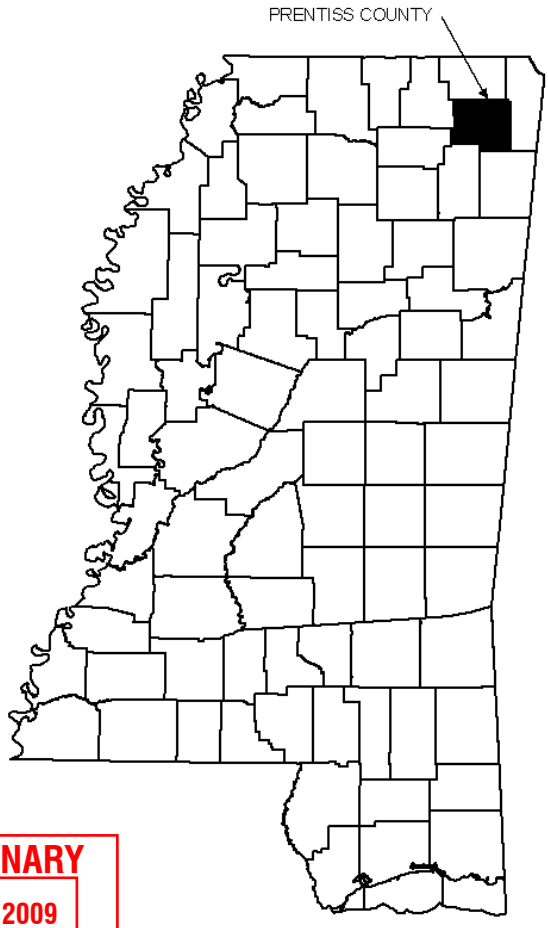
FLOOD INSURANCE STUDY



PRENTISS COUNTY, MISSISSIPPI
AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
BOONEVILLE, CITY OF	280135
JUMPERTOWN, TOWN OF*	280349
MARIETTA, VILLAGE OF*	280350
PRENTISS COUNTY (UNINCORPORATED AREAS)	280279

*Non-floodprone community

PRELIMINARY

AUG 21 2009

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
28117CV000A

NOTICE TO
FLOOD INSURANCE STUDY USERS

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

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

Initial Countywide FIS Effective:

TABLE OF CONTENTS

TABLE OF CONTENTS – continued

FLOOD INSURANCE STUDY
PRENTISS COUNTY, MISSISSIPPI AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study revises and updates information on the existence and severity of flood hazards in the geographic area of Prentiss County, Mississippi, including the City of Booneville; the Town of Jumpertown; the Village of Marietta; and the unincorporated areas of Prentiss County (referred to collectively herein as Prentiss 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.

Please note that the City of Baldwyn is geographically located in Prentiss and Lee counties. The City of Baldwyn is not included in this FIS report. See the separately published Lee County FIS report and Flood Insurance Rate Map (FIRM) for flood hazard information.

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

1.2 Authority and Acknowledgments

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

This FIS was prepared to include the unincorporated areas and incorporated communities within Prentiss County in a countywide format.

For this countywide FIS, new hydrologic and hydraulic analyses were prepared by AECOM for FEMA, under Contract No. EMA-2006-CA-5617. This study was completed in April 2009.

Base map information shown on the FIRM was provided in digital format by the State of Mississippi. The digital orthoimagery was photogrammetrically compiled at a scale of 1:400 from aerial photography dated March 2006.

The digital FIRM was produced using the Mississippi State Plane Coordinate system, East Zone, FIPS ZONE 2301. The horizontal datum was the North American Datum of 1983, GRS80 spheroid. Distance units were measured in U.S. feet.

1.3 Coordination

An initial Consultation Coordination Officer's (CCO) meeting is held with representatives from FEMA, the community, and the study contractor to explain the nature and purpose of a

FIS, and to identify the streams to be studied by detailed methods. A final CCO meeting is held with representatives from FEMA, the community, and the study contractor to review the results of the study.

For this countywide FIS, the project Scoping Meeting was held on January 12, 2007 in Booneville, MS. Attendees for these meetings included representatives from the Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, FEMA National Service Provider, Prentiss County, and the Study Contractor. Coordination with county officials and Federal, State, and regional agencies produced a variety of information pertaining to floodplain regulations, available community maps, flood history, and other hydrologic data. All problems raised in the meetings have been addressed.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of Prentiss County, Mississippi, including the incorporated communities listed in Section 1.1.

The study of flooding caused by Bay Springs Lake was completed in March 1989 in a detail analysis conducted by the Tennessee Valley Authority (TVA).

An enhanced approximate study was performed along Brush Creek, Kings Creek, Kings Creek Tributary 1, Kings Creek Tributary 2, Mile Branch, Mile Branch Tributary 1, Mile Branch Tributary 1A, Mile Branch Tributary 2, Mile Branch Tributary 3, Mile Branch Tributary 4, Tennessee Tombigbee Waterway, Tuscumbia River Canal, Tuscumbia River Canal Tributary 1, and Tuscumbia River Canal Tributary 2.

For this FIS, Table 1 lists the streams which were studied by enhanced approximate studied methods.

Table 1. Scope of Study

Flooding Source	Limits of New Enhanced Approximate Study
Brush Creek	From the confluence with Tuscumbia River Canal to approximately 1.5 miles upstream of County Road 1101
Kings Creek	From the confluence with Tuscumbia River Canal to approximately 0.7 mile upstream of U.S. Highway 45
Kings Creek Tributary 1	From the confluence with Kings Creek to approximately 0.9 mile upstream of U.S. Highway 45
Kings Creek Tributary 2	From the confluence with Kings Creek to approximately 740 feet upstream of North 2nd Street

Table 1. Scope of Study (continued)

Flooding Source	Limits of New Enhanced Approximate Study
Mile Branch	From the confluence with Tuscumbia River Canal to approximately 0.4 mile upstream of Hatchie Street
Mile Branch Tributary 1	From the confluence with Mile Branch to approximately 1,300 feet upstream of Hare Road
Mile Branch Tributary 1A	From the confluence with Mile Branch Tributary 1 to approximately 0.4 mile upstream of the confluence with Mile Branch Tributary 1
Mile Branch Tributary 2	From the confluence with Mile Branch to approximately 1,420 feet upstream of Jacinto Road
Mile Branch Tributary 3	From the confluence with Mile Branch to approximately 770 feet upstream of South Bryant Street
Mile Branch Tributary 4	From the confluence with Mile Branch to approximately 850 feet upstream of Hatchie Street
Tennessee Tombigbee Waterway	From the G.V. Montgomery Dam to the county line
Tuscumbia River Canal	From approximately 0.5 mile upstream of County Road 1120 to approximately 460 feet upstream of U.S. Highway 45
Tuscumbia River Canal Tributary 1	From the confluence with Tuscumbia River Canal to approximately 270 feet upstream of Oak Haven Circle
Tuscumbia River Canal Tributary 2	From the confluence with Tuscumbia River Canal to approximately 20 feet downstream of U.S. Highway 45

Approximate analyses were used to study those areas having a low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon, by FEMA, Prentiss County, and the Study Contractor.

2.2 Community Description

Prentiss County, and its county seat, the City of Booneville, are located in northeast Mississippi. The county is bounded on the north by Alcorn County, on the east by Tishomingo County, on the south by Itawamba and Lee Counties, and on the west by Tippah and Union Counties. State Highways 4, 30, and 145, U.S. Highway 45, along with the Kansas City Southern Railroad are the primary transportation routes serving the county. The

land area of Prentiss County covers approximately 415 square miles (U.S. Census Bureau, 2009).

The 2006 population of Prentiss County was reported to be 25,615 (U.S. Census Bureau, 2009).

The climate in Prentiss County is characterized by hot and humid summers, and short mild winters. Temperatures vary from a mean low of 40 degrees Fahrenheit (°F) in January to a mean high of 81°F in July. The annual precipitation averages 56 inches (National Weather Service, 2009).

2.3 Principal Flood Problems

The principal flood problems in Prentiss County are primarily due to the overflow of Tennessee River, Tuscumbia River, Dry Creek, and Twentymile Creek.

2.4 Flood Protection Measures

There are no natural or manmade flood protection measures in Prentiss County.

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 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 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 on the Tennessee-Tombigbee Waterway within Prentiss County are controlled by Pickwick Dam in Hardin County, Tennessee and Bay Springs Lake Dam in Tishomingo County, Mississippi (FEMA, 1993).

Discharges for the 1-percent-annual-chance recurrence interval for all new enhanced approximate and approximate study streams in Prentiss County were determined using the Rural-East Region USGS regression equations for Mississippi as described in the USGS Water-Resources Investigations report 94-4002 (USGS, 1993).

Drainage areas along streams were determined using a flow accumulation grid developed from the USGS 10 meter digital elevation models and corrected National Hydrologic Data (NHD) stream coverage. Flow points along stream centerlines were calculated using the regression equations in conjunction with accumulated area for every 10 percent increase in flow along a particular stream.

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied by enhanced approximate and approximate methods were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. The Tennessee-Tombigbee Waterway within Prentiss County is controlled by backwater from Bay Springs Lake Dam and Montgomery Dam (FEMA, 1993).

Water-surface profiles were computed for enhanced approximate and approximate study streams through the use of the U.S. Army Corps of Engineers HEC-RAS version 3.1.2 computer program (USACE, 2004). 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 Watershed Information SystEm (WISE) (Watershed Concepts, 2008) as a preprocessor to HEC-RAS. 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 1.0-percent and 0.2-percent annual chance flood elevations for Bay Springs Lake are presented in Table 2 – Summary of Stillwater Elevations.

Table 2. Summary of Stillwater Elevations

FLOODING SOURCE AND LOCATION	PEAK ELEVATION (FEET NGVD) 1-Percent Chance	0.2-Percent Chance
TENNESEE-TOMBIGBEE WATERWAY (BAY SPRINGS LAKE)		
Within community	420.2	421.5

The hydraulic analyses for this study are based only on the effect on unobstructed flow. The flood elevations as shown on the profiles are thus considered valid only if hydraulic structures in general remain unobstructed and do not fail.

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.

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

Bench marks cataloged by the NGS and entered into the NSRS vary widely in vertical stability classification. NSRS vertical stability classifications are as follows:

- Stability A: Monuments of the most reliable nature, expected to hold position/elevation well (e.g., mounted in bedrock)
- Stability B: Monuments which generally hold their position/elevation well (e.g., concrete bridge abutment)
- Stability C: Monuments which may be affected by surface ground movements (e.g., concrete monument below frost line
- Stability D: Mark of questionable or unknown vertical stability (e.g., concrete monument above frost line, or steel witness post)

In addition to NSRS bench marks, the FIRM may also show vertical control monuments established by a local jurisdiction; these monuments will be shown on the FIRM with the approximate designations. Local monuments will only be placed on the FIRM if the community has requested that they be included, and if the monuments meet the aforementioned NSRS inclusion criteria.

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

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

3.3 Vertical Datum

All FIS reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum in use for newly created or revised FIS reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD 29). With the finalization of the North American Vertical Datum of 1988 (NAVD 88), many FIS reports and FIRMs are being prepared using NAVD 88 as the referenced vertical datum. Flood elevations shown in this FIS report and on the FIRM are referenced to NAVD 88.

For more information on NAVD 88, see Converting the National Flood Insurance Program to the North American Vertical Datum of 1988, FEMA Publication FIA-20/June1992, or contact the Vertical Network Branch, National Geodetic Survey, Coast and Geodetic Survey, National Oceanic and Atmospheric Administration, Rockville, Maryland 20910 (Internet address http://www.ngs.noaa.gov).

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. To assist in this endeavor, each FIS report provides 1-percent-annual-chance floodplain data, which may include a combination of the following: 10-, 2-, 1-, and 0.2-percent-annual-chance flood elevations; delineations of the 1- and 0.2-percent-annual-chance floodplains; and a 1-percent-annual-chance floodway. This information is presented on the FIRM and in many components of the FIS report, including Flood Profiles, Floodway Data tables, and Summary of Stillwater 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 community. For each stream studied by detailed methods, the 1 and 0.2-percent-annual-chance floodplain boundaries have been delineated using the flood elevations determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at a scale of 1" = 400' with a contour interval of 5 feet (USGS, 1984).

For each stream studied by approximate methods, the 1-percent-annual-chance floodplain boundaries have been delineated using interpolation of 5-foot interval topographic mapping developed from USGS 10 meter digital elevation models (DEM) (USGS, 1984).

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

For the streams studied by approximate methods, only the 1-percent-annual-chance floodplain boundary is shown on the Flood Insurance Rate Map (Exhibit 1).

4.2 Floodways

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

agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway studies.

Encroachment into areas subject to inundation by floodwaters having hazardous velocities aggravates the risk of flood damage and heightens potential flood hazards by further increasing velocities. To reduce the risk of property damage in areas where the stream velocities are high, the community may wish to restrict development in areas outside the floodway.

Near the mouths of streams studied in detail, floodway computations are made without regard to flood elevations on the receiving water body.

Along streams where floodways have not been computed, the community must ensure that the cumulative effect of development in the floodplain will not cause more than a 1.0-foot increase in the BFEs at any point within the community.

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

No floodways were computed for streams studied by approximate methods because of limitations in the approximate study methodology.

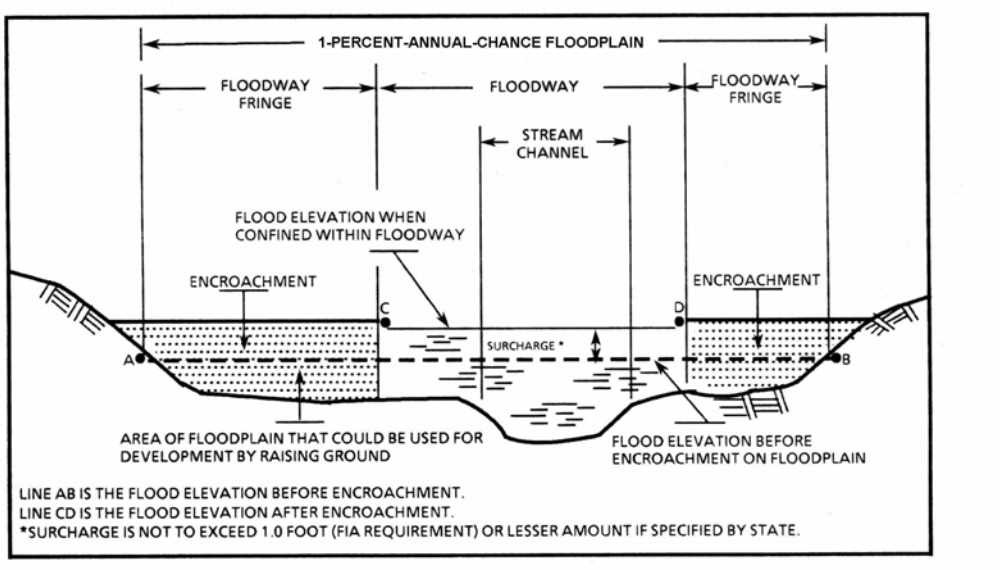


Figure 1. Floodway Schematic

5.0 INSURANCE APPLICATIONS

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. 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 Flood Insurance Study 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 AE

Zone AE is the flood insurance rate zone that corresponds to the 1-percent-annual-chance floodplains that are determined in the FIS report by detailed methods. Whole-foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 0.2-percent-annual-chance floodplain, areas within the 0.2-percent-annual-chance floodplain, 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 1-percent-annual-chance flood by levees. No BFEs or depths are shown within this zone.

6.0 FLOOD INSURANCE RATE MAP

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

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0. Insurance agents use the 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 computation.

The countywide Flood Insurance Rate Map presents flooding information for the entire geographic area of Prentiss County. Previously, Flood Insurance Rate Maps were prepared for each incorporated community and the unincorporated areas of the County identified as flood-prone. This countywide Flood Insurance Rate Map also includes flood-hazard information that was presented separately on Flood Boundary and Floodway Maps, where applicable. Historical data relating to the maps prepared for each community are presented in Table 3, “Community Map History.”

COMMUNTIY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATE	FIRM EFFECTIVE DATE	FIRM REVISIONS DATE
Booneville, City of	April 25, 1975	-	July 3, 1986	-
Jumpertown, Town of[2]	September 16, 1977[1]	July 21, 1978[1]	-	-
Marietta, Village of[2]	September 16, 1977[1]	July 21, 1978[1]	-	-
Prentiss County (unincorporated areas)	September 16, 1977	July 21, 1978[1]	-	-

[1]This community did not have its own FIRM/FHBM prior to this countywide FIS. The land area for this community was previously shown on the FIRM/FHBM for the unincorporated areas of Prentiss County. Therefore, the map history dates associated with this community were taken from the FIRM/FHBM for Prentiss County.

[2]Non-floodprone community

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

PRENTISS COUNTY, MS

AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

7.0 OTHER STUDIES

There is no previous FIS published for Prentiss County or its communities. The Flood Insurance Rate Maps for Alcorn, Tishomingo, Tippah, Itawamba, and Union Counties are in agreement with this study.

Information pertaining to revised and unrevised flood hazards for each jurisdiction within Prentiss County has been compiled into this FIS. Therefore, this FIS report supersedes or is compatible with all previously printed FIS reports, FIRMs, and Flood Hazard Boundary Maps (FBFMs) for all jurisdictions within Prentiss County, and should be considered authoritative for the purposed of the NFIP.

8.0 LOCATION OF DATA

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

Future revisions may be made that do not result in the republishing of the Flood Insurance Study report. To ensure that any user is aware of all revisions, it is advisable to contact the map repository of flood hazard data located in the community.

9.0 BIBLIOGRAPHY AND REFERENCES

Federal Emergency Management Agency, Flood Insurance Study, Tishomingo County, Unincorporated Areas, Mississippi, March, 1993.

National Weather Service Forecast Office, Tupelo, MS Climate Data, http://www.srh.noaa.gov/meg/tupcli.php. Accessed February 4, 2009.

U.S. Army Corps of Engineers Hydrologic Engineering Center, HEC-RAS River Analysis System User's Manual, Version 3.1.2, April 2004.

U.S. Census Bureau. http://www.census.gov/. Accessed February 4, 2009.

U.S. Geological Survey, 7.5 Minute Series Topographic Maps, Scale 1:24,000, Contour Interval 20 feet: Tishomingo, Mississippi, 1984.

U.S. Geological Survey, Nationwide Summary of U.S. Geological Survey Regional Regression Equations for Estimating Magnitude and Frequency of Floods for Ungaged Sites, U.S. Geological Survey Water-Resources Investigations Report 94-4002, 1993.

Watershed Concepts, a Division of AECOM, Watershed Information SystEm Version 3.1.1, Greensboro, NC, July 2008.