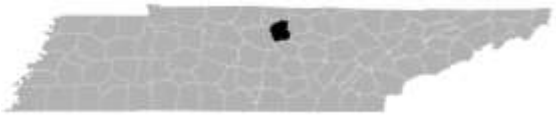
FLOOD INSURANCE STUDY
FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 1



SMITH COUNTY, TENNESSEE
AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
CARTHAGE, TOWN OF	470176
GORDONSVILLE, TOWN OF	470395
SMITH COUNTY, UNINCORPORATED AREAS	470283
SOUTH CARTHAGE, TOWN OF	470183

FEMA

REVISED:
FEBRUARY 14, 2025

FLOOD INSURANCE STUDY NUMBER
47159CV000B
Version Number 2.6.3.0

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Volume 1

Exhibits

Flood Profiles	Panel
Caney Fork River	01-10 P
Cumberland River	11 P
Defeated River	12-13 P
Hickman Creek	14-15 P
Mulherrin Creek	16-17 P
Peyton Creek	18-19 P
Smith Fork Creek	20-24 P

Published Separately

Flood Insurance Rate Map (FIRM)

FLOOD INSURANCE STUDY REPORT
SMITH COUNTY, TENNESSEE

SECTION 1.0 – INTRODUCTION

1.1 The National Flood Insurance Program

The National Flood Insurance Program (NFIP) is a voluntary Federal program that enables property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods.

For decades, the national response to flood disasters was generally limited to constructing flood-control works such as dams, levees, sea-walls, and the like, and providing disaster relief to flood victims. This approach did not reduce losses nor did it discourage unwise development. In some instances, it may have actually encouraged additional development. To compound the problem, the public generally could not buy flood coverage from insurance companies, and building techniques to reduce flood damage were often overlooked.

In the face of mounting flood losses and escalating costs of disaster relief to the general taxpayers, the U.S. Congress created the NFIP. The intent was to reduce future flood damage through community floodplain management ordinances, and provide protection for property owners against potential losses through an insurance mechanism that requires a premium to be paid for the protection.

The U.S. Congress established the NFIP on August 1, 1968, with the passage of the National Flood Insurance Act of 1968. The NFIP was broadened and modified with the passage of the Flood Disaster Protection Act of 1973 and other legislative measures. It was further modified by the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004. The NFIP is administered by the Federal Emergency Management Agency (FEMA), which is a component of the Department of Homeland Security (DHS).

Participation in the NFIP is based on an agreement between local communities and the Federal Government. If a community adopts and enforces floodplain management regulations to reduce future flood risks to new construction and substantially improved structures in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses. The community's floodplain management regulations must meet or exceed criteria established in accordance with Title 44 Code of Federal Regulations (CFR) Part 60, *Criteria for Land Management and Use*.

SFHAs are delineated on the community's Flood Insurance Rate Maps (FIRMs). Under the NFIP, buildings that were built before the flood hazard was identified on the community's FIRMs are generally referred to as "Pre-FIRM" buildings. When the NFIP was created, the U.S. Congress recognized that insurance for Pre-FIRM buildings would be prohibitively expensive if the premiums were not subsidized by the Federal Government. Congress also recognized that most of these floodprone buildings were

built by individuals who did not have sufficient knowledge of the flood hazard to make informed decisions. The NFIP requires that full actuarial rates reflecting the complete flood risk be charged on all buildings constructed or substantially improved on or after the effective date of the initial FIRM for the community or after December 31, 1974, whichever is later. These buildings are generally referred to as “Post-FIRM” buildings.

1.2 Purpose of this Flood Insurance Study Report

This Flood Insurance Study (FIS) Report revises and updates information on the existence and severity of flood hazards for the study area. The studies described in this report developed flood hazard data that will be used to establish actuarial flood insurance rates and to assist communities in efforts to implement sound floodplain management.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive than the minimum Federal requirements. Contact your State NFIP Coordinator to ensure that any higher State standards are included in the community’s regulations.

1.3 Jurisdictions Included in the Flood Insurance Study Project

This FIS Report covers the entire geographic area of Smith County, Tennessee.

The jurisdictions that are included in this project area, along with the Community Identification Number (CID) for each community and the United States Geological Survey (USGS) 8-digit Hydrologic Unit Code (HUC-8) sub-basins affecting each, are shown in Table 1. The FIRM panel numbers that affect each community are listed. If the flood hazard data for the community is not included in this FIS Report, the location of that data is identified.

Table 1: Listing of NFIP Jurisdictions

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Carthage, Town of	470176	05130106 05130201	47159C0139D 47159C0143E 47159C0202E 47159C0206E	
Gordonsville, Town of	470395	05130108	47159C0204E 47159C0208E 47159C0209E 47159C0215E 47159C0216E 47159C0217E	

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Smith County, Unincorporated Areas	470283	05130106 05130108 05130201	47159C0020D 47159C0039D 47159C0040D 47159C0045D 47159C0065D 47159C0095D[1] 47159C0105D 47159C0109D 47159C0110D 47159C0115D 47159C0117D 47159C0119D 47159C0120D 47159C0126D 47159C0127D 47159C0128D 47159C0129D 47159C0132D 47159C0134D 47159C0135D 47159C0136D 47159C0137D 47159C0138D 47159C0139D 47159C0141D 47159C0143E 47159C0145E 47159C0155D 47159C0165D 47159C0170D 47159C0185D 47159C0200D 47159C0202E 47159C0204E 47159C0205D 47159C0206E 47159C0207E 47159C0208E 47159C0209E 47159C0215E	

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Smith County, Unincorporated Areas (continued)	470283	05130106 05130108 05130201	47159C0216E 47159C0217E 47159C0218E 47159C0219E 47159C0230D 47159C0235D 47159C0240E 47159C0245E 47159C0255D[1] 47159C0260D 47159C0280D 47159C0285E 47159C0305E	
South Carthage, Town of	470183	05130108 05130201	47159C0138D 47159C0139D 47159C0202E 47159C0204E 47159C0206E	

[1] Panel Not Printed

1.4 Considerations for using this Flood Insurance Study Report

The NFIP encourages State and local governments to implement sound floodplain management programs. To assist in this endeavor, each FIS Report provides floodplain data, which may include a combination of the following: 10-, 4-, 2-, 1-, and 0.2-percent annual chance flood elevations (the 1-percent-annual-chance flood elevation is also referred to as the Base Flood Elevation (BFE)); delineations of the 1-percent-annual-chance and 0.2-percent-annual-chance floodplains; and 1-percent-annual-chance floodway. This information is presented on the FIRM and/or in many components of the FIS Report, including Flood Profiles, Floodway Data tables, Summary of Non-Coastal Stillwater Elevations tables, and Coastal Transect Parameters tables (not all components may be provided for a specific FIS).

This section presents important considerations for using the information contained in this FIS Report and the FIRM, including changes in format and content. Figures 1, 2, and 3 present information that applies to using the FIRM with the FIS Report.

- Part or all of this FIS Report may be revised and republished at any time. In addition, part of this FIS Report may be revised by a Letter of Map Revision (LOMR), which does not involve republication or redistribution of the FIS Report. Refer to Section 6.5 of this FIS Report for information about the process to revise the FIS Report and/or FIRM.

  It is, therefore, the responsibility of the user to consult with community officials by

contacting the community repository to obtain the most current FIS Report components. Communities participating in the NFIP have established repositories of flood hazard data for floodplain management and flood insurance purposes. Community map repository addresses are provided in Table 30, "Map Repositories," within this FIS Report.

- New FIS Reports are frequently developed for multiple communities, such as entire counties. A countywide FIS Report incorporates previous FIS Reports for individual communities and the unincorporated area of the county (if not jurisdictional) into a single document and supersedes those documents for the purposes of the NFIP.

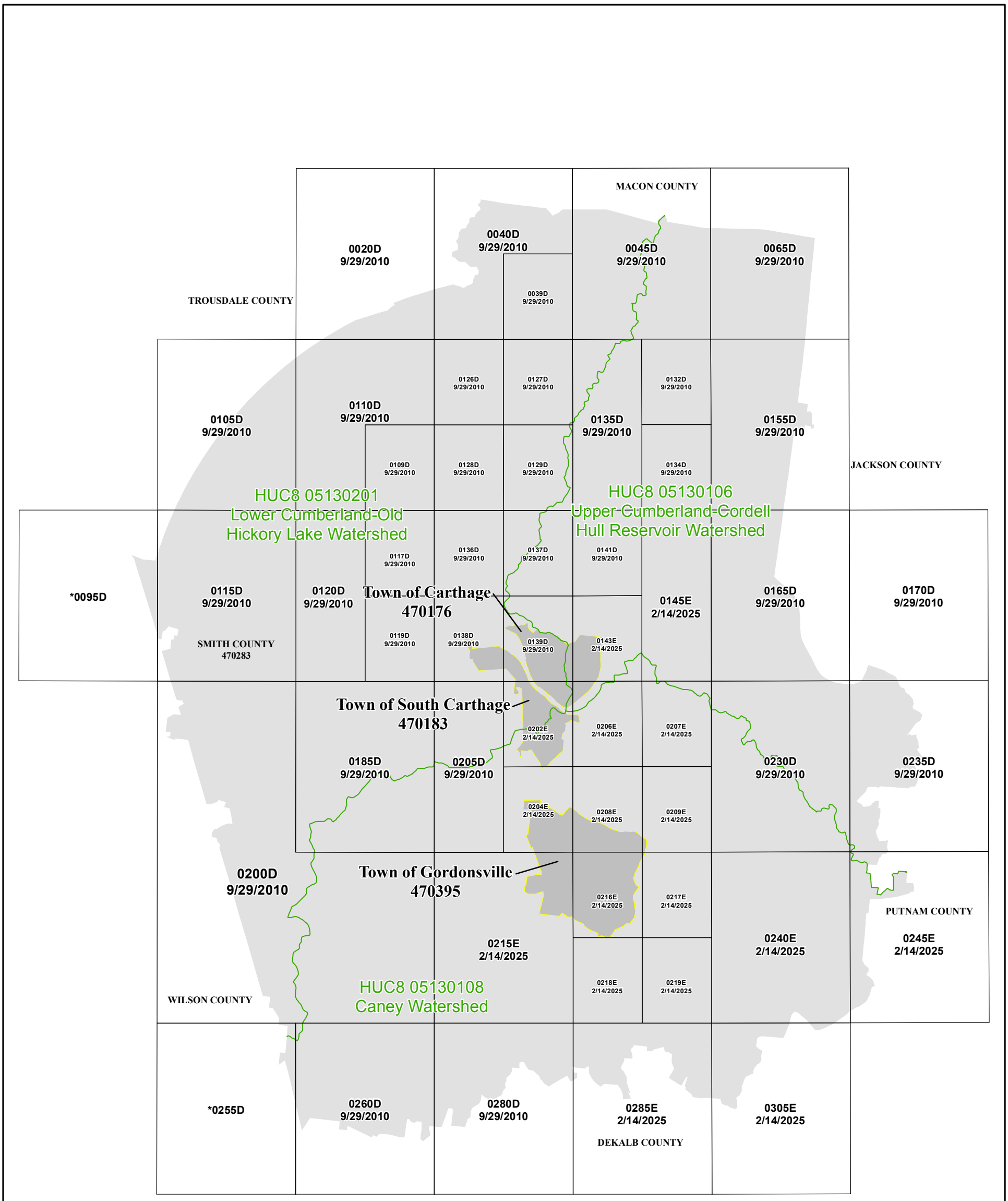
  The initial Countywide FIS Report for Smith County became effective on September 29, 2010. Refer to Table 27 for information about subsequent revisions to the FIRMs.

  The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. Visit the FEMA Web site at www.fema.gov/flood-insurance/rules-legislation/community-rating-system or contact your appropriate FEMA Regional Office for more information about this program.

- FEMA has developed a *Guide to Flood Maps* (FEMA 258) and online tutorials to assist users in accessing the information contained on the FIRM. These include how to read panels and step-by-step instructions to obtain specific information. To obtain this guide and other assistance in using the FIRM, visit the FEMA Web site at www.fema.gov/flood-maps/tutorials.

The FIRM Index in Figure 1 shows the overall FIRM panel layout within Smith County, and also displays the panel number and effective date for each FIRM panel in the county**.** Other information shown on the FIRM Index includes community boundaries, flooding sources, watershed boundaries, and USGS HUC-8 codes.

Figure 1: FIRM Index



ATTENTION: The corporate limits shown on this FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those shown on FIRM panels issued before FEBRUARY 14, 2025

N

1 inch = 13,333 feet 1:160,000

0 3,750 7,500 15,000 22,500 30,000 feet

Map Projection:
State Plane Lambert Conformal Conic,
Tennessee Zone 4100; North American Datum 1983

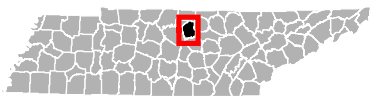
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTPS://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

* PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS

COUNTY LOCATOR



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX

SMITH COUNTY, TENNESSEE and Incorporated Areas

PANELS PRINTED:

0020, 0039, 0040, 0045, 0065, 0105, 0109, 0110, 0115, 0117, 0119, 0120, 0126, 0127, 0128, 0129, 0132, 0134, 0135, 0136, 0137, 0138, 0139, 0141, 0143, 0145, 0155, 0165, 0170, 0185, 0200, 0202, 0204, 0205, 0206, 0207, 0208, 0209, 0215, 0216, 0217, 0218, 0219, 0230, 0235, 0240, 0245, 0260, 0280, 0285, 0305

FEMA

MAP NUMBER
47159CIND0B

MAP REVISED
FEBRUARY 14, 2025

Each FIRM panel may contain specific notes to the user that provide additional information regarding the flood hazard data shown on that map. However, the FIRM panel does not contain enough space to show all the notes that may be relevant in helping to better understand the information on the panel. Figure 2 contains the full list of these notes.

Figure 2: FIRM Notes to Users

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM including historic versions of this FIRM, how to order products, or the National Flood Insurance Program in general, please call the FEMA Mapping and Insurance eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Flood Map Service Center website or by calling the FEMA Mapping and Insurance eXchange.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates, refer to Table 27 in this FIS Report.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

The map is for use in administering the NFIP. It may not identify all areas subject to flooding, particularly from local drainage sources of small size. Consult the community map repository to find updated or additional flood hazard information.

BASE FLOOD ELEVATIONS: For more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, consult the Flood Profiles and Floodway Data and/or Summary of Non-Coastal Stillwater Elevations tables within this FIS Report. Use the flood elevation data within the FIS Report in conjunction with the FIRM for construction and/or floodplain management.

FLOODWAY INFORMATION: Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the FIS Report for this jurisdiction.

Figure 2: FIRM Notes to Users

FLOOD CONTROL STRUCTURE INFORMATION: Certain areas not in Special Flood Hazard Areas may have reduced flood hazards due to flood control structures. Refer to Section 4.3 “Dams and Other Flood Hazard Reduction Measures” of this FIS Report for information on flood control structures for this jurisdiction.

PROJECTION INFORMATION: The projection used in the preparation of the map was State Plane Lambert Conformal Conic, Tennessee Zone 4100. The horizontal datum was the North American Datum 1983; Western Hemisphere. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

ELEVATION DATUM: Flood elevations on the FIRM are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website www.ngs.noaa.gov.

Local vertical monuments may have been used to create the map. To obtain current monument information, please contact the appropriate local community listed in Table 30 of this FIS Report.

BASE MAP INFORMATION (02/14/2025): Base map information shown on this FIRM was provided by the State of Tennessee, Department of Finance & Administration, Strategic Technologies Solutions, GIS Services at https://tnmap.tn.gov/. Data was also obtained from the United States Geological Survey. Ortho imagery was originally produced by the Tennessee Department of Transportation, Office of Aerial Surveys in 2017 and has a 10 inch ground sample distance. For information about base maps, refer to Section 6.2 “Base Map” in this FIS Report.

BASE MAP INFORMATION (09/29/2020): Base map information shown on this FIRM was derived from multiple sources. Base map files were provided in digital format by the State of Tennessee, Department of Finance and Administration, Office for Information Resource, GIS Services. This information was photogrammetrically compiled at scales of 1:100 and 1:400 from aerial photography dated March 2006. Additional information was constructed from property information recorded in the Office of the Register of Deeds, and is dated March 2006 and from the Tennessee Department of Transportation, and is dated April 2004.

The map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables may reflect stream channel distances that differ from what is shown on the map.

Corporate limits shown on the map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after the map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Figure 2: FIRM Notes to Users

NOTES FOR FIRM INDEX

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Smith County, Tennessee, corresponding revisions to the FIRM Index will be incorporated within the FIS Report to reflect the effective dates of those panels. Please refer to Table 27 of this FIS Report to determine the most recent FIRM revision date for each community. The most recent FIRM panel effective date will correspond to the most recent index date.

ATTENTION: The corporate limits shown on this FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those shown on the FIRM panels issued before February 14, 2025.

SPECIAL NOTES FOR SPECIFIC FIRM PANELS

This Notes to Users section was created specifically for Smith County, Tennessee**,** effective February 14, 2025.

FLOOD RISK REPORT: A Flood Risk Report (FRR) may be available for many of the flooding sources and communities referenced in this FIS Report. The FRR is provided to increase public awareness of flood risk by helping communities identify the areas within their jurisdictions that have the greatest risks. Although non-regulatory, the information provided within the FRR can assist communities in assessing and evaluating mitigation opportunities to reduce these risks. It can also be used by communities developing or updating flood risk mitigation plans. These plans allow communities to identify and evaluate opportunities to reduce potential loss of life and property. However, the FRR is not intended to be the final authoritative source of all flood risk data for a project area; rather, it should be used with other data sources to paint a comprehensive picture of flood risk.

Each FIRM panel contains an abbreviated legend for the features shown on the maps. However, the FIRM panel does not contain enough space to show the legend for all map features. Figure 3 shows the full legend of all map features. Note that not all of these features may appear on the FIRM panels in Smith County.

Figure 3: Map Legend for FIRM

SPECIAL FLOOD HAZARD AREAS: The 1% annual chance flood, also known as the base flood or 100-year flood, has a 1% chance of happening or being exceeded each year. Special Flood Hazard Areas are subject to flooding by the 1% annual chance flood. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights. See note for specific types. If the floodway is too narrow to be shown, a note is shown.

	Special Flood Hazard Areas subject to inundation by the 1% annual chance flood (Zones A, AE, AH, AO, AR, A99, V and VE)
Zone A	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. No base (1% annual chance) flood elevations (BFEs) or depths are shown within this zone.
Zone AE	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. Base flood elevations derived from the hydraulic analyses are shown within this zone.
Zone AH	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the hydraulic analyses are shown at selected intervals within this zone.
Zone AO	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the hydraulic analyses are shown within this zone.
Zone AR	The flood insurance rate zone that corresponds to areas that were formerly protected from the 1% annual chance flood 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.
Zone A99	The flood insurance rate zone that corresponds to areas of the 1% annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or flood depths are shown within this zone.
Zone V	The flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations are not shown within this zone.
Zone VE	Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations derived from the coastal analyses are shown within this zone as static whole-foot elevations that apply throughout the zone.
	Regulatory Floodway determined in Zone AE.

Figure 3: Map Legend for FIRM

OTHER AREAS OF FLOOD HAZARD

Shaded Zone X: Areas of 0.2% annual chance flood hazards and areas of 1% annual chance flood hazards with average depths of less than 1 foot or with drainage areas less than 1 square mile.

Future Conditions 1% Annual Chance Flood Hazard – Zone X: The flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined based on future-conditions hydrology. No base flood elevations or flood depths are shown within this zone.

Area with Reduced Flood Hazard due to Accredited or Provisionally Accredited Levee System: Area is shown as reduced flood hazard from the 1-percent-annual-chance or greater flood by a levee system. Overtopping or failure of any levee system is possible.

Area with Undetermined Flood Hazard due to Non-Accredited Levee System: Analysis and mapping procedures for non-accredited levee systems were applied resulting in a flood insurance rate zone where flood hazards are undetermined, but possible.

OTHER AREAS

Zone D (Areas of Undetermined Flood Hazard): The flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

Unshaded Zone X: Areas of minimal flood hazard.

FLOOD HAZARD AND OTHER BOUNDARY LINES

(ortho) (vector)

Flood Zone Boundary (white line on ortho-photography-based mapping; gray line on vector-based mapping)

Limit of Study

Jurisdiction Boundary

Limit of Moderate Wave Action (LiMWA): Indicates the inland limit of the area affected by waves greater than 1.5 feet

GENERAL STRUCTURES

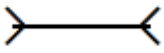
Aqueduct
Channel
Culvert
Storm Sewer

Channel, Culvert, Aqueduct, or Storm Sewer

Dam
Jetty
Weir

Dam, Jetty, Weir

Levee, Dike, or Floodwall



Bridge

Bridge

Figure 3: Map Legend for FIRM

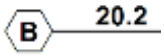
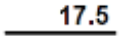
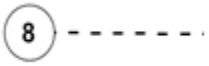
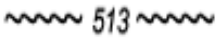
REFERENCE MARKERS	
	River mile Markers
CROSS SECTION & TRANSECT INFORMATION	
	Lettered Cross Section with Regulatory Water Surface Elevation (BFE)
	Numbered Cross Section with Regulatory Water Surface Elevation (BFE)
	Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)
	Coastal Transect
	Profile Baseline: Indicates the modeled flow path of a stream and is shown on FIRM panels for all valid studies with profiles or otherwise established base flood elevation.
	Coastal Transect Baseline: Used in the coastal flood hazard model to represent the 0.0-foot elevation contour and the starting point for the transect and the measuring point for the coastal mapping.
	Base Flood Elevation Line
ZONE AE **(EL 16)**	Static Base Flood Elevation value (shown under zone label)
ZONE AO **(DEPTH 2)**	Zone designation with Depth
ZONE AO **(DEPTH 2)** **(VEL 15 FPS)**	Zone designation with Depth and Velocity

Figure 3: Map Legend for FIRM

BASE MAP FEATURES	
Missouri Creek	River, Stream or Other Hydrographic Feature
234	Interstate Highway
234	U.S. Highway
234	State Highway
234	County Highway
MAPLE LANE	Street, Road, Avenue Name, or Private Drive if shown on Flood Profile
RAILROAD	Railroad
	Horizontal Reference Grid Line
	Horizontal Reference Grid Ticks
+	Secondary Grid Crosshairs
Land Grant	Name of Land Grant
7	Section Number
R. 43 W. T. 22 N.	Range, Township Number
$^{42}76^{000m}$E	Horizontal Reference Grid Coordinates (UTM)
365000 FT	Horizontal Reference Grid Coordinates (State Plane)
80° 16’ 52.5”	Corner Coordinates (Latitude, Longitude)

SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS

2.1 Floodplain 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 hazard in the community.

Each flooding source included in the project scope has been studied and mapped using professional engineering and mapping methodologies that were agreed upon by FEMA and Smith County as appropriate to the risk level. Flood risk is evaluated based on factors such as known flood hazards and projected impact on the built environment. Engineering analyses were performed for each studied flooding source to calculate its 1-percent-annual-chance flood elevations; elevations corresponding to other floods (e.g. 10-, 4-, 2-, 0.2-percent annual chance, etc.) may have also been computed for certain flooding sources. Engineering models and methods are described in detail in Section 5.0 of this FIS Report. The modeled elevations at cross sections were used to delineate the floodplain boundaries on the FIRM; between cross sections, the boundaries were interpolated using elevation data from various sources. More information on specific mapping methods is provided in Section 6.0 of this FIS Report.

Depending on the accuracy of available topographic data (Table 22), study methodologies employed (Section 5.0), and flood risk, certain flooding sources may be mapped to show both the 1-percent and 0.2-percent-annual-chance floodplain boundaries, regulatory water surface elevations (BFEs), and/or a regulatory floodway. Similarly, other flooding sources may be mapped to show only the 1-percent-annual-chance floodplain boundary on the FIRM, without published water surface elevations. In cases where the 1-percent and 0.2-percent-annual-chance floodplain boundaries are close together, only the 1-percent-annual-chance floodplain boundary is shown on the FIRM.Figure 3, “Map Legend for FIRM”, describes the flood zones that are used on the FIRMs to account for the varying levels of flood risk that exist along flooding sources within the project area. Table 2 and Table 3 indicate the flood zone designations for each flooding source and each community within Smith County, respectively.

Table 2, “Flooding Sources Included in this FIS Report,” lists each flooding source, including its study limits, affected communities, mapped zone on the FIRM, and the completion date of its engineering analysis from which the flood elevations on the FIRM and in the FIS Report were derived. Descriptions and dates for the latest hydrologic and hydraulic analyses of the flooding sources are shown in Table 12. Floodplain boundaries for these flooding sources are shown on the FIRM (published separately) using the symbology described in Figure 3. On the map, the 1-percent-annual-chance floodplain corresponds to the SFHAs. The 0.2-percent-annual-chance floodplain shows areas that, although out of the regulatory floodplain, are still subject to flood hazards.

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. The procedures to remove these areas from the SFHA are described in Section 6.5 of this FIS Report.

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Caney Fork River	Gordonsville, Town of; Smith County, Unincorporated Areas; South Carthage, Town of	Confluence with Cumberland River	DeKalb County, TN boundary	05130108	24.30	Y	AE	12/01/2020
Cumberland River	Carthage, Town of; Smith County, Unincorporated Areas; South Carthage, Town of	Approximately 4.23 miles downstream of State Highway 25	Approximately 4.43 miles upstream of the confluence of Caney Fork River	05130106 05130201	9.50	Y	AE	06/01/1979
Defeated Creek	Smith County, Unincorporated Areas	Approximately 2,500 feet downstream of Kemp Bottom Road	Approximately 2,100 feet upstream of Little Salt Lick Road	05130106	2.75	Y	AE	06/01/1979
Hickman Creek	Gordonsville, Town of; Smith County, Unincorporated Areas	Confluence with Caney Fork River	Approximately 1.02 miles upstream of the Railroad	05130108	1.92	Y	AE	07/01/1997
Mulherrin Creek	Gordonsville, Town of; Smith County, Unincorporated Areas	Confluence with Caney Fork River	Approximately 1,250 feet upstream of State Highway 53	05130108	1.56	Y	AE	07/01/1997
Peyton Creek	Smith County, Unincorporated Areas	Confluence with Cumberland River	Approximately 4,435 feet upstream of State Highway 80 / Pleasant Shade Highway	05130201	8.77	Y	AE	06/01/1979
Smith Fork Creek	Smith County, Unincorporated Areas	Confluence with Caney Fork River	DeKalb County, TN boundary	05130108	4.96	Y	AE	12/01/2020
Zone A Flooding Sources	Carthage, Town of; Gordonsville, Town of; Smith County, Unincorporated Areas; South Carthage, Town of	Various	Various	05130106 05130108 05130201	188.50	N	A	08/01/2009

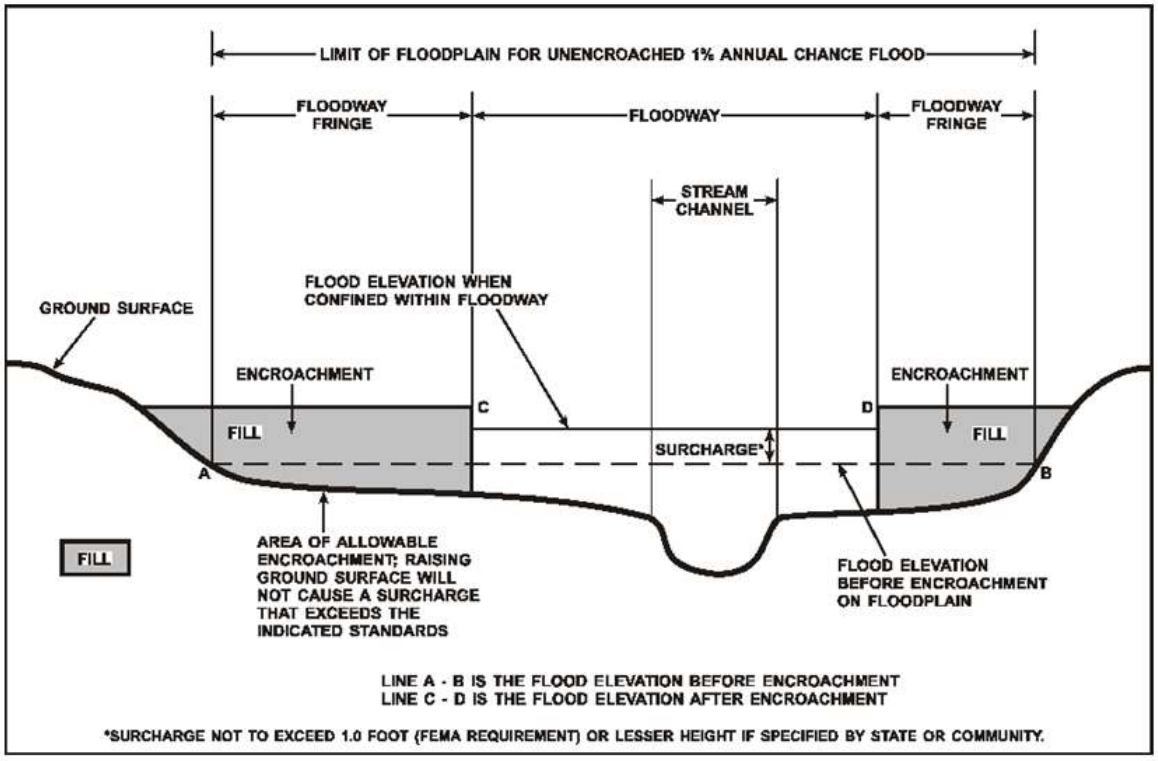
2.2 Floodways

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 NFIP, a floodway is used as a tool to assist local communities in balancing floodplain development against increasing flood hazard. With this approach, the area of the 1-percent-annual-chance floodplain on a river is divided into a floodway and a floodway fringe based on hydraulic modeling. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment in order to carry the 1-percent-annual-chance flood. The floodway fringe is the area between the floodway and the 1-percent-annual-chance floodplain boundaries where encroachment is permitted. The floodway must be wide enough so that the floodway fringe could be completely obstructed without increasing the water surface elevation of the 1-percent-annual-chance flood more than 1 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 4.

To participate in the NFIP, Federal regulations require communities to limit increases caused by encroachment to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this project are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway projects.

Figure 4: Floodway Schematic



Floodway widths presented in this FIS Report and on the FIRM were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. For certain stream segments, floodways were adjusted so that the amount of floodwaters conveyed on each side of the floodplain would be reduced equally. The results of the floodway computations have been tabulated for selected cross sections and are shown in Table 23, “Floodway Data.”

All floodways that were developed for this Flood Risk Project are shown on the FIRM using the symbology described in Figure 3. In cases where the floodway and 1-percent-annual-chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown on the FIRM. For information about the delineation of floodways on the FIRM, refer to Section 6.3.

2.3 Base Flood Elevations

The hydraulic characteristics of flooding sources were analyzed to provide estimates of the elevations of floods of the selected recurrence intervals. The BFE is the elevation of the 1-percent-annual-chance flood. These BFEs are most commonly rounded to the whole foot, as shown on the FIRM, but in certain circumstances or locations they may be rounded to 0.1 foot. Cross section lines shown on the FIRM may also be labeled with the BFE rounded to 0.1 foot. Whole-foot BFEs derived from engineering analyses that apply to coastal areas, areas of ponding, or other static areas with little elevation change may also be shown at selected intervals on the FIRM.

BFEs are primarily intended for flood insurance rating purposes. Cross sections with BFEs shown on the FIRM correspond to the cross sections shown in the Floodway Data table and Flood Profiles in this FIS Report. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. For example, the user may use the FIRM to determine the stream station of a location of interest and then use the profile to determine the 1-percent annual chance elevation at that location. Because only selected cross sections may be shown on the FIRM for riverine areas, the profile should be used to obtain the flood elevation between mapped cross sections. Additionally, for riverine areas, whole-foot elevations shown on the FIRM may not exactly reflect the elevations derived from the hydraulic analyses; therefore, elevations obtained from the profile may more accurately reflect the results of the hydraulic analysis.

2.4 Non-Encroachment Zones

This section is not applicable to this Flood Risk Project.

2.5 Coastal Flood Hazard Areas

This section is not applicable to this Flood Risk Project.

2.5.1 Water Elevations and the Effects of Waves

This section is not applicable to this Flood Risk Project.

Figure 5: Wave Runup Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

This section is not applicable to this Flood Risk Project.

2.5.3 Coastal High Hazard Areas

This section is not applicable to this Flood Risk Project.

Figure 6: Coastal Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.4 Limit of Moderate Wave Action

This section is not applicable to this Flood Risk Project.

SECTION 3.0 – INSURANCE APPLICATIONS

3.1 National Flood Insurance Program Insurance Zones

For flood insurance applications, the FIRM designates flood insurance rate zones as described in Figure 3, “Map Legend for FIRM.” Flood insurance zone designations are assigned to flooding sources based on the results of the hydraulic or coastal analyses. Insurance agents use the zones shown on the FIRM and depths and base flood elevations in this FIS Report in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

The 1-percent-annual-chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (e.g. Zones A, AE, V, VE, etc.), and the 0.2-percent-annual-chance floodplain boundary corresponds to the boundary of areas of additional flood hazards.

Table 3 lists the flood insurance zones in Smith County.

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
Carthage, Town of	AE, X
Gordonsville, Town of	A, AE, X
Smith County, Unincorporated Areas	A, AE, X
South Carthage, Town of	AE, X

SECTION 4.0 – AREA STUDIED

4.1 Basin Description

Table 4 contains a description of the characteristics of the HUC-8 sub-basins within which each community falls. The table includes the main flooding sources within each basin, a brief description of the basin, and its drainage area.

Table 4: Basin Characteristics

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)[1]
Upper Cumberland-Cordell Hull Reservoir	05130106	Cumberland River	Covers the eastern half of the county	77.1
Caney	05130108	Caney Fork River	Covers the southern portion of the county	120.5
Lower Cumberland-Old Hickory Lake	05130201	Cumberland River	Covers the western half of the county	128.9

[1] Total drain area of watershed inside the county

4.2 Principal Flood Problems

Table 5 contains a description of the principal flood problems that have been noted for Smith County by flooding source.

Table 5: Principal Flood Problems

Flooding Source	Description of Flood Problems
Caney Fork River and Cumberland River	The history of flooding on the Cumberland River indicates that most floods occur in the period from late November to mid April, primarily because precipitation amounts are great and hydrologic conditions are conducive to excessive runoff (FIS 1980a; FIS 1980b; FIS 2010). Since Smith County was established in 1799, many major floods have occurred on the Cumberland River. The four largest floods that occurred prior to the closure of Dale Hollow Dam in 1943 occurred in March 1826, December 1926, March 1929, and January 1937.

Table 5: Principal Flood Problems (continued)

Flooding Source	Description of Flood Problems
Caney Fork River and Cumberland River (continued)	At the gaging station (USGS number 03425000) on the bridge connecting Carthage and South Carthage, the stages and discharges associated with these events are 57.5 feet (discharge, unknown), 59.8 feet [discharge, 210,000 cubic feet per second (cfs)], 55.9 feet (discharge 187,000 cfs), and 54.7 feet (discharge 172,000 cfs), respectively (USACE 1967; USACE 1976). The Datum of the gage is at elevation 437.53 feet National Geodetic Vertical Datum of 1929 (NGVD 29). The return period for the March 1826 flood is unknown. The estimated return periods for the December 1926, March 1929, and January 1937 floods are 63 years, 24 years, and 13 years respectively. Center Hall Dam (closure November 1948) and Wolf Creek Dam (closure August 1950) along with Dale Hollow Dam now control 83 percent of the drainage area above gaging station 03425000 (FIS 1980a; FIS 1980b; FIS 2010). Since the closure of Wolf Creek Dam, the three greatest floods occurred in February 1962, January 1974, and March 1975. At gaging station 03425000 the stages and discharges associated with these events are 38.4 feet (discharge 104,000 cfs), 40.9 feet (discharge 119,700 cfs), and 47.0 feet (discharge 143,000 cfs), respectively. The estimated return periods for floods of these magnitudes are 10 years, 30 years, and 90 years, respectively. For the March 1975 flood, it is estimated that the stage without the upstream reservoirs would have been 21.5 feet higher than actually occurred and 8.7 feet higher than the record December 1926 stage. The estimated 100-year discharge for the Cumberland River at the gaging station is currently 145,000 cfs (FIS 1980b; FIS 2010). The Caney Fork River enters the Cumberland River at mile 309.2 at South Carthage. Prior to the closure of Center Hill Dam which is located at mile 26.6 several large floods occurred on the Caney Fork River. Profiles for some floods were obtained by the USACE Nashville District. Since the closure of Center Hill Dam, the maximum discharge between the dam and the Cumberland River has been approximately 30,000 cfs (FIS 1980b; FIS 2010). A discharge of this magnitude will cause flooding, but the amount of damage will be small because most of the flood plain is undeveloped. The estimated 100-year discharge for Caney Fork River at its confluence with the Cumberland River is currently 54,300 cfs (FIS 1980b; FIS 2010). Since the closure of Center Hill Dam, the maximum discharge between the dam and the Cumberland River has been approximately 30,000 cfs. A discharge of this magnitude will cause flooding, but the amount of damage will be small because most of the floodplain is undeveloped. The estimated 1-percent-annual-chance discharge for the Caney Fork River at its confluence with the Cumberland River is 54,000 cfs (FIS 1999a; FIS 2010).
Defeated Creek	Defeated Creek is flooded by backwater from Cordell Hull Reservoir to approximately mile 5.2. The estimated 1-percent-annual-chance discharge for Defeated Creek at its confluence with the Cordell Hull Reservoir is 10,300 cfs. Medium and high headwater floods inundate County Road Secondary Route 6166 (Defeated Creek Road) at many places above mile 5.2. According to residents of the Town of Difficult, the greatest flood on Defeated Creek in the last 70 years occurred on March 12, 1975. From high-water marks at Difficult, the discharge for this flood was estimated to be 6,800 cfs. The return period for a flood of this magnitude is 98 years. The estimated 100-year discharge for Defeated Creek at Difficult is 6,840 cfs (FIS 1999a; FIS 2010).

Table 5: Principal Flood Problems (continued)

Flooding Source	Description of Flood Problems
Mulherrin Creek	No high-water profiles are known to exist for Mulherrin Creek within the study reach. The only flood for which a discharge is known (2,200 cfs) occurred on February 27, 1962. The return period for a flood of this magnitude is 5 years. According to residents of New Middleton, the 2 greatest floods on Mulherrin Creek in the last 50 years occurred in 1928 and 1967. Exact elevations for these floods could not be determined. However, it is believed that they were approximately 6 feet higher than the flood of February 27, 1962. The estimated 1-percent-annual-chance discharge for Mulherrin Creek at New Middleton is 4,770 cfs (FIS 1999a; FIS 2010).
Peyton Creek	Flooding on Peyton Creek is caused by headwater floods and Cumberland River backwater. The larger floods near the mouth are caused by backwater from the Cumberland River and do little damage because the floodplain is undeveloped. The estimated 1-percent-annual-chance discharge for Peyton Creek at its confluence with the Cumberland River is 18,800 cfs. No high-water profiles are known to exist within the study reach on Peyton Creek (FIS 1999a; FIS 2010).

Table 6 contains information about historic flood elevations in the communities within Smith County.

Table 6: Historic Flooding Elevations

Flooding Source	Location	Historic Peak (Feet) / Discharge (cfs)	Event Date	Approximate Recurrence Interval (years)	Source of Data
Caney Fork River	At its confluence with the Cumberland River	54,000 cfs	*	100	FIS 1999a; FIS 2010
Caney Fork River	At its confluence with the Cumberland River	54,300 cfs	*	100	FIS 1980b; FIS 2010
Cumberland River	At USGS gage station number 03425000 (Cumberland River at Carthage, TN)	57.5 ft. NGVD	March 1826	*	FIS 1980a; FIS 1980b; FIS 2010; USACE 1967; USACE 1976
Cumberland River	At USGS gage station number 03425000 (Cumberland River at Carthage, TN)	59.8 ft. NGVD / 210,000 cfs	December 1926	63	FIS 1980a; FIS 1980b; FIS 2010; USACE 1967; USACE 1976
Cumberland River	At USGS gage station number 03425000 (Cumberland River at Carthage, TN)	55.9 ft. NGVD / 187,000 cfs	March 1929	24	FIS 1980a; FIS 1980b; FIS 2010; USACE 1967; USACE 1976

Table 6: Historic Flooding Elevations (continued)

Flooding Source	Location	Historic Peak (Feet) / Discharge (cfs)	Event Date	Approximate Recurrence Interval (years)	Source of Data
Cumberland River	At USGS gage station number 03425000 (Cumberland River at Carthage, TN)	54.7 ft. NGVD / 172,000 cfs	January 1937	13	FIS 1980a; FIS 1980b; FIS 2010; USACE 1967; USACE 1976
Cumberland River	At USGS gage station number 03425000 (Cumberland River at Carthage, TN)	38.4 ft. NGVD / 104,000 cfs	February 1962	10	FIS 1980a; FIS 1980b; FIS 2010; USACE 1967; USACE 1976
Cumberland River	At USGS gage station number 03425000 (Cumberland River at Carthage, TN)	40.9 ft. NGVD / 119,700 cfs	January 1974	30	FIS 1980a; FIS 1980b; FIS 2010; USACE 1967; USACE 1976
Cumberland River	At USGS gage station number 03425000 (Cumberland River at Carthage, TN)	47.0 ft. NGVD / 143,000 cfs	March 1975	90	FIS 1980a; FIS 1980b; FIS 2010; USACE 1967; USACE 1976
Cumberland River	Between the Center Hill Dam and the Cumberland River	30,000 cfs	*	*	FIS 1980a; FIS 1980b; FIS 2010
Defeated Creek	At its confluence with the Cordell Hull Reservoir	10,300 cfs	*	100	FIS 1999a ; FIS 2010
Defeated Creek	Along the stream	6,800 cfs	March 12, 1975	98	FIS 1999a; FIS 2010
Defeated Creek	Along the stream	6,840 cfs	March 12, 1975	100	FIS 1999a; FIS 2010
Mulherrin Creek	At New Middleton	2,200 cfs	February 27, 1962	5	FIS 1999a; FIS 2010
Peyton Creek	At its confluence with the Cumberland River	18,800 cfs	*	100	FIS 1999a; FIS 2010

* Date not available

4.3 Dams and Other Flood Hazard Reduction Measures

Table 7 contains information about non-levee flood protection measures within Smith County such as dams, jetties, and or dikes. Levees are addressed in Section 4.4 of this FIS Report.

Table 7: Dams and Other Flood Hazard Reduction Measures

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Caney Fork River, Cumberland River, Laurel River, Martin Fork and Obey River	Various	Dam	Various	Several dams and reservoirs within the Cumberland River Basin provide flood protection for Smith County. Existing dams and reservoirs include Martin Fork, on Martin Fork (flood storage of 17,500 acre-feet during the winter and 14,400 acre-feet during the summer); Laurel on the Laurel River (used primarily for power); Dale Hollow, on the Obey River (flood storage of 353,000 acre-feet); Great Falls, on the Caney Fork River (used primarily for power); Center Hill, on the Caney Fork River (flood storage of 762,000 acre-feet); Lake Cumberland (Wolf Creek Dam) on the Cumberland River (flood storage of 2,094,000 acre-feet); and Cordell Hull, on the Cumberland River (flood storage of 51,800 acre-feet) (USACE 1973) (FIS 1980a; FIS 1980b; FIS 1999a; FIS 2010).

4.4 Levee Systems

This section is not applicable to this flood risk project.

Table 8: Levee Systems

[Not Applicable to this Flood Risk Project]

SECTION 5.0 – ENGINEERING METHODS

For the flooding sources in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded at least once on the average during any 10-, 25-, 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-, 25-, 50-, 100-, and 500-year floods, have a 10-, 4-, 2-, 1-, and 0.2-percent-annual-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 that equals or exceeds the 100-year flood (1-percent chance of annual exceedance) during the term of a 30-year mortgage is approximately 26 percent (about 3 in 10); 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.

5.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for floods of the selected recurrence intervals for each flooding source studied. Hydrologic analyses are typically performed at the watershed level. Depending on factors such as watershed size and shape, land use and urbanization, and natural or man-made storage, various models or methodologies may be applied. A summary of the hydrologic methods applied to develop the discharges used in the hydraulic analyses for each stream is provided in Table 12. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

A summary of the discharges is provided in Table 9. A summary of stillwater elevations developed for non-coastal flooding sources is provided in Table 10. Stream gage information is provided in Table 11.

Table 9: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Caney Fork River	At the confluence with Cumberland River	2,586	68,713	78,335	85,756	93,534	183,379
Caney Fork River	Approximately 2,100 feet upstream of the confluence with Cumberland River	2,583	65,123	73,151	79,235	85,646	180,663
Caney Fork River	At the confluence of Hickman Creek	2,482	57,702	64,816	70,207	75,887	160,077
Caney Fork River	At the confluence of Smith Fork Creek	2,243	37,987	42,670	46,219	49,959	105,384
Caney Fork River	Just downstream of Interstate Highway 40	2,223	30,000	30,000	30,000	30,000	100,000
Cumberland River	At Mile 304	10,704	104,000	*	130,000	145,000	210,000[1]
Cumberland River	Just above the Caney Fork River	8,102	70,100	*	99,700	113,800	152,000[1]
Defeated Creek	At cross section A	21.80	6,040	*	8,990	10,300	13,500
Defeated Creek	At cross section D	20.60	5,800	*	8,630	9,900	13,000
Defeated Creek	Just above Dillehay Branch	17.20	5,090	*	7,580	8,700	11,400
Defeated Creek	At cross section N	15.90	4,810	*	7,160	8,220	10,800
Defeated Creek	At cross section S	12.30	4,000	*	5,950	6,840	8,940
Defeated Creek	Just above Cromwell Branch	11.30	3,760	*	5,600	6,430	8,400
Hickman Creek	Confluence with the Caney Fork River	44.80	10,173	*	15,094	17,315	22,753

Table 9: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Hickman Creek	Upstream of confluence of Agee Branch	39.30	9,254	*	13,736	15,759	20,697
Mulherrin Creek	Confluence with the Caney Fork River	27.50	7,149	*	10,622	12,191	15,988
Mulherrin Creek	Upstream of State Route 53	26.90	7,035	*	10,455	11,999	15,735
Mulherrin Creek	Upstream of unnamed tributary	24.90	6,653	*	9,889	11,351	14,880
Mulherrin Creek	Just above of confluence Denny Branch	8.06	2,940	*	4,390	5,040	6,580
Mulherrin Creek	At Interstate Route 40	7.45	2,780	*	4,150	4,770	6,220
Peyton Creek	Confluence with the Cumberland River	50.10	11,000	*	16,400	18,800	24,700
Peyton Creek	Just above Davis Branch	45.60	10,300	*	15,300	17,500	23,000
Peyton Creek	Just above Nickajack Branch	33.40	8,230	*	12,200	14,000	18,400
Peyton Creek	Just above Toetown Branch	29.00	7,430	*	11,000	12,700	16,600
Peyton Creek	Just above Boston Branch	17.80	5,220	*	7,700	8,920	11,700
Smith Fork Creek	At the confluence with Caney Fork River	231.30	22,275	27,997	32,368	36,990	48,529
Smith Fork Creek	Approximately 2,800 feet upstream of Lancaster Highway	226.00	21,706	27,281	31,540	36,044	47,288

[1] Standard Project Flood used in lieu of the 0.2-percent-annual-chance flood

* Not calculated for the Flood Risk Project

Figure 7: Frequency Discharge-Drainage Area Curves

[Not Applicable to this Flood Risk Project]

Table 10: Summary of Non-Coastal Stillwater Elevations

Flooding Source	Location	Elevations (feet NAVD88)				
		10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Cumberland River	Confluence of Peyton Creek	471.1	*	477.6	479.9	490.0[1]

[1] Standard Project Flood used in lieu of the 0.2-percent-annual-chance flood

* Not calculated for the Flood Risk Project

Table 11: Stream Gage Information used to Determine Discharges

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record[1]	
					From	To
Caney Fork River	03424500	USGS	Caney Fork Below Center Hill Dam Near Lancaster Tenn	2,183	03/23/1929	11/20/1957
Cumberland River	03418420	USGS	Cumberland River Below Cordell Hull Dam, TN	8,095	*	*
Cumberland River	03425000	USGS	Cumberland River at Carthage, TN	10,690	*	*
Smith Fork Creek	03424730	USGS	Smith Fork at Temperance Hall, TN	214	09/22/1992	04/22/2017

[1] Dates used in the hydrologic calculation

* Data not available

5.2 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. Base flood elevations on the FIRM represent the elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations. These whole-foot elevations may not exactly reflect the elevations derived from the hydraulic analyses. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. The hydraulic analyses for this FIS 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.

For streams for which hydraulic analyses were based on cross sections, locations of selected cross sections are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 6.3), selected cross sections are also listed in Table 23, “Floodway Data.”

A summary of the methods used in hydraulic analyses performed for this project is provided in Table 12. Roughness coefficients are provided in Table 13. Roughness coefficients are values representing the frictional resistance water experiences when passing overland or through a channel. They are used in the calculations to determine water surface elevations. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

Table 12: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Caney Fork River	Confluence with Cumberland River	DeKalb County, TN boundary	HEC-HMS 4.0 (USACE 2013)	HEC-RAS 5.0.7 (USACE 2019a)	12/01/2020	AE w/ Floodway	The hydrologic model was performed by USACE. The hydraulic model was created by USACE and revised by AECOM. A more complete description of the engineering methods can be found in, "Flood Plain Management Services Special Study, Smith Fork & Caney Fork, Smith County, Tennessee" (USACE 2019b).
Cumberland River	Approximately 4.23 miles downstream of State Highway 25	Approximately 4.43 miles upstream of the confluence of Caney Fork River	Other	HEC-2 (USACE 1968)	06/01/1979	AE w/ Floodway	The hydrologic and hydraulic model was partially published in FIS 1980a, FIS 1980b, FIS 1980c, and FIS 1999a and then fully published in FIS 2010. Detailed hydrologic information about Cumberland River is provided in the narrative below.
Defeated Creek	Approximately 2,500 feet downstream of Kemp Bottom Road	Approximately 2,100 feet upstream of Little Salt Lick Road	Regression Equation (USGS 1976a)	USGS Step-Backwater Program (USGS 1976b)	06/01/1979	AE w/ Floodway	
Hickman Creek	Confluence with Caney Fork River	Approximately 1.02 miles upstream of the Railroad	Regression Equation (USGS 1976a)	HEC-2 version 4.6.2 (USACE 1991)	07/01/1997	AE w/ Floodway	The hydrologic and hydraulic model was partially published in FIS 1999a and FIS 1999b, and then fully published in FIS 2010.

Table 12:Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Mulherrin Creek	Confluence with Caney Fork River	Approximately 1,250 feet upstream of State Highway 53	Regression Equation (USGS 1976a)	HEC-2 version 4.6.2 (USACE 1991)	07/01/1997	AE w/ Floodway	The hydrologic and hydraulic model was partially published in FIS 1999a bad FIS 1999b, and then fully published in FIS 2010.
Peyton Creek	Confluence with Cumberland River	Approximately 4,435 feet upstream of State Highway 80 / Pleasant Shade Highway	Regression Equation (USGS 1976a)	USGS Step-Backwater Program (USGS 1976b)	06/01/1979	AE w/ Floodway	
Smith Fork Creek	Confluence with Caney Fork River	Dekalb County, TN boundary	HEC-HMS 4.0 (USACE 2013)	HEC-RAS 5.0.7 (USACE 2019a)	12/01/2020	AE w/ Floodway	The hydrologic model was performed by USACE. The hydraulic model was created by USACE and revised by AECOM. A more complete description of the engineering methods can be found in, “Flood Plain Management Services Special Study, Smith Fork & Caney Fork, Smith County, Tennessee” (USACE 2019b).
Zone A Flooding Sources	Various	Various	Regression Equation (USGS 2000)	HEC-RAS 3.1.3 (USACE 2005)	08/01/2009	A	

Cumberland River

Flood-flows on the Cumberland River are regulated by a system of large flood control reservoirs. Because of varying levels of historical flood control, streamflow records exhibit a time-variant behavior and use of a conventional Log-Pearson Type III flood-frequency analysis as described in Water Resources Council (WRC) Bulletin I7A (USGS 1976c) is not appropriate in this case.A special study was conducted for the USACE to develop regulated flood-frequency flows for the Cumberland River (USACE 1979). In this study a storm rainfall generation computer program was used to develop a 0.5-percent-annual-chance synthetic rainfall record for the Cumberland River Basin. Significant flood-producing storms of the 0.5-percent-annual-chance generated record were applied to a basin runoff-routing simulation model to produce streamflow discharges at selected locations along the river. Results of the simulation model were analyzed to estimate discharge-frequency curves. These discharge-frequency curves were then combined with a graphical analysis of historical regulated-flow data developed by the USACE, Nashville District, to establish discharge-frequency curves at all major river control points. Results of the regulated frequency study were found to yield statistically reliable estimates of floods up to and including the 1-percent annual chance event. For events greater in magnitude than the 1-percent-annual-chance event such as the 0.2-percent-annual-chance flood, the statistical reliability of predicted flow was poor. By mutual agreement between the USACE and FIA, the Standard Project Flood (SPF) was used in lieu of the 0.2-percent-annual-chance flood for the Cumberland River (FIS 1980a; FIS 1980b; FIS 2010).

Table 13: Roughness Coefficients

Flooding Source	Channel “n”	Overbank “n”
Caney Fork River	0.035-0.060	0.100-0.200
Cumberland River	0.038-0.048	0.100
Defeated Creek	0.025-0.075	0.025-0.150
Hickman Creek	0.050-0.060	0.060-0.120
Mulherrin Creek	0.045-0.055	0.060-0.120
Peyton Creek	0.030-0.075	0.030-0.150
Smith Fork Creek	0.035-0.060	0.060-0.160
Zone A Flooding Sources	0.050	0.150

5.3 Coastal Analyses

This section is not applicable to this Flood Risk Project.

Table 14: Summary of Coastal Analyses

[Not Applicable to this Flood Risk Project]

5.3.1 Total Stillwater Elevations

This section is not applicable to this Flood Risk Project.

Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas

[Not Applicable to this Flood Risk Project]

Table 15: Tide Gage Analysis Specifics

[Not Applicable to this Flood Risk Project]

5.3.2 Waves

This section is not applicable to this Flood Risk Project.

5.3.3 Coastal Erosion

This section is not applicable to this Flood Risk Project.

5.3.4 Wave Hazard Analyses

This section is not applicable to this Flood Risk Project.

Table 16: Coastal Transect Parameters

[Not Applicable to this Flood Risk Project]

Figure 9: Transect Location Map

[Not Applicable to this Flood Risk Project]

5.4 Alluvial Fan Analyses

This section is not applicable to this Flood Risk Project.

Table 17: Summary of Alluvial Fan Analyses

[Not Applicable to this Flood Risk Project]

Table 18: Results of Alluvial Fan Analyses

[Not Applicable to this Flood Risk Project]

SECTION 6.0 – MAPPING METHODS

6.1 Vertical and Horizontal Control

All FIS Reports 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 used for newly created or revised FIS Reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD29). With the completion of the North American Vertical Datum of 1988 (NAVD88), many FIS Reports and FIRMs are now prepared using NAVD88 as the referenced vertical datum.

Flood elevations shown in this FIS Report and on the FIRMs are referenced to NAVD88. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between NGVD29 and NAVD88 or other datum conversion, visit the National Geodetic Survey website at www.ngs.noaa.gov.

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the archived project documentation associated with the FIS Report and the FIRMs for this community. Interested individuals may contact FEMA to access these data.

To obtain current elevation, description, and/or location information for benchmarks in the area, please visit the NGS website at www.ngs.noaa.gov.

The datum conversion locations and values that were calculated for Smith County are provided in Table 19.

Table 19: Countywide Vertical Datum Conversion

Quadrangle Name	Quadrangle Corner	Latitude	Longitude	Conversion from NGVD29 to NAVD88 (feet)
Average Conversion from NGVD29 to NAVD88 = -0.248 ft				

Table 20: Stream-Based Vertical Datum Conversion

[Not Applicable to this Flood Risk Project]

6.2 Base Map

The FIRMs and FIS Report for this project have been produced in a digital format. The flood hazard information was converted to a Geographic Information System (GIS) format that meets FEMA's FIRM Database specifications and geographic information standards. This information is provided in a digital format so that it can be incorporated into a local GIS and be accessed more easily by the community. The FIRM Database includes most of the tabular information contained in the FIS Report in such a way that the data can be associated with pertinent spatial features. For example, the information contained in the Floodway Data table and Flood Profiles can be linked to the cross sections that are shown on the FIRMs. Additional information about the FIRM Database and its contents can be found in FEMA's Guidelines and Standards for Flood Risk Analysis and Mapping, www.fema.gov/flood-maps/guidance-partners/guidelines-standards.

Base map information shown on the FIRM was derived from the sources described in Table 21.

Table 21: Base Map Sources

Data Type	Data Provider	Data Date	Data Scale	Data Description
Benchmarks	NOAA, National Geodetic Survey	2004	N/A	Benchmarks (NOAANGS 2004)
Community Political Boundaries	State of Tennessee Department of Finance and Administration, GIS Department	03/28/2006	N/A	Digital Political Boundaries (TDFAPOL 2006)
HUC8 Boundaries	United States Geological Survey	1994	1:250,000	8-digit Watershed Boundary Dataset (USGS 1994)
Roads	State of Tennessee Department of Finance and Administration GIS Department	04/22/2020	N/A	S_Trnsport_Ln. Road transportation lines. (TNOIRGIS 2020)

Table 21: Base Map Sources (continued)

Data Type	Data Provider	Data Date	Data Scale	Data Description
Hydro lines	State of Tennessee Department of Finance and Administration GIS Department	03/12/2014	1:24,000	Water line and attribute information. (S_WTR_LN) (TNOIRGIS 2014)
Political Boundaries	State of Tennessee Department of Finance and Administration GIS Department	05/23/2005	N/A	Political Boundaries (TNOIRGIS 2005a)
Railroads	State of Tennessee Department of Finance and Administration GIS Department	10/01/2007	N/A	S_Trnsprt_Ln. Rail feature lines. (TNOIRGIS 2005b)
Smith County 2018 Aerial Imagery	TDOT Office of Aerial Surveys	01/01/2018	N/A	S_Base_Index. Raster imagery for study area. (TDOT 2018)
TNMAP_DATA_LIBRARY.DBO.City_Admin_Boundaries	Tennessee Comptroller of the Treasury - Office of Local Government	03/13/2012	N/A	Political Boundaries, Cities (TNCOT 2012)
Transportation	State of Tennessee Department of Finance and Administration, GIS Department	03/28/2006	N/A	Transportation (TDFATRAN 2006)

6.3 Floodplain and Floodway Delineation

The FIRM shows tints, screens, and symbols to indicate floodplains and floodways as well as the locations of selected cross sections used in the hydraulic analyses and floodway computations.

For riverine flooding sources, the mapped floodplain boundaries shown on the FIRM have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 22.

In cases where the 1-percent and 0.2-percent-annual-chance floodplain boundaries are close together, only the 1-percent-annual-chance 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.

The floodway widths presented in this FIS Report and on the FIRM were computed for certain stream segments 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. Table 2 indicates the flooding sources for which floodways have been determined. The results of the floodway computations for those flooding sources have been tabulated for selected cross sections and are shown in Table 23, “Floodway Data.”

Table 22: Summary of Topographic Elevation Data used in Mapping

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Vertical Accuracy	Horizontal Accuracy	Citation
Smith County and Incorporated Areas	Flooding sources studied in FIS Report 47159CV000B	Light Detection and Ranging data (LiDAR)	3.1 cm RMSEz	0.36 m	USGS 2018
Smith County and Incorporated Areas	Flooding Sources studied before this 47159CV000B	Digital Terrain Model: Mass points and breaklines	N/A	N/A	TDFA 2005

BFEs shown at cross sections on the FIRM represent the 1-percent-annual-chance water surface elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report.

Table 23: Floodway Data

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	3,349	405	12,129	7.1	486.0	476.0[3]	476.1	0.1
B	13,695	565	13,409	6.4	486.0	480.5[3]	480.5	0.0
C	19,844	380	10,939	7.8	486.0	483.2[3]	483.5	0.3
D	28,332	420	12,878	6.7	486.3	486.3	486.6	0.3
E	31,263	450	13,340	6.4	487.1	487.1	487.5	0.4
F	36,353	390	13,958	6.1	488.9	488.9	489.3	0.4
G	42,166	735	22,127	3.9	491.1	491.1	491.6	0.5
H	47,468	605	19,869	4.3	491.8	491.8	492.4	0.6
I	53,302	650	17,731	4.8	492.8	492.8	493.3	0.5
J	59,188	590	19,535	4.4	495.1	495.1	495.5	0.4
K	62,929	417	14,421	5.9	496.8	496.8	497.5	0.7
L	67,428	515	16,382	4.6	497.4	497.4	498.3	0.9
M	74,434	425	12,985	5.8	498.3	498.3	499.2	0.9
N	78,740	420	12,339	6.2	499.4	499.4	500.1	0.7
O	86,063	615	19,478	2.6	502.1	502.1	502.9	0.8
P	89,408	387	13,696	3.7	503.8	503.8	504.7	0.9
Q	96,558	665	18,887	2.7	504.3	504.3	505.2	0.9
R	102,328	843	25,951	1.9	508.9	508.9	509.9	1.0
S	106,944	382	14,585	3.4	509.2	509.2	510.1	0.9
T	112,271	475 / 412[2]	18,981	1.6	513.1	513.1	513.9	0.8
U	115,946	610 / 475[2]	20,902	1.4	513.1	513.1	514.0	0.9
V	121,381	1,000 / 671[2]	30,957	1.0	513.2	513.2	514.1	0.9
W	127,748	610 / 167[2]	25,431	1.2	513.4	513.4	514.3	0.9

[1] Feet above confluence with Cumberland River
[2] Total width / width within jurisdiction
[3] Elevations computed without considerations of backwater effects from Cumberland River

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,605,120	487	22,857	6.3	482.4	482.4	483.3	0.9
B	1,613,040	878	36,795	3.9	483.9	483.9	484.9	1.0
C	1,615,680	657	30,691	4.7	484.1	484.1	485.1	1.0
D[2]	1,619,376	385	14,721	4.9	484.1	484.1	485.1	1.0
D[3]	1,619,376	861	21,598	3.4	484.2	484.2	485.2	1.0
E	1,623,600	860	35,568	4.1	484.8	484.8	485.8	1.0
F	1,628,880	1,031	37,518	3.9	485.4	485.4	486.4	1.0
G	1,634,160	1,839	27,328	4.2	486.1	486.1	487.1	1.0
H	1,639,968	2,310	33,872	3.4	486.8	486.8	487.8	1.0
I	1,645,248	615	24,707	4.6	487.5	487.5	488.5	1.0
J	1,648,944	2,830	45,474	2.5	488.2	488.2	489.2	1.0
K	1,655,280	1,005	25,130	4.5	489.0	489.0	490.0	1.0

[1] Feet above confluence with Ohio River
[2] South Channel
[3] North Channel

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TENNESSEE

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: CUMBERLAND RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	22,600	350	1,608	6.4	*	500.6[2]	501.6	1.0
B	23,970	350	1,544	6.7	*	503.8[2]	504.1	0.3
C	24,740	440	1,485	6.9	*	505.4[2]	506.1	0.7
D	25,100	569	3,019	3.3	508.8	508.8	508.8	0.0
E	25,160	450	2,213	4.5	509.6	509.6	509.7	0.1
F	27,260	231	2,160	4.6	514.4	514.4	515.0	0.6
G	28,010	617	2,896	3.0	515.3	515.3	516.0	0.7
H	28,115	600	3,220	2.7	518.9	518.9	518.9	0.0
I	29,180	202	1,238	7.0	519.6	519.6	519.6	0.0
J	29,855	299	1,532	5.7	520.5	520.5	520.9	0.4
K	30,765	210	913	9.0	522.5	522.5	522.6	0.1
L	31,890	260	1,310	6.3	528.1	528.1	528.1	0.0
M	32,020	276	1,555	5.3	530.4	530.4	530.4	0.0
N	32,370	155	1,215	5.6	531.4	531.4	531.4	0.0
O	32,510	329	1,764	3.9	531.7	531.7	531.9	0.2
P	33,300	225	906	7.6	534.0	534.0	534.0	0.0
Q	33,850	250	1,351	5.1	536.0	536.0	536.0	0.0
R	34,400	438	1,044	6.6	536.8	536.8	536.9	0.1
S	34,520	600	2,284	3.0	538.5	538.5	538.5	0.0
T	34,900	255	617	10.4	539.0	539.0	539.4	0.4
U	35,000	253	917	7.0	542.2	542.2	542.2	0.0
V	35,425	240	1,155	5.6	543.9	543.9	543.9	0.0

[1] Feet above confluence with Cordell Hull Reservoir

[2] Elevation computed without consideration of backwater effects from Cordell Hull Reservoir

* Regulatory elevation not computed

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TENNESSEE

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: DEFEATED CREEK

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
W	36,075	115	737	8.7	545.1	545.1	545.1	0.0
X	36,525	183	926	6.9	547.1	547.1	547.1	0.0
Y	36,930	250	912	7.0	548.2	548.2	548.2	0.0
Z	37,120	310	955	6.7	549.2	549.2	549.2	0.0

[1] Feet above confluence with Cordell Hull River

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TENNESSEE

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: DEFEATED CREEK

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY[2]	WITH FLOODWAY	INCREASE
A	2,040	110	1,673	10.2	497.1	475.7	476.5	0.8
B	3,064	100	1,813	9.3	497.1	480.8	481.0	0.2
C	3,875	150	1,888	8.9	497.1	483.5	483.7	0.2
D	4,134	260	1,739	9.6	497.1	484.4	484.5	0.1
E	4,620	180	2,847	5.9	497.1	487.3	487.7	0.4
F	4,770	320	5,212	3.2	497.1	488.2	488.6	0.4
G	6,221	420	5,116	3.2	497.1	488.6	489.2	0.6
H	7,641	500	6,332	2.6	497.1	489.1	489.7	0.6
I	9,081	500	5,325	3.0	497.1	489.6	490.3	0.7
J	10,161	510	5,169	3.1	497.1	490.0	490.9	0.9
K	11,331	350	3,225	4.9	497.1	490.9	491.9	1.0

[1] Feet above confluence with Caney Fork River

[2] Elevation computed without consideration of backwater effects from Caney Fork River

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TENNESSEE

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: HICKMAN CREEK

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY[2]	WITH FLOODWAY	INCREASE
A	1,380	85	1,563	7.8	491.6	468.5	469.5	1.0
B	1,650	93	1,177	10.3	491.6	470.5	471.1	0.6
C	1,938	97	1,311	9.3	491.6	472.1	472.5	0.4
D	3,058	90	1,310	9.2	491.6	475.9	476.1	0.2
E	4,188	79	1,192	10.1	491.6	479.2	479.3	0.1
F	5,778	100	1,386	8.7	491.6	483.6	484.4	0.8
G	6,998	152	1,606	7.5	491.6	487.5	487.6	0.1
H	7,298	190	1,993	6.0	491.6	488.3	488.7	0.4
I	8,248	190	1,956	5.8	491.6	489.8	490.8	1.0

[1] Feet above confluence with Caney Fork River

[2] Elevation computed without consideration of backwater effects from Caney Fork River

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	510	198	2,583	7.3	479.9	465.8[2]	466.7	0.9
B	2,690	597	7,649	2.5	480.1	467.9[2]	468.6	0.7
C	2,920	838	11,277	1.7	480.4	468.6[2]	469.2	0.6
D	3,540	751	9,136	1.9	480.4	468.6[2]	469.3	0.7
E	8,840	306	2,944	5.8	480.6	470.3[2]	471.0	0.7
F	8,940	331	3,823	4.6	480.7	473.0[2]	473.5	0.5
G	12,060	302	3,242	5.4	480.9	475.4[2]	476.0	0.6
H	14,840	476	3,338	5.2	481.5	478.6[2]	479.5	0.9
I	16,160	475	3,075	5.7	482.3	481.3[2]	482.2	0.9
J	16,845	381	3,208	5.4	483.3	482.9[2]	483.8	0.9
K	18,930	540	3,383	4.7	486.2	486.1[2]	487.0	0.9
L	19,040	563	3,881	4.1	487.9	487.9	488.2	0.3
M	19,980	382	2,879	5.6	489.0	489.0	489.3	0.3
N	21,090	301	2,432	6.4	490.8	490.8	491.4	0.6
O	23,360	401	2,559	6.1	495.8	495.8	496.4	0.6
P	23,510	774	4,356	3.6	498.9	498.9	498.9	0.0
Q	24,360	588	3,245	4.8	499.5	499.5	499.5	0.0
R	24,455	515	3,346	4.7	501.4	501.4	501.4	0.0
S	26,355	400	3,230	4.8	502.9	502.9	502.9	0.0
T	27,750	300	2,198	7.1	504.8	504.8	504.9	0.1
U	29,495	620	4,367	3.6	509.9	509.9	509.9	0.0
V	30,900	248	1,575	8.9	510.8	510.8	511.2	0.4

[1] Feet above confluence with Cumberland River

[2] Elevation computed without consideration of backwater effects from Cumberland River

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
W	31,710	291	2,006	7.0	514.1	514.1	514.1	0.0
X	33,700	368	3,054	4.6	518.4	518.4	518.6	0.2
Y	35,170	245	2,014	7.0	519.8	519.8	520.2	0.4
Z	35,325	320	2,137	6.6	521.3	521.3	521.4	0.1
AA	36,230	298	1,984	6.4	522.7	522.7	522.8	0.1
AB	37,170	248	1,846	6.9	524.1	524.1	524.7	0.6
AC	39,280	380	2,206	5.8	528.9	528.9	529.1	0.2
AD	39,390	333	2,690	4.7	531.6	531.6	531.9	0.3
AE	40,040	170	1,106	11.5	532.2	532.2	532.8	0.6
AF	40,820	268	2,556	5.0	536.7	536.7	536.7	0.0
AG	41,510	220	1,967	6.5	537.2	537.2	537.3	0.1
AH	41,890	468	3,166	2.8	537.8	537.8	538.3	0.5
AI	42,095	464	2,728	3.3	538.7	538.7	538.8	0.1
AJ	42,870	199	1,355	6.6	539.1	539.1	539.3	0.2
AK	43,505	237	1,093	8.2	540.5	540.5	541.1	0.6
AL	43,990	654	2,755	3.2	544.2	544.2	544.2	0.0
AM	44,750	500	1,450	6.2	546.0	546.0	546.0	0.0
AN	45,645	763	2,669	3.3	550.1	550.1	550.1	0.0
AO	46,325	436	1,301	6.9	551.4	551.4	551.4	0.0

[1] Feet above confluence with Cumberland River

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TENNESSEE

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: PEYTON CREEK

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	350	415	9,713	3.8	501.7	501.0[2]	501.2	0.2
B	2,425	600	12,668	2.9	504.2	504.2	504.4	0.2
C	5,085	621	14,342	2.6	505.0	505.0	505.4	0.4
D	8,527	699	13,745	2.7	506.5	506.5	507.0	0.5
E	11,142	485	8,865	4.2	508.5	508.5	508.9	0.4
F	13,527	489	10,829	3.3	509.9	509.9	510.4	0.5
G	17,177	880	15,821	2.3	511.5	511.5	511.9	0.4
H	19,103	650	13,006	2.8	512.0	512.0	512.5	0.5
I	21,545	820	15,342	2.4	513.3	513.3	513.7	0.4
J	23,424	601	9,991	3.6	513.8	513.8	514.3	0.5
K	25,342	872 / 615[3]	14,135	2.6	515.1	515.1	515.6	0.5

[1] Feet above confluence with Caney Fork River
[2] Elevation computed without consideration of backwater effect from Caney Fork River
[3] Total width / Width within jurisdiction

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TENNESSEE

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: SMITH FORK CREEK

Table 24: Flood Hazard and Non-Encroachment Data for Selected Streams

[Not Applicable to this Flood Risk Project]

6.4 Coastal Flood Hazard Mapping

This section is not applicable to this Flood Risk Project.

Table 25: Summary of Coastal Transect Mapping Considerations

[Not Applicable to this Flood Risk Project]

6.5 FIRM Revisions

This FIS Report and the FIRM are based on the most up-to-date information available to FEMA at the time of its publication; however, flood hazard conditions change over time. Communities or private parties may request flood map revisions at any time. Certain types of requests require submission of supporting data. FEMA may also initiate a revision. Revisions may take several forms, including Letters of Map Amendment (LOMAs), Letters of Map Revision Based on Fill (LOMR-Fs), Letters of Map Revision (LOMRs) (referred to collectively as Letters of Map Change (LOMCs)), Physical Map Revisions (PMRs), and FEMA-contracted restudies. These types of revisions are further described below. Some of these types of revisions do not result in the republishing of the FIS Report. To assure that any user is aware of all revisions, it is advisable to contact the community repository of flood-hazard data (shown in Table 30, "Map Repositories").

6.5.1 Letters of Map Amendment

A LOMA is an official revision by letter to an effective NFIP map. A LOMA results from an administrative process that involves the review of scientific or technical data submitted by the owner or lessee of property who believes the property has incorrectly been included in a designated SFHA. A LOMA amends the currently effective FEMA map and establishes that a specific property is not located in a SFHA.

To obtain an application for a LOMA, visit www.fema.gov/flood-maps/change-your-flood-zone and download the form "MT-1 Application Forms and Instructions for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill". Visit the "Flood Map-Related Fees" section to determine the cost, if any, of applying for a LOMA.

FEMA offers a tutorial on how to apply for a LOMA. The LOMA Tutorial Series can be accessed at www.fema.gov/flood-maps/tutorials.

For more information about how to apply for a LOMA, call the FEMA Mapping and Insurance eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627).

6.5.2 Letters of Map Revision Based on Fill

A LOMR-F is an official revision by letter to an effective NFIP map. A LOMR-F states FEMA's determination concerning whether a structure or parcel has been elevated on fill above the base flood elevation and is, therefore, excluded from the SFHA.

Information about obtaining an application for a LOMR-F can be obtained in the same manner as that for a LOMA, by visiting www.fema.gov/flood-maps/change-your-flood-zone for the "MT-1 Application Forms and Instructions for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill" or by calling the FEMA Mapping and Insurance eXchange, toll free, at 1-877-FEMA MAP (1-877-336-2627). Fees for applying for a LOMR-F, if any, are listed in the "Flood Map-Related Fees" section.

A tutorial for LOMR-F is available at www.fema.gov/flood-maps/tutorials.

6.5.3 Letters of Map Revision

A LOMR is an official revision to the currently effective FEMA map. It is used to change flood zones, floodplain and floodway delineations, flood elevations and planimetric features. All requests for LOMRs should be made to FEMA through the chief executive officer of the community, since it is the community that must adopt any changes and revisions to the map. If the request for a LOMR is not submitted through the chief executive officer of the community, evidence must be submitted that the community has been notified of the request.

To obtain an application for a LOMR, visit www.fema.gov/flood-maps/change-your-flood-zone and download the form "MT-2 Application Forms and Instructions for Conditional Letters of Map Revision and Letters of Map Revision". Visit the "Flood Map-Related Fees" section to determine the cost of applying for a LOMR. For more information about how to apply for a LOMR, call the FEMA Mapping and Insurance eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627) to speak to a Map Specialist.

Previously issued mappable LOMCs (including LOMRs) that have been incorporated into the Smith County FIRM are listed in Table 26.

Table 26: Incorporated Letters of Map Change

[Not Applicable to this Flood Risk Project]

6.5.4 Physical Map Revisions

A Physical Map Revisions (PMR) is an official republication of a community's NFIP map to effect changes to base flood elevations, floodplain boundary delineations, regulatory floodways and planimetric features. These changes typically occur as a result of structural works or improvements, annexations resulting in additional flood hazard areas or correction to base flood elevations or SFHAs.

The community's chief executive officer must submit scientific and technical data to FEMA to support the request for a PMR. The data will be analyzed and the map will be revised if warranted. The community is provided with copies of the revised information and is afforded a review period. When the base flood elevations are changed, a 90-day appeal period is provided. A 6-month adoption period for formal approval of the revised map(s) is also provided.

For more information about the PMR process, please visit www.fema.gov and visit the Floods & Maps "Change Your Flood Zone Designation" section.

6.5.5 Contracted Restudies

The NFIP provides for a periodic review and restudy of flood hazards within a given community. FEMA accomplishes this through a national watershed-based mapping needs assessment strategy, known as the Coordinated Needs Management Strategy (CNMS). The CNMS is used by FEMA to assign priorities and allocate funding for new flood hazard analyses used to update the FIS Report and FIRM. The goal of CNMS is to define the validity of the engineering study data within a mapped inventory. The CNMS is used to track the assessment process, document engineering gaps and their resolution, and aid in prioritization for using flood risk as a key factor for areas identified for flood map updates. Visit www.fema.gov to learn more about the CNMS or contact the FEMA Regional Office listed in Section 8 of this FIS Report.

6.5.6 Community Map History

The current FIRM presents flooding information for the entire geographic area of Smith County. Previously, separate FIRMs, Flood Hazard Boundary Maps (FHBMs) and/or Flood Boundary and Floodway Maps (FBFMs) may have been prepared for the incorporated communities and the unincorporated areas in the county that had identified SFHAs. Current and historical data relating to the maps prepared for the project area are presented in Table 27, "Community Map History." A description of each of the column headings and the source of the date is also listed below.

- Community Name includes communities falling within the geographic area shown on the FIRM, including those that fall on the boundary line, nonparticipating communities, and communities with maps that have been rescinded. Communities with No Special Flood Hazards are indicated by a footnote. If all maps (FHBM, FBFM, and FIRM) were rescinded for a community, it is not listed in this table unless SFHAs have been identified in this community.

- Initial Identification Date (First NFIP Map Published) is the date of the first NFIP map that identified flood hazards in the community. If the FHBM has been converted to a FIRM, the initial FHBM date is shown. If the community has never been mapped, the upcoming effective date or "pending" (for Preliminary FIS Reports) is shown. If the community is listed in Table 27 but not identified on the map, the community is treated as if it were unmapped.

- Initial FHBM Effective Date is the effective date of the first FHBM. This date may be the same date as the Initial NFIP Map Date.

- FHBM Revision Date(s) is the date(s) that the FHBM was revised, if applicable.

- Initial FIRM Effective Date is the date of the first effective FIRM for the community.

- FIRM Revision Date(s) is the date(s) the FIRM was revised, if applicable. This is the revised date that is shown on the FIRM panel, if applicable. As countywide studies are completed or revised, each community listed should have its FIRM dates updated accordingly to reflect the date of the countywide study. Once the FIRMs exist in countywide format, as PMRs of FIRM panels within the county are completed, the FIRM Revision Dates in the table for each community affected by

the PMR are updated with the date of the PMR, even if the PMR did not revise all the panels within that community.

The initial effective date for the Smith County FIRMs in countywide format was 09/29/2010.

Table 27: Community Map History

Community Name	Initial Identification Date	Initial FHBM Effective Date	FHBM Revision Date(s)	Initial FIRM Effective Date	FIRM Revision Date(s)
Carthage, Town of	08/02/1974	08/02/1974	07/30/1976	09/30/1980	02/14/2025 09/29/2010
Gordonsville, Town of	07/07/1999	N/A	N/A	07/07/1999	02/14/2025 09/29/2010
Smith County, Unincorporated Areas	10/21/1977	10/21/1977	N/A	04/15/1981	02/14/2025 09/29/2010 07/07/1999
South Carthage, Town of	08/23/1974	08/23/1974	08/18/1978 08/15/1975	11/05/1980	02/14/2025 09/29/2010

SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION

7.1 Contracted Studies

Table 28 provides a summary of the contracted studies, by flooding source, that are included in this FIS Report.

Table 28: Summary of Contracted Studies Included in this FIS Report

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Caney Fork River	02/14/2025	AECOM	HSFE60-5-D-0003	12/01/2020	Gordonsville, Town of; Smith County, Unincorporated Areas; South Carthage, Town of
Cumberland River	03/01/1980a and 05/01/1980b	U.S. Army Corps of Engineers (USACE)	Inter-Agency Agreement No. 0-97-7220	06/01/1979	Carthage, Town of; Smith County, Unincorporated Areas; South Carthage, Town of
Defeated Creek	10/15/1980c	U.S. Army Corps of Engineers (USACE)	Interagency Agreement No. 0-97-7220	06/01/1979	Smith County, Unincorporated Areas

Table 28: Summary of Contracted Studies Included in this FIS Report (continued)

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Hickman Creek	07/07/1999a and 07/07/1999b	Tennessee Valley Authority (TVA)	Inter-Agency Agreement No. EMW-96-IA-0450	07/01/1997	Gordonsville, Town of; Smith County, Unincorporated Areas
Mulherrin Creek	07/07/1999a and 07/07/1999b	Tennessee Valley Authority (TVA)	Inter-Agency Agreement No. EMW-96-IA-0450	07/01/1997	Gordonsville, Town of; Smith County, Unincorporated Areas
Peyton Creek	10/15/1980c	U.S. Army Corps of Engineers (USACE)	Interagency Agreement No. 0-97-7220	06/01/1979	Smith County, Unincorporated Areas
Smith Fork Creek	02/14/2025	AECOM	HSFE60-5-D-0003	12/01/2020	Smith County, Unincorporated Areas
Zone A Flooding Sources	09/29/2010	Watershed IV Alliance	Contract No. EMA-2002-CO-0011A, Task Order No. 21-A	08/01/2009	Carthage, Town of; Gordonsville, Town of; Smith County, Unincorporated Areas; South Carthage, Town of

7.2 Community Meetings

The dates of the community meetings held for this Flood Risk Project and previous Flood Risk Projects are shown in Table 29. These meetings may have previously been referred to by a variety of names (Community Coordination Officer (CCO), Scoping, Discovery, etc.), but all meetings represent opportunities for FEMA, community officials, study contractors, and other invited guests to discuss the planning for and results of the project.

Table 29: Community Meetings

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Carthage, Town of	02/14/2025	04/07/2021	Flood Risk Review (FRR)	FEMA, TEMA, local communities, and study contractor
		09/08/2021	Final CCO	FEMA, TEMA, local communities, and study contractor
Gordonsville, Town of	02/14/2025	04/07/2021	Flood Risk Review (FRR)	FEMA, TEMA, local communities, and study contractor
		09/08/2021	Final CCO	FEMA, TEMA, local communities, and study contractor
Smith County, Unincorporated Areas	02/14/2025	04/07/2021	Flood Risk Review (FRR)	FEMA, TEMA, local communities, and study contractor
		09/08/2021	Final CCO	FEMA, TEMA, local communities, and study contractor
South Carthage, Town of	02/14/2025	04/07/2021	Flood Risk Review (FRR)	FEMA, TEMA, local communities, and study contractor
		09/08/2021	Final CCO	FEMA, TEMA, local communities, and study contractor

SECTION 8.0 – ADDITIONAL INFORMATION

Information concerning the pertinent data used in the preparation of this FIS Report can be obtained by submitting an order with any required payment to the FEMA Engineering Library. For more information on this process, see www.fema.gov.

Table 30 is a list of the locations where FIRMs for Smith County can be viewed. Please note that the maps at these locations are for reference only and are not for distribution. Also, please note that only the maps for the community listed in the table are available at that particular repository. A user may need to visit another repository to view maps from an adjacent community.

Table 30: Map Repositories

Community	Address	City	State	Zip Code
Carthage, Town of	Municipal Building 314 Spring Street	Carthage	TN	37030
Gordonsville, Town of	City Hall 63 East Main Street	Gordonsville	TN	38563
Smith County, Unincorporated Areas	Smith County Planning Commission 303 High Street North	Carthage	TN	37030
South Carthage, Town of	South Carthage Town Hall/Municipal Building 106 South Main Street	Carthage	TN	37030

The National Flood Hazard Layer (NFHL) dataset is a compilation of effective FIRM Databases and LOMCs. Together they create a GIS data layer for a State or Territory. The NFHL is updated as studies become effective and extracts are made available to the public monthly. NFHL data can be viewed or ordered from the website shown in Table 31.

Table 31 contains useful contact information regarding the FIS Report, the FIRM, and other relevant flood hazard and GIS data. In addition, information about the State NFIP Coordinator and GIS Coordinator is shown in this table. At the request of FEMA, each Governor has designated an agency of State or territorial government to coordinate that State's or territory's NFIP activities. These agencies often assist communities in developing and adopting necessary floodplain management measures. State GIS Coordinators are knowledgeable about the availability and location of State and local GIS data in their state.

Table 31: Additional Information

FEMA and the NFIP	
FEMA and FEMA Engineering Library website	www.fema.gov/flood-maps/products-tools/know-your-risk/engineers-surveyors-architects
NFIP website	www.fema.gov/flood-insurance
NFHL Dataset	msc.fema.gov/portal/home
FEMA Region IV	Federal Emergency Management Agency 3005 Chamblee Tucker Road Atlanta, GA 30341 (770) 220-5200
Other Federal Agencies	
USGS website	www.usgs.gov
Hydraulic Engineering Center website	www.hec.usace.army.mil
State Agencies and Organizations	
State NFIP Coordinator	Jeremy B. Holley Tennessee Emergency Management Agency 3041 Sidco Drive Nashville, TN 37204 (615) 532-6683 Jeremy.B.Holley@tn.gov
State GIS Coordinator	Dennis Pedersen, Division Director Office for Information Resources, GIS Services Tennessee Tower, 16th Floor 312 Rosa L. Parks Avenue Nashville, TN 37243 (615) 741-0320 Dennis.Pedersen@tn.gov

SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES

Table 32 includes sources used in the preparation of and cited in this FIS Report as well as additional studies that have been conducted in the study area.

Table 32: Bibliography and References

Citation in this FIS	Publisher / Issuer	Publication Title, "Article," Volume, Number, etc.	Author / Editor	Place of Publication	Publication Date / Date of Issuance	Link
FIS 1980a	Federal Emergency Management Agency	Flood Insurance Study, Town of Carthage, Smith County, Tennessee (470176)	FEMA	Washington, D.C.	March 1980	https://msc.fema.gov
FIS 1980b	Federal Emergency Management Agency	Flood Insurance Study, Town of South Carthage, Smith County, Tennessee (470183)	FEMA	Washington, D.C.	May 1980	https://msc.fema.gov
FIS 1980c	Federal Emergency Management Agency	Flood Insurance Study, Smith County, Tennessee (Unincorporated Areas) (470283)	FEMA	Washington, D.C.	October 15, 1980 (FIRM date April 15, 1981)	https://msc.fema.gov
FIS 1999a	Federal Emergency Management Agency	Flood Insurance Study, Smith County, Tennessee (Unincorporated Areas) (470283)	FEMA	Washington, D.C.	July 7, 1999	https://msc.fema.gov
FIS 1999b	Federal Emergency Management Agency	Flood Insurance Study, Town of Gordonsville, Smith County, Tennessee (Unincorporated Areas) (470395)	FEMA	Washington, D.C.	July 7, 1999	https://msc.fema.gov
FIS 2010	Federal Emergency Management Agency	Flood Insurance Study, Smith County, Tennessee and Incorporated Areas (47159CV000A)	FEMA	Washington, D.C.	September 29, 2010	https://msc.fema.gov
NOAANGS 2004	NOAA, National Geodetic Survey	Benchmarks	NOAA, National Geodetic Survey	Washington, D.C	2004	https://www.ngs.noaa.gov/
TDFA 2005	Tennessee Department of Finance and Administration, GIS Department	Digital Terrain Model: Mass points and breaklines	Tennessee Department of Finance and Administration, GIS Department	Nashville, Tennessee	December 2005	https://tnmap.tn.gov/
TDFAPOL 2006	State of Tennessee Department of Finance and Administration, GIS Department	Community Political Boundaries	State of Tennessee Department of Finance and Administration, GIS Department	Nashville, Tennessee	March 28, 2006	https://tnmap.tn.gov/

Table 32: Bibliography and References (continued)

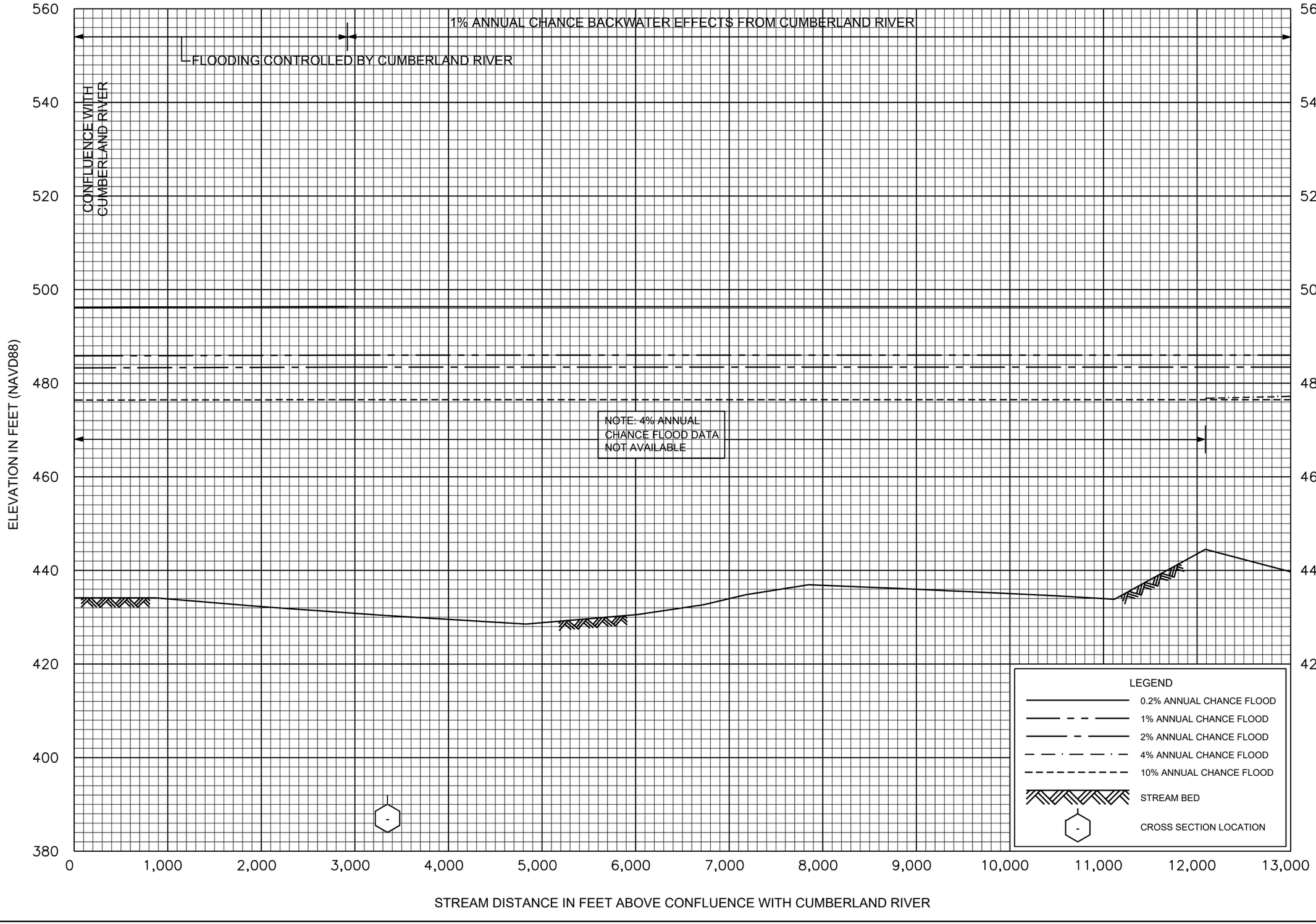
Citation in this FIS	Publisher / Issuer	Publication Title, "Article," Volume, Number, etc.	Author / Editor	Place of Publication	Publication Date / Date of Issuance	Link
TDFATRAN 2006	State of Tennessee Department of Finance and Administration, GIS Department	Transportation	State of Tennessee Department of Finance and Administration, GIS Department	Nashville, Tennessee	March 28, 2006	https://tnmap.tn.gov/
TDOT 2018	TDOT Office of Aerial Surveys	Smith County 2018 Aerial Imagery	TDOT Office of Aerial Surveys	Nashville, Tennessee	November 1, 2018	https://www.tn.gov/tdot/
TNCOT 2012	Tennessee Comptroller of the Treasury - Office of Local Government	TNMAP_DATA_LIBRARY.DBO.City_Admin_Boundaries	Tennessee Comptroller of the Treasury - Office of Local Government	Nashville, Tennessee	March 13, 2012	https://tnmap.tn.gov/
TNOIRGIS 2005a	State of Tennessee Department of Finance and Administration GIS Department	Political Boundaries	State of Tennessee Department of Finance and Administration GIS Department	Nashville, Tennessee	May 23, 2005	https://tnmap.tn.gov/
TNOIRGIS 2005b	State of Tennessee Department of Finance and Administration GIS Department	Railroads	Tele Atlas	Nashville, Tennessee	October 2007	http://tnmap.tn.gov/
TNOIRGIS 2014	State of Tennessee Department of Finance and Administration GIS Department	Hydro lines	State of Tennessee Departmnet of Finance and Administration GIS Department	Nashville, Tennessee	March 12, 2014	http://tnmap.tn.gov/
TNOIRGIS 2020	State of Tennessee Department of Finance and Administration GIS Department	Roads	State of Tennessee Departmnet of Finance and Administration GIS Department	Nashville, Tennessee	April 22, 2020	http://tnmap.tn.gov/

Table 32: Bibliography and References (continued)

Citation in this FIS	Publisher / Issuer	Publication Title, "Article," Volume, Number, etc.	Author / Editor	Place of Publication	Publication Date / Date of Issuance	Link
USACE 1967	U.S. Army Corps of Engineers, Nashville District	"Flood Plain Information on Cumberland River and Caney Fork River in Vicinity of Carthage, Tennessee"	USACE	Nashville, Tennessee	April 1967	https://www.hec.usace.army.mil/
USACE 1968	U.S. Army Corps of Engineers, Hydrologic Engineering Center	HEC-2 Water Surface Profiles, Computer Program 723-X6-L202A	USACE	Davis, California	December 1968 with updates	https://www.hec.usace.army.mil/
USACE 1973	U.S. Army Corps of Engineers, Nashville District	"Project Maps and Data Sheets Covering Authorized Projects"	USACE	Nashville, Tennessee	June 1973	https://www.hec.usace.army.mil/
USACE 1976	U.S. Army Corps of Engineers, Nashville District	"Storm and Flood of March 1975 in the Cumberland River Basin"	USACE	Nashville, Tennessee	April 1976	https://www.hec.usace.army.mil/
USACE 1979	Resource Analysis Inc. and the USACE, Nashville District	"Frequency Study for the Cumberland River Basin"	USACE	Davis, California	January 1979	https://www.hec.usace.army.mil/
USACE 1991	U.S. Army Corps of Engineers	HEC-2 version 4.6.2, Water Surface Profiles Program	USACE	Davis, California	May 1991	https://www.hec.usace.army.mil/
USACE 2005	U.S. Army Corps of Engineers, Hydrologic Engineering Center	HEC-RAS 3.1.3, River Analysis System, Version 3.1.3, Computer Software	USACE	Davis, California	May 2005	https://www.hec.usace.army.mil/
USACE 2013	U.S. Army Corps of Engineers, Hydrologic Engineering Center	HEC-HMS 4.0, Hydrologic Modeling System, Version 4.0	USACE	Davis, California	December 2013	https://www.hec.usace.army.mil/
USACE 2019a	U.S. Army Corps of Engineers, Hydrologic Engineering Center	HEC-RAS 5.0.7, River Analysis System, Version 5.0.7 Computer Software	USACE	Davis, California	March 2019	https://www.hec.usace.army.mil/
USACE 2019b	U.S. Army Corps of Engineers, Nashville District	"Flood Plain Management Services Special Study, Smith Fork & Caney Fork, Smith County, Tennessee"	USACE	Davis, California	October 2019	https://www.hec.usace.army.mil/
USGS 1976a	U.S. Department of Interior, Geological Survey	"Technique for Estimating Magnitude and Frequency of Floods in Tennessee"	USGS	Nashville, Tennessee	1976	https://www.usgs.gov/

Table 32: Bibliography and References (continued)

Citation in this FIS	Publisher / Issuer	Publication Title, "Article," Volume, Number, etc.	Author / Editor	Place of Publication	Publication Date / Date of Issuance	Link
USGS 1976b	U.S. Department of Interior, Geological Survey	Computer Applications for Step-Backwackwater and Floodway Analyses, Computer Program E431 User's Manual, Open-File Report 76-499	James O. Sherman	Reston, Virginia	1976	https://www.usgs.gov/
USGS 1976c	U.S. Water Resources Council	"Guidelines for Determining Flood Flow Frequency," Bulletin No. 17, Hydrology Committee	USGS	Reston, Virginia	March 1976	https://www.usgs.gov/
USGS 1994	U.S. Department of Interior, Geological Survey	HUC8 Boundaries	USGS	Reston, Virginia	1994	https://water.usgs.gov/
USGS 2000	U.S. Department of Interior, Geological Survey	"Flood-Frequency Prediction Methods for Unregulated Streams of Tennessee," Water-Resources Investigations Report 03-4176, WIR 03-4176	USGS	Reston, Virginia	2000	http://pubs.usgs.gov/wri/wri034176/PDF/wrir034176.pdf
USGS 2018	United States Geological Survey	Light Detection and Ranging data (LiDAR)	USGS	Reston, Virginia	2018	https://coast.noaa.gov/inventory/



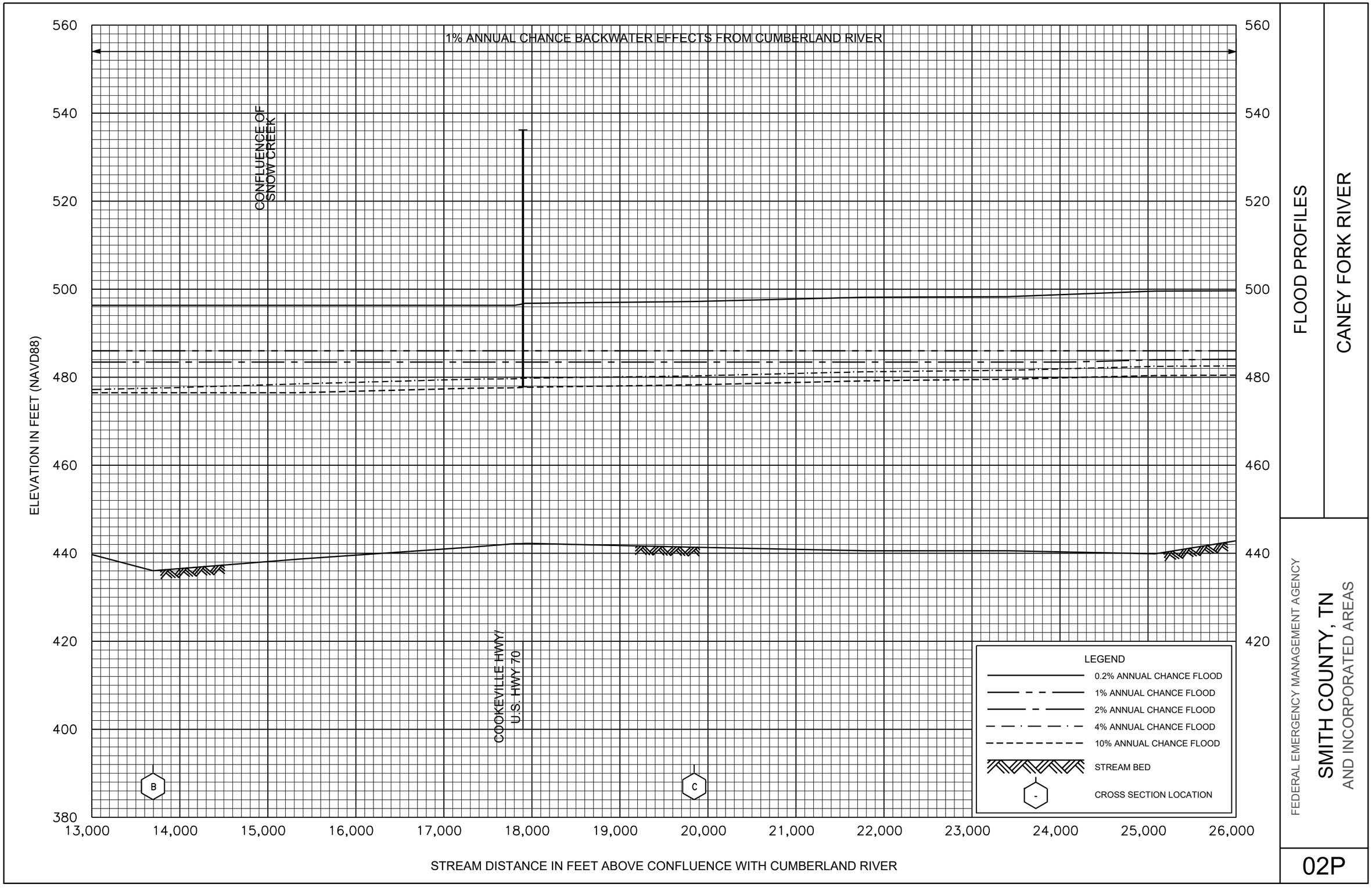
FLOOD PROFILES

CANEY FORK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN
AND INCORPORATED AREAS

01P



FLOOD PROFILES

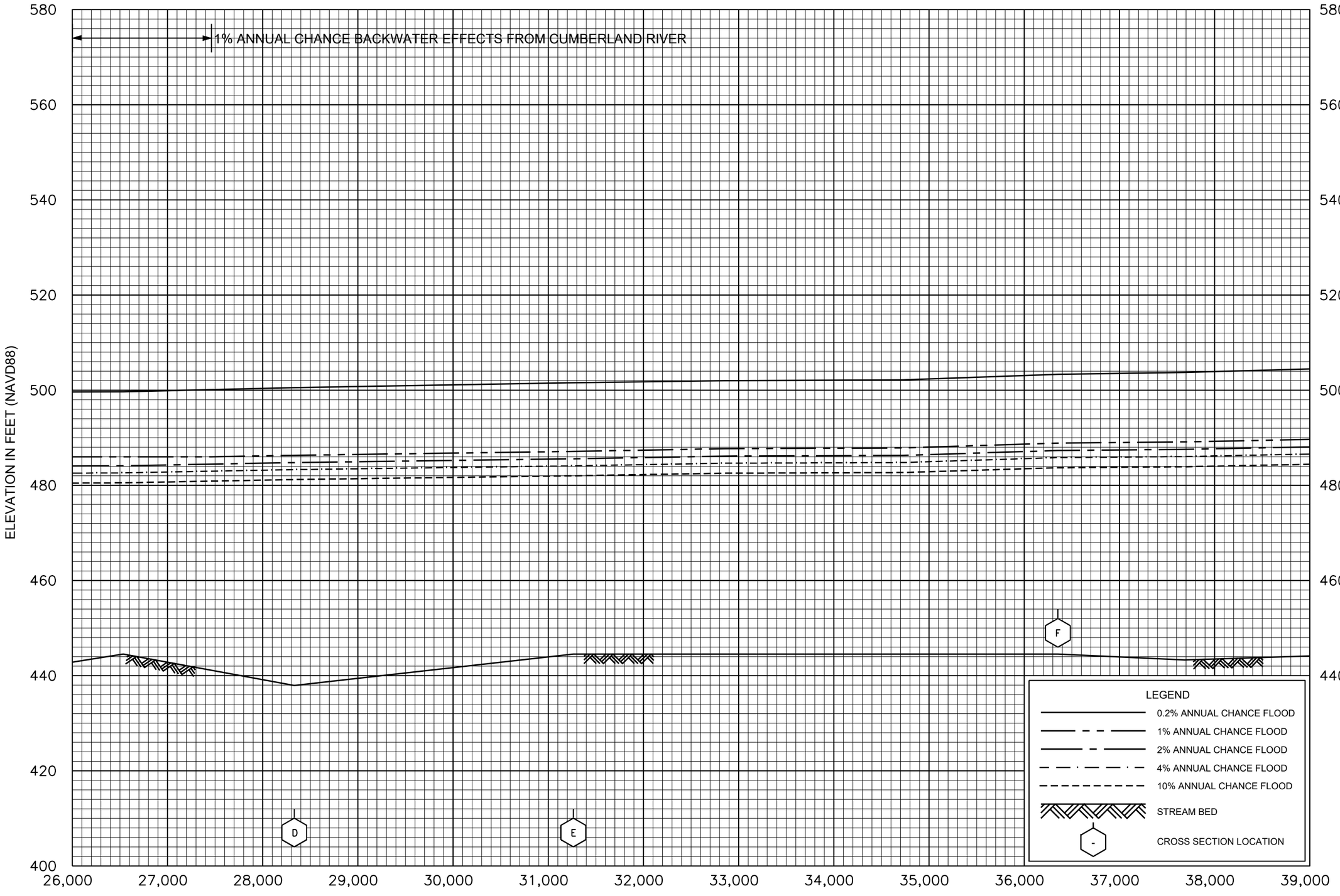
CANEY FORK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN

AND INCORPORATED AREAS

02P



FLOOD PROFILES

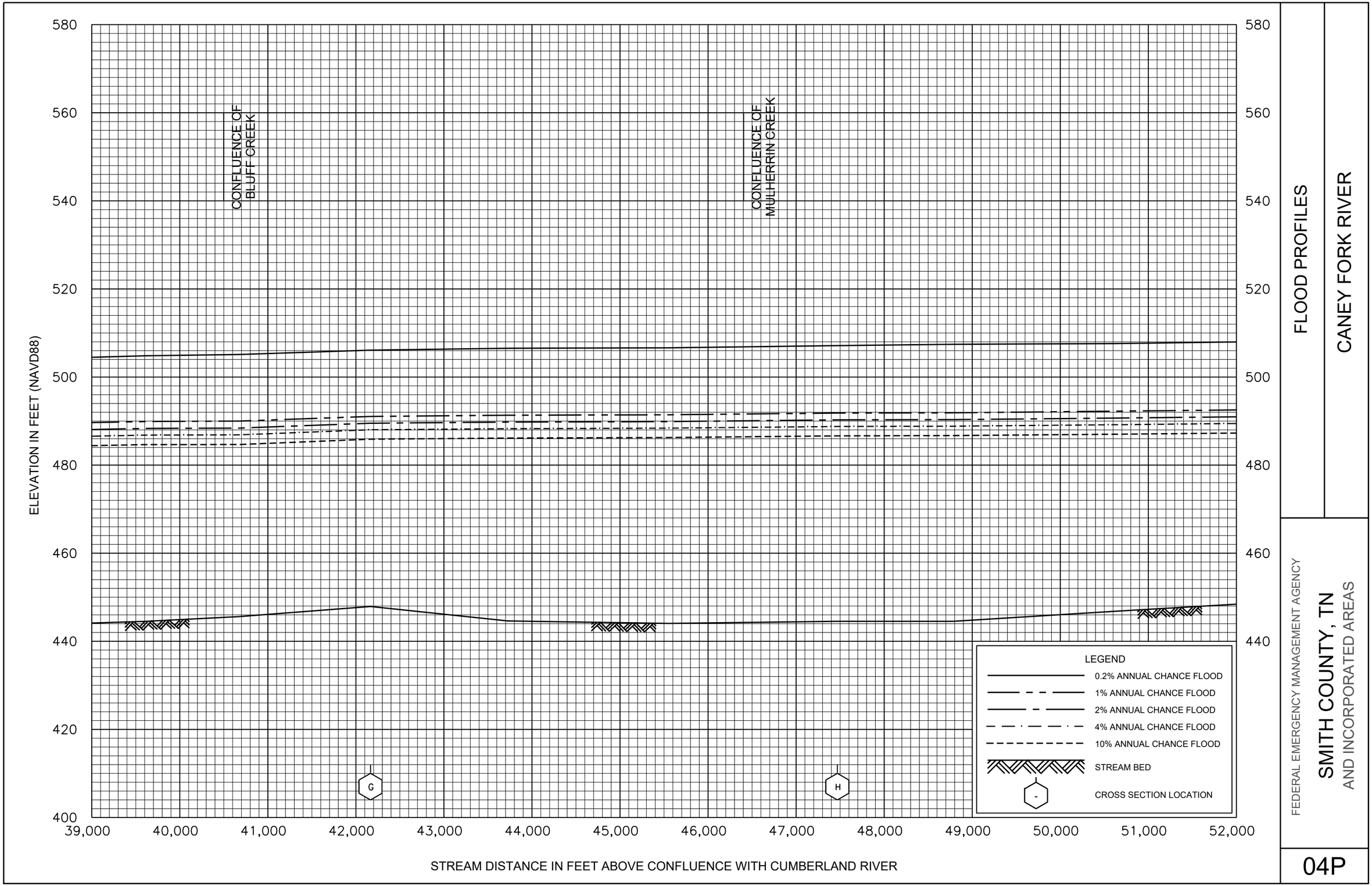
CANEY FORK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN

AND INCORPORATED AREAS

03P



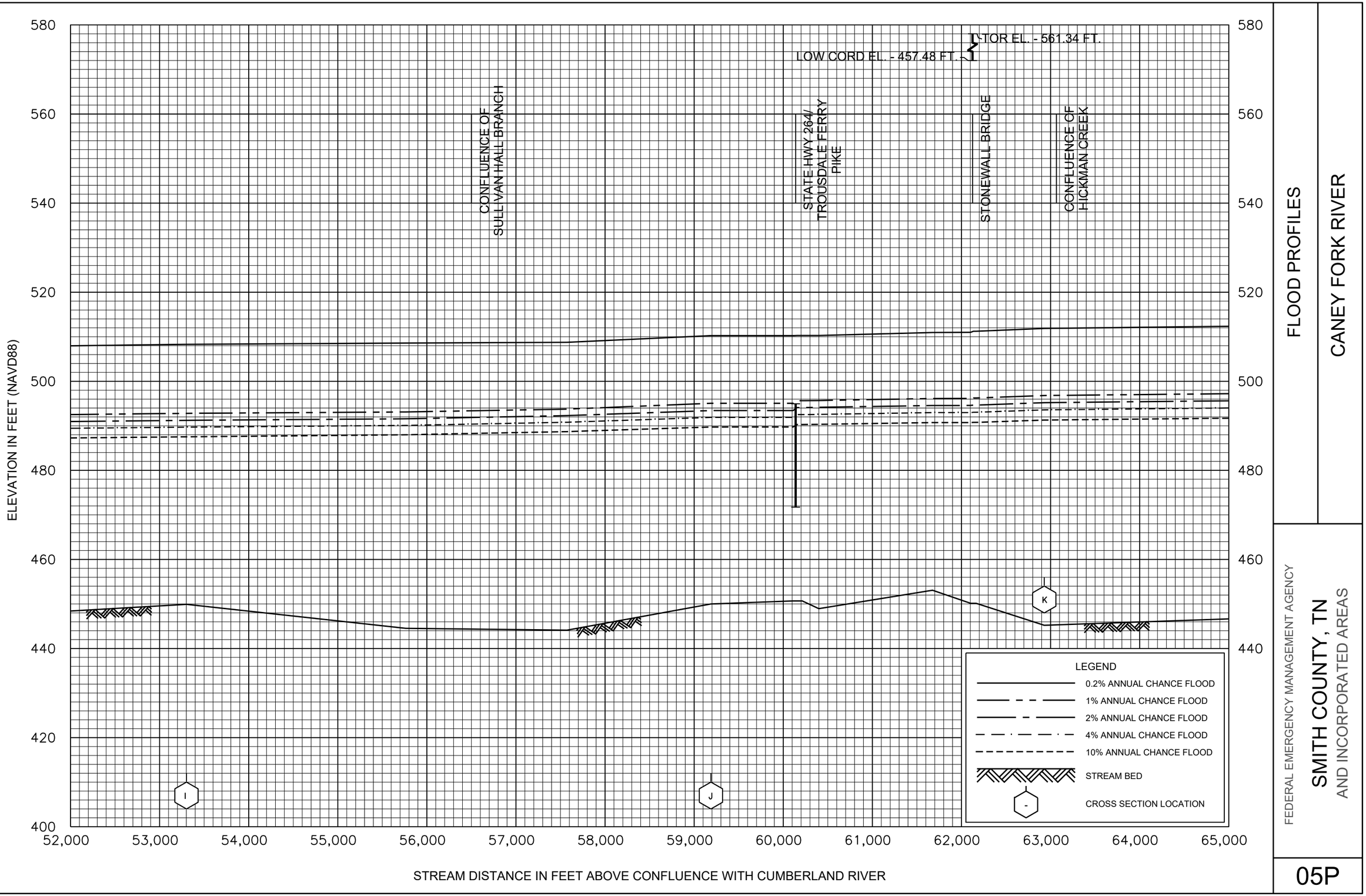
FLOOD PROFILES

CANEY FORK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN
AND INCORPORATED AREAS

04P



FLOOD PROFILES

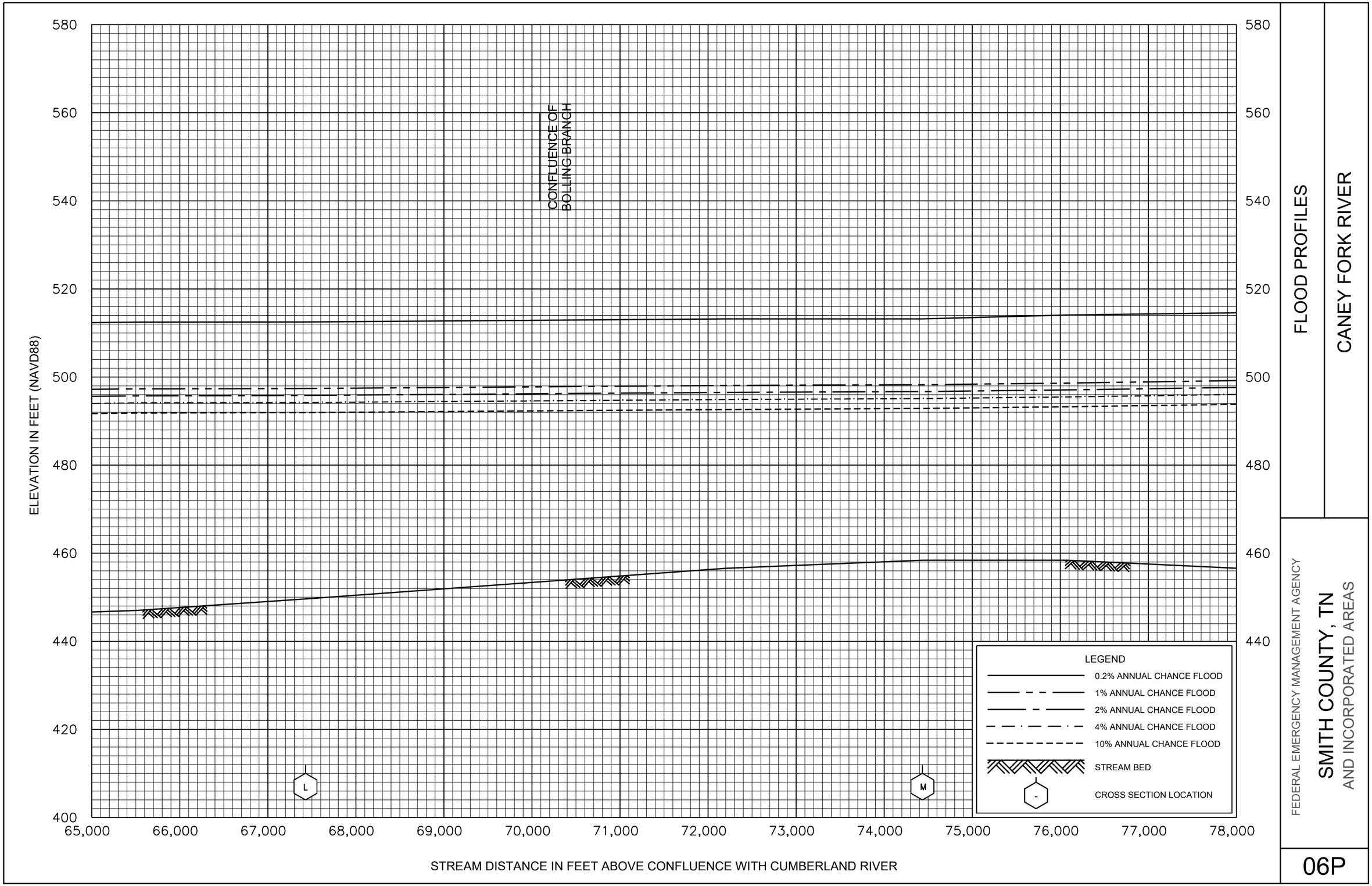
CANEY FORK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN

AND INCORPORATED AREAS

05P



FLOOD PROFILES

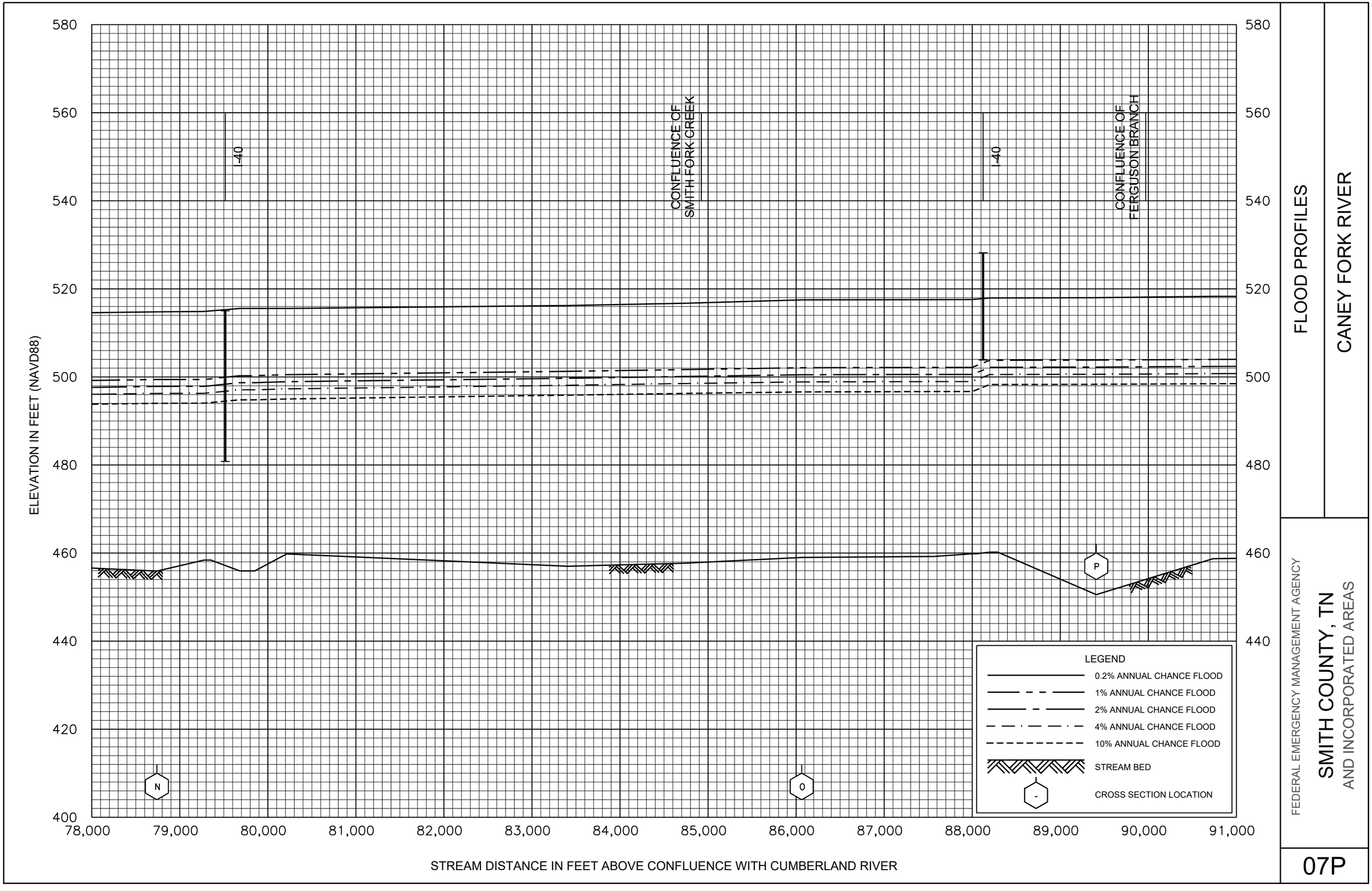
CANEY FORK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN

AND INCORPORATED AREAS

06P



FLOOD PROFILES

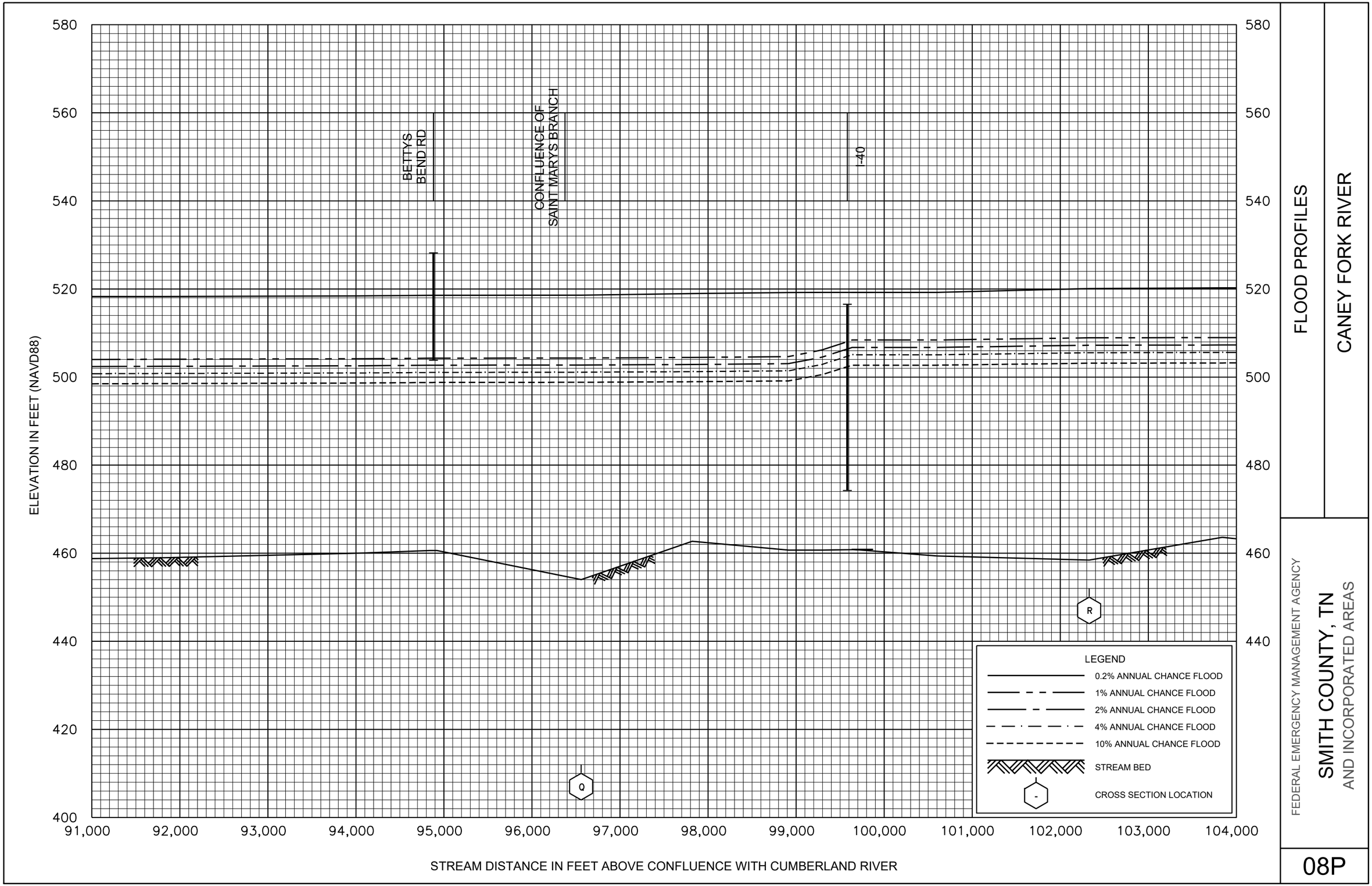
CANEY FORK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN

AND INCORPORATED AREAS

07P



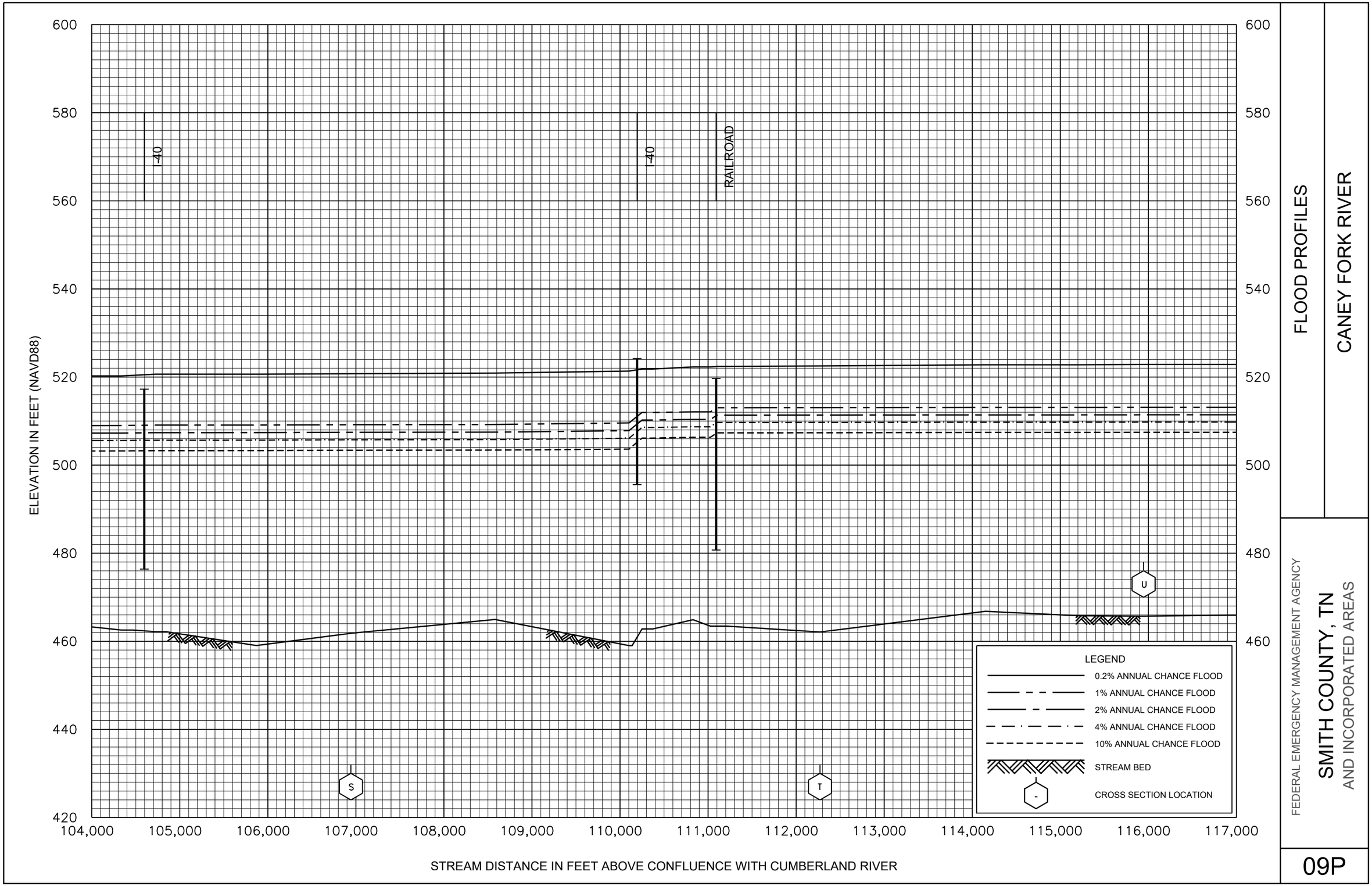
FLOOD PROFILES

CANEY FORK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN
AND INCORPORATED AREAS

08P



FLOOD PROFILES

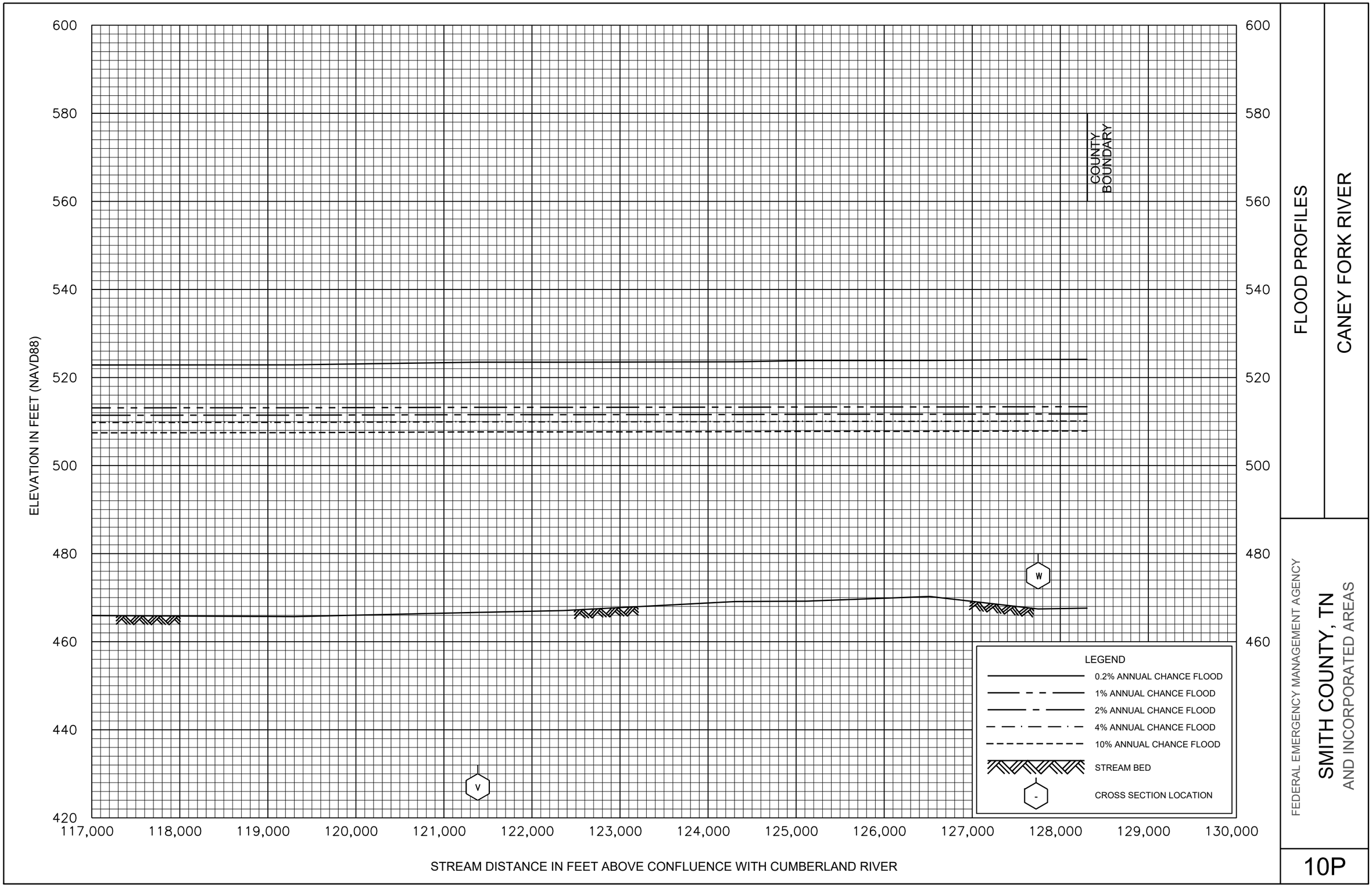
CANEY FORK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN

AND INCORPORATED AREAS

09P



FLOOD PROFILES

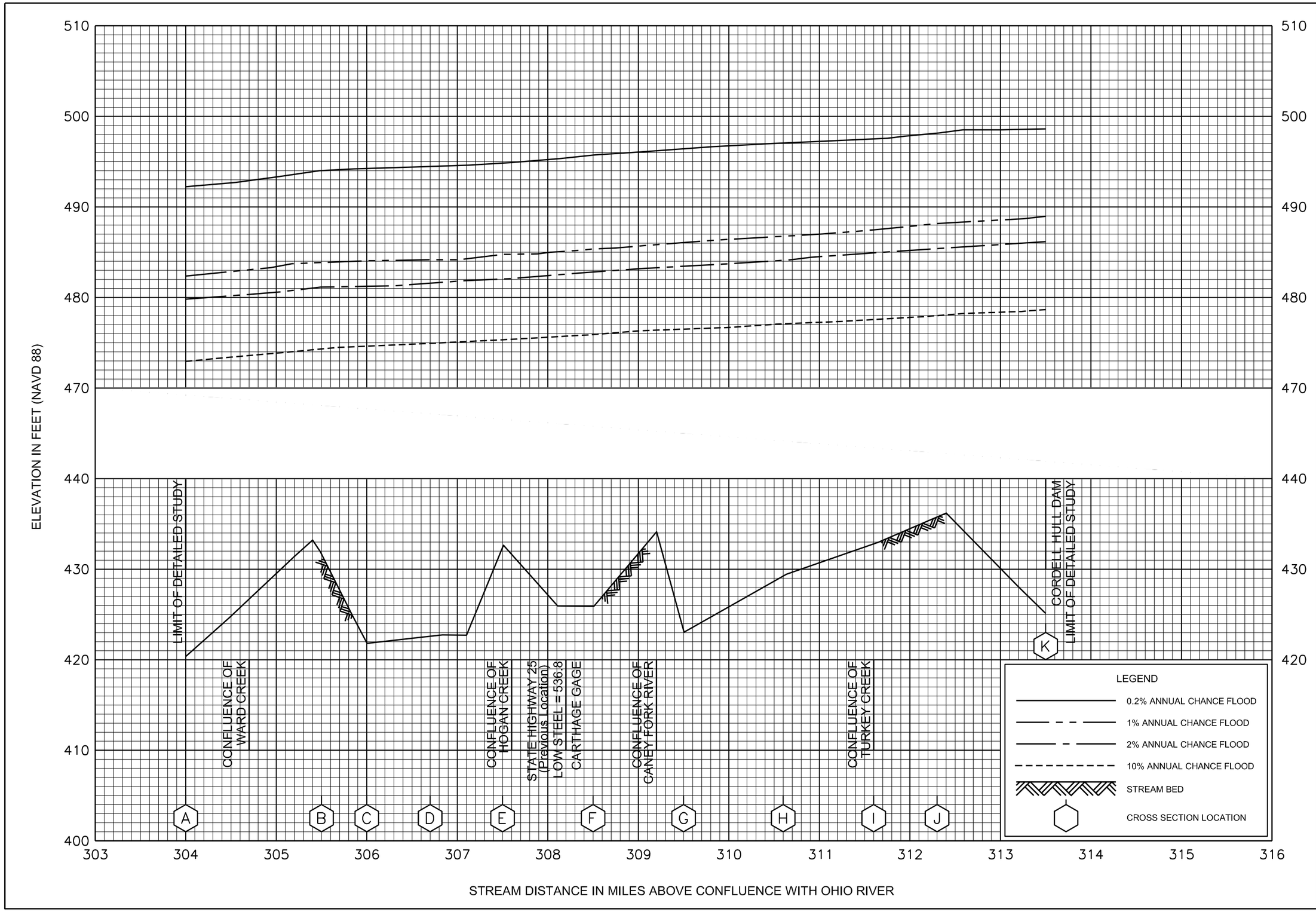
CANEY FORK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN

AND INCORPORATED AREAS

10P



FLOOD PROFILES

CUMBERLAND RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN
AND INCORPORATED AREAS

11P

1 - PERCENT ANNUAL CHANCE BACKWATER EFFECTS FROM CORDELL HULL RESERVOIR

REGULATORY ELEVATIONS NOT COMPUTED

PRIVATE DRIVE

CONFLUENCE OF HARRIS HOLLOW BRANCH

CONFLUENCE OF KEMPVILLE BRANCH

CONFLUENCE OF DILLEHAY BRANCH

STATE HIGHWAY 85

PRIVATE DRIVE

CONFLUENCE OF GREEN HOLLOW BRANCH

ELEVATION IN FEET (NAVD 88)

570
560
550
540
530
520
510
500
490
480

21000 22000 23000 24000 25000 26000 27000 28000 29000 30000 31000 32000 33000 34000

STREAM DISTANCE IN FEET ABOVE CORDELL HULL RESERVOIR

A B C D E F G H I J K

LEGEND

- 0.2% ANNUAL CHANCE FLOOD
- 1% ANNUAL CHANCE FLOOD
- 2% ANNUAL CHANCE FLOOD
- 10% ANNUAL CHANCE FLOOD
- STREAM BED
- CROSS SECTION LOCATION

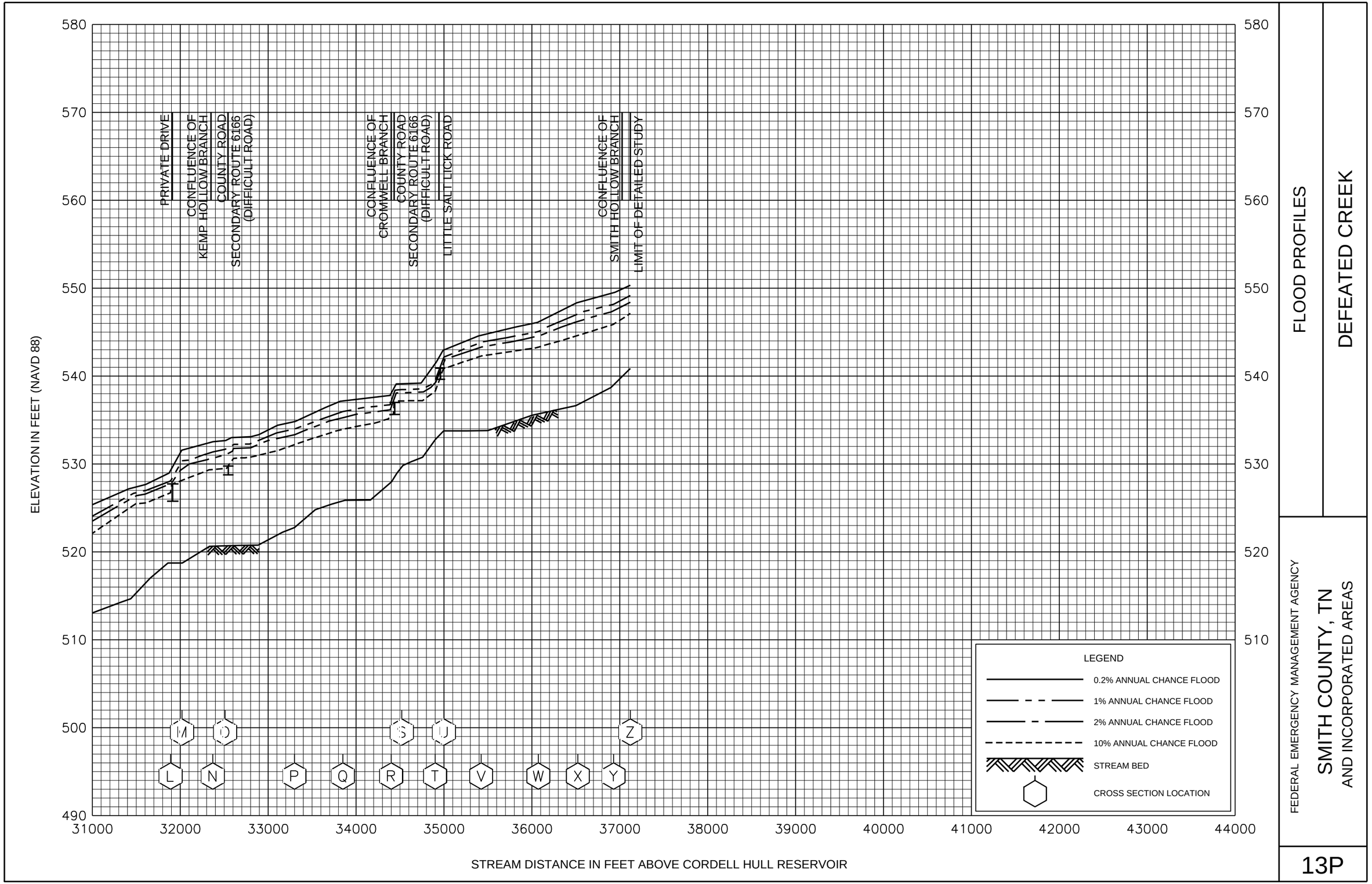
FLOOD PROFILES

DEFEATED CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN
AND INCORPORATED AREAS

12P



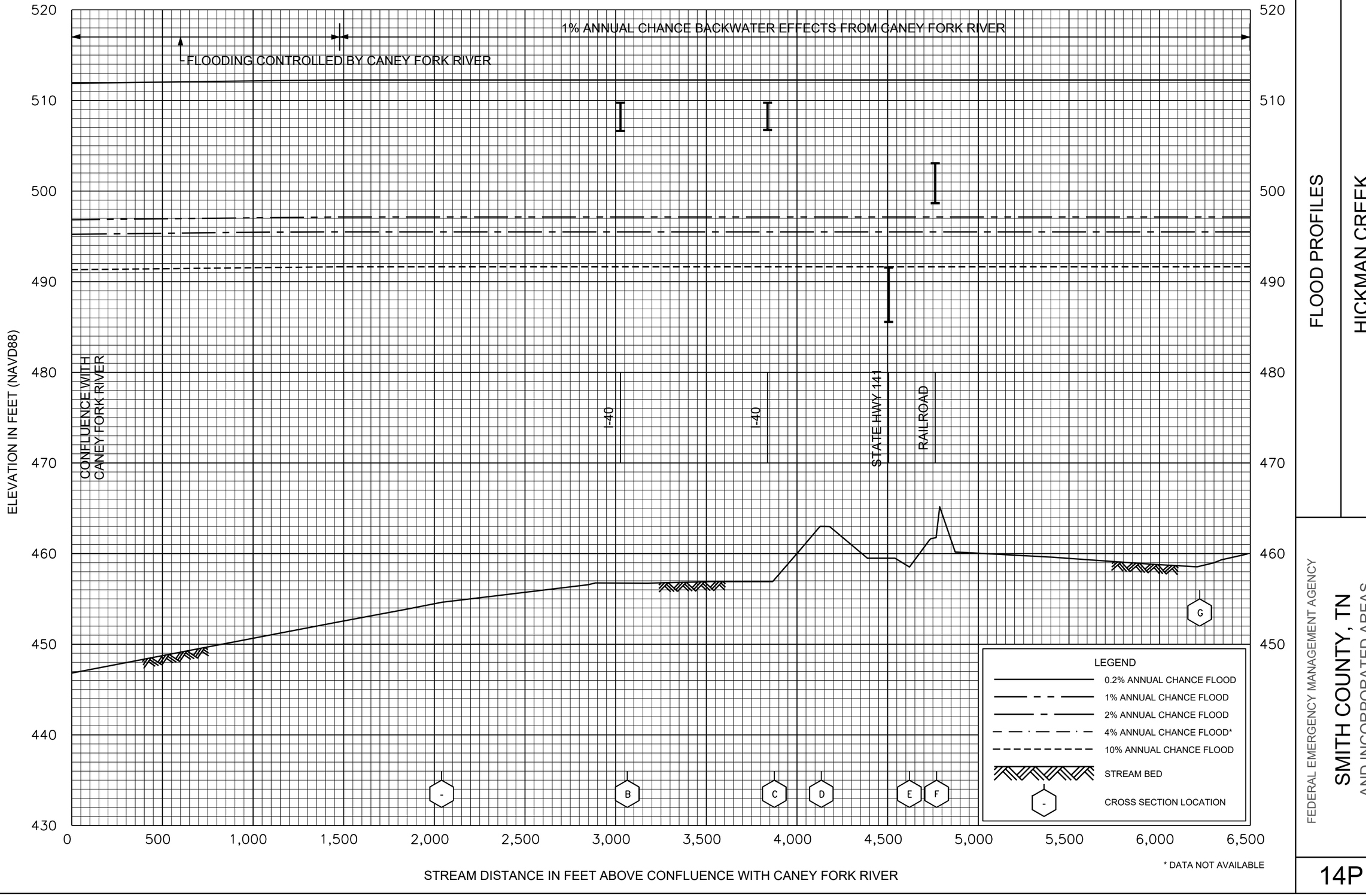
FLOOD PROFILES

DEFEATED CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN
AND INCORPORATED AREAS

13P



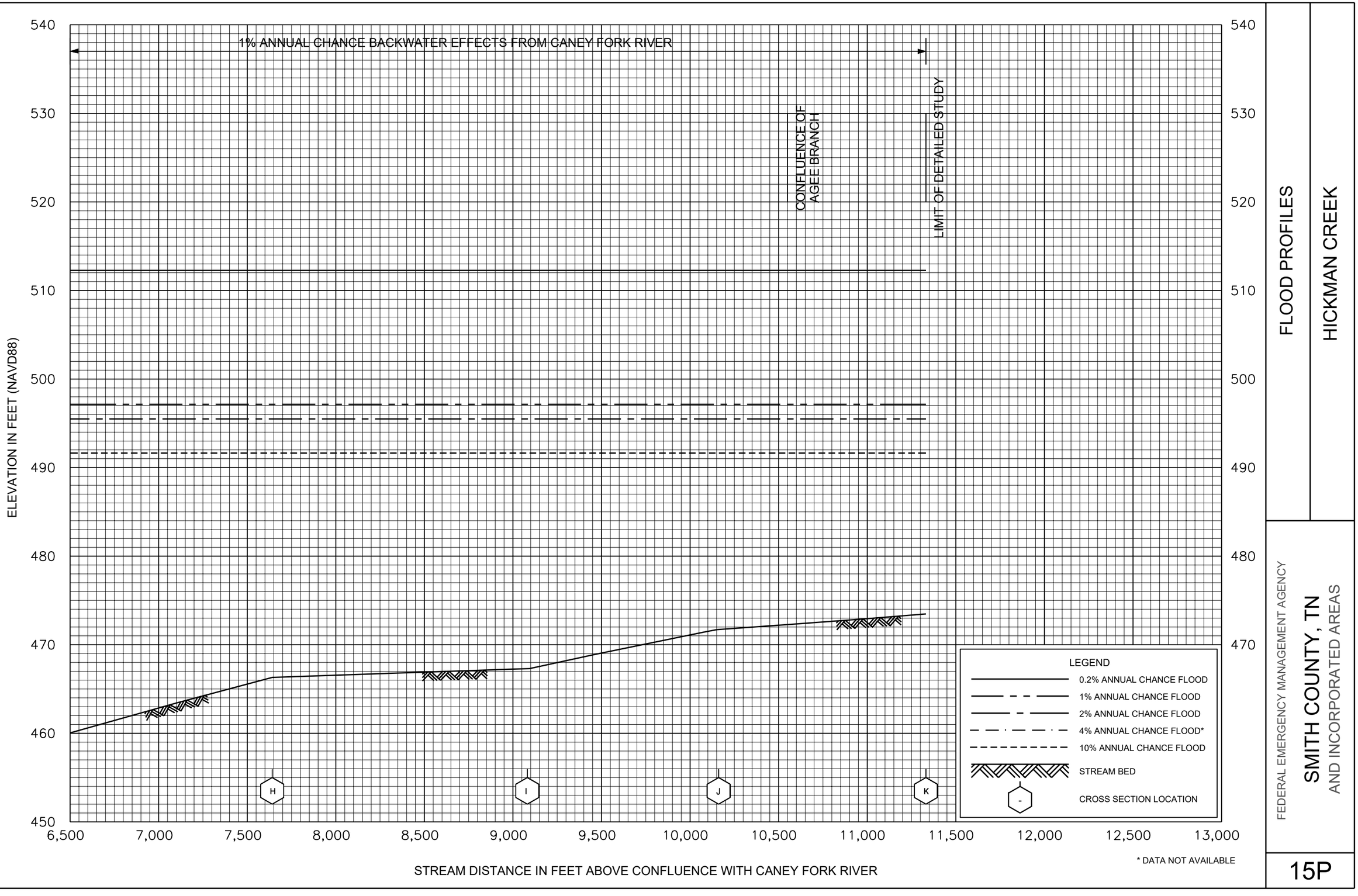
FLOOD PROFILES

HICKMAN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN
AND INCORPORATED AREAS

14P



FLOOD PROFILES

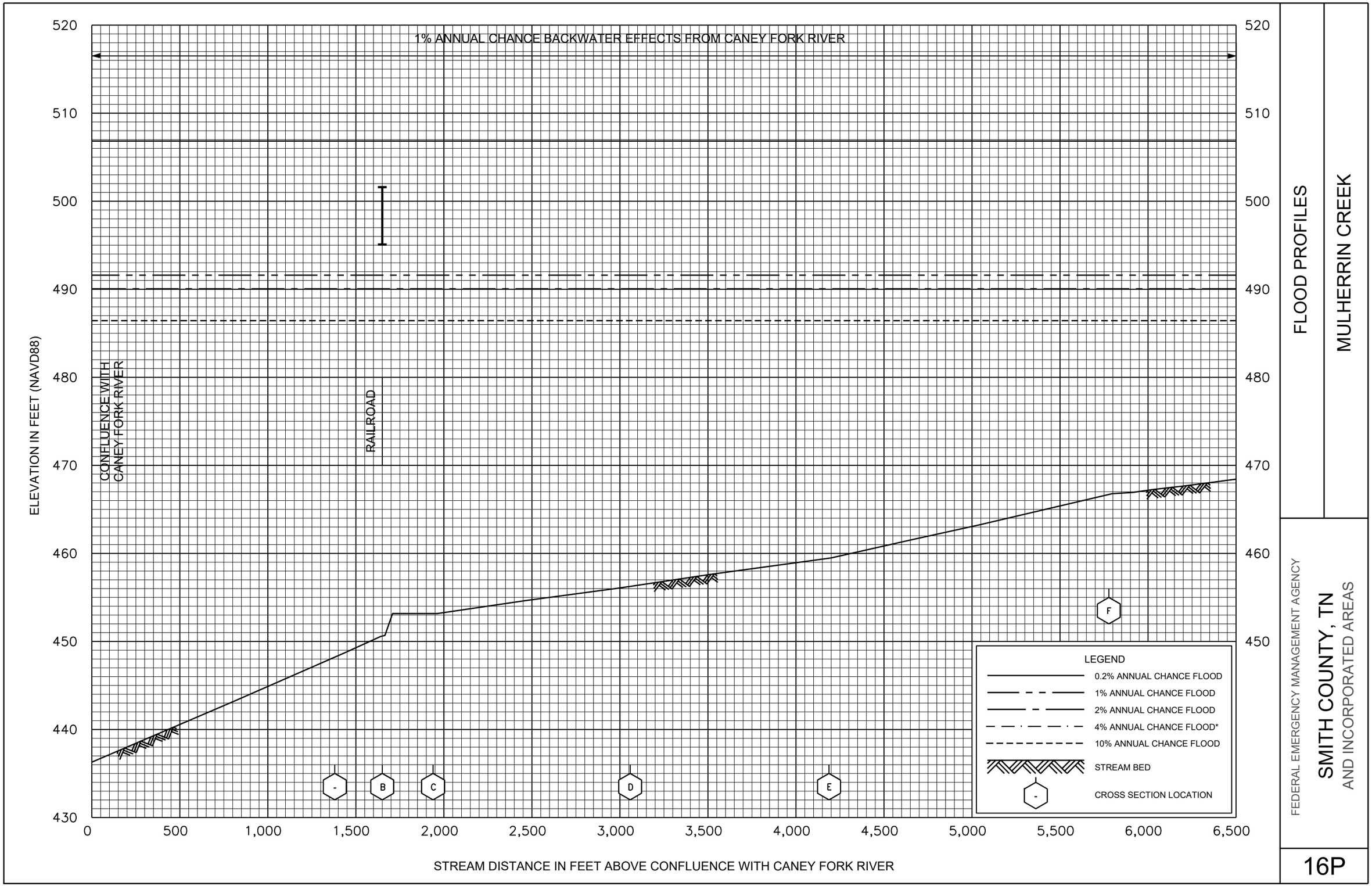
HICKMAN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN

AND INCORPORATED AREAS

15P



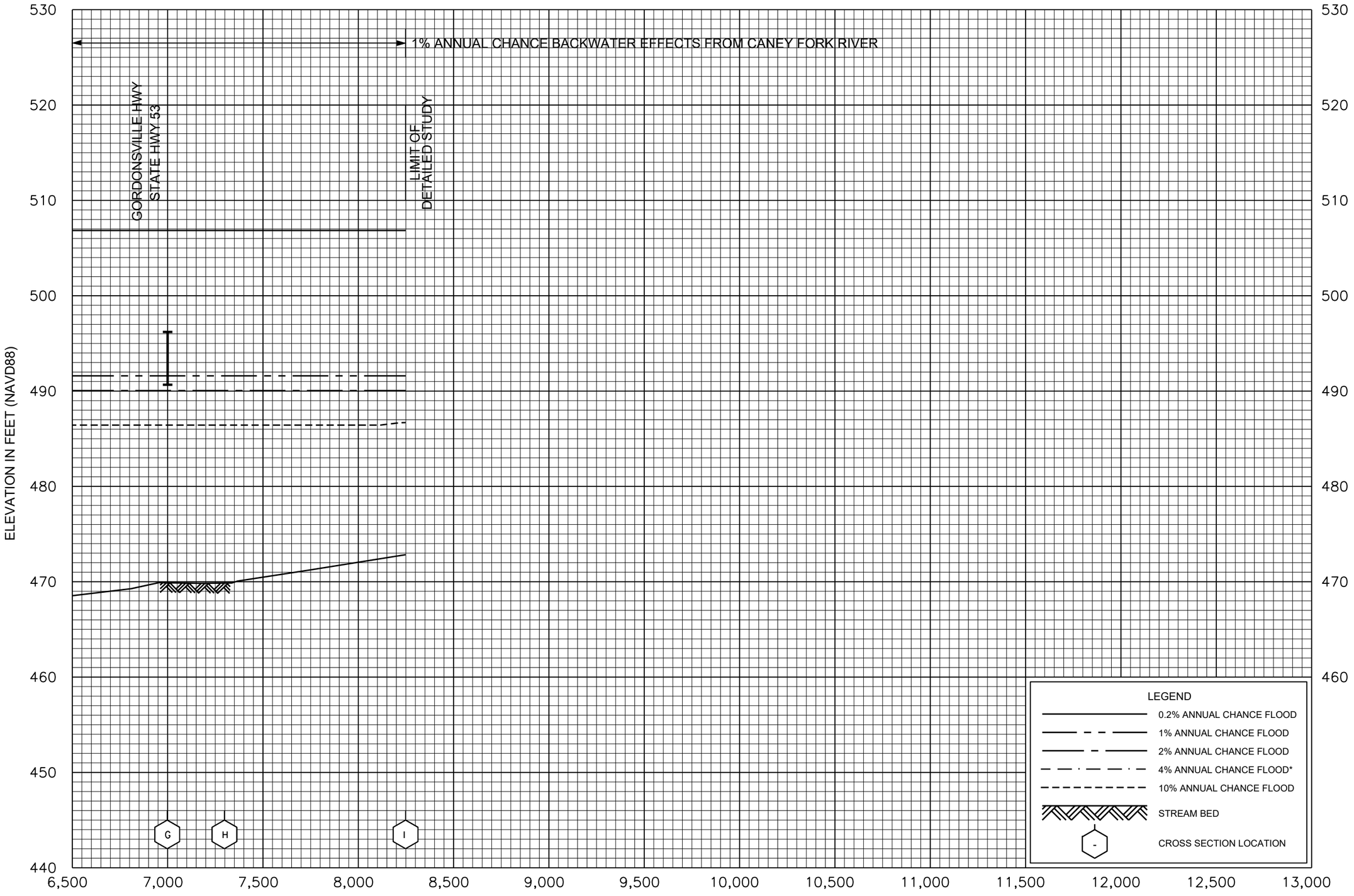
FLOOD PROFILES

MULHERRIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN
AND INCORPORATED AREAS

16P



FLOOD PROFILES

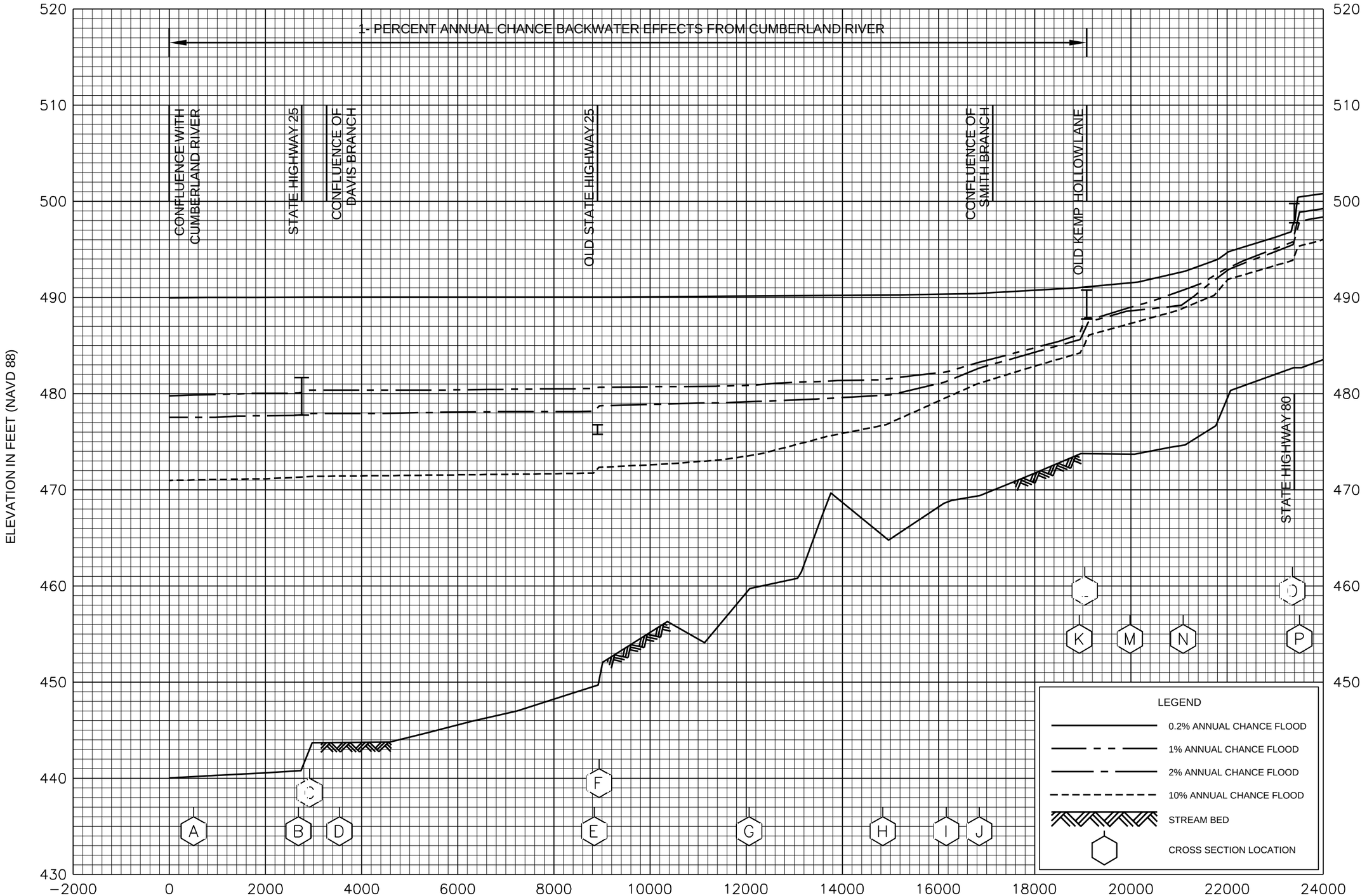
MULHERRIN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN

AND INCORPORATED AREAS

17P



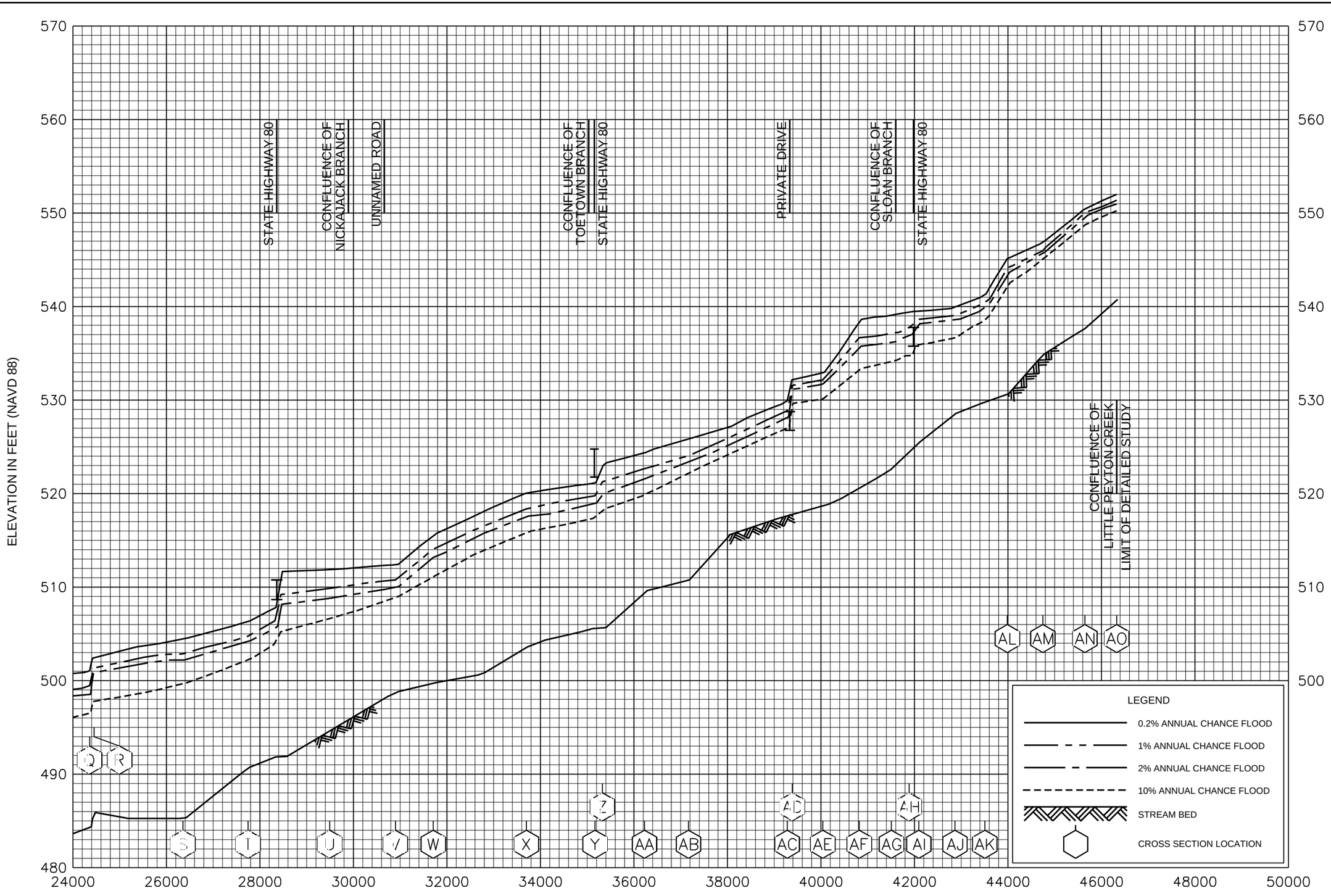
FLOOD PROFILES

PEYTON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN
AND INCORPORATED AREAS

18P



FLOOD PROFILES

PEYTON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN
AND INCORPORATED AREAS

1% ANNUAL CHANCE BACKWATER EFFECTS FROM CANEY FORK RIVER

CONFLUENCE WITH CANEY FORK RIVER

RAILROAD

ELEVATION IN FEET (NAVD88)

540
530
520
510
500
490
480
470
460
450

0
500
1,000
1,500
2,000
2,500
3,000
3,500
4,000
4,500
5,000
5,500
6,000
6,500

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH CANEY FORK RIVER

LEGEND

- 0.2% ANNUAL CHANCE FLOOD
- 1% ANNUAL CHANCE FLOOD
- 2% ANNUAL CHANCE FLOOD
- 4% ANNUAL CHANCE FLOOD
- 10% ANNUAL CHANCE FLOOD
- STREAM BED
- CROSS SECTION LOCATION

A
B
C

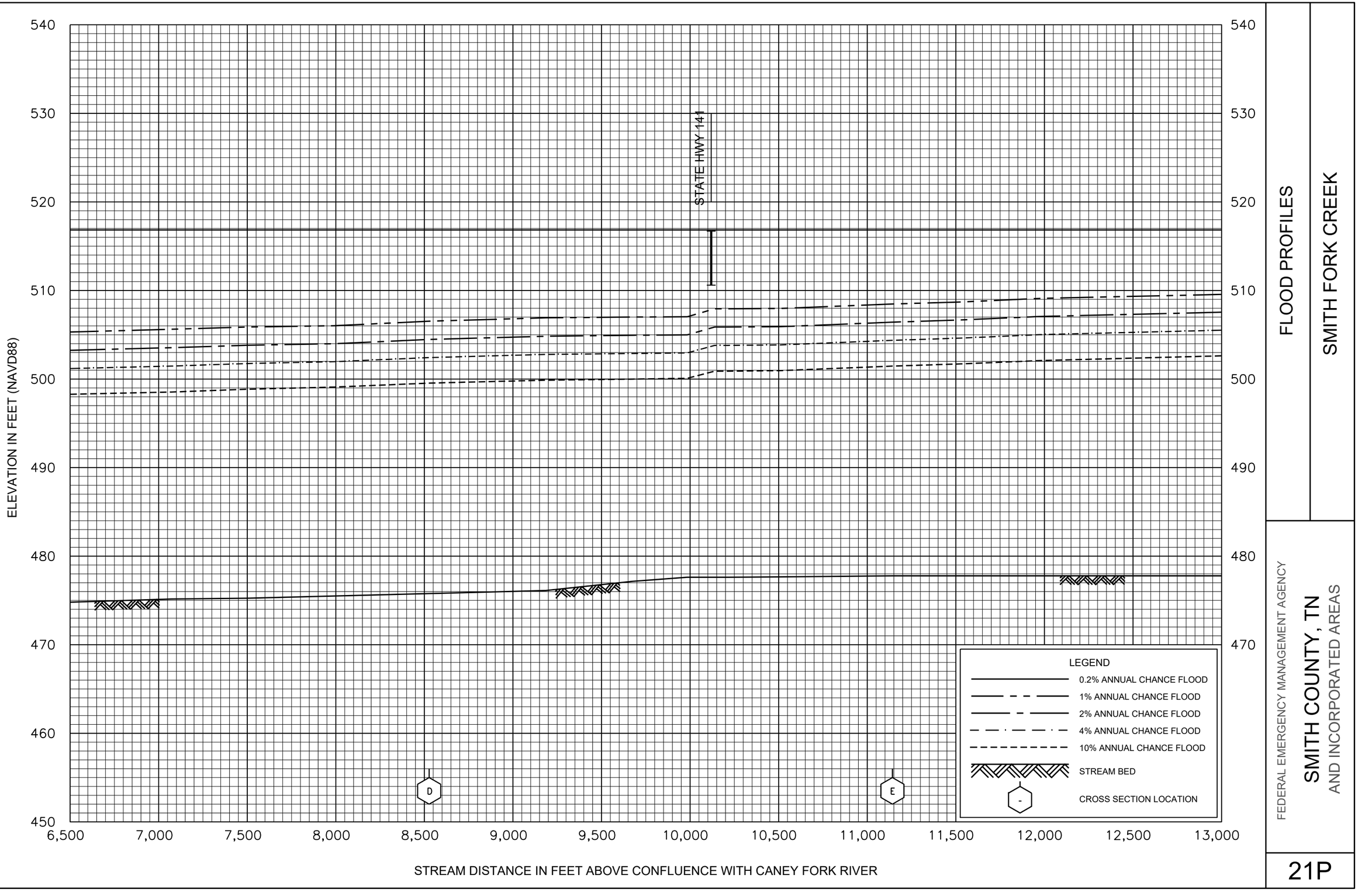
FLOOD PROFILES

SMITH FORK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN

AND INCORPORATED AREAS



FLOOD PROFILES

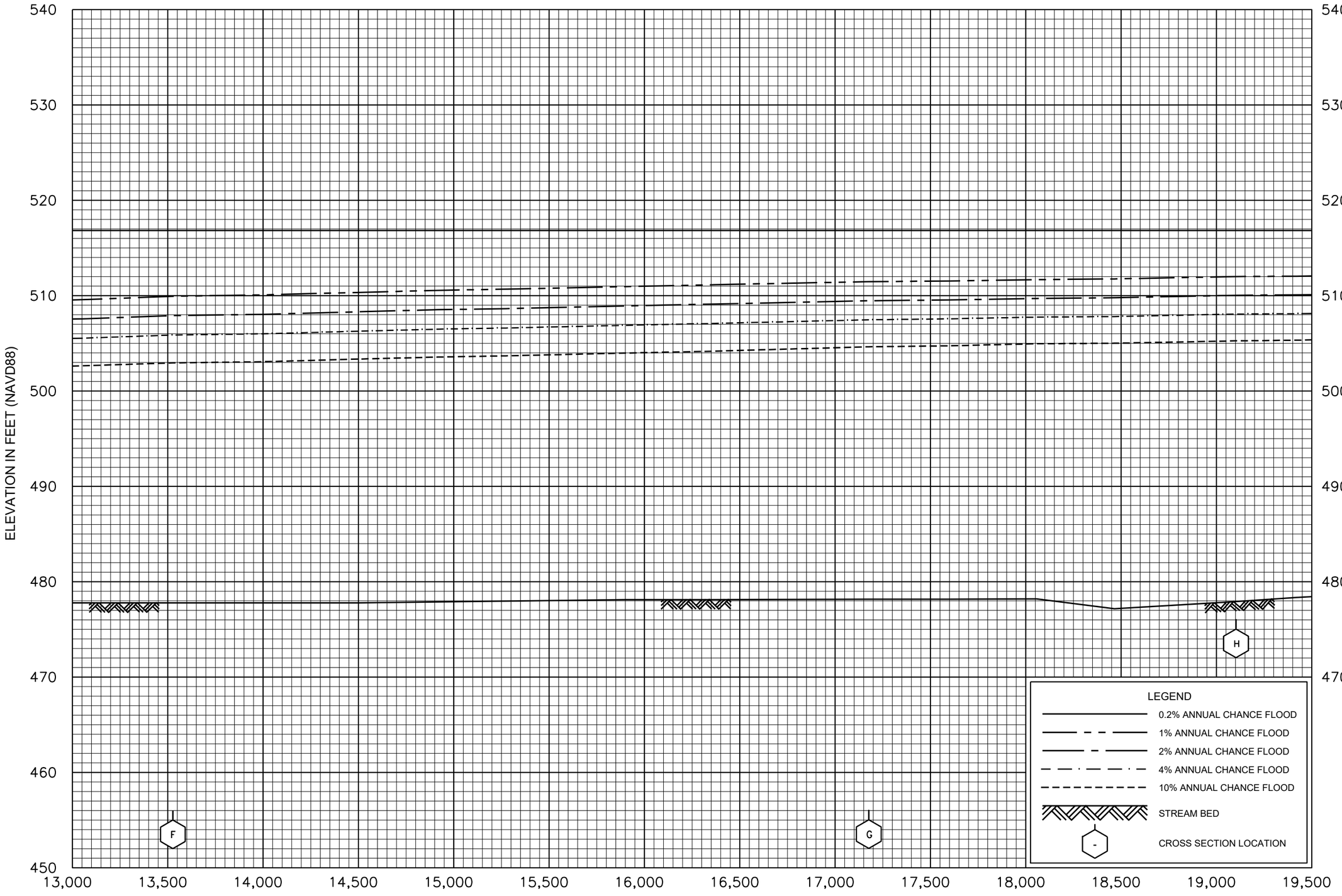
SMITH FORK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN

AND INCORPORATED AREAS

21P



FLOOD PROFILES

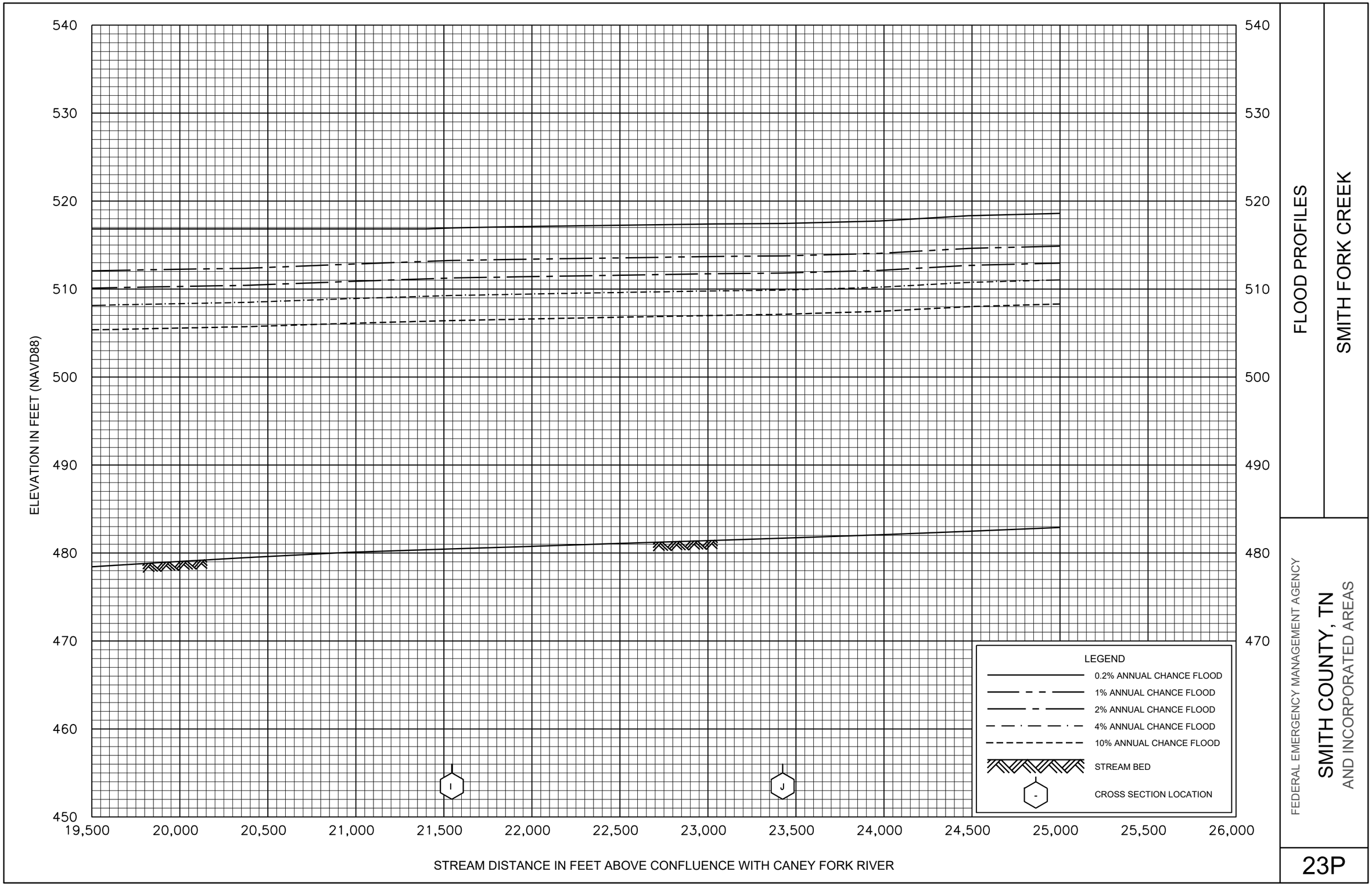
SMITH FORK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN

AND INCORPORATED AREAS

22P



STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH CANEY FORK RIVER

FLOOD PROFILES

SMITH FORK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN

AND INCORPORATED AREAS

ELEVATION IN FEET (NAVD88)

540
530
520
510
500
490
480
470
460
450

COUNTY BOUNDARY

K

LEGEND

- 0.2% ANNUAL CHANCE FLOOD
- 1% ANNUAL CHANCE FLOOD
- 2% ANNUAL CHANCE FLOOD
- 4% ANNUAL CHANCE FLOOD
- 10% ANNUAL CHANCE FLOOD
- STREAM BED
- CROSS SECTION LOCATION

25,000 25,500 26,000 26,500 27,000 27,500 28,000 28,500 29,000 29,500 30,000 30,500 31,000 31,500

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH CANEY FORK RIVER

FLOOD PROFILES

SMITH FORK CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SMITH COUNTY, TN
AND INCORPORATED AREAS