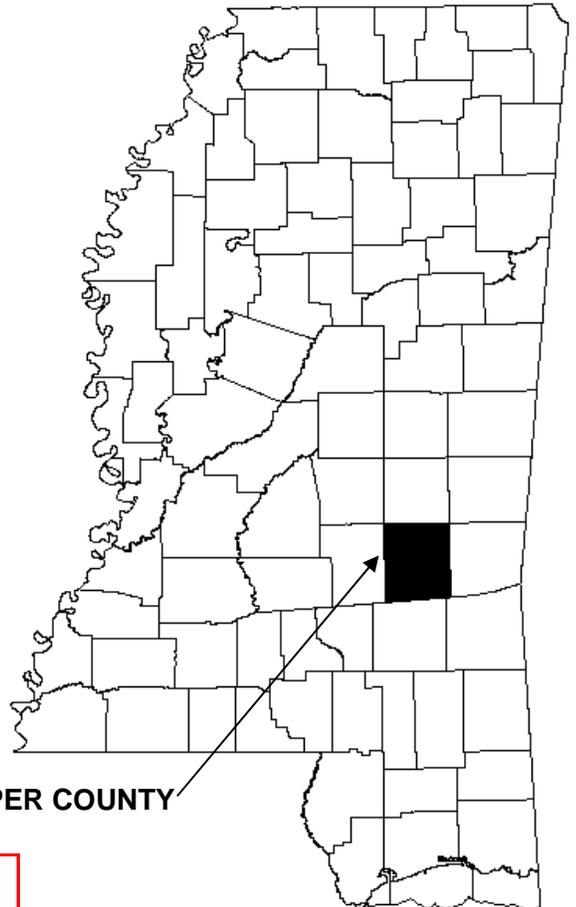


FLOOD INSURANCE STUDY



JASPER COUNTY, MISSISSIPPI AND INCORPORATED AREAS

Community Name	Community Number
BAY SPRINGS, TOWN OF	280087
HEIDELBERG, TOWN OF	280088
JASPER COUNTY (UNINCORPORATED AREAS)	280302
LOUIN, TOWN OF	280316
MONTROSE, VILLAGE OF	280243



JASPER COUNTY

PRELIMINARY

AUG 20 2010



Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
28061CV000A

**NOTICE TO
FLOOD INSURANCE STUDY USERS**

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

This preliminary Flood Insurance Study contains profiles presented at a reduced scale to minimize reproduction costs. All profiles will be included and printed at full scale in the final published report.

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

<u>Old Zone</u>	<u>New Zone</u>
A1 through A30	AE
B	X
C	X

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

Initial Countywide FIS Effective Date – XXXX YY ZZZZ

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**FLOOD INSURANCE STUDY
JASPER COUNTY, MISSISSIPPI AND INCORPORATED AREAS**

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study (FIS) revises and updates information on the existence and severity of flood hazards in the geographic area of Jasper County, Mississippi, including the Towns of Bay Springs, Heidelberg, and Louin; the Village of Montrose; and the unincorporated areas of Jasper County (referred to collectively herein as Jasper County), and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood-risk data for various areas of the community that will be used to establish actuarial flood insurance rates and to assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

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

The Digital Flood Insurance Rate Map (DFIRM) and FIS Report for this countywide study have been produced in digital format. Flood hazard information was converted to meet the Federal Emergency Management Agency (FEMA) DFIRM database specifications and Geographic Information and is provided in a digital format so that it can be incorporated into a local GIS and be accessed more easily by the community.

1.2 Authority and Acknowledgments

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

The hydrologic and hydraulic analyses for this study were performed by the State of Mississippi for the Federal Emergency Management Agency (FEMA), under Contract No. EMA-2008-CA-5883. This study was completed in June 2010.

Floodplain boundaries for approximate study streams were delineated based on a Digital Terrain Model (DTM) and contours. The DTM was compiled at a scale 400 feet from imagery with a 2 foot ground sample distance (GSD) from a previous statewide project. Imagery acquisition occurred January through March, 2006 and January, 2007. The DTM was developed by Fugro EarthData, Inc. and Mississippi Geographic Information, LLC with cooperation from Mississippi Department of Environmental Quality (MDEQ), NOAA Coastal Services Center, Mississippi DOT, Mississippi State University, and Mississippi Coordinating Council for Remote Sensing and GIS. The DTM was delivered as mass points and breaklines and supports 5 foot ASPRS Class 2 contours.

Base map information shown on this Flood Insurance Rate Map (FIRM) was provided in digital format by the State of Mississippi and the U.S. Census Bureau. The digital orthoimagery was photogrammetrically compiled at a scale of 1:400 from aerial photography dated March 2006.

The coordinate system used for the production of DFIRM is Mississippi State Plane East (FIPS 2301), reference to the North American Datum of 1983 and the GRS80. Distance units were measured in United States (U.S.) feet.

1.3 Coordination

An initial Consultation Coordination Officer (CCO) meeting (also referred to as the Scoping meeting) is held with representatives of the communities, FEMA, and the study contractors to explain the nature and purpose of the FIS and to identify the streams to be studied. A final CCO meeting (also referred to as the Preliminary DFIRM Community Coordination, or PDCC, meeting) is held with representatives of the communities, FEMA, and the study contractors to review the results of the study.

For this countywide FIS, an initial CCO meeting was held on September 16, 2008, and attended by representatives of FEMA, MDEQ, Mississippi Emergency Management Agency (MEMA), Jasper County, and the study contractor, Mississippi Geographic Information, LLC.

The final CCO meeting was held on _____ to review and accept the results of this FIS. Those who attended this meeting included representatives of MEMA, MDEQ., the Study Contractor, FEMA, and the communities. All problems raised at that meeting have been addressed in this study.

2.0 **AREA STUDIED**

2.1 Scope of Study

This FIS covers the geographic area of Jasper County, Mississippi, including the incorporated communities listed in Section 1.1. The scope and methods of this study were proposed to, and agreed upon, by FEMA, Panola County, and Mississippi Geographic Information, LLC.

This countywide FIS includes approximately 5.1 miles of enhanced approximate study; approximately 2.8 miles of new approximate study; and refinement and re-establishment of approximately 53.4 miles of effective Zone A.

Two types of analysis were used to develop this FIS report: enhanced approximate and approximate methods analyses. The scope and methods of study for each stream were proposed to, and agreed upon, by FEMA, Jasper County, and Mississippi Geographic Information, LLC.

The areas studied by new enhanced approximate methods were selected for areas having low to moderate development potential or flood hazards. All flooding sources studied by enhanced approximate methods presented in Table 1, "Flooding Sources Studied by Enhanced Approximate Methods" were new studies for this countywide FIS.

Table 1: Flooding Sources Studied by Enhanced Approximate Methods

Flooding Source	Reach Length (miles)	Study Limits
Beaver Creek	1.3	From the approximately 1.1 miles downstream of Mississippi State Highway 528 to approximately 1,430 feet upstream of Mississippi State Highway 528
Beaver Creek Tributary 3	0.9	From the confluence with Beaver Creek to approximately 690 feet upstream of Walnut Street
Beaver Creek Tributary 4	0.7	From the confluence with Beaver Creek to approximately 790 feet upstream of Mississippi State Highway 528
Etehom Creek Tributary 3	2.2	From the confluence with Etehom Creek to approximately 750 feet upstream of 5 th Street

2.2 Community Description

Jasper County is located in southeast Mississippi. The county is bordered by Jones County to the south; Wayne County to the southeast; Smith County to the west; Newton County to the north; and Clarke County to the east. The county has a total land area of 676 square miles and an estimated 2009 population of 17,940 (Reference 1). The Town of Bay Springs is the county seat. The county’s major thoroughfares are Interstate 59; US Highway 11; and Mississippi State Highways 15 and 18.

Major drainage for Jasper County is provided by West Tallahala Creek, Tallahala Creek, Bogue Homo, Tallahomo Creek, Etehom Creek, and Souinlovey Creek.

2.3 Principal Flood Problems

The principal flood problems are primarily due to the flooding of streams providing the major drainage for Jasper County.

2.4 Flood Protection Measures

Flood protection measures are not known to exist within the study area.

3.0 ENGINEERING METHODS

For the flooding sources studied by detailed methods in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent-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 1-percent-annual-chance flood in any 50-year period is approximately 40 percent (4 in 10); for any 90 year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

For this countywide study, hydrologic analyses were carried out to establish peak discharge-frequency relationships for each flooding source studied by enhanced approximate and approximate methods affecting the community. Discharges for the 1-percent-annual-chance recurrence interval for all new enhanced approximate and approximate study streams in Jasper County were determined using the Rural-East Region USGS regression equation for Mississippi found in USGS Water-Resources Investigations Report 91-4037 (Reference 2).

Adjustments for urbanization effects were made according to the methodology presented by the USGS in “Flood Characteristics of Urban Watersheds in the United States” (Reference 3).

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals.

For this countywide study, water-surface profiles for approximate studies were computed through the use of the USACE HEC-RAS version 3.1.2 computer program (Reference 4). Water-surface profiles for enhanced approximate studies were computed through the use of the USACE HEC-RAS version 4.0 computer program (Reference 5). Water surface profiles were produced for the 1-percent-annual-chance storms for enhanced approximate and approximate studies.

The enhanced approximate and approximate study methodology used the computer program Watershed Information SystEm (WISE) as a preprocessor to HEC-RAS (Reference 6). WISE combined geo-referenced data from the terrain model and miscellaneous shapefiles (such as streams and cross sections). Tools within WISE allowed the engineer to verify that the cross-section data was acceptable. The WISE program was used to generate the input data file for HEC-RAS. Then HEC-RAS was used to determine the flood elevation at each cross section of the modeled stream. No floodway was calculated for streams studied by approximate methods.

The hydraulic analyses for this study were based on unobstructed flow.

Floodplains were mapped to include backwater effects that govern each flooding source near its downstream extent. Floodplains were reviewed for accuracy and adjusted as necessary.

3.3 Vertical Datum

All FIS reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum used for newly

created or revised FIS reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD). With the completion of the North American Vertical Datum of 1988 (NAVD), many FIS reports and FIRMs are now prepared using NAVD as the referenced vertical datum.

Flood elevations shown in this FIS report and on the FIRM are referenced to the NAVD. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. Some of the data used in this revision were taken from the prior effective FIS reports and FIRMs and adjusted to NAVD88. The datum conversion factor from NGVD29 to NAVD88 in Jasper County is +0.04 feet.

For additional information regarding conversion between the NGVD and NAVD, visit the National Geodetic Survey website at www.ngs.noaa.gov, or contact the National Geodetic Survey at the following address:

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

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

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

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

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

4.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1- percent-annual chance flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent-annual-chance flood is employed to indicate additional areas of flood risk in the county, though none are mapped in Jasper County.

For each stream studied by enhanced approximate and approximate methods, the 1-percent-annual-chance floodplain boundaries have been delineated using topographic data developed from the digital terrain model described in Section 1.2. For the streams studied by approximate methods, the 1 percent-annual-chance floodplain boundaries are shown on the FIRM (Exhibit 1). On this map, the 1 percent-annual-chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A). Small areas within the floodplain boundaries may lie above the flood elevations, but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

4.2 Floodways

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

The floodways presented in this study were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. The computed floodways are shown on the FIRM (Exhibit 1). In cases where the floodway and 1-percent-annual-chance floodplain boundaries are either close together or collinear, only the floodway boundary is shown.

No floodways were computed for streams studied by enhanced approximate and approximate methods. Along streams where floodways have not been computed, the community must ensure that the cumulative effect of development in the floodplains will not cause more than a 1.0-foot increase in the base flood elevations at any point within the county.

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

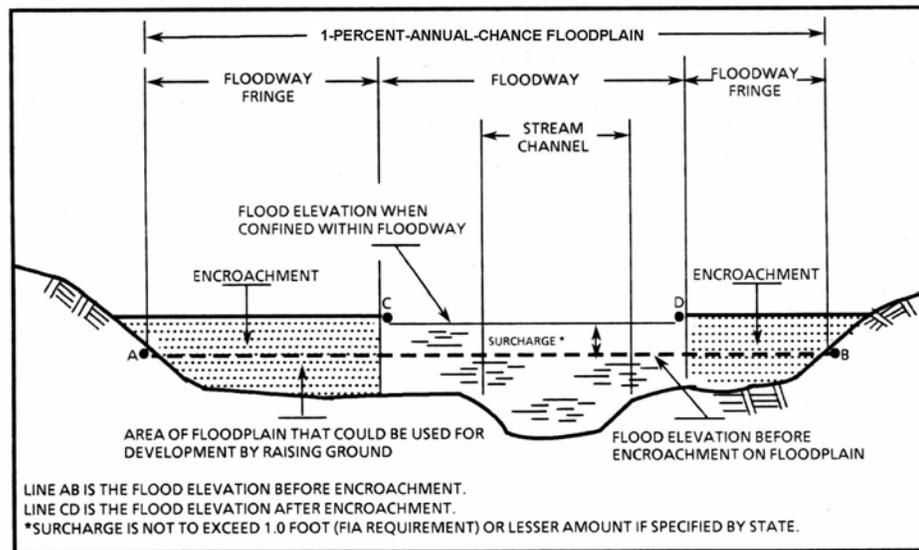


Figure 1. Floodway Schematic

5.0 INSURANCE APPLICATION

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

Zone A

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

Zone X

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

6.0 FLOOD INSURANCE RATE MAP

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

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

For floodplain management applications, the map shows by tints, screens, and symbols, the 1- and

0.2-percent-annual-chance floodplains, floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

The countywide FIRM presents flooding information for the entire geographic area of Jasper County, Mississippi. Previously, FIRMs were prepared for each incorporated community and the unincorporated areas of the county identified as flood-prone. This countywide FIRM also includes flood-hazard information that was presented separately on Flood Boundary and Floodway Maps (FBFMs), where applicable. Historical data relating to the maps prepared for each community are presented in Table 2, "Community Map History."

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Bay Springs, Town of	August 1, 1975	None	June 17, 1986	None
Heidelberg, Town of	June 28, 1974	January 7, 1977 February 1, 1980	January 1, 1987	None
Jasper County (Unincorporated Areas)	February 24, 1978	None	December 1, 2003	None
Louin, Town of	October 27, 1978	None	N/A	None
Montrose, Village of	N/A	None	N/A	None

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

**JASPER COUNTY, MS
AND INCORPORATED AREAS**

COMMUNITY MAP HISTORY

7.0 OTHER STUDIES

FIS reports have been published or are currently in progress for Smith, Newton, Clarke, Jones, and Wayne Counties, Mississippi (References 7-11). The Jasper County study is in agreement with these studies.

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

8.0 LOCATION OF DATA

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

9.0 BIBLIOGRAPHY AND REFERENCES

1. U.S. Census 2000, <http://quickfacts.census.gov/qfd/states/28/28061.html> accessed June 2010.
2. U.S. Department of the Interior, Geological Survey, Flood Characteristics of Mississippi Streams, Water-Resources Investigations Report 91-4037, Jackson, Mississippi, 1991.
3. Sauer, V.B., et al. U.S. Department of the Interior, Geological Survey, Flood Characteristics of Urban Watersheds in the United States, Water-Supply Paper 2207. Alexandria, Virginia. 1983.
4. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-RAS River Analysis System, Version 3.1.2, Davis, California, April 2004.
5. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-RAS River Analysis System, Version 4.0, Davis, California, April 2008.
6. Watershed Concepts, a Division of Hayes, Seay, Mattern & Mattern. *Watershed Information System (WISE) Computer Software, v.4.1.0 beta*. 2008.
7. Federal Emergency Management Agency, Flood Insurance Study, Smith County And Incorporated Areas, Mississippi, Washington, D.C., December 3, 1993.
8. Federal Emergency Management Agency, Flood Insurance Study, Newton County (Unincorporated Areas), Mississippi, Washington, D.C., July 1979.
9. Federal Emergency Management Agency, Flood Insurance Study, Clarke County (Unincorporated Areas), Mississippi, Washington, D.C., August 16, 1988.
10. Federal Emergency Management Agency, Flood Insurance Study, Jones County And Incorporated Areas, Mississippi, Washington, D.C., September 29, 2010.
11. Federal Emergency Management Agency, Flood Insurance Study, Wayne County And Incorporated Areas, Mississippi, Washington, D.C., August 16, 1988.