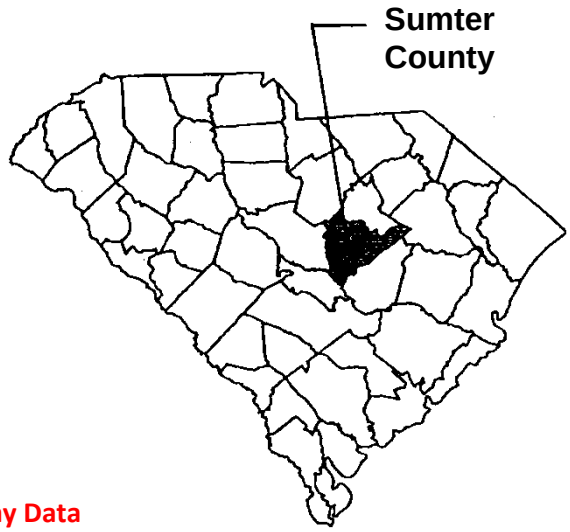
FLOOD INSURANCE STUDY

SUMTER COUNTY, SOUTH CAROLINA,

AND INCORPORATED AREAS



Community Name	Community Number
MAYESVILLE, TOWN OF	450225
PINEWOOD, TOWN OF	450183
SUMTER, CITY OF	450184
SUMTER COUNTY (UNINCORPORATED AREAS)	450182

This Preliminary FIS report only includes revised Floodway Data and revised Flood Profiles. The unrevised Floodway Data and Flood Profiles will appear in the final FIS report.

REVISED:

PRELIMINARY
FEBRUARY 10, 2016

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
45085CV000B

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. A listing of the Community Map Repositories can be found on the Index Map.

Initial Countywide FIS Effective Date: February 16, 2007

Revised Countywide FIS Effective Date: [TBD] – to add and change Base Flood Elevations and Special Flood Hazard Areas; to change zone designations; to update corporate limits and roads and road names; and to reflect updated topographic information

This Preliminary FIS report only includes revised Floodway Data and revised Flood Profiles. The unrevised Floodway Data and Flood Profiles will appear in the final FIS report.

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FLOOD INSURANCE STUDY
SUMTER COUNTY, SOUTH CAROLINA AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study (FIS) revises and updates information on the existence and severity of flood hazards in the geographic area of Sumter County, South Carolina, including: the Towns of Mayesville and Pinewood, the City of Sumter, and the unincorporated areas of Sumter County (hereinafter referred to collectively as Sumter 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 and assist the county in their efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

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

1.2 Authority and Acknowledgements

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

This FIS was prepared to include unincorporated areas and incorporated communities within Sumter County into a countywide FIS. Information on the authority and acknowledgments for each jurisdiction included in the countywide FIS, as compiled from their previously printed reports, is shown in the following paragraphs.

Sumter County
(Unincorporated Areas): For the original January 5, 1989, FIS for the unincorporated areas of Sumter County, the hydrologic and hydraulic analyses for Carolina Bays 1, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 20, 21, 22, 23, 24, 25, and 30, Alligator Branch, Beech Creek, Causeway Branch, Long Branch, Mush Swamp, and

Robert Branch were prepared by the U.S. Geological Survey (USGS), Water Resources Division, for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. EMW-85-E-1823, Project Order No. 16. That work was completed in October 1986. The hydrologic and hydraulic analyses for Cane Savannah Creek, Green Swamp, the Pocotaligo River, Rocky Bluff Swamp, Shot Pouch Creek, and Turkey Creek were obtained from a Flood Plain Information report prepared by the U.S. Army Corps of Engineers (USACE) (USACE, 1972). The hydrologic and hydraulic analyses for Mile Creek were obtained from the FIS for the City of Sumter, South Carolina (FEMA, 1981).

For the August 23, 1999, FIS for the unincorporated areas of Sumter County, the hydrologic and hydraulic analyses for Long Branch were prepared by the USACE, Charleston District, for FEMA. Also, a Letter of Map Revision (LOMR) dated December 9, 1997, was incorporated which revised Carolina Bay 16.

City of Sumter: For the December 1981 FIS for the City of Sumter, Green Swamp, Heathleywood Canal, Mile Branch, Powder Horn Canal, Shot Pouch Creek, Tributary S-1, and Turkey Creek were prepared by the USACE, Charleston District, for FEMA, under Interagency Agreement No. IAA-H-7-76, Project Order No. 1. Survey data for this study were collected by Moore, Gardner, and Associates, Inc., Asheboro, North Carolina, under supervision of the USACE.

The Towns of Mayesville and Pinewood did not have a previous FIS report.

For the February 16, 2007, countywide FIS, the hydrologic and hydraulic analyses for Beech Creek, Beech Creek Tributary 1, Brunson Branch, Brunson Branch Tributary 1, Cane Savannah Creek, Cut Through 1, Cut Through 2, Green

Swamp, Hatchett Camp Branch, Hope Swamp, Horsepen Branch, Long Branch, Lynches River, Mile Branch, Mulberry Branch, Mulberry Branch Tributary 1, Mush Swamp, Nasty Branch, Noyts Branch, Pocalla Creek, Pudding Swamp, Rocky Bluff Swamp, Shot Pouch Branch, and Sooks Branch were prepared by Watershed Concepts, a Division of HSMM, Inc., for FEMA, under Contract No. EMA-98-C0-0086. This work was completed in April 2002. In addition, this countywide FIS incorporates three Letters of Map Revision (LOMRs).

Base map information shown on the February 16, 2007, countywide FIRMs was created by the Sumter County GIS Department and provided in digital format by the Sumter City-County Planning Commission. This information was photogrammetrically compiled at a scale of 1:4,800 from aerial photography dated 1989.

For the [TBD], countywide FIS, the hydrologic and hydraulic analyses were prepared by AECOM for the State of South Carolina, Department of Natural Resources (SCDNR) under Mapping Activity Statement FY10.17. This work is a part of the larger Wateree Watershed study and is based on the Discovery Report for Wateree Watershed dated December 20, 2012 (FEMA, 2012). However, it should be noted some of the existing Zone A areas were updated and the reach lengths noted in the Discovery Report may have changed to take into account backwater conditions and streamline refinement. In Sumter County, detailed hydrologic and hydraulic analyses were performed for approximately 0.13 mile of Beech Creek. For portions of Little Rafting Creek, Long Branch, Unnamed Tributary 1 to Long Branch and Unnamed Tributary 2 to Long Branch, approximately 13 miles of limited detailed analyses were performed. The extents of these analyses can be found in Table 3, "[TBD], Study Scope," in Section 2.1, "Study Scope," of this FIS Report. Approximately 71.3 miles of stream, including Wateree River, were studied by approximate methods. Beech Creek, Beech Creek Tributary 1, and Robert Branch were previously studied by detailed methods and were redelineated based on more up-to-date topographic information for this study. This work was completed in March 2015.

Base map information shown on the [TBD], FIRMs was provided in digital format by Sumter County, South Carolina.

The coordinate system used for the production of this FIRM is South Carolina State Plane (FIPSZONE 3900), North American Datum of 1983 (NAD 83). Corner coordinates shown on the FIRM are in latitude and longitude referenced to the South Carolina State Plane (FIPSZONE 3900) projection, NAD 83. 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.

1.3 Coordination

The purpose of an initial Consultation Coordination Officer's (CCO) meeting is to discuss the scope of the FIS. A final CCO meeting is held to review the results of the study.

For the original January 5, 1989, FIS for the unincorporated areas of Sumter County, an initial CCO meeting was held on January 30, 1985, and a final CCO meeting was held on January 20, 1988. Both of these meetings were attended by representatives of the study contractor, the unincorporated areas of Sumter County, and FEMA.

For the August 23, 1999, FIS for the unincorporated areas of Sumter County, the county was notified by FEMA in a letter dated September 19, 1997, that its FIS would be revised using the analyses prepared by the USACE.

For the December 1981 FIS for the City of Sumter, an initial CCO meeting was held on January 30, 1975, and a final CCO meeting was held on May 13, 1976. Both of these meetings were attended by representatives of the USACE, the City of Sumter, and FEMA.

For the February 16, 2007, countywide FIS, an initial CCO meeting was held on May 22, 1998, and a final CCO meeting was held on July 12, 2005. Both of these meetings were attended by representatives of Watershed Concepts, a Division of HSMM, Inc.; unincorporated areas of Sumter County; the Towns of Mayesville and Pinewood; the City of Sumter; and FEMA.

For the [TBD], countywide FIS, an initial Discovery meeting for the Wateree Watershed study was held on April 5, 2011, and attended by representatives from Kershaw, Lancaster, Lee, Sumter Counties; the Cities of Camden, Kershaw and Sumter; as well as representatives from FEMA, SCDNR, USGS, Kershaw Conservation District and the study contractors. A Discovery Report, Wateree Watershed, 03050104, dated December 20, 2012, describes and summarizes the Discovery tasks that were conducted for the Wateree Watershed and form the basis for this countywide FIS revision.

The results of the [TBD], countywide FIS were reviewed at the final CCO meeting, referred to as the Preliminary DFIRM Community Coordination (PDCC) meeting, held on [TBD], wherein the results of this FIS were reviewed and accepted. Those who attended this meeting included [attendee list to be inserted after preliminary stage of study]. [All comments and issues raised at that meeting have been addressed.]

2.0 AREA STUDIED

2.1 Study Area

This FIS covers the geographic area of Sumter County, South Carolina and includes part of the Wateree Watershed, Hydrologic Unit Code 03050104.

The Wateree Watershed is located in central-northern South Carolina and covers portions of Fairfield, Lancaster, Lee, Kershaw, Richland and Sumter Counties. The southern section of the watershed is approximately 80 miles away from the Atlantic Ocean and the north portion is approximately 90 miles southeast of the Blue Ridge Mountains in North Carolina. The ground elevation ranges between 650 feet and 150 feet within the watershed (FEMA, 2012).

The Wateree River, the main stem of the Wateree Watershed, is a continuation of the Catawba River. The headwaters originate in the Blue Ridge Mountains in North Carolina. The name changes from Catawba to Wateree at Lake Watree, which is formed by the hydroloelectric dam located in Kershaw County. The Wateree River generally flows southward joining the Congaree River to form the Santee River located about 35 miles southeast of the City of Columbia. The watershed drains 1,256 square miles with a total of 482.3 stream miles within the watershed. Sumter County, the Wateree Watershed is on the west side of the county, including the entire City of Sumter. The Wateree Watershed encompasses approximately 173 sq.mi. (approximately 13.8 percent) of Sumter County (FEMA, 2012).

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

Table 1 – Flooding Sources Studied by Detailed Methods

Alligator Branch	Carolina Bay 18	Lynches River
Beech Creek	Carolina Bay 19	Mile Branch
Beech Creek Tributary 1	Carolina Bay 20	Mulberry Branch
Brunson Branch	Carolina Bay 21	Mulberry Branch Tributary 1
Brunson Branch Tributary 1	Carolina Bay 22	Mush Swamp
Cane Savannah Creek	Carolina Bay 23	Nasty Branch
Carolina Bay 1	Carolina Bay 24	Noyts Branch
Carolina Bay 5	Carolina Bay 25	Pocalla Creek
Carolina Bay 6	Carolina Bay 30	Pocotaligo River
Carolina Bay 7	Causeway Branch	Pocotaligo River Tributary 1
Carolina Bay 8	Cut Through 1	Powder Horn Canal
Carolina Bay 9	Cut Through 2	Pudding Swamp
Carolina Bay 10	Green Swamp	Robert Branch

Table 1 – Flooding Sources Studied by Detailed Methods - continued

Carolina Bay 11	Hatchet Camp Branch	Rocky Bluff Swamp
Carolina Bay 12	Heathleywood Canal	Shot Pouch Creek
Carolina Bay 13	Hope Swamp	Sooks Branch
Carolina Bay 14	Horsepen Branch	Tributary S-1
Carolina Bay 16	Long Branch	Turkey Creek

As part of the February 16, 2007, countywide FIS, updated analyses were included for the flooding sources shown in Table 2, "February 16, 2007, Scope of Revision."

Table 2 – February 16, 2007, Scope of Revision

Stream	Limits of Revised or New Detailed Study
Beech Creek	From approximately 1.59 miles upstream of State Route 261 to approximately 2.93 miles upstream of State Route 261
Beech Creek Tributary 1	From the confluence with Beech Creek to approximately 0.86 mile upstream of the confluence with Beech Creek
Brunson Branch	From the confluence with Mulberry Branch to approximately 700 feet upstream of U.S. Route 401
Brunson Branch Tributary 1	From the confluence with Brunson Branch to approximately 0.55 mile upstream of the confluence of Cut Through 1
Cane Savannah Creek	From approximately 350 feet downstream of Kolb Road to approximately 0.49 mile upstream of the confluence of Hatchet Camp Branch
Cut Through 1	From the confluence with Brunson Branch Tributary 1 to approximately 1,630 feet upstream of the confluence with Brunson Branch
Cut Through 2	From the confluence with Mulberry Branch to approximately 120 feet upstream of Jerry Street
Green Swamp	From approximately 250 feet downstream of Mason Road to approximately 1,075 feet upstream of Brewington Pond Dam
Hatchet Camp Branch	From the confluence with Cane Savannah Creek to approximately 1.10 miles upstream of Bronco Road
Hope Swamp	From the confluence with Pudding Swamp to approximately 0.73 mile upstream of Interstate 95

Table 2 – February 16, 2007, Scope of Revision - continued

Stream	Limits of Revised or New Detailed Study
Horsepen Branch	From the confluence with Green Swamp to approximately 1.22 miles upstream of Brewington Road
Long Branch	From approximately 330 feet downstream of Broad Street to approximately 1.76 miles upstream of Booths Pond Dam
Lynches River	At the county boundary (approximately 7.68 miles downstream of Amwell Church Road) to approximately3.42 miles upstream of Amwell Church Road
Mile Branch	From the confluence with Brunson Branch to approximately 0.47 mile upstream of the confluence with Brunson Branch
Mulberry Branch	From the confluence with Rocky Bluff Swamp to approximately 1,200 feet upstream of Dubose Pond Dam
Mulberry Branch Tributary 1	From the confluence with Mulberry Branch to approximately 1.27 miles upstream of the confluence with Mulberry Branch
Mush Swamp	From approximately 850 feet downstream of Loring Mill Pond Road to approximately 50 feet upstream of Eagle Road
Nasty Branch	From the confluence with Cane Savannah Creek to approximately 1,475 feet upstream of Frisco Bridge Road
Noyts Branch	From the confluence with Green Swamp to approximately 350 feet upstream of Main Street
Pocalla Creek	From the confluence with the Pocotaligo River to approximately 1,825 feet upstream of Waverly Drive
Pocotaligo River Tributary 1	From approximately 2,000 feet upstream of the confluence with the Pocotaligo River to approximately 200 feet upstream of Manning Avenue
Pudding Swamp	From approximately 340 feet downstream of Forge Road to approximately 1.0 mile upstream of State Route 53
Rocky Bluff Swamp	From approximately 0.77 mile upstream of the confluence of Mulberry Branch to approximately 3.18 miles upstream of Foxworth Mill Road
Shot Pouch Branch	From the confluence with Green Swamp to approximately 1,650 feet upstream of Wise Road

Table 2 – February 16, 2007, Scope of Revision - continued

Stream	Limits of Revised or New Detailed Study
Sooks Branch	From the confluence with Green Swamp to approximately 75 feet upstream of Council Lane

As part of the [TBD], countywide FIS, new detailed and limited detailed analyses were included for the flooding sources shown below.

Table 3 – [TBD], Scope of Revision

Stream	Limits of Study
	New Detailed Study
Beech Creek	From approximately 180 feet downstream of Edgehill Road to approximately 500 feet upstream of Edgehill Road
	Limited Detailed Study
Little Rafting Creek	From the confluence with Rafting Creek to approximately 2.96 miles upstream of US Highway 521
Long Branch	From approximately 330 feet downstream of Frierson Road to approximately 1.11 miles upstream of Frierson Road
Unnamed Tributary 1 to Long Branch	From the Sumter/Kershaw county boundary to approximately 1.52 miles upstream of Seymour Road
Unnamed Tributary 2 to Long Branch	From the confluence with Unnamed Tributary 1 to Long Branch to approximately 0.5 mile upstream of confluence with Unnamed Tributary 1 to Long Branch

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

The February 16, 2007, countywide FIS incorporated the determination of letters issued by FEMA resulting in map changes (LOMR, Special Response [SR], Letter of Map Amendment [LOMA]), as shown in the following tabulation:

Community	Flooding Source(s) and Project Identifier	Date Issued	Type
Sumter, City of	Carolina Bay 16 - Westridge Property	December 9, 1997	LOMR
Sumter, City of	Unnamed drainage ditch- Intersection of Gion and Broad Streets	January 11, 1989	LOMR
Sumter County (Unincorporated Areas)	Pocotaligo River Tributary 1 - Wendemere Subdivision	September 21, 2006	LOMR

The [TBD], countywide FIS incorporates the determination of letters issued by FEMA resulting in map changes (LOMR, Special Response [SR], Letter of Map Amendment [LOMA]), as shown in the following tabulation:

Community	Flooding Source(s) and Project Identifier	Date Issued	Type
Sumter County (Unincorporated Areas)	Green Swamp and Hunter's Crossing (08-04-5516P)	October 22, 2008	LOMR

Several 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 Sumter County.

2.2 Community Description

Sumter County, with a total land area of 675 square miles, lies in central South Carolina, east of the City of Columbia, and is bordered on the north by Lee and Kershaw Counties; on the east by Florence County; on the south by Clarendon and Calhoun Counties; and on the west by Richland County. Sumter County is served by Interstate 95; U.S. Routes 76, 15, 378, and 521; State Routes 53, 58, 120, 261, 341, 403, 441, 527, and 763; and the CSX railroad. The 2010 U.S. Census Bureau population of Sumter County was reported to be 107,456 (U.S. Census Bureau, 2015[a]). The largest city in Sumter County is the City of Sumter with a reported population at the 2010 U.S. Census of 40,524 (U.S. Census Bureau, 2015[b]).

The climate of the area is temperate. Average monthly temperatures range from 84 degrees Fahrenheit (°F) in the summer to 30°F in the winter. Average annual precipitation for the region is 46.4 inches.

2.3 Principal Flood Problems

October 6, 2015, Major Disaster Declaration (FEMA-4241-DR) for the State of South Carolina including Sumter County after an unprecedented rain event set rainfall records across the state and flooded entire towns. For some locations, the rainfall was historic and qualified as a 1,000-year rain event, resulting in deadly and disastrous flooding with damages that could top $1 billion (Beam and Kinnard, 2015). Rainfall was severe enough to close a 75-mile stretch of Interstate 95 between Interstates 20 and 26. Flooding from this event was pervasive throughout Sumter County, creating accessibility problems for first responders to many areas in the county. As of October 4, 2015, Sumter County received, on average, four inches of rain between midnight and 7 a.m. (City of Sumter, 2015). Rainfall totals from October 1-6, 2015, for the City of Sumter registered at 19.98 inches (Wiltgen, 2015). In Sumter County, Ellerbees Millpond Dam failed as a result of the epic rainfall and associated flooding (South Carolina Department of Health and Environmental Control, 2015).

Flooding problems in Sumter County result from riverine flooding caused by local thunderstorms, tropical storms and hurricanes, and from accumulations of floodwater in numerous depressions, described locally as the Carolina Bays. Some of these bays are drained by manmade ditches or culverts, and some are used for farming and residential and commercial development.

Turkey Creek, Shot Pouch Creek, and Green Swamp are the major sources of flooding in the City of Sumter, although the other tributaries contribute to the flooding problem. Since the headwaters of all of the streams are located in or near the City of Sumter, intense local thunderstorms are the cause of most of the flooding in the area.

Prior to the February 16, 2007, countywide FIS, major floods in the area of Sumter County occurred in 1945, 1954, 1959, 1964, and 1971. The largest of these floods occurred on March 3, 1971, a result of widespread hurricane and tropical storm rainfall, when 5.65 inches of rain fell on the City of Sumter in 12 hours, bringing the total amount of rainfall in the first three days of March to 8.89 inches. During this flood, many homes, businesses, and streets were inundated, and the dam at Second Mill Pond on Green Swamp gave way. Many of the roads which were flooded were closed for several days because of the washouts. A USGS gaging station was operated from 1951 to 1966 and from 1972 to 1992 on the Black River at U.S. Route 76 near the City of Gable, South Carolina, about 7.5 miles east of Sumter County. The 1971 flood had a discharge of 12,500 cubic feet per second (cfs) and an elevation of 100.9 feet North American Vertical Datum 1988 (NAVD88) on March 5, 1971 (U.S. Department of the Interior, 1982). At the time, the flood had an estimated recurrence interval of 83 years. Another flood occurred in 1989, which was also caused by widespread hurricane and tropical storm rainfall.

Floodplain regulations have been enacted in the City of Sumter to control future development along Turkey Creek, Shot Pouch Creek, and Green Swamp; however, some development along these creeks and other smaller tributaries continues.

2.4 Flood Protection Measures

The National Oceanic and Atmospheric Administration maintains constant surveillance of weather conditions in Sumter County. Tornado watch alerts, flood warnings, and anticipated weather conditions for the Sumter area are issued by the National Weather Service Office at the Columbia Metropolitan Airport. Local citizens receive warnings of severe weather and possible flooding from the Sheriff's Department, the Municipal Police Department, and radio and television stations that serve the Sumter area.

The USACE completed two flood control projects in the City of Sumter. Improved channel lengths include 2.15 miles of Shot Pouch Creek from Swan Lake to U.S. Route 76, and 4.5 miles of Turkey Creek from the Pocotaligo River to a point above East Calhoun Street. Those projects were designed to protect residential, commercial, and industrial developments that had been built inside the floodplain. They provide protection against the smaller, more frequent floods, and reduce the severity of large floods. However, they do not provide protection from the 1-percent annual chance flood (USACE, 1972). The Shot Pouch Creek channel was designed to contain a 20-percent chance annual flood within its banks, while the Turkey Creek channel was designed to contain a 4-percent chance annual flood. If development were allowed to encroach on these residual floodplain areas, future flood damage could increase and potential benefits of the projects would not be realized.

3.0 ENGINEERING METHODS

For the flooding sources studied by detailed methods in the community, standard hydrologic and hydraulic study methods were used to determine the flood-hazard data required for this study. Flood events of a magnitude that is 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 that equals or exceeds the 1-percent-annual-chance flood in any 50-year period is approximately 40 percent (4 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding

potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for each flooding source studied in detail affecting Sumter County.

Information on the methods used to determine peak discharge-frequency relationships for the streams studied by detailed methods is shown below.

Precountywide Analyses

The hydrologic analyses described in the previously printed FIS reports for the unincorporated areas of Sumter County and the City of Sumter has been compiled and is listed below.

Sumter County (Unincorporated Areas)

For the original January 5, 1989, FIS for the unincorporated areas of Sumter County, runoff volumes, hydrographs, and pool elevations were generated for the Carolina Bays using rainfall-frequency data, soil group classification, stage-volume relations, stage-outflow relations (for bays and outlets), Natural Resources Conservations Service (NRCS) hydrologic analytical methods, and the modified PULS method of reservoir routing for bays with outlets (McCuen, 1982, and U.S. Department of the Interior, 1977). The modified PULS method required a stage-volume relation, a stage-discharge relation, and hydrographs generated using NRCS methodology. Stage-volume relations were determined by a field survey or from 2-foot contour maps provided by the City of Sumter. Stage-discharge relationships for the outlets of the bays were determined using the same methods used for the streams.

For the Carolina Bays without outflow ditches or culverts, volumes of runoff into the bays were computed for several durations of rainfall ranging from 12 hours to 15 days at the 1-percent annual chance recurrence interval, using the rainfall amount and runoff curve number (McCuen, 1982). Rainfall durations and amounts were determined from U.S. Weather Bureau Technical Papers (U.S. Department of Commerce, 1963, and U.S. Department of Commerce, 1964). Infiltration of water through the bottom of the bays during relatively long rainfall durations was estimated using minimum NRCS infiltration rates (McCuen, 1982).

For the Carolina Bays with outflow through ditches or pipes, inflow hydrographs were generated by applying rainfall of durations from 0.5 hour to 12 hours to NRCS dimensionless unit hydrographs using parameters of drainage area, time of concentration, and runoff curve numbers (U.S. Department of Commerce, 1963,

U.S. Department of Commerce, 1964, and U.S. Department of the Interior, 1977).

A computer program was developed to compute the hydrographs using the NRCS method. Outflows and pool elevations were computed for each inflow hydrograph using the modified PULS method by means of USGS program A697 (U.S. Department of the Interior, 1977). This method required the inflow hydrographs computed by the NRCS method, a stage-storage relationship, and a stage-discharge relationship. The maximum pool elevation computed from the hydrographs generated from the various rainfall durations was then selected for the 1-percent annual chance pool elevation. Results were reasonable in that the bays responded as ordinary streams rather than holding ponds, and peak pool elevations resulted from hourly 1-percent chance rainfall durations rather than from the daily durations that caused peak elevations in the bays without outflows. Except for Carolina Bay 23, where a culvert was partly blocked by silt, most of the drainage ditches and pipes effectively reduce pool elevations.

The 1-percent annual chance flood discharges for Alligator Branch, Beech Creek, Cane Savannah Creek, Causeway Branch, Green Swamp, Long Branch, Mile Branch, Mush Swamp, the Pocotaligo River, Robert Branch, Rocky Bluff Swamp, and Turkey Creek were computed using equations developed for rural streams (U.S. Department of the Interior, 1982). Those equations relate discharge at specific recurrence intervals to drainage area within specific physiographic provinces. The boundary of the Inner and Lower Coastal Plain physiographic provinces passes through Sumter County (U.S. Department of the Interior, 1982). Beech Creek and Robert Branch are located in the Inner Coastal Plain while Alligator Branch, Causeway Branch, Long Branch, and Mush Swamp are located in the Lower Coastal Plain. All of the bays are located in the Lower Coastal Plain physiographic province.

For the August 23, 1999, FIS for the unincorporated areas of Sumter County, the same hydrologic analyses were used as in the January 5, 1989, study to revise portions of Long Branch.

City of Sumter

For the December 1981 FIS for the City of Sumter, flood flow frequency data for Green Swamp and Turkey Creek were based on two methods of computation. First, a statistical analysis of available data was conducted; using data from the following USGS gaging stations (USGS, Water Resources Data for South Carolina, unpublished):

Station No.	Location	Length of Record
02169500	Congaree Creek at Cayce, SC	October 1959 – Discontinued (1980)
02130900	Black Creek near McBee, SC	October 1959 – Present*
02130910	Black Creek near Hartsville, SC	October 1960 – Present*
02172500	South Fork Edisto River near Montmorenci, SC	October 1939 – Discontinued (1966)
02176500	Coosawhatchie River near Hampton, SC	February 1951 – Present*

*station still in operation as of May 11, 2015.

Following a log Pearson Type III method (Beard, 1962, and Water Resources Council, 1967), the 10-, 2-, and 1-percent annual chance discharges for these two streams were determined. This frequency-discharge information was then checked by using a second method of determining frequency-discharge information - the synthetic unit hydrograph method (USACE, 1959). Input for the unit hydrograph method included regional rainfall data published by the United States Weather Bureau (U.S. Department of Commerce, 1961) and data from a previous study in a similar area in North Carolina's coastal region (USACE, 1964). The results of the two methods were in agreement for the 10-, 2- and 1-percent annual chance discharges. Discharges for the 0.2-percent annual chance flood event on these streams were determined by straight-line extrapolation of a single log graph of the flood discharges computed for frequencies up to the 1-percent annual chance flood discharge.

Discharges for the selected recurrence intervals for Heathleywood Canal, Mile Branch, Powder Horn Canal, and Tributary S-1 were determined by the rational method. This method takes into consideration basin characteristics such as size, shape, slope, and degree of imperviousness.

February 16, 2007, Countywide Analyses

For February 16, 2007, countywide FIS, the USACE Hydrologic Engineering Center (HEC), HEC-1 Flood Hydrograph Package (USACE, June 1998) was used in order to determine discharges for Beech Creek, Beech Creek Tributary 1, Brunson Branch, Brunson Branch Tributary 1, Cane Savannah Creek, Cut Through 1, Cut Through 2, Green Swamp, Hatchet Camp Branch, Hope Swamp, Horsepen Branch, Long Branch, Mile Branch, Mulberry Branch, Mulberry Branch Tributary 1, Mush Swamp, Nasty Branch, Noyts Branch, Pocalla Creek, Pudding Swamp, Rocky Bluff Swamp, Shot Pouch Branch, and Sooks Branch. The SCS dimensionless unit was used as the method to calculate the hydrograph for each subbasin. Normal depth and modified PULS methods were used for the routing methodology. The basin delineations and drainage areas were determined from USGS topographic mapping (U.S. Department of the Interior, 1983, etc.). Soil types were obtained from digital detailed county soil maps for Sumter County (South Carolina Department of Natural Resources, 2001,

etc.). The hypothetical storm information was obtained from Technical Paper No. 40 (U.S. Department of Commerce, 1963).

For the Lynches River, a log-Pearson Type III analysis was obtained for each of the following gages in order to determine discharges:

Station Name and Number	Drainage Area (Square Miles)	Flood Discharge, in Cubic Feet Per Second (cfs), for Indicated Recurrence Intervals							
		50-percent annual chance	20-percent annual chance	10-percent annual chance	4-percent annual chance	2-percent annual chance	1-percent annual chance	0.5-percent annual chance	0.2-percent annual chance
Lynches River near Bishopville (02131500)	675	7,710	11,900	14,900	18,700	21,600	24,500	27,500	31,500
Lynches River near Effingham (02132000)	1,030	5,640	9,170	11,800	15,600	18,700	22,000	25,500	30,600

Note that the flood discharges for the Lynches River decrease at the downstream station. This can be attributed to the intervening drainage area being swampy, and therefore, storing part of the flood waters as they move downstream. For this analysis, engineering judgment was used to select the discharge that the upstream gage.

Due to a lack of reliable stream gages, the hydrologic models for all studied watersheds were compared to USGS rural and urban regression equations for South Carolina for reasonability and calibrated to historical floods using hydraulic models and historical high water elevations along studied streams.

[TBD], Countywide Analyses

The [TBD], countywide FIS, is the first-time watershed wide hydrologic analyses were conducted for the Wateree Watershed and there are no existing hydrologic analyses available. However, for counties within this Watershed Study, covered by the current scope, countywide and pre-countywide hydrologic analyses exist and have been include in the previous subsections.

Discharges for the 10-, 2-, 1-, and 0.2-percent annual chance recurrence intervals for all streams studied by detailed and limited detailed methods were determined using USGS regression analyses. The calculations used the most recent edition of equations for both rural (USGS, 2009) and urban (USGS, 2004) streams.

The rural regression equations used in this study are presented below.

Magnitude and Frequency of Rural Floods in the Southeastern United States, 2006: Volume 3, South Carolina

$$Q_{50\%} = 10^{[0.0220(PCT_1)+0.0204(PCT_2)+0.0141(PCT_3)+0.0178(PCT_4)+0.0196(PCT_5)]} DA^{[0.649+0.00130(PCT_2)+0.00109(PCT_3)]} \quad (7)$$

$$Q_{20\%} = 10^{[0.0247(PCT_1)+0.0232(PCT_2)+0.0165(PCT_3)+0.0209(PCT_4)+0.0230(PCT_5)]} DA^{[0.627+0.00122(PCT_2)+0.00117(PCT_3)]} \quad (8)$$

$$Q_{10\%} = 10^{[0.0260(PCT_1)+0.0246(PCT_2)+0.0177(PCT_3)+0.0224(PCT_4)+0.0247(PCT_5)]} DA^{[0.617+0.00119(PCT_2)+0.00123(PCT_3)]} \quad (9)$$

$$Q_{4\%} = 10^{[0.0273(PCT_1)+0.0260(PCT_2)+0.0189(PCT_3)+0.0239(PCT_4)+0.0265(PCT_5)]} DA^{[0.606+0.00118(PCT_2)+0.00130(PCT_3)]} \quad (10)$$

$$Q_{2\%} = 10^{[0.0282(PCT_1)+0.0268(PCT_2)+0.0196(PCT_3)+0.0249(PCT_4)+0.0276(PCT_5)]} DA^{[0.600+0.00118(PCT_2)+0.00135(PCT_3)]} \quad (11)$$

$$Q_{1\%} = 10^{[0.0289(PCT_1)+0.0276(PCT_2)+0.0202(PCT_3)+0.0258(PCT_4)+0.0286(PCT_5)]} DA^{[0.594+0.00119(PCT_2)+0.00139(PCT_3)]} \quad (12)$$

$$Q_{0.5\%} = 10^{[0.0295(PCT_1)+0.0282(PCT_2)+0.0208(PCT_3)+0.0265(PCT_4)+0.0295(PCT_5)]} DA^{[0.589+0.00120(PCT_2)+0.00144(PCT_3)]} \quad (13)$$

$$Q_{0.2\%} = 10^{[0.0303(PCT_1)+0.0290(PCT_2)+0.0214(PCT_3)+0.0274(PCT_4)+0.0306(PCT_5)]} DA^{[0.583+0.00121(PCT_2)+0.00149(PCT_3)]} \quad (14)$$

Where:

$Q_{50\%}$, $Q_{20\%}$, . . .,$Q_{0.2\%}$ are the flows for floods with percent chance of exceedance of 50 percent, 20 percent, . . . , and 0.2 percent, in cubic feet per second;

PCT1, PCT2, PCT3, PCT4, and PCT5 are the basin percentages in hydrologic regions 1(Piedmont), 2(Blue Ridge), 3(Sand hills), 4(Coastal), and 5(Undefined) in percent; and DA is the drainage area, in square miles.

South Carolina's urban regression equations were used for basins that had more than 10 percent impervious area. These alternative USGS urban regression equations are valid for basins with a main channel length from 0.51 mile to 11.2 miles and impervious area from 10 to 40 percent. The equations used are shown in the following tabulation.

Urban flood recurrence interval (years)	Alternative urban regional regression equation
2	$41.6L^{1.47}\ 10^{0.0213IA}$
5	$58.8L^{1.50}\ 10^{0.0198IA}$
10	$69.9L^{1.51}\ 10^{0.0192IA}$
25	$82.3L^{1.53}\ 10^{0.0187IA}$
50	$90.3L^{1.55}\ 10^{0.0185IA}$
100	$97.2L^{1.56}\ 10^{0.0185IA}$
200	$103L^{1.58}\ 10^{0.0185IA}$
500	$111L^{1.60}\ 10^{0.0187IA}$

Where:

L = main channel length (miles) and IA = impervious area (percent)

The dependent variables for the regression equations were determined with GIS tools. Drainage areas were delineated for all study streams. GIS based Percent Imperviousness Layer (Source –National Land Cover Data [NLCD]) was then used to identify streams in urban watersheds. Some basins had sufficient urbanization (more than 10 percent impervious area) to justify the use of South Carolina's urban regression equations. In these urbanized basins, the main channel length was determined from the topographic data. Discharges from the urbanized basins were also compared to the rural regression discharges from the same basins.

In Sumter County Beech Creek, Horsepen Creek, and Long Branch were identified as urban basins in this study. In some instances, the urban flows are lower than the rural estimations flows and for the conservative approach, higher flows were used.

Though several gages are available in Wateree Watershed, very limited numbers of gages are available for study streams and they are not applicable because all of them are regulated or with minimum numbers of data and not suitable for Bulletin 17B analysis (Water Resources Council, 1982).

For Wateree River, peak-flow data are available for station 02148000, Wateree River near Camden, SC, for water years 1905–10, 1916, and 1930–2006. The peak flow of record occurred on July 18, 1916, and had a magnitude of 400,000 cfs. The second largest record peak occurred on August 26, 1908, and had a magnitude of 366,000 cfs. Both of these peaks occurred prior to the construction of Lake Wylie (1925) and Lake Wateree (1919). The largest peak recorded after construction of these reservoirs occurred on April 7, 1936, and had a magnitude of 168,000 cfs, less than half the magnitude of the 1916 and 1908 peak flows. In order to assess the effect that storage in the basin would have on the magnitude of

those large floods at stations 02148000, additional assessments and analysis would need to be done to estimate the magnitudes of unregulated conditions. Such analyses were beyond the scope of the current investigation, and a flood-frequency analysis was not done for station 02148000. Instead, flows from Kershaw County, South Carolina and Incorporated Areas FIS, (FEMA, 2006), were used for Wateree River with drainage area adjustments.

A summary of the drainage area-peak discharge relationships for the streams studied by detailed methods is shown in Table 4, "Summary of Discharges."

Table 4 – Summary of Discharges

FLOODING SOURCE AND LOCATION	Basin Outlet ID	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) Percent Annual Chance 10-percent	2-percent	1-percent	0.2-percent
BEECH CREEK						
Approximately 3.2 miles upstream of Claremont Road	BC3C	1.58	247	490	607	1000
Approximately 3.9 miles upstream of Claremont Road	BC2C	1.01	196	390	483	790
Just downstream of Edgehill Road	*	0.63	154	307	380	618
BEECH CREEK TRIBUTARY 1						
At the mouth	BCT3C	1.70	301	496	583	848
BRUNSON BRANCH						
At the mouth	BB5C	4.28	512	932	1124	1740
Approximately 450 feet upstream of confluence with Brunson Branch Tributary 1	BB4C	2.57	282	513	616	940
Approximately 1,200 feet downstream of Route 401/Oswego Highway	BB3C	1.73	230	380	446	650
BRUNSON BRANCH TRIBUTARY 1						
At the mouth	BBT4C	1.68	258	466	561	860
CANE SAVANNAH CREEK						
Approximately 2.6 miles downstream of Boyles Lake Dam	CSC64C	49.50	834	1,434	1,704	2,540
Just upstream of Boyles Lake Dam	CSC56C	43.68	967	2530	4185	6900
Approximately 3,150 feet downstream of McCray's Mill Road	CSC14C	16.45	216	1184	1880	3100
Approximately 200 feet upstream of McCray's Mill Road	CSC13C	16.07	902	2149	2679	4470
At confluence with Hatchet Camp Branch	CSC12C	8.27	640	1224	1511	2460

*Data Not Available

Table 4 – Summary of Discharges (continued)

FLOODING SOURCE AND LOCATION	Basin Outlet ID	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) Percent Annual Chance 10-percent	2-percent	1-percent	0.2-percent
CUT THROUGH 1						
At the mouth	CT1-1	0.08	57	85	97	130
CUT THROUGH 2						
At the mouth	CT2-3C	0.74	145	228	268	400
GREEN SWAMP						
At Mason Road	GS9C	9.30	787	1269	1498	2200
Approximately 385 feet downstream of Four Bridges Road	GS8C	5.80	308	835	1091	2030
HATCHET CAMP BRANCH						
At the mouth	HCB8C	6.96	552	980	1192	1880
Just downstream of Highway 763/Wedgefield Highway	HCB7C	6.18	670	1171	1402	2130
Approximately 1,350 feet upstream of St. Pauls Church Road	HCB6C	5.00	474	855	1035	1610
Approximately 2,430 feet upstream of St. Pauls Church Road	HCB5C	4.15	353	507	796	1250
Approximately 4,070 feet downstream of Cane Savannah Road	HCB4C	2.68	274	457	542	810
Approximately 640 feet downstream of Duffle Drive	HCB2C	1.18	176	371	466	790
HOPE SWAMP						
At the mouth	HS24C	19.90	1515	2204	2489	3301
Approximately 1,800 feet upstream of I-95	HS20C	10.75	880	1304	1472	1950
HORSEPEN BRANCH						
At the mouth	HPB4C	2.31	324	626	788	1340
Approximately 40 feet downstream of Brewington Road	HPB3C	2.24	343	693	890	1590
Approximately 1.1 miles upstream of Brewington Road	HPB1	1.00	221	398	481	750

Table 4 – Summary of Discharges (continued)

FLOODING SOURCE AND LOCATION	Basin Outlet ID	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) Percent Annual Chance 10-percent	2-percent	1-percent	0.2-percent
LONG BRANCH						
Approximately 330 feet downstream of Highway 378/Highway 76/Broad Street	LBS-11C	6.76	809	1336	1556	2260
Approximately 2,070 feet upstream of Highway 378/Highway 76/Broad Street	LBS-9C	6.34	667	1122	1324	1940
Approximately 3,725 feet downstream of Booths Pond Dam	LBS-8AC	5.40	434	728	858	1260
Approximately 660 feet upstream of Booths Pond Dam	LBS-7C	4.48	717	1285	1545	2370
LYNCHES RIVER						
Downstream Limit of Study	Gage		14900	21600	24500	31500
MILE BRANCH						
At the mouth	MIL1	0.28	90	146	170	250
MULBERRY BRANCH						
At the mouth	MB5C	7.25	909	1661	2001	3080
At confluence of Brunson Branch	MB4C	2.79	410	707	839	1250
Just upstream of confluence of Mulberry Branch Tributary 1	MB3C	1.12	200	325	382	560
Approximately 610 feet upstream of confluence of Cut Through 2	MB1	0.14	81	132	155	230
MULBERRY BRANCH TRIBUTARY 1						
At the mouth	MBT3C	1.53	293	484	568	820
Approximately 3,010 feet upstream of Access Road	MBT1	0.8	203	325	378	540
MUSH SWAMP						
Approximately 850 feet downstream of Loring Mill Pond Road	MS17C	11.69	844	1812	2272	3840
Approximately 3,850 feet upstream of Loring Mill Pond Road	MS6C	4.36	469	891	1069	1630
Approximately 2,710 feet downstream of Eagle Road	MS1C	2.67	399	702	842	1280

Table 4 – Summary of Discharges (continued)

FLOODING SOURCE AND LOCATION	Basin Outlet ID	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) Percent Annual Chance 10-percent	2-percent	1-percent	0.2-percent
NASTY BRANCH						
Approximately 4,300 feet downstream of Cains Mill Road	NB37C	23.31	866	1761	2709	5030
Approximately 700 feet downstream of CSX Railroad	NB30C	17.77	984	2016	2631	4880
Approximately 1.0 mile downstream of Furnam Road	NB9C	6.48	433	811	1007	1660
Approximately 245 feet upstream of Furnan Road	NB3C	3.11	262	607	783	1410
NOYTS BRANCH						
At the mouth	NOYB2C	0.68	192	331	394	590
POCALLA CREEK						
At the mouth	PC10C	6.61	497	858	1024	1540
Approximately 4,440 feet upstream of Old Manning Road	PC6C	4.16	187	386	481	800
Approximately 1,060 feet downstream of Lakewood Drive	DAM1	3.61	139	366	469	830
Approximately 450 feet upstream of Deschamp Pond Dam	PC5C	3.61	391	728	83	1380
Approximately 730 feet downstream of Old Road	DAM2	2.43	272	492	600	950
Approximately 100 feet upstream of Old Road	PC4C	2.43	311	560	676	1046
Approximately 900 feet upstream of Waverly Drive	PC3C	1.86	277	506	608	930
POCOTALIGO RIVER TRIBUTARY 1						
Just downstream of Manning Avenue		0.70	*	*	363	*
PUDDING SWAMP						
Approximately 300 feet downstream of Old Forge Road	PS31C	44.47	2654	4064	4778	6985

*Data Not Available

Table 4 – Summary of Discharges (continued)

FLOODING SOURCE AND LOCATION	Basin Outlet ID	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) Percent Annual Chance 10-percent	2-percent	1-percent	0.2-percent
PUDDING SWAMP (continued)						
Approximately 1,240 feet downstream of Mt. Sinai Church Road	PS30C	23.55	1363	2106	2443	3448
Approximately 1,720 feet upstream of Mt. Sinai Church Road	PS29C	23.03	1646	2436	2776	3760
Approximately 600 feet downstream of I-95	PS22C	17.53	1158	1684	1907	2545
Approximately 600 feet upstream of I-95	PS21C	16.90	847	1363	1594	2293
Approximately 1,740 feet upstream of Route 53	PS20C	2.93	503	780	900	1255
ROCKY BLUFF SWAMP						
Approximately 1.3 miles downstream of Bell Road	RBS69C	45.97	1343	3342	3927	5711
Approximately 1.5 miles upstream of Foxworth Mill Road	RBS34C	21.34	1425	2475	2983	4602
Approximately 2.8 miles upstream of Foxworth Mill Road	RBS15C	9.43	787	1313	1557	2313
SHOT PUNCH BRANCH						
At the mouth	SPB9C	5.39	1092	1704	2000	2900
Approximately 975 feet upstream of Miller Road	SPB5C	3.4	744	1169	1363	1950
Approximately 400 feet upstream of Dick Street	SPC3C	2.57	648	1033	1201	1700
Approximately 2,140 feet upstream of Dick Street	SPC2C	1.51	379	63	734	1100
SOOKS BRANCH						
At the mouth	SB3C	0.75	141	285	365	648

The stillwater elevations have been determined for the 1-percent annual chance flood elevation for the flooding sources studied by detailed methods and are summarized in Table 5, “Summary of Stillwater Elevations.”

Table 5 – Summary of Stillwater Elevations

Flooding Source and Location	1-percent annual chance elevation (feet, NAVD88)
Carolina Bay 1	182.6
Carolina Bay 5	176.1
Carolina Bay 6	195.7
Carolina Bay 7	172.5
Carolina Bay 8	172.2
Carolina Bay 9	179.7
Carolina Bay 10	179.2
Carolina Bay 11	191.3
Carolina Bay 12	174.3
Carolina Bay 13	176.6
Carolina Bay 14	173.2
Carolina Bay 16	166.7
Carolina Bay 18	174.1
Carolina Bay 19	161.5
Carolina Bay 20	177.1
Carolina Bay 21	171.6
Carolina Bay 22	172.9
Carolina Bay 23	171.7
Carolina Bay 24	178.1
Carolina Bay 25	163.3
Carolina Bay 30	169.8

3.2 Hydraulic Analyses

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

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.

Cross sections for the flooding sources that were studied by detailed methods were obtained from field surveys or synthesized using adjacent surveyed cross

sections, topographic maps and/or LiDAR derived topographic data as described in the following subsections. All bridges, dams, and culverts were previously field surveyed to obtain elevation data and structural geometry.

Flood elevations may be raised by debris blockages of the streams in the study area. The hydraulic analyses for this study were based on unobstructed flow. The flood elevations shown on the Flood Profiles (Exhibit 1) are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

Precountywide Analyses

For each community within Sumter County that has a previously printed FIS report, the hydraulic analyses described in those reports have been compiled and are summarized below.

Sumter County (Unincorporated Areas)

For the January 5, 1989, FIS for the unincorporated areas of Sumter County, water-surface elevations for stream channels and bridges for Alligator Branch, Beech Creek, Cane Savannah Creek, Causeway Branch, Green Swamp, Mile Branch, Mush Swamp, the Pocotaligo River, Robert Branch, Rocky Bluff Swamp, Turkey Creek, and Carolina Bays 1, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 19, 20, 21, 22, 23, 24, 25, and 30, were computed using the step-backwater computer program WSPRO (U.S. Department of Transportation, 1986). Water-surface elevations upstream of culverts were computed using USGS program A526 (USGS, Water Resources Data for South Carolina - Part I, Surface-Water Records). Flow was routed over road embankments at culverts using USGS program E431 (USGS, 1976). Starting water-surface elevations were calculated using the slope conveyance method. Step-backwater computations for Long Branch were made assuming that the 4 gates at Sawmill Pond were raised, treating the dam as a regular cross-section. Flow through the spillway in the dam was critical. Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

For the August 23, 1999, FIS for the unincorporated areas of Sumter County, water-surface elevations for the extended detailed study for Long Branch were computed using the USACE HEC-2 step-backwater program (USACE, 1991).

Starting water-surface elevations were calculated using the slope conveyance method. Step-backwater computations for Long Branch were made assuming that the 4 gates at Sawmill Pond were raised, treating the dam as a regular cross-section. Flow through the spillway in the dam was critical.

City of Sumter

For the December 1981 FIS for the City of Sumter, water-surface elevations of floods of the selected recurrence intervals were computed for Green Swamp, Heathleywood Canal, Mile Branch, Powder Hom Canal, Tributary S-1, and Turkey Creek using the USACE HEC-2 step-backwater computer program (USACE, 1973). Starting water-surface elevations for Green Swamp and Turkey Creek were taken from the Pocotaligo River profile (FEMA, 1999). Starting water-surface elevations for the Heathleywood Canal were taken from the Green Swamp profile. Starting water-surface elevations for Mile Branch were determined by the slope-are method. Starting water-surface elevations for the Powder Horn Canal and Tributary S-1 were taken from the Shot Pouch Creek profile. Starting water-surface elevations for Tributaries H-1 and T-1 were taken from the Heathleywood Canal and Turkey Creek profiles, respectively. Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

Conventional backwater methods failed to produce realistic results in several reaches where the stream bed and adjacent areas were extremely flat. This condition existed along Tributaries H-1 and T-1 and in the headwater reaches of Powder Horn Canal, Tributary S-1, and Turkey Creek. During periods of flooding, overbank flow would travel in various directions, filling up the low spots, eventually resulting in shallow inundation of a relatively large area. The drainage areas are quite small and duration of flooding is short in these headwater areas. Even during major floods, it is likely that water would begin receding before storage areas are filled to capacity. Reservoir routing techniques could be used to calculate flood elevations in these flat areas, however, it was felt that the accuracy of the hydrological data and the time and expense necessary to conduct an analysis of this type was not warranted. For the purpose of this report, these flat headwater areas with indeterminate overbank flow patterns were designated "sheet flow areas". Base flood elevations were estimated based on observation of past floods, topographic information and engineering judgment.

February 16, 2007, Countywide Analyses

Information on the methods used to determine cross sections, water-surface elevations, and roughness factors for the streams revised or restudied as part of the February 16, 2007, countywide FIS is shown below.

Water-surface elevations of floods of the selected recurrence intervals were computed for Beech Creek, Beech Creek Tributary 1, Brunson Branch, Brunson Branch Tributary 1, Cane Savannah Creek, Cut Through 1, Cut Through 2, Green Swamp, Hatchet Camp Branch, Hope Swamp, Horsepen Branch, Long Branch, Lynches River, Mile Branch, Mulberry Branch, Mulberry Branch Tributary 1, Mush Swamp, Nasty Branch, Noyts Branch, Pocalla Creek, Pudding Swamp, Rocky Bluff Swamp, Shot Pouch Branch, and Sooks Branch using the USACE

HEC-RAS step-backwater computer program (USACE, September 1998). These computer models were calibrated using historic high water data collected during field investigations. Starting water-surface elevations were calculated using the slope area method or by matching the elevations of contiguous studies. Flood profiles were drawn showing computed water-surface elevations for floods of the selected recurrence intervals.

[TBD], Countywide Analyses

The models for detailed studies were developed using the USACE, HEC-RAS computer program, version 4.1 (USACE, 2010) for the 10-, 2-, 1-, and 0.2 -percent annual chance storm events. A floodway profile is developed with the 1-percent annual chance discharges. The frequency storm discharges for the studied streams within Wateree watershed were determined using Regional Regression equations and also from effective studies. The hydraulic analyses will be used to establish flood elevations and regulatory floodways for the subject flooding sources.

The models for limited detail studies were developed using the USACE HEC-RAS computer program, version 4.1 (USACE, 2010), for the 10-, 4-, 2-, 1- and 0.2-percent annual chance storm events. The frequency storm discharges for the studied streams within Wateree watershed were determined using Regional Regression equations and also from effective studies.

The models for approximate studies were developed using USACE HEC-RAS computer program, version 4.1 (USACE, 2010) for the 1-percent annual chance storm event. The 1-percent annual chance storm discharges for the studied streams within Wateree watershed were determined using Regional Regression equations.

Starting conditions for the hydraulic models were set to normal depth using starting slopes calculated from stream invert elevation based on the LIDAR data or, where applicable; derived from the water surface elevations of existing effective flood elevations. For the portion of Beech Creek studied by detailed methods, the Manning's "n" Values were assigned based on field survey data and also examining recent aerial photography. The values ranged from 0.034 to 0.052 for channels and from 0.040 to 0.14 for overbank areas. For the streams studied by limited detailed methods the Manning's "n" Values were also assigned based on field survey data and also examining recent aerial photography. The values ranged from 0.038 to 0.052 for channels and from 0.06 to 0.14 for overbank areas. For the streams studied by approximate methods the Manning's "n" Values were assigned based on examining recent aerial photography. A value of 0.045 was used for channels and values ranged from 0.06 to 0.12 for overbank areas.

Roughness factors (Manning's "n" Values) used in the hydraulic computations were chosen by field inspection. The following tabulation shows the channel and overbank "n" values for all of the streams studied by detailed methods:

Stream	Channel "n"	Overbank "n"
Alligator Branch	0.013-0.100	0.060-0.200
Beech Creek	0.055	0.150-0.200
Beech Creek Tributary 1	0.035-0.045	0.080-0.200
Brunson Branch	0.055	0.100-0.200
Brunson Branch Tributary 1	0.055	0.100-0.200
Cane Savannah Creek	0.055-0.064	0.080-0.200
Causeway Branch	0.013-0.100	0.060-0.200
Cut Through 1	0.055-0.065	0.100-0.200
Cut Through 2	0.063	0.100-0.200
Green Swamp	0.013-0.1	0.06-0.200
Hatchet Camp Branch	0.035-0.055	0.100-0.200
Heathleywood Canal	0.013-0.100	0.060-0.200
Hope Swamp	0.055	0.100-0.200
Horsepen Branch	0.055	0.100-0.200
Long Branch	0.035-0.050	0.100-0.200
Lynches River	0.040	0.100
Mile Branch	0.055	0.100-0.200
Mulberry Branch	0.035-0.055	0.100-0.200
Mulberry Branch Tributary 1	0.055	0.100-0.200
Mush Swamp	0.035-0.055	0.100-0.200
Nasty Branch	0.035-0.065	0.100-0.200
Noyts Branch	0.059	0.130-0.200
Pocalla Creek	0.035-0.045	0.100-0.200
Pocotaligo River	0.013-0.100	0.060-0.200
Pocotaligo River Tributary 1	0.025-0.100	0.030-0.100
Powder Hom Canal	0.013-0.100	0.060-0.200
Pudding Swamp	0.055-0.063	0.110-0.200
Robert Branch	0.013-0.100	0.060-0.200
Rocky Bluff Swamp	0.035-0.045	0.100-0.200
Shot Pouch Creek	0.045	0.100-0.200
Sooks Branch	0.055	0.100-0.200
Tributary S-1	0.013-0.100	0.060-0.200
Turkey Creek	0.013-0.100	0.060-0.200

All elevations on panels 45085C0050E, 45085C0075E, 45085C0100E, 45085C0125E, 45085C0250E, 45085C0255E, 45085C0256E, 45085C0257E, 45085C0258E, 450805C0259E, 45085C0275E, 45085C0276E, 45085C0277E, 45085C0425E, 45085C0450E, and 45085C0600E for the [TBD], revised FIS are referenced to NAVD88. All elevations outside of the scope of the [TBD] revised FIS are referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29).

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 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 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 FIS reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum used for newly created or revised FIS reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD29). With the completion of the

NAVD88 many FIS reports and FIRMs are now prepared using NAVD as the referenced vertical datum.

Not all of the flood elevations shown in this FIS report and on the FIRMs are referenced to NAVD88. For FIRM panels and Flood Profiles not associated with the [TBD], revision, flood elevations are referenced to NGVD29 and will be updated in a future release.

The elevations shown in the [TBD], FIS report and on the FIRMs for the revised panels (45085C0050E, 45085C0075E, 45085C0100E, 45085C0125E, 45085C0250E, 45085C0255E, 45085C0256E, 45085C0257E, 45085C0258E, 450805C0259E, 45085C0275E, 45085C0276E, 45085C0277E, 45085C0425E, 45085C0450E, and 45085C0600E) in Sumter County are referenced to NAVD88. Ground, structure, and flood elevations may be compared and/or referenced to NGVD 29 by applying a standard conversion factor. The conversion factor to NGVD 29 is +0.91 foot. The conversion between datum may be expressed as an equation:

NAVD 88 = NGVD 29 – 0.91 foot

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 NGVD29 should apply the stated conversion factor 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 information regarding conversion between the NGVD and NAVD, visit the National Geodetic Survey website at www.ngs.noaa.gov, or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS 12
National Geodetic Survey
SSMC-3 #9202
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3242

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. Interested individuals may contact FEMA to access these data.

To obtain current elevation, description, and/or location information for benchmarks shown on this map, please contact the Information Services Branch of NGS at (301) 713-3242, or visit their website at 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 report 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 a 1-percent annual chance floodway. This information is presented on the FIRM and in many components of the FIS report, including Flood Profiles, Floodway Data Tables, and Summary of Stillwater Elevations Table. Users should reference the data presented in the FIS report 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 each stream studied by detailed methods, the 1- and 0.2-percent annual chance floodplain boundaries have been delineated using the flood elevations determined at each cross section.

For the [TBD], countywide FIS, LiDAR was provided by SCDNR and was used to develop the 10-foot Digital Elevation Model (DEM) for the hydraulic analysis and floodplain mapping for the study streams. The 10-foot DEMs were mosaicked for the entire Wateree Watershed and were resampled to a 30-foot cell size to obtain manageable DEM size for processing with ESRI's ArcHydro software. For Sumter County, the LiDAR was collected for SCDNR by Sanborn Mapping Company, Inc. in February and March 2010 (SCDNR, 2013). The data is available from SCDNR LiDAR Data Products website at:
http://www.dnr.sc.gov/GIS/lidar.html.

Portions of Beech Creek, Beech Creek Tributary, and Robert Branch were redelineated using the aforementioned 10-foot Digital Elevation Model (DEM), and floodplain boundaries were interpolated between cross sections.

For the February 16, 2007, countywide FIS revision, the boundaries were interpolated between cross sections, using digital topographic maps with a contour interval of 2 feet (Sumter County, South Carolina, GIS Department, 1989).

For the streams studied by approximate methods, the 1-percent annual chance floodplain boundaries were taken from the previously printed FISs/FIRMs for the unincorporated areas of Sumter County (FEMA, 1999) and the City of Sumter (FEMA, 1981). Portions of Alligator Branch and the Pocotaligo River and the approximately and/or detailed studied streams that are listed below were redelineated using digital topographic maps with a contour interval of 2 feet (Sumter County, South Carolina, GIS Department, 1989).

February 16, 2007, Redelineated Streams

Alligator Branch
Alligator Branch Tributary 2
Beech Creek
Black River
Bluffhead Branch
Boggy Swamp
Boots Branch
Bracy Mill Creek
Briar Branch
Brunson Branch Tributary 1
Brunson Branch Tributary 2
Brunson Branch Tributary 3
Brunson Swamp
Brunson Swamp Tributary 1
Brunson Swamp Tributary 2
Busch Branch
Cane Savannah Creek
Cane Savannah Creek Tributary
Cane Savannah Creek Tributary 1
Cane Savannah Creek Tributary 2
Cane Savannah Creek Tributary 3
Cane Savannah Creek Tributary 4
Cane Savannah Creek Tributary 5
Cane Savannah Creek Tributary 6
Church Branch
Concord Branch
Cowpen Swamp
Cowpen Swamp Tributary 2
Cowpen Swamp Tributary 3
Cowpen Swamp Tributary 4
Cowpen Swamp Tributary 5
Cowpen Swamp Tributary 6
Cowpen Swamp Tributary 7
Douglas Swamp
Dougals Swamp Tributary
Green Swamp
Horsepen Branch
Horsepen Branch Tributary 1
Lee Swamp
Lightwood Knot Branch
Little Rafting Creek
Little Rafting Creek Tributary
Long Branch Tributary
Lynches River
Mile Branch
Mush Swamp
Mush Swamp Tributary 1
Pocalla Creek
Pocotaligo River
Pocotaligo River Tributary 1
Pocotaligo River Tributary 2
Pocotaligo River Tributary 3
Pocotaligo River Tributary 4
Pocotaligo River Tributary 5
Pocotaligo River Tributary 6
Pocotaligo River Tributary 7
Pocotaligo River Tributary 8
Pudding Swamp
Pudding Swamp Tributary 1
Rafting Creek
Rafting Creek Tributary 1
Rad Oak Branch
Robert Branch
Rocky Bluff Swamp
Rocky Bluff Swamp Tributary 1
Rocky Bluff Swamp Tributary 2
Rocky Bluff Swamp Tributary 3
Rocky Bluff Swamp Tributary 5
Rocky Bluff Swamp Tributary 6
Rocky Bluff Swamp Tributary 71
Rocky Bluff Swamp Tributary 8
Sammy Swamp

February 16, 2007, Redelineated Streams (continued)

Green Swamp Tributary 1	Scape Ore Swamp
Green Swamp Tributary 2	Scape Ore Swamp Tributary
Green Swamp Tributary 3	Tearcoat Branch
Gum Swamp Branch	Threemile Branch
Gun Swamp Branch Tributary	Wateree River
Hope Swamp	

The 1- and 0.2-percent-annual-chance floodplain boundaries are shown on the FIRM. 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 base flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1 foot, provided that hazardous velocities are not produced. The floodways in this study are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

The floodways presented in this 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 revised 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 floodway for Lynches River extend beyond the county boundary.

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." 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.

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 Cut Through 1 and Sooks Branch are lower than the regulatory flood elevations in that area, which must take into account the 1-percent chance annual flooding due to backwater from other sources. Floodways were not computed for downstream portions of Beech Creek, Cane Savannah Creek, Green Swamp, Long Branch, Mush Swamp, Rocky Bluff Swamp, and Turkey Creek. No floodways were computed for portions of Mile Creek.

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, "Floodway Schematic."

No floodways have been computed for streams studied by limited detail methods. Information pertaining to the flood discharges and 1-percent-annual-chance water-surface elevations for selected cross sections along streams studied by limited detail methods are shown on Table 7, "Limited Detailed Base Flood Elevation Data."

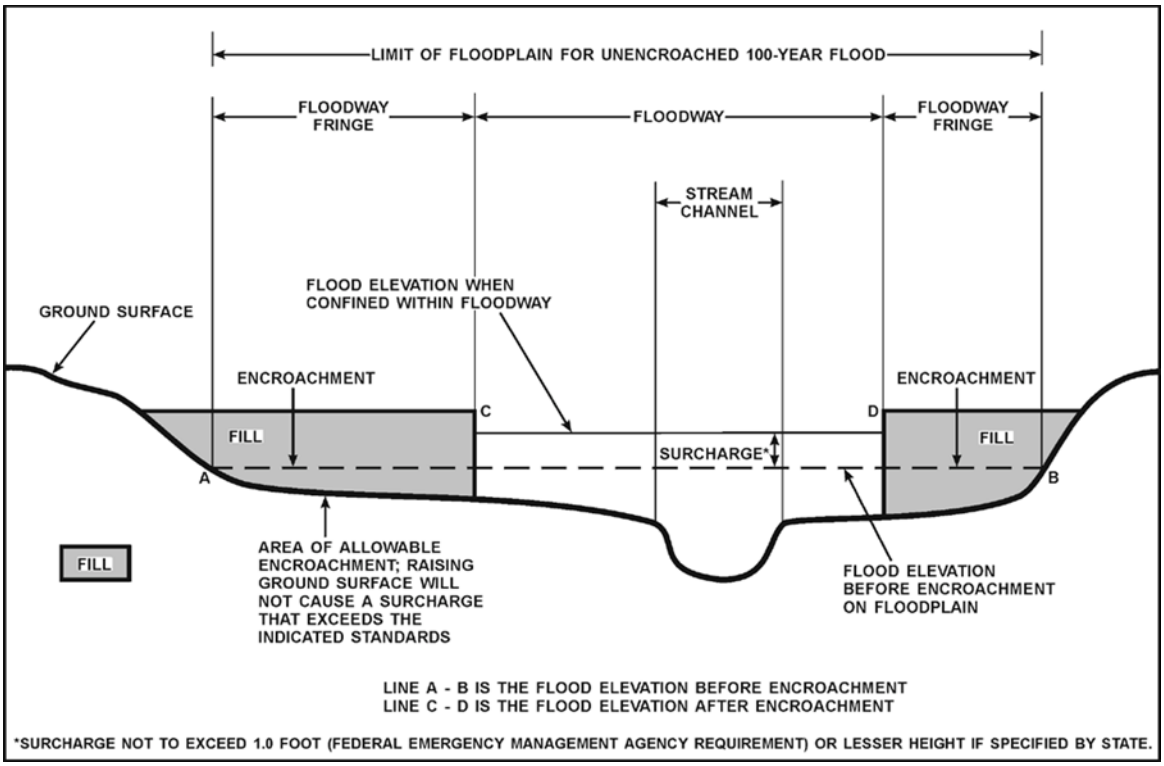

Figure 1 – Floodway Schematic

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (NAVD)	WITHOUT FLOODWAY (NAVD)	WITH FLOODWAY (NAVD)	INCREASE
Beech Creek								
A-N*								
O	17,186	89	349	1.7	180.2	180.2	181.2	1.0
P	17,983	30	150	4.1	183.8	183.8	184.8	1.0
Q	18,581	60	264	2.3	187.2	187.2	188.2	1.0
R	18,995	63	261	2.3	188.9	188.9	189.8	0.9
S	20,116	42	170	3.6	197.0	197.0	197.9	0.9
T	20,611	80	247	2.0	200.6	200.6	201.6	1.0
U	21,316	20	62	7.8	210.6	210.6	210.8	0.2
V	22,000	36	130	3.7	217.3	217.3	218.1	0.8
W	22,491	113	310	1.6	220.6	220.6	221.6	1.0
X	22,616	33	88	6.3	223.4	223.4	223.8	0.4
Y	22,719	90	1,009	0.9	223.7	233.8	234.2	0.6
Z	22,842	310	3,701	0.1	223.7	233.8	234.2	0.6
AA	22,997	245	2,907	0.2	223.7	233.8	234.2	0.6
AB	23,164	150	1,390	0.7	223.7	233.8	234.2	0.6

* Floodway data not computed
[1] Feet above Claremont Road

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUMTER COUNTY, SC
AND INCORPORATED AREAS

FLOODWAY DATA

BEECH CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (NAVD)	WITHOUT FLOODWAY (NAVD)	WITH FLOODWAY (NAVD)	INCREASE
Beech Creek Tributary 1								
A	634	190	1,268	0.5	167.3	163.8	163.8	0.0
B	1,022	220	1,051	0.6	167.3	163.8	163.8	0.0
C	1,317	185	1,652	0.4	167.3	167.3	168.2	0.9
D	1,707	200	705	0.8	169.6	169.6	170.5	0.9
E	2,286	145	399	1.5	170.7	170.7	171.7	1.0
F	2,880	48	157	3.7	176.1	176.1	177.0	0.9
G	3,315	97	335	1.7	180.8	180.8	181.8	1.0
H	3,898	55	173	3.4	186.0	186.0	186.9	0.9
I	4,557	92	348	1.7	191.9	191.9	192.9	1.0

[1] Feet above confluence with Beech Creek

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUMTER COUNTY, SC
AND INCORPORATED AREAS

FLOODWAY DATA

BEECH CREEK TRIBUTARY 1

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION[2]			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE
Green Swamp								
A-D*								
E	12,405	750	5,026	1.05	135.7	135.7	136.6	0.9
F	12,580	750	4,879	1.09	135.8	135.8	136.7	0.9
G	12,890	765	38,000	0.14	135.9	135.9	136.8	0.9
H	12,980	770	5,678	0.93	135.9	135.9	136.7	0.8
I	13,210	920	6,944	0.76	136.4	136.4	137.2	0.8
J	14,000	750	4,770	1.11	136.7	136.7	137.5	0.8
K	15,155	750	3,772	1.40	137.6	137.6	138.4	0.8
L	15,270	730	4,329	1.22	137.9	137.9	138.9	1.0
M	15,345	730	4,376	1.21	138.0	138.0	138.9	0.9
N	16,350	760	3,789	1.12	138.7	138.7	139.6	0.9
O	25,075	300	2,174	1.93	148.7	148.7	149.7	1.0
P	26,000	410	2,467	1.70	150.1	150.1	151.0	0.9
Q	27,000	660	3,657	1.15	151.2	151.2	152.1	0.9
R	27,970	500	3,214	1.31	151.3	151.3	152.2	0.9
S	28,120	500	463	9.07	151.5	151.5	152.0	0.5
T	28,250	600	4,261	0.99	152.8	152.8	153.3	0.5
U	29,000	1,000	6,400	0.66	152.9	152.9	153.5	0.6
V	30,200	700	4,344	0.97	153.3	153.3	153.9	0.6
W*								
X	41,707	215	941	1.59	168.8	168.8	168.9	0.1
Y	43,285	124	483	3.10	170.7	170.7	171.7	1.0
Z	44,074	140	660	2.30	172.5	172.5	173.3	0.8

* Floodway data not computed
[1] Feet above confluence with Pocotaligo Creek
[2] Water surface elevations referenced to NGVD29. Elevations may be compared and/or referenced to NAVD88 by applying a standard conversion factor of -0.91 foot.

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUMTER COUNTY, SC
AND INCORPORATED AREAS

FLOODWAY DATA

GREEN SWAMP

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION[2]			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE
Green Swamp (continued)								
AA	44,894	315	1,433	1.1	173.5	173.5	174.5	1.0
AB	45,546	61	291	5.1	174.1	174.1	175.1	1.0
AC	46,381	110	651	2.3	177.0	177.0	178.0	1.0
AD	46,986	175	979	1.5	177.9	177.9	178.9	1.0
AE	47,574	185	1,025	1.5	178.6	178.6	179.6	1.0
AF	48,551	150	821	1.4	179.7	179.7	180.7	1.0
AG	49,349	130	728	1.6	181.4	181.4	182.2	0.8
AH	49,985	185	779	1.5	181.8	181.8	182.8	1.0
AI	50,445	160	595	1.9	182.5	182.5	183.4	0.9
AJ	51,406	437	2,831	0.4	188.6	188.6	189.3	0.7
AK	52,768	100	377	3.4	188.7	188.7	189.3	0.6

[1] Feet above confluence with Pocotaligo Creek
[2] Water surface elevations referenced to NGVD29. Elevations may be compared and/or referenced to NAVD88 by applying a standard conversion factor of -0.91 foot.

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUMTER COUNTY, SC
AND INCORPORATED AREAS

FLOODWAY DATA

GREEN SWAMP

TABLE 7—Limited Detailed Base Flood Elevation Data

Cross Section[1]	Stream Station[2]	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)
LITTLE RAFTING CREEK			
002	181	2,333	131.87
008	792	2,333	133.63
015	1,480	2,333	135.69
022	2,166	2,333	136.77
027	2,722	2,333	137.36
036	3,569	2,333	138.06
038	3,793	2,333	138.67
043	4,274	2,316	139.22
044	4,355	2,316	145.25
049	4,886	2,316	145.25
055	5,518	2,316	145.25
061	6,124	2,316	145.26
066	6,554	2,316	145.26
072	7,169	2,316	145.26
078	7,779	2,316	145.33
084	8,440	2,316	145.69
089	8,859	2,316	146.28
095	9,505	2,316	146.59
101	10,146	2,316	147.09
110	10,960	2,316	148.52
116	11,621	2,316	149.50
122	12,205	2,119	150.12
131	13,090	2,119	150.88
138	13,780	2,119	151.68
145	14,492	2,119	153.09
151	15,083	2,119	153.86
157	15,731	2,119	154.85
163	16,338	2,119	155.74
172	17,186	2,119	156.69
178	17,844	2,119	158.51
186	18,569	1,902	159.82
192	19,206	1,902	160.47
196	19,635	1,902	160.93
204	20,421	1,902	161.49
210	21,013	1,902	161.85
218	21,761	1,902	162.33
227	22,661	1,687	163.32
235	23,549	1,687	165.26
241	24,102	1,687	166.46
247	24,740	1,687	167.48
252	25,153	1,654	168.19
254	25,436	1,654	170.98

[1] This table reflects all modeled cross sections. Some cross sections shown in this table may not appear on map.

[2] Feet above mouth.

TABLE 7—Limited Detailed Base Flood Elevation Data

Cross Section[1]	Stream Station[2]	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)
LITTLE RAFTING CREEK (continued)			
261	26,131	1,654	171.31
272	27,169	1,654	171.52
286	28,582	1,654	171.93
301	30,083	1,448	172.83
301	30,105	1,448	172.91
308	30,770	1,448	174.37
309	30,892	1,448	175.70
322	32,213	1,448	176.95
324	32,391	1,448	178.91
338	33,795	1,059	179.51
344	34,446	1,059	181.89
355	35,546	1,059	184.10
364	36,355	1,059	186.05
370	37,021	1,059	187.48
374	37,445	1,059	188.21
380	38,045	1,059	189.22
388	38,822	1,059	190.73
395	39,454	1,059	192.25
401	40,058	1,059	193.78
410	40,970	1,059	196.83
LONG BRANCH			
000	22	1,151	222.09
004	427	1,151	222.24
007	747	1,151	222.29
017	1,702	645	222.45
022	2,199	645	224.15
030	3,021	645	228.09
035	3,539	645	230.95
040	4,012	645	232.74
046	4,639	645	235.16
053	5,277	645	242.13
058	5,800	645	243.56
063	6,259	645	244.96
UNNAMED TRIBUTARY 1 TO LONG BRANCH			
004	352	550	222.29[3]
009	876	550	222.29[3]
014	1,413	550	224.99
019	1,866	550	228.38
025	2,451	550	230.86
029	2,936	550	231.54
033	3,342	550	232.11

[1] This table reflects all modeled cross sections. Some cross sections shown in this table may not appear on map.
[2] Feet above mouth.
[3] Elevation includes backwater effects.

TABLE 7—Limited Detailed Base Flood Elevation Data

Cross Section[1]	Stream Station[2]	Flood Discharge (cfs)	1% Annual Chance Water-Surface Elevation (feet NAVD 88)
UNNAMED TRIBUTARY 1 TO LONG BRANCH (continued)			
040	4,017	550	235.75
045	4,456	481	238.52
046	4,556	481	249.92
049	4,893	481	249.92
054	5,410	481	249.93
058	5,843	481	249.93
064	6,421	481	249.98
070	6,988	481	250.70
075	7,539	481	257.09
079	7,904	481	257.54
084	8,375	481	260.05
088	8,759	261	264.21
088	8,826	261	265.11
093	9,298	261	268.03
099	9,911	261	275.14
101	10,099	261	277.17
103	10,299	261	279.06
104	10,405	261	280.06
105	10,506	261	282.28
106	10,633	261	283.52
110	11,006	261	289.33
114	11,428	261	295.39
120	12,040	261	304.16
125	12,542	261	314.20
UNNAMED TRIBUTARY 2 TO LONG BRANCH			
000	35	249	260.05[3]
002	192	249	261.95
004	360	249	264.10
005	461	249	265.06
007	740	249	268.36
009	909	249	270.31
011	1,148	249	272.02
015	1,466	249	275.85
017	1,745	249	278.06
022	2,158	249	282.30
024	2,404	249	286.35
026	2,615	249	288.62

[1] This table reflects all modeled cross sections. Some cross sections shown in this
[2] Feet above mouth.
[3] Elevation includes backwater effects.

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 1-percent annual chance floodplains that are determined in the FIS by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no BFEs or 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 by detailed methods. In most instances, 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, and 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 one percent annual chance flood by levees. No BFEs 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 BFEs 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. On selected FIRM panels, 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 Sumter County. Historical data relating to the pre-countywide maps prepared for each community are presented in Table 8, "Community Map History."

7.0 OTHER STUDIES

The [TBD], countywide FIS, is a part of the larger Wateree Watershed study covering flooding sources in Fairfield, Kershaw, Lancaster, Richland and Sumter Counties, South Carolina. For additional materials related to the entire Wateree Watershed study may be obtained by accessing the Technical Support Data Notebook.

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Sumter County has been compiled into this FIS. Therefore, this FIS supersedes all previously printed FIS reports, FHBMs, FIRMS, and/or FBFMs for all of the incorporated and unincorporated jurisdictions within Sumter County.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Federal Insurance and Mitigation Division, FEMA Region IV, 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
Mayesville, Town of	March 19, 1976	None	February 16, 2007	
Pinewood, Town of	June 21, 1974	May 28, 1976	July 17, 1986	
Sumter, City of	June 21, 1974	April 16, 1976	March 1, 1978	December 18, 1981
Sumter County (Unincorporated Areas)	May 19, 1978	None	January 5, 1989	February 8, 1999

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUMTER COUNTY, SC AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

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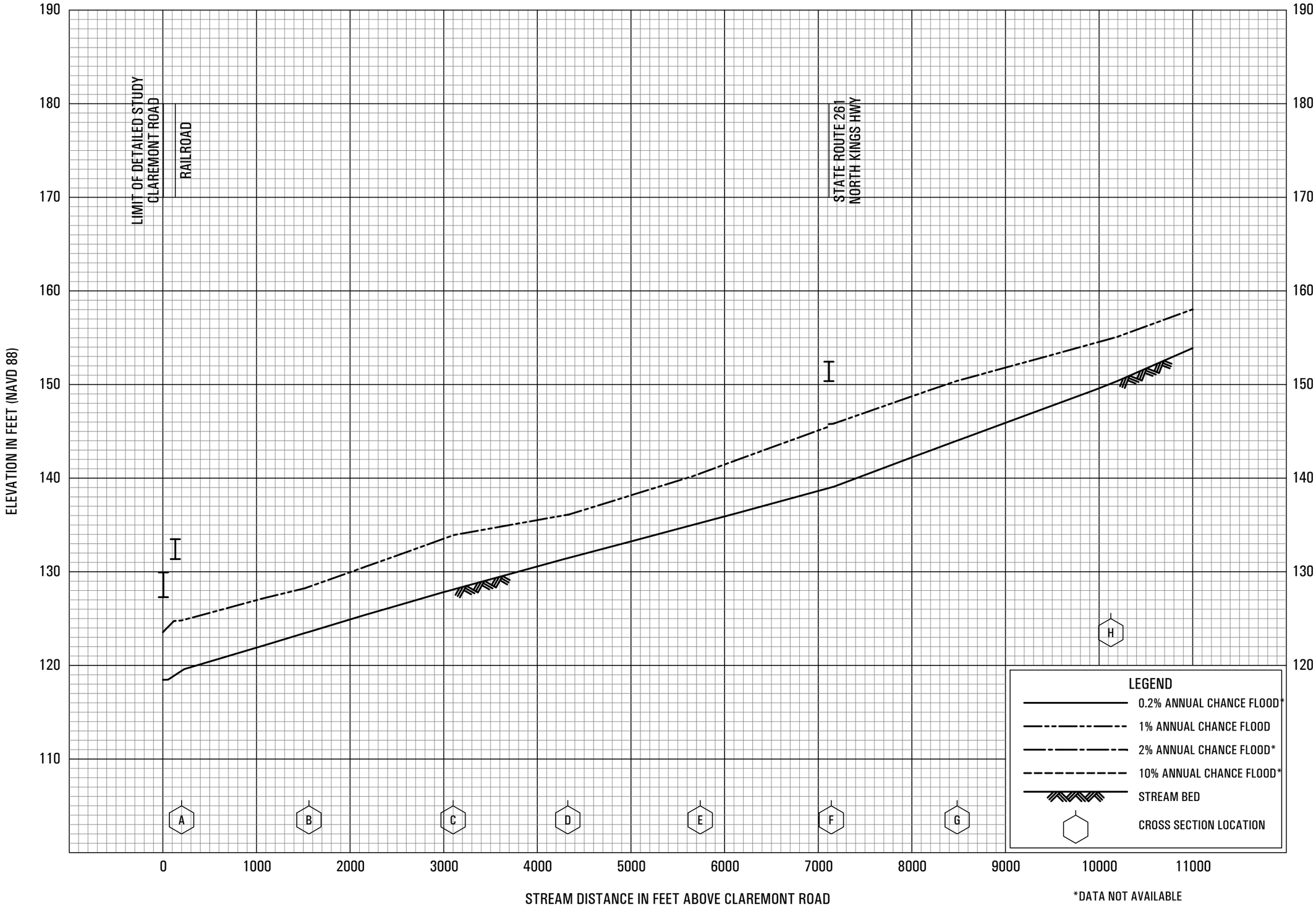


FLOOD PROFILES

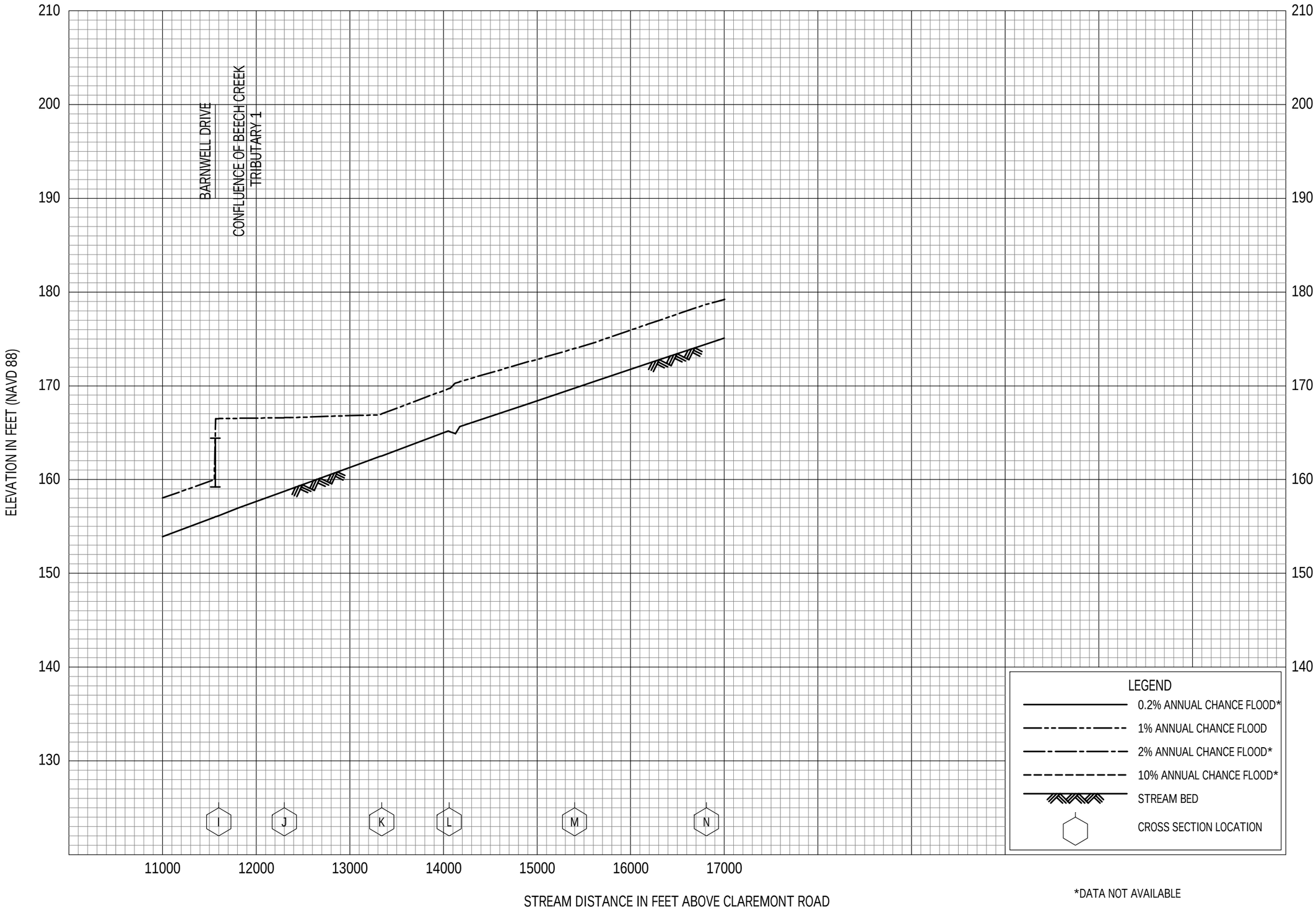
BEECH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUMTER COUNTY, SC

AND INCORPORATED AREAS

02P



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FLOOD PROFILES

BEECH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUMTER COUNTY, SC

AND INCORPORATED AREAS

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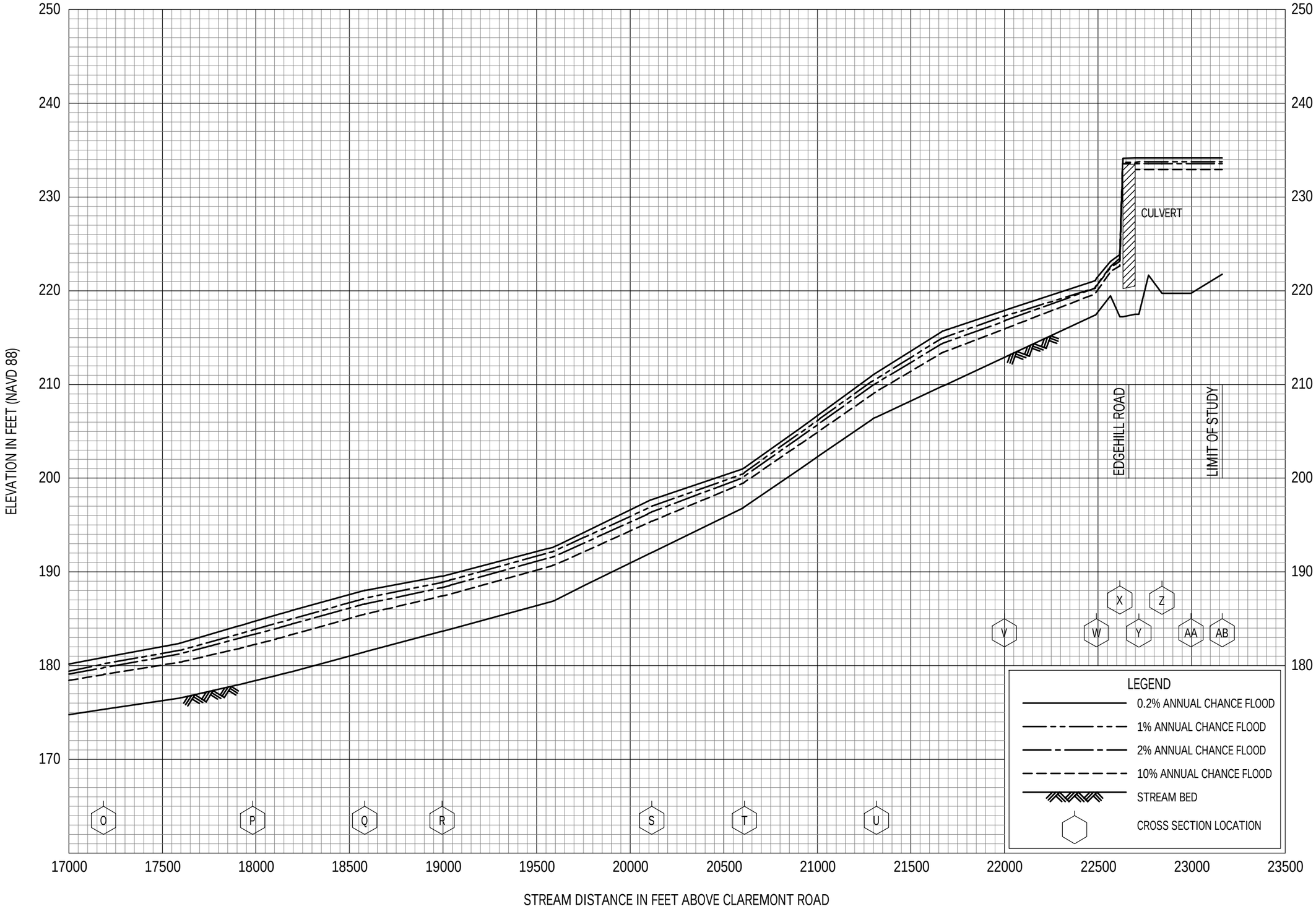

FLOOD PROFILES

BEECH CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUMTER COUNTY, SC

AND INCORPORATED AREAS

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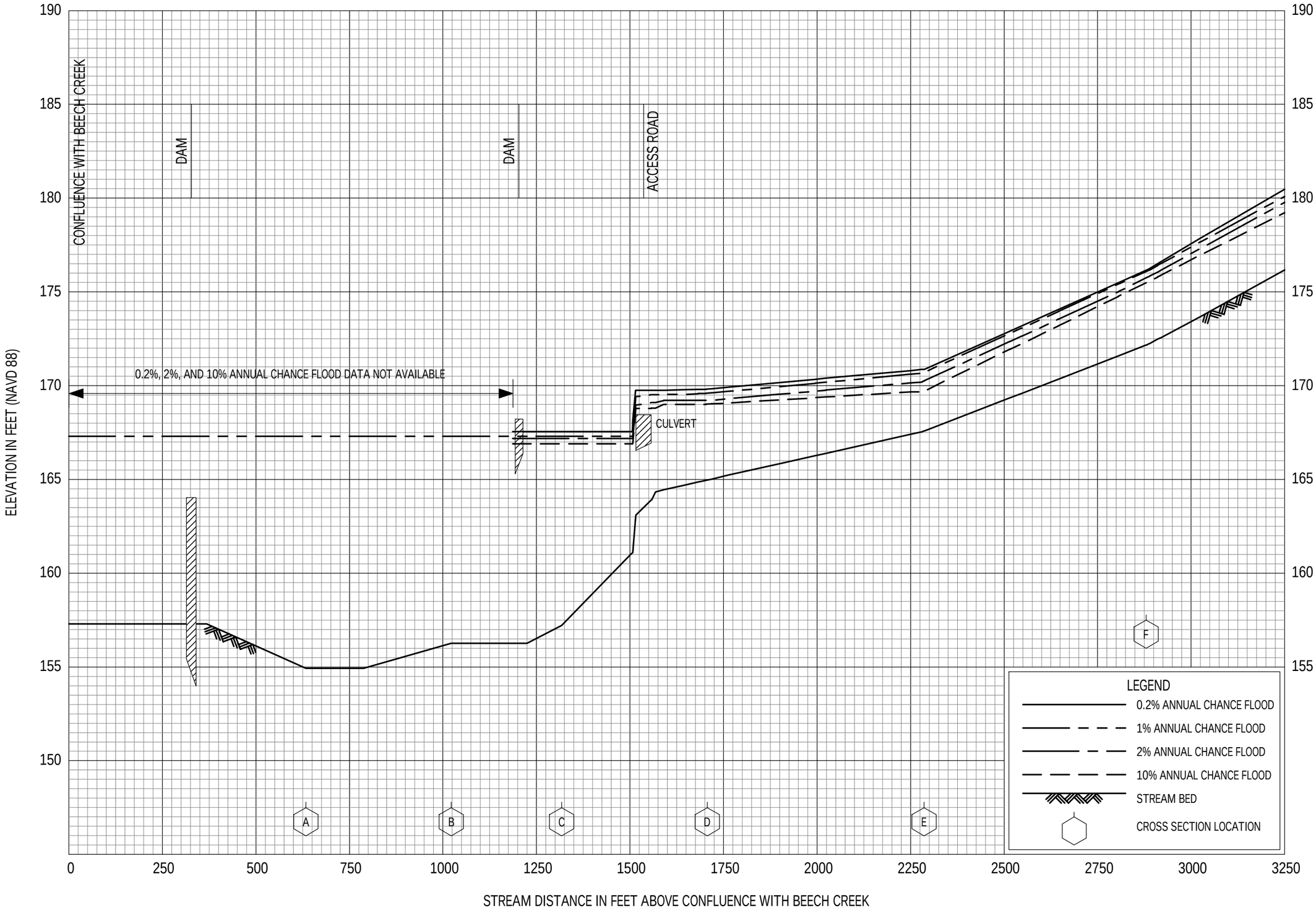

FLOOD PROFILES

BEECH CREEK TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUMTER COUNTY, SC

AND INCORPORATED AREAS

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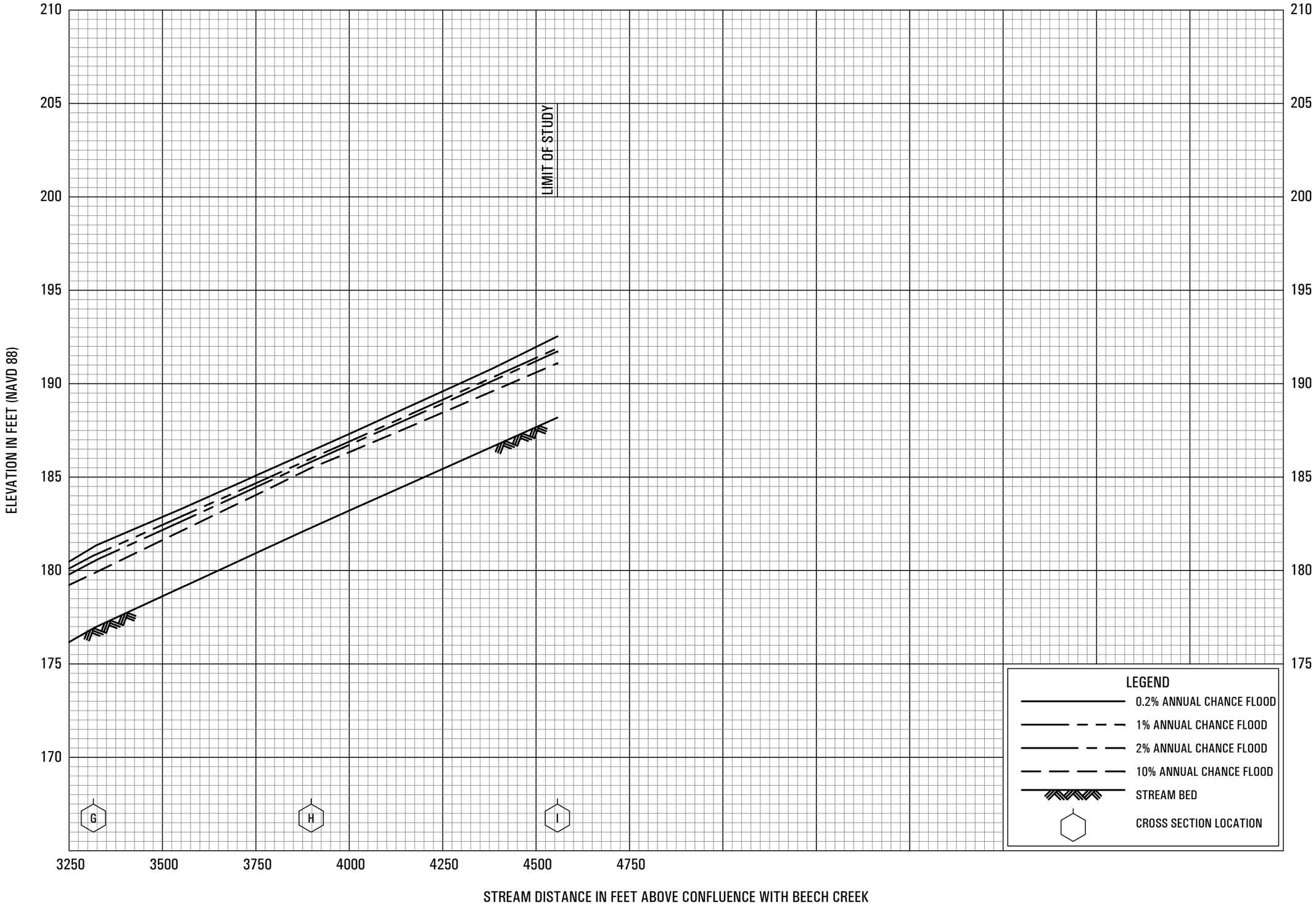

FLOOD PROFILES

BEECH CREEK TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUMTER COUNTY, SC

AND INCORPORATED AREAS

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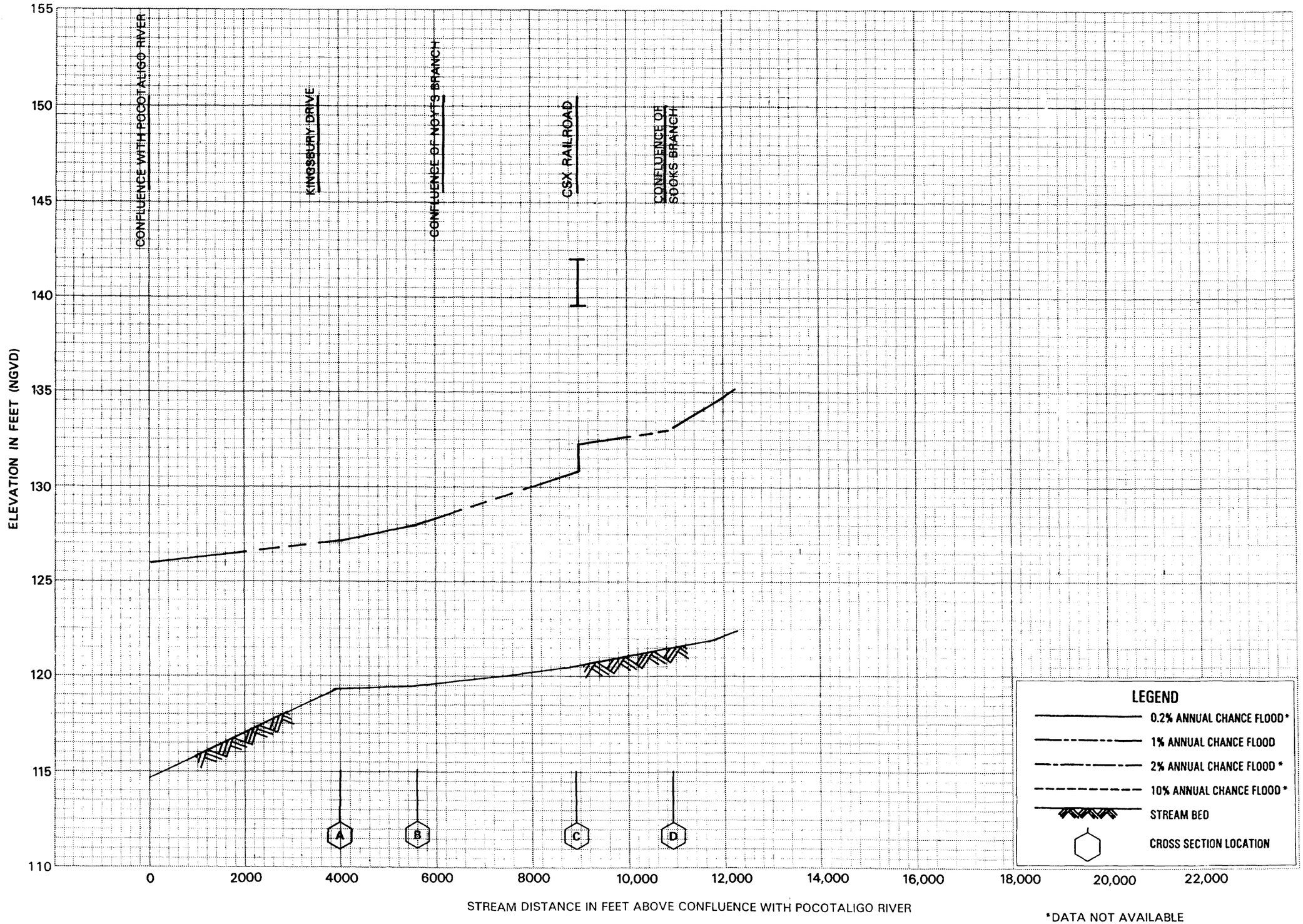

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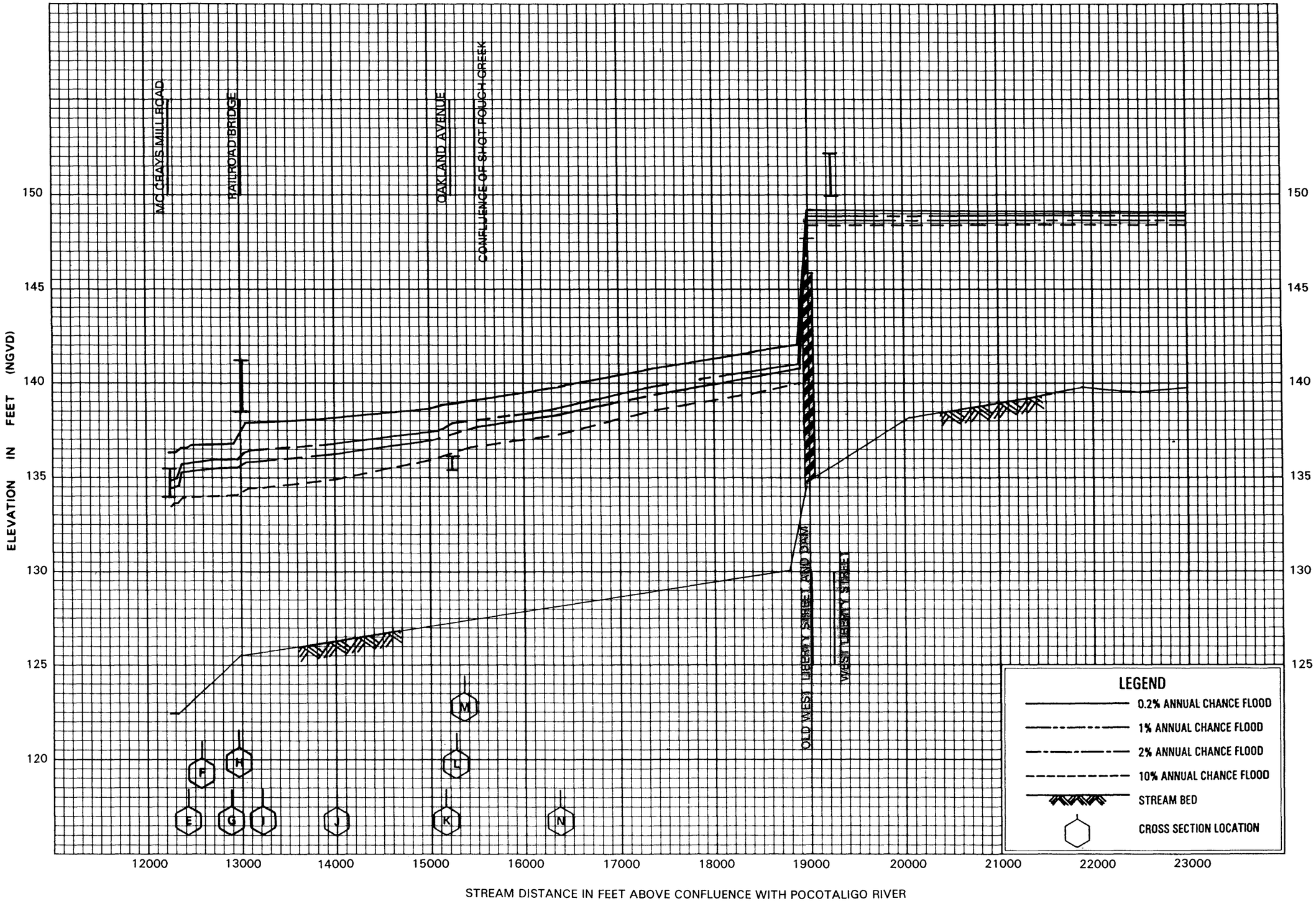
FLOOD PROFILES

GREEN SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUMTER COUNTY, SC
AND INCORPORATED AREAS

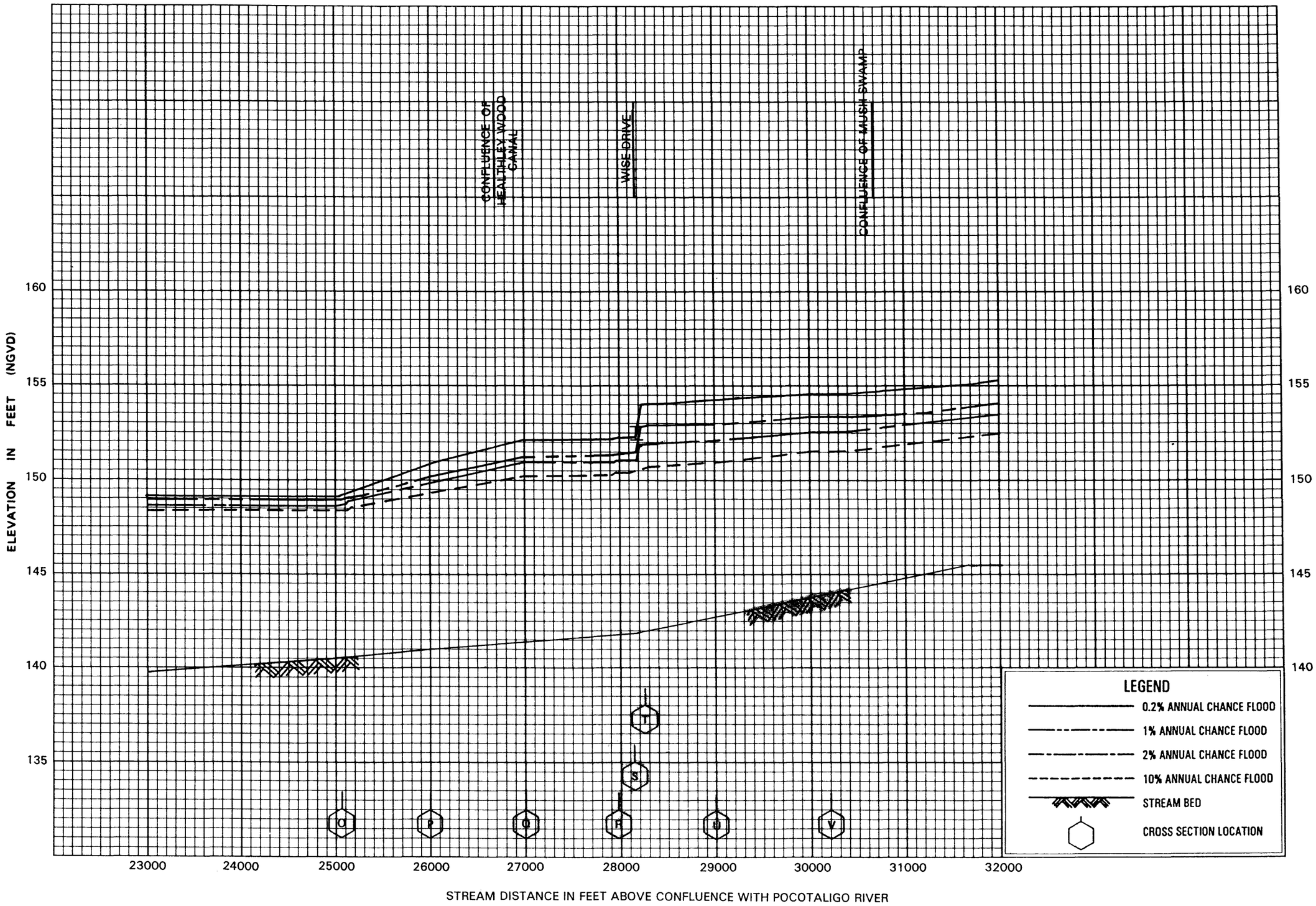


FLOOD PROFILES

GREEN SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUMTER COUNTY, SC
AND INCORPORATED AREAS



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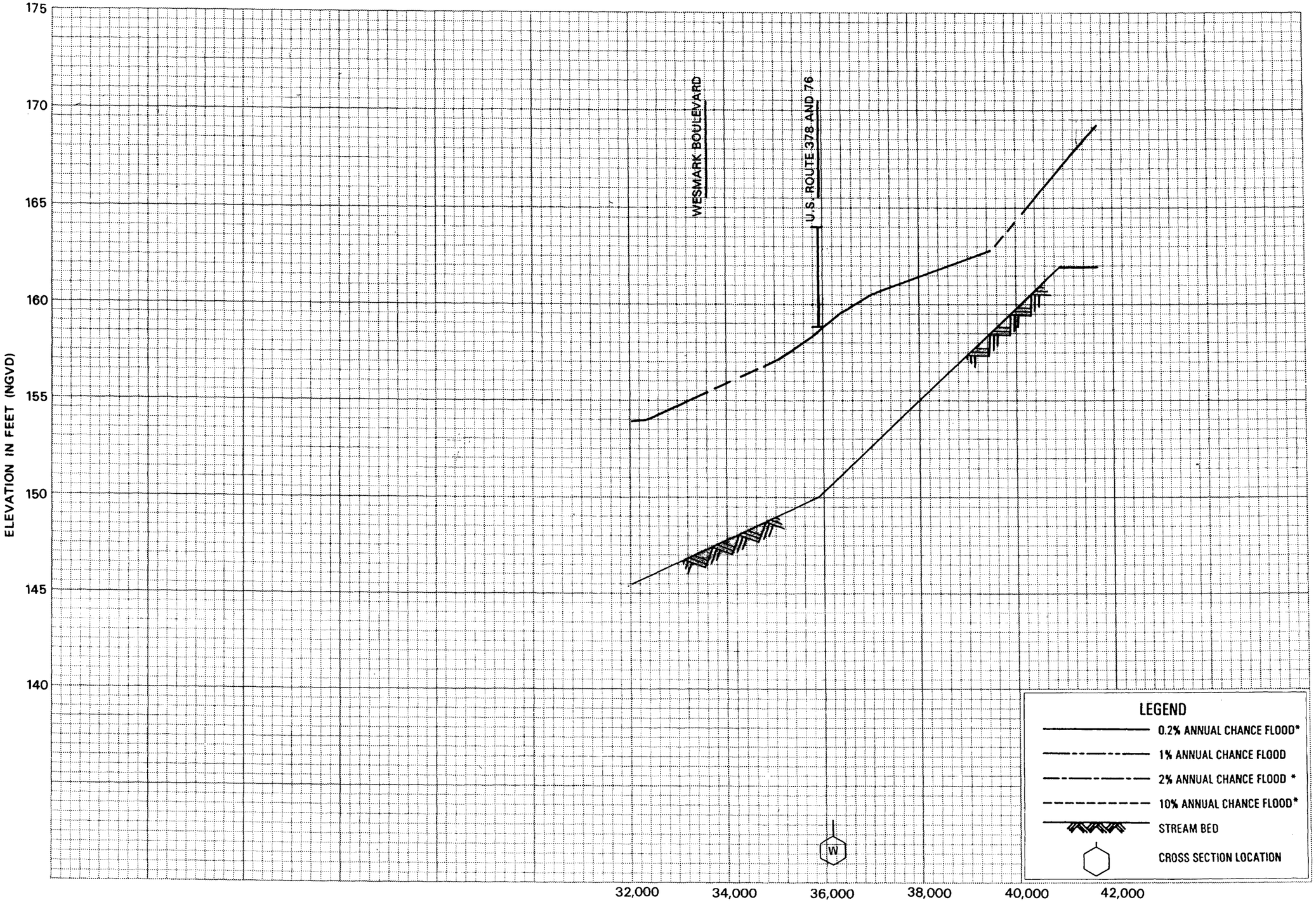
FLOOD PROFILES

GREEN SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUMTER COUNTY, SC
AND INCORPORATED AREAS



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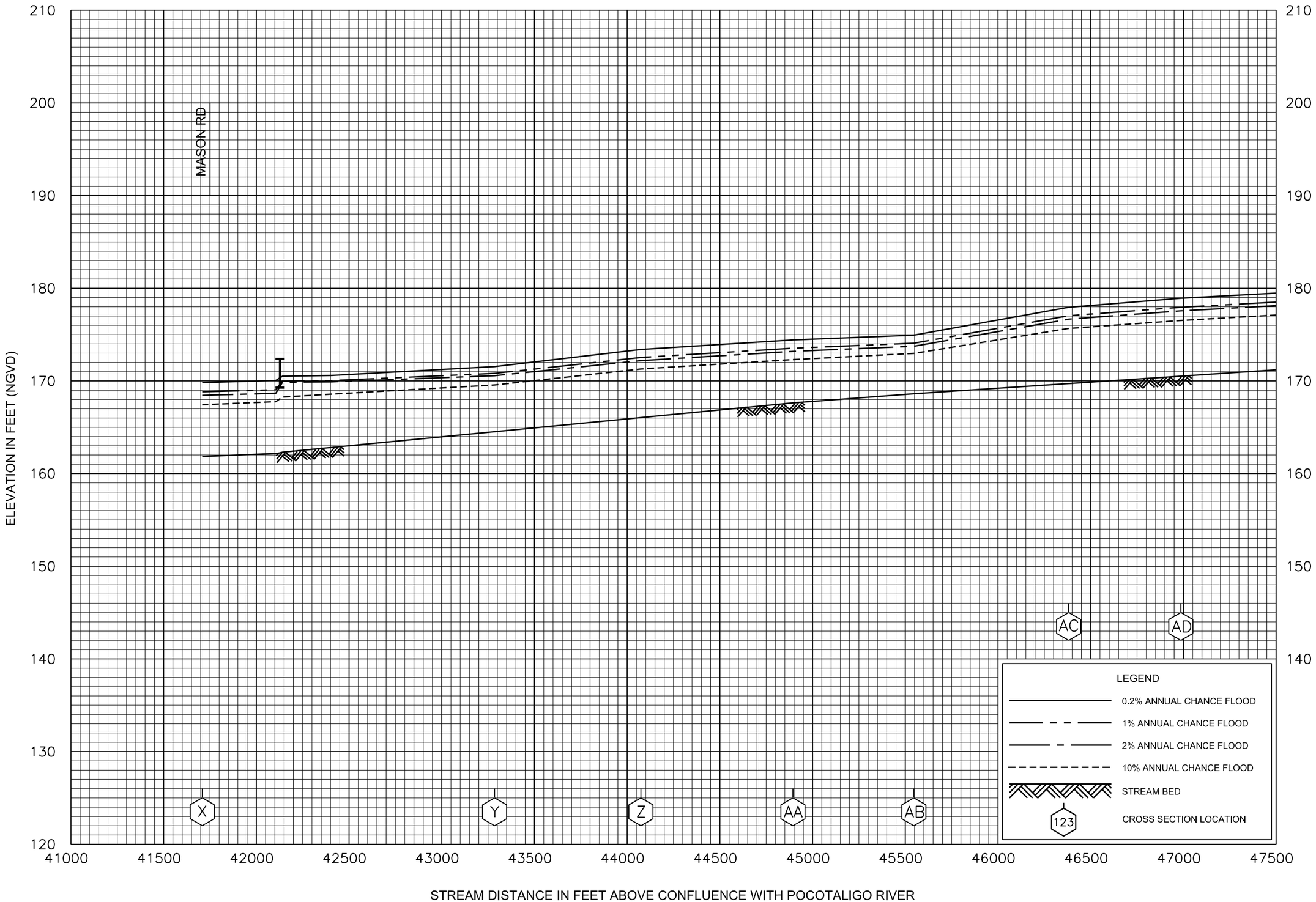
FLOOD PROFILES

GREEN SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUMTER COUNTY, SC
AND INCORPORATED AREAS

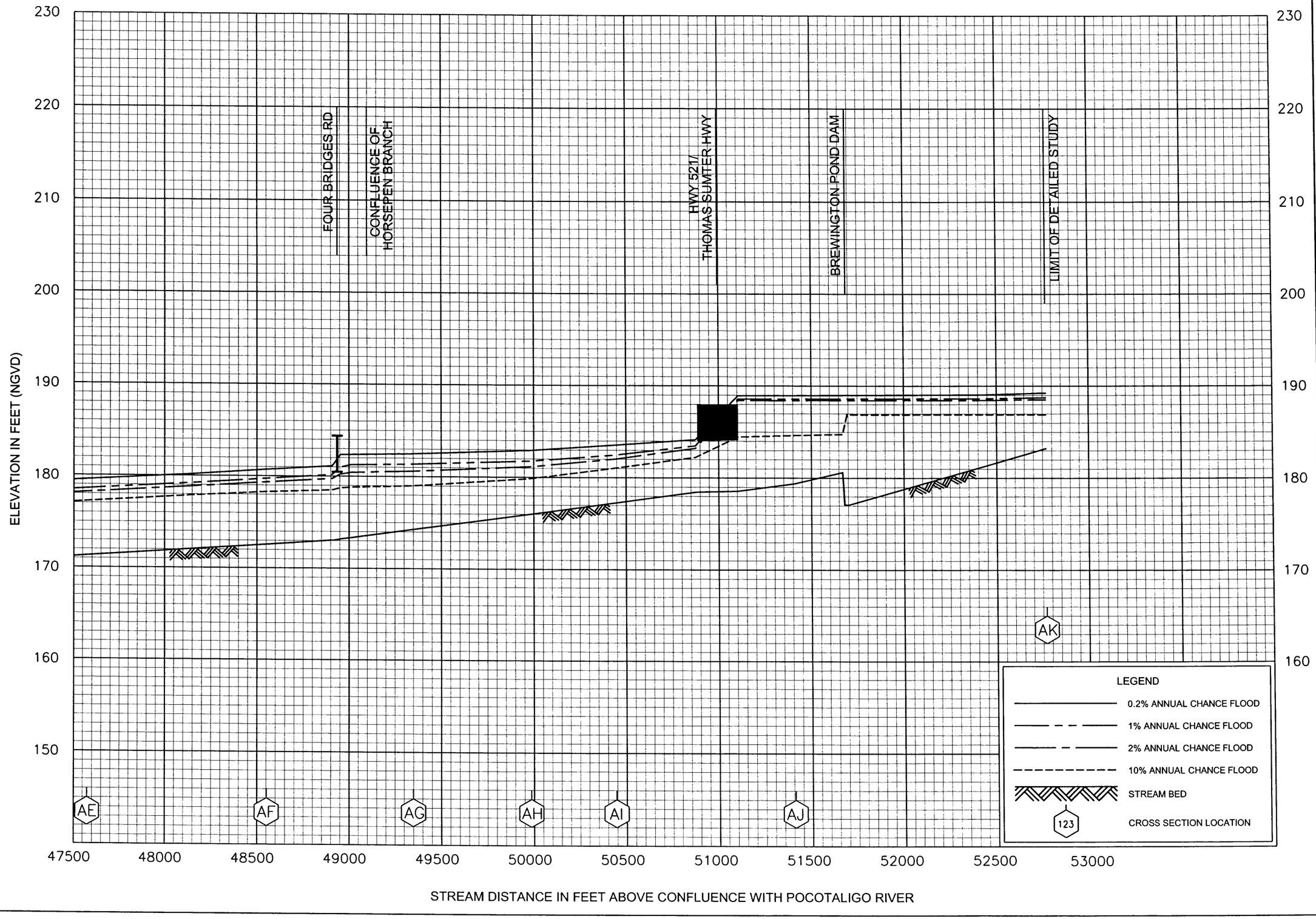


FLOOD PROFILES

GREEN SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUMTER COUNTY, SC
AND INCORPORATED AREAS

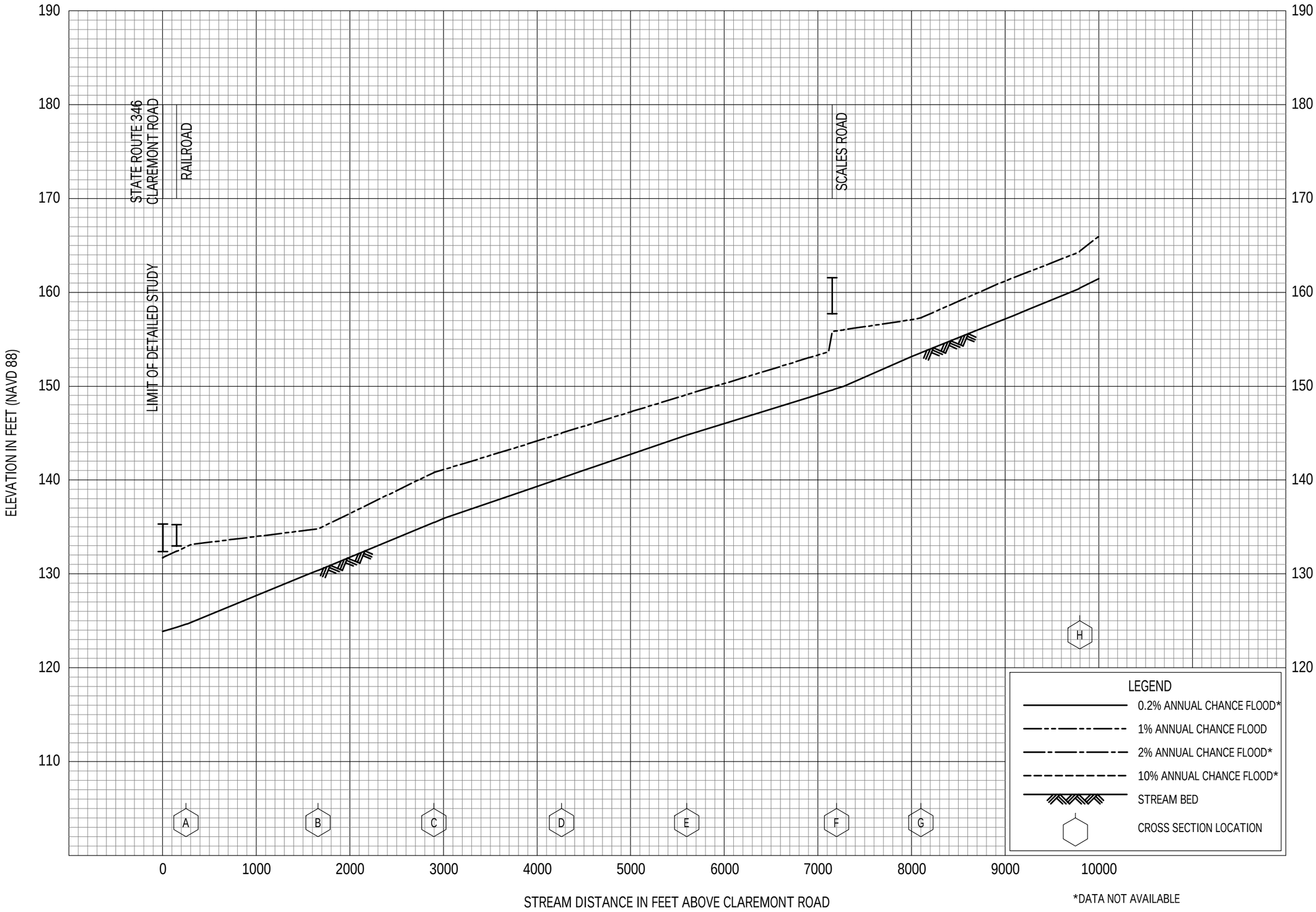


FLOOD PROFILES

GREEN SWAMP

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUMTER COUNTY, SC
AND INCORPORATED AREAS



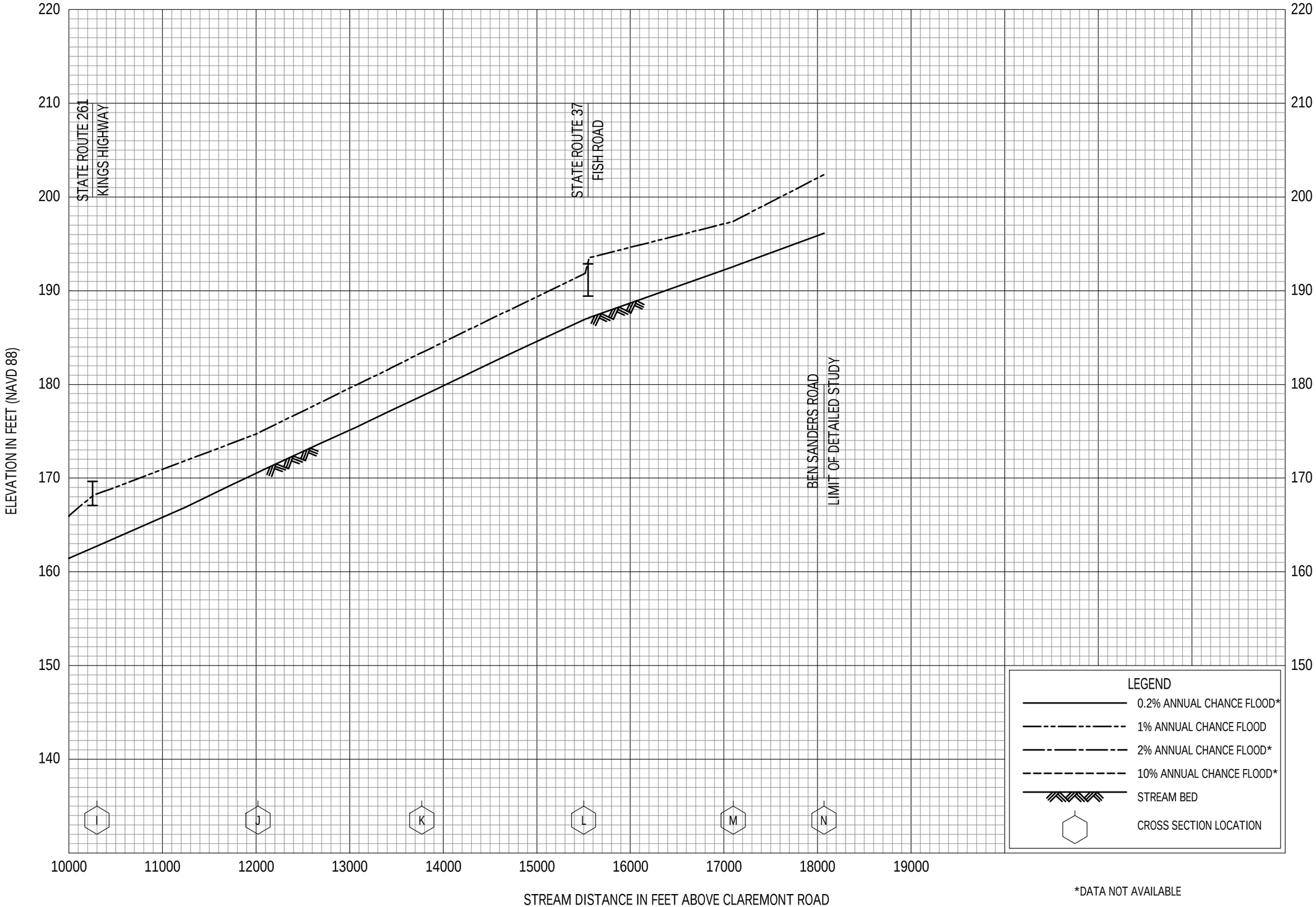
FLOOD PROFILES

ROBERT BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUMTER COUNTY, SC

AND INCORPORATED AREAS



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FLOOD PROFILES

ROBERT BRANCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUMTER COUNTY, SC

AND INCORPORATED AREAS