



Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP REVISION DETERMINATION DOCUMENT

COMMUNITY AND REVISION INFORMATION		PROJECT DESCRIPTION	BASIS OF REQUEST
COMMUNITY	City of Boulder Boulder County Colorado	CULVERT BRIDGE	FLOODWAY HYDRAULIC ANALYSIS HYDROLOGIC ANALYSIS NEW TOPOGRAPHIC DATA
	COMMUNITY NO.: 080024		
IDENTIFIER	Upper Goose Creek and Twomile Canyon Creek Floodplain Mapping Update	APPROXIMATE LATITUDE & LONGITUDE: 40.034, -105.278 SOURCE: USGS QUADRANGLE DATUM: NAD 83	
ANNOTATED MAPPING ENCLOSURES		ANNOTATED STUDY ENCLOSURES	
TYPE: FIRM*	NO.: 08013C0391J DATE: December 18, 2012	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: December 18, 2012	
TYPE: FIRM*	NO.: 08013C0392J DATE: December 18, 2012	PROFILES: 180P-182P, 362P-366P, 381P-409P	
TYPE: FIRM*	NO.: 08013C0393J DATE: December 18, 2012	FLOODWAY DATA TABLE: 6	
TYPE: FIRM*	NO.: 08013C0394J DATE: December 18, 2012	SUMMARY OF DISCHARGES TABLE: 4	

Enclosures reflect changes to flooding sources affected by this revision.

* FIRM - Flood Insurance Rate Map; ** FBFM - Flood Boundary and Floodway Map; *** FHBM - Flood Hazard Boundary Map

FLOODING SOURCE & REVISED REACH

See Page 2 for Additional Flooding Sources

Goose Creek - From approximately 80 feet downstream of 27th Street to approximately 80 feet upstream of 9th Street.

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Goose Creek	Floodway	Floodway	YES	YES
	BFEs	BFEs	YES	YES
	Zone AE	Zone AE	YES	YES
	Zone X (shaded)	Zone X (shaded)	YES	YES

* BFEs - Base Flood Elevations

DETERMINATION

This document provides the determination from the Department of Homeland Security's Federal Emergency Management Agency (FEMA) regarding a request for a Letter of Map Revision (LOMR) for the area described above. Using the information submitted, we have determined that a revision to the flood hazards depicted in the Flood Insurance Study (FIS) report and/or National Flood Insurance Program (NFIP) map is warranted. This document revises the effective NFIP map, as indicated in the attached documentation. Please use the enclosed annotated map panels revised by this LOMR for floodplain management purposes and for all flood insurance policies and renewals in your community.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

Patrick "Rick" F. Sacbbit, P.E., Branch Chief
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LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

OTHER FLOODING SOURCES AFFECTED BY THIS REVISION

FLOODING SOURCES)& REVISED REACHES

Goose Creek - Alpine Split - From the confluence to approximately 1570 feet upstream of the confluence with Goose Creek.

Goose Creek - Broadway Split - From the confluence to approximately 1130 feet upstream of the confluence with Goose Creek.

Goose Creek - Hospital Split - From the confluence to approximately 300 feet upstream of the confluence with Goose Creek.

Twomile Canyon Creek - From approximately 210 feet downstream of Balsam Avenue to approximately 1,260 feet upstream of Spring Valley Drive.

Twomile Canyon Creek - 13th Split - From the confluence to approximately 400 feet upstream of the confluence with Twomile Canyon Creek.

Twomile Canyon Creek - 4th Split East - From the confluence to approximately 650 feet upstream of the confluence with Twomile Canyon Creek.

Twomile Canyon Creek - 4th Split South - From the confluence to approximately 420 feet upstream of the confluence with Twomile Canyon Creek – Split Flow 1.

Twomile Canyon Creek - Elder Split - From the confluence to approximately 1550 feet upstream of the confluence with Twomile Canyon Creek – Split Flow 1.

Twomile Canyon Creek - Grape Split 1 - From the confluence to approximately 770 feet upstream of the confluence with Twomile Canyon Creek – Split Flow 1.

Twomile Canyon Creek -Grape Split 2 - From the confluence to approximately 170 feet upstream of the confluence with Twomile Canyon Creek – Split Flow 1.

Twomile Canyon Creek - Hawthorn Split - From the confluence to approximately 980 feet upstream of the confluence with Twomile Canyon Creek – Grape Split 1.

Twomile Canyon Creek - Iris Split - From the confluence to approximately 170 feet upstream of the confluence with Twomile Canyon Creek – Split Flow 1.

Twomile Canyon Creek - Jasmine Split - From the confluence to approximately 220 feet upstream of the confluence with Twomile Canyon Creek – Split Flow 2.

Twomile Canyon Creek - Linden Split - From the confluence to approximately 230 feet upstream of the confluence with Twomile Canyon Creek.

Twomile Canyon Creek - Split Flow 1 - From approximately 270 feet downstream of 18th Street to approximately 620 feet upstream of 4th Street.

Twomile Canyon Creek - Split Flow 2 - From approximately 540 feet upstream of Folsom Street to approximately 90 feet upstream of Kalmia Avenue.

Twomile Canyon Creek - Spring Valley Split - From the confluence to approximately 540 feet upstream of the confluence with Twomile Canyon Creek.

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LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

SUMMARY OF REVISIONS

Flooding Source	Effective Flooding	Revised Flooding	Increases	Decreases
Goose Creek	Zone X (unshaded)	Zone X (shaded)	YES	NONE
Goose Creek - Alpine Split	No Floodway	Floodway	YES	NONE
	No BFEs	BFEs	YES	NONE
	Zone X (unshaded)	Zone AE	YES	NONE
Goose Creek - Broadway Split	Zone X (unshaded)	Zone X (shaded)	YES	NONE
	No BFEs	No BFEs	YES	NONE
	Zone X (unshaded)	Zone AE	YES	NONE
Goose Creek - Hospital Split	Zone X (unshaded)	Zone X (shaded)	YES	NONE
	No BFEs	BFEs	YES	NONE
	Zone X (unshaded)	Zone AE	YES	NONE
Twomile Canyon Creek	Zone X (unshaded)	Zone X (shaded)	YES	NONE
	Floodway	Floodway	YES	YES
	BFEs	BFEs	YES	YES
	Zone AE	Zone AE	YES	YES
Twomile Canyon Creek - 13th Split	Zone X (shaded)	Zone X (shaded)	YES	YES
	Zone X (unshaded)	Zone X (shaded)	YES	NONE
	No Floodway	Floodway	YES	NONE
	No BFEs	BFEs	YES	NONE
Twomile Canyon Creek - 4th Split East	Zone X (unshaded)	Zone AE	YES	NONE
	Zone X (unshaded)	Zone X (shaded)	YES	NONE
	No Floodway	Floodway	YES	NONE
	No BFEs	BFEs	YES	NONE
Twomile Canyon Creek - 4th Split South	Zone X (unshaded)	Zone AE	YES	NONE
	Zone X (unshaded)	Zone X (shaded)	YES	NONE
	No Floodway	Floodway	YES	NONE
	No BFEs	BFEs	YES	NONE
Twomile Canyon Creek - Elder Split	Zone X (unshaded)	Zone AE	YES	NONE
	Zone X (unshaded)	Zone X (shaded)	YES	NONE
	No Floodway	Floodway	YES	NONE
	No BFEs	BFEs	YES	NONE
Twomile Canyon Creek - Grape Split 1	Zone X (unshaded)	Zone AE	YES	NONE
	Zone X (unshaded)	Zone X (shaded)	YES	NONE
	No Floodway	Floodway	YES	NONE
	No BFEs	BFEs	YES	NONE
Twomile Canyon Creek -Grape Split 2	Zone X (unshaded)	Zone AE	YES	NONE
	Zone X (unshaded)	Zone X (shaded)	YES	NONE
	No BFEs	BFEs	YES	NONE
	Zone X (unshaded)	Zone AE	YES	NONE
Twomile Canyon Creek - Hawthorn Split	Zone X (unshaded)	Zone X (shaded)	YES	NONE
	No Floodway	Floodway	YES	NONE
	No BFEs	BFEs	YES	NONE
	Zone X (unshaded)	Zone AE	YES	NONE
Twomile Canyon Creek - Iris Split	Zone X (unshaded)	Zone X (shaded)	YES	NONE
	No Floodway	Floodway	YES	NONE
	No BFEs	BFEs	YES	NONE
	Zone X (unshaded)	Zone AE	YES	NONE
	Zone X (unshaded)	Zone X (shaded)	YES	NONE

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

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**LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)**

Twomile Canyon Creek - Jasmine Split	No Floodway	Floodway	YES	NONE
	No BFEs	BFEs	YES	NONE
	Zone X (unshaded)	Zone AE	YES	NONE
	Zone X (unshaded)	Zone X (shaded)	YES	NONE
Twomile Canyon Creek - Linden Split	No BFEs	BFEs	YES	NONE
	Zone X (unshaded)	Zone AE	YES	NONE
	Zone X (unshaded)	Zone X (shaded)	YES	NONE
	No Floodway	Floodway	YES	NONE
Twomile Canyon Creek - Split Flow 1	No BFEs	BFEs	YES	NONE
	Zone X (unshaded)	Zone AE	YES	NONE
	Zone X (unshaded)	Zone X (shaded)	YES	NONE
	No Floodway	Floodway	YES	NONE
Twomile Canyon Creek - Split Flow 2	No BFEs	BFEs	YES	NONE
	Zone X (unshaded)	Zone AE	YES	NONE
	Zone X (unshaded)	Zone X (shaded)	YES	NONE
	No Floodway	Floodway	YES	NONE
Twomile Canyon Creek - Spring Valley Split	No BFEs	BFEs	YES	NONE
	Zone X (unshaded)	Zone AE	YES	NONE
	Zone X (unshaded)	Zone X (shaded)	YES	NONE
	No Floodway	Floodway	YES	NONE
	No BFEs	BFEs	YES	NONE
	Zone X (unshaded)	Zone AE	YES	NONE
	Zone X (unshaded)	Zone X (shaded)	YES	NONE

* BFEs - Base Flood Elevations

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

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**LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)**

OTHER COMMUNITIES AFFECTED BY THIS REVISION

CID Number: 080023 **Name:** Boulder County, Colorado

AFFECTED MAP PANELS

TYPE: FIRM* NO.: 08013C0391J DATE: December 18, 2012
TYPE: FIRM* NO.: 08013C0392J DATE: December 18, 2012

AFFECTED PORTIONS OF THE FLOOD INSURANCE STUDY REPORT

DATE OF EFFECTIVE FLOOD INSURANCE STUDY: December 18, 2012
PROFILES: 366P, 393P, 399P, 407P
FLOODWAY DATA TABLE: 6
SUMMARY OF DISCHARGES TABLE: 4

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

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LETTER OF MAP REVISION DETERMINATION DOCUMENT (CONTINUED)

COMMUNITY INFORMATION

APPLICABLE NFIP REGULATIONS/COMMUNITY OBLIGATION

We have made this determination pursuant to Section 206 of the Flood Disaster Protection Act of 1973 (P.L. 93-234) and in accordance with the National Flood Insurance Act of 1968, as amended (Title XIII of the Housing and Urban Development Act of 1968, P.L. 90-448), 42 U.S.C. 4001-4128, and 44 CFR Part 65. Pursuant to Section 1361 of the National Flood Insurance Act of 1968, as amended, communities participating in the NFIP are required to adopt and enforce floodplain management regulations that meet or exceed NFIP criteria. These criteria, including adoption of the FIS report and FIRM, and the modifications made by this LOMR, are the minimum requirements for continued NFIP participation and do not supersede more stringent State/Commonwealth or local requirements to which the regulations apply.

We provide the floodway designation to your community as a tool to regulate floodplain development. Therefore, the floodway revision we have described in this letter, while acceptable to us, must also be acceptable to your community and adopted by appropriate community action, as specified in Paragraph 60.3(d) of the NFIP regulations.

COMMUNITY REMINDERS

We based this determination on the 1-percent-annual-chance discharges computed in the submitted hydrologic model. Future development of projects upstream could cause increased discharges, which could cause increased flood hazards. A comprehensive restudy of your community's flood hazards would consider the cumulative effects of development on discharges and could, therefore, indicate that greater flood hazards exist in this area.

Your community must regulate all proposed floodplain development and ensure that permits required by Federal and/or State/Commonwealth law have been obtained. State/Commonwealth or community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If your State/Commonwealth or community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

We will not print and distribute this LOMR to primary users, such as local insurance agents or mortgage lenders; instead, the community will serve as a repository for the new data. We encourage you to disseminate the information in this LOMR by preparing a news release for publication in your community's newspaper that describes the revision and explains how your community will provide the data and help interpret the NFIP maps. In that way, interested persons, such as property owners, insurance agents, and mortgage lenders, can benefit from the information.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

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**LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)**

We have designated a Consultation Coordination Officer (CCO) to assist your community. The CCO will be the primary liaison between your community and FEMA. For information regarding your CCO, please contact:

Ms. Jeanine D. Petterson
Director, Mitigation Division
Federal Emergency Management Agency, Region VIII
Denver Federal Center, Building 710
P.O. Box 25267
Denver, CO 80225-0267
(303) 235-4830

STATUS OF THE COMMUNITY NFIP MAPS

We will not physically revise and republish the FIRM and FIS report for your community to reflect the modifications made by this LOMR at this time. When changes to the previously cited FIRM panel(s) and FIS report warrant physical revision and republication in the future, we will incorporate the modifications made by this LOMR at that time.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

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**LETTER OF MAP REVISION
DETERMINATION DOCUMENT (CONTINUED)**

PUBLIC NOTIFICATION OF REVISION

A notice of changes will be published in the *Federal Register*. This information also will be published in your local newspaper on or about the dates listed below, and through FEMA's Flood Hazard Mapping website at

https://www.floodmaps.fema.gov/fhm/bfe_status/bfe_main.asp

LOCAL NEWSPAPER

Name: *The Daily Camera*

Dates: April 13, 2016 and April 20, 2016

Within 90 days of the second publication in the local newspaper, any interested party may request that we reconsider this determination. Any request for reconsideration must be based on scientific or technical data. Therefore, this letter will be effective only after the 90-day appeal period has elapsed and we have resolved any appeals that we receive during this appeal period. Until this LOMR is effective, the revised flood hazard determination presented in this LOMR may be changed.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Map Information eXchange toll free at 1-877-336-2627 (1-877-FEMA MAP) or by letter addressed to the LOMC Clearinghouse, 847 South Pickett Street, Alexandria, VA 22304-4605. Additional Information about the NFIP is available on our website at <http://www.fema.gov/nfip>.

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FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
GOOSE CREEK								
A	1,000	212	640	9.9	5,215.8	5207.6 ²	5207.6 ²	0.0
B	2,075	81	245	10.0	5,222.5	5220.8 ²	5220.8 ²	0.0
C	3,330	80	235	9.8	5,230.7	5,230.7	5,230.7	0.0
D	4,160	45	242	9.5	5,237.3	5,237.3	5,237.3	0.0
E	4,900	71	270	5.9	5,246.0	5,246.0	5,246.0	0.0
F	8,068	228	734	4.9	5,276.2	5,276.2	5,276.2	0.0
G	8,824	58	327	10.6	5,282.8	5,282.8	5,282.8	0.0
H	10,184	80	455	5.9	5,295.5	5,295.5	5,295.5	0.0
I	10,418	46	216	12.4	5,303.2	5,303.2	5,303.2	0.0
J	10,778	77	270	9.7	5,312.6	5,312.6	5,312.6	0.0
K	11,322	339	528	5.0	5,318.9	5,318.9	5,319.0	0.1
L	12,504	212	298	7.5	5,333.9	5,333.9	5,333.9	0.0
M	12,873	205	308	6.9	5,340.0	5,340.0	5,340.5	0.5
N	13,327	188	280	7.6	5,346.4	5,346.4	5,346.7	0.3
O	14,116	60	203	2.4	5,349.0	5,349.0	5,349.5	0.5
P	14,834	50	150	1.6	5,351.6	5,351.6	5,352.1	0.5
Q	15,255	47	115	2.4	5,354.7	5,354.7	5,355.1	0.4
R	15,885	42	53	4.5	5,362.6	5,362.6	5,363.0	0.4
S	16,307	120	94	5.1	5,371.2	5,371.2	5,371.5	0.3
T	16,797	60	73	6.4	5,378.4	5,378.4	5,378.8	0.4
U	17,301	55	72	6.5	5,382.1	5,382.1	5,382.5	0.4
V	17,804	154	417	1.2	5,383.2	5,383.2	5,383.5	0.3

Revised Data

¹ Feet above confluence with Boulder Creek

² Elevation computed without consideration of flooding controlled by Boulder Creek

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY
BOULDER COUNTY, CO
AND INCORPORATED AREAS

FLOODWAY DATA

REVISED TO

REFLECT LOMR

GOOSE CREEK **EFFECTIVE: August 18, 2016**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
GOOSE CREEK - ALPINE SPLIT								
A	223	35	41	6.1	5,350.0	5,350.0	5,350.1	0.1
B	789	35	41	6.1	5,358.7	5,358.7	5,359.0	0.3
C	1,436	50	50	5.6	5,364.9	5,364.9	5,365.3	0.4

¹ Stream distance in feet above confluence with Goose Creek

**REVISED TO
REFLECT LOMR
EFFECTIVE: August 18, 2016**

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY
**BOULDER COUNTY, CO
AND INCORPORATED AREAS**

FLOODWAY DATA

GOOSE CREEK - ALPINE SPLIT

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
TWO MILE CANYON CREEK								
A	610	45	47	5.9	5351.3	5351.3	5351.4	0.1
B	1,017	32	13	3.7	5354.2	5354.2	5354.4	0.2
C	1,955	57	36	3.0	5370.8	5370.8	5370.8	0.0
D	3,018	40	45	6.1	5380.7	5380.7	5380.8	0.1
E	4,137	35	43	6.4	5404.5	5404.5	5404.7	0.2
F	4,922	35	43	6.3	5418.4	5418.4	5418.5	0.1
G	6,082	20	48	6.8	5450.9	5450.9	5451.1	0.2
H	7,138	19	27	6.8	5479.9	5479.9	5479.9	0.0
I	8,004	12	22	6.1	5507.0	5507.0	5507.0	0.0
J	8,675	29	45	7.0	5537.4	5537.4	5537.4	0.0
K	9,664	13	26	8.1	5586.1	5586.1	5586.1	0.0
L	10,342	50	90	7.8	5631.4	5631.4	5631.4	0.0
M	10,449	25	73	9.6	5638.7	5638.7	5638.7	0.0
N	10,708	38	99	7.3	5658.5	5658.5	5659.0	0.5
TWO MILE CANYON CREEK - 13TH SPLIT								
A	273 ²	20	26	6.5	5427.9	5427.9	5428.2	0.3

¹ Feet above confluence with Goose Creek

² Feet above confluence with Twomile Canyon Creek

**REVISED TO
REFLECT LOMR
EFFECTIVE: August 18, 2016**

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY
**BOULDER COUNTY, CO
AND INCORPORATED AREAS**

FLOODWAY DATA

**TWO MILE CANYON CREEK,
TWO MILE CANYON CREEK - 13TH SPLIT**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
TWO MILE CANYON CREEK - 4TH SPLIT EAST								
A	264	30	47	2.3	5,553.3	5,553.3	5,553.7	0.4
B	510	40	50	2.1	5,567.5	5,567.5	5,567.9	0.4
TWO MILE CANYON CREEK - 4TH SPLIT SOUTH								
A	79 ²	20	23	6.1	5,566.2	5,566.2	5,566.4	0.2
B	415 ²	45	67	3.6	5,583.5	5,583.5	5,583.7	0.2
TWO MILE CANYON CREEK - ELDER SPLIT								
A	162 ²	30	59	1.5	5,365.2	5,365.2	5,365.5	0.3
B	670 ²	30	19	4.5	5,375.5	5,375.5	5,375.7	0.2
C	1,168 ²	29	19	4.7	5,382.5	5,382.5	5,382.7	0.2
TWO MILE CANYON CREEK - GRAPE SPLIT 1								
A	226 ²	39	42	5.9	5,427.2	5,427.2	5,427.4	0.2
B	665 ²	16	12	4.7	5,436.5	5,436.5	5,436.8	0.3

¹ Stream distance in feet above confluence with Twomile Canyon Creek

² Stream distance in feet above confluence with Twomile Canyon Creek - Split Flow 1

**REVISED TO
REFLECT LOMR
EFFECTIVE: August 18, 2016**

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY
**BOULDER COUNTY, CO
AND INCORPORATED AREAS**

FLOODWAY DATA

**TWO MILE CANYON CREEK - 4TH SPLIT EAST, 4TH
SPLIT SOUTH, ELDER SPLIT, GRAPE SPLIT 1**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
TWOMILE CANYON CREEK - HAWTHORN SPLIT								
A	257	41	37	5.4	5,437.8	5,437.8	5,437.9	0.1
B	763	32	30	5.5	5,448.6	5,448.6	5,448.8	0.2
TWOMILE CANYON CREEK - IRIS SPLIT								
A	131 ²	30	61	2.3	5,475.1	5,475.1	5,475.5	0.4
TWOMILE CANYON CREEK - JASMINE SPLIT								
A	122 ³	50	82	2.9	5,476.8	5,476.8	5,477.3	0.5

¹ Stream distance in feet above confluence with Twomile Canyon Creek - Grape Split 1

³ Stream distance in feet above confluence with Twomile Canyon Creek - Split Creek 2

² Stream distance in feet above confluence with Twomile Canyon Creek - Split Flow 1

**REVISED TO
REFLECT LOMR
EFFECTIVE: August 18, 2016**

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY
**BOULDER COUNTY, CO
AND INCORPORATED AREAS**

FLOODWAY DATA

**TWOMILE CANYON CREEK - HAWTHORN SPLIT,
IRIS SPLIT, JASMINE SPLIT**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
TWO MILE CANYON CREEK - SPLIT FLOW 1								
A	175	35	36	5.9	5,353.8	5,353.8	5,353.9	0.1
B	1,215	40	28	4.5	5,374.0	5,374.0	5,374.2	0.2
C	1,983	28	24	5.3	5,385.7	5,385.7	5,385.7	0.0
D	2,421	35	37	5.7	5,392.8	5,392.8	5,393.1	0.3
E	3,157	34	41	6.3	5,403.2	5,403.2	5,403.4	0.2
F	3,739	40	50	6.3	5,415.5	5,415.5	5,415.7	0.2
G	4,785	18	13	4.8	5,435.1	5,435.1	5,435.5	0.4
H	5,457	19	28	4.2	5,452.6	5,452.6	5,452.7	0.1
I	6,515	35	86	3.2	5,480.0	5,480.0	5,480.3	0.3
J	7,720	34	49	6.7	5,519.3	5,519.3	5,519.7	0.4
K	8,455	52	62	6.2	5,549.3	5,549.3	5,549.4	0.1
L	9,138	43	43	5.8	5,587.6	5,587.6	5,587.8	0.2
TWO MILE CANYON CREEK - SPLIT FLOW 2								
A	366 ²	74	48	4.7	5,331.3	5,331.3	5,331.3	0.0
B	1,628 ²	56	44	5.1	5,349.9	5,349.9	5,350.0	0.1
C	2,727 ²	55	48	5.4	5,370.8	5,370.8	5,370.8	0.0
D	3,568 ²	48	46	5.5	5,386.8	5,386.8	5,387.0	0.2
E	4,591 ²	58	48	5.2	5,411.9	5,411.9	5,412.2	0.3
F	5,725 ²	25	35	6.8	5,441.7	5,441.7	5,441.7	0.0
G	6,524 ²	60	59	4.0	5,466.9	5,466.9	5,467.2	0.3
H	7,371 ²	70	74	3.2	5,496.1	5,496.1	5,496.1	0.0

¹ Stream distance in feet above confluence with Twomile Canyon Creek

² Stream distance in feet above confluence with Elmers Twomile Creek

**REVISED TO
REFLECT LOMR
EFFECTIVE: August 18, 2016**

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY
**BOULDER COUNTY, CO
AND INCORPORATED AREAS**

FLOODWAY DATA

**TWO MILE CANYON CREEK - SPLIT FLOW 1,
SPLIT FLOW 2**

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
TWOMILE CANYON CREEK - SPRING VALLEY SPLIT								
A	186	40	44	5.6	5,588.4	5,588.4	5,588.5	0.1
B	495	45	69	7.1	5,602.4	5,602.4	5,602.6	0.2

¹ Stream distance in feet above confluence with Twomile Canyon Creek

**REVISED TO
REFLECT LOMR
EFFECTIVE: August 18, 2016**

TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY
**BOULDER COUNTY, CO
AND INCORPORATED AREAS**

FLOODWAY DATA

TWOMILE CANYON CREEK - SPRING VALLEY SPLIT

Table 4 - Summary of Discharges

<u>Flooding Source and Location</u>	<u>Drainage Area (Square Miles)</u>	<u>Peak Discharges (Cubic Feet Per Second)</u>			
		<u>10-Percent- Annual-Chance</u>	<u>2-Percent- Annual-Chance</u>	<u>1-Percent- Annual-Chance</u>	<u>0.2-Percent- Annual Chance</u>
Goose Creek					
At Confluence with Boulder Creek	5.46	2,865	5,065	6,315	9,325
At Confluence with Elmers Twomile Creek	3.63	1,050	2,100	2,680	4,300
At Folsom Street	1.48	964	2,080	2,624	4,275
At 19 th Street/confluence with Twomile Canyon Creek	1.41	876	1,726	2,117	3,231
At Upstream Limit of Detailed Study	0.43	212	434	521	661
Goose Creek – Alpine Split					
At Confluence with Goose Creek	-- ¹	31	182	248	351
At Divergence from Goose Creek	-- ¹	59	210	276	379
Goose Creek – Broadway Split					
At Confluence with Goose Creek	-- ¹	42	100	124	161
Goose Creek Hospital Split					
At Confluence with Goose Creek	-- ¹	60	142	173	228
Twomile Canyon Creek					
At Confluence with Goose Creek	1.95	136	235	275	355
At Confluence with Twomile Canyon Creek – Split Flow 1	-- ¹	23	41	49	71

REVISED DATA

¹ Data Not Available

**REVISED TO
REFLECT LOMR
EFFECTIVE: August 18, 2016**

REVISED DATA

Upstream of Grape Avenue/19 th Street	-- ¹	95	219	274	378
At Broadway	1.59	128	253	323	434
Upstream of Juniper Avenue	-- ¹	64	105	136	182
At Confluence with Twomile Canyon Creek – Split Flow 2	-- ¹	74	234	314	462
At Confluence with Twomile Canyon Creek – 4 th Split East	-- ¹	43	150	208	318
At Upstream Limit of Detailed Study	1.38	186	533	699	997
Twomile Canyon Creek – 13th Split					
At Confluence with Twomile Canyon Creek	-- ¹	50	130	164	228
Twomile Canyon Creek – Split Flow 1					
At Confluence with Twomile Canyon Creek	-- ¹	108	184	213	256
Downstream of Broadway	-- ¹	114	249	314	426
Upstream of Hawthorn Avenue	-- ¹	79	215	278	394
Upstream of Juniper Avenue	-- ¹	94	253	326	456
Upstream of Kalmia Avenue	-- ¹	112	299	385	535
At Divergence from Twomile Canyon Creek – Spring Valley Split	-- ¹	67	187	247	355
Twomile Canyon Creek – 4th Split South					
At Confluence with Twomile Canyon Creek – Split Flow 1	-- ¹	45	112	138	180
At Confluence with Twomile Canyon Creek – 4 th Street East	-- ¹	76	196	244	324

¹ Data Not Available

**REVISED TO
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EFFECTIVE: August 18, 2016**

REVISED DATA

Twomile Canyon Creek – Elder Split					
At Confluence with Twomile Canyon Creek Split Flow 1	-- ¹	39	73	87	105
Twomile Canyon Creek – Grape Split 1					
At Confluence with Twomile Canyon Creek – Split Flow 1	-- ¹	97	202	251	340
At Confluence with Twomile Canyon Creek – Hawthorn Split	-- ¹	23	44	55	77
Twomile Canyon Creek – Grape Split 2					
At Confluence with Twomile Canyon Creek – Split Flow 1	-- ¹	0	2	4	8
Twomile Canyon Creek – Hawthorn Split					
At Confluence with Twomile Canyon Creek – Grape Split 1	-- ¹	74	158	197	263
At Divergence with Twomile Canyon Creek – Split Flow 1	-- ¹	39	124	161	231
Twomile Canyon Creek – Iris Split					
At Confluence with Twomile Canyon Creek – Split Flow 1	-- ¹	36	108	143	206
Twomile Canyon Creek – Split Flow 2					
At Confluence with Elmers Twomile Creek	-- ¹	48	135	222	418
Downstream of 19 th Street	-- ¹	48	171	258	454
Upstream of 19 th Street	-- ¹	26	175	250	383
At Divergence from Twomile Canyon Creek	-- ¹	28	175	237	359

¹ Data Not Available

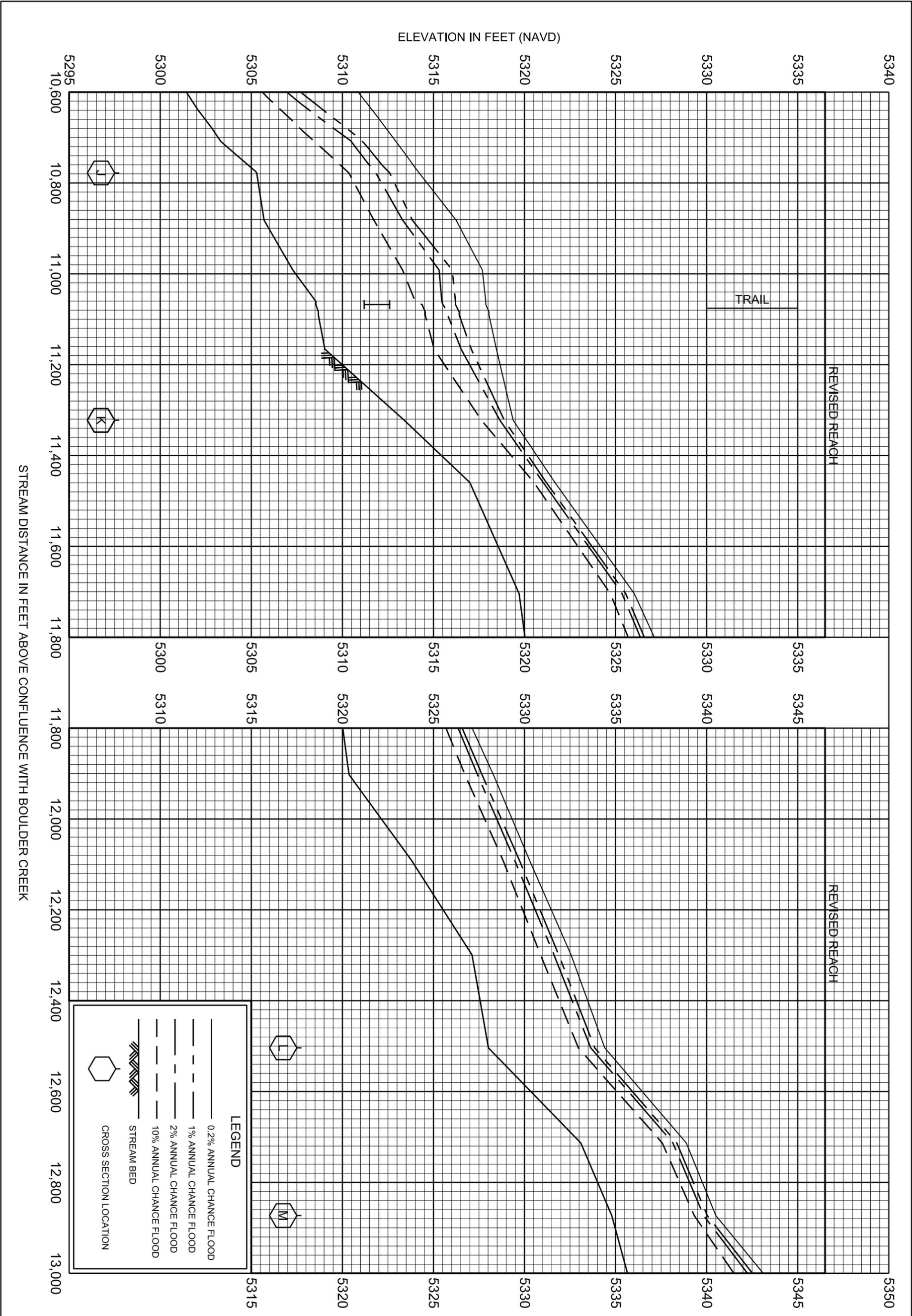
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EFFECTIVE: August 18, 2016**

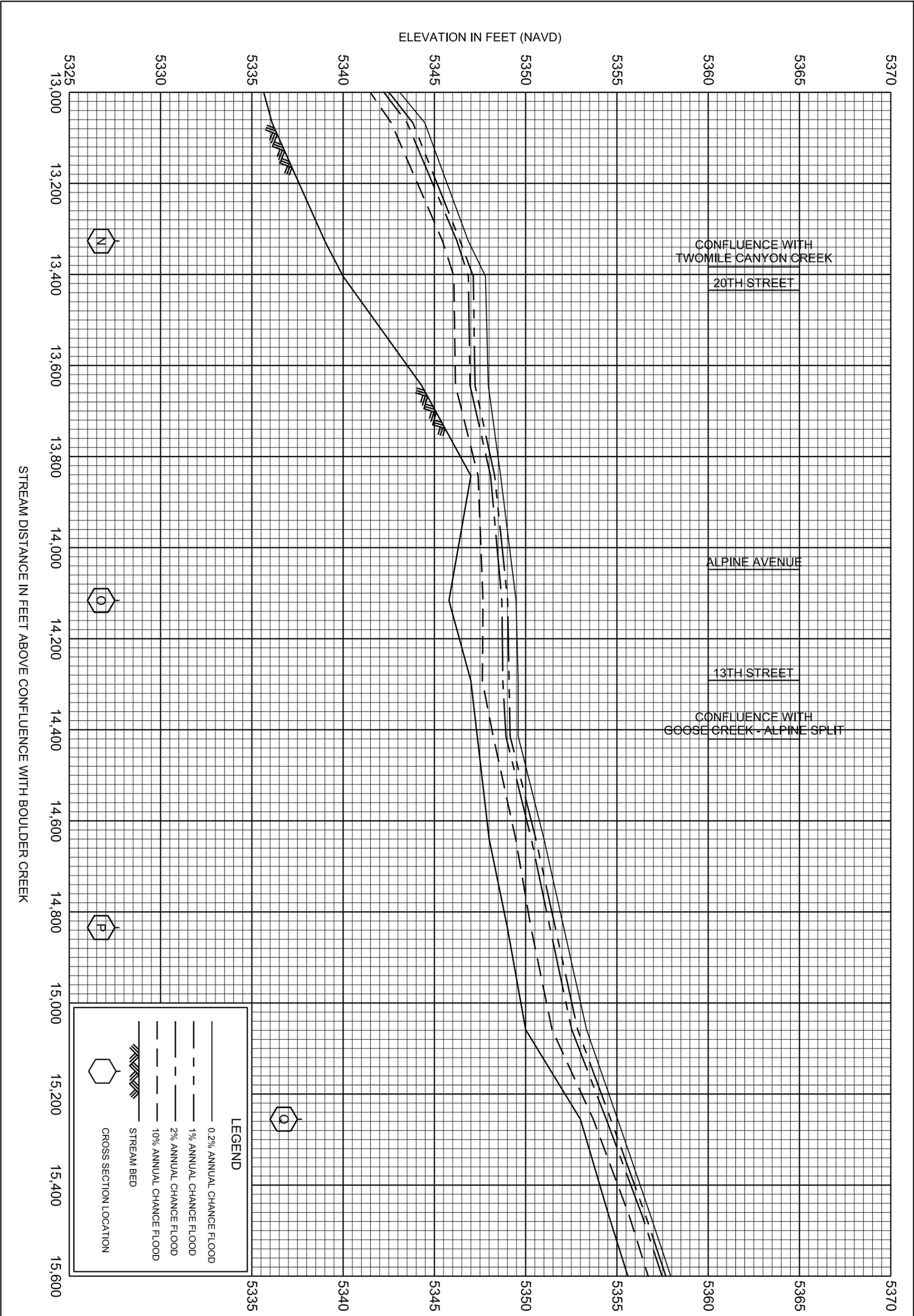
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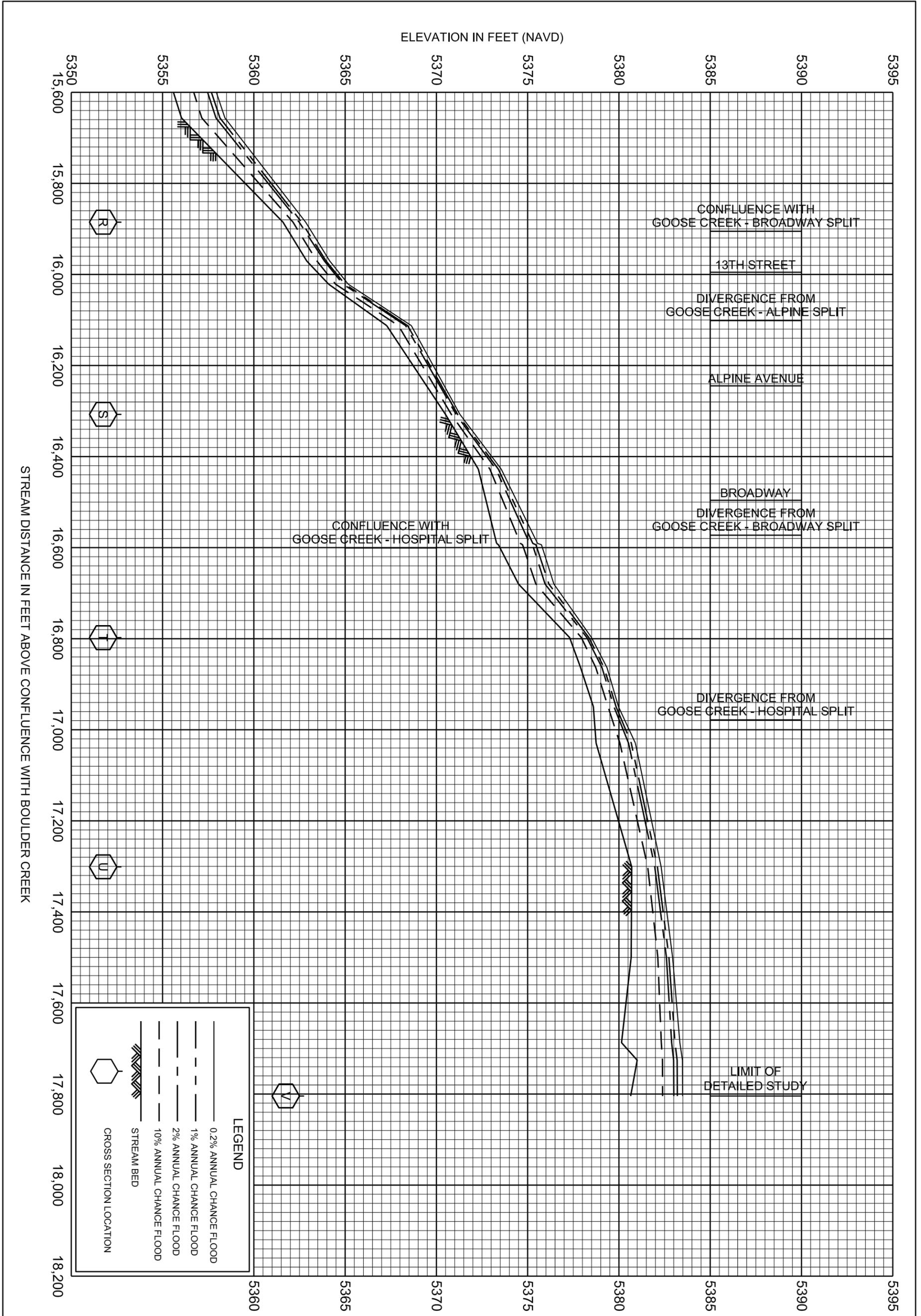
Twomile Canyon Creek – Jasmine Split					
At Confluence with Twomile Canyon Creek – Split Flow 2	-- ¹	20	122	174	275
Twomile Canyon Creek – 4th Split East					
At Confluence with Twomile Canyon Creek	-- ¹	31	84	106	144
Twomile Canyon Creek – Linden Split					
At Confluence with Twomile Canyon Creek	-- ¹	1	37	66	148
At Wonderland Hill Avenue	-- ¹	1	34	54	98
Twomile Canyon Creek – Spring Valley Split					
At Confluence with Twomile Canyon Creek	-- ¹	76	196	244	324
At Divergence with Twomile Canyon Creek	-- ¹	143	383	491	679

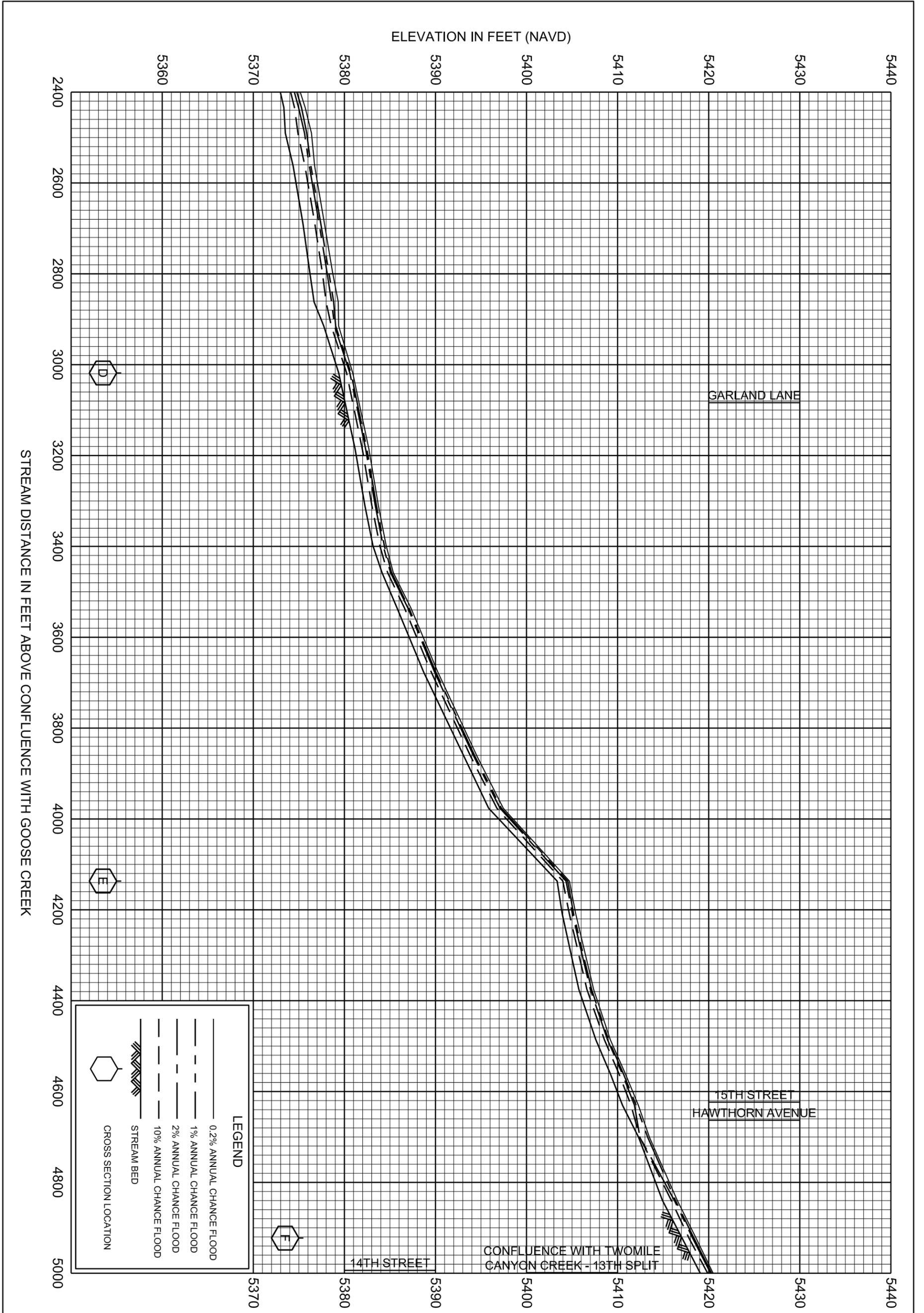
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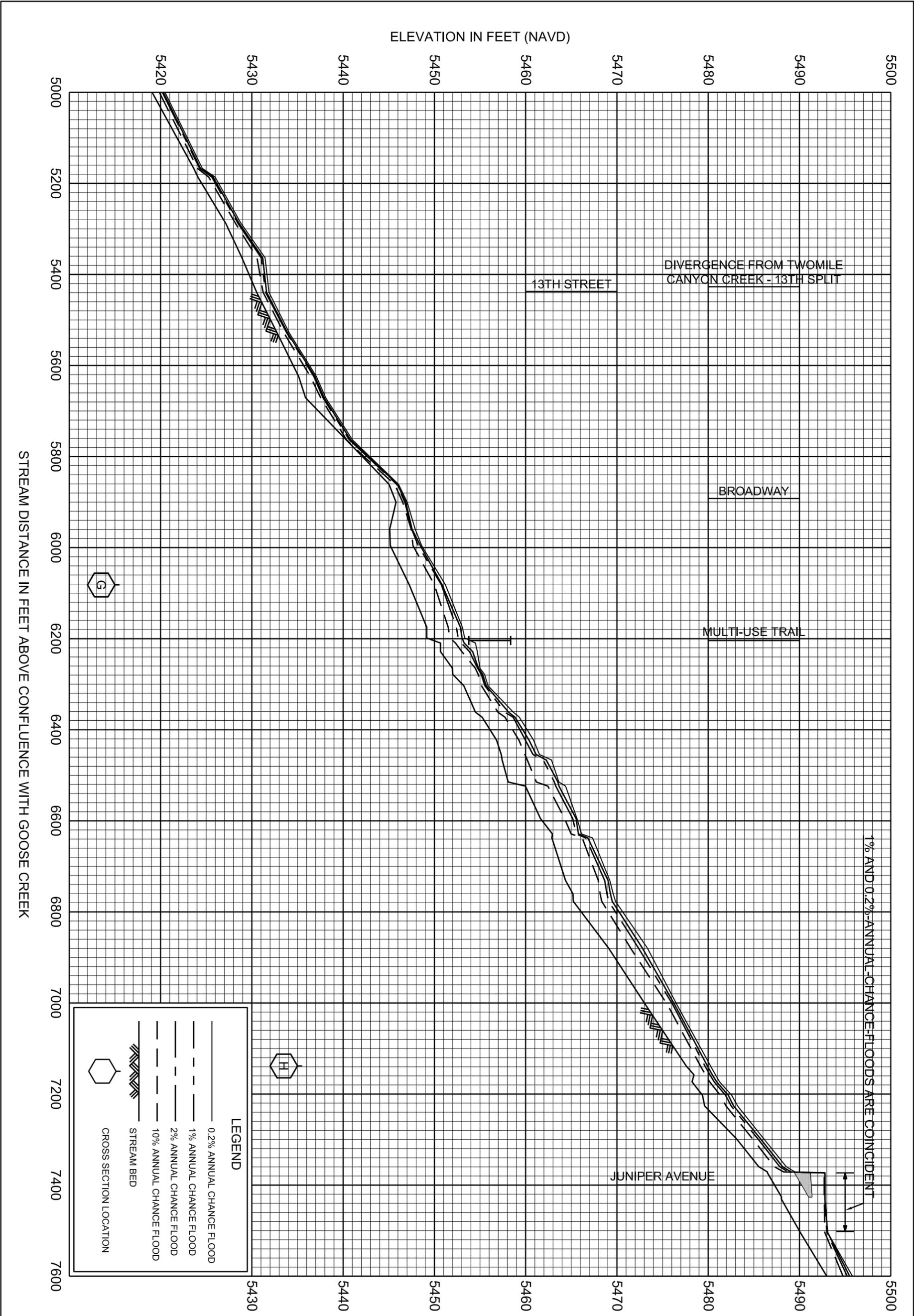
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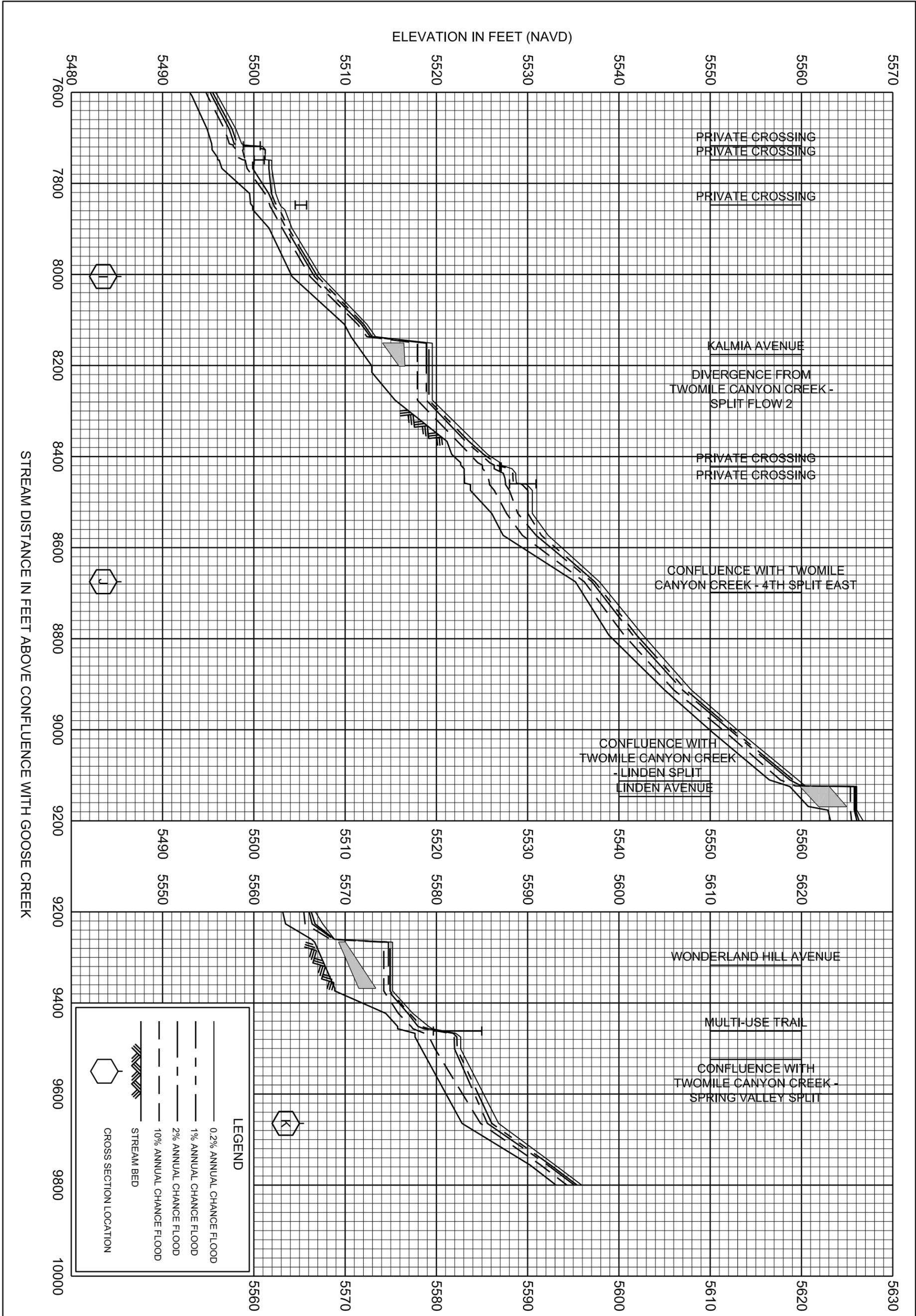


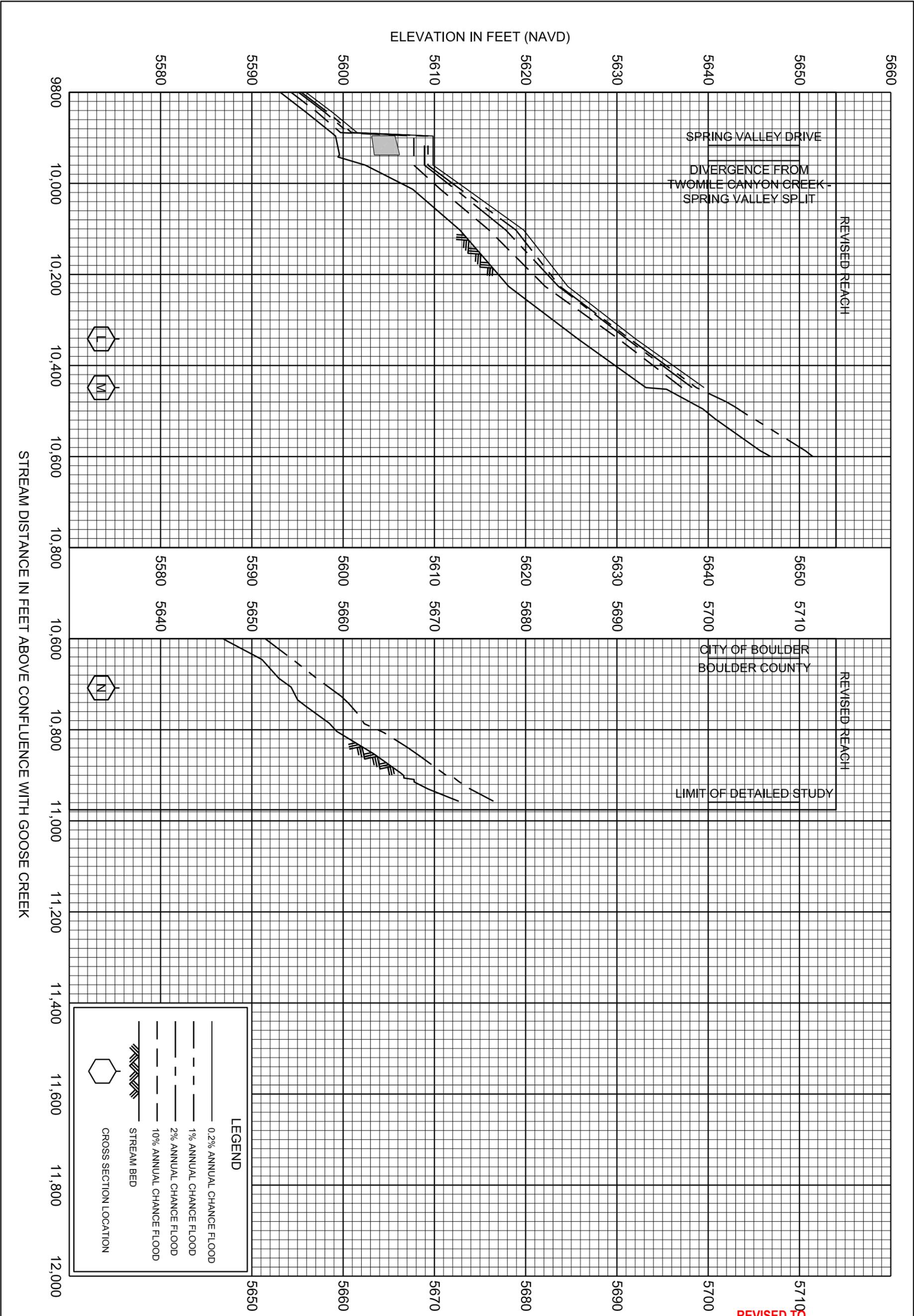












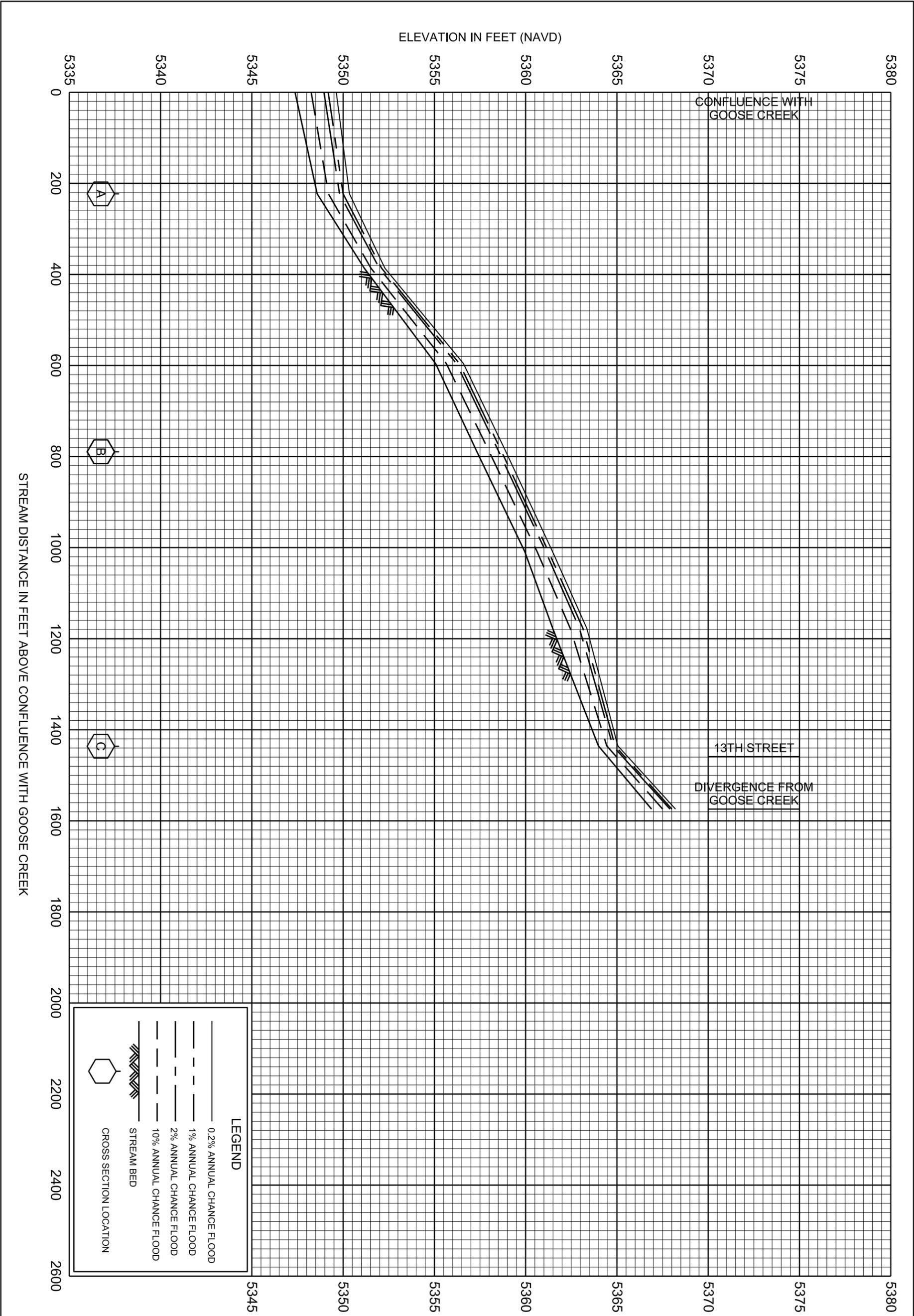
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FLOOD PROFILES

TWOMILE CANYON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
BOULDER COUNTY, CO
 AND INCORPORATED AREAS

366P



LEGEND

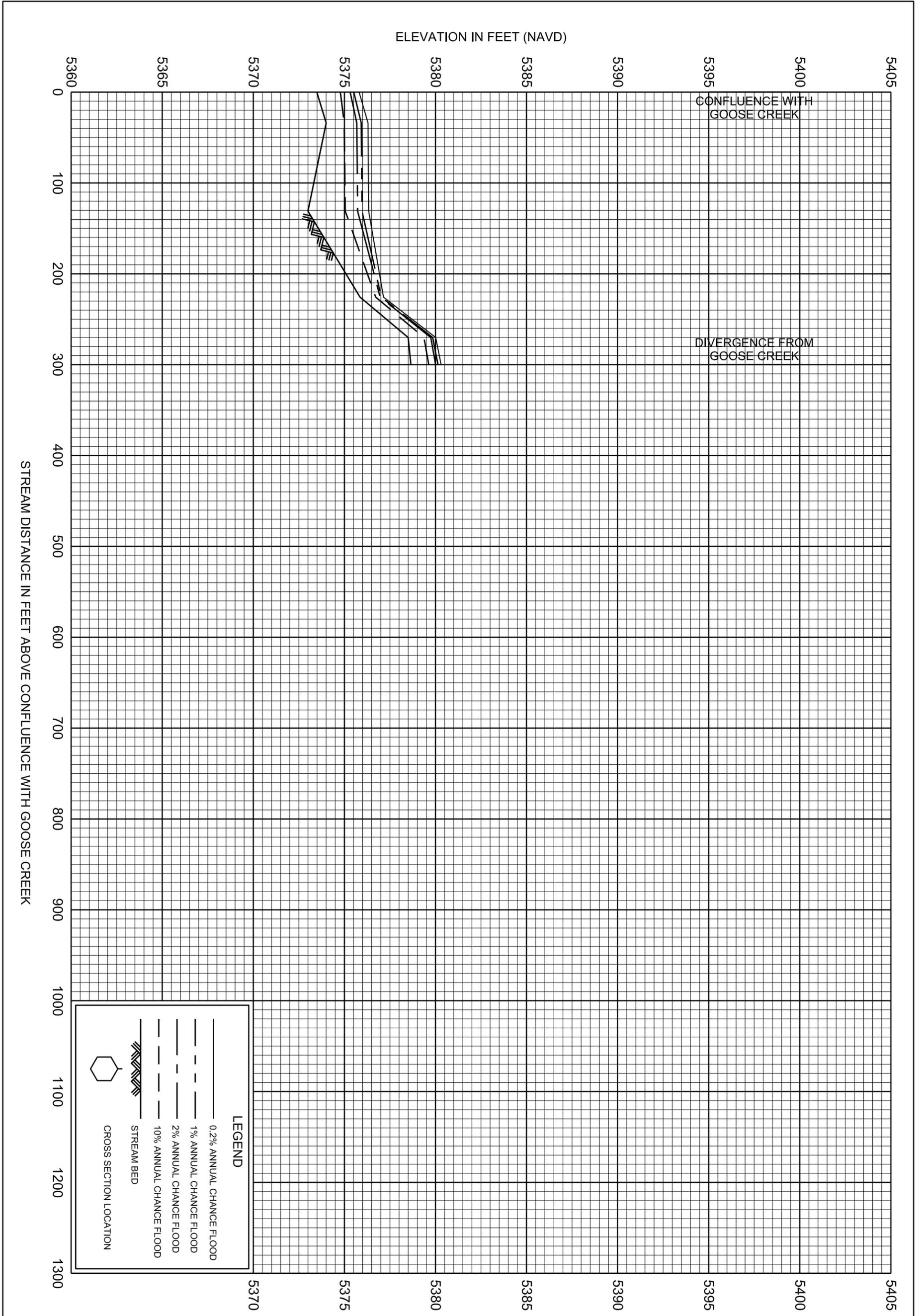
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- - - 1% ANNUAL CHANCE FLOOD
- · - · 2% ANNUAL CHANCE FLOOD
- 10% ANNUAL CHANCE FLOOD
- ▨ STREAM BED
- ⬡ CROSS SECTION LOCATION

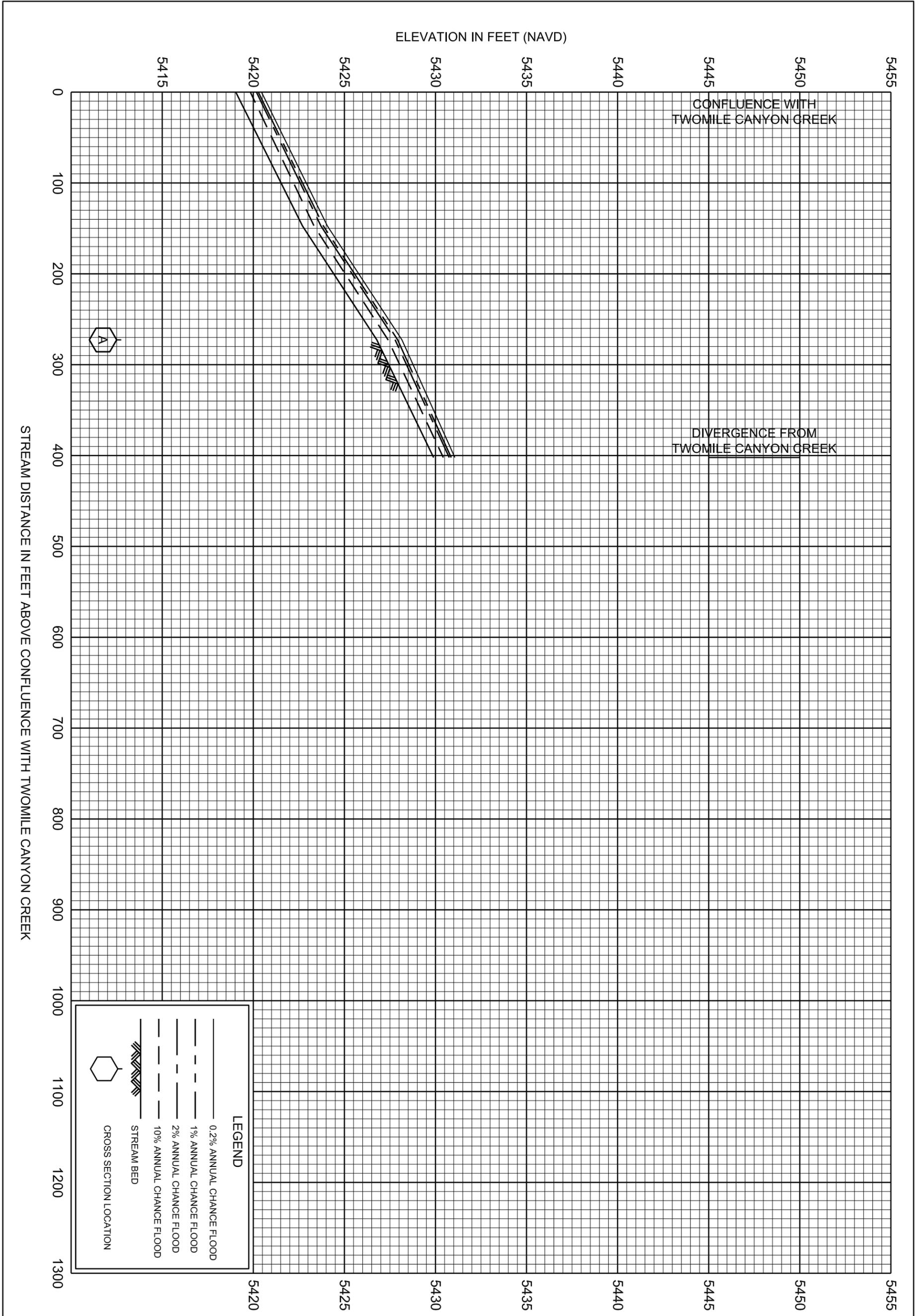
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EFFECTIVE: August 18, 2016

FLOOD PROFILES

GOOSE CREEK - ALPINE SPLIT

FEDERAL EMERGENCY MANAGEMENT AGENCY
BOULDER COUNTY, CO
AND INCORPORATED AREAS



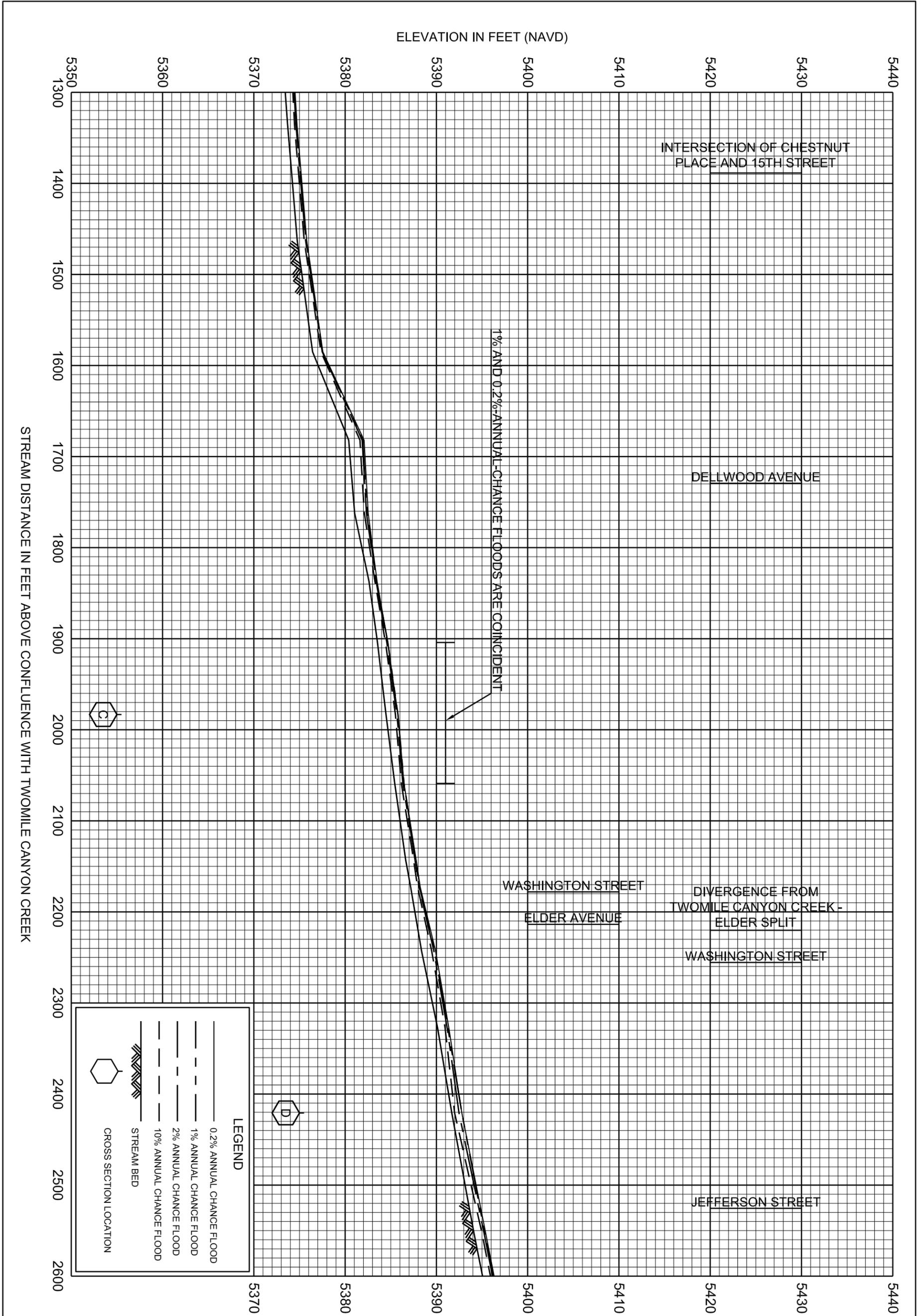


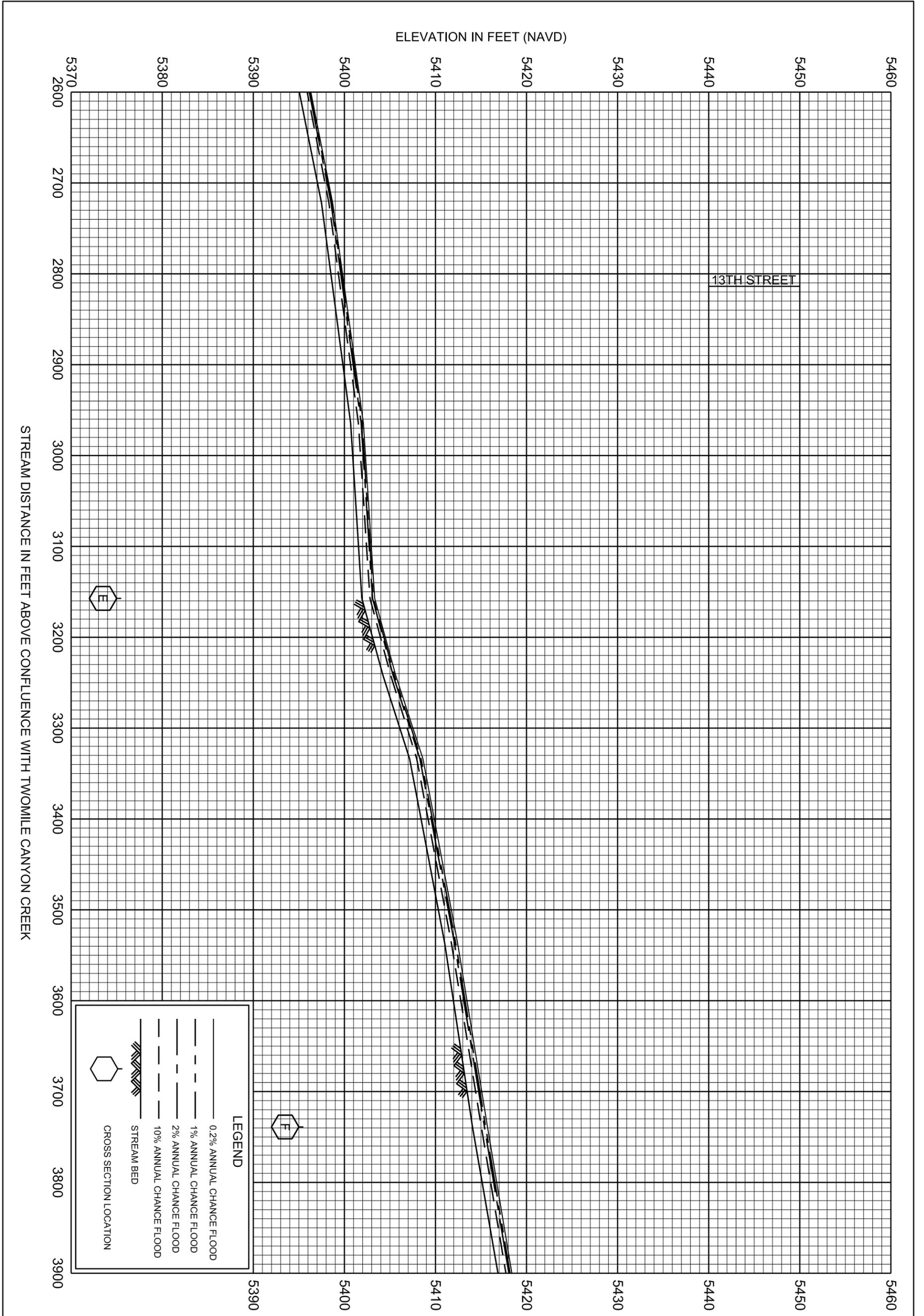
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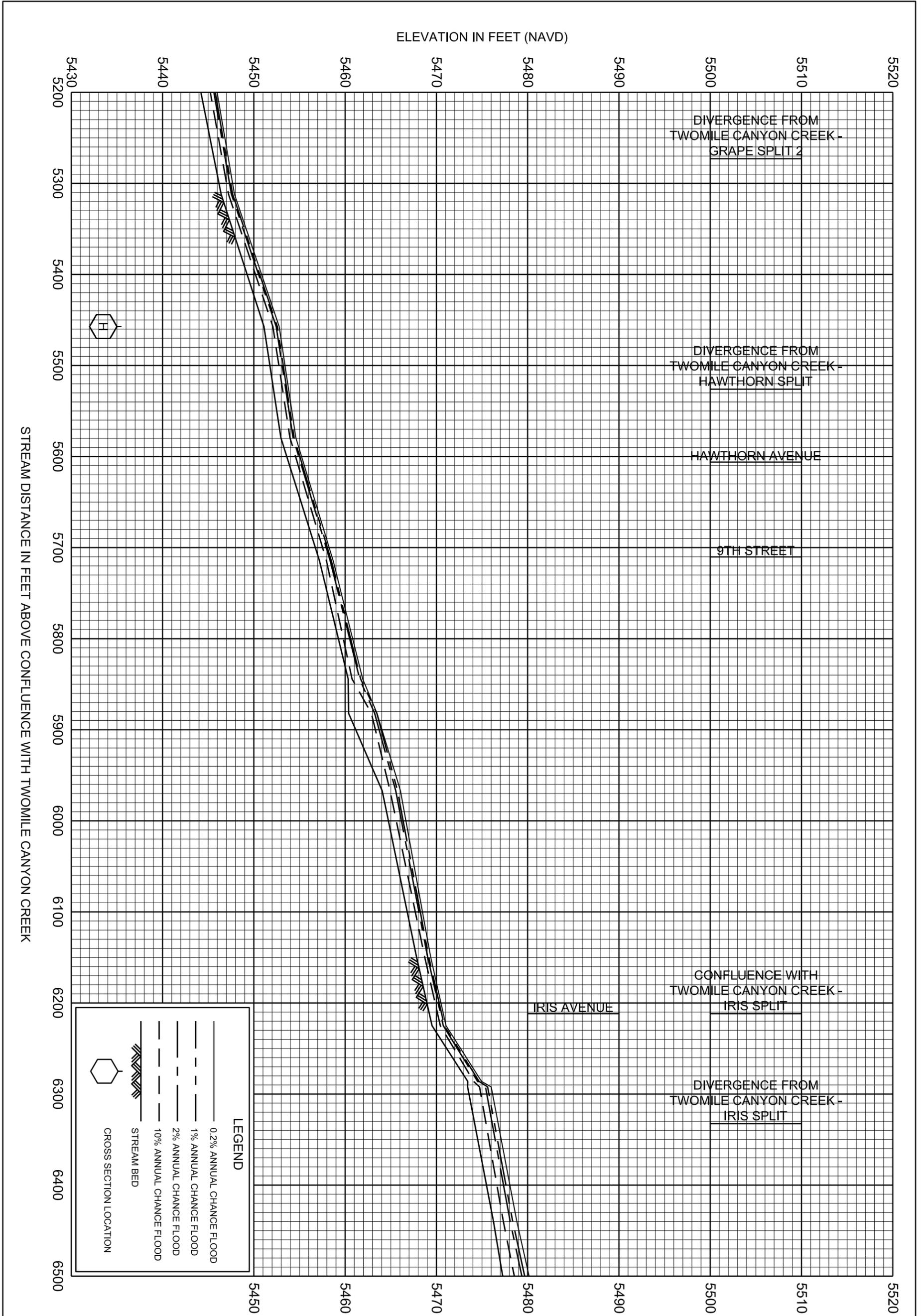
FLOOD PROFILES

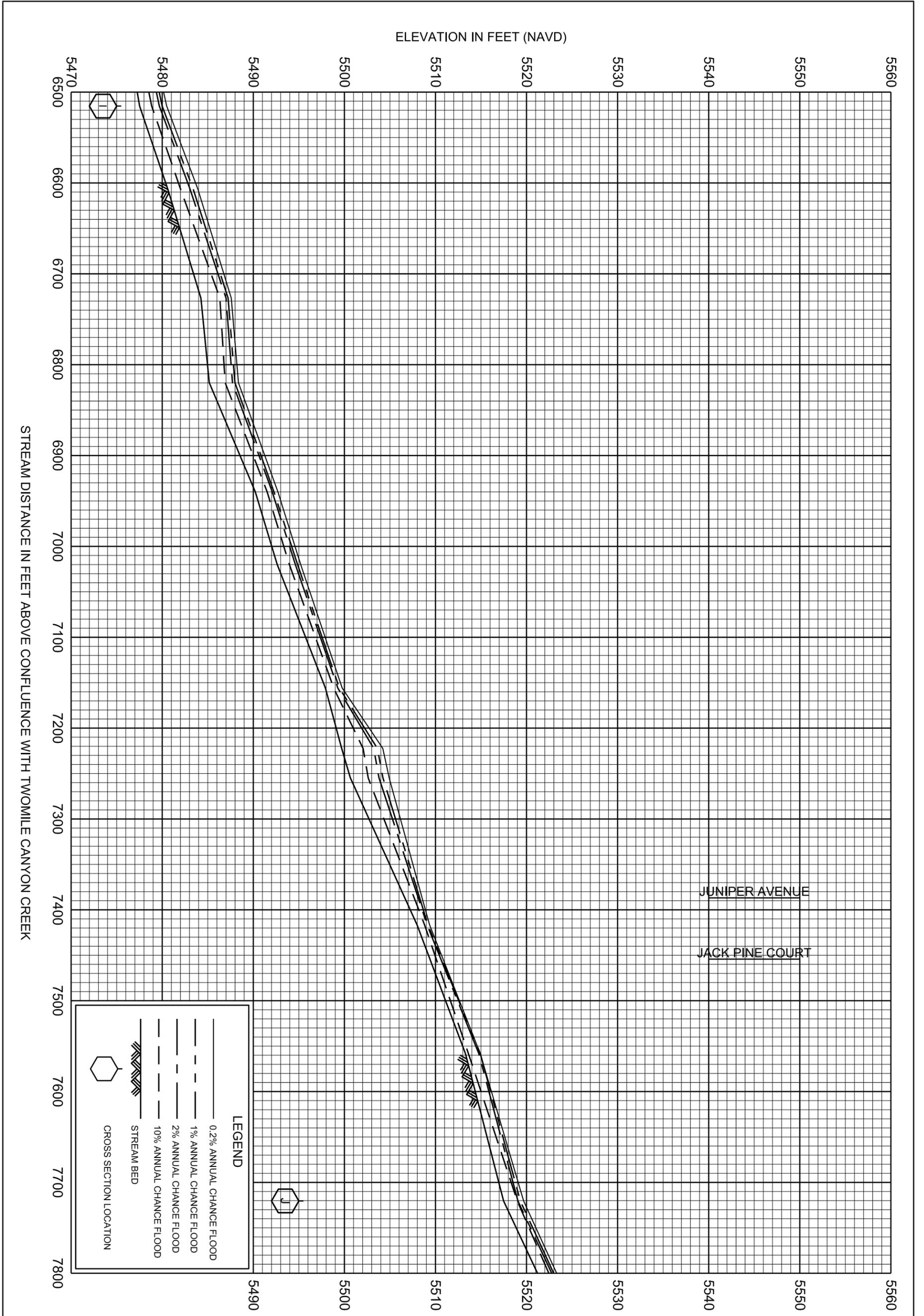
TWOMILE CANYON CREEK - 13TH SPLIT

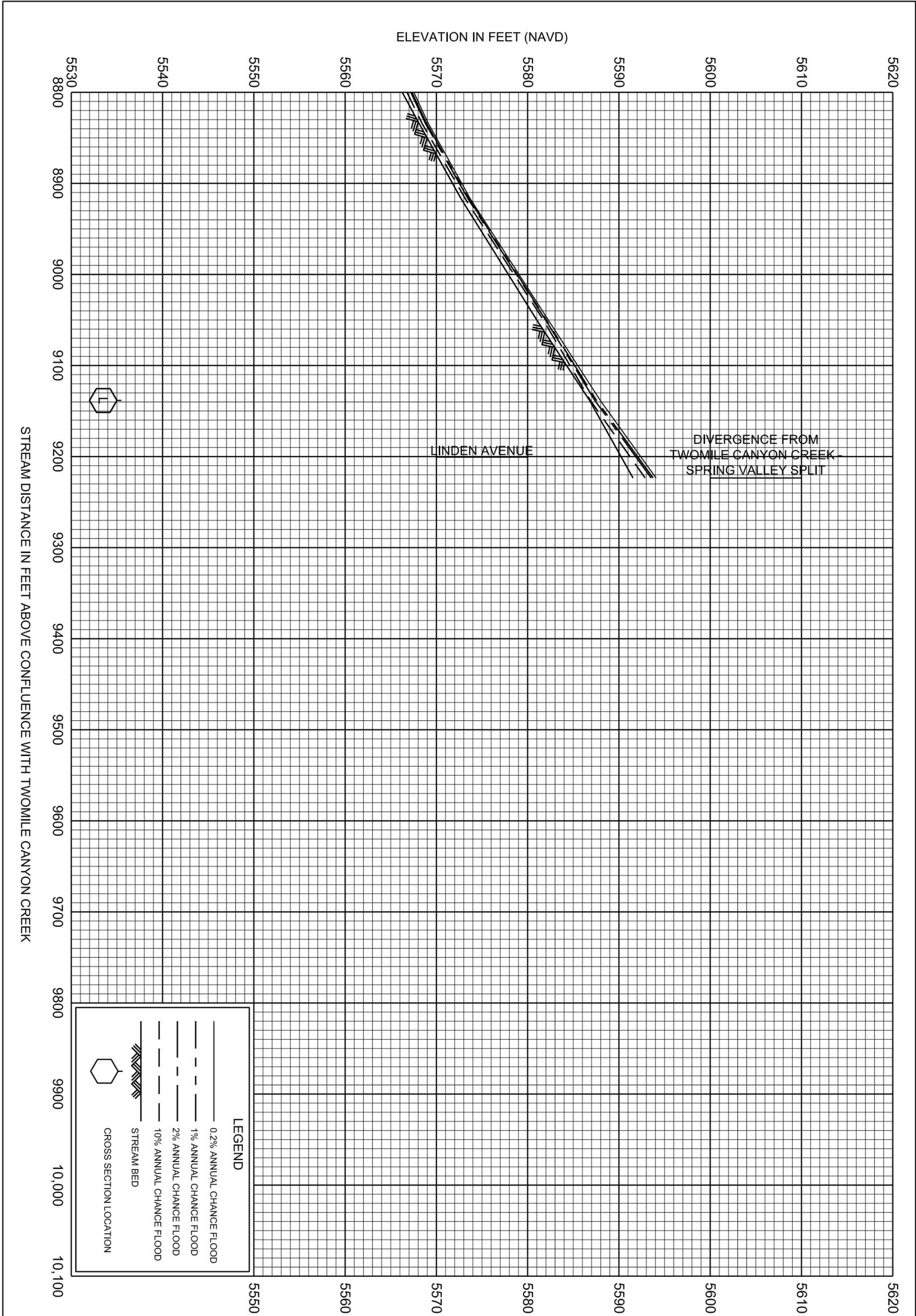
FEDERAL EMERGENCY MANAGEMENT AGENCY
BOULDER COUNTY, CO
 AND INCORPORATED AREAS

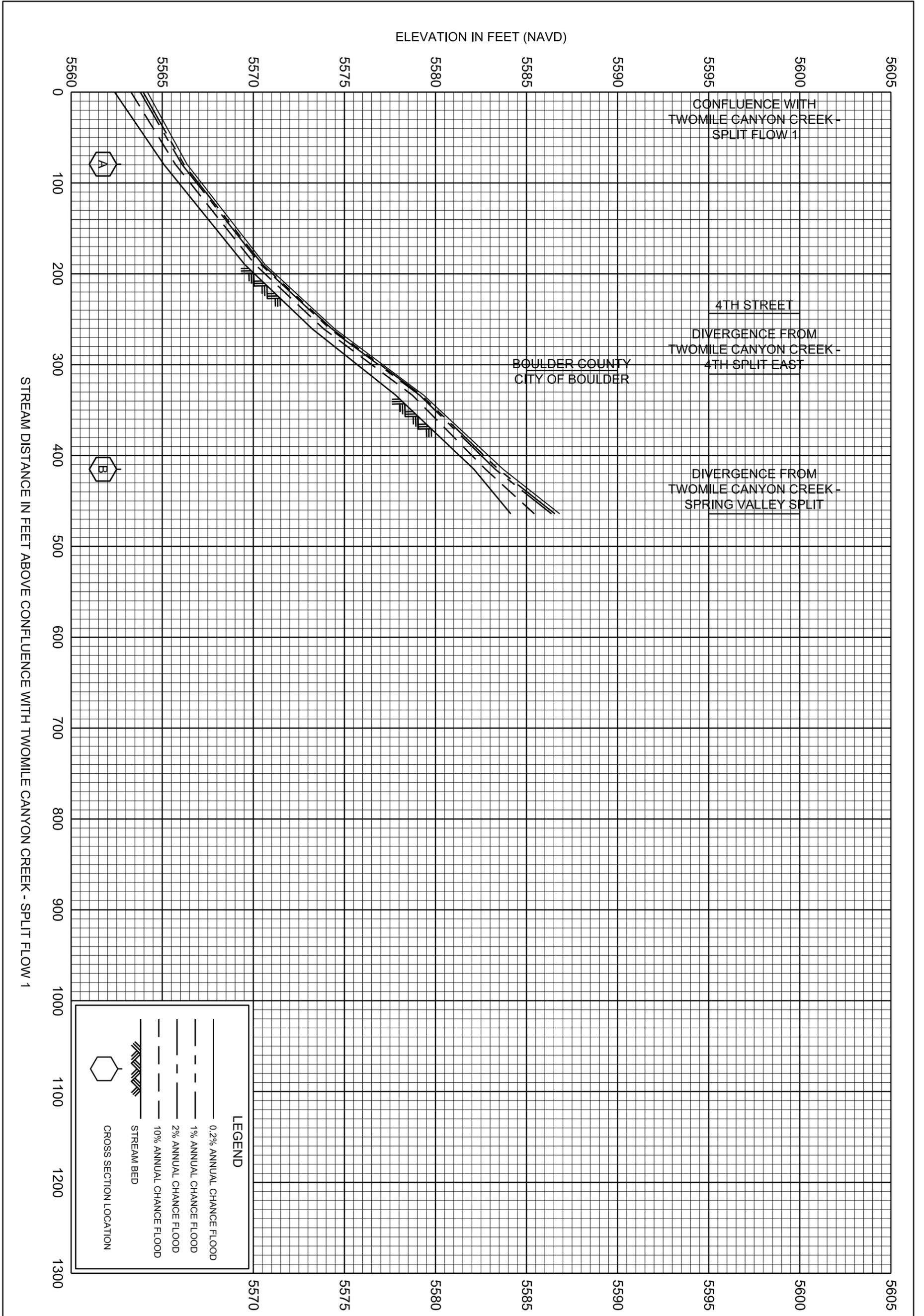


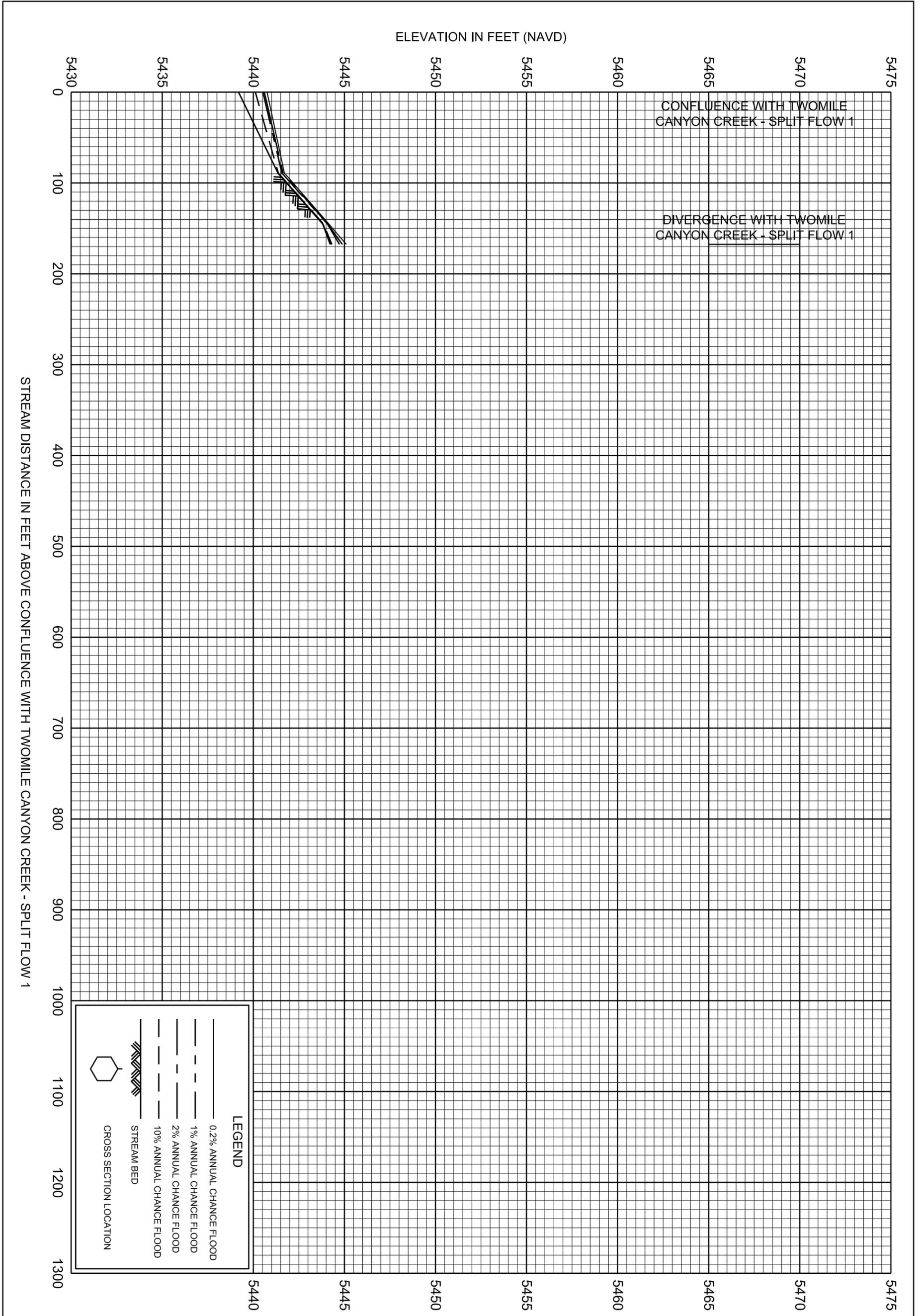


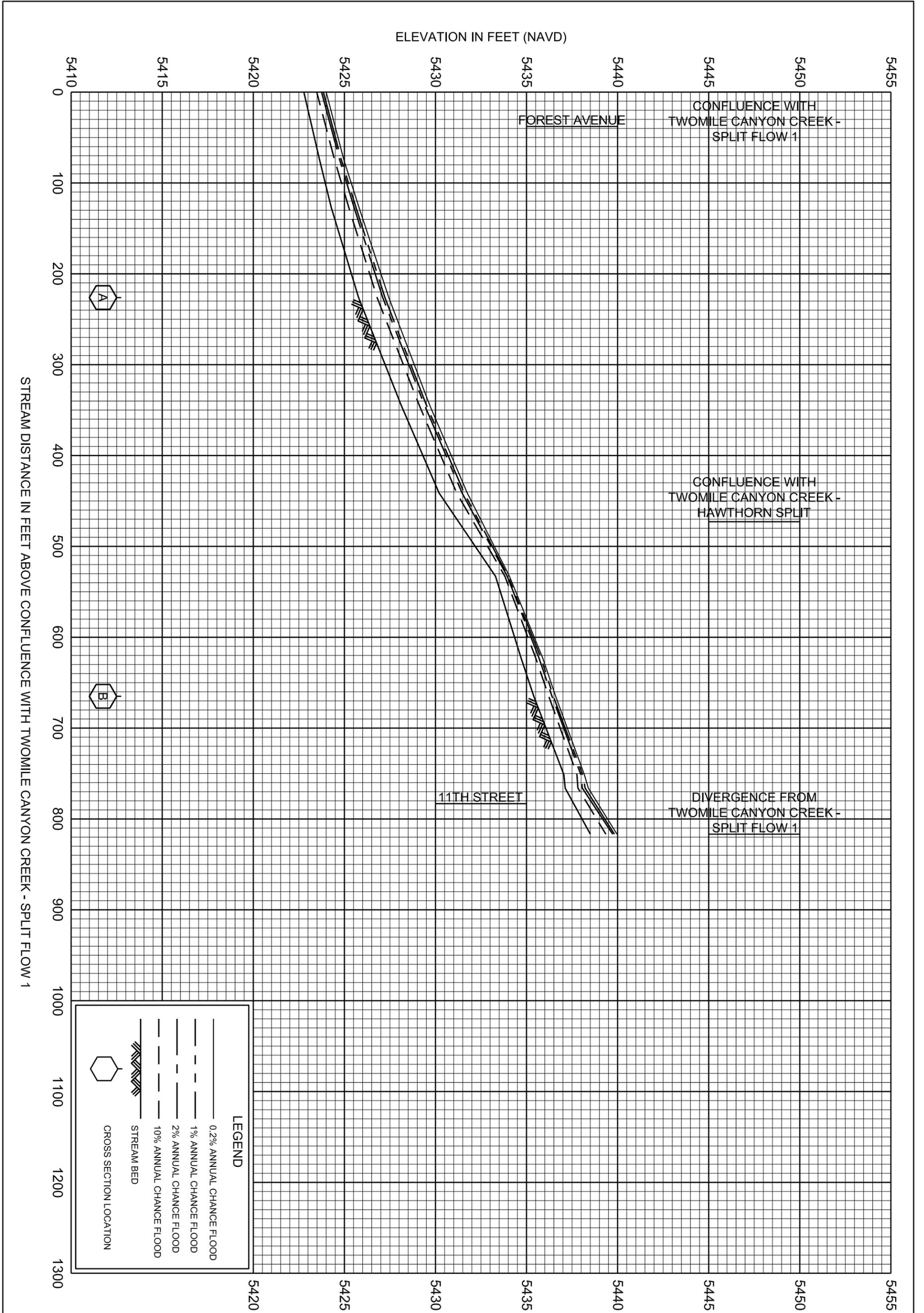


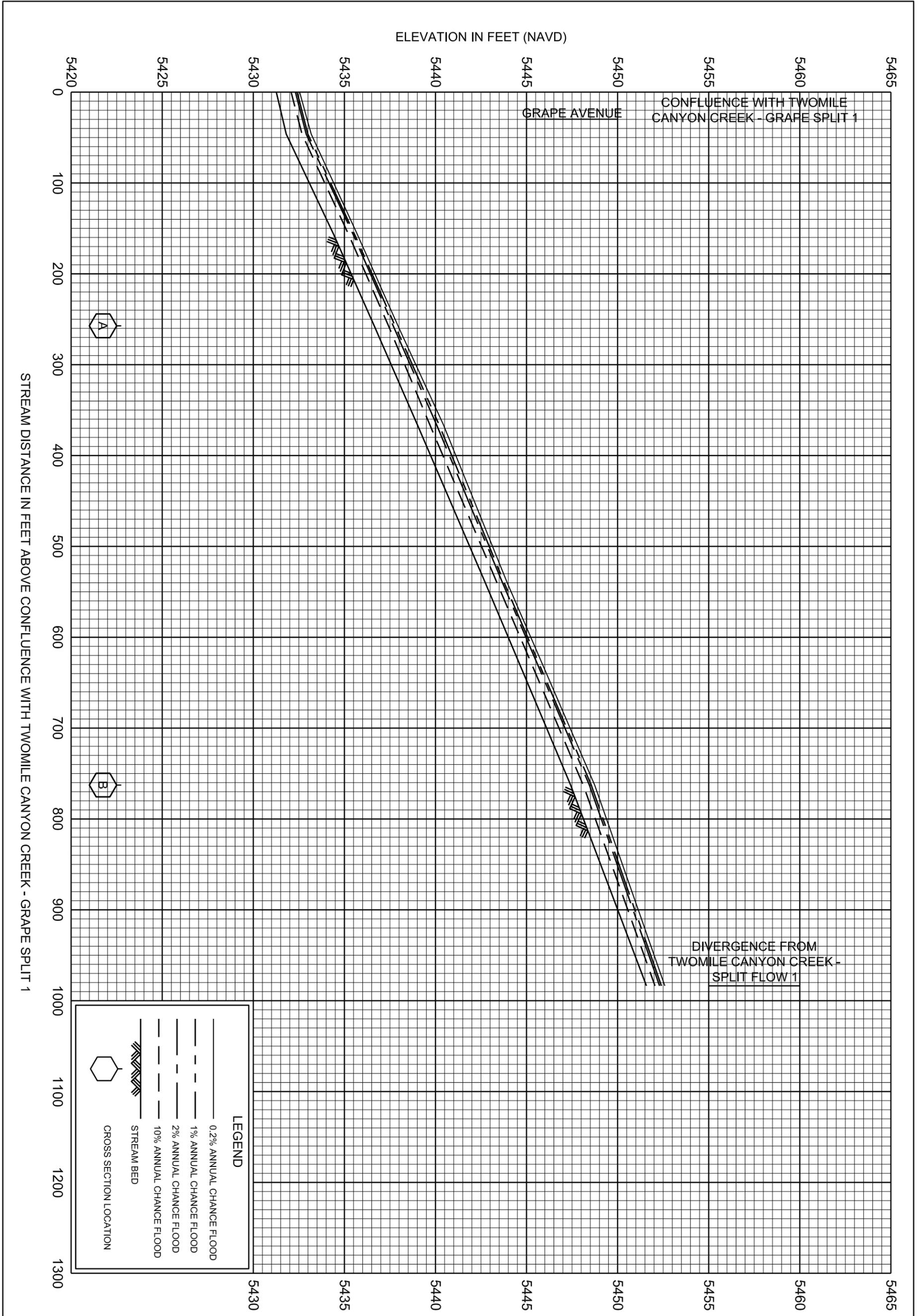




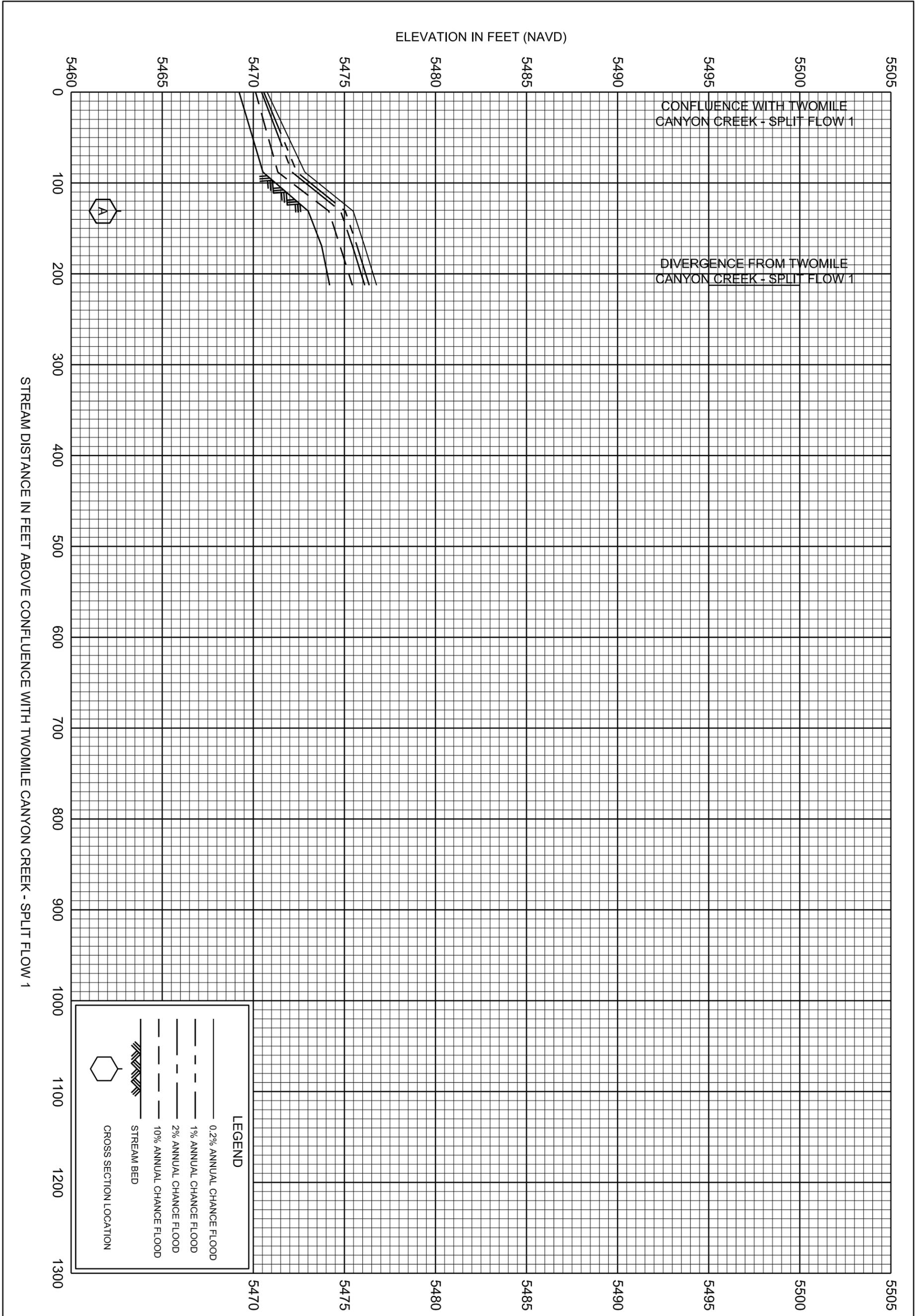


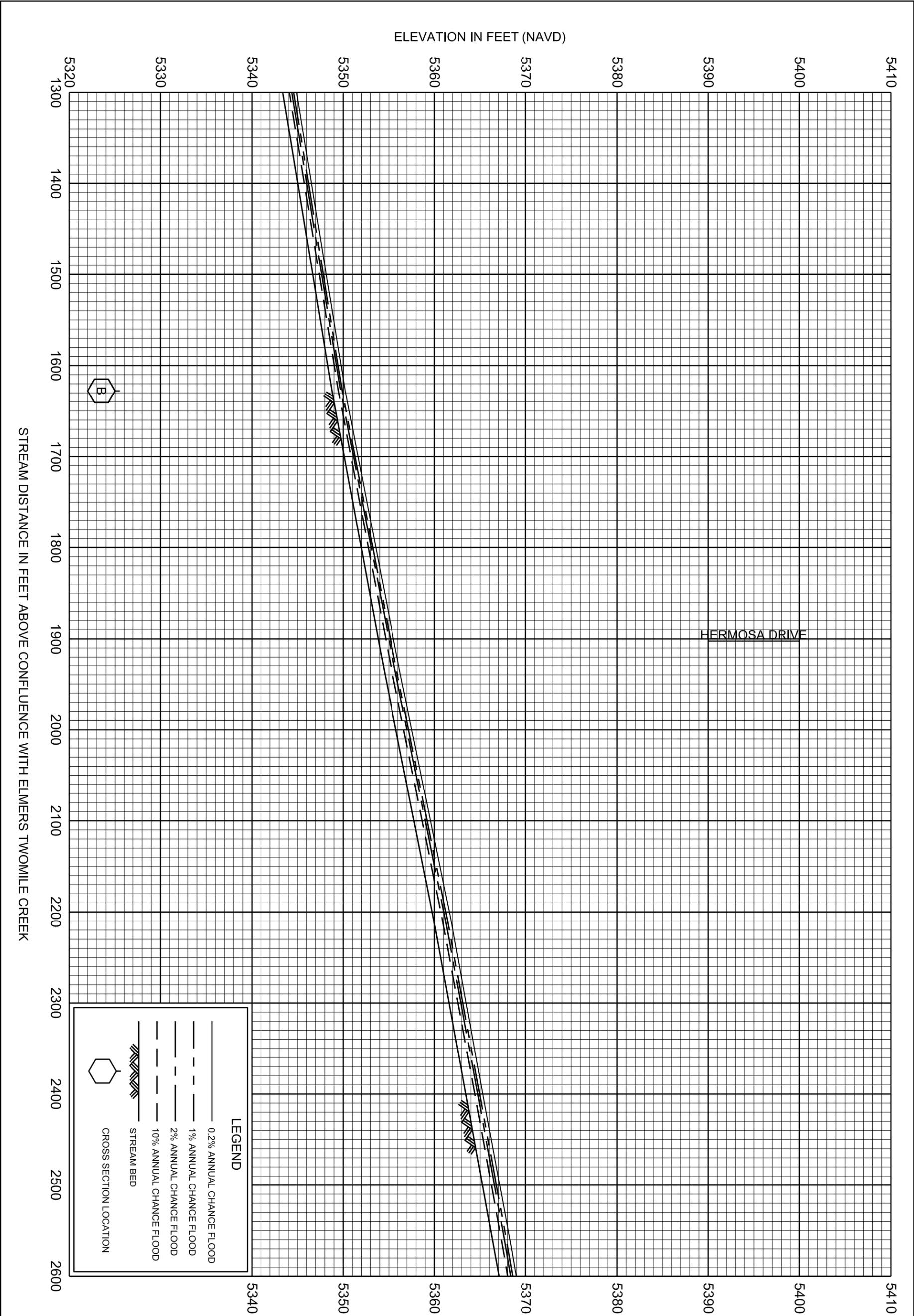






LEGEND	
	0.2% ANNUAL CHANCE FLOOD
	1% ANNUAL CHANCE FLOOD
	2% ANNUAL CHANCE FLOOD
	10% ANNUAL CHANCE FLOOD
	STREAM BED
	CROSS SECTION LOCATION





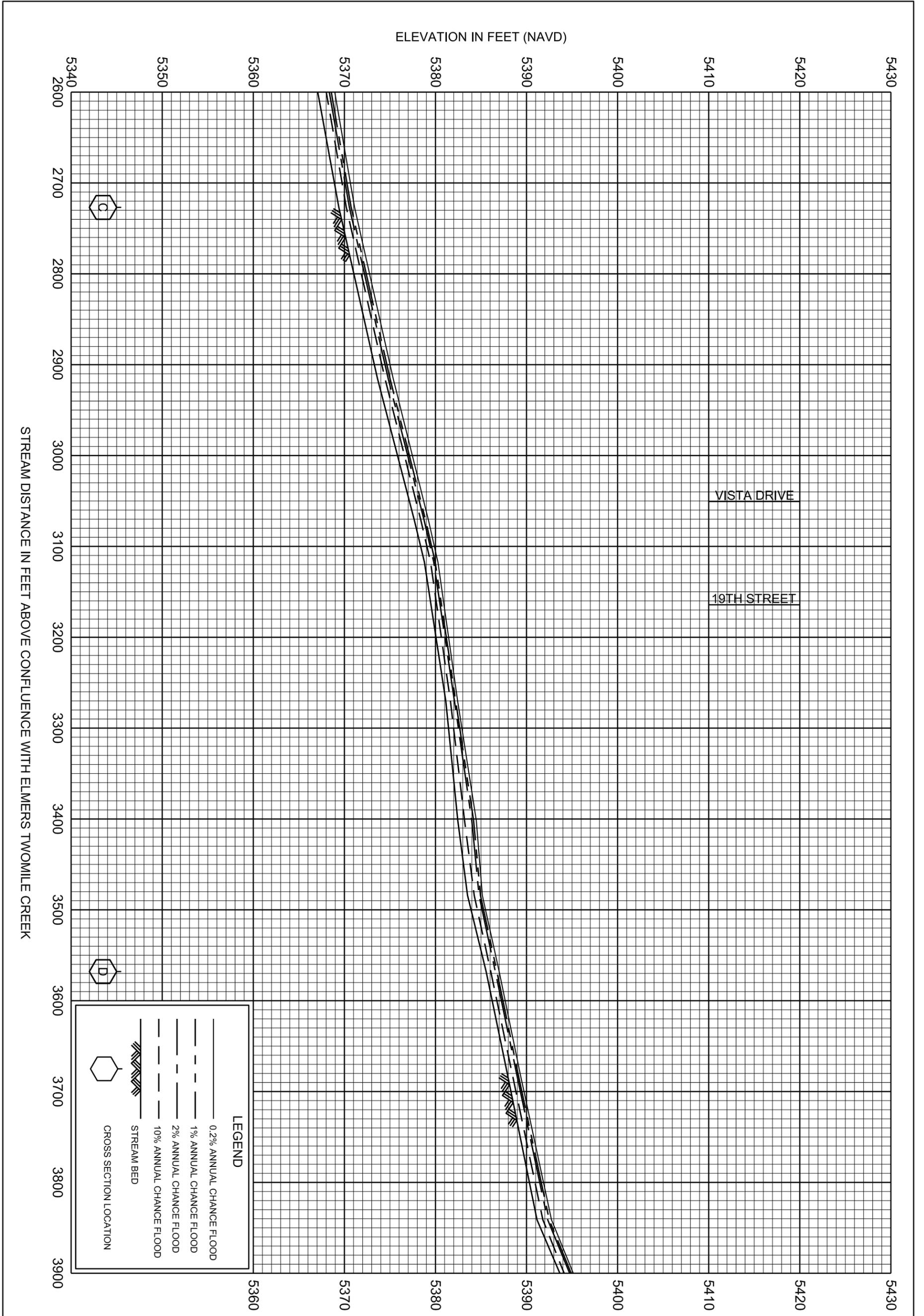
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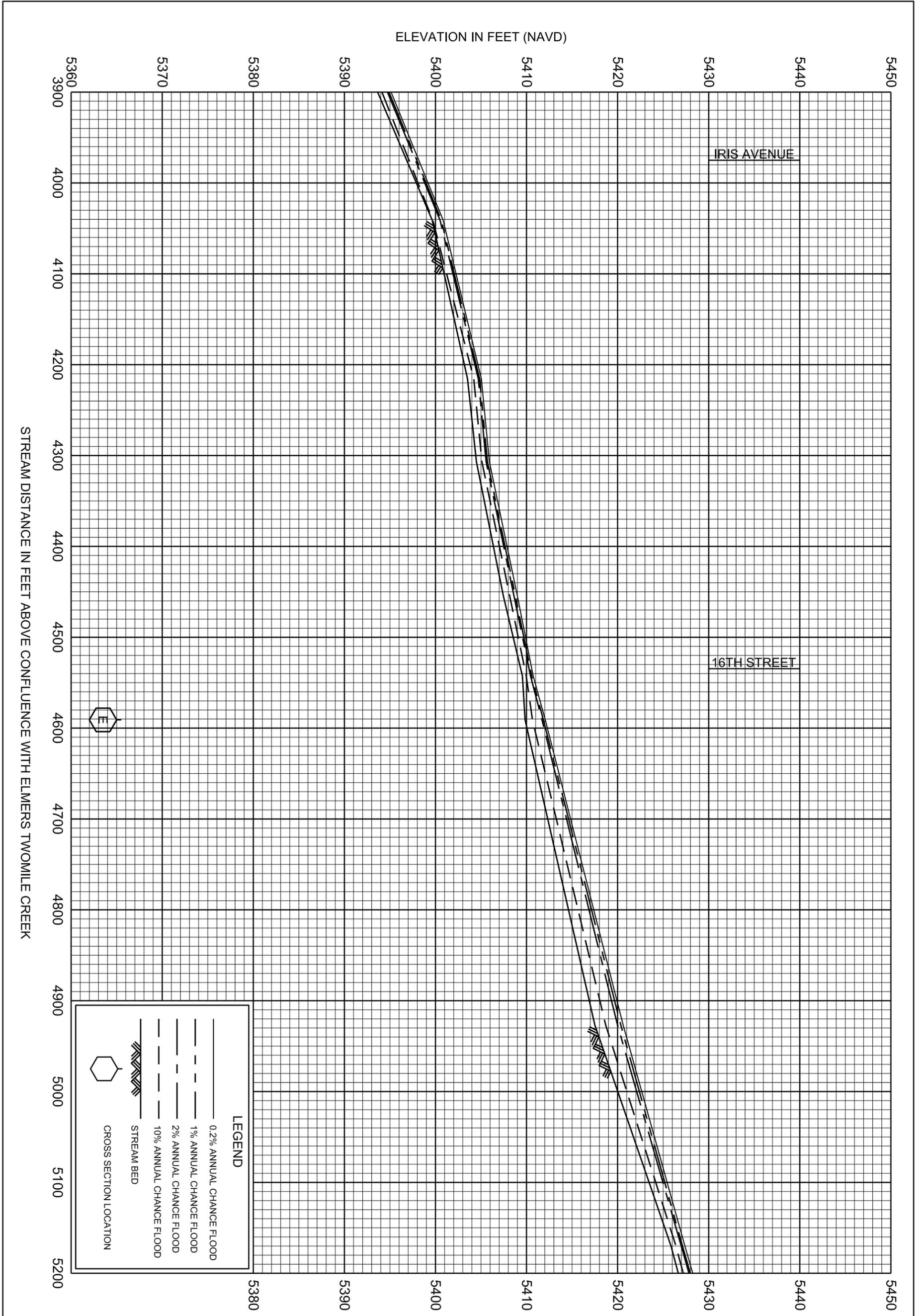
FLOOD PROFILES

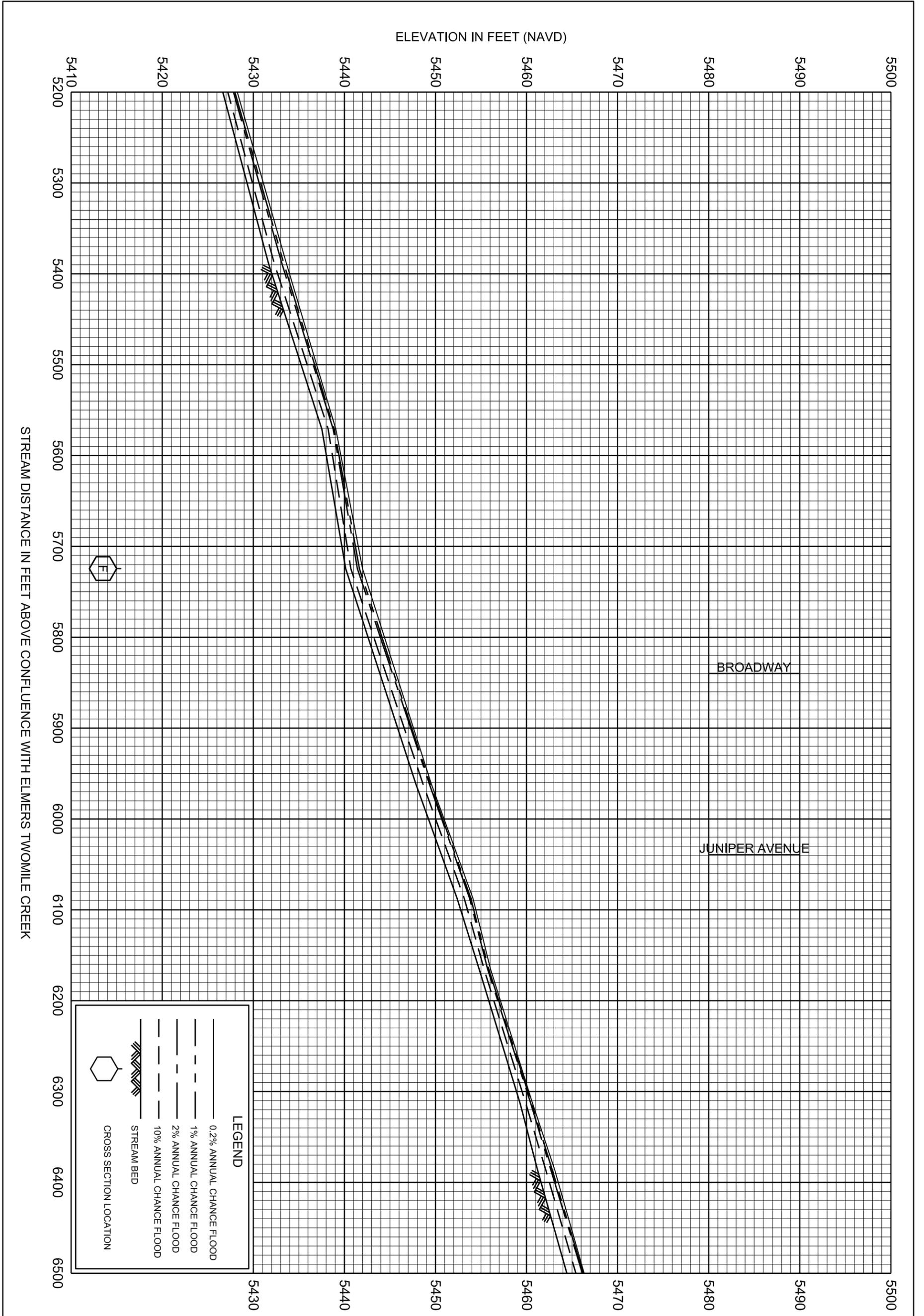
TWOMILE CANYON CREEK - SPLIT FLOW 2

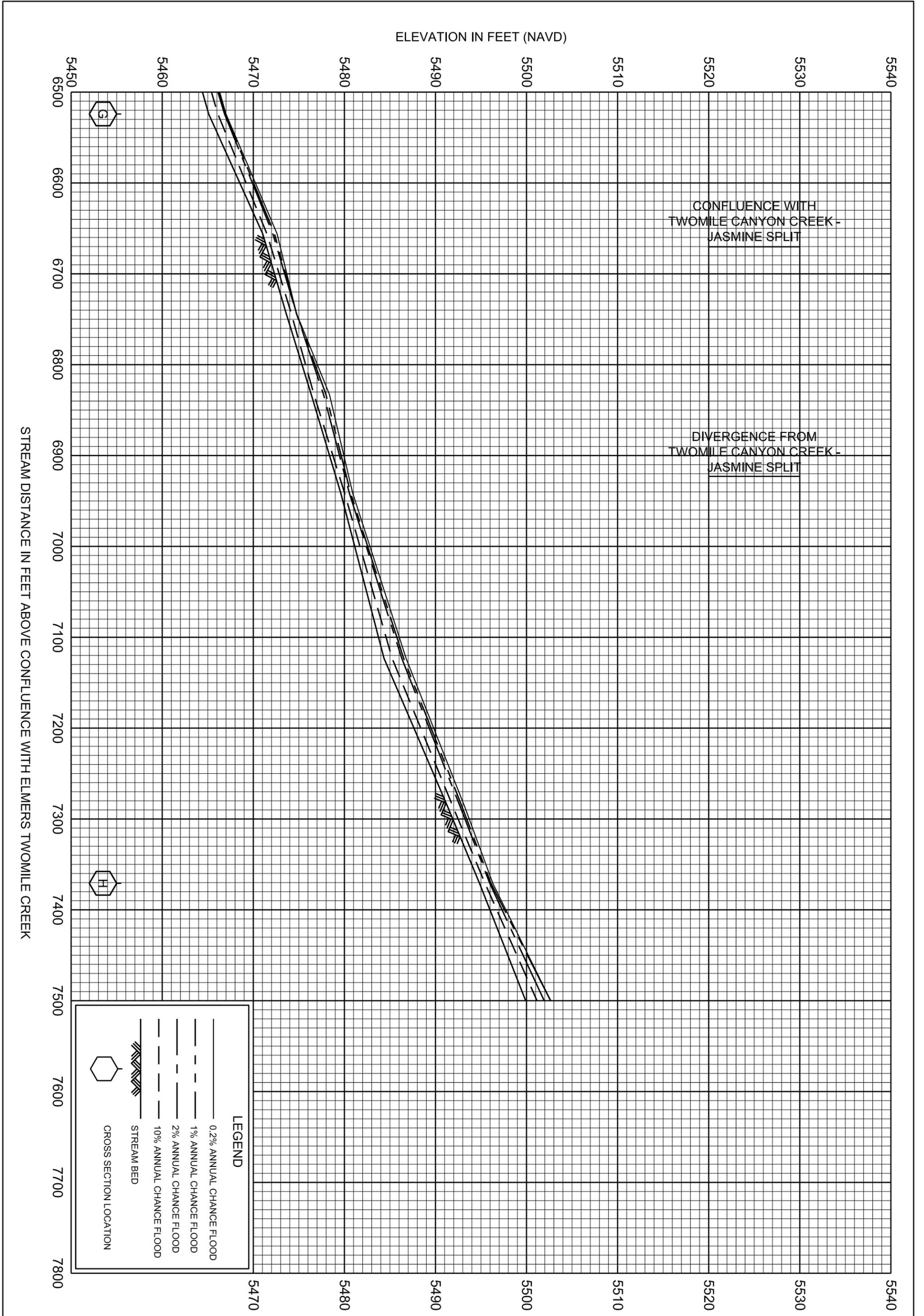
FEDERAL EMERGENCY MANAGEMENT AGENCY
BOULDER COUNTY, CO
AND INCORPORATED AREAS

400P







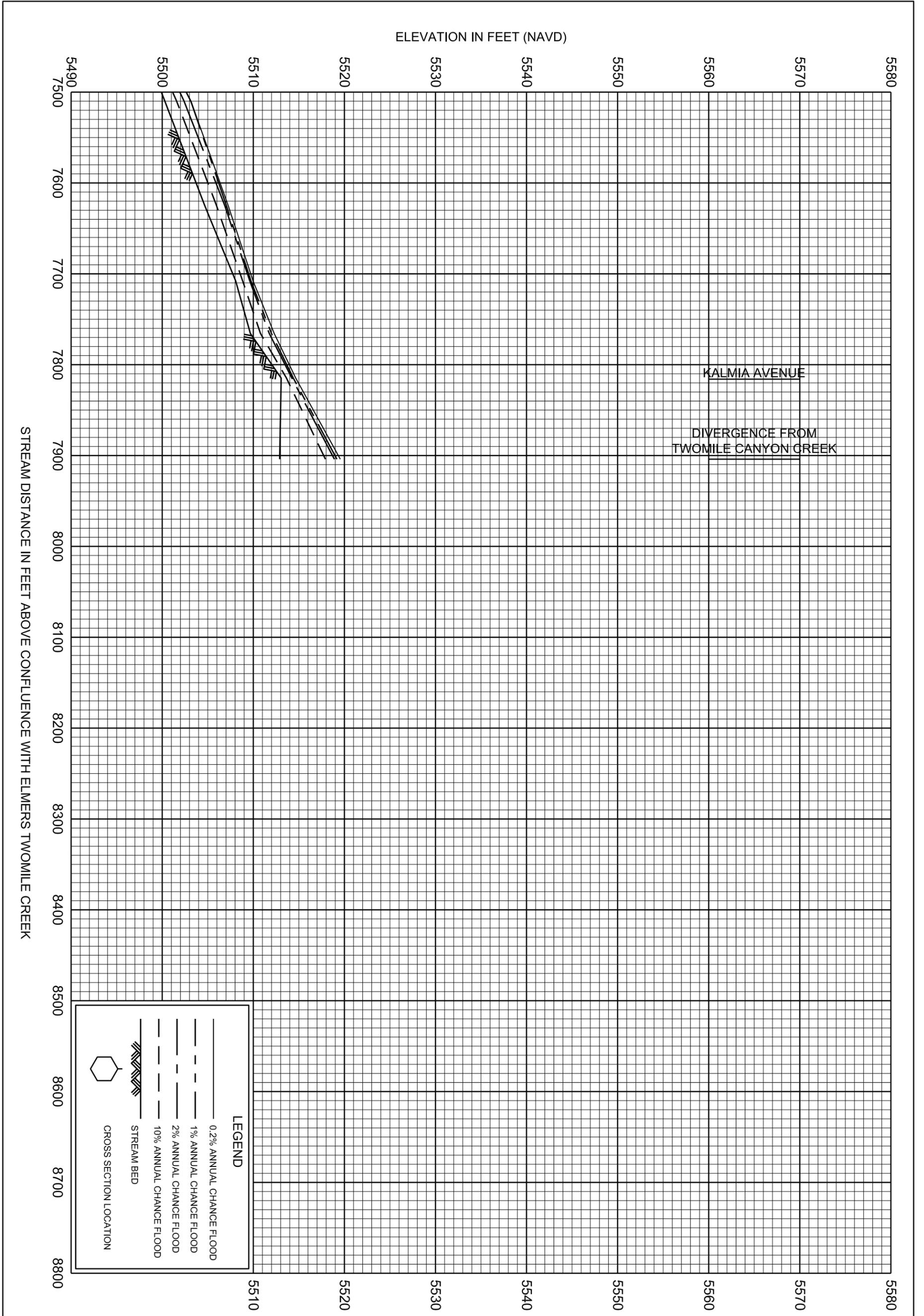


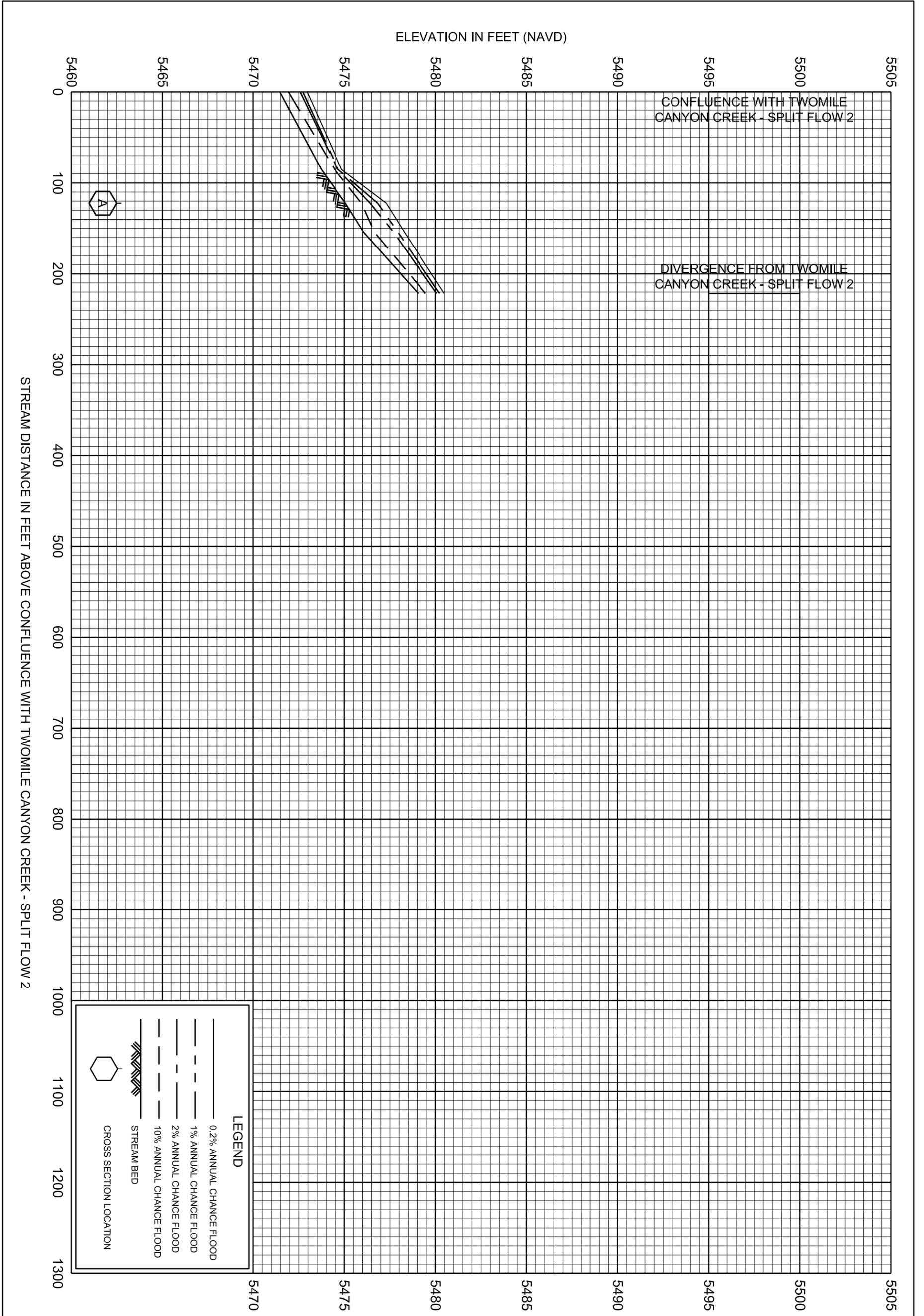
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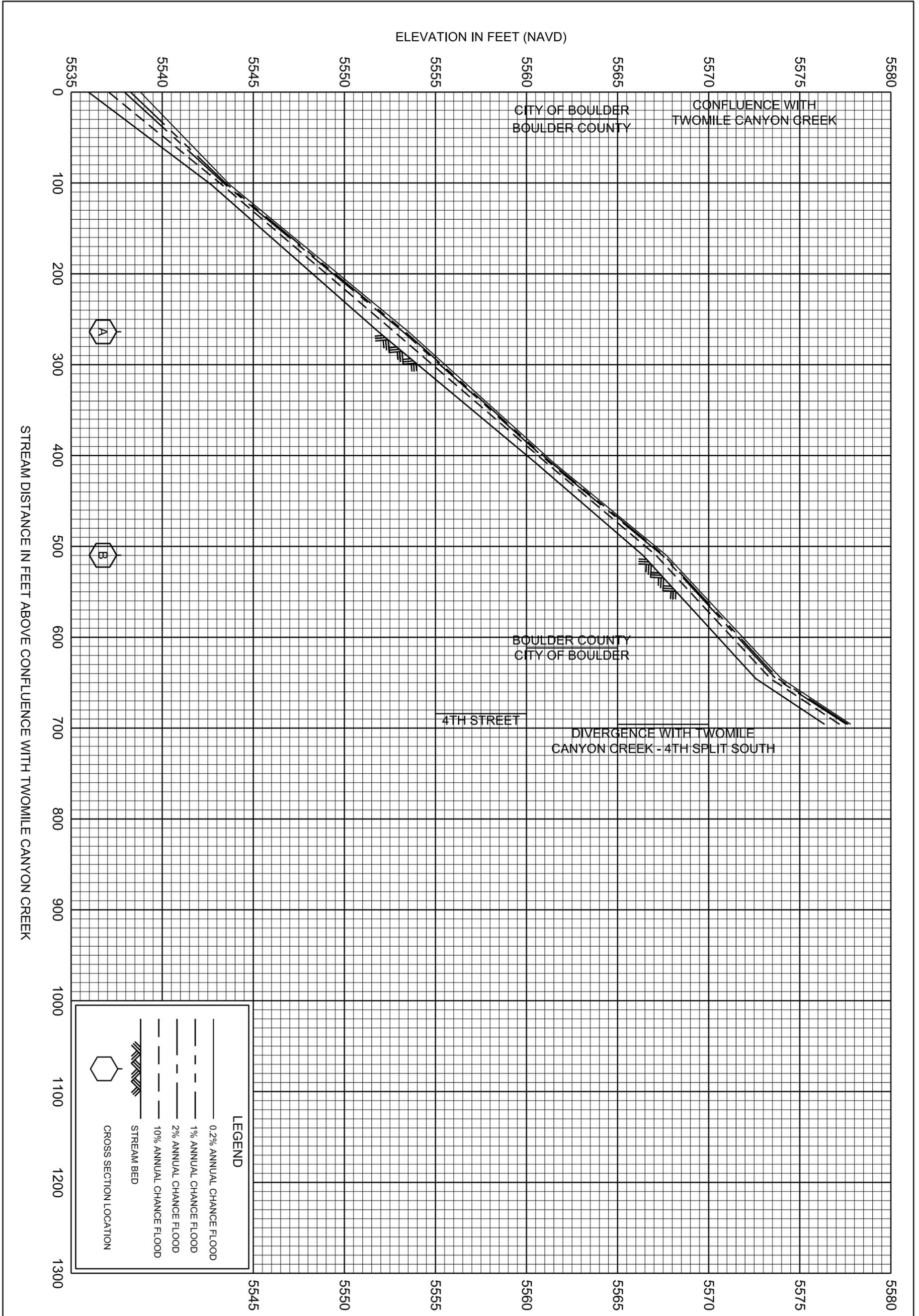
FLOOD PROFILES

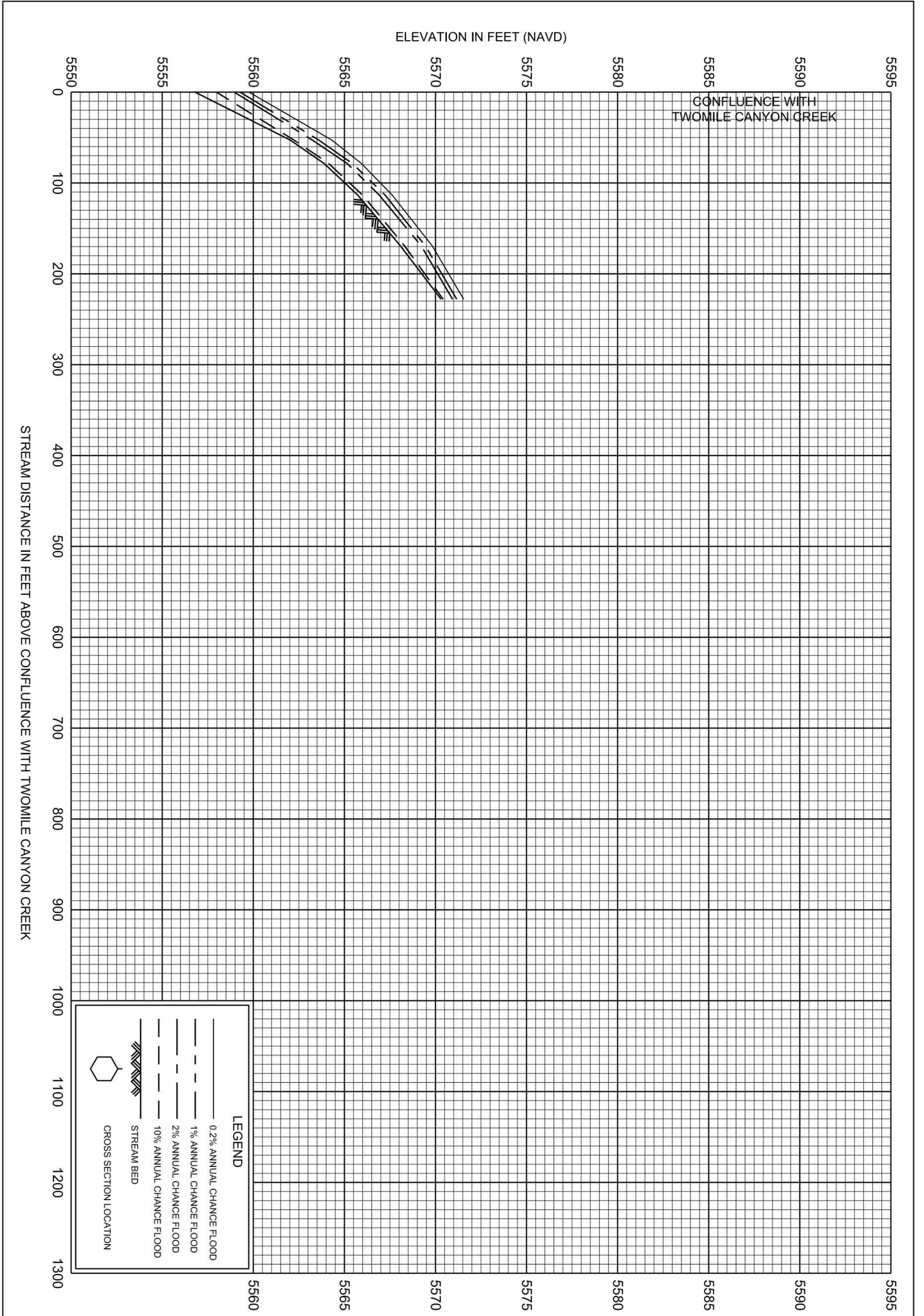
TWOMILE CANYON CREEK - SPLIT FLOW 2

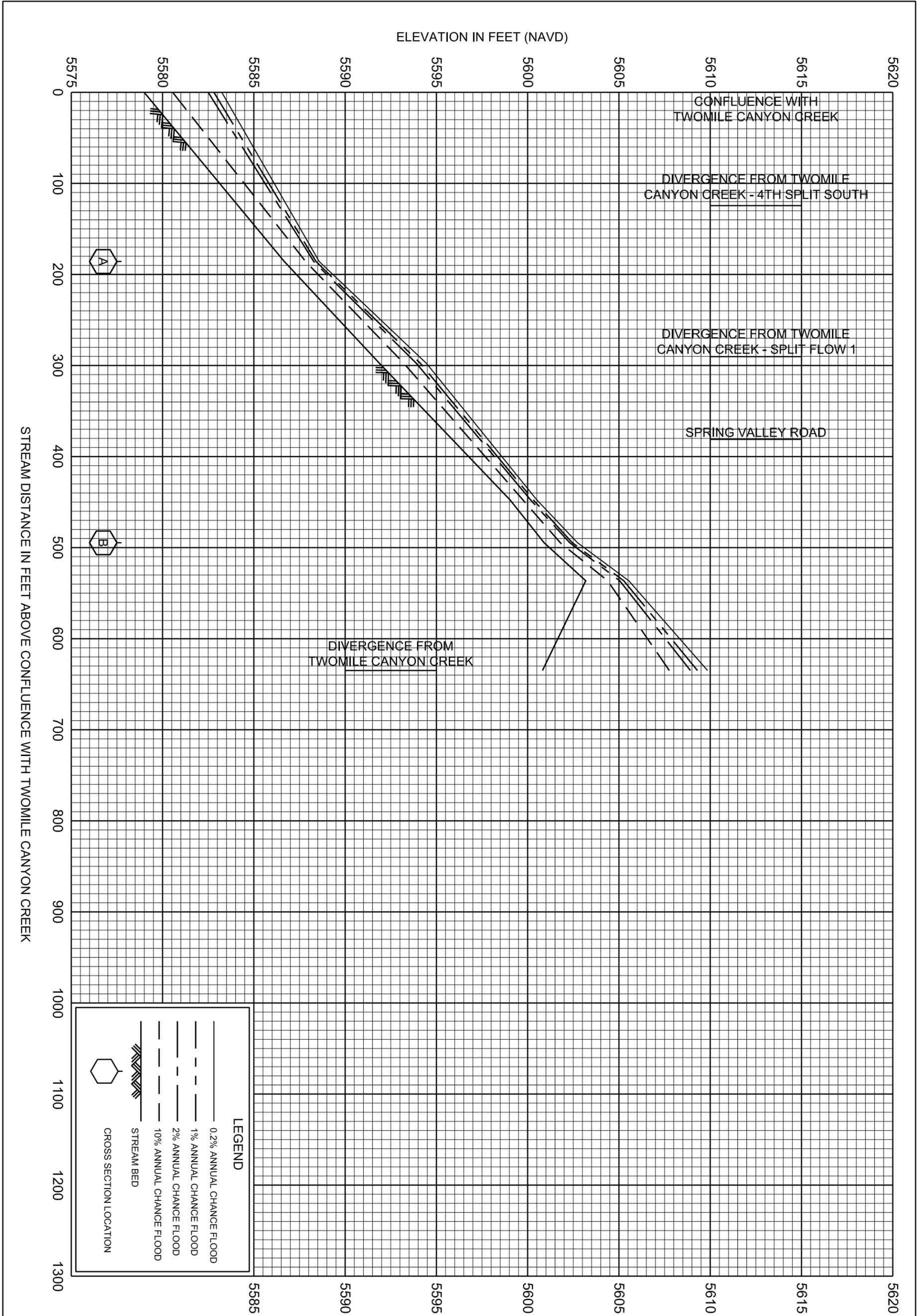
FEDERAL EMERGENCY MANAGEMENT AGENCY
BOULDER COUNTY, CO
 AND INCORPORATED AREAS





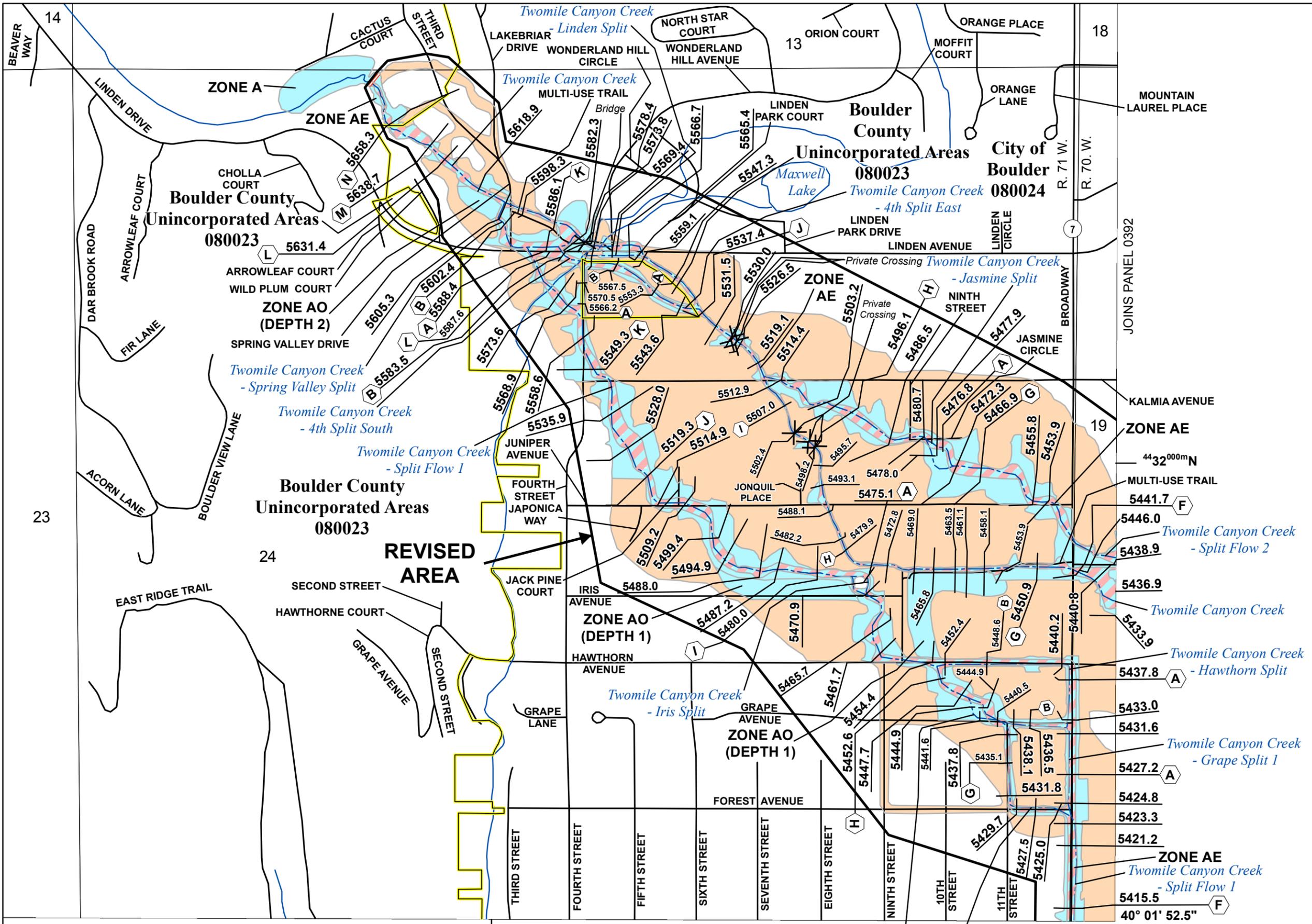






LEGEND

- 0.2% ANNUAL CHANCE FLOOD
- - - 1% ANNUAL CHANCE FLOOD
- · · 2% ANNUAL CHANCE FLOOD
- - - 10% ANNUAL CHANCE FLOOD
- ▬ STREAM BED
- ⬢ CROSS SECTION LOCATION



NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 1 NORTH, RANGE 70 WEST AND TOWNSHIP 1 NORTH, RANGE 71 WEST.

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
- 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

SCALE

Map Projection: Universal Transverse Mercator NAD 1983 UTM Zone 13N
 Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 500 feet

0 250 500 1,000 Feet

0 62.5 125 250 Meters

FEMA National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP

BOULDER COUNTY, COLORADO
 and Incorporated Areas

PANEL 391 of 615

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOULDER, CITY OF	080024	0391	J
BOULDER COUNTY	080023	0391	J

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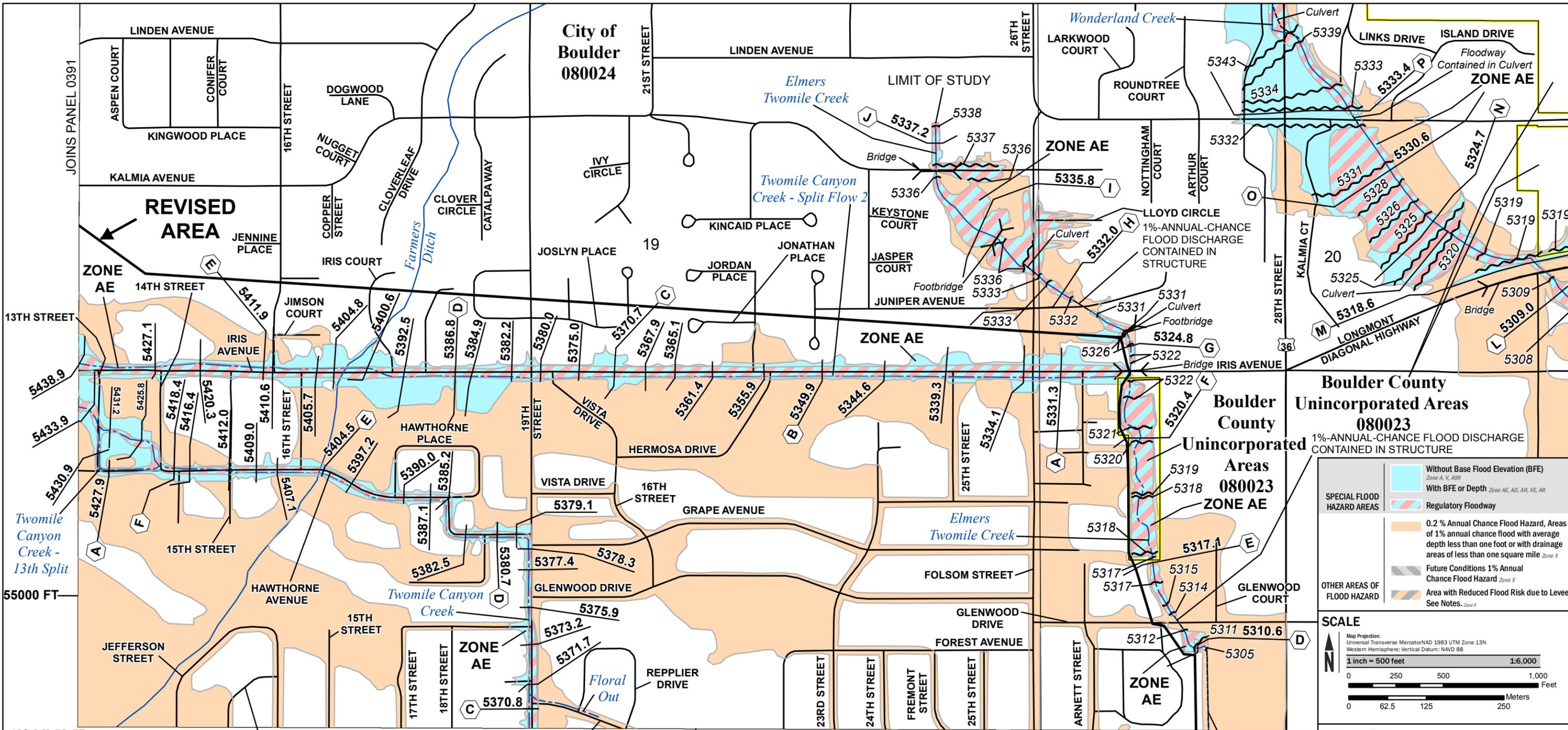
VERSION NUMBER 1.1.1.0
 MAP NUMBER 08013C0391J
 MAP REVISED DECEMBER 18, 2012

475⁰⁰⁰mE

JOINS PANEL 0393

105° 16' 52.5"

Twomile Canyon Creek - Split Flow 1
 Twomile Canyon Creek - Grape Split 2



40° 01' 52.5"
105° 16' 52.5"

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 1 NORTH, RANGE 70 WEST.

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
- 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

OTHER AREAS OF FLOOD HAZARD

SCALE

Map Projection: Universal Transverse Mercator NAD 1983 UTM Zone 13N
Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 500 feet

0 250 500 1,000 Feet

0 62.5 125 250 Meters

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

BOULDER COUNTY, COLORADO
and Incorporated Areas

PANEL 392 of 615

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOULDER, CITY OF	080024	0392	J
BOULDER COUNTY	080023	0392	J

REVISED TO REFLECT LOMR EFFECTIVE: August 18, 2016

VERSION NUMBER 1.1.1.0
MAP NUMBER 08013C0392J
MAP REVISED DECEMBER 18, 2012

1%-ANNUAL-CHANCE FLOOD DISCHARGE CONTAINED IN STRUCTURE

477⁰⁰⁰mE

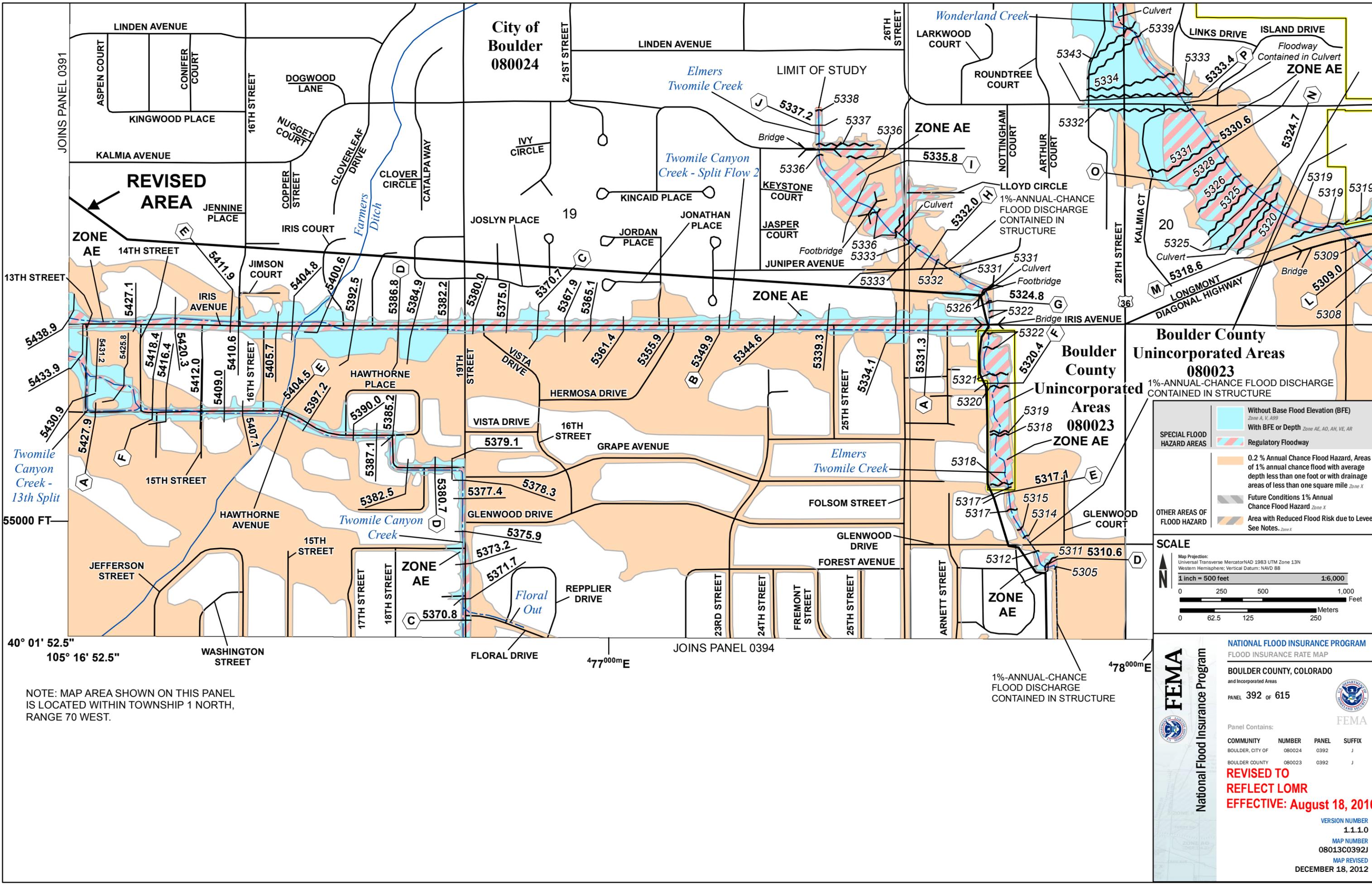
478⁰⁰⁰mE

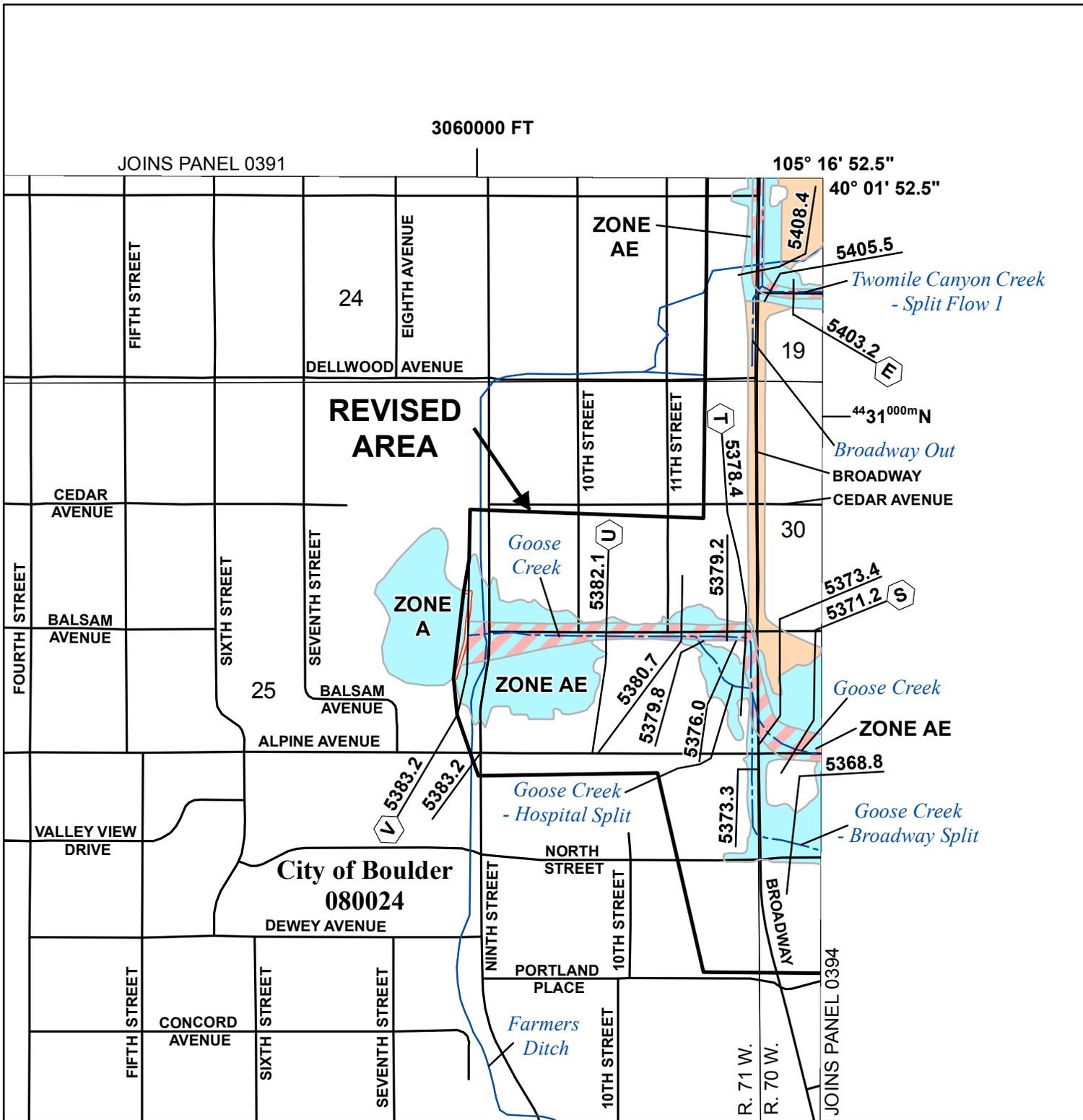
JOINS PANEL 0394

WASHINGTON STREET

55000 FT

13TH STREET





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

SCALE

Map Projection:
Universal Transverse Mercator NAD 1983 UTM Zone 13N
Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 500 feet 1:6,000

0 250 500 1,000 Feet

0 62.5 125 250 Meters

FEMA
National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

BOULDER COUNTY, COLORADO
and Incorporated Areas

PANEL 393 of 615

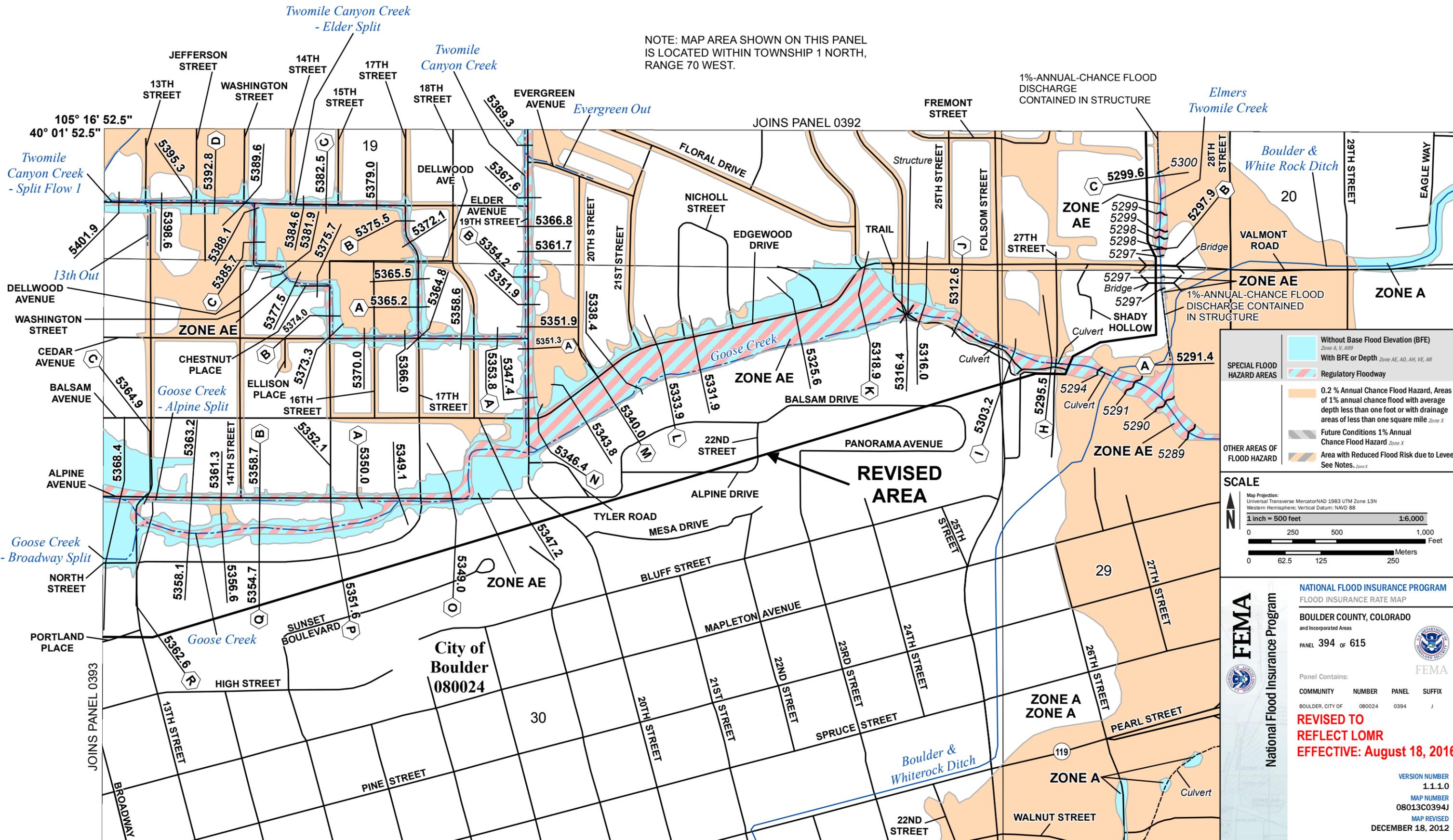
Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOULDER, CITY OF	080024	0393	J
BOULDER COUNTY	080023	0393	J

REVISED TO REFLECT LOMR EFFECTIVE: August 18, 2016

VERSION NUMBER 1.1.1.0
MAP NUMBER 08013C0393J
MAP REVISED DECEMBER 18, 2012

NOTE: MAP AREA SHOWN ON THIS PANEL IS LOCATED WITHIN TOWNSHIP 1 NORTH, RANGE 70 WEST.



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
- 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

SCALE

Map Projection:
Universal Transverse Mercator NAD 1983 UTM Zone 13N
Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 500 feet

0 250 500 1,000 Feet

0 62.5 125 250 Meters

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

BOULDER COUNTY, COLORADO
and Incorporated Areas

PANEL 394 of 615

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOULDER, CITY OF	080024	0394	J

REVISED TO REFLECT LOMR EFFECTIVE: August 18, 2016

VERSION NUMBER 1.1.1.0
MAP NUMBER 08013C0394J
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