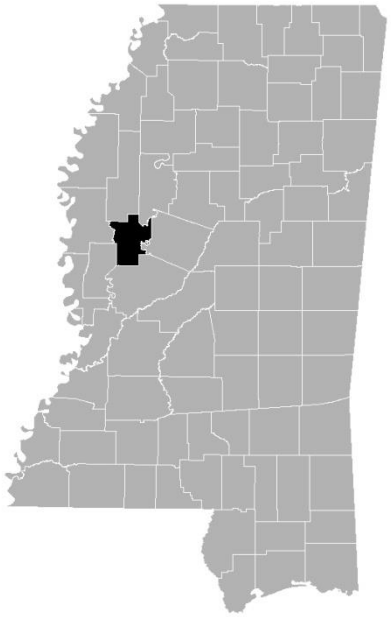
FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 1



HUMPHREYS COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
BELZONI, CITY OF	280080
HUMPHREYS COUNTY, UNINCORPORATED AREAS	280192
ISOLA, TOWN OF	280190
LOUISE, TOWN OF	280208
SILVER CITY, TOWN OF	280323

FEMA

PRELIMINARY
11/14/2018

REVISED:

TBD

FLOOD INSURANCE STUDY NUMBER
28053CV001B

Version Number 2.3.3.3

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FLOOD INSURANCE STUDY REPORT
HUMPHREYS COUNTY, MISSISSIPPI

SECTION 1.0 – INTRODUCTION

1.1 The National Flood Insurance Program

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

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

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

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

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

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 Table 1. 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.

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
Belzoni, City of	280080	08030206 08030207	28053C0153D 28053C0161D	
Humphreys County, Unincorporated Areas	280192	08030206 08030207	28053C0025E 28053C0038E 28053C0039E 28053C0050E 28053C0075D 28053C0100D 28053C0105E	

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Humphreys County, Unincorporated Areas (continued)	280192	08030206 08030207	28053C0110E 28053C0115E 28053C0120E 28053C0150D 28053C0153D 28053C0155D 28053C0161D 28053C0165D 28053C0175D 28053C0200D 28053C0205E 28053C0210E 28053C0225E 28053C0232D 28053C0234D 28053C0235D 28053C0250D 28053C0251D 28053C0253D 28053C0255D 28053C0275D 28053C0300D 28053C0325D 28053C0326D 28053C0327D 28053C0330D 28053C0350D 28053C0375D	
Isola, Town of	280190	08030207	28053C0038E 28053C0039E	
Louise, Town of	280208	08030207	28053C0326D 28053C0327D	
Silver City, Town of	280323	08030206 08030207	28053C0232D 28053C0234D 28053C0251D 28053C0253D	

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 Humphreys County became effective on March 15, 2012. Refer to Table 28 for information about subsequent revisions to the FIRMs.

- Selected FIRM panels for the community may contain information (such as floodways and cross sections) that was previously shown separately on the corresponding Flood Boundary and Floodway Map (FBFM) panels. In addition, former flood hazard zone designations have been changed as follows:

Old Zone	New Zone
A1 through A30	AE
V1 through V30	VE
B	X (shaded)
C	X (unshaded)

- 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."

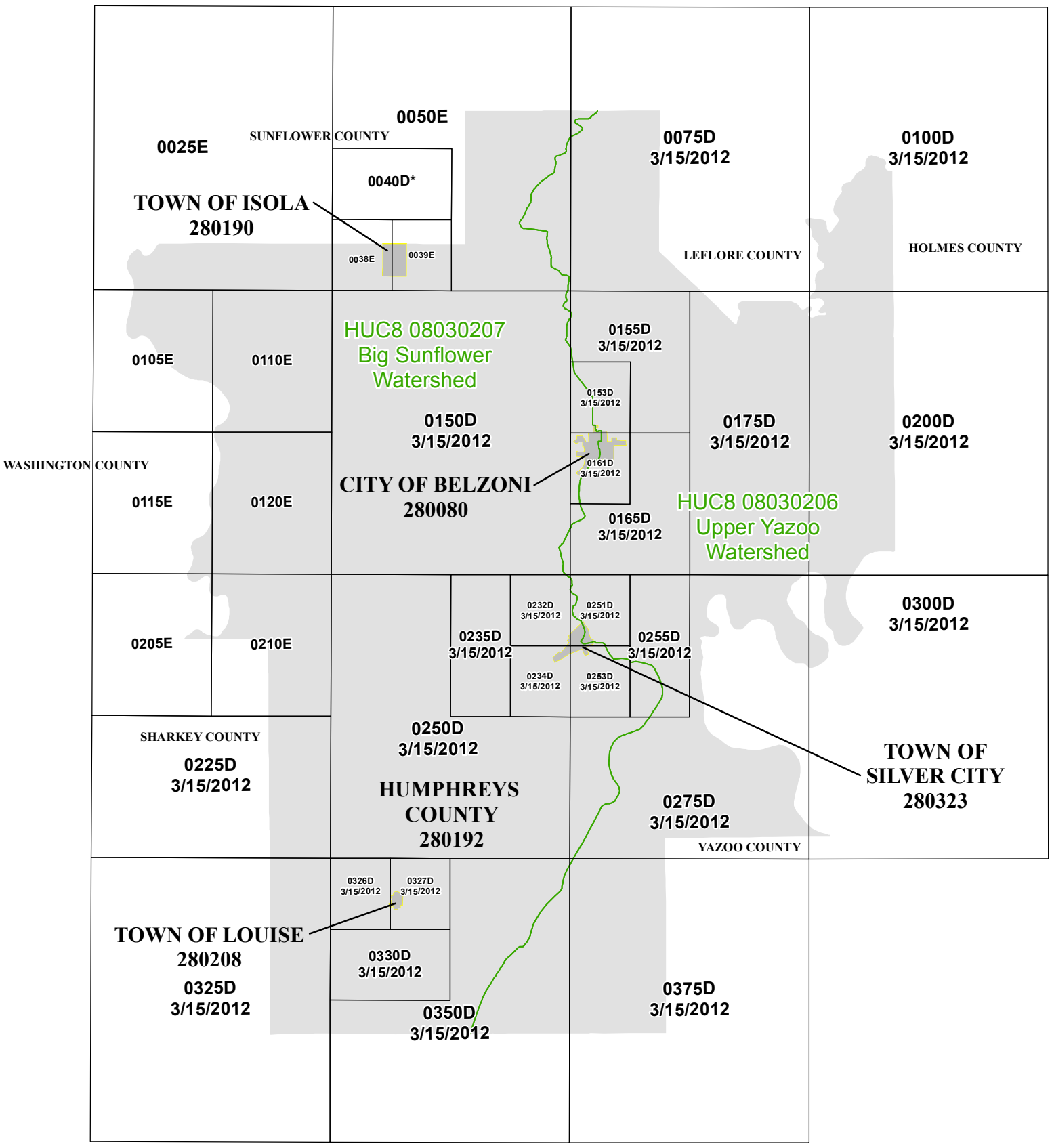
  Since the status of levees is subject to change at any time, the user should

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 (nld.usace.army.mil). 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 www.fema.gov/online-tutorials.

The FIRM Index in Figure 1 shows the overall FIRM panel layout within Humphreys County, and also displays the panel number and effective date for each FIRM panel in the county. Other information shown on the FIRM Index includes community boundaries, flooding sources, watershed boundaries, and United States Geological Survey (USGS) Hydrologic Unit Code – 8 (HUC-8) codes.

Figure 1: FIRM Panel Index



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

1 inch = 4 miles 1:250,000

N 0 2 4 8 Miles

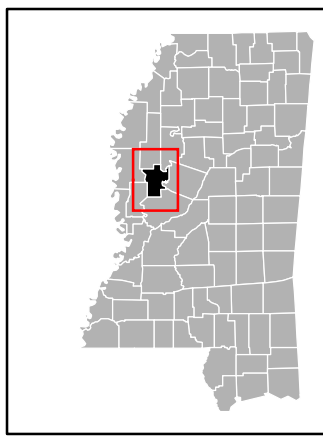
Map Projection:
State Plane Mississippi West Zone;
North American Datum 1983

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

HTTPS://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

*PANEL NOT PRINTED - OUTSIDE STUDY AREA



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX

HUMPHREYS COUNTY, MISSISSIPPI and Incorporated Areas

PANELS PRINTED:

0025, 0038, 0039, 0050, 0075, 0100, 0105, 0110, 0115, 0120, 0150, 0153, 0155, 0161, 0165, 0175, 0200, 0205, 0210, 0225, 0232, 0234, 0235, 0250, 0251, 0253, 0255, 0275, 0300,0325, 0326, 0327, 0330, 0350, 0375

FEMA

PRELIMINARY

MAP NUMBER
28053CIND0B

MAP REVISED

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

Figure 2: FIRM Notes to Users

NOTES TO USERS

For information and questions about this 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 Flood Map Service Center website at msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Flood Map Service Center website or by calling the FEMA 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 Flood 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 Non-Coastal Stillwater Elevations tables within this FIS Report. Use the flood elevation data within the FIS Report in conjunction with the FIRM for construction and/or floodplain management.

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

Figure 2: FIRM Notes to Users

FLOOD CONTROL STRUCTURE INFORMATION: Certain areas not in Special Flood Hazard Areas may 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.

PROJECTION INFORMATION: The projection used in the preparation of the map was State Plane Transverse Mercator, Mississippi West Zone. The horizontal datum was the North American Datum of 1983 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 www.ngs.noaa.gov.

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

BASE MAP INFORMATION: Base map information shown on this FIRM was provided in digital format by Mississippi Department of Environmental Quality, Mississippi Automated Resource Information System, and the United States Census Bureau. Ortho imagery was produced by Sanborn Mapping Company in 2013 that has a 1 - foot ground sample distance, and Surdex Corporation in 2014, 2016, 2017 that has a 1 - foot ground sample distance. For information about base maps, refer to Section 6.2 “Base Map” in this FIS Report.

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

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

NOTES FOR FIRM INDEX

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Humphreys County, MS, 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.

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

Figure 2: FIRM Notes to Users

SPECIAL NOTES FOR SPECIFIC FIRM PANELS

This Notes to Users section was created specifically for Humphreys County, Mississippi, effective TBD.

ACCREDITED LEVEE: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection for areas on this panel. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit www.fema.gov/national-flood-insurance-program.

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

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

Figure 3: Map Legend for FIRM

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

Special Flood Hazard Areas subject to inundation by the 1% annual chance flood (Zones A, AE, AH, AO, AR, A99, V and VE)

Zone A — The flood insurance rate zone that corresponds to the 1% annual chance floodplains. No base (1% annual chance) flood elevations (BFEs) or depths are shown within this zone.

Zone AE — The flood insurance rate zone that corresponds to the 1% annual chance floodplains. Base flood elevations derived from the hydraulic analyses are shown within this zone.

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

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

Zone AR — The flood insurance rate zone that corresponds to areas that were formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

Zone A99 — The flood insurance rate zone that corresponds to areas of the 1% annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or flood depths are shown within this zone.

Zone V — The flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations are not shown within this zone.

Zone VE — Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations derived from the coastal analyses are shown within this zone as static whole-foot elevations that apply throughout the zone.

Regulatory Floodway determined in Zone AE.

Non-encroachment zone (see Section 2.4 of this FIS Report for more information)

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.

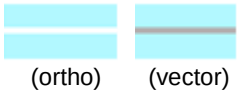
Area with Flood Risk due to Levee: Areas where a non-accredited levee, dike, or other flood control structure is shown as providing protection to less than the 1% annual chance flood.

OTHER AREAS

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

Unshaded Zone X: Areas of minimal flood hazard.

FLOOD HAZARD AND OTHER BOUNDARY LINES



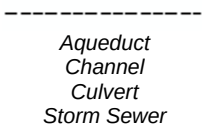
Flood Zone Boundary (white line on ortho-photography-based mapping; gray line on vector-based mapping)

Limit of Study

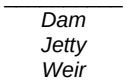
Jurisdiction Boundary

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

GENERAL STRUCTURES

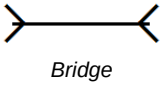


Channel, Culvert, Aqueduct, or Storm Sewer



Dam, Jetty, Weir

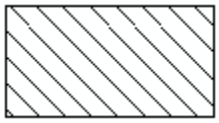
Levee, Dike, or Floodwall



Bridge

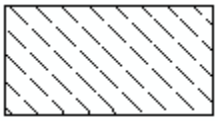
Figure 3: Map Legend for FIRM

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.*



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.



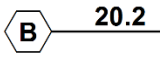
OTHERWISE PROTECTED AREA
09/30/2009

Otherwise Protected Area

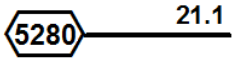
REFERENCE MARKERS

River mile Markers

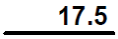
CROSS SECTION & TRANSECT INFORMATION



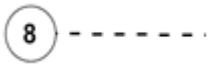
Lettered Cross Section with Regulatory Water Surface Elevation (BFE)



Numbered Cross Section with Regulatory Water Surface Elevation (BFE)



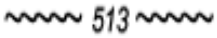
Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)



Coastal Transect

Profile Baseline: Indicates the modeled flow path of a stream and is shown on FIRM panels for all valid studies with profiles or otherwise established base flood elevation.

Coastal Transect Baseline: Used in the coastal flood hazard model to represent the 0.0-foot elevation contour and the starting point for the transect and the measuring point for the coastal mapping.



Base Flood Elevation Line

ZONE AE
(EL 16)

Static Base Flood Elevation value (shown under zone label)

ZONE AO
(DEPTH 2)

Zone designation with Depth

ZONE AO
(DEPTH 2)
(VEL 15 FPS)

Zone designation with Depth and Velocity

Figure 3: Map Legend for FIRM

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

SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS

2.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1% 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 Humphreys 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 Humphreys County, respectively.

Table 2, "Flooding Sources Included in this FIS Report," lists each flooding source, including its study limits, affected communities, mapped zone on the FIRM, and the completion date of its engineering analysis from which the flood elevations on the FIRM and in the FIS Report were derived. Descriptions and dates for the latest hydrologic and hydraulic analyses of the flooding sources are shown in Table 13. 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.

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Zone A Streams in HUC 08030206 & 08030207	Humphreys County, Unincorporated Areas	Various	Various	08030206 08030207	325.5	N	A	07/01/2010
Big Sunflower River	Humphreys County, Unincorporated Areas	Sharkey County boundary	Sunflower County boundary	08030207	18.0	N	AE	04/01/2016
Burton Bayou	Belzoni, City of	Confluence with County Ditch No. 26	Just downstream of Silver City Road	08030207	0.2	N	AE	01/01/1978
Brown Bayou	Humphreys County, Unincorporated Areas	Sunflower County boundary	Sunflower County boundary	08030207	4.9	N	A	04/01/2016
Brown Bayou Tributary 3	Humphreys County, Unincorporated Areas	Confluence with Brown Bayou	Sunflower County boundary	08030207	0.8	N	A	04/01/2016
Brown Bayou Tributary 4	Humphreys County, Unincorporated Areas	Confluence with Brown Bayou	Sunflower County boundary	08030207	0.2	N	A	04/01/2016
County Ditch No. 1	Humphreys County, Unincorporated Areas	At County Line Road	Approximately 2,360 feet upstream County Line Road	08030207	0.5	N	A	04/01/2016
County Ditch No. 3	Humphreys County, Unincorporated Areas	At County Line Road	Approximately 1,500 feet upstream County Line Road	08030207	0.3	N	A	04/01/2016
County Ditch No. 22	Humphreys County, Unincorporated Areas	Approximately 2,100 feet downstream of State Highway 7	Confluence with Fisk Bayou	08030206 08030207	5.21	N	AE	01/01/1978
County Ditch No. 22	Humphreys County, Unincorporated Areas	Confluence with Fisk Bayou	Approximately 2.4 miles upstream of the confluence with Fisk Bayou	08030206	2.4	N	AH	01/01/1978

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
County Ditch No. 26	Humphreys County, Unincorporated Areas; Belzoni, City of	At U.S. Highway 49	Approximately 515 feet upstream of West Jackson Street	08030207		N	AE	01/01/1978
County Ditch No. 26	Humphreys County, Unincorporated Areas;	Approximately 515 feet upstream of West Jackson Street	At State Highway 49	08030207		N	AH	01/01/1978
Fisk Bayou	Humphreys County, Unincorporated Areas; Belzoni, City of	Confluence with Yazoo River	Confluence of County Ditch No. 22	08030206	1.6	N	AE	1978
Fisk Bayou	Humphreys County, Unincorporated Areas;	Confluence of County Ditch No. 22	At State Highway 7	08030206	1.6	N	AH	1978
Jackson Bayou	Humphreys County, Unincorporated Areas; Isola, Town of	Confluence with Lake Dawson	At U.S. Highway 49	08030207	1.1	N	AE	06/01/1977
Jackson Bayou Lateral	Isola, Town of	Confluence with Jackson Bayou	Just upstream of Railroad	08030207	0.2	N	AE	06/01/1977
Jackson Bayou Lateral	Isola, Town of	Just upstream of Railroad	Approximately 540 feet upstream of Railroad	08030207	0.1	N	AO	01/01/1978
Lake Dawson	Humphreys County, Unincorporated Areas	Sunflower County boundary	Sunflower County boundary	08030207	0.6	N	A	04/01/2016
Steele Bayou	Humphreys County, Unincorporated Areas	Sharkey / Yazoo County boundary	Sharkey / Yazoo County boundary	08030207	N/A	N	AE	07/01/2010
Silver Creek	Humphreys County, Unincorporated Areas; Louise, Town of; Silver City, Town of	Yazoo County boundary	At U.S. Highway 49	08030207	19.8	Y	AE	10/01/1977
Unnamed Tributary of Yazoo River	Humphreys County, Unincorporated Areas	Confluence with Yazoo River	Approximately 780 feet upstream of North First Street	08030206	0.4	N	AE	01/01/1978

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Unnamed Tributary of Yazoo River	Humphreys County, Unincorporated Areas	Approximately 780 feet upstream of North First Street	Approximately 1,660 feet upstream of North First Street	08030206	1.2	N	AH	01/01/1978
Yazoo River	Humphreys County, Unincorporated Areas; Silver City, Town of	Holmes / Yazoo County boundary	Leflore County boundary	08030206 08030207	40.9	N	AE	01/01/1978

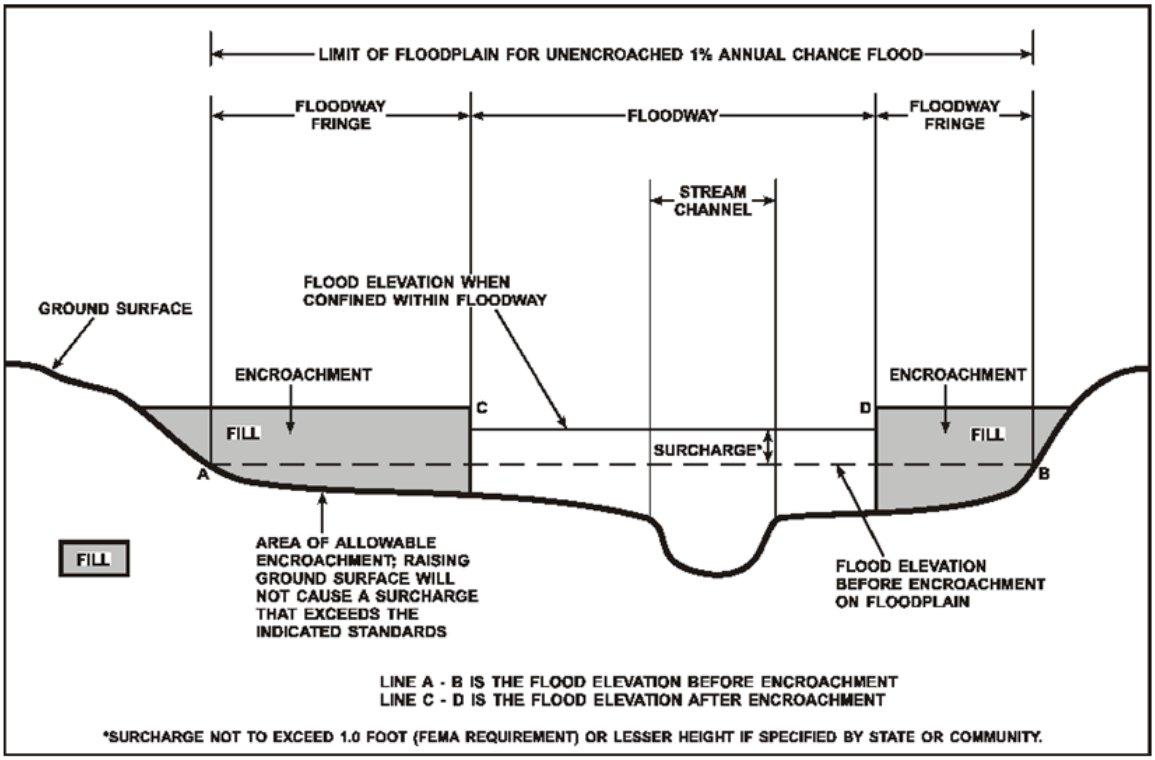
2.2 Floodways

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. Regulations for Mississippi require communities in Humphreys County to limit increases caused by encroachment to 1.0 foot and several communities have adopted additional restrictions. 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.”

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

Some States and communities use non-encroachment zones to manage floodplain development. For flooding sources with medium flood risk, field surveys are often not collected and surveyed bridge and culvert geometry is not developed. Standard hydrologic and hydraulic analyses are still performed to determine BFEs in these areas. However, floodways are not typically determined, since specific channel profiles are not developed. To assist communities with managing floodplain development in these areas, a “non-encroachment zone” may be provided. While not a FEMA designated floodway, the non-encroachment zone represents that area around the stream that should be reserved to convey the 1% annual chance flood event. As with a floodway, all surcharges must fall within the acceptable range in the non-encroachment zone.

General setbacks can be used in areas of lower risk (e.g. unnumbered Zone A), but these are not considered sufficient where unnumbered Zone A is replaced by Zone AE. The NFIP requires communities to ensure that any development in a non-encroachment area causes no increase in BFEs. Communities must generally prohibit development within the area defined by the non-encroachment width to meet the NFIP requirement. Regulations for Mississippi require communities in Humphreys County to limit increases caused by encroachment to 1.0 foot and several communities have adopted additional

restrictions for non-encroachment areas.

Non-encroachment determinations may be delineated where it is not possible to delineate floodways because specific channel profiles with bridge and culvert geometry were not developed. Any non-encroachment determinations for this Flood Risk Project have been tabulated for selected cross sections and are shown in Table 25, “Flood Hazard and Non-Encroachment Data for Selected Streams.” Areas for which non-encroachment zones are provided show BFEs and the 1% annual chance floodplain boundaries mapped as zone AE on the FIRM but no floodways.

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 FIS 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 Humphreys County.

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
Belzoni, City of	A, AE, AH, X
Humphreys County, Unincorporated Areas	A, AE, AH, X
Isola, Town of	A, AE, AO, X
Louise, Town of	AE, X
Silver City, Town of	A, 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)
Big Sunflower	08030207	Big Sunflower River	Largest watershed within Humphreys County; encompasses more than two-thirds of county.	3,154
Upper Yazoo	08030206	Yazoo River	Encompasses the remaining one-thirds of the county; Runs through the center of the City of Belzoni and on the outskirts of the Town of Silver City.	1,674

4.2 Principal Flood Problems

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

Table 6: Principal Flood Problems

Flooding Source	Description of Flood Problems
All Flooding Sources	During the flood of 1973, Humphreys County received considerable damage caused by flooding from the Yazoo and Big Sunflower Rivers and backwater flooding from the Mississippi River. A total of 98,550 acres were inundated during this flood in Humphreys County alone, with a total dollar value of damage reaching $11,559,000 (USACE 1973). Record stage and discharge measurements were recorded on the Yazoo and Big Sunflower Rivers. The maximum stage at Little Calloo on the Big Sunflower River in 1973 was 103.3 feet, NAVD. At Belzoni, Mississippi, the stage recorded on the Yazoo River at 111.4 feet NAVD has been estimated as a 60-year frequency event (FEMA 2012). In May 1991, the worst flooding in recent history inundated approximately 1.5 million acres of property in the Delta (Delta Council 2008).
Big Sunflower River and Yazoo River	The Yazoo and Big Sunflower Rivers are the two major streams that cause flooding in Humphreys County. The Yazoo River flows through the northeastern part of the county and is part of the eastern border of the county. Along the Big Sunflower River, which forms part of the western boundary of the county, a few small tributaries overflow in most years. Numerous small streams traverse the entire county. The terrain is relatively flat, sloping gently form north to south. During major floods, widespread flooding occurs through the entire county (USACE 1971).

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

Table 7: Historic Flooding Elevations

Flooding Source	Location	Historic Peak (Feet NAVD88)	Event Date	Approximate Recurrence Interval (years)	Source of Data
Big Sunflower River	At Little Calloo on the Big Sunflower River	103.3	1973	60	FEMA 2012
Yazoo River	City of Belzoni	111.4	1973	60	FEMA 2012

4.3 Non-Levee Flood Protection Measures

Table 8 contains information about non-levee flood protection measures within Humphreys 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
All Flooding Sources	N/A	Various	Various	Flood protection measures that have been undertaken consist of the installation of floodwater-retarding structures by the U.S. Soil Conservation Service, the installation of flood control levees by the USACE, Vicksburg District, and the installation of other levees by private individuals and drainage districts (FEMA 2012).
Big Sunflower River Basin	N/A	Channel Improvements	Various	The USACE has completed about 510 miles of channel improvements in the Big Sunflower River Basin consisting of channel clearing, enlargement, and realignment. These channel improvements have resulted in increased channel capacities and lower flood levels in Humphreys County (USACE 1971).
Yazoo Basin	Yazoo Basin Backwater Project	Various	Various	The Yazoo Basin Backwater Project, protecting approximately 1,550 square miles in the lower Mississippi Delta, consists of approximately 100 miles of levees, a connecting channel between the Sunflower River and Steel Bayou and appurtenant drainage works. The backwater levees, a part of the Mississippi River valley flood protection system, are designed to be overtopped at an elevation of approximately 107 feet NGVD, which would occur during the Mississippi River Project Flood, which is used in lieu of the 0.2% percent annual-chance flood for this study. Protection is contingent on the use of storage in the backwater system to reduce flood peaks and ensure the integrity of the Mississippi River levee system (USACE 1959a).
Yazoo Basin	N/A	Various	Various	The Upper Yazoo Project (formerly Upper Auxiliary Channel) is the largest single feature of the Yazoo Headwater Project yet to be constructed. The Upper Yazoo Project will lower flood stages in the headwater reaches of the Yazoo Basin by increasing carrying capacities of the Yazoo River (USACE 1975).
Yazoo River	Yazoo Headwater Project	Flood Control Reservoirs & Channel Improvements	Various	The Yazoo Headwater Project constructed by the USACE consists of four flood control reservoirs located in North Mississippi: Arkabutla, Sardis, Enid, and Grenada Counties; about 800 miles of stream channel improvements and 600 miles of levees (FEMA 2012).

Table 8: Non-Levee Flood Protection Measures (continued)

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Yazoo River	Will M. Whittington Channel	Channel Improvements	Various	The USACE constructed the Will M. Whittington Channel, which is an auxiliary channel for the Yazoo River, extending from a point approximately ten miles downstream form Belzoni, Mississippi to near the confluence of the Yazoo and Big Sunflower Rivers. The auxiliary channel floodway traverses the area west of the Yazoo River in a generally northeast-southwest direction and provides the portion of the Yazoo backwater area west of the Yazoo River. This auxiliary channel lowers flood stages by diverting flow form the upper Yazoo River to near the confluence of the Big Sunflower and Yazoo Rivers (FEMA 2012).

4.4 Levees

For purposes of the NFIP, FEMA only recognizes levee systems that meet, and continue to meet, minimum design, operation, and maintenance standards that are consistent with comprehensive floodplain management criteria. The Code of 44, Section 65.10 (44 CFR 65.10) describes the information needed Federal Regulations, Title for FEMA to determine if a levee system reduces the risk from the 1% annual chance flood. This information must be supplied to FEMA by the community or other party when a flood risk study or restudy is conducted, when FIRMs are revised, or upon FEMA request. FEMA reviews the information for the purpose of establishing the appropriate FIRM flood zone.

Levee systems that are determined to reduce the risk from the 1% annual chance flood are accredited by FEMA. FEMA can also grant provisional accreditation to a levee system that was previously accredited on an effective FIRM and for which FEMA is awaiting data and/or documentation to demonstrate compliance with Section 65.10. These levee systems are referred to as Provisionally Accredited Levees, or PALs. Provisional accreditation provides communities and levee owners with a specified timeframe to obtain the necessary data to confirm the levee's certification status. Accredited levee systems and PALs are shown on the FIRM using the symbology shown in Figure 3 and in Table 9. If the required information for a PAL is not submitted within the required timeframe, or if information indicates that a levee system not longer meets Section 65.10, FEMA will de-accredit the levee system and issue an effective FIRM showing the levee-impacted area as a SFHA.

FEMA coordinates its programs with USACE, who may inspect, maintain, and repair levee systems. The USACE has authority under Public Law 84-99 to supplement local efforts to repair flood control projects that are damaged by floods. Like FEMA, the USACE provides a program to allow public sponsors or operators to address levee system maintenance deficiencies. Failure to do so within the required timeframe results in the levee system being placed in an inactive status in the USACE Rehabilitation and Inspection Program. Levee systems in an inactive status are ineligible for rehabilitation assistance under Public Law 84-99.

FEMA coordinated with the USACE, the local communities, and other organizations to compile a list of levees that exist within Humphreys County. Table 9, "Levees," lists all accredited levees, PALs, and de-accredited levees shown on the FIRM for this FIS Report. Other categories of levees may also be included in the table. The Levee ID shown in this table may not match numbers based on other identification systems that were listed in previous FIS Reports. Levees identified as PALs in the table are labeled on the FIRM to indicate their provisional status.

Please note that the information presented in Table 9 is subject to change at any time. For that reason, the latest information regarding any USACE structure presented in the table should be obtained by contacting USACE and accessing the USACE national levee database. For levees owned and/or operated by someone other than the USACE, contact the local community shown in Table 31.

Table 9: Levees

Community	Flooding Source	Levee Location	Levee Owner	USACE Levee	Levee ID	Covered Under PL84-99 Program?	FIRM Panel(s)
Humphreys County, Unincorporated Areas	Yazoo River	Both Banks	Humphreys County Water Supply	Yes	5905000029	Yes	28053C0100D 28053C0155D 28053C0161D 28053C0165D 28053C0175D 28053C0200D 28053C0251D 28053C0253D 28053C0255D 28053C0275D
Humphreys County, Unincorporated Areas; Silver City, Town of	Will M. Whittington Auxilary Channel	Both Banks	Humphreys County Water Supply	Yes	5905000024	Yes	28053C0150D 28053C0161D 28053C0165D 28053C0232D 28053C0251D 28053C0253D 28053C0255D 28053C0275D 28053C0350D 28053C0375D

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.

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. A summary of stillwater elevations developed for non-coastal flooding sources is provided in Table 11. Stream gage information is provided in Table 12.

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Big Sunflower River	Sharkey County boundary	2,666	14,475	16,928	18,708	20,487	24,594
County Ditch No. 22	At State Highway 7 Bridge	3.71	799	*	1, 034	1,154	1,388
County Ditch No. 26	At U.S. Highway 49 West	1.00	381	*	485	537	648
Fisk Bayou	At the confluence with Yazoo River	0.39	187	*	237	273	332
Jackson Bayou	At the confluence with Lake Dawson	11.5	892	*	1,174	1,323	1,638
Jackson Bayou	At the confluence with Jackson Lateral Bayou	11.0	932	*	1,225	1,381	1,709
Jackson Bayou Lateral	At Box Culvert on Belzoni Street	0.16	146	*	183	207	257
Jackson Bayou Lateral	Approximately 830 feet above mouth	0.11	101	*	126	143	178
Jackson Bayou Lateral	At Railroad Bridge	0.07	62	*	777	87	108
Silver Creek	At South Coporate Limits (Town of Louise)	6.38	406**	*	540**	602**	746**
Silver Creek	At Old U.S. Highway 49	6.00	400**	*	532**	593**	734**
Unamed Tributary of Yazoo River	At Pecan Street	1.11	396	*	501	583	834
Yazoo River	At Belzoni	7,830	36,000	*	43,000	46,000	53,000

* Not Calculated for this Flood Risk Project

**200 cfs used for Silver Creek discharge's due to upstream obstruction of flow and overbank storage

Figure 7: Frequency Discharge-Drainage Area Curves

[Not Applicable to this Flood Risk Project]

Table 11: Summary of Non-Coastal Stillwater Elevations

Flooding Source	Location	Elevations (feet NAVD88)				
		10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Steele Bayou	At Control Structure	*	*	*	100.1	*

*Not calculated for 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
Big Sunflower River	07288500	USGS	Big Sunflower River at Sunflower, MS	767	02/16/1936	06/12/2014
MIssissippi River	07289000	USGS	Mississippi River at Vicksburg, MS	1,140,000	06/24/1858	04/18/2014

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. Roughness coefficients are provided in Table 14. 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
Zone A Streams in HUC 08030206 & 08030207	Various	Various	Regression Equations (USGS 1991)	HEC-RAS 4.0.0 (USACE 2008)	07/01/2010	A	
Big Sunflower River	Sharkey County boundary	Sunflower County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	AE	
Burton Bayou	Confluence with County Ditch No. 26	Just downstream of Silver City Road	Other	Other	01/01/1978	AE	Peak discharges were not computed for Burton Bayou because Burton Bayou has a minimal drainage area and effectively serves as a sump area for County Ditch No. 26 and water-surface profiles would be dependent on Ditch No. 26. The flood profiles for the 10-, 2.0-, 1.0, and 0.2% annual chance floods on Burton Bayou were chosen as the same elevations as County Ditch No. 26 at its confluence with Burton Bayou since the outlet to Burton Bayou into the Yazoo River will be closed due to backwater elevations (FEMA 1989). "Accociated flooding on Fisk Bayou, County Ditch No. 22, County Ditch No. 26, and Burton Bayou will be due to local runoff" (FEMA 1989a). This type of shallow flooding occurring in this area is sheet runoff. Sheet runoff is the broad, relatively unconfined downslope movement of water across gently sloping terrain that results from many sources including intense rainfall, overflow from a channel which crosses a drainage divide, and alluvial fan flow. Sheet runoff is typical in areas of low topographic relief.

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Brown Bayou	Sunflower County boundary	Sunflower County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
Brown Bayou Tributary 3	Confluence with Brown Bayou	Sunflower County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
Brown Bayou Tributary 4	Confluence with Brown Bayou	Sunflower County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
County Ditch No. 1	At County Line Road	Approximately 2,360 feet upstream County Line Road	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
County Ditch No. 3	At County Line Road	Approximately 1,500 feet upstream County Line Road	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
County Ditch No. 22	Approximately 2,100 feet downstream of State Highway 7	Confluence with Fisk Bayou	Other	HEC-2 (USACE 1973b)	01/01/1978	AE	Flood flow records were not available for the other streams, therefore, peak discharges for the floods of 10-, 2.0-, 1.0- and 0.2% annual recurrence intervals were developed by frequency rainfall analysis using U.S. Weather Service Technical Paper No. 40 (USDC 1961) and Snyder's unit hydrograph method as utilized in the USACE program, HEC-1 (USACE 1973a). The 0.2% annual chance discharges were determined by extrapolation of the flood flow-frequency curve based on a log-Pearson Type III distribution (FEMA 1989a).

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
County Ditch No. 22	Confluence with Fisk Bayou	Approximately 2.4 miles upstream of the confluence with Fisk Bayou	Other	Other	01/01/1978	AH	"Accociated flooding on Fisk Bayou, County Ditch No. 22, County Ditch No. 26, and Burton Bayou will be due to local runoff (FEMA 1989a)". This type of shallow flooding occurring in this area is sheet runoff. Sheet runoff is the broad, relatively unconfined downslope movement of water across gently sloping terrain that results from many sources including intense rainfall, overflow from a channel which crosses a drainage divide, and alluvial fan flow. Sheet runoff is typical in areas of low topographic relief.

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
County Ditch No. 26	At U.S. Highway 49	Approximately 515 feet upstream of West Jackson Street	Other	HEC-2 (USACE 1973b)	01/01/1978	AE	Flood flow records were not available for the other streams, therefore, peak discharges for the floods of 10-, 2.0-, 1.0- and 0.2% annual recurrence intervals were developed by frequency rainfall analysis using U.S. Weather Service Technical Paper No. 40 (USDC 1961) and Snyder's unit hydrograph method as utilized in the USACE program, HEC-1 (USACE 1973a). The 0.2% annual chance discharges were determined by extrapolation of the flood flow-frequency curve based on a log-Pearson Type III distribution (FEMA 1989a). The water-surface elevations for County Ditch No. 26 were determined by sump analyses of the area bounded on the east by the Canadian National Railroad tracks; the south by a country road; the west of U.S. Highway 49-West; and on the north by State Highway 12 (Sump Area No. 3). The shallow flooding criterion was appropriate for this area (FEMA 1989a). The water-surface elevations for the 1.0% annual chance flood on County Ditch No. 26 were determined by sump analyses of the area bounded on the east by the Canadian National Railroad tracks; the south by county roads; the west by U.S. Highway 49-W; and on the north by State Highway 12. The shallow flood criterion was also appropriate for this area (FEMA 1989b).

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
County Ditch No. 26	Approximately 515 feet upstream of West Jackson Street	At State Highway 49	Other	Other	01/01/1978	AH	"Accociated flooding on Fisk Bayou, County Ditch No. 22, County Ditch No. 26, and Burton Bayou will be due to local runoff (FEMA 1989a)". This type of shallow flooding occurring in this area is sheet runoff. Sheet runoff is the broad, relatively unconfined downslope movement of water across gently sloping terrain that results from many sources including intense rainfall, overflow from a channel which crosses a drainage divide, and alluvial fan flow. Sheet runoff is typical in areas of low topographic relief.

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Fisk Bayou	Confluence with Yazoo River	Confluence of County Ditch No. 22	Other	Other	1978	AE	Fisk Bayou is bound on the east and west by a high ridge extending its length; on the south by the Belzoni floodwall and levee system; and on the north by the spoil banks along County Ditch No. 22. The main outlets are the pumping plant and a four-foot diameter culvert under the Belzoni levee located at the confluence of Fisk Bayou and the Yazoo River. A sump analysis was performed to determine the flood profile elevations on Fisk Bayou for the 10-, 2.0-, 1.0, and 0.2% annual chance floods (FEMA 1989a & 1989b). Starting water-surface elevations for Fisk Bayou were determined from flood routings (FEMA 1989a & 1989b). Fisk Bayou is bound on the east and west by a relatively high ridge extending its length on the south by the Belzoni floodwall and levee system; and on the north by the spoil banks along County Ditch No. 22. The main outlets are the pumping plant and a four-foot diameter culvert under the Belzoni levee located at the confluence of Fisk Bayou and the Yazoo River. A sump analysis was performed to determine the flood profile elevations on Fisk Bayou for the 10-, 2.0-, 1.0-, and 0.2% annual chance floods (FEMA 1989b). Likewise, the area bounded by Fisk Bayou, the Belzoni floodwall and levee system, the Canadian National Railroad tracks, and the County highway north of Belzoni near Castleman was evaluated by sump analyses. Based on the study results and contour information, the use of shallow flooding criteria was appropriate for this area (FEMA 1989b).

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Fisk Bayou	Confluence of County Ditch No. 22	At State Highway 7	Other	Other	1978	AH	"Accociated flooding on Fisk Bayou, County Ditch No. 22, County Ditch No. 26, and Burton Bayou will be due to local runoff (FEMA 1989a)". This type of shallow flooding occurring in this area is sheet runoff. Sheet runoff is the broad, relatively unconfined downslope movement of water across gently sloping terrain that results from many sources including intense rainfall, overflow from a channel which crosses a drainage divide, and alluvial fan flow. Sheet runoff is typical in areas of low topographic relief.

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Jackson Bayou	Confluence with Lake Dawson	At U.S. Highway 49	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	06/01/1977	AE	Discharge-frequency relationships for Jackson Bayou were determined by relating unit hydrograph parameters from similar watersheds. Known precipitation runoff relationships for several similar watersheds were analyzed to determine Snyder unit hydrograph coefficients using the HEC-1 Computer Optimization Technique (USACE 1973a). Based on this analysis, coefficients for the Jackson Bayou watershed were determined using standard methods (USACE 1959b and Chow 1964). The discharges for the 10-, 2.0-, 1.0- and 0.2% annual floods were then computed utilizing precipitation-frequency relationships from U.S. Weather Bureau Technical Paper No. 40 (USDC 1961). A comparison of the results of this method was made with the relationships determined by the rational method (Chow 1964), and by the U.S. Geological Survey method (USGS 1976). This comparison substantiates the results of the analyses. Starting flood elevations were developed from known water-surface elevations provided by the USACE based upon data developed for the Kinlock, Mississippi area (USACE 1971).

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Jackson Bayou Lateral	Confluence with Jackson Bayou	Just upstream of Railroad	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	06/01/1977	AE	Discharge-frequency relationships for Jackson Bayou were determined by relating unit hydrograph parameters from similar watersheds. Known precipitation runoff relationships for several similar watersheds were analyzed to determine Snyder unit hydrograph coefficients using the HEC-1 Computer Optimization Technique (USACE 1973a). Based on this analysis, coefficients for the Jackson Bayou watershed were determined using standard methods (USACE 1959b and Chow 1964). The discharges for the 10-, 2.0-, 1.0- and 0.2% annual floods were then computed utilizing precipitation-frequency relationships from U.S. Weather Bureau Technical Paper No. 40 (USDC 1961). A comparison of the results of this method was made with the relationships determined by the rational method (Chow 1964), and by the U.S. Geological Survey method (USGS 1976). This comparison substantiates the results of the analyses. Starting flood elevations were developed from known water-surface elevations provided by the USACE based upon data developed for the Kinlock, Mississippi area (USACE 1971).
Jackson Bayou Lateral	Just upstream of Railroad	Approximately 540 feet upstream of Railroad	Other	Other	01/01/1978	AO	Methods were not mentioned in the effective FIS (FEMA 2012) or the orginal FIS for the Town of Isola (FEMA 1978).

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Lake Dawson	Sunflower County boundary	Sunflower County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
Steele Bayou	Sharkey / Yazoo County boundary	Sharkey / Yazoo County boundary	Other	Other	07/01/2010	AE	The 1% annual-chance flood elevation for the Steele Bayou Control Structure was determined by analysis of historical gage records. Much of the county north of the Control Structure is below the computed flood elevation (FEMA 2012). Note that the controls strucuture is located in Issaquena County, MS.

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Silver Creek	Yazoo County boundary	At U.S. Highway 49	Other	HEC-2 (USACE 1976)	10/01/1977	AE w/ floodway	The discharge-frequency relationships for Silver Creek were determined by relating the unit hydrograph parameters from similar watersheds. Known precipitation runoff relationships for several similar watersheds were analyzed to determine Snyder unit hydrograph coefficients for those watersheds (USACE 1973c). The 0.2%annual chance rainfall for Silver Creek was extrapolated on log-normal paper between 10- and 1.0-percent annual chance of return periods. Coefficients for the Silver Creek watershed were determined using the relationships expressed in Flood Hydrograph Analyses and Computations EM 1110-2-1405 (USACE 1959b). The discharges for the 10-, 2.0-, 1.0- and 0.2%-percent annual floods were then computed utilizing precipitation-frequency relationships from U.S. Weather Bureau Technical Paper No. 40 (Chow 1964). Starting water-surface elevations were based on data derived from the Big Sunflower River gage at Holly Bluff, Mississippi (FEMA 1978).

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Unnamed Tributary of Yazoo River	Confluence with Yazoo River	Approximately 780 feet upstream of North First Street	Other	HEC-2 (USACE 1973b)	01/01/1978	AE	Flood flow records were not available for the other streams, therefore, peak discharges for the floods of 10-, 2.0-, 1.0- and 0.2%t annual recurrence intervals were developed by frequency rainfall analysis using U.S. Weather Service Technical Paper No. 40 (USDC 1961) and Snyder's unit hydrograph method as utilized in the USACE program, HEC-1 (USACE 1973a). The 0.2% annual chance discharges were determined by extrapolation of the flood flow-frequency curve based on a log-Pearson Type III distribution (FEMA 1989a).
Unnamed Tributary of Yazoo River	Approximately 780 feet upstream of North First Street	Approximately 1,660 feet upstream of North First Street	Other	Other	01/01/1978	AH	"Accociated flooding on Fisk Bayou, County Ditch No. 22, County Ditch No. 26, and Burton Bayou will be due to local runoff (FEMA 1989a)". This type of shallow flooding occurring in this area is sheet runoff. Sheet runoff is the broad, relatively unconfined downslope movement of water across gently sloping terrain that results from many sources including intense rainfall, overflow from a channel which crosses a drainage divide, and alluvial fan flow. Sheet runoff is typical in areas of low topographic relief.
Yazoo River	Holmes / Yazoo County boundary	Leflore County boundary	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	01/01/1978	AE	Detailed information about Yazoo River is provided in the narrative below.

Special Considerations (continued)

Yazoo River

For the Yazoo River, the data used for the study in the northern portion of the county is from the Leflore County (unincorporated areas) Flood Insurance Study dated May 1979. The peak discharge for the 1% annual chance flood was developed by frequency rainfall analysis using U.S. Weather Service Technical Papers Numbers 40 and 49 and Snyder's Unit Hydrograph Method (USACE 1959a).

Using the HEC-2, "Water-Surface Profiles," computer program (USACE 1973b), the 1973 high water flood profile for the Yazoo River was reproduced. Roughness coefficients (Manning's "n") were estimated by field inspection and adjusted as necessary to reproduce the 1973 flood profile. Roughness coefficients in the channel ranged from 0.024 to 0.038 while the overbank values ranged from 0.100 to 0.165. Once the 1973 high water profile was satisfactorily reproduced, the water-surface profiles for each of the selected recurrence intervals were computed. The computed water-surface elevations were checked by rating curves and stage-frequency curves at the Greenwood and Belzoni, Mississippi gages (FEMA 1989a & 1989b). Since the 10-, 2.0-, 1.0, and 0.2% annual chance floods on the Yazoo River at Belzoni were considered to be contained by the existing levees on high ground, associated flooding in Belzoni is due to local runoff only (FEMA 1989b).

The Mississippi River Project Flood (MRPF), used in lieu of the 0.2% annual chance on the Mississippi River, would overtop the Yazoo River Backwater levees north of Vicksburg, Mississippi, and flood portions of Belzoni and Humphreys County. Recent studies made by the USACE, in conjunction with updating the Mississippi River Project Flood flow-line, indicate that the backwater elevation as a result of levee overtopping would be 114.2 NAVD (FEMA 1989b).

For the Yazoo River in the extreme northeast section of the county, the data used is from the Leflore County (unincorporated areas) Flood Insurance Study dated May 1979. Using the HEC-2, "Water Surface Profiles" computer program, the 1973 high water profile was reproduced from the Yazoo-Tallahatchie River (USACE 1973b). Once the 1973 high water profile was satisfactorily reproduced, the water-surface profiles for each of the selected recurrence intervals were computed. The computed water-surface elevations were checked by rating curves and stage-frequency curves at Swan Lake, Greenwood, and Belzoni, Mississippi gages (FEMA 2012).

Peak discharges for the Yazoo River at Belzoni, Mississippi for floods of the selected recurrence intervals were determined from a log-Pearson Type III. reacurrence intervals were determined from a log-Pearson Type III frequency analysis as recommended in "Guidelines for Determining Flood Frequencies,' U.S. Water Resources Council Bulletin No. 17 (WRC 1976). The period of record used in this analysis was 1932-1975; however, the period of 1932-1954 was adjusted to consider the four Yazoo Basin headwater lakes in operation (FEMA 1989b).

Table 14: Roughness Coefficients

Flooding Source	Channel "n"	Overbank "n"
Zone A Streams in HUC 08030206 & 08030207	0.045-0.050	0.070-0.150
Big Sunflower River	0.040-0.055	0.070-0.130
Burton Bayou	*	*
Brown Bayou	0.045	0.070
Brown Bayou Tributary 3	0.045	0.120
Brown Bayou Tributary 4	0.045	0.070
County Ditch No. 1	0.050	0.150
County Ditch No. 3	0.045	0.120
County Ditch No. 22	0.020-0.050	0.035-0.060
County Ditch No. 22	*	*
County Ditch No. 26	0.020-0.050	0.035-0.060
County Ditch No. 26	*	*
Fisk Bayou	*	*
Fisk Bayou	*	*
Jackson Bayou	0.030-0.100	0.050-0.120
Jackson Bayou Lateral	0.020-0.030	0.025-0.050
Jackson Bayou Lateral	*	*
Lake Dawson	0.045	0.110
Steele Bayou	*	*
Silver Creek	0.050-0.100	0.030-0.120
Unnamed Tributary of Yazoo River	0.020-0.050	0.035-0.070
Unnamed Tributary of Yazoo River	*	*
Yazoo River	0.0240-0.038	0.100-0.160

*Data not available

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.

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

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

The datum conversion locations and values that were calculated for Humphreys County are provided in Table 20.

Table 20: Countywide Vertical Datum Conversion

Quadrangle Name	Quadrangle Corner	Latitude	Longitude	Conversion from NGVD29 to NAVD88 (feet)
Average Conversion from NGVD29 to NAVD88 = -0.260 feet				

Table 21: Stream-Based Vertical Datum Conversion

[Not Applicable to this Flood Risk Project]

6.2 Base Map

The FIRMs and FIS Report for this project have been produced in a digital format. The flood hazard information was converted to a Geographic Information System (GIS) format that meets FEMA's FIRM database specifications and geographic information standards. This information is provided in a digital format so that it can be incorporated into a local GIS and be accessed more easily by the community. The FIRM Database includes most of the tabular information contained in the FIS Report in such a way that the data can be associated with pertinent spatial features. For example, the information

contained in the Floodway Data table and Flood Profiles can be linked to the cross sections that are shown on the FIRMs. Additional information about the FIRM Database and its contents can be found in FEMA's *Guidelines and Standards for Flood Risk Analysis and Mapping*, www.fema.gov/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
Digital Orthophoto	Surdex Corporation	2014 2016 2017	1:6,300	Contains data used as a basemap for the study area
Digital Orthophoto	Sanborn Mapping Company	2016	N/A	Contains data used as a basemap for the study area
Political County Boundaries	Mississippi Automated Resource Information System	2007	N/A	County Boundaries
Political Incorporated Community Boundaries	US Department of Commerce, US Census Bureau	2010	N/A	Municipal boundaries inside Humphreys County boundaries
Public Land Survey System (PLSS)	Mississippi Automated Resource Information System	2008	1:24,000	Township and Range Boundaries
Surface Water Features	Federal Emergency Management Agency (FEMA)	2012	N/A	Streams, rivers, and lakes derived from NHD data
Transportation: Road	Mississippi Department of Environmental Quality	2010	N/A	Roads throughout Humphreys County
Transportation: Road	Mississippi Automated Resource Information System	2004	N/A	Roads throughout Humphreys 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 beendelineated 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 NAVD88. 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

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Vertical Accuracy	Horizontal Accuracy	Citation
Humphreys County and Incorporated Areas	All flooding sources within county	1 meter resolution Light Detection and Ranging data (LiDAR)	0.09 Meters $RMSE_z$	0.09 meter at 95% confidence level	MRD 2010

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.

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	86,200	19	156	1.3	102.6	102.6	103.3	0.7
B	86,510	138	1,036	0.2	102.6	102.6	103.3	0.7
C	87,595	138	866	0.2	102.6	102.6	103.3	0.7
D	89,900	176	1,266	0.2	102.6	102.6	103.3	0.7
E	90,070	10	92	2.2	103.8	103.8	104.5	0.7

[1] Feet above mouth

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HUMPHREYS COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: SILVER CREEK

Non-encroachment areas may be delineated where it is not possible to delineate floodways because specific channel profiles with bridge and culvert geometry were not developed. Any non-encroachment determinations for this Flood Risk Project have been tabulated for selected cross sections and are shown in Table 25. The non-encroachment width indicates the measured distance left and right (looking downstream) from the mapped center of the stream to the non-encroachment boundary based on a surcharge of 1.0 foot or less.

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

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Sunflower River		291,503	20,487	100.1[2]	160	160
Big Sunflower River		293,404	20,487	100.1[2]	214	144
Big Sunflower River		295,550	20,487	100.1[2]	155	155
Big Sunflower River	A	297,037	20,487	100.1[2]	179	187
Big Sunflower River		298,660	20,487	100.1[2]	168	168
Big Sunflower River		299,707	20,487	100.1[2]	158	186
Big Sunflower River		301,281	20,487	100.1[2]	167	167
Big Sunflower River		302,452	20,487	100.1[2]	198	168
Big Sunflower River		304,326	20,487	100.1[2]	163	217
Big Sunflower River		306,050	20,487	100.1[2]	399	178
Big Sunflower River	B	307,313	20,487	100.1[2]	238	158
Big Sunflower River		308,768	20,487	100.1[2]	173	196
Big Sunflower River		310,515	20,487	100.1[2]	165	165
Big Sunflower River		312,352	20,487	100.1[2]	397	135
Big Sunflower River		314,428	20,487	100.1[2]	269	269
Big Sunflower River	C	316,924	20,487	100.1[2]	166	221
Big Sunflower River		319,240	20,487	100.1[2]	262	162
Big Sunflower River		321,653	20,487	100.1[2]	140	263
Big Sunflower River		323,876	20,487	100.1[2]	149	234
Big Sunflower River	D	326,428	20,487	100.1[2]	149	200
Big Sunflower River		329,283	20,487	100.1[2]	215	192
Big Sunflower River		332,354	20,487	100.1[2]	152	202
Big Sunflower River		334,874	20,487	100.1[2]	178	178
Big Sunflower River		335,002	20,487	100.1	178	178
Big Sunflower River		336,144	20,487	100.2	166	166

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

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Sunflower River	E	337,620	20,487	100.4	167	167
Big Sunflower River		338,964	20,487	100.5	173	160
Big Sunflower River		339,137	20,487	101.0	173	162
Big Sunflower River		340,213	20,487	101.1	165	165
Big Sunflower River	F	342,941	20,487	101.4	198	215
Big Sunflower River		345,032	20,487	101.5	155	255
Big Sunflower River		347,446	20,487	101.7	215	196
Big Sunflower River		350,500	20,487	101.9	143	283
Big Sunflower River		354,295	20,487	102.2	264	153
Big Sunflower River	G	358,409	20,487	102.4	246	148
Big Sunflower River		361,394	20,487	102.6	209	186
Big Sunflower River		364,383	20,487	102.8	136	177
Big Sunflower River	H	367,640	20,487	103.0	196	188
Big Sunflower River		369,662	20,487	103.1	182	204
Big Sunflower River		372,759	20,487	103.3	716	202
Big Sunflower River	I	375,236	20,487	103.3	933	191
Big Sunflower River		378,177	20,487	103.4	179	124
Big Sunflower River		379,867	20,487	103.5	232	122
Big Sunflower River		381,862	20,487	103.7	160	962
Big Sunflower River		383,942	20,487	103.8	111	1185
Big Sunflower River	J	385,676	20,487	103.9	118	128

[1] Stream distance in feet above confluence with Yazoo River

[2] Elevation controlled by Steele Bayou

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.

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

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

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 www.fema.gov/floodplain-management/letter-map-amendment-loma 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 www.fema.gov/online-tutorials.

6.5.3 Letters of Map Revision

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

To obtain an application for a LOMR, visit www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/mt-2-application-forms-and-instructions 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 Humphreys 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

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 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 Humphreys 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.

- *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 Humphreys County FIRMs in countywide format was 03/15/2012.

Table 28: Community Map History

Community Name	Initial Identification Date	Initial FHBM Effective Date	FHBM Revision Date(s)	Initial FIRM Effective Date	FIRM Revision Date(s)
Belzoni, City of	02/01/1974	02/01/1974	05/28/1976	01/19/1983	03/15/2012 01/05/1989
Humphreys County, Unincorporated Areas	04/14/1978	04/14/1978	N/A	01/19/1983	TBD 03/15/2012 01/05/1989
Isola, Town of	06/21/1974	06/21/1974	N/A	07/03/1978	TBD 03/15/2012
Louise, Town of	11/29/1974	11/29/1974	N/A	05/01/1979	03/15/2012
Silver City, Town of	09/14/1979	09/14/1979	N/A	03/15/2012	03/15/2012

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
Zone A Streams in HUC 08030206 & 08030207	03/15/2012	State of Mississippi	EMA-2008-CA-5883	July 2010	Humphreys County, Unincorporated Areas
Big Sunflower River	TBD	AECOM	MS FY.11	April 2016	Humphreys County, Unincorporated Areas
Burton Bayou	01/05/1989	USACE, Vicksburg District	Interagency Agreement No. (IAA)-H-7-76, Project Order No. 6	January 1978	Belzoni, City of
Brown Bayou	TBD	AECOM	MS FY.11	April 2016	Humphreys County, Unincorporated Areas

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

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Brown Bayou Tributary 3	TBD	AECOM	MS FY.11	April 2016	Humphreys County, Unincorporated Areas
Brown Bayou Tributary 4	TBD	AECOM	MS FY.11	April 2016	Humphreys County, Unincorporated Areas
County Ditch No. 1	TBD	AECOM	MS FY.11	April 2016	Humphreys County, Unincorporated Areas
County Ditch No. 3	TBD	AECOM	MS FY.11	April 2016	Humphreys County, Unincorporated Areas
County Ditch No. 22	01/05/1989	USACE, Vicksburg District	Interagency Agreement No. (IAA)-H-7-76, Project Order No. 6	January 1978	Humphreys County, Unincorporated Areas
County Ditch No. 22	01/05/1989	USACE, Vicksburg District	Interagency Agreement No. (IAA)-H-7-76, Project Order No. 6	January 1978	Humphreys County, Unincorporated Areas
County Ditch No. 26	01/05/1989	USACE, Vicksburg District	Interagency Agreement No. (IAA)-H-7-76, Project Order No. 6	January 1978	Humphreys County, Unincorporated Areas; Belzoni, City of
County Ditch No. 26	01/05/1989	USACE, Vicksburg District	Interagency Agreement No. (IAA)-H-7-76, Project Order No. 6	January 1978	Humphreys County, Unincorporated Areas;
Fisk Bayou	01/05/1989	USACE, Vicksburg District	Interagency Agreement No. (IAA)-H-7-76, Project Order No. 6	January 1978	Humphreys County, Unincorporated Areas; Belzoni, City of
Fisk Bayou	01/05/1989	USACE, Vicksburg District	Interagency Agreement No. (IAA)-H-7-76, Project Order No. 6	January 1978	Humphreys County, Unincorporated Areas;
Jackson Bayou	01/01/1978	United States Army Corps of Engineers (USACE), Vicksburg District	Interagency Agreement No. IAA-H-7-26, Project Order No. 6	June 1977	Humphreys County, Unincorporated Areas; Isola, Town of
Jackson Bayou Lateral	01/01/1978	United States Army Corps of Engineers (USACE), Vicksburg District	Interagency Agreement No. IAA-H-7-26, Project Order No. 6	June 1977	Isola, Town of
Jackson Bayou Lateral	01/05/1989	USACE, Vicksburg District	Interagency Agreement No. (IAA)-H-7-76, Project Order No. 6	January 1978	Isola, Town of

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

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Lake Dawson	TBD	AECOM	MS FY.11	April 2016	Humphreys County, Unincorporated Areas
Steele Bayou	03/15/2012	State of Mississippi	EMA-2008-CA-5883	July 2010	Humphreys County, Unincorporated Areas
Silver Creek	11/01/1978	United States Army Corps of Engineers (USACE), Vicksburg District	Interagency Agreement No. IAA-H-7-26, Project Order No. 6	October 1977	Humphreys County, Unincorporated Areas; Louise, Town of; Silver City, Town of
Unnamed Tributary of Yazoo River	01/05/1989	USACE, Vicksburg District	Interagency Agreement No. (IAA)-H-7-76, Project Order No. 6	January 1978	Humphreys County, Unincorporated Areas
Unnamed Tributary of Yazoo River	01/05/1989	USACE, Vicksburg District	Interagency Agreement No. (IAA)-H-7-76, Project Order No. 6	January 1978	Humphreys County, Unincorporated Areas
Yazoo River	01/05/1989	USACE, Vicksburg District	Interagency Agreement No. (IAA)-H-7-76, Project Order No. 6	January 1978	Humphreys County, Unincorporated Areas; Silver City, Town of

7.2 Community Meetings

The dates of the community meetings held for this Flood Risk Project and previous Flood Risk Projects are shown in Table 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
Belzoni, City of	03/15/2012	0/18/2008	Initial COO Meeting	Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, FEMA National Service Provider, National Resource Conservation Service, USACE, Yazoo Mississippi Delta Levee Board, Humphreys County, the Town of Louise, the City of Belzoni, and the Study Contractor
		11/16/2010	Final CCO Meeting	Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, FEMA National Service Provider, Study Contractor, and Local Officials
Humphreys County, Unincorporated Areas	TBD	07/09/2013	Discovery Meeting	Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, Mississippi Department of Transpiration, Federal Emergency Management Agency Region IV, United States Geological Survey, Yazoo Mississippi Levee District, South Delta Planning Development District, Waggoner Engineering, and AECOM
		TBD	Flood Risk Review Meeting	TBD
		TBD	CCO Meeting	TBD
		TBD	Resilience Meeting	TBD

Table 30: Community Meetings (continued)

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Isola, Town of	TBD	07/09/2013	Discovery Meeting	Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, Mississippi Department of Transpiration, Federal Emergency Management Agency Region IV, United States Geological Survey, Yazoo Mississippi Levee District, South Delta Planning Development District, Waggoner Engineering, and AECOM
		TBD	Flood Risk Review Meeting	TBD
		TBD	CCO Meeting	TBD
		TBD	Resilience Meeting	TBD
Louise, Town of	03/15/2012	01/18/2008	Initial CCO Meeting	Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, FEMA National Service Provider, National Resource Conservation Service, USACE, Yazoo Mississippi Delta Levee Board, Humphreys County, the Town of Louise, the City of Belzoni, and the Study Contractor
		11/16/2010	Final CCO Meeting	Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, FEMA National Service Provider, Study Contractor, and Local Officials
Silver City, Town of	03/15/2012	0/18/2008	Initial COO Meeting	Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, FEMA National Service Provider, National Resource Conservation Service, USACE, Yazoo Mississippi Delta Levee Board, Humphreys County, the Town of Louise, the City of Belzoni, and the Study Contractor
		11/16/2010	Final CCO Meeting	Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, FEMA National Service Provider, Study Contractor, and Local Officials

SECTION 8.0 – ADDITIONAL INFORMATION

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

The additional data that was used for this project includes the FIS Report and FIRM that were previously prepared for Humphreys County, City of Belzoni, Town of Isola, and the Town of Louise.

Table 31 is a list of the locations where FIRMs for Humphreys 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
Belzoni, City of	City Hall 102 West Jackson Street	Belzoni	MS	39038
Humphreys County, Unincorporated Areas	Humphreys County Courthouse 102 Castleman Street	Belzoni	MS	39038
Isola, Town of	Town Hall 203 Julia St.	Isola	MS	38754
Louise, Town of	Town Hall 1426 Main Street	Louise	MS	39097
Silver City, Town of	Town Hall 125 Front Street	Silver City	MS	39116

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	www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/engineering-library
NFIP website	www.fema.gov/national-flood-insurance-program
NFHL Dataset	msc.fema.gov
FEMA Region IV	Federal Regional Center 3003 Chamblee Tucker Road Atlanta, GA 30341 (770) 220-5200
Other Federal Agencies	
USGS website	www.usgs.gov
Hydraulic Engineering Center website	www.hec.usace.army.mil
State Agencies and Organizations	
State NFIP Coordinator	Stacey D. Ricks, CFM Mississippi Emergency Management Agency PO Box 5644 Pearl, MS 39208 Office: (601) 933-6605 Fax: (601) 933-6805 sricks@mema.ms.gov
State GIS Coordinator	Position Currently Vacant MFMMI Program Director Administrator of the MS Coordinating Council for Remote and Geographic Information Systems P.O. Box 20307 Jackson, MS 39289-1307

SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES

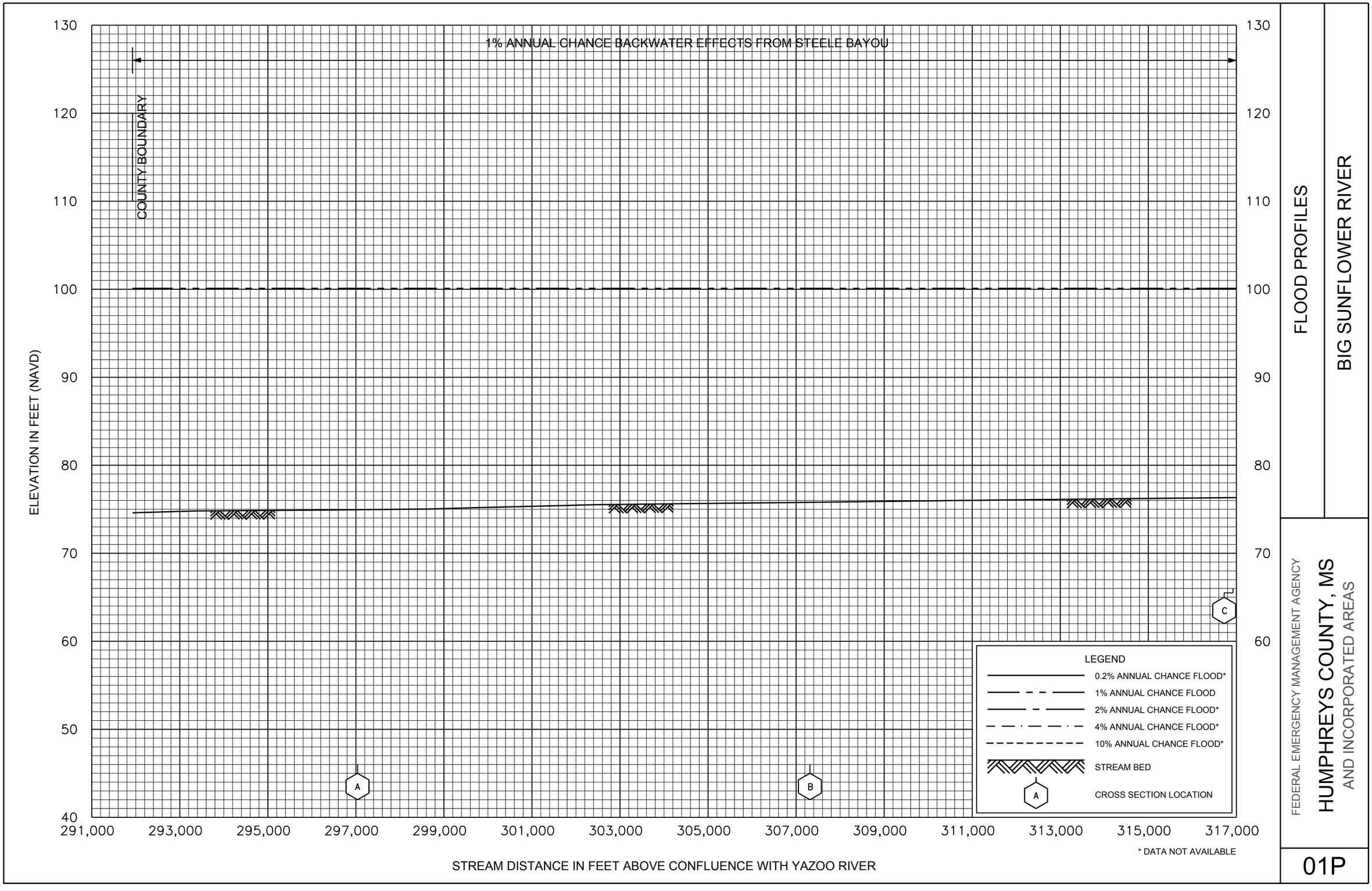
Table 33 includes sources used in the preparation of and cited in this FIS Report as well as additional studies that have been conducted in the study area.

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
Chow 1964	McGraw-Hill	Handbook of Applied Hydrology	Ven Te Chow,	New York	1964	
USACE 1959b	U.S. Army Corps of Engineers	Flood Hydrograph Analyses and Computations, EM1110-1-1405			1959	
FEMA 1979	Federal Emergency Management Agency	Flood Insurance Study, Leflore County, Mississippi, Unincorporated Areas		Washington, D.C.	May 1979	
FEMA 1978 Jan	Federal Emergency Management Agency	Flood Insurance Study, Town of Isola, Humphreys County, Mississippi		Washington, D.C.	January 1978	
FEMA 1978 Nov	Federal Emergency Management Agency	Flood Insurance Study, Town of Louise, Humphreys County, Mississippi		Washington, D.C.	November 1978	
FEMA 1989a	Federal Emergency Management Agency	Flood Insurance Study, Humphreys County, Mississippi, Unincorporated Areas		Washington, D.C.	January 5, 1989	
FEMA 1989b	Federal Emergency Management Agency	Flood Insurance Study, City of Belzoni, Humphreys County, Mississippi		Washington, D.C.	January 5, 1989	
FEMA 2012	Federal Emergency Management Agency	Flood Insurance Study, Humphreys County, Mississippi and Incorporated Areas		Washington, D.C.	March 15, 2012	
USDC 1961	U.S. Department of Commerce	Technical Paper No. 40, Rainfall Frequency Atlas of the United States		Washington, D.C.	May 1961	
USACE 1959a	U.S. Army Corps of Engineers, Vicksburg District	General Design Memorandum, Yazoo Backwater Project, Yazoo Basin Mississippi, Design Memorandum No. 1			December 1959	

Table 33: Bibliography and References (continued)

Citation in this FIS	Publisher / Issuer	Publication Title, "Article," Volume, Number, etc.	Author / Editor	Place of Publication	Publication Date / Date of Issuance	Link
MRD 2010	Mississippi River Delta	Mississippi River Delta LiDAR			August 2, 2010	
USACE 1973a	U.S. Army Corps of Engineers, Hydrologic Engineering Center	HEC-1, Flood Hydrograph Package, User's Manual, Version 2.0		Davis, California	January 1973	
USACE 1976	U.S. Army Corps of Engineers, Hydrologic Engineering Center	HEC-2, Computation of Water Surface Profiles, Users Manual of HEC-2 Computer Program 723X6L202A		Davis, California	November 1976	
USACE 1973b	U.S. Army Corps of Engineers, Hydrologic Engineering Center	HEC-2N, Water Surface Profiles, Generalized Computer Program		Davis, California	June 1973 updated August 1977	
USACE 2008	U.S. Army Corps of Engineers, Hydrologic Engineering Center	HEC-RAS 4.0.0, River Analysis System, Version 4.0.0, Computer Software		Davis, California	March 2008	
USACE 2010	U.S. Army Corps of Engineers, Hydrologic Engineering Center	HEC-RAS 4.1.0, River Analysis System, Version 4.1.0, Computer Software		Davis, California	January 2010	
USGS 1976	U.S. Department of Interior, Geological Survey	Flood Frequency of Mississippi Streams	B.E. Colson and J.W. Hudson	Jackson, Mississippi	1976	
USACE 1971	U.S. Army Corps of Engineers, Vicksburg District	Special Flood Hazard Information Report, Yazoo River, Big Sunflower River and Tributaries in Humphreys County, Mississippi			May 1971	
WRC 1976	U.S. Water Resource Council	A Uniform Technique for Determining Flood Flow Frequency, Bulletin No. 17			March 1976	



FLOOD PROFILES

BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

HUMPHREYS COUNTY, MS
AND INCORPORATED AREAS

01P

1% ANNUAL CHANCE BACKWATER EFFECTS FROM STEELE BAYOU

WEIR

STATE HWY 12

ELEVATION IN FEET (NAVD)

130
120
110
100
90
80
70
60
50
40

317,000 319,000 321,000 323,000 325,000 327,000 329,000 331,000 333,000 335,000 337,000 339,000 341,000 343,000

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH YAZOO RIVER

D E F

LEGEND

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

* DATA NOT AVAILABLE

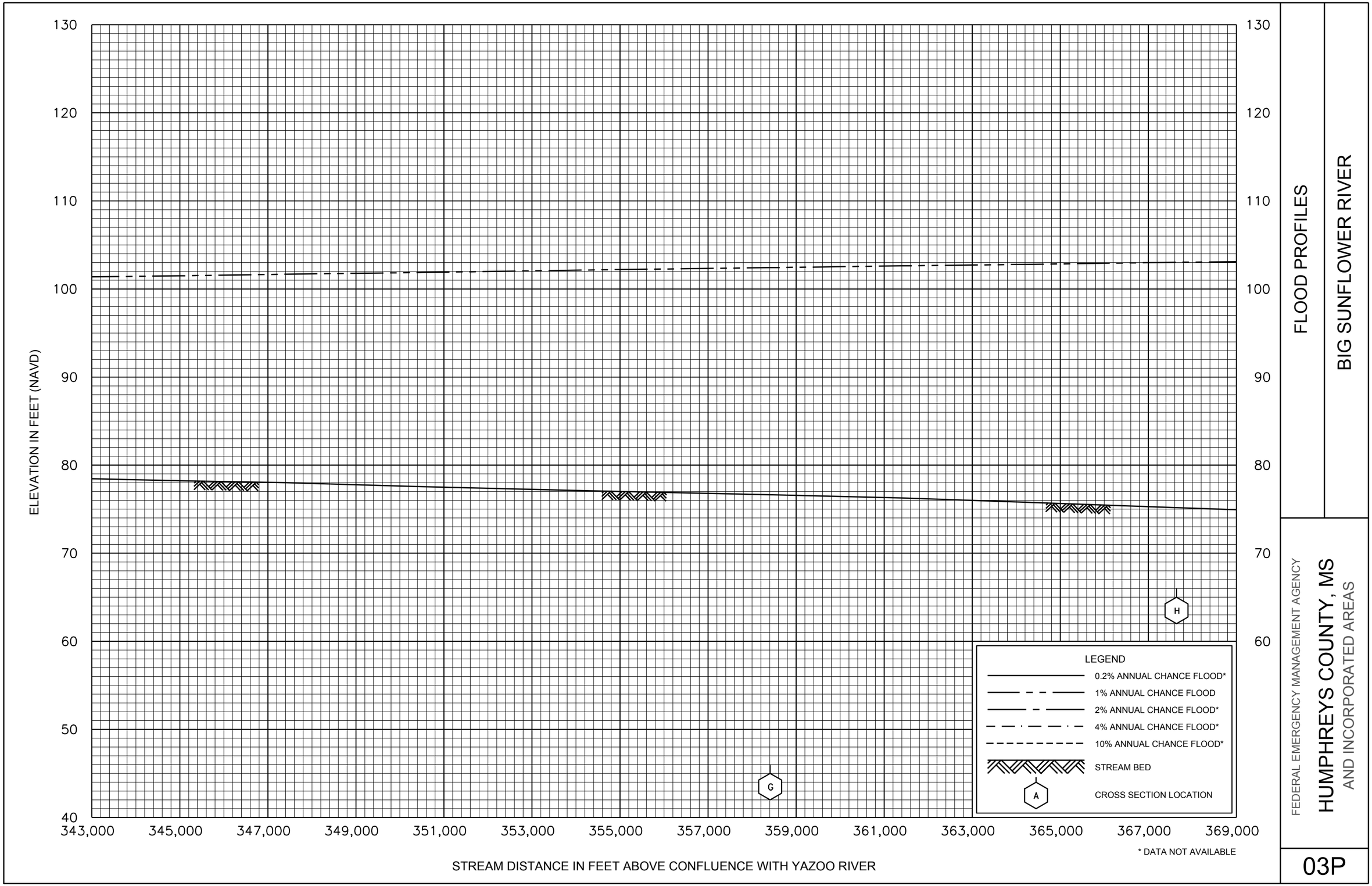
FLOOD PROFILES

BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

HUMPHREYS COUNTY, MS
AND INCORPORATED AREAS

02P



* DATA NOT AVAILABLE

FLOOD PROFILES

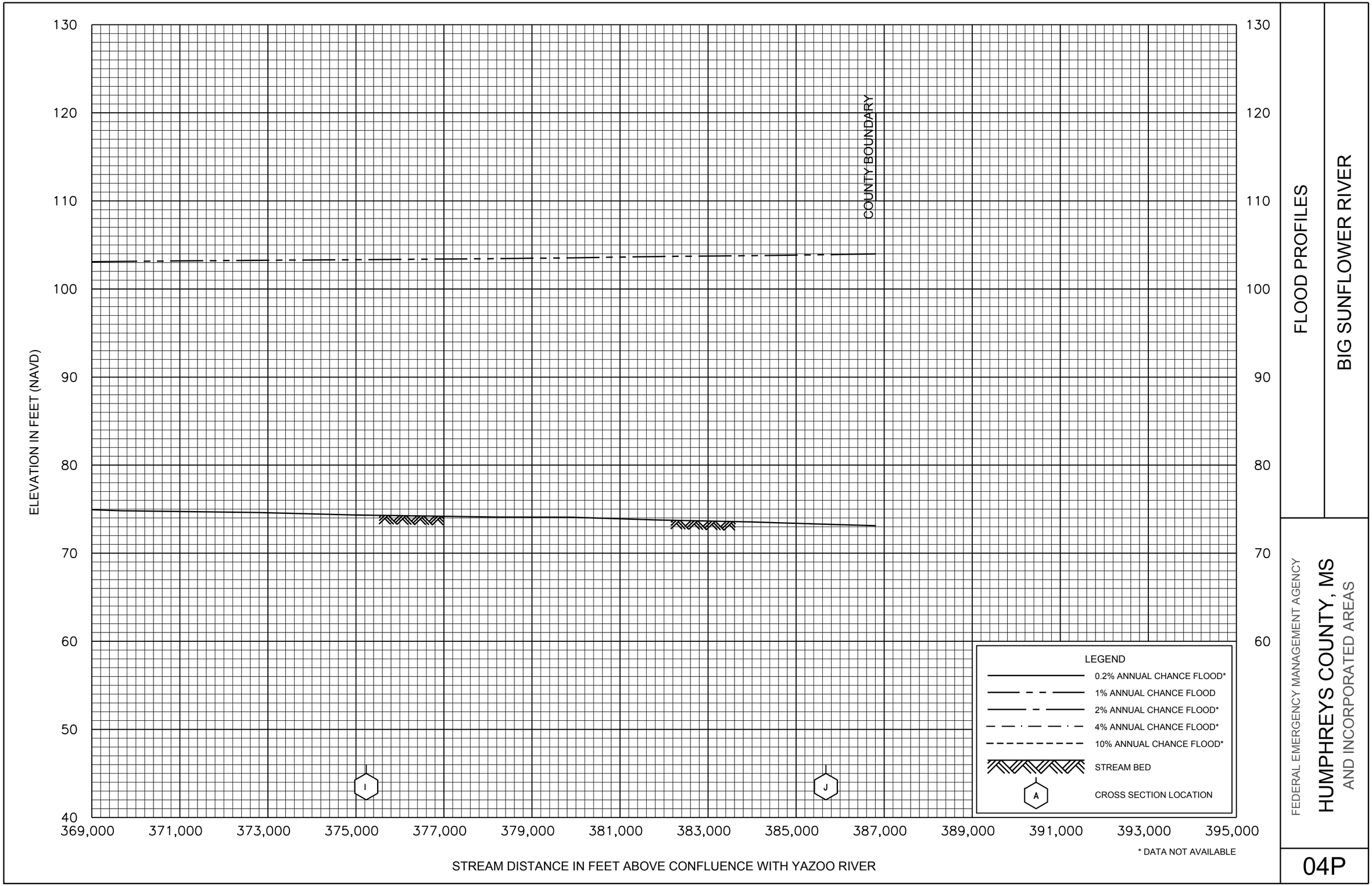
BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

HUMPHREYS COUNTY, MS

AND INCORPORATED AREAS

03P



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