FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 3 OF 3

SANTA CRUZ COUNTY, CALIFORNIA

AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
CAPITOLA, CITY OF	060354
SANTA CRUZ, CITY OF	060355
SANTA CRUZ COUNTY UNINCORPORATED AREAS	060353
SCOTTS VALLEY, CITY OF	060356
WATSONVILLE, CITY OF	060357

FEMA

REVISED PRELIMINARY

OCT 31, 2016

REVISED:

FLOOD INSURANCE STUDY NUMBER
06087CV003C

Version Number 2.3.2.1

TABLE OF CONTENTS
Volume 1

		Page
SECTION 1.0 – INTRODUCTION		**1**
1.1	The National Flood Insurance Program	1
1.2	Purpose of this Flood Insurance Study Report	2
1.3	Jurisdictions Included in the Flood Insurance Study Project	2
1.4	Considerations for using this Flood Insurance Study Report	5
SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS		**17**
2.1	Floodplain Boundaries	17
2.2	Floodways	28
2.3	Base Flood Elevations	29
2.4	Non-Encroachment Zones	29
2.5	Coastal Flood Hazard Areas	30
2.5.1	Water Elevations and the Effects of Waves	30
2.5.2	Floodplain Boundaries and BFEs for Coastal Areas	31
2.5.3	Coastal High Hazard Areas	32
2.5.4	Limit of Moderate Wave Action	33
SECTION 3.0 – INSURANCE APPLICATIONS		**33**
3.1	National Flood Insurance Program Insurance Zones	33
3.2	Coastal Barrier Resources System	34
SECTION 4.0 – AREA STUDIED		**34**
4.1	Basin Description	34
4.2	Principal Flood Problems	35
4.3	Non-Levee Flood Protection Measures	42
4.4	Levees	42
SECTION 5.0 – ENGINEERING METHODS		**46**
5.1	Hydrologic Analyses	46
5.2	Hydraulic Analyses	54
5.3	Coastal Analyses	70
5.3.1	Total Stillwater Elevations	70
5.3.2	Waves	72
5.3.3	Coastal Erosion	72
5.3.4	Wave Hazard Analyses	72
5.4	Alluvial Fan Analyses	86

Figures

	Page
Figure 1: FIRM Panel Index	8
Figure 2: FIRM Notes to Users	10
Figure 3: Map Legend for FIRM	13
Figure 4: Floodway Schematic	28
Figure 5: Wave Runup Transect Schematic	31
Figure 6: Coastal Transect Schematic	33
Figure 7: Frequency Discharge-Drainage Area Curves	52
Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas	71
Figure 9: Transect Location Map	84

Tables

	Page
Table 1: Listing of NFIP Jurisdictions	2
Table 2: Flooding Sources Included in this FIS Report	18
Table 3: Flood Zone Designations by Community	34
Table 4: Coastal Barrier Resources System Information	34
Table 5: Basin Characteristics	35
Table 6: Principal Flood Problems	35
Table 7: Historic Flooding Elevations	41
Table 8: Non-Levee Flood Protection Measures	42
Table 9: Levees	44
Table 10: Summary of Discharges	47
Table 11: Summary of Non-Coastal Stillwater Elevations	52
Table 12: Stream Gage Information used to Determine Discharges	53
Table 13: Summary of Hydrologic and Hydraulic Analyses	55
Table 14: Roughness Coefficients	70
Table 15: Summary of Coastal Analyses	70
Table 16: Tide Gage Analysis Specifics	72
Table 17: Coastal Transect Parameters	74
Table 18: Summary of Alluvial Fan Analyses	86
Table 19: Results of Alluvial Fan Analyses	86

TABLE OF CONTENTS
Volume 2

Page

SECTION 6.0 – MAPPING METHODS **87**
6.1 Vertical and Horizontal Control 87
6.2 Base Map 88
6.3 Floodplain and Floodway Delineation 88
6.4 Coastal Flood Hazard Mapping 125
6.5 FIRM Revisions 128
6.5.1 Letters of Map Amendment 128
6.5.2 Letters of Map Revision Based on Fill 129
6.5.3 Letters of Map Revision 129
6.5.4 Physical Map Revisions 129
6.5.5 Contracted Restudies 130
6.5.6 Community Map History 130

SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION **131**
7.1 Contracted Studies 131
7.2 Community Meetings 132

SECTION 8.0 – ADDITIONAL INFORMATION **134**

SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES **135**

Tables

Page

Table 20: Countywide Vertical Datum Conversion 87
Table 21: Stream-Based Vertical Datum Conversion 88
Table 22: Base Map Sources 88
Table 23: Summary of Topographic Elevation Data used in Mapping 89
Table 24: Floodway Data 90
Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams 125
Table 26: Summary of Coastal Transect Mapping Considerations 126
Table 27: Incorporated Letters of Map Change 129
Table 28: Community Map History 131
Table 29: Summary of Contracted Studies Included in this FIS Report 131
Table 30: Community Meetings 133
Table 31: Map Repositories 134
Table 32: Additional Information 135
Table 33: Bibliography and References 136

Volume 2
Exhibits

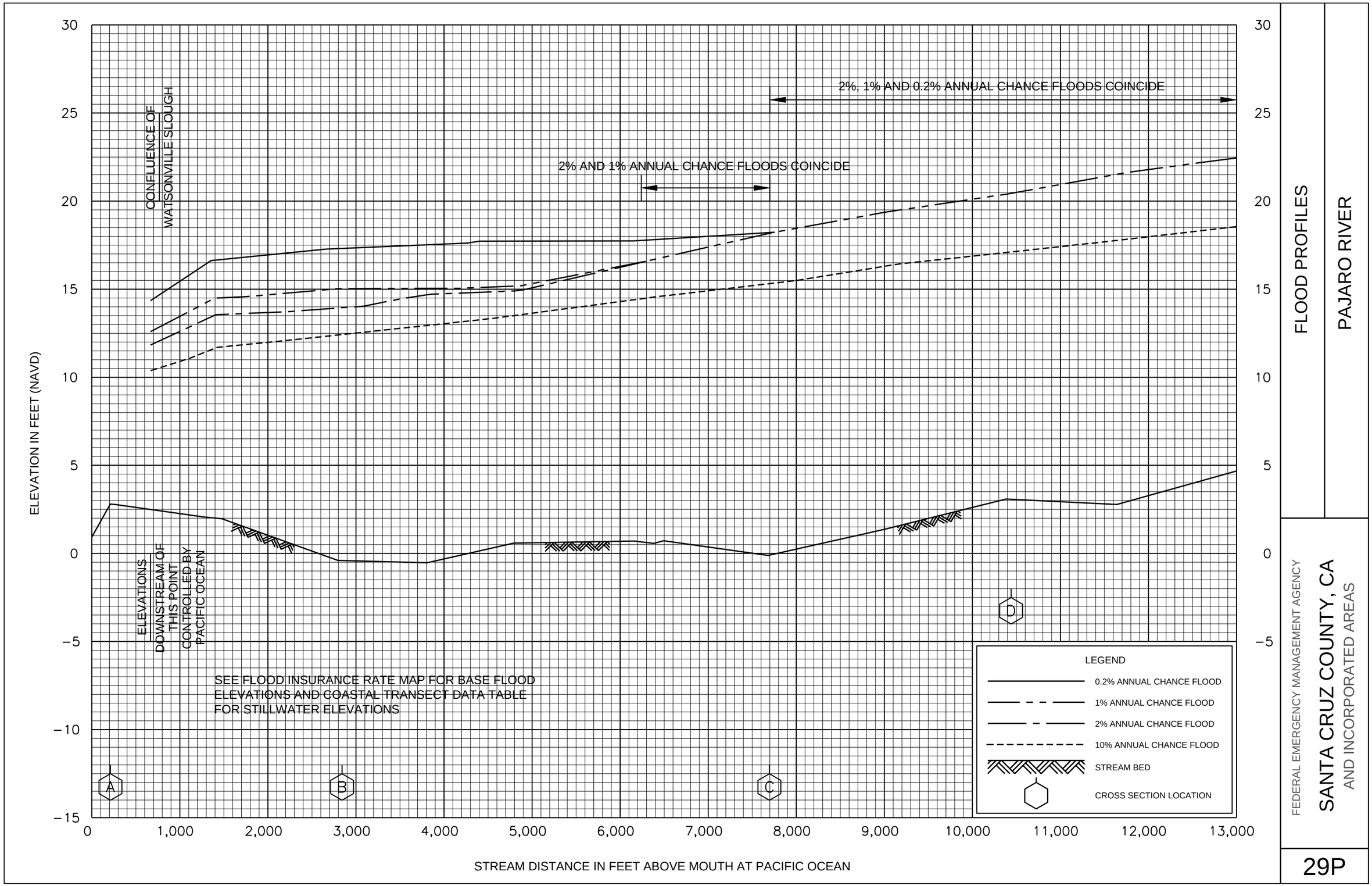
Flood Profiles	Panel
Aptos Creek	01-03 P
Arana Gulch	04-06 P
Carbonera Creek	07-15 P
Corralitos Creek	16-19 P
Coward Creek	20-21 P
Harkins Slough	22-23 P
Moore Creek	24-26 P
Nobel Creek	27-28 P

Volume 3
Exhibits

Flood Profiles	Panel
Pajaro River	29-36 P
Pajaro River – without consideration of Levee	37-44 P
Rodeo Creek Gulch	45-46 P
Salsipuedes Creek	47-48 P
Salsipuedes Creek – without consideration of Left Levee	49-50 P
Salsipuedes Creek – without consideration of Right Levee	51 P
San Lorenzo River	52-62 P
San Lorenzo River – without consideration of Levee	63-64 P
San Vicente Creek	65 P
Schwans Lagoon	66 P
Soquel Creek	67-70 P
Struve Slough	71-73 P
Thomasello Creek	74 P
Thompson Creek	75 P
Watsonville Slough	76-84 P
Zayante Creek	85-89 P

Published Separately

Flood Insurance Rate Map (FIRM)



FLOOD PROFILES

PAJARO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA

AND INCORPORATED AREAS

29P

TOP OF ROAD ELEVATION 42.75 FEET

2% AND 1% AND 0.2% ANNUAL CHANCE FLOODS COINCIDE

ELEVATION IN FEET (NAVD)

STREAM DISTANCE IN FEET ABOVE MOUTH AT PACIFIC OCEAN

THURWACHER ROAD

STATE HIGHWAY 1

LEGEND

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

FLOOD PROFILES

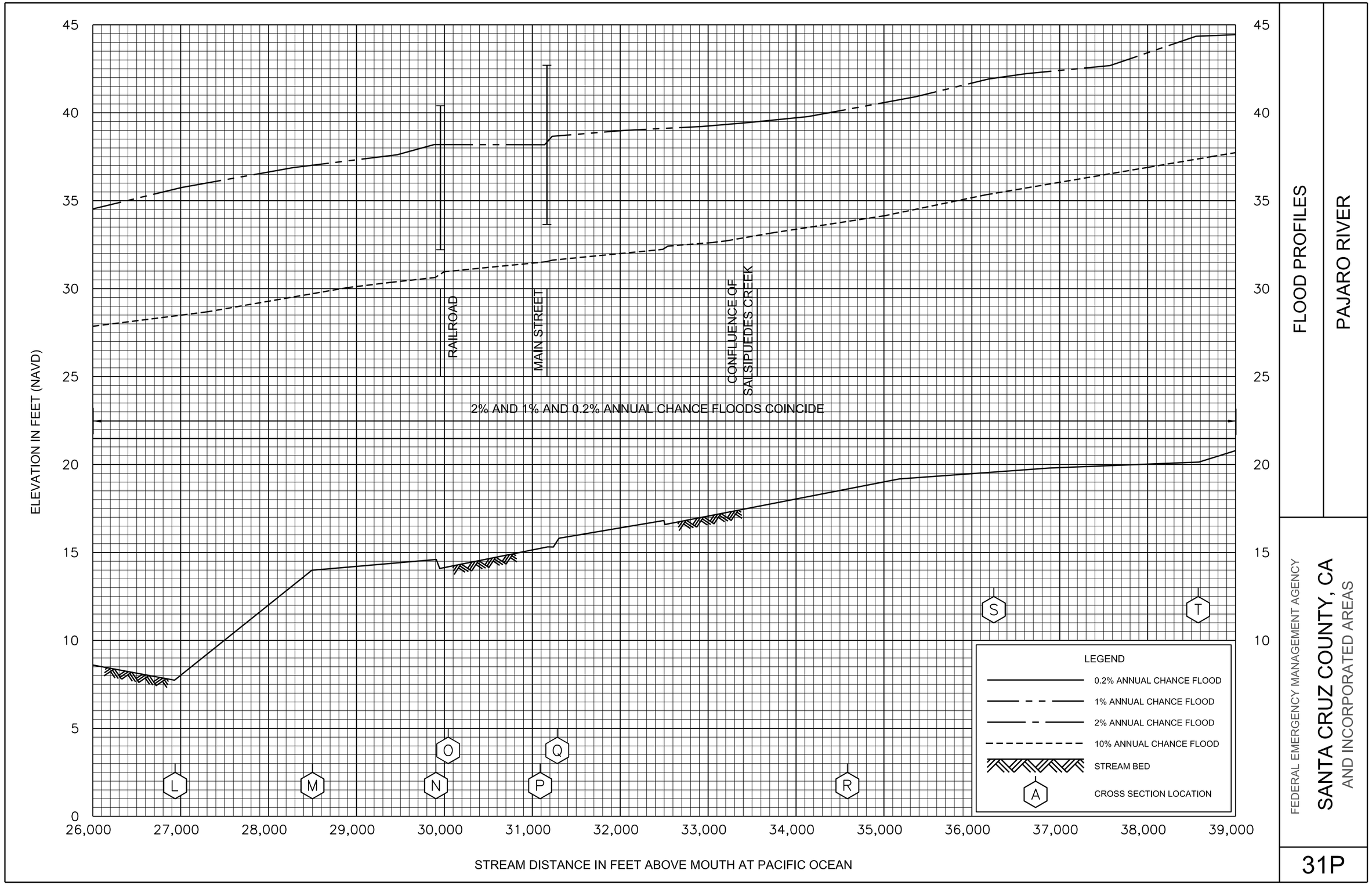
PAJARO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA

AND INCORPORATED AREAS

30P



FLOOD PROFILES

PAJARO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

31P

ELEVATION IN FEET (NAVD)

60
55
50
45
40
35
30
25
20
15

CONFLUENCE OF COWARD CREEK

CONFLUENCE OF THOMPSON CREEK

CONFLUENCE OF THOMASELLO CREEK

2% AND 1% AND 0.2% ANNUAL CHANCE FLOODS COINCIDE

U
V
W
X

LEGEND

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

39,000 40,000 41,000 42,000 43,000 44,000 45,000 46,000 47,000 48,000 49,000 50,000 51,000 52,000

STREAM DISTANCE IN FEET ABOVE MOUTH AT PACIFIC OCEAN

FLOOD PROFILES

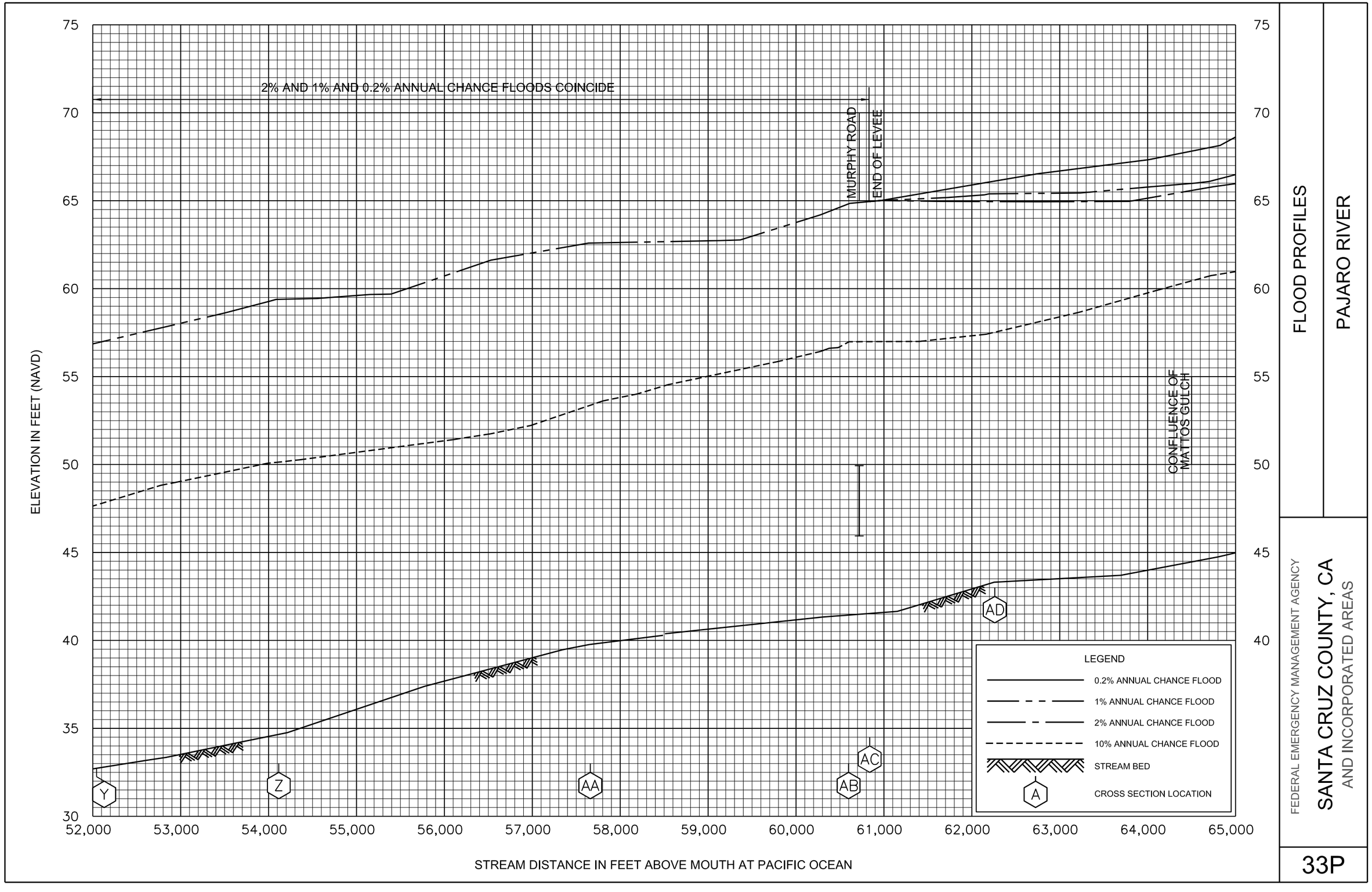
PAJARO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA

AND INCORPORATED AREAS

32P



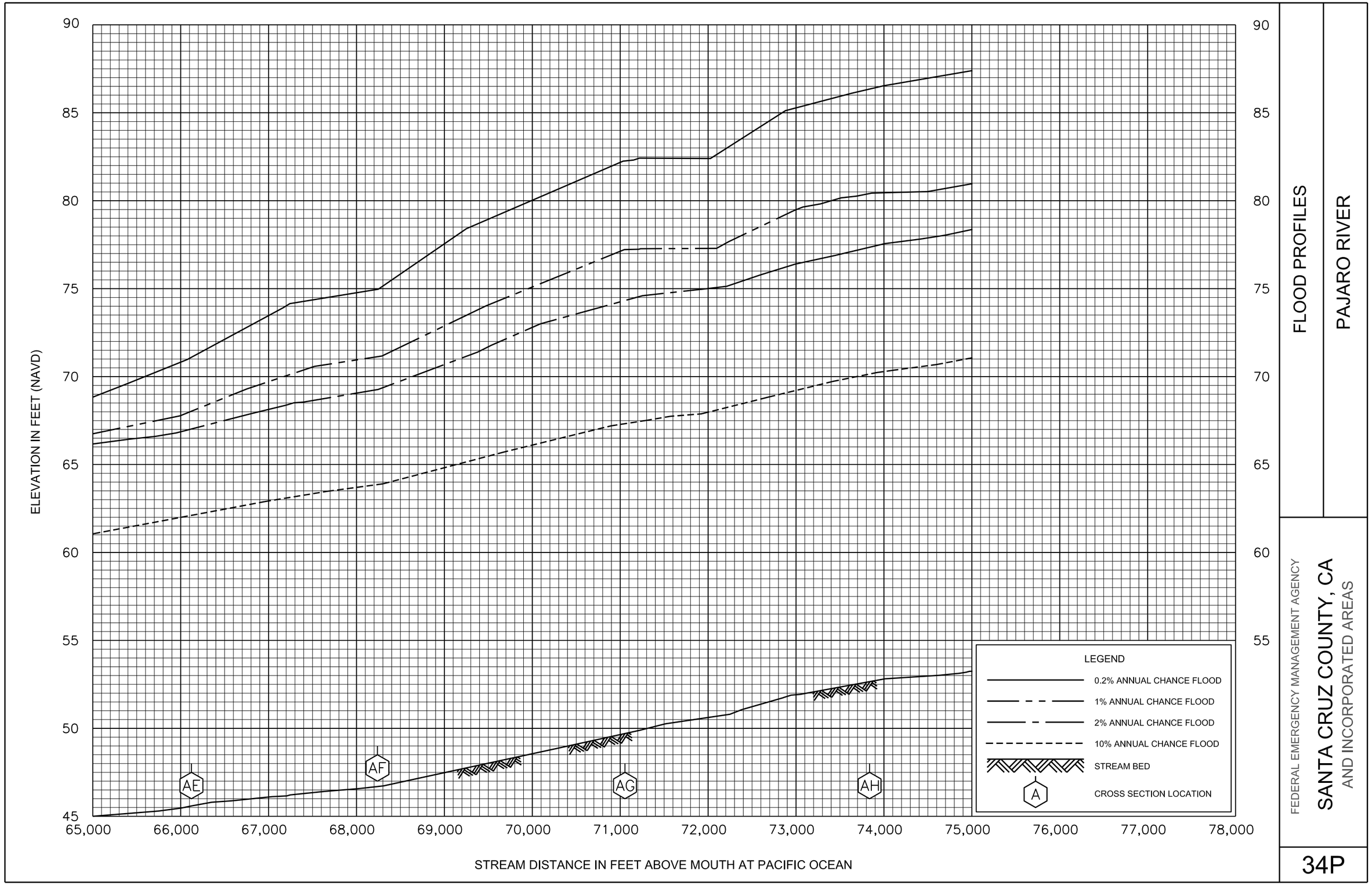
FLOOD PROFILES

PAJARO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

33P



FLOOD PROFILES

PAJARO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

34P

ELEVATION IN FEET (NAVD)

95
90
85
80
75
70
65
60
55
50

75,000
76,000
77,000
78,000
79,000
80,000
81,000
82,000
83,000
84,000
85,000
86,000
87,000
88,000

STREAM DISTANCE IN FEET ABOVE MOUTH AT PACIFIC OCEAN

A1

LEGEND

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

FLOOD PROFILES

PAJARO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

35P

ELEVATION IN FEET (NAVD)

100
95
90
85
80
75
70
65
60
55

ROGGE LANE

ROAD

LIMIT OF DETAILED STUDY

AJ
AK
AL
AM

79,000 80,000 81,000 82,000 83,000 84,000 85,000 86,000 87,000 88,000 89,000 90,000 91,000 92,000

STREAM DISTANCE IN FEET ABOVE MOUTH AT PACIFIC OCEAN

LEGEND

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

FLOOD PROFILES

PAJARO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA

AND INCORPORATED AREAS

36P

ELEVATION IN FEET (NAVD)

30
25
20
15
10
5
0
−5
−10
−15

500 1,000 1,500 2,000 2,500 3,000 3,500 4,000 4,500 5,000 5,500 6,000 6,500 7,000

STREAM DISTANCE IN FEET ABOVE MOUTH AT PACIFIC OCEAN

A

LEGEND

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

FLOOD PROFILES

PAJARO RIVER WITHOUT LEVEE CONSIDERATION

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

37P

ELEVATION IN FEET (NAVD)

30
25
20
15
10
5
0
−5
−10
−15

7,000
7,500
8,000
8,500
9,000
9,500
10,000
10,500
11,000
11,500
12,000
12,500
13,000
13,500

STREAM DISTANCE IN FEET ABOVE MOUTH AT PACIFIC OCEAN

THURWACHER ROAD

A
B
C
D
E

LEGEND

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

FLOOD PROFILES

PAJARO RIVER WITHOUT LEVEE CONSIDERATION

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

38P

ELEVATION IN FEET (NAVD)

30
25
20
15
10
5
0
−5
−10
−15

13,500 14,000 14,500 15,000 15,500 16,000 16,500 17,000 17,500 18,000 18,500 19,000 19,500 20,000

STREAM DISTANCE IN FEET ABOVE MOUTH AT PACIFIC OCEAN

F

G

LEGEND

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

FLOOD PROFILES

PAJARO RIVER WITHOUT LEVEE CONSIDERATION

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

39P

ELEVATION IN FEET (NAVD)

35
30
25
20
15
10
5
0
−5
−10

STATE HIGHWAY 1
(TOP OF ROAD - 42.75 FEET)
(LOW CHORD - 37.75 FEET)

H
I
J

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

STREAM DISTANCE IN FEET ABOVE MOUTH AT PACIFIC OCEAN

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

FLOOD PROFILES

PAJARO RIVER WITHOUT LEVEE CONSIDERATION

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

40P

ELEVATION IN FEET (NAVD)

40
35
30
25
20
15
10
5
0
−5

26,500 27,000 27,500 28,000 28,500 29,000 29,500 30,000 30,500 31,000 31,500 32,000 32,500 33,000

STREAM DISTANCE IN FEET ABOVE MOUTH AT PACIFIC OCEAN

K
L

LEGEND

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

FLOOD PROFILES

PAJARO RIVER WITHOUT LEVEE CONSIDERATION

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

41P

ELEVATION IN FEET (NAVD)

55
50
45
40
35
30
25
20
15
10

CONFLUENCE OF THOMPSON CREEK

CONFLUENCE OF THOMASELLO CREEK

M

N

LEGEND

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

45,500 46,000 46,500 47,000 47,500 48,000 48,500 49,000 49,500 50,000 50,500 51,000 51,500 52,000

STREAM DISTANCE IN FEET ABOVE MOUTH AT PACIFIC OCEAN

FLOOD PROFILES

PAJARO RIVER WITHOUT LEVEE CONSIDERATION

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

42P

ELEVATION IN FEET (NAVD)

65
60
55
50
45
40
35
30
25
20

52,000 52,500 53,000 53,500 54,000 54,500 55,000 55,500 56,000 56,500 57,000 57,500 58,000 58,500

STREAM DISTANCE IN FEET ABOVE MOUTH AT PACIFIC OCEAN

O P Q

LEGEND

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

FLOOD PROFILES

PAJARO RIVER WITHOUT LEVEE CONSIDERATION

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

43P

ELEVATION IN FEET (NAVD)

70
65
60
55
50
45
40
35
30
25

END OF LEVEE

MURPHY ROAD

R
S

LEGEND

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

58,500 59,000 59,500 60,000 60,500 61,000 61,500 62,000 62,500 63,000 63,500 64,000 64,500 65,000

STREAM DISTANCE IN FEET ABOVE MOUTH AT PACIFIC OCEAN

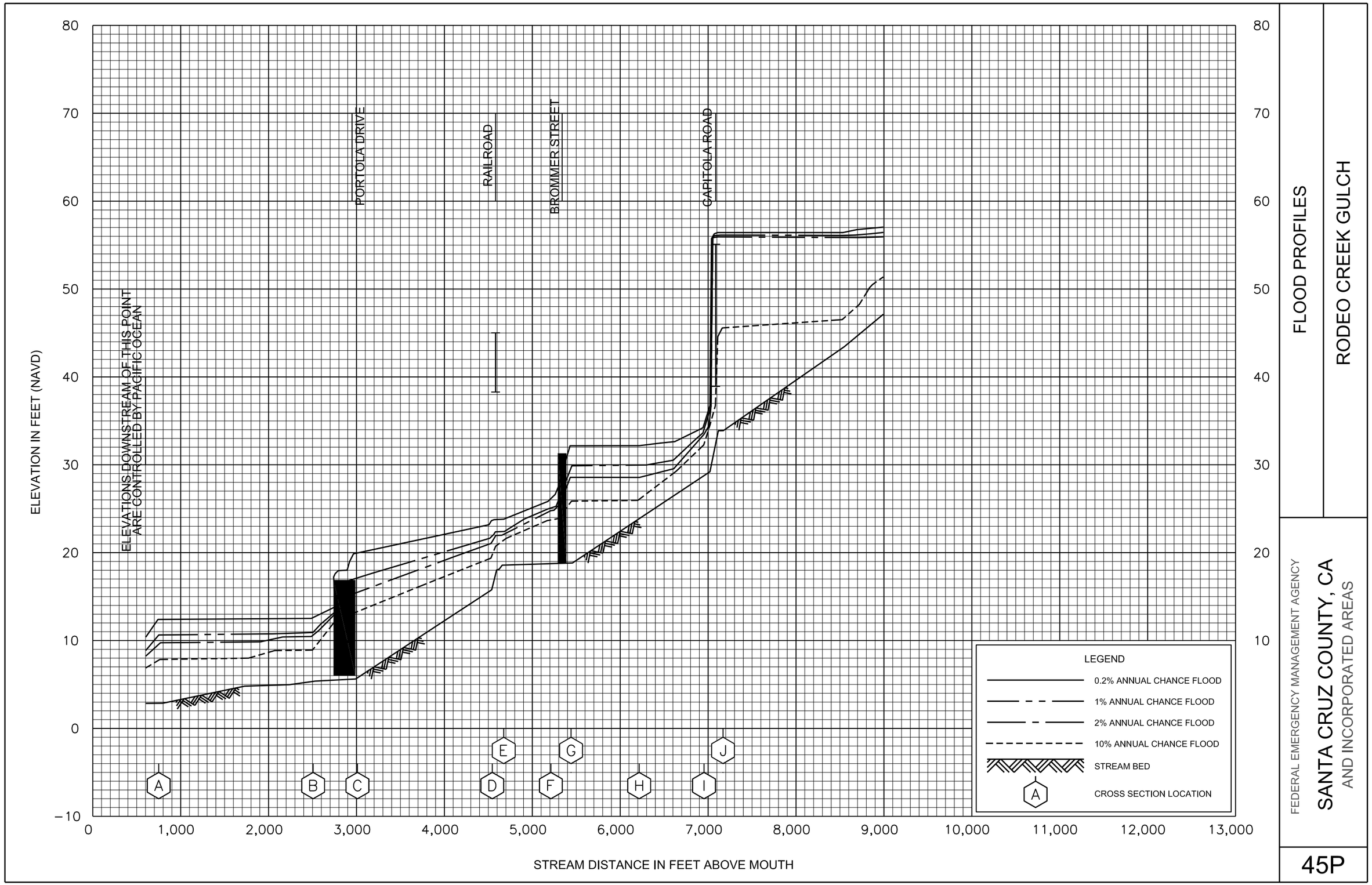
FLOOD PROFILES

PAJARO RIVER WITHOUT LEVEE CONSIDERATION

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

44P



FLOOD PROFILES

RODEO CREEK GULCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

45P

ELEVATION IN FEET (NAVD)

120
110
100
90
80
70
60
50
40
30

SOQUEL DRIVE

LIMIT OF STUDY

SOQUEL AVENUE

STATE HIGHWAY 1

K L M N O

9,000 10,000 11,000 12,000 13,000 14,000 15,000 16,000 17,000 18,000 19,000 20,000 21,000 22,000

STREAM DISTANCE IN FEET ABOVE MOUTH

LEGEND

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

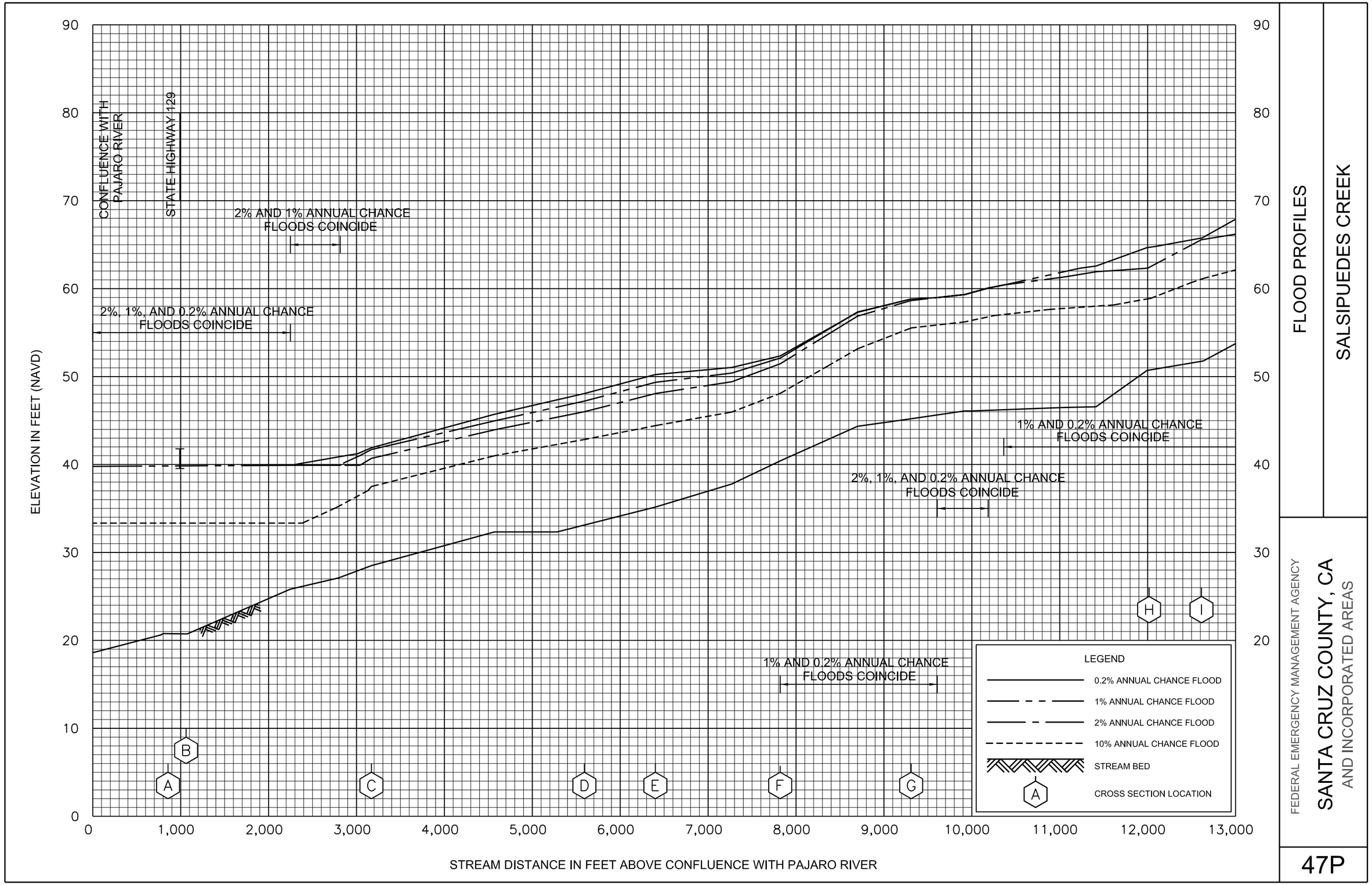
FLOOD PROFILES

RODEO CREEK GULCH

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

46P



FLOOD PROFILES

SALSIPUEDES CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

47P

ELEVATION IN FEET (NAVD)

120
110
100
90
80
70
60
50
40
30

COLLEGE AVE OUTLET
LIMIT OF DETAILED STUDY

1% AND 0.2% ANNUAL CHANCE FLOODS COINCIDE

J

13,000 14,000 15,000 16,000 17,000 18,000 19,000 20,000 21,000 22,000 23,000 24,000 25,000 26,000

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH PAJARO RIVER

LEGEND

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

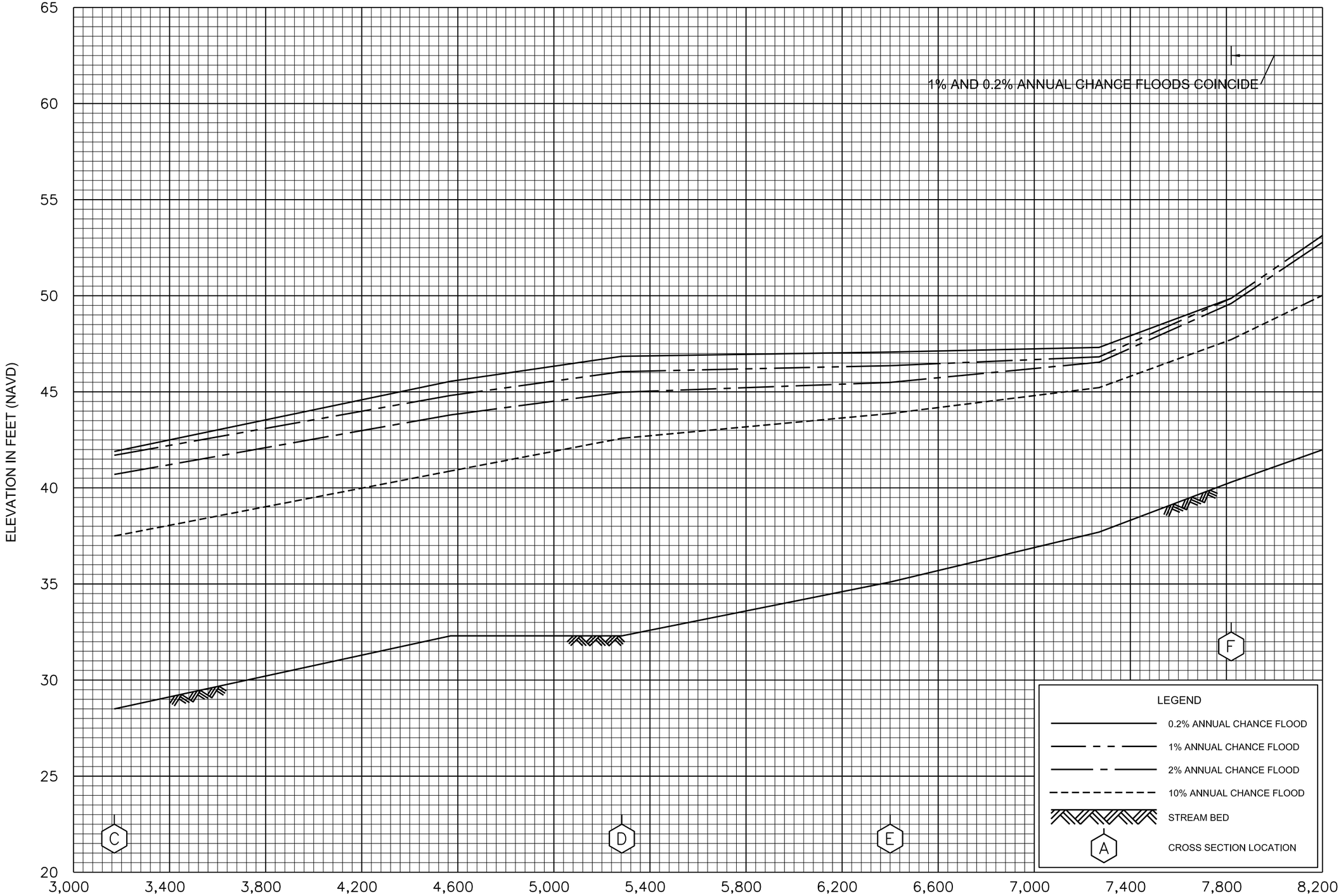
FLOOD PROFILES

SALSIPUEDES CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

48P



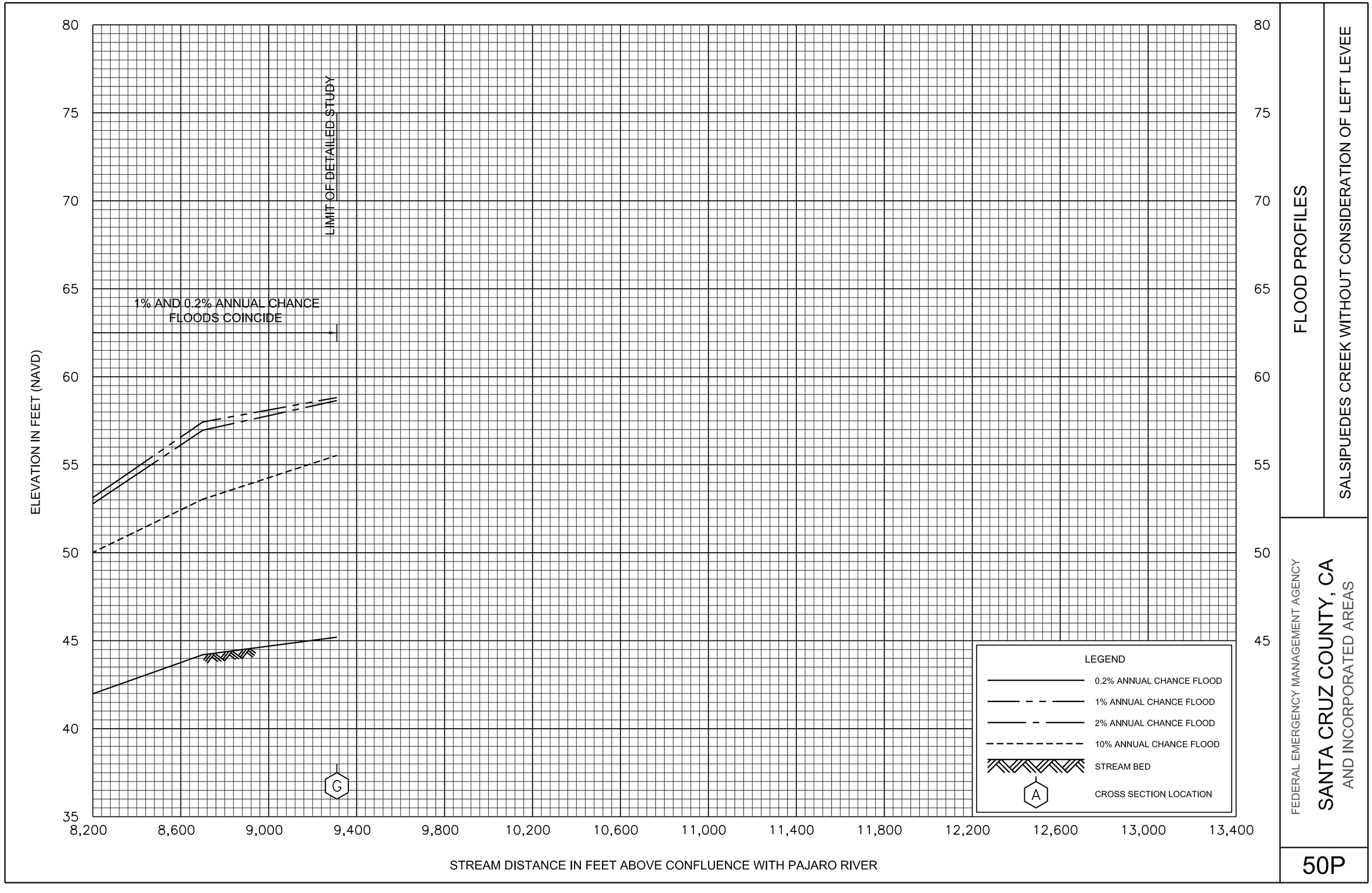
FLOOD PROFILES

SALSIPUEDES CREEK WITHOUT CONSIDERATION OF LEFT LEVEE

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA

AND INCORPORATED AREAS



FLOOD PROFILES

SALSIPUEDES CREEK WITHOUT CONSIDERATION OF LEFT LEVEE

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

50P

ELEVATION IN FEET (NAVD)

50
45
40
35
30
25
20
15
10
5

CONFLUENCE WITH PAJARO RIVER

STATE HIGHWAY 129

PRIVATE BRIDGE

A
B
C
D

LEGEND

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

0 500 1,000 1,500 2,000 2,500 3,000 3,500 4,000 4,500 5,000 5,500 6,000 6,500

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH PAJARO RIVER

FLOOD PROFILES

SALSIPUEDES CREEK WITHOUTCONSIDERATION OF RIGHT LEVEE

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

ELEVATIONS DOWNSTREAM OF THIS POINT CONTROLLED BY PACIFIC OCEAN

PACIFIC OCEAN (MONTEREY BAY)

RAILROAD

RIVERSIDE AVENUE

LAUREL STREET

SOQUEL AVENUE

CONFLUENCE OF BRANCIFORTE CREEK

PEDESTRIAN BRIDGE

WATER STREET

STATE HIGHWAY 1

1% AND 0.2% ANNUAL CHANCE FLOODS COINCIDE

ELEVATION IN FEET (NAVD)

60
50
40
30
20
10
0
−10
−20
−30

0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000
9,000
10,000
11,000
12,000
13,000

STREAM DISTANCE IN FEET ABOVE MOUTH AT PACIFIC OCEAN (MONTEREY BAY)

A B C D E F G H I J K L M N O

LEGEND

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

FLOOD PROFILES

SAN LORENZO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA

AND INCORPORATED AREAS

ELEVATION IN FEET (NAVD)

80
70
60
50
40
30
20
10
0
−10

13,000 14,000 15,000 16,000 17,000 18,000 19,000 20,000 21,000 22,000 23,000 24,000 25,000 26,000

STREAM DISTANCE IN FEET ABOVE MOUTH AT PACIFIC OCEAN (MONTEREY BAY)

KEYSTONE WAY

LIMIT OF DETAILED STUDY

P Q R S T U V W X Y

LEGEND

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

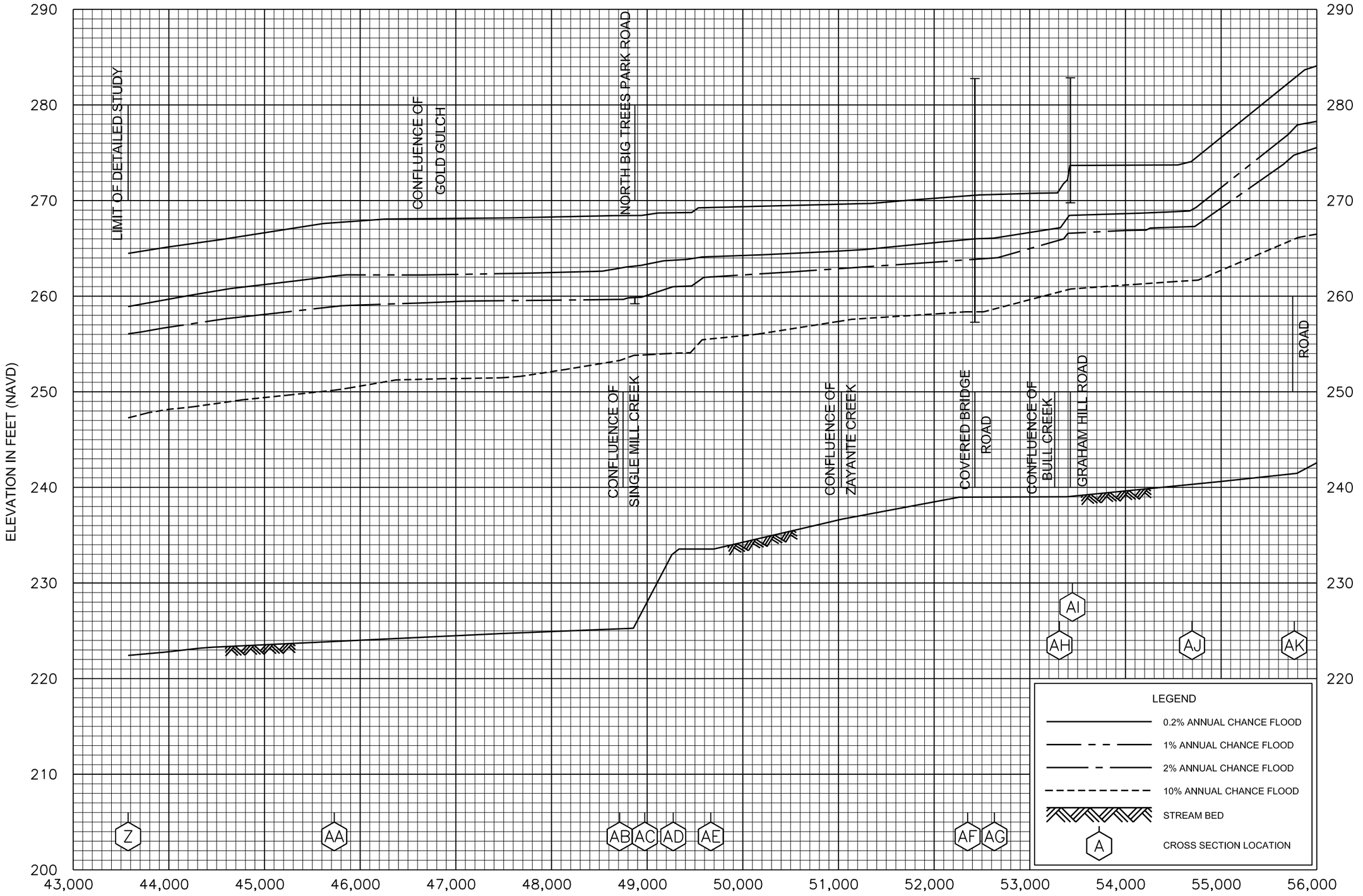
FLOOD PROFILES

SAN LORENZO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA

AND INCORPORATED AREAS



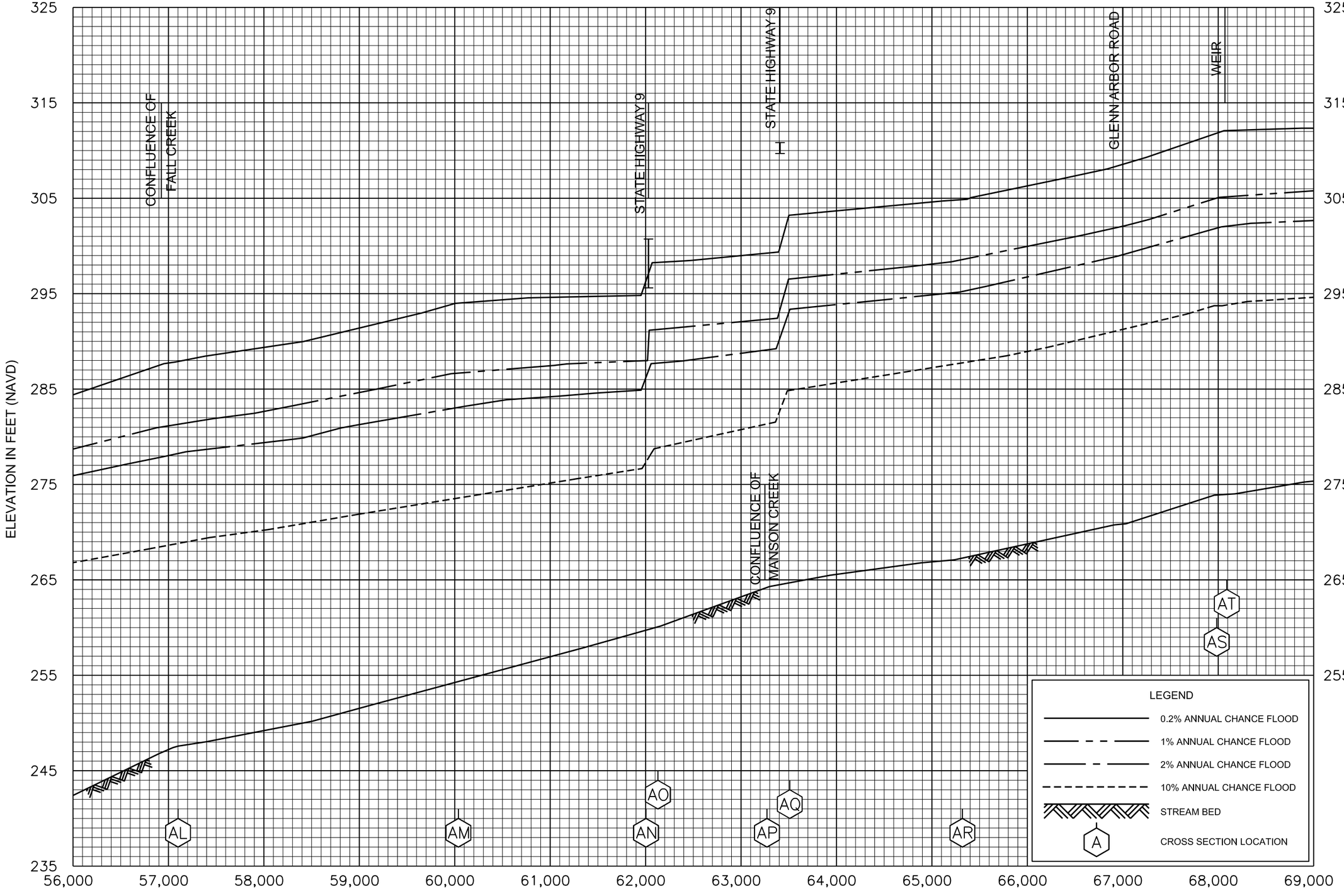
FLOOD PROFILES

SAN LORENZO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

54P



FLOOD PROFILES

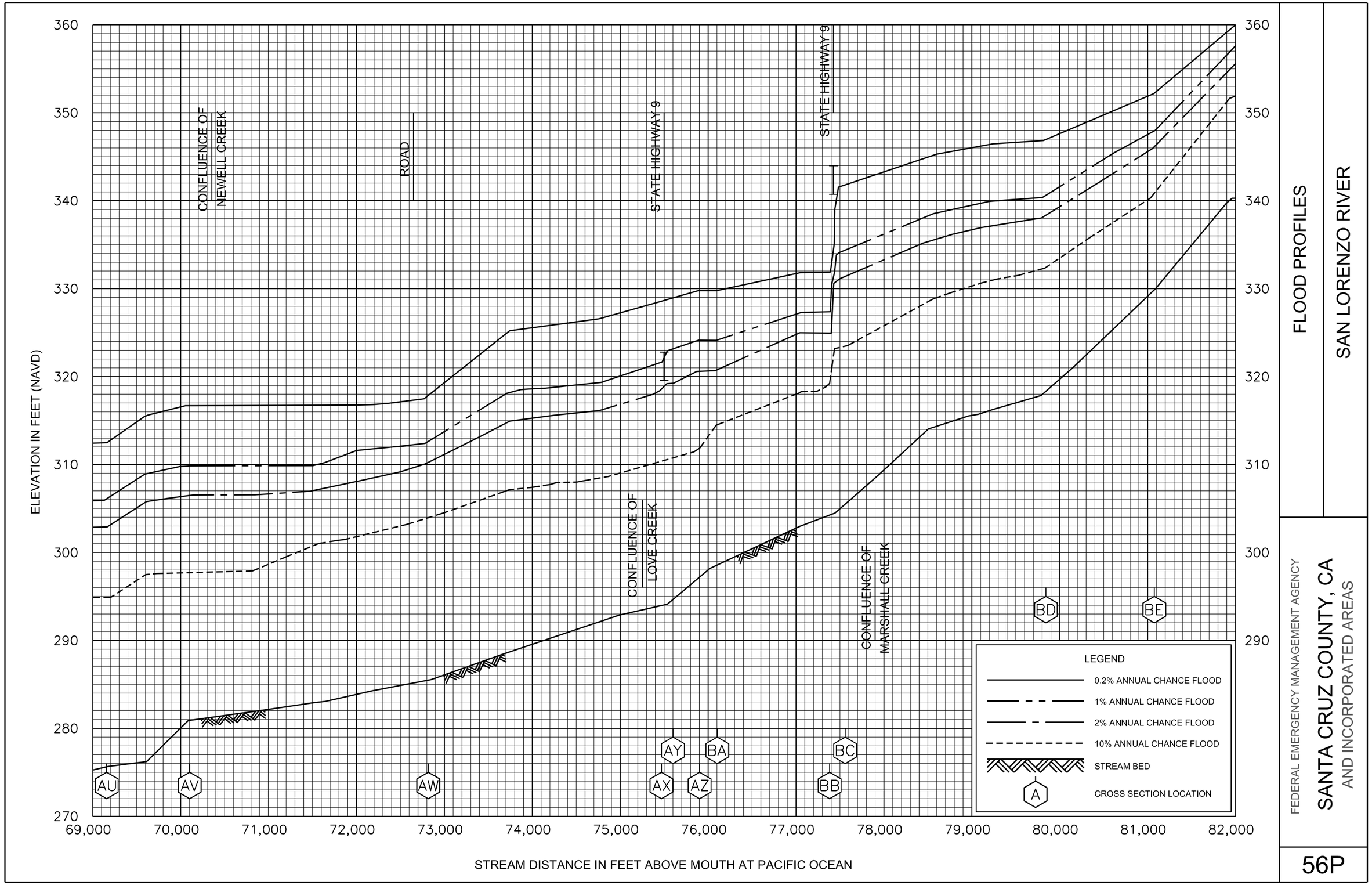
SAN LORENZO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA

AND INCORPORATED AREAS

55P



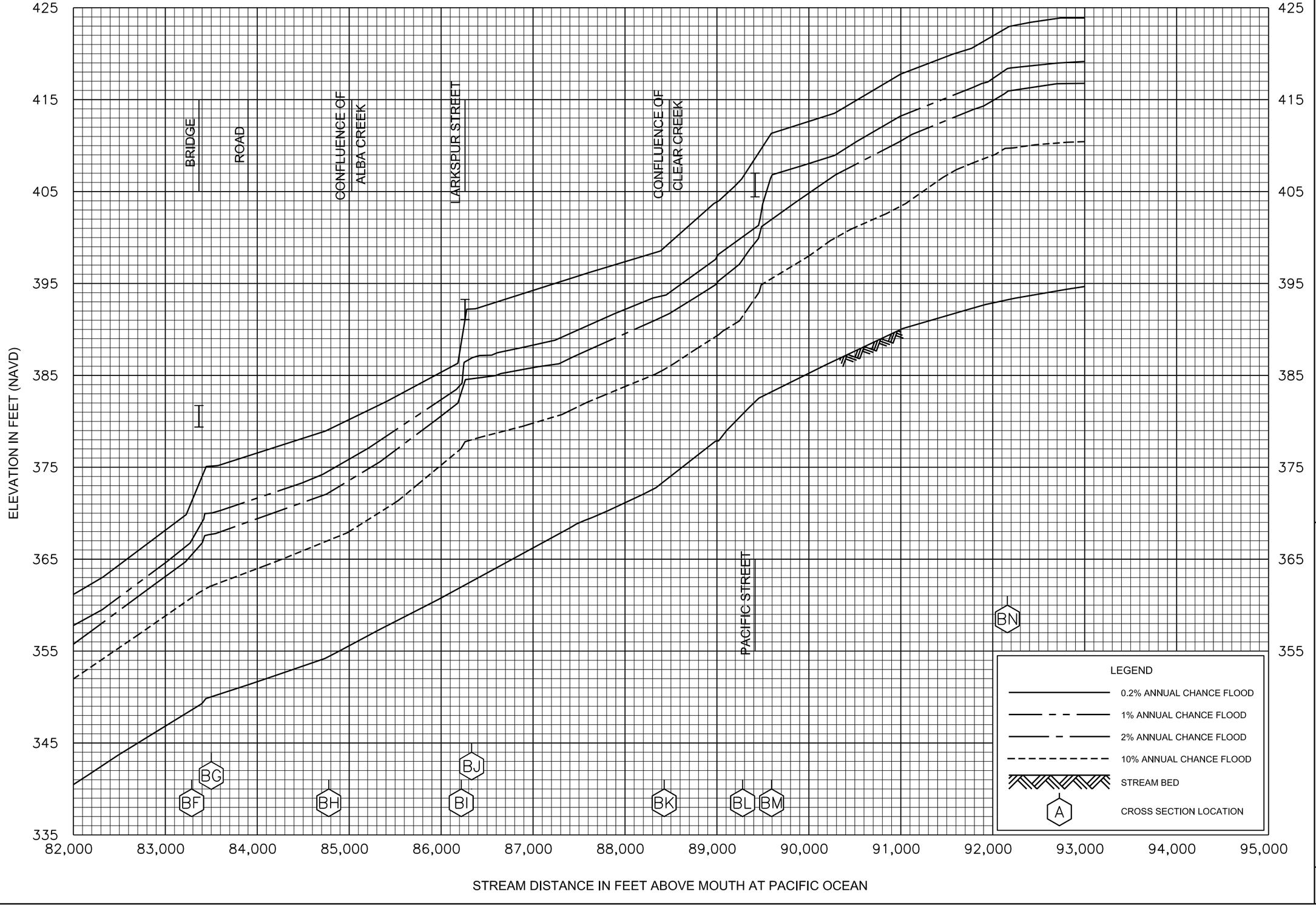
FLOOD PROFILES

SAN LORENZO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA

AND INCORPORATED AREAS



FLOOD PROFILES

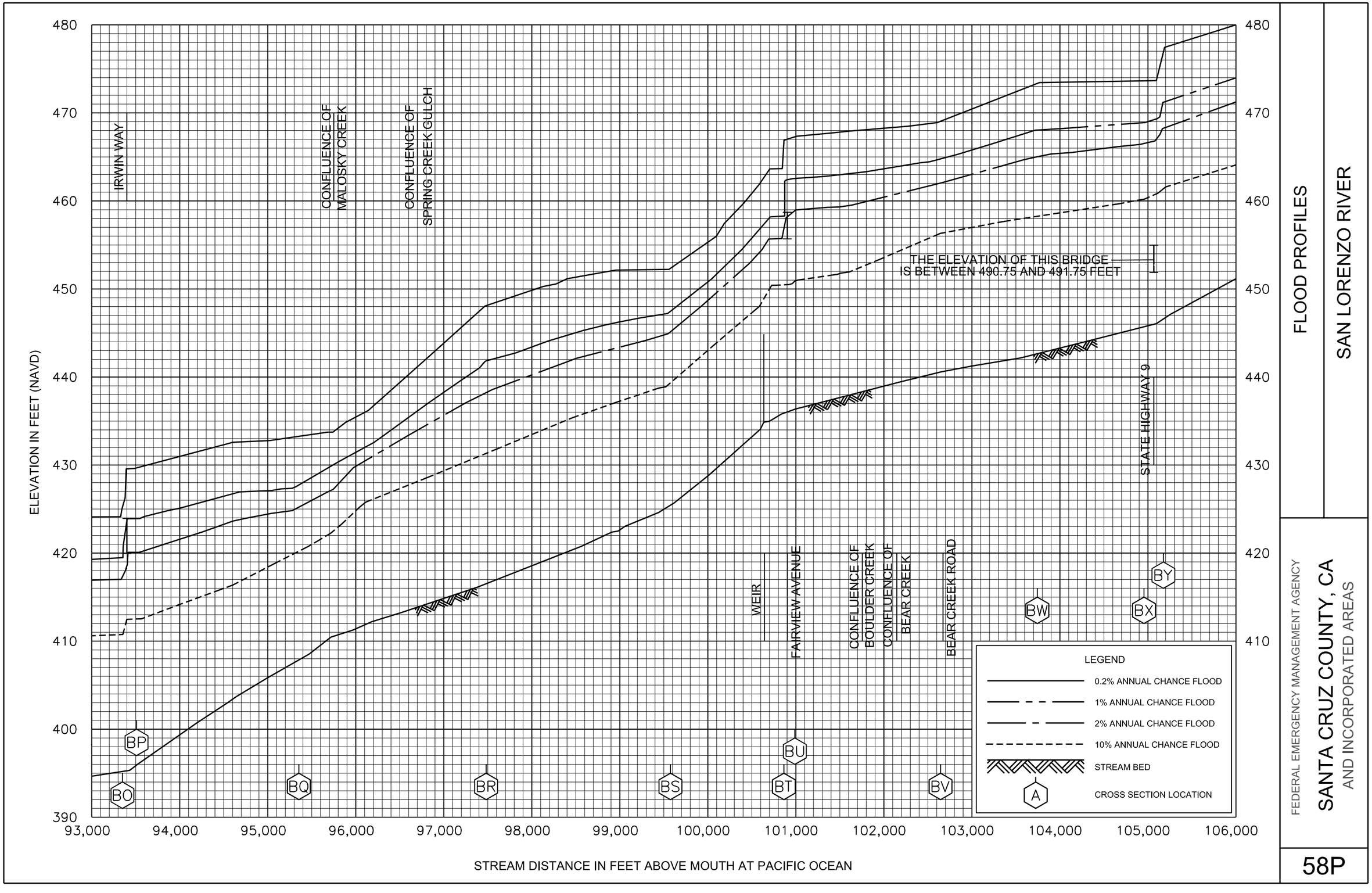
SAN LORENZO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA

AND INCORPORATED AREAS

57P



FLOOD PROFILES

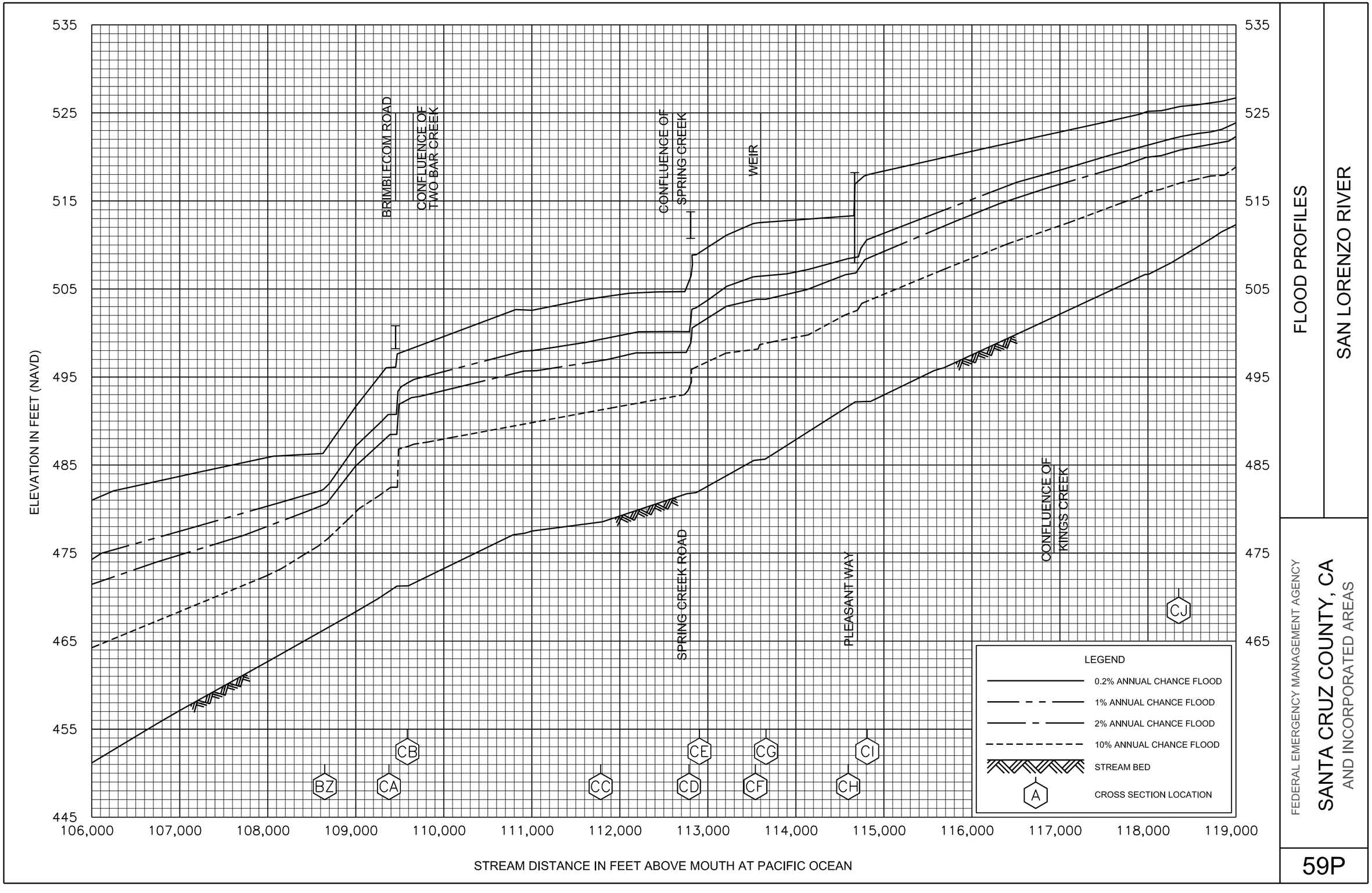
SAN LORENZO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA

AND INCORPORATED AREAS

58P



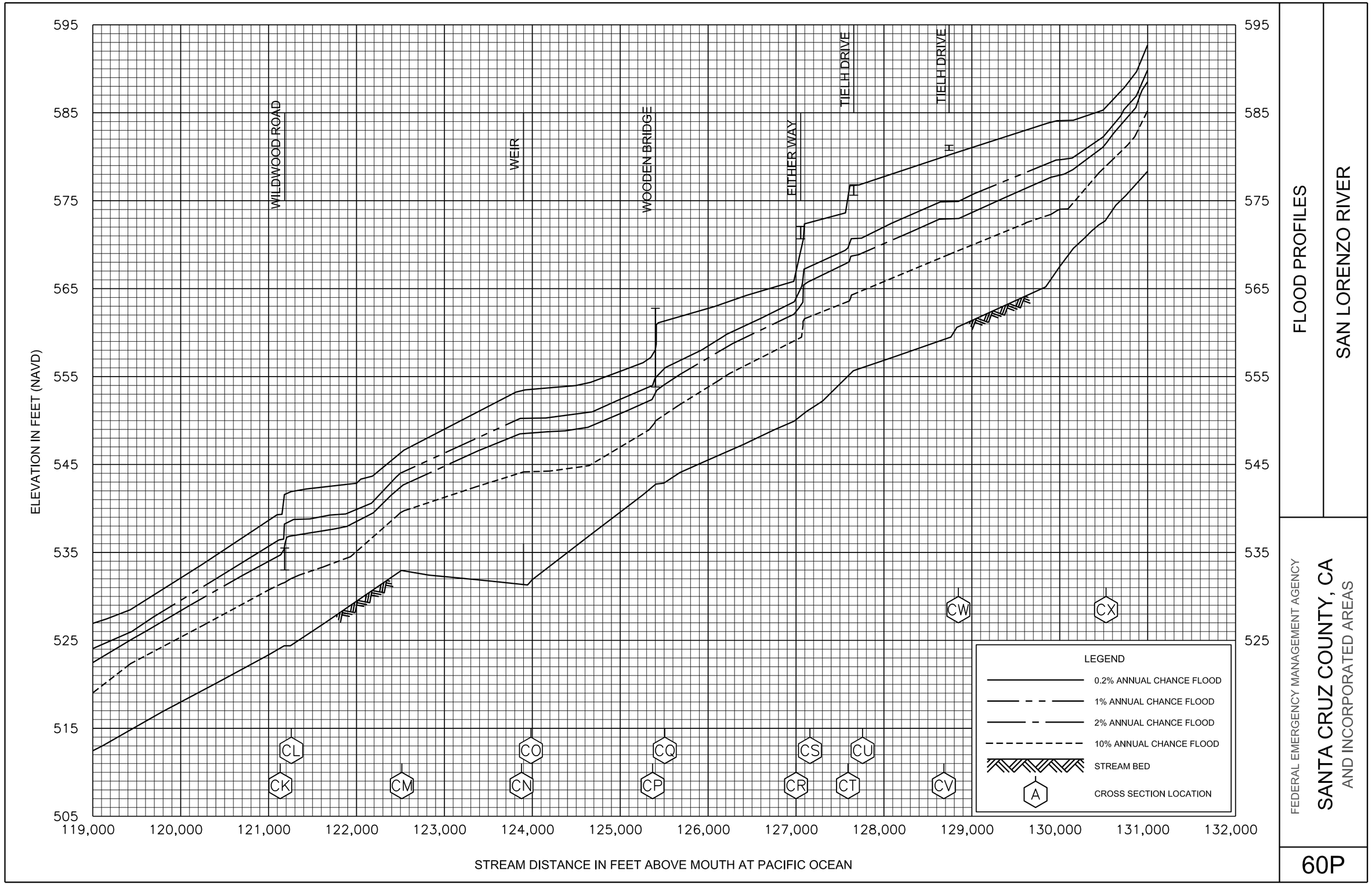
FLOOD PROFILES

SAN LORENZO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

59P



FLOOD PROFILES

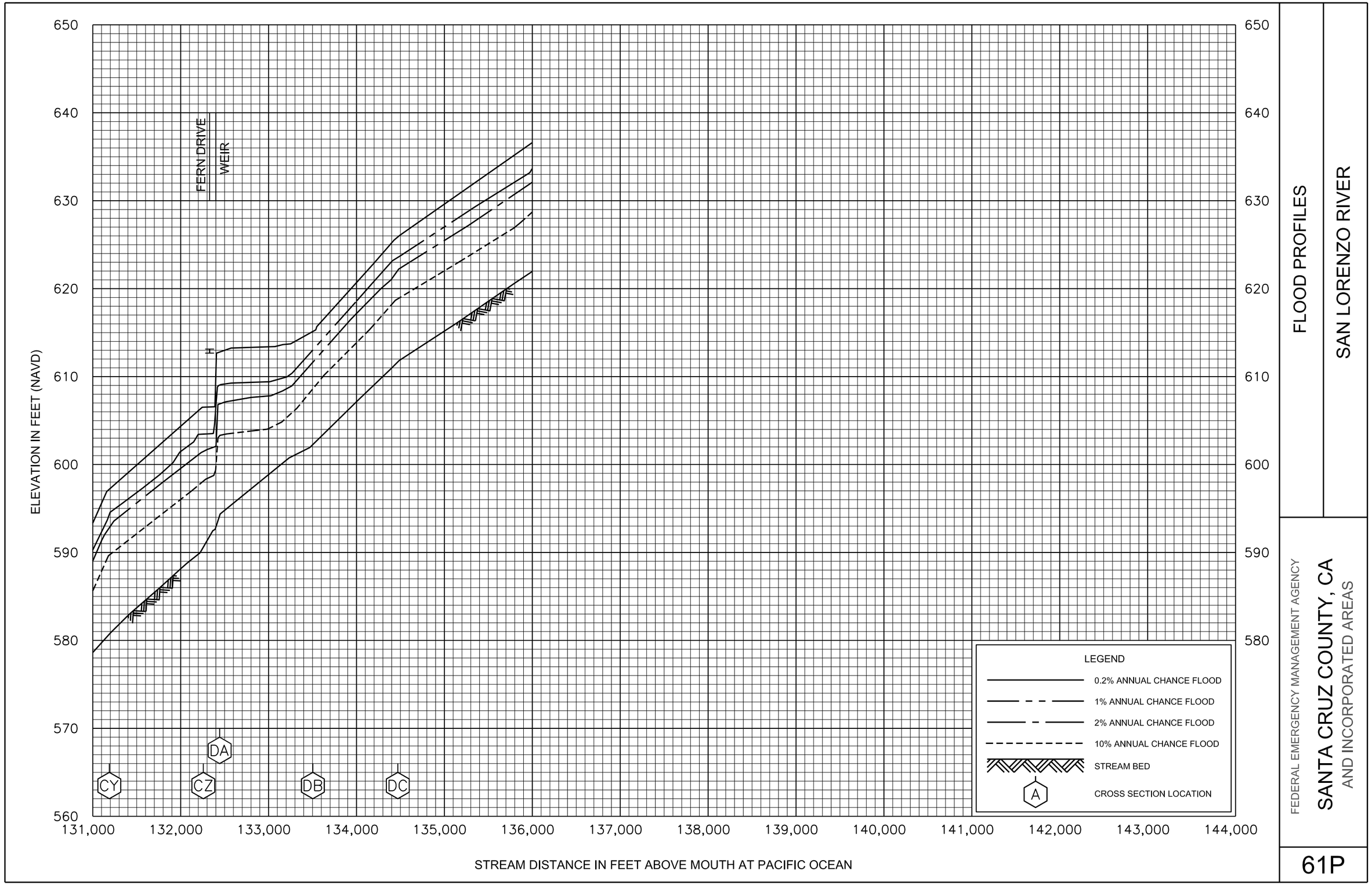
SAN LORENZO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA

AND INCORPORATED AREAS

60P



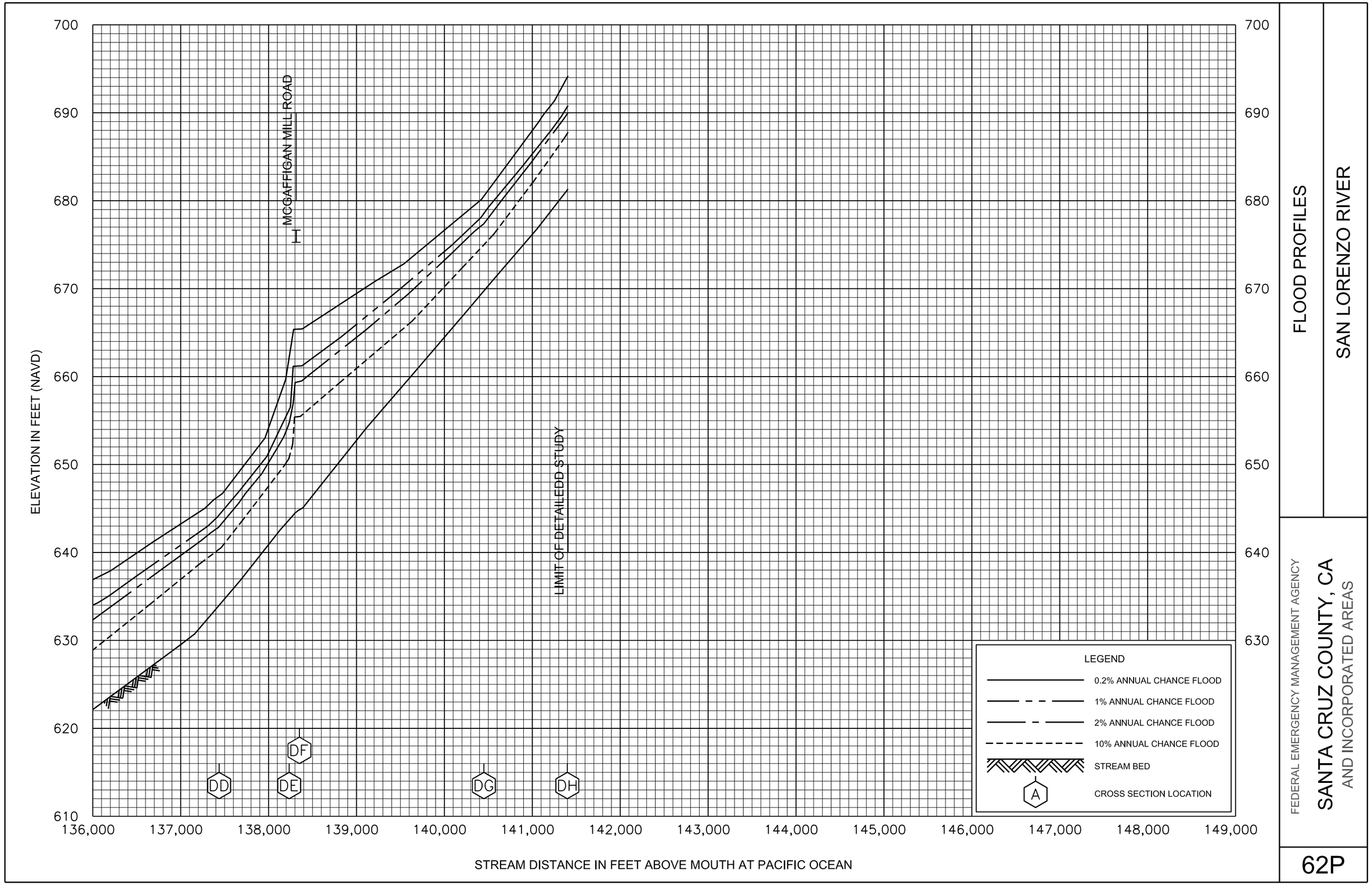
FLOOD PROFILES

SAN LORENZO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

61P



FLOOD PROFILES

SAN LORENZO RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

62P

ELEVATION IN FEET (NAVD)

60
50
40
30
20
10
0
−10
−20
−30

RIVERSIDE AVENUE
LAUREL STREET
SOQUEL AVENUE
CONFLUENCE OF BRANCIFORTE CREEK
PEDESTRIAN BRIDGE

A B C D E F G H I

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

500 1,000 1,500 2,000 2,500 3,000 3,500 4,000 4,500 5,000 5,500 6,000 6,500 7,000

STREAM DISTANCE IN FEET ABOVE MOUTH AT PACIFIC OCEAN (MONTEREY BAY)

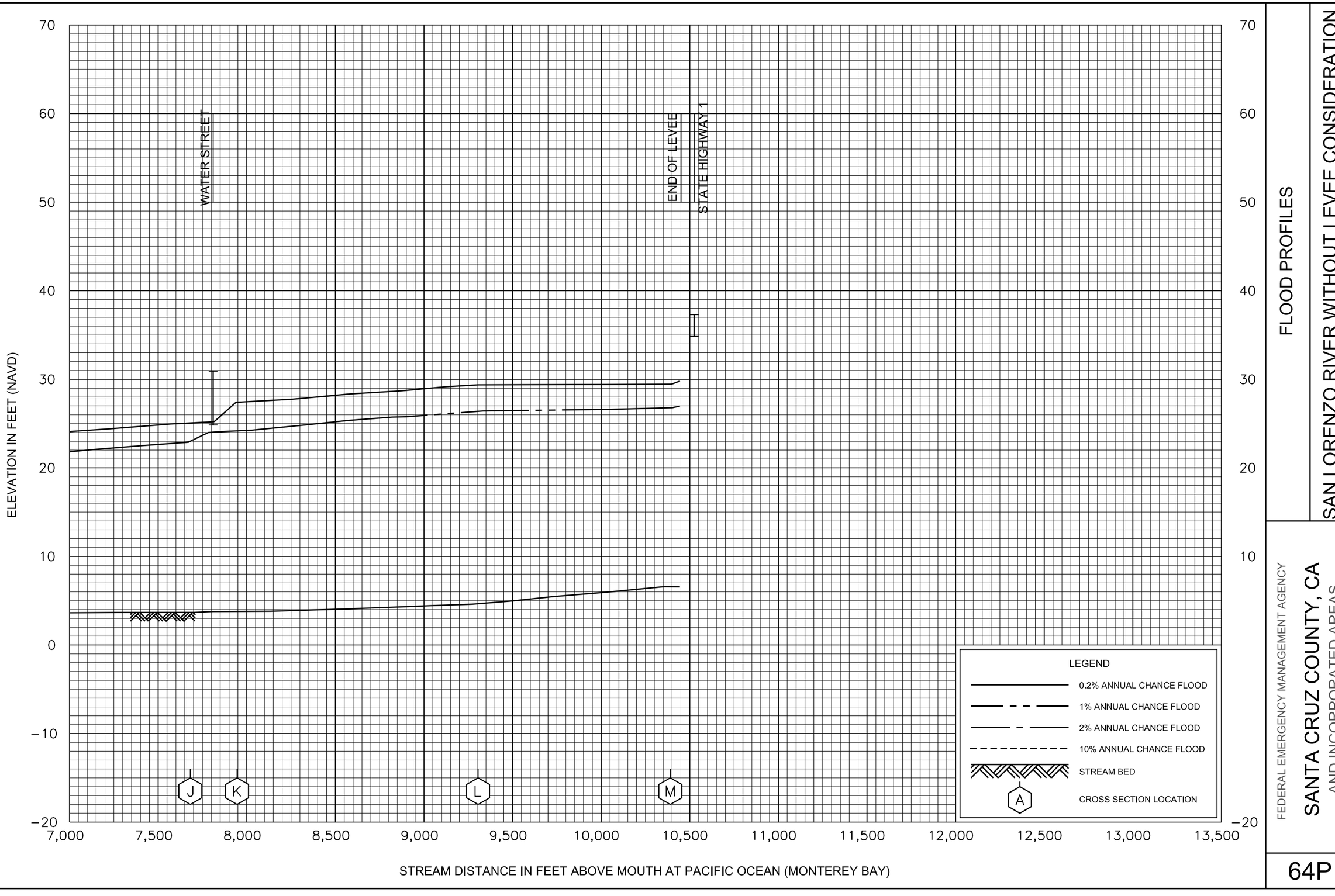
FLOOD PROFILES

SAN LORENZO RIVER WITHOUT LEVEE CONSIDERATION

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

63P



FLOOD PROFILES

SAN LORENZO RIVER WITHOUT LEVEE CONSIDERATION

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

64P

ELEVATION IN FEET (NAVD)

80
70
60
50
40
30
20
10
0
−10

CONFLUENCE WITH PACIFIC OCEAN
ELEVATIONS DOWNSTREAM OF THIS POINT CONTROLLED BY PACIFIC OCEAN
UNNAMED RD
RAILROAD
STATE HIGHWAY 1
LIMIT OF DETAILED STUDY

SEE FLOOD INSURANCE RATE MAP FOR BASE FLOOD ELEVATIONS AND COASTAL TRANSECT DATA TABLE FOR STILLWATER ELEVATIONS

TIDAL EFFECTS FROM PACIFIC OCEAN

A B C D E F G H I

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

0 400 800 1,200 1,600 2,000 2,400 2,800 3,200 3,600 4,000 4,400 4,800 5,200

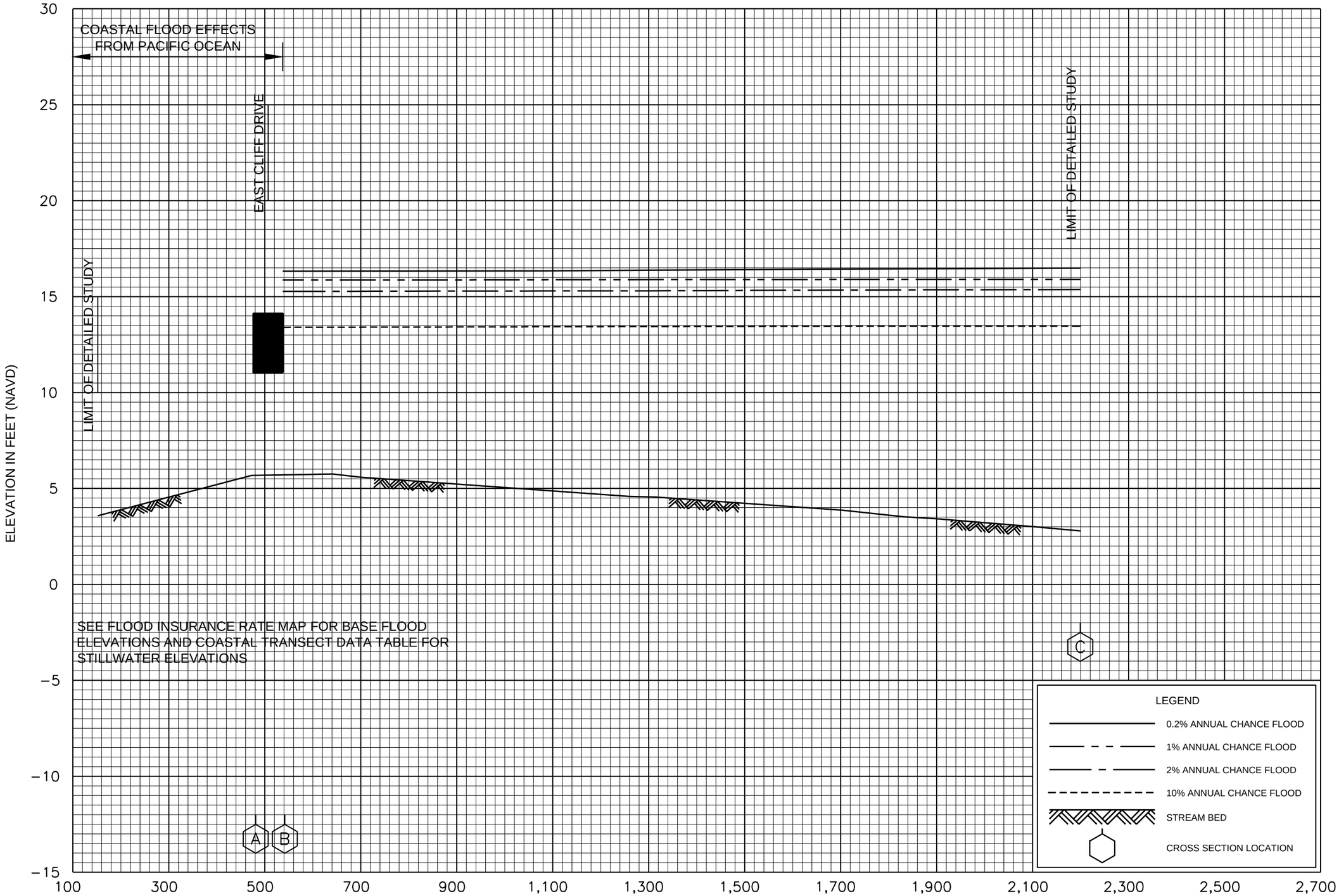
STREAM DISTANCE IN FEET ABOVE MOUTH AT PACIFIC OCEAN

FLOOD PROFILES

SAN VICENTE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY
SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

65P



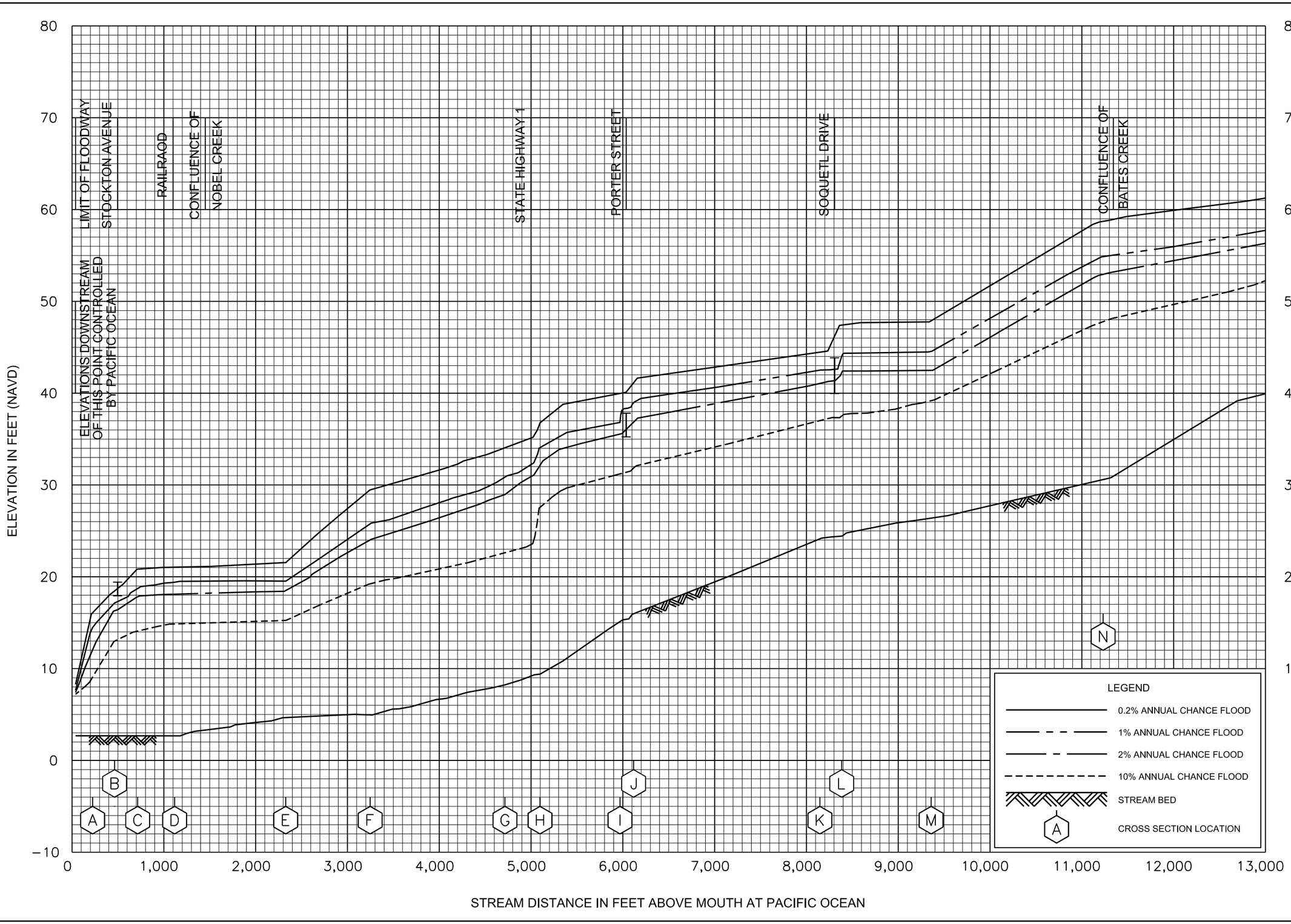
FLOOD PROFILES

SCHWANS LAGOON

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA

AND INCORPORATED AREAS



FLOOD PROFILES

SOQUEL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA

AND INCORPORATED AREAS

ELEVATION IN FEET (NAVD)

120
110
100
90
80
70
60
50
40
30

13,000 14,000 15,000 16,000 17,000 18,000 19,000 20,000 21,000 22,000 23,000 24,000 25,000 26,000

STREAM DISTANCE IN FEET ABOVE MOUTH AT PACIFIC OCEAN

O P Q R S

LEGEND

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

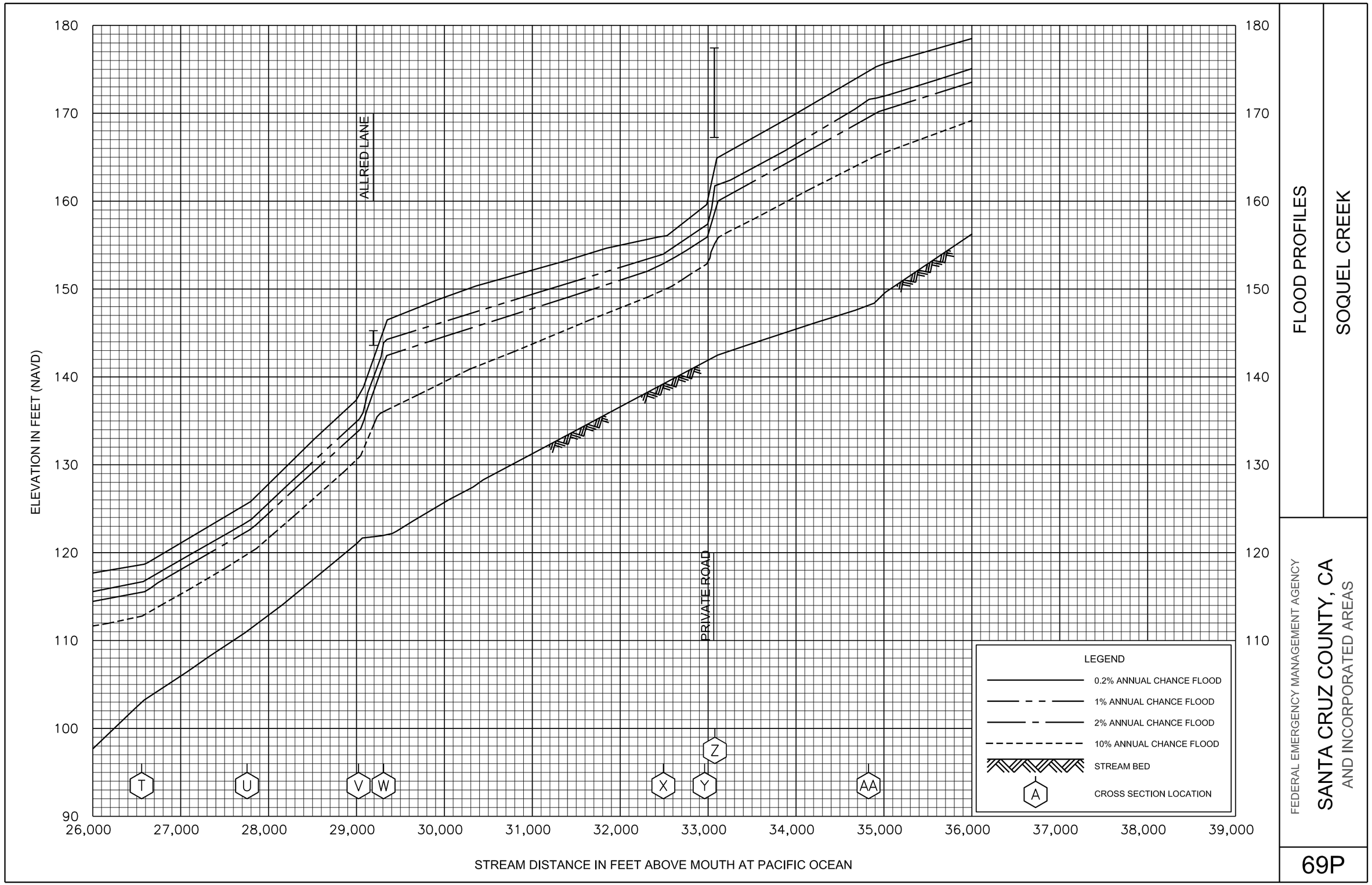
FLOOD PROFILES

SOQUEL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

68P



FLOOD PROFILES

SOQUEL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA

AND INCORPORATED AREAS

69P

ELEVATION IN FEET (NAVD)

230
220
210
200
190
180
170
160
150
140

SOQUEL CREEK ROAD

LIMIT OF DETAILED STUDY

AB
AC
AD
AE

36,000 37,000 38,000 39,000 40,000 41,000 42,000 43,000 44,000 45,000 46,000 47,000 48,000 49,000

STREAM DISTANCE IN FEET ABOVE MOUTH AT PACIFIC OCEAN

LEGEND

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

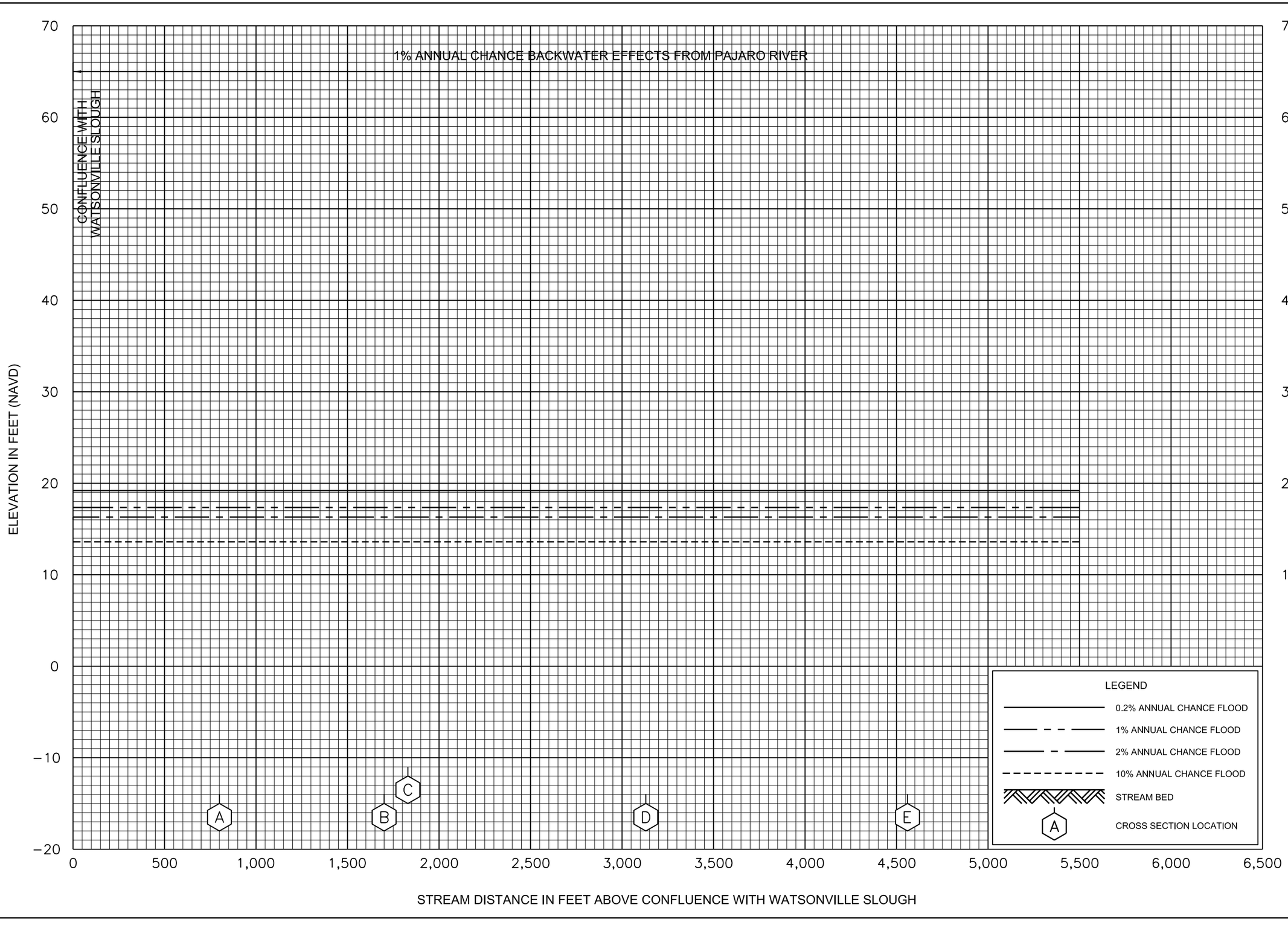
FLOOD PROFILES

SOQUEL CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

70P



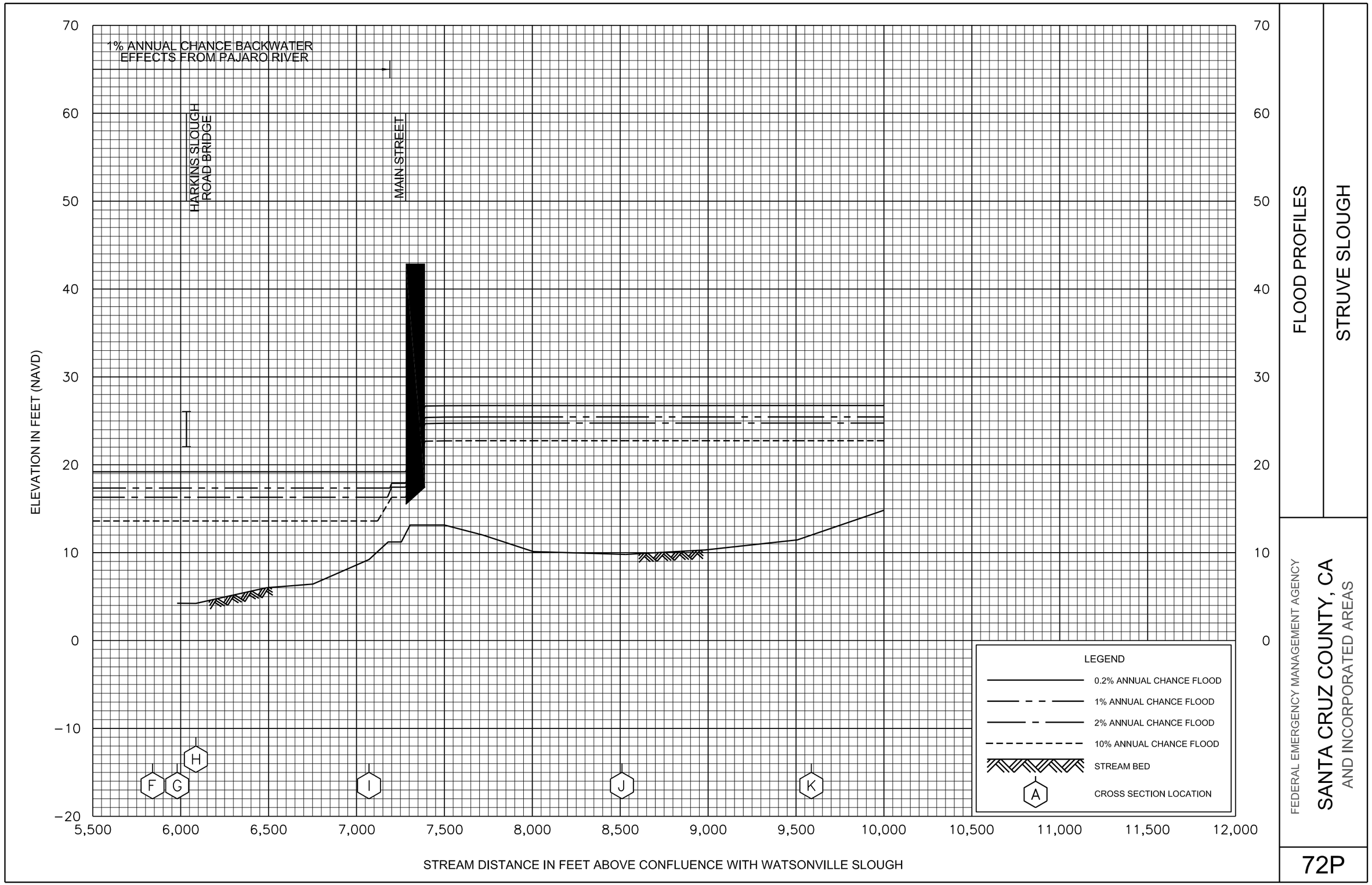
FLOOD PROFILES

STRUVE SLOUGH

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

71P



FLOOD PROFILES

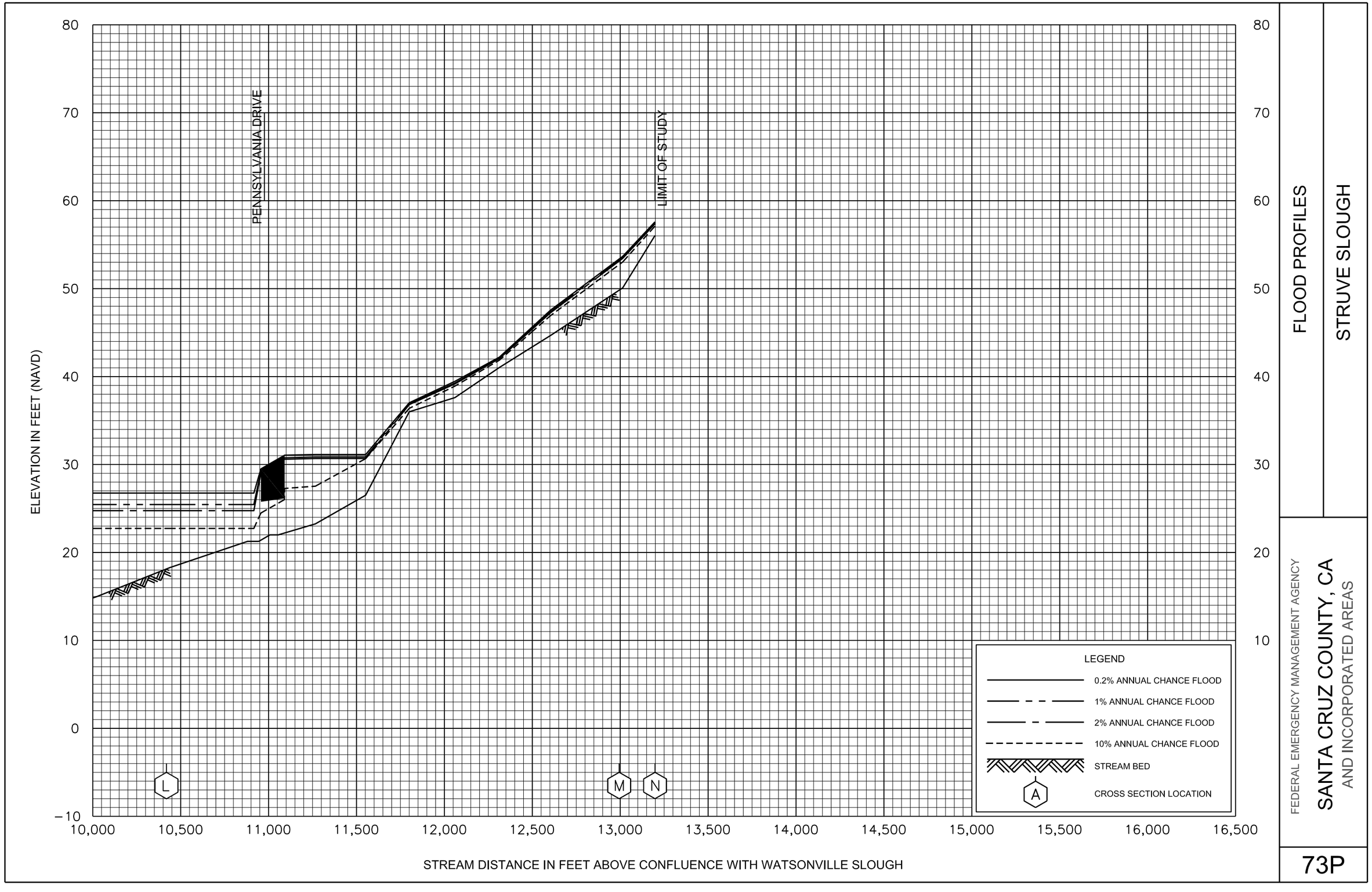
STRUVE SLOUGH

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA

AND INCORPORATED AREAS

72P



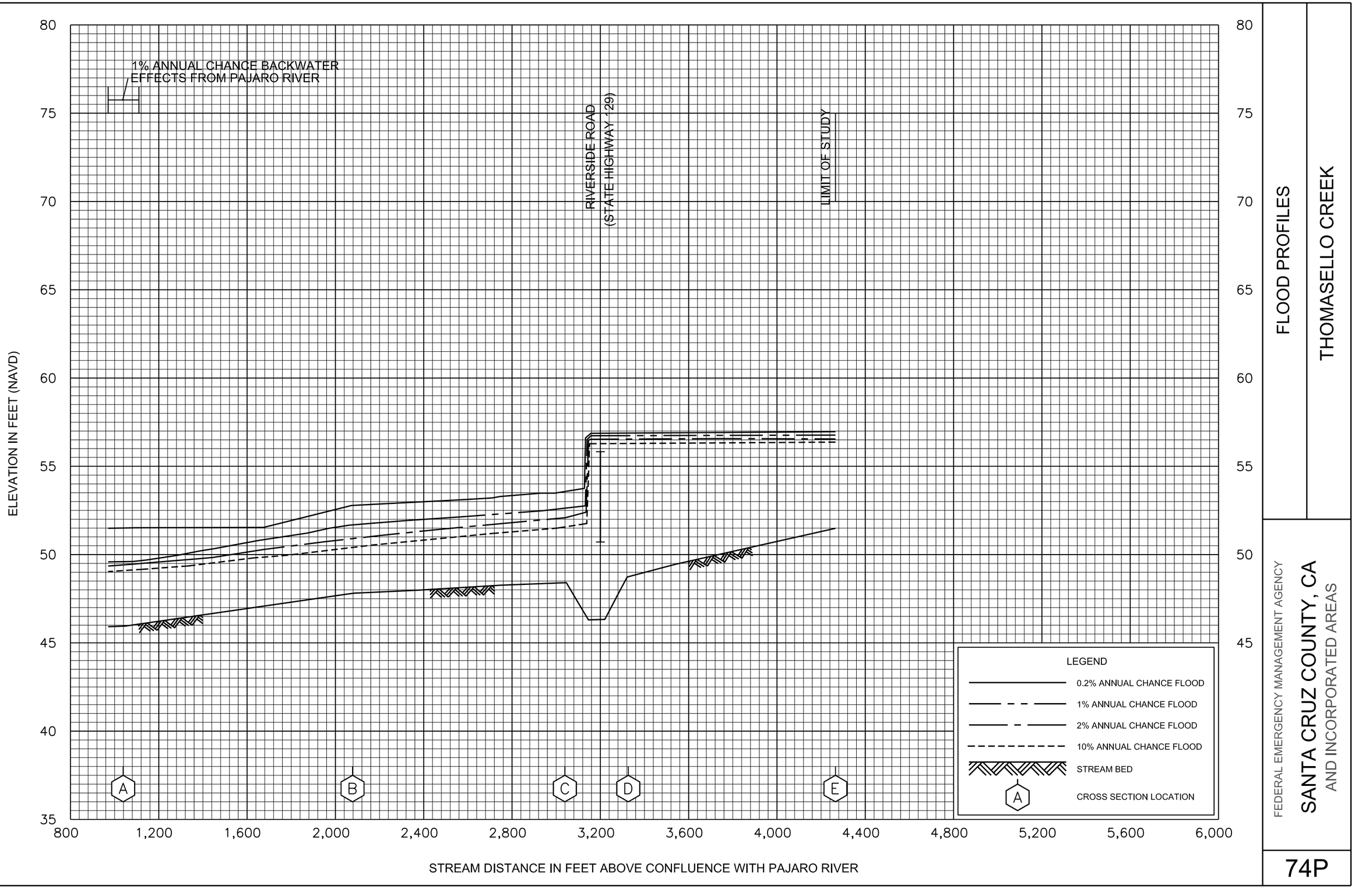
FLOOD PROFILES

STRUVE SLOUGH

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

73P



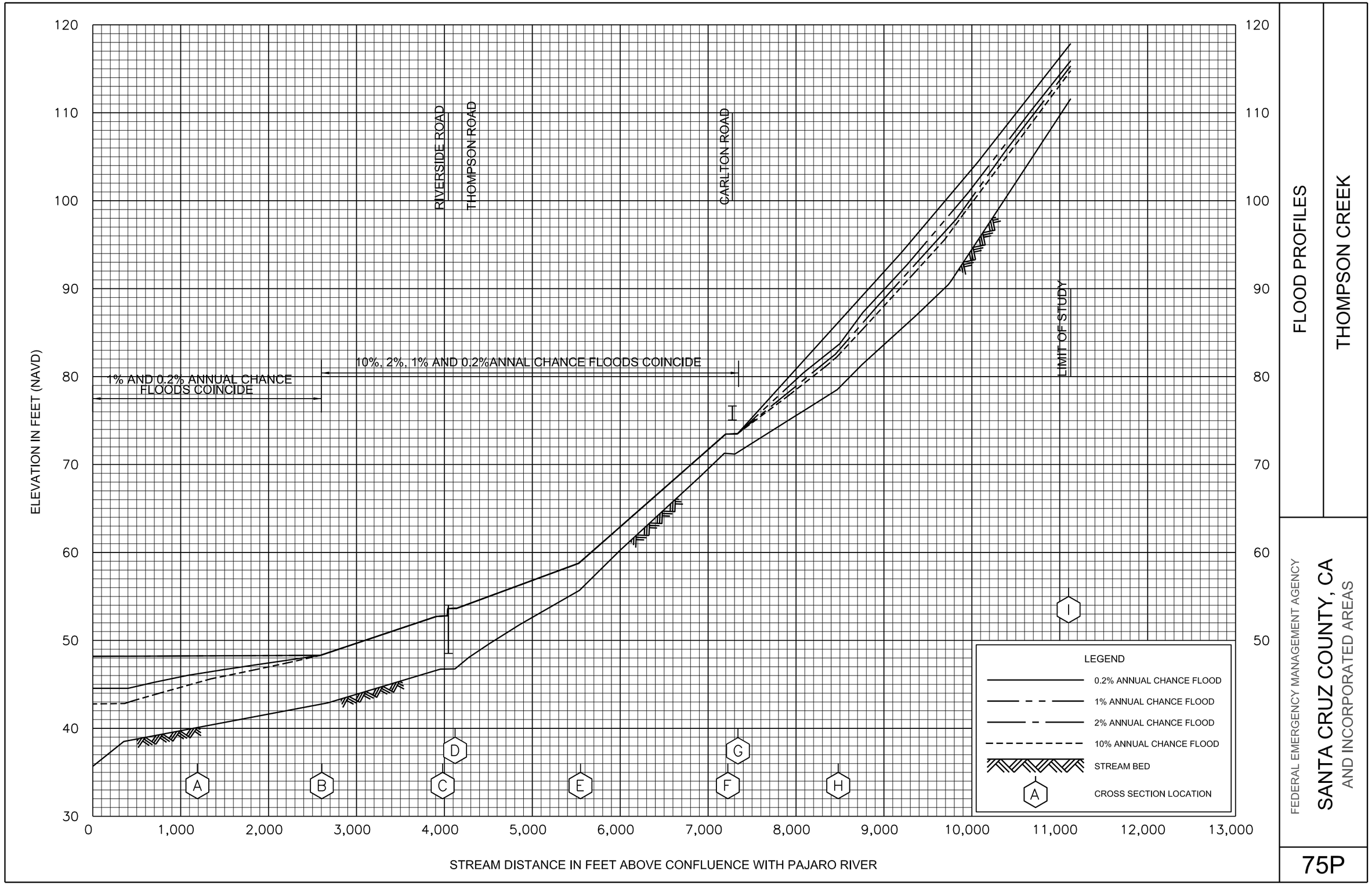
FLOOD PROFILES

THOMASELLO CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

74P



FLOOD PROFILES

THOMPSON CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

75P

ELEVATION IN FEET (NAVD)

30
25
20
15
10
5
0
−5
−10
−15

CONFLUENCE WITH PAJARO RIVER
BEACH ROAD
SHELL ROAD
PUMP STATION BRIDGE

A B C D E F G H I J K L M

0 1,000 2,000 3,000 4,000 5,000 6,000 7,000 8,000 9,000 10,000 11,000 12,000 13,000

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH PAJARO RIVER

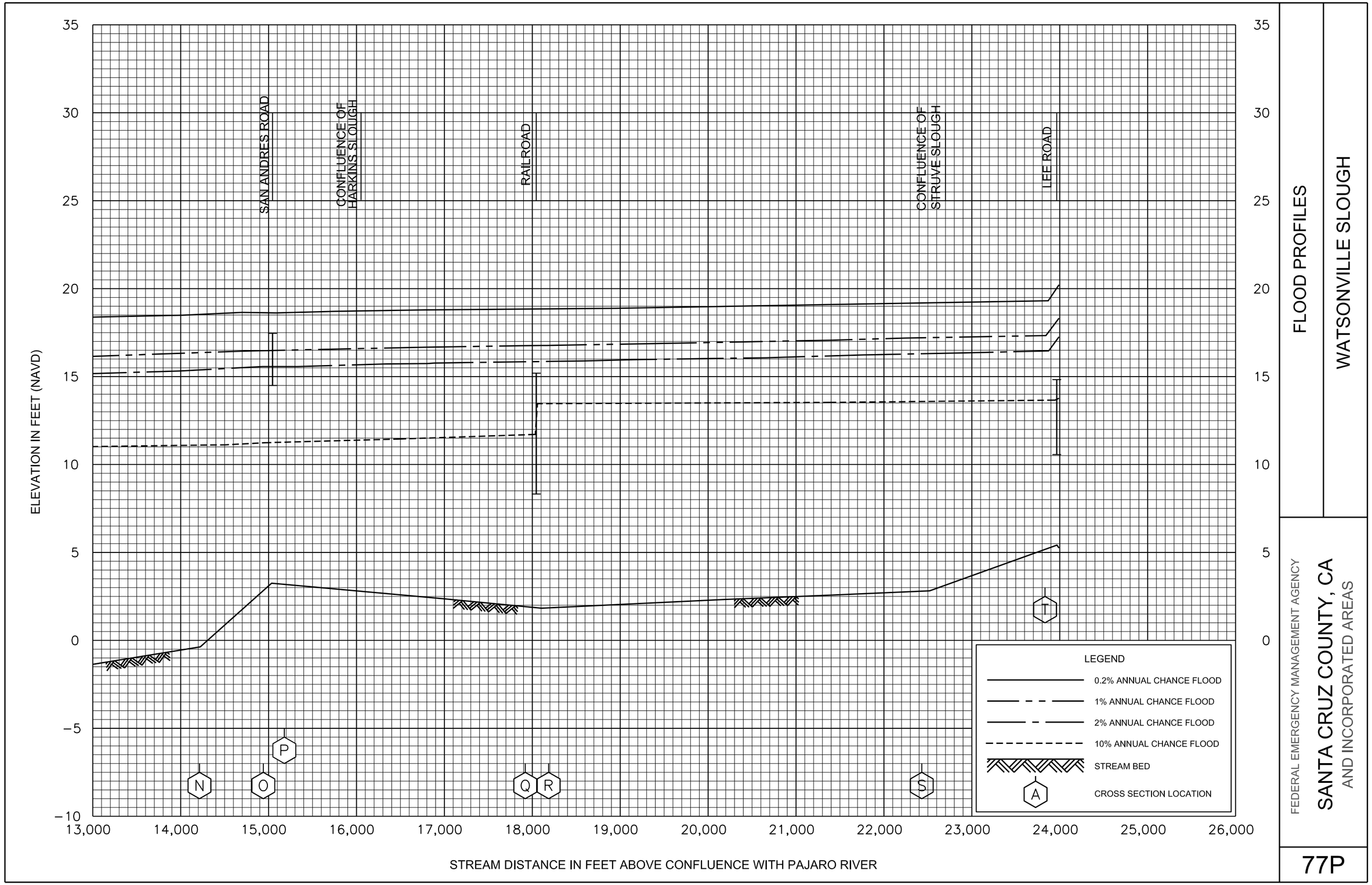
LEGEND
- 0.2% ANNUAL CHANCE FLOOD
- 1% ANNUAL CHANCE FLOOD
- 2% ANNUAL CHANCE FLOOD
- 10% ANNUAL CHANCE FLOOD
- STREAM BED
- A — CROSS SECTION LOCATION

FLOOD PROFILES

WATSONVILLE SLOUGH

FEDERAL EMERGENCY MANAGEMENT AGENCY
SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

76P



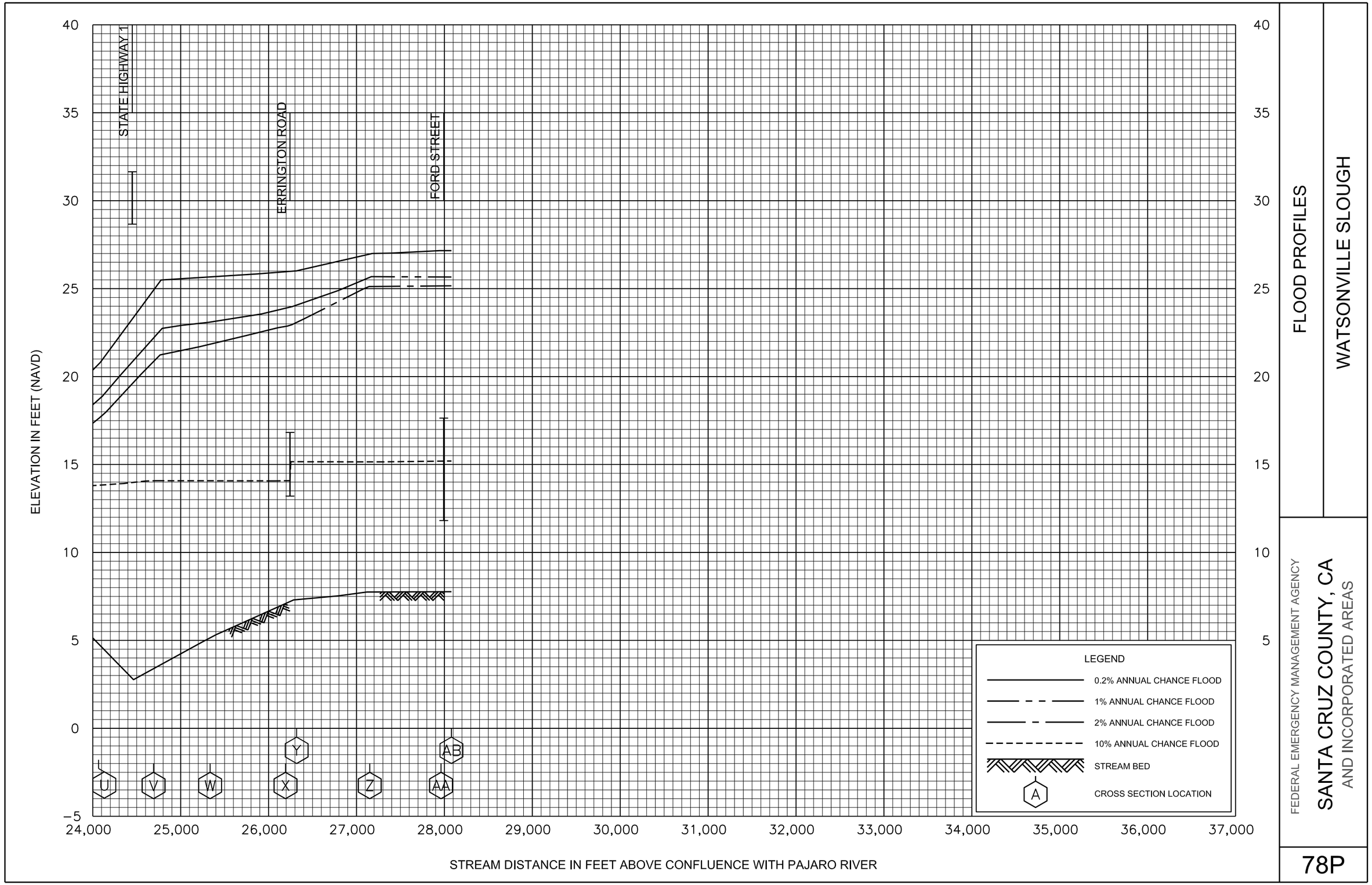
FLOOD PROFILES

WATSONVILLE SLOUGH

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

77P



FLOOD PROFILES

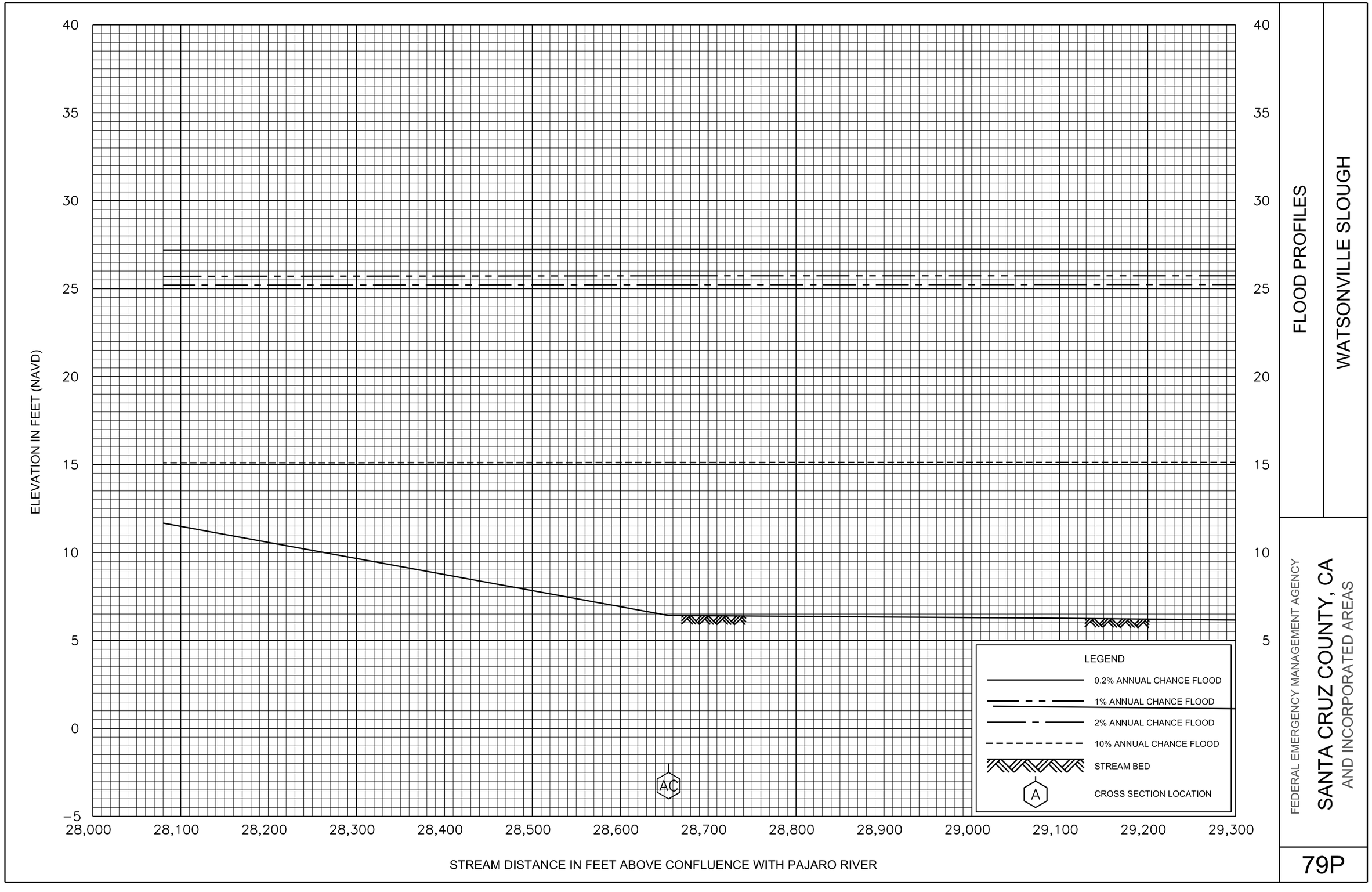
WATSONVILLE SLOUGH

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA

AND INCORPORATED AREAS

78P



FLOOD PROFILES

WATSONVILLE SLOUGH

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

79P

ELEVATION IN FEET (NAVD)

40
35
30
25
20
15
10
5
0
−5

HARKINS SLOUGH ROAD BRIDGE

AD
AE
AF

29,300 29,400 29,500 29,600 29,700 29,800 29,900 30,000 30,100 30,200 30,300 30,400 30,500 30,600

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH PAJARO RIVER

LEGEND

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

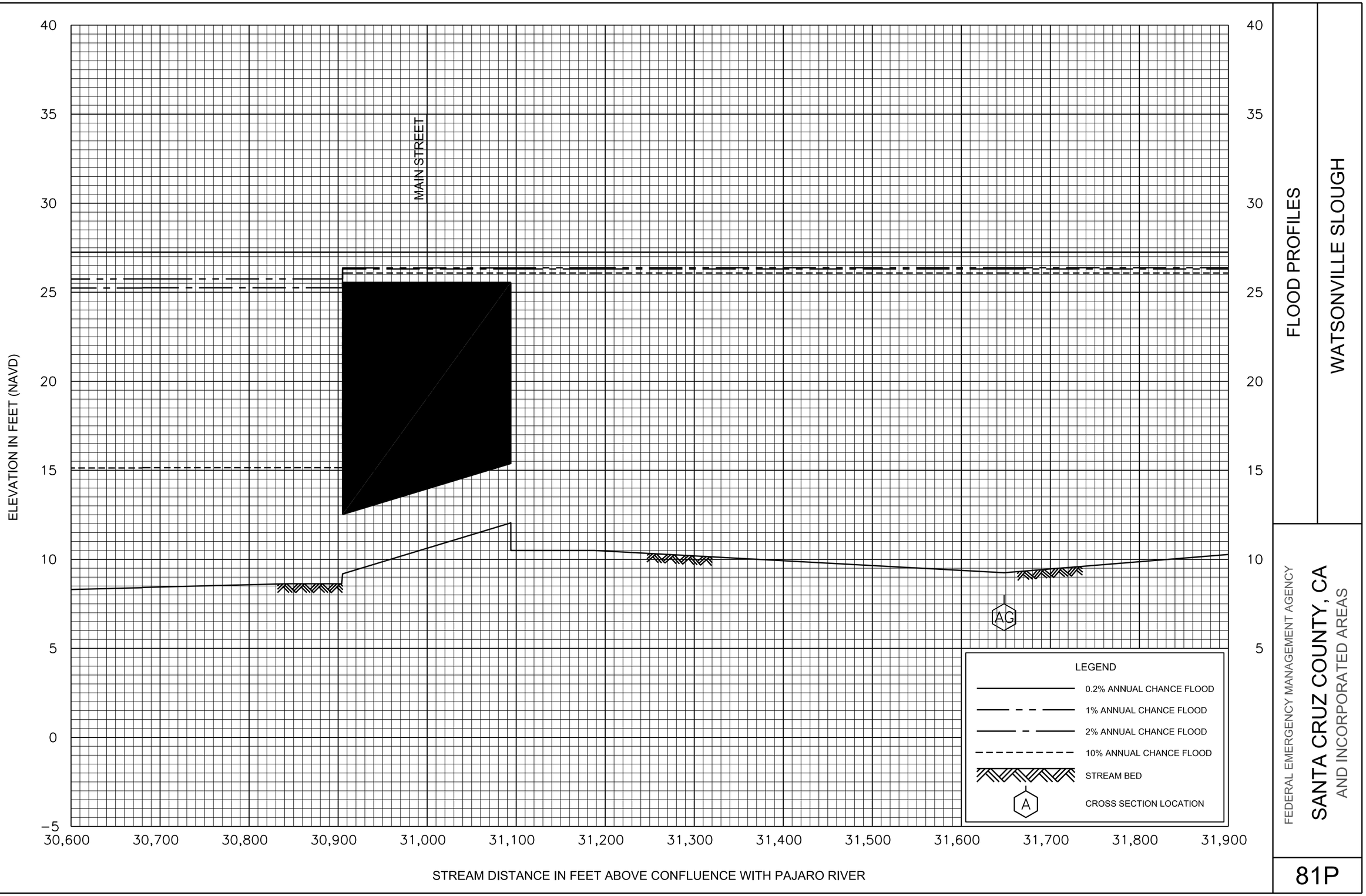
FLOOD PROFILES

WATSONVILLE SLOUGH

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

80P



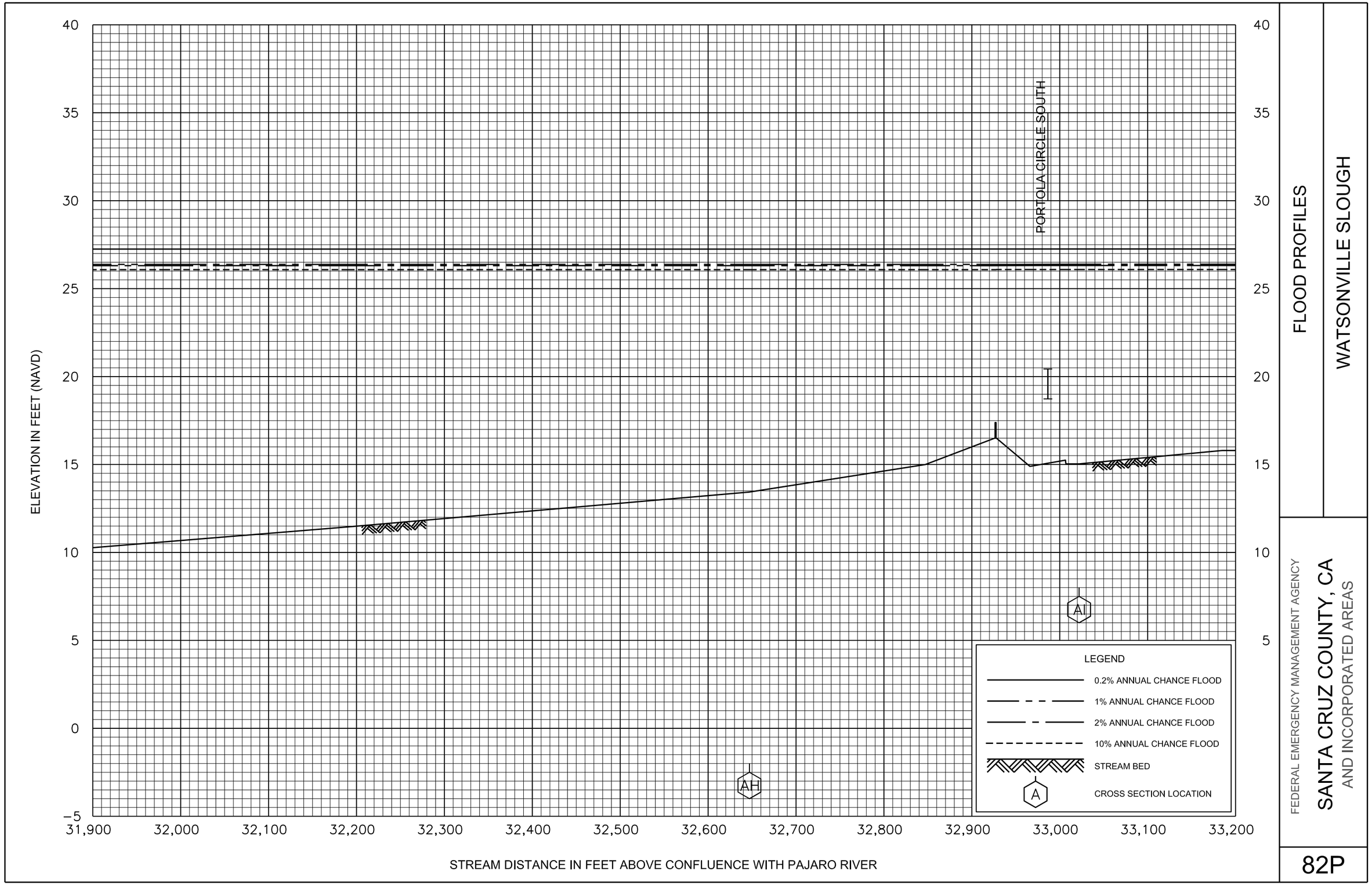
FLOOD PROFILES

WATSONVILLE SLOUGH

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

81P



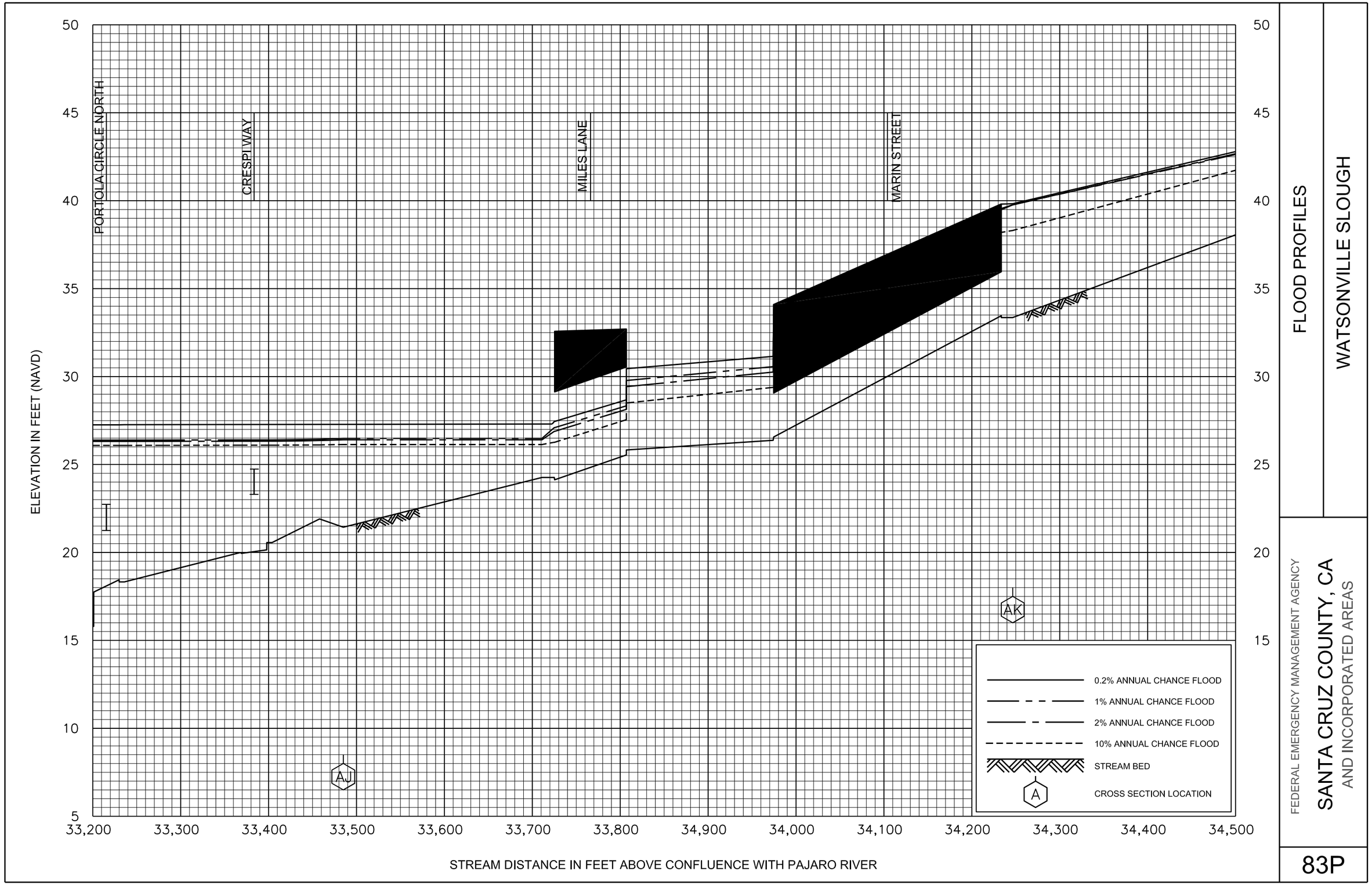
FLOOD PROFILES

WATSONVILLE SLOUGH

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

82P



FLOOD PROFILES

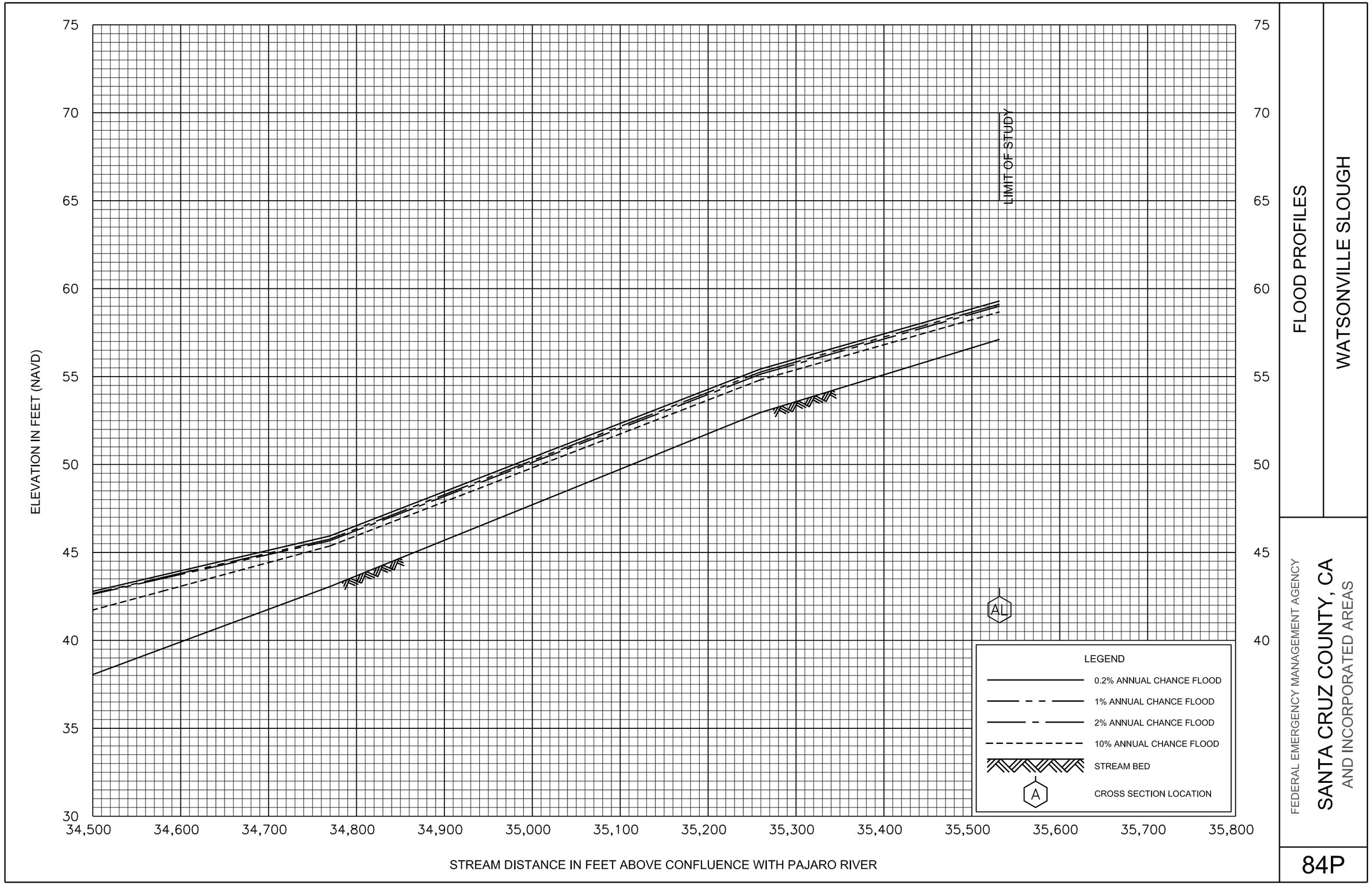
WATSONVILLE SLOUGH

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA

AND INCORPORATED AREAS

83P



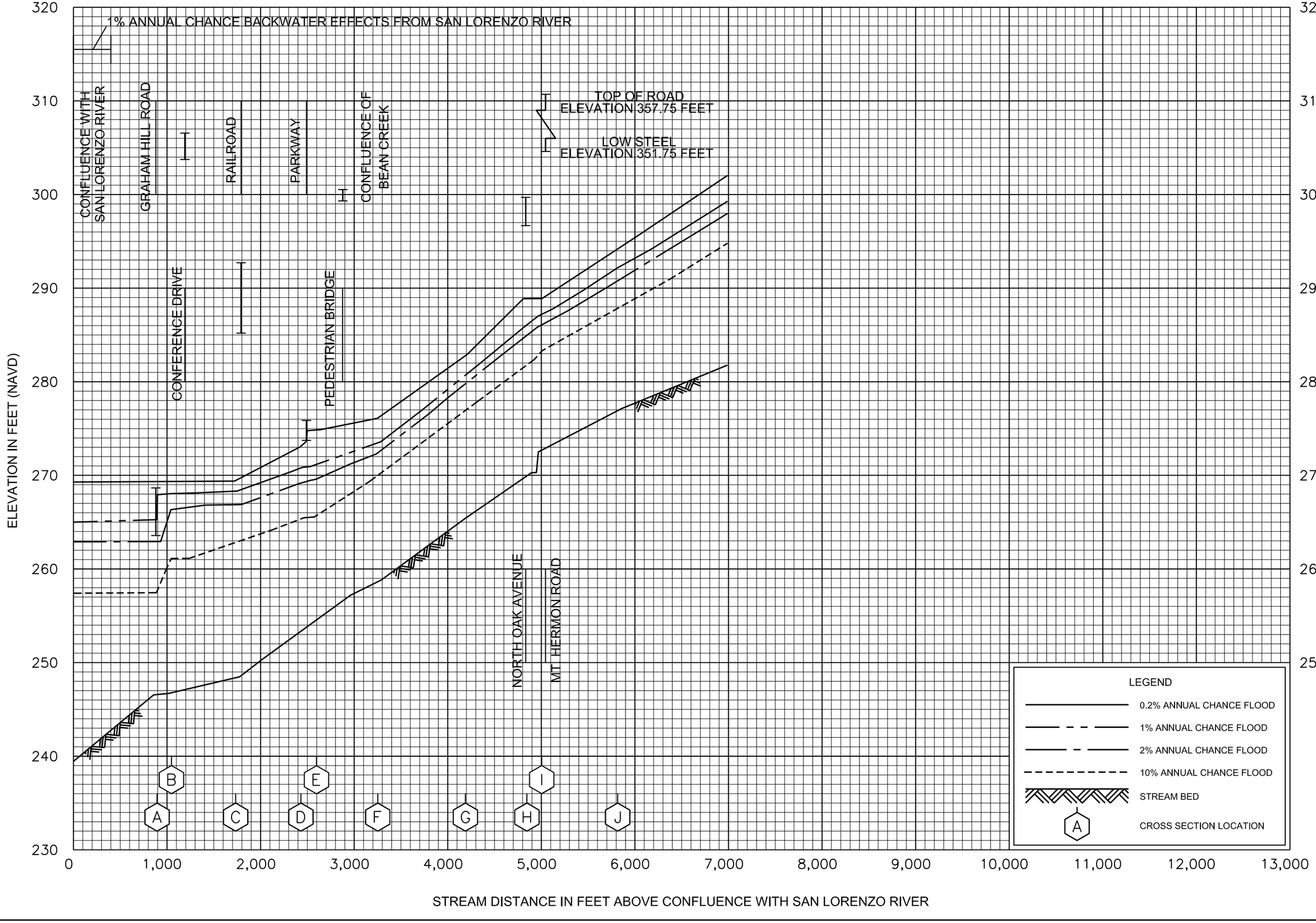
FLOOD PROFILES

WATSONVILLE SLOUGH

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

84P



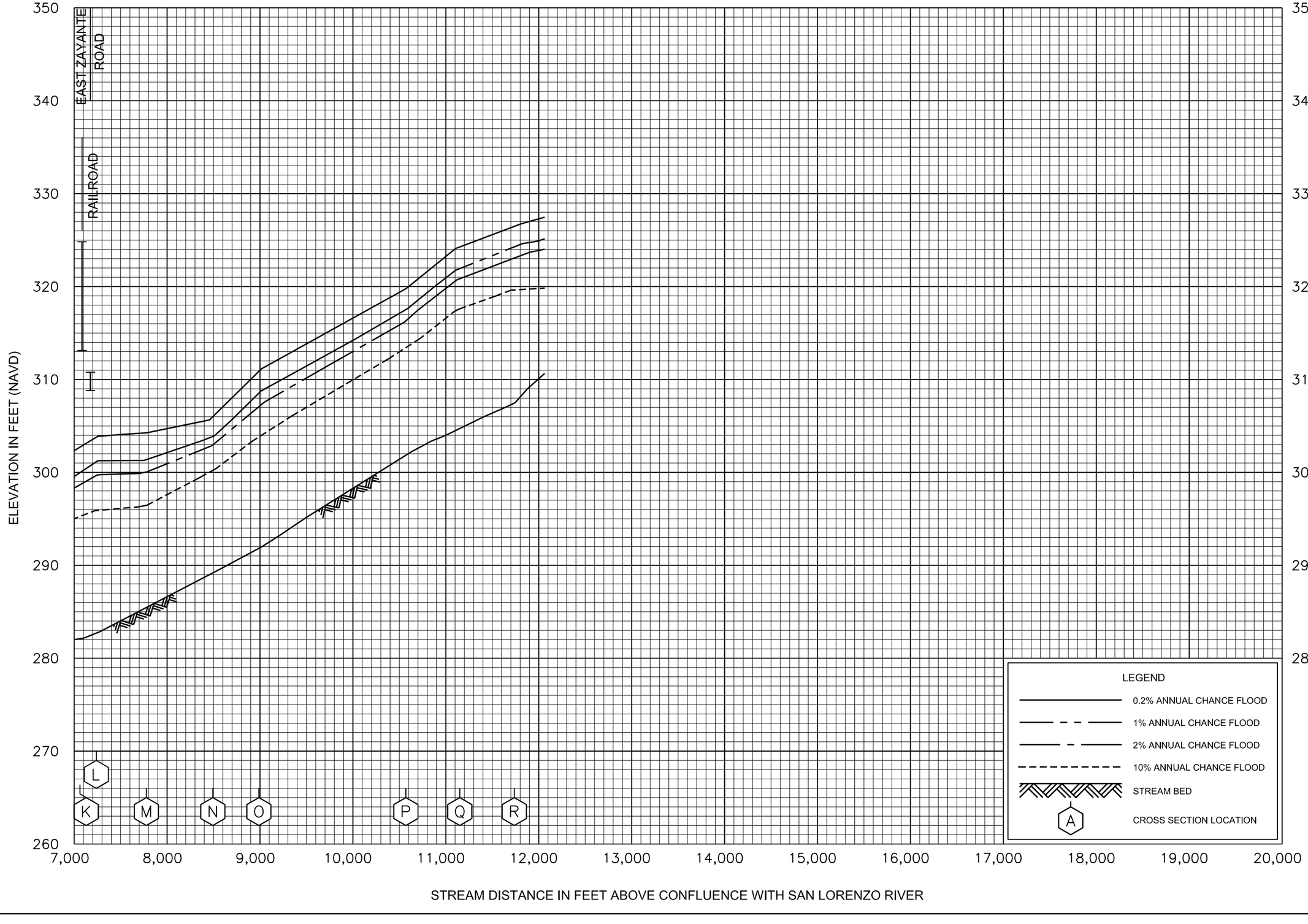
FLOOD PROFILES

ZAYANTE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

85P



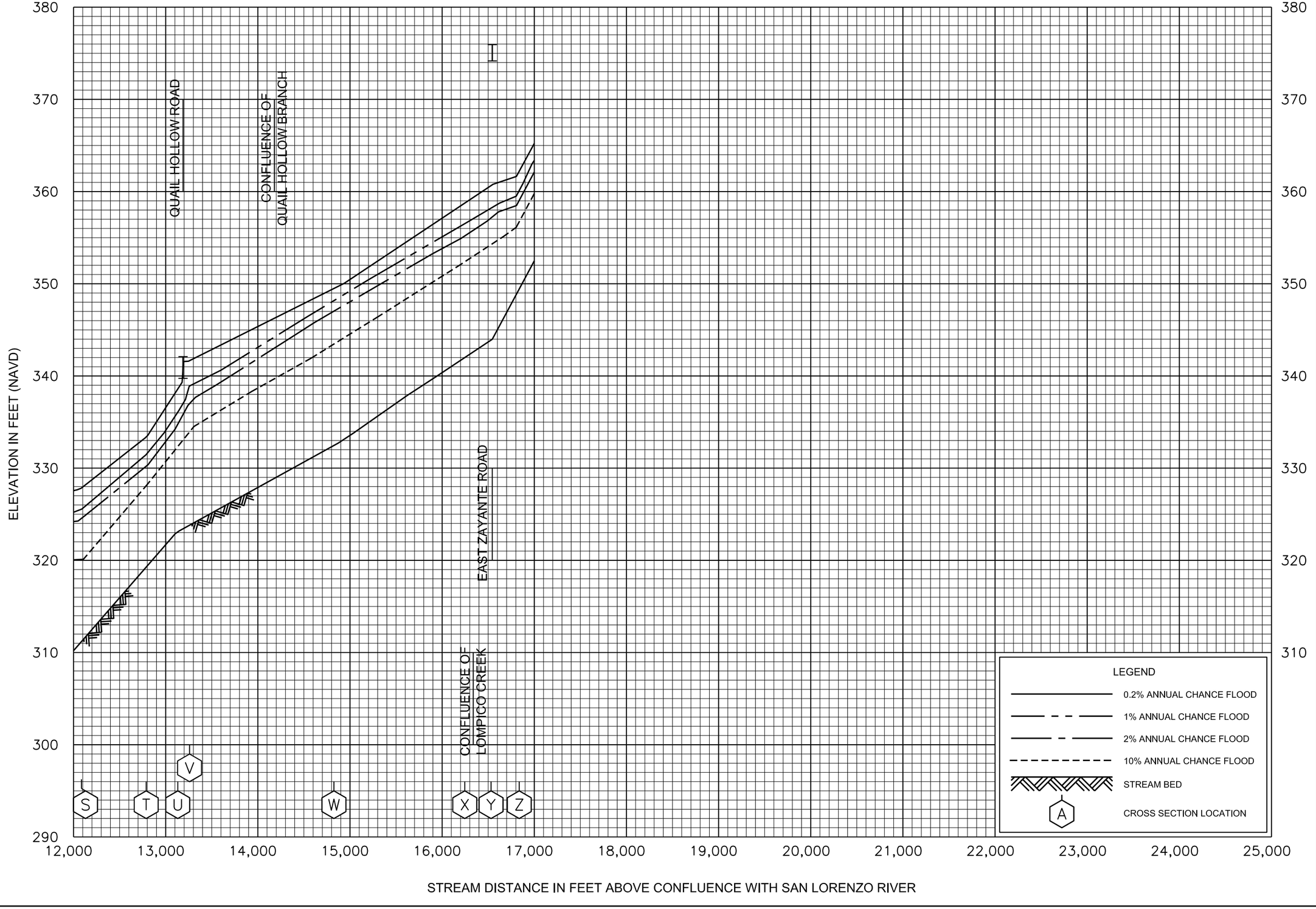
FLOOD PROFILES

ZAYANTE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

86P



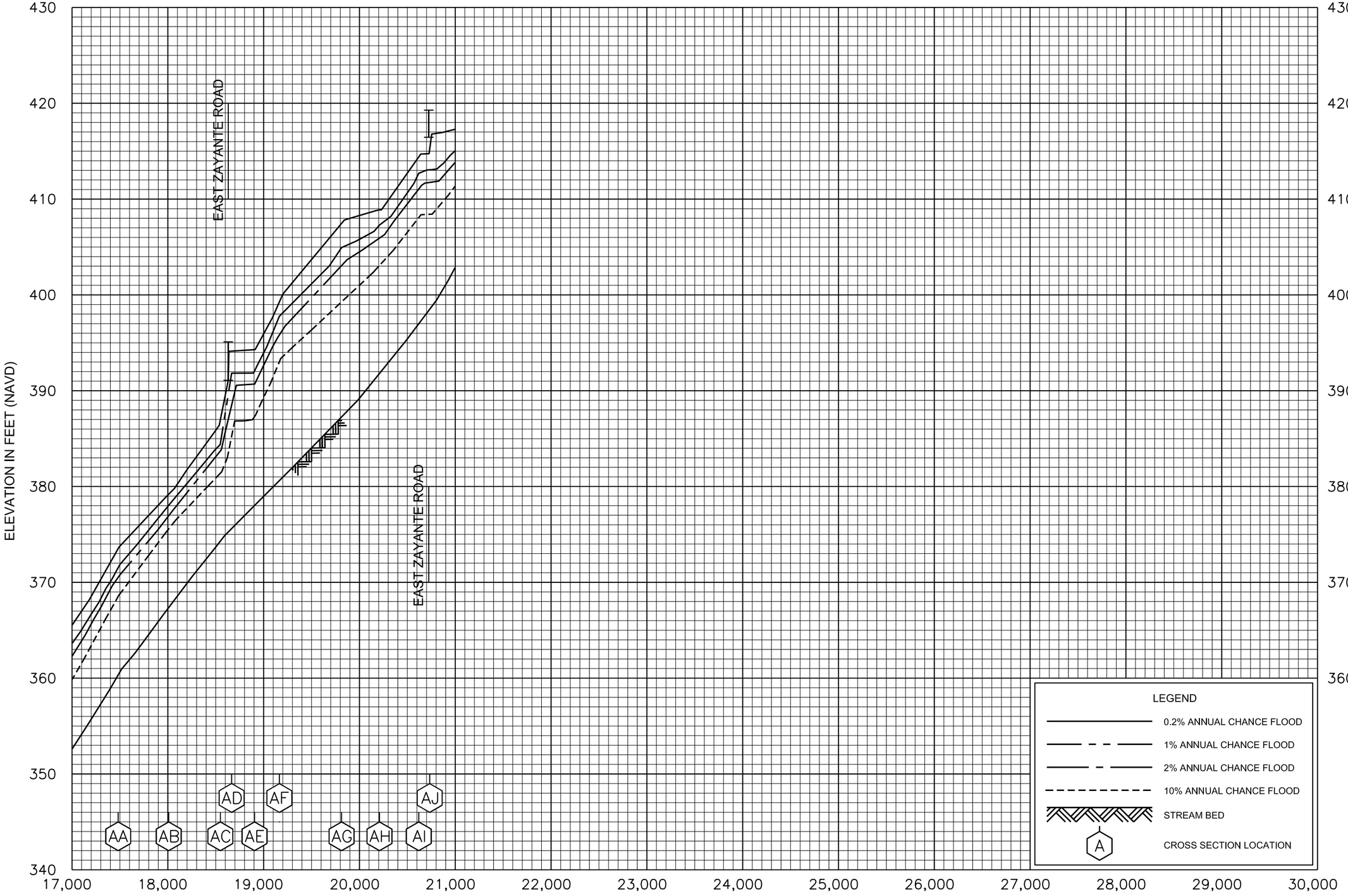
FLOOD PROFILES

ZAYANTE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

87P



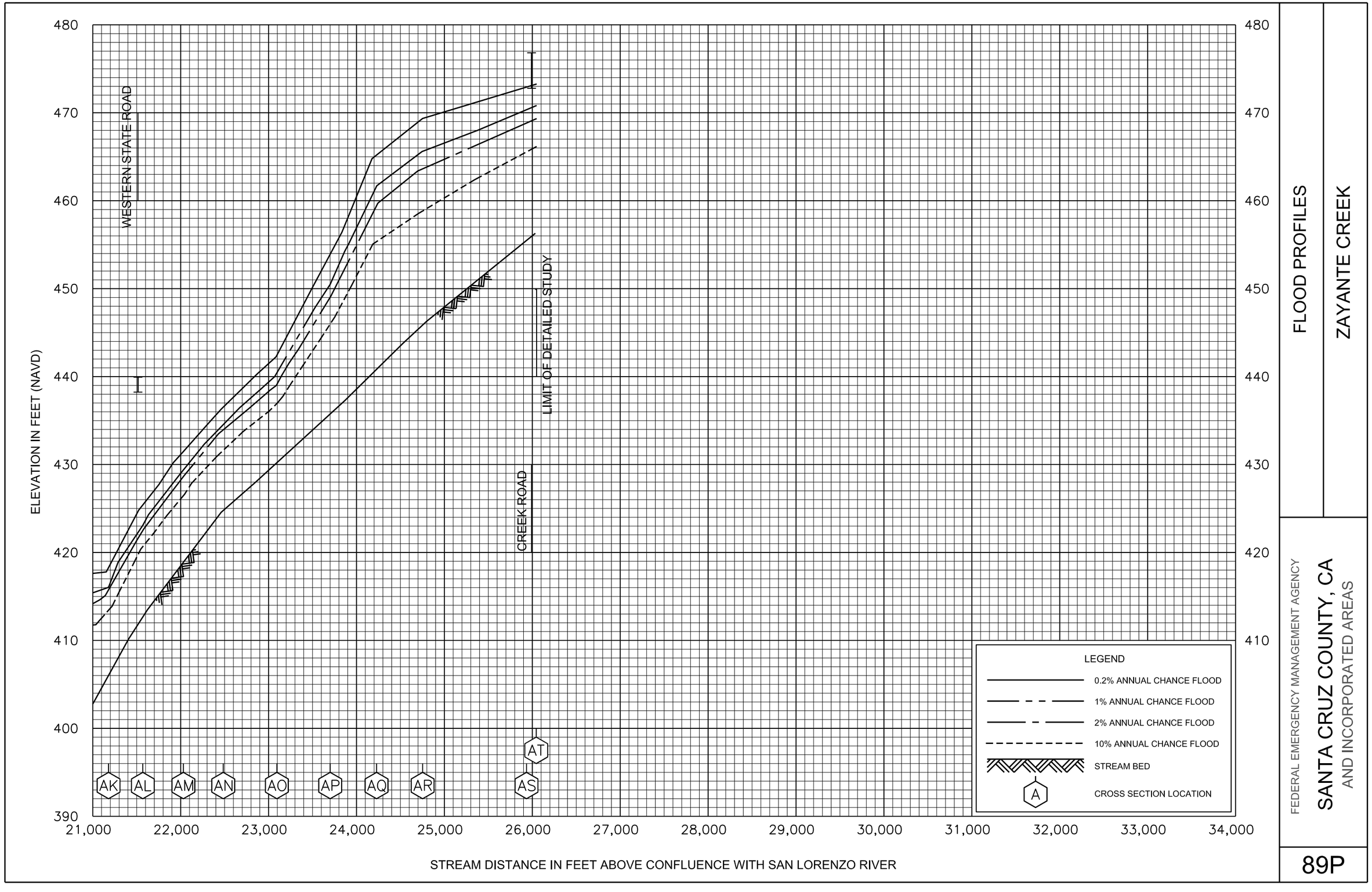
FLOOD PROFILES

ZAYANTE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

88P



FLOOD PROFILES

ZAYANTE CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SANTA CRUZ COUNTY, CA
AND INCORPORATED AREAS

89P