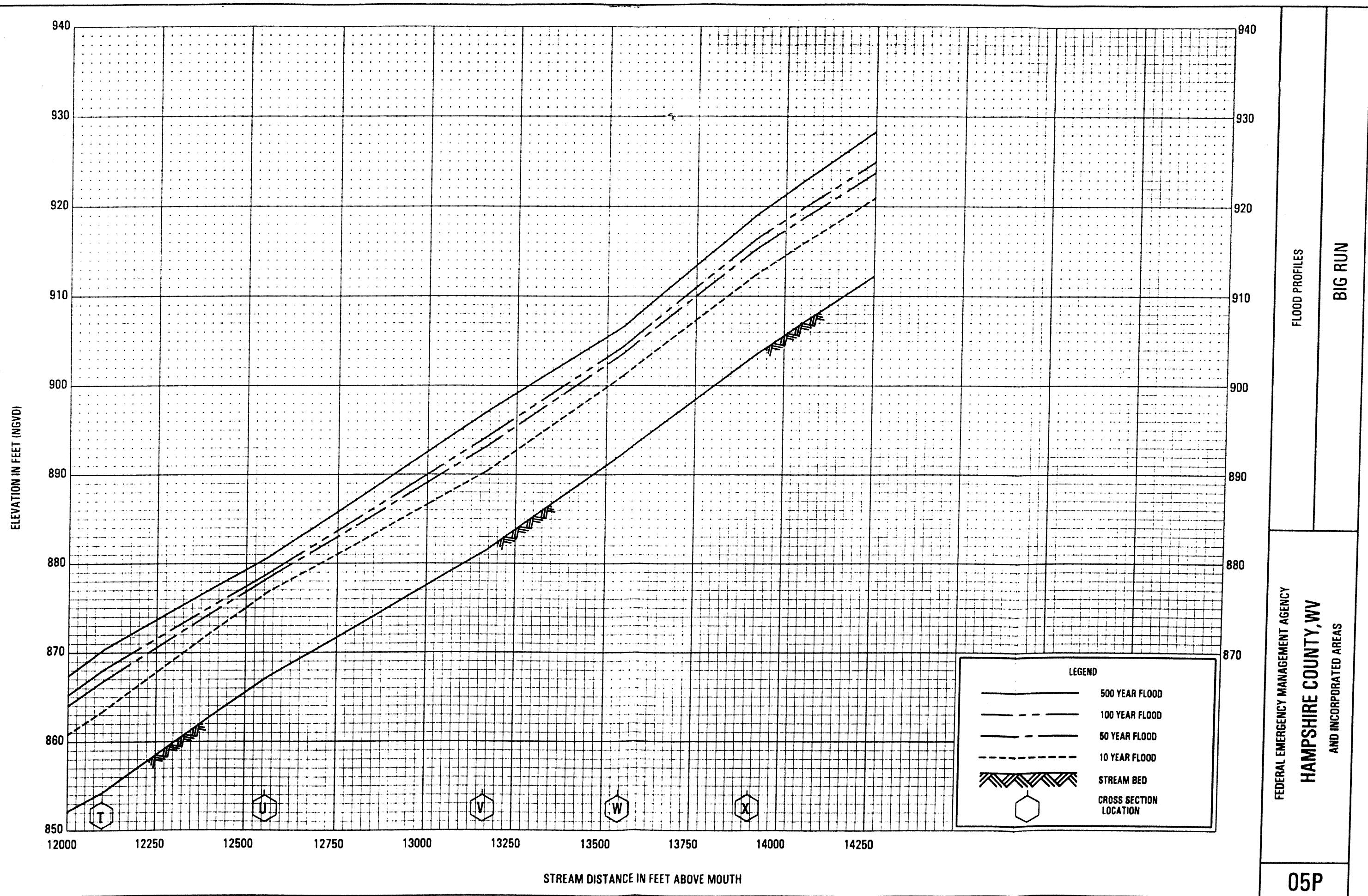




02P





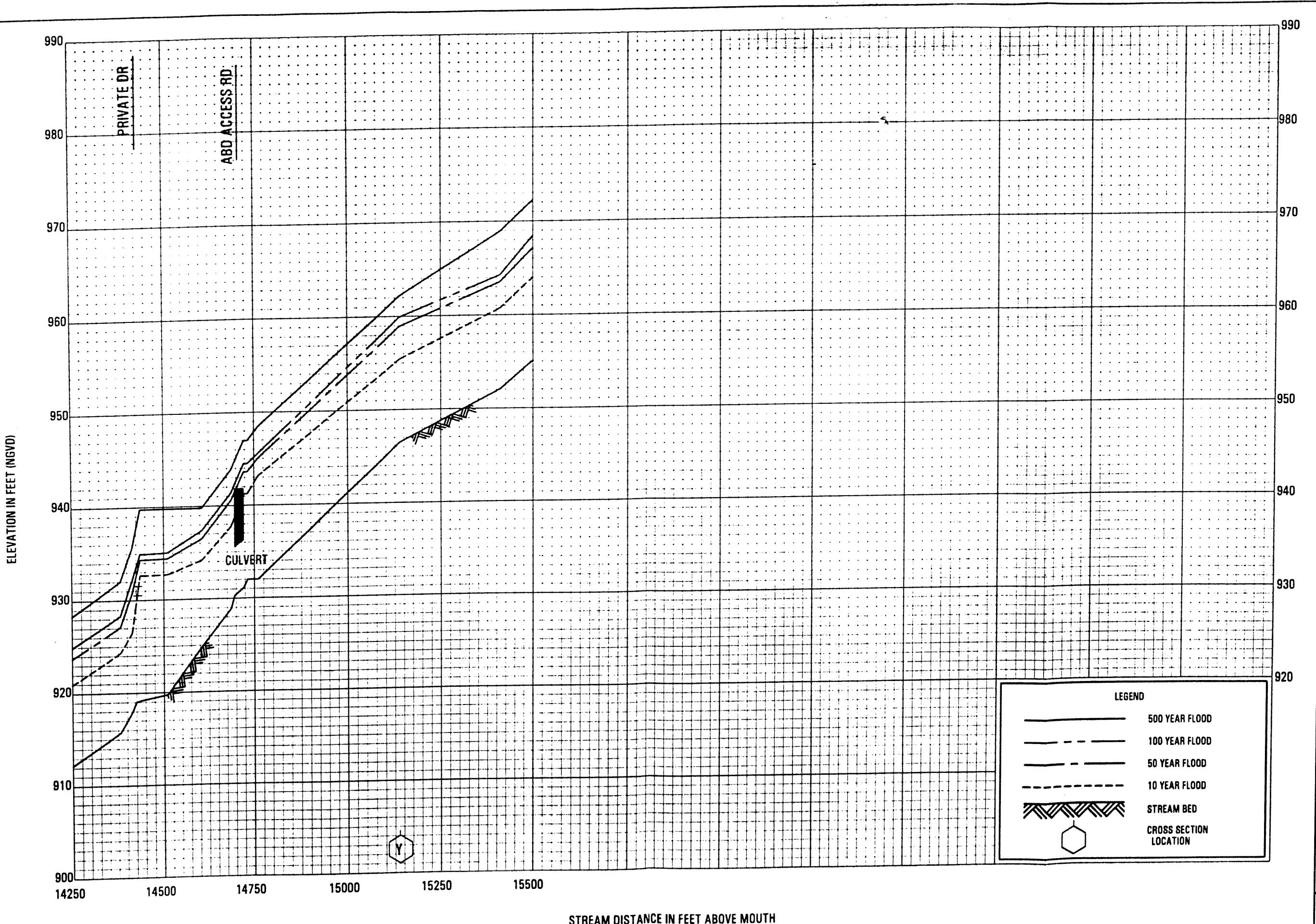
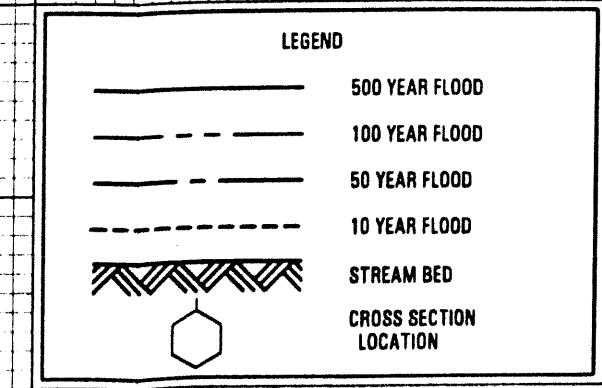


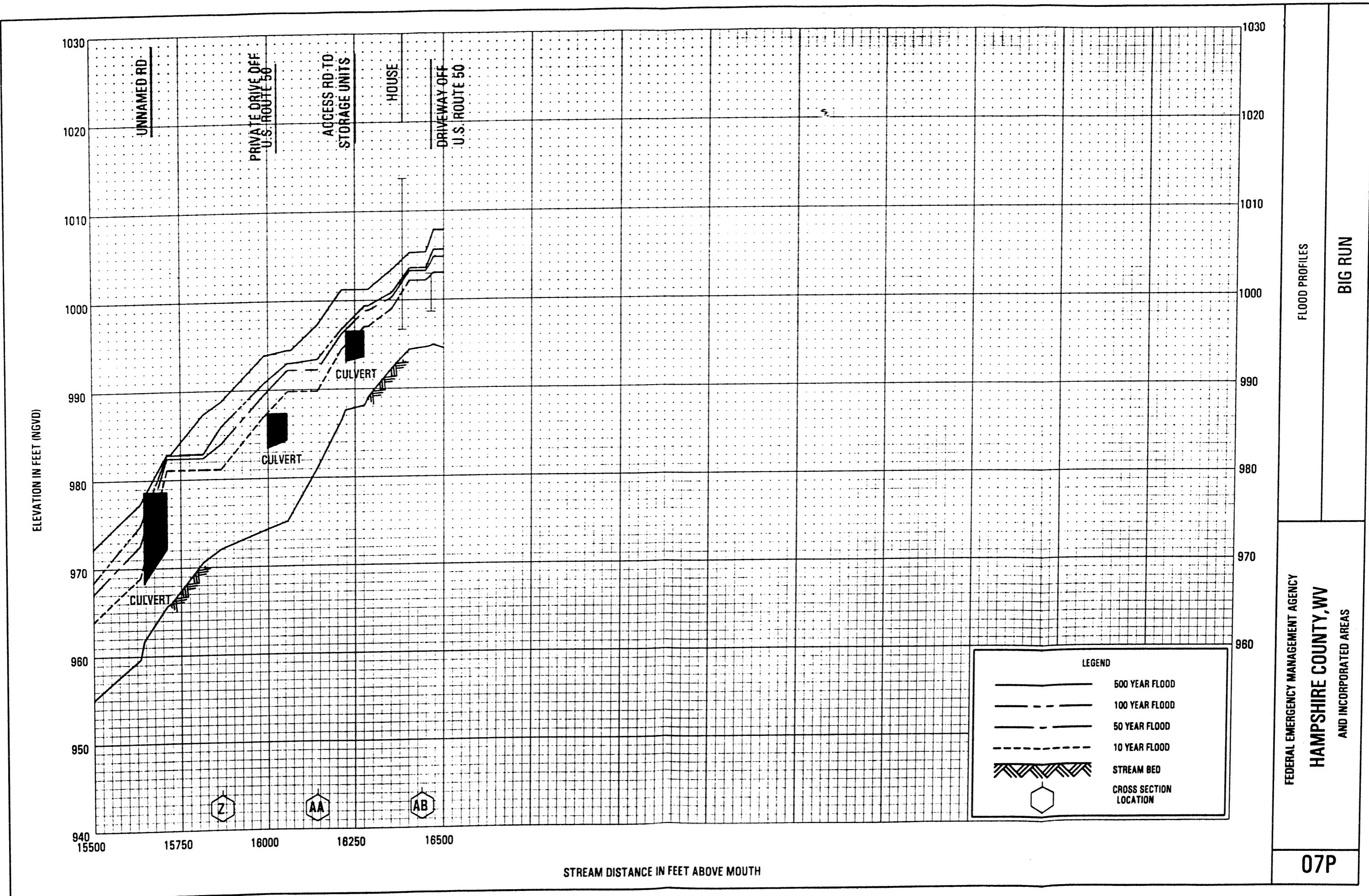
BIG RUN

FLOOD PROFILES

HAMPSHIRE COUNTY, WV  
AND INCORPORATED AREAS

06P





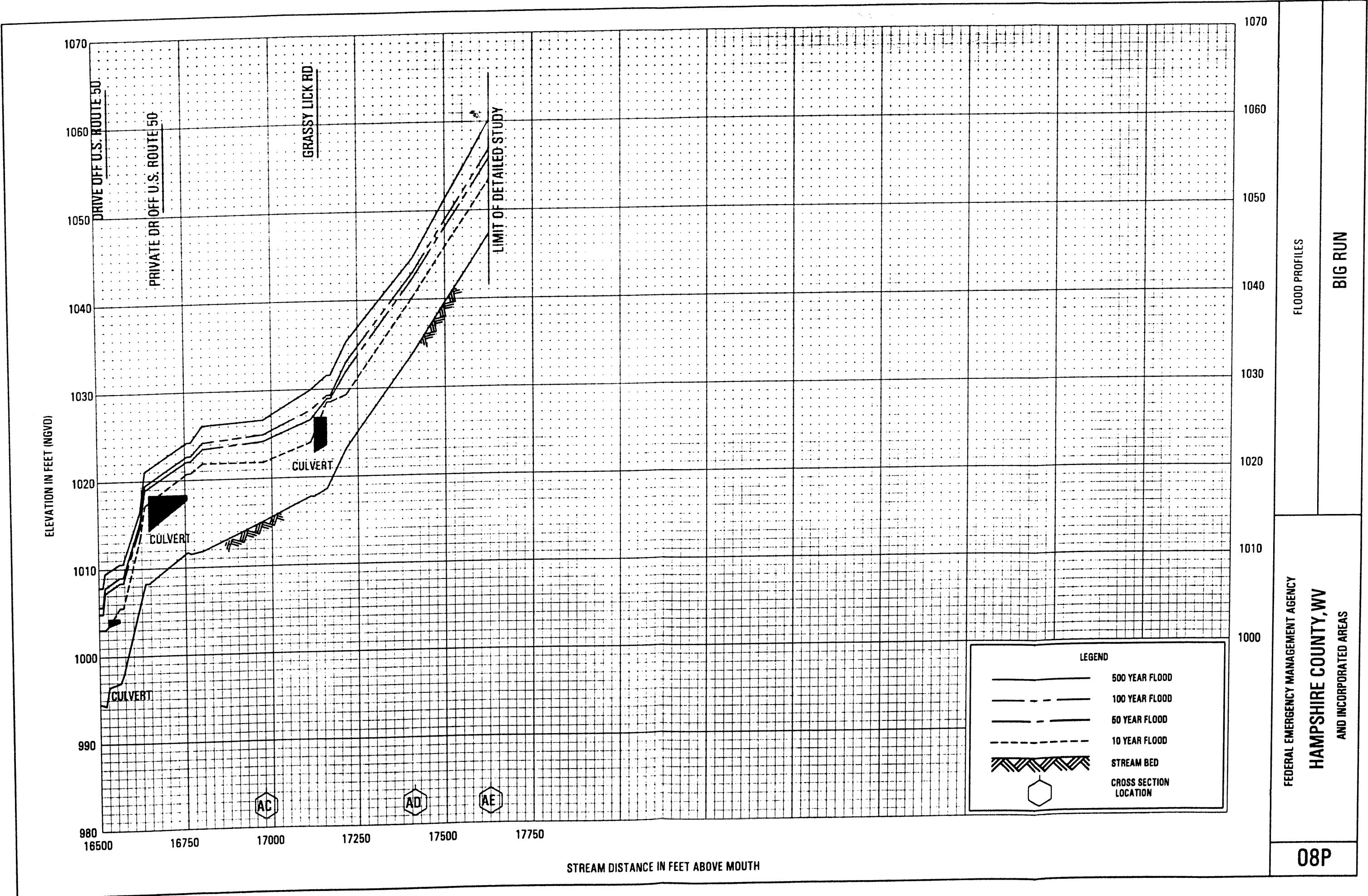
BIG RUN

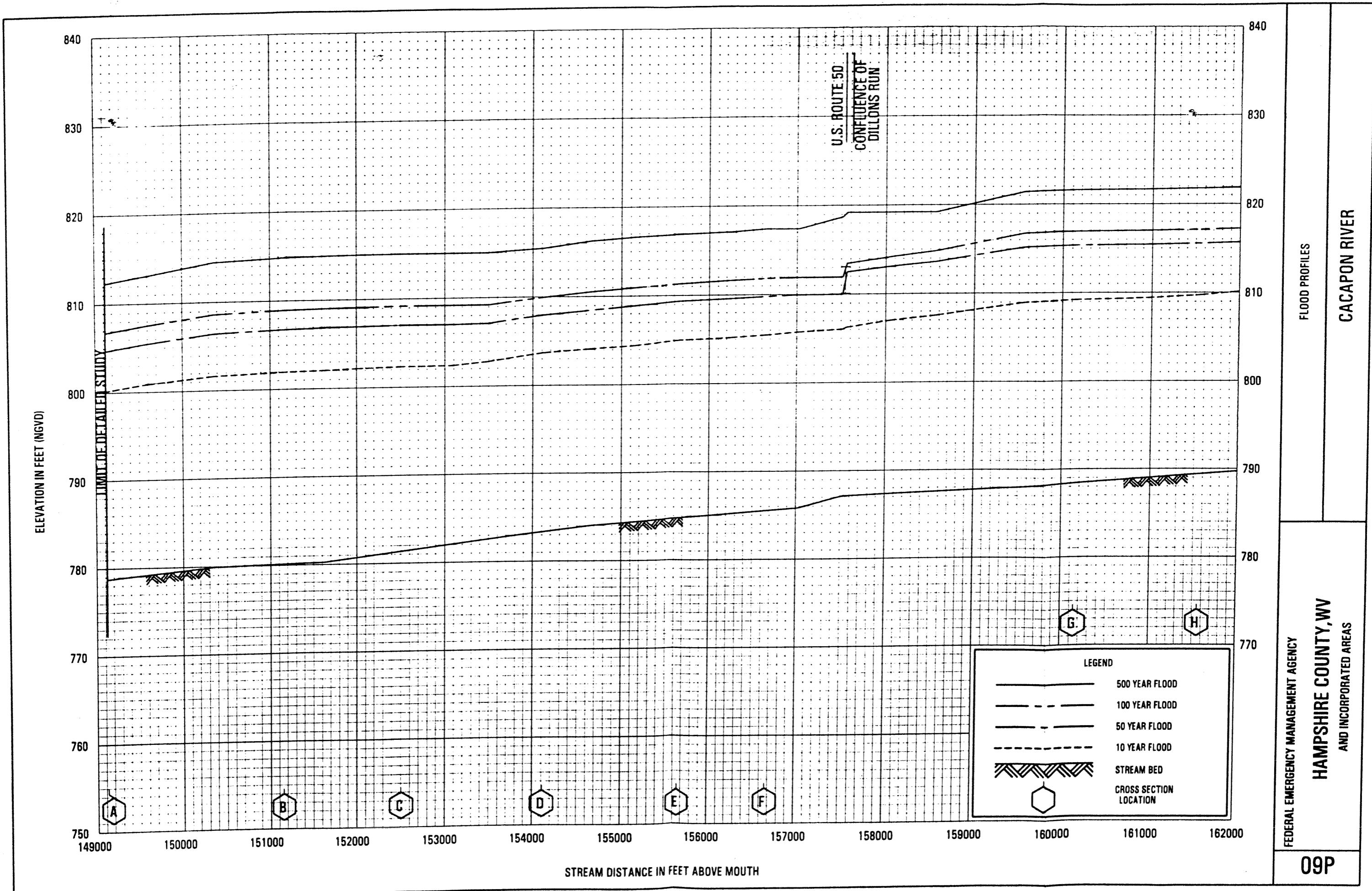
FLOOD PROFILES

HAMPSHIRE COUNTY, WV  
AND INCORPORATED AREAS

FEDERAL EMERGENCY MANAGEMENT AGENCY

08P





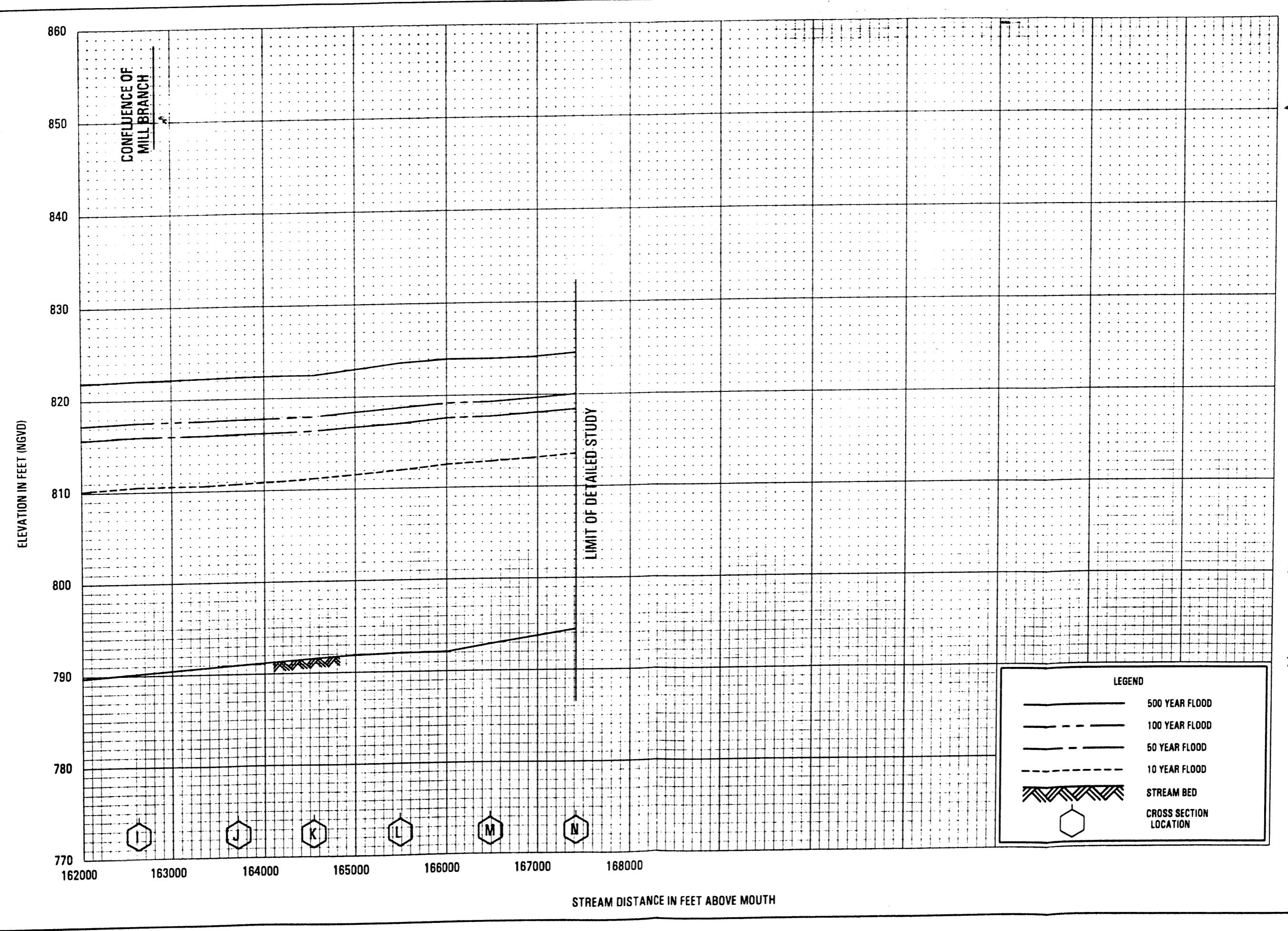
CACAPON RIVER

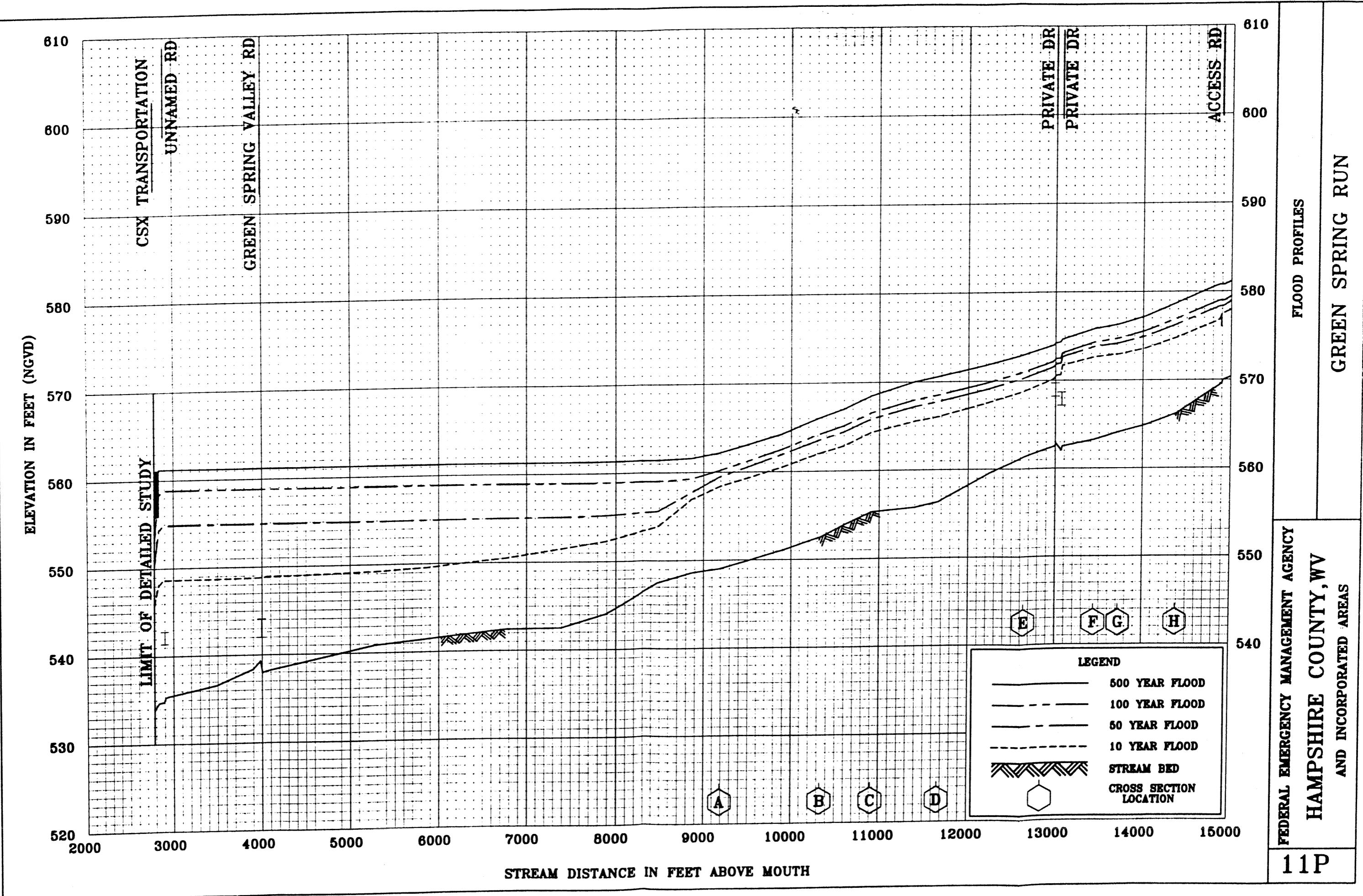
FLOOD PROFILES

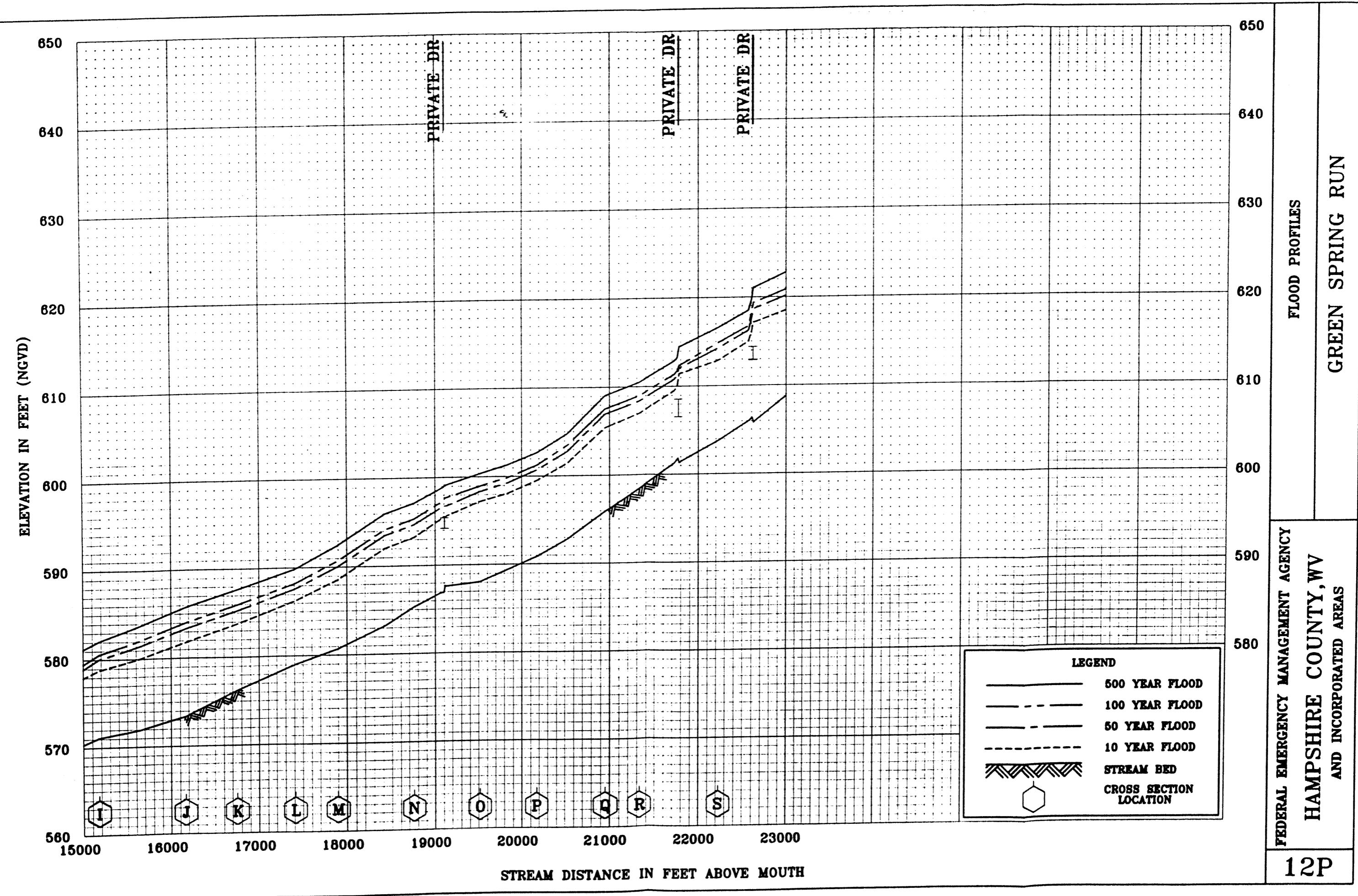
HAMPSHIRE COUNTY, WV  
AND INCORPORATED AREAS

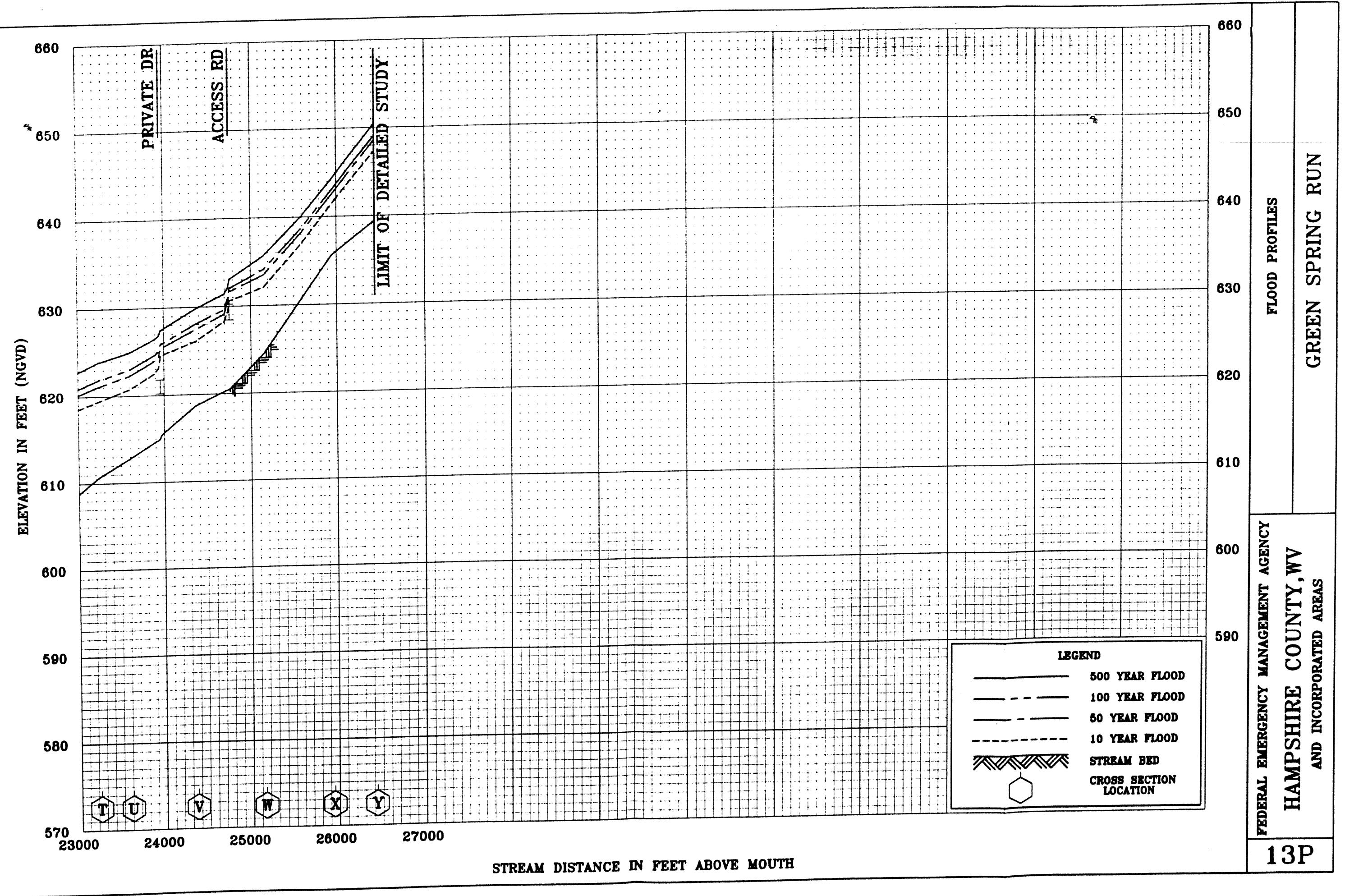
FEDERAL EMERGENCY MANAGEMENT AGENCY

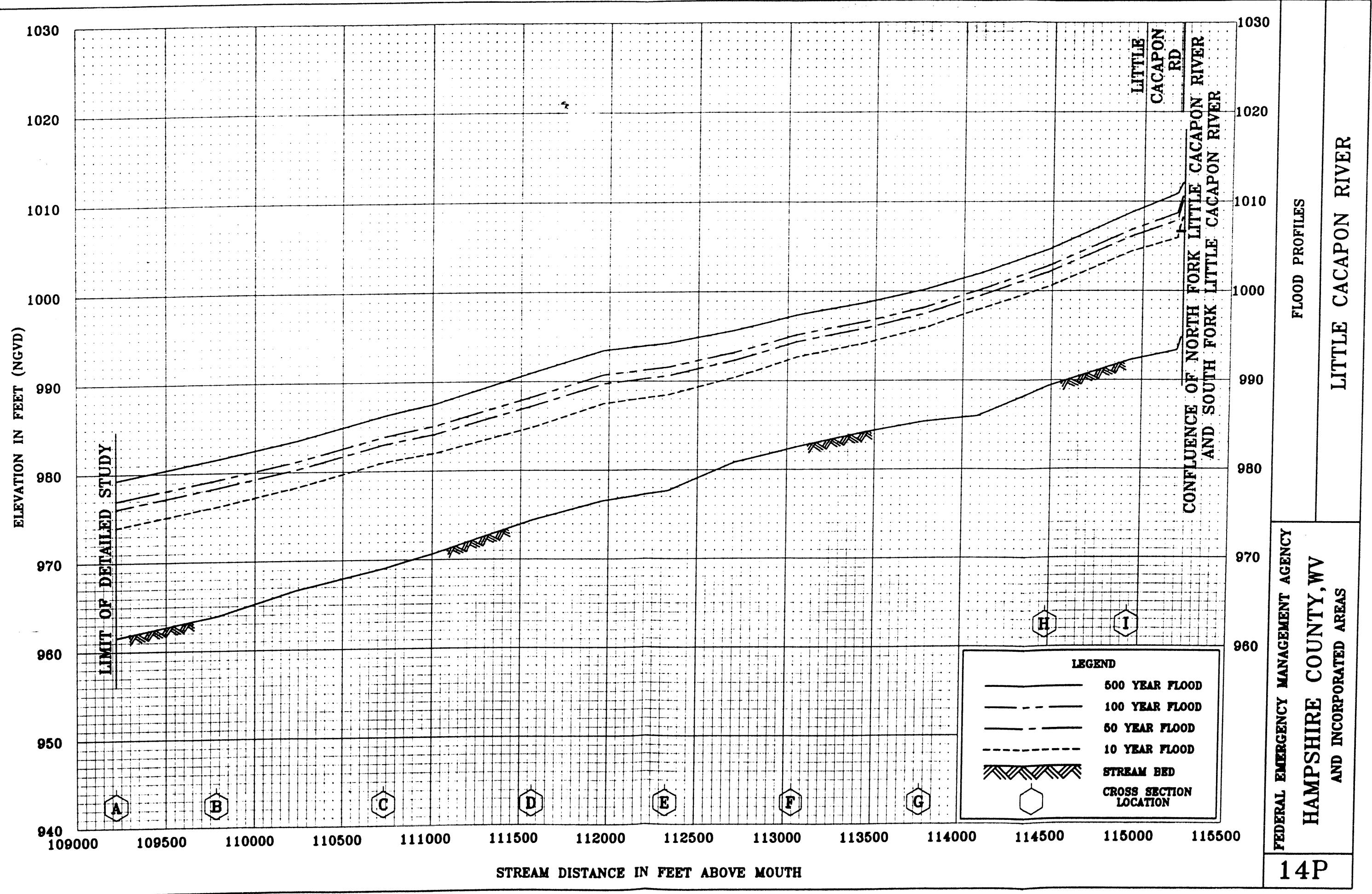
10P

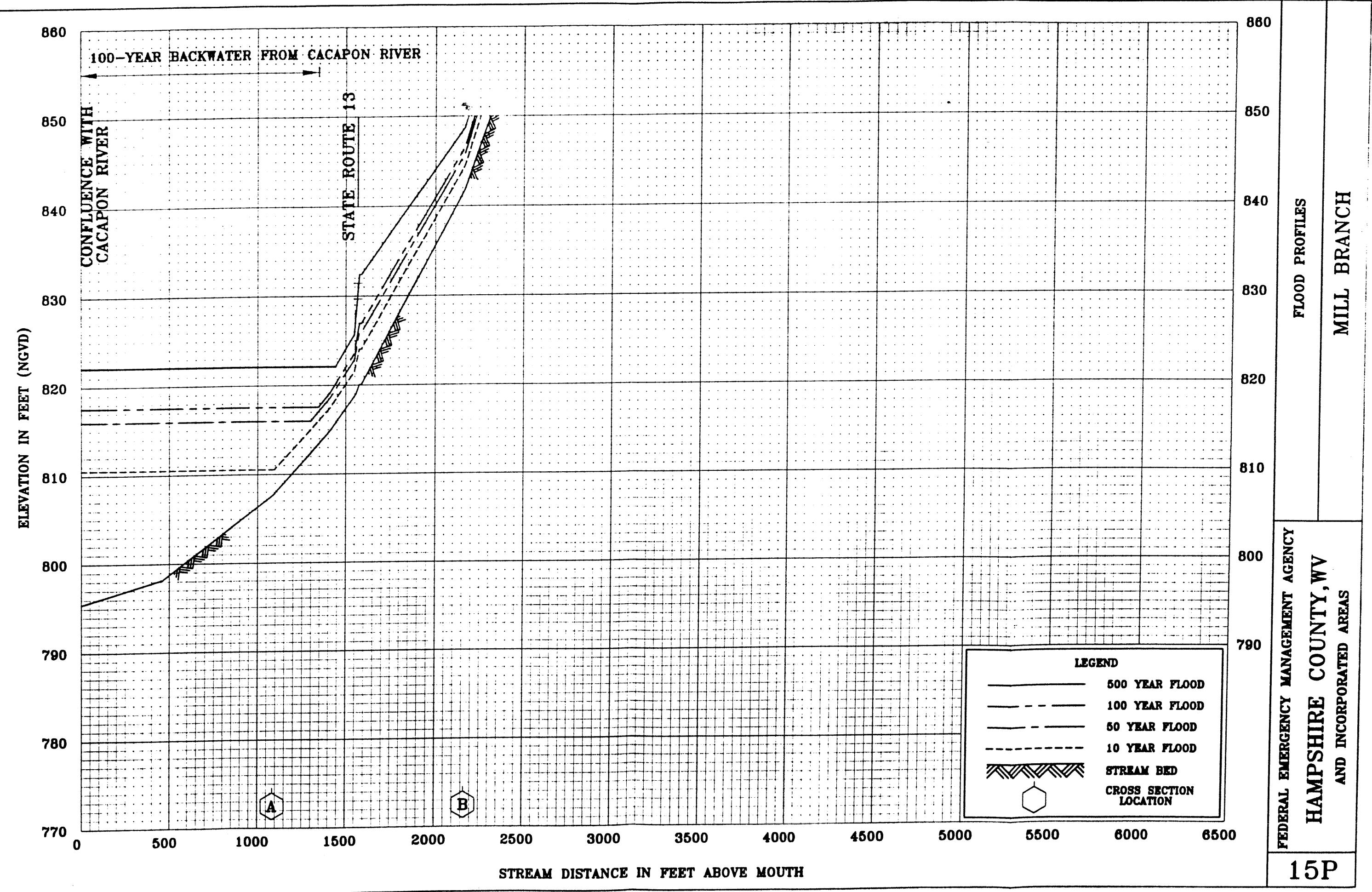


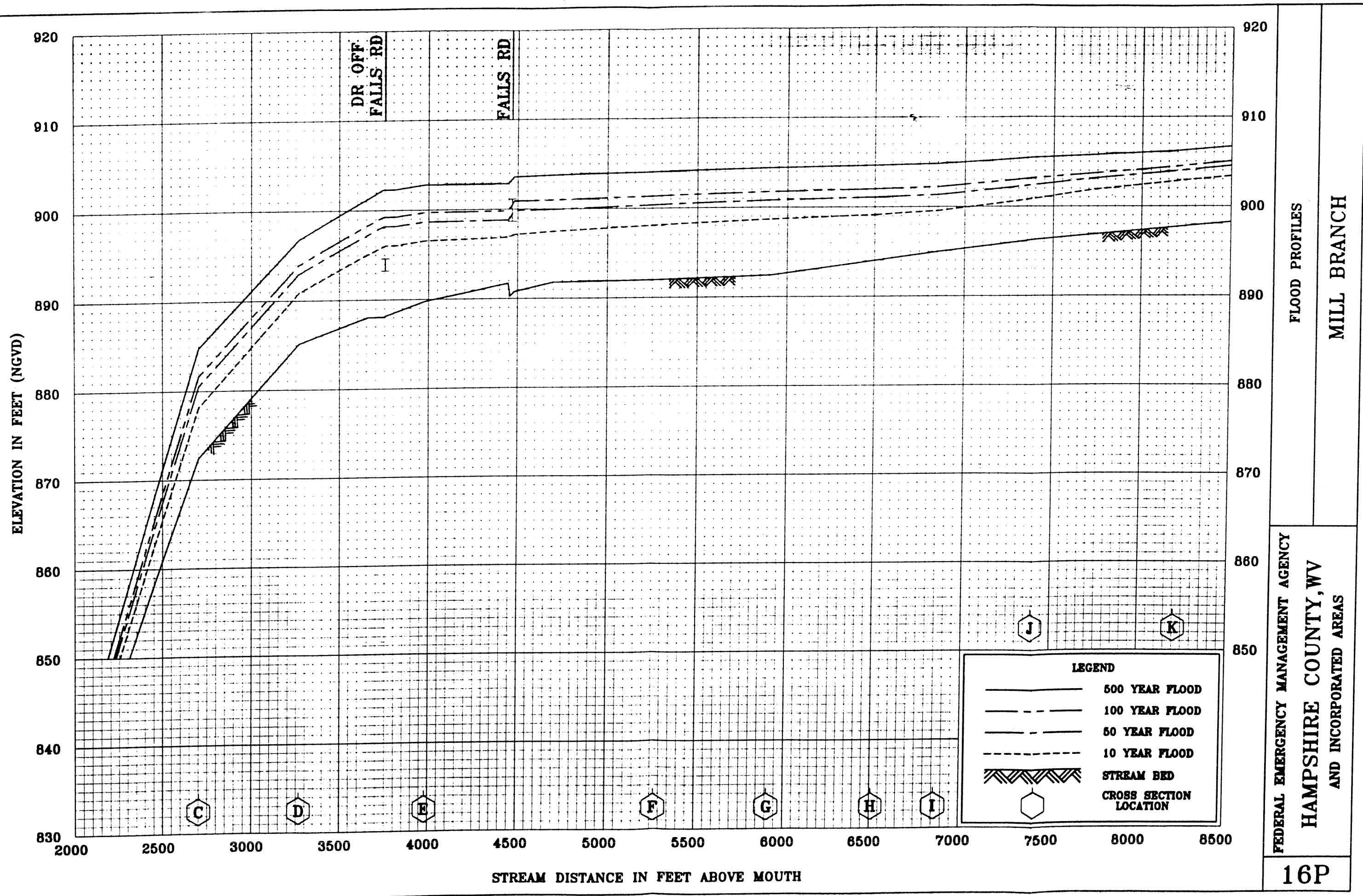


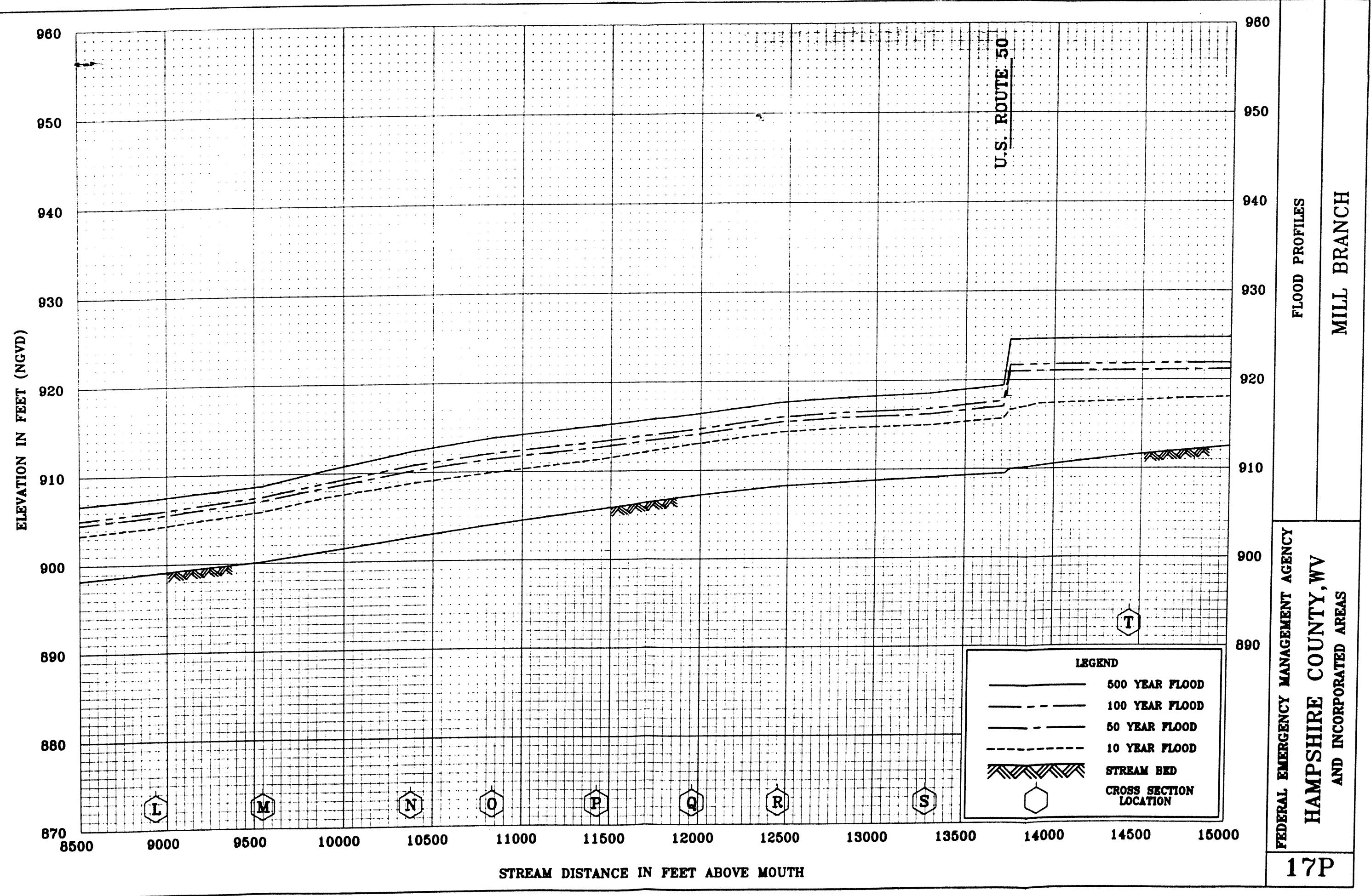






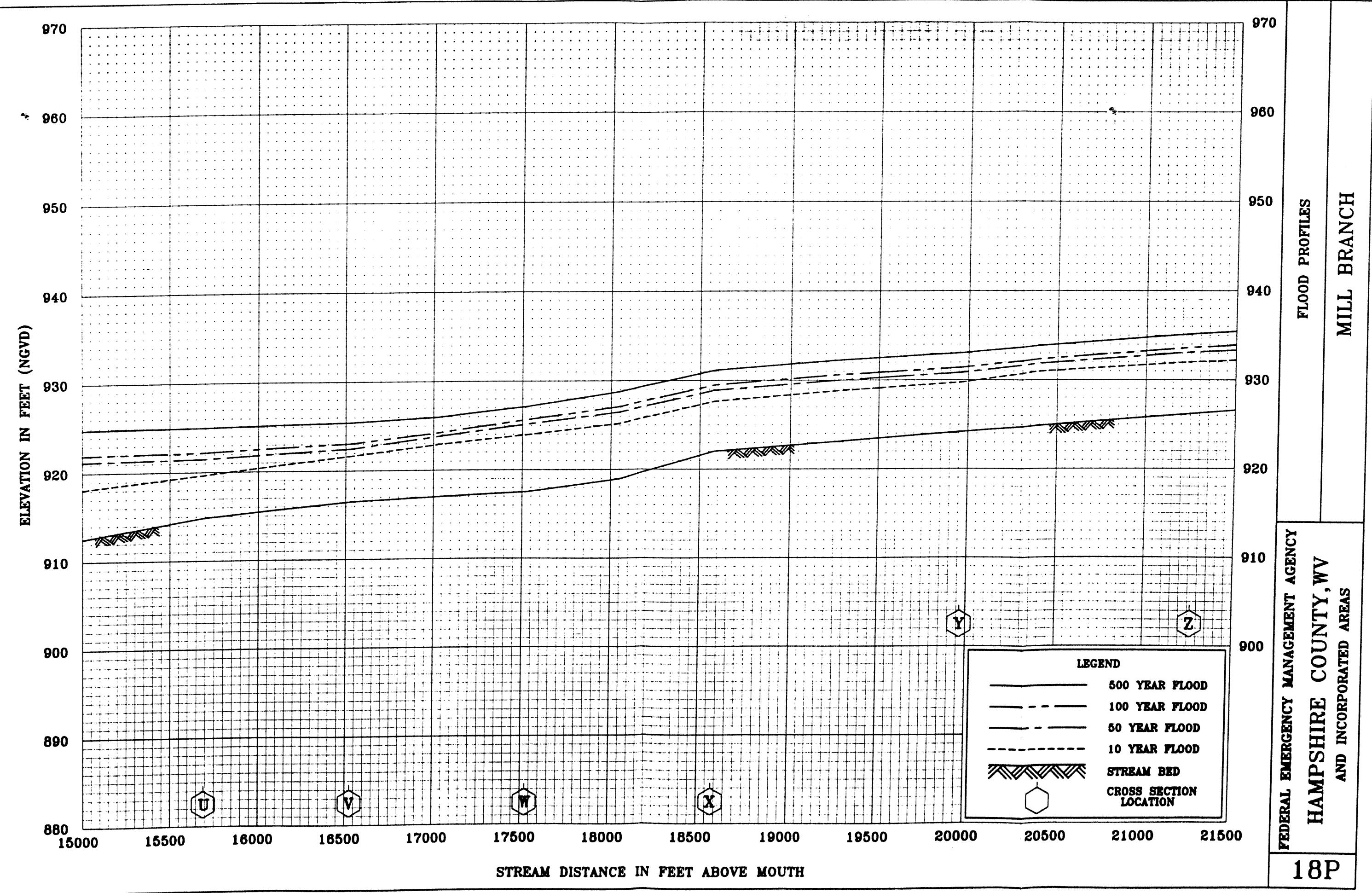




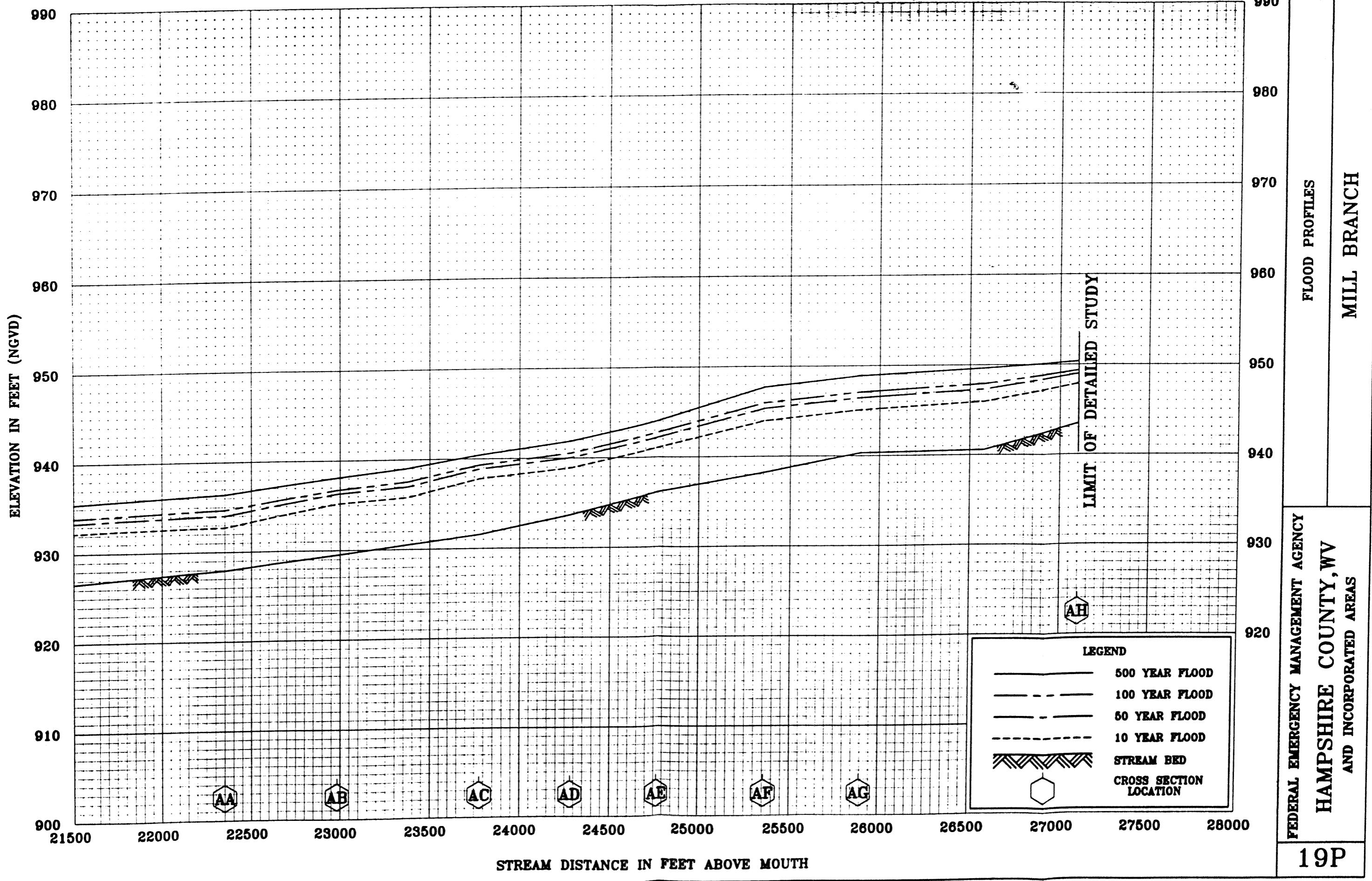


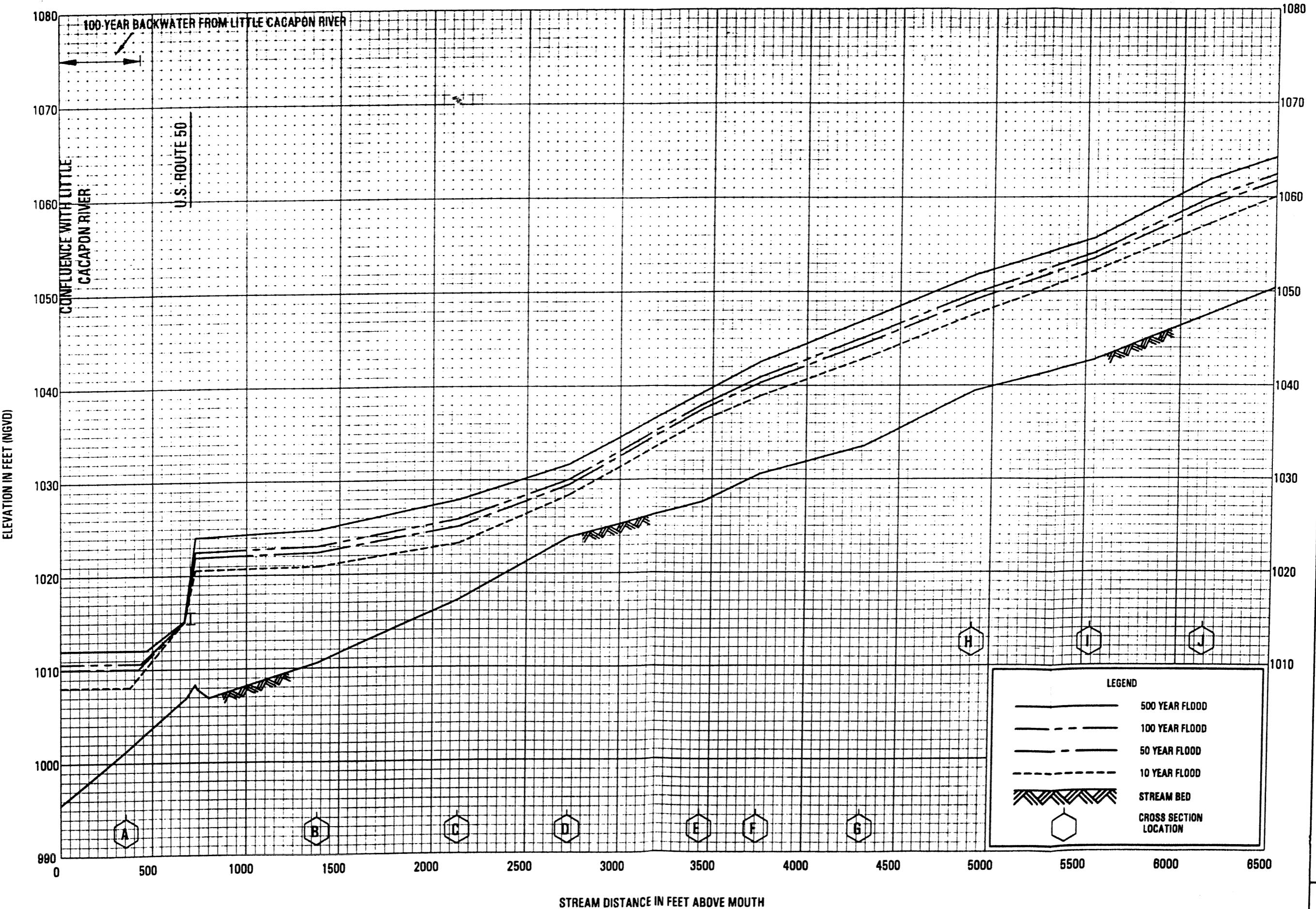
FEDERAL EMERGENCY MANAGEMENT AGENCY  
HAMPSHIRE COUNTY, WV  
AND INCORPORATED AREAS

17P



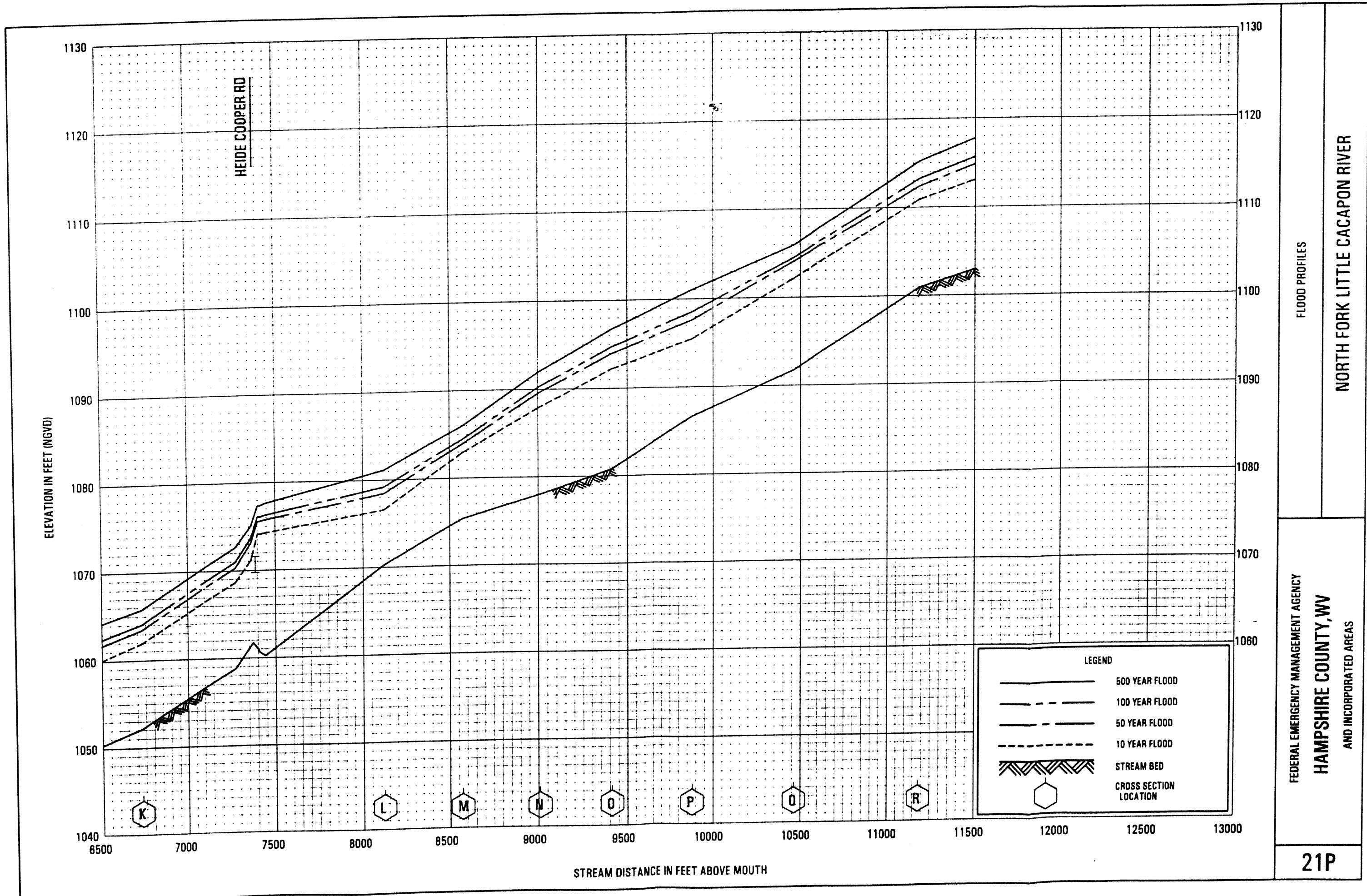
8P

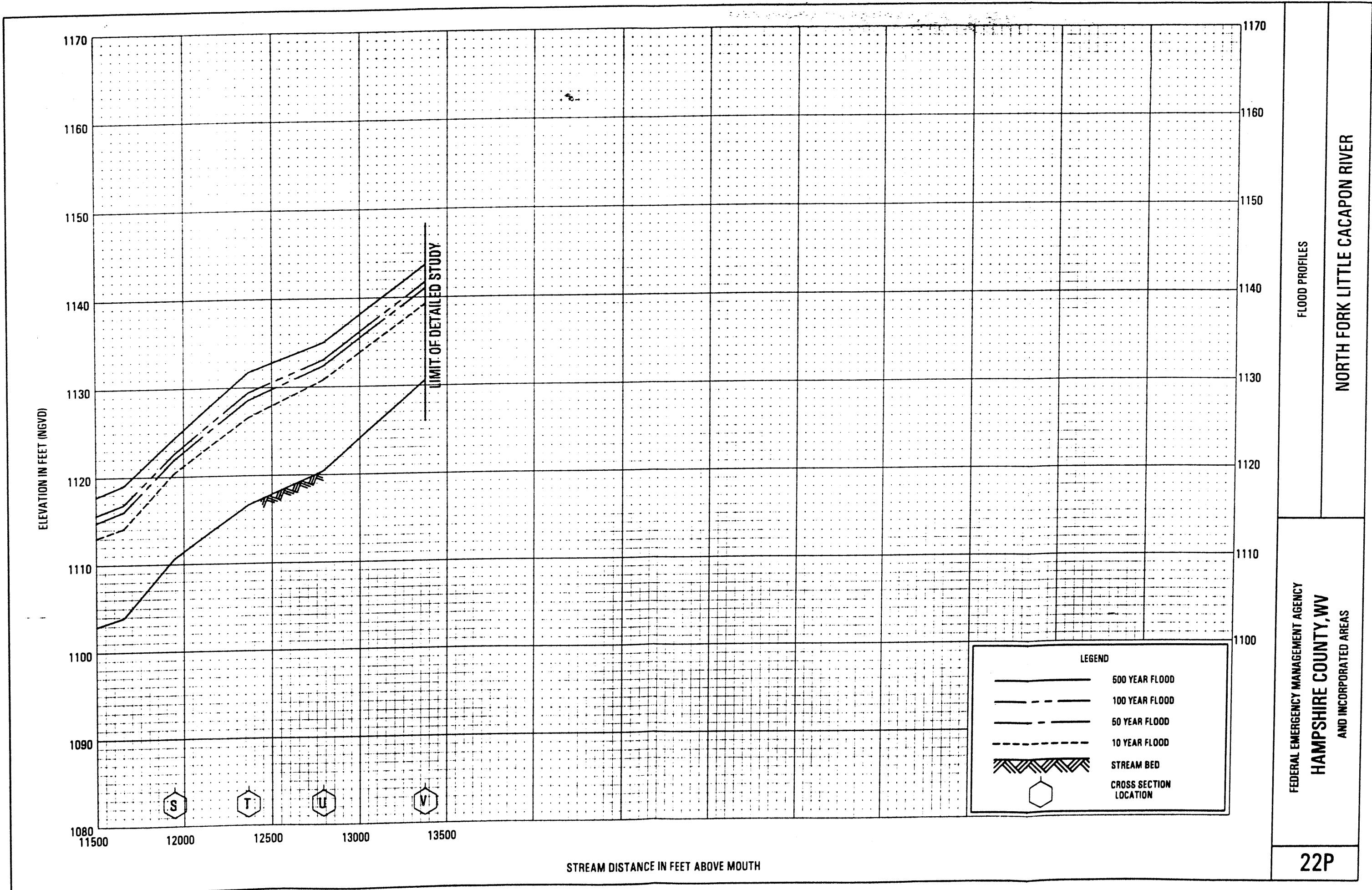


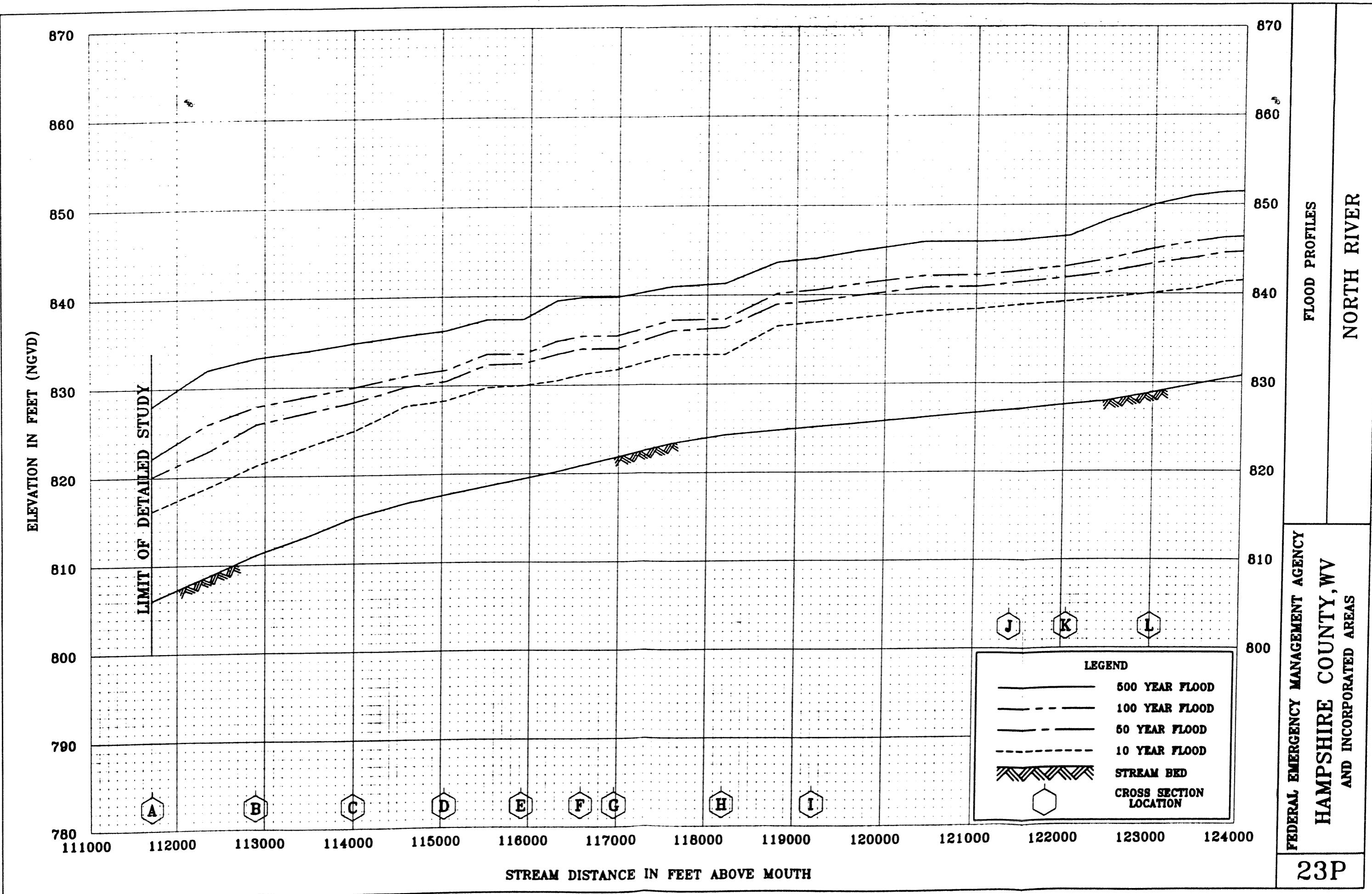


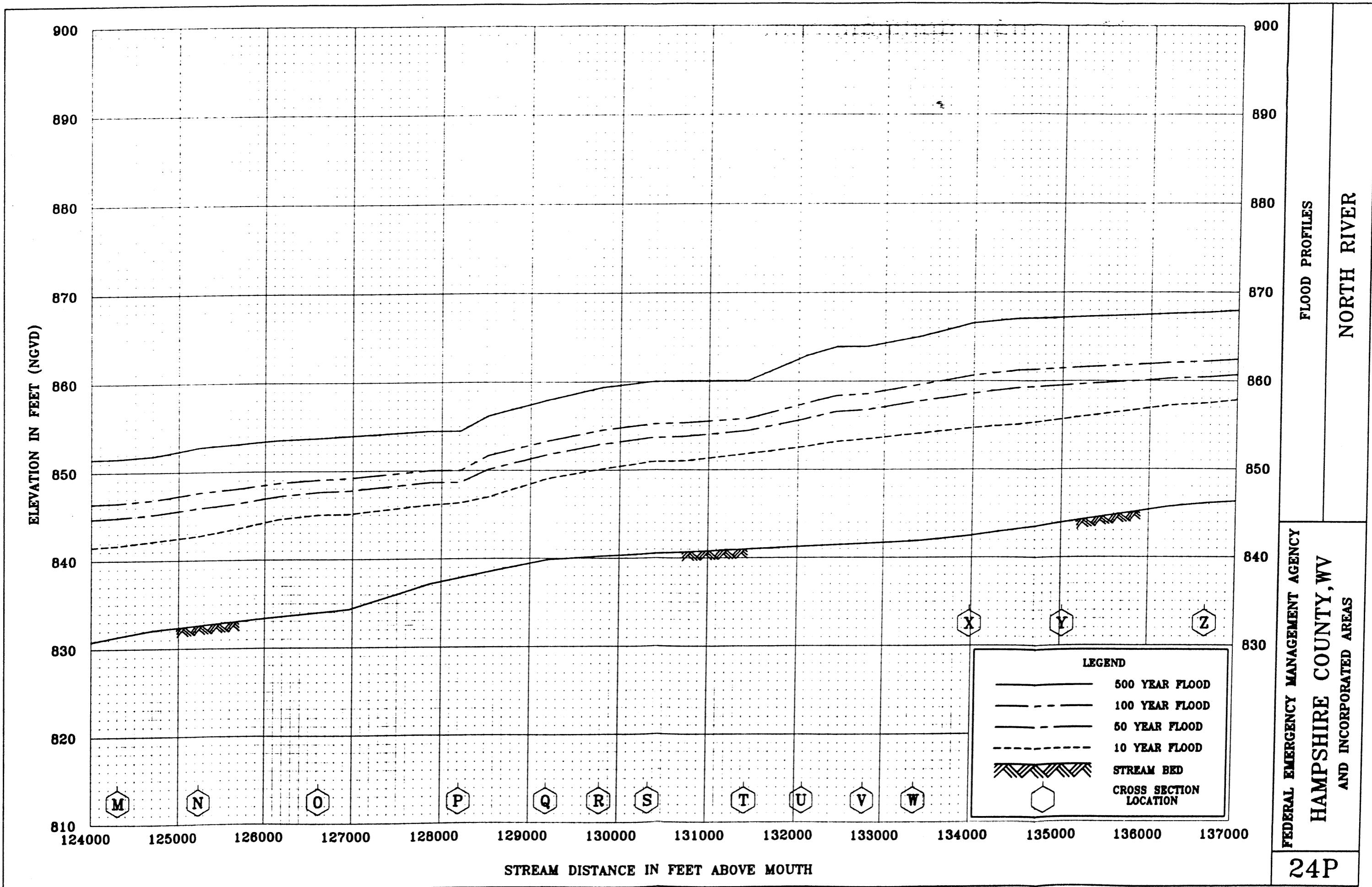
**FEDERAL EMERGENCY MANAGEMENT AGENCY  
AND INCORPORATED AREAS**

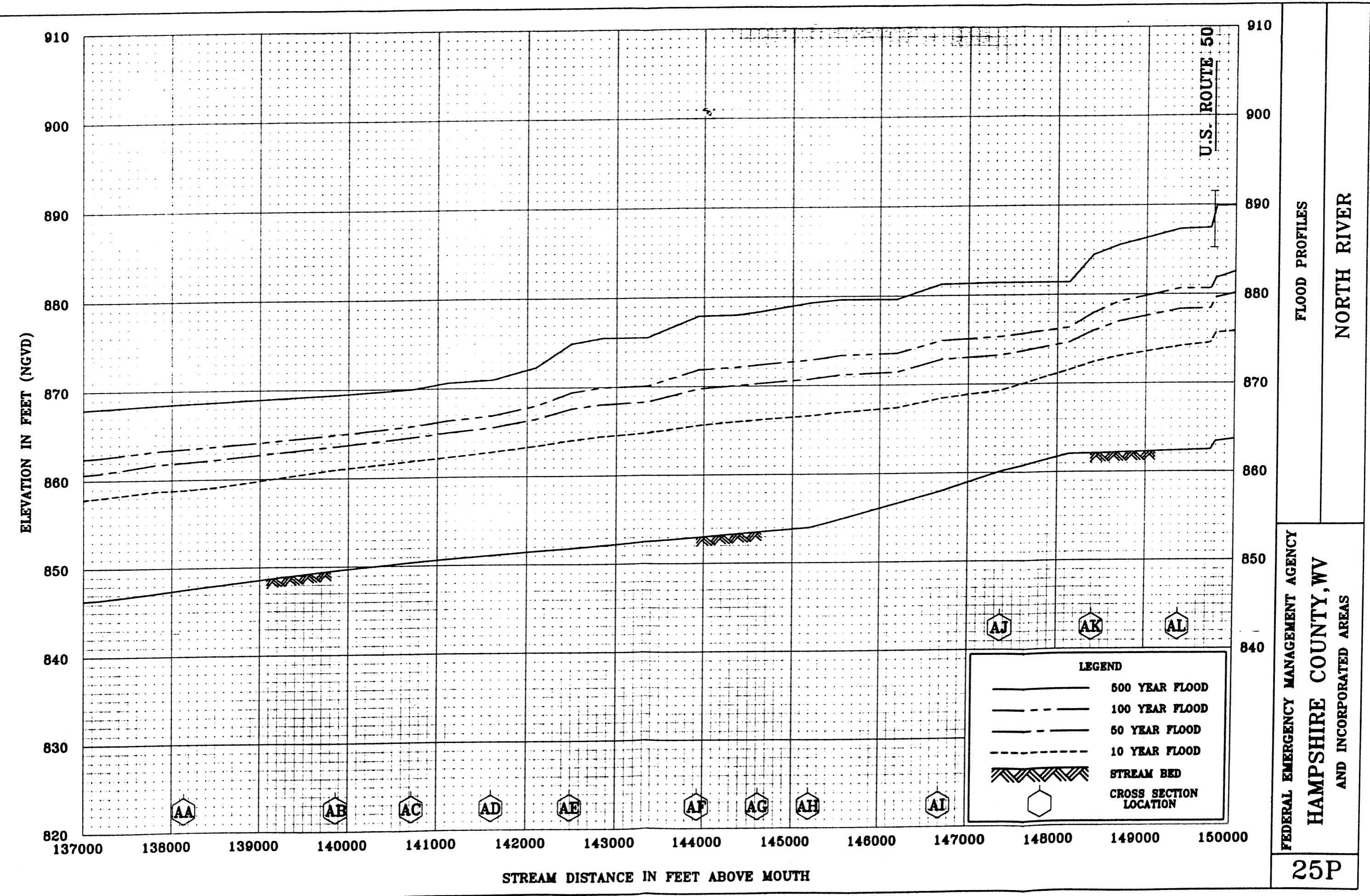
**HAMPSHIRE COUNTY, WV**

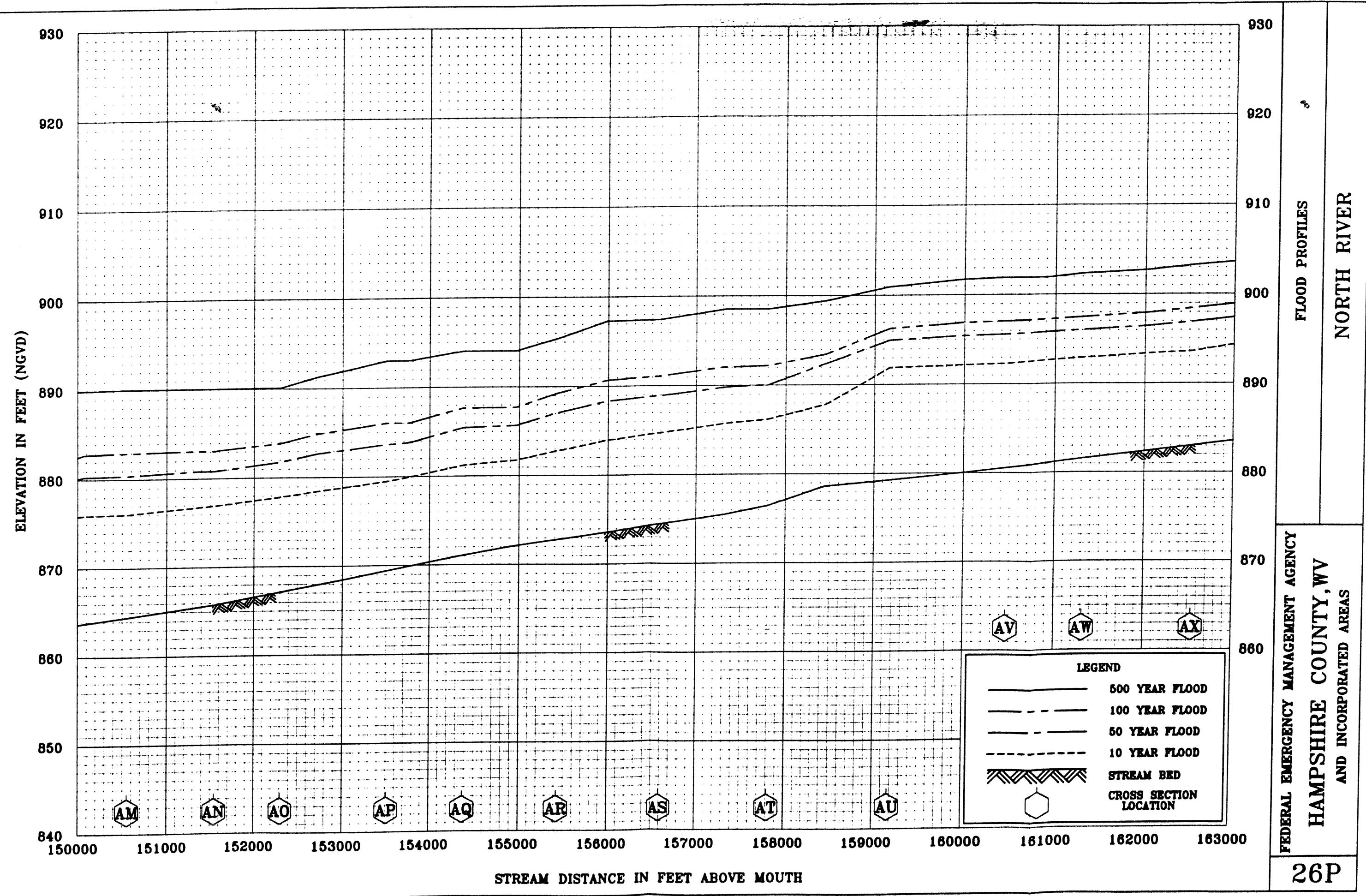


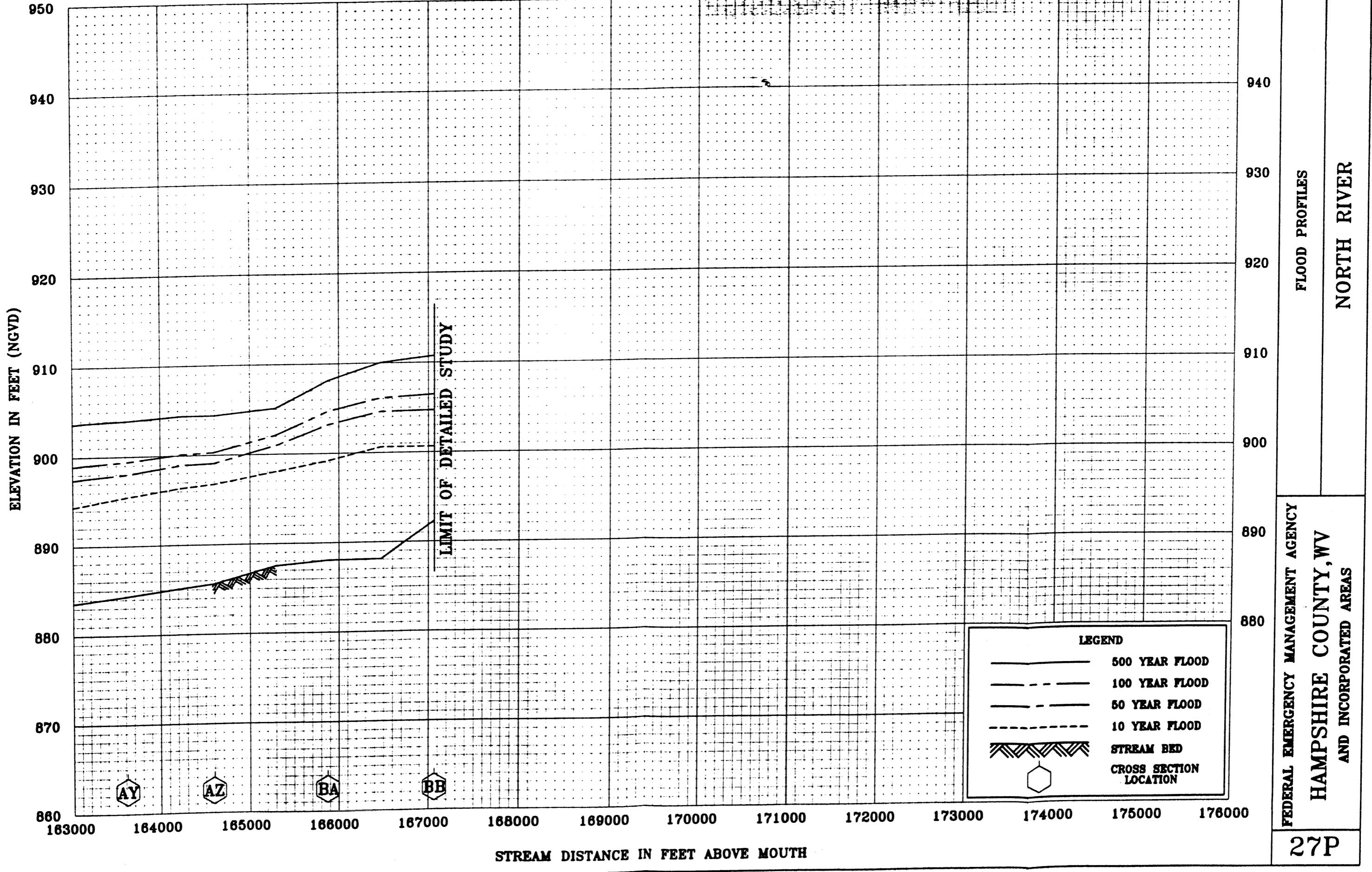








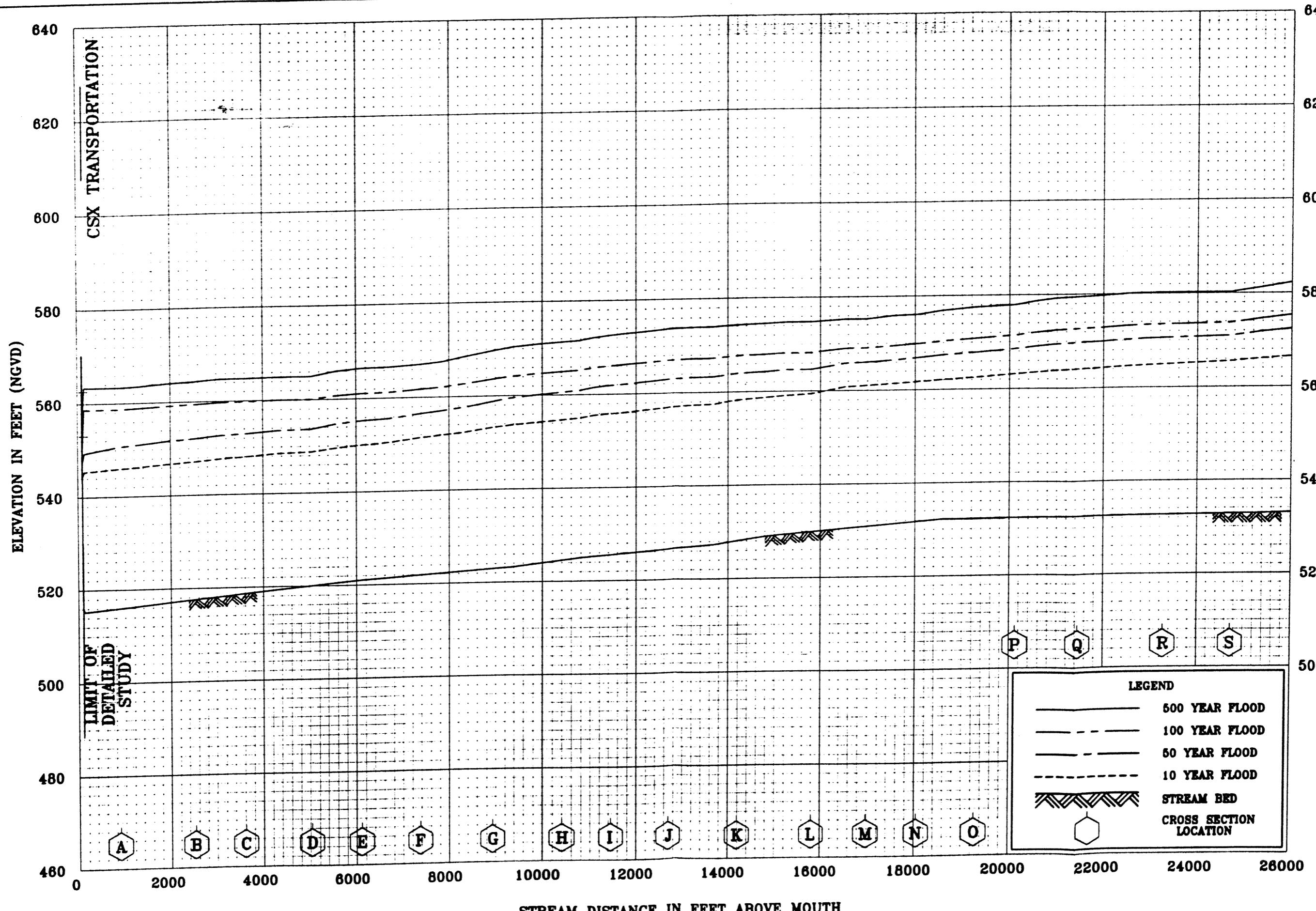




SOUTH BRANCH POTOMAC RIVER

FLOOD PROFILES

FEDERAL EMERGENCY MANAGEMENT AGENCY  
HAMPSHIRE COUNTY, WV  
AND INCORPORATED AREAS



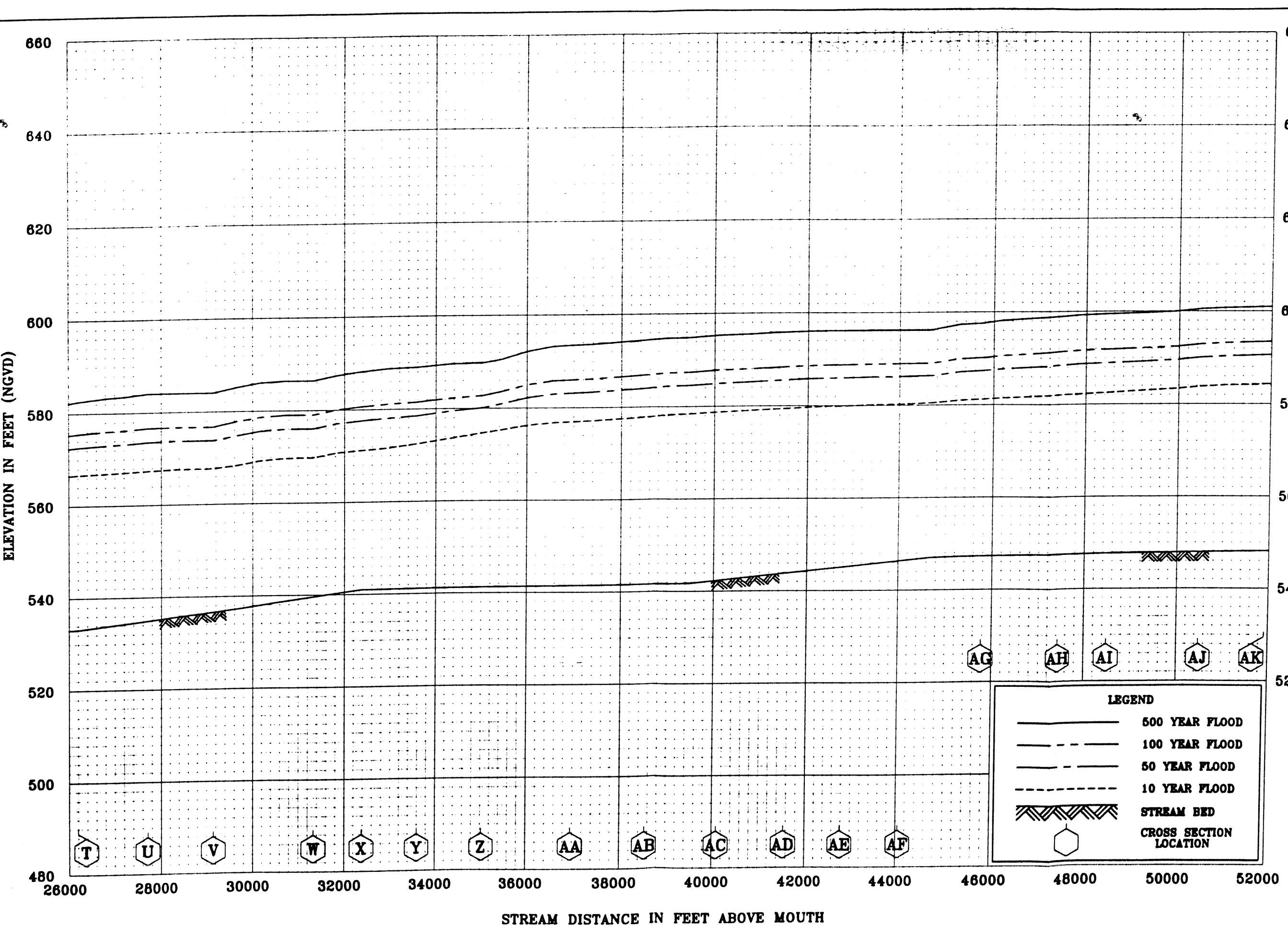
SOUTH BRANCH POTOMAC RIVER

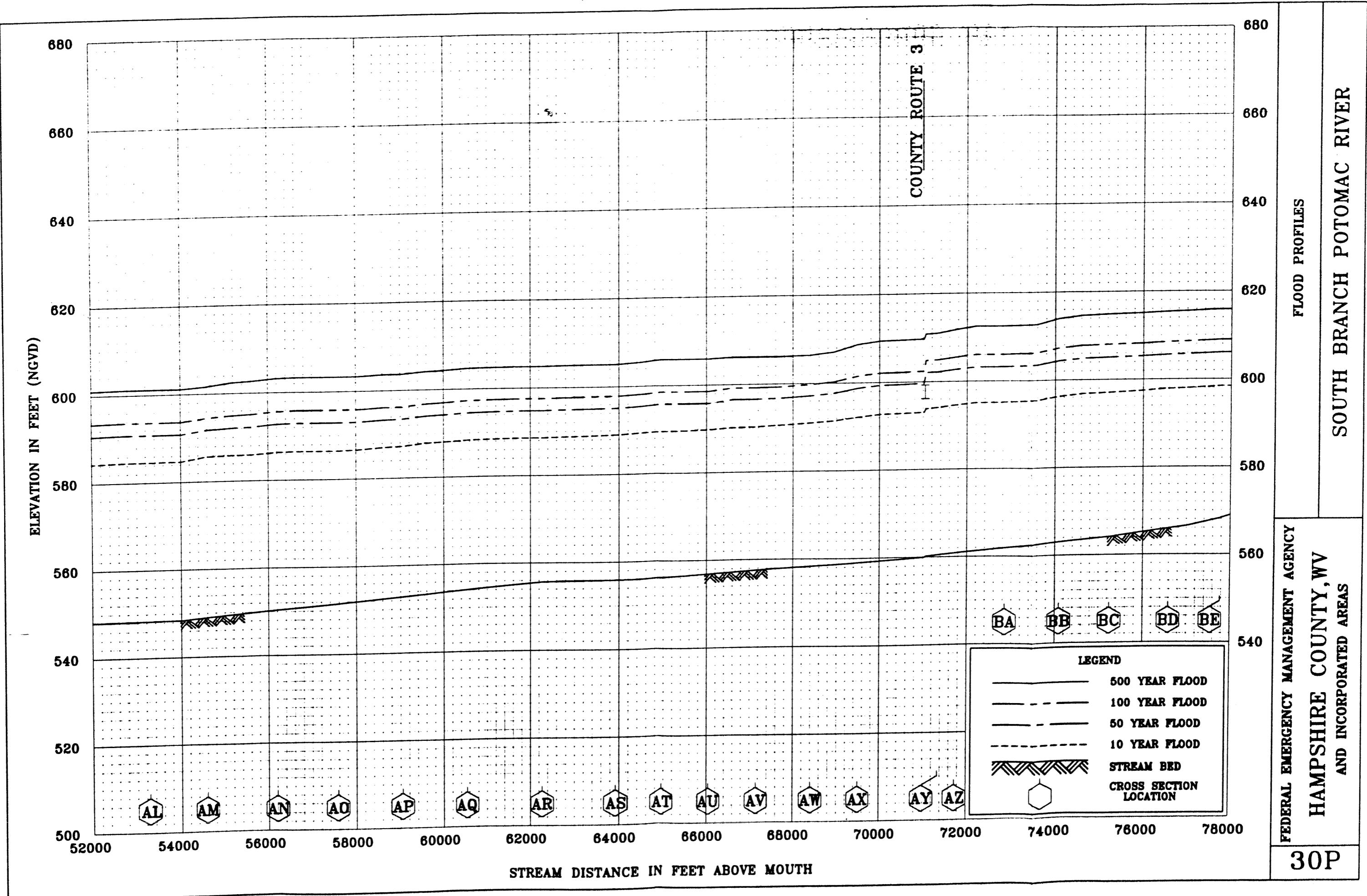
FLOOD PROFILES

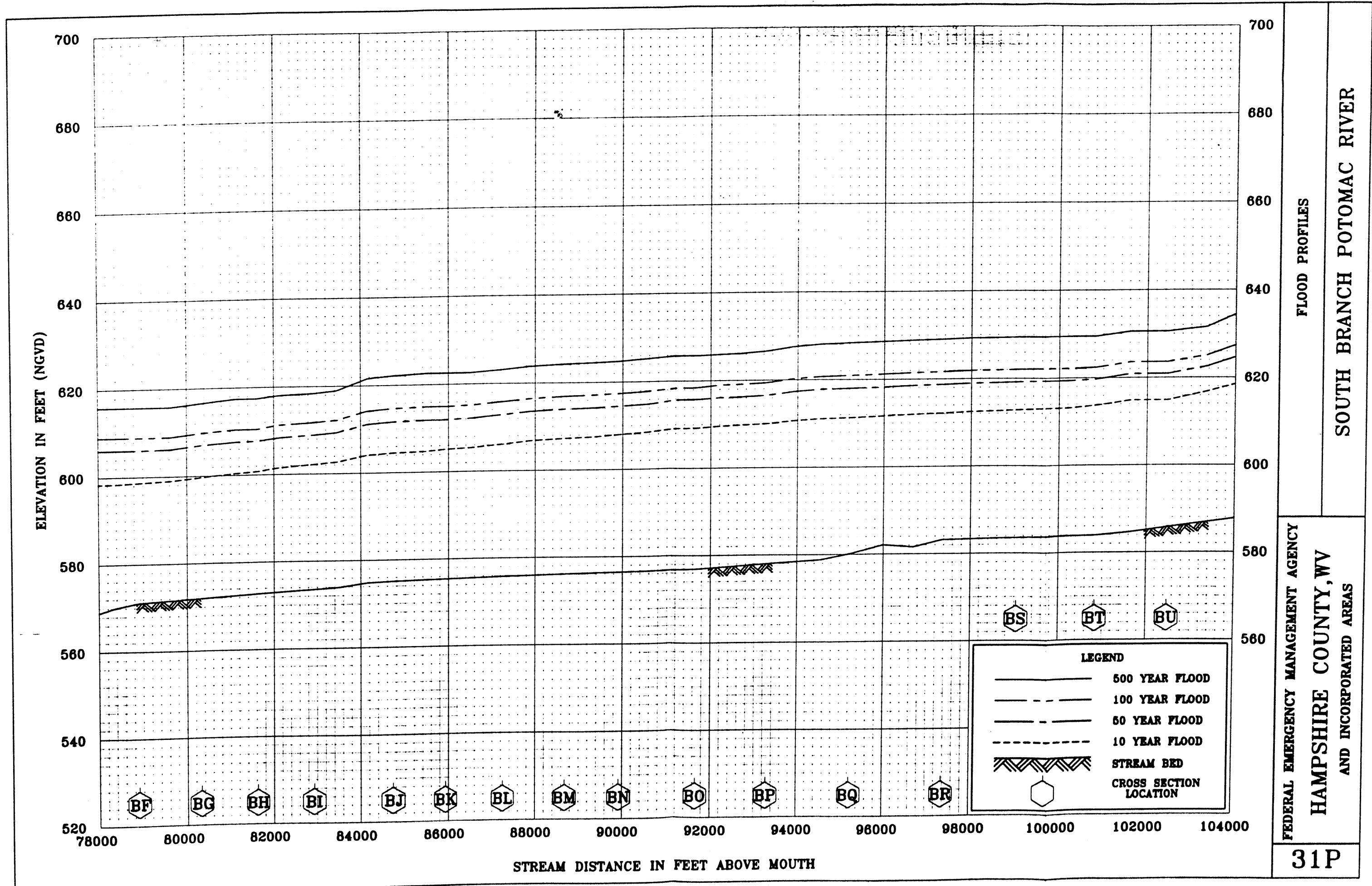
HAMPSHIRE COUNTY, WV  
AND INCORPORATED AREAS

29P

FEDERAL EMERGENCY MANAGEMENT AGENCY



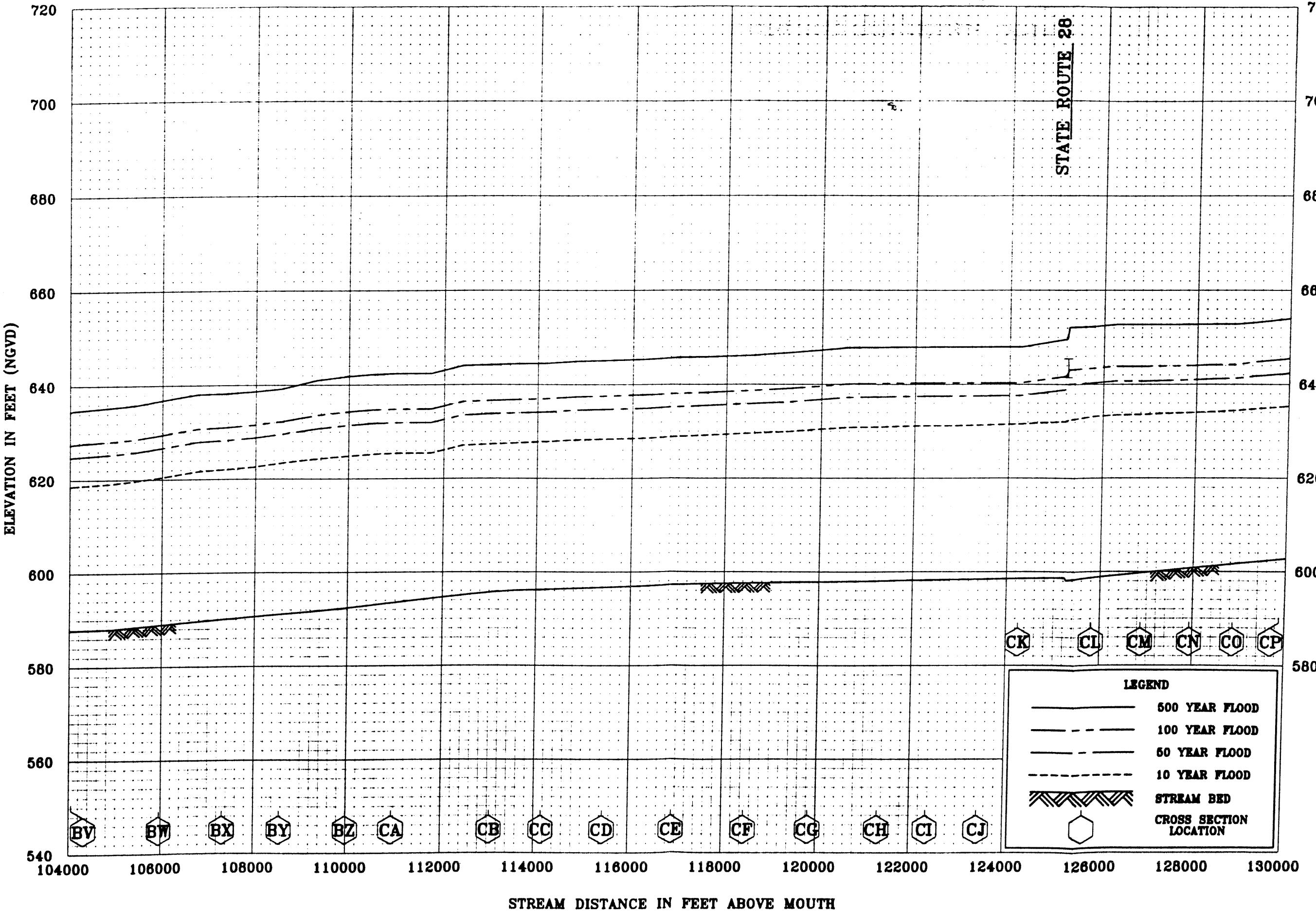




SOUTH BRANCH POTOMAC RIVER

FLOOD PROFILES

HAMPSHIRE COUNTY, WV  
AND INCORPORATED AREAS

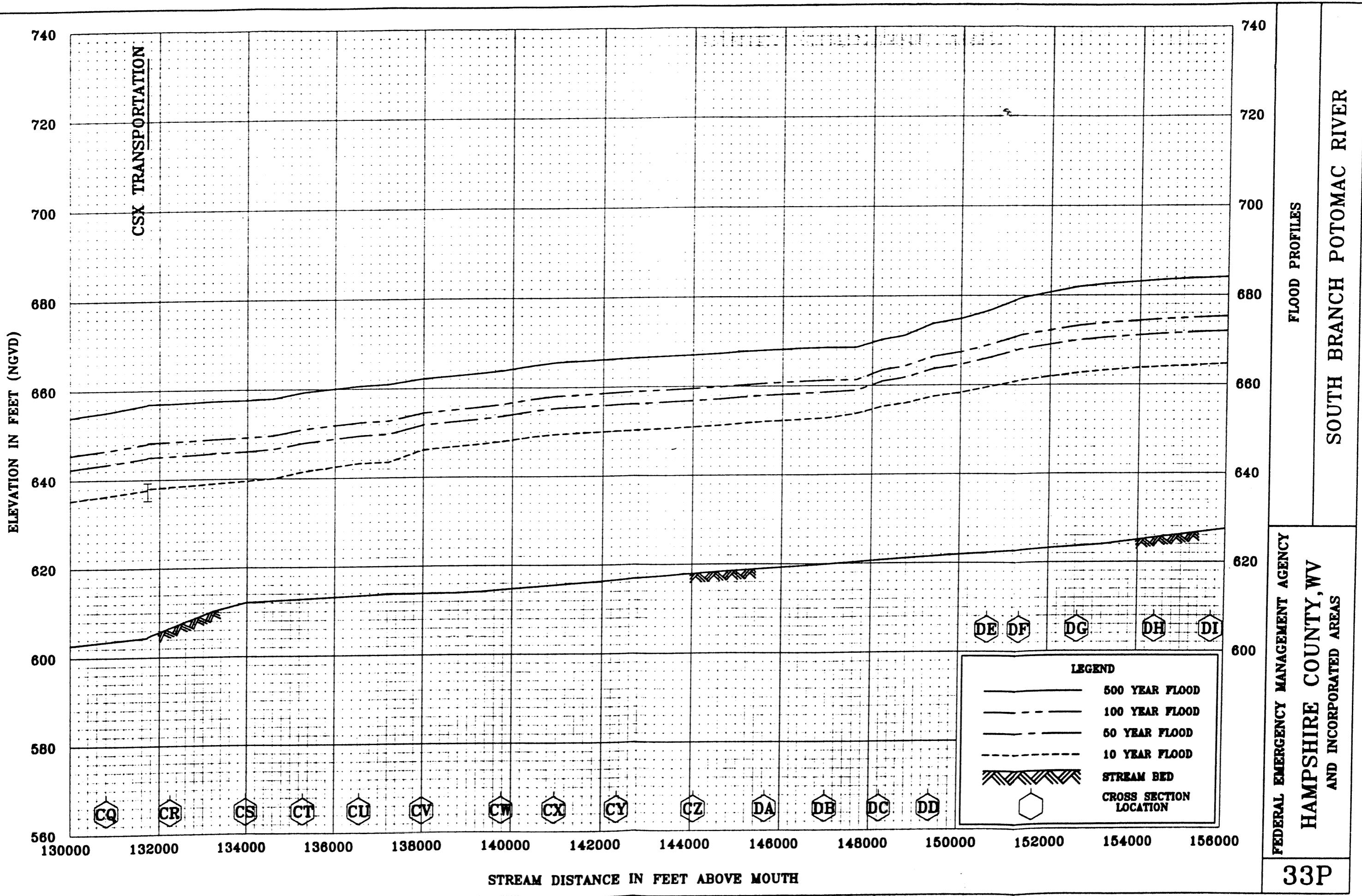


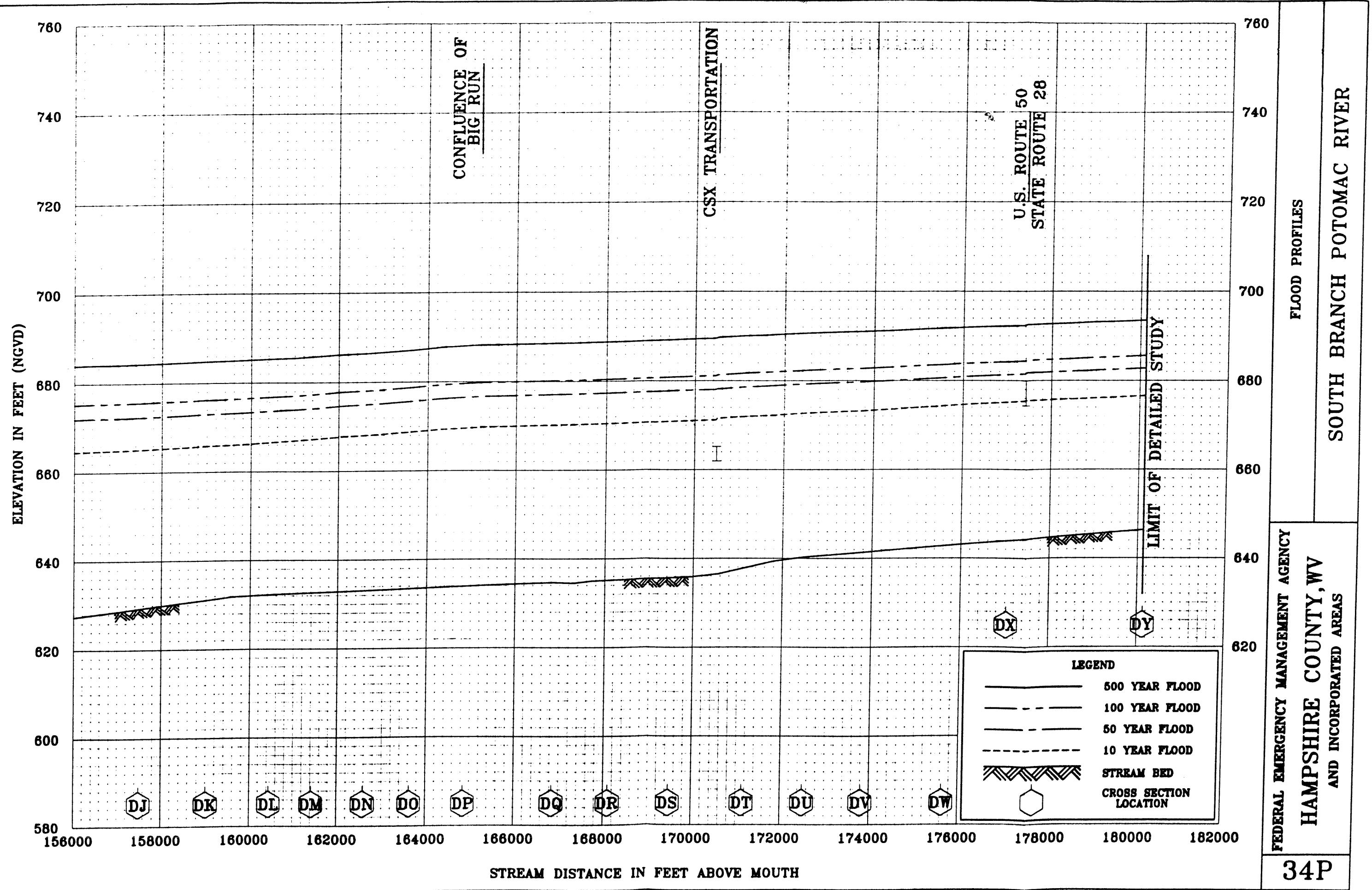
SOUTH BRANCH POTOMAC RIVER

FLOOD PROFILES

FEDERAL EMERGENCY MANAGEMENT AGENCY  
HAMPSHIRE COUNTY, WV  
AND INCORPORATED AREAS

33P





FEDERAL EMERGENCY MANAGEMENT AGENCY  
HAMPSHIRE COUNTY, WV  
AND INCORPORATED AREAS

FLOOD PROFILES

SOUTH FORK LITTLE CACAPON RIVER

