FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 1

MARSHALL COUNTY, ALABAMA

AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
CITY OF ALBERTVILLE	010366
CITY OF ARAB	010345
CITY OF BOAZ	010276
TOWN OF DOUGLAS	010459
TOWN OF GRANT	010282
CITY OF GUNTERSVILLE	010311
MARSHALL COUNTY UNINCORPORATED AREAS	010275
TOWN OF UNION GROVE*	010477

*No Special Flood Hazard Areas Identified

FEMA

PRELIMINARY:

MAY 13, 2016

FLOOD INSURANCE STUDY NUMBER
01095CV000C

Version Number 2.3.3.2

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Volume 1

Exhibits

Flood Profiles	Panel
Big Spring Creek	01-03 P
Hog Creek	04-05 P
Tennessee River (Wheeler Lake)	06 P
Tennessee River (Guntersville Lake)	07 P

Published Separately

Flood Insurance Rate Map (FIRM)

FLOOD INSURANCE STUDY REPORT
MARSHALL COUNTY, ALABAMA

SECTION 1.0 – INTRODUCTION

1.1 The National Flood Insurance Program

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

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

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

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

Participation in the NFIP is based on an agreement between local communities and the Federal Government. If a community adopts and enforces floodplain management regulations to reduce future flood risks to new construction and substantially improved structures in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses. The community's floodplain management regulations must meet or exceed criteria established in accordance with Title 44 Code of Federal Regulations (CFR) Part 60.3, *Criteria for land Management and Use*.

SFHAs are delineated on the community's Flood Insurance Rate Maps (FIRMs). Under the NFIP, buildings that were built before the flood hazard was identified on the community's FIRMs are generally referred to as "Pre-FIRM" buildings. When the NFIP was created, the U.S. Congress recognized that insurance for Pre-FIRM buildings would be prohibitively expensive if the premiums were not subsidized by the Federal Government. Congress also recognized that most of these floodprone buildings were built by individuals who did not have sufficient knowledge of the flood hazard to make informed decisions. The NFIP requires that full actuarial rates reflecting the complete flood risk be charged on all buildings constructed or substantially improved on or after the effective date of the initial FIRM for the community or after December 31, 1974, whichever is later. These buildings are generally referred to as "Post-FIRM" buildings.

1.2 Purpose of this Flood Insurance Study Report

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

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

1.3 Jurisdictions Included in the Flood Insurance Study Project

This FIS Report covers the entire geographic area of Marshall County, Alabama.

The jurisdictions that are included in this project area, along with the Community Identification Number (CID) for each community and the 8-digit Hydrologic Unit Codes (HUC-8) sub-basins affecting each, are shown in The Flood Insurance Rate Map (FIRM) panel numbers that affect each community are listed. If the flood hazard data for the community is not included in this FIS Report, the location of that data is identified.

The location of flood hazard data for participating communities in multiple jurisdictions is also indicated in the table.

Jurisdictions that have no identified SFHAs as of the effective date of this study are indicated in the table. Changed conditions in these communities (such as urbanization or annexation) or the availability of new scientific or technical data about flood hazards could make it necessary to determine SFHAs in these jurisdictions in the future.

Table 1: Listing of NFIP Jurisdictions

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
City of Albertville	010366	03160111, 06030001	01095C0317D, 01095C0319D, 01095C0328D, 01095C0329D, 01095C0336D, 01095C0337D, 01095C0338D, 01095C0339D, 01095C0341D, 01095C0342D, 01095C0343D, 01095C0344D, 01095C0407D, 01095C0410D, 01095C0426D, 01095C0427D, 01095C0428D, 01095C0429D, 01095C0431D, 01095C0432D	
City of Arab	010345	03160109, 06030001, 06030002	01095C0255D, 01095C0256D, 01095C0257D, 01095C0258D, 01095C0259D, 01095C0266D[1], 01095C0267D[1], 01095C0276D, 01095C0277D, 01095C0278D, 01095C0279D, 01095C0285D, 01095C0286D, 01095C0287D[1]	

Table 1: Listing of NFIP Jurisdictions

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
City of Boaz	010276	03160111, 06030001	01095C0427D, 01095C0428D, 01095C0429D, 01095C0431D, 01095C0432D, 01095C0433D, 01095C0434D, 01095C0445D, 01095C0451D, 01095C0453D, 01095C0461D, 01095C0165E	
Town of Douglas	010459	03160111	01095C0415D, 01095C0420D	
Town of Grant	010282	06030001, 06030002	01095C0075D, 01095C0090D, 01095C0180D	
City of Guntersville	010311	06030001	01095C0185D, 01095C0190D, 01095C0191D, 01095C0192D, 01095C0193D, 01095C0194D, 01095C0210D, 01095C0211D, 01095C0212D, 01095C0213D, 01095C0214D, 01095C0216D, 01095C0217D, 01095C0218D, 01095C0230D, 01095C0240D, 01095C0301D, 01095C0302D, 01095C0303D, 01095C0304D, 01095C0306D, 01095C0307D, 01095C0308D, 01095C0309D[1], 01095C0311D, 01095C0312D, 01095C0316D, 01095C0317D, 01095C0326D, 01095C0327D, 01095C0328D, 01095C0329D	

Table 1: Listing of NFIP Jurisdictions

Marshall County, Unincorporated Areas	010275	03160109, 03160111, 06030001, 06030002	01095C0045D, 01095C0075D, 01095C0090D, 01095C0095D, 01095C0100D, 01095C0115D, 01095C0130D[1], 01095C0150D, 01095C0180D, 01095C0185D, 01095C0190D, 01095C0191D, 01095C0192D, 01095C0193D, 01095C0194D, 01095C0205D, 01095C0210D, 01095C0211D, 01095C0212D, 01095C0213D, 01095C0214D, 01095C0216D, 01095C0217D, 01095C0218D, 01095C0219D, 01095C0230D, 01095C0235D, 01095C0240D, 01095C0255D, 01095C0256D, 01095C0257D, 01095C0258D, 01095C0259D, 01095C0265D[1], 01095C0266D[1], 01095C0267D, 01095C0276D, 01095C0277D, 01095C0278D, 01095C0279D, 01095C0285D, 01095C0286D, 01095C0287D, 01095C0289D[1], 01095C0295D, 01095C0301D, 01095C0302D, 01095C0303D, 01095C0304D, 01095C0306D, 01095C0307D, 01095C0308D, 01095C0309D, 01095C0311D, 01095C0312D, 01095C0315D, 01095C0316D, 01095C0317D, 01095C0318D, 01095C0319D, 01095C0326D, 01095C0327D, 01095C0328D, 01095C0329D, 01095C0335D, 01095C0336D, 01095C0337D, 01095C0338D, 01095C0339D, 01095C0341D, 01095C0342D, 01095C0343D, 01095C0344D, 01095C0355D, 01095C0377D[1], 01095C0385D, 01095C0395D, 01095C0405D, 01095C0406D, 01095C0407D, 01095C0410D, 01095C0415D, 01095C0420D, 01095C0426D, 01095C0427D, 01095C0428D, 01095C0429D, 01095C0431D, 01095C0432D, 01095C0433D, 01095C0434D, 01095C0440D, 01095C0445D, 01095C0451D, 01095C0453D, 01095C0461D, 01095C0480D, 01095C0485D, 01095C0020E, 01095C0135E, 01095C0155E, 01095C0160E, 01095C0165E, 01095C0170E, 01095C0375E[2]	

Table 1: Listing of NFIP Jurisdictions

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Town of Union Grove	010477	06030002	01095C0165E	

[1] No Special Flood Hazard Areas Identified

[2] Panel Not Printed

1.4 Considerations for using this Flood Insurance Study Report

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

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

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

  It is, therefore, the responsibility of the user to consult with community officials by contacting the community repository to obtain the most current FIS Report components. Communities participating in the NFIP have established repositories of flood hazard data for floodplain management and flood insurance purposes. Community map repository addresses are provided in Table 31, “Map Repositories,” within this FIS Report.

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

  The initial Countywide FIS Report for Marshall County became effective on March 18, 2008. Refer to Table 28 for information about subsequent revisions to the FIRMs.

- FEMA does not impose floodplain management requirements or special insurance ratings based on Limit of Moderate Wave Action (LiMWA) delineations at this time. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. If the LiMWA is shown on the FIRM, it is being provided by FEMA as information only. For communities

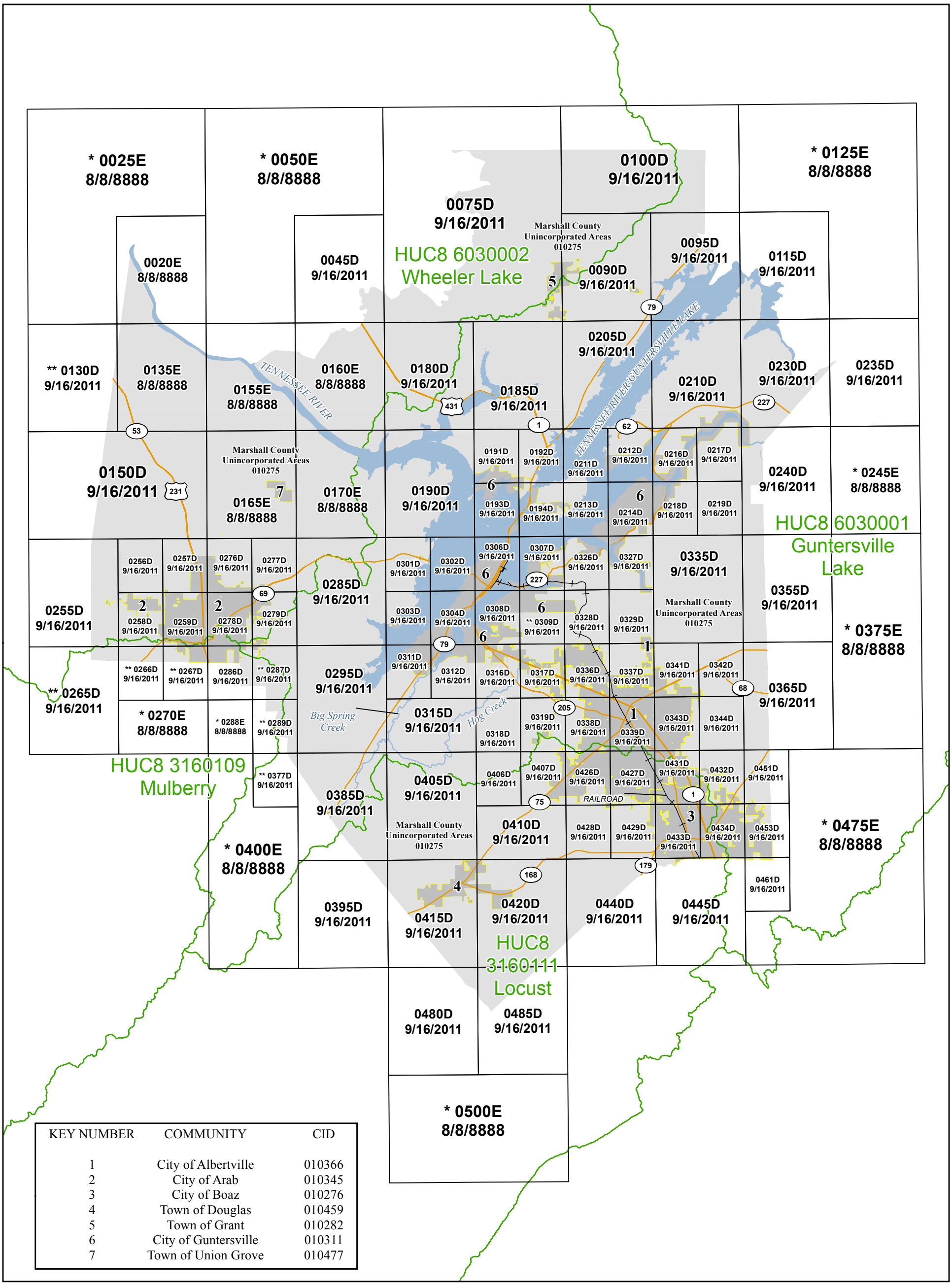
that do adopt Zone VE building standards in the area defined by the LiMWA, additional Community Rating System (CRS) credits are available. Refer to Section 2.5.4 for additional information about the LiMWA.

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

- Previous FIS Reports and FIRMs may have included levees that were accredited as reducing the risk associated with the 1% annual chance flood based on the information available and the mapping standards of the NFIP at that time. For FEMA to continue to accredit the identified levees, the levees must meet the criteria of the Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10), titled "Mapping of Areas Protected by Levee Systems." Since the status of levees is subject to change at any time, the user should contact the appropriate agency for the latest information regarding levees presented in Table 9 of this FIS Report. For levees owned or operated by the U.S. Army Corps of Engineers (USACE), information may be obtained from the USACE national levee database. For all other levees, the user is encouraged to contact the appropriate local community.

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

Figure 1: FIRM Panel Index



KEY NUMBER	COMMUNITY	CID
1	City of Albertville	010366
2	City of Arab	010345
3	City of Boaz	010276
4	Town of Douglas	010459
5	Town of Grant	010282
6	City of Guntersville	010311
7	Town of Union Grove	010477

1 inch = 20,000 feet 1:240,000

N Feet 0 5,500 11,000 22,000 33,000 44,000

Map Projection:
Universal Transverse Mercator Zone 16 North;
North American Datum 1983

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

HTTP://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

* PANEL NOT PRINTED - AREA OUTSIDE COUNTY BOUNDARY
** PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX

MARSHALL COUNTY, AL and Incorporated Areas

PANELS PRINTED:

0020, 0045, 0075, 0090, 0095, 0100, 0115, 0135, 0150, 0155, 0160, 0170, 0180, 0185, 0190, 0191, 0192, 0193, 0194, 0205, 0210, 0211, 0212, 0213, 0214, 0216, 0217, 0218, 0219, 0230, 0235, 0240, 0255, 0256, 0257, 0258, 0259, 0276, 0277, 0278, 0279, 0285, 0286, 0295, 0301, 0302, 0303, 0304, 0306, 0307, 0308, 0309, 0311, 0312, 0315, 0316, 0317, 0318, 0319, 0326, 0327, 0328, 0329, 0335, 0336, 0337, 0338, 0339, 0341, 0342, 0343, 0344, 0355, 0385, 0395, 0405, 0406, 0407, 0410, 0415, 0420, 0426, 0427, 0428, 0429, 0431, 0432, 0433, 0434, 0440, 0445, 0451, 0453, 0461, 0480, 0485

FEMA

PRELIMINARY

MAP NUMBER
01095CIND0C

MAP REVISED

Figure 2: FIRM Notes to Users

NOTES TO USERS

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

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

For community and countywide map dates, refer to Table 28 in this FIS Report.

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

PRELIMINARY FIS REPORT: FEMA maintains information about map features, such as street locations and names, in or near designated flood hazard areas. Requests to revise information in or near designated flood hazard areas may be provided to FEMA during the community review period, at the final Consultation Coordination Officer's meeting, or during the statutory 90-day appeal period. Approved requests for changes will be shown on the final printed FIRM.

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

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

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

FLOOD CONTROL STRUCTURE INFORMATION: Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 4.3 "Non-Levee Flood Protection Measures" of this FIS Report for information on flood control structures for this jurisdiction.

Figure 2: FIRM Notes to Users

PROJECTION INFORMATION: The projection used in the preparation of the map was Universal Transverse Mercator (UTM) Zone 16**.** The horizontal datum was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

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

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

Local vertical monuments may have been used to create the map. To obtain current monument information, please contact the appropriate local community listed in Table 31 of this FIS Report.

BASE MAP INFORMATION: Base map information shown on the FIRM was provided by Marshall County and FEMA. For information about base maps, refer to Section 6.2 “Base Map” in this FIS Report.

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

Figure 2: FIRM Notes to Users

NOTES FOR FIRM INDEX

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Marshall County, Alabama, corresponding revisions to the FIRM Index will be incorporated within the FIS Report to reflect the effective dates of those panels. Please refer to Table 28 of this FIS Report to determine the most recent FIRM revision date for each community. The most recent FIRM panel effective date will correspond to the most recent index date.

SPECIAL NOTES FOR SPECIFIC FIRM PANELS

This Notes to Users section was created specifically for Marshall County, Alabama**,** effective September 16, 2011.

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

Figure 3: Map Legend for FIRM

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

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

Figure 3: Map Legend for FIRM

OTHER AREAS OF FLOOD HAZARD	
	Shaded Zone X: Areas of 0.2% annual chance flood hazards and areas of 1% annual chance flood hazards with average depths of less than 1 foot or with drainage areas less than 1 square mile.
	Future Conditions 1% Annual Chance Flood Hazard – Zone X: The flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined based on future-conditions hydrology. No base flood elevations or flood depths are shown within this zone.
	Area with Reduced Flood Risk due to Levee: Areas where an accredited levee, dike, or other flood control structure has reduced the flood risk from the 1% annual chance flood. See Notes to Users for important information.
OTHER AREAS	
	Zone D (Areas of Undetermined Flood Hazard): The flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.
NO SCREEN	Unshaded Zone X: Areas of minimal flood hazard.
FLOOD HAZARD AND OTHER BOUNDARY LINES	
(ortho) (vector)	Flood Zone Boundary (white line on ortho-photography-based mapping; gray line on vector-based mapping)
	Limit of Study
	Jurisdiction Boundary
	Limit of Moderate Wave Action (LiMWA): Indicates the inland limit of the area affected by waves greater than 1.5 feet
GENERAL STRUCTURES	
Aqueduct *Channel* *Culvert* *Storm Sewer*	Channel, Culvert, Aqueduct, or Storm Sewer
Dam *Jetty* *Weir*	Dam, Jetty, Weir
	Levee, Dike, or Floodwall
Bridge	Bridge

Figure 3: Map Legend for FIRM

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AND OTHERWISE PROTECTED AREAS (OPA): *CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas. See Notes to Users for important information.*	
CBRS AREA 09/30/2009	Coastal Barrier Resources System Area: Labels are shown to clarify where this area shares a boundary with an incorporated area or overlaps with the floodway.
OTHERWISE PROTECTED AREA 09/30/2009	Otherwise Protected Area
REFERENCE MARKERS	
22.0	River mile Markers
CROSS SECTION & TRANSECT INFORMATION	
B 20.2	Lettered Cross Section with Regulatory Water Surface Elevation (BFE)
5280 21.1	Numbered Cross Section with Regulatory Water Surface Elevation (BFE)
17.5	Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)
8	Coastal Transect
	Profile Baseline: Indicates the modeled flow path of a stream and is shown on FIRM panels for all valid studies with profiles or otherwise established base flood elevation.
	Coastal Transect Baseline: Used in the coastal flood hazard model to represent the 0.0-foot elevation contour and the starting point for the transect and the measuring point for the coastal mapping.
513	Base Flood Elevation Line
ZONE AE (EL 16)	Static Base Flood Elevation value (shown under zone label)
ZONE AO (DEPTH 2)	Zone designation with Depth
ZONE AO (DEPTH 2) (VEL 15 FPS)	Zone designation with Depth and Velocity

Figure 3: Map Legend for FIRM

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

SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS

2.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1% annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2% annual chance (500-year) flood is employed to indicate additional areas of flood hazard in the community.

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

Depending on the accuracy of available topographic data (Table 23), study methodologies employed (Section 5.0), and flood risk, certain flooding sources may be mapped to show both the 1% and 0.2% annual chance floodplain boundaries, regulatory water surface elevations (BFEs), and/or a regulatory floodway. Similarly, other flooding sources may be mapped to show only the 1% annual chance floodplain boundary on the FIRM, without published water surface elevations. In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary is shown on the FIRM. Figure 3, “Map Legend for FIRM”, describes the flood zones that are used on the FIRMs to account for the varying levels of flood risk that exist along flooding sources within the project area. Table 2 and Table 3 indicate the flood zone designations for each flooding source and each community within Marshall County, Alabama, respectively.

Table 2, “Flooding Sources Included in this FIS Report,” lists each flooding source, including its study limits, affected communities, mapped zone on the FIRM, and the completion date of its engineering analysis from which the flood elevations on the FIRM and in the FIS Report were derived. Descriptions and dates for the latest hydrologic and hydraulic analyses of the flooding sources are shown in Table 13: Summary of Hydrologic and Hydraulic Analyses. Floodplain boundaries for these flooding sources are shown on the FIRM (published separately) using the symbology described in Figure 3. On the map, the 1% annual chance floodplain corresponds to the SFHAs. The 0.2% annual chance floodplain shows areas that, although out of the regulatory floodplain, are still subject to flood hazards.

Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data. The procedures to remove these areas from the SFHA are described in Section 6.5 of this FIS Report.

2.2 Floodways

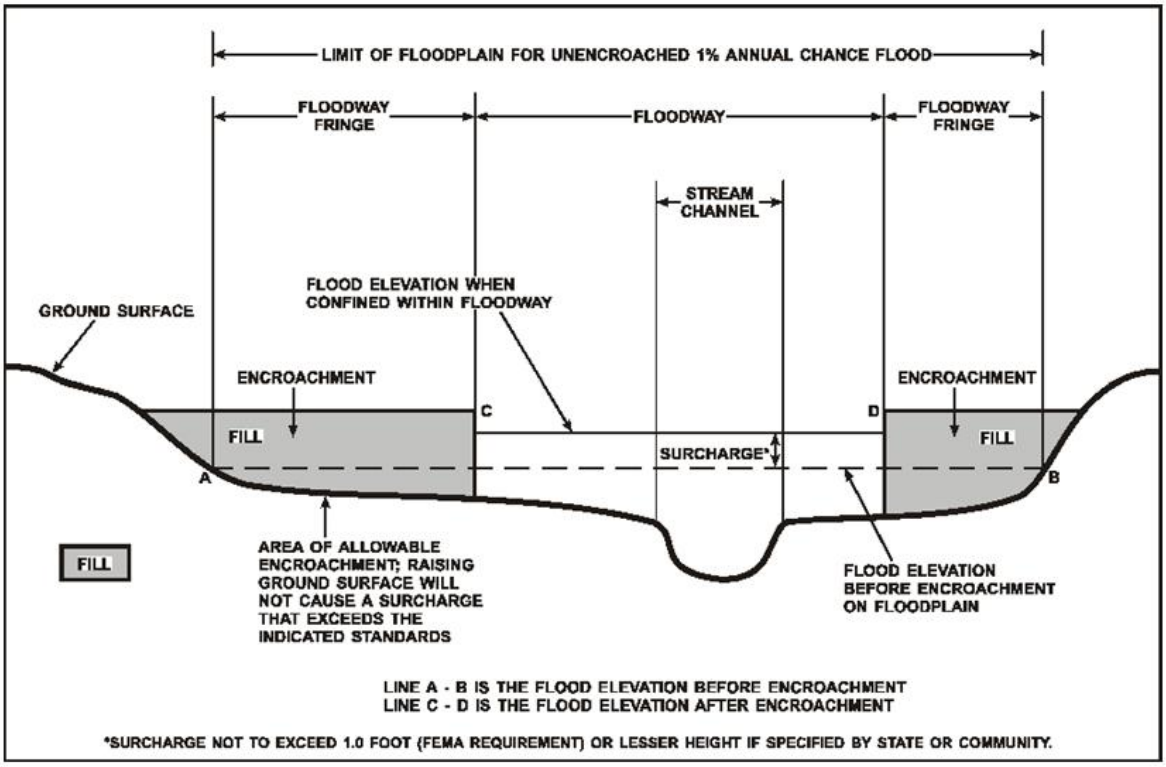
Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases

flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard.

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

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

Figure 4: Floodway Schematic



Floodway widths presented in this FIS Report and on the FIRM were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. For certain stream segments, floodways were adjusted so that the amount of floodwaters conveyed on each side of the floodplain would be reduced equally. The results of the floodway computations have been tabulated for selected cross sections and are shown in Table 24, “Floodway Data.”

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Big Spring Creek	City of Guntersville, Marshall County	Approximately 2.4 miles upstream of U.S. Route 431	Approximately 0.8 mile downstream of Cox Gap Road	06030001	9.3		Y	AE	1990
Big Spring Creek	City of Guntersville, Marshall County	Approximately 1.3 miles downstream of Lake Guntersville Park Drive	Approximately 2.4 miles upstream of U.S. Route 431	06030001	5.5		N	AE	1990
Hog Creek	Marshall County	Approximately 800 feet downstream of Mount Olive Road	Approximately 740 feet upstream of Old Solitude Road	06030001	1.9		Y	AE	1990
Tennessee River	City of Guntersville, Marshall County	At the northwest county boundary	At the northeast county boundary	06030001, 06030002	37.7		N	AE	2015

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

2.3 Base Flood Elevations

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

Cross sections with BFEs shown on the FIRM correspond to the cross sections shown in the Floodway Data table and Flood Profiles in this FIS Report. BFEs are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM.

2.4 Non-Encroachment Zones

This section is not applicable to this Flood Risk Project.

2.5 Coastal Flood Hazard Areas

This section is not applicable to this Flood Risk Project.

2.5.1 Water Elevations and the Effects of Waves

This section is not applicable to this Flood Risk Project.

Figure 5: Wave Runup Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

This section is not applicable to this Flood Risk Project.

2.5.3 Coastal High Hazard Areas

This section is not applicable to this Flood Risk Project.

Figure 6: Coastal Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.4 Limit of Moderate Wave Action

This section is not applicable to this Flood Risk Project.

SECTION 3.0 – INSURANCE APPLICATIONS

3.1 National Flood Insurance Program Insurance Zones

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

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

Table 3 lists the flood insurance zones in the unincorporated and incorporated areas of Marshall County.

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
Marshall County, Unincorporated Areas	A, AE, X
City of Albertville	A, X
City of Arab	A, X
City of Boaz	A, X
City of Guntersville	A, AE, X
Town of Douglas	A, X
Town of Grant	A, X
Town of Union Grove	X

3.2 Coastal Barrier Resources System

This section is not applicable to this Flood Risk Project.

Table 4: Coastal Barrier Resources System Information

[Not Applicable to this Flood Risk Project]

SECTION 4.0 – AREA STUDIED

4.1 Basin Description

Table 5 contains a description of the characteristics of the HUC-8 sub-basins within which each community falls. The table includes the main flooding sources within each basin, a brief description of the basin, and its drainage area.

Table 5: Basin Characteristics

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Mulberry	03160109	Mulberry Fork Black Warrior River	Affects a small portion of the western area of the county, including the City of Arab	1,372
Locust	03160111	Locust Fork Black Warrior River	Includes the the southern part of Marshall County, encompassing the Town of Douglas and half of the Cities of Albertville and Boaz	1,210
Guntersville Lake	06030001	Tennessee River	Largest watershed within Marshall County, encompassing the eastern portion of the county and all of the City of Guntersville	1,997
Wheeler Lake	06030002	Tennessee River	Includes the northwestern part of Marshall County, encompassing the Town of Union Grove and parts of the City of Arab and the Town of Grant	2,893

4.2 Principal Flood Problems

Table 6 contains a description of the principal flood problems that have been noted for Marshall County by flooding source.

Table 6: Principal Flood Problems

Flooding Source	Description of Flood Problems
All sources	Most flooding in Marshall County occurs on the Tennessee River and its tributaries. Most other rivers and streams in the county flood less frequently.

Table 7 contains information about historic flood elevations in the communities within Marshall County.

Table 7: Historic Flooding Elevations

[Not Applicable to this Flood Risk Project]

4.3 Non-Levee Flood Protection Measures

Table 8 contains information about non-levee flood protection measures within Marshall County such as dams, jetties, and or dikes. Levees are addressed in Section 4.4 of this FIS Report.

Table 8: Non-Levee Flood Protection Measures

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Tennessee River	Guntersville Dam	Dam	Guntersville Lake	Completed in 1936, maintained by TVA
Tennessee River	Guntersville Dike	Dam	Guntersville Lake	Completed in 1937, maintained by TVA

4.4 Levees

No levees are located in Marshall County.

Table 9: Levees

[Not Applicable to this Flood Risk Project]

SECTION 5.0 – ENGINEERING METHODS

For the flooding sources in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded at least once on the average during any 10-, 25-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 25-, 50-, 100-, and 500-year floods, have a 10-, 4-, 2-, 1-, and 0.2% annual chance, respectively, of being equaled or exceeded during any year.

Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedance) during the term of a 30-year mortgage is approximately 26 percent (about 3 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

The engineering analyses described here incorporate the results of previously issued Letters of Map Change (LOMCs) listed in Table 27, “Incorporated Letters of Map Change”, which include Letters of Map Revision (LOMRs). For more information about LOMRs, refer to Section 6.5, “FIRM Revisions.”

5.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for

floods of the selected recurrence intervals for each flooding source studied. Hydrologic analyses are typically performed at the watershed level. Depending on factors such as watershed size and shape, land use and urbanization, and natural or man-made storage, various models or methodologies may be applied. A summary of the hydrologic methods applied to develop the discharges used in the hydraulic analyses for each stream is provided in Table 13. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

A summary of the discharges is provided in Table 10. Frequency Discharge-Drainage Area Curves used to develop the hydrologic models may also be shown in Figure 7 for selected flooding sources. A summary of stillwater elevations developed for non-coastal flooding sources is provided in Table 11. (Coastal stillwater elevations are discussed in Section 5.3 and shown in Table 17.) Stream gage information is provided in Table 12.

Table 10: Summary of Discharges

			Peak Discharge (cfs)					
Flooding Source	Location	Drainage Area (Square Miles)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	1%+ Annual Chance	0.2% Annual Chance
Big Spring Creek	About 14,500 feet upstream of U.S. Route 431	46.5	6,470	*	9,540	10,800	*	14,300
Big Spring Creek	At U.S. Route 431	42.2	6,040	*	8,930	10,110	*	13,400
Big Spring Creek	Just upstream of confluence with High Creek	20.6	3,630	*	5,480	6,250	*	8,330
Big Spring Creek	About 2,800 feet upstream of Joe Rivees Road	17.0	3,170	*	4,810	5,500	*	7,330
Hog Creek	About 7,500 feet downstream of State Highway 205	3.95	1,130	*	1,780	2,060	*	2,790
Hog Creek	About 2,000 feet upstream of State Highway 205	0.84	380	*	620	730	*	1,000
Tennessee River	At downstream county boundary	25,530	286,000	*	325,000	346,000	*	400,000
Tennessee River	At Guntersville Dam	24,445	260,000	*	287,000	305,000	*	362,000
Tennessee River	At upstream county boundary	23,780	257,000	*	279,000	293,000	*	350,000

*Not calculated for this Flood Risk Project

Figure 7: Frequency Discharge-Drainage Area Curves

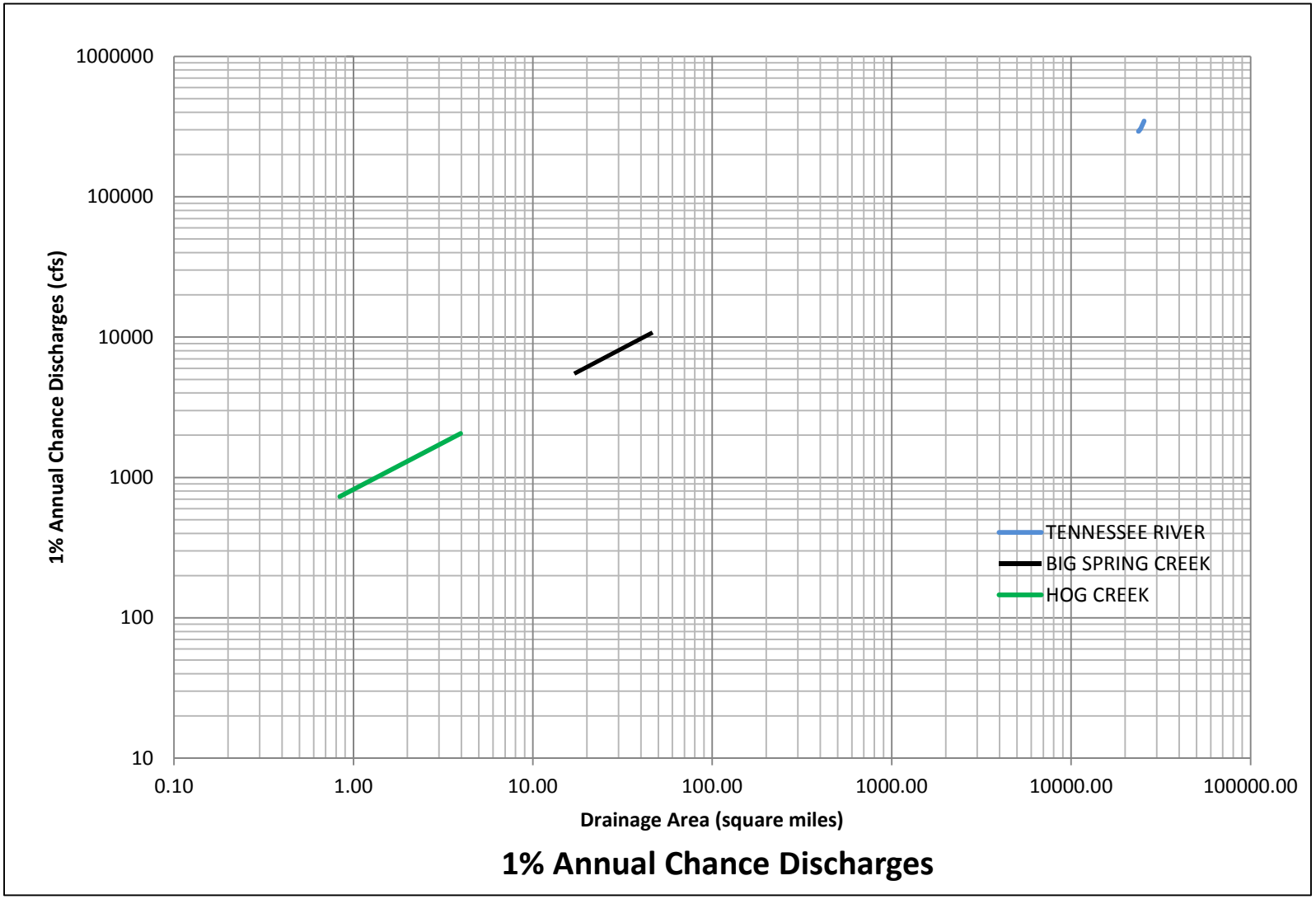


Table 11: Summary of Non-Coastal Stillwater Elevations

[Not Applicable to this Flood Risk Project]

Table 12: Stream Gage Information used to Determine Discharges

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record	
					From	To
Tennessee River		TVA	Guntersville Dam (TVA)	24,450	1945	1973
Tennessee River	03571850	USGS	Tennessee River at South Pittsburg, Tennessee (GS 1975)	22,640	1966	1975
Tennessee River		TVA	Wheeler Dam	29,590	1945	1973
Tennessee River	03577150	USGS	Tennessee River at Decatur, Alabama	26,900	1945	1973
Tennessee River		TVA	Tennessee River at Triana, Alabama	25,850	1945	1965
Tennessee River	0357550	USGS	Tennessee River at Whiteburg, Alabama	25,610	1945	1973
Tennessee River		TVA	Guntersville Dam (TVA 1975)	24,450	1945	1975
Tennessee River		TVA	Tennessee River at Guntersville, Alabama (TVA)	24,340	1945	1975
Tennessee River		TVA	Tennessee River at Boshart Creek, Alabama (TVA)	23,780	1945	1966
Tennessee River		TVA	Tennessee River near Scottsboro, Alabama (TVA)	23,430	1948	1970
Tennessee River	03571850	USGS	Tennessee River at Widows Bar, Alabama (USGS)	22,820	1945	1964
Tennessee River	03571850	USGS	Tennessee River at South Pittsburg, Tennessee (GS 1975 and USGS)	22,640	1966	1975

5.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Base flood elevations on the FIRM represent the elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations. These whole-foot elevations may not exactly reflect the elevations derived from the hydraulic analyses. Flood

elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

For streams for which hydraulic analyses were based on cross sections, locations of selected cross sections are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 6.3), selected cross sections are also listed on Table 24, "Floodway Data."

A summary of the methods used in hydraulic analyses performed for this project is provided in Table 13: Summary of Hydrologic and Hydraulic Analyses. Roughness coefficients are provided in Table 14: Roughness Coefficients. Roughness coefficients are values representing the frictional resistance water experiences when passing overland or through a channel. They are used in the calculations to determine water surface elevations. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

Table 13: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Big Spring Creek	Approximately 2.4 miles upstream of U.S. Route 431	Approximately 0.8 mile downstream of Cox Gap Road	Flood Frequency relationships developed for the stream	HEC-2		AE w/ Floodway	Due to the lack of stream gage records, regional relationships were developed to define peak discharge-frequency for Big Spring Creek. The adopted relationships were determined from stream gage records on watersheds with hydrometeorologic characteristics similar to the study streams in the Marshall County Region. Flood-frequency curves for these streams were computed using procedures outlined in Bulletin No. 17B, including the skew map of Plate 1 and adjustments for historic flood information where available (FEMA 1985). The results of these analyses were combined to develop the regional relationships applicable to Marshall County. Peak discharge-frequency estimates were adjusted to account for the effects of floodwater storage in the Big Spring Creek embayment of Guntersville Reservoir. Flow estimates based on the adopted regional relationsips were compared to estimates using relationships developed by the U.S. geological Survey for Hydrologic Area 1 (FEMA 1985). For the range of drainage areas studied, the discharges from the adopted regional relationsips were about 20% higher than the estimates from the USGS-developed relationships for Alabama. The differences between the adopted regional relationships and those of the USGS result mainly from the different gaged watersheds used in each analysis and from additional gage records available. Water-surface elevations of floods of the selected recurrence intervals were computed using the HEC-2 step-backwater computer program (FEMA 1990). Starting water-surface elevations were based on the Guntersville reservoir normal summer pool elevation. The downstream segments of small tributaries, near their confluences with large rivers or reservoirs, are generally subject to two types of flooding: flooding from the headwaters of the tributary itself and backwater flooding from the river or reservoir. The flood profiles for those tributary segments should therefore be based on the combined probabilities of both types of flooding. The probability of flooding above a certain elevation on the tributary was calculated as the sum of that probability and the probability of the same elevation being exceeded on the river or reservoir, minus the product of those probabilities. This method is based on the assumption that the flood events on the tributary and the river or reservoir are independent but not mutually exclusive.

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Big Spring Creek	Approximately 1.3 miles downstream of Lake Guntersville Park Drive	Approximately 2.4 miles upstream of U.S. Route 431	Flood Frequency relationships developed for the stream	HEC-2		AE	Due to the lack of stream gage records, regional relationships were developed to define peak discharge-frequency for Big Spring Creek. The adopted relationships were determined from stream gage records on watersheds with hydrometeorologic characteristics similar to the study streams in the Marshall County Region. Flood-frequency curves for these streams were computed using procedures outlined in Bulletin No. 17B, including the skew map of Plate 1 and adjustments for historic flood information where available (FEMA 1985). The results of these analyses were combined to develop the regional relationships applicable to Marshall County. Peak discharge-frequency estimates were adjusted to account for the effects of floodwater storage in the Big Spring Creek embayment of Guntersville Reservoir. Flow estimates based on the adopted regional relationsips were compared to estimates using relationships developed by the U.S. geological Survey for Hydrologic Area 1 (FEMA 1985). For the range of drainage areas studied, the discharges from the adopted regional relationsips were about 20% higher than the estimates from the USGS-developed relationships for Alabama. The differences between the adopted regional relationships and those of the USGS result mainly from the different gaged watersheds used in each analysis and from additional gage records available. Water-surface elevations of floods of the selected recurrence intervals were computed using the HEC-2 step-backwater computer program (FEMA 1990). Starting water-surface elevations were based on the Guntersville reservoir normal summer pool elevation. The downstream segments of small tributaries, near their confluences with large rivers or reservoirs, are generally subject to two types of flooding: flooding from the headwaters of the tributary itself and backwater flooding from the river or reservoir. The flood profiles for those tributary segments should therefore be based on the combined probabilities of both types of flooding. The probability of flooding above a certain elevation on the tributary was calculated as the sum of that probability and the probability of the same elevation being exceeded on the river or reservoir, minus the product of those probabilities. This method is based on the assumption that the flood events on the tributary and the river or reservoir are independent but not mutually exclusive.

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Hog Creek	Approximately 800 feet downstream of Mount Olive Road	Approximately 740 feet upstream of Old Solitude Road	Flood Frequency relationships developed for the stream	HEC-2		AE w/ Floodway	Due to the lack of stream gage records, regional relationships were developed to define peak discharge-frequency for Hog Creek. The adopted relationships were determined from stream gage records on watersheds with hydrometeorologic characteristics similar to the study streams in the Marshall County Region. Flood-frequency curves for these streams were computed using procedures outlined in Bulletin No. 17B, including the skew map of Plate 1 and adjustments for historic flood information where available (FEMA 1985). The results of these analyses were combined to develop the regional relationships applicable to Marshall County. Flow estimates based on the adopted regional relationsips were compared to estimates using relationships developed by the U.S. geological Survey for Hydrologic Area 1 (FEMA 1985). For the range of drainage areas studied, the discharges from the adopted regional relationsips were about 20% higher than the estimates from the USGS-developed relationships for Alabama. The differences between the adopted regional relationships and those of the USGS result mainly from the different gaged watersheds used in each analysis and from additional gage records available. Water-surface elevations of floods of the selected recurrence intervals were computed using the HEC-2 step-backwater computer program (FEMA 1990). For Hog Creek, starting elevations were calculated by the slope-area method. The downstream segments of small tributaries, near their confluences with large rivers or reservoirs, are generally subject to two types of flooding: flooding from the headwaters of the tributary itself and backwater flooding from the river or reservoir. The flood profiles for those tributary segments should therefore be based on the combined probabilities of both types of flooding. The probability of flooding above a certain elevation on the tributary was calculated as the sum of that probability and the probability of the same elevation being exceeded on the river or reservoir, minus the product of those probabilities. This method is based on the assumption that the flood events on the tributary and the river or reservoir are independent but not mutually exclusive.

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Tennessee River	At the northwest county boundary	At the northeast county boundary	TVA Graphical Frequency Analysis	HEC-2 and HEC-RAS 4.1.0	08/2014	AE	Tennessee River discharges in Marshall County have been altered progressively by constructing upstream dams, beginning in 1936 when Norris Dam was closed until reaching essentially today's level of regulation when Fontana Dam was closed in 1944. The Tennessee River study reach is along Wheeler Reservoir, closed in 1936, and Guntersville Reservoir, closed in 1939; consequently, elevations in each reach are influenced by both discharge and headwater elevations at the downstream dam and upstream discharge. Discharge frequency for the Tennessee River study reach was determined from graphical frequency analysis of the locations at Guntersville Dam and Tennessee River at South Pittsburg, Tennessee (GS 1975). Elevation-frequency for the Wilson Reservoir part of the study reach was determined by backwater computations throughout the entire length of Wilson Reservoir using the previously described discharge-frequency determinations. This computed elevation-frequency throughout the reservoir was adjusted to achieve compatibility and consistency with elevation-frequency curves determined from observed stage records at gage locations. Elevation-frequency relationships at Guntersville Dam and Guntersville Reservoir were determined from current reservoir operation criteria and graphical frequency analysis of Guntersville Dam headwater elevations for the years 1945-75. Graphical frequency analysis was used for all the Tennessee River frequency determinations because the standard log-Pearson III analysis is not applicable to either elevation data or regulated discharge data. The extrapolation of the frequency curves to the 0.2-percent annual chance flood was guided by maximum probable flood estimates from maximum probable precipitation determined by the National Weather Service. For this revision, portions of the HEC-2 model were updated to HEC-RAS version 4.1.0.
Various Streams in Marshall County	Various	Various	2007 State Regression Equations, Region 1	HEC-RAS 3.1.3	12/2010	A	.

Table 14: Roughness Coefficients

Flooding Source	Channel “n”	Overbank “n”
Big Spring Creek	0.030-0.050	0.060-0.150
Hog Creek	0.045-0.055	0.100-0.150
Tennessee River	0.020-0.027	0.0545-0.140

5.3 Coastal Analyses

This section is not applicable to this Flood Risk Project.

Table 15: Summary of Coastal Analyses

[Not Applicable to this Flood Risk Project]

5.3.1 Total Stillwater Elevations

This section is not applicable to this Flood Risk Project

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

[Not Applicable to this Flood Risk Project]

Table 16: Tide Gage Analysis Specifics

[Not Applicable to this Flood Risk Project]

5.3.2 Waves

This section is not applicable to this Flood Risk Project

5.3.3 Coastal Erosion

This section is not applicable to this Flood Risk Project

5.3.4 Wave Hazard Analyses

This section is not applicable to this Flood Risk Project

Table 17: Coastal Transect Parameters

[Not Applicable to this Flood Risk Project]

Figure 9: Transect Location Map

[Not Applicable to this Flood Risk Project]

5.4 Alluvial Fan Analyses

This section is not applicable to this Flood Risk Project

Table 18: Summary of Alluvial Fan Analyses

[Not Applicable to this Flood Risk Project]

Table 19: Results of Alluvial Fan Analyses

[Not Applicable to this Flood Risk Project]

SECTION 6.0 – MAPPING METHODS

6.1 Vertical and Horizontal Control

All FIS Reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum used for newly created or revised FIS Reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD29). With the completion of the North American Vertical Datum of 1988 (NAVD88), many FIS Reports and FIRMs are now prepared using NAVD88 as the referenced vertical datum.

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

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(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 archived project documentation associated with the FIS Report and the FIRMs for this community. Interested individuals may contact FEMA to access these data.

To obtain current elevation, description, and/or location information for benchmarks in the area, please contact information services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov.

Table 20: Countywide Vertical Datum Conversion

[Not Applicable to this Flood Risk Project]

Calculations for the vertical offsets on a stream by stream basis are depicted in Table 21.

Table 21: Stream-Based Vertical Datum Conversion

Flooding Source	Average Vertical Datum Conversion Factor (feet)
Big Spring Creek	0.135
Hog Creek	0.122
Tennessee River	0.132

6.2 Base Map

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

Base map information shown on the FIRM was derived from the sources described in Table 22.

Table 22: Base Map Sources

Data Type	Data Provider	Data Date	Data Scale	Data Description
HUC 8 Watersheds	USGS	2013	N/A	Hyddrologic Unit Code Watershed Boundary Dataset
Effective Base Map Data	FEMA	2011	N/A	Marshall County DFIRM, PLSS, and Hydrographic features
County Boundary Data	State of AL	2011	N/A	County boundaries for the State of Alabama
Municipal Boundary	Community Supplied	2011	N/A	Municipal boundaries for each community within the study area
Transportation Data	Community Supplied	2011	N/A	Roads and railroads
Digital Orthophoto	Marshall County	2006	N/A	Color orthoimagery was provided for the county

6.3 Floodplain and Floodway Delineation

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

For riverine flooding sources, the mapped floodplain boundaries shown on the FIRM have been

delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 23.

In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

The floodway widths presented in this FIS Report and on the FIRM were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. Table 2 indicates the flooding sources for which floodways have been determined. The results of the floodway computations for those flooding sources have been tabulated for selected cross sections and are shown in Table 24, "Floodway Data."

Certain flooding sources may have been studied that do not have published BFEs on the FIRMs, or for which there is a need to report the 1% annual chance flood elevations at selected cross sections because a published Flood Profile does not exist in this FIS Report. These streams may have also been studied using methods to determine non-encroachment zones rather than floodways. For these flooding sources, the 1% annual chance floodplain boundaries have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 23. All topographic data used for modeling or mapping has been converted as necessary to NAVD 88. The 1% annual chance elevations for selected cross sections along these flooding sources, along with their non-encroachment widths, if calculated, are shown in Table 25, "Flood Hazard and Non-Encroachment Data for Selected Streams."

Table 23: Summary of Topographic Elevation Data used in Mapping

		Source for Topographic Elevation Data			
Community	Flooding Source	Description	Scale	Contour Interval	Citation
Marshall County Unincorporated Areas, City of Albertville, City of Guntersville, Town of Grant	HUC-8 06030001	Light Detection and Ranging data (LiDAR)	N/A	2 ft	2012
Marshall County Unincorporated Areas, City of Arab, Town of Grant, Town of Union Grove	HUC-8 06030002	Light Detection and Ranging data (LiDAR)	N/A	2 ft	2012

Table 23: Summary of Topographic Elevation Data used in Mapping

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Scale	Contour Interval	Citation
Marshall County Unincorporated Areas, City of Albertville, City of Boaz, Town of Douglas	HUC-8 03160111	Light Detection and Ranging data (LiDAR)	N/A	2 ft	2012
Marshall County Unincorporated Areas, City of Guntersville	HUC-8 06030001	Topographic maps	N/A	10 ft	N/A

BFEs shown at cross sections on the FIRM represent the 1% annual chance water surface elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations.

Table 24: Floodway Data

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	29,350	800	4,017	2.7	597.1	597.1	597.1	0.0
B	32,000	1,000	4,544	2.4	598.9	598.9	598.9	0.0
C	37,400	660	4,408	2.4	605.8	605.8	606.8	1.0
D	41,750	710	5,611	1.9	611.3	611.3	612.2	0.9
E	46,200	800	6,612	1.6	614.1	614.1	615.1	1.0
F	50,660	650	4,900	2.1	616.8	616.8	617.8	1.0
G	53,550	800	6,440	1.6	619.2	619.2	620.2	1.0
H	57,200	1,050	6,451	1.6	621.4	621.4	622.4	1.0
I	64,610	330	2,484	2.4	625.8	625.8	626.8	1.0
J	66,700	330	2,436	2.4	628.1	628.1	629.0	0.9
K	70,390	500	2,923	2.0	632.1	632.1	633.0	0.9
L	74,880	380	2,656	2.1	640.1	640.1	640.9	0.8
M	77,750	50	94	11.1	644.8	644.8	645.7	0.9

[1]Feet above confluence with Tennessee River

Table 24: Floodway Data

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	41,395	135	255	8.1	962.9	962.9	963.3	0.4
B	42,175	140	300	6.5	969.0	969.0	969.0	0.0
C	44,075	130	205	8.2	976.3	976.3	977.1	0.8
D	45,225	130	206	7.5	983.6	983.6	984.0	0.4
E	47,935	150	739	1.6	988.9	988.9	989.8	0.9
F	49,005	150	147	7.1	992.1	992.1	992.8	0.7
G	49,088	150	446	2.3	994.8	994.8	995.7	0.9
H	50,511	170	468	1.8	1001.7	1001.7	1002.3	0.6
I	51,236	160	285	2.6	1002.5	1002.5	1003.5	1.0

[1]Feet above confluence with Big Spring Creek

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

[Not Applicable to this Flood Risk Project]

6.4 Coastal Flood Hazard Mapping

This section is not applicable to this Flood Risk Project

Table 26: Summary of Coastal Transect Mapping Considerations

[Not Applicable to this Flood Risk Project]

6.5 FIRM Revisions

This FIS Report and the FIRM are based on the most up-to-date information available to FEMA at the time of its publication; however, flood hazard conditions change over time. Communities or private parties may request flood map revisions at any time. Certain types of requests require submission of supporting data. FEMA may also initiate a revision. Revisions may take several forms, including Letters of Map Amendment (LOMAs), Letters of Map Revision Based on Fill (LOMR-Fs), Letters of Map Revision (LOMRs) (referred to collectively as Letters of Map Change (LOMCs)), Physical Map Revisions (PMRs), and FEMA-contracted restudies. These types of revisions are further described below. Some of these types of revisions do not result in the republishing of the FIS Report. To assure that any user is aware of all revisions, it is advisable to contact the community repository of flood-hazard data (shown in Table 31, "Map Repositories").

6.5.1 Letters of Map Amendment

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

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

FEMA offers a tutorial on how to apply for a LOMA. The LOMA Tutorial Series can be accessed at http://www.floodmaps.fema.gov/tutorials/ot_loma.swf.

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

6.5.2 Letters of Map Revision Based on Fill

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

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

A tutorial for LOMR-F is available at http://www.floodmaps.fema.gov/tutorials/ot_lomrf.swf.

6.5.3 Letters of Map Revision

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

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

Previously issued mappable LOMCs (including LOMRs) that have been incorporated into the Marshall County FIRM are listed in Table 27.

Table 27: Incorporated Letters of Map Change

[Not Applicable to this Flood Risk Project]

6.5.4 Physical Map Revisions

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

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

For more information about the PMR process, please visit http://www.fema.gov and visit the "Flood Map Revision Processes" section.

6.5.5 Contracted Restudies

The NFIP provides for a periodic review and restudy of flood hazards within a given community.

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

6.5.6 Community Map History

The current FIRM presents flooding information for the entire geographic area of Marshall County. Previously, separate FIRMs, Flood Hazard Boundary Maps (FHBMs) and/or Flood Boundary and Floodway Maps (FBFMs) may have been prepared for the incorporated communities and the unincorporated areas in the county that had identified SFHAs. Current and historical data relating to the maps prepared for the project area are presented in Table 28, "Community Map History." A description of each of the column headings and the source of the date is also listed below.

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

- *Initial Identification Date (First NFIP Map Published)* is the date of the first NFIP map that identified flood hazards in the community. If the FHBM has been converted to a FIRM, the initial FHBM date is shown. If the community has never been mapped, the upcoming effective date or "pending" (for Preliminary FIS Reports) is shown. If the community is listed in Table 28 but not identified on the map, the community is treated as if it were unmapped.

- *Initial FHBM Effective Date* is the effective date of the first Flood Hazard Boundary Map (FHBM). This date may be the same date as the Initial NFIP Map Date.

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

- *Initial FIRM Effective Date* is the date of the first effective FIRM for the community. This is the first effective date that is shown on the FIRM panel.

- *FIRM Revision Date(s)* is the date(s) the FIRM was revised, if applicable. This is the revised date that is shown on the FIRM panel, if applicable. As countywide studies are completed or revised, each community listed should have its FIRM dates updated accordingly to reflect the date of the countywide study. Once the FIRMs exist in countywide format, as Physical Map Revisions (PMR) of FIRM panels within the county are completed, the FIRM Revision Dates in the table for each community affected by the PMR are updated with the date of the PMR, even if the PMR did not revise all the panels within that community.

The initial effective date for the Marshall County FIRMs in countywide format was 03/18/2008.

Table 28: Community Map History

Community Name	Initial Identification Date (First NFIP Map Published)	Initial FHBM Effective Date	FHBM Revision Date(s)	Initial FIRM Effective Date	FIRM Revision Date(s)
Albertville, City of	10/01/1976	10/01/1976	N/A	09/04/1985	09/16/2011 03/18/2008
Arab, City of	07/09/1976	07/09/1976	N/A	08/01/1987	09/16/2011 03/18/2008
Boaz, City of	02/14/1975	02/14/1975	N/A	09/04/1985	09/16/2011 03/18/2008
Douglas, Town of	03/18/2008	N/A	N/A	03/18/2008	09/16/2011
Grant, Town of	09/16/2011	N/A	N/A	03/18/2008	09/16/2011
Guntersville, City of	03/22/1974	03/22/1974	10/22/1976	08/19/1991	09/16/2011 03/18/2008
Marshall County Unincorporated Areas	01/20/1978	01/20/1978	N/A	09/28/1990	09/16/2011 03/18/2008
Union Grove, Town of[1]	03/18/2008	N/A	N/A	03/18/2008	09/16/2011

[1] No Special Flood Hazard Areas Identified

SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION

7.1 Contracted Studies

Table 29 provides a summary of the contracted studies, by flooding source, that are included in this FIS Report.

Table 29: Summary of Contracted Studies Included in this FIS Report

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Tennessee River	11/13/2015	AMEC Foster Wheeler Environment & Infrastructure, Inc.	EMA-2012-CA-5260	December 2014	Marshall County Uninc. Areas, City of Guntersville

Table 29: Summary of Contracted Studies Included in this FIS Report

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Various Streams within Marshall County Unincorporated and Incorporated Areas	09/16/2011	AMEC Earth and Environmental, Inc.		December 2010	Marshall County Unincorporated and Incorporated Areas
Various Streams within HUC-8 06030001	03/18/2008	N/A	N/A	July 1981	City of Guntersville
Various Streams within Marshall County Unincorporated Areas	03/18/2008	Tennessee Valley Authority	EMW-87-E-2513	May 1988	Marshall County Unincorporated Areas

7.2 Community Meetings

The dates of the community meetings held for this Flood Risk Project and any previous Flood Risk Projects are shown in Table 30. These meetings may have previously been referred to by a variety of names (Community Coordination Officer (CCO), Scoping, Discovery, etc.), but all meetings represent opportunities for FEMA, community officials, study contractors, and other invited guests to discuss the planning for and results of the project.

Table 30: Community Meetings

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Marshall County and Incorporated Areas	11/13/2015	05/08/2012	Discovery	Representatives of Marshall County, the City of Arab, Town of Grant, City of Guntersville, Town of Union Grove, EMA, ALDOT, and AMEC Earth and Environmental, Inc.
		TBD	Resilience	
		TBD	CCO Open House	
Marshall County and Incorporated Areas	09/16/2011	02/10/2010	Initial CCO	FEMA, Office of Water Resources, Alabama Department of Economic and Community Affairs, representatives of Marshall County, City of Arab, Town of Douglas, City of Guntersville, and AMEC Earth and Environmental, Inc.
		12/14/2010	Final CCO	Representatives of Marshall County and the City of Guntersville, and AMEC Earth and Environmental, Inc.
Marshall County and Incorporated Areas	03/18/2008	07/14/2005	Initial CCO	FEMA, State of Alabama, and representatives of the communities
			Final CCO	
City of Guntersville	03/18/2008	09/18/1990	Final CCO	
Marshall County and Incorporated Areas	03/18/2008	01/01/1986	Initial CCO	FEMA, Marshall County, and the study contractor
		11/07/1989	Final CCO	FEMA, Marshall County, and the study contractor

SECTION 8.0 – ADDITIONAL INFORMATION

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

The additional data that was used for this project includes the FIS Report and FIRM that were previously prepared for Marshall County, (FEMA 2011).

Table 31 is a list of the locations where FIRMs for Marshall County can be viewed. Please note that the maps at these locations are for reference only and are not for distribution. Also, please note that only the maps for the community listed in the table are available at that particular repository. A user may need to visit another repository to view maps from an adjacent community.

Table 31: Map Repositories

Community	Address	City	State	Zip Code
City of Albertville	116 West Main Street	Albertville	AL	35950
City of Arab	740 North Main Street	Arab	AL	35016
City of Boaz	112 North Broad Street	Boaz	AL	35957
Town of Douglas	55 Alabama Highway 168	Douglas	AL	35964
Town of Grant	4766 Main Street	Grant	AL	35747
City of Guntersville	341 Gunter Avenue	Guntersville	AL	35976
Marshall County Unincorporated Areas	424 Blount Avenue	Guntersville	AL	35976
Town of Union Grove	3680 Union Grove Road	Union Grove	AL	35175

The National Flood Hazard Layer (NFHL) dataset is a compilation of effective FIRM databases and LOMCs. Together they create a GIS data layer for a State or Territory. The NFHL is updated as studies become effective and extracts are made available to the public monthly. NFHL data can be viewed or ordered from the website shown in Table 32.

Table 32 contains useful contact information regarding the FIS Report, the FIRM, and other relevant flood hazard and GIS data. In addition, information about the State NFIP Coordinator and GIS Coordinator is shown in this table. At the request of FEMA, each Governor has designated an agency of State or territorial government to coordinate that State's or territory's NFIP activities. These agencies often assist communities in developing and adopting necessary floodplain management measures. State GIS Coordinators are knowledgeable about the availability and location of State and local GIS data in their state.

Table 32: Additional Information

FEMA and the NFIP	
FEMA and FEMA Engineering Library website	http://www.fema.gov
NFIP website	http://www.fema.gov/national-flood-insurance-program
NFHL Dataset	http://msc.fema.gov
FEMA Region IV	Federal Emergency Management Agency 3003 Chamblee Tucker Road, Atlanta, GA 30341 (770) 220-5200
Other Federal Agencies	
USGS website	http://www.usgs.gov
Hydraulic Engineering Center website	http://www.hec.usace.army.mil
State Agencies and Organizations	
State NFIP Coordinator	Corey Garyotis, PE, CFM Alabama Dept. of Economic and Community Affairs Office of Water Resources 401 Adams Avenue Montgomery, AL 36104 (334) 353-0853 corey.garyotis@adeca.alabama.gov
State GIS Coordinator	Michael Vanhook State of Alabama Geospatial Office (ALGO) 64 North Union Street Room 200A Montgomery, AL 36130 mike.vanhook@isd.alabama.gov

SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES

Table 33 includes sources used in the preparation of and cited in this FIS Report as well as additional studies that have been conducted in the study area.

Table 33: Bibliography and References

Citation in this FIS	Publisher/ Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
FEMA 1990	Federal Emergency Management Agency	*Flood Insurance Study, Jackson County, AL and Marshall County, AL*		Washington, D.C.	May 3, 1990	FEMA Map Service Center http://msc.fema.gov
FEMA 1987	Federal Emergency Management Agency	*Flood Insurance Rate Map, City of Arab, Marshall County, AL*		Washington, D.C.	August 1987	FEMA Map Service Center http://msc.fema.gov
FEMA 1985	Federal Emergency Management Agency	*Flood Insurance Rate Map, City of Albertville, Marshall County, AL*		Washington, D.C.	September 1985	FEMA Map Service Center http://msc.fema.gov
FEMA 1985	Federal Emergency Management Agency	*Flood Insurance Rate Map, City of Boaz, Marshall County, AL*		Washington, D.C.	September 1985	FEMA Map Service Center http://msc.fema.gov
FEMA 1982	Federal Emergency Management Agency	*Flood Insurance Study, Etowah County, AL, and Unincorporated Areas*		Washington, D.C.	April 1982	FEMA Map Service Center http://msc.fema.gov
FEMA 1981	Federal Emergency Management Agency	*Flood Insurance Study, Madison County, AL, and Unincorporated Areas*		Washington, D.C.	January 1981	FEMA Map Service Center http://msc.fema.gov

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Citation in this FIS	Publisher/ Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
FEMA 1981	Federal Emergency Management Agency	*Flood Insurance Study, Morgan County, AL, and Unincorporated Areas*		Washington, D.C.	July 1981	FEMA Map Service Center http://msc.fema.gov
FIA 1978	U.S. Department of Housing and Urban Development, Federal Insurance Administration	*Flood Hazard Boundary Map, Marshall County Unincorporated Areas, AL*		Washington, D.C.	January 1978	FEMA Map Service Center http://msc.fema.gov
NOAA	National Oceanic and Atmospheric Administration	*Climatological Data for Alabama, Ashville, North Carolina, 1956-1976*	Environmental Data Services			www.noaa.gov
TVA	Tennessee Valley Authority	*Operation of TVA Reservoirs, Annual Reports, 1945-75*	Division of Water Management, River Management Branch	Knoxville, Tennessee		www.tva.gov
USACE 2002	U.S. Army Corps of Engineers, Hydrologic Engineering Center	HEC-RAS River Analysis System, Version 3.1.0		Davis, California	November 2002	www.usace.army.mil
USACE 1980	U.S. Army Corps of Engineers, Hydrologic Engineering Center	HEC-2 Water Surface Profiles, Computer Program		Davis, California	1980	www.usace.army.mil
U.S. Census 2000	U.S. Department of Commerce, Bureau of the Census	"County and City Data Book"		Washington, D.C.	2000	http://www.census.gov/

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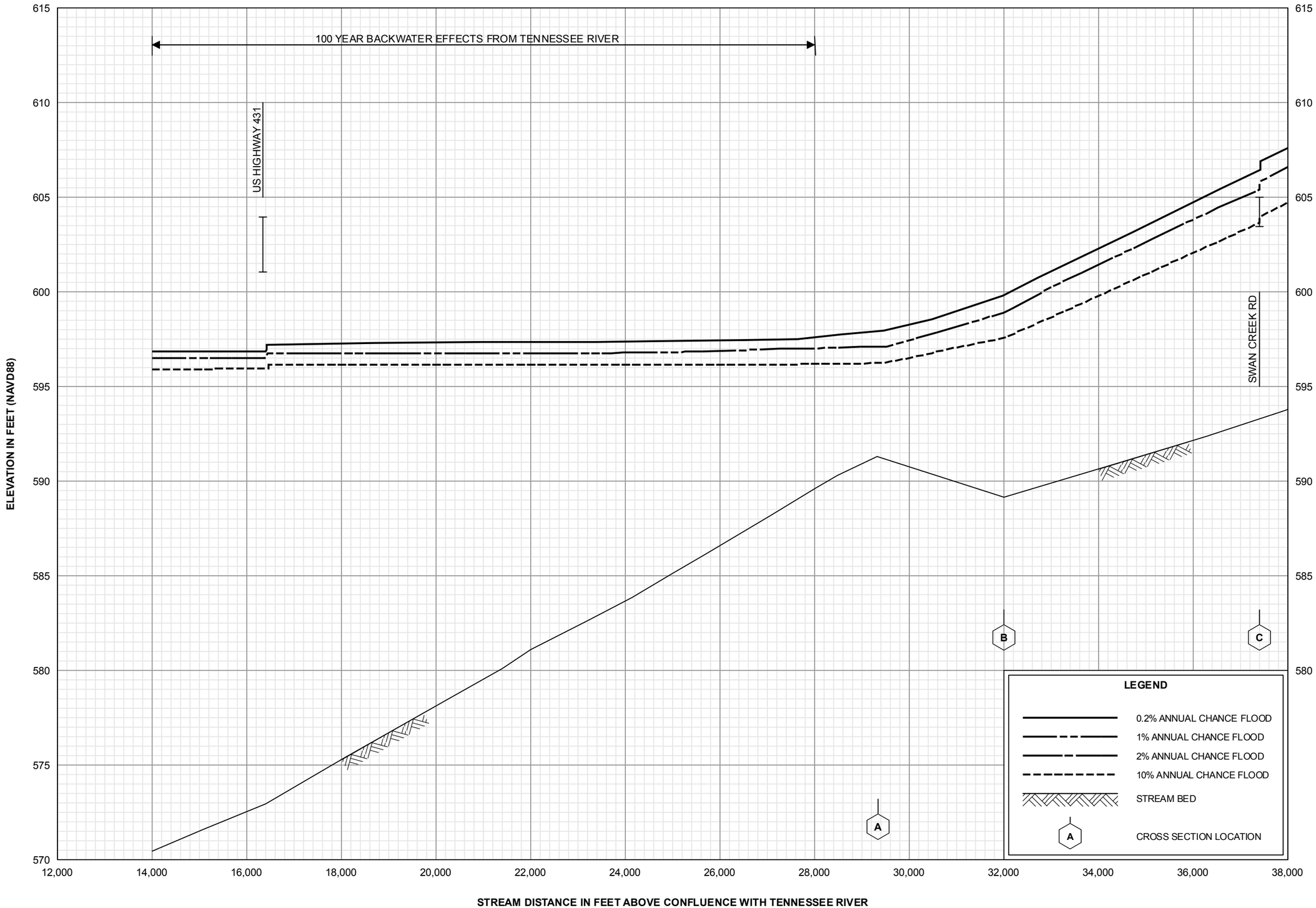
Citation in this FIS	Publisher/ Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
USGS 2007	U.S. Geological Survey	*Magnitude and Frequency of Floods in Alabama, 2003, SIR 2007-5204*	T.S. Hedgecok and Toby D. Feaster	Reston, Virginia	2007	www.usgs.gov
USGS 1982	U.S. Department of the Interior, Geological Survey	*Bulletin No. 17B, Guidelines for Determining Flood Flow Frequency, September 1981*	Interagency Advisory Committee on Water Data, Office of Water Data Coordination, Hydrology Subcommittee		March 1982	www.usgs.gov
USGS	U.S. Geological Survey	*Magnitude and Frequency of Floods in Alabama, 1984, Water-Resources IR 84-4191*	D.A. Olin		1985	www.usgs.gov
USGS	U.S. Geological Survey, Water Supply Papers	*Water Resources Data for Tennessee, Annual Report, Water Years, 1945-75*				www.usgs.gov
USGS	U.S. Geological Survey	*7.5-Minute Series Topographic Maps, Scale 1:24,000, Contour Interval 20 Feet.* Guntersville, AL (1948, revised 1983), Arab, AL (1948), Brooksville, AL (1958, revised 1983)		Washington, D.C.	Various	http://topomaps.usgs.gov



FLOOD PROFILES

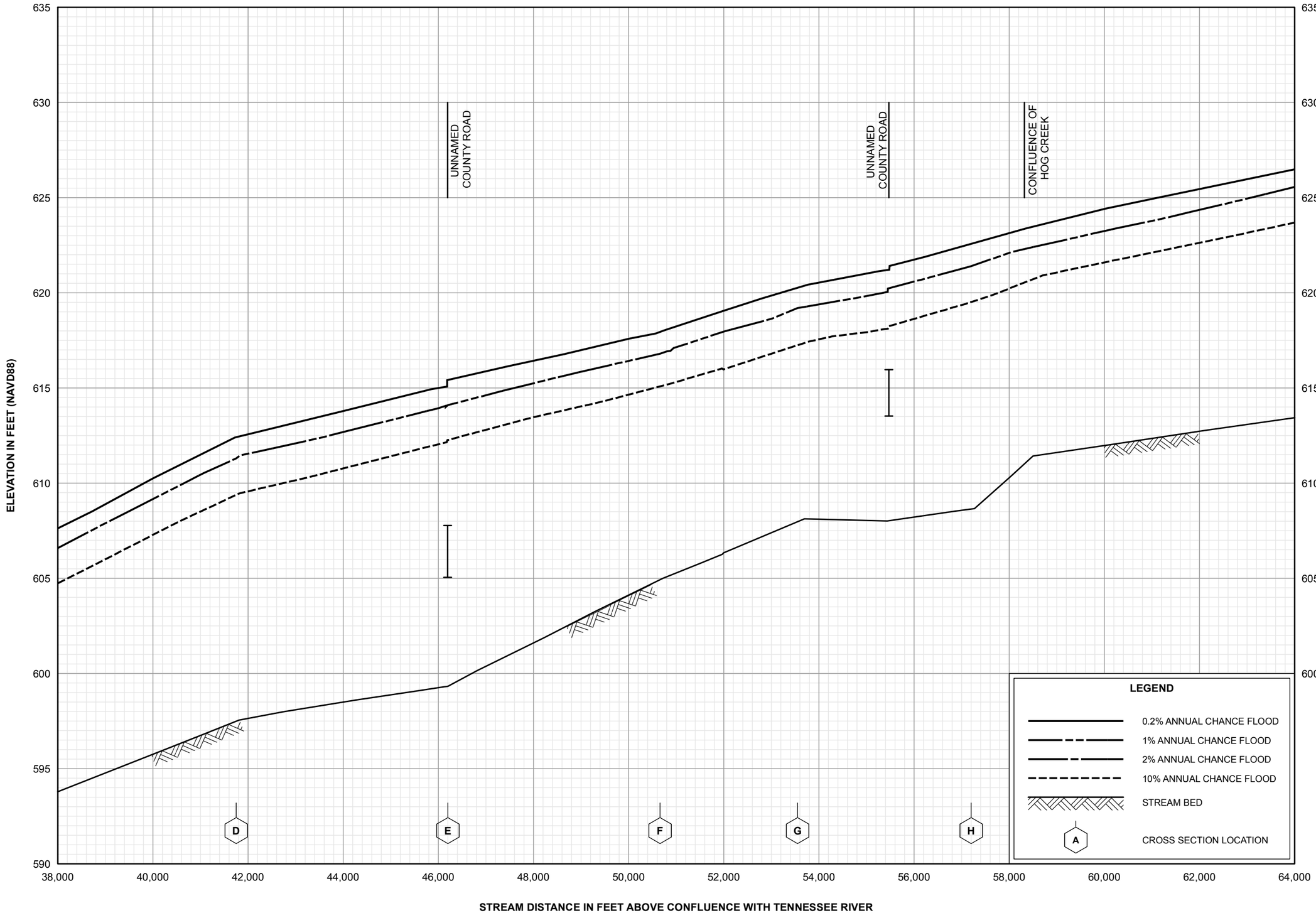
BIG SPRING CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARSHALL COUNTY, AL

AND INCORPORATED AREAS

01P

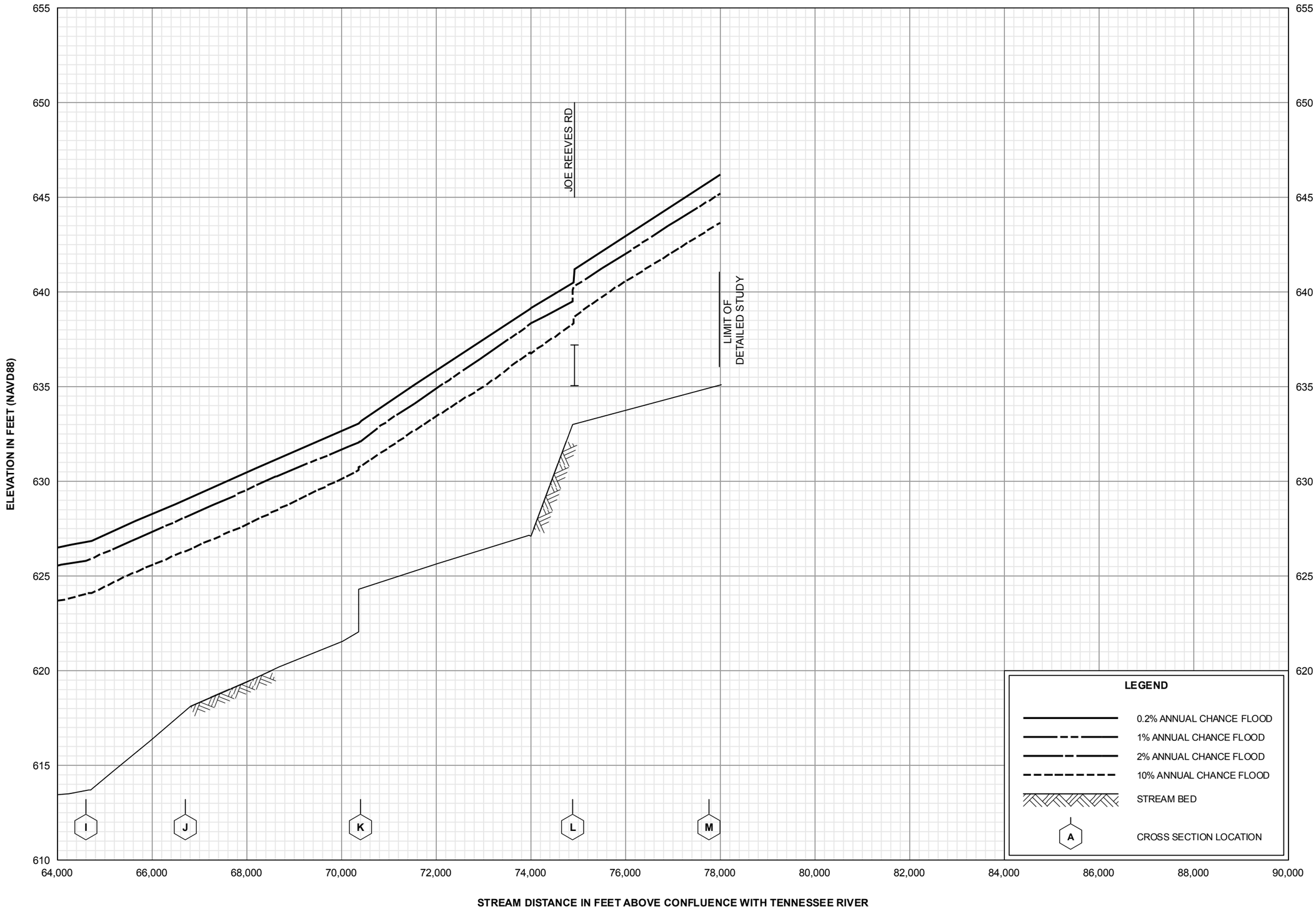


FLOOD PROFILES

BIG SPRING CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARSHALL COUNTY, AL
AND INCORPORATED AREAS

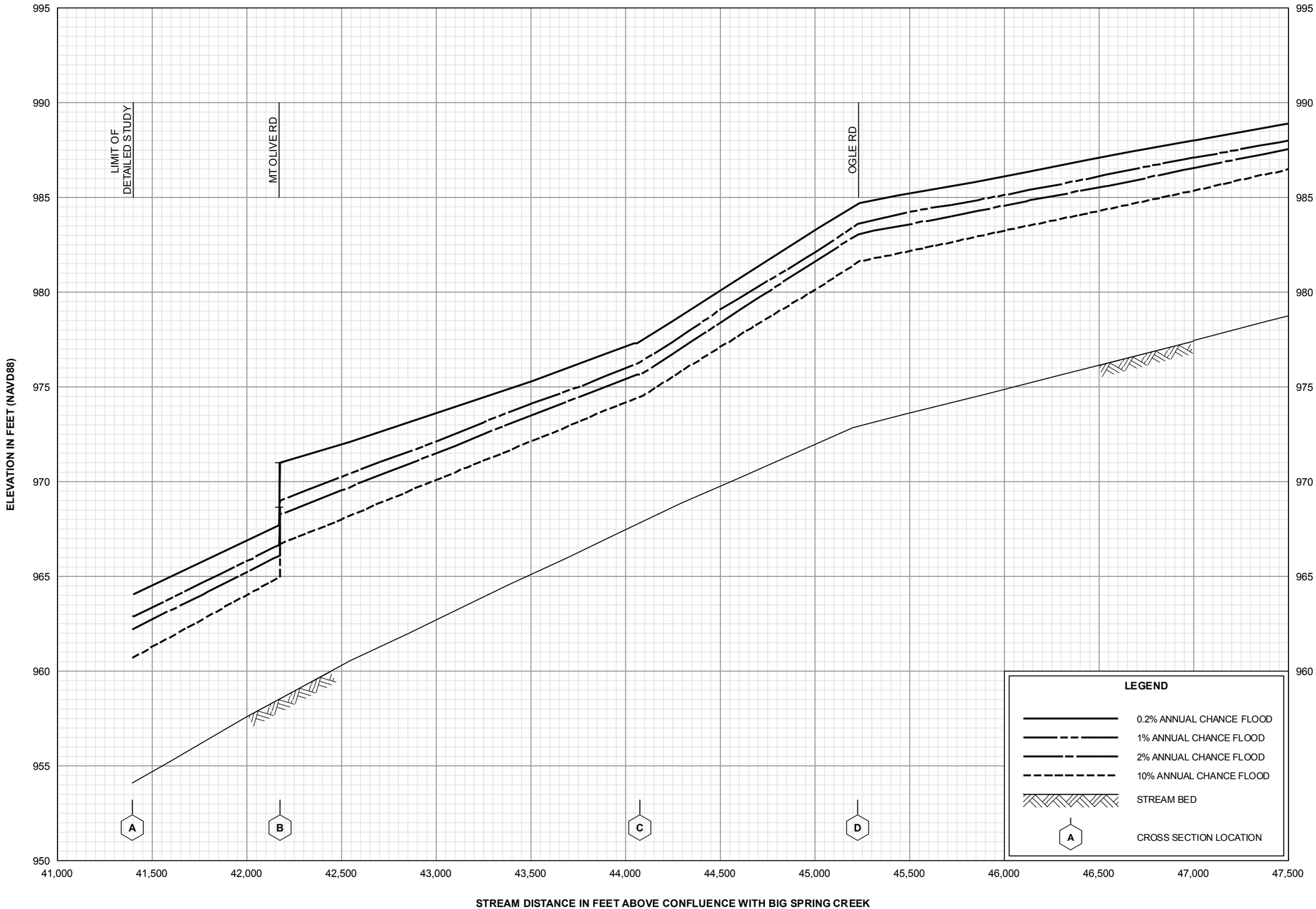


FLOOD PROFILES

BIG SPRING CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARSHALL COUNTY, AL
AND INCORPORATED AREAS



FLOOD PROFILES

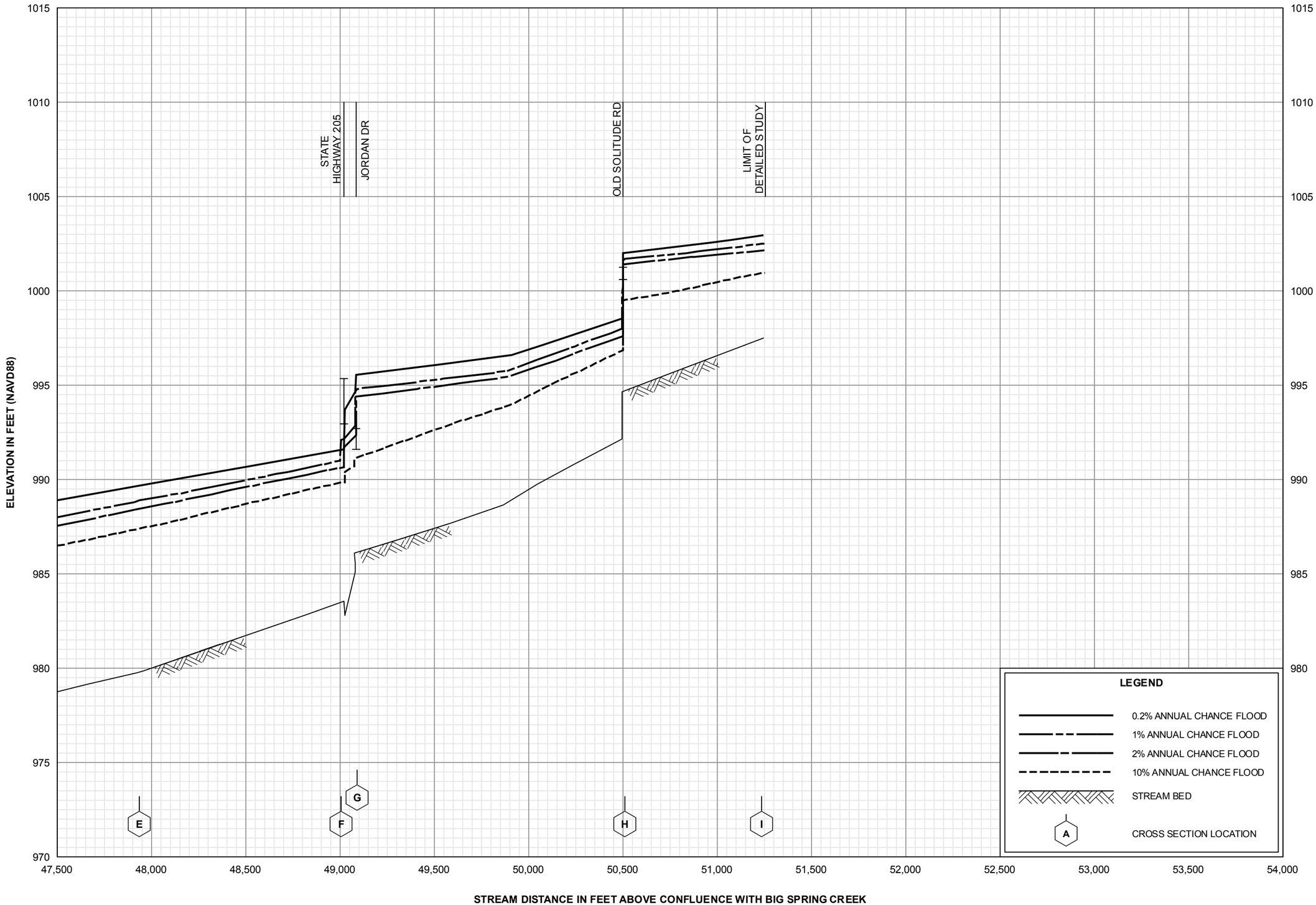
HOG CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARSHALL COUNTY, AL

AND INCORPORATED AREAS

04P

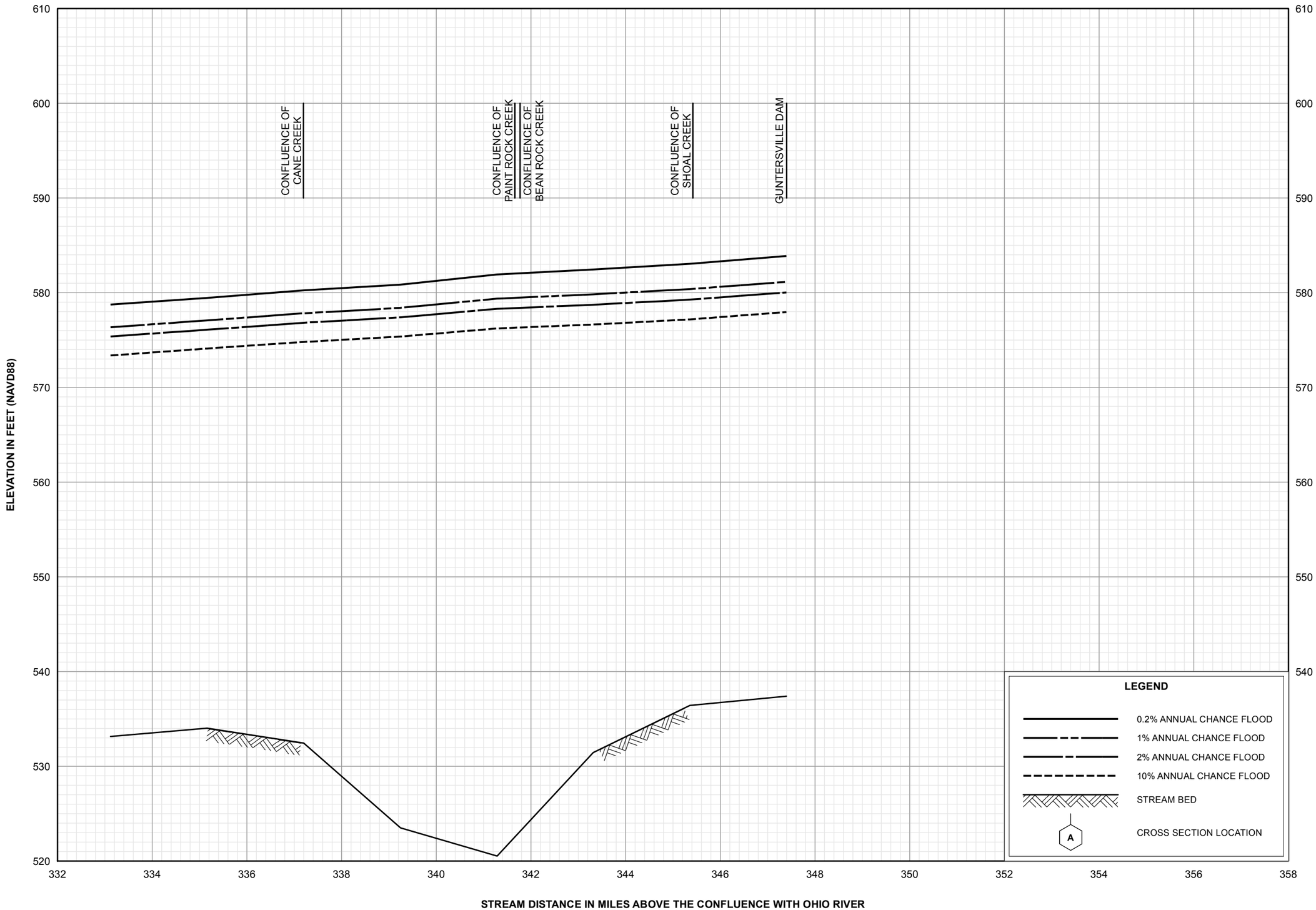


FLOOD PROFILES

HOG CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARSHALL COUNTY, AL
AND INCORPORATED AREAS



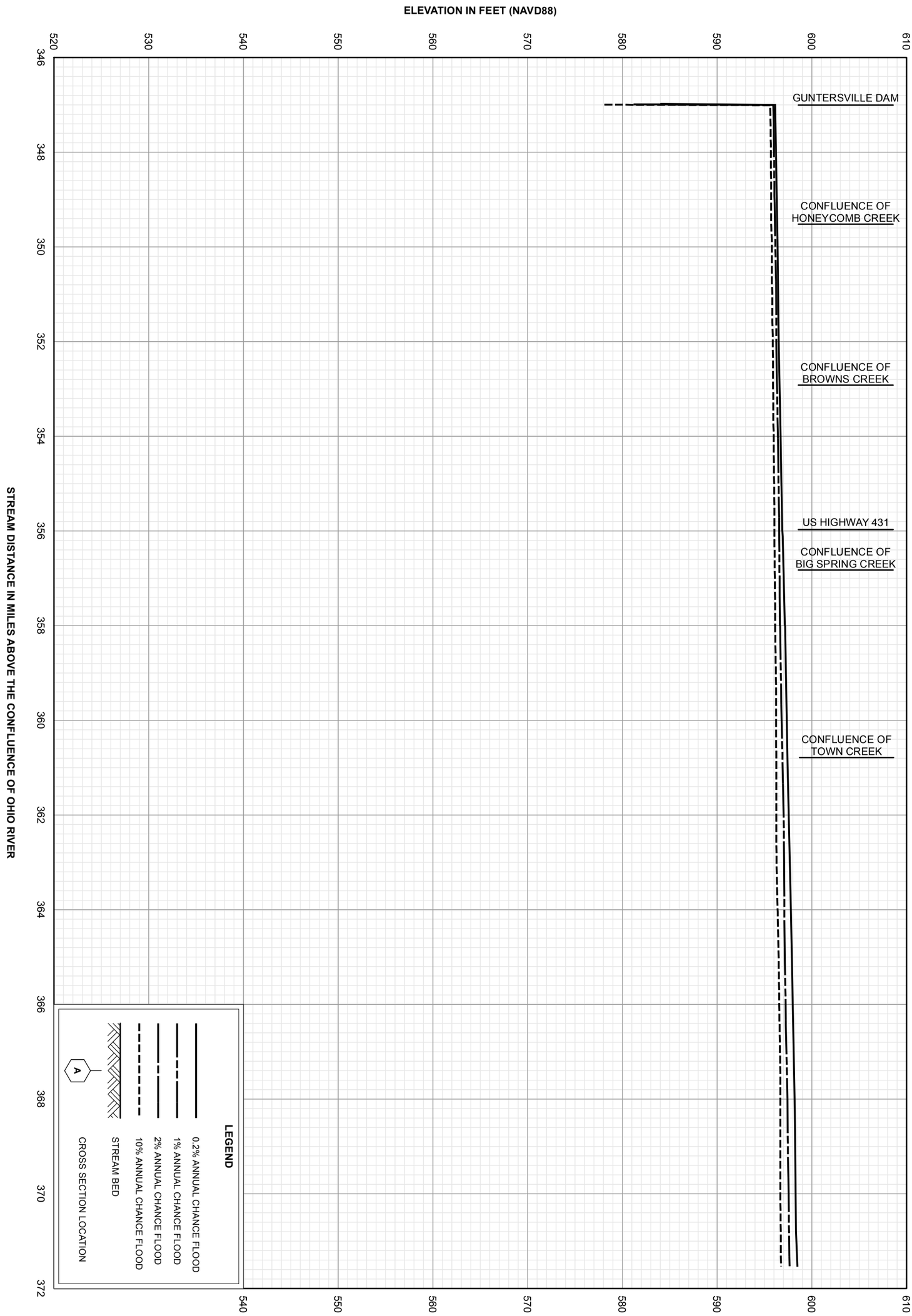
FLOOD PROFILES

TENNESSEE RIVER (WHEELER LAKE)

FEDERAL EMERGENCY MANAGEMENT AGENCY

MARSHALL COUNTY, AL
AND INCORPORATED AREAS

06P



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FEDERAL EMERGENCY MANAGEMENT AGENCY

MARSHALL COUNTY, AL

AND INCORPORATED AREAS

FLOOD PROFILES

TENNESSEE RIVER (GUNTERSVILLE LAKE)