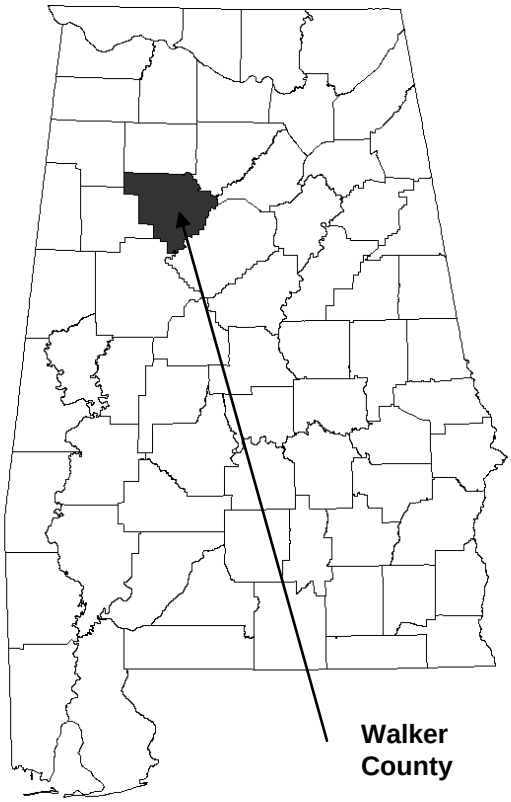
WALKER COUNTY, ALABAMA

AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
WALKER COUNTY (UNINCORPORATED AREAS)	010301
CARBON HILL, CITY OF	010204
CORODVA, CITY OF	010205
DORA, CITY OF	010381
ELDRIDGE, TOWN OF	010382
JASPER, CITY OF	010206
KANSAS, TOWN OF	010390
NAUVOO, TOWN OF	010394
OAKMAN, TOWN OF	010299
PARRISH, TOWN OF	010298
*SIPSEY, TOWN OF	010300
SUMITON, CITY OF	010400

*Non-Floodprone Community



Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER

01127CV000B

NOTICE TO
FLOOD INSURANCE STUDY USERS

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

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

This FIS Report was revised on TBD. Users should refer to Section 10.0, Revisions Description, for further information. Section 10.0 is intended to present the most up-to-date information for specific portions of this FIS report. Therefore, users of this report should be aware that the information presented in Section 10.0 supersedes information in Sections 1.0 through 9.0 of this FIS report.

Initial Countywide FIS Effective Date: August 2, 2007

Revised Countywide FIS Effective Date: TBD

TABLE OF CONTENTS

TABLE OF CONTENTS – continued

FIGURES

TABLES

TABLE OF CONTENTS – continued

EXHIBITS

FLOOD INSURANCE STUDY
WALKER COUNTY, ALABAMA AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This countywide Flood Insurance Study (FIS) revises and supersedes the FIS reports and Flood Insurance Rate Maps (FIRMs) in the geographic area of Walker County, Alabama, including the Cities of Carbon Hill, Cordova, Dora, Jasper, and Sumiton; the Towns of Kansas, Nauvoo, Oakman, Parrish, Sipsey; and the unincorporated areas of Walker County (hereinafter referred to collectively as Walker County).

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

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

The Digital Flood Insurance Rate Map (DFIRM) and FIS Report for this countywide study have been produced in digital format. Flood hazard information was converted to meet the FEMA DFIRM database specifications and Geographic Information System (GIS) format requirements. The flood hazard information was created and 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 Towns of Eldridge and Sipsey have never been mapped. The Town of Sipsey is a non-floodprone community.

Portion of the Town of Nauvoo lies outside of Walker County but is included in the Walker County FIS and FIRMS.

1.2 Authority and Acknowledgements

The source of authority for this Flood Insurance Study is the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This countywide FIS was prepared to include all jurisdictions within Walker County into a countywide format FIS. Information on the authority and acknowledgments for each jurisdiction included in the countywide FIS, as compiled from their previously printed FIS reports, is shown on the following pages.

Carbon Hill, City of:	The hydrologic and hydraulic analyses for the FIS dated December 17, 1987, were obtained from the "Flood Plain Management Study, Lost Creek and Tributaries in Vicinity of Carbon Hill and Kansas, Alabama". That study was completed in May 1985 (U.S. Department of Agriculture, 1985).
Cordova, City of:	The hydrologic and hydraulic analyses for the FIS dated September 16, 1980, were performed by the U.S. Army Corps of Engineers (USACE), Mobile District Office, and reviewed by Law Engineering Testing Company for the Federal Insurance Administration (FIA), under Contract No. H-4636. This study was completed in July 1979.
Jasper, City of:	The hydrologic and hydraulic analyses for the FIS dated December 15, 1980, were performed by Law Engineering Testing Company for the FIA under contract No. H-4636. This study was completed in April 1980.
Unincorporated Areas:	The hydrologic and hydraulic analyses for the FIS dated January 5, 1982, were performed by Law Engineering Testing Company for the Federal Emergency Management Agency (FEMA), under Contract No. H-4636. This study was completed in January 1981.

The authority and acknowledgements for the Cities of Dora and Sumiton and Towns of Kansas, Nauvoo, Oakman, Parrish, and Sipsey are not available because no FIS reports were ever published for those communities.

For the countywide revision, dated August 2, 2007, the digital FIRM was developed by the Alabama Office of Water Resources, in cooperation with FEMA and local communities in Alabama, into a digital statewide format to assist communities in their efforts to minimize the loss of property and life

through effectively managing development in floodprone areas. The State of Alabama has implemented a long-term approach to floodplain management to reduce the impacts of flooding. This is demonstrated by the State's commitment to map floodplain areas at the local level. As part of this effort, the Alabama Office of Water Resources is working closely with FEMA as a Cooperating Technical Partner to produce and maintain this digital FIRM.

In addition, the base flood elevations were revised along Lost Creek (Upper Reach) in the unincorporated areas of Walker County in the vicinity of the City of Carbon Hill.

The projection used in the preparation of this FIS was Universal Transverse Mercator (UTM) zone 16. The horizontal datum was NAD 83, GRS80 spheroid. Differences in the datum and spheroid used in the production of FIRMs for adjacent counties may result in slight positional differences in map features at the county boundaries. These differences do not affect the accuracy of information shown on the FIRM.

The base map used for this FIS was derived from U.S. Geological Survey (USGS) Digital Orthophoto Quadrangles produced at a scale of 1: 12,000 from photography dated 1997 or later.

1.3 Coordination

An initial Consultation Coordination Officer's (CCO) meeting is held with representatives of FEMA, the community, and the study contractors to explain the nature and purpose of the FIS and to identify the streams to be studied by detailed methods. A final CCO meeting is held with representatives from FEMA, the community, and the study contractors to review the results of the study. All problems raised in the meeting have been addressed in this study.

The dates of the initial and final CCO meetings held for the communities within Walker County are shown in Table 1.

TABLE 1 – INITIAL AND FINAL CCO DATES

Community Name	Initial CCO Date	Final CCO Date
City of Carbon Hill	*	December 4, 1986
City of Cordova	February 1978	April 11, 1980
City of Jasper	March 1978	July 30, 1980
Walker County (Unincorporated Areas)	February 1978	August 10, 1981

*Date not available

For this countywide FIS, an initial CCO meeting was held on July 23,2004. This meeting was attended by representatives of the City of Jasper, Walker County, and Office of Water Resources.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of Walker County, Alabama.

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

TABLE 2 – FLOODING SOURCES STUDIED BY DETAILED METHODS

Allen Creek	Poley Creek
Blackwater Creek	Poley Creek Tributary
Cane Creek	Poplar Tributary
Lost Creek (Lower Reach)	Tanyard Creek
Lost Creek (Upper Reach)	Town Creek
Mulberry Fork (Near Cordova)	Wolf Creek
Mulberry Fork (Near Gorgas)	

Table 3 lists streams that have names in this countywide FIS other than those used in the previously printed FIS for the communities in which they are located.

TABLE 3 – STREAM NAME CHANGES

Community	Old Name	New Name
Walker County (Unincorporated Areas)	Lost Creek	Lost Creek (Lower Reach)
	Lost Creek (Near Carbon Hill)	Lost Creek (Upper Reach)
	Poley Creek Tributary One	Poley Creek Tributary

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

All or portions of numerous flooding sources in the county were studied by approximate methods. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and Walker County.

2.2 Community Description

Walker County is located in northwestern Alabama and encompasses an area of approximately 809 square miles. Walker County is bounded by Winston and Cullman Counties to the north, Blount and Jefferson Counties to the east, Tuscaloosa County to the south, and Fayette and Marion Counties to the west. Walker County had a population of 70,181 at the 2000 Census. The City of Jasper is the county seat and largest community with a population of 14,052 (U.S. Department of Commerce, 2000).

The economy of Walker County is based largely on coal production and extraction industries. The Warrior Coal Field underlies most of Walker County and is one of the main coal bearing areas of the Cumberland Plateau. Timber and forest products also contribute a large part to Walker County's economy. Other industries include furniture, textiles, and metal goods. Major agricultural products in the county include poultry, cattle, and hogs (Birmingham Regional Planning Commission, 1976; Birmingham Regional Planning Commission, 1973). Walker County is served by US Highway 78, State Road 4/5 and 69, and by the BNSF Railway and Norfolk Southern Railway.

Walker County has a mild, temperate climate. The mean annual temperature is 62 degrees Fahrenheit and the mean annual precipitation is 55 inches (National Weather Service, 1975). The topography of Walker County varies from rolling, moderately broken hills in the northern portion to hilly, rough, and broken country in the south. Elevations range from 240 to 700 feet based on the National Geodetic Vertical Datum of 1929 (NGVD 29) (Birmingham Regional Planning Commission, 1976).

The stream flow in Walker County, except for the northwest corner, is in a southeasterly direction into the Mulberry Fork of the Black Warrior River. The Lewis M. Smith Reservoir on Sipsey Fork, Blackwater Creek, Cane Creek, and Lost Creek all flow directly into Mulberry Fork (Miller, 1964).

2.3 Principal Flood Problems

Blackwater Creek

Major flooding on Blackwater Creek occurs mainly on the segment between Highway 195 and the confluence with Home Creek where the floodplain broadens and the channel gradient flattens.

Lost Creek

The City of Carbon Hill suffers costly damages annually from the floodwaters of Lost Creek and its tributaries. Flooding occurs an average of 4 to 5 times yearly, usually in late winter and early spring. Direct damages occur to roads, streets, bridges, and other public facilities, businesses, and homes. Damages also occur on approximately 600 acres of pastureland and 75 acres of cropland.

On March 5, 1983, about 7.5 inches of rain fell in 24 hours in the area resulting in a 100-year or greater frequency flood. There were 10 houses, 6 businesses, 6 publicly-owned properties, a recreational facility, and 40 acres of truck crops damages. There were other businesses and residences that received nuisances (inconvenience and lost opportunities) damage as a result of the storm. Estimates of damages from the March 5, 1983, storm exceeded $250,000. The City of Carbon Hill swimming pool and other public facilities are inundated every significant size storm (25-year frequency or greater).

Mulberry Fork (near Cordova)

The major flood producing storms in Walker County usually occur during winter and spring: however, thunderstorms may cause local flooding at any time. Since the construction of Lewis M. Smith Dam in 1961 (see Section 2.4), there have been no serious floods on Mulberry Fork. Comparisons with past flood stages and possible future flood stages at the Cordova gage on Mulberry Fork are show in Table 4.

TABLE 4 – MULBERRY FORK FLOOD STAGE COMPARISON

Date of Flood	Stage (ft)	Elevation (NAVD)*
2/23/61	27.6	271.2
4/14/64	20.5	264.1
12/26/73	22.9	266.5
4/13/79	23.8	267.4

Calculated Flood Frequencies at Cordova Gage on Mulberry Fork

Flood Recurrence	Stage (ft)	Elevation (NAVD)*
10-yr	25.0	268.6
50-yr	33.2	276.8
100-yr	36.8	280.4
500-yr	45.7	289.3

*North American Vertical Datum of 1988

Town Creek and Tanyard Creek

Flooding along Town Creek occurs principally downstream of its confluence with Tanyard Creek. Water has covered the wide floodplain, which extends beyond the downstream limit of study. Some additional flooding has occurred in the flat region just upstream of 17th Street. Flooding from Tanyard Creek has occurred along its upper section downstream to 18th Street and from the State Highway 69 Bridge downstream to its confluence with Town Creek. Flooding from Poley Creek and Poley Creek Tributary is predominately into forested areas for most of their length.

2.4 Flood Protection Measures

Smith Dam is located 27 miles upstream of the City of Cordova in Walker and Cullman Counties, Alabama, on Sipsey Fork, a tributary of Mulberry Fork and a headwater stream of the Black Warrior River system. The dam is owned by Alabama Power Company and was constructed for the purpose of providing reservoir capacity for the generation of hydro-electric power and food control. Constructed in 1961, it controls 944 square miles of the 1,927 square mile Mulberry Fork drainage basin upstream of Cordova. There is 280,600 acre feet of storage available for flood control between the power pool (el. 510) and spillway crest (el. 522) elevations (USACE, 1965).

The operation of the Lewis Smith Dam and Reservoir for flood control will result in appreciable reductions in the magnitude of flood peaks on Mulberry Fork and at Cordova and have been considered in this analysis.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the county, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this FIS. Flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the

recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1-percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the county at the time of completion of this FIS. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish peak discharge-frequency relationships for the flooding sources studied by detail affecting the county.

Pre-countywide Analyses

The Cities of Carbon Hill, Cordova, and Jasper, and Walker County (Unincorporated Areas) have previously printed FIS reports. The hydrologic analyses described in those reports have been compiled and are summarized below. The Cities of Dora and Sumiton and the Towns of Kansas, Nauvoo, Oakman, and Parrish did not have an FIS.

Hydrologic analyses were carried out to establish peak discharge-frequency relationships for floods of the selected recurrence intervals for each flooding source studied in detail in the community.

City of Carbon Hill

The U.S. Department of Agriculture, Soil Conservation Service (SCS) Technical Release No. 20, a flood-routing computer program (USDA, 1965) was used to obtain information to establish peak flows for the selected recurrence intervals for Lost Creek, Poplar Tributary, and Allen Creek.

City of Cordova

Stream flow records were not available for Cane Creek; therefore, a flood flow frequency analysis conducted by the USACE, Mobile District, was adopted. This analysis was also used to develop flows for Mulberry Fork, taking into consideration the operation of Smith Dam (USACE, Unpublished).

City of Jasper and Walker County (Unincorporated Areas)

Equations have been developed by Olin and Bingham (Olin and Bingham, 1977) for estimating peak flows for the 10-, 2-, and 1-percent annual chance floods on natural streams in Alabama. These flows were used on streams with drainage areas of 1 to 15 square miles. Flood frequency relationships developed by Hains (Hains, 1973) were used when the drainage area was between 25 and 800 square miles. When the watershed was between 15 and 25 square miles, peak flows were computed by combing the two methods using a weighted average based on drainage area. The 0.2-percent annual chance flows were determined by extrapolating the 10-, 2-, and 1-percent annual chance peak flows using a least squares fit.

Peak discharges on Mulberry Fork and Cane Creek were estimated using flood frequency relationships developed by the USACE, Mobile District, for their special flood hazard information report on these two streams (USACE, Unpublished).

In order to determine a 1-percent annual chance flood elevation for Lewis M. Smith Reservoir, a separate hydrologic analysis was performed. The analysis consisted of developing an inflow hydrograph for the 1-percent annual chance storm and performing a storage routing through the reservoir to obtain the 1-percent annual chance lake elevation.

The Lewis M. Smith Reservoir Regulation Manual was used for this analysis. The Manual contains stage-storage-curves, a design inflow hydrograph for the Probable Maximum Flood (PMF) and other information useful in the hydrologic analysis.

The Sauer Method (Golden, 1977) was used to adjust the natural flows to account for the effects of urbanization. This method relates the peak discharge for any return interval to the percentage of impervious area in the watershed and the average rainfall intensity ration of the 10-, 2-, and 1-percent annual chance storms to the 50-percent annual chance (2-year) storm.

Land use for each watershed was determined from aerial photos (Barry & Associates, 1978), U.S. Geological Survey (USGS) quadrangles (USGS, 1959, et cetera), and field inspection. The percent impervious area for any given land use was obtained from the SCS, Technical Release No. 55 (U.S. Department of Agriculture, 1975).

Results of the hydrologic analyses for Walker County are present in Table 5.

TABLE 5 – SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
ALLEN CREEK	*	*	*	*	*
Approximately 320 feet upstream of Nubbin Ridge Road	3.1	2,033	2,328	2,723	3,673
BLACK WARRIOR RIVER	*	*	*	*	*
At Bankhead Reservoir Lock and Dam[1]	3,990	137,500	196,000	229,500	331,200
BLACKWATER CREEK	*	*	*	*	*
Approximately 7,500 feet upstream of County Highway 41	172	8,000	12,700	14,900	19,400
At State Highway 195	166	7,900	12,600	14,800	19,200
Approximately 20,900 feet upstream of County Highway 195	158	7,700	12,200	14,300	18,700
Upstream of confluence of Charlies Creek	146	7,400	11,700	13,700	17,900
Upstream of confluence of Dry Creek	137	7,100	11,400	13,300	17,300
Upstream of confluence of Buck Creek	123	6,600	10,500	12,400	16,100
Upstream of confluence of Gum Fork	116	6,400	10,200	12,000	15,600
CANE CREEK	*	*	*	*	*
At mouth	65	6,500	9,000	10,000	12,600
LOST CREEK (Lower Reach)	*	*	*	*	*
At mouth	346	22,500	35,800	42,000	54,800
Upstream of confluence of Wolf Creek	204	15,600	24,900	29,200	38,100

[1]USACE, 1975

TABLE 5 – SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
LOST CREEK (Upper Reach)	*	*	*	*	*
Just downstream of U.S. Highway 78	27.1	4,920	7,190	8,320	10,920
At confluence of Cranford Creek	21.4	2,600	4,250	5,050	6,600
Just downstream of confluence with Allen Creek	19.8	3,990	5,930	6,980	9,290
MULBERRY FORK (Near Cordova)	*	*	*	*	*
At Cordova gage (Station 2-4535)	1,927	62,000	95,000	112,000	160,000
MULBERRY FORK (Near Gorgas)	*	*	*	*	*
At confluence with Lost Creek	2,005	64,000	98,000	116,000	166,000
POLEY CREEK	*	*	*	*	*
At State Highway 69	7.4	1,600	2,600	3,050	4,000
At confluence of Gode Branch	5.0	1,250	2,000	2,350	3,000
At confluence of Poley Creek Tributary 1	3.0	950	1,450	1,650	2,150
At confluence of Unnamed Tributary	1.6	600	900	1,025	1,300
POLEY CREEK TRIBUTARY	*	*	*	*	*
At mouth	1.4	560	850	950	1,250
POPLAR TRIBUTARY	*	*	*	*	*
Just upstream of Widow's Lane Road	0.78	590	780	870	1,000
Just upstream of 8th Avenue	0.38	350	482	555	710
TANYARD CREEK	*	*	*	*	*
At mouth	4.9	1,250	1,850	2,150	2,750
At confluence of Tributary at Frank Evans Road	3.5	1,200	1,700	2,050	2,600

TABLE 5 – SUMMARY OF DISCHARGES – continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
TOWN CREEK	*	*	*	*	*
Downstream of Norfolk Southern Railway	13.7	2,900	4,500	5,350	6,850
At confluence of Tanyard Creek	6.9	1,750	2,650	3,150	4,050
At confluence of Doctors Branch	6.0	1,600	2,450	2,900	3,750
WOLF CREEK	*	*	*	*	*
At mouth	135	12,000	19,000	22,300	29,100

The design PMF inflow hydrograph was converted to a 1-percent annual chance inflow hydrograph. This was accomplished by reducing the runoff volume of the original PMF hydrograph to that of the 1-percent annual chance runoff. Care was taken to preserve the rainfall-runoff response characteristics of the watershed as reflected in the original design hydrograph.

A storm duration of 48 hours was chosen as suitable for the 944 square mile watershed. The 1-percent annual chance, 48-hour and the 1-percent annual chance, 24-hour runoff volumes were computed using standard SCS curve number methods (Miller, 1964 & Barnes, 1967). The difference in the two volumes was conservatively assumed to be stored in the lake before the 1-percent annual chance, 24-hour inflow hydrograph was routed through the reservoir using storage routing techniques. The results of this routing appear in Section 3.2

3.2 Hydraulic Analyses

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

Cross sections were determined from topographic maps and field surveys. All bridges, dams, and culverts were field surveyed to obtain elevation data

and structural geometry. All topographic mapping used to determine cross sections are referenced in Section 4.1.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 4.2), selected cross section locations are also shown on the FIRM (Exhibit 2).

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.

Analyses of the hydraulic characteristics of the flooding sources studied in detail in Walker County were carried out to provide estimates of the elevations of floods of the selected recurrence intervals along each of the flood sources.

Pre-countywide Analyses

The Cities of Carbon Hill, Cordova, and Jasper and Walker County (Unincorporated Areas) have previously printed FIS reports. The hydraulic analyses described in those reports have been compiled and are summarized below. The Cites of Dora and Sumiton and Towns of Kansas, Nauvoo, Oakman, and Parrish, did not have an FIS.

City of Carbon Hill

Channel roughness factors (Manning's "n") used in the hydraulic computations were chosen by engineering judgment and based on field observations of the streams and floodplain areas. Roughness values used for the study streams ranged from 0.040 to 0.095.

The starting water-surface elevations for Lost Creek, Popular Tributary, and Allen Creek were calculated using the slope/area method. The water-surface elevations for floods of the selected recurrence intervals were computed using the SCS WSP-2 computer program (U.S. Department of Agriculture, 1976).

Flood profiles were drawn showing the computed water-surface elevations for floods of the selected recurrence intervals. In cases where the 2- and 1-percent annual chance flood elevations are close together, due to limitations of the profile scale, only the 1-percent annual chance flood profile has been shown.

City of Cordova

Cross sections for the backwater analyses of Mulberry Fork and Cane Creek were obtained from aerial photographs flown in January 1977. The below-water sections were obtained by field measurements.

In Cordova, the Manning's "n" values used in the hydraulic computations used for Cane Creek and Mulberry Fork ranged from 0.026 to 0.035 for the channel, and 0.12 for the overbank areas.

Water-surface elevations for floods of the selected recurrence intervals were computed through use of the USACE HEC-2 step-backwater computer program (USACE, 1976). Starting water-surface elevations for Cane Creek were calculated using the slope/area method. Starting water-surface elevations for Mulberry Fork were obtained by transferring the Cordova gage information to the initial cross section near the Norfolk Southern Railway bridge, taking into account the slope of the river channel.

City of Jasper

Cross sections for the backwater analyses of Town, Tanyard, Poley Creek, and Poley Creek Tributary, were obtained from aerial photographs taken in March 1978 at a negative scale of 1.0 inch equals 800 feet. The below-water sections were obtained by field measurement.

In Jasper, the Manning's "n" values used for the four streams ranged from 0.03 to 0.04 for the channel and 0.04 to 0.13 for the overbank areas.

Flood profiles were drawn showing computed water-surface elevations to an accuracy of 0.5 foot for floods of the selected recurrence intervals. Water-surface elevations for floods of the selected recurrence intervals were computed through use of the USACE's HEC-2 step-backwater computer program (USACE, 1976). The starting water-surface elevations for Town, Tanyard, Poley, and Poley Tributary, were calculated using the slope-area method.

Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

Walker County (Unincorporated Areas)

Cross sections for backwater analyses of the Walker County study were obtained from aerial photographs taken at a scale of 1.0 inch equals 800 feet. The below water sections were obtained by field measurement.

For the unincorporated areas of Walker County, the Manning's "n" values used for the study streams ranged from 0.026 - 0.050 for the channel and 0.0050 - 0.120 for the overbank areas (Barnes, 1967 & Chow, 1959).

Water-surface elevations for floods of the selected recurrence intervals were computed using the USACE HEC-2 step-backwater computer program (USACE, 1976). Flood profiles were drawn showing computed water-surface elevations for floods of selected recurrence intervals. The starting water-surface elevations for Blackwater, Cane, Lost and Wolf Creeks were calculated at the mouth of the study streams using the slope/area method. Because of the extent and magnitude of backwater effects from Bankhead Reservoir on Mulberry Fork the slope/area method could not be used to obtain starting water-surface elevations for Mulberry Fork. Starting elevations for Mulberry Fork (Near Cordova) were obtained by transferring the Cordova gage information to the initial cross section near the Norfolk Southern Railway bridge, taking into account the slope of the river channel. Starting elevations for Mulberry Fork (Near Gorgas) at the confluence of Lost Creek were obtained by calculating backwater profiles from the Bankhead Lock and Dam through the reservoir to the confluence. The starting water-surface elevations at the dam were determined from the Bankhead Reservoir Regulation Manuel using the spillway gate operating schedule and the combined spillway headwater rating curve (USACE, 1975).

A 1-percent annual chance flood elevation determination was conducted for Lewis M. Smith Reservoir. The determination was different from a normal detailed study in that no surveying or backwater computations were performed and that only the 1percent annual chance flood elevation was determined. The 1-percent annual chance flood hydrograph was reservoir-routed using the USACE HEC-l Flood Hydrograph computer program which uses storage routing techniques (USACE, 1978). Stage-Storage and spillway rating curves for Smith Reservoir were taken from the Reservoir Regulation Manual (USACE, 1965). The runoff hydrograph for the 1-percent annual chance flood on Lewis M. Smith Reservoir was determined to be 524.1 feet NAVD 88.

All qualifying bench marks within a given jurisdiction that are cataloged by the National Geodetic Survey (NGS) and entered into the National Spatial Reference System (NSRS) as First or Second Order Vertical and have a vertical stability classification of A, B, or C are shown and labeled on the FIRM with their 6character NSRS Permanent Identifier.

Bench marks cataloged by the NGS and entered into the NSRS vary widely in vertical stability classification. NSRS vertical stability classifications are as follows:

• Stability A: Monuments of the most reliable nature, expected to hold position/elevation well (e.g., mounted in bedrock)

• Stability B: Monuments which generally hold their position/elevation well (e.g., concrete bridge abutment)

• Stability C: Monuments which may be affected by surface ground movements (e.g., concrete monument below frost line)

• Stability D: Mark of questionable or unknown vertical stability (e.g., concrete monument above frost line, or steel witness post)

In addition to NSRS bench marks, the FIRM may also show vertical control monuments established by a local jurisdiction; these monuments will be shown on the FIRM with the appropriate designations. Local monuments will only be placed on the FIRM if the community has requested that they be included, and if the monuments meet the aforementioned NSRS inclusion criteria.

To obtain current elevation, description, and/or location information for bench marks shown on the FIRM for this jurisdiction, please contact the Information Services Branch of the NGS at (301) 713-3242, or visit their Web site at www.ngs.noaa.gov.

It is important to note that 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 Technical Support Data Notebook associated with this FIS and FIRM. Interested individuals may contact FEMA to access this data.

3.3 Vertical Datum

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

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

differences in base flood elevations across the corporate limits between the communities. The conversion factor for Walker County is +0.1 foot (100.0 feet (NGVD 29) = 100.1 feet (NAVD 88)).

For more information on NAVD 88, see Converting the National Flood Insurance Program to the North American Vertical Datum of 1988, FEMA Publication FIA20/June 1992, or contact the Vertical Network Branch, National Geodetic Survey, Coast and Geodetic Survey, National Oceanic and Atmospheric Administration, Rockville, Maryland 20910 (Internet address http://www.ngs.noaa.gov).

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. To assist in this endeavor, each FIS provides 1-percent annual chance floodplain data, which may include a combination of the following: 10-,2-, 1-, and 0.2-percent annual chance flood elevations; delineations of the 1- and 0.2-percent annual chance floodplains; and 1-percent annual chance floodway. This information is presented on the FIRM and in many components of the FIS, including Flood Profiles, Floodway Data tables, and Summary of Stillwater Elevation tables. Users should reference the data presented in the FIS as well as additional information that may be available at the local community map repository before making flood elevation and/or floodplain boundary determinations.

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent annual chance flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent annual chance flood is employed to indicate additional areas of flood risk in the county. For the streams studied in detail, the 1- and 0.2-percent annual chance floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:24,000 for Carbon Hill; 1:6,000 for Cordova; 1:7,200 for Jasper; and 1:12,000 for Walker County (Unincorporated Areas), with a contour interval of four feet (USGS, 1949, et cetera; Berry, 1979).

For the flooding sources studied by approximate methods, the boundaries of the 1-percent annual chance floodplains were delineated using topographic maps taken from the previously printed FIS reports, FHBMs, and/or FIRMs for the Cities of Carbon Hill, Cordova, and Jasper; and the Unincorporated Areas of Walker County.

The 1- and 0.2-percent annual chance floodplain boundaries are shown on the FIRM (Exhibit 2). On this map, the 1-percent annual chance floodplain

boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 0.2-percent annual chance floodplain boundary corresponds to the boundary of areas of moderate flood hazards. In cases where the 1- 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.

For the streams studied by approximate methods, only the 1-percent annual chance floodplain boundary is shown on the FIRM (Exhibit 2).

4.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard. For purposes of the NFIP, a floodway is used as a tool to assist local communities in this aspect of floodplain management. Under this concept, the area of the 1-percent annual chance floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 1-percent annual chance flood can be carried without substantial increases in flood heights. Minimum federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this FIS are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this FIS 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. The results of the floodway computations are tabulated for selected cross sections (Table 6). The computed floodways are shown on the FIRM (Exhibit 2). In cases where the floodway and 1-percent annual chance floodplain boundaries are either close together or collinear, only the floodway boundary is shown.

No floodways were computed for Allen Creek, Lost Creek (Upper Reach), Poplar Tributary, downstream portions of Tanyard Creek, and Town Creek.

Near the mouths of streams studied in detail, floodway computations are made without regard to flood elevations on the receiving water body. Therefore, "Without Floodway" elevations presented in Table 6 for certain downstream cross sections of Cane Creek, Lost Creek (Lower Reach), Poley

Creek Tributary, and Wolf Creek are lower than the regulatory flood elevations in that area, which must take into account the 1-percent annual chance flooding due to backwater from other sources.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BLACKWATER CREEK								
A	7,500	142	2,108	7.1	434.1	434.1	435.1	1.0
B	9,680	104	1,630	9.1	437.3	437.3	438.1	0.8
C	11,530	111	1,926	7.7	440.6	440.6	441.4	0.8
D	13,790	129	2,172	6.9	443.4	443.4	444.2	0.8
E	15,370	144	1,836	8.1	445.3	445.3	446.1	0.8
F	16,570	229	3,639	4.1	447.3	447.3	448.3	1.0
G	16,600	229	3,684	4.0	447.6	447.6	448.5	0.9
H	18,550	114	1,707	8.7	449.3	449.3	449.6	0.3
I	19,360	138	1,821	8.2	450.3	450.3	451.3	1.0
J	21,010	383	3,555	4.2	454.2	454.2	455.2	1.0
K	22,390	301	3,582	4.1	455.6	455.6	456.4	0.8
L	23,700	243	2,858	5.2	457.1	457.1	457.8	0.7
M	25,960	543	5,545	2.7	459.2	459.2	460.0	0.8
N	27,340	591	4,558	3.2	459.8	459.8	460.6	0.8
O	30,440	741	6,825	2.2	461.8	461.8	462.6	0.8
P	32,440	1,257	10,636	1.4	462.5	462.5	463.4	0.9
Q	34,439	2,168	27,306	0.5	462.6	462.6	463.6	1.0
R	36,290	1,640	11,050	1.3	462.6	462.6	463.6	1.0
S	37,270	1,300	8,432	1.8	463.1	463.1	463.9	0.8
T	38,950	1,241	8,217	1.8	463.7	463.7	464.6	0.9
U	40,590	778	5,938	2.5	464.9	464.9	465.8	0.9

[1]Feet above State Route 257

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL AND INCORPORATED AREAS

FLOODWAY DATA

BLACKWATER CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BLACKWATER CREEK								
V	41,870	692	6,908	2.1	465.9	465.9	466.7	0.8
W	44,210	1,620	16,562	0.9	466.7	466.7	467.5	0.8
X	47,330	747	5,560	2.6	467.1	467.1	467.8	0.7
Y	49,790	189	2,112	6.8	468.8	468.8	469.4	0.6
Z	51,130	256	2,248	6.4	470.5	470.5	471.1	0.6
AA	53,230	867	10,743	1.3	473.3	473.3	474.0	0.7
AB	53,990	558	7,025	2.0	473.3	473.3	474.0	0.7
AC	55,440	709	8,132	1.8	473.7	473.7	474.5	0.8
AD	58,590	339	4,791	3.0	474.4	474.4	475.2	0.8
AE	60,230	1,250	11,122	1.3	475.0	475.0	475.9	0.9
AF	61,380	1,626	14,763	1.0	475.2	475.2	476.1	0.9
AG	65,200	1,266	15,144	0.9	475.8	475.8	476.7	0.9
AH	66,220	867	10,689	1.3	475.9	475.9	476.9	1.0
AI	69,020	962	11,099	1.2	476.3	476.3	477.3	1.0
AJ	71,710	1,529	13,227	1.0	476.7	476.7	477.7	1.0
AK	72,640	2,209	24,065	0.6	476.9	476.9	477.9	1.0
AL	77,760	2,693	22,196	0.6	477.0	477.0	478.0	1.0
AM	79,220	1,727	15,522	0.9	477.1	477.1	478.1	1.0
AN	81,400	1,806	11,169	1.2	477.5	477.5	478.5	1.0
AO	82,000	857	6,802	2.0	478.0	478.0	478.9	0.9
AP	86,030	1,638	11,986	1.1	479.0	479.0	479.9	0.9

[1]Feet above State Route 257

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL AND INCORPORATED AREAS

FLOODWAY DATA

BLACKWATER CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
BLACKWATER CREEK								
AQ	88,320	1,610	11,770	1.1	479.3	479.3	480.2	0.9
AR	89,910	1,749	12,416	1.1	479.6	479.6	480.5	0.9
AS	92,930	1,028	5,614	2.2	480.9	480.9	481.8	0.9
AT	95,330	999	5,880	2.1	482.8	482.8	483.8	1.0
AU	98,390	70	1,167	10.6	485.2	485.2	486.2	1.0
AV	99,720	220	1,875	6.6	488.5	488.5	489.5	1.0
AW	100,740	218	2,666	4.7	489.9	489.9	490.8	0.9
AX	103,260	199	2,602	4.8	491.5	491.5	492.3	0.8
AY	105,320	238	3,156	3.9	492.9	492.9	493.8	1.0
AZ	106,590	341	3,703	3.3	493.6	493.6	494.6	1.0
BA	108,370	439	4,459	2.7	494.6	494.6	495.6	1.0
BB	109,690	345	3,285	3.7	495.2	495.2	496.2	1.0
BC	111,090	320	3,618	3.3	496.2	496.2	497.2	1.0
BD	112,760	255	3,548	3.4	497.4	497.4	498.4	1.0
BE	114,180	171	2,159	5.6	497.9	497.9	498.9	1.0
BF	115,670	201	2,775	4.3	499.6	499.6	500.6	1.0
BG	117,290	225	3,831	3.1	500.6	500.6	501.6	1.0
BH	118,165	119	2,009	6.0	500.7	500.7	501.6	0.9

[1]Feet above State Route 257

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL AND INCORPORATED AREAS

FLOODWAY DATA

BLACKWATER CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
CANE CREEK								
A	880[1]	130	1,781	5.6	268.6	259.8[2]	260.8	1.0
B	2,420[1]	115	1,742	5.7	268.6	260.7[2]	261.6	0.9
C	5,220[1]	388	3,716	2.7	268.6	262.3[2]	263.1	0.8
D	8,985[1]	327	3,468	2.9	268.6	263.7[2]	264.7	1.0
E	12,740[1]	211	2,265	4.4	268.6	265.5[2]	266.5	1.0
F	14,890[1]	372	4,728	2.1	268.6	267.1[2]	268.1	1.0
G	15,050[1]	86	1,664	6.0	268.6	267.0[2]	268.0	1.0
H	19,440[1]	934	8,793	1.1	268.8	268.8[2]	269.5	1.0
I	21,550[1]	534	5,146	1.9	268.8	268.8[2]	269.8	1.0
LOST CREEK (LOWER REACH)								
A[3]	1,100[4]	*	*	*	259.0	*	*	*
B[3]	2,250[4]	*	*	*	259.0	*	*	*
C[3]	3,600[4]	*	*	*	259.0	*	*	*
D[3]	6,250[4]	*	*	*	259.0	*	*	*
E[3]	7,350[4]	*	*	*	259.0	*	*	*
F[3]	7,890[4]	*	*	*	259.0	*	*	*
G[3]	8,100[4]	*	*	*	259.0	*	*	*
H[3]	11,800[4]	*	*	*	259.0	*	*	*
I[3]	14,100[4]	*	*	*	259.0	*	*	*
J	17,500[4]	268	4,625	9.1	259.0	258.3[5]	258.5	0.2
K	19,800[4]	337	6,574	6.4	260.4	260.4	260.7	0.3

[1]Feet above Mulberry Fork (near Cordova) confluence
[2]Elevation computed without consideration of backwater effects from Mulberry Creek (near Cordova).
[3]Floodway not computed
[4]Feet above Mulberry Fork (near Gorgas) confluence
[5]Elevation computed without consideration of backwater effects from Mulberry Fork (near Gorgas).

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL AND INCORPORATED AREAS

FLOODWAY DATA

CANE CREEK – LOST CREEK (LOWER REACH)

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
LOST CREEK (LOWER REACH)								
M	22,700[1]	208	3,666	8.0	261.5	261.5	261.9	0.4
N	24,850[1]	223	4,425	6.6	263.0	263.0	263.5	0.5
O	28,250[1]	187	4,110	7.1	264.7	264.7	265.4	0.7
P	30,350[1]	139	3,483	8.4	265.6	265.6	266.4	0.8
Q	32,652[1]	121	3,257	9.0	267.6	267.6	268.5	0.9
R	34,252[1]	138	3,900	7.5	268.9	268.9	269.9	1.0
S	35,202[1]	148	3,660	8.0	269.3	269.3	270.3	1.0
MULBERRY FORK (NEAR CORDOVA)								
A	392.1[2]	990	22,483	3.0	259.0	259.0	259.2	0.2
B	394.1[2]	691	15,716	4.3	259.4	259.4	259.6	0.2
C	396.2[2]	620	17,913	3.7	260.2	260.2	260.4	0.2
D	398.3[2]	511	13,377	5.0	260.8	260.8	260.9	0.1
E	399.2[2]	500	13,238	5.0	261.2	261.2	261.3	0.1
F	401.3[2]	500	12,379	5.4	262.2	262.2	262.3	0.1
G	403.3[2]	530	13,513	5.0	263.2	263.2	263.4	0.2
H	405.2[2]	440	12,305	5.5	264.0	264.0	264.2	0.2
I	407.1[2]	501	14,846	4.5	264.9	264.9	265.1	0.2

[1]Feet above Mulberry Fork (near Gorgas) confluence
[2]Miles above Tombigbee River

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL AND INCORPORATED AREAS

FLOODWAY DATA

LOST CREEK (LOWER REACH) – MULBERRY FORK (NEAR CORDOVA)

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
MULBERRY FORK (NEAR GORGAS)								
J	412.6[1]	491	12,387	5.4	267.3	267.3	267.5	0.2
K	414.5[1]	450	13,143	5.1	268.2	268.2	268.5	0.3
L	416.2[1]	420	12,286	5.4	268.9	268.9	269.1	0.2
M	417.6[1]	400	11,006	6.0	269.6	269.6	269.7	0.1
N	419.5[1]	420	11,660	5.7	270.7	270.7	271.0	0.3
O	421.9[1]	361	8,546	7.7	272.6	272.6	272.9	0.3
POLEY CREEK								
A	0[2]	62	367	8.4	371.6	371.6	372.6	1.0
B	1,310[2]	205	1,405	2.2	374.1	374.1	375.0	0.9
C	2,440[2]	282	1,701	1.4	375.3	375.3	376.2	0.9
D	5,020[2]	221	929	2.5	377.2	377.2	378.1	0.9
E	6,990[2]	710	2,469	0.9	378.9	378.9	379.8	0.9
F	8,290[2]	148[3]	624	3.7	379.8	379.8	380.7	0.9
G	9,630[2]	77	684	3.4	382.8	382.8	383.8	1.0
H	9,860[2]	82	690	3.4	384.1	384.1	385.1	1.0
I	10,910[2]	95	729	3.2	385.8	385.8	386.8	1.0
J	12,850[2]	199[3]	1,221	1.9	386.8	386.8	387.7	0.9
K	13,860[2]	246[3]	1,086	1.5	387.2	387.2	388.1	0.9
L	14,100[2]	302[3]	2,060	0.8	389.9	389.9	390.9	1.0
M	15,220[2]	167	948	1.8	390.1	390.1	391.1	1.0

[1]Miles above Tombigbee River
[2]Feet above State Route 69
[3]Width does not include islands

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL AND INCORPORATED AREAS

FLOODWAY DATA

MULBERRY FORK (NEAR GORGAS) – POLEY CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
POLEY CREEK								
N	16,290[1]	154	728	2.3	391.3	391.3	392.3	1.0
O	17,440[1]	77	311	3.3	394.1	394.1	395.1	1.0
P	19,340[1]	90	495	2.1	397.8	397.8	398.8	1.0
Q	20,985[1]	70	261	3.9	403.0	403.0	403.9	0.9
POLEY CREEK TRIBUTARY								
A	670[2]	58	147	6.6	385.9	383.4[3]	384.3	0.9
B	1,675[2]	90	309	3.1	386.8	386.8	387.7	0.9
C	2,900[2]	58	195	4.9	390.6	390.6	391.5	0.9
D	3,720[2]	59	204	4.7	396.2	396.2	397.0	0.8
E	4,620[2]	41	214	4.5	401.6	401.6	402.4	0.8
F	5,585[2]	19	114	8.4	407.2	407.2	408.2	1.0
G	6,585[2]	46	251	3.8	415.2	415.2	416.2	1.0
TANYARD CREEK								
A	6,324[4]	350	1,295	1.6	331.4	331.4	332.4	1.0
B	6,721[4]	380	2,089	1.0	331.7	331.7	332.7	1.0
C	9,488[4]	142	656	3.1	354.5	354.5	355.5	1.0
D	10,654[4]	97	433	4.4	362.9	362.9	363.9	1.0
E	10,723[4]	156	784	2.4	364.4	364.4	365.2	0.8
F	12,103[4]	72	359	5.3	371.5	371.5	372.4	0.9
G	12,268[4]	102	447	4.3	373.1	373.1	374.0	0.9
H	13,093[4]	109	550	3.5	377.6	377.6	378.4	0.8

[1]Feet above State Route 69
[2]Feet above Poley Creek confluence
[3]Elevation computed without consideration of backwater effects from Poley Creek
[4]Feet above Town Creek confluence

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL AND INCORPORATED AREAS

FLOODWAY DATA

POLEY CREEK – POLEY CREEK TRIBUTARY - TANYARD CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
WOLF CREEK								
A	1,700	198	2,737	8.1	260.8	251.3[2]	252.0	0.7
B	1,868	201	2,863	7.8	260.8	251.6[2]	252.6	1.0
C	3,168	169	2,435	9.2	260.8	253.2[2]	253.9	0.7
D	4,868	255	3,107	7.2	260.8	256.2[2]	256.6	0.4
E	6,768	178	2,739	8.1	260.8	258.1[2]	258.5	0.4
F	8,668	132	2,405	9.3	260.8	259.6[2]	260.3	0.7
G	11,118	163	3,092	7.2	262.4	262.4	263.1	0.7
H	13,868	136	2,857	7.8	264.1	264.1	264.9	0.8
I	15,818	127	2,604	8.6	265.3	265.3	266.3	1.0

[1]Feet above Lost Creek (Lower Reach) confluence
[2]Elevation computed without consideration of backwater effects from Mulberry Fork (Near Gorgas)

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL AND INCORPORATED AREAS

FLOODWAY DATA

WOLF CREEK

Encroachment into areas subject to inundation by floodwaters having hazardous velocities aggravates the risk of flood damage, and heightens potential flood hazards by further increasing velocities. A listing of stream velocities at selected cross sections is provided in Table 6, "Floodway Data." In order to reduce the risk of property damage in areas where the stream velocities are high, the community may wish to restrict development in areas outside the floodway.

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

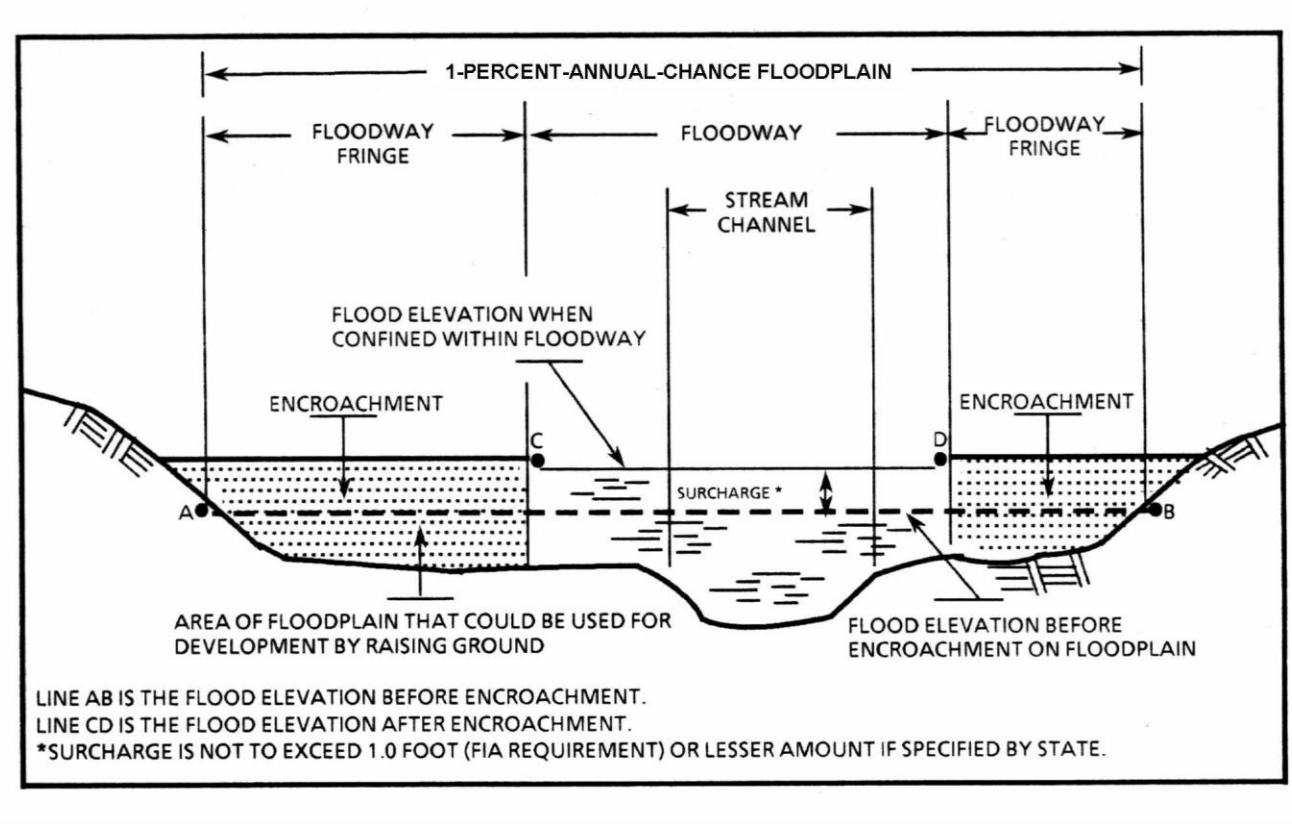


FIGURE 1- FLOODWAY SCHEMATIC

5.0 INSURANCE APPLICATION

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

Zone A

Zone A is the flood insurance rate zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the FIS report by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no BFEs or base flood elevations depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the FIS report by detailed methods. In most cases, whole-foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AH

Zone AH is the flood insurance risk zone that corresponds to the areas of 1-percent-annual- chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone AO

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

Zone AR

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

Zone A99

Zone A99 is the flood insurance risk zone that corresponds to areas of the 1-percent-annual-chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones.

No BFEs or depths are shown within this zone.

Zone V

Zone V is the flood insurance risk zone that corresponds to the 1-percent-annual-chance coastal floodplains that have additional hazards associated with storm waves. Because approximate hydraulic analyses are performed for such areas, no BFEs are shown within this zone.

Zone VE

Zone VE is the flood insurance risk zone that corresponds to the 1-percent-annual-chance coastal floodplains that have additional hazards associated with storm waves. Whole-foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 0.2-percent-annual-chance floodplain, areas within the 0.2-percent-annual-chance floodplain, to areas of 1-percent-annual-chance flooding where average depths are less than 1 foot, areas of 1-percent-annual-chance flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 1-percent-annua-chance flood by levees. No BFEs or depths are shown within this zone.

Zone X (Future Base Flood)

Zone X (Future Base Flood) is the flood insurance risk zone that corresponds to the 1-percent-annual-chance floodplains that are determined based on future-conditions hydrology. No BFEs or base flood depths are shown within this zone.

Zone D

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

6.0 FLOOD INSURANCE RATE MAP

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

For flood insurance applications, the map designates flood insurance risk zones as described in Section 5.0 and, in the 1-percent-annual-chance floodplains that were studied by detailed methods, shows selected whole-foot BFEs or average depths. Insurance agents use the zones and BFEs in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 1- and 0.2-percent-annual-chance floodplains. Floodways and the locations of selected cross sections used in the hydraulic analyses and floodway computations are shown where applicable.

The current FIRM presents flooding information for the entire geographic area of Walker County. Previously, separate Flood Hazard Boundary Maps and/or FIRMs were prepared for each identified floodprone incorporated community and for the unincorporated areas of the county. This countywide FIRM also includes flood hazard information that was presented separately on Flood Boundary and Floodway Maps (FBFMs), where applicable. Historical data relating to the maps prepared for each community, up to and including the August 2, 2007 countywide FIS, are presented in Table 7, "Community Map History."

7.0 OTHER STUDIES

FISs have been prepared for Blount (FEMA, June 1991), Cullman (FEMA, 2004), Fayette (FEMA, 1985), Jefferson (FEMA, 1999), Marion (FEMA, 1979), Tuscaloosa (FEMA, 2000), and Winston Counties (FEMA, August 1991).

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Walker County has been compiled into this FIS. Therefore, this FIS supersedes all previously printed FIS Reports, FHBMs, FBFMs, and FIRMs for all of the incorporated and unincorporated jurisdictions within Walker County. This FIS should be considered authoritative for purposes of the NFIP.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this FIS can be obtained by contacting FEMA, Federal Insurance and Mitigation Division, Koger Center – Rutgers Building, 3003 Chamblee Tucker Road, Atlanta, Georgia 30341.

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Carbon Hill, City of	October 31, 1975	None	March 16, 1981	December 17, 1987 August 2, 2007
Cordova, City of	May 31, 1974	January 2, 1976 February 9, 1979	March 16, 1981	August 2, 2007
Dora, City of	April 4, 1980	None	August 2, 2007	
Jasper, City of	January 23, 1974	January 2, 1976 December 17, 1976	June 15, 1981	August 2, 2007
Kansas, Town of	March 16, 1979	None	August 2, 2007	
Nauvoo, Town of	December 28, 1979	None	August 2, 2007	
Oakman, Town of	February 21, 1975	None	March 14, 1980	August 2, 2007
Parrish, Town of	January 10, 1975	None	May 30, 1980	August 2, 2007
Sipsey, Town of	August 2, 2007	None	August 2, 2007	
Sumiton, City of	January 19, 1979	None	August 2, 2007	
Walker County (Unincorporated Areas)	June 9, 1978	None	July 5, 1982	August 2, 2007

TABLE 7

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

9.0 **BIBLIOGRAPHY AND REFERENCES**

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10.0 REVISIONS DESCRIPTION

10.1 First Revision (Revised TBD)

a. Purpose of Study

The previously produced countywide study was a digital conversion of the previously compiled FIS studies. This updated FIS includes updated approximate studies for the entire county. Additionally, for Blackwater Creek, Cane Creek, Lost Creek Lower Reach, Poley Creek, Poley Creek Tributary, Tanyard Creek, and Wolf Creek, the base flood elevations were redelineated on a 10M DEM provided by the USGS. A leverage model obtained from the Alabama Power Company was incorporated for Mulberry Fork. This model is based on the latest Alabama Power regulations of Lewis Smith Dam.

b. Acknowledgements

This FIS was created by AMEC Environment and Infrastructure, Inc., under contract with the Alabama Department of Economic and Community Affairs, Office of Water Resources.

Base map information shown on the FIRM was derived from multiple sources. Base map files were provided in digital format by the Alabama Department of Economic and Community Affairs (ADECA). Additional information has been derived from other sources, including the Bureau of Land Management, the United States Geological Survey and digital files created by the United States Census Bureau's Topologically Integrated Geographic Encoding and Referencing System (TIGER) files. Aerial photography dated 2009 was provided by the Walker County Revenue Commission. LiDAR data was obtained from the Alabama Power Company for portions of the county along and near Mulberry Fork, Sipsey Fork, and around Lewis Smith Lake.

c. Coordination

For this countywide FIS, an initial CCO meeting was held on April 4, 2013 and a final CCO meeting was held on TBD. The initial meetings were attended by representatives of the City of Cordova, City of Jasper, Walker County, AMEC Environment and

Infrastructure, Inc., the Alabama Department of Economic and Community Affairs, Office of Water Resources, and FEMA.

d. **Scope of Study**

Numerous streams were studied by approximate methods. Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon, by FEMA and representatives of Walker County, AMEC Environment & Infrastructure Inc., the Alabama Department of Economic and Community Affairs, and Office of Water Resources.

This updated FIS includes updated approximate studies for the entire county. For Blackwater Creek, Cane Creek, Lost Creek Lower Reach, Poley Creek, Poley Creek Tributary, Tanyard Creek, and Wolf Creek, the base flood elevations were redelineated on a 10M DEM provided by the USGS. Additionally, a leverage model obtained from Alabama Power was incorporated for Mulberry Fork.

e. **Hydrologic Analyses**

Discharges for the 1 percent annual chance recurrence interval for all new or restudied approximate study streams in Walker County were determined using the USGS rural regression equations for Region 1 of Alabama as described in the USGS publication: Magnitude and frequency of floods in Alabama, 2003 (2007).

The discharges for Blackwater Creek, Lost Creek, and Wolf Creek were adjusted based on gages located in Walker County. The gages near Manchester, AL (#02453000) and Jasper, AL (#02454200) were used for Blackwater Creek and Wolf Creek, respectively. The three gages used for Lost Creek were near Jasper, Al (#02453950), Oakman, AL (#02454000), and Parrish, AL (#02454055).

For Mulberry Fork, The Alabama Power study included eight historical and synthetic flooding scenarios as stated in the Black Warrior River Study (March 2006). Synthetic Design Flood A was used for the Walker County study because it closely reflected the 100-year, 24-hour storm event used in typical FEMA flood studies. The hypothetical flood was based on actual flood events that occurred in 1990.

The discharges obtained from the Alabama Power study are detailed below in Table 8.

TABLE 8 – MULBERRY FORK PEAK DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	1% Annual Chance
MULBERRY FORK (Near Cordova)	*	*
At Cordova gage (Station 2-4535)	1,916	64,900
MULBERRY FORK (Near Gorgas)	*	*
At confluence with Lost Creek	2,354	52,600

f. **Hydraulic Analyses**

For this countywide FIS, no new detailed hydraulic analyses were performed. Analyses of the hydraulic characteristics of flooding from sources studied by approximate methods were carried out to provide estimates of the floodplain boundaries. Cross section geometries for the approximate studies were obtained from digital elevation models provided by the USGS.

Water-surface profiles were computed through the use of the USACE HEC-RAS version 4.1 water-surface computer profiles program (Reference 14). The model was run for the 1-percent-annual-chance storm for all approximate studies.

Some streams in Walker County were unable to be hydraulically modeled due to issues with the best available topographic data. Since a new study could not be produced or did not produce reasonable floodplain results, the floodplain was digitized based on the effective special flood hazard area. The following streams were digitized: Mill Creek B Trib 1_1, Poley Creek, Poplar Tributary, Tanyard Creek, and Town Creek.

The initial scope for the county designated Mulberry Fork as a redelineation, which would utilize effective BFEs and Flood Insurance Study (FIS) data to remap the Special Flood Hazard Area (SFHA) on updated topography. This redelineation was not reflective of actual flooding conditions. The Alabama Power study was incorporated as a leverage model to replace the redelineation.

Alabama Power performed a flood study model on the Black Warrior River in 2006. Approximately 64 miles in Walker County were included, making up the Mulberry Fork. The Alabama Power model of Mulberry Fork better represents documented flooding in the study reach.

This model was incorporated without geometry changes to the model. Only the 100-year profile was created by Alabama Power therefore the other profiles were not included in this study. Cross-section geometry was taken from digital terrain maps provided by USACE. Manning's "n" roughness coefficients were selected using engineering judgment based on the best available ortho-imagery at the time. Bank stations were placed at geometry breaks and survey.

The Alabama Power model did not contain a floodway. According to Appendix C of the Guidelines and Specifications for Flood Hazard Mapping Partners (2009) specifies that revised studies must maintain the presence of a floodway if already present, therefore it was necessary for AMEC to create a floodway. A new identical plan was created in HEC-RAS. Encroachment stations were placed using the Unsteady Flow Analysis menu within HEC-RAS.

Following finalization of the HEC-RAS model, 100-year floodplain boundaries were determined. Digital topographic information, in the form of a digital elevation model derived from Light Detection and Ranging data, was provided by the USACE Mobile District and Alabama Power. The floodplain was mapped by applying the results from HEC-RAS to a "smart" stream centerline, which combined with the model cross-sections, was used to create a water surface grid. The water surface grid was then compared to the digital elevation model.

g. **References**

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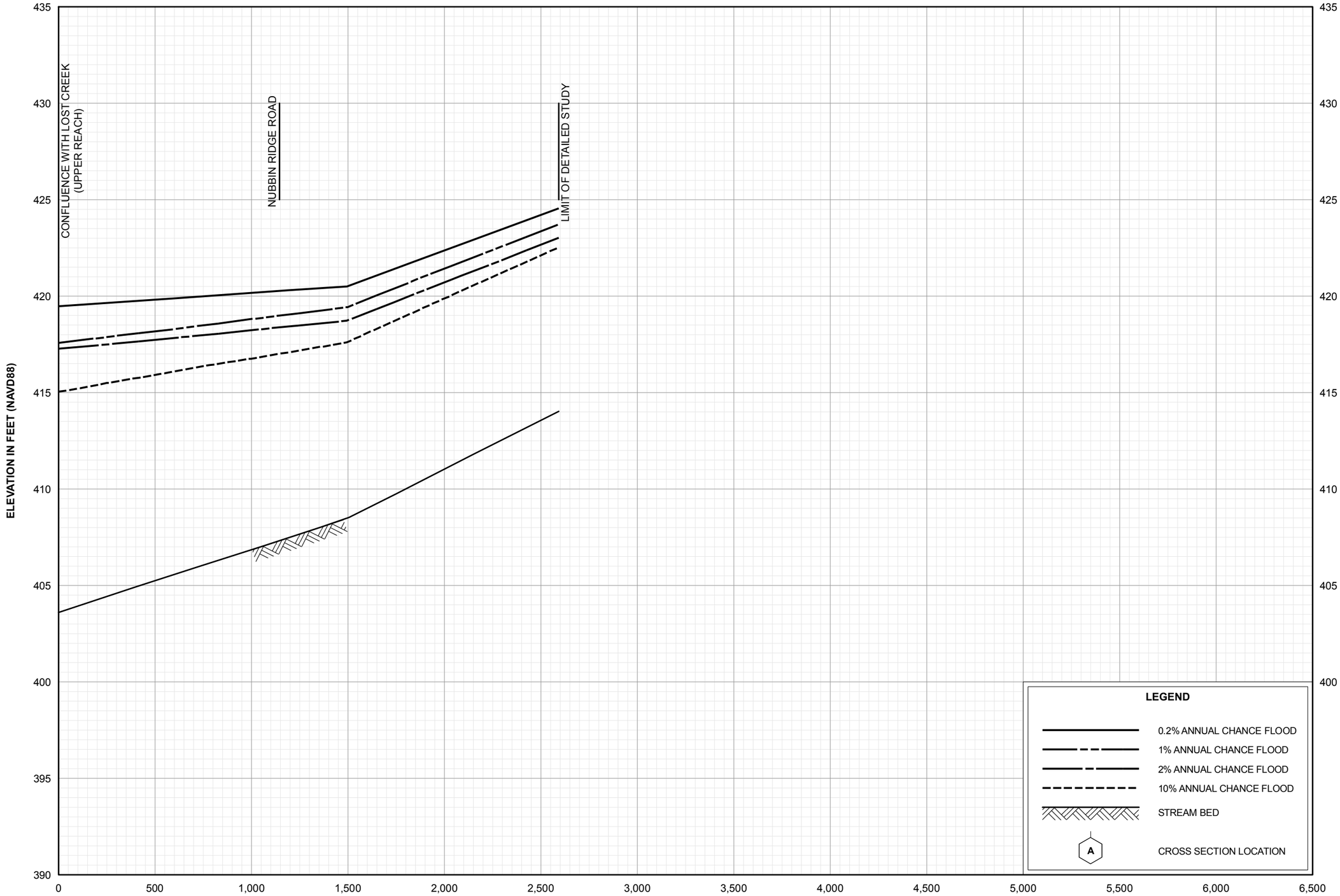


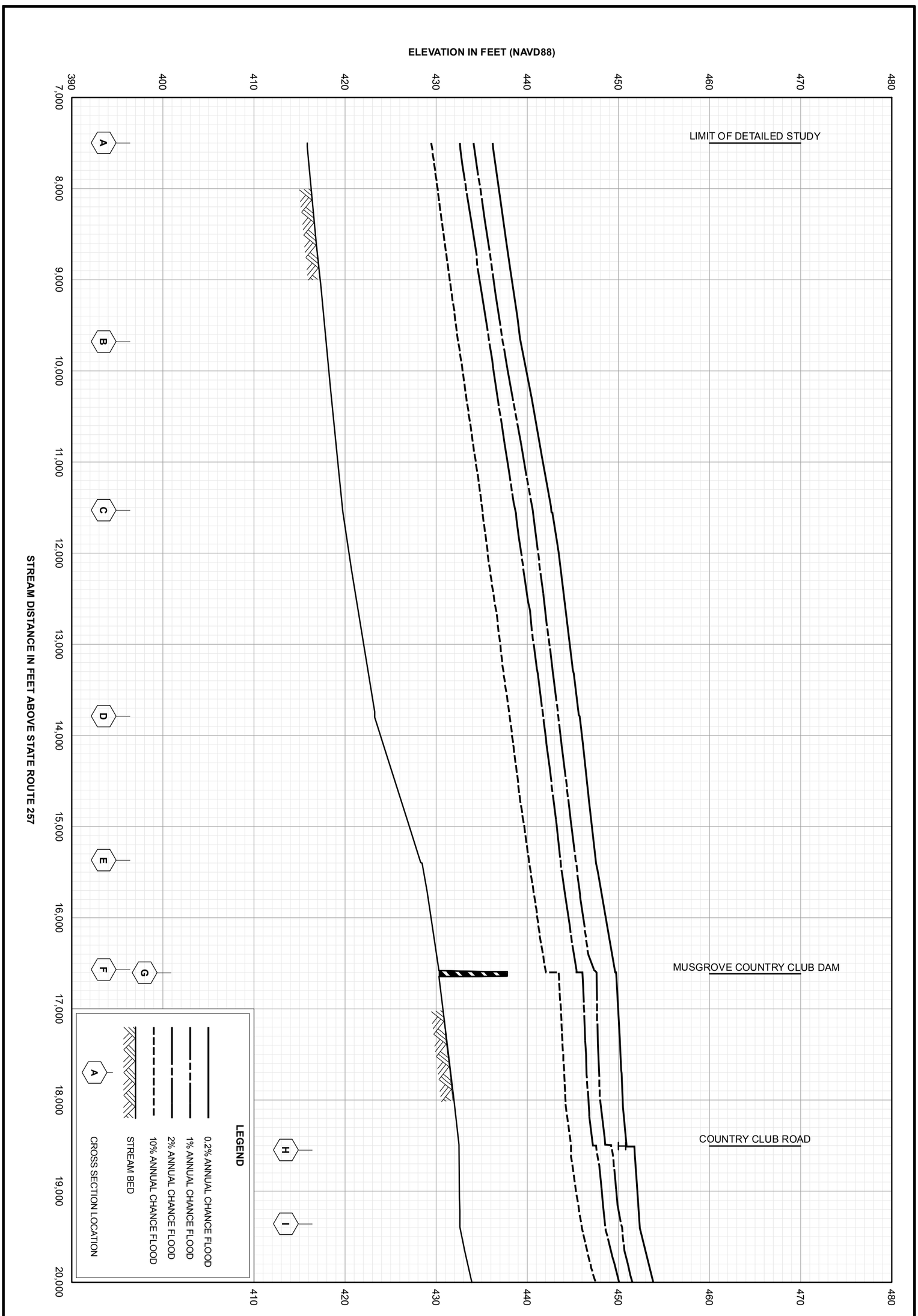
FLOOD PROFILES

ALLEN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

01P



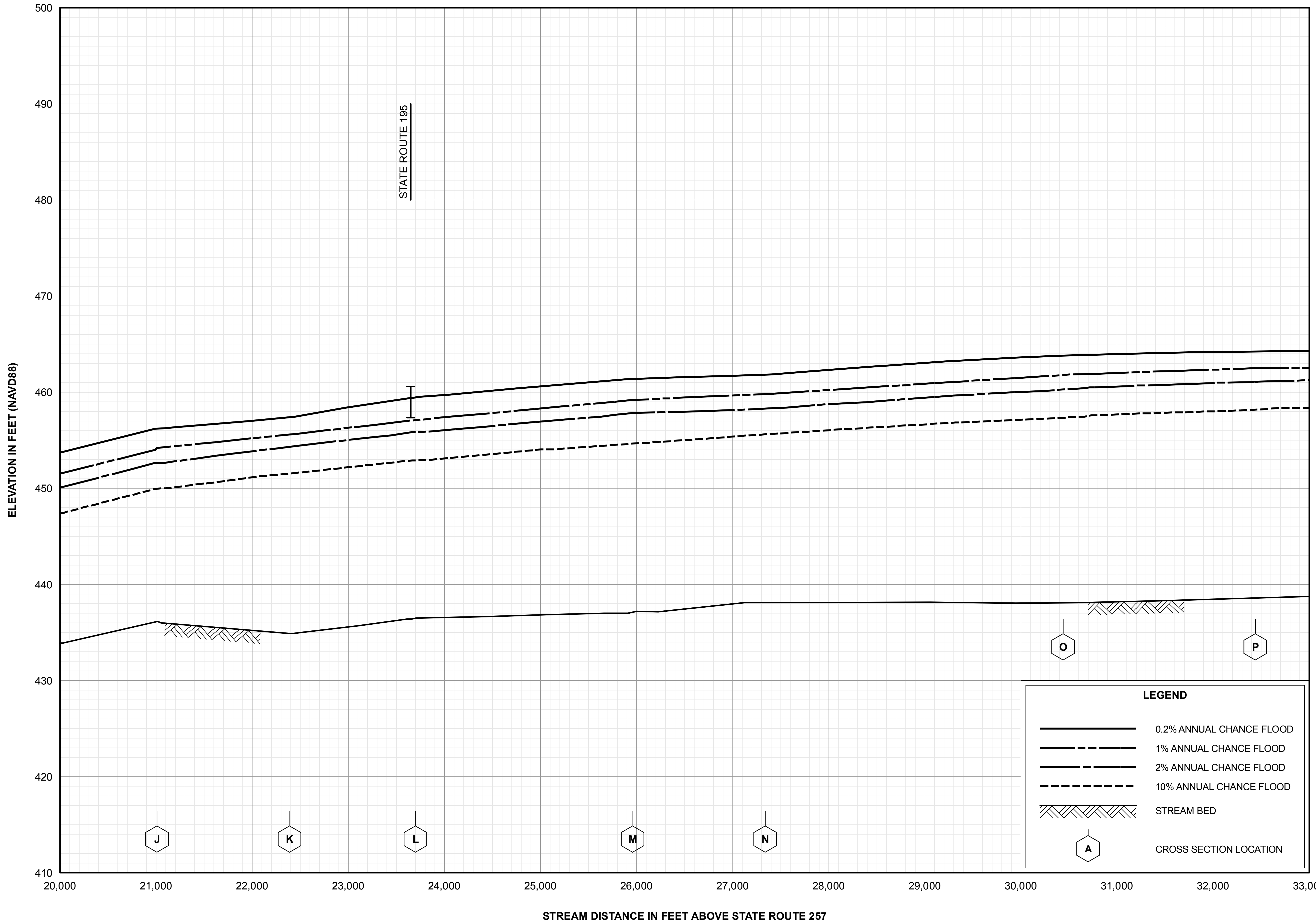
FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

FLOOD PROFILES

BLACKWATER CREEK

02P



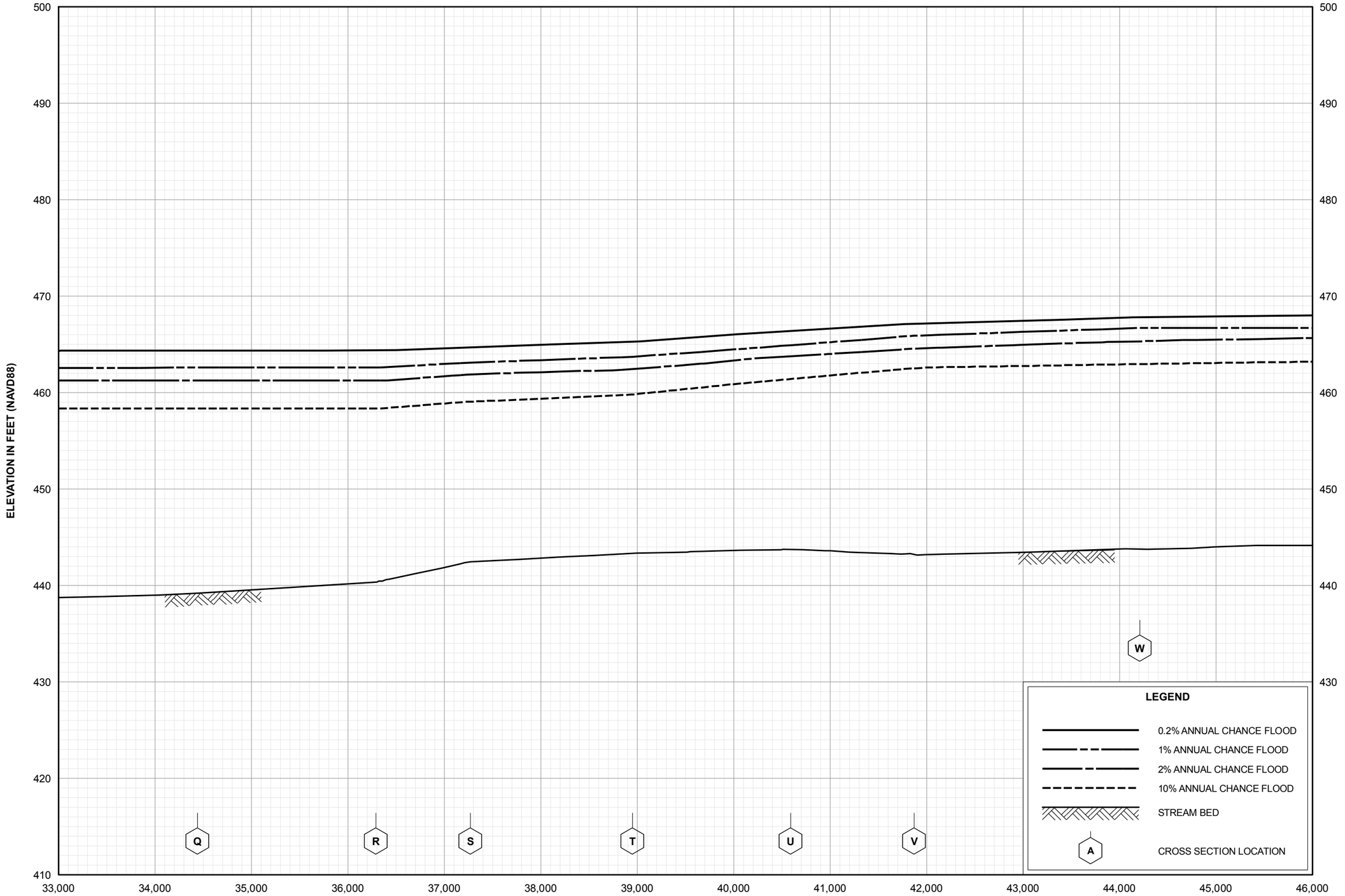
FLOOD PROFILES

BLACKWATER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

03P



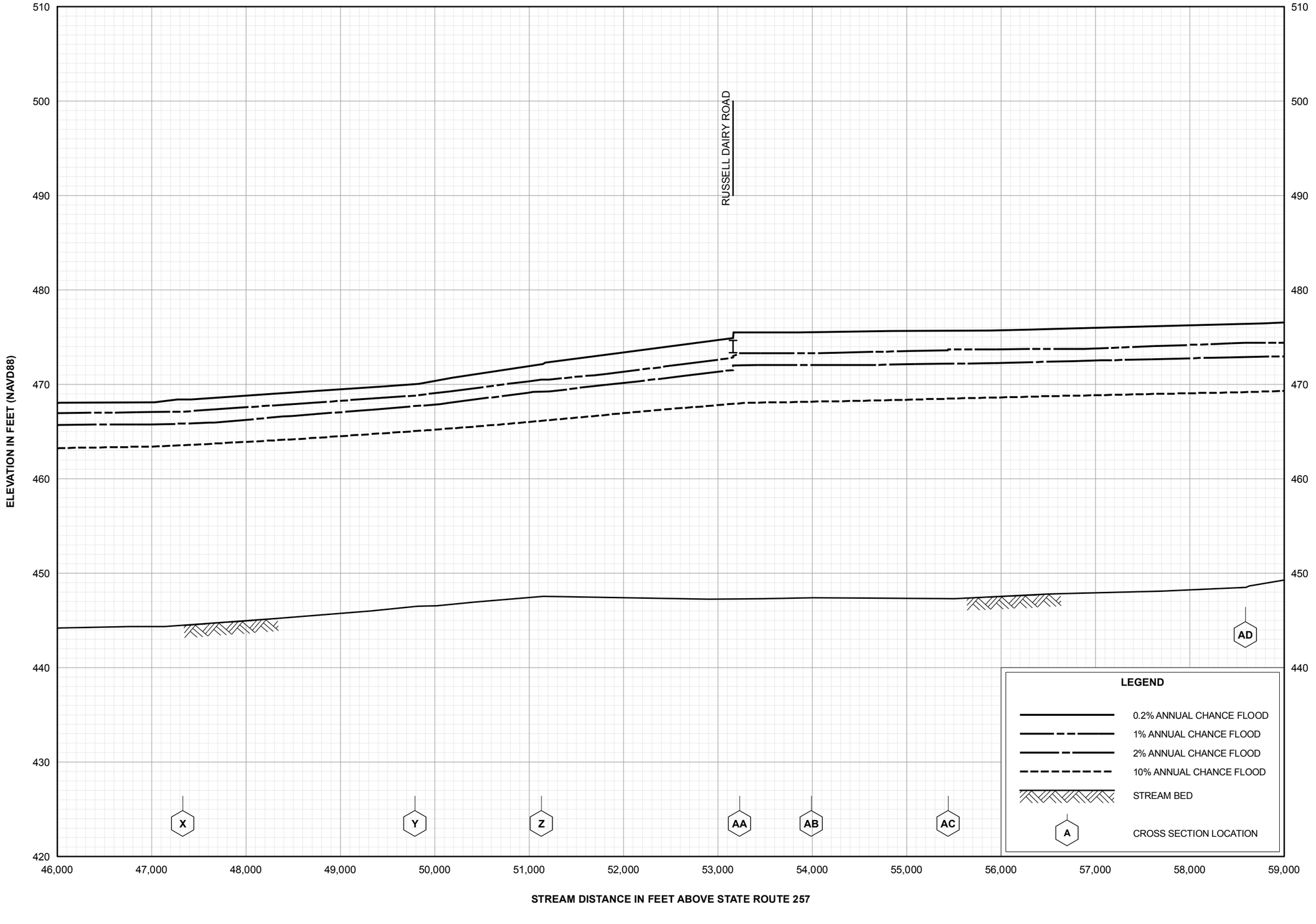
FLOOD PROFILES

BLACKWATER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

04P



FLOOD PROFILES

BLACKWATER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

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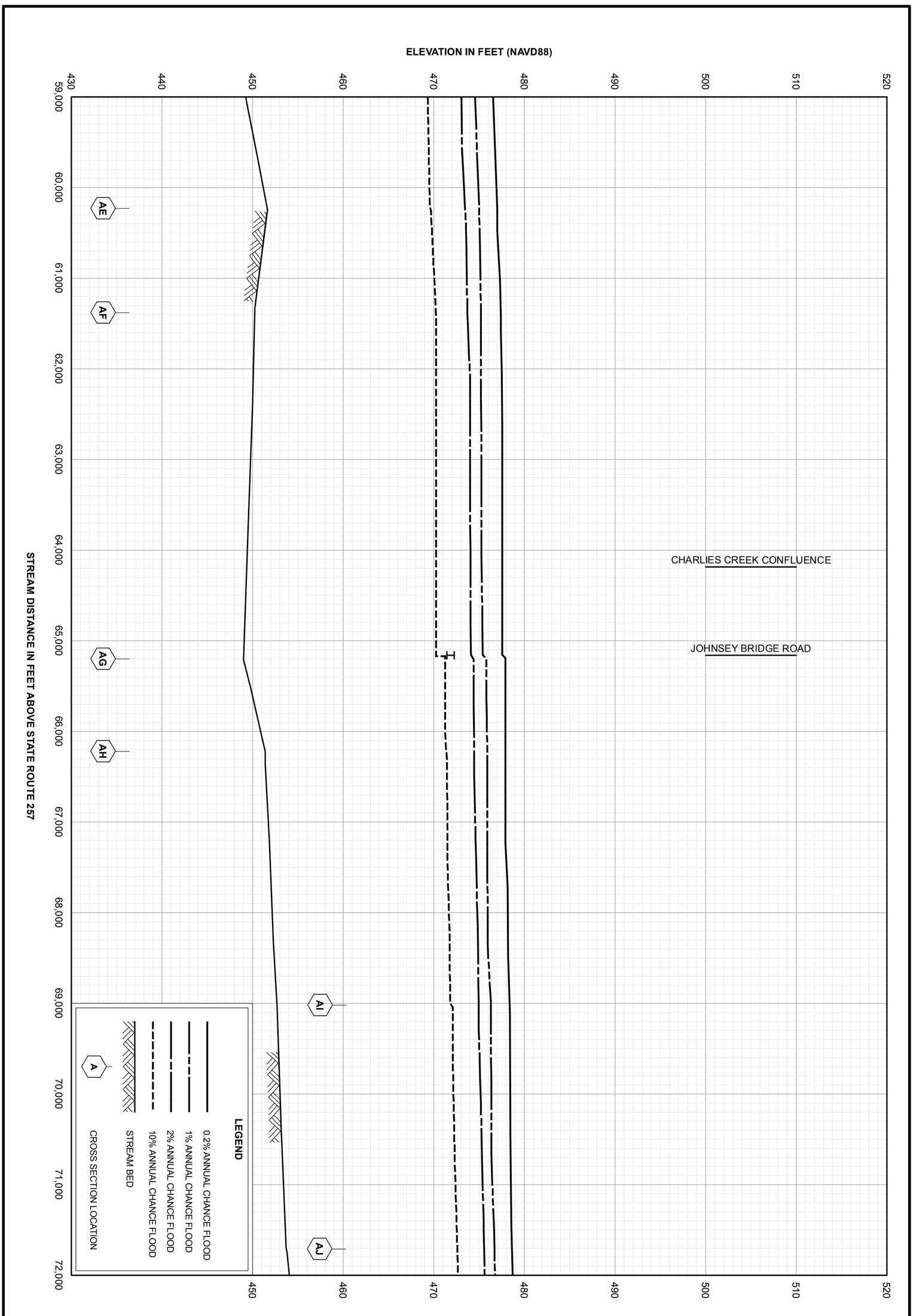

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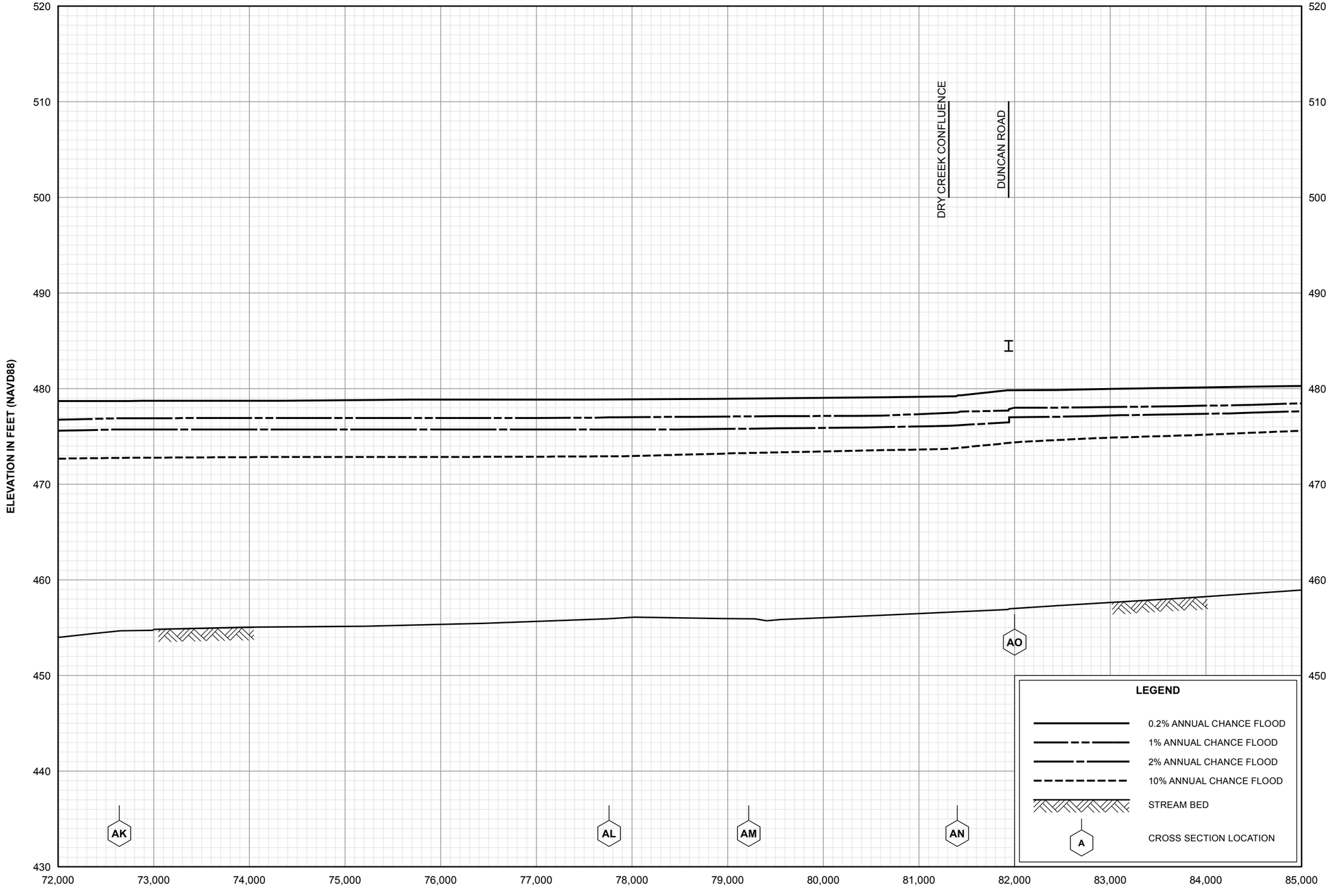
FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

FLOOD PROFILES

BLACKWATER CREEK



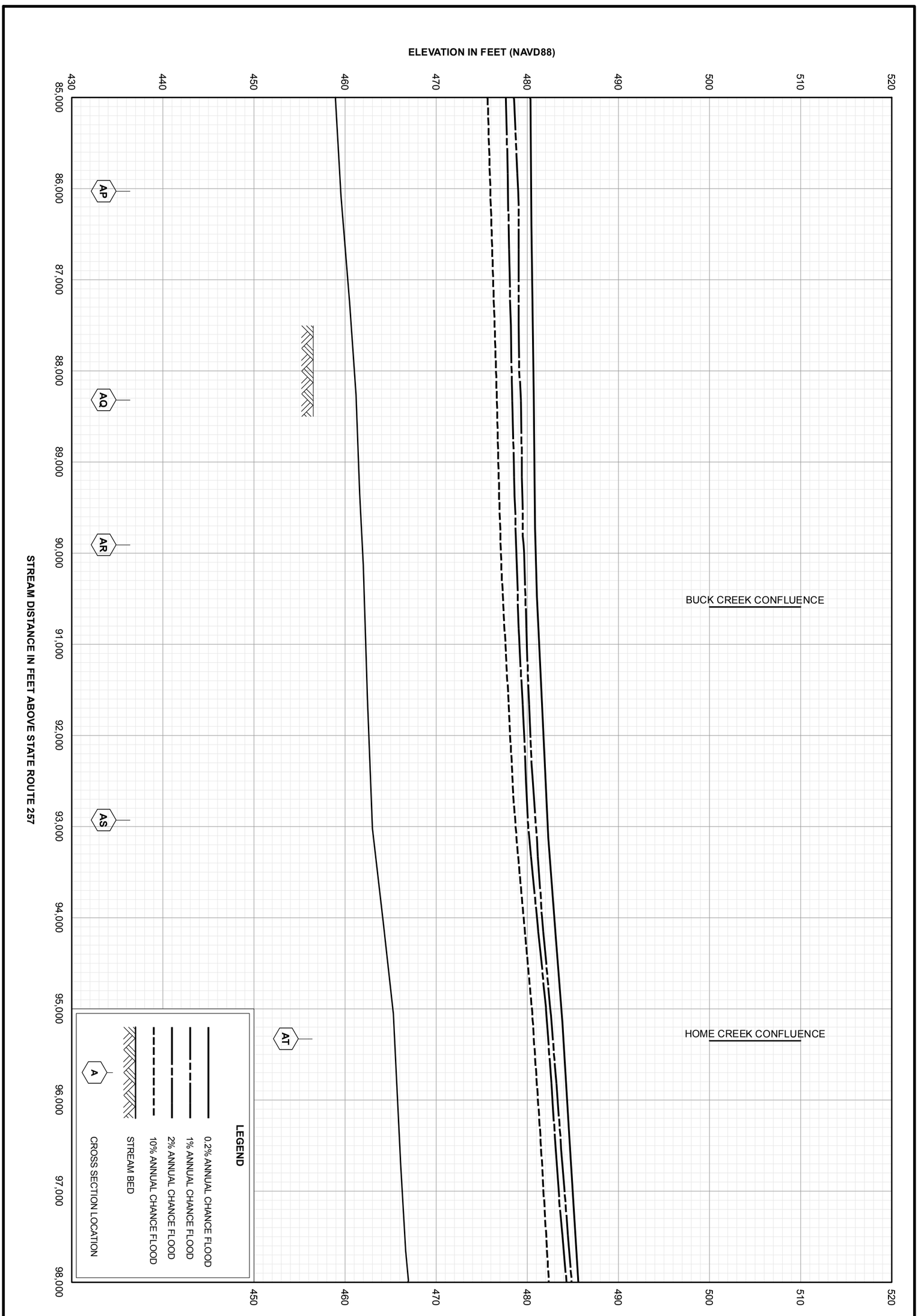
FLOOD PROFILES

BLACKWATER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

07P



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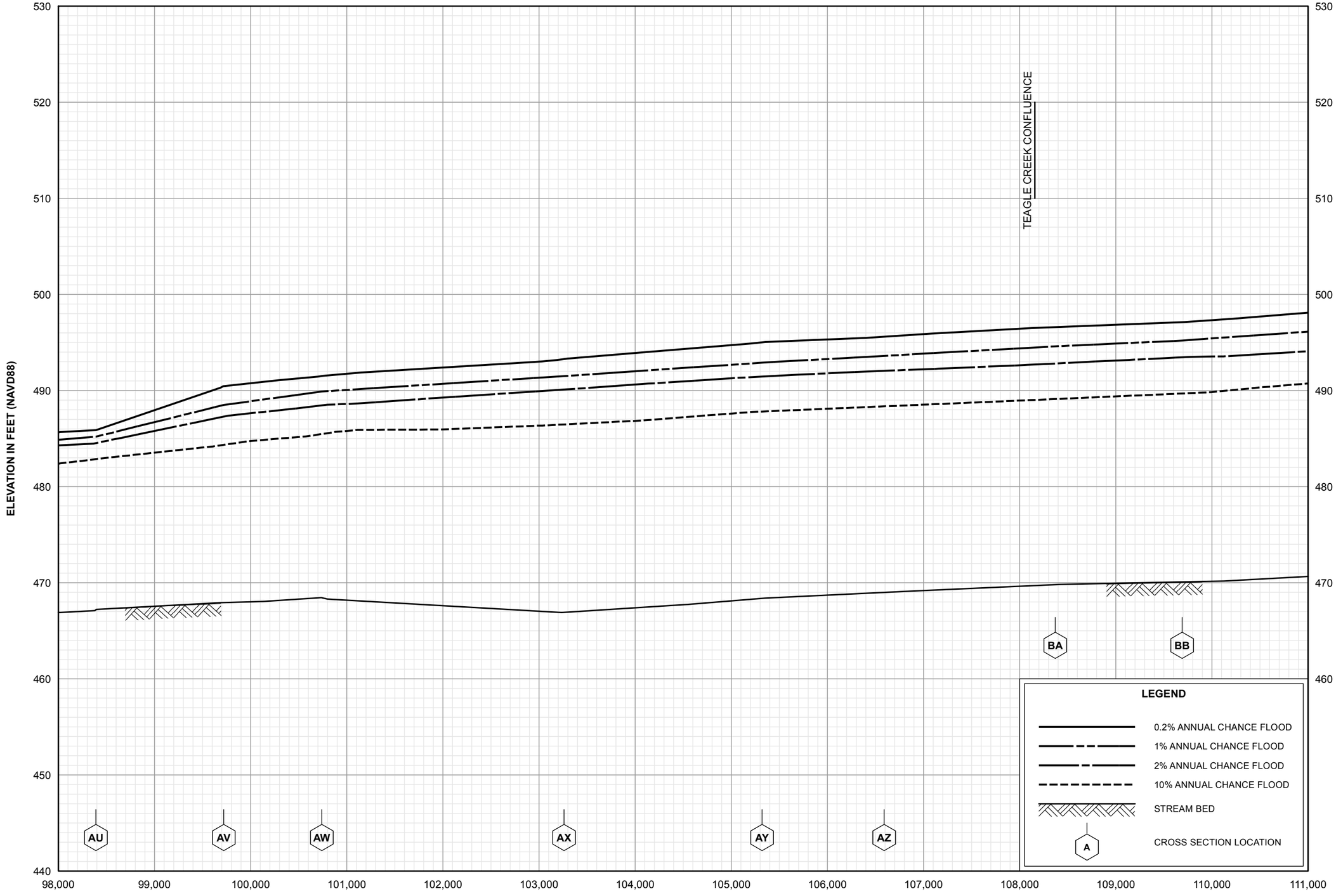
FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

FLOOD PROFILES

BLACKWATER CREEK



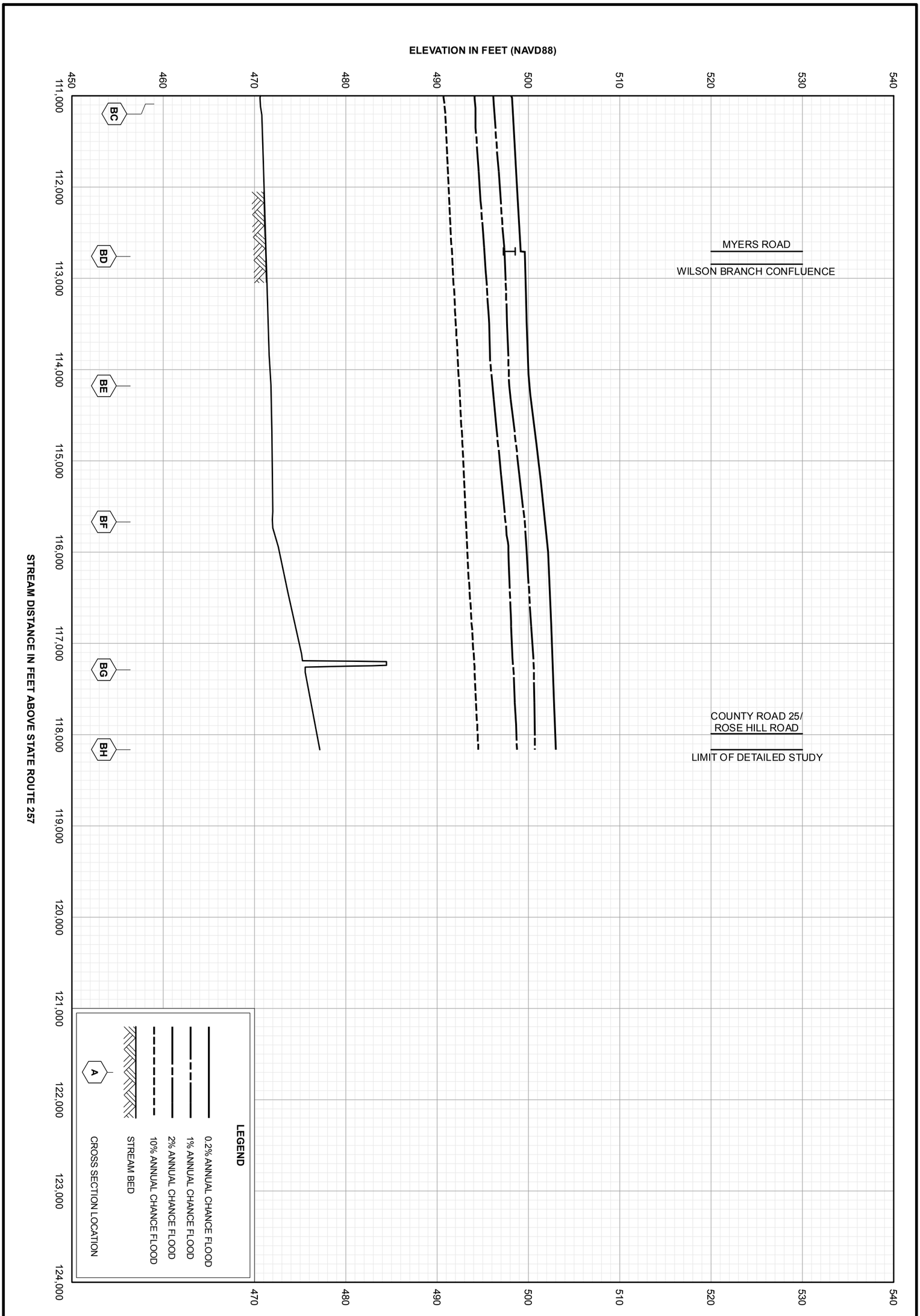
FLOOD PROFILES

BLACKWATER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

09P



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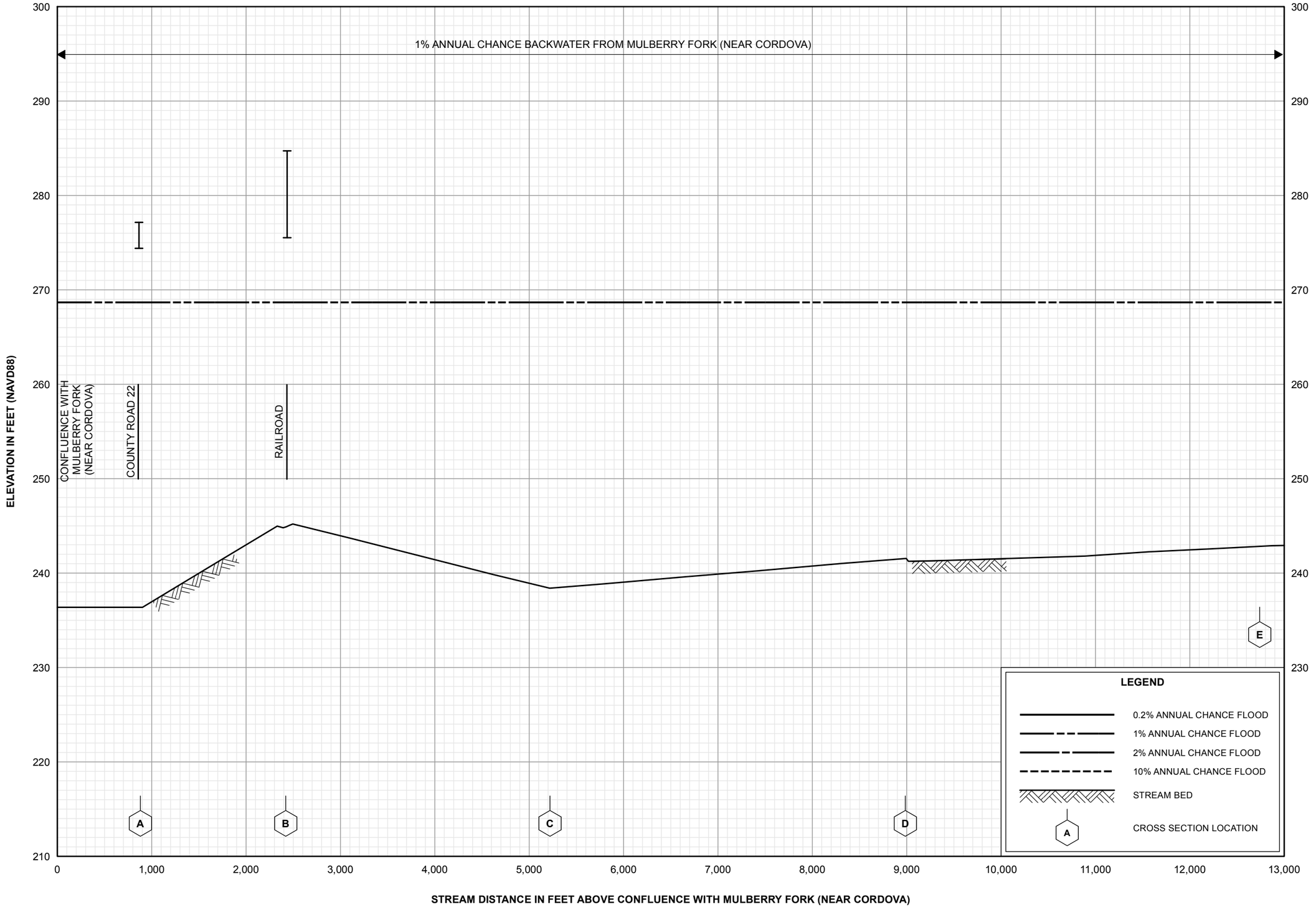
FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

FLOOD PROFILES

BLACKWATER CREEK



FLOOD PROFILES

CANE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

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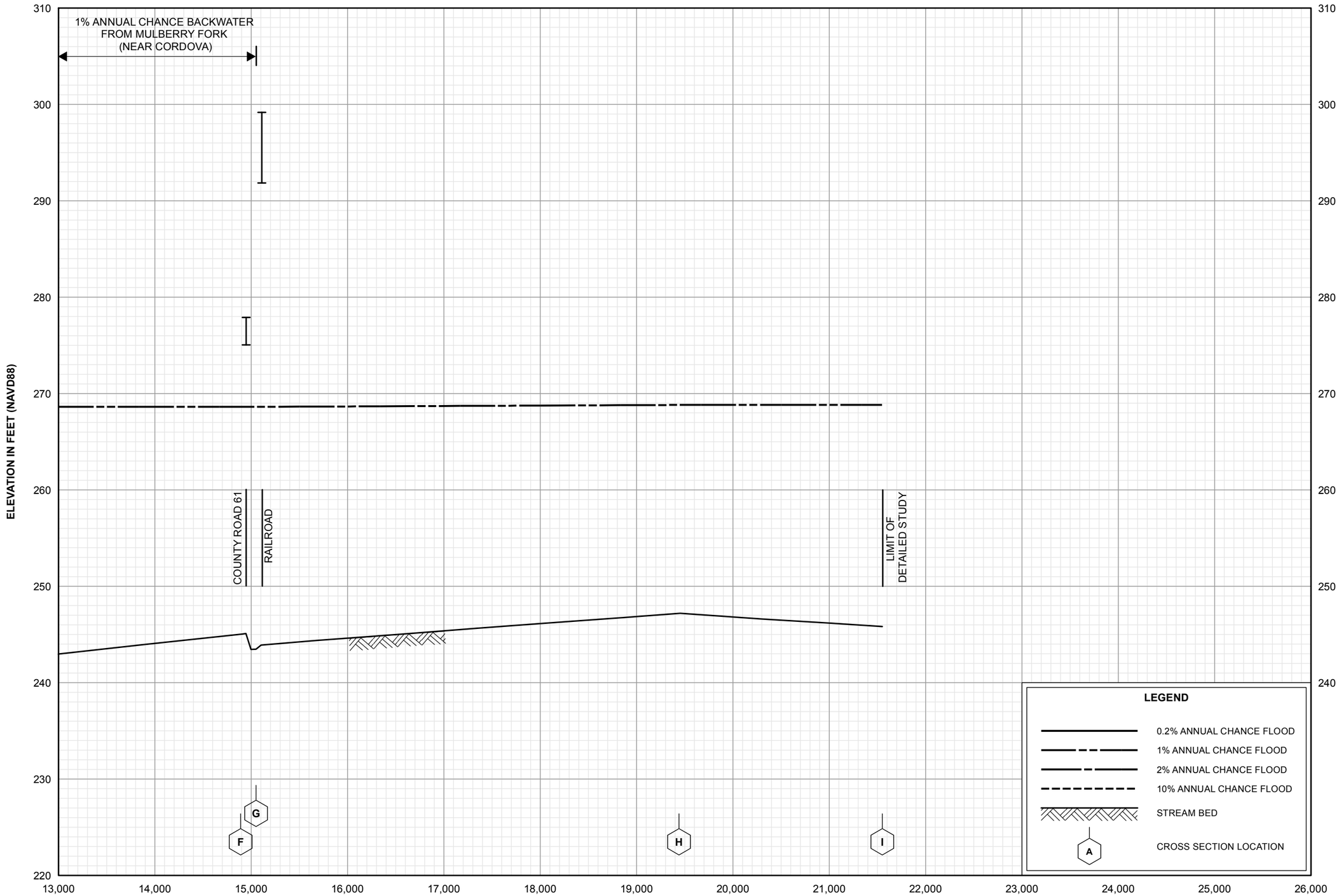
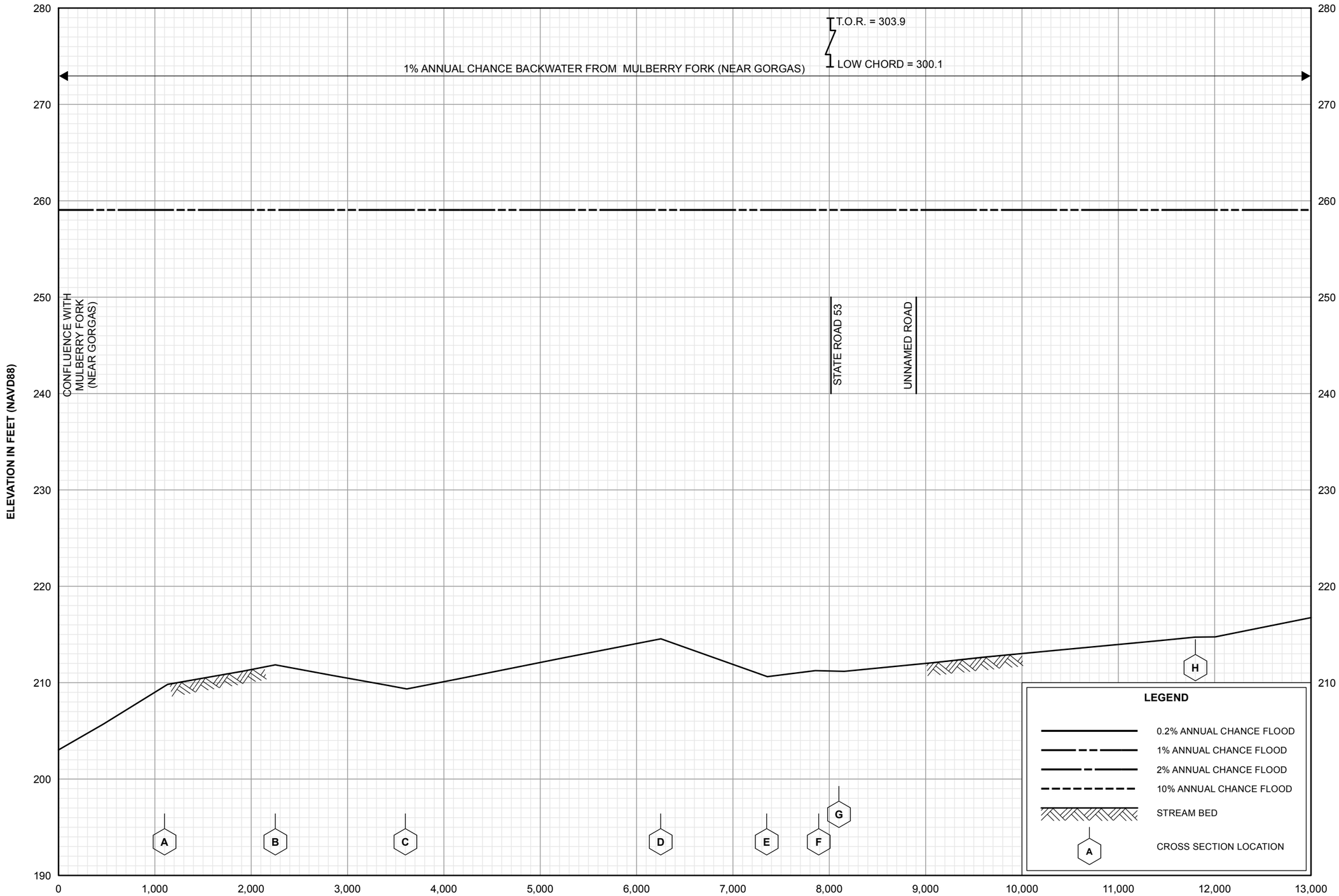


FLOOD PROFILES

CANE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

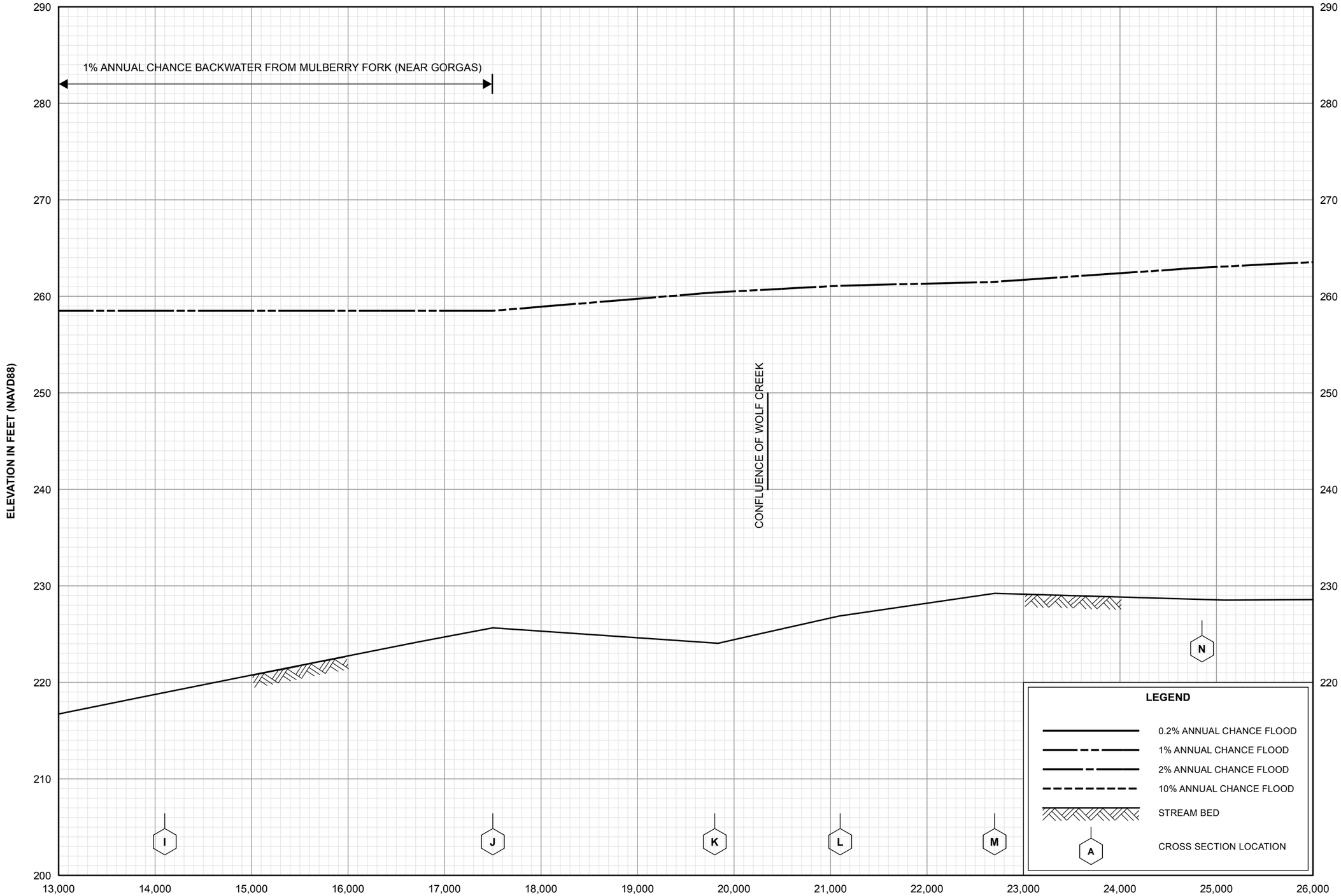


FLOOD PROFILES

LOST CREEK (LOWER REACH)

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

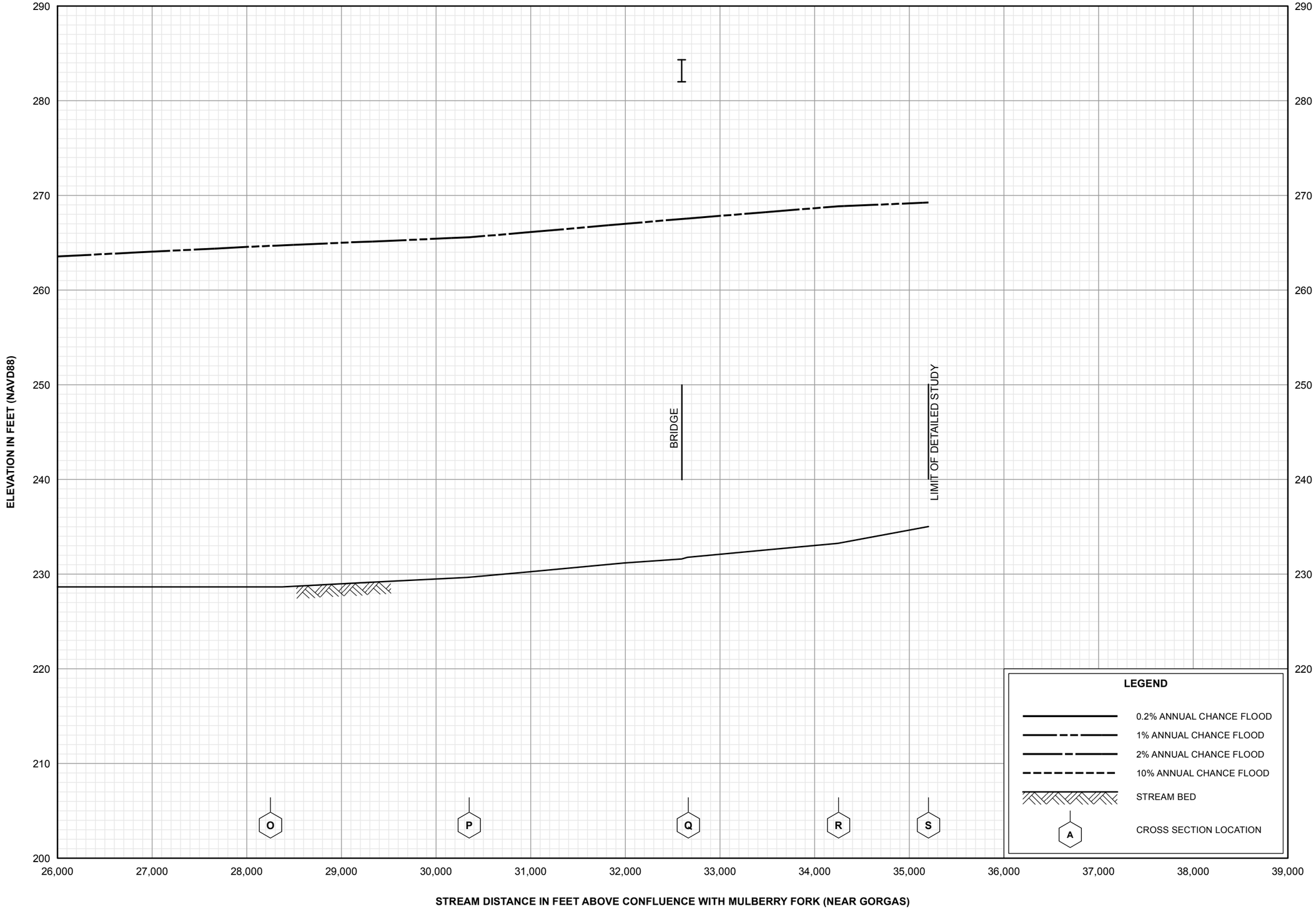


FLOOD PROFILES

LOST CREEK (LOWER REACH)

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS



FLOOD PROFILES

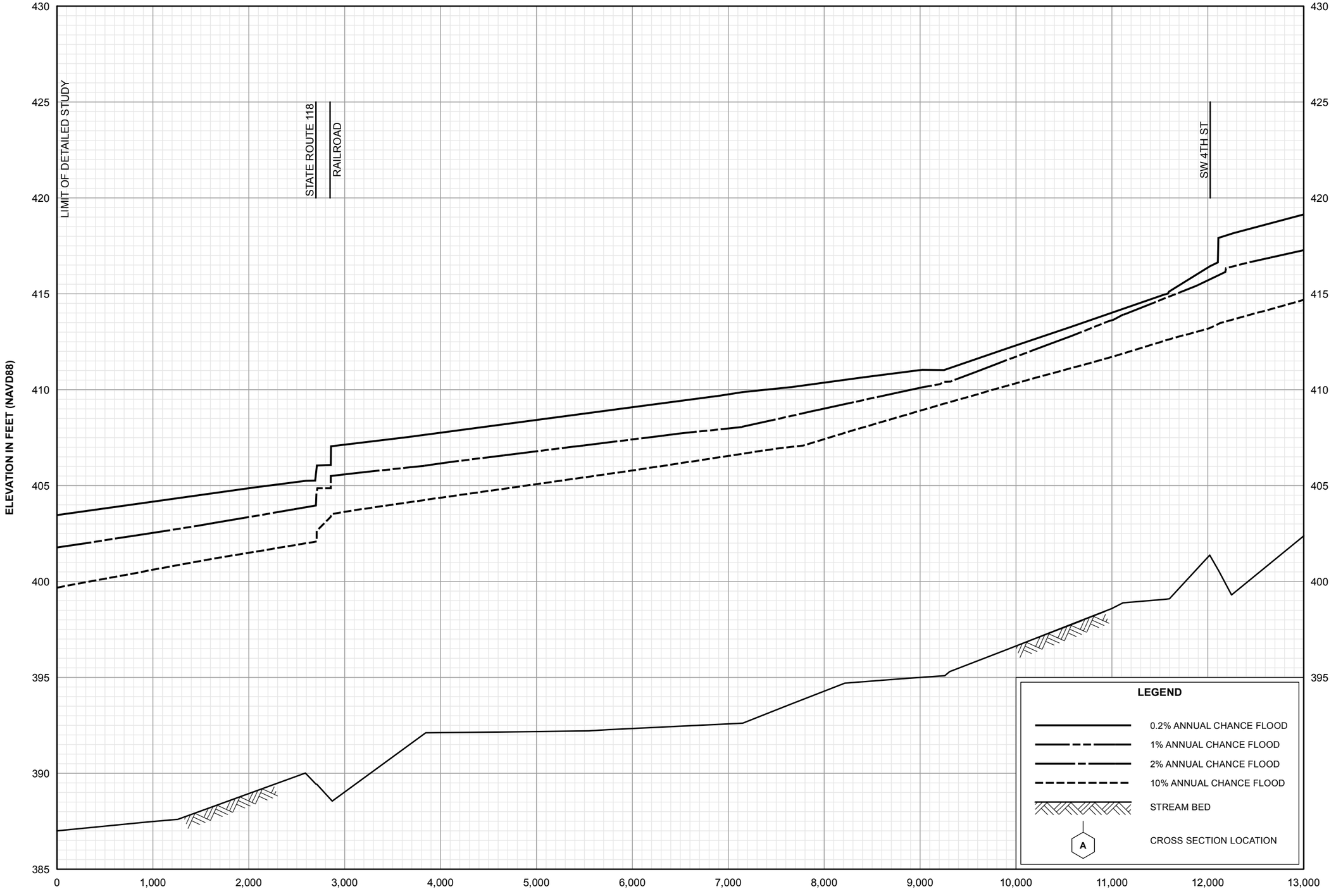
LOST CREEK (LOWER REACH)

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

FLOOD PROFILES

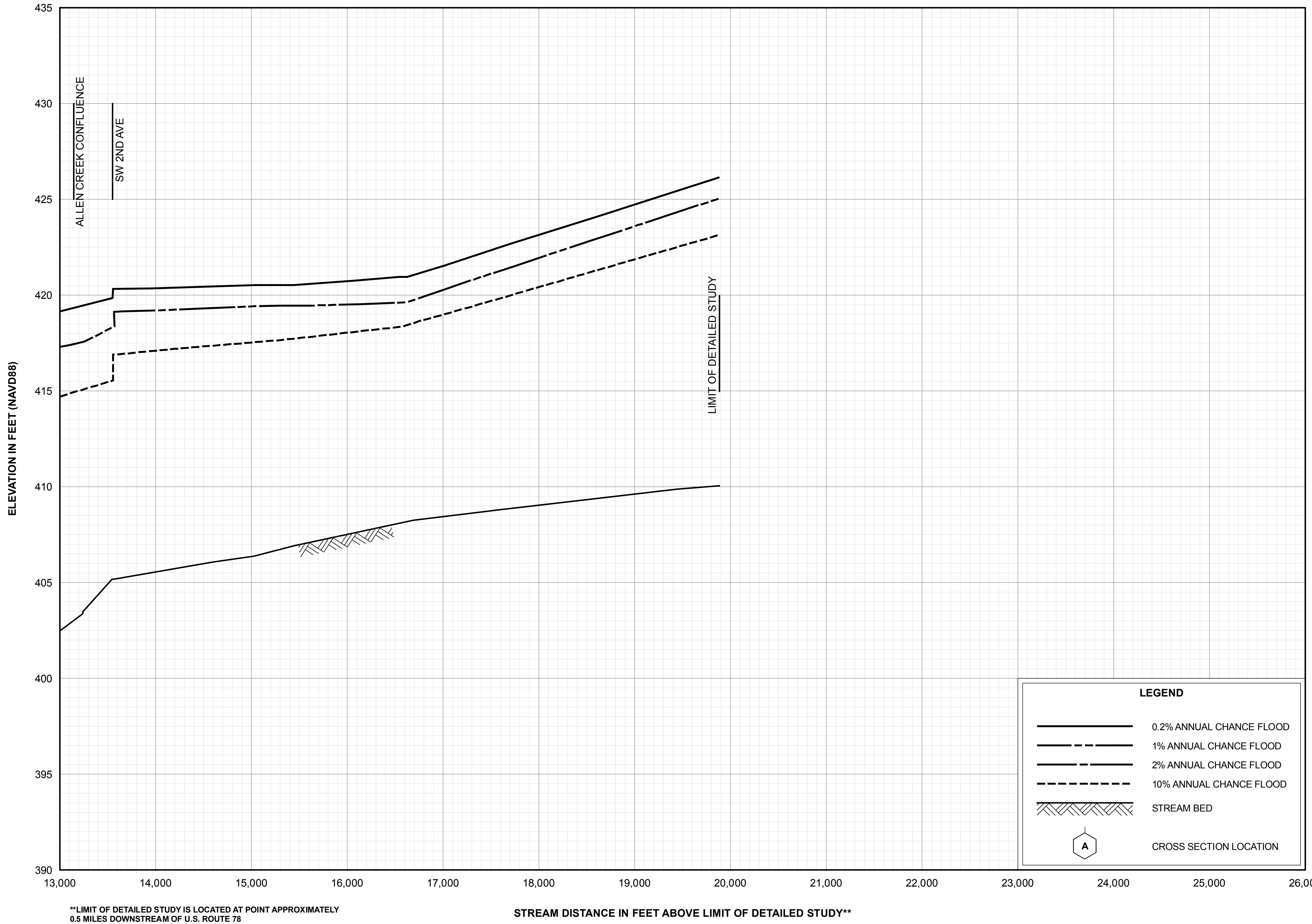
LOST CREEK (UPPER REACH)



**LIMIT OF DETAILED STUDY IS LOCATED AT POINT APPROXIMATELY 0.5 MILES DOWNSTREAM OF U.S. ROUTE 78

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS



**LIMIT OF DETAILED STUDY IS LOCATED AT POINT APPROXIMATELY 0.5 MILES DOWNSTREAM OF U.S. ROUTE 78

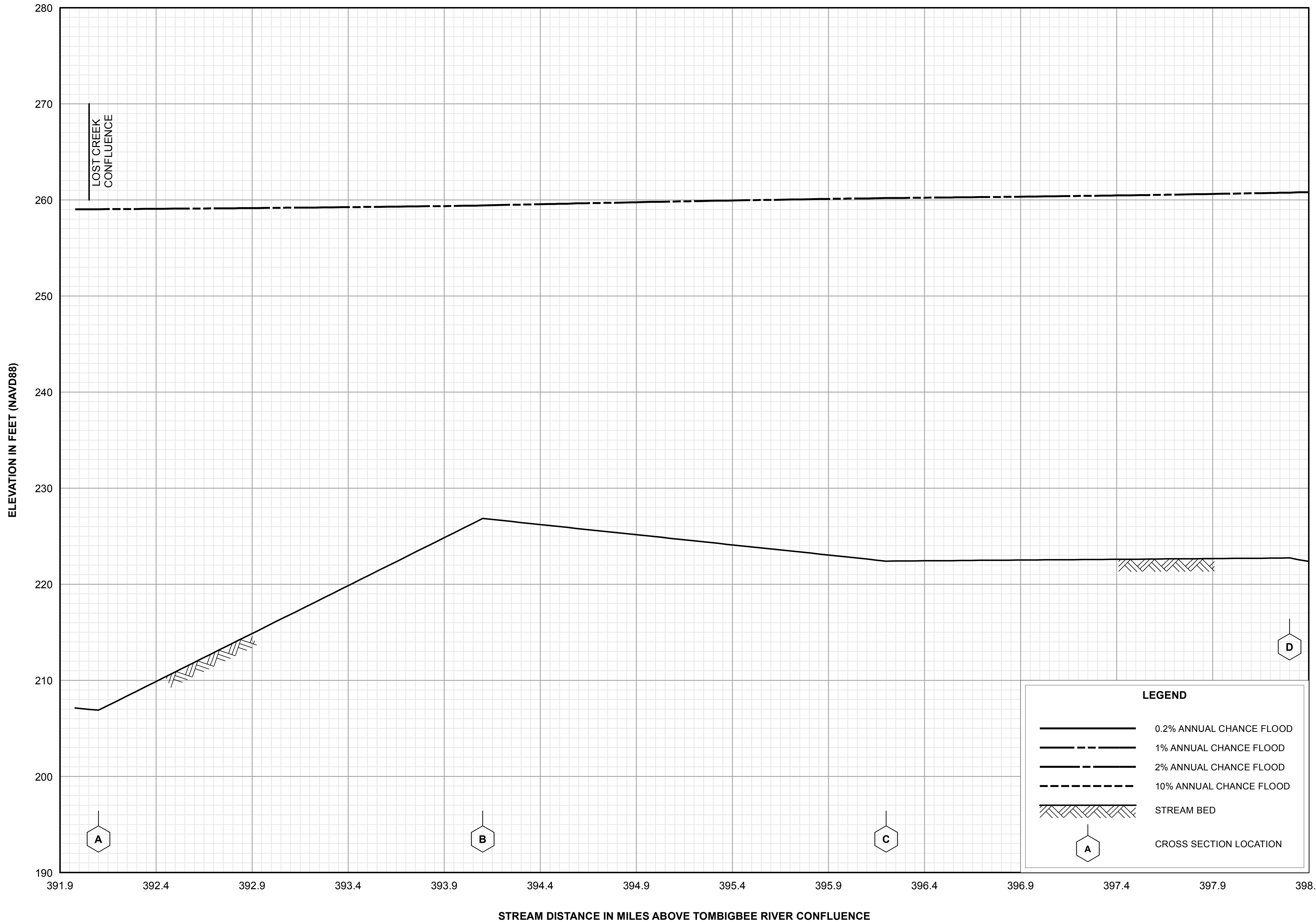
FLOOD PROFILES

LOST CREEK (UPPER REACH)

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL

AND INCORPORATED AREAS



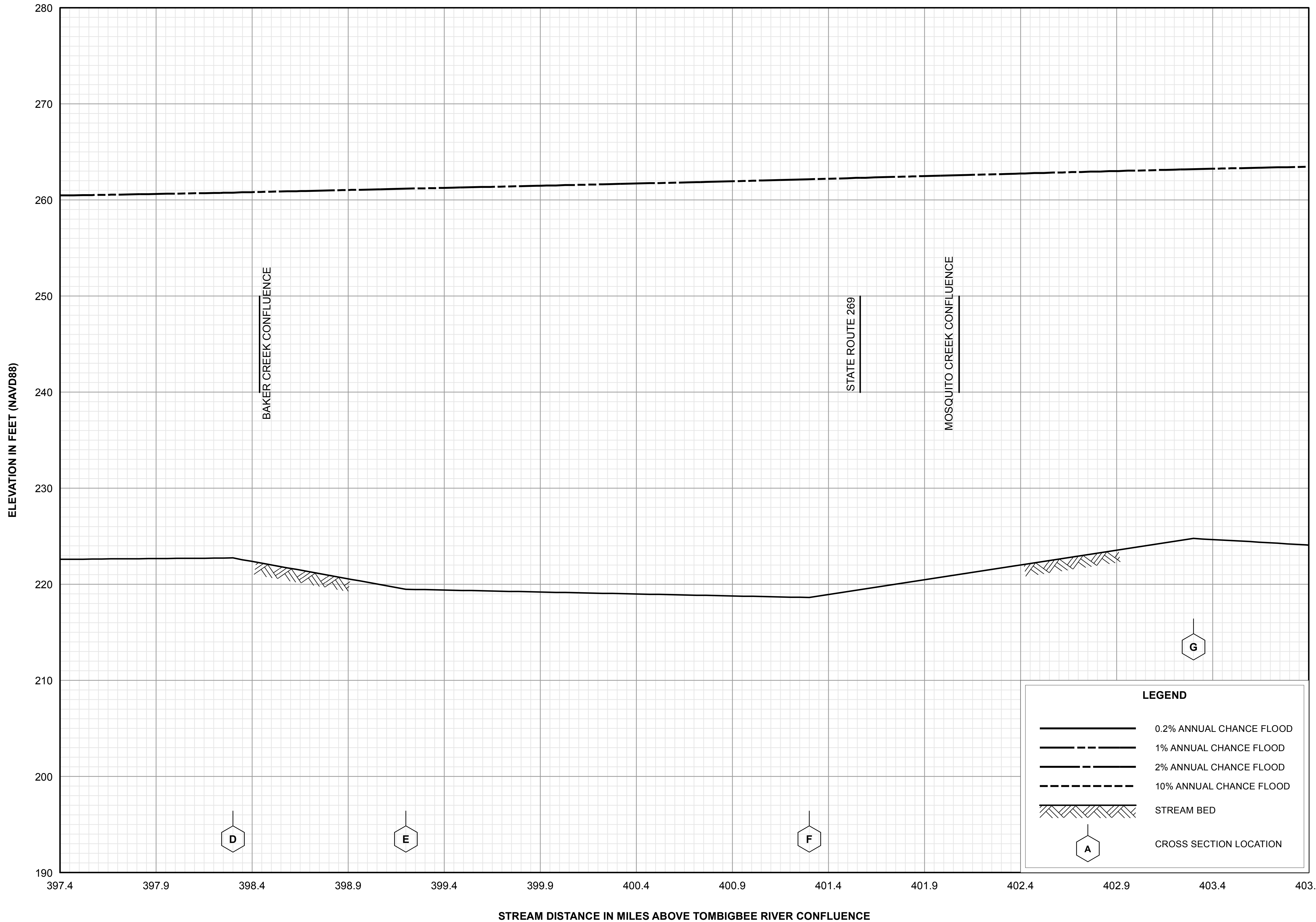
FLOOD PROFILES

MULBERRY FORK (NEAR CORDOVA)

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, ALABAMA
AND INCORPORATED AREAS

18P



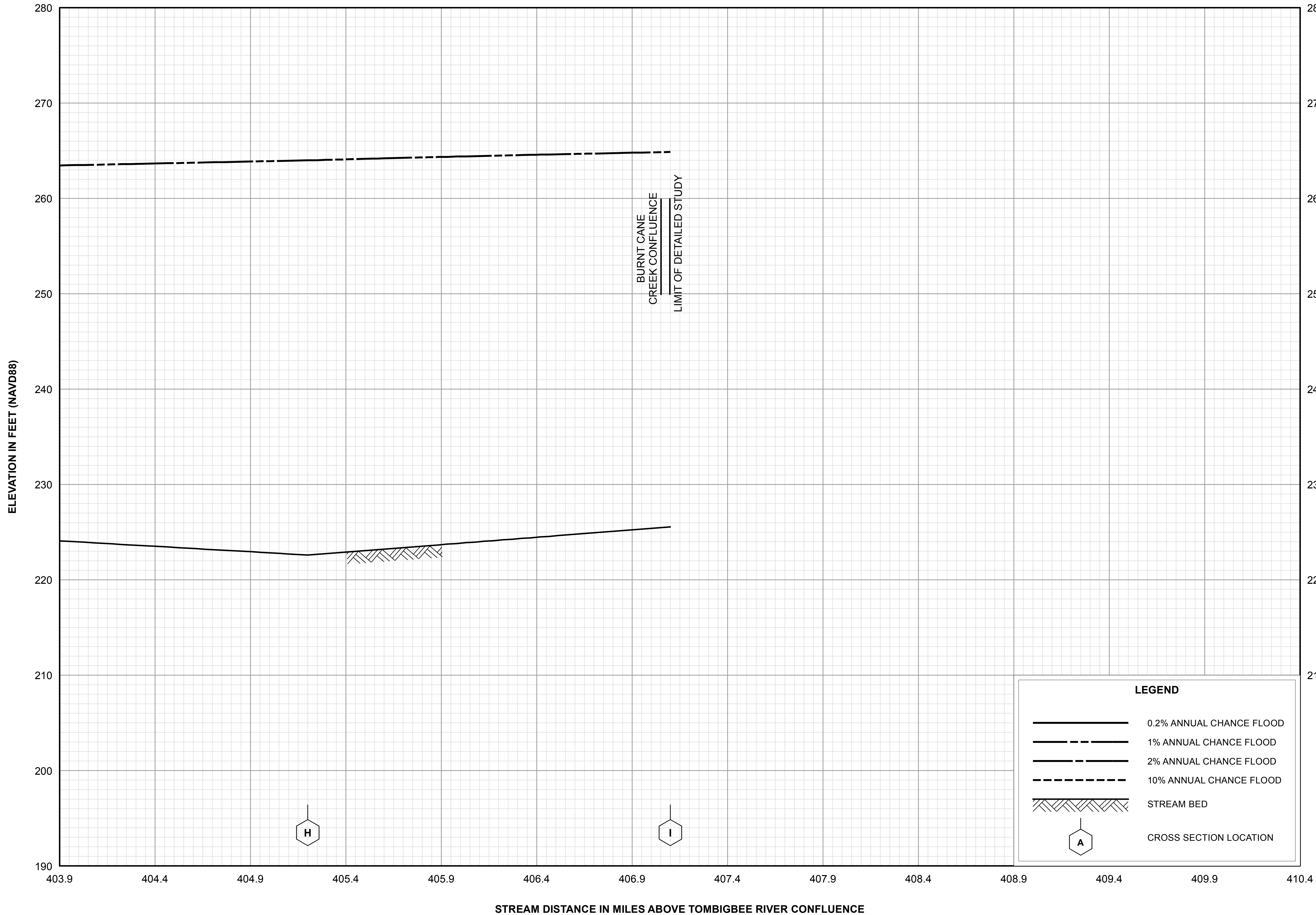
FLOOD PROFILES

MULBERRY FORK (NEAR CORDOVA)

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, ALABAMA

AND INCORPORATED AREAS

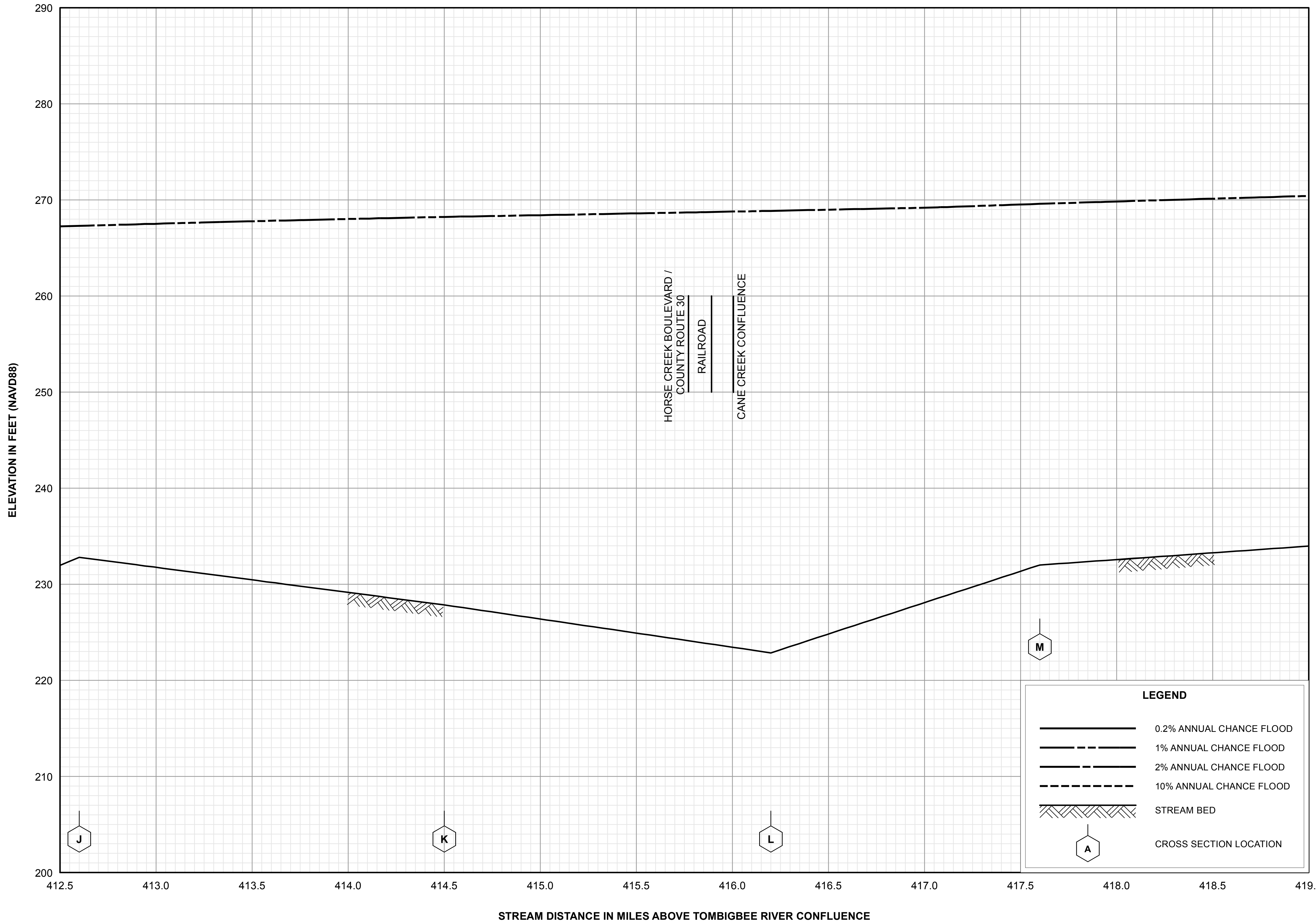


FLOOD PROFILES

MULBERRY FORK (NEAR CORDOVA)

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, ALABAMA
AND INCORPORATED AREAS

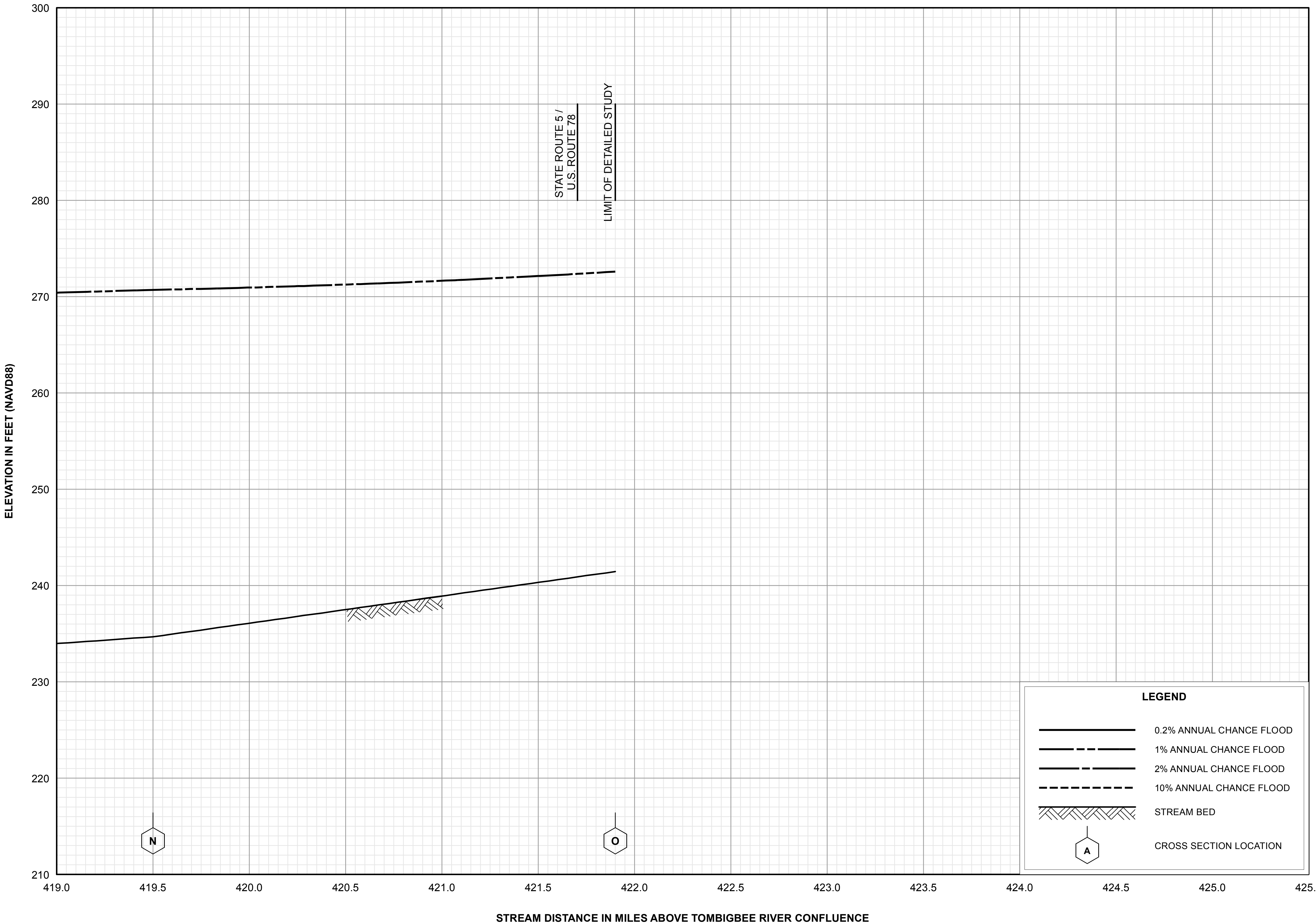


FLOOD PROFILES

MULBERRY FORK (NEAR GORGAS)

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, ALABAMA
AND INCORPORATED AREAS



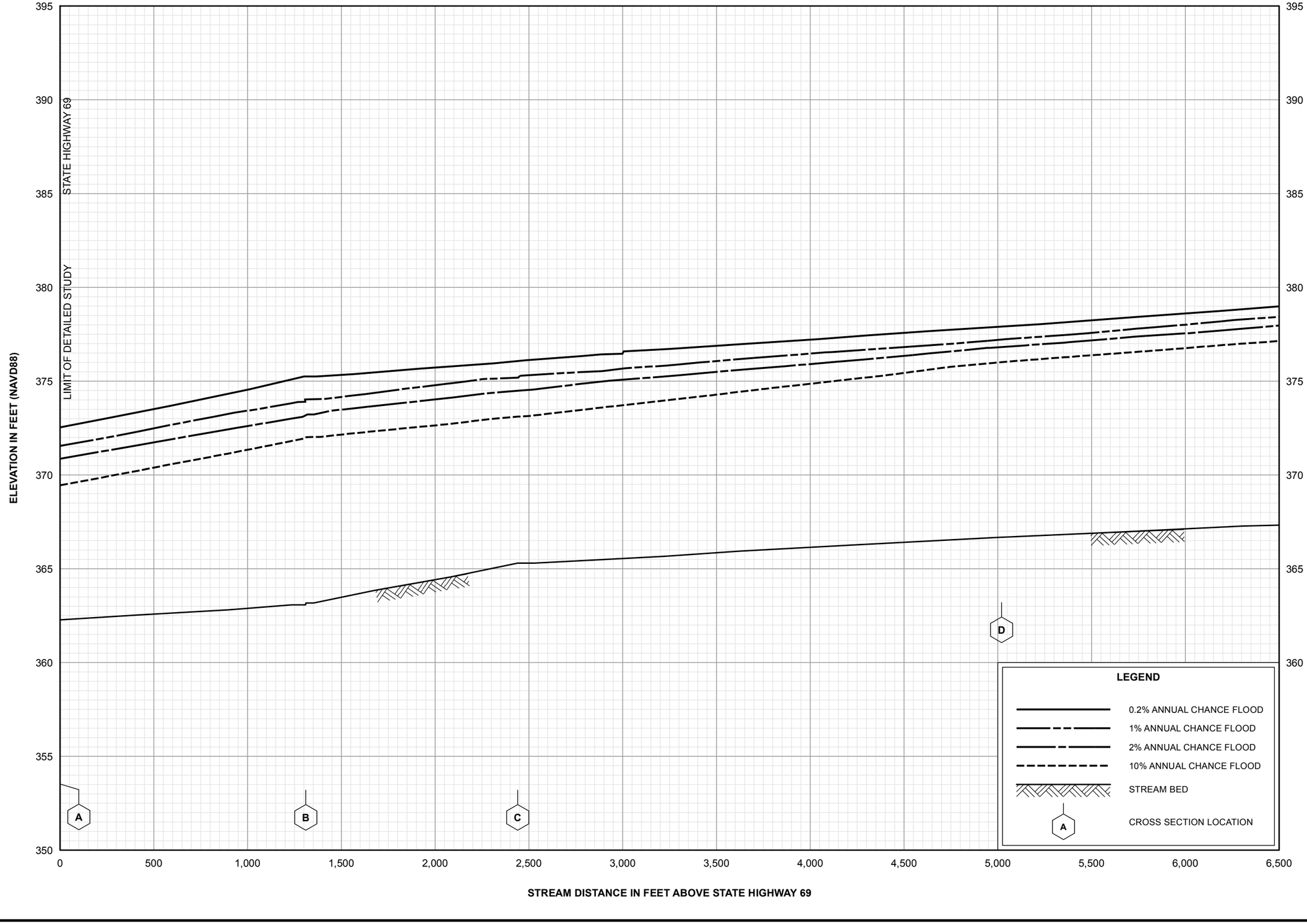
FLOOD PROFILES

MULBERRY FORK (NEAR GORGAS)

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, ALABAMA

AND INCORPORATED AREAS

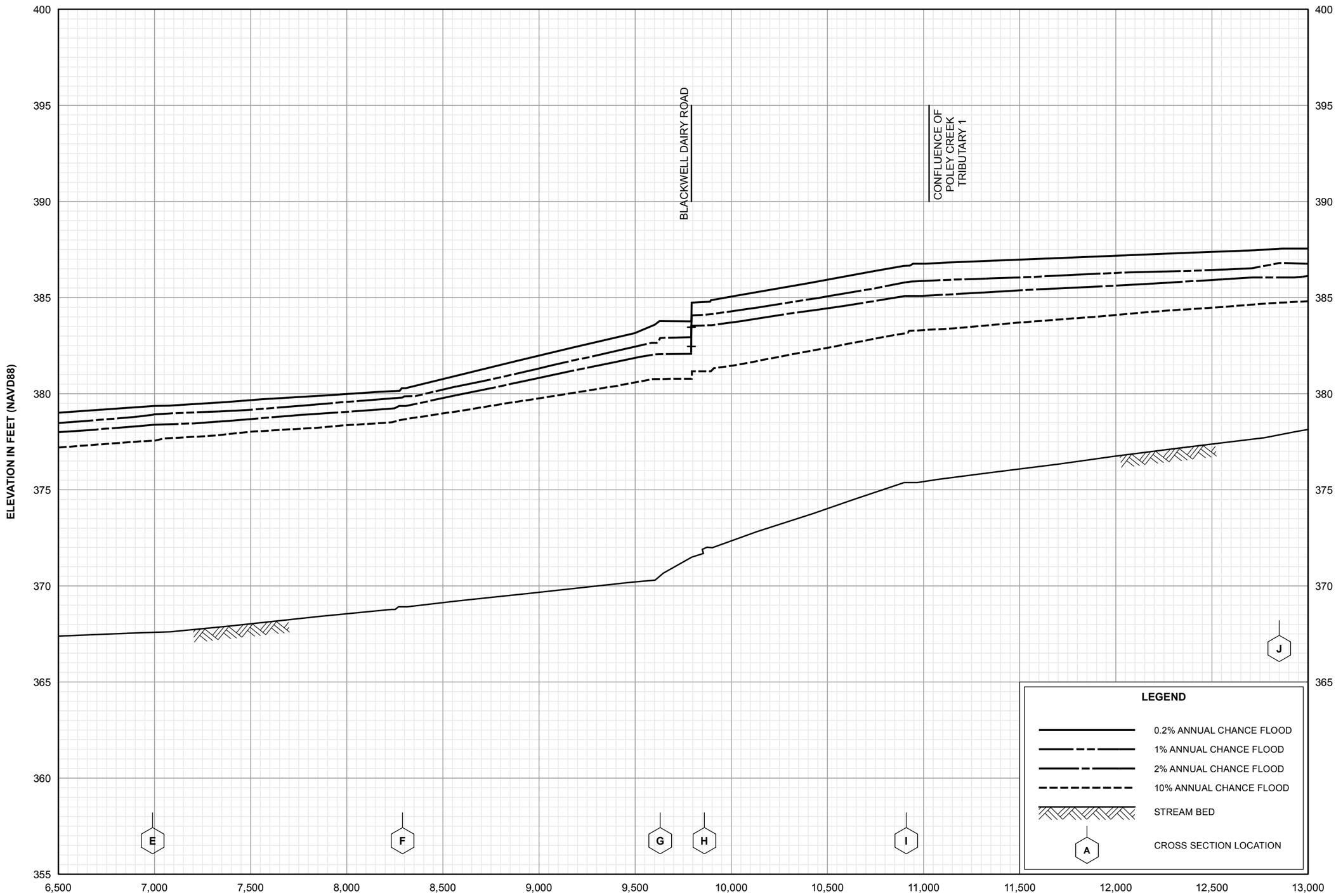


FLOOD PROFILES

POLEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS



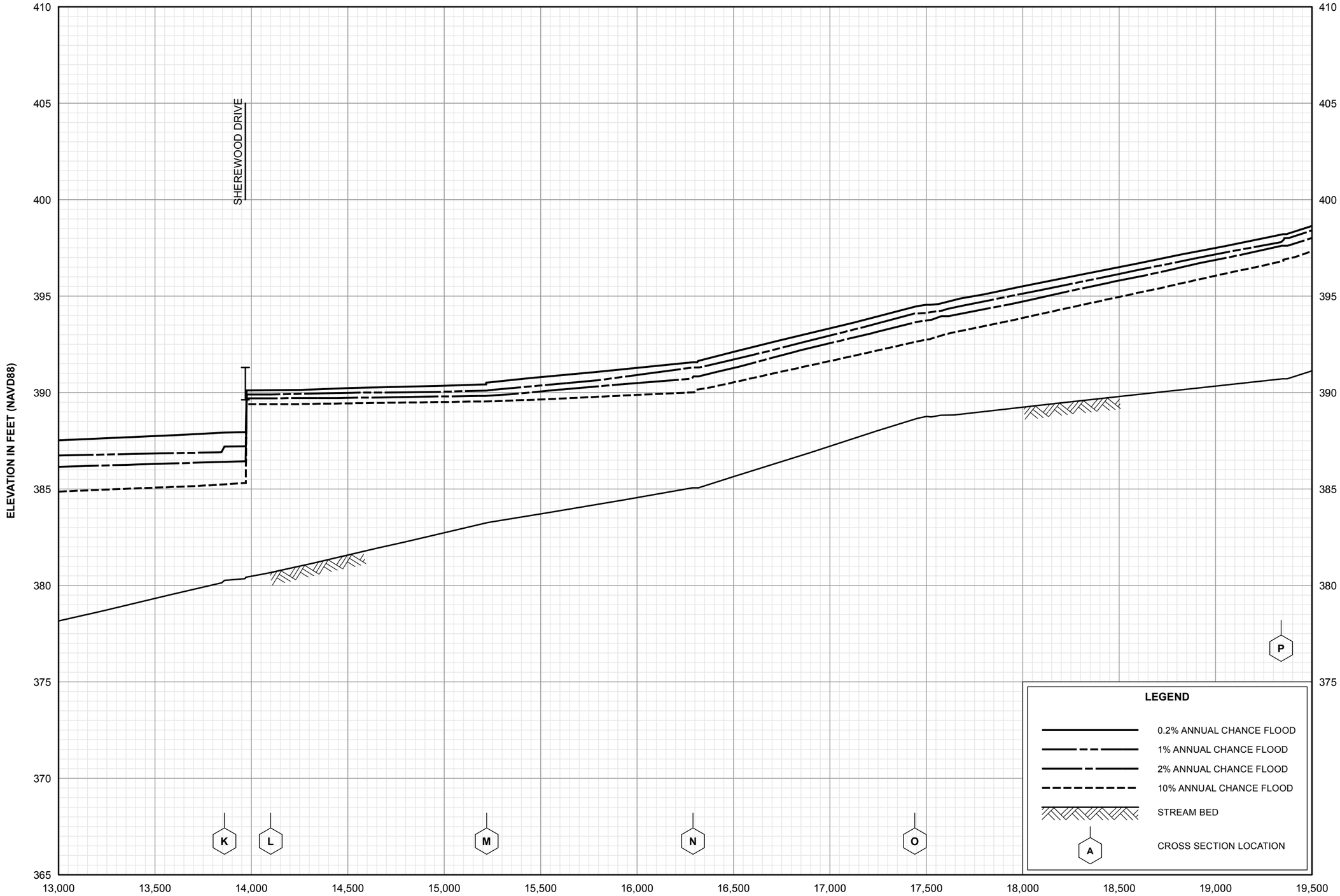
FLOOD PROFILES

POLEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

24P



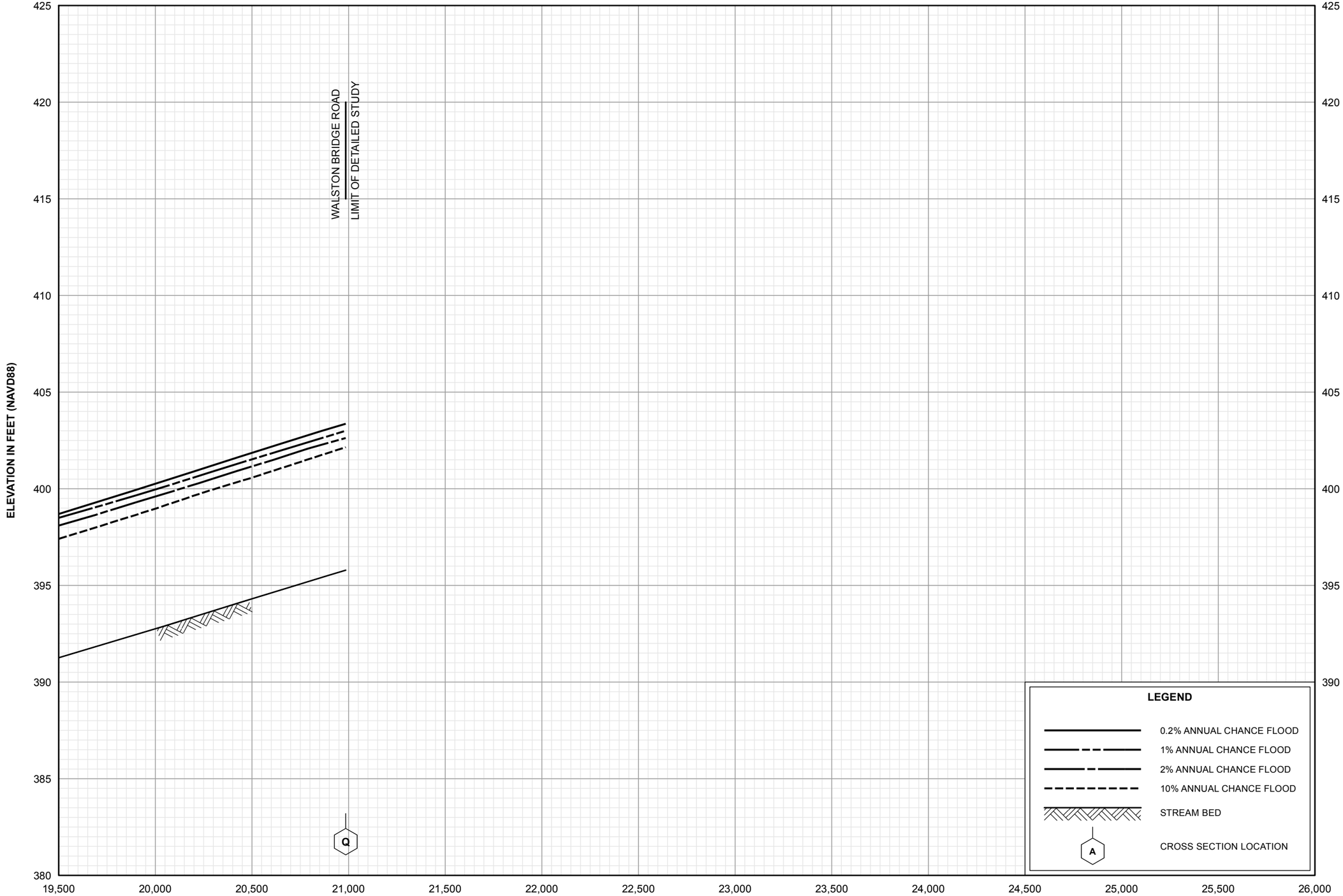
FLOOD PROFILES

POLEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

25P

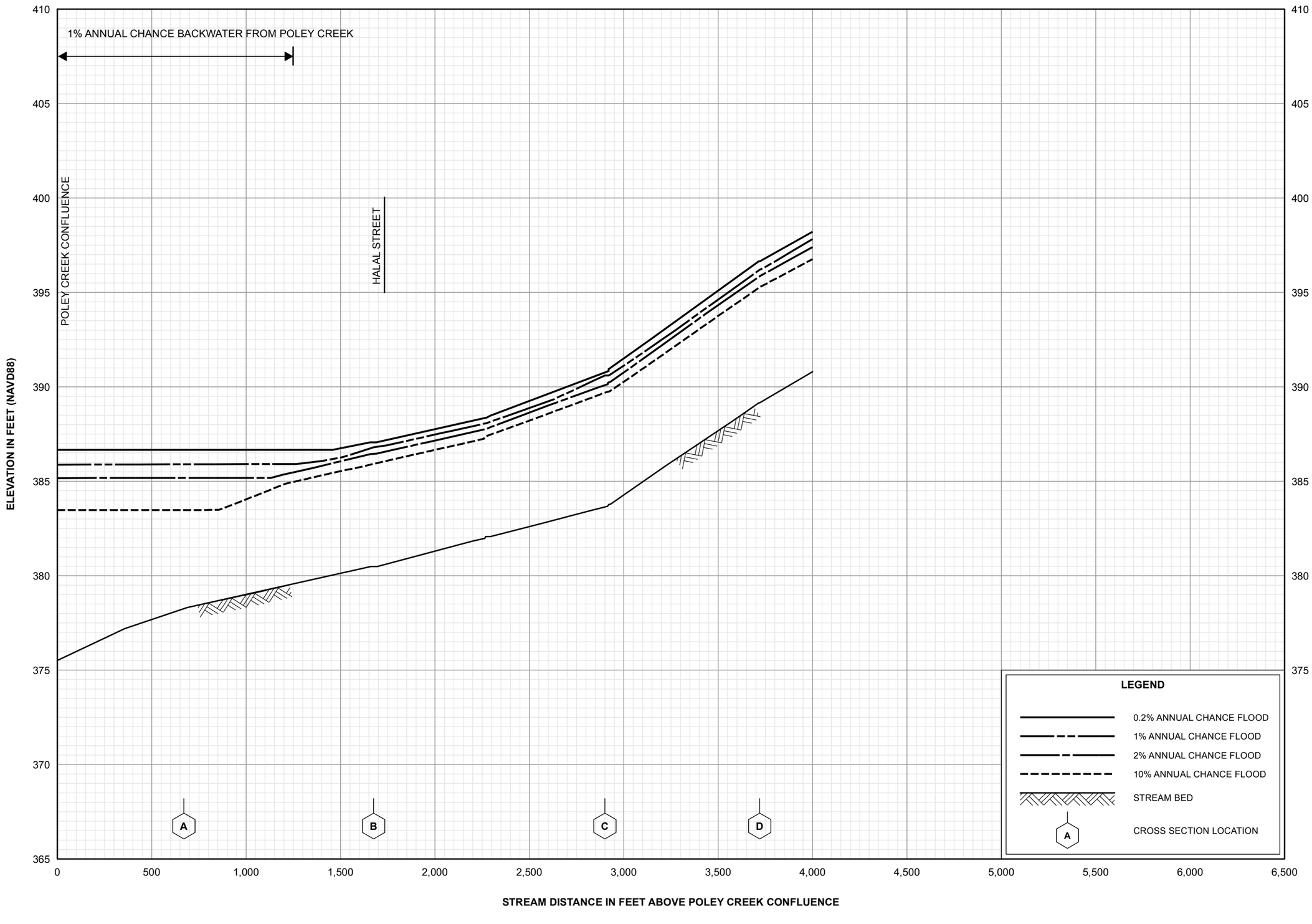


FLOOD PROFILES

POLEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

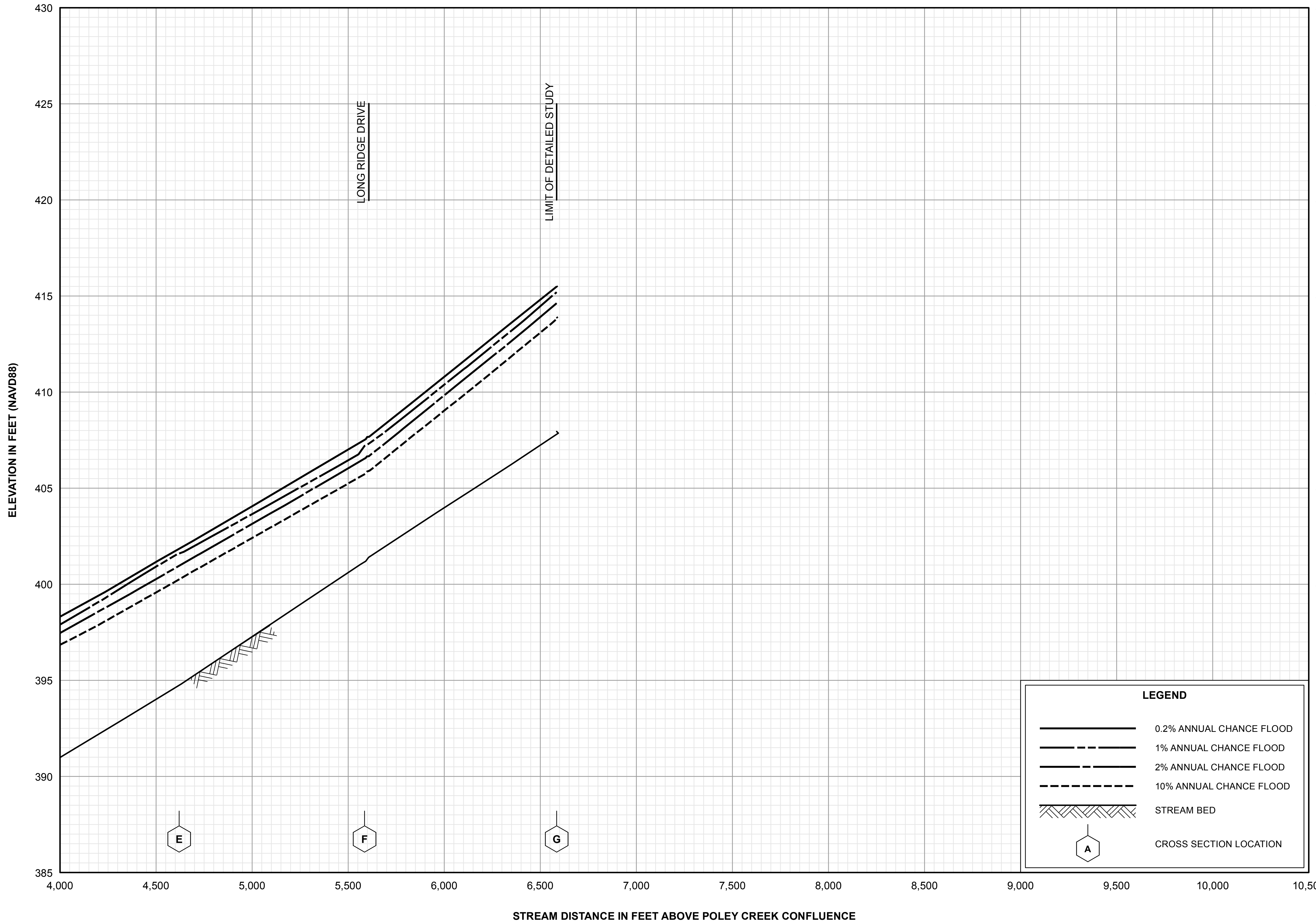


FLOOD PROFILES

POLEY CREEK TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

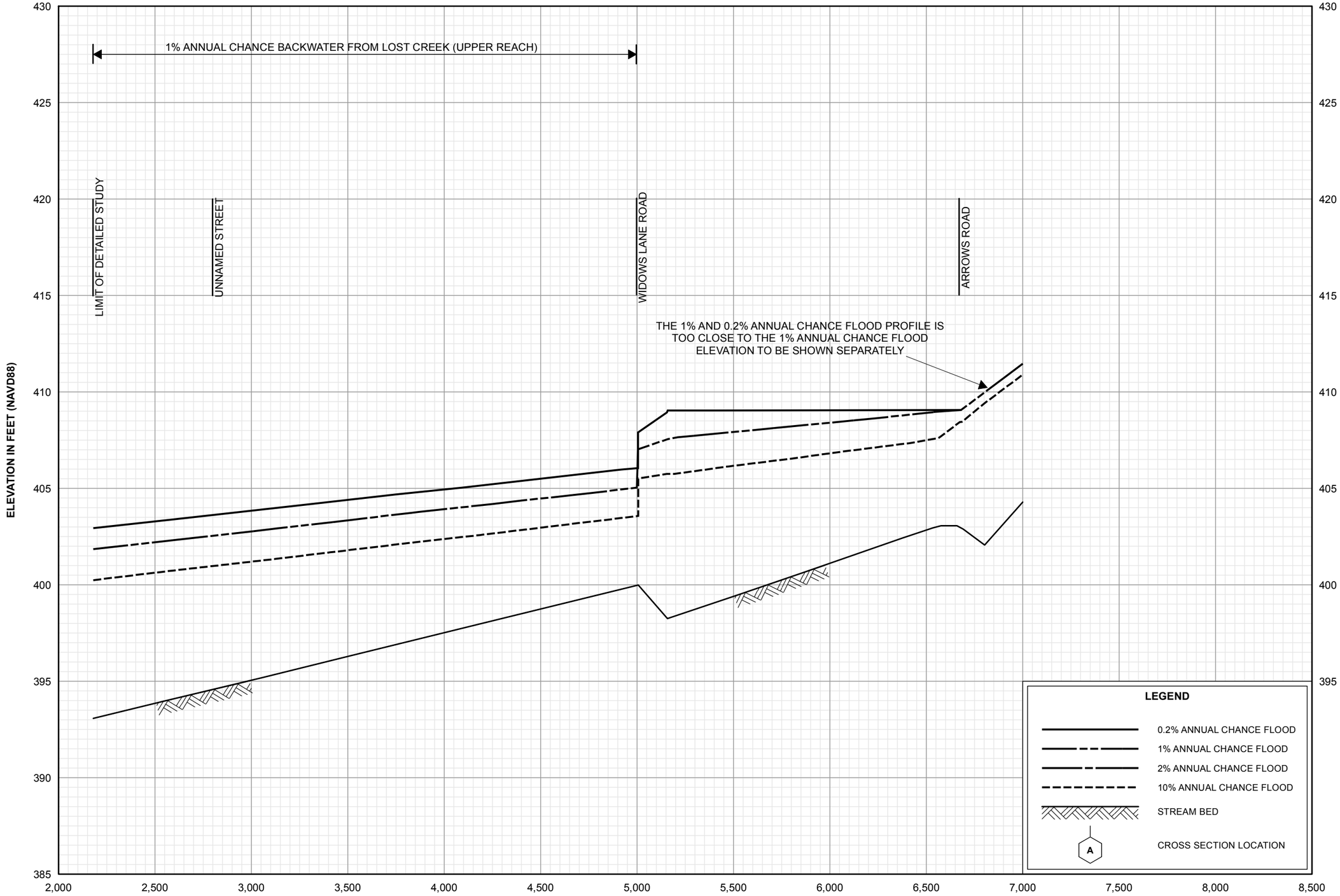


FLOOD PROFILES

POLEY CREEK TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

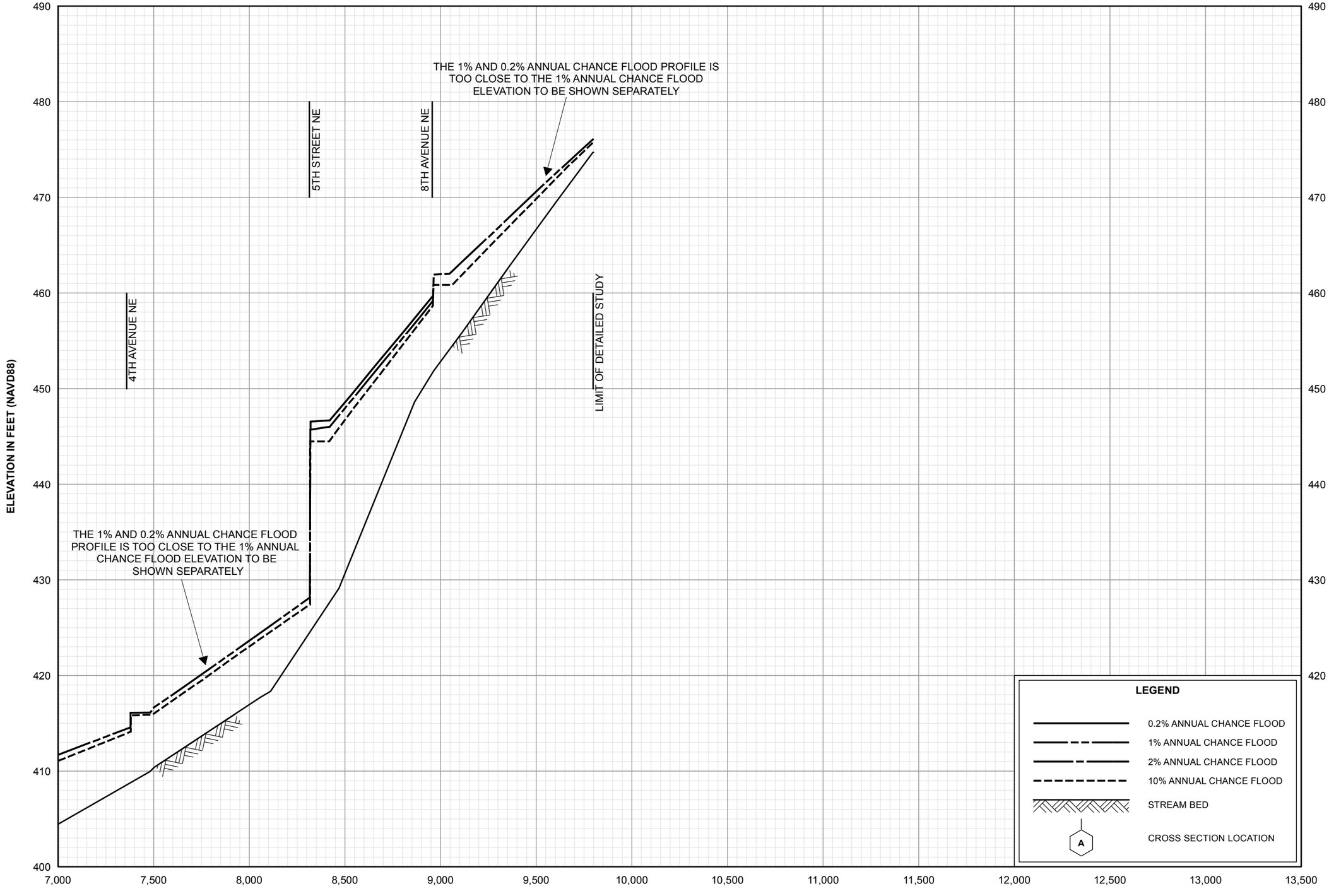


FLOOD PROFILES

POPLAR TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

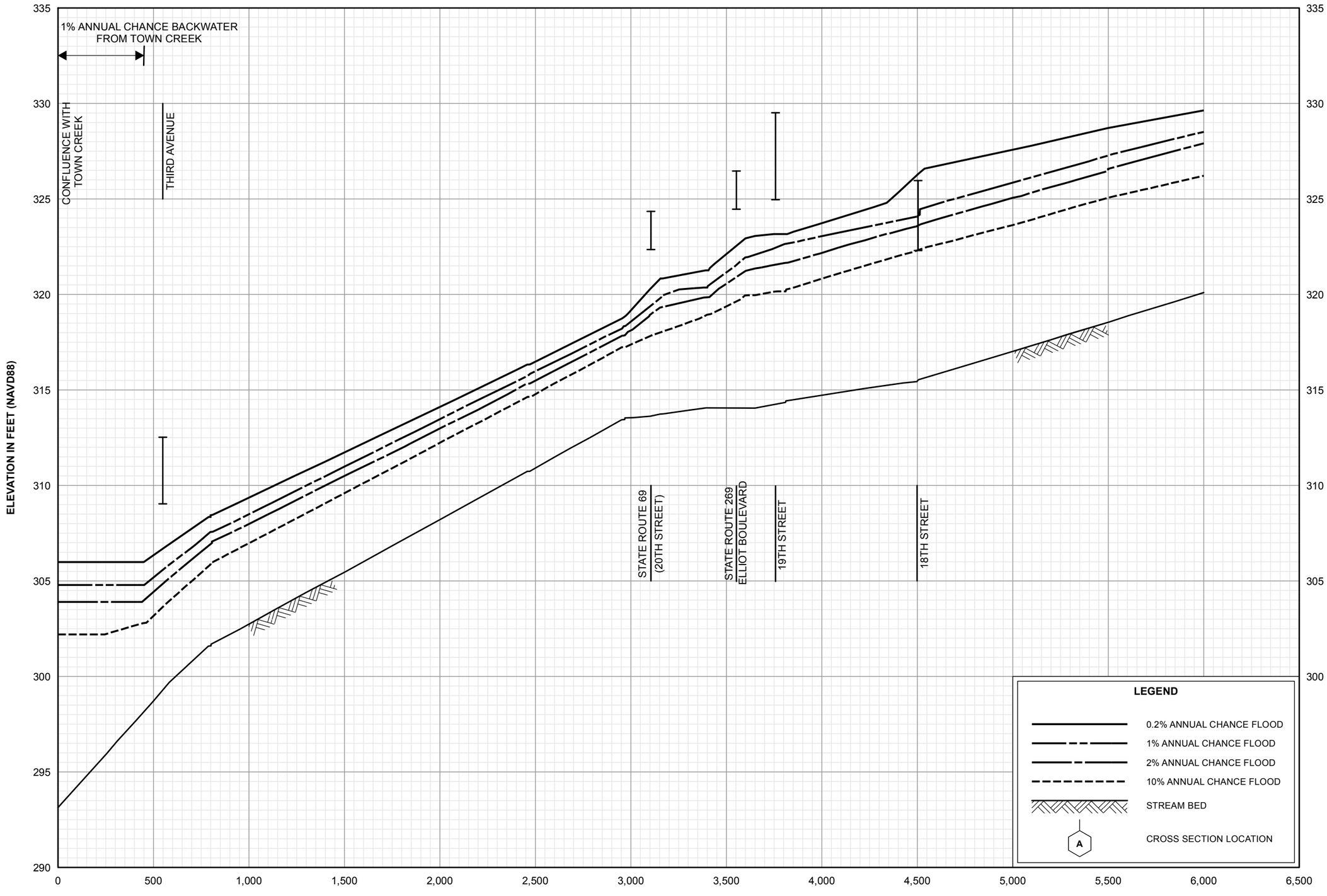


FLOOD PROFILES

POPLAR TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

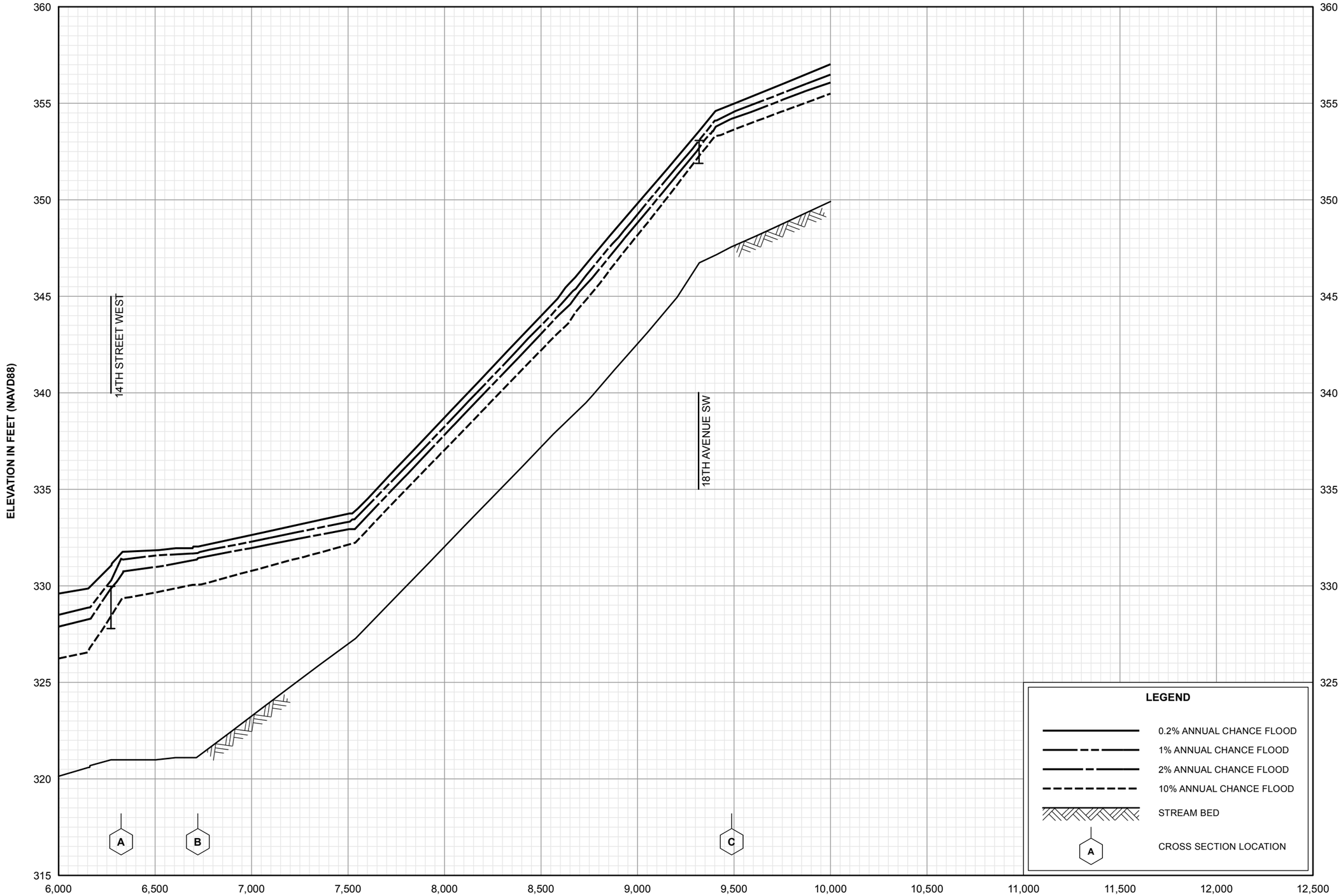


FLOOD PROFILES

TANYARD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS



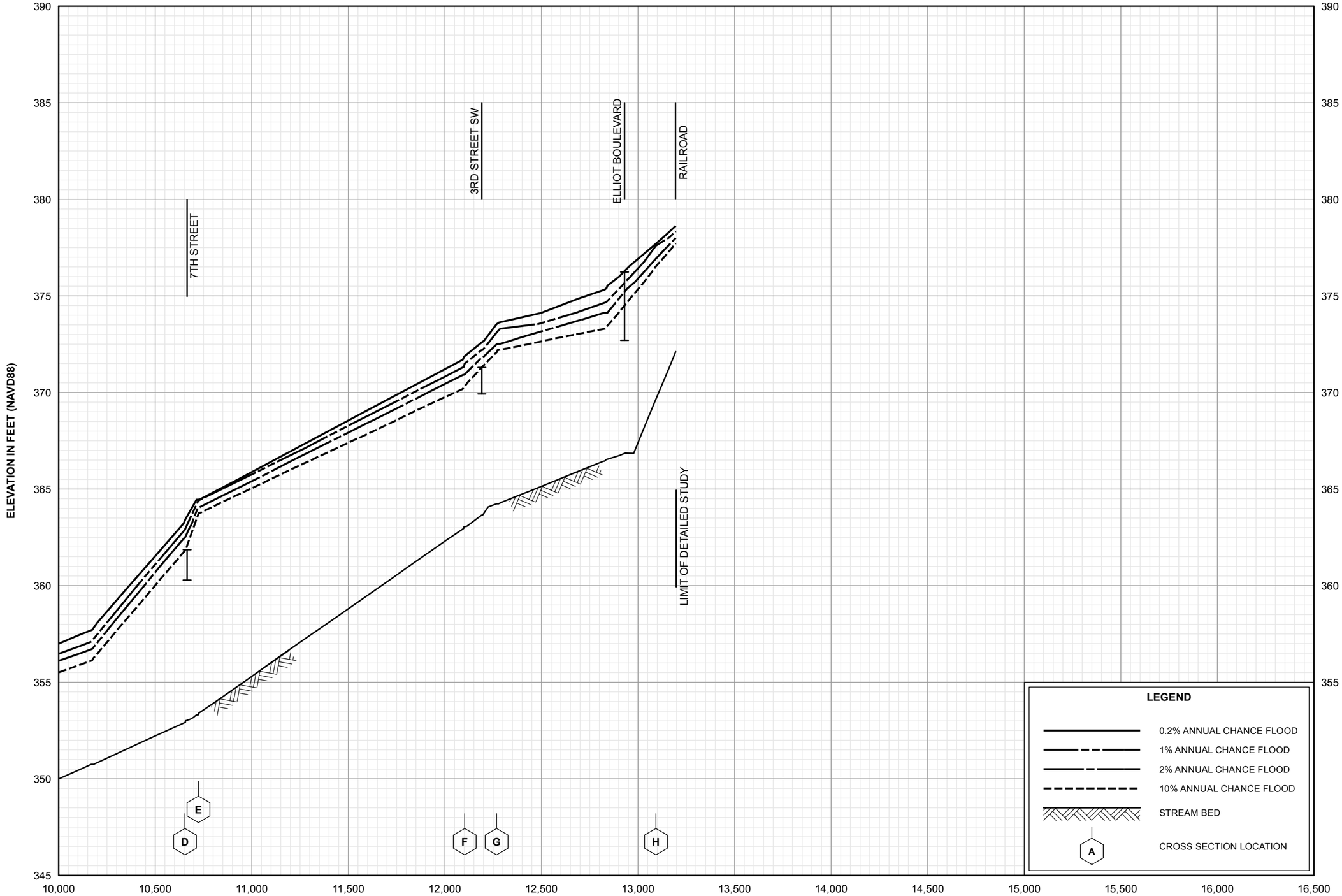
FLOOD PROFILES

TANYARD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

32P

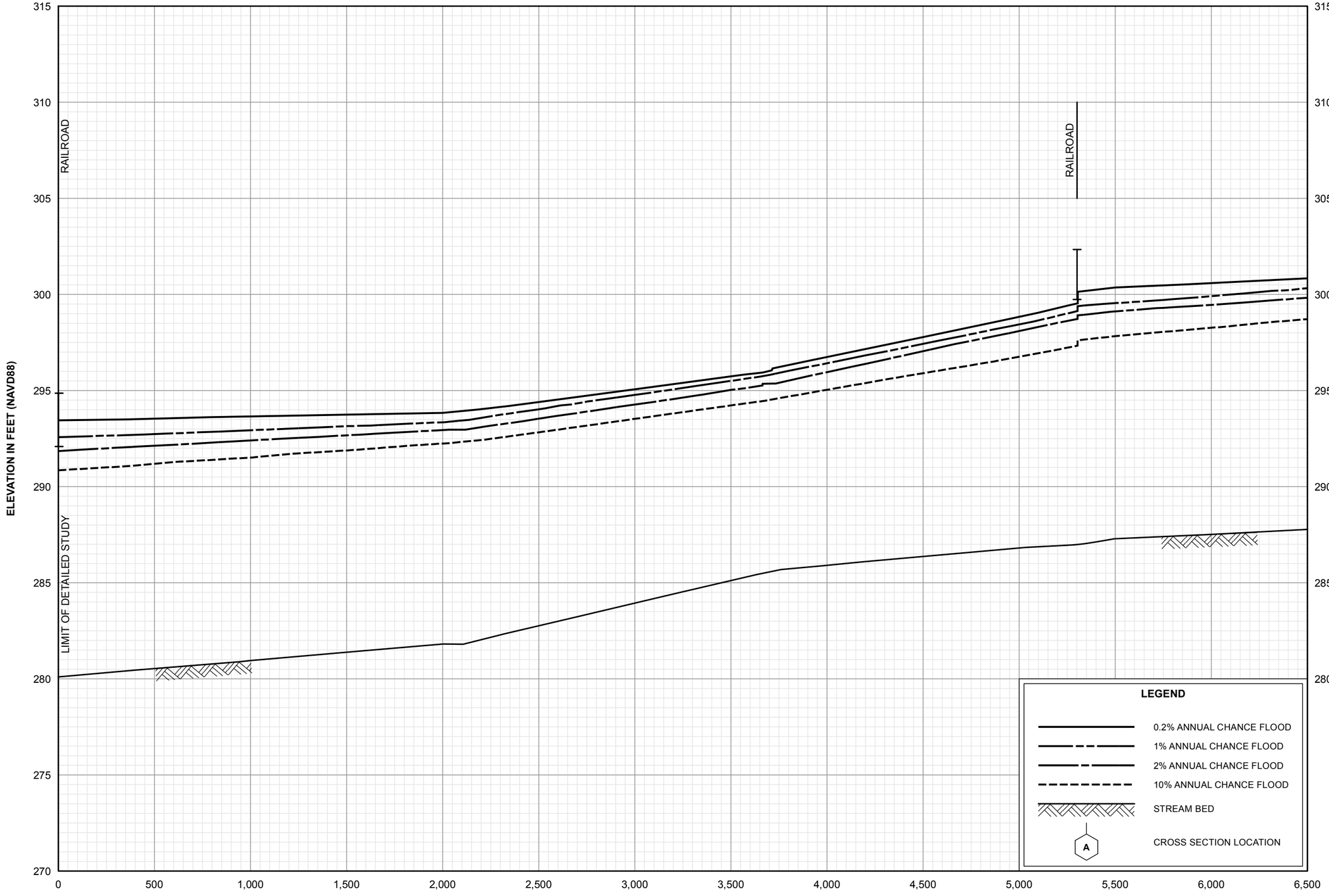


FLOOD PROFILES

TANYARD CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS



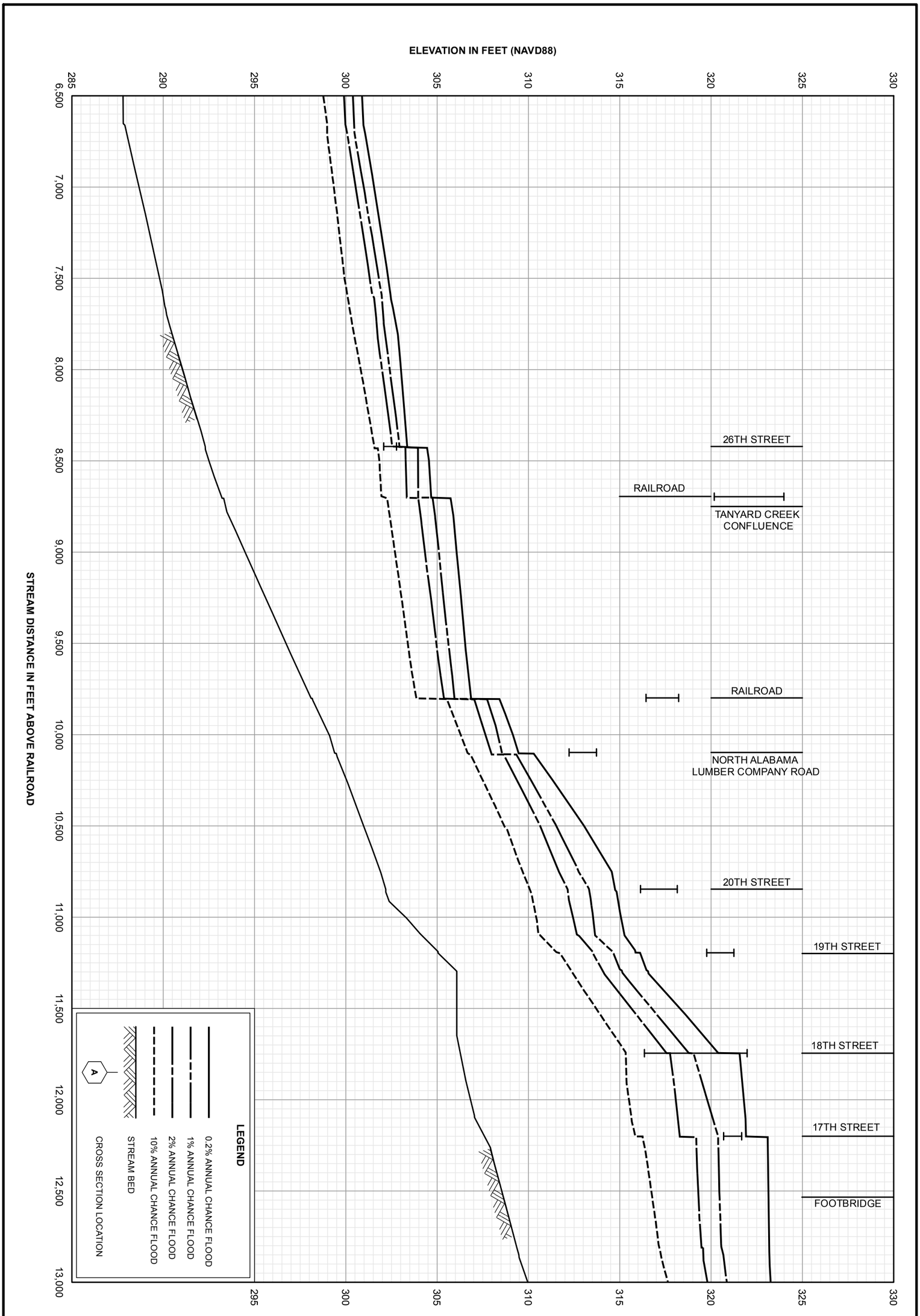
FLOOD PROFILES

TOWN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

34P



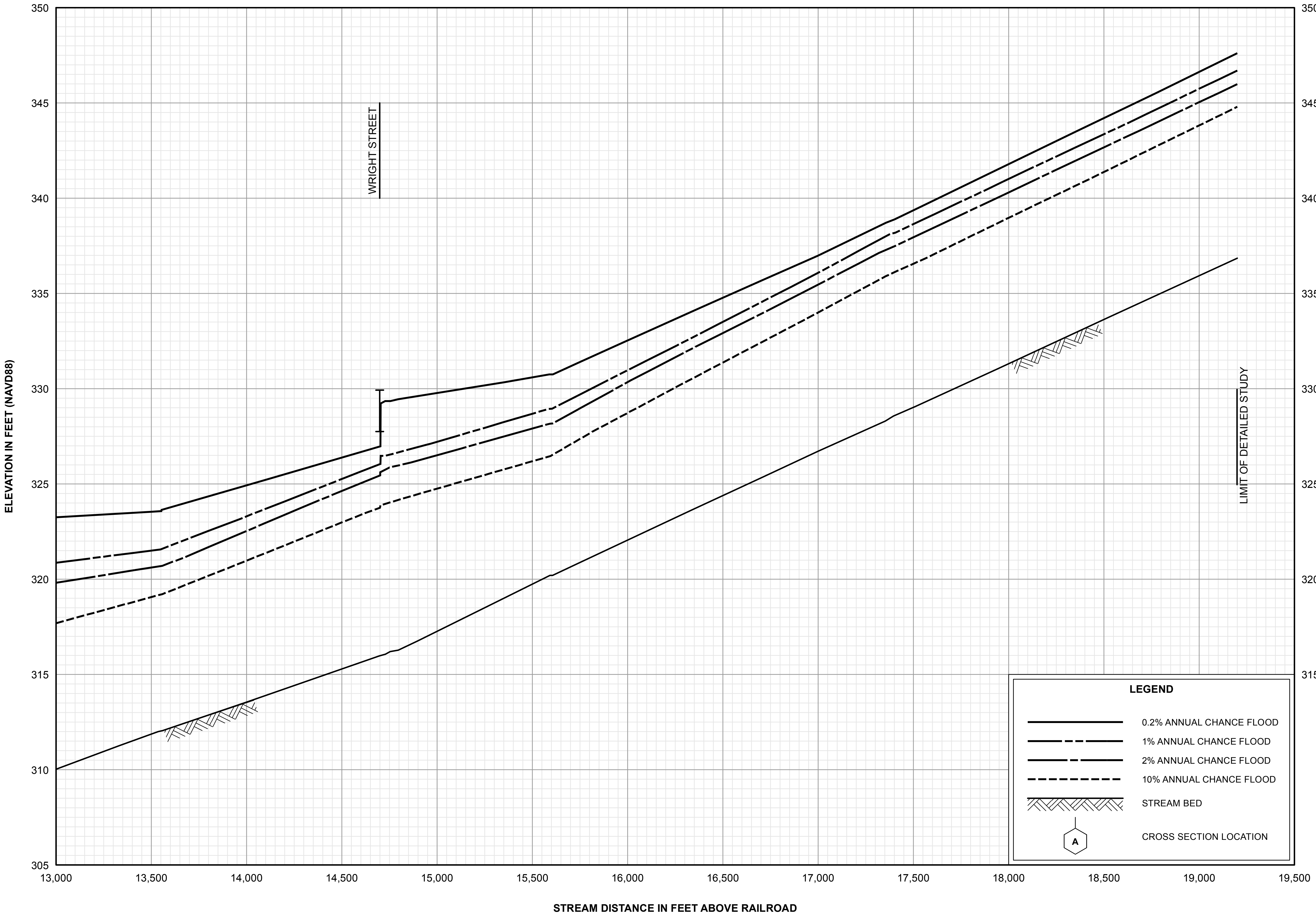
35P

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

FLOOD PROFILES

TOWN CREEK



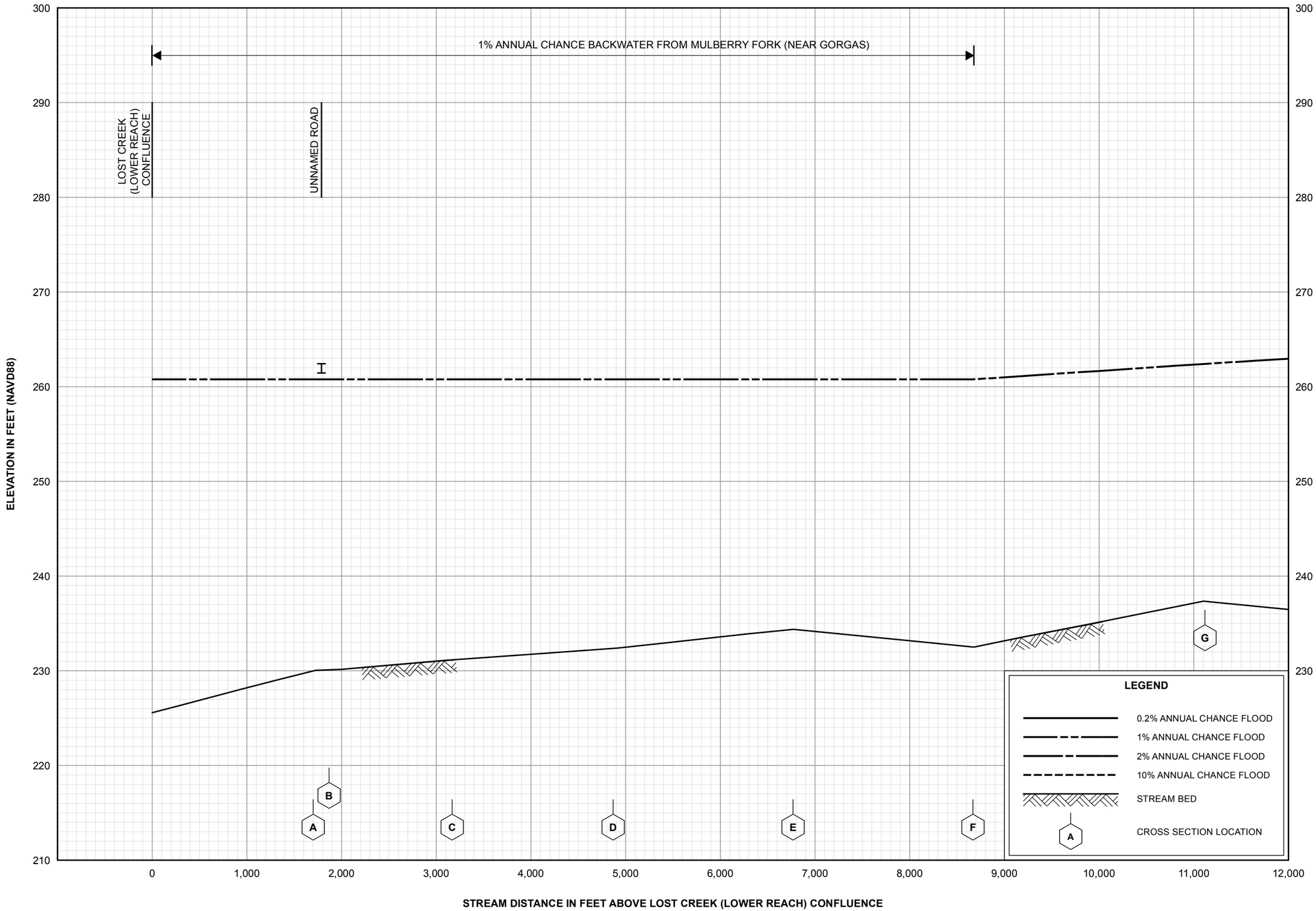
FLOOD PROFILES

TOWN CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

36P



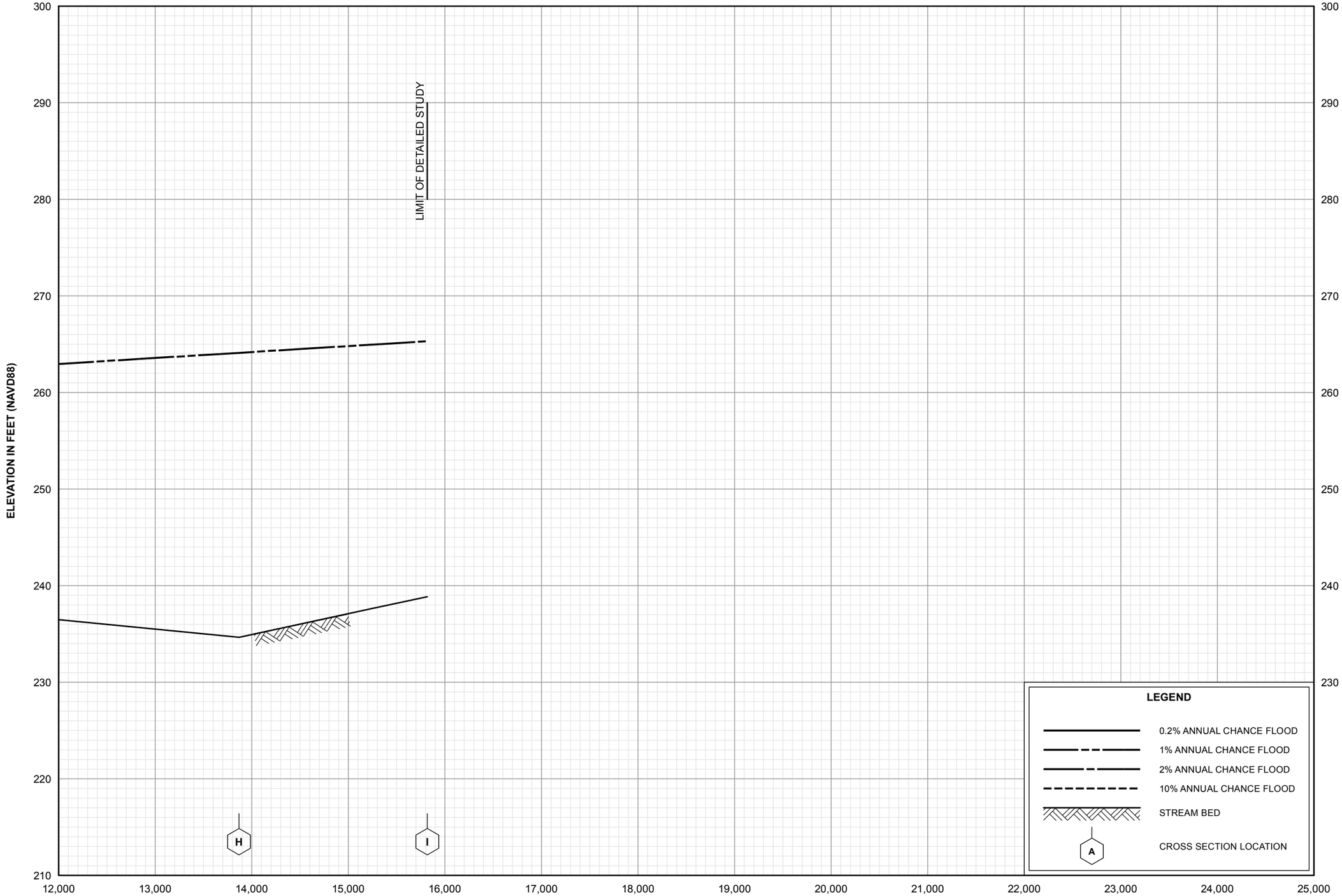
FLOOD PROFILES

WOLF CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS

37P



FLOOD PROFILES

WOLF CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WALKER COUNTY, AL
AND INCORPORATED AREAS