NOTICE OF MEETING AND AGENDA
PLANNING COMMISSION
JULY 28, 2026 AT 7:00 P.M.
City Council Chambers
110 South Main Street
Springville, Utah 84663

The agenda will be as follows:

Call to Order

- Approval of the Agenda
- Approval of Minutes: July 14, 2026

Consent Agenda – No Items

The Consent Agenda includes administrative actions where no additional discussion is needed. When approved, the recommendations in the staff reports become the action of the Commission. A call for objection or comment will be made on the consent agenda items. If there is any opposition or comment, the item will be removed from the consent agenda and put on the regular administrative session meeting agenda for discussion. Without objections or comments, the item(s) will pass without further consideration.

Administrative Session - No Items

Legislative Session – Public Hearing

1. Springville Public Works proposes an amendment to Springville Code Title 11, Chapter 6, and to formally adopt the new Flood Insurance Study (FIS) report and Flood Insurance Rate Maps (FIRMs) for Utah County and Incorporated Areas. The amendment was initiated by Jeff Anderson, Assistant Public Works Director.

   The proposed amendment would bring Springville code into compliance with the minimum requirements of the National Flood Insurance Program regulations in 44 CFR Part 60.3(d).

   This is a legislative policy decision about complying with the standards of the National Flood Insurance Program.

   The Planning Commission will make a recommendation to the City Council. The City Council will make the final decision at a later public meeting.

Adjournment

THIS AGENDA SUBJECT TO CHANGE WITH A MINIMUM OF 24-HOURS NOTICE

This meeting was noticed in compliance with Utah Code 52-4-202 on July 23, 2026. Agendas and minutes are accessible through the Springville City website at www.springville.org/agendas-minutes. Planning Commission meeting agendas are available through the Utah Public Meeting Notice website at www.utah.gov/pmn/index.html. Email subscriptions to Utah Public Meeting Notices are available through their website.

In compliance with the Americans with Disabilities Act, the City will make reasonable accommodations to ensure accessibility to this meeting. If you need special assistance to participate in this meeting, please contact the Community Development department at (801) 491-7861 at least three business days prior to the meeting.

MINUTES

Planning Commission
Regular Session
Tuesday, July 14, 2026

IN ATTENDANCE

Commissioners Present: Ralph Calder, Tyler Patching, Peter Pratt, Mariah Hurst and BJ Smith
Commissioners Excused: Brett Nelson, Hunter Huffman

City Staff: Josh Yost, Community Development Director
Heather Goins, Executive Assistant
City Council: Mindi Wright

CALL TO ORDER

Vice Chair Calder the meeting to order at 7:00 p.m.

APPROVAL OF THE AGENDA

Commissioner Hurst moved to approve the agenda as written. Commissioner Pratt seconded the motion. The vote to approve the agenda was unanimous.

APPROVAL OF THE MINUTES

June 23, 2026

Commissioner Smith moved to approve the June 23, 2026 meeting minutes. Commissioner Patching seconded the motion. The vote to approve the meeting minutes was unanimous.

CONSENT ITEM

1- *Scott Merry is seeking commercial site plan re-approval for buildings 4 and 5 of the expired Hobble Creek Industrial project located at 1294 N 1750 W and 1295 N 1650 W within the HC Highway Commercial Zone.*

With no objections or comments, the consent agenda item passed without further consideration.

ADMINISTRATIVE SESSION

No Items

LEGISLATIVE SESSION:

Springville Community Development seeks to amend Springville City Code Title 11 Chapter 4 Article 301 Land Use Matrix to amend the list of uses permitted in the North Gateway Area from 400 N to 1160 North Main Street.

Josh Yost, Community Development Director, presented. The Community Board previously evaluated several key gateway areas in Springville with significant development potential. They reviewed permitted uses in those zones and recommended restricting certain uses to prevent further suburban-type development in the North Gateway area. The intent is not to penalize existing businesses or property owners but to focus restrictions on new development on undeveloped sites.

Director Yost noted that Planner Wiese identified conflicting language in other areas of the city code related to nonconforming uses, which would create ambiguity for existing businesses and property owners. Staff requests continuance of this item to clean up these code sections concurrently.

Former Community Board member Hurst emphasized that the proposal resulted from extensive discussion over multiple meetings and was not developed hastily. She requested staff include links to the relevant Community Board meeting minutes so the public can review the proposal's history.

Director Yost reminded that staff reports summarize prior action, and agreed links to additional resources would be beneficial.

Commissioner Hurst moved to continue this item. Commissioner Pratt seconded the motion. The vote to continue the Legislative Session item was unanimous.

3) Springville Community Development seeks to amend Springville City Code Title 11, Chapter 5, to adopt the Wildland Urban Interface Overlay.

Josh Yost, Community Development Director, presented. He explained the state passed legislation two years ago requiring cities to adopt the WUI code published by the International Code Council, to maintain participation in the cooperative wildland firefighting program. Failure to adopt the code could result in the city being unable to receive reimbursement for expenses incurred fighting wildland-adjacent fires.

The city has already adopted the WUI code by reference into the building code. This overlay would impose additional fire-resistant construction requirements on new development within designated wildland adjacent areas. Requirements would vary based on a risk assessment of the proposed construction and site, factoring in both building materials and landscaping.

The current action establishes the overlay in the city code only. The specific map designates which properties fall within the overlay will be brought back to the Planning Commission at a future meeting. Based on mapping completed to date, the overlay would apply only to properties in the far foothill-adjacent reaches of the city.

Commissioners asked several clarifying questions. Director Yost confirmed the overlay is not retroactive and existing construction is not required to be retrofitted, applies only to new construction, and is not triggered by the sale or transfer of property.

Compliance is enforced during the building permit and plan review process. Ongoing landscaping compliance for properties immediately adjacent to wildlands is monitored through an inspection process administered by the county and city fire departments.
The overlay will be reflected on the zoning map, allowing property owners to check their zoning status. As with other overlay zones, where the WUI overlay conflicts with the underlying zone, the overlay controls; where the overlay is silent, the underlying code applies.

Vice Chair Calder opened the Public Hearing at 7:18 p.m. Seeing no speakers, Commissioner Hurst moved to close the Public Hearing. Commissioner Smith seconded. The public hearing was closed at 7:19 p.m.

Commissioner Hurst noted that most detailed questions would be better addressed when the map returns for review, and expressed comfort with adopting the overlay code at this time.

Commissioner Patching moved to recommend approval of Zone Text amendments to Springville City Code Title 11, Chapter 5, to adopt the Wildland Urban Interface Overlay. Commissioner Smith seconded the motion. The vote to approve the Legislative Session item was unanimous.

With nothing further to discuss, Commissioner Hurst moved to adjourn the meeting. Commissioner Pratt seconded the motion. Vice Chair Calder adjourned the meeting at 7:20 p.m.

STAFF REPORT

DATE: July 22, 2026

TO: Planning Commissioners

FROM: Jeffrey L. Anderson, Asst Public Works Director

SUBJECT: AMENDMENT OF TITLE 11, CHAPTER 6 – FLOOD DAMAGE PREVENTION ORDINANCE AND ADOPTION OF NEW FLOOD INSURANCE STUDY (FIS) AND FLOOD INSURANCE RATE MAPS (FIRMS) FOR UTAH COUNTY AND INCORPORATED AREAS.

Recommended Motion:
I move to adopt Ordinance No. _____, an ordinance amending Title 11, Chapter 6 of the Springville City Code (Flood Damage Prevention Ordinance) to meet the minimum requirements of the National Flood Insurance Program regulations in 44 CFR Part 60.3(d), and to formally adopt the new Flood Insurance Study (FIS) report and Flood Insurance Rate Maps (FIRMs) for Utah County and Incorporated Areas, effective June 23, 2026, as presented.

Executive Summary:
In 2018, FEMA commissioned a comprehensive update of the Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) report for Utah County and Incorporated Areas, including Springville City. The update primarily addresses floodplain conditions associated with Utah Lake and affects properties located west of Interstate 15 within Springville City limits.

FEMA issued a Letter of Final Determination (LFD) dated December 23, 2025, declaring that the flood hazard determinations for Springville are FINAL and that the updated FIS report and FIRMs became effective on June 23, 2026. As a condition of continued eligibility in the National Flood Insurance Program (NFIP), Springville City must formally adopt the updated FIS and FIRMs and adopt floodplain management regulations that meet or exceed the minimum standards of 44 CFR Part 60.3(d) no later than August 27, 2026.

City staff coordinated with McKenzie Ranney (Goodenough), CFM, State Floodplain Management Planner with the Utah Department of Public Safety, Division of Emergency Management, to conduct a gap analysis of Springville's current Flood Damage Prevention Ordinance against the updated federal standards. Three sections of Title 11, Chapter 6 required amendment or addition. The proposed ordinance reflects those targeted changes and, if adopted, will bring Springville into full compliance well ahead of the August 27, 2026 deadline.

Focus of Action:

The City Council is asked to take the following actions:

- Formally adopt the updated Flood Insurance Study (FIS) report and Flood Insurance Rate Maps (FIRMs) for Utah County and Incorporated Areas, dated June 23, 2026 (FIRM panels 534, 542, and 545 for Springville City).
- Adopt Ordinance No. _____, which amends three provisions within Title 11, Chapter 6 of the Springville City Code (Flood Damage Prevention Ordinance) to meet or exceed the minimum standards of 44 CFR Part 60.3(d) of the NFIP regulations.
- Authorize the Mayor to execute the Certification attached to the ordinance as Exhibit B, affirming the immediate need for the ordinance to preserve public peace, health, and safety.

Background:

FEMA administers the NFIP under the authority of the National Flood Insurance Act of 1968 (P.L. 90-448, as amended). The NFIP is a voluntary program that provides federally-backed flood insurance to property owners, renters, and businesses in participating communities. In exchange for that coverage, participating communities are required to adopt and enforce floodplain management ordinances that meet or exceed the minimum federal standards set forth in 44 CFR Part 60.

Springville City has long participated in the NFIP. The City's floodplain management program covers Hobble Creek, Spring Creek, Dry Creek, portions of Utah Lake, and various other waterways within the municipal boundaries. The Floodplain Administrator is charged with administering the City's Flood Damage Prevention Ordinance (Title 11, Chapter 6) and ensuring ongoing compliance with NFIP requirements.

FEMA initiated the Utah County remapping project in 2018. The updated study incorporated new topographic data, hydrologic and hydraulic analyses, and revised flood hazard delineations, with a focus on the floodplain associated with Utah Lake. The geographic scope of the changes as they relate to Springville City is generally limited to properties situated west of Interstate 15.

On December 23, 2025, FEMA issued a Letter of Final Determination (LFD) to Springville City. The LFD:

- Declared the flood hazard determinations for Springville City to be FINAL.
- Established an effective date of June 23, 2026 for the updated FIS report and associated FIRMs.
- Required Springville City, as a condition of continued NFIP eligibility, to adopt the updated FIS and FIRMs and to adopt or demonstrate evidence of adoption of floodplain management regulations meeting or exceeding 44 CFR Part 60.3(d) no later than August 27, 2026.

City staff worked closely with McKenzie Ranney (Goodenough), CFM, State Floodplain Management Planner at the Utah Department of Public Safety, Division of Emergency Management, to systematically compare Springville's existing Flood Damage Prevention Ordinance against the updated requirements of 44 CFR Part 60.3(d). The gap analysis identified three sections requiring amendment or addition. No other provisions of the existing ordinance were found to be deficient.

Discussion:

Section 1 – Amendment to Section 11-6-605: Basis for Establishing the Areas of Special Flood Hazard

This section is amended to update the date of the controlling Flood Insurance Study from June 19, 2020 to June 23, 2026. This change ensures the ordinance formally references the current, FEMA-approved FIS report. All FIS documents and accompanying FIRMs continue to be automatically adopted by reference and made part of the ordinance.

Section 2 – Amendment to Section 11-6-610(4): Requirement to Submit New Technical Data

This section is amended to add a critical standard required under 44 CFR Part 60.3(d): when a regulatory floodway has not been designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30, AE, and AH on the FIRM unless it can be demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than 1.00 foot. This "no-rise" standard is a foundational requirement of the NFIP and was the primary gap identified during the state-coordinated review.

Section 3 – Addition of Section 11-6-627: Severability

A severability clause is added to the ordinance. This standard provision clarifies that if any section, provision, or portion of the ordinance is adjudged unconstitutional or invalid by a court, the remainder of the ordinance shall not be affected. This clause strengthens the ordinance's legal durability and is consistent with best practices in municipal code drafting.

Adoption of Updated FIS and FIRMs

In addition to the three code amendments, the ordinance formally adopts the new FIS report and the associated FIRM panels (534, 542, and 545) for Springville City, effective June 23, 2026. The FIS and FIRMs are incorporated as Exhibit A to the ordinance. The Mayor is also authorized to execute the Certification (Exhibit B), which declares an emergency finding to ensure the ordinance takes immediate effect, consistent with the FEMA compliance deadline.

Compliance Timeline:

- **December 23, 2025 -** FEMA issues Letter of Final Determination (LFD) to Springville City
- **June 23, 2026** - Updated FIS report and FIRMs become effective
- **July 7, 2026** - City Council adoption of ordinance amendments and FIS/FIRM
- **August 27, 2026 -** FEMA-mandated deadline for ordinance compliance

Alternatives:
The Council may consider the following alternatives:

- Adopt the ordinance as presented. This is the recommended action and ensures full compliance with NFIP requirements by August 27, 2026. **(Staff Recommendation)**

- Decline to adopt. Failure to adopt the updated FIS/FIRMs and compliant ordinance amendments by August 27, 2026 would place Springville City's participation in the NFIP in jeopardy. Loss of NFIP eligibility would mean that property owners within Springville would lose access to federally-backed flood insurance, which could have significant consequences for property transactions requiring federally-backed mortgage financing in Special Flood Hazard Areas. This alternative is not recommended.

Fiscal Impact:
There is no direct fiscal impact associated with adopting the ordinance amendments or formally adopting the updated FIS and FIRMs. The gap analysis and ordinance review were completed through coordination with the Utah Division of Emergency Management at no cost to the City.

Continued participation in the NFIP is fiscally beneficial to Springville City and its residents. NFIP eligibility allows property owners with federally-backed mortgages in Special Flood Hazard Areas to obtain flood insurance. Loss of NFIP eligibility could negatively affect property values and real estate transactions in affected areas of the City, particularly properties west of I-15 where the updated FIRM delineations apply.

Potential future fiscal considerations related to the updated FIRM delineations may arise as property owners in newly mapped areas seek guidance on permitting, development standards, and potential flood insurance requirements. These activities fall within the existing scope of the Floodplain Administrator's duties and are not expected to require additional appropriations at this time.

Respectfully submitted,

Jeffrey L. Anderson
Jeff L. Anderson, PE, CFM
Assistant Public Works Director

EXHIBIT A

PROPOSED ORDINANCE
Ordinance No. _____

ORDINANCE NO. _____

AN ORDINANCE REVISING TITLE 11 CHAPTER 6 - FLOOD DAMAGE PREVENTION ORDINANCE TO MEET THE MINIMUM REQUIREMENTS OF THE NATIONAL FLOOD INSURANCE PROGRAM REGULATIONS, IN 44 CFR PART 60.3(d) and ADOPT THE NEW FIS AND FIRM FOR UTAH COUNTY AND INCORPORATED AREAS.

WHEREAS, Springville City has Hobble Creek, Spring Creek, Dry Creek and portions of Utah Lake, along with other waterways, within its boundaries; and

WHEREAS, given the many waterways within Springville, protecting against flooding hazards has always been a priority for the City; and

WHEREAS, Section 10-9a-505 of the Utah Code allows a municipality to "enact an ordinance regulating land use and development in a flood plain . . . to protect life and prevent" substantial loss or damage to property; and

WHEREAS, the Federal Emergency Management Administration ("FEMA"), under the U.S. Department of Homeland Security, manages the National Flood Insurance Program (NFIP), which is a voluntary program that provides flood insurance, helps improve floodplain management and develops maps of flood hazard zones; and

WHEREAS, Springville has elected to join the program, participate, and enforce this Flood Damage Prevention Ordinance and the requirements and regulations of the NFIP and the National Flood Insurance Act of
1968 (P.L. 90-488, as amended); and

WHEREAS, the NFIP provides that areas of the City having a special flood hazard be identified by FEMA, and that floodplain management measures be applied in such flood hazard areas; and

WHEREAS, FEMA has commissioned an update of the Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS) report for Utah County and Incorporated Areas; and

WHEREAS, FEMA recently sent Springville City a Letter of Final Determination (LFD), dated December 23, 2025 stating that the flood hazard determinations for our community are considered FINAL and the FIS report and FIRM will become effective on June 23, 2026; and

WHEREAS, Springville City, as a condition of eligibility in the NFIP, must adopt the current effective FIS report and FIRM and adopt or show evidence of adoption of floodplain management regulations that meet or exceed the minimum standards of 44 CFR Part 60.3(d) of the NFIP regulations by August 27, 2026; and

WHEREAS, the City Council adopts this update to the Flood Damage Prevention Ordinance to promote and protect the public health, safety and general welfare of the City and to minimize public and private losses due to flood conditions in specific areas of Springville City.

NOW, THEREFORE, BE IT ORDAINED by the City Council of Springville, Utah:

SECTION 1: ADOPTION: SECTION AMENDED. Section 11-6-605 of the Springville City Code is hereby amended and adopted to read and provide as follows:

11-6-605 Basis for Establishing the Areas of Special Flood Hazard.

The areas of special flood hazard are those areas identified by FEMA in a scientific and engineering report entitled, "The Flood Insurance Study for Utah County, Utah and Incorporated Areas," dated ~~June 19, 2020~~ June 23, 2026, and on the accompanying FIRMs, and any revisions thereto. All of these described documents are hereby automatically adopted by reference and declared to be a part of this ordinance.

SECTION 2: ADOPTION: SECTION AMENDED. Section 11-6-610 of the Springville City Code is hereby amended and adopted to read and provide as follows:

11-6-610 Requirement to Submit New Technical Data.

(1) The property owner or developer shall notify FEMA by submittal of a LOMR within six months of project completion when an applicant had obtained a CLOMR from FEMA or when development altered a watercourse, modified floodplain boundaries, or modified BFE.

(2) The property owner or developer shall be responsible for preparing technical data to support the CLOMR or LOMR application and paying any processing or application fees to FEMA. The property owner or developer is responsible for submitting the CLOMR and LOMR to FEMA and shall provide all necessary data to FEMA if requested during the review process to ensure the CLOMR or LOMR is issued.

(3) The Floodplain Administrator shall be under no obligation to sign the Community Acknowledgement Form, which is part of the CLOMR/LOMR application, until the applicant demonstrates that the project will or has met the requirements of this ordinance and all applicable state federal, and local laws.

(4) When a regulatory floodway has not been designated, no new construction, substantial improvements, or other development (including fill) shall be permitted within Zones A1-30, AE, and AH on the FIRM, unless it is demonstrated that the cumulative effect of the proposed development, when combined with all other existing and anticipated development, will not increase the water surface elevation of the base flood more than 1.00* feet.

SECTION 3. SECTION ADOPTED: Section 11-6-627 of the Springville City Code is hereby adopted to read and provide as follows:

11–6-627 Severability.

If any section, provision, or portion of this ordinance is adjudged unconstitutional or invalid by a court, the remainder of the ordinance shall not be affected.

SECTION 4. FIS and FIRM ADOPTED: The scientific and engineering report entitled, "The Flood Insurance Study for Utah County, Utah and Incorporated Areas," and the associated FIRMs (panels 534, 542 and 545) for Springville City dated June 23, 2026, is adopted. The FIS and FIRMs are attached as Exhibit A.

SECTION 5. CERTIFICATION: The Mayor is authorized to execute the Certification attached to this Ordinance as Exhibit B.

SECTION 6. SEVERABILITY: If any section, provision, or portion of this ordinance is adjudged unconstitutional or invalid by a court, the remainder of the ordinance shall not be affected.

SECTION 7. EFFECTIVE DATE. This Ordinance shall take effect upon first publication.

PASSED, ADOPTED AND ORDERED POSTED by the Council of Springville City, Utah this 7th day of July, 2026.

_____
MAYOR Matt Packard

ATTEST:

_____
KIM CRANE, CITY RECORDER

Exhibit A

(CERTIFICATION)

CERTIFICATION

It is hereby found and declared by Springville City that: severe flooding has occurred in the past within its jurisdiction and will certainly occur within the future; that flooding is likely to result in infliction of serious personal injury or death, and is likely to result in substantial injury or destruction of property within its jurisdiction; in order to effectively comply with minimum standards for coverage under the NFIP; and in order to effectively remedy the situation described herein, it is necessary that this ordinance become effective immediately.

Therefore, an emergency is hereby declared to exist, and this ordinance, being necessary for the immediate preservation of the public peace, health and safety, shall be in full force and effect from and after its passage and approval.

APPROVED: _____
Mayor Matt Packard

PASSED: July 07, 2026

I, the undersigned, Kim Crane, do hereby certify that the above is a true and correct copy of an ordinance duly adopted by the Springville City Council. at a regular meeting duly convened on July 7, 2026.

_____
Kim Crane, Springville City Recorder
(SEAL)

EFFECTIVE: July 07, 2026

Attest:

_____
Kim Crane, City Recorder

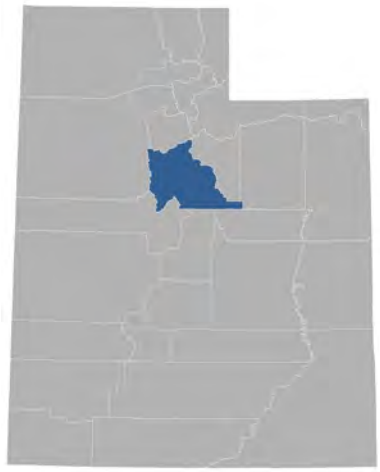
Exhibit B

(Springville City FIRM)

FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 3



UTAH COUNTY, UTAH

AND INCORPORATED AREAS

COMMUNITY NAME	NUMBER	COMMUNITY NAME	NUMBER
ALPINE, CITY OF	490228	MAPLETON, CITY OF	490156
AMERICAN FORK, CITY OF	490152	OREM, CITY OF	490216
BLUFFDALE, CITY OF	490247	PAYSON, CITY OF	490157
CEDAR FORT, TOWN OF*	490153	PLEASANT GROVE CITY, CITY OF*	490235
CEDAR HILLS, CITY OF	490204	PROVO, CITY OF	490159
DRAPER, CITY OF	490244	SALEM, CITY OF	490160
EAGLE MOUNTAIN, CITY OF*	490258	SANTAQUIN, CITY OF*	490227
ELK RIDGE, CITY OF*	490259	SARATOGA SPRINGS, CITY OF	490250
FAIRFIELD, TOWN OF*	490260	SPANISH FORK, CITY OF	490241
GENOLA, TOWN OF	490154	SPRINGVILLE, CITY OF	490163
GOSHEN, TOWN OF*	490155	UTAH COUNTY, UNINCORPORATED AREAS	495517
HIGHLAND, CITY OF	490254	VINEYARD, CITY OF	490261
LEHI, CITY OF	490209	WOODLAND HILLS, CITY OF*	490262
LINDON, CITY OF	490210		

*No Special Flood Hazard Areas Identified

REVISED:

June 23, 2026

FLOOD INSURANCE STUDY NUMBER
49049CV001B
Version Number 2.8.5.6

FEMA

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Volume 3

Exhibits

Flood Profiles	Panel
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Soldier Creek	125P
Spanish Fork River	126-129P
Thistle Creek	130P
Wastewater Ditch Diversion	131P
West Fork Fort Creek	132P

Published Separately

Flood Insurance Rate Map (FIRM)

FLOOD INSURANCE STUDY REPORT
UTAH COUNTY, UTAH

SECTION 1.0 – INTRODUCTION

1.1 The National Flood Insurance Program

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

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

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

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

Participation in the NFIP is based on an agreement between local communities and the Federal Government. If a community adopts and enforces floodplain management regulations to reduce future flood risks to new construction and substantially improved structures in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses. The community's floodplain management regulations must meet or exceed criteria established in accordance with Title 44 Code of Federal Regulations (CFR) Part 60, *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 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 Utah County, Utah.

The jurisdictions that are included in this project area, along with the Community Identification Number (CID) for each community and the United States Geological Survey (USGS) 8-digit Hydrologic Unit Code (HUC-8) sub-basins affecting each, are shown in Table 1. The 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
Alpine, City of	490228	16020201	49049C0156F, 49049C0157F, 49049C0158F, 49049C0159F, 49049C0167F, 49049C0200F[2]	
American Fork, City of	490152	16020201	49049C0164F, 49049C0166F, 49049C0167F, 49049C0168F, 49049C0169F[2], 49049C0302G, 49049C0306G, 49049C0307G[2], 49049C0308G	
Bluffdale, City of	490247	16020201, 16020204	49049C0135F, 49049C0145F, 49049C0150F[2]	Salt Lake County, UT FIS Report, 11/19/2021
Cedar Fort, Town of[1]	490153	16020201	49049C0100F[2], 49049C0125F[2], 49049C0250F[2], 49049C0275F[2]	
Cedar Hills, City of	490204	16020201	49049C0167F, 49049C0169F[2], 49049C0200F[2]	
Draper, City of	490244	16020201, 16020204	49049C0135F, 49049C0155F[2], 49049C0156F, 49049C0158F	Salt Lake County, UT FIS Report, 11/19/2021
Eagle Mountain, City of[1]	490258	16020201	49049C0125F[2], 49049C0150F[2], 49049C0250F[2], 49049C0275F[2], 49049C0300F[2], 49049C0475F[2], 49049C0480F[2]	
Elk Ridge, City of[1]	490259	16020202	49049C0764F[2], 49049C0770F[2], 49049C1000F[2]	

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Fairfield, Town of[1]	490260	16020201	49049C0250F[2], 49049C0275F[2], 49049C0450F[2], 49049C0475F[2]	
Genola, Town of	490154	16020201, 16020202	49049C0720G, 49049C0740G, 49049C0743F[2], 49049C0975F[2]	
Goshen, Town of[1]	490155	16020201	49049C0935G[2]	
Highland, City of	490254	16020201	49049C0155F[2], 49049C0158F, 49049C0159F, 49049C0162F, 49049C0164F, 49049C0166F, 49049C0167F, 49049C0168F, 49049C0200F[2]	
Lehi, City of	490209	16020201, 16020204	49049C0135F, 49049C0145F, 49049C0150F[2], 49049C0155F[2], 49049C0161F, 49049C0162F, 49049C0163F, 49049C0164F, 49049C0281G, 49049C0282G, 49049C0301G, 49049C0302G	
Lindon, City of	490210	16020201, 16020203	49049C0307G[2], 49049C0309G, 49049C0330F, 49049C0333G, 49049C0335F[2]	
Mapleton, City of	490156	16020202	49049C0563F[2], 49049C0564F, 49049C0568F, 49049C0800F[2]	

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Orem, City of	490216	16020201, 16020203	49049C0317G, 49049C0319G, 49049C0330F, 49049C0333G, 49049C0334F, 49049C0336G, 49049C0338G, 49049C0340G, 49049C0341G, 49049C0342F, 49049C0343G	
Payson, City of	490157	16020202	49049C0740G, 49049C0741F[2], 49049C0742F, 49049C0743F[2], 49049C0744F, 49049C0755F, 49049C0761F, 49049C0762F[2], 49049C0763F, 49049C0764F[2], 49049C0770F[2], 49049C1000F[2]	
Pleasant Grove City, City of[1]	490235	16020201	49049C0167F, 49049C0169F[2], 49049C0200F[2], 49049C0307G[2], 49049C0330F	

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Provo, City of	490159	16020201, 16020202, 16020203	49049C0334F, 49049C0338G, 49049C0340G, 49049C0341G, 49049C0342F, 49049C0343G, 49049C0344F, 49049C0355F, 49049C0375F[2], 49049C0526G, 49049C0527G, 49049C0528G, 49049C0529G, 49049C0531G, 49049C0532F, 49049C0533G, 49049C0534G, 49049C0553F[2], 49049C0555F[2], 49049C0560F[2], 49049C0561F	
Salem, City of	490160	16020202	49049C0755F, 49049C0758F, 49049C0759F, 49049C0762F[2], 49049C0766F, 49049C0770F[2], 49049C0778F, 49049C0800F[2]	
Santaquin, City of[1]	490227	16020201, 16020202	49049C0744F, 49049C0975F[2], 49049C1000F[2]	
Saratoga Springs, City of	490250	16020201	49049C0145F, 49049C0150F[2], 49049C0281G, 49049C0282G, 49049C0283G, 49049C0284G, 49049C0292G, 49049C0295G[2], 49049C0300F[2], 49049C0301G, 49049C0311G 49049C0313G	

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Spanish Fork, City of	490241	16020202	49049C0545G, 49049C0563F[2], 49049C0755F, 49049C0756F, 49049C0757F, 49049C0758F, 49049C0759F, 49049C0778F, 49049C0800F[2]	
Springville, City of	490163	16020201, 16020202	49049C0534G, 49049C0542G, 49049C0545G, 49049C0553F[2], 49049C0561F, 49049C0562F, 49049C0563F[2], 49049C0564F, 49049C0566F, 49049C0568F	
Utah County, Unincorporated Areas	495517	14060004, 14060007, 16020201, 16020202, 16020203, 16020204, 16020304 16030005	49049C0025F[2], 49049C0050F[2], 49049C0075F[2], 49049C0100F[2], 49049C0125F[2], 49049C0135F, 49049C0145F, 49049C0150F[2], 49049C0155F[2], 49049C0156F, 49049C0157F, 49049C0158F, 49049C0159F, 49049C0161F, 49049C0162F, 49049C0163F, 49049C0164F, 49049C0166F, 49049C0167F, 49049C0168F, 49049C0169F[2], 49049C0200F[2], 49049C0225F[2], 49049C0250F[2], 49049C0275F[2], 49049C0281G,	

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Utah County, Unincorporated Areas (cont.)	495517	14060004, 14060007, 16020201, 16020202, 16020203, 16020204, 16020304 16030005	49049C0282G, 49049C0283G 49049C0284G, 49049C0292G, 49049C0295G[2], 49049C0300F[2], 49049C0301G, 49049C0302G, 49049C0305G, 49049C0306G, 49049C0307G[2], 49049C0308G, 49049C0309G, 49049C0311G, 49049C0313G, 49049C0315G, 49049C0317G, 49049C0319G, 49049C0320G[2], 49049C0330F, 49049C0333G, 49049C0334F, 49049C0335F[2], 49049C0338G, 49049C0340G, 49049C0341G, 49049C0342F, 49049C0343G, 49049C0344F, 49049C0355F, 49049C0360F, 49049C0375F[2], 49049C0400F[2], 49049C0425F[2], 49049C0450F[2], 49049C0475F[2], 49049C0480F[2], 49049C0485G, 49049C0490G, 49049C0495G, 49049C0505G, 49049C0510G, 49049C0515G, 49049C0520G, 49049C0526G,	

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Utah County, Unincorporated Areas (cont.)	495517	14060004, 14060007, 16020201, 16020202, 16020203, 16020204, 16020304 16030005	49049C0527G, 49049C0528G, 49049C0529G, 49049C0533G, 49049C0534G, 49049C0540G, 49049C0542G, 49049C0545G, 49049C0553F[2], 49049C0555F[2], 49049C0560F[2], 49049C0561F, 49049C0562F, 49049C0563F[2], 49049C0564F, 49049C0566F, 49049C0568F, 49049C0570F, 49049C0580F, 49049C0590F, 49049C0600F[2], 49049C0625F[2], 49049C0650F[2], 49049C0675F[2], 49049C0700F[2], 49049C0705G, 49049C0710G, 49049C0715F[2], 49049C0720G, 49049C0730G, 49049C0735G, 49049C0740G, 49049C0741F[2], 49049C0742F, 49049C0743F[2], 49049C0744F, 49049C0755F, 49049C0756F, 49049C0757F, 49049C0758F, 49049C0759F, 49049C0761F, 49049C0762F[2], 49049C0763F, 49049C0764F[2],	

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Utah County, Unincorporated Areas (cont.)	495517	14060004, 14060007, 16020201, 16020202, 16020203, 16020204, 16020304 16030005	49049C0766F, 49049C0770F[2], 49049C0778F, 49049C0800F[2], 49049C0825F[2], 49049C0850F[2], 49049C0875F[2], 49049C0900F[2], 49049C0925F[2], 49049C0935G[2], 49049C0950F[2], 49049C0975F[2], 49049C1000F[2], 49049C1007F, 49049C1025F[2], 49049C1026F, 49049C1050F[2], 49049C1075F[2], 49049C1100F[2], 49049C1125F[2], 49049C1150F[2], 49049C1175F[2], 49049C1200F[2], 49049C1225F[2], 49049C1250F[2], 49049C1275F[2], 49049C1300F[2], 49049C1325F[2], 49049C1350F[2], 49049C1375F[2], 49049C1400F[2], 49049C1425F[2], 49049C1450F[2]	
Vineyard, City of	490261	16020201	49049C0309G, 49049C0317G, 49049C0319G, 49049C0330F, 49049C0336G, 49049C0338G	
Woodland Hills, City of[1]	490262	16020202	49049C0766F, 49049C0770F[2], 49049C1000F[2]	

[1] No Special Flood Hazard Areas Identified

[2] Panel Not Printed

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-percent-annual-chance flood elevation is also referred to as the Base Flood Elevation (BFE)); delineations of the 1-percent-annual-chance and 0.2-percent-annual-chance floodplains; and 1-percent-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 30, "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 Utah County became effective on June 19, 2020. Refer to Table 27 for information about subsequent revisions to the FIRMs.

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

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

- FEMA does not impose floodplain management requirements 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 www.fema.gov/flood-insurance/rules-legislation/community-rating-system or contact your appropriate FEMA Regional Office for more information about this program.

- FEMA does not design, build, inspect, operate, maintain, or certify levees. FEMA is responsible for accurately identifying flood hazards and communicating those hazards and risks to affected stakeholders. FEMA has identified one or more levee systems in this jurisdiction summarized in Table 8 of this FIS Report. For FEMA to accredit the identified levee systems, the levee systems 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."

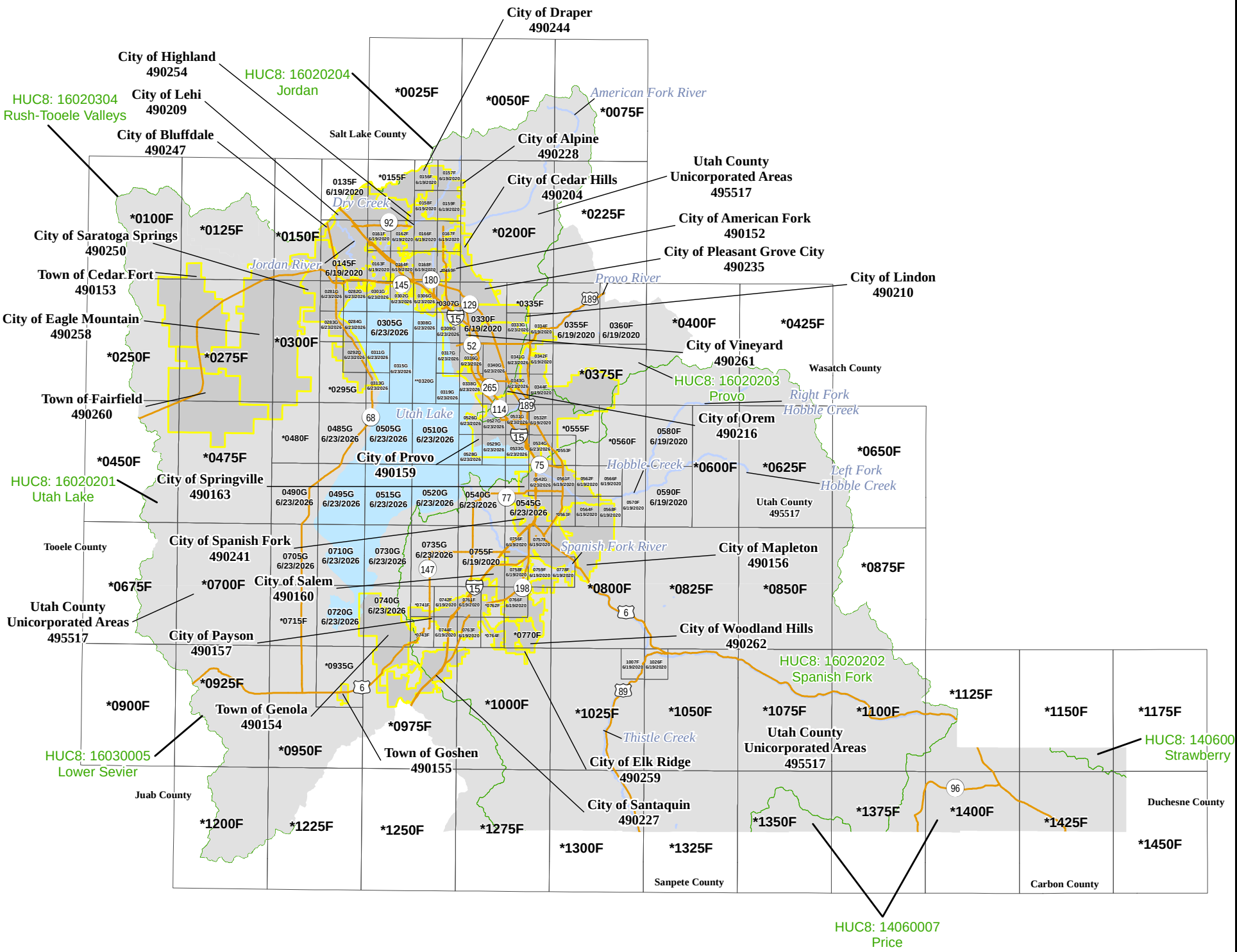
  Information on the levee systems in this jurisdiction can be obtained from the USACE National Levee Database (https://levees.sec.usace.army.mil/). For additional information, the user should contact the appropriate jurisdiction floodplain administrator and the levee owner or sponsor.

- The U.S. Survey Foot was deprecated on December 31, 2022, in favor of the International Foot (referred to as foot). It may still be necessary to use U.S. Survey Feet for legacy data or for new data collected in locations which have not yet adopted the International Foot convention. The U.S. Survey Foot will not be supported in the modernized National Spatial Reference System (NSRS).

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

The FIRM Index in Figure 1 shows the overall FIRM panel layout within Utah County, and also displays the panel number and effective date for each FIRM panel in the county. Other information shown on the FIRM Index includes community boundaries, flooding sources, watershed boundaries, and USGS HUC-8 codes.

Figure 1: FIRM Index



ATTENTION: The corporate limits shown on this FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those shown on FIRM panels issued before June 23, 2026.

1 inch = 46,000 feet 1:552,000

0 12,500 25,000 50,000 75,000 100,000 feet

Map Projection:
Universal Transverse Mercator Zone 12 North;
North American Datum 1983

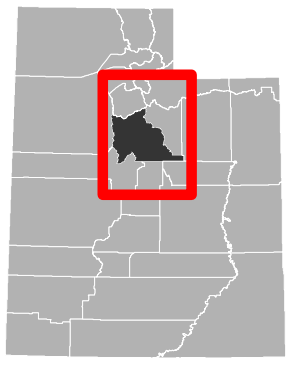
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTPS://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

* PANEL NOT PRINTED - NO SPECIAL FLOOD HAZARD AREAS
** PANEL NOT PRINTED - OPEN WATER

COUNTY LOCATOR



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP INDEX

UTAH COUNTY, UTAH and Incorporated Areas

PANELS PRINTED:

0135, 0145, 0156, 0157, 0158, 0159, 0161, 0162, 0163, 0164, 0166, 0167, 0168, 0281, 0282, 0283, 0284, 0292, 0301, 0302, 0305, 0306, 0308, 0309, 0311, 0313, 0315, 0317, 0319, 0330, 0333, 0334, 0336, 0338, 0340, 0341, 0342, 0343, 0344, 0355, 0360, 0485, 0490, 0495, 0505, 0510, 0515, 0520, 0526, 0527, 0528, 0529, 0531, 0532, 0533, 0534, 0540, 0542, 0545, 0561, 0562, 0564, 0566, 0568, 0570, 0580, 0590, 0705, 0710, 0720, 0730, 0735, 0740, 0742, 0744, 0755, 0756, 0757, 0758, 0759, 0761, 0763, 0766, 0778, 1007, 1026

FEMA

MAP NUMBER
49049CIND0B
MAP REVISED
June 23, 2026

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

Figure 2: FIRM Notes to Users

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), 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 Mapping and Insurance eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Flood Map Service Center website or by calling the FEMA Mapping and Insurance eXchange.

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

For community and countywide map dates, refer to Table 27 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.

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

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

Coastal Base Flood Elevations shown on the map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD88). Coastal flood elevations are also provided in the Coastal Transect Parameters table in the FIS Report for this jurisdiction. Elevations shown in the Coastal Transect Parameters table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on the FIRM.

Figure 2. FIRM Notes to Users

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 have reduced flood hazards due to flood control structures. Refer to Section 4.3 "Dams and Other Flood Hazard Reduction Measures" of this FIS Report for information on flood control structures for this jurisdiction.

PROJECTION INFORMATION: The projection used in the preparation of the map was Universal Transverse Mercator (UTM) Zone 12. The horizontal datum was the North American Datum of 1983 NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

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

Local vertical monuments may have been used to create the map. To obtain current monument information, please contact the appropriate local community listed in Table 30 of this FIS Report.

BASE MAP INFORMATION (06/23/2026): Base map information shown on the FIRM was derived from multiple sources. Municipalities, county boundaries, and land ownership were provided by the Utah Geospatial Resource Center (UGRC), dated 2022. PLSS information were provided by the UGRC, dated 2020. Transportation lines were provided by the UGRC, dated 2023. Water lines were sourced from the previous effective FIRM, dated 2020. Aerial imagery was provided by the US Department of Agriculture – Farm Service Agency, dated 2021. For information about base maps, refer to Section 6.2 “Base Map” in this FIS Report.

BASE MAP INFORMATION (06/19/2020): Base map information shown on the FIRM was derived from multiple sources. This information was compiled from the U.S Geological Survey, 1989, Utah Automated Geographic Reference Center (AGRC), 1985, 2003, and 2009, Nationa Geodetic Survey, 2005, and USDA Farm Service Agency Aerial Photography Field Office, 2011.

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

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

Figure 2. FIRM Notes to Users

NOTES FOR FIRM INDEX

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Utah County, Utah, 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 27 of this FIS Report to determine the most recent FIRM revision date for each community. The most recent FIRM panel effective date will correspond to the most recent index date. ATTENTION: The corporate limits shown on this FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those shown on FIRM panels issued before June 23, 2026.

SPECIAL NOTES FOR SPECIFIC FIRM PANELS

This Notes to Users section was created specifically for Utah County, Utah, effective June 23, 2026.

LIMIT OF MODERATE WAVE ACTION: Zone AE has been divided by a Limit of Moderate Wave Action (LiMWA). The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between Zone VE and the LiMWA (or between the shoreline and the LiMWA for areas where Zone VE is not identified) will be similar to, but less severe than, those in Zone VE.

ACCREDITED LEVEE SYSTEM: Check with your local community to obtain more information on the levee system(s) shown as providing flood hazard reduction on this panel. To mitigate flood hazards in residual risk areas, property owners and residents are encouraged to review the community's emergency preparedness plan and to consider flood insurance and floodproofing or other risk reduction measures. For more information on flood insurance, interested parties should visit www.fema.gov/flood-insurance.

NON-ACCREDITED LEVEE SYSTEM: This panel contains a levee system that has not been accredited and is therefore not recognized as reducing the 1-percent-annual-chance flood hazard.

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

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

Figure 3: Map Legend for FIRM

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

	Special Flood Hazard Areas subject to inundation by the 1% annual chance flood (Zones A, AE, AH, AO, AR, A99, V and VE)
Zone A	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. No base (1% annual chance) flood elevations (BFEs) or depths are shown within this zone.
Zone AE	The flood insurance rate zone that corresponds to the 1% annual chance floodplains. Base flood elevations derived from the hydraulic analyses are shown within this zone.
Zone AH	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the hydraulic analyses are shown at selected intervals within this zone.
Zone AO	The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the hydraulic analyses are shown within this zone.
Zone AR	The flood insurance rate zone that corresponds to areas that were formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
Zone A99	The flood insurance rate zone that corresponds to areas of the 1% annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or flood depths are shown within this zone.
Zone V	The flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations are not shown within this zone.
Zone VE	Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations derived from the coastal analyses are shown within this zone as static whole-foot elevations that apply throughout the zone.
	Regulatory Floodway determined in Zone AE.

Figure 3: Map Legend for FIRM

OTHER AREAS OF FLOOD HAZARD

Shaded Zone X: Areas of 0.2% annual chance flood hazards and areas of 1% annual chance flood hazards with average depths of less than 1 foot or with drainage areas less than 1 square mile.

Future Conditions 1% Annual Chance Flood Hazard – Zone X: The flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined based on future-conditions hydrology. No base flood elevations or flood depths are shown within this zone.

Area with Reduced Flood Hazard due to Accredited or Provisionally Accredited Levee System: Area is shown as reduced flood hazard from the 1-percent-annual-chance or greater flood by a levee system. Overtopping or failure of any levee system is possible. See Notes to Users for important information.

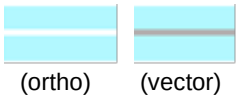
Area with Undetermined Flood Hazard due to Non-Accredited Levee System: Analysis and mapping procedures for non-accredited levee systems were applied resulting in a flood insurance rate zone where flood hazards are undetermined, but possible.

OTHER AREAS

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

Unshaded Zone X: Areas of minimal flood hazard.

FLOOD HAZARD AND OTHER BOUNDARY LINES



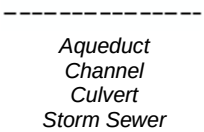
Flood Zone Boundary (white line on ortho-photography-based mapping; gray line on vector-based mapping)

Limit of Study

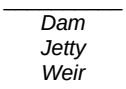
Jurisdiction Boundary

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

GENERAL STRUCTURES



Channel, Culvert, Aqueduct, or Storm Sewer



Dam, Jetty, Weir

Levee, Dike, or Floodwall

Figure 3: Map Legend for FIRM

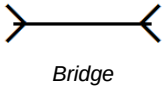
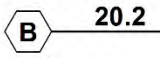
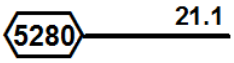
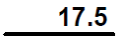
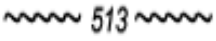
 *Bridge*	Bridge
REFERENCE MARKERS	
22.0	River mile Markers
CROSS SECTION & TRANSECT INFORMATION	
 B 20.2	Lettered Cross Section with Regulatory Water Surface Elevation (BFE)
 5280 21.1	Numbered Cross Section with Regulatory Water Surface Elevation (BFE)
 17.5	Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)
8	Coastal Transect
	Profile Baseline: Indicates the modeled flow path of a stream and is shown on FIRM panels for all valid studies with profiles or otherwise established base flood elevation.
	Coastal Transect Baseline: Used in the coastal flood hazard model to represent the 0.0-foot elevation contour and the starting point for the transect and the measuring point for the coastal mapping.
 513	Base Flood Elevation Line
ZONE AE (EL 16)	Static Base Flood Elevation value (shown under zone label)
ZONE AO (DEPTH 2)	Zone designation with Depth
ZONE AO (DEPTH 2) (VEL 15 FPS)	Zone designation with Depth and Velocity
BASE MAP FEATURES	
Missouri Creek	River, Stream or Other Hydrographic Feature
234	Interstate Highway
234	U.S. Highway
234	State Highway
234	County Highway

Figure 3: Map Legend for FIRM

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

SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS

2.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1-percent-annual-chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2-percent-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 Utah 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-percent-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 22), study methodologies employed (Section 5.0), and flood risk, certain flooding sources may be mapped to show both the 1-percent and 0.2-percent-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-percent-annual-chance floodplain boundary on the FIRM, without published water surface elevations. In cases where the 1-percent and 0.2-percent-annual-chance floodplain boundaries are close together, only the 1-percent-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 Utah County, respectively.

Table 2, “Flooding Sources Included in this FIS Report,” lists each flooding source, including its study limits, affected communities, mapped zone on the FIRM, and the completion date of its engineering analysis from which the flood elevations on the FIRM and in the FIS Report were derived. Descriptions and dates for the latest hydrologic and hydraulic analyses of the flooding sources are shown in Table 12. 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-percent-annual-chance floodplain corresponds to the SFHAs. The 0.2-percent-annual-chance floodplain shows areas that, although out of the regulatory floodplain, are still subject to flood hazards.

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

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
American Fork River	American Fork, City of; Utah County, Unincorporated Areas	Confluence with Utah Lake	Approximately 850 feet below 6800 N	16020201	0.7	N	A	2023
American Fork River	American Fork, City of	At I-15	Mouth of American Fork Canyon	16020201	5.7	Y	AE	2010
American Fork River Golf Split I-15	American Fork, City of	At confluence with American Fork River	Divergence from American Fork River	16020201	2.8	Y	AE	2010
American Fork River Main St Split	American Fork, City of	At confluence with American Fork Golf Split I-15	Divergence from American Fork River	16020201	0.4	N	X	2010
Buckley Draw Creek	Provo, City of	At mouth of Buckley Draw	Provo City limits	16020201	0.2	N	X	1988
Dry Canyon South Channel	Lindon, City of	200 feet downstream of Salt Lake City Aqueduct	1,500 feet upstream of Salt Lake City Aqueduct	16020201	0.3	N	A, X	2001
Dry Creek	Highland, City of; Alpine, City of; Lehi, City of	82 feet upstream of 300 West	1,250 feet downstream of confluence with Hog Hollow	16020201	5.2	Y	AE	2010
Dry Creek	Alpine, City of; Highland, City of	1,250 feet downstream of confluence with Hog Hollow	Grove Drive	16020201	3.9	Y	AE	2016
Dry Creek	Alpine, City of; Utah County, Unincorporated Areas	Grove Drive	Approximately 3,800 feet upstream from Grove Drive	16020201	0.8	Y	AE	2010

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Dry Creek (Payson)	Payson, City of; Utah County, Unincorporated Areas	Union Pacific Railroad	Diversion from Peteetneet Creek	16020202	3.4	Y	AE	2016
Dry Creek (Payson) 900 West Split	Payson, City of	1,500 feet above confluence with Dry Creek (Payson)	Divergence from Dry Creek (Payson)	16020202	1.2	N	AE	2016
Dry Creek (Payson) 1250 South Split	Payson, City of	Approximately 200 feet above 1080 West	Divergence from Dry Creek (Payson)	16020202	0.2	N	AE	2016
Dry Creek (Payson) I-15 Split	Payson, City of	Confluence with Peteetneet Creek	Divergence from Dry Creek (Payson)	16020202	1.5	N	AE	2016
East Fork Fort Creek	Alpine, City of	Confluence with Fort Creek	Approximately 2,830 feet upstream of the confluence with Fort Creek	16020201	0.8	Y	AE	2016
Fort Creek	Alpine, City of	Confluence with Dry Creek	Confluence with Middle Fork Fort Creek	16020201	3.4	Y	AE	2016
Hobble Creek	Springville, City of	Confluence with Utah Lake	Approximately 460 feet below Union Pacific Railroad crossing	16020202	1.1	Y	AE	2023
Hobble Creek	Springville, City of	Approximately 460 feet below Union Pacific Railroad crossing	131 feet below Hobble Creek Debris Basin	16020202	4.6	Y	AE	2016
Hobble Creek 400 West Split	Springville, City of	1400 North	Divergence from Hobble Creek	16020202	1.3	N	AE	2016

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Hog Hollow	Alpine, City of; Draper, City of; Highland, City of	Confluence with Dry Creek	Approximately 6,000 feet upstream from Westfield Rd	16020201	1.8	Y	AE	2010
Jordan River	Lehi, City of; Draper, City of; Saratoga Springs, City of	Jordan River diversion structure	Approximately 5,070 feet upstream of Cedar Fort Road	16020201	8.1	Y	AE	2002
Jordan River	Lehi, City of; Draper, City of; Saratoga Springs, City of	Approximately 5,070 feet upstream of Cedar Fort Road	Outlet from Utah Lake	16020201	1.7	Y	AE	2014
Little Rock Canyon Creek	Provo, City of	Edgemont Elementary School	266 feet upstream of Sherwood Drive	16020203	1.0	N	X	1978
Maple Canyon (Salem)	Salem, City of	Salem Pond	Mouth of Maple Canyon	16020202	1.7	N	AE, AO	1979
Maple Canyon Creek	Mapleton, City of	Confluence with Hobble Creek	631 feet upstream of Maple Hills Cir	16020202	2.0	N	A	1985
Middle Fork Fort Creek	Alpine, City of	Confluence with Fort Creek	Approximately 730 feet upstream of confluence with Fort Creek	16020201	0.3	Y	AE	2016
Peteetneet Creek	Payson, City of; Utah County, Unincorporated Areas	Approximately 9,000 feet above 1450 West	Approximately 500 feet upstream from diversion of Dry Creek (Payson)	16020202	3.5	Y	AE	2016
Provo River	Orem, City of; Provo, City of; Utah County, Unincorporated Areas	Feet above a point 2,663 feet below Center Street	Approximately 200 feet upstream from Highway 52	16020203	0.1	N	AE	2023
Provo River	Orem, City of	Approximately 200 feet upstream from Highway 52	Approximately 300 feet upstream from Highway 52	16020203	2.0	N	A	2023

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Rock Canyon Creek	Provo, City of	Confluence with Provo River	690 feet below Bonneville Shoreline Trail	16020203	2.0	N	AH, AO, X	1978
Salem Pond	Salem, City of	SH 198	Salem Lake Drive	16020202	1.4	N	AE	1978
Slate Canyon Creek	Provo, City of	Center Street	Slate Canyon Park	16020201	1.1	N	AE, AH, AO, X	1988
Slide Canyon Creek	Provo, City of	Approximately 1,400 feet below mouth of Slide Canyon	Not available	16020201	Not Available	N	X	1988
Snell Hollow	Woodland Hills, City of; Salem, City of	Salem Pond	Mouth of Snell Hollow	16020202	1.7	N	AE, AO	1979
Soldier Creek	Utah County, Unincorporated Areas	Confluence with Spanish Fork River	Approximately 2,600 feet east of the US-89/US-6 junction	16020202	0.7	Y	AE	1994
Spanish Fork River	Utah County, Unincorporated Areas	Confluence with Utah Lake	At State Highway 77	16020201, 16020202	0.7	N	A	2023
Spanish Fork River	Utah County, Unincorporated Areas	Railroad	Approximately 500 feet downstream of I-15	16020202	1.0	N	A	1994
Spanish Fork River	Spanish Fork, City of; Utah County, Unincorporated Areas	Approximately 500 feet downstream of I-15	Approximately 1,450 feet upstream of I-15	16020202	0.4	Y	AE	2016
Spanish Fork River	Spanish Fork, City of	Approximately 1,450 feet upstream of I-15	Approximately 350 feet downstream of Main Street	16020202	1.4	Y	AE	2011
Spanish Fork River	Spanish Fork, City of; Utah County, Unincorporated Areas	Approximately 350 feet downstream of Main Street	Approximately 900 feet upstream of Main Street	16020202	0.3	Y	AE	2016

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Spanish Fork River	Spanish Fork, City of; Utah County, Unincorporated Areas	Approximately 900 feet upstream of Main Street	Approximately 6,010 feet downstream of Powerhouse Road	16020202	3.8	Y	AE	1994
Spanish Fork River	Spanish Fork, City of; Utah County, Unincorporated Areas	Approximately 6,010 feet downstream of Powerhouse Road	Approximately 780 feet upstream from Powerhouse Road	16020202	1.2	Y	AE	2011
Spanish Fork River	Utah County, Unincorporated Areas	Approximately 88,400 feet above I-15	Confluence of Thistle and Soldier Creeks	16020202	0.2	Y	AE	1994
Sumac Hollow	Lindon, City of	Just upstream of 1200 East Street	Approximately 1,500 feet upstream of Teton Drive	16020201	0.4	N	A	2002
Thistle Creek	Utah County, Unincorporated Areas	Confluence with Spanish Fork River	0.6 mi upstream of confluence with Spanish Fork River	16020202	0.6	Y	AE	1994
Tickville Gulch	Saratoga Springs, City of	Approximately 55 feet above Saratoga Dr	Approximately 2,150 feet upstream from Highway 68	16020201	1.2	N	A	2020
Tickville Gulch	Saratoga Springs, City of; Utah County, Unincorporated Areas	Confluence with Utah Lake	Approximately 55 feet above Saratoga Dr	16020201	0.1	N	A	2023
Utah Lake	American Fork, City of; Genola, Town of; Lehi, City of; Lindon, City of; Orem, City of; Provo, City of; Saratoga Springs; City of Springville, City of; Vineyard, Town of; Utah County, Unincorporated Areas	Entire shoreline	Entire Shoreline	16020201	84.9	N	VE/AE	2023

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Wastewater Ditch Diversion	Lehi, City of	A point 554 feet downstream of Woods Drive	Diversion from Dry Creek	16020201	1.0	N	AE	2002
West Fork Fort Creek	Alpine, City of	Confluence with Fort Creek	Approximately 640 feet upstream of the confluence with Fort Creek	16020201	0.1	Y	AE	2016
West Fork Fort Creek	Alpine, City of	Approximately 640 feet upstream of the confluence with Fort Creek	Approximately 1,190 feet upstream of the confluence with Fort Creek	16020201	0.1	Y	AE	2010

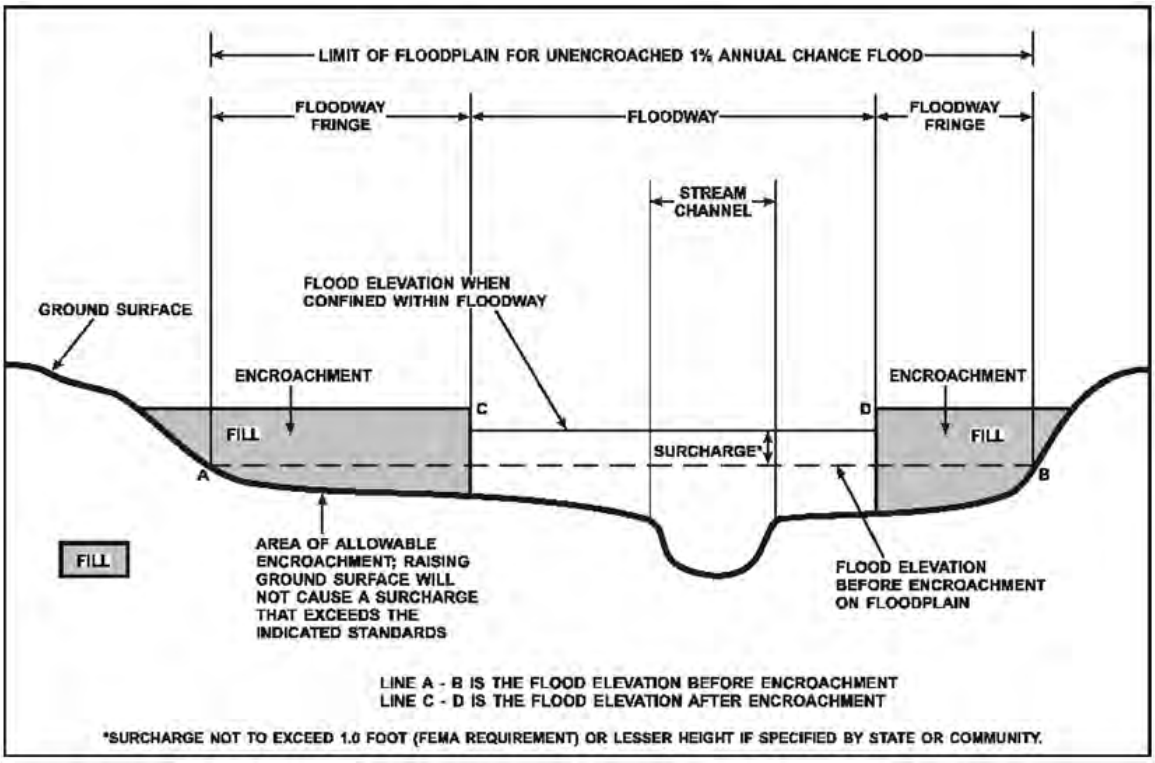
2.2 Floodways

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-percent-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-percent-annual-chance flood. The floodway fringe is the area between the floodway and the 1-percent-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-percent-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 23, "Floodway Data."

All floodways that were developed for this Flood Risk Project are shown on the FIRM using the symbology described in Figure 3. In cases where the floodway and 1-percent-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 BFE is the elevation of the 1-percent-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. 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. For example, the user may use the FIRM to determine the stream station of a location of interest and then use the profile to determine the 1-percent annual chance elevation at that location. Because only selected cross sections may be shown on the FIRM for riverine areas, the profile should be used to obtain the flood elevation between mapped cross sections. Additionally, for riverine areas, whole-foot elevations shown on the FIRM may not exactly reflect the elevations derived from the hydraulic analyses; therefore, elevations obtained from the profile may more accurately reflect the results of the hydraulic analysis.

2.4 Non-Encroachment Zones

This section is not applicable to this Flood Risk Project.

2.5 Coastal Flood Hazard Areas

For most areas along rivers, streams, and small lakes, BFEs and floodplain boundaries are based on the amount of water expected to enter the area during a 1-percent-annual-chance flood and the geometry of the floodplain. Floods in these areas are typically caused by storm events. However, for areas on or near ocean coasts, large rivers, or large bodies of water, BFE and floodplain boundaries may need to be based on additional components, including storm surges and waves.

Coastal flooding sources that are included in this Flood Risk Project are shown in Table 2.

2.5.1 Water Elevations and the Effects of Waves

Specific terminology is used in coastal analyses to indicate which components have been included in evaluating flood hazards.

The stillwater elevation (SWEL or still water level) is the surface of the water resulting from astronomical tides, storm surge, and freshwater inputs, but excluding wave setup contribution or the effects of waves.

- *Astronomical tides* are periodic rises and falls in large bodies of water caused by the rotation of the earth and by the gravitational forces exerted by the earth, moon and sun.
- *Storm surge* is the additional water depth that occurs during large storm events. These events can bring air pressure changes and strong winds that force water up against the shore.
- *Freshwater inputs* include rainfall that falls directly on the body of water, runoff from surfaces and overland flow, and inputs from rivers.

The 1-percent-annual-chance stillwater elevation is the stillwater elevation that has been calculated for a storm surge from a 1-percent-annual-chance storm. The 1-percent-annual-chance storm surge can be determined from analyses of tidal gage records, statistical study of regional historical storms, or other modeling approaches. Stillwater elevations for storms of other frequencies can be developed using similar approaches.

The total stillwater elevation (also referred to as the mean water level) is the stillwater elevation plus wave setup contribution but excluding the effects of waves.

- *Wave setup* is the increase in stillwater elevation at the shoreline caused by the reduction of waves in shallow water. It occurs as breaking wave momentum is transferred to the water column.

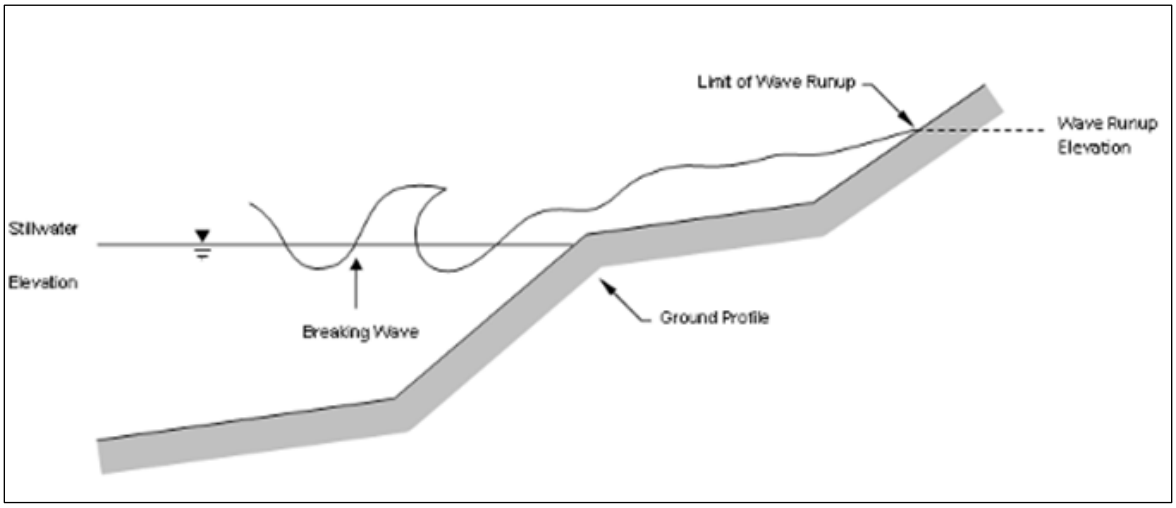
Like the stillwater elevation, the total stillwater elevation is based on a storm of a particular frequency, such as the 1-percent-annual-chance storm. Wave setup is typically estimated using standard engineering practices or calculated using models, since tidal gages are often sited in areas sheltered from wave action and do not capture this information.

Coastal analyses may examine the effects of overland waves by analyzing storm-induced erosion, overland wave propagation, wave runup, and/or wave overtopping.

- *Storm-induced erosion* is the modification of existing topography by erosion caused by a specific storm event, as opposed to general erosion that occurs at a more constant rate.
- *Overland wave propagation* describes the combined effects of variation in ground elevation, vegetation, and physical features on wave characteristics as waves move onshore.
- *Wave runup* is the uprush of water from wave action on a shore barrier. It is a function of the roughness and geometry of the shoreline at the point where the stillwater elevation intersects the land.

- *Wave overtopping* refers to wave runup that occurs when waves pass over the crest of a barrier.

Figure 5: Wave Runup Transect Schematic



2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

For coastal communities along the Atlantic and Pacific Oceans, the Gulf of America, the Great Lakes, and the Caribbean Sea, flood hazards must take into account how storm surges, waves, and extreme tides interact with factors such as topography and vegetation. Storm surge and waves must also be considered in assessing flood risk for certain communities on rivers or large inland bodies of water.

Beyond areas that are affected by waves and tides, coastal communities can also have riverine floodplains with designated floodways, as described in previous sections.

Floodplain Boundaries

In many coastal areas, storm surge is the principle component of flooding. The extent of the 1-percent-annual-chance floodplain in these areas is derived from the total stillwater elevation (stillwater elevation including storm surge plus wave setup) for the 1-percent-annual-chance storm. The methods that were used for calculation of total stillwater elevations for coastal areas are described in Section 5.3 of this FIS Report. Location of total stillwater elevations for coastal areas are shown in Figure 8, “1% Annual Chance Total Stillwater Levels for Coastal Areas.”

In some areas, the 1-percent-annual-chance floodplain is determined based on the limit of wave runup or wave overtopping for the 1-percent-annual-chance storm surge. The methods that were used for calculation of wave hazards are described in Section 5.3 of this FIS Report.

Table 25 presents the types of coastal analyses that were used in mapping the 1-percent-annual-chance floodplain in coastal areas.

Coastal BFEs

Coastal BFEs are calculated as the total stillwater elevation (stillwater elevation including storm surge plus wave setup) for the 1-percent-annual-chance storm plus the additional flood hazard from overland wave effects (storm-induced erosion, overland wave propagation, wave runup and wave overtopping).

Where they apply, coastal BFEs are calculated along transects extending from offshore to the limit of coastal flooding onshore. Results of these analyses are accurate until local topography, vegetation, or development type and density within the community undergoes major changes.

Parameters that were included in calculating coastal BFEs for each transect included in this FIS Report are presented in Table 16, "Coastal Transect Parameters." The locations of transects are shown in Figure 9, "Transect Location Map." More detailed information about the methods used in coastal analyses and the results of intermediate steps in the coastal analyses are presented in Section 5.3 of this FIS Report. Additional information on specific mapping methods is provided in Section 6.4 of this FIS Report.

2.5.3 Coastal High Hazard Areas

Certain areas along the open coast and other areas may have higher risk of experiencing structural damage caused by wave action and/or high-velocity water during the 1-percent-annual-chance flood. These areas will be identified on the FIRM as Coastal High Hazard Areas.

- *Coastal High Hazard Area (CHHA)* is a SFHA extending from offshore to the inland limit of the primary frontal dune (PFD) or any other area subject to damages caused by wave action and/or high-velocity water during the 1-percent-annual-chance flood.

- *Primary Frontal Dune (PFD)* is a continuous or nearly continuous mound or ridge of sand with relatively steep slopes immediately landward and adjacent to the beach. The PFD is subject to erosion and overtopping from high tides and waves during major coastal storms.

CHHAs are designated as "V" zones (for "velocity wave zones") and are subject to more stringent regulatory requirements and a different flood insurance rate structure. The areas of greatest risk are shown as VE on the FIRM. Zone VE is further subdivided into elevation zones and shown with BFEs on the FIRM.

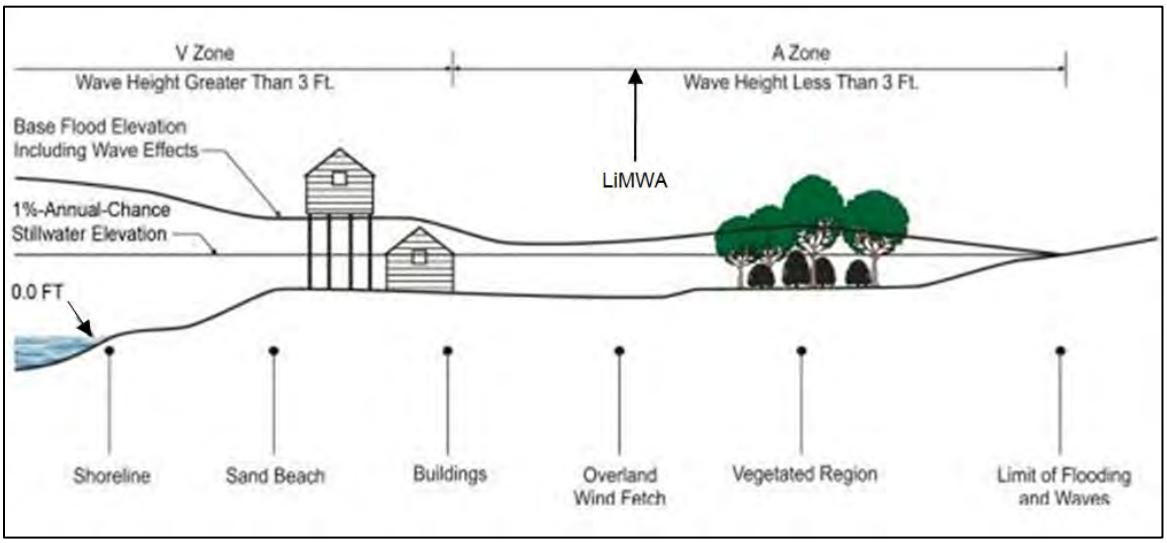
The landward limit of the PFD occurs at a point where there is a distinct change from a relatively steep slope to a relatively mild slope; this point represents the landward extension of Zone VE. Areas of lower risk in the CHHA are designated with Zone V on the FIRM. More detailed information about the identification and designation of Zone VE is presented in Section 6.4 of this FIS Report.

Areas that are not within the CHHA but are SFHAs may still be impacted by coastal flooding and damaging waves; these areas are shown as "A" zones on the FIRM.

Figure 6, "Coastal Transect Schematic," illustrates the relationship between the base flood elevation, the 1-percent-annual-chance stillwater elevation, and the ground profile as well

as the location of the Zone VE and Zone AE areas in an area without a PFD subject to overland wave propagation. This figure also illustrates energy dissipation and regeneration of a wave as it moves inland.

Figure 6: Coastal Transect Schematic



Methods used in coastal analyses in this Flood Risk Project are presented in Section 5.3 and mapping methods are provided in Section 6.4 of this FIS Report.

Coastal floodplains are shown on the FIRM using the symbology described in Figure 3, "Map Legend for FIRM." In many cases, the BFE on the FIRM is higher than the stillwater elevations shown in Table 16 due to the presence of wave effects. The higher elevation should be used for construction and/or floodplain management purposes.

2.5.4 Limit of Moderate Wave Action

Laboratory tests and field investigations have shown that wave heights as little as 1.5 feet can cause damage to and failure of typical Zone AE building construction. Wood-frame, light gage steel, or masonry walls on shallow footings or slabs are subject to damage when exposed to waves less than 3 feet in height. Other flood hazards associated with coastal waves (floating debris, high velocity flow, erosion, and scour) can also damage Zone AE construction.

Therefore, a LiMWA boundary may be shown on the FIRM as an informational layer to assist coastal communities in safe rebuilding practices. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The location of the LiMWA relative to Zone VE and Zone AE is shown in Figure 6.

The effects of wave hazards in Zone AE between Zone VE (or the shoreline where Zone VE is not identified) and the limit of the LiMWA boundary are similar to, but less severe than, those in Zone VE where 3-foot or greater breaking waves are projected to occur during the 1-percent-annual-chance flooding event. Communities are therefore encouraged to adopt and enforce more stringent floodplain management requirements

than the minimum NFIP requirements in the LiMWA. The NFIP Community Rating System provides credits for these actions.

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-percent-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-percent-annual-chance floodplain boundary corresponds to the boundary of areas of additional flood hazards.

Table 3 lists the flood zones in Utah County.

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
Alpine, City of	AE, X
American Fork, City of	A, AE, VE, X
Bluffdale, City of	AE, X
Cedar Fort, Town of	X
Cedar Hills, City of	AE, X
Draper, City of	AE, X
Eagle Mountain, City of	X
Elk Ridge, City of	X
Fairfield, Town of	X
Genola, Town of	AE, VE, X
Goshen, Town of	X
Highland, City of	AE, X
Lehi, City of	AE, AH, AO, VE, X
Lindon, City of	A, AE, VE, X
Mapleton, City of	AE, X
Orem, City of	A, AE, X
Payson, City of	AE, X
Pleasant Grove City, City of	X
Provo, City of	A, AE, AH, AO, VE, X
Salem, City of	AE, AO, X
Santaquin, City of	X
Saratoga Springs, City of	A, AE, AH, VE, X
Spanish Fork, City of	AE, AO, X

Community	Flood Zone(s)
Springville, City of	AE, X
Utah County, Unincorporated Areas	A, AE, AH, AO, VE, X
Vineyard, City of	AE, VE, X
Woodland Hills, City of	X

SECTION 4.0 – AREA STUDIED

4.1 Basin Description

Table 4 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 4: Basin Characteristics

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Strawberry	14060004	Strawberry River	USGS HUC 8 Watershed for Strawberry River Headwaters	1,166
Price	14060007	Price River	USGS HUC 8 Watershed for Price River Headwaters	1,888
Utah Lake	16020201	Utah Lake	USGS HUC 8 Watershed for Utah Lake	1,346
Spanish Fork	16020202	Spanish Fork River	USGS HUC 8 Watershed for Spanish Fork River	965
Provo	16020203	Provo River	USGS HUC 8 Watershed for Provo River	688
Jordan	16020204	Jordan River	USGS HUC 8 Watershed for Jordan River Headwaters	816
Rush-Tooele Valleys	16020304	Vernon Creek	USGS HUC 8 Watershed for Vernon Creek Headwaters	1,210
Lower Sevier	16030005	Sevier River	USGS HUC 8 Watershed for Sevier River Headwaters	4,104

4.2 Principal Flood Problems

Table 5 contains a description of the principal flood problems that have been noted for Utah County by flooding source.

Table 5: Principal Flood Problems

Flooding Source	Description of Flood Problems
American Fork River	American Fork River has a history of flooding from both snowmelt and thunderstorms. The maximum recorded flood from the American Fork River resulted from a thunderstorm in August 1951, with a peak flow of 645 cfs measured at a U.S. Geological Survey gage four miles above the mouth of American Fork Canyon. The discharge was estimated to be 1,000 cfs at the canyon mouth by the U.S. Soil Conservation Service. This flood has a recurrence interval of approximately 20 years. The May 1952 snowmelt flood also threatened the City of American Fork. Additional flooding occurred in May 1958, July 1965, and June 1975. Accounts of early settlers, newspaper articles, and official records indicate that flooding occurred on the American Fork River in 1869, 1876, 1878, 1880, 1881, 1885, 1890, 1896, 1909, 1919, 1921, 1923, 1930, 1934, 1935, 1938, and 1946. However, little information is available concerning the size or the damage from these floods. The most recent recorded flood from the American Fork River was the flood of June 1975. It was a snowmelt flood with a peak discharge of 655 cfs at the mouth of American Fork Canyon with a recurrence interval of approximately 20 years. Additionally, American Fork River, Provo River, and Hobble Creek are subject to unconfined shallow flooding with depths averaging less than one foot.
Buckley Draw	Buckley Draw discharges onto an undeveloped alluvial fan. Flood damage is minimal because it has large undeveloped alluvial outwash fan and small flood flow.
Dry Creek	Dry Creek has a history of flooding from both snowmelt and thunderstorms. The maximum established flood peak of 750 cfs, measured at the Dry Creek gage, occurred in 1951. This flood has a recurrence interval of approximately 30 years. Major and minor flooding is known to have occurred along Dry Creek in May 1950, August 1951, May 1952, June 1953, May 1964, and July 1967. Low-lying areas of the City of Lehi are subject to periodic flooding caused by overflow of Dry Creek. The most severe flooding occurs in the summer as a result of convective-type thunderstorms. These larger summer storms, while occurring infrequently, cause the major proportion of all downstream flood damages. Some of the larger floods occurred before stream flow or precipitation records were kept. Major and minor flooding is known to have occurred in Lehi in May 1950, August 1951, May 1952, June 1953, May 1964, and July 1967.

Flooding Source	Description of Flood Problems
Hobble Creek	Areas of gently sloping terrain and areas of low relief in Springville are subject to periodic flooding caused by overflow of Hobble Creek. Shallow flooding caused by a combination of shallow overflow alluvial fan flow, and ponding occurs in a great portion of the city north of the main channel of Hobble Creek. In this area, the creek enters the city at the southeast boundary and flows to the west boundary, where it exits the city. The flood discharges on the main channel of Hobble Creek overflow into a secondary drainage area upstream from the southeastern limits of the city. The most severe flooding occurs in early spring as a result of either snowmelt or a combination of rain and snowmelt. Springville is known to have a history of flooding from Hobble Creek. The maximum recorded flood peak of 1,250 cfs with a recurrence interval of approximately 50 years occurred on May 4, 1952. The maximum recorded flood was the result of low-altitude snowmelt runoff augmented by moderate rains. This flood caused considerable damage to the community. Major and minor flooding is known to have occurred in 1862, 1920, 1931, and 1952. These floods were aggravated by trees, debris, and sediment, which pile up in front of, and inside of, culverts and bridges, causing Hobble Creek to back up and flood its banks. During the flood of 1952, most of the bridges were either washed out or damaged by the flood. Additionally, American Fork River, Provo River, and Hobble Creek are subject to unconfined shallow flooding with depths averaging less than one foot.
Jordan River	Flooding along the Jordan River is caused by high water levels in Utah Lake, which result mainly from spring runoff from snowmelt. A compromise maximum water-surface elevation has been established to avoid flooding. This compromise level of 4492.435 feet (NAVD 88) was arrived at by the landowners and water users as the level at which the lake would be kept in times of high runoff to ensure high-water storage capacity while minimizing damage to surrounding land by flooding. Whenever runoff forecasts indicate the level of Utah Lake will exceed this elevation, the outlet gates at the Jordan River are opened prior to the flood season to permit outflow discharges that will keep the lake at compromise level during the flood season. However, in years such as 1922 and 1952, the lake rose to slightly more than 3 feet above compromise level, and in 1983 and 1984, the lake rose to approximately 5 feet above compromise level, despite efforts that were made to not exceed this level. In addition, the various inflows to Utah Lake are regulated to keep the water below the compromise level. The City of Saratoga Springs is affected by flooding from the Jordan River. Flood risks to Saratoga Springs include the overflow potential from Utah Lake and the Jordan River. All stream courses in the study area drain into Utah Lake except the Jordan River, which originates at the northern end of Utah Lake and flows northerly out of the county. A high water level in Utah Lake causes flooding along the Jordan River, which result mainly from spring runoff from snowmelt.
Little Rock Canyon Creek	Little Rock Canyon empties small flood flows into a residential area. These flood flows are aggravated by debris and sediment which obstruct flow in front and inside of culverts and cause the stream to overflow its banks. Flooding from Little Rock Canyon is minimal because of small flows which can be mostly contained in the streets.

Flooding Source	Description of Flood Problems
Peteetneet Creek	Low-lying areas of the City of Payson are subject to periodic flooding caused by overflow of Peteetneet Creek and also shallow flooding along the waterway. The most severe flooding has occurred because of dam failures. Twice since being settled in 1850, Payson has been deluged by floodwaters from dam failures, the first in May 1907 and the second in May 1973. The peak flow of the 1973 flood was estimated to be 2,000 cfs at the mouth of the canyon, a result of the dam failure and a subsequent increase in discharge. Other than the dam failure floods, the most severe flooding occurs in early spring as a result of snowmelt. Prior to the dam failure in the May 1973 flood, the estimated maximum flood peak flow on Peteetneet Creek was 650 cfs, having a recurrence interval of less than 50 years. Flood flows on Peteetneet Creek carry large amounts of sediment and debris that is deposited on the alluvial fan. Substantial damage has taken place in the canyon as a result of the high-velocity flow and high debris load of the floodwaters. Considerable expense is incurred in voluntary efforts to keep bridge structures free of debris, maintain channel capacity at key locations along the stream, and construct temporary diking systems. Furthermore, a diversion structure located at the mouth of the canyon now limits the flows down Peteetneet Creek to a mere 7 cfs to mitigate impacts from flooding.
Provo River	Low-lying areas of the City of Provo are subject to periodic flooding caused by overflow from the Provo River. The most severe flooding occurs in early spring as a result of snowmelt. Flooding from cloudburst storms has occurred in Provo River Canyon, but flood flows largely dissipate before reaching the study area. Lands adjacent to Utah Lake are subject to frequent flooding from high lake elevations. The most severe floods in the City of Provo occur in the spring as a result of high snowmelt runoff in conjunction with high water levels in Utah Lake. Additionally, American Fork River, Provo River, and Hobble Creek are subject to unconfined shallow flooding with depths averaging less than one foot.
Rock Canyon and Slate Canyon Creek	Shallow flooding caused by a combination of shallow overflow and alluvial fan flow occurs in portions of Provo below the mountain front canyons. Flooding occurs in late spring and summer as a result of intense convective-type storms and/or snowmelt runoffs. The five frontal canyon streams have a history of flooding. Rock Canyon and Slate Canyon Creeks have clearly defined channels which contain floods until they reach detention basins. These in turn dissipate peak floods, which then discharge into or near residential areas.

Flooding Source	Description of Flood Problems
Salem Pond	Flood flow from both Maple Canyon and Snell Hollow accumulates in Salem Pond. Outflow patterns indicate that flows from Maple Canyon and Snell Hollow are likely sources of floodwater for areas within the Salem corporate limits. Low-lying areas of Salem along the south side of U.S. Highway 91 and around Salem Pond are subject to flooding as the water surface of the pond rises during high inflows. The culvert under U.S. Highway 91 is almost completely submerged, and flow is restricted by water in the lower pond outlet. The culvert will not convey a large flood. As the water level rises, it will cause shallow flooding over the highway and in areas of Salem north of the highway. A natural basin south of Salem, just north of the Salem Canal, collects flow from Maple Canyon. After filling, floodwaters overflow the road at 200 East and 300 South Streets and flow down a narrow swale to Salem Pond. Rather high-velocity shallow flooding occurs in this channel.
Slide Canyon	Slide Canyon discharges onto an undeveloped alluvial fan. Flood damage is minimal because it has large undeveloped alluvial outwash fan and small flood flow.
Spanish Fork River	In 1983, a landslide completely blocked the Spanish Fork River approximately 0.5 mile downstream of the Town of Thistle, located in Spanish Fork Canyon in southwestern Utah County. The landslide debris formed a lake approximately 150 feet deep containing 40,000 acre-feet of storage, and inundated over 650 acres of land. The impoundment was drained and a debris basin was constructed just downstream.

Table 6 contains information about historic flood elevations in the communities within Utah County.

Table 6: Historic Flooding Elevations

[Not Applicable to this Flood Risk Project]

4.3 Dams and Other Flood Hazard Reduction Measures

Table 7 contains information about non-levee flood hazard reduction measures within Utah County such as dams or jetties. Levee systems are addressed in Section 4.4 of this FIS Report.

Table 7: Dams and Other Flood Hazard Reduction Measures

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Dry Creek	Dry Creek Dam	Dam	Approximately 2 miles upstream from the Lehi corporate limits	Dry Creek Dam was built by the U.S. Soil Conservation Service to trap sediment and debris from snowmelt flooding and retard the more frequent low-volume thunderstorm floods.

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
American Fork River	Tibble Fork Dam	Dam	Approximately 13 miles east of American Fork	Tibble Fork Dam was built by the U.S. Soil Conservation Service to trap sediment and debris from snowmelt flooding and retard the more frequent low-volume thunderstorm floods.
Provo River	Jordanelle Dam	Dam	Approximately 15 miles upstream from Deer Creek Reservoir (in Wasatch County).	The Provo River is a perennial stream with 600 square miles of drainage area in the Uinta Mountains east of Provo. Flows are largely controlled by Jordanelle Dam. This facility provides increased flood protection from snowmelt runoff in the Provo area.
Provo River	Deer Creek Dam	Dam	Approximately 16 miles northeast of Provo (in Wasatch County).	Deer Creek reservoir is a storage facility for municipal, industrial, and irrigation water. It has no specified role as flood control storage, but does provide some incidental flood protection to Provo by retaining high snowmelt runoff when the reservoir is not full.
Utah Lake	Utah Lake Outlet Structure	Control structure	At the outlet of Utah Lake (north end of lake)	Control gates for control of Utah Lake level
Utah Lake	Utah Lake Pump Station	Pump station	At the outlet of Utah Lake (north end of lake)	Pump station for control of Utah Lake

4.4 Levee Systems

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 flood hazard from the 1-percent-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 flood hazard zone.

Levee systems that are determined to reduce the hazard from the 1-percent-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 44 CFR 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 system's accreditation status. Accredited levee systems and PALs are shown on the FIRM using the symbology shown in Figure 3. 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 44 CFR 65.10, FEMA will consider the levee system as non-accredited and issue an effective FIRM showing the levee-impacted area as a SFHA or Zone D.

FEMA coordinated with the USACE, the local communities, and other organizations to compile a list of levee systems that exist within Utah County. Table 8, "Levee Systems," lists all accredited levee systems, PALs, and non-accredited levee systems 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. Levee systems identified in the table are displayed on the FIRM with notes to users to indicate their flood hazard mapping status.

Please note that the information presented in Table 8 is subject to change at any time. For that reason, the latest information regarding the levee systems presented in the table may be obtained by accessing the National Levee Database. For additional information, contact the levee owner/sponsor or the local community shown in Table 30.

Table 8: Levee Systems

Community	Flooding Source(s)	NLD Levee System ID	NLD Levee System Name	Levee System Status on Effective FIRM	FIRM Panel(s)	Levee Owner(s) / Sponsor(s)
Provo, City of	Provo River	1805000514	Canyon R1 / West side of Provo River (D/S of Carterville Rd)	Never Accredited	49049C0341G	Provo City
Provo, City of	Provo River	1805000515	Golf Course R2 / West side of Provo River (D/S of Orem City)	Never Accredited	49049C0343G	Provo City
Provo, City of	Provo River	1805000516	State Street L1 / East side of Provo River (D/S of Columbia Ln)	Never Accredited	49049C0343G 49049C0531G	Provo City
Provo, City of	Provo River	1805000517	University L1 / East side of Provo River (upstream of State St)	Never Accredited	49049C0343G	Provo City
Provo, City of	Provo River	1805000518	Golf Course L1 / East side of Provo River (upstream of 2230 N St)	Never Accredited	49049C0343G	Provo City
Provo, City of	Provo River	1805000519	South side of Provo River to Utah Lake/Airport Levee	Never Accredited	49049C0526G 49049C0527G 49049C0528G 49049C0529G	Provo City

Community	Flooding Source(s)	NLD Levee System ID	NLD Levee System Name	Levee System Status on Effective FIRM	FIRM Panel(s)	Levee Owner(s) / Sponsor(s)
Provo, City of	Provo River	1805000520	Railroad L1 / South side of Provo River (east of I-15)	Never Accredited	49049C0527G 49049C0531G	Provo City
Provo, City of	Provo River	1805000521	Railroad L2 / South side of Provo River (east of 1250 West St)	Never Accredited	49049C0531G	Provo City
Provo, City of; Utah County, Unincorporated Areas	Provo River	1805000522	Lower Provo R1 / North side of Provo River (btw I-15 and Geneva Rd)	Never Accredited	49049C0526G 49049C0527G	Provo City
Provo, City of	Provo River	1805000523	North side of Utah Lake (west of I-15)/Lakewood Levee	Never Accredited	49049C0533G	Provo City
Provo, City of	Provo River	1805000554	Canyon L1 / East side of Provo River (D/S of Carterville Rd)	Never Accredited	49049C0341G	Provo City
Provo, City of	Provo River	1805000555	University R1 / West side of Provo River (btw University and State)	Never Accredited	49049C0343G	Provo City

Community	Flooding Source(s)	NLD Levee System ID	NLD Levee System Name	Levee System Status on Effective FIRM	FIRM Panel(s)	Levee Owner(s) / Sponsor(s)
Provo, City of	Provo River	1805000556	Golf Course R1 / West side of Provo River (near 2550 N St)	Never Accredited	49049C0343G	Provo City
Provo, City of	Provo River	1805000557	Railroad R2 / North side of Provo River (across from 1250 West)	Never Accredited	49049C0531G	Provo City
Provo, City of	Provo River	1805000558	Railroad R1 / North side of Provo River (east of I-15)	Never Accredited	49049C0527G	Provo City
Provo, City of	Provo River	N/A	Golf Course L2	Never Accredited	49049C0343G	Provo City
Provo, City of	Provo River	N/A	Golf Course L2	Never Accredited	49049C0343G	Provo City
Spanish Fork, City of	Spanish Fork River	570005000004	Spanish Fork River Levee	Accredited	49049C0756F	City of Spanish Fork

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. These events, commonly termed the 10-, 25-, 50-, 100-, and 500-year floods, have a 10-, 4-, 2-, 1-, and 0.2-percent-annual-chance, respectively, of being equaled or exceeded during any year.

Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 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.

In addition to these flood events, the “1-percent-plus”, or “1%+”, annual chance flood elevation has been modeled and included on the flood profile and/or in the FIRM database for certain flooding sources in this FIS Report. While not used for regulatory or insurance purposes, this flood event has been calculated to help illustrate the variability range that exists between the regulatory 1-percent-annual-chance flood elevation and a 1-percent-annual-chance elevation that has taken into account an additional amount of uncertainty in the flood discharges (thus, the 1% “plus”). For flooding sources whose discharges were estimated using regression equations, the 1%+ flood elevations are derived by taking the 1-percent-annual-chance flood discharges and increasing the modeled discharges by a percentage equal to the average predictive error for the regression equation. For flooding sources with gage- or rainfall-runoff-based discharge estimates, the upper 84-percent confidence limit of the discharges is used to compute the 1%+ flood elevations.

The engineering analyses described here incorporate the results of previously issued Letters of Map Change (LOMCs) listed in Table 26, “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 12. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

A summary of the discharges is provided in Table 9. A summary of stillwater elevations developed for non-coastal flooding sources is provided in Table 10. (Coastal stillwater elevations are discussed in Section 5.3 and shown in Table 16.) Stream gage information is provided in Table 11.

Table 9: 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	1% Annual Chance Future	0.2% Annual Chance
American Fork River	Northern American Fork Corporate Limit	62	641	*	1,004	1,109	*	1,334
American Fork River	At Mouth of American Fork Canyon	60	590	*	1,750	2,440	*	3,660
Buckley Draw	At Mouth	0.84	16	*	28	40	*	40
Dry Creek	At Dry Creek Dam Inflow	37	480	*	1,870	2,700	*	4,050
Dry Creek	At Dry Creek Dam Outflow	37	480	*	1,050	2,000	*	3,600
Dry Creek	Downstream of Alpine Corporate Limits	32	480	*	1,680	2,420	*	3,620
Dry Creek	At Alpine Corporate Limits	31.1	455	*	725	830	*	1,120
Dry Creek	At Fort Creek Confluence	18.5	300	*	465	530	*	715
Dry Creek (Payson)	At Divergence from Petneetneet Creek	27.6	450	*	800	1,000	*	1,240
Dry Creek (Payson)	Downstream of 1400 South	*	450	*	800	959	*	1,097
Dry Creek (Payson)	Downstream of 900 West	*	450	*	757	935	*	1,153
Dry Creek (Payson)**	Downstream of I-15	*	300	*	315	320	*	410
Dry Creek (Payson) 900 West Split	At Divergence from Dry Canyon Creek (Payson)	*	*	*	37	65	*	87
Dry Creek (Payson) 1250 South Split	At Divergence from Dry Canyon Creek (Payson)	*	*	*	3	41	*	143

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	1% Annual Chance Future	0.2% Annual Chance
Dry Creek (Payson) I-5 Split	At Divergence from Dry Canyon Creek (Payson)	*	150	*	485	680	*	830
East Fork Fort Creek	At Confluence with Fort Creek	9.8	195	*	325	375	*	505
Fort Creek	At Dry Creek Confluence	9.8	195	*	325	375	*	505
Hobble Creek	At mouth of Hobble Creek Canyon	115	650	*	970	1,390	*	1,940
Hobble Creek 400 West Split	Downstream of 400 West	*	14	*	52	112	*	150
Hog Hollow	At Dry Creek Confluence	2.6	60	*	110	135	*	185
Jordan River	At Outlet from Utah Lake	3,000	1,420	*	2,290	2,570	*	3,190
Little Rock Canyon	At Mouth	0.70	16	*	27	32	*	50
Maple Canyon	South of Salem	5.5	150	*	210	240	*	290
Maple Canyon and Snell Hollow (combined)	South of Salem	7.5	170	*	240	270	*	330
Middle Fork Fort Creek	At Confluence with Fort Creek	9.8	195	*	325	375	*	505
Peteetneet Creek	At Payson Canyon Mouth	27.6	7	*	7	7	*	160
Provo River	3 miles above tie-in to Utah Lake	673	1,475	1,810	2,065	2,325	2,925	2,935
Rock Canyon Creek	At Mouth of Rock Canyon	9.92	115	*	280	450	*	890
Rock Canyon Creek	Below Debris Basin	9.92	105	*	180	220	*	380

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)					
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	1% Annual Chance Future	0.2% Annual Chance
Slate Canyon Creek	At Mouth of Slate Canyon	6.04	74	*	172	274	*	550
Slate Canyon Creek	Below Debris Basin	6.04	64	*	113	150	*	475
Slide Canyon Creek	At Canyon Mouth	1.18	21	*	37	53	*	110
Soldier Creek	Just Upstream of Confluence with Thistle Creek	236	690	*	1,330	1,750	*	3,080
Spanish Fork River	At I-15	660	*	*	*	3,750	*	*
Spanish Fork River	Just Downstream of Confluence of Thistle and Soldier Creek	450	1,300	*	2,500	3,300	*	5,800
Thistle Creek	Just Upstream of Confluence with Soldier Creek	214	610	*	1,180	1,550	*	2,730
Tickville Gulch	At confluence with Utah Lake	63	157	192	231	262	393	338
West Fork Fort Creek	At Confluence with Fort Creek	9.8	195	*	325	375	*	505

*Not calculated for this Flood Risk Project

**The significant decrease of flows downstream of I-15 is due to the limited capacity of the I-15 culvert.

Figure 7: Frequency Discharge-Drainage Area Curves

[Not Applicable to this Flood Risk Project]

Table 10: Summary of Non-Coastal Stillwater Elevations

Flooding Source	Location	Elevations (feet NAVD88)				
		10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Provo River	Airport Dike Road	*	*	*	4,497	*
Provo River	Near 560 S	*	*	*	4,498	*
Salem Pond	At Salem	4,587.42	*	4,587.45	4,587.46	4,587.57

*Not calculated for this Flood Risk Project

Table 11: 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
Dry Creek	1655	USGS	Dry Creek Near Alpine	*	*	*
Dry Creek	1660	USGS	Fort Creek at Alpine	*	*	*
Peteetneet Creek	1475	USGS*	Above diversion canals, near Payson, Utah	*	1947	1962
Spanish Fork River	10150500	USGS	Spanish Fork at Castilla, Utah	652	5/1/1919	2/18/2022
Hobble Creek	10152500	USGS*	Hobble Creek near Springville, Utah	*	1931	1974
Hobble Creek	10153100	USGS	Hobble Creek at 1650 West at Springville, Utah	115	11/6/2008	2/18/2022
South Fork of Provo River	10161500	USGS	South Fork Provo River at Vivian Park, Utah	*	*	*
Provo River	10163000	USGS	Provo River at Provo, Utah	673	10/1/1903	2/18/2022
American Fork River	10164500	USGS	American Fork AB Upper Powerplant NR American Fork, Utah	51.1	1/1/1927	2/18/2022
Fort Creek	10166000	USGS	Fort Creek at Alpine, Utah	*	*	*
Jordan River	10170500	USGS	Surplus Canal at Salt Lake City, UT	*	*	*
Summit Creek	10241600	USGS	Summit Creek near Summit, Utah	*	*	*
Rock Canyon	*	USFS	Just below the forks in Rock Canyon	*	1975	1983
Utah Lake	Utah Lake Outlet	UDWR	Near Lehi, Utah	*	1/1/1884	2/18/2022

*****Data not available.

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. 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 in Table 23, “Floodway Data.”

A summary of the methods used in hydraulic analyses performed for this project is provided in Table 12. Roughness coefficients are provided in Table 13. 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 12: 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
American Fork River	Confluence with Utah Lake	Approximately 850 feet below 6800 N	Gage Analysis	HEC-RAS 6.3	6/30/2023	A	Includes area of Zone AE from Utah Lake study
American Fork River	At I-15	Mouth of American Fork Canyon	Other	HEC-RAS	8/01/2010	AE w/ floodway	
American Fork River Golf Split I-15	At confluence with American Fork River	Divergence from American Fork River	Other	HEC-RAS	8/01/2010	AE w/ floodway	
American Fork River Main St Split	At confluence with American Fork Golf Split I-15	Divergence from American Fork River	Other	HEC-RAS	8/01/2010	X	0.2%-annual-chance flood hazard
Buckley Draw Creek	At mouth of Buckley Draw	Provo City limits	Other	Other	9/30/1988	X	Discharges onto an alluvial fan. Due to the minimal amount of flood hazard determined for the areas, SFHA were not delineated
Dry Canyon North Channel	600 feet downstream of Salt Lake City Aqueduct	1,400 feet upstream of Salt Lake City Aqueduct	Other	Other	6/08/2001	A, X	LOMR 01-08-015P converted to areas of minimal flood hazard.
Dry Canyon South Channel	200 feet downstream of Salt Lake City Aqueduct	1,500 feet upstream of Salt Lake City Aqueduct	Other	Other	6/08/2001	A, X	LOMR 01-08-015P converted to areas of minimal flood hazard
Dry Creek	82 feet upstream of 300 West	1,250 feet downstream of confluence with Hog Hollow	Other	Other	8/01/2010	AE w/ floodway	
Dry Creek	1,250 feet downstream of confluence with Hog Hollow	Grove Drive	Other	HEC-RAS	9/06/2016	AE w/ floodway	LOMR 16-08-0236P
Dry Creek	Grove Drive	Approximately 3,800 feet upstream from Grove Drive	Other	Other	8/01/2010	AE w/ floodway	
Dry Creek (Payson)	Union Pacific Railroad	Diversion from Peteetneet Creek	Other	HEC-RAS	10/01/2016	AE w/ floodway	

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
Dry Creek (Payson) 900 West Split	1,500 feet above confluence with Dry Creek (Payson)	Divergence from Dry Creek (Payson)	Other	HEC-RAS	10/01/2016	AE	
Dry Creek (Payson) 1250 South Split	Approximately 200 feet above 1080 West	Divergence from Dry Creek (Payson)	Other	HEC-RAS	10/01/2016	AE	
Dry Creek (Payson) I-15 Split	Confluence with Peteetneet Creek	Divergence from Dry Creek (Payson)	Other	HEC-RAS	10/01/2016	AE	
East Fork Fort Creek	Confluence with Fort Creek	Approximately 2,830 feet upstream of the confluence with Fort Creek	Other	HEC-RAS	9/06/2016	AE w/ floodway	LOMR 16-08-0236P
Fort Creek	Confluence with Dry Creek	Confluence with Middle Fork Fort Creek	Other	HEC-RAS	9/06/2016	AE w/ floodway	LOMR 16-08-0236P
Hobble Creek	Confluence with Utah Lake	Approximately 460 feet below Union Pacific Railroad crossing	Gage Analysis	HEC-RAS 4.1	6/30/2023	AE w/ floodway	
Hobble Creek	Approximately 460 feet below Union Pacific Railroad crossing	131 feet below Hobble Creek Debris Basin	Other	HEC-RAS	10/01/2016	AE w/ floodway	
Hobble Creek 400 West Split	1400 North	Divergence from Hobble Creek	Other	HEC-RAS	10/01/2016	AE	
Hog Hollow	Confluence with Dry Creek	Approximately 6,000 feet upstream from Westfield Rd	Other	HEC-RAS	8/01/2010	AE w/ floodway	LOMR 16-08-0236P
Jordan River	Jordan River diversion structure	Approximately 5,070 feet upstream of Cedar Fort Road	Other	HEC-2	2002	AE w/ floodway	

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
Jordan River	Approximately 5,070 feet upstream of Cedar Fort Road	Outlet from Utah Lake	Other	Other	3/20/2014	AE w/ floodway	LOMR 13-08-0558P. Upstream water surface elevations and SFHA boundaries updated as part of Utah Lake study
Little Rock Canyon Creek	Edgemont Elementary School	266 feet upstream of Sherwood Drive	Other	Other	1/1/1978	X	0.2-percent-annual-chance flood hazard
Maple Canyon (Salem)	Salem Pond	Mouth of Maple Canyon	Other	Other	1979	AE, AO	Shallow flooding less than 2 feet depth
Maple Canyon Creek	Confluence with Hobble Creek	631 feet upstream of Maple Hills Cir	Other	Other	2/15/1985	A	
Middle Fork Fort Creek	Confluence with Fort Creek	Approximately 730 feet upstream of confluence with Fort Creek	Other	Other	9/06/2016	AE w/ floodway	LOMR 16-08-0236P
Peteetneet Creek	Approximately 9,000 feet above 1450 West	Approximately 500 feet upstream from diversion of Dry Creek (Payson)	Gage Analysis	HEC-RAS	10/01/2016	AE w/ floodway	
Provo River	Feet above a point 2,663 feet below Center Street	Approximately 200 feet upstream from Highway 52	Gage Analysis	HEC-RAS 5.0.7	7/2/2021	AE	Natural Valley Analysis was identified as the preferred approach through the Levee Analysis and Mapping Procedures (LAMP) process
Provo River	Approximately 200 feet upstream from Highway 52	Approximately 300 feet upstream from Highway 52	Gage Analysis	HEC-RAS 6.3	6/30/2023	A	Model created to tie-in effective Zone A floodplain to the new detailed Provo River Study within panel 0333
Rock Canyon Creek	Confluence with Provo River	690 feet below Bonneville Shoreline Trail	Other	Other	1/1/1978	AH, AO, X	Includes shallow flooding of depths less than 3 feet and 0.2-percent-annual-chance flood hazard
Salem Pond	SH 198	Salem Lake Drive	Other	Other	3/1/1978	AE	Some Zone AO and AE upstream of the pond are assumed to be related to Maple Canyon and Snell Hollow
Slate Canyon Creek	Center Street	Slate Canyon Park	Other	Other	9/30/1988	AE, AO, AH, X	Includes shallow flooding with depths less than 1 foot and 0.2-percent-annual-chance flood hazard

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
Slide Canyon Creek	Approximately 1,400 feet below mouth of Slide Canyon	Not available	Other	Other	9/30/1988	X	Discharges onto an alluvial fan. Due to the minimal amount of flood hazard determined for the areas, SFHA were not delineated
Snell Hollow	Salem Pond	Mouth of Snell Hollow	Other	Other	1979	AE, AO	Shallow flooding less than 2 feet depth
Soldier Creek	Confluence with Spanish Fork River	Approximately 2,600 feet east of the US-89/US-6 junction	Other	HEC-2	12/15/1994	AE w/ floodway	
Spanish Fork River	Confluence with Utah Lake	At State Highway 77	Gage Analysis	HEC-RAS 6.3	6/30/2023	A	Includes area of Zone AE from Utah Lake study
Spanish Fork River	Railroad	Approximately 500 feet downstream of I-15	Other	Other	12/15/1994	A	
Spanish Fork River	Approximately 500 feet downstream of I-15	Approximately 1,450 feet upstream of I-15	Other	Other	7/8/2016	AE w/ floodway	LOMR 15-08-0248P
Spanish Fork River	Approximately 1,450 feet upstream of I-15	Approximately 350 feet downstream of Main Street	Other	Other	2/14/2011	AE w/ floodway	LOMR 10-08-0282P
Spanish Fork River	Approximately 350 feet downstream of Main Street	Approximately 900 feet upstream of Main Street	Other	Other	7/8/2016	AE w/ floodway	LOMR 15-08-0248P
Spanish Fork River	Approximately 900 feet upstream of Main Street	Approximately 6,010 feet downstream of Powerhouse Road	Other	Other	12/15/1994	AE w/ floodway	
Spanish Fork River	Approximately 6,010 feet downstream of Powerhouse Road	Approximately 780 feet upstream from Powerhouse Road	Other	Other	2/14/2011	AE w/ floodway	LOMR 10-08-0282P
Spanish Fork River	Approximately 88,400 feet above I-15	Confluence of Thistle and Soldier Creeks	Other	HEC-2	12/15/1994	AE w/ floodway	

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
Sumac Hollow	Just upstream of 1200 East Street	Approximately 1,500 feet upstream of Teton Drive	Other	Other	1/28/2002	A	LOMR 01-08-183P
Thistle Creek	Confluence with Spanish Fork River	0.6 mi upstream of confluence with Spanish Fork River	Other	HEC-2	12/15/1994	AE w/ floodway	
Tickville Gulch	Confluence with Utah Lake	Approximately 55 feet above Saratoga Dr	Regression	HEC-RAS 6.3	6/30/2023	A	
Tickville Gulch	Approximately 55 feet above Saratoga Dr	Approximately 2,150 feet upstream from Highway 68	Other	Other	12/19/2016	A	LOMR 16-08-0597P
Wastewater Ditch Diversion	A point 554 feet downstream of Woods Drive	Diversion from Dry Creek	Other	Other	7/17/2002	AE	
West Fork Fort Creek	Confluence with Fort Creek	Approximately 640 feet upstream of the confluence with Fort Creek	Other	Other	9/06/2016	AE w/ floodway	LOMR 16-08-0236P
West Fork Fort Creek	Approximately 640 feet upstream of the confluence with Fort Creek	Approximately 1,190 feet upstream of the confluence with Fort Creek	Other	Other	2010		

Table 13: Roughness Coefficients

Flooding Source	Channel "n"	Overbank "n"
American Fork River	0.015 – 0.050	0.030 – 0.100
American Fork River (Zone A)	0.035	0.050-0.070
Buckley Draw	0.045	0.070 – 0.010
Dry Creek	0.030 – 0.045	0.055 – 0.100
Dry Creek (Payson)	0.020 – 0.035	0.030 – 0.100
Fort Creek	0.035 – 0.045	0.055 – 0.070
Hobble Creek	0.020 – 0.035	0.030 – 0.100
Hobble Creek	0.035	0.04-0.10
Hog Hollow	0.035 – 0.045	0.055 – 0.070
Jordan River	0.030	0.070
Little Rock Canyon	0.045	0.070 – 0.100
Peteetneet Creek	0.020 – 0.035	0.030 – 0.100
Provo River	0.035-0.045	0.03-0.10
Rock Canyon Creek	0.045	0.070 – 0.100
Slate Canyon Creek	0.045	0.070 – 0.100
Slide Canyon	0.045	0.070 – 0.100
Soldier Creek	0.035 – 0.040	0.035 – 0.050
Spanish Fork River	0.035 – 0.040	0.035 – 0.050
Spanish Fork River (Zone A)	0.035	0.060
Thistle Creek	0.035 – 0.040	0.035 – 0.050
Tickville Gulch (Zone A)	0.035	0.060
Wastewater Ditch Diversion	0.030 – 0.045	0.060 – 0.100

5.3 Coastal Analyses

For the areas of Utah County that are impacted by coastal flooding processes, coastal flood hazard analyses were performed to provide estimates of coastal BFEs. Coastal BFEs reflect the increase in water levels during a flood event due to extreme tides and storm surge as well as overland wave effects.

The following subsections provide summaries of how each coastal process was considered for this FIS Report. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation. Table 14 summarizes the methods and/or models used for the coastal analyses. Refer to Section 2.5.1 for descriptions of the terms used in this section.

Table 14: Summary of Coastal Analyses

Flooding Source	Study Limits From	Study Limits To	Hazard Evaluated	Model or Method Used	Date Analysis was Completed
Utah Lake	Outlet of Utah Lake at Jordan River (Entire Shoreline)	Outlet of Utah Lake at Jordan River (Entire Shoreline)	Stillwater Elevation	Statistical Analysis	2/25/2022
Utah Lake	Outlet of Utah Lake at Jordan River (Entire Shoreline)	Outlet of Utah Lake at Jordan River (Entire Shoreline)	Wave Setup	Direct Integration Method (DIM)	2/25/2022
Utah Lake	Outlet of Utah Lake at Jordan River (Entire Shoreline)	Outlet of Utah Lake at Jordan River (Entire Shoreline)	Wind Setup	Zeider Zee (USACE)	2/25/2022
Utah Lake	Outlet of Utah Lake at Jordan River (Entire Shoreline)	Outlet of Utah Lake at Jordan River (Entire Shoreline)	Wave Generation; Overland Wave Propagation	WHAFIS	2/25/2022
Utah Lake	Outlet of Utah Lake at Jordan River (Entire Shoreline)	Outlet of Utah Lake at Jordan River (Entire Shoreline)	Wave Runup	Automated Coastal Engineering System (ACES)	2/25/2022
Utah Lake	Outlet of Utah Lake at Jordan River (Entire Shoreline)	Outlet of Utah Lake at Jordan River (Entire Shoreline)	Wave Overtopping	De Waal and Van Der Meer (1992)	2/25/2022

5.3.1 Total Stillwater Elevations

The total stillwater elevations (stillwater including storm surge plus wave setup) for the 1-percent-annual-chance flood were determined for areas subject to coastal flooding. The models and methods that were used to determine storm surge and wave setup are listed in Table 14. The stillwater elevation that was used for each transect in coastal analyses is shown in Table 16, “Coastal Transect Parameters.” Since Stillwater elevation is uniform around the lake, Figure 8 is not applicable.

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

[Not applicable to this Flood Risk Project]

Storm Surge Statistics

Storm surge is modeled based on characteristics of actual storms responsible for significant coastal flooding. The characteristics of these storms are typically determined by statistical study of the regional historical record of storms or by statistical study of tidal gages.

When historic records are used to calculate storm surge, characteristics such as the strength, size, track, etc., of storms are identified by site. Storm data was used in conjunction with numerical hydrodynamic models to determine the corresponding storm surge levels. An extreme value analysis was performed on the storm surge modeling results to determine a stillwater elevation for the 1-percent-annual-chance event.

Table 15: Tide Gage Analysis Specifics

Gage Name	Managing Agency of Tide Gage Record	Gage Type	Start Date	End Date	Statistical Methodology
Provo Airport	National Weather Service	Wind	1980	2022	NA

Combined Riverine and Tidal Effects

A correlation analysis was completed using the R statistical programming (R Core Team 2022) language to determine whether a statistical correlation exists between the monthly Provo River and Hobble Creek discharge volume and the average monthly Utah Lake storage volume. This analysis shows that Provo River and Hobble Creek discharges are temporally concurrent with high Utah Lake WSELs. Therefore, the joint probability assumptions that the flood-causing mechanisms of riverine and coastal flooding are physically independent and not concurrent both fail, and it is not necessary to compute the joint probability of independent riverine and coastal flood mechanisms at the Provo River and Hobble Creek confluences.

Wave Setup Analysis

Wave setup was computed based on the output wave conditions from WHAFIS. To adequately capture the complex hydrodynamics of wave-breaking across the surf zone, wave setup was calculated at each transect using Direct Integration Method (DIM), as listed in Table 14. Wind setup was also accounted for using the Zeider Zee Equation as noted in Table 14.

5.3.2 Waves

Starting wave heights and wave periods for Utah Lake were computed within the WHAFIS model for each transect based on an average input fetch length and input wind condition. The wind conditions were developed based on a statistical extreme value analysis to produce 1%- and 0.2%-annual-chance wind speeds for each transect.

5.3.3 Coastal Erosion

Following evaluation of historic records, erosion modeling was not conducted for transect analysis at Utah Lake. A review of historic information and field reconnaissance data did not support modeling for episodic erosion.

5.3.4 Wave Hazard Analyses

Overland wave hazards were evaluated to determine the combined effects of ground elevation, vegetation, and physical features on overland wave propagation and wave runup. These analyses were performed at representative transects along all shorelines for which waves were expected to be present during the floods of the selected recurrence intervals. The results of these analyses were used to determine elevations for the 1-percent-annual-chance flood.

Transect locations were chosen with consideration given to the physical land characteristics as well as development type and density so that they would closely represent conditions in their locality. Additional consideration was given to changes in the total stillwater elevation. Transects were spaced close together in areas of complex topography and dense development or where total stillwater elevations varied. In areas having more uniform characteristics, transects were spaced at larger intervals. Transects shown in Figure 9, “Transect Location Map,” are also depicted on the FIRM. Table 16 provides the location, stillwater elevations, and starting wave conditions for each transect evaluated for overland wave hazards. In this table, “starting” indicates the parameter value at the beginning of the transect.

Overland wave, wave runup, and wave overtopping hazards were all evaluated relative to a benchmark elevation of 4,487 feet NAVD88. Input and outputs from each model will be in feet, with 0-feet referenced to 4,487 feet, NAVD88. Elevation results shown in Table 16 have been converted to be relative to NAVD88.

Wave Height Analysis

Wave height analyses were performed to determine wave heights and corresponding wave crest elevations for the areas inundated by coastal flooding and subject to overland wave propagation hazards. Refer to Figure 6 for a schematic of a coastal transect evaluated for overland wave propagation hazards.

Wave heights and wave crest elevations were modeled using the methods and models listed in Table 14, “Summary of Coastal Analyses”.

Wave Runup Analysis

Wave runup analyses were performed to determine the height and extent of runup beyond the limit of stillwater inundation for the 1-percent-annual-chance flood. Wave runup elevations were modeled using the methods and models listed in Table 14.

Wave runup is defined as the maximum vertical extent of wave uprush on a beach or structure. FEMA’s guidelines and specifications require the 2-percent wave runup level be computed for the coastal feature being evaluated (cliff, coastal bluff, dune, or structure) (FEMA 2021). The 2-percent-exceedence runup is the runup exceeded by 2-percent of the runup values calculated at the shoreline/structure face. Each transect

defined within the study area was evaluated for the applicability of wave runup, and if necessary, the appropriate runup methodology was selected and applied to each transect. Runup elevations were then compared to WHAFIS results to determine the dominant process affecting BFEs and associated flood hazard levels. Based on wave runup rates, wave overtopping was computed following the FEMA guidelines and specifications. Wave runup analysis for the 0.2-percent-annual-chance event was not performed for this study.

Table 16: Coastal Transect Parameters

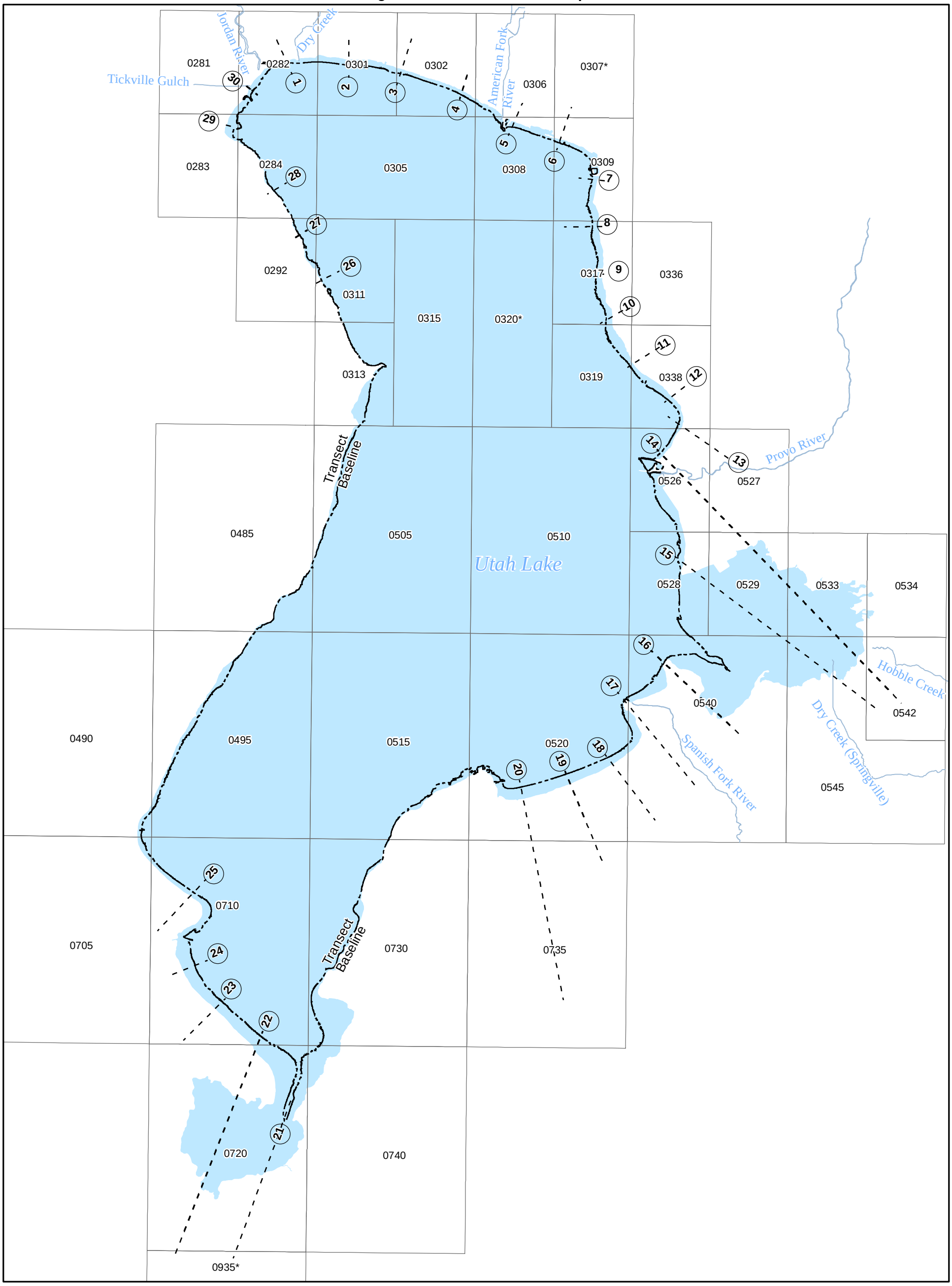
Flood Source	Coastal Transect	Starting Wave Conditions for the 1% Annual Chance		Starting Stillwater Elevations (ft NAVD88) Range of Stillwater Elevations (ft NAVD88)				
		Significant Wave Height H_s (ft)	Peak Wave Period T_p (sec)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Utah Lake	1	4.21	4.35	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	2	4.11	4.11	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	3	3.31	3.31	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	4	4.11	4.11	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	5	4.18	4.27	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	6	4.25	4.46	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	7	2.67	3.19	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	8	3.31	3.41	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	9	3.23	3.36	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2

Flood Source	Coastal Transect	Starting Wave Conditions for the 1% Annual Chance		Starting Stillwater Elevations (ft NAVD88) Range of Stillwater Elevations (ft NAVD88)				
		Significant Wave Height H_s (ft)	Peak Wave Period T_p (sec)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Utah Lake	10	3.76	3.59	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	11	4.02	3.91	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	12	4.16	4.22	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	13	4.08	4.03	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	14	4.11	4.09	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	15	4.00	3.87	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	16	4.01	3.89	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	17	4.10	4.08	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	18	4.09	4.05	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	19	3.96	3.97	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	20	4.14	4.17	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2

Flood Source	Coastal Transect	Starting Wave Conditions for the 1% Annual Chance		Starting Stillwater Elevations (ft NAVD88) Range of Stillwater Elevations (ft NAVD88)				
		Significant Wave Height H_s (ft)	Peak Wave Period T_p (sec)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Utah Lake	21	2.59	3.23	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	22	3.26	3.74	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	23	3.66	3.69	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	24	1.94	2.66	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	25	4.12	4.12	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	26	3.86	3.64	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	27	3.76	3.48	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	28	3.61	3.33	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	29	3.03	3.38	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2
Utah Lake	30	4.11	4.1	*	*	*	4494.7	4497.2
				*	*	*	4494.7-4494.7	4497.2-4497.2

*Not calculated for this Flood Risk Project

Figure 9: Transect Location Map



1 inch = 10,417 feet 1:125,000

N

feet
0 2,500 5,000 10,000 15,000 20,000

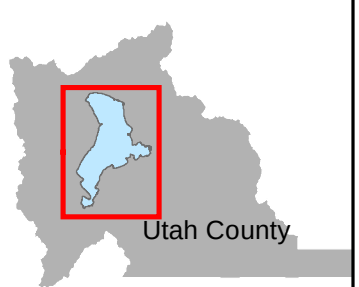
Map Projection:
Universal Transverse Mercator Zone 12 North;
North American Datum 1983

8 Coastal Transect

Coastal Transect Baseline

Hydrographic Feature

COUNTY LOCATOR



NATIONAL FLOOD INSURANCE PROGRAM

TRANSECT LOCATOR MAP

UTAH COUNTY, UTAH and Incorporated Areas
PANELS WITH TRANSECTS:
0282, 0283, 0284, 0292, 0301, 0302, 0306, 0307*, 0308, 0309, 0311, 0317, 0319, 0338, 0520, 0526, 0527, 0528, 0529, 0533, 0540, 0542, 0545, 0710, 0720, 0735, 0935*

FEMA

* PANEL NOT PRINTED

5.4 Alluvial Fan Analyses

Alluvial fan flooding can pose significant risk to communities due to uncertain flow paths and the potential for mud and debris flows. Alluvial fans and flooding on alluvial fans show great diversity because of variations in climate, fan history, rates and styles of tectonism, source area lithology, vegetation, and land use. Acknowledging this diversity, FEMA developed an approach that considers site-specific conditions in the identification and mapping of flood hazards on alluvial fans. The FEMA alluvial fan methodology was used to determine the flood depths and velocities on the alluvial fans described in Table 17.

A summary of the peak discharge at the fan apex and results for the 1-percent-annual-chance determinations for all the streams studied by alluvial fan analyses is shown in Table 18, “Results of Alluvial Fan Analyses.”

Table 17: Summary of Alluvial Fan Analyses

Flooding Source	Location From (apex)	Location To (toe)	Drainage Area above Apex (sq mi)	Model(s) Used	Date Analysis was Completed	Method Description
Buckley Draw[1]	Unknown	Unknown	0.84	Unknown	Unknown	Unknown
Little Rock Canyon	266 feet upstream of Sherwood Drive	Edgemont Elementary School	0.70	Unknown	Unknown	Shallow flow analysis
Slide Canyon[1]	Unknown	Approximately 1,400 feet below mouth of Slide Canyon	1.18	Unknown	Unknown	Unknown

[1] Due to the minimal amount of flood hazard determined for the areas, SFHA were not delineated.

Table 18: Results of Alluvial Fan Analyses

Flooding Source	Location From (apex)	Location To (toe)	1% Annual Chance Peak Flow at Fan Apex (cfs)	Flood Zones and Depths (ft)	Minimum Velocity (fps)	Maximum Velocity (fps)
Buckley Draw	Unknown	Unknown	40	*	N/A	N/A
Little Rock Canyon	266 feet upstream of Sherwood Drive	Edgemont Elementary School	32	Shaded Zone X	N/A	N/A
Slide Canyon	Unknown	Approximately 1,400 feet below mouth of Slide Canyon	53	*	N/A	N/A

*Due to the minimal amount of flood hazard determined for the areas, SFHA were not delineated.

SECTION 6.0 – MAPPING METHODS

6.1 Vertical and Horizontal Control

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

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

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

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

The datum conversion locations and values that were calculated for Utah County are provided in Table 19.

Table 19: Countywide Vertical Datum Conversion

[Not Applicable to this Flood Risk Project]

Table 20: Stream-Based Vertical Datum Conversion

Flooding Source	Average Vertical Datum Conversion Factor (feet)
American Fork River	3.39
Dry Creek	3.44
Jordan River	3.39
Rock Canyon	3.39
Salem Pond	3.39
Slate Canyon	3.39
Spanish Fork River	3.39
Thistle Creek	3.39
Wastewater Ditch Diversion	3.39

6.2 Base Map

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

Base map information shown on the FIRM was derived from the sources described in Table 21.

Table 21: Base Map Sources

Data Type	Data Provider	Data Date	Data Scale	Data Description
Hydrologic Units Boundaries	USGS	2010	1:24,000	HUC-8 Watershed boundaries
Municipal Boundaries	Utah Geospatial Resource Center (UGRC)	2022	1:12,000	Municipal boundaries
NAIP Orthophotography	United States Department of Agriculture	2021	60 cm GSD	Aerial photography
National Levee Database	USACE	2021	1:24,000	Levee centerlines
PLSS Sections GCDB	UGRC	2020	1:24,000	PLSS boundaries
Road and Railroad Centerlines	UGRC	2023	1:24,000	Transportation data
Utah County, Utah, Countywide FIS Effective data	FEMA	2020	1:24,000	Water lines

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 22. For each coastal flooding source studied as part of this FIS Report, the mapped floodplain boundaries on the FIRM have been delineated using the flood and

wave elevations determined at each transect; between transects, boundaries were delineated using land use and land cover data, the topographic elevation data described in Table 22, and knowledge of coastal flood processes. In ponding areas, flood elevations were determined at each junction of the model; between junctions, boundaries were interpolated using the topographic elevation data described in Table 22.

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

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 23, “Floodway Data.”

Table 22: Summary of Topographic Elevation Data used in Mapping

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Vertical Accuracy	Horizontal Accuracy	Citation
American Fork, City of; Genola, Town of; Goshen, Town of; Lehi, City of; Lindon, City of; Orem, City of; Provo, City of; Saratoga Springs; City of; Springville, City of; Utah County, Unincorporated Areas; Vineyard, City of	Utah Lake Watershed	Great Salt Lake & Utah Lake LiDAR Elevation Data (2016)	19.6 cm at 95% confidence level	Not Available	UGRC 2016

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Vertical Accuracy	Horizontal Accuracy	Citation
American Fork, City of; Genola, Town of; Lehi, City of; Lindon, City of; Orem, City of; Payson, City of; Pleasant Grove City, City of; Provo, City of; Saratoga Springs; City of; Spanish Fork, City of; Springville, City of; Utah County, Unincorporated Areas; Vineyard, City of	Provo Watershed and Spanish Fork Watershed	Wasatch Front LiDAR (2013-2014)	2.87 cm at 95% confidence level	Not Available	UGRC 2014

BFEs shown at cross sections on the FIRM represent the 1-percent-annual-chance water surface 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.

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE-ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
American Fork								
A	396	513	619	3.5	4572.5	4572.5	4572.5	0.0
B	985	51	249	4.5	4576.3	4576.3	4577.1	0.8
C	1,681	28	103	10.9	4584.2	4584.2	4584.2	0.0
D	2,723	28	103	10.8	4593.3	4593.3	4593.3	0.0
E	3,223	21	91	12.3	4603.3	4603.3	4603.3	0.0
F	3,904	38	291	4.2	4613.0	4613.0	4613.9	0.9
G	4,439	21	124	9.0	4616.8	4616.8	4616.8	0.0
H	5,245	33	139	8.0	4622.0	4622.0	4622.1	0.1
I	5,926	21	126	8.8	4633.6	4633.6	4634.5	0.9
J	6,642	44	180	6.2	4642.2	4642.2	4642.9	0.7
K	7,590	44	157	7.1	4651.3	4651.3	4651.8	0.5
L	8,255	49	124	9.0	4659.7	4659.7	4659.7	0.0
M	9,082	46	146	7.6	4668.3	4668.3	4668.4	0.1
N	9,784	57	182	6.2	4681.0	4681.0	4681.0	0.0
O	10,743	50	134	8.3	4691.2	4691.2	4691.3	0.1
P	11,612	34	130	8.6	4701.1	4701.1	4701.2	0.1
Q	12,335	53	132	8.4	4722.0	4722.0	4722.0	0.0
R	13,169	33	108	10.4	4730.6	4730.6	4730.6	0.0
S	13,846	115	497	2.9	4746.5	4746.5	4747.4	0.9
T	15,017	35	154	7.2	4762.1	4762.1	4762.6	0.5
U	15,935	37	113	9.8	4775.3	4775.3	4775.3	0.0
V	16,860	103	160	7.4	4794.0	4794.0	4794.0	0.0
W	17,460	36	156	8.7	4804.2	4804.2	4804.2	0.0
X	17,602	148	320	4.5	4808.6	4808.6	4809.1	0.5

[1]Feet above I-15

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

FLOODWAY DATA

AMERICAN FORK RIVER

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE-ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
American Fork								
Y	17,682	48	279	5.3	4809.1	4809.1	4810.1	1.0
Z	18,632	30	127	11.8	4824.2	4824.2	4824.5	0.3
AA	19,532	124	367	4.2	4834.8	4834.8	4835.4	0.6
AB	21,332	63	166	9.3	4866.8	4866.8	4866.8	0.0
AC	23,532	75	256	6.0	4897.8	4897.8	4898.1	0.3
AD	23,775	229	373	4.5	4906.2	4906.2	4906.8	0.6
AE	24,000	215	904	1.9	4907.0	4907.0	4908.0	1.0
AF	25,100	40	151	11.2	4922.9	4922.9	4922.9	0.0
AG	26,100	345	519	3.7	4938.7	4938.7	4939.1	0.4
AH	26,950	281	317	6.0	4955.6	4955.6	4955.6	0.0
AI	28,050	137	353	6.0	4975.1	4975.1	4975.5	0.4
AJ	29,400	77	232	9.9	5003.9	5003.9	5003.9	0.0
AK	30,200	59	220	11.0	5024.8	5024.8	5024.8	0.0

[1]Feet above I-15

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

FLOODWAY DATA

AMERICAN FORK RIVER

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE-ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Dry Creek								
A	0	162	321	3.7	4,560.4	4,560.4	4,561.4	1.0
B	420	129	319	3.4	4,563.2	4,563.2	4,564.2	1.0
C	850	139	296	4.8	4,566.2	4,566.2	4,567.2	1.0
D	1,050	218	490	2.7	4,567.0	4,567.0	4,567.2	0.2
E	1,275	195	332	4.1	4,568.3	4,568.3	4,569.1	0.8
F	1,440	134	292	4.7	4,569.6	4,569.6	4,570.6	1.0
G	1,885	216	372	2.9	4,571.6	4,571.6	4,572.5	0.9
H	2,050	167	316	3.5	4,572.8	4,572.8	4,573.7	0.9
I	2,425	170	339	3.7	4,575.7	4,575.7	4,576.6	0.9
J	2,625	102	209	6.2	4,578.0	4,578.0	4,578.9	0.9
K	2,845	183	371	3.5	4,580.3	4,580.3	4,581.3	1.0
L	3,040	210	555	1.7	4,581.3	4,581.3	4,582.1	0.8
M	3,090	232	660	2.4	4,581.3	4,581.3	4,582.2	0.9
N	3,250	52	168	7.7	4,582.4	4,582.4	4,583.4	1.0
O	5,300	124	421	3.6	4,598.4	4,598.4	4,599.0	0.6
P	6,400	81	285	5.3	4,605.2	4,605.2	4,605.8	0.6
Q	7,150	72	240	6.3	4,612.8	4,612.8	4,613.5	0.7
R	7,420	327	1,452	1.0	4,614.0	4,614.0	4,615.0	1.0
S	8,120	56	173	8.7	4,616.9	4,616.9	4,617.4	0.5
T	8,270	40	198	7.6	4,619.1	4,619.1	4,620.1	1.0
U	8,354	71	343	4.4	4,625.0	4,625.0	4,625.9	0.9
V	8,454	120	936	1.6	4,625.4	4,625.4	4,626.4	1.0
W	8,754	117	891	1.7	4,625.5	4,625.5	4,626.5	1.0
X	9,754	49	162	10.4	4,630.4	4,630.4	4,630.4	0.0

[1]Feet above Cross Section 'A'

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE-ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Dry Creek (cont'd)								
Y	10,554	33	210	8.0	4,639.9	4,639.9	4,640.3	0.4
Z	11,504	38	173	9.7	4,648.9	4,648.9	4,649.1	0.2
AA	11,634	104	270	6.2	4,657.9	4,657.9	4,658.4	0.5
AB	11,856	220	620	2.7	4,664.3	4,664.3	4,664.7	0.4
AC	11,956	103	780	2.2	4,664.5	4,664.5	4,664.9	0.4
AD	12,550	36	157	11.7	4,667.8	4,667.8	4,667.8	0.0
AE	13,250	39	202	9.1	4,677.7	4,677.7	4,678.7	1.0
AF	14,100	63	271	6.8	4,686.3	4,686.3	4,686.6	0.3
AG	15,100	66	285	6.5	4,693.1	4,693.1	4,694.0	0.9
AH	15,550	54	387	5.0	4,702.0	4,702.0	4,702.0	0.0
AI	16,028	40	221	9.0	4,703.2	4,703.2	4,703.6	0.4
AJ	16,948	46	210	9.5	4,714.0	4,714.0	4,714.8	0.8
AK	18,048	61	272	7.4	4,725.8	4,725.8	4,726.1	0.3
AL	18,528	59	194	10.3	4,735.2	4,735.2	4,735.3	0.1
AM-AN[2]								
AO	20,936	96	588	4.4	4,773.4	4,773.4	4,774.2	0.8
AP	21,186	280	3,326	0.8	4,773.9	4,773.9	4,774.8	0.9
AQ	22,566	49	217	11.9	4,778.6	4,778.6	4,778.9	0.3
AR	23,166	111	419	6.2	4,786.3	4,786.3	4,787.3	1.0
AS	23,816	79	386	6.5	4,791.1	4,791.1	4,791.3	0.2
AT	24,276	66	238	10.5	4,796.7	4,796.7	4,797.3	0.6
AU	25,856	70	328	7.6	4,814.5	4,814.5	4,815.4	0.9
AV	25,982	154	628	4.0	4,824.6	4,824.6	4,825.2	0.6
AW	26,092	270	2,292	1.1	4,825.0	4,825.0	4,825.6	0.6

[1]Feet above Cross Section 'A' [2]Data Not Applicable Due to Manmade Impoundment

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

FLOODWAY DATA

DRY CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE-ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Dry Creek (cont'd)								
AX	26,909	235	254	3.3	4,827.3	4,827.3	4,827.3	0.0
AY	28,085	91	154	5.4	4,837.3	4,837.3	4,837.3	0.0
AZ	28,957	79	161	5.2	4,845.6	4,845.6	4,845.7	0.1
BA	29,721	68	115	7.3	4,853.5	4,853.5	4,853.6	0.1
BB	30,810	93	153	5.5	4,867.4	4,867.4	4,868.0	0.6
BC	31,393	72	169	5.0	4,872.2	4,872.2	4,872.2	0.0
BD	32,405	39	109	4.9	4,879.9	4,879.9	4,880.0	0.1
BE	33,957	33	88	6.1	4,898.7	4,898.7	4,898.8	0.1
BF	34,972	24	60	8.9	4,914.0	4,914.0	4,914.0	0.0
BG	37,072	71	95	5.6	4,946.4	4,946.4	4,946.5	0.1
BH	38,926	25	61	8.7	4,972.0	4,972.0	4,972.0	0.0
BI	40,238	50	78	7.3	4,994.4	4,994.4	4,994.4	0.0
BJ	41,981	30	64	8.4	5,034.0	5,034.0	5,034.0	0.0
BK	43,499	79	89	6.0	5,080.6	5,080.6	5,080.7	0.1
BL	44,441	42	71	7.7	5,118.8	5,118.8	5,118.8	0.0
BM	45,371	25	61	8.7	5,155.2	5,155.2	5,155.2	0.0
BN	46,169	31	65	8.2	5,193.3	5,193.3	5,193.3	0.0
BO	47,329	48	76	7.0	5,252.4	5,252.4	5,252.4	0.0
BP	47,914	31	65	8.4	5,289.3	5,289.3	5,289.3	0.0
BQ	48,847	45	74	7.2	5,343.6	5,343.6	5,343.7	0.1
BR	49,547	43	73	7.3	5,392.7	5,392.7	5,392.7	0.0
BS	50,343	27	62	8.9	5,454.7	5,454.7	5,454.7	0.0
BT	51,070	20	57	9.3	5,509.3	5,509.3	5,509.3	0.0
BU	51,693	28	63	8.7	5,565.7	5,565.7	5,565.7	0.0

[1]Feet above Cross Section 'A'

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

FLOODWAY DATA

DRY CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE-ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Dry Creek (cont'd)								
BV	52,369	34	67	7.9	5,638.3	5,638.3	5,638.3	0.0

[1]Feet above Cross Section 'A'

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

FLOODWAY DATA

DRY CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Dry Creek (Payson)								
A	2,047	134	170	1.9	4,628.0	4,628.0	4,628.9	0.9
B	3,070	85	181	1.8	4,634.4	4,634.4	4,634.7	0.3
C	4,115	148	291	3.2	4,639.3	4,639.3	4,639.7	0.4
D	5,350	170	185	5.1	4,646.0	4,646.0	4,646.9	0.9
E	6,320	113	165	5.7	4,656.9	4,656.9	4,657.7	0.8
F	7,586	23	95	10.1	4,671.7	4,671.7	4,672.0	0.3
G	8,514	29	109	9.2	4,681.0	4,681.0	4,681.0	0.0
H	9,721	41	125	8.0	4,696.2	4,696.2	4,696.2	0.0
I	10,920	30	98	10.2	4,730.1	4,730.1	4,730.1	0.0
J	11,923	36	133	7.5	4,743.0	4,743.0	4,743.8	0.8
K	12,818	126	138	7.2	4,755.8	4,755.8	4,756.7	0.9
L	14,037	42	164	6.1	4,776.9	4,776.9	4,777.4	0.5
M	15,137	25	91	10.9	4,793.5	4,793.5	4,793.5	0.0
N	16,145	27	95	10.6	4,818.4	4,818.4	4,818.8	0.4
O	17,105	26	92	10.9	4,833.2	4,833.2	4,833.2	0.0

[1]Feet above Railroad Bridge

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY
UTAH COUNTY, UT
AND INCORPORATED AREAS

FLOODWAY DATA

DRY CREEK (PAYSON)

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE-ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
East Fork Fort Creek								
A	43	27	49	7.6	5,350.1	5,350.1	5,350.1	0.0
B	644	24	47	8.2	5,398.0	5,398.0	5,398.0	0.0
C	1,470	18	43	9.0	5,449.8	5,449.8	5,449.8	0.0
D	2,172	16	41	9.1	5,502.2	5,502.2	5,502.2	0.0
E	2,771	17	42	9.0	5,545.5	5,545.5	5,545.5	0.0
F	3,466	24	47	8.0	5,604.3	5,604.3	5,604.3	0.0
G	4,143	30	51	7.3	5,659.0	5,659.0	5,659.0	0.0

[1]Feet above confluence with Fort Creek

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE-ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Fort Creek								
A	305	22	46	8.1	4,875.0	4,875.0	4,875.0	0.0
B	1,227	28	85	4.4	4,884.9	4,884.9	4,885.5	0.6
C	1,967	30	51	7.3	4,897.0	4,897.0	4,897.1	0.0
D	2,838	27	62	6.0	4,911.5	4,911.5	4,911.6	0.1
E	3,832	25	51	7.4	4,930.3	4,930.3	4,930.3	0.0
F	4,845	57	92	4.1	4,944.0	4,944.0	4,944.0	0.0
G	6,074	23	47	8.0	4,965.5	4,965.5	4,965.5	0.0
H	7,215	44	59	6.4	4,986.3	4,986.3	4,986.3	0.0
I	8,296	39	56	7.0	5,015.3	5,015.3	5,015.3	0.0
J	9,118	26	50	8.2	5,042.4	5,042.4	5,042.4	0.0
K	10,384	24	47	8.3	5,092.7	5,092.7	5,092.8	0.1
L	11,241	20	46	8.1	5,116.8	5,116.8	5,116.8	0.0
M	12,630	26	48	8.0	5,162.1	5,162.1	5,162.2	0.1
N	13,494	21	45	8.3	5,194.4	5,194.4	5,194.4	0.0
O	14,435	18	43	8.8	5,237.8	5,237.8	5,237.8	0.0
P	15,373	26	49	8.1	5,294.4	5,294.4	5,294.4	0.0
Q	16,165	28	49	7.6	5,339.6	5,339.6	5,339.6	0.0
R	16,720	22	46	8.4	5,374.3	5,374.3	5,374.3	0.0
S	17,289	19	44	8.5	5,408.6	5,408.6	5,408.6	0.0
T	17,972	34	53	7.4	5,449.7	5,449.7	5,449.7	0.0
U[2]	18,428	29	50	7.8	5,482.5	5,482.5	5,482.5	0.0
V[2]	18,819	29	51	7.8	5,503.8	5,503.8	5,503.8	0.0
W[2]	19,253	52	61	6.3	5,536.9	5,536.9	5,536.9	0.0
X[2]	19,750	28	49	7.8	5,600.3	5,600.3	5,600.3	0.0

[1]Feet above confluence with Dry Creek [2]Middle Fork Fort Creek

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

FLOODWAY DATA

FORT CREEK AND MIDDLE FORK FORT CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Hobble Creek								
A	2,822	1,335	1,856	0.7	4,499.6	4,499.6	4,500.6	1.0
B	3,939	1,330	783	2.0	4,500.8	4,500.8	4,501.1	0.3
C	4,983	706	628	2.0	4,502.9	4,502.9	4,503.5	0.6
D	6,002	520	293	4.4	4,507.0	4,507.0	4,507.5	0.5
E	7,181	755	538	2.4	4,510.8	4,510.8	4,511.2	0.4
F	8,024	269	270	4.7	4,517.0	4,517.0	4,517.6	0.6
G	9,171	430	334	3.8	4,524.8	4,524.8	4,525.8	1.0
H	10,028	450	216	5.9	4,531.4	4,531.4	4,531.5	0.1
I	11,138	314	231	5.5	4,541.6	4,541.6	4,542.1	0.5
J	12,031	33	119	10.8	4,550.6	4,550.6	4,550.6	0.0
K	13,098	57	178	7.8	4,559.3	4,559.3	4,559.3	0.0
L	14,000	52	247	5.6	4,568.2	4,568.2	4,568.5	0.3
M	15,015	40	135	10.3	4,575.3	4,575.3	4,575.3	0.0
N	16,118	41	212	6.6	4,588.4	4,588.4	4,588.7	0.3
O	17,093	39	194	7.2	4,596.0	4,596.0	4,596.0	0.0
P	18,087	37	152	9.2	4,606.4	4,606.4	4,606.4	0.0
Q	18,936	99	199	7.0	4,615.0	4,615.0	4,615.0	0.0
R	20,030	37	130	10.7	4,627.0	4,627.0	4,627.0	0.0
S	21,046	37	134	10.4	4,636.9	4,636.9	4,636.9	0.0
T	22,234	51	155	9.0	4,651.0	4,651.0	4,651.0	0.0
U	23,009	36	128	10.8	4,660.5	4,660.5	4,660.5	0.0
V	24,037	57	176	7.9	4,671.5	4,671.5	4,671.5	0.0
W	25,324	91	198	7.0	4,683.1	4,683.1	4,683.1	0.0
X	26,167	37	129	10.8	4,696.4	4,696.4	4,696.4	0.0
Y	27,241	59	372	3.7	4,710.3	4,710.3	4,710.3	0.0
Z	27,843	36	128	10.9	4,714.9	4,714.9	4,714.9	0.0

[1]Feet above a point 1,362 feet downstream of Frontage Road

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY
UTAH COUNTY, UT
AND INCORPORATED AREAS

FLOODWAY DATA

HOBBLE CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Hobble Creek cont'd								
AA	29,221	66	188	7.4	4,734.6	4,734.6	4,734.7	0.1
AB	30,112	51	156	8.9	4,744.5	4,744.5	4,744.5	0.0
AC	31,275	37	137	10.1	4,756.5	4,756.5	4,756.5	0.0
AD	32,080	31	121	11.5	4,768.0	4,768.0	4,768.0	0.0
AE	33,106	50	151	9.2	4,780.3	4,780.3	4,780.3	0.0
AF	34,323	39	132	10.5	4,794.1	4,794.1	4,794.1	0.0
AG	35,341	38	133	10.5	4,815.9	4,815.9	4,816.5	0.6
AH	36,212	33	126	11.0	4,829.6	4,829.6	4,830.0	0.4
AI	37,012	42	171	8.1	4,839.1	4,839.1	4,839.3	0.2
AJ	38,141	29	122	11.4	4,851.7	4,851.7	4,852.0	0.3

[1]Feet above a point 1,362 feet downstream of Frontage Road

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY
UTAH COUNTY, UT
AND INCORPORATED AREAS

FLOODWAY DATA

HOBBLE CREEK

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE-ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Hog Hollow								
A	129	68	47	2.9	4,848.4	4,848.4	4,848.4	0.0
B	637	23	24	6.0	4,870.2	4,870.2	4,870.2	0.0
C	1,467	54	32	4.2	4,891.7	4,891.7	4,891.7	0.0
D	2,536	63	59	2.3	4,916.4	4,916.4	4,916.4	0.0
E	3,671	20	23	6.4	4,952.0	4,952.0	4,952.0	0.0
F	4,132	24	24	6.0	4,965.4	4,965.4	4,965.4	0.0
G	4,636	80	35	3.8	4,985.2	4,985.2	4,985.2	0.0
H	5,424	21	26	5.1	5,004.9	5,004.9	5,005.0	0.1
I	6,021	24	24	5.7	5,026.9	5,026.9	5,026.9	0.0
J	6,527	26	24	5.6	5,042.4	5,042.4	5,042.4	0.0
K	7,135	25	24	5.9	5,064.2	5,064.2	5,064.2	0.0
L	7,524	28	25	5.6	5,074.7	5,074.7	5,074.7	0.0
M	7,998	16	21	6.6	5,087.4	5,087.4	5,087.4	0.0
N	8,295	29	25	5.6	5,098.8	5,098.8	5,098.8	0.0
O	8,728	29	25	5.4	5,114.3	5,114.3	5,114.3	0.0
P	9,135	18	21	6.3	5,132.8	5,132.8	5,132.8	0.0

[1]Feet above confluence with Dry Creek

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE-ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Jordan River								
A	1,000	84	919	2.8	4,494.6	4,494.6	4,494.6	0.0
B	1,965	142	1,485	1.7	4,494.8	4,494.8	4,494.8	0.0
C	3,230	187	2,177	1.2	4,494.9	4,494.9	4,494.9	0.0
D	4,033	120	1,385	1.9	4,494.9	4,494.9	4,494.9	0.0
E	4,159	134	1,422	1.8	4,494.9	4,494.9	4,494.9	0.0
F	5,967	142	1,477	1.7	4,495.0	4,495.0	4,495.0	0.0
G	6,439	112	1,314	2.0	4,495.0	4,495.0	4,495.0	0.0
H	6,956	174	1,813	1.4	4,495.1	4,495.1	4,495.1	0.0
I	8,079	126	1,360	1.9	4,495.1	4,495.1	4,495.1	0.0
J	9,386	143	1,557	1.7	4,495.2	4,495.2	4,495.2	0.0
K	10,114	138	1,398	1.8	4,495.2	4,495.2	4,495.2	0.0
L	11,354	156	1,711	1.5	4,495.3	4,495.3	4,495.3	0.0
M	12,666	151	1,536	1.7	4,495.3	4,495.3	4,495.3	0.0
N	13,738	170	1,807	1.4	4,495.4	4,495.4	4,495.4	0.0
O	15,913	252	1,992	1.3	4,495.5	4,495.5	4,495.5	0.0
P	16,901	186	1,690	1.5	4,495.6	4,495.6	4,495.6	0.0
Q	17,509	207	1,833	1.4	4,495.6	4,495.6	4,495.6	0.0
R	19,568	150	1,549	1.7	4,495.7	4,495.7	4,495.7	0.0
S	20,711	230	2,096	1.2	4,495.7	4,495.7	4,495.7	0.0
T	22,386	151	1,690	1.5	4,495.8	4,495.8	4,495.9	0.1
U	23,320	135	1,492	1.7	4,495.8	4,495.8	4,495.9	0.1
V	25,422	104	1,392	1.8	4,495.9	4,495.9	4,496.0	0.1
W	27,379	241	2,020	1.3	4,496.0	4,496.0	4,496.1	0.1
X	28,669	145	1,908	1.3	4,496.0	4,496.0	4,496.2	0.2

[1]Feet above Jordan River Diversion Structure

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE-ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Jordan River (cont'd)								
Y	29,566	246	1,998	1.3	4,496.0	4,496.0	4,496.2	0.2
Z	31,254	166	1,850	1.4	4,496.1	4,496.1	4,496.3	0.2
AA	32,897	133	1,488	1.7	4,496.1	4,496.1	4,496.3	0.2
AB	35,245	193	1,678	1.5	4,496.3	4,496.3	4,496.8	0.5
AC	37,465	134	1,524	1.7	4,496.4	4,496.4	4,496.9	0.5
AD	39,298	98	1,164	2.2	4,496.5	4,496.5	4,497.0	0.5
AE	41,348	180	1,754	1.5	4,496.6	4,496.6	4,497.1	0.5
AF	42,840	155	1,592	1.6	4,496.7	4,496.7	4,497.2	0.5
AG	44,164	116	1,321	1.9	4,496.7	4,496.7	4,497.3	0.6
AH	45,220	190	2,331	1.1	4,496.8	4,496.8	4,497.4	0.6
AI	46,823	205	1,920	1.3	4,496.9	4,496.9	4,497.4	0.5
AJ	48,094	225	1,917	1.3	4,497.0	4,497.0	4,497.5	0.5
AK	49,227	382	2,735	0.9	4,497.0	4,497.0	4,497.6	0.6
AL	50,472	226	2,119	1.2	4,497.0	4,497.0	4,497.6	0.6
AM	51,623	231	1,659	1.6	4,497.3	4,497.3	4,497.8	0.5
AN	52,366	244	2,156	1.2	4,497.3	4,497.3	4,497.9	0.6
Peteetneet Creek								
A-H[3]								
I	18,636[2]	35.00	107	9.4	4,868.7	4,868.7	4,869.0	0.3

[1]Feet above Jordan River Diversion Structure

[2]Feet above 1450 West

[3]Floodway not studied

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

FLOODWAY DATA

JORDAN RIVER - PETEETNEET CREEK

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Provo River								
A	2,626	78	498	4.7	*	4,493.1 [2]	4,493.1	0.0
B	11,691	81	402	5.8	4,503.2	4,503.2	4,503.2	0.0
C	12,735	79	362	6.4	4,506.2	4,506.2	4,506.2	0.0
D	13,943	75	318	7.3	4,510.2	4,510.2	4,510.2	0.0
E	14,944	77	349	6.7	4,514.1	4,514.1	4,514.1	0.0
F	15,973	83	355	6.5	4,518.0	4,518.0	4,518.0	0.0
G	17,230	77	328	7.1	4,524.1	4,524.1	4,524.1	0.0
H	17,948	57	281	8.3	4,527.2	4,527.2	4,527.3	0.1
I	19,168	92	383	6.1	4,534.5	4,534.5	4,534.6	0.1
J	20,213	143	507	4.6	4,541.8	4,541.8	4,541.8	0.0
K	21,264	67	290	8.0	4,547.8	4,547.8	4,547.9	0.1
L	22,083	115	407	5.7	4,553.2	4,553.2	4,553.2	0.0
M	23,073	73	331	7.0	4,560.7	4,560.7	4,560.8	0.1
N	24,182	79	370	6.3	4,568.0	4,568.0	4,568.0	0.0
O	25,096	73	323	7.2	4,573.7	4,573.7	4,573.7	0.0
P	25,974	61	295	7.9	4,579.6	4,579.6	4,579.7	0.1
Q	27,077	64	324	7.2	4,591.8	4,591.8	4,592.3	0.5
R	28,143	52	260	8.9	4,599.8	4,599.8	4,599.9	0.1
S	29,101	47	243	9.6	4,607.4	4,607.4	4,607.5	0.1
T	30,189	123	631	3.7	4,615.2	4,615.2	4,615.2	0.0
U	31,136	66	313	7.4	4,622.0	4,622.0	4,622.0	0.0
V	32,079	73	270	8.6	4,633.8	4,633.8	4,633.8	0.0
W	33,162	61	301	7.7	4,643.0	4,643.0	4,643.1	0.1
X	34,177	87	341	6.8	4,651.1	4,651.1	4,651.2	0.1
Y	35,129	66	286	8.1	4,659.7	4,659.7	4,659.7	0.0
Z	36,116	59	263	8.8	4,668.7	4,668.7	4,668.8	0.1

[1]Feet above a point 2,663 feet below Center Street

[2] Elevation computed without consideration of backwater effects from Utah Lake

* Controlled by coastal flooding. See Flood Insurance Rate Map for regulatory Base Flood Elevation

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY
UTAH COUNTY, UT
AND INCORPORATED AREAS

FLOODWAY DATA

PROVO RIVER

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Provo River								
AA	37,097	54	270	8.6	4,678.2	4,678.2	4,678.2	0.0
AB	38,159	64	302	7.7	4,686.9	4,686.9	4,687.0	0.1
AC	39,271	57	287	8.1	4,696.2	4,696.2	4,696.2	0.0
AD	40,164	71	299	7.8	4,703.4	4,703.4	4,703.5	0.1
AE	41,182	101	413	5.6	4,713.1	4,713.1	4,713.2	0.1
AF	42,087	71	288	8.1	4,721.2	4,721.2	4,721.2	0.0
AG	43,135	68	298	7.8	4,731.4	4,731.4	4,731.4	0.0
AH	44,056	58	273	8.5	4,740.0	4,740.0	4,740.0	0.0
AI	45,169	46	272	8.5	4,749.6	4,749.6	4,749.8	0.2
AJ	46,142	75	298	7.8	4,758.0	4,758.0	4,758.1	0.1
AK	47,118	59	283	8.2	4,767.7	4,767.7	4,767.8	0.1
AL	48,129	61	262	8.9	4,778.4	4,778.4	4,778.5	0.1
AM	49,325	53	247	9.4	4,788.9	4,788.9	4,788.9	0.0
AN	50,228	84	410	5.7	4,802.3	4,802.3	4,802.3	0.0
AO	51,331	45	227	10.2	4,810.0	4,810.0	4,810.1	0.1

[1]Feet above a point 2,663 feet below Center Street

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY
UTAH COUNTY, UT
AND INCORPORATED AREAS

FLOODWAY DATA

PROVO RIVER

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE-ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Soldier Creek								
A	1,619	78	256	6.8	5,057.6	5,057.6	5,057.6	0.0
B	1,806	114	368	4.8	5,058.2	5,058.2	5,058.7	0.5
C	1,850	108	350	5.0	5,058.4	5,058.4	5,058.8	0.4
D	1,986	18	119	14.7	5,060.4	5,060.4	5,060.4	0.0
E	2,587	18	227	7.7	5,069.4	5,069.4	5,069.4	0.0
F	2,735	26	300	5.8	5,070.6	5,070.6	5,070.6	0.0
G	3,200	90	611	2.9	5,070.6	5,070.6	5,071.1	0.5
H	3,600	84	288	6.1	5,070.6	5,070.6	5,071.1	0.5
I	4,000	88	235	7.4	5,072.0	5,072.0	5,072.9	0.9
J	4,413	61	217	8.1	5,075.4	5,075.4	5,075.8	0.4
K	4,954	42	179	9.8	5,079.9	5,079.9	5,079.9	0

[1]Feet above the Outlet Works of the Thistle Debris Basin

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE-ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Spanish Fork River								
A	199	250	8,249	3.5	4,561.3	4,561.3	4,561.3	0.0
B	1,649	174	1,076	3.5	4,566.3	4,566.3	4,567.2	0.9
C	4,305	92	565	6.6	4,574.4	4,574.4	4,574.5	0.1
D	5,644	176	853	4.4	4,578.0	4,578.0	4,578.4	0.4
E	7,582	217	1,042	4.7	4,583.6	4,583.6	4,583.6	0.0
F	8,865	85	581	6.5	4,589.3	4,589.3	4,589.4	0.1
G	10,101	150	658	5.7	4,593.2	4,593.2	4,593.3	0.1
H	12,041	76	480	7.8	4,599.6	4,599.6	4,599.6	0.0
I	14,470	481	1,273	3.0	4,608.1	4,608.1	4,609.0	0.9
J	17,343	419	1,010	3.7	4,617.3	4,617.3	4,618.2	0.9
K	21,391	494	1,010	3.7	4,633.9	4,633.9	4,634.8	0.9
L	23,380	126	699	5.4	4,642.6	4,642.6	4,643.2	0.6
M	26,471	97	643	5.8	4,657.4	4,657.4	4,657.6	0.2
N	29,313	133	773	5.8	4,670.4	4,670.4	4,670.7	0.3
O	31,193	510	1,335	3.7	4,678.7	4,678.7	4,679.1	0.4
P	33,986	380	991	3.8	4,693.7	4,693.7	4,694.6	0.9
Q	36,679	58	355	10.6	4,712.4	4,712.4	4,712.4	0.0
R	88,614	391	4,246	0.8	5,057.9	5,057.9	5,057.9	0.0
S	89,414	625	6,553	0.5	5,057.9	5,057.9	5,057.9	0.0
T	89,754	530	5,762	0.6	5,057.9	5,057.9	5,057.9	0.0

[1]Stream distance in feet above I-15

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

FLOODWAY DATA

SPANISH FORK RIVER

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER-SURFACE-ELEVATION (FEET NAVD)			
CROSS-SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Thistle Creek								
A	1,700	180	528	2.9	5,057.8	5,057.8	5,057.8	0.0
B	2,160	67	181	8.6	5,061.3	5,061.3	5,062.2	0.9
C	2,644	108	361	4.3	5,065.4	5,065.4	5,066.1	0.7
D	3,039	61	166	9.3	5,067.9	5,067.9	5,067.9	0.0
E	3,435	102	337	4.6	5,070.6	5,070.6	5,071.5	0.9
F	3,871	94	269	5.8	5,072.6	5,072.6	5,073.5	0.9
G	4,158	108	262	5.9	5,075.5	5,075.5	5,075.5	0.0
West Fork Fort Creek								
A	190[2]	19	44	8.6	5,465.2	5,465.2	5,465.2	0.0
B	542[2]	38	56	7.1	5,491.8	5,491.8	5,491.9	0.1
C	857[2]	50	61	6.4	5,515.5	5,515.5	5,515.5	0.0
D	1,186[2]	27	49	7.7	5,543.2	5,543.2	5,543.2	0.0

[1]Feet above the Outlet Works of the Thistle Debris Basin

[2]Feet above confluence with Fort Creek

TABLE 23

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

FLOODWAY DATA

THISTLE CREEK - WEST FORK FORT CREEK

Table 24: Flood Hazard and Non-Encroachment Data for Selected Streams

[Not Applicable to this Flood Risk Project]

6.4 Coastal Flood Hazard Mapping

Flood insurance zones and BFEs including the wave effects were identified on each transect based on the results from the onshore wave hazard analyses. Between transects, elevations were interpolated using topographic maps, land-use and land-cover data, and knowledge of coastal flood processes to determine the aerial extent of flooding. Sources for topographic data are shown in Table 22.

Zone VE is subdivided into elevation zones and BFEs are provided on the FIRM.

The limit of Zone VE shown on the FIRM is defined as the farthest inland extent of any of these criteria (determined for the 1-percent-annual-chance flood condition):

- The *primary frontal dune zone* is defined in 44 CFR Section 59.1 of the NFIP regulations. The primary frontal dune represents a continuous or nearly continuous mound or ridge of sand with relatively steep seaward and landward slopes that occur immediately landward and adjacent to the beach. The primary frontal dune zone is subject to erosion and overtopping from high tides and waves during major coastal storms. The inland limit of the primary frontal dune zone occurs at the point where there is a distinct change from a relatively steep slope to a relatively mild slope.

- The *wave runup zone* occurs where the (eroded) ground profile is 3.0 feet or more below the 2-percent wave runup elevation.

- The *wave overtopping splash zone* is the area landward of the crest of an overtopped barrier, in cases where the potential 2-percent wave runup exceeds the barrier crest elevation by 3.0 feet or more.

- The *breaking wave height zone* occurs where 3-foot or greater wave heights could occur (this is the area where the wave crest profile is 2.1 feet or more above the total stillwater elevation).

- The *high-velocity flow zone* is landward of the overtopping splash zone (or area on a sloping beach or other shore type), where the product of depth of flow times the flow velocity squared (hv^2) is greater than or equal to 200 ft^3/sec^2. This zone may only be used on the Pacific Coast.

The SFHA boundary indicates the limit of SFHAs shown on the FIRM as either “V” zones or “A” zones.

Table 25 indicates the coastal analyses used for floodplain mapping and the criteria used to determine the inland limit of the open-coast Zone VE and the SFHA boundary at each transect.

Table 25: Summary of Coastal Transect Mapping Considerations

Coastal Transect	Primary Frontal Dune (PFD) Identified	Wave Runup Analysis — Zone Designation and BFE (ft NAVD88)	Wave Height Analysis — Zone Designation and BFE (ft NAVD88)	Zone VE Limit	SFHA Boundary
1	N/A	N/A	VE 4498-4500 AE 4496-4497	Wave Height	SWEL
2	N/A	N/A	VE 4499-4500 AE 4496-4498	Wave Height	SWEL
3	N/A	N/A	VE 4498 -4499 AE 4496 - 4497	Wave Height	SWEL
4	N/A	VE 4499	VE 4500 AE 4496	Runup	SWEL
5	N/A	N/A	VE 4498-4500 AE 4496-4497	Wave Height	SWEL
6	N/A	VE 4498- AE 4498 AH 4498	VE 4500	Runup	SWEL
7	N/A	VE 4497	VE 4498	Runup	Runup
8	N/A	VE 4497	VE 4498 AE 4496	Runup	SWEL
9	N/A	VE 4497	VE 4498 AE 4496	Runup	SWEL
10	N/A	N/A	VE 4499 AE 4496	Wave Height	SWEL
11	N/A	N/A	VE 4499 AE 4496-4497	Wave Height	SWEL
12	N/A	N/A	VE 4499 AE 4496-4497	Wave Height	SWEL
13	N/A	N/A	VE 4499 AE 4496-4497	Wave Height	SWEL
14	N/A	N/A	VE 4499 AE 4495-4497	Wave Height	SWEL
15	N/A	N/A	VE 4498-4500 AE 4495-4498	Wave Height	SWEL
16	N/A	VE 4500 AE 4495-4497	N/A	Runup	SWEL
17	N/A	N/A	VE 4499-4500 AE 4496-4497	Wave Height	SWEL
18	N/A	N/A	VE 4499-4500 AE 4495-4497	Wave Height	SWEL

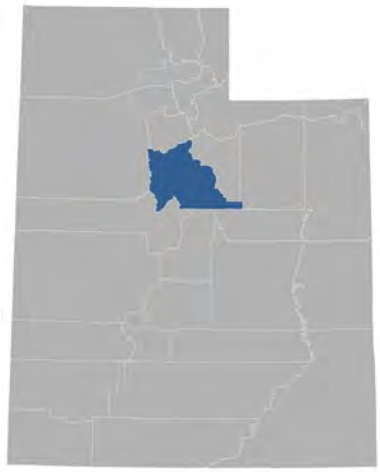
Coastal Transect	Primary Frontal Dune (PFD) Identified	Wave Runup Analysis	Wave Height Analysis	Zone VE Limit	SFHA Boundary
		Zone Designation and BFE (ft NAVD88)	Zone Designation and BFE (ft NAVD88)		
19	N/A	N/A	VE 4499-4500 AE 4495-4497	Wave Height	SWEL
20	N/A	N/A	VE 4499-4500 AE 4495-4497	Wave Height	SWEL
21	N/A	N/A	VE 4497 AE 4496-4497	Wave Height	SWEL
22	N/A	N/A	VE 4498 AE 4496-4497	Wave Height	SWEL
23	N/A	N/A	AE 4498 VE 4495-4497	Wave Height	SWEL
24	N/A	N/A	VE 4498 AE 4495-4496	Wave Height	SWEL
25	N/A	N/A	VE 4498 AE 4496-4497	Wave Height	SWEL
26	N/A	VE 4498	AE 4497	Runup	SWEL
27	N/A	VE 4498	AE 4497	Runup	SWEL
28	N/A	VE 4498	AE 4497	Runup	SWEL
29	N/A	N/A	VE 4498 AE 4496-4497	Wave Height	SWEL
30	N/A	N/A	VE 4498-4500 AE 4496-4497	Wave Height	SWEL

A LiMWA boundary has also been added in coastal areas subject to wave action for use by local communities in safe rebuilding practices. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave.

FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 2 OF 3



UTAH COUNTY, UTAH

AND INCORPORATED AREAS

COMMUNITY NAME	NUMBER	COMMUNITY NAME	NUMBER
ALPINE, CITY OF	490228	MAPLETON, CITY OF	490156
AMERICAN FORK, CITY OF	490152	OREM, CITY OF	490216
BLUFFDALE, CITY OF	490247	PAYSON, CITY OF	490157
CEDAR FORT, TOWN OF*	490153	PLEASANT GROVE CITY, CITY OF*	490235
CEDAR HILLS, CITY OF	490204	PROVO, CITY OF	490159
DRAPER, CITY OF	490244	SALEM, CITY OF	490160
EAGLE MOUNTAIN, CITY OF*	490258	SANTAQUIN, CITY OF*	490227
ELK RIDGE, CITY OF*	490259	SARATOGA SPRINGS, CITY OF	490250
FAIRFIELD, TOWN OF*	490260	SPANISH FORK, CITY OF	490241
GENOLA, TOWN OF	490154	SPRINGVILLE, CITY OF	490163
GOSHEN, TOWN OF*	490155	UTAH COUNTY, UNINCORPORATED AREAS	495517
HIGHLAND, CITY OF	490254	VINEYARD, CITY OF	490261
LEHI, CITY OF	490209	WOODLAND HILLS, CITY OF*	490262
LINDON, CITY OF	490210		

*No Special Flood Hazard Areas Identified

REVISED:

June 23, 2026

FLOOD INSURANCE STUDY NUMBER
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Version Number 2.8.5.6

FEMA

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Exhibits

Flood Profiles	Panel
American Fork River	001-012P
Dry Creek	013-053P
Dry Creek (Payson)	054-060P
Dry Creek (Payson) 900 West Split	061-062P
Dry Creek (Payson) 1250 Split	063P
Dry Creek (Payson) I-15 Split	064-065P
East Fork Fort Creek	066-069P

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Exhibits

Flood Profiles	Panel
Fort Creek	070-083P
Fort Creek and Middle Fork Fort Creek	084-085P
Hobble Creek	086-101P
Hobble Creek 400 West Split	102-103P
Hog Hollow	104-107P
Jordan River	108-111P
Peteetneet Creek	112-115P
Provo River	116-124P
Soldier Creek	125P
Spanish Fork River	126-129P
Thistle Creek	130P
Wastewater Ditch Diversion	131P
West Fork Fort Creek	132P

Published Separately

Flood Insurance Rate Map (FIRM)

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 30, "Map Repositories").

6.5.1 Letters of Map Amendment

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

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

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

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

6.5.2 Letters of Map Revision Based on Fill

A LOMR-F is an official revision by letter to an effective NFIP map. A LOMR-F states FEMA's determination concerning whether a structure or parcel has been elevated on fill above the base flood elevation and is, therefore, excluded from the SFHA.

Information about obtaining an application for a LOMR-F can be obtained in the same manner as that for a LOMA, by visiting www.fema.gov/flood-maps/change-your-flood-zone 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 Mapping and Insurance eXchange, toll free, at 1-877-FEMA MAP (1-877-336-2627). Fees for applying for a LOMR-F, if any, are listed in the "Flood Map-Related Fees" section.

A tutorial for LOMR-F is available at www.fema.gov/flood-maps/tutorials.

6.5.3 Letters of Map Revision

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

To obtain an application for a LOMR, visit www.fema.gov/flood-maps/change-your-flood-zone 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 Mapping and Insurance 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 Utah County FIRM are listed in Table 26.

Table 26: Incorporated Letters of Map Change

[Not Applicable to this Flood Risk Project]

6.5.4 Physical Map Revisions

A Physical Map Revisions (PMR) is an official republication of a community's NFIP map to effect changes to base flood elevations, floodplain boundary delineations, regulatory floodways and planimetric features. These changes typically occur as a result of structural works or improvements, annexations resulting in additional flood hazard areas or correction to base flood elevations or SFHAs.

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

For more information about the PMR process, please visit www.fema.gov and visit the Floods & Maps "Change Your Flood Zone Designation" section.

6.5.5 Contracted Restudies

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

Visit www.fema.gov to learn more about the CNMS or contact the FEMA Regional Office listed in Section 8 of this FIS Report.

6.5.6 Community Map History

The current FIRM presents flooding information for the entire geographic area of Utah County. Previously, separate FIRMs, Flood Hazard Boundary Maps (FHBMs) and/or Flood Boundary and Floodway Maps (FBFMs) may have been prepared for the incorporated communities and the unincorporated areas in the county that had identified SFHAs. Current and historical data relating to the maps prepared for the project area are presented in Table 27, "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 27 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 FHBM. This date may be the same date as the Initial NFIP Map Date.

- *FHBM Revision Date(s)* is the date(s) that the FHBM was revised, if applicable.

- *Initial FIRM Effective Date* is the date of the first effective FIRM for the community.

- *FIRM Revision Date(s)* is the date(s) the FIRM was revised, if applicable. This is the revised date that is shown on the FIRM panel, if applicable. As countywide studies are completed or revised, each community listed should have its FIRM dates updated accordingly to reflect the date of the countywide study. Once the FIRMs exist in countywide format, as PMRs 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 Utah County FIRMs in countywide format was 06/19/2020.

Table 27: Community Map History

Community Name	Initial Identification Date	Initial FHBM Effective Date	FHBM Revision Date(s)	Initial FIRM Effective Date	FIRM Revision Date(s)
Alpine, City of	04/04/1983	N/A	N/A	04/04/1983	06/19/2020
American Fork, City of	12/28/1973	12/28/1973	02/6/1976	11/25/1980	6/23/2026 06/19/2020
Bluffdale, City of[1, 4]	01/10/1975	01/10/1975	N/A	09/30/1987	11/19/2021 06/19/2020 09/25/2009 05/15/2002 09/21/2001 09/30/1994
Cedar Fort, Town of[2, 3]	06/19/2020	N/A	N/A	06/19/2020	N/A
Cedar Hills, City of[1]	01/10/1975	01/10/1975	N/A	10/15/1982	06/19/2020 07/17/2002
Draper, City of[1, 4]	01/10/1975	01/10/1975	N/A	12/18/1985	11/19/2021 06/19/2020 09/25/2009 05/15/2002 09/21/2001 09/30/1994
Eagle Mountain, City of[1, 2]	01/10/1975	01/10/1975	N/A	10/15/1982	06/19/2020 07/17/2002
Elk Ridge, City of[1, 2]	01/10/1975	01/10/1975	N/A	10/15/1982	06/19/2020 07/17/2002
Fairfield, Town of[1, 2]	01/10/1975	01/10/1975	N/A	10/15/1982	06/19/2020 07/17/2002
Genola, Town of[3]	06/19/2020	N/A	N/A	06/19/2020	6/23/2026
Goshen, Town of[2, 3]	06/19/2020	N/A	N/A	06/19/2020	6/23/2026
Highland, City of[1]	01/10/1975	01/10/1975	N/A	10/15/1982	06/19/2020 07/17/2002
Lehi, City of	02/07/1975	02/07/1975	N/A	9/14/1979	6/23/2026 06/19/2020 03/01/1983
Lindon, City of	06/21/1977	06/21/1977	10/28/1980	02/19/1986	6/23/2026 06/19/2020
Mapleton, City of	06/28/1974	06/28/1974	03/26/1976	12/16/1980	06/19/2020
Orem, City of	10/29/1976	10/29/1976	N/A	09/24/1984	6/23/2026 06/19/2020

Community Name	Initial Identification Date	Initial FHBM Effective Date	FHBM Revision Date(s)	Initial FIRM Effective Date	FIRM Revision Date(s)
Payson, City of	06/28/1974	06/28/1974	12/05/1975	11/15/1978	6/23/2026 06/19/2020 01/06/1981
Pleasant Grove City, City of[2, 3]	06/19/2020	N/A	N/A	06/19/2020	6/23/2026
Provo, City of	02/15/1974	02/15/1974	06/04/1976	02/01/1979	6/23/2026 06/19/2020 09/30/1988 01/18/1984 12/02/1980
Salem, City of	06/28/1974	06/28/1974	N/A	07/16/1979	06/19/2020
Santaquin, City of[2, 3]	06/19/2020	N/A	N/A	06/19/2020	N/A
Saratoga Springs, City of[1]	01/10/1975	01/10/1975	N/A	10/15/1982	6/23/2026 06/19/2020 07/17/2002
Spanish Fork, City of	02/19/1986	N/A	N/A	02/19/1986	6/23/2026 06/19/2020
Springville, City of	02/01/1974	02/01/1974	05/21/1976	09/29/1978	6/23/2026 06/19/2020 02/15/1985 09/22/1981
Utah County, Unincorporated Areas	1/10/1975	1/10/1975	N/A	10/15/1982	6/23/2026 06/19/2020 07/17/2002 12/15/1994
Vineyard, City of[1]	1/10/1975	1/10/1975	N/A	10/15/1982	6/23/2026 06/19/2020 07/17/2002
Woodland Hills, City of[1, 2]	1/10/1975	1/10/1975	N/A	10/15/1982	06/19/2020 07/17/2002

[1] Dates for this community were taken from Utah County, Unincorporated Areas

[2] No Special Flood Hazard Areas Identified

[3] This community did not have a FIRM prior to the first countywide FIRM for Utah County

[4] Reflects dates in both Utah and Salt Lake Counties

SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION

7.1 Contracted Studies

Table 28 provides a summary of the contracted studies, by flooding source, that are included in this FIS Report.

Table 28: Summary of Contracted Studies Included in this FIS Report

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
American Fork River	6/23/2026	AECOM	EMD-2018-CA-00037	June 2023	American Fork, City of; Utah County, Unincorporated Areas
American Fork River, Dry Creek Payson, Hobble Creek, Peteetneet Creek	2020	URS	EMW-2014-CA-00249	October 2016	American Fork, City of; Genola, Town of; Lehi, City of; Lindon, City of; Orem, City of; Payson, City of; Pleasant Grove, City of; Provo, City of; Saratoga Springs, City of; Spanish Fork, City of; Springville, City of; Utah County, Unincorporated Areas; Vineyard, City of
Buckley Draw, Little Rock Canyon, Rock Canyon, Slate Canyon, Slide Canyon	2020	Rollins, Brown and Gunnell, Inc.	EMW-84-C-1628	May 1986	Provo, City of; Utah County, Unincorporated Areas
Dry Creek, East Fork Fort Creek, Fort Creek Hogs Hollow, West Fork Fort Creek	2020	URS	EMD-2006-GR-0686 and EMD-2009-GR-0986	August 2010	Alpine, City of; Utah County, Unincorporated Areas
Hobble Creek	6/23/2026	AECOM	EMD-2018-CA-00037	June 2023	Springville, City of
Jordan River	2020	Montgomery Watson	EMD-96-CO-0037	July 2002	Lehi, City of; Saratoga Springs, City of

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Little Rock Canyon, Spring Creek	2020	Dames & Moore	NA	January 1978	Springville, City of
Maple Canyon, Salem Pond, Snell Hollow	2020	USBR	IAA-H-12-76	March 1978	Salem, City of
Provo River	6/23/2026	AECOM	EMD-2018-CA-00037 and EMD-2016-CA-00020	June 2023	Orem, City of; Provo, City of; Utah County, Unincorporated Areas
Soldier Creek, Spanish Fork River, Thistle Creek	2020	Love and Associates	EMW-90-C-3132	December 1994	Spanish Fork, City of; Utah County, Unincorporated Areas
Spanish Fork River	6/23/2026	AECOM	EMD-2018-CA-00037	June 2023	Utah County, Unincorporated Areas
Tickville Gulch	6/23/2026	AECOM	EMD-2018-CA-00037	June 2023	Saratoga Springs, City of; Utah County, Unincorporated Areas
Utah Lake	6/23/2026	AECOM	EMD-2018-CA-00037	June 2023	American Fork, City of; Genola, Town of; Goshen, Town of; Lehi, City of; Lindon, City of; Orem, City of; Payson, City of; Pleasant Grove, City of; Provo, City of; Saratoga Springs, City of; Spanish Fork, City of; Springville, City of; Utah County, Unincorporated Areas; Vineyard, City of
Wastewater Diversion Ditch	2020	USBR	IAA-H-6-77	July 1979	Lehi, City of

7.2 Community Meetings

The dates of the community meetings held for this Flood Risk Project and previous Flood Risk Projects are shown in Table 29. 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 29: Community Meetings

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Alpine, City of	06/19/2020	01/26/2006	Initial CCO	Representatives of the study contractor, the communities, the State of Utah, and FEMA
		03/20/2018	Final CCO	Representatives of the community, the study contractor, the State of Utah, and FEMA
American Fork, City of	6/23/2026	07/11/2019	Discovery	FEMA, Utah DEM, the community, the study contractor, CUWCD, MAG, PRWUA, Salt Lake County Flood Control District, Utah FFSL, and Utah State Parks
		10/13/2021	Flood Risk Review	FEMA, Utah DEM, the community, the study contractor, CUWCD, BOR, and PRWUA
		6/23/2026	Final CCO	Representatives of the community, the study contractor, the State of Utah, and FEMA
Cedar Hills, City of	06/19/2020	01/26/2006	Initial CCO	Representatives of the study contractor, the communities, the State of Utah, and FEMA
		03/20/2018	Final CCO	Representatives of the community, the study contractor, the State of Utah, and FEMA
Genola, Town of	6/23/2026	6/23/2026	Final CCO	The study contractor, the State of Utah, and FEMA
Goshen, Town of	6/23/2026	6/23/2026	Final CCO	The study contractor, the State of Utah, and FEMA
Highland, City of	06/19/2020	01/26/2006	Initial CCO	Representatives of the study contractor, the communities, the State of Utah, and FEMA
		03/20/2018	Final CCO	Representatives of the community, the study contractor, the State of Utah, and FEMA
Lehi, City of	6/23/2026	07/11/2019	Discovery	FEMA, Utah DEM, the community, the study contractor, CUWCD, MAG, PRWUA, Salt Lake County Flood Control District, Utah FFSL, and Utah State Parks

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
		10/13/2021	Flood Risk Review	FEMA, Utah DEM, the community, the study contractor, CUWCD, BOR, and PRWUA
		6/23/2026	Final CCO	Representatives of the community, the study contractor, the State of Utah, and FEMA
Lindon, City of	6/23/2026	07/11/2019	Discovery	FEMA, Utah DEM, the community, the study contractor, CUWCD, MAG, PRWUA, Salt Lake County Flood Control District, Utah FFSL, and Utah State Parks
		10/13/2021	Flood Risk Review	FEMA, Utah DEM, the community, the study contractor, CUWCD, BOR, and PRWUA
		6/23/2026	Final CCO	Representatives of the community, the study contractor, the State of Utah, and FEMA
Mapleton, City of	06/19/2020	01/26/2006	Initial CCO	Representatives of the study contractor, the communities, the State of Utah, and FEMA
		03/20/2018	Final CCO	Representatives of the community, the study contractor, the State of Utah, and FEMA
Orem, City of	6/23/2026	07/11/2019	Discovery	FEMA, Utah DEM, the community, the study contractor, CUWCD, MAG, PRWUA, Salt Lake County Flood Control District, Utah FFSL, and Utah State Parks
		10/13/2021	Flood Risk Review	FEMA, Utah DEM, the community, the study contractor, CUWCD, BOR, and PRWUA
		6/23/2026	Final CCO	Representatives of the community, the study contractor, the State of Utah, and FEMA

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Payson, City of	6/23/2026	6/23/2026	Final CCO	The study contractor, the State of Utah, and FEMA
Pleasant Grove, City of	6/23/2026	6/23/2026	Final CCO	Representatives of the community, the study contractor, the State of Utah, and FEMA
Provo, City of	6/23/2026	07/11/2019	Discovery	FEMA, Utah DEM, the community, the study contractor, CUWCD, MAG, PRWUA, Salt Lake County Flood Control District, Utah FFSL, and Utah State Parks
		07/11/2019	Provo LAMP Flood Risk Review	FEMA, Utah DEM, the community, the study contractor, CUWCD, MAG, PRWUA, BOR, and Utah State Parks
		05/27/2020	Provo LAMP Flood Risk Review	FEMA, Utah DEM, the community, and the study contractor
		10/13/2021	Flood Risk Review	FEMA, Utah DEM, the community, the study contractor, CUWCD, BOR, and PRWUA
		6/23/2026	Final CCO	Representatives of the community, the study contractor, the State of Utah, and FEMA
Salem, City of	06/19/2020	01/26/2006	Initial CCO	Representatives of the study contractor, the communities, the State of Utah, and FEMA
		03/20/2018	Final CCO	Representatives of the community, the study contractor, the State of Utah, and FEMA
Saratoga Springs, City of	6/23/2026	07/11/2019	Discovery	FEMA, Utah DEM, the community, the study contractor, CUWCD, MAG, PRWUA, Salt Lake County Flood Control District, Utah FFSL, and Utah State Parks
		6/23/2026	Final CCO	Representatives of the community, the study contractor, the State of Utah, and FEMA
Spanish Fork, City of	6/23/2026	01/26/2006	Initial CCO	Representatives of the study contractor, the communities, the State of Utah, and FEMA
		03/20/2018	Final CCO	Representatives of the community, the study contractor, the State of Utah, and FEMA

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
		6/23/2026	Final CCO	Representatives of the community, the study contractor, the State of Utah, and FEMA
Springville, City of	6/23/2026	07/11/2019	Discovery	FEMA, Utah DEM, the community, the study contractor, CUWCD, MAG, PRWUA, Salt Lake County Flood Control District, Utah FFSL, and Utah State Parks
		10/13/2021	Flood Risk Review	FEMA, Utah DEM, the community, the study contractor, CUWCD, BOR, and PRWUA
		6/23/2026	Final CCO	The study contractor, the State of Utah, and FEMA
Utah County, Unincorporated Areas	6/23/2026	07/11/2019	Discovery	FEMA, Utah DEM, the community, the study contractor, CUWCD, MAG, PRWUA, Salt Lake County Flood Control District, Utah FFSL, and Utah State Parks
		07/11/2019	Provo LAMP Flood Risk Review	FEMA, Utah DEM, the community, the study contractor, CUWCD, MAG, PRWUA, BOR, and Utah State Parks
		10/13/2021	Flood Risk Review	FEMA, Utah DEM, the community, the study contractor, CUWCD, BOR, and PRWUA
		6/23/2026	Final CCO	Representatives of the community, the study contractor, the State of Utah, and FEMA
Vineyard, City of	6/23/2026	07/11/2019	Discovery	FEMA, Utah DEM, the community, the study contractor, CUWCD, MAG, PRWUA, Salt Lake County Flood Control District, Utah FFSL, and Utah State Parks
		10/13/2021	Flood Risk Review	FEMA, Utah DEM, the community, the study contractor, CUWCD, BOR, and PRWUA
		6/23/2026	Final CCO	The study contractor, the State of Utah, and FEMA

SECTION 8.0 – ADDITIONAL INFORMATION

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

Table 30 is a list of the locations where FIRMs for Utah 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 30: Map Repositories

Community	Address	City	State	Zip Code
Alpine, City of	Public Works Building 20 North Main Street	Alpine	UT	84004
American Fork, City of	Public Works 275 East 200 North	American Fork	UT	84003
Bluffdale, City of	City Hall 2222 West 14400 South	Bluffdale	UT	84065
Cedar Fort, Town of[1]	Town Hall 50 East Center Street	Cedar Fort	UT	84013
Cedar Hills, City of	City Hall 10246 North Canyon Road	Cedar Hills	UT	84062
Draper, City of	City Hall 1020 East Pioneer Road	Draper	UT	84020
Eagle Mountain, City of[1]	City Hall 1650 East Stagecoach Run	Eagle Mountain	UT	84005
Elk Ridge, City of[1]	City Hall 80 East Park Drive	Elk Ridge	UT	84651
Fairfield, Town of[1]	Town Hall 103 East Main Street	Fairfield	UT	84013
Genola, Town of	Town Hall 74 West 800 South	Genola	UT	84655
Goshen, Town of[1]	Town Office 10 West Main Street	Goshen	UT	84633
Highland, City of	City Hall 5400 West Civic Center Drive, Suite 1	Highland	UT	84003
Lehi, City of	City Hall 153 North 100 East	Lehi	UT	84043
Lindon, City of	City Center Building (Community Development) 100 North State Street	Lindon	UT	84042
Mapleton, City of	City Office 125 West Community Center Way	Mapleton	UT	84664
Orem, City of	City Center 56 North State Street	Orem	UT	84058
Payson, City of	City Offices 439 West Utah Avenue	Payson	UT	84651

Community	Address	City	State	Zip Code
Pleasant Grove City, City of[1]	Public Works 323 West 700 South	Pleasant Grove	UT	84062
Provo, City of	Public Works 1377 South 350 East	Provo	UT	84606
Salem, City of	City Office 30 West 100 South	Salem	UT	84653
Santaquin, City of[1]	City Hall 110 South Center Street	Santaquin	UT	84655
Saratoga Springs, City of	Public Works 213 North 900 East	Saratoga Springs	UT	84045
Spanish Fork, City of	City Hall 40 South Main Street	Spanish Fork	UT	84660
Springville, City of	City Hall 110 South Main Street	Springville	UT	84663
Utah County, Unincorporated Areas	Utah County Public Works 2855 South State Street	Provo	UT	84606
Vineyard, City of	City Hall 125 South Main Street	Vineyard	UT	84059
Woodland Hills, City of[1]	City Center 690 South Woodland Hills Drive	Woodland Hills	UT	84653

[1] No Special Flood Hazard Areas Identified

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 31.

Table 31 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 31: Additional Information

FEMA and the NFIP	
FEMA and FEMA Engineering Library website	www.fema.gov/flood-maps/products-tools/know-your-risk/engineers-surveyors-architects
NFIP website	www.fema.gov/flood-insurance
NFHL Dataset	msc.fema.gov

FEMA Region 8	FEMA Region VIII Mitigation Division Denver Federal Center, Bldg. 710A Denver, CO 80225 (303) 202-8924
Other Federal Agencies	
USGS website	www.usgs.gov
Hydraulic Engineering Center website	www.hec.usace.army.mil
State Agencies and Organizations	
State NFIP Coordinator	Tracie Harrison Utah Division of Emergency Management 4315 S 2700 West 2nd Floor, Suite 2200 Salt Lake City, UT 84129-2128 (385) 499-2077 x111 tjharrison@utah.gov
State GIS Coordinator	Matt Peters Utah Automated Geographic Reference Center 1 State Office Building, Room 5130 Salt Lake City, Utah 84114 Phone: (801) 538-3665 mpeters@utah.gov

SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES

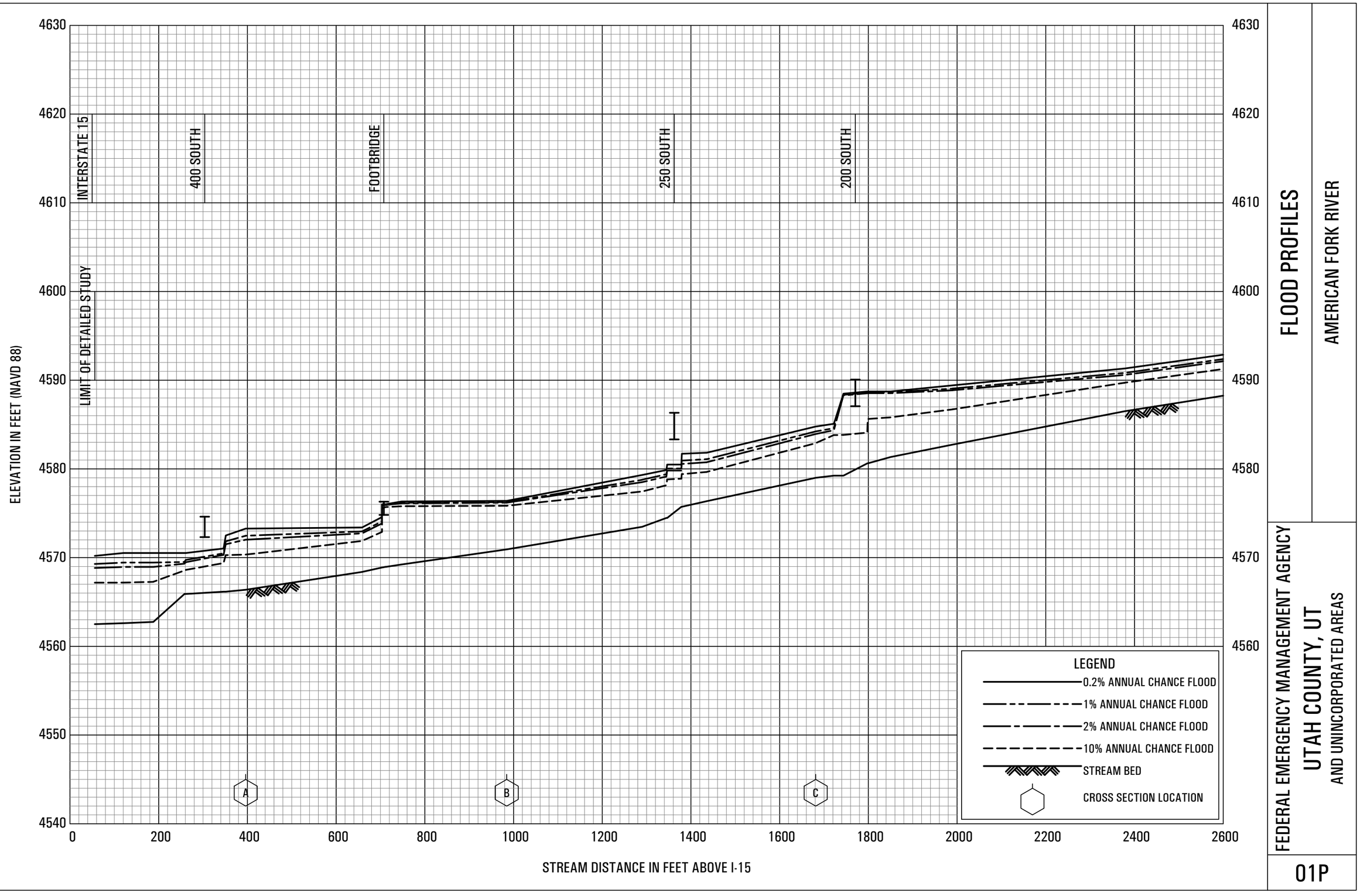
Table 32 includes sources used in the preparation of and cited in this FIS Report as well as additional studies that have been conducted in the study area.

Table 32: Bibliography and References

Citation in this FIS	Publisher/ Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/ Editor	Place of Publication	Publication Date/ Date of Issuance	Link
AECOM 2021	AECOM	*Provo River LAMP Floodplain mapping data*	AECOM	Salt Lake City, UT	July 2, 2021	
AECOM 2023	AECOM	*Jordan River Hydraulic Tie-in to Utah Lake*	AECOM	Salt Lake City, UT	June 30, 2023	
AECOM 2022	AECOM	*Utah Lake Hydraulics Coastal Mapping Analysis for Utah Lake in the Utah Lake Watershed within Utah County, Utah*	AECOM	Salt Lake City, UT	February 25, 2022	
AECOM 2023	AECOM	*Hobble Creek Hydraulic Tie-in to Utah Lake*	AECOM	Salt Lake City, UT	June 30, 2023	
AECOM 2023	AECOM	*Spanish Fork River, American Fork River, Tickville Gulch Hydraulic Tie-ins to Utah Lake*	AECOM	Salt Lake City, UT	June 30, 2023	
AECOM 2023	AECOM	*Provo River Zone A Riverine Tie-in*	AECOM	Salt Lake City, UT	June 30, 2023	

Citation in this FIS	Publisher/ Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/ Editor	Place of Publication	Publication Date/ Date of Issuance	Link
FEMA 2002	FEMA	*Flood Insurance Rate Map Effective Data for Utah County, Utah*	FEMA	Washington, D.C.	2002	
FEMA 2020	FEMA	*Utah County, Utah, Countywide FIS Effective data*	FEMA	Washington, D.C.	June 19, 2020	
National Weather Service (NWS) 2022	NWS	*Hourly Wind Speed at the Provo Airport*	NWS	Washington, D.C.	February 18, 2022	https://mrcc.purdue.edu/CLIMATE/
Utah Division of Water Resources (UDWR) 2022	UDWR	*Utah Lake Monthly levels*	UDWR	Salt Lake City, UT	February 18, 2022	
Utah Geospatial Resource Center (UGRC) 2014	UGRC	*Wasatch Front LiDAR (2013-2014)*	UGRC	Salt Lake City, UT	2014	
UGRC 2016	UGRC	*Great Salt Lake and Utah Lake LiDAR*	UGRC	Salt Lake City, UT	2017	
UGRC 2020	UGRC	*PLSS Sections GCDB*	UGRC	Taylorsville, UT	December 15, 2020	https://gis.utah.gov/data/cadastre/plss/

Citation in this FIS	Publisher/ Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/ Editor	Place of Publication	Publication Date/ Date of Issuance	Link
UGRC 2021	US Department of Agriculture (USDA)	*NAIP Orthophotography*	USDA	Washington, D.C.	November 28, 2021	https://raster.utah.gov/
UGRC 2022	UGRC	*Municipal Boundaries*	UGRC	Taylorsville, UT	February 15, 2022	https://gis.utah.gov/data/boundaries/citycountystate/
UGRC 2023	UGRC	*Road and Railroad Centerlines*	UGRC	Taylorsville, UT	January 12, 2023	https://gis.utah.gov/data/transportation/
US Army Corps of Engineers (USACE) 2021	USACE	*National Levee Database*	USACE	Sacramento, CA	April 5, 2021	
US Geological Survey (USGS) 2010	USGSG	*National Hydrography Dataset - Medium Resolution*	USGS	Reston, VA	January 8, 2010	
USGS 2010	USGSG	*Hydrologic Units Boundaries*	USGS	Reston, VA	May 18, 2010	
USGS 2022	USGS	*USGS Current Water Data for the Nation*	USGS	Reston, VA	February 18, 2022	



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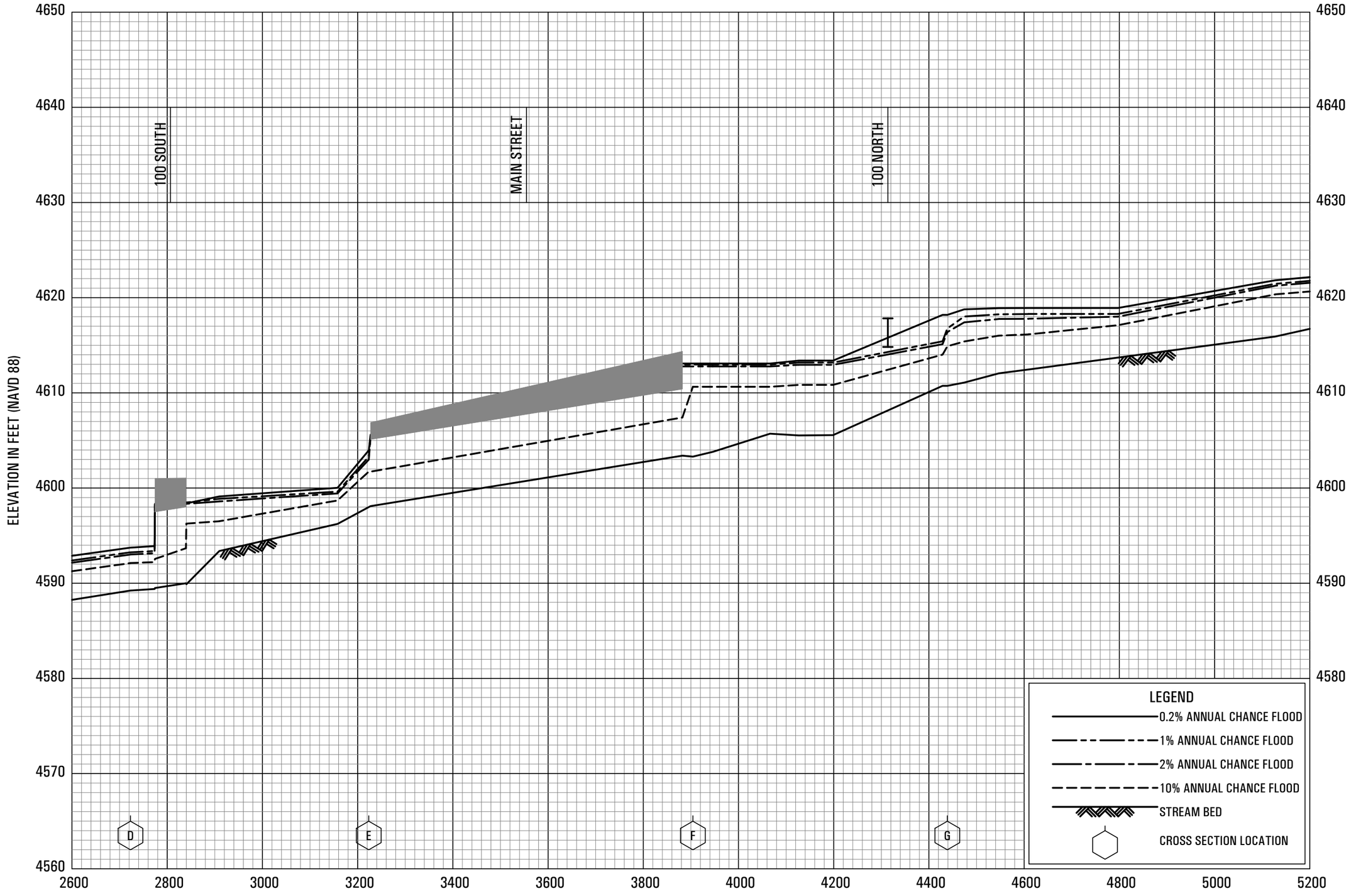

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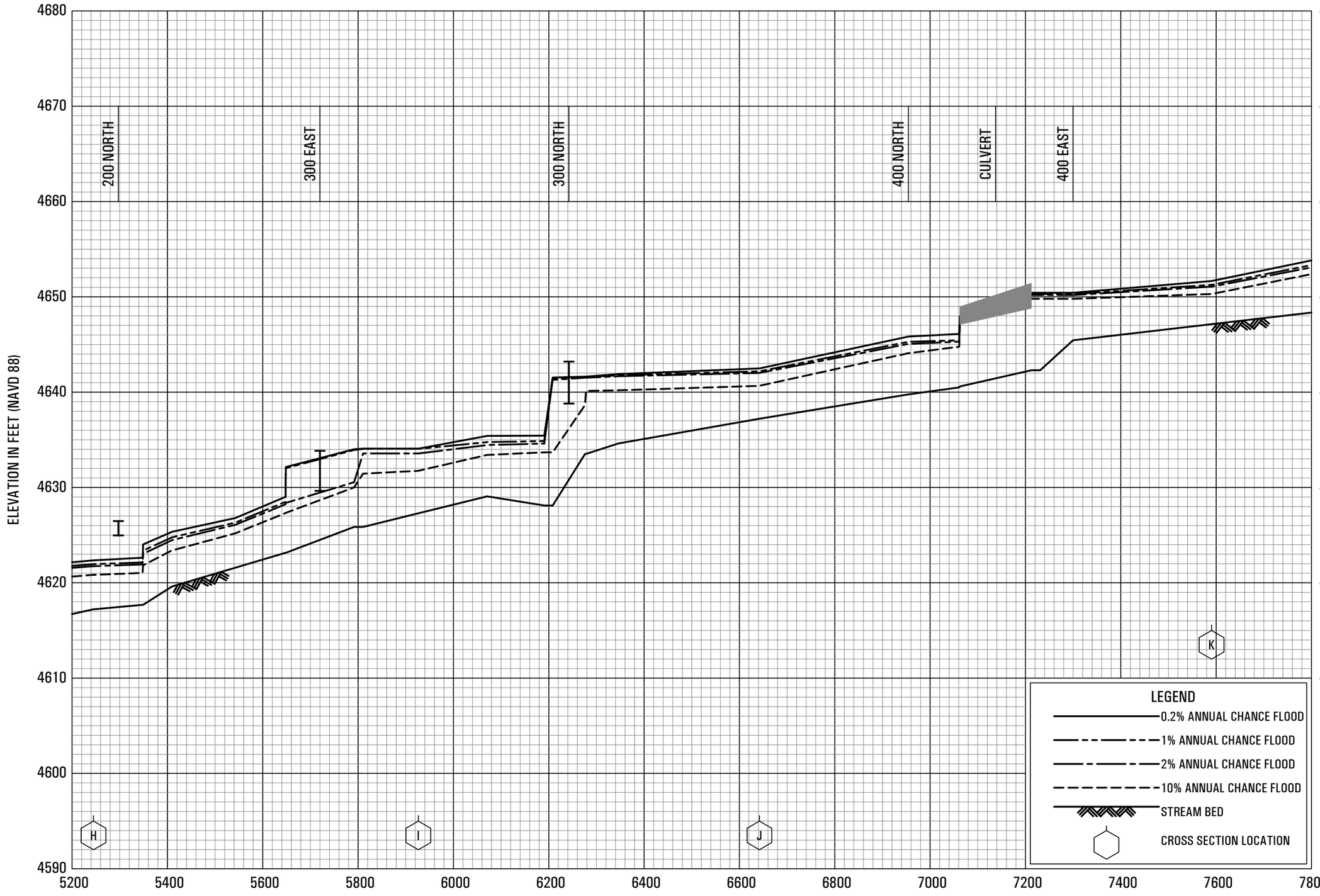

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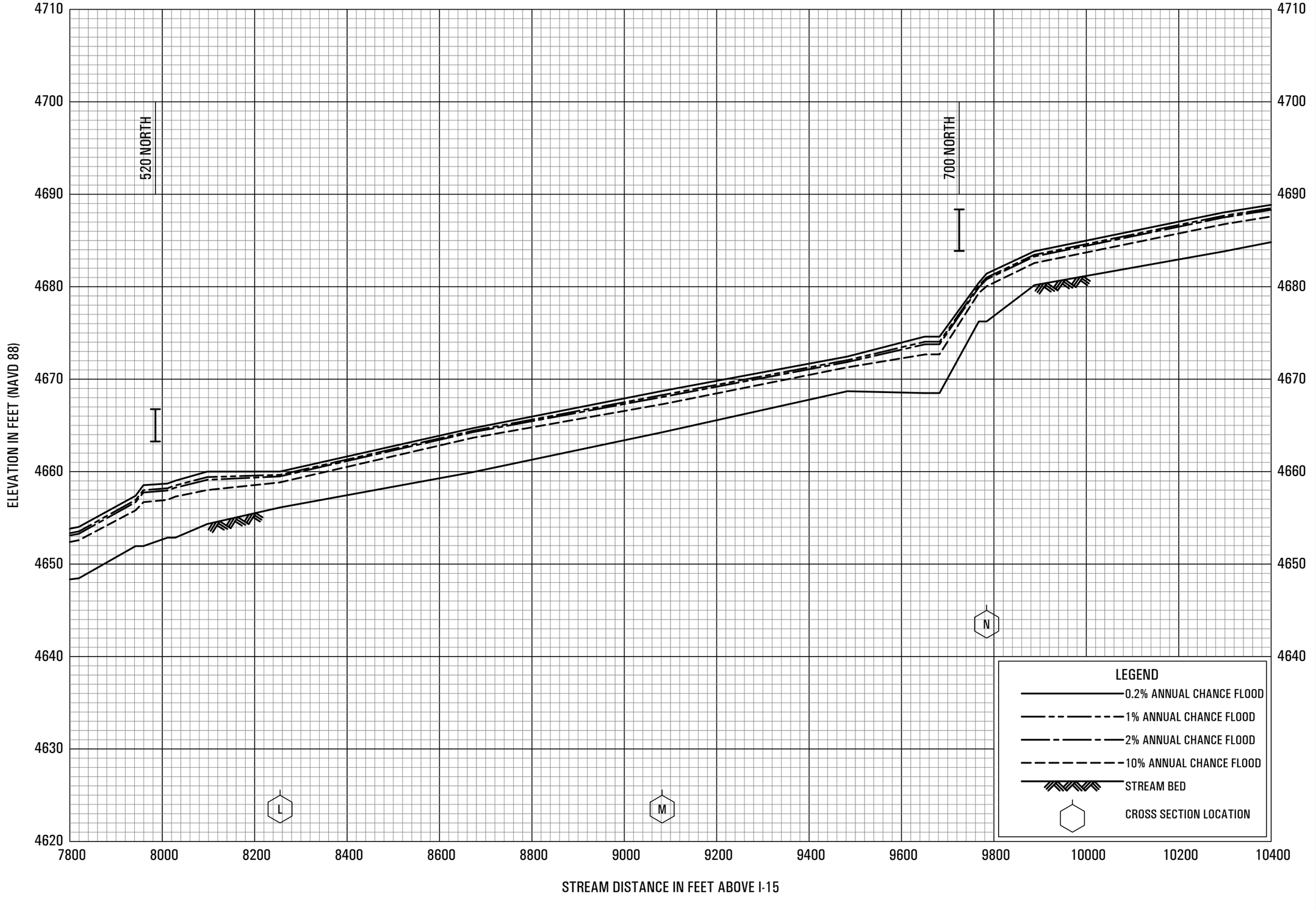

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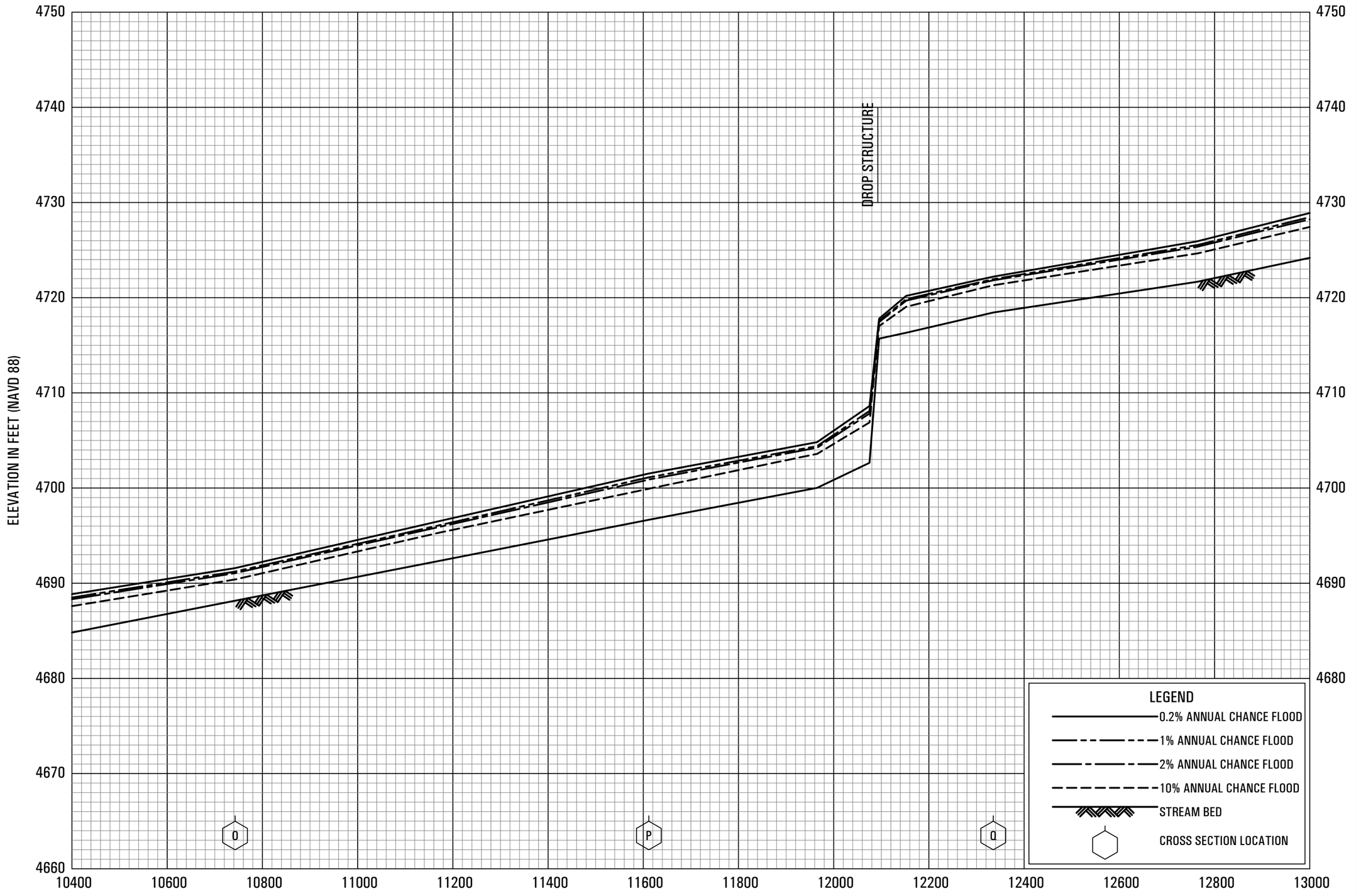

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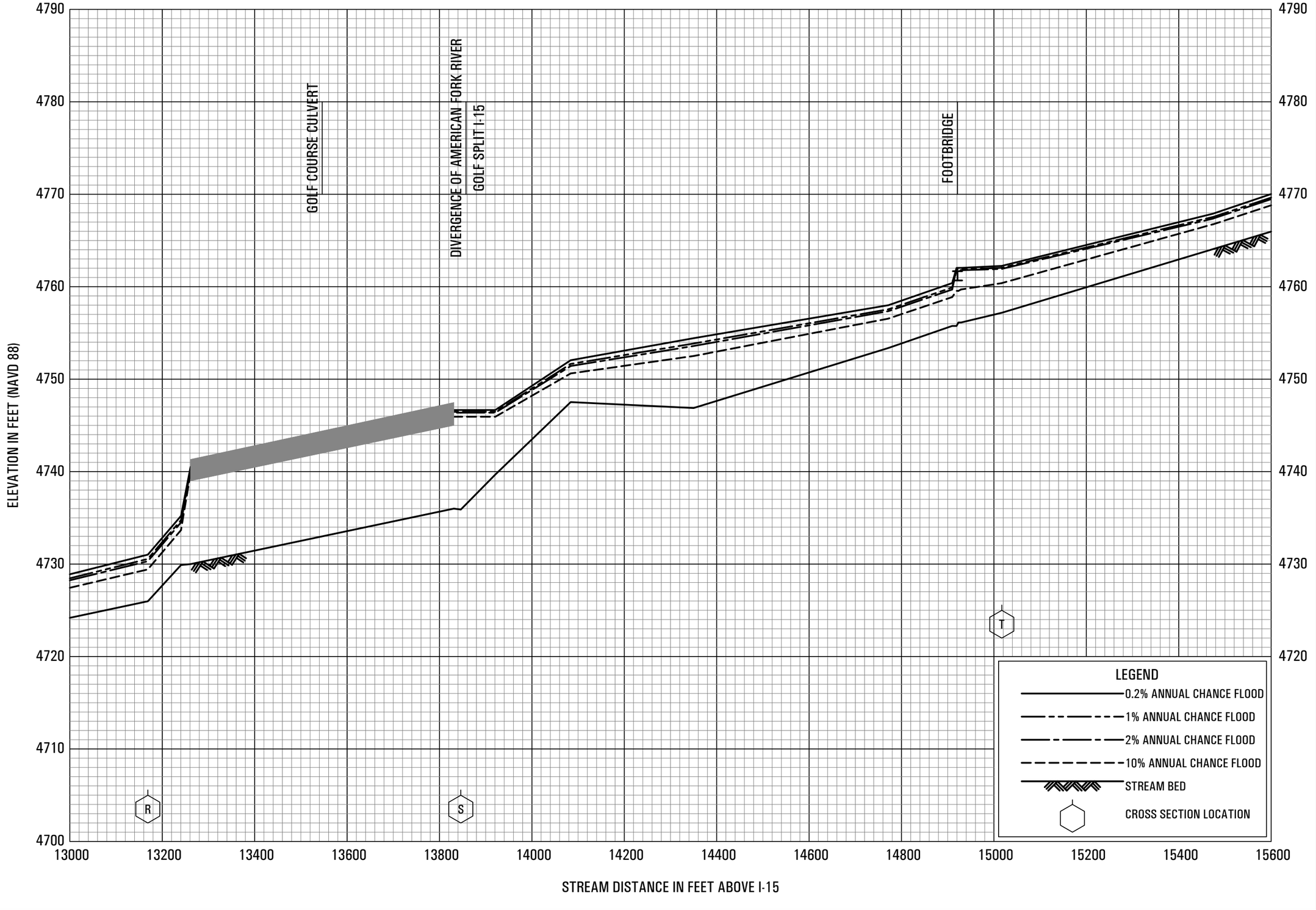

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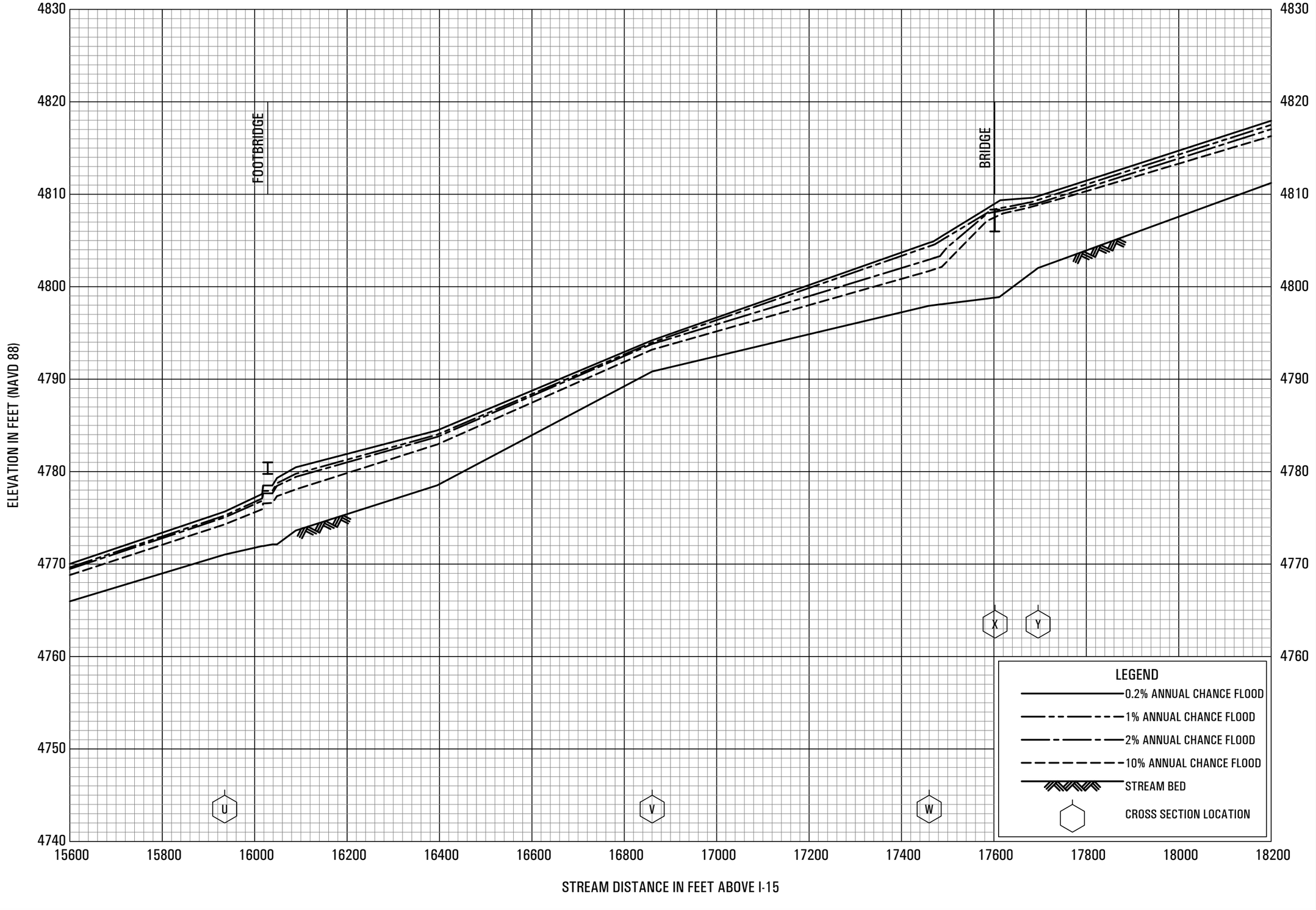

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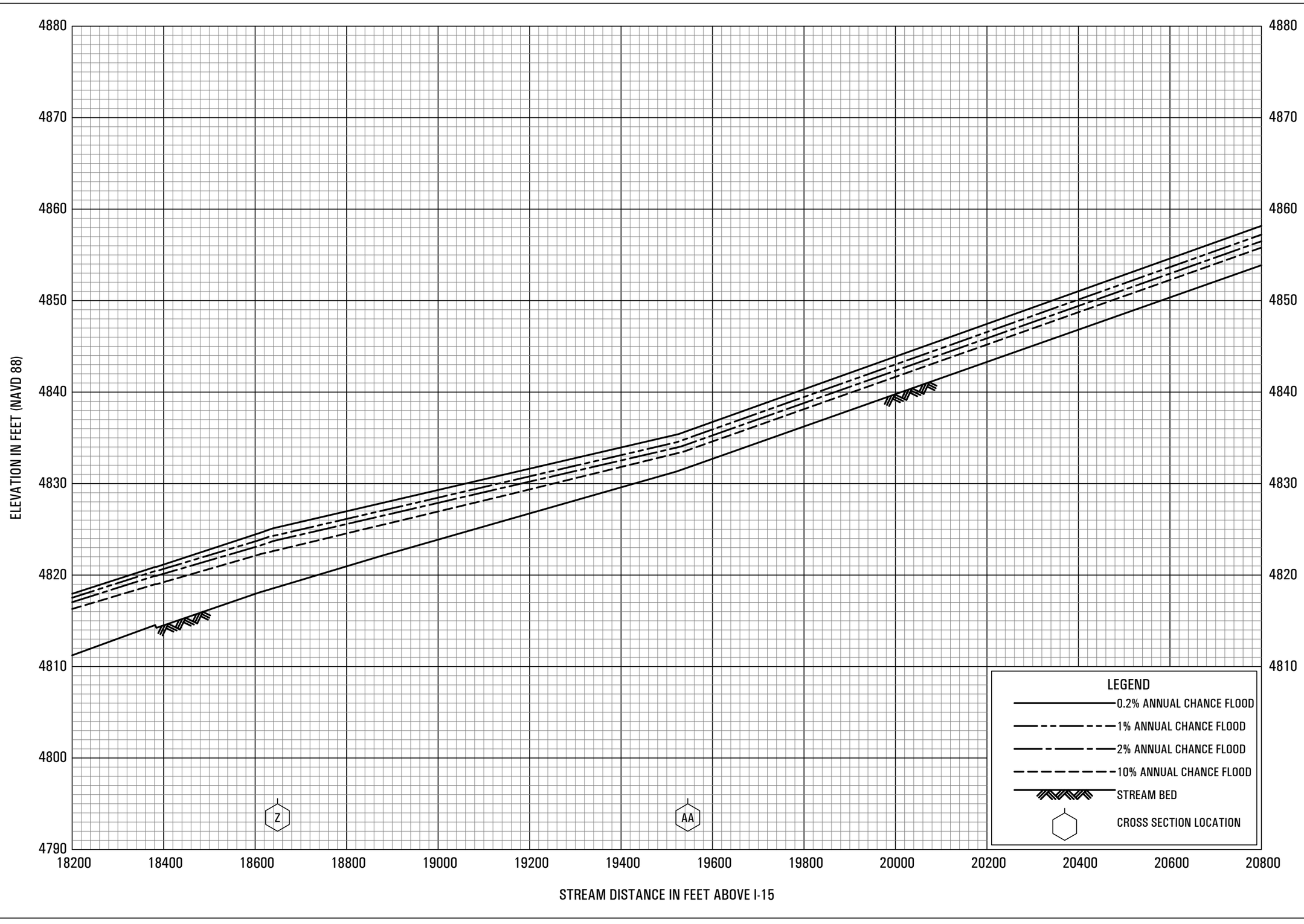

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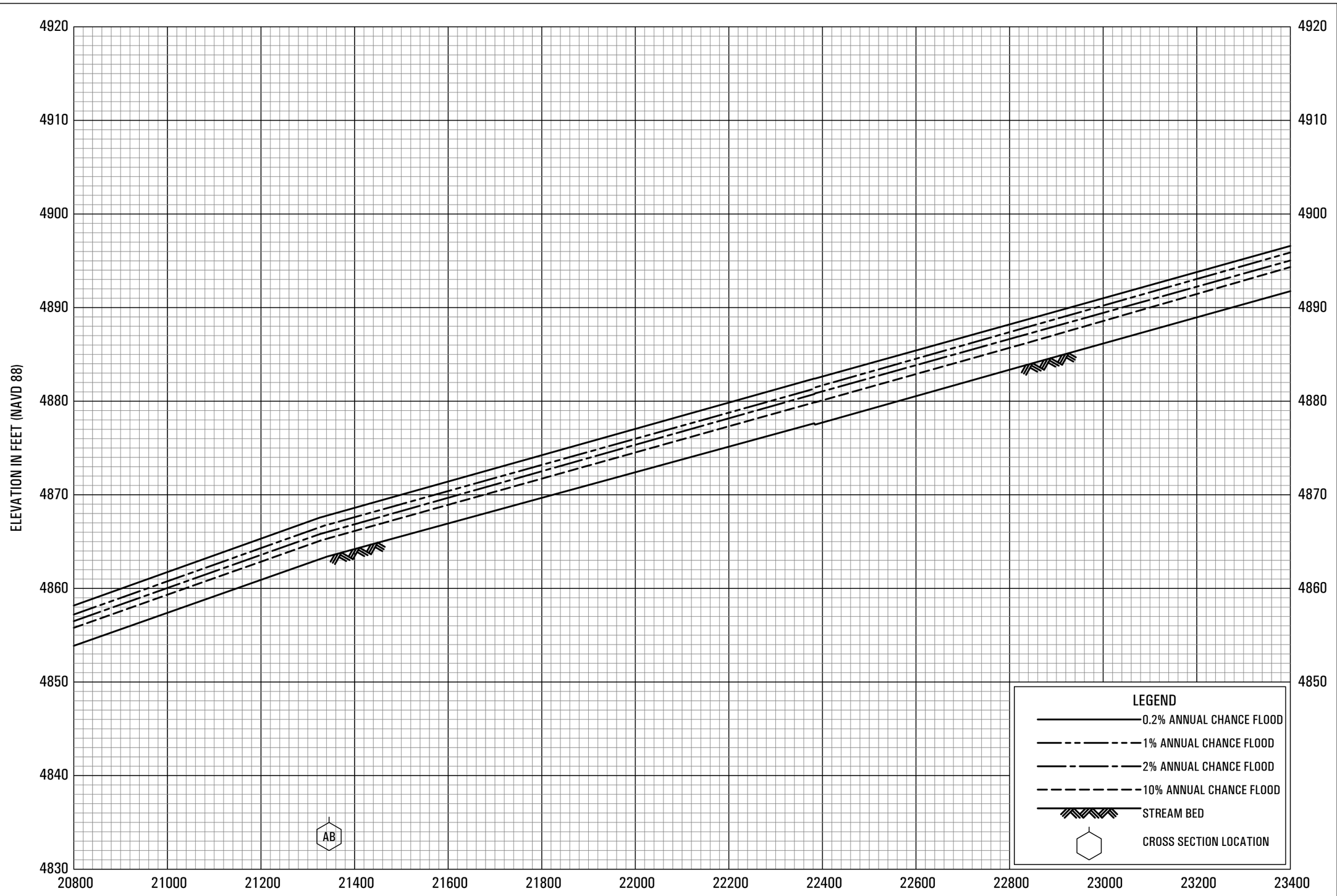

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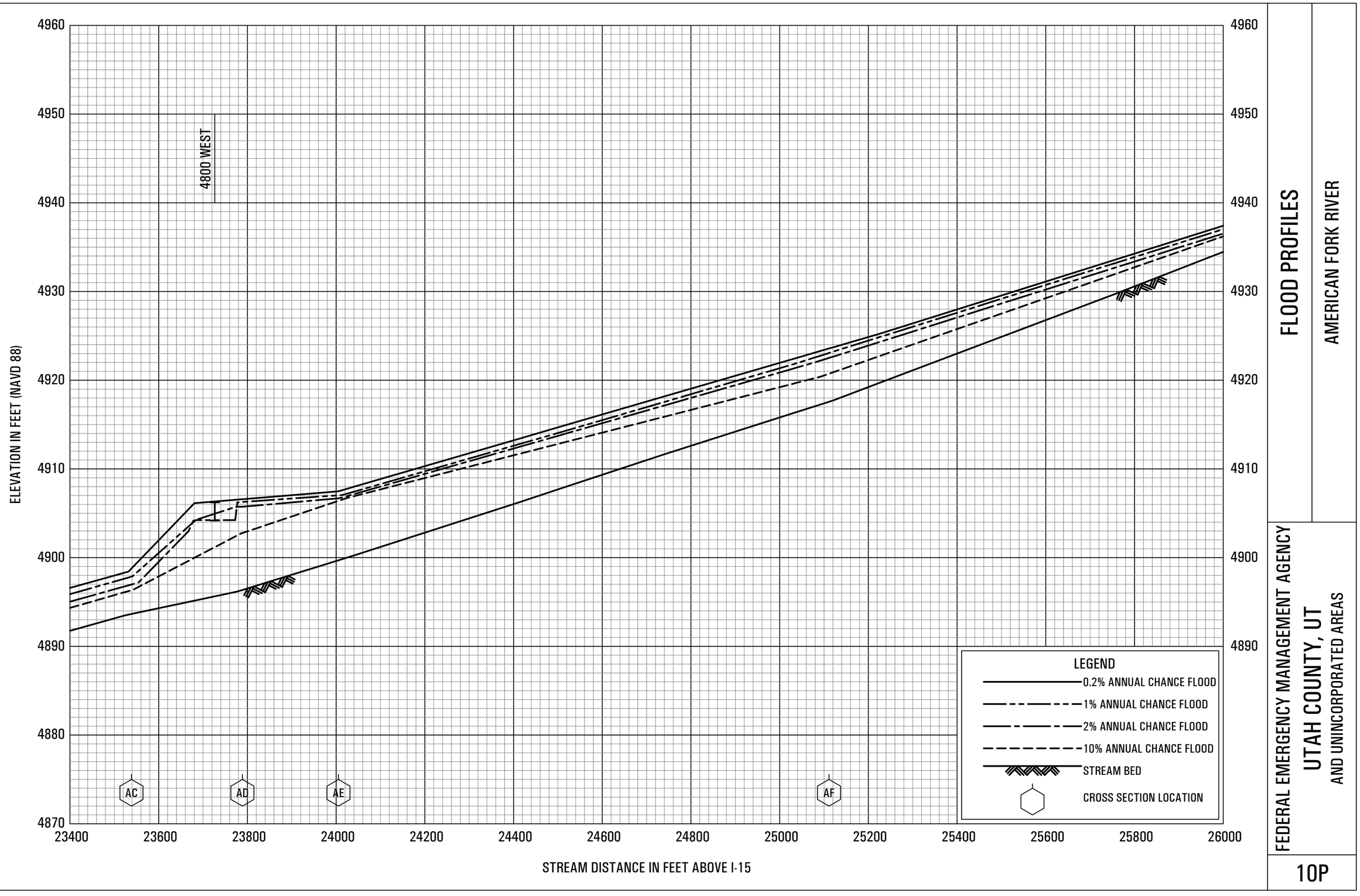

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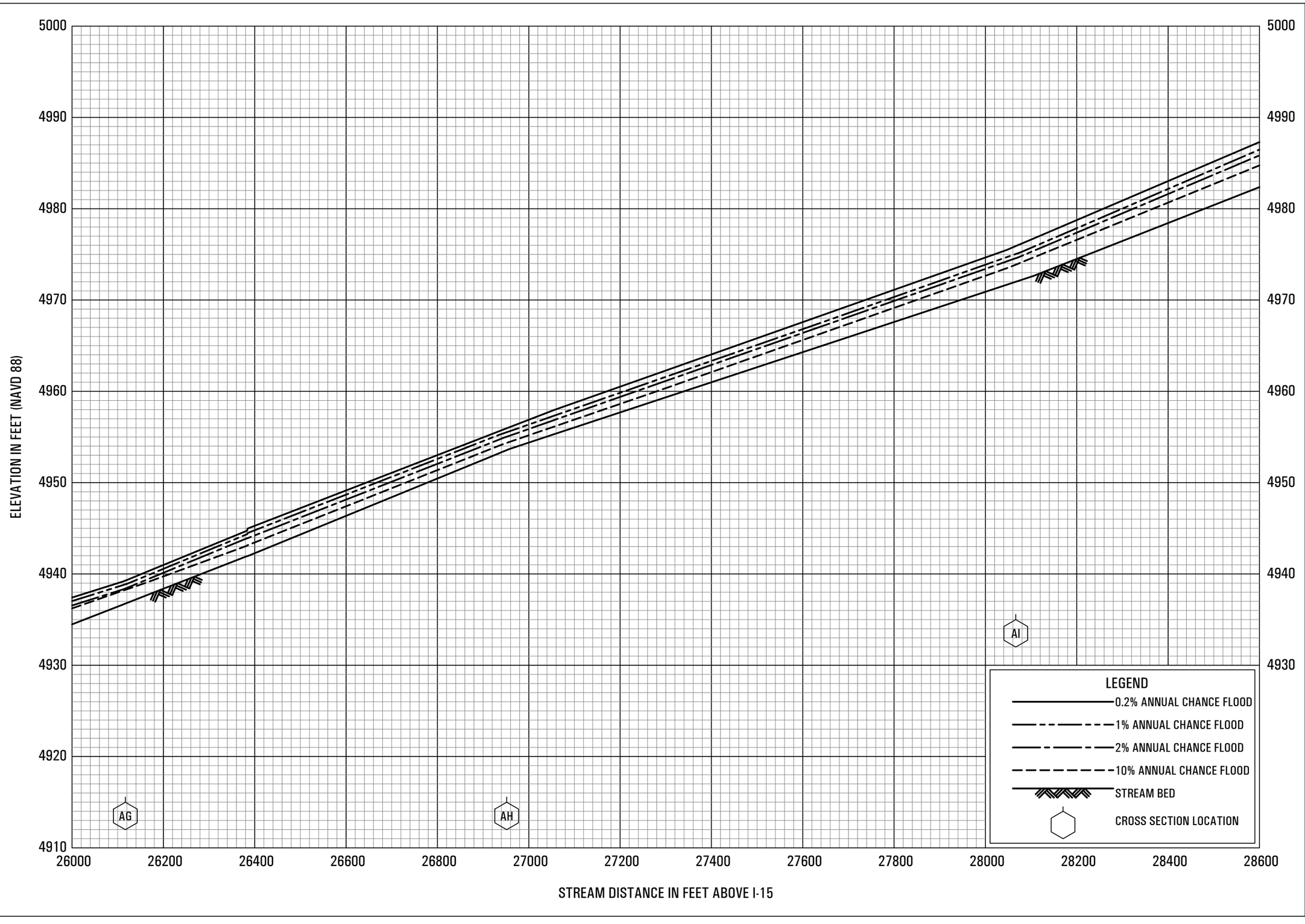

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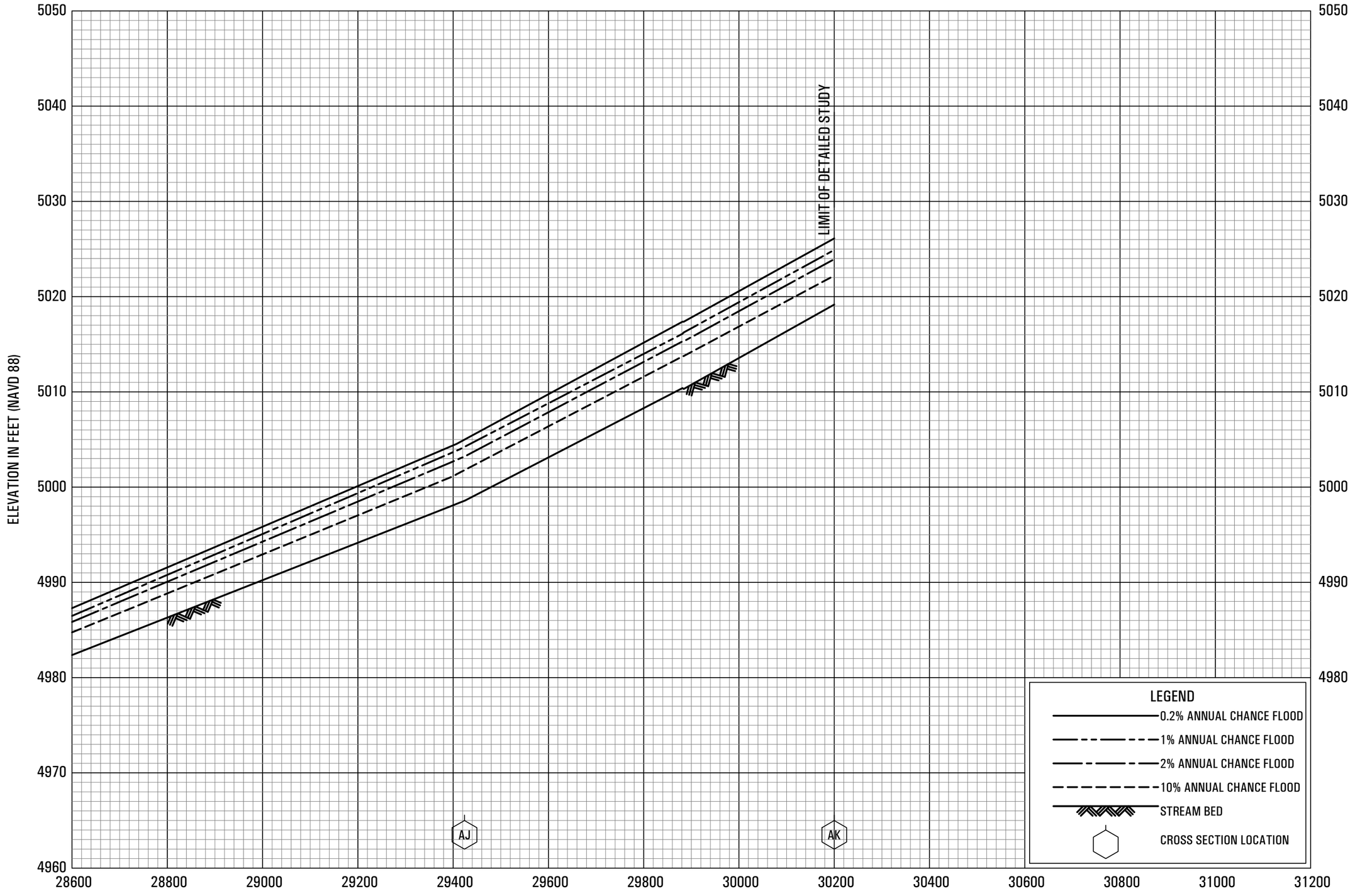

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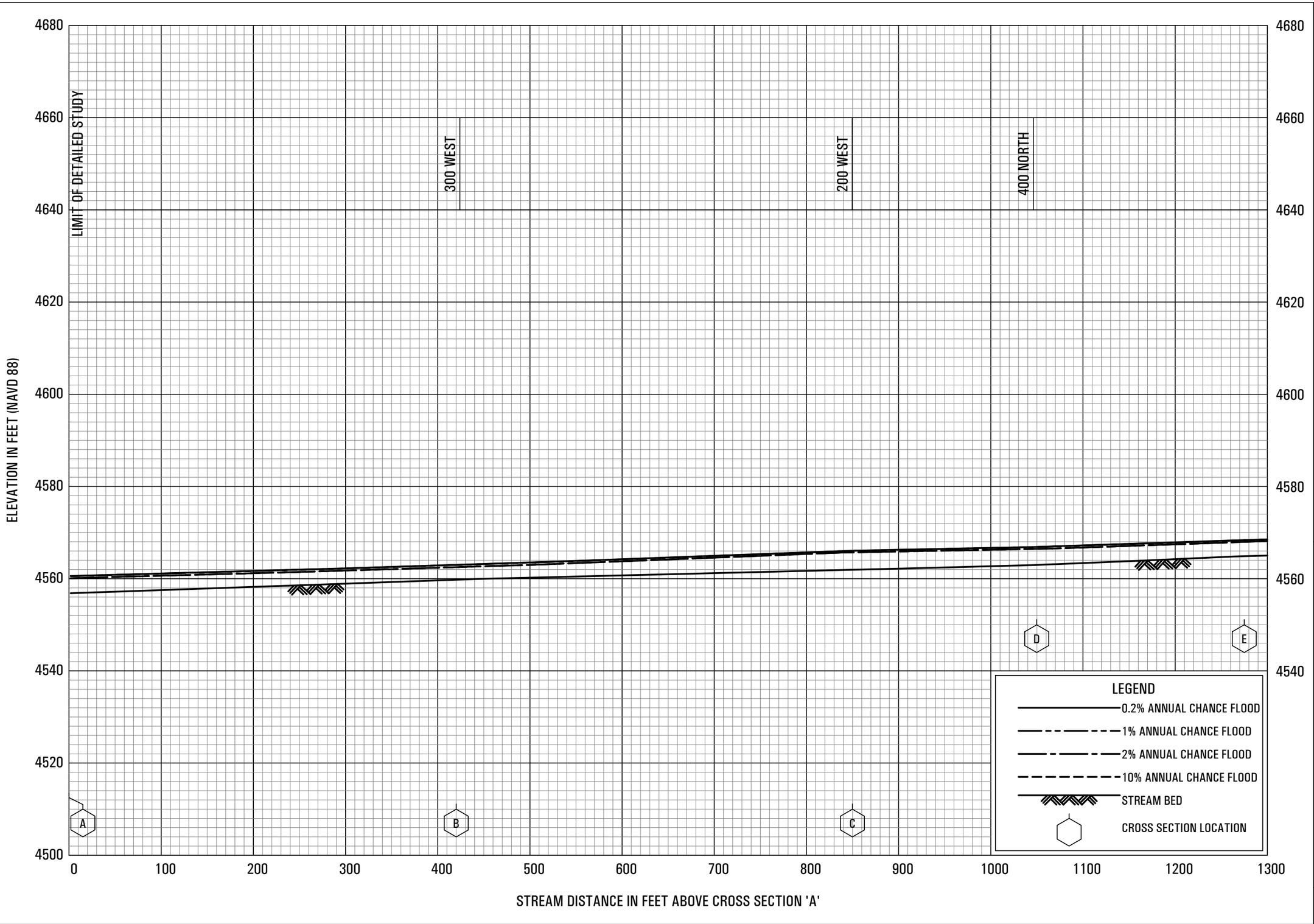

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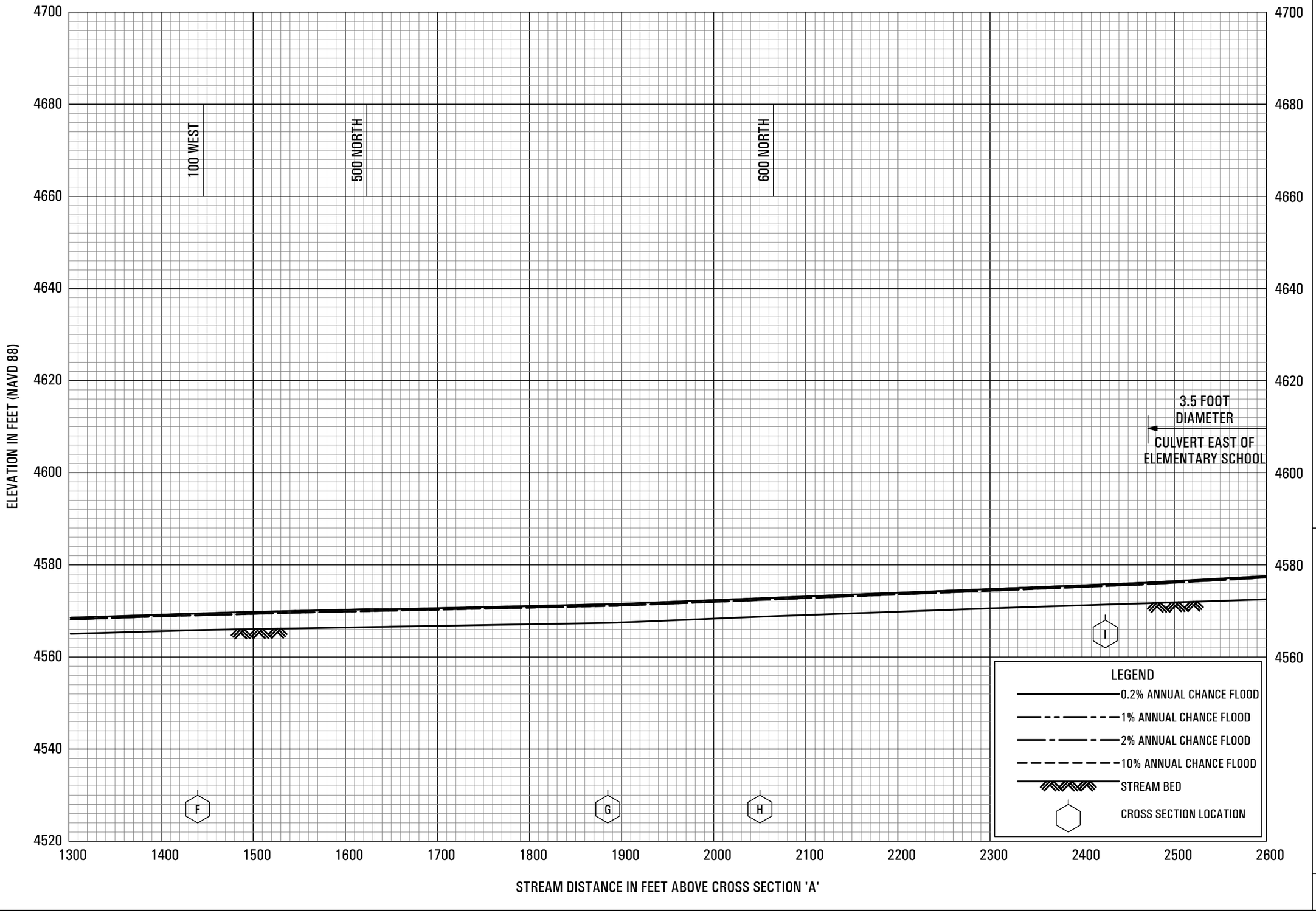

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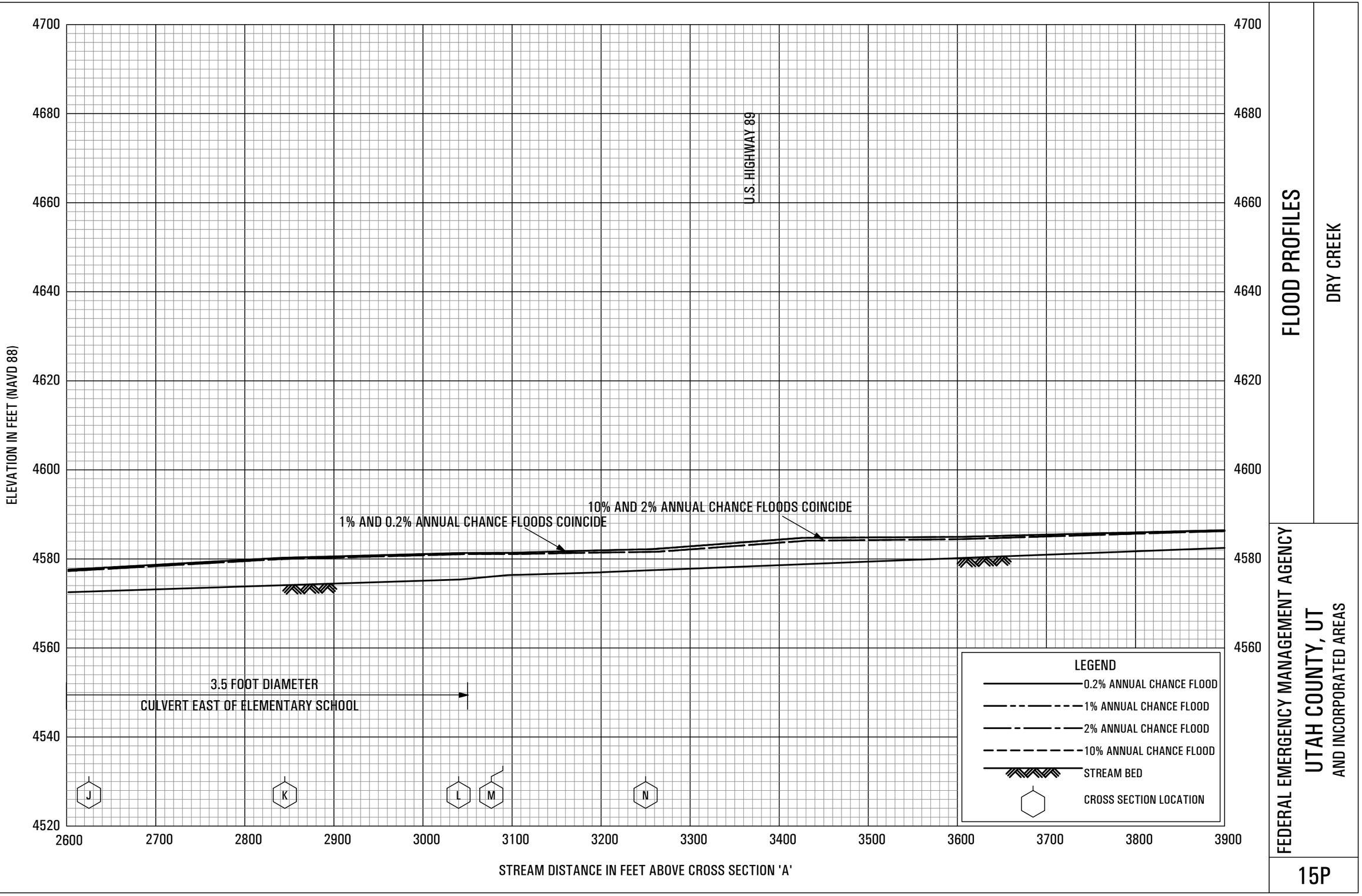

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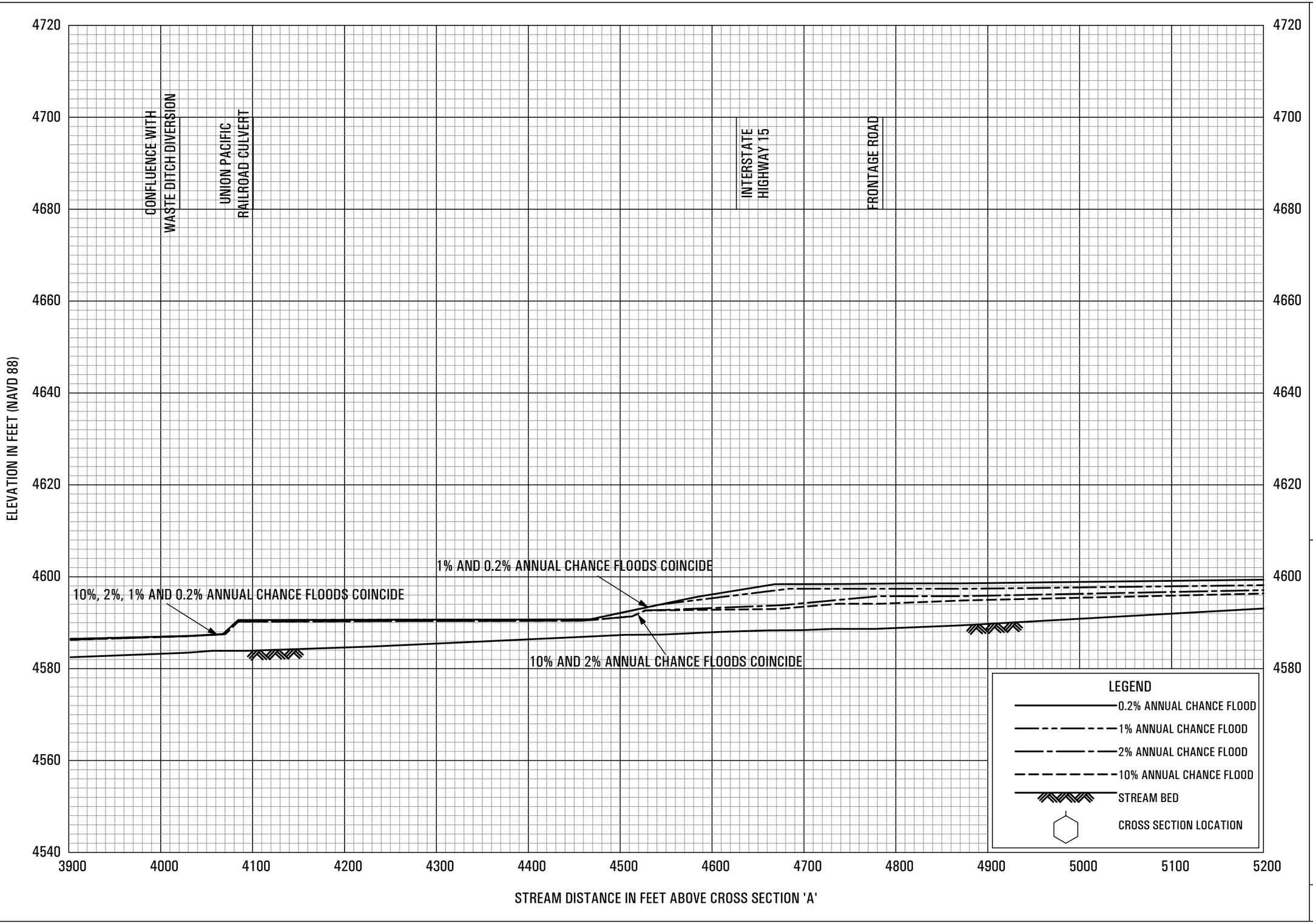

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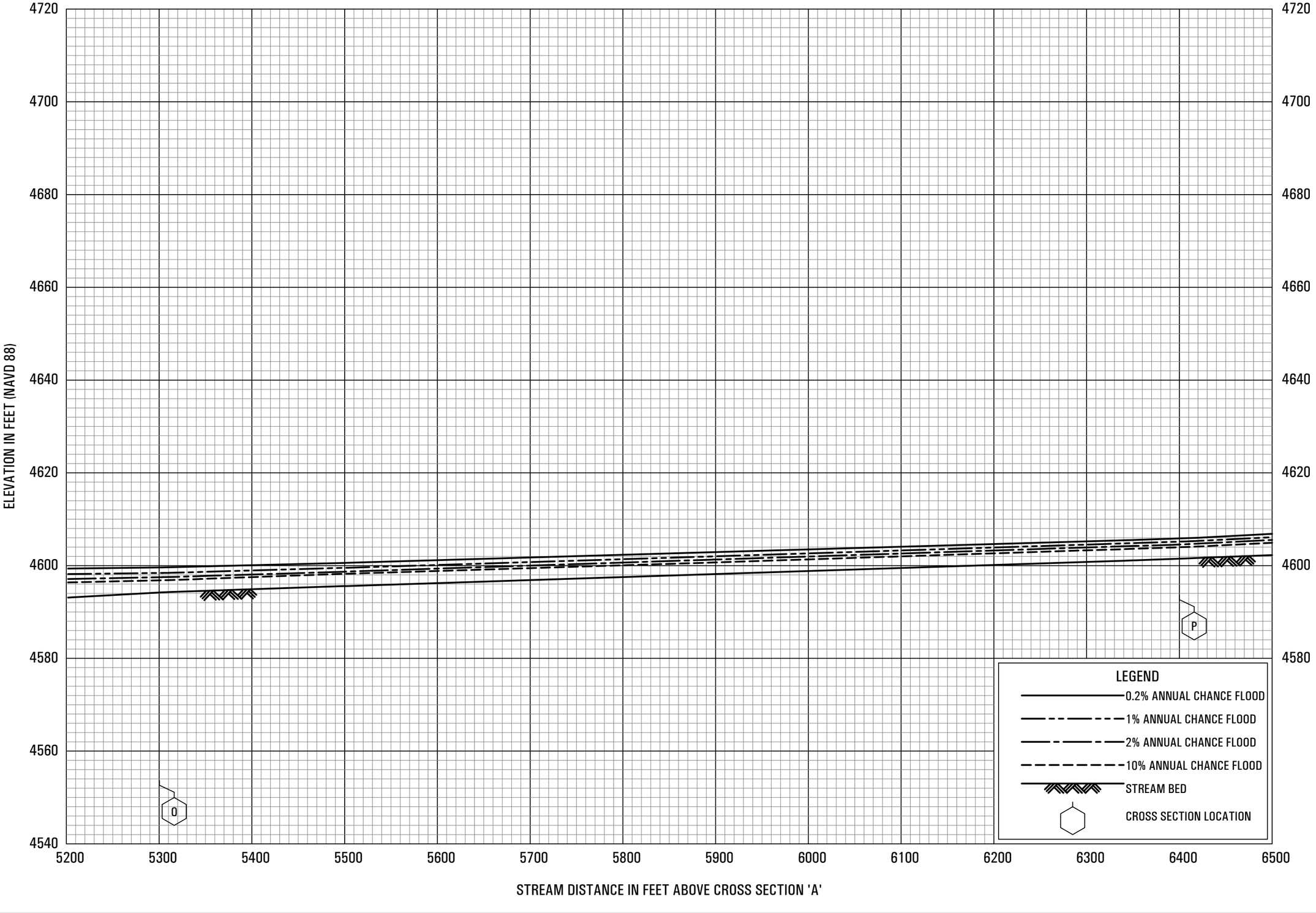

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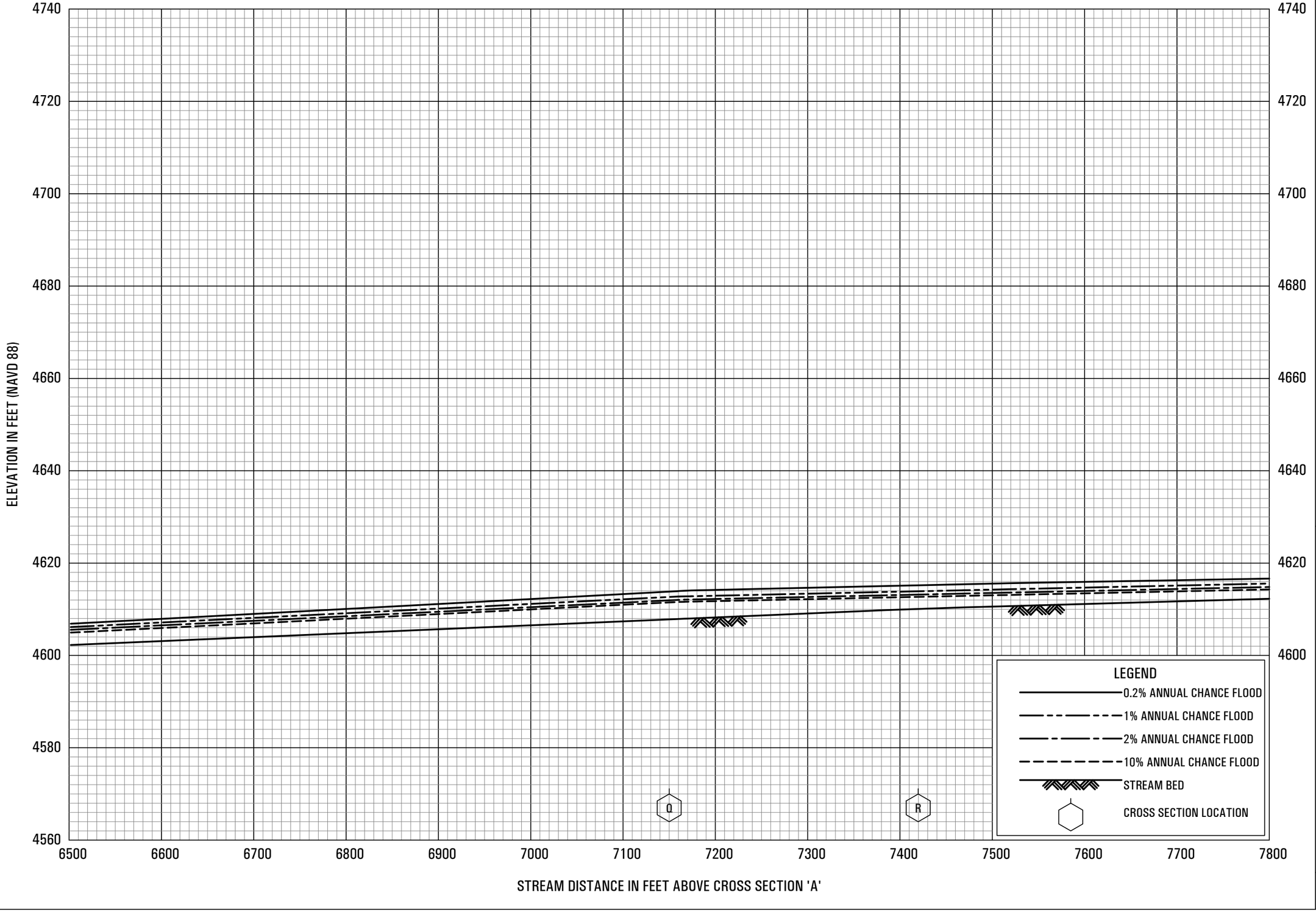

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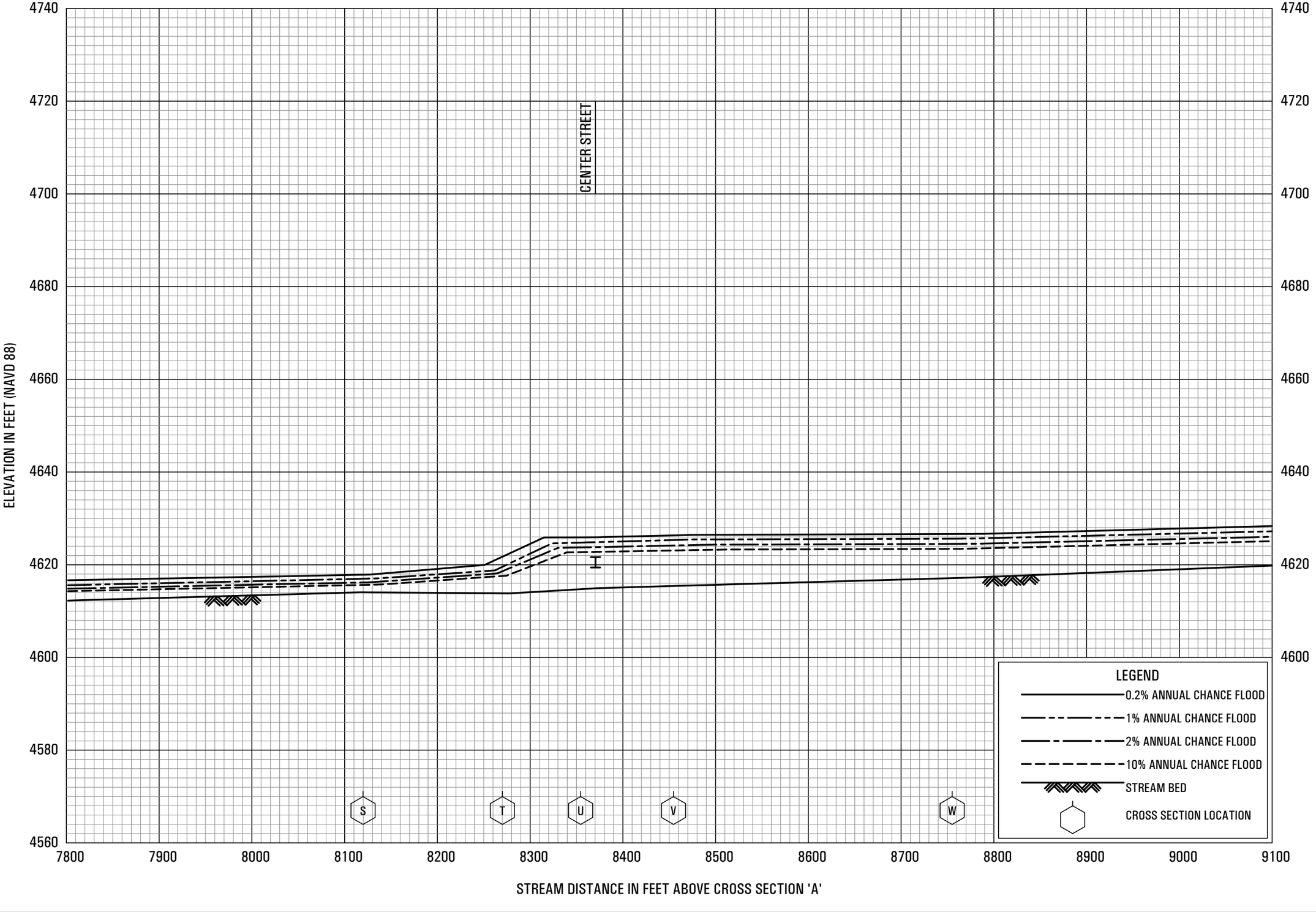

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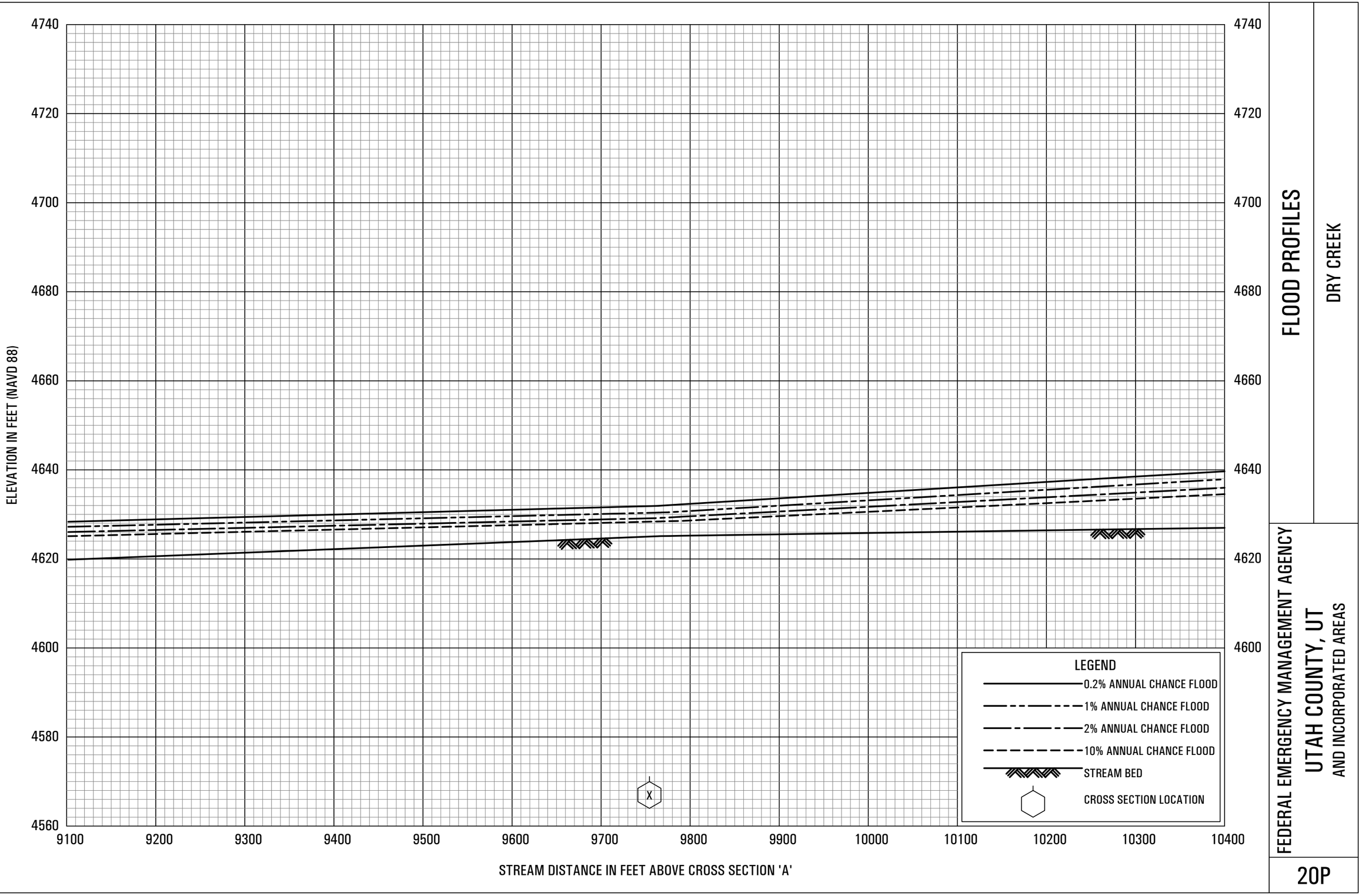

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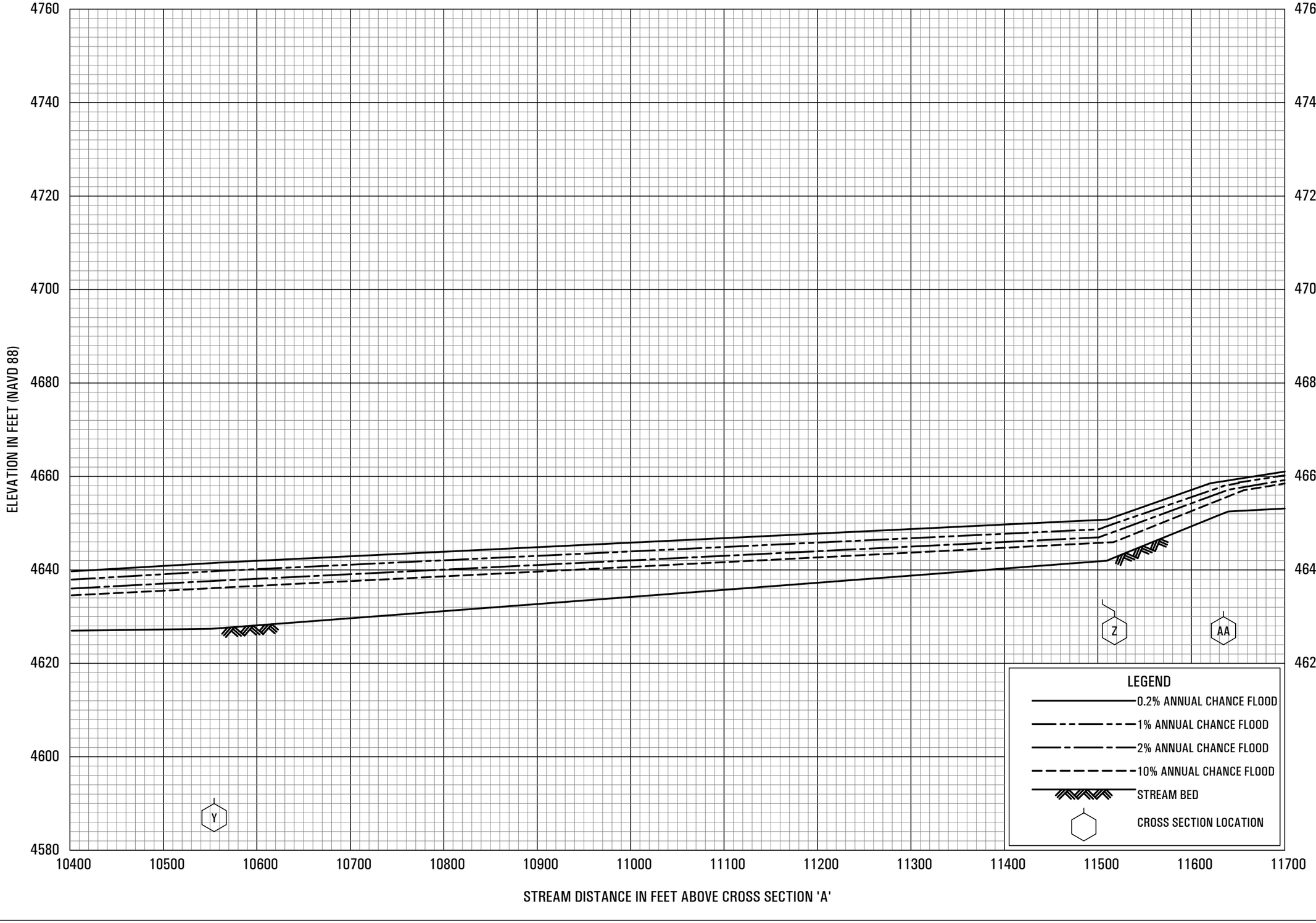

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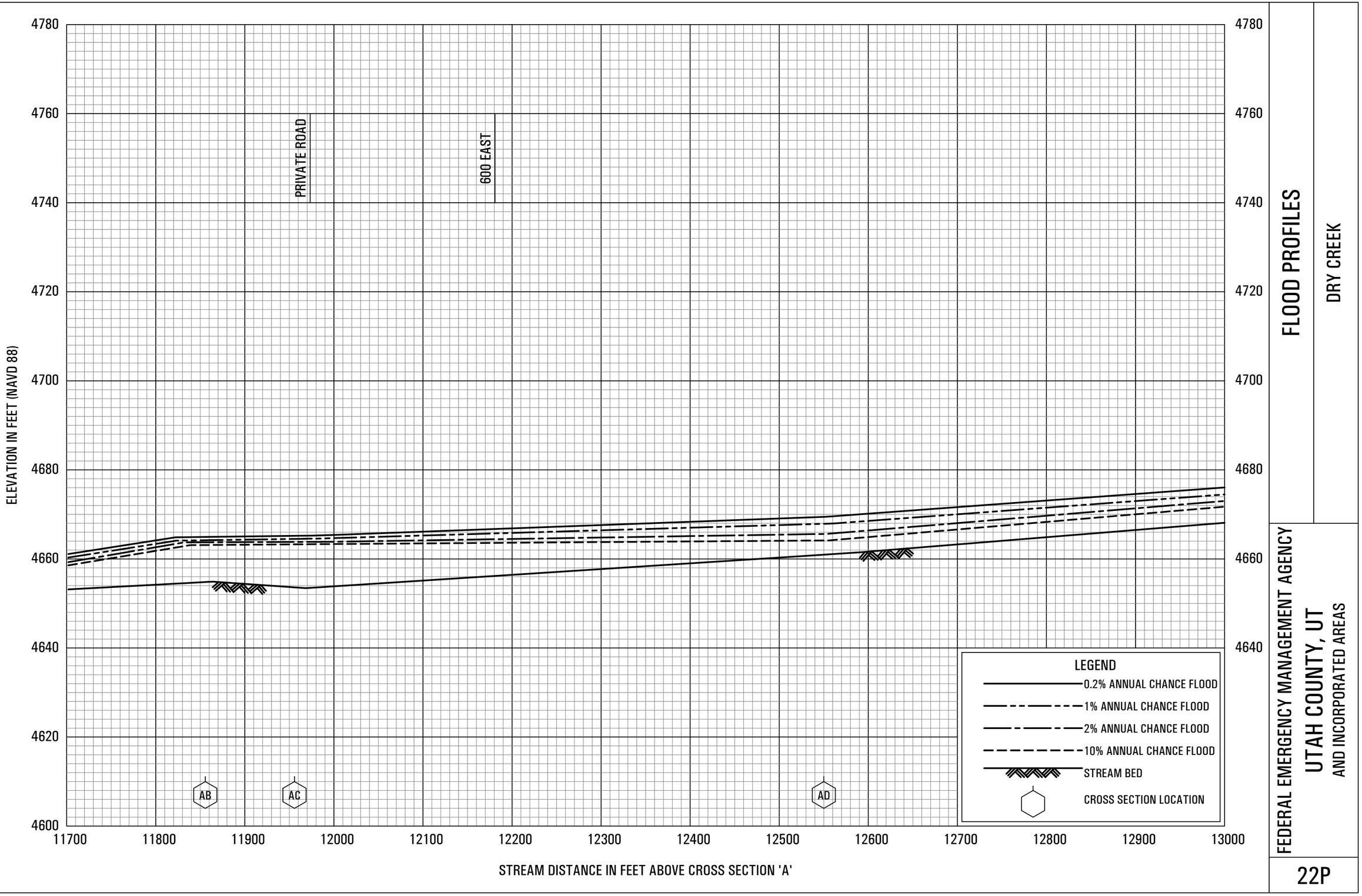

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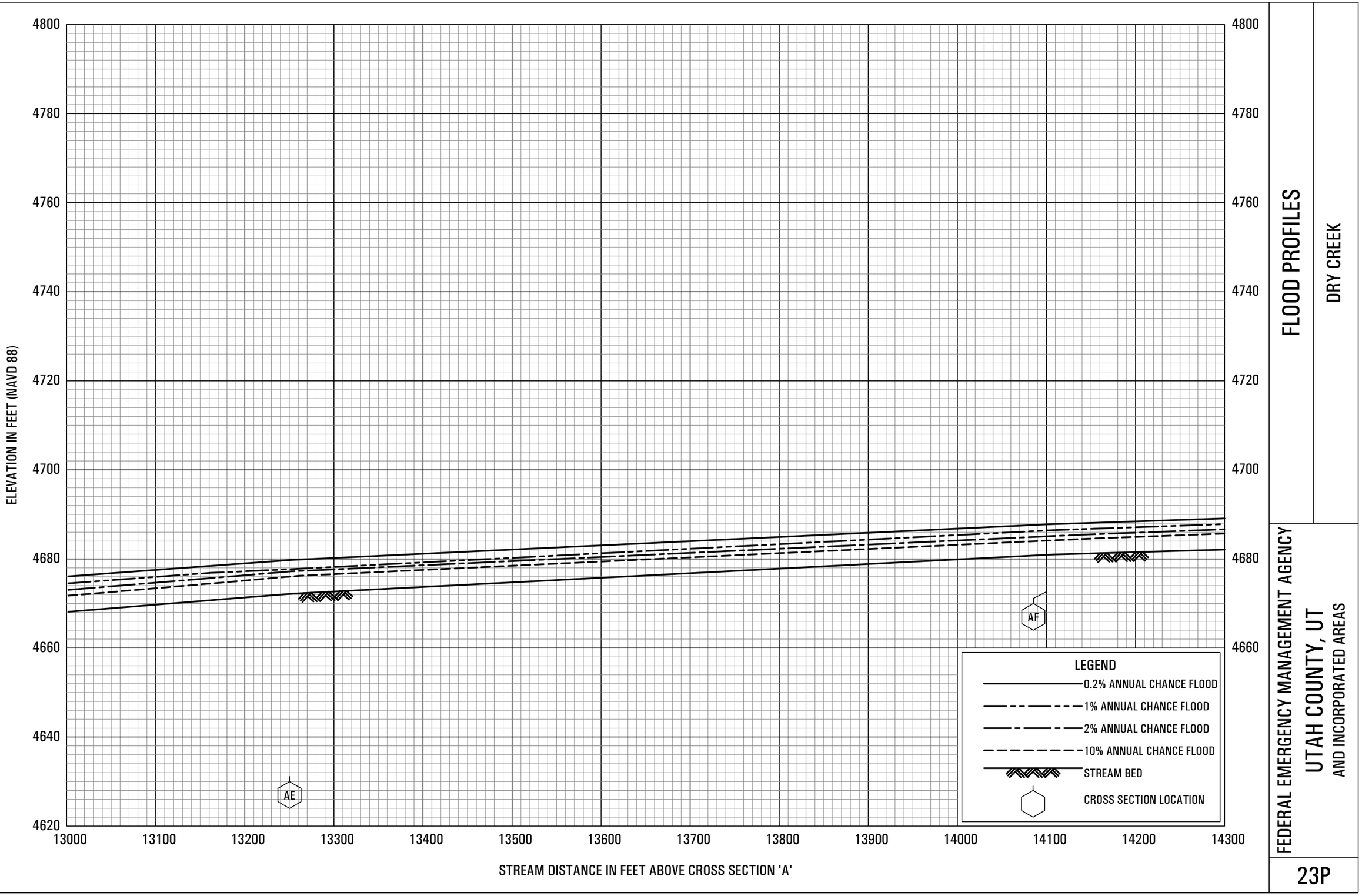

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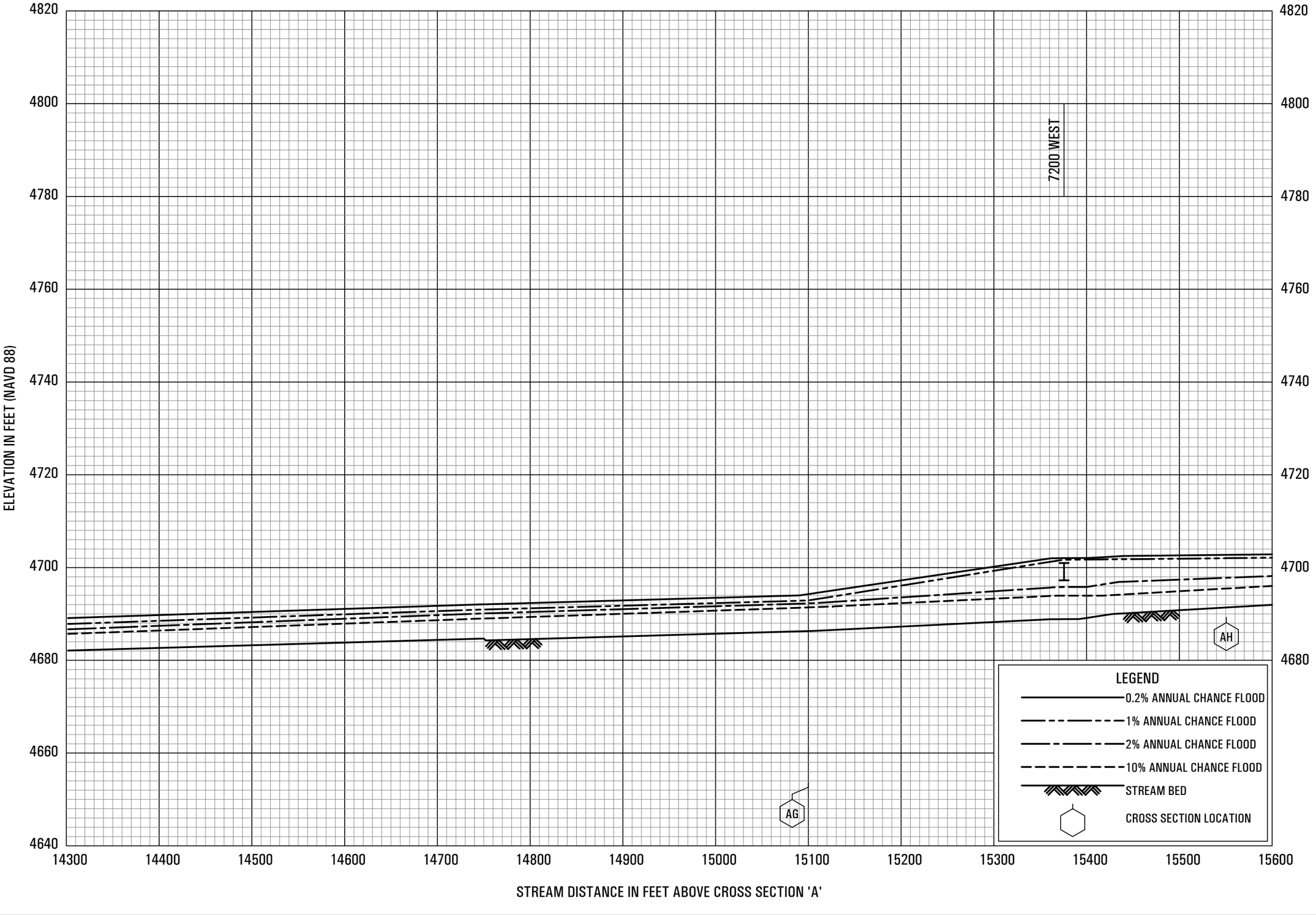

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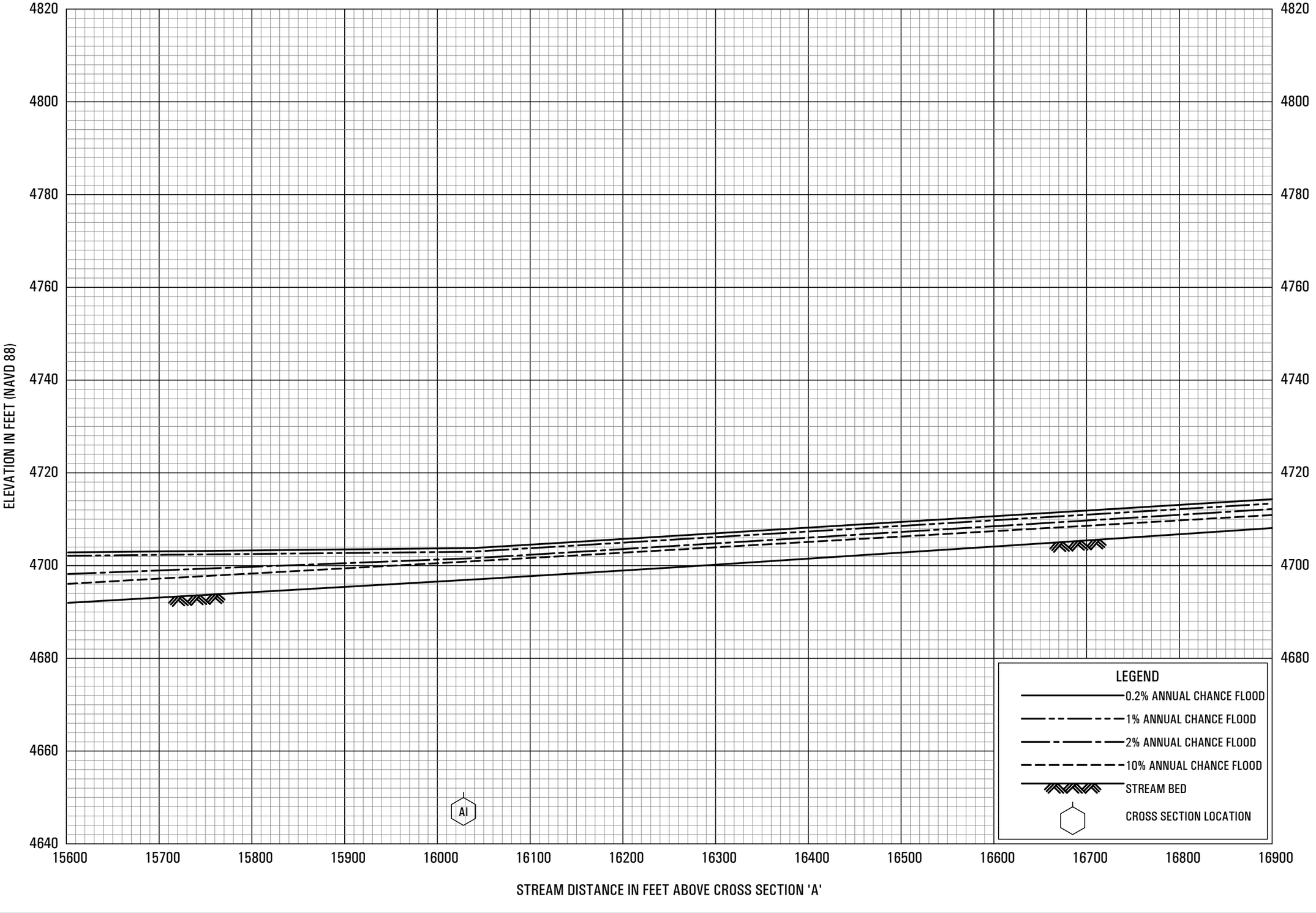

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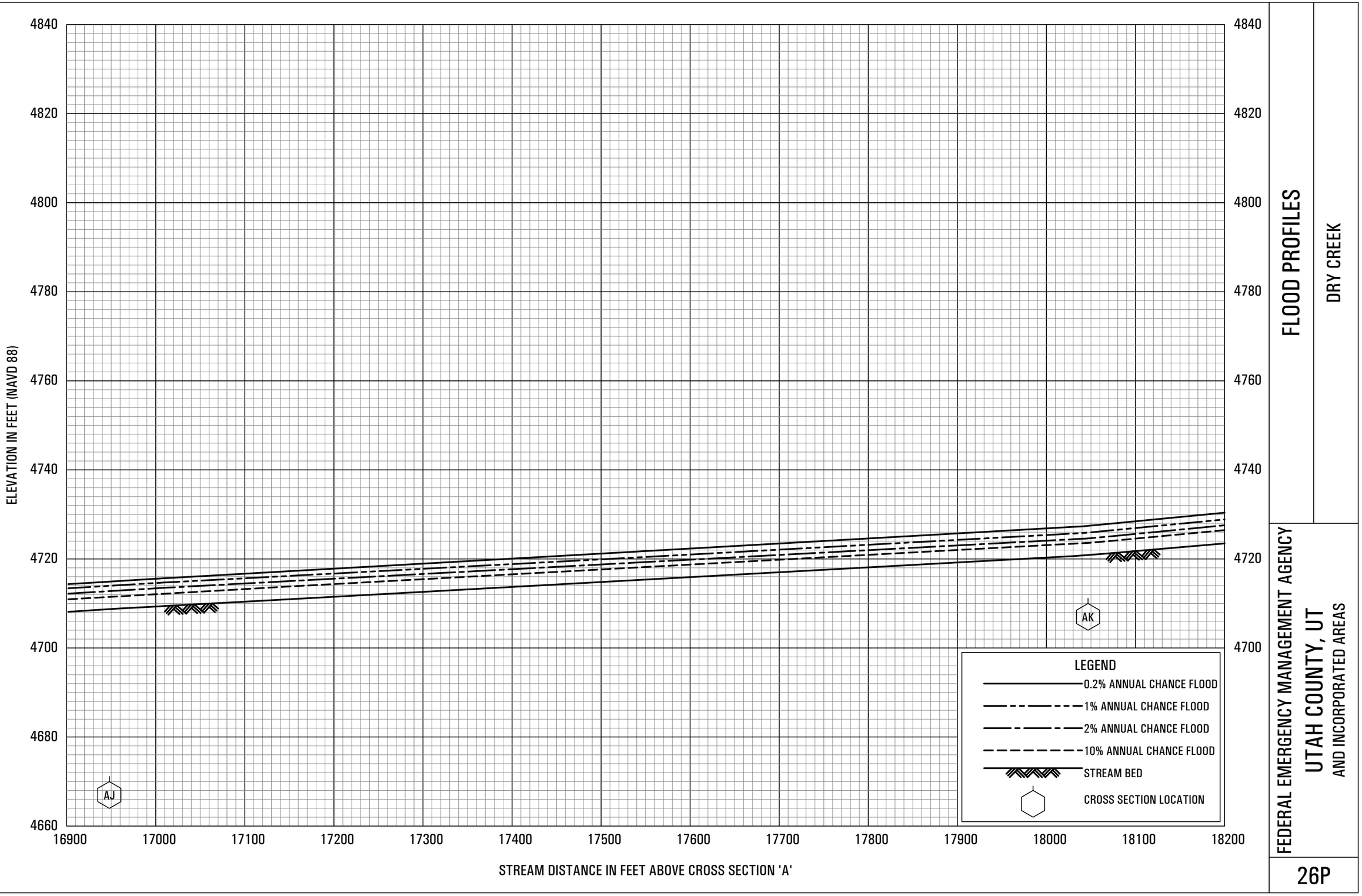

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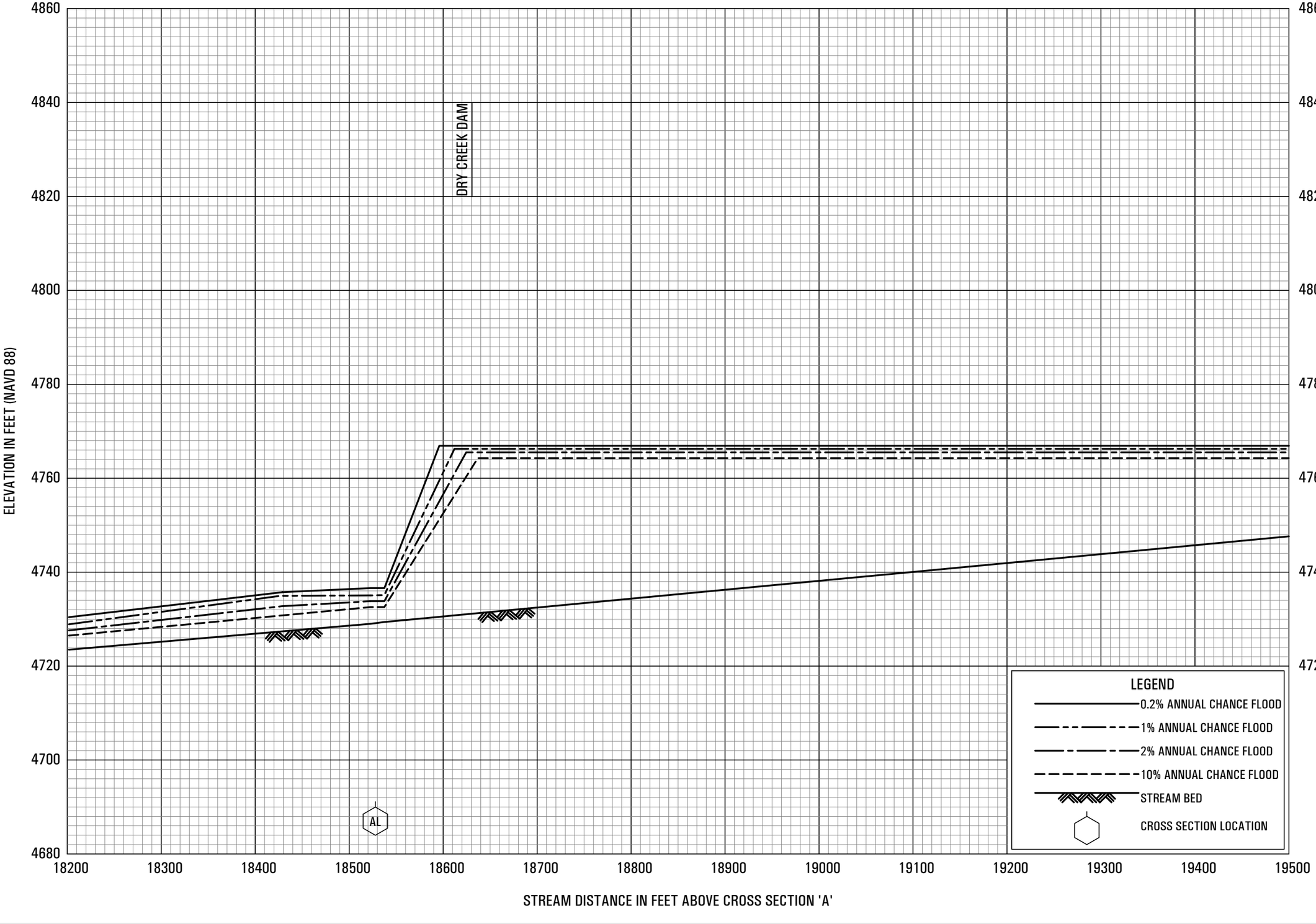

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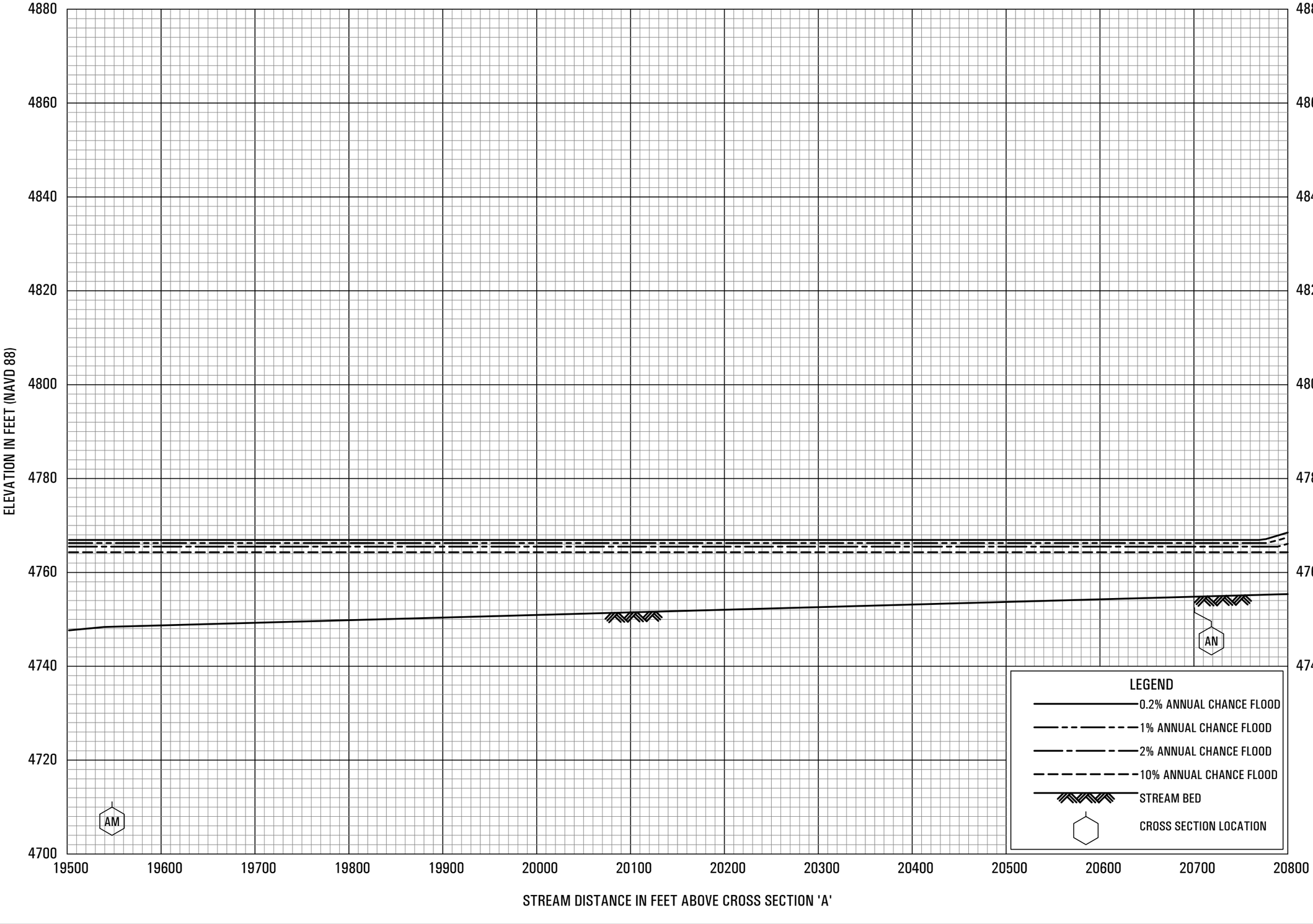

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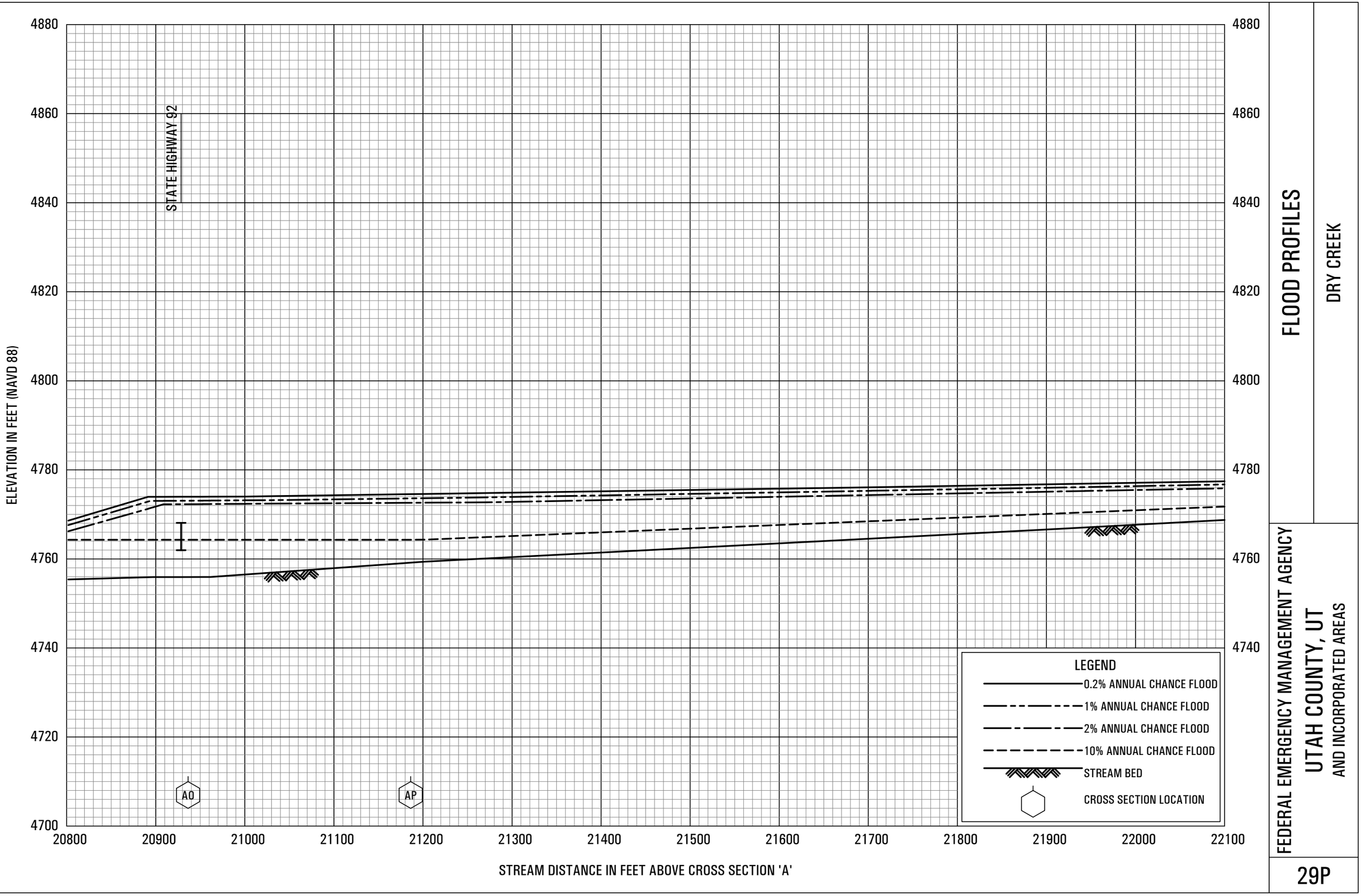

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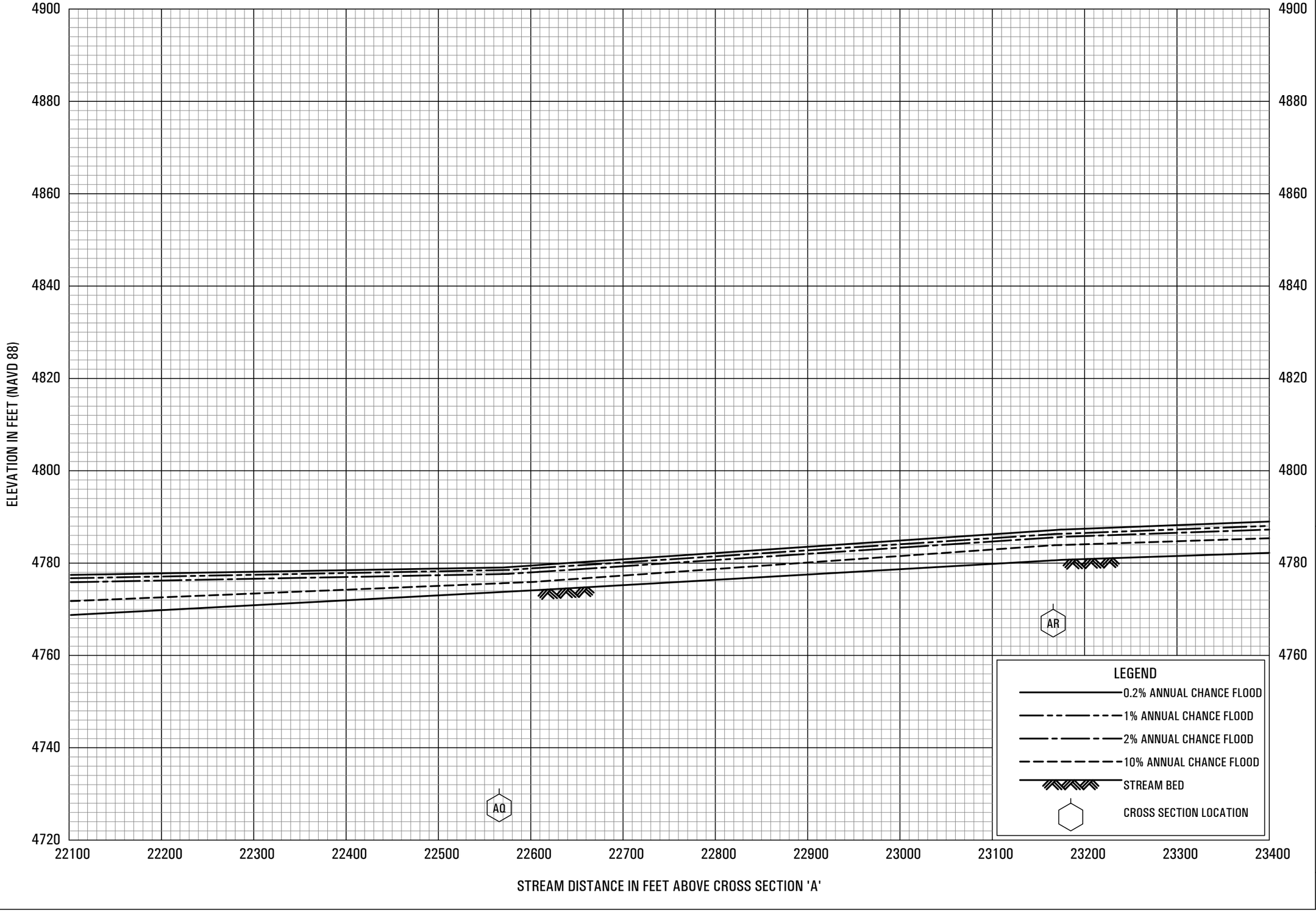

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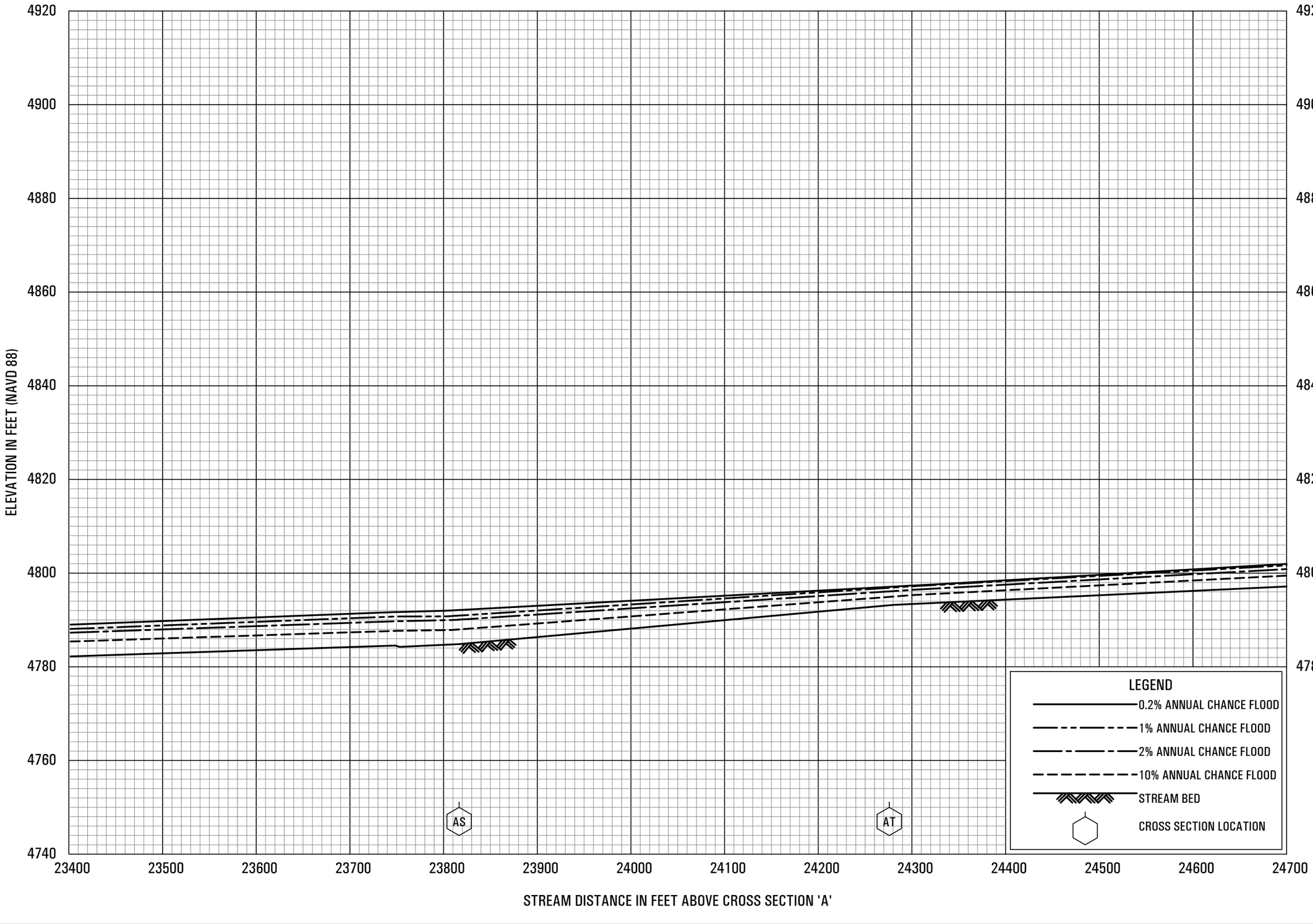

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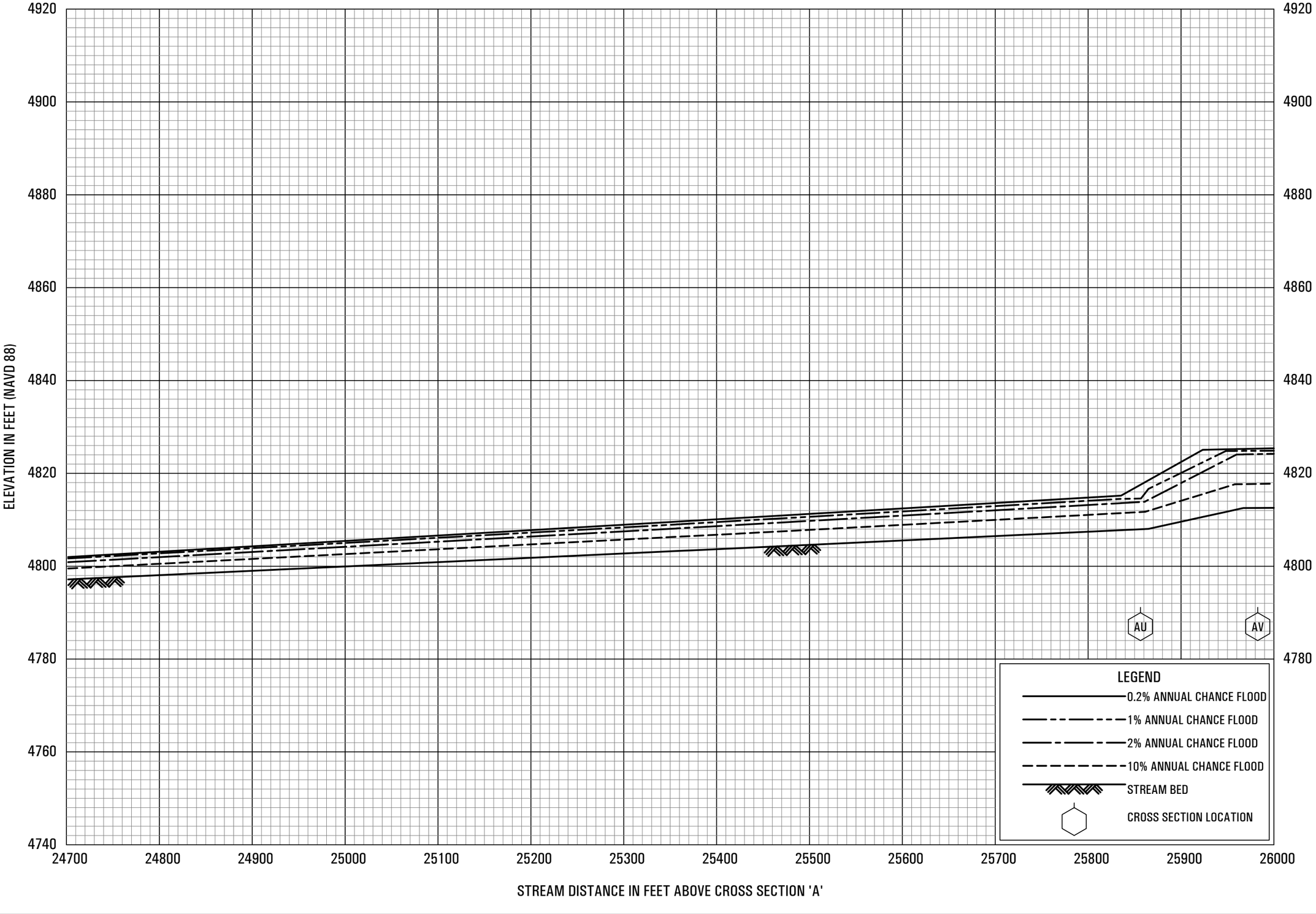

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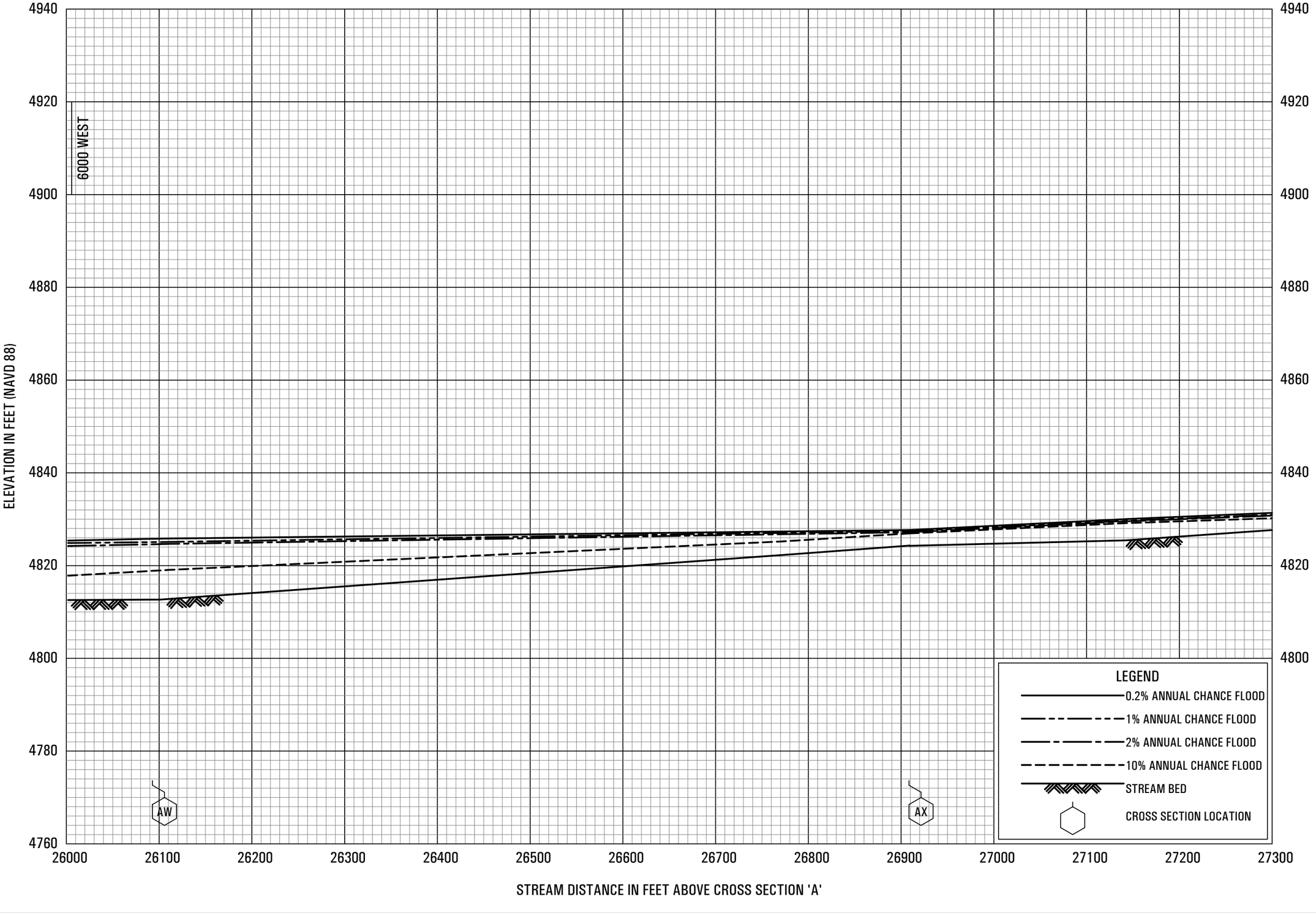

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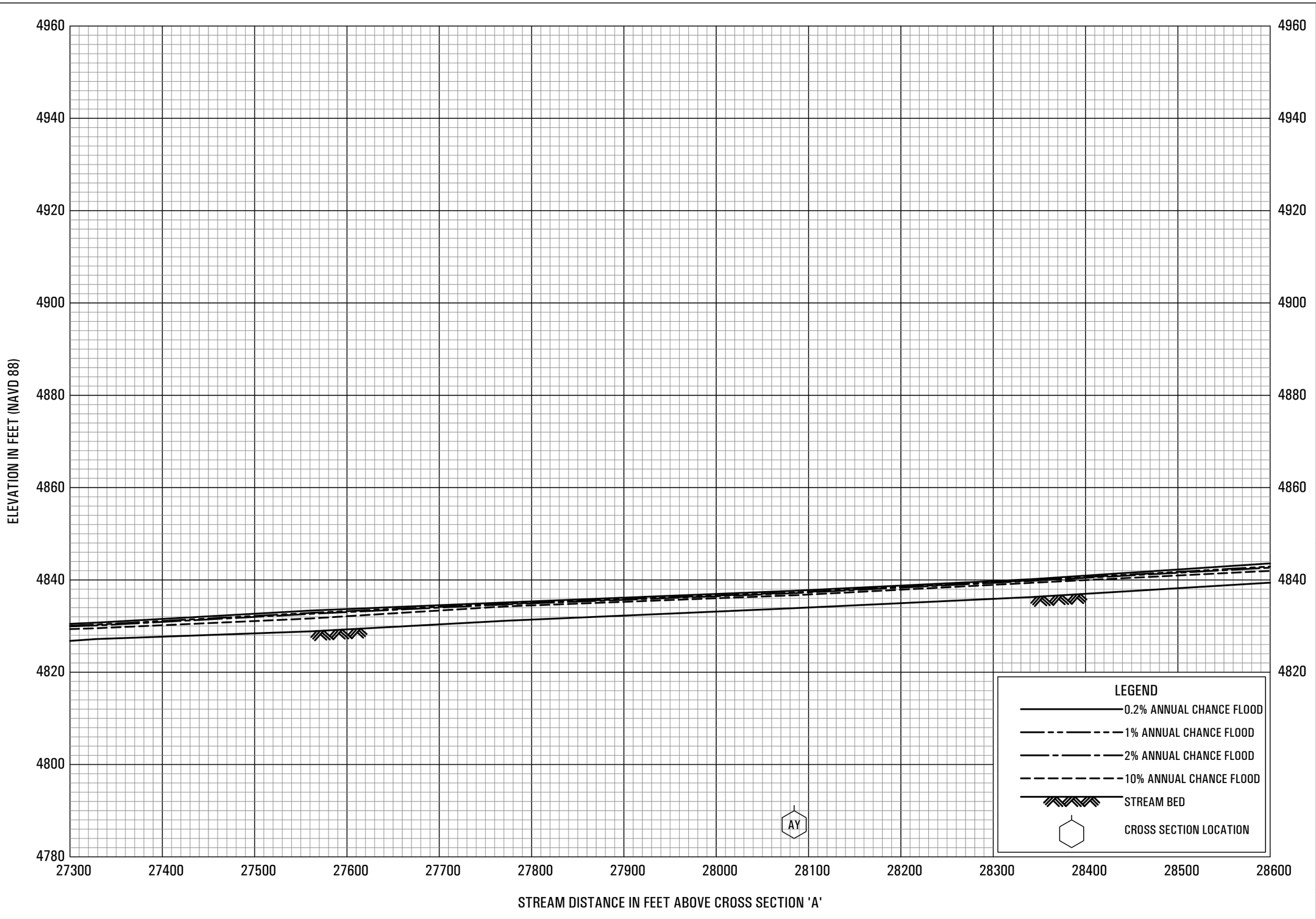

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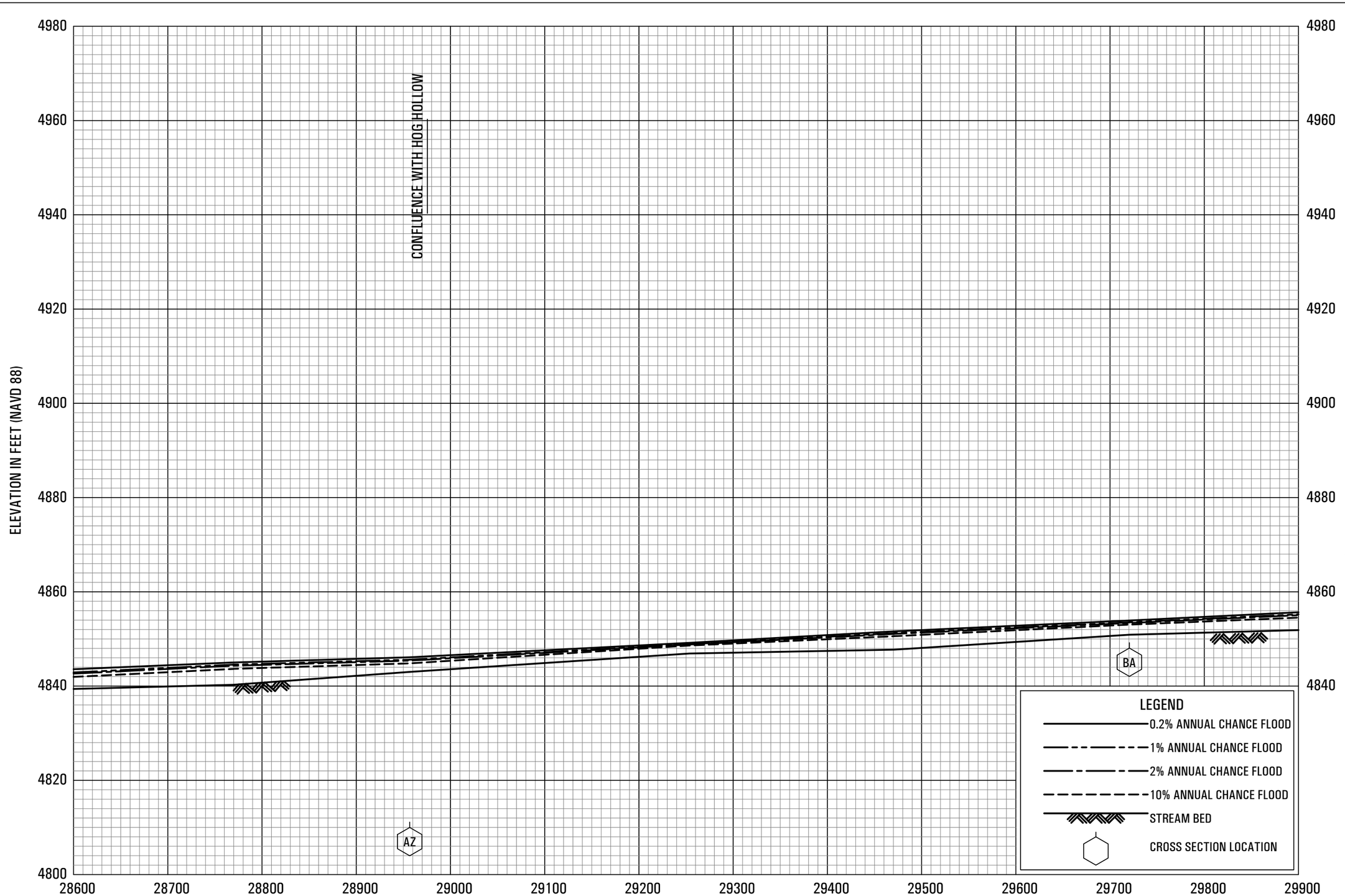

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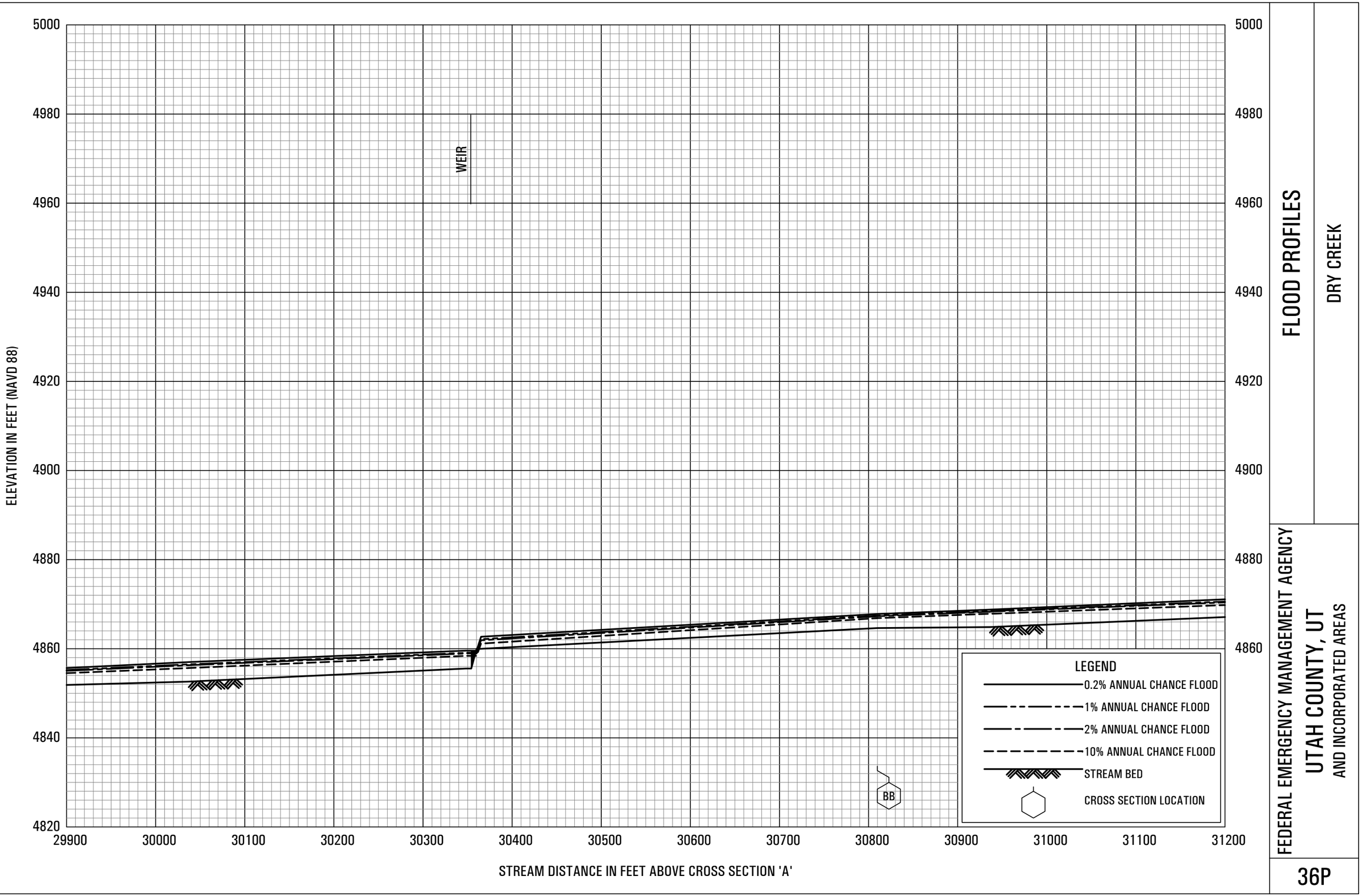

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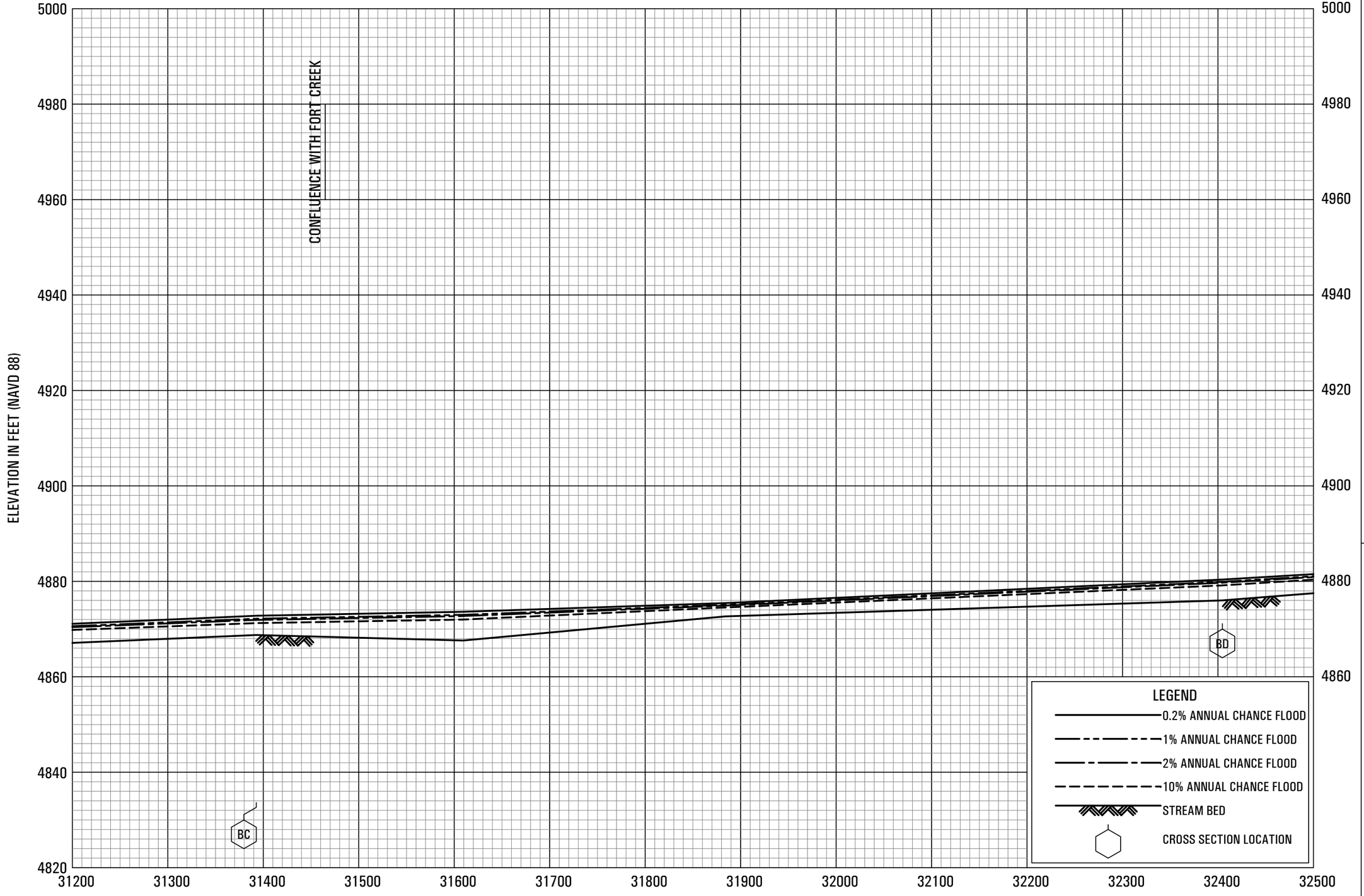

FLOOD PROFILES

DRY CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

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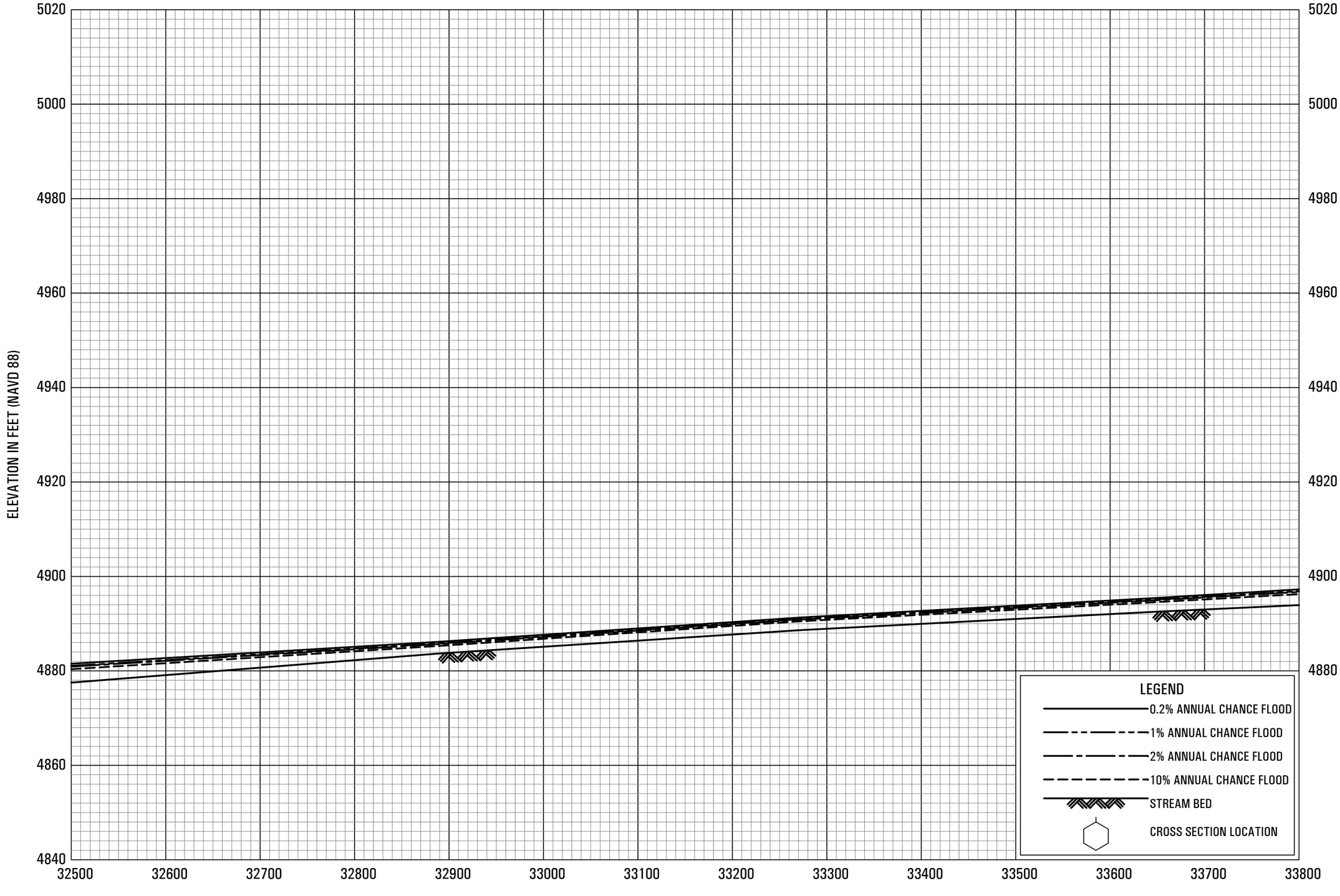

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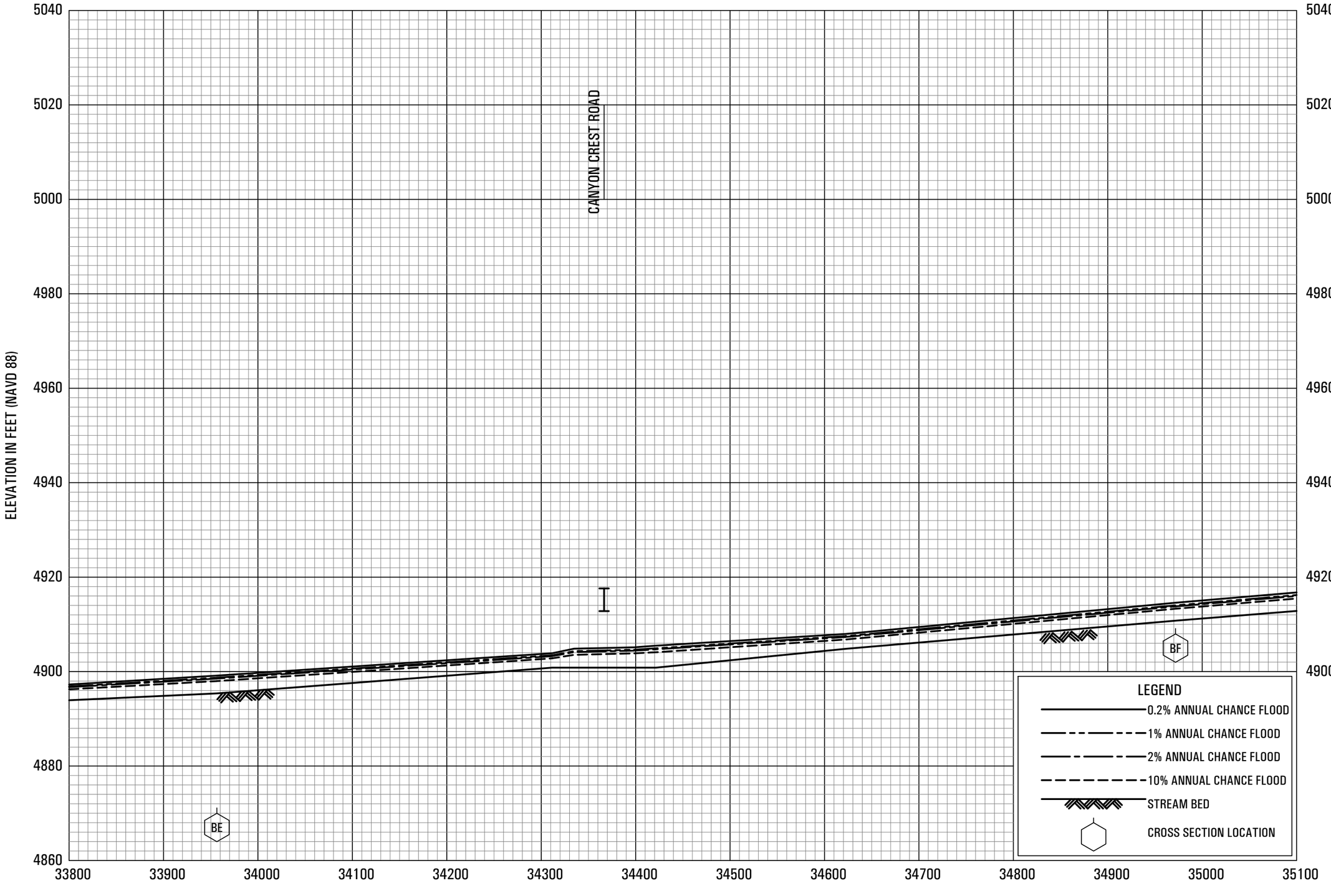

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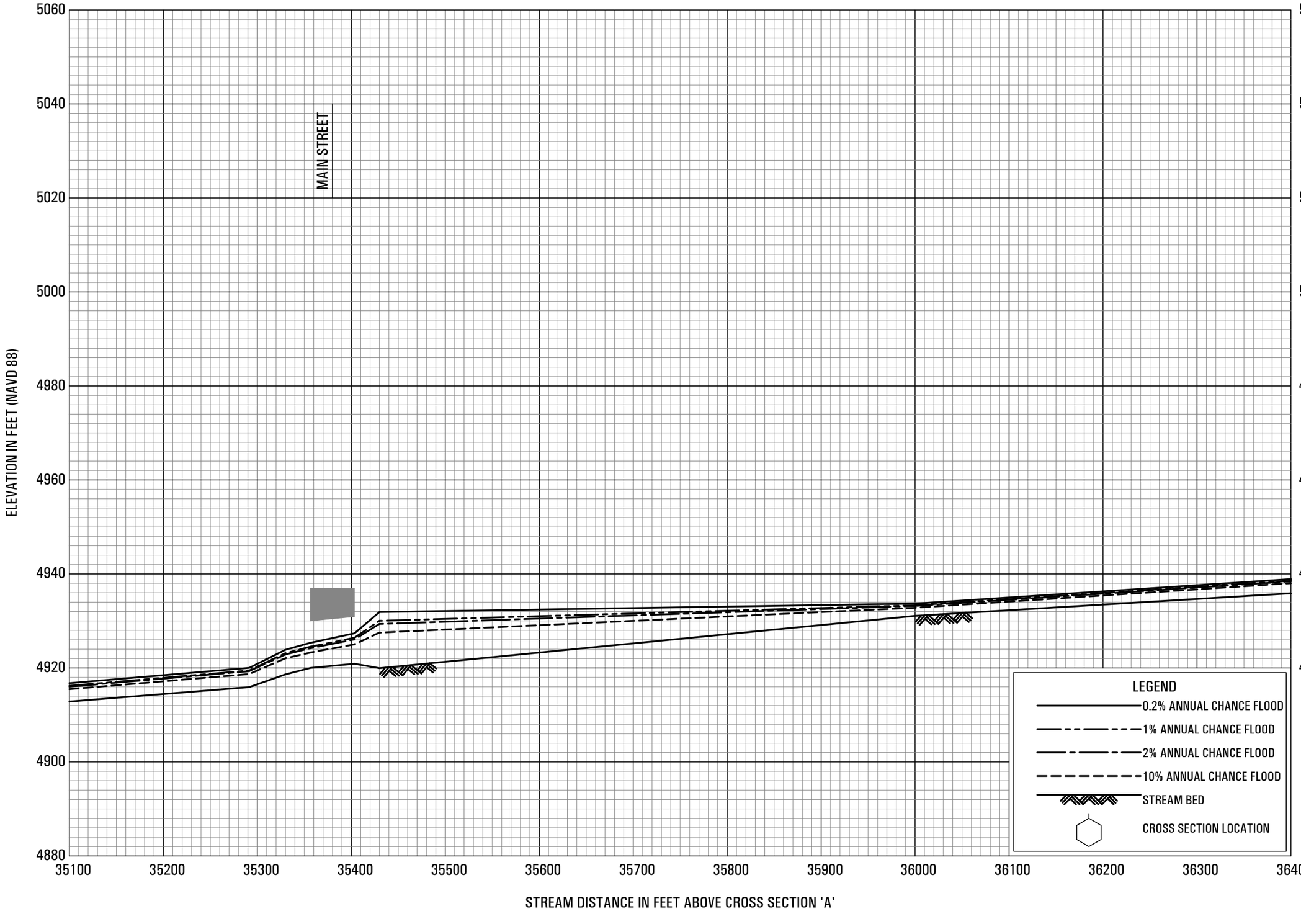

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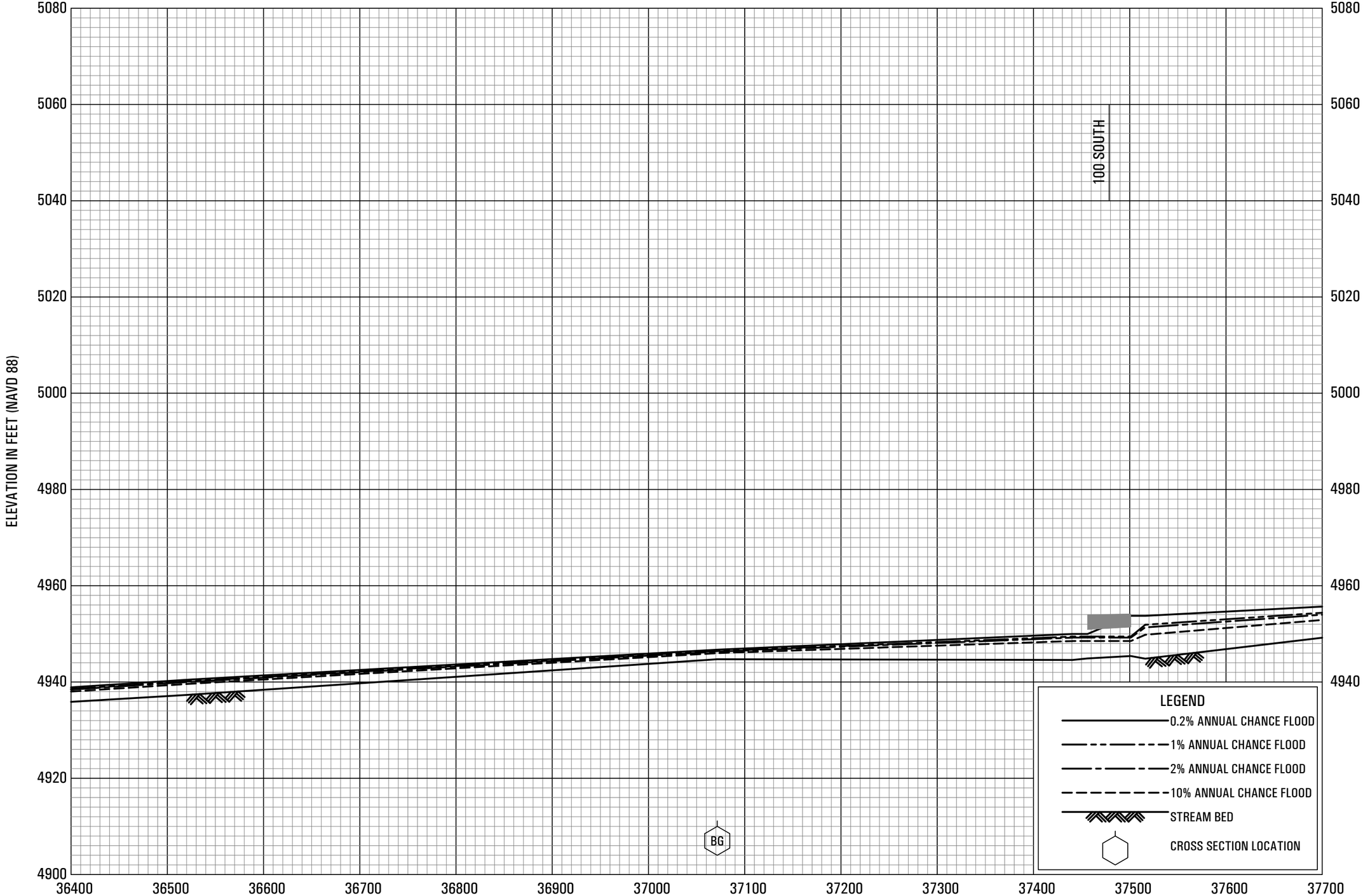

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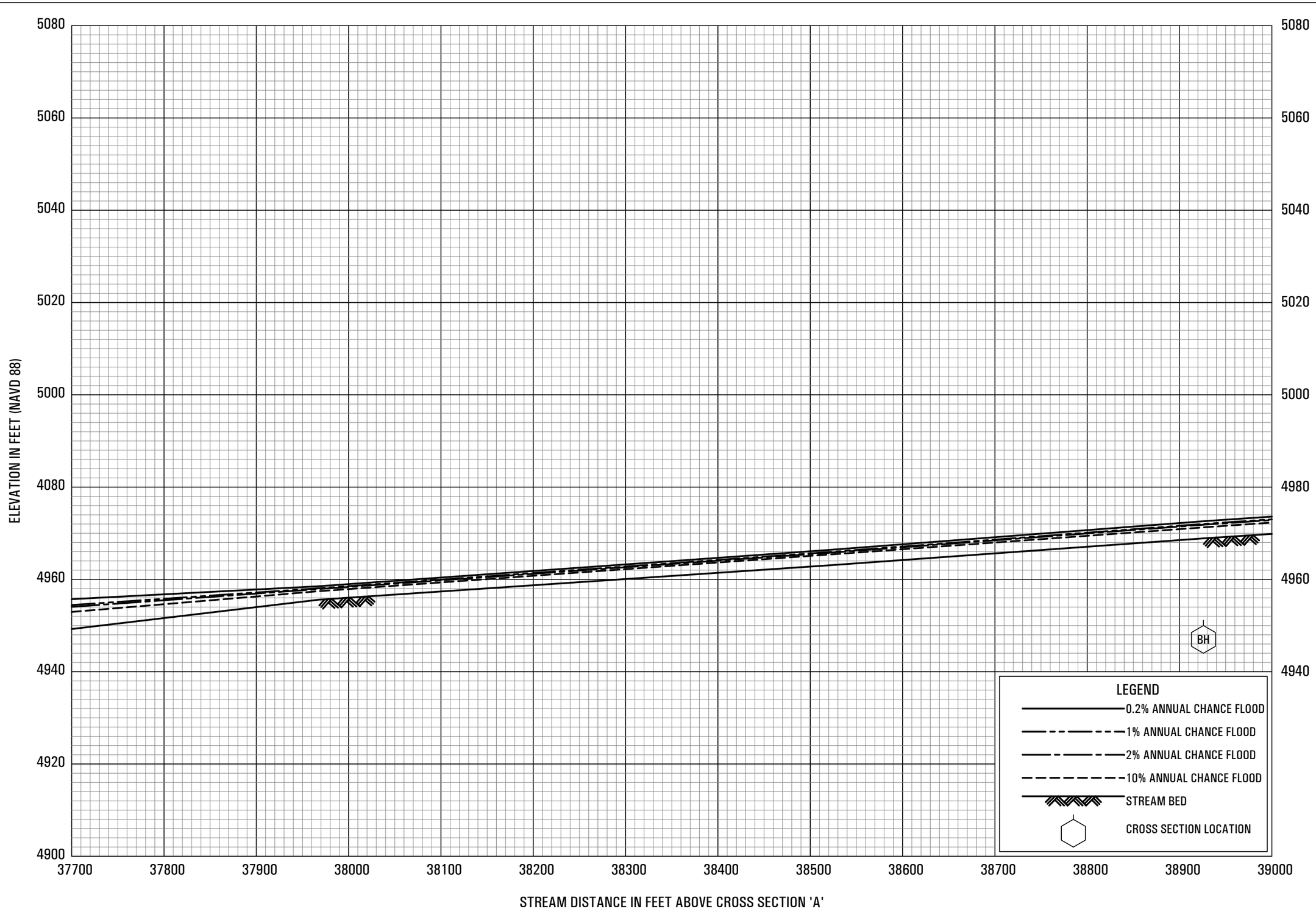

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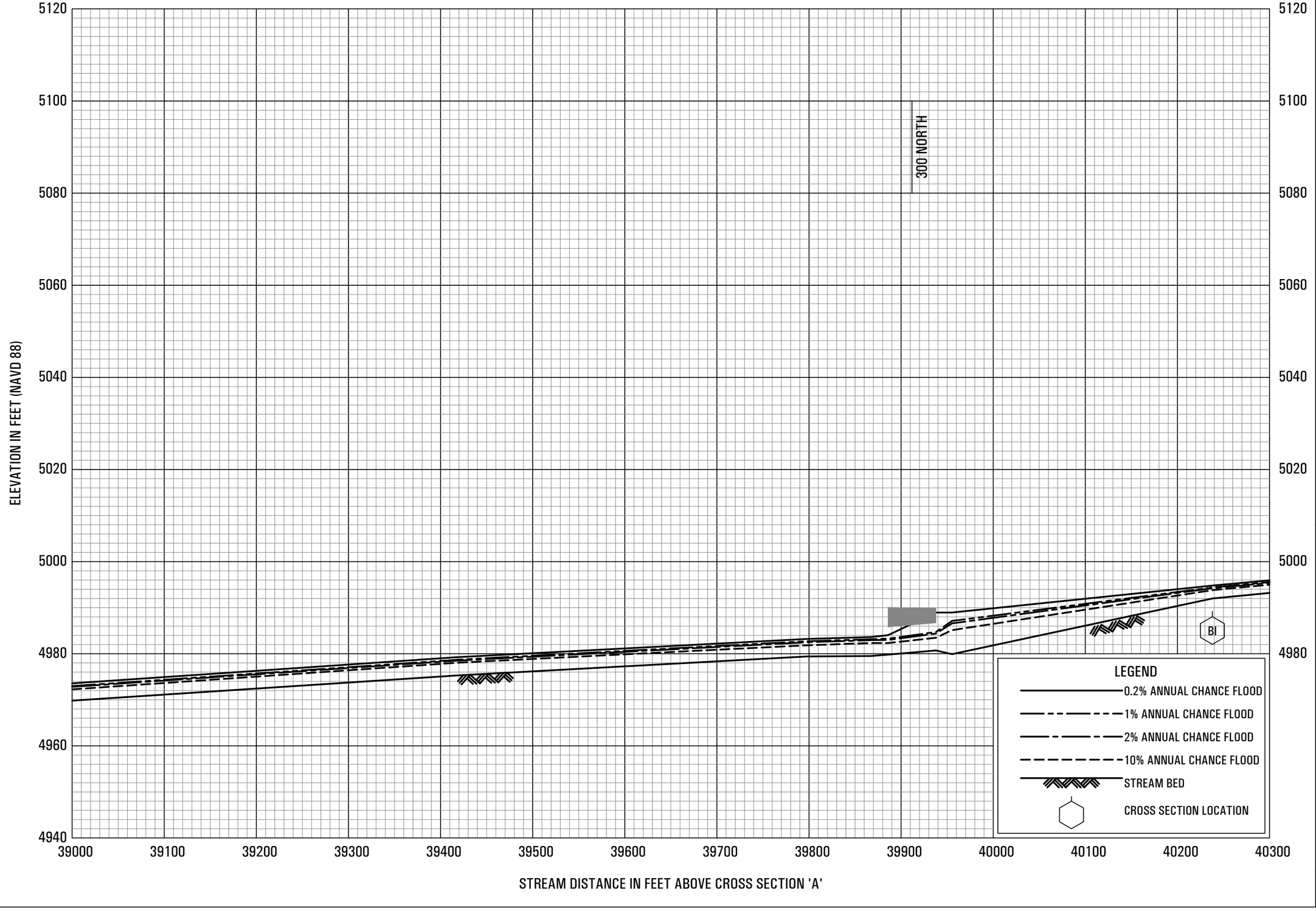

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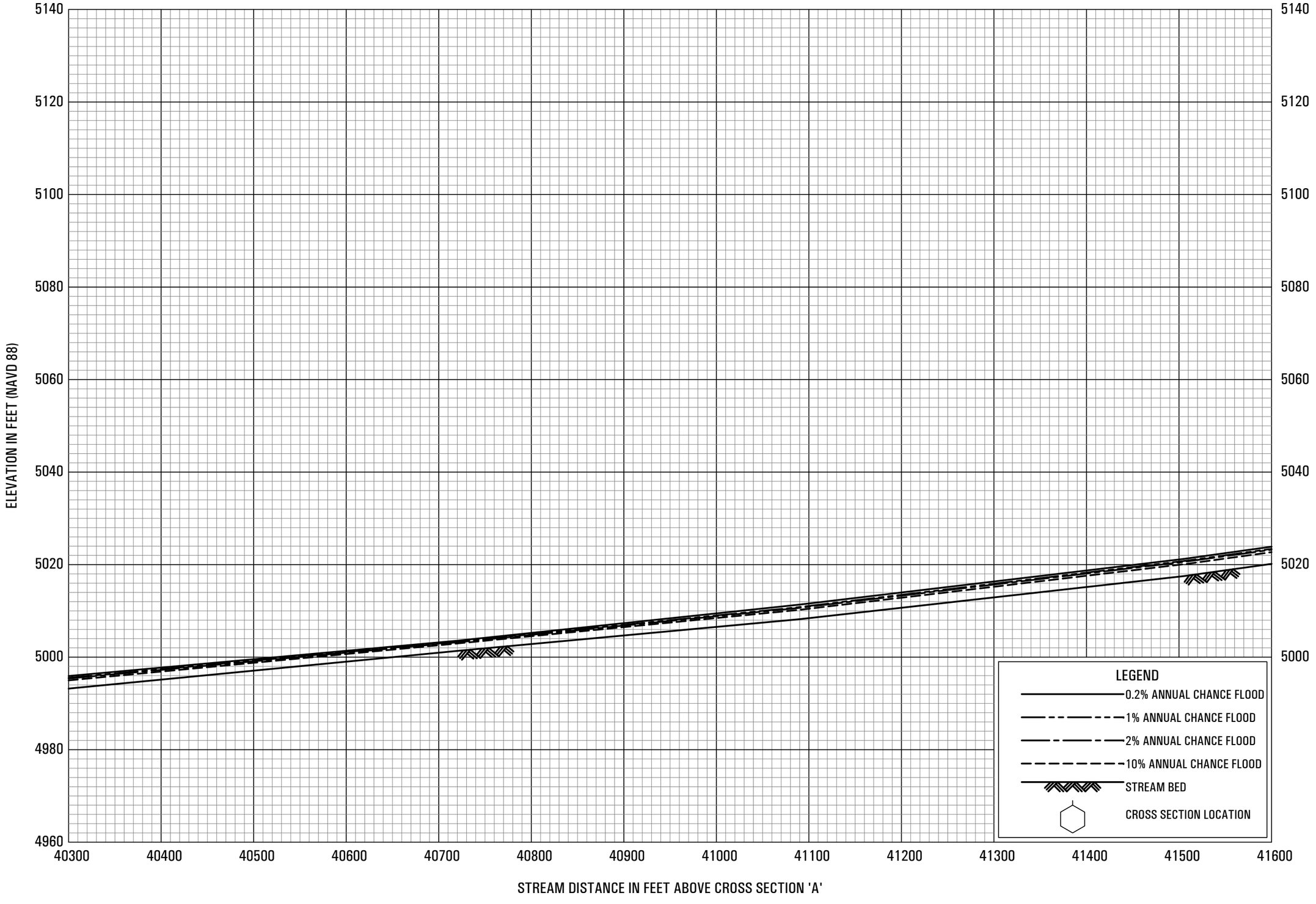

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AND INCORPORATED AREAS

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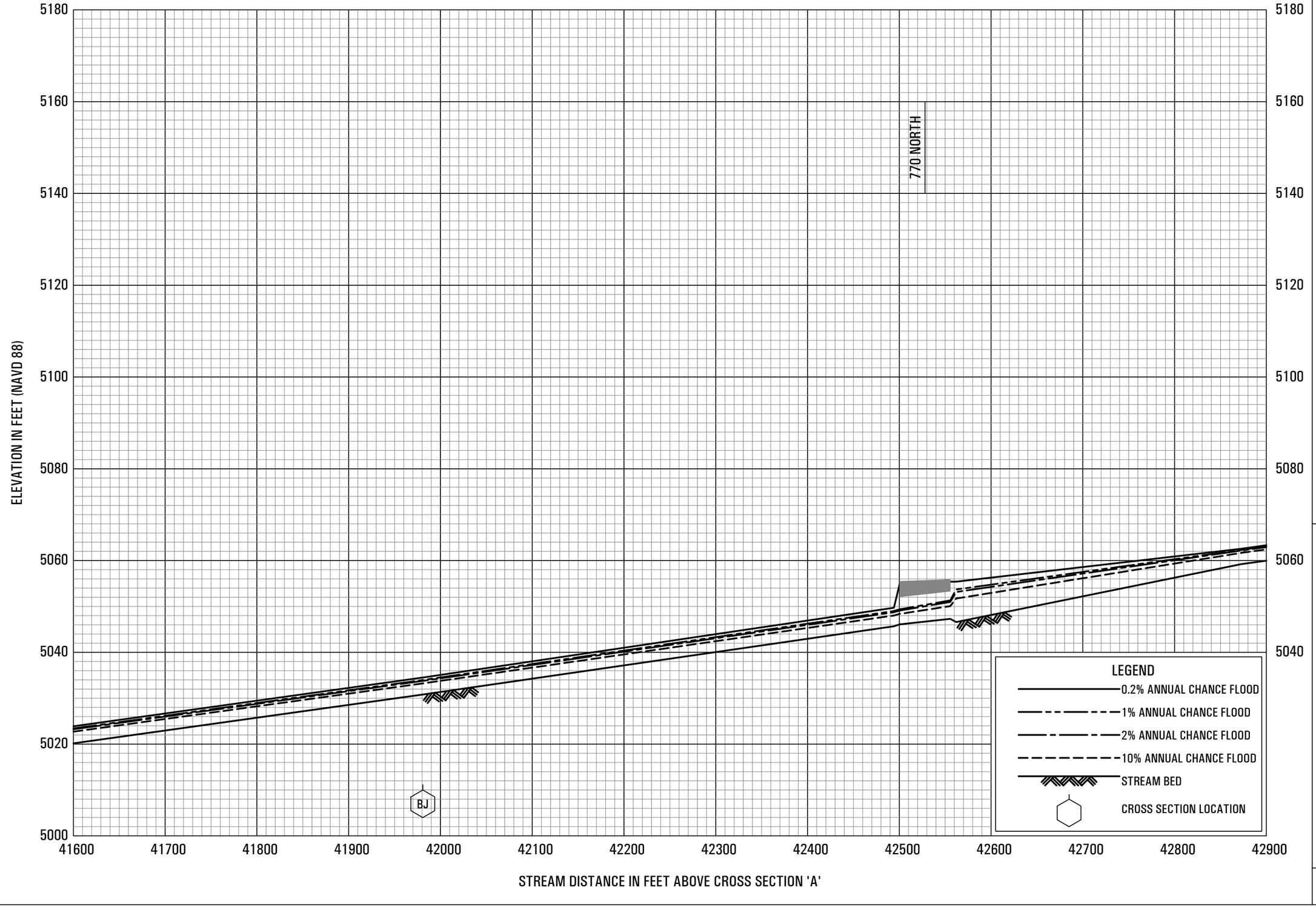

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FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

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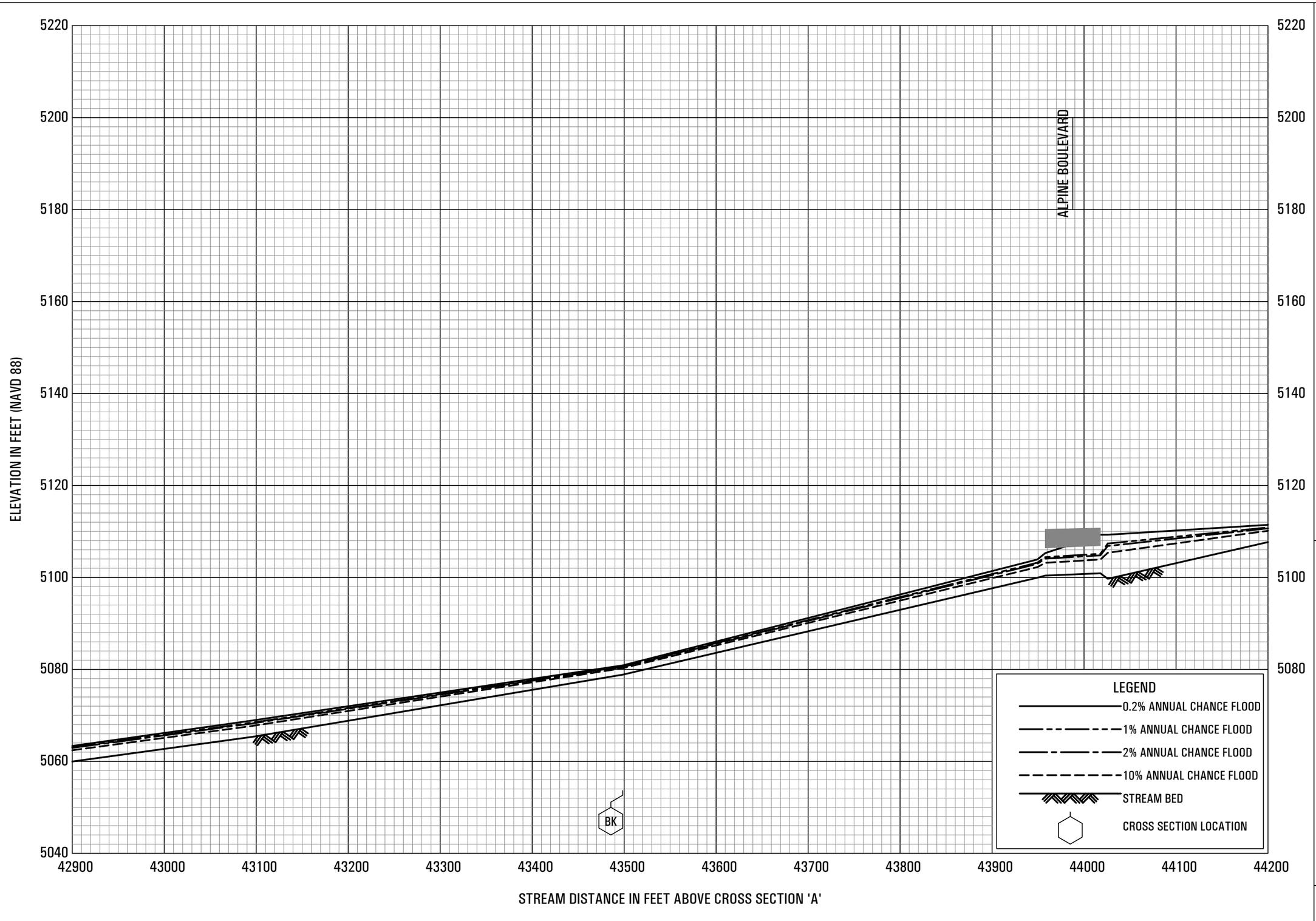

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UTAH COUNTY, UT

AND INCORPORATED AREAS

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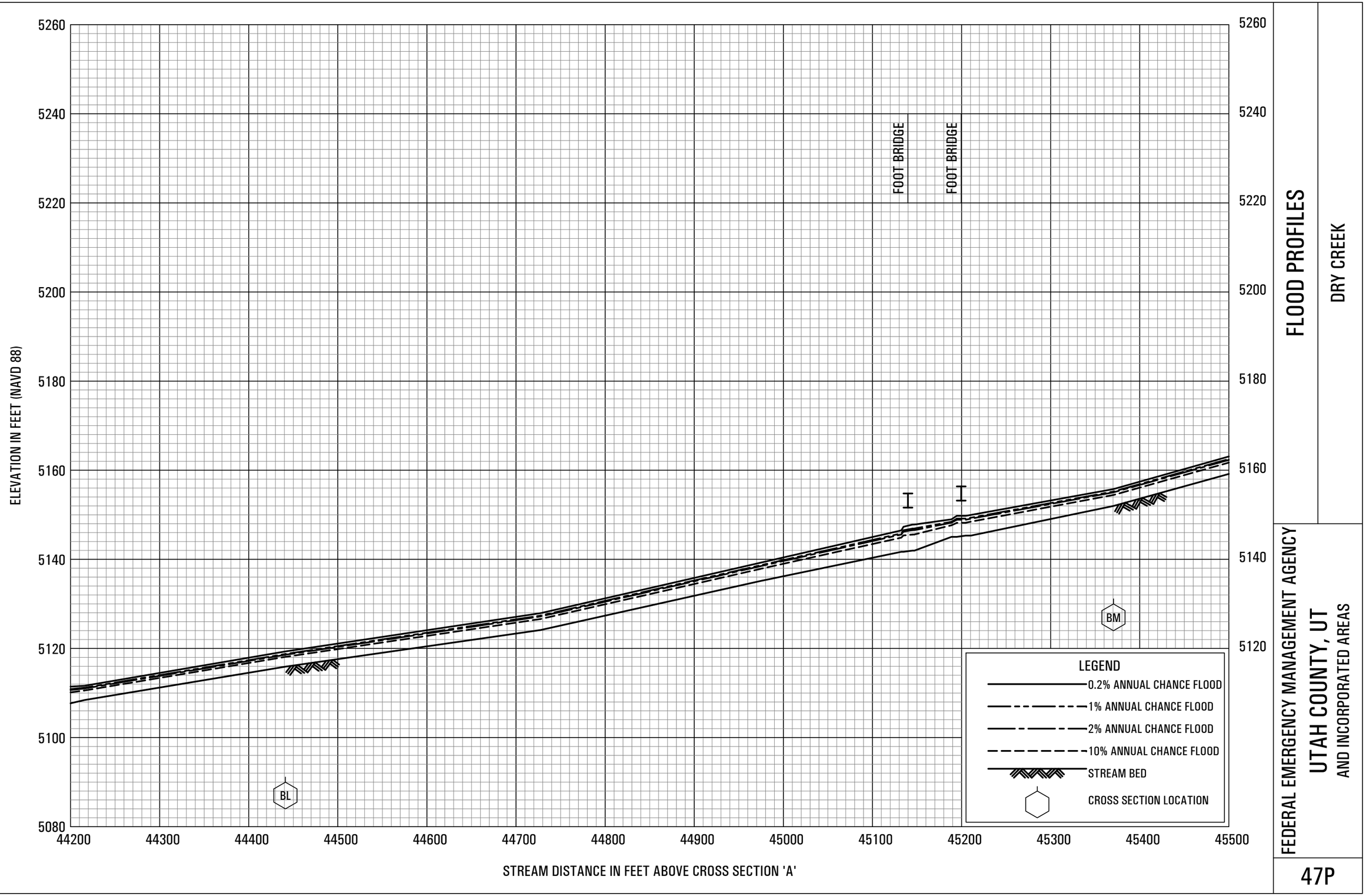

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UTAH COUNTY, UT

AND INCORPORATED AREAS

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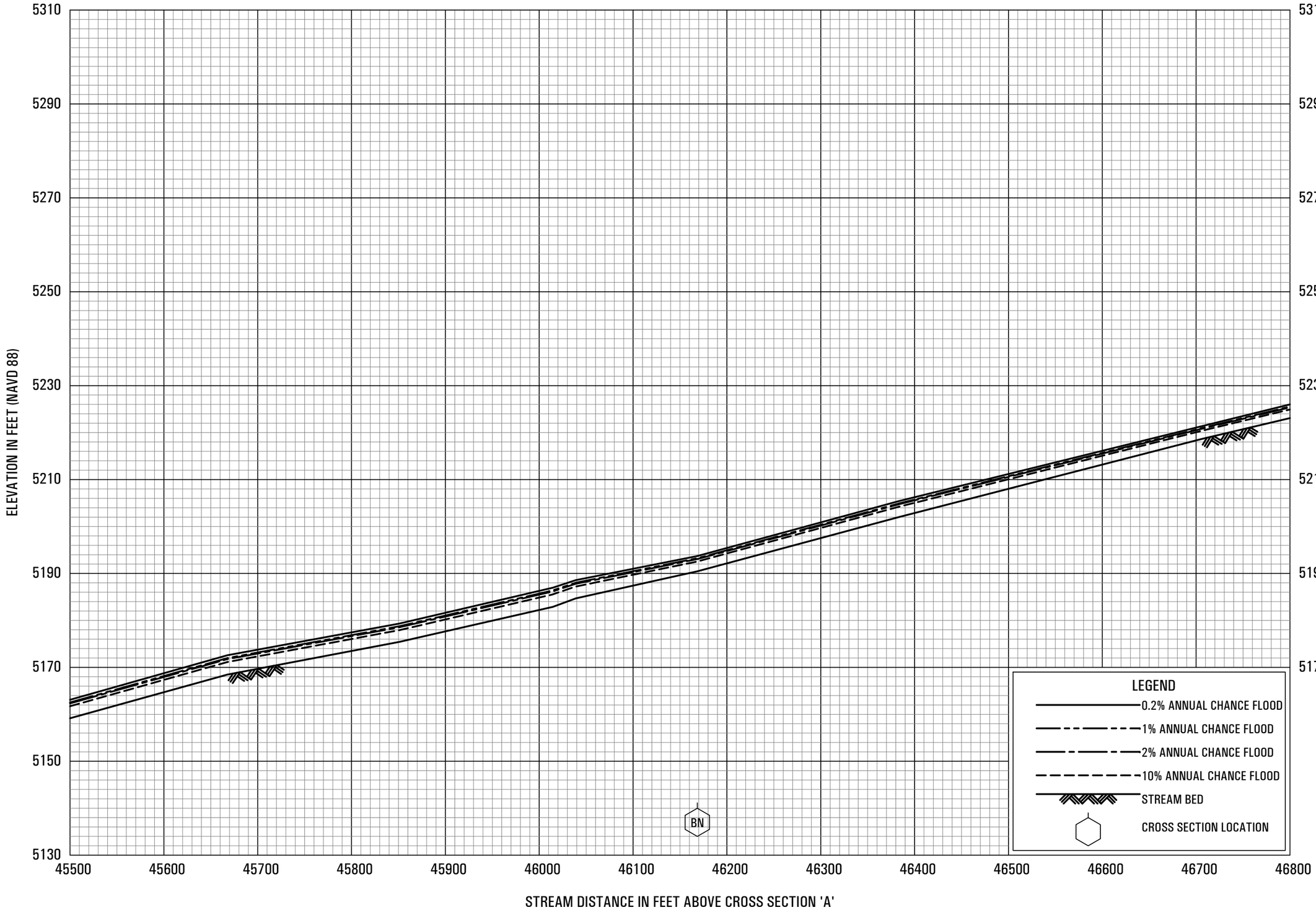

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UTAH COUNTY, UT

AND INCORPORATED AREAS

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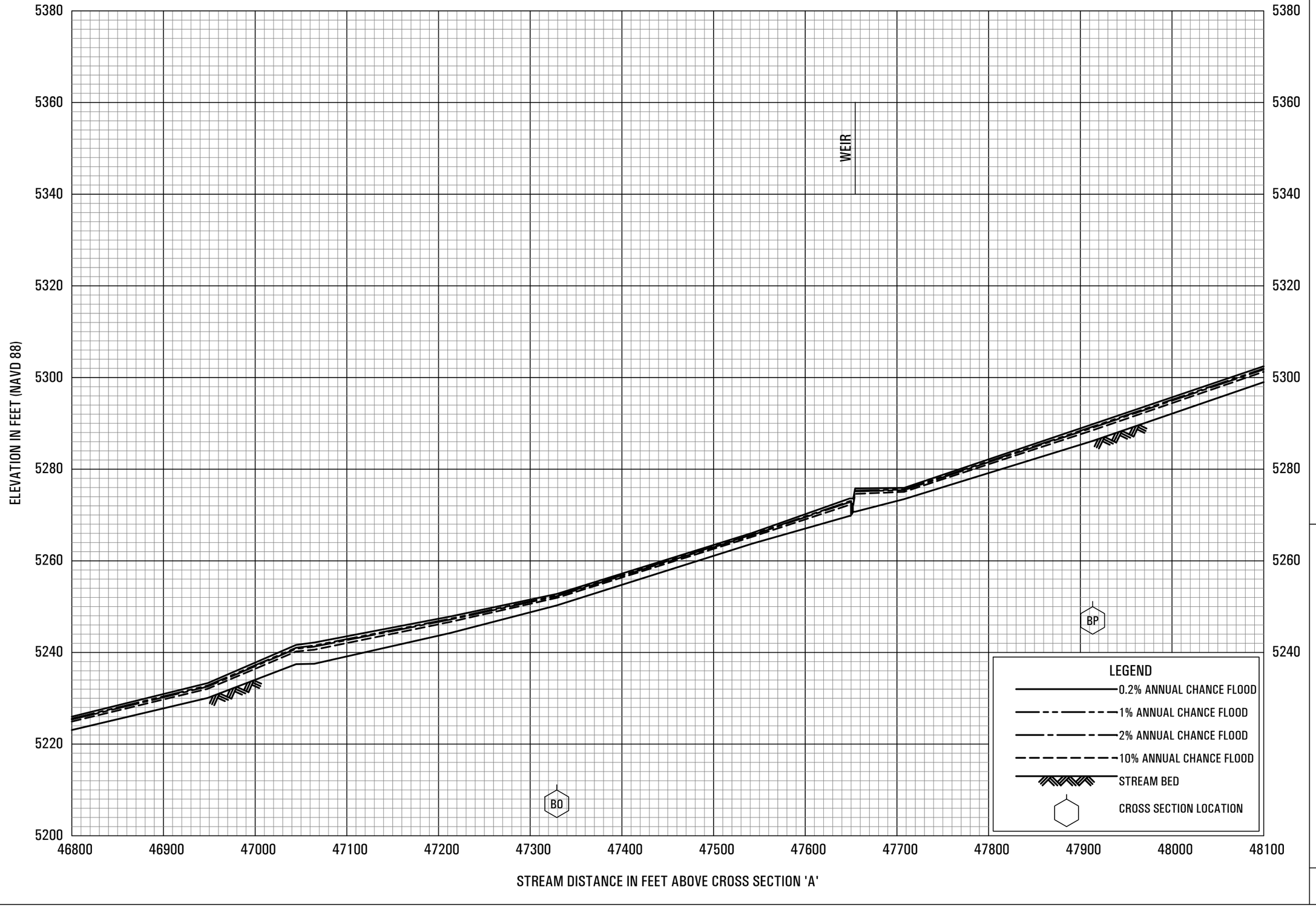

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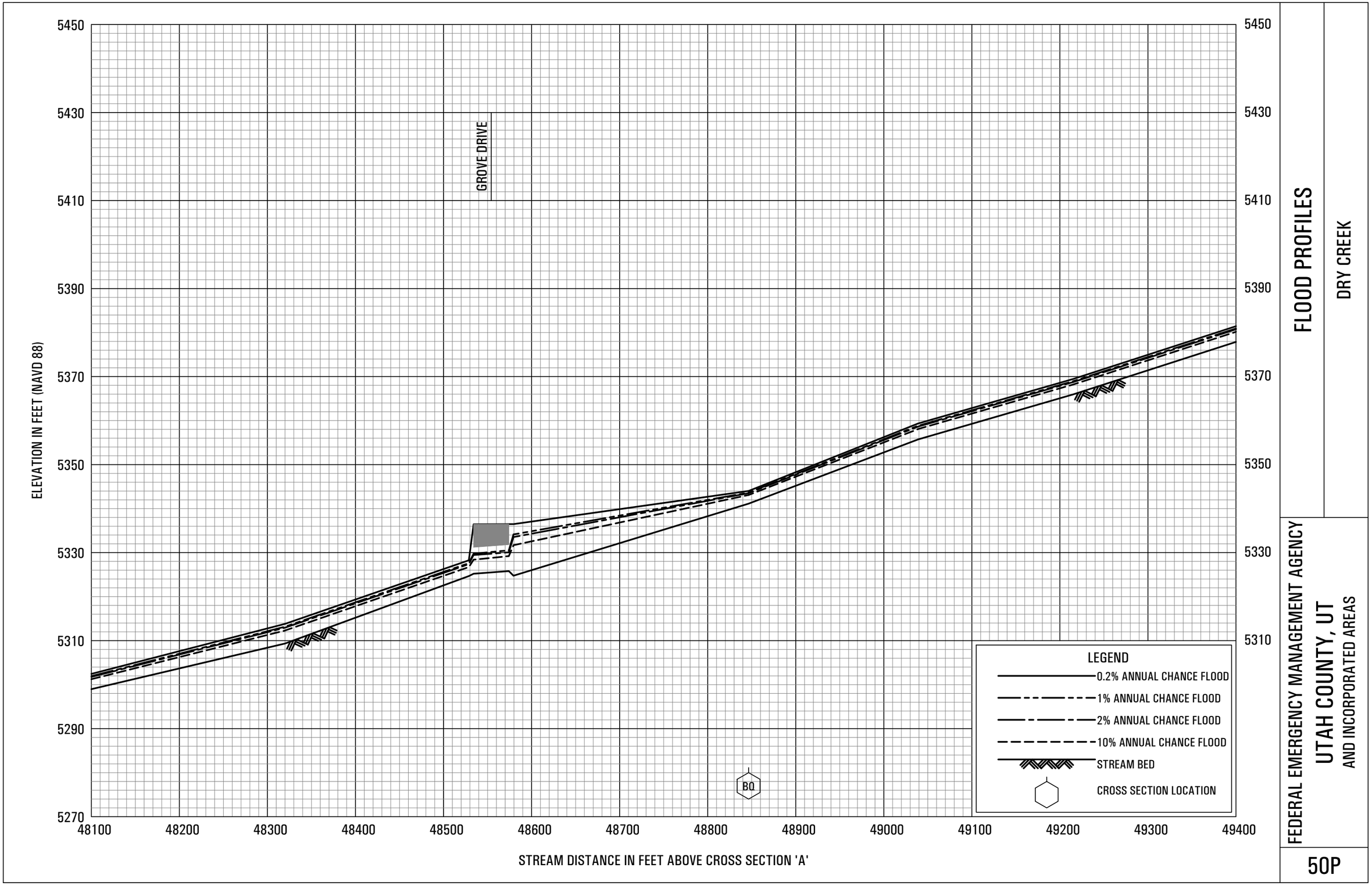

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UTAH COUNTY, UT

AND INCORPORATED AREAS

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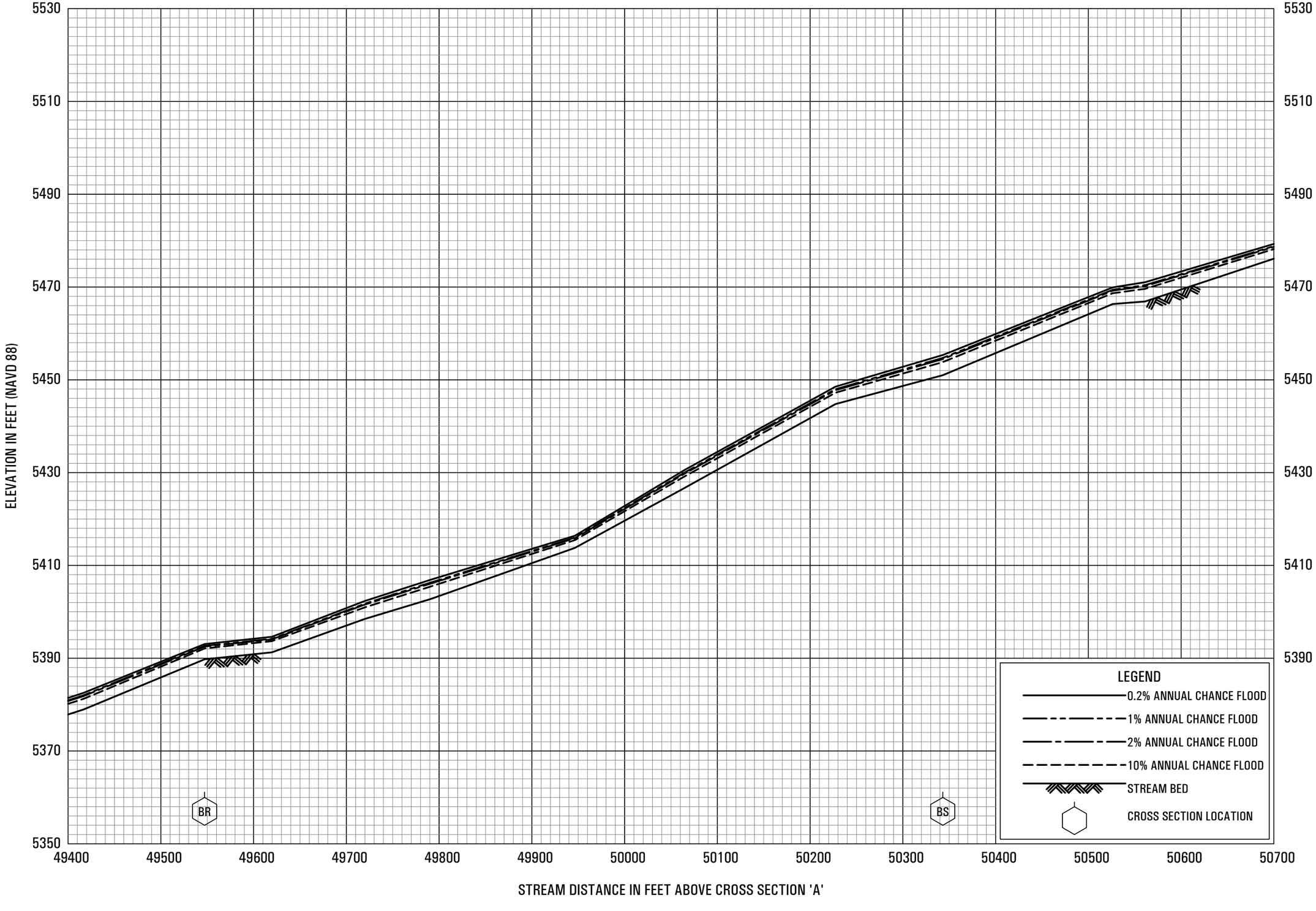

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UTAH COUNTY, UT

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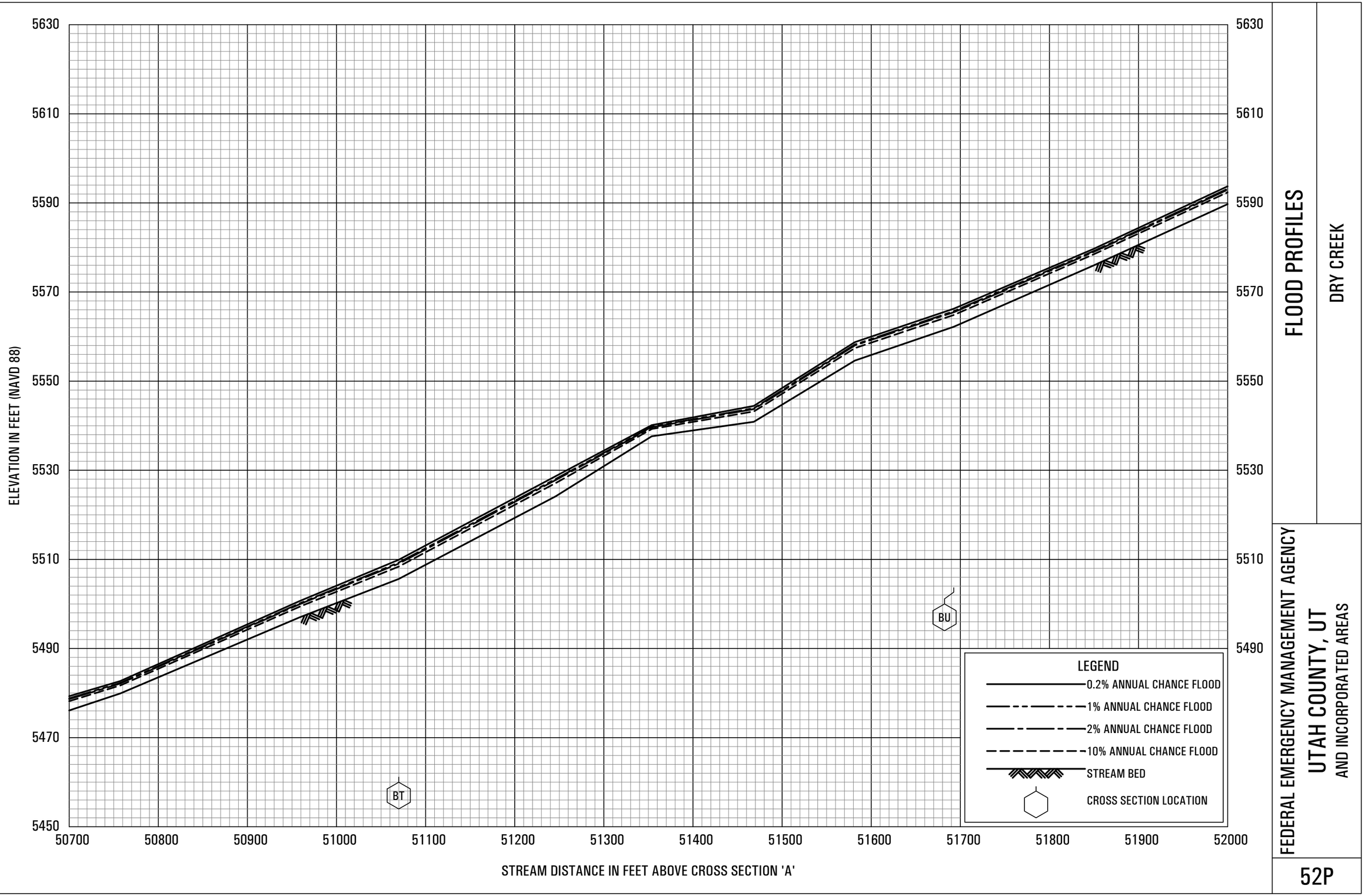

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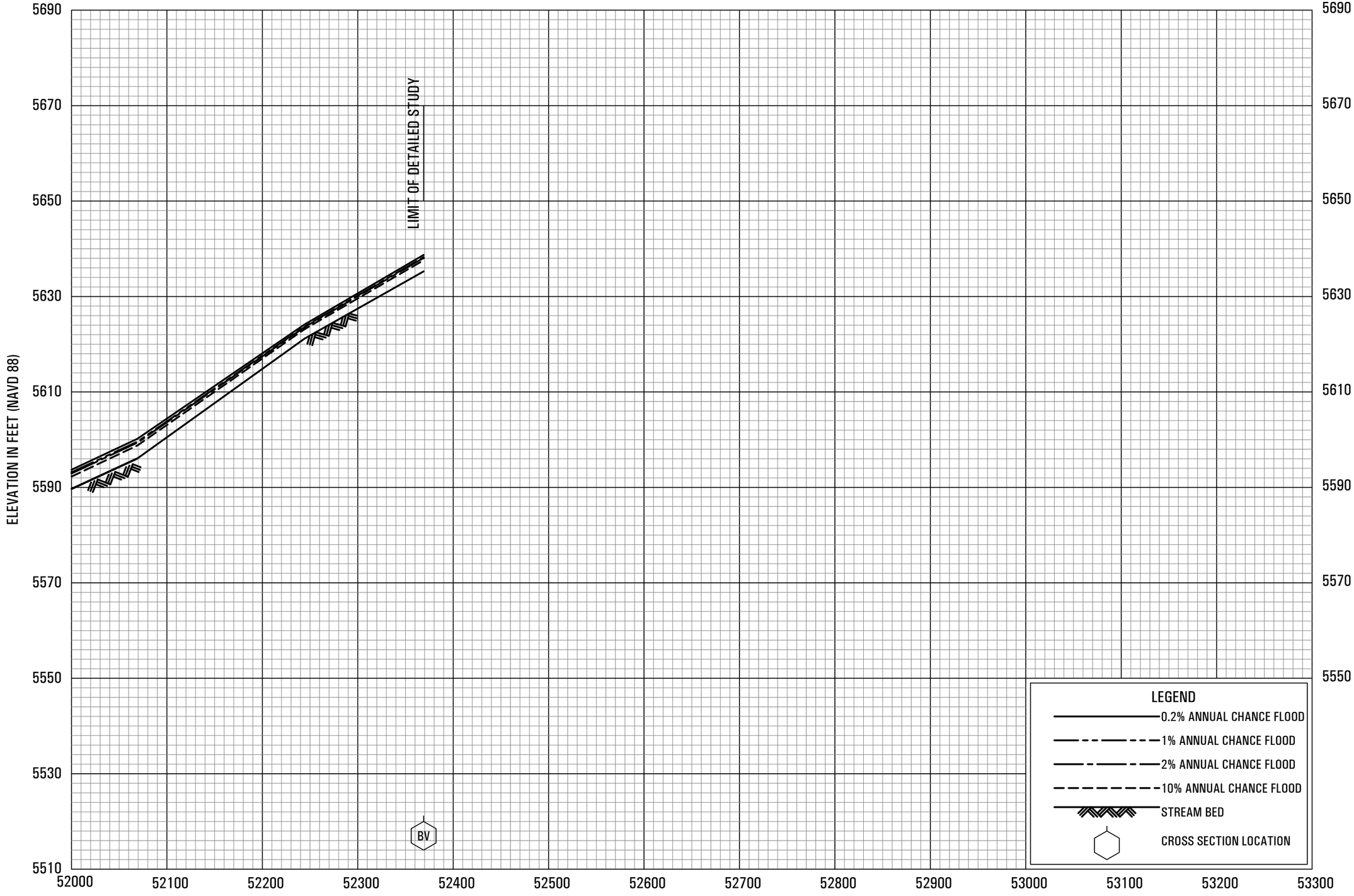

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UTAH COUNTY, UT

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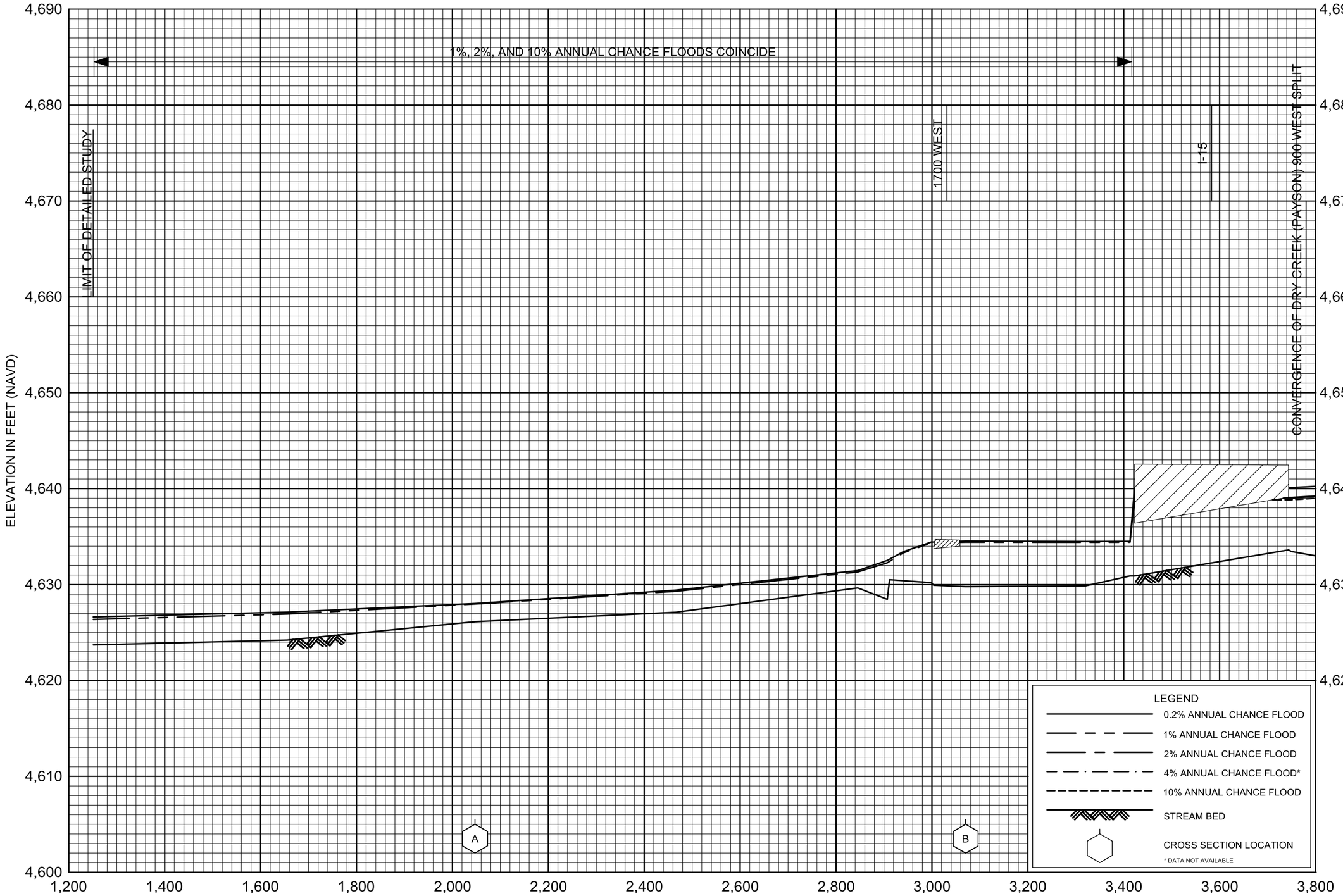

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UTAH COUNTY, UT

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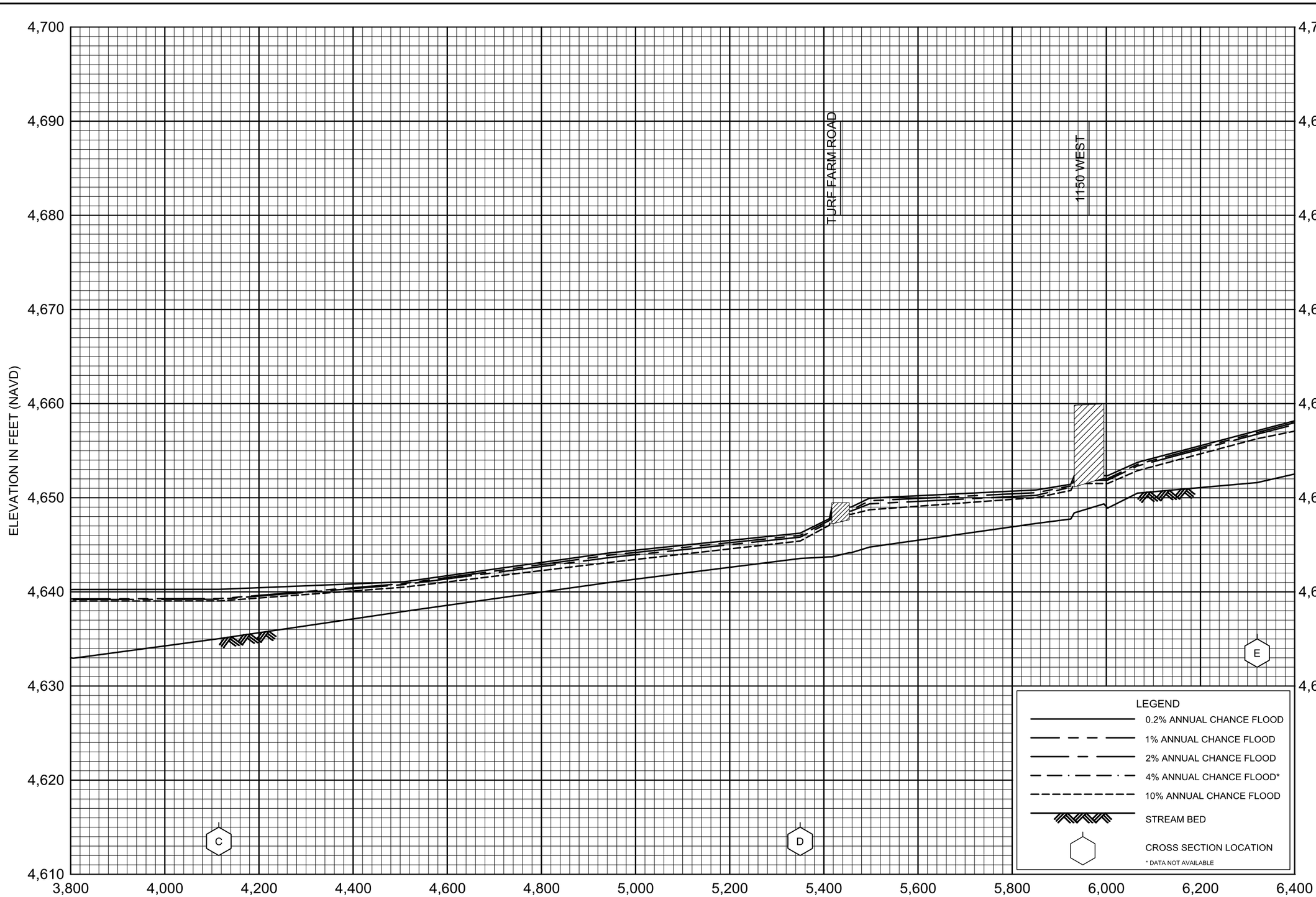

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UTAH COUNTY, UT

AND INCORPORATED AREAS

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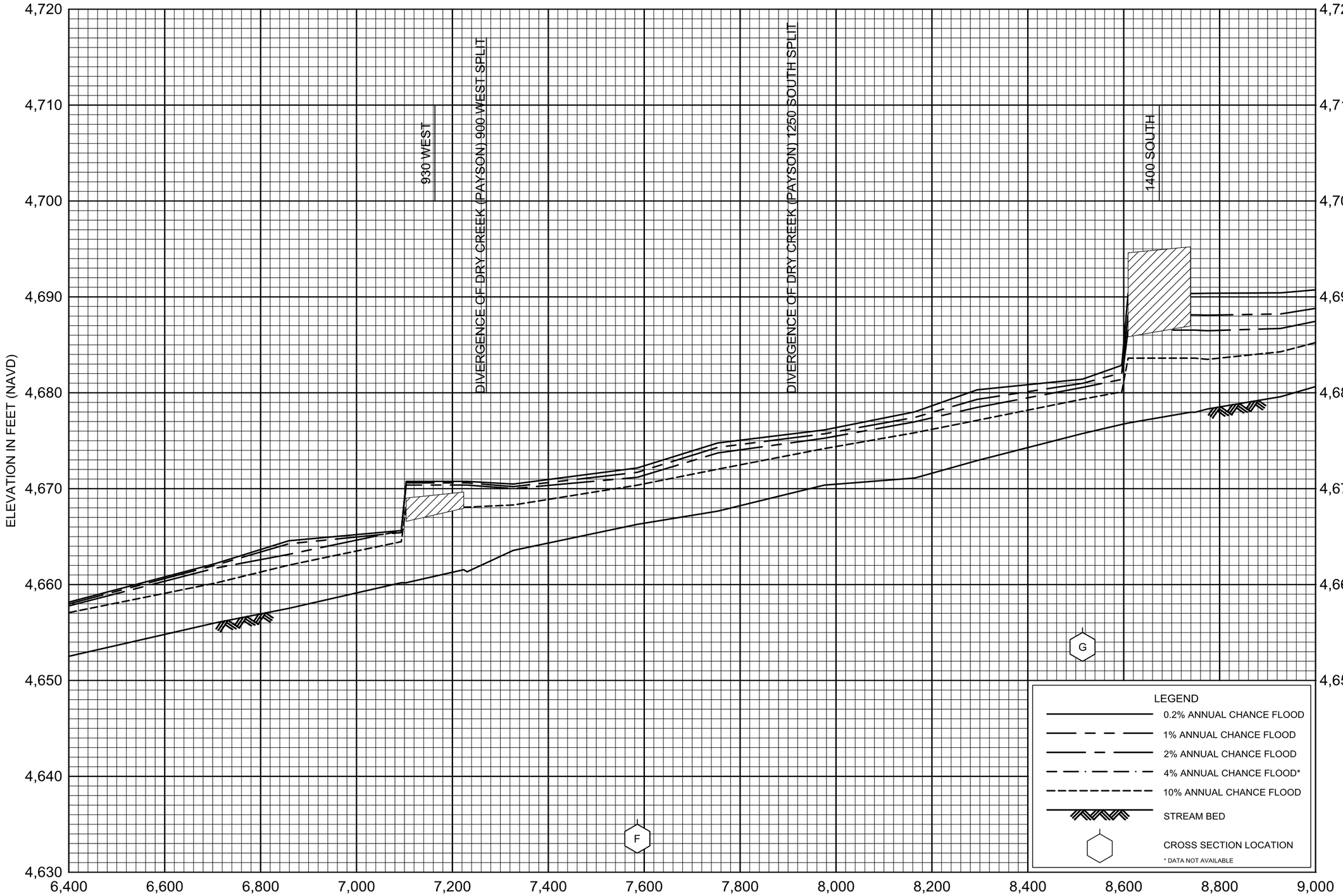

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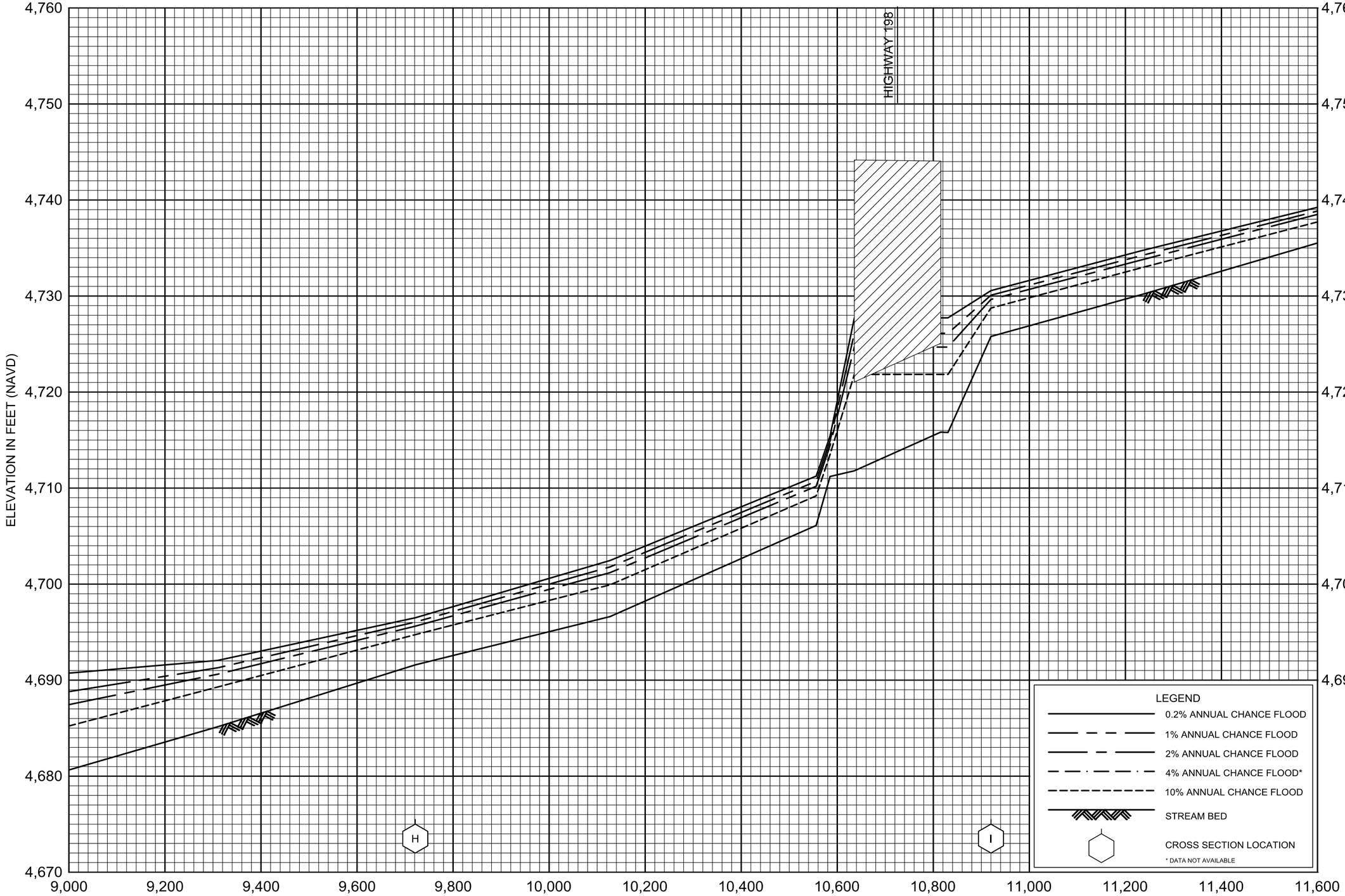
UTAH COUNTY, UT
AND INCORPORATED AREAS



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UTAH COUNTY, UT

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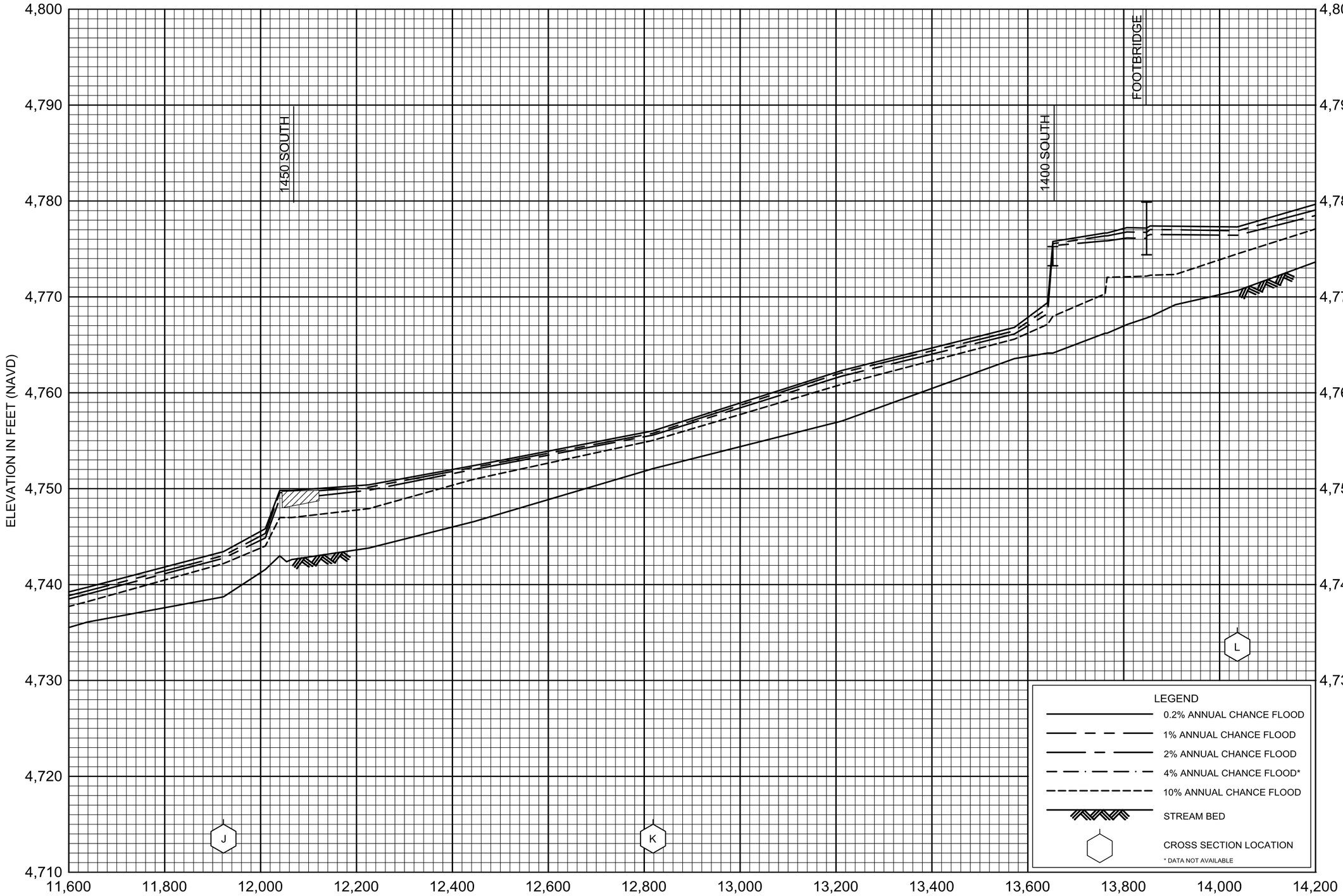

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UTAH COUNTY, UT

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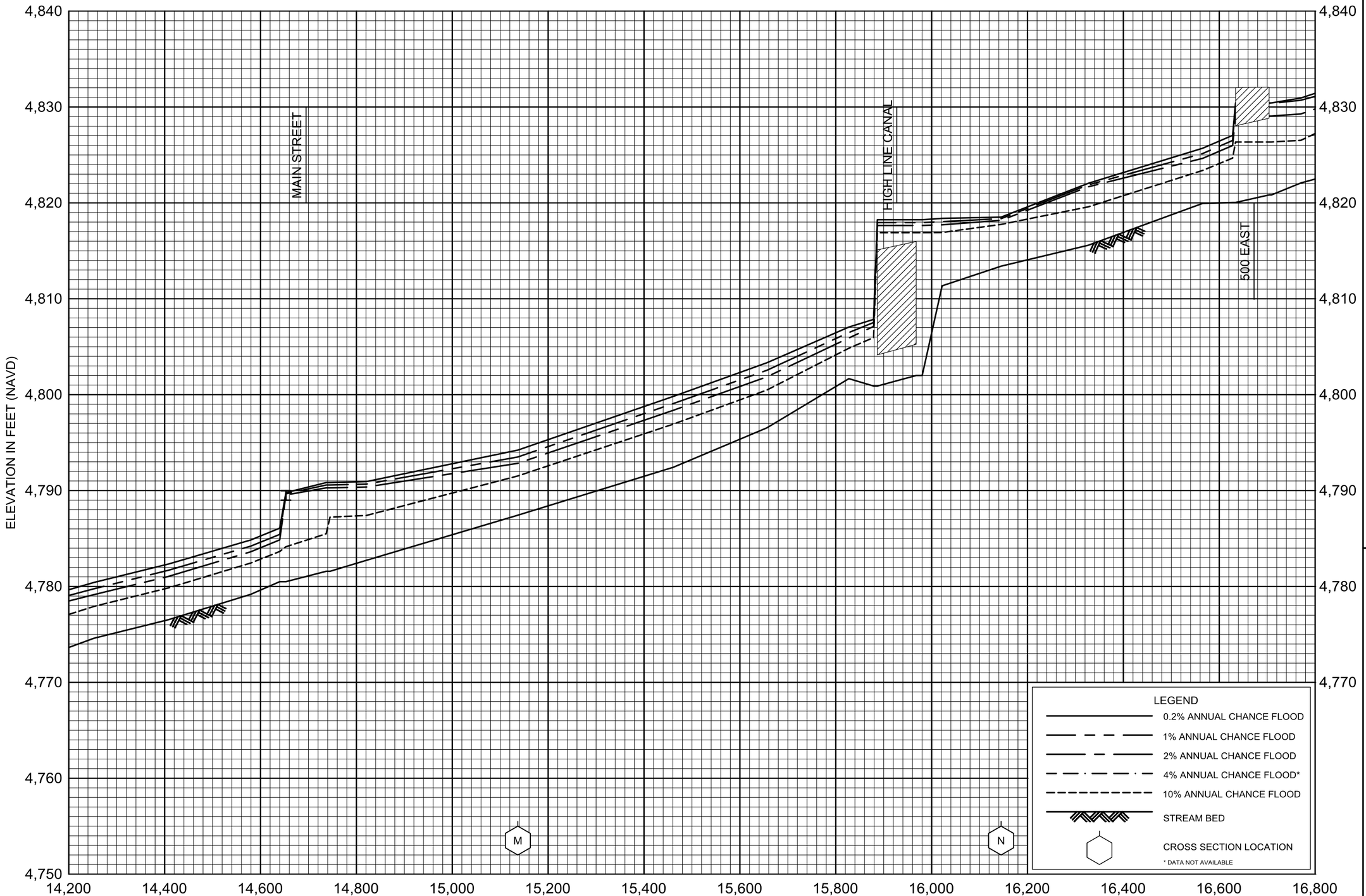

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DRY CREEK (PAYSON)

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

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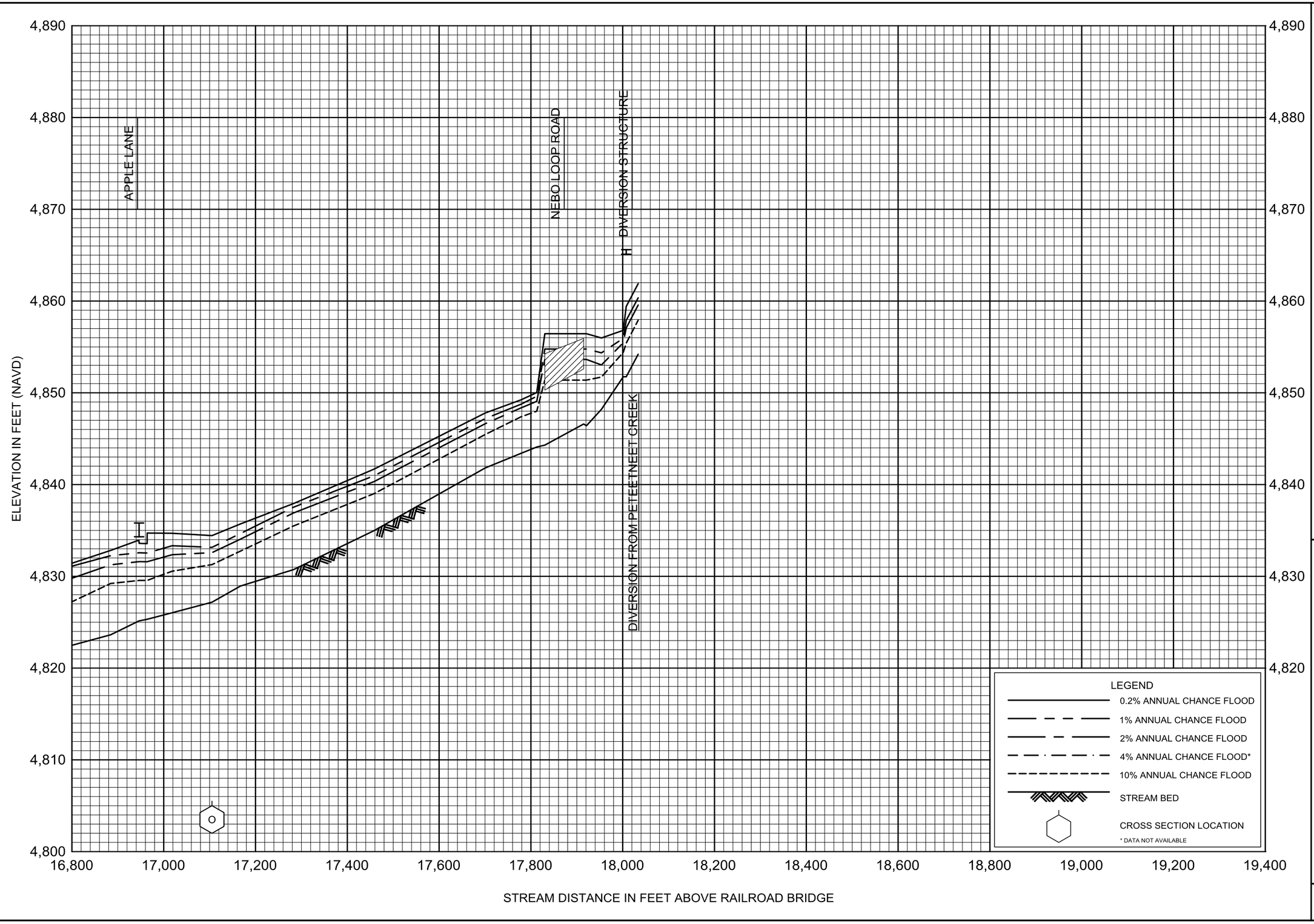

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DRY CREEK (PAYSON)

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

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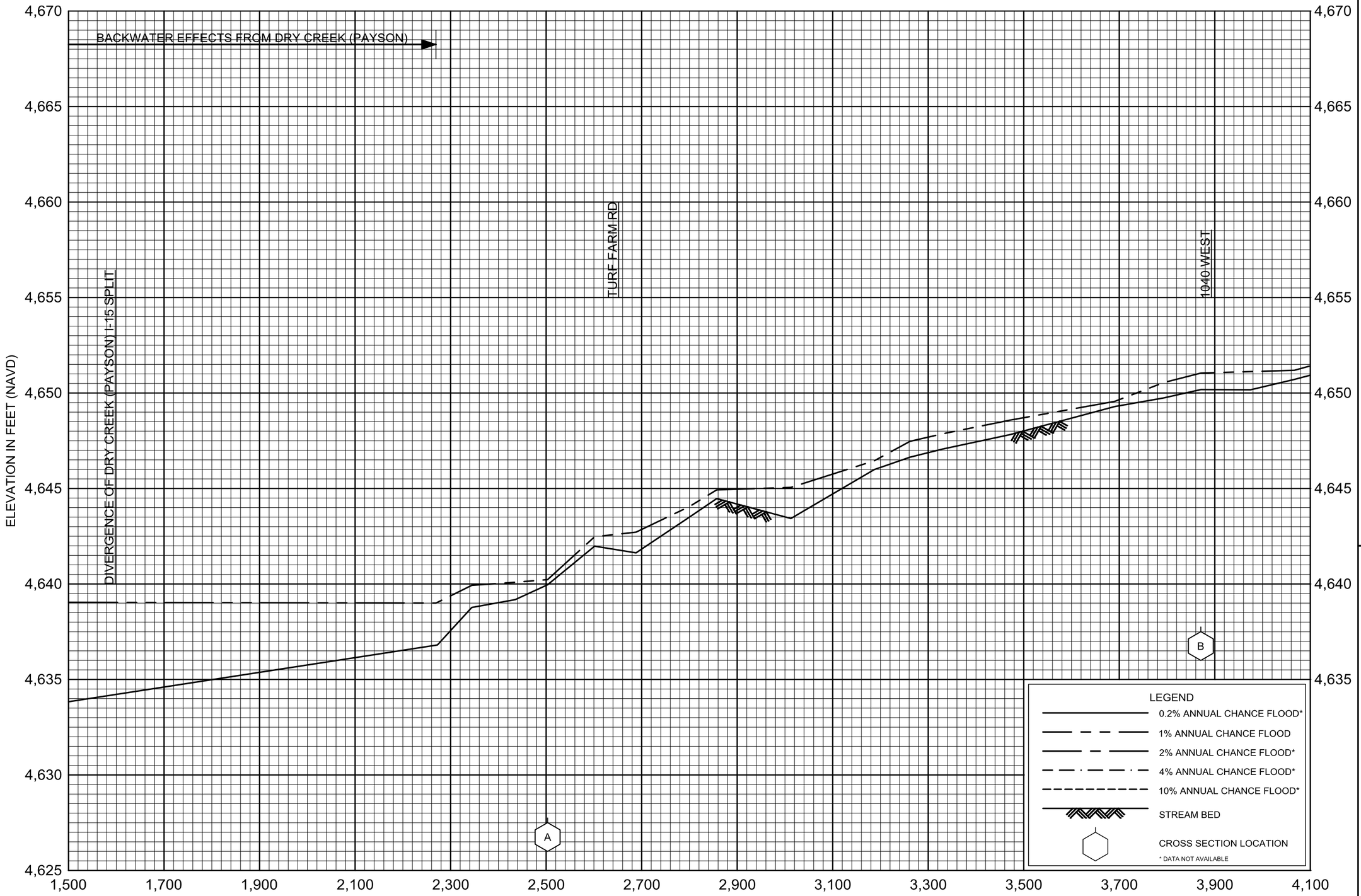

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DRY CREEK (PAYSON) 900 WEST SPLIT

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

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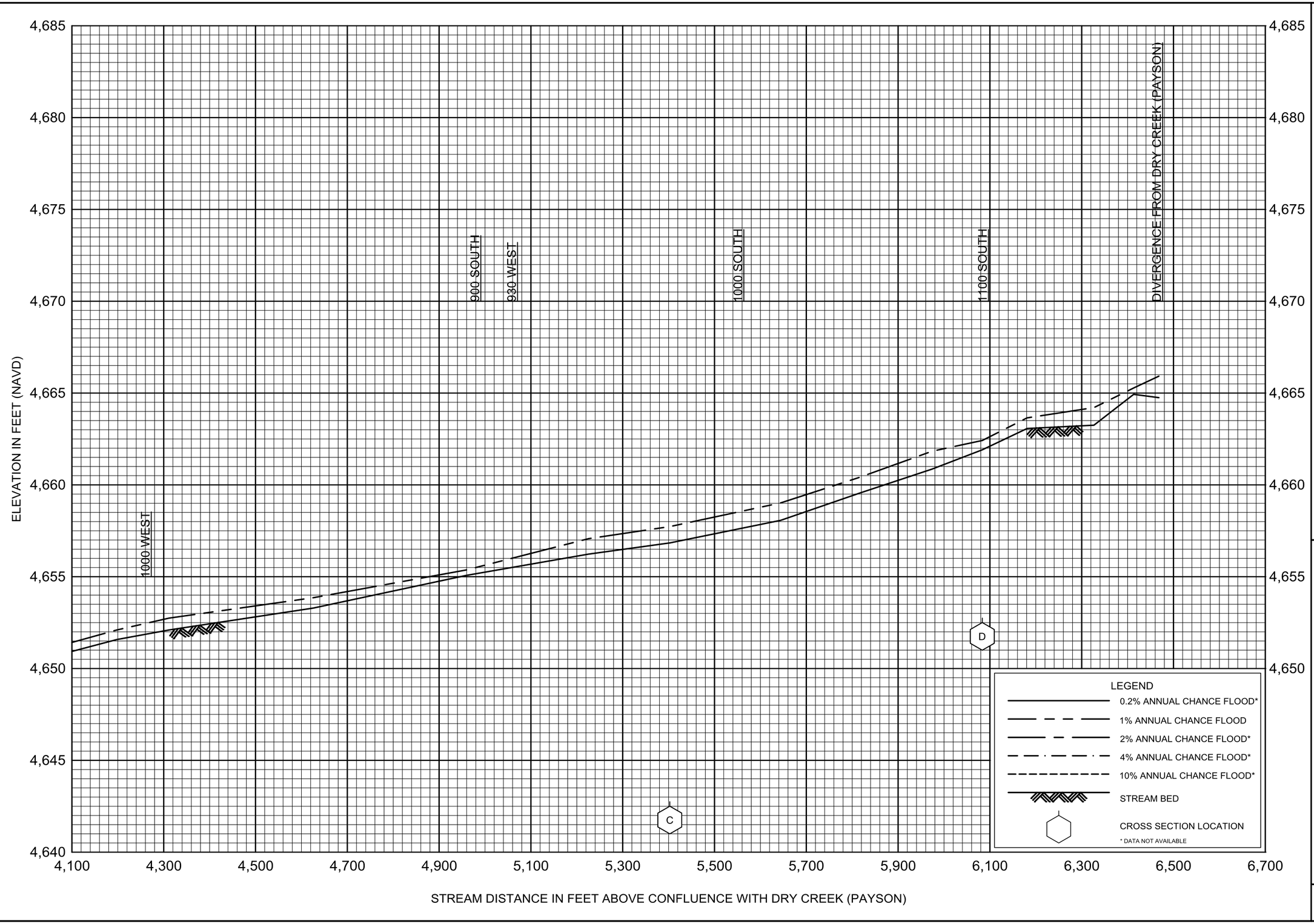

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DRY CREEK (PAYSON) 900 WEST SPLIT

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UTAH COUNTY, UT

AND INCORPORATED AREAS

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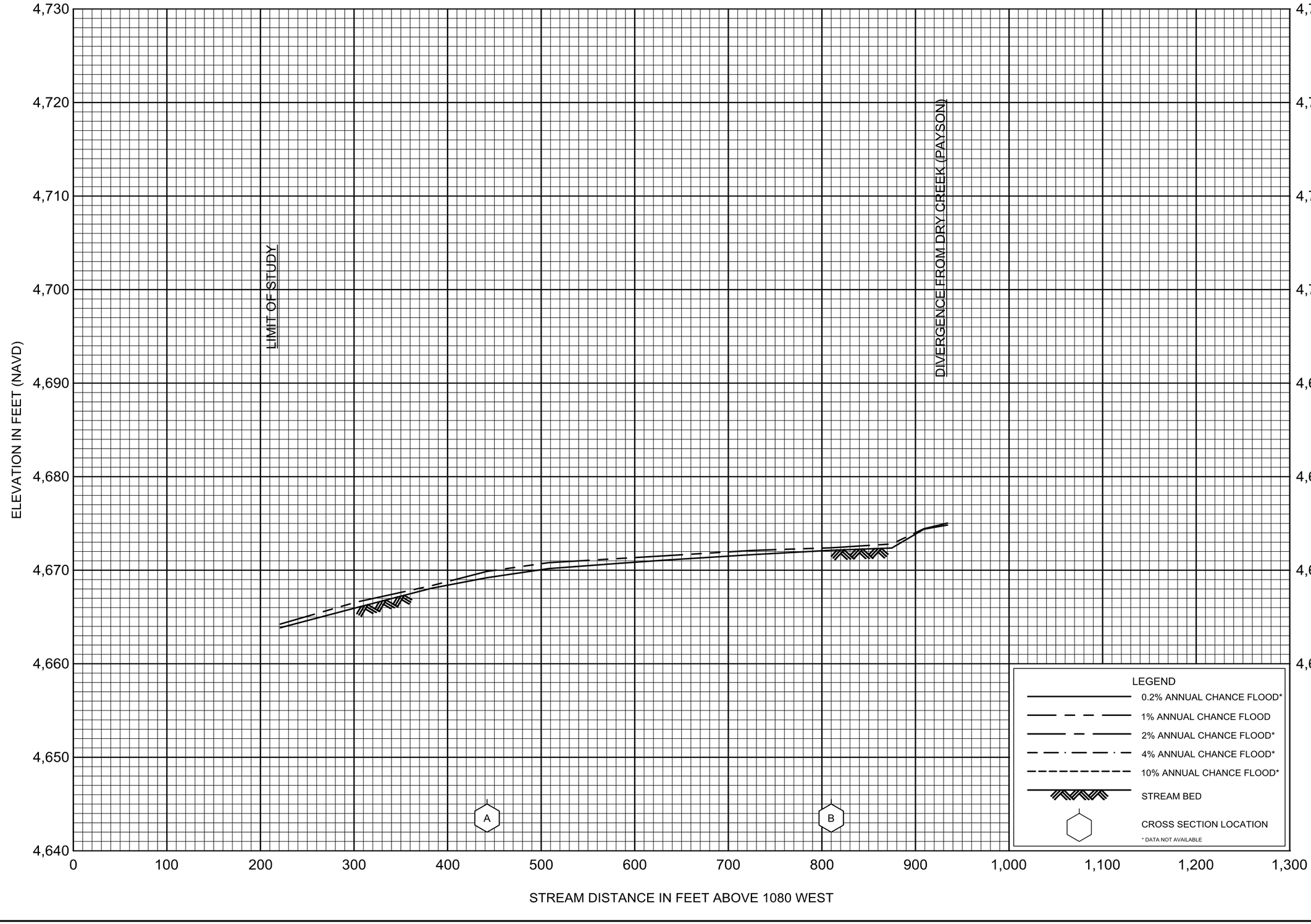

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UTAH COUNTY, UT

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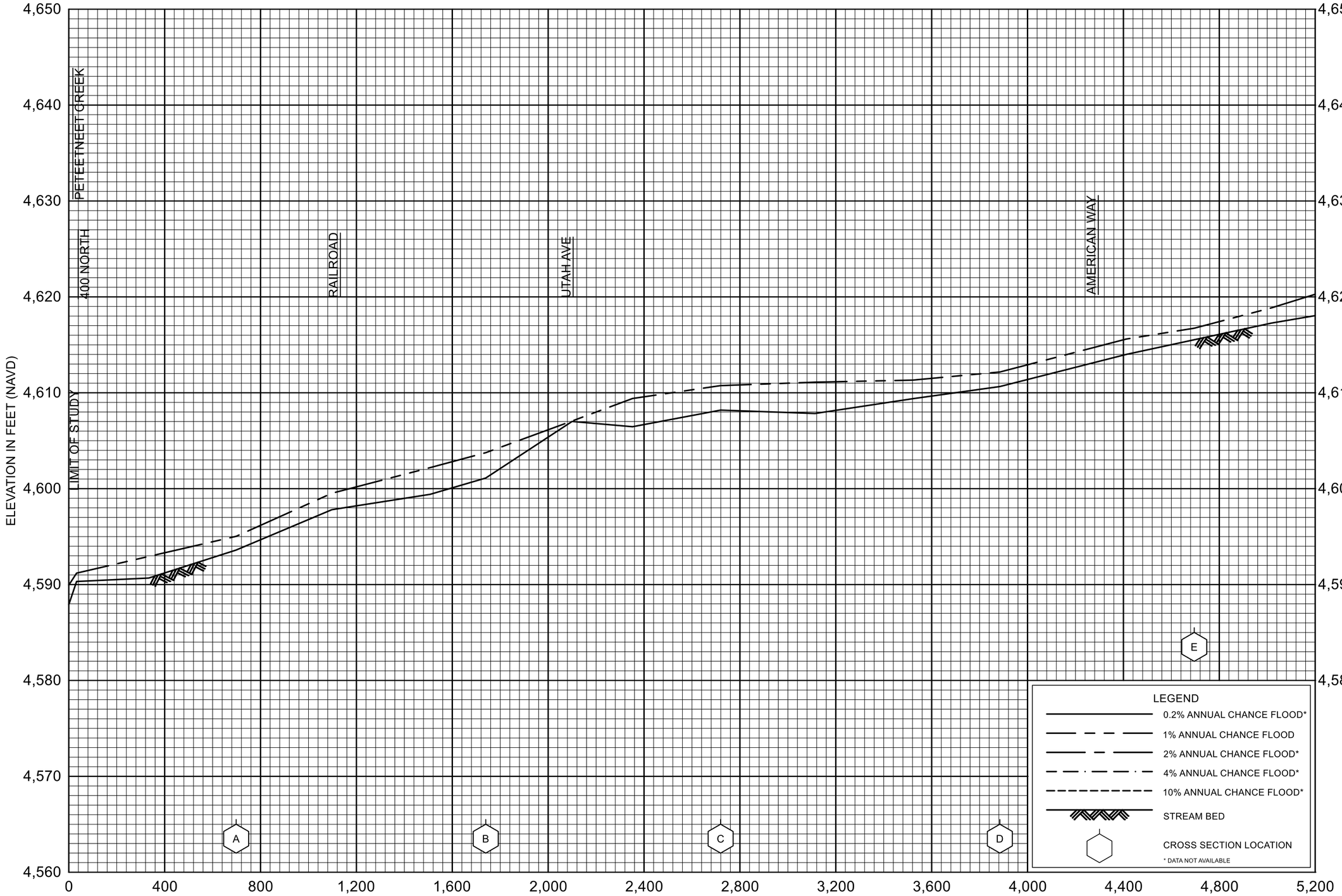

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DRY CREEK (PAYSON) I-15 SPLIT

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UTAH COUNTY, UT

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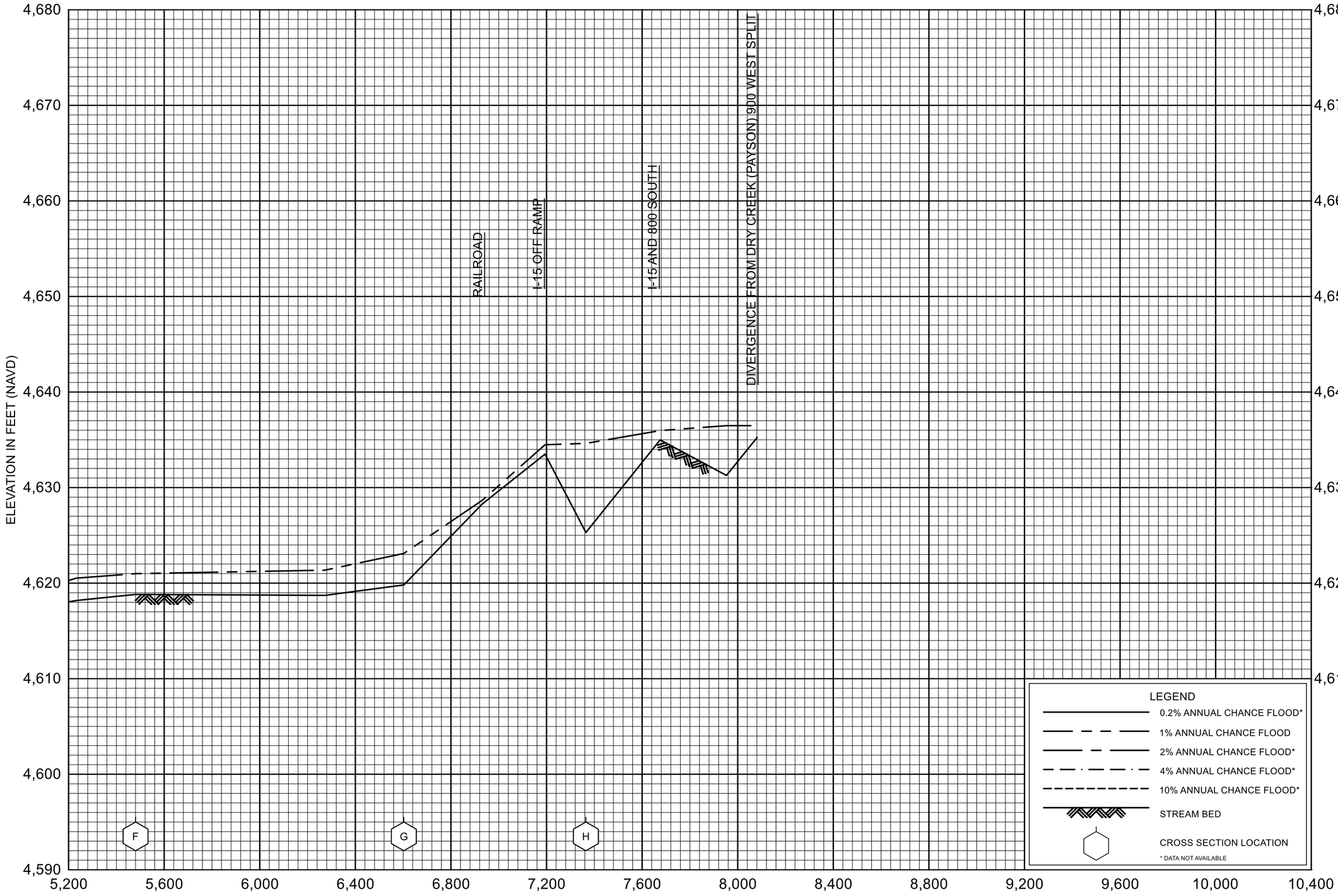

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DRY CREEK (PAYSON) I-15 SPLIT

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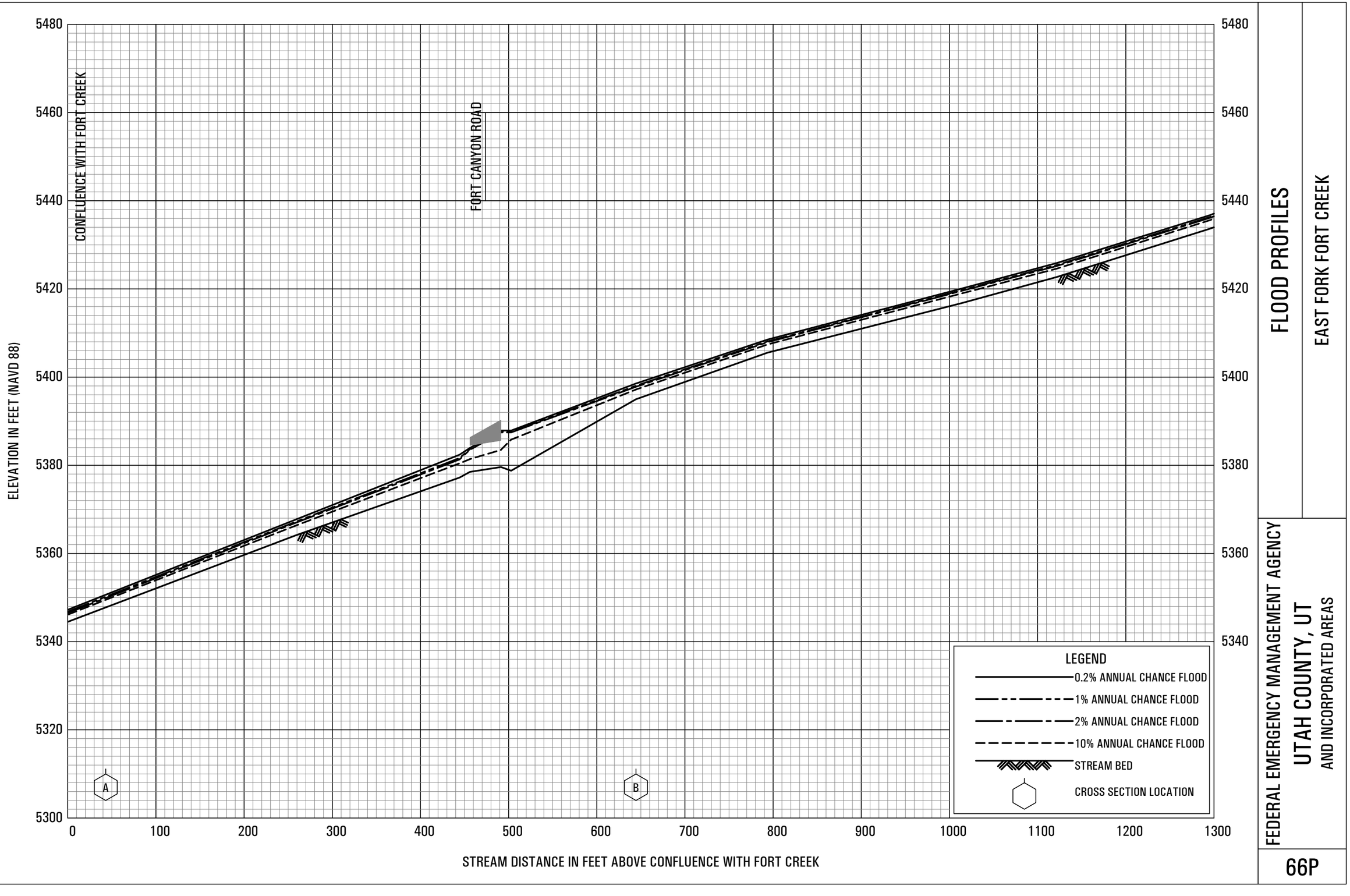

FLOOD PROFILES

EAST FORK FORT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

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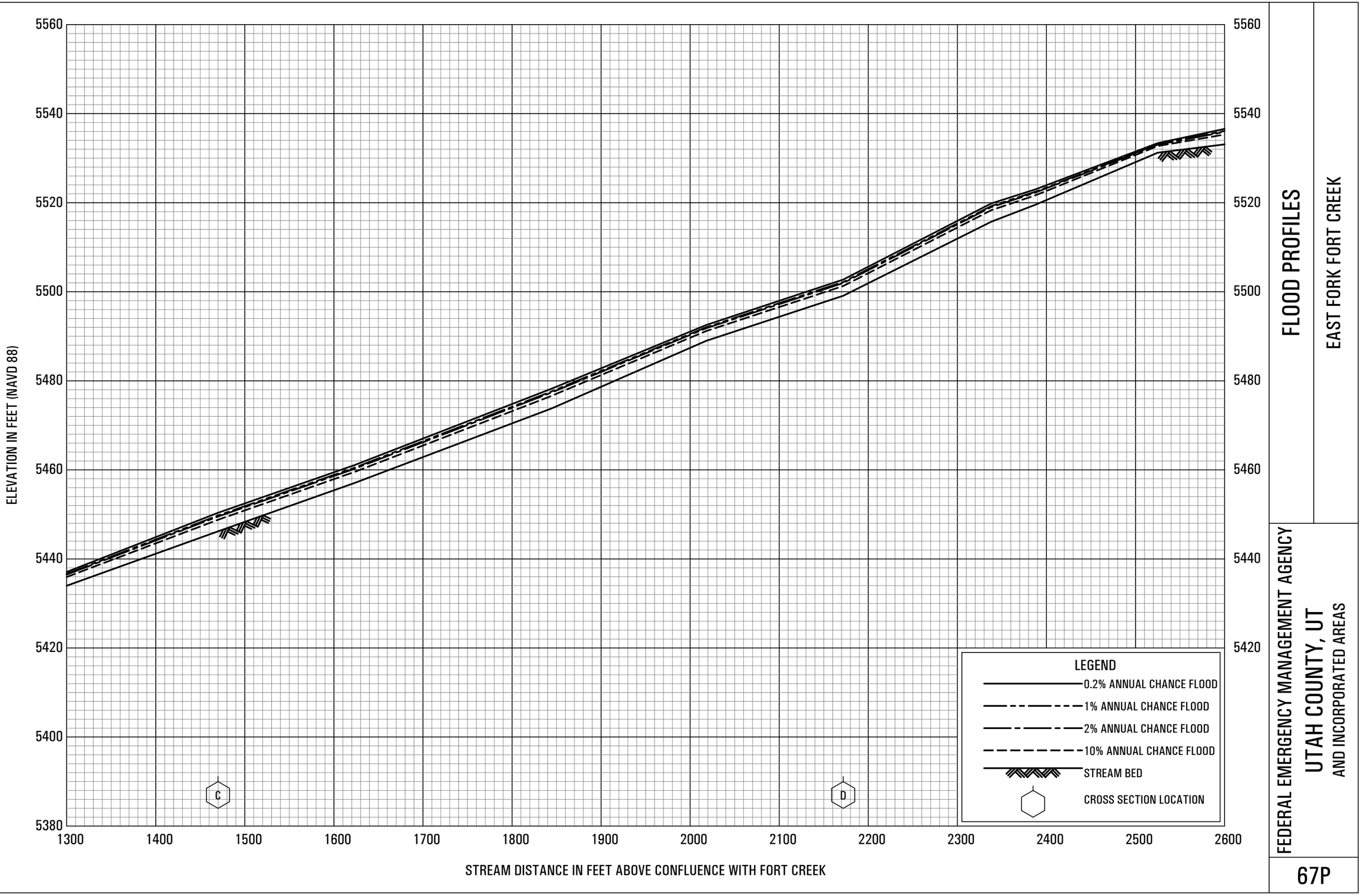

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EAST FORK FORT CREEK

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UTAH COUNTY, UT
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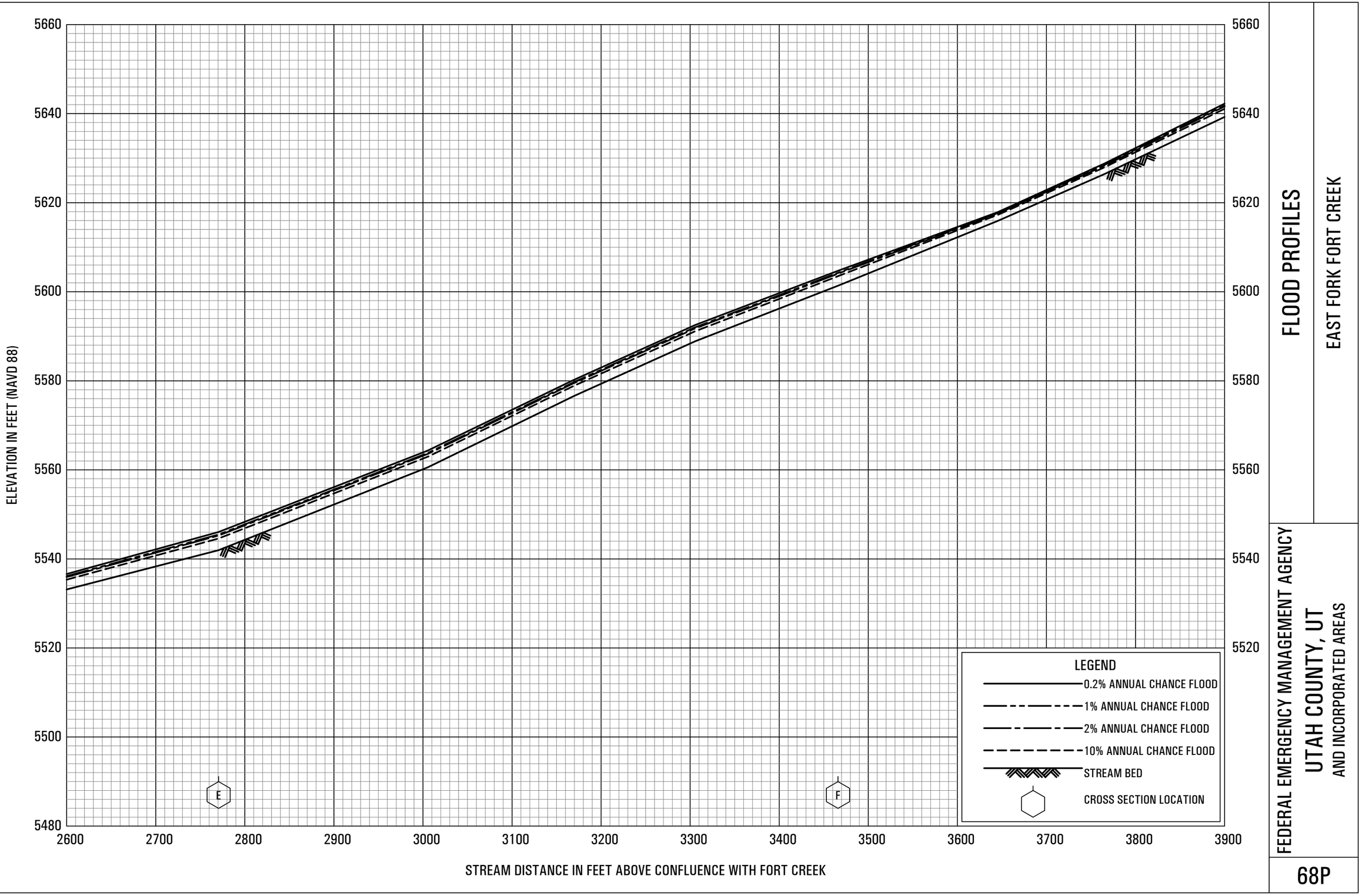

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EAST FORK FORT CREEK

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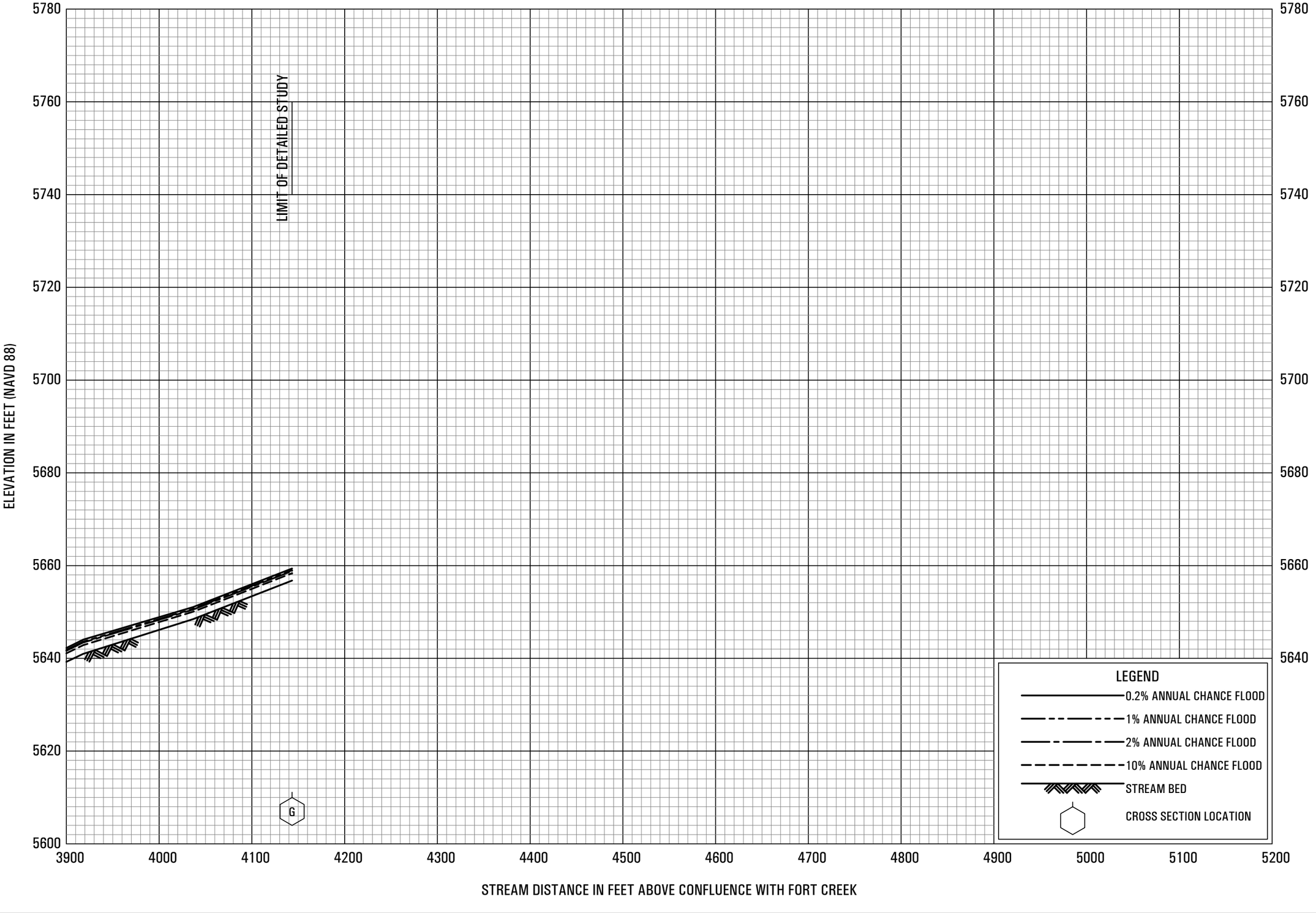

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EAST FORK FORT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

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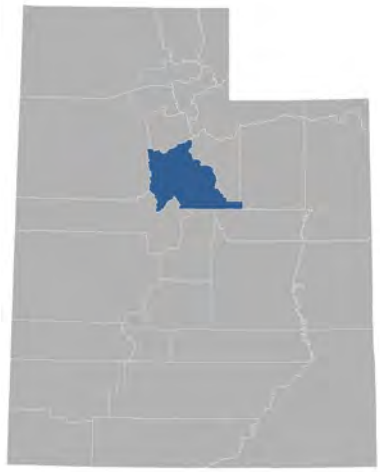
FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 3 OF 3



UTAH COUNTY, UTAH

AND INCORPORATED AREAS

COMMUNITY NAME	NUMBER	COMMUNITY NAME	NUMBER
ALPINE, CITY OF	490228	MAPLETON, CITY OF	490156
AMERICAN FORK, CITY OF	490152	OREM, CITY OF	490216
BLUFFDALE, CITY OF	490247	PAYSON, CITY OF	490157
CEDAR FORT, TOWN OF*	490153	PLEASANT GROVE CITY, CITY OF*	490235
CEDAR HILLS, CITY OF	490204	PROVO, CITY OF	490159
DRAPER, CITY OF	490244	SALEM, CITY OF	490160
EAGLE MOUNTAIN, CITY OF*	490258	SANTAQUIN, CITY OF*	490227
ELK RIDGE, CITY OF*	490259	SARATOGA SPRINGS, CITY OF	490250
FAIRFIELD, TOWN OF*	490260	SPANISH FORK, CITY OF	490241
GENOLA, TOWN OF	490154	SPRINGVILLE, CITY OF	490163
GOSHEN, TOWN OF*	490155	UTAH COUNTY, UNINCORPORATED AREAS	495517
HIGHLAND, CITY OF	490254	VINEYARD, CITY OF	490261
LEHI, CITY OF	490209	WOODLAND HILLS, CITY OF*	490262
LINDON, CITY OF	490210		

*No Special Flood Hazard Areas Identified

REVISED:

June 23, 2026

FLOOD INSURANCE STUDY NUMBER
49049CV001B
Version Number 2.8.5.6

FEMA

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Exhibits

Flood Profiles	Panel
American Fork River	001-012P
Dry Creek	013-053P
Dry Creek (Payson)	054-060P
Dry Creek (Payson) 900 West Split	061-062P
Dry Creek (Payson) 1250 Split	063P
Dry Creek (Payson) I-15 Split	064-065P
East Fork Fort Creek	066-069P

Volume 3

Exhibits

Flood Profiles	Panel
Fort Creek	070-083P
Fort Creek and Middle Fork Fort Creek	084-085P
Hobble Creek	086-101P
Hobble Creek 400 West Split	102-103P
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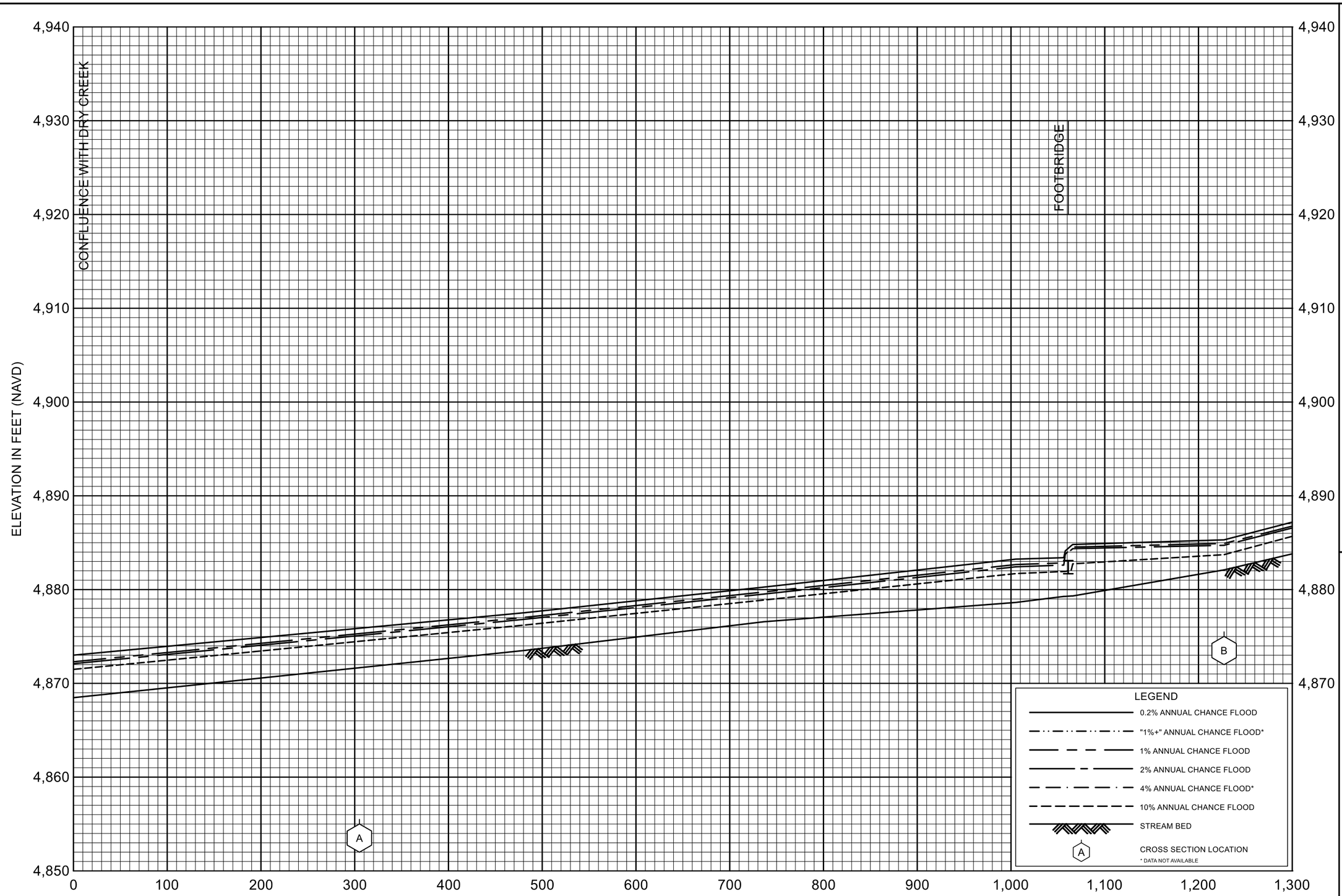
Jordan River	108-111P
Peteetneet Creek	112-115P
Provo River	116-124P
Soldier Creek	125P
Spanish Fork River	126-129P
Thistle Creek	130P
Wastewater Ditch Diversion	131P
West Fork Fort Creek	132P

Published Separately

Flood Insurance Rate Map (FIRM)



FLOOD PROFILES

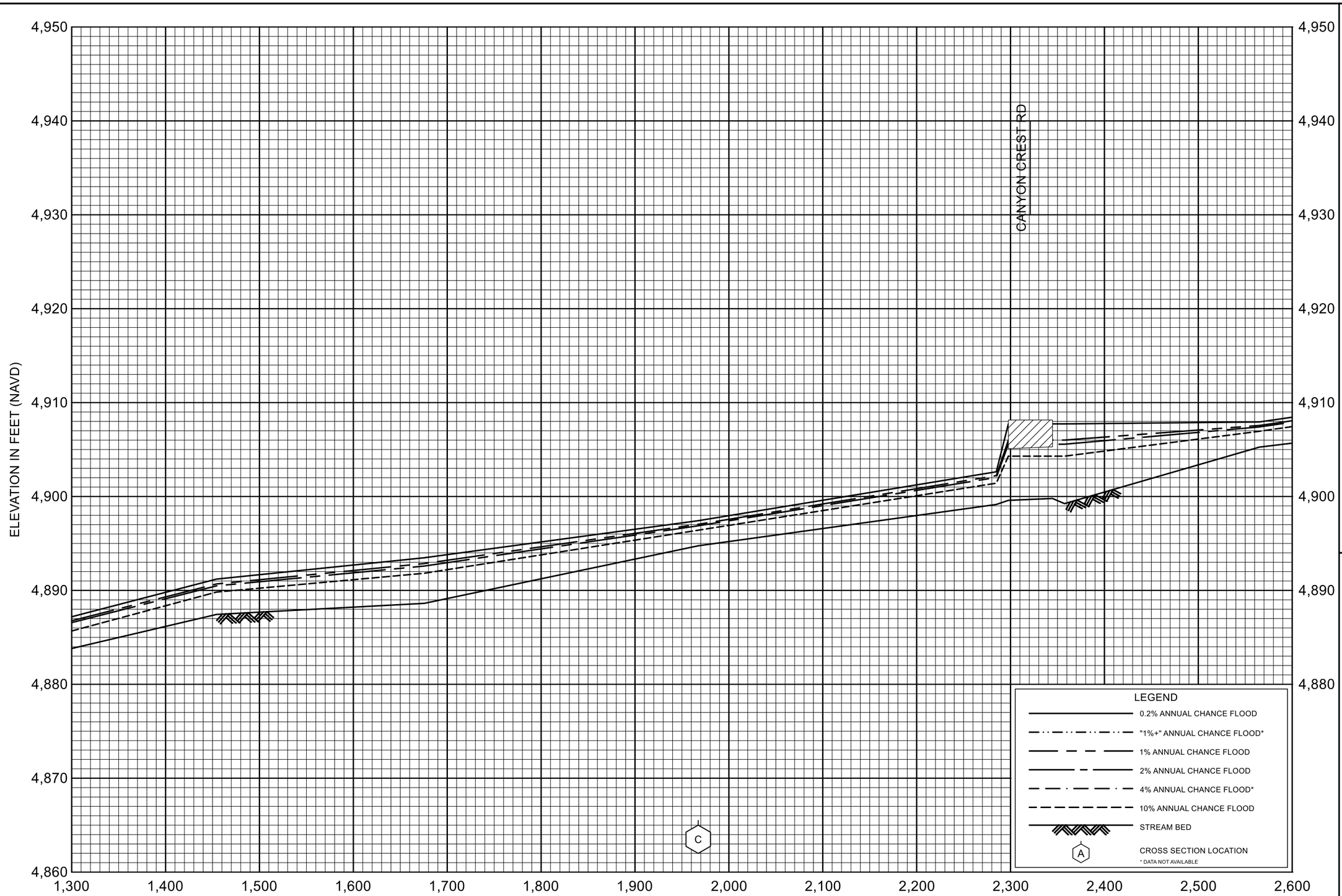
FORT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND UNINCORPORATED AREAS

70P



FLOOD PROFILES

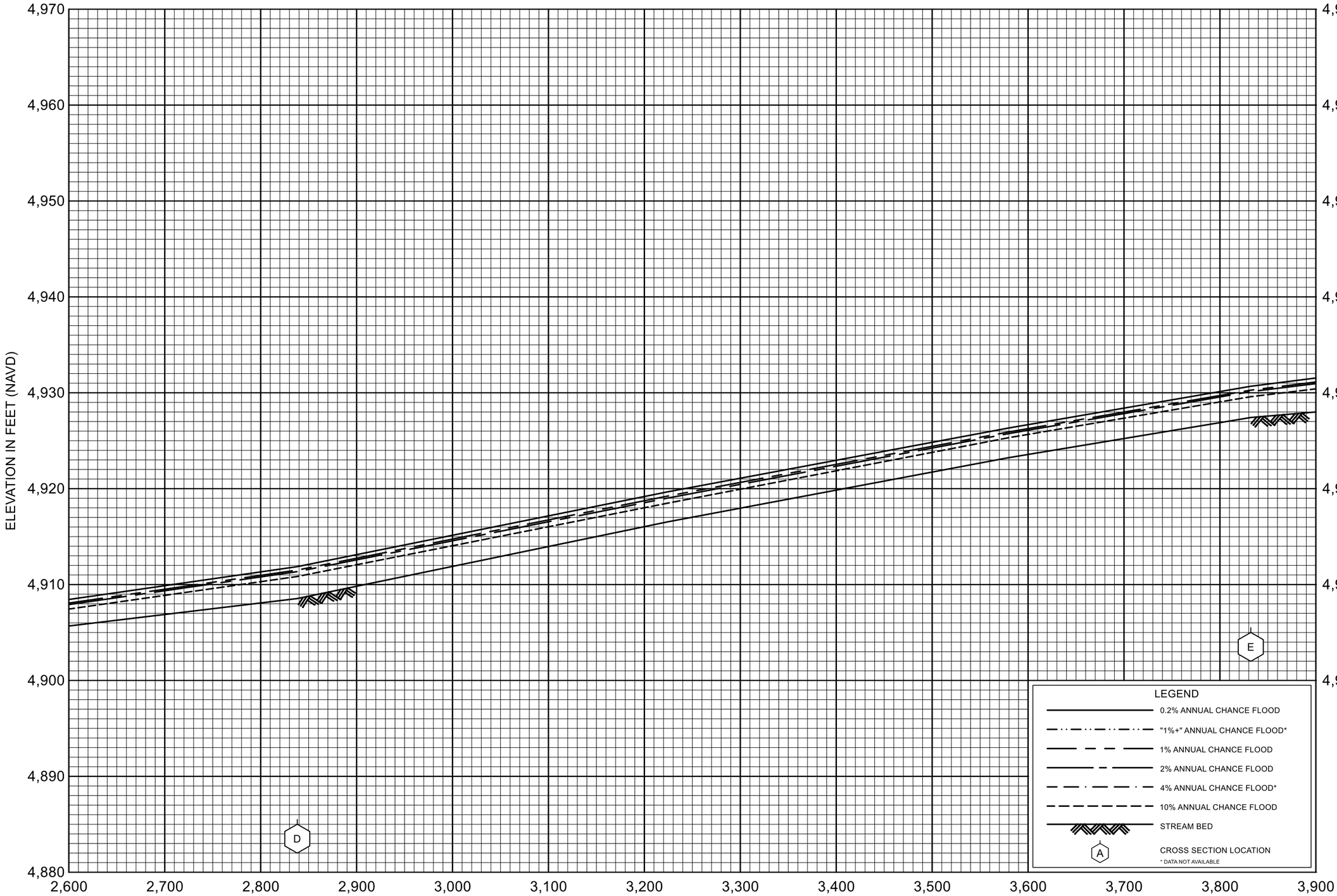
FORT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND UNINCORPORATED AREAS

71P



FLOOD PROFILES

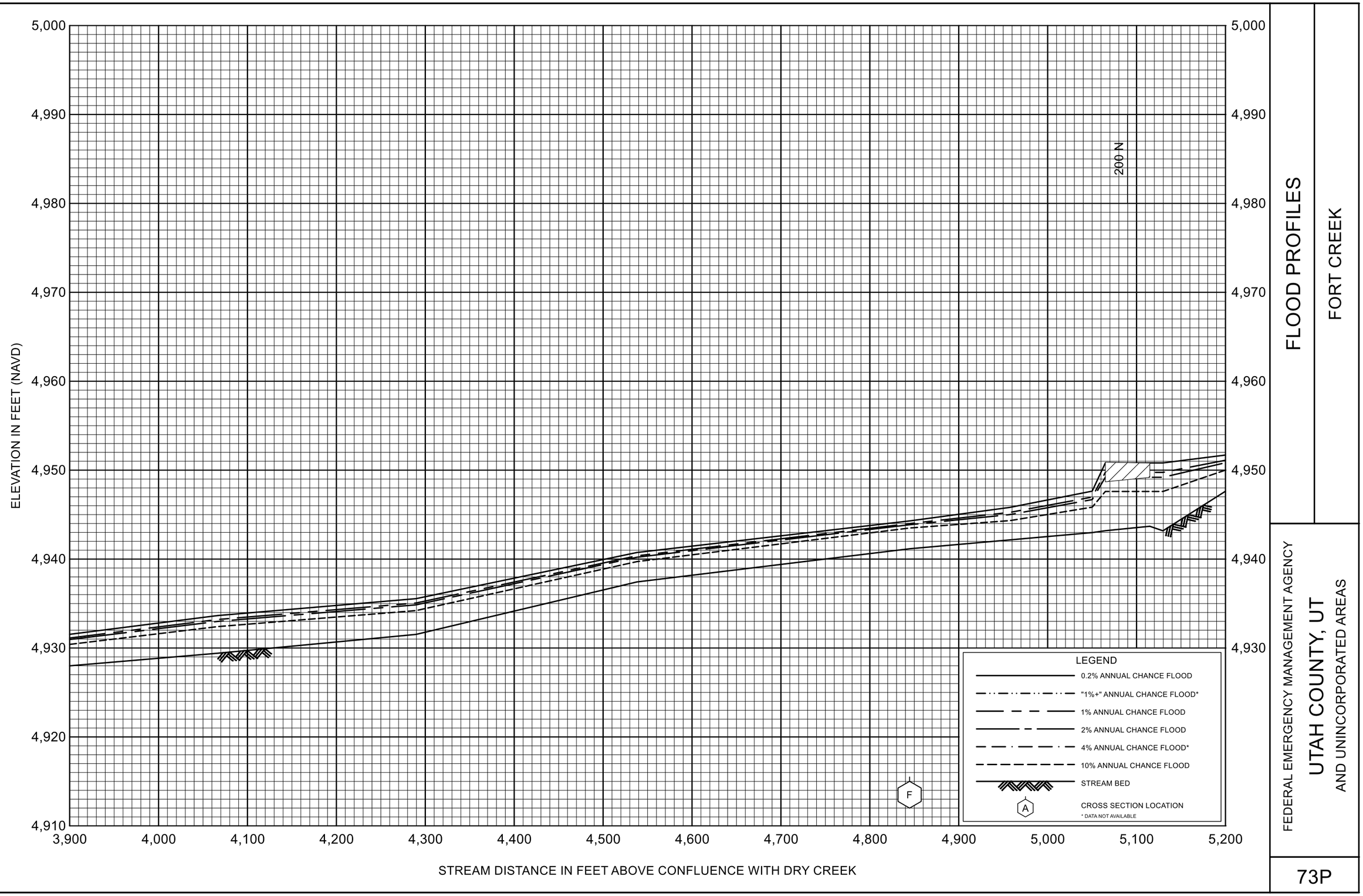
FORT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND UNINCORPORATED AREAS

72P



FLOOD PROFILES

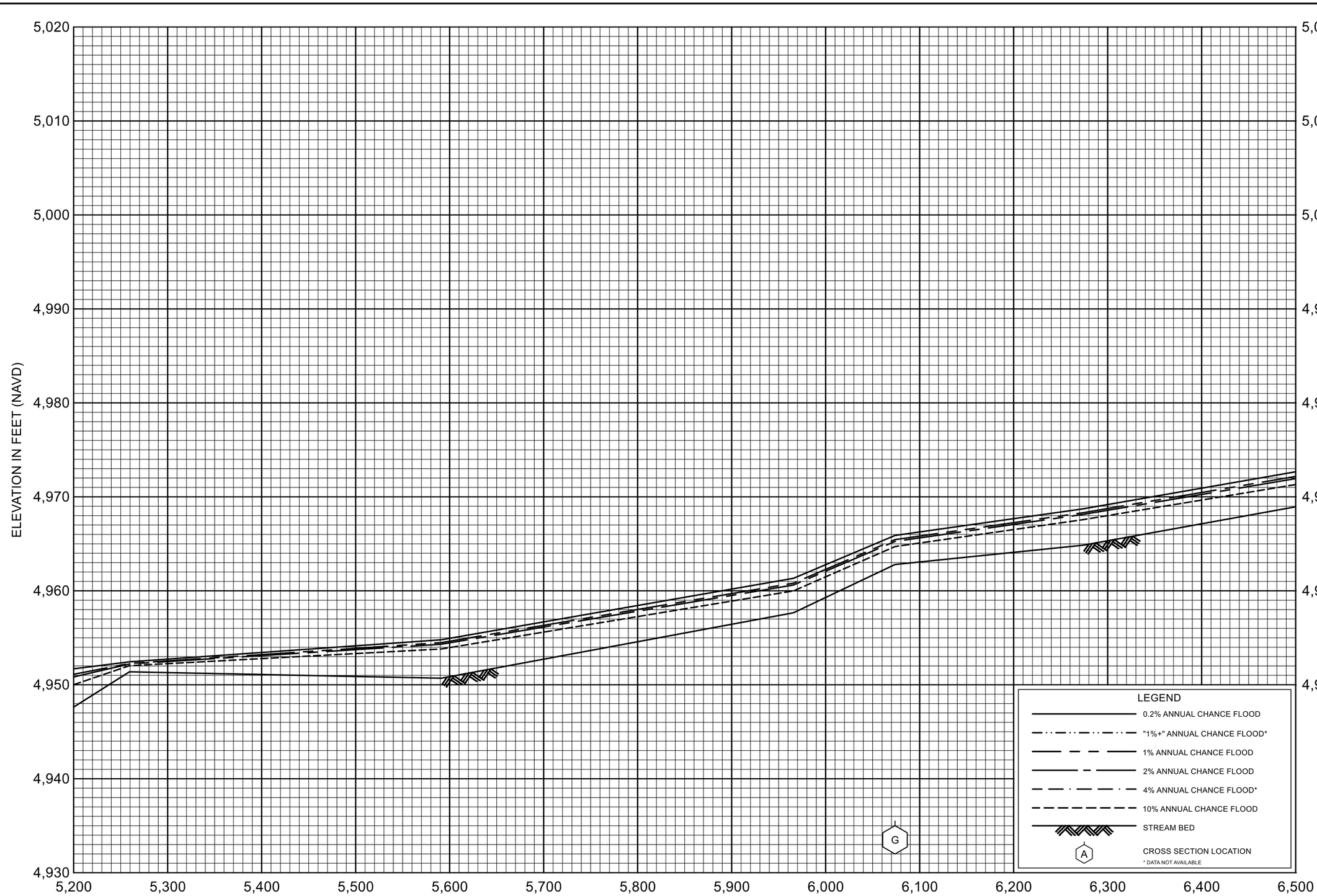
FORT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND UNINCORPORATED AREAS

73P



FLOOD PROFILES

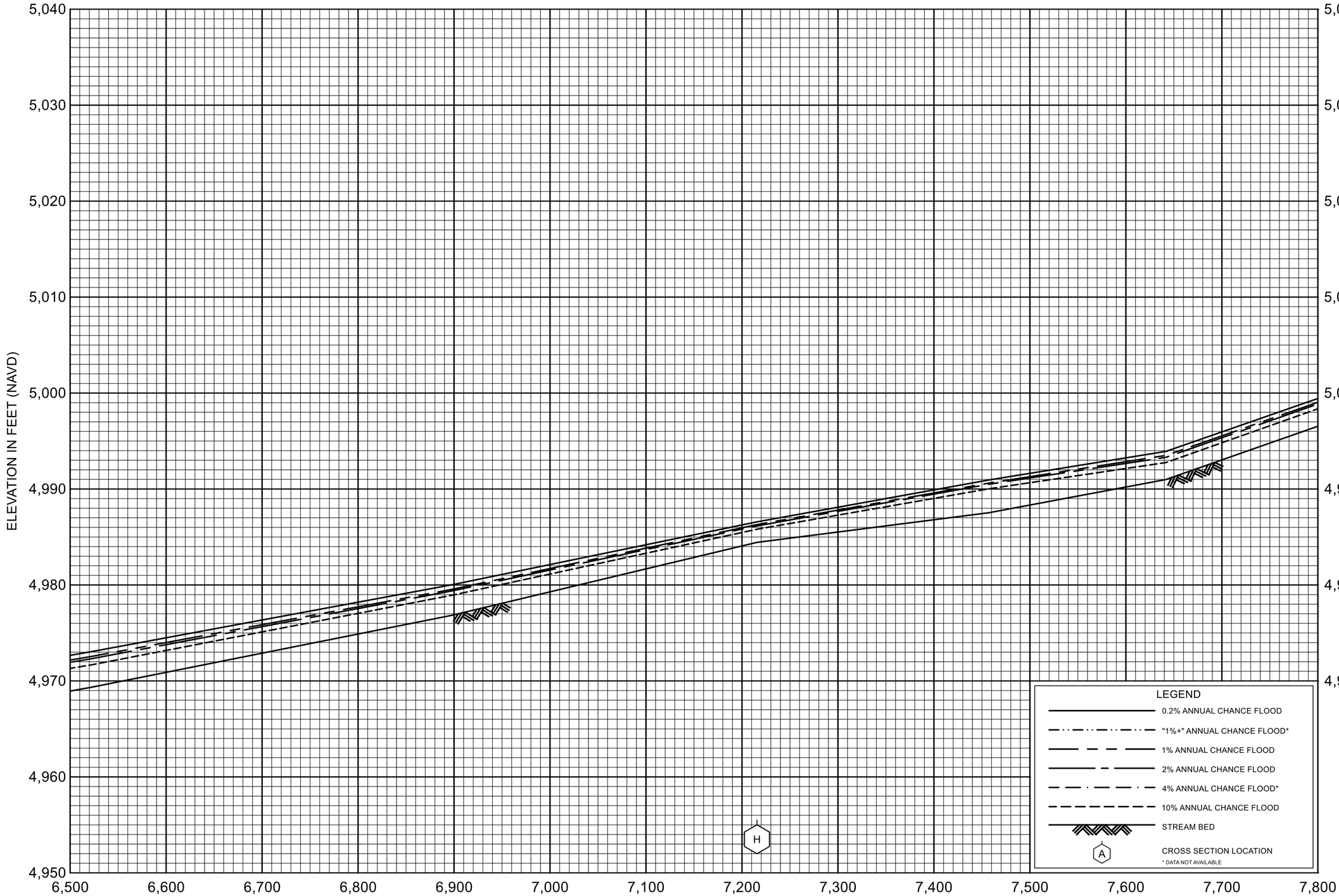
FORT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND UNINCORPORATED AREAS

74P



FLOOD PROFILES

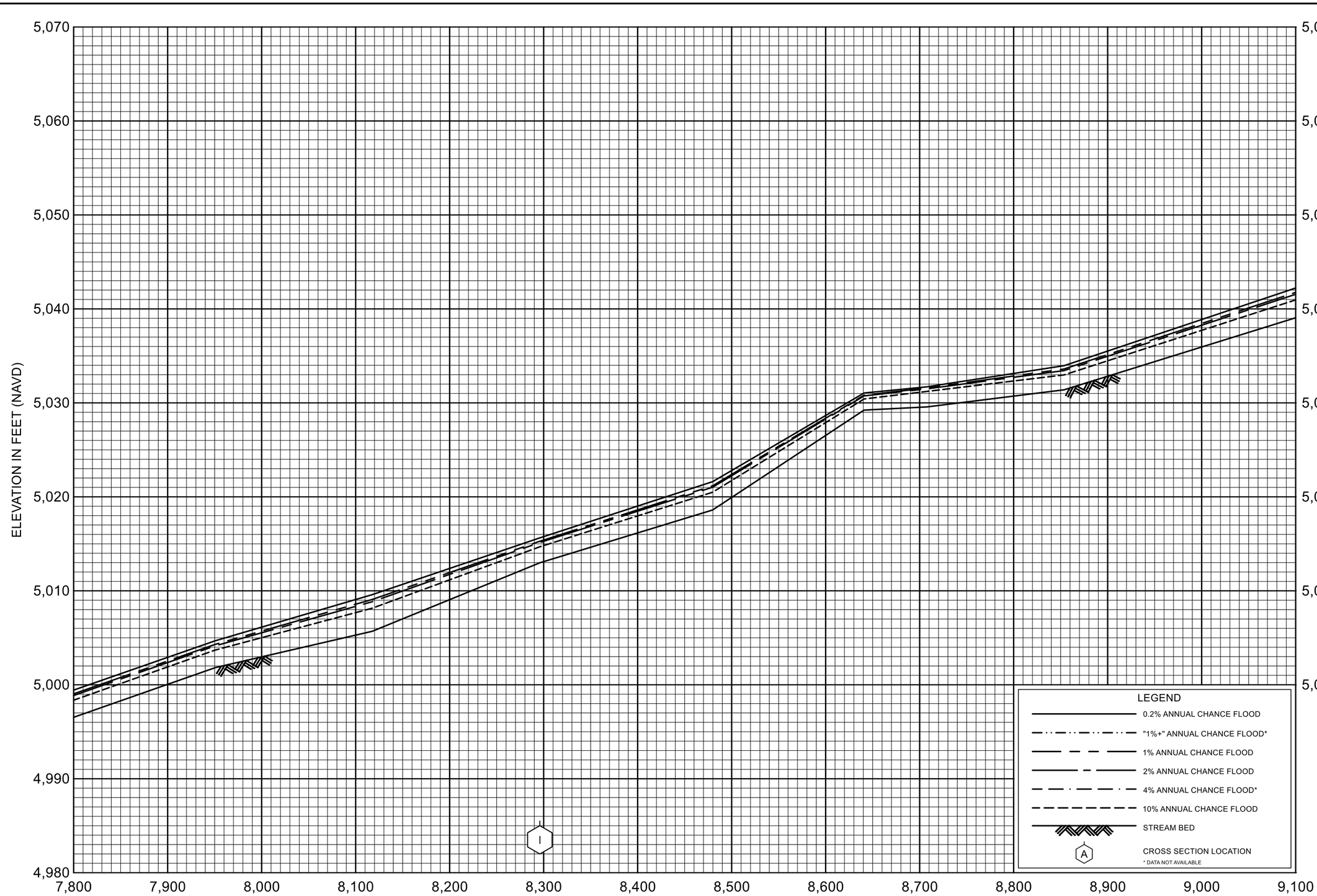
FORT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND UNINCORPORATED AREAS

75P



FLOOD PROFILES

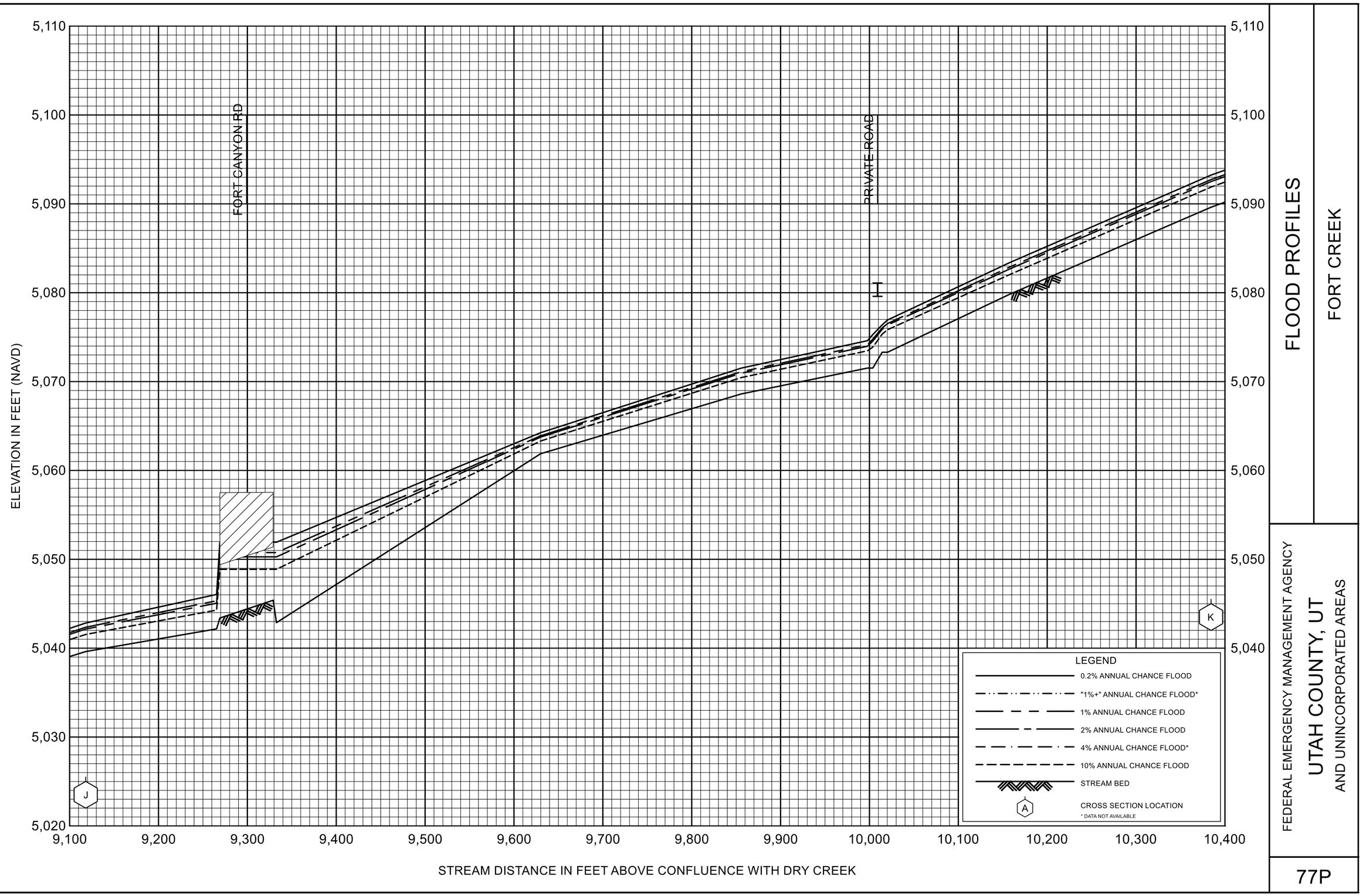
FORT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND UNINCORPORATED AREAS

76P



FLOOD PROFILES

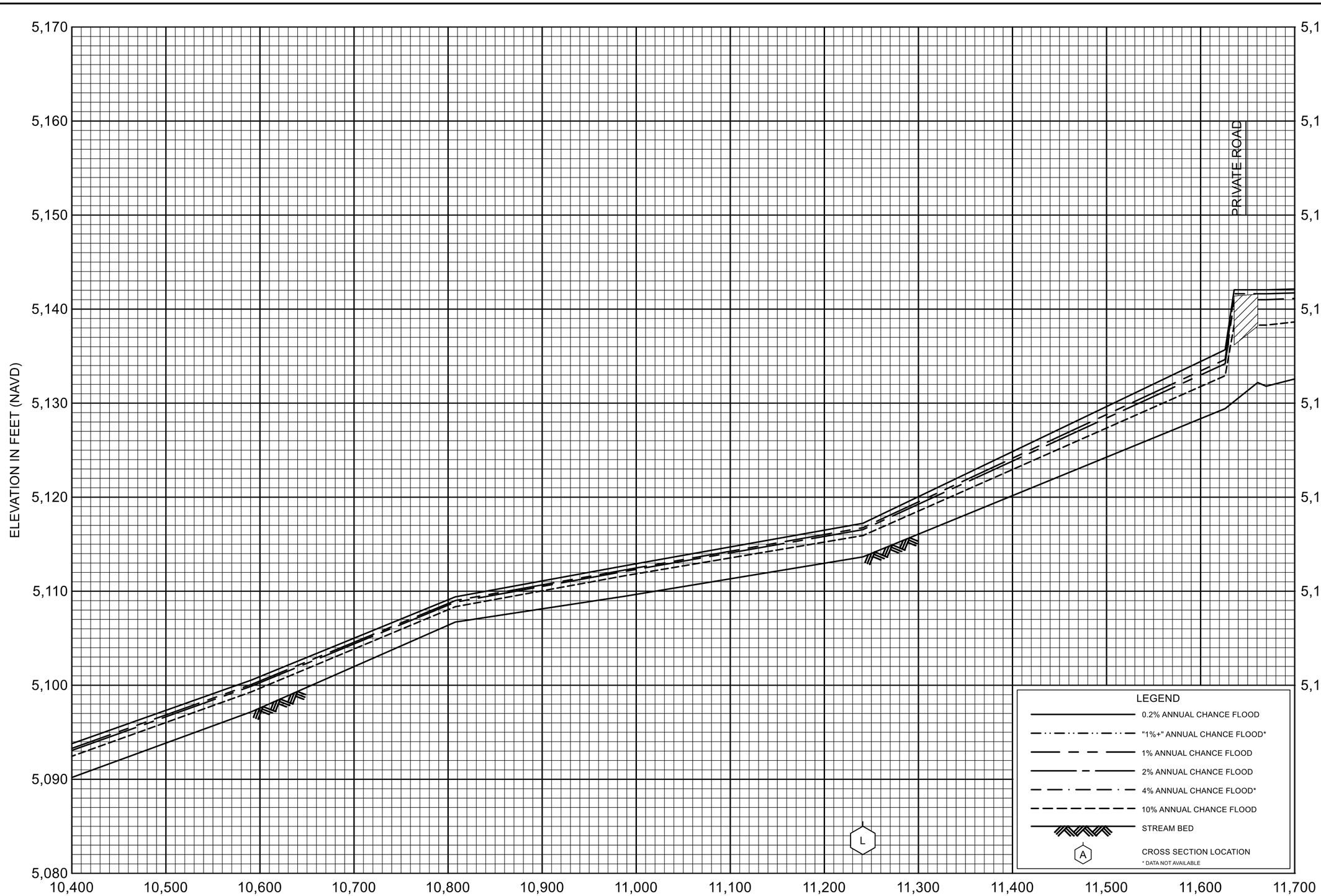
FORT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND UNINCORPORATED AREAS

77P



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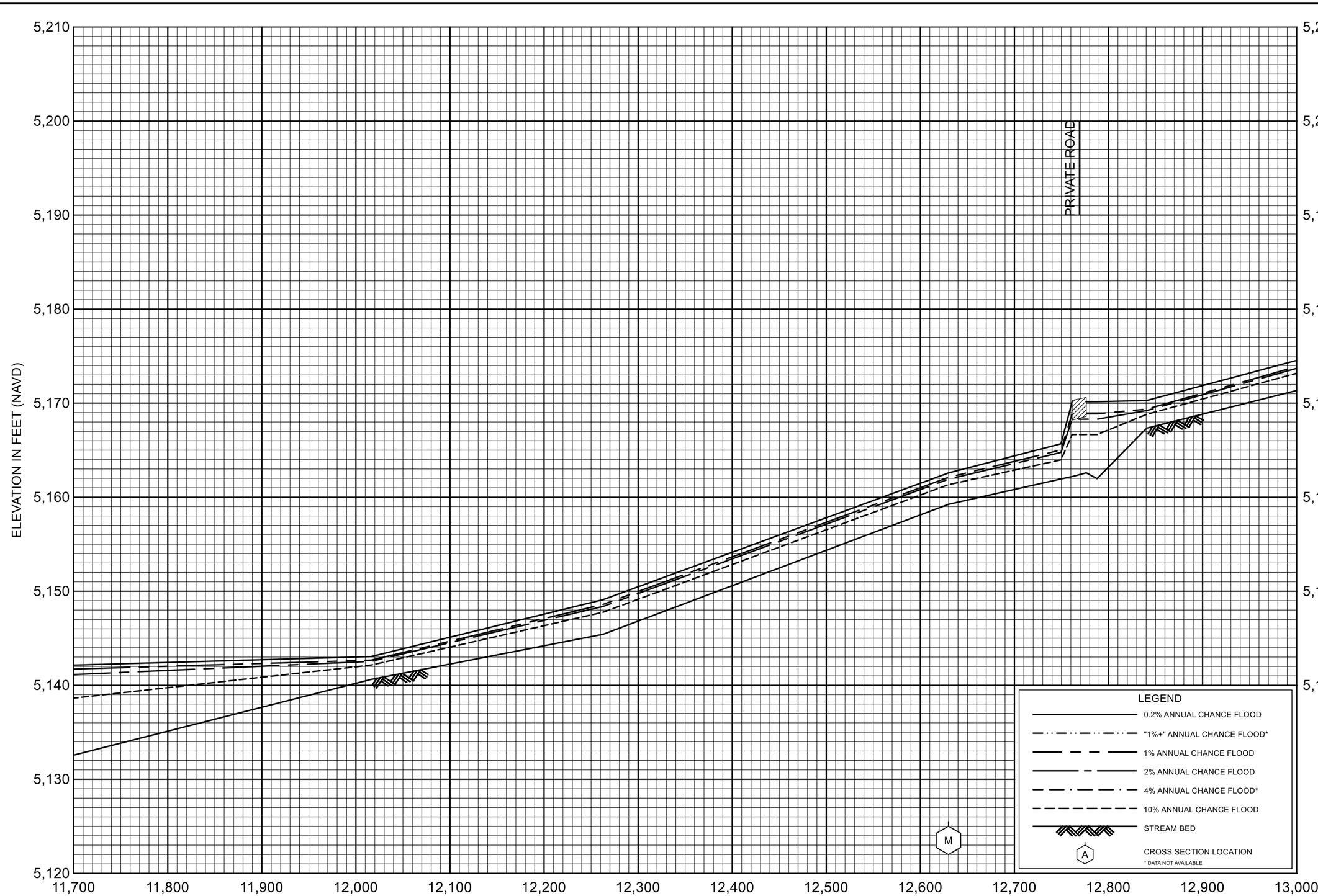
FORT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND UNINCORPORATED AREAS

78P



FLOOD PROFILES

FORT CREEK

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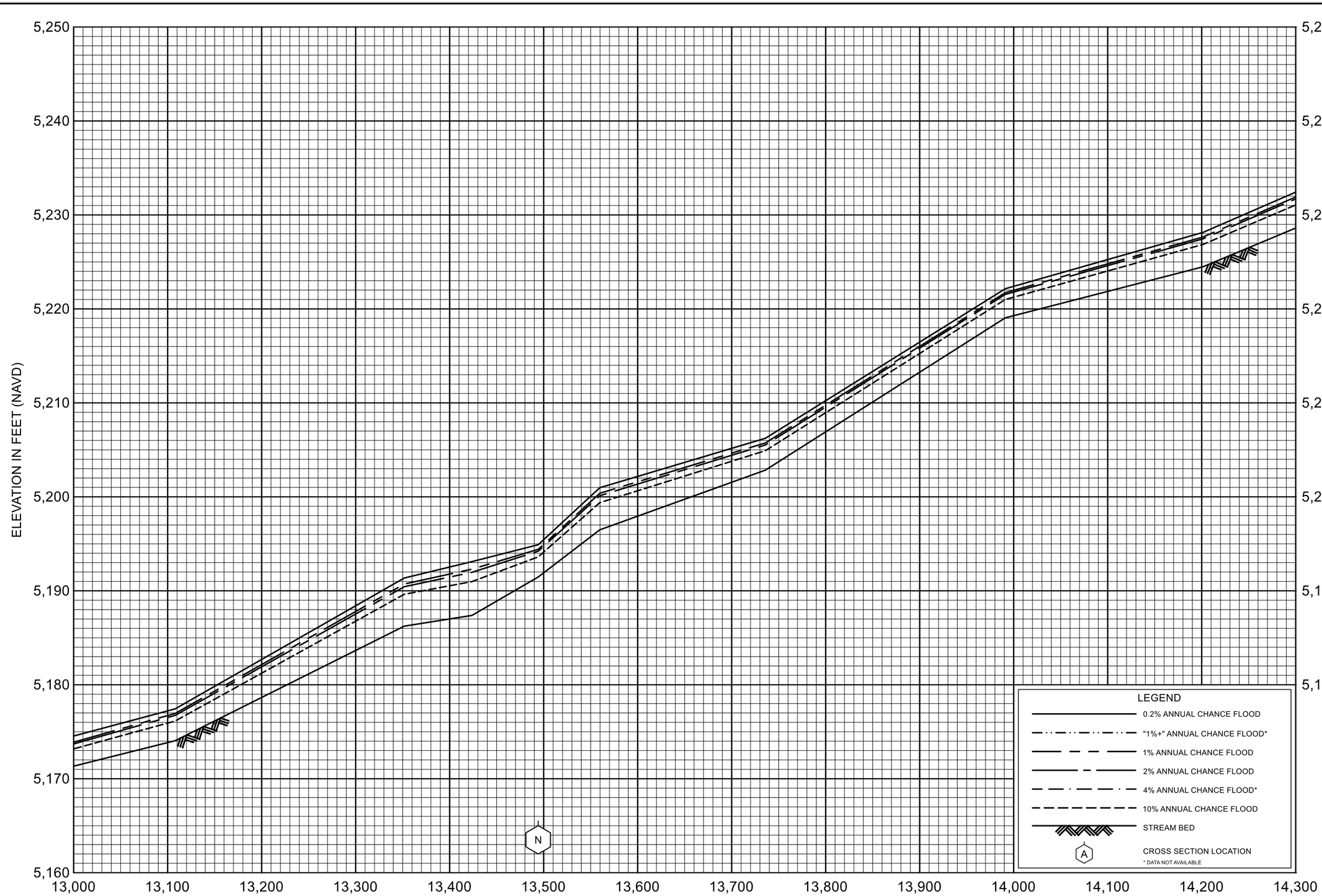
UTAH COUNTY, UT

AND UNINCORPORATED AREAS

79P



FLOOD PROFILES

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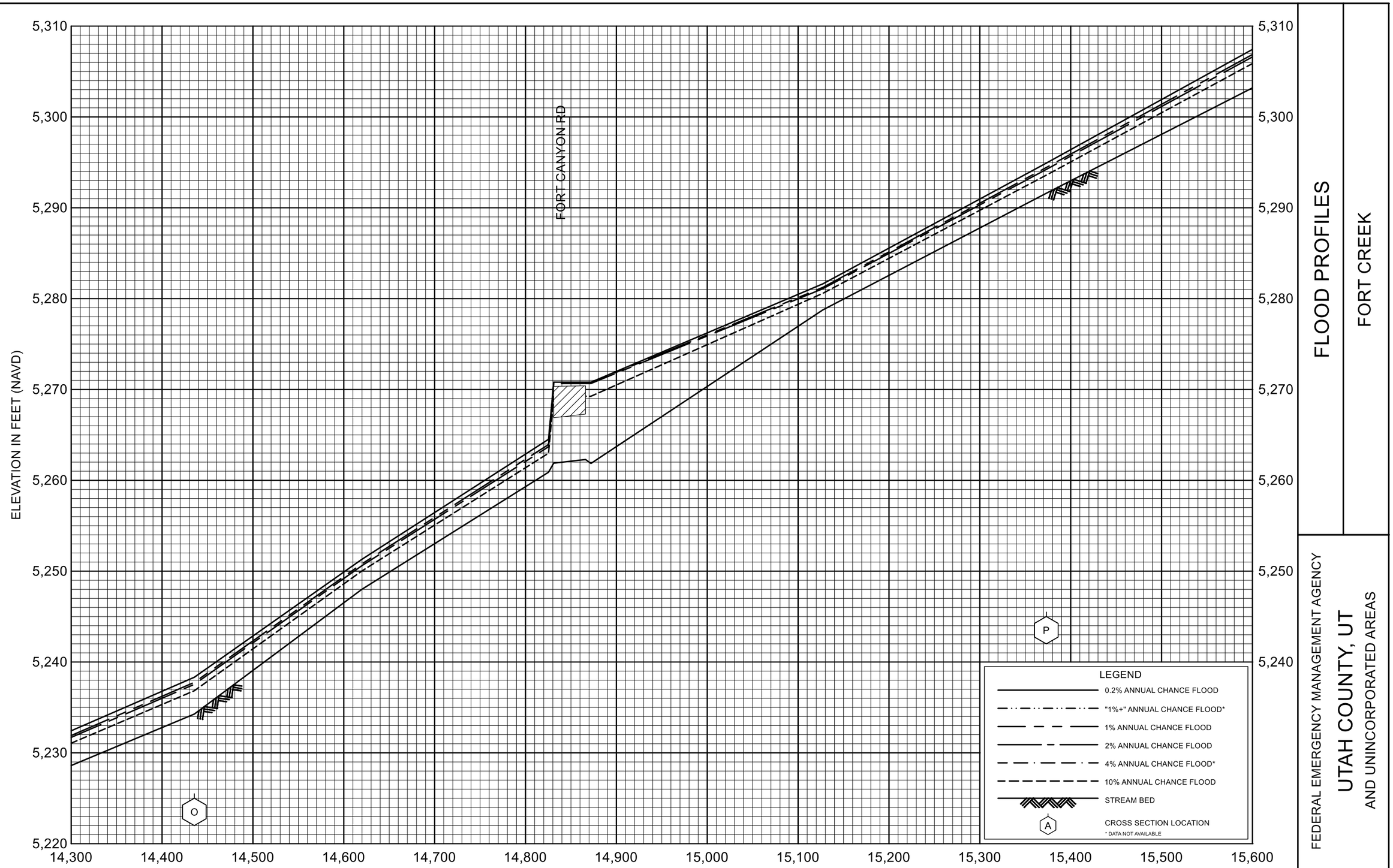
UTAH COUNTY, UT

AND UNINCORPORATED AREAS

80P



FLOOD PROFILES

FORT CREEK

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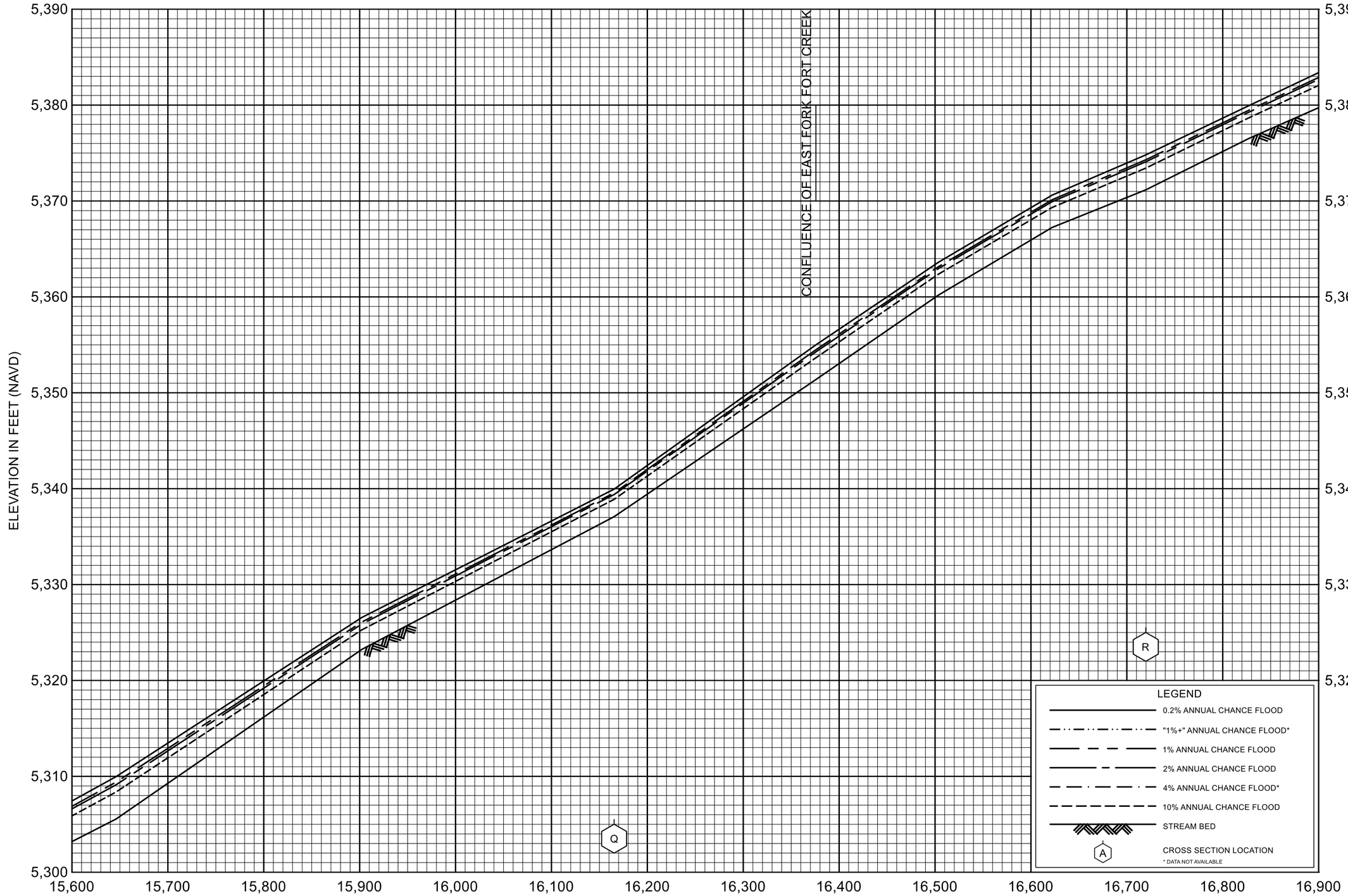
UTAH COUNTY, UT

AND UNINCORPORATED AREAS

81P



FLOOD PROFILES

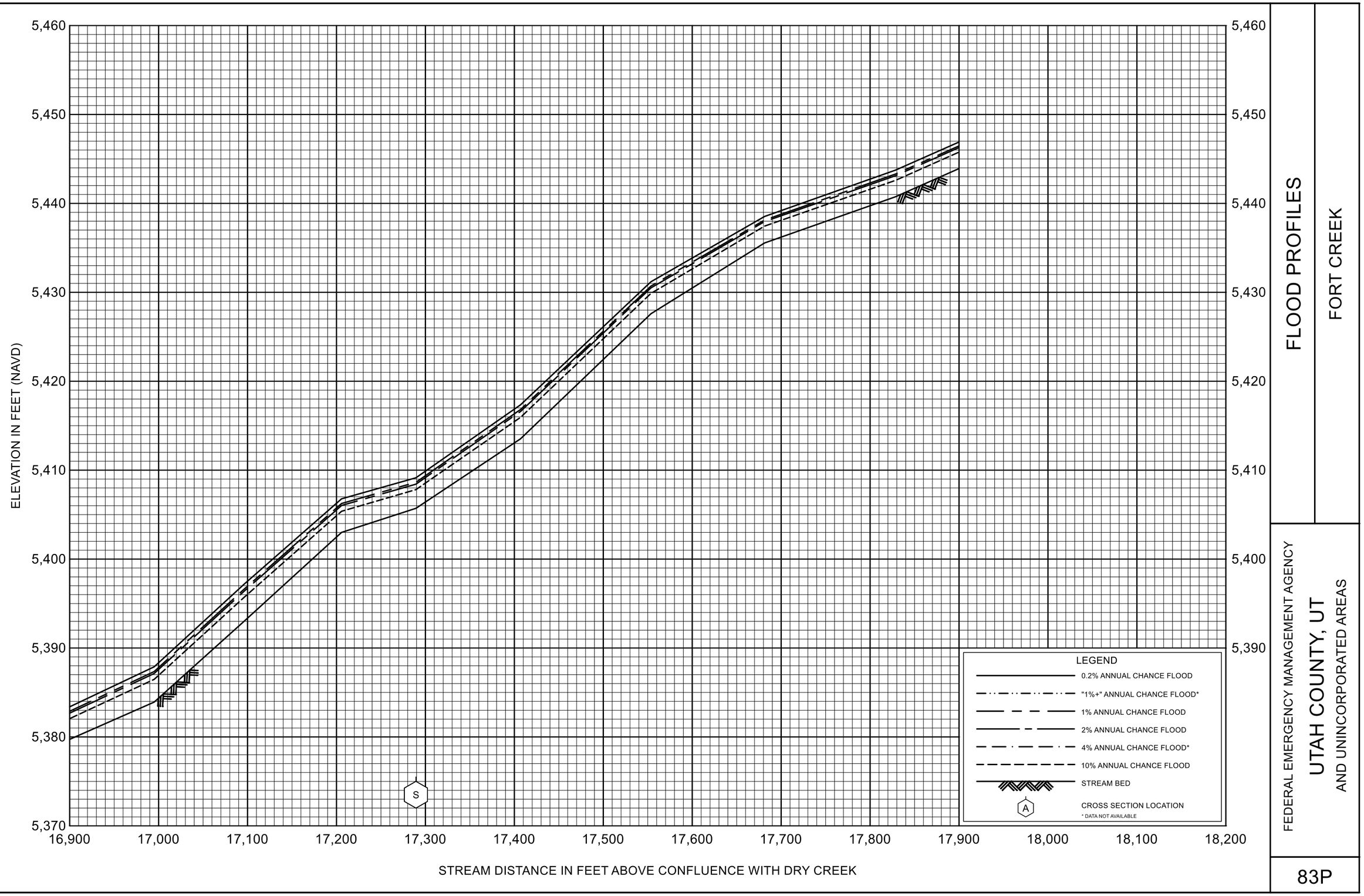
FORT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND UNINCORPORATED AREAS

82P



FLOOD PROFILES

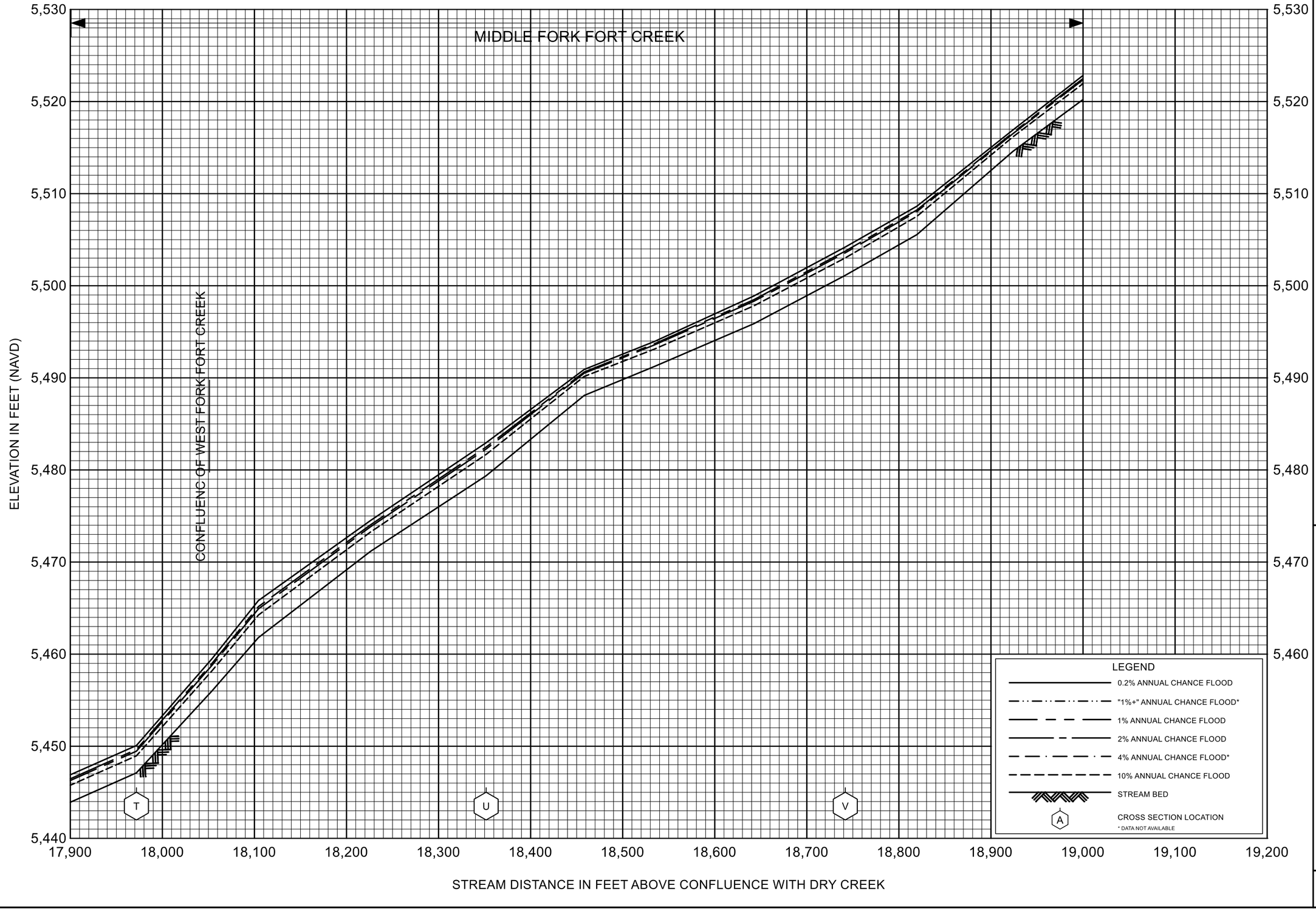
FORT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND UNINCORPORATED AREAS

83P



FLOOD PROFILES

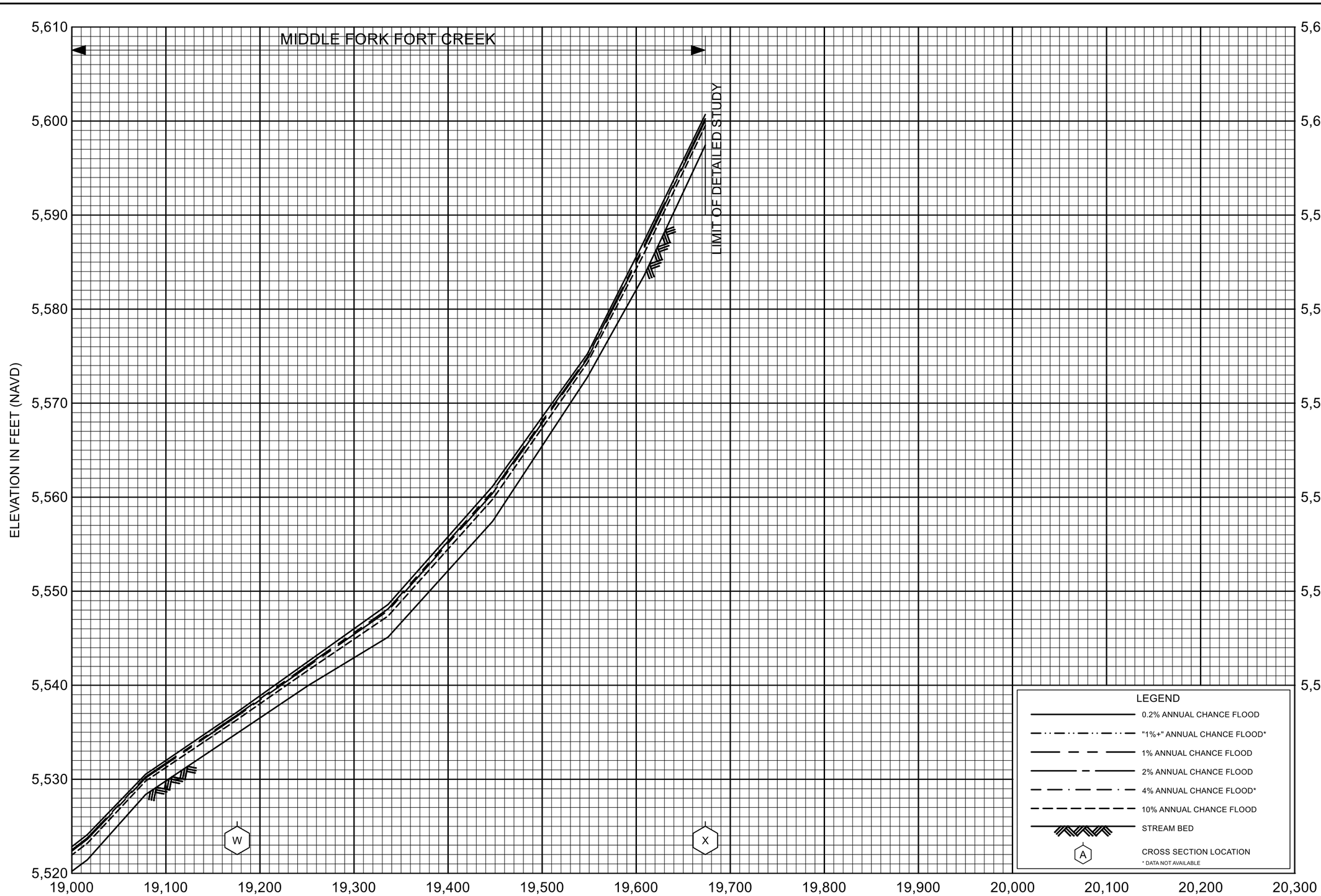
WEST FORK FORT CREEK AND MIDDLE FORK FORT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND UNINCORPORATED AREAS

84P



FLOOD PROFILES

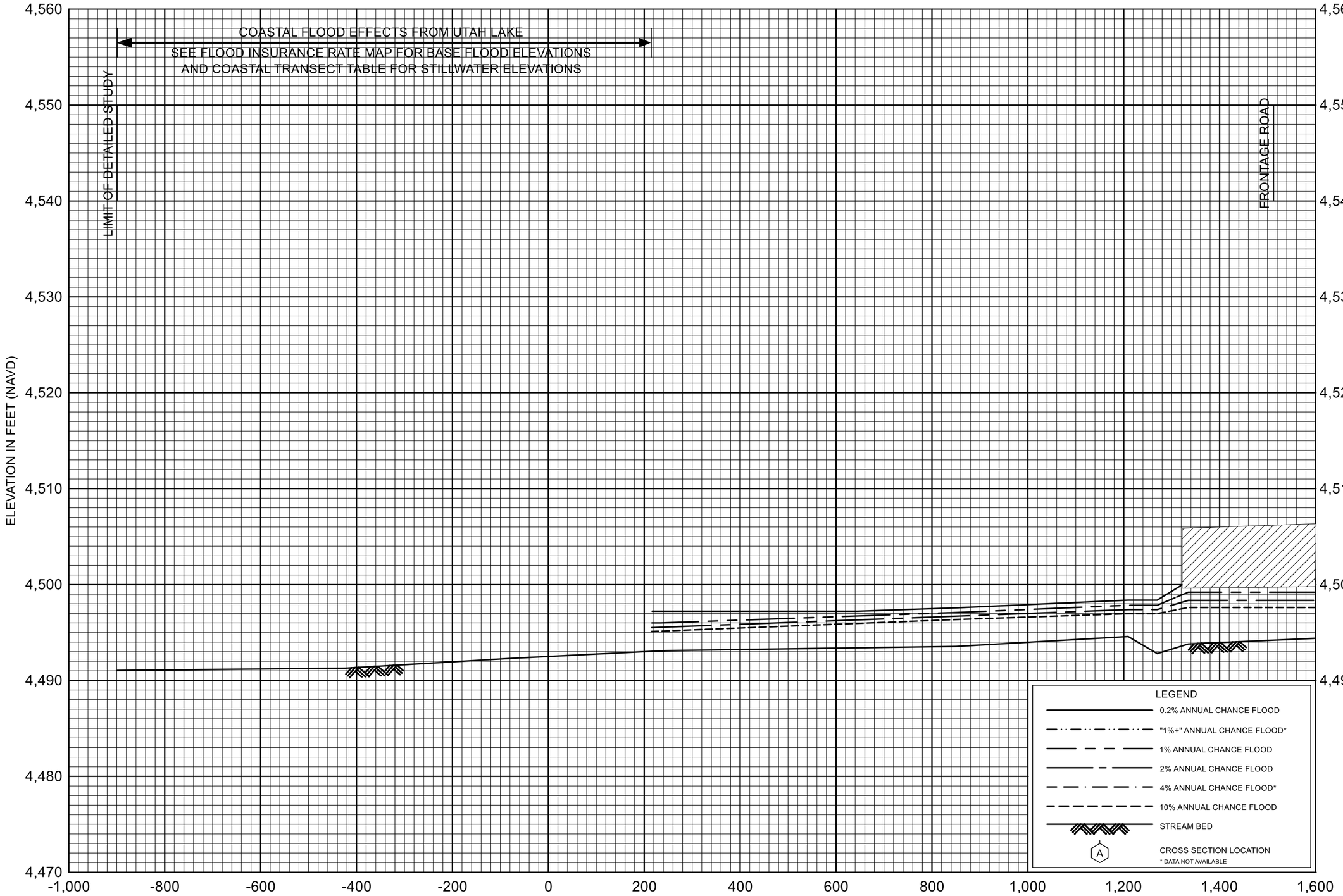
DRY CREEK AND MIDDLE FORK FORT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND UNINCORPORATED AREAS

85P



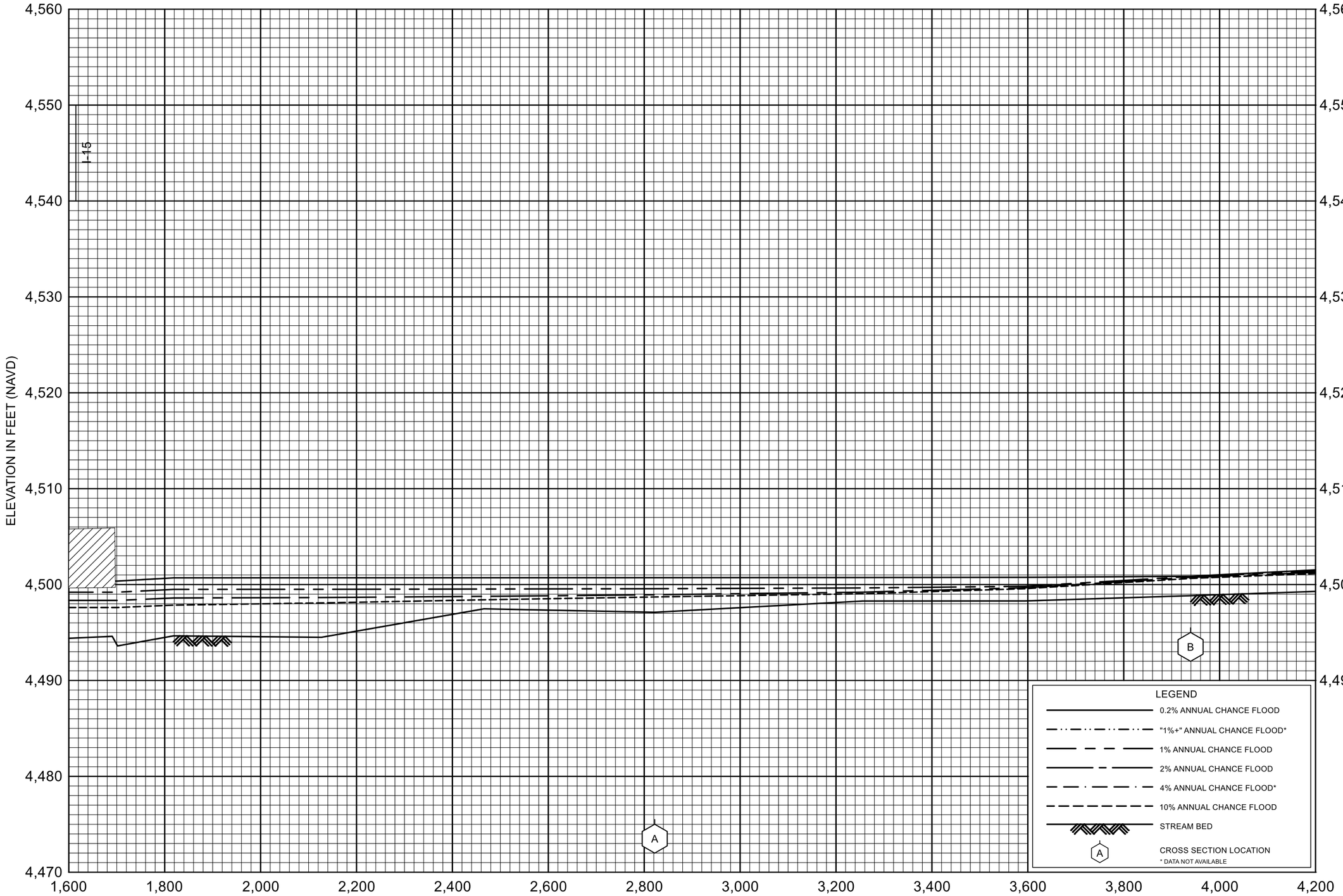
FLOOD PROFILES

HOBBLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

86P



ELEVATION IN FEET (NAVD)

STREAM DISTANCE IN FEET ABOVE A POINT 1362 FEET DOWNSTREAM OF FRONTAGE ROAD

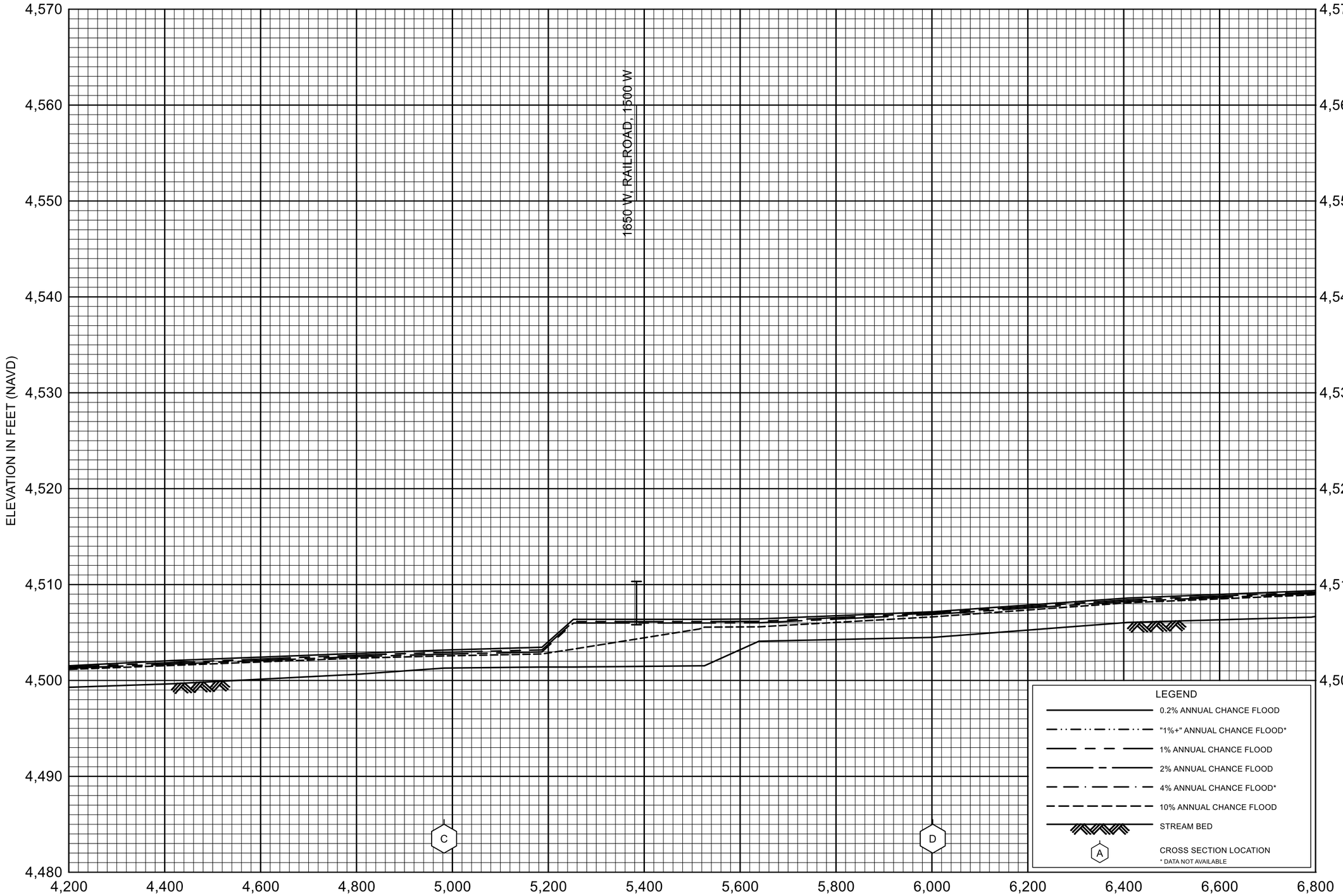
FLOOD PROFILES

HOBBLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

87P



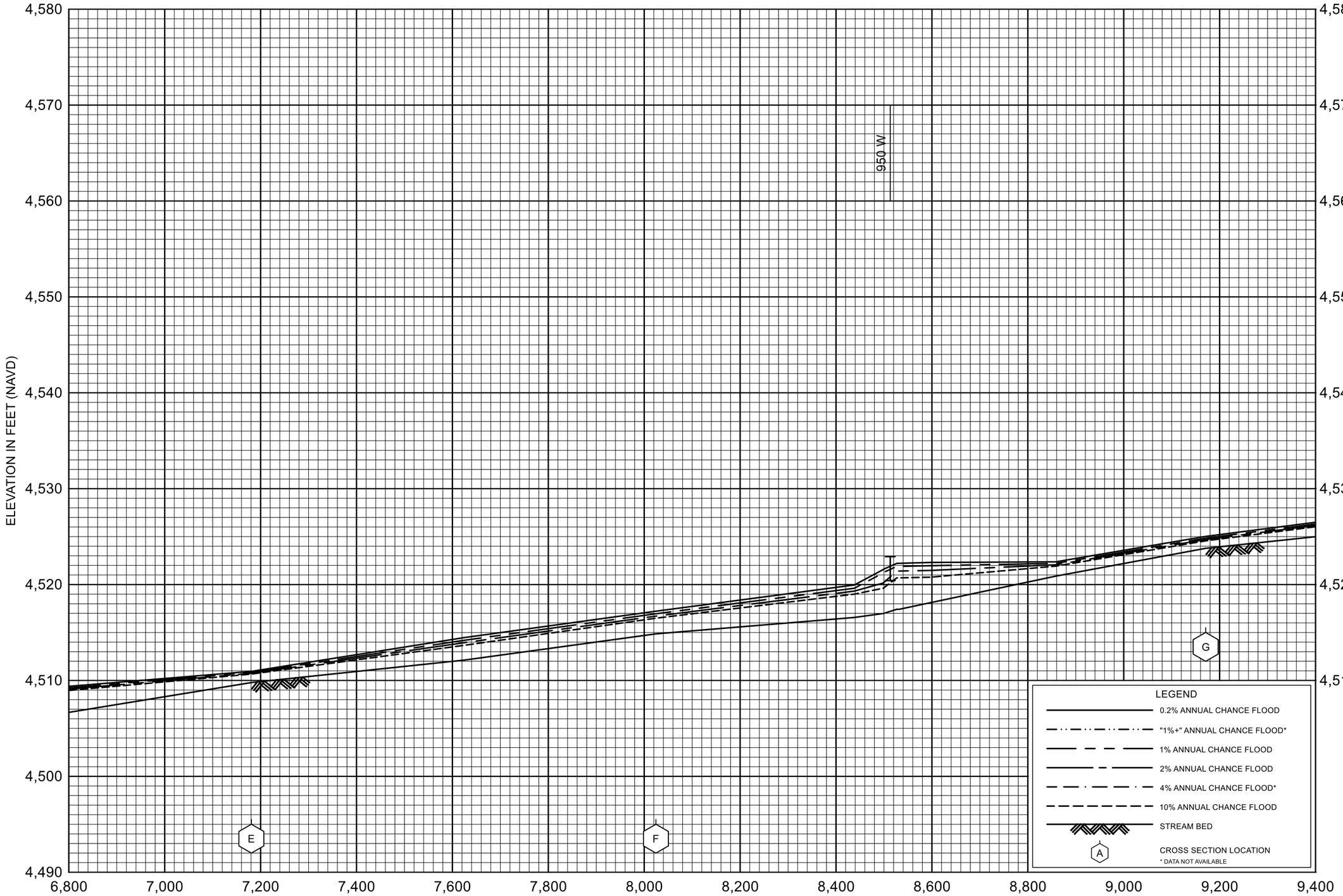
FLOOD PROFILES

HOBBLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

88P



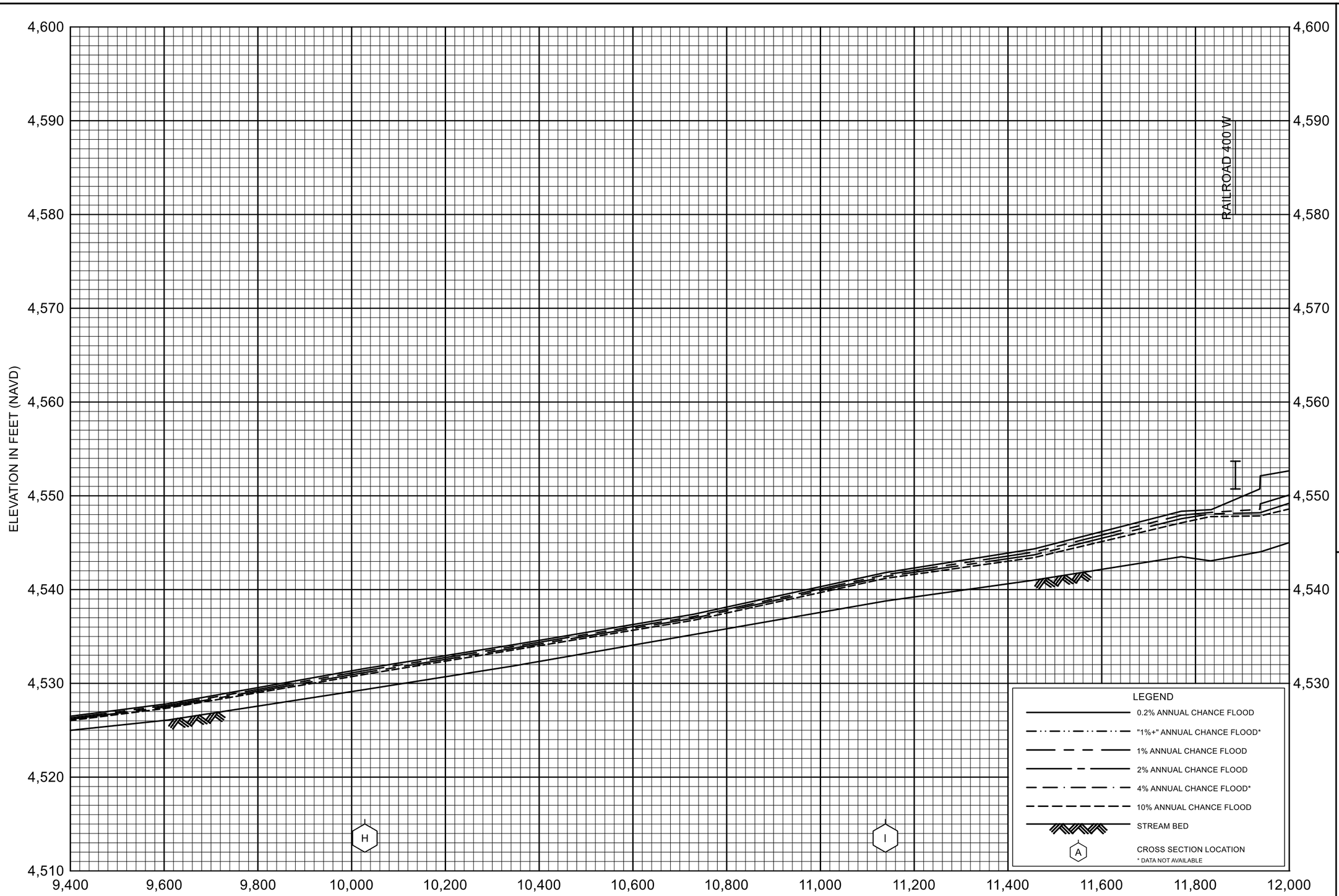
FLOOD PROFILES

HOBBLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

89P



FLOOD PROFILES

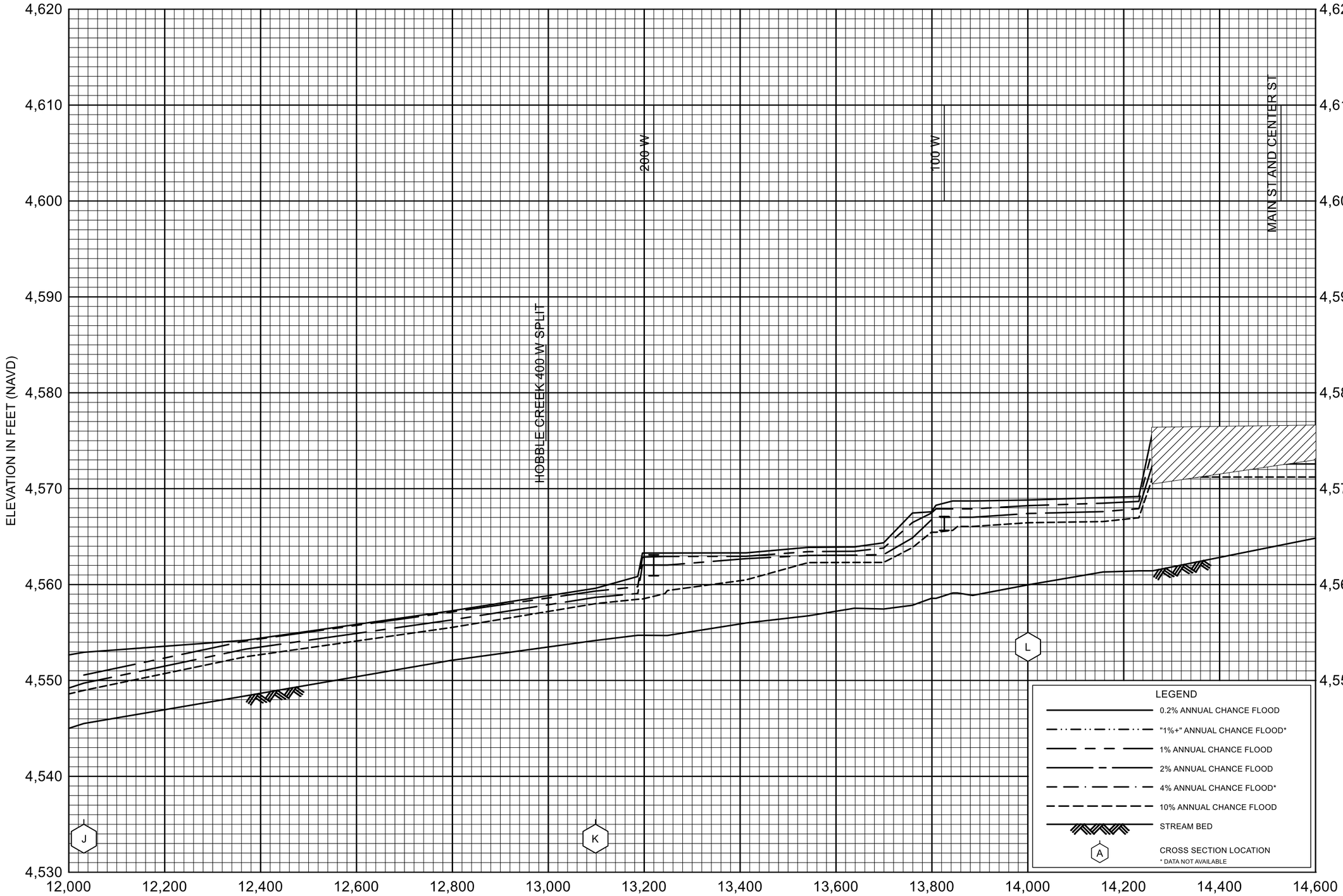
HOBBLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

90P



FLOOD PROFILES

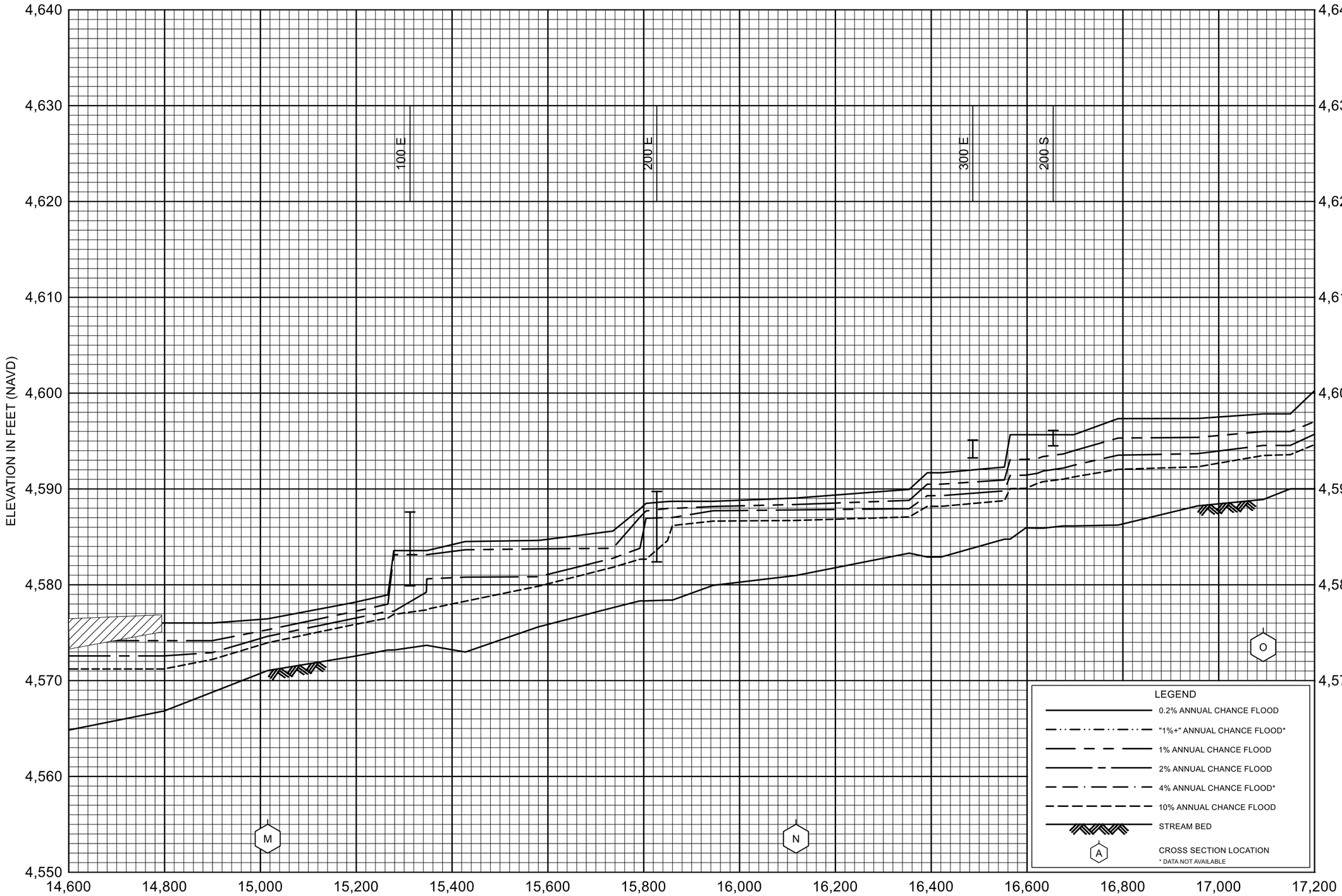
HOBBLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

91P



FLOOD PROFILES

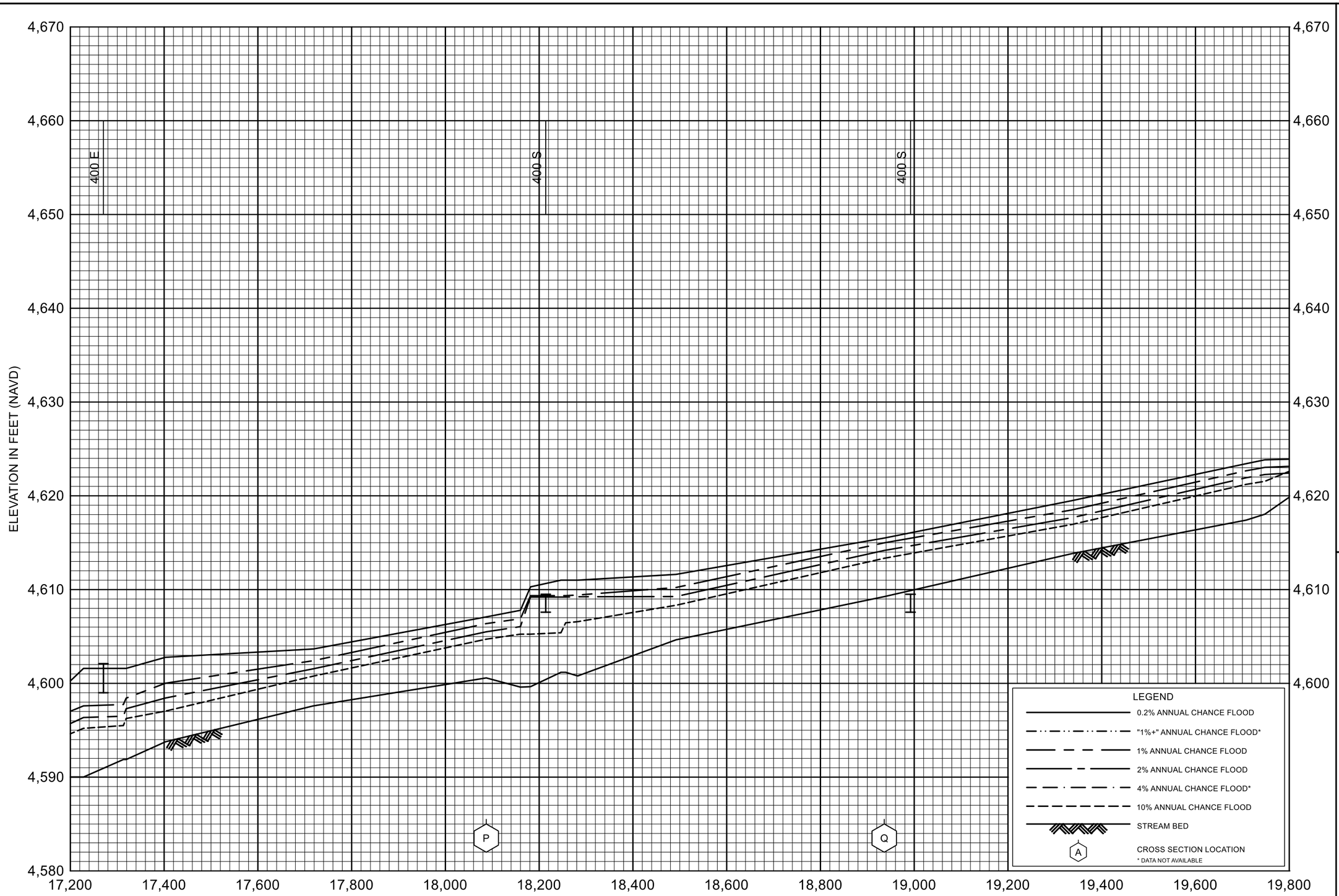
HOBBLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

92P



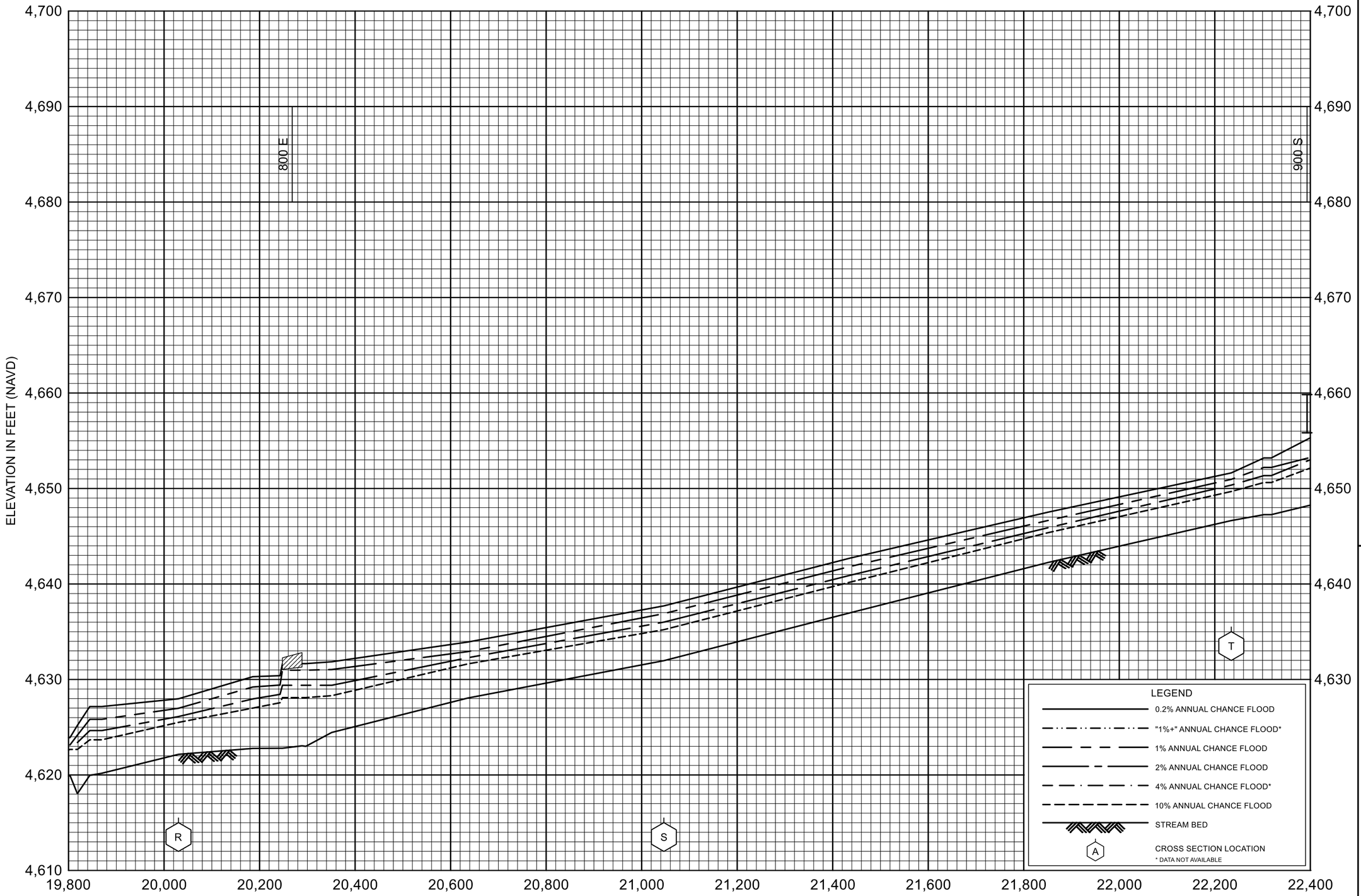
FLOOD PROFILES

HOBBLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

93P



FLOOD PROFILES

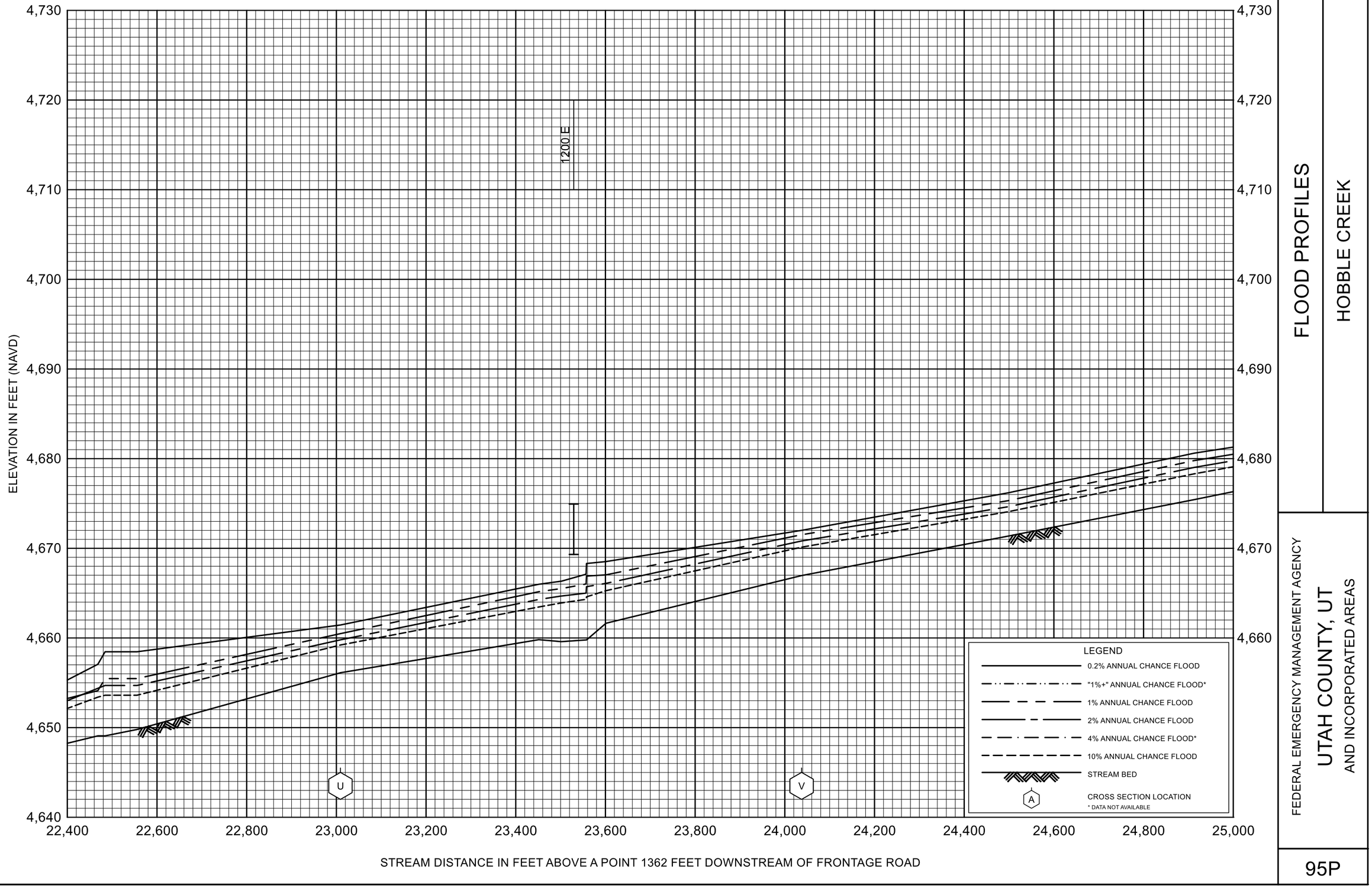
HOBBLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

94P



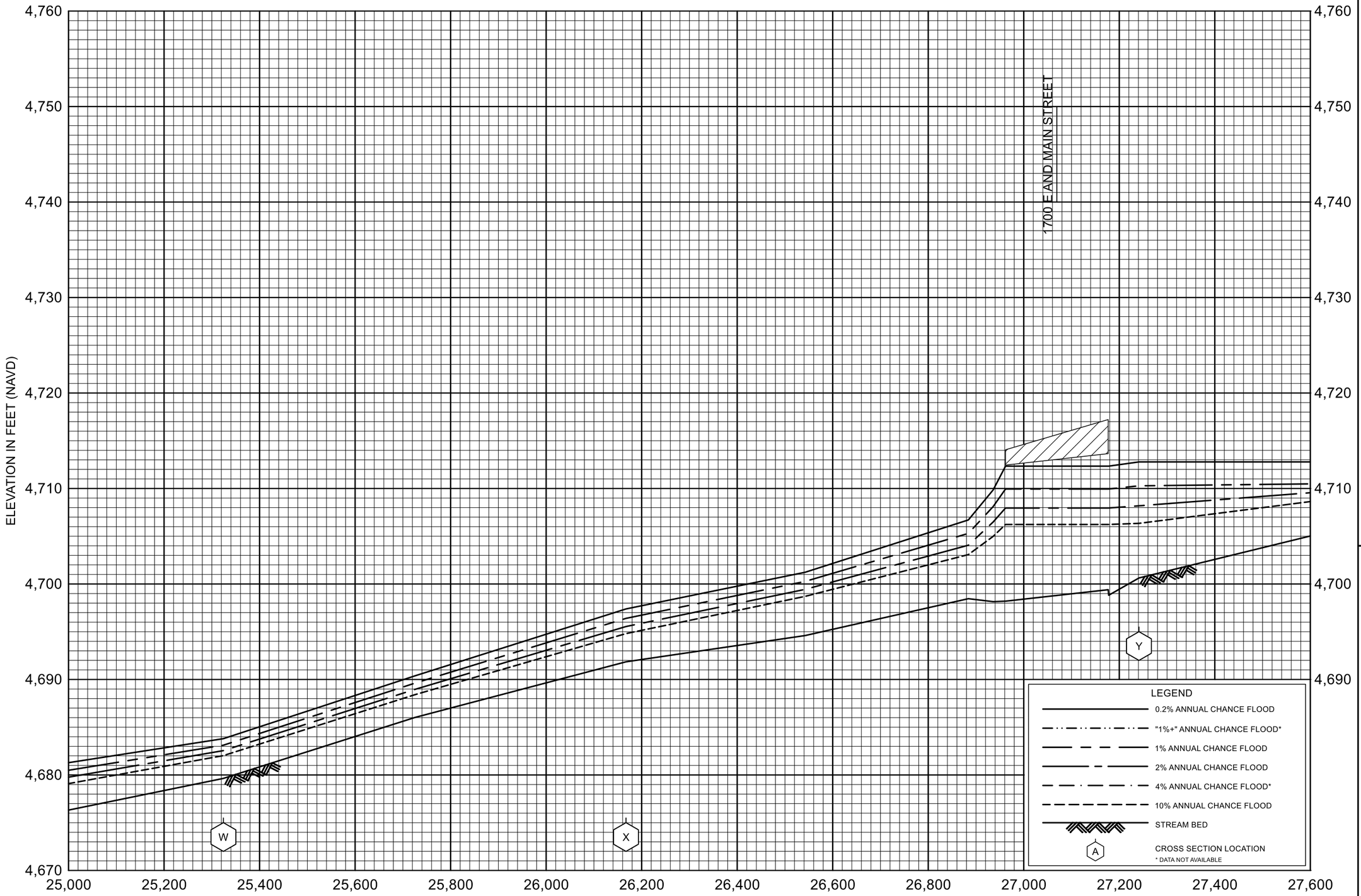
FLOOD PROFILES

HOBBLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

95P



FLOOD PROFILES

HOBBLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

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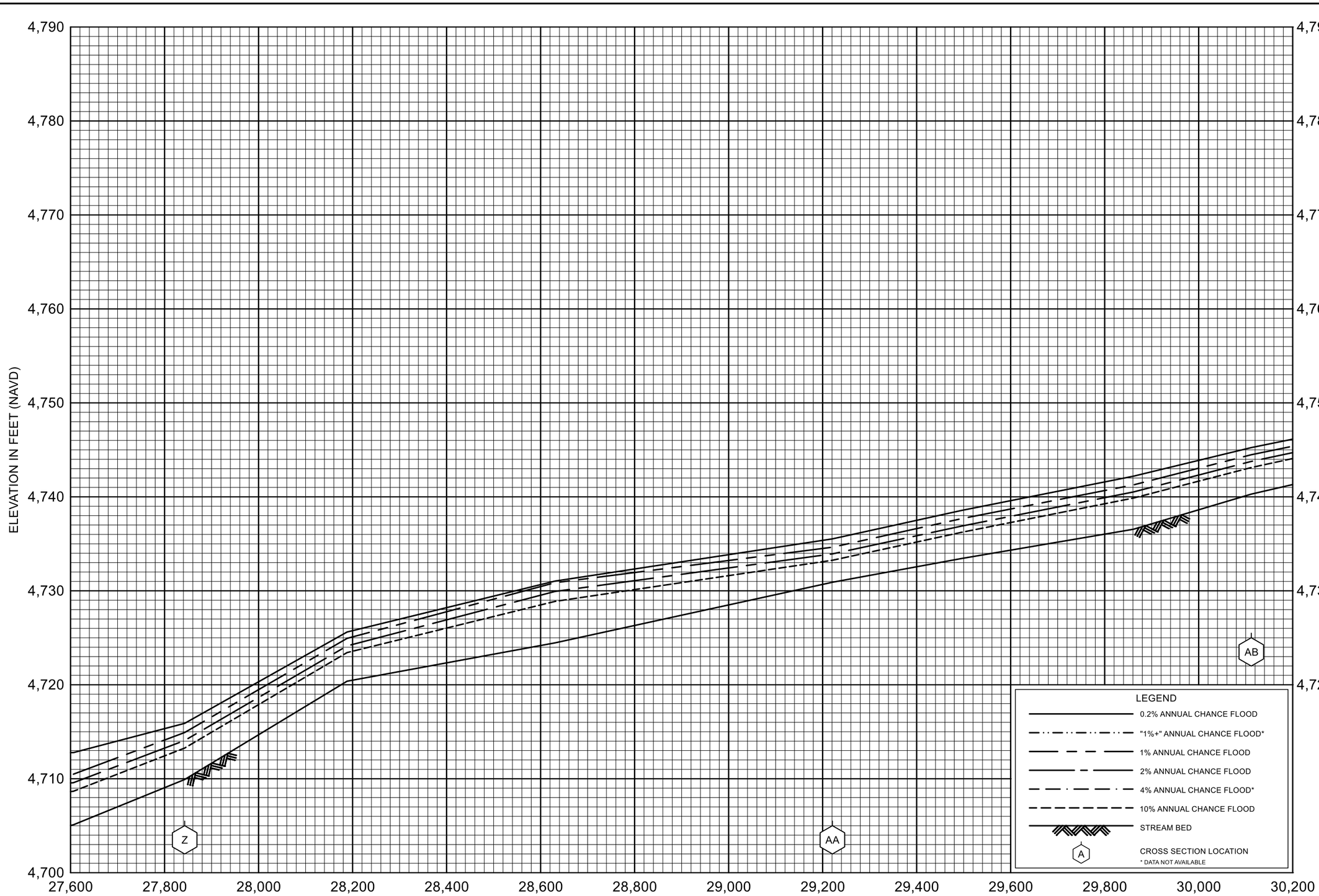


FLOOD PROFILES

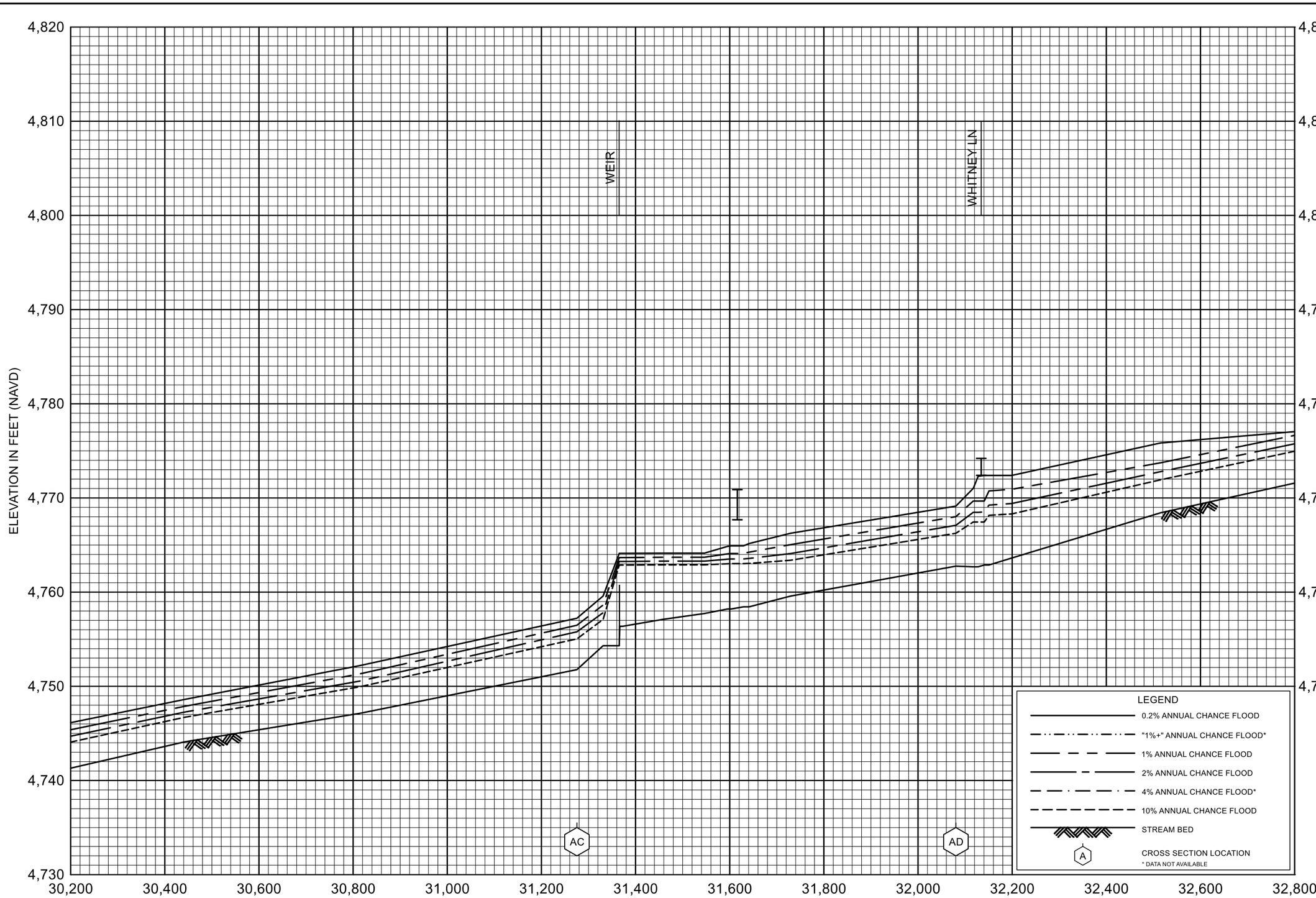
HOBBLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

97P



FLOOD PROFILES

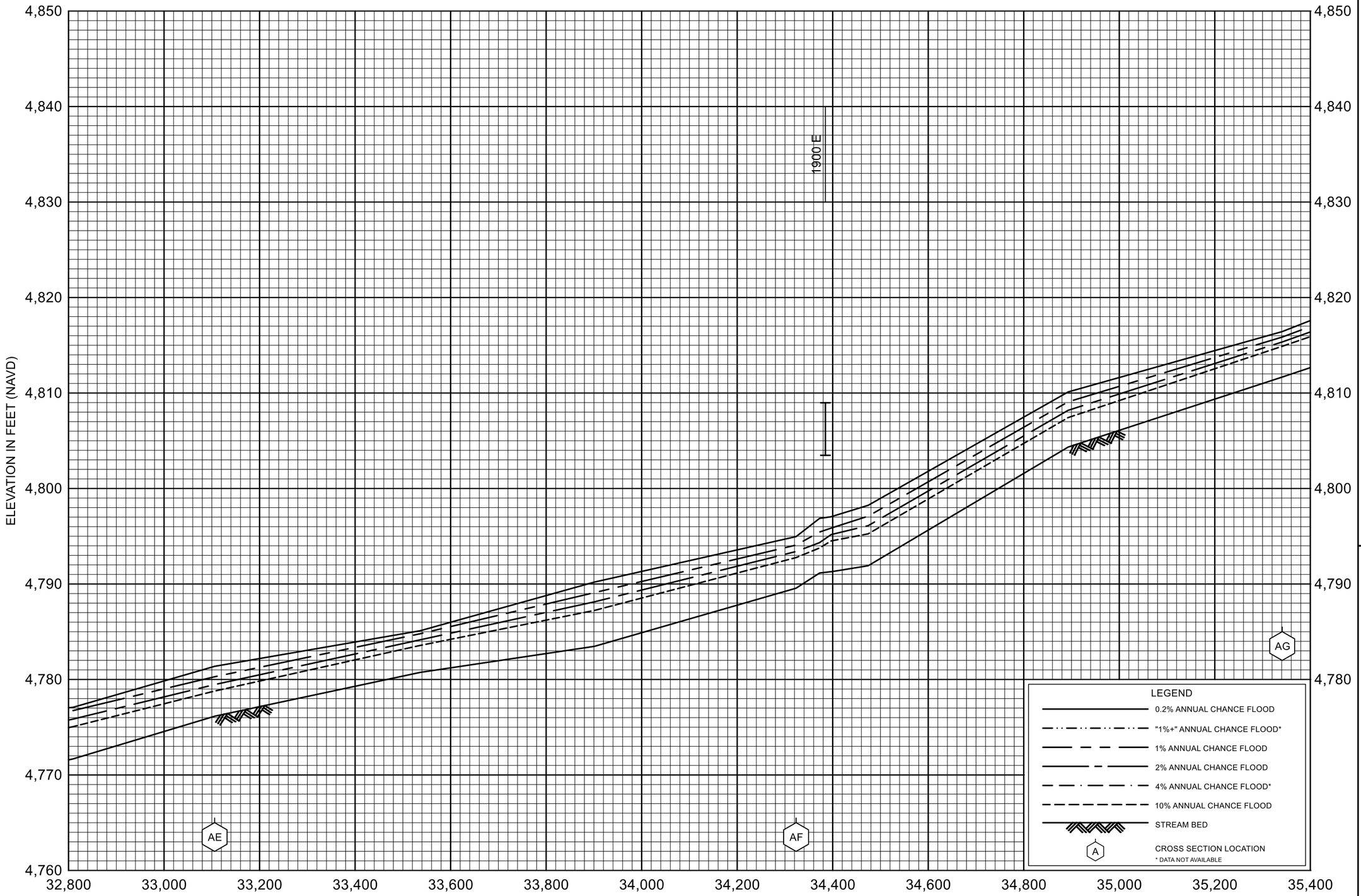
HOBBLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

98P



FLOOD PROFILES

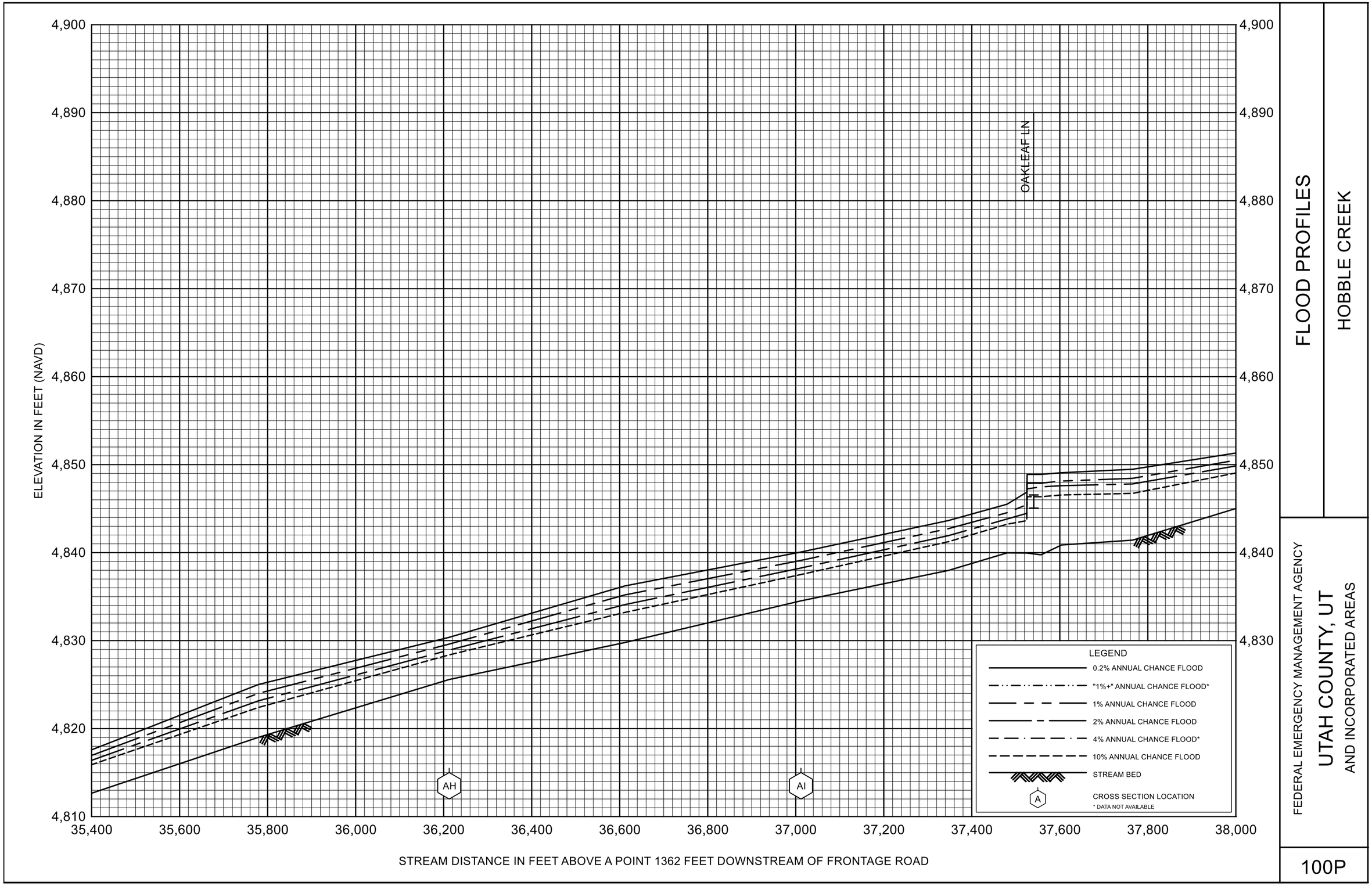
HOBBLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

99P



FLOOD PROFILES

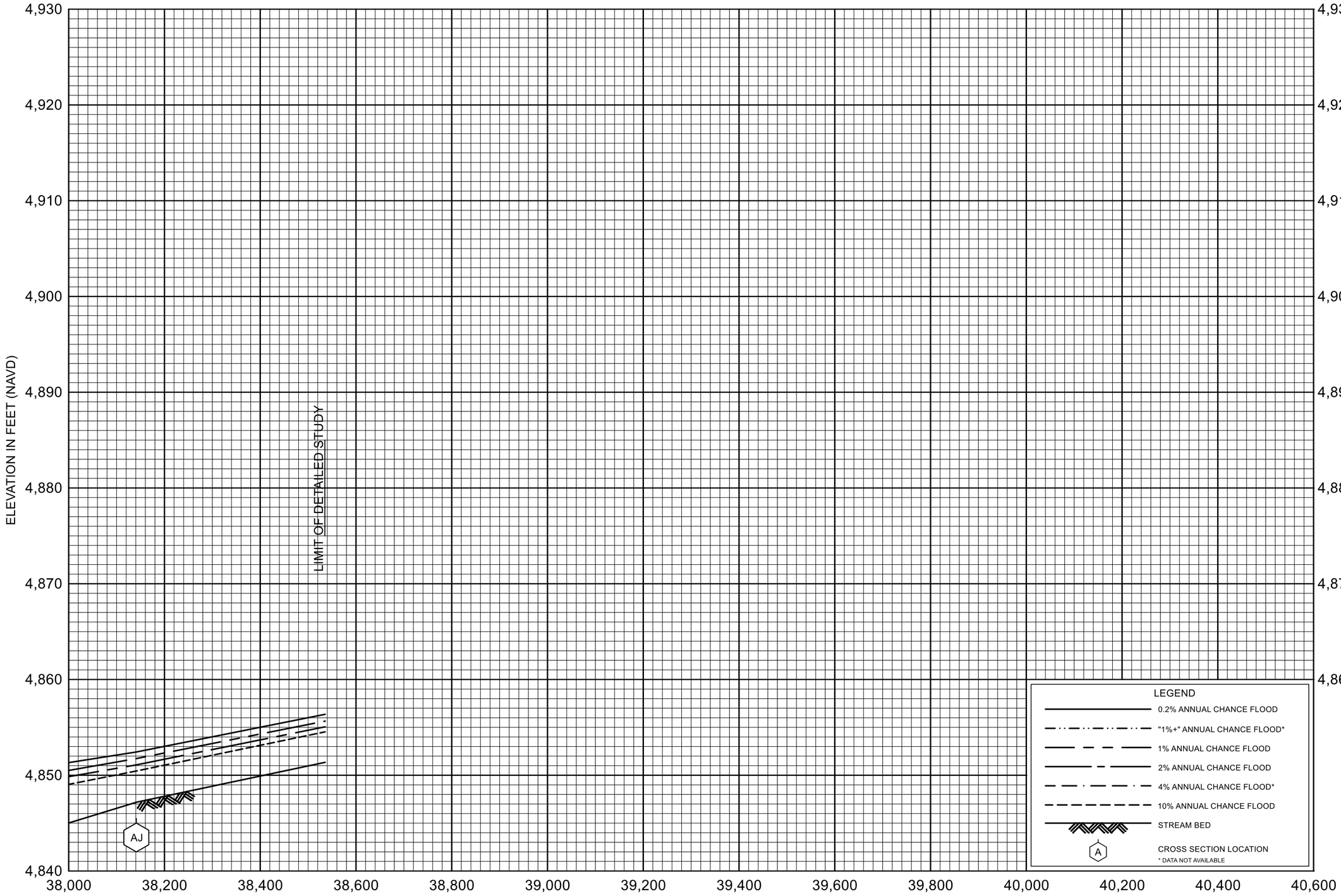
HOBBLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

100P



FLOOD PROFILES

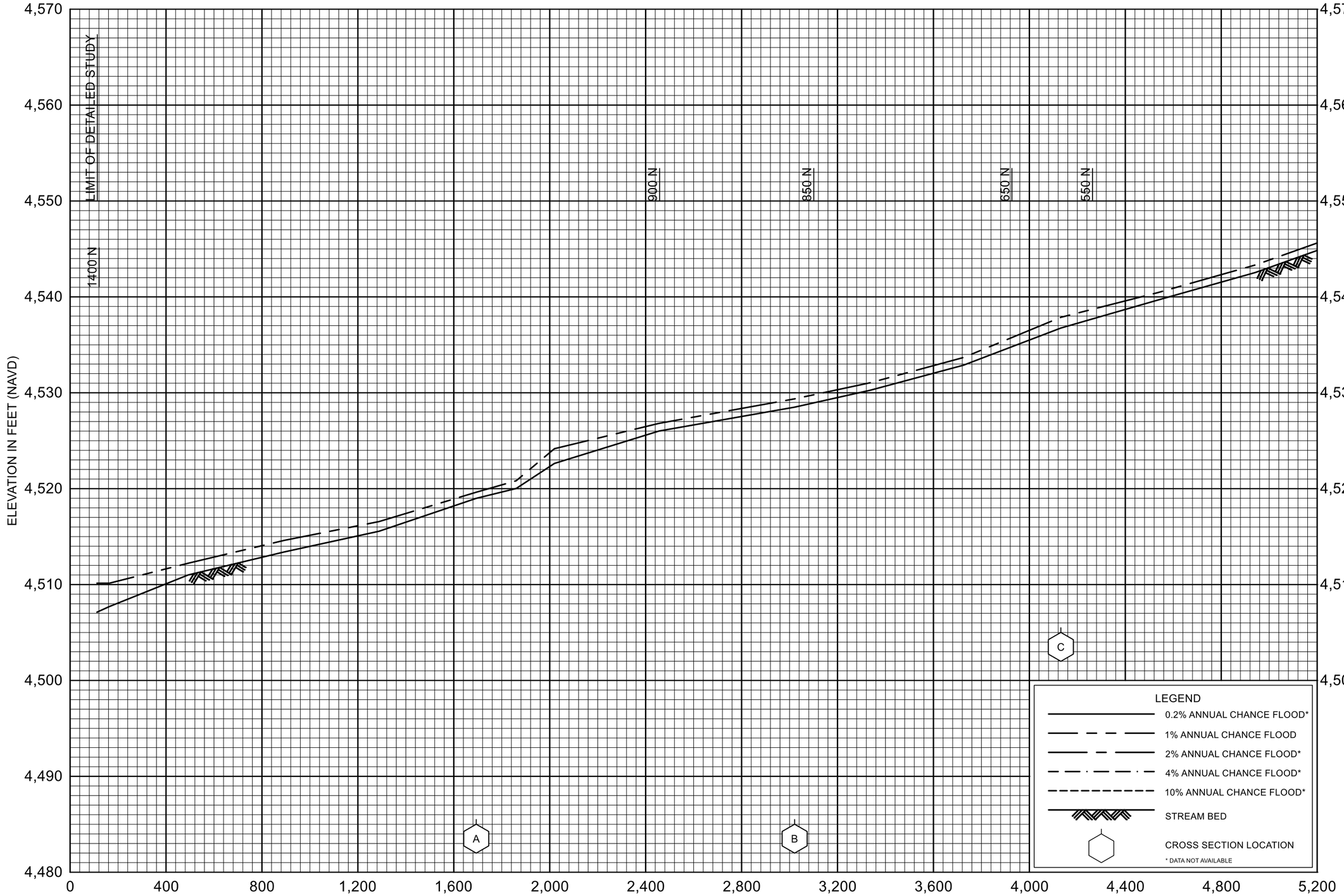
HOBBLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

101P



FLOOD PROFILES

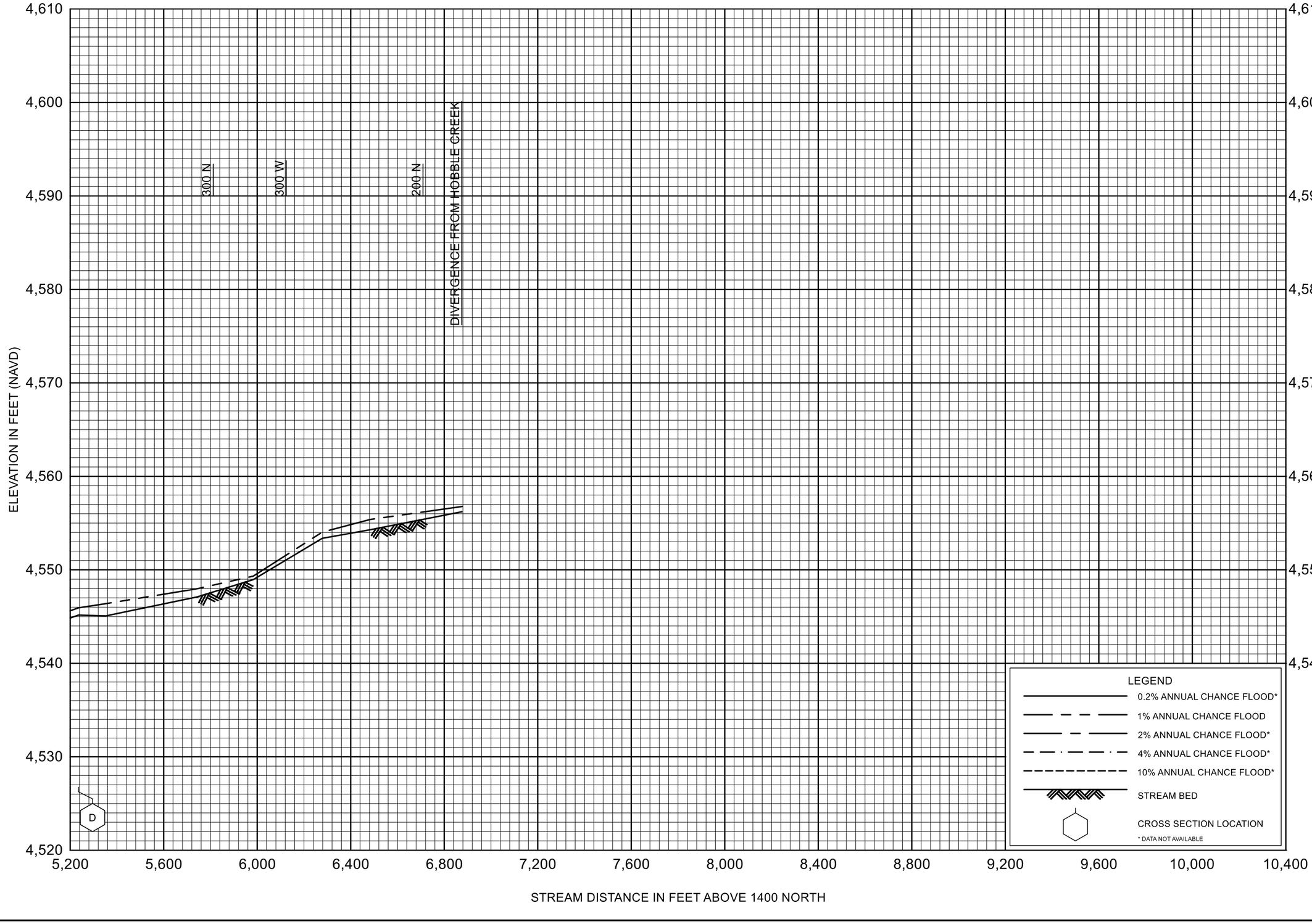
HOBBLE CREEK 400 W SPLIT

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

102P



FLOOD PROFILES

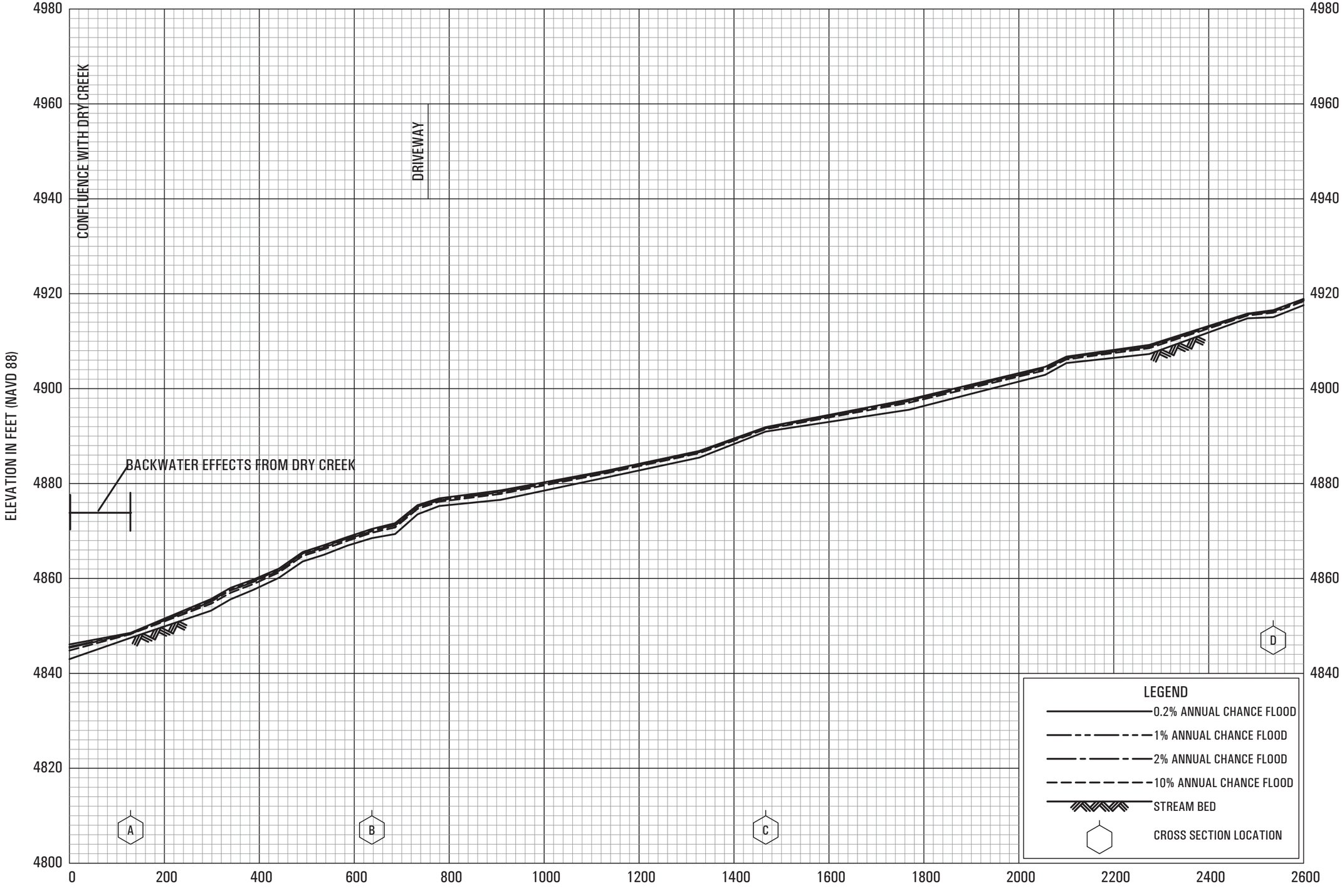
HOBBLE CREEK 400 W SPLIT

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

103P



FLOOD PROFILES

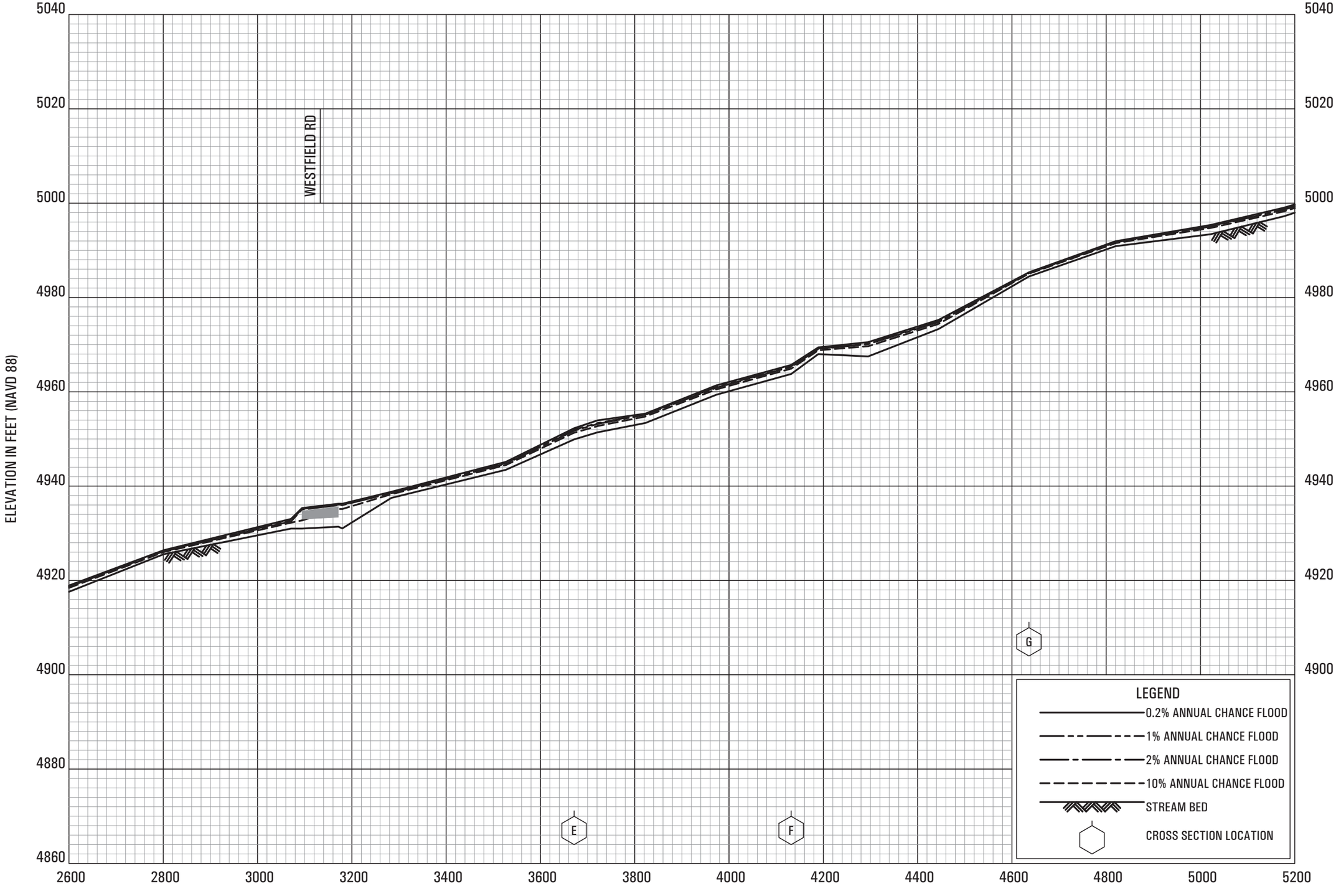
HOG HOLLOW

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

104P



FLOOD PROFILES

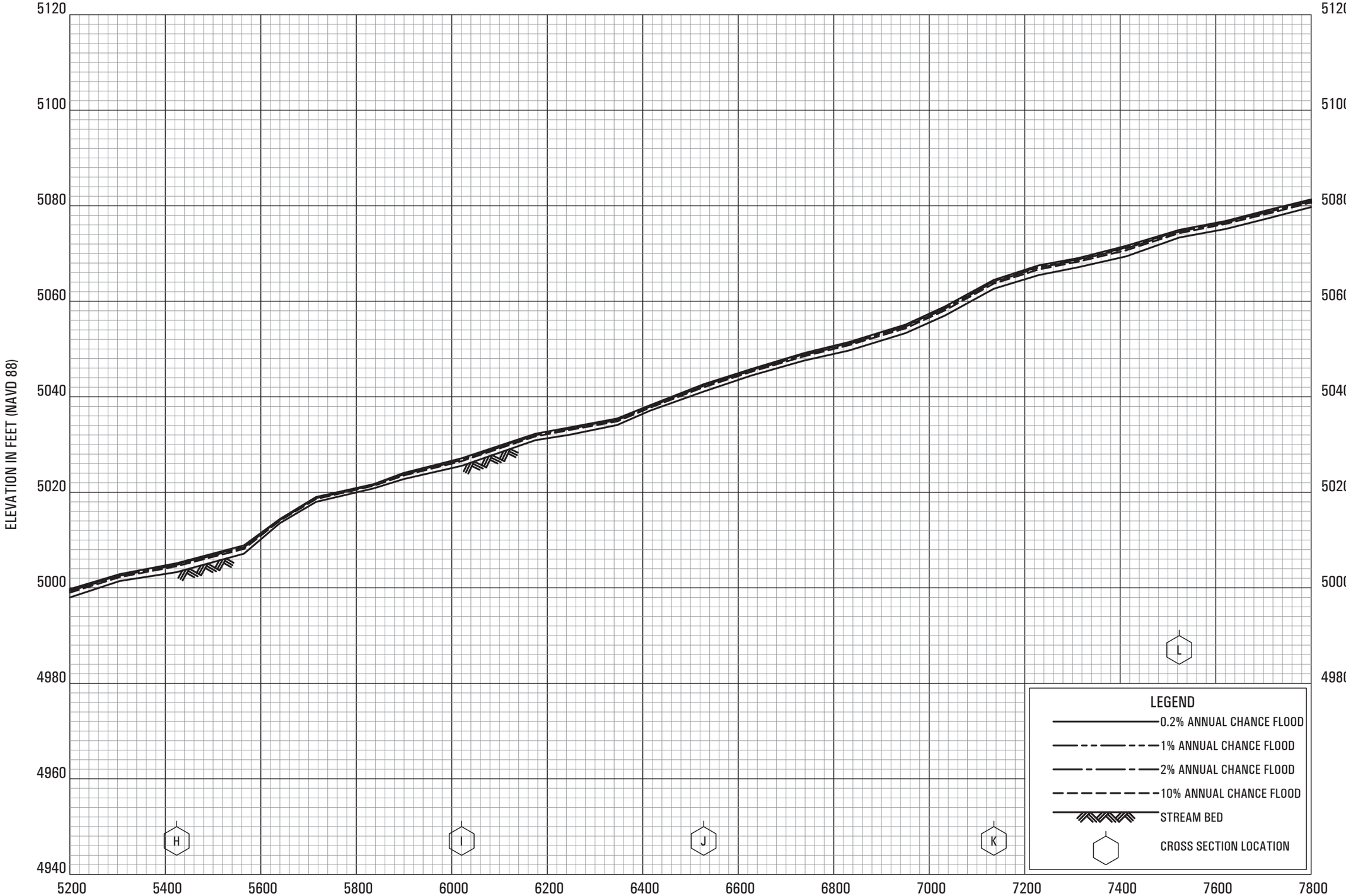
HOG HOLLOW

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

105P



FLOOD PROFILES

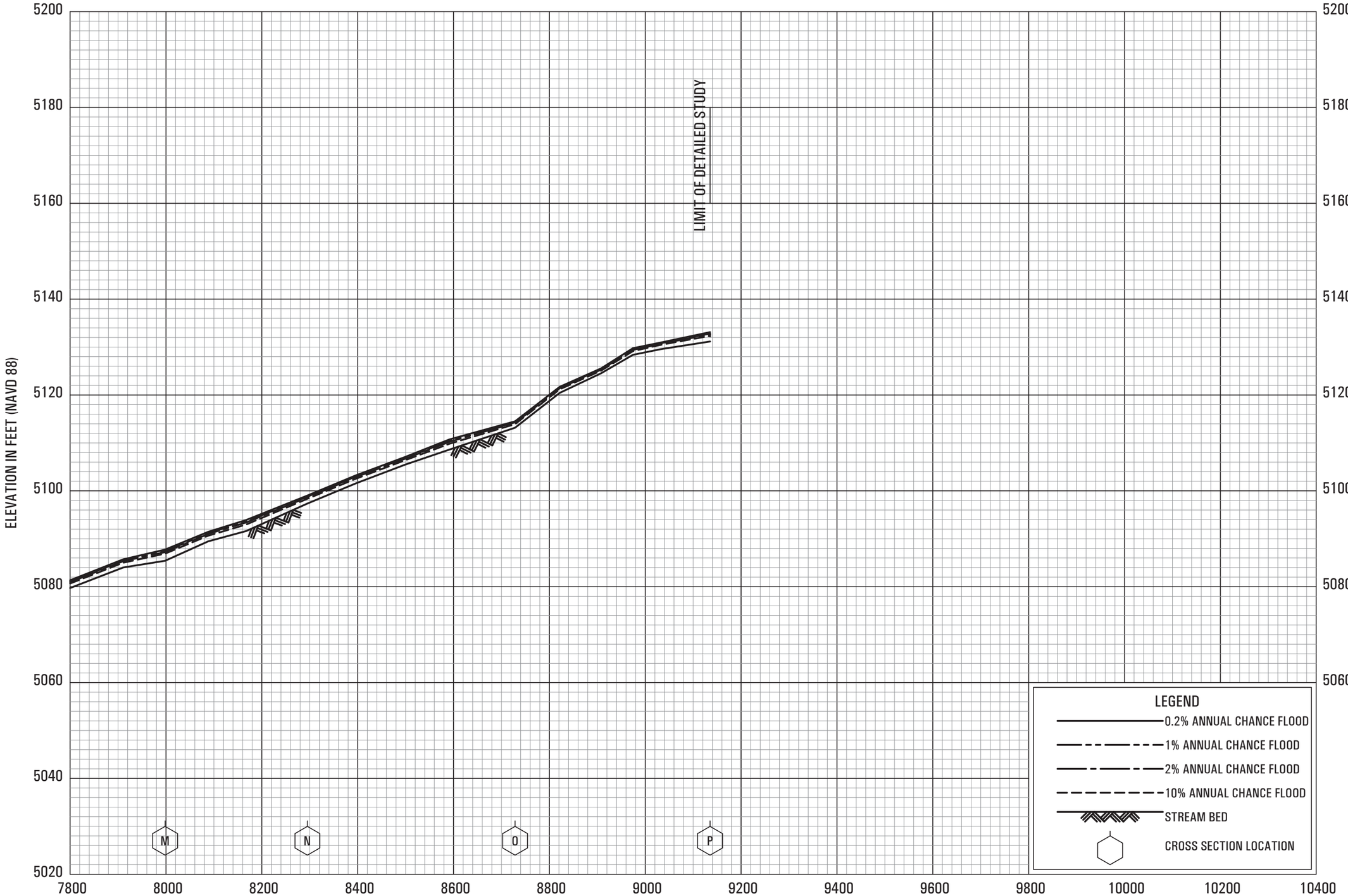
HOG HOLLOW

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

106P



FLOOD PROFILES

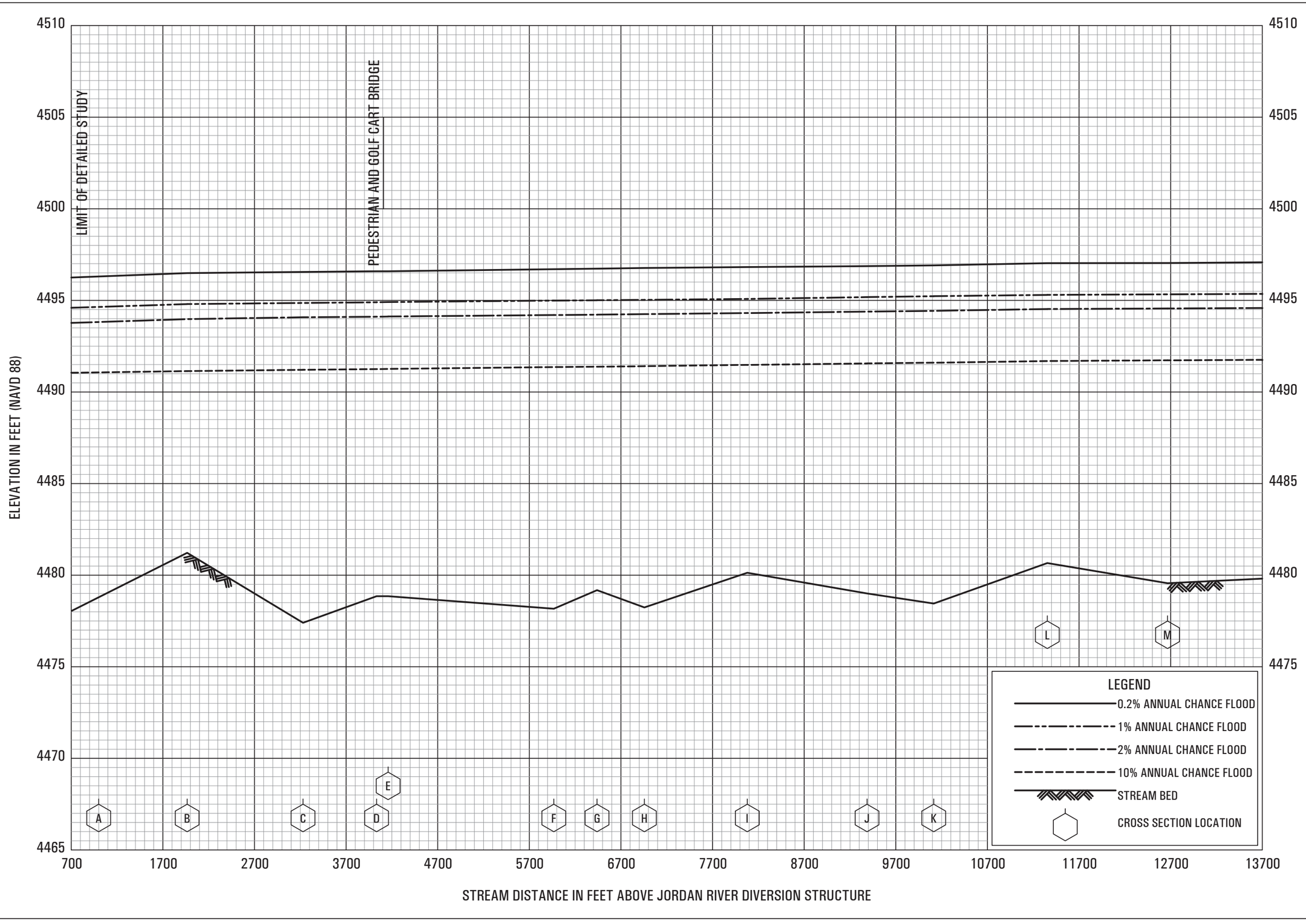
HOG HOLLOW

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

107P



FLOOD PROFILES

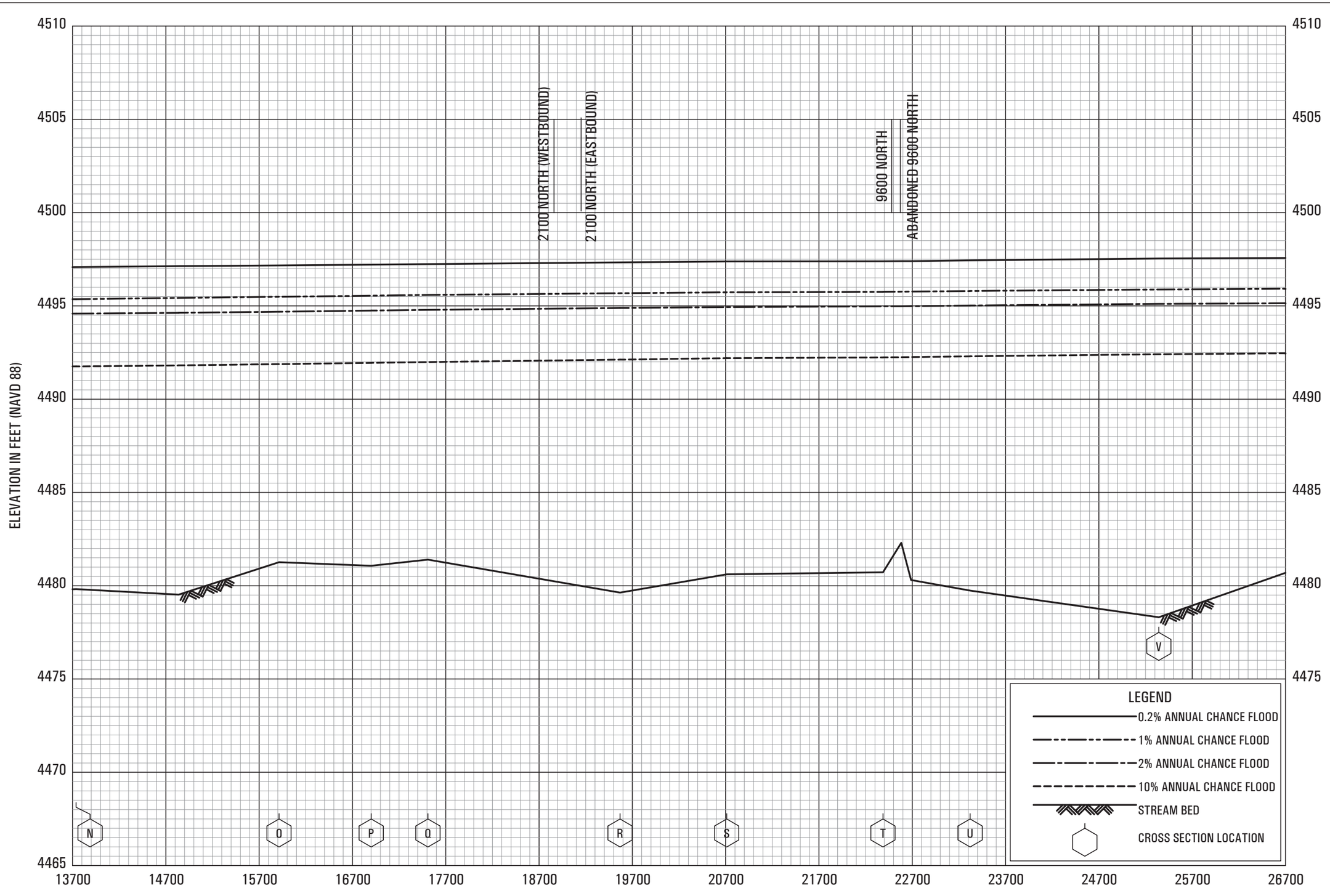
JORDAN RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

108P



FLOOD PROFILES

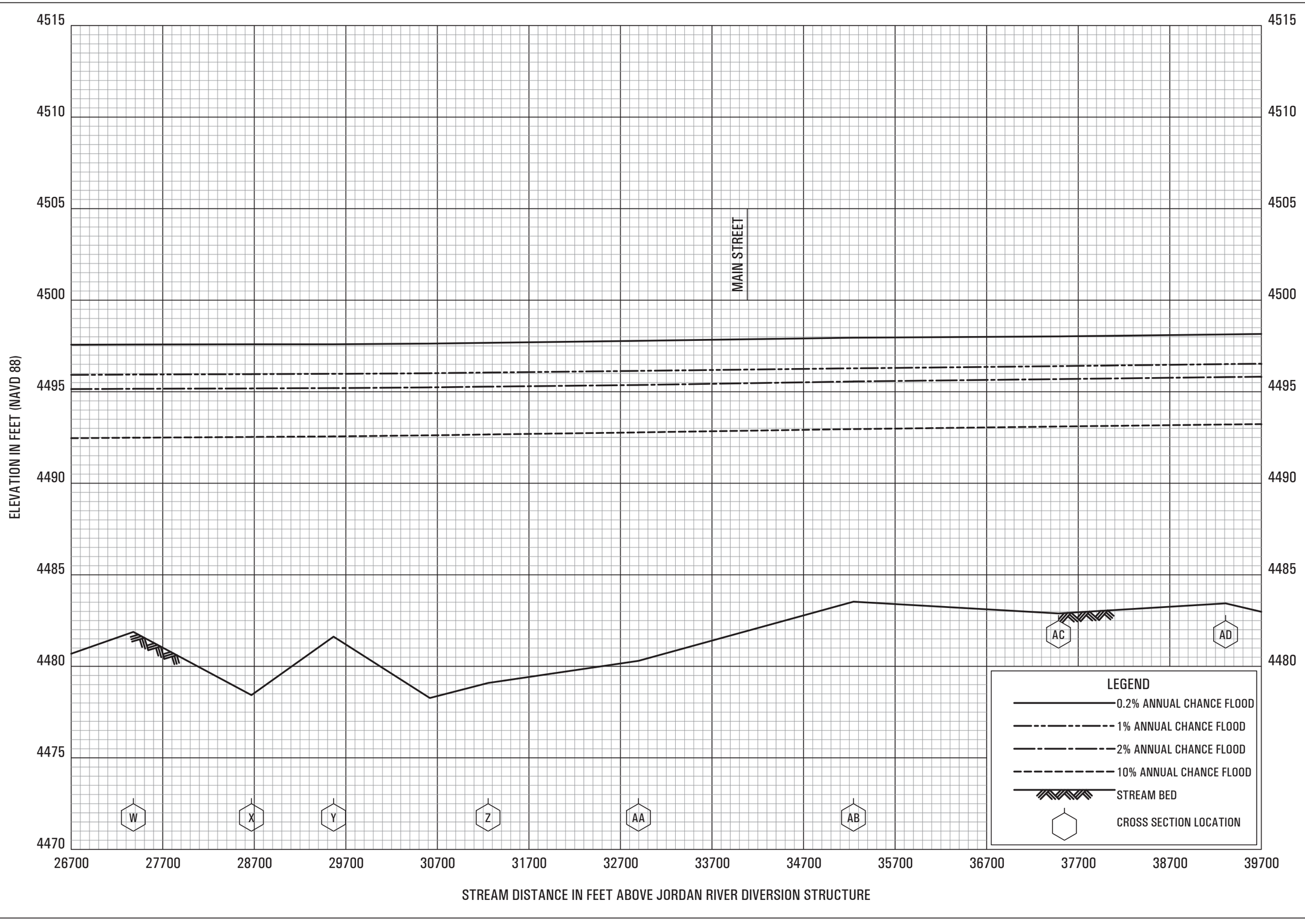
JORDAN RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

109P



FLOOD PROFILES

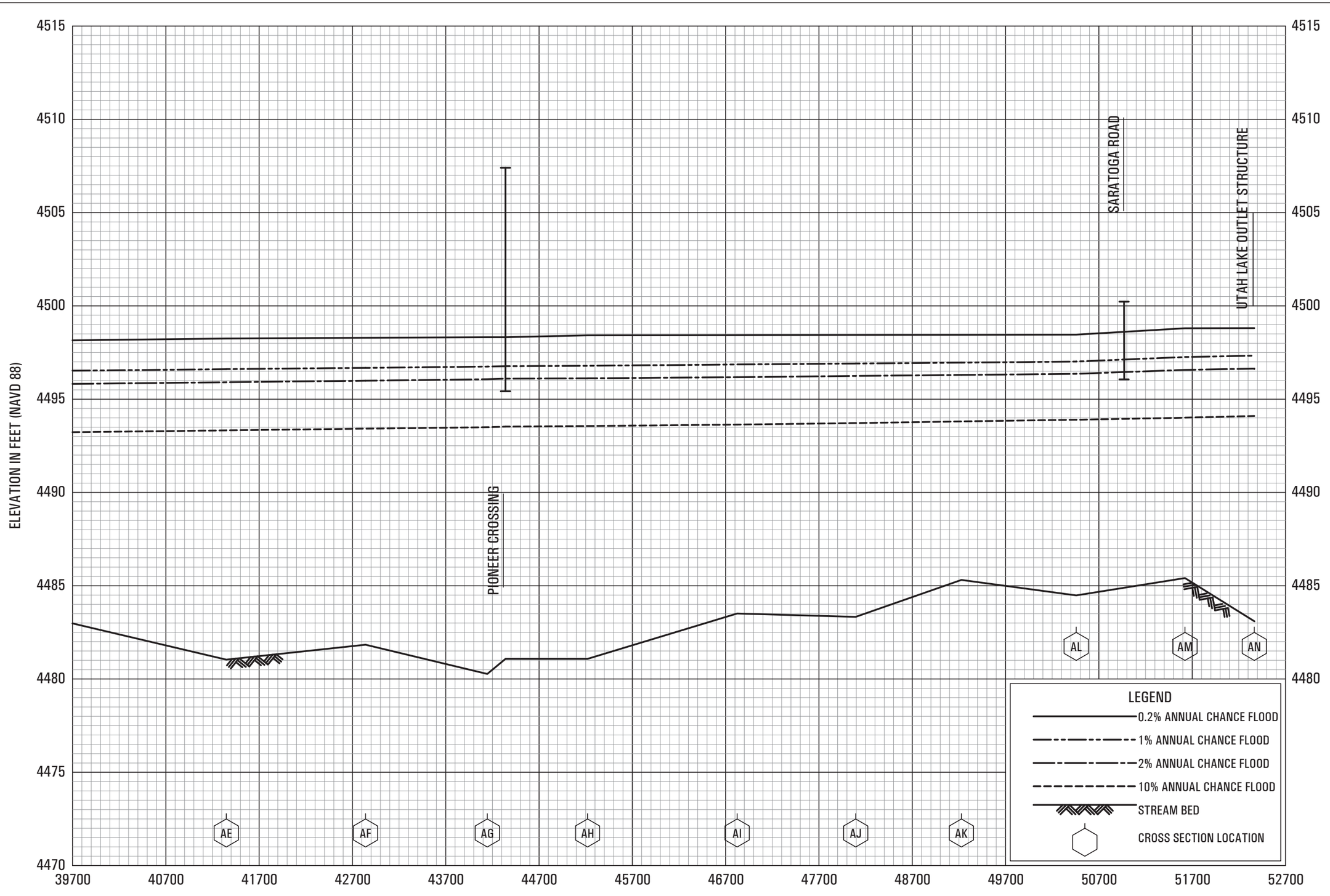
JORDAN RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

110P



FLOOD PROFILES

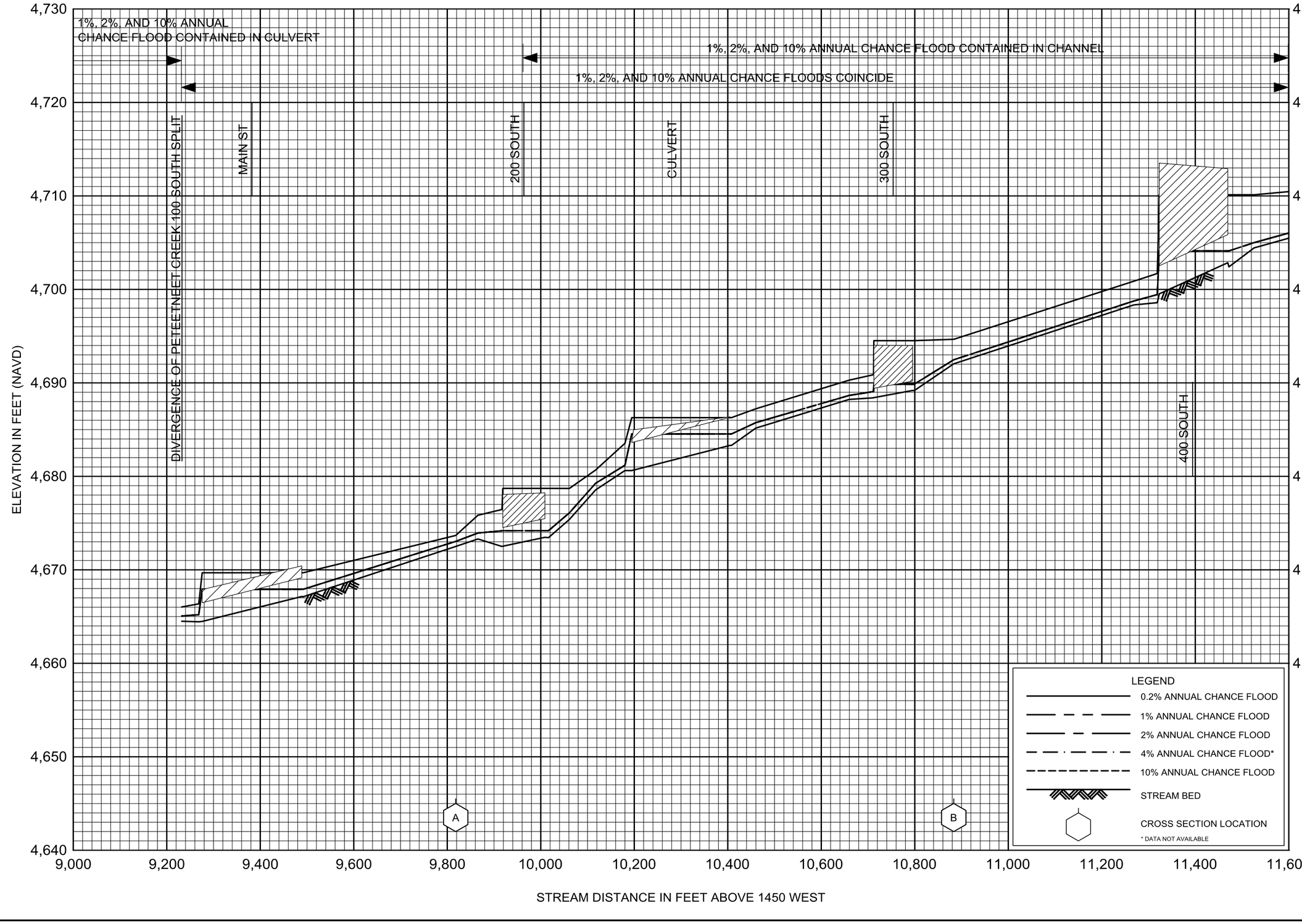
JORDAN RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

111P



FLOOD PROFILES

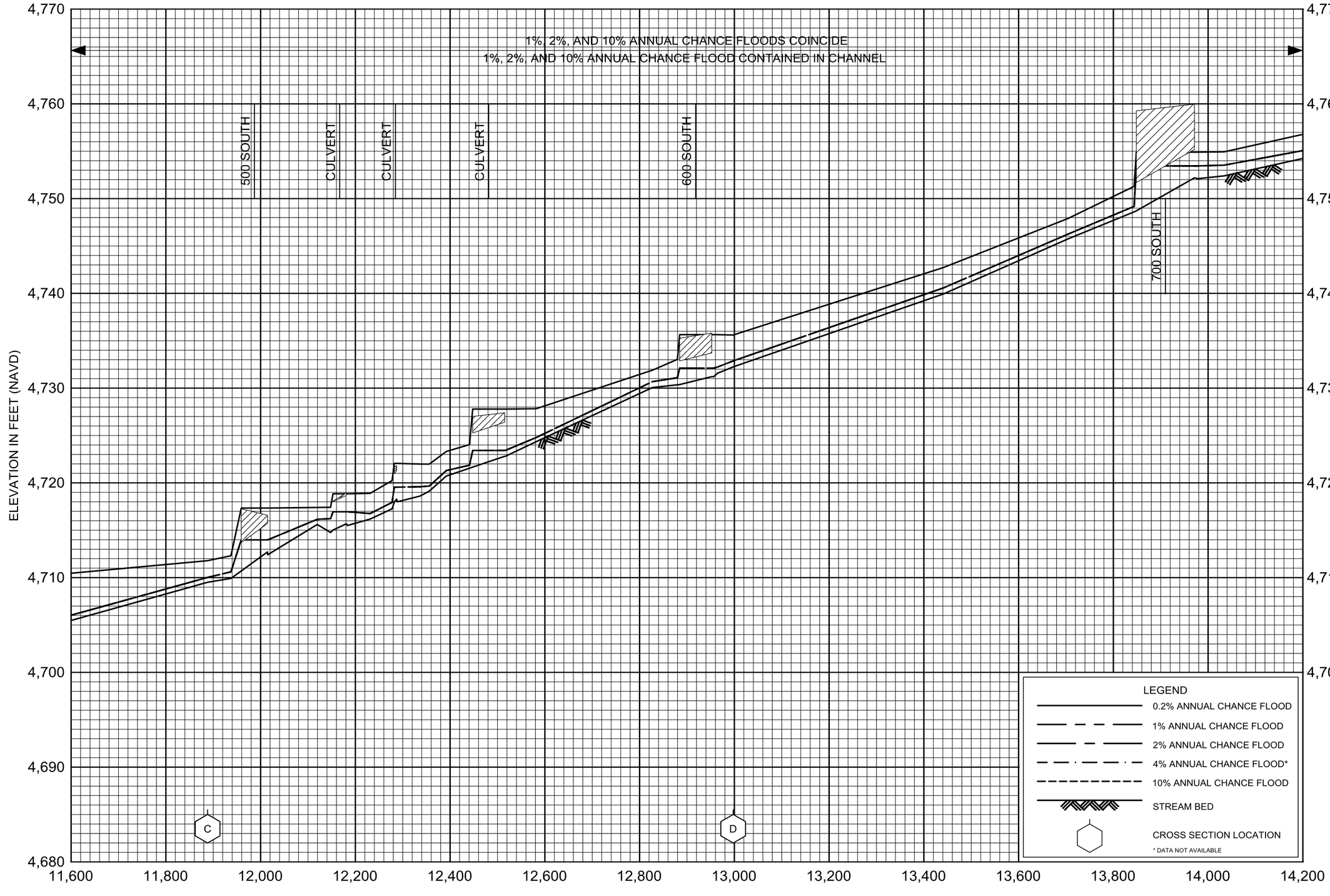
PETEETNEET CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

112P



FLOOD PROFILES

PETEETNEET CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

113P

1%, 2%, AND 10% ANNUAL CHANCE FLOODS COINCIDE
1%, 2%, AND 10% ANNUAL CHANCE FLOOD CONTAINED IN CHANNEL

800 SOUTH

CULVERT

HIGH LINE CANAL

ELEVATION IN FEET (NAVD)

4,820
4,810
4,800
4,790
4,780
4,770
4,760
4,750
4,740
4,730

14,200
14,400
14,600
14,800
15,000
15,200
15,400
15,600
15,800
16,000
16,200
16,400
16,600
16,800

STREAM DISTANCE IN FEET ABOVE 1450 WEST

E
F
G

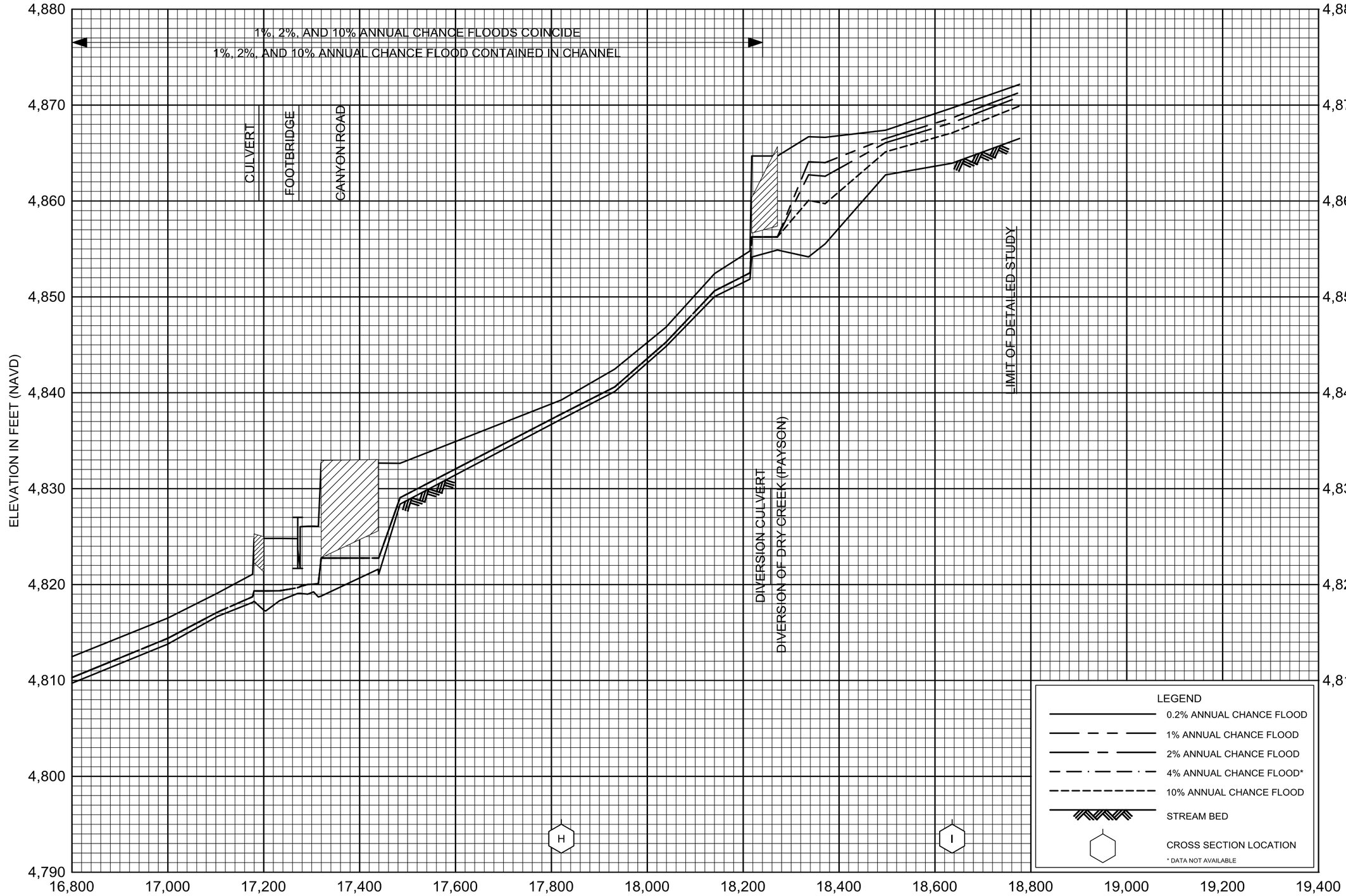
LEGEND
0.2% ANNUAL CHANCE FLOOD
1% ANNUAL CHANCE FLOOD
2% ANNUAL CHANCE FLOOD
4% ANNUAL CHANCE FLOOD*
10% ANNUAL CHANCE FLOOD
STREAM BED
CROSS SECTION LOCATION
* DATA NOT AVAILABLE

FLOOD PROFILES

PETEETNEET CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
UTAH COUNTY, UT
AND INCORPORATED AREAS

114P



FLOOD PROFILES

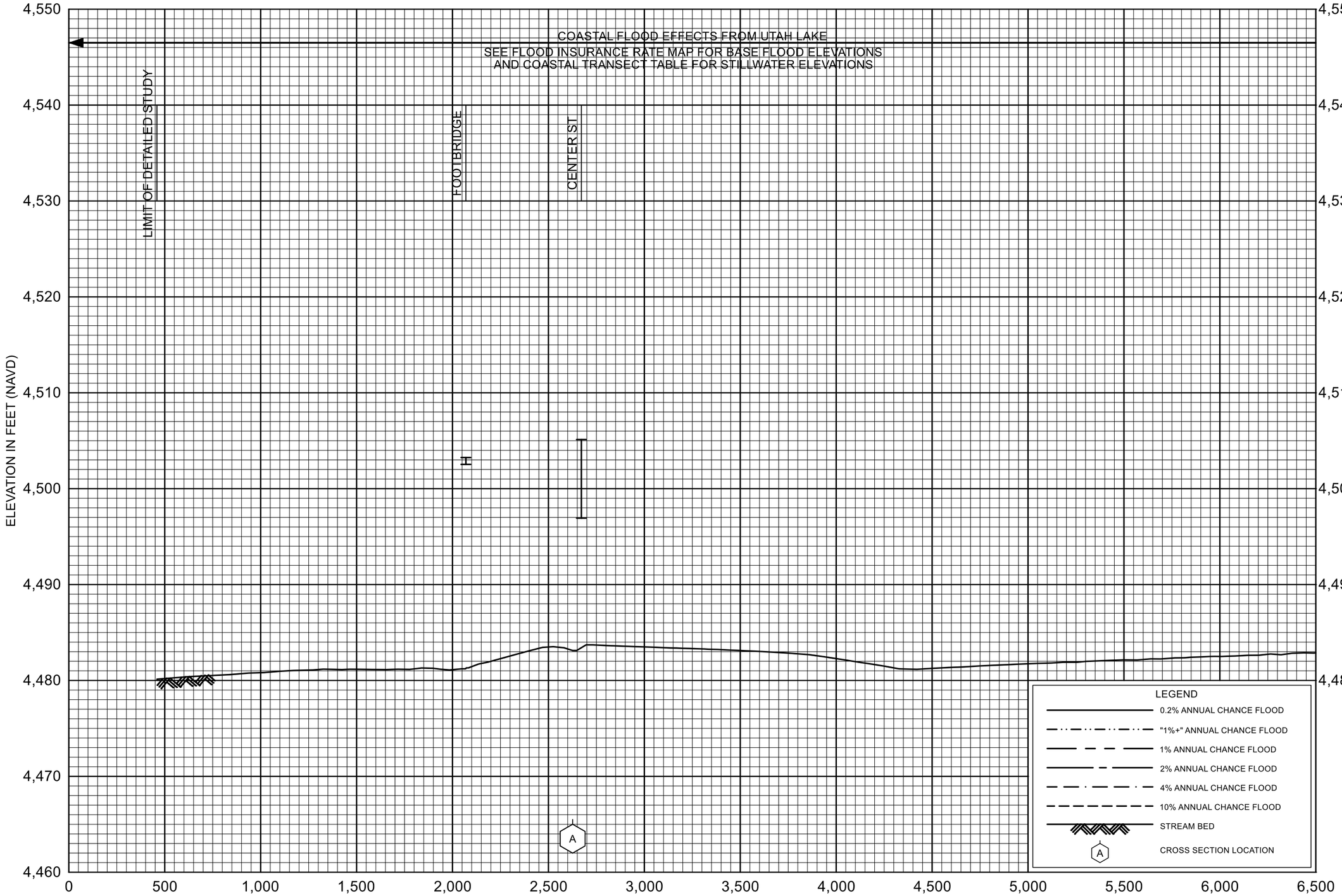
PETEETNEET CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

115P



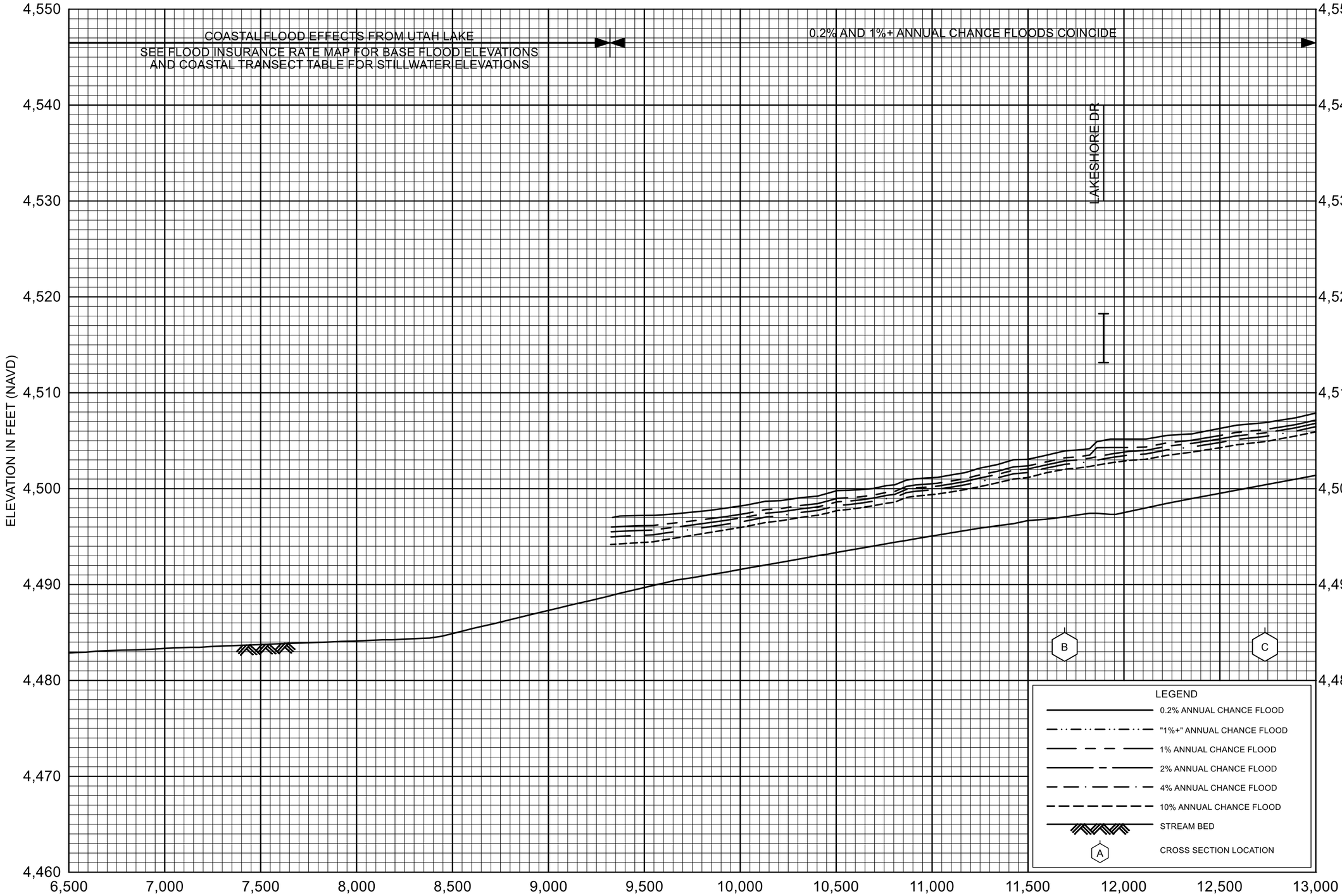
FLOOD PROFILES

PROVO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

116P



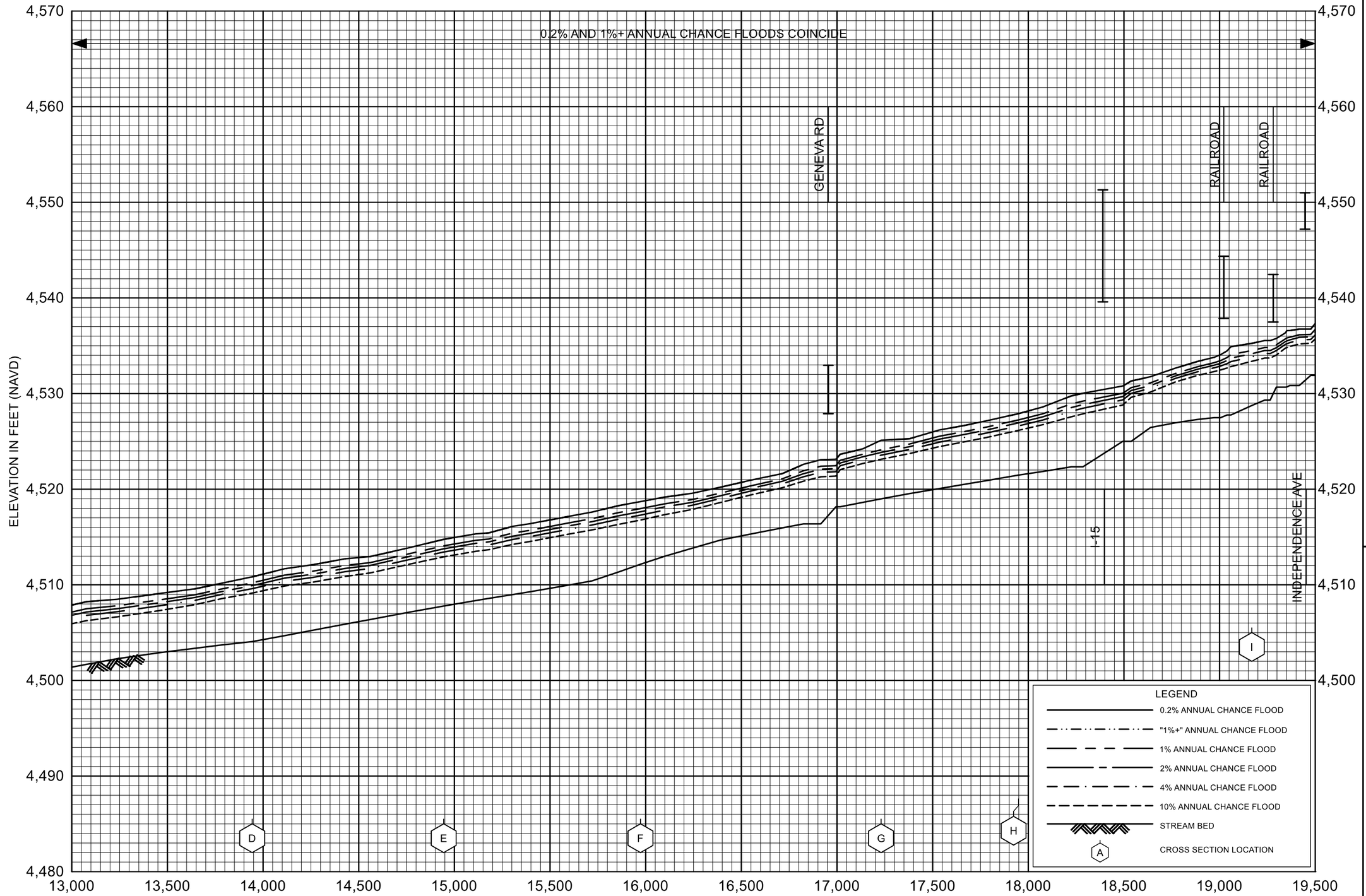
FLOOD PROFILES

PROVO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

117P



FLOOD PROFILES

PROVO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

118P

0.2% AND 1%+ ANNUAL CHANCE FLOODS COINCIDE

FOOTBRIDGE

820 N

FOOTBRIDGE

ELEVATION IN FEET (NAVD)

4,610
4,600
4,590
4,580
4,570
4,560
4,550
4,540
4,530
4,520

19,500 20,000 20,500 21,000 21,500 22,000 22,500 23,000 23,500 24,000 24,500 25,000 25,500 26,000

STREAM DISTANCE IN FEET ABOVE A POINT 2,663 FEET BELOW CENTER STREET

J K L M N O P

LEGEND

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

FLOOD PROFILES

PROVO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

119P

0.2% AND 1%+ ANNUAL CHANCE FLOODS COINCIDE

WEIR
COLUMBIA LN
STATE ST
FOOTBRIDGE
UNIVERSITY PARKWAY
FOOTBRIDGE
FOOTBRIDGE
2230 N
WEIR
FOOTBRIDGE

ELEVATION IN FEET (NAVD)

4,660
4,650
4,640
4,630
4,620
4,610
4,600
4,590
4,580
4,570

26,000
26,500
27,000
27,500
28,000
28,500
29,000
29,500
30,000
30,500
31,000
31,500
32,000
32,500

STREAM DISTANCE IN FEET ABOVE A POINT 2,663 FEET BELOW CENTER STREET

Q
R
S
T
U
V

LEGEND

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

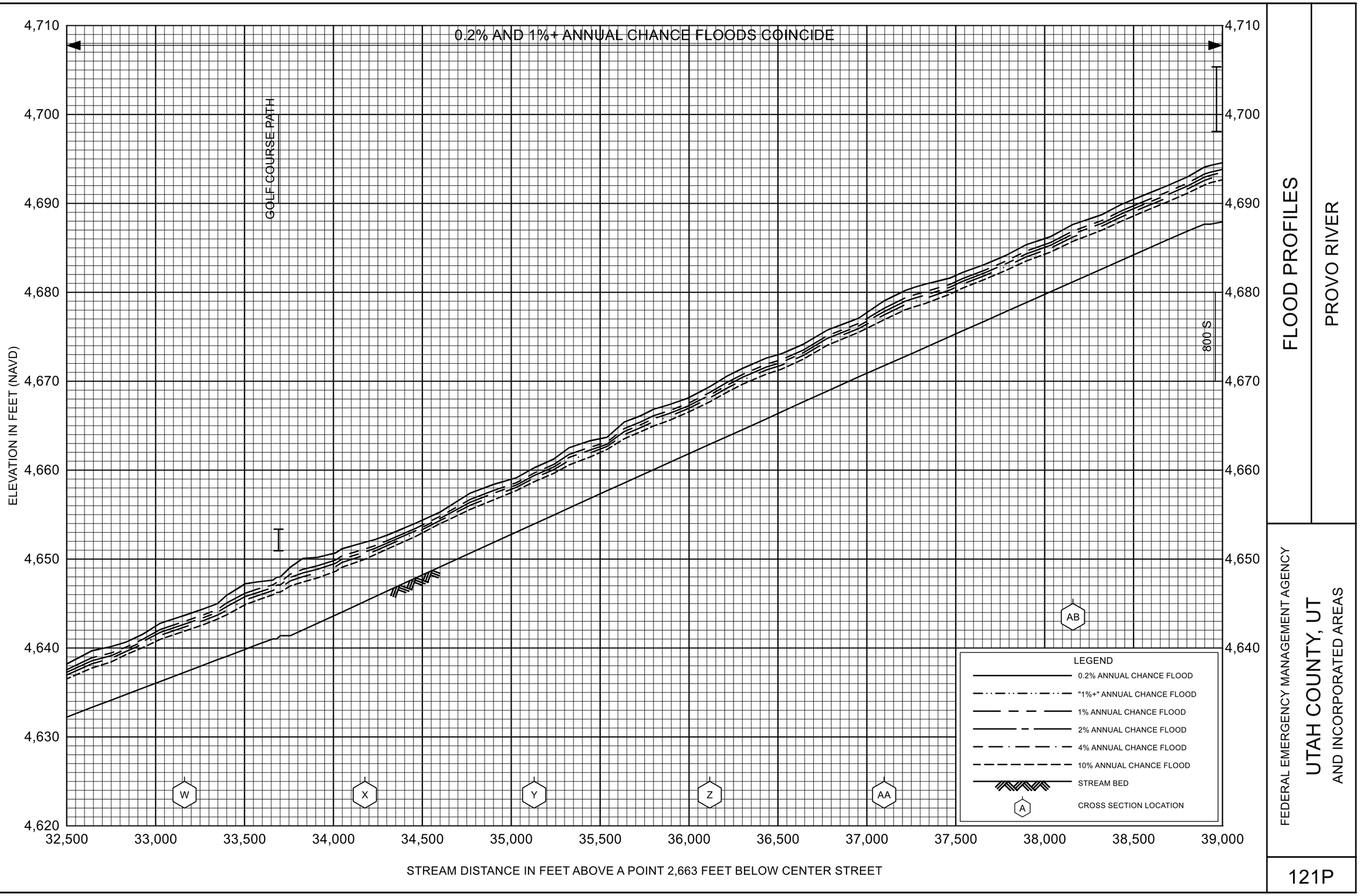
FLOOD PROFILES

PROVO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

120P



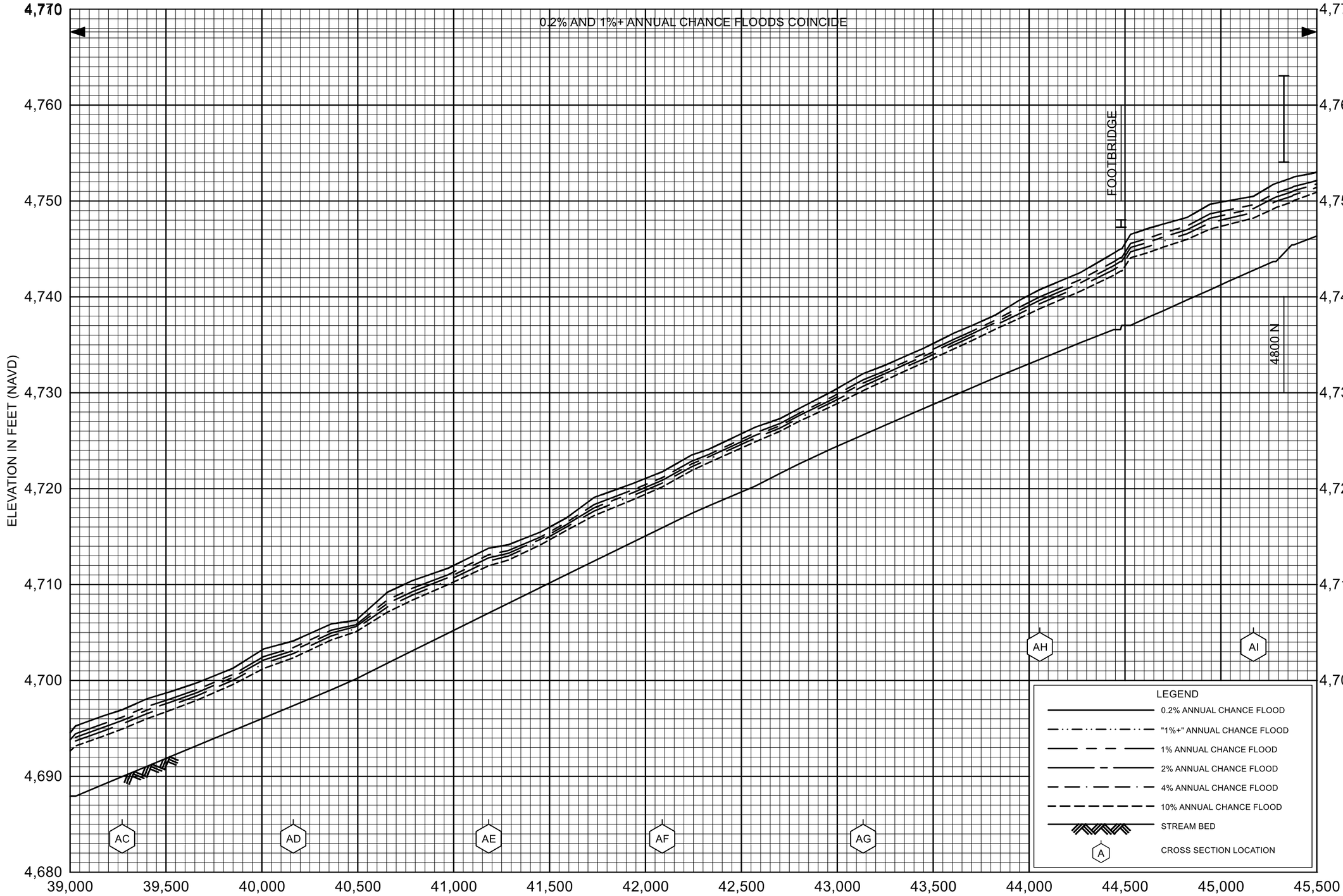
FLOOD PROFILES

PROVO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

121P



FLOOD PROFILES

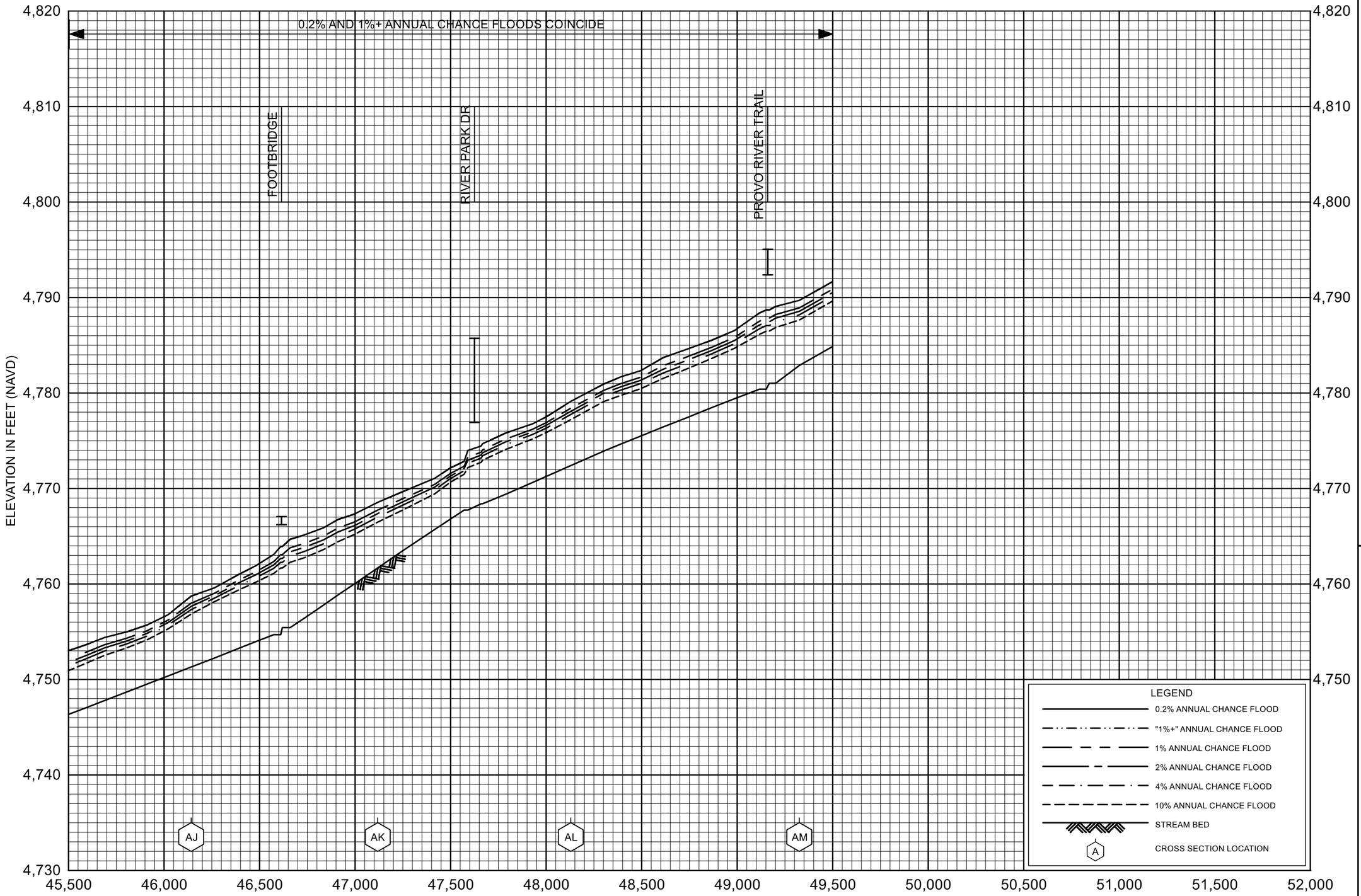
PROVO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

122P



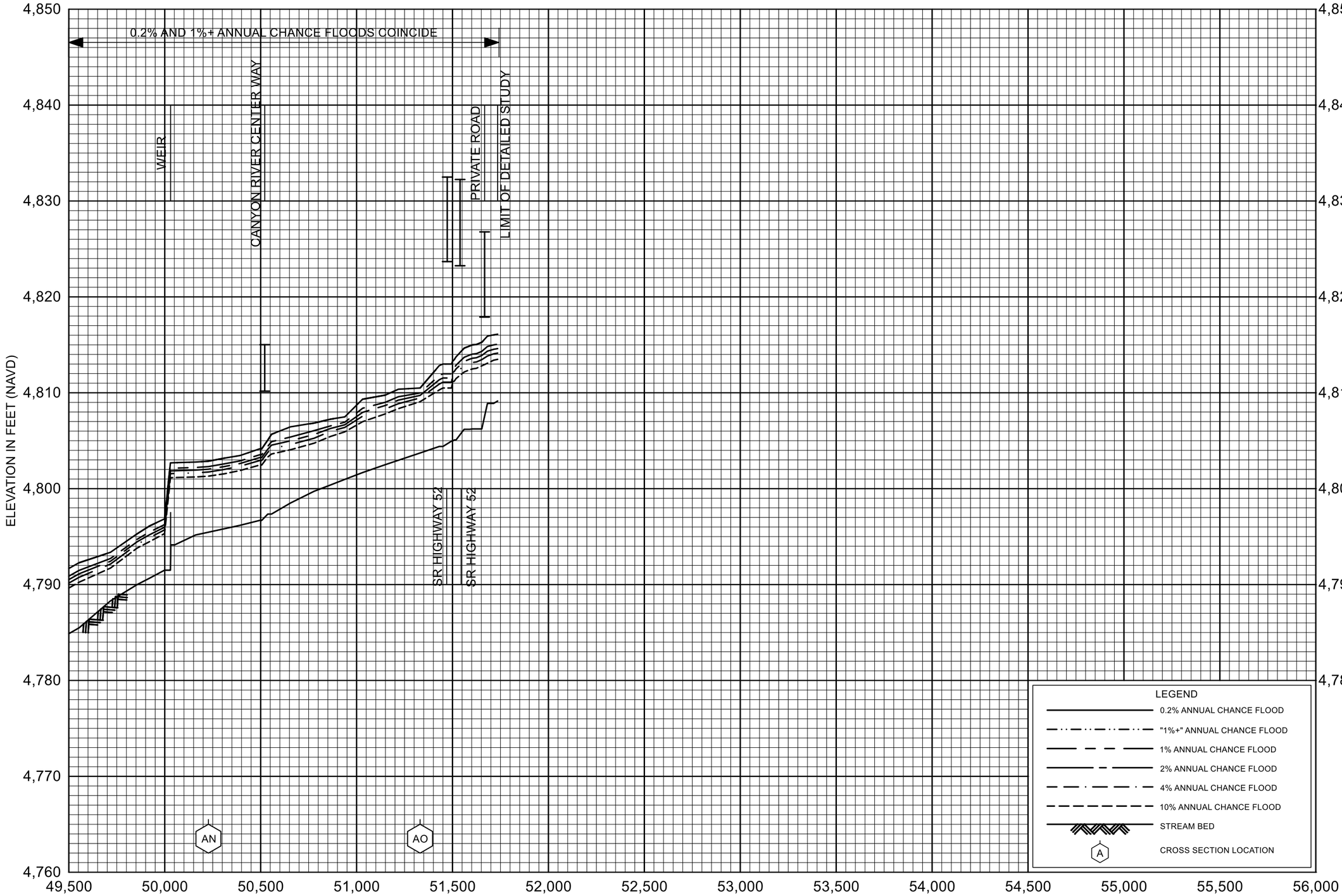
FLOOD PROFILES

PROVO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

123P



FLOOD PROFILES

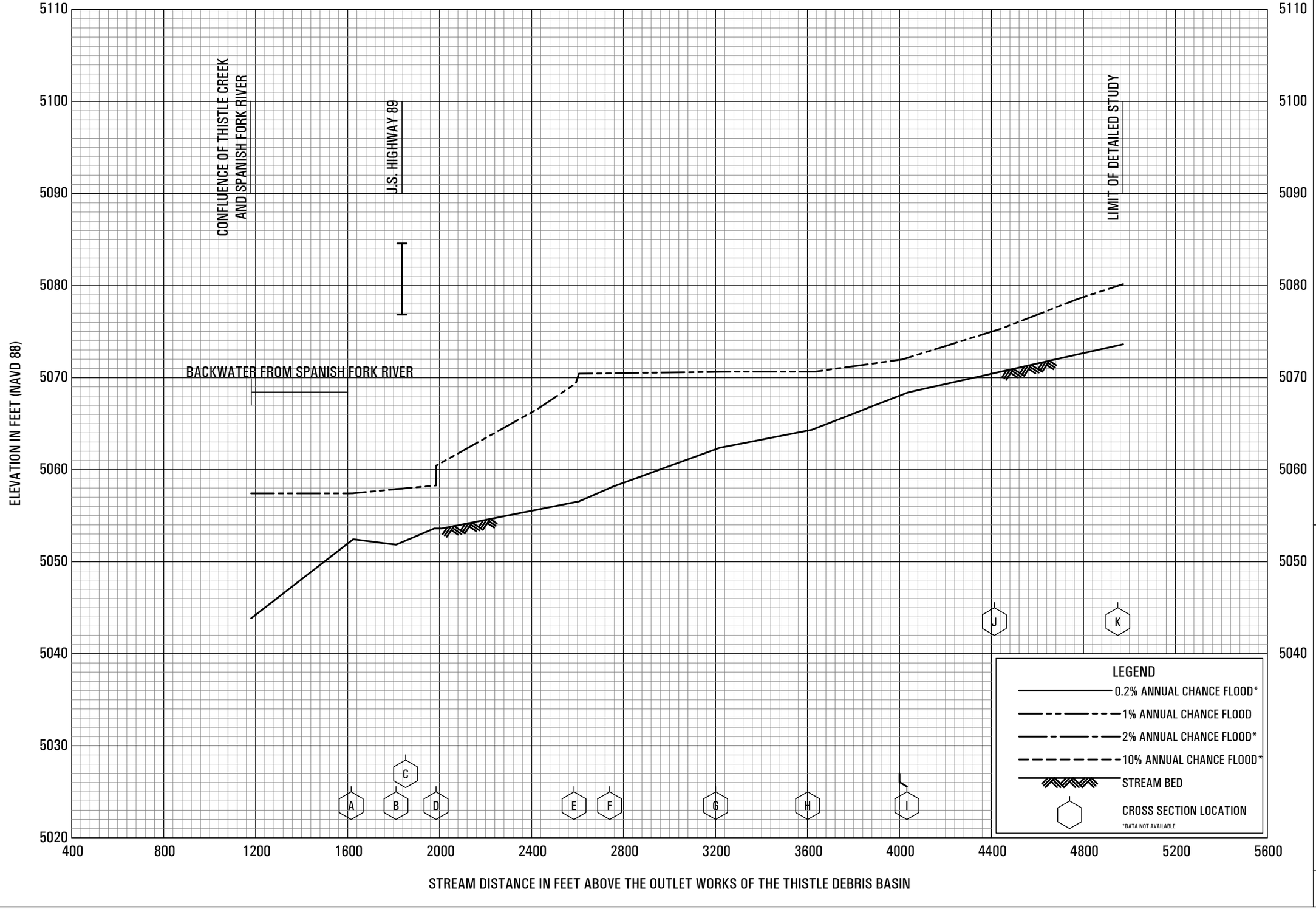
PROVO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

124P



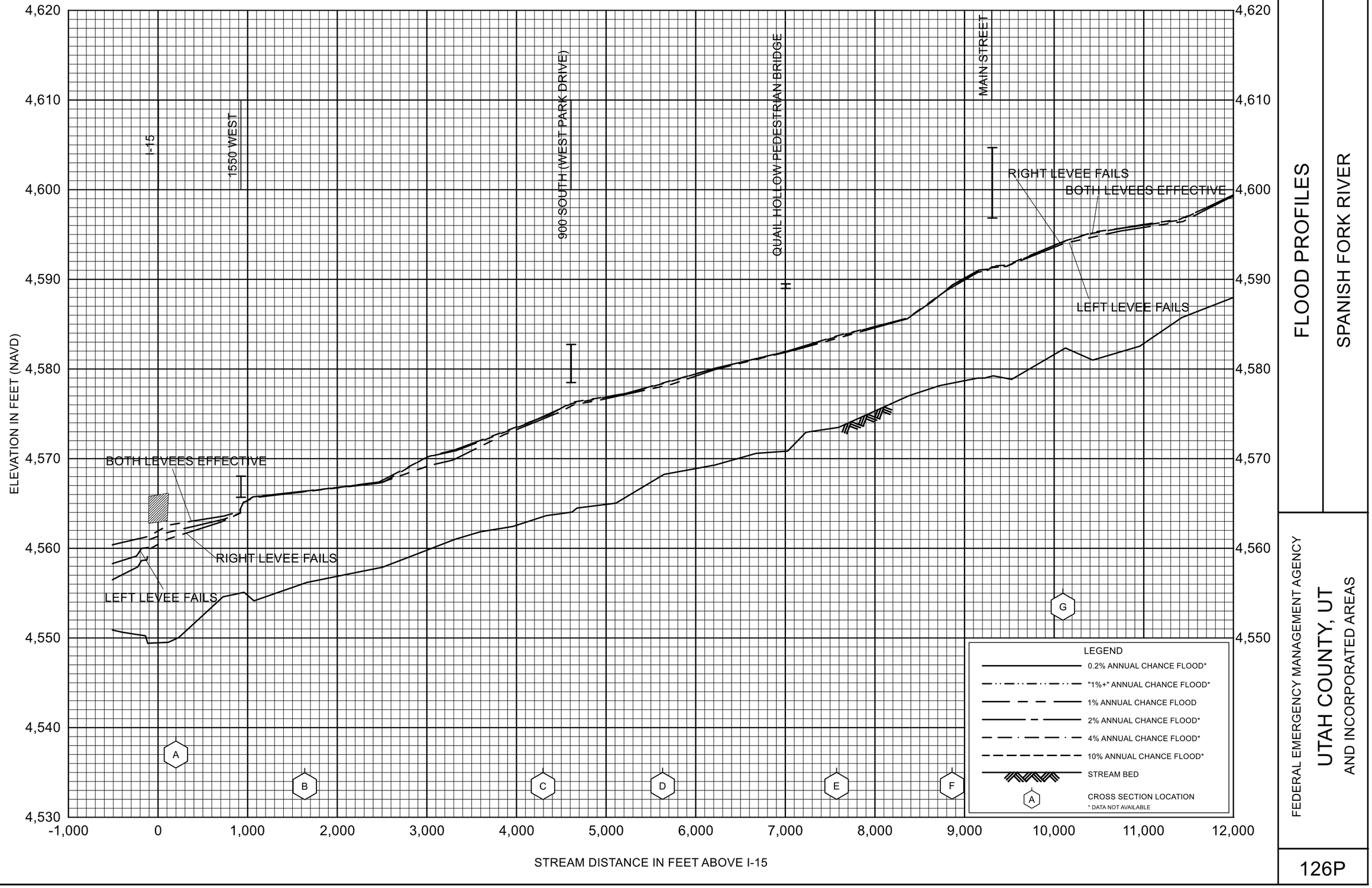
FLOOD PROFILES

SOLDIER CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS



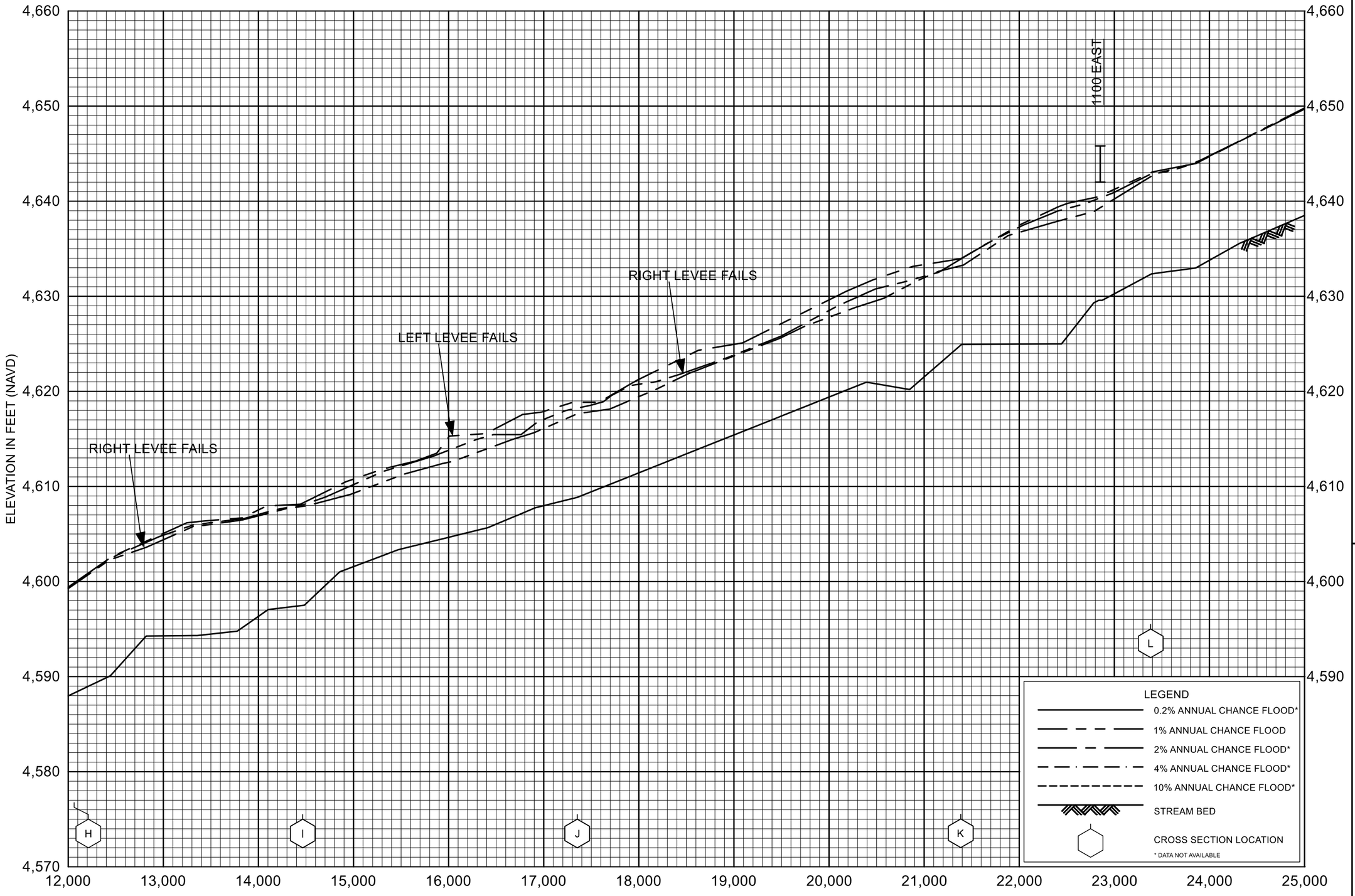
FLOOD PROFILES

SPANISH FORK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

126P



FLOOD PROFILES

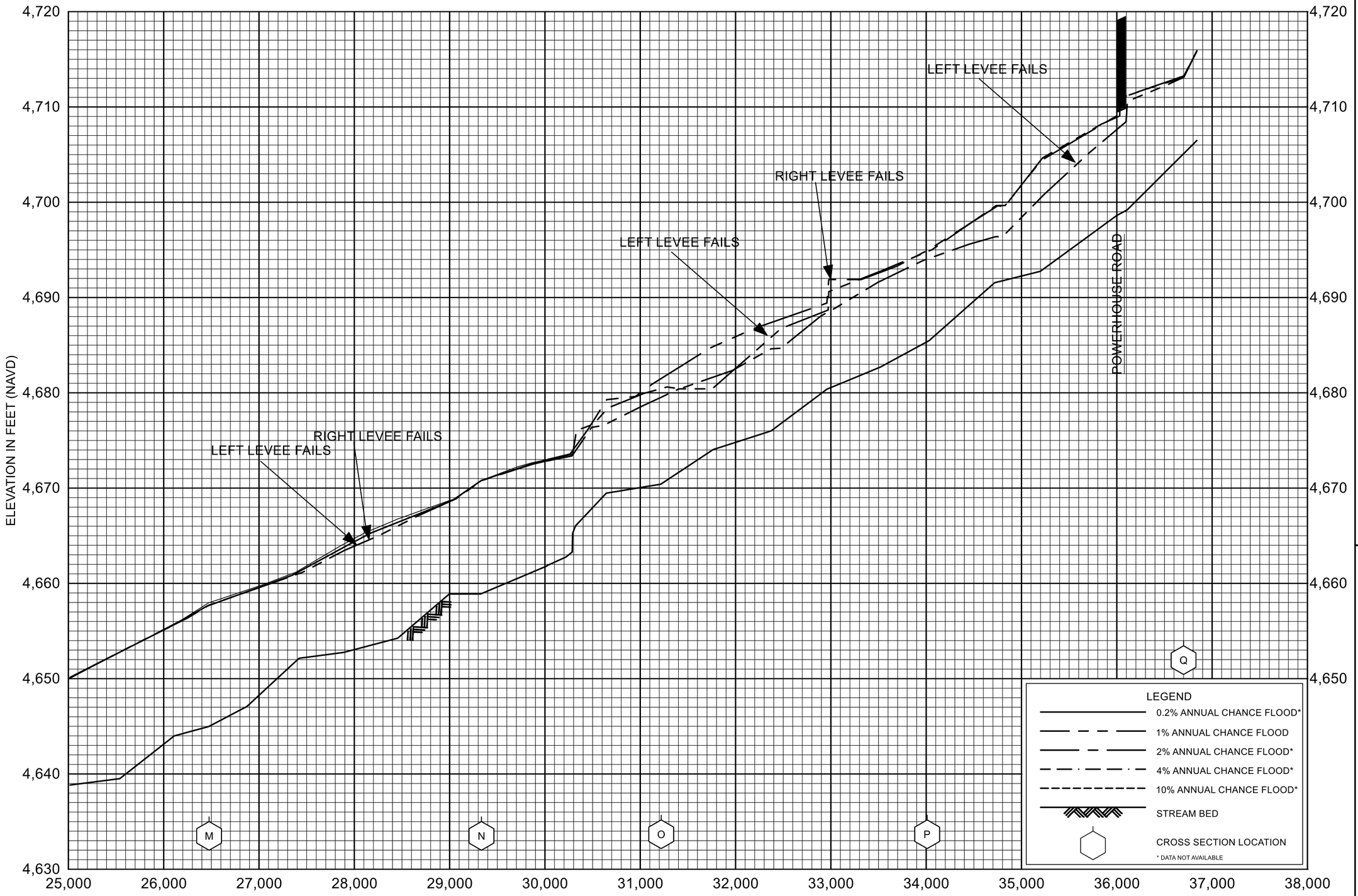
SPANISH FORK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

127P



FLOOD PROFILES

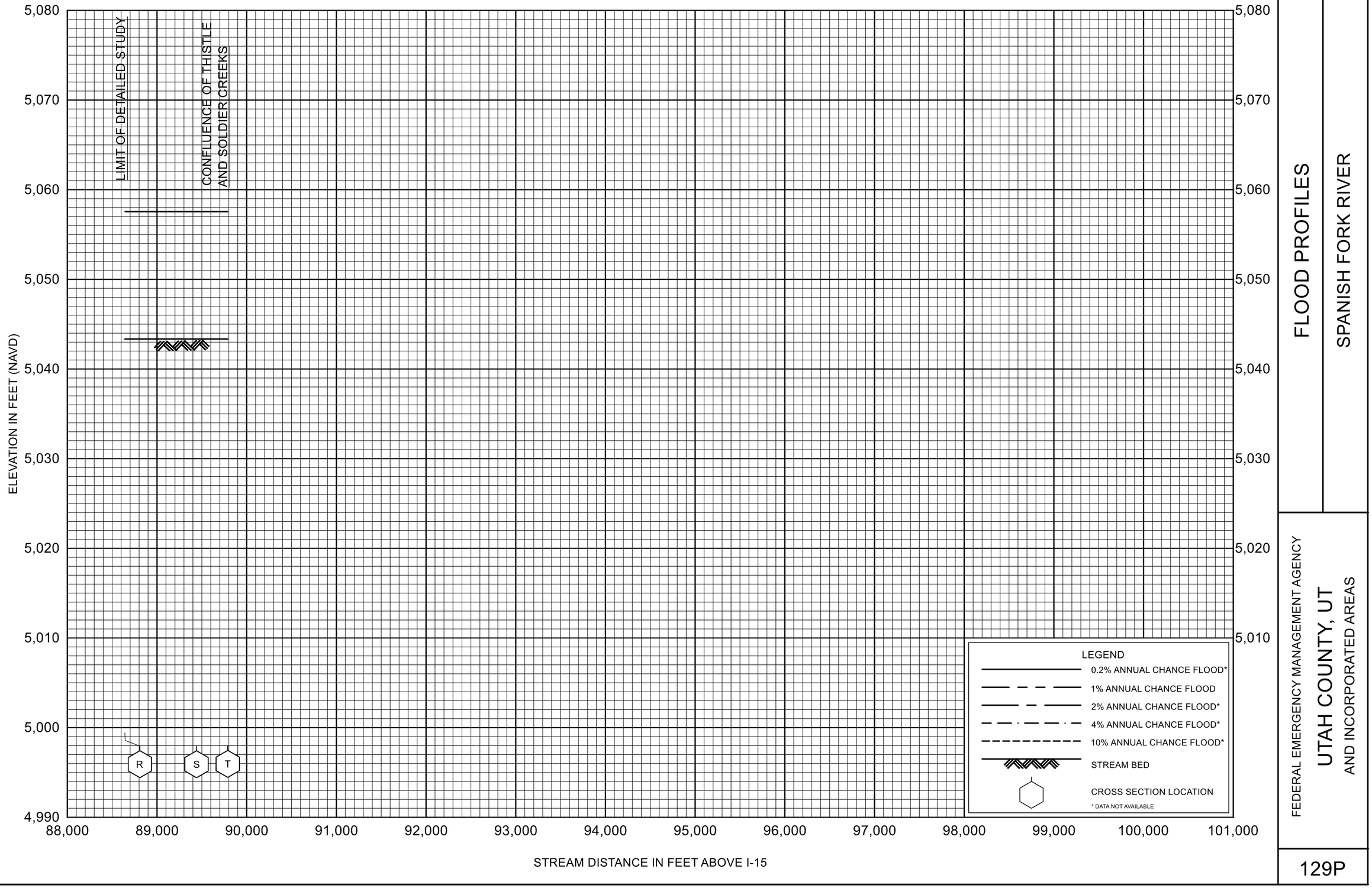
SPANISH FORK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

128P



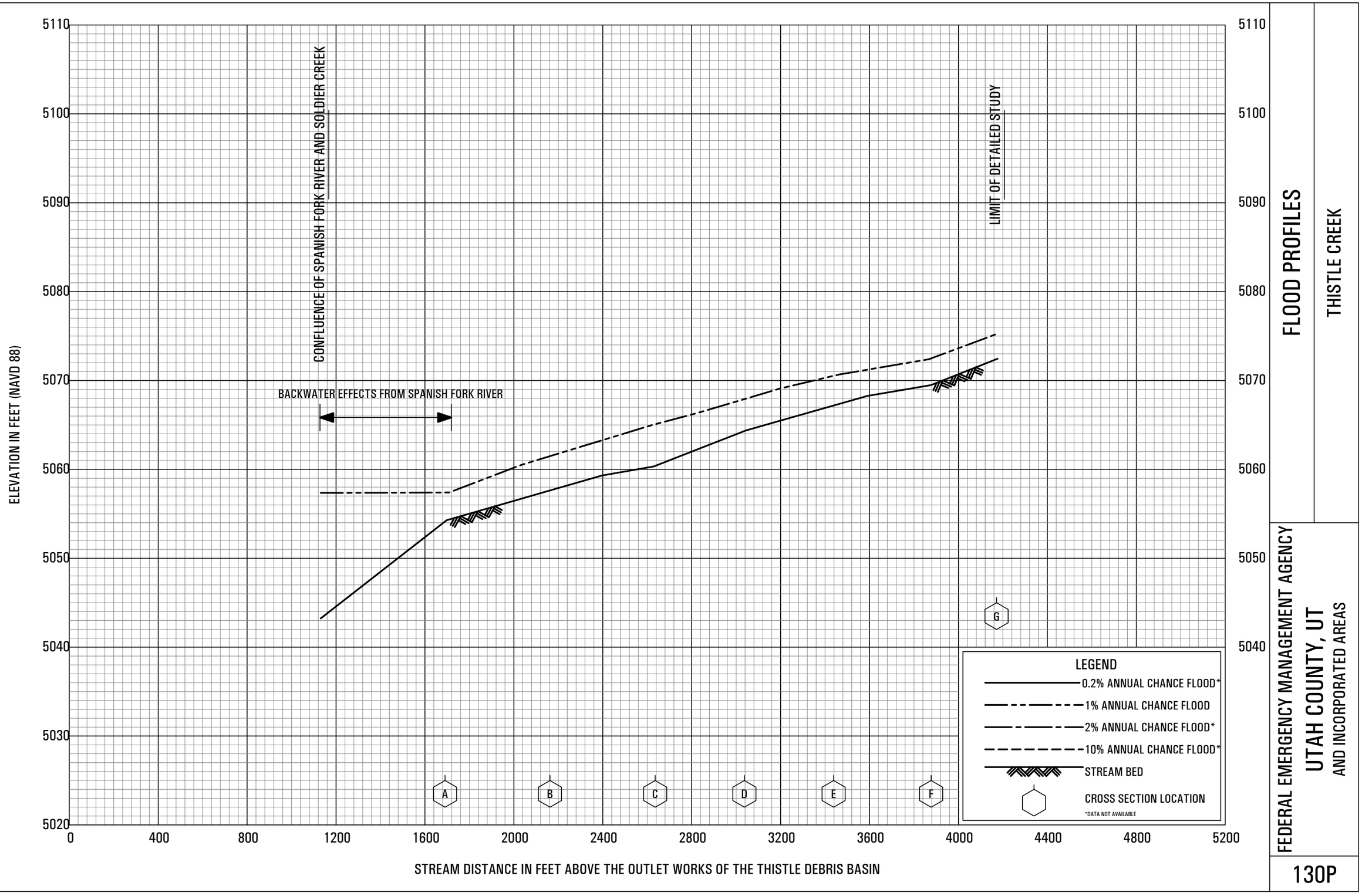
FLOOD PROFILES

SPANISH FORK RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT
AND INCORPORATED AREAS

129P



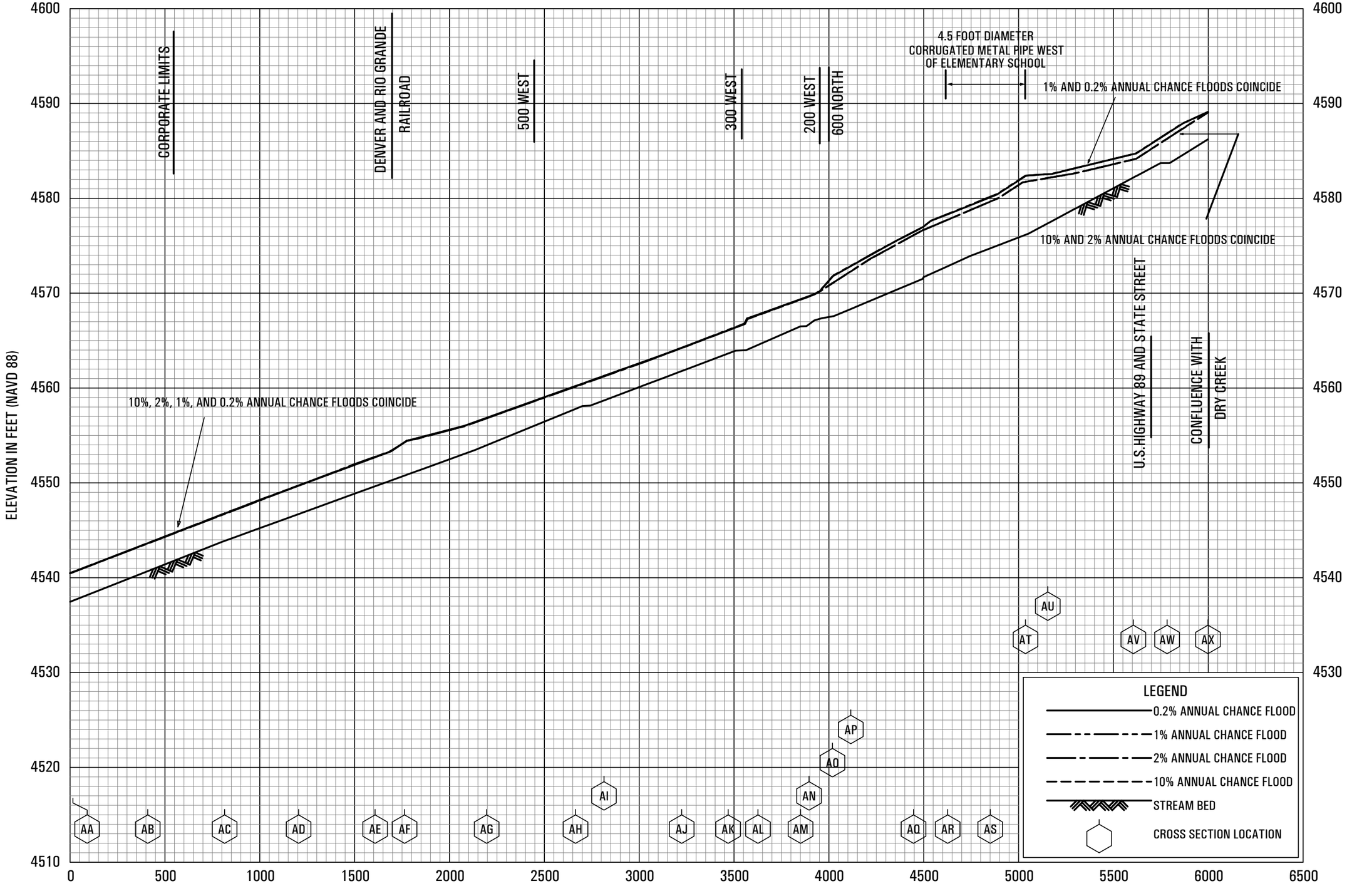
FLOOD PROFILES

THISTLE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS



FLOOD PROFILES

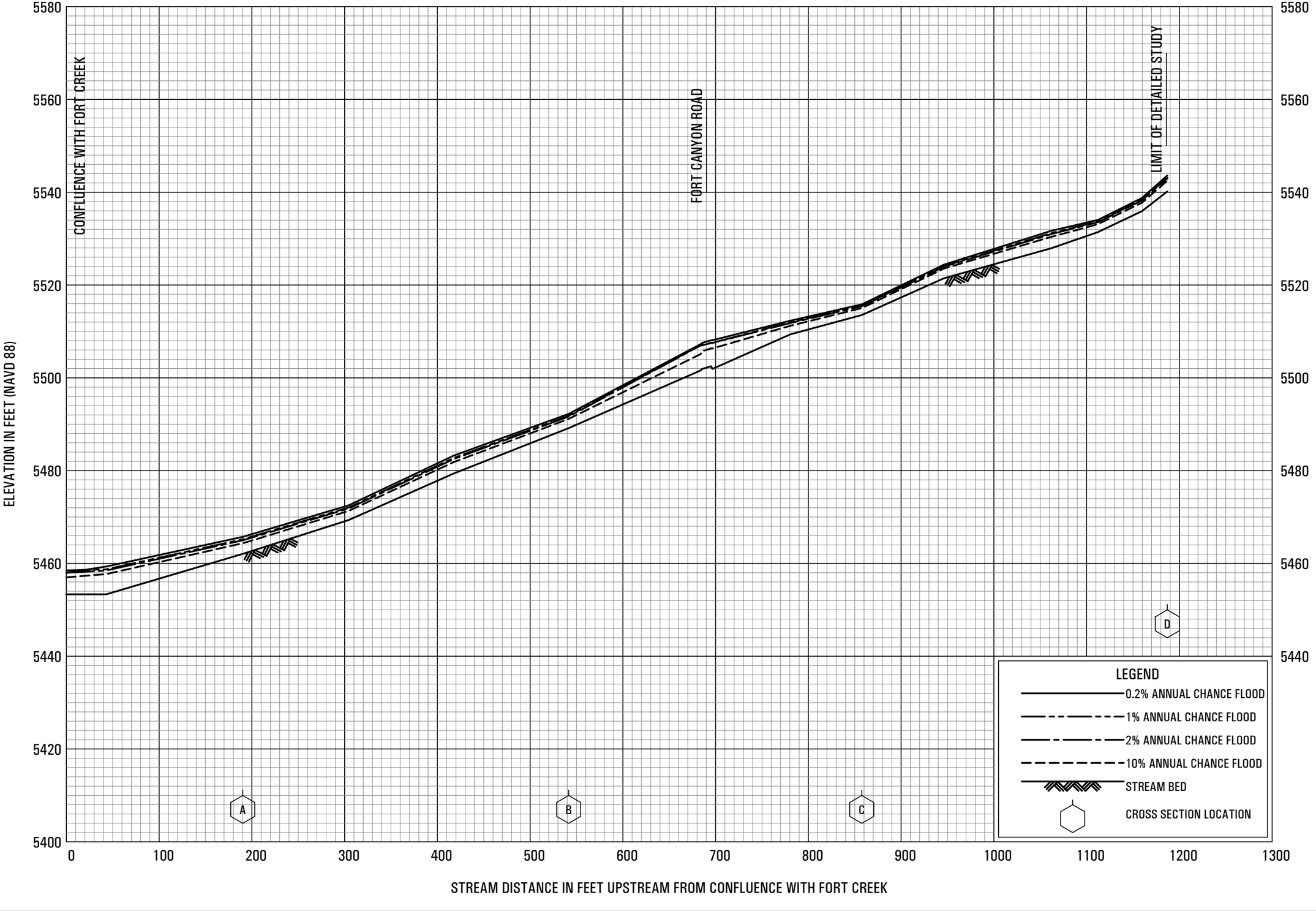
WASTEWATER DITCH DIVERSION

FEDERAL EMERGENCY MANAGEMENT AGENCY

CITY OF LEHI, UT

(UTAH CO.)

131P



FLOOD PROFILES

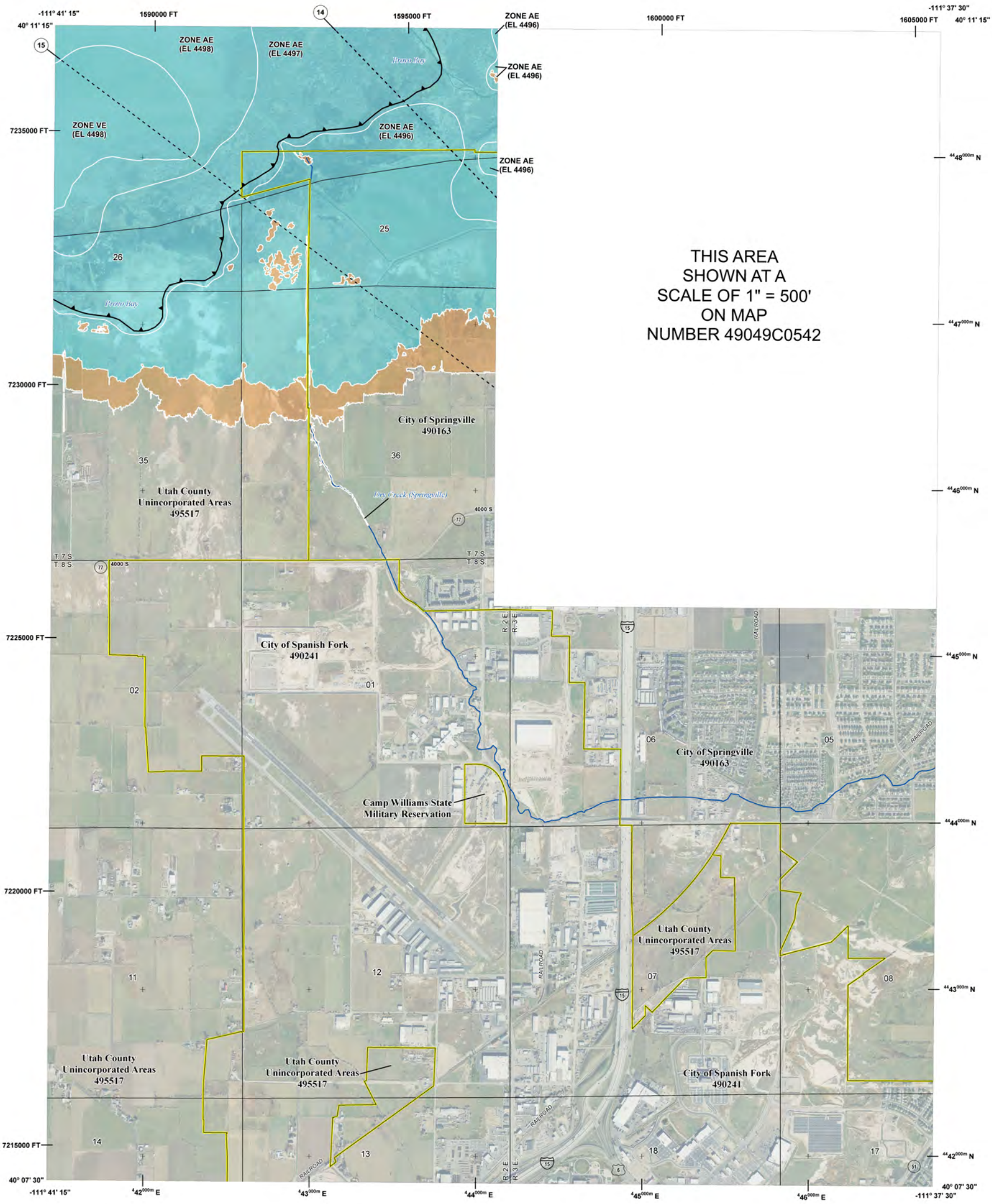
WEST FORK FORT CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

UTAH COUNTY, UT

AND INCORPORATED AREAS

132P



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

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

HTTPS://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, V, A99 With BFE or Depth Zone AE, AO, AH, VE, AR
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee See Notes. Zone X
	Area with Flood Risk due to Levee Zone D
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard Zone X
	Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
	E 18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
	8 Coastal Transect
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	513 Base Flood Elevation Line (BFE)
OTHER FEATURES	Limit of Study
	Jurisdiction Boundary

NOTES TO USERS

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

Base map information shown on the FIRM was derived from multiple sources. Municipalities, county boundaries, and land ownership were provided by the Utah Geospatial Resource Center (UGRC), dated 2022. PLSS information were provided by the UGRC, dated 2020. Transportation lines were provided by the UGRC, dated 2023. Water lines were sourced from the previous effective FIRM, dated 2020. Aerial Imagery was provided by the US Department of Agriculture – Farm Service Agency, dated 2021.

LIMIT OF MODERATE WAVE ACTION. Zone AE has been divided by a Limit of Moderate Wave Action (LiMWA). The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between the Zone VE and the LiMWA (or between the shoreline and the LiMWA for areas where Zone VE is not identified) will be similar to, but less severe than, those in the Zone VE.

Limit of Moderate Wave Action (LiMWA)

SCALE

Map Projection:
Universal Transverse Mercator (UTM) Zone 12N; North American Datum 1983; Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 1,000 feet 1:12,000

0 1,000 2,000 4,000 feet

0 255 510 1,020 meters

PANEL LOCATOR

* PANEL NOT PRINTED

FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

UTAH COUNTY, UTAH
and Incorporated Areas

PANEL 545 OF 1450

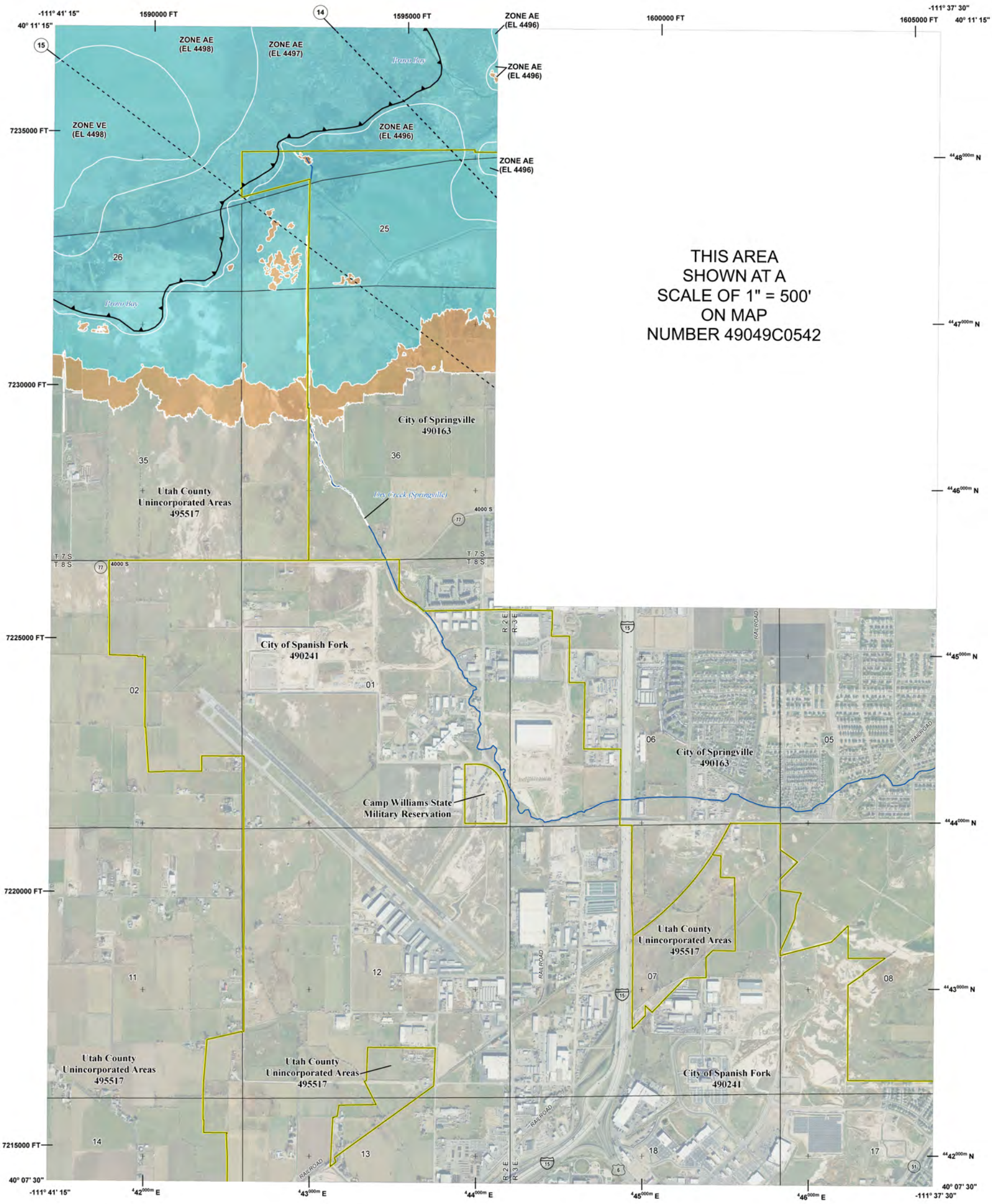
Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
SPRINGVILLE, CITY OF	490163	0545	G
SPANISH FORK, CITY OF	490241	0545	G
UTAH COUNTY	495517	0545	G

VERSION NUMBER
2.8.5.6

MAP NUMBER
49049C0545G

MAP REVISED
June 23, 2026



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	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee See Notes. Zone X
	Area with Flood Risk due to Levee Zone D
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard Zone X
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	Levee, Dike, or Floodwall
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	8 Coastal Transect
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	513 Base Flood Elevation Line (BFE)
OTHER FEATURES	Limit of Study
	Jurisdiction Boundary

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LIMIT OF MODERATE WAVE ACTION. Zone AE has been divided by a Limit of Moderate Wave Action (LiMWA). The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between the Zone VE and the LiMWA (or between the shoreline and the LiMWA for areas where Zone VE is not identified) will be similar to, but less severe than, those in the Zone VE.

Limit of Moderate Wave Action (LiMWA)

SCALE

Map Projection:
Universal Transverse Mercator (UTM) Zone 12N; North American Datum 1983; Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 1,000 feet 1:12,000

0 1,000 2,000 4,000 feet

0 255 510 1,020 meters

PANEL LOCATOR

* PANEL NOT PRINTED

FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

UTAH COUNTY, UTAH
and Incorporated Areas

PANEL 545 OF 1450

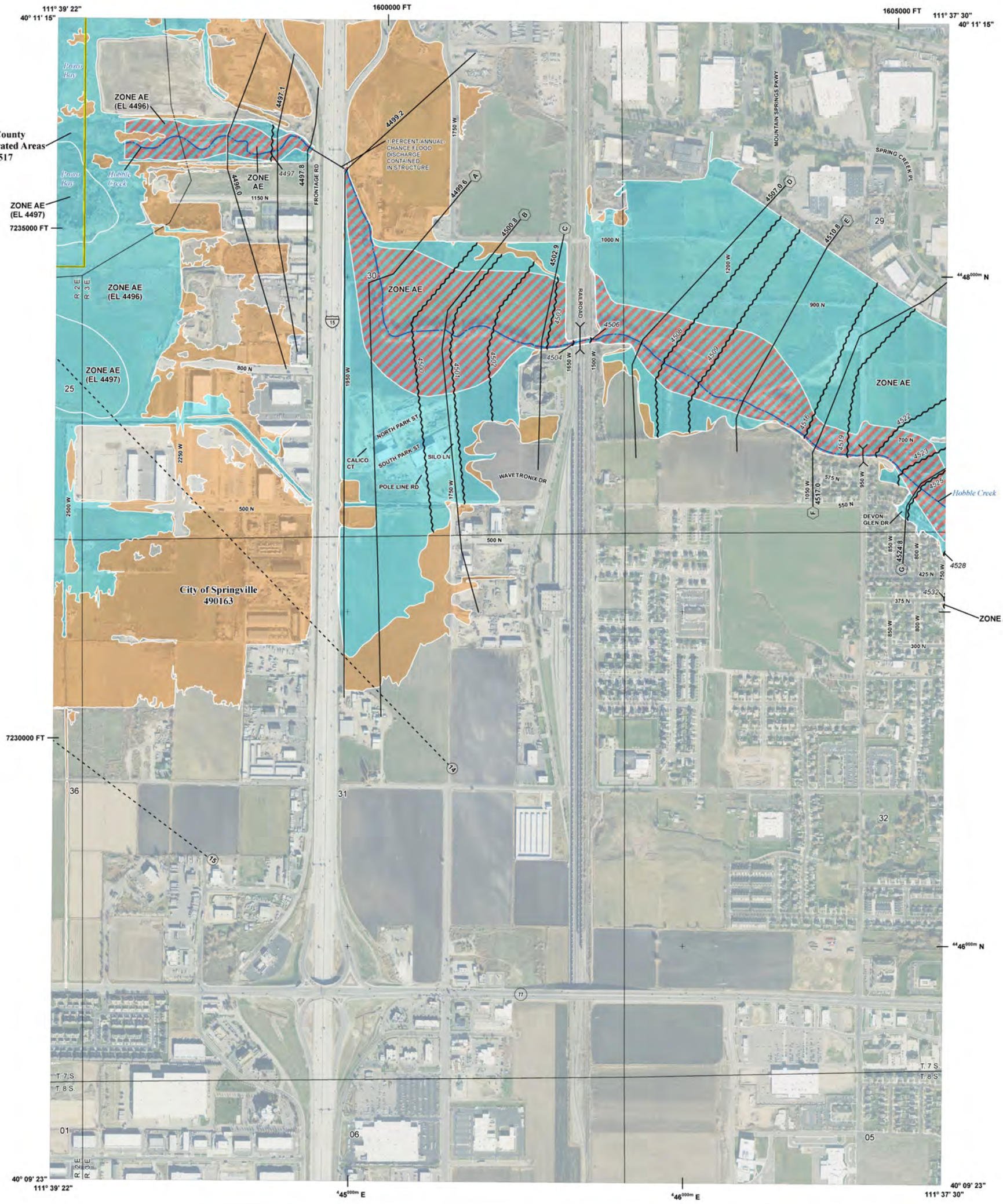
Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
SPRINGVILLE, CITY OF	490163	0545	G
SPANISH FORK, CITY OF	490241	0545	G
UTAH COUNTY	495517	0545	G

VERSION NUMBER
2.8.5.6

MAP NUMBER
49049C0545G

MAP REVISED
June 23, 2026



FLOOD HAZARD INFORMATION

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SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A, V, A99*
	With BFE or Depth *Zone AE, AO, AH, VE, AR*
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
	Future Conditions 1% Annual Chance Flood Hazard *Zone X*
	Area with Reduced Flood Risk due to Levee See Notes. *Zone X*
	Area with Flood Risk due to Levee *Zone D*
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard *Zone X*
	Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
OTHER FEATURES	E 18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
	8 Coastal Transect
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	513 Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary

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

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

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

Base map information shown on the FIRM was derived from multiple sources. Municipalities, county boundaries, and land ownership were provided by the Utah Geospatial Resource Center (UGRC), dated 2022. PLSS information were provided by the UGRC, dated 2020. Transportation lines were provided by the UGRC, dated 2023. Water lines were sourced from the previous effective FIRM, dated 2020. Aerial Imagery was provided by the US Department of Agriculture - Farm Service Agency, dated 2021.

SCALE

N

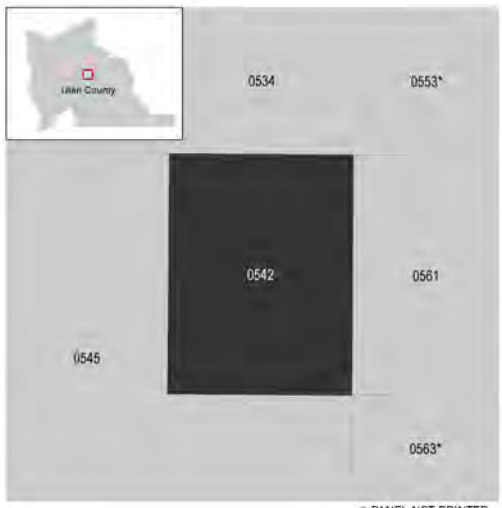
Map Projection:
Universal Transverse Mercator (UTM) Zone 12N; North American Datum 1983; Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 500 feet 1:6,000

0 500 1,000 2,000 feet

0 125 250 500 meters

PANEL LOCATOR



* PANEL NOT PRINTED

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

UTAH COUNTY, UTAH
and Incorporated Areas

PANEL **542** OF **1450**

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
SPRINGVILLE, CITY OF	490163	0542	G
UTAH COUNTY	495517	0542	G

VERSION NUMBER
2.8.5.6

MAP NUMBER
49049C0542G

MAP REVISED
June 23, 2026