FLOOD INSURANCE STUDY

ELMORE COUNTY, IDAHO
UNINCORPORATED AREAS

REVISED: MARCH 15, 1994

Federal Emergency Management Agency

COMMUNITY NUMBER - 160212

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study may not contain all data available within the repository. Please contact the community repository for any additional data.

This publication incorporates revisions to the original Flood Insurance Study. These revisions are presented in Section 10.0.

This preliminary revised Flood Insurance Study contains only profiles added or revised as part of the restudy. All profiles will be included in the final published report.

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FLOOD INSURANCE STUDY
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1.0 INTRODUCTION

1.1 Purpose of Study

This Flood Insurance Study investigates the existence and severity of flood hazards in Elmore County, Idaho, and aids in the administration of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. This study has developed flood risk data for various areas of the community that will be used to establish actuarial flood insurance rates and to assist the community in its efforts to promote sound floodplain management. Minimum floodplain management requirements for participation in the National Flood Insurance Program (NFIP) are set forth in the Code of Federal Regulations at 44 CFR, 60.3.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive or comprehensive than the minimum Federal requirements. In such cases, the more restrictive criteria take precedence and the State (or other jurisdictional agency) will be able to explain them.

1.2 Authority and Acknowledgments

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

The hydrologic and hydraulic analyses for this study were performed by the U.S. Geological Survey (USGS), for the Federal Emergency Management Agency (FEMA), under Interagency Agreement No. EMW-85-E-1823, Project Order No. 22. This study was completed in December 1987.

1.3 Coordination

Streams requiring detailed study were identified at an initial Consultation and Coordination Officer's (CCO) meeting held on December 19, 1986, attended by representatives of the FEMA, USGS, Elmore County, and the Mountain Home Public Works Director.

On July 20, 1988, the results of this study were reviewed at a final CCO meeting attended by representatives of the study contractor, FEMA, and Elmore County.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the unincorporated areas of the County of Elmore, Idaho. The area of study is shown on the Vicinity Map (Figure 1).

The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development or proposed construction through 1992.

Approximate analyses were used to study those areas having low development potential or minimal flood hazards. The scope and methods of study were proposed to, and agreed upon by, FEMA and Elmore County.

2.2 Community Description

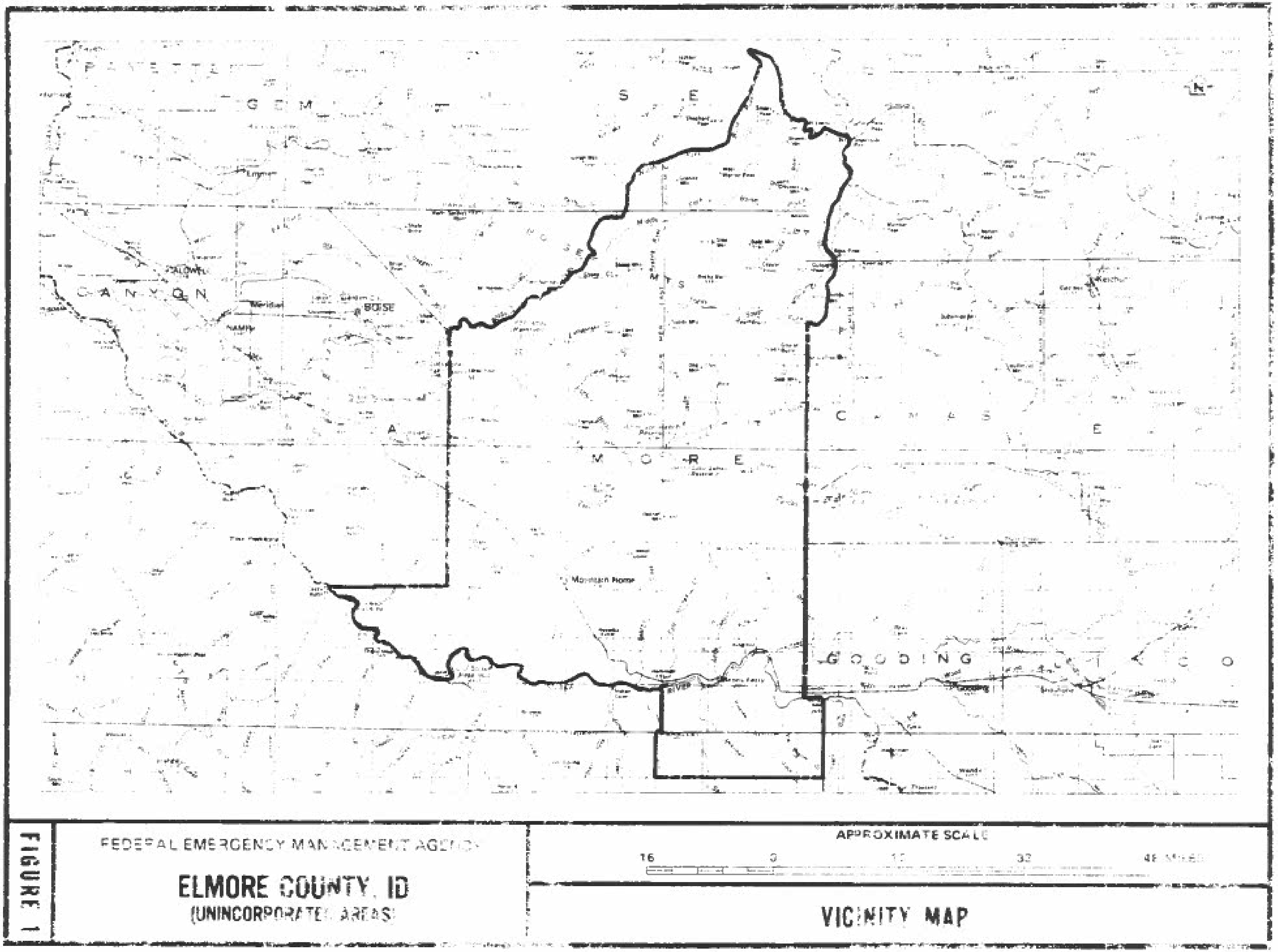
Elmore County is located in the southwestern portion of Idaho, north of the Snake River. Elmore County is bordered by the Counties of Boise, Camas, Gooding, Twin Falls, Owyhee, and Ada. According to the U.S. Bureau of Census, in 1980 the population of Elmore County was 21,565 (Reference 1).

2.3 Principal Flood Problems

Flooding problems in Elmore County are due primarily to the overflow of Rattlesnake Creek in the vicinity of Mountain Home, Little Canyon Creek near Glenns Ferry, an unnamed creek flowing through the Summerwind Subdivision north of Mountain Home, and the South Fork Boise River above Anderson Ranch Reservoir between Pine and Featherville.

Rattlesnake Creek originates in the mountains northeast of Mountain Home. It flows south and west into Mountain Home Reservoir north of the City of Mountain Home. Rattlesnake Creek was studied from Mountain Home Reservoir downstream through Mountain Home to the Union Pacific Railroad crossing south of Mountain Home. No flood data are available for Rattlesnake Creek.

Little Canyon Creek flows south, from the eastern side of Bennett Mountain where it originates, to Glenns Ferry where it turns west and flows to the Snake River. The worst flooding along Little Canyon Creek occurred on December 23, 1964. Flooding also occurred in 1968 and 1974. Peak flow on December 23, 1964, in Little Canyon Creek, several miles upstream from Glenns Ferry, was 1,330 cubic feet per second (cfs). The drainage area at this site is 26.9 square miles. Peak flow in Little Canyon Creek was determined to be 900 cfs for a flood on December 23, 1955, at a county road crossing 2.0 miles north of Glenns Ferry (the upstream end of the current analysis). The drainage area at the county road bridge is


PAYETTE
GEM
BOISE
CANYON
ELMORE
CAMAS
GOODING
BOISE
NAMPA
Meridian
Mountain Home
N
APPROXIMATE SCALE
16
0
32
FEDERAL EMERGENCY MANAGEMENT AGENCY
ELMORE COUNTY, ID
(UNINCORPORATED AREAS)
VICINITY MAP
FIGURE 1

52.4 square miles. The flood of February 23, 1986, had a peak discharge of 850 cfs in Glenns Ferry.

The unnamed creek originates in the foothills north of the Summerwind Subdivision north of the City of Mountain Home. It flows southwest into the subdivision and out to the south. It terminates in a canal about 1,000 feet south of the subdivision. The stream has been rerouted through small culverts and ditches around the houses in the subdivision. There is no flooding information on this unnamed stream, which has been named Summerwind Drainage in this report.

The South Fork Boise River flows south from its headwaters on the south end of Sawtooth Mountain until it is turned west by Soldier Mountain. It turns south again at Featherville. At Pine it flows into Anderson Ranch Reservoir, formed by Anderson Ranch Dam. From Anderson Ranch Dam it flows northwest until it joins the Boise River in Arrowrock Reservoir. The principal flooding problems studied are in the bottom lands along the South Fork Boise River between Featherville and Pine. The South Fork has been gaged at the gaging station, 13186000 South Fork Boise River near Featherville (period of record: April 1945 to present). The gage is approximately 1.0 mile upstream from Pine and 8.0 miles downstream from Featherville. The peak of record at the gage is 7,960 cfs on May 30, 1983.

2.4 Flood Protection Measures

Rattlesnake Creek runs through Mountain Home Reservoir, a small reservoir approximately 1.0 mile upstream from the upstream Mountain Home city limits. The reservoir, built for irrigation storage, may provide some minor incidental peak flow attenuation, but is not considered for NFIP purposes.

Little Canyon Creek can be diverted upstream from Glenns Ferry to Trail and Blair Reservoir (offstream storage). However, the reservoir is not considered to provide any flood control for the 100-year flood because the diversion works would likely be washed out. Even for smaller floods it is likely that the reservoir would be filled and water could not be diverted at the time of the peak discharge. After the 1964 flood, the U.S. Army Corps of Engineers constructed levees between U.S. Highway 30 and the railroad tracks on both sides of Little Canyon Creek in Glenns Ferry. There is no maintenance program for these levees and they are not considered adequate in providing 100-year flood protection for adjacent areas.

No flood protection measures exist along South Fork Boise River in the reach above Anderson Ranch Reservoir or along the Summerwind Subdivision drainage.

3.0 ENGINEERING METHODS

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

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish peak discharge-frequency relationships for each flooding source studied by detailed methods affecting the community.

Because of the lack of stream gaging records on Rattlesnake Creek, Little Canyon Creek, and the Summerwind Drainage, it was necessary to use other means of estimating this flood. The technique chosen is a modification of one presented in 1973 by Thomas and others for computing the discharge of the 10-year flood (one having a 10 percent chance of occurring in any given year), and provides factors for adjusting the discharge upward to the 25- and 50-year (4- and 2-percent chance, respectively) floods. The factor was extrapolated out to the 100-year flood level. By using this factor and the 10-year flood that was computed for the drainage area, percent forest cover, and latitude of the basin centroid for the different basins, the 100-year flood discharge was estimated.

The 1-percent chance flood on the South Fork Boise River was computed using gaging station records and the method recommended in 1981 by the U.S. National Water Resources Council (WRC), with a generalized skew of -0.3 as recommended in 1981 by Kjelstrom and Moffatt for areas in Idaho where floods can occur as a result of snowmelt (Reference 2). The resulting WRC estimated skew of -0.2 is based on 42 years of record at the gage. The period of record for annual peaks at the gage is for the periods of 1943 and 1945 through 1985. The computed 1-percent chance flood is 9,190 cfs.

Peak discharge-drainage area relationships for Little Canyon Creek, Rattlesnake Creek, South Fork Boise River, and Summerwind Drainage are shown in Table 1.

TABLE 1 - SUMMARY OF DISCHARGES

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharge (cfs) 10-Year	50-Year	100-Year	500-Year
Little Canyon Creek					
At Mouth	59.7	--[1]	--[1]	5,770	--[1]
At Country Road Crossing 2 Miles North of Glenns Ferry	52.4	--[1]	--[1]	5,150	--[1]
Rattlesnake Creek					
At Union Pacific Railroad Culvert	45.0	570	1,040	1,280	1,965
At Mountain Home Reservoir	34.6	470	855	1,050	1,610
South Fork Boise River					
At Gage 13186000	635.0	--[1]	--[1]	9,190	--[1]
Summerwind Drainage	5.6	--[1]	--[1]	400	--[1]

[1]Not Available

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations for the 100-year flood.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles (Exhibit 1).

An analyses of the hydraulic characteristics of the flooding source in the vicinity of the City of Mountain Home were carried out to provide estimates of the elevation of the 100-year flood along Rattlesnake Creek. For the backwater analyses, six cross sections were obtained from a field survey and seven were estimated from adjacent surveyed sections and the Mountain Home North and Mountain Home South topographic maps. The locations of cross sections used in the backwater analyses are shown on the flood profile and map.

Analysis of the hydraulic characteristics of the flooding source in the vicinity of the City of Glenns Ferry was carried out to provided estimates of the elevation of the 100-year flood along Little Canyon Creek. For the backwater analyses on Little Canyon Creek, 12 cross sections, 10 bridge or culvert properties, and 9 road overflow sections were obtained from a field survey. The locations of cross sections and bridges or culverts used in the backwater analyses are shown on the flood profile and map.

Analyses of the hydraulic characteristics of the flooding source in the Summerwind Subdivision were carried out to provide estimates of the elevation of the 100-year flood along the Summerwind Drainage. For the backwater analyses, four cross sections were obtained from a field survey and nine were estimated from adjacent surveyed sections and the Mountain Home North topographic map. The locations of selected cross sections used in the backwater analyses are shown on the flood profile and map.

Analyses of the hydraulic characteristics of the flooding source in the vicinity of the South Fork Boise River was carried out to provide estimates of the elevation of the 100-year flood along South Fork Boise River. For the backwater analyses, 14 cross sections were obtained from a field survey and 90 were estimated from adjacent surveyed sections and the Pine and Featherville topographic maps. The locations of cross sections used in the backwater analyses are shown on the flood profile and map.

Channel roughness coefficients (Manning's "n") used in the hydraulic computations were chosen by hydrographers using engineering judgment based on field observations of the floodplain area.

Because of the long distance across the floodplain and lack of a channel in much of the floodplain for Rattlesnake Creek, no subdivision was made and one composite coefficient was assigned to each cross section. Coefficients for Rattlesnake Creek ranged from 0.037 to 0.057.

Roughness values for the main channel of Little Canyon Creek ranged from 0.038 to 0.070 and for the overflow sections from 0.053 to 0.180.

Because of the lack of a defined channel in much of the floodplain on the Summerwind Drainage, no subdivision of the channel was made and a composite coefficient was assigned to each cross section. Roughness values ranged from 0.040 to 0.047.

Roughness coefficients for the main channel of South Fork Boise River ranged from 0.040 to 0.075 while those in the overflow ranged from 0.040 to 0.080.

Water-surface elevations for the 100-year flood were computed using WSPRO, a step-backwater computer program developed by the USGS for the Federal Highway Administration (Reference 3).

The starting water-surface elevations for the four streams were computed using the slope conveyance method. For Rattlesnake Creek, Little Canyon Creek, and South Fork Boise River it was assumed that the energy slope would be parallel to the ground-surface slope shown on the topographic map. For Summerwind Drainage the energy slope was taken from the slope between the second and fifth cross sections in previous computer runs.

On Rattlesnake Creek and the Summerwind Drainage small culverts exist at each road crossing. These culverts can only carry a small percentage of the 100-year flood discharge, and they caused problems in the computation of water-surface profiles; therefore, it was assumed that all flow would pass over the roadway. The road cross sections were used as regular valley cross sections.

The hydraulic analyses for this study 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.

All elevations are referenced to the National Geodetic Vertical Datum (NGVD) of 1929. Elevation Reference Marks (ERMs) used in this study are shown on the maps; the description of the marks are presented in ERMs (Exhibit 3).

4.0 FLOODPLAIN MANAGEMENT APPLICATIONS

The NFIP encourages state and local governments to adopt sound floodplain management programs. Therefore, each Flood Insurance Study provides 100-year flood elevations and delineations of the 100-year floodplain boundaries to assist communities in developing floodplain management measures.

4.1 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. For each stream studied by detailed methods, the 100-year floodplain boundaries have been delineated using the flood elevation determined at each cross section. Between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:2,400, with a contour interval of 40 feet (Reference 4).

The 100-year floodplain boundary is shown on the Flood Insurance Rate Map (Exhibit 2). On this map, the 100-year floodplain boundary corresponds to the boundary of the areas of special flood hazards (Zones A and AE). Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

For the streams studied by approximate methods, the 100-year floodplain boundary is shown on the Flood Insurance Rate Map (Exhibit 2).

Approximate 100-year floodplain boundaries in some portions of the study area were taken directly from the Flood Hazard Boundary Map (Reference 5).

4.2 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. 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 this aspect of floodplain management. Under this concept, the area of the 100-year floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment so that the 100-year flood can be carried without substantial increases in flood heights. Minimum Federal standards limit such increases to 1.0 foot, provided that hazardous velocities are not produced.

No floodways were computed for the streams studied by detailed methods in Elmore County.

5.0 INSURANCE APPLICATION

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone A

Zone A is the flood insurance rate zone that corresponds to the 100-year floodplains determined in the Flood Insurance Study by approximate methods. Because detailed hydraulic analyses are not performed for such areas, no base flood elevations (BFEs) or depths are shown within this zone.

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains determined in the Flood Insurance Study by detailed methods. Whole-foot BFEs derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 500-year floodplain, areas within the 500-year floodplain, areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No BFEs or depths are shown within this zone.

6.0 FLOOD INSURANCE RATE MAP

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 5.0 and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot BFEs or average depths. Insurance agents use the zones and BFEs in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols, the 100-year floodplains and the locations of selected cross sections used in the hydraulic analyses.

7.0 OTHER STUDIES

FEMA recently completed the Flood Insurance Studies for the Cities of Mountain Home (Reference 6) and Glenns Ferry, Idaho (Reference 7). These studies are in agreement with this Flood Insurance Study for Elmore County, Idaho. This study supersedes the previously published Flood Hazard Boundary Map for Elmore County (Reference 5).

8.0 LOCATION OF DATA

Information concerning the pertinent data used in the preparation of this study can be obtained by contacting the Natural and Technological Hazards Division, FEMA, Federal Regional Center, 130 228th Street, S.W., Bothell, Washington 98021-9796.

9.0 BIBLIOGRAPHY AND REFERENCES

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4. U.S. Department of the Interior, Geological Survey, 7.5-Minute Series Topographic Maps, Scale 1:24000, Contour Interval 20 Feet: Mountain Home South, Idaho, 1978; Mountain Home North, Idaho, 1978;

Contour Interval 25 Feet: Glenns Ferry, Idaho, 1947; Contour Interval 40 Feet: Featherville, Idaho, 1964; Pine, Idaho, 1973.

5. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Hazard Boundary Map, Elmore County, Idaho (Unincorporated Area), Scale 1:24,000, July 4, 1978.

6. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of Mountain Home, Elmore County, Idaho, Unpublished.

7. Federal Emergency Management Agency, Federal Insurance Administration, Flood Insurance Study, City of Glenns Ferry, Elmore County, Idaho, July 17, 1989.

8. U.S. Department of the Interior, Geological Survey, A Method of Estimating Flood-Frequency Parameters for Streams in Idaho, Open File Report 81-909, Boise, Idaho, 1981.

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10.0 REVISION DESCRIPTIONS

This section has been added to provide information regarding significant revisions made since the original Flood Insurance Study was printed. Future revisions may be made that do not result in the republishing of the Flood Insurance Study report. To assure that any user is aware of all revisions, it is advisable to contact the community repository of flood hazard data.

10.1 First Revision

This study was revised on March 15, 1994, to include the results of a revised detailed study of Rattlesnake Creek, from approximately 535 feet downstream of 18th South Street to the Mountain Home Reservoir, Rattlesnake Creek-Diversion, from its confluence with Rattlesnake Creek to American Legion Boulevard; and Rattlesnake Creek-Gated Outlet, from its confluence with Rattlesnake Creek to just downstream of the Mountain Home Reservoir Gated Outlet.

The hydrologic and hydraulic analyses for this restudy were performed by the U.S. Department of the Army, Corps of Engineers (COE), Walla Walla District, for the Federal Emergency Management Agency (FEMA), under Interagency Agreement No. EMW-91-3529. This study was completed in May 1992.

The results of this study were reviewed at the final Consultation Coordination Officer meeting held on January 11, 1993, and attended by representatives of Elmore County, FEMA, and the state. All issues raised at that meeting have been addressed.

Hydrologic Analyses

Since only sporadic streamflow records were available for Rattlesnake Creek, the annual peak discharge frequency curves for Rattlesnake Creek at the Union Pacific Railroad (UPRR) culvert and at Mountain Home Reservoir's dam were developed using techniques for ungaged streams. The methodology developed by the U.S. Geological Survey (USGS), Boise Office (Reference 8), was utilized for frequency analyses. This procedure utilizes regression equations which relate frequency curve statistics to a basin's physical parameters. The parameters used to develop Rattlesnake Creek's frequency curves are: (1) drainage area, (2) mean annual precipitation, and (3) mean altitude. Peak discharge-drainage area relationships for Rattlesnake Creek are shown in Table 1, which has been updated to include the results of this restudy.

Mountain Home Reservoir is a non-Federal development whose primary purposes are agricultural water storage and delivery. Since no know flood control operation plan exists for Mountain Home Reservoir, no peak flow modifications were made for any flood event to reflect flood hydrograph attenuation by reservoir storage effects. Although provisions exist for transferring water into the

Rattlesnake Creek drainage from the adjacent Canyon Creek drainage, no water transfers were assumed for this Flood Insurance Study. No diversions from Rattlesnake Creek into the Eastside Canal, located downstream of Mountain Home Reservoir, were assumed for the study.

Hydraulic Analyses

Water-surface elevations for floods having these respective recurrence intervals were computed using the step-backwater computer program HEC-2, developed by the COE (Reference 9).

Cross sectional data were obtained from field surveys made in October 1991 and from orthophoto topographic mapping (Reference 10).

Roughness coefficients (Manning's "n" values) used in the hydraulic computations were estimated from field observations. Channel "n" values were assumed to be 0.035 and overbank "n" values ranged from 0.045 to 0.050. Since no observed water-surface elevations were available, no calibration of these values was accomplished for this study.

Starting water-surface elevations for Rattlesnake Creek were developed by the slope-area method. Since the culvert under the UPRR embankment near the intersection of South Main and 18th East Streets is only a three foot diameter corrugated metal pipe (CMP) having a carrying capacity of approximately 45 cubic feet per second (cfs), as determined by the HEC-2 model's culvert computation capability, it will not entirely convey even the 10-year flood. Because the top-of-rail elevation of the UPRR tracks is approximately 15 feet above the culvert's invert, the railroad embankment will not likely be overtopped and any flow not transmitted through the culvert will continue flowing overland parallel to the railroad track alignment, generally in a southeast direction. This overland flow will continue into and pond in the Slade Flat area, located approximately 4 miles southeast of Mountain Home. Approximate volume calculations made using USGS quadrangle mapping (Reference 11 and 12) indicate that the floodwaters will not overtop the railroad embankment in this area but will continue to pond until passed from the area through existing culverts under the UPRR embankment and Old Oregon Trail Highway. These waters will likely rejoin Rattlesnake Creek after flowing overland through the Clover Hollow area. This flowpath can also serve as an irrigation water wasteway, since the Eastside Canal terminates in the Slade Flat area and the Lamberton Westside Canal terminates near Clover Hollow. The approximate average ground slope through Clover Hollow is 0.001 foot per foot. Approximate calculations based on flow at normal depth through Clover Hollow indicate that the overland flow depth for the 100-year flood event will be approximately 2 feet or less.

To achieve proper initialization, the Rattlesnake Creek hydraulic model was extended approximately 1.7 miles southeast of the South Main and 18th East Streets intersection using available USGS topographic mapping (Reference 11 and 12). The slope-area method was utilized to obtain the starting water-surface elevations at this location for all four flood flows analyzed.

The existing 7 foot diameter CMP culvert which conveys Rattlesnake Creek under Interstate Highway 84, at a location northeast of Mountain Home, will not pass the 100- and 500-year floods without overtopping the highway surface. The depth of overland sheet flow over the highway at the 100-year flood is approximately one foot.

The flow in the channel downstream of Mountain Home Reservoir's gated outlet was assumed to be 150 cfs for all four flood events analyzed, based on the discharge value given by the State of Idaho (Reference 13) for the gated outlet works. No known flood control operation plan exists for Mountain Home Reservoir.

Floodways were computed on the basis of equal-conveyance reduction from each side of the floodplain, followed by manual adjustments as required to produce a reasonable and consistently shaped floodway amenable to realistic floodplain management. All increases in flood heights were limited to 1.0 foot or less based on the 100-year discharge.

The area between the floodway and the boundary of the 100-year flood is termed the floodway fringe. The floodway fringe thus encompasses the portion of the floodplain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 2.

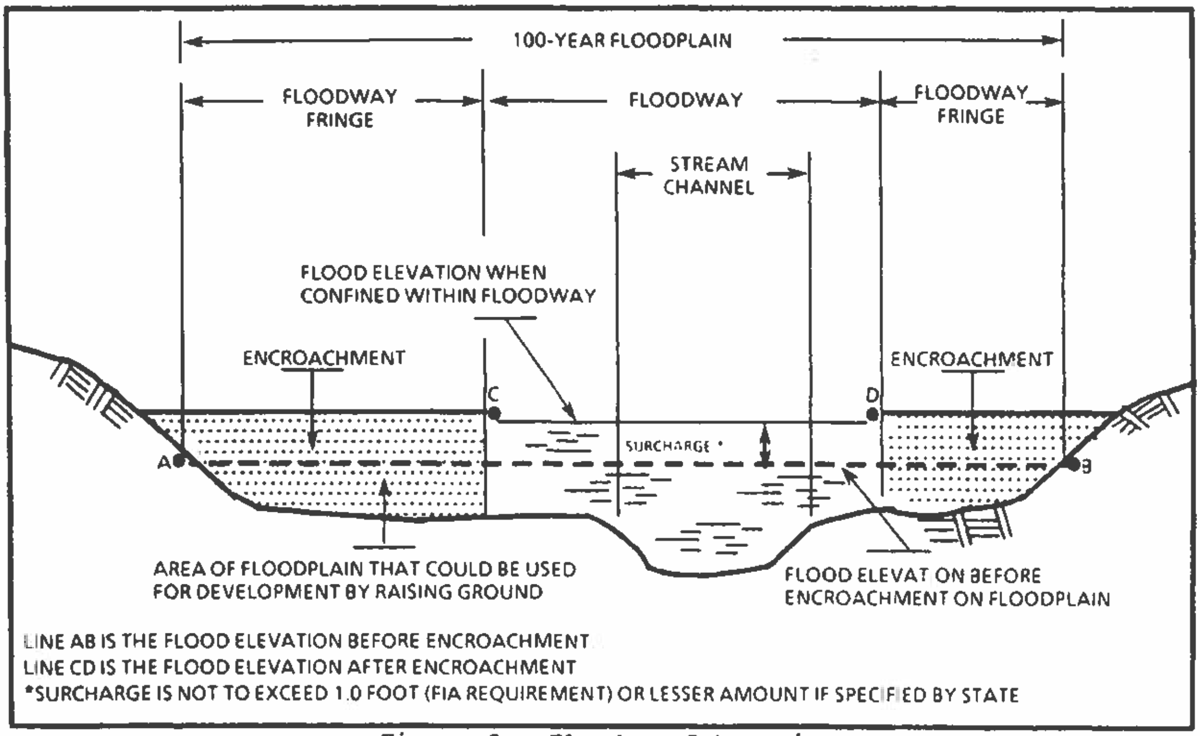


Figure 2. Floodway Schematic

The results of these floodway computations are tabulated at selected cross sections in Table 2.

The boundaries for the floodway, 100-year flood, and 500-year flood are shown on the Flood Insurance Rate Map (Exhibit 2). Between cross sections, the boundaries were interpolated using topographic maps at a scale of 1:2,400, with a contour interval of 4 feet with 2 foot supplements (Reference 10). In cases where the floodway and 100-year floodplain boundaries are either close together or coincide, only the floodway boundary has been shown. In cases where the 100- and 500-year floodplain boundaries are either close together or coincide, only the 100-year floodplain boundary has been shown. In cases where all three boundaries are either close together of coincide, only the floodway boundary has been shown.

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
Rattlesnake Creek								
A	0	903	923	1.4	3,115.3	3,115.3	3,115.5	0.2
B	2,697	1,219	608	2.0	3,122.0	3,122.0	3,122.3	0.3
C	4,036	350	536	2.2	3,125.0	3,125.0	3,125.9	0.9
D	5,569	400	349	3.3	3,132.2	3,132.2	3,132.7	0.5
E	6,920	585	653	1.7	3,136.3	3,136.3	3,137.0	0.7
F	8,596	430[2]	238	4.6	3,141.7	3,141.7	3,142.3	0.6
G	10,496	250[2]	356	2.9	3,150.2	3,150.2	3,150.6	0.4
H	12,313	30[2]	106	9.9	3,157.9	3,157.9	3,158.3	0.4
I	15,623	84	647	1.6	3,203.9	3,203.9	3,203.9	0.0
J	17,026	60	247	4.3	3,216.1	3,216.1	3,216.5	0.4
K	18,253	60	172	6.1	3,262.3	3,262.3	3,263.1	0.8
L	19,255	60	126	8.3	3,285.5	3,285.5	3,285.6	0.1

[1]Feet above 18th South Street
[2]Total Width within City of Mountain Home

TABLE 2

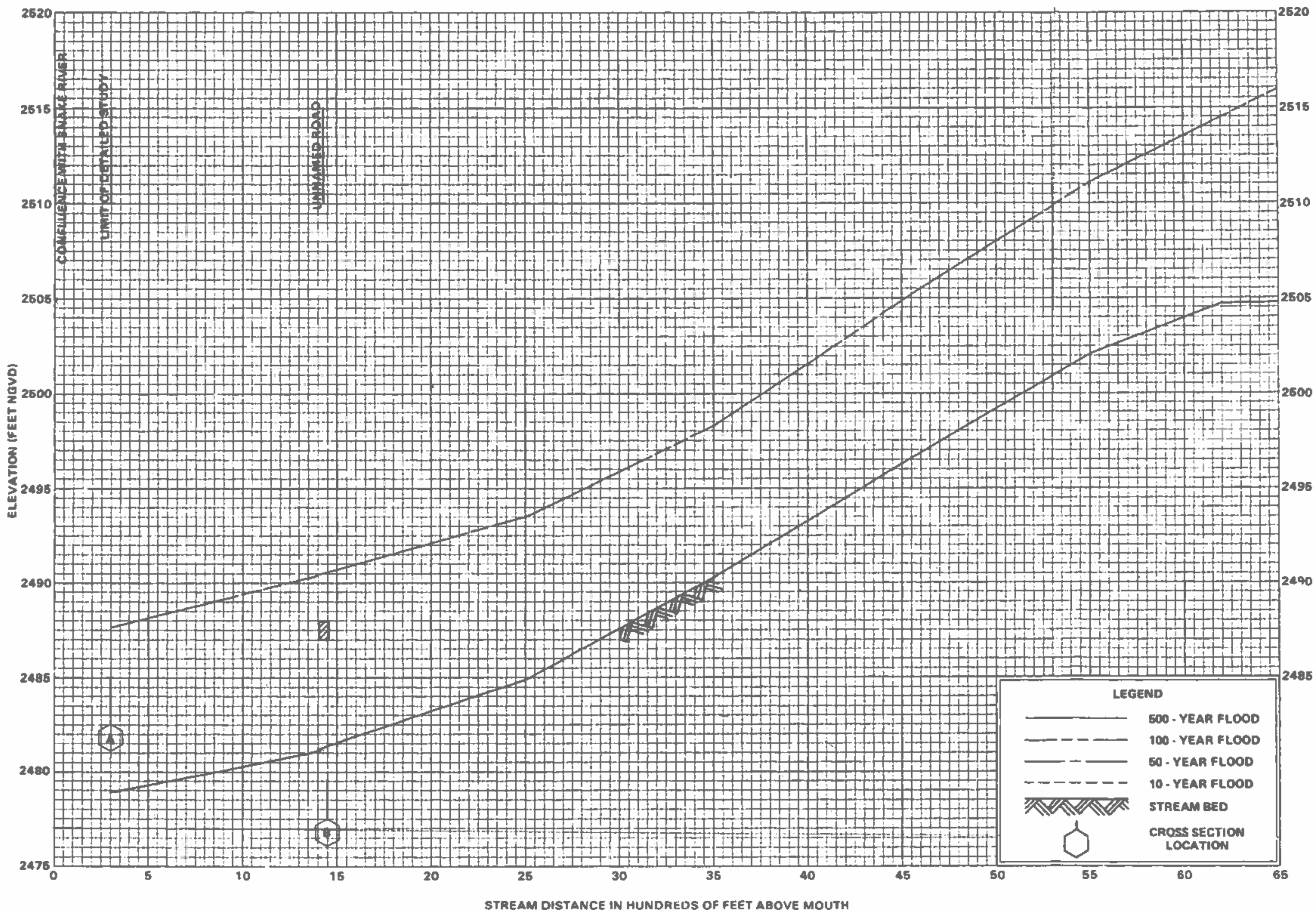
FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID

(UNINCORPORATED AREAS)

FLOODWAY DATA

RATTLESNAKE CREEK



FLOOD PROFILES

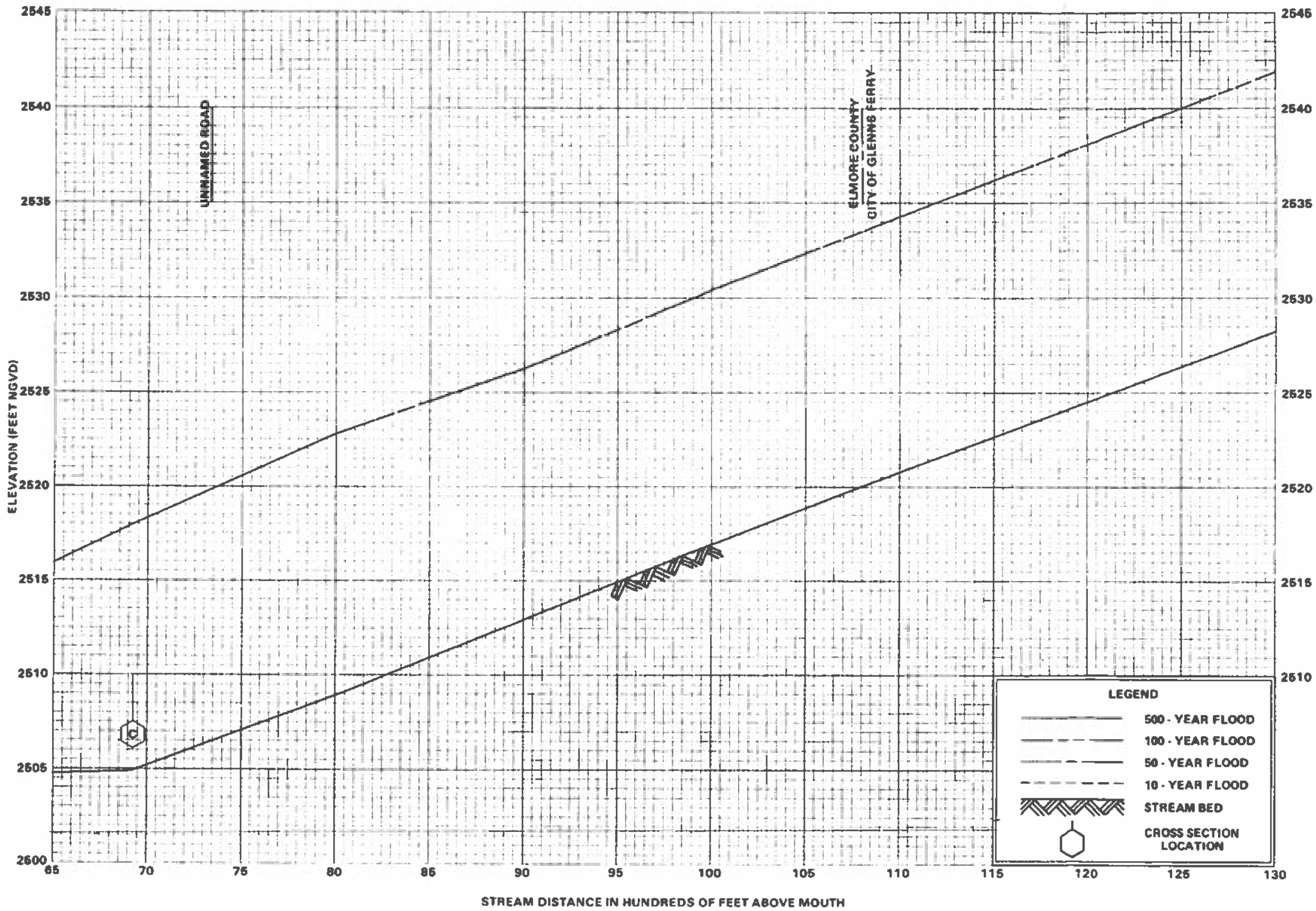
LITTLE CANYON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID

(UNINCORPORATED AREAS)

01P



FLOOD PROFILES

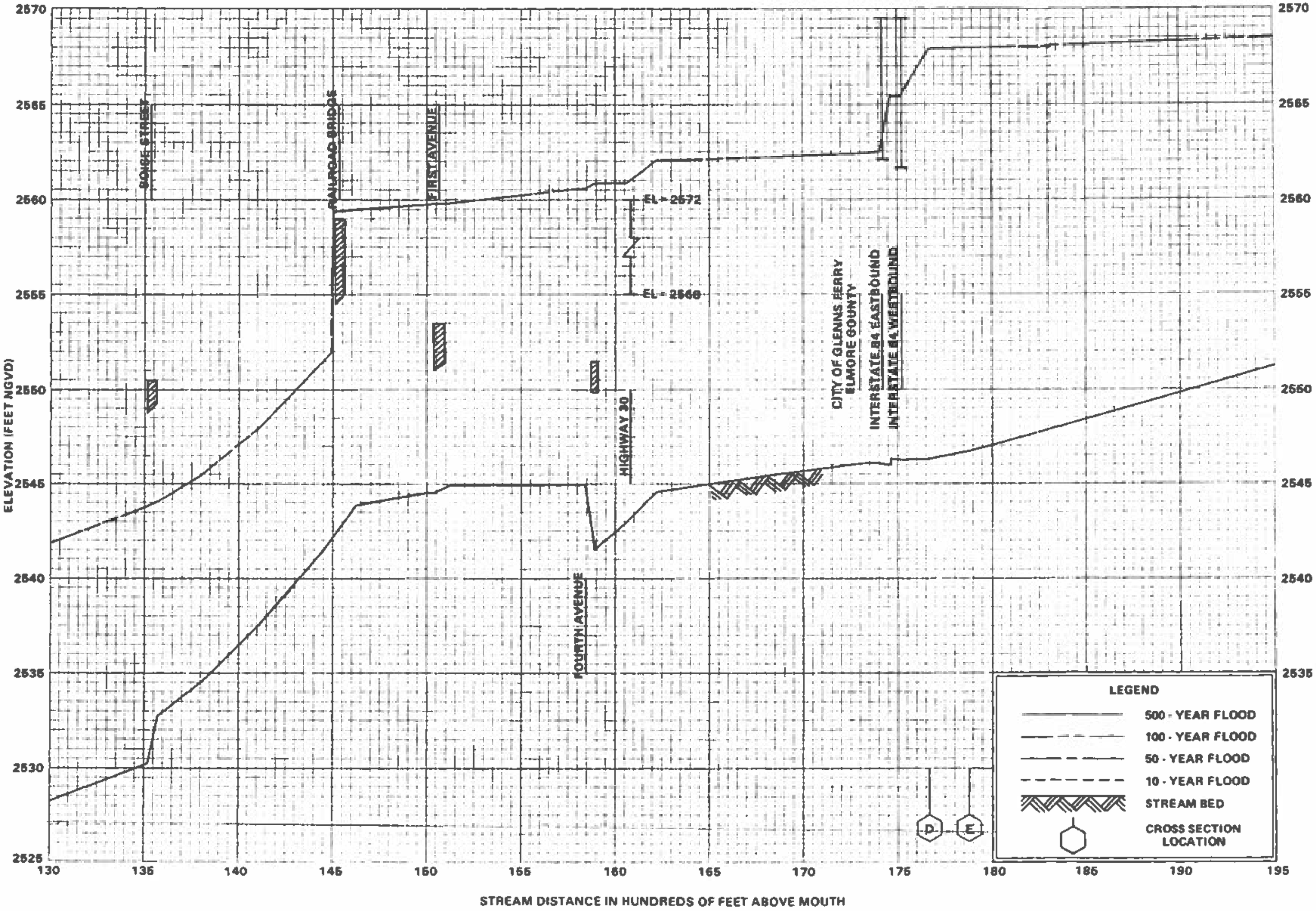
LITTLE CANYON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID

(UNINCORPORATED AREAS)

02P



FLOOD PROFILES

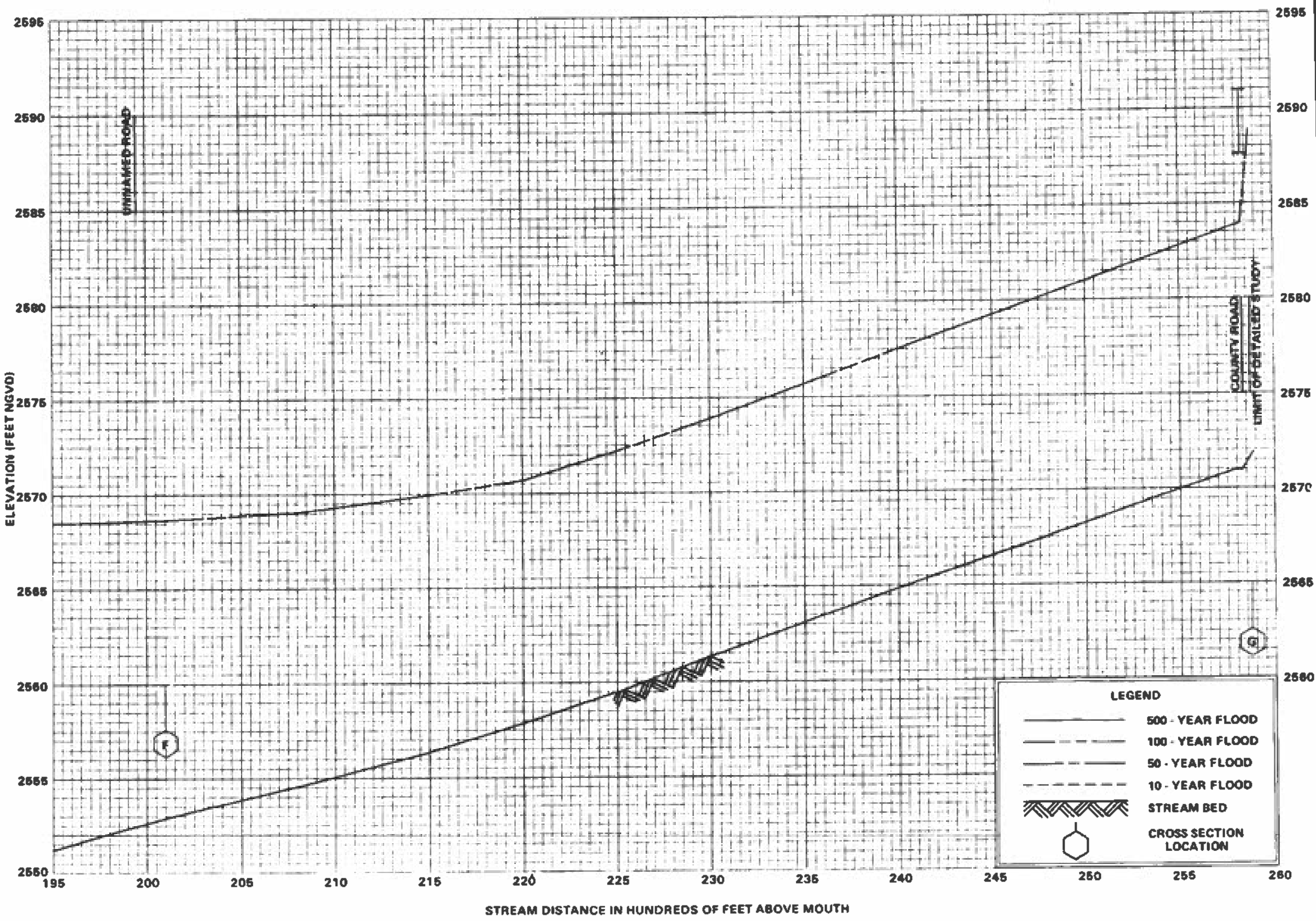
LITTLE CANYON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID

(UNINCORPORATED AREAS)

03P



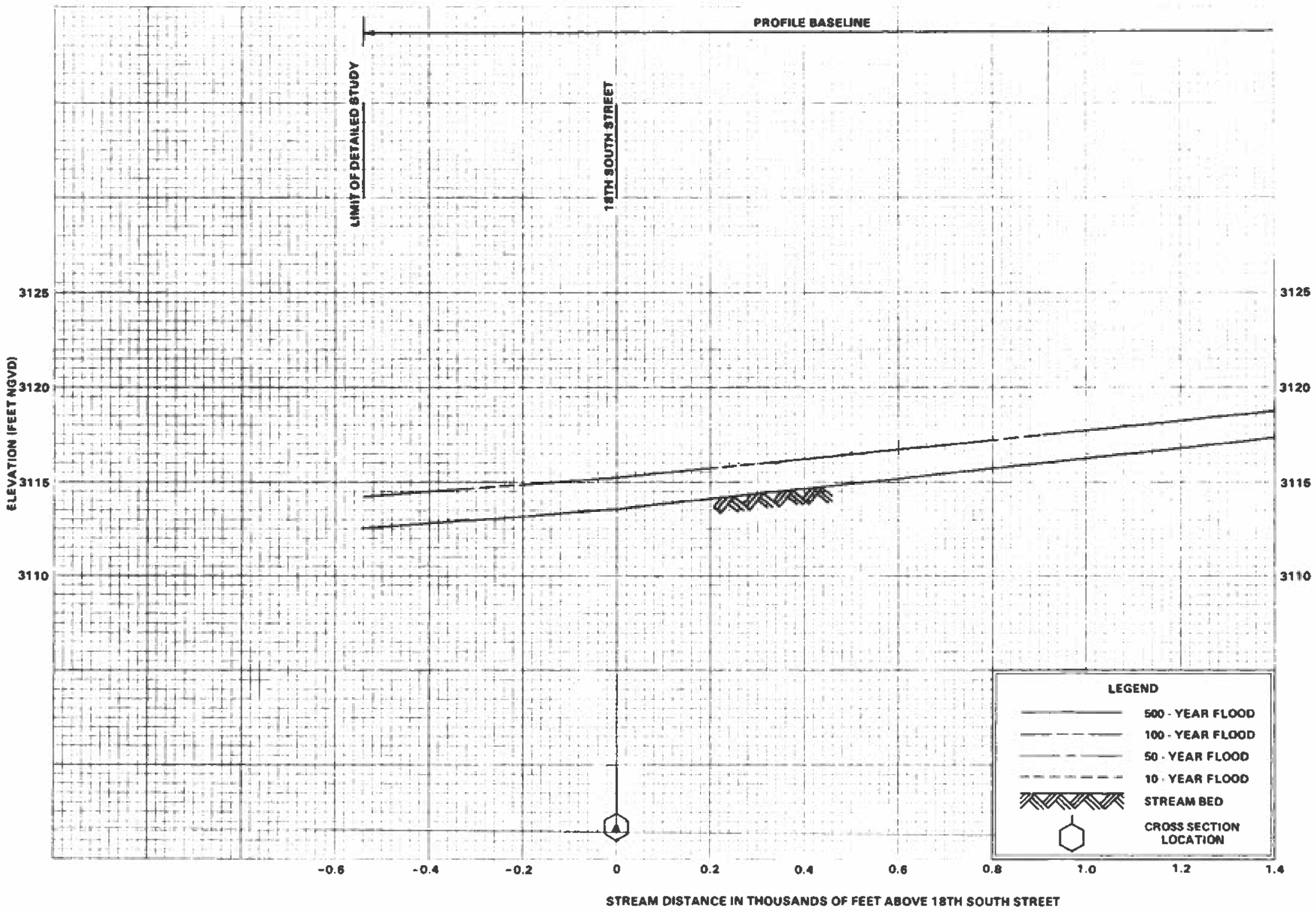
FLOOD PROFILES

LITTLE CANYON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID
(UNINCORPORATED AREAS)

04P



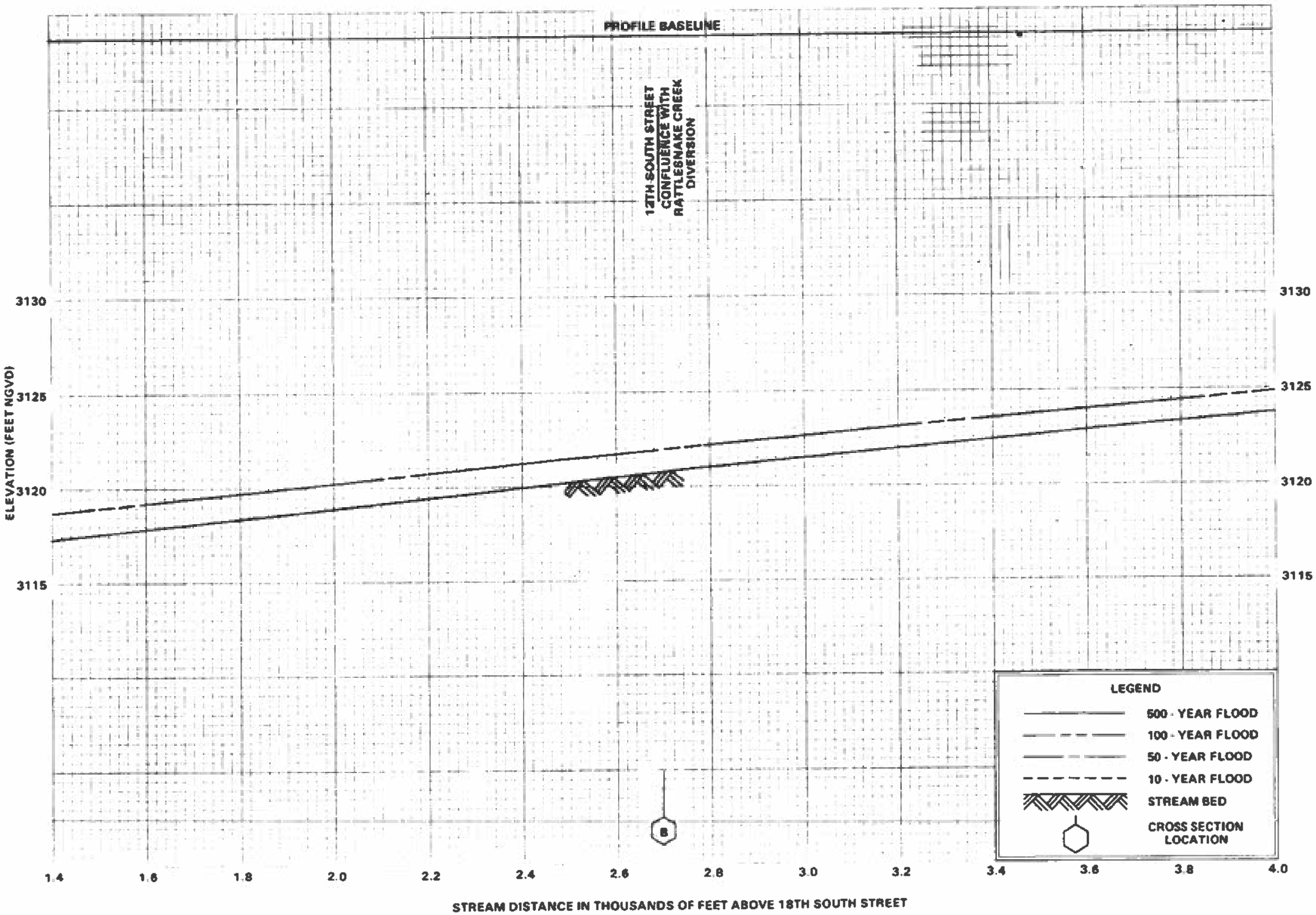
FLOOD PROFILES

RATTLESNAKE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID
(UNINCORPORATED AREAS)

05P



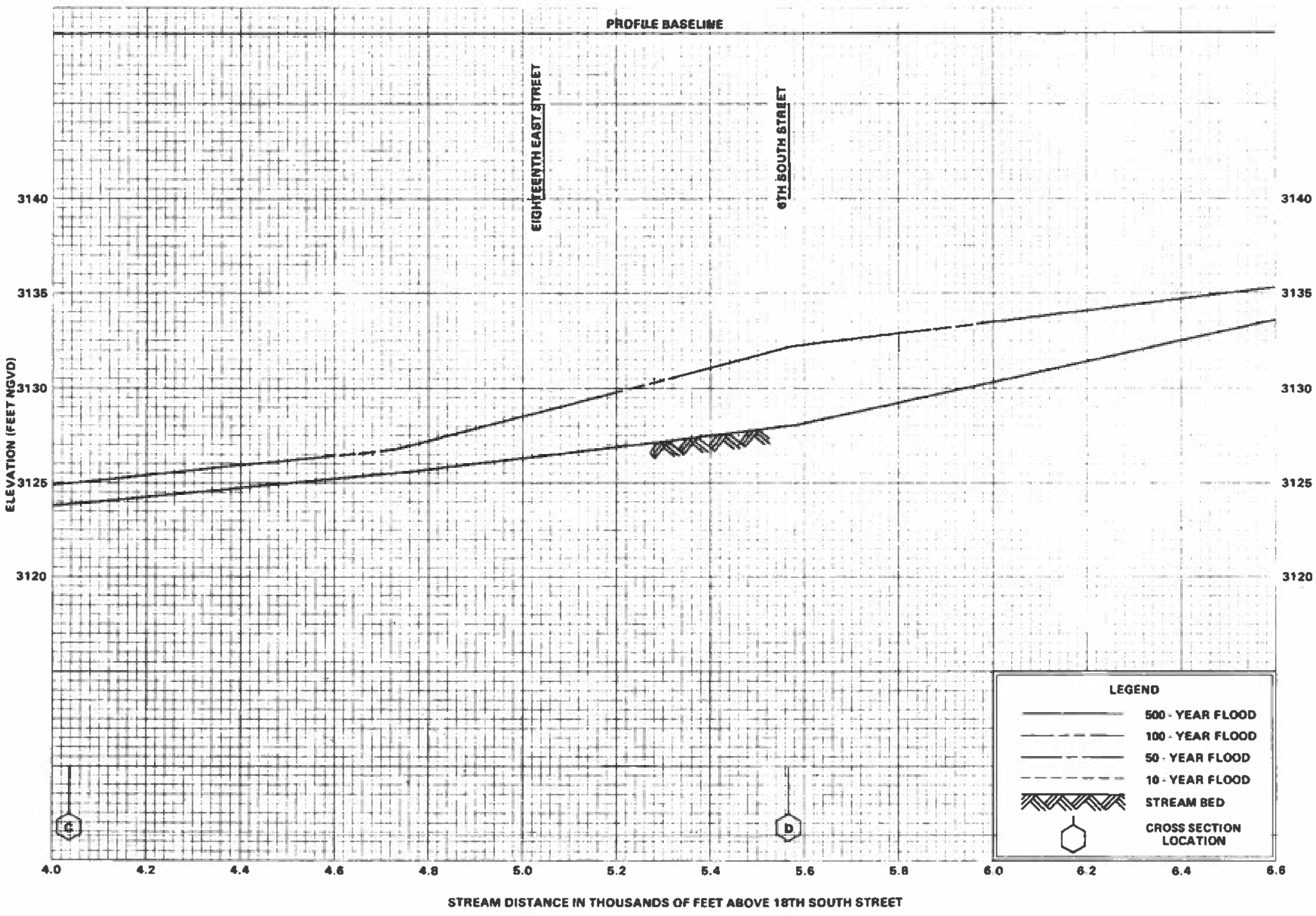
FLOOD PROFILES

RATTLESNAKE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID
(UNINCORPORATED AREAS)

06P



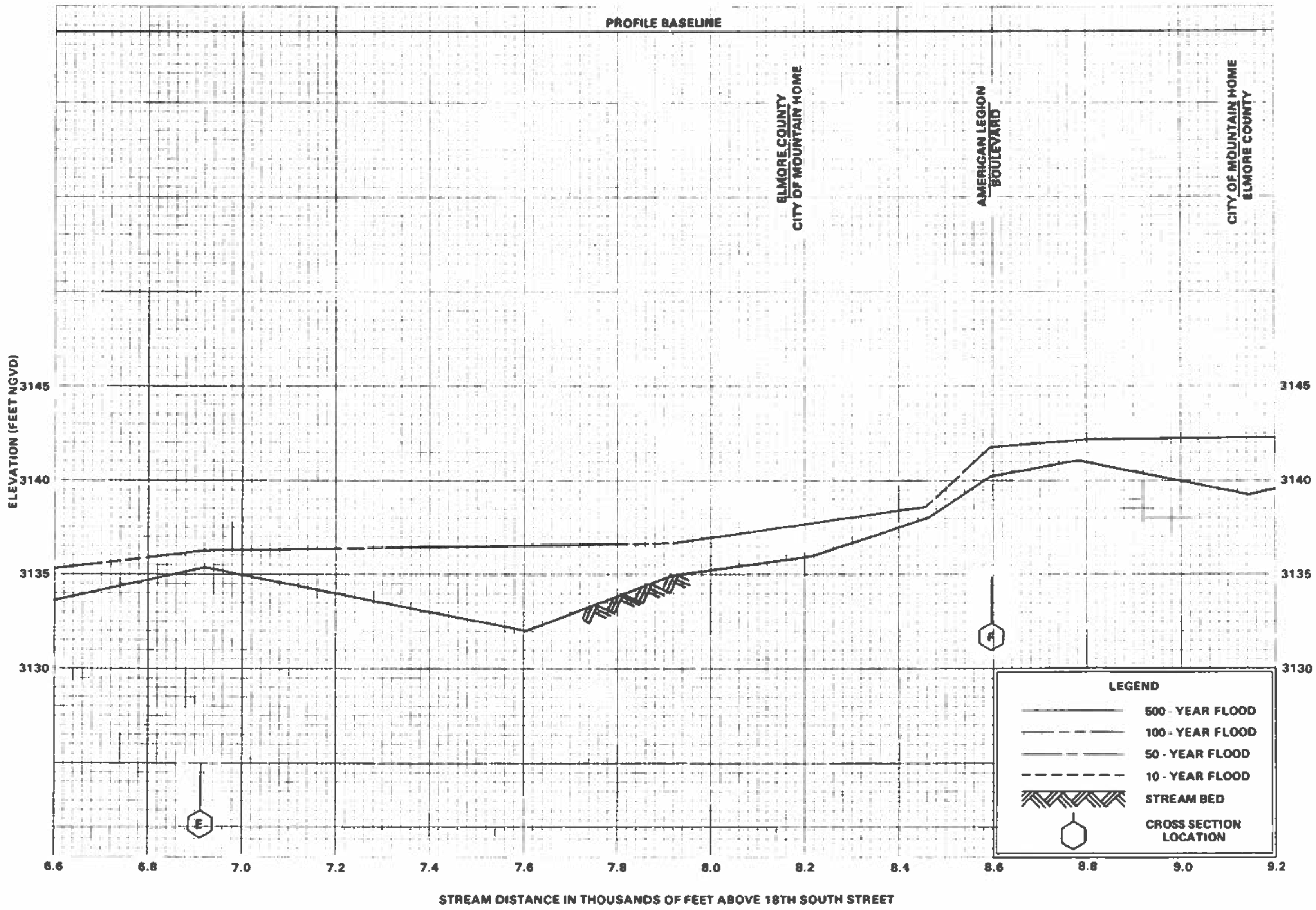
FLOOD PROFILES

RATTLESNAKE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID
(UNINCORPORATED AREAS)

07P



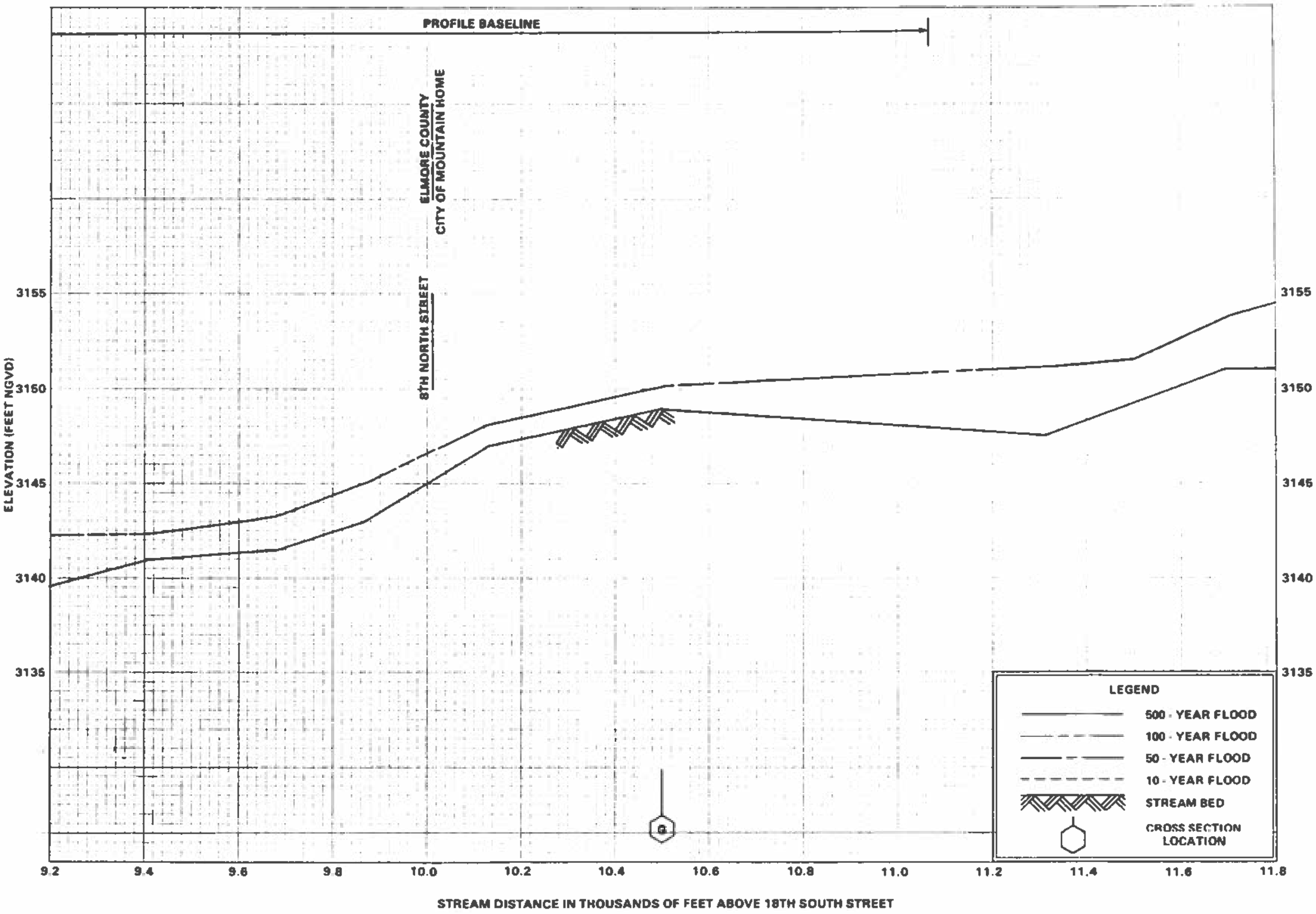
FLOOD PROFILES

RATTLESNAKE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID
(UNINCORPORATED AREAS)

08P



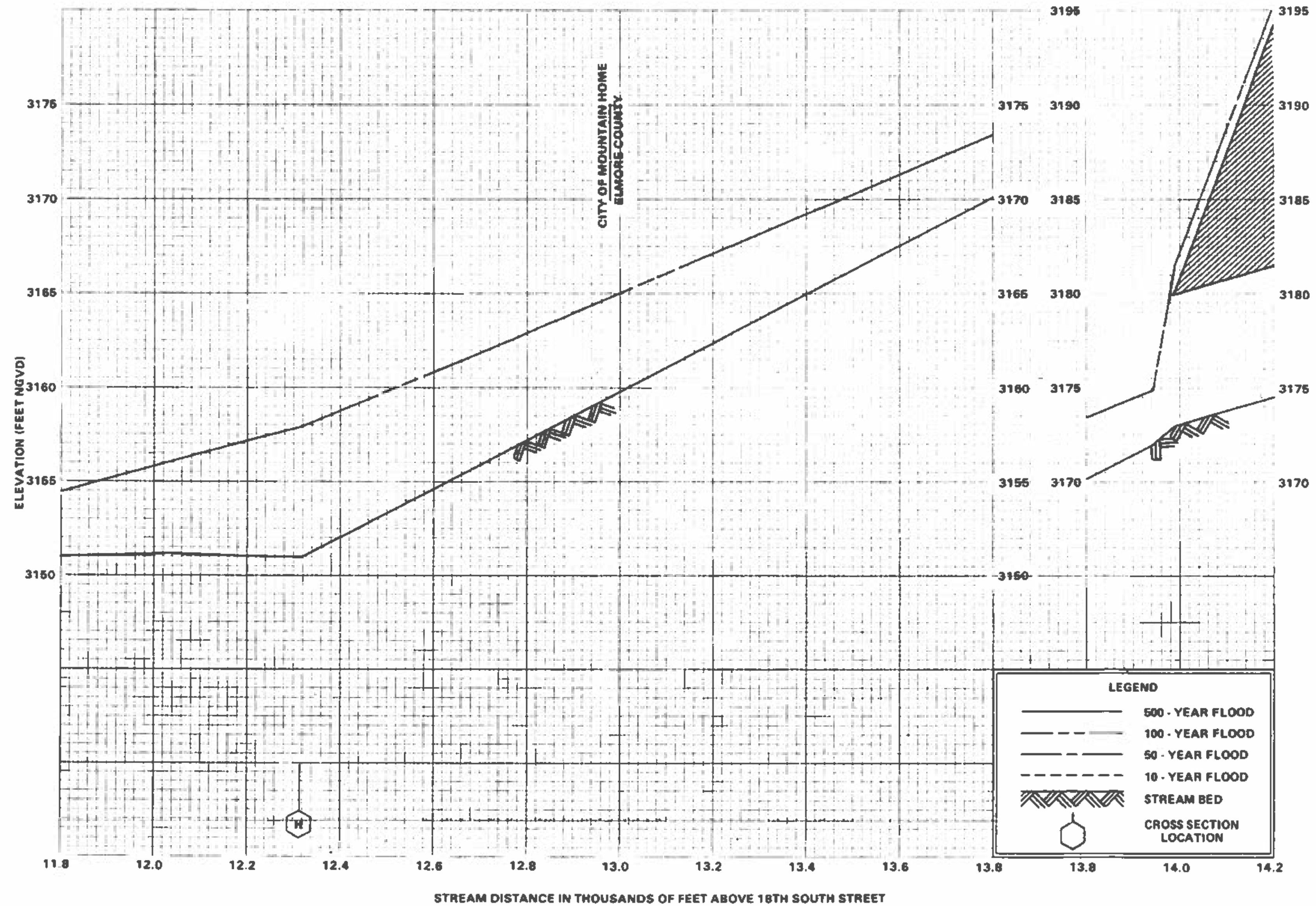
FLOOD PROFILES

RATTLESNAKE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID
(UNINCORPORATED AREAS)

09P



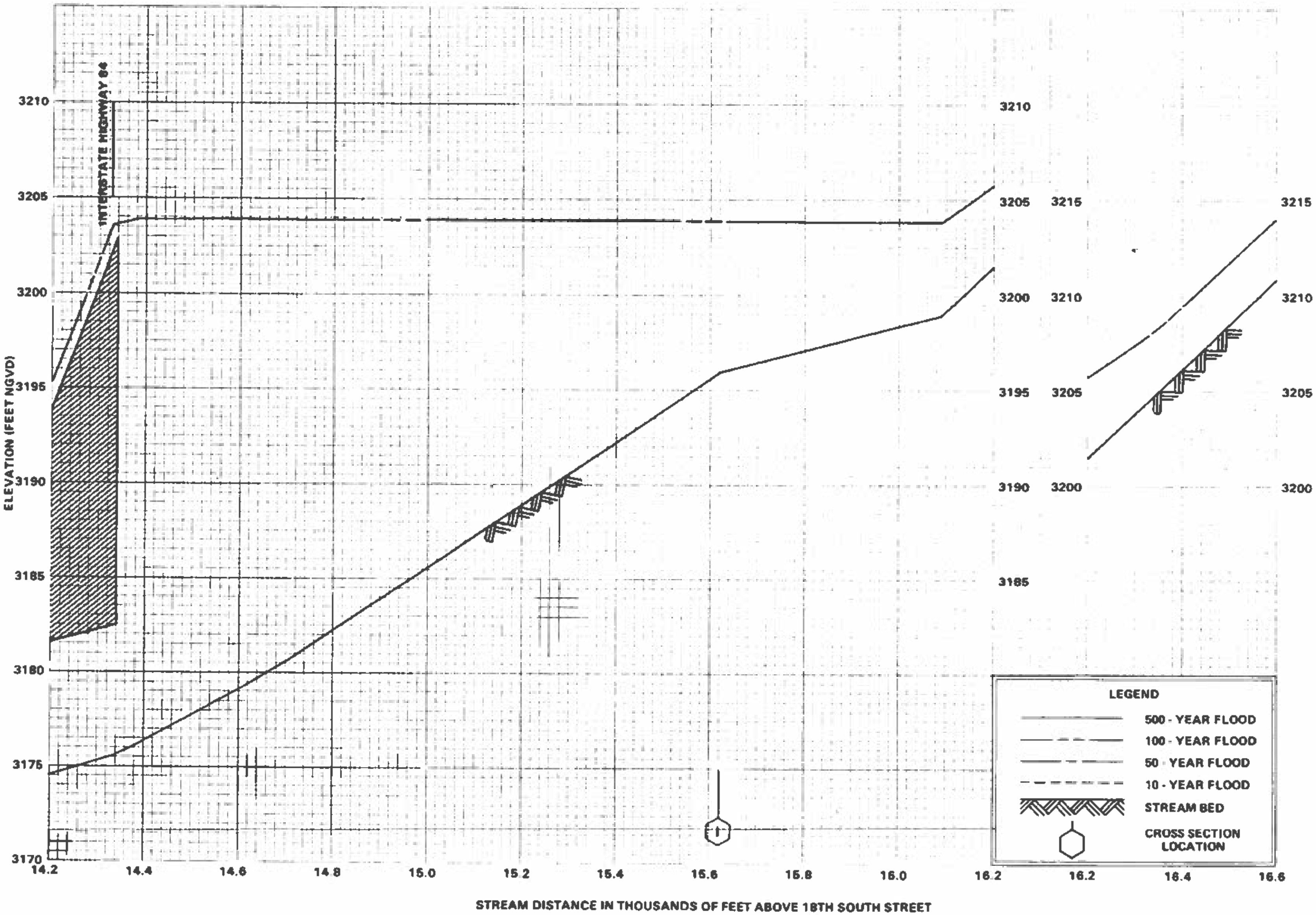
FLOOD PROFILES

RATTLESNAKE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID
(UNINCORPORATED AREAS)

10P



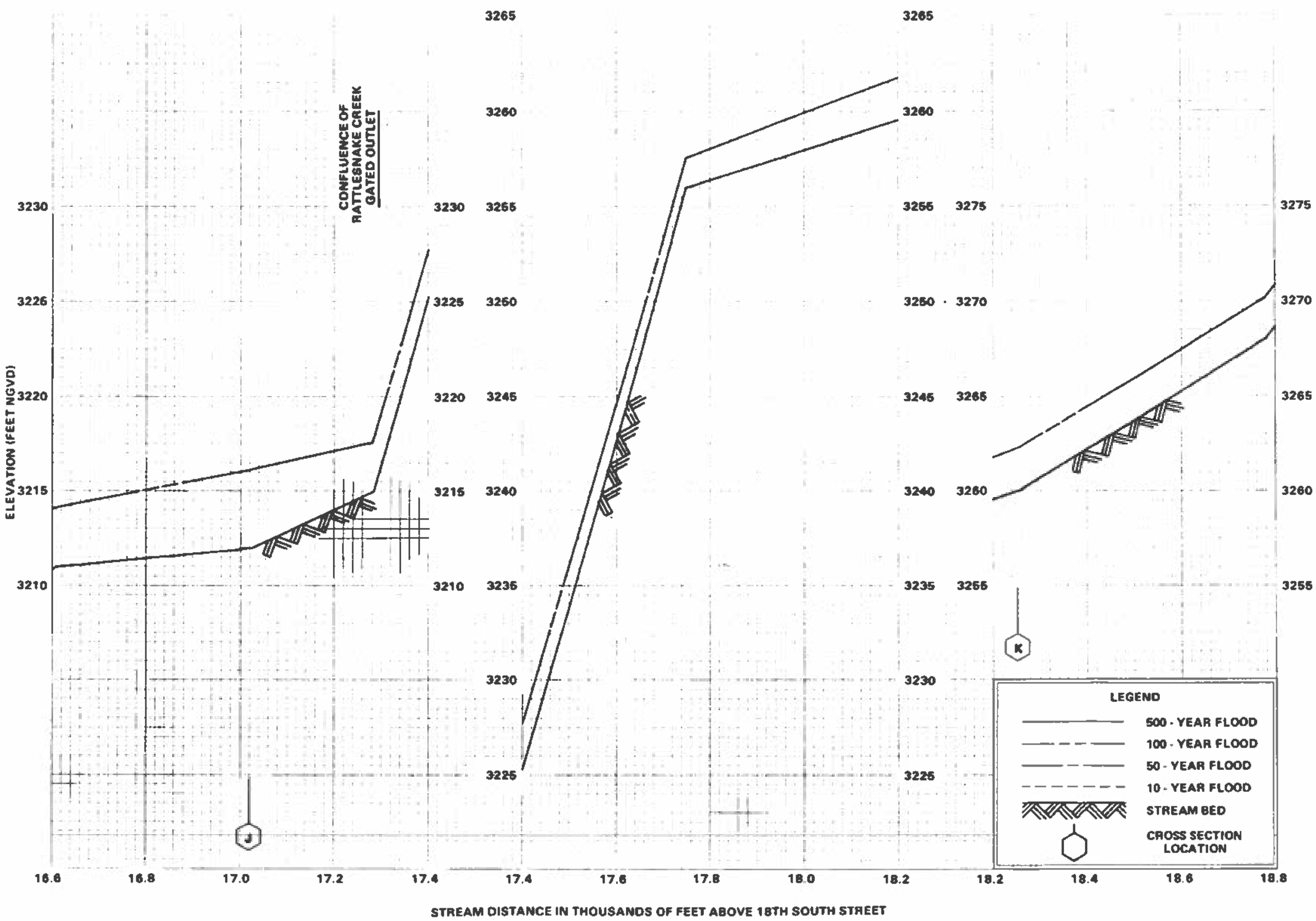
FLOOD PROFILES

RATTLESNAKE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID
(UNINCORPORATED AREAS)

11P



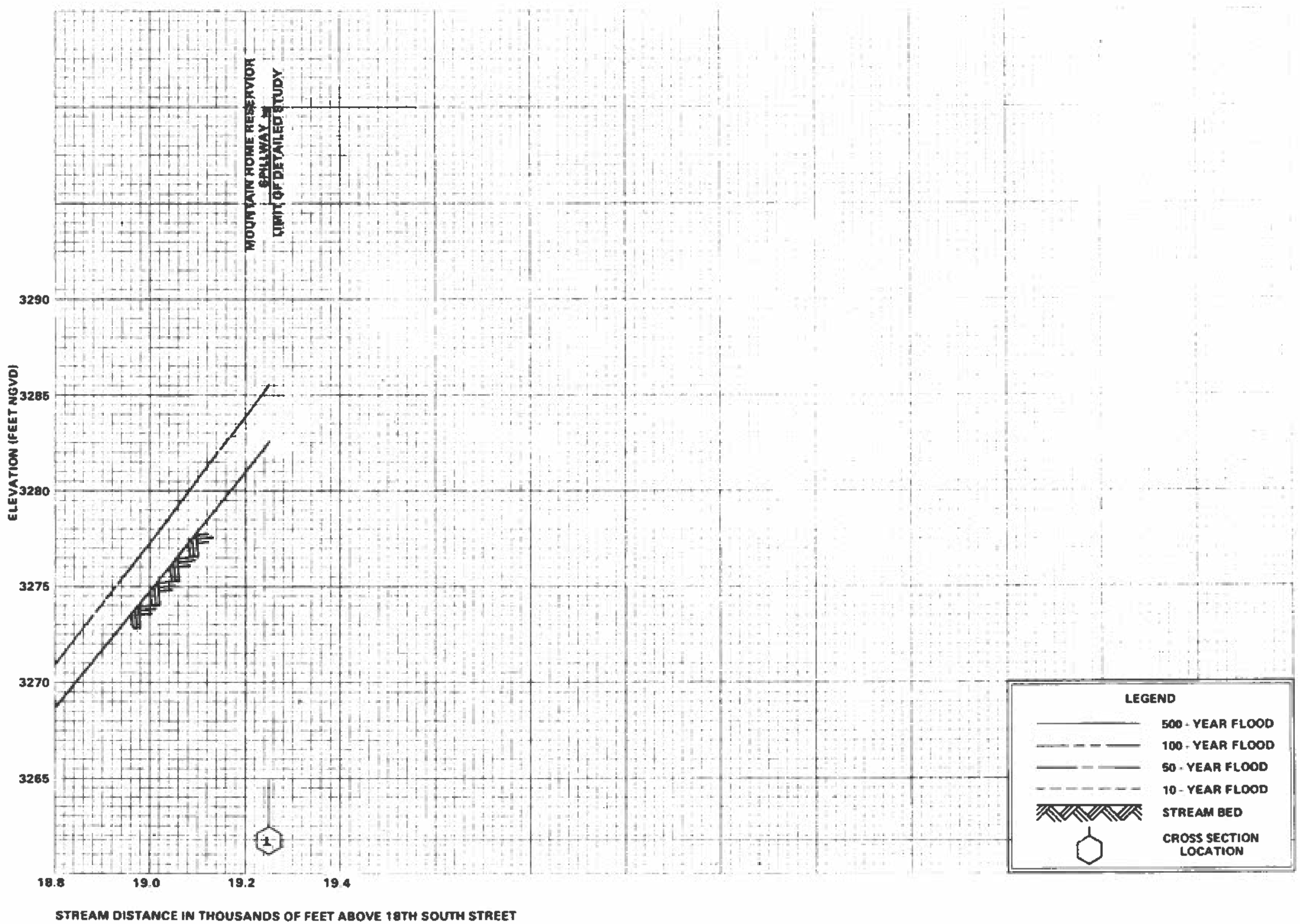
FLOOD PROFILES

RATTLESNAKE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID
(UNINCORPORATED AREAS)

12P



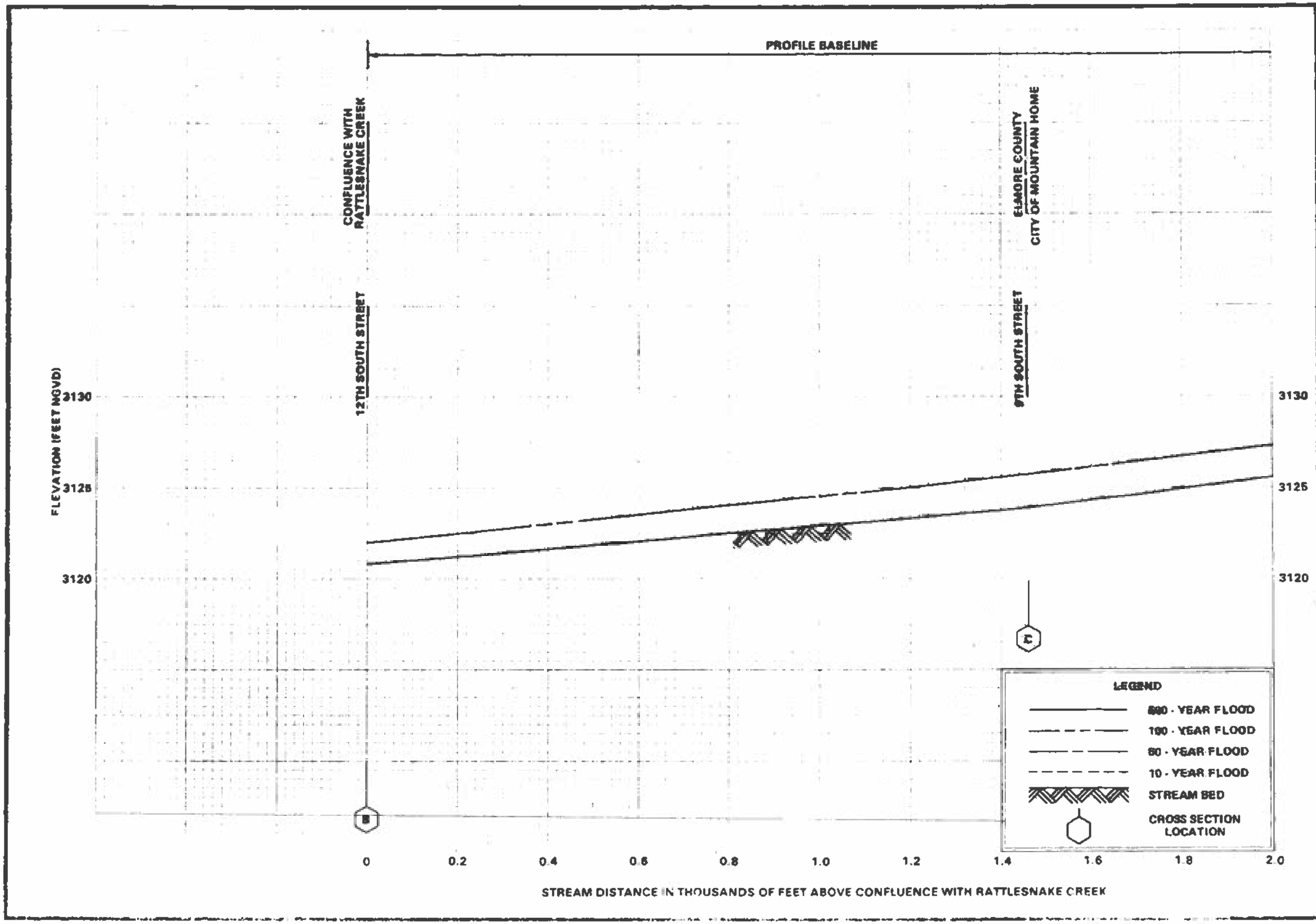
FLOOD PROFILES

RATTLESNAKE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID
(UNINCORPORATED AREAS)

13P

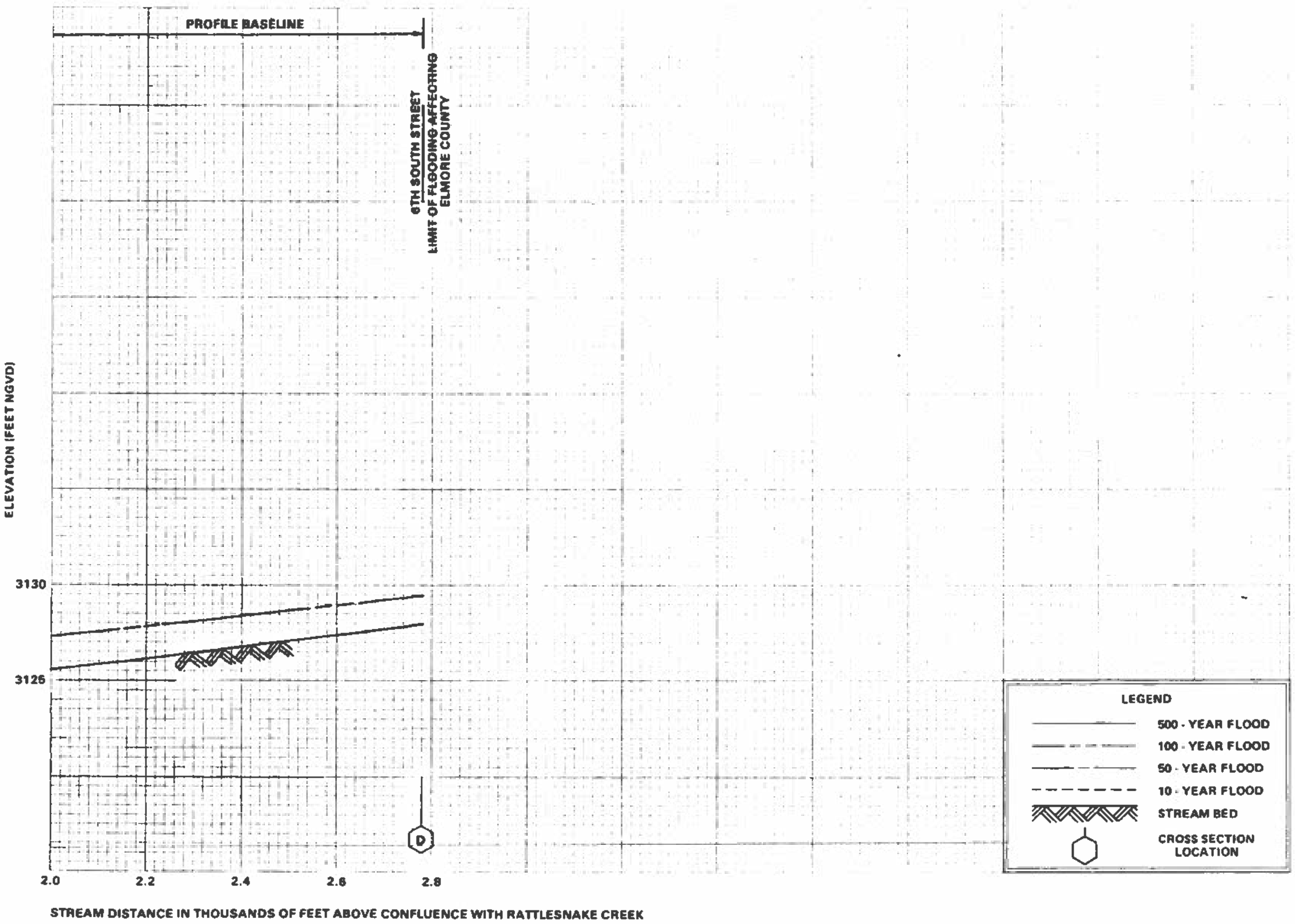


FLOOD PROFILES

RATTLESNAKE CREEK - DIVERSION

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID
(UNINCORPORATED AREAS)

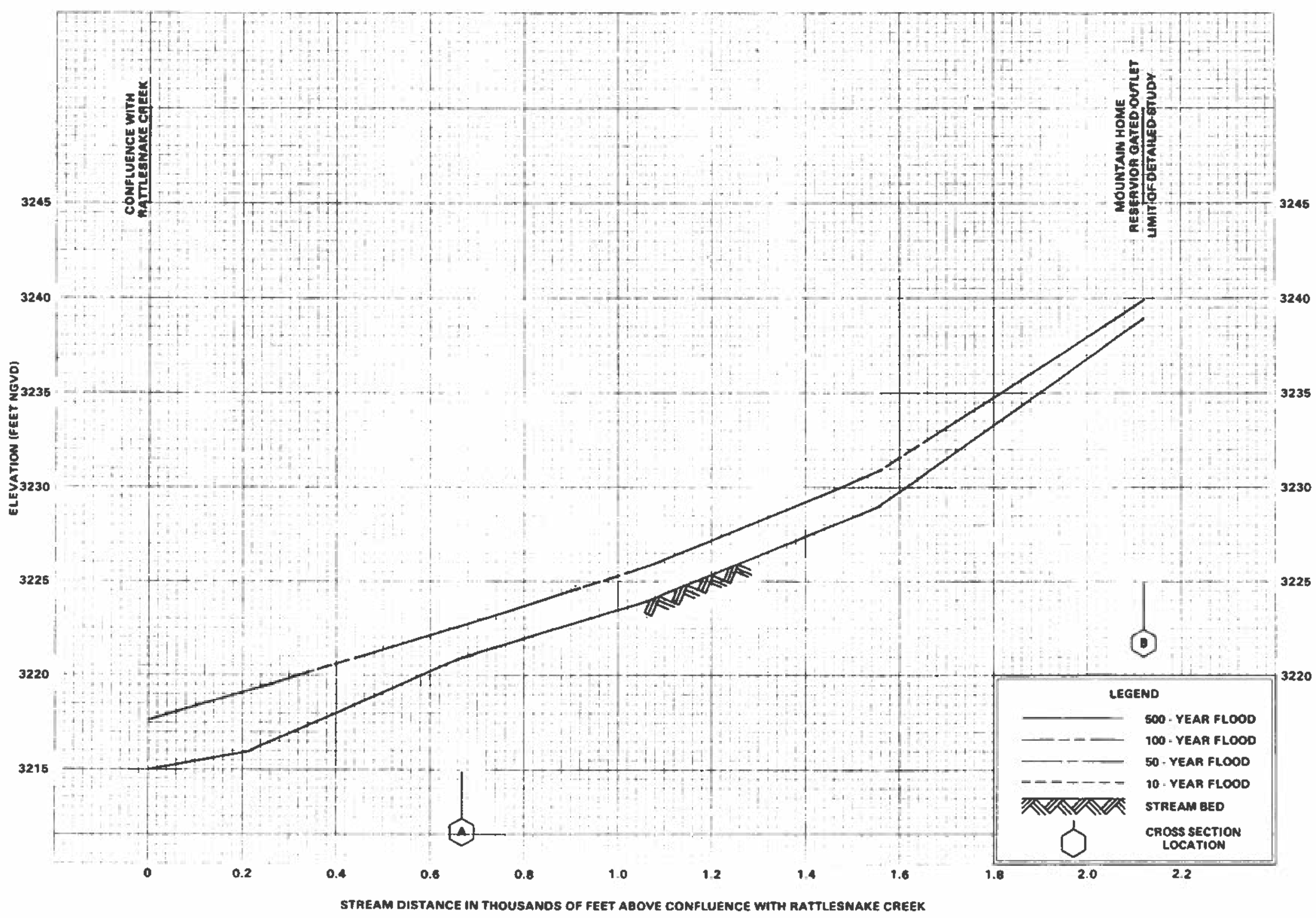


FLOOD PROFILES

RATTLESNAKE CREEK - DIVERSION

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID
(UNINCORPORATED AREAS)



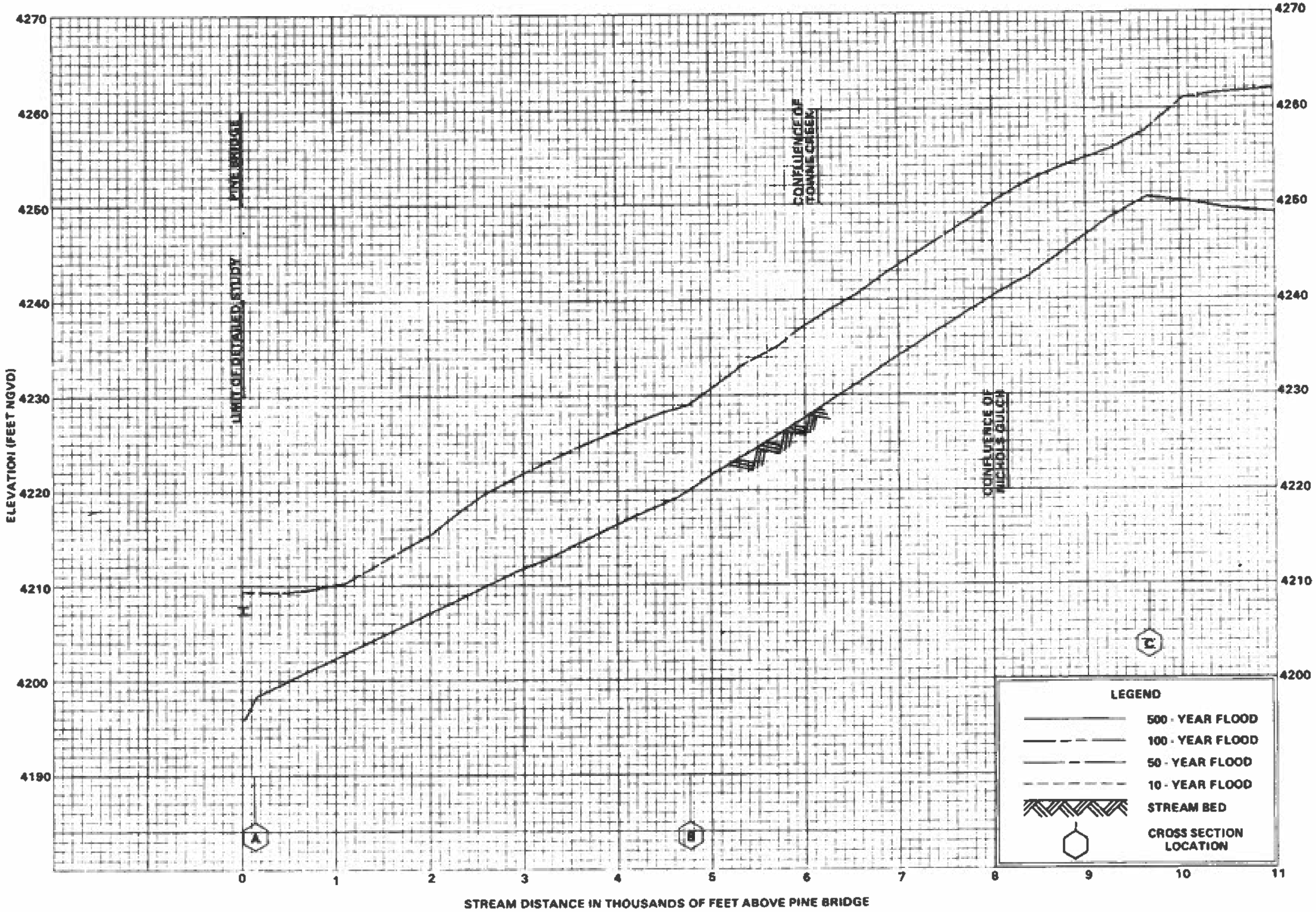
FLOOD PROFILES

RATTLESNAKE CREEK - GATED OUTLET

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID
(UNINCORPORATED AREAS)

16P



FLOOD PROFILES

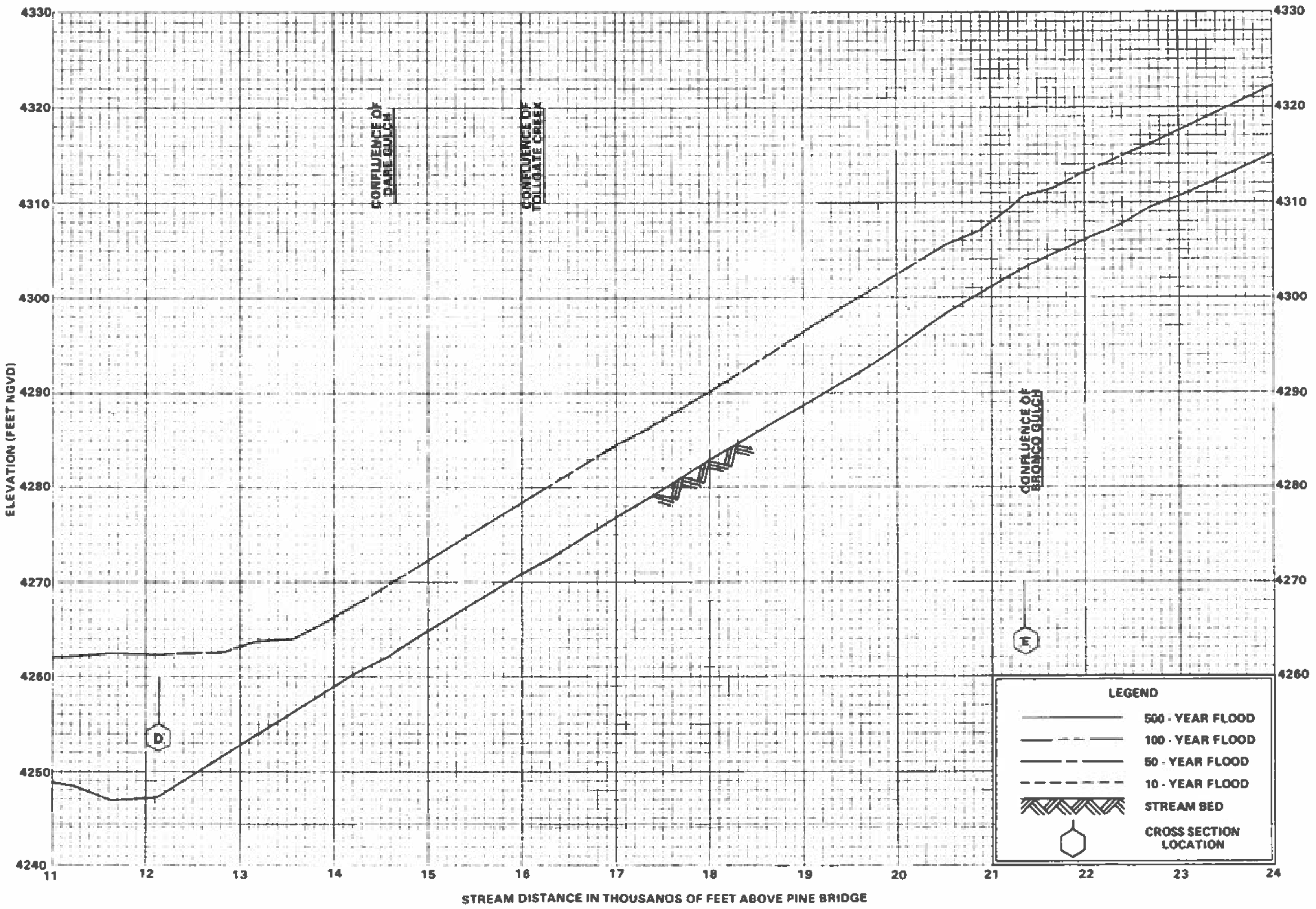
SOUTH FORK BOISE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID

(UNINCORPORATED AREAS)

17P



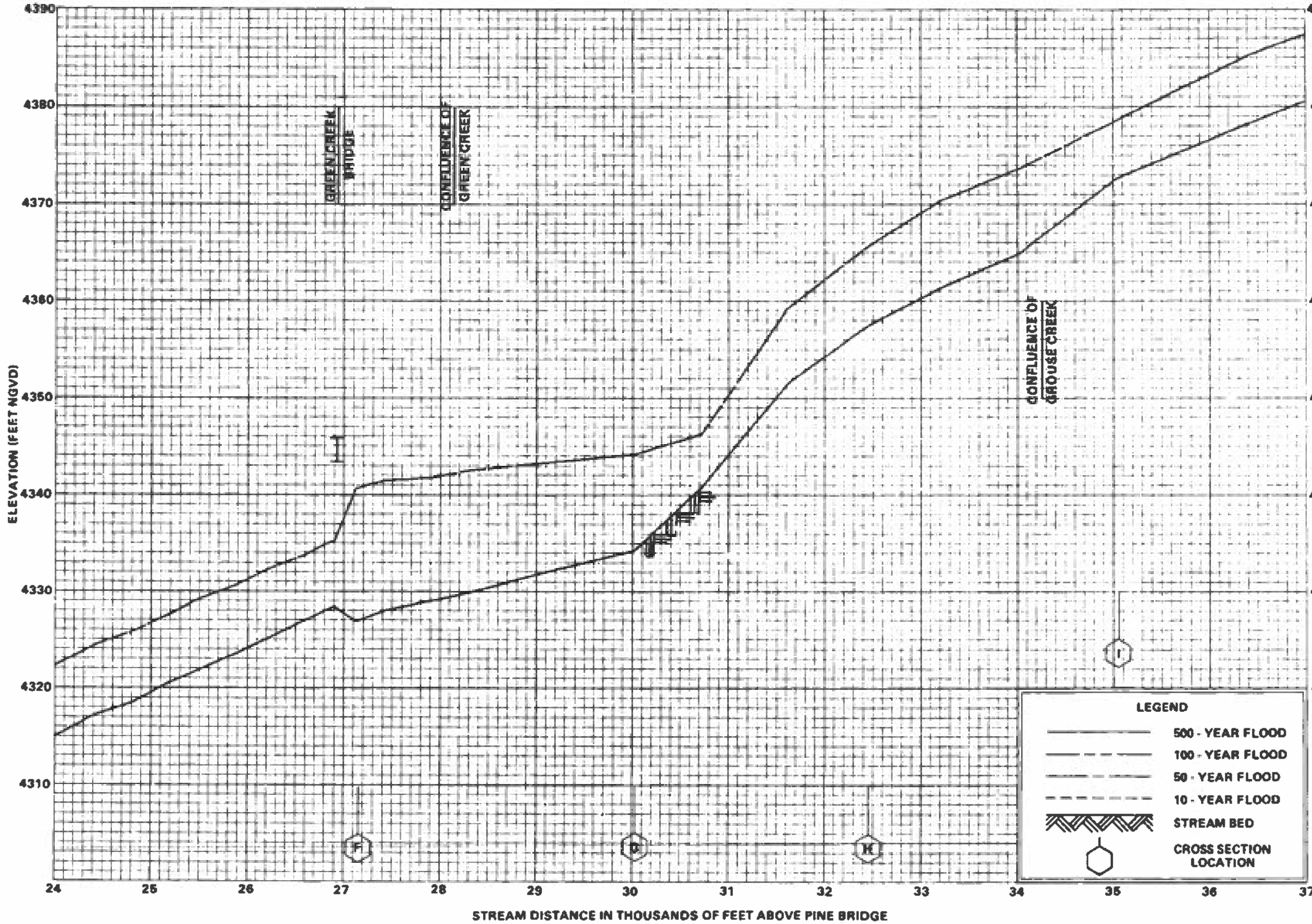
FLOOD PROFILES

SOUTH FORK BOISE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID
(UNINCORPORATED AREAS)

18P



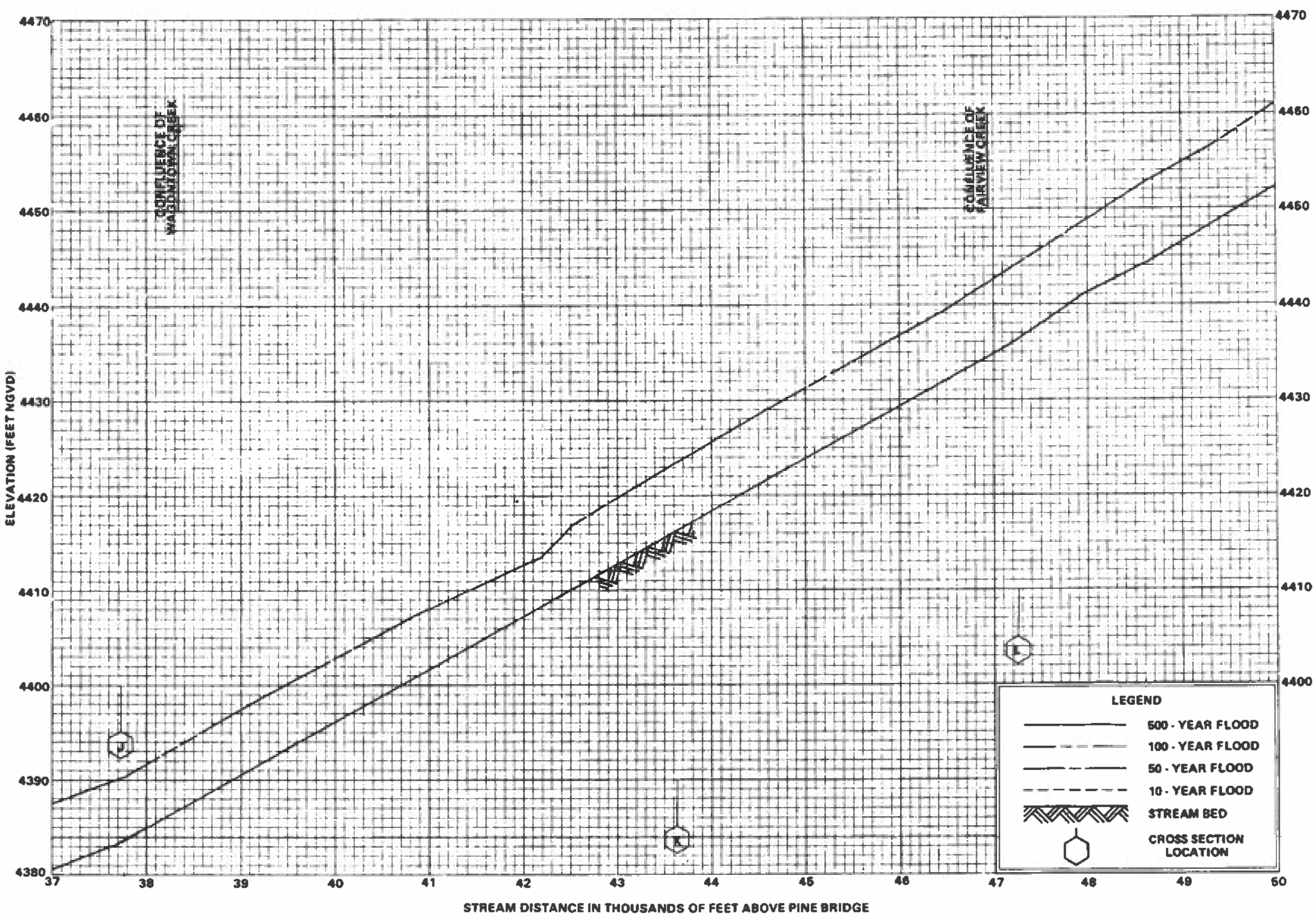
FLOOD PROFILES

SOUTH FORK BOISE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID
(UNINCORPORATED AREAS)

19P



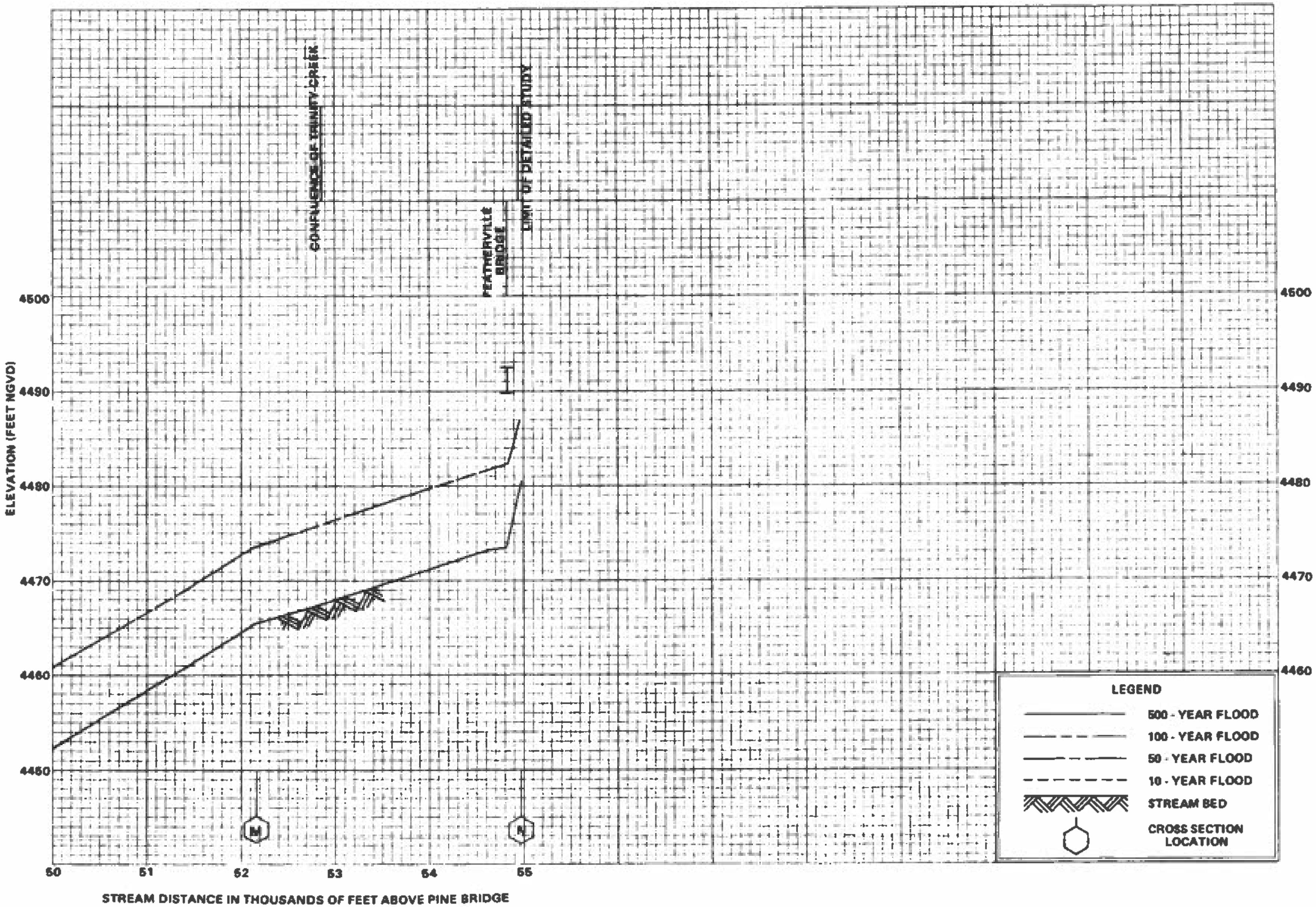
FLOOD PROFILES

SOUTH FORK BOISE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID
(UNINCORPORATED AREAS)

20P



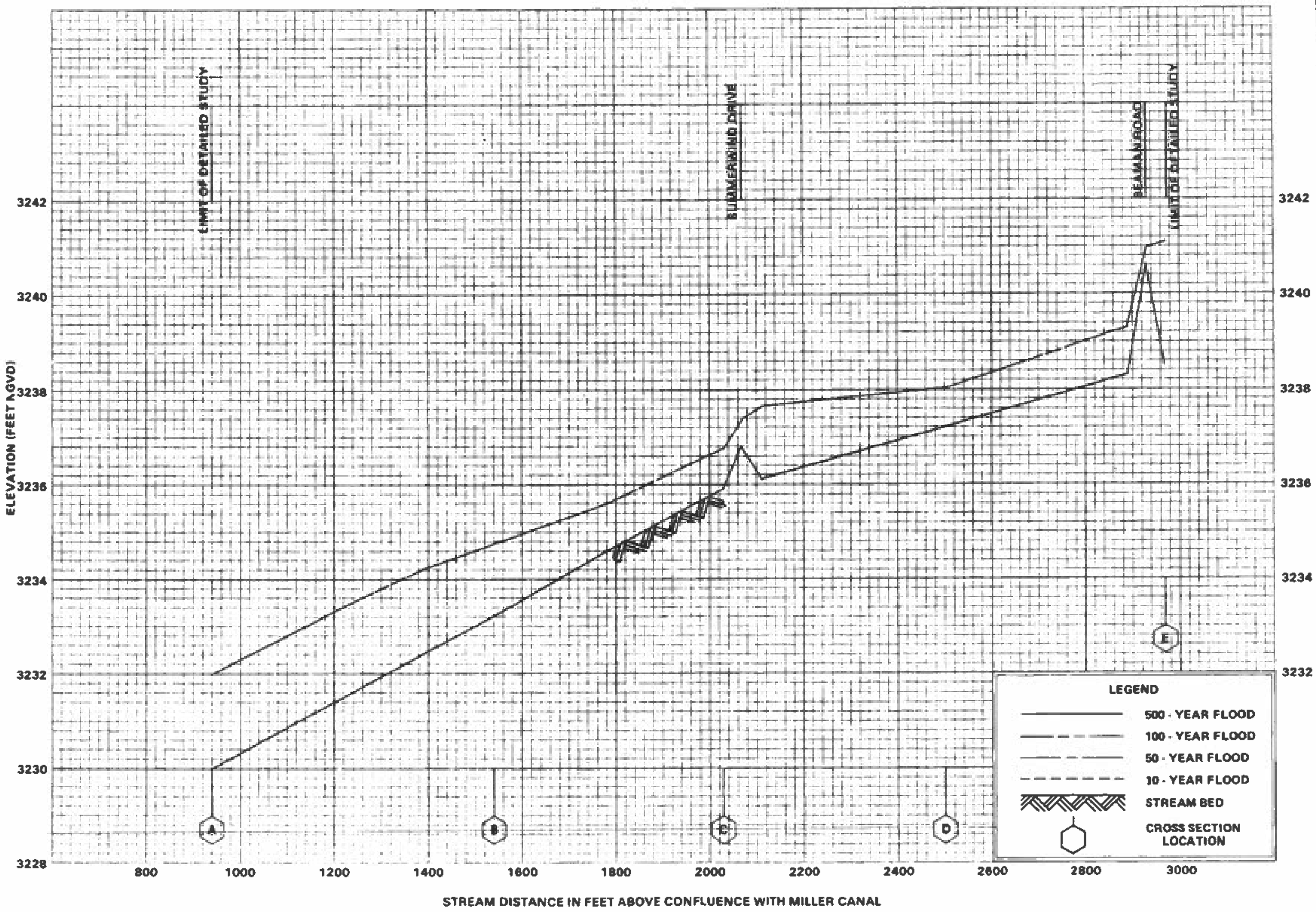
FLOOD PROFILES

SOUTH FORK BOISE RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID
(UNINCORPORATED AREAS)

21P



FLOOD PROFILES

SUMMERWIND DRAINAGE

FEDERAL EMERGENCY MANAGEMENT AGENCY

ELMORE COUNTY, ID
(UNINCORPORATED AREAS)

EXHIBIT 3 - ELEVATION REFERENCE MARKS

Reference Mark	Elevation (feet NGVD)	Description of Location
RM 1	4218.347	A standard U.S. Coast and Geodetic Survey brass cap, marked "X 339 1950," set in the step at the entrance to the cafe in Pine, 14 inches from the edge of the step, 87 feet from the centerline of the highway.
RM 2	4226.82	A standard U.S. Geological Survey gaging station brass cap set in a concrete post, 17 inches above the ground, 6.5 feet from A-frame support shoreward base, 8.0 feet downstream from gage house, 0.8 mile north from the cafe in Pine.
RM 3	4425.36	A railroad spike in the north side of double 12 inch pine tree, 16 inches above the ground, 40 feet west of the centerline of the highway, 2.2 miles north from the cafe in Pine.
RM 4	4328.02	A brass property cap set in the shoulder of the highway, marked "16 1972 PE 836," 10 feet from the centerline of highway, 3.0 miles north from the cafe in Pine. Note: the cap is not level, the high point was used.
RM 5	4346.88	High point at junction of downstream left bank wingwall and headwall on bridge, 4.5 miles north of cafe in Pine, and 1.3 miles south of Paradise Resort.
RM 6	4371.69	A railroad spike in base of power pole, 1.5 feet above the ground, 5.55 miles north from the cafe in Pine, and 0.3 mile south of Paradise Resort.

EXHIBIT 3 - ELEVATION REFERENCE MARKS

Reference Mark	Elevation (feet NGVD)	Description of Location
RM 7	4407.70	A railroad spike in west side of power pole, 1.5 feet above the ground, 70 feet north of entrance to first gravel pit, 90 feet from centerline of highway, 6.6 miles north from the cafe in Pine.
RM 8	4448.96	A chisled square on top of a large rock, 55 feet from centerline of highway, 0.1 mile south of entrance to second gravel pit, 7.3 miles north from the cafe in Pine.
RM 9	4507.79	A railroad spike in base of 24 inch diameter pine tree, 3 inches above ground, 20 feet south of dirt road cabin entrance, 30 feet west of centerline of highway, 8.1 miles north from the cafe in Pine.
RM 10	4501.97	Chiseled square on downstream right bank wingwall of bridge, 9.4 miles north of cafe at Pine, 0.7 miles south of Featherville.
RM 11	3252.04	Highest point on large rock approximately 3.0 feet high with circumference of 3.0 feet, on the southwest corner of Beaman Road and N18E intersection, 13 feet northeast of telephone cable shelter, at northeast corner of Summerwind Subdivision, 2.0 miles north of Mountain Home.
RM 12	3116.62	A standard disk, stamped "C 221 1941," in the southeast end of the northeast concrete headwall 1.6 miles southeast along Union

EXHIBIT 3 - ELEVATION REFERENCE MARKS

Reference Mark	Elevation (feet NGVD)	Description of Location
		Pacific Railroad from the station at Mountain Home, 6.5 poles northwest of milepost 400, at culvert 400.12, and 12 feet northeast of the centerline of the track.
RM 13	2506.803	A standard U.S. Coast and Geodetic Survey brass cap about 3.6 miles west along the Union Pacific Railroad from the old station in Glenns Ferry, in the top of the northeast abutment of bridge 377.50 over Alkali Creek, 6.0 feet northwest of the northwest rail of the northwest track, and about 1.0 foot lower than the track.
RM 14	2535.464	A standard U.S. Coast and Geodetic Survey brass cap approximately 1.7 miles west along the Union Pacific Railroad from the station at Glenns Ferry, then 0.3 mile south across country, near the entrance to Glenns Ferry Airport, 22 feet west of the centerline of a north-south track road, 17 feet north of the extended centerline of a gravel road leading east along the north side of the airport, 8.0 feet north of the north end of a gate, 0.8 foot west of a fence, 0.5 foot east of a witness post, about level with the roads and in the top of a concrete post projecting 0.5 foot.
RM 15	2604.561	A standard Bureau of Land Management section corner marker for T. 5 S., R. 10 E., section 17, southwest corner.