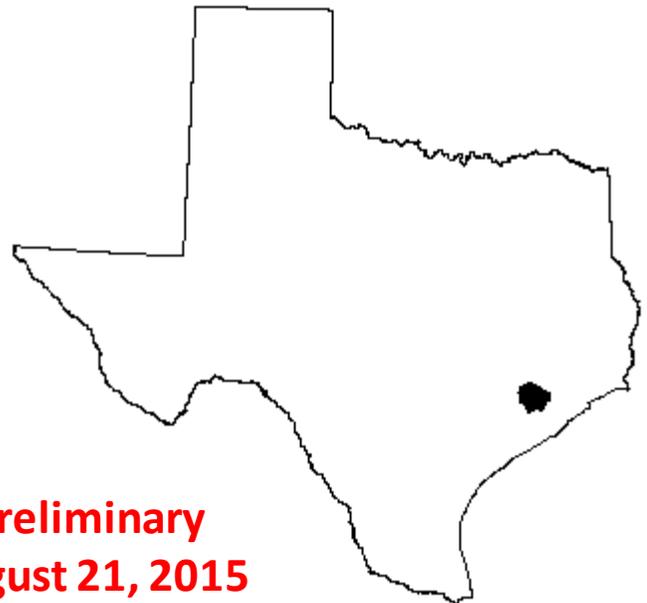


FLOOD INSURANCE STUDY



FORT BEND COUNTY, TEXAS AND INCORPORATED AREAS VOLUME 1 OF 1



**Preliminary
August 21, 2015**

* Communities Affected

Community Name	Community Number
* FORT BEND COUNTY UNINCORPORATED AREAS	480228
ARCOLA, CITY OF	481619
* BEASLEY, CITY OF *	481654
BIG OAKS M.U.D. *	481596
CHELFORD CITY M.U.D. *	481568
FAIRCHILDS, VILLAGE OF	481675
FIRST COLONY L.I.D.	481583
FORT BEND COUNTY L.I.D. NO 2	481485
FORT BEND COUNTY L.I.D. NO 7	481594
FORT BEND COUNTY M.U.D. NO 2	481272
FORT BEND COUNTY M.U.D. NO 23	481590
FORT BEND COUNTY M.U.D. NO 25	481570
FORT BEND COUNTY M.U.D. NO 30 *	481601
FORT BEND COUNTY M.U.D. NO 34	481520
FORT BEND COUNTY M.U.D. NO 35	481519
FORT BEND COUNTY M.U.D. NO 41	481591
FORT BEND COUNTY M.U.D. NO 42	480228
FULSHEAR, CITY OF	481488
HOUSTON, CITY OF	480296
KATY, CITY OF	480301
* KENDLETON, CITY OF	481551
KINGSBRIDGE M.U.D.	481567
MEADOWS PLACE, CITY OF *	481563
MISSION BEND M.U.D. NO 1 *	481578
MISSOURI CITY, CITY OF	480304
NEEDVILLE, CITY OF	480820
ORCHARD, CITY OF *	481655
PEARLAND, CITY OF	480077
PECAN GROVE M.U.D.	481486
PLEAK, VILLAGE OF	481615
RICHMOND, CITY OF	480231
* ROSENBERG, CITY OF	480232
SIMONTON, CITY OF	481564
STAFFORD, CITY OF	480233
SUGAR LAND, CITY OF	480234
THOMPSONS, TOWN OF	481642
WESTON LAKES, CITY OF	481197
WEST KEEGANS BAYOU I.D.	481602
WILLOW FORK DRAINAGE DISTRICT	481603

* No Special Flood Hazards Identified



Revised: month date, year

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER

48157CV001B

This Preliminary FIS report, dated August 21, 2015, includes revisions based on detailed studies completed by the Texas Water Development Board (TWDB) as a FEMA Cooperating Technical Partner (CTP). No new approved LOMRs were available to be incorporated. The following document only includes data revised since the April 2, 2014 Effective FIS Report. The “Revisions by Addendum” approach will be used to update the April 2, 2014 Effective FIS during the post preliminary stage of this project.

1.0 INTRODUCTION

1.2 Authority and Acknowledgments

Fort Bend County and Certain Political Districts

The hydrologic and hydraulic analyses in the original study were prepared by Espey, Huston & Associates, Inc., now Atkins for the Department of Homeland Security’s FEMA, under Contract No. H-4569. The work for that study was completed in April 1980. Also included are the hydrologic and hydraulic analyses for the Brazos River, which were prepared by Atkins. This work was completed in May 1985. In the June 3, 1988 revision, updated hydrologic and hydraulic analyses for portions of Dry Creek were prepared by LJA Engineering & Surveying, Inc. The work for that revision was completed in April 1987. In the May 3, 1990 revision, updated hydrologic and hydraulic analyses for Clodine Ditch were prepared by Vansickle, Mickelson & Klein, Inc. The work for that revision was completed in October 1988. In the June 18, 1990 revision, updated hydrologic and hydraulic analyses for Red Gully were prepared by LJA Engineering & Surveying, Inc. The work for that revision was completed in May 1989.

Additional hydrologic and hydraulic analyses for the San Bernard River were prepared by the TWDB for FEMA under Inter-Agency Agreement No. EMT-2011-CA-005, Case No. 12-06-1142S. That work was completed in March 2015.

2.0 AREA STUDIED

2.1 Scope of Study

This FIS covers the geographic area of Fort Bend County, Texas, including the incorporated communities listed in Section 1.1. Table 1, “Scope of Study”, lists the limits of detailed study for flooding sources studied by the detailed and redelineation methods in this revision.

TABLE 1 – SCOPE OF STUDY

<u>Detailed Study Streams</u>	<u>Limits of Detailed Study</u>
San Bernard River	For its entire length within the county

3.0 ENGINEERING METHODS

3.1 Hydrologic Analyses

3.1.1 New Detailed Study Streams

A detailed study was conducted for the San Bernard River, affecting the entire length of the river within Fort Bend County. Discharges for this study were determined using the USACE HEC-HMS (v. 3.5) computer program. Final hydrographs were established based on the 2008 Wharton County Flood Damage Analysis Study – Existing Conditions

Drainage Report for the San Bernard River. These hydrographs were updated to account for newly available LiDAR topography.

TABLE 5 – SUMMARY OF DISCHARGES

<u>FLOODING SOURCE AND LOCATION</u>	<u>DRAINAGE AREA (sq. mile)</u>	<u>PEAK DISCHARGES (cfs)</u>			
		<u>10% Annual Chance</u>	<u>2 % Annual Chance</u>	<u>1% Annual Chance</u>	<u>0.2% Annual Chance</u>
<u>New Detailed Study Streams</u>					
SAN BERNARD RIVER					
2,000 Feet Above Boundary with Brazoria County	754.99	16700	22900	23500	24000
Above Confluence with San Bernard Tributary 2	729.61	16800	25500	27500	31400
Above FM Road 442	728.29	17000	27100	30100	37300
Below Confluence of Snake Creek	725.42	17500	32000	37300	62900
Below Confluence of Peach Creek	667.27	18100	33600	38600	54600
Below Confluence of Horseshoe Slough	600.37	16300	17800	16200	13900
Below Confluence of West Bernard Creek	593.38	24800	43700	49300	62700
Below Confluence of Boone Branch	390.39	18500	32100	37500	47000
Below Confluence of Davis Branch	369.94	21000	34500	40800	57200
Below Confluence of Britt Branch	360.11	22900	36500	42500	58200
Above U.S. Highway 90	343.91	25400	38800	45300	61100
Below Confluence of Middle Bernard Creek	333.96	26200	39500	46400	62000
Below Confluence of San Bernard River Tributary 4	240.43	18400	28700	31800	34600

3.2.1 New Detailed Study Streams

A detailed study was conducted for the San Bernard River, affecting the entire length of the river within Fort Bend County. Water surface elevations for this study were determined using the USACE HEC-RAS (vs. 3.1.0 & 4.0.0) computer program. 2006 TNRIIS topographic data was obtained from Fort Bend County and supplemented with survey data.

TABLE 9: MANNINGS “n” VALUES

<u>Detailed Study Streams</u>	<u>Channel “n”</u>	<u>Overbank “n”</u>
San Bernard River	0.065-0.110	0.010-0.180

FLOODING SOURCE		FLOODWAY			BASE FLOOD			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET / SECOND)	REGULATORY (FEET NAVD)	WITHOUT FLOODWAY (FEET NAVD)	WITH FLOODWAY (FEET NAVD)	INCREASE (FEET)
San Bernard River								
A	99,019	5,703 / 8,117 ²	21,517	1.22	68.5	68.5	68.5	0.0
B	104,430	7,416 / 5,196 ²	22,620	1.32	71.3	71.3	71.8	0.5
C	105,154	7,726 / 4,728 ²	23,273	1.28	72.1	72.1	72.5	0.4
D	114,028	9,119 / 5,335 ²	52,306	0.74	75.5	75.5	75.9	0.4
E	122,725	9,620 / 8,268 ²	17,890	2.13	78.6	78.6	79.0	0.4
F	128,691	13,528 / 13,077 ²	45,426	0.83	80.8	80.8	81.4	0.6

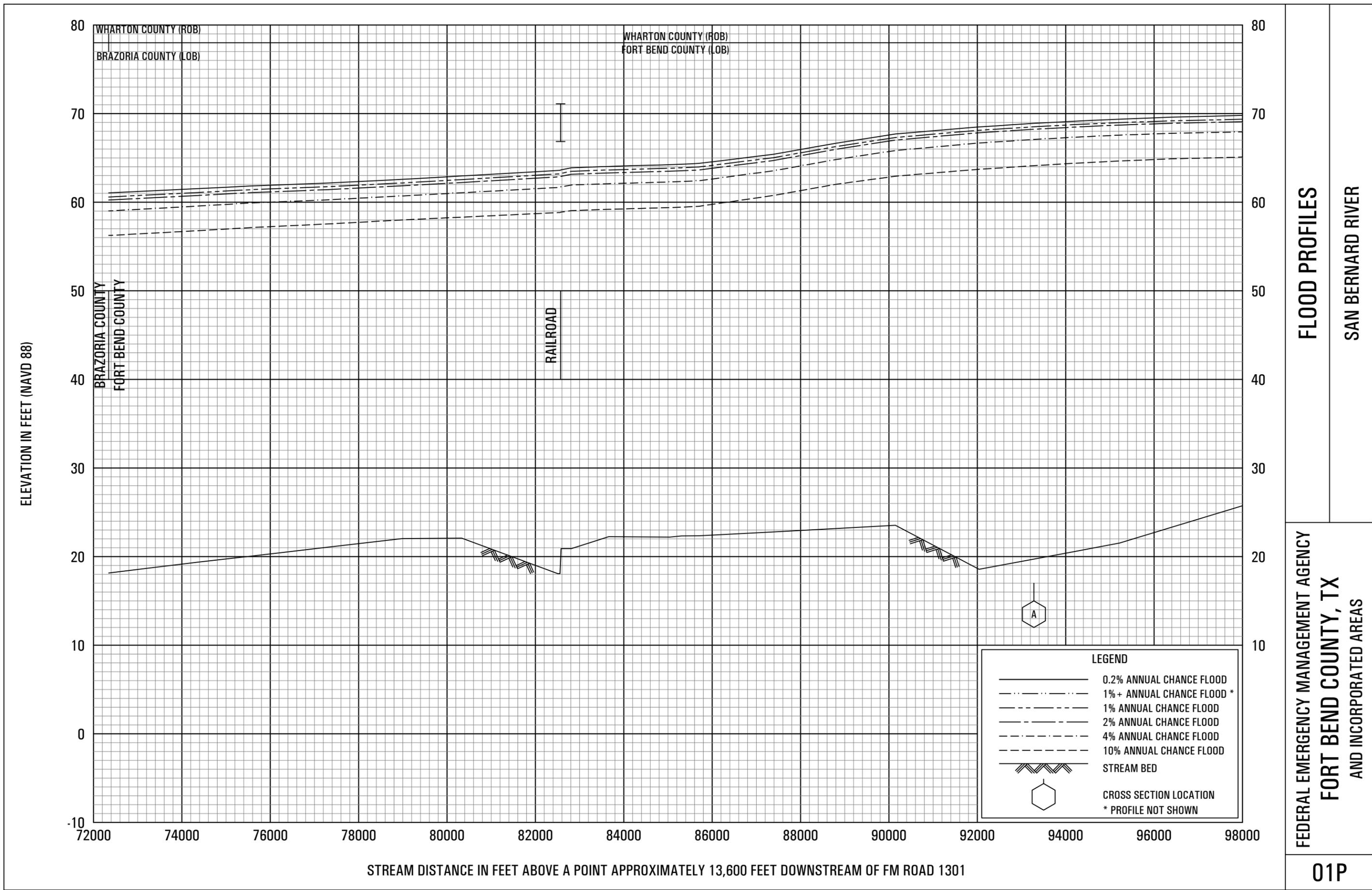
¹ Feet above a point approximately 13,600 feet downstream of FM Road 1301

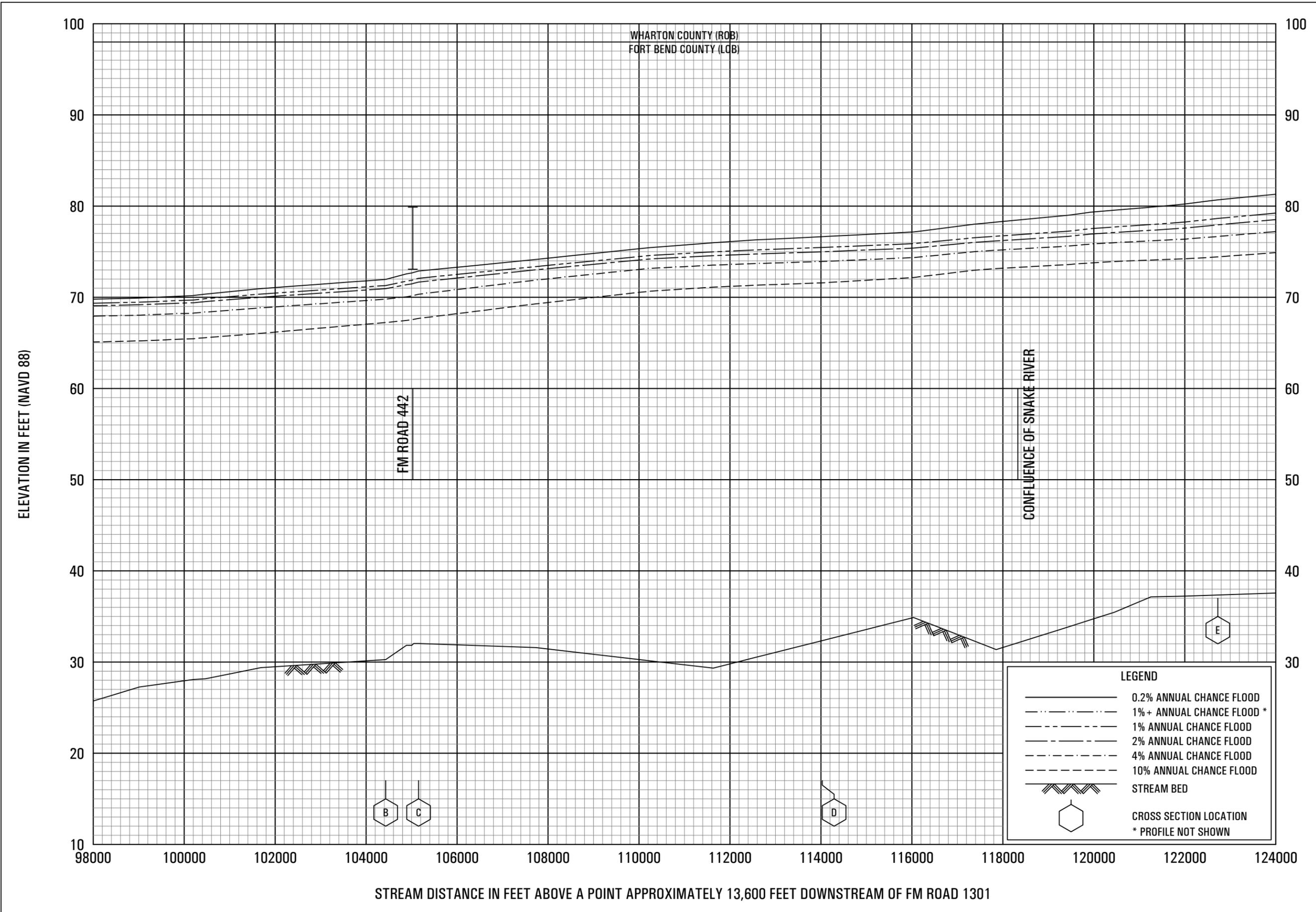
² Total Width / Width Within Fort Bend County

FEDERAL EMERGENCY MANAGEMENT AGENCY
FORT BEND COUNTY, TEXAS
 AND INCORPORATED AREAS

FLOODWAY DATA
SAN BERNARD RIVER

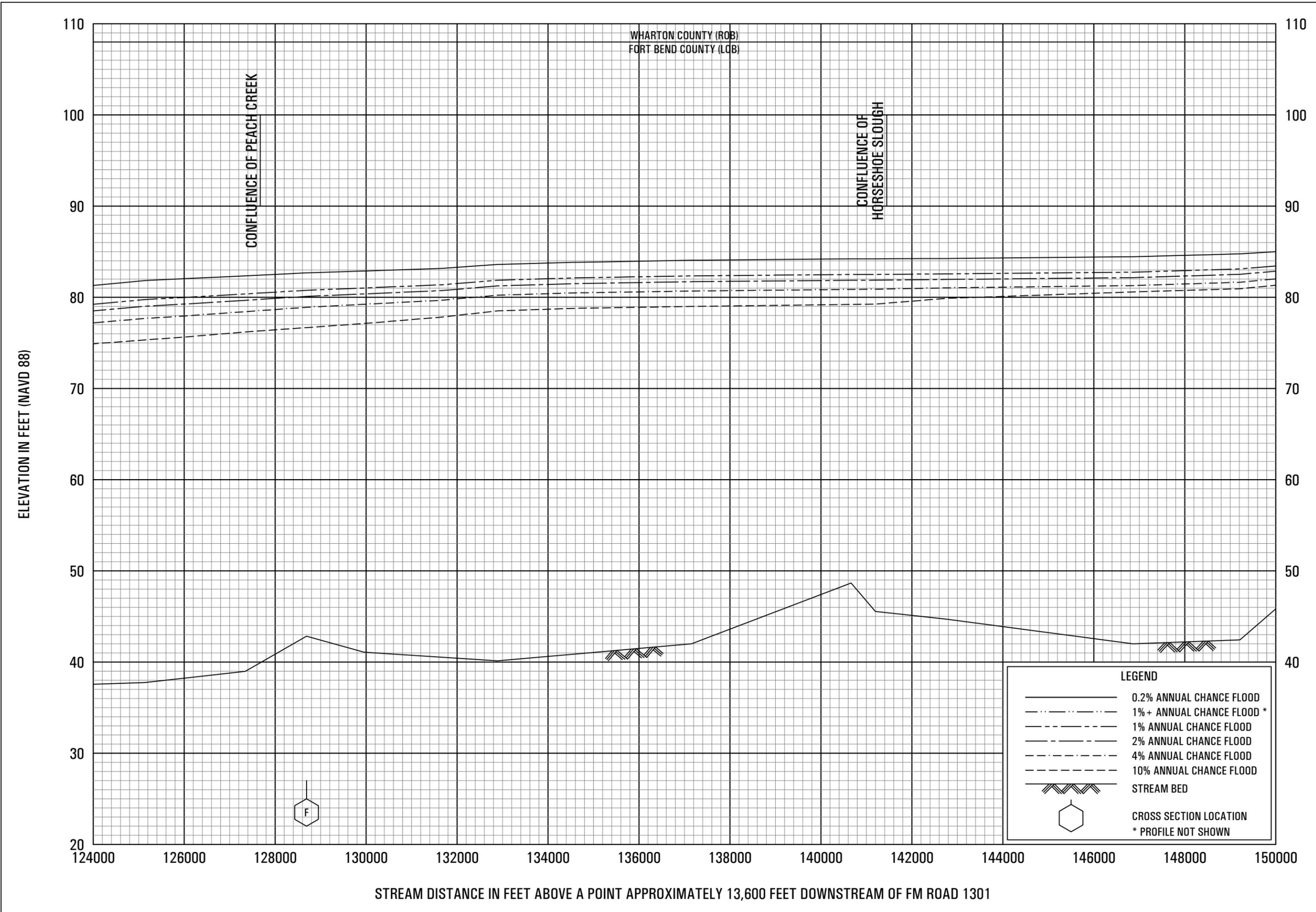
Table 10





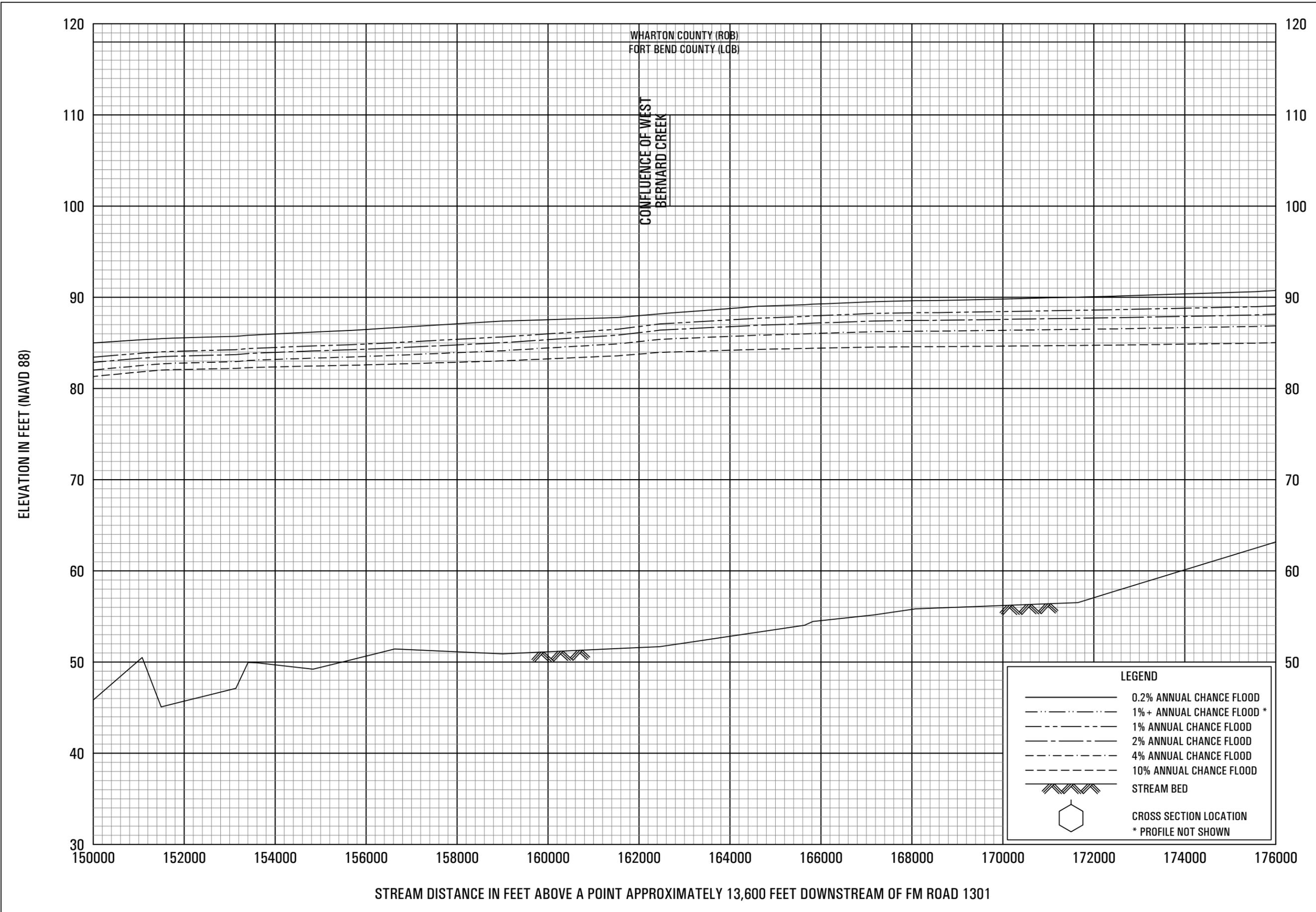
FLOOD PROFILES
SAN BERNARD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
FORT BEND COUNTY, TX
AND INCORPORATED AREAS



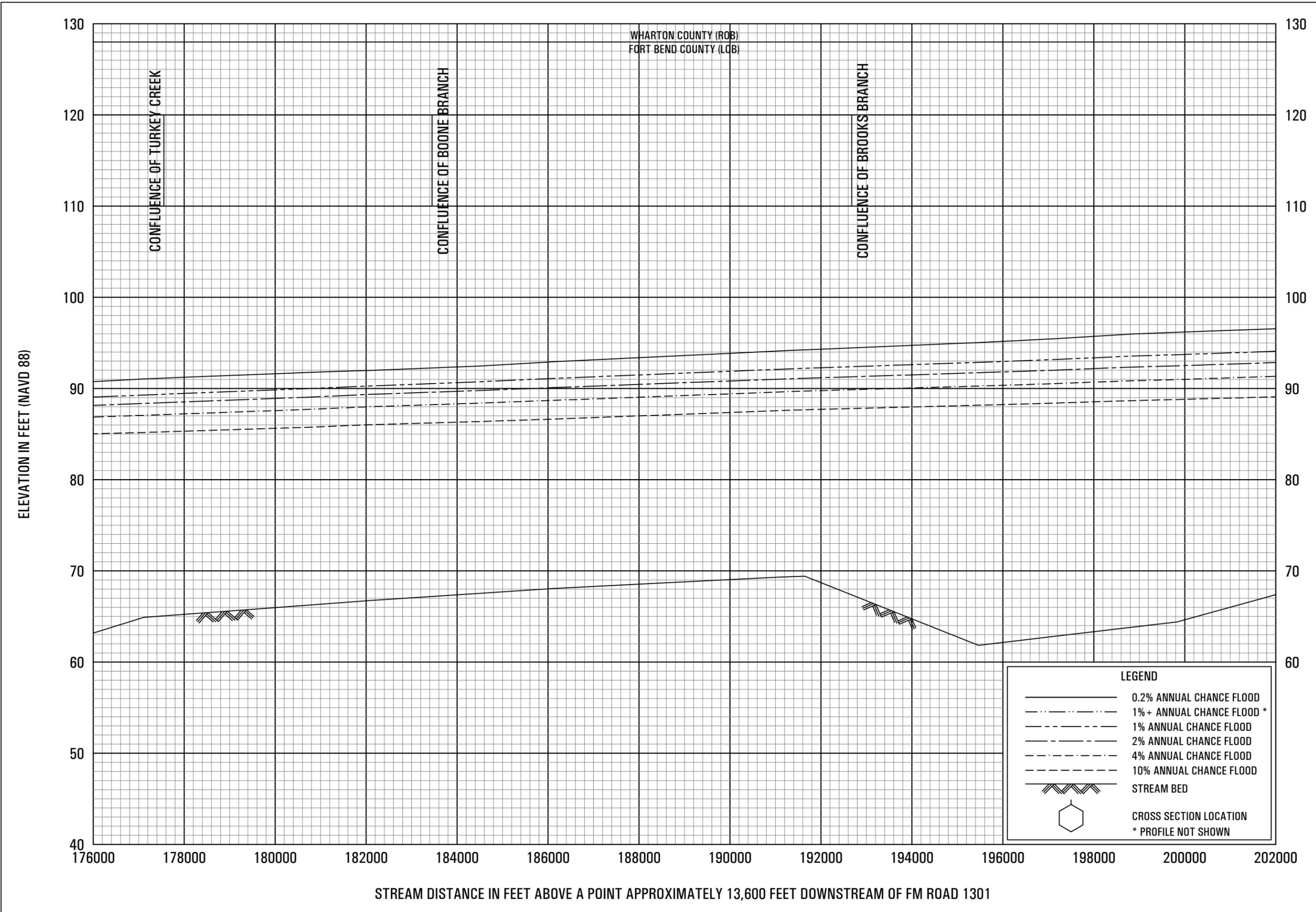
FLOOD PROFILES
SAN BERNARD RIVER

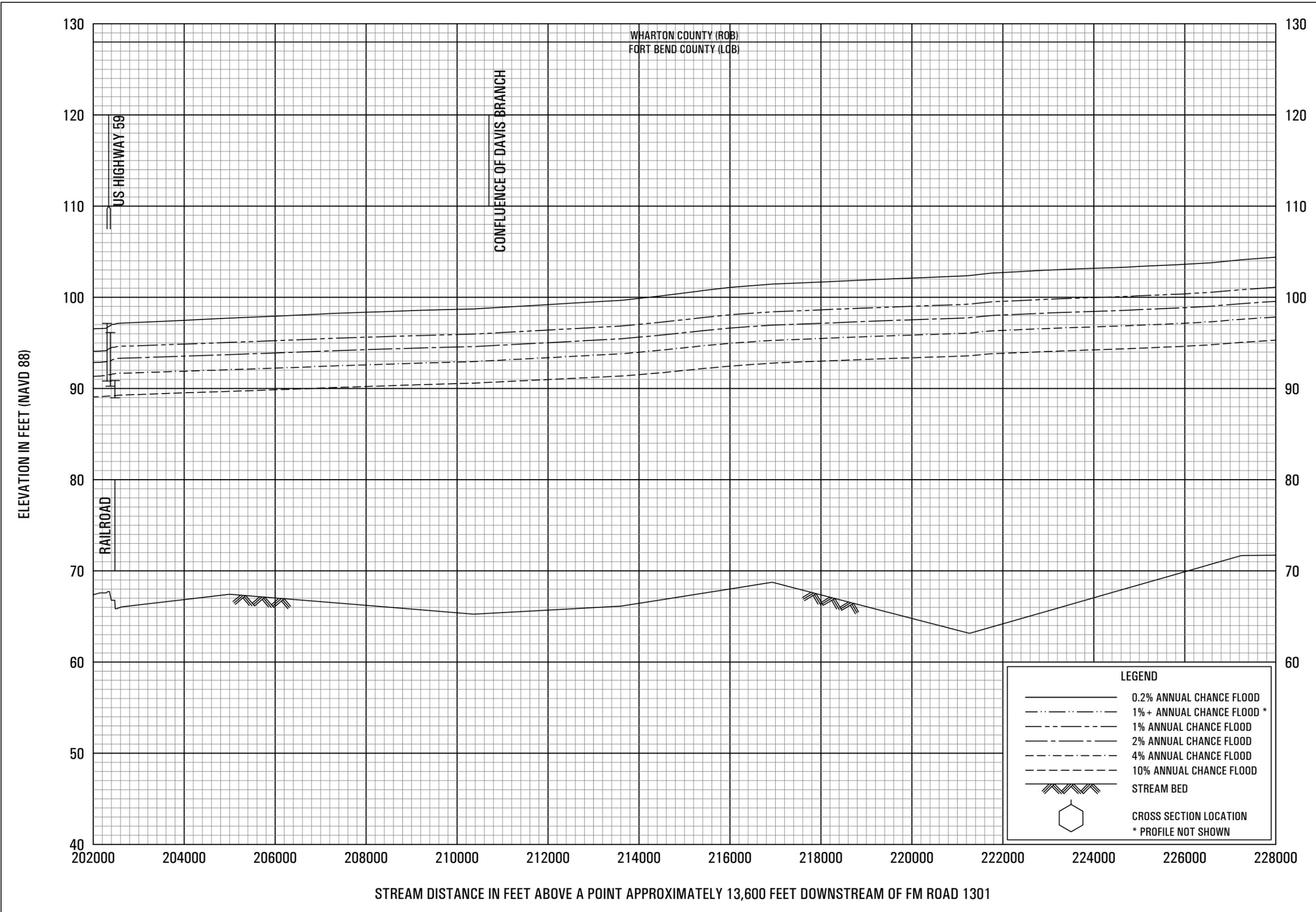
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FLOOD PROFILES
SAN BERNARD RIVER

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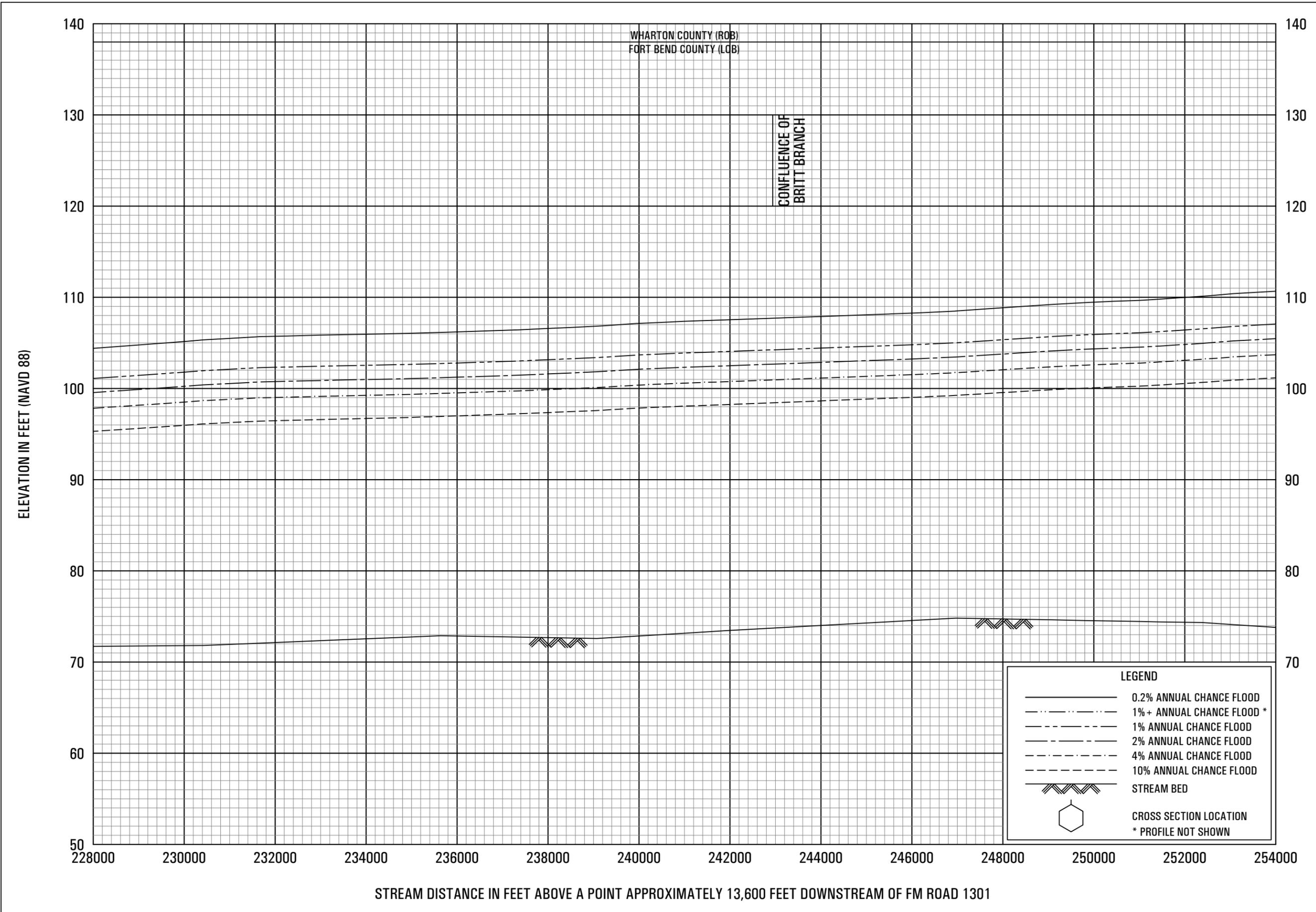




FLOOD PROFILES
SAN BERNARD RIVER

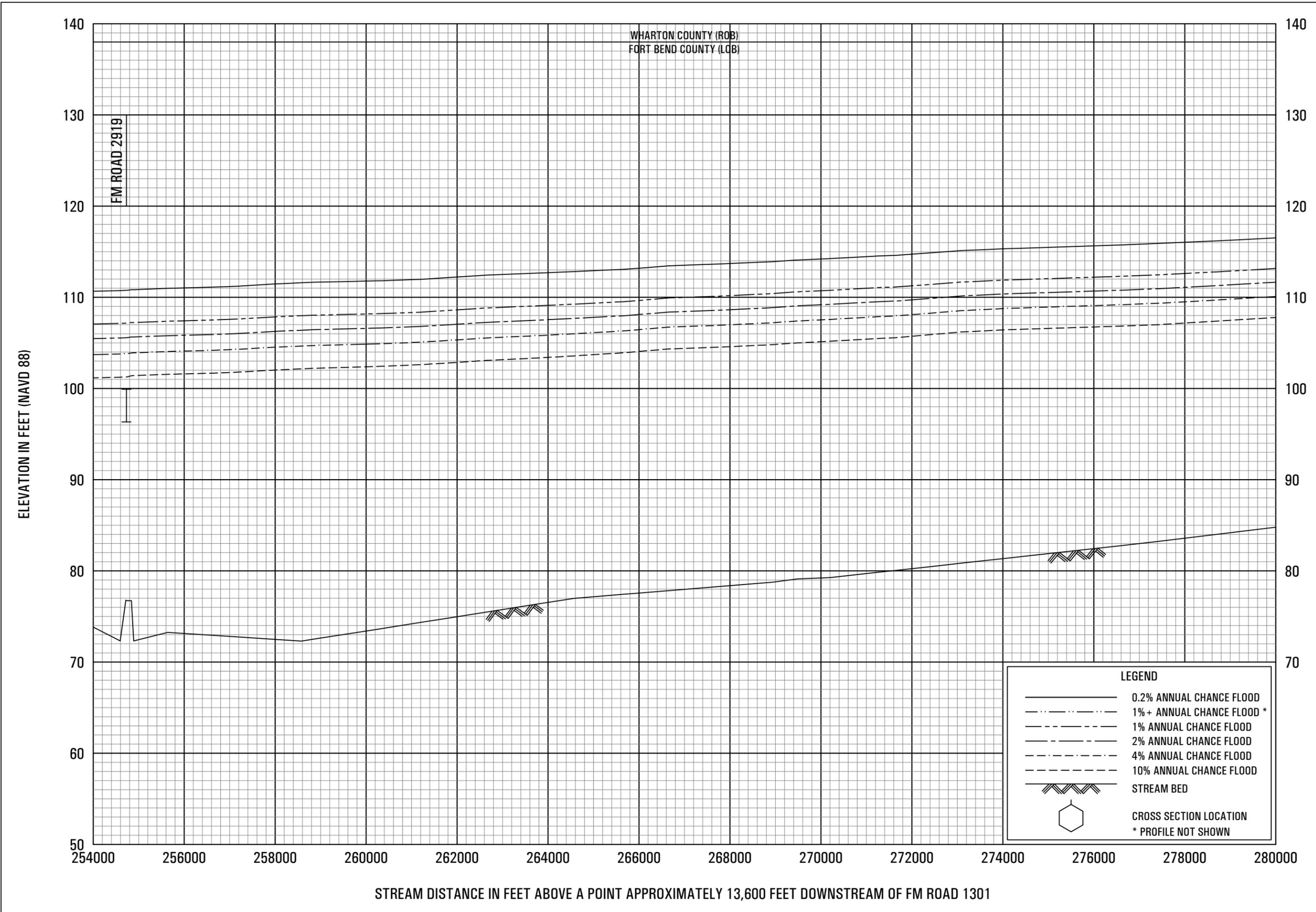
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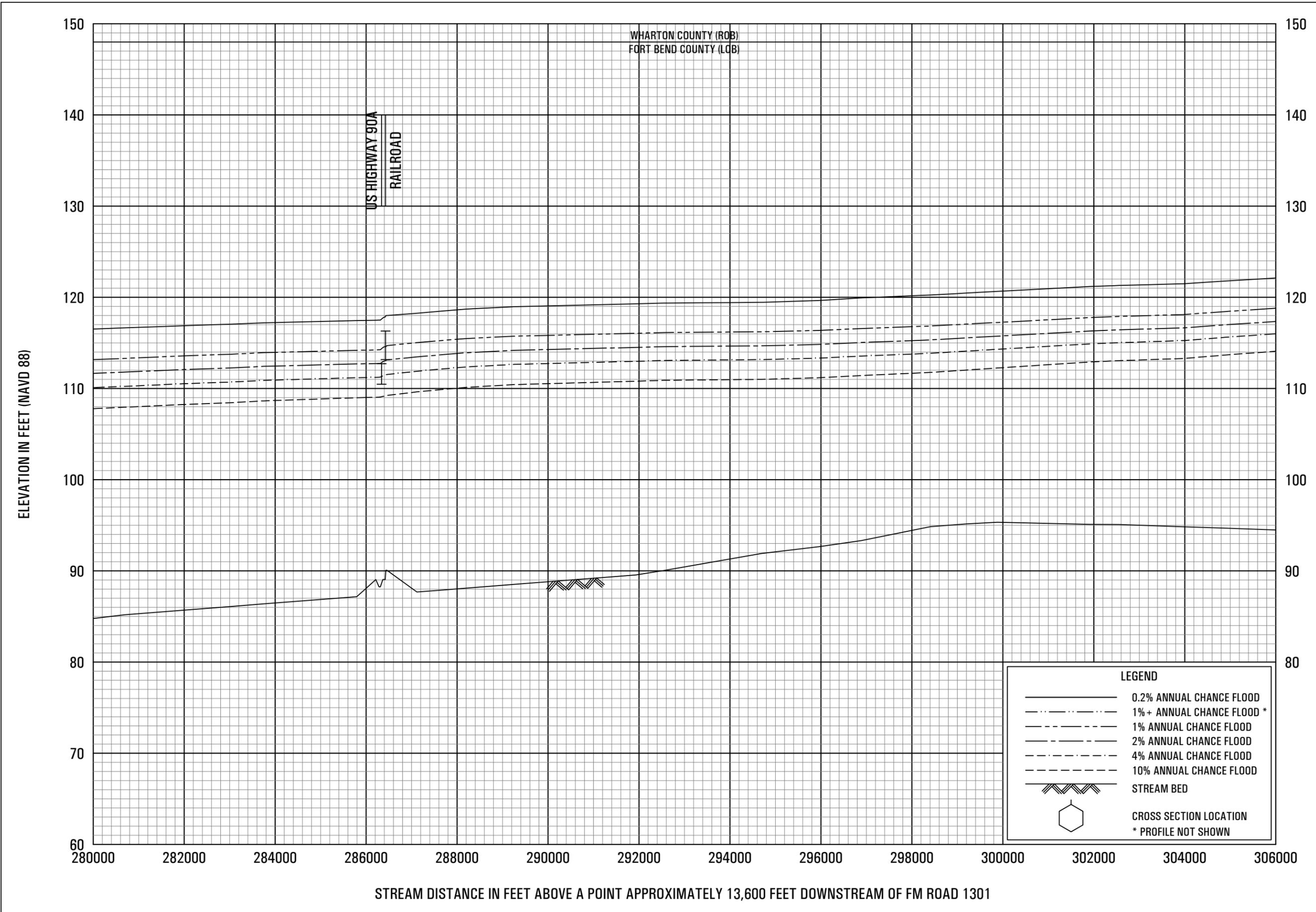
FLOOD PROFILES
SAN BERNARD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
FORT BEND COUNTY, TX
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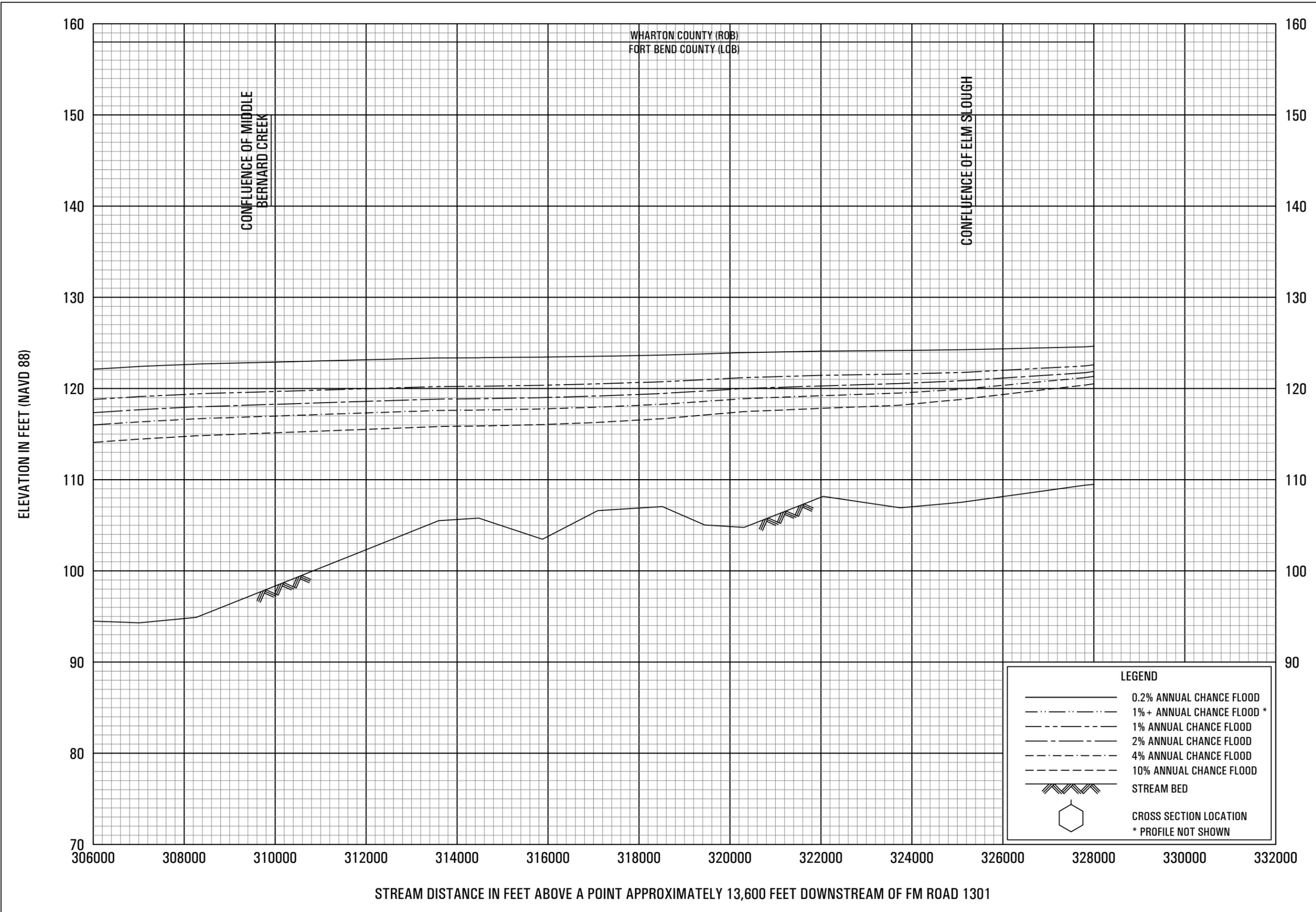
FLOOD PROFILES
SAN BERNARD RIVER

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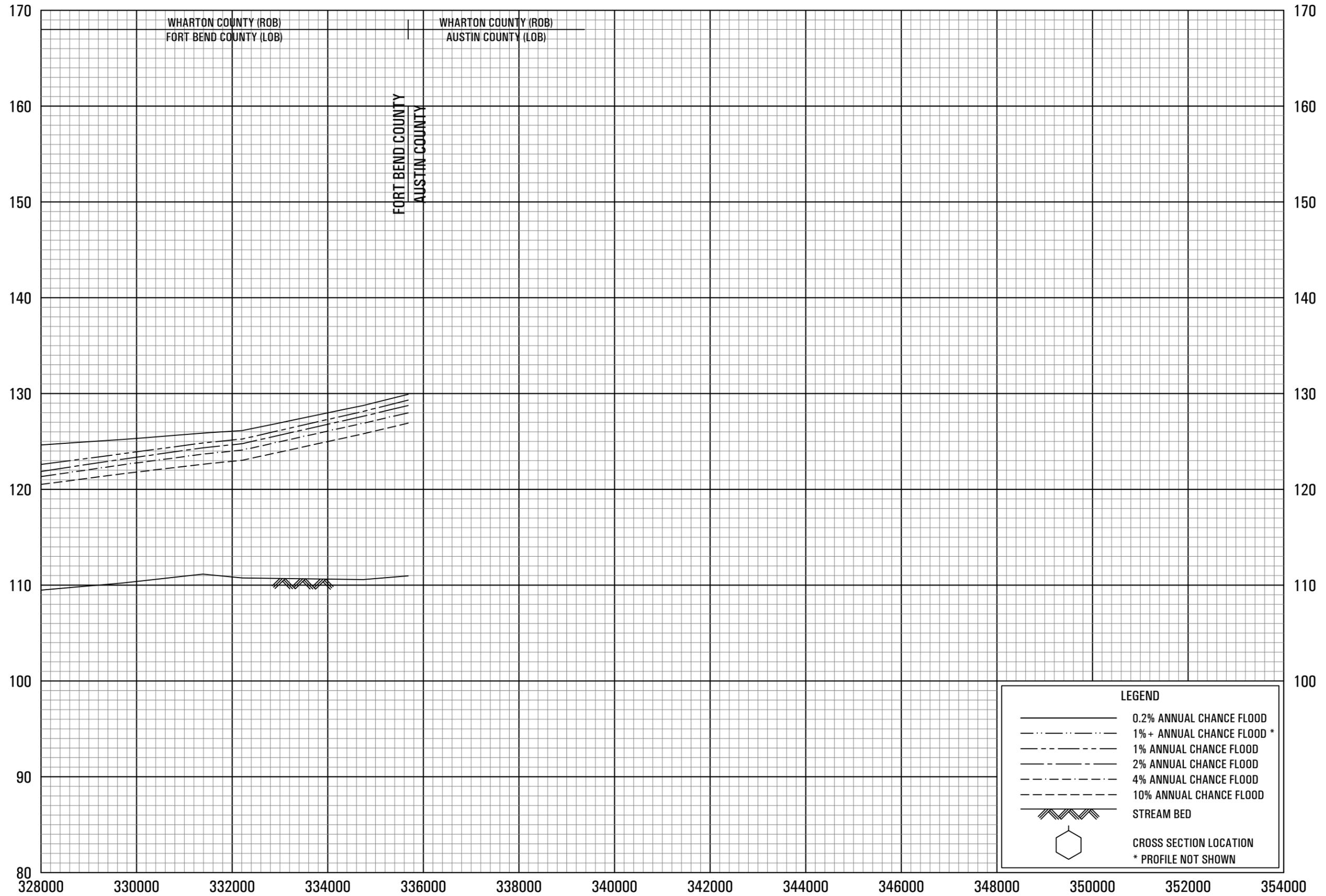


FLOOD PROFILES
SAN BERNARD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
FORT BEND COUNTY, TX
AND INCORPORATED AREAS



ELEVATION IN FEET (NAVD 88)



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
- ⬡ CROSS SECTION LOCATION
- * PROFILE NOT SHOWN

STREAM DISTANCE IN FEET ABOVE A POINT APPROXIMATELY 13,600 FEET DOWNSTREAM OF FM ROAD 1301

FLOOD PROFILES
SAN BERNARD RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY
FORT BEND COUNTY, TX
AND INCORPORATED AREAS