

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 6.75
EA 249900 Bridge No. n/a
Floodplain Description: Los Angeles River Floodplain

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Replacement of Shoemaker Bridge over Los Angeles River

2. ADT: Current 10,800 Projected n/a

3. Hydraulic Data: Base Flood Q_{100} = 170,000 CFS
 WSE_{100} = n/a The flood of record, if greater than Q_{100} :
 Q = n/a CFS WSE = n/a
Overtopping flood Q = 194,700 CFS WSE = n/a
Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?
YES X NO _____

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 <u>X</u>	YES _____
B. Other Bldgs?	NO <u>X</u>	YES _____
C. Crops?	NO <u>X</u>	YES _____
D. Natural and beneficial Floodplain values?	NO <u>X</u>	YES _____

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO _____	YES <u>X</u>
B. Emergency vehicle access?	NO _____	YES <u>X</u>
C. Practicable detour available?	NO _____	YES <u>X</u>
D. School bus or mail route?	NO <u>X</u>	YES _____

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 6.38
EA 249900 Bridge No. n/a
Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Anaheim Street Bridge Widening

2. ADT: Current 29,900 Projected 44,400

3. Hydraulic Data: Base Flood Q_{100} = 168,000 CFS
 WSE_{100} = n/a The flood of record, if greater than Q_{100} :
 Q = n/a CFS WSE = n/a
Overtopping flood Q = 194,700 CFS WSE = n/a
Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?
YES X NO _____

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 <u>X</u>	YES _____
B. Other Bldgs?	NO <u>X</u>	YES _____
C. Crops?	NO <u>X</u>	YES _____
D. Natural and beneficial Floodplain values?	NO <u>X</u>	YES _____

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO _____	YES <u>X</u>
B. Emergency vehicle access?	NO _____	YES <u>X</u>
C. Practicable detour available?	NO _____	YES <u>X</u>
D. School bus or mail route?	NO _____	YES <u>X</u>

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 7.29
EA 249900 Bridge No. 53 341
Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Pacific Coast Highway Bridge Widening

2. ADT: Current 30,300 Projected 39,900

3. Hydraulic Data: Base Flood Q_{100} = 168,000 CFS
WSE₁₀₀ = n/a The flood of record, if greater than Q_{100} :
 Q = n/a CFS WSE = n/a
Overtopping flood Q = 194,700 CFS WSE = n/a
Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?
YES X NO _____

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 <u>X</u>	YES _____
B. Other Bldgs?	NO <u>X</u>	YES _____
C. Crops?	NO <u>X</u>	YES _____
D. Natural and beneficial Floodplain values?	NO <u>X</u>	YES _____

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO _____	YES <u>X</u>
B. Emergency vehicle access?	NO _____	YES <u>X</u>
C. Practicable detour available?	NO _____	YES <u>X</u>
D. School bus or mail route?	NO _____	YES <u>X</u>

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 7.89
EA 249900 Bridge No. 53C0019
Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Willow Street Bridge Widening

2. ADT: Current 38,700 Projected 45,900

3. Hydraulic Data: Base Flood Q_{100} = 168,000 CFS
WSE₁₀₀ = n/a The flood of record, if greater than Q_{100} :
Q = n/a CFS WSE = n/a
Overtopping flood Q = 184,000 CFS WSE = n/a
Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?
YES X NO _____

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 <u>X</u>	YES _____
B. Other Bldgs?	NO <u>X</u>	YES _____
C. Crops?	NO <u>X</u>	YES _____
D. Natural and beneficial Floodplain values?	NO <u>X</u>	YES _____

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO _____	YES <u>X</u>
B. Emergency vehicle access?	NO _____	YES <u>X</u>
C. Practicable detour available?	NO _____	YES <u>X</u>
D. School bus or mail route?	NO _____	YES <u>X</u>

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 9.08
EA 249900 Bridge No. 53C0610L/ 53C0610R
Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Wardlow Road Bridge Widening

2. ADT: Current 27,400 Projected 29,300

3. Hydraulic Data: Base Flood Q_{100} = 168,000 CFS
 WSE_{100} = n/a The flood of record, if greater than Q_{100} :
 Q = n/a CFS WSE = n/a
Overtopping flood Q = 184,000 CFS WSE = n/a
Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?
YES X NO _____

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 <u>X</u>	YES _____
B. Other Bldgs?	NO <u>X</u>	YES _____
C. Crops?	NO <u>X</u>	YES _____
D. Natural and beneficial Floodplain values?	NO <u>X</u>	YES _____

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO _____	YES <u>X</u>
B. Emergency vehicle access?	NO _____	YES <u>X</u>
C. Practicable detour available?	NO _____	YES <u>X</u>
D. School bus or mail route?	NO _____	YES <u>X</u>

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 9.41
EA 249900 Bridge No. n/a
Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

New NB 710 to SB 405 Conn; Replace SB 710 to SB 405 Conn; New NB 405 to SB 710 Conn; Replace NB 405 to NB 710 Conn

2. ADT: Current 51,200 Projected 89,900

3. Hydraulic Data: Base Flood Q_{100} = 168,000 CFS
 WSE_{100} = n/a The flood of record, if greater than Q_{100} :
 Q = n/a CFS WSE = n/a
Overtopping flood Q = 184,000 CFS WSE = _____
Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?
YES X NO _____

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 <u>X</u>	YES _____
B. Other Bldgs?	NO <u>X</u>	YES _____
C. Crops?	NO <u>X</u>	YES _____
D. Natural and beneficial Floodplain values?	NO <u>X</u>	YES _____

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO _____	YES _____
B. Emergency vehicle access?	NO _____	YES _____
C. Practicable detour available?	NO _____	YES _____
D. School bus or mail route?	NO _____	YES _____

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 10.59
EA 249900 Bridge No. 53 0817
Floodplain Description: Compton Creek

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

New Freight Corridor; New NB 710 to NB FC Connector; Replaced 710
Mainline; New SB FC to SB 710 Connector

2. ADT: Current 175,000 Projected 237,000

3. Hydraulic Data: Base Flood Q₁₀₀= 13,000 CFS
WSE₁₀₀= n/a The flood of record, if greater than Q₁₀₀:
Q= n/a CFS WSE= n/a
Overtopping flood Q= 21,700 CFS WSE= n/a
Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?
YES X NO _____

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

Potential Q₁₀₀ backwater damages:

A. Residences? NO X YES _____
B. Other Bldgs? NO X YES _____
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 _____
B. Emergency vehicle access? NO _____ YES _____
C. Practicable detour available? NO _____ YES _____
D. School bus or mail route? NO _____ YES _____

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 10.82
EA 249900 Bridge No. 53C0647
Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Del Amo Boulevard Bridge Widening

2. ADT: Current 31,300 Projected 37,600

3. Hydraulic Data: Base Flood Q_{100} = 158,000 CFS
WSE₁₀₀ = n/a The flood of record, if greater than Q_{100} :
Q = n/a CFS WSE = n/a
Overtopping flood Q = 184,000 CFS WSE = n/a
Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?
YES X NO _____

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 <u>X</u>	YES _____
B. Other Bldgs?	NO <u>X</u>	YES _____
C. Crops?	NO <u>X</u>	YES _____
D. Natural and beneficial Floodplain values?	NO <u>X</u>	YES _____

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO _____	YES <u>X</u>
B. Emergency vehicle access?	NO _____	YES <u>X</u>
C. Practicable detour available?	NO _____	YES <u>X</u>
D. School bus or mail route?	NO _____	YES <u>X</u>

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 12.01
EA 249900 Bridge No. 53C0020
Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Long Beach Boulevard Bridge Widening

2. ADT: Current 28,800 Projected 31,900

3. Hydraulic Data: Base Flood Q_{100} = 158,000 CFS
WSE₁₀₀ = n/a The flood of record, if greater than Q_{100} :
 Q = n/a CFS WSE = n/a
Overtopping flood Q = 184,000 CFS WSE = n/a
Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?
YES X NO _____

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 <u>X</u>	YES _____
B. Other Bldgs?	NO <u>X</u>	YES _____
C. Crops?	NO <u>X</u>	YES _____
D. Natural and beneficial Floodplain values?	NO <u>X</u>	YES _____

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO _____	YES <u>X</u>
B. Emergency vehicle access?	NO _____	YES <u>X</u>
C. Practicable detour available?	NO _____	YES <u>X</u>
D. School bus or mail route?	NO _____	YES <u>X</u>

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 12.97

EA 249900 Bridge No. n/a

Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

New NB FC to EB 91 Conn; New WB 91 to SB FC Conn

2. ADT: Current n/a Projected 8,900

3. Hydraulic Data: Base Flood Q₁₀₀=158,000 CFS

WSE₁₀₀= n/a The flood of record, if greater than Q₁₀₀:

Q= n/a CFS WSE= n/a

Overtopping flood Q= 184,000 CFS WSE= n/a

Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?

YES X NO _____

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

Potential Q₁₀₀ backwater damages:

- A. Residences? NO X YES _____
- B. Other Bldgs? NO X YES _____
- 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 X YES _____
- B. Emergency vehicle access? NO X YES _____
- C. Practicable detour available? NO X YES _____
- D. School bus or mail route? NO X YES _____

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 13.95
EA 249900 Bridge No. 53C0031
Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Replace Alondra Boulevard Bridge

2. ADT: Current 25,200 Projected 38,300

3. Hydraulic Data: Base Flood Q_{100} = 158,000 CFS
WSE₁₀₀ = n/a The flood of record, if greater than Q_{100} :
 Q = n/a CFS WSE = n/a
Overtopping flood Q = 184,000 CFS WSE = n/a
Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?
YES X NO _____

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 X YES _____
B. Other Bldgs? NO X YES _____
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: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 16.99
EA 249900 Bridge No. 53C0042
Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Imperial Highway Bridge Widening

2. ADT: Current 53,400 Projected 59,500

3. Hydraulic Data: Base Flood Q_{100} = 158,000 CFS
WSE₁₀₀ = n/a The flood of record, if greater than Q_{100} :
 Q = n/a CFS WSE = n/a
Overtopping flood Q = 184,000 CFS WSE = 26.21
Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?
YES X NO _____

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 <u>X</u>	YES _____
B. Other Bldgs?	NO <u>X</u>	YES _____
C. Crops?	NO <u>X</u>	YES _____
D. Natural and beneficial Floodplain values?	NO <u>X</u>	YES _____

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO _____	YES <u>X</u>
B. Emergency vehicle access?	NO _____	YES <u>X</u>
C. Practicable detour available?	NO _____	YES <u>X</u>
D. School bus or mail route?	NO _____	YES <u>X</u>

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 17.34
EA 249900 Bridge No. 53-0828
Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Replace existing I-710 Mainline Bridge Structure

2. ADT: Current 175,000 Projected 237,000

3. Hydraulic Data: Base Flood Q_{100} = 109,000 CFS
 WSE_{100} = n/a The flood of record, if greater than Q_{100} :
 Q = n/a CFS WSE = n/a
Overtopping flood Q = 140,000 CFS WSE = 26.80
Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?
YES X NO _____

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 <u>X</u>	YES _____
B. Other Bldgs?	NO <u>X</u>	YES _____
C. Crops?	NO <u>X</u>	YES _____
D. Natural and beneficial Floodplain values?	NO <u>X</u>	YES _____

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO _____	YES _____
B. Emergency vehicle access?	NO _____	YES _____
C. Practicable detour available?	NO _____	YES _____
D. School bus or mail route?	NO <u>X</u>	YES _____

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. n/a
EA 249900 Bridge No. 53C0649
Floodplain Description: Rio Hondo River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Garfield Avenue Bridge Widening

2. ADT: Current 20,700 Projected 19,900

3. Hydraulic Data: Base Flood Q_{100} = 49,800 CFS
 WSE_{100} = n/a The flood of record, if greater than Q_{100} :
 Q = n/a CFS WSE = n/a
Overtopping flood Q = 52,900 CFS WSE = 23.67
Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?
YES X NO _____

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 <u>X</u>	YES _____
B. Other Bldgs?	NO <u>X</u>	YES _____
C. Crops?	NO <u>X</u>	YES _____
D. Natural and beneficial Floodplain values?	NO <u>X</u>	YES _____

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO _____	YES <u>X</u>
B. Emergency vehicle access?	NO _____	YES <u>X</u>
C. Practicable detour available?	NO _____	YES <u>X</u>
D. School bus or mail route?	NO _____	YES <u>X</u>

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 18.10
EA 249900 Bridge No. n/a
Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

New Southern Avenue Bridge

2. ADT: Current n/a Projected 24,000

3. Hydraulic Data: Base Flood Q_{100} = 109,000 CFS
WSE₁₀₀ = n/a The flood of record, if greater than Q_{100} :
 Q = n/a CFS WSE = n/a
Overtopping flood Q = 140,000 CFS WSE = n/a
Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?
YES X NO _____

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 <u>X</u>	YES _____
B. Other Bldgs?	NO <u>X</u>	YES _____
C. Crops?	NO <u>X</u>	YES _____
D. Natural and beneficial Floodplain values?	NO <u>X</u>	YES _____

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO <u>X</u>	YES _____
B. Emergency vehicle access?	NO <u>X</u>	YES _____
C. Practicable detour available?	NO _____	YES <u>X</u>
D. School bus or mail route?	NO <u>X</u>	YES _____

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 18.44
EA 249900 Bridge No. 53C1972
Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Widening of Firestone Boulevard Bridge

2. ADT: Current 85,600 Projected 88,200

3. Hydraulic Data: Base Flood Q_{100} = 109,000 CFS
WSE₁₀₀ = n/a The flood of record, if greater than Q_{100} :
Q = n/a CFS WSE = n/a
Overtopping flood Q = 140,000 CFS WSE = n/a
Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?
YES X NO _____

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 <u>X</u>	YES _____
B. Other Bldgs?	NO <u>X</u>	YES _____
C. Crops?	NO <u>X</u>	YES _____
D. Natural and beneficial Floodplain values?	NO <u>X</u>	YES _____

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO _____	YES <u>X</u>
B. Emergency vehicle access?	NO _____	YES <u>X</u>
C. Practicable detour available?	NO _____	YES <u>X</u>
D. School bus or mail route?	NO _____	YES <u>X</u>

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 17.5 to 20.5

EA 249900 Bridge No. NA

Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Construct New DWP Structures in the existing Los Angeles River channel

2. ADT: Current 85,600 Projected 88,200

3. Hydraulic Data: Base Flood Q_{100} 109,000 CFS

WSE_{100} = Varies The flood of record, if greater than Q_{100} :

Q = Varies CFS WSE = Varies

Overtopping flood Q = 140,000 CFS WSE = n/a

Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?

YES X NO _____

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 X YES _____

B. Other Bldgs? NO X YES _____

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 X YES _____

B. Emergency vehicle access? NO X YES _____

C. Practicable detour available? NO X YES _____

D. School bus or mail route? NO X YES _____

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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 _____ YES X

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

Alternatives to floodway longitudinal encroachment that were evaluated as a part of the project development included consolidating the existing power lines on a more compact structure along the easterly levee and undergrounding existing power transmission lines. Moving the freeway improvements easterly was not considered due to the resulting impacts to the existing residential housing.

- The use of consolidated structures to support the existing overhead circuits was rejected by the utility owner, the Los Angeles Department of Water and Power, due to insufficient lateral and vertical clearance between the relocated circuits and the planned freeway improvements for Project Alternative 6A.
- Undergrounding the existing power transmission lines was also rejected due to the presence of groundwater in the existing soils.

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 18.74
EA 249900 Bridge No. n/a
Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Replaced UPRR Bridge north of Firestone Boulevard

2. ADT: Current n/a Projected n/a

3. Hydraulic Data: Base Flood Q_{100} =109,000 CFS
WSE₁₀₀= n/a The flood of record, if greater than Q_{100} :
 Q = n/a CFS WSE= n/a
Overtopping flood Q = 140,000 CFS WSE= n/a
Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?
YES X NO _____

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 X YES _____
B. Other Bldgs? NO X YES _____
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 X YES _____

B. Emergency vehicle access? NO X YES _____

C. Practicable detour available? NO X YES _____

D. School bus or mail route? NO X YES _____

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A. Roadway \$ 0

B. Property \$ 0

Total \$ 0

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 19.24
EA 249900 Bridge No. n/a
Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Replaced Clara Street Bridge

2. ADT: Current n/a Projected n/a

3. Hydraulic Data: Base Flood $Q_{100} = 109,000$ CFS
WSE₁₀₀ = n/a The flood of record, if greater than Q_{100} :
 $Q = n/a$ CFS WSE = n/a
Overtopping flood $Q = 140,000$ CFS WSE = n/a
Are NFIP maps and studies available? YES X NO _____

4. Is the highway location alternative within a regulatory floodway?
YES X NO _____

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 X YES _____
B. Other Bldgs? NO X YES _____
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 X YES _____

B. Emergency vehicle access? NO X YES _____

C. Practicable detour available? NO X YES _____

D. School bus or mail route? NO X YES _____

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A. Roadway \$ 0

B. Property \$ 0

Total \$ 0

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 19.73
EA 249900 Bridge No. 53C0071
Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Replaced Florence Avenue Bridge

2. ADT: Current 28,600 Projected 29,500

3. Hydraulic Data: Base Flood Q_{100} 109,000 CFS
WSE₁₀₀ = n/a The flood of record, if greater than Q_{100} :
Q = n/a CFS WSE = n/a
Overtopping flood Q = 140,000 CFS 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 <u>X</u>	YES <u> </u>
B. Other Bldgs?	NO <u>X</u>	YES <u> </u>
C. Crops?	NO <u>X</u>	YES <u> </u>
D. Natural and beneficial Floodplain values?	NO <u>X</u>	YES <u> </u>

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO <u> </u>	YES <u>X</u>
B. Emergency vehicle access?	NO <u> </u>	YES <u>X</u>
C. Practicable detour available?	NO <u> </u>	YES <u>X</u>
D. School bus or mail route?	NO <u> </u>	YES <u>X</u>

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 20.51
EA 249900 Bridge No. n/a
Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Replaced UPRR Bridge at Randolph Boulevard

2. ADT: Current n/a Projected n/a

3. Hydraulic Data: Base Flood Q_{100} = 109,000 CFS
WSE₁₀₀ = n/a The flood of record, if greater than Q_{100} :
 Q = n/a CFS WSE = n/a
Overtopping flood Q = 140,000 CFS 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 <u>X</u>	YES <u> </u>
B. Other Bldgs?	NO <u>X</u>	YES <u> </u>
C. Crops?	NO <u>X</u>	YES <u> </u>
D. Natural and beneficial Floodplain values?	NO <u>X</u>	YES <u> </u>

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO <u>X</u>	YES <u> </u>
B. Emergency vehicle access?	NO <u>X</u>	YES <u> </u>
C. Practicable detour available?	NO <u>X</u>	YES <u> </u>
D. School bus or mail route?	NO <u>X</u>	YES <u> </u>

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual

LOCATION HYDRAULIC STUDY FORM *

Dist. 07 Co. LA Rte. 710 P.M. 21.03
EA 249900 Bridge No. 53C0445
Floodplain Description: Los Angeles River

1. Description of Proposal (include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)

Replace Slauson Avenue Bridge

2. ADT: Current 24,200 Projected 37,300

3. Hydraulic Data: Base Flood Q_{100} = 109,000 CFS
WSE₁₀₀ = n/a The flood of record, if greater than Q_{100} :
Q = n/a CFS WSE = n/a
Overtopping flood Q = 140,000 CFS 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 <u>X</u>	YES _____
B. Other Bldgs?	NO <u>X</u>	YES _____
C. Crops?	NO <u>X</u>	YES _____
D. Natural and beneficial Floodplain values?	NO <u>X</u>	YES _____

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO _____	YES <u>X</u>
B. Emergency vehicle access?	NO _____	YES <u>X</u>
C. Practicable detour available?	NO _____	YES <u>X</u>
D. School bus or mail route?	NO _____	YES <u>X</u>

7. Estimated duration of traffic interruption for 100-year event hours: 0

8. Estimated value of Q₁₀₀ flood damages (if any) – moderate risk level.

A.	Roadway	\$	<u>0</u>
B	Property	\$	<u>0</u>
	Total	\$	<u>0</u>

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)

* Same as Figure 804.7A Technical Information for Location Hydraulic Study located in Chapter 804 of the Highway Design Manual