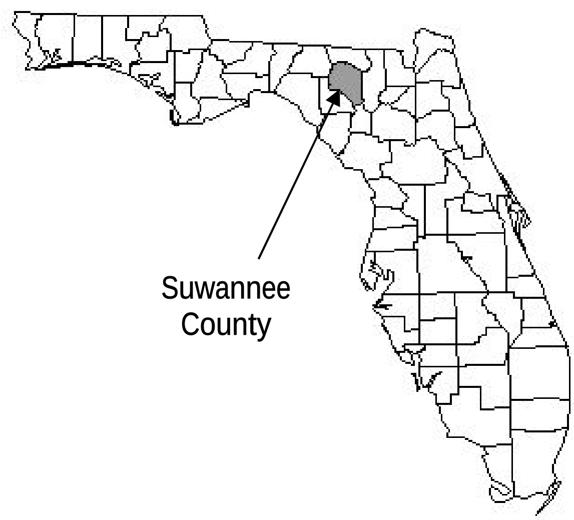
SUWANNEE COUNTY, FLORIDA

AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
BRANFORD, TOWN OF	120301
LIVE OAK, CITY OF	120334
SUWANNEE COUNTY (UNINCORPORATED AREAS)	120300



Revised February 3, 2017

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER

12121CV000C

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.

Initial Countywide FIS Effective Date: September 28, 2007

Revised FIS Effective Date:	April 16, 2013 – To add Base Flood Elevations, to change zone designations, to change Special Flood Hazard Areas, to reflect updated topographic information, to update map format, to add roads and road names, to incorporate previously issued Letters of Map Amendment and to update corporate limits.
	February 3, 2017 – To change Special Flood Hazard Areas, to reflect updated topographic information and to update corporate limits.

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FLOOD INSURANCE STUDY
SUWANNEE COUNTY, FLORIDA AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This countywide Flood Insurance Study (FIS) investigates the existence and severity of flood hazards in, or revises and updates previous FISs/Flood Insurance Rate Maps (FIRMs) for the geographic area of Suwannee County, Florida, including the Town of Branford, the City of Live Oak and the unincorporated areas of Suwannee County (hereinafter referred to collectively as Suwannee County).

This FIS aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This FIS 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 Suwannee County to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP), and will also be used 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 more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

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

September 28, 2007 Countywide Revision

The 2007 countywide FIS was prepared to include the unincorporated areas of, and incorporated communities within, Suwannee County in a countywide format. Information on the authority and acknowledgments for each jurisdiction included in this countywide FIS, as compiled from their previously printed FIS reports, is shown below.

Suwannee County (Unincorporated Areas):	The hydrologic and hydraulic analyses for the FIS report dated January 6, 1988, were performed by the U.S. Army Corps of Engineers (USACE), Jacksonville District, for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. EMW-E-1153, Project Order No. 1. This study was completed in April 1985.
Branford, Town of:	The hydrologic and hydraulic analyses for the January 16, 1987, FIS report were obtained from the FIS for the unincorporated areas of Suwannee County.

The authority and acknowledgements for the City of Live Oak are not available in the 2007 Effective FIS because no FIS reports were ever published for the community.

For the September 2007 countywide FIS, revised hydrologic and hydraulic analyses were prepared for FEMA by URS Corporation under contract with the Suwannee River Water Management District (SRWMD), a FEMA Cooperating Technical Partner (CTP).

The digital base map files were derived from U.S. Geological Survey (USGS) Digital Orthophoto Quadrangles, produced at a scale of 1:12,000 from photography dated 2004.

The coordinate system used for the production of the digital FIRM is State Plane in the Florida North projection zone, referenced to the North American Datum of 1983.

Physical Map Revision, Effective April 16, 2013

For this Physical Map Revision (PMR), AMEC Environment & Infrastructure, Inc. (AMEC) and North Florida Professional Services (NFPS) were chosen to assist SRWMD in maintenance of the Countywide FIS and the Digital Flood Insurance Rate Map (DFIRM) for Suwannee County. Specifically, AMEC and NFPS used modeling inputs and results from previous flood studies to model basins within the City of Live Oak.

The digital base map files consisted of 2010 1-foot resolution aerial photography from the Florida Department of Transportation.

The coordinate system used for the production of the digital FIRM was Florida State Plane HARN North zone, referenced to the North American Datum of 1983.

Physical Map Revision, Effective February 3, 2017

As part of the FEMA Risk MAP Project for the Lower Suwannee Watershed (HUC 03110205), AMEC and NFPS, under contract with SRWMD, revised this Countywide FIS and DFIRM for Suwannee County. More specifically, AMEC and NFPS revised the Zone A Special Flood Hazard Areas (SFHA) on panels 0285, 0295, 0305, 0315, and 0385, as well as the Zone AE SFHA on panels 0094, 0111, 0113, 0207, and 0226.

The digital base map files consisted of 2010 1-foot resolution aerial photography from the Florida Department of Transportation.

The coordinate system used for the production of the digital FIRM was Florida State Plane HARN North zone, referenced to the North American Datum of 1983.

1.3 Coordination

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

Precountywide Revisions

For the unincorporated areas of Suwannee County, an initial CCO meeting was held on May 6, 1983. Representatives of FEMA, the Study Contractor, and the SRWMD were in attendance. On February 18, 1987, the results of the FIS were reviewed and accepted at a final CCO meeting attended by representatives of the Study Contractor, FEMA and the community.

For the Town of Branford, a final CCO meeting was held on February 26, 1986, and was attended by representatives of the community and FEMA.

September 28, 2007 Countywide Revision

For the September 2007 countywide FIS, an initial CCO meeting was held on December 21, 2005. A final CCO meeting was held on November 29, 2006. These meetings were attended by representatives of the study contractors, SRWMD, FEMA, Suwannee County, the Town of Branford, and the City of Live Oak.

Physical Map Revision, Effective April 16, 2013

For this Physical Map Revision, a Project Scoping Meeting was held September 13, 2010. Representatives from AMEC, SRWMD, NFPS, and the City of Live Oak attended. The proposed project scope was presented and comments were incorporated into a Project Scoping Report. Following the completion of hydrology and hydraulics, a Flood Study Review Meeting was held on September 22, 2011 to review the results of the revised flood study for the City of Live Oak. Preliminary DFIRM Community Coordination was held on January 18, 2012.

Physical Map Revision, Effective February 3, 2017

For this PMR, a Risk MAP Discovery Meeting was held on September 8, 2011. A combined Flood Risk Review and Risk MAP Resilience Meeting was held on November 20, 2013 and was attended by representatives of the study contractors, SRWMD, FEMA, Suwannee County, and the City of Live Oak. The final CCO meeting was held on April 28, 2015.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of Suwannee County, Florida.

All or portions of the Suwannee River and the Santa Fe River within Suwannee County were studied by detailed methods. Additionally, 66 closed basin areas within the City of Live Oak and two closed basin areas in Unincorporated Suwannee County with reported flooding problems were studied in detail. Limits of the detailed study area are indicated on the Flood Profiles (Exhibit 1) and on the FIRM (Exhibit 2). The FIS and FIRM for Suwannee County only provide flood hazard information for the portions of the Suwannee River, Santa Fe River and those communities located in Suwannee County.

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

All or portions of 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, the SRWMD and Suwannee County.

2.2 Community Description

Suwannee County, established December 21, 1858, and named for the Suwannee River, occupies 687 square miles in north-central Florida. The county seat is the City of Live Oak. The county is served by Interstates 10 and 75, U.S. Routes 27, 90, and 129, and the CSX railroad. The Suwannee River forms the entire northern and western boundaries, and about 75 percent of the southern boundary of Suwannee County. The river is the boundary between the county and adjacent Hamilton, Madison, and Lafayette Counties. The county is also bordered by Columbia County and separated from Gilchrist County by the Santa Fe River, one of the principal tributaries of the Suwannee River. Other principal tributaries of the Suwannee River are the Withlacoochee River, which separates Madison and Hamilton Counties, and the Alapaha River, which flows through Hamilton County. The 2010 population of the county was reported to be 41,551 an increase of about 19 percent from the 2000 population of 34,847.

The major agricultural crops are timber, poultry, pecans, tobacco, and watermelons. The principal commodities are wood and lumber, food products, and chemicals.

The topography ranges from 10 feet National Geodetic Vertical Datum of 1929 (NGVD) to about 109 feet NGVD. The county is in the Gulf Coastal Lowlands physiographic area. The stratified components are mainly basal rocks, clays, and a unique limestone cap, which is thousands of feet deep and extends over most of the state. The ground water accumulation in the porous limestone forms statewide underground reservoirs known as aquifers. These aquifers feed the numerous springs located in Suwannee County and throughout much of the state.

Suwannee County is comprised of nine soil associations. The following are the major associations adjacent to the Suwannee River: the BlantonKalmia-Swamp Association consists of level, moderately well-drained soils sandy throughout, well-drained soils with thin, sandy layers over loamy subsoil, and low, wet swampy areas. This association is immediately adjacent to the Suwannee River in the entire county. The next association landward, except in the vicinity of the Town of Branford, is the Blanton High-Lakeland consisting of nearly level to excessively sloping drained soils, sandy throughout. The area around Branford is the Blanton-Chiefland Association that consists of nearly level to gently sloping excessively drained soils, sandy throughout, and well-drained sandy soils with loamy subsoil underlain by limestone.

The climate of Suwannee County is semi-tropical, characterized by long, hot summers and mild winters. The average annual rainfall is 53.7 inches, while the average temperature varies from 55.6 degrees Fahrenheit (°F) in January to 81.1 °F in August.

The drainage area of the Suwannee River at the mouth is 9,950 square miles, of which 4,230 square miles are in north-central Florida, and 5,720 square miles are in south-central Georgia. The drainage area of the Santa Fe River, at the mouth, is 1,380 square miles.

2.3 Principal Flood Problems

The Suwannee River experiences greater stage variations than any other river in Florida and creates significant flooding problems.

The most severe floods in the Suwannee River basin are associated with storms, or sequences of storms, that produce widespread distribution of rainfall for several days' duration. Flooding occurs in all seasons, but maximum annual stages occur most frequently from February through April, as a result of a series of frontal-type rainfall events over the basin. The area is also subject to summer and fall tropical disturbances, occasionally of hurricane intensity. Thunderstorms caused by summer air mass activity produce intense rainfall, but the duration is usually short and areal distribution is relatively small. The coastal reach of the Suwannee River is susceptible to tidal flooding from hurricanes and other low pressure systems that produce sustained, strong, westerly component winds.

The largest flood known to have occurred on the Suwannee River in Suwannee County was the flood of March-April 1948. Antecedent conditions were conducive to high surface runoff, ground water levels were high, sinks and depressions were saturated, and most river reaches were experiencing overbank flow. The most intense storm occurred in the 3-day period from March 31 through April 2. A number of residences and commercial establishments were flooded in small towns that border the Suwannee River in Suwannee County.

Water was 8 feet deep in parts of Dowling Park, and 2 to 4 feet deep in Branford and Luraville. Major damage occurred to railroads, highways, bridges, culverts, drainage ditches, and to property from loss of fills. Three weeks of emergency work were required to restore minimum transportation and drainage facilities. Rail and highway traffic was detoured around the area for 2 to 3 weeks, and some rail service was suspended for 6 weeks.

Another large flood occurred on the Suwannee River in Suwannee County in April 1973. Antecedent conditions were conducive to high surface runoff. The 1973 flood was about 3 feet lower than the 1948 flood at the southern end of Suwannee County near the confluence of the Suwannee and Santa Fe Rivers and about 4 feet lower at Dowling Park. Floodwaters remained over the lowlands for about 1 month. Many people evacuated their homes, and Suwannee County was included in the "major disaster area" declared by the President.

The 1928 flood was higher than the 1973 flood at Branford in the southern part of the county and nearly as high at Ellaville. The peak discharges for the 1928 flood at Branford and Ellaville were 65,000 and 73,000 cubic feet per second (cfs), respectively.

Flooding in the spring 1984 along the Suwannee River was about 5.2 feet lower than the 1948 flood at Branford in the southern part of Suwannee County and about 7.4 feet lower at Ellaville in the northern part of the county. Stages were about 1.5 feet higher than the 1959 stages at both Branford and Ellaville.

Table 1 lists historical floods at four locations on the Suwannee River. One of the locations, near the Town of Bell, is downstream of Suwannee County, and another, White Springs, is just upstream of Suwannee County.

TABLE 1 — HISTORICAL FLOODS ON THE SUWANNEE RIVER

	Annual Peak Discharge (cfs)				
Location	1948	1928	2005	2009	2014
Near Be11[2]	82,300	70,000[1]	34,300[1]	34,200[1]	30,600[1]
Location	1948	1928	1973	1998	2009
Near Branford[3]	83,900	65,000[1]	54,700	46,900	42,000
Location	1948	1973	1928	2009	1986
Near Ellaville[3]	95,300	77,100	73,000	57,200	54,400
Location	1973	2012	1948	1984	1964
Near White Springs[3]	38,100	28,800	28,500	26,200	23,300

[1]Estimated values

[2]Located at Rock Bluff Ferry, 10 miles downstream of confluence of the Santa Fe River (USGS Gage No. 02323000)

[3]Detailed location descriptions can be found in Table 2, Section 3.1

2.4 Flood Protection Measures

There are no existing or proposed flood protection projects located in Suwannee County in the Suwannee River Basin.

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 the peak discharge-frequency relationships for the flooding sources studied in detail affecting the county.

Precountywide Revision

Each incorporated community within, and the unincorporated areas of, Suwannee County, with the exception of the City of Live Oak, has a previously printed FIS report. The hydrologic analyses described in those reports have been compiled and are summarized below.

The USGS has been monitoring flows on the Suwannee River since the flood of 1928. Each year the USGS publishes the water resources data collected and periodically reports on the magnitude and frequency of floods. The hydrologic data analyses for this study utilized these publications and the results were coordinated with the USGS.

Regression analyses were used to complete missing data and to extend records at each gaged location to the 57-year period 1928 through 1984. Analyses of discharge records of all gaged locations on the Suwannee River were used to establish a peak discharge-frequency relationship throughout the river. Flood recurrence frequencies were determined by log-Pearson Type III statistical analyses in accordance with procedures recommended by the Interagency Advisory Committee on Water Data (Interagency Advisory Committee on Water Data, 1981).

Hydrology for the Suwannee County reach of the Santa Fe River was performed by standard engineering methods. Rainfall frequency was developed from the U.S. Weather Bureau Technical Paper No. 40 (U.S. Department of Commerce, 1963) and runoff losses were accounted for the U.S. Department of Agriculture, Soil Conservation Service (SCS) curve number techniques. A rainfall-runoff model was developed for the Santa Fe River using the SCS option in the HEC-1 computer program (USACE, 1973). Statistical data from five long-term discharge gages were used to calibrate a hydrologic runoff model.

September 28, 2007 Countywide Revision

Regression analyses were used to complete missing data and to extend records at each gaged location to the 77-year period 1928 through 2004. Analyses of discharge records of all gaged locations on the Suwannee River were used to establish a peak discharge-frequency relationship throughout the river. Flood recurrence frequencies were determined by log-Pearson Type III statistical analyses in accordance with procedures recommended by the Interagency Advisory Committee on Water Data (Interagency Advisory Committee on Water Data, 1981).

For the two closed basin areas, Streamline Technologies ICPR v.3 unsteady flow model was used to estimate flood discharges and elevations for a series of flood frequencies including the 10-, 2-, 1-, and 0.2-percent annual chance events.

Closed Basin Area 1 encompasses an area from west of 113th Street to east of County Road 49 in Suwannee County. The total contributing drainage area for this basin is approximately 1.7 square miles of which approximately 15 percent is composed of urban land use and 85 percent of rural land uses such as upland forests and agriculture. Basin soils consist predominately of fine sands and sands.

Closed Basin Area 2 encompasses an area from west of 99th Street to east of 97th Street in Suwannee County. The total contributing drainage area for this basin is approximately 0.9 square miles of which approximately 8 percent is composed of urban land use and 92 percent of rural land uses such as upland forests and agriculture. Basin soils consist predominately of fine sands and sands.

The rainfall amounts for the 24-hour 10-, 2-, 1-, and 0.2-percent annual chance storm events were obtained from Appendix B of Drainage Manual (Florida Department of Transportation, 1997). A synthetic (Type II Florida Modified) rainfall time distribution was used to develop the ICPR models. Watershed boundaries were delineated using contours derived from the USGS digital elevation model (DEM) of the study area. The SCS Curve Number Method is used in this study to compute the direct runoff resulting from each of the analyzed frequencies. Basin time of concentration was determined using the procedures outlined in the NRCS TR-55 publication. The SCS Unit Hydrograph method is used to generate the hydrographs resulting from the analyzed storms. A unit hydrograph peak factor of 484 was selected.

A summary of the drainage area-peak discharge relationships for all the streams studied by detailed methods are shown in Table 2, "Summary of Discharges."

TABLE 2 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
SUWANNEE RIVER					
Just downstream of the confluence of the Sante Fe River	9,200	37,900	57,900	67,300	91,900
Near Branford (USGS Gage No. 02320500)[1]	7,880	34,800	54,000	62,900	85,300
Near Ellaville (USGS Gage No. 02319500)[2]	6,850	41,000	65,300	76,500	104,000
Just upstream of the confluence of the Withlacoochee River	4,610	26,200	40,500	46,700	63,100
Just downstream of the confluence of the Alapaha River	4,550	27,500	42,700	49,500	63,900
Just upstream of the confluence of the Alapaha River	2,660	15,300	24,700	29,100	41,400
Near White Springs (USGS Gage No. 02315500)[3]	2,390	16,700	28,000	33,600	49,100
At Branford	7,880	34,800	54,000	62,900	85,300
SANTA FE RIVER					
At mouth	1,380	8,457	13,409	16,359	22,200

[1]On north side of bridge for U.S. Routes 27 and 129 near east bank of the Suwannee River - records July 1931 to date.
[2]On south bank of the Suwannee River 900 feet east of U.S. Route 90 - records January 1927 to date.
[3]Near east bank on south side of U.S. Route 41 bridge - records February 1927 to date.

The stillwater elevations have been determined for the 10-, 2-, 1-, and 0.2-percent annual chance floods for the flooding sources studied by detailed methods and are summarized in Table 3, "Summary of Stillwater Elevations."

Physical Map Revision, Effective April 16, 2013

For this revised analysis, AMEC and NFPS used models created for a LOMR application in 2000 by Hartman and Associates, Inc. (HAI) to model basins within the City of Live Oak. These models were reviewed for accuracy and adherence to FEMA guidelines and specifications and for application to current 2011 field conditions. The existing basins mapped by HAI were redelineated to total 65 basins.

For these 65 closed basin areas, Streamline Technologies ICPR v.3.1, Service Pack 7 was used to estimate flood discharges and elevations for the 1-percent annual chance event.

The rainfall amounts for the 24-hour 1-percent annual chance storm event were obtained from Appendix B of Drainage Manual (Florida Department of Transportation, 1997). A synthetic (SCS Type II Florida Modified) rainfall time distribution was used to develop the ICPR models. Watershed boundaries were delineated using contours derived from 2007 LiDAR and aerial imagery provided by FDOT collected in 2010. The SCS Curve Number Method is used in this study to compute the direct runoff resulting from each of the analyzed frequencies. Basin time of concentration was determined using the procedures outlined in the NRCS TR-55 publication. The SCS Unit Hydrograph method is used to generate the hydrographs resulting from the analyzed storms. A unit hydrograph peak factor of 484 was selected.

Physical Map Revision, Effective February 3, 2017

For this PMR, no new hydrologic and/or hydraulic analyses were performed.

TABLE 3 - SUMMARY OF STILLWATER ELEVATIONS

	ELEVATION (feet NAVD)			
FLOODING SOURCE	10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
CLOSED BASIN AREA IA	88.8	89.9	91.0	93.0
CLOSED BASIN AREA 1B	99.6	100.1	100.1	100.3
CLOSED BASIN AREA 1C	87.1	90.0	91.0	93.0
CLOSED BASIN AREA 1D	114.6	115.0	115.1	115.2
CLOSED BASIN AREA 1E	125.1	125.4	125.4	125.6
CLOSED BASIN AREA 1F	103.4	103.6	103.6	103.7
CLOSED BASIN AREA 2A	99.4	99.4	99.4	99.5
CLOSED BASIN AREA 2B	98.0	98.2	98.4	98.5

TABLE 3 - SUMMARY OF STILLWATER ELEVATIONS

FLOODING SOURCE	ELEVATION (feet NAVD) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
CLOSED BASIN AREA 2C	90.5	92.5	93.2	95.0
CLOSED BASIN AREA 2D	91.0	92.5	93.1	94.3
CLOSED BASIN AREA 2E	102.9	103.5	103.8	104.2
CLOSED BASIN AREA A1A	n/a	n/a	96.2	n/a
CLOSED BASIN AREA A1B1	n/a	n/a	96.0	n/a
CLOSED BASIN AREA A1B2	n/a	n/a	96.0	n/a
CLOSED BASIN AREA A1B3	n/a	n/a	100.2	n/a
CLOSED BASIN AREA A1C	n/a	n/a	99.4	n/a
CLOSED BASIN AREA A1D	n/a	n/a	100.9	n/a
CLOSED BASIN AREA A1E1	n/a	n/a	100.6	n/a
CLOSED BASIN AREA A1E2	n/a	n/a	99.2	n/a
CLOSED BASIN AREA A5A	n/a	n/a	104.0	n/a
CLOSED BASIN AREA A5B	n/a	n/a	97.2	n/a
CLOSED BASIN AREA B1A1	n/a	n/a	101.6	n/a
CLOSED BASIN AREA B1A2	n/a	n/a	100.8	n/a
CLOSED BASIN AREA B1B	n/a	n/a	97.1	n/a
CLOSED BASIN AREA B2	n/a	n/a	99.6	n/a
CLOSED BASIN AREA B3	n/a	n/a	106.0	n/a
CLOSED BASIN AREA C1	n/a	n/a	87.0	n/a
CLOSED BASIN AREA C2	n/a	n/a	100.8	n/a
CLOSED BASIN AREA C3A	n/a	n/a	95.3	n/a
CLOSED BASIN AREA C3B	n/a	n/a	100.0	n/a
CLOSED BASIN AREA C3C	n/a	n/a	100.9	n/a
CLOSED BASIN AREA C3D	n/a	n/a	95.5	n/a
CLOSED BASIN AREA D1A	n/a	n/a	105.2	n/a
CLOSED BASIN AREA D1B	n/a	n/a	108.6	n/a
CLOSED BASIN AREA D1C	n/a	n/a	105.2	n/a
CLOSED BASIN AREA D1D	n/a	n/a	105.3	n/a
CLOSED BASIN AREA D1E1	n/a	n/a	105.9	n/a
CLOSED BASIN AREA D1E2	n/a	n/a	105.7	n/a
CLOSED BASIN AREA D1F1	n/a	n/a	107.1	n/a
CLOSED BASIN AREA D1F2	n/a	n/a	112.4	n/a
CLOSED BASIN AREA D2	n/a	n/a	102.9	n/a
CLOSED BASIN AREA D3	n/a	n/a	113.2	n/a
CLOSED BASIN AREA E	n/a	n/a	99.7	n/a
CLOSED BASIN AREA F1	n/a	n/a	107.1	n/a
CLOSED BASIN AREA F2	n/a	n/a	61.0	n/a
CLOSED BASIN AREA G1	n/a	n/a	101.2	n/a
CLOSED BASIN AREA G2A1	n/a	n/a	100.6	n/a
CLOSED BASIN AREA G2A2	n/a	n/a	99.6	n/a
CLOSED BASIN AREA G2B	n/a	n/a	95.4	n/a
CLOSED BASIN AREA G3	n/a	n/a	95.4	n/a
CLOSED BASIN AREA G4A	n/a	n/a	90.5	n/a
CLOSED BASIN AREA G4B	n/a	n/a	99.1	n/a
CLOSED BASIN AREA G5	n/a	n/a	93.8	n/a
CLOSED BASIN AREA G6A	n/a	n/a	95.9	n/a
CLOSED BASIN AREA G6B	n/a	n/a	98.3	n/a

TABLE 3 - SUMMARY OF STILLWATER ELEVATIONS

FLOODING SOURCE	ELEVATION (feet NAVD) 10-PERCENT	2-PERCENT	1-PERCENT	0.2-PERCENT
CLOSED BASIN AREA G7A	n/a	n/a	99.1	n/a
CLOSED BASIN AREA G7B	n/a	n/a	103.2	n/a
CLOSED BASIN AREA G9A2	n/a	n/a	97.8	n/a
CLOSED BASIN AREA G9B1	n/a	n/a	100.6	n/a
CLOSED BASIN AREA G9B2	n/a	n/a	108.3	n/a
CLOSED BASIN AREA H1	n/a	n/a	106.4	n/a
CLOSED BASIN AREA H2	n/a	n/a	105.4	n/a
CLOSED BASIN AREA I1	n/a	n/a	98.3	n/a
CLOSED BASIN AREA I10	n/a	n/a	100.1	n/a
CLOSED BASIN AREA I2	n/a	n/a	91.0	n/a
CLOSED BASIN AREA I3A	n/a	n/a	98.8	n/a
CLOSED BASIN AREA I3B	n/a	n/a	95.9	n/a
CLOSED BASIN AREA I4A1	n/a	n/a	95.6	n/a
CLOSED BASIN AREA I4A2	n/a	n/a	94.8	n/a
CLOSED BASIN AREA I5A	n/a	n/a	96.4	n/a
CLOSED BASIN AREA I5B	n/a	n/a	96.5	n/a
CLOSED BASIN AREA I6	n/a	n/a	96.6	n/a
CLOSED BASIN AREA I7	n/a	n/a	86.2	n/a
CLOSED BASIN AREA I8	n/a	n/a	96.0	n/a
CLOSED BASIN AREA I9	n/a	n/a	96.9	n/a
CLOSED BASIN AREA K2	n/a	n/a	103.0	n/a

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 is 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.

Precountywide Analyses

Each incorporated community within, and the unincorporated areas of, Suwannee County, with the exceptions of the City of Live Oak has a previously printed FIS report. The hydraulic analyses described in those reports have been compiled and are summarized below.

Cross-section data were obtained by aerial survey methods from photography flown for the floodplain areas and by field measurements for the main channel and immediate overbanks (USACE, 1982). All bridges were field surveyed to obtain elevation data and structural geometry. Cross sections were located at close intervals upstream and downstream of bridges in order to compute hydraulic effects of these structures.

Water-surface elevations of floods of the selected recurrence intervals were computed through use of the USACE HEC-2 step-backwater computer program (USACE, 1976). Roughness coefficients (Manning's "n") used in the hydraulic computation were determined by analyzing known flood events in the Suwannee County reach of the Suwannee River.

Analysis of known flood events resulted in the development of two separate computational models to determine water-surface levels for the selected recurrence intervals. The only difference between these models is in the designation of the overbank roughness coefficients. Within the Suwannee County reach of the river, the overbank area has sandy soils and low relief with considerable vegetation. In addition, limestone formations are located near the surface of the ground. There are numerous depressions and sinkholes that affect the flow characteristics in the overbank. One computational model was used for floods on the 10- to 100-year recurrence interval. Flood events within this range were greatly influenced by the overbank depressions. Various flood magnitudes and depression sizes and locations create conditions where floodwaters enter, but do not necessarily exit these depressions as surface flow. Therefore, the overbank depressions provide storage but the conveyance is restricted. Roughness coefficients for this model ranged from 0.035 to 0.060 for the main channel and 0.20 to 0.48 for the overbank. The second computational model was used for the 500-year flood only. At this level of flooding, the effects of the overbank depression were less significant and a constant roughness coefficient of 0.20 was used. Observed data from the 1948 flood, which is the greatest flood of record and exceeds the 100-year recurrence interval, were used to verify the 0.20 roughness coefficient. Calibration and verification of both computational models were based on the ability of the model to reproduce the known flood elevation with an accuracy of 0.5 foot.

Roughness coefficients used in the hydraulic computation for the Santa Fe River were 0.045 for the main channel and 0.280 for the overbank. Calibration of the computational model was based on the reproduction of the 1964 flood profile, and the verification was based on the reproduction of the 1948 flood profile.

Starting water-surface elevations for the Suwannee County reach of the Suwannee River were based on the slope-area method. The starting water-surface elevations for the Santa Fe River were obtained from the flood elevations of the Suwannee River at its confluence with the Santa Fe River.

<u>September 28, 2007 Countywide Revision</u>

The Suwannee River HEC-2 step-backwater model was converted to HEC-RAS by the Suwannee River Water Management District (SRWMD).

For this revised analysis, the SRWMD HEC-RAS files incorporated new field survey at eight road bridge crossings and the HEC-RAS files were upgraded to version 3.1.3 (USACE, 2005). Field survey was conducted by Southeastern Surveying, Inc.

The new bridge surveys were conducted to verify the structure geometry and update the adjacent cross sections for any physical changes that have occurred since the effective study. The setup of the bridges in the model was also updated to conform with the recommended bridge modeling approaches presented in the HEC-RAS Users Manual (USACE, 2002).

All of the above field surveys were established with vertical control in the North American Vertical Datum of 1988 (NAVD 88). Also all of the NGVD 1929 elevation data in the input HEC-RAS files from the SRWMD were converted to NAVD 88. Therefore, the input and output of the revised HEC-RAS files now reflect elevations in NAVD 88.

For the two closed basin areas, Streamline Technologies ICPR v.3 unsteady flow model was used to estimate flood levels. The development of the model schematic was performed using ArcGIS. Various sources were utilized in developing the schematic including GIS shapefiles of the transportation network, ortho-aerial photography of Suwannee County, DEM of Suwannee County and contours derived from the DEM. An ArcGIS automated subroutine was used to determine the stage-area relationships for each subbasin. Overtopping weirs are used in ICPR to transfer water between the storage areas. The cross sections for the overtopping weirs were derived using the DEM for Suwannee County. Starting water surface elevations for each subbasin were determined from the DEM. An ICPR model for each of the study areas was developed based on the information described above.

Physical Map Revision, Effective April 16, 2013

For the 65 closed basin areas studied as part of this revision, Streamline Technologies ICPR v.3.1, Service Pack 7 was used to estimate flood levels. The development of the model schematic was performed using ArcGIS. Various sources were utilized in developing the schematic including GIS shapefiles of the transportation network, ortho-aerial photography of Suwannee County, DEM of Suwannee County and contours derived from the DEM.

The stage-area relationships for each closed basin were created using contours derived from 2007 LiDAR and aerial imagery provided by FDOT. Starting water surface elevations for each basin were determined from the 2007 LiDAR. Basin connectivity was also revised using new topography information and field investigation. The presence of drainage wells and natural sinkholes were also considerations while modeling these basins. An ICPR model for each of the study areas was developed based on the information described above.

Physical Map Revision, Effective February 3, 2017

For this PMR, no new hydrologic and/or hydraulic analyses were performed.

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

Stability C: Monuments which may be affected by surface ground movements (e.g., concrete mounted 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 monument 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 benchmarks, please contact the Information Services Branch of the NGS at (301) 713-3242 or visit their 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 Technical Support Data Notebook associated with the FIS report and FIRM for this community.

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 NGVD 29. This may result in differences in base flood elevations across the corporate limits between the communities.

Prior versions of the FIS report and FIRM were referenced to NGVD 29. When a datum conversion is effected for an FIS report and FIRM, the Flood Profiles, base flood elevations and ERMs reflect the new datum values. To compare structure and ground elevations to 1% annual chance flood elevations shown in the FIS and on the FIRM, the subject structure and ground elevations must be referenced to the new datum values.

As noted above, the elevations shown in the FIS report and on the FIRM for Suwannee County are referenced to NAVD 88. Ground, structure, and flood elevations may be compared and/or referenced to NGVD 29 by applying a standard conversion factor. The conversion factor from NGVD 29 to NAVD 88 is -0.72 feet. The BFEs shown on the FIRM represent whole-foot rounded values. For example, a BFE of 102.4 will appear as 102 on the FIRM and 102.6 will appear as 103. Therefore, users that wish to convert the elevations in this FIS to NGVD 29 should apply the stated conversion factor(s) to elevations shown on the Flood Profiles and supporting data tables in the FIS report, which are shown at a minimum to the nearest 0.1 foot.

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 Spatial Reference System Division, National Geodetic Survey, NOAA, Silver Spring Metro Center, 1315 East-West Highway, Silver Spring, 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. Therefore, each FIS provides 1-percent-annual-chance flood elevations and delineations of the 1- and 0.2-percent-annual-chance floodplain boundaries and 1-percent-annual-chance floodway to assist communities in developing floodplain management measures. 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 community. For the streams studied in detail, the 1- and 0.2-percent annual chance floodplains 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 1:2,000 with a contour interval of 5 to 10 feet (USGS, 1968, et cetera). Floodplain boundaries for closed basin areas within the City of Live Oak were delineated using Light Detection and Ranging (LiDAR) derived topography, collected in 2007. For the February 3, 2017 PMR, the floodplain boundaries for a portion of the Suwannee River were redelineated, using effective base flood elevations, on Light Detection and Ranging (LiDAR) derived topography.

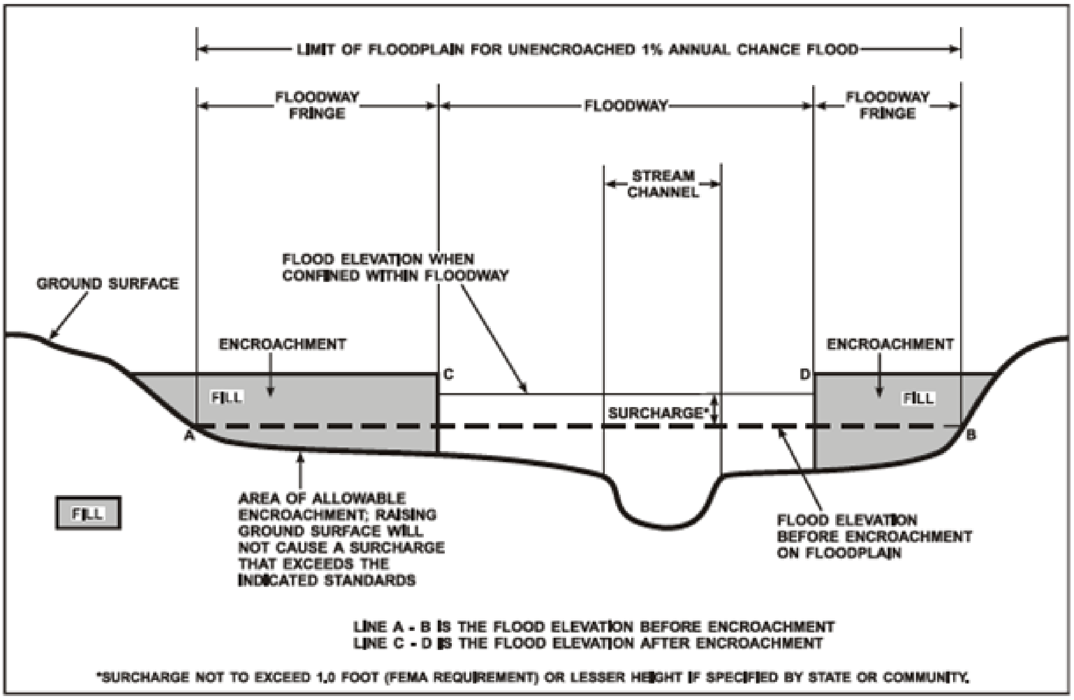
The 1- and 0.2-percent annual chance floodplain boundaries are shown on the FIRM (Exhibit 2). On this map, the 1-percent-annual-chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE), and the 0.2-percent-annual-chance floodplain boundary corresponds 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.

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 study are presented to local agencies as a minimum standard that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodway 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. The results of the floodway computations are tabulated for selected cross sections (Table 5). 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. Portions of the floodways for both the Suwannee River and Santa Fe River extend beyond the county boundary.

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 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.



<u>Figure 1- Floodway Schematic</u>

FLOODING SOURCE		FLOODWAY			1-PERCENT ANNUAL CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
SUWANNEE RIVER								
A	68.53	5,719	86,831	0.7	31.6	31.6	32.5	0.9
B	69.16	7,184	63,571	1.0	31.7	31.7	32.6	0.9
C	71.96	6,076	65,426	1.0	33.0	33.0	33.9	0.9
D	73.09	5,074	70,948	0.9	33.9	33.9	34.8	0.9
E	74.71	3,764	43,416	1.4	34.8	34.8	35.6	0.8
F	75.58	4,624	58,020	1.1	35.4	35.4	36.2	0.8
G	77.99	2,991	52,449	1.2	37.1	37.1	37.9	0.8
H	79.01	4,553	59,388	1.1	37.6	37.6	38.5	0.9
I	79.52	4,686	60,406	1.0	37.9	37.9	38.7	0.8
J	81.59	4,220	54.121	1.2	39.0	39.0	39.9	0.9
K	83.08	4,359	67,031	0.9	39.8	39.8	40.7	0.9
L	84.85	3,534	41,941	1.5	40.6	40.6	41.6	1.0
M	85.95	4,170	46,122	1.4	41.4	41.4	42.3	0.9
N	86.73	3,426	57,456	1.1	42.0	42.0	42.9	0.9
O	88.24	2,724	35,138	1.8	43.1	43.1	43.9	0.8
P	90.11	2,835	27,142	2.4	44.3	44.3	45.2	0.9
Q	91.48	2,320	31,276	2.0	45.5	45.5	46.4	0.9
R	93.85	2,015	24.335	2.7	47.5	47.5	48.3	0.8
S	95.91	4,291	61,893	1.1	49.3	49.3	50.2	0.9
T	96.60	5,300	77,900	0.8	49.6	49.6	50.5	0.9
U	98.23	6,750	85,263	0.8	50.6	50.6	51.5	0.9
V	99.18	6,112	72,336	0.9	50.8	50.8	51.8	1.0
W	100.51	3,526	51,358	1.3	51.4	51.4	52.4	1.0
X	101.82	4,308	60,708	1.1	52.2	52.2	53.2	1.0
Y	102.89	3,403	65,530	1.0	52.8	52.8	53.7	0.9
Z	104.03	3.568	60,044	1.1	53.3	53.3	54 2	0.9

[1]Miles above mouth.
[2]This width extends beyond county boundary.

TABLE 4

FEDERAL EMERGENCY MANAGEMENT AGENCY
SUWANNEE COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

SUWANNEE RIVER

FLOODING SOURCE		FLOODWAY			1-PERCENT ANNUAL CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
SUWANNEE RIVER (cont.)								
AA	105.36	3,463	58,386	1.2	53.7	53.7	54.7	1.0
AB	106.69	4,335	68,197	1.0	54.3	54.3	55.3	1.0
AC	107.88	2,589	41,911	1.7	54.9	54.9	55.9	1.0
AD	108.57	2,733	47,512	1.5	55.4	55.4	56.3	0.9
AE	109.87	3,163	70,207	1.0	56.0	56.0	57.0	1.0
AF	111.18	2,974	44.634	1.6	56.8	56.8	57.7	0.9
AG	112.46	2,266	32,720	2.1	57.6	57.6	58.5	0.9
AH	112.83	2,988	61,580	1.1	58.1	58.1	59.0	0.9
AI	113.29	3,677	52,250	1.4	58.4	58.4	59.2	0.8
AJ	114.94	2,627	44.594	1.6	59.3	59.3	60.2	0.9
AK	117.17	4,434	81,778	0.9	60.1	60.1	61.0	0.9
AL	118.66	4,824	75,722	0.9	60.7	60.7	61.6	0.9
AM	120.87	6,136	91,171	0.8	61.6	61.6	62.5	0.9
AN	122.45	4,611	63,231	1.1	62.3	62.3	63.2	0.9
AO	124.42	7,996	110,861	0.6	63.1	63.1	64.0	0.9
AP	126.58	4,529	69,121	1.1	64.5	64.5	65.4	0.9
AQ	128.83	4,434	80,769	0.6	66.2	66.2	67.1	0.9
AR	132.59	5,469	86,518	0.5	67.4	67.4	68.3	0.9
AS	134.39	2,585	38,526	1.3	68.3	68.3	69.2	0.9
AT	135.59	2,437	35,508	0.8	69.4	69.4	70.3	0.9
AU	136.66	2,108	24,152	1.2	70.2	70.2	71.0	0.8
AV	138.01	2,159	38,209	0.8	70.9	70.9	71.7	0.8
AW	140.18	3,662	57,042	0.5	71.4	71.4	72.2	0.8
AX	141.82	3,184	36,231	0.8	72.0	72.0	72.9	0.9
AY	142.79	2,862	44,036	0.7	72.8	72.8	73.6	0.8
AZ	144.26	2.642	67,725	0.4	73.3	73.3	74.1	0.8

[1]Miles above mouth.
[2] This width extends beyond county boundary.

TABLE 4

FEDERAL EMERGENCY MANAGEMENT AGENCY
SUWANNEE COUNTY, FL
AND INCORPORATED AREAS

FLOODWAY DATA

SUWANNEE RIVER

FLOODING SOURCE		FLOODWAY			1-PERCENT ANNUAL CHANCE FLOOD WATER-SURFACE ELEVATION (FEET NAVD 88)			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
SUWANNEE RIVER (cont.)								
BA	146.08	1,931	34,557	0.8	74.0	74.0	74.8	0.8
BB	147.53	1,817	31,018	0.9	75.0	75.0	75.9	0.9
BC	148.55	1,920	29,581	1.0	76.1	76.1	77.0	0.9
BD	149.48	2,224	37,515	0.8	76.8	76.8	77.6	0.8
BE	151.40	2,274	32,705	0.9	78.1	78.1	78.9	0.8
BF	152.76	3,378	43,986	0.7	78.8	78.8	79.6	0.8
BG	154.03	1,108	16,512	1.9	79.5	79.5	80.3	0.8
BH	155.59	2,275	36,620	0.8	81.0	81.0	81.8	0.8
BI	156.49	2,157	40,588	0.8	81.4	81.4	82.2	0.8
BJ	157.20	3,007	43,711	0.7	81.7	81.7	82.5	0.8
BK	158.87	2,495	40.852	0.8	82.3	82.3	83.1	0.8
BL	160.29	2,836	42,872	0.7	82.8	82.8	83.6	0.8
BM	161.55	5,077	69,114	0.5	83.2	83.2	84.0	0.8
BN	163.05	4,317	67,448	0.5	83.8	83.8	84.7	0.9
BO	164.96	3,479	44,933	0.7	84.4	84.4	85.3	0.9
SANTA FE RIVER								
A	1.61	1,370	22,719	0.7	31.7	31.7	32.5	0.8
B	2.88	1,760	29,329	0.6	32.0	32.0	32.8	0.8
C	3.60	1,610	26,505	0.6	32.2	32.2	32.9	0.7
D	4.73	1,452	24,845	0.7	32.5	32.5	33.3	0.8
E	6.46	1,601	29,834	0.6	32.9	32.9	33.7	0.8

[1]Miles above mouth.

[2] This width extends beyond county boundary.

TABLE 4

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUWANNEE COUNTY, FL

AND INCORPORATED AREAS

FLOODWAY DATA

SUWANNEE RIVER - SANTA FE RIVER

5.0 INSURANCE APPLICATIONS

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

Zone A

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

Zone AE

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

Zone X

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

6.0 FLOOD INSURANCE RATE MAP

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

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

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

The current FIRM presents flooding information for the entire geographic area of Suwannee County. Previously, separate Flood Hazard Boundary Maps and/or FIRMS were prepared for each identified flood-prone incorporated community and 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 are presented in Table 5.

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Live Oak, City of	November 23, 1973	August 20, 1976	July 1, 1987	N/A
Branford, Town of	January 9, 1974	November 7, 1975	January 16, 1987	N/A
Suwannee County (Unincorporated Areas)	February 13, 1976	N/A	January 6, 1988	N/A

TABLE 5

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUWANNEE COUNTY, FL
AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

7.0 OTHER STUDIES

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Suwannee 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 Suwannee County.

8.0 LOCATION OF DATA

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

9.0 BIBLIOGRAPHY AND REFERENCES

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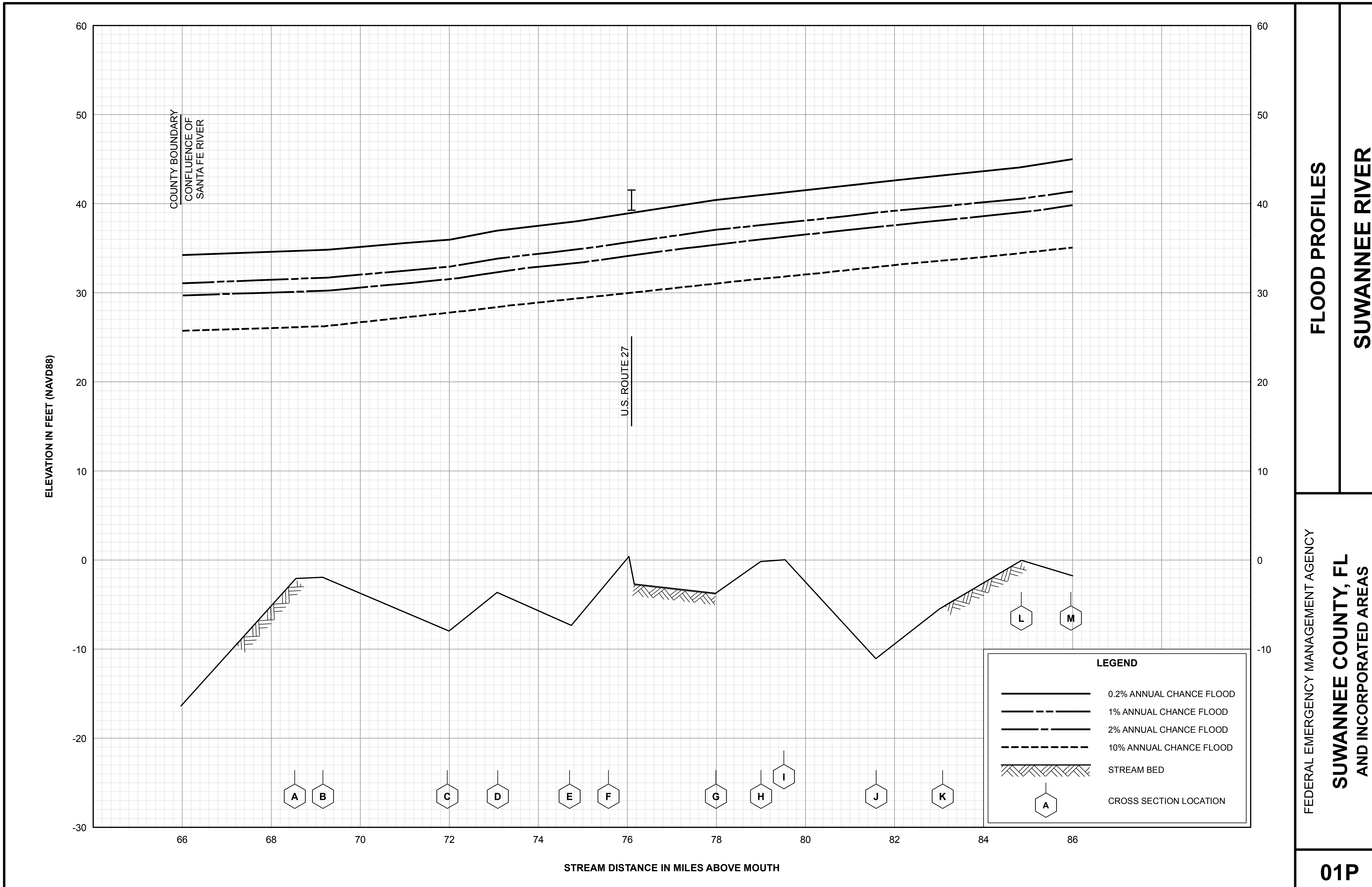
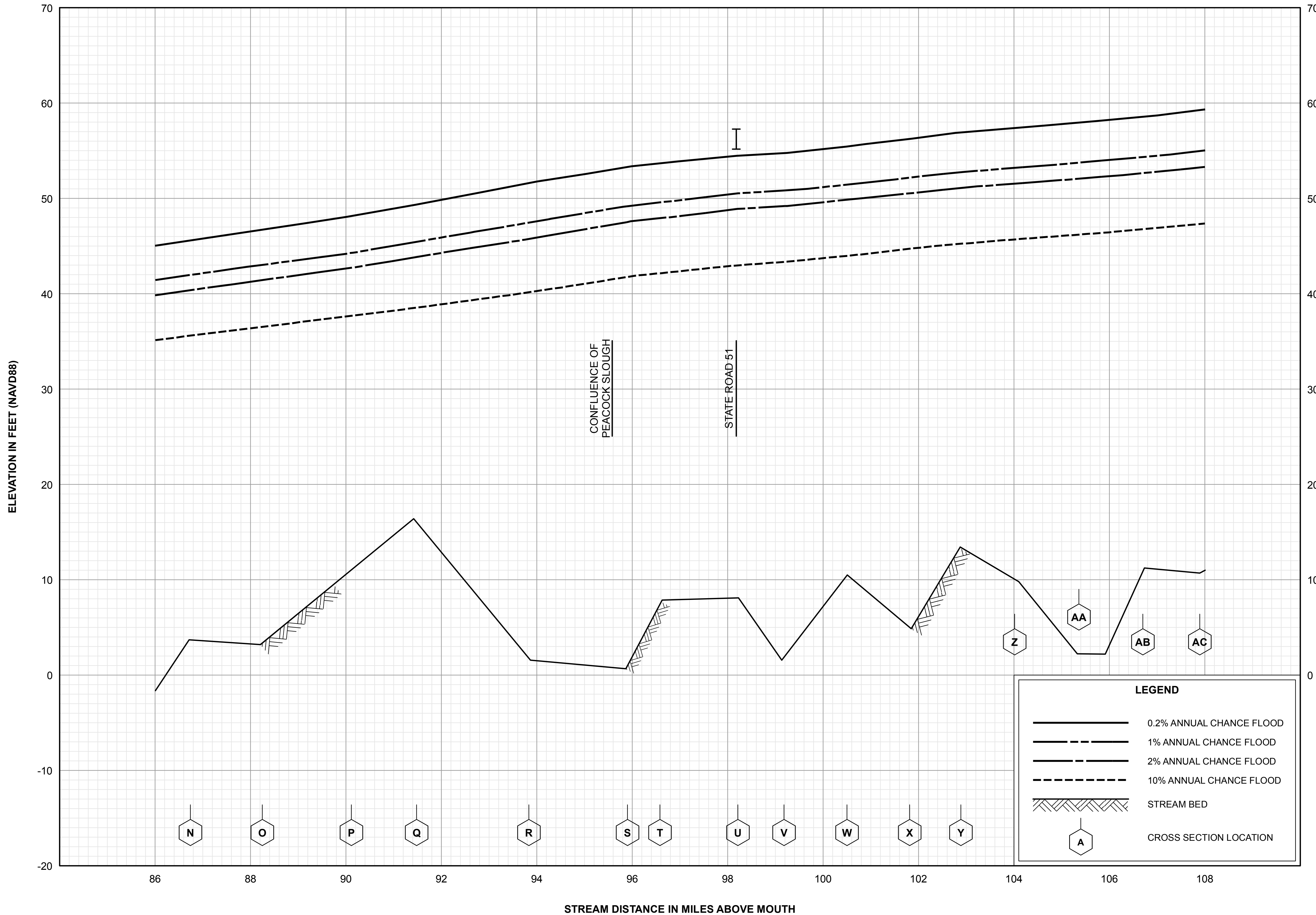

FLOOD PROFILES
SUWANNEE RIVER
FEDERAL EMERGENCY MANAGEMENT AGENCY
SUWANNEE COUNTY, FL
AND INCORPORATED AREAS
01P
ELEVATION IN FEET (NAVD88)
STREAM DISTANCE IN MILES ABOVE MOUTH
COUNTY BOUNDARY
CONFLUENCE OF SANTA FE RIVER
U.S. ROUTE 27
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
A
B
C
D
E
F
G
H
I
J
K
L
M
60
50
40
30
20
10
0
-10
-20
-30
66
68
70
72
74
76
78
80
82
84
86



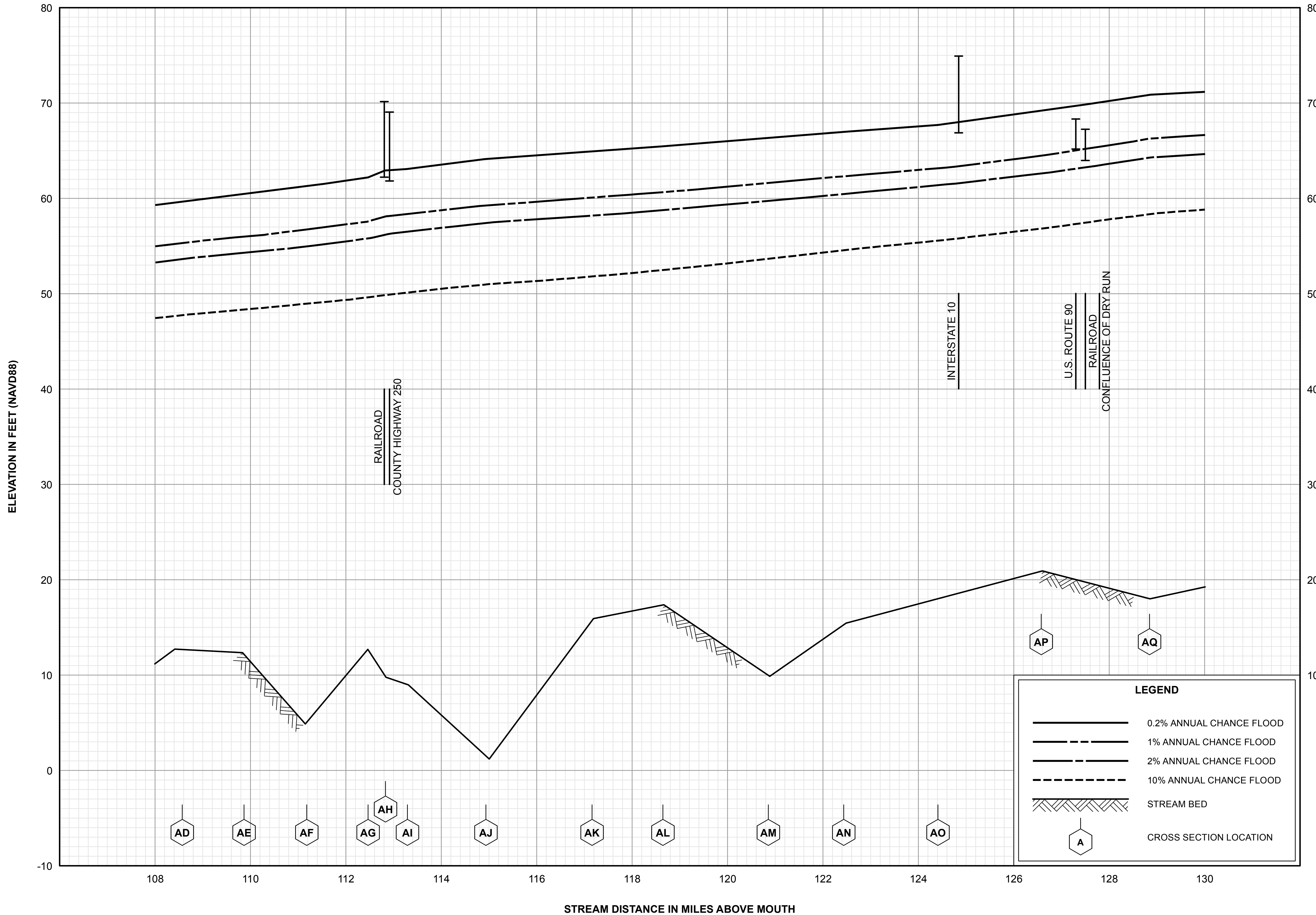
FLOOD PROFILES

SUWANNEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUWANNEE COUNTY, FL
AND INCORPORATED AREAS

02P



FLOOD PROFILES

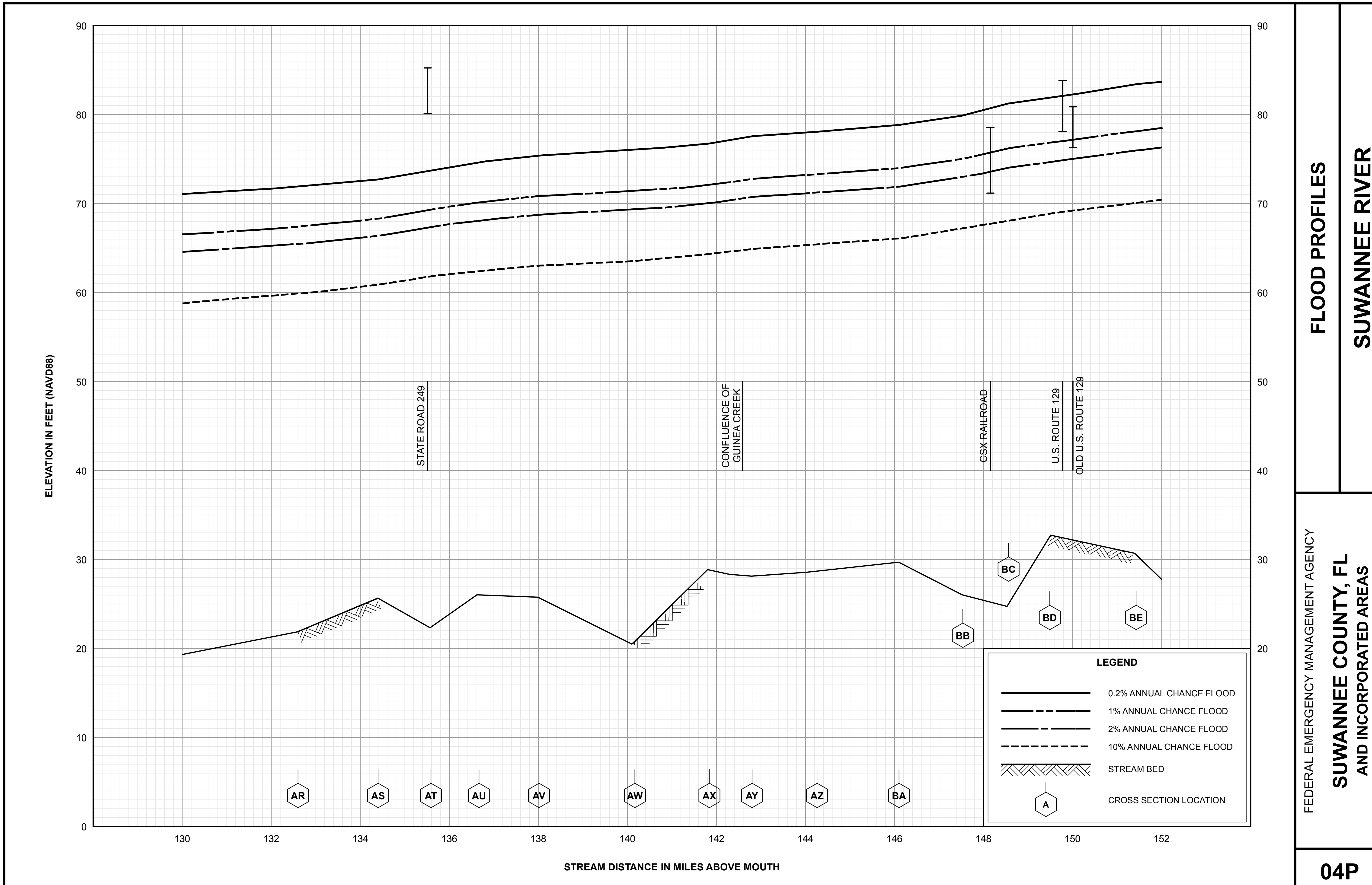
SUWANNEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

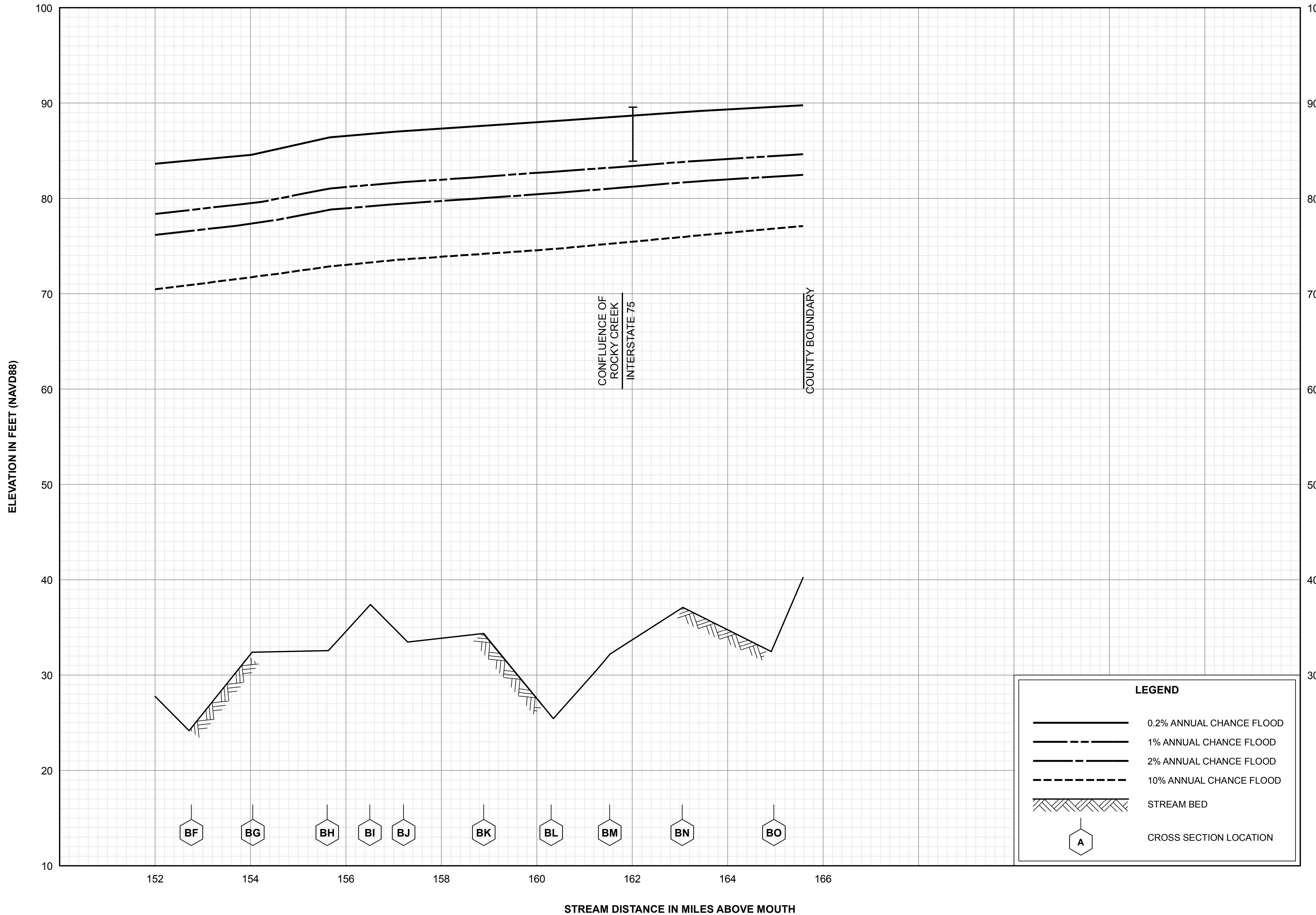
SUWANNEE COUNTY, FL

AND INCORPORATED AREAS

03P



FLOOD PROFILES
SUWANNEE RIVER
FEDERAL EMERGENCY MANAGEMENT AGENCY
SUWANNEE COUNTY, FL
AND INCORPORATED AREAS
04P
ELEVATION IN FEET (NAVD88)
STREAM DISTANCE IN MILES ABOVE MOUTH
STATE ROAD 249
CONFLUENCE OF GUINEA CREEK
CSX RAILROAD
U.S. ROUTE 129
OLD U.S. ROUTE 129
AR
AS
AT
AU
AV
AW
AX
AY
AZ
BA
BB
BC
BD
BE
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
A
0
10
20
30
40
50
60
70
80
90
130
132
134
136
138
140
142
144
146
148
150
152



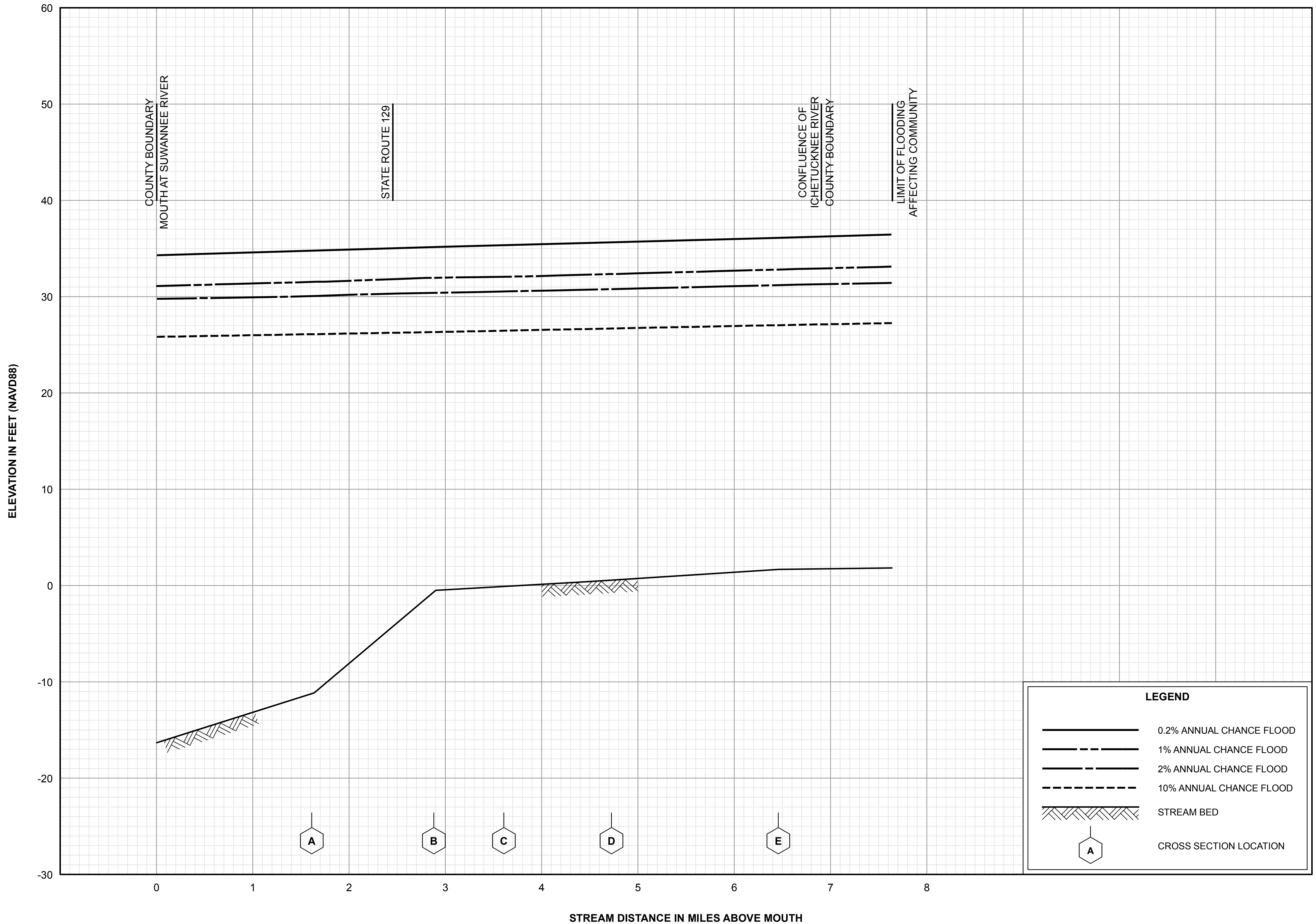
FLOOD PROFILES

SUWANNEE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUWANNEE COUNTY, FL
AND INCORPORATED AREAS

05P



FLOOD PROFILES

SANTA FE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUWANNEE COUNTY, FL
AND INCORPORATED AREAS

06P