LOS PENASQUITOS CREEK LOCATION HYDRAULIC STUDY

SECTION 2 - Amendment

Interstate 5 North Coast Corridor Project
SAN DIEGO COUNTY, CALIFORNIA
DISTRICT 11-SD-5 (PM R28.4/R55.4)
EA 235800 (P ID 11-000-0159)

MARCH 2009

SECTION 2 - Amendment

Los Peñasquitos Creek Location Hydraulics Study

March 2009

SECTION 2: LOS PEÑASQUITOS LOCATION HYDRAULIC STUDY

2.0 PROJECT PURPOSE AND VICINITY MAP:

Figure 1: Project Vicinity Map

Los Peñasquitos Creek is located in the City of San Diego just north of Sorrento Valley Road. (Thomas Guide, page 1208: B5 and C5).

This study was prepared for the purpose of determining the impacts to the Los Peñasquitos Creek 100-year floodplain resulting from the proposed "I-5 Flyover Bridge" in the Interstate-5 (I-5) corridor.

This study specifically addresses the following:

1.) The Los Peñasquitos Creek 100-year floodplain as it presently exists.

The proposed "I-5 Flyover Bridge" will be designed to span the entire floodplain. The proposed bridge would be 3609 ft long and built above the existing I-5 median and high above the 100-year floodplain of Los Peñasquitos Creek.

Hydrologic data was obtained from a Flood Insurance Study (FIS) (*San Diego County – California and Unincorporated Areas, dated July 2, 2002*) and a Letter of Map revision for Vista Sorrento Parkway Bridge (LOMR, 2003).

2.1 DESCRIPTION OF WATERSHED:

Los Peñasquitos Creek is located within the Los Peñasquitos watershed basin, designated as the Regional Water Quality Control Board's (RWQCB) Hydrologic Unit 906.10-906.50 (Figure 2). The 170 square mile hydrologic unit includes the cities of San Diego, Poway, Del Mar and unincorporated regions of San Diego County. The major basins within the Los Peñasquitos Lagoon watershed are Carroll (Soledad) Canyon, Los Peñasquitos Canyon and Carmel Valley. These basins flow in a westerly direction toward the Pacific Ocean. These watersheds drain a highly urbanized region located almost entirely west of Interstate 15 in coastal San Diego County. Elevations within the watershed range from 2,900 feet above mean sea level in the upper watershed to seal level at the outlet. Collectively and individually, they support a variety of water supply, economic, recreational, and habitat-related beneficial uses. Los Peñasquitos water bodies are especially sensitive to the effects of pollutants due to restricted or intermittent tidal flushing.

Figure 2: Regional Basin Area

The Los Peñasquitos Creek watershed encompasses an area of approximately 67 square miles including portions of the cities of San Diego, Poway and Del Mar. The watershed is highly urbanized with a population of approximately 400,000 residents. The creek discharges into a 0.6 square mile lagoon that is identified as an impaired water body on the California 303(d) list for sedimentation. Los Peñasquitos Creek contains extensive mudflats, saltpan, salt marsh and one relic sand dune, with shallow water channels and broad tidal pans. The creek was historically intermittent: however, due to development within the upper watershed, the creek now supports year-round flow. Los Peñasquitos Creek is concrete-lined along two stretches in its lower reach. Urban runoff from storm drains contribute inflow during winter storms as well as runoff from local landscaping.

2.2 EXISTING CONDITIONS:

The 1997 FEMA FIRM floodplain shapefiles were used to estimate the proximity of the floodplain boundary to the proposed "I-5 Flyover Bridge" columns and abutment fill. The 2003 LOMR floodplain determination was compared to the 1997 FIRM boundary and found to have little difference in the area where the "I-5 Flyover Bridge" crosses Los Peñasquitos Creek. The proposed "I-5 Flyover Bridge" bents were then located beyond the mapped 100-year FEMA floodplain boundaries as reflected on the current Advanced Planning Study.

2.3 RISK ASSESSMENT:

Because the proposed "I-5 Flyover Bridge" will be designed to span the Los Peñasquitos Creek 100-year floodplain boundaries there will be no increase to the water surface elevations and therefore, the proposed improvements do not have any major risks associated with their implementation. The current flooding associated with the 100-year flood near the project location will not change as a result of the proposed improvements.

2.4 SUMMARY AND CONCLUSIONS:

The columns of the proposed "I-5 Flyover Bridge" will be placed beyond both edges of the defined 100-year FEMA floodplain boundaries of Los Peñasquitos Creek and therefore, no impacts to the beneficial values of the floodplain will occur as a result of the planned improvements.

APPENDIX A

2003 Los Peñasquitos Creek LOMR

Flood Insurance Rate Map (FIRM)

Flood Insurance Flood Profile

Summary of Discharges

Page 1 of 4	Issue Date: MAR 18 2004	Effective Date: JUL 15 2004	Case No.: 04-09-0108P	LOMR-APP

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 San Diego San Diego County California	BRIDGE	HYDRAULIC ANALYSIS NEW TOPOGRAPHIC DATA
	COMMUNITY NO.: 060295		
IDENTIFIER	Vista Sorrento Parkway Bridge	APPROXIMATE LATITUDE & LONGITUDE: 32.715, -117.156 SOURCE: USGS QUADRANGLE DATUM: NAD 83	
FLOODING SOURCE(S) & REVISED REACH(ES)	Los Penasquitos Creek – from just downstream of Interstate Highway 5 (southbound) to approximately 6,500 feet upstream of Vista Sorrento Parkway		

SUMMARY OF REVISIONS

Effective Flooding:	Zone AE	Zone X (shaded)	Floodway	BFEs*	Zone X (shaded)
Revised Flooding:	Zone AE	Zone AE	Floodway	BFEs	Zone X (shaded)
Increases:	YES	YES	YES	YES	YES
Decreases:	YES	YES	YES	YES	YES

* BFEs – Base Flood Elevations

ANNOTATED MAPPING ENCLOSURES			ANNOTATED STUDY ENCLOSURES
TYPE: FIRM*	NO.: 06073C1336 F	Date: June 19, 1997	DATE OF EFFECTIVE FLOOD INSURANCE STUDY: July 2, 2002
TYPE: FIRM	NO.: 06073C1337 F	Date: June 19, 1997	FLOODWAY DATA TABLE: 8
TYPE: FIRM	NO.: 06073C1338 F	Date: June 19, 1997	PROFILE: 170P
TYPE: FIRM	NO.: 06073C1339 F	Date: June 19, 1997	PROFILE: 171P

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

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 Assistance Center toll free at 1-877-336-2677 (1-877-FEMA MAP) or by letter addressed to the LOMR Depot, 3601 Eisenhower Avenue, Alexandria, VA 22304. Additional information about the NFIP is available on our website at http://www.fema.gov/nfip.

Doug Bellomo, P.E., CFM, Acting Chief
Hazard Identification Section
Mitigation Division
Emergency Preparedness and Response Directorate

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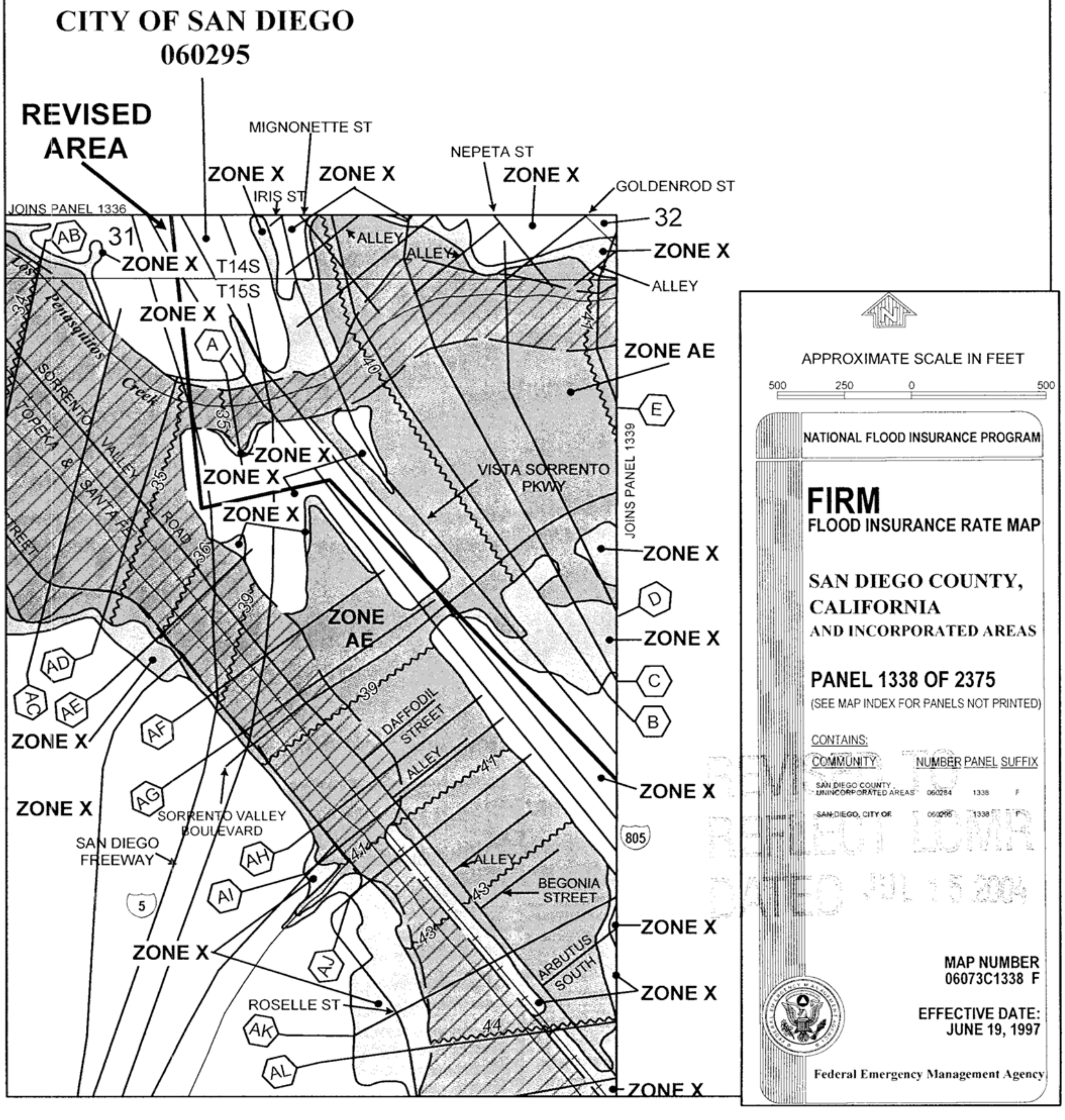
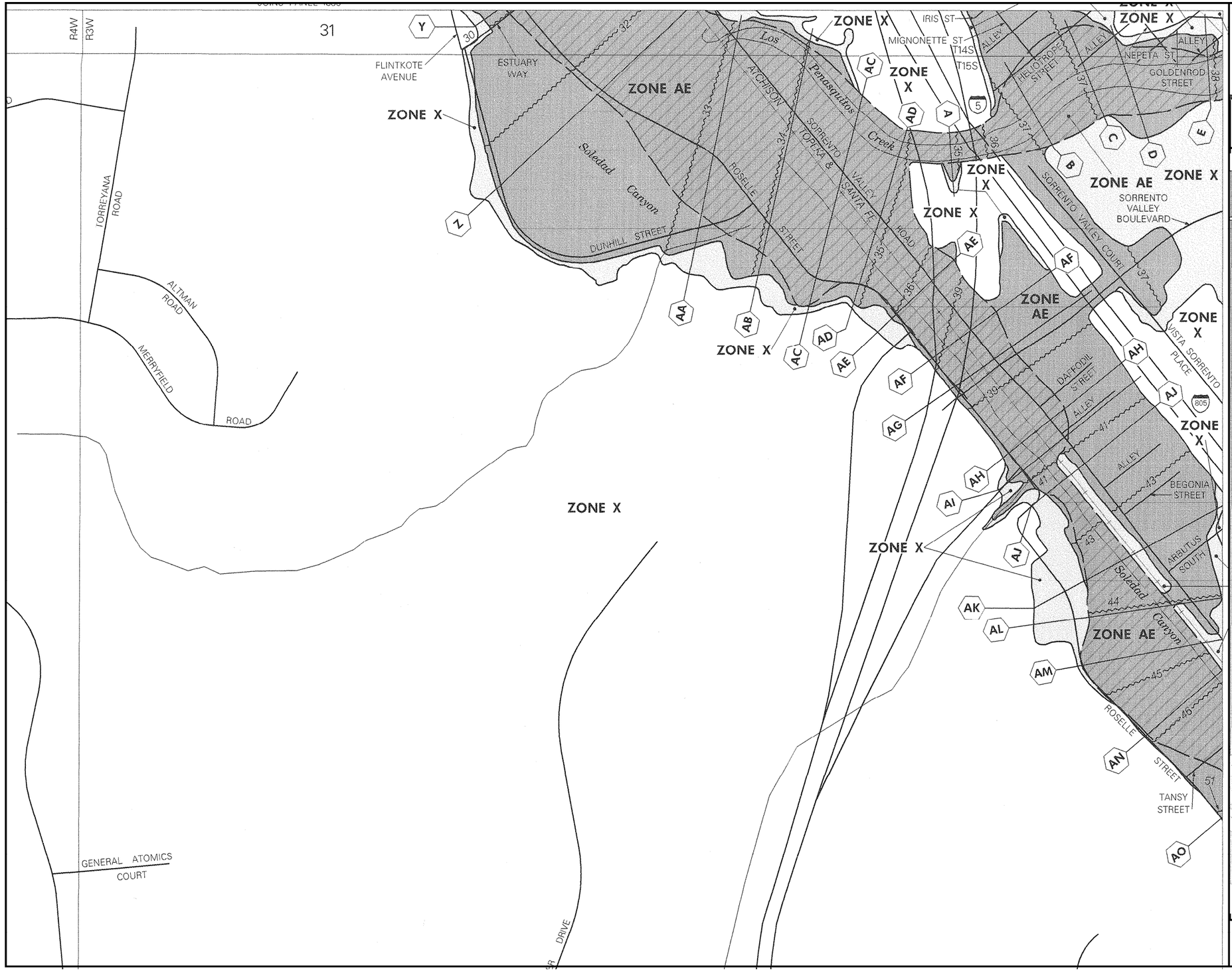

CITY OF SAN DIEGO
060295
REVISED AREA
MIGNONETTE ST
NEPETA ST
GOLDENROD ST
IRIS ST
ZONE X
ZONE AE
JOINS PANEL 1336
JOINS PANEL 1339
31
32
T14S
T15S
ALLEY
Los Penasquitos Creek
SORRENTO VALLEY ROAD
TOPEKA & SANTA FE STREET
VISTA SORRENTO PKWY
DAFFODIL STREET
BEGONIA STREET
ARBUTUS SOUTH
ROSELLE ST
SORRENTO VALLEY BOULEVARD
SAN DIEGO FREEWAY
5
805
AB
A
E
D
C
B
AC
AD
AE
AF
AG
AH
AI
AJ
AK
AL
APPROXIMATE SCALE IN FEET
500
250
0
500
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
SAN DIEGO COUNTY, CALIFORNIA
AND INCORPORATED AREAS
PANEL 1338 OF 2375
(SEE MAP INDEX FOR PANELS NOT PRINTED)
CONTAINS:
COMMUNITY NUMBER PANEL SUFFIX
SAN DIEGO COUNTY UNINCORPORATED AREAS 060284 1338 F
SAN DIEGO, CITY OF 060295 1338 F
REVISED TO REFLECT LOMR DATED JUL 15 2004
MAP NUMBER
06073C1338 F
EFFECTIVE DATE:
JUNE 19, 1997
Federal Emergency Management Agency



NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

SAN DIEGO COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 1338 OF 2375

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS: COMMUNITY	NUMBER	PANEL	SUFFIX
SAN DIEGO, CITY OF	060296	1338	F
SAN DIEGO, COUNTY OF	060284	1338	F

MAP NUMBER
06073C1338 F

EFFECTIVE DATE:
JUNE 19, 1997

Federal Emergency Management Agency

ELEVATIONS INFLUENCED BY SOLEDAD CANYON

CONFLUENCE WITH SOLEDAD CANYON

ATCHISON, TOPEKA AND SANTA FE RAILROAD

SORRENTO VALLEY ROAD

INTERSTATE HIGHWAY 5

ELEVATION (FEET NGVD)

50

40

30

20

0

1000

2000

3000

4000

5000

6000

6500

STREAM DISTANCE IN FEET ABOVE MOUTH

A B C D E F G H I J K

LEGEND

- 500 - YEAR FLOOD
- 100 - YEAR FLOOD
- 50 - YEAR FLOOD
- 10 - YEAR FLOOD
- STREAM BED
- CROSS SECTION LOCATION

FLOOD PROFILES

LOS PENASQUITOS CREEK

FEDERAL EMERGENCY MANAGEMENT AGENCY

SAN DIEGO COUNTY, CA AND INCORPORATED AREAS

170P

Table 4. Summary of Discharges (Cont'd)

Flooding Source and Location	Drainage Area (Square Miles)	Peak Discharges (cfs) 10-Year	50-Year	100-Year	500-Year
Las Puleta Creek					
At San Diego and Arizona Eastern Railroad	2.8	550	1,200	1,400	2,500
Downstream of Confluence with Logan Avenue Branch	1.5	300	730	870	1,690
At 47th Street	0.8	160	390	470	910
0.6 Mile Upstream of Cervantes Avenue	0.1	20	50	60	120
Lawson Valley Creek					
Approximately 7,200 Feet Upstream of Mouth	10.2	--[1]	--[1]	9,000	--[1]
Loma Alta Creek					
At Mouth	9.1	800	2,500	3,800	8,200
Downstream of El Camino Real	4.7	450	1,500	2,200	4,800
Upstream of El Camino Real	2.9	350	1,100	1,700	3,700
Los Penasquitos Creek					
Above Confluence with Soledad Canyon	58.3	3,700	11,300	16,800	37,600
At U.S. Highway 395	42.7	3,100	10,000	15,400	35,800
Upstream of Confluence with Chicarita Creek	33.6	2,500	8,700	14,000	34,000
Lusardi Creek					
At Mouth	8.6	--[1]	--[1]	5,680	--[1]
Mexican Canyon Creek					
At Confluence with Sweetwater River	4.7	360	1,480	2,250	3,300
At U.S. Highway 94, 9,600 Feet Upstream of Confluence	2.0	160	700	1,060	1,470

[1]Data Not Available

APPENDIX B

Location Hydraulics Study Form

Floodplain Encroachment Report Summary Form

LOCATION HYDRAULIC STUDY FORM

Dist. *11* Co. *SD* Rte. *5* P.M. *30.7*
EA *11-235800* Bridge No. *57-(New) "I-5 Flyover"*

Floodplain Description:
Los Peñasquitos Creek is a perennial stream and is a man-made, unlined channel through the I-5/805 corridor. It is a heavily vegetated, natural channel upstream of the corridor. There are several bridge crossings over the creek through the corridor.

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)
This project includes a widening of the freeway and associated improvements. The proposed "Flyover Bridge" is to be constructed above the I-5/805 interchange and spanning the Los Peñasquitos Creek floodplain.

2. ADT: Current *n/a (new bridge)* Projected *25,900 (year 2030)*

3. Hydraulic Data: Base Flood $Q_{100=}$ *476* m^3 / s
$WSE_{100=}$ *37.8 ft (upstream of proposed bridge location)*
The flood of record, if greater than Q_{100}:
Q= *n/a* m^3 / s WSE= *n/a*
Overtopping flood Q= *n/a* m^3 / s WSE= *n/a*

Are NFIP maps and studies available? YES *X* NO_____

4. Is the highway location alternative within a regulatory floodway ?
YES_____ NO *X*

5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.

Potential Q_{100} backwater damages:

A. Residences? NO_____ YES *(no increase from existing condition.)*
B. Other Bldgs? NO_____ YES *(no increase from existing condition.)*
C. Crops? NO *X* YES_____
D. Natural and beneficial Floodplain values? NO *X* YES_____

6. Type of Traffic:

A. Emergency supply or evacuation route? NO_____YES__X__
B. Emergency vehicle access? NO_____YES__X__
C. Practicable detour available? NO_____YES__X__
D. School bus or mail route? NO_____YES __X__

7. Estimated duration of traffic interruption for 100-year event hours:____*(no change)*

8. Estimated value of Q_{100} flood damages (if any) – moderate risk level.

A. Roadway $____*(no increase from existing condition)*
B Property $____*(no increase from existing condition)*
Total $____*(no increase from existing condition)*

9. Assessment of Level of Risk Low__*X*__
Moderate____
High_____

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

Signature – Dist. Hydraulic Engineer _____Date_____
(Item numbers 3,4,5,7,9)

Is there any longitudinal encroachment, significant encroachment, or any support of incompatible floodplain development? NO__*X*__YES_____

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

Signature – Dist. Project Engineer_____Date_____
(Item numbers 1,2,6,8)

SUMMARY FLOODPLAIN ENCROACHMENT REPORT

Dist. ___11___ Co. ___SD___ Rte. ___5___ P.M. ___30.7___
Project No.: ___11-23580___ Bridge No. 57-(New) "I-5 Flyover"

Limits: _New proposed I-5 "Flyover Bridge" over the I-5/805 Interchange, spanning the Los Peñasquitos Creek floodplain boundary._____

Floodplain Description: Perennial stream, man-made, unlined channel through the I-5/805 corridor. Heavily vegetated, natural channel upstream of the corridor. Several bridge crossings over the creek through the corridor.

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	X	
2.	Are the risks associated with the implementation of the proposed action significant?	X	
3.	Will the proposed action support probable incompatible floodplain development?	X	
4.	Are there any significant impacts on natural and beneficial floodplain values?	X	
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	X	
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	X	
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.		X

PREPARED BY:

_____ _____
Signature - Dist. Hydraulic Engineer Date

_____ _____
Signature - Dist. Environmental Branch Chief Date

_____ _____
Signature - Dist. Project Engineer Date