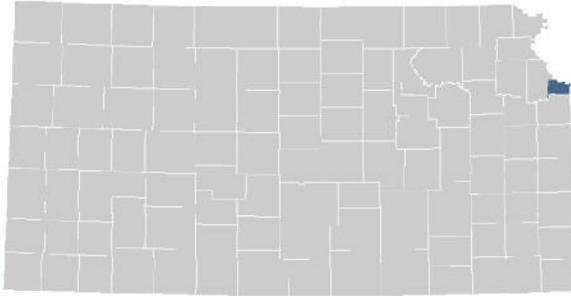


# FLOOD INSURANCE STUDY

## FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1



## WYANDOTTE COUNTY, KANSAS AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
CITY OF BONNER SPRINGS	200361
CITY OF EDWARDSVILLE	200362
CITY OF KANSAS CITY	200363
WYANDOTTE COUNTY UNINCORPORATED AREAS	200562



# FEMA

**PRELIMINARY**  
**MAY 30, 2014**

**REVISED:**

FLOOD INSURANCE STUDY NUMBER  
**20209CV000C**

Version Number 2.2.2.1

# TABLE OF CONTENTS

## Volume 1

	<u>Page</u>
<b>SECTION 1.0 – INTRODUCTION</b>	<b>1</b>
1.1 The National Flood Insurance Program	1
1.2 Purpose of this Flood Insurance Study Report	2
1.3 Jurisdictions Included in the Flood Insurance Study Project	2
1.4 Considerations for using this Flood Insurance Study Report	4
<b>SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS</b>	<b>14</b>
2.1 Floodplain Boundaries	14
2.2 Floodways	14
2.3 Base Flood Elevations	21
2.4 Non-Encroachment Zones	21
2.5 Coastal Flood Hazard Areas	21
2.5.1 Water Elevations and the Effects of Waves	21
2.5.2 Floodplain Boundaries and BFEs for Coastal Areas	21
2.5.3 Coastal High Hazard Areas	21
2.5.4 Limit of Moderate Wave Action	22
<b>SECTION 3.0 – INSURANCE APPLICATIONS</b>	<b>22</b>
3.1 National Flood Insurance Program Insurance Zones	22
3.2 Coastal Barrier Resources System	22
<b>SECTION 4.0 – AREA STUDIED</b>	<b>22</b>
4.1 Basin Description	22
4.2 Principal Flood Problems	23
4.3 Non-Levee Flood Protection Measures	25
4.4 Levees	25
<b>SECTION 5.0 – ENGINEERING METHODS</b>	<b>28</b>
5.1 Hydrologic Analyses	28
5.2 Hydraulic Analyses	33
5.3 Coastal Analyses	38
5.3.1 Total Stillwater Elevations	38
5.3.2 Waves	38
5.3.3 Coastal Erosion	38
5.3.4 Wave Hazard Analyses	38
5.4 Alluvial Fan Analyses	39
<b>SECTION 6.0 – MAPPING METHODS</b>	<b>39</b>
6.1 Vertical and Horizontal Control	39
6.2 Base Map	40
6.3 Floodplain and Floodway Delineation	40
6.4 Coastal Flood Hazard Mapping	70

6.5	FIRM Revisions	70
6.5.1	Letters of Map Amendment	70
6.5.2	Letters of Map Revision Based on Fill	70
6.5.4	Letters of Map Revision	71
6.5.3	Physical Map Revisions	71
6.5.4	Contracted Restudies	72
6.5.5	Community Map History	72
<b>SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION</b>		<b>73</b>
7.1	Contracted Studies	73
7.2	Community Meetings	75
<b>SECTION 8.0 – ADDITIONAL INFORMATION</b>		<b>78</b>
<b>SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES</b>		<b>79</b>

#### Figures

	<u>Page</u>
Figure 1: FIRM Panel Index	6
Figure 2: FIRM Notes to Users	7
Figure 3: Map Legend for FIRM	10
Figure 4: Floodway Schematic	15
Figure 5: Wave Runup Transect Schematic	21
Figure 6: Coastal Transect Schematic	21
Figure 7: Frequency Discharge-Drainage Area Curves	32
Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas	38
Figure 9: Transect Location Map	39

#### Tables

	<u>Page</u>
Table 1: Listing of NFIP Jurisdictions	2
Table 2: Flooding Sources Included in this FIS Report	17
Table 3: Flood Zone Designations by Community	22
Table 4: Coastal Barrier Resources System Information	22
Table 5: Basin Characteristics	23
Table 6: Principal Flood Problems	23
Table 7: Historic Flooding Elevations	24
Table 8: Non-Levee Flood Protection Measures	25
Table 9: Levees	27
Table 10: Summary of Discharges	29
Table 11: Summary of Non-Coastal Stillwater Elevations	32
Table 12: Stream Gage Information used to Determine Discharges	33
Table 13: Summary of Hydrologic and Hydraulic Analyses	34
Table 14: Roughness Coefficients	38

Table 15: Summary of Coastal Analyses	38
Table 16: Tide Gage Analysis Specifics	38
Table 17: Coastal Transect Parameters	38
Table 18: Summary of Alluvial Fan Analyses	39
Table 19: Results of Alluvial Fan Analyses	39
Table 20: Countywide Vertical Datum Conversion	40
Table 21: Stream-Based Vertical Datum Conversion	40
Table 22: Base Map Sources	40
Table 23: Summary of Topographic Elevation Data used in Mapping	41
Table 24: Floodway Data	42
Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams	70
Table 26: Summary of Coastal Transect Mapping Considerations	70
Table 27: Incorporated Letters of Map Change	71
Table 28: Community Map History	73
Table 29: Summary of Contracted Studies Included in this FIS Report	73
Table 30: Community Meetings	76
Table 31: Map Repositories	78
Table 32: Additional Information	78
Table 33: Bibliography and References	80

### Exhibits

Flood Profiles	<u>Panel</u>
Betts Creek	01-04 P
Brenner Heights Creek	05-07 P
Brenner Heights Creek Tributary	08-09 P
Connor Creek	10-13 P
East Mission Creek	14-15 P
Honey Creek	16-17 P
Island Creek	18-20 P
Kansas River	21-30 P
Little Turkey Creek	31-32 P
Little Turkey Creek Tributary	33 P
Marshall Creek	34-35 P
Marshall Creek Tributary	36-37 P
Mill Creek	38-39 P
Missouri River	40-41 P
Muncie Creek	42-44 P
Spring Creek	45-46 P
Turkey Creek	47-48 P
West Mission Creek	49-51 P
Wolf Creek	52-57 P
Wolf Creek Tributary 2	58-59 P
Wolf Creek Tributary 3	60-63 P
Wolf Creek Tributary 4	64-67 P

### **Published Separately**

Flood Insurance Rate Map (FIRM)

# FLOOD INSURANCE STUDY REPORT WYANDOTTE COUNTY, KANSAS

## SECTION 1.0 – INTRODUCTION

### 1.1 The National Flood Insurance Program

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

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

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

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

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

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

the effective date of the initial FIRM for the community or after December 31, 1974, whichever is later. These buildings are generally referred to as “Post-FIRM” buildings.

## 1.2 Purpose of this Flood Insurance Study Report

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

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

## 1.3 Jurisdictions Included in the Flood Insurance Study Project

This FIS Report covers the entire geographic area of **Wyandotte County, Kansas**.

The jurisdictions that are included in this project area, along with the Community Identification Number (CID) for each community and the 8-digit Hydrologic Unit Codes (HUC-8) sub-basins affecting each, are shown in Table 1. The Flood Insurance Rate Map (FIRM) panel numbers that affect each community are listed. If the flood hazard data for the community is not included in this FIS Report, the location of that data is identified.

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

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

**Table 1: Listing of NFIP Jurisdictions**

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
City of Bonner Springs	200361	10270104	20209C0109F 20209C0110F 20209C0117F 20209C0120F 20209C0128D 20209C0129F 20209C0130F 20209C0140F 20209C0210D	

**Table 1: Listing of NFIP Jurisdictions (continued)**

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
City of Edwardsville	200362	10270104	20209C0128D 20209C0129F 20209C0130F 20209C0131F 20209C0133F 20209C0140F 20209C0145F	
City of Kansas City	200363	10240011, 10270104, 10300101	20209C0010D 20209C0020F 20209C0028D 20209C0029D 20209C0035D 20209C0036D 20209C0037D 20209C0039D 20209C0041D 20209C0043D 20209C0045D 20209C0063F 20209C0064F 20209C0065D 20209C0070E 20209C0090E 20209C0110F 20209C0130F 20209C0131F 20209C0132D 20209C0133F 20209C0134F 20209C0145F 20209C0151F 20209C0152F 20209C0153D 20209C0154E 20209C0160E 20209C0170D 20209C0180E 20209C0190D	
City of Lake Quivira	200166	10270104	N/A	Johnson County, Kansas, and Incorporated Areas FIS Report
Wyandotte County Unincorporated Areas	200562	10240011, 10270104, 10300101	NONE	

## 1.4 Considerations for using this Flood Insurance Study Report

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

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

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

It is, therefore, the responsibility of the user to consult with community officials by contacting the community repository to obtain the most current FIS Report components. Communities participating in the NFIP have established repositories of flood hazard data for floodplain management and flood insurance purposes. Community map repository addresses are provided in Table 32, “Map Repositories,” within this FIS Report.

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

The initial Countywide FIS Report for Wyandotte County became effective on September 2, 2011. Refer to Table 28 for information about subsequent revisions to the FIRMs.

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

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

- FEMA does not impose floodplain management requirements or special insurance ratings based on Limit of Moderate Wave Action (LiMWA) delineations at this time. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. If the

LiMWA is shown on the FIRM, it is being provided by FEMA as information only. For communities that do adopt Zone VE building standards in the area defined by the LiMWA, additional Community Rating System (CRS) credits are available. Refer to Section 2.5.4 for additional information about the LiMWA.

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

- Previous FIS Reports and FIRMs may have included levees that were accredited as reducing the risk associated with the 1% annual chance flood based on the information available and the mapping standards of the NFIP at that time. For FEMA to continue to accredit the identified levees, the levees must meet the criteria of the Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10), titled “Mapping of Areas Protected by Levee Systems.”

Since the status of levees is subject to change at any time, the user should contact the appropriate agency for the latest information regarding levees presented in Table 9 of this FIS Report. For levees owned or operated by the U.S. Army Corps of Engineers (USACE), information may be obtained from the USACE national levee database. For all other levees, the user is encouraged to contact the appropriate local community.

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



**Figure 2: FIRM Notes to Users**

## **NOTES TO USERS**

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

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

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

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

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

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

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

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

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

## Figure 2. FIRM Notes to Users

**PROJECTION INFORMATION:** The projection used in the preparation of the map was State Plane Kansas North FIPS 1501 Feet. The horizontal datum was NAD83. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

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

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

Local vertical monuments may have been used to create the map. To obtain current monument information, please contact the appropriate local community listed in Table 32 of this FIS Report.

**BASE MAP INFORMATION:** Base map information shown on the FIRM was provided by the Wyandotte County GeoSpatial Services Department. This information was derived from digital orthophotography at a 6-inch resolution dated 2012. For information about base maps, refer to Section 6.2 “Base Map” in this FIS Report.

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

**Figure 2. FIRM Notes to Users**

**NOTES FOR FIRM INDEX**

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

**SPECIAL NOTES FOR SPECIFIC FIRM PANELS**

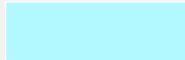
This Notes to Users section was created specifically for Wyandotte County, Kansas, effective February 5, 2014.

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

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

**Figure 3: Map Legend for FIRM**

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



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

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

Zone AE The flood insurance rate zone that corresponds to the 1% annual chance floodplains. Base flood elevations derived from the hydraulic analyses are shown within this zone, either at cross section locations or as static whole-foot elevations that apply throughout the zone.

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

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

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

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

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

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

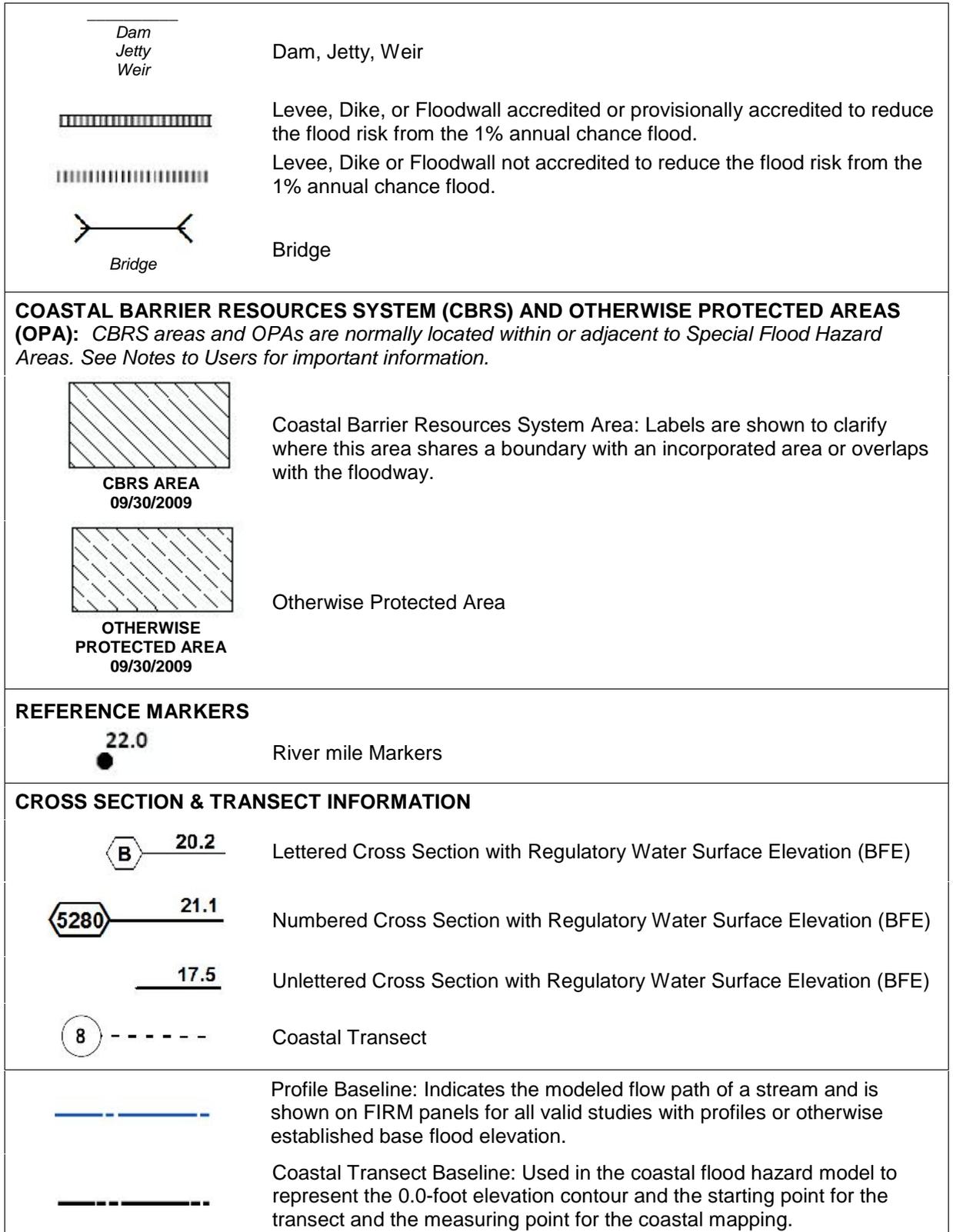


Regulatory Floodway determined in Zone AE.

**Figure 3: Map Legend for FIRM**

  <p>FLOOD INSURANCE IS NOT AVAILABLE FOR STRUCTURES NEWLY BUILT OR SUBSTANTIALLY IMPROVED ON OR AFTER APRIL 8, 1987, IN THE DESIGNATED COLORADO RIVER FLOODWAY</p>	<p><b>Non-encroachment zone (see Section 2.4 of this FIS Report for more information)</b></p> <p><b>The Colorado River Floodway was established by Congress in the Colorado River Floodway Protection Act of 1986, Public Law 99-450 (100 Statute 1129). The Act imposes certain restrictions within the Floodway.</b></p>
<p><b>OTHER AREAS OF FLOOD HAZARD</b></p>	
	<p>Shaded Zone X: Areas of 0.2% annual chance flood hazards and areas of 1% annual chance flood hazards with average depths of less than 1 foot or with drainage areas less than 1 square mile.</p>
	<p>Future Conditions 1% Annual Chance Flood Hazard – Zone X: The flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined based on future-conditions hydrology. No base flood elevations or flood depths are shown within this zone.</p>
	<p>Area with Reduced Flood Risk due to Levee: Areas where an accredited levee, dike, or other flood control structure has reduced the flood risk from the 1% annual chance flood. See Notes to Users for important information.</p>
<p><b>OTHER AREAS</b></p>	
	<p>Zone D (Areas of Undetermined Flood Hazard): The flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.</p>
	<p>Unshaded Zone X: Areas of minimal flood hazard.</p>
<p><b>FLOOD HAZARD AND OTHER BOUNDARY LINES</b></p>	
 <p>(ortho)      (vector)</p>	<p>Flood Zone Boundary (white line on ortho-photography-based mapping; gray line on vector-based mapping)</p>
	<p>Limit of Study</p>
	<p>Jurisdiction Boundary</p>
	<p>Limit of Moderate Wave Action (LIMWA): Indicates the inland limit of the area affected by waves greater than 1.5 feet</p>
<p><b>GENERAL STRUCTURES</b></p>	
<p>-----  <i>Aqueduct</i>  <i>Channel</i>  <i>Culvert</i>  <i>Storm Sewer</i></p>	<p>Channel, Culvert, Aqueduct, or Storm Sewer</p>

**Figure 3: Map Legend for FIRM**



**Figure 3: Map Legend for FIRM**

	Base Flood Elevation Line (shown for flooding sources for which no cross sections or profile are available)
<b>ZONE AE (EL 16)</b>	Static Base Flood Elevation value (shown under zone label)
<b>ZONE AO (DEPTH 2)</b>	Zone designation with Depth
<b>ZONE AO (DEPTH 2) (VEL 15 FPS)</b>	Zone designation with Depth and Velocity
<b>BASE MAP FEATURES</b>	
	River, Stream or Other Hydrographic Feature
	Interstate Highway
	U.S. Highway
	State Highway
	County Highway
<u>MAPLE LANE</u>	Street, Road, Avenue Name, or Private Drive if shown on Flood Profile
	Railroad
	Horizontal Reference Grid Line
	Horizontal Reference Grid Ticks
	Secondary Grid Crosshairs
Land Grant	Name of Land Grant
7	Section Number
R. 43 W. T. 22 N.	Range, Township Number
<sup>42</sup> 76 <sup>000m</sup> E	Horizontal Reference Grid Coordinates (UTM)
<b>365000 FT</b>	Horizontal Reference Grid Coordinates (State Plane)
<b>80° 16' 52.5"</b>	Corner Coordinates (Latitude, Longitude)

## **SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS**

### **2.1 Floodplain Boundaries**

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

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

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

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

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

### **2.2 Floodways**

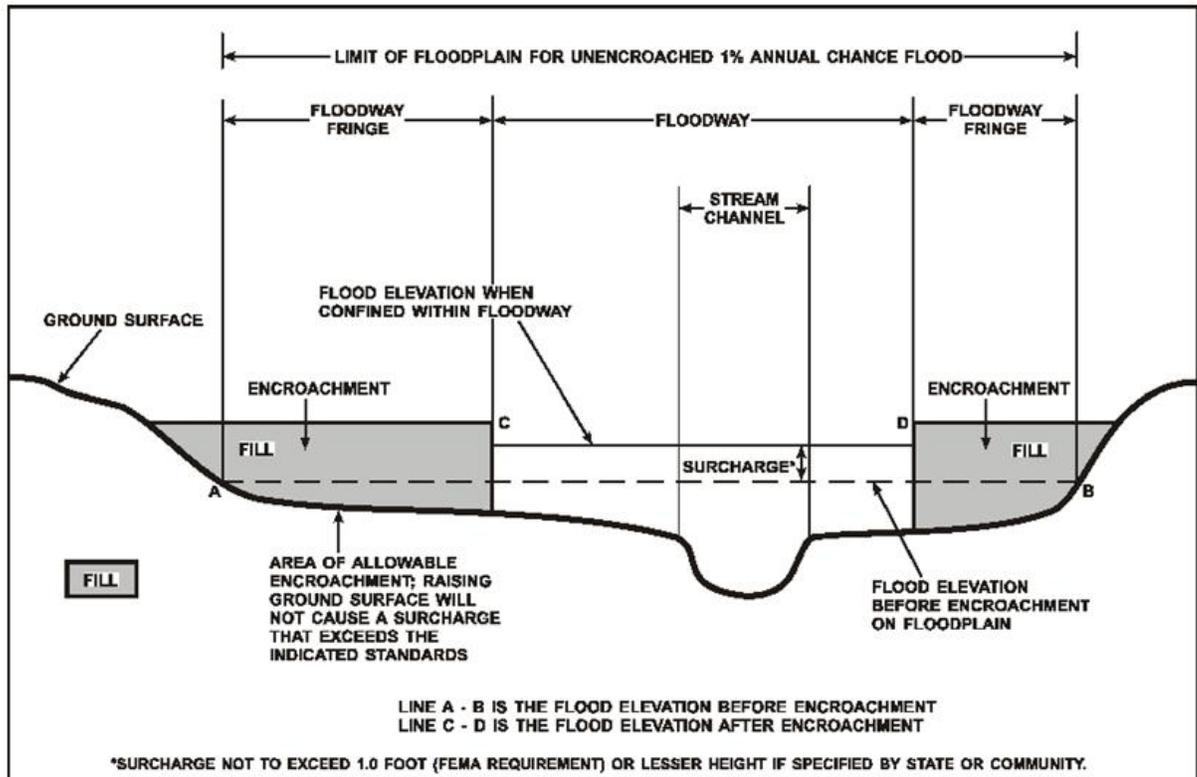
Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the

encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard.

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

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

**Figure 4: Floodway Schematic**



Floodway widths presented in this FIS Report and on the FIRM were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. For certain stream segments, floodways were adjusted so that the amount of floodwaters conveyed on each side of the

floodplain would be reduced equally. The results of the floodway computations have been tabulated for selected cross sections and are shown in Table 24, "Floodway Data."

**Table 2: Flooding Sources Included in this FIS Report**

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Betts Creek	City of Edwardsville	Confluence with Kansas River	Approximately 1,825 feet upstream of South 102 <sup>nd</sup> Street	10270104	4.2		Y	AE	8/2013
Brenner Heights Creek	City of Kansas City	Confluence with Kansas River	Approximately 0.51 mile upstream of 59 <sup>th</sup> Street	10270104	3.5		Y	AE	8/2013
Brenner Heights Creek Tributary	City of Kansas City	Confluence with Brenner Heights Creek	Approximately 0.55 mile upstream of 55 <sup>th</sup> Street	10270104	1.4		Y	AE	9/1977
Connor Creek	City of Kansas City	Confluence with Missouri River	Approximately 2.0 miles upstream of 107 <sup>th</sup> Street	10240011	7.4		Y	AE	9/1977
East Mission Creek	City of Bonner Springs, City of Edwardsville	Confluence with West Mission Creek	Approximately 1.3 miles upstream of the Lake of the Forest bridge	10270104	1.8		N	AE	7/1977
Honey Creek	City of Kansas City	Confluence with Island Creek	Approximately 100 feet upstream of 115 <sup>th</sup> Street	10240011	3.0		Y	AE	5/1996

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

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Island Creek	City of Kansas City	Approximately 800 feet downstream of Kansas Highway 5	Approximately 200 feet upstream of Polfer Road	10240011	4.9		Y	AE	5/1996
Kansas River	City of Bonner Springs, City of Edwardsville, City of Kansas City	Confluence with Missouri River	Wyandotte County boundary	10270104	25.4		Y	AE	6/1978
Little Turkey Creek	City of Edwardsville, City of Kansas City	Confluence with Kansas River	Approximately 1,200 feet upstream of Interstate 70	10270104	6.9		Y	AE	10/2013
Little Turkey Creek Tributary	City of Kansas City	Confluence with Little Turkey Creek	Approximately 1.4 miles upstream of 86 <sup>th</sup> Street	10270104	1.5		Y	AE	9/1977
Marshall Creek	City of Kansas City	Approximately 150 feet downstream of Hurre Brink Road	Approximately 0.8 mile upstream of Leavenworth Road	10240011	1.7		Y	AE	5/2005
Marshall Creek Tributary	City of Kansas City	Confluence with Marshall Creek	Approximately 0.4 mile upstream of Parallel Avenue	10240011	2.1		Y	AE	5/2005
Mill Creek	City of Kansas City	Confluence with Kansas River	Approximately 0.5 mile upstream of State Avenue	10270104	4.6		Y	AE	9/1977
Missouri River	City of Kansas City	Approximately 1,500 feet downstream of the confluence with Kansas River	Approximately 2.6 miles upstream of Connor Creek	10240011	19.1		Y	AE	2003

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

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Muncie Creek	City of Kansas City	Confluence with Brenner Heights Creek	Approximately 1.4 miles upstream of State Avenue	10270104	3.8		Y	AE	9/1977
Spring Creek	City of Bonner Springs	Approximately 325 feet upstream of its confluence with Wolf Creek	Approximately 275 feet upstream of Lakewood Road	10270104	2.0		Y	AE	5/2005
Turkey Creek	City of Kansas City	Approximately 1,300 feet downstream of Interstate 35	Approximately 2,000 feet upstream of Lamar Avenue	10270104	4.0		Y	AE	9/1977
West Mission Creek	City of Bonner Springs, City of Edwardsville	Confluence with Kansas River	Approximately 1,800 feet upstream of Stevenson Drive	10270104	3.8		Y	AE	7/1977
Wolf Creek	City of Bonner Springs, City of Kansas City	Confluence with Kansas River	Approximately 1,200 feet upstream of Hollingsworth	10270104	14.1		Y	AE	8/2013
Wolf Creek Tributary 2	City of Bonner Springs	Confluence with Wolf Creek	Approximately 1,850 feet upstream of Metropolitan Avenue	10270104	0.7		Y	AE	8/2013

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

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Area (mi <sup>2</sup> ) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Wolf Creek Tributary 3	City of Bonner Springs	Confluence with Wolf Creek	Approximately 0.84 mile upstream of the confluence with Wolf Creek	10270104	0.8		Y	AE	8/2013
Wolf Creek Tributary 4	City of Bonner Springs, City of Kansas City	Confluence with Wolf Creek	Approximately 0.52 mile upstream of 130 <sup>th</sup> Street	10270104	4.7		Y	AE	8/2013

All floodways that were developed for this Flood Risk Project are shown on the FIRM using the symbology described in Figure 3. In cases where the floodway and 1% annual chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown on the FIRM. For information about the delineation of floodways on the FIRM, refer to Section 6.3.

### **2.3 Base Flood Elevations**

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

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

### **2.4 Non-Encroachment Zones**

This section is not applicable to this Flood Risk Project.

### **2.5 Coastal Flood Hazard Areas**

This section is not applicable to this Flood Risk Project.

#### **2.5.1 Water Elevations and the Effects of Waves**

This section is not applicable to this Flood Risk Project.

#### **Figure 5: Wave Runup Transect Schematic**

[Not applicable to this Flood Risk Project]

#### **2.5.2 Floodplain Boundaries and BFEs for Coastal Areas**

This section is not applicable to this Flood Risk Project.

#### **2.5.3 Coastal High Hazard Areas**

This section is not applicable to this Flood Risk Project.

#### **Figure 6: Coastal Transect Schematic**

[Not applicable to this Flood Risk Project]

### 2.5.4 Limit of Moderate Wave Action

This section is not applicable to this Flood Risk Project.

## SECTION 3.0 – INSURANCE APPLICATIONS

### 3.1 National Flood Insurance Program Insurance Zones

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

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

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

**Table 3: Flood Zone Designations by Community**

Community	Flood Zone(s)
City of Bonner Springs	AE, X
City of Edwardsville	AE, X
City of Kansas City	A, AE, X

### 3.2 Coastal Barrier Resources System

This section is not applicable to this Flood Risk Project.

**Table 4: Coastal Barrier Resources System Information**

[Not applicable to this Flood Risk Project]

## SECTION 4.0 – AREA STUDIED

### 4.1 Basin Description

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

**Table 5: Basin Characteristics**

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Lower Kansas	10270104	Kansas River	Contains downstream portion of Kansas River until the confluence with the Missouri River including watersheds of the two main tributaries – Stranger Creek and the Wakarusa River. It contains the southern portion of the county.	1,655
Lower Missouri-Crooked	10300101	Missouri River	Begins at the confluence with the Kansas River to downstream of Bear Creek. The watershed has no identified streams in the county besides the Missouri River at the confluence with Kansas River.	2,697
Independence-Sugar	10240011	Missouri River	Begins at the confluence with the Nodaway River and ends at the confluence with the Kansas River. It contains the northern portion of the county.	1,044

**4.2 Principal Flood Problems**

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

**Table 6: Principal Flood Problems**

Flooding Source	Description of Flood Problems
Betts Creek, East Mission Creek, West Mission Creek, Spring Creek, and Wolf Creek basins	There are no stream gaging stations. Documentation of flooding affecting these streams in the past relies completely upon historical accounts. Newspaper files, historical documents, and local area records were searched for information concerning past floods.

**Table 6: Principal Flood Problems (continued)**

Flooding Source	Description of Flood Problems
Kansas River and Missouri River	Three major floods of record and a number of lesser ones have overrun the floodplains of the Kansas and Missouri Rivers. Major events occurred in 1844, 1951, and 1993 when both rivers delivered flood waters on the area at the same time. The estimated flowrates for the Missouri River at Kansas City for these floods were 625,000 cubic feet per second (CFS), 573,000 CFS, and 530,000 CFS, respectively.
Kansas River	Flood records for the Kansas River included stage records from 1903 and discharge records from 1917. The most prominent floods occurred in 1844, 1903, and 1951. The flood of 1844 was more a matter of legend than actual historical record; thus, little is known about it except for an indication of its stage and extent. River stage records were being maintained at several points along the Kansas River by 1903; thus, the storm pattern can be reconstructed from existing rainfall records. The 1951 storm and flood patterns are well documented and hydrologic studies show that conditions capable of producing even larger floods are within the realm of reasonable probability. There have been other floods of significant magnitude which, along with the record floods, provide the basic data for engineering studies of the overall flood problems.
Turkey Creek	Flash flooding is a problem in the City of Kansas City due to local heavy rains, poor bridge design, and cluttered channel network within the city.

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

**Table 7: Historic Flooding Elevations**

Flooding Source	Location	Historic Peak (Feet NAVD88)	Event Date	Approximate Recurrence Interval (years)	Source of Data
Kansas River	USGS gage No. 6892500 at Bonner Springs	39.5	June 1, 1903	*	USGS gage
Kansas River	USGS gage No. 6892500 at Bonner Springs	22.2	June 17, 1919	*	USGS gage
Kansas River	USGS gage No. 6892500 at Bonner Springs	49.20	July 13, 1951	*	USGS gage
Kansas River	USGS gage No. 6892500 at Bonner Springs	48.9	July 1993		USGS gage
Turkey Creek	Kansas City, KS	*	October 4, 1998	100	USACE

\*Not calculated for this FIS project.

### 4.3 Non-Levee Flood Protection Measures

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

**Table 8: Non-Levee Flood Protection Measures**

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Island Creek	Piper Lake Dam	Dam		Provides a small degree of protection to the very small number of buildings downstream of the dam.
Turkey Creek basin	N/A	Flood reduction	Kansas City, Missouri and Kansas City, Kansas	28-foot diameter horseshoe shaped tunnel

### 4.4 Levees

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

Levee systems that are determined to reduce the risk from the 1% annual chance flood are accredited by FEMA. FEMA can also grant provisional accreditation to a levee system that was previously accredited on an effective FIRM and for which FEMA is awaiting data and/or documentation to demonstrate compliance with Section 65.10. These levee systems are referred to as Provisionally Accredited Levees, or PALs. Provisional accreditation provides communities and levee owners with a specified timeframe to obtain the necessary data to confirm the levee's certification status. Accredited levee systems and PALs are shown on the FIRM using the symbology shown in Figure 3 and in Table 9. If the required information for a PAL is not submitted within the required timeframe, or if information indicates that a levee system no longer meets Section 65.10, FEMA will de-accredit the levee system and issue an effective FIRM showing the levee-impacted area as a SFHA.

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

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

Please note that the information presented in Table 9 is subject to change at any time. For that reason, the latest information regarding any USACE structure presented in the table should be obtained by contacting USACE and accessing the USACE national levee database. For levees owned and/or operated by someone other than the USACE, contact the local community shown in Table 32.

**Table 9: Levees**

Community	Flooding Source	Levee Location	Levee Owner	USACE Levee	Levee ID	Covered Under PL84-99 Program?	FIRM Panel(s)	Levee Status
City of Kansas City	Kansas River	Right Bank	Kaw Valley Drainage District	Y	1704000349	Y	20209C0152F 20209C0154E 20209C0160E	Accredited
City of Kansas City	Kansas River	Left Bank	Kaw Valley Drainage District	Y	1704000350	Y	20209C0160E 20209C0180E	Accredited
City of Kansas City	Kansas & Missouri Rivers	Right Bank		Y	1704000721	Y	20209C0180E	Accredited
City of Kansas City	Missouri River	Right Bank		Y	1704000353	Y	20209C0180E	Accredited

## **SECTION 5.0 – ENGINEERING METHODS**

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

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

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

### **5.1 Hydrologic Analyses**

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

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

**Table 10: Summary of Discharges**

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Betts Creek	At confluence with Kansas River	4.90	4,620	5,970	6,810	7,530	9,040
	Approximately 1.1 miles above confluence with Kansas River	3.50	3,740	4,720	5,300	5,830	6,970
	Approximately 1.3 miles above confluence with Kansas River	3.30	3,700	4,810	5,580	6,330	8,090
	Approximately 2.7 miles above confluence with Kansas River	2.10	2,640	3,430	4,020	4,600	6,000
Brenner Heights Creek	At confluence with Kansas River	9.90	8,510	9,640	10,340	10,920	12,640
	Just upstream of confluence of Muncie Creek	5.80	5,980	6,790	7,290	7,700	8,590
	Just upstream of confluence of Brenner Heights Creek Tributary	3.10	3,300	3,670	3,870	4,080	4,560
Brenner Heights Creek Tributary	At confluence with Brenner Heights Creek	2.67	2,300	*	3,750	4,400	6,200
Conner Creek	At confluence with Missouri River	8.84	2,200	*	4,050	4,950	7,200
	Just upstream of Hollingsworth Drive	6.42	1,700	*	3,250	4,000	6,000
	Just upstream of 105 <sup>th</sup> Street and Donahoo Road	4.25	1,175	*	2,300	2,850	4,250

**Table 10: Summary of Discharges (continued)**

Flooding Source	Location	Peak Discharge (cfs)					
		Drainage Area (Square Miles)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
East Mission Creek	Approximately 1.0 mile upstream of confluence with West Mission Creek	2.85	1,335	*	2,500	3,012	4,425
Honey Creek	At confluence with Island Creek	3.35	*	*	*	3,350	*
	At Hubbard Street	1.92	*	*	*	2,300	*
	At Hollingsworth Road	1.55	*	*	*	2,090	*
	At 115 <sup>th</sup> Street	1.04	*	*	*	1,500	*
Island Creek	At Kansas Highway 5	11.56	4,230	*	6,260	7,290	9,900
	Just upstream of confluence with Honey Creek	6.55	2,695	*	3,900	4,490	5,950
	Approximately 350 feet downstream of 123 <sup>rd</sup> Street	2.86	2,300	*	3,380	3,940	5,200
	At upstream crossing of Polfer Road	1.50	1,520	*	2,310	2,770	3,700
Kansas River	At confluence with Missouri River	60,098	89,500	*	179,500	232,500	428,000
Little Turkey Creek	At confluence with Kansas River	11.40	7,540	9,140	10,290	11,410	14,020
	Just upstream of confluence with Little Turkey Creek	5.60	4,480	5,420	6,050	6,660	8,010
Little Turkey Creek Tributary	At confluence with Little Turkey Creek	2.00	1,525	*	2,550	3,100	4,400
Marshall Creek	At confluence with Wyandotte County Lake	4.41	3,795	*	5,414	6,265	8,085
	Just upstream of confluence of Marshall Creek Tributary	1.19	1,164	*	1,659	1,908	2,434
Marshall Creek Tributary	At confluence with Marshall Creek	3.15	2,663	*	3,801	4,408	5,692

**Table 10: Summary of Discharges (continued)**

Flooding Source	Location	Peak Discharge (cfs)					
		Drainage Area (Square Miles)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Marshall Creek Tributary	At Georgia Avenue	1.86	1,640	*	2,341	2,701	3,468
Mill Creek	At confluence with Kansas River	5.06	4,000	*	6,400	7,475	10,150
	Approximately 1,200 feet upstream of Kansas Avenue	2.93	3,050	*	4,950	5,750	7,800
	Approximately 1,000 feet upstream of Kansas Turnpike (I-70)	1.44	2,050	*	3,300	3,775	4,900
Missouri River	At Kansas River	484,137	245,000	*	351,000	401,000	530,000
	At Brush/Line Creeks	423,553	192,000	*	257,000	289,000	358,000
	At Platte River	423,409	191,000	*	256,000	287,000	356,000
Muncie Creek	At confluence with Brenner Heights Creek	2.05	1,560	*	2,550	3,025	4,250
	Just upstream of Kansas Turnpike (I-70)	1.68	1,250	*	2,125	2,550	3,625
Spring Creek	At confluence with Wolf Creek	1.97	1,829	*	2,522	2,885	3,631
	Just downstream of Metropolitan Avenue	0.99	1,016	*	1,405	1,600	2,015
Turkey Creek	At tunnel entrance	23.20	10,100	*	14,900	15,000	17,900
	Just upstream of 7 <sup>th</sup> Street	22.50	10,000	*	14,400	14,800	25,200
	Just upstream of Interstate 35	21.30	9,500	*	15,200	18,100	24,000
	Just upstream of 18 <sup>th</sup> Street	19.80	9,000	*	14,500	17,100	23,100
West Mission Creek	At confluence of East Mission Creek	2.75	1,540	*	2,800	3,400	4,900
	Approximately 400 feet upstream of 122 <sup>nd</sup> Street	2.66	1,470	*	2,700	3,270	4,720

**Table 10: Summary of Discharges (continued)**

Flooding Source	Location	Peak Discharge (cfs)					
		Drainage Area (Square Miles)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
West Mission Creek	Approximately 800 feet upstream of Metropolitan Avenue	0.89	580	*	1,040	1,270	1,800
Wolf Creek	At Mouth	30.90	7,990	10,300	11,890	13,200	17,480
	At Gibbs Road	28.30	7,820	10,070	11,620	12,890	17,080
	At I-70	17.10	5,580	7,230	8,470	9,860	13,460
	At State Avenue	12.90	5,070	6,640	7,720	8,940	12,070
	At Leavenworth Road	5.50	2,420	3,400	4,100	4,770	6,430
	At Hollingsworth Road	1.20	850	1,010	1,120	1,220	1,460
Wolf Creek Tributary 2	At Confluence with Wolf Creek	0.30	420	570	670	770	1,000
	At S 138 <sup>th</sup> Street	0.00	100	120	140	160	210
Wolf Creek Tributary 3	At Confluence with Wolf Creek	0.50	580	770	910	1,050	1,380
	0.7 miles upstream of Confluence with Wolf Creek	0.10	170	220	250	290	370
Wolf Creek Tributary 4	At Confluence with Wolf Creek	5.70	3,440	4,230	4,760	5,310	6,590
	At I-70	5.00	3,030	3,370	3,520	3,710	4,130
	At State Ave	1.70	1,430	1,690	1,890	2,080	2,560

**Figure 7: Frequency Discharge-Drainage Area Curves**

[Not applicable to this Flood Risk Project]

**Table 11: Summary of Non-Coastal Stillwater Elevations**

[Not applicable to this Flood Risk Project]

**Table 12: Stream Gage Information used to Determine Discharges**

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record	
					From	To
Kansas River	6892500	USGS	Kansas River at Bonner Springs, Kansas	59,928	06/01/1903	09/28/1973
Turkey Creek	6892940	USGS	Turkey Creek at Kansas City, Kansas	22.3	06/09/1974	04/13/1987

## 5.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Base flood elevations on the FIRM represent the elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations. These whole-foot elevations may not exactly reflect the elevations derived from the hydraulic analyses. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

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

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

**Table 13: Summary of Hydrologic and Hydraulic Analyses**

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Betts Creek	Confluence with Kansas River	Approximately 1,825 feet upstream of South 102 <sup>nd</sup> Street	Rainfall- Runoff Model HEC-HMS 3.5	Steady State HEC-RAS 4.1	8/2013	AE w/ Floodway	
Brenner Heights Creek	Confluence with Kansas River	Approximately 0.51 mile upstream of 59 <sup>th</sup> Street	Rainfall- Runoff Model HEC-HMS 3.5	Steady State HEC-RAS 4.1	8/2013	AE w/ Floodway	
Brenner Heights Creek Tributary	Confluence with Brenner Heights Creek	Approximately 0.55 mile upstream of 55 <sup>th</sup> Street	*	*	9/1977	AE w/ Floodway	
Connor Creek	Confluence with Missouri River	Approximately 2.0 miles upstream of 107 <sup>th</sup> Street	*	*	9/1977	AE w/ Floodway	
East Mission Creek	Confluence with West Mission Creek	Approximately 1.3 miles upstream of the Lake of the Forest bridge	*	*	7/1977	AE	

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

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Honey Creek	Confluence with Island Creek	Approximately 100 feet upstream of 115 <sup>th</sup> Street	*	*	5/1996	AE w/ Floodway	
Island Creek	Approximately 800 feet downstream of Kansas Highway 5	Approximately 200 feet upstream of Polfer Road	*	*	5/1996	AE w/ Floodway	
Kansas River	Confluence with Missouri River	Wyandotte County boundary	*	*	6/1978	AE w/ Floodway	
Little Turkey Creek	Confluence with Kansas River	Approximately 1,200 feet upstream of Interstate 70	Rainfall- Runoff Model HEC-HMS 3.5	Steady State HEC-RAS 4.1	10/2013	AE w/ Floodway	
Little Turkey Creek Tributary	Confluence with Little Turkey Creek	Approximately 1.4 miles upstream of 86 <sup>th</sup> Street	*	*	9/1977	AE w/ Floodway	
Marshall Creek	Approximately 150 feet downstream of Hurre Brink Road	Approximately 0.8 mile upstream of Leavenworth Road	*	*	5/2005	AE w/ Floodway	
Marshall Creek Tributary	Confluence with Marshall Creek	Approximately 0.4 mile upstream of Parallel Avenue	*	*	5/2005	AE w/ Floodway	

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

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Mill Creek	Confluence with Kansas River	Approximately 0.5 mile upstream of State Avenue	*	*	9/1977	AE w/ Floodway	
Missouri River	Approximately 1,500 feet downstream of the confluence with Kansas River	Approximately 2.6 miles upstream of Connor Creek	*	*	2003	AE w/ Floodway	
Muncie Creek	Confluence with Brenner Heights Creek	Approximately 1.4 miles upstream of State Avenue	*	*	9/1977	AE w/ Floodway	
Spring Creek	Approximately 325 feet upstream of its confluence with Wolf Creek	Approximately 275 feet upstream of Lakewood Road	*	*	5/2005	AE w/ Floodway	
Turkey Creek	Approximately 1,300 feet downstream of Interstate 35	Approximately 2,000 feet upstream of Lamar Avenue	*	*	9/1977	AE w/ Floodway	
West Mission Creek	Confluence with Kansas River	Approximately 1,800 feet upstream of Stevenson Drive	*	*	7/1977	AE w/ Floodway	

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

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Wolf Creek	Confluence with Kansas River	Approximately 1,200 feet upstream of Hollingsworth	Rainfall- Runoff Model HEC-HMS 3.5	Steady State HEC-RAS 4.1	8/2013	AE w/ Floodway	
Wolf Creek Tributary 2	Confluence with Wolf Creek	Approximately 1,850 feet upstream of Metropolitan Avenue	Rainfall- Runoff Model HEC-HMS 3.5	Steady State HEC-RAS 4.1	8/2013	AE w/ Floodway	
Wolf Creek Tributary 3	Confluence with Wolf Creek	Approximately 0.84 mile upstream of the confluence with Wolf Creek	Rainfall- Runoff Model HEC-HMS 3.5	Steady State HEC-RAS 4.1	8/2013	AE w/ Floodway	
Wolf Creek Tributary 4	Confluence with Wolf Creek	Approximately 0.52 mile upstream of 130 <sup>th</sup> Street	Rainfall- Runoff Model HEC-HMS 3.5	Steady State HEC-RAS 4.1	8/2013	AE w/ Floodway	

**Table 14: Roughness Coefficients**

Flooding Source	Channel “n”	Overbank “n”
Betts Creek	0.035-0.045	0.050-0.120
Brenner Heights Creek	0.035-0.045	0.013-0.120
Little Turkey Creek	0.045	0.040-0.100
Wolf Creek	0.030-0.045	0.025-0.120
Wolf Creek Tributary 2	0.030-0.045	0.050-0.100
Wolf Creek Tributary 3	0.025-0.045	0.050-0.100
Wolf Creek Tributary 4	0.045	0.045-0.100

### 5.3 Coastal Analyses

This section is not applicable to this Flood Risk Project.

**Table 15: Summary of Coastal Analyses**

[Not applicable to this Flood Risk Project]

#### 5.3.1 Total Stillwater Elevations

This section is not applicable to this Flood Risk Project.

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

[Not applicable to this Flood Risk Project]

**Table 16: Tide Gage Analysis Specifics**

[Not applicable to this Flood Risk Project]

#### 5.3.2 Waves

This section is not applicable to this Flood Risk Project.

#### 5.3.3 Coastal Erosion

This section is not applicable to this Flood Risk Project.

#### 5.3.4 Wave Hazard Analyses

This section is not applicable to this Flood Risk Project.

**Table 17: Coastal Transect Parameters**

[Not applicable to this Flood Risk Project]

### **Figure 9: Transect Location Map**

[Not applicable to this Flood Risk Project]

#### **5.4 Alluvial Fan Analyses**

This section is not applicable to this Flood Risk Project.

##### **Table 18: Summary of Alluvial Fan Analyses**

[Not applicable to this Flood Risk Project]

##### **Table 19: Results of Alluvial Fan Analyses**

[Not applicable to this Flood Risk Project]

## **SECTION 6.0 – MAPPING METHODS**

### **6.1 Vertical and Horizontal Control**

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

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

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

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

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

### Table 20: Countywide Vertical Datum Conversion

[Not applicable to this Flood Risk Project]

### Table 21: Stream-Based Vertical Datum Conversion

[Not applicable to this Flood Risk Project]

## 6.2 Base Map

The FIRMs and FIS Report for this project have been produced in a digital format. The flood hazard information was converted to a Geographic Information System (GIS) format that meets FEMA’s FIRM database specifications and geographic information standards. This information is provided in a digital format so that it can be incorporated into a local GIS and be accessed more easily by the community. The FIRM Database includes most of the tabular information contained in the FIS Report in such a way that the data can be associated with pertinent spatial features. For example, the information contained in the Floodway Data table and Flood Profiles can be linked to the cross sections that are shown on the FIRMs. Additional information about the FIRM Database and its contents can be found in FEMA’s *Guidelines and Standards for Mapping Partners*, Appendix L (2011).

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

**Table 22: Base Map Sources**

Data Type	Data Provider	Data Date	Data Scale	Data Description
Digital Orthophoto	Wyandotte County	2012	6-inch	Color orthoimagery was provided for the county
Political boundaries	FEMA MSC	2014	1:5,000	Municipal boundaries
Political boundaries	City of Bonner Springs	2014	1:5,000	Extraterritorial jurisdiction boundary
Transportation Features	FEMA MSC	2011	1:10,000	Roads and railroads
Surface Water Features	FEMA MSC	2011	1:5,000	Streams, rivers, and lakes were derived from NHD data
Public Land Survey System (PLSS)	FEMA MSC	2011	1:24,000	PLSS data were digitized from USGS quadrangles

## 6.3 Floodplain and Floodway Delineation

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

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

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

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

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

**Table 23: Summary of Topographic Elevation Data used in Mapping**

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Scale	Contour Interval	Citation
Wyandotte County	Betts Creek, Brenner Heights Creek, Little Turkey Creek, and Wolf Creek	LiDAR	1:4,800	2 ft	DASC

BFEs shown at cross sections on the FIRM represent the 1% annual chance water surface elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report.

**Table 24: Floodway Data**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION ( FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH <sup>2</sup> (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,320	223	2331	3.3	767.0	754.2 <sup>3</sup>	754.2	0.0
B	1,689	160	1761	4.4	767.0	764.9 <sup>3</sup>	764.9	0.0
C	2,469	145	1699	4.6	767.0	766.2 <sup>3</sup>	766.2	0.0
D	3,229	71	745	7.2	767.8	767.8	767.8	0.0
E	3,982	89	857	6.2	769.0	769.0	769.0	0.0
F	4,742	113	1092	4.9	770.3	770.3	770.3	0.0
G	5,310	138	1239	4.3	775.4	775.4	775.4	0.0
H	5,687	185	1461	4.3	777.6	777.6	777.6	0.0
I	5,977	145	746	8.5	777.3	777.3	777.3	0.0
J	6,404	283	1398	4.5	779.3	779.3	779.4	0.1
K	6,702	210	1619	3.9	783.8	783.8	784.6	0.8
L	6,901	230	1578	2.9	784.2	784.2	785.0	0.8
M	7,390	404	2322	2.0	784.8	784.8	785.6	0.8
N	7,726	185	1175	3.9	784.8	784.8	785.7	0.9
O	7,850	171	1328	3.5	785.8	785.8	786.7	0.9
P	8,470	147	1050	4.4	788.1	788.1	789.0	0.9
Q	9,482	126	864	5.3	791.0	791.0	791.8	0.8
R	10,605	277	1562	2.9	793.5	793.5	794.4	0.9
S	11,328	148	719	6.4	799.1	799.1	799.6	0.5
T	12,217	77	473	9.7	807.7	807.7	808.1	0.4
U	12,756	72	603	7.6	811.9	811.9	812.4	0.5

<sup>1</sup>Feet above confluence with Kansas River

<sup>2</sup>Width measured from left encroachment to right encroachment with small island considerations

<sup>3</sup>Elevation computed without consideration of backwater effects from Kansas River

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
WYANDOTTE COUNTY, KANSAS  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: BETTS CREEK**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH <sup>2</sup> (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
V	13,694	127	899	4.6	814.8	814.8	815.7	0.9
W	14,396	85	722	5.7	819.2	819.2	819.2	0.0
X	15,144	107	806	5.1	822.2	822.2	823.1	0.9
Y	15,788	55	491	8.4	825.2	825.2	825.6	0.4
Z	16,197	90	900	4.6	829.3	829.3	829.7	0.4
AA	16,861	45	403	10.2	830.2	830.2	830.8	0.6
AB	17,393	61	584	7.0	834.4	834.4	834.6	0.2
AC	17,968	59	463	8.9	836.2	836.2	836.6	0.4
AD	18,391	39	273	7.5	838.6	838.6	839.4	0.8
AE	19,062	119	663	3.1	843.3	843.3	844.1	0.8
AF	19,650	50	291	7.0	848.1	848.1	848.5	0.4
AG	20,003	44	319	6.4	850.6	850.6	851.1	0.5
AH	20,243	133	1366	1.5	862.2	862.2	863.1	0.9
AI	20,479	84	934	2.2	862.3	862.3	863.1	0.8
AJ	21,305	46	215	9.5	864.3	864.3	864.5	0.2
AK	21,929	96	273	7.5	873.6	873.6	873.6	0.0

<sup>1</sup>Feet above confluence with Kansas River

<sup>2</sup>Width measured from left encroachment to right encroachment with small island considerations

TABLE 24	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b> <b>WYANDOTTE COUNTY, KANSAS</b> <b>AND INCORPORATED AREAS</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: BETTS CREEK</b>

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH <sup>2</sup> (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	2,647	146	1,377	7.4	760.3	759.7 <sup>3</sup>	759.7	0.0
B	2,911	116	1,256	6.1	760.9	760.9	760.9	0.0
C	3,079	112	1,324	5.8	762.2	762.2	762.2	0.0
D	3,221	123	1,336	5.7	762.5	762.5	762.5	0.0
E	3,852	103	1,481	5.2	763.4	763.4	763.4	0.0
F	4,476	45	759	5.4	764.8	764.8	764.8	0.0
G	4,796	103	1,126	3.6	768.9	768.9	768.9	0.0
H	6,260	128	1,172	3.5	769.7	769.7	769.8	0.1
I	7,388	75	628	6.5	778.9	778.9	779.9	1.0
J	8,709	73	597	6.8	789.4	789.4	789.6	0.2
K	9,292	162	3,328	1.2	812.6	812.6	812.6	0.0
L	11,011	72	502	10.5	815.1	815.1	815.3	0.2
M	11,227	39	439	12.0	818.1	818.1	819.1	1.0
N	13,120	37	360	14.6	831.6	831.6	832.6	1.0
O	14,689	70	683	5.9	842.0	842.0	842.8	0.8
P	15,431	126	1,429	2.2	854.3	854.3	855.0	0.7
Q	15,991	236	2,480	1.3	858.8	858.8	859.8	1.0
R	17,463	69	593	5.3	860.3	860.3	861.3	1.0
S	18,471	16	129	15.1	865.3	865.3	865.6	0.3

<sup>1</sup>Feet above confluence with Kansas River

<sup>2</sup>Width measured from left encroachment to right encroachment with small island considerations

<sup>3</sup>Elevation computed without consideration of backwater effects from Kansas River

TABLE 24	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b> <b>WYANDOTTE COUNTY, KANSAS</b> <b>AND INCORPORATED AREAS</b>	<b>FLOODWAY DATA</b>  <b>FLOODING SOURCE: BRENNER HEIGHTS CREEK</b>
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LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	487	237	2,576	1.7	763.4	763.4	764	0.6
B	1,356	54	353	12.5	767.7	767.7	767.7	0.0
C	2,159	70	657	6.7	777.1	777.1	777.9	0.8
D	3,041	102	1,093	4.0	780.8	780.8	781.5	0.7
E	3,532	41	310	14.2	782.2	782.2	782.5	0.3
F	4,073	101	544	8.1	793.4	793.4	793.4	0.0
G	4,574	243	1,541	2.9	799.4	799.4	799.4	0.0
H	4,985	369	2,044	2.2	800.1	800.1	800.2	0.1
I	5,493	74	386	11.4	805.4	805.4	805.4	0.0
J	6,138	100	654	6.7	812.4	812.4	813.2	0.8
K	7,219	104	482	9.1	821.1	821.1	821.1	0.0

<sup>1</sup>Feet above confluence with Brenner Heights Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**WYANDOTTE COUNTY, KANSAS**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: BRENNER HEIGHTS CREEK TRIBUTARY**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	9,203	55	660	5.9	765.0	765.0	765.0	0.0
B	9,810	55	662	6.0	765.0	765.0	765.1	0.1
C	10,880	60	681	5.9	765.6	765.6	765.8	0.2
D	11,825	262	1,493	2.7	766.9	766.9	767.3	0.4
E	12,563	349	975	4.1	767.4	767.4	768.0	0.6
F	14,114	71	659	6.1	770.4	770.4	770.5	0.1
G	15,779	40	321	12.5	773.2	773.2	773.5	0.3
H	17,277	247	706	5.7	778.9	778.9	778.9	0.0
I	19,249	62	432	9.3	786.8	786.8	787.3	0.5
J	21,358	196	791	5.1	796.1	796.1	796.5	0.4
K	22,770	40	304	13.1	803.4	803.4	803.9	0.5
L	25,809	115	715	5.6	817.3	817.3	818.1	0.8
M	28,489	96	816	3.5	821.9	821.9	822.3	0.4
N	30,737	77	287	9.9	837.2	837.2	837.2	0.0
O	31,217	52	255	11.2	840.4	840.4	840.7	0.3
P	32,131	165	810	3.5	846.3	846.3	847.3	1.0
Q	34,622	87	378	7.5	855.2	855.2	855.6	0.4
R	37,164	164	695	4.1	867.8	867.8	868.5	0.7
S	39,992	106	383	7.5	885.5	885.5	885.5	0.0
T	41,431	53	311	9.2	899.8	899.8	900.2	0.4

<sup>1</sup>Feet above confluence with Missouri River

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY**  
**WYANDOTTE COUNTY, KANSAS**  
**AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: CONNER CREEK**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	5,425	50	242	12.5	809.3	807.1 <sup>2</sup>	808.1	1.0
B	5,811	50	242	12.5	814.1	814.1	815.1	1.0
C	6,520	50	242	12.5	824.4	824.4	825.1	0.7
D	7,773	50	242	12.5	834.4	834.4	835.1	0.7
E	8,852	50	242	12.5	844.4	844.4	845.1	0.7
F	9,683	50	242	12.5	854.5	854.5	855.1	0.6

<sup>1</sup>Feet above confluence with West Mission Creek

<sup>2</sup>Elevation computed without considering backwater effects of West Mission Creek

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
 WYANDOTTE COUNTY, KANSAS  
 AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: EAST MISSION CREEK**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,590	71	394	8.5	778.9	778.9	779.2	0.3
B	3,615	97	864	3.9	789.9	789.9	790.6	0.7
C	6,280	70	562	6.0	798.5	798.5	799.4	0.9
D	9,285	120	350	6.6	813.8	813.8	813.8	0.0
E	12,070	120	382	6.0	833.2	833.2	833.2	0.0
F	13,500	135	1,504	1.4	847.5	847.5	848.5	1.0
G	15,300	124	410	3.7	848.0	848.0	849.0	1.0
H	15,880	115	1,521	1.0	864.3	864.3	864.3	0.0

<sup>1</sup>Feet above confluence with Island Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**WYANDOTTE COUNTY, KANSAS**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: HONEY CREEK**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	3,320	96	1,155	6.3	765.8	763.3 <sup>2</sup>	764.1	0.8
B	7,100	200	1,424	5.1	776.2	776.2	776.7	0.5
C	10,965	140	680	6.6	789.5	789.5	789.9	0.4
D	13,092	65	549	8.2	796.1	796.1	796.8	0.7
E	14,325	115	1,106	4.1	799.3	799.3	800.1	0.8
F	15,945	120	883	5.1	800.6	800.6	801.4	0.8
G	18,276	45	501	9.0	806.9	806.9	807.1	0.2
H	19,540	68	496	9.1	816.6	816.6	816.7	0.1
I	21,765	140	804	4.9	830.4	830.4	830.5	0.1
J	21,875	250	2,802	1.4	839.5	839.5	839.5	0.0
K	22,430	250	2,029	1.9	839.6	839.6	839.6	0.0
L	23,095	160	848	4.6	839.7	839.7	839.7	0.0
M	24,575	175	684	4.0	846.2	846.2	846.5	0.3
N	26,225	145	572	4.8	859.9	859.9	860.5	0.6
O	27,390	126	369	7.5	865.5	865.5	865.9	0.4

<sup>1</sup>Feet above confluence with Missouri River

<sup>2</sup>Elevation computed without considering backwater effects from Missouri River

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY**  
**WYANDOTTE COUNTY, KANSAS**  
**AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: ISLAND CREEK**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	0.13	775	24,074	9.6	751.6	743.3 <sup>2</sup>	743.3	0.0
B	0.23	880	25,817	9.0	751.6	743.6 <sup>2</sup>	743.6	0.0
C	0.34	750	24,645	9.4	751.6	743.8 <sup>2</sup>	743.8	0.0
D	0.46	775	21,177	11.0	751.6	743.6 <sup>2</sup>	743.6	0.0
E	0.83	780	18,991	12.2	751.6	744.3 <sup>2</sup>	744.3	0.0
F	1.12	691	19,735	11.8	751.6	745.3 <sup>2</sup>	745.3	0.0
G	1.47	644	21,734	10.7	751.6	746.5 <sup>2</sup>	746.5	0.0
H	1.49	640	21,525	10.8	751.6	746.6 <sup>2</sup>	746.6	0.0
I	1.67	646	19,197	12.1	751.6	746.8 <sup>2</sup>	746.8	0.0
J	2.00	647	19,447	11.9	751.6	747.8 <sup>2</sup>	747.8	0.0
K	2.49	670	20,921	11.1	751.6	749.5 <sup>2</sup>	749.5	0.0
L	2.82	647	21,365	10.9	751.6	750.2 <sup>2</sup>	750.2	0.0
M	2.91	750	21,757	10.7	751.6	750.4 <sup>2</sup>	750.4	0.0
N	3.49	820	22,758	10.2	751.7	751.7	751.7	0.0
O	4.29	850	22,027	10.5	753.3	753.3	753.3	0.0
P	5.01	1,120	22,490	10.3	754.8	754.8	754.8	0.0
Q	5.55	1,225	29,156	8.0	756.1	756.1	755.1	0.0
R	6.63	1,230	38,868	6.0	757.8	757.8	757.8	0.0
S	7.34	1,280	28,651	8.1	758.4	758.4	758.4	0.0
T	8.03	1,479	28,890	8.0	759.5	759.5	759.5	0.0
U	8.31	1,911	31,878	7.3	760.0	760.0	760.0	0.0
V	8.79	1,500	32,496	7.2	761.0	761.0	761.7	0.7
W	9.32	1,160	27,021	8.6	761.2	761.2	762.0	0.8
X	9.72	1,084	24,685	9.4	762.0	762.0	762.5	0.5

<sup>1</sup>Miles above confluence with Missouri River

<sup>2</sup>Elevation computed without considering backwater effects from Missouri River

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY**  
**WYANDOTTE COUNTY, KANSAS**  
**AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: KANSAS RIVER**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Y	10.02	639	21,773	10.7	762.1	762.1	762.6	0.5
Z	10.45	672	22,355	10.4	762.6	762.6	762.6	0.0
AA	11.41	1,400	31,721	7.3	764.0	764.0	764.3	0.3
AB	12.13	1,425	31,780	7.3	764.7	764.7	765.0	0.3
AC	12.55	1,400	30,938	7.5	765.0	765.0	765.3	0.3
AD	13.11	1,410	43,327	5.4	765.5	765.5	766.1	0.6
AE	13.83	1,740	52,857	4.4	765.8	765.8	766.3	0.5
AF	14.35	1,170	37,272	6.2	765.8	765.8	766.3	0.5
AG	15.04	1,150	36,149	6.4	766.1	766.1	766.7	0.6
AH	15.53	1,547/1,487 <sup>2</sup>	45,211	5.1	766.6	766.6	767.2	0.6
AI	15.98	1,929/632 <sup>2</sup>	48,503	4.8	766.8	766.8	767.4	0.6
AJ	16.95	1,250/610 <sup>2</sup>	35,589	6.5	767.3	767.3	767.9	0.6
AK	17.51	1,580/993 <sup>2</sup>	33,084	7.0	767.7	767.7	768.2	0.5
AL	18.15	1,500/729 <sup>2</sup>	32,074	7.2	768.7	768.7	769.1	0.4
AM	18.48	1,200/410 <sup>2</sup>	26,595	8.7	769.0	769.0	769.2	0.2
AN	19.05	1,286/704 <sup>2</sup>	31,031	7.5	769.8	769.8	770.3	0.5
AO	19.59	1,683/290 <sup>2</sup>	36,009	6.5	770.6	770.6	771.1	0.5
AP	20.29	1,300/350 <sup>2</sup>	32,963	7.1	771.3	771.3	771.8	0.5
AQ	20.80	690/300 <sup>2</sup>	18,069	12.9	771.9	771.9	772.3	0.4
AR	21.29	1,000/350 <sup>2</sup>	27,006	8.6	775.1	775.1	776.1	1.0
AS	21.80	1,403/735 <sup>2</sup>	40,007	5.8	777.4	777.4	778.2	0.8
AT	22.24	1,860/928 <sup>2</sup>	52,086	4.5	778.4	778.4	778.8	0.4
AU	22.81	2,375/1,049 <sup>2</sup>	48,527	4.8	778.8	778.8	779.3	0.5
AV	23.64	2,030/1,843 <sup>2</sup>	61,698	3.8	779.6	779.6	780.2	0.6

<sup>1</sup>Miles above confluence with Missouri River

<sup>2</sup>Total Width/Width within county boundary

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**WYANDOTTE COUNTY, KANSAS**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: KANSAS RIVER**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
AW	24.29	1,553/936 <sup>2</sup>	31,009	7.5	779.8	779.8	780.3	0.5
AX	24.95	983/544 <sup>2</sup>	26,711	8.7	782.0	782.0	782.4	0.4

<sup>1</sup>Miles above confluence with Missouri River

<sup>2</sup>Total Width/Width within county boundary

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KANSAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: KANSAS RIVER

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH <sup>2</sup> (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	7,930	88	1,211	8.9	766.0	763.1 <sup>3</sup>	763.3	0.2
B	10,696	147	1,496	7.7	771.3	771.3	771.7	0.4
C	12,534	121	1,607	7.2	777.6	777.6	778.4	0.8
D	13,071	256	3,315	3.5	780.8	780.8	781.4	0.6
E	15,891	165	1,409	8.2	790.7	790.7	791.5	0.8
F	16,847	148	505	11.2	793.1	793.1	793.6	0.5
G	17,332	135	901	6.3	798.1	798.1	798.1	0.0
H	20,055	137	985	5.7	813.6	813.6	814.2	0.6
I	23,420	177	711	7.1	830.6	830.6	831.0	0.4
J	24,299	133	341	9.6	835.0	835.0	835.9	0.9
K	25,652	74	474	6.9	842.4	842.4	842.5	0.1
L	26,227	54	362	9.1	844.8	844.8	844.9	0.1
M	30,646	58	443	7.4	861.8	861.8	861.9	0.1
N	34,645	573	8,855	0.4	922.0	922.0	922.0	0.0
O	36,843	319	1,433	2.3	922.0	922.0	922.0	0.0

<sup>1</sup>Feet above confluence with Kansas River

<sup>2</sup>Width measured from left encroachment to right encroachment with small island considerations

<sup>3</sup>Elevation computed without consideration of backwater effects from Kansas River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KANSAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: LITTLE TURKEY CREEK

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	898	136	1,108	2.8	797.7	797.7	797.7	0.0
B	2,629	45	236	13.1	806.6	806.6	806.6	0.0
C	4,353	55	492	6.3	816.1	816.1	816.8	0.7
D	6,308	33	240	12.9	823.1	823.1	823.9	0.8
E	7,364	50	325	9.5	834.9	834.9	835.4	0.5
F	7,920	37	229	13.5	840.6	840.6	840.7	0.1

<sup>1</sup>Feet above confluence with Little Turkey Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**WYANDOTTE COUNTY, KANSAS**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: LITTLE TURKEY CREEK TRIBUTARY**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	0	459	966	6.5	833.0	833.0	833.0	0.0
B	180	150	1,224	5.1	837.7	837.7	838.3	0.6
C	561	260	1,359	4.6	837.9	837.9	838.9	1.0
D	719	240	1,447	4.3	838.4	838.4	839.3	0.9
E	1,135	330	1,757	3.6	839.7	839.7	840.6	0.9
F	1,572	65	195	9.8	842.4	842.4	842.4	0.0
G	1,826	721	11,363	0.3	868.2	868.2	868.2	0.0
H	2,802	373	4,387	0.4	868.2	868.2	868.2	0.0
I	3,696	335	894	0.8	868.2	868.2	868.2	0.0
J	4,391	72	100	6.9	872.7	872.7	872.7	0.0
K	4,551	40	208	3.3	877.4	877.4	877.6	0.2
L	4,843	109	809	0.4	883.8	883.8	884.7	0.9
M	5,091	55	379	0.9	883.9	883.9	884.7	0.8
N	5,563	22	45	7.8	886.4	886.4	886.5	0.1
O	5,874	26	61	5.7	892.2	892.2	892.2	0.0
P	6,428	66	64	5.4	899.3	899.3	899.3	0.0
Q	7,169	31	97	3.6	908.6	908.6	908.7	0.1
R	7,962	35	106	3.3	915.1	915.1	915.3	0.2
S	8,332	47	59	5.9	920.9	920.9	920.9	0.0
T	8,633	21	54	6.4	925.1	925.1	925.3	0.2
U	8,798	10	34	10.2	928.3	928.3	928.5	0.2

<sup>1</sup>Feet above confluence with Wyandotte County Lake

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
 WYANDOTTE COUNTY, KANSAS  
 AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: MARSHALL CREEK**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	409	108	654	6.7	841.8	841.7 <sup>2</sup>	842.6	0.9
B	992	122	719	5.8	850.8	850.8	851.4	0.6
C	1,539	66	634	6.6	855.0	855.0	855.7	0.7
D	1,802	102	1800	2.3	864.5	864.5	865.2	0.7
E	2,256	157	1872	2.2	864.6	864.6	865.4	0.8
F	2,774	220	2499	1.7	864.7	864.7	865.6	0.9
G	3,218	200	1634	1.7	864.7	864.7	865.7	1.0
H	3,475	112	775	3.5	864.7	864.7	865.7	1.0
I	3,935	198	597	4.5	868.0	868.0	868.6	0.6
J	4,701	206	831	3.3	872.7	872.7	873.7	1.0
K	5,031	78	614	4.4	876.3	876.3	877.1	0.8
L	5,311	60	293	9.2	876.5	876.5	877.2	0.7
M	5,865	97	662	2.1	882.1	882.1	883.0	0.9
N	6,324	70	421	3.2	883.3	883.3	884.2	0.9
O	6,901	60	386	3.5	886.0	886.0	886.9	0.9
P	7,582	39	234	5.8	890.3	890.3	890.8	0.5
Q	8,178	101	469	2.9	894.7	894.7	895.5	0.8
R	8,582	98	505	2.7	895.7	895.7	896.7	1.0
S	9,080	56	352	3.9	904.0	904.0	904.0	0.0
T	9,741	35	201	6.7	907.5	907.5	908.2	0.7
U	10,243	77	344	3.9	911.2	911.2	912.1	0.9
V	11,073	20	110	12.3	915.7	915.7	915.9	0.2

<sup>1</sup>Feet above confluence with Marshall Creek

<sup>2</sup>Elevation computed without considering backwater effects from Marshall Creek

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY**  
**WYANDOTTE COUNTY, KANSAS**  
**AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: MARSHALL CREEK TRIBUTARY**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	176	69	534	14.0	764.3	737.3 <sup>2</sup>	737.3	0.0
B	897	93	696	10.7	764.3	747.7 <sup>2</sup>	747.7	0.0
C	1,465	69	492	15.2	768.7	768.7	768.7	0.0
D	2,074	150	1,544	4.8	774.9	774.9	775.1	0.2
E	3,635	68	802	9.3	777.9	777.9	778.6	0.7
F	4,613	69	925	8.1	781.6	781.6	782.3	0.7
G	4,955	145	1,900	3.9	783.4	783.4	784.1	0.7
H	6,192	101	1,345	4.3	784.3	784.3	785.1	0.8
I	7,714	90	877	6.6	785.8	785.8	786.4	0.9
J	8,983	90	567	10.1	792.4	792.4	792.3	0.2
K	9,505	95	1,034	5.6	798.3	798.3	799.0	0.7
L	10,961	90	644	8.9	800.7	800.7	801.6	0.9
M	12,165	91	664	8.7	807.1	807.1	807.6	0.5
N	12,924	65	621	9.3	810.3	810.3	811.2	0.6
O	13,263	90	2,468	2.3	819.6	819.6	820.5	0.6
P	13,990	105	1,343	4.3	820.0	820.0	820.6	0.6
Q	14,428	100	1,085	5.3	820.2	820.2	820.8	0.6
R	15,075	110	1,388	4.1	821.2	821.2	821.8	0.6
S	16,086	84	688	5.5	821.8	821.8	822.4	0.6
T	17,203	40	259	14.6	830.9	830.9	830.9	0.0
U	18,514	50	411	9.2	841.7	841.7	842.4	0.7
V	20,208	36	299	12.6	851.0	851.0	851.0	0.0
W	21,130	55	575	6.6	857.0	857.0	857.1	0.1
X	21,740	189	1,353	2.8	874.1	874.1	874.1	0.0

<sup>1</sup>Feet above confluence with Kansas River

<sup>2</sup>Elevation computed without considering backwater effects from Kansas River

TABLE 24	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b> <b>WYANDOTTE COUNTY, KANSAS</b> <b>AND INCORPORATED AREAS</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: MILL CREEK</b>

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Y	22,669	85	522	7.2	874.2	874.2	874.2	0.0
Z	23,707	92	506	7.4	879.4	879.4	879.4	0.0
AA	24,196	57	454	8.3	880.9	880.9	881.1	0.2

<sup>1</sup>Feet above confluence with Kansas River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**WYANDOTTE COUNTY, KANSAS**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: MILL CREEK**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	368.19	1,708	42,792	6.8	752.1	752.1	752.3	0.2
B	369.05	1,610	45,013	6.4	753.1	753.1	753.3	0.2
C	369.96	1,692	44,886	6.4	753.9	753.9	754.1	0.2
D	370.83	1,720	49,256	5.9	754.9	754.9	755.1	0.2
E	371.83	3,082	62,680	4.6	755.8	755.8	756.0	0.2
F	372.86	2,053	54,475	5.3	756.7	756.7	756.8	0.1
G	373.79	1,977	51,856	5.6	757.4	757.4	757.5	0.1
H	374.76	2,191	54,780	5.3	758.8	758.8	758.8	0.0
I	375.71	2,730	62,200	4.6	759.3	759.3	759.3	0.0
J	376.76	2,744	64,331	4.5	759.6	759.6	759.8	0.2
K	378.26	5,051	100,823	2.9	760.2	760.2	760.8	0.6
L	379.53	1,932	46,893	6.1	760.8	760.8	761.4	0.6
M	380.87	1,615	44,303	6.5	762.1	762.1	762.7	0.6
N	381.89	1,917	49,460	5.8	763.2	763.2	763.6	0.4
O	382.89	2,332	60,349	4.8	763.8	763.8	764.3	0.5
P	384.40	2,982	60,758	4.7	764.6	764.6	765.1	0.5

<sup>1</sup>Miles above confluence with Mississippi River. Distance based on the 1960 river mile stationing, which may not match the measured distance along the profile base line shown on the maps.

TABLE 24	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b> <b>WYANDOTTE COUNTY, KANSAS</b> <b>AND INCORPORATED AREAS</b>	<b>FLOODWAY DATA</b>
		<b>FLOODING SOURCE: MISSOURI RIVER</b>

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	688	57	616	4.1	760.4	754.3 <sup>2</sup>	755.2	0.9
B	1,251	39	425	6.0	760.4	754.8 <sup>2</sup>	755.7	0.9
C	2,590	152	606	4.2	760.6	758.3 <sup>2</sup>	759.3	1.0
D	3,251	151	632	4.0	760.8	760.7 <sup>2</sup>	761.6	0.9
E	3,678	163	1,199	2.1	763.9	763.9	764.8	0.9
F	4,822	40	275	9.3	764.9	764.9	765.3	0.4
G	6,093	74	492	5.2	773.1	773.1	774.0	0.9
H	6,460	44	477	5.3	775.1	775.1	776.0	0.9
I	7,453	39	340	7.5	778.5	778.5	779.1	0.6
J	8,311	114	1,376	2.2	788.3	788.3	789.1	0.8
K	9,342	176	1,702	1.8	788.6	788.6	789.4	0.8
L	10,458	61	529	5.7	788.8	788.8	789.6	0.8
M	11,827	44	320	9.5	796.3	796.3	797.3	1.0
N	12,843	36	322	9.4	809.0	809.0	809.7	0.7
O	13,364	139	875	3.5	819.7	819.7	819.7	0.0
P	14,480	51	347	8.7	822.9	822.9	822.9	0.0
Q	15,391	54	440	6.9	829.5	829.5	830.3	0.8
R	16,677	58	371	8.1	838.7	838.7	839.2	0.5
S	17,085	66	416	7.3	842.8	842.8	843.2	0.5
T	17,649	63	475	6.4	846.9	846.9	847.7	0.8
U	19,132	85	552	5.5	854.8	854.8	855.4	0.6
V	20,211	73	472	6.4	861.0	861.0	861.5	0.5

<sup>1</sup>Feet above confluence with Brenner Heights Creek

<sup>2</sup>Elevation computed without considering flooding controlled by Kansas River

TABLE 24	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b> <b>WYANDOTTE COUNTY, KANSAS</b> <b>AND INCORPORATED AREAS</b>	<b>FLOODWAY DATA</b>  <b>FLOODING SOURCE: MUNCIE CREEK</b>
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LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	328	30	270	10.7	775.8	761.1 <sup>2</sup>	761.3	0.2
B	628	71	950	2.7	775.8	774.2 <sup>2</sup>	774.6	0.4
C	1,223	97	1597	1.6	783.8	783.8	784.3	0.5
D	1,559	150	1734	1.5	783.8	783.8	784.4	0.6
E	1,984	130	1340	1.9	786.5	786.5	787.3	0.8
F	2,859	90	426	6.0	787.1	787.1	788.0	0.9
G	3,600	85	260	9.8	794.8	794.8	795.1	0.3
H	4,049	90	836	3.1	802.3	802.3	802.9	0.6
I	4,631	120	583	4.4	802.4	802.4	803.0	0.6
J	5,053	63	376	5.3	803.3	803.3	803.8	0.5
K	5,866	39	218	7.3	807.2	807.2	808.0	0.8
L	6,707	61	309	5.2	814.8	814.8	815.6	0.8
M	7,536	51	362	4.4	821.5	821.5	821.9	0.4
N	7,819	37	150	10.7	821.7	821.7	821.7	0.0
O	8,650	66	181	8.9	832.2	832.2	832.2	0.0
P	9,540	22	123	13.0	842.5	842.5	843.4	0.9
Q	10,447	90	197	7.1	853.1	853.1	853.8	0.7
R	10,933	26	117	12.0	856.9	856.9	857.6	0.7

<sup>1</sup>Feet above confluence with Wolf Creek

<sup>2</sup>Elevation computed without considering backwater effects from Kansas River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KANSAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: SPRING CREEK

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	0	70	1,371	10.9	763.3	763.3	763.3	0.0
B	326	105	1,262	11.9	764.0	764.0	764.0	0.0
C	674	179	2,260	6.6	766.5	766.5	766.5	0.0
D	1,049	80	1,751	8.5	766.7	766.7	766.7	0.0
E	1,287	85	1,380	10.7	767.5	767.5	767.5	0.0
F	2,153	193	1,982	7.5	770.4	770.4	770.4	0.0
G	2,736	150	1,358	10.9	771.5	771.5	771.5	0.0
H	3,792	124	1,290	11.5	776.1	776.1	776.1	0.0
I	4,860	232	2,668	7.1	782.3	782.3	782.3	0.0
J	5,213	398	1,855	10.2	783.4	783.4	783.4	0.0
K	5,633	430	3,606	5.3	787.2	787.2	787.2	0.0
L	6,208	455	3,251	5.8	787.8	787.8	788.1	0.3
M	6,435	400	4,408	4.3	788.6	788.6	788.9	0.3
N	6,835	349	3,434	5.5	789.1	789.1	789.3	0.2
O	7,091	329	1,661	11.4	790.5	790.5	790.5	0.0
P	7,361	316	2,042	9.3	792.5	792.5	792.5	0.0
Q	7,861	142	1,184	16.1	793.1	793.1	793.1	0.0
R	8,580	203	3,455	5.5	798.3	798.3	799.2	0.9
S	8,998	246	5,976	3.2	799.4	799.4	800.2	0.8
T	9,593	212	1,690	10.7	799.6	799.6	800.2	0.6
U	10,156	471	4,049	4.5	802.5	802.5	803.1	0.6
V	10,385	435	7,871	2.3	803.5	803.5	803.9	0.4
W	10,929	431	3,994	4.5	803.8	803.8	804.1	0.3
X	12,085	546	1,771	10.2	807.7	807.7	808.2	0.5

<sup>1</sup>Feet above Turkey Creek Tunnel

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY  
WYANDOTTE COUNTY, KANSAS  
AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: TURKEY CREEK**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Y	12,259	690	4,004	4.5	811.4	811.4	812.3	0.9
Z	12,631	664	1,714	10.6	812.2	812.2	812.8	0.6
AA	12,733	663	4,487	4.0	815.2	815.2	816.2	1.0
AB	13,370	651	3,284	5.5	821.6	821.6	821.5	0.0
AC	13,672	505	1,683	10.8	822.1	822.1	822.3	0.2
AD	14,146	320	3,871	4.7	827.3	827.3	827.8	0.5
AE	14,384	232	3,879	4.7	827.9	827.9	828.3	0.4
AF	14,627	105	1,267	14.3	829.9	829.9	830.9	1.0
AG	14,923	246	2,829	6.1	835.1	835.1	835.7	0.6
AH	15,254	293	3,266	5.2	835.9	835.9	836.5	0.6
AI	15,583	400	3,758	4.6	836.6	836.6	837.1	0.5
AJ	16,161	134	2,686	6.4	837.8	837.8	838.2	0.4
AK	16,319	300	3,234	5.3	838.3	838.3	838.9	0.3
AL	17,841	276	3,088	5.5	840.7	840.7	840.9	0.2
AM	18,117	314	3,360	5.1	841.2	841.2	841.5	0.3
AN	18,574	319	3,568	4.8	841.9	841.9	842.2	0.3

<sup>1</sup>Feet above Turkey Creek Tunnel

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**WYANDOTTE COUNTY, KANSAS**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: TURKEY CREEK**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	203	69	507	11.5	768.6	747.8 <sup>2</sup>	748.8	1.0
B	1,374	71	601	9.7	768.6	756.0 <sup>2</sup>	757.0	1.0
C	1,726	97	598	9.7	768.6	758.2 <sup>2</sup>	758.6	0.4
D	1,929	80	745	7.8	768.6	767.1 <sup>2</sup>	767.1	0.0
E	2,464	149	1,341	4.3	768.6	768.4 <sup>2</sup>	768.4	0.0
F	2,776	107	1,012	5.7	768.6	768.5 <sup>2</sup>	768.5	0.0
G	5,573	302	1,525	3.8	772.9	772.9	772.9	0.0
H	6,721	75	855	4.0	773.3	773.3	773.3	0.0
I	8,310	50	427	8.0	774.0	774.0	774.1	0.1
J	10,002	144	1,347	2.5	775.4	775.4	776.0	0.6
K	10,110	130	1,090	3.1	775.5	775.5	776.2	0.7
L	10,818	65	533	6.4	775.5	775.5	776.2	0.7
M	12,499	281	1,103	3.1	778.5	778.5	779.1	0.6
N	12,967	135	913	3.7	786.9	786.9	786.9	0.0
O	15,253	82	559	5.9	793.4	793.4	794.1	0.7
P	15,364	80	960	3.4	799.8	799.8	799.8	0.0
Q	17,149	65	279	11.7	804.0	804.0	804.6	0.6
R	17,753	70	286	11.5	813.5	813.5	814.4	0.9
S	18,489	155	382	8.6	824.1	824.1	824.1	0.0
T	18,597	150	813	4.0	830.2	830.2	830.2	0.0
U	19,288	84	304	10.8	834.9	834.9	835.2	0.3
V	20,288	70	318	10.3	844.7	844.7	844.8	0.1

<sup>1</sup>Feet above confluence with Kansas River

<sup>2</sup>Elevation computed without considering backwater effects from Kansas River

TABLE 24	<b>FEDERAL EMERGENCY MANAGEMENT AGENCY</b> <b>WYANDOTTE COUNTY, KANSAS</b> <b>AND INCORPORATED AREAS</b>	<b>FLOODWAY DATA</b>  <b>FLOODING SOURCE: WEST MISSION CREEK</b>
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LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH <sup>2</sup> (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	2,028	130	2,629	5.4	775.8	775.1 <sup>3</sup>	775.1	0.0
B	4,661	202	3,032	4.7	777.4	777.4	777.6	0.2
C	5,388	180	2,572	5.6	779.3	779.3	780.0	0.7
D	7,293	239	2,861	5.0	781.6	781.6	782.5	0.9
E	9,901	109	1,661	8.6	785.6	785.6	786.3	0.7
F	10,436	170	2,389	6.0	789.3	789.3	789.4	0.1
G	17,310	79	1,284	11.1	794.4	794.4	795.2	0.8
H	20,138	370	4,570	3.1	799.8	799.8	800.8	1.0
I	20,831	241	3,004	4.8	800.5	800.5	801.2	0.7
J	27,203	404	3,243	4.2	803.4	803.4	804.4	1.0
K	29,954	785	5,232	2.6	808.2	808.2	809.0	0.8
L	30,547	380	2,804	4.8	809.1	809.1	810.1	1.0
M	32,096	439	4,234	2.4	815.0	815.0	815.1	0.1
N	36,505	411	1,063	8.9	817.5	817.5	818.5	1.0
O	49,133	234	2,089	4.5	853.3	853.3	854.1	0.8
P	50,915	184	1,816	5.2	858.8	858.8	859.5	0.7
Q	51,390	318	3,202	3.0	863.8	863.8	864.3	0.5
R	55,993	550	3,595	4.3	868.2	868.2	869.1	0.9
S	58,637	63	512	9.2	876.1	876.1	876.8	0.7
T	59,504	80	1,056	4.5	885.3	885.3	885.3	0.0
U	60,250	180	2,603	1.8	891.3	891.3	891.3	0.0
V	64,581	213	1,742	2.0	897.0	897.0	898.0	1.0
W	67,275	177	647	4.5	903.3	903.3	903.8	0.5

<sup>1</sup>Feet above confluence with Kansas River

<sup>2</sup>Width measured from left encroachment to right encroachment with small island considerations

<sup>3</sup>Elevation computed without consideration of backwater effects from Kansas River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KANSAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: WOLF CREEK

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH <sup>2</sup> (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
X	68,307	737	14,470	0.2	922.9	922.9	922.9	0.0
Y	70,796	230	1,811	0.9	922.9	922.9	922.9	0.0
Z	71,167	153	1,854	1.0	928.2	928.2	928.5	0.3
AA	73,059	36	296	4.0	928.3	928.3	928.6	0.3
AB	73,235	46	373	3.3	929.3	929.3	930.3	1.0
AC	73,568	63	488	2.4	930.7	930.7	931.2	0.5
AD	74,674	33	211	5.7	932.3	932.3	933.2	0.9

<sup>1</sup>Feet above confluence with Kansas River

<sup>2</sup>Width measured from left encroachment to right encroachment with small island considerations

<sup>3</sup>Elevation computed without consideration of backwater effects from Kansas River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KANSAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: WOLF CREEK

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH <sup>2</sup> (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	925	90	73	7.8	797.8	797.3 <sup>3</sup>	797.5	0.2
B	1,091	229	1,220	0.5	815.3	815.3	815.3	0.0
C	1,277	141	785	0.7	815.3	815.3	815.3	0.0
D	1,476	34	79	6.5	816.9	816.9	817.1	0.2
E	1,663	31	77	6.6	819.5	819.5	820.0	0.5
F	2,160	31	97	5.3	834.2	834.2	834.4	0.2
G	2,520	39	38	4.3	842.2	842.2	842.2	0.0
H	2,981	23	29	5.6	855.6	855.6	855.6	0.0
I	3,103	92	245	0.7	860.3	860.3	860.3	0.0
J	3,329	49	43	3.8	865.9	865.9	865.9	0.0
K	3,541	50	71	2.3	873.3	873.3	873.3	0.0
L	3,752	36	32	5.0	880.5	880.5	880.5	0.0

<sup>1</sup>Feet above confluence with Wolf Creek

<sup>2</sup>Width measured from left encroachment to right encroachment with small island considerations

<sup>3</sup>Elevation computed without consideration of backwater effects from Wolf Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY  
**WYANDOTTE COUNTY, KANSAS**  
 AND INCORPORATED AREAS

**FLOODWAY DATA**

**FLOODING SOURCE: WOLF CREEK TRIBUTARY 2**

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>2</sup>	WIDTH <sup>2</sup> (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	328	43	153	6.9	802.2	796.8 <sup>3</sup>	796.8	0.0
B	573	118	273	3.8	802.2	798.3 <sup>3</sup>	798.3	0.0
C	871	40	74	6.2	804.2	804.2	804.2	0.0
D	1,168	26	61	7.5	810.5	810.5	810.5	0.0
E	1,431	69	86	5.4	818.8	818.8	818.8	0.0
F	1,624	33	69	6.7	823.8	823.8	823.8	0.0
G	1,914	36	70	6.5	833.3	833.3	833.4	0.1
H	2,190	56	89	5.2	840.8	840.8	840.8	0.0
I	2,534	197	1088	3.0	855.3	855.3	855.4	0.1
J	2,801	241	1069	0.4	863.2	863.2	863.2	0.0
K	3,121	78	173	1.7	863.2	863.2	863.2	0.0
L	3,357	40	52	5.6	865.5	865.5	865.5	0.0
M	3,563	26	43	6.7	870.3	870.3	870.3	0.0
N	3,820	65	72	4.0	874.8	874.8	874.8	0.0
O	4,015	21	55	5.3	879.0	879.0	880.0	1.0
P	4,210	20	39	7.4	884.2	884.2	884.9	0.7
Q	4,456	17	39	7.4	892.6	892.6	893.3	0.7

<sup>1</sup>Feet above confluence with Wolf Creek

<sup>2</sup>Width measured from left encroachment to right encroachment with small island considerations

<sup>3</sup>Elevation computed without consideration of backwater effects from Wolf Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KANSAS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: WOLF CREEK TRIBUTARY 3

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE <sup>1</sup>	WIDTH <sup>2</sup> (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	359	130	917	5.8	810.1	810.0 <sup>3</sup>	810.0	0.0
B	1,689	136	651	5.7	820.0	820.0	820.6	0.6
C	2,338	104	383	9.7	824.8	824.8	824.8	0.0
D	3,182	335	2,093	1.8	832.7	832.7	832.7	0.0
E	3,936	149	611	7.5	833.6	833.6	834.0	0.4
F	6,213	145	754	6.1	848.5	848.5	849.2	0.7
G	7,260	132	686	6.7	852.8	852.8	853.7	0.9
H	7,595	161	900	5.1	856.1	856.1	857.0	0.9
I	11,756	72	627	6.4	866.1	866.1	867.1	1.0
J	15,661	114	554	7.2	883.1	883.1	883.9	0.8
K	17,796	57	280	8.0	890.4	890.4	890.9	0.5
L	19,084	160	1,894	1.2	909.4	909.4	909.4	0.0
M	21,601	55	393	5.3	916.8	916.8	916.8	0.0
N	22,362	90	670	3.1	931.0	931.0	931.0	0.0
O	23,609	57	288	6.7	936.0	936.0	937.0	1.0
P	24,797	128	550	3.5	945.8	945.8	946.3	0.5

<sup>1</sup>Feet above confluence with Wolf Creek

<sup>2</sup>Width measured from left encroachment to right encroachment with small island considerations

<sup>3</sup>Elevation computed without consideration of backwater effects from Wolf Creek

TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY**  
**WYANDOTTE COUNTY, KANSAS**  
**AND INCORPORATED AREAS**

**FLOODWAY DATA**

**FLOODING SOURCE: WOLF CREEK TRIBUTARY 4**

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

[Not applicable to this Flood Risk Project]

### **6.4 Coastal Flood Hazard Mapping**

This section is not applicable to this Flood Risk Project.

## **Table 26: Summary of Coastal Transect Mapping Considerations**

[Not applicable to this Flood Risk Project]

### **6.5 FIRM Revisions**

This FIS Report and the FIRM are based on the most up-to-date information available to FEMA at the time of its publication; however, flood hazard conditions change over time. Communities or private parties may request flood map revisions at any time. Certain types of requests require submission of supporting data. FEMA may also initiate a revision. Revisions may take several forms, including Letters of Map Amendment (LOMAs), Letters of Map Revision Based on Fill (LOMR-Fs), Letters of Map Revision (LOMRs) (referred to collectively as Letters of Map Change (LOMCs)), Physical Map Revisions (PMRs), and FEMA-contracted restudies. These types of revisions are further described below. Some of these types of revisions do not result in the republishing of the FIS Report. To assure that any user is aware of all revisions, it is advisable to contact the community repository of flood-hazard data (shown in Table 32, “Map Repositories”).

#### **6.5.1 Letters of Map Amendment**

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

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

FEMA offers a tutorial on how to apply for a LOMA. The LOMA Tutorial Series can be accessed at [http://www.fema.gov/plan/prevent/fhm/ot\\_lmreq.shtm](http://www.fema.gov/plan/prevent/fhm/ot_lmreq.shtm).

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

#### **6.5.2 Letters of Map Revision Based on Fill**

A LOMR-F is an official revision by letter to an effective NFIP map. A LOMR-F states FEMA’s determination concerning whether a structure or parcel has been elevated on fill above the base

flood elevation and is, therefore, excluded from the SFHA.

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

A tutorial for LOMR-F is available at [http://www.fema.gov/plan/prevent/fhm/ot\\_lmreq.shtm](http://www.fema.gov/plan/prevent/fhm/ot_lmreq.shtm).

#### **6.5.4 Letters of Map Revision**

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

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

Previously issued mappable LOMCs (including LOMRs) that have been incorporated into the **Wyandotte County** FIRM are listed in Table 27. Please note that this table only includes LOMCs that have been issued on the FIRM panels updated by this map revision. For all other areas within this county, users should be aware that revisions to the FIS Report made by prior LOMRs may not be reflected herein and users will need to continue to use the previously issued LOMRs to obtain the most current data.

#### **Table 27: Incorporated Letters of Map Change**

[Not applicable to this Flood Risk Project]

#### **6.5.3 Physical Map Revisions**

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

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

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

#### 6.5.4 Contracted Restudies

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

#### 6.5.5 Community Map History

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

- *Community Name* includes communities falling within the geographic area shown on the FIRM, including those that fall on the boundary line, nonparticipating communities, and communities with maps that have been rescinded. Communities with No Special Flood Hazards are indicated by a footnote. If all maps (FHBM, FBFM, and FIRM) were rescinded for a community, it is not listed in this table unless SFHAs have been identified in this community.
- *Initial Identification Date (First NFIP Map Published)* is the date of the first NFIP map that identified flood hazards in the community. If the FHBM has been converted to a FIRM, the initial FHBM date is shown. If the community has never been mapped, the upcoming effective date or “pending” (for Preliminary FIS Reports) is shown. If the community is listed in Table 28 but not identified on the map, the community is treated as if it were unmapped.
- *Initial FHBM Effective Date* is the effective date of the first Flood Hazard Boundary Map (FHBM). This date may be the same date as the Initial NFIP Map Date.
- *FHBM Revision Date(s)* is the date(s) that the FHBM was revised, if applicable.
- *Initial FIRM Effective Date* is the date of the first effective FIRM for the community. This is the first effective date that is shown on the FIRM panel.
- *FIRM Revision Date(s)* is the date(s) the FIRM was revised, if applicable. This is the revised date that is shown on the FIRM panel, if applicable. As countywide studies are completed or revised, each community listed should have its FIRM dates updated accordingly to reflect the date of the countywide study. Once the FIRMs exist in countywide format, as Physical Map Revisions (PMR) of FIRM panels within the county are completed, the FIRM Revision Dates in the table for each community affected by the

PMR are updated with the date of the PMR, even if the PMR did not revise all the panels within that community.

The initial effective date for the **Wyandotte County FIRMs** in countywide format was **09/02/2011**.

**Table 28: Community Map History**

Community Name	Initial Identification Date (First NFIP Map Published)	Initial FHBM Effective Date	FHBM Revision Date(s)	Initial FIRM Effective Date	FIRM Revision Date(s)
Bonner Springs, City of	12/28/1973	12/28/1973	N/A	01/03/1979	09/02/2011
Edwardsville, City of	04/05/1974	04/05/1974	06/16/1976	09/29/1978	09/02/2011
Kansas City, City of	11/01/1974	11/01/1974	N/A	08/03/1981	09/04/1985 01/05/1995 09/21/1998 09/02/2011 02/05/2014
Wyandotte County Unincorporated Areas	05/06/1977	05/06/1977	N/A	12/18/1979	09/02/2011 02/05/2014

## SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION

### 7.1 Contracted Studies

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

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

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Betts Creek	8/8/8888	AMEC Environment & Infrastructure	EMK-2012-CA-1206	October 2013	City of Edwardsville
Brenner Heights Creek	8/8/8888	AMEC Environment & Infrastructure	EMK-2012-CA-1206	October 2013	City of Kansas City
Connor Creek	02/05/2014	KDA	EMK-2003-CA-3042	May 2005	City of Kansas City

**Table 30: Summary of Contracted Studies Included in this FIS Report  
(continued)**

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
East Mission Creek	02/05/2014	KDA	EMK-2003-CA-3042	May 2005	City of Bonner Springs
Honey Creek	02/05/2014	McDonald & Warger, Inc.	EMW-93-C4149	May 1996	City of Kansas City
Island Creek	02/05/2014	McDonald & Warger, Inc.	EMW-93-C4149	May 1996	City of Kansas City
Kansas River	02/05/2014	USACE	IAA H 10 77	June 1978	City of Bonner Springs, City of Edwardsville, City of Kansas City
Little Turkey Creek	8/8/8888	AMEC Environment & Infrastructure	EMK-2012-CA-1206	October 2013	City of Edwardsville, City of Kansas City
Little Turkey Creek Tributary	02/05/2014	KDA	EMK-2003-CA-3042	May 2005	City of Kansas City
Marshall Creek	02/05/2014	KDA	EMK-2003-CA-3042	May 2005	City of Kansas City
Marshall Creek Tributary	02/05/2014	KDA	EMK-2003-CA-3042	May 2005	City of Kansas City
Mill Creek	02/05/2014	KDA	EMK-2003-CA-3042	May 2005	City of Kansas City
Missouri River	02/05/2014	USACE	HSFE07-06-X-0012	2003	City of Kansas City
Muncie Creek	02/05/2014	KDA	EMK-2003-CA-3042	May 2005	City of Kansas City
Spring Creek	02/05/2014	KDA	EMK-2003-CA-3042	May 2005	City of Bonner Springs
Turkey Creek	02/05/2014	KDA	EMK-2003-CA-3042	May 2005	City of Kansas City
West Mission Creek	02/05/2014	KDA	EMK-2003-CA-3042	May 2005	City of Bonner Springs, City of Edwardsville
Wolf Creek	8/8/8888	AMEC Environment & Infrastructure	EMK-2012-CA-1206	October 2013	City of Bonner Springs, City of Kansas City

**Table 30: Summary of Contracted Studies Included in this FIS Report  
(continued)**

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Wolf Creek Tributary 2	8/8/8888	AMEC Environment & Infrastructure	EMK-2012-CA-1206	October 2013	City of Bonner Springs
Wolf Creek Tributary 3	8/8/8888	AMEC Environment & Infrastructure	EMK-2012-CA-1206	October 2013	City of Bonner Springs
Wolf Creek Tributary 4	8/8/8888	AMEC Environment & Infrastructure	EMK-2012-CA-1206	October 2013	City of Bonner Springs, City of Kansas City

**7.2 Community Meetings**

The dates of the community meetings held for this Flood Risk Project and any previous Flood Risk Projects are shown in Table 31. These meetings may have previously been referred to by a variety of names (Community Coordination Officer (CCO), Scoping, Discovery, etc.), but all meetings represent opportunities for FEMA, community officials, study contractors, and other invited guests to discuss the planning for and results of the project.

**Table 31: Community Meetings**

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Wyandotte County and Incorporated Areas	8/8/8888	04/11/2012	Discovery	FEMA, Kansas Department of Agriculture, Wyandotte County, KDEM, and AMEC
		02/06/2014	Flood Study Review	FEMA, Kansas Department of Agriculture, Wyandotte County, City of Bonner Springs, and AMEC
		03/26/2014	Resilience Meeting	FEMA, Kansas Department of Agriculture, Wyandotte County, City of Bonner Springs, City of Edwardsville, and AMEC
		TBD	CCO Open House	TBD
Wyandotte County and Incorporated Areas	09/02/2011	04/08/2008	Initial CCO	FEMA, this community and the study contractor
		01/06/2010	Final CCO	FEMA, this community and the study contractor
City of Bonner Springs	07/03/1978	03/11/1976	Initial CCO	FEMA, this community and the study contractor
		11/30/1977	Final CCO	FEMA, this community and the study contractor
City of Edwardsville	03/01/1978	03/11/1976	Initial CCO	FEMA, this community and the study contractor
		04/26/1977	Intermediate CCO	FEMA, this community and the study contractor
		11/12/1977	Final CCO	FEMA, this community and the study contractor
City of Kansas City	06/18/1998	03/11/1976	Initial CCO	FEMA, this community and the study contractor
		02/09/1977	Intermediate CCO	FEMA, this community and the study contractor

**Table 30: Community Meetings (continued)**

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
City of Kansas City	06/18/1998	01/23/1979	Final CCO	FEMA, this community and the study contractor
		05/15/1995	Initial CCO (Honey Creek and Island Creek Revision)	FEMA, this community and the study contractor
Unincorporated Areas	06/18/1979	09/1976	Initial CCO	FEMA, this community and the study contractor
		06/23/1978	Intermediate CCO	FEMA, this community and the study contractor
		01/09/1979	Final CCO	FEMA, this community and the study contractor

## SECTION 8.0 – ADDITIONAL INFORMATION

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

The additional data that was used for this project includes the FIS report and FIRM that were previously prepared for Wyandotte County and Incorporated Areas (FEMA 2014).

Table 32 is a list of the locations where FIRMs for **Wyandotte County** can be viewed. Please note that the maps at these locations are for reference only and are not for distribution. Also, please note that only the maps for the community listed in the table are available at that particular repository. A user may need to visit another repository to view maps from an adjacent community.

**Table 32: Map Repositories**

Community	Address	City	State	Zip Code
Wyandotte County, Unincorporated Areas	710 North 7 <sup>th</sup> Street	Kansas City	KS	66101
City of Bonner Springs	205 East 2 <sup>nd</sup> Street	Bonner Springs	KS	66012
City of Edwardsville	698 South 4 <sup>th</sup> Street	Edwardsville	KS	66111
City of Kansas City	701 North 7 <sup>th</sup> Street	Kansas City	KS	66101

The National Flood Hazard Layer (NFHL) dataset is a compilation of effective FIRM databases and LOMCs. Together they create a GIS data layer for a State or Territory. The NFHL is updated as studies become effective and extracts are made available to the public monthly. NFHL data can be viewed or ordered from the website shown in Table 33.

Table 33 contains useful contact information regarding the FIS Report, the FIRM, and other relevant flood hazard and GIS data. In addition, information about the state NFIP Coordinator and GIS Coordinator is shown in this table. At the request of FEMA, each Governor has designated an agency of State or territorial government to coordinate that State's or territory's NFIP activities. These agencies often assist communities in developing and adopting necessary floodplain management measures. State GIS Coordinators are knowledgeable about the availability and location of state and local GIS data in their state.

**Table 33: Additional Information**

FEMA and the NFIP	
FEMA and FEMA Engineering Library website	<a href="http://www.fema.gov">http://www.fema.gov</a>
NFIP website	<a href="http://www.fema.gov/business/nfip">http://www.fema.gov/business/nfip</a>

**Table 32: Additional Information (continued)**

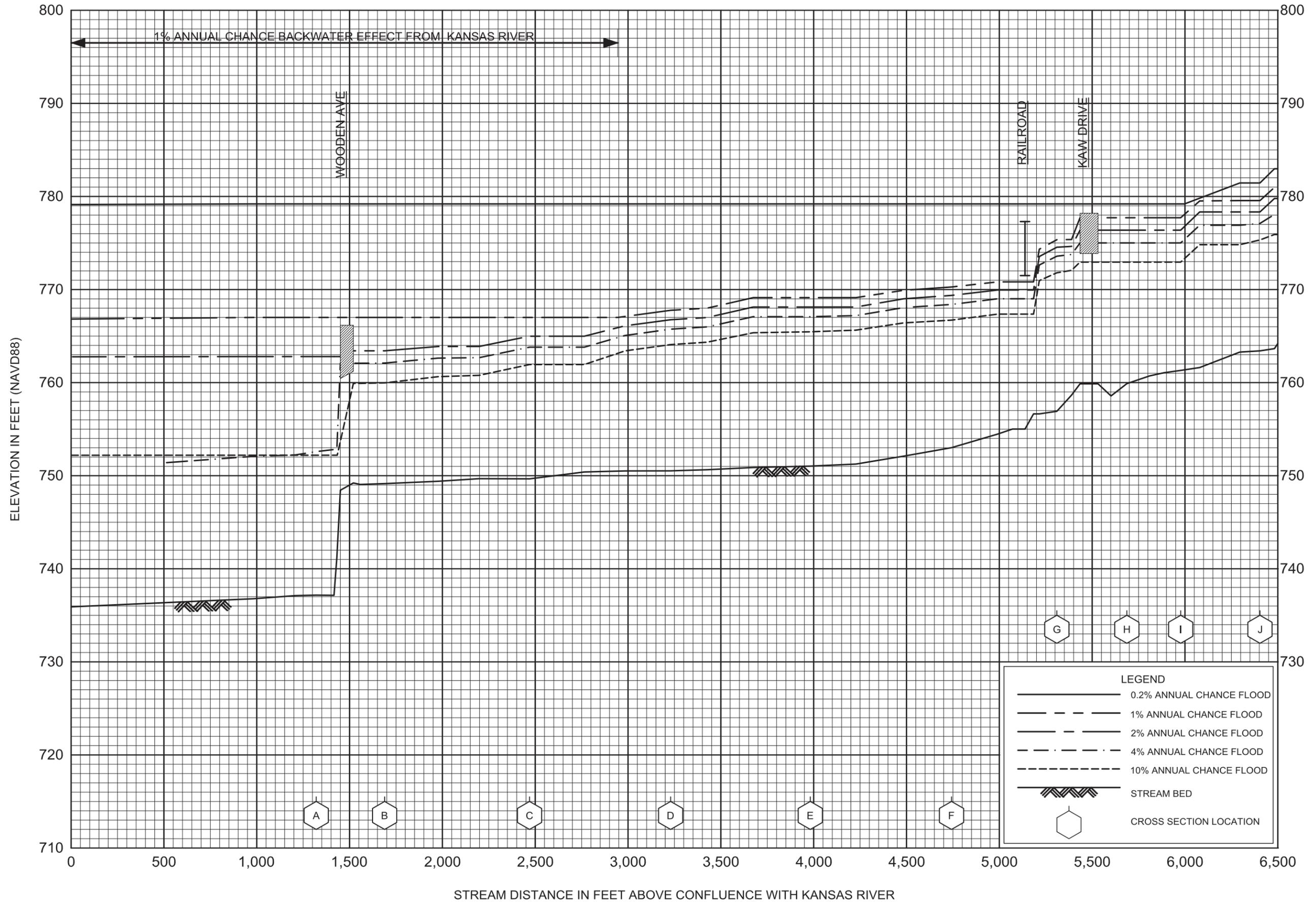
FEMA and the NFIP	
NFHL Dataset	<a href="http://msc.fema.gov">http://msc.fema.gov</a>
FEMA Region VII	Federal Insurance and Mitigation, Division, FEMA Region VII, 9221 Ward Parkway, Suite 300, Kansas City, Missouri 64114-3372 Phone: (816) 283-7002
Other Federal Agencies	
USGS website	<a href="http://www.usgs.gov">http://www.usgs.gov</a>
Hydraulic Engineering Center website	<a href="http://www.hec.usace.army.mil">http://www.hec.usace.army.mil</a>
State Agencies and Organizations	
State NFIP Coordinator	Tom Morey, CFM Kansas Department of Agriculture Division of Water Resources 109 SW 9 <sup>th</sup> Street, 2 <sup>nd</sup> Floor Topeka, KS 66612-1283 Phone: 785-296-5440 Fax: 785-296-4835 tom.morey@kda.ks.gov
State Floodplain Mapping Coordinator	Dane Bailey, CFM Kansas Department of Agriculture Division of Water Resources 109 SW 9 <sup>th</sup> Street, 2 <sup>nd</sup> Floor Topeka, KS 66612-1283 Phone: 785-296-7769 dane.bailey@kda.ks.gov
Statewide Regulatory Coordinator	Steve Samuelson Kansas Department of Agriculture Division of Water Resources 109 SW 9 <sup>th</sup> Street, 2 <sup>nd</sup> Floor Topeka, KS 66612-1283 Phone: 785-296-1622 steve.samuelson@kda.ks.gov

## SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES

Table 34 includes sources used in the preparation of and cited in this FIS Report as well as additional studies that have been conducted in the study area.

**Table 34: Bibliography and References**

Citation in this FIS	Publisher/ Issuer	<i>Publication Title, "Article," Volume, Number, etc.</i>	Author/Editor	Place of Publication	Publication Date/ Date of Issuance	Link
DASC	Kansas Data Access & Support Center	<i>LiDAR Data Scale 1:4,800, Contour Interval 2 Feet.</i>	DASC	Lawrence, KS	2012	<a href="http://www.kansasgis.org/">http://www.kansasgis.org/</a>
FEMA 2014	Federal Emergency Management Agency	<i>Flood Insurance Study Wyandotte County, Kansas and Incorporated Areas</i>	FEMA	Washington, D.C.	February 5, 2014	<a href="http://msc.fema.gov">http://msc.fema.gov</a>
FEMA- MSC	FEMA-Map Service Center	Administrative Boundaries, Cadastral, Transportation, Water Resources	FEMA	Washington, D.C.	February 5, 2014	<a href="http://msc.fema.gov">http://msc.fema.gov</a>
HEC-RAS V4.1.0	U.S. Army Corp of Engineers	HEC-RAS River Analysis System	USACE	Davis, CA	2011	<a href="http://www.usace.army.mil/">http://www.usace.army.mil/</a>
HEC-HMS v.3.5	U.S. Army Corp of Engineers	HEC-HMS Hydrologic Modeling System	USACE/Hydrologic Engineering Center	Davis, CA	2010	<a href="http://www.hec.usace.army.mil/">http://www.hec.usace.army.mil/</a>
Wyandotte County	Unified Government of Wyandotte County, Geospatial Services	<i>2012 Digital 6-inch Resolution Orthophotos</i>	Unified Government of Wyandotte County	Wyandotte County	2012	<a href="http://www.wycokck.org/geoportal/">http://www.wycokck.org/geoportal/</a>

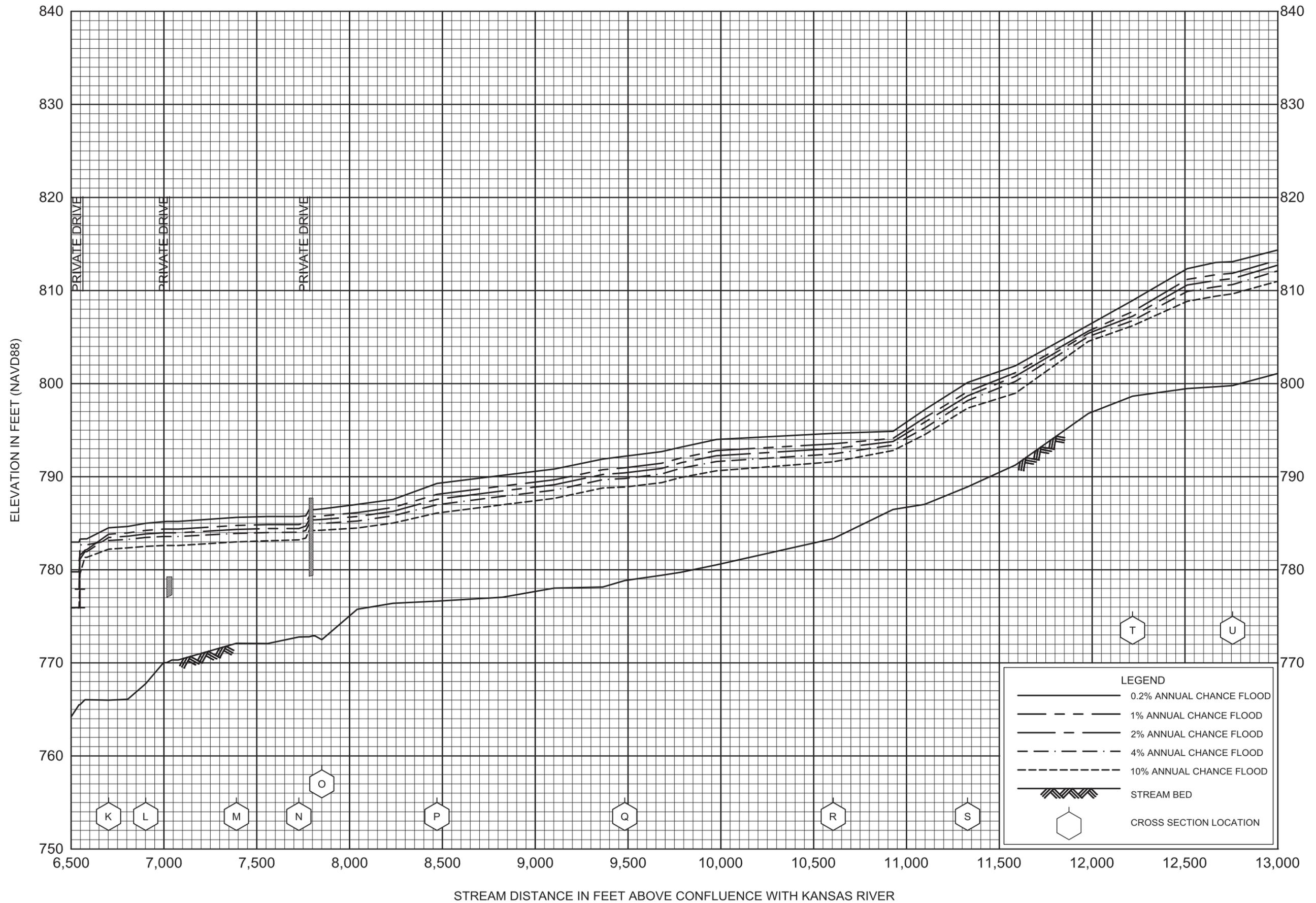


**FLOOD PROFILES**

**BETTS CREEK**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**WYANDOTTE COUNTY, KS**  
AND INCORPORATED AREAS

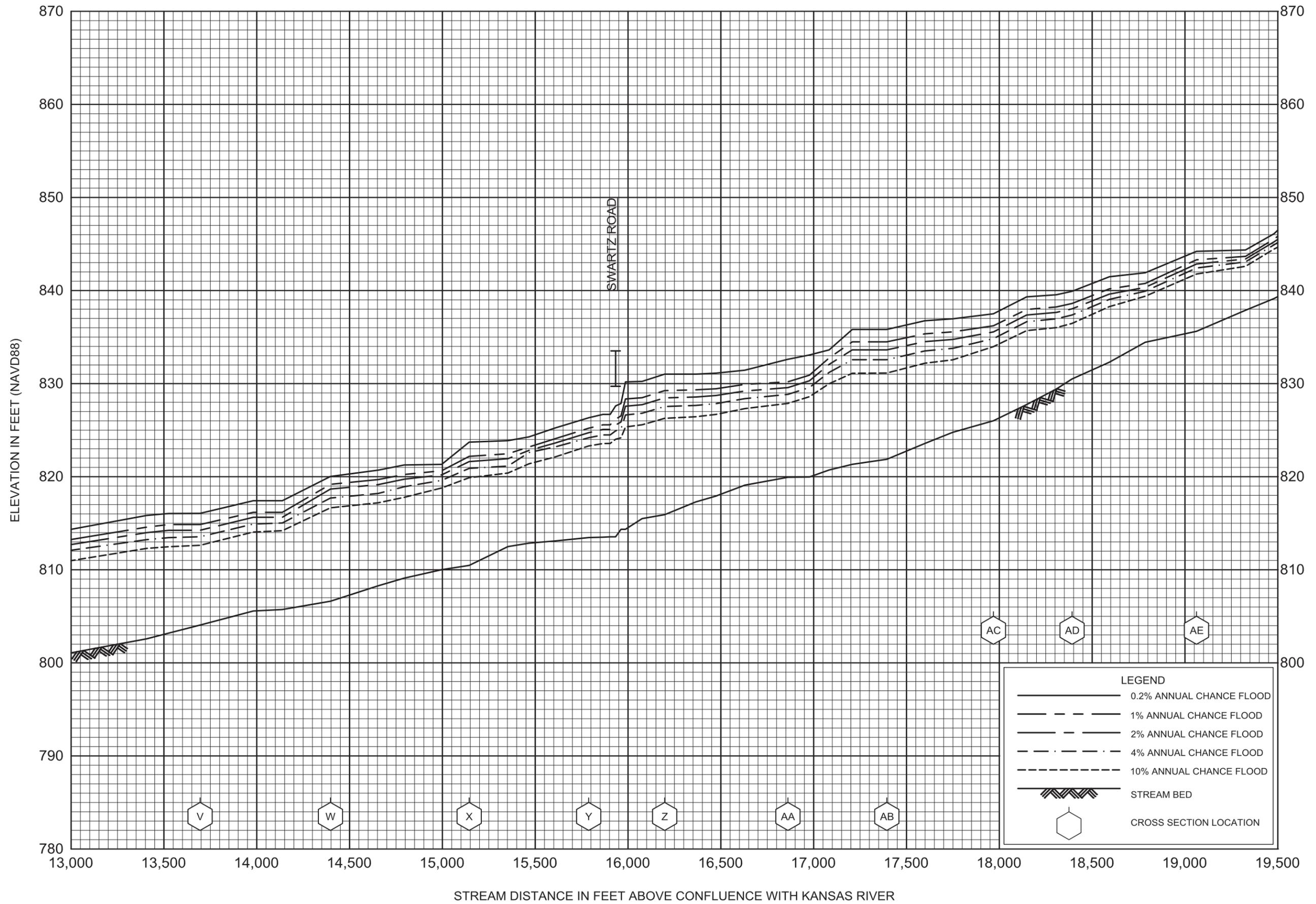


FLOOD PROFILES

BETT'S CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

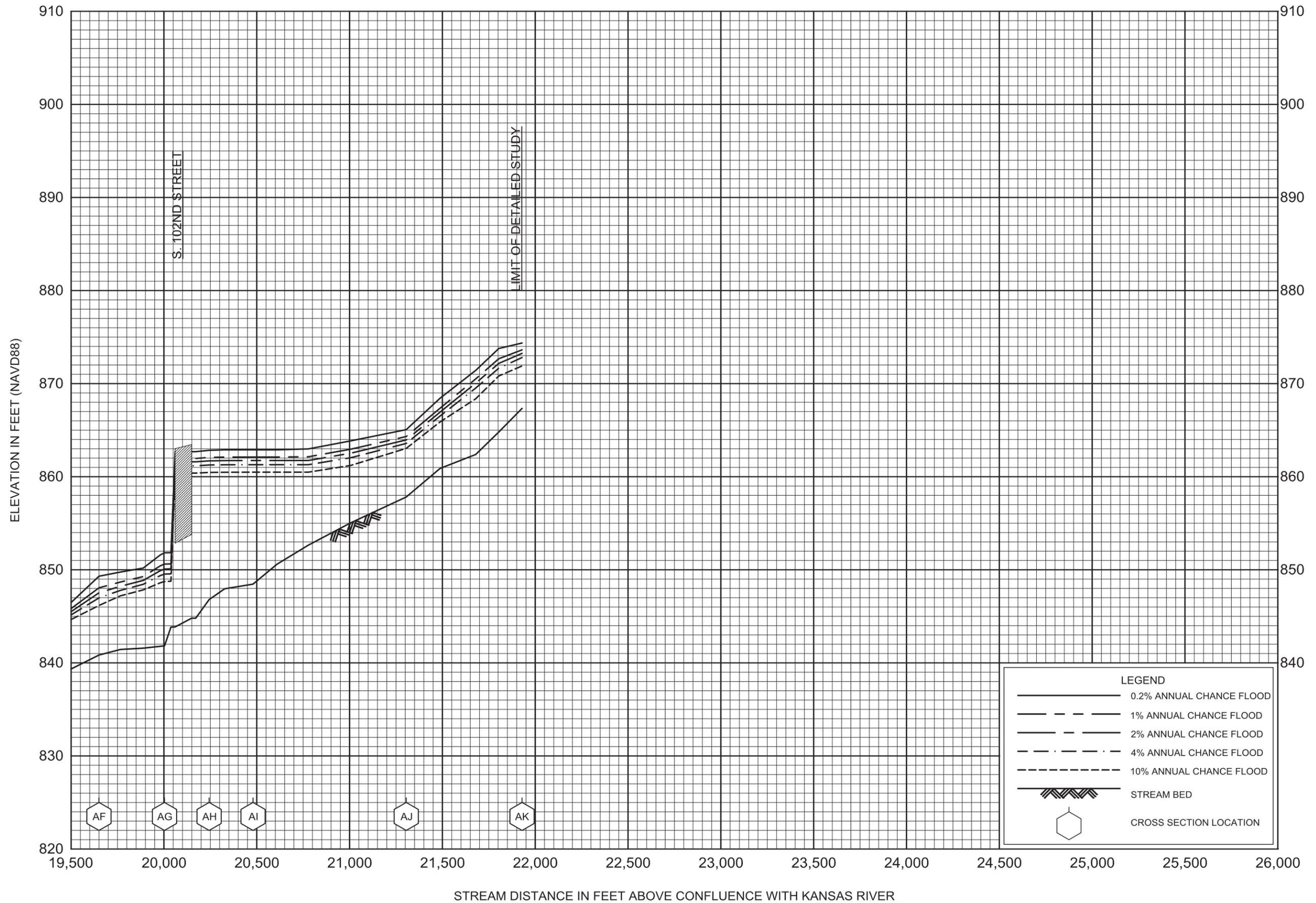


FLOOD PROFILES

BETTS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

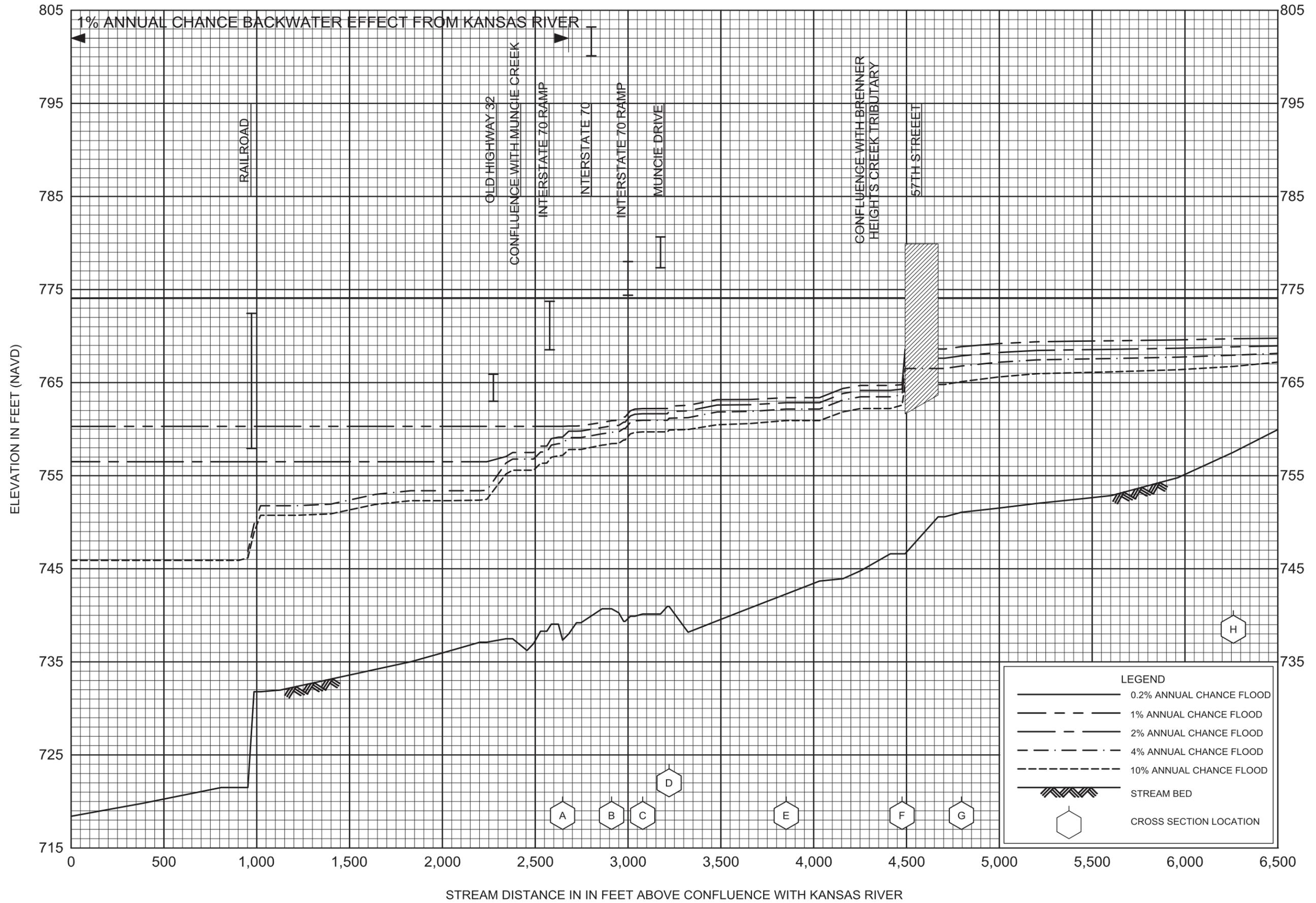


FLOOD PROFILES

BETTS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

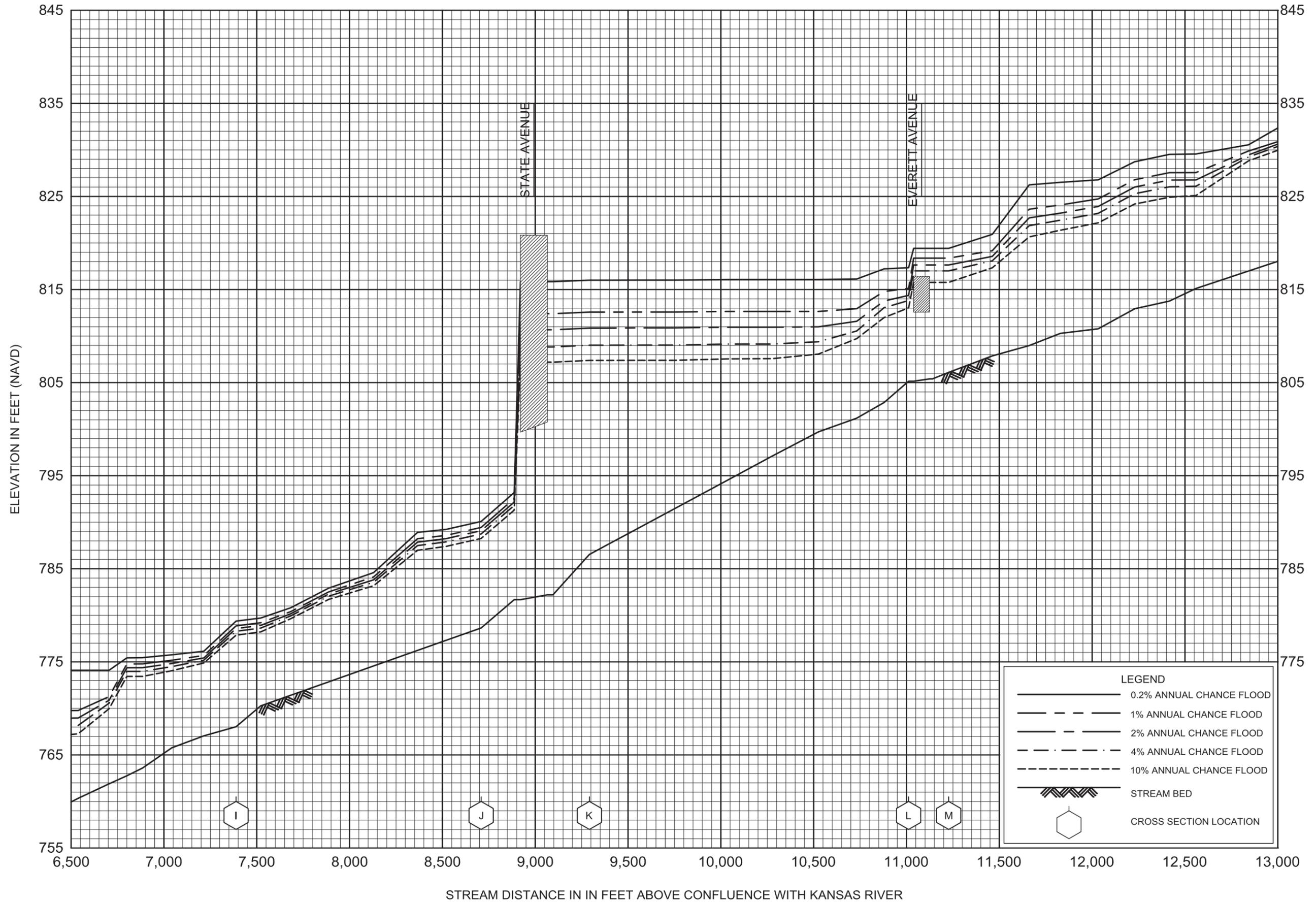


**FLOOD PROFILES**

**BRENNER HEIGHTS CREEK**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**WYANDOTTE COUNTY, KS**  
AND INCORPORATED AREAS



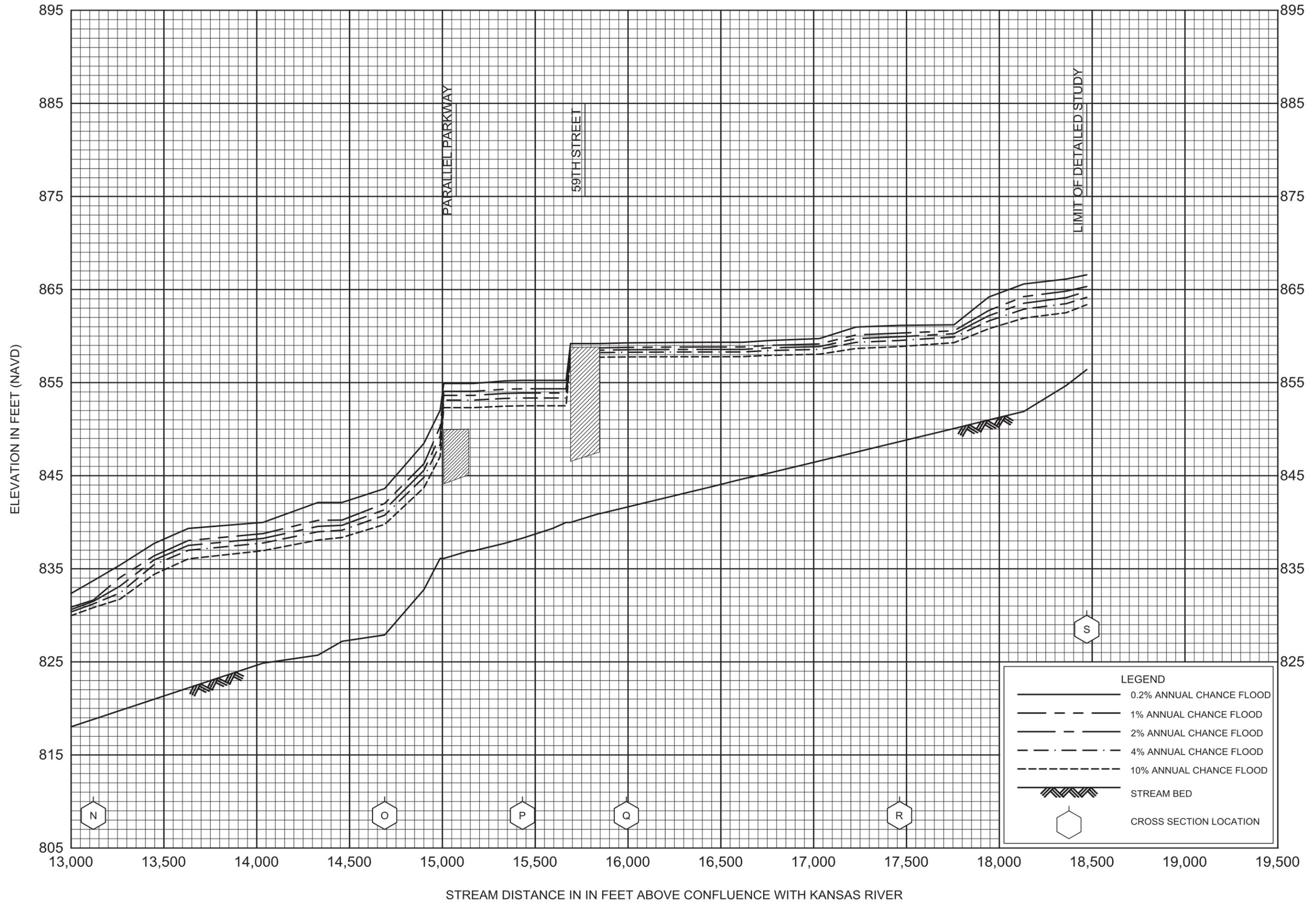
FLOOD PROFILES

BRENNER HEIGHTS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS

AND INCORPORATED AREAS

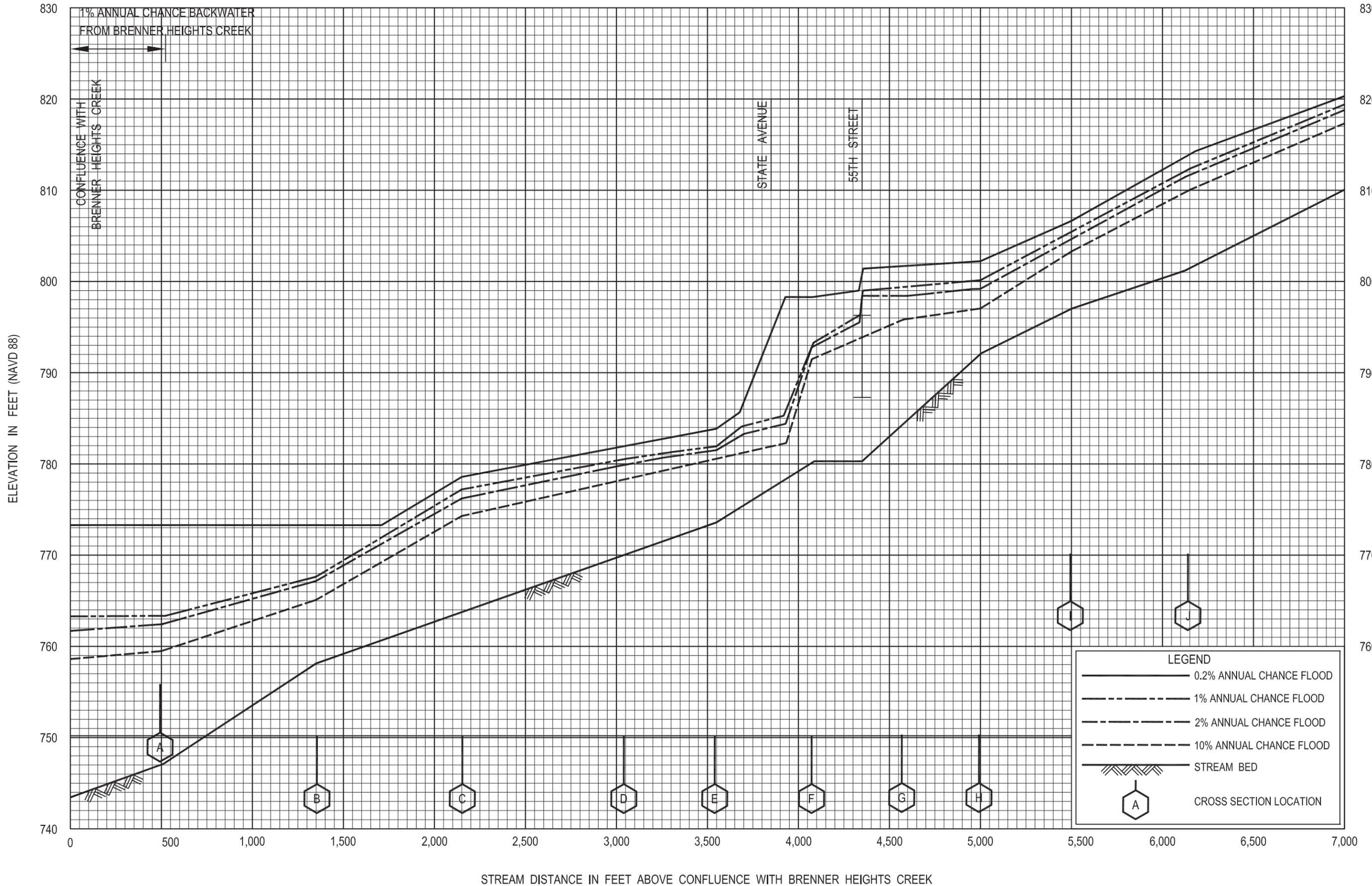


FLOOD PROFILES

BRENNER HEIGHTS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

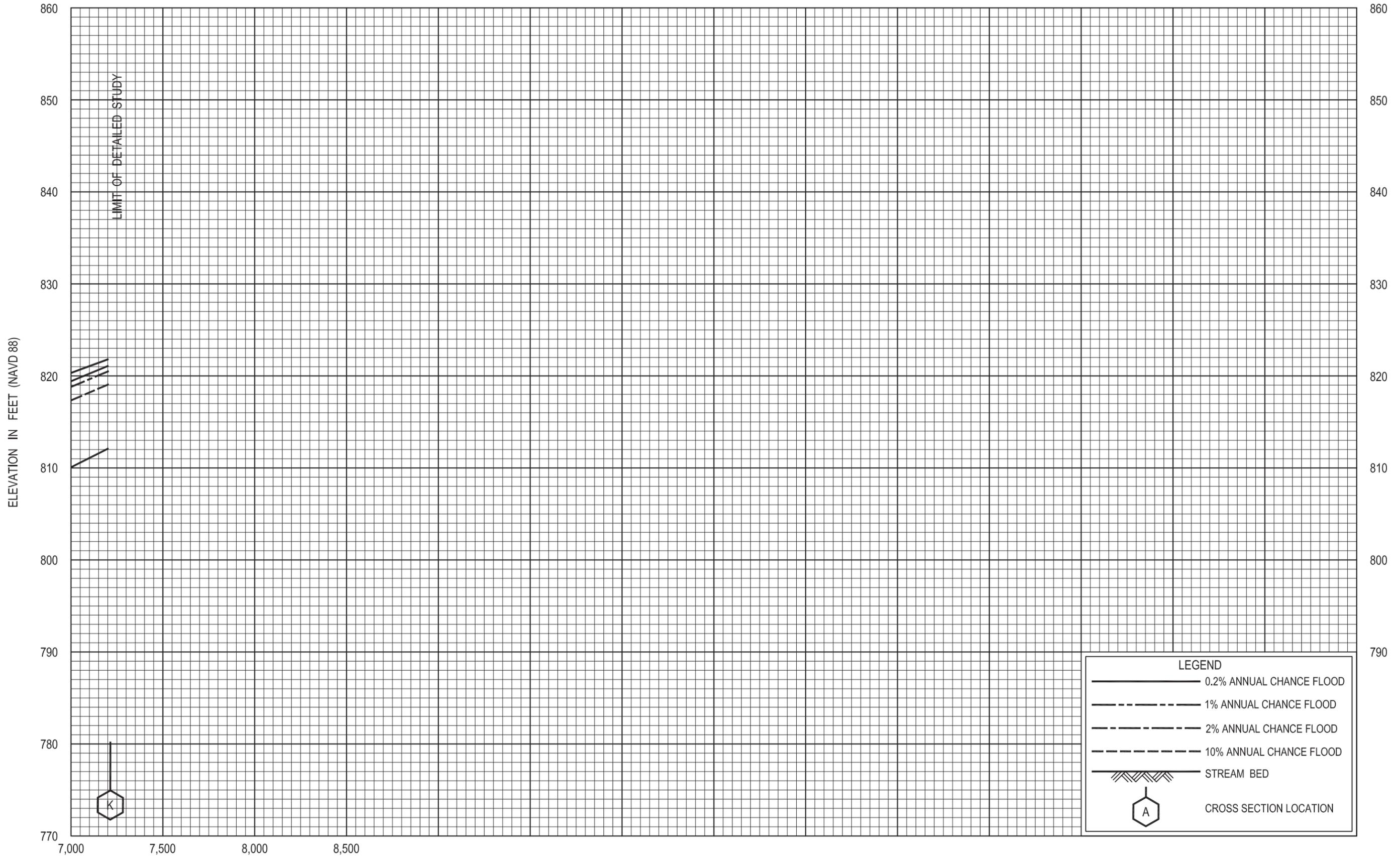


**FLOOD PROFILES**

**BRENNER HEIGHTS CREEK TRIBUTARY**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS**

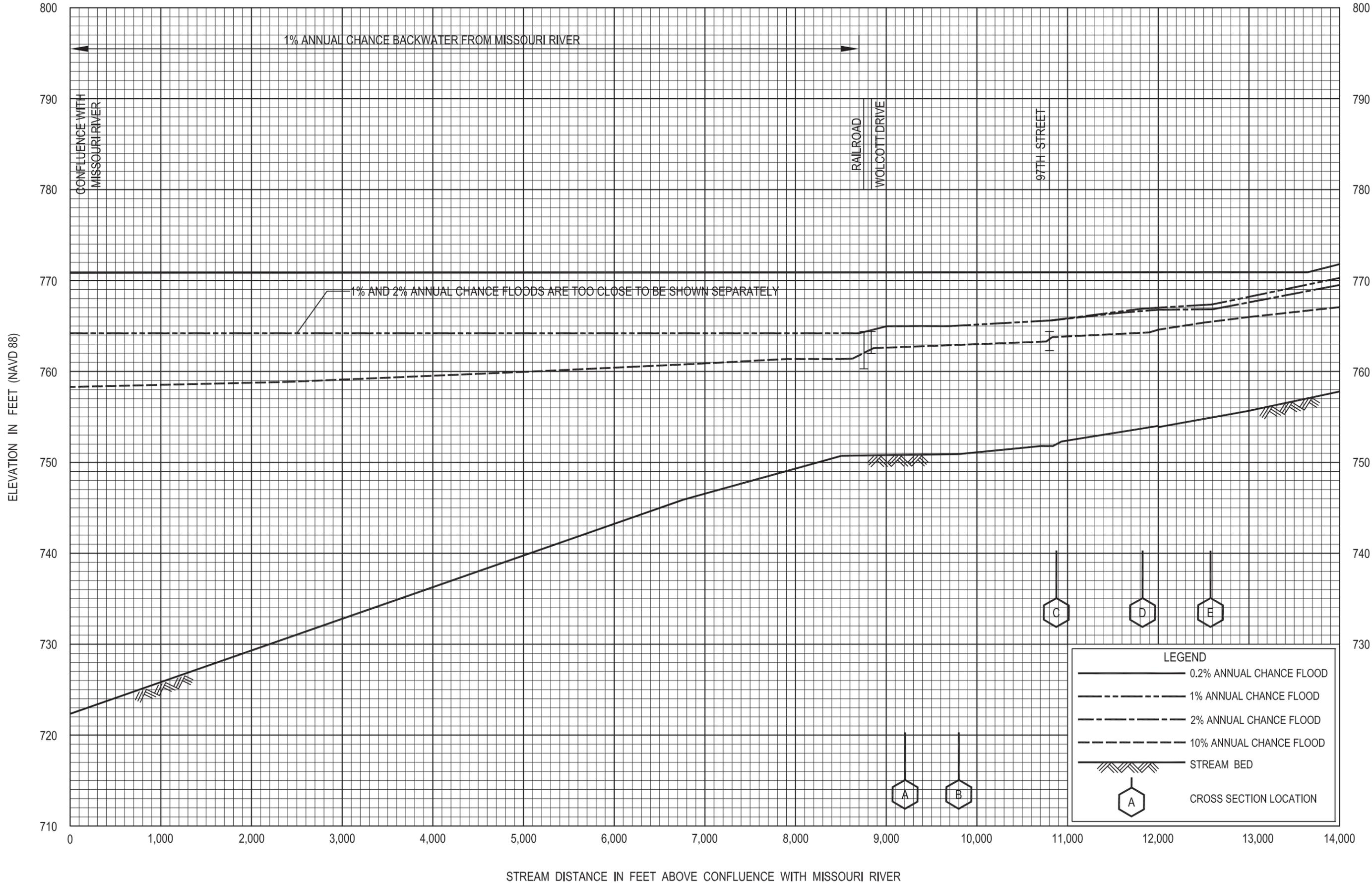


FLOOD PROFILES

BRENNER HEIGHTS CREEK TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

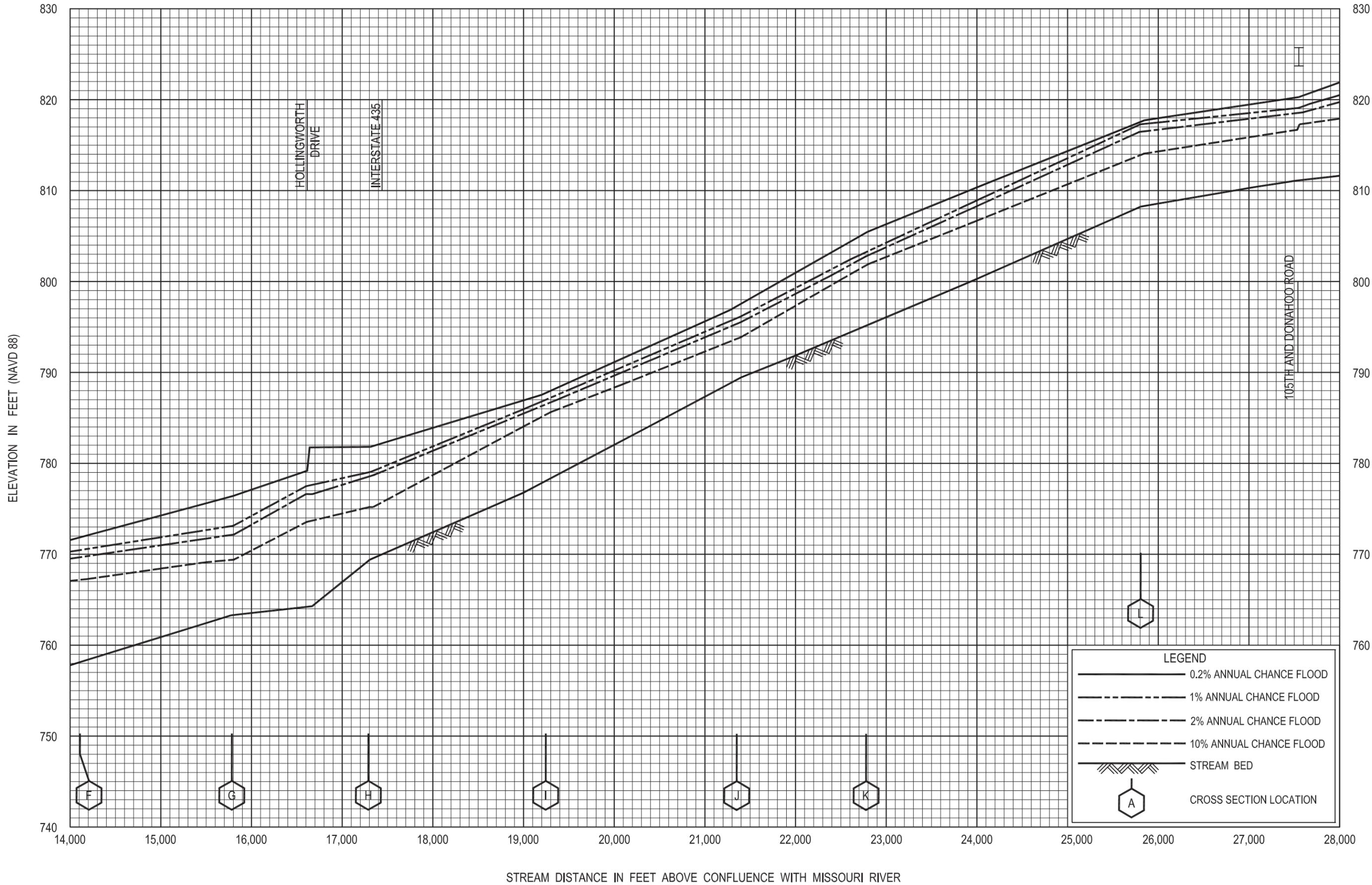


**FLOOD PROFILES**

**CONNOR CREEK**

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

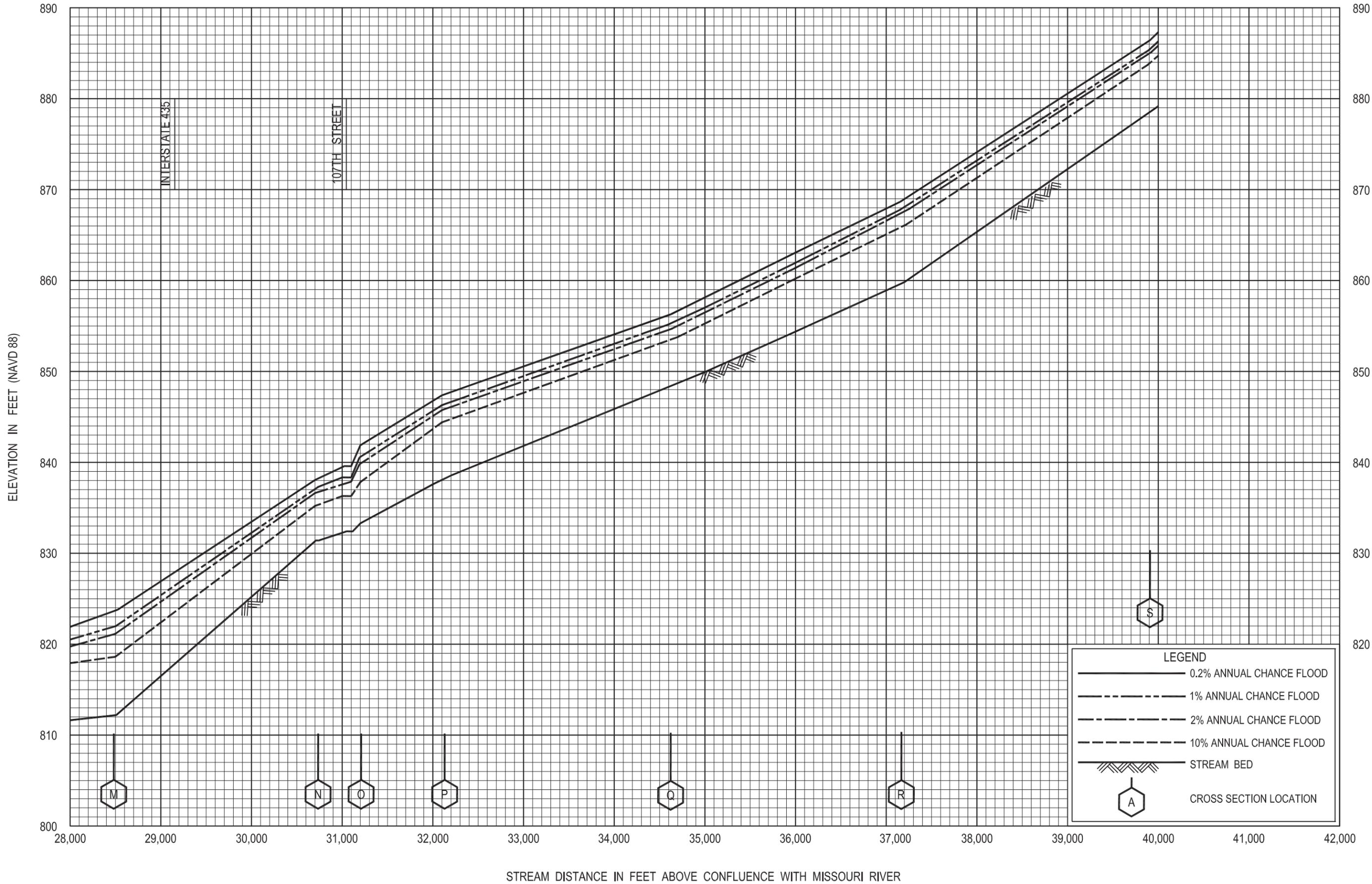


**FLOOD PROFILES**

**CONNOR CREEK**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS**



FLOOD PROFILES

CONNOR CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

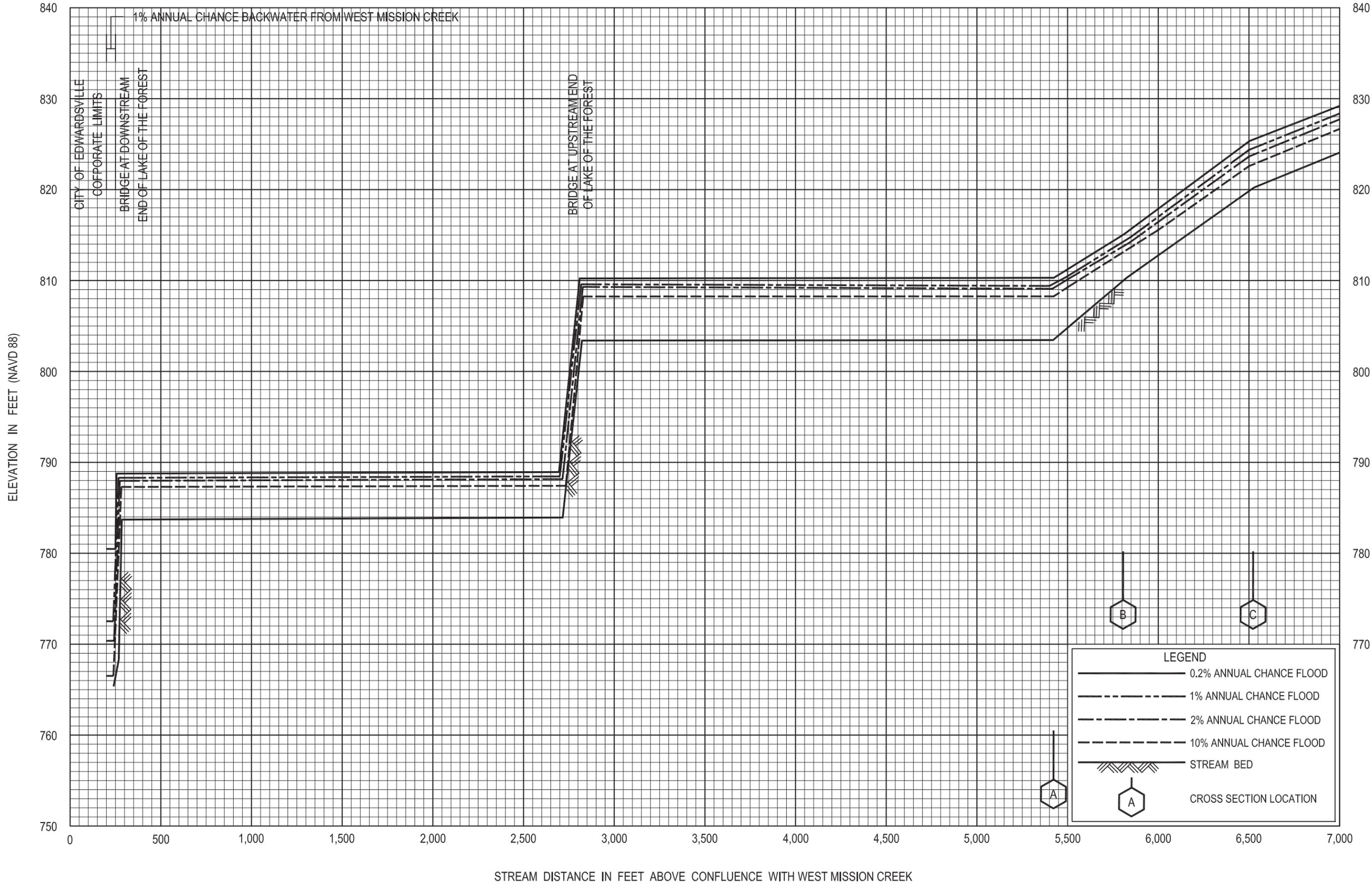


FLOOD PROFILES

CONNOR CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

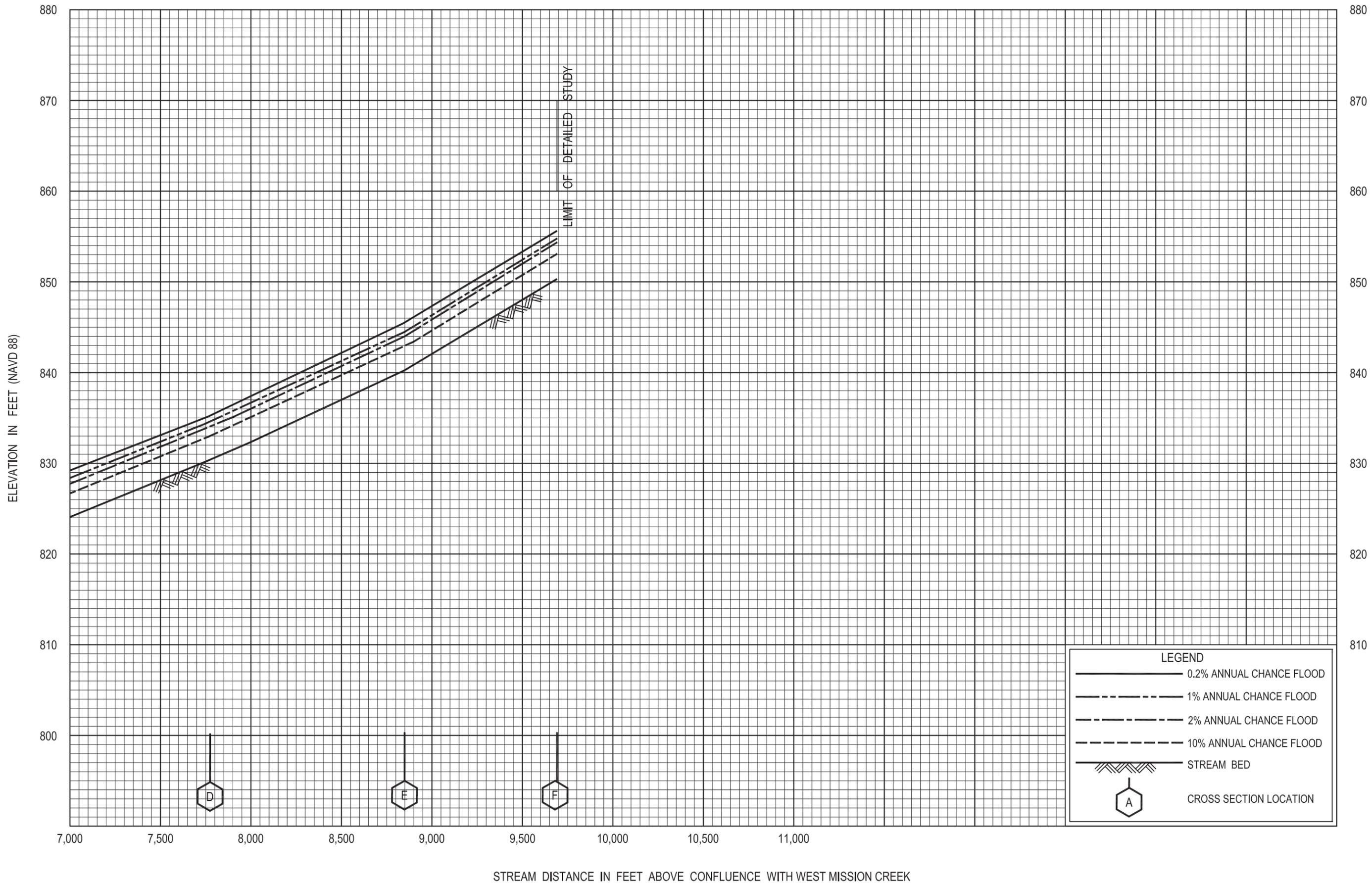


FLOOD PROFILES

EAST MISSION CREEK

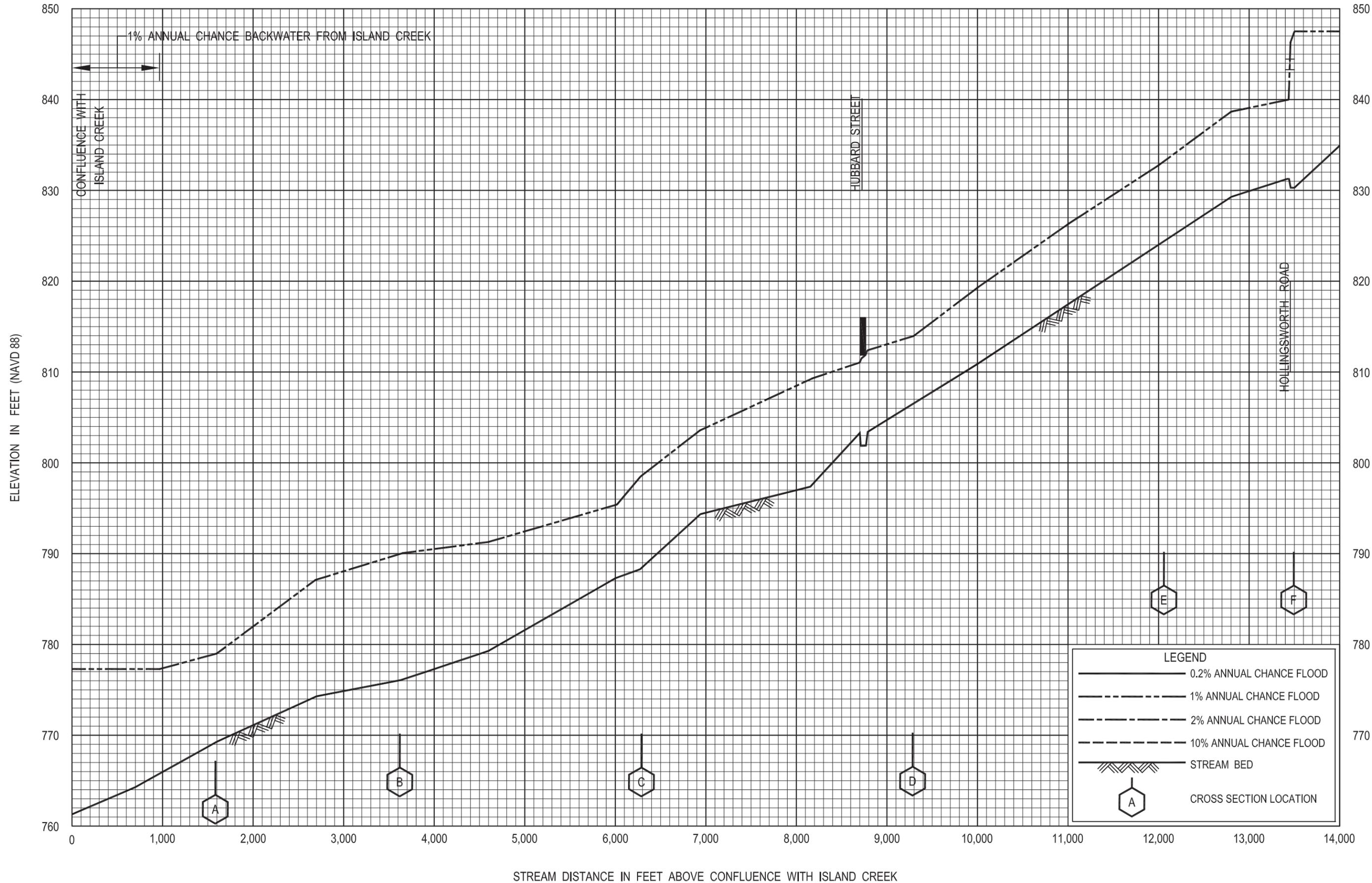
FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS



FLOOD PROFILES  
EAST MISSION CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY  
WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

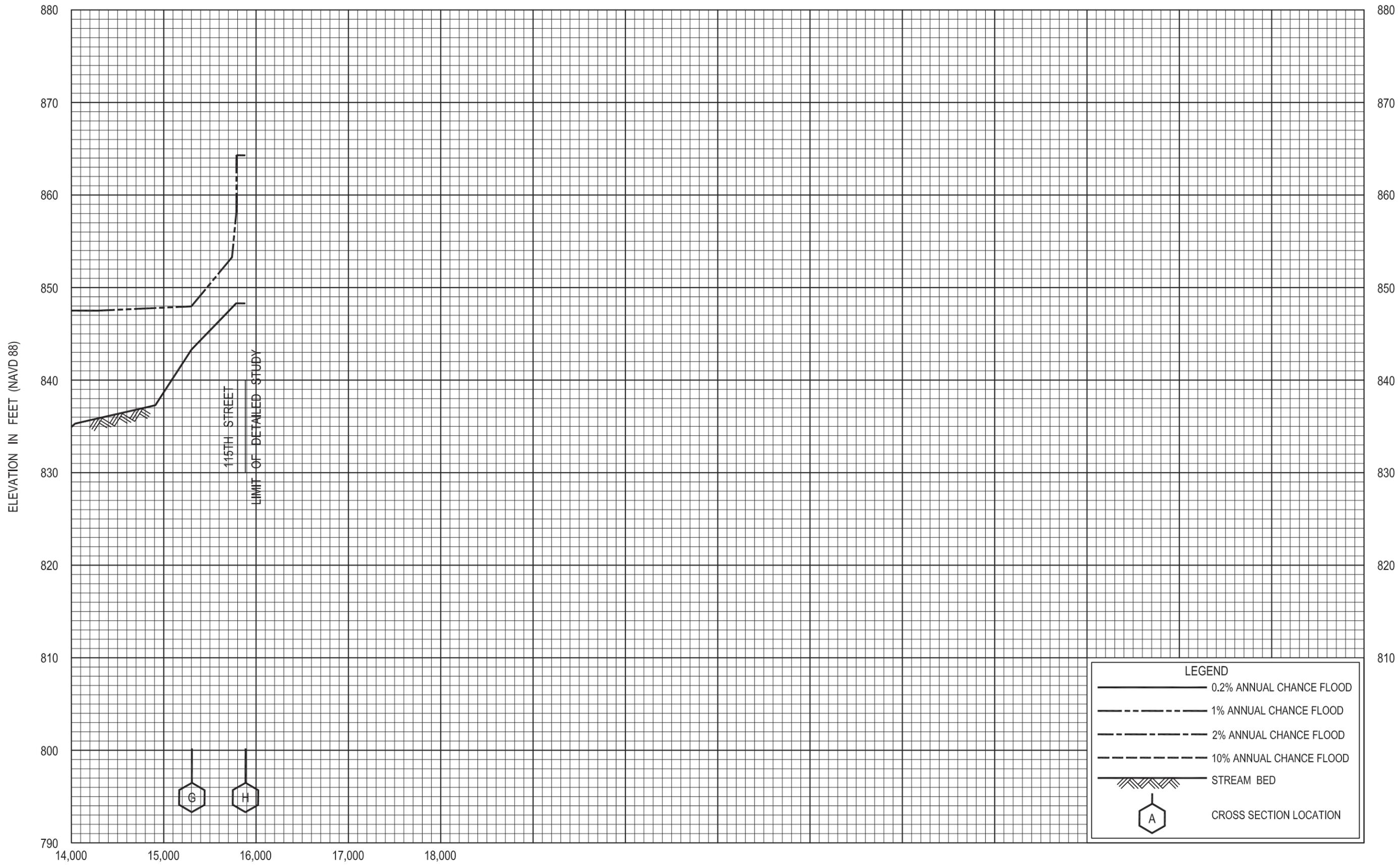


FLOOD PROFILES

HONEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

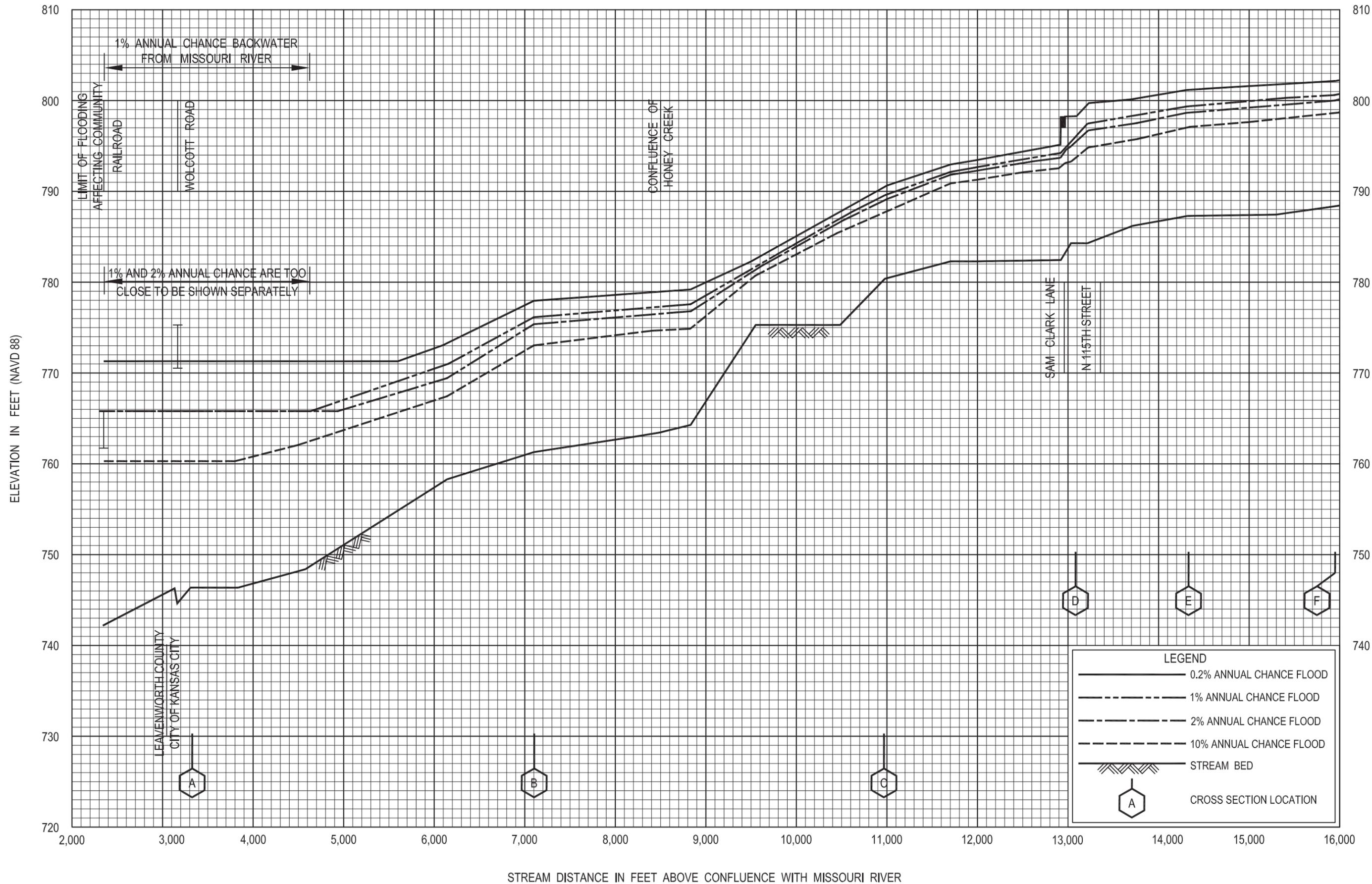


FLOOD PROFILES

HONEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS



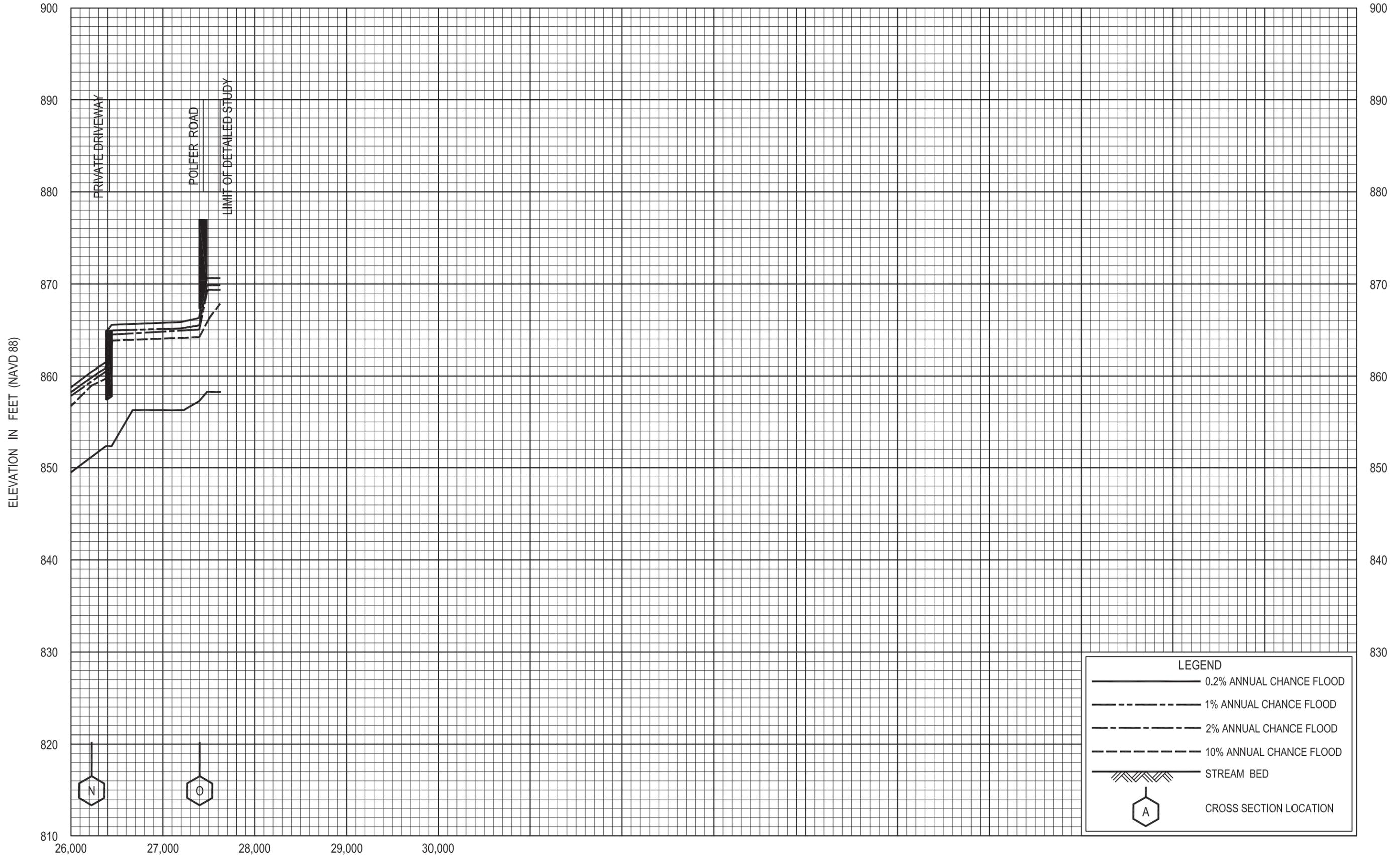
**FLOOD PROFILES**

**ISLAND CREEK**

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS





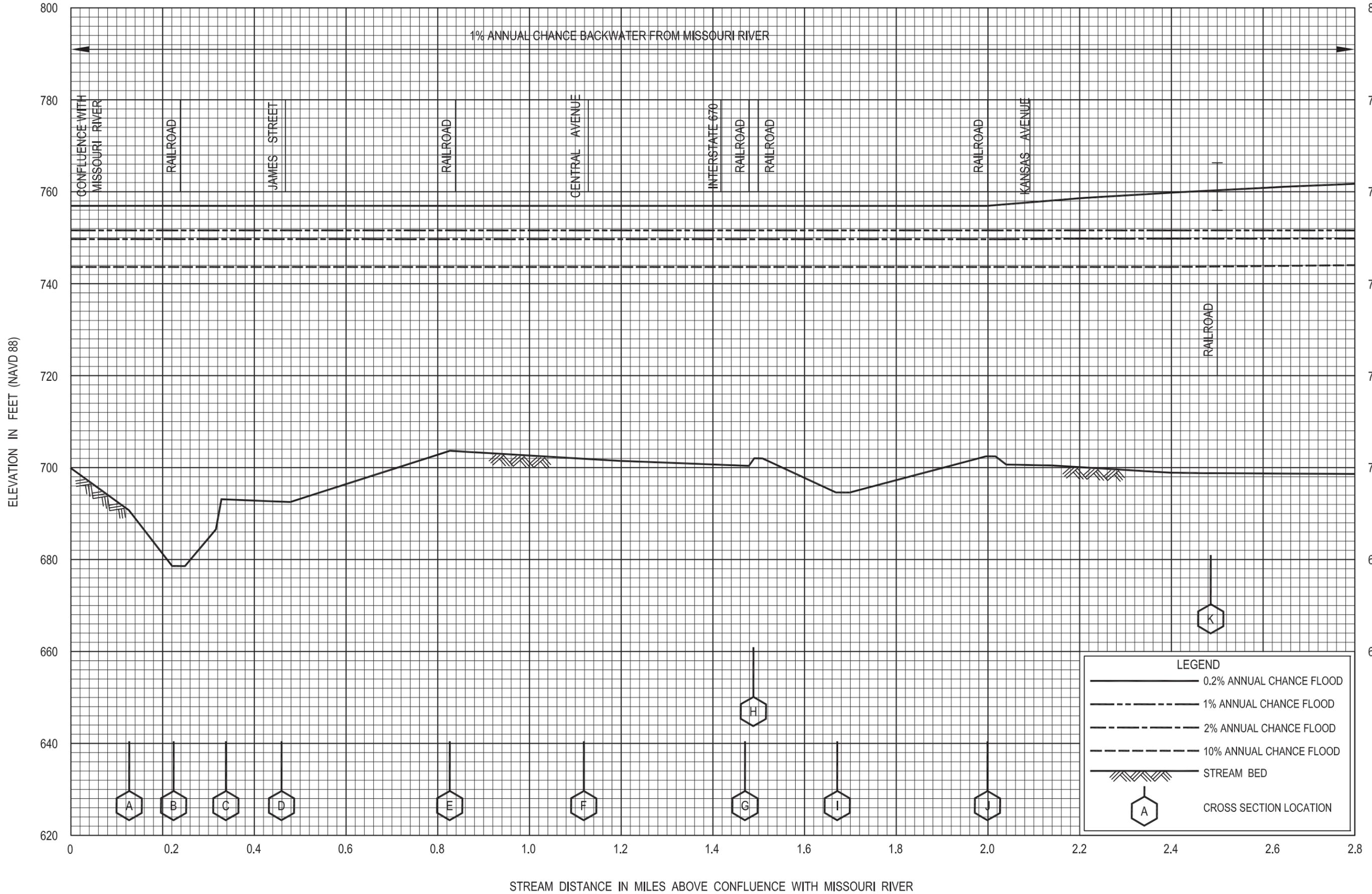
FLOOD PROFILES

ISLAND CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH MISSOURI RIVER

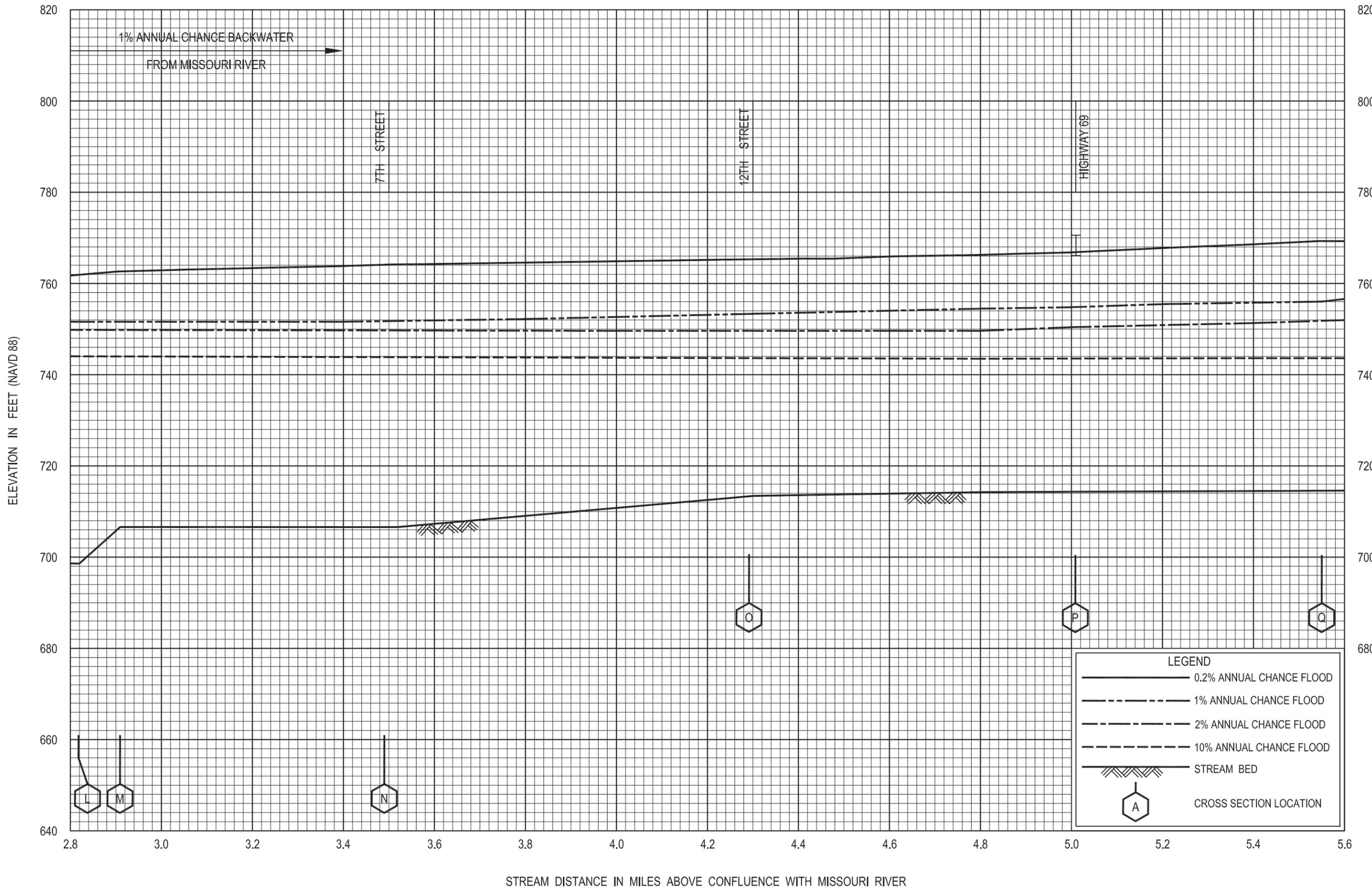


FLOOD PROFILES

KANSAS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

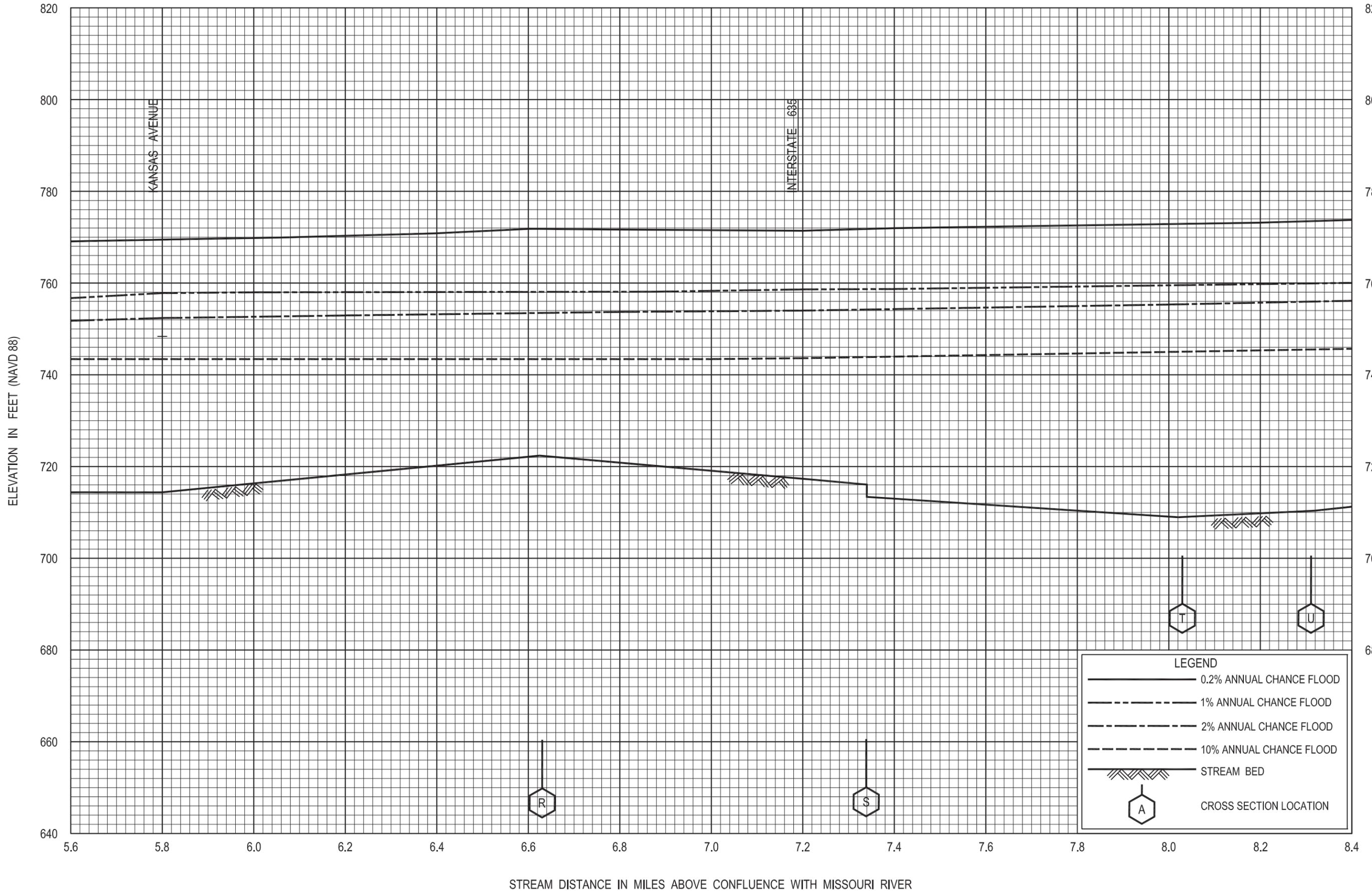


FLOOD PROFILES

KANSAS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

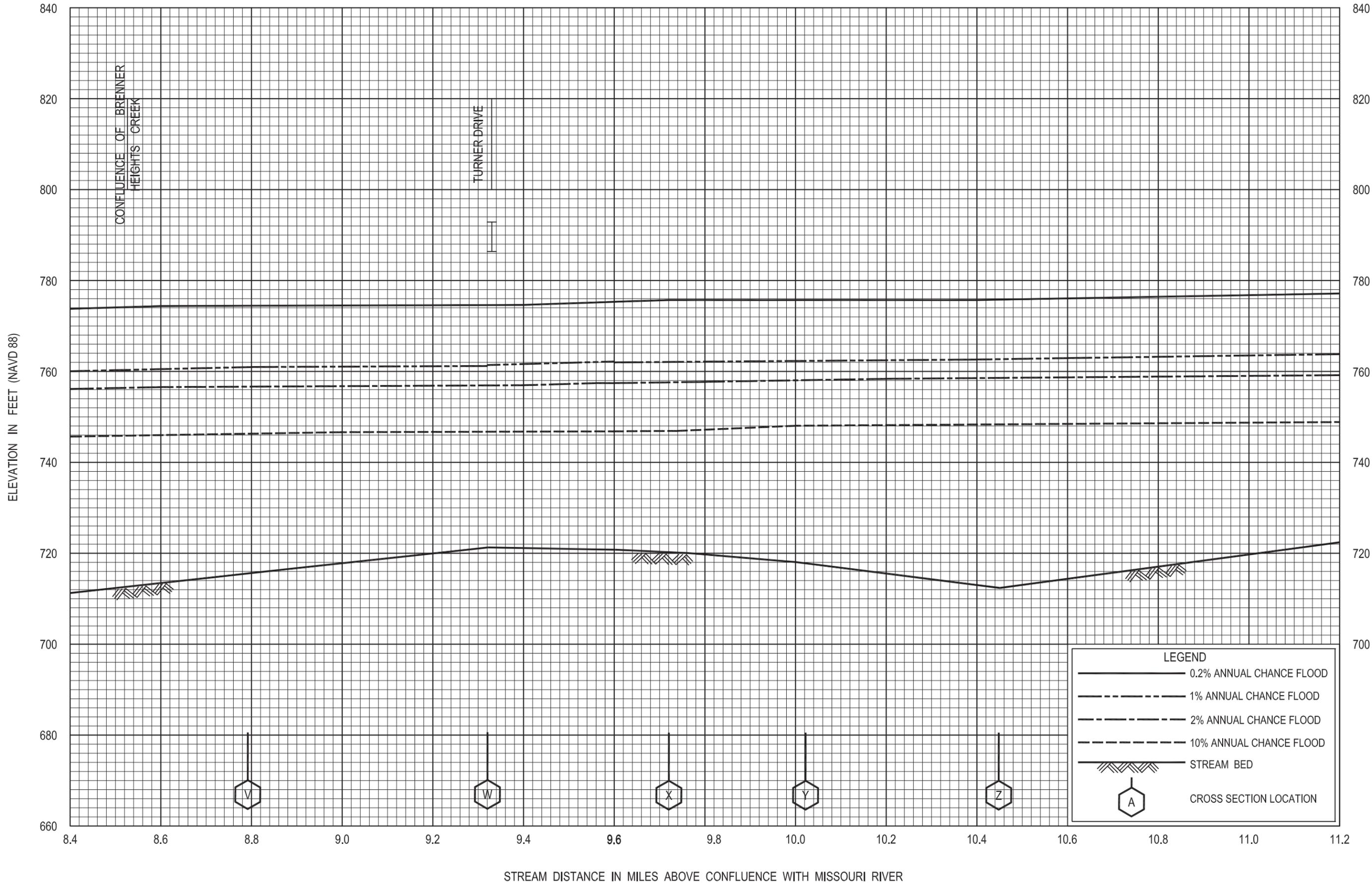


FLOOD PROFILES

KANSAS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

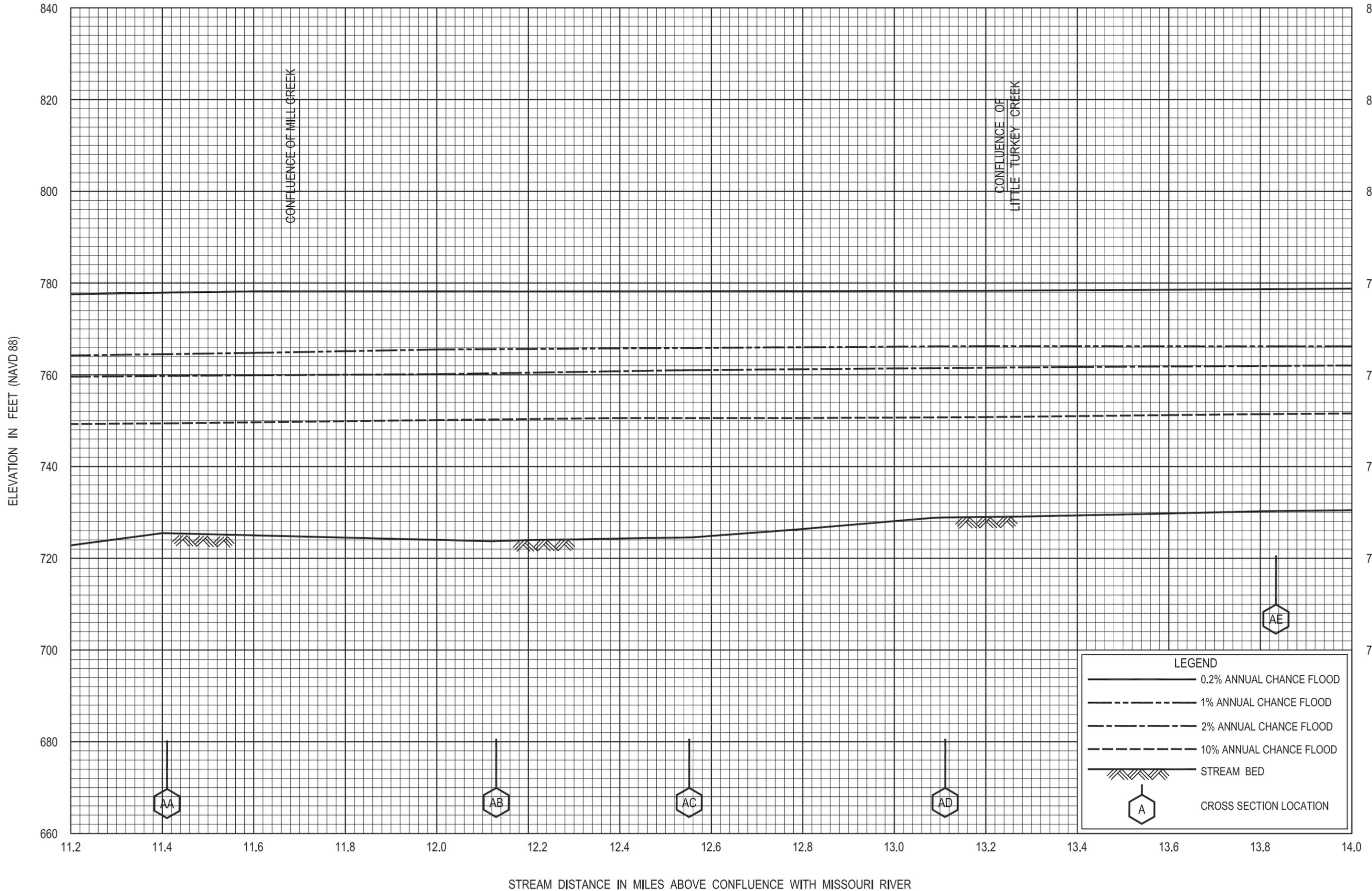


FLOOD PROFILES

KANSAS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

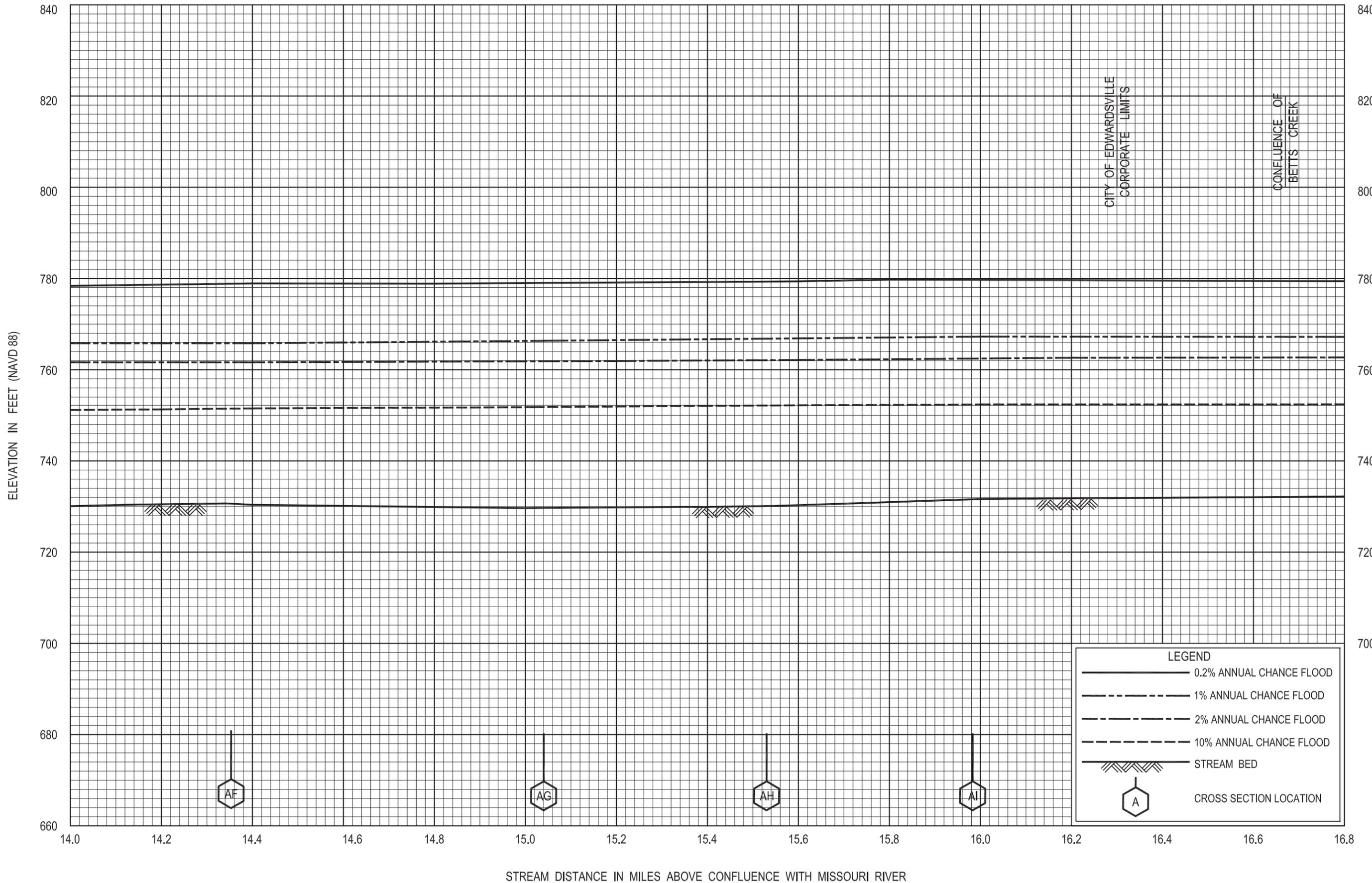


FLOOD PROFILES

KANSAS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

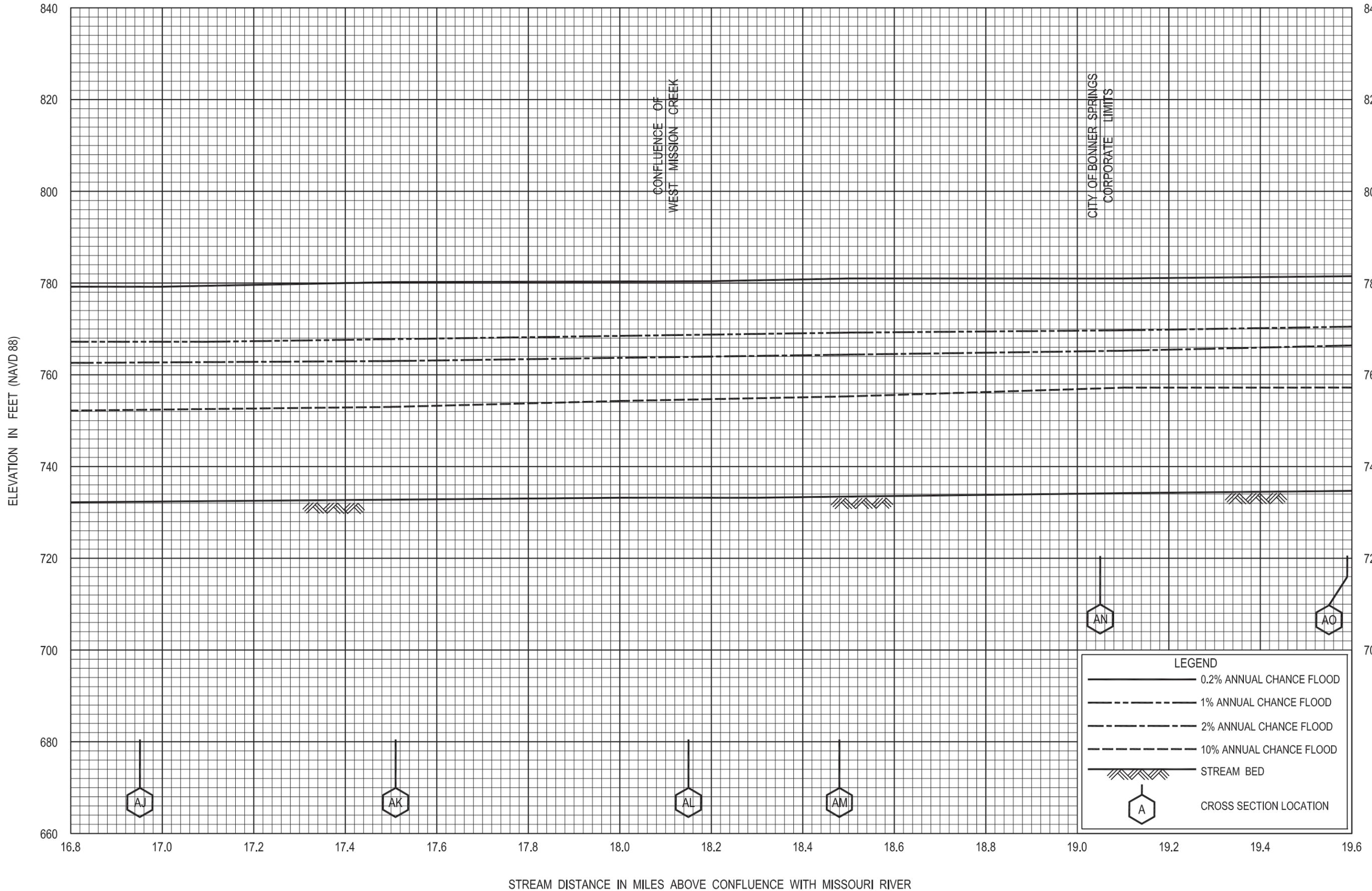


FLOOD PROFILES

KANSAS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

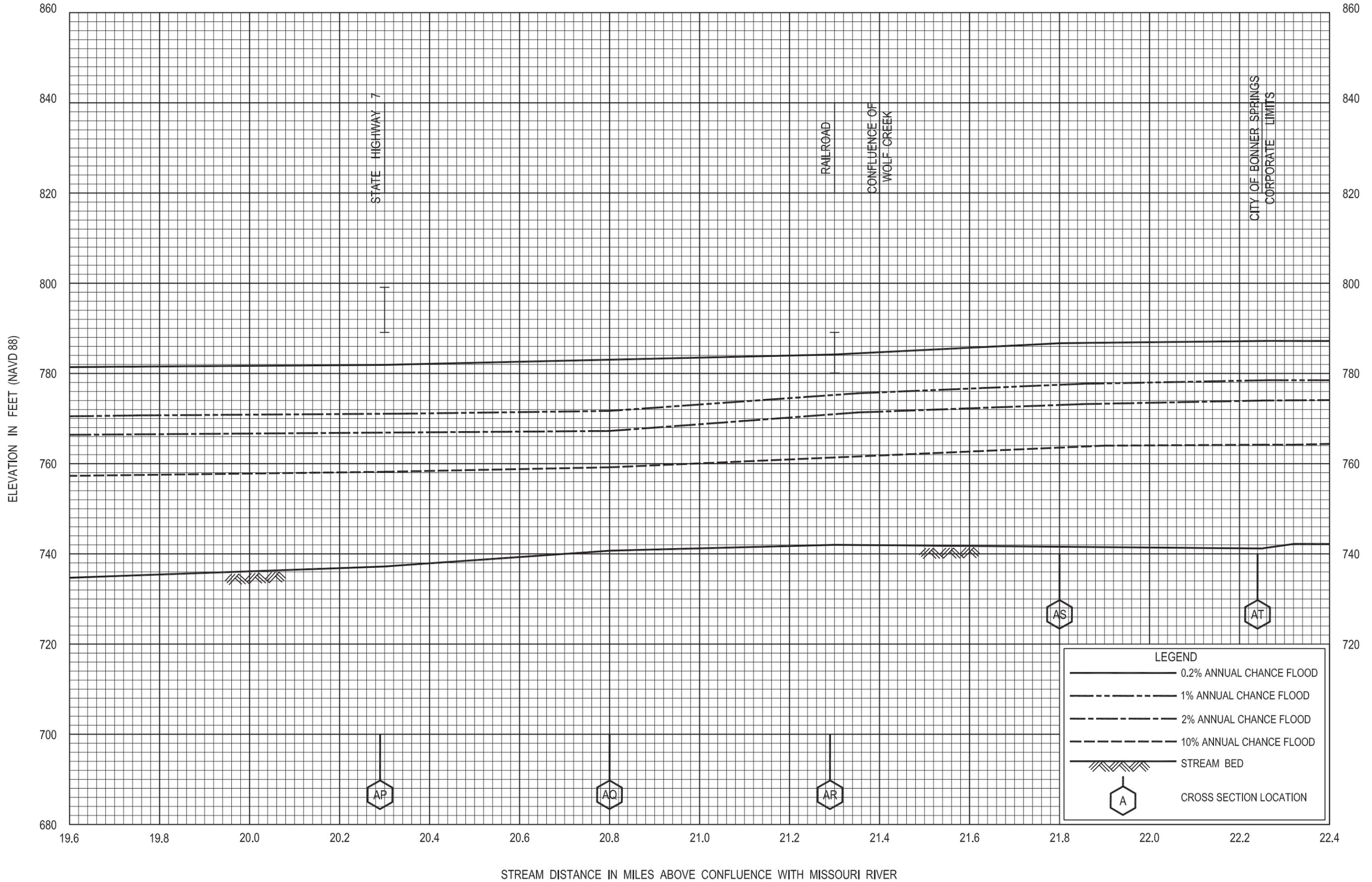


FLOOD PROFILES

KANSAS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

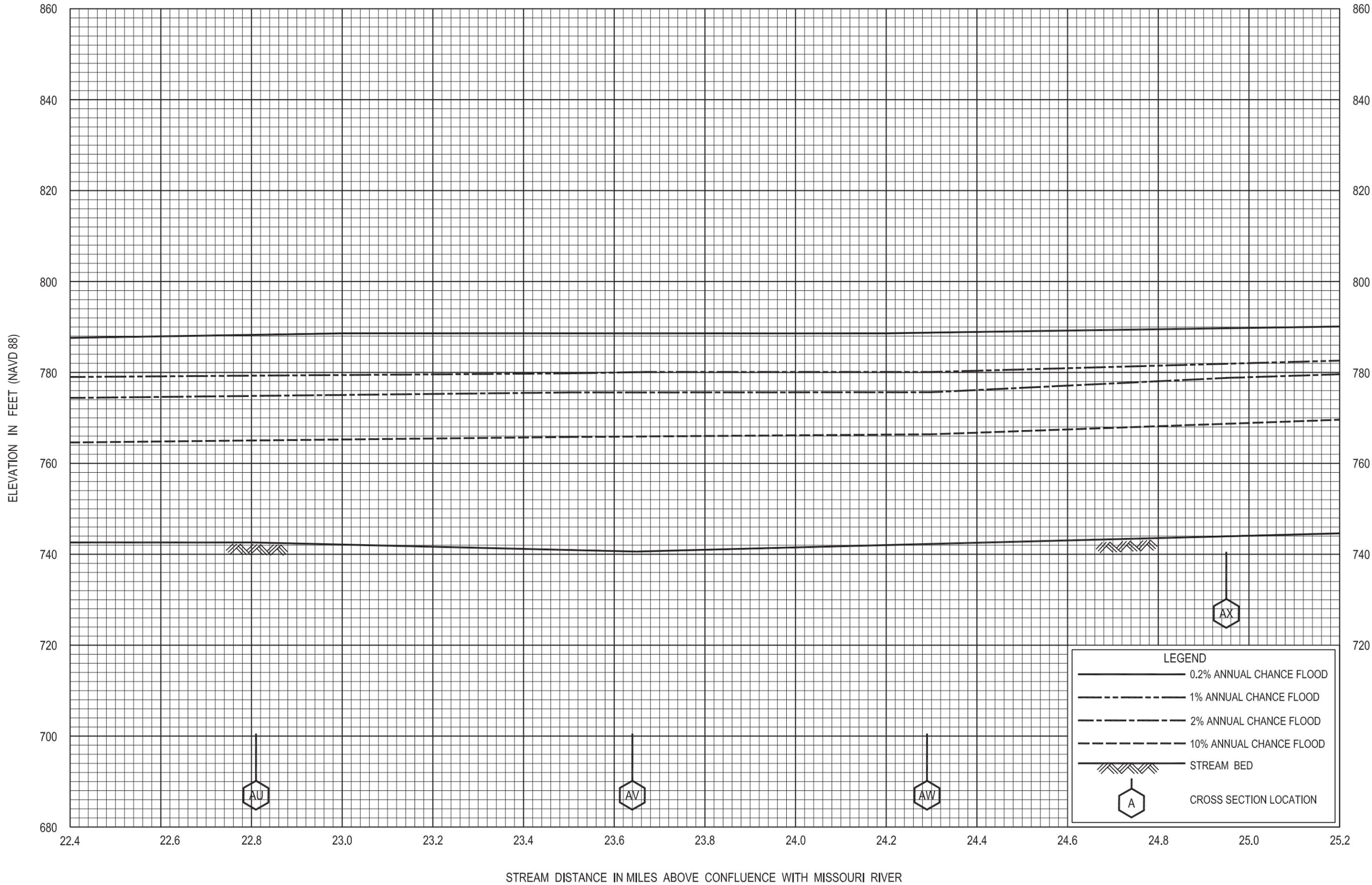


**FLOOD PROFILES**

**KANSAS RIVER**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS**

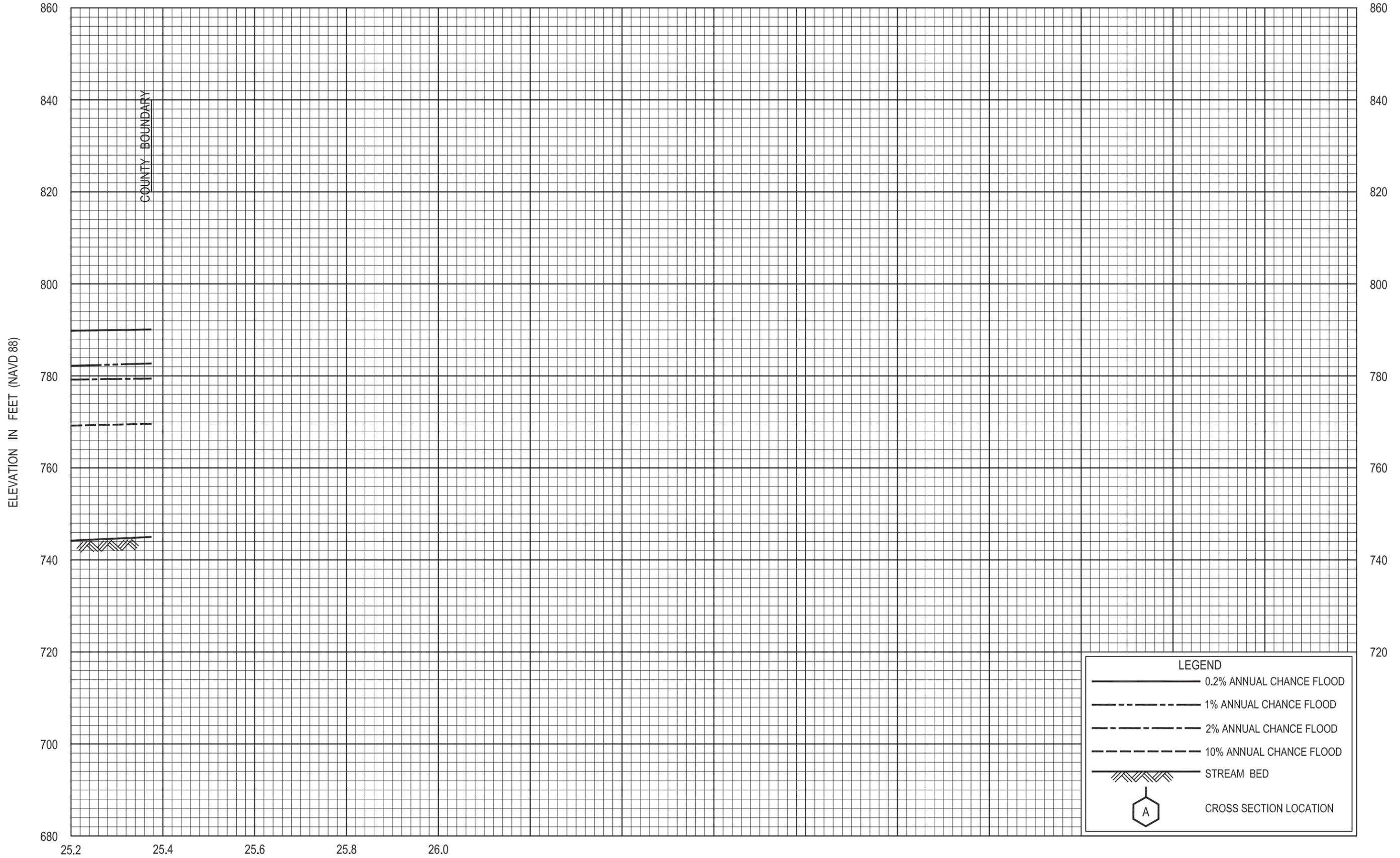


FLOOD PROFILES

KANSAS RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

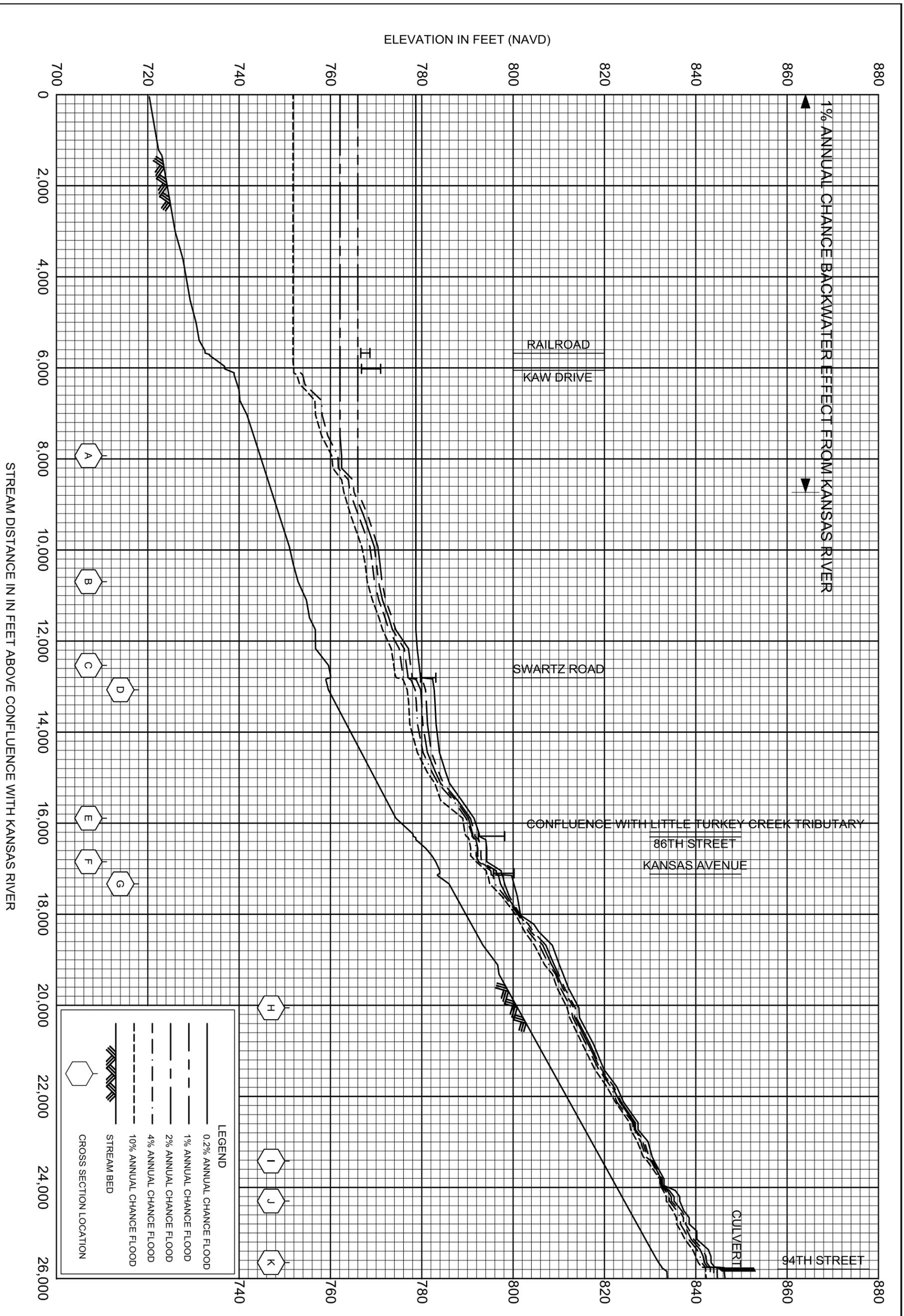


FLOOD PROFILES

KANSAS RIVER

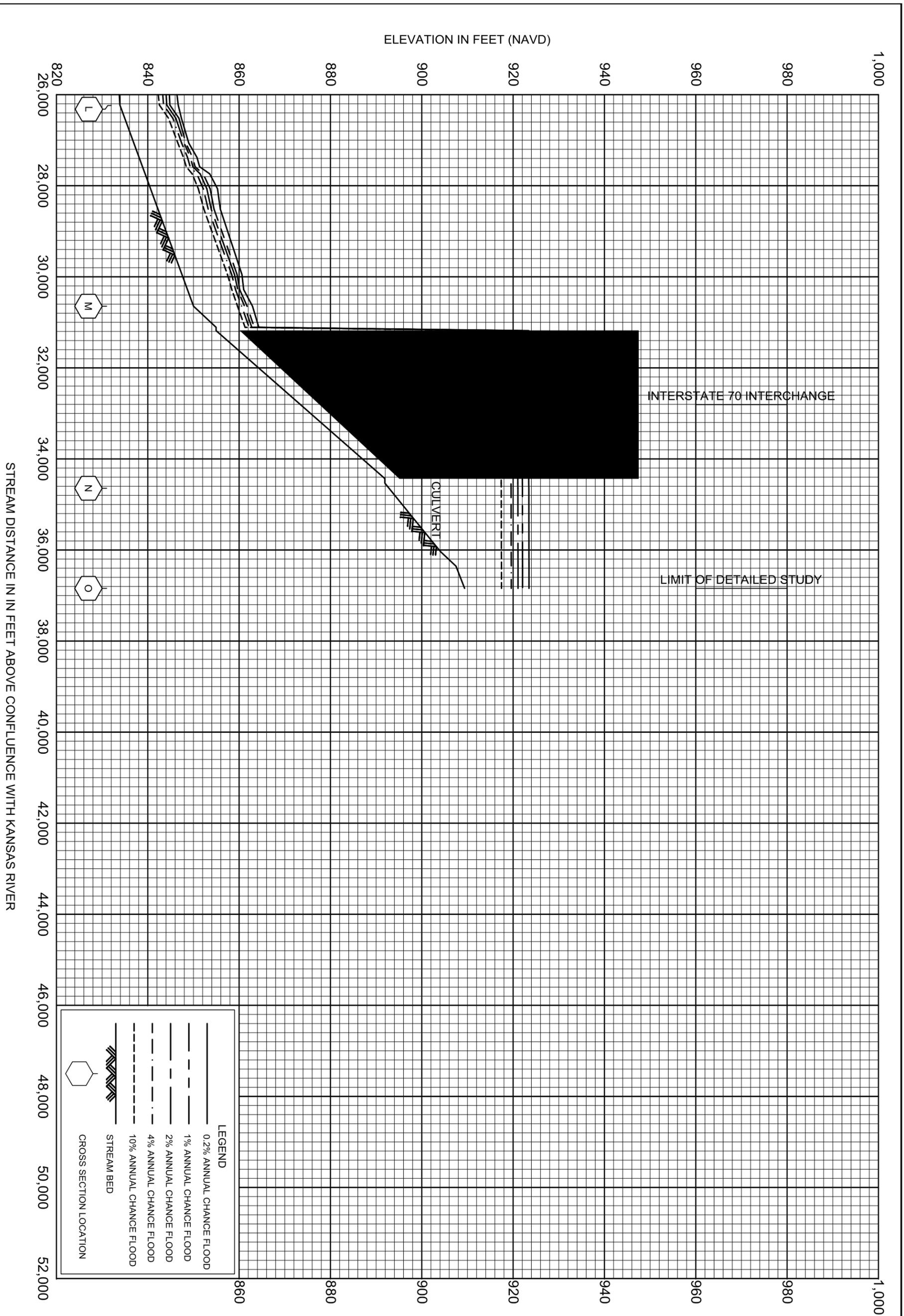
FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS



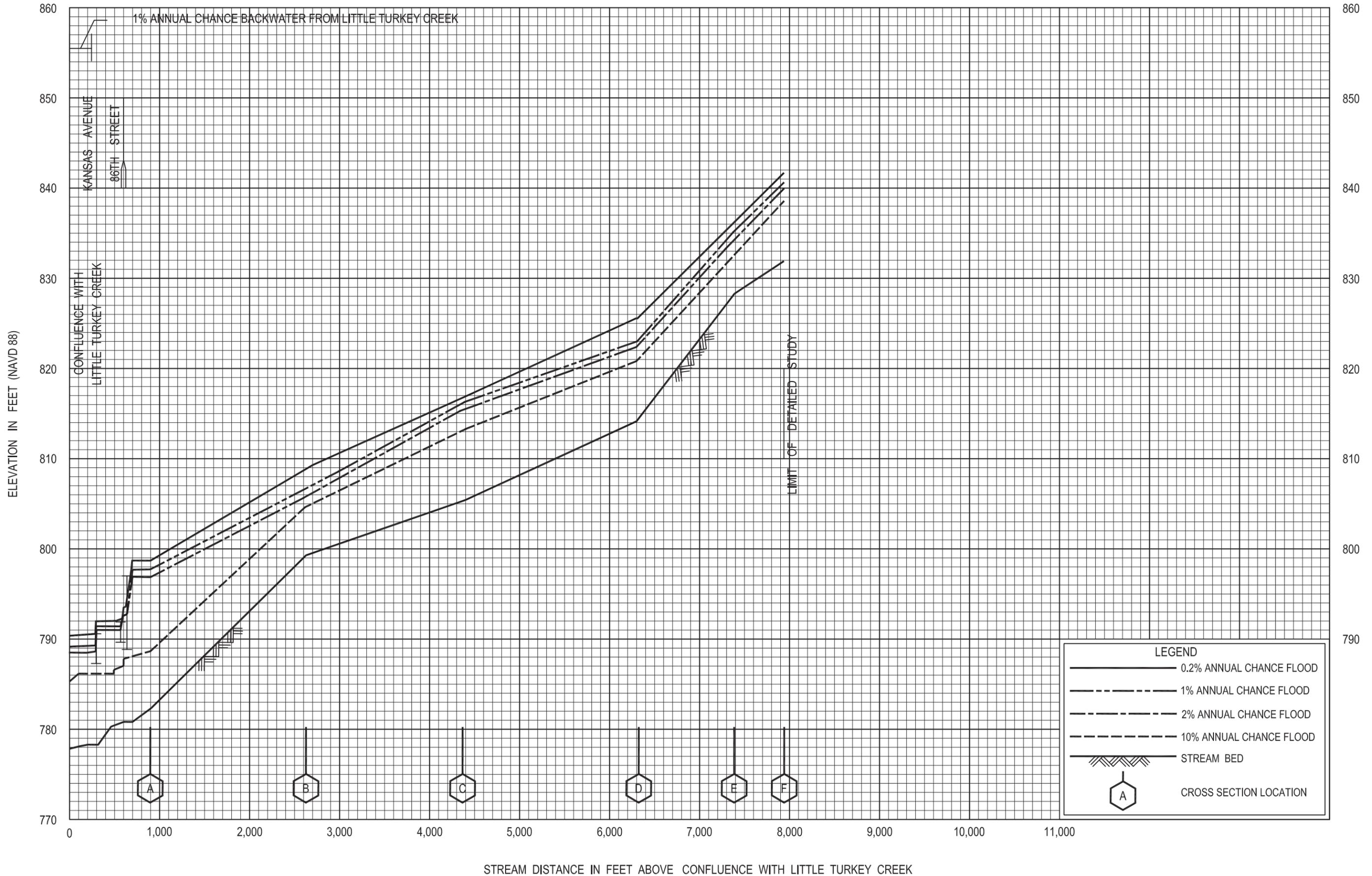
FEDERAL EMERGENCY MANAGEMENT AGENCY  
**WYANDOTTE COUNTY, KS**  
 AND INCORPORATED AREAS

**FLOOD PROFILES**  
**LITTLE TURKEY CREEK**



FEDERAL EMERGENCY MANAGEMENT AGENCY  
**WYANDOTTE COUNTY, KS**  
 AND INCORPORATED AREAS

**FLOOD PROFILES**  
**LITTLE TURKEY CREEK**

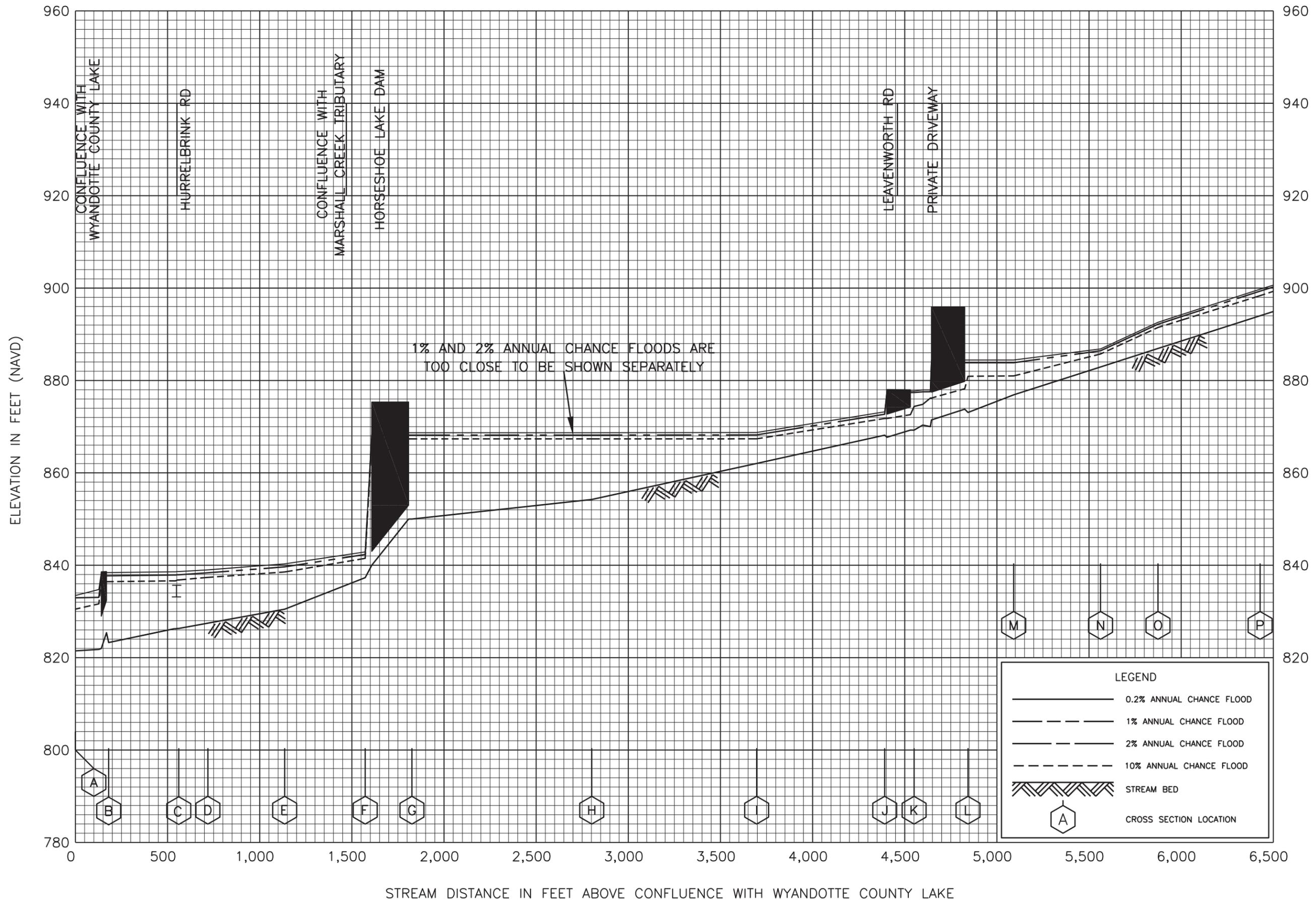


**FLOOD PROFILES**

**LITTLE TURKEY CREEK TRIBUTARY**

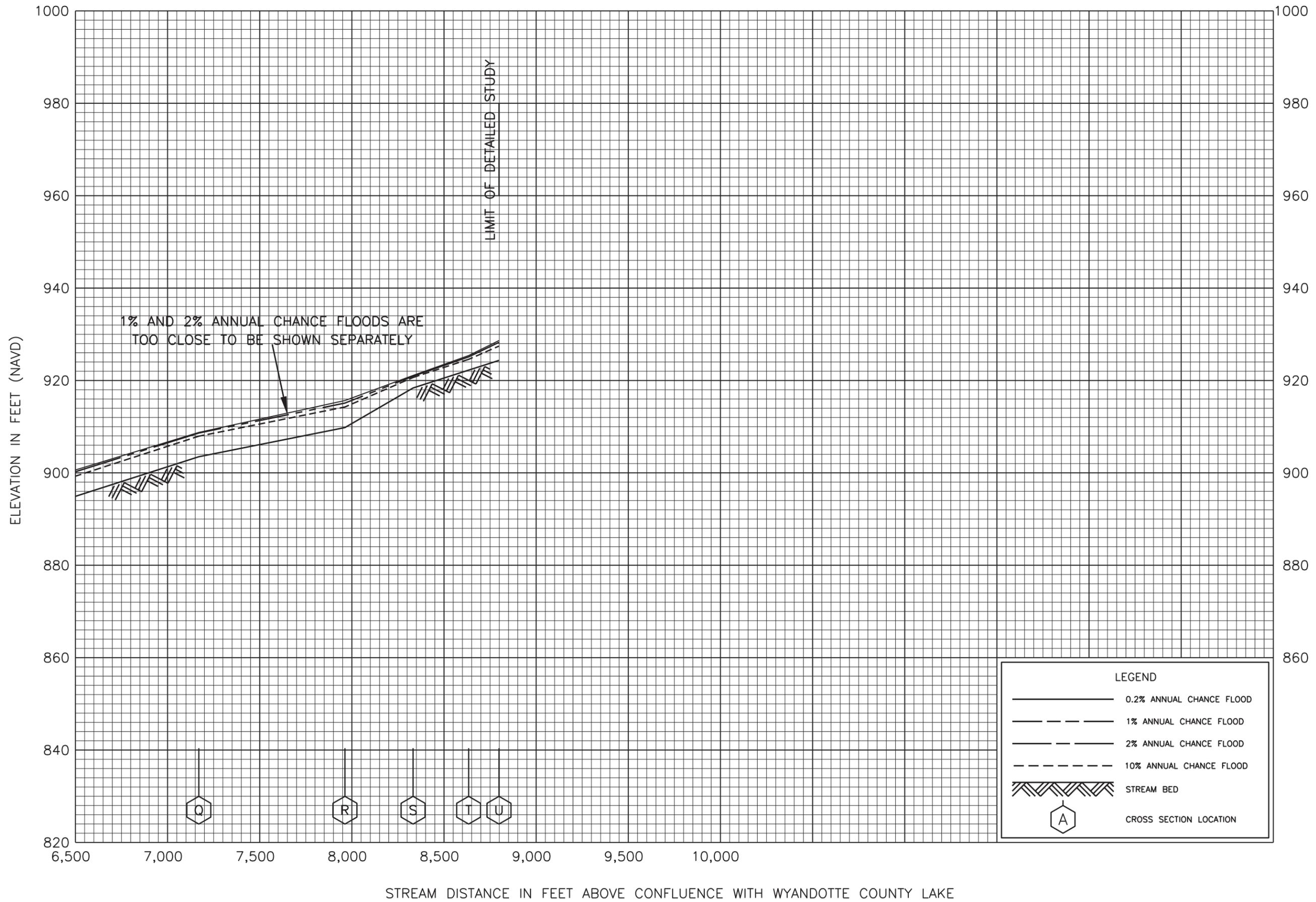
FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS



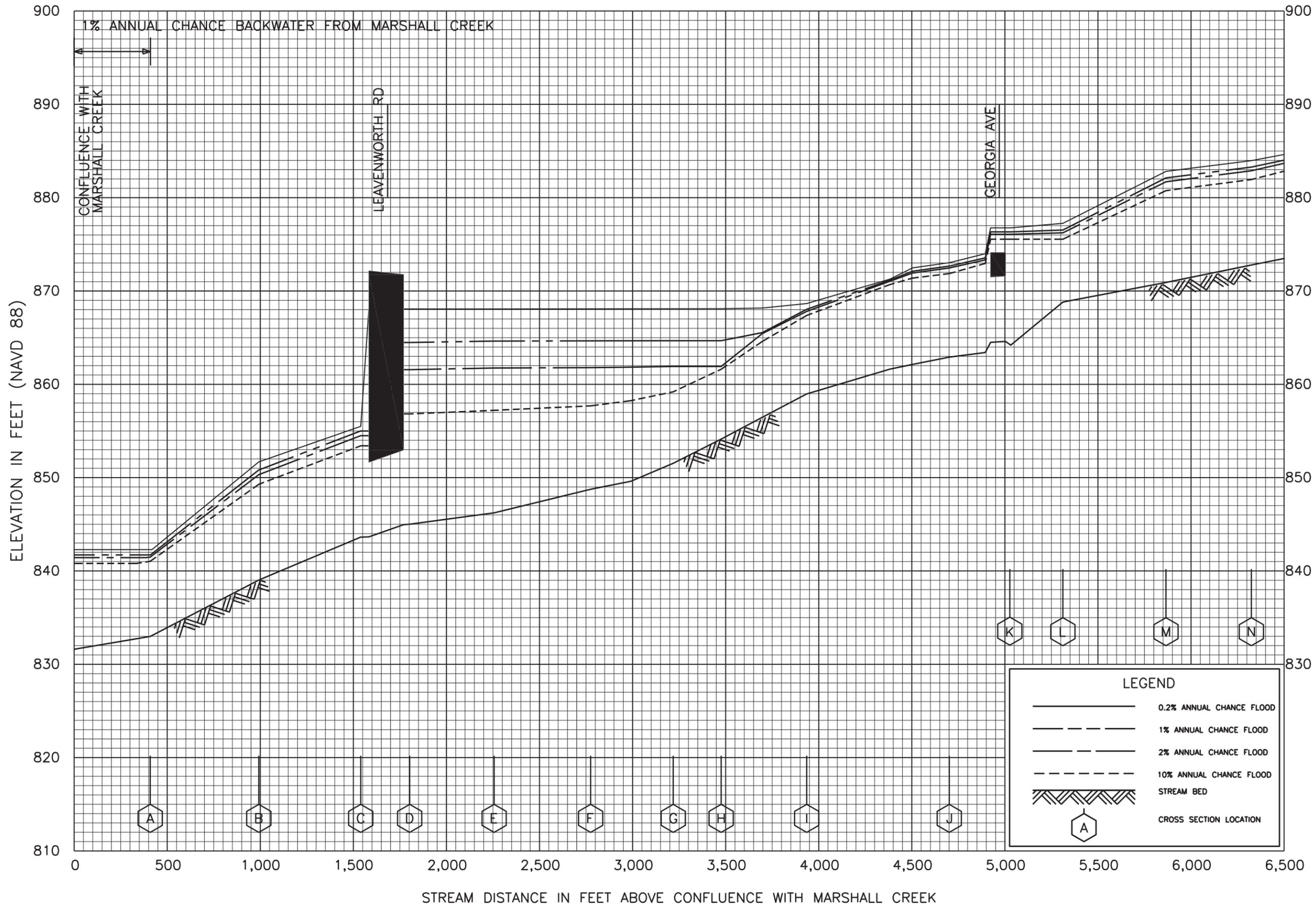
FLOOD PROFILES  
MARSHALL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY  
WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS



FLOOD PROFILES  
MARSHALL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY  
WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

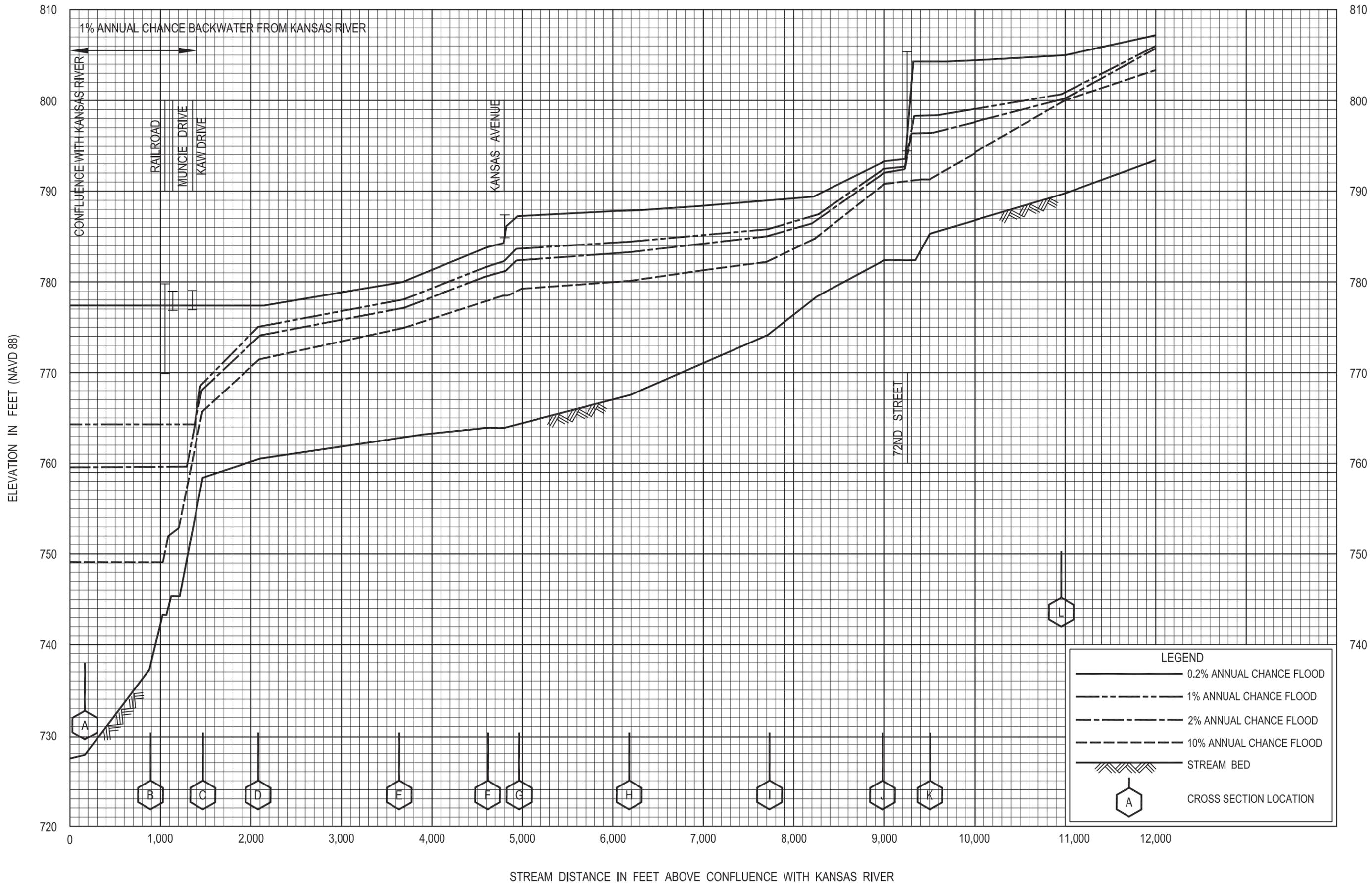


FLOOD PROFILES

MARSHALL CREEK TRIBUTARY

FEDERAL EMERGENCY MANAGEMENT AGENCY  
 WYANDOTTE COUNTY, KS  
 AND INCORPORATED AREAS





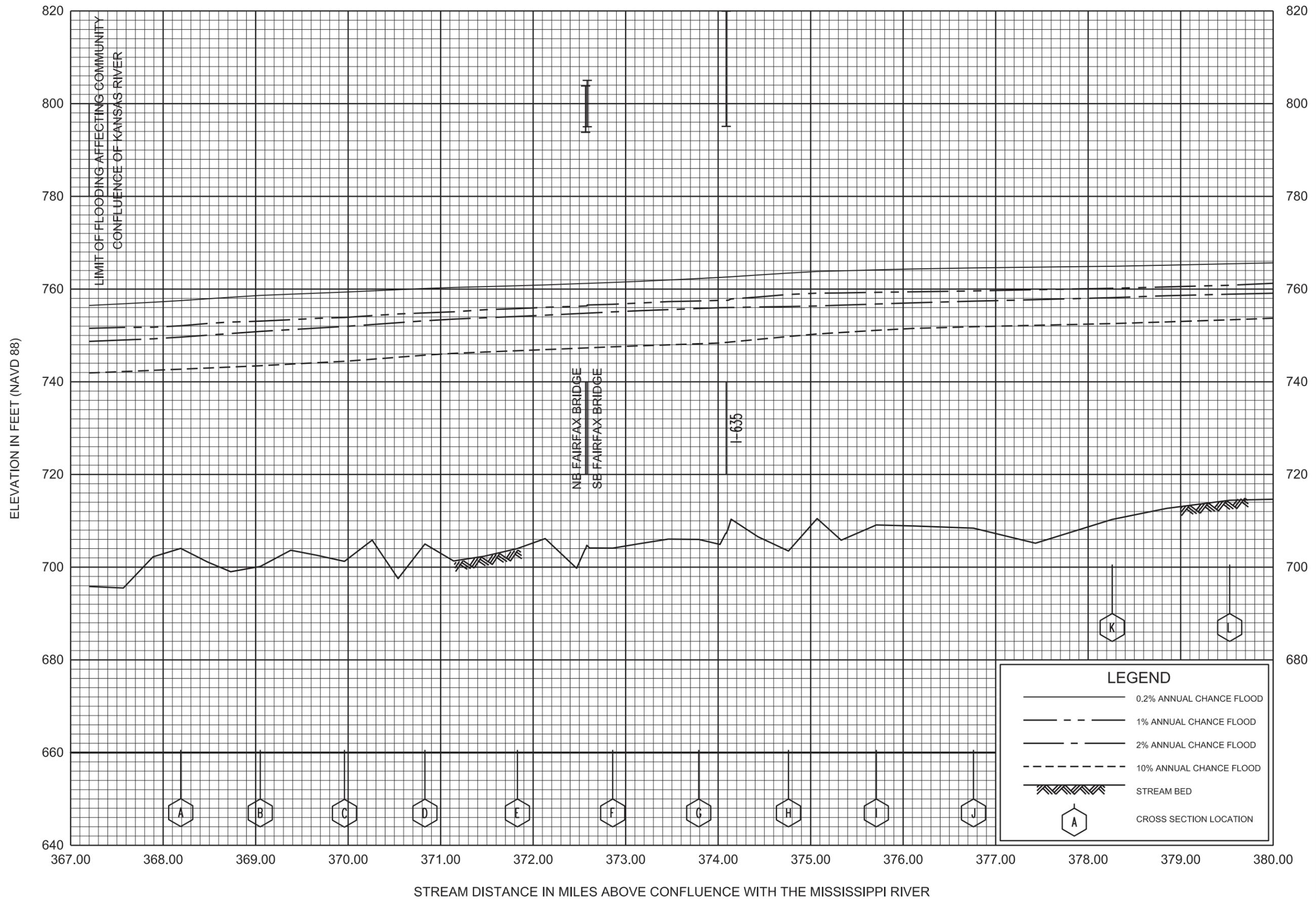
FLOOD PROFILES

MILL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

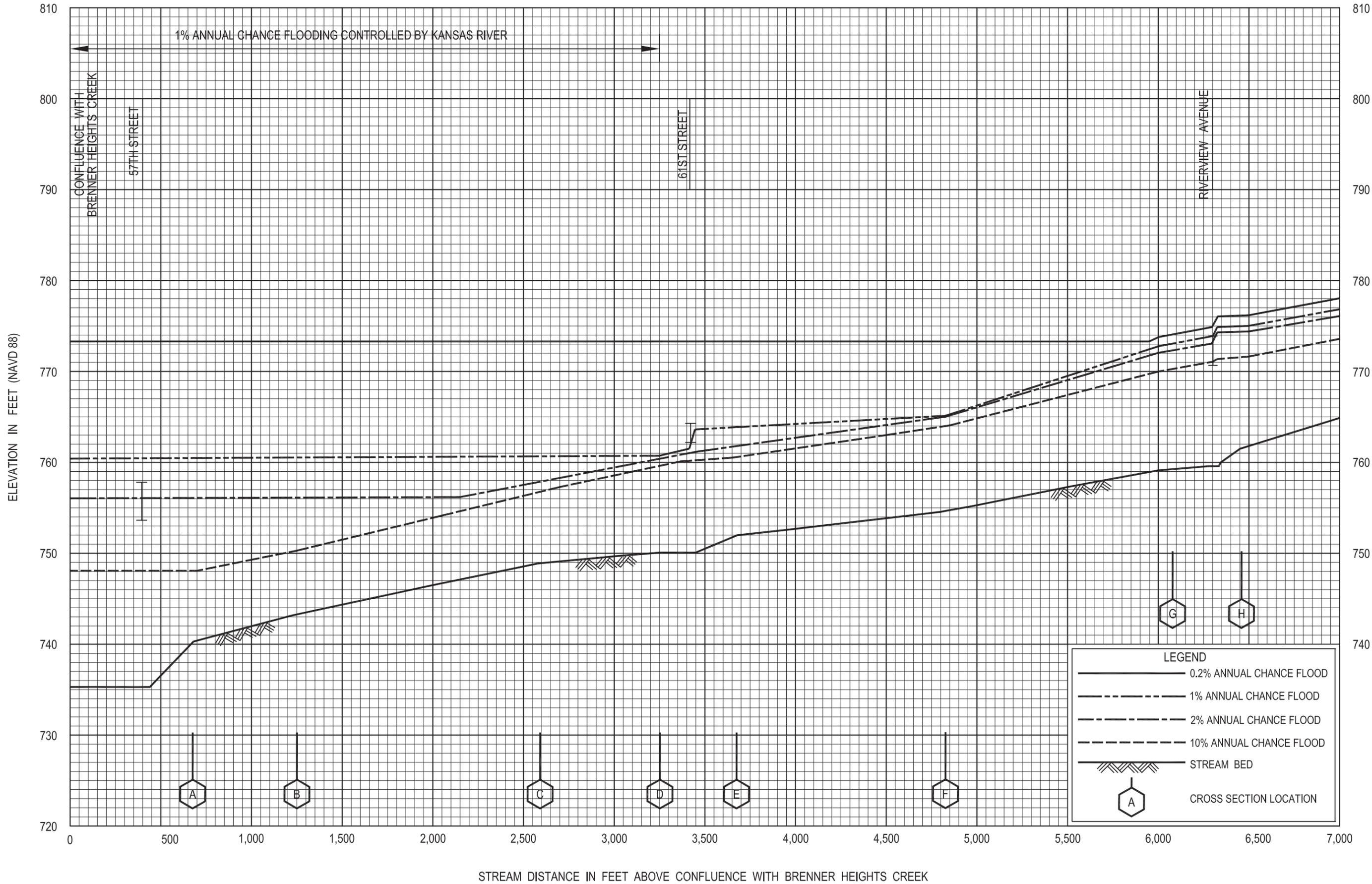




FLOOD PROFILES  
MISSOURI RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY  
WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS





**FLOOD PROFILES**

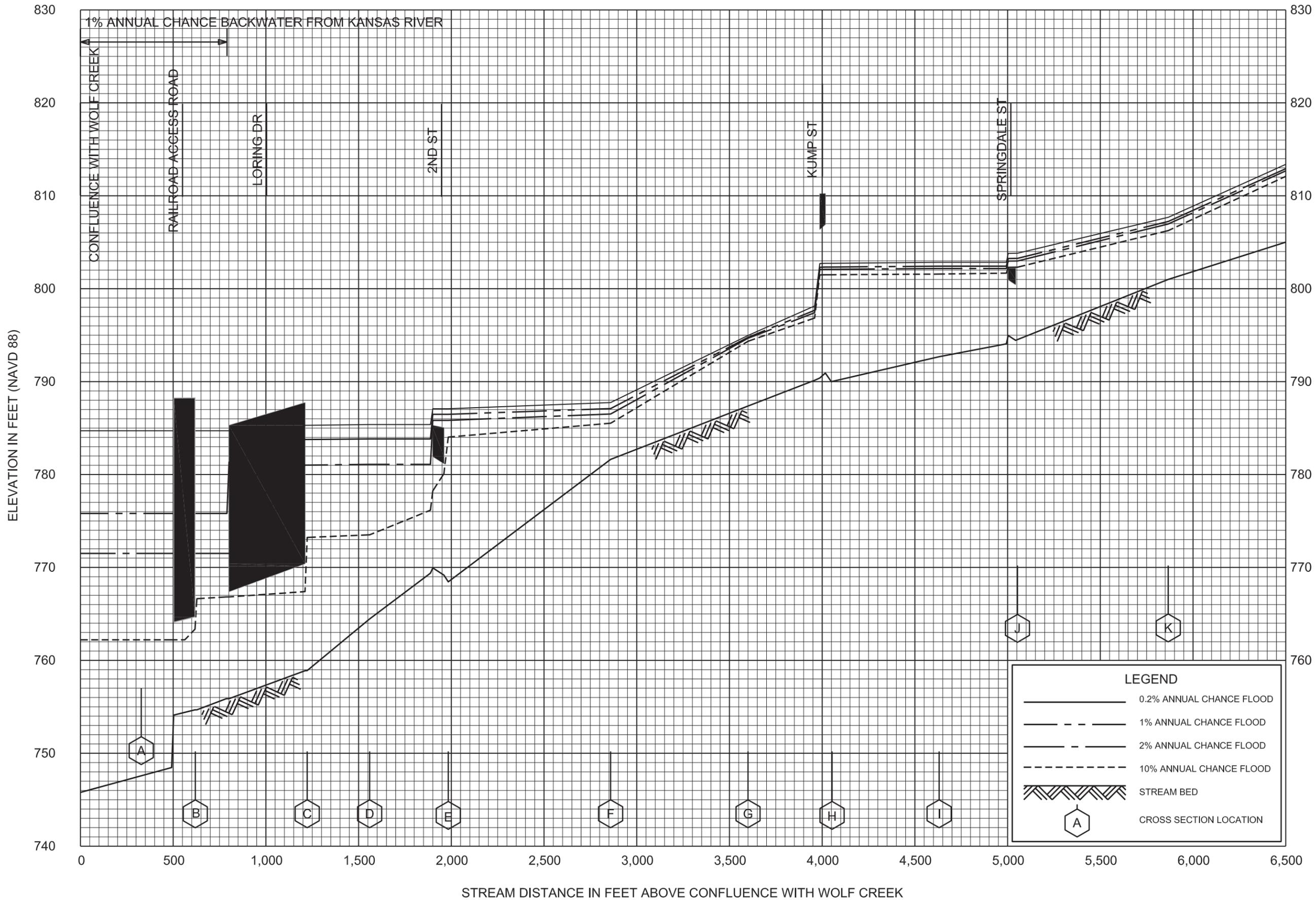
**MUNCIE CREEK**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS**

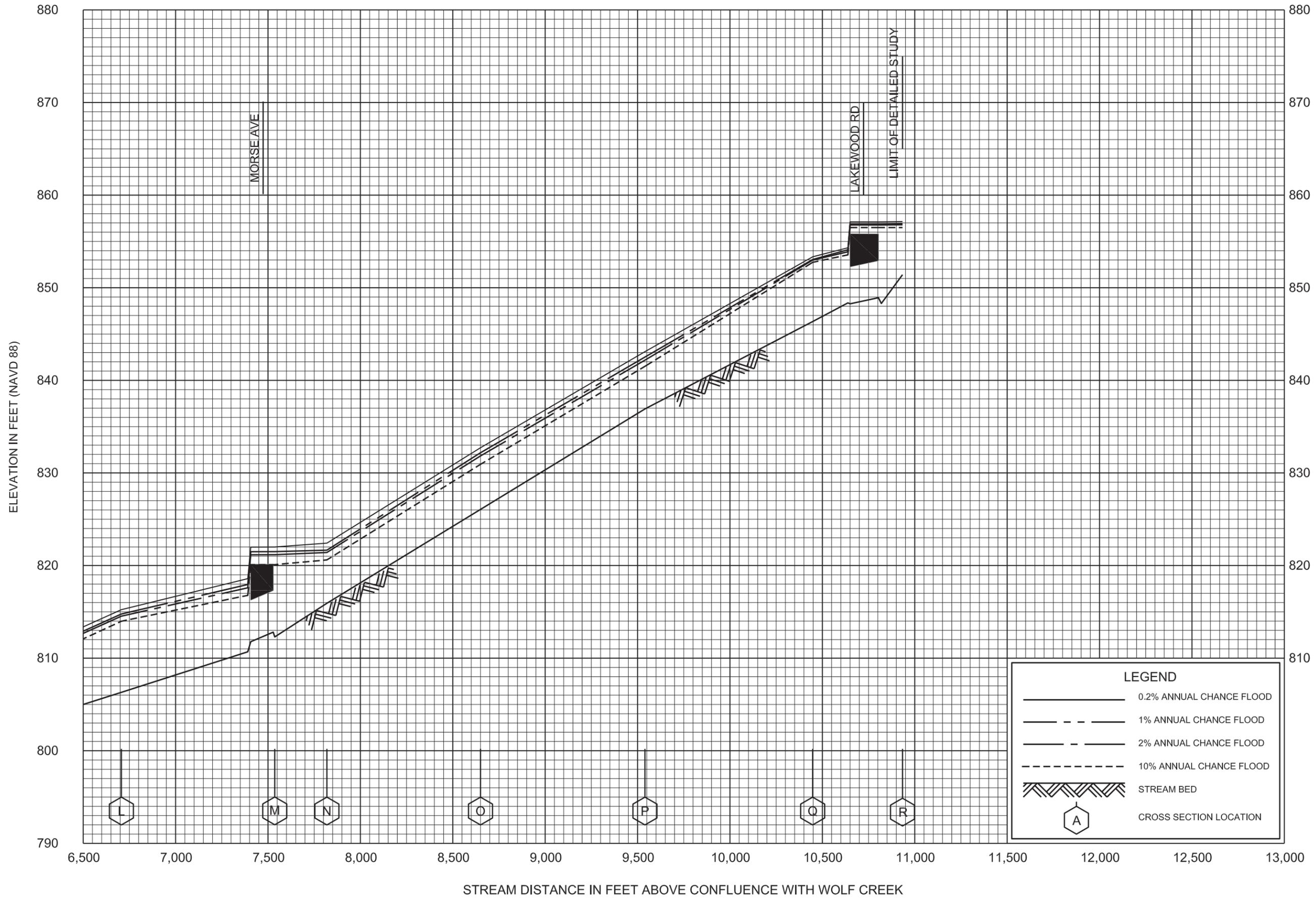






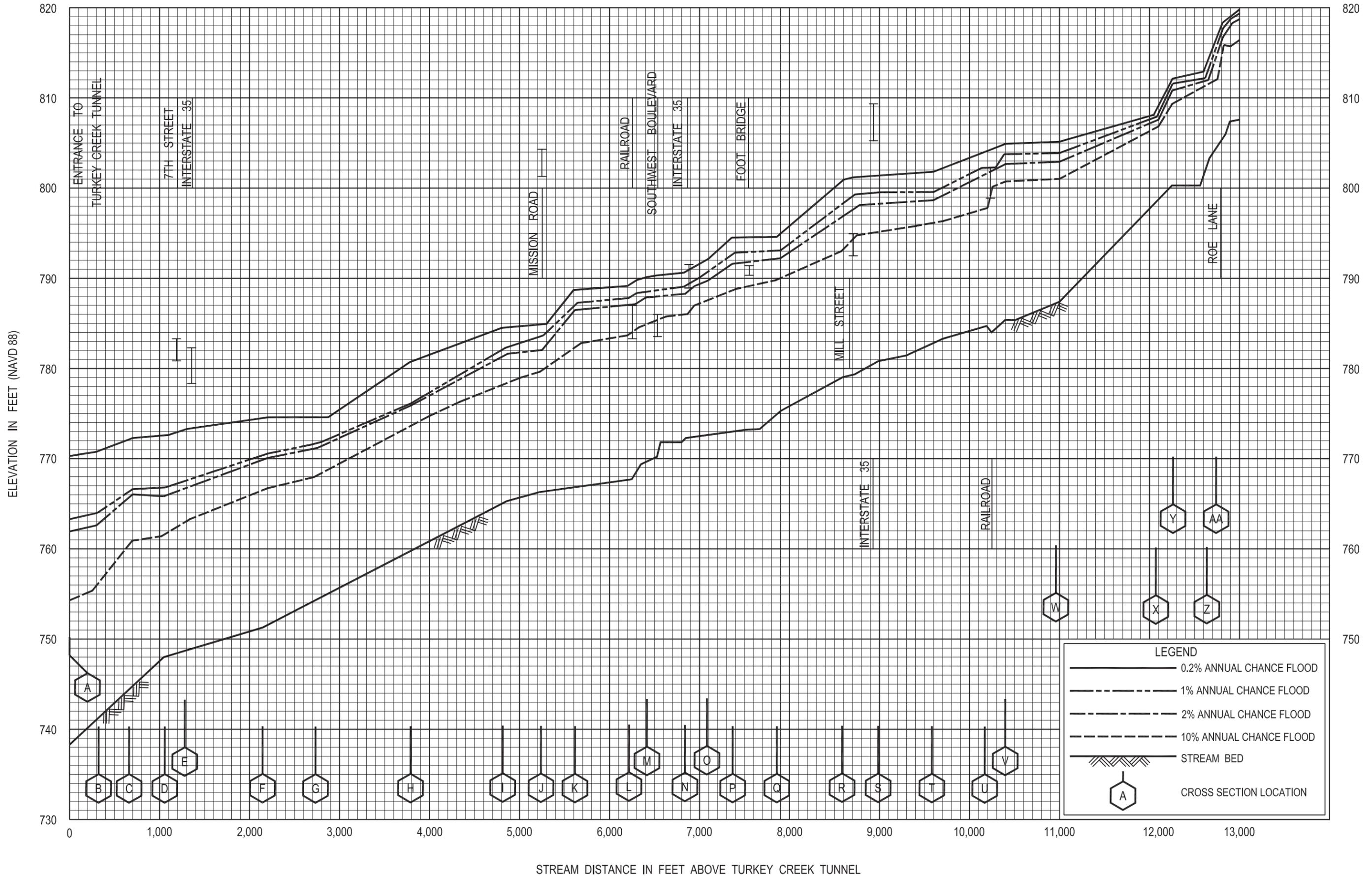
FLOOD PROFILES  
 SPRING CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY  
 WYANDOTTE COUNTY, KS  
 AND INCORPORATED AREAS



FLOOD PROFILES  
SPRING CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY  
WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

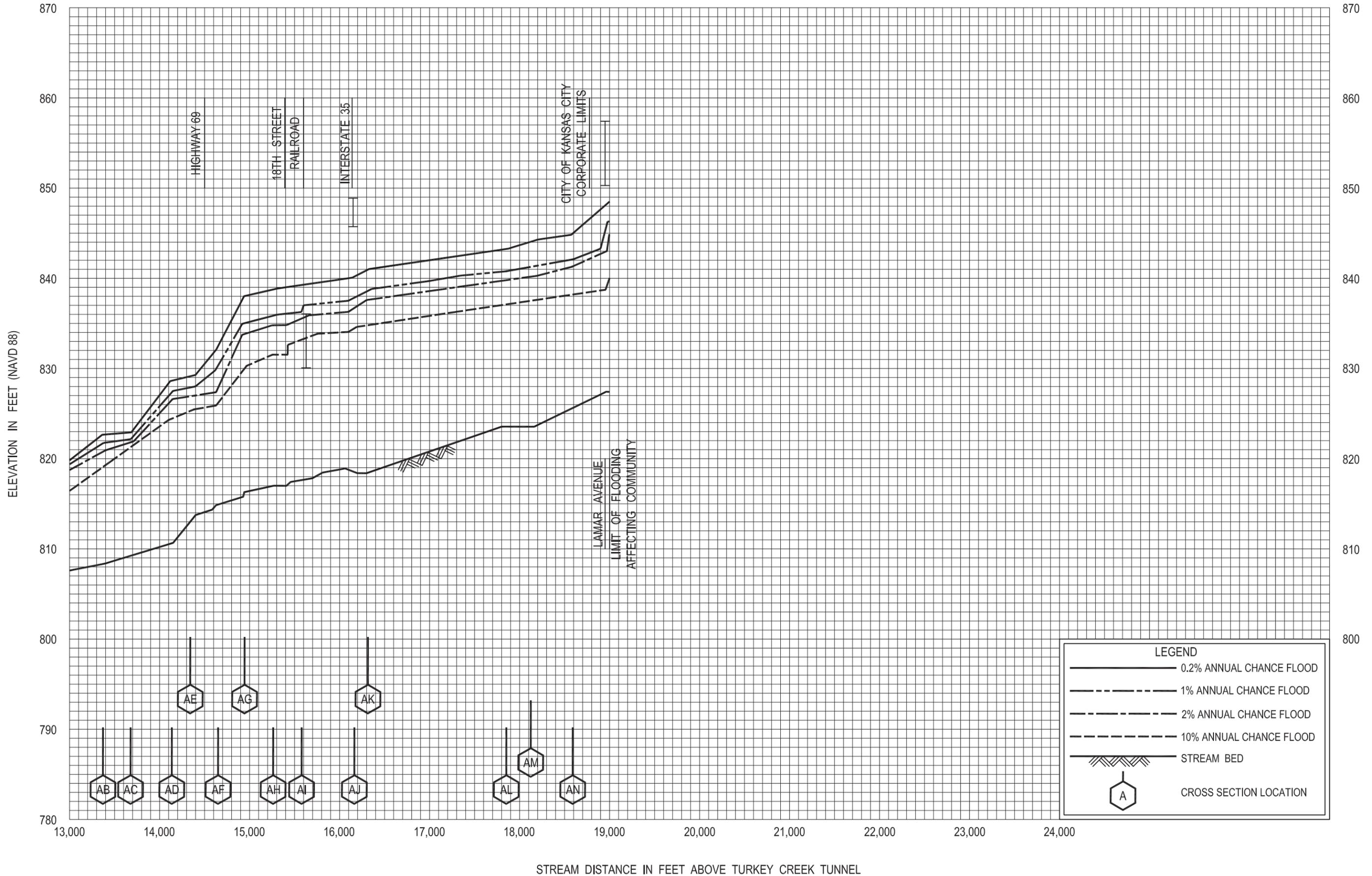


FLOOD PROFILES

TURKEY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

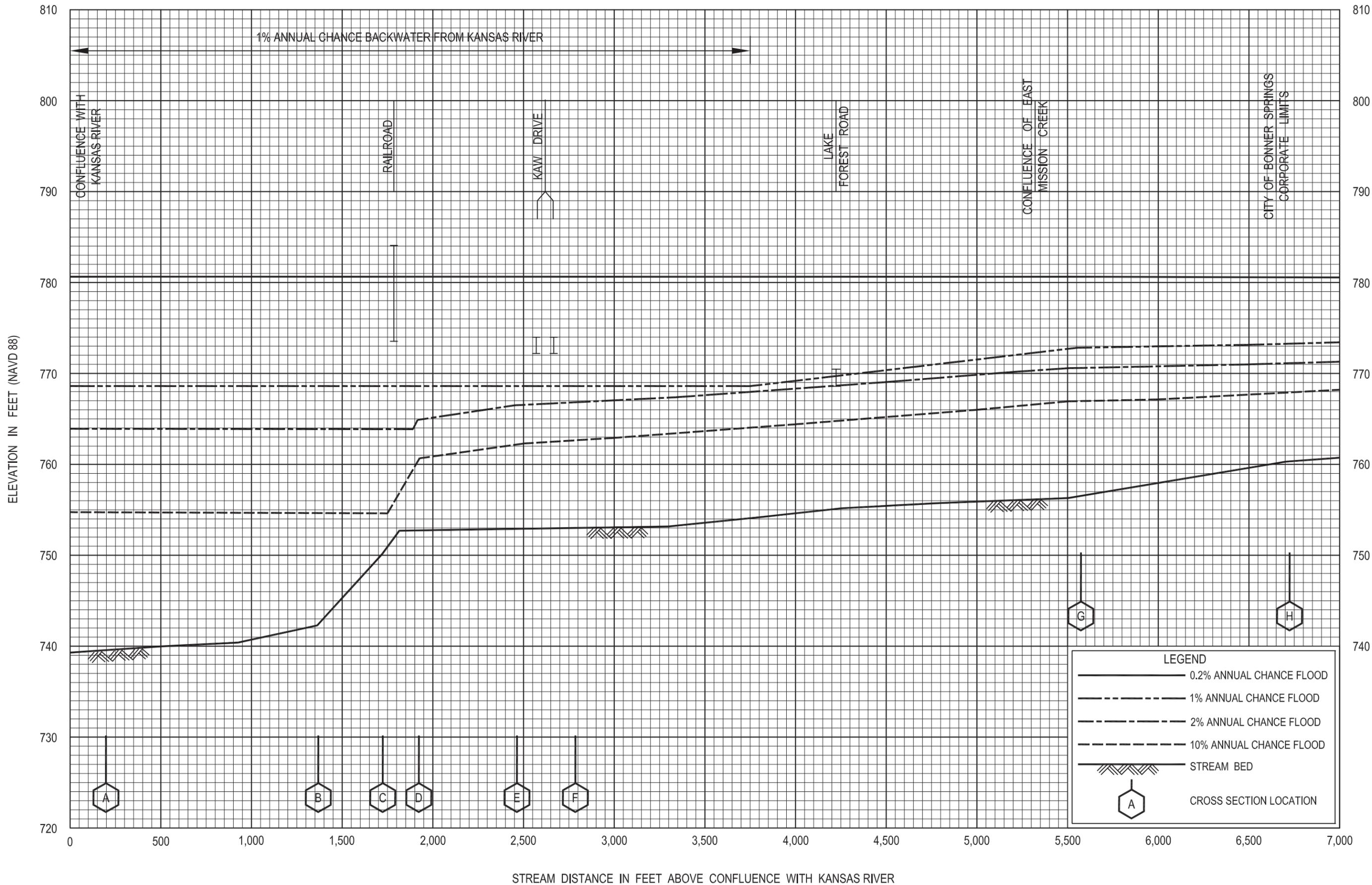


FLOOD PROFILES

TURKEY CREEK

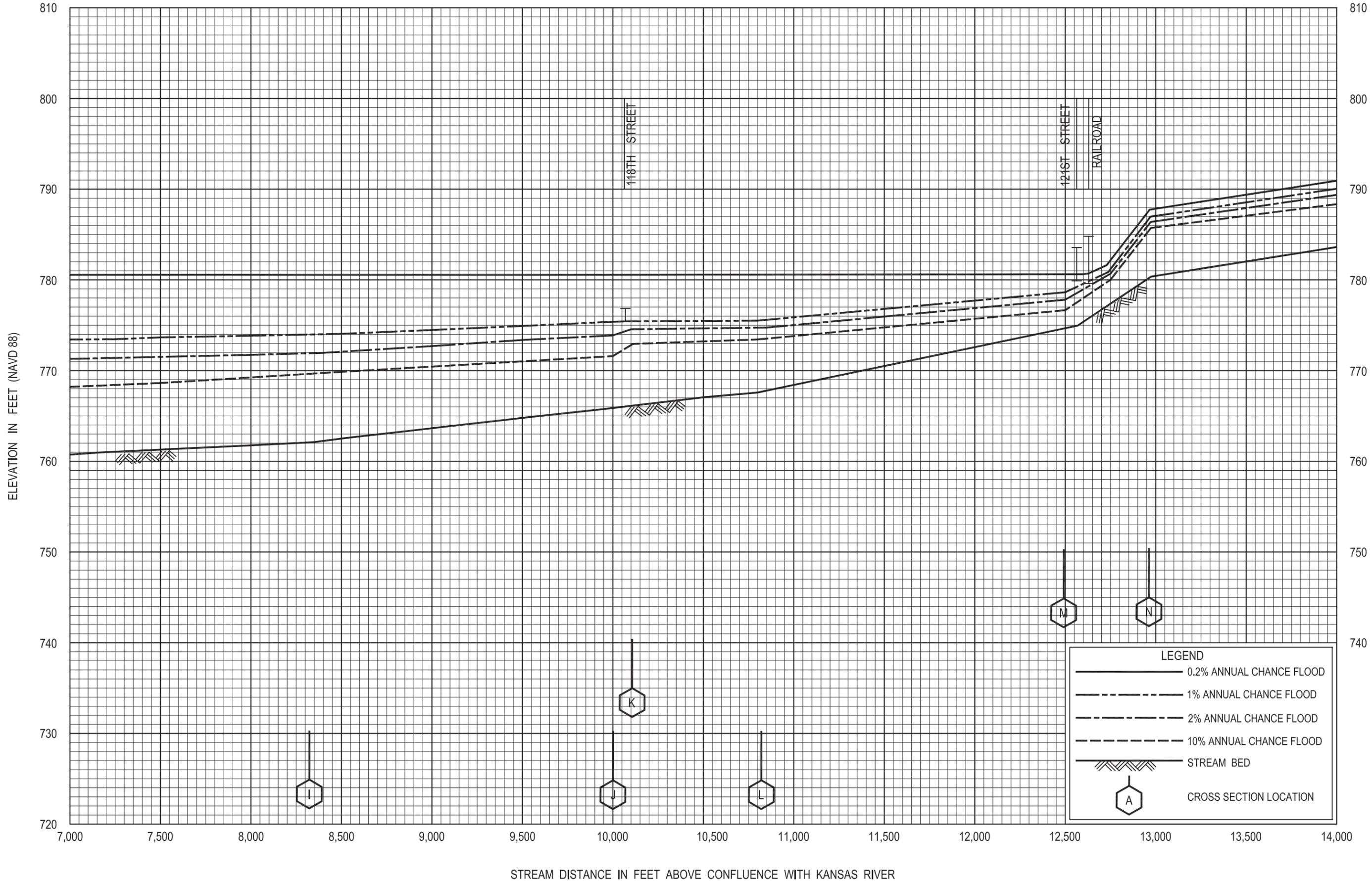
FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS



**FLOOD PROFILES**  
**WEST MISSION CREEK**

FEDERAL EMERGENCY MANAGEMENT AGENCY  
WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

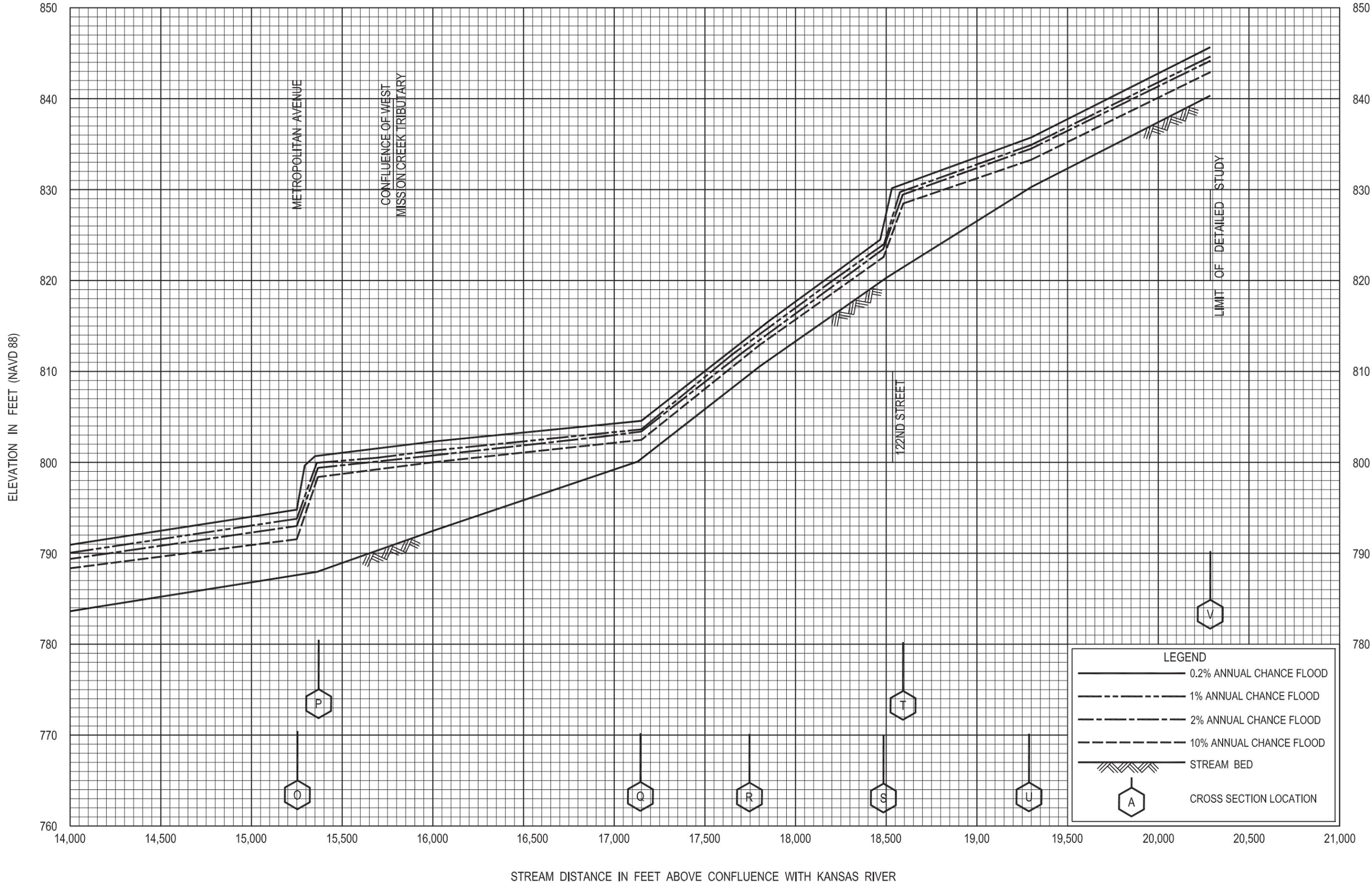


FLOOD PROFILES

WEST MISSION CREEK

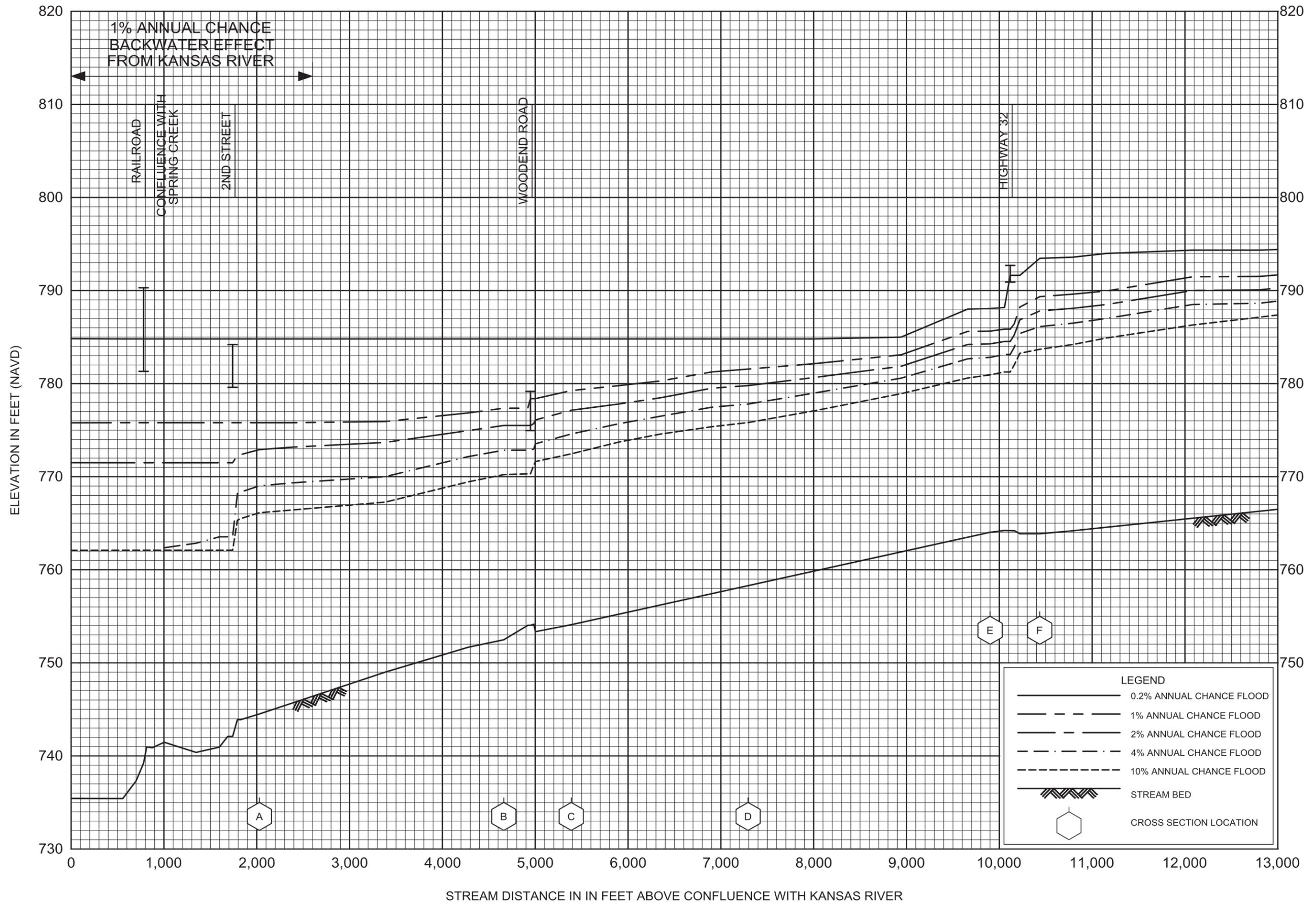
FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS



**FLOOD PROFILES**  
**WEST MISSION CREEK**

FEDERAL EMERGENCY MANAGEMENT AGENCY  
 WYANDOTTE COUNTY, KS  
 AND INCORPORATED AREAS

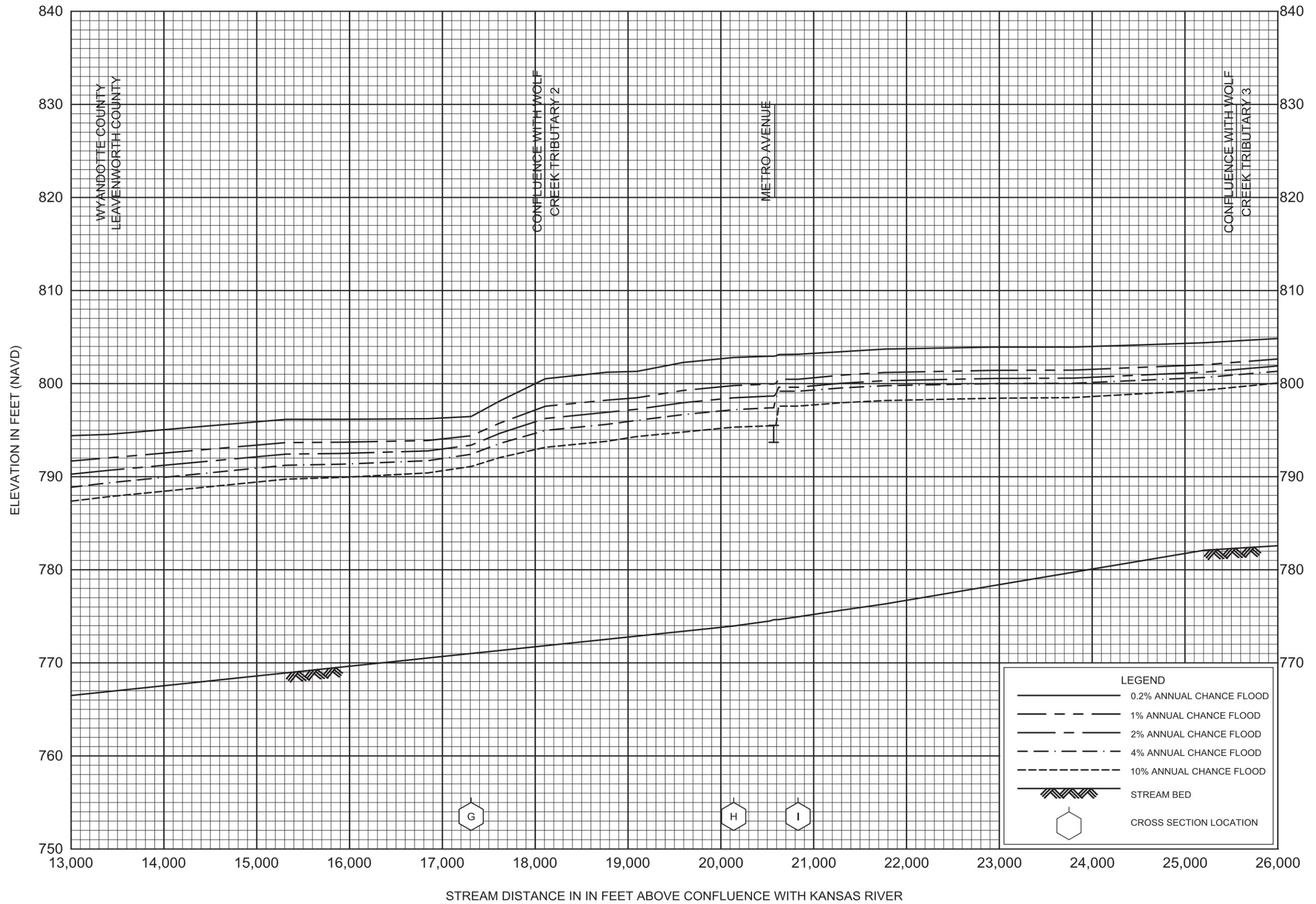


FLOOD PROFILES

WOLF CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

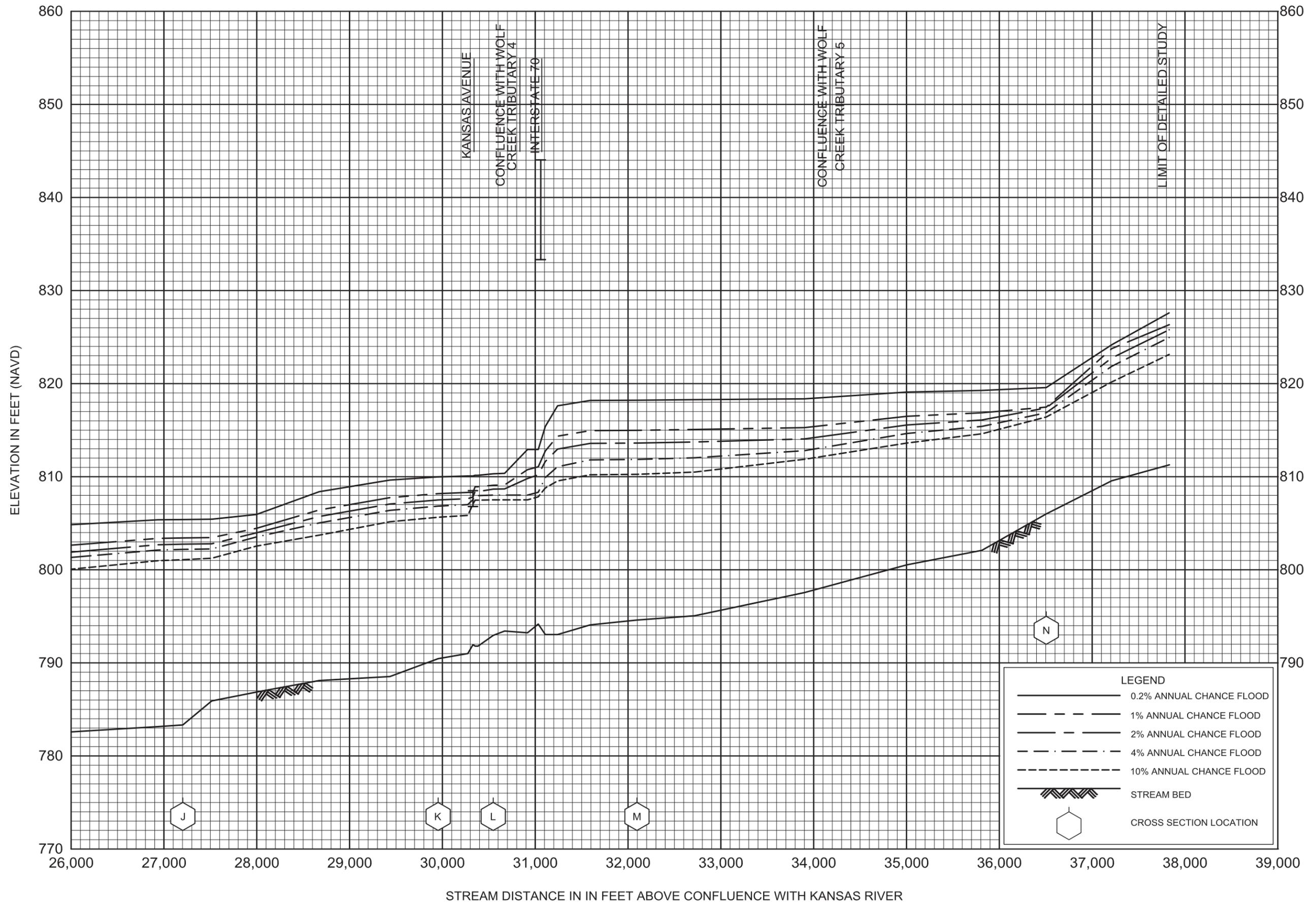


FLOOD PROFILES

WOLF CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

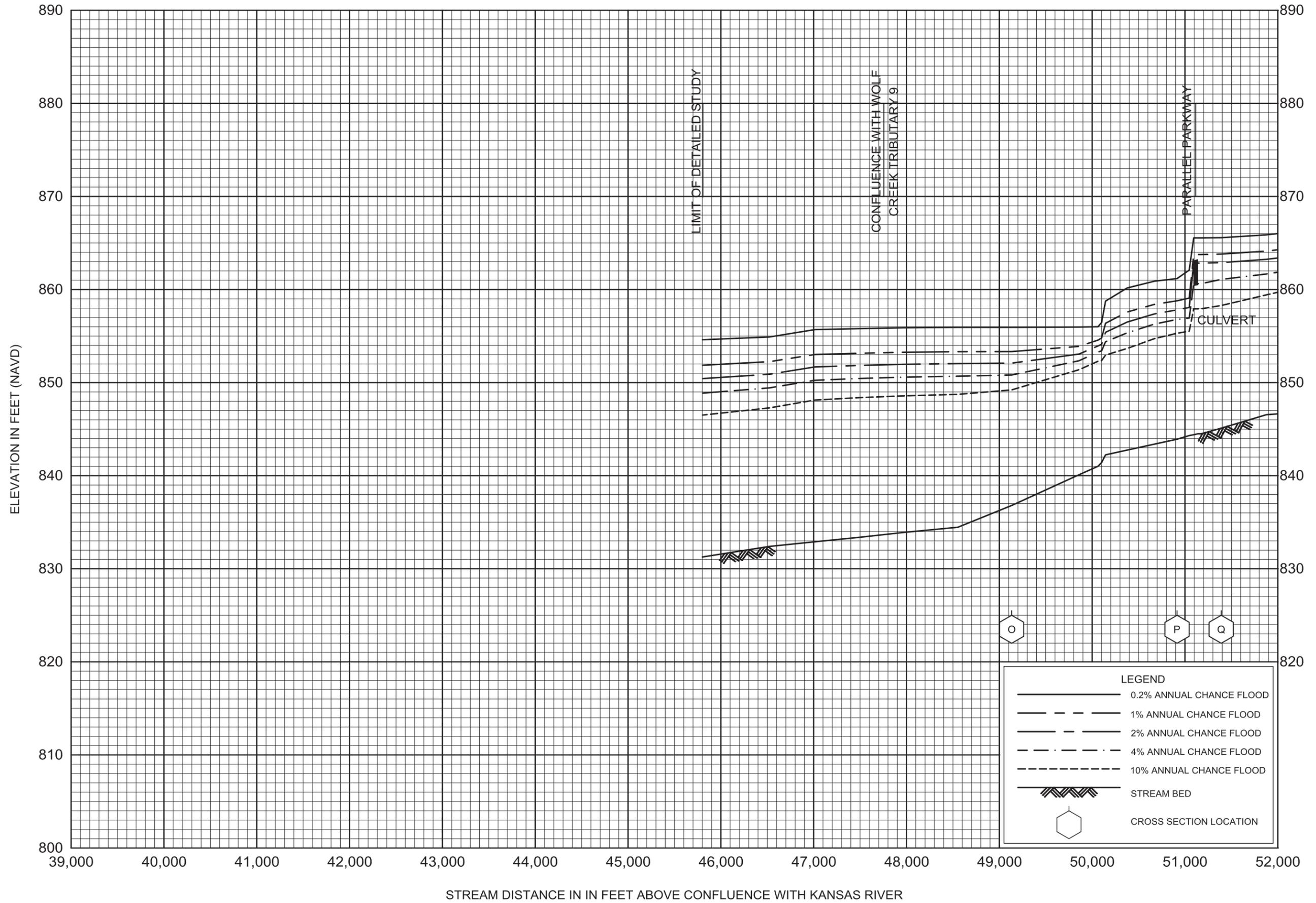


FLOOD PROFILES

WOLF CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

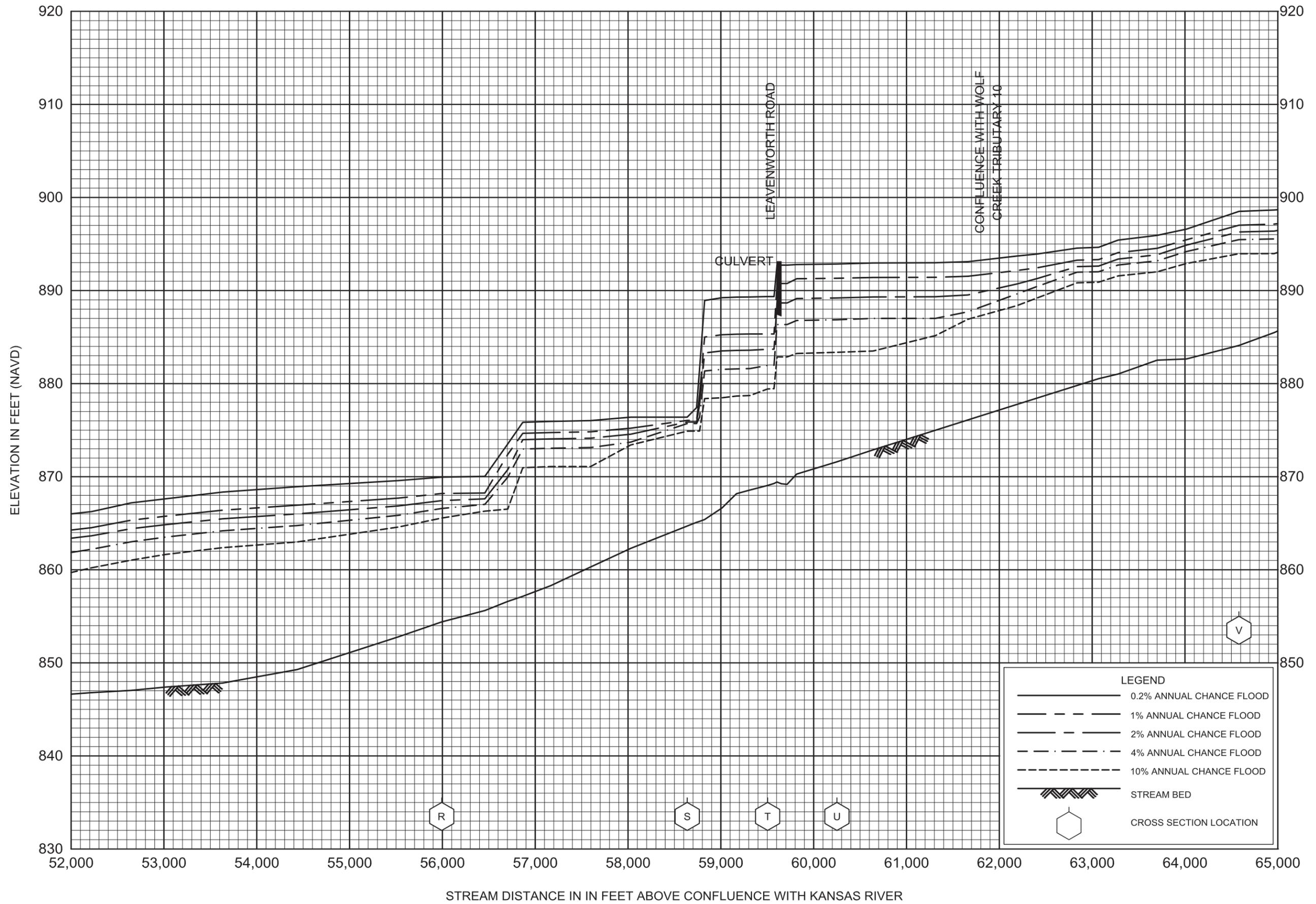


FLOOD PROFILES

WOLF CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

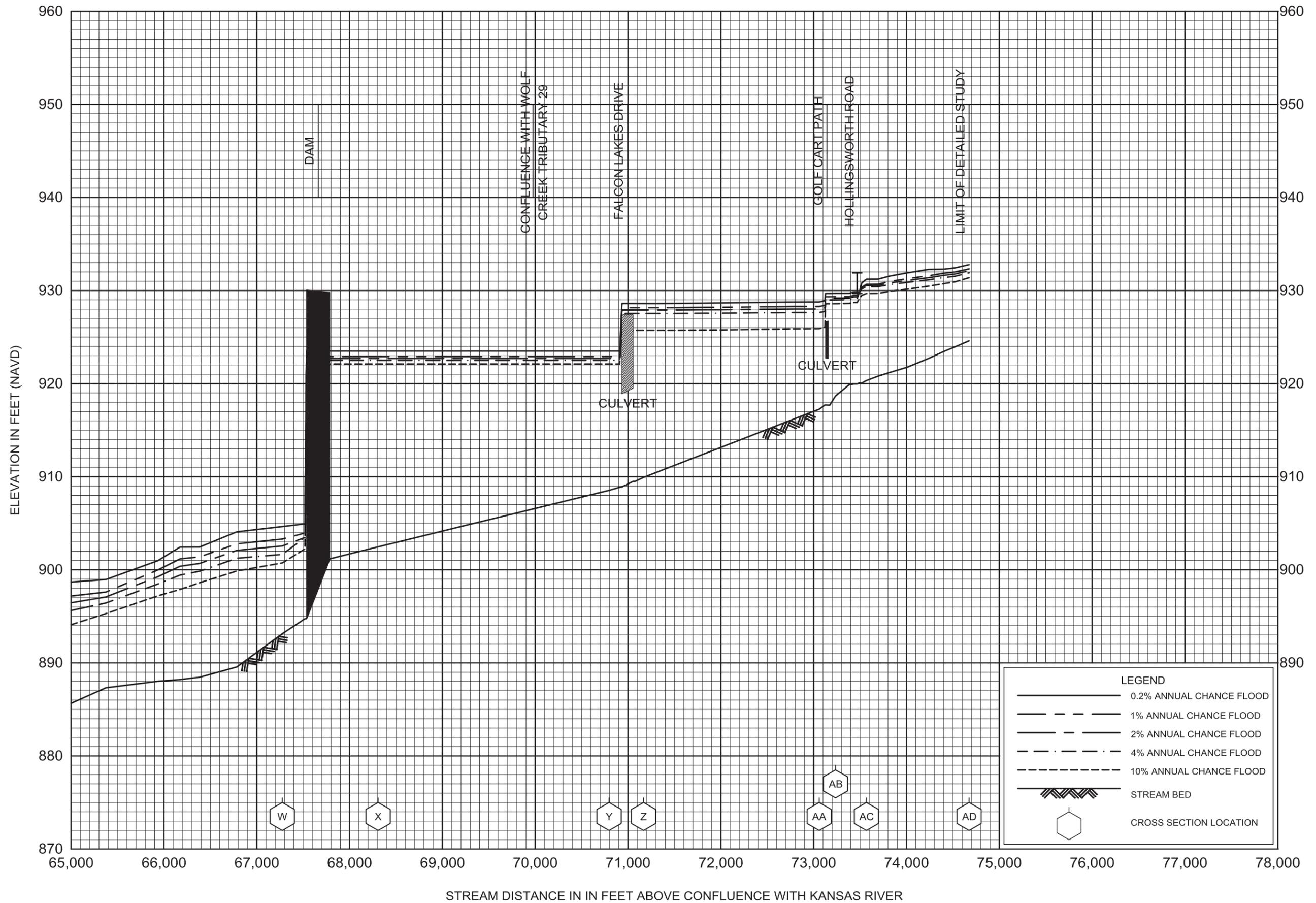


**FLOOD PROFILES**

**WOLF CREEK**

FEDERAL EMERGENCY MANAGEMENT AGENCY

**WYANDOTTE COUNTY, KS**  
AND INCORPORATED AREAS

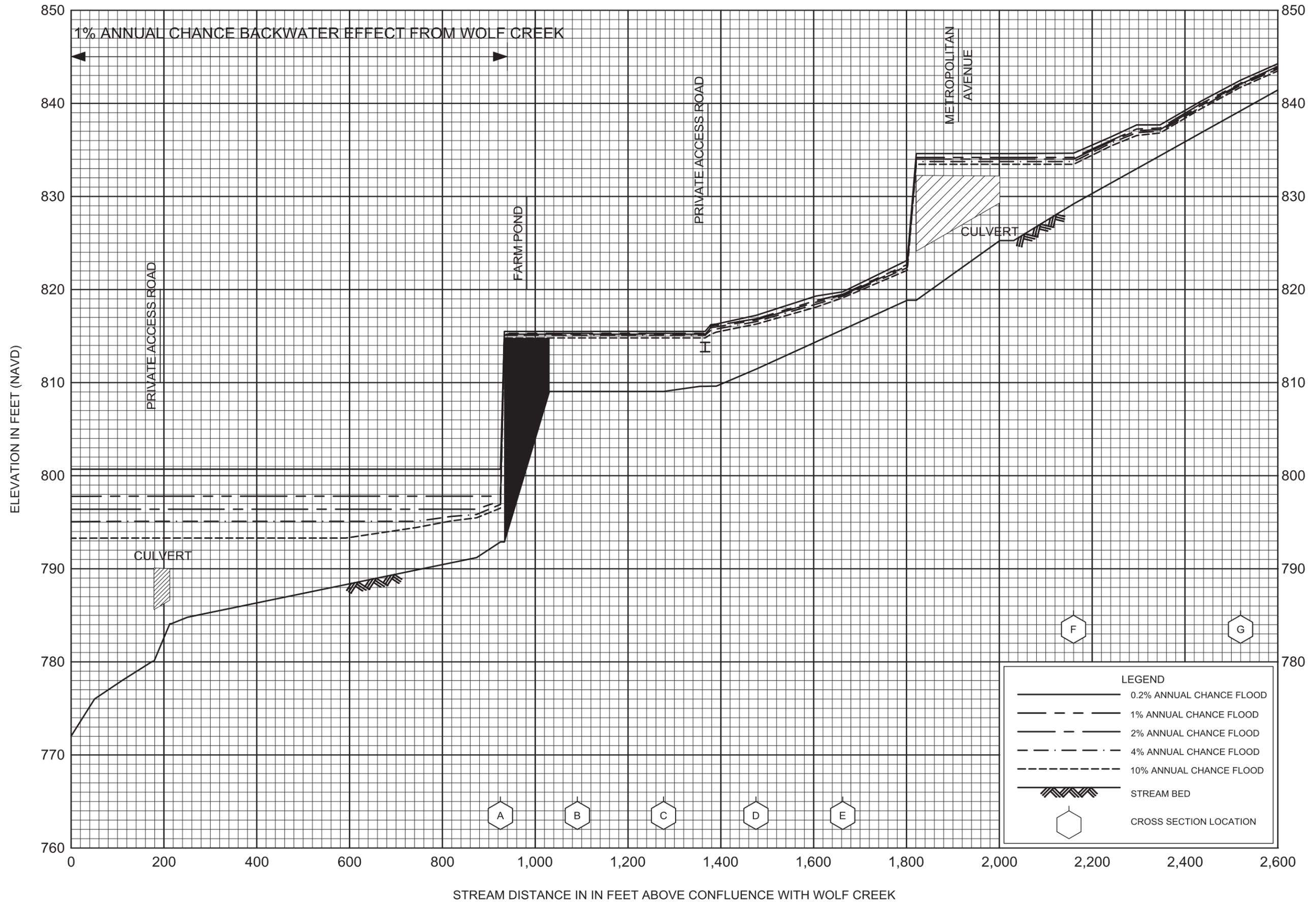


FLOOD PROFILES

WOLF CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS



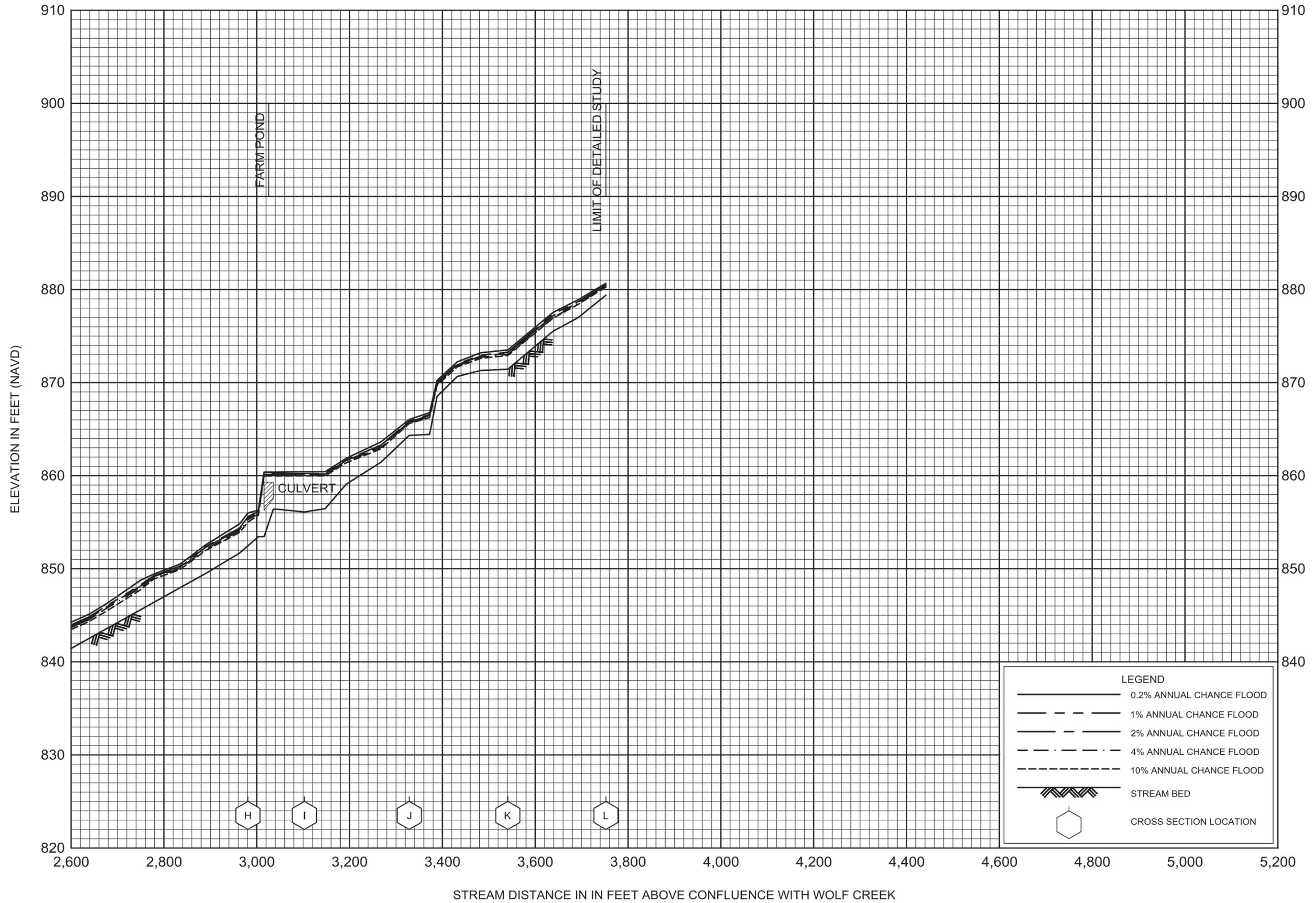
FLOOD PROFILES

WOLF CREEK TRIBUTARY 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS

AND INCORPORATED AREAS



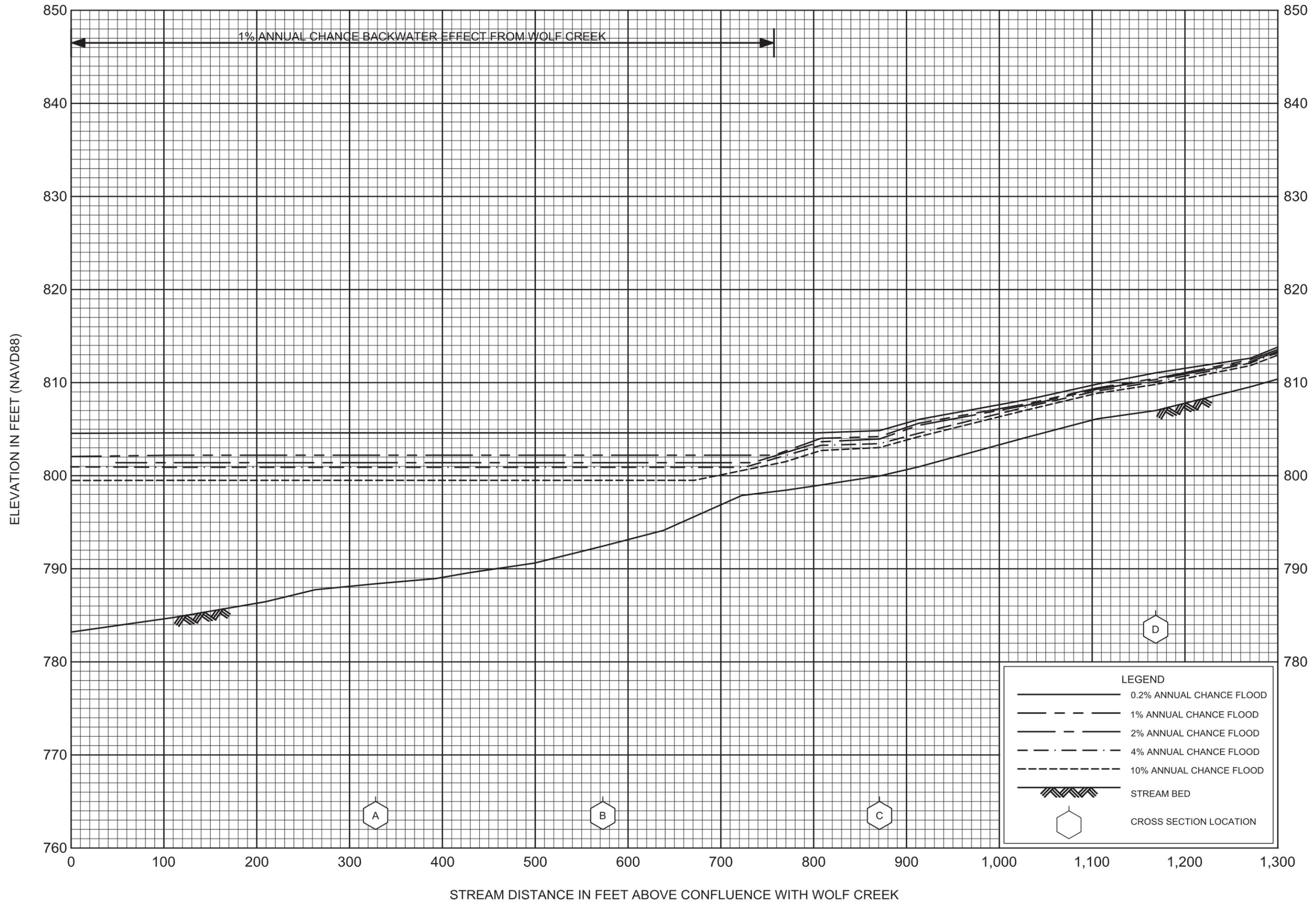
FLOOD PROFILES

WOLF CREEK TRIBUTARY 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS

AND INCORPORATED AREAS



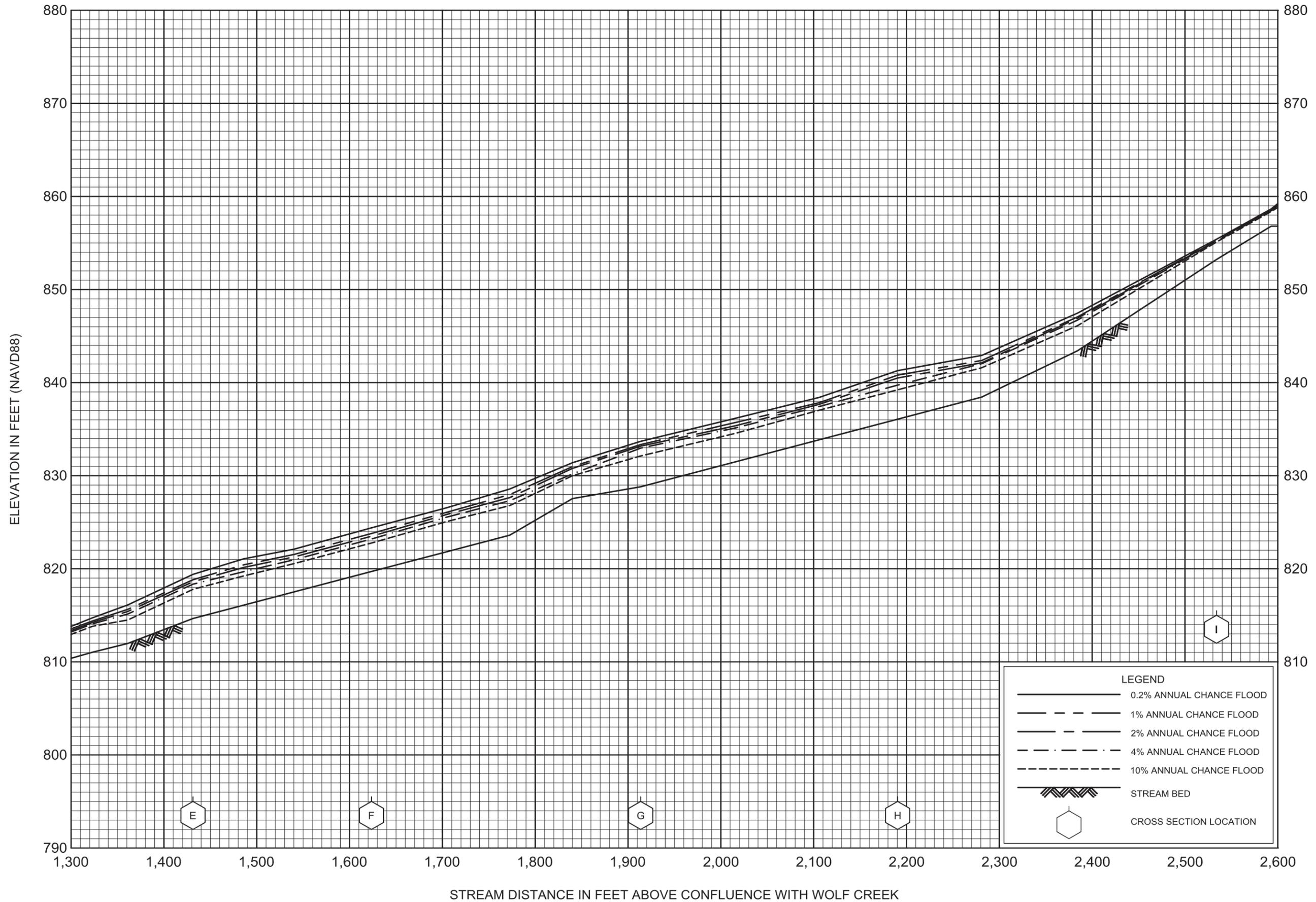
FLOOD PROFILES

WOLF CREEK TRIBUTARY 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS

AND INCORPORATED AREAS



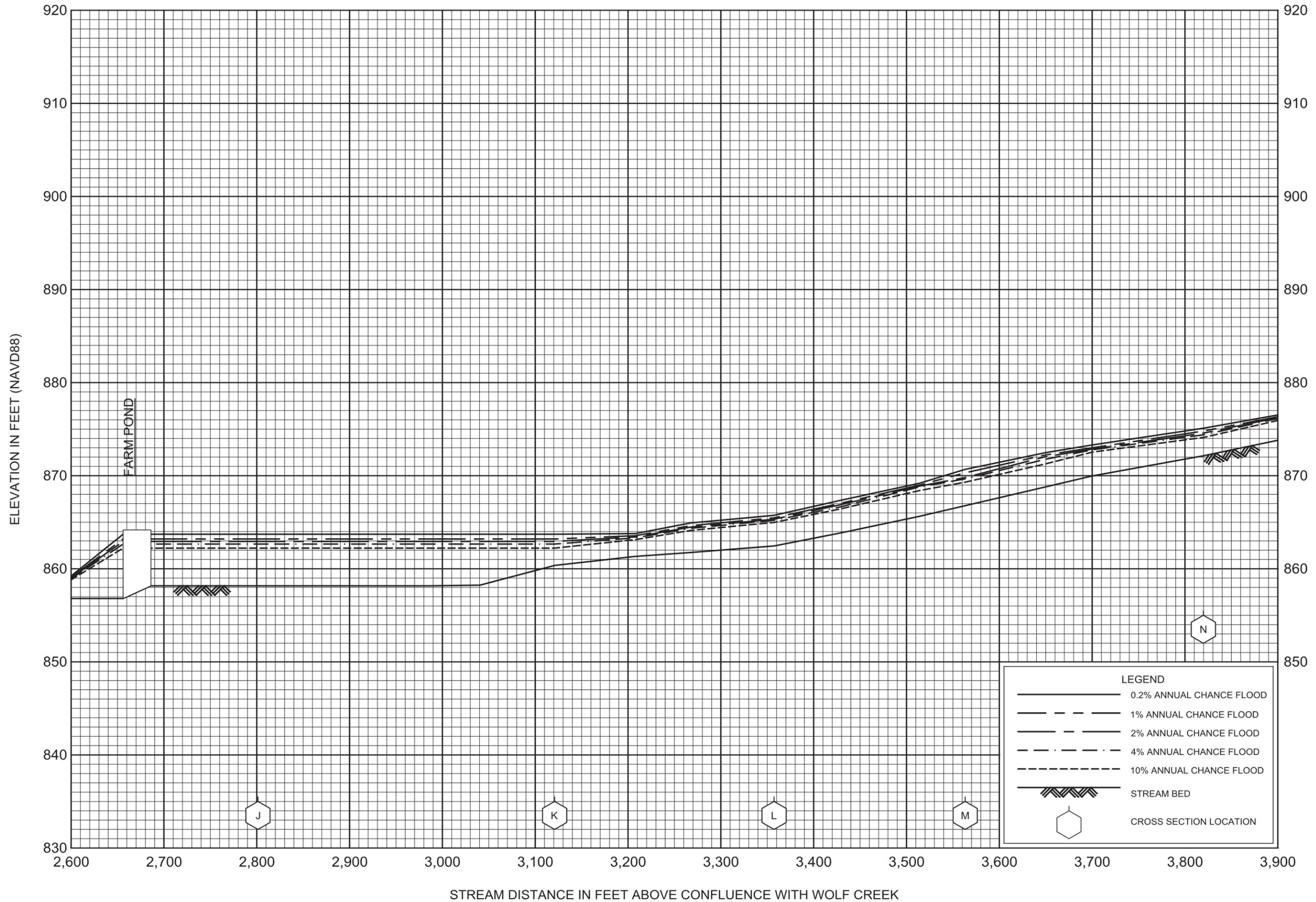
FLOOD PROFILES

WOLF CREEK TRIBUTARY 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS

AND INCORPORATED AREAS



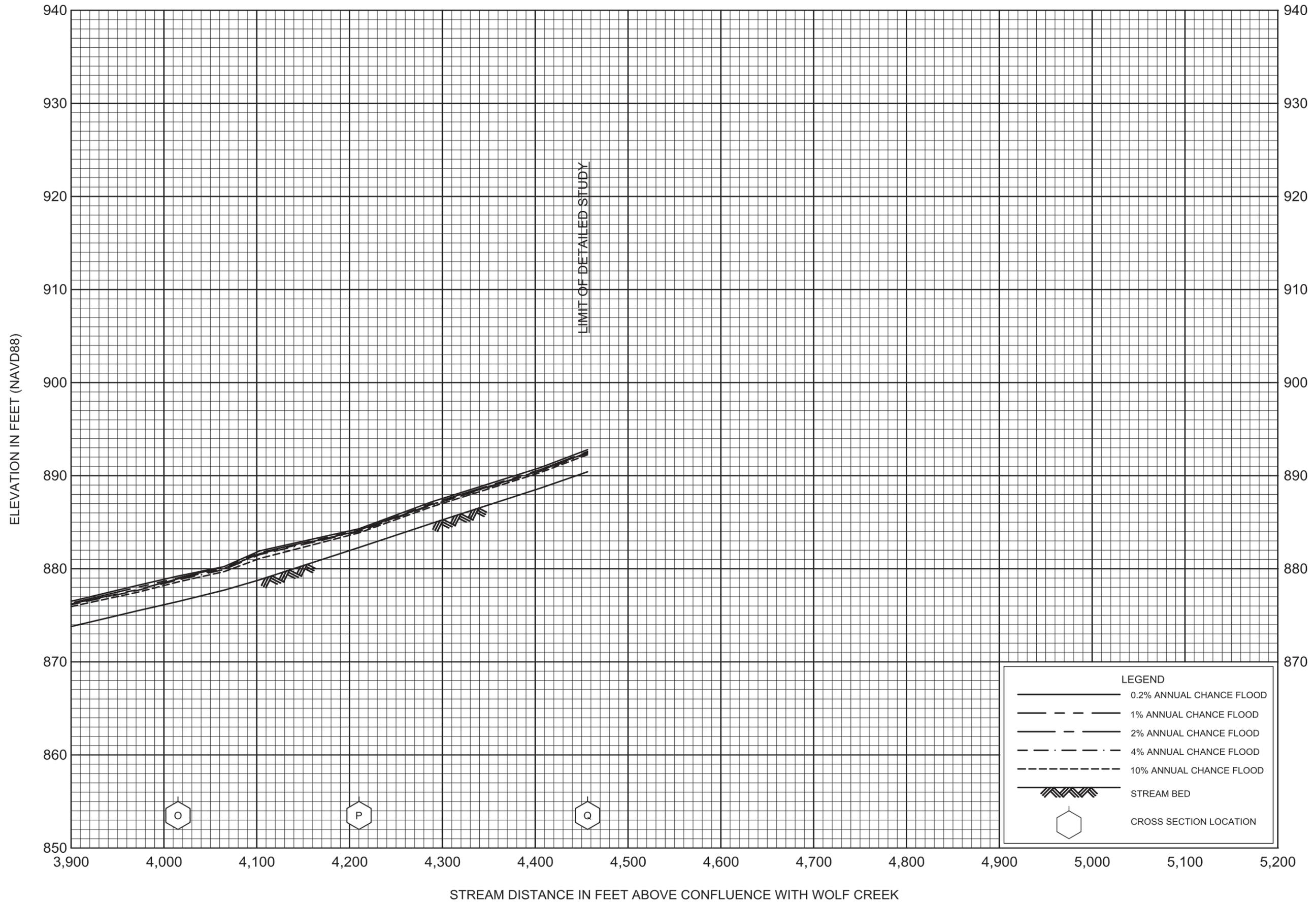
FLOOD PROFILES

WOLF CREEK TRIBUTARY 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS

AND INCORPORATED AREAS



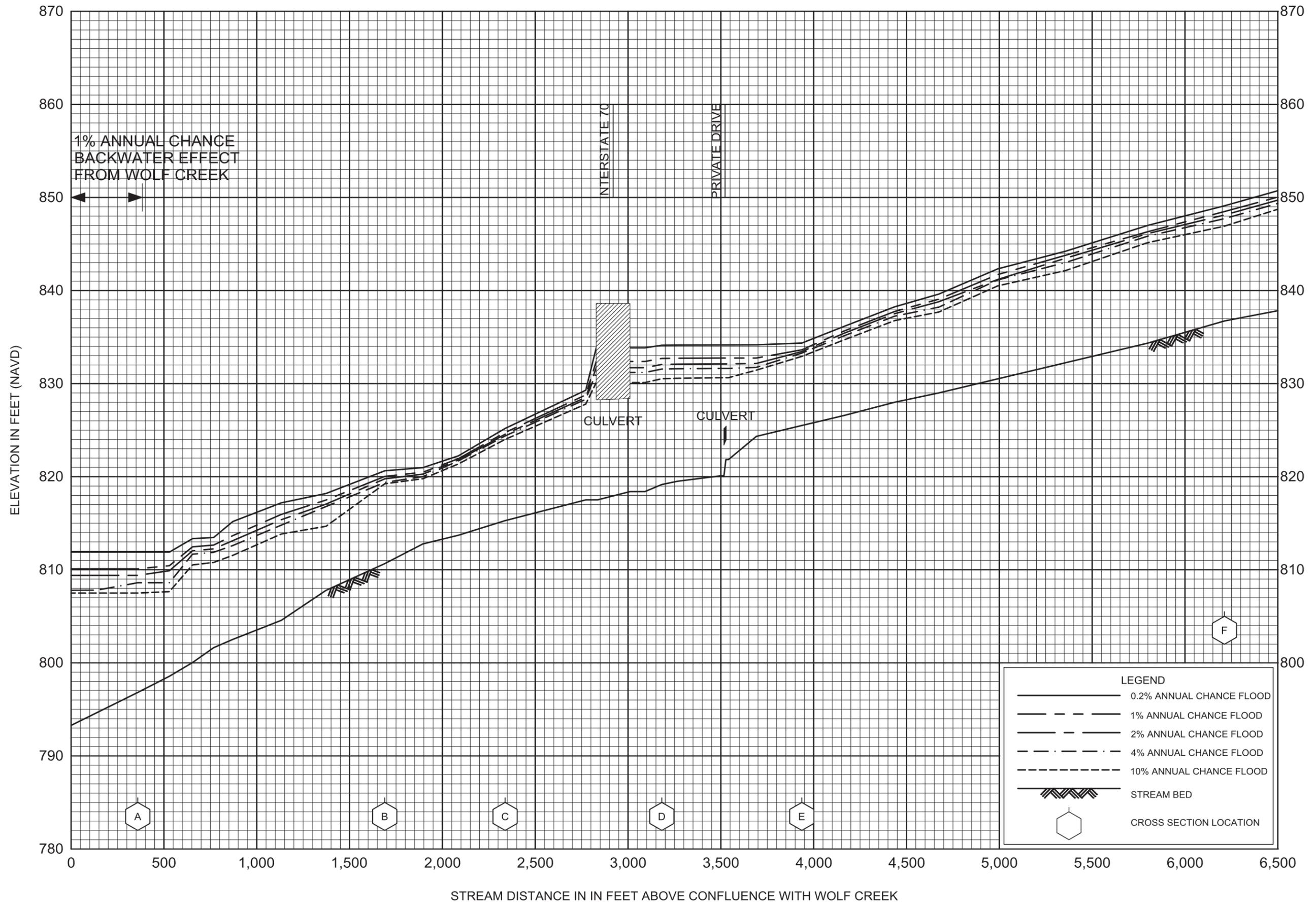
FLOOD PROFILES

WOLF CREEK TRIBUTARY 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS

AND INCORPORATED AREAS

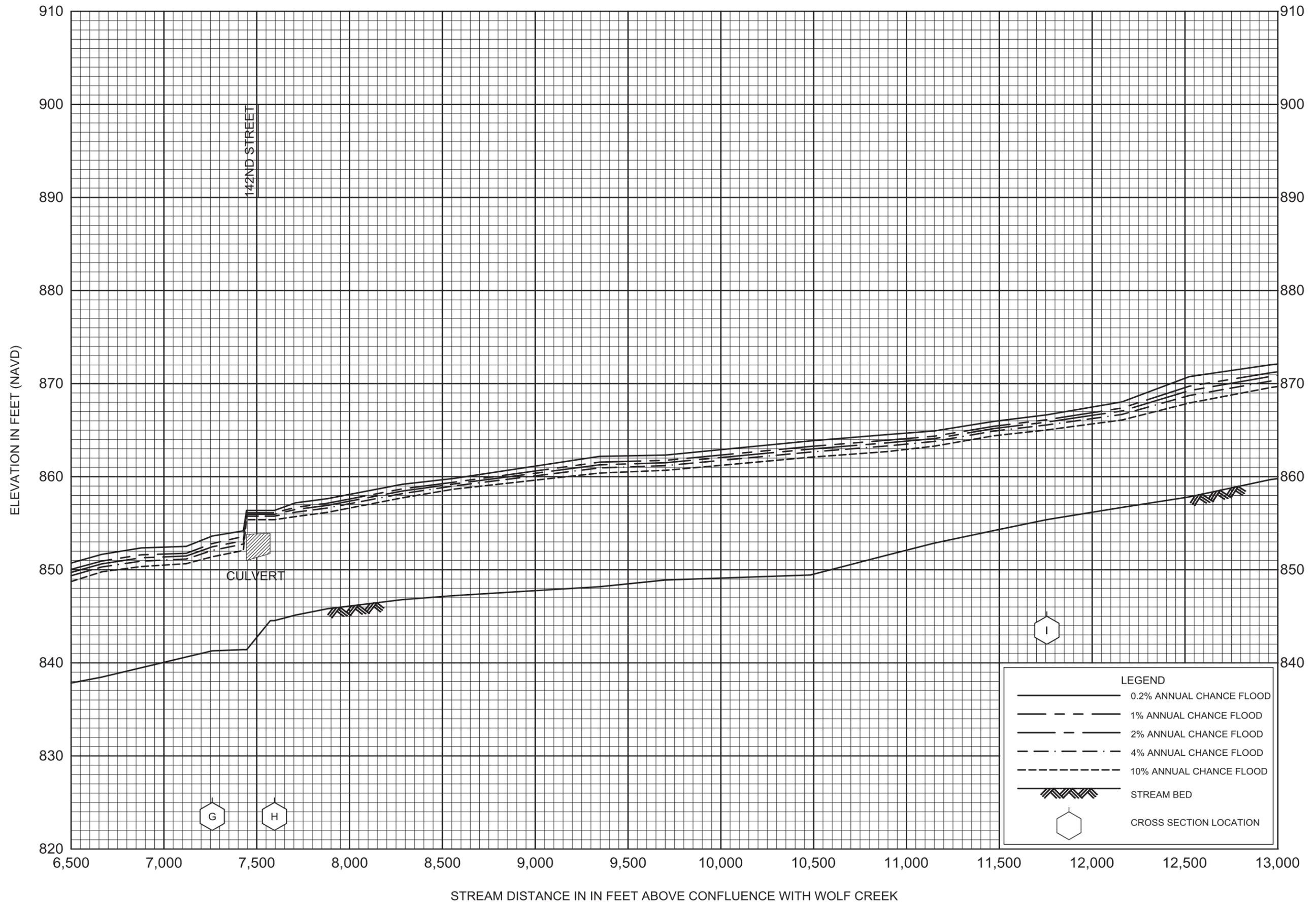


FLOOD PROFILES

WOLF CREEK TRIBUTARY 4

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

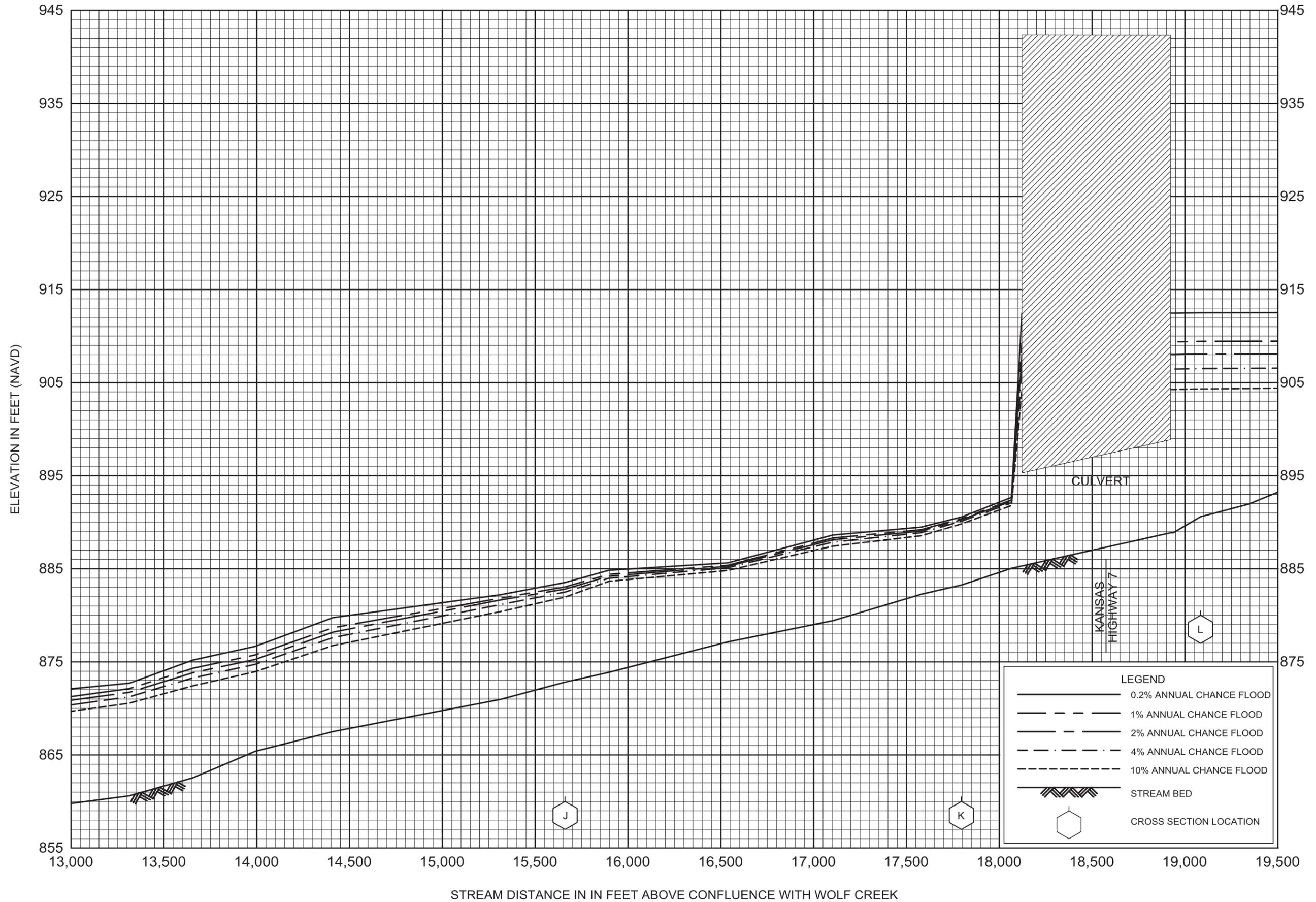


FLOOD PROFILES

WOLF CREEK TRIBUTARY 4

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS

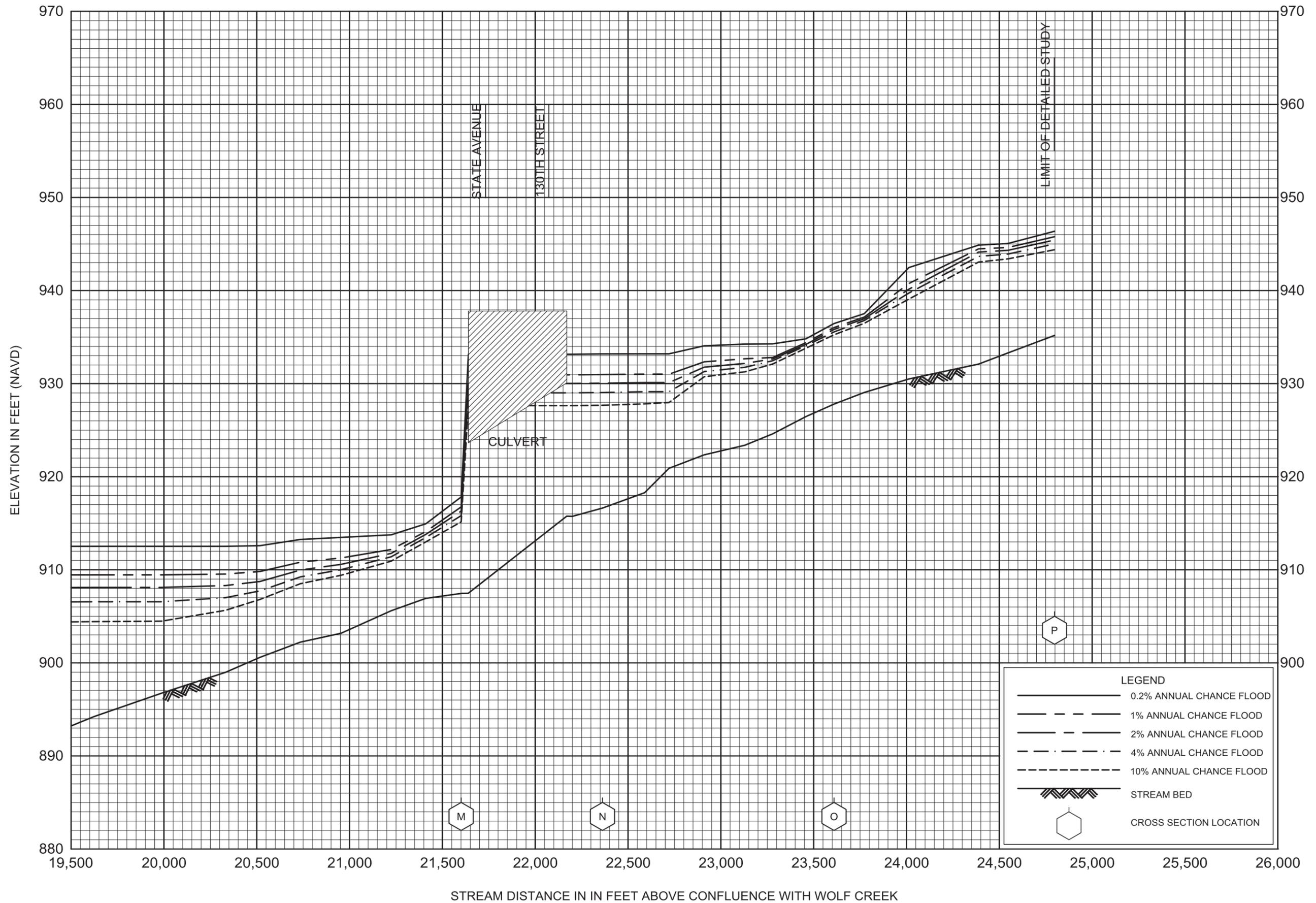


FLOOD PROFILES

WOLF CREEK TRIBUTARY 4

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS



FLOOD PROFILES

WOLF CREEK TRIBUTARY 4

FEDERAL EMERGENCY MANAGEMENT AGENCY

WYANDOTTE COUNTY, KS  
AND INCORPORATED AREAS