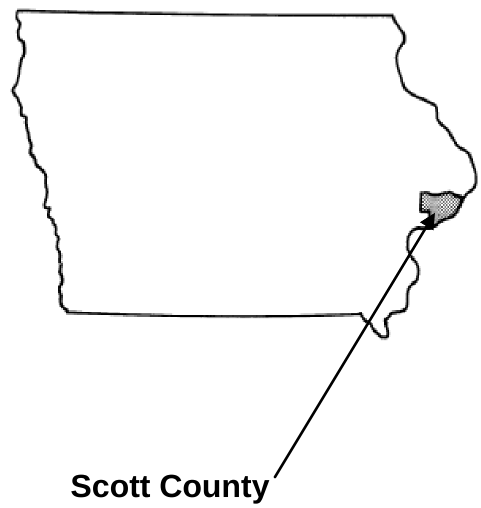
FLOOD INSURANCE STUDY

SCOTT COUNTY, IOWA
AND INCORPORATED AREAS



COMMUNITY NAME	COMMUNITY NUMBER
BETTENDORF, CITY OF	190240
*BLUE GRASS, CITY OF	190554
BUFFALO, CITY OF	190241
DAVENPORT, CITY OF	190242
*DIXON, CITY OF	190726
DONAHUE, CITY OF	190505
ELDRIDGE, CITY OF	190574
LE CLAIRE, CITY OF	190243
*LONG GROVE, CITY OF	190764
*MAYSVILLE, CITY OF	190282
MCCAUSLAND, CITY OF	190771
*NEW LIBERTY, CITY OF	190378
PANORAMA PARK, CITY OF	190506
PRINCETON, CITY OF	190244
RIVERDALE, CITY OF	190245
SCOTT COUNTY UNINCORPORATED AREAS	190239
WALCOTT, CITY OF	190675

*NO SPECIAL FLOOD HAZARD AREAS IDENTIFIED

February 18, 2011

Federal Emergency Management Agency
Flood Insurance Study Number
19163CV000A

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.

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:

Old Zone	New Zone
A1 through A30	AE
V1 through V30	VE
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: February 18, 2011

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PUBLISHED SEPERATELY

FLOOD INSURANCE STUDY
SCOTT COUNTY, IOWA AND INCORPORATED AREAS

1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study (FIS) revises and updates the FIS reports and/or Flood Insurance Rate Maps (FIRMs) in the geographic area of Scott County, Iowa, including; the Cities of Bettendorf, Blue Grass, Buffalo, Davenport, Dixon, Donahue, Eldridge, Le Claire, Long Grove, Maysville, McCausland, New Liberty, Panorama Park, Princeton, Riverdale, and Walcott; and unincorporated areas of Scott County (hereinafter referred to collectively as Scott 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. This information will also be used by Scott County to update existing floodplain regulations as part of the Regular Phase of the National Flood Insurance Program (NFIP). And by local and regional planners to further promote sound land use and floodplain development. Minimum floodplain management requirements for participation in the NFIP are set forth in the Code of Federal Regulations at 44 CFR, 60.3.b

Please note that the City of Durant is geographically located in Cedar, Muscatine, and Scott Counties, and has adopted the Cedar County FIRM. Also note that the City of Walcott is geographically located in Muscatine and Scott Counties.

In some States or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than 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 Systems (GIS) format requirements. The flood hazard information was created 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 Acknowledgements

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

This countywide study was prepared on January 19, 2011, to combine all communities within Scott County, Iowa into a countywide FIS report. Information concerning the authority and acknowledgements for each jurisdiction included in this countywide FIS report, compiled from previously printed FIS reports, is detailed below.

City of Bettendorf

The hydrologic and hydraulic analyses for the previous study, revised February 4, 1998, were performed by the United States Army Corp of Engineers (USACE), Rock Island District, for the Federal Insurance Administration (FIA), under Interagency Agreement Nos. IAA-H-16-75, Project Order No. 10, and IAA-H-7-76, Project Order No. 20. This work, which was originally completed in December 1976, covered all flooding sources in Bettendorf. The Mississippi River profile reflects revised water surface elevations determined during 1978 (Reference 5).

The hydrologic analyses for the February 17, 1988 revision were performed by USACE, Rock Island District. FEMA reviewed and accepted that data for purposes of that revision.

City of Buffalo

The hydrologic and hydraulic analyses for the previous study, dated March 1980, were performed by Stanley Consultants, Inc., for the FIA, under Contract No. H-4005. This work, which was completed in August 1978, covered all significant flooding sources affecting the incorporated area of the City of Buffalo (Reference 6).

City of Davenport

The hydrologic and hydraulic analyses for the previous study, revised November 4, 1992, were performed by DeWild Grant Reckert & Associates Company, Consulting Engineers and Architects, Rock Rapids, Iowa, for the FIA, under Contract No. H-3806. This work, which was originally completed in October 1976, covered all flooding sources in the City of Davenport (Reference 7).

City of LeClaire

The hydrologic and hydraulic analyses for the previous study, dated February 1980, were performed by Stanley Consultants, Inc., for the FIA, under Contract No. H-4005. This work, which was completed in August 1978, covered all significant flooding sources affecting the City of Le Claire (Reference 8).

City of Panorama Park

The hydrologic and hydraulic analyses for the previous study, dated December 1977, were performed by the USACE, Rock Island District, for FIA, under Inter-Agency Agreement No. IAA-H-16-75, Project Order No. 22. This work, which was completed in September 1976, covered all flooding sources in Panorama Park (Reference 9).

City of Princeton

The hydrologic and hydraulic analyses for the previous study, dated May 1979, were performed by Stanley Consultants, Inc. for the FIA, under Contract No. H-

4005. This work, which was completed in March 1977, covered all significant flooding sources affecting the City of Princeton (Reference 10).

City of Riverdale

The hydrologic and hydraulic analyses for the previous study, dated November 1979, were conducted by the USACE, Rock Island District, for the FIA under Inter-Agency Agreement No. IAA-H-l6-75, Project Order Number 22. This work, which was completed in July 1976, covered all flooding sources in Riverdale (Reference 11). The Mississippi River profile reflects the revised water surface elevations determined during 1978.

Scott County (Unincorporated Areas)

The hydrologic and hydraulic analyses for the previous study were conducted by Stanley Consultants, Muscatine, Iowa, at the request of the FIA, U.S. Department of Housing and Urban Development. Authority and financing are contained in Contract No. H-3702 between the contractor and the FIA. This study was revised on February 4, 1998 (Reference 12).

The hydrologic analyses were performed by the USACE, Rock Island District, as part of the Limited Map Maintenance Program (LMMP), under Interagency Agreement No. EMW-90-E-3286, Project Order No. 5. The FEMA reviewed and accepted these data for purposes of that revision.

Base map information shown on FIRMs for Scott County, Iowa was derived from multiple sources. Some base map files were provided in digital format by the Planning and Development Department for Scott County located in Davenport, Iowa. This information was compiled from many local sources, and includes political boundaries and Public Land Survey System data. The US Geological Survey (USGS) provided 7.5-Minute Series Quadrangle neatlines, as well as all water features collected from their National Hydrography Dataset. Scott County transportation features were taken from a digital file provided by the Iowa Department of Transportation and benchmarks were collected from the National Geodetic Survey Dataset. Additionally, a 2002 digital orthophoto of Iowa, provided by the Iowa Department of Natural Resources, was used to compare the data provided, and to make minor adjustments to specific areas of base map features as needed.

The projection system and horizontal datum used for the production of the FIRMs is Universal Transverse Mercator (UTM), Zone 15N, North American Datum of 1983 (NAD83) GRS80 spheroid.

The following communities did not have a previously printed FIS report: the Cities of Blue Grass, Dixon, Donahue, Eldridge, Long Grove, Maysville, McCausland, New Liberty, and Walcott.

This countywide FIS was prepared by Black & Veatch, under Contract No. EMK-2001-CO-2019.

1.3 Coordination

Consultation Coordination Officer's (CCO) meetings may be held for each jurisdiction in this countywide FIS. An initial CCO meeting is held typically with representatives of FEMA, the community, the state, and the study contractor to explain the nature and purpose of an FIS and to identify the streams to be studied by detailed methods. A final CCO meeting is held typically with representatives of FEMA, the community, and the study contractor to review the results of the study.

The dates of the initial and final CCO meetings held for Scott County and the incorporated communities within its boundaries are shown in Table 1, "Initial and Final CCO Meetings."

Table 1. Initial and Final CCO Meetings

Community	Initial CCO Date	Final CCO Date
Bettendorf, City of	*	August 18, 1976
Buffalo, City of	*	September 26, 1978
Davenport, City of	August 27, 1975	October 14, 1976
Donahue, City of	*	*
Eldridge, City of	*	*
Le Claire, City of	April 1976	August 28, 1979
Panorama Park, City of	*	August 18, 1976
Princeton, City of	April 1976	September 26, 1978
Riverdale, City of	*	August 18, 1976
Scott County Unincorporated Areas	*	February 20, 1975
Walcott, City of	*	*

* Data not available

For this countywide FIS, the scoping meeting was held August 25, 2003. This meeting was attended by representatives of FEMA; Black & Veatch Engineering; the following communities: The Cities of Bettendorf, Buffalo, Davenport, Eldridge, Le Claire, Panorama Park, Riverdale, and Walcott; Scott County and Bi-State Regional Commission representatives; and the Iowa Department of Natural Resources.

A search for basic data was made at all levels of government. The USACE, Rock Island District, provided flood plain information studies for the Mississippi River and Duck Creek. USACE also provided "Flood Hazard Investigation - Crow Creek" (Reference 25), as well as Interim Reports on flood control on the Mississippi River (Reference 26) and the publication "Upper Mississippi River Flood Profiles" (Reference 27). These reports were useful in determining the potential flood hazard from these streams.

The USGS, Water Resources Division at Iowa City, Iowa provided "Floods in the Wapsipinicon River Basin" which was useful in providing data on flooding in the Wapsipinicon River Basin. The USGS also provided Water Resources Data for Iowa (Reference 28). The Iowa Highway Commission in cooperation with the United States Geological Survey provided “Drainage Areas of Iowa Streams” (Reference 49).

The Iowa Natural Resources Commission in cooperation with the USGS provided “Floods in Iowa: Technical Manual for Estimating Their Magnitude and Frequency” (Reference 48). This manual was very useful for determining the magnitude of floods of the selected recurrence intervals.

The Agricultural Stabilization and Conservation Service provided aerial photographs used for analyses in this study (Reference 46).

The National Oceanic and Atmospheric Administration (NOAA) was contacted for local climatological data for Scott County (Reference 47).

The Davenport Public Library supplied old newspapers from which accounts of flooding in Scott County were taken.

The results of the study were reviewed at the final CCO meeting held on March 31, 2009, and attended by representatives of FEMA, Iowa DNR, the Cities of Bettendorf, Buffalo, Davenport, Panorama Park, Princeton, Scott County, and Walcott, 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 Scott County, Iowa, including the incorporated communities listed in Section 1.1.

The Mississippi River forms the entire eastern and southern boundary of Scott County. Tributaries flowing into the Mississippi River are the Wapsipinicon River which originates in southern Minnesota and forms the northern boundary of Scott County; Black Hawk, Crow, Duck, Mc Carty, Oak Hill School and Spencer Creeks all of which originate and flow through the County. Tributaries of the Wapsipinicon River which originate and flow through the County are Donaldson, Hickory, Jones, Lost, Martin, McDonald, Mud and Walnut Creeks. Because of the fact that substantial development is present only along the Mississippi River and in the area adjacent to the Cities of Bettendorf and Davenport, it was agreed between the study contractor, the FIA, and Scott County that only the Mississippi River and Black Hawk, Duck and Spencer Creeks were to be studied in detail. Also agreed was that the Wapsipinicon River and Crow, Donaldson, Hickory, Jones, Lost, Martin, Mc Carty, McDonald, Mud, Oak Hill School and Walnut Creeks would be evaluated using approximate methods, because they were adjudged to be in areas which were undeveloped and not likely to undergo substantial development in the unincorporated areas of Scott County.

Approximate analyses were used to study those areas having low development potential or minimum flood hazards. The scope and methods of study were proposed to, and agreed upon, by FEMA and officials of each affected community.

City of Bettendorf

The limits of the detailed and approximate studies in the city were determined for the previous FIS. Areas studied in detail include the Mississippi River, Crow and Duck Creeks, and the East Fork, West Fork, and East Branch of West Fork of Pigeon Creek. Spencer Creek, located in an undeveloped part of the city was studied by approximate methods.

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

City of Buffalo

The areas studied by detailed methods were selected during the coordination of the previous FIS. The Mississippi River and Cedar Creek were also studied in detail.

City of Davenport

Floods caused by overflow of the Mississippi River, Black Hawk, Crow, Duck, Pheasant, Goose, Silver, and West Fork Silver Creeks and Tributary No. 1 to Duck Creek, were studied in detail. Detailed analysis was generally terminated wherever the drainage area became significantly less than 2.0 square miles and the area adjacent to the stream was undeveloped and had lower potential for development. Approximate methods were used to determine the Special Flood Hazard Areas (SFHAs) along the upstream ends of Goose, Silver, and West Fork Silver Creeks, and Tributary No. 1 as well as along the entire length of Spencer Creek. (Reference 4)

City of Le Claire

The areas studied by detailed methods were selected with priority given to all known flood hazard areas, and areas of projected development during the preparation of the original FIS.

The Mississippi River and Sycamore Creek within the corporate limits of the City of Le Claire were studied by detailed methods. Portions of Silver Creek, McCarty Creek and eight ephemeral streams were studied by approximate methods.

City of Panoramo Park

Crow Creek, which flows along the western boundary of Panorama Park, was studied in detail.

City of Princeton

The Mississippi River was studied in detail along its entire length within the City of Princeton. Portions of Bud Creek and five other ephemeral streams were studied by approximate methods.

City of Riverdale

Floods caused by overflow of the Mississippi River, Crow Creek, and Duck Creek were studied in detail.

2.2 Community Description

Scott County, located in southeastern Iowa, has an area of 454 square miles. Major cities in Scott County are the Cities of Davenport and Bettendorf.

From 1940, when Scott County's population was 84,748, to 2000 when the population was 158,668 (Reference 45), which ranked third among Iowa's counties, the County has experienced a steady growth. This growth in population is expected to continue in the foreseeable future.

The Mississippi River which has its headwaters in northwestern Minnesota forms the Iowa-Illinois State boundary (eastern boundary).

At the Wapsipinicon River, which confluences with the Mississippi River at the northern boundary of the county, the drainage area for the Mississippi River is 88,270 square miles, including the Wapsipinicon River. At the Muscatine-Scott County Boundary (southern county border), which serves as the downstream limit of study, the drainage area of the Mississippi River is about 99,250 square miles. Several relatively small tributaries, and two major streams, the Wapsipinicon and Rock Rivers, enter the Mississippi in the reach covered in this study. In the approximately 37.5 miles of reach studied, the river drops about 21 feet, for an average slope of about 0.55 foot per mile. However, the reach from about the confluence with Duck Creek to the confluence with Black Hawk Creek is considerably steeper, dropping almost 16 feet in just eight miles, for an average slope of 2.0 feet per mile.

Black Hawk Creek, located north of U. S. Highway 61, flows in an easterly direction through West Lake County Park before entering the City of Davenport. The drainage area of the stream at the Davenport Corporate Limits is about 3.5 square miles. In the approximately 1.2 mile study reach of the stream, the stream bed drops 36 feet, for an average slope of 30 feet per mile.

Duck Creek flows in an easterly direction into the City of Davenport and has a drainage area of about 18 square miles. The streambed drops about 30 feet in the approximately four mile reach included in this study, for an average slope of 7.5 feet per mile.

Spencer Creek flows generally south and east through the northeastern corner of the City of Davenport, across the northern section of the City of Bettendorf, and the southern section of the City of Le Claire before emptying into the Mississippi River about 0.5 mile downstream from Lock and Dam Number 14. In the reach included in this study, the stream drops about 84 feet in about three miles, for an average streambed slope of about 28 feet per mile. The drainage area at the mouth of the stream is about 20 square miles.

The climate is characterized by summers which are usually hot and humid, when temperatures are frequently above 90°F; and cold winters when the temperature often drops below 0°F. The mean annual temperature is about 50°F; and annual precipitation is about 36 inches, with the greatest amounts falling in the period of April through September (Reference 47).

The flood plains of the Mississippi River are characterized by farm fields and residential housing, with some industrial and commercial buildings in the flood plains of incorporated areas. Flood plains along the upper four miles, between the City of Princeton and the Wapsipinicon River, are largely within the Upper Mississippi River Wildlife and Fish Refuge, and are essentially undeveloped.

City Bettendorf

The City of Bettendorf is located at the eastern edge of the County and has a population of 31,275 as of the 2000 Census (Reference 45).

A series of locks and dams on the Mississippi River makes navigation possible during low flow periods. Bettendorf is located in Pool 15, two miles above Lock and Dam No. 15.

The flood plain of the Mississippi River in the City of Bettendorf is extensively developed by industrial and commercial concerns. This development exists east and west of the Mississippi River flood plain with much of the development occurring in the Duck Creek basin. Crow Creek and Spencer Creek are relatively undeveloped but pressures for development are increasing.

City of Buffalo

The City of Buffalo, in the southeast portion of the county, has developed on the narrow flood plain and hilly over bank of the Mississippi River. The community is just southwest of the City of Davenport, one of the largest metropolitan cities in Iowa. The City of Buffalo had a population of 1,321 as of the 2000 Census (Reference 45).

The topography consists of moderately sloping to steep side slopes and is well-drained by small, ephemeral streams. About 80 percent of the City of Buffalo is undeveloped and consists of farmland. Thick loess deposits in the Fayette Soil Association generally blanket most of the uplands. Glacial till and limestone generally underlie the loess layer and may be exposed on steep side slopes (Reference 13).

Development has been extensive on the Mississippi River flood plain in the City of Buffalo. Many of the original industrial, commercial, and residential buildings were built on the flood plain. The majority of new development, however, is taking place on the hills above potential flood elevations.

City of Davenport

The City of Davenport is located in southern Scott County and has a population of 98,359, as recorded in the 2000 Census (Reference 45). The economy of the area is comprised mainly of agriculture and agricultural related industry and business.

The topography of the City of Davenport is characteristic of the irregular and rolling hills commonly found along the bluff of the Mississippi River. Sixty-two percent of the total incorporated area of 60 square miles drains to tributaries of or directly to Duck Creek, which flows easterly and roughly bisects the community before emptying into the Mississippi River in the City of Bettendorf. The rest of the incorporated area drains directly to the Mississippi River or tributaries thereof, such as Black Hawk Creek, Crow Creek, and Spencer Creek.

Commercial, industrial, and older residential structures are located along the Mississippi River on a flat to gently sloping flood plain. Development in the northern part of the City of Davenport is generally more recent, and consists primarily of residential and commercial structures. Approximately 30 to 40 percent of the incorporated area is presently undeveloped farmland or open space, which is located generally in western and northern sections of the City of Davenport.

City of Le Claire

The City of Le Claire is located on the flood plain and rolling bank of the Mississippi River, five miles northeast of Davenport, Bettendorf, Moline, and Rock Island, Illinois. Based on the 2000 census, the city has a population of 2,847 (Reference 45).

In the City of Le Claire, development on the Mississippi River flood plain has been extensive. Many of the original industrial, commercial, and residential buildings were built on the flood plain. The majority of new development, however, is taking place on the hills, above potential flood elevations. About 70 percent of incorporated Le Claire is undeveloped and consists of agricultural land and woodland.

City of Panorama Park

The City of Panorama Park has a population of 111 persons recorded in the 2000 census (Reference 45).

The general topography varies from the relatively flat area in the southern part of the city, to the steeply sloping northern area. Elevations vary from 585 feet above National Geodetic Vertical Datum of 1929 (NGVD29), formerly referred to as mean sea level datum with 1929 general adjustments, to approximately 650 feet NGVD 1929.

City of Princeton

The City of Princeton is located on the flood plain and rolling bank of the Mississippi River approximately 10 miles northeast of the City of Bettendorf. The 2000 census recorded 946 residents (Reference 45).

Development has been extensive on the Mississippi River flood plain in Princeton. Many of the original industrial, commercial, and residential buildings were built on the flood plain. The majority of new development, however, is taking place on the hills, above potential flood elevations.

City of Riverdale

The City of Riverdale, located on the west bank of the Mississippi River, has a population of 656 persons as recorded in the 2000 census (Reference 45).

The City of Riverdale is located in the Till Plain section of the Central Lowlands Province, an area nearly flat to gently undulating with few glacial features and well integrated drainage. The bedrock of the area is predominantly limestone, dolomite, and shale with minor amounts of sandstone. These rocks produced pebbly, silty, clay tills which were found in the higher elevations of Riverdale. The remaining portion of the City is located in the ancient Mississippi River flood plain which is composed of recent alluvial deposits such as sand, silt, or clay which are underlain by Wisconsin glacial outwash (Reference 18).

2.3 Principal Flood Problems

Scott County (Unincorporated Areas)

The Mississippi River, the major source of flooding throughout Scott County is subject to floods periodically. Large magnitude floods have occurred on the Mississippi River 14 times in the past 145 years. The most recent flood event was in 2001. Lesser floods occur more frequently. In 1969, the Rock Island District of the USACE published a tabulation of the highest flood crests on the Mississippi at the City of Davenport during the period 1860-1969 (Reference 21). Values after 1969 were available from the USACE (Reference 22). The fourteen highest values are presented in Table 2.

Table 2. Flood Crest Elevations, Mississippi River at Davenport, Iowa

Date of Crest	Stage	Elevation
July 9, 1993	22.63	565.13
April 28, 1965	22.48	564.98
April 25, 2001	22.33	564.83
March 10, 1868	22.00*	564.50
April 20, 1997	19.66	562.16
June 27, 1892	19.40	561.90
April 26-27, 1969	19.20	561.70
April 28, 1952	18.63	561.13
May 16, 1888	18.60	561.10
June 26, 1880	18.40	560.90
April 28-29, 1951	18.30	560.80
February 21, 1966	18.30*	560.80
October 27, 1881	17.70	560.20
April 15, 1967	17.40	559.90

*Ice gorge effect

Until the establishment of the USGS stream gage near the bridge on U. S. Highway 61 in 1934, records of flooding on the Wapsipinicon River were sparse. Since that time large floods occurred in 1944, 1947, 1951, 1962, 1966, 1968 and 1969, 1973, 1974, 1990, 1993, and 1997; the record peak discharge occurred on June 17, 1990 (Reference 28). In 1971, the USGS published a report on flooding on the Wapsipinicon River (Reference 28).

Floods on the Wapsipinicon River are usually caused by exceptionally heavy rainfall over limited areas of the basin, as in 1966, 1968, and 1969; or else lengthy wet periods, during which time the ground became saturated and runoff rates were high, as in 1951 and 1962. Damage from floods on the Wapsipinicon River is not that major because the flood plain is mainly farmland with few residential dwellings. The following table lists peak flood discharges and gage heights at the USGS stream gage near the U. S. Highway 61 Bridge in north Scott County (References 28).

Table 3. Peak discharges near U.S. Highway 61 Bridge, Wapsipinicon River

	Gage Height (feet)		
Date	Stage	Elevation	Peak Discharge (cfs)
June 17, 1990	14.19	613.00	*
May 17, 1974	13.07	611.88	*
February 22, 1997	12.97	611.78	*
July 8, 1993	12.88	611.69	*
April 22, 1973	12.76	611.57	27,000
June 27, 1944	12.07	610.88	26,000
June 19, 1947	11.80	610.61	21,600
April 6, 1962	11.67	610.48	17,600
July 9, 1969	12.30	611.11	16,200
May 6, 1951	11.30	610.11	15,600
July 25, 1966	11.91	610.72	13,800
July 25, 1968	11.91	610.72	13,800

cfs = cubic feet per second
* = Data not available

City of Bettendorf

Low-lying areas of the City of Bettendorf are subject to periodic flooding from the Mississippi River and the tributary creeks within the corporate limits of the city.

Flooding from the Mississippi River occurs mainly in the spring due to snow melt. The four greatest floods of record on the Mississippi River at the City of Bettendorf have occurred in the springs of 1965, 1969, 1973, and 1975. During the flood of April-May 1965, the Mississippi River attained a peak discharge of 307,000 cfs, the greatest discharge ever recorded at the City of Bettendorf.

Following is a tabulation of the four floods mentioned above with their respective discharges and frequencies:

Table 4. Mississippi River, Discharge and Frequency Data

Year	Discharge (cfs)	Approximate Recurrence Interval (years)
1965	307,000	100
1969	242,000	20
1973	228,000	15
1975	224,000	14

cfs = cubic feet per second

Flooding along the tributary creeks is characterized by high peak flows, with relatively small volumes. The flooding on these creeks is most often caused by rainfall on snow-covered or saturated ground. Numerous floods have occurred in the past and some of the flood stages have been affected by ice jams (Reference 23).

City of Buffalo

Low-lying areas of the City of Buffalo are periodically subjected to extensive flooding from the Mississippi River. The most severely affected areas are located on the river side of Second Street. Severe floods on the river have resulted from ice jams, snowmelt in conjunction with rain, or heavy rain over a large portion of the river basin.

The 1965 flood was a large flood of record on the upper Mississippi River. Caused by heavy runoff from snowmelt and heavy rainfall, the crest was about 3 feet higher than any other flood on the upper Mississippi River since 1868. According to records kept by the USACE in the City of Buffalo, the flood crested at 560.9 feet. The 1965 flood corresponds to about a 1-percent-annual-chance event.

City of Davenport

Low-lying areas in the City of Davenport are subject to periodic flooding caused by overflow of the Mississippi River and its tributaries which flow through the city. The most severe flooding, especially on the Mississippi River, occurs generally during the late spring as a result of rapid snow melt in conjunction with warm, heavy rains, with flooding being further aggravated at times by ice jams.

No gaging records are available for Duck Creek and other tributaries to the Mississippi River which flow through the City of Davenport. Floods of varying magnitude have reportedly occurred on Duck Creek in the years 1921, 1928, 1944, 1949, 1959, 1960, 1961, and 1963 (Reference 24). Half of the above floods occurred in the fall as a result of intense rainfall, whereas the other half occurred in the early spring generally as a result of warm, heavy rainfall in conjunction with rapid snow melt.

Flooding along Black Hawk Creek has been a serious problem in the city since development in the flood plain began and progressed. The tributaries to Duck Creek in northern Davenport as well as Crow Creek have caused only minor flood damages in the past since the flood plains of the tributaries have only begun to develop in recent years and are still somewhat sparsely developed today.

<u>City of Le Claire</u>

The low-lying areas of the City of Le Claire are periodically subjected to extensive flooding from the Mississippi River. The most severely affected areas are located primarily riverward of U.S. Highway 67. Severe floods on the river have resulted from ice jams, snowmelt in conjunction with rain, or intense rain over a large portion of the river basin.

There are no records of flooding problems along Sycamore Creek.

<u>City of Panorama Park</u>

Although no flood records are available for the City of Panorama Park, studies indicate the low-lying areas are subject to flooding by Crow Creek (References 25).

Flooding along Crow creek is characterized by high peak flows, with relatively small volumes. Flooding of this type is most often caused by rainfall on snow covered or saturated ground.

<u>City of Princeton</u>

Low-lying areas of the City of Princeton are periodically subjected to extensive flooding from the Mississippi River. The most severely affected areas are located riverward of U. S. Highway 67. Severe floods of the river have resulted from ice jams, snowmelt in conjunction with rain, or heavy rain over a large portion of the river basin.

<u>City of Riverdale</u>

Low-lying areas of Riverdale are subject to periodic flooding on the Mississippi River, Duck Creek, and Crow Creek. The small tributaries within the corporate limit cause little or no flooding in developed areas.

Flooding along the tributary creeks is characterized by high peak flows, with relatively small volumes. The flooding on these creeks is most often caused by rainfall on snow-covered or saturated ground.

Riverdale is not affected by flooding on Crow Creek for the 1-percent-annual-chance flood due to the distance between Riverdale and Crow Creek; however, it is affected by the 0.2-percent-annual-chance flood.

2.4 Flood Protection Measures

City of Bettendorf

Levees along the Mississippi River are constructed to protect heavily developed industrial and commercial areas that are in effective flow areas; however, the levees in the area have an insignificant effect where protection from flood waters is concerned.

The navigation dams are constructed and operated so that they have no more effect on flood crest elevations than a multispan railroad or highway bridge. During the flood of 1965 there was 0.9-foot head loss at Locks and Dam 15.

The City of Bettendorf has no formally adopted land use control measures that deal specifically with flooding.

City of Buffalo

Temporary emergency dikes and area evacuation are the primary flood protection measures used in the Buffalo area along the Mississippi River. The earthen dikes and sandbagging efforts provide considerable protection from high water. Buffalo does not have any permanent levees.

A series of locks and dams have been constructed on the Mississippi River to provide a minimum of 9-foot channels for navigation purposes. The closest dam to the City of Buffalo is located about 25 miles downstream, near Muscatine. All the dams are constructed and operated so that they have a minimal effect on the flood crest elevations.

City of Davenport

At the present time, no flood protection works exist which protects against or substantially reduce flood hazards from the streams in the City of Davenport.

Since flood plain and floodway studies for Duck Creek were completed in 1967 by a joint effort of the USACE and the Iowa Natural Resources Council (References 14 and 15), the City of Davenport has been administering flood plain management measures along Duck Creek. Development in the flood plain has since been allowed only outside of the designated floodway and fill has been required to raise the first floor of new structures at or above the 1-percent-annual-chance flood level. Flood plain management efforts along Duck Creek since 1967 appear to be quite successful.

City of Le Claire

Temporary emergency dikes and area evacuation are the primary flood protection measures used in the Le Claire reach of the Mississippi River. The earthen dikes and sand bagging efforts provide considerable protection from high water. The City of Le Claire does not have any permanent levees.

A series of locks and dams have been constructed on the Mississippi River to provide a minimum nine-foot channel for navigation purposes. The closest dam to the City of Le Claire is located only a few thousand feet downstream of the City of Le Claire corporate limits. All the dams are constructed and operated so that they have minimal effect on flood crest elevations.

City of Panorama Park

No flood protection measures in Panorama Park.

City of Princeton

Temporary emergency dikes and area evacuation are the primary flood protection measures used in the Princeton reach of the Mississippi River. The earthen dikes and sandbagging efforts provide considerable protection from high water. These emergency measures are possible due to an extensive flood warning and forecasting service provided by a variety of sources.

A series of locks and dams have been constructed on the Mississippi River to provide a minimum 9-foot channel for navigation purposes. The closest dam to Princeton is located about 7.6 miles downstream from the city near the City of LeClaire. All the dams are constructed and operated so that they have minimal effect on flood crest elevations.

City of Riverdale

Following the 1965 flood on the Mississippi River, a private levee system was constructed to protect the ALCOA factory from future flooding. The levee system is at an elevation of 580.0 which provides approximately six feet of freeboard for the 1-percent-annual-chance flood and approximately 2.5 feet of freeboard for the 0.2-percent-annual-chance flood. For this FIS, the levee system was assumed to hold during flooding.

Scott County (Unincorporated Areas)

The only significant flood protection works is a dike along the Mississippi River and on the south edge of the marsh near the mouth of the Wapsipinicon in the Wildlife and Fish Refuge north of the City of Princeton. Short reaches of Black Hawk, Jones, Lost, Martin, McDonald, and Spencer Creeks have been straightened and improved.

A series of locks and dams have been constructed along the Mississippi River, primarily to improve navigability, but also to render the Mississippi more useful. Lock and Dam Numbers 14 and 15 are located in Scott County, and although each dam alters the flood profiles significantly, neither provided any flood protection down stream.

The County has constructed a weir immediately upstream from Interstate 280 to create a lake in West Lake Park. While the weir alters flood profiles upstream significantly, it provides little protection to points downstream.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail 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 flood plain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10-, 2-, 1-, and 0.2-percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long-term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 1-percent-annual-chance in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge frequency relationships for floods of the selected recurrence intervals for each flooding source studied by detail methods in the community.

For Black Hawk, which is an ungaged stream, the peak discharges were developed with the aid of an earlier report done by the Rock Island District, USACE (Reference 26). In that report the USACE had developed estimates of peak flood discharges of Black Hawk Creek at Clark Street. For Duck Creek, an ungaged stream, the peak discharges for floods of 10-, 2-, and 1-percent-annual-chance recurrence intervals were based on data previously developed by the USACE (Reference 29). For Spencer Creek, an ungaged stream, peak discharges for floods of 10-, 2-, and 1-percent-annual-chance recurrence intervals were determined using regional equations developed by the USGS and the Iowa Natural Resources Council (Reference 48).

Estimates developed for Spencer Creek were submitted to the Iowa Natural Resources Council for review, and were approved by that agency (Reference 16).

Discharges for the 0.2-percent-annual-chance floods for Duck and Spencer Creeks were determined by straight-line extrapolation of a single-log graph of flood discharges computed for frequencies up to 1-percent-annual-chance.

For the Wapsipinicon River, which is studied by approximate methods, the 1-percent-annual-chance flood height and volume were developed from graphical extrapolations of data presented in a previous study by the USGS and the Iowa State Highway Commission (Reference 28). For Crow Creek also studied by approximate methods, the USACE has prepared a report on flooding of Crow

Creek for the area immediately downstream from the reach considered in this study (Reference 5). Included were maps showing the extent of flooding of the 1-percent-annual-chance flood. Estimates of the extent of flooding of the 1-percent-annual-chance flood in the reach currently under study were developed from the extents on the earlier maps. For all other streams studied by approximate methods, an estimate of the peak discharge of the 1-percent-annual-chance flood at one or more points on the stream was made, based on stream slope and contributing drainage area (Reference 30).

For the streams studied by the approximate methods, the extents of flooding at critical points along the streams (usually small bridge openings) were estimated from the discharges, by using engineering judgment.

Flood frequency determinations for the Mississippi River were obtained from a study done by the USACE (Reference 31).

Mississippi River discharge frequency analysis utilized stream gaging records obtained from many stations (Reference 31). The locations and lengths of record of the gages used in the compilation of Mississippi flow data are as follows:

Table 5. Mississippi River, Gage Location and Years of Record

Gage Location	Length of Record (years)
St. Paul, MN	99
Prescott, MN	37
Winona, MN	88
McGregor, IA	29
Debugue, IA	107
Clinton, IA	92
Keokuk, IA	88
Hannibal, MO	87
Louisiana, MO	87
St. Louis, MO	116
Quincy, IL	95
Rock Island, IL	100
Muscatine, IA	100
Burlington, IA	95

The discharge-frequency relationships for the Mississippi River were developed by the USACE and were coordinated with various federal, state, and regional authorities. These relationships were revised in 1977 to include the effects of the 1965 and 1969 floods, two great floods in the history of the river. The flood discharges were derived from a log-Pearson Type III analysis of stream flow gage data at 11 sites from St. Paul, Minnesota, to Alton, Illinois. The log-Pearson parameters with adjustments for expected probability were plotted against drainage area, and a smooth curve was drawn to connect the data points (Reference 29). The gages nearest to the study area are located at Clinton, Iowa, and Keokuk, Iowa. Flood discharges were calculated using log-Pearson distribution parameters with adjustments for expected probability taken from the above-mentioned curves at the appropriate drainage area.

There are no flow records available for the small tributaries of the Mississippi River studied in this report; however, a regional regression study was completed in August 1975 by the USACE, Rock Island District, for small, ungaged bluff drainage basins bordering the Mississippi River (Reference 32). Discharge-frequency analyses of the ungaged tributary streams in this study utilized gaging data on streams in the general area which have similar hydrologic and physiographic characteristics. This report is an update of a similar report which was derived in 1962 (Reference 33) and, since this previous report utilizes the most current data available for streams bordering the Mississippi River, information contained therein was used in this FIS.

The 10-, 2-, and 1-percent-annual-chance peak discharges for Cedar Creek were developed using the Iowa Natural Resources Council regional relationships relating basin characteristics to stream flow data (Reference 48). The peak discharges resulting from these regional equations yield flood profiles which compared favorably to high water marks observed in similar small watersheds. The regional relationships were developed by computing frequency curves from gaging station data in the region using a log-Pearson Type Ill distribution analysis. The regional equations were then derived by regressing each set of frequency discharges on several basin and climatic parameters. The 0.2-percent-annual-chance peak discharge was developed by fitting the lower frequency discharges to a log-Pearson Type III curve.

The peak discharges for Sycamore Creek in southeast Le Claire were developed using the Iowa Natural Resources Council regional relationships relating basin characteristics to stream flow data (Reference 48). These relationships were developed by computing frequency curves from gaging station data in the region using a log-Pearson Type III distribution analysis. The regional equations were then derived by regressing each set of frequency discharges on several basin and climatic parameters. The 0.2-percent-annual-chance peak discharge was extrapolated using log-Pearson Type III analysis.

Peak discharges for the 10-, 2-, 1-, and 0.2-percent-annual-chance floods of the flooding sources studied in detail in the community are shown in Table 6.

3.2 Hydraulic Analyses

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

Table 6. Summary of Discharges

Flooding Source and Location	Drainage Area (sq.mi.)	Peak Discharges (cubic feet per second) 10-Percent-Annual-Chance	2-Percent-Annual-Chance	1-Percent-Annual-Chance	0.2-Percent-Annual-Chance
BLACK HAWK CREEK					
At confluence with Mississippi River	9.0	2,160	4,240	5,410	8,660
At Fairmount Street	6.2	1,750	3,470	4,460	7,200
At Telegraph Road	3.0	1,075	2,200	2,850	4,690
CARDINAL CREEK					
At confluence with Duck Creek	3.1	1,060	1,860	2,240	3,100
At Iowa Interstate Railroad to Wisconsin Avenue	NA	1,060	1,060	1,240	1,700
Upstream of Wisconsin Avenue	NA	1,060	1,860	2,240	3,100
CEDAR CREEK					
At Mouth	0.8	810	1,600	2,040	3,280
CROW CREEK					
At Mouth	18.8	3,350	6,250	7,900	13,000
At U.S. Highway 67	12.5	2,525	5,000	7,000	10,500
At Utica Ridge Road	12.0	2,530	4,920	6,270	9,960
DUCK CREEK					
At confluence with Mississippi River	64.5	6,600	12,000	14,900	21,400
At Kimberly Road	59.0	6,200	11,430	14,310	21,870
At Division Street	38.0	4,830	9,040	11,370	17,570
At Utah Avenue	19.0	3,220	6,340	8,040	12,620
GOOSE CREEK					
At confluence with Duck Creek	8.8	2,120	4,165	5,325	8,525
At Brady Street	5.8	1,660	3,310	4,250	6,880
At Interstate 80	1.2	720	1,500	1,960	3,290
MISSISSIPPI RIVER					
Just downstream of confluence of Rock River	99,403.0	233,000	306,000	333,000	397,000
At Buffalo	99,250.0	235,000	306,000	333,000	397,000
At Lock and Dam No. 15	88,500.0	226,000	309,000	347,000	438,000
Just upstream of confluence of Rock River	88,500.0	211,000	278,000	303,000	363,000
Just upstream of Lock and Dam 14	88,400.0	211,000	278,000	303000	363,000
At Le Claire	88,340.0	211,000	278,000	303,000	362,000
At PrInceton	88,300.0	211,000	271,000	294,000	348,000

Table 6. Summary of Discharges

Flooding Source and Location	Drainage Area (sq.mi.)	Peak Discharges (cubic feet per second) 10-Percent-Annual-Chance	2-Percent-Annual-Chance	1-Percent-Annual-Chance	0.2-Percent-Annual-Chance
PHEASANT CREEK					
At confluence with Duck Creek	4.9	1,500	3,000	3,870	6,280
At 46th Street	2.5	1,050	2,150	2,790	4,600
At 67th Street	1.2	680	1,430	1,870	3,140
PIGEON CREEK					
At Mouth	3.3	1,210	2,450	3,150	5,550
At Confluence of West Fork	1.8	890	1,810	2,350	4,000
At Confluence of East Fork	1.5	810	1,650	2,150	3,780
SILVER CREEK					
At confluence with Duck Creek	8.5	2,100	4,050	5,150	8,200
At Interstate 80	1.9	895	1,680	2,120	3,410
SPENCER CREEK					
At Mouth	19.7	2,940	4,950	5,970	8,600
At Country Club Road	14.7	2,500	4,250	5,120	740
At Interstate 80	9.1	1,890	3,260	3,920	5,590
At Mount Joy Road	3.7	1,160	2,030	2,440	3,500
SYCAMORE CREEK					
At Mouth	2.0	1,030	2,040	2,590	4,160
Above Unnamed Tributary	1.2	710	1,470	1,900	3,000
At Interstate Highway 80	1.0	560	1,200	1,580	2,700
WEST FORK SILVER CREEK					
At confluence with Silver Creek	2.9	1,160	2,360	3,050	5,010
At Wyoming Avenue	1.6	825	1,715	2,240	3,820

NA = Data not available
cfs = cubic feet per second

Water-surface profiles for detailed analyses of floods of the selected recurrence intervals for Black Hawk, Duck, Sycamore and Spencer Creeks were computed using the standard step method (Reference 27), as incorporated in the computer program "CH2OA, Backwater," developed by Stanley Consultants. Cross sections for the backwater analyses of Black Hawk, Duck and Spencer Creeks were field surveyed in mid-1974 and were located at close intervals above and below bridges and culverts in order to compute the significant backwater effects of the structures. Field surveyed cross sections were supplemented by data taken from USGS topographic maps (Reference 50). Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1), and on the FIRM.

Water-surface profiles for the Mississippi River were developed from information previously published by the Rock Island District of the USACE (References 21 and 27).

Channel roughness factors (Manning's "n" values) were assigned on the basis of field inspection of the streams and over bank surfaces and from the study of aerial photographs of the area provided by the Agricultural Stabilization and Conservation Service. Roughness values for the main channel of all streams studied in detail are listed in Table 7, "Manning's "n" Values."

Table 7. Manning's "n" Values

Flooding Source	Channel	Overbank
Black Hawk Creek	0.030-0.045	0.050-0.070
Cardinal Creek	0.025-0.044	0.065-0.090
Cedar Creek	0.032-0.045	0.035-0.052
Crow Creek	0.030-0.035	0.045-0.065
Duck Creek	0.035	0.045-0.065
East Branch of West Creek	0.035-0.065	0.040-0.065
Pigeon Creek	*	*
East Fork Pigeon Creek	0.035-0.065	0.040-0.065
Goose Creek	0.030-0.045	0.050-0.070
Pheasant Creek	0.030-0.045	0.050-0.070
Silver Creek	0.030-0.045	0.050-0.070
Spencer Creek	0.015-0.045	0.060-0.120
Sycamore Creek	0.030-0.045	0.038-0.052
West Fork Pigeon Creek	0.035-0.065	0.040-0.065
West Fork Silver Creek	0.030-0.045	0.050-0.070

* No data available

Starting elevations for Black Hawk and Duck Creeks were developed by the slope-area method and for Spencer Creek the starting elevations were taken as the elevations at its confluence with the Mississippi River of floods of selected recurrence intervals on the Mississippi River. All elevations are measured from NGVD29.

The flood elevations as shown on the profiles are considered valid only if hydraulic structures, in general, remain unobstructed.

Detail-studied streams that were not re-studied as part of this map update may include a "profile base line" on the maps. This "profile base line" provides a link to the flood profiles included in the FIS report. The detail-studied stream centerline may have been digitized or re-delineated as part of this revision. The "profile base lines" for these streams were based on the best available data at the time of their study and are depicted as they were on the previous FIRMs.

For the Wapsipinicon River, the 1-percent-annual-chance flood was approximated from data taken from a previously published report on flooding on the Wapsipinicon River published jointly by the USGS and the Iowa State Highway Commission (Reference 28). For Crow Creek, the flood for this stream was approximated from data taken from a previously published report prepared by the USACE (Reference 25). For the other streams studied by approximate methods, the 1-percent-annual-chance flood was approximated with the use of available hydrological and historical data and engineering judgment.

Continuous profiles have been developed for the Mississippi River, starting at mile 261 and extending to mile 608, above the confluence with the Ohio River (Reference 34).

The cross section stationing used in the Mississippi River model was based on existing US. Army Corps of Engineers River Mile markers of 1960 (Reference 53). The reach length between cross sections is based on a model centerline developed for the HEC-RAS converted model of the Upper Mississippi River System Flow Frequency Study (UMRSFFS) (Reference 54). The distances between cross sections shown in the floodway data table and flood profile were created using the cross section stations based on the 1960 River Miles. While the calculated distance between cross sections using the 1960 River Miles are similar to the measured distance along the model centerline, some differences may occur. This difference in distance does not affect the calculated water surface elevation at each cross section shown on the floodway data table and flood profile, nor does it affect the placement of the BFEs on the map.

Water-surface elevations for the Mississippi River were determined from the extension of existing rating curves based on this existing information which includes flow data. The extension of rating curves was done by plotting the elevations versus average velocity from the stream flow measurements on Cartesian paper and extended by a straight line. The velocity was then multiplied by the cross sectional area at each elevation to determine the discharge for that elevation. This procedure has proven itself for the study reach based on the accuracy of the predictions of recent flood heights.

For Crow, Duck, and tributaries of Pigeon Creek, water-surface elevations of floods of the selected recurrence intervals were computed through use of the USACE HEC-2 step-backwater computer program (Reference 35). Cross section information was obtained from detailed topographic maps (References 1 and 2) and field surveys.

All bridges and culverts were surveyed to obtain elevation data and structural geometry.

For Spencer Creek, a normal depth analysis was used in determining the approximate 1-percent-annual-chance flood plain. Cross sections were field surveyed at small intervals. Approximate flood limits were then interpolated between each location.

Channel and immediate over bank cross section data for Black Hawk Creek, Crow Creek, and Duck Creek and its tributaries were developed by field surveys, with a portion of the cross section data being obtained from the USACE. These surveyed cross sections were extended as necessary through the stream valley using a topographic map having a five-foot contour interval and a scale of l”=200’ (Reference 3).

The starting water-surface elevations for Black Hawk Creek consisted of the water-surface elevations for the Mississippi River at the point of confluence which corresponded to ten percent of the recurrence interval being studied on Black Hawk Creek. The starting water-surface elevations for the tributaries of Duck Creek consisted of the water-surface elevations for Duck Creek at the point of confluence which corresponded to the same recurrence intervals being studied on the tributaries.

The approximate study methods used to delineate the flood hazard areas along Spencer Creek as well as the upstream portions of the tributaries of Duck Creek consisted of estimating the flood depths using Manning’s equation and approximated cross sections derived from topographic maps. These estimated flood depths then became the basis for mapping the flood hazard areas on topographic maps.

The profiles for Black Hawk Creek, Crow Creek, and Duck Creek, and its tributaries do not consider debris or ice jam effects, if such could occur at bridges, culverts, or natural constrictions. The profi1es are also based on non-coincidence of equal frequency floods on the Mississippi River and Black Hawk Creek, since the statistical probability of such coincidence is beyond the scope of this analysis.

Starting elevations used for Crow and Duck Creeks were based on the water-surface elevation of normal pool on the Mississippi River.

As noted above, flood elevations are often raised by obstructions to flow, such as ice and log jams. The hydraulic analyses of this FIS, however, are based only on the effects of unobstructed flow. The flood elevations as shown on the profiles are thus considered valid only if hydraulic structures in general remain unobstructed, operate properly, and do not fail.

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 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 FIRM are referenced to the NGVD29. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the NGVD29 and NAVD88, or to obtain current elevation, description, and/or location information for benchmarks shown on this map, 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
(301) 713-4172 (fax)

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

4.0 FLOOD PLAIN MANAGEMENT APPLICATIONS

The NFIP encourages State and local governments to adopt sound floodplain management programs. To assist in this endeavor, each FIS 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, including Flood Profiles and Floodway Data tables. Users should reference the data presented in the FIS 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 flood plain 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 flood plain 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 1:24,000, enlarged to a scale of 1:12,000, with a contour interval of 5 feet (Reference 11).

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

For each stream studied in detail, the boundaries of the 1- and the 0.2-percent-annual-chance flood 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 l"=2,000' with a contour interval of 10 feet (Reference 50). In cases where the 1- and the 0.2-percent-annual-chance flood boundaries are close together, only the 1-percent-annual-chance boundary has been shown.

For each stream studied in detail, in the Riverdale area, the boundaries of the 1- and the 0.2-percent-annual-chance floods have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using topographic maps enlarged to a scale of 1"=500' with a contour interval of 10 feet (Reference 50). Detailed topographic maps (Reference 19 and 36) were also used in areas where they were available to determine the flood boundaries.

For streams studied by approximate methods, limited hydrologic and hydraulic analyses supplemented by the use of topographic maps (Reference 50) was used to evaluate the depth and lateral extent of the 1-percent-annual-chance flood.

Small areas within the flood boundaries may lie above the flood elevations and therefore not be subject to flooding; owing to limitations of the map scale, such areas are not shown.

4.2 Floodways

Encroachment on floodplains, such as structures and artificial fill, reduces the flood-carrying capacity and increases flood heights, thus increasing 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, the concept of a floodway is used as a tool to assist local communities in this aspect of flood plain management. Under this concept, the area of the 1-percent-annual-chance floodplain is divided into a proposed 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 in order that the 1-percent-annual-chance flood be carried without substantial increases in flood heights. Criteria adopted by FEMA limit such increases in flood heights to 1.0 foot, provided that hazardous velocities are not produced. The floodways in this report are proposed to local agencies as minimum standards that can be adopted or that can be used as a basis for additional floodway studies.

The floodway proposed for this study was computed first on the basis of equal conveyance reduction from each side of the flood plain. This method was abandoned only if the allowable surcharge could not be reached before the encroachment limits on one side of the stream reached the edge of the channel while over bank conveyance was still available on the other side. In such cases, the process of reducing over bank conveyance on the second side continued until either the allowable surcharge was achieved, or the other edge of the channel was reached. In no case was a floodway computed which was narrower than the channel. The results of these computations were tabulated at selected cross sections for each stream segment for which a floodway was computed and are presented in Table 8, "Floodway Data."

The floodway width for Spencer Creek between cross sections "E" and "S" was small and was not delineated on the FIRM due to the limitations of the map scale.

The area between the floodway and the boundary of the 1-percent-annual-chance flood is termed the floodway fringe. The floodway fringe thus encompasses the portion of the flood plain that could be completely obstructed without increasing the water-surface elevation of the 1-percent-annual-chance flood more than one foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to flood plain development are shown in Figure 2.

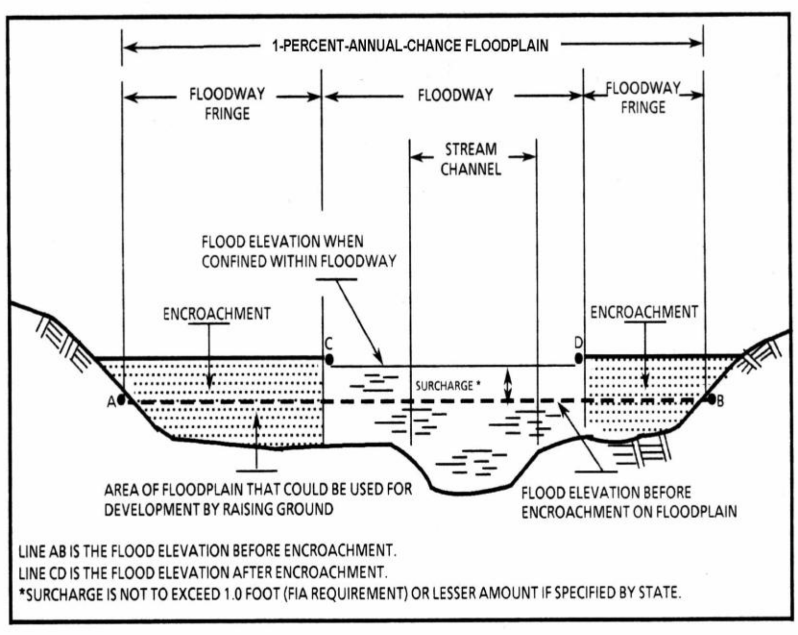

Figure 1. Floodway Schematic

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SCTION	DISTANCE [1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT.)
BLACK HAWK CREEK								
A	3,250	200	690	7.11	563.6[2]	563.6[2]	564.3	0.7
B	6,050	100	505	9.68	571.5	571.5	571.7	0.2
C	8,880	100	580	8.43	582.2	582.2	582.2	0.0
D	10,920	90	850	5.25	589.1	589.1	589.3	0.2
E	13,870	90	860	5.19	598.0	598.0	598.3	0.3
F	16,850	65	585	7.62	610.0	610.0	611.0	1.0
G	19,100	120	890	5.01	617.4	617.4	618.4	1.0
H	21,020	140	695	6.42	623.9	623.9	624.5	0.6
I	23,250	90	760	5.00	633.3	633.3	633.8	0.5
J	26,500	90	495	6.63	647.9	647.9	648.1	0.2
K	29,520	100	520	5.48	661.4	661.4	662.1	0.7
L	30,600	262	1,544	2.52	671.3	671.3	672.3	1.0
M	31,400	38	391	9.97	671.8	671.8	671.8	0.0

[1]Feet above confluence of Mississippi River

[2]Elevations without considering backwater effect from Mississippi River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

BLACK HAWK CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SCTION	DISTANCE [1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT.)
CARDINAL CREEK								
A	1.78	151	666	3.40	664.1	664.1	665.1	1.0
B	2.39	60	535	2.30	674.5	674.5	674.5	0.0
C	2.91	155	995	2.30	674.5	674.5	674.7	0.2
D	4.53	170	839	2.70	675.4	675.4	676.4	1.0
E	6.66	285	1,078	2.10	682.1	682.1	683.1	1.0

[1] Thousands of feet above confluence with Duck Creek

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

CARDINAL CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SCTION	DISTANCE [1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT.)
CEDAR CREEK								
A	390	150	1,166	1.7	562.5	562.5	562.5	0.0
B	1,350	87	231	8.8	586.0	586.0	586.0	0.0
C	1,623	57	314	6.5	592.0	592.0	592.0	0.0
D	2,463	43	186	11.0	597.3	597.3	598.2	0.9
E	3,368	57	238	8.6	614.7	614.7	615.5	0.8
F	4,640	72	314	6.5	627.3	627.3	627.7	0.4

[1]Feet above mouth at Mississippi River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

CEDAR CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SCTION	DISTANCE [1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT.)
CROW CREEK								
A	0.12	417	1,301	6.1	568.7[3]	568.7[3]	569.1[3]	0.4
B	0.27	300	802	9.8	574.6[3]	574.6[3]	574.6[3]	0.0
C	0.31	300	1,188	6.6	578.5	578.5	578.5	0.0
D	0.38	85	651	12.1	578.6	578.6	578.6	0.0
E	0.42	97	831	9.5	580.5	580.5	580.5	0.0
F	0.55	362	984	8.0	583.5	583.5	584.3	0.8
G	0.65	444	1,288	6.1	587.9	587.9	588.2	0.3
H	0.69	400	2,360	3.3	590.8	590.8	591.6	0.8
I	0.96	217	832	9.5	592.4	592.4	592.6	0.2
J	1.11	170	835	9.5	597.9	597.9	597.9	0.0
K	1.25	190	1,185	6.7	601.9	601.9	602.8	0.9
L	1.34	400	1,860	4.2	604.1	604.1	604.7	0.6
M	1.58	420	1,687	4.7	606.7	606.7	607.3	0.6
N	1.82	360	1,577	5.0	610.1	610.1	610.8	0.7
O	1.90	320	1,631	4.8	611.2	611.2	612.2	1.0
P	1.94	310	1,388	5.7	612.3	612.3	613.1	0.8
Q	2.17	242	919	8.6	619.5	619.5	619.5	0.0
R	2.25	143	1,057	7.5	621.9	621.9	621.9	0.0
S	2.29	130	1,334	5.9	624.5	624.5	624.5	0.0
T	2.42	422	2,656	3.0	625.7	625.7	625.7	0.0
U	2.61	230	1,278	6.2	626.3	626.3	626.4	0.1
V	2.83	358	1,914	4.1	630.9	630.9	631.7	0.8
W	2.99	300	1,286	6.1	633.5	633.5	634.0	0.5
X	3.10	161	959	8.20	636.8[2]	636.8[2]	637.5[2]	0.4
Y	3.52	208	914	7.60	649.3[2]	649.3[2]	649.6[2]	0.0
Z	3.77	322	1,681	4.20	654.3[2]	654.3[2]	654.8[2]	0.0

[1]Miles above confluence of Mississippi River

[2]Water-surface elevations without considering ice jam effects

[3]Water-surface elevations computed without consideration of backwater effects

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

CROW CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SCTION	DISTANCE [1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT.)
CROW CREEK (continued)								
AA	3.94	495	2,237	3.10	NA	655.8[2]	656.5[2]	0.7
AB	3.98	443	4,362	1.60	NA	660.9[2]	661.8[2]	0.9
AC	4.18	421	3,745	1.90	NA	661.0[2]	662.0[2]	1.0
AD	4.42	329	1,834	3.80	NA	661.6[2]	662.5[2]	0.9
AE	4.59	300	1,423	4.90	NA	662.9[2]	663.8[2]	0.9
AF	4.63	280	1,606	4.30	NA	665.2[2]	665.8[2]	0.6
AG	4.77	340	1,962	3.60	NA	666.3[2]	666.8[2]	0.5
AH	5.15	158	1,092	6.40	NA	668.3[2]	668.8[2]	0.5
AI	5.34	140	958	6.69	677.0	677.0	677.8	0.8
AJ	5.76	200	1,105	5.67	682.4	682.4	683.2	0.8
AK	6.18	200	1,421	4.41	686.5	686.5	687.4	0.9
AL	6.78	160	1,108	5.48	693.8	693.8	694.4	0.6
AM	7.09	220	1,510	4.02	697.7	697.7	698.7	1.0
AN	7.71	220	1,241	4.90	703.6	703.6	704.6	1.0

[1]Miles above confluence of Mississippi River
[2]Water-surface elevations without considering ice jam effects

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

CROW CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION[3]			
CROSS SCTION	DISTANCE [1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT.)
DUCK CREEK								
A	0.32	404	1,431	10.4	565.9[2]	565.9[2]	566.6[2]	0.7
B	0.74	371	1,356	10.9	568.5[2]	568.5[2]	568.6[2]	0.1
C	1.11	283	1,173	12.7	570.0[2]	570.0[2]	571.0[2]	1.0
D	1.32	150	1,675	8.9	573.9	573.9	574.9	1.0
E	1.37	170	1,758	8.5	574.2	574.2	574.9	0.7
F	1.58	200	3,077	4.8	578.0	578.0	578.1	0.1
G	2.48	240	3,003	5.0	578.6	578.6	578.9	0.3
H	3.27	262	1,186	12.6	578.6	578.6	578.9	0.3
I	3.48	89	1,019	14.6	580.5	580.5	580.7	0.2
J	4.59	125	1,342	11.1	585.8	585.8	585.8	0.0
K	5.91	152	1,875	7.9	590.0	590.0	590.0	0.0
L	6.12	156	1,952	7.6	590.5	590.5	590.5	0.0
M	6.76	366	3,257	4.6	591.5	591.5	591.5	0.0
N	7.60	260	2,469	6.0	592.2	592.2	592.2	0.0
O	8.18	307	2,392	6.2	592.8	592.8	593.0	0.2
P	9.45	467	4,040	3.7	594.2	594.2	594.9	0.7
Q	10.51	380	3,014	4.9	595.2	595.2	595.9	0.7
R	12.14	282	1,685	8.8	598.0	598.0	598.5	0.5
S	12.83	261	3,221	4.6	600.7	600.7	601.2	0.5
T	13.04	261	3,271	4.6	600.9	600.9	601.4	0.5
U	13.78	565	4,189	3.6	601.5	601.5	601.9	0.4
V	14.68	255	1,333	11.2	601.8	601.8	601.9	0.1
W	16.05	280	2,428	6.1	606.6	606.6	607.2	0.6
X	16.16	280	3,082	4.8	608.9	608.9	609.6	0.7
Y	16.79	132	1,682	8.8	609.0	609.0	609.6	0.6
Z	17.69	152	2,032	7.3	610.9	610.9	611.4	0.5

[1]Thousands of feet above confluence with the Mississippi River

[2]Water-surface elevation without considering backwater effects

[3]Water-surface elevation without considering ice jam effects

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

DUCK CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION[3]			
CROSS SCTION	DISTANCE [1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT.)
DUCK CREEK (continued)								
AA	18.22	300	3,118	4.80	NA	611.8[2]	612.5[2]	0.7
AB	18.32	300	3,075	4.80	NA	612.4[2]	612.9[2]	0.5
AC	19.17	157	2,138	7.00	NA	612.8[2]	613.2[2]	0.4
AD	19.64	121	1,678	8.90	NA	613.1[2]	613.5[2]	0.4
AE	20.54	400	4,805	3.10	NA	614.9[2]	615.8[2]	0.9
AF	21.60	317	3,746	4.00	NA	615.1[2]	616.0[2]	0.9
AG	22.12	370	4,899	3.00	NA	615.5[2]	616.4[2]	0.9
AH	23.07	177	2,287	6.50	NA	615.5[2]	616.4[2]	0.9
AI	23.28	187	2,105	7.10	NA	615.9[2]	616.7[2]	0.8
AJ	23.81	191	2,286	6.50	NA	617.1[2]	617.9[2]	0.8
AK	24.18	167	2,916	5.10	NA	617.8[2]	618.8[2]	1.0
AL	24.80	770	5,294	2.70	618.1	618.1	619.1	1.0
AM	26.60	1,200	7,321	1.95	618.7	618.7	619.5	0.8
AN	29.45	460	4,998	2.50	619.7	619.7	620.4	0.7
AO	30.75	470	3,344	4.06	620.4	620.4	621.2	0.8
AP	32.25	360	2,925	4.64	622.1	622.1	622.9	0.8
AQ	33.19	530	4,869	2.78	622.9	622.9	623.8	0.9
AR	34.82	780	4,883	2.78	623.9	623.9	624.7	0.8
AS	35.05	740	3,647	3.72	624.8	624.8	625.1	0.3
AT	37.70	475	3,701	3.30	628.0	628.0	628.2	0.2
AU	40.15	450	3,591	3.40	631.1	631.1	631.3	0.2
AV	40.65	150	1,660	7.35	631.5	631.5	631.7	0.2
AW	41.60	320	2,892	4.22	633.0	633.0	633.2	0.2
AX	43.43	340	3,106	3.79	634.3	634.3	635.3	1.0
AY	45.20	860	2,705	4.20	635.6	635.6	636.1	0.5
AZ	47.58	320	1,983	5.73	640.3	640.3	640.4	0.1

[1]Thousands of feet above confluence with the Mississippi River

[2]Water-surface elevation without considering ice jam effects

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

DUCK CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION[3]			
CROSS SCTION	DISTANCE [(1)]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT.)
DUCK CREEK (continued)								
BA	49.85	620	3,302	3.44	643.8	643.8	643.9	0.1
BB	51.75	350	2,200	5.17	646.1	646.1	646.2	0.1
BC	55.00	760	2,182	4.41	650.3	650.3	650.3	0.0
BD	56.93	450	2,187	4.28	653.7	653.7	653.7	0.0
BE	58.70	410	3,473	2.70	658.0	658.0	658.5	0.5
BF	60.45	480	3,051	2.95	658.7	658.7	659.3	0.6
BG	64.85	760	2,643	3.10	662.6	662.6	662.8	0.2
BH	66.03	730	2,151	3.81	664.0	664.0	664.1	0.1
BI	70.10	640	2,517	3.94	668.4	668.4	668.5	0.1
BJ	72.54	620	2,165	3.71	670.9	670.9	671.1	0.2
BK	74.73	241	2,110	4.52	674.5	674.5	675.5	1.0
BL	74.89	114	945	10.10	674.5	674.5	674.5	0.0
BM	75.05	166	1,450	6.57	676.3	676.3	677.3	1.0
BN	77.84	316	2,734	3.48	678.7	678.7	679.7	1.0
BO	78.06	174	1,626	5.33	683.0	683.0	684.0	1.0
BP	79.39	295	2,176	3.98	684.7	684.7	685.7	1.0
BQ	80.72	174	1,649	4.55	685.5	685.5	686.5	1.0
BR	82.05	174	1,621	4.63	686.3	686.3	687.3	1.0
BS	82.72	164	1,713	4.38	686.7	686.7	687.7	1.0
BT	83.38	61	472	15.91	687.4	687.4	687.4	0.0
BU	83.60	383	2,422	3.10	692.1	692.1	693.1	1.0
BV	84.90	211	1,610	4.66	692.7	692.7	693.7	1.0
BW	86.19	87	1,208	6.21	693.5	693.5	694.5	1.0
BX	87.48	287	2,320	3.23	694.7	694.7	695.7	1.0
BY	88.13	56	456	16.47	696.9	696.9	697.1	0.2
BZ	88.78	489	2,593	2.24	701.3	701.3	702.3	1.0

[1]Thousands of feet above confluence with the Mississippi River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

DUCK CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION[2]			
CROSS SCTION	DISTANCE [1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT.)
EAST BRANCH OF WEST FORK PIGEON CREEK								
A	2.22	41	223	6.50	639.3	639.3	639.3	0.0
B	2.26	30	178	8.15	640.6	640.6	641.4	0.8
C	2.28	80	544	2.66	644.8	644.8	645.3	0.5
D	2.43	55	151	9.60	646.9	646.9	647.0	0.1
E	2.60	55	309	4.69	654.0	654.0	654.9	0.9

[1]Miles above confluence with the Mississippi River

[2]Water-surface elevation without considering ice jam effects

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

EAST BRANCH OF WEST FORK PIGEON CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION[2]			
CROSS SCTION	DISTANCE [1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT.)
EAST FORK PIGEON CREEK								
A	0.72	38	124	10.28	578.2	578.2	578.2	0.0
B	0.79	275	330	3.86	584.4	584.4	584.4	0.0
C	0.98	90	247	8.70	591.5	591.5	591.8	0.3
D	1.09	64	265	8.11	596.2	596.2	597.2	1.0
E	1.13	92	336	6.40	600.7	600.7	600.7	0.0
F	1.27	206	435	4.94	605.9	605.9	606.0	0.1
G	1.29	175	717	3.00	609.8	609.8	609.9	0.1

[1]Miles above confluence with the Mississippi River

[2]Water-surface elevations without considering ice jam effects

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

EAST FORK PIGEON CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SCTION	DISTANCE [1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT.)
GOOSE CREEK								
A	0.85	140	882	6.04	625.8	625.8	626.8	1.0
B	2.83	170	825	6.45	632.8	632.8	633.4	0.6
C	4.64	140	939	5.67	640.4	640.4	641.1	0.7
D	5.40	140	979	5.44	644.2	644.2	644.9	0.7
E	8.00	100	683	6.66	649.0	649.0	649.7	0.7
F	10.20	110	701	6.49	654.3	654.3	654.9	0.6
G	12.86	130	724	6.28	661.3	661.3	662.3	1.0
H	15.70	130	653	6.51	666.5	666.5	667.1	0.6
I	17.70	185	903	4.71	672.5	672.5	673.2	0.7
J	19.80	175	822	5.17	677.5	677.5	678.4	0.9
K	22.40	160	649	4.99	684.1	684.1	684.8	0.7
L	25.30	160	702	3.43	689.7	689.7	690.5	0.8
M	27.50	150	582	4.14	697.8	697.8	698.0	0.2
N	29.75	80	428	4.58	706.2	706.2	707.2	1.0

[1]Thousands of feet above mouth at Duck Creek

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

GOOSE CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SCTION	DISTANCE [(1),(3)]	WIDTH[(2)] (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT.)
MISSISSIPPI RIVER								
A	470.00	5,600/1,200	104,168	3.0	560.7	560.7	561.1	0.4
B	471.50	5,300/1,245	103,436	3.1	561.3	561.3	561.7	0.4
C	474.50	4,911/600	90,528	3.5	562.2	562.2	562.6	0.4
D	476.50	7,500/1,800	113,010	2.8	563.0	563.0	563.3	0.3
E	477.60	5,791/1,390	108,606	2.9	563.3	563.3	563.6	0.3
F	478.25	3,218/1,090	76,499	4.1	563.5	563.5	563.8	0.3
G	480.00	5,263/4,275	89,459	3.2	563.9	563.9	564.3	0.4
H	481.00	2,470/1,260	63,751	4.5	564.2	564.2	564.6	0.4
I	482.70	2,998/1,275	66,130	4.4	564.9	564.9	565.2	0.3
J	483.00	1,381/1,400	33,153	7.4	565.6	565.6	566.1	0.5
K	484.40	2,287/980	52,979	4.6	567.3	567.3	567.8	0.5
L	485.00	1,444/740	35,701	6.9	567.5	567.5	568.0	0.5
M	486.00	2,106/1,150	45,319	5.4	569.2	569.2	569.6	0.4
N	488.00	3,056/1,430	64,581	4.5	570.9	570.9	571.2	0.3
O	490.60	3,251/1,435	64,449	4.0	573.2	573.2	573.3	0.1
P	493.00	2,841/1,375	63,078	4.6	574.4	574.4	574.7	0.3
Q	493.40	2,749/990	53,549	5.4	577.1	577.1	577.6	0.5
R	495.30	2,594/1,305	53,181	5.4	578.4	578.4	578.8	0.4
S	497.10	1,714/855	51,154	5.7	580.0	580.0	580.3	0.3
T	498.50	2,892/1,775	65,708	4.4	580.9	580.9	581.2	0.3
U	500.50	2,704/1,350	65,721	4.4	581.9	581.9	582.2	0.3
V	502.50	2,623/1,140	66,080	4.4	582.9	582.9	583.1	0.2
W	503.30	5,882/3,400	86,985	3.3	583.3	583.3	583.6	0.3
X	506.00	4,258/1,450	82,229	3.5	584.5	584.5	584.9	0.4

[1]Miles above confluence with the Ohio River

[2]Width/width within community.

[3]Distance based on the 1960 River Mile stationing, which may not match the measured distance shown along the profile baseline shown on the maps.

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

MISSISSIPPI RIVER

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SCTION	DISTANCE (1)	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT.)
PHEASANT CREEK								
A	1.10	100	700	5.53	620.9	620.9	621.4	0.5
B	3.52	140	874	4.43	626.4	626.4	627.0	0.6
C	5.50	160	912	4.24	631.7	631.7	632.7	1.0
D	9.00	75	468	7.29	639.7	639.7	640.6	0.9
E	11.45	75	474	5.89	646.7	646.7	646.9	0.2
F	16.77	140	862	2.60	667.7	667.7	668.3	0.6
G	20.65	75	344	5.44	689.1	689.1	689.5	0.4
H	22.35	75	300	6.23	697.8	697.8	698.5	0.7

[1]Thousands of feet above mouth at Duck Creek

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

PHEASANT CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SCTION	DISTANCE [1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT.)
SILVER CREEK								
A	0.53	130	940	5.48	648.7	648.7	649.7	1.0
B	2.40	220	1,200	4.29	652.8	652.8	653.7	0.9
C	4.65	220	1,089	4.73	656.9	656.9	657.7	0.8
D	7.18	220	1,069	4.82	664.2	664.2	664.8	0.6
E	9.10	170	1,303	2.90	669.1	669.1	669.7	0.6
F	11.80	150	757	3.96	672.1	672.1	672.8	0.7
G	14.80	150	723	4.15	678.4	678.4	679.1	0.7
H	18.50	130	608	4.93	689.3	689.3	690.3	1.0
I	20.60	100	510	4.16	697.7	697.7	698.5	0.8
J	22.80	120	516	4.11	702.5	702.5	703.5	1.0

[1]Thousands of feet above mouth at Duck Creek

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

SILVER CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SCTION	DISTANCE (1)	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT.)
SPENCER CREEK								
A	0.46	202	822	7.3	573.9[2]	568.9[3]	568.9[3]	0.0
B	1.57	180	873	6.8	575.5	575.5	575.5	0.0
C	2.62	190	1,080	5.5	583.5	583.5	584.5	1.0
D	3.88	90	528	11.3	592.9	592.9	592.9	0.0
E	5.34	57	466	11.0	603.1	603.1	603.2	0.1
F	7.51	53	480	10.7	612.4	612.4	612.6	0.2
G	9.08	71	513	10.0	621.1	621.1	621.3	0.2
H	10.50	145	580	8.8	636.9	636.9	637.0	0.1
I	11.78	150	861	5.9	643.6	643.6	643.7	0.1
J	12.96	205	947	5.4	646.4	646.4	646.8	0.4
K	14.10	190	1,187	4.3	648.8	648.8	649.3	0.5
L	15.29	140	1,037	4.9	652.1	652.1	652.1	0.0
M	17.57	100	533	9.6	655.1	655.1	655.1	0.0
N	18.72	120	566	9.0	660.4	660.4	660.7	0.3
O	20.29	100	854	6.0	666.5	666.5	667.0	0.5
P	21.74	110	729	7.0	669.9	669.9	670.9	1.0
Q	24.48	100	574	6.8	676.3	676.3	676.8	0.5
R	26.75	100	568	6.9	680.0	680.0	680.9	0.9
S	28.36	120	639	6.1	685.1	685.1	685.9	0.8
T	29.63	100	614	6.4	688.7	688.7	689.2	0.5
U	31.10	90	774	5.1	691.3	691.3	692.1	0.8
V	34.10	100	602	6.5	698.3	698.3	698.8	0.5
W	35.52	115	749	3.9	701.9	701.9	702.5	0.6
X	36.84	100	588	4.9	705.0	705.0	705.5	0.5
Y	38.18	100	655	4.4	707.1	707.1	707.8	0.7
Z	39.69	100	483	6.0	710.6	710.6	711.3	0.7

[1]Thousands of feet above confluence of Mississippi River

[2]Backwater effects from the Mississippi River

[3]Water-Surface elevation computed without consideration of backwater effects from the Mississippi River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

SPENCER CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SCTION	DISTANCE [1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NAVD)	WITHOUT FLOODWAY (NAVD)	WITH FLOODWAY (NAVD)	INCREASE (FT.)
SPENCER CREEK								
AA	41.43	120	878	3.3	717.2	717.2	717.5	0.3
AB	43.22	120	722	4.0	719.1	719.1	719.9	0.8
AC	44.57	23	182	13.4	720.5	720.5	721.2	0.7

[1] Thousands of feet above confluence of Mississippi River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

SPENCER CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SCTION	DISTANCE [1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT.)
SYCAMORE CREEK								
A	100	126	708	3.7	578.0	577.9[2]	578.9	1.0
B	212	25	170	15.2	578.0	577.9[2]	577.9	0.0
C	299	79	791	3.3	583.7	583.7	584.7	1.0
D	347	38	409	6.3	583.7	583.7	583.7	0.0
E	546	135	1,821	1.4	591.9	591.9	592.9	1.0
F	1210	74	824	3.1	592.1	592.1	593.1	1.0
G	1894	26	98	19.4	610.8	610.8	610.8	0.0
H	1958	35	147	12.9	619.3	619.3	619.3	0.0
I	2854	72	249	7.6	630.0	630.0	631.0	1.0
J	3774	46	226	8.4	640.1	640.1	641.1	1.0
K	4614	36	162	11.7	655.2	655.2	656.2	1.0
L	4808	62	319	6.0	658.5	658.5	659.5	1.0
M	5268	33	136	11.6	665.1	665.1	666.1	1.0
N	5875	220	2,767	0.6	682.8	682.8	683.8	1.0
O	6893	34	175	9.0	686.2	686.2	687.2	1.0

[1]Feet above mouth at Mississippi River

[2]Elevations without considering backwater effect from Mississippi River

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

SYCAMORE CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION[2]			
CROSS SCTION	DISTANCE [1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT.)
WEST FORK PIGEON CREEK								
A	0.08	460	670	4.70	566.9[3]	566.9[3]	567.1[3]	0.2
B	0.36	340	1,027	3.07	570.2[3]	570.2[3]	571.2[3]	1.0
C	0.50	188	449	7.01	572.6[3]	572.6[3]	573.0[3]	0.4
D	0.77	50	369	5.08	580.2	580.2	580.6	0.4
E	0.84	275	416	4.51	584.4	584.4	584.4	0.0
F	0.99	78	269	8.42	587.9	587.9	587.9	0.0
G	1.28	230	387	6.07	596.8	596.8	596.9	0.1
H	1.30	200	630	3.73	598.5	598.5	598.5	0.0
I	1.49	67	245	9.59	608.7	608.7	608.7	0.0
J	1.68	61	279	8.42	617.6	617.6	617.9	0.3
K	1.90	59	298	7.88	628.0	628.0	628.6	0.6
L	2.00	50	312	7.53	633.1	633.1	634.1	1.0
M	2.14	206	811	2.90	636.3	636.3	636.8	0.5
N	2.23	33	224	6.02	639.3	639.3	639.3	0.0
O	2.30	35	125	10.80	641.5	641.5	641.5	0.0
P	2.45	38	136	9.93	653.4	653.4	653.6	0.2
Q	2.47	55	365	3.70	662.4	662.4	662.4	0.0
R	2.57	55	247	5.46	662.7	662.7	662.8	1.0
S	2.64	35	125	10.80	665.5	665.5	665.5	0.0

[1]Miles above confluence with the Mississippi River

[2]Water-surface elevations without considering ice jam effects

[3]Water-surface elevations computed without consideration of backwater effects

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

WEST FORK PIGEON CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SCTION	DISTANCE [1]	WIDTH (FT.)	SECTION AREA (SQ. FT.)	MEAN VELOCITY (F.P.S)	REGULATORY (NGVD)	WITHOUT FLOODWAY (NGVD)	WITH FLOODWAY (NGVD)	INCREASE (FT.)
WEST FORK SILVER CREEK								
A	0.75	120	677	4.51	672.4	672.4	672.6	0.2
B	2.43	150	615	4.15	676.0	676.0	676.7	0.7
C	5.68	100	480	4.67	684.5	684.5	685.2	0.7

[1]Thousands of feet above confluence of Silver Creek

TABLE 8

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOODWAY DATA

WEST FORK SILVER CREEK

For the Mississippi River, the floodway boundary on the Iowa side was based primarily on engineering judgment and pervious studies, with input and review by the USACE, the Iowa Natural Resources Council, and the City of Davenport. The floodway boundary was located along the alignment of a proposed flood protection levee for the City of Davenport (Reference 37) wherever possible. In the design of the proposed levee project, the USACE estimated the rise in the 0.5-percent-annual-chance flood level which would result from construction of the proposed project to be between 0.4 and 0.9 foot. Therefore, the proposed floodway boundary for the Mississippi River shown herein satisfies the maximum 1.0 foot rise criteria.

For Duck Creek, a floodway was previously mapped and has been utilized during the past 10 years by the City of Davenport and the Iowa Natural Resources Council for regulating development in Duck Creek floodplain. At the City of Davenport's request, this floodway was used in this FIS. The existing floodway was tested using the HEC-2 computer model and met the maximum 1.0 foot rise criterion.

The floodway presented in this study for the Sycamore Creek was computed on the basis of equal conveyance reduction from each side of the floodplain, using a step-backwater computer model developed by Stanley Consultants (Reference 17). In this case, however, floodway encroachment not only increases water-surface elevations by one foot, it also raises stream velocities significantly. At specific cross sections (I, J, K, M, and O) stream velocities range from over 7 feet to nearly 12 feet per second. Velocities at other cross sections (B, G, and H) while very high, are not the result of floodway encroachment but are the natural velocity for the flow of a 1-percent-annual-chance flood. These two cases should not be confused.

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 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 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, 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 and, in the 1-percent-annual-chance floodplains that were studied by detailed methods, shows selected whole-foot BFEs or average depths. Insurance agents use the zones and 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 Scott County. 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, where applicable. Historical data relating to the maps prepared for each community are presented in Table 9, "Community Map History."

7.0 OTHER STUDIES

City of Bettendorf

Several studies have been completed all of which contain information which relates to flooding in Bettendorf (References 23, 25, 38, 39 and 40).

The flood plain boundaries shown in this report for the Mississippi River differ from what was shown in the previous Flood Plain Information Report (FPIR) (Reference 23). The boundaries shown in this study are based on more detailed topographic information. Also, the profiles and boundaries shown in this report differ from previous studies for Crow and Duck Creeks. However, for that portion of Duck Creek designated as Reach 1, the zone designation of A15 is in agreement with a similar report for Riverdale, Iowa (Reference 12). Flow frequency values used for this study are based on 13 additional years of record than values used in previous studies. This additional period of record resulted in a reduction of flows for specific frequencies. Some of the original bridges have been replaced and additional development has occurred.

A flood control project has been completed by the USACE to protect a portion of the City of Bettendorf, Iowa, from flooding caused by the Mississippi River. The project consisted of improvements to the existing earthen levee and the construction of new floodwalls and closure structures between 10th Street and Duck Creek (Reference 39).

COMMUNITY NAME	INITIAL IDENTIFICATION	FLOOD HAZARD BOUNDARY MAP REVISIONS DATES	FIRM EFFECTIVE DATES	FIRM REVISION DATES
Bettendorf, City of	February 1, 1974	August 15, 1975 April 16, 1976	June 1, 1978	December 11, 1979 February 17, 1988 February 4, 1998
*Blue Grass, City of	None	None	None	None
Buffalo, City of	March 1, 1974	January 23, 1976	September 17, 1980	None
Davenport, City of	June 21, 1974	None	March 1, 1978	November 4, 1992 February 4, 1998
*Dixon, City of	None	None	None	None
Donahue, City of	March 19, 1976	None	May 1, 1990	None
Eldridge, City of	August 6, 1976	None	September 1, 1991	None
Le Claire, City of	December 17, 1973	April 30, 1976	August 15, 1980	None
*Long Grove, City of	None	None	None	None
*Maysville, City of	None	None	None	None
McCausland, City of	None	None	None	None
*New Liberty, City of	None	None	None	None
Panorama Park, City of	December 10, 1976	None	June 15, 1978	None
Princeton, City of	March 1, 1974	January 23, 1976	November 1, 1979	None
Riverdale, City of	January 23, 1974	March 26, 1976	January 5, 1978	November 13, 1979
Scott County Unincorporated Areas	June 1, 1977	None	June 1, 1977	January 6, 1993 February 4, 1998
Walcott, City of	July 9, 1976	None	November 7, 2001	None

* Non-Floodprone Communities

TABLE 9

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IOWA

AND INCORPORATED AREAS

COMMUNITY MAP HISTORY

The levee system was designed and certified by the USACE to protect the City of Bettendorf from the 0.5-percent-annual-chance flood. The area protected by the levee has a system of ponding areas, gravity outlets, and pumping stations to control flooding resulting from interior drainage. The 1-percent-annual-chance elevations for the ponding areas were provided by the USACE (Reference 40). No new hydraulic analyses were performed for the Mississippi River or Duck Creek.

City of Buffalo

The USACE has published detailed hydrologic studies and flood profiles for the Mississippi River for decades. This work has been carried out for the purposes of navigation, flood control, and flood plain management. The most recent publications pertaining to the study reach include “Flood Flow-Frequency Estimates” (Reference 20), “Mississippi River Lock and Dam No. 16, Operation Diagram and Modified Stage-Discharge Relations” (Reference 41), “Upper Mississippi River, Flood Profiles” (Reference 42), and Mississippi River Flood Plain Information, Rock Island County, Illinois, Scott and Muscatine Counties, Iowa (Reference 14). Peak discharges used in this study for the Mississippi River are compatible with the discharges having no expected probability adjustment obtainable from “Flood Flow Frequency Estimates.” Profiles for the Mississippi River are consistent with the stage-discharge relations for Lock and Dam No. 16.

City of Davenport

A FPIR for the Mississippi River was completed in 1969 for Scott and Muscatine Counties in Iowa and Rock Island County in Illinois by the USACE (Reference 21). The hydrological data and flood profiles upon which this report was based were reviewed and found to be compatible for use in the FIS for the City of Davenport. A recent project report for flood control along the Mississippi River and Black Hawk Creek in Davenport (1974) was also reviewed for consideration in the preparation of the FIS (Reference 42).

In 1965, the USACE completed a FPIR for Duck Creek (Reference 14). This report was followed by floodway analyses for Duck Creek performed by the Iowa Natural Resources Council. The pertinent input data and results of these studies were reviewed and found to be technically sound. However, the flood profiles published herein are generally slightly lower, due to the fact that the flood discharges for Duck Creek were based on a study of Mississippi River bluff drainage recently completed by the USACE and are lower than those used in the previous study. Other changes in the Duck Creek Valley, such as bridge reconstruction and filling of portions of the flood plain for development purposes, resulted in changes in the flood profiles under existing conditions in comparison with those published in the 1965 report. The floodway previously delineated for Duck Creek and presently being used for flood plain management along Duck Creek was reviewed and found to be compatible for presentation in this FIS.

In 1971, a flood hazard investigation of Crow Creek within the corporate limits of Bettendorf and Davenport, Iowa, was completed by the USACE. The flood profiles computed for Crow Creek for this study are slightly lower, due to the use of lower discharges for Crow Creek based on the recently completed bluff drainage study.

The starting water-surface elevations for both Duck and Crow Creeks were obtained from the results of the Bettendorf FIS being prepared by the USACE.

Channel cross sections for the backwater analyses for the streams studied were obtained by land survey. The dimensions for all the bridges in this study were obtained from Scott County, the City of Davenport, and by field survey. Water-surface elevations of floods of the selected recurrence intervals were computed using the USACE HEC-2 computer program (Reference 43). The starting water-surface elevations for Spencer Creek were obtained by using the slope-area method.

Scott County (Unincorporated Areas)

In 1971, the USGS, with the cooperation of the Iowa State Highway Commission, issued a report on flooding of the Wapsipinicon River in a reach including Scott County (Reference 22). Included in the report were estimated profiles of the 4- and 2-percent-annual-chance floods, as well as the profiles of recorded floods. The data in the report have been reviewed, and were found to be a satisfactory base for estimating the extent of flooding of the 1-percent-annual-chance flood by approximate methods. The results of this present study are not in conflict with the results presented in the earlier report.

In 1969, the Rock Island District of the USACE published a report on flooding of the Mississippi River in a reach including Scott County (Reference 21). Included in the report were profiles of the Intermediate Regional (1-percent-annual-chance frequency) and Standard Project Floods. Supplemental information about the 2- and 0.5-percent-annual-chance profiles has also been developed by the Rock Island District (Reference 27). The data and the previously-mentioned discharge-frequency curves have been reviewed, and were found to be a satisfactory base for determining flood profiles and extents of flooding by detailed methods. The results of this present study are not in conflict with results previously published.

In 1971, the Rock Island District of the USACE published a report on flooding of Crow Creek in Scott County (Reference 25).

The reach covered by that report was entirely within incorporated areas; the upstream limit of the study was the north Corporate Limits of the City of Davenport. Included in the report was a profile and maps showing the extent of flooding of the 1-percent-annual-chance flood. The data have been reviewed, and were found to be a satisfactory base for estimating by approximate methods the extent of flooding of the 1-percent-annual-chance flood in the reach under consideration in this present study. The results of this study are not in conflict with the results in the previous report.

In 1973, the Rock Island District of the USACE published a report on flood control projects, including a project on Black Hawk Creek in the City of Davenport. An appendix devoted to hydrology and hydraulics contained estimates of peak discharges of floods at a point some distance downstream from the reach under study in this present report (Reference 26). These values have been reviewed, and were found to be a satisfactory base for estimating peak discharges within the reach presently under consideration. The results of this study are not in conflict with the results in the previous report.

In 1965, the Rock Island District of the USACE published a report on flooding of Duck Creek (Reference 21). Included in the report were estimated discharges, profiles, and extents of flooding of the 10- and 1-percent-annual-chance floods in the reach presently under study. Since that report was published, two additional bridges (for Interstate 280) have been constructed, and a length of channel has been straightened, in the study reach.

Because such changes can have a significant effect on flood profiles, and because the reach was to be studied in detail, new cross sections were surveyed along the entire study reach. Examination of the survey data revealed that many points in the streambed were eroded 0.5 foot to 1.5 feet deeper than when data for the 1965 report were gathered. Just downstream from the Interstate 280 bridges, the channel was almost 4.5 feet deeper.

Flood profiles were computed with the three new factors - a deeper streambed (hence, different channel cross sections), two new bridges, and a straightened channel length - and base flood elevations were generally from 0.5 foot to 1.5 feet different from the values presented in the 1965 report. Comparison of the data from the 1965 study and from this present study, and examination of the resulting differences, indicate that the differences primarily result from the three previously-mentioned changes to the stream.

The purposes of the past revisions were to update flood plain information for Spencer Creek in the FIS for the City of Bettendorf and the unincorporated areas of Scott County, Iowa. The reach studied by the USACE was identified at a Time and Cost Meeting held on November 4, 1992, and attended by representatives of the Cities of Bettendorf and Davenport, Scott County, FEMA, and the USACE, Rock Island District, which is the study contractor.

The hydrologic and hydraulic analyses for past restudy were prepared by the USACE, Rock Island District, for FEMA, under Interagency Agreement No. EMW-93-E-4119, Project Order No. 6, dated January 29, 1993, and a FEMA Region VII Tasking Letter, dated April 8, 1993. This study was completed in March 1995. By using new topographic mapping and channel and over bank cross section surveys, and current versions of pertinent hydrologic and hydraulic models, this LNNP Report more accurately reflects the current flood potential for the study areas.

Spencer Creek, a tributary to the Mississippi River (approximate River Mile 492.3), was studied in detail from its confluence with the Mississippi River to 210th Street (Scott County Road F55) in the northeast quarter of Section 32, T. 79 N., R. 4 E.

Spencer Creek is an ungaged stream. The discharge values for Spencer Creek were derived using the 1987 version of the Iowa Regression Equation Computational Procedure (Reference 51), an updated model of the one dated March 1973, which was used in the FIS for Scott County. These discharge values were verified using the USACE HEC-1 computer program (Reference 44).

Information pertaining to revised and un-revised flood hazards for each community within Scott County has been compiled into this FIS. Therefore, this FIS supersedes all previously printed FIS Reports, Flood Hazard Boundary Maps (FHBMs), Flood Boundary and Floodway Maps (FBFMs), and FIRMs for all of the incorporated and unincorporated jurisdictions within Scott County.

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Federal Insurance and Mitigation Division, FEMA Region VII, 9221 Ward Parkway, Suite 300, Kansas City, Missouri 64114-3372.

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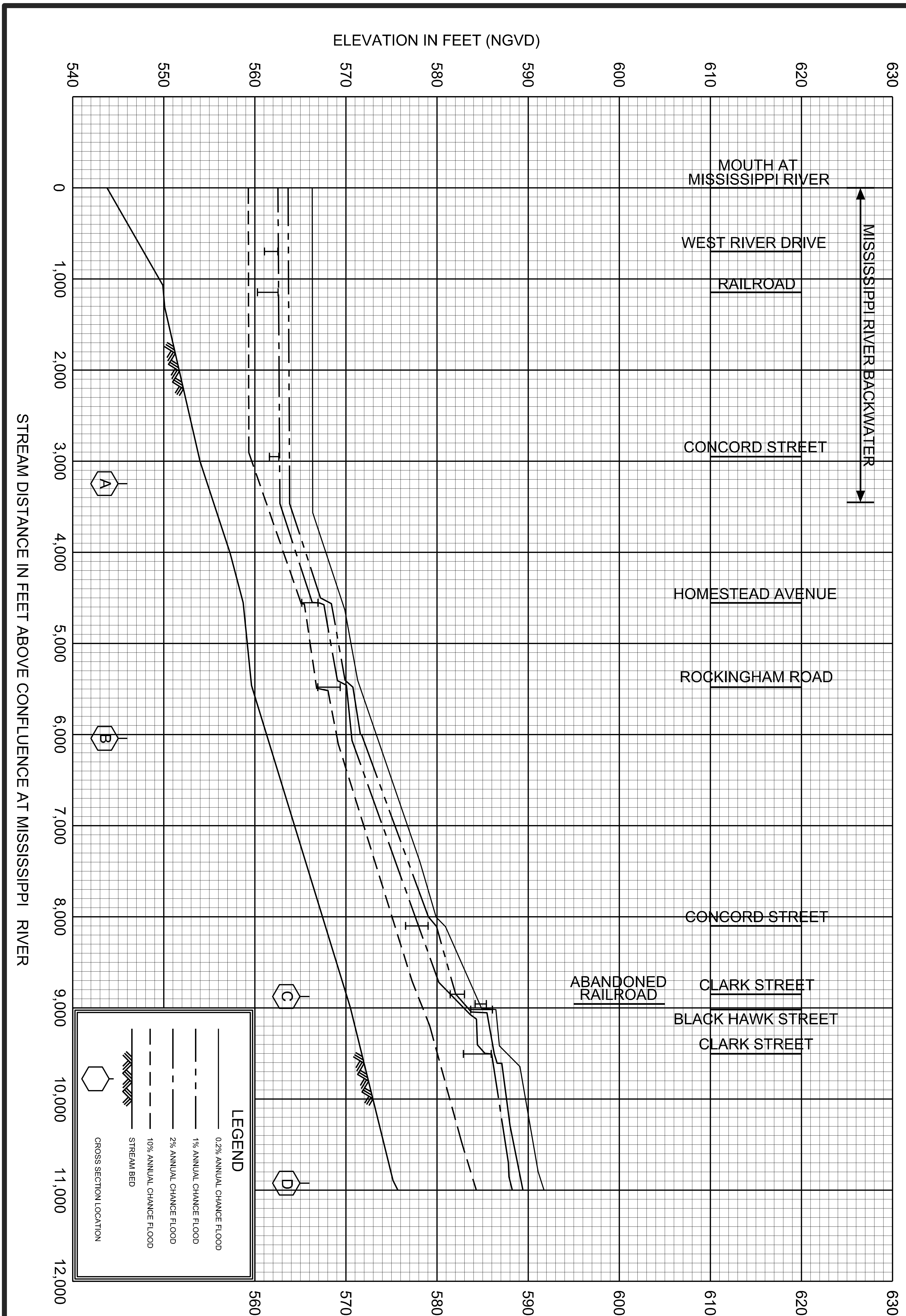


FEDERAL EMERGENCY MANAGEMENT AGENCY

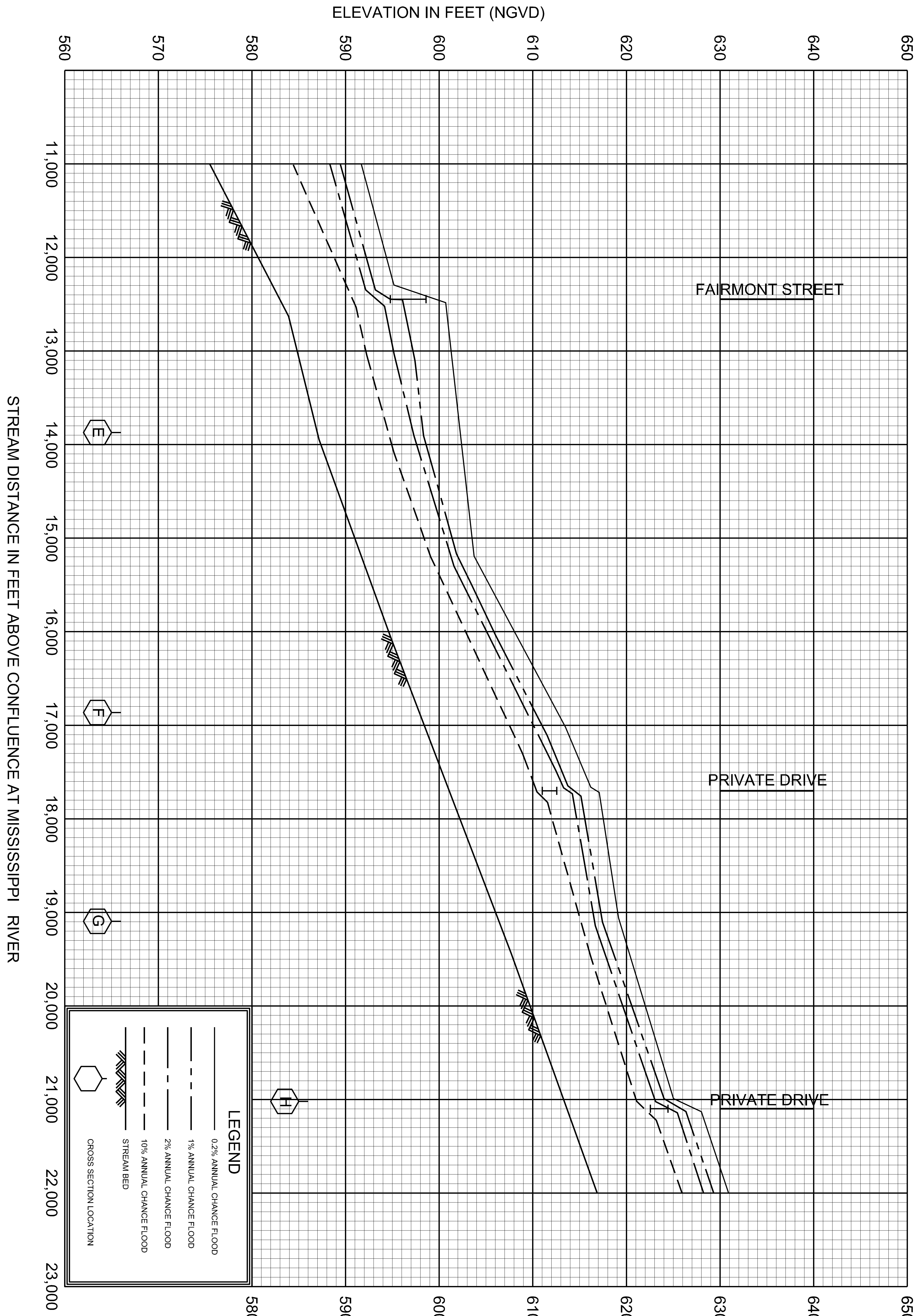
SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

BLACK HAWK CREEK

01P



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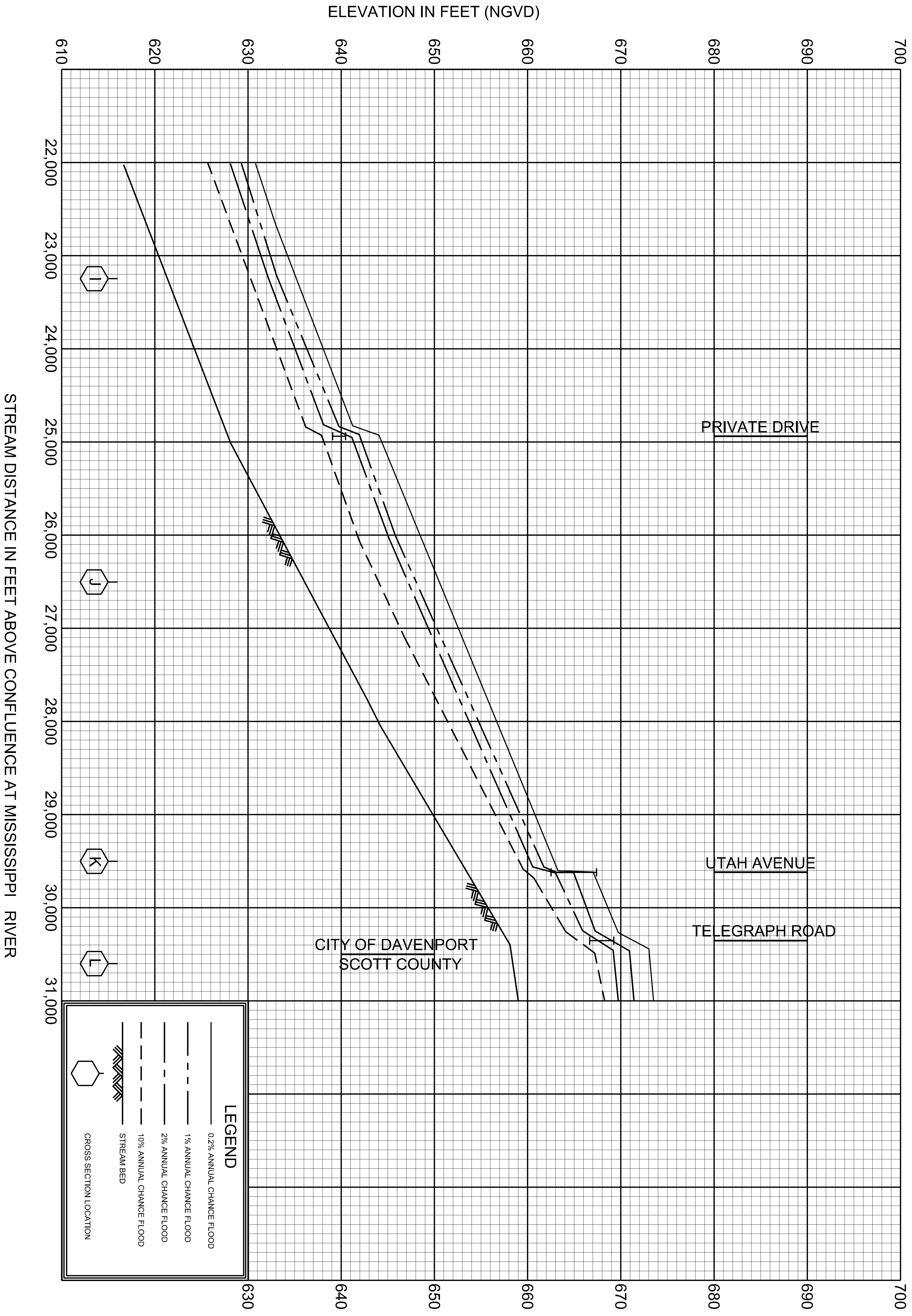
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

BLACK HAWK CREEK



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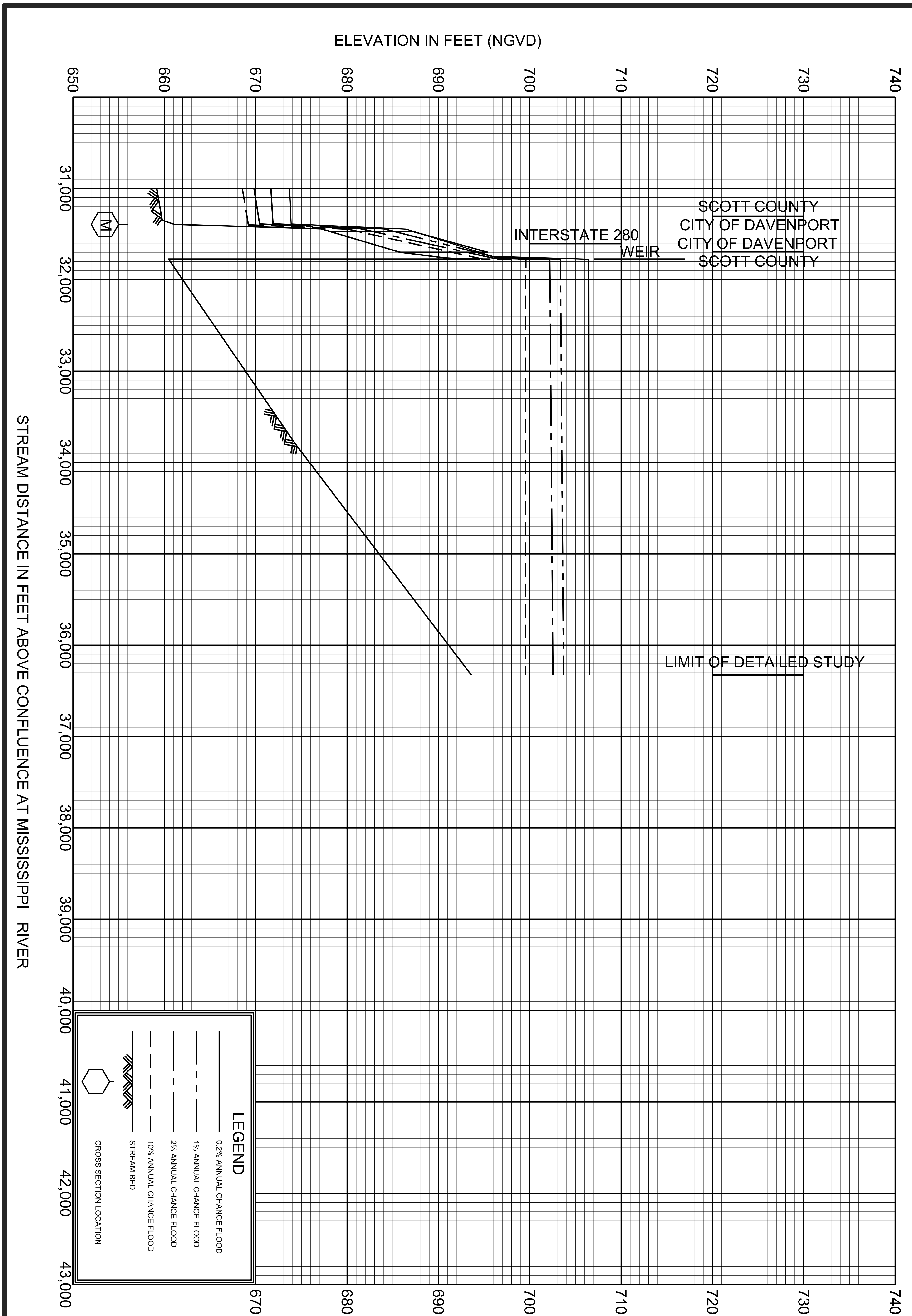
FEDERAL EMERGENCY MANAGEMENT AGENCY
SCOTT COUNTY, IA
AND INCORPORATED AREAS

FLOOD PROFILES

BLACK HAWK CREEK



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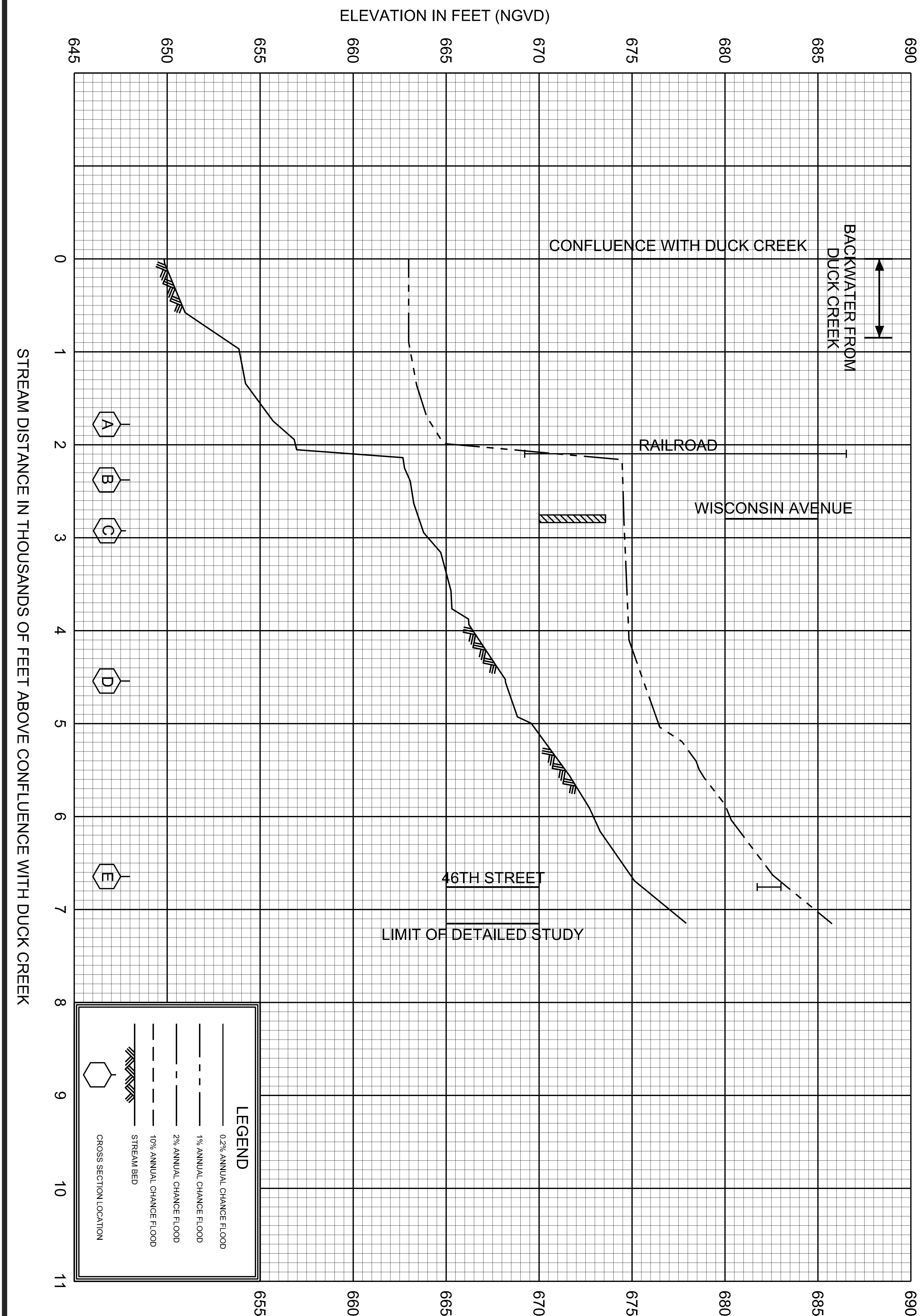
FEDERAL EMERGENCY MANAGEMENT AGENCY
SCOTT COUNTY, IA
AND INCORPORATED AREAS

FLOOD PROFILES

BLACK HAWK CREEK



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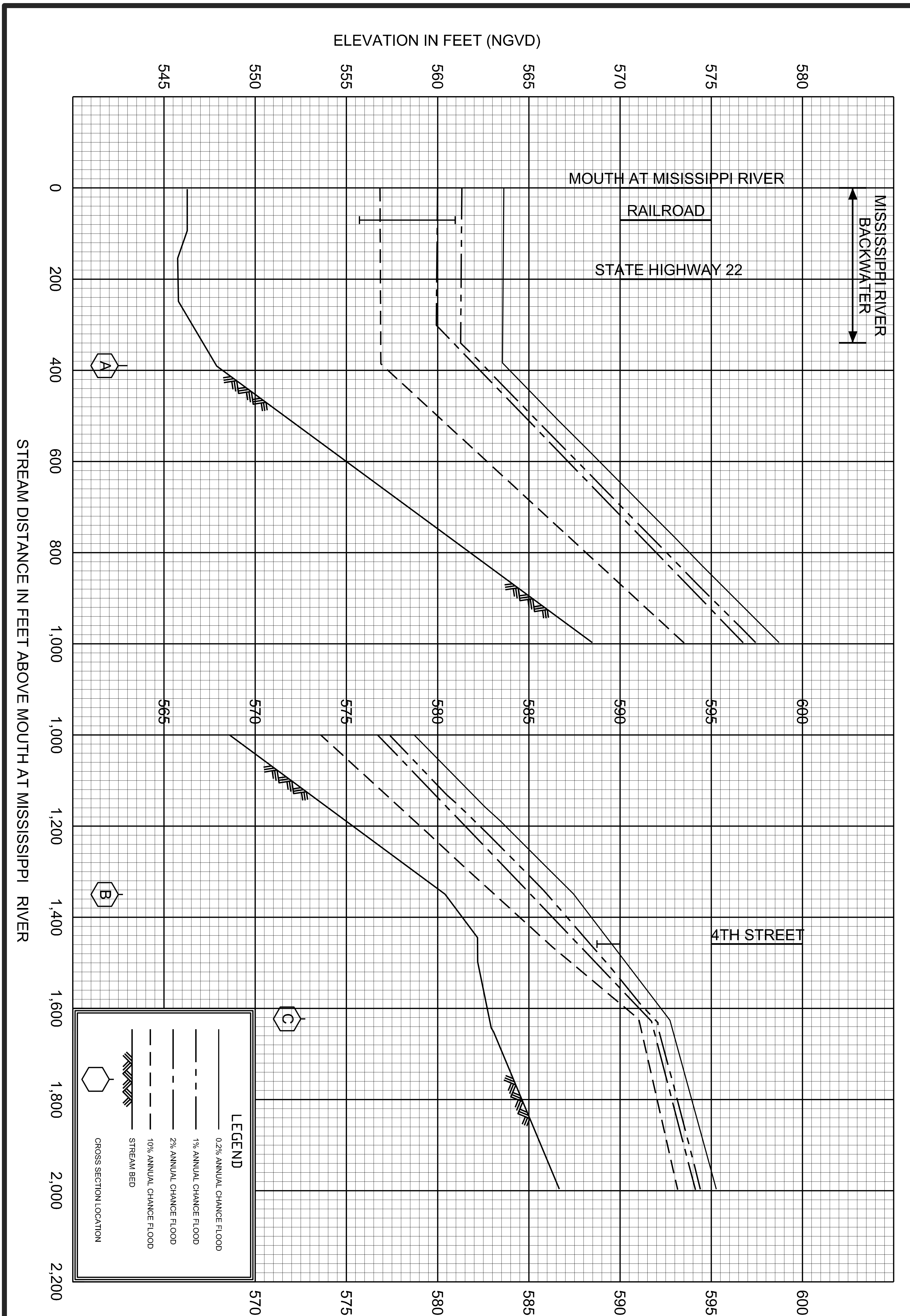

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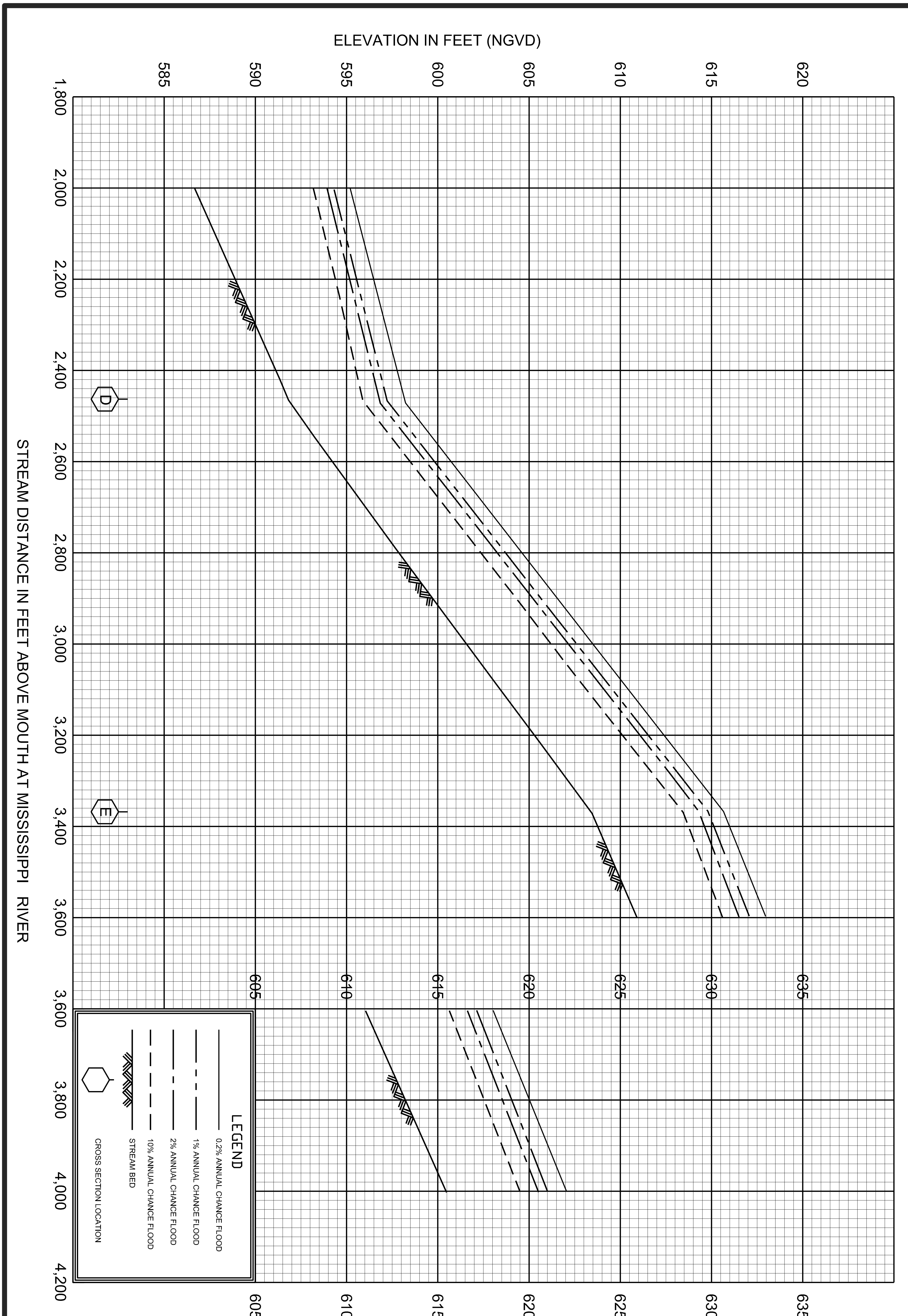
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

CEDAR CREEK



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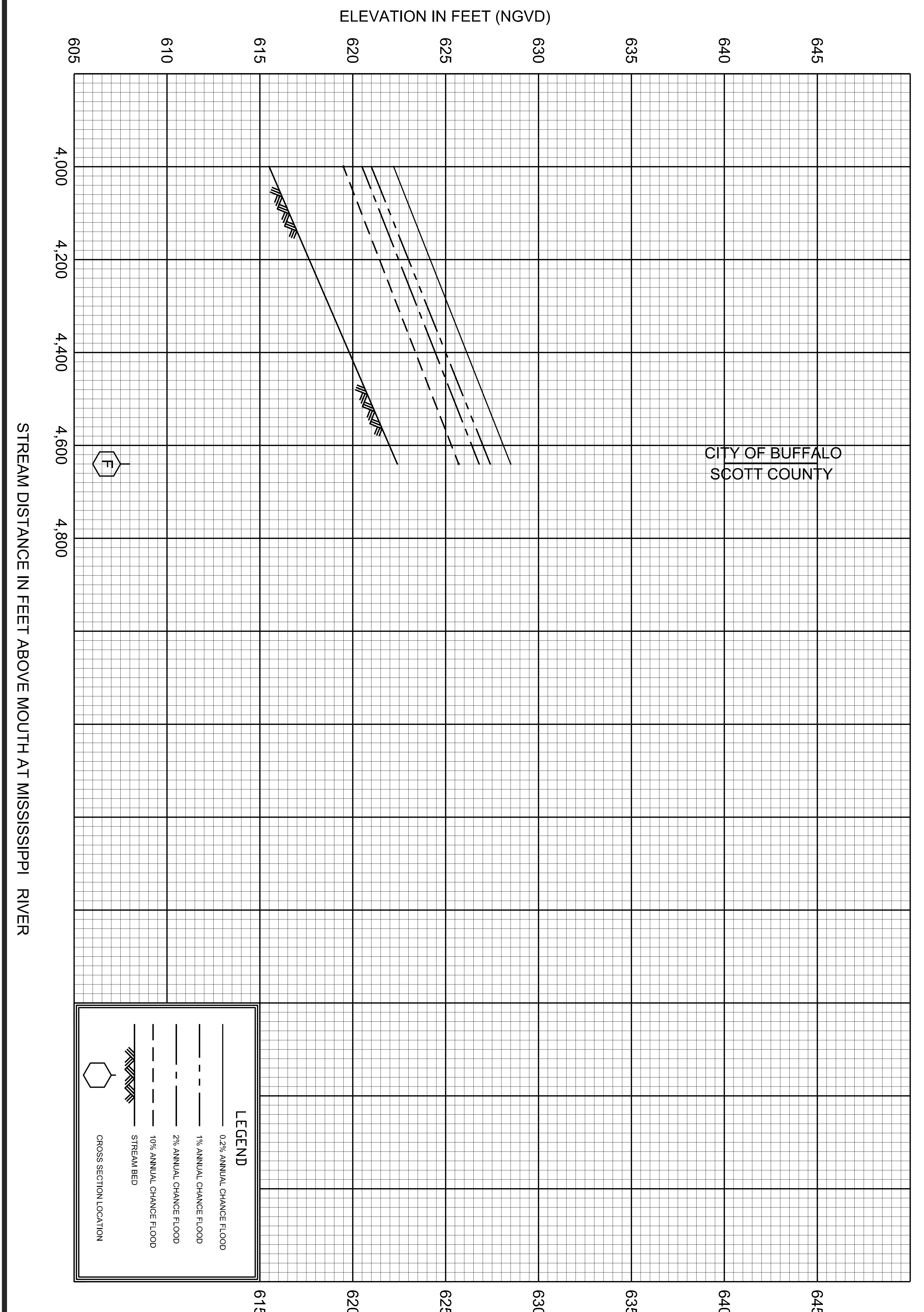
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

CEDAR CREEK



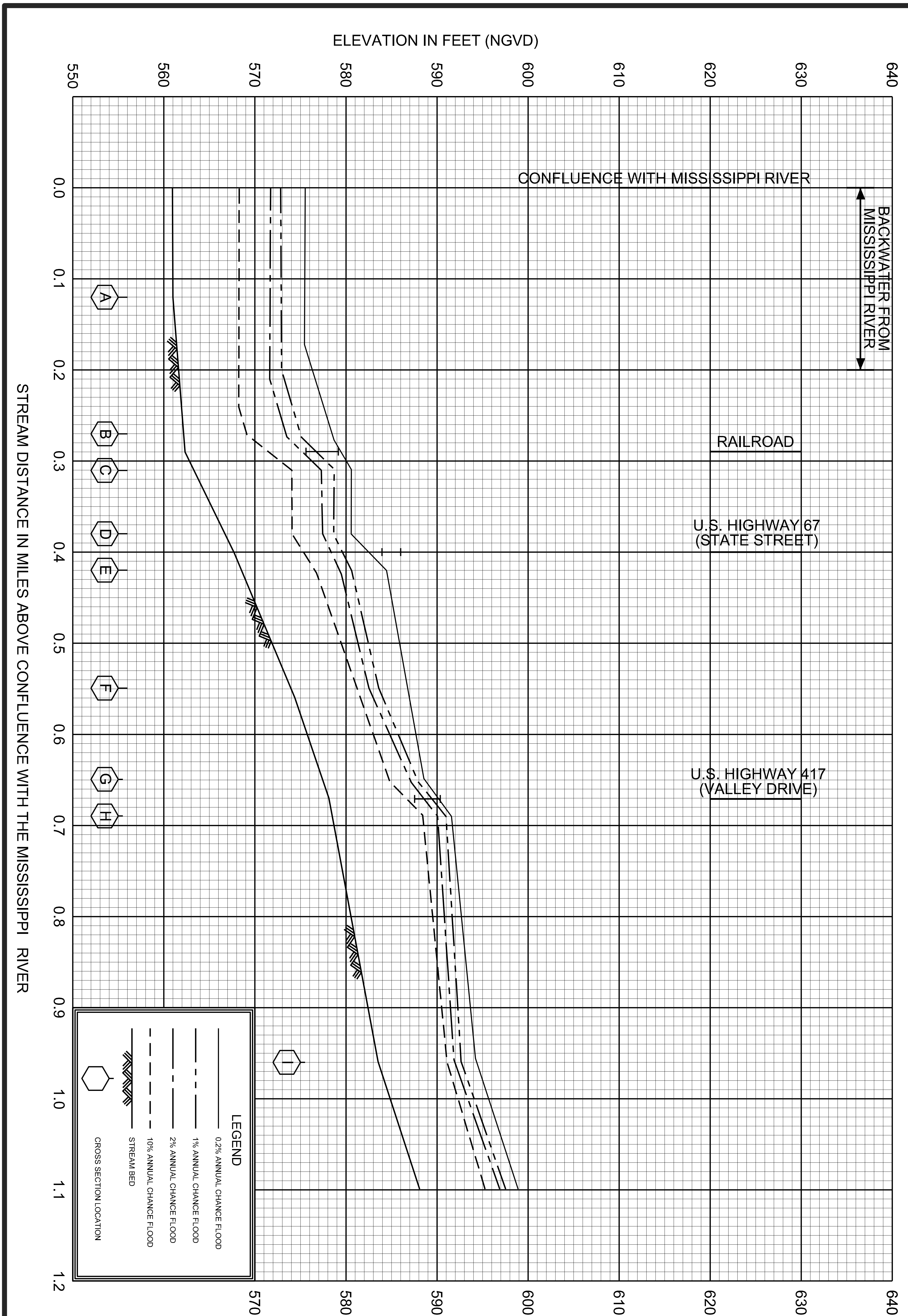
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

CEDAR CREEK



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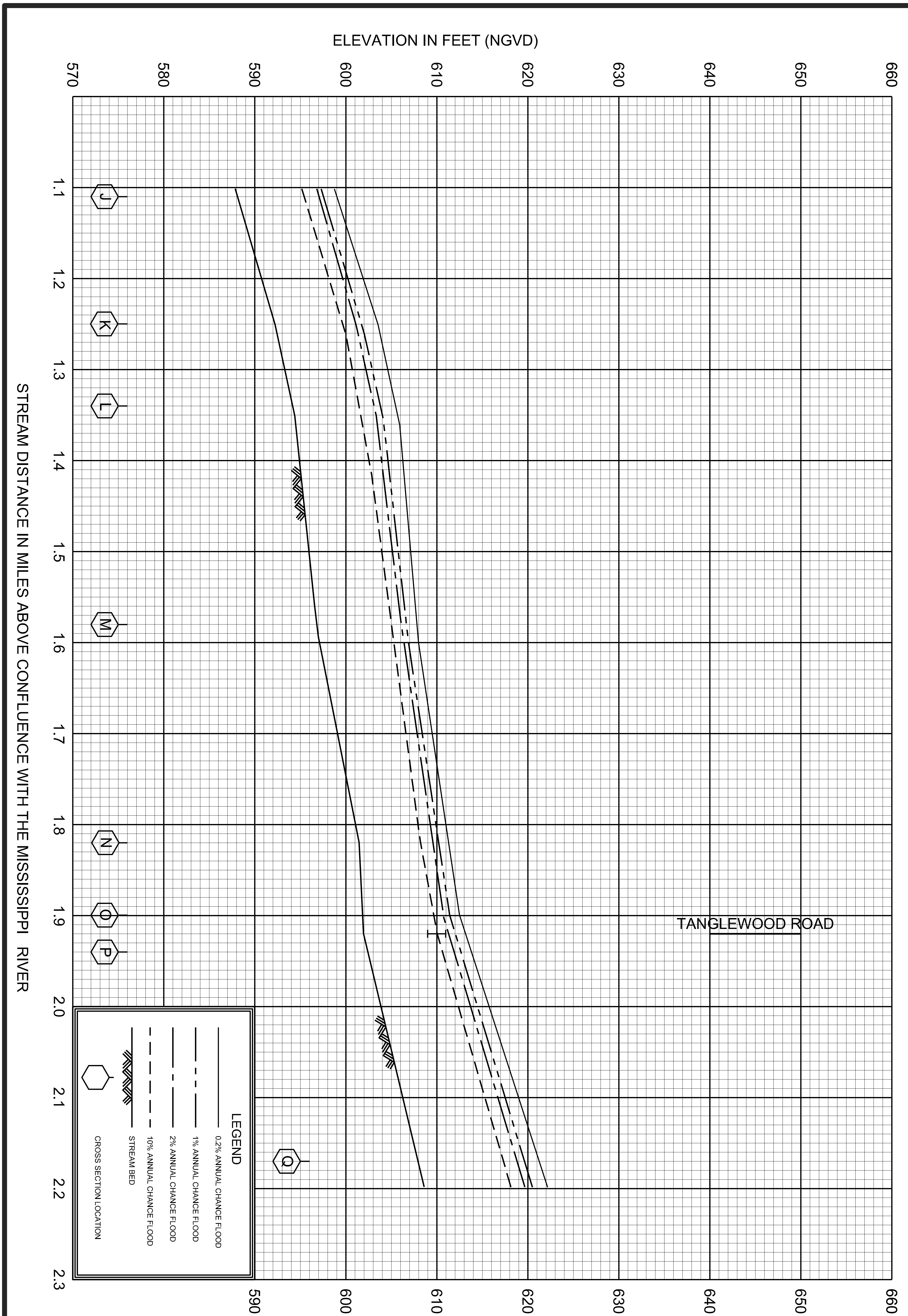
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

CROW CREEK



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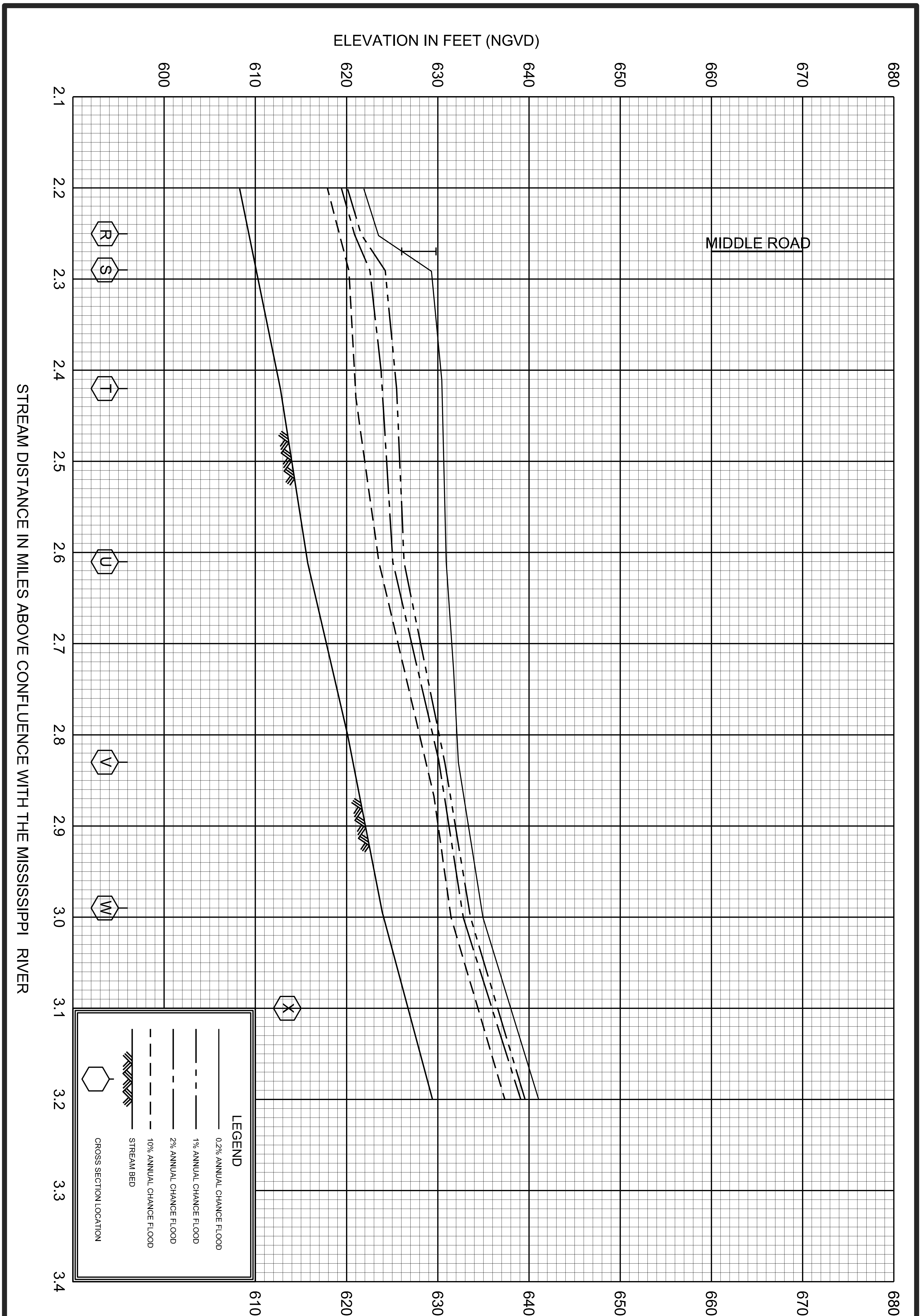

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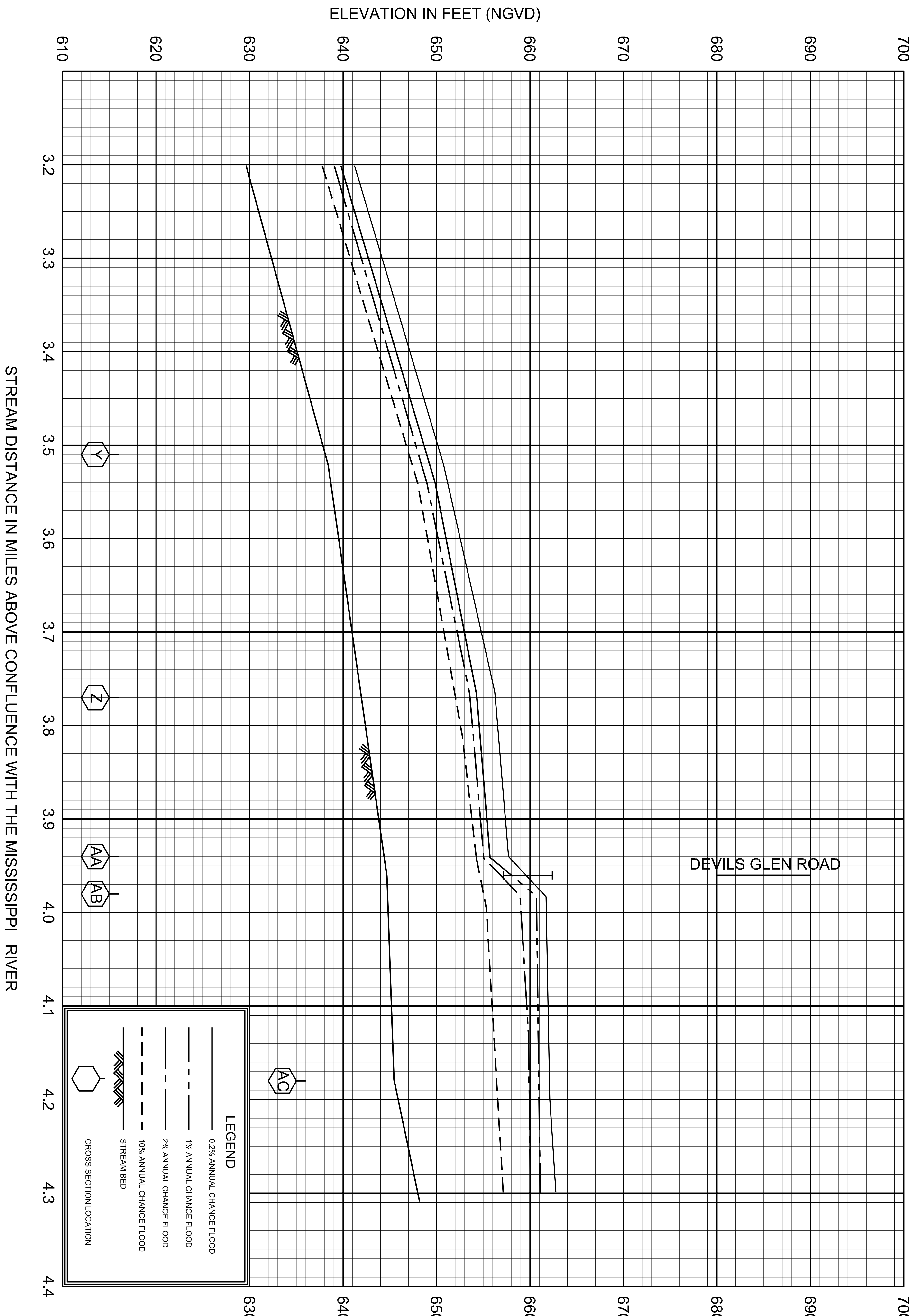
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

CROW CREEK



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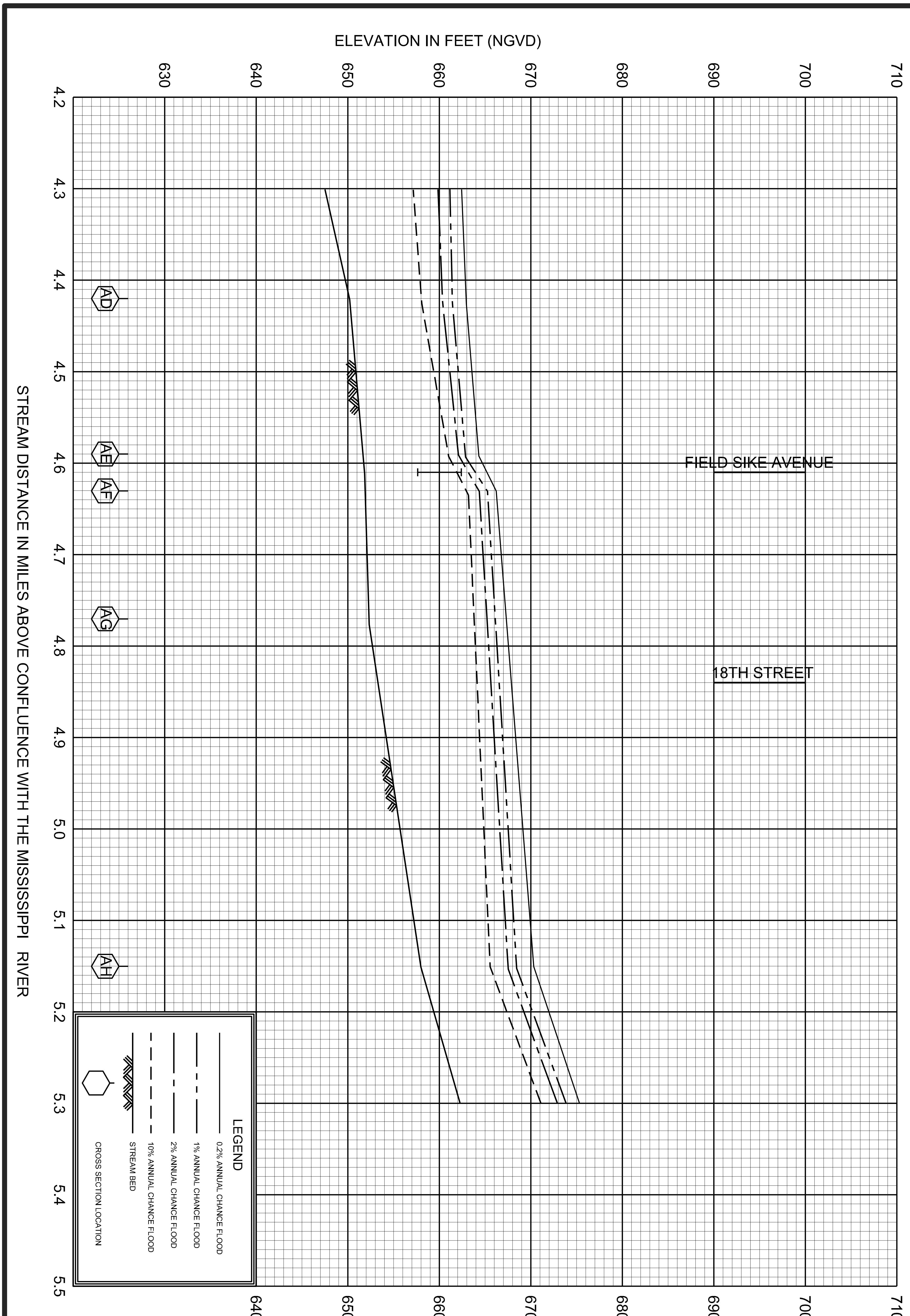
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

CROW CREEK



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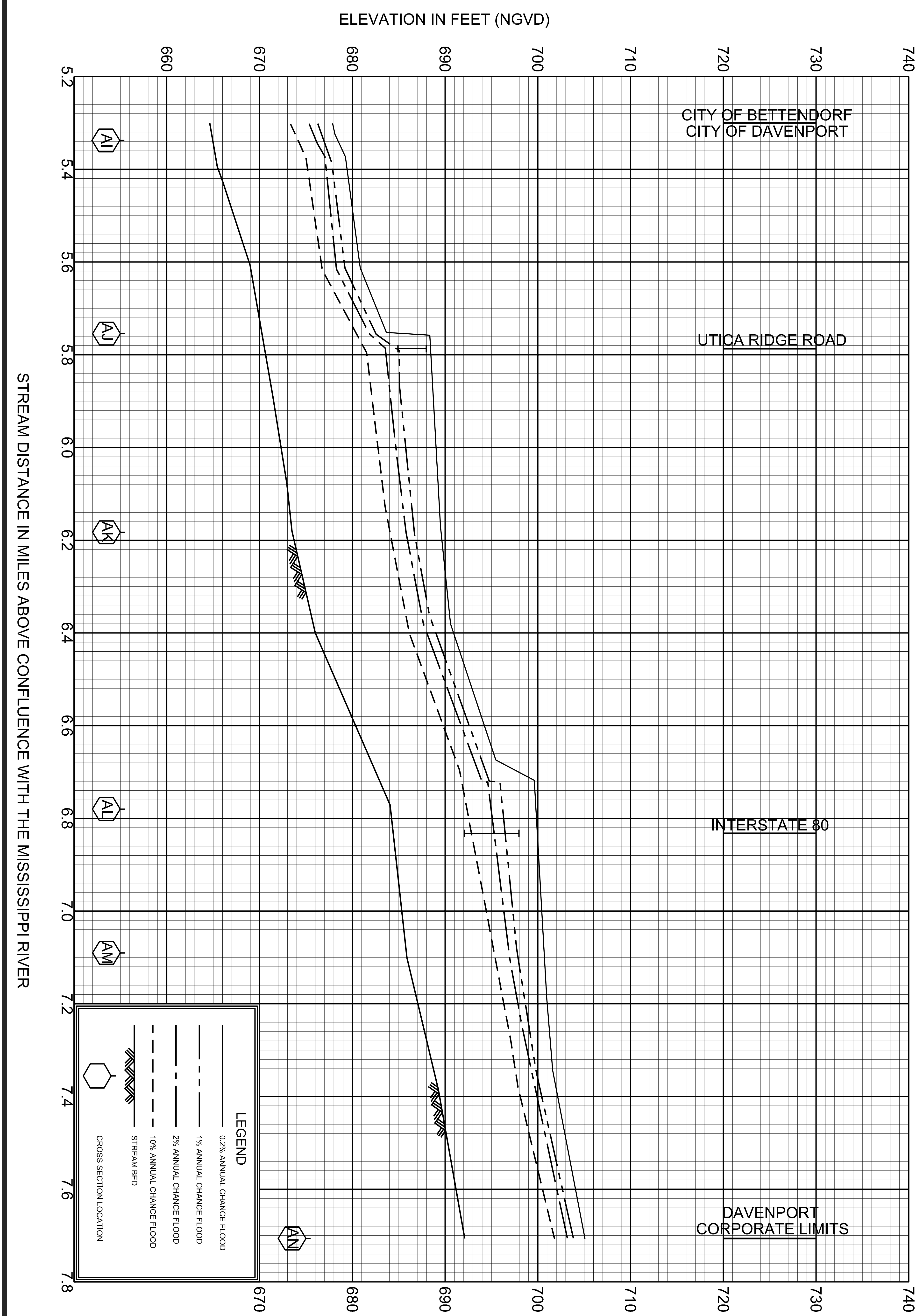
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

CROW CREEK



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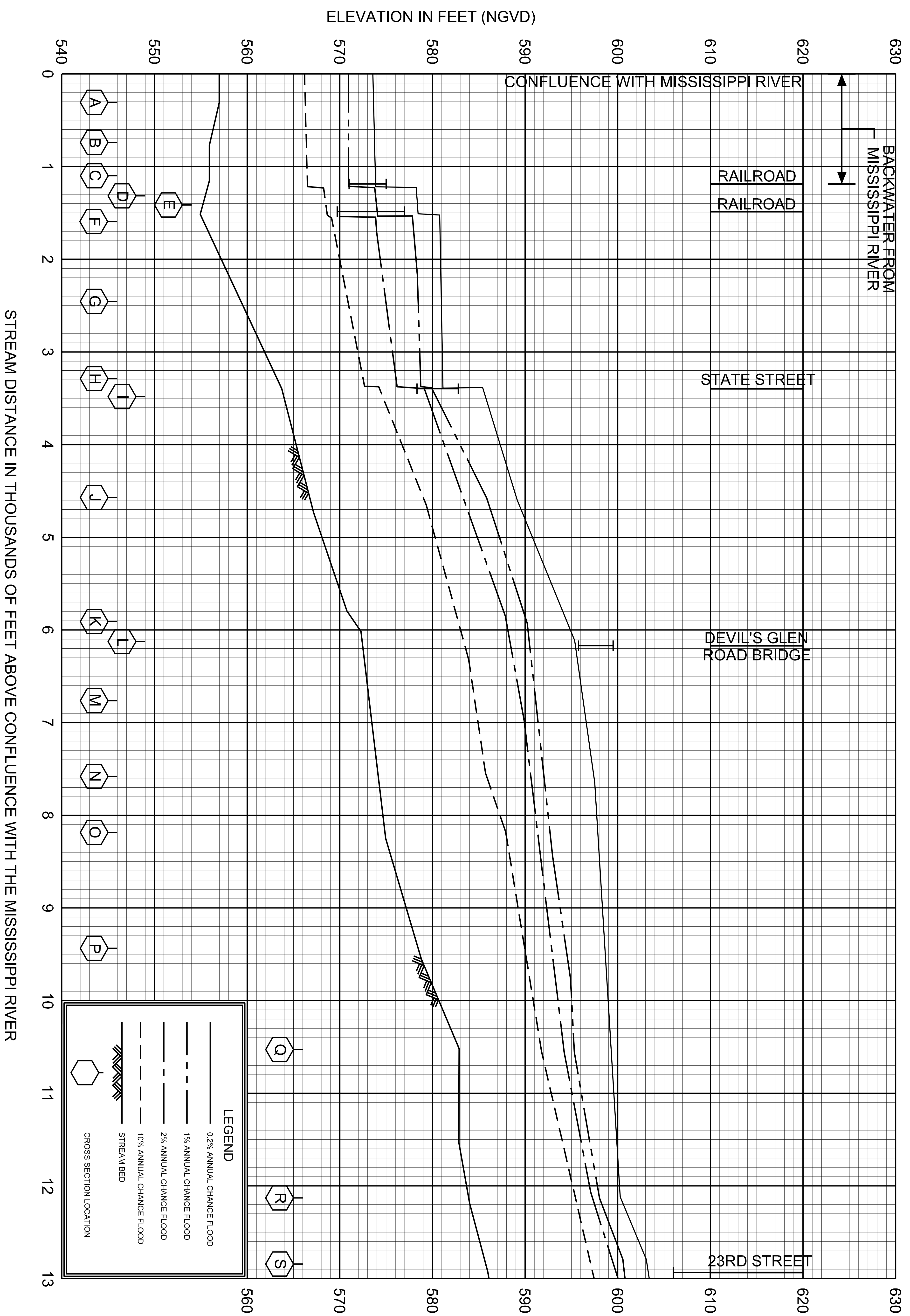


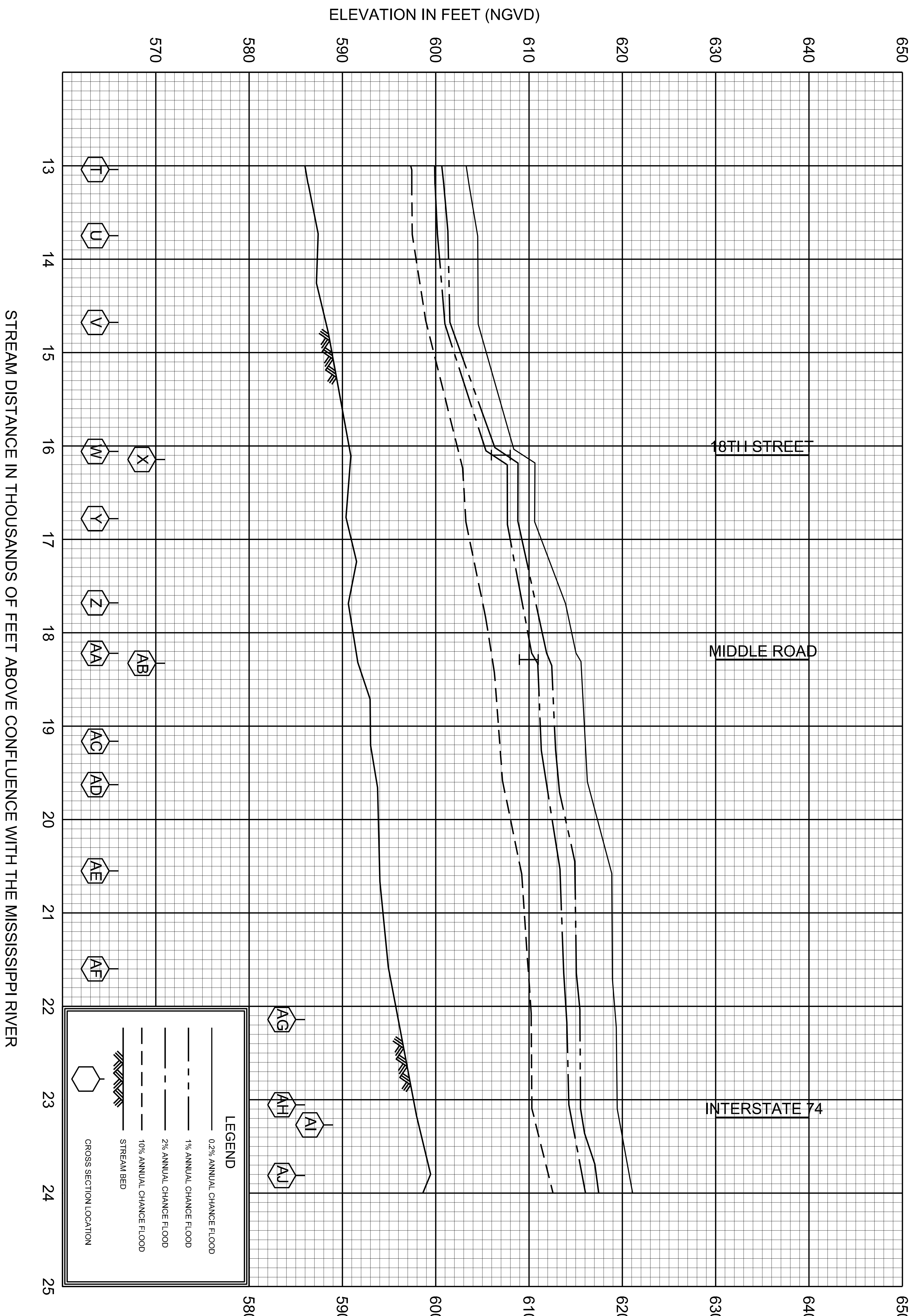
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

DUCK CREEK



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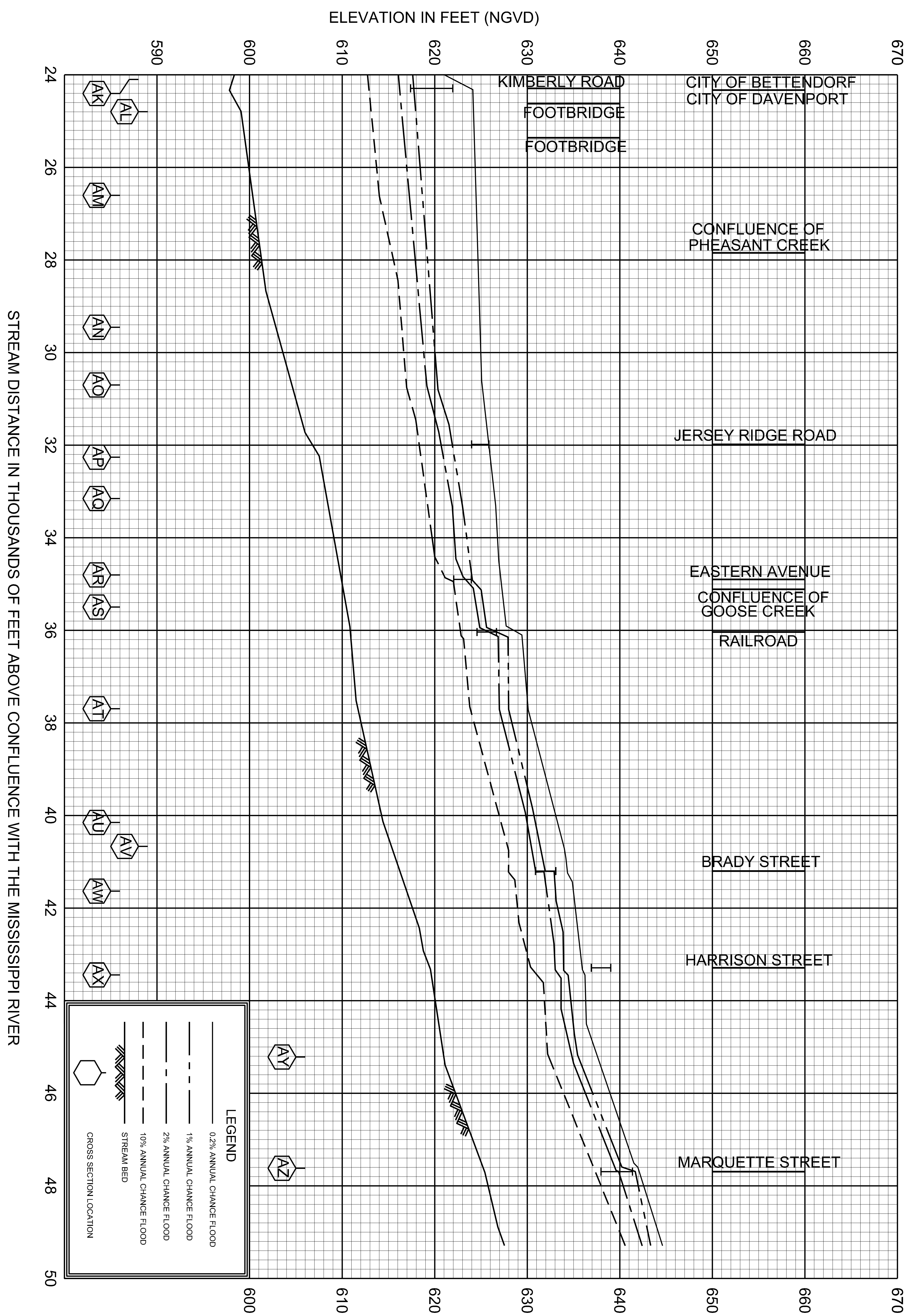

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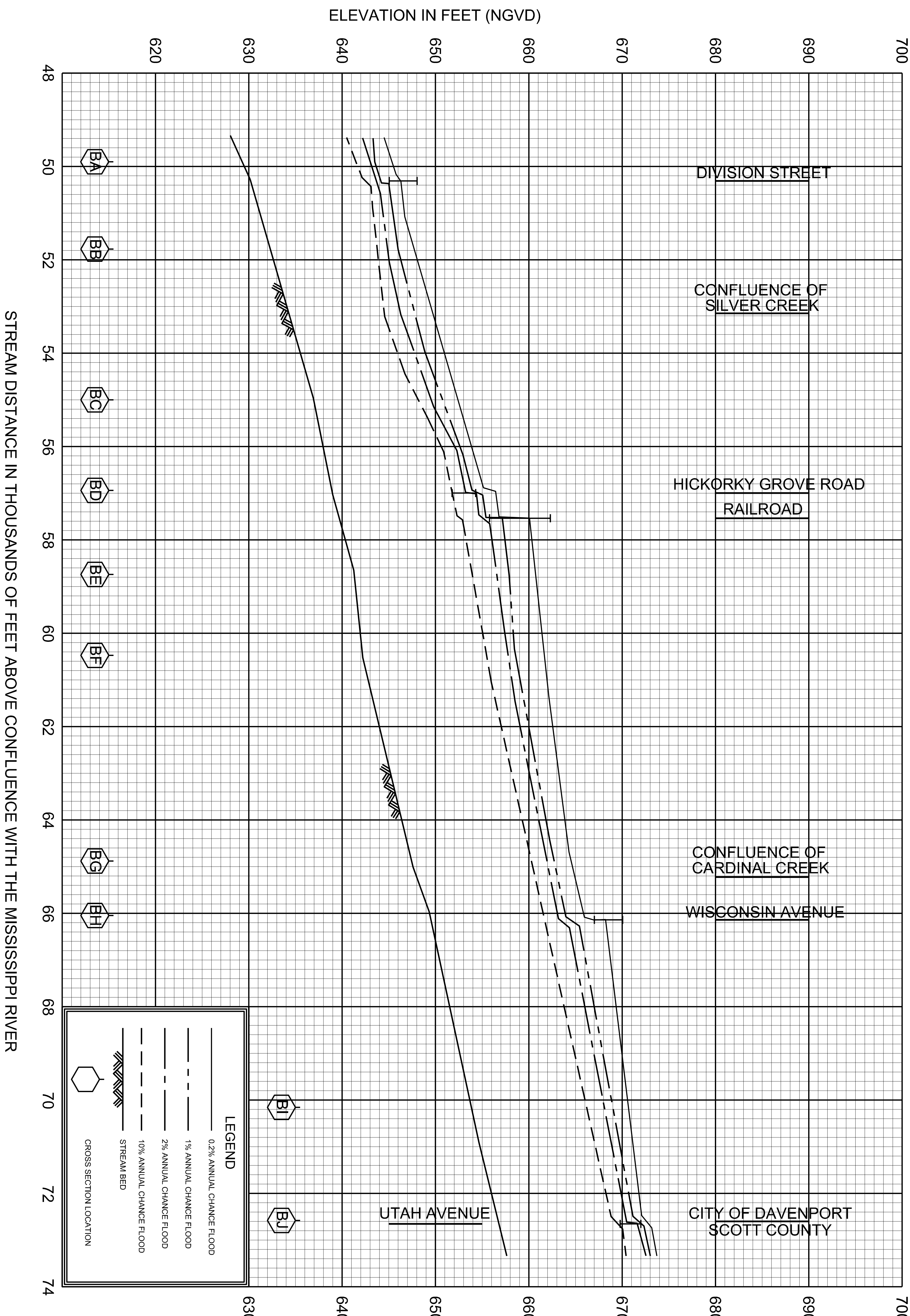
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

DUCK CREEK



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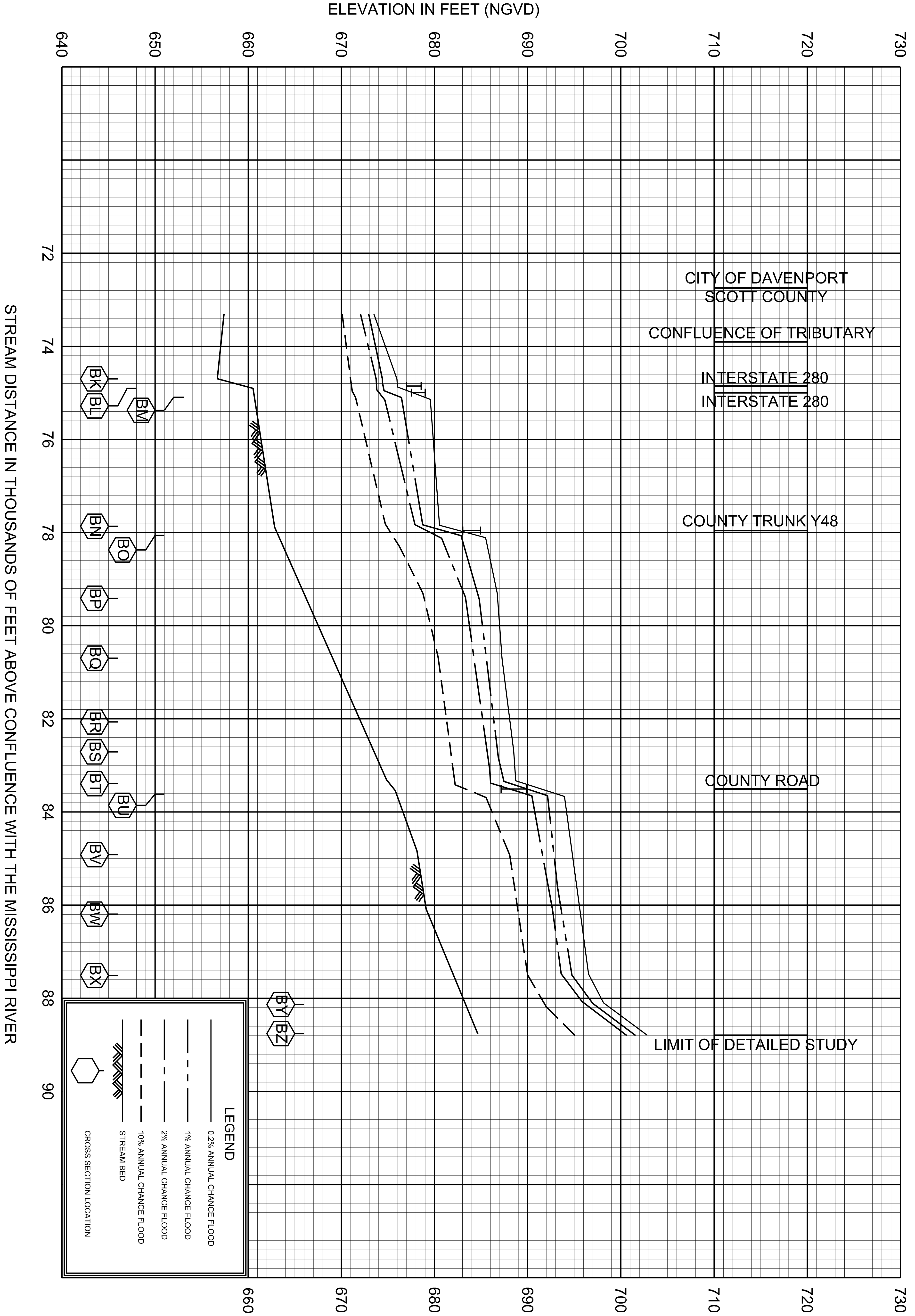

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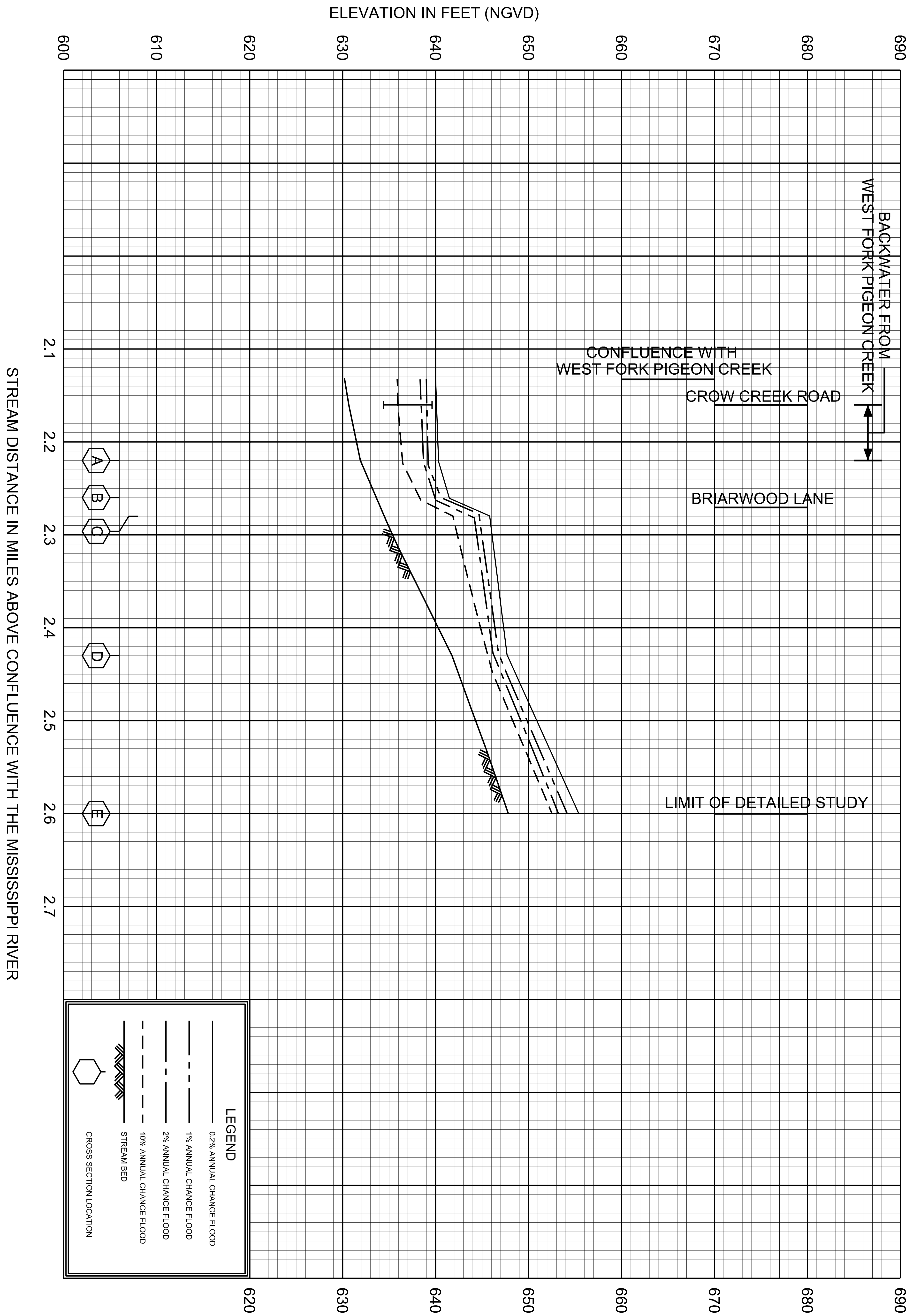

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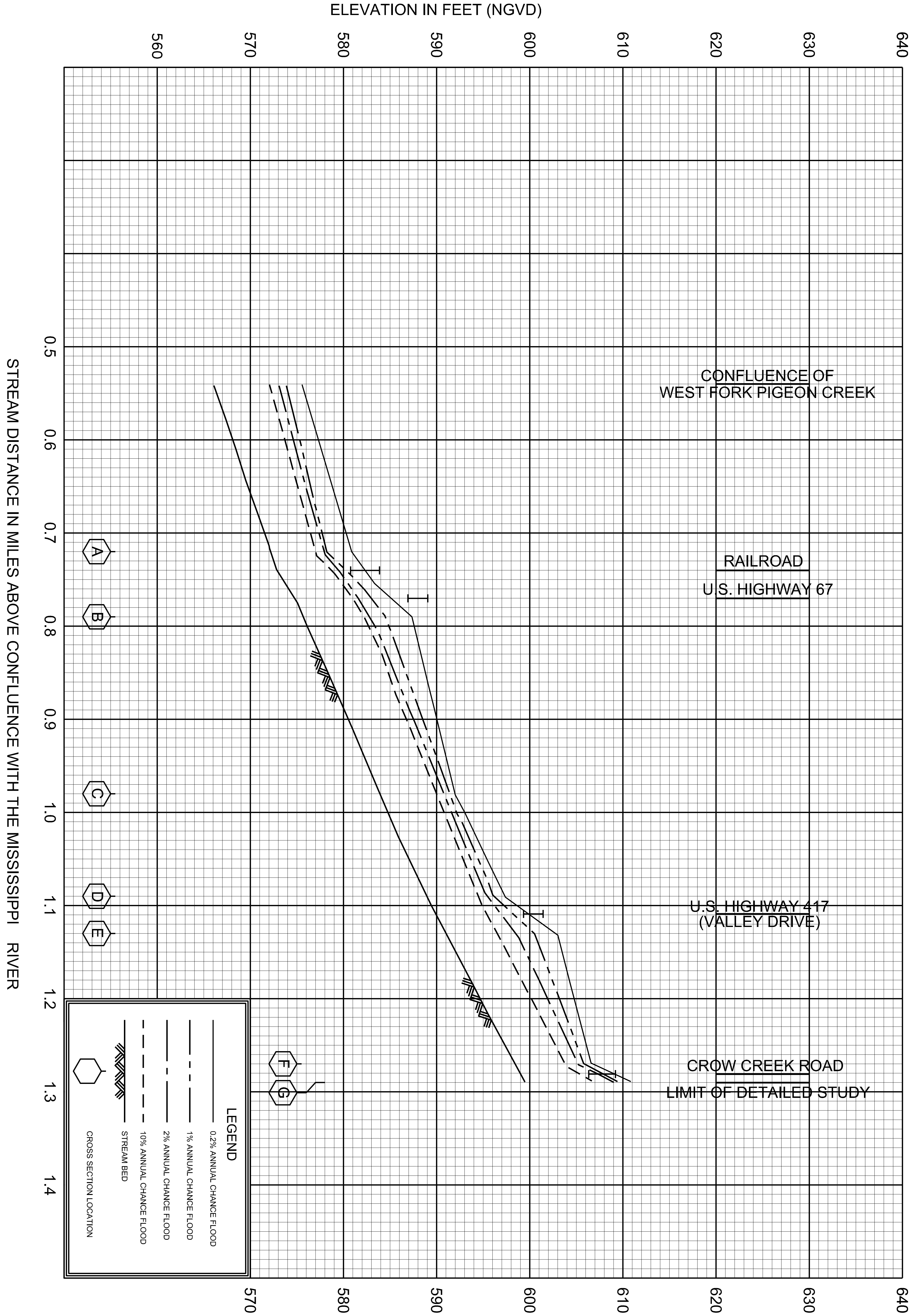
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

EAST BRANCH OF WEST FORK PIGEON CREEK



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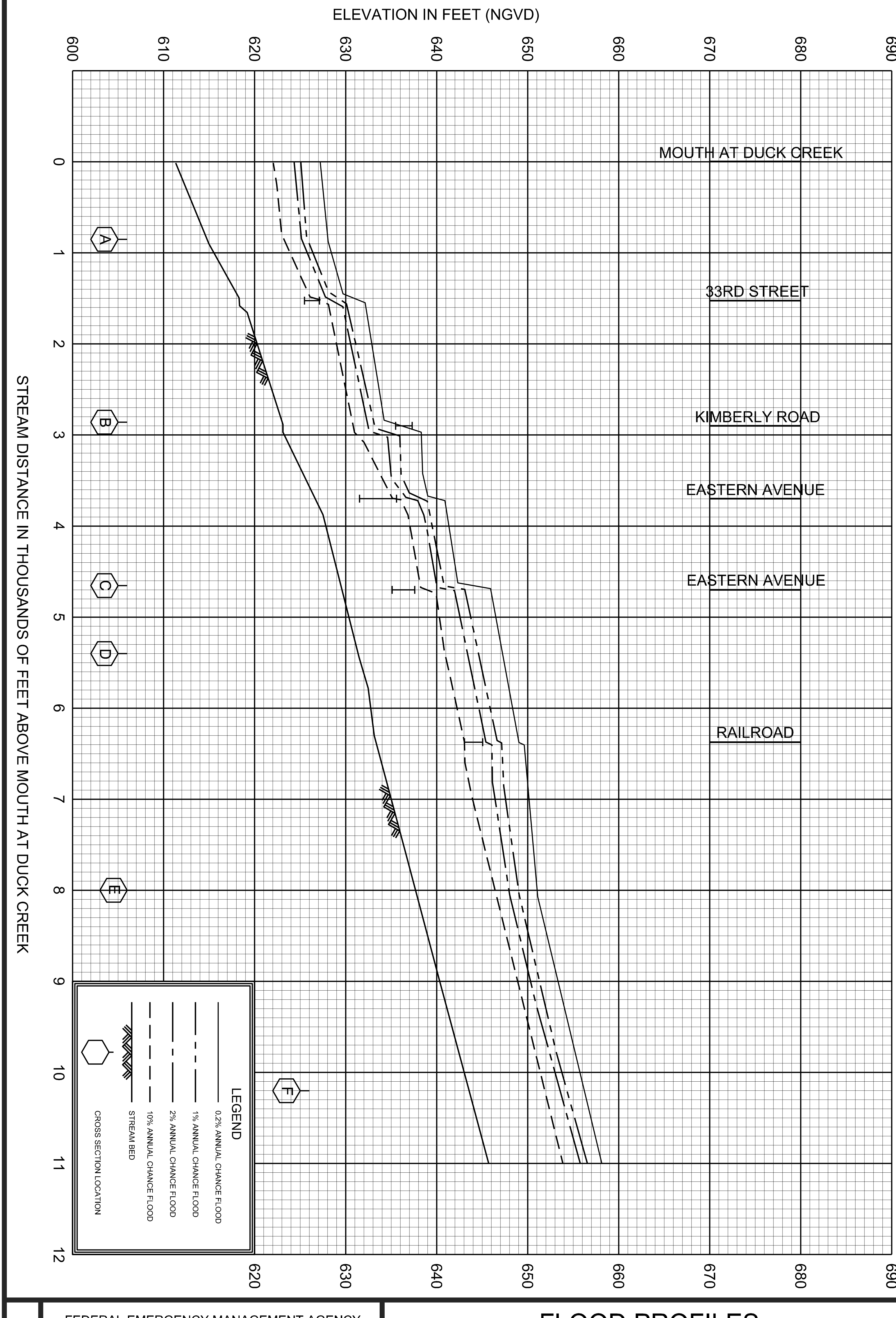
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

EAST FORK PIGEON CREEK



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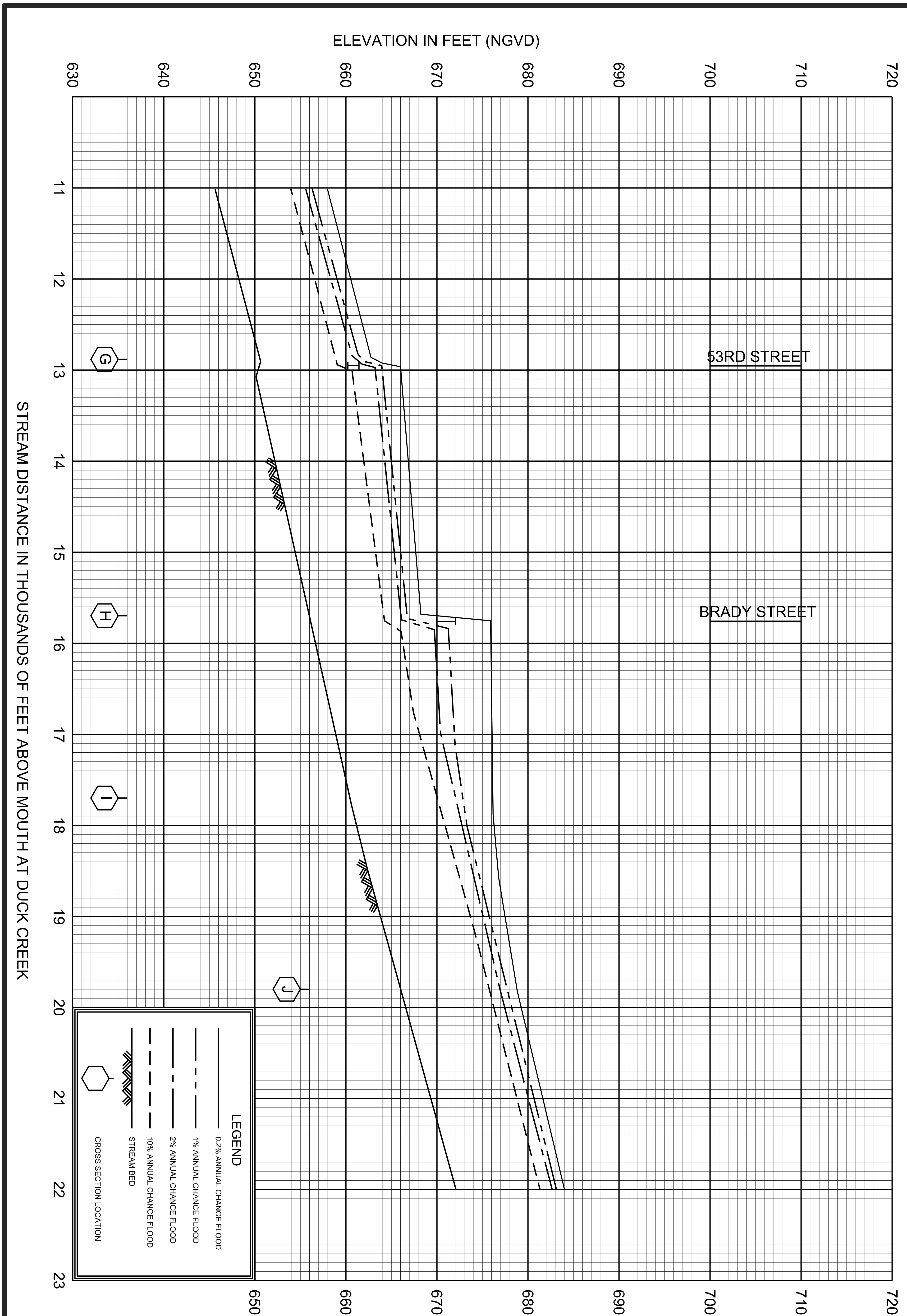
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

GOOSE CREEK



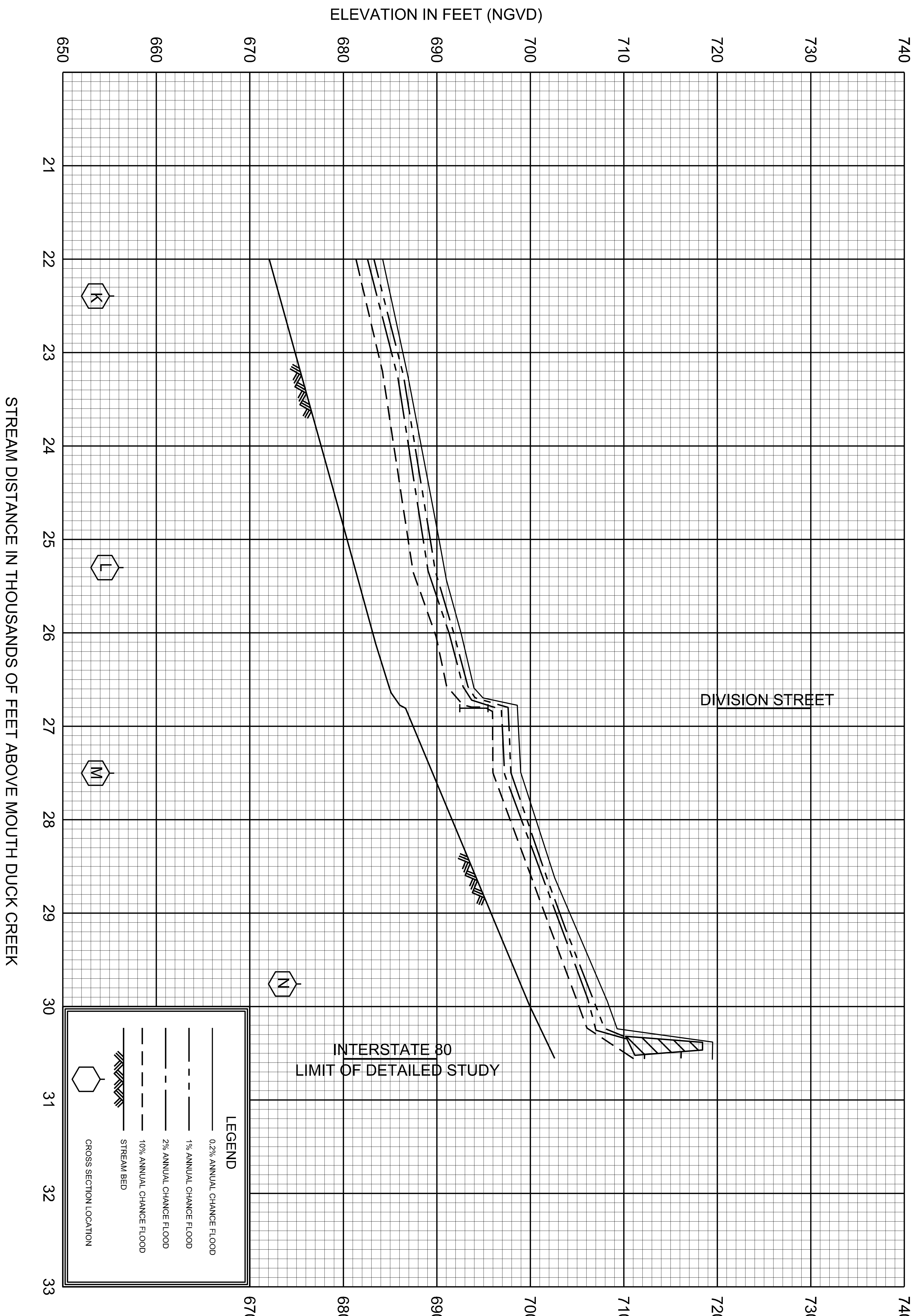
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

GOOSE CREEK



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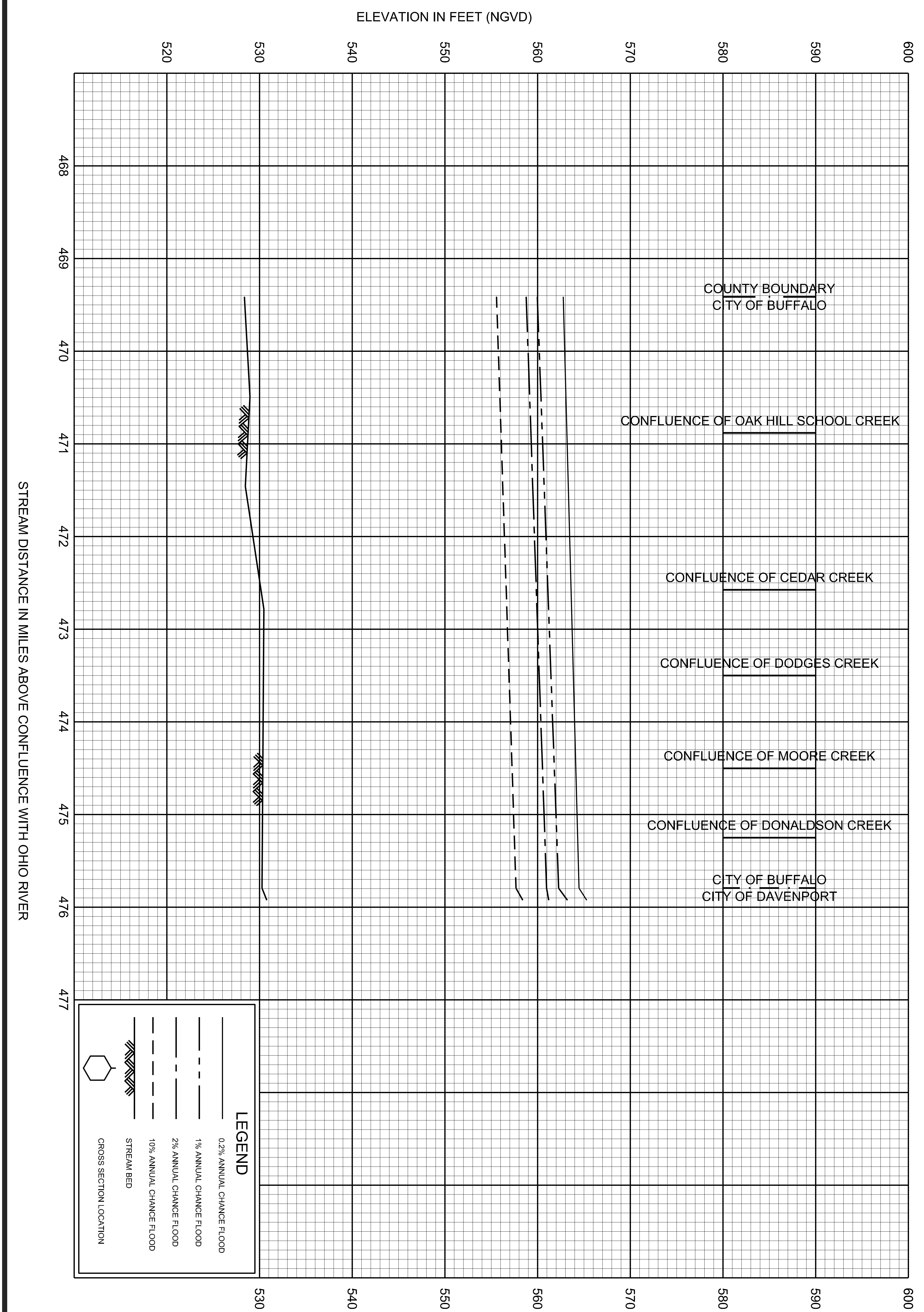
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

GOOSE CREEK



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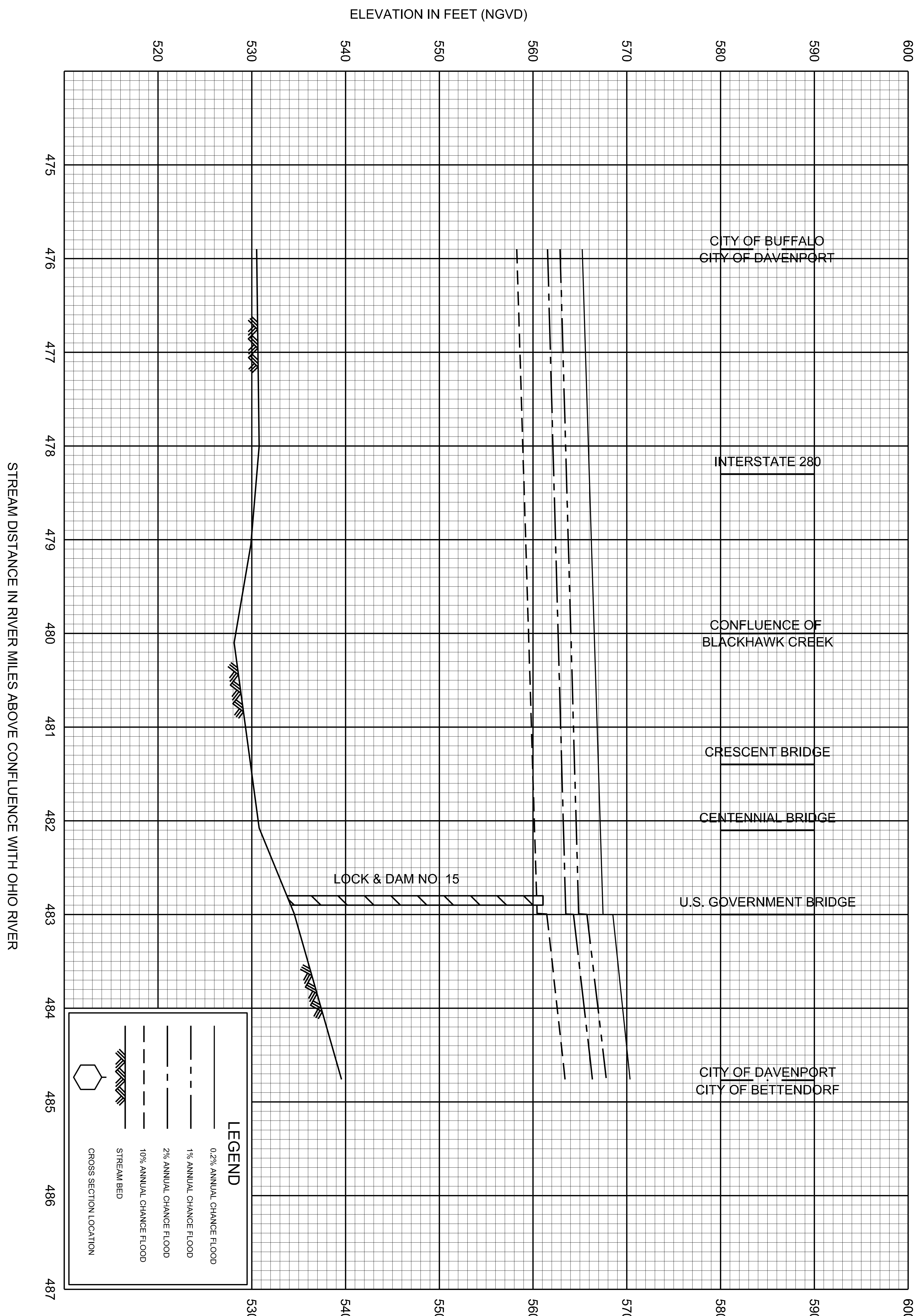
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

MISSISSIPPI RIVER



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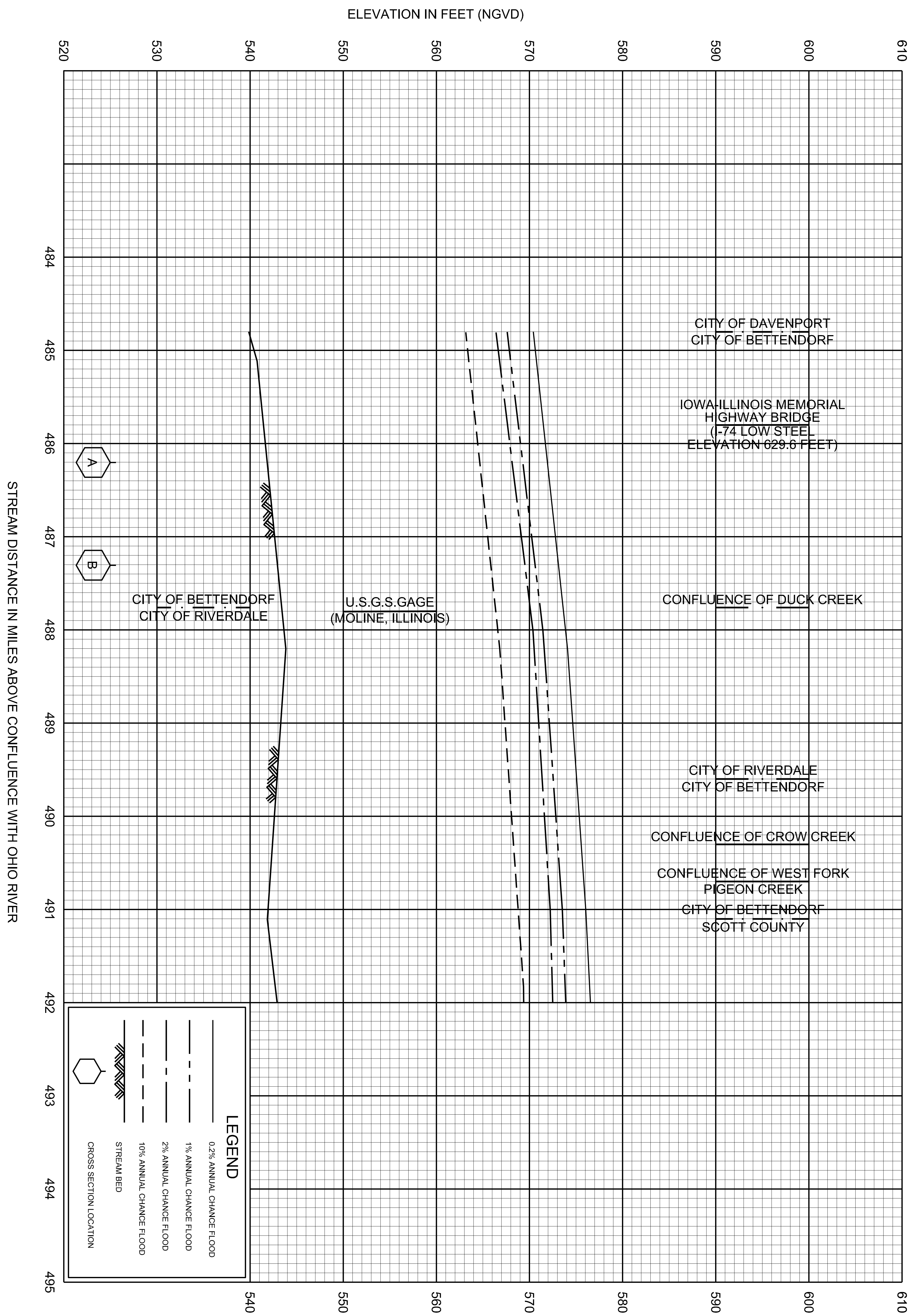
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

MISSISSIPPI RIVER



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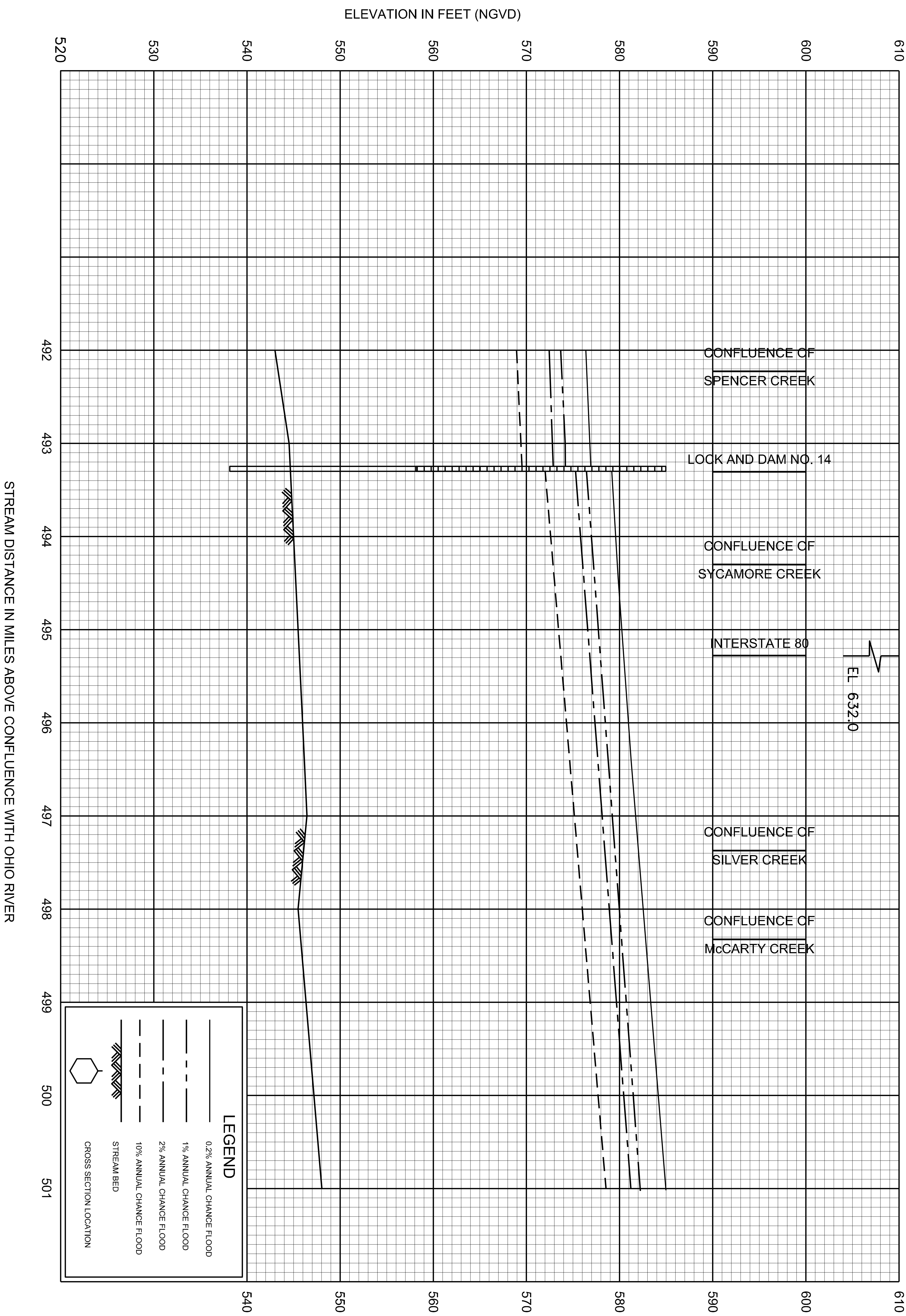
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

MISSISSIPPI RIVER



FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

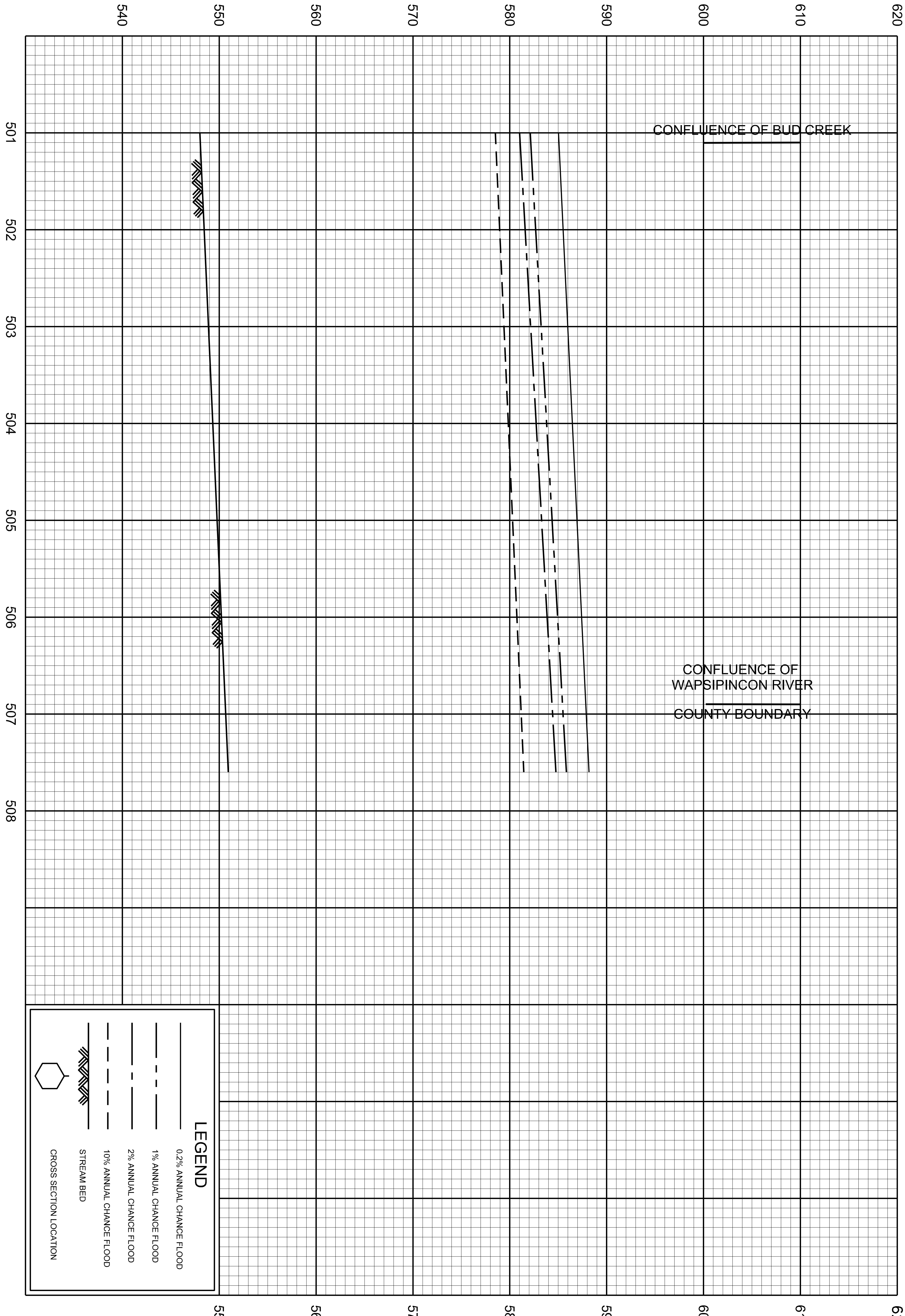
AND INCORPORATED AREAS

FLOOD PROFILES

MISSISSIPPI RIVER

ELEVATION IN FEET (NGVD)

STREAM DISTANCE IN MILES ABOVE CONFLUENCE WITH OHIO RIVER



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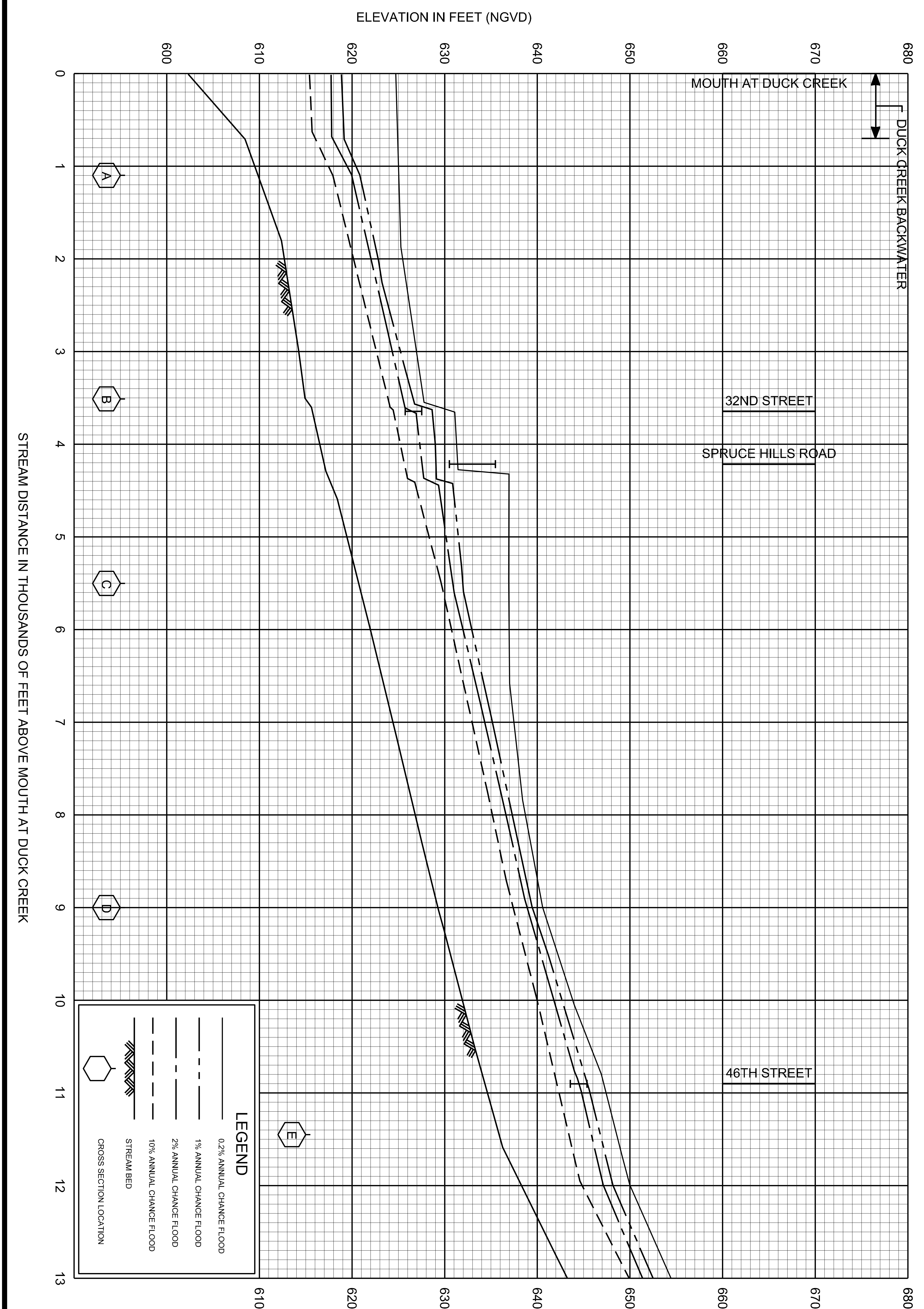
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

MISSISSIPPI RIVER



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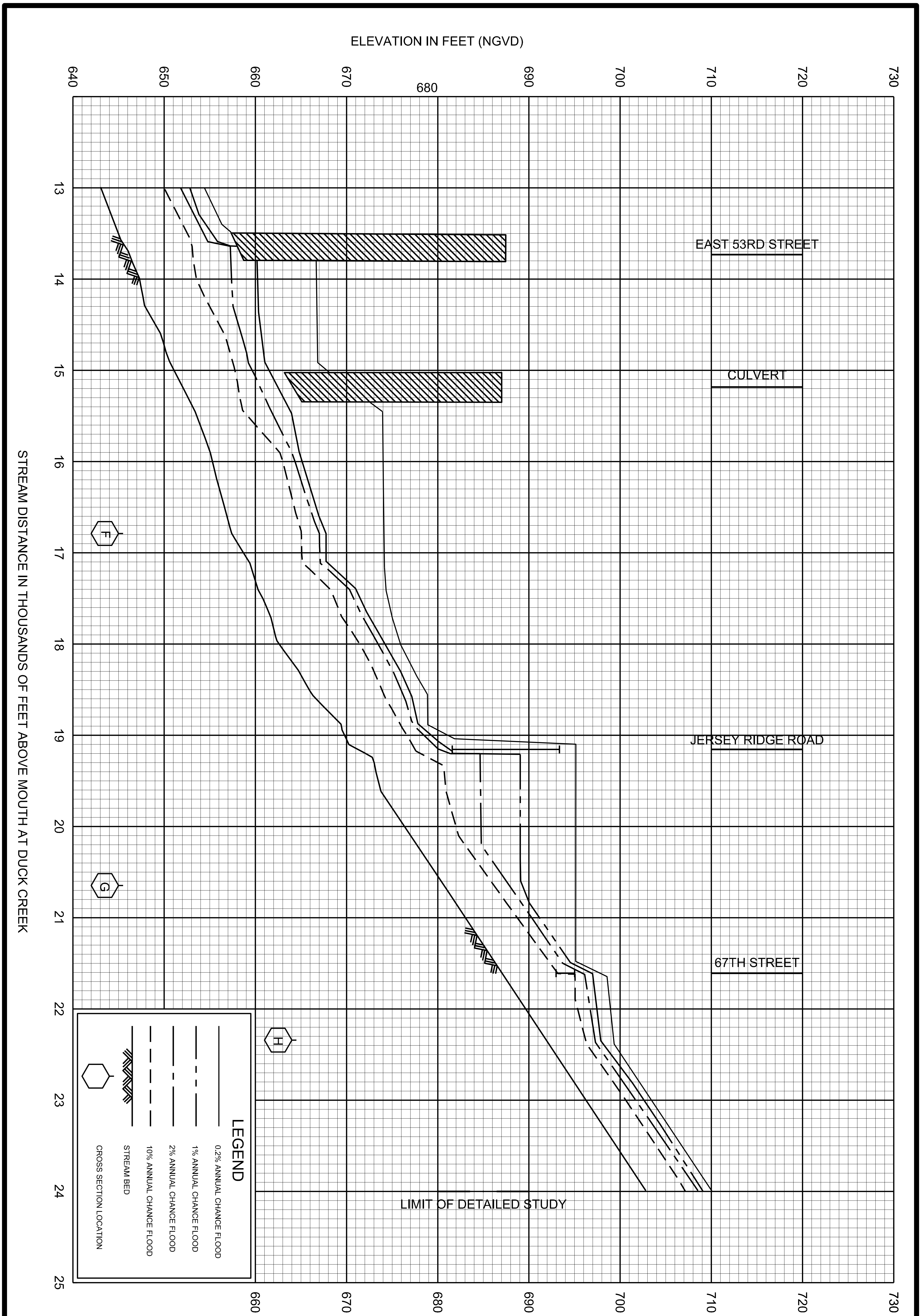
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

PHEASANT CREEK



31P

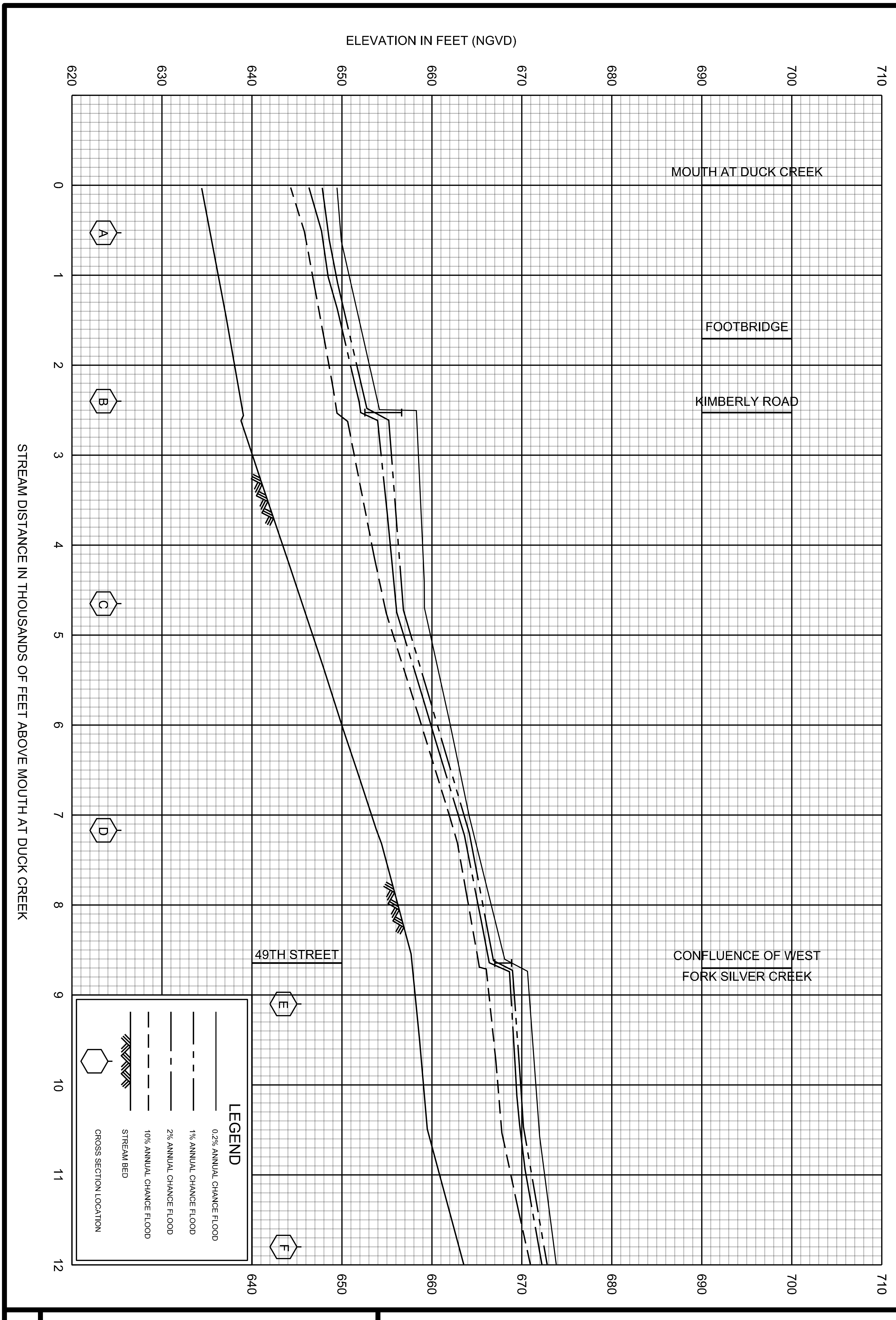
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

PHEASANT CREEK



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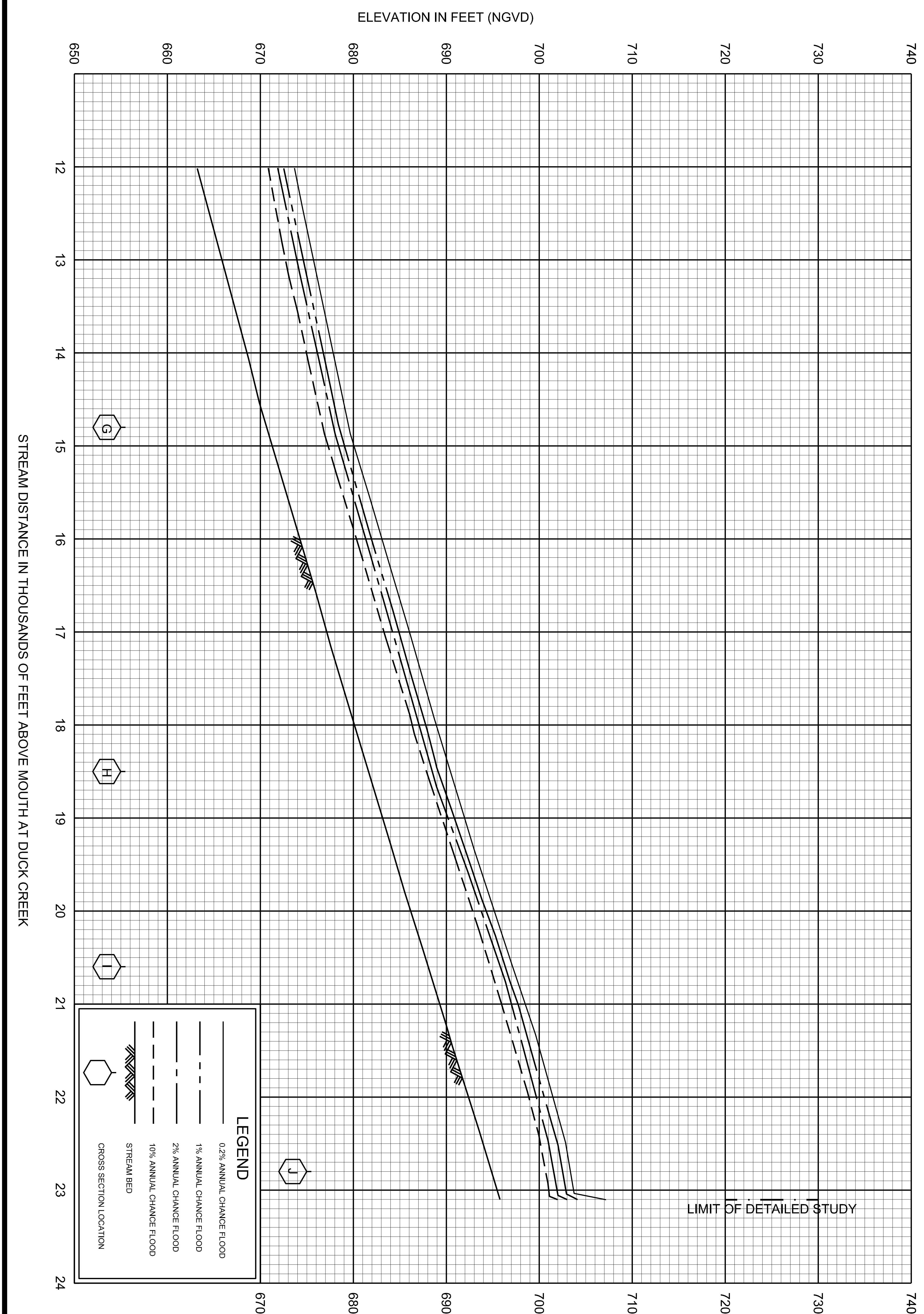
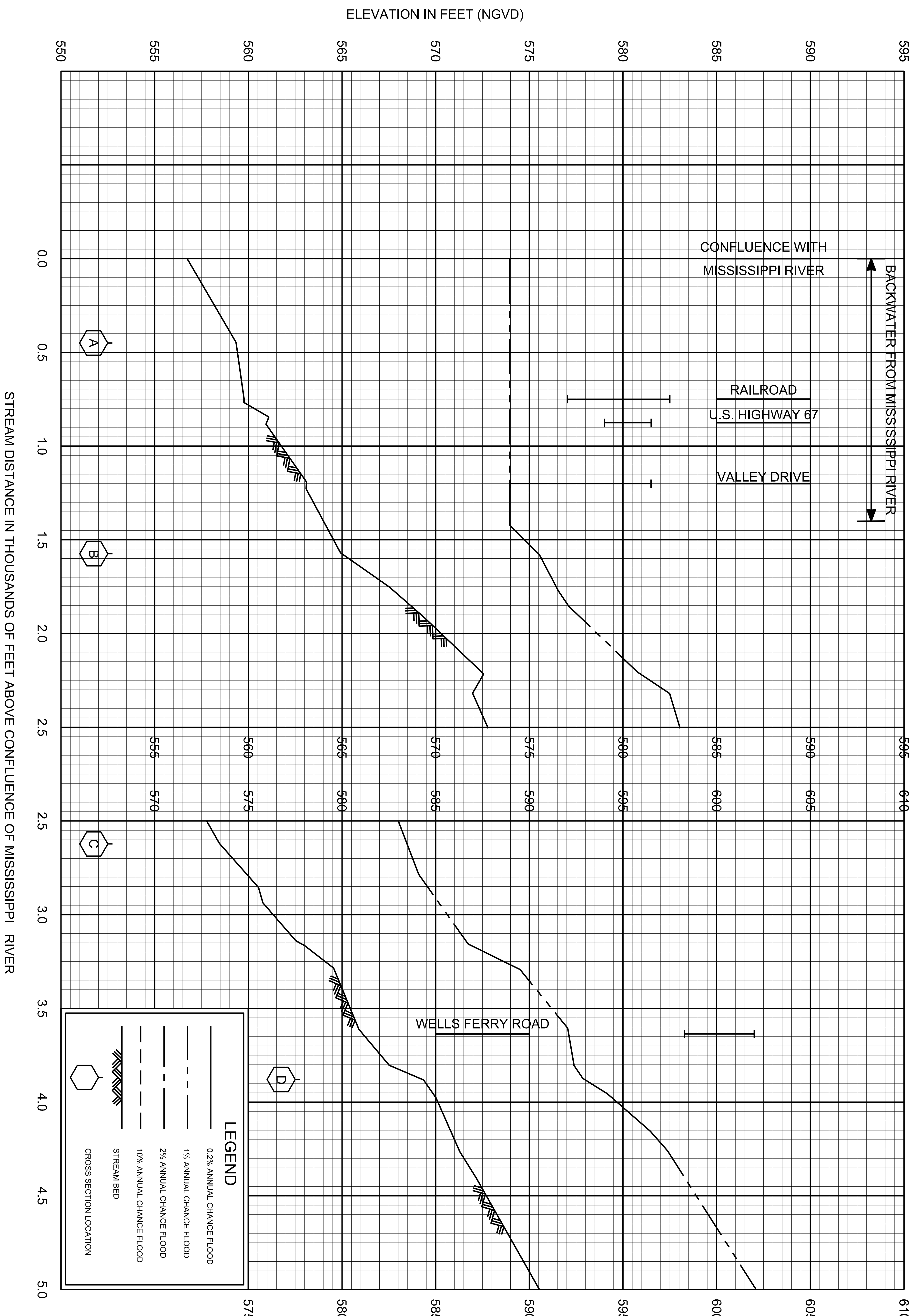


33P	FEDERAL EMERGENCY MANAGEMENT AGENCY SCOTT COUNTY, IA AND INCORPORATED AREAS	FLOOD PROFILES SILVER CREEK



34P

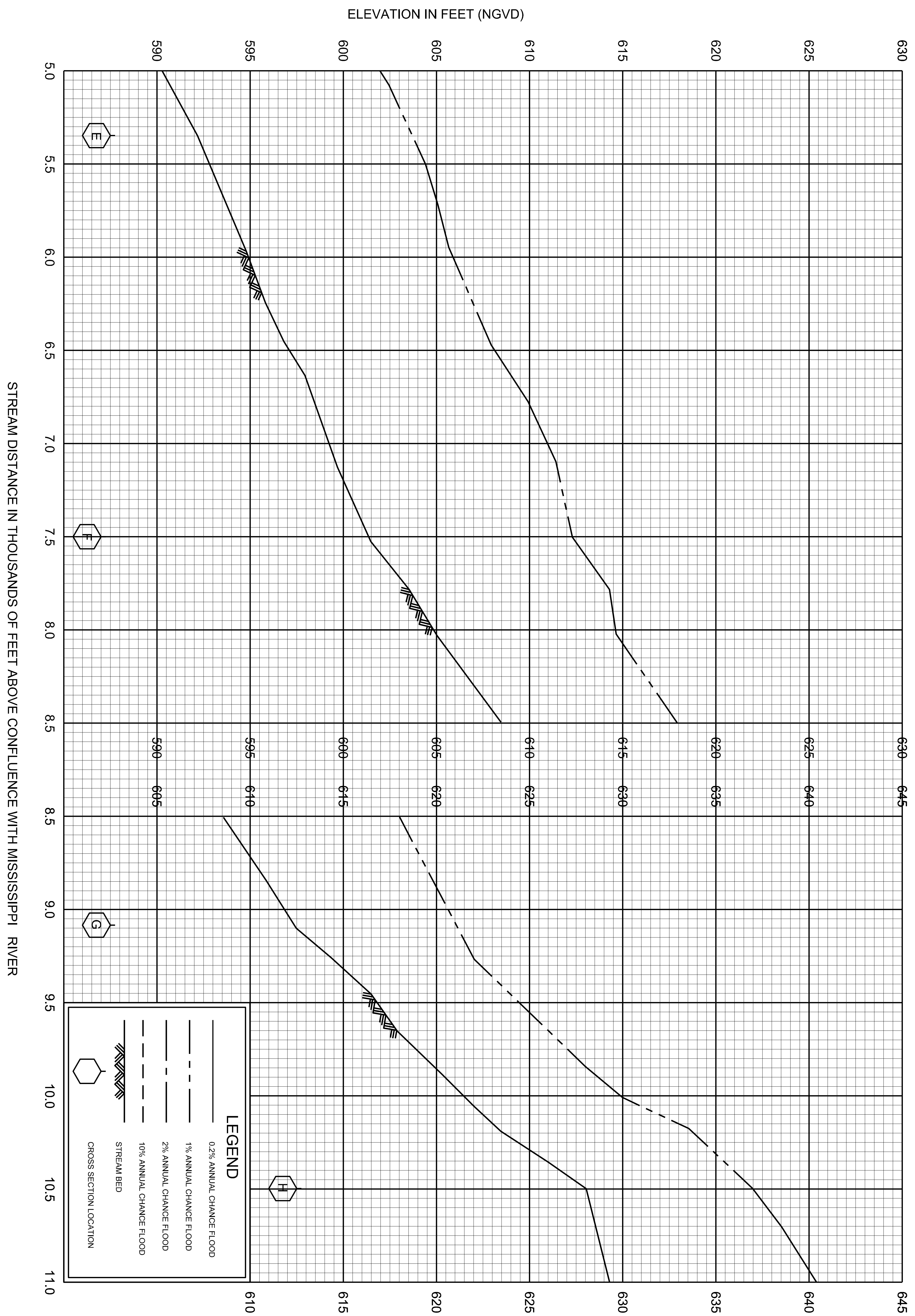
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

SPENCER CREEK



35P

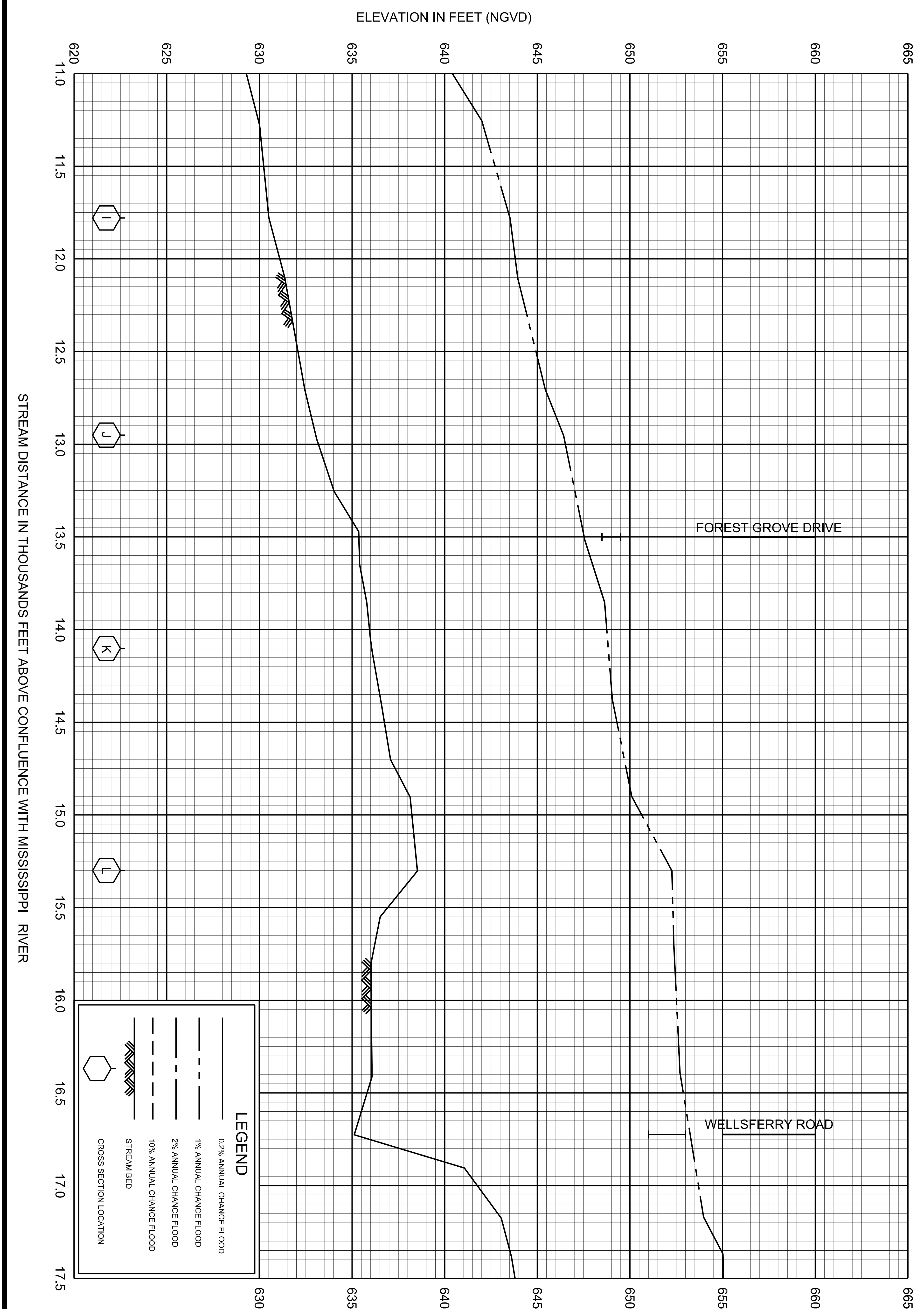
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

SPENCER CREEK



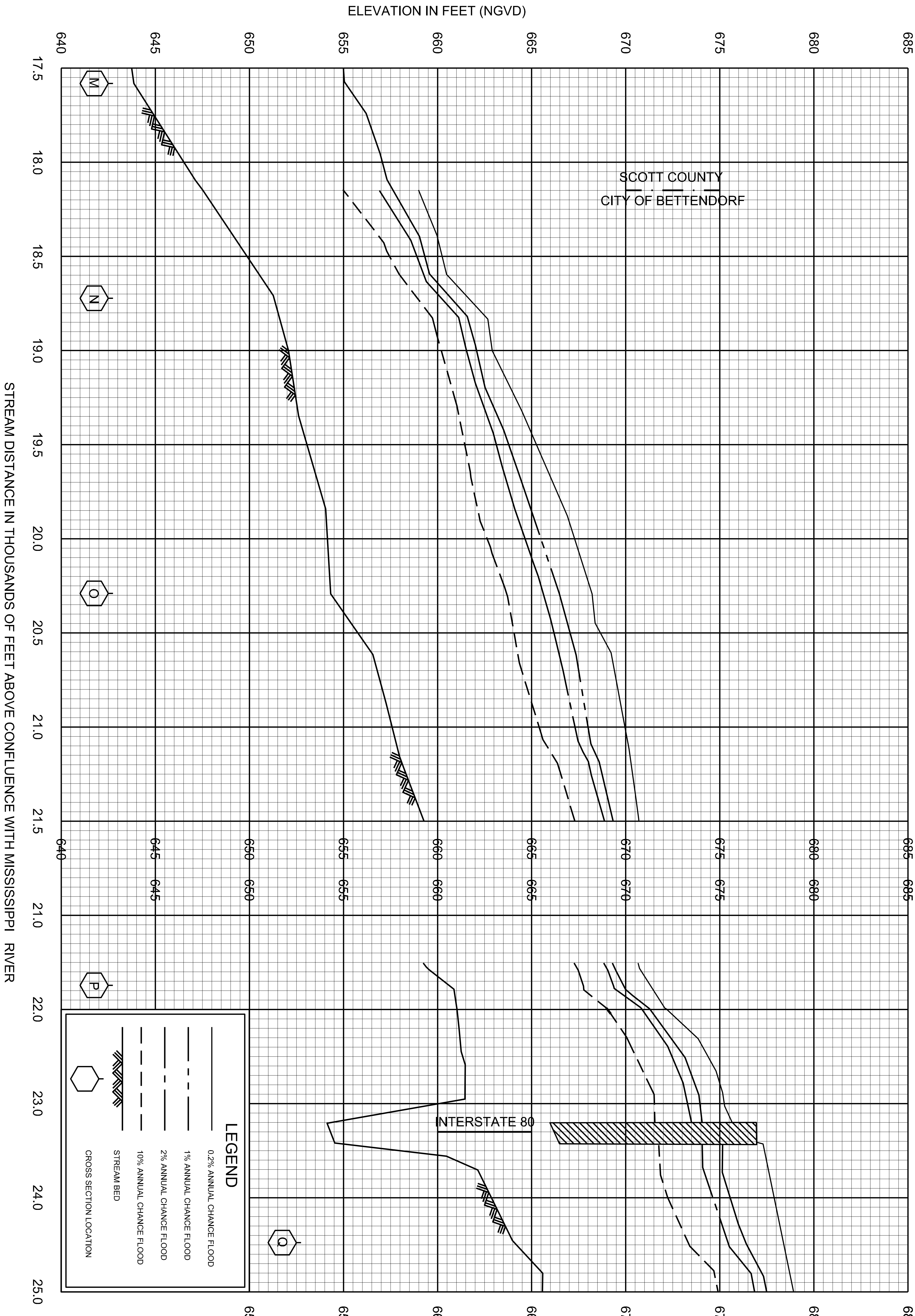
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

SPENCER CREEK



37P

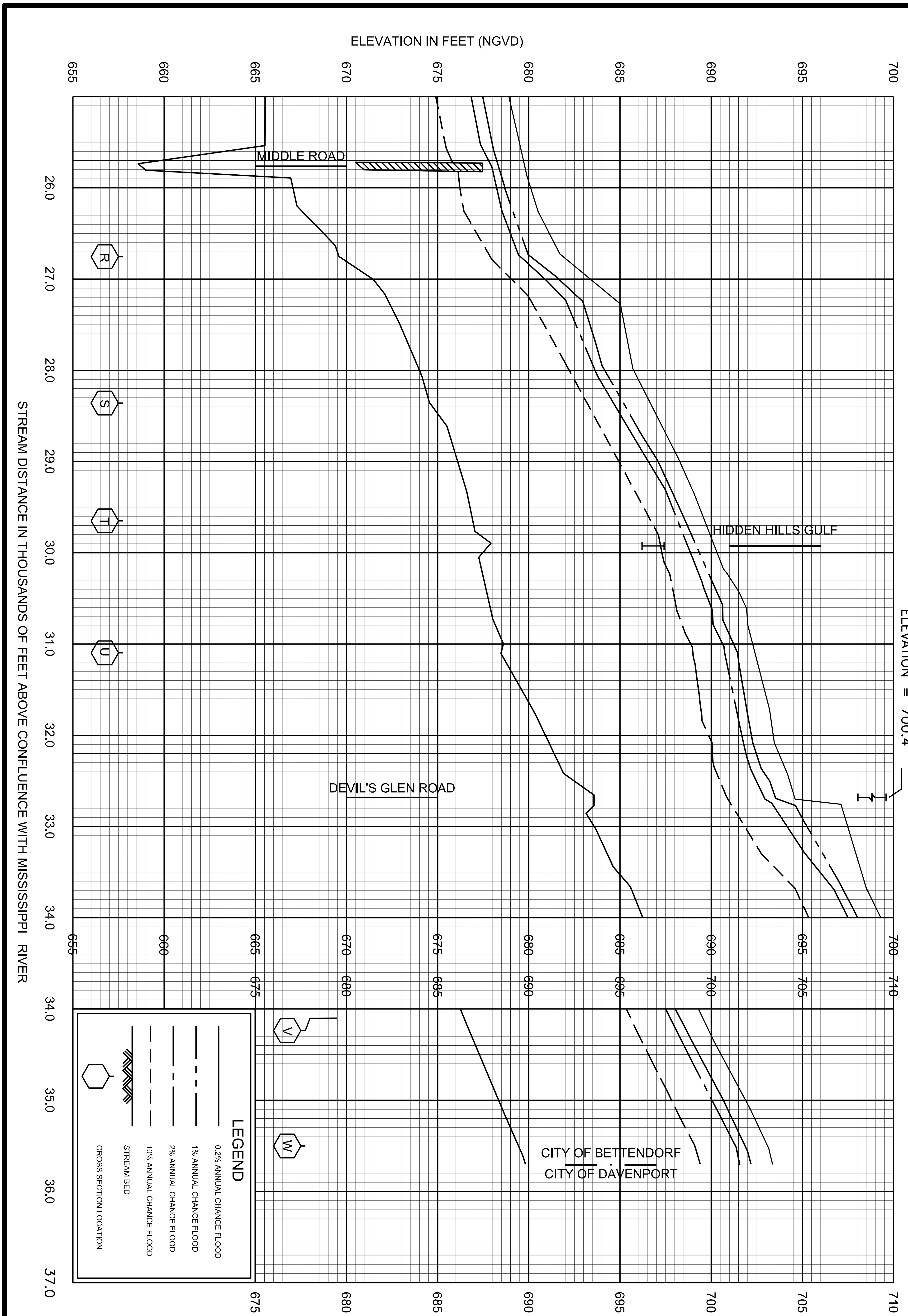
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

SPENCER CREEK



38P

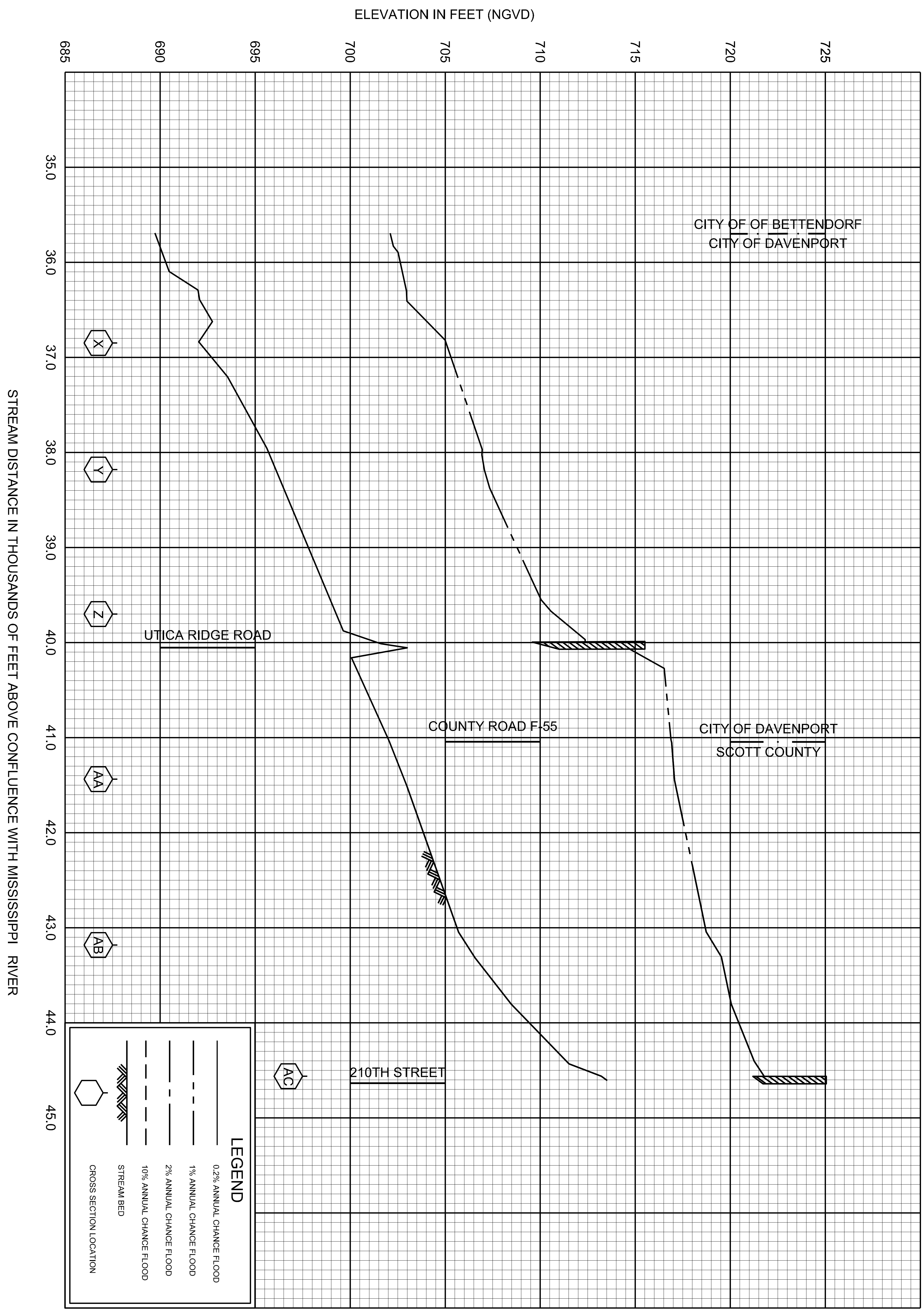
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

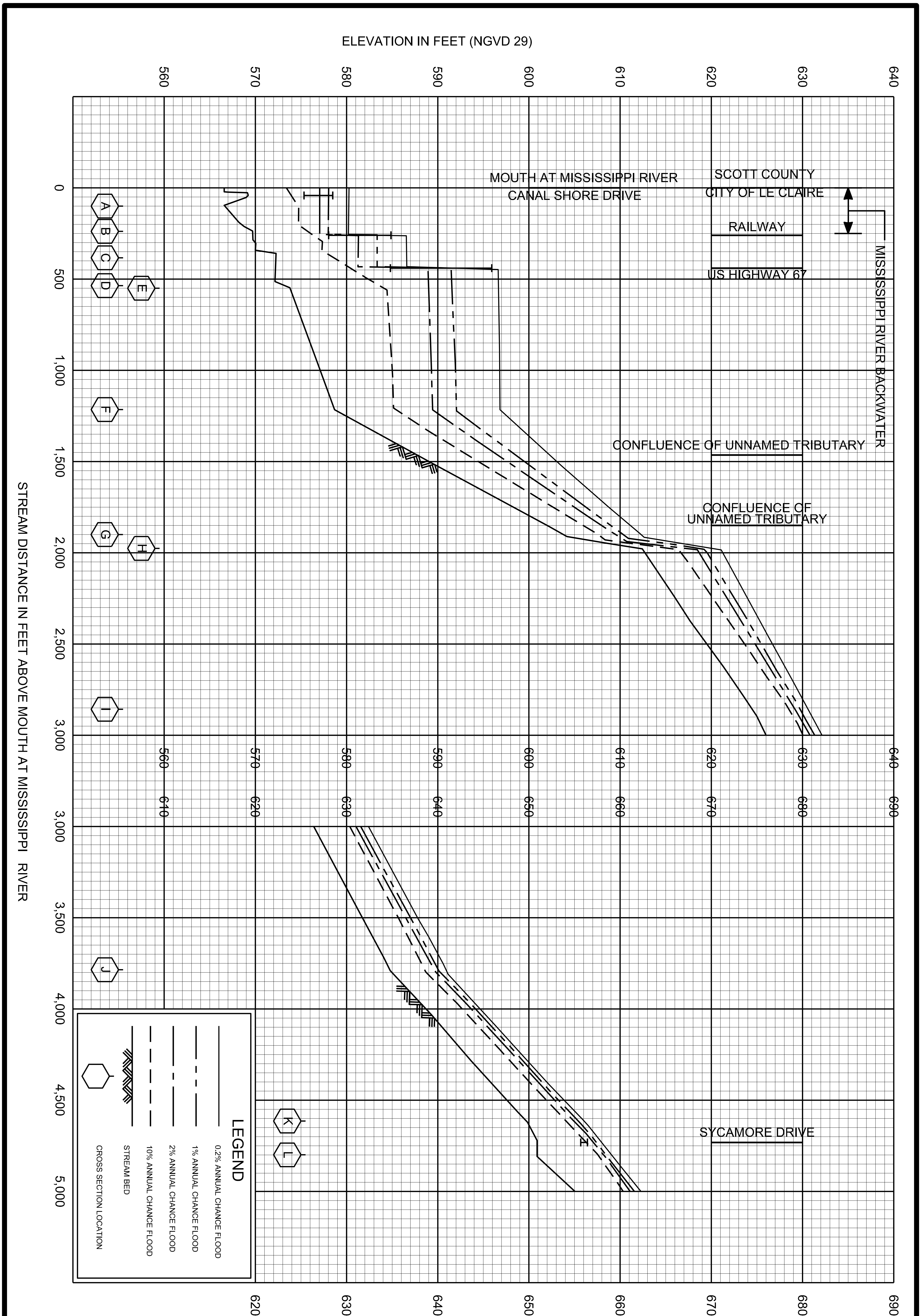
AND INCORPORATED AREAS

FLOOD PROFILES

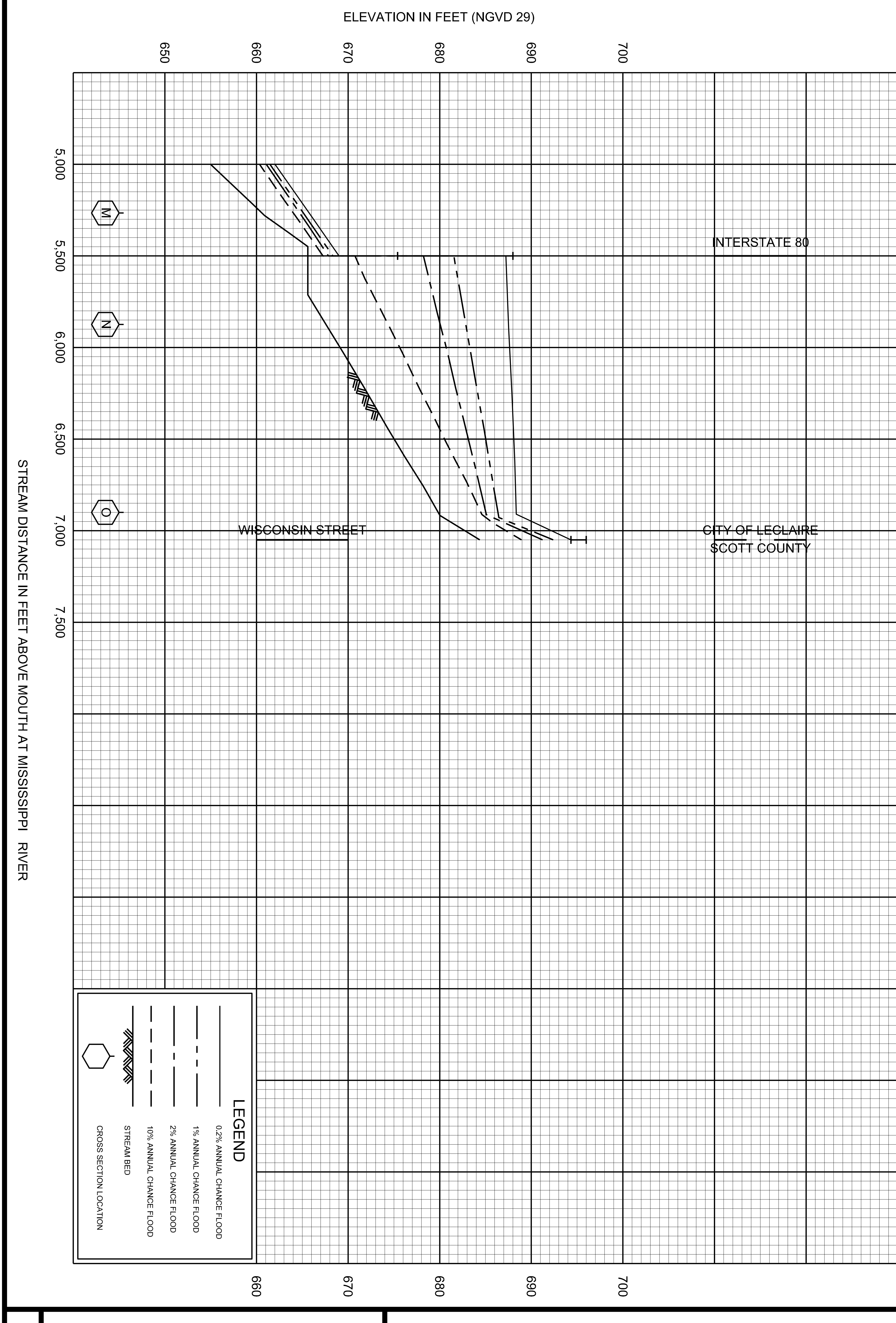
SPENCER CREEK



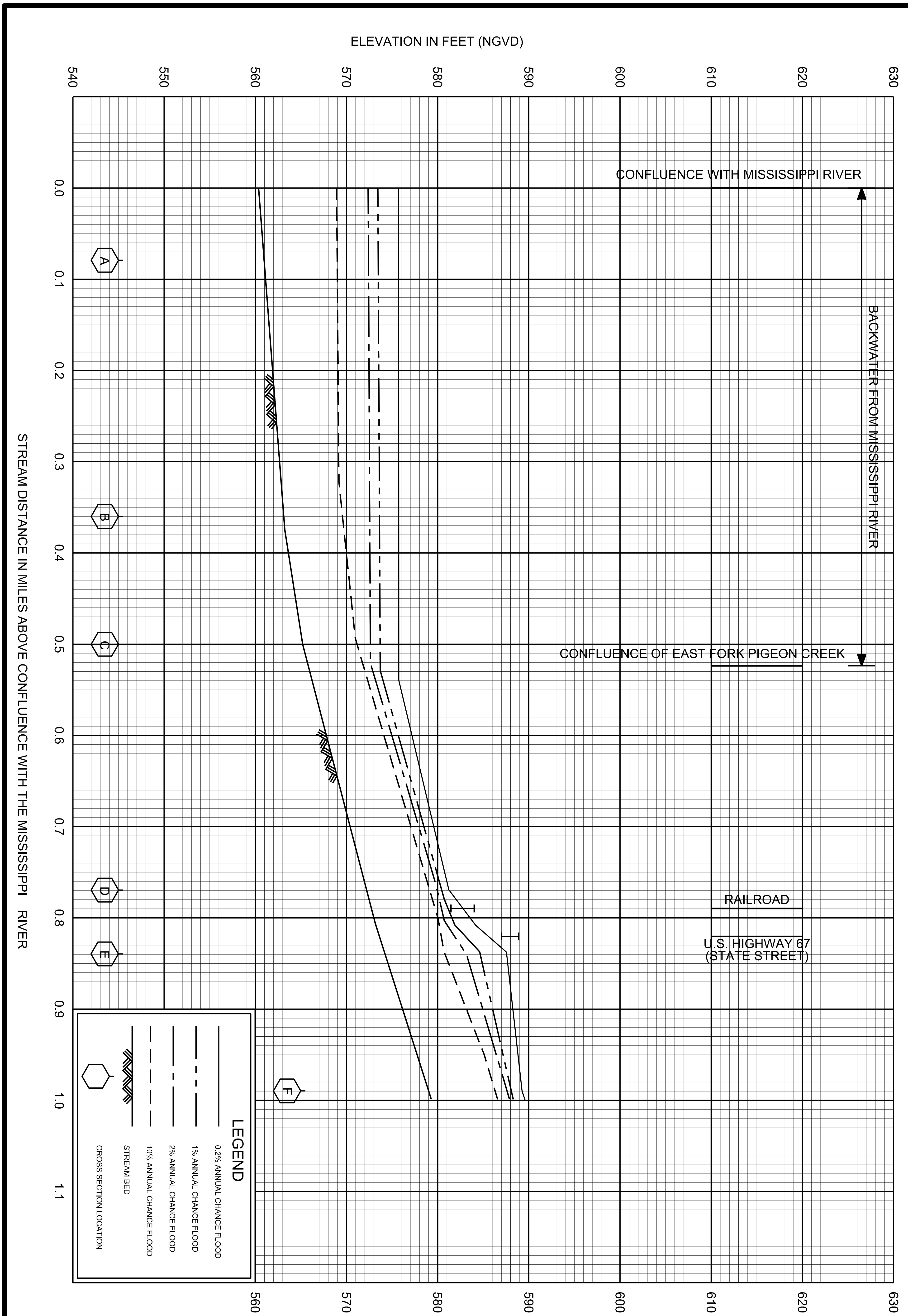
39P	FEDERAL EMERGENCY MANAGEMENT AGENCY SCOTT COUNTY, IA AND INCORPORATED AREAS	FLOOD PROFILES SPENCER CREEK



40P	FEDERAL EMERGENCY MANAGEMENT AGENCY SCOTT COUNTY, IA AND INCORPORATED AREAS	FLOOD PROFILES SYCAMORE CREEK



41P	FEDERAL EMERGENCY MANAGEMENT AGENCY SCOTT COUNTY, IA AND INCORPORATED AREAS	FLOOD PROFILES SYCAMORE CREEK



42P

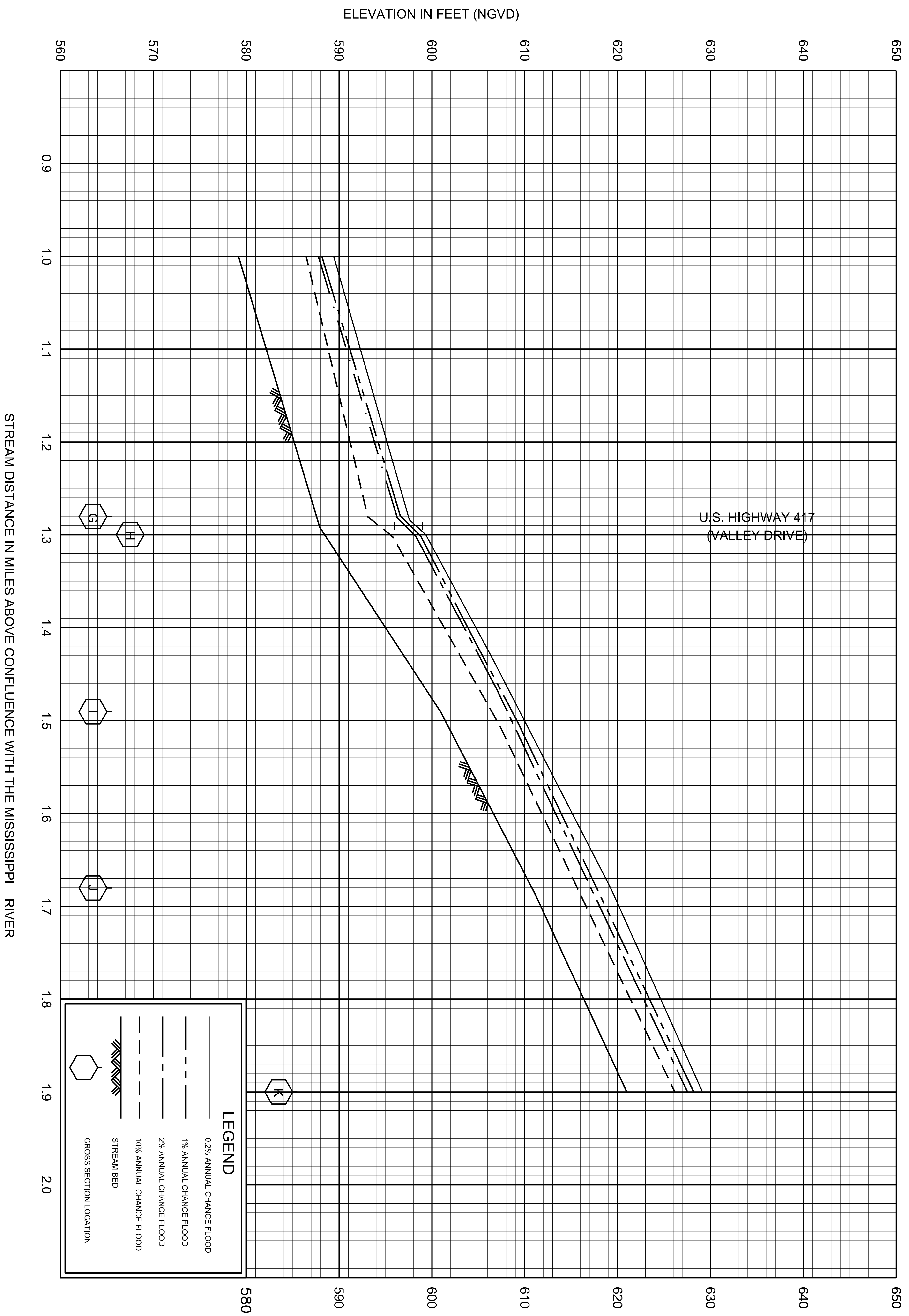
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

WEST FORK PIGEON CREEK



43P

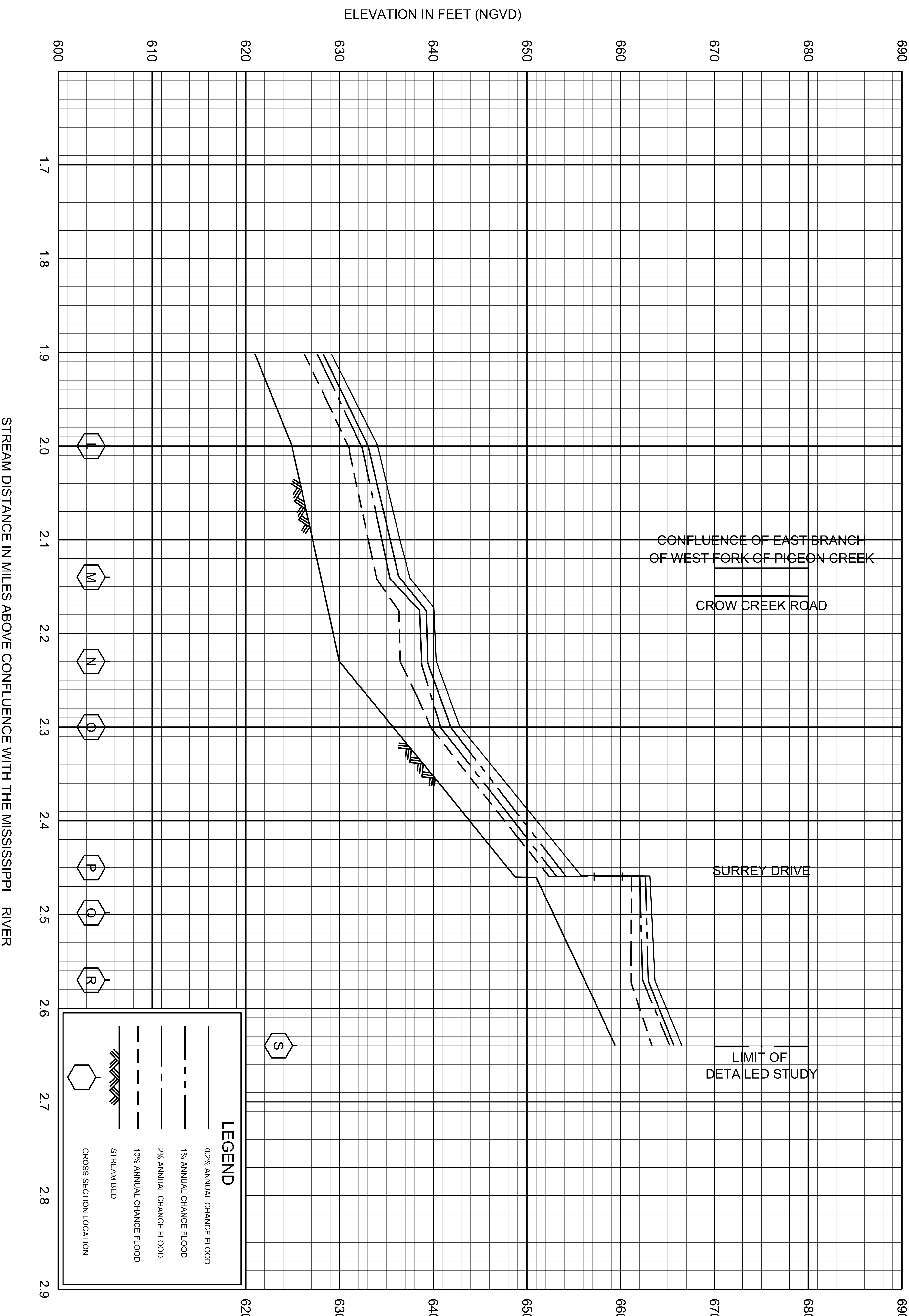
FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

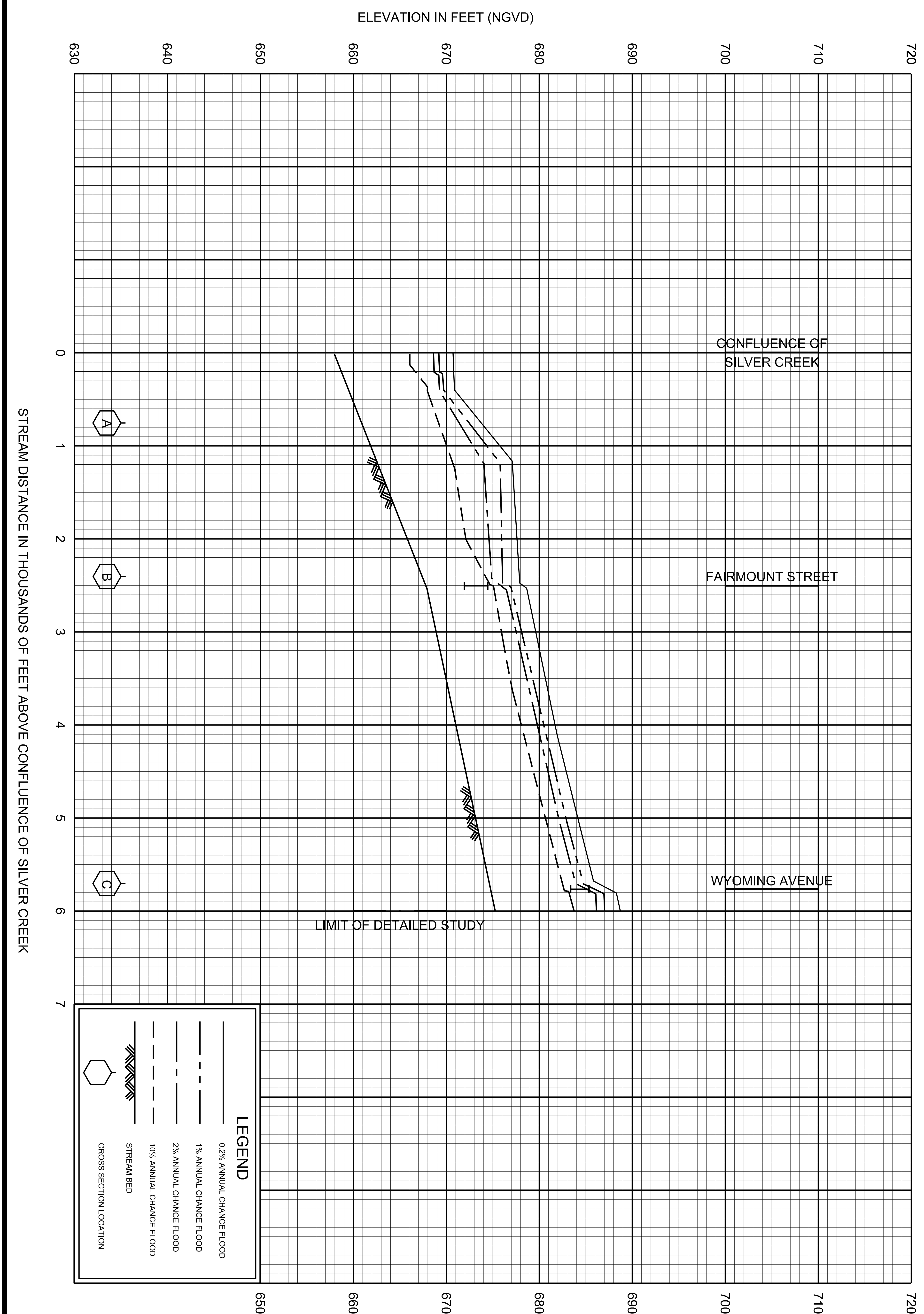
AND INCORPORATED AREAS

FLOOD PROFILES

WEST FORK PIGEON CREEK



44P	FEDERAL EMERGENCY MANAGEMENT AGENCY SCOTT COUNTY, IA AND INCORPORATED AREAS	FLOOD PROFILES WEST FORK PIGEON CREEK



FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOTT COUNTY, IA

AND INCORPORATED AREAS

FLOOD PROFILES

WEST FORK SILVER CREEK