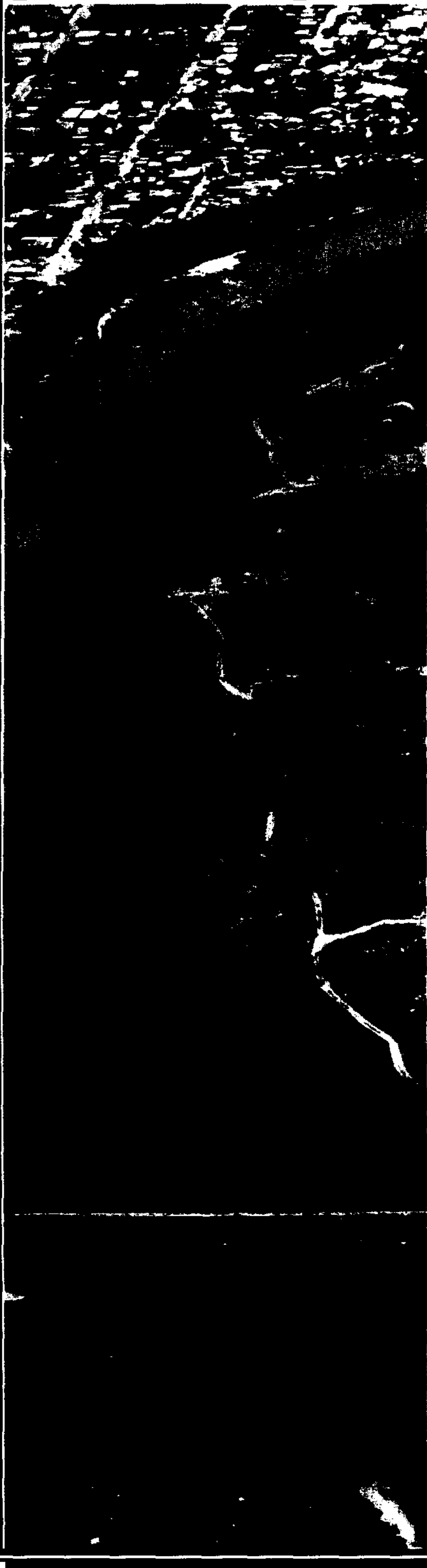

City of Laredo and Webb County, Texas

CHACON CREEK WATERSHED

Flood Insurance Study Update
Volume 2 of 2
November 1999

Prepared For:
City of Laredo
Webb County
Webb County Drainage District No. 1
The Texas Water Development Board

Brown & Root

TOBIN

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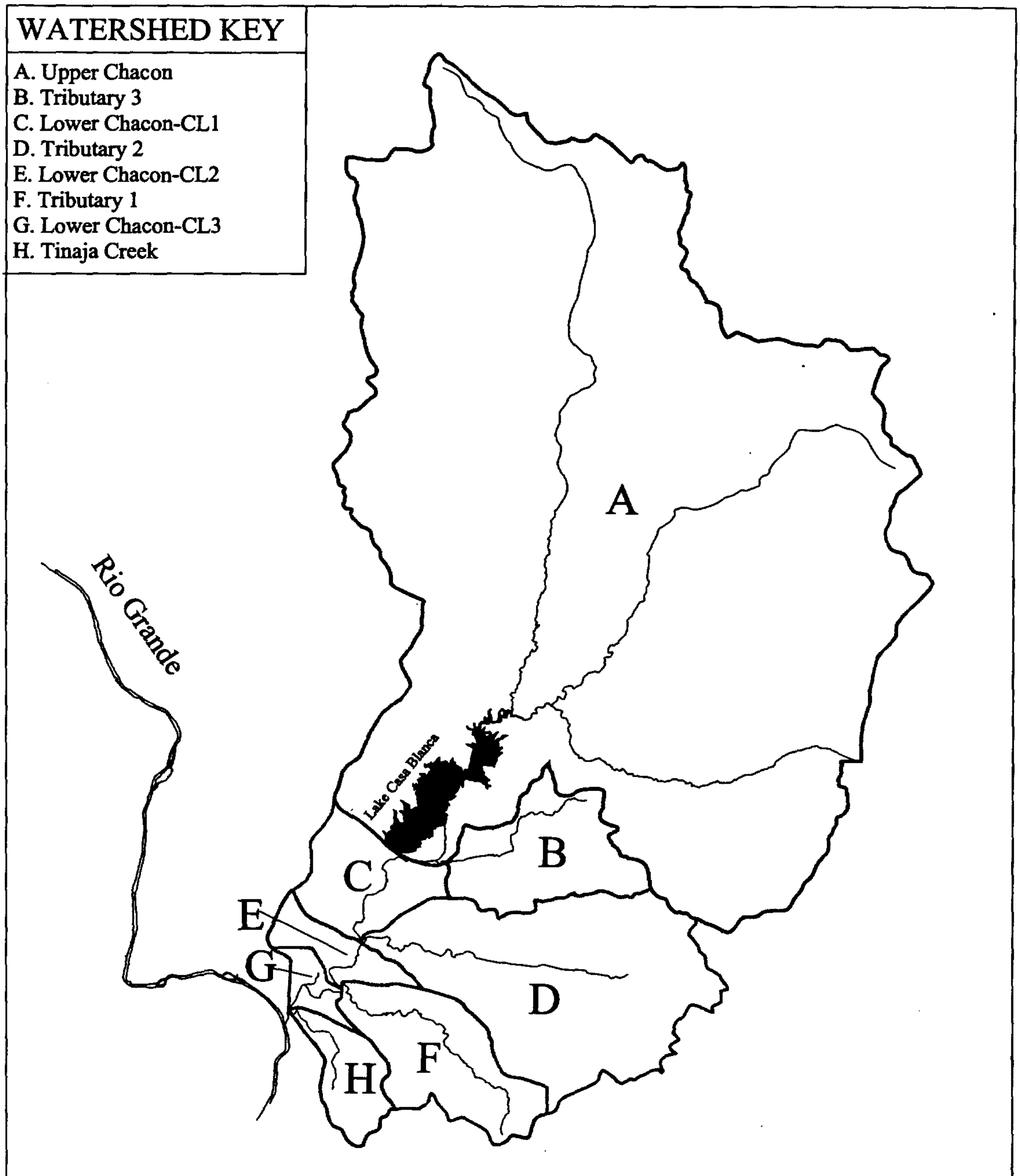
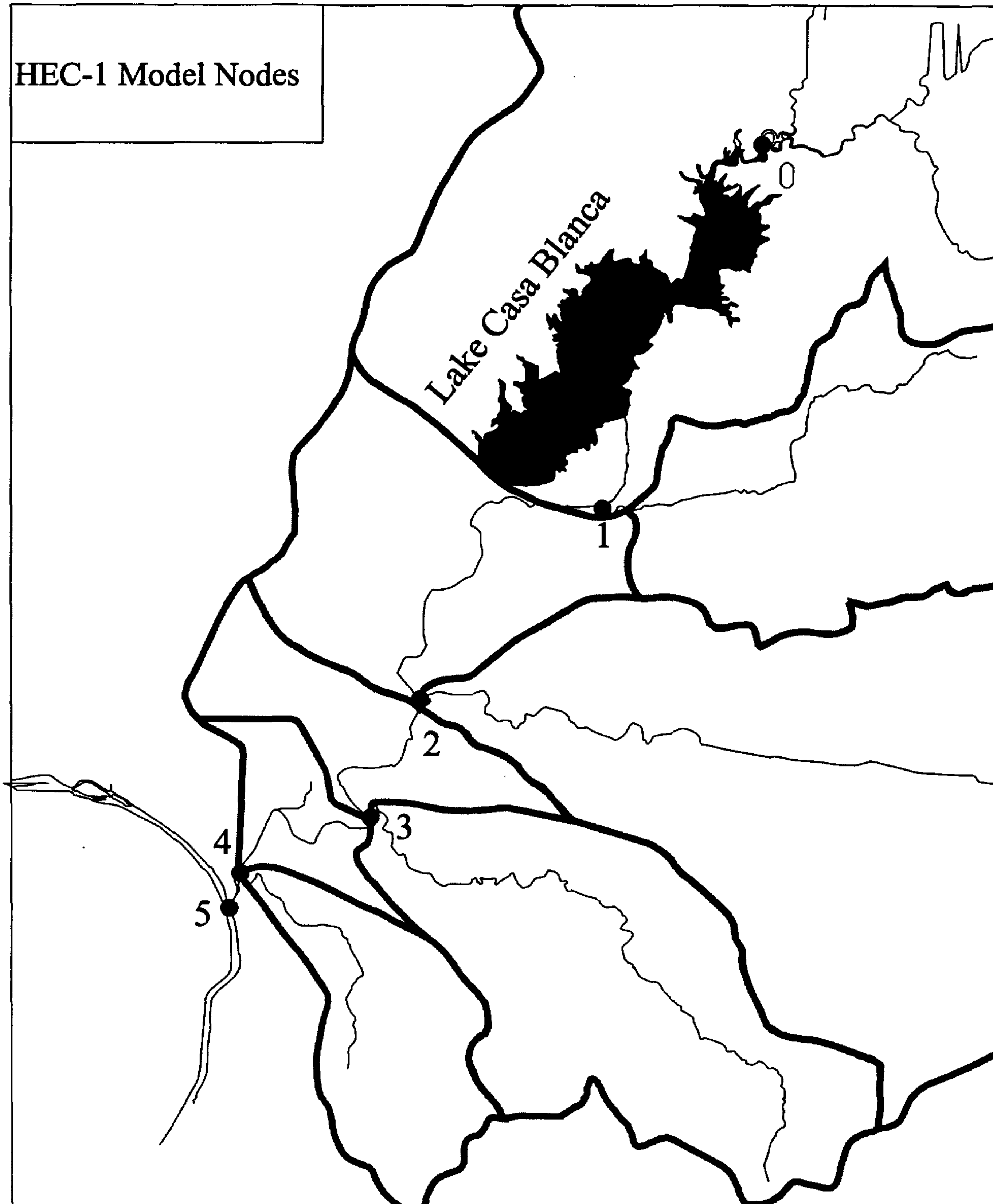
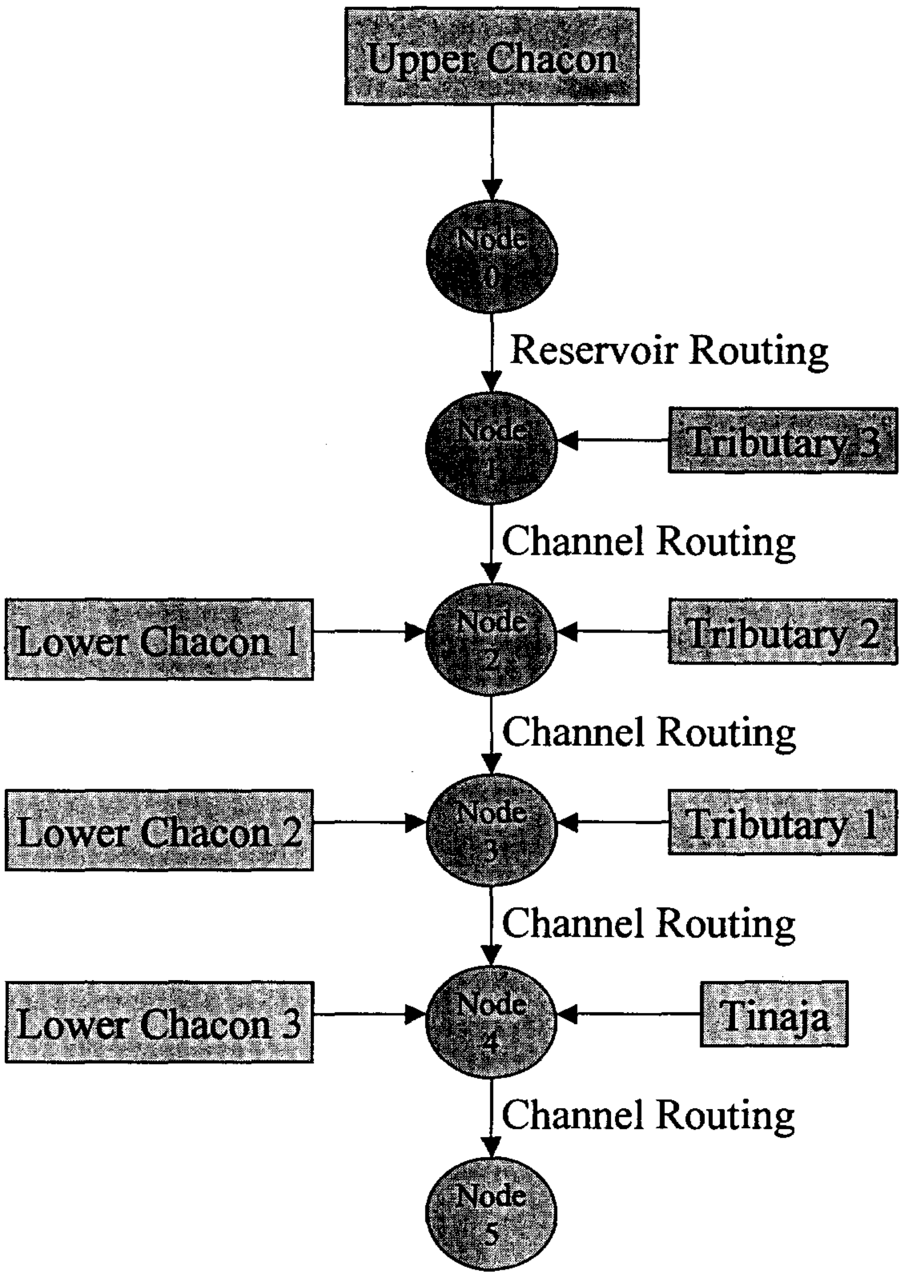


Chacon Flood Insurance Study	FIGURE 1	Brown & Root 12/1/98



Chacon Flood Insurance Study	FIGURE 2	Brown & Root 12/1/98

HEC-1 SCHEMATIC
for the Chacon Creek Watershed

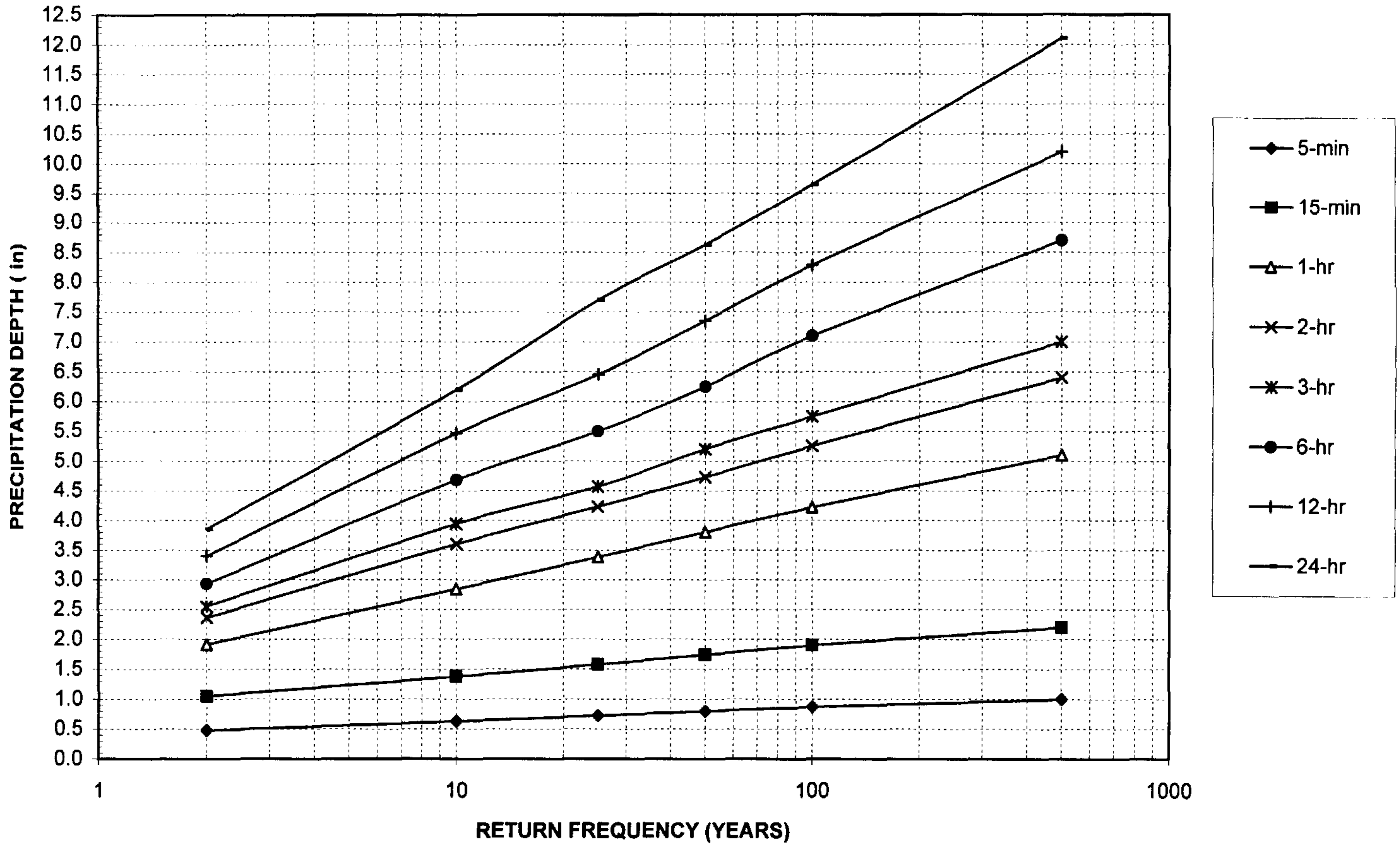


Confluence with Rio Grande

11/30/99

Figure 3

FIGURE 4: RAINFALL FREQUENCY CURVES



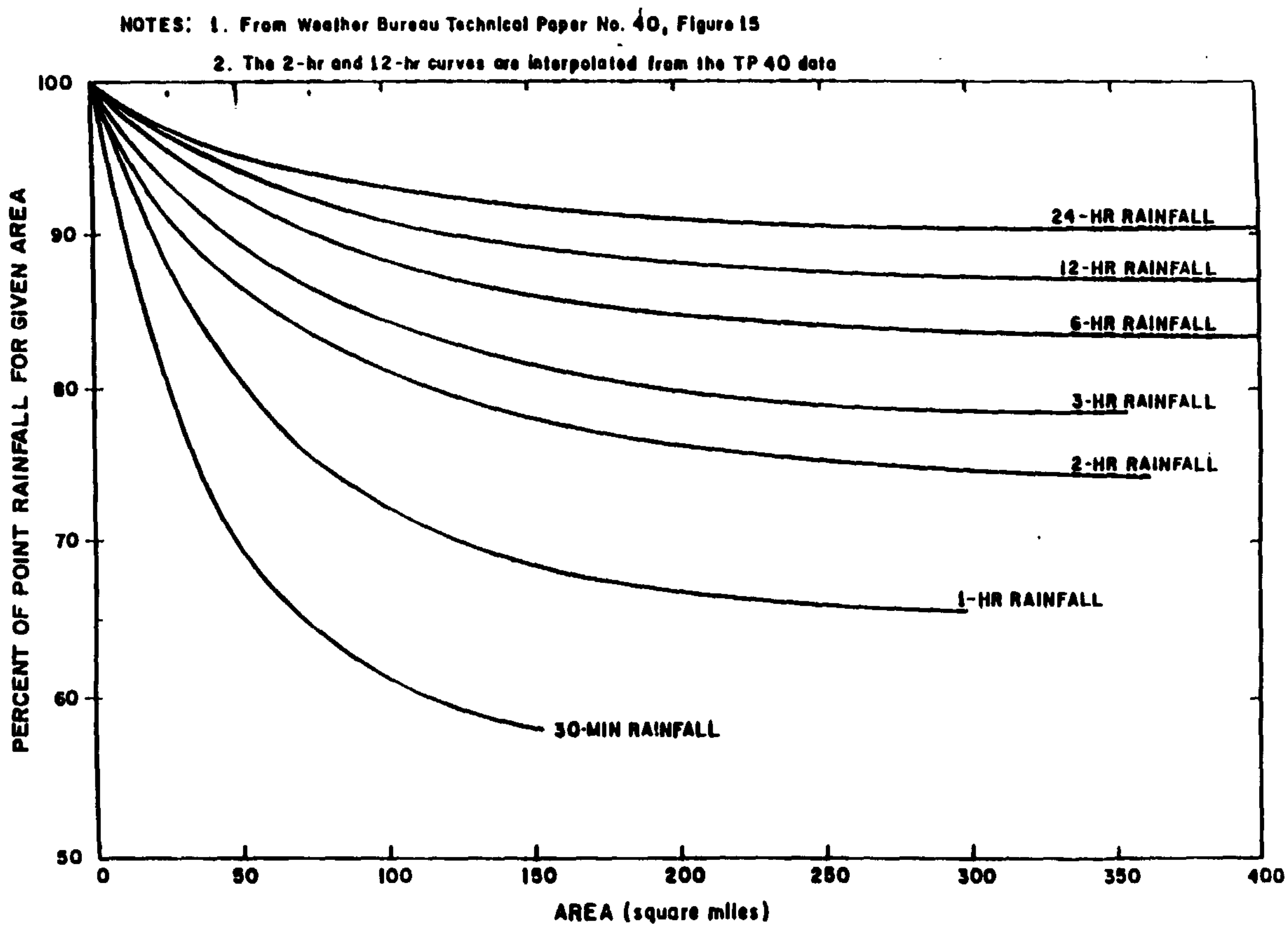
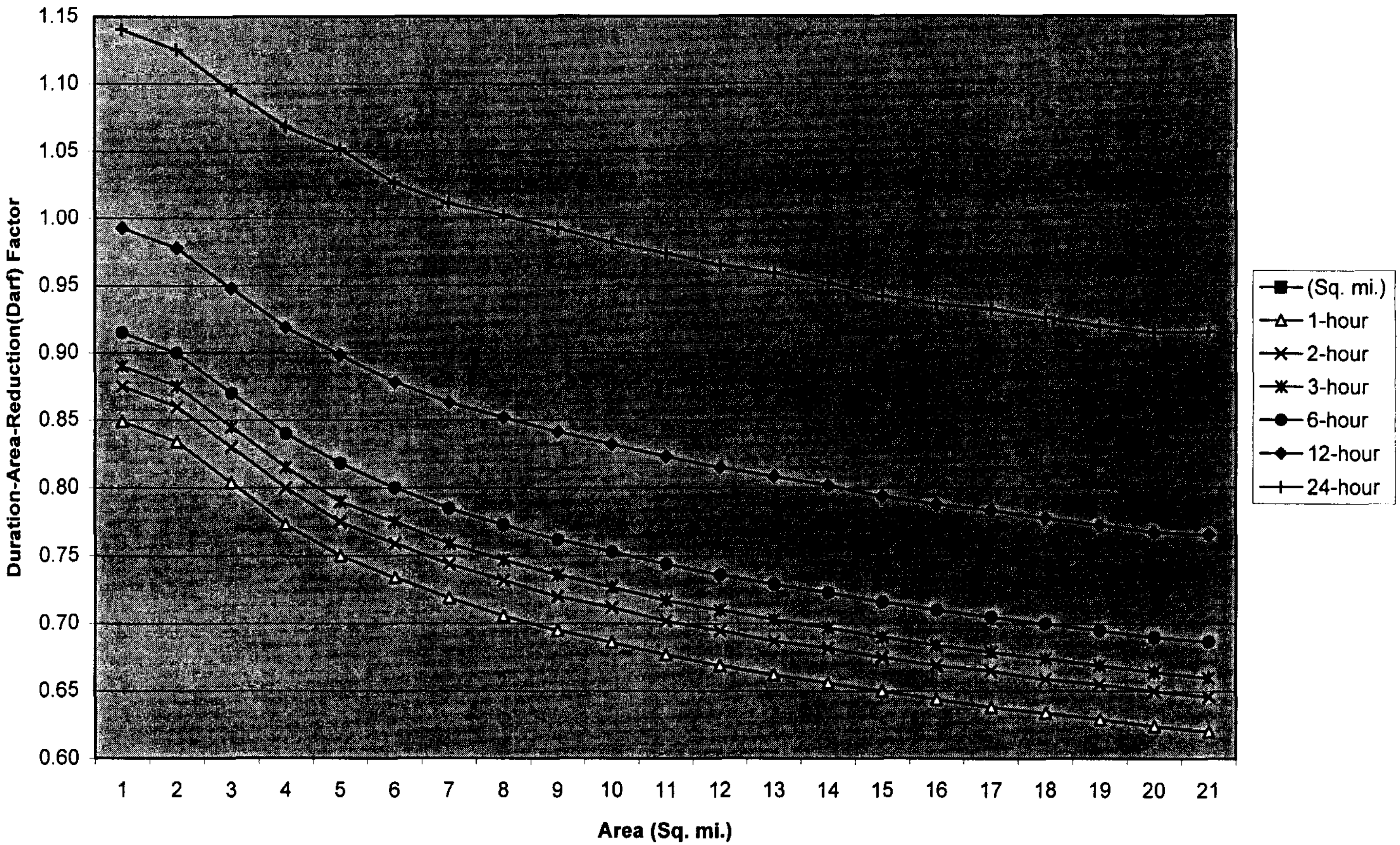


FIGURE 5: DEPTH AREA CURVES FOR ADJUSTING POINT RAINFALLS

FIGURE 6: DEPTH AREA REDUCTION FACTOR FOR ADJUSTING POINT RAINFALL



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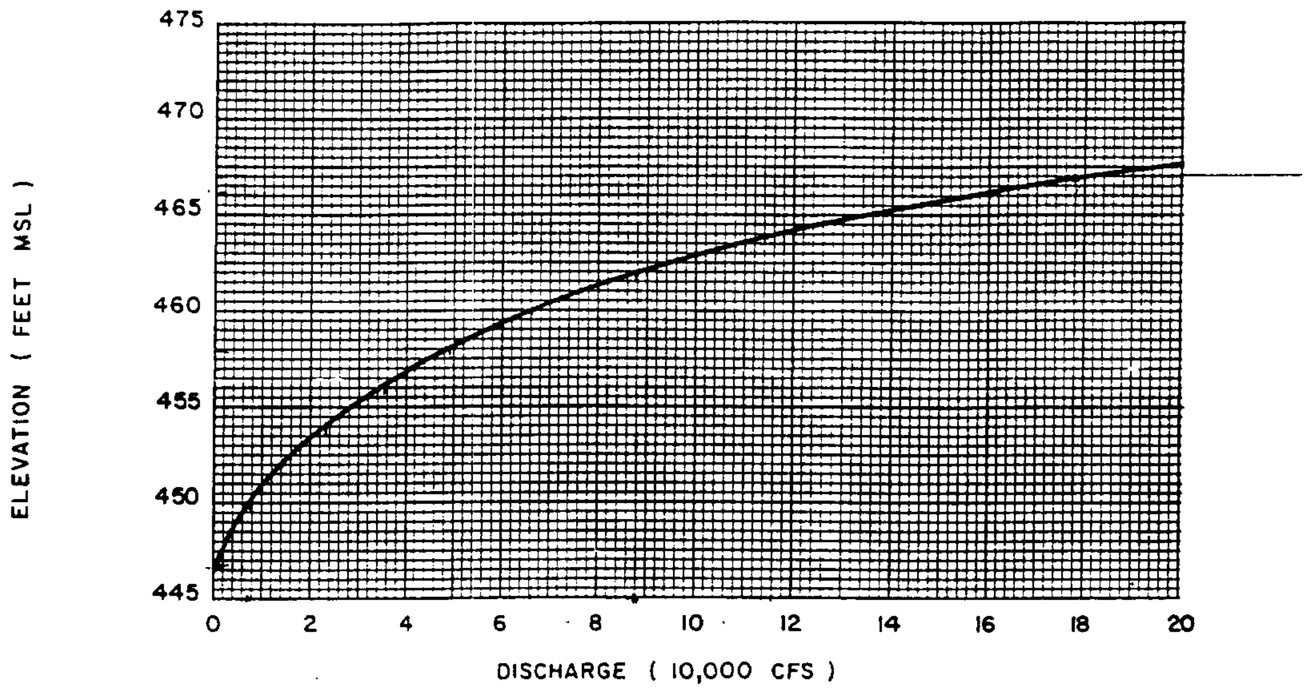

<u>SOURCE:</u>

CASA BLANCA DAM PHASE 1 INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
U.S. ARMY CORPS OF ENGINEERS
FORT WORTH, TEXAS - JUNE 1978

FIGURE 1

SPILLWAY DISCHARGE RATING

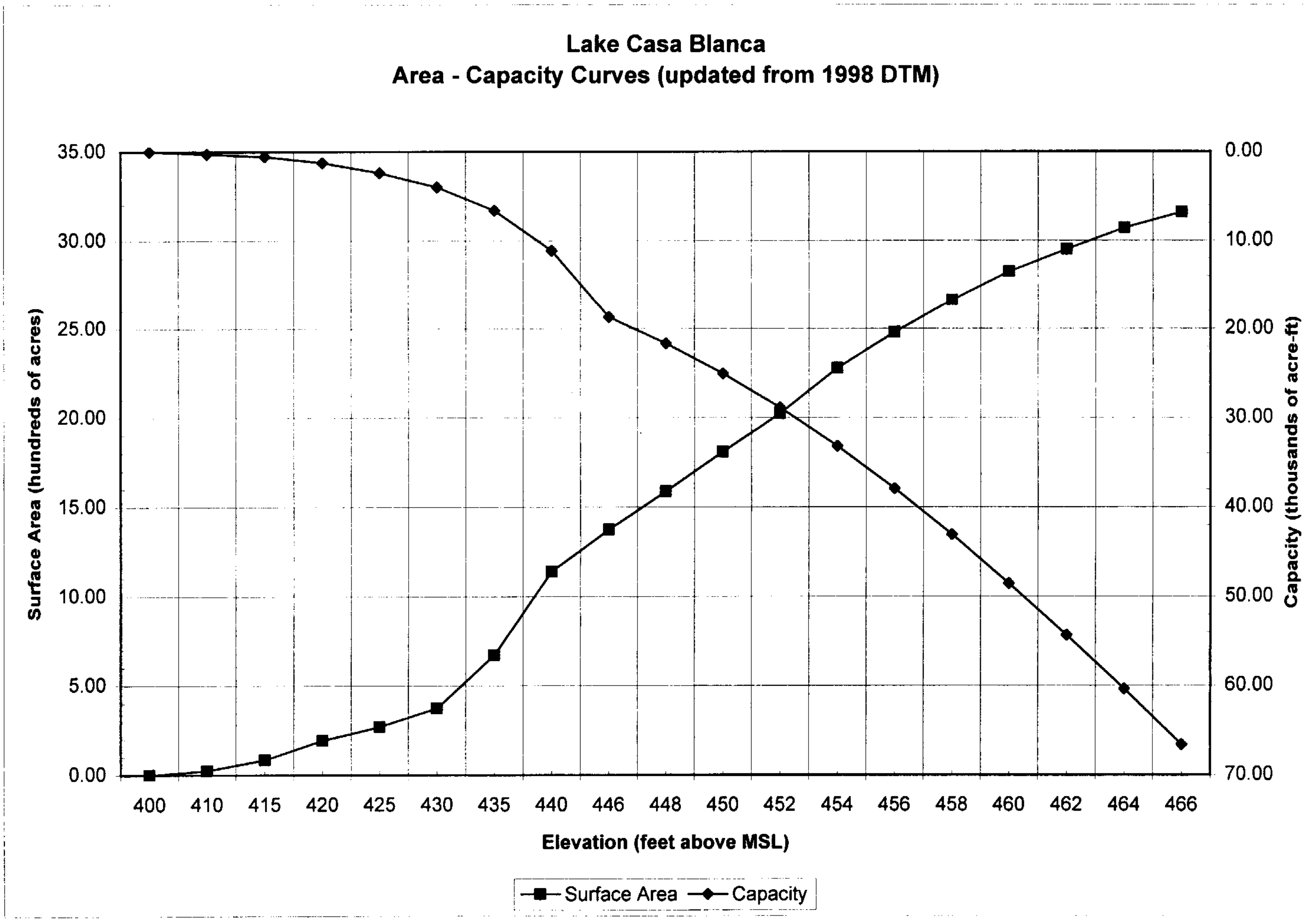
Lake Casa Blanca
Area - Capacity Curves (updated from 1998 DTM)
Surface Area (hundreds of acres)
Capacity (thousands of acre-ft)
Elevation (feet above MSL)
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
400
410
415
420
425
430
435
440
446
448
450
452
454
456
458
460
462
464
466
Surface Area
Capacity

FIGURE 2

TABLES

TABLE 1

PRECIPITATION PATTERN FOR THE UPPER CHACON SUBBASIN

6 HOUR RAINFALL

Return Frequency (yrs)	Total Precipitation (in)	Precipitation Percentages						Total
		8	15	47	13	9	8	100
		0.080	0.150	0.470	0.130	0.090	0.080	1.000
10	3.45	0.28	0.52	1.62	0.45	0.31	0.28	3.45
25	4.04	0.32	0.61	1.90	0.53	0.36	0.32	4.04
50	4.59	0.37	0.69	2.16	0.60	0.41	0.37	4.59
100	5.25	0.42	0.79	2.47	0.68	0.47	0.42	5.25
500	6.39	0.51	0.96	3.00	0.83	0.58	0.51	6.39

TABLE 2

HEC-1 PARAMETERS FOR UPPER CHACON SUB-BASIN (EXISTING CONDITION)

RETURN PERIOD	AREA	AREA SQ. MILES	L (miles)	Lc (miles)	Areal Correction	Rainfall TP-40	Correct. Rainfall	CN	S	Ia	Q	F	F / # Periods	Tp	Cp
10	Upper Chacon	117.000	19.6	8.4	0.734	4.70	3.45	79	2.66	0.53	1.53	1.39	0.232	7.78	0.80
25	Upper Chacon	117.000	19.6	8.4	0.734	5.50	4.04	79	2.66	0.53	1.99	1.51	0.252	7.78	0.80
50	Upper Chacon	117.000	19.6	8.4	0.734	6.25	4.59	79	2.66	0.53	2.45	1.61	0.268	7.78	0.80
100	Upper Chacon	117.000	19.6	8.4	0.734	7.15	5.25	79	2.66	0.53	3.02	1.70	0.283	7.78	0.80
500	Upper Chacon	117.000	19.6	8.4	0.734	8.70	6.39	79	2.66	0.53	4.03	1.83	0.305	7.78	0.80

HEC-1 PARAMETERS FOR UPPER CHACON SUB-BASIN (FUTURE CONDITION)

RETURN PERIOD	AREA	AREA SQ. MILES	L (miles)	Lc (miles)	Areal Correction	Rainfall TP-40	Correct. Rainfall	CN	S	Ia	Q	F	F / # Periods	Tp	Cp
10	Upper Chacon	117.000	19.6	8.4	0.734	4.70	3.45	82	2.20	0.44	1.74	1.27	0.212	7.29	0.80
25	Upper Chacon	117.000	19.6	8.4	0.734	5.50	4.04	82	2.20	0.44	2.23	1.36	0.227	7.29	0.80
50	Upper Chacon	117.000	19.6	8.4	0.734	6.25	4.59	82	2.20	0.44	2.71	1.44	0.239	7.29	0.80
100	Upper Chacon	117.000	19.6	8.4	0.734	7.15	5.25	82	2.20	0.44	3.30	1.51	0.251	7.29	0.80
500	Upper Chacon	117.000	19.6	8.4	0.734	8.70	6.39	82	2.20	0.44	4.34	1.60	0.267	7.29	0.80

TABLE 3

Chacon Creek - Channel Routing Parameters for HEC-1 Model

U/S cross section	D/S cross section	Flow (cfs)	Vol (ac-ft) U/S	Vol (ac-ft) D/S	Storage (ac-ft)	Travel Time (hrs)
			Node 4 to Node 5			
650	0	4000	12	0	12	0.03
650	0	8000	16	0	16	0.03
650	0	12000	22	0	22	0.03
650	0	16000	27	0	27	0.03
650	0	20000	31	0	31	0.03
650	0	24000	36	0	36	0.03
650	0	28000	40	0	40	0.03
650	0	32000	44	0	44	0.02
					Average	**0.03**
No. of routing steps = Travel Time/Computational interval =					**0.3**	**Use 1**
			Node 3 to Node 4			
9459	650	4000	294	12	282	0.90
9459	650	8000	501	16	485	0.77
9459	650	12000	678	22	656	0.69
9459	650	16000	837	27	810	0.63
9459	650	20000	989	31	958	0.60
9459	650	24000	1132	36	1096	0.57
9459	650	28000	1275	40	1235	0.55
9459	650	32000	1417	44	1373	0.55
					Average	**0.66**
No. of routing steps = Travel Time/Computational interval =					**7.9**	**Used 7**
			Node 2 to Node 3			
17049	9459	4000	575	294	281	0.85
17049	9459	8000	1012	501	511	
17049	9459	12000	1413	678	735	0.70
17049	9459	16000	1786	837	949	0.67
17049	9459	20000	2166	989	1177	0.64
17049	9459	24000	2553	1132	1421	0.64
17049	9459	28000	2948	1275	1673	0.64
17049	9459	32000	3352	1417	1935	0.65
					Average	**0.68**
No. of routing steps = Travel Time/Computational interval =					**8.1**	**Used 7**
			Node 1 to Node 2			
31948	17049	4000	1039	575	464	1.42
31948	17049	8000	1825	1012	813	1.23
31948	17049	12000	2616	1413	1203	1.20
31948	17049	16000	3442	1786	1656	1.22
31948	17049	20000	4462	2166	2296	1.35
31948	17049	24000	6308	2553	3755	1.72
31948	17049	28000	7597	2948	4649	1.82
31948	17049	32000	8895	3352	5543	1.89
					Average	**1.48**
No. of routing steps = Travel Time/Computational interval =					**17.6**	**Used 15**

TABLE 4

LAKE CASA BLANCA

SURFACE AREA AND STORAGE STATISTICS

1978 Data

Elevation (ft)	Surface Area (100 acres)	Capacity (1000 acre-ft)
400	0.00	0.00
410	0.25	0.25
415	0.85	0.56
420	1.94	1.19
425	2.70	2.35
430	3.74	3.90
435	6.72	6.40
440	11.00	10.08
445	15.30	17.30
450	19.80	26.30
455	25.65	37.66
460	31.63	51.98
465	38.40	69.49
470	45.07	90.36

1998 Data (updated from DTM)

Elevation (ft)	Surface Area (100 acres)	Capacity (1000 acre-ft)
400	0.00	0.00
410	0.25	0.25
415	0.85	0.53
420	1.94	1.22
425	2.70	2.38
430	3.74	3.99
435	6.72	6.61
440	11.41	11.14
446	13.74	18.69
448	15.88	21.65
450	18.10	25.05
452	20.23	28.88
454	22.78	33.18
456	24.80	37.94
458	26.64	43.08
460	28.24	48.57
462	29.51	54.35
464	30.72	60.37
466	31.60	66.60

STORAGE V'S DISCHARGE RELATIONSHIP (update based on 1998 DTM)

Elevation (ft)	Storage (Ac-ft)	Discharge (cfs)
446	18,690	0
448	21,650	1,000
450	25,050	7,000
452	28,880	14,000
454	33,180	23,000
456	37,940	35,000
458	43,080	49,000
460	48,570	66,000
462	54,350	88,000
464	60,370	114,000
466	66,600	152,000

COMBINED HEC-1 MODEL FOR THE ENTIRE WATERSHED

(Existing Condition)

```
*FREE*
ID CHACON CREEK WATERSHED                LAREDO,  TEXAS          EXISTING
ID FLOOD   FLOOD  INSURACE STUDY                  SEPT 16, 1998
ID    10      10 YRS  RETURN  PERIOD,  6-HR DURATION STORM WITH 60-MIN INTERVAL
IT     5 16SEP98    0300     240
IO     0       2
*  Upper Chacon Sub-basin
KK    CU
KM D.A. OF CU + SY + TC + LC HYD
BA 116.9
BF     0       0       1
PB  3.45
PI   .28     .52    1.62     .45     .31     .28
LU  0.53    .232
US  7.78    0.80
*  Reservoir Routing Parameters were updated based on the 1998 "DTM"
KK NODE1 ROUTED    NODE0
RS     1    STOR      -1
SV 18690   21650   25050   28880   33180   37940   43080   48570   54350   60370
SQ     0    1000    7000   14000   23000   35000   49000   66000   88000  114000
SE   446     448     450     452     454     456     458     460     462     464
*  Tributary 3
KK   T3A
KM   SUB   OF T3
BA 0.960
BF     0       0       1
PB  4.32
IN    60
PI  0.35    0.65    2.03    0.56    0.39    0.35
LU  0.53    0.26
US  1.23    0.80
KK  T3B,  ROUTED     T3A
RS    10    STOR      -1
SV    31      57      78      96     112     127     142     155     168
SQ   300     600     900    1200    1500    1800    2100    2400    2700
KK  T3C1
KM   SUB   OF T3
BA  1.22
LU  0.53    0.26
US  1.38    0.80
KK  T3B,  ROUTED    T3C1
RS    10    STOR      -1
SV    38      58      73      90     104     117     130     141
SQ   300     600     900    1200    1500    1800    2100    2400
KK  T3B, COMBINE
HC     2
KK   T3B
KM   SUB   OF T3
BA  1.01
LU  0.53    0.26
US  1.16    0.80
KK  T3B, COMBINE
HC     2
KK  T3C2
KM   SUB   OF T3
BA  0.67
LU  0.53    0.26
```

```
US  1.28     0.80
KK  T3B,  COMBINE
HC      2
KK NODE1   ROUTED      T3B
RS     10     STOR      -1
SV     53       89     119      149      177      202      227      254      277      300
SQ    500     1000    1500     2000     2500     3000     3500     4000     4500     5000
KK    T3D
KM    SUB    OF T3
BA  2.10
LU  0.44    0.234
US  1.43     0.80
KK NODE1, COMBINE
HC      2
KK NODE1, COMBINE
HC      2
*  Channel routing from node 1 to node 2
KK NODE2  ROUTED    NODE1
RS     15     STOR      -1
SV    464      813    1203     1656     2296     3755     4649     5543
SQ   4000     8000   12000    16000    20000    24000    28000    32000
*  Area CL1
KK    CL1
KM  D.A.  CL1 HYD
BA  4.06
PB  4.38
IN     60
PI   .35      .66    2.06      .57      .39      .35
LU  0.47     .244
US  1.95     0.80
KK NODE1 COMBINE
HC      2
*  Tributary 2
KK  T2AB
BA  1.37
BF      0        0       1
PB  4.14
IN     60
PI  0.33     0.62    1.95     0.54     0.37     0.33
LU  0.90    0.314
US  2.07     0.80
KK   T2C
BA  1.48
LU  0.90    0.314
US  1.40     0.80
KK  T2A, COMBINE
HC      2
KK  T2D,   ROUTED      T2A
RS      4     STOR      -1
SV     18       30      46       83       98      114      125      140      151
SQ    600     1200    1800     2400     3000     3600     4200     4800     5400
KK   T2D
BA  2.12
LU  0.90    0.314
US  2.33     0.80
KK  T2D, COMBINE
HC      2
```

```
KK   T2E
BA  1.54
LU  0.78    0.30
US  1.66    0.80
KK  T2D, COMBINE
HC     2
KK   T2F
BA  1.93
LU  0.90   0.314
US  2.55    0.80
KK  T2D, COMBINE
HC     2
KK  T2H,  ROUTED     T2D
RS     3    STOR      -1
SV   116     125     144     241     284     306     344     404     462
SQ  2400    3000    3600    4200    4800    5400    6000    7000    8000
KK   T2G
BA  2.02
LU  0.86   0.310
US  3.03    0.80
KK  T2H, COMBINE
HC     2
KK   T2H
BA  1.78
LU  0.90   0.314
US  2.17    0.80
KK  T2H, COMBINE
HC     2
KKNODE2,, ROUTED     T2H
RS    14    STOR      -1
SV   274     323     372     418     547     589     645     746
SQ  2400    3000    3600    4200    4800    5400    6000    7000
KK   T2I
BA  3.74
LU  0.86   0.310
US  2.17    0.80
KK NODE2 COMBINE
HC     2
KK NODE2 COMBINE
HC     2
*  Channel routing from node 2 to node 3
KK NODE3  ROUTED   NODE2
RS     8    STOR      -1
SV   282     511     735     949    1177    1421    1673    1935
SQ  4000    8000   12000   16000   20000   24000   28000   32000
*  Area        CL2
KK   CL2
BA  1.88
PB  4.55
PI   .36     .68    2.14     .59     .41     .36
LU  0.47    .248
US  0.88    0.80
KK NODE3 COMBINE
HC     2
*  Tributary 1
KK   T1A
BA 1.002
```

```
BF      0         0         1
PB   4.32
IN     60
PI   0.35      0.65      2.03      0.56      0.39      0.35
LU   0.86     0.319
US   1.11      0.80
KK T1BR,ROUTED T1A
RS      8      STOR        -1
SV     24        38        50        62        72        82        91        99       107
SQ    300       600       900      1200      1500      1800      2100      2400      2700
KK    T1B
BA 1.537
LU   0.90     0.324
US   1.68      0.80
KK    T1B
HC      2
KK T1CD,ROUTED T1B
RS      5      STOR        -1
SV     33        58        83       102       137       167       195       222       246
SQ    500      1000      1500      2000      3000      4000      5000      6000      7000
KK    T1C
BA 1.241
LU   0.82     0.314
US   1.78      0.80
KK T1CD, COMBINE
HC      2
KK    T1D
BA 1.192
LU   0.90     0.324
US   1.80      0.80
KK T1CD, COMBINE
HC      2
KK NODE1, ROUTED    T1CD
RS      8      STOR        -1
SV     51        83       109       135       181       227       272       315       359
SQ    500      1000      1500      2000      3000      4000      5000      6000      7000
KK    T1E
BA 1.229
LU   0.56     0.269
US   1.22      0.66
KK NODE3, COMBINE
HC      2
KK NODE3, COMBINE
HC      2
*  Channel routing from node 3 to node 4
KK NODE4   ROUTED    NODE3
RS      7      STOR        -1
SV    282       485       656       810       958      1096      1235      1373
SQ   4000      8000     12000     16000     20000     24000     28000     32000
*  Tinaja Tributary
KK    TN1
BA 1.120
BF      0         0         1
PB   4.32
IN     60
PI   .346      .649     2.032      .562      .389      .346
LU     .7      .297
```

```
US  1.34     0.80
KK POND1
KM    OLD     POND
RS      1     STOR       -1
SL    433   19.64       0.7       0.5
SS    444      65       2.5       1.5
SV      0       1         3         5       7.5        10        12
SE    439     440       441       442       443       444       445
KK    TN2
BA 0.637
LU     .7     .297
US  1.16     0.80
KK POND2
KM    NEW     POND
RS      1     STOR       -1
SL    430   12.57       0.7       0.5
SS    442      75       2.5       1.5
SV      0    3.73        10      16.2        30     43.43        60     76.91
SE    431     432     433.5       435     437.5       440     442.5       445
KK TN1&2,COMBINE
HC      2
KKTN1&2R, ROUTED     TN1&2
RS      4     STOR       -1
SV     23      37        51        66        85       105       124       143       152
SQ    500    1000      1500      2000      2500      3000      3500      4000      4500
KK    TN3
BA 0.745
LU    .35     .204
US  0.92     0.80
KK     TN COMBINE
HC      2
KK     TN COMBINE
HC      2
*  Area CL3
KK    CL3
BA    1.0
PB   4.62
PI    .37      .69      2.17        .6       .42       .37
LU   0.47      .25
US   0.89     0.80
KK NODE4
HC      2
*  Channel routing from Node 4 to Node 5, was not modeled in the 1981 FIS
KK NODE5  ROUTED    NODE4
RS      1     STOR       -1
SV     12      16        22        27        31        36        40        44
SQ   4000    8000     12000     16000     20000     24000     28000     32000
ZZ
```

RUNOFF SUMMARY

FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	CU	22857.	7.67	20681.	10507.	10507.	116.90		
+	ROUTED TO	NODE1	12505.	11.50	11784.	6885.	6885.	116.90		
+									451.57	11.50
+	HYDROGRAPH AT	T3A	727.	3.67	262.	79.	79.	0.96		
+	ROUTED TO	T3B	666.	4.67	396.	329.	329.	0.96		
+	HYDROGRAPH AT	T3C1	861.	3.83	332.	101.	101.	1.22		
+	ROUTED TO	T3B	835.	4.42	442.	343.	343.	1.22		
+	2 COMBINED AT	T3B	1487.	4.58	838.	672.	672.	2.18		
+	HYDROGRAPH AT	T3B	791.	3.58	276.	83.	83.	1.01		
+	2 COMBINED AT	T3B	1926.	4.42	1101.	755.	755.	3.19		
+	HYDROGRAPH AT	T3C2	493.	3.75	183.	55.	55.	0.67		
+	2 COMBINED AT	T3B	2297.	4.25	1273.	811.	811.	3.86		
	ROUTED TO	NODE1	2233.	5.00	1269.	817.	817.	3.86		
+	HYDROGRAPH AT	T3D	1489.	3.92	609.	186.	186.	2.10		
+	2 COMBINED AT	NODE1	3207.	4.25	1872.	1002.	1002.	5.96		
+	2 COMBINED AT	NODE1	13105.	11.50	12385.	7887.	7887.	122.86		
+	ROUTED TO	NODE2	13072.	12.92	12366.	8313.	8313.	122.86		
+	HYDROGRAPH AT	CL1	2364.	4.42	1157.	358.	358.	4.06		
+	2 COMBINED AT	NODE1	13072.	12.92	12367.	8671.	8671.	126.92		
+	HYDROGRAPH AT	T2AB	614.	4.58	283.	87.	87.	1.37		
+	HYDROGRAPH AT	T2C	897.	3.92	310.	93.	93.	1.48		
+	2 COMBINED AT	T2A	1420.	4.08	592.	180.	180.	2.85		
+	ROUTED TO	T2D	1399.	4.42	804.	661.	661.	2.85		
+	HYDROGRAPH AT	T2D	863.	4.83	433.	134.	134.	2.12		
	2 COMBINED AT	T2D	2221.	4.50	1227.	795.	795.	4.97		
+	HYDROGRAPH AT	T2E	854.	4.17	341.	103.	103.	1.54		
+	2 COMBINED AT	T2D	3024.	4.42	1566.	898.	898.	6.51		

+	HYDROGRAPH AT	T2F	728.	5.08	390.	122.	122.	1.93
+	2 COMBINED AT	T2D	3672.	4.50	1954.	1020.	1020.	8.44
	ROUTED TO	T2H	3503.	5.00	2606.	2459.	2459.	8.44
+	HYDROGRAPH AT	T2G	666.	5.58	401.	130.	130.	2.02
+	2 COMBINED AT	T2H	4131.	5.08	2976.	2589.	2589.	10.46
+	HYDROGRAPH AT	T2H	771.	4.67	366.	112.	112.	1.78
+	2 COMBINED AT	T2H	4864.	5.00	3339.	2702.	2702.	12.24
+	ROUTED TO	NODE2	4311.	6.83	3336.	2772.	2772.	12.24
+	HYDROGRAPH AT	T2I	1641.	4.67	784.	241.	241.	3.74
+	2 COMBINED AT	NODE2	5282.	5.50	4088.	3013.	3013.	15.98
+	2 COMBINED AT	NODE2	15485.	12.92	14791.	11684.	11684.	142.90
+	ROUTED TO	NODE3	15471.	13.50	14780.	11526.	11526.	142.90
+	HYDROGRAPH AT	CL2	1843.	3.33	578.	175.	175.	1.88
+	2 COMBINED AT	NODE3	15471.	13.50	14780.	11701.	11701.	144.78
	HYDROGRAPH AT	T1A	745.	3.58	227.	68.	68.	1.00
+	ROUTED TO	T1BR	715.	4.08	386.	326.	326.	1.00
+	HYDROGRAPH AT	T1B	856.	4.17	340.	103.	103.	1.54
+	2 COMBINED AT	T1B	1569.	4.17	712.	428.	428.	2.54
+	ROUTED TO	T1CD	1465.	4.75	754.	579.	579.	2.54
+	HYDROGRAPH AT	T1C	676.	4.25	284.	86.	86.	1.24
+	2 COMBINED AT	T1CD	2068.	4.67	1034.	665.	665.	3.78
+	HYDROGRAPH AT	T1D	627.	4.25	263.	80.	80.	1.19
+	2 COMBINED AT	T1CD	2653.	4.58	1297.	745.	745.	4.97
+	ROUTED TO	NODE1	2586.	5.17	1295.	753.	753.	4.97
+	HYDROGRAPH AT	T1E	770.	3.75	323.	99.	99.	1.23
+	2 COMBINED AT	NODE3	2948.	5.08	1611.	853.	853.	6.20
	2 COMBINED AT	NODE3	15971.	13.50	15281.	12554.	12554.	150.98
+	ROUTED TO	NODE4	15963.	14.00	15274.	12397.	12397.	150.98
+	HYDROGRAPH AT	TN1	770.	3.83	274.	83.	83.	1.12

	ROUTED TO									
+		POND1	760.	3.92	370.	300.	300.	1.12		
+									445.87	3.92
	HYDROGRAPH AT									
		TN2	480.	3.67	156.	47.	47.	0.64		
	ROUTED TO									
+		POND2	202.	4.67	152.	95.	95.	0.64		
+									438.23	4.67
	2 COMBINED AT									
+		TN1&2	944.	4.00	522.	395.	395.	1.76		
	ROUTED TO									
+		TN1&2R	891.	4.42	576.	522.	522.	1.76		
	HYDROGRAPH AT									
+		TN3	689.	3.42	234.	71.	71.	0.75		
	2 COMBINED AT									
+		TN	1189.	3.42	800.	593.	593.	2.50		
	2 COMBINED AT									
+		TN	16463.	14.00	15774.	12990.	12990.	153.48		
	HYDROGRAPH AT									
+		CL3	985.	3.33	313.	95.	95.	1.00		
	2 COMBINED AT									
+		NODE4	16463.	14.00	15774.	13085.	13085.	154.48		
	ROUTED TO									
+		NODE5	16463.	14.00	15774.	13087.	13087.	154.48		

*** NORMAL END OF HEC-1 ***

```
*FREE*
ID CHACON CREEK WATERSHED                     LAREDO,  TEXAS           EXISTING
ID FLOOD INSURANCE STUDY                      SEPT 16, 1998
ID    25    YRS   RETURN  PERIOD  6-HR DURATION   STORM    WITH 60-MIN INTERVAL
IT     5 16SEP98    0300     240
IO     0       2
*  Upper Chacon Sub-basin
KK    CU
KM D.A. OF CU + SY + TC + LC HYD
BA 116.9
BF     0       0       1
PB  4.04
PI   .32     .61     1.9     .53     .36     .32
LU  0.53    .252
US  7.78    0.80
*  Reservoir Routing Parameters were updated based on the 1998 "DTM"
KK NODE1 ROUTED    NODE0
RS     1    STOR      -1
SV 18690   21650   25050   28880   33180   37940   43080   48570   54350   60370
SQ     0    1000    7000   14000   23000   35000   49000   66000   88000  114000
SE   446     448     450     452     454     456     458     460     462     464
*  Tributary 3
KK   T3A
KM   SUB   OF T3
BA 0.960
BF     0       0       1
PB  5.06
IN    60
PI  0.40    0.76    2.38    0.66    0.46    0.40
LU  0.53   0.279
US  1.23    0.80
KK  T3B,  ROUTED     T3A
RS    10    STOR      -1
SV    31      57      78      96     112     127     142     155     168
SQ   300     600     900    1200    1500    1800    2100    2400    2700
KK  T3C1
KM   SUB   OF T3
BA  1.22
LU  0.53   0.279
US  1.38    0.80
KK  T3B,  ROUTED    T3C1
RS    10    STOR      -1
SV    38      58      73      90     104     117     130     141
SQ   300     600     900    1200    1500    1800    2100    2400
KK  T3B, COMBINE
HC     2
KK   T3B
KM   SUB   OF T3
BA  1.01
LU  0.53   0.279
US  1.16    0.80
KK  T3B, COMBINE
HC     2
KK  T3C2
KM   SUB   OF T3
BA  0.67
LU  0.53   0.279
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US  1.28    0.80
KK  T3B, COMBINE
HC     2
KK NODE1  ROUTED     T3B
RS    10    STOR      -1
SV    53      89     119     149     177     202     227     254     277     300
SQ   500    1000    1500    2000    2500    3000    3500    4000    4500    5000
KK   T3D
KM   SUB   OF T3
BA  2.10
LU  0.44   0.248
US  1.43    0.80
KK NODE1, COMBINE
HC     2
KK NODE1, COMBINE
HC     2
*  Channel routing from node 1 to node 2
KK NODE2  ROUTED   NODE1
RS    15    STOR      -1
SV   464     813    1203    1656    2296    3755    4649    5543
SQ  4000    8000   12000   16000   20000   24000   28000   32000
*  Area CL1
KK   CL1
KM  D.A. CL1 HYD
BA  4.06
PB  5.12
IN    60
PI   .41     .77    2.41     .67     .46     .41
LU  0.47     .26
US  1.95    0.80
KK NODE1 COMBINE
HC     2
*  Tributary 2
KK  T2AB
BA  1.37
BF     0       0       1
PB  4.84
IN    60
PI  0.39    0.73    2.27    0.63    0.44    0.39
LU  0.90   0.350
US  2.07    0.80
KK   T2C
BA  1.48
LU  0.90   0.350
US  1.40    0.80
KK  T2A, COMBINE
HC     2
KK  T2D,  ROUTED     T2A
RS     4    STOR      -1
SV    18      30      46      83      98     114     125     140     151
SQ   600    1200    1800    2400    3000    3600    4200    4800    5400
KK   T2D
BA  2.12
LU  0.90    0.35
US  2.33    0.80
KK  T2D, COMBINE
HC     2
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```
KK   T2E
BA  1.54
LU  0.78   0.331
US  1.66    0.80
KK  T2D, COMBINE
HC     2
KK   T2F
BA  1.93
LU  0.90    0.35
US  2.55    0.80
KK  T2D, COMBINE
HC     2
KK  T2H,  ROUTED      T2D
RS     3    STOR       -1
SV   125     144      241      284      306      344      404      462
SQ  3000    3600     4200     4800     5400     6000     7000     8000
KK   T2G
BA  2.02
LU  0.86   0.344
US  3.03    0.80
KK  T2H, COMBINE
HC     2
KK   T2H
BA  1.78
LU  0.90    0.35
US  2.17    0.80
KK  T2H, COMBINE
HC     2
KKNODE2,, ROUTED      T2H
RS    14    STOR       -1
SV   323     372      418      547      589      645      746      837
SQ  3000    3600     4200     4800     5400     6000     7000     8000
KK   T2I
BA  3.74
LU  0.86   0.344
US  2.17    0.80
KK NODE2 COMBINE
HC     2
KK NODE2 COMBINE
HC     2
*  Channel routing from node 2 to node 3
KK NODE3  ROUTED    NODE2
RS     8    STOR       -1
SV   282     511      735      949     1177     1421     1673     1935
SQ  4000    8000    12000    16000    20000    24000    28000    32000
*  Area        CL2
KK   CL2
BA  1.88
PB  5.32
PI   .43      .8      2.5      .69      .48      .43
LU  0.47    .264
US  0.88    0.80
KK NODE3 COMBINE
HC     2
*  Tributary 1
KK   T1A
BA 1.002
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```
BF     0        0        1
PB  5.06
IN    60
PI  0.40     0.76     2.38     0.66     0.46     0.40
LU  0.86    0.354
US  1.11     0.80
KK T1BR,ROUTED T1A
RS     8     STOR       -1
SV    24       38       50       62       72       82       91       99      107
SQ   300      600      900     1200     1500     1800     2100     2400     2700
KK   T1B
BA 1.537
LU  0.90     0.36
US  1.68     0.80
KK   T1B
HC     2
KK T1CD,ROUTED T1B
RS     5     STOR       -1
SV    33       58       83      102      137      167      195      222      246
SQ   500     1000     1500     2000     3000     4000     5000     6000     7000
KK   T1C
BA 1.241
LU  0.82    0.347
US  1.78     0.80
KK T1CD, COMBINE
HC     2
KK   T1D
BA 1.192
LU  0.90    0.360
US  1.80     0.80
KK T1CD, COMBINE
HC     2
KK NODE1, ROUTED    T1CD
RS     8     STOR       -1
SV    51       83      109      135      181      227      272      315      359
SQ   500     1000     1500     2000     3000     4000     5000     6000     7000
KK   T1E
BA 1.229
LU  0.56    0.289
US  1.22     0.66
KK NODE3, COMBINE
HC     2
KK NODE3, COMBINE
HC     2
*  Channel routing from node 3 to node 4
KK NODE4  ROUTED   NODE3
RS     7     STOR       -1
SV   282      485      656      810      958     1096     1235     1373
SQ  4000     8000    12000    16000    20000    24000    28000    32000
*  Tinaja Tributary
KK   TN1
BA 1.120
BF     0        0        1
PB  5.06
IN    60
PI  .405     .759    2.378     .658     .455     .405
LU  0.70     .297
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US  1.34     0.80
KK POND1
KM    OLD     POND
RS      1     STOR       -1
SL    433    19.64      0.7      0.5
SS    444       65      2.5      1.5
SV      0        1        3        5      7.5       10       12
SE    439      440      441      442      443      444      445
KK    TN2
BA 0.637
LU  0.70     .297
US  1.16     0.80
KK POND2
KM    NEW     POND
RS      1     STOR       -1
SL    430    12.57      0.7      0.5
SS    442       75      2.5      1.5
SV      0     3.73       10     16.2       30    43.43       60    76.91
SE    431      432    433.5      435    437.5      440    442.5      445
KK TN1&2,COMBINE
HC      2
KKTN1&2R, ROUTED    TN1&2
RS      4     STOR       -1
SV     23       37       51       66       85      105      124      143      152
SQ    500     1000     1500     2000     2500     3000     3500     4000     4500
KK    TN3
BA 0.745
LU  0.35     .204
US  0.92     0.80
KK     TN COMBINE
HC      2
KK     TN COMBINE
HC      2
*  Area CL3
KK    CL3
BA    1.0
PB  5.41
PI   .43      .81     2.54       .7      .49      .43
LU  0.47     .265
US  0.89     0.80
KK NODE4
HC      2
*  Channel routing from Node 4 to Node 5, was not modeled in the 1981 FIS
KK NODE5   ROUTED   NODE4
RS      1     STOR       -1
SV     12       16       22       27       31       36       40       44
SQ  4000     8000    12000    16000    20000    24000    28000    32000
ZZ
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	CU	27533.	7.67	24912.	12656.	12656.	116.90		
ROUTED TO	NODE1	15585.	11.42	14589.	8584.	8584.	116.90	452.35	11.42
HYDROGRAPH AT	T3A	874.	3.67	325.	99.	99.	0.96		
ROUTED TO	T3B	817.	4.58	438.	342.	342.	0.96		
HYDROGRAPH AT	T3C1	1036.	3.83	412.	125.	125.	1.22		
ROUTED TO	T3B	1002.	4.50	499.	361.	361.	1.22		
2 COMBINED AT	T3B	1815.	4.58	937.	703.	703.	2.18		
HYDROGRAPH AT	T3B	949.	3.58	342.	104.	104.	1.01		
2 COMBINED AT	T3B	2379.	4.33	1262.	806.	806.	3.19		
HYDROGRAPH AT	T3C2	592.	3.75	226.	69.	69.	0.67		
2 COMBINED AT	T3B	2846.	4.25	1476.	875.	875.	3.86		
ROUTED TO	NODE1	2780.	4.83	1475.	881.	881.	3.86		
HYDROGRAPH AT	T3D	1790.	3.92	752.	230.	230.	2.10		
2 COMBINED AT	NODE1	3974.	4.58	2225.	1111.	1111.	5.96		
2 COMBINED AT	NODE1	16185.	11.42	15192.	9695.	9695.	122.86		
ROUTED TO	NODE2	16108.	13.25	15161.	10000.	10000.	122.86		
HYDROGRAPH AT	CL1	2838.	4.42	1421.	441.	441.	4.06		
2 COMBINED AT	NODE1	16108.	13.25	15162.	10441.	10441.	126.92		
HYDROGRAPH AT	T2AB	743.	4.58	351.	108.	108.	1.37		
HYDROGRAPH AT	T2C	1077.	3.92	385.	116.	116.	1.48		
2 COMBINED AT	T2A	1716.	4.08	734.	224.	224.	2.85		
ROUTED TO	T2D	1690.	4.42	909.	693.	693.	2.85		
HYDROGRAPH AT	T2D	1048.	4.83	536.	166.	166.	2.12		
2 COMBINED AT	T2D	2693.	4.50	1436.	859.	859.	4.97		
HYDROGRAPH AT	T2E	1024.	4.17	422.	128.	128.	1.54		
2 COMBINED AT									

+	T2D	3657.	4.42	1856.	987.	987.	6.51
HYDROGRAPH AT +	T2F	886.	5.08	483.	152.	152.	1.93
2 COMBINED AT	T2D	4449.	4.50	2336.	1139.	1139.	8.44
ROUTED TO +	T2H	3763.	5.75	3212.	3065.	3065.	8.44
HYDROGRAPH AT	T2G	813.	5.50	497.	162.	162.	2.02
2 COMBINED AT +	T2H	4570.	5.67	3690.	3227.	3227.	10.46
HYDROGRAPH AT +	T2H	935.	4.67	454.	140.	140.	1.78
2 COMBINED AT +	T2H	5297.	5.17	4140.	3367.	3367.	12.24
ROUTED TO +	NODE2	5118.	6.58	4135.	3455.	3455.	12.24
HYDROGRAPH AT +	T2I	1987.	4.67	971.	299.	299.	3.74
2 COMBINED AT +	NODE2	6075.	4.92	5065.	3754.	3754.	15.98
2 COMBINED AT +	NODE2	19120.	13.17	18193.	14195.	14195.	142.90
ROUTED TO +	NODE3	19104.	13.83	18179.	13962.	13962.	142.90
HYDROGRAPH AT +	CL2	2179.	3.33	711.	215.	215.	1.88
2 COMBINED AT	NODE3	19104.	13.83	18179.	14177.	14177.	144.78
HYDROGRAPH AT +	T1A	899.	3.58	283.	85.	85.	1.00
ROUTED TO +	T1BR	869.	4.08	426.	338.	338.	1.00
HYDROGRAPH AT +	T1B	1044.	4.17	425.	129.	129.	1.54
2 COMBINED AT +	T1B	1908.	4.08	837.	466.	466.	2.54
ROUTED TO +	T1CD	1830.	4.58	863.	613.	613.	2.54
HYDROGRAPH AT +	T1C	823.	4.25	355.	108.	108.	1.24
2 COMBINED AT +	T1CD	2605.	4.58	1217.	721.	721.	3.78
HYDROGRAPH AT +	T1D	766.	4.25	328.	100.	100.	1.19
2 COMBINED AT +	T1CD	3345.	4.50	1546.	821.	821.	4.97
ROUTED TO +	NODE1	3236.	5.08	1544.	829.	829.	4.97
HYDROGRAPH AT +	T1E	930.	3.75	401.	123.	123.	1.23
2 COMBINED AT	NODE3	3703.	5.00	1934.	953.	953.	6.20
2 COMBINED AT +	NODE3	19604.	13.83	18679.	15130.	15130.	150.98
ROUTED TO +	NODE4	19596.	14.17	18673.	14918.	14918.	150.98
HYDROGRAPH AT							

```
*FREE*
ID CHACON CREEK WATERSHED                         LAREDO,  TEXAS            EXISTING
ID FLOOD INSURANCE STUDY                          SEPT 16, 1998
ID     50     YRS   RETURN  PERIOD  6-HR DURATION   STORM    WITH 60-MIN INTERVAL
IT      5 16SEP98     0300     240
IO      0       2
*  Upper Chacon Sub-basin
KK     CU
KM D.A. OF CU + SY + TC + LC HYD
BA 116.9
BF      0       0       1
PB   4.59
PI    .37     .69    2.16      .6      .41      .37
LU   0.53    .268
US   7.78    0.80
*  Reservoir Routing Parameters were updated based on the 1998 "DTM"
KK NODE1 ROUTED     NODE0
RS      1    STOR      -1
SV 18690   21650   25050   28880   33180   37940   43080   48570   54350   60370
SQ      0    1000    7000   14000   23000   35000   49000   66000   88000  114000
SE    446     448     450     452     454     456     458     460     462     464
*  Tributary 3
KK    T3A
KM    SUB   OF T3
BA 0.960
BF      0       0       1
PB   5.75
IN     60
PI   0.46    0.86    2.70    0.75    0.52    0.46
LU   0.53   0.294
US   1.23    0.80
KK   T3B,  ROUTED     T3A
RS     10    STOR      -1
SV     36      60      80     102     119     136     154     171     187
SQ    300     600     900    1200    1500    1800    2100    2400    2700
KK   T3C1
KM    SUB   OF T3
BA   1.22
LU   0.53   0.294
US   1.38    0.80
KK   T3B,  ROUTED    T3C1
RS     10    STOR      -1
SV     38      58      73      90     104     117     130     141
SQ    300     600     900    1200    1500    1800    2100    2400
KK   T3B, COMBINE
HC      2
KK    T3B
KM    SUB   OF T3
BA   1.01
LU   0.53   0.294
US   1.16    0.80
KK   T3B, COMBINE
HC      2
KK   T3C2
KM    SUB   OF T3
BA   0.67
LU   0.53   0.294
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US  1.28    0.80
KK  T3B, COMBINE
HC     2
KK NODE1  ROUTED    T3B
RS    10    STOR     -1
SV    53      89    119     149     177     202     227     254     277     300
SQ   500    1000   1500    2000    2500    3000    3500    4000    4500    5000
KK   T3D
KM   SUB   OF T3
BA  2.10
LU  0.44   0.259
US  1.43    0.80
KK NODE1, COMBINE
HC     2
KK NODE1, COMBINE
HC     2
*  Channel routing from node 1 to node 2
KK NODE2  ROUTED   NODE1
RS    15    STOR     -1
SV   464     813   1203    1656    2296    3755    4649    5543
SQ  4000    8000  12000   16000   20000   24000   28000   32000
*  Area CL1
KK   CL1
KM  D.A. CL1 HYD
BA  4.06
PB  5.82
IN    60
PI   .47     .87   2.74     .76     .52     .47
LU  0.47    .272
US  1.95    0.80
KK NODE1 COMBINE
HC     2
*  Tributary 2
KK  T2AB
BA  1.37
BF     0       0      1
PB  5.50
IN    60
PI  0.44    0.83   2.59    0.72    0.50    0.44
LU  0.90   0.379
US  2.07    0.80
KK   T2C
BA  1.48
LU  0.90   0.379
US  1.40    0.80
KK  T2A, COMBINE
HC     2
KK  T2D,  ROUTED    T2A
RS     4    STOR     -1
SV    18      30     46      83      98     114     125     140     151
SQ   600    1200   1800    2400    3000    3600    4200    4800    5400
KK   T2D
BA  2.12
LU  0.90   0.379
US  2.33    0.80
KK  T2D, COMBINE
HC     2
```

```
KK   T2E
BA  1.54
LU  0.78   0.355
US  1.66    0.80
KK  T2D, COMBINE
HC     ?
KK   T2F
BA  1.93
LU  0.90   0.379
US  2.55    0.80
KK  T2D, COMBINE
HC     2
KK  T2H,  ROUTED    T2D
RS     3    STOR     -1
SV   144     241    284     306     344     404     462     518
SQ  3600    4200   4800    5400    6000    7000    8000    9000
KK   T2G
BA  2.02
LU  0.86   0.371
US  3.03    0.80
KK  T2H, COMBINE
HC     2
KK   T2H
BA  1.78
LU  0.90   0.379
US  2.17    0.80
KK  T2H, COMBINE
HC     2
KKNODE2,, ROUTED    T2H
RS    14    STOR     -1
SV   372     418    547     589     645     746     837     926    1013
SQ  3600    4200   4800    5400    6000    7000    8000    9000   10000
KK   T2I
BA  3.74
LU  0.86   0.371
US  2.17    0.80
KK NODE2 COMBINE
HC     2
KK NODE2 COMBINE
HC     2
*  Channel routing from node 2 to node 3
KK NODE3  ROUTED   NODE2
RS     8    STOR     -1
SV   282     511    735     949    1177    1421    1673    1935
SQ  4000    8000  12000   16000   20000   24000   28000   32000
*  Area       CL2
KK   CL2
BA  1.88
PB  6.05
PI   .48     .91   2.84     .79     .54     .48
LU  0.47    .275
US  0.88    0.80
KK NODE3 COMBINE
HC     2
*  Tributary 1
KK   T1A
BA 1.002
```

```
BF      0        0        1
PB   5.75
IN     60
PI   0.46     0.86     2.70     0.75     0.52     0.46
LU   0.86    0.381
US   1.11     0.80
KK T1BR,ROUTED T1A
RS      8     STOR       -1
SV     24       38       50       62       72       82       91       99      107
SQ    300      600      900     1200     1500     1800     2100     2400     2700
KK    T1B
BA 1.537
LU   0.90    0.389
US   1.68     0.80
KK    T1B
HC      2
KK T1CD,ROUTED T1B
RS      5     STOR       -1
SV     33       58       83      102      137      167      195      222      246
SQ    500     1000     1500     2000     3000     4000     5000     6000     7000
KK    T1C
BA 1.241
LU   0.82    0.372
US   1.78     0.80
KK T1CD, COMBINE
HC      2
KK    T1D
BA 1.192
LU   0.90    0.389
US   1.80     0.80
KK T1CD, COMBINE
HC      2
KK NODE1, ROUTED    T1CD
RS      8     STOR       -1
SV     51       83      109      135      181      227      272      315      359
SQ    500     1000     1500     2000     3000     4000     5000     6000     7000
KK    T1E
BA 1.229
LU   0.56    0.304
US   1.22     0.66
KK NODE3, COMBINE
HC      2
KK NODE3, COMBINE
HC      2
*  Channel routing from node 3 to node 4
KK NODE4   ROUTED   NODE3
RS      7     STOR       -1
SV    282      485      656      810      958     1096     1235     1373
SQ   4000     8000    12000    16000    20000    24000    28000    32000
*  Tinaja Tributary
KK    TN1
BA 1.120
BF      0        0        1
PB   5.75
IN     60
PI    .46     .863    2.703     .748     .518      .46
LU   0.70     .345
```

```
US  1.34     0.80
KK POND1
KM   OLD     POND
RS     1     STOR       -1
SL   433    19.64       0.7       0.5
SS   444       65       2.5       1.5
SV     0        1         3         5       7.5        10        12
SE   439      440       441       442       443       444       445
KK   TN2
BA 0.637
LU  0.70     .345
US  1.16     0.80
KK POND2
KM   NEW     POND
RS     1     STOR       -1
SL   430    12.57       0.7       0.5
SS   442       75       2.5       1.5
SV     0     3.73        10      16.2        30     43.43        60     76.91
SE   431      432     433.5       435     437.5       440     442.5       445
KK TN1&2,COMBINE
HC     2
KKTN1&2R, ROUTED    TN1&2
RS     4     STOR       -1
SV    23       37        51        66        85       105       124       143       152
SQ   500     1000      1500      2000      2500      3000      3500      4000      4500
KK   TN3
BA 0.745
LU  0.35     .222
US  0.92     0.80
KK    TN COMBINE
HC     2
KK    TN COMBINE
HC     2
*  Area CL3
KK   CL3
BA   1.0
PB  6.14
PI   .49      .92      2.89        .8       .55       .49
LU  0.47     .277
US  0.89     0.80
KK NODE4
HC     2
*  Channel routing from Node 4 to Node 5, was not modeled in the 1981 FIS
KK NODE5  ROUTED    NODE4
RS     1     STOR       -1
SV    12       16        22        27        31        36        40        44
SQ  4000     8000     12000     16000     20000     24000     28000     32000
ZZ
```

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	CU	31900.	7.67	28864.	14664.	14664.	116.90		
+	ROUTED TO	NODE1	18560.	11.25	17356.	10197.	10197.	116.90		
+									453.01	11.25
+	HYDROGRAPH AT	T3A	1007.	3.67	384.	117.	117.	0.96		
+	ROUTED TO	T3B	948.	4.58	479.	355.	355.	0.96		
+	HYDROGRAPH AT	T3C1	1196.	3.83	487.	149.	149.	1.22		
+	ROUTED TO	T3B	1156.	4.50	553.	378.	378.	1.22		
+	2 COMBINED AT	T3B	2102.	4.50	1032.	733.	733.	2.18		
+	HYDROGRAPH AT	T3B	1094.	3.58	405.	123.	123.	1.01		
+	2 COMBINED AT	T3B	2785.	4.25	1417.	856.	856.	3.19		
+	HYDROGRAPH AT	T3C2	683.	3.75	268.	82.	82.	0.67		
	2 COMBINED AT	T3B	3354.	4.17	1680.	937.	937.	3.86		
	ROUTED TO	NODE1	3279.	4.83	1679.	943.	943.	3.86		
+	HYDROGRAPH AT	T3D	2064.	3.92	885.	271.	271.	2.10		
+	2 COMBINED AT	NODE1	4739.	4.50	2560.	1215.	1215.	5.96		
+	2 COMBINED AT	NODE1	19160.	11.25	17960.	11411.	11411.	122.86		
+	ROUTED TO	NODE2	19047.	13.25	17903.	11616.	11616.	122.86		
+	HYDROGRAPH AT	CL1	3293.	4.42	1676.	522.	522.	4.06		
+	2 COMBINED AT	NODE1	19047.	13.25	17905.	12139.	12139.	126.92		
+	HYDROGRAPH AT	T2AB	873.	4.58	419.	129.	129.	1.37		
+	HYDROGRAPH AT	T2C	1257.	3.92	460.	139.	139.	1.48		
+	2 COMBINED AT	T2A	2013.	4.08	877.	268.	268.	2.85		
+	ROUTED TO	T2D	1921.	4.67	1020.	727.	727.	2.85		
	HYDROGRAPH AT	T2D	1234.	4.83	640.	199.	199.	2.12		
	2 COMBINED AT	T2D	3153.	4.75	1654.	926.	926.	4.97		
+	HYDROGRAPH AT	T2E	1197.	4.17	504.	154.	154.	1.54		
+	2 COMBINED AT	T2D	4201.	4.50	2155.	1080.	1080.	6.51		

+	HYDROGRAPH AT	T2F	1045.	5.08	576.	182.	182.	1.93
	2 COMBINED AT	T2D	5176.	4.58	2728.	1261.	1261.	8.44
+	ROUTED TO	T2H	4139.	5.92	3780.	3662.	3662.	8.44
+	HYDROGRAPH AT	T2G	962.	5.50	593.	194.	194.	2.02
+	2 COMBINED AT	T2H	5078.	5.83	4372.	3856.	3856.	10.46
+	HYDROGRAPH AT	T2H	1099.	4.67	542.	167.	167.	1.78
+	2 COMBINED AT	T2H	5828.	5.50	4908.	4023.	4023.	12.24
+	ROUTED TO	NODE2	5766.	6.58	4894.	4129.	4129.	12.24
+	HYDROGRAPH AT	T2I	2336.	4.67	1160.	359.	359.	3.74
+	2 COMBINED AT	NODE2	7033.	5.67	5928.	4487.	4487.	15.98
+	2 COMBINED AT	NODE2	22660.	13.25	21540.	16626.	16626.	142.90
+	ROUTED TO	NODE3	22630.	14.00	21522.	16327.	16327.	142.90
+	HYDROGRAPH AT	CL2	2517.	3.33	842.	255.	255.	1.88
	2 COMBINED AT	NODE3	22630.	14.00	21522.	16581.	16581.	144.78
	HYDROGRAPH AT	T1A	1039.	3.58	338.	102.	102.	1.00
+	ROUTED TO	T1BR	1007.	4.08	465.	350.	350.	1.00
+	HYDROGRAPH AT	T1B	1216.	4.17	506.	154.	154.	1.54
+	2 COMBINED AT	T1B	2218.	4.08	958.	503.	503.	2.54
+	ROUTED TO	T1CD	2148.	4.58	974.	647.	647.	2.54
+	HYDROGRAPH AT	T1C	958.	4.25	423.	129.	129.	1.24
+	2 COMBINED AT	T1CD	3068.	4.50	1397.	776.	776.	3.78
+	HYDROGRAPH AT	T1D	894.	4.25	391.	119.	119.	1.19
+	2 COMBINED AT	T1CD	3934.	4.50	1788.	895.	895.	4.97
+	ROUTED TO	NODE1	3813.	5.08	1786.	903.	903.	4.97
+	HYDROGRAPH AT	T1E	1078.	3.75	475.	147.	147.	1.23
	2 COMBINED AT	NODE3	4387.	5.00	2247.	1050.	1050.	6.20
	2 COMBINED AT	NODE3	23130.	14.00	22022.	17632.	17632.	150.98
+	ROUTED TO	NODE4	23119.	14.42	22015.	17368.	17368.	150.98
+	HYDROGRAPH AT	TN1	1074.	3.83	407.	124.	124.	1.12

```
              ROUTED TO
+                                 POND1      1066.    3.92         471.        330.        330.        1.12
+                                                                                                              447.10        3.92

              HYDROGRAPH AT
                                    TN2       666.    3.58         232.         70.         70.        0.64

              ROUTED TO
+                                 POND2       243.    4.83         201.        112.        112.        0.64
+                                                                                                              441.87        4.83

              2 COMBINED AT
+                                TN1&2      1284.    3.92         672.        442.        442.        1.76

              ROUTED TO
+                               TN1&2R      1253.    4.33         684.        557.        557.        1.76

              HYDROGRAPH AT
+                                   TN3       941.    3.42         336.        102.        102.        0.75

              2 COMBINED AT
+                                    TN      1777.    4.08        1015.        658.        658.        2.50

              2 COMBINED AT
+                                    TN     23619.   14.42       22515.      18026.      18026.      153.48

              HYDROGRAPH AT
+                                   CL3      1351.    3.33         455.        138.        138.        1.00

              2 COMBINED AT
+                                 NODE4     23619.   14.42       22515.      18164.      18164.      154.48

              ROUTED TO
+                                 NODE5     23619.   14.42       22515.      18163.      18163.      154.48


 *** NORMAL END OF HEC-1 ***
```

```
*FREE*
ID CHACON CREEK WATERSHED                         LAREDO,  TEXAS          EXISTING
ID FLOOD INSURANCE STUDY                          SEPT 16, 1998
ID    100      YRS    RETURN   PERIOD  6-HR DURATION   STORM     WITH 60-MIN INTERVAL
IT      5 16SEP98     0300      240
IO      0        2
*  Upper Chacon Sub-basin
KK     CU
KM D.A. OF CU + SY + TC + LC HYD
BA 116.9
BF      0        0        1
PB  5.22
PI  0.42    0.783     2.45     0.68     0.47     0.42
LU  0.53    0.283
US  7.78     0.80
*  Reservoir Routing Parameters were updated based on the 1998 "DTM"
KK NODE1 ROUTED     NODE0
RS      1     STOR       -1
SV 18690    21650    25050    28880    33180    37940    43080    48570    54350    60370
SQ      0     1000     7000    14000    23000    35000    49000    66000    88000   114000
SE    446      448      450      452      454      456      458      460      462      464
*  Tributary 3
KK    T3A
KM    SUB    OF T3
BA 0.960
BF      0        0        1
PB  6.58
IN     60
PI  0.53     0.99     3.09     0.86     0.59     0.53
LU  0.53    0.308
US  1.23     0.80
KK  T3B,   ROUTED      T3A
RS     10     STOR       -1
SV     31       57       78       96      112      127      142      155      168
SQ    300      600      900     1200     1500     1800     2100     2400     2700
KK  T3C1
KM    SUB    OF T3
BA  1.22
LU  0.53    0.308
US  1.38     0.80
KK  T3B,   ROUTED     T3C1
RS     10     STOR       -1
SV     38       58       73       90      104      117      130      141
SQ    300      600      900     1200     1500     1800     2100     2400
KK  T3B, COMBINE
HC      2
KK    T3B
KM    SUB    OF T3
BA  1.01
LU  0.53    0.308
US  1.16     0.80
KK  T3B, COMBINE
HC      2
KK  T3C2
KM    SUB    OF T3
BA  0.67
LU  0.53    0.308
```

```
US  1.28    0.80
KK  T3B, COMBINE
HC     2
KK NODE1  ROUTED     T3B
RS     9    STOR      -1
SV    53      89     119     149     177     202     227     254     277     300
SQ   500    1000    1500    2000    2500    3000    3500    4000    4500    5000
KK   T3D
KM   SUB   OF T3
BA  2.10
LU  0.44   0.269
US  1.43    0.80
KK NODE1, COMBINE
HC     2
KK NODE1, COMBINE
HC     2
*  Channel routing from node 1 to node 2
KK NODE2  ROUTED   NODE1
RS    15    STOR      -1
SV   464     813    1203    1656    2296    3755    4649    5543    6567    7668
SQ  4000    8000   12000   16000   20000   24000   28000   32000   36000   40000
*  Area CL1
KK   CL1
KM  D.A. CL1 HYD
BA  4.06
PB  6.61
IN    60
PI 0.529   0.992   3.107    0.86   0.595   0.529
LU  0.47   0.283
US  1.95    0.80
KK NODE1 COMBINE
HC     2
*  Tributary 2
KK  T2AB
BA  1.37
BF     0       0       1
PB  6.29
IN    60
PI  0.50    0.94    2.96    0.82    0.57    0.50
LU  0.90   0.409
US  2.07    0.80
KK   T2C
BA  1.48
LU  0.90   0.409
US  1.40    0.80
KK  T2A, COMBINE
HC     2
KK  T2D,  ROUTED     T2A
RS     4    STOR      -1
SV    18      30      46      83      98     114     125     140     151
SQ   600    1200    1800    2400    3000    3600    4200    4800    5400
KK   T2D
BA  2.12
LU  0.90   0.409
US  2.33    0.80
KK  T2D, COMBINE
HC     2
```

```
KK   T2E
BA  1.54
LU  0.78     0.38
US  1.66     0.80
KK  T2D, COMBINE
HC     2
KK   T2F
BA  1.93
LU  0.90    0.409
US  2.55     0.80
KK  T2D, COMBINE
HC     2
KK  T2H,  ROUTED     T2D
RS     3    STOR      -1
SV   284     306     344     404     462     518     575     630
SQ  4800    5400    6000    7000    8000    9000   10000   11000
KK   T2G
BA  2.02
LU  0.86    0.399
US  3.03     0.80
KK  T2H, COMBINE
HC     2
KK   T2H
BA  1.78
LU  0.90    0.409
US  2.17     0.80
KK  T2H, COMBINE
HC     2
KK NODE2  ROUTED     T2H
RS    14    STOR      -1
SV   418     547     589     645     746     837     926    1013    1099    1345
SQ  4200    4800    5400    6000    7000    8000    9000   10000   11000   12000
KK   T2I
BA  3.74
LU  0.86    0.399
US  2.17     0.80
KK NODE2 COMBINE
HC     2
KK NODE2 COMBINE
HC     2
*  Channel routing from node 2 to node 3
KK NODE3  ROUTED   NODE2
RS     8    STOR      -1
SV   282     511     735     949    1177    1421    1573    1935    2212    2497
SQ  4000    8000   12000   16000   20000   24000   28000   32000   36000   40000
*  Area      CL2
KK   CL2
BA  1.88
PB  6.87
PI  0.55    1.03    3.23    0.89    0.62    0.55
LU  0.47   0.286
US  0.88    0.80
KK NODE3 COMBINE
HC     2
*  Tributary 1
KK   T1A
BA 1.002
```

```
BF      0        0        1
PB   6.58
IN     60
PI   0.53     0.99     3.09     0.86     0.59     0.53
LU   0.86    0.408
US   1.11     0.80
KK T1BR,ROUTED T1A
RS      6     STOR       -1
SV     24       38       50       62       72       82       91       99      107
SQ    300      600      900     1200     1500     1800     2100     2400     2700
KK    T1B
BA 1.537
LU   0.90    0.418
US   1.68     0.80
KK    T1B
HC      2
KK T1CD,ROUTED T1B
RS      4     STOR       -1
SV     33       58       83      102      137      167      195      222      246
SQ    500     1000     1500     2000     3000     4000     5000     6000     7000
KK    T1C
BA 1.241
LU   0.82    0.398
US   1.78     0.80
KK T1CD, COMBINE
HC      2
KK    T1D
BA 1.192
LU   0.90    0.418
US   1.80     0.80
KK T1CD, COMBINE
HC      2
KK NODE3, ROUTED    T1CD
RS      6     STOR       -1
SV     51       83      109      135      181      227      272      315      359
SQ    500     1000     1500     2000     3000     4000     5000     6000     7000
KK    T1E
BA 1.229
LU   0.56    0.320
US   1.22     0.66
KK NODE3, COMBINE
HC      2
KK NODE3, COMBINE
HC      2
*  Channel routing from node 3 to node 4
KK NODE4  ROUTED    NODE3
RS      7     STOR       -1
SV    282      485      656      810      958     1096     1235     1373
SQ   4000     8000    12000    16000    20000    24000    28000    32000
*  Tinaja Tributary
KK    TN1
BA 1.120
PB   6.58
IN     60
PI   .526     .987    3.092     .855     .592     .526
LU   0.70     .366
US   1.34     0.80
```

```
KK POND1
KM    OLD     POND
RS      1     STOR      -1
SL    433    19.64     0.7      0.5
SS    444       65     2.5      1.5
SV      0        1       3        5      7.5       10       12
SE    439      440     441      442      443      444      445
KK    TN2
BA 0.637
LU  0.70      .366
US  1.16      0.80
KK POND2
KM    NEW     POND
RS      1     STOR      -1
SL    430    12.57     0.7      0.5
SS    442       75     2.5      1.5
SV      0     3.73      10     16.2       30    43.43       60    76.91
SE    431      432   433.5      435    437.5      440    442.5      445
KK TN1&2,COMBINE
HC      2
KKTN1&2R, ROUTED    TN1&2
RS      4     STOR      -1
SV     23       37      51       66       85      105      124      143      152
SQ    500     1000    1500     2000     2500     3000     3500     4000     4500
KK    TN3
BA 0.745
BF      0        0       1
LU  0.35      .229
US  0.92      0.80
KK     TN COMBINE
HC      2
KK     TN COMBINE
HC      2
*  Area CL3
KK    CL3
BA    1.0
PB  6.98
PI  0.56      1.05    3.28     0.91     0.63     0.56
LU  0.47     0.287
US  0.89      0.80
KK NODE4
HC      2
*  Channel routing from Node 4 to Node 5, was not modeled in the 1981 FIS
KK NODE5  ROUTED    NODE4
RS      1     STOR      -1
SV     12       16      22       27       31       36       40       44
SQ  4000     8000   12000    16000    20000    24000    28000    32000
ZZ
```

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
HYDROGRAPH AT	CU	36918.	7.67	33405.	16971.	16971.	116.90		
ROUTED TO	NODE1	21935.	11.17	20519.	12066.	12066.	116.90	453.76	11.17
HYDROGRAPH AT	T3A	1171.	3.67	458.	140.	140.	0.96		
ROUTED TO	T3B	1119.	4.42	531.	372.	372.	0.96		
HYDROGRAPH AT	T3C1	1393.	3.83	580.	177.	177.	1.22		
ROUTED TO	T3B	1359.	4.42	623.	401.	401.	1.22		
2 COMBINED AT	T3B	2478.	4.42	1154.	773.	773.	2.18		
HYDROGRAPH AT	T3B	1271.	3.58	483.	147.	147.	1.01		
2 COMBINED AT	T3B	3347.	4.25	1625.	920.	920.	3.19		
HYDROGRAPH AT	T3C2	795.	3.75	319.	97.	97.	0.67		
2 COMBINED AT	T3B	4017.	4.17	1944.	1017.	1017.	3.86		
ROUTED TO	NODE1	3876.	4.83	1942.	1023.	1023.	3.86		
HYDROGRAPH AT	T3D	2398.	3.92	1048.	322.	322.	2.10		
2 COMBINED AT	NODE1	5546.	4.50	2983.	1344.	1344.	5.96		
2 COMBINED AT	NODE1	22535.	11.17	21126.	13410.	13410.	122.86		
ROUTED TO	NODE2	21942.	15.67	20915.	13503.	13503.	122.86		
HYDROGRAPH AT	CL1	3810.	4.42	1966.	614.	614.	4.06		
2 COMBINED AT	NODE1	21942.	15.67	20916.	14118.	14118.	126.92		
HYDROGRAPH AT	T2AB	1031.	4.50	504.	155.	155.	1.37		
HYDROGRAPH AT	T2C	1474.	3.92	554.	168.	168.	1.48		
2 COMBINED AT	T2A	2372.	4.08	1056.	323.	323.	2.85		
ROUTED TO	T2D	2234.	4.75	1160.	771.	771.	2.85		
HYDROGRAPH AT	T2D	1459.	4.83	770.	241.	241.	2.12		
2 COMBINED AT	T2D	3692.	4.75	1930.	1012.	1012.	4.97		
HYDROGRAPH AT	T2E	1404.	4.17	606.	185.	185.	1.54		
2 COMBINED AT	T2D	4893.	4.58	2532.	1197.	1197.	6.51		

+	HYDROGRAPH AT	T2F	1239.	5.00	692.	219.	219.	1.93
	2 COMBINED AT	T2D	6069.	4.67	3220.	1416.	1416.	8.44
+	ROUTED TO	T2H	5819.	0.08	4872.	4814.	4814.	8.44
+	HYDROGRAPH AT	T2G	1143.	5.50	712.	234.	234.	[illegible]
+	2 COMBINED AT	T2H	6071.	5.58	5522.	5048.	5048.	10.46
+	HYDROGRAPH AT	T2H	1298.	4.67	652.	202.	202.	1.78
+	2 COMBINED AT	T2H	7122.	4.92	6167.	5250.	5250.	12.24
+	ROUTED TO	NODE2	7068.	6.08	6163.	5294.	5294.	12.24
+	HYDROGRAPH AT	T2I	2757.	4.58	1394.	433.	433.	3.74
+	2 COMBINED AT	NODE2	8982.	5.17	7505.	5727.	5727.	15.98
+	2 COMBINED AT	NODE2	26742.	15.67	25737.	19845.	19845.	142.90
+	ROUTED TO	NODE3	26732.	16.17	25717.	19442.	19442.	142.90
+	HYDROGRAPH AT	CL2	2889.	3.33	987.	299.	299.	1.88
	2 COMBINED AT	NODE3	26732.	16.17	25717.	19741.	19741.	144.78
+	HYDROGRAPH AT	T1A	1212.	3.58	408.	123.	123.	1.00
+	ROUTED TO	T1BR	1163.	4.08	511.	363.	363.	1.00
+	HYDROGRAPH AT	T1B	1428.	4.17	609.	186.	186.	1.54
+	2 COMBINED AT	T1B	2586.	4.08	1111.	549.	549.	2.54
+	ROUTED TO	T1CD	2494.	4.58	1114.	687.	687.	2.54
+	HYDROGRAPH AT	T1C	1125.	4.25	508.	156.	156.	1.24
+	2 COMBINED AT	T1CD	3579.	4.50	1621.	843.	843.	3.78
+	HYDROGRAPH AT	T1D	1051.	4.25	471.	144.	144.	1.19
+	2 COMBINED AT	T1CD	4609.	4.42	2092.	987.	987.	4.97
+	ROUTED TO	NODE3	4451.	5.00	2088.	993.	993.	4.97
+	HYDROGRAPH AT	T1E	1257.	3.75	566.	176.	176.	1.23
	2 COMBINED AT	NODE3	5143.	4.92	2635.	1169.	1169.	6.20
+	2 COMBINED AT	NODE3	27232.	16.17	26218.	20910.	20910.	150.98
+	ROUTED TO	NODE4	27222.	16.58	26205.	20577.	20577.	150.98
+	HYDROGRAPH AT	TN1	1254.	3.83	489.	149.	149.	1.12

ROUTED TO	POND1	1245.	3.92	537.	350.	350.	1.12	447.82	3.92
HYDROGRAPH AT	TN2	776.	3.58	279.	85.	85.	0.64		
ROUTED TO	POND2	433.	4.50	237.	124.	124.	0.64	442.96	4.50
2 COMBINED AT	TN1&2	1496.	4.25	773.	474.	474.	1.76		
ROUTED TO	TN1&2R	1476.	4.50	774.	585.	585.	1.76		
HYDROGRAPH AT	TN3	1089.	3.42	396.	120.	120.	0.75		
2 COMBINED AT	TN	2108.	4.00	1169.	705.	705.	2.50		
2 COMBINED AT	TN	27722.	16.58	26705.	21282.	21282.	153.48		
HYDROGRAPH AT	CL3	1549.	3.33	535.	162.	162.	1.00		
2 COMBINED AT	NODE4	27722.	16.58	26705.	21444.	21444.	154.48		
ROUTED TO	NODE5	27722.	16.58	26705.	21441.	21441.	154.48		

*** NORMAL END OF HEC-1 ***

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*FREE*
ID CHACON CREEK WATERSHED                          LAREDO,  TEXAS          EXISTING
ID FLOOD INSURANCE STUDY                           SEPT 16, 1998
ID   500     YRS   RETURN  PERIOD  6-HR DURATION   STORM    WITH 60-MIN INTERVAL
IT     5 16SEP98    0300     240
IO     0       2
*  Upper Chacon Sub-basin
KK    CU
KM D.A. OF CU + SY + TC + LC HYD
BA 116.9
BF     0       0       1
PB  6.39
PI   .51     .96     3.0     .83     .58     .51
LU  0.53    .305
US  7.78    0.80
*  Reservoir Routing Parameters were updated based on the 1998 "DTM"
KK NODE1 ROUTED    NODE0
RS     1    STOR      -1
SV 18690   21650   25050   28880   33180   37940   43080   48570   54350   60370
SQ     0    1000    7000   14000   23000   35000   49000   66000   88000  114000
SE   446     448     450     452     454     456     458     460     462     464
*  Tributary 3
KK   T3A
KM   SUB    OF T3
BA 0.960
BF     0       0       1
PB  8.00
IN    60
PI  0.64     1.2    3.76    1.04    0.72    0.64
LU  0.53   0.327
US  1.23    0.80
KK  T3B,  ROUTED     T3A
RS    10    STOR      -1
SV    31      57      78      96     112     127     142     155     168
SQ   300     600     900    1200    1500    1800    2100    2400    2700
KK  T3C1
KM   SUB    OF T3
BA  1.22
LU  0.53   0.327
US  1.38    0.80
KK  T3B,  ROUTED    T3C1
RS    10    STOR      -1
SV    38      58      73      90     104     117     130     141
SQ   300     600     900    1200    1500    1800    2100    2400
KK  T3B, COMBINE
HC     2
KK   T3B
KM   SUB    OF T3
BA  1.01
LU  0.53   0.327
US  1.16    0.80
KK  T3B, COMBINE
HC     2
KK  T3C2
KM   SUB    OF T3
BA  0.67
LU  0.53   0.327
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US  1.28     0.80
KK  T3B, COMBINE
HC      2
KK NODE1  ROUTED     T3B
RS      9    STOR     -1
SV     89     119    149     177     202     227     254     277     300     343
SQ  1000     1500   2000    2500    3000    3500    4000    4500    5000    6000
KK    T3D
KM    SUB   OF T3
BA  2.10
LU  0.44   0.284
US  1.43     0.80
KK NODE1, COMBINE
HC      2
KK NODE1, COMBINE
HC      2
*  Channel routing from node 1 to node 2
KK NODE2  ROUTED   NODE1
RS     15    STOR     -1
SV    464     813   1203    1656    2296    3755    4649    5543    6567    7668
SQ  4000     8000  12000   16000   20000   24000   28000   32000   36000   40000
*  Area CL1
KK    CL1
KM  D.A. CL1 HYD
BA  4.06
PB   8.1
IN     60
PI   .65     1.22   3.81    1.05     .73     .65
LU  0.47     .299
US  1.95     0.80
KK NODE1 COMBINE
HC      2
*  Tributary 2
KK  T2AB
BA  1.37
BF      0       0      1
PB  7.66
IN     60
PI  0.61     1.15   3.60    1.00    0.69    0.61
LU  0.90     0.45
US  2.07     0.80
KK   T2C
BA  1.48
LU  0.90     0.45
US  1.40     0.80
KK  T2A, COMBINE
HC      2
KK  T2D,  ROUTED     T2A
RS      4    STOR     -1
SV     18      30     46      83      98     114     125     140     151
SQ    600    1200   1800    2400    3000    3600    4200    4800    5400
KK    T2D
BA  2.12
LU  0.90     0.45
US  2.33     0.80
KK  T2D, COMBINE
HC      2
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KK   T2E
BA  1.54
LU  0.78    0.414
US  1.66     0.80
KK  T2D, COMBINE
HC     2
KK   T2F
BA  1.93
LU  0.90     0.45
US  2.55     0.80
KK  T2D, COMBINE
HC     2
KK  T2H,  ROUTED     T2D
RS     3    STOR      -1
SV   306     344     404     462     518     575     630
SQ  5400    6000    7000    8000    9000   10000   11000
KK   T2G
BA  2.02
LU  0.86    0.438
US  3.03     0.80
KK  T2H, COMBINE
HC     2
KK   T2H
BA  1.78
LU  0.90     0.45
US  2.17     0.80
KK  T2H, COMBINE
HC     2
KKNODE2,, ROUTED     T2H
RS    14    STOR      -1
SV   547     589     645     746     837     926    1013    1099    1345
SQ  4800    5400    6000    7000    8000    9000   10000   11000   12000
KK   T2I
BA  3.74
LU  0.86    0.438
US  2.17     0.80
KK NODE2 COMBINE
HC     2
KK NODE2 COMBINE
HC     2
*  Channel routing from node 2 to node 3
KK NODE3  ROUTED   NODE2
RS     8    STOR      -1
SV   282     511     735     949    1177    1421    1673    1935    2212    2497
SQ  4000    8000   12000   16000   20000   24000   28000   32000   36000   40000
*  Area       CL2
KK   CL2
BA  1.88
PB  8.42
PI   .67    1.26    3.96    1.09     .76     .67
LU  0.47    .302
US  0.88    0.80
KK NODE3 COMBINE
HC     2
*  Tributary 1
KK   T1A
BA 1.002
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BF     0        0        1
PB  8.00
IN    60
PI  0.64    1.20     3.76     1.04     0.72     0.64
LU  0.86   0.447
US  1.11    0.80
KK T1BR,ROUTED T1A
RS     6    STOR       -1
SV    24      38       50       62       72       82       91       99      107
SQ   300     600      900     1200     1500     1800     2100     2400     2700
KK   T1B
BA 1.537
LU  0.90   0.459
US  1.68    0.80
KK   T1B
HC     2
KK T1CD,ROUTED T1B
RS     5    STOR       -1
SV    33      58       83      102      137      167      195      222      246
SQ   500    1000     1500     2000     3000     4000     5000     6000     7000
KK   T1C
BA 1.241
LU  0.82   0.434
US  1.78    0.80
KK T1CD, COMBINE
HC     2
KK   T1D
BA 1.192
LU  0.90   0.459
US  1.80    0.80
KK T1CD, COMBINE
HC     2
KK NODE1, ROUTED    T1CD
RS     6    STOR       -1
SV    51      83      135      181      227      272      315      359      397
SQ   500    1000     2000     3000     4000     5000     6000     7000     8000
KK   T1E
BA 1.229
LU  0.56   0.341
US  1.22    0.66
KK NODE3, COMBINE
HC     2
KK NODE3, COMBINE
HC     2
*  Channel routing from node 3 to node 4
KK NODE4  ROUTED   NODE3
RS     7    STOR       -1
SV   282     485      656      810      958     1096     1235     1373     1505     1636
SQ  4000    8000    12000    16000    20000    24000    28000    32000    36000    40000
*  Tinaja Tributary
KK   TN1
BA 1.120
BF     0       0        1
PB  8.00
IN    60
PI   .64   1.201    3.762    1.041      .72      .64
LU  0.70    .395
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US  1.34     0.80
KK POND1
KM   OLD     POND
RS     1     STOR      -1
SL   433    19.64      0.7      0.5
SS   444       65      2.5      1.5
SV     0        1        3        5      7.5       10       12
SE   439      440      441      442      443      444      445
KK   TN2
BA 0.637
LU  0.70     .395
US  1.16     0.80
KK POND2
KM   NEW     POND
RS     1     STOR      -1
SL   430    12.57      0.7      0.5
SS   442       75      2.5      1.5
SV     0     3.73       10     16.2       30    43.43       60    76.91
SE   431      432    433.5      435    437.5      440    442.5      445
KK TN1&2,COMBINE
HC     2
KKTN1&2R, ROUTED   TN1&2
RS     4     STOR      -1
SV    23       37       51       66       85      105      124      143      152
SQ   500     1000     1500     2000     2500     3000     3500     4000     4500
KK   TN3
BA 0.745
LU  0.35     .239
US  0.92     0.80
KK    TN COMBINE
HC     2
KK    TN COMBINE
HC     2
*  Area CL3
KK   CL3
BA   1.0
PB  8.55
PI   .68     1.28     4.02     1.11      .77      .68
LU  0.47     .303
US  0.89     0.80
KK NODE4
HC     2
*  Channel routing from Node 4 to Node 5, was not modeled in the 1981 FIS
KK NODE5  ROUTED   NODE4
RS     1     STOR      -1
SV    12       16       22       27       31       36       40       44       49       53
SQ  4000     8000    12000    16000    20000    24000    28000    32000    36000    40000
ZZ
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RUNOFF SUMMARY

FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	CU	46262.	7.67	41859.	21267.	21267.	116.90		
+	ROUTED TO	NODE1	28916.	11.00	26724.	15623.	15623.	116.90		
+									454.99	11.00
+	HYDROGRAPH AT	T3A	1457.	3.67	586.	179.	179.	0.96		
+	ROUTED TO	T3B	1407.	4.33	629.	403.	403.	0.96		
+	HYDROGRAPH AT	T3C1	1735.	3.83	742.	227.	227.	1.22		
+	ROUTED TO	T3B	1701.	4.33	762.	444.	444.	1.22		
+	2 COMBINED AT	T3B	3108.	4.33	1387.	847.	847.	2.18		
+	HYDROGRAPH AT	T3B	1580.	3.58	618.	188.	188.	1.01		
+	2 COMBINED AT	T3B	4272.	4.17	2005.	1035.	1035.	3.19		
+	HYDROGRAPH AT	T3C2	989.	3.75	408.	125.	125.	0.67		
+	2 COMBINED AT	T3B	5148.	4.08	2413.	1160.	1160.	3.86		
	ROUTED TO	NODE1	5010.	4.67	2416.	1442.	1442.	3.86		
+	HYDROGRAPH AT	T3D	2981.	3.92	1331.	410.	410.	2.10		
+	2 COMBINED AT	NODE1	7271.	4.50	3745.	1852.	1852.	5.96		
+	2 COMBINED AT	NODE1	29916.	11.00	27729.	17475.	17475.	122.86		
+	ROUTED TO	NODE2	29488.	13.83	27108.	17274.	17274.	122.86		
+	HYDROGRAPH AT	CL1	4795.	4.42	2525.	792.	792.	4.06		
+	2 COMBINED AT	NODE1	29488.	13.83	27108.	18066.	18066.	126.92		
+	HYDROGRAPH AT	T2AB	1309.	4.50	658.	204.	204.	1.37		
+	HYDROGRAPH AT	T2C	1853.	3.83	726.	221.	221.	1.48		
+	2 COMBINED AT	T2A	3004.	4.00	1380.	425.	425.	2.85		
+	ROUTED TO	T2D	2959.	4.42	1441.	856.	856.	2.85		
+	HYDROGRAPH AT	T2D	1858.	4.75	1005.	316.	316.	2.12		
	2 COMBINED AT	T2D	4751.	4.50	2446.	1172.	1172.	4.97		
+	HYDROGRAPH AT	T2E	1768.	4.08	789.	242.	242.	1.54		
+	2 COMBINED AT	T2D	6427.	4.42	3228.	1414.	1414.	6.51		

+ HYDROGRAPH AT	T2F	1582.	5.00	904.	288.	288.	1.93
+ 2 COMBINED AT	T2D	7863.	4.42	4127.	1701.	1701.	8.44
ROUTED TO	T2H	6726.	5.58	5685.	5491.	5491.	8.44
+ HYDROGRAPH AT	T2G	1463.	5.50	927.	306.	306.	2.02
+ 2 COMBINED AT	T2H	8187.	5.58	6591.	5798.	5798.	10.46
+ HYDROGRAPH AT	T2H	1650.	4.58	851.	265.	265.	1.78
+ 2 COMBINED AT	T2H	9462.	5.42	7433.	6063.	6063.	12.24
+ ROUTED TO	NODE2	9252.	6.50	7423.	6178.	6178.	12.24
+ HYDROGRAPH AT	T2I	3501.	4.58	1818.	567.	567.	3.74
+ 2 COMBINED AT	NODE2	10909.	5.17	9134.	6746.	6746.	15.98
+ 2 COMBINED AT	NODE2	34902.	13.83	32523.	24812.	24812.	142.90
+ ROUTED TO	NODE3	34823.	14.75	32477.	24095.	24095.	142.90
+ HYDROGRAPH AT	CL2	3606.	3.33	1270.	385.	385.	1.88
+ 2 COMBINED AT	NODE3	34823.	14.75	32477.	24481.	24481.	144.78
HYDROGRAPH AT	T1A	1514.	3.58	532.	161.	161.	1.00
+ ROUTED TO	T1BR	1471.	4.00	608.	393.	393.	1.00
+ HYDROGRAPH AT	T1B	1799.	4.17	794.	243.	243.	1.54
+ 2 COMBINED AT	T1B	3252.	4.08	1394.	636.	636.	2.54
+ ROUTED TO	T1CD	3184.	4.42	1388.	771.	771.	2.54
+ HYDROGRAPH AT	T1C	1418.	4.25	660.	203.	203.	1.24
+ 2 COMBINED AT	T1CD	4577.	4.42	2048.	974.	974.	3.78
+ HYDROGRAPH AT	T1D	1327.	4.25	613.	189.	189.	1.19
+ 2 COMBINED AT	T1CD	5886.	4.33	2661.	1163.	1163.	4.97
+ ROUTED TO	NODE1	5703.	4.92	2655.	1169.	1169.	4.97
+ HYDROGRAPH AT	T1E	1571.	3.75	725.	226.	226.	1.23
+ 2 COMBINED AT	NODE3	6627.	4.83	3352.	1395.	1395.	6.20
2 COMBINED AT	NODE3	35323.	14.75	32977.	25875.	25875.	150.98
+ ROUTED TO	NODE4	35302.	15.17	32964.	25335.	25335.	150.98
+ HYDROGRAPH AT	TN1	1565.	3.83	633.	193.	193.	1.12

	ROUTED TO									
+		POND1	1554.	3.92	660.	387.	387.	1.12		
+									449.06	3.92
	HYDROGRAPH AT									
		TN2	967.	3.58	361.	110.	110.	0.64		
	ROUTED TO									
+		POND2	740.	4.17	307.	148.	148.	0.64		
+									443.86	4.17
	2 COMBINED AT									
+		TN1&2	2233.	4.08	965.	535.	535.	1.76		
	ROUTED TO									
+		TN1&2R	2117.	4.50	959.	641.	641.	1.76		
	HYDROGRAPH AT									
+		TN3	1343.	3.42	501.	153.	153.	0.75		
	2 COMBINED AT									
+		TN	2709.	4.25	1459.	793.	793.	2.50		
	2 COMBINED AT									
+		TN	35802.	15.17	33464.	26129.	26129.	153.48		
	HYDROGRAPH AT									
+		CL3	1935.	3.33	688.	209.	209.	1.00		
	2 COMBINED AT									
+		NODE4	35802.	15.17	33464.	26337.	26337.	154.48		
	ROUTED TO									
+		NODE5	35802.	15.17	33464.	26328.	26328.	154.48		

*** NORMAL END OF HEC-1 ***

COMBINED HEC-1 MODEL FOR THE ENTIRE WATERSHED

(Future Condition)

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*FREE*
ID CHACON CREEK WATERSHED                    LAREDO,  TEXAS            FUTURE
ID FLOOD INSURANCE STUDY                     SEPT 16, 1998
ID     10     YRS    RETURN  PERIOD  6-HR DURATION   STORM    WITH 60-MIN INTERVAL
IT      5 16SEP98     0300     240
IO      0        2
*  Upper Chacon Sub-basin
KK     CU
KM D.A. OF CU + SY + TC + LC HYD
BA 116.9
BF      0        0        1
PB  3.45
PI   .28      .52     1.62     .45     .31      .28
LU  0.44     .212
US  7.29     0.80
*  Reservoir Routing Parameters were updated based on the 1998 "DTM"
KK NODE1 ROUTED    NODE0
RS      1     STOR      -1
SV 18690    21650    25050    28880    33180    37940    43080    48570    54350    60370
SQ      0     1000     7000    14000    23000    35000    49000    66000    88000   114000
SE    446      448      450      452      454      456      458      460      462      464
* Tributary 3
KK    T3A
KM    SUB    OF T3
BA 0.960
BF      0        0        1
PB  4.32
IN     60
PI  0.35     0.65     2.03     0.56     0.39     0.35
LU  0.35    0.204
US  1.01     0.80
KK  T3B,   ROUTED      T3A
RS     10     STOR      -1
SV     31       57       78       96      112      127      142      155      168
SQ    300      600      900     1200     1500     1800     2100     2400     2700
KK  T3C1
KM    SUB    OF T3
BA  1.22
LU  0.25    0.158
US  0.98     0.80
KK  T3B,   ROUTED     T3C1
RS     10     STOR      -1
SV     38       58       73       90      104      117      130      141
SQ    300      600      900     1200     1500     1800     2100     2400
KK  T3B, COMBINE
HC      2
KK    T3B
KM    SUB    OF T3
BA  1.01
LU  0.22    0.146
US  0.79     0.80
KK  T3B, COMBINE
HC      2
KK  T3C2
KM    SUB    OF T3
BA  0.67
LU  0.22    0.146
```

n

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US  0.87    0.80
KK  T3B, COMBINE
HC     2
KK NODE1  ROUTED     T3B
RS    10    STOR      -1
SV    53      89     119     149     177     202     227     254     277     300
SQ   500    1000    1500    2000    2500    3000    3500    4000    4500    5000
KK   T3D
KM   SUB   OF T3
BA  2.10
LU  0.30   0.182
US  1.20    0.80
KK NODE1, COMBINE
HC     2
KK NODE1, COMBINE
HC     2
*  Channel routing from node 1 to node 2
KK NODE2  ROUTED   NODE1
RS    15    STOR      -1
SV   464     813    1203    1656    2296    3755    4649    5543
SQ  4000    8000   12000   16000   20000   24000   28000   32000
*  Area CL1
KK   CL1
KM  D.A. CL1 HYD
BA  4.06
PB  4.38
IN    60
PI   .35     .66    2.06     .57     .39     .35
LU  0.33    .194
US  1.65    0.80
KK NODE1 COMBINE
HC     2
*  Tributary 2
KK  T2AB
BA  1.37
BF     0       0       1
PB  4.14
IN    60
PI  0.33    0.62    1.95    0.54    0.37    0.33
LU  0.70   0.289
US  1.81    0.80
KK   T2C
BA  1.48
LU  0.90   0.314
US  1.40    0.80
KK  T2A, COMBINE
HC     2
KK  T2D,  ROUTED     T2A
RS     4    STOR      -1
SV    18      30      46      83      98     114     125     140     151
SQ   600    1200    1800    2400    3000    3600    4200    4800    5400
KK   T2D
BA  2.12
LU  0.70   0.289
US  2.02    0.80
KK  T2D, COMBINE
HC     2
```

```
KK   T2E
BA  1.54
LU  0.50    0.247
US  1.31     0.80
KK  T2D, COMBINE
HC      2
KK   T2F
BA  1.93
LU  0.60     0.27
US  2.04     0.80
KK  T2D, COMBINE
HC      2
KK  T2H,  ROUTED     T2D
RS      3    STOR     -1
SV    116     125    144    241    284    306    344    404    462
SQ   2400    3000   3600   4200   4800   5400   6000   7000   8000
KK   T2G
BA  2.02
LU  0.74    0.295
US  2.62     0.80
KK  T2H, COMBINE
HC      2
KK   T2H
BA  1.78
LU  0.67    0.283
US  2.03     0.80
KK  T2H, COMBINE
HC      2
KKNODE2,, ROUTED     T2H
RS     14    STOR     -1
SV    274     323    372    418    547    589    645    746
SQ   2400    3000   3600   4200   4800   5400   6000   7000
KK   T2I
BA  3.74
LU  0.53    0.255
US  2.03     0.80
KK NODE2 COMBINE
HC      2
KK NODE2 COMBINE
HC      2
*  Channel routing from node 2 to node 3
KK NODE3  ROUTED   NODE2
RS      8    STOR     -1
SV    282     511    735    949   1177   1421   1673   1935
SQ   4000    8000  12000  16000  20000  24000  28000  32000
*  Area        CL2
KK   CL2
BA  1.88
PB  4.55
PI   .36      .68   2.14    .59    .41    .36
LU  0.33     .198
US  0.74     0.80
KK NODE3 COMBINE
HC      2
*  Tributary 1
KK   T1A
BA 1.002
```

```
BF     0        0        1
PB  4.32
IN    60
PI  0.35    0.65    2.03    0.56    0.39    0.35
LU  0.50   0.252
US  0.83    0.80
KK T1BR,ROUTED T1A
RS     8    STOR      -1
SV    24      38      50      62      72      82      91      99     107
SQ   300     600     900    1200    1500    1800    2100    2400    2700
KK   T1B
BA 1.537
LU  0.50   0.252
US  1.23    0.80
KK   T1B
HC     2
KK T1CD,ROUTED T1B
RS     5    STOR      -1
SV    33      58      83     102     137     167     195     222     246
SQ   500    1000    1500    2000    3000    4000    5000    6000    7000
KK   T1C
BA 1.241
LU  0.44   0.234
US  1.29    0.80
KK T1CD, COMBINE
HC     2
KK   T1D
BA 1.192
LU  0.44   0.234
US  1.23    0.80
KK T1CD, COMBINE
HC     2
KK NODE1, ROUTED    T1CD
RS     8    STOR      -1
SV    51      83     109     135     181     227     272     315     359
SQ   500    1000    1500    2000    3000    4000    5000    6000    7000
KK   T1E
BA 1.229
LU  0.56   0.269
US  1.22    0.66
KK NODE3, COMBINE
HC     2
KK NODE3, COMBINE
HC     2
*  Channel routing from node 3 to node 4
KK NODE4  ROUTED   NODE3
RS     7    STOR      -1
SV   282     485     656     810     958    1096    1235    1373
SQ  4000    8000   12000   16000   20000   24000   28000   32000
*  Tinaja Tributary
KK   TN1
BA 1.120
BF     0        0        1
PB  4.32
IN    60
PI  .346    .649   2.032    .562    .389    .346
LU  0.35    .204
```

```
US  0.95     0.80
KK POND1
KM   OLD     POND
RS     1     STOR       -1
SL   433    19.64       0.7      0.5
SS   444       65       2.5      1.5
SV     0        1         3        5      7.5      10      12
SE   439      440       441      442      443     444     445
KK   TN2
BA 0.637
LU  0.33     .193
US  0.80     0.80
KK POND2
KM   NEW     POND
RS     1     STOR       -1
SL   430    12.57       0.7      0.5
SS   442       75       2.5      1.5
SV     0     3.73        10     16.2       30   43.43      60   76.91
SE   431      432     433.5      435    437.5     440   442.5     445
KK TN1&2,COMBINE
HC     2
KKTN1&2R, ROUTED    TN1&2
RS     4     STOR       -1
SV    23       37        51       66       85     105     124     143     152
SQ   500     1000      1500     2000     2500    3000    3500    4000    4500
KK   TN3
BA 0.745
LU  0.33     .193
US  0.90     0.80
KK     TN COMBINE
HC     2
KK     TN COMBINE
HC     2
*  Area CL3
KK   CL3
BA   1.0
PB  4.62
PI   .37      .69      2.17       .6      .42     .37
LU  0.33     .197
US  0.75     0.80
KK NODE4
HC     2
*  Channel routing from Node 4 to Node 5, was not modeled in the 1981 FIS
KK NODE5  ROUTED    NODE4
RS     1     STOR       -1
SV    12       16        22       27       31      36      40      44
SQ  4000     8000     12000    16000    20000   24000   28000   32000
ZZ
```

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	CU	40697.	7.17	36234.	17579.	17579.	116.90		
+	ROUTED TO	NODE1	23555.	10.58	21856.	12348.	12348.	116.90		
+									454.09	10.58
+	HYDROGRAPH AT	T3A	1342.	3.50	509.	155.	155.	0.96		
+	ROUTED TO	T3B	1279.	4.17	569.	382.	382.	0.96		
+	HYDROGRAPH AT	T3C1	1783.	3.42	693.	212.	212.	1.22		
+	ROUTED TO	T3B	1732.	4.00	716.	428.	428.	1.22		
+	2 COMBINED AT	T3B	2986.	4.08	1285.	810.	810.	2.18		
+	HYDROGRAPH AT	T3B	1625.	3.25	586.	178.	178.	1.01		
+	2 COMBINED AT	T3B	3907.	3.92	1854.	989.	989.	3.19		
+	HYDROGRAPH AT	T3C2	1038.	3.33	388.	118.	118.	0.67		
+	2 COMBINED AT	T3B	4698.	3.83	2241.	1107.	1107.	3.86		
	ROUTED TO	NODE1	4575.	4.33	2238.	1113.	1113.	3.86		
+	HYDROGRAPH AT	T3D	2734.	3.67	1145.	351.	351.	2.10		
+	2 COMBINED AT	NODE1	6685.	4.17	3381.	1464.	1464.	5.96		
+	2 COMBINED AT	NODE1	24155.	10.58	22465.	14312.	14312.	122.86		
+	ROUTED TO	NODE2	23372.	15.08	22045.	14382.	14382.	122.86		
+	HYDROGRAPH AT	CL1	4481.	4.08	2178.	677.	677.	4.06		
+	2 COMBINED AT	NODE1	23372.	15.08	22045.	15058.	15058.	126.92		
+	HYDROGRAPH AT	T2AB	1194.	4.25	556.	171.	171.	1.37		
+	HYDROGRAPH AT	T2C	1474.	3.92	554.	168.	168.	1.48		
+	2 COMBINED AT	T2A	2611.	4.00	1109.	339.	339.	2.85		
+	ROUTED TO	T2D	2481.	4.50	1218.	788.	788.	2.85		
+	HYDROGRAPH AT	T2D	1716.	4.50	854.	264.	264.	2.12		
	2 COMBINED AT	T2D	4197.	4.50	2069.	1052.	1052.	4.97		
+	HYDROGRAPH AT	T2E	1742.	3.75	706.	215.	215.	1.54		
+	2 COMBINED AT	T2D	5448.	4.42	2767.	1268.	1268.	6.51		

+	HYDROGRAPH AT	T2F	1599.	4.50	818.	255.	255.	1.93
+	2 COMBINED AT	T2D	7044.	4.42	3582.	1522.	1522.	8.44
	ROUTED TO	T2H	6211.	5.25	5122.	4891.	4891.	8.44
+	HYDROGRAPH AT	T2G	1334.	5.08	773.	247.	247.	2.02
+	2 COMBINED AT	T2H	7536.	5.25	5838.	5138.	5138.	10.46
+	HYDROGRAPH AT	T2H	1554.	4.33	734.	226.	226.	1.78
+	2 COMBINED AT	T2H	8652.	5.08	6566.	5364.	5364.	12.24
+	ROUTED TO	NODE2	8454.	6.17	6562.	5409.	5409.	12.24
+	HYDROGRAPH AT	T2I	3179.	4.50	1644.	513.	513.	3.74
+	2 COMBINED AT	NODE2	10035.	5.83	8163.	5922.	5922.	15.98
+	2 COMBINED AT	NODE2	28172.	15.08	26853.	20980.	20980.	142.90
+	ROUTED TO	NODE3	28136.	15.92	26810.	20595.	20595.	142.90
+	HYDROGRAPH AT	CL2	3174.	3.25	1083.	328.	328.	1.88
+	2 COMBINED AT	NODE3	28136.	15.92	26810.	20924.	20924.	144.78
	HYDROGRAPH AT	T1A	1482.	3.33	490.	148.	148.	1.00
+	ROUTED TO	T1BR	1428.	3.75	564.	379.	379.	1.00
+	HYDROGRAPH AT	T1B	1889.	3.67	746.	227.	227.	1.54
+	2 COMBINED AT	T1B	3310.	3.75	1301.	607.	607.	2.54
+	ROUTED TO	T1CD	3176.	4.08	1293.	741.	741.	2.54
+	HYDROGRAPH AT	T1C	1501.	3.75	622.	190.	190.	1.24
+	2 COMBINED AT	T1CD	4549.	4.00	1914.	931.	931.	3.78
+	HYDROGRAPH AT	T1D	1485.	3.67	598.	183.	183.	1.19
+	2 COMBINED AT	T1CD	5923.	4.00	2512.	1114.	1114.	4.97
+	ROUTED TO	NODE1	5684.	4.50	2506.	1120.	1120.	4.97
+	HYDROGRAPH AT	T1E	1257.	3.75	566.	176.	176.	1.23
+	2 COMBINED AT	NODE3	6610.	4.42	3067.	1296.	1296.	6.20
	2 COMBINED AT	NODE3	28636.	15.92	27310.	22220.	22220.	150.98
+	ROUTED TO	NODE4	28625.	16.33	27297.	21897.	21897.	150.98
+	HYDROGRAPH AT	TN1	1625.	3.42	595.	181.	181.	1.12

+	ROUTED TO	POND1	1606.	3.50	620.	375.	375.	1.12		
+									449.27	3.50
	HYDROGRAPH AT	TN2	996.	3.25	345.	105.	105.	0.64		
+	ROUTED TO	POND2	703.	3.83	289.	142.	142.	0.64		
+									443.76	3.83
+	2 COMBINED AT	TN1&2	2206.	3.75	906.	517.	517.	1.76		
+	ROUTED TO	TN1&2R	2077.	4.08	901.	623.	623.	1.76		
+	HYDROGRAPH AT	TN3	1108.	3.33	403.	122.	122.	0.75		
+	2 COMBINED AT	TN	2826.	3.83	1303.	745.	745.	2.50		
+	2 COMBINED AT	TN	29125.	16.33	27797.	22642.	22642.	153.48		
+	HYDROGRAPH AT	CL3	1710.	3.25	587.	178.	178.	1.00		
+	2 COMBINED AT	NODE4	29125.	16.33	27797.	22820.	22820.	154.48		
+	ROUTED TO	NODE5	29125.	16.33	27797.	22818.	22818.	154.48		

*** NORMAL END OF HEC-1 ***

```
ID CHACON CREEK WATERSHED                LAREDO,  TEXAS                FUTURE
ID FLOOD INSURANCE STUDY                 SEPT 16, 1998
ID     25     YRS   RETURN  PERIOD  6-HR DURATION   STORM    WITH 60-MIN INTERVAL
IT      5 16SEP98    0300     240
IO      0       2
*  Upper Chacon Sub-basin
KK     CU
KM D.A. OF CU + SY + TC + LC HYD
BA 116.9
BF      0       0       1
PB  4.04
PI   .32     .61     1.9     .53     .36     .32
LU  0.44    .227
US  7.29    0.80
*  Reservoir Routing Parameters were updated based on the 1998 "DTM"
KK NODE1 ROUTED    NODE0
RS      1    STOR      -1
SV 18690   21650   25050   28880   33180   37940   43080   48570   54350   60370
SQ      0    1000    7000   14000   23000   35000   49000   66000   88000  114000
SE   446     448     450     452     454     456     458     460     462     464
* Tributary 3
KK    T3A
KM    SUB    OF T3
BA 0.960
BF      0       0       1
PB   5.06
IN     60
PI   0.40    0.76    2.38    0.66    0.46    0.40
LU   0.35   0.214
US   1.01    0.80
KK   T3B,  ROUTED     T3A
RS     10    STOR      -1
SV     31      57      78      96     112     127     142     155     168
SQ    300     600     900    1200    1500    1800    2100    2400    2700
KK   T3C1
KM    SUB    OF T3
BA   1.22
LU   0.25   0.164
US   0.98    0.80
KK   T3B,  ROUTED    T3C1
RS     10    STOR      -1
SV     38      58      73      90     104     117     130     141
SQ    300     600     900    1200    1500    1800    2100    2400
KK   T3B, COMBINE
HC      2
KK    T3B
KM    SUB    OF T3
BA   1.01
LU   0.22   0.151
US   0.79    0.80
KK   T3B, COMBINE
HC      2
KK   T3C2
KM    SUB    OF T3
BA   0.67
LU   0.22   0.151
US   0.87    0.80
```

```
KK  T3B, COMBINE
HC      2
KK NODE1  ROUTED     T3B
RS     10    STOR     -1
SV     53      89    119     149     177     202     227     254     277     300
SQ    500    1000   1500    2000    2500    3000    3500    4000    4500    5000
KK    T3D
KM    SUB   OF T3
BA   2.10
LU   0.30   0.190
US   1.20    0.80
KK NODE1, COMBINE
HC      2
KK NODE1, COMBINE
HC      2
*  Channel routing from node 1 to node 2
KK NODE2  ROUTED   NODE1
RS     15    STOR     -1
SV    464     813   1203    1656    2296    3755    4649    5543
SQ   4000    8000  12000   16000   20000   24000   28000   32000
*  Area CL1
KK    CL1
KM   D.A. CL1 HYD
BA   4.06
PB   5.12
IN     60
PI    .41     .77   2.41     .67     .46     .41
LU   0.33    .203
US   1.65    0.80
KK NODE1 COMBINE
HC      2
*  Tributary 2
KK   T2AB
BA   1.37
BF      0       0      1
PB   4.84
IN     60
PI   0.39    0.73   2.27    0.63    0.44    0.39
LU   0.70   0.317
US   1.81    0.80
KK    T2C
BA   1.48
LU   0.90   0.350
US   1.40    0.80
KK   T2A, COMBINE
HC      2
KK   T2D,  ROUTED    T2A
RS      4    STOR     -1
SV     18      30     46      83      98     114     125     140     151
SQ    600    1200   1800    2400    3000    3600    4200    4800    5400
KK    T2D
BA   2.12
LU   0.70   0.317
US   2.02    0.80
KK   T2D, COMBINE
HC      2
KK    T2E
```

```
BA  1.54
LU  0.50   0.264
US  1.31    0.80
KK  T2D, COMBINE
HC     2
KK   T2F
BA  1.93
LU  0.60   0.292
US  2.04    0.80
KK  T2D, COMBINE
HC     2
KK  T2H,  ROUTED     T2D
RS     3    STOR      -1
SV   125     144     241      284      306      344      404      462
SQ  3000    3600    4200     4800     5400     6000     7000     8000
KK   T2G
BA  2.02
LU  0.74   0.324
US  2.62    0.80
KK  T2H, COMBINE
HC     2
KK   T2H
BA  1.78
LU  0.67   0.309
US  1.84    0.80
KK  T2H, COMBINE
HC     2
KKNODE2,, ROUTED     T2H
RS    14    STOR      -1
SV   323     372     418      547      589      645      746      837
SQ  3000    3600    4200     4800     5400     6000     7000     8000
KK   T2I
BA  3.74
LU  0.53   0.274
US  2.03    0.80
KK NODE2 COMBINE
HC     2
KK NODE2 COMBINE
HC     2
*  Channel routing from node 2 to node 3
KK NODE3  ROUTED   NODE2
RS     8    STOR      -1
SV   282     511     735      949     1177     1421     1673     1935
SQ  4000    8000   12000    16000    20000    24000    28000    32000
*  Area        CL2
KK   CL2
BA  1.88
PB  5.32
PI   .43     .80     2.5      .69      .48      .43
LU  0.33    .205
US  0.74    0.80
KK NODE3 COMBINE
HC     2
*  Tributary 1
KK   T1A
BA 1.002
BF     0       0       1
```

```
PB  5.06
IN    60
PI  0.40    0.76    2.38    0.66    0.46    0.40
LU  0.50   0.269
US  0.83    0.80
KK T1BR,ROUTED T1A
RS     8    STOR      -1
SV    24      38      50      62      72      82      91      99     107
SQ   300     600     900    1200    1500    1800    2100    2400    2700
KK   T1B
BA 1.537
LU  0.50   0.269
US  1.23    0.80
KK   T1B
HC     2
KK T1CD,ROUTED T1B
RS     5    STOR      -1
SV    33      58      83     102     137     167     195     222     246
SQ   500    1000    1500    2000    3000    4000    5000    6000    7000
KK   T1C
BA 1.241
LU  0.44   0.248
US  1.29    0.80
KK T1CD, COMBINE
HC     2
KK   T1D
BA 1.192
LU  0.44   0.248
US  1.23    0.80
KK T1CD, COMBINE
HC     2
KK NODE1, ROUTED    T1CD
RS     8    STOR      -1
SV    51      83     109     135     181     227     272     315     359
SQ   500    1000    1500    2000    3000    4000    5000    6000    7000
KK   T1E
BA 1.229
LU  0.56   0.304
US  1.22    0.66
KK NODE3, COMBINE
HC     2
KK NODE3, COMBINE
HC     2
*  Channel routing from node 3 to node 4
KK NODE4  ROUTED   NODE3
RS     7    STOR      -1
SV   282     485     656     810     958    1096    1235    1373
SQ  4000    8000   12000   16000   20000   24000   28000   32000
*  Tinaja Tributary
KK   TN1
BA 1.120
BF     0       0       1
PB  5.06
IN    60
PI  .405    .759   2.378    .658    .455    .405
LU  0.35    .214
US  0.95    0.80
```

```
KK POND1
KM   OLD     POND
RS     1     STOR       -1
SL   433    19.64      0.7      0.5
SS   444       65      2.5      1.5
SV     0        1        3        5      7.5       10       12
SE   439      440      441      442      443      444      445
KK   TN2
BA 0.637
LU  0.33     .202
US  0.80     0.80
KK POND2
KM   NEW     POND
RS     1     STOR       -1
SL   430    12.57      0.7      0.5
SS   442       75      2.5      1.5
SV     0     3.73       10     16.2       30    43.43       60    76.91
SE   431      432    433.5      435    437.5      440    442.5      445
KK TN1&2,COMBINE
HC     2
KKTN1&2R, ROUTED    TN1&2
RS     4     STOR       -1
SV    23       37       51       66       85      105      124      143      152
SQ   500     1000     1500     2000     2500     3000     3500     4000     4500
KK   TN3
BA 0.745
LU  0.33     .202
US  0.90     0.80
KK    TN COMBINE
HC     2
KK    TN COMBINE
HC     2
*  Area CL3
KK   CL3
BA   1.0
PB  5.41
PI   .43      .81     2.54       .7      .49      .43
LU  0.33     .205
US  0.75     0.80
KK NODE4
HC     2
*  Channel routing from Node 4 to Node 5, was not modeled in the 1981 FIS
KK NODE5  ROUTED    NODE4
RS     1     STOR       -1
SV    12       16       22       27       31       36       40       44
SQ  4000     8000    12000    16000    20000    24000    28000    32000
ZZ
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	CU	30348.	7.17	27020.	13108.	13108.	116.90		
+	ROUTED TO	NODE1	16719.	10.75	15554.	9162.	9162.	116.90		
+									452.60	10.75
+	HYDROGRAPH AT	T3A	1011.	3.50	368.	112.	112.	0.96		
+	ROUTED TO	T3B,	942.	4.25	467.	350.	350.	0.96		
+	HYDROGRAPH AT	T3C1	1350.	3.42	508.	155.	155.	1.22		
+	ROUTED TO	T3B,	1298.	4.08	570.	381.	381.	1.22		
+	2 COMBINED AT	T3B,	2203.	4.17	1036.	731.	731.	2.18		
+	HYDROGRAPH AT	T3B	1234.	3.25	431.	131.	131.	1.01		
+	2 COMBINED AT	T3B,	2798.	4.00	1449.	862.	862.	3.19		
+	HYDROGRAPH AT	T3C2	788.	3.33	285.	87.	87.	0.67		
+	2 COMBINED AT	T3B,	3330.	3.92	1723.	949.	949.	3.86		
	ROUTED TO	NODE1	3261.	4.50	1722.	955.	955.	3.86		
+	HYDROGRAPH AT	T3D	2059.	3.67	834.	255.	255.	2.10		
+	2 COMBINED AT	NODE1	4857.	4.08	2556.	1210.	1210.	5.96		
+	2 COMBINED AT	NODE1	17319.	10.75	16158.	10372.	10372.	122.86		
+	ROUTED TO	NODE2	17209.	12.75	16122.	10637.	10637.	122.86		
+	HYDROGRAPH AT	CL1	3344.	4.08	1582.	489.	489.	4.06		
+	2 COMBINED AT	NODE1	17209.	12.75	16124.	11126.	11126.	126.92		
+	HYDROGRAPH AT	T2AB	870.	4.25	389.	119.	119.	1.37		
+	HYDROGRAPH AT	T2C	1077.	3.92	385.	116.	116.	1.48		
+	2 COMBINED AT	T2A,	1903.	4.00	773.	235.	235.	2.85		
+	ROUTED TO	T2D,	1834.	4.58	952.	706.	706.	2.85		
+	HYDROGRAPH AT	T2D	1247.	4.50	598.	184.	184.	2.12		
	2 COMBINED AT	T2D,	3080.	4.50	1540.	889.	889.	4.97		
+	HYDROGRAPH AT	T2E	1289.	3.75	500.	152.	152.	1.54		
+	2 COMBINED AT	T2D,	4134.	4.17	2035.	1041.	1041.	6.51		

+	HYDROGRAPH AT	T2F	1166.	4.50	576.	178.	178.	1.93
+	2 COMBINED AT	T2D,	5249.	4.25	2610.	1220.	1220.	8.44
	ROUTED TO	T2H,	4317.	5.42	3407.	3130.	3130.	8.44
+	HYDROGRAPH AT	T2G	959.	5.08	541.	.172.	172.	2.02
+	2 COMBINED AT	T2H,	5250.	5.42	3948.	3302.	3302.	10.46
+	HYDROGRAPH AT	T2H	1133.	4.33	515.	158.	158.	1.78
+	2 COMBINED AT	T2H,	5969.	5.25	4459.	3459.	3459.	12.24
+	ROUTED TO	NODE2,	5879.	6.25	4455.	3547.	3547.	12.24
+	HYDROGRAPH AT	T2I	2324.	4.50	1164.	361.	361.	3.74
+	2 COMBINED AT	NODE2	6964.	5.92	5583.	3908.	3908.	15.98
+	2 COMBINED AT	NODE2	20214.	12.75	19156.	15034.	15034.	142.90
+	ROUTED TO	NODE3	20186.	13.50	19140.	14813.	14813.	142.90
+	HYDROGRAPH AT	CL2	2388.	3.25	785.	238.	238.	1.88
+	2 COMBINED AT	NODE3	20186.	13.50	19140.	15050.	15050.	144.78
	HYDROGRAPH AT	T1A	1115.	3.33	348.	105.	105.	1.00
+	ROUTED TO	T1BR,	1071.	3.83	466.	350.	350.	1.00
+	HYDROGRAPH AT	T1B	1410.	3.67	531.	161.	161.	1.54
+	2 COMBINED AT	T1B	2474.	3.75	983.	511.	511.	2.54
+	ROUTED TO	T1CD,	2375.	4.17	1002.	654.	654.	2.54
+	HYDROGRAPH AT	T1C	1122.	3.75	446.	136.	136.	1.24
+	2 COMBINED AT	T1CD,	3367.	4.08	1442.	789.	789.	3.78
+	HYDROGRAPH AT	T1D	1112.	3.67	429.	130.	130.	1.19
+	2 COMBINED AT	T1CD,	4360.	4.00	1871.	920.	920.	4.97
+	ROUTED TO	NODE1	4206.	4.58	1869.	928.	928.	4.97
+	HYDROGRAPH AT	T1E	920.	3.75	392.	121.	121.	1.23
+	2 COMBINED AT	NODE3	4835.	4.50	2259.	1049.	1049.	6.20
	2 COMBINED AT	NODE3	20686.	13.50	19641.	16099.	16099.	150.98
+	ROUTED TO	NODE4	20676.	13.92	19633.	15895.	15895.	150.98
+	HYDROGRAPH AT	TN1	1221.	3.42	430.	130.	130.	1.12

	ROUTED TO									
+		POND1	1207.	3.50	483.	334.	334.	1.12		
+									447.67	3.50
	HYDROGRAPH AT									
+		TN2	751.	3.25	250.	76.	76.	0.64		
	ROUTED TO									
+		POND2	281.	4.33	210.	116.	116.	0.64		
+									442.31	4.33
	2 COMBINED AT									
+		TN1&2	1430.	3.58	692.	449.	449.	1.76		
	ROUTED TO									
+		TN1&2R	1386.	3.92	705.	562.	562.	1.76		
	HYDROGRAPH AT									
+		TN3	834.	3.33	292.	88.	88.	0.75		
	2 COMBINED AT									
+		TN	2055.	3.75	988.	650.	650.	2.50		
	2 COMBINED AT									
+		TN	21176.	13.92	20133.	16545.	16545.	153.48		
	HYDROGRAPH AT									
+		CL3	1291.	3.25	427.	129.	129.	1.00		
	2 COMBINED AT									
+		NODE4	21176.	13.92	20133.	16675.	16675.	154.48		
	ROUTED TO									
+		NODE5	21177.	13.92	20133.	16675.	16675.	154.48		

*** NORMAL END OF HEC-1 ***

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ID CHACON CREEK WATERSHED                         LAREDO,  TEXAS              FUTURE
ID FLOOD INSURANCE STUDY                          SEPT 16, 1998
ID     50     YRS   RETURN  PERIOD  6-HR DURATION   STORM    WITH 60-MIN INTERVAL
IT      5 16SEP98    0300     240
IO      0       2
*  Upper Chacon Sub-basin
KK     CU
KM D.A. OF CU + SY + TC + LC HYD
BA 116.9
BF      0       0       1
PB   4.59
PI    .37     .69    2.16      .6      .41      .37
LU   0.44    .239
US   7.29    0.80
*  Reservoir Routing Parameters were updated based on the 1998 "DTM"
KK NODE1 ROUTED    NODE0
RS      1    STOR      -1
SV 18690   21650   25050   28880   33180   37940   43080   48570   54350   60370
SQ      0   1000    7000   14000   23000   35000   49000   66000   88000  114000
SE    446    448     450     452     454     456     458     460     462     464
* Tributary 3
KK    T3A
KM    SUB   OF T3
BA 0.960
BF      0       0       1
PB   5.75
IN     60
PI   0.46    0.86    2.70    0.75    0.52    0.46
LU   0.35   0.222
US   1.01    0.80
KK   T3B,  ROUTED     T3A
RS     10    STOR      -1
SV     36      60      80     102     119     136     154     171     187
SQ    300     600     900    1200    1500    1800    2100    2400    2700
KK   T3C1
KM    SUB   OF T3
BA   1.22
LU   0.25   0.168
US   0.98    0.80
KK   T3B,  ROUTED    T3C1
RS     10    STOR      -1
SV     38      58      73      90     104     117     130     141
SQ    300     600     900    1200    1500    1800    2100    2400
KK   T3B, COMBINE
HC      2
KK    T3B
KM    SUB   OF T3
BA   1.01
LU   0.22   0.154
US   0.79    0.80
KK   T3B, COMBINE
HC      2
KK   T3C2
KM    SUB   OF T3
BA   0.67
LU   0.22   0.154
US   0.87    0.80
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KK  T3B, COMBINE
HC      2
KK NODE1  ROUTED     T3B
RS    10     STOR     -1
SV    53       89     119     149     177     202     227     254     277     300
SQ   500     1000    1500    2000    2500    3000    3500    4000    4500    5000
KK   T3D
KM   SUB   OF T3
BA  2.10
LU  0.30   0.195
US  1.20    0.80
KK NODE1, COMBINE
HC      2
KK NODE1, COMBINE
HC      2
*  Channel routing from node 1 to node 2
KK NODE2  ROUTED   NODE1
RS    15     STOR     -1
SV   464      813    1203    1656    2296    3755    4649    5543
SQ  4000     8000   12000   16000   20000   24000   28000   32000
*  Area CL1
KK   CL1
KM  D.A. CL1 HYD
BA  4.06
PB  5.82
IN    60
PI   .47      .87    2.74     .76     .52     .47
LU  0.33     .209
US  1.65     0.80
KK NODE1 COMBINE
HC      2
*  Tributary 2
KK  T2AB
BA  1.37
BF     0        0       1
PB  5.50
IN    60
PI  0.44     0.83    2.59    0.72    0.50    0.44
LU  0.70    0.338
US  1.81     0.80
KK   T2C
BA  1.48
LU  0.90    0.379
US  1.40     0.80
KK  T2A, COMBINE
HC      2
KK  T2D,  ROUTED     T2A
RS     4     STOR     -1
SV    18       30      46      83      98     114     125     140     151
SQ   600     1200    1800    2400    3000    3600    4200    4800    5400
KK   T2D
BA  2.12
LU  0.70    0.338
US  2.02     0.80
KK  T2D, COMBINE
HC      2
KK   T2E
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BA  1.54
LU  0.50   0.278
US  1.31    0.80
KK  T2D, COMBINE
HC     2
KK   T2F
BA  1.93
LU  0.60   0.309
US  2.04    0.80
KK  T2D, COMBINE
HC     2
KK  T2H,  ROUTED     T2D
RS     3    STOR      -1
SV   144     241     284     306     344     404     462     518
SQ  3600    4200    4800    5400    6000    7000    8000    9000
KK   T2G
BA  2.02
LU  0.74   0.347
US  2.62    0.80
KK  T2H, COMBINE
HC     2
KK   T2H
BA  1.78
LU  0.67   0.329
US  1.84    0.80
KK  T2H, COMBINE
HC     2
KKNODE2,  ROUTED     T2H
RS    14    STOR      -1
SV   372     418     547     589     645     746     837     926    1013
SQ  3600    4200    4800    5400    6000    7000    8000    9000   10000
KK   T2I
BA  3.74
LU  0.53   0.289
US  2.03    0.80
KK NODE2 COMBINE
HC     2
KK NODE2 COMBINE
HC     2
*  Channel routing from node 2 to node 3
KK NODE3  ROUTED   NODE2
RS     8    STOR      -1
SV   282     511     735     949    1177    1421    1673    1935
SQ  4000    8000   12000   16000   20000   24000   28000   32000
*  Area         CL2
KK   CL2
BA  1.88
PB  6.05
PI   .48     .91    2.84     .79     .54     .48
LU  0.33    .211
US  0.74    0.80
KK NODE3 COMBINE
HC     2
*  Tributary 1
KK   T1A
BA 1.002
BF     0       0       1
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PB  5.75
IN    60
PI  0.46     0.86     2.70     0.75     0.52     0.46
LU  0.50    0.282
US  0.83     0.80
KK T1BR,ROUTED T1A
RS     8     STOR       -1
SV    24       38       50       62       72       82       91       99      107
SQ   300      600      900     1200     1500     1800     2100     2400     2700
KK   T1B
BA 1.537
LU  0.50    0.282
US  1.23     0.80
KK   T1B
HC     2
KK T1CD,ROUTED T1B
RS     5     STOR       -1
SV    33       58       83      102      137      167      195      222      246
SQ   500     1000     1500     2000     3000     4000     5000     6000     7000
KK   T1C
BA 1.241
LU  0.44    0.259
US  1.29     0.80
KK T1CD, COMBINE
HC     2
KK   T1D
BA 1.192
LU  0.44    0.259
US  1.23     0.80
KK T1CD, COMBINE
HC     2
KK NODE1, ROUTED    T1CD
RS     8     STOR       -1
SV    51       83      109      135      181      227      272      315      359
SQ   500     1000     1500     2000     3000     4000     5000     6000     7000
KK   T1E
BA 1.229
LU  0.56    0.304
US  1.22     0.66
KK NODE3, COMBINE
HC     2
KK NODE3, COMBINE
HC     2
*  Channel routing from node 3 to node 4
KK NODE4  ROUTED   NODE3
RS     7     STOR       -1
SV   282      485      656      810      958     1096     1235     1373
SQ  4000     8000    12000    16000    20000    24000    28000    32000
*  Tinaja Tributary
KK   TN1
BA 1.120
BF     0        0        1
PB  5.75
IN    60
PI   .46     .863    2.703     .748     .518      .46
LU  0.35     .222
US  0.95     0.80
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KK POND1
KM    OLD      POND
RS      1      STOR        -1
SL    433     19.64       0.7       0.5
SS    444        65       2.5       1.5
SV      0         1         3         5       7.5        10        12
SE    439       440       441       442       443       444       445
KK    TN2
BA 0.637
LU  0.33      .209
US  0.80      0.80
KK POND2
KM    NEW      POND
RS      1      STOR        -1
SL    430     12.57       0.7       0.5
SS    442        75       2.5       1.5
SV      0      3.73        10      16.2        30     43.43        60     76.91
SE    431       432     433.5       435     437.5       440     442.5       445
KK TN1&2,COMBINE
HC      2
KKTN1&2R, ROUTED    TN1&2
RS      4      STOR        -1
SV     23        37        51        66        85       105       123       143       152
SQ    500      1000      1500      2000      2500      3000      3500      4000      4500
KK    TN3
BA 0.745
LU  0.33      .209
US  0.90      0.80
KK     TN COMBINE
HC      2
KK     TN COMBINE
HC      2
*  Area CL3
KK    CL3
BA    1.0
PB  6.14
PI   .49       .92      2.89        .8       .55       .49
LU  0.33      .212
US  0.75      0.80
KK NODE4
HC      2
*  Channel routing from Node 4 to Node 5, was not modeled in the 1981 FIS
KK NODE5  ROUTED    NODE4
RS      1      STOR        -1
SV     12        16        22        27        31        36        40        44
SQ   4000      8000     12000     16000     20000     24000     28000     32000
ZZ
```

RUNOFF SUMMARY

FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	CU	35047.	7.17	31203.	15138.	15138.	116.90		
+	ROUTED TO	NODE1	19801.	10.67	18424.	10829.	10829.	116.90		
+									453.29	10.67
+	HYDROGRAPH AT	T3A	1160.	3.50	431.	131.	131.	0.96		
+	ROUTED TO	T3B,	1076.	4.33	511.	364.	364.	0.96		
+	HYDROGRAPH AT	T3C1	1546.	3.42	591.	180.	180.	1.22		
+	ROUTED TO	T3B,	1494.	4.00	635.	402.	402.	1.22		
+	2 COMBINED AT	T3B,	2507.	4.17	1146.	765.	765.	2.18		
+	HYDROGRAPH AT	T3B	1411.	3.25	501.	152.	152.	1.01		
+	2 COMBINED AT	T3B,	3266.	3.92	1626.	918.	918.	3.19		
+	HYDROGRAPH AT	T3C2	902.	3.33	332.	101.	101.	0.67		
+	2 COMBINED AT	T3B,	3950.	3.83	1951.	1019.	1019.	3.86		
	ROUTED TO	NODE1	3832.	4.42	1949.	1025.	1025.	3.86		
+	HYDROGRAPH AT	T3D	2365.	3.67	975.	298.	298.	2.10		
+	2 COMBINED AT	NODE1	5630.	4.08	2923.	1323.	1323.	5.96		
+	2 COMBINED AT	NODE1	20401.	10.67	19030.	12152.	12152.	122.86		
+	ROUTED TO	NODE2	20067.	13.75	18953.	12325.	12325.	122.86		
+	HYDROGRAPH AT	CL1	3858.	4.08	1851.	574.	574.	4.06		
+	2 COMBINED AT	NODE1	20067.	13.75	18954.	12899.	12899.	126.92		
+	HYDROGRAPH AT	T2AB	1017.	4.25	464.	142.	142.	1.37		
+	HYDROGRAPH AT	T2C	1257.	3.92	460.	139.	139.	1.48		
+	2 COMBINED AT	T2A,	2224.	4.00	923.	281.	281.	2.85		
+	ROUTED TO	T2D,	2090.	4.67	1070.	742.	742.	2.85		
+	HYDROGRAPH AT	T2D	1459.	4.50	713.	220.	220.	2.12		
	2 COMBINED AT	T2D,	3535.	4.58	1775.	962.	962.	4.97		
+	HYDROGRAPH AT	T2E	1494.	3.75	592.	180.	180.	1.54		
+	2 COMBINED AT	T2D,	4648.	4.25	2361.	1142.	1142.	6.51		

+	HYDROGRAPH AT	T2F	1362.	4.50	685.	213.	213.	1.93
+	2 COMBINED AT	T2D,	5985.	4.33	3044.	1354.	1354.	8.44
	ROUTED TO	T2H,	5418.	5.17	4028.	3737.	3737.	8.44
+	HYDROGRAPH AT	T2G	1128.	5.08	645.	205.	205.	2.02
+	2 COMBINED AT	T2H,	6545.	5.17	4671.	3942.	3942.	10.46
+	HYDROGRAPH AT	T2H	1323.	4.33	613.	188.	188.	1.78
+	2 COMBINED AT	T2H,	7496.	5.17	5278.	4130.	4130.	12.24
+	ROUTED TO	NODE2,	7063.	6.33	5262.	4236.	4236.	12.24
+	HYDROGRAPH AT	T2I	2711.	4.50	1379.	429.	429.	3.74
+	2 COMBINED AT	NODE2	8212.	6.17	6516.	4665.	4665.	15.98
+	2 COMBINED AT	NODE2	23669.	13.75	22583.	17564.	17564.	142.90
+	ROUTED TO	NODE3	23649.	14.25	22568.	17280.	17280.	142.90
+	HYDROGRAPH AT	CL2	2750.	3.25	921.	279.	279.	1.88
+	2 COMBINED AT	NODE3	23649.	14.25	22568.	17559.	17559.	144.78
	HYDROGRAPH AT	T1A	1280.	3.33	412.	125.	125.	1.00
+	ROUTED TO	T1BR,	1239.	3.75	511.	363.	363.	1.00
+	HYDROGRAPH AT	T1B	1626.	3.67	628.	191.	191.	1.54
+	2 COMBINED AT	T1B	2860.	3.75	1126.	554.	554.	2.54
+	ROUTED TO	T1CD,	2748.	4.17	1129.	693.	693.	2.54
+	HYDROGRAPH AT	T1C	1293.	3.75	525.	160.	160.	1.24
+	2 COMBINED AT	T1CD,	3903.	4.08	1654.	854.	854.	3.78
+	HYDROGRAPH AT	T1D	1280.	3.67	505.	154.	154.	1.19
+	2 COMBINED AT	T1CD,	5067.	4.00	2159.	1007.	1007.	4.97
+	ROUTED TO	NODE1	4902.	4.58	2155.	1016.	1016.	4.97
+	HYDROGRAPH AT	T1E	1078.	3.75	475.	147.	147.	1.23
+	2 COMBINED AT	NODE3	5673.	4.50	2627.	1163.	1163.	6.20
	2 COMBINED AT	NODE3	24149.	14.25	23068.	18722.	18722.	150.98
+	ROUTED TO	NODE4	24143.	14.58	23063.	18470.	18470.	150.98
+	HYDROGRAPH AT	TN1	1403.	3.42	504.	153.	153.	1.12

ROUTED TO	POND1	1387.	3.50	542.	352.	352.	1.12	448.39	3.50
HYDROGRAPH AT	TN2	862.	3.25	293.	89.	89.	0.64		
ROUTED TO	POND2	478.	4.00	245.	127.	127.	0.64	443.12	4.00
2 COMBINED AT	TN1&2	1682.	3.83	786.	479.	479.	1.76		
ROUTED TO	TN1&2R	1640.	4.08	790.	588.	588.	1.76		
HYDROGRAPH AT	TN3	958.	3.33	342.	104.	104.	0.75		
2 COMBINED AT	TN	2361.	3.75	1126.	692.	692.	2.50		
2 COMBINED AT	TN	24643.	14.58	23563.	19162.	19162.	153.48		
HYDROGRAPH AT	CL3	1480.	3.25	498.	151.	151.	1.00		
2 COMBINED AT	NODE4	24643.	14.58	23563.	19313.	19313.	154.48		
ROUTED TO	NODE5	24643.	14.58	23563.	19312.	19312.	154.48		

*** NORMAL END OF HEC-1 ***

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*FREE*
ID CHACON CREEK WATERSHED                      LAREDO,  TEXAS              FUTURE
ID FLOOD INSURANCE STUDY                       SEPT 16, 1998
ID   100     YRS   RETURN  PERIOD  6-HR DURATION   STORM    WITH 60-MIN INTERVAL
IT     5 16SEP98     0300     240
IO     0       2
*  Upper Chacon Sub-basin
KK    CU
KM D.A. OF CU + SY + TC + LC HYD
BA 116.9
BF     0       0       1
PB  5.25
PI  0.42   0.783    2.45    0.68    0.47    0.42
LU  0.44   0.251
US  7.29    0.80
*  Reservoir Routing Parameters were updated based on the 1998 "DTM"
KK NODE1 ROUTED    NODE0
RS     1    STOR      -1
SV 18690   21650   25050   28880   33180   37940   43080   48570   54350   60370
SQ     0    1000    7000   14000   23000   35000   49000   66000   88000  114000
SE   446     448     450     452     454     456     458     460     462     464
* Tributary 3
KK   T3A
KM   SUB   OF T3
BA 0.960
BF     0       0       1
PB  6.58
IN    60
PI  0.53    0.99    3.09    0.86    0.59    0.53
LU  0.35   0.229
US  1.01    0.80
KK  T3B,  ROUTED     T3A
RS    10    STOR      -1
SV    31      57      78      96     112     127     142     155     168
SQ   300     600     900    1200    1500    1800    2100    2400    2700
KK  T3C1
KM   SUB   OF T3
BA  1.22
LU  0.25   0.172
US  0.98    0.80
KK  T3B,  ROUTED    T3C1
RS    10    STOR      -1
SV    38      58      73      90     104     117     130     141
SQ   300     600     900    1200    1500    1800    2100    2400
KK  T3B, COMBINE
HC     2
KK   T3B
KM   SUB   OF T3
BA  1.01
LU  0.22   0.158
US  0.79    0.80
KK  T3B, COMBINE
HC     2
KK  T3C2
KM   SUB   OF T3
BA  0.67
LU  0.22   0.158
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US  0.87    0.80
KK  T3B, COMBINE
HC      2
KK NODE1  ROUTED     T3B
RS     10    STOR     -1
SV     53      89    119     149     177     202     227     254     277     300
SQ    500    1000   1500    2000    2500    3000    3500    4000    4500    5000
KK    T3D
KM    SUB   OF T3
BA  2.10
LU  0.30   0.201
US  1.20    0.80
KK NODE1, COMBINE
HC      2
KK NODE1, COMBINE
HC      2
*  Channel routing from node 1 to node 2
KK NODE2  ROUTED   NODE1
RS     15    STOR     -1
SV    464     813   1203    1656    2296    3755    4649    5543
SQ   4000    8000  12000   16000   20000   24000   28000   32000
*  Area CL1
KK    CL1
KM  D.A. CL1 HYD
BA  4.06
PB  6.66
IN    60
PI  0.53    1.00   3.13    0.87    0.60    0.53
LU  0.33   0.216
US  1.65    0.80
KK NODE1 COMBINE
HC      2
*  Tributary 2
KK   T2AB
BA  1.37
BF      0       0      1
PB  6.29
IN    60
PI  0.50    0.94   2.96    0.82    0.57    0.50
LU  0.70    0.36
US  1.81    0.80
KK    T2C
BA  1.48
LU  0.90   0.409
US  1.40    0.80
KK  T2A, COMBINE
HC      2
KK  T2D,  ROUTED     T2A
RS      4    STOR     -1
SV     18      30     46      83      98     114     125     140
SQ    600    1200   1800    2400    3000    3600    4200    4800
KK    T2D
BA  2.12
LU  0.70    0.36
US  2.02    0.80
KK  T2D, COMBINE
HC      2
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KK   T2E
BA  1.54
LU  0.50    0.291
US  1.31     0.80
KK  T2D, COMBINE
HC      2
KK   T2F
BA  1.93
LU  0.60    0.327
US  2.04     0.80
KK  T2D, COMBINE
HC      2
KK  T2H,  ROUTED    T2D
RS      3   STOR     -1
SV   284     306    344     404     462     518     575     630
SQ  4800    5400   6000    7000    8000    9000   10000   11000
KK   T2G
BA  2.02
LU  0.74     0.37
US  2.62     0.80
KK  T2H, COMBINE
HC      2
KK   T2H
BA  1.78
LU  0.67    0.349
US  1.84     0.80
KK  T2H, COMBINE
HC      2
KKNODE2,, ROUTED    T2H
RS     14   STOR     -1
SV   418     547    589     645     746     837     926    1013    1099
SQ  4200    4800   5400    6000    7000    8000    9000   10000   11000
KK   T2I
BA  3.74
LU  0.53    0.303
US  2.03     0.80
KK NODE2 COMBINE
HC      2
KK NODE2 COMBINE
HC      2
*  Channel routing from node 2 to node 3
KK NODE3  ROUTED  NODE2
RS      8   STOR     -1
SV   282     511    735     949    1177    1421    1673    1935
SQ  4000    8000  12000   16000   20000   24000   28000   32000
*  Area        CL2
KK   CL2
BA  1.88
PB  6.92
PI  0.55    1.04   3.25     0.9    0.62    0.55
LU  0.33   0.218
US  0.74    0.80
KK NODE3 COMBINE
HC      2
*  Tributary 1
KK   T1A
BA 1.002
```

```
BF      0        0        1
PB   6.58
IN     60
PI   0.53     0.99     3.09     0.86     0.59     0.53
LU   0.50    0.295
US   0.83     0.80
KK T1BR,ROUTED T1A
RS      6     STOR       -1
SV     24       38       50       62       72       82       91       99      107
SQ    300      600      900     1200     1500     1800     2100     2400     2700
KK    T1B
BA 1.537
LU   0.50    0.295
US   1.23     0.80
KK    T1B
HC      2
KK T1CD,ROUTED T1B
RS      4     STOR       -1
SV     33       58       83      102      137      167      195      222      246
SQ    500     1000     1500     2000     3000     4000     5000     6000     7000
KK    T1C
BA 1.241
LU   0.44    0.269
US   1.29     0.80
KK T1CD, COMBINE
HC      2
KK    T1D
BA 1.192
LU   0.44    0.269
US   1.23     0.80
KK T1CD, COMBINE
HC      2
KK NODE1, ROUTED     T1CD
RS      6     STOR       -1
SV     51       83      109      135      181      227      272      315      359
SQ    500     1000     1500     2000     3000     4000     5000     6000     7000
KK    T1E
BA 1.229
LU   0.56    0.320
US   1.22     0.66
KK NODE3, COMBINE
HC      2
KK NODE3, COMBINE
HC      2
*  Channel routing from node 3 to node 4
KK NODE4   ROUTED   NODE3
RS      7     STOR       -1
SV    282      485      656      810      958     1096     1235     1373
SQ   4000     8000    12000    16000    20000    24000    28000    32000
*  Tinaja Tributary
KK    TN1
BA 1.120
BF      0        0        1
PB   6.58
IN     60
PI   .526     .987    3.092     .855     .592     .526
LU   0.35     .229
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US   0.95      0.80
KK POND1
KM    OLD      POND
RS      1      STOR       -1
SL    433     19.64      0.7       0.5
SS    441        65      2.5       1.5
SV      0         1        3         5       7.5        10        12
SE    439       440      441       442       443       444       445
KK    TN2
BA 0.637
LU   0.33      .215
US   0.80      0.80
KK POND2
KM    NEW      POND
RS      1      STOR       -1
SL    430     12.57      0.7       0.5
SS    442        75      2.5       1.5
SV      0      3.73       10      16.2        30     43.43        60     76.91
SE    431       432    433.5       435     437.5       440     442.5       445
KK TN1&2,COMBINE
HC      2
KKTN1&2R, ROUTED     TN1&2
RS      4      STOR       -1
SV     23        37       51        66        85       105       123       143       152
SQ    500      1000     1500      2000      2500      3000      3500      4000      4500
KK    TN3
BA 0.745
LU   0.33      .215
US   0.90      0.80
KK     TN COMBINE
HC      2
KK     TN COMBINE
HC      2
*  Area CL3
KK    CL3
BA    1.0
PB   7.03
PI   0.56      1.05     3.30      0.91      0.63      0.56
LU   0.33     0.218
US   0.75      0.80
KK NODE4
HC      2
*  Channel routing from Node 4 to Node 5, was not modeled in the 1981 FIS
KK NODE5   ROUTED    NODE4
RS      1      STOR       -1
SV     12        16       22        27        31        36        40        44
SQ   4000      8000    12000     16000     20000     24000     28000     32000
ZZ
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RUNOFF SUMMARY

FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	CU	40697.	7.17	36234.	17579.	17579.	116.90		
+	ROUTED TO	NODE1	23555.	10.58	21856.	12848.	12848.	116.90		
+									454.09	10.58
+	HYDROGRAPH AT	T3A	1342.	3.50	509.	155.	155.	0.96		
+	ROUTED TO	T3B	1279.	4.17	569.	382.	382.	0.96		
+	HYDROGRAPH AT	T3C1	1783.	3.42	693.	212.	212.	1.22		
+	ROUTED TO	T3B	1732.	4.00	716.	428.	428.	1.22		
+	2 COMBINED AT	T3B	2986.	4.08	1285.	810.	810.	2.18		
+	HYDROGRAPH AT	T3B	1625.	3.25	586.	178.	178.	1.01		
+	2 COMBINED AT	T3B	3907.	3.92	1854.	989.	989.	3.19		
+	HYDROGRAPH AT	T3C2	1038.	3.33	388.	118.	118.	0.67		
+	2 COMBINED AT	T3B	4698.	3.83	2241.	1107.	1107.	3.86		
	ROUTED TO	NODE1	4575.	4.33	2238.	1113.	1113.	3.86		
+	HYDROGRAPH AT	T3D	2734.	3.67	1145.	351.	351.	2.10		
+	2 COMBINED AT	NODE1	6685.	4.17	3381.	1464.	1464.	5.96		
+	2 COMBINED AT	NODE1	24155.	10.58	22465.	14312.	14312.	122.86		
+	ROUTED TO	NODE2	23372.	15.08	22045.	14382.	14382.	122.86		
+	HYDROGRAPH AT	CL1	4481.	4.08	2178.	677.	677.	4.06		
+	2 COMBINED AT	NODE1	23372.	15.08	22045.	15058.	15058.	126.92		
+	HYDROGRAPH AT	T2AB	1194.	4.25	556.	171.	171.	1.37		
+	HYDROGRAPH AT	T2C	1474.	3.92	554.	168.	168.	1.48		
+	2 COMBINED AT	T2A	2611.	4.00	1109.	339.	339.	2.85		
+	ROUTED TO	T2D	2481.	4.50	1218.	788.	788.	2.85		
+	HYDROGRAPH AT	T2D	1716.	4.50	854.	264.	264.	2.12		
	2 COMBINED AT	T2D	4197.	4.50	2069.	1052.	1052.	4.97		
+	HYDROGRAPH AT	T2E	1742.	3.75	706.	215.	215.	1.54		
+	2 COMBINED AT	T2D	5448.	4.42	2767.	1268.	1268.	6.51		

+	HYDROGRAPH AT	T2F	1599.	4.50	818.	255.	255.	1.93
+	2 COMBINED AT	T2D	7044.	4.42	3582.	1522.	1522.	8.44
	ROUTED TO	T2H	6211.	5.25	5122.	4891.	4891.	8.44
+	HYDROGRAPH AT	T2G	1334.	5.08	773.	247.	247.	2.02
+	2 COMBINED AT	T2H	7536.	5.25	5838.	5138.	5138.	10.46
+	HYDROGRAPH AT	T2H	1554.	4.33	734.	226.	226.	1.78
+	2 COMBINED AT	T2H	8652.	5.08	6566.	5364.	5364.	12.24
+	ROUTED TO	NODE2	8454.	6.17	6562.	5409.	5409.	12.24
+	HYDROGRAPH AT	T2I	3179.	4.50	1644.	513.	513.	3.74
+	2 COMBINED AT	NODE2	10035.	5.83	8163.	5922.	5922.	15.98
+	2 COMBINED AT	NODE2	28172.	15.08	26853.	20980.	20980.	142.90
+	ROUTED TO	NODE3	28136.	15.92	26810.	20595.	20595.	142.90
+	HYDROGRAPH AT	CL2	3174.	3.25	1083.	328.	328.	1.88
+	2 COMBINED AT	NODE3	28136.	15.92	26810.	20924.	20924.	144.78
	HYDROGRAPH AT	T1A	1482.	3.33	490.	148.	148.	1.00
+	ROUTED TO	T1BR	1428.	3.75	564.	379.	379.	1.00
+	HYDROGRAPH AT	T1B	1889.	3.67	746.	227.	227.	1.54
+	2 COMBINED AT	T1B	3310.	3.75	1301.	607.	607.	2.54
+	ROUTED TO	T1CD	3176.	4.08	1293.	741.	741.	2.54
+	HYDROGRAPH AT	T1C	1501.	3.75	622.	190.	190.	1.24
+	2 COMBINED AT	T1CD	4549.	4.00	1914.	931.	931.	3.78
+	HYDROGRAPH AT	T1D	1485.	3.67	598.	183.	183.	1.19
+	2 COMBINED AT	T1CD	5923.	4.00	2512.	1114.	1114.	4.97
+	ROUTED TO	NODE1	5684.	4.50	2506.	1120.	1120.	4.97
+	HYDROGRAPH AT	T1E	1257.	3.75	566.	176.	176.	1.23
+	2 COMBINED AT	NODE3	6610.	4.42	3067.	1296.	1296.	6.20
	2 COMBINED AT	NODE3	28636.	15.92	27310.	22220.	22220.	150.98
+	ROUTED TO	NODE4	28625.	16.33	27297.	21897.	21897.	150.98
+	HYDROGRAPH AT	TN1	1625.	3.42	595.	181.	181.	1.12

	ROUTED TO									
+		POND1	1606.	3.50	620.	375.	375.	1.12		
+									449.27	3.50
	HYDROGRAPH AT									
		TN2	996.	3.25	345.	105.	105.	0.64		
	ROUTED TO									
+		POND2	703.	3.83	289.	142.	142.	0.64		
+									443.76	3.83
	2 COMBINED AT									
+		TN1&2	2206.	3.75	906.	517.	517.	1.76		
	ROUTED TO									
+		TN1&2R	2077.	4.08	901.	623.	623.	1.76		
	HYDROGRAPH AT									
+		TN3	1108.	3.33	403.	122.	122.	0.75		
	2 COMBINED AT									
+		TN	2826.	3.83	1303.	745.	745.	2.50		
	2 COMBINED AT									
+		TN	29125.	16.33	27797.	22642.	22642.	153.48		
	HYDROGRAPH AT									
+		CL3	1710.	3.25	587.	178.	178.	1.00		
	2 COMBINED AT									
+		NODE4	29125.	16.33	27797.	22820.	22820.	154.48		
	ROUTED TO									
+		NODE5	29125.	16.33	27797.	22818.	22818.	154.48		

*** NORMAL END OF HEC-1 ***

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*FREE*
ID CHACON CREEK WATERSHED                    LAREDO,  TEXAS              FUTURE
ID FLOOD INSURANCE STUDY                     SEPT 16, 1998
ID    500     YRS    RETURN  PERIOD  6-HR DURATION   STORM     WITH 60-MIN INTERVAL
IT      5 16SEP98     0300     240
IO      0       2
*  Upper Chacon Sub-basin
KK     CU
KM D.A. OF CU + SY + TC + LC HYD
BA 116.9
BF      0       0       1
PB  6.39
PI  0.51    0.96    3.00    0.83    0.58    0.51
LU  0.44   0.267
US  7.29    0.80
*  Reservoir Routing Parameters were updated based on the 1998 "DTM"
KK NODE1 ROUTED    NODE0
RS      1    STOR      -1
SV 18690   21650   25050   28880   33180   37940   43080   48570   54350   60370
SQ      0    1000    7000   14000   23000   35000   49000   66000   88000  114000
SE    446     448     450     452     454     456     458     460     462     464
* Tributary 3
KK    T3A
KM    SUB    OF T3
BA 0.960
PB   8.00
IN     60
PI  0.64     1.2    3.76    1.04    0.72    0.64
LU  0.35   0.239
US  1.01    0.80
KK   T3B,  ROUTED     T3A
RS     10    STOR      -1
SV     31      57      78      96     112     127     142     155     168
SQ    300     600     900    1200    1500    1800    2100    2400    2700
KK   T3C1
KM    SUB    OF T3
BA   1.22
LU  0.22   0.162
US  1.01    0.80
KK   T3B,  ROUTED    T3C1
RS     10    STOR      -1
SV     38      58      73      90     104     117     130     141
SQ    300     600     900    1200    1500    1800    2100    2400
KK   T3B, COMBINE
HC      2
KK    T3B
KM    SUB    OF T3
BA   1.01
LU  0.22   0.162
US  0.79    0.80
KK   T3B, COMBINE
HC      2
KK   T3C2
KM    SUB    OF T3
BA   0.67
LU  0.22   0.162
US  0.87    0.80
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KK  T3B, COMBINE
HC     2
KK NODE1  ROUTED     T3B
RS    10    STOR      -1
SV    53      89     119     149     177     202     227     254     300     343
SQ   500    1000    1500    2000    2500    3000    3500    4000    5000    6000
KK   T3D
KM   SUB   OF T3
BA  2.10
LU  0.30   0.209
US  1.20    0.80
KK NODE1, COMBINE
HC     2
KK NODE1, COMBINE
HC     2
*  Channel routing from node 1 to node 2
KK NODE2  ROUTED   NODE1
RS    15    STOR      -1
SV   464     813    1203    1656    2296    3755    4649    5543    6567    7668
SQ  4000    8000   12000   16000   20000   24000   28000   32000   36000   40000
*  Area CL1
KK   CL1
KM  D.A. CL1 HYD
BA  4.06
PB  8.10
IN    60
PI  0.65    1.22    3.81    1.05    0.73    0.65
LU  0.33   0.224
US  1.65    0.80
KK NODE1 COMBINE
HC     2
*  Tributary 2
KK  T2AB
BA  1.37
BF     0       0       1
PB  7.66
IN    60
PI  0.61    1.15    3.60    1.00    0.69    0.61
LU  0.70   0.389
US  1.81    0.80
KK   T2C
BA  1.48
LU  0.90    0.45
US  1.40    0.80
KK  T2A, COMBINE
HC     2
KK  T2D,  ROUTED     T2A
RS     4    STOR      -1
SV    18      30      46      83      98     114     125     140     151
SQ   600    1200    1800    2400    3000    3600    4200    4800    5400
KK   T2D
BA  2.12
LU  0.70   0.389
US  2.02    0.80
KK  T2D, COMBINE
HC     2
KK   T2E
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BA  1.54
LU  0.50   0.309
US  1.31    0.80
KK  T2D, COMBINE
HC     2
KK   T2F
BA  1.93
LU  0.60    0.35
US  2.04    0.80
KK  T2D, COMBINE
HC     2
KK  T2H,  ROUTED     T2D
RS     3    STOR      -1
SV   344     404     462     518     575     630
SQ  6000    7000    8000    9000   10000   11000
KK   T2G
BA  2.02
LU  0.74   0.402
US  2.62    0.80
KK  T2H, COMBINE
HC     2
KK   T2H
BA  1.78
LU  0.67   0.376
US  1.84    0.80
KK  T2H, COMBINE
HC     2
KKNODE2,, ROUTED     T2H
RS    14    STOR      -1
SV   547     589     645     746     837     926    1013    1099    1345
SQ  4800    5400    6000    7000    8000    9000   10000   11000   12000
KK   T2I
BA  3.74
LU  0.53   0.323
US  2.03    0.80
KK NODE2 COMBINE
HC     2
KK NODE2 COMBINE
HC     2
*  Channel routing from node 2 to node 3
KK NODE3  ROUTED   NODE2
RS     8    STOR      -1
SV   282     511     735     949    1177    1421    1673    1935    2212    2497
SQ  4000    8000   12000   16000   20000   24000   28000   32000   36000   40000
*  Area        CL2
KK   CL2
BA  1.88
PB  8.42
PI  0.67    1.26    3.96    1.09    0.76    0.67
LU  0.33   0.226
US  0.74    0.80
KK NODE3 COMBINE
HC     2
*  Tributary 1
KK   T1A
BA 1.002
BF     0       0       1
```

```
PB  8.00
IN    60
PI  0.64    1.20    3.76    1.04    0.72    0.64
LU  0.50   0.313
US  0.83    0.80
KK T1BR,ROUTED T1A
RS     6    STOR      -1
SV    24      38      50      62      72      82      91      99     107
SQ   300     600     900    1200    1500    1800    2100    2400    2700
KK   T1B
BA 1.537
LU  0.50   0.313
US  1.23    0.80
KK   T1B
HC     2
KK T1CD,ROUTED T1B
RS     5    STOR      -1
SV    33      58      83     102     137     167     195     222     246
SQ   500    1000    1500    2000    3000    4000    5000    6000    7000
KK   T1C
BA 1.241
LU  0.44   0.284
US  1.29    0.80
KK T1CD, COMBINE
HC     2
KK   T1D
BA 1.192
LU  0.44   0.284
US  1.23    0.80
KK T1CD, COMBINE
HC     2
KK NODE1, ROUTED    T1CD
RS     6    STOR      -1
SV    51      83     135     181     227     272     315     359     397
SQ   500    1000    2000    3000    4000    5000    6000    7000    8000
KK   T1E
BA 1.229
LU  0.56   0.341
US  1.22    0.66
KK NODE3, COMBINE
HC     2
KK NODE3, COMBINE
HC     2
*  Channel routing from node 3 to node 4
KK NODE4  ROUTED   NODE3
RS     7    STOR      -1
SV   282     485     656     810     958    1096    1235    1373    1505    1636
SQ  4000    8000   12000   16000   20000   24000   28000   32000   36000   40000
*  Tinaja Tributary
KK   TN1
BA 1.120
BF     0       0       1
PB  8.00
IN    60
PI   .64   1.201   3.762   1.041     .72     .64
LU  0.35    .239
US  0.95    0.80
```

```
KK POND1
KM    OLD     POND
RS      1     STOR       -1
SL    433    19.64      0.7       0.5
SS    444       65      2.5       1.5
SV      0        1        3         5       7.5        10        12
SE    439      440      441       442       443       444       445
KK    TN2
BA 0.637
LU  0.33     .224
US  0.80     0.80
KK POND2
KM    NEW     POND
RS      1     STOR       -1
SL    430    12.57      0.7       0.5
SS    442       75      2.5       1.5
SV      0     3.73       10      16.2        30     43.43        60     76.91
SE    431      432    433.5       435     437.5       440     442.5       445
KK TN1&2,COMBINE
HC      2
KKTN1&2R, ROUTED    TN1&2
RS      4     STOR       -1
SV     23       37       51        66        85       105       123       143       152
SQ    500     1000     1500      2000      2500      3000      3500      4000      4500
KK    TN3
BA 0.745
LU  0.33     .224
US  0.90     0.80
KK     TN COMBINE
HC      2
KK     TN COMBINE
HC      2
*  Area CL3
KK    CL3
BA    1.0
PB   8.55
PI   0.68     1.28     4.02      1.11      0.77      0.68
LU   0.33    0.226
US   0.75     0.80
KK NODE4
HC      2
*  Channel routing from Node 4 to Node 5, was not modeled in the 1981 FIS
KK NODE5  ROUTED    NODE4
RS      1     STOR       -1
SV     12       16       22        27        31        36        40        44        49        53
SQ   4000     8000    12000     16000     20000     24000     28000     32000     36000     40000
ZZ
```

RUNOFF SUMMARY

FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	CU	50468.	7.17	44933.	21800.	21800.	116.90		
+	ROUTED TO	NODE1	30732.	10.42	28238.	16422.	16422.	116.90		
+									455.29	10.42
+	HYDROGRAPH AT	T3A	1660.	3.50	644.	197.	197.	0.96		
+	ROUTED TO	T3B	1597.	4.08	673.	416.	416.	0.96		
+	HYDROGRAPH AT	T3C1	2171.	3.50	879.	270.	270.	1.22		
+	ROUTED TO	T3B	2117.	4.00	881.	480.	480.	1.22		
+	2 COMBINED AT	T3B	3698.	4.00	1549.	896.	896.	2.18		
+	HYDROGRAPH AT	T3B	1999.	3.25	733.	224.	224.	1.01		
+	2 COMBINED AT	T3B	4915.	3.83	2279.	1120.	1120.	3.19		
+	HYDROGRAPH AT	T3C2	1278.	3.33	485.	148.	148.	0.67		
+	2 COMBINED AT	T3B	5943.	3.75	2764.	1268.	1268.	3.86		
	ROUTED TO	NODE1	5804.	4.25	2759.	1274.	1274.	3.86		
+	HYDROGRAPH AT	T3D	3379.	3.67	1440.	443.	443.	2.10		
+	2 COMBINED AT	NODE1	8555.	4.08	4192.	1717.	1717.	5.96		
+	2 COMBINED AT	NODE1	31332.	10.42	28864.	18139.	18139.	122.86		
+	ROUTED TO	NODE2	30853.	13.25	28229.	18032.	18032.	122.86		
+	HYDROGRAPH AT	CL1	5549.	4.08	2746.	856.	856.	4.06		
+	2 COMBINED AT	NODE1	30853.	13.25	28229.	18888.	18888.	126.92		
+	HYDROGRAPH AT	T2AB	1505.	4.25	721.	223.	223.	1.37		
+	HYDROGRAPH AT	T2C	1853.	3.83	726.	221.	221.	1.48		
+	2 COMBINED AT	T2A	3288.	4.00	1446.	444.	444.	2.85		
+	ROUTED TO	T2D	3237.	4.33	1508.	876.	876.	2.85		
+	HYDROGRAPH AT	T2D	2167.	4.50	1108.	345.	345.	2.12		
	2 COMBINED AT	T2D	5389.	4.33	2615.	1221.	1221.	4.97		
+	HYDROGRAPH AT	T2E	2167.	3.75	903.	276.	276.	1.54		
+	2 COMBINED AT	T2D	7206.	4.17	3507.	1497.	1497.	6.51		

+	HYDROGRAPH AT	T2F	2014.	4.50	1055.	330.	330.	1.93
+	2 COMBINED AT	T2D	9169.	4.25	4559.	1827.	1827.	8.44
+	ROUTED TO	T2H	7844.	5.17	6410.	6120.	6120.	8.44
+	HYDROGRAPH AT	T2G	1697.	5.08	1003.	323.	323.	2.02
+	2 COMBINED AT	T2H	9537.	5.17	7356.	6442.	6442.	10.46
+	HYDROGRAPH AT	T2H	1956.	4.33	952.	295.	295.	1.78
+	2 COMBINED AT	T2H	11009.	5.08	8299.	6737.	6737.	12.24
+	ROUTED TO	NODE2	10705.	6.08	8287.	6818.	6818.	12.24
+	HYDROGRAPH AT	T2I	3987.	4.50	2106.	660.	660.	3.74
+	2 COMBINED AT	NODE2	12777.	5.92	10298.	7478.	7478.	15.98
+	2 COMBINED AT	NODE2	36863.	13.25	34245.	26366.	26366.	142.90
+	ROUTED TO	NODE3	36775.	14.08	34191.	25789.	25789.	142.90
+	HYDROGRAPH AT	CL2	3913.	3.25	1367.	415.	415.	1.88
+	2 COMBINED AT	NODE3	36775.	14.08	34191.	26204.	26204.	144.78
	HYDROGRAPH AT	T1A	1836.	3.33	626.	190.	190.	1.00
+	ROUTED TO	T1BR	1772.	3.75	674.	412.	412.	1.00
+	HYDROGRAPH AT	T1B	2347.	3.67	952.	291.	291.	1.54
+	2 COMBINED AT	T1B	4116.	3.67	1616.	703.	703.	2.54
+	ROUTED TO	T1CD	4012.	4.08	1604.	836.	836.	2.54
+	HYDROGRAPH AT	T1C	1864.	3.75	790.	242.	242.	1.24
+	2 COMBINED AT	T1CD	5758.	4.00	2392.	1078.	1078.	3.78
+	HYDROGRAPH AT	T1D	1843.	3.67	760.	233.	233.	1.19
+	2 COMBINED AT	T1CD	7495.	3.92	3152.	1311.	1311.	4.97
+	ROUTED TO	NODE1	7224.	4.42	3143.	1317.	1317.	4.97
+	HYDROGRAPH AT	T1E	1571.	3.75	725.	226.	226.	1.23
+	2 COMBINED AT	NODE3	8438.	4.42	3860.	1543.	1543.	6.20
+	2 COMBINED AT	NODE3	37275.	14.08	34691.	27747.	27747.	150.98
+	ROUTED TO	NODE4	37255.	14.50	34676.	27234.	27234.	150.98
+	HYDROGRAPH AT	TN1	2004.	3.42	753.	229.	229.	1.12

	ROUTED TO									
+		POND1	1982.	3.50	760.	417.	417.	1.12		
+									450.78	3.50
	HYDROGRAPH AT									
		TN2	1227.	3.25	436.	132.	132.	0.64		
	ROUTED TO									
+		POND2	1038.	3.67	366.	168.	168.	0.64		
+									444.56	3.67
	2 COMBINED AT									
+		TN1&2	2994.	3.58	1123.	585.	585.	1.76		
	ROUTED TO									
+		TN1&2R	2757.	4.08	1112.	687.	687.	1.76		
	HYDROGRAPH AT									
+		TN3	1365.	3.33	508.	155.	155.	0.75		
	2 COMBINED AT									
+		TN	3671.	3.92	1619.	842.	842.	2.50		
	2 COMBINED AT									
+		TN	37755.	14.50	35176.	28076.	28076.	153.48		
	HYDROGRAPH AT									
+		CL3	2105.	3.25	740.	225.	225.	1.00		
	2 COMBINED AT									
+		NODE4	37755.	14.50	35176.	28301.	28301.	154.48		
	ROUTED TO									
+		NODE5	37754.	14.50	35176.	28291.	28291.	154.48		

*** NORMAL END OF HEC-1 ***

CHACON CREEK HEC-2 MODEL
(Flood Hazard)

```
C
C     18
C   1073Tinaja Creek
C   1160Meadow's Ave
C   1208Meadow's Ave
C   6235Hwy. 83
C   6318Hwy. 83
C   9730Tributary 1
C  12030Hwy. 359
C  12096Hwy. 359
C  17336Tributary 2
C  17848Tex-Mex R.R.
C  17860Tex-Mex R.R.
C  20829Clark Blvd.
C  20903Clark Blvd.
C  26537Hwy. 59
C  26588Hwy. 59
C  28240Loop 20
C  28332Loop 20
C  32354Tributary 3
T1 City of Laredo Flood Insurance Study Update (for development to Jan. 1994)
T2 Chacon Creek Watershed - Chacon Creek from Rio Grande to Lake Casablanca Dam
T3       CHACON EXISTING CHANNEL  1988 NAVD    DEC.1998
J1             2                                           16463   364.8
J2      1              -1
J3     38      43       7       6      41       1     150       0       0       0
NC   0.06    0.06   0.065     0.1     0.3
X1    100      89    2245    3054
X3      0                                    4206     384
GR    410    1000     408    1086     406    1098     404    1104     404    1106
GR    404    1133     402    1145     400    1158     398    1179     396    1189
GR    394    1196     392    1207     390    1213     388    1235     386    1262
GR    384    1297     382    1331     380    1380     378    1542     378    1546
GR    378    1554     376    1650     374    1951     372    2245     370    2289
GR    368    2309     366    2337     364    2374     362    2393     360    2405
GR    358    2413     356    2424     354    2432     352    2441     350    2449
GR    348    2472     348    2533     350    2545     352    2553     354    2558
GR    356    2564     358    2580     360    2596     362    2689     364    2854
GR    366    2927     368    2968     370    2996     372    3054     374    3195
GR    376    3462     378    3604     380    3713     382    3914     382    3916
GR    384    4078     384    4078     384    4214     382    4217     380    4224
GR    370    4231     360    4241     360    4273     370    4320     380    4334
GR    390    4343     392    4350     394    4368     396    4387     398    4406
GR    400    4410     402    4415     402    4415     404    4427     404    4515
GR    402    4530     400    4537     390    4554     388    4563     388    4582
GR    390    4595     400    4617     402    4630     404    4634     406    4747
GR    408    4778     408    4821     408    4926     410    4991
NC   0.06    0.06   0.065
* Downstream of Tinaja Creek
X1   1073      75    1935    2386     979     615     973
X3      0                                    2954     406
GR    410    1000     408    1040     406    1066     404    1153     402    1403
GR    400    1534     398    1555     396    1586     392    1594     390    1604
GR    380    1684     378    1692     376    1710     374    1783     372    1849
GR    370    1935     368    1943     366    1954     364    1962     362    1998
GR    360    2087     358    2151     356    2158     354    2164     352    2170
GR    352    2222     354    2230     356    2238     358    2244     360    2250
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GR   362    2331     364    2345     366    2361     368    2370     370    2386
GR   380    2407     382    2416     384    2424     386    2430     388    2442
GR   390    2453     396    2459     398    2632     400    2641     402    2650
GR   404    2707     406    2878     406    2939     406    2957     406    3160
GR   404    3226     402    3248     402    3248     400    3270     390    3278
GR   380    3282     380    3282     370    3304     366    3312     366    3324
GR   370    3338     380    3354     390    3365     400    3385     402    3395
GR   404    3399     406    3406     406    3464     406    3464     406    3464
GR   406    3694     406    3706     406    3807     408    3920     410    3969
NC                           0.3     0.5
* Meadow Street Bridge
* Downstream Cross Section
X1  1160      91    2091    2284     161     124      87
X3     0                                    2850     406
GR   410    1000     408    1013     406    1034     404    1091     402    1192
GR   400    1260     400    1260     400    1261     398    1366     396    1483
GR   394    1501     392    1573     390    1594     388    1702     386    1796
GR   384    1901     382    2025     380    2091     370    2095     360    2098
GR   352    2106     352    2123     354    2129     356    2131     358    2134
GR   358    2153     356    2161     354    2166     352    2172     352    2209
GR   354    2219     356    2226     358    2229     360    2236     370    2260
GR   380    2284     382    2328     384    2418     386    2462     388    2493
GR   390    2517     392    2554     394    2595     396    2603     398    2613
GR   400    2628     402    2644     404    2681     406    2812     406    2848
GR   406    2896     406    3107     404    3179     402    3196     400    3208
GR   398    3215     396    3223     394    3228     392    3236     390    3242
GR   380    3269     370    3287     368    3297     368    3313     370    3318
GR   380    3332     390    3343     400    3358     402    3368     404    3375
GR   406    3382     406    3421     404    3449     402    3455     400    3518
GR   398    3553     396    3569     394    3585     394    3594     394    3666
GR   394    3743     396    3754     398    3763     400    3773     402    3785
GR   404    3794     406    3814     408    3937     408    3959     408    3973
GR   410    4122
SB  1.05     1.5     2.5     513     106      10    4172 1.55357  352.00  352.00
* Meadow Street Bridge No. 8
* Upstream Cross Section
X1  1208      87    2167    2369      40      37      48
X2                     1  380.48  383.78                    1.33
X3     0                                    2950     406
GR   410    1000     408    1051     406    1102     404    1181     402    1284
GR   400    1347     398    1453     396    1546     394    1587     392    1665
GR   390    1696     388    1808     388    1808     388    1808     386    1901
GR   384    1980     382    2145     380    2167     370    2170     360    2173
GR   352    2180     352    2196     354    2202     358    2207     360    2214
GR   360    2246     358    2257     354    2266     352    2276     352    2313
GR   360    2326     370    2349     380    2369     382    2415     384    2536
GR   384    2536     384    2582     386    2602     388    2617     390    2650
GR   392    2659     394    2693     396    2724     398    2769     400    2809
GR   402    2841     404    2894     406    2952     406    3192     404    3269
GR   402    3292     400    3300     398    3310     396    3316     394    3330
GR   392    3358     390    3380     380    3399     370    3413     368    3420
GR   368    3432     370    3440     380    3453     390    3464     400    3481
GR   402    3487     404    3493     406    3503     406    3619     406    3627
GR   406    3627     406    3633     404    3799     402    3806     400    3817
GR   398    3828     396    3838     394    3850     394    3857     396    3866
GR   398    3875     400    3882     402    3910     404    3942     406    3955
GR   408    4111     410    4196
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NC				0.1	0.3					
X1	1799	59	2218	2765	664	604	591			
GR	410	1000	408	1034	408	1034	406	1835	404	1976
GR	402	2004	400	2025	394	2035	392	2046	390	2059
GR	388	2106	386	2161	384	2186	382	2198	380	2218
GR	378	2228	376	2243	374	2265	372	2306	370	2337
GR	368	2372	366	2407	364	2453	362	2468	360	2478
GR	358	2485	354	2495	354	2524	356	2532	358	2540
GR	360	2548	362	2571	364	2595	366	2638	368	2657
GR	370	2687	372	2701	374	2715	376	2732	378	2743
GR	378	2743	378	2743	380	2765	390	2803	392	2809
GR	394	2817	396	2825	398	2829	400	2835	402	2846
GR	404	2894	406	2967	406	3035	406	3113	406	3358
GR	406	3415	406	3515	406	3654	408	4115		
X1	2376	54	2271	2695	510	626	577			
GR	410	1000	408	1082	406	1169	404	1277	402	1371
GR	400	1534	398	1867	396	1880	394	1896	392	1925
GR	390	1958	388	2054	386	2220	384	2266	382	2271
GR	380	2275	370	2283	368	2331	362	2341	360	2348
GR	358	2355	356	2361	356	2394	358	2405	360	2432
GR	362	2443	364	2460	366	2506	368	2595	370	2655
GR	372	2662	374	2669	380	2678	382	2695	384	2705
GR	386	2709	388	2723	390	2736	392	2744	392	2766
GR	392	2833	392	2833	392	2833	394	2948	396	2992
GR	396	3029	396	3040	398	3052	400	3061	402	3157
GR	404	3254	406	3329	408	3381	410	3417		
X1	3213	52	2064	2683	746	828	837			
GR	408	1000	406	1026	404	1151	402	1223	400	1471
GR	398	1490	396	1499	394	1515	392	1522	390	1531
GR	388	1551	386	1576	384	2064	382	2076	380	2088
GR	378	2095	376	2111	374	2213	372	2228	370	2241
GR	368	2252	366	2513	364	2528	362	2540	360	2549
GR	358	2554	358	2603	360	2608	370	2630	372	2640
GR	374	2650	374	2650	374	2650	378	2661	380	2666
GR	382	2676	384	2683	386	2686	388	2692	390	2699
GR	392	2703	394	2707	396	2712	398	2737	400	2767
GR	402	2806	404	2825	406	2902	408	2988	410	3004
GR	412	3066	414	3177						
X1	4240	85	2838	3515	895	1058	1027			
X3	0			2722	385					
GR	410	1000	408	1098	406	1157	404	1353	402	1407
GR	402	1472	402	1585	400	1597	398	1661	396	1822
GR	394	2089	392	2145	390	2203	388	2226	386	2266
GR	384	2280	382	2297	380	2318	378	2342	376	2352
GR	374	2377	374	2452	376	2473	378	2500	380	2554
GR	382	2571	384	2718	384	2838	382	2875	380	2880
GR	376	2891	374	2902	374	2911	376	2928	378	3020
GR	378	3059	378	3059	378	3059	376	3073	374	3080
GR	372	3084	370	3093	368	3097	366	3102	364	3106
GR	364	3111	364	3119	364	3131	366	3139	368	3144
GR	370	3153	372	3156	374	3162	374	3171	372	3175
GR	370	3180	368	3187	368	3256	368	3352	366	3376
GR	364	3389	362	3396	362	3440	364	3445	366	3448
GR	370	3455	372	3464	374	3474	376	3481	378	3491
GR	380	3498	382	3507	384	3515	386	3522	388	3525
GR	390	3533	392	3538	394	3547	396	3550	398	3554
GR	400	3560	410	3572	420	3581	422	3643	424	3745

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X1  5065      84    2867    3348     603     897     825
X3     0                    2566     392    3384     390
GR   410    1000     408    1116     406    1147     404    1269     402    1391
GR   400    1538     400    1581     400    1597     398    1708     396    2004
GR   394    2304     392    2313     390    2321     388    2324     386    2327
GR   384    2333     382    2339     380    2346     378    2348     376    2363
GR   376    2367     378    2377     380    2380     390    2398     392    2436
GR   392    2471     392    2561     392    2856     390    2867     388    2874
GR   386    2885     384    2897     382    2918     380    2937     378    2961
GR   376    2973     374    2981     372    2987     370    2997     368    3042
GR   366    3061     364    3067     362    3071     362    3110     364    3117
GR   366    3128     368    3212     370    3309     380    3323     382    3328
GR   384    3334     386    3339     388    3344     390    3348     390    3380
GR   388    3438     386    3539     384    3561     382    3569     380    3575
GR   378    3583     376    3589     374    3593     374    3619     376    3649
GR   378    3685     378    3698     378    3751     380    3772     382    3783
GR   384    3793     386    3800     388    3817     390    3868     392    3875
GR   394    3882     396    3888     398    3896     400    3925     402    3991
GR   404    4002     406    4024     408    4041     410    4069
NC                           0.3     0.5
X1  6065      71    2360    2710    1000    1000    1000
X3     0                    1816     400
GR   410    1000     408    1133     406    1170     404    1247     402    1313
GR   400    1403     400    1403     398    1407     394    1416     392    1423
GR   390    1428     390    1434     392    1441     394    1617     396    1627
GR   398    1640     400    1665     400    2241     398    2339     396    2345
GR   394    2351     392    2356     390    2360     380    2378     378    2384
GR   376    2390     374    2397     372    2401     370    2408     368    2415
GR   366    2421     364    2426     362    2458     364    2470     366    2487
GR   368    2522     370    2547     372    2564     374    2579     376    2588
GR   378    2597     380    2602     382    2634     384    2710     384    2894
GR   384    2913     386    3047     386    3058     384    3088     384    3090
GR   386    3097     388    3103     390    3108     392    3132     394    3257
GR   394    3427     392    3477     390    3484     388    3493     388    3495
GR   390    3506     392    3521     394    3537     396    3615     398    3625
GR   400    3632     402    3836     404    3933     406    4103     408    4244
GR   410    4297
* Highway 83 - Bridge No. 7
* Downstream Cross Section
X1  6235      65    2154    2483     173     153     170
GR   410    1000     408    1095     406    1107     404    1123     402    1296
GR   400    1302     398    1305     396    1308     396    1317     398    1324
GR   398    1324     400    1333     400    1459     398    1478     398    1512
GR   400    1520     402    1745     402    1833     400    1939     398    2154
GR   396    2172     394    2178     392    2183     390    2190     380    2202
GR   380    2202     380    2202     370    2222     370    2222     370    2222
GR   368    2229     366    2232     364    2237     362    2273     364    2280
GR   364    2280     364    2280     366    2309     366    2309     366    2309
GR   368    2328     370    2337     372    2348     374    2368     376    2388
GR   378    2407     380    2419     382    2428     384    2436     386    2443
GR   390    2451     392    2456     392    2456     392    2456     394    2464
GR   396    2471     398    2483     398    2672     398    3153     400    3391
GR   402    3569     404    3733     406    3813     408    3908     410    3919
SB  1.05     1.5     2.5     350     103      10    5790 2.86666     362     362
* Highway 83 - Bridge No. 7
* Upstream Cross Section
X1  6318      58    2147    2468      82      90      83
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X2			1	396.0	400.23			1.33		
GR	410	1000	408	1067	406	1137	404	1238	402	1333
GR	400	1343	398	1348	398	1360	398	1360	400	1368
GR	400	1492	400	1492	400	1492	398	2147	396	2160
GR	394	2171	392	2178	390	2186	380	2201	374	2212
GR	372	2215	370	2220	368	2226	366	2230	364	2237
GR	362	2280	364	2283	366	2288	368	2321	370	2330
GR	372	2347	374	2368	376	2385	378	2396	380	2407
GR	382	2422	384	2431	386	2438	388	2442	390	2446
GR	392	2450	394	2456	396	2462	398	2468	398	2683
GR	398	3092	400	3308	400	3396	400	3396	400	3451
GR	400	3479	400	3553	400	3580	402	3673	404	3725
GR	406	3778	408	3902	410	3911				
X1	6706	48	1664	2190	488	258	388			
GR	412	1000	410	1110	408	1128	406	1160	404	1227
GR	402	1295	400	1321	398	1341	398	1372	398	1413
GR	396	1437	394	1473	392	1648	390	1664	380	1674
GR	370	1684	362	1688	364	1715	366	1764	368	1815
GR	370	1884	372	1905	374	1937	376	1967	378	2021
GR	380	2036	382	2044	384	2055	386	2072	388	2134
GR	390	2190	390	2320	390	2321	392	2354	394	2363
GR	396	2380	398	2570	398	2658	398	2718	398	2804
GR	398	2804	398	2930	400	3066	402	3174	404	3230
GR	406	3266	408	3397	410	3405				
X1	7868	60	1444	2145	936	950	1162			
GR	416	1000	414	1009	412	1012	410	1022	408	1025
GR	404	1028	402	1030	400	1034	398	1038	396	1041
GR	394	1047	392	1074	390	1169	388	1176	386	1187
GR	384	1444	382	1464	380	1529	378	1767	376	1811
GR	374	1826	374	1830	372	1830	370	1838	368	1848
GR	366	1854	364	1857	364	1883	366	1893	368	1913
GR	370	2038	372	2056	372	2056	372	2056	374	2100
GR	376	2119	378	2127	380	2133	382	2137	384	2140
GR	386	2145	388	2151	390	2159	392	2171	394	2178
GR	396	2184	398	2191	400	2198	402	2205	404	2212
GR	406	2275	408	2411	410	2417	410	2420	410	2434
GR	408	2475	406	2515	406	2554	408	2715	410	2751
X1	8728	59	1356	2040	753	849	860			
X3	10									
GR	424	1000	422	1016	420	1021	418	1029	416	1036
GR	414	1041	412	1047	410	1054	408	1062	406	1068
GR	404	1076	402	1089	400	1103	398	1122	396	1143
GR	394	1163	392	1206	390	1332	388	1356	386	1368
GR	384	1377	382	1392	380	1418	378	1425	376	1432
GR	374	1444	372	1451	370	1464	368	1477	366	1488
GR	366	1506	368	1521	370	1535	372	1544	372	1581
GR	372	1641	374	1646	376	1669	378	1783	380	1804
GR	382	1814	384	1860	386	1932	388	2040	388	2224
GR	386	2237	386	2308	388	2323	390	2333	392	2426
GR	394	2503	396	2593	398	2641	400	2692	402	2831
GR	404	2847	406	2852	408	2860	410	2864		
X1	9180	60	1469	2529	476	275	452			
GR	416	1000	414	1044	412	1116	410	1157	410	1157
GR	410	1157	408	1201	406	1308	404	1333	402	1356
GR	400	1401	398	1429	396	1440	394	1445	392	1454
GR	392	1455	390	1457	388	1463	386	1469	384	1473
GR	382	1479	380	1487	378	1501	376	1517	374	1567

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GR   372    1571     370    1579     368    1585     366    1590     366    1602
GR   368    1604     370    1612     370    1675     370    1684     372    1695
GR   374    1724     376    1739     378    2034     380    2150     382    2184
GR   384    2451     386    2529     386    2698     386    2733     388    2856
GR   388    2878     388    2889     390    2901     390    2929     390    2937
GR   392    2973     394    3011     396    3034     398    3095     400    3164
GR   402    3344     404    3354     406    3366     408    3382     410    3423
QT    10   16463   16869   19604   20686   23130   24149   27232   28636   35802
QT 37275
* Downstream of Tributary 1
X1  9730      80    2180    3380     643     184     550
X3                          1848     398
GR   428    1000     426    1005     424    1009     422    1015     420    1019
GR   418    1023     416    1029     414    1036     412    1043     410    1048
GR   408    1054     406    1062     404    1071     402    1083     400    1190
GR   398    1264     396    1288     394    1567     392    1619     390    1648
GR   388    1744     386    1775     384    1790     382    1795     382    1807
GR   384    1810     386    1813     390    1817     392    1825     394    1835
GR   396    1840     398    1848     398    1926     396    2123     394    2134
GR   392    2148     390    2160     388    2170     386    2180     384    2218
GR   382    2235     380    2243     378    2249     376    2257     374    2272
GR   372    2275     370    2278     370    2315     372    2326     374    2332
GR   376    2386     376    2528     376    2592     376    2648     374    2658
GR   372    2667     372    2667     370    2678     370    2885     372    2888
GR   374    2903     376    2914     378    2939     380    3155     382    3214
GR   384    3283     386    3380     386    3429     386    3567     388    3719
GR   390    3781     392    3796     394    3847     396    3876     398    3938
GR   400    4010     402    4181     404    4190     406    4201     408    4214
X1 10909      73    2656    3479    1075     254    1179
X3     0                    2375     402
GR   410    1000     408    1024     406    1050     404    1094     402    1136
GR   402    1144     402    1181     400    1384     398    1391     398    1391
GR   396    1399     394    1444     392    1493     390    1523     388    1600
GR   388    1600     386    1682     384    1763     384    1954     384    1954
GR   386    2009     386    2009     388    2040     390    2065     392    2130
GR   394    2156     396    2191     398    2218     400    2342     402    2366
GR   402    2366     402    2374     400    2399     398    2409     398    2456
GR   398    2462     396    2478     394    2492     392    2616     390    2656
GR   388    2675     386    2683     386    2686     384    2691     382    2699
GR   380    2714     378    2728     376    2819     374    2966     372    2970
GR   370    2981     370    3008     372    3010     374    3039     376    3054
GR   378    3066     380    3120     382    3186     384    3247     386    3278
GR   388    3407     390    3479     392    3498     394    3538     396    3577
GR   398    3640     400    3772     400    3811     400    3825     402    3857
GR   404    3872     406    3894     408    3922
X1 11629      48    2769    3470     744     525     720
GR   408    1000     406    1075     404    1149     402    1259     400    1683
GR   398    1792     396    2091     394    2195     392    2249     390    2431
GR   388    2523     388    2718     388    2769     386    2880     384    2891
GR   382    3002     380    3076     378    3111     376    3134     374    3140
GR   372    3145     372    3155     374    3163     376    3177     378    3206
GR   380    3232     382    3267     382    3311     382    3366     384    3403
GR   386    3449     388    3470     390    3484     392    3501     394    3510
GR   396    3520     398    3527     400    3536     402    3554     404    3573
GR   406    3607     408    3733     410    3779     412    3829     414    3866
GR   414    4007     412    4048     410    4091
NC                           0.3     0.5
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* Highway 359 - Bridge No. 6
* Downstream Cross Section
X1 12030 -     39    3237    3449     471     399     401
GR   408     1000     406    1073     404    1165     402    1257     400    1700
GR   398     1978     396    2090     394    2205     392    2371     390    2619
GR   388     2762     386    2953     384    3237     382    3238     380    3247
GR   378     3254     376    3259  372.67    3333  372.67    3393     376    3413
GR   378     3423     380    3433     382    3440     384    3449     386    3496
GR   388     3546     390    3594     392    3635     394    3682     396    3731
GR   398     3766     400    3796     402    3818     402    3818     404    3853
GR   406     3880     408    3901     410    3915     412    3989
SB  1.05      1.5     2.5     540     138       5    1770     3.7  372.67  372.67
* Highway 359 - Bridge No. 6
* Upstream Cross Section
X1 12096       43    3268    3480      71      76      66
X2                      1  383.09  385.91                    1.33
GR   410     1000     408    1080     406    1170     404    1255     404    1271
GR   404     1289     402    1668     400    1821     398    1968     396    2112
GR   394     2271     392    2544     390    2634     388    2830     386    3040
GR   384     3268     382    3273     380    3279     378    3285     378    3285
GR   378     3285     376    3290  372.67    3299  372.67    3452     376    3456
GR   378     3462     380    3470     382    3475     384    3480     386    3521
GR   388     3594     390    3646     392    3689     394    3748     396    3792
GR   398     3825     400    3855     402    3891     404    3918     406    3941
GR   408     3974     410    4009     412    4083
NC                            0.1     0.3
X1 12759       51    1750    2373     580     740     663
X3    10
GR   412     1000     410    1201     408    1205     406    1230     404    1363
GR   402     1370     400    1380     400    1383     398    1394     396    1399
GR   396     1444     398    1450     400    1458     400    1469     398    1473
GR   396     1478     394    1483     392    1647     390    1750     388    1818
GR   386     1825     384    1832     382    1857     380    1898     378    2112
GR   376     2124     374    2130     374    2157     376    2164     378    2165
GR   380     2169     382    2181     384    2309     386    2327     388    2347
GR   390     2373     390    2435     388    2571     388    2855     390    2915
GR   392     2939     394    2963     396    2997     398    3043     400    3097
GR   402     3147     402    3147     404    3206     406    3375     408    3709
GR   410     3736
X1 13683       43    1045    1342     778    1026     924
GR   408     1000     406    1010     404    1018     402    1025     400    1033
GR   398     1039     390    1045     388    1050     386    1055     386    1056
GR   384     1060     382    1063     380    1069     378    1074     378    1076
GR   378     1076     376    1078     374    1082     374    1097     376    1102
GR   378     1112     380    1169     382    1271     384    1285     386    1296
GR   388     1306     390    1342     390    1342     390    1342     390    1670
GR   390     1747     390    1747     390    1747     392    1761     394    1801
GR   396     1823     400    1833     402    1848     404    1868     406    1881
GR   408     1921     410    1968     410    1968
X1 14450       47    1617    2124     826     635     767
X3     0                                     2305     394
GR   414     1000     412    1090     410    1152     410    1154     412    1193
GR   412     1323     410    1400     408    1443     408    1506     408    1575
GR   406     1584     404    1587     402    1591     402    1591     402    1591
GR   400     1599     390    1617     380    1626     378    1632     376    1637
GR   374     1641     374    1658     376    1673     378    1685     380    1746
GR   382     1823     384    1843     386    1851     388    1872     390    1970
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GR   390    2049     390    2124     392    2159     394    2304     394    2414
GR   392    2502     392    2558     394    2762     396    2894     398    2899
GR   398    2919     398    2974     400    2994     402    3026     404    3157
GR   406    3216     408    3241
X1 15230      52    1335    1962     818     712     780
X3     0                                    2467     396
GR   418    1000     416    1027     416    1027     416    1027     414    1044
GR   412    1061     410    1115     410    1124     408    1144     406    1175
GR   406    1179     404    1193     402    1210     400    1215     398    1317
GR   398    1322     396    1331     394    1335     392    1441     392    1555
GR   392    1616     390    1654     388    1668     386    1700     384    1721
GR   382    1772     380    1791     378    1793     378    1794     376    1796
GR   376    1817     378    1819     380    1821     382    1834     384    1863
GR   386    1868     388    1886     390    1917     392    1945     394    1962
GR   396    2023     396    2467     394    2778     394    3027     396    3036
GR   396    3046     398    3137     400    3251     402    3303     404    3353
GR   406    3393     408    3437
X1 15916      47    1715    2327     693     640     686
X3     0                                    2650     398
GR   408    1000     406    1057     404    1132     402    1174     402    1193
GR   402    1223     400    1285     398    1385     396    1530     394    1625
GR   394    1625     394    1625     392    1715     390    1778     390    2032
GR   390    2059     388    2078     386    2088     384    2103     382    2106
GR   380    2110     378    2113     378    2129     380    2139     382    2144
GR   384    2194     386    2294     388    2309     390    2315     392    2322
GR   394    2327     396    2334     398    2486     398    2651     396    3089
GR   396    3473     398    3524     398    3539     398    3539     398    3597
GR   400    3609     402    3630     404    3689     406    3752     406    3781
GR   406    3791     408    3858
QT    10   15485   16387   19120   20214   22660   23669   26742   28172   34902
QT 36863
* Downstream of Tributary 2
X1 17336      64    2260    2466    1353    1375    1420
X3     0                    1765     400
GR   420    1000     418    1008     416    1017     414    1036     412    1051
GR   410    1064     408    1115     406    1172     404    1275     402    1443
GR   400    1557     398    1597     398    1619     396    1638     396    1692
GR   398    1720     400    1739     400    1764     398    1785     396    1849
GR   394    1872     392    1896     390    1921     390    1921     388    1923
GR   386    1932     383    1936     383    1980     386    2008     388    2067
GR   388    2260     386    2328     384    2351     382    2358     382    2363
GR   380    2366     380    2379     382    2383     382    2386     384    2391
GR   386    2448     388    2466     390    2480     392    2505     394    2527
GR   394    2557     394    2558     396    2611     398    2654     400    2701
GR   400    3060     400    3520     402    3687     402    3737     402    3774
GR   404    3832     406    3879     408    3952     410    4003     412    4049
GR   414    4107     416    4122     416    4129     418    4216
NC  0.04    0.04   0.045     0.3     0.5
* Texas Mexican Railroad Bridge #5
* Downstream
X1 17848      44    3461    3535     553     498     512
X3                          3461     402    3510     402
GR   410    1000     410    1118     410    1198     408    1316     406    1364
GR   406    1512     406    1639     404    1689     402    1738     400    1928
GR   398    2054     398    2112     400    2212     400    2241     400    2768
GR   402    3146     402    3461     400    3463     398    3464     396    3465
GR   394    3466     392    3467     390    3467     383    3470     383    3497
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GR	383	3508	383	3529	390	3531	400	3533	402	3535
GR	404	3889	404	3890	404	3890	404	3904	406	4303
GR	408	4578	408	4598	408	4618	408	4715	408	4768
GR	410	4862	412	4914	414	4943	416	4965		
SB		1.5	2.5	111	59	0	762	0.41666	383	383
X1	17860	66	4675	4748	11	10	12			
X2			1	396	402					
X3	0			2202	412	5785	408			
GR	426	1000	424	1016	422	1028	420	1048	418	1059
GR	416	1147	414	1203	412	1305	410	1385	410	1468
GR	410	1589	408	1624	406	1751	406	1751	404	1785
GR	402	1789	400	1792	398	1794	396	1797	396	1806
GR	398	1807	400	1811	402	1815	404	1817	406	1822
GR	408	1942	410	2090	412	2167	412	2203	410	2259
GR	410	2350	410	2422	408	2592	406	2933	404	3064
GR	404	3432	404	3820	404	3821	402	4675	400	4676
GR	390	4680	383	4683	383	4715	383	4720	383	4740
GR	390	4743	400	4746	402	4748	404	5237	406	5527
GR	408	5782	408	5788	406	5832	406	5872	408	5910
GR	410	6091	412	6133	414	6156	416	6177	418	6194
GR	420	6325	420	6685	420	6686	422	6768	424	6838
GR	426	6917								
NC	0.06	0.06	0.065	0.1	0.3					
X1	18372	70	3101	4091	466	666	512			
GR	420	1000	418	1003	416	1007	414	1009	412	1011
GR	410	1016	408	1350	406	1987	404	2138	404	2318
GR	404	2382	402	2598	402	2820	402	2876	402	2876
GR	402	2959	402	3078	400	3101	398	3111	396	3130
GR	394	3157	392	3208	390	3321	390	3432	392	3469
GR	392	3668	390	3729	388	3856	388	3902	388	3902
GR	388	3902	388	3953	386	3972	384	3980	384	3992
GR	386	4013	386	4045	384	4062	384	4078	384	4078
GR	384	4078	390	4083	400	4091	402	4102	404	4110
GR	406	4123	406	4224	404	4231	404	4239	404	4248
GR	404	4260	404	4396	402	4459	402	4488	402	4555
GR	402	4629	404	4693	406	4761	408	4932	410	4953
GR	412	5276	414	5479	416	5546	418	5629	420	5673
GR	422	5768	424	5816	426	5896	428	6048	430	6114
X1	19664	45	3411	4065	1169	1372	1292			
GR	428	1000	420	1002	418	1006	416	1013	414	1035
GR	414	1089	414	1229	412	1290	410	1321	408	1367
GR	408	1380	408	1738	406	1912	404	2128	402	2382
GR	400	2437	400	2461	402	2874	402	2910	400	3198
GR	398	3275	398	3328	400	3352	400	3411	390	3428
GR	390	3896	392	3925	394	3954	396	3989	398	4029
GR	400	4065	402	4127	402	4255	402	4666	404	4932
GR	406	5163	408	5325	410	5372	412	5522	414	5636
GR	416	5696	418	5776	420	5793	420	5815	420	5840
X1	20686	45	1587	2007	1079	952	1022			
GR	432	1000	430	1062	428	1076	426	1089	424	1105
GR	422	1124	420	1139	418	1145	416	1148	414	1164
GR	412	1180	410	1225	408	1242	406	1259	404	1379
GR	402	1485	400	1506	398	1510	398	1569	398	1587
GR	396	1623	394	1648	392	1681	390	1715	390	1739
GR	392	1766	394	1913	396	1962	398	2007	400	2042
GR	402	2130	404	2194	406	2449	406	2910	406	3045
GR	406	3139	406	3246	408	3435	410	3549	412	3686

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GR   414    3771     416    3933     416    3948     418    3973     420    4010
NC  0.04    0.04   0.045     0.3     0.5
* Clark Blvd. Bridge #4
* Downstream
X1 20829      43    2581    2872     160     162     143
X3    10                                    3134     408
GR   430    1000     428    1138     426    1278     424    1435     424    1466
GR   424    1466     424    1495     422    1754     420    1884     418    1896
GR   418    1929     416    1982     414    2039     412    2182     410    2581
GR   406    2582     404    2587     402    2592     400    2601  390.58    2608
GR390.58    2833     396    2840     398    2844     400    2848     402    2853
GR   404    2859     406    2866     408    2872     408    3129     406    3514
GR   404    3521     402    3525     402    3542     404    3547     406    3897
GR   408    4277     410    4298     412    4550     414    4672     416    4794
GR   418    4879     420    4946     422    5019
SB  1.05     1.5     2.5     318     226       8    2490    2.35  390.58  390.58
* Clark Blvd Bridge #4
* Upstream
X1 20903      38    2873    3163      76      67      74
X2                     1  404.18  409.51                    1.33
X3     0                                    3166     408
GR   428    1000     426    1348     424    1744     422    2026     420    2185
GR   418    2227     416    2261     414    2338     412    2477     410    2873
GR   406    2874     404    2877     402    2880     400    2892  390.58    2898
GR390.58    3124     396    3130     398    3135     400    3138     402    3141
GR   404    3149     406    3153     408    3163     408    3419     406    3800
GR   404    3810     402    3813     402    3825     404    3828     406    4124
GR   408    4563     410    4628     412    4852     414    4976     416    5096
GR   418    5207     420    5272     423    5500
NC  0.06    0.06   0.065     0.1     0.3
X1 21387      61    1594    2156     459     588     484
GR   424    1000     422    1018     420    1029     416    1042     414    1047
GR   412    1058     410    1072     408    1097     406    1117     404    1171
GR   402    1208     402    1215     404    1225     404    1308     402    1357
GR   400    1458     398    1480     398    1519     398    1522     398    1526
GR   400    1536     402    1552     402    1594     400    1621     398    1634
GR   396    1644     394    1649     394    1658     392    1664     392    1724
GR   392    1783     392    1806     392    1810     392    1840     394    1869
GR   396    1954     396    2036     396    2109     398    2124     400    2137
GR   402    2156     404    2169     406    2213     406    2247     406    2356
GR   406    2356     408    2383     410    2399     410    2399     412    2787
GR   414    2892     414    2909     414    2920     416    2989     418    3031
GR   420    3059     422    3214     424    3354     426    3390     428    3463
GR   430    3739
X1 22464      42    1309    2024     973    1198    1077
X3     0                                    2088     416
GR   422    1000     418    1066     416    1098     414    1242     412    1297
GR   412    1299     410    1309     408    1329     406    1363     404    1405
GR   404    1437     404    1471     402    1499     400    1587     398    1682
GR   396    1793     394    1826     394    1853     394    1917     394    1961
GR   396    1971     398    1980     400    1991     400    1991     400    1991
GR   410    2021     410    2024     412    2029     414    2035     416    2063
GR   416    2089     416    2120     416    2133     414    2207     414    2207
GR   414    2246     416    2360     416    2508     416    2523     420    2526
GR   422    2646     424    2791
X1 24443      62    2504    3091    1849    1925    1979
X3     0                    2333     410    3132     412
```

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GR    430    1000     428    1078     426    1114     424    1167     422    1240
GR    420    1295     418    1347     416    1461     414    1528     412    1613
GR    410    1673     410    1718     412    1726     412    1795     410    1813
GR    408    1816     406    1919     404    1996     404    2040     406    2067
GR    408    2254     410    2330     410    2504     408    2514     406    2546
GR    404    2595     402    2609     400    2633     398    2641     396    2651
GR    394    2661     394    2706     396    2722     398    2730     400    2926
GR    402    2973     404    3055     406    3075     408    3084     410    3091
GR    412    3095     412    3095     412    3132     410    3369     410    3370
GR    410    3370     410    3442     410    3443     408    4033     406    4056
GR    406    4071     408    4074     410    4078     410    4101     410    4202
GR    412    4252     414    4321     416    4343     418    4385     420    4413
GR    422    4427     424    4475
X1  25387      75    2548    3196    1081     784     944
X3     10                    2326     414    3209     418
GR    430    1000     428    1084     426    1131     424    1200     422    1238
GR    420    1286     418    1313     416    1481     414    1689     412    1713
GR    410    1722     410    1743     412    1753     410    1854     410    1877
GR    410    1916     410    1928     410    1955     410    2018     412    2198
GR    414    2326     414    2524     412    2548     410    2560     408    2575
GR    406    2581     404    2591     402    2609     400    2631     398    2635
GR    398    2638     396    2641     394    2653     394    2695     396    2699
GR    398    2709     400    2718     402    2723     404    2727     404    2733
GR    402    2743     400    2755     400    2797     402    2814     404    2934
GR    406    2961     408    3011     410    3071     412    3196     414    3202
GR    416    3206     418    3209     418    3211     416    3216     414    3221
GR    412    3250     412    3268     414    3620     414    3686     412    3709
GR    410    3725     410    3725     410    3752     412    3793     412    3793
GR    412    3793     414    3823     416    3841     418    3912     420    3926
GR    422    3939     424    3971     426    3975     426    3975     428    3987
X1  26114      55    2420    2998     724     708     727
X3      0                    2009     414
GR    422    1000     418    1023     416    1331     414    1359     412    1420
GR    412    1427     414    1438     416    1462     414    1486     416    1509
GR    416    1544     414    1580     412    1587     412    1605     412    1624
GR    412    1643     412    1945     412    1954     414    2008     414    2344
GR    412    2369     412    2391     412    2420     412    2420     412    2420
GR    410    2452     408    2460     406    2465     406    2465     406    2465
GR    404    2475     404    2477     402    2480     400    2482     394    2495
GR    394    2511     396    2718     398    2724     400    2731     402    2735
GR    404    2745     406    2807     408    2896     410    2913     412    2998
GR    414    3029     416    3059     418    3112     418    3135     418    3248
GR    420    3323     422    3375     424    3451     426    3502     428    3543
NC   0.04    0.04   0.045     0.3     0.5
* Highway 59 Bridge #3
* Downstream
X1  26537      34    4604    4822     414     332     423
GR    428    1000     426    1054     424    1158     422    1257     420    1991
GR    418    3626     416    4010     414    4200     412    4375     410    4604
GR    408    4610     406    4616     404    4627     402    4637     400    4696
GR    398    4718     398    4771     400    4781     402    4792     404    4797
GR    404    4799     406    4805     408    4817     410    4822     412    5065
GR    414    5182     416    5244     418    5266     420    5281     422    5398
GR    424    5503     426    5554     428    5644     430    5725
SB   1.05     1.5     2.5     669     112      12    2058 4.41666  398.18   398.0
* Highway 59 Bridge #3
* Upstream
```

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X1 26588       33     4624    4836      47        45        51
X2                       1  410.00  412.00                          1.33
GR   428     1000      426    1076     424      1202       422      1266      420      2006
GR   420     2045      418    3612     416      3987       414      4222      412      4379
GR   410     4624      408    4630     406      4633       404      4640      402      4647
GR   400     4726      398    4743     398      4787       400      4796      402      4809
GR   404     4817      406    4823     408      4831       410      4836      412      5015
GR   414     5141      416    5274     418      5304       420      5317      422      5424
GR   424     5515      426    5556     428      5669
NC  0.06     0.06    0.065     0.1     0.3
X1 27124       45     2635    3223     445       624       536
X3     0                      1915     416
GR   428     1000      426    1008     424      1018       422      1031      420      1043
GR   418     1067      416    1407     416      1581       416      1688      414      1694
GR   414     1838      414    1853     412      1864       412      1889      414      1899
GR   416     1915      416    2092     416      2116       416      2635      414      2678
GR   412     2686      410    2841     408      2853       406      2863      404      2869
GR   404     2923      404    2938     402      2943       402      2978      404      2986
GR   406     2989      406    2990     408      3006       410      3038      412      3136
GR   414     3172      416    3223     418      3248       418      3253      420      3262
GR   422     3304      424    3386     426      3414       428      3420      430      3425
X1 27815       39     2644    2983     605       773       691
X3     0                      1800     418
GR   428     1000      426    1011     424      1022       422      1036      420      1057
GR   418     1075      416    1487     416      1487       416      1487      416      1610
GR   418     1726      418    1807     416      1856       414      1861      414      1876
GR   416     1881      416    2644     414      2659       412      2663      410      2667
GR   408     2678      406    2691     404      2723       402      2741      402      2752
GR   402     2762      404    2804     406      2819       408      2829      410      2848
GR   412     2903      414    2917     416      2983       418      3048      420      3158
GR   422     3208      424    3309     426      3336       428      3375
NC  0.04     0.04    0.045     0.3     0.5
* Loop 20 Bridge #2
* Downstream
X1 28240       39     2555    2813     437       474       425
X3     0                      2177     422      2914       422
GR   426     1000      424    1013     422      1029       420      1061      418      1088
GR   418     1154      418    1237     416      1508       414      1519      414      1547
GR   416     1558      418    1569     418      1634       416      1653      412      1962
GR   412     2002      416    2080     418      2101       420      2133      422      2177
GR   422     2371      422    2539     420      2555       410      2576      408      2581
GR402.50     2587   402.50    2783     408      2788       410      2796      420      2813
GR   422     2913      422    2955     420      3009       420      3012      422      3222
GR   424     3350      426    3507     428      3619       430      3737
SB  1.05      1.5      2.5     280     201         9      3157   1.86363      403    402.50
* Loop 20 Bridge #2
* Upstream
X1 28332       34     2526    2806      72       103        92
X2                       1  416.23  422.00                          1.33
X3     0                      2299     422
GR   426     1000      424    1021     422      1047       420      1071      418      1098
GR   416     1465      414    1474     414      1500       416      1514      418      1523
GR   418     1589      416    1606     416      2022       416      2089      412      2108
GR   412     2119      416    2136     418      2203       420      2249      422      2298
GR   422     2526      420    2538     410      2556       408      2569      403      2579
GR   403     2775      408    2780     410      2786       420      2806      422      2808
GR   424     2865      426    3217     428      3297       430      3324
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NC  0.06     0.06    0.065      0.1       0.3
X1 28673       27     1281     1595       342       350       341
GR   430     1000      428     1083       426      1222       424      1254       422      1263
GR   420     1276      418     1281       416      1293       414      1303       412      1323
GR   410     1374      408     1381       406      1387       406      1488       408      1535
GR   410     1550      412     1572       414      1578       416      1586       418      1595
GR   420     1630      422     1641       424      1650       426      1659       428      1662
GR   430     1668      430     1672
X1 30238       33     2184     3059      1564      1529      1565
GR   428     1000      426     1078       424      1261       422      1495       420      2184
GR   418     2337      416     2419       414      2450       412      2462       410      2479
GR   410     2522      414     2532       414      2563       412      2623       412      2651
GR   412     2662      412     2682       412      2682       412      2888       412      2888
GR   412     2888      412     2999       414      3022       416      3041       418      3049
GR   420     3059      422     3064       424      3073       424      3073       426      3076
GR   428     3125      430     3128       440      3153
X1 31626       35     1353     1830      1346      1451      1388
GR   440     1000      438     1113       438      1144       438      1207       436      1308
GR   434     1325      432     1353       430      1380       428      1409       428      1417
GR   426     1423      424     1429       422      1436       420      1517       418      1529
GR   416     1544      416     1616       418      1707       420      1736       422      1746
GR   424     1750      426     1756       428      1795       430      1811       432      1830
GR   432     1831      432     1831       434      1909       436      2007       438      2046
GR   440     2101      442     2145       444      2168       446      2195       448      2208
QT    10    13105    14018    16185     17319     19160     20401     22535     24155     29916
QT 31332
* Downstream of Tributary 3
X1 32354       45     1542     1981       694       804       728
GR   452     1000      450     1016       448      1021       446      1041       444      1086
GR   444     1130      446     1143       448      1154       448      1167       448      1358
GR   446     1542      444     1565       442      1583       440      1602       438      1607
GR   436     1615      434     1629       432      1634       430      1653       428      1670
GR   426     1683      424     1693       424      1699       422      1701       420      1708
GR   418     1716      418     1783       420      1810       422      1823       424      1828
GR   426     1831      426     1837       428      1844       430      1860       432      1874
GR   434     1885      436     1892       438      1899       438      1905       440      1922
GR   442     1945      444     1963       446      1981       448      2014       450      2039
X1 32760       60     2026     2212       390       415       406
X3     0                       2016       434
GR   448     1000      446     1203       444      1310       442      1445       442      1452
GR   442     1575      440     1596       438      1604       436      1608       434      1624
GR   432     1640      430     1668       428      1674       426      1680       426      1727
GR   426     1844      424     1870       422      1885       422      1978       424      1982
GR   426     1988      430     1992       432      2004       434      2017       434      2026
GR   432     2032      430     2036       428      2039       426      2042       424      2058
GR   422     2071      420     2096       420      2096       418      2097       418      2097
GR   418     2097      418     2120       420      2121       422      2122       424      2124
GR   426     2125      428     2128       430      2131       432      2170       434      2212
GR   436     2235      438     2256       440      2268       440      2268       440      2268
GR   442     2280      444     2290       446      2335       448      2366       450      2389
GR   452     2400      454     2433       456      2452       458      2474       460      2498
X1 33425       61     1976     2302       714       627       665
X3     0                       1978       442
GR   446     1000      444     1026       444      1129       444      1193       442      1198
GR   442     1202      444     1209       444      1216       442      1222       440      1337
GR   438     1349      436     1456       434      1488       432      1526       430      1538
GR   428     1541      426     1545       426      1552       430      1554       432      1568
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GR   434    1643     434    1715     434    1760     434    1776     432    1787
GR   430    1835     428    1841     426    1855     426    1860     426    1898
GR   428    1908     430    1922     432    1940     434    1947     436    1950
GR   438    1953     440    1958     442    1964     442    1976     440    1982
GR   438    1990     436    1993     434    2004     432    2023     432    2032
GR   434    2062     434    2062     434    2063     436    2167     438    2209
GR   440    2253     442    2302     444    2319     446    2354     448    2367
GR   450    2381     452    2435     452    2435     452    2435     454    2504
GR   456    2552
QT    10   13105   13418   15585   16719   19160   19801   22535   23555   29916
QT 30732
X1 34421      35    1454    1935    1292     722     996
GR   464    1000     462    1094     460    1147     458    1193     456    1229
GR   456    1305     456    1305     456    1322     454    1325     452    1373
GR   450    1425     450    1439     450    1454     448    1460     446    1468
GR   444    1476     442    1491     442    1546     442    1567     442    1676
GR   442    1701     442    1870     444    1902     446    1918     448    1928
GR   450    1935     452    1951     454    1974     456    1991     458    2003
GR   460    2021     462    2040     464    2067     466    2094     468    2157
EJ
T1      CF 0029
T2      CHACON FLOOD PROTECTION PLAN
T3      Chacon Creek from Lake Casablanca to Rio-Grande   10-YR   Future
J1             3                                           17361  365.05
J2     2              -1
T1      CF 0029
T2      CHACON FLOOD PROTECTION PLAN
T3      Chacon Creek from Lake Casablanca to Rio-Grande   25-YR Existing
J1             4                                           20096  365.77
J2     3              -1
T1      CF 0029
T2      CHACON FLOOD PROTECTION PLAN
T3      Chacon Creek from Lake Casablanca to Rio-Grande   25-YR   Future
J1             5                                           23093     366
J2     4              -1
T1      CF 0029
T2      CHACON FLOOD PROTECTION PLAN
T3      Chacon Creek from Lake Casablanca to Rio-Grande   50-YR Existing
J1             6                                           23619  366.53
J2     5              -1
T1      CF 0029
T2      CHACON FLOOD PROTECTION PLAN
T3      Chacon Creek from Lake Casablanca to Rio-Grande   50-YR   Future
J1             7                                           24643  366.74
J2     6              -1
T1      CF 0029
T2      CHACON FLOOD PROTECTION PLAN
T3      Chacon Creek from Lake Casablanca to Rio-Grande  100-YR Existing
J1             8                                           27722  367.32
J2     7              -1
T1      CF 0029
T2      CHACON FLOOD PROTECTION PLAN
T3      Chacon Creek from Lake Casablanca to Rio-Grande  100-YR   Future
J1             9                                           29125  367.58
J2     8              -1
T1      CF 0029
T2      CHACON FLOOD PROTECTION PLAN
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T3       Chacon Creek from Lake Casablanca to Rio-Grande  500-YR Existing
J1             10                                           35802  368.68
J2      9              -1
T1       CF 0029
T2       CHACON FLOOD PROTECTION PLAN
T3       Chacon Creek from Lake Casablanca to Rio-Grande  500-YR   Future
J1             11                                           37754  368.98
J2     15              -1


ER
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THIS RUN EXECUTED 25MAY99 09:30:58

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

CHACON EXISTING CHANNEL

SUMMARY PRINTOUT

	SECNO	Q	VOL	TIME	ELLC	CWSEL
	100.000	16463.00	.00	.00	.00	364.80
	100.000	17361.00	.00	.00	.00	365.05
	100.000	20096.00	.00	.00	.00	365.77
	100.000	23093.00	.00	.00	.00	366.00
	100.000	23619.00	.00	.00	.00	366.53
	100.000	24643.00	.00	.00	.00	366.74
	100.000	27722.00	.00	.00	.00	367.32
	100.000	29125.00	.00	.00	.00	367.58
	100.000	35802.00	.00	.00	.00	368.68
	100.000	37754.00	.00	.00	.00	368.98
	1073.000	16463.00	75.45	.06	.00	368.07
	1073.000	17361.00	78.23	.06	.00	368.34
	1073.000	20096.00	86.46	.05	.00	369.11
*	1073.000	23093.00	91.35	.05	.00	369.79
	1073.000	23619.00	95.78	.05	.00	369.97
	1073.000	24643.00	98.34	.05	.00	370.19
	1073.000	27722.00	105.74	.05	.00	370.82
	1073.000	29125.00	109.12	.05	.00	371.10
	1073.000	35802.00	124.25	.04	.00	372.30
	1073.000	37754.00	128.53	.04	.00	372.62
	1160.000	16463.00	80.96	.06	.00	368.00
	1160.000	17361.00	83.90	.06	.00	368.24
*	1160.000	20096.00	92.58	.06	.00	368.94
*	1160.000	23093.00	97.87	.05	.00	369.53
*	1160.000	23619.00	102.40	.05	.00	369.69
*	1160.000	24643.00	105.10	.05	.00	369.88
*	1160.000	27722.00	112.90	.05	.00	370.41
*	1160.000	29125.00	116.46	.05	.00	370.63
*	1160.000	35802.00	132.44	.04	.00	371.56
*	1160.000	37754.00	136.98	.04	.00	371.79

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25MAY99 09:30:55

	SECNO	Q	VOL	TIME	ELLC	CWSEL
	1208.000	16463.00	83.17	.06	380.48	368.20
	1208.000	17361.00	86.15	.06	380.48	368.46
	1208.000	20096.00	94.96	.06	380.48	369.22
	1208.000	23093.00	100.38	.05	380.48	369.91
	1208.000	23619.00	104.94	.05	380.48	370.08
	1208.000	24643.00	107.67	.05	380.48	370.31
	1208.000	27722.00	115.58	.05	380.48	370.95
	1208.000	29125.00	119.20	.05	380.48	371.24
	1208.000	35802.00	135.39	.04	380.48	372.51
	1208.000	37754.00	139.99	.04	380.48	372.87
	1799.000	16463.00	116.25	.09	.00	371.66
	1799.000	17361.00	120.47	.09	.00	372.00
	1799.000	20096.00	133.02	.09	.00	373.02
	1799.000	23093.00	142.24	.08	.00	374.03
	1799.000	23619.00	147.57	.08	.00	374.21
	1799.000	24643.00	151.57	.08	.00	374.53
*	1799.000	27722.00	163.20	.08	.00	375.45
*	1799.000	29125.00	168.49	.08	.00	375.86
·	1799.000	35802.00	192.37	.07	.00	377.66
	1799.000	37754.00	199.17	.07	.00	378.16
	2376.000	16463.00	157.68	.12	.00	373.73
	2376.000	17361.00	163.60	.12	.00	374.05
	2376.000	20096.00	181.31	.12	.00	374.98
	2376.000	23093.00	195.87	.11	.00	375.91
	2376.000	23619.00	202.17	.11	.00	376.07
	2376.000	24643.00	207.90	.11	.00	376.37

2376.000	27722.00	224.63	.10	.00	377.22
2376.000	29125.00	232.21	.10	.00	377.60
2376.000	35802.00	266.48	.09	.00	379.26
2376.000	37754.00	276.26	.09	.00	379.74
3213.000	16463.00	231.46	.18	.00	375.62
3213.000	17361.00	240.24	.18	.00	375.95
3213.000	20096.00	266.17	.17	.00	376.85
3213.000	23093.00	289.21	.17	.00	377.78
3213.000	23619.00	296.99	.17	.00	377.94
3213.000	24643.00	305.44	.16	.00	378.23
3213.000	27722.00	330.12	.16	.00	379.09
3213.000	29125.00	341.23	.15	.00	379.47
3213.000	35802.00	391.42	.14	.00	381.17
3213.000	37754.00	405.78	.14	.00	381.65

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SECNO	Q	VOL	TIME	ELLC	CWSEL
4240.000	16463.00	331.45	.26	.00	377.49
4240.000	17361.00	344.64	.25	.00	377.85
4240.000	20096.00	382.76	.24	.00	378.75
4240.000	23093.00	418.07	.23	.00	379.61
4240.000	23619.00	427.96	.23	.00	379.75
4240.000	24643.00	440.40	.23	.00	380.03
4240.000	27722.00	476.76	.22	.00	380.84
4240.000	29125.00	493.07	.22	.00	381.20
4240.000	35802.00	567.29	.20	.00	382.85
4240.000	37754.00	588.67	.20	.00	383.32
5065.000	16463.00	408.41	.31	.00	378.85
5065.000	17361.00	424.74	.31	.00	379.22
5065.000	20096.00	471.40	.29	.00	380.16
5065.000	23093.00	514.85	.28	.00	381.02
5065.000	23619.00	526.16	.28	.00	381.16
5065.000	24643.00	541.26	.27	.00	381.44
5065.000	27722.00	585.50	.26	.00	382.25
5065.000	29125.00	605.33	.26	.00	382.61
5065.000	35802.00	696.15	.24	.00	384.25
5065.000	37754.00	722.39	.24	.00	384.71
* 6065.000	16463.00	483.48	.36	.00	380.77
* 6065.000	17361.00	502.45	.35	.00	381.17
* 6065.000	20096.00	556.41	.34	.00	382.25
* 6065.000	23093.00	607.37	.32	.00	383.33
* 6065.000	23619.00	620.00	.32	.00	383.51
* 6065.000	24643.00	637.66	.31	.00	383.85
* 6065.000	27722.00	691.00	.30	.00	384.72
* 6065.000	29125.00	715.19	.30	.00	385.09
6065.000	35802.00	827.41	.28	.00	386.74
6065.000	37754.00	859.76	.28	.00	387.19
6235.000	16463.00	493.48	.36	.00	381.30
6235.000	17361.00	512.82	.36	.00	381.70
6235.000	20096.00	567.81	.34	.00	382.81
6235.000	23093.00	619.90	.33	.00	383.93
6235.000	23619.00	632.73	.32	.00	384.11
6235.000	24643.00	650.76	.32	.00	384.46
6235.000	27722.00	705.38	.31	.00	385.31
6235.000	29125.00	730.17	.30	.00	385.66
6235.000	35802.00	845.27	.29	.00	387.17
6235.000	37754.00	878.43	.28	.00	387.58

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SECNO	Q	VOL	TIME	ELLC	CWSEL
6318.000	16463.00	498.17	.37	396.00	381.37
6318.000	17361.00	517.68	.36	396.00	381.77
6318.000	20096.00	573.16	.35	396.00	382.90
6318.000	23093.00	625.74	.33	396.00	384.02
6318.000	23619.00	638.66	.33	396.00	384.21
6318.000	24643.00	656.85	.32	396.00	384.56
6318.000	27722.00	711.87	.31	396.00	385.42
6318.000	29125.00	736.82	.31	396.00	385.78
6318.000	35802.00	852.64	.29	396.00	387.32
6318.000	37754.00	886.00	.28	396.00	387.74
* 6706.000	16463.00	528.83	.40	.00	382.70
* 6706.000	17361.00	549.46	.39	.00	383.12
* 6706.000	20096.00	608.11	.37	.00	384.32
* 6706.000	23093.00	663.99	.36	.00	385.54

*	6706.000	23619.00	677.46	.35	.00	385.74
*	6706.000	24643.00	696.71	.35	.00	386.12
*	6706.000	27722.00	754.59	.33	.00	387.15
*	6706.000	29125.00	780.80	.33	.00	387.58
*	6706.000	35802.00	902.42	.31	.00	389.48
*	6706.000	37754.00	937.43	.31	.00	390.00
	7868.000	16463.00	669.70	.52	.00	383.85
	7868.000	17361.00	696.36	.51	.00	384.26
	7868.000	20096.00	773.40	.49	.00	385.43
	7868.000	23093.00	849.86	.47	.00	386.62
	7868.000	23619.00	866.82	.47	.00	386.82
	7868.000	24643.00	892.82	.46	.00	387.20
*	7868.000	27722.00	969.38	.45	.00	388.25
*	7868.000	29125.00	1003.80	.44	.00	388.70
*	7868.000	35802.00	1161.89	.42	.00	390.64
*	7868.000	37754.00	1207.26	.41	.00	391.17
	8728.000	16463.00	774.94	.58	.00	384.67
	8728.000	17361.00	806.43	.57	.00	385.06
*	8728.000	20096.00	898.70	.55	.00	386.18
*	8728.000	23093.00	992.77	.53	.00	387.32
*	8728.000	23619.00	1012.78	.53	.00	387.51
*	8728.000	24643.00	1044.68	.53	.00	387.88
*	8728.000	27722.00	1141.81	.51	.00	388.87
*	8728.000	29125.00	1184.55	.51	.00	389.29
*	8728.000	35802.00	1379.95	.48	.00	391.16
	8728.000	37754.00	1436.19	.48	.00	391.67

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
	9180.000	16463.00	836.18	.64	.00	385.27
	9180.000	17361.00	870.79	.63	.00	385.65
*	9180.000	20096.00	972.76	.61	.00	386.74
*	9180.000	23093.00	1077.65	.59	.00	387.86
*	9180.000	23619.00	1099.53	.59	.00	388.05
*	9180.000	24643.00	1135.08	.58	.00	388.41
*	9180.000	27722.00	1243.41	.57	.00	389.36
·	9180.000	29125.00	1290.81	.56	.00	389.76
	9180.000	35802.00	1507.62	.54	.00	391.58
*	9180.000	37754.00	1570.01	.53	.00	392.08
*	9730.000	16463.00	947.64	.73	.00	385.55
*	9730.000	16869.00	987.54	.73	.00	385.92
*	9730.000	19604.00	1105.72	.70	.00	386.99
*	9730.000	20686.00	1227.84	.69	.00	388.08
*	9730.000	23130.00	1252.68	.68	.00	388.27
*	9730.000	24149.00	1293.90	.67	.00	388.62
*	9730.000	27232.00	1417.23	.65	.00	389.55
*	9730.000	28636.00	1471.17	.65	.00	389.95
	9730.000	35802.00	1717.42	.61	.00	391.75
	9730.000	37275.00	1787.93	.61	.00	392.25
*	10909.000	16463.00	1155.20	.83	.00	386.07
*	10909.000	16869.00	1203.92	.83	.00	386.41
*	10909.000	19604.00	1349.32	.80	.00	387.45
*	10909.000	20686.00	1499.93	.79	.00	388.44
*	10909.000	23130.00	1530.59	.77	.00	388.69
*	10909.000	24149.00	1581.51	.77	.00	389.03
*	10909.000	27232.00	1731.02	.75	.00	389.94
*	10909.000	28636.00	1796.46	.74	.00	390.33
*	10909.000	35802.00	2094.86	.70	.00	392.10
*	10909.000	37275.00	2179.83	.69	.00	392.57
*	11629.000	16463.00	1227.11	.88	.00	387.47
*	11629.000	16869.00	1279.09	.87	.00	387.74
*	11629.000	19604.00	1437.28	.85	.00	388.70
	11629.000	20686.00	1600.02	.84	.00	389.44
	11629.000	23130.00	1635.37	.82	.00	389.81
	11629.000	24149.00	1691.14	.82	.00	390.11
	11629.000	27232.00	1854.38	.80	.00	390.95
	11629.000	28636.00	1925.93	.79	.00	391.30
	11629.000	35802.00	2253.77	.75	.00	392.94
	11629.000	37275.00	2346.81	.75	.00	393.36

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	12030.000	16463.00	1264.86	.90	.00	388.37
*	12030.000	16869.00	1318.63	.90	.00	388.59

	12030.000	19604.00	1484.81	.88	.00	389.46
	12030.000	20686.00	1654.08	.87	.00	390.06
	12030.000	23130.00	1693.34	.85	.00	390.47
	12030.000	24149.00	1752.19	.84	.00	390.75
	12030.000	27232.00	1924.52	.82	.00	391.53
	12030.000	28636.00	2000.19	.82	.00	391.86
	12030.000	35802.00	2348.77	.78	.00	393.42
	12030.000	37275.00	2447.43	.78	.00	393.81
	12096.000	16463.00	1271.73	.91	383.09	388.74
	12096.000	16869.00	1325.78	.91	383.09	388.92
	12096.000	19604.00	1493.20	.88	383.09	389.75
	12096.000	20686.00	1663.37	.88	383.09	390.28
	12096.000	23130.00	1703.34	.85	383.09	390.72
	12096.000	24149.00	1762.68	.85	383.09	391.02
	12096.000	27232.00	1936.46	.83	383.09	391.82
	12096.000	28636.00	2012.77	.82	383.09	392.15
	12096.000	35802.00	2364.76	.79	383.09	393.76
	12096.000	37275.00	2464.35	.78	383.09	394.16
	12759.000	16463.00	1342.56	.96	.00	389.68
	12759.000	16869.00	1398.49	.96	.00	389.84
	12759.000	19604.00	1584.75	.94	.00	390.64
	12759.000	20686.00	1763.06	.94	.00	391.08
	12759.000	23130.00	1811.03	.91	.00	391.55
	12759.000	24149.00	1875.37	.91	.00	391.83
	12759.000	27232.00	2063.37	.89	.00	392.58
	12759.000	28636.00	2145.78	.88	.00	392.90
	12759.000	35802.00	2529.85	.84	.00	394.42
	12759.000	37275.00	2637.88	.84	.00	394.79
	13683.000	16463.00	1430.57	1.01	.00	391.28
	13683.000	16869.00	1488.78	1.01	.00	391.43
*	13683.000	19604.00	1698.37	.99	.00	392.04
*	13683.000	20686.00	1885.35	.99	.00	392.37
*	13683.000	23130.00	1943.86	.96	.00	392.85
*	13683.000	24149.00	2013.95	.95	.00	393.08
*	13683.000	27232.00	2218.45	.93	.00	393.75
*	13683.000	28636.00	2307.99	.92	.00	394.04
*	13683.000	35802.00	2727.72	.89	.00	395.42
*	13683.000	37275.00	2844.40	.88	.00	395.74

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
	14450.000	16463.00	1497.70	1.07	.00	393.18
	14450.000	16869.00	1557.44	1.06	.00	393.30
	14450.000	19604.00	1774.19	1.04	.00	393.96
	14450.000	20686.00	1965.49	1.04	.00	394.24
	14450.000	23130.00	2031.60	1.01	.00	394.75
	14450.000	24149.00	2105.15	1.00	.00	394.97
	14450.000	27232.00	2319.69	.98	.00	395.59
	14450.000	28636.00	2413.64	.97	.00	395.86
	14450.000	35802.00	2854.95	.93	.00	397.15
	14450.000	37275.00	2976.39	.93	.00	397.43
	15230.000	16463.00	1571.24	1.12	.00	394.91
	15230.000	16869.00	1632.31	1.11	.00	395.02
	15230.000	19604.00	1856.87	1.09	.00	395.69
	15230.000	20686.00	2052.36	1.08	.00	395.95
	15230.000	23130.00	2130.32	1.06	.00	396.44
	15230.000	24149.00	2208.98	1.05	.00	396.63
	15230.000	27232.00	2438.33	1.03	.00	397.19
	15230.000	28636.00	2538.75	1.02	.00	397.42
	15230.000	35802.00	3011.81	.98	.00	398.56
	15230.000	37275.00	3140.08	.98	.00	398.80
*	15916.000	16463.00	1645.89	1.18	.00	396.21
*	15916.000	16869.00	1708.26	1.18	.00	396.32
*	15916.000	19604.00	1941.11	1.14	.00	397.00
*	15916.000	20686.00	2139.94	1.14	.00	397.25
*	15916.000	23130.00	2227.87	1.11	.00	397.75
*	15916.000	24149.00	2310.67	1.10	.00	397.94
*	15916.000	27232.00	2555.50	1.08	.00	398.45
*	15916.000	28636.00	2662.79	1.07	.00	398.67
	15916.000	35802.00	3169.10	1.04	.00	399.68
	15916.000	37275.00	3304.37	1.03	.00	399.89
*	17336.000	15485.00	1845.57	1.35	.00	397.15
*	17336.000	16387.00	1911.23	1.34	.00	397.28
*	17336.000	19120.00	2163.62	1.30	.00	398.01
*	17336.000	20214.00	2370.22	1.29	.00	398.28
*	17336.000	22660.00	2473.90	1.25	.00	398.83
*	17336.000	23669.00	2562.92	1.24	.00	399.03

*	17336.000	26742.00	2832.95	1.21	.00	399.60
	17336.000	28172.00	2951.43	1.20	.00	399.84
	17336.000	34902.00	3525.79	1.15	.00	400.91
	17336.000	36863.00	3675.74	1.15	.00	401.12

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	17848.000	15485.00	1891.83	1.36	.00	399.29
*	17848.000	16387.00	1958.34	1.35	.00	399.88
*	17848.000	19120.00	2236.28	1.32	.00	403.71
*	17848.000	20214.00	2445.34	1.32	.00	403.79
*	17848.000	22660.00	2550.92	1.27	.00	403.71
*	17848.000	23669.00	2641.25	1.26	.00	403.72
*	17848.000	26742.00	2918.31	1.23	.00	404.01
*	17848.000	28172.00	3039.98	1.22	.00	404.14
*	17848.000	34902.00	3630.30	1.18	.00	404.43
*	17848.000	36863.00	3783.72	1.17	.00	404.49
*	17860.000	15485.00	1893.12	1.36	396.00	406.74
*	17860.000	16387.00	1959.96	1.35	396.00	407.64
*	17860.000	19120.00	2239.39	1.33	396.00	410.13
*	17860.000	20214.00	2448.73	1.32	396.00	410.68
*	17860.000	22660.00	2554.82	1.28	396.00	411.80
*	17860.000	23669.00	2645.42	1.27	396.00	412.28
*	17860.000	26742.00	2923.44	1.24	396.00	413.74
*	17860.000	28172.00	3045.57	1.23	396.00	414.43
*	17860.000	34902.00	3637.88	1.18	396.00	417.51
*	17860.000	36863.00	3791.88	1.17	396.00	418.40
*	18372.000	15485.00	2086.79	1.55	.00	406.85
*	18372.000	16387.00	2186.84	1.55	.00	407.71
*	18372.000	19120.00	2574.83	1.57	.00	410.16
*	18372.000	20214.00	2810.08	1.56	.00	410.70
*	18372.000	22660.00	2970.97	1.52	.00	411.81
	18372.000	23669.00	3087.37	1.51	.00	412.30
	18372.000	26742.00	3447.24	1.49	.00	413.75
	18372.000	28172.00	3608.94	1.48	.00	414.44
	18372.000	34902.00	4381.41	1.45	.00	417.52
	18372.000	36863.00	4588.01	1.44	.00	418.40
	19664.000	15485.00	2749.70	2.02	.00	406.90
	19664.000	16387.00	2933.33	2.06	.00	407.75
	19664.000	19120.00	3592.57	2.18	.00	410.18
	19664.000	20214.00	3890.52	2.18	.00	410.72
	19664.000	22660.00	4184.62	2.14	.00	411.84
	19664.000	23669.00	4360.29	2.14	.00	412.32
	19664.000	26742.00	4901.87	2.13	.00	413.77
	19664.000	28172.00	5153.09	2.13	.00	414.46
	19664.000	34902.00	6336.18	2.11	.00	417.54
	19664.000	36863.00	6662.55	2.11	.00	418.42

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	20686.000	15485.00	3124.96	2.18	.00	406.95
*	20686.000	16387.00	3363.38	2.23	.00	407.79
*	20686.000	19120.00	4198.81	2.40	.00	410.21
*	20686.000	20214.00	4537.13	2.41	.00	410.75
*	20686.000	22660.00	4916.61	2.38	.00	411.86
*	20686.000	23669.00	5130.04	2.38	.00	412.34
*	20686.000	26742.00	5786.99	2.38	.00	413.79
*	20686.000	28172.00	6095.29	2.39	.00	414.47
*	20686.000	34902.00	7544.14	2.39	.00	417.55
*	20686.000	36863.00	7948.04	2.40	.00	418.43
	20829.000	15485.00	3147.95	2.19	.00	406.92
	20829.000	16387.00	3389.98	2.24	.00	407.74
*	20829.000	19120.00	4242.22	2.42	.00	410.18
	20829.000	20214.00	4584.70	2.42	.00	410.72
	20829.000	22660.00	4973.47	2.40	.00	411.84
	20829.000	23669.00	5191.22	2.40	.00	412.32
	20829.000	26742.00	5861.61	2.41	.00	413.78
	20829.000	28172.00	6176.51	2.41	.00	414.47
	20829.000	34902.00	7656.69	2.42	.00	417.55
	20829.000	36863.00	8069.91	2.43	.00	418.43
	20903.000	15485.00	3155.04	2.19	404.18	407.61
	20903.000	16387.00	3398.11	2.25	404.18	408.56
	20903.000	19120.00	4257.10	2.42	404.18	411.20
	20903.000	20214.00	4601.38	2.43	404.18	411.77

	20903.000	22660.00	4994.31	2.41	404.18	412.95
	20903.000	23669.00	5213.92	2.41	404.18	413.42
	20903.000	26742.00	5890.21	2.42	404.18	414.82
	20903.000	28172.00	6208.01	2.42	404.18	415.48
	20903.000	34902.00	7701.84	2.44	404.18	418.39
	20903.000	36863.00	8119.23	2.45	404.18	419.25
	21387.000	15485.00	3237.27	2.28	.00	407.91
*	21387.000	16387.00	3493.97	2.34	.00	408.83
	21387.000	19120.00	4404.16	2.53	.00	411.33
	21387.000	20214.00	4761.91	2.54	.00	411.88
	21387.000	22660.00	5184.72	2.52	.00	413.03
	21387.000	23669.00	5416.83	2.52	.00	413.49
	21387.000	26742.00	6132.04	2.53	.00	414.88
	21387.000	28172.00	6468.71	2.53	.00	415.53
	21387.000	34902.00	8050.00	2.55	.00	418.42
	21387.000	36863.00	8494.19	2.56	.00	419.28

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	22464.000	15485.00	3441.19	2.40	.00	408.19
*	22464.000	16387.00	3719.89	2.46	.00	409.06
*	22464.000	19120.00	4693.65	2.66	.00	411.47
*	22464.000	20214.00	5067.74	2.67	.00	412.02
*	22464.000	22660.00	5526.06	2.65	.00	413.15
*	22464.000	23669.00	5772.97	2.65	.00	413.61
*	22464.000	26742.00	6534.50	2.65	.00	414.98
*	22464.000	28172.00	6893.92	2.66	.00	415.62
*	22464.000	34902.00	8597.05	2.68	.00	418.49
*	22464.000	36863.00	9078.92	2.69	.00	419.34
	24443.000	15485.00	3698.79	2.58	.00	409.70
	24443.000	16387.00	4005.55	2.65	.00	410.35
	24443.000	19120.00	5084.79	2.89	.00	412.29
	24443.000	20214.00	5496.88	2.91	.00	412.79
	24443.000	22660.00	6036.98	2.92	.00	413.83
	24443.000	23669.00	6317.71	2.93	.00	414.25
	24443.000	26742.00	7183.83	2.97	.00	415.53
	24443.000	28172.00	7594.43	3.00	.00	416.13
	24443.000	34902.00	9564.26	3.08	.00	418.86
*	24443.000	36863.00	10129.34	3.11	.00	419.68
	25387.000	15485.00	3800.39	2.65	.00	410.85
*	25387.000	16387.00	4117.99	2.73	.00	411.39
*	25387.000	19120.00	5243.02	2.96	.00	412.96
*	25387.000	20214.00	5672.08	2.98	.00	413.38
*	25387.000	22660.00	6251.93	2.99	.00	414.28
*	25387.000	23669.00	6552.00	3.00	.00	414.66
*	25387.000	26742.00	7478.92	3.05	.00	415.82
*	25387.000	28172.00	7919.52	3.08	.00	416.38
*	25387.000	34902.00	10039.98	3.19	.00	419.00
*	25387.000	36863.00	10655.22	3.22	.00	419.80
*	26114.000	15485.00	3880.44	2.72	.00	411.78
*	26114.000	16387.00	4203.19	2.80	.00	412.28
*	26114.000	19120.00	5344.33	3.03	.00	413.68
*	26114.000	20214.00	5778.58	3.05	.00	414.08
	26114.000	22660.00	6376.69	3.06	.00	414.94
	26114.000	23669.00	6686.27	3.07	.00	415.28
	26114.000	26742.00	7643.98	3.13	.00	416.34
	26114.000	28172.00	8100.55	3.16	.00	416.85
	26114.000	34902.00	10310.01	3.28	.00	419.28
	26114.000	36863.00	10956.93	3.32	.00	420.03

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	26537.000	15485.00	3920.04	2.74	.00	412.00
	26537.000	16387.00	4245.86	2.82	.00	412.49
	26537.000	19120.00	5396.72	3.06	.00	413.87
	26537.000	20214.00	5834.37	3.08	.00	414.28
	26537.000	22660.00	6442.94	3.08	.00	415.12
	26537.000	23669.00	6756.89	3.10	.00	415.46
	26537.000	26742.00	7728.82	3.15	.00	416.50
	26537.000	28172.00	8192.95	3.19	.00	417.00
	26537.000	34902.00	10447.52	3.31	.00	419.38
	26537.000	36863.00	11113.04	3.36	.00	420.12
	26588.000	15485.00	3923.40	2.75	410.00	412.51
	26588.000	16387.00	4249.61	2.82	410.00	412.99

	26588.000	19120.00	5401.71	3.06	410.00	414.27
	26588.000	20214.00	5839.79	3.08	410.00	414.64
	26588.000	22660.00	6449.30	3.09	410.00	415.41
	26588.000	23669.00	6763.68	3.10	410.00	415.73
	26588.000	26742.00	7737.01	3.16	410.00	416.72
	26588.000	28172.00	8201.90	3.19	410.00	417.21
	26588.000	34902.00	10461.60	3.32	410.00	419.58
	26588.000	36863.00	11129.65	3.36	410.00	420.33
*	27124.000	15485.00	3957.50	2.77	.00	413.92
*	27124.000	16387.00	4286.88	2.84	.00	414.25
*	27124.000	19120.00	5448.70	3.08	.00	415.20
*	27124.000	20214.00	5890.09	3.10	.00	415.50
*	27124.000	22660.00	6508.04	3.11	.00	416.15
*	27124.000	23669.00	6827.44	3.13	.00	416.42
*	27124.000	26742.00	7817.81	3.19	.00	417.28
*	27124.000	28172.00	8291.89	3.22	.00	417.72
*	27124.000	34902.00	10605.12	3.36	.00	419.86
*	27124.000	36863.00	11294.60	3.41	.00	420.54
*	27815.000	15485.00	4007.24	2.81	.00	417.21
*	27815.000	16387.00	4339.81	2.88	.00	417.43
*	27815.000	19120.00	5511.67	3.13	.00	418.07
*	27815.000	20214.00	5957.73	3.15	.00	418.30
*	27815.000	22660.00	6586.77	3.16	.00	418.77
*	27815.000	23669.00	6911.99	3.17	.00	418.92
	27815.000	26742.00	7920.45	3.23	.00	419.31
	27815.000	28172.00	8403.87	3.27	.00	419.50
	27815.000	34902.00	10770.38	3.41	.00	420.76
	27815.000	36863.00	11478.79	3.46	.00	421.26

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	28240.000	15485.00	4042.65	2.84	.00	417.71
*	28240.000	16387.00	4376.80	2.91	.00	417.93
*	28240.000	19120.00	5553.58	3.15	.00	418.56
*	28240.000	20214.00	6002.23	3.17	.00	418.79
*	28240.000	22660.00	6636.57	3.18	.00	419.23
*	28240.000	23669.00	6963.47	3.19	.00	419.38
	28240.000	26742.00	7976.41	3.25	.00	419.77
	28240.000	28172.00	8462.00	3.28	.00	419.95
	28240.000	34902.00	10843.37	3.43	.00	421.02
	28240.000	36863.00	11557.92	3.48	.00	421.44
	28332.000	15485.00	4049.78	2.84	416.23	417.95
	28332.000	16387.00	4384.06	2.91	416.23	418.21
	28332.000	19120.00	5561.23	3.15	416.23	419.00
	28332.000	20214.00	6010.02	3.17	416.23	419.29
	28332.000	22660.00	6644.66	3.18	416.23	419.92
	28332.000	23669.00	6971.66	3.20	416.23	420.14
	28332.000	26742.00	7984.89	3.25	416.23	420.80
	28332.000	28172.00	8470.63	3.29	416.23	421.13
	28332.000	34902.00	10854.00	3.43	416.23	422.92
	28332.000	36863.00	11569.78	3.48	416.23	423.60
*	28673.000	15485.00	4074.05	2.86	.00	418.26
*	28673.000	16387.00	4408.94	2.93	.00	418.54
*	28673.000	19120.00	5588.00	3.17	.00	419.37
*	28673.000	20214.00	6037.51	3.19	.00	419.68
*	28673.000	22660.00	6673.73	3.20	.00	420.34
*	28673.000	23669.00	7001.31	3.21	.00	420.59
*	28673.000	26742.00	8016.28	3.27	.00	421.31
*	28673.000	28172.00	8502.87	3.30	.00	421.66
*	28673.000	34902.00	10896.25	3.44	.00	423.39
*	28673.000	36863.00	11617.75	3.49	.00	423.93
*	30238.000	15485.00	4238.24	3.04	.00	421.08
*	30238.000	16387.00	4581.15	3.10	.00	421.35
*	30238.000	19120.00	5786.25	3.34	.00	422.15
*	30238.000	20214.00	6246.24	3.36	.00	422.45
*	30238.000	22660.00	6905.62	3.37	.00	423.09
*	30238.000	23669.00	7242.29	3.38	.00	423.33
*	30238.000	26742.00	8285.05	3.44	.00	424.05
*	30238.000	28172.00	8784.99	3.47	.00	424.38
*	30238.000	34902.00	11244.88	3.62	.00	425.97
	30238.000	36863.00	11987.44	3.67	.00	426.44

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SECNO	Q	VOL	TIME	ELLC	CWSEL

*	31626.000	15485.00	4365.75	3.08	.00	423.53
*	31626.000	16387.00	4715.16	3.14	.00	423.70
*	31626.000	19120.00	5941.05	3.38	.00	424.16
*	31626.000	20214.00	6409.35	3.39	.00	424.32
*	31626.000	22660.00	7087.04	3.40	.00	424.66
*	31626.000	23669.00	7430.98	3.42	.00	424.79
	31626.000	26742.00	8495.86	3.47	.00	425.16
	31626.000	28172.00	9006.22	3.50	.00	425.32
*	31626.000	34902.00	11518.18	3.64	.00	426.13
*	31626.000	36863.00	12277.26	3.70	.00	426.41
*	32354.000	13105.00	4395.52	3.11	.00	431.23
*	32354.000	14018.00	4746.04	3.17	.00	431.56
*	32354.000	16185.00	5974.87	3.40	.00	432.43
*	32354.000	17319.00	6444.32	3.42	.00	432.78
*	32354.000	19160.00	7124.32	3.43	.00	433.45
*	32354.000	20401.00	7469.31	3.44	.00	433.77
*	32354.000	22535.00	8536.88	3.49	.00	434.56
*	32354.000	24155.00	9048.61	3.52	.00	434.98
*	32354.000	29916.00	11566.47	3.67	.00	436.58
*	32354.000	31332.00	12327.28	3.72	.00	436.97
*	32760.000	13105.00	4410.72	3.12	.00	434.10
*	32760.000	14018.00	4762.59	3.18	.00	434.46
	32760.000	16185.00	5994.57	3.42	.00	435.27
	32760.000	17319.00	6465.44	3.43	.00	435.63
	32760.000	19160.00	7147.87	3.44	.00	436.21
	32760.000	20401.00	7494.24	3.45	.00	436.56
	32760.000	22535.00	8564.80	3.51	.00	437.26
	32760.000	24155.00	9078.42	3.54	.00	437.73
	32760.000	29916.00	11603.04	3.68	.00	439.31
	32760.000	31332.00	12365.51	3.73	.00	439.68
	33425.000	13105.00	4437.61	3.14	.00	442.32
	33425.000	14018.00	4792.48	3.21	.00	442.47
	33425.000	16185.00	6030.27	3.44	.00	442.69
	33425.000	17319.00	6503.85	3.46	.00	442.80
	33425.000	19160.00	7190.45	3.46	.00	442.95
	33425.000	20401.00	7539.50	3.48	.00	443.04
	33425.000	22535.00	8614.89	3.53	.00	443.19
*	33425.000	24155.00	9132.10	3.56	.00	443.32
*	33425.000	29916.00	11669.75	3.70	.00	443.86
*	33425.000	31332.00	12435.56	3.76	.00	444.01

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	34421.000	13105.00	4494.68	3.20	.00	448.37
*	34421.000	13418.00	4852.55	3.27	.00	448.53
*	34421.000	15585.00	6096.82	3.50	.00	449.11
*	34421.000	16719.00	6573.48	3.51	.00	449.40
*	34421.000	19160.00	7265.10	3.52	.00	449.90
*	34421.000	19801.00	7616.89	3.53	.00	450.11
*	34421.000	22535.00	8697.55	3.58	.00	450.63
*	34421.000	23555.00	9218.42	3.61	.00	450.88
*	34421.000	29916.00	11770.61	3.75	.00	451.86
*	34421.000	30732.00	12539.72	3.80	.00	452.00

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CHACON CREEK HEC-2 MODEL
(Floodway-Method 1)

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C
C     29
C    1160Meadow Street Bridge
C    1160Downstream Cross Section
C    1208Meadow Street Bridge No. 8
C    1208Upstream Cross Section
C    6235Highway 83 - Bridge No. 7
C    6235Downstream Cross Section
C    6318Highway 83 - Bridge No. 7
C    6318Upstream Cross Section
C    9730Downstream of Tributary 1
C   12030Highway 359 - Bridge No. 6
C   12030Downstream Cross Section
C   12096Highway 359 - Bridge No. 6
C   12096Upstream Cross Section
C   17336Downstream of Tributary 2
C   17848Texas Mexican Railroad Bridge #5
C   17848Downstream
C   20829Clark Blvd. Bridge #4
C   20829Downstream
C   20903Clark Blvd Bridge #4
C   20903Upstream
C   26537Highway 59 Bridge #3
C   26537Downstream
C   26588Highway 59 Bridge #3
C   26588Upstream
C   28240Loop 20 Bridge #2
C   28240Downstream
C   28332Loop 20 Bridge #2
C   28332Upstream
C   32354Downstream of Tributary 3
T1 City of Laredo Flood Insurance Study Update (for development to Jan. 1994)
T2 Chacon Creek Watershed - Chacon Creek from Rio Grande to Lake Casablanca Dam
T3 Floodway Model - Method 1, 1988 NAVD, DEC. 1998
J1              2                                                   27722      367
J2      1                 -1
J3    110     200
NC   0.06    0.06    0.065      0.1      0.3
ET                     7.1                                  2245     3054
X1    100      89     2245     3054
GR    410    1000      408     1086      406     1098      404     1104      404     1106
GR    404    1133      402     1145      400     1158      398     1179      396     1189
GR    394    1196      392     1207      390     1213      388     1235      386     1262
GR    384    1297      382     1331      380     1380      378     1542      378     1546
GR    378    1554      376     1650      374     1951      372     2245      370     2289
GR    368    2309      366     2337      364     2374      362     2393      360     2405
GR    358    2413      356     2424      354     2432      352     2441      350     2449
GR    348    2472      348     2533      350     2545      352     2553      354     2558
GR    356    2564      358     2580      360     2596      362     2689      364     2854
GR    366    2927      368     2968      370     2996      372     3054      374     3195
GR    376    3462      378     3604      380     3713      382     3914      382     3916
GR    384    4078      384     4078      384     4214      382     4217      380     4224
GR    370    4231      360     4241      360     4273      370     4320      380     4334
GR    390    4343      392     4350      394     4368      396     4387      398     4406
GR    400    4410      402     4415      402     4415      404     4427      404     4515
GR    402    4530      400     4537      390     4554      388     4563      388     4582
GR    390    4595      400     4617      402     4630      404     4634      406     4747
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GR   408    4778     408    4821     408    4926     410    4991
NC  0.06    0.06   0.065
ET                   7.1                                1935    2386
X1  1073      75    1935    2386     979     615     973
GR   410    1000     408    1040     406    1066     404    1153     402    1403
GR   400    1534     398    1555     396    1586     392    1594     390    1604
GR   380    1684     378    1692     376    1710     374    1783     372    1849
GR   370    1935     368    1943     366    1954     364    1962     362    1998
GR   360    2087     358    2151     356    2158     354    2164     352    2170
GR   352    2222     354    2230     356    2238     358    2244     360    2250
GR   362    2331     364    2345     366    2361     368    2370     370    2386
GR   380    2407     382    2416     384    2424     386    2430     388    2442
GR   390    2453     396    2459     398    2632     400    2641     402    2650
GR   404    2707     406    2878     406    2939     406    2957     406    3160
GR   404    3226     402    3248     402    3248     400    3270     390    3278
GR   380    3282     380    3282     370    3304     366    3312     366    3324
GR   370    3338     380    3354     390    3365     400    3385     402    3395
GR   404    3399     406    3406     406    3464     406    3464     406    3464
GR   406    3694     406    3706     406    3807     408    3920     410    3969
NC                           0.3     0.5
ET                  7.11                                2091    2284
* Meadow Street Bridge
* Downstream Cross Section
X1  1160      91    2091    2284     161     124      87
GR   410    1000     408    1013     406    1034     404    1091     402    1192
GR   400    1260     400    1260     400    1261     398    1366     396    1483
GR   394    1501     392    1573     390    1594     388    1702     386    1796
GR   384    1901     382    2025     380    2091     370    2095     360    2098
GR   352    2106     352    2123     354    2129     356    2131     358    2134
GR   358    2153     356    2161     354    2166     352    2172     352    2209
GR   354    2219     356    2226     358    2229     360    2236     370    2260
GR   380    2284     382    2328     384    2418     386    2462     388    2493
GR   390    2517     392    2554     394    2595     396    2603     398    2613
GR   400    2628     402    2644     404    2681     406    2812     406    2848
GR   406    2896     406    3107     404    3179     402    3196     400    3208
GR   398    3215     396    3223     394    3228     392    3236     390    3242
GR   380    3269     370    3287     368    3297     368    3313     370    3318
GR   380    3332     390    3343     400    3358     402    3368     404    3375
GR   406    3382     406    3421     404    3449     402    3455     400    3518
GR   398    3553     396    3569     394    3585     394    3594     394    3666
GR   394    3743     396    3754     398    3763     400    3773     402    3785
GR   404    3794     406    3814     408    3937     408    3959     408    3973
GR   410    4122
ET                  7.11                                2167    2369
SB  1.05     1.5     2.5     513     106      10    4172 1.55357     352     352
* Meadow Street Bridge No. 8
* Upstream Cross Section
X1  1208      87    2167    2369      40      37      48
X2                     1     380     384                    1.33
GR   410    1000     408    1051     406    1102     404    1181     402    1284
GR   400    1347     398    1453     396    1546     394    1587     392    1665
GR   390    1696     388    1808     388    1808     388    1808     386    1901
GR   384    1980     382    2145     380    2167     370    2170     360    2173
GR   352    2180     352    2196     354    2202     358    2207     360    2214
GR   360    2246     358    2257     354    2266     352    2276     352    2313
GR   360    2326     370    2349     380    2369     382    2415     384    2536
GR   384    2536     384    2582     386    2602     388    2617     390    2650
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GR	392	2659	394	2693	396	2724	398	2769	400	2809
GR	402	2841	404	2894	406	2952	406	3192	404	3269
GR	402	3292	400	3300	398	3310	396	3316	394	3330
GR	392	3358	390	3380	380	3399	370	3413	368	3420
GR	368	3432	370	3440	380	3453	390	3464	400	3481
GR	402	3487	404	3493	406	3503	406	3619	406	3627
GR	406	3627	406	3633	404	3799	402	3806	400	3817
GR	398	3828	396	3838	394	3850	394	3857	396	3866
GR	398	3875	400	3882	402	3910	404	3942	406	3955
GR	408	4111	410	4196						
NC				0.1	0.3					
ET			7.1				2218	2765		
X1	1799	59	2218	2765	664	604	591			
GR	410	1000	408	1034	408	1034	406	1835	404	1976
GR	402	2004	400	2025	394	2035	392	2046	390	2059
GR	388	2106	386	2161	384	2186	382	2198	380	2218
GR	378	2228	376	2243	374	2265	372	2306	370	2337
GR	368	2372	366	2407	364	2453	362	2468	360	2478
GR	358	2485	354	2495	354	2524	356	2532	358	2540
GR	360	2548	362	2571	364	2595	366	2638	368	2657
GR	370	2687	372	2701	374	2715	376	2732	378	2743
GR	378	2743	378	2743	380	2765	390	2803	392	2809
GR	394	2817	396	2825	398	2829	400	2835	402	2846
GR	404	2894	406	2967	406	3035	406	3113	406	3358
GR	406	3415	406	3515	406	3654	408	4115		
ET			7.1				2271	2695		
X1	2376	54	2271	2695	510	626	577			
GR	410	1000	408	1082	406	1169	404	1277	402	1371
GR	400	1534	398	1867	396	1880	394	1896	392	1925
GR	390	1958	388	2054	386	2220	384	2266	382	2271
GR	380	2275	370	2283	368	2331	362	2341	360	2348
GR	358	2355	356	2361	356	2394	358	2405	360	2432
GR	362	2443	364	2460	366	2506	368	2595	370	2655
GR	372	2662	374	2669	380	2678	382	2695	384	2705
GR	386	2709	388	2723	390	2736	392	2744	392	2766
GR	392	2833	392	2833	392	2833	394	2948	396	2992
GR	396	3029	396	3040	398	3052	400	3061	402	3157
GR	404	3254	406	3329	408	3381	410	3417		
ET			7.1				2064	2683		
X1	3213	52	2064	2683	746	828	837			
GR	408	1000	406	1026	404	1151	402	1223	400	1471
GR	398	1490	396	1499	394	1515	392	1522	390	1531
GR	388	1551	386	1576	384	2064	382	2076	380	2088
GR	378	2095	376	2111	374	2213	372	2228	370	2241
GR	368	2252	366	2513	364	2528	362	2540	360	2549
GR	358	2554	358	2603	360	2608	370	2630	372	2640
GR	374	2650	374	2650	374	2650	378	2661	380	2666
GR	382	2676	384	2683	386	2686	388	2692	390	2699
GR	392	2703	394	2707	396	2712	398	2737	400	2767
GR	402	2806	404	2825	406	2902	408	2988	410	3004
GR	412	3066	414	3177						
ET			7.1				2838	3515		
X1	4240	85	2838	3515	895	1058	1027			
GR	410	1000	408	1098	406	1157	404	1353	402	1407
GR	402	1472	402	1585	400	1597	398	1661	396	1822
GR	394	2089	392	2145	390	2203	388	2226	386	2266
GR	384	2280	382	2297	380	2318	378	2342	376	2352

GR	374	2377	374	2452	376	2473	378	2500	380	2554
GR	382	2571	384	2718	384	2838	382	2875	380	2880
GR	376	2891	374	2902	374	2911	376	2928	378	3020
GR	378	3059	378	3059	378	3059	376	3073	374	3080
GR	372	3084	370	3093	368	3097	366	3102	364	3106
GR	364	3111	364	3119	364	3131	366	3139	368	3144
GR	370	3153	372	3156	374	3162	374	3171	372	3175
GR	370	3180	368	3187	368	3256	368	3352	366	3376
GR	364	3389	362	3396	362	3440	364	3445	366	3448
GR	370	3455	372	3464	374	3474	376	3481	378	3491
GR	380	3498	382	3507	384	3515	386	3522	388	3525
GR	390	3533	392	3538	394	3547	396	3550	398	3554
GR	400	3560	410	3572	420	3581	422	3643	424	3745
ET			7.1				2867	3604		
X1	5065	84	2867	3348	603	897	825			
GR	410	1000	408	1116	406	1147	404	1269	402	1391
GR	400	1538	400	1581	400	1597	398	1708	396	2004
GR	394	2304	392	2313	390	2321	388	2324	386	2327
GR	384	2333	382	2339	380	2346	378	2348	376	2363
GR	376	2367	378	2377	380	2380	390	2398	392	2436
GR	392	2471	392	2561	392	2856	390	2867	388	2874
GR	386	2885	384	2897	382	2918	380	2937	378	2961
GR	376	2973	374	2981	372	2987	370	2997	368	3042
GR	366	3061	364	3067	362	3071	362	3110	364	3117
GR	366	3128	368	3212	370	3309	380	3323	382	3328
GR	384	3334	386	3339	388	3344	390	3348	390	3380
GR	388	3438	386	3539	384	3561	382	3569	380	3575
GR	378	3583	376	3589	374	3593	374	3619	376	3649
GR	378	3685	378	3698	378	3751	380	3772	382	3783
GR	384	3793	386	3800	388	3817	390	3868	392	3875
GR	394	3882	396	3888	398	3896	400	3925	402	3991
GR	404	4002	406	4024	408	4041	410	4069		
NC				0.3	0.5					
ET			7.1				2378	2602		
X1	6065	71	2378	2602	1000	1000	1000			
GR	410	1000	408	1133	406	1170	404	1247	402	1313
GR	400	1403	400	1403	398	1407	394	1416	392	1423
GR	390	1428	390	1434	392	1441	394	1617	396	1627
GR	398	1640	400	1665	400	2241	398	2339	396	2345
GR	394	2351	392	2356	390	2360	380	2378	378	2384
GR	376	2390	374	2397	372	2401	370	2408	368	2415
GR	366	2421	364	2426	362	2458	364	2470	366	2487
GR	368	2522	370	2547	372	2564	374	2579	376	2588
GR	378	2597	380	2602	382	2634	384	2710	384	2894
GR	384	2913	386	3047	386	3058	384	3088	384	3090
GR	386	3097	388	3103	390	3108	392	3132	394	3257
GR	394	3427	392	3477	390	3484	388	3493	388	3495
GR	390	3506	392	3521	394	3537	396	3615	398	3625
GR	400	3632	402	3836	404	3933	406	4103	408	4244
GR	410	4297								
ET			7.11				2190	2451		

* Highway 83 - Bridge No. 7
* Downstream Cross Section

X1	6235	65	2190	2451	173	153	170			
GR	410	1000	408	1095	406	1107	404	1123	402	1296
GR	400	1302	398	1305	396	1308	396	1317	398	1324
GR	398	1324	400	1333	400	1459	398	1478	398	1512

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GR   400    1520     402    1745     402    1833     400    1939     398    2154
GR   396    2172     394    2178     392    2183     390    2190     380    2202
GR   380    2202     380    2202     370    2222     370    2222     370    2222
GR   368    2229     366    2232     364    2237     362    2273     364    2280
GR   364    2280     364    2280     366    2309     366    2309     366    2309
GR   368    2328     370    2337     372    2348     374    2368     376    2388
GR   378    2407     380    2419     382    2428     384    2436     386    2443
GR   390    2451     392    2456     392    2456     392    2456     394    2464
GR   396    2471     398    2483     398    2672     398    3153     400    3391
GR   402    3569     404    3733     406    3813     408    3908     410    3919
ET                  7.11                             2190    2451
SB  1.05     1.5     2.5     350     103      10    5790 2.86666     362     362
* Highway 83 - Bridge No. 7
* Upstream Cross Section
X1  6318      58    2186    2446      82      90      83
X2                     1     396     400                    1.33
GR   410    1000     408    1067     406    1137     404    1238     402    1333
GR   400    1343     398    1348     398    1360     398    1360     400    1368
GR   400    1492     400    1492     400    1492     398    2147     396    2160
GR   394    2171     392    2178     390    2186     380    2201     374    2212
GR   372    2215     370    2220     368    2226     366    2230     364    2237
GR   362    2280     364    2283     366    2288     368    2321     370    2330
GR   372    2347     374    2368     376    2385     378    2396     380    2407
GR   382    2422     384    2431     386    2438     388    2442     390    2446
GR   392    2450     394    2456     396    2462     398    2468     398    2683
GR   398    3092     400    3308     400    3396     400    3396     400    3451
GR   400    3479     400    3553     400    3580     402    3673     404    3725
GR   406    3778     408    3902     410    3911
ET                   7.1                             1664    2190
X1  6706      48    1664    2190     488     258     388
GR   412    1000     410    1110     408    1128     406    1160     404    1227
GR   402    1295     400    1321     398    1341     398    1372     398    1413
GR   396    1437     394    1473     392    1648     390    1664     380    1674
GR   370    1684     362    1688     364    1715     366    1764     368    1815
GR   370    1884     372    1905     374    1937     376    1967     378    2021
GR   380    2036     382    2044     384    2055     386    2072     388    2134
GR   390    2190     390    2320     390    2321     392    2354     394    2363
GR   396    2380     398    2570     398    2658     398    2718     398    2804
GR   398    2804     398    2930     400    3066     402    3174     404    3230
GR   406    3266     408    3397     410    3405
ET                   7.1                             1444    2145
X1  7868      60    1444    2145     936     950    1162
GR   416    1000     414    1009     412    1012     410    1022     408    1025
GR   404    1028     402    1030     400    1034     398    1038     396    1041
GR   394    1047     392    1074     390    1169     388    1176     386    1187
GR   384    1444     382    1464     380    1529     378    1767     376    1811
GR   374    1826     374    1830     372    1830     370    1838     368    1848
GR   366    1854     364    1857     364    1883     366    1893     368    1913
GR   370    2038     372    2056     372    2056     372    2056     374    2100
GR   376    2119     378    2127     380    2133     382    2137     384    2140
GR   386    2145     388    2151     390    2159     392    2171     394    2178
GR   396    2184     398    2191     400    2198     402    2205     404    2212
GR   406    2275     408    2411     410    2417     410    2420     410    2434
GR   408    2475     406    2515     406    2554     408    2715     410    2751
ET                   7.1                             1356    2040
X1  8728      59    1356    2040     753     849     860
GR   424    1000     422    1016     420    1021     418    1029     416    1036
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GR	414	1041	412	1047	410	1054	408	1062	406	1068
GR	404	1076	402	1089	400	1103	398	1122	396	1143
GR	394	1163	392	1206	390	1332	388	1356	386	1368
GR	384	1377	382	1392	380	1418	378	1425	376	1432
GR	374	1444	372	1451	370	1464	368	1477	366	1488
GR	366	1506	368	1521	370	1535	372	1544	372	1581
GR	372	1641	374	1646	376	1669	378	1783	380	1804
GR	382	1814	384	1860	386	1932	388	2040	388	2224
GR	386	2237	386	2308	388	2323	390	2333	392	2426
GR	394	2503	396	2593	398	2641	400	2692	402	2831
GR	404	2847	406	2852	408	2860	410	2864		
ET			7.1				1469	2529		
X1	9180	60	1469	2529	476	275	452			
GR	416	1000	414	1044	412	1116	410	1157	410	1157
GR	410	1157	408	1201	406	1308	404	1333	402	1356
GR	400	1401	398	1429	396	1440	394	1445	392	1454
GR	392	1455	390	1457	388	1463	386	1469	384	1473
GR	382	1479	380	1487	378	1501	376	1517	374	1567
GR	372	1571	370	1579	368	1585	366	1590	366	1602
GR	368	1604	370	1612	370	1675	370	1684	372	1695
GR	374	1724	376	1739	378	2034	380	2150	382	2184
GR	384	2451	386	2529	386	2698	386	2733	388	2856
GR	388	2878	388	2889	390	2901	390	2929	390	2937
GR	392	2973	394	3011	396	3034	398	3095	400	3164
GR	402	3344	404	3354	406	3366	408	3382	410	3423
QT	2	27232	27232							
ET			7.1				2180	3380		
* Downstream of Tributary 1										
X1	9730	80	2180	3380	643	184	550			
GR	428	1000	426	1005	424	1009	422	1015	420	1019
GR	418	1023	416	1029	414	1036	412	1043	410	1048
GR	408	1054	406	1062	404	1071	402	1083	400	1190
GR	398	1264	396	1288	394	1567	392	1619	390	1648
GR	388	1744	386	1775	384	1790	382	1795	382	1807
GR	384	1810	386	1813	390	1817	392	1825	394	1835
GR	396	1840	398	1848	398	1926	396	2123	394	2134
GR	392	2148	390	2160	388	2170	386	2180	384	2218
GR	382	2235	380	2243	378	2249	376	2257	374	2272
GR	372	2275	370	2278	370	2315	372	2326	374	2332
GR	376	2386	376	2528	376	2592	376	2648	374	2658
GR	372	2667	372	2667	370	2678	370	2885	372	2888
GR	374	2903	376	2914	378	2939	380	3155	382	3214
GR	384	3283	386	3380	386	3429	386	3567	388	3719
GR	390	3781	392	3796	394	3847	396	3876	398	3938
GR	400	4010	402	4181	404	4190	406	4201	408	4214
ET			7.1				2656	3479		
X1	10909	73	2656	3479	1075	254	1179			
GR	410	1000	408	1024	406	1050	404	1094	402	1136
GR	402	1144	402	1181	400	1384	398	1391	398	1391
GR	396	1399	394	1444	392	1493	390	1523	388	1600
GR	388	1600	386	1682	384	1763	384	1954	384	1954
GR	386	2009	386	2009	388	2040	390	2065	392	2130
GR	394	2156	396	2191	398	2218	400	2342	402	2366
GR	402	2366	402	2374	400	2399	398	2409	398	2456
GR	398	2462	396	2478	394	2492	392	2616	390	2656
GR	388	2675	386	2683	386	2686	384	2691	382	2699
GR	380	2714	378	2728	376	2819	374	2966	372	2970

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GR   370    2981      370     3008      372     3010      374     3039      376     3054
GR   378    3066      380     3120      382     3186      384     3247      386     3278
GR   388    3407      390     3479      392     3498      394     3538      396     3577
GR   398    3640      400     3772      400     3811      400     3825      402     3857
GR   404    3872      406     3894      408     3922
ET                    7.1                                2769     3470
X1 11629      48     2769     3470      744      525      720
GR   408    1000      406     1075      404     1149      402     1259      400     1683
GR   398    1792      396     2091      394     2195      392     2249      390     2431
GR   388    2523      388     2718      388     2769      386     2880      384     2891
GR   382    3002      380     3076      378     3111      376     3134      374     3140
GR   372    3145      372     3155      374     3163      376     3177      378     3206
GR   380    3232      382     3267      382     3311      382     3366      384     3403
GR   386    3449      388     3470      390     3484      392     3501      394     3510
GR   396    3520      398     3527      400     3536      402     3554      404     3573
GR   406    3607      408     3733      410     3779      412     3829      414     3866
GR   414    4007      412     4048      410     4091
NC                              0.3      0.5
ET                    7.11                               2810     3476
* Highway 359 - Bridge No. 6
* Downstream Cross Section
X1 12030      39     3237     3449      471      399      401
GR   408    1000      406     1073      404     1165      402     1257      400     1700
GR   398    1978      396     2090      394     2205      392     2371      390     2619
GR   388    2762      386     2953      384     3237      382     3238      380     3247
GR   378    3254      376     3259      374     3333      374     3393      376     3413
GR   378    3423      380     3433      382     3440      384     3449      386     3496
GR   388    3546      390     3594      392     3635      394     3682      396     3731
GR   398    3766      400     3796      402     3818      402     3818      404     3853
GR   406    3880      408     3901      410     3915      412     3989
ET                    7.11                               2810     3476
SB  1.05     1.5      2.5      540      138        5     1770      3.7      374      374
* Highway 359 - Bridge No. 6
* Upstream Cross Section
X1 12096      43     3268     3480       71       76       66
X2                      1      384      386                         1.33
GR   410    1000      408     1080      406     1170      404     1255      404     1271
GR   404    1289      402     1668      400     1821      398     1968      396     2112
GR   394    2271      392     2544      390     2634      388     2830      386     3040
GR   384    3268      382     3273      380     3279      378     3285      378     3285
GR   378    3285      376     3290      374     3299      374     3452      376     3456
GR   378    3462      380     3470      382     3475      384     3480      386     3521
GR   388    3594      390     3646      392     3689      394     3748      396     3792
GR   398    3825      400     3855      402     3891      404     3918      406     3941
GR   408    3974      410     4009      412     4083
NC                              0.1      0.3
ET                    7.1                                1750     2373
X1 12759      51     1750     2373      580      740      663
GR   412    1000      410     1201      408     1205      406     1230      404     1363
GR   402    1370      400     1380      400     1383      398     1394      396     1399
GR   396    1444      398     1450      400     1458      400     1469      398     1473
GR   396    1478      394     1483      392     1647      390     1750      388     1818
GR   386    1825      384     1832      382     1857      380     1898      378     2112
GR   376    2124      374     2130      374     2157      376     2164      378     2165
GR   380    2169      382     2181      384     2309      386     2327      388     2347
GR   390    2373      390     2435      388     2571      388     2855      390     2915
GR   392    2939      394     2963      396     2997      398     3043      400     3097
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GR   402    3147     402    3147     404    3206     406    3375     408    3709
GR   410    3736
ET                   7.1                              1045    1436
X1 13683      43    1045    1342     778    1026     924
GR   408    1000     406    1010     404    1018     402    1025     400    1033
GR   398    1039     390    1045     388    1050     386    1055     386    1056
GR   384    1060     382    1063     380    1069     378    1074     378    1076
GR   378    1076     376    1078     374    1082     374    1097     376    1102
GR   378    1112     380    1169     382    1271     384    1285     386    1296
GR   388    1306     390    1342     390    1342     390    1342     390    1670
GR   390    1747     390    1747     390    1747     392    1761     394    1801
GR   396    1823     400    1833     402    1848     404    1868     406    1881
GR   408    1921     410    1968     410    1968
ET                   7.1                              1617    2124
X1 14450      47    1617    2124     826     635     767
GR   414    1000     412    1090     410    1152     410    1154     412    1193
GR   412    1323     410    1400     408    1443     408    1506     408    1575
GR   406    1584     404    1587     402    1591     402    1591     402    1591
GR   400    1599     390    1617     380    1626     378    1632     376    1637
GR   374    1641     374    1658     376    1673     378    1685     380    1746
GR   382    1823     384    1843     386    1851     388    1872     390    1970
GR   390    2049     390    2124     392    2159     394    2304     394    2414
GR   392    2502     392    2558     394    2762     396    2894     398    2899
GR   398    2919     398    2974     400    2994     402    3026     404    3157
GR   406    3216     408    3241
ET                   7.1                              1335    1962
X1 15230      52    1335    1962     818     712     780
GR   418    1000     416    1027     416    1027     416    1027     414    1044
GR   412    1061     410    1115     410    1124     408    1144     406    1175
GR   406    1179     404    1193     402    1210     400    1215     398    1317
GR   398    1322     396    1331     394    1335     392    1441     392    1555
GR   392    1616     390    1654     388    1668     386    1700     384    1721
GR   382    1772     380    1791     378    1793     378    1794     376    1796
GR   376    1817     378    1819     380    1821     382    1834     384    1863
GR   386    1868     388    1886     390    1917     392    1945     394    1962
GR   396    2023     396    2467     394    2778     394    3027     396    3036
GR   396    3046     398    3137     400    3251     402    3303     404    3353
GR   406    3393     408    3437
ET                   7.1                              1715    2327
X1 15916      47    1715    2327     693     640     686
GR   408    1000     406    1057     404    1132     402    1174     402    1193
GR   402    1223     400    1285     398    1385     396    1530     394    1625
GR   394    1625     394    1625     392    1715     390    1778     390    2032
GR   390    2059     388    2078     386    2088     384    2103     382    2106
GR   380    2110     378    2113     378    2129     380    2139     382    2144
GR   384    2194     386    2294     388    2309     390    2315     392    2322
GR   394    2327     396    2334     398    2486     398    2651     396    3089
GR   396    3473     398    3524     398    3539     398    3539     398    3597
GR   400    3609     402    3630     404    3689     406    3752     406    3781
GR   406    3791     408    3858
QT     2   26742   26742
ET                   7.1                              1918    2482
* Downstream of Tributary 2
X1 17336      64    2260    2466    1353    1375    1420
GR   420    1000     418    1008     416    1017     414    1036     412    1051
GR   410    1064     408    1115     406    1172     404    1275     402    1443
GR   400    1557     398    1597     398    1619     396    1638     396    1692
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GR   398    1720     400    1739     400    1764     398    1785     396    1849
GR   394    1872     392    1896     390    1921     390    1921     388    1923
GR   386    1932     384    1936     384    1980     386    2008     388    2067
GR   388    2260     386    2328     384    2351     382    2358     382    2363
GR   380    2366     380    2379     382    2383     382    2386     384    2391
GR   386    2448     388    2466     390    2480     392    2505     394    2527
GR   394    2557     394    2558     396    2611     398    2654     400    2701
GR   400    3060     400    3520     402    3687     402    3737     402    3774
GR   404    3832     406    3879     408    3952     410    4003     412    4049
GR   414    4107     416    4122     416    4129     418    4216
NC  0.04    0.04   0.045     0.3     0.5
ET                  7.11                            2263    3535
* Texas Mexican Railroad Bridge #5
* Downstream
X1 17848      44    3461    3535     553     498     512
GR   410    1000     410    1118     410    1198     408    1316     406    1364
GR   406    1512     406    1639     404    1689     402    1738     400    1928
GR   398    2054     398    2112     400    2212     400    2241     400    2768
GR   402    3146     402    3461     400    3463     398    3464     396    3465
GR   394    3466     392    3467     390    3467     384    3470     384    3497
GR   384    3508     384    3529     390    3531     400    3533     402    3535
GR   404    3889     404    3890     404    3890     404    3904     406    4303
GR   408    4578     408    4598     408    4618     408    4715     408    4768
GR   410    4862     412    4914     414    4943     416    4965
ET                  7.11                            2263    3535
SB           1.5     2.5     111      59       0     762 0.41666     384     384
X1 17860      66    4675    4748      11      10      12
X2                     1     396     402
GR   426    1000     424    1016     422    1028     420    1048     418    1059
GR   416    1147     414    1203     412    1305     410    1385     410    1468
GR   410    1589     408    1624     406    1751     406    1751     404    1785
GR   402    1789     400    1792     398    1794     396    1797     396    1806
GR   398    1807     400    1811     402    1815     404    1817     406    1822
GR   408    1942     410    2090     412    2167     412    2203     410    2259
GR   410    2350     410    2422     408    2592     406    2933     404    3064
GR   404    3432     404    3820     404    3821     402    4675     400    4676
GR   390    4680     384    4683     384    4715     384    4720     384    4740
GR   390    4743     400    4746     402    4748     404    5237     406    5527
GR   408    5782     408    5788     406    5832     406    5872     408    5910
GR   410    6091     412    6133     414    6156     416    6177     418    6194
GR   420    6325     420    6685     420    6686     422    6768     424    6838
GR   426    6917
NC  0.06    0.06   0.065     0.1     0.3
ET                   7.1                            2891    4083
X1 18372      70    3668    4083     466     666     512
GR   420    1000     418    1003     416    1007     414    1009     412    1011
GR   410    1016     408    1350     406    1987     404    2138     404    2318
GR   404    2382     402    2598     402    2820     402    2876     402    2876
GR   402    2959     402    3078     400    3101     398    3111     396    3130
GR   394    3157     392    3208     390    3321     390    3432     392    3469
GR   392    3668     390    3729     388    3856     388    3902     388    3902
GR   388    3902     388    3953     386    3972     384    3980     384    3992
GR   386    4013     386    4045     384    4062     384    4078     384    4078
GR   384    4078     390    4083     400    4091     402    4102     404    4110
GR   406    4123     406    4224     404    4231     404    4239     404    4248
GR   404    4260     404    4396     402    4459     402    4488     402    4555
GR   402    4629     404    4693     406    4761     408    4932     410    4953
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GR   412    5276     414    5479     416    5546     418    5629     420    5673
GR   422    5768     424    5816     426    5896     428    6048     430    6114
ET                   7.1                                 2673    4189
X1 19664      45    3411    4065    1169    1372    1292
GR   428    1000     420    1002     418    1006     416    1013     414    1035
GR   414    1089     414    1229     412    1290     410    1321     408    1367
GR   408    1380     408    1738     406    1912     404    2128     402    2382
GR   400    2437     400    2461     402    2874     402    2910     400    3198
GR   398    3275     398    3328     400    3352     400    3411     390    3428
GR   390    3896     392    3925     394    3954     396    3989     398    4029
GR   400    4065     402    4127     402    4255     402    4666     404    4932
GR   406    5163     408    5325     410    5372     412    5522     414    5636
GR   416    5696     418    5776     420    5793     420    5815     420    5840
ET                   7.1                                 1587    2349
X1 20686      45    1587    2007    1079     952    1022
GR   432    1000     430    1062     428    1076     426    1089     424    1105
GR   422    1124     420    1139     418    1145     416    1148     414    1164
GR   412    1180     410    1225     408    1242     406    1259     404    1379
GR   402    1485     400    1506     398    1510     398    1569     398    1587
GR   396    1623     394    1648     392    1681     390    1715     390    1739
GR   392    1766     394    1913     396    1962     398    2007     400    2042
GR   402    2130     404    2194     406    2449     406    2910     406    3045
GR   406    3139     406    3246     408    3435     410    3549     412    3686
GR   414    3771     416    3933     416    3948     418    3973     420    4010
NC  0.04    0.04   0.045     0.3     0.5
ET                  7.11                                 2581    3684
* Clark Blvd. Bridge #4
* Downstream
X1 20829      43    2581    2872     160     162     143
GR   430    1000     428    1138     426    1278     424    1435     424    1466
GR   424    1466     424    1495     422    1754     420    1884     418    1896
GR   418    1929     416    1982     414    2039     412    2182     410    2581
GR   406    2582     404    2587     402    2592     400    2601     394    2608
GR   394    2833     396    2840     398    2844     400    2848     402    2853
GR   404    2859     406    2866     408    2872     408    3129     406    3514
GR   404    3521     402    3525     402    3542     404    3547     406    3897
GR   408    4277     410    4298     412    4550     414    4672     416    4794
GR   418    4879     420    4946     422    5019
ET                  7.11                                 2581    3684
SB  1.05     1.5     2.5     318     226       8    2490    2.35     394     394
* Clark Blvd Bridge #4
* Upstream
X1 20903      37    2873    3163      76      67      74
X2                     1     404     410                    1.33
GR   428    1000     426    1348     424    1744     422    2026     420    2185
GR   418    2227     416    2261     414    2338     412    2477     410    2873
GR   406    2874     404    2877     402    2880     400    2892     394    2898
GR   394    3124     396    3130     398    3135     400    3138     402    3141
GR   404    3149     406    3153     408    3163     408    3419     406    3800
GR   404    3810     402    3813     402    3825     404    3828     406    4124
GR   408    4563     410    4628     412    4852     414    4976     416    5096
GR   418    5207     420    5272
NC  0.06    0.06   0.065     0.1     0.3
ET                   7.1                                 1370    2179
X1 21387      61    1594    2156     459     588     484
GR   424    1000     422    1018     420    1029     416    1042     414    1047
GR   412    1058     410    1072     408    1097     406    1117     404    1171
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GR	402	1208	402	1215	404	1225	404	1308	402	1357
GR	400	1458	398	1480	398	1519	398	1522	398	1526
GR	400	1536	402	1552	402	1594	400	1621	398	1634
GR	396	1644	394	1649	394	1658	392	1664	392	1724
GR	392	1783	392	1806	392	1810	392	1840	394	1869
GR	396	1954	396	2036	396	2109	398	2124	400	2137
GR	402	2156	404	2169	406	2213	406	2247	406	2356
GR	406	2356	408	2383	410	2399	410	2399	412	2787
GR	414	2892	414	2909	414	2920	416	2989	418	3031
GR	420	3059	422	3214	424	3354	426	3390	428	3463
GR	430	3739								
ET			7.1				1309	2024		
X1	22464	42	1309	2024	973	1198	1077			
GR	420	1000	418	1066	416	1098	414	1242	412	1297
GR	412	1299	410	1309	408	1329	406	1363	404	1405
GR	404	1437	404	1471	402	1499	400	1587	398	1682
GR	396	1793	394	1826	394	1853	394	1917	394	1961
GR	396	1971	398	1980	400	1991	400	1991	400	1991
GR	410	2021	410	2024	412	2029	414	2035	416	2063
GR	416	2089	416	2120	416	2133	414	2207	414	2207
GR	414	2246	416	2360	416	2508	416	2523	420	2526
GR	422	2646	424	2791						
ET			7.1				2038	3725		
X1	24443	62	2504	3091	1849	1925	1979			
GR	430	1000	428	1078	426	1114	424	1167	422	1240
GR	420	1295	418	1347	416	1461	414	1528	412	1613
GR	410	1673	410	1718	412	1726	412	1795	410	1813
GR	408	1816	406	1919	404	1996	404	2040	406	2067
GR	408	2254	410	2330	410	2504	408	2514	406	2546
GR	404	2595	402	2609	400	2633	398	2641	396	2651
GR	394	2661	394	2706	396	2722	398	2730	400	2926
GR	402	2973	404	3055	406	3075	408	3084	410	3091
GR	412	3095	412	3095	412	3132	410	3369	410	3370
GR	410	3370	410	3442	410	3443	408	4033	406	4056
GR	406	4071	408	4074	410	4078	410	4101	410	4202
GR	412	4252	414	4321	416	4343	418	4385	420	4413
GR	422	4427	424	4475						
ET			7.1				1998	3196		
X1	25387	75	2548	3196	1081	784	944			
GR	430	1000	428	1084	426	1131	424	1200	422	1238
GR	420	1286	418	1313	416	1481	414	1689	412	1713
GR	410	1722	410	1743	412	1753	410	1854	410	1877
GR	410	1916	410	1928	410	1955	410	2018	412	2198
GR	414	2326	414	2524	412	2548	410	2560	408	2575
GR	406	2581	404	2591	402	2609	400	2631	398	2635
GR	398	2638	396	2641	394	2653	394	2695	396	2699
GR	398	2709	400	2718	402	2723	404	2727	404	2733
GR	402	2743	400	2755	400	2797	402	2814	404	2934
GR	406	2961	408	3011	410	3071	412	3196	414	3202
GR	416	3206	418	3209	418	3211	416	3216	414	3221
GR	412	3250	412	3268	414	3620	414	3686	412	3709
GR	410	3725	410	3725	410	3752	412	3793	412	3793
GR	412	3793	414	3823	416	3841	418	3912	420	3926
GR	422	3939	424	3971	426	3975	426	3975	428	3987
ET			7.1				1926	2998		
X1	26114	55	2420	2998	724	708	727			
GR	420	1000	418	1023	416	1331	414	1359	412	1420

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GR     412    1427     414    1438     416    1462     414    1486     416    1509
GR     416    1544     414    1580     412    1587     412    1605     412    1624
GR     412    1643     412    1945     412    1954     414    2008     414    2344
GR     412    2369     412    2391     412    2420     412    2420     412    2420
GR     410    2452     408    2460     406    2465     406    2465     406    2465
GR     404    2475     404    2477     402    2480     400    2482     394    2495
GR     394    2511     396    2718     398    2724     400    2731     402    2735
GR     404    2745     406    2807     408    2896     410    2913     412    2998
GR     414    3029     416    3059     418    3112     418    3135     418    3248
GR     420    3323     422    3375     424    3451     426    3502     428    3543
NC    0.04    0.04   0.045     0.3     0.5
ET                    7.11                            4218    5136
* Highway 59 Bridge #3
* Downstream
X1 26537      34    4604    4822     414     332     423
GR     428    1000     426    1054     424    1158     422    1257     420    1991
GR     418    3626     416    4010     414    4200     412    4375     410    4604
GR     408    4610     406    4616     404    4627     402    4637     400    4696
GR     398    4718     398    4771     400    4781     402    4792     404    4797
GR     404    4799     406    4805     408    4817     410    4822     412    5065
GR     414    5182     416    5244     418    5266     420    5281     422    5398
GR     424    5503     426    5554     428    5644     430    5725
ET                    7.11                            4218    5136
SB    1.05     1.5     2.5     669     112      12    2058 4.41666     398     398
* Highway 59 Bridge #3
* Upstream
X1 26588      33    4624    4836      47      45      51
X2                       1     410     412                    1.33
GR     428    1000     426    1076     424    1202     422    1266     420    2006
GR     420    2045     418    3612     416    3987     414    4222     412    4379
GR     410    4624     408    4630     406    4633     404    4640     402    4647
GR     400    4726     398    4743     398    4787     400    4796     402    4809
GR     404    4817     406    4823     408    4831     410    4836     412    5015
GR     414    5141     416    5274     418    5304     420    5317     422    5424
GR     424    5515     426    5556     428    5669
NC    0.06    0.06   0.065     0.1     0.3
ET                     7.1                            1718    3223
X1 27124      45    2635    3223     445     624     536
GR     428    1000     426    1008     424    1018     422    1031     420    1043
GR     418    1067     416    1407     416    1581     416    1688     414    1694
GR     414    1838     414    1853     412    1864     412    1889     414    1899
GR     416    1915     416    2092     416    2116     416    2635     414    2678
GR     412    2686     410    2841     408    2853     406    2863     404    2869
GR     404    2923     404    2938     402    2943     402    2978     404    2986
GR     406    2989     406    2990     408    3006     410    3038     412    3136
GR     414    3172     416    3223     418    3248     418    3253     420    3262
GR     422    3304     424    3386     426    3414     428    3420     430    3425
ET                     7.1                            1531    2983
X1 27815      39    2644    2983     605     773     691
GR     428    1000     426    1011     424    1022     422    1036     420    1057
GR     418    1075     416    1487     416    1487     416    1487     416    1610
GR     418    1726     418    1807     416    1856     414    1861     414    1876
GR     416    1881     416    2644     414    2659     412    2663     410    2667
GR     408    2678     406    2691     404    2723     402    2741     402    2752
GR     402    2762     404    2804     406    2819     408    2829     410    2848
GR     412    2903     414    2917     416    2983     418    3048     420    3158
GR     422    3208     424    3309     426    3336     428    3375
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NC  0.04     0.04    0.045      0.3      0.5
ET                    7.11                                1305     2813
* Loop 20 Bridge #2
* Downstream
X1 28240       39     2555     2813      437      474      425
GR   426     1000      424     1013      422     1029      420     1061      418     1088
GR   418     1154      418     1237      416     1508      414     1519      414     1547
GR   416     1558      418     1569      418     1634      416     1653      412     1962
GR   412     2002      416     2080      418     2101      420     2133      422     2177
GR   422     2371      422     2539      420     2555      410     2576      408     2581
GR   406     2587      406     2783      408     2788      410     2796      420     2813
GR   422     2913      422     2955      420     3009      420     3012      422     3222
GR   424     3350      426     3507      428     3619      430     3737
ET                    7.11                                1305     2806
SB  1.05      1.5      2.5      280      201        9     3157 1.86363      406      406
* Loop 20 Bridge #2
* Upstream
X1 28332       34     2526     2806       72      103       92
X2                       1      417      422                          1.33
GR   426     1000      424     1021      422     1047      420     1071      418     1098
GR   416     1465      414     1474      414     1500      416     1514      418     1523
GR   418     1589      416     1606      416     2022      416     2089      412     2108
GR   412     2119      416     2136      418     2203      420     2249      422     2298
GR   422     2526      420     2538      410     2556      408     2569      406     2579
GR   406     2775      408     2780      410     2786      420     2806      422     2808
GR   424     2865      426     3217      428     3297      430     3324
NC  0.06     0.06    0.065      0.1      0.3
ET                     7.1                                1281     1595
X1 28673       27     1281     1595      342      350      341
GR   430     1000      428     1083      426     1222      424     1254      422     1263
GR   420     1276      418     1281      416     1293      414     1303      412     1323
GR   410     1374      408     1381      406     1387      406     1488      408     1535
GR   410     1550      412     1572      414     1578      416     1586      418     1595
GR   420     1630      422     1641      424     1650      426     1659      428     1662
GR   430     1668      430     1672
ET                     7.1                                2184     3059
X1 30238       33     2184     3059     1564     1529     1565
GR   428     1000      426     1078      424     1261      422     1495      420     2184
GR   418     2337      416     2419      414     2450      412     2462      410     2479
GR   410     2522      414     2532      414     2563      412     2623      412     2651
GR   412     2662      412     2682      412     2682      412     2888      412     2888
GR   412     2888      412     2999      414     3022      416     3041      418     3049
GR   420     3059      422     3064      424     3073      424     3073      426     3076
GR   428     3125      430     3128      440     3153
ET                     7.1                                1353     1830
X1 31626       35     1353     1830     1346     1451     1388
GR   440     1000      438     1113      438     1144      438     1207      436     1308
GR   434     1325      432     1353      430     1380      428     1409      428     1417
GR   426     1423      424     1429      422     1436      420     1517      418     1529
GR   416     1544      416     1616      418     1707      420     1736      422     1746
GR   424     1750      426     1756      428     1795      430     1811      432     1830
GR   432     1831      432     1831      434     1909      436     2007      438     2046
GR   440     2101      442     2145      444     2168      446     2195      448     2208
QT     2    22535    22535
ET                     7.1                                1542     1981
* Downstream of Tributary 3
X1 32354       45     1542     1981      694      804      728
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GR   452    1000     450    1016     448    1021     446    1041     444    1086
GR   444    1130     446    1143     448    1154     448    1167     448    1358
GR   446    1542     444    1565     442    1583     440    1602     438    1607
GR   436    1615     434    1629     432    1634     430    1653     428    1670
GR   426    1683     424    1693     424    1699     422    1701     420    1708
GR   418    1716     418    1783     420    1810     422    1823     424    1828
GR   426    1831     426    1837     428    1844     430    1860     432    1874
GR   434    1885     436    1892     438    1899     438    1905     440    1922
GR   442    1945     444    1963     446    1981     448    2014     450    2039
ET                   7.1                               1740    2212
X1 32760      60    2026    2212     390     415     406
GR   448    1000     446    1203     444    1310     442    1445     442    1452
GR   442    1575     440    1596     438    1604     436    1608     434    1624
GR   432    1640     430    1668     428    1674     426    1680     426    1727
GR   426    1844     424    1870     422    1885     422    1978     424    1982
GR   426    1988     430    1992     432    2004     434    2017     434    2026
GR   432    2032     430    2036     428    2039     426    2042     424    2058
GR   422    2071     420    2096     420    2096     418    2097     418    2097
GR   418    2097     418    2120     420    2121     422    2122     424    2124
GR   426    2125     428    2128     430    2131     432    2170     434    2212
GR   436    2235     438    2256     440    2268     440    2268     440    2268
GR   442    2280     444    2290     446    2335     448    2366     450    2389
GR   452    2400     454    2433     456    2452     458    2474     460    2498
ET                   7.1                               1641    2302
X1 33425      61    1976    2302     714     627     665
GR   446    1000     444    1026     444    1129     444    1193     442    1198
GR   442    1202     444    1209     444    1216     442    1222     440    1337
GR   438    1349     436    1456     434    1488     432    1526     430    1538
GR   428    1541     426    1545     426    1552     430    1554     432    1568
GR   434    1643     434    1715     434    1760     434    1776     432    1787
GR   430    1835     428    1841     426    1855     426    1860     426    1898
GR   428    1908     430    1922     432    1940     434    1947     436    1950
GR   438    1953     440    1958     442    1964     442    1976     440    1982
GR   438    1990     436    1993     434    2004     432    2023     432    2032
GR   434    2062     434    2062     434    2063     436    2167     438    2209
GR   440    2253     442    2302     444    2319     446    2354     448    2367
GR   450    2381     452    2435     452    2435     452    2435     454    2504
GR   456    2552
QT     2   21935   21935
ET                   7.1                               1454    1935
X1 34421      35    1454    1935    1292     722     996
GR   464    1000     462    1094     460    1147     458    1193     456    1229
GR   456    1305     456    1305     456    1322     454    1325     452    1373
GR   450    1425     450    1439     450    1454     448    1460     446    1468
GR   444    1476     442    1491     442    1546     442    1567     442    1676
GR   442    1701     442    1870     444    1902     446    1918     448    1928
GR   450    1935     452    1951     454    1974     456    1991     458    2003
GR   460    2021     462    2040     464    2067     466    2094     468    2157
EJ
T1      CF 0029
T2      CHACON FLOOD PROTECTION PLAN
T3      Chacon Creek from Lake Casablanca to Rio-Grande
J1               3                                    27722     368
J2    15               -1


ER
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FLOODWAY DATA, Floodway Model - Method 1, Chacon Creek
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
100.000	659.	5116.	5.4	368.0	367.0	1.0
1073.000	451.	4855.	5.7	371.0	370.5	.5
1160.000	167.	2387.	11.6	370.6	370.1	.5
1208.000	182.	2548.	10.9	371.1	370.7	.4
1799.000	479.	4519.	6.1	375.5	375.3	.2
2376.000	397.	4788.	5.8	377.3	377.2	.1
3213.000	573.	6210.	4.5	379.1	379.0	.1
4240.000	624.	6242.	4.4	380.8	380.7	.1
5065.000	689.	5428.	5.1	382.3	381.9	.4
6065.000	224.	3428.	8.1	384.4	383.8	.6
6235.000	244.	3365.	8.2	385.0	384.5	.5
6318.000	242.	3294.	8.4	385.1	384.6	.5
6706.000	434.	6134.	4.5	387.0	386.6	.4
7868.000	701.	9086.	3.1	388.1	387.8	.3
8728.000	684.	7066.	3.9	388.8	388.5	.3
9180.000	1060.	11537.	2.4	389.3	389.0	.3
9730.000	1200.	15194.	1.8	389.6	389.3	.3
10909.000	821.	7742.	3.5	390.0	389.7	.3
11629.000	701.	6244.	4.4	391.0	390.5	.5
12030.000	666.	6120.	4.4	391.6	391.2	.4
12096.000	666.	6122.	4.4	391.9	391.6	.3
12759.000	623.	6830.	4.0	392.8	392.4	.4
13683.000	391.	4181.	6.5	394.3	393.7	.6
14450.000	507.	5848.	4.7	396.4	395.5	.9
15230.000	627.	5758.	4.7	397.9	397.0	.9
15916.000	612.	6973.	3.9	399.2	398.2	1.0
17336.000	564.	7866.	3.4	400.4	399.4	1.0
17848.000	1272.	3896.	6.9	403.1	402.3	.8
17860.000	1272.	8818.	3.0	413.2	413.2	.0
18372.000	1192.	25236.	1.1	413.4	413.2	.2
19664.000	1516.	25354.	1.1	413.5	413.3	.2
20686.000	762.	12005.	2.2	413.5	413.3	.2
20829.000	1103.	10755.	2.5	413.6	413.3	.3
20903.000	1103.	10319.	2.6	414.7	414.6	.1
21387.000	809.	14697.	1.8	414.8	414.6	.2
22464.000	715.	10981.	2.4	415.0	414.7	.3
24443.000	1687.	15376.	1.7	415.6	415.2	.4
25387.000	1198.	9180.	2.9	415.9	415.4	.5
26114.000	1072.	9468.	2.8	416.3	415.8	.5
26537.000	918.	6764.	4.0	416.6	416.0	.6
26588.000	918.	6743.	4.0	416.7	416.3	.4
27124.000	1505.	6098.	4.4	417.3	417.0	.3
27815.000	1452.	6857.	3.9	419.2	419.0	.2
28240.000	1508.	6949.	3.8	419.9	419.6	.3
28332.000	1501.	8518.	3.1	421.3	421.1	.2
28673.000	314.	3733.	7.2	421.3	421.0	.3
30238.000	875.	8956.	3.0	424.3	423.9	.4
31626.000	333.	2462.	10.9	426.0	425.2	.8
32354.000	257.	2611.	8.6	434.1	434.5	-.4
32760.000	472.	4848.	4.6	436.2	436.3	-.1
33425.000	565.	2675.	8.4	437.8	437.5	.3
34421.000	474.	3001.	7.3	448.8	447.8	1.0

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C
C     29
C   1160Meadow Street Bridge
C   1160Downstream Cross Section
C   1208Meadow Street Bridge No. 8
C   1208Upstream Cross Section
C   6235Highway 83 - Bridge No. 7
C   6235Downstream Cross Section
C   6318Highway 83 - Bridge No. 7
C   6318Upstream Cross Section
C   9730Downstream of Tributary 1
C  12030Highway 359 - Bridge No. 6
C  12030Downstream Cross Section
C  12096Highway 359 - Bridge No. 6
C  12096Upstream Cross Section
C  17336Downstream of Tributary 2
C  17848Texas Mexican Railroad Bridge #5
C  17848Downstream
C  20829Clark Blvd. Bridge #4
C  20829Downstream
C  20903Clark Blvd Bridge #4
C  20903Upstream
C  26537Highway 59 Bridge #3
C  26537Downstream
C  26588Highway 59 Bridge #3
C  26588Upstream
C  28240Loop 20 Bridge #2
C  28240Downstream
C  28332Loop 20 Bridge #2
C  28332Upstream
C  32354Downstream of Tributary 3
T1 City of Laredo Flood Insurance Study Update (for development to Jan. 1994)
T2 Chacon Creek Watershed - Chacon Creek form Rio-Grande to Lake Casablanca Dam
T3 Floodway Model-Method 4, 1988 NAVD, DEC. 1998
J1              2                                                   27722     367
J2      1                 -1
J3    110     200
NC   0.06    0.06    0.065      0.1      0.3
ET                    10.4
X1    100      89     2245     3054
GR    410    1000      408     1086      406     1098      404     1104      404     1106
GR    404    1133      402     1145      400     1158      398     1179      396     1189
GR    394    1196      392     1207      390     1213      388     1235      386     1262
GR    384    1297      382     1331      380     1380      378     1542      378     1546
GR    378    1554      376     1650      374     1951      372     2245      370     2289
GR    368    2309      366     2337      364     2374      362     2393      360     2405
GR    358    2413      356     2424      354     2432      352     2441      350     2449
GR    348    2472      348     2533      350     2545      352     2553      354     2558
GR    356    2564      358     2580      360     2596      362     2689      364     2854
GR    366    2927      368     2968      370     2996      372     3054      374     3195
GR    376    3462      378     3604      380     3713      382     3914      382     3916
GR    384    4078      384     4078      384     4214      382     4217      380     4224
GR    370    4231      360     4241      360     4273      370     4320      380     4334
GR    390    4343      392     4350      394     4368      396     4387      398     4406
GR    400    4410      402     4415      402     4415      404     4427      404     4515
GR    402    4530      400     4537      390     4554      388     4563      388     4582
GR    390    4595      400     4617      402     4630      404     4634      406     4747
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GR   408      4778      408     4821      408      4926      410     4991
NC  0.06      0.06    0.065
X1  1073 -      75     1935     2386      979       615      973
GR   410      1000      408     1040      406      1066      404     1153      402     1403
GR   400      1534      398     1555      396      1586      392     1594      390     1604
GR   380      1684      378     1692      376      1710      374     1783      372     1849
GR   370      1935      368     1943      366      1954      364     1962      362     1998
GR   360      2087      358     2151      356      2158      354     2164      352     2170
GR   352      2222      354     2230      356      2238      358     2244      360     2250
GR   362      2331      364     2345      366      2361      368     2370      370     2386
GR   380      2407      382     2416      384      2424      386     2430      388     2442
GR   390      2453      396     2459      398      2632      400     2641      402     2650
GR   404      2707      406     2878      406      2939      406     2957      406     3160
GR   404      3226      402     3248      402      3248      400     3270      390     3278
GR   380      3282      380     3282      370      3304      366     3312      366     3324
GR   370      3338      380     3354      390      3365      400     3385      402     3395
GR   404      3399      406     3406      406      3464      406     3464      406     3464
GR   406      3694      406     3706      406      3807      408     3920      410     3969
NC                                0.3      0.5
* Meadow Street Bridge
* Downstream Cross Section
ET                        10.41
X1  1160        91     2091     2284      161       124       87
GR   410      1000      408     1013      406      1034      404     1091      402     1192
GR   400      1260      400     1260      400      1261      398     1366      396     1483
GR   394      1501      392     1573      390      1594      388     1702      386     1796
GR   384      1901      382     2025      380      2091      370     2095      360     2098
GR   352      2106      352     2123      354      2129      356     2131      358     2134
GR   358      2153      356     2161      354      2166      352     2172      352     2209
GR   354      2219      356     2226      358      2229      360     2236      370     2260
GR   380      2284      382     2328      384      2418      386     2462      388     2493
GR   390      2517      392     2554      394      2595      396     2603      398     2613
GR   400      2628      402     2644      404      2681      406     2812      406     2848
GR   406      2896      406     3107      404      3179      402     3196      400     3208
GR   398      3215      396     3223      394      3228      392     3236      390     3242
GR   380      3269      370     3287      368      3297      368     3313      370     3318
GR   380      3332      390     3343      400      3358      402     3368      404     3375
GR   406      3382      406     3421      404      3449      402     3455      400     3518
GR   398      3553      396     3569      394      3585      394     3594      394     3666
GR   394      3743      396     3754      398      3763      400     3773      402     3785
GR   404      3794      406     3814      408      3937      408     3959      408     3973
GR   410      4122
SB  1.05       1.5      2.5      513      106        10     4172  1.55357      352      352
* Meadow Street Bridge No. 8
* Upstream Cross Section
ET                        10.41
X1  1208        87     2167     2369       40        37       48
X2                        1      380      384                        1.33
GR   410      1000      408     1051      406      1102      404     1181      402     1284
GR   400      1347      398     1453      396      1546      394     1587      392     1665
GR   390      1696      388     1808      388      1808      388     1808      386     1901
GR   384      1980      382     2145      380      2167      370     2170      360     2173
GR   352      2180      352     2196      354      2202      358     2207      360     2214
GR   360      2246      358     2257      354      2266      352     2276      352     2313
GR   360      2326      370     2349      380      2369      382     2415      384     2536
GR   384      2536      384     2582      386      2602      388     2617      390     2650
GR   392      2659      394     2693      396      2724      398     2769      400     2809
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GR	402	2841	404	2894	406	2952	406	3192	404	3269
GR	402	3292	400	3300	398	3310	396	3316	394	3330
GR	392-	3358	390	3380	380	3399	370	3413	368	3420
GR	368	3432	370	3440	380	3453	390	3464	400	3481
GR	402	3487	404	3493	406	3503	406	3619	406	3627
GR	406	3627	406	3633	404	3799	402	3806	400	3817
GR	398	3828	396	3838	394	3850	394	3857	396	3866
GR	398	3875	400	3882	402	3910	404	3942	406	3955
GR	408	4111	410	4196						
NC				0.1	0.3					
ET			10.4							
X1	1799	59	2218	2765	664	604	591			
GR	410	1000	408	1034	408	1034	406	1835	404	1976
GR	402	2004	400	2025	394	2035	392	2046	390	2059
GR	388	2106	386	2161	384	2186	382	2198	380	2218
GR	378	2228	376	2243	374	2265	372	2306	370	2337
GR	368	2372	366	2407	364	2453	362	2468	360	2478
GR	358	2485	354	2495	354	2524	356	2532	358	2540
GR	360	2548	362	2571	364	2595	366	2638	368	2657
GR	370	2687	372	2701	374	2715	376	2732	378	2743
GR	378	2743	378	2743	380	2765	390	2803	392	2809
GR	394	2817	396	2825	398	2829	400	2835	402	2846
GR	404	2894	406	2967	406	3035	406	3113	406	3358
GR	406	3415	406	3515	406	3654	408	4115		
X1	2376	54	2271	2695	510	626	577			
GR	410	1000	408	1082	406	1169	404	1277	402	1371
GR	400	1534	398	1867	396	1880	394	1896	392	1925
GR	390	1958	388	2054	386	2220	384	2266	382	2271
GR	380	2275	370	2283	368	2331	362	2341	360	2348
GR	358	2355	356	2361	356	2394	358	2405	360	2432
GR	362	2443	364	2460	366	2506	368	2595	370	2655
GR	372	2662	374	2669	380	2678	382	2695	384	2705
GR	386	2709	388	2723	390	2736	392	2744	392	2766
GR	392	2833	392	2833	392	2833	394	2948	396	2992
GR	396	3029	396	3040	398	3052	400	3061	402	3157
GR	404	3254	406	3329	408	3381	410	3417		
X1	3213	52	2064	2683	746	828	837			
GR	408	1000	406	1026	404	1151	402	1223	400	1471
GR	398	1490	396	1499	394	1515	392	1522	390	1531
GR	388	1551	386	1576	384	2064	382	2076	380	2088
GR	378	2095	376	2111	374	2213	372	2228	370	2241
GR	368	2252	366	2513	364	2528	362	2540	360	2549
GR	358	2554	358	2603	360	2608	370	2630	372	2640
GR	374	2650	374	2650	374	2650	378	2661	380	2666
GR	382	2676	384	2683	386	2686	388	2692	390	2699
GR	392	2703	394	2707	396	2712	398	2737	400	2767
GR	402	2806	404	2825	406	2902	408	2988	410	3004
GR	412	3066	414	3177						
X1	4240	85	2838	3515	895	1058	1027			
GR	410	1000	408	1098	406	1157	404	1353	402	1407
GR	402	1472	402	1585	400	1597	398	1661	396	1822
GR	394	2089	392	2145	390	2203	388	2226	386	2266
GR	384	2280	382	2297	380	2318	378	2342	376	2352
GR	374	2377	374	2452	376	2473	378	2500	380	2554
GR	382	2571	384	2718	384	2838	382	2875	380	2880
GR	376	2891	374	2902	374	2911	376	2928	378	3020
GR	378	3059	378	3059	378	3059	376	3073	374	3080

GR	372	3084	370	3093	368	3097	366	3102	364	3106
GR	364	3111	364	3119	364	3131	366	3139	368	3144
GR	370	3153	372	3156	374	3162	374	3171	372	3175
GR	370	3180	368	3187	368	3256	368	3352	366	3376
GR	364	3389	362	3396	362	3440	364	3445	366	3448
GR	370	3455	372	3464	374	3474	376	3481	378	3491
GR	380	3498	382	3507	384	3515	386	3522	388	3525
GR	390	3533	392	3538	394	3547	396	3550	398	3554
GR	400	3560	410	3572	420	3581	422	3643	424	3745
X1	5065	84	2867	3348	603	897	825			
GR	410	1000	408	1116	406	1147	404	1269	402	1391
GR	400	1538	400	1581	400	1597	398	1708	396	2004
GR	394	2304	392	2313	390	2321	388	2324	386	2327
GR	384	2333	382	2339	380	2346	378	2348	376	2363
GR	376	2367	378	2377	380	2380	390	2398	392	2436
GR	392	2471	392	2561	392	2856	390	2867	388	2874
GR	386	2885	384	2897	382	2918	380	2937	378	2961
GR	376	2973	374	2981	372	2987	370	2997	368	3042
GR	366	3061	364	3067	362	3071	362	3110	364	3117
GR	366	3128	368	3212	370	3309	380	3323	382	3328
GR	384	3334	386	3339	388	3344	390	3348	390	3380
GR	388	3438	386	3539	384	3561	382	3569	380	3575
GR	378	3583	376	3589	374	3593	374	3619	376	3649
GR	378	3685	378	3698	378	3751	380	3772	382	3783
GR	384	3793	386	3800	388	3817	390	3868	392	3875
GR	394	3882	396	3888	398	3896	400	3925	402	3991
GR	404	4002	406	4024	408	4041	410	4069		
NC				0.3	0.5					
X1	6065	71	2378	2602	1000	1000	1000			
GR	410	1000	408	1133	406	1170	404	1247	402	1313
GR	400	1403	400	1403	398	1407	394	1416	392	1423
GR	390	1428	390	1434	392	1441	394	1617	396	1627
GR	398	1640	400	1665	400	2241	398	2339	396	2345
GR	394	2351	392	2356	390	2360	380	2378	378	2384
GR	376	2390	374	2397	372	2401	370	2408	368	2415
GR	366	2421	364	2426	362	2458	364	2470	366	2487
GR	368	2522	370	2547	372	2564	374	2579	376	2588
GR	378	2597	380	2602	382	2634	384	2710	384	2894
GR	384	2913	386	3047	386	3058	384	3088	384	3090
GR	386	3097	388	3103	390	3108	392	3132	394	3257
GR	394	3427	392	3477	390	3484	388	3493	388	3495
GR	390	3506	392	3521	394	3537	396	3615	398	3625
GR	400	3632	402	3836	404	3933	406	4103	408	4244
GR	410	4297								
* Highway 83 - Bridge No. 7										
* Downstream Cross Section										
ET			5.41							
X1	6235	65	2190	2451	173	153	170			
GR	410	1000	408	1095	406	1107	404	1123	402	1296
GR	400	1302	398	1305	396	1308	396	1317	398	1324
GR	398	1324	400	1333	400	1459	398	1478	398	1512
GR	400	1520	402	1745	402	1833	400	1939	398	2154
GR	396	2172	394	2178	392	2183	390	2190	380	2202
GR	380	2202	380	2202	370	2222	370	2222	370	2222
GR	368	2229	366	2232	364	2237	362	2273	364	2280
GR	364	2280	364	2280	366	2309	366	2309	366	2309
GR	368	2328	370	2337	372	2348	374	2368	376	2388

GR	378	2407	380	2419	382	2428	384	2436	386	2443
GR	390	2451	392	2456	392	2456	392	2456	394	2464
GR	396	2471	398	2483	398	2672	398	3153	400	3391
GR	402	3569	404	3733	406	3813	408	3908	410	3919
SB	1.05	1.5	2.5	350	103	10	5790	2.86666	362	362
* Highway 83 - Bridge No. 7										
* Upstream Cross Section										
ET			5.41							
X1	6318	58	2186	2446	82	90	83			
X2			1	396	400			1.33		
GR	410	1000	408	1067	406	1137	404	1238	402	1333
GR	400	1343	398	1348	398	1360	398	1360	400	1368
GR	400	1492	400	1492	400	1492	398	2147	396	2160
GR	394	2171	392	2178	390	2186	380	2201	374	2212
GR	372	2215	370	2220	368	2226	366	2230	364	2237
GR	362	2280	364	2283	366	2288	368	2321	370	2330
GR	372	2347	374	2368	376	2385	378	2396	380	2407
GR	382	2422	384	2431	386	2438	388	2442	390	2446
GR	392	2450	394	2456	396	2462	398	2468	398	2683
GR	398	3092	400	3308	400	3396	400	3396	400	3451
GR	400	3479	400	3553	400	3580	402	3673	404	3725
GR	406	3778	408	3902	410	3911				
X1	6706	48	1664	2190	488	258	388			
ET			5.4							
GR	412	1000	410	1110	408	1128	406	1160	404	1227
GR	402	1295	400	1321	398	1341	398	1372	398	1413
GR	396	1437	394	1473	392	1648	390	1664	380	1674
GR	370	1684	362	1688	364	1715	366	1764	368	1815
GR	370	1884	372	1905	374	1937	376	1967	378	2021
GR	380	2036	382	2044	384	2055	386	2072	388	2134
GR	390	2190	390	2320	390	2321	392	2354	394	2363
GR	396	2380	398	2570	398	2658	398	2718	398	2804
GR	398	2804	398	2930	400	3066	402	3174	404	3230
GR	406	3266	408	3397	410	3405				
X1	7868	60	1444	2145	936	950	1162			
GR	416	1000	414	1009	412	1012	410	1022	408	1025
GR	404	1028	402	1030	400	1034	398	1038	396	1041
GR	394	1047	392	1074	390	1169	388	1176	386	1187
GR	384	1444	382	1464	380	1529	378	1767	376	1811
GR	374	1826	374	1830	372	1830	370	1838	368	1848
GR	366	1854	364	1857	364	1883	366	1893	368	1913
GR	370	2038	372	2056	372	2056	372	2056	374	2100
GR	376	2119	378	2127	380	2133	382	2137	384	2140
GR	386	2145	388	2151	390	2159	392	2171	394	2178
GR	396	2184	398	2191	400	2198	402	2205	404	2212
GR	406	2275	408	2411	410	2417	410	2420	410	2434
GR	408	2475	406	2515	406	2554	408	2715	410	2751
X1	8728	59	1356	2040	753	849	860			
GR	424	1000	422	1016	420	1021	418	1029	416	1036
GR	414	1041	412	1047	410	1054	408	1062	406	1068
GR	404	1076	402	1089	400	1103	398	1122	396	1143
GR	394	1163	392	1206	390	1332	388	1356	386	1368
GR	384	1377	382	1392	380	1418	378	1425	376	1432
GR	374	1444	372	1451	370	1464	368	1477	366	1488
GR	366	1506	368	1521	370	1535	372	1544	372	1581
GR	372	1641	374	1646	376	1669	378	1783	380	1804
GR	382	1814	384	1860	386	1932	388	2040	388	2224

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GR   386    2237     386    2308     388    2323     390    2333     392    2426
GR   394    2503     396    2593     398    2641     400    2692     402    2831
GR   404 -  2847     406    2852     408    2860     410    2864
ET                  15.4
X1  9180      60    1469    2529     476     275     452
GR   416    1000     414    1044     412    1116     410    1157     410    1157
GR   410    1157     408    1201     406    1308     404    1333     402    1356
GR   400    1401     398    1429     396    1440     394    1445     392    1454
GR   392    1455     390    1457     388    1463     386    1469     384    1473
GR   382    1479     380    1487     378    1501     376    1517     374    1567
GR   372    1571     370    1579     368    1585     366    1590     366    1602
GR   368    1604     370    1612     370    1675     370    1684     372    1695
GR   374    1724     376    1739     378    2034     380    2150     382    2184
GR   384    2451     386    2529     386    2698     386    2733     388    2856
GR   388    2878     388    2889     390    2901     390    2929     390    2937
GR   392    2973     394    3011     396    3034     398    3095     400    3164
GR   402    3344     404    3354     406    3366     408    3382     410    3423
QT     2   27232   27232
* Downstream of Tributary 1
X1  9730      80    2180    3380     643     184     550
GR   428    1000     426    1005     424    1009     422    1015     420    1019
GR   418    1023     416    1029     414    1036     412    1043     410    1048
GR   408    1054     406    1062     404    1071     402    1083     400    1190
GR   398    1264     396    1288     394    1567     392    1619     390    1648
GR   388    1744     386    1775     384    1790     382    1795     382    1807
GR   384    1810     386    1813     390    1817     392    1825     394    1835
GR   396    1840     398    1848     398    1926     396    2123     394    2134
GR   392    2148     390    2160     388    2170     386    2180     384    2218
GR   382    2235     380    2243     378    2249     376    2257     374    2272
GR   372    2275     370    2278     370    2315     372    2326     374    2332
GR   376    2386     376    2528     376    2592     376    2648     374    2658
GR   372    2667     372    2667     370    2678     370    2885     372    2888
GR   374    2903     376    2914     378    2939     380    3155     382    3214
GR   384    3283     386    3380     386    3429     386    3567     388    3719
GR   390    3781     392    3796     394    3847     396    3876     398    3938
GR   400    4010     402    4181     404    4190     406    4201     408    4214
X1 10909      73    2656    3479    1075     254    1179
GR   410    1000     408    1024     406    1050     404    1094     402    1136
GR   402    1144     402    1181     400    1384     398    1391     398    1391
GR   396    1399     394    1444     392    1493     390    1523     388    1600
GR   388    1600     386    1682     384    1763     384    1954     384    1954
GR   386    2009     386    2009     388    2040     390    2065     392    2130
GR   394    2156     396    2191     398    2218     400    2342     402    2366
GR   402    2366     402    2374     400    2399     398    2409     398    2456
GR   398    2462     396    2478     394    2492     392    2616     390    2656
GR   388    2675     386    2683     386    2686     384    2691     382    2699
GR   380    2714     378    2728     376    2819     374    2966     372    2970
GR   370    2981     370    3008     372    3010     374    3039     376    3054
GR   378    3066     380    3120     382    3186     384    3247     386    3278
GR   388    3407     390    3479     392    3498     394    3538     396    3577
GR   398    3640     400    3772     400    3811     400    3825     402    3857
GR   404    3872     406    3894     408    3922
X1 11629      48    2769    3470     744     525     720
GR   408    1000     406    1075     404    1149     402    1259     400    1683
GR   398    1792     396    2091     394    2195     392    2249     390    2431
GR   388    2523     388    2718     388    2769     386    2880     384    2891
GR   382    3002     380    3076     378    3111     376    3134     374    3140
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GR   372    3145     372    3155     374    3163     376    3177     378    3206
GR   380    3232     382    3267     382    3311     382    3366     384    3403
GR   386    3449     388    3470     390    3484     392    3501     394    3510
GR   396    3520     398    3527     400    3536     402    3554     404    3573
GR   406    3607     408    3733     410    3779     412    3829     414    3866
GR   414    4007     412    4048     410    4091
NC                           0.3     0.5
* Highway 359 - Bridge No. 6
* Downstream Cross Section
ET                   5.41
X1 12030      39    3237    3449     471     399     401
GR   408    1000     406    1073     404    1165     402    1257     400    1700
GR   398    1978     396    2090     394    2205     392    2371     390    2619
GR   388    2762     386    2953     384    3237     382    3238     380    3247
GR   378    3254     376    3259     374    3333     374    3393     376    3413
GR   378    3423     380    3433     382    3440     384    3449     386    3496
GR   388    3546     390    3594     392    3635     394    3682     396    3731
GR   398    3766     400    3796     402    3818     402    3818     404    3853
GR   406    3880     408    3901     410    3915     412    3989
SB  1.05     1.5     2.5     540     138       5    1770     3.7     374     374
* Highway 359 - Bridge No. 6
* Upstream Cross Section
ET                   5.41
X1 12096      43    3268    3480      71      76      66
X2                     1     384     386                    1.33
GR   410    1000     408    1080     406    1170     404    1255     404    1271
GR   404    1289     402    1668     400    1821     398    1968     396    2112
GR   394    2271     392    2544     390    2634     388    2830     386    3040
GR   384    3268     382    3273     380    3279     378    3285     378    3285
GR   378    3285     376    3290     374    3299     374    3452     376    3456
GR   378    3462     380    3470     382    3475     384    3480     386    3521
GR   388    3594     390    3646     392    3689     394    3748     396    3792
GR   398    3825     400    3855     402    3891     404    3918     406    3941
GR   408    3974     410    4009     412    4083
NC                           0.1     0.3
ET                   13.4
X1 12759      51    1750    2373     580     740     663
GR   412    1000     410    1201     408    1205     406    1230     404    1363
GR   402    1370     400    1380     400    1383     398    1394     396    1399
GR   396    1444     398    1450     400    1458     400    1469     398    1473
GR   396    1478     394    1483     392    1647     390    1750     388    1818
GR   386    1825     384    1832     382    1857     380    1898     378    2112
GR   376    2124     374    2130     374    2157     376    2164     378    2165
GR   380    2169     382    2181     384    2309     386    2327     388    2347
GR   390    2373     390    2435     388    2571     388    2855     390    2915
GR   392    2939     394    2963     396    2997     398    3043     400    3097
GR   402    3147     402    3147     404    3206     406    3375     408    3709
GR   410    3736
ET                   10.4
X1 13683      43    1045    1342     778    1026     924
GR   408    1000     406    1010     404    1018     402    1025     400    1033
GR   398    1039     390    1045     388    1050     386    1055     386    1056
GR   384    1060     382    1063     380    1069     378    1074     378    1076
GR   378    1076     376    1078     374    1082     374    1097     376    1102
GR   378    1112     380    1169     382    1271     384    1285     386    1296
GR   388    1306     390    1342     390    1342     390    1342     390    1670
GR   390    1747     390    1747     390    1747     392    1761     394    1801
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GR   396    1823    400    1833    402    1848    404    1868    406    1881
GR   408    1921    410    1968    410    1968
X1 14450      47   1617    2124    826     635    767
GR   414    1000    412    1090    410    1152    410    1154    412    1193
GR   412    1323    410    1400    408    1443    408    1506    408    1575
GR   406    1584    404    1587    402    1591    402    1591    402    1591
GR   400    1599    390    1617    380    1626    378    1632    376    1637
GR   374    1641    374    1658    376    1673    378    1685    380    1746
GR   382    1823    384    1843    386    1851    388    1872    390    1970
GR   390    2049    390    2124    392    2159    394    2304    394    2414
GR   392    2502    392    2558    394    2762    396    2894    398    2899
GR   398    2919    398    2974    400    2994    402    3026    404    3157
GR   406    3216    408    3241
X1 15230      52   1335    1962    818     712    780
GR   418    1000    416    1027    416    1027    416    1027    414    1044
GR   412    1061    410    1115    410    1124    408    1144    406    1175
GR   406    1179    404    1193    402    1210    400    1215    398    1317
GR   398    1322    396    1331    394    1335    392    1441    392    1555
GR   392    1616    390    1654    388    1668    386    1700    384    1721
GR   382    1772    380    1791    378    1793    378    1794    376    1796
GR   376    1817    378    1819    380    1821    382    1834    384    1863
GR   386    1868    388    1886    390    1917    392    1945    394    1962
GR   396    2023    396    2467    394    2778    394    3027    396    3036
GR   396    3046    398    3137    400    3251    402    3303    404    3353
GR   406    3393    408    3437
X1 15916      47   1715    2327    693     640    686
GR   408    1000    406    1057    404    1132    402    1174    402    1193
GR   402    1223    400    1285    398    1385    396    1530    394    1625
GR   394    1625    394    1625    392    1715    390    1778    390    2032
GR   390    2059    388    2078    386    2088    384    2103    382    2106
GR   380    2110    378    2113    378    2129    380    2139    382    2144
GR   384    2194    386    2294    388    2309    390    2315    392    2322
GR   394    2327    396    2334    398    2486    398    2651    396    3089
GR   396    3473    398    3524    398    3539    398    3539    398    3597
GR   400    3609    402    3630    404    3689    406    3752    406    3781
GR   406    3791    408    3858
QT     2   26742  26742
* Downstream of Tributary 2
X1 17336      64   2260    2466   1353    1375   1420
GR   420    1000    418    1008    416    1017    414    1036    412    1051
GR   410    1064    408    1115    406    1172    404    1275    402    1443
GR   400    1557    398    1597    398    1619    396    1638    396    1692
GR   398    1720    400    1739    400    1764    398    1785    396    1849
GR   394    1872    392    1896    390    1921    390    1921    388    1923
GR   386    1932    384    1936    384    1980    386    2008    388    2067
GR   388    2260    386    2328    384    2351    382    2358    382    2363
GR   380    2366    380    2379    382    2383    382    2386    384    2391
GR   386    2448    388    2466    390    2480    392    2505    394    2527
GR   394    2557    394    2558    396    2611    398    2654    400    2701
GR   400    3060    400    3520    402    3687    402    3737    402    3774
GR   404    3832    406    3879    408    3952    410    4003    412    4049
GR   414    4107    416    4122    416    4129    418    4216
NC  0.04    0.04  0.045     0.3    0.5
* Texas Mexican Railroad Bridge #5
* Downstream
ET                 8.41
X1 17848      44   3461    3535    553     498    512
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GR	410	1000	410	1118	410	1198	408	1316	406	1364
GR	406	1512	406	1639	404	1689	402	1738	400	1928
GR	398	2054	398	2112	400	2212	400	2241	400	2768
GR	402	3146	402	3461	400	3463	398	3464	396	3465
GR	394	3466	392	3467	390	3467	384	3470	384	3497
GR	384	3508	384	3529	390	3531	400	3533	402	3535
GR	404	3889	404	3890	404	3890	404	3904	406	4303
GR	408	4578	408	4598	408	4618	408	4715	408	4768
GR	410	4862	412	4914	414	4943	416	4965		
SB		1.5	2.5	111	59	0	762	0.41666	384	384
ET			8.41							
X1	17860	66	4675	4748	11	10	12			
X2			1	396	402					
GR	426	1000	424	1016	422	1028	420	1048	418	1059
GR	416	1147	414	1203	412.	1305	410	1385	410	1468
GR	410	1589	408	1624	406	1751	406	1751	404	1785
GR	402	1789	400	1792	398	1794	396	1797	396	1806
GR	398	1807	400	1811	402	1815	404	1817	406	1822
GR	408	1942	410	2090	412	2167	412	2203	410	2259
GR	410	2350	410	2422	408	2592	406	2933	404	3064
GR	404	3432	404	3820	404	3821	402	4675	400	4676
GR	390	4680	384	4683	384	4715	384	4720	384	4740
GR	390	4743	400	4746	402	4748	404	5237	406	5527
GR	408	5782	408	5788	406	5832	406	5872	408	5910
GR	410	6091	412	6133	414	6156	416	6177	418	6194
GR	420	6325	420	6685	420	6686	422	6768	424	6838
GR	426	6917								
NC	0.06	0.06	0.065	0.1	0.3					
ET			60.4							
X1	18372	70	3668	4083	466	666	512			
GR	420	1000	418	1003	416	1007	414	1009	412	1011
GR	410	1016	408	1350	406	1987	404	2138	404	2318
GR	404	2382	402	2598	402	2820	402	2876	402	2876
GR	402	2959	402	3078	400	3101	398	3111	396	3130
GR	394	3157	392	3208	390	3321	390	3432	392	3469
GR	392	3668	390	3729	388	3856	388	3902	388	3902
GR	388	3902	388	3953	386	3972	384	3980	384	3992
GR	386	4013	386	4045	384	4062	384	4078	384	4078
GR	384	4078	390	4083	400	4091	402	4102	404	4110
GR	406	4123	406	4224	404	4231	404	4239	404	4248
GR	404	4260	404	4396	402	4459	402	4488	402	4555
GR	402	4629	404	4693	406	4761	408	4932	410	4953
GR	412	5276	414	5479	416	5546	418	5629	420	5673
GR	422	5768	424	5816	426	5896	428	6048	430	6114
X1	19664	45	3411	4065	1169	1372	1292			
GR	428	1000	420	1002	418	1006	416	1013	414	1035
GR	414	1089	414	1229	412	1290	410	1321	408	1367
GR	408	1380	408	1738	406	1912	404	2128	402	2382
GR	400	2437	400	2461	402	2874	402	2910	400	3198
GR	398	3275	398	3328	400	3352	400	3411	390	3428
GR	390	3896	392	3925	394	3954	396	3989	398	4029
GR	400	4065	402	4127	402	4255	402	4666	404	4932
GR	406	5163	408	5325	410	5372	412	5522	414	5636
GR	416	5696	418	5776	420	5793	420	5815	420	5840
X1	20686	45	1587	2007	1079	952	1022			
GR	432	1000	430	1062	428	1076	426	1089	424	1105
GR	422	1124	420	1139	418	1145	416	1148	414	1164

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GR   412    1180    410    1225    408    1242    406    1259    404    1379
GR   402    1485    400    1506    398    1510    398    1569    398    1587
GR   396    1623    394    1648    392    1681    390    1715    390    1739
GR   392    1766    394    1913    396    1962    398    2007    400    2042
GR   402    2130    404    2194    406    2449    406    2910    406    3045
GR   406    3139    406    3246    408    3435    410    3549    412    3686
GR   414    3771    416    3933    416    3948    418    3973    420    4010
NC  0.04    0.04  0.045     0.3     0.5
* Clark Blvd. Bridge #4
* Downstream
ET                22.41
X1 20829      43   2581    2872    160     162    143
GR   430    1000    428    1138    426    1278    424    1435    424    1466
GR   424    1466    424    1495    422    1754    420    1884    418    1896
GR   418    1929    416    1982    414    2039    412    2182    410    2581
GR   406    2582    404    2587    402    2592    400    2601    394    2608
GR   394    2833    396    2840    398    2844    400    2848    402    2853
GR   404    2859    406    2866    408    2872    408    3129    406    3514
GR   404    3521    402    3525    402    3542    404    3547    406    3897
GR   408    4277    410    4298    412    4550    414    4672    416    4794
GR   418    4879    420    4946    422    5019
SB  1.05     1.5    2.5     318    226       8   2490    2.35    394     394
* Clark Blvd Bridge #4
* Upstream
ET                22.41
X1 20903      37   2873    3163     76      67     74
X2                    1     404    410                    1.33
GR   428    1000    426    1348    424    1744    422    2026    420    2185
GR   418    2227    416    2261    414    2338    412    2477    410    2873
GR   406    2874    404    2877    402    2880    400    2892    394    2898
GR   394    3124    396    3130    398    3135    400    3138    402    3141
GR   404    3149    406    3153    408    3163    408    3419    406    3800
GR   404    3810    402    3813    402    3825    404    3828    406    4124
GR   408    4563    410    4628    412    4852    414    4976    416    5096
GR   418    5207    420    5272
NC  0.06    0.06  0.065     0.1     0.3
ET                 30.4
X1 21387      61   1594    2156    459     588    484
GR   424    1000    422    1018    420    1029    416    1042    414    1047
GR   412    1058    410    1072    408    1097    406    1117    404    1171
GR   402    1208    402    1215    404    1225    404    1308    402    1357
GR   400    1458    398    1480    398    1519    398    1522    398    1526
GR   400    1536    402    1552    402    1594    400    1621    398    1634
GR   396    1644    394    1649    394    1658    392    1664    392    1724
GR   392    1783    392    1806    392    1810    392    1840    394    1869
GR   396    1954    396    2036    396    2109    398    2124    400    2137
GR   402    2156    404    2169    406    2213    406    2247    406    2356
GR   406    2356    408    2383    410    2399    410    2399    412    2787
GR   414    2892    414    2909    414    2920    416    2989    418    3031
GR   420    3059    422    3214    424    3354    426    3390    428    3463
GR   430    3739
X1 22464      42   1309    2024    973    1198   1077
GR   420    1000    418    1066    416    1098    414    1242    412    1297
GR   412    1299    410    1309    408    1329    406    1363    404    1405
GR   404    1437    404    1471    402    1499    400    1587    398    1682
GR   396    1793    394    1826    394    1853    394    1917    394    1961
GR   396    1971    398    1980    400    1991    400    1991    400    1991
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GR   410    2021    410   2024    412    2029    414   2035    416   2063
GR   416    2089    416   2120    416    2133    414   2207    414   2207
GR   414    2246    416   2360    416    2508    416   2523    420   2526
GR   422    2646    424   2791
ET                 20.4
X1 24443      62   2504   3091   1849    1925   1979
GR   430    1000    428   1078    426    1114    424   1167    422   1240
GR   420    1295    418   1347    416    1461    414   1528    412   1613
GR   410    1673    410   1718    412    1726    412   1795    410   1813
GR   408    1816    406   1919    404    1996    404   2040    406   2067
GR   408    2254    410   2330    410    2504    408   2514    406   2546
GR   404    2595    402   2609    400    2633    398   2641    396   2651
GR   394    2661    394   2706    396    2722    398   2730    400   2926
GR   402    2973    404   3055    406    3075    408   3084    410   3091
GR   412    3095    412   3095    412    3132    410   3369    410   3370
GR   410    3370    410   3442    410    3443    408   4033    406   4056
GR   406    4071    408   4074    410    4078    410   4101    410   4202
GR   412    4252    414   4321    416    4343    418   4385    420   4413
GR   422    4427    424   4475
X1 25387      75   2548   3196   1081     784    944
ET                 11.4
GR   430    1000    428   1084    426    1131    424   1200    422   1238
GR   420    1286    418   1313    416    1481    414   1689    412   1713
GR   410    1722    410   1743    412    1753    410   1854    410   1877
GR   410    1916    410   1928    410    1955    410   2018    412   2198
GR   414    2326    414   2524    412    2548    410   2560    408   2575
GR   406    2581    404   2591    402    2609    400   2631    398   2635
GR   398    2638    396   2641    394    2653    394   2695    396   2699
GR   398    2709    400   2718    402    2723    404   2727    404   2733
GR   402    2743    400   2755    400    2797    402   2814    404   2934
GR   406    2961    408   3011    410    3071    412   3196    414   3202
GR   416    3206    418   3209    418    3211    416   3216    414   3221
GR   412    3250    412   3268    414    3620    414   3686    412   3709
GR   410    3725    410   3725    410    3752    412   3793    412   3793
GR   412    3793    414   3823    416    3841    418   3912    420   3926
GR   422    3939    424   3971    426    3975    426   3975    428   3987
ET                  6.4
X1 26114      55   2420   2998    724     708    727
GR   420    1000    418   1023    416    1331    414   1359    412   1420
GR   412    1427    414   1438    416    1462    414   1486    416   1509
GR   416    1544    414   1580    412    1587    412   1605    412   1624
GR   412    1643    412   1945    412    1954    414   2008    414   2344
GR   412    2369    412   2391    412    2420    412   2420    412   2420
GR   410    2452    408   2460    406    2465    406   2465    406   2465
GR   404    2475    404   2477    402    2480    400   2482    394   2495
GR   394    2511    396   2718    398    2724    400   2731    402   2735
GR   404    2745    406   2807    408    2896    410   2913    412   2998
GR   414    3029    416   3059    418    3112    418   3135    418   3248
GR   420    3323    422   3375    424    3451    426   3502    428   3543
NC  0.04    0.04  0.045    0.3    0.5
* Highway 59 Bridge #3
* Downstream
ET                 1.41
X1 26537      34   4604   4822    414     332    423
GR   428    1000    426   1054    424    1158    422   1257    420   1991
GR   418    3626    416   4010    414    4200    412   4375    410   4604
GR   408    4610    406   4616    404    4627    402   4637    400   4696
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GR   398    4718     398     4771     400     4781     402    4792     404    4797
GR   404    4799     406     4805     408     4817     410    4822     412    5065
GR   414    5182     416     5244     418     5266     420    5281     422    5398
GR   424    5503     426     5554     428     5644     430    5725
SB  1.05     1.5     2.5      669     112       12    2058 4.41666     398     398
* Highway 59 Bridge #3
* Upstream
ET                  1.41
X1 26588      33    4624     4836      47       45      51
X2                     1      410     412                      1.33
GR   428    1000     426     1076     424     1202     422    1266     420    2006
GR   420    2045     418     3612     416     3987     414    4222     412    4379
GR   410    4624     408     4630     406     4633     404    4640     402    4647
GR   400    4726     398     4743     398     4787     400    4796     402    4809
GR   404    4817     406     4823     408     4831     410    4836     412    5015
GR   414    5141     416     5274     418     5304     420    5317     422    5424
GR   424    5515     426     5556     428     5669
NC  0.06    0.06   0.065      0.1     0.3
ET                   1.4
X1 27124      45    2635     3223     445      624     536
GR   428    1000     426     1008     424     1018     422    1031     420    1043
GR   418    1067     416     1407     416     1581     416    1688     414    1694
GR   414    1838     414     1853     412     1864     412    1889     414    1899
GR   416    1915     416     2092     416     2116     416    2635     414    2678
GR   412    2686     410     2841     408     2853     406    2863     404    2869
GR   404    2923     404     2938     402     2943     402    2978     404    2986
GR   406    2989     406     2990     408     3006     410    3038     412    3136
GR   414    3172     416     3223     418     3248     418    3253     420    3262
GR   422    3304     424     3386     426     3414     428    3420     430    3425
ET                   3.4
X1 27815      39    2644     2983     605      773     691
GR   428    1000     426     1011     424     1022     422    1036     420    1057
GR   418    1075     416     1487     416     1487     416    1487     416    1610
GR   418    1726     418     1807     416     1856     414    1861     414    1876
GR   416    1881     416     2644     414     2659     412    2663     410    2667
GR   408    2678     406     2691     404     2723     402    2741     402    2752
GR   402    2762     404     2804     406     2819     408    2829     410    2848
GR   412    2903     414     2917     416     2983     418    3048     420    3158
GR   422    3208     424     3309     426     3336     428    3375
NC  0.04    0.04   0.045      0.3     0.5
* Loop 20 Bridge #2
* Downstream
ET                  1.41
X1 28240      39    2555     2813     437      474     425
GR   426    1000     424     1013     422     1029     420    1061     418    1088
GR   418    1154     418     1237     416     1508     414    1519     414    1547
GR   416    1558     418     1569     418     1634     416    1653     412    1962
GR   412    2002     416     2080     418     2101     420    2133     422    2177
GR   422    2371     422     2539     420     2555     410    2576     408    2581
GR   406    2587     406     2783     408     2788     410    2796     420    2813
GR   422    2913     422     2955     420     3009     420    3012     422    3222
GR   424    3350     426     3507     428     3619     430    3737
SB  1.05     1.5     2.5      280     201        9    3157 1.86363     406     406
* Loop 20 Bridge #2
* Upstream
ET                  1.41
X1 28332      34    2526     2806      72      103      92
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X2                     1     417     422                    1.33
GR   426    1000     424    1021     422    1047     420    1071     418    1098
GR   416    1465     414    1474     414    1500     416    1514     418    1523
GR   418    1589     416    1606     416    2022     416    2089     412    2108
GR   412    2119     416    2136     418    2203     420    2249     422    2298
GR   422    2526     420    2538     410    2556     408    2569     406    2579
GR   406    2775     408    2780     410    2786     420    2806     422    2808
GR   424    2865     426    3217     428    3297     430    3324
NC  0.06    0.06   0.065     0.1     0.3
ET                   1.4
X1 28673      27    1281    1595     342     350     341
GR   430    1000     428    1083     426    1222     424    1254     422    1263
GR   420    1276     418    1281     416    1293     414    1303     412    1323
GR   410    1374     408    1381     406    1387     406    1488     408    1535
GR   410    1550     412    1572     414    1578     416    1586     418    1595
GR   420    1630     422    1641     424    1650     426    1659     428    1662
GR   430    1668     430    1672
ET                   8.4
X1 30238      33    2184    3059    1564    1529    1565
GR   428    1000     426    1078     424    1261     422    1495     420    2184
GR   418    2337     416    2419     414    2450     412    2462     410    2479
GR   410    2522     414    2532     414    2563     412    2623     412    2651
GR   412    2662     412    2682     412    2682     412    2888     412    2888
GR   412    2888     412    2999     414    3022     416    3041     418    3049
GR   420    3059     422    3064     424    3073     424    3073     426    3076
GR   428    3125     430    3128     440    3153
ET                   1.4
X1 31626      35    1353    1830    1346    1451    1388
GR   440    1000     438    1113     438    1144     438    1207     436    1308
GR   434    1325     432    1353     430    1380     428    1409     428    1417
GR   426    1423     424    1429     422    1436     420    1517     418    1529
GR   416    1544     416    1616     418    1707     420    1736     422    1746
GR   424    1750     426    1756     428    1795     430    1811     432    1830
GR   432    1831     432    1831     434    1909     436    2007     438    2046
GR   440    2101     442    2145     444    2168     446    2195     448    2208
QT     2   22535   22535
* Downstream of Tributary 3
X1 32354      45    1542    1981     694     804     728
GR   452    1000     450    1016     448    1021     446    1041     444    1086
GR   444    1130     446    1143     448    1154     448    1167     448    1358
GR   446    1542     444    1565     442    1583     440    1602     438    1607
GR   436    1615     434    1629     432    1634     430    1653     428    1670
GR   426    1683     424    1693     424    1699     422    1701     420    1708
GR   418    1716     418    1783     420    1810     422    1823     424    1828
GR   426    1831     426    1837     428    1844     430    1860     432    1874
GR   434    1885     436    1892     438    1899     438    1905     440    1922
GR   442    1945     444    1963     446    1981     448    2014     450    2039
ET                  12.4
X1 32760      60    2026    2212     390     415     406
GR   448    1000     446    1203     444    1310     442    1445     442    1452
GR   442    1575     440    1596     438    1604     436    1608     434    1624
GR   432    1640     430    1668     428    1674     426    1680     426    1727
GR   426    1844     424    1870     422    1885     422    1978     424    1982
GR   426    1988     430    1992     432    2004     434    2017     434    2026
GR   432    2032     430    2036     428    2039     426    2042     424    2058
GR   422    2071     420    2096     420    2096     418    2097     418    2097
GR   418    2097     418    2120     420    2121     422    2122     424    2124
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GR   426     2125     428     2128     430     2131     432     2170     434     2212
GR   436     2235     438     2256     440     2268     440     2268     440     2268
GR   442     2280     444     2290     446     2335     448     2366     450     2389
GR   452     2400     454     2433     456     2452     458     2474     460     2498
X1 33425       61    1976     2302     714      627     665
GR   446     1000     444     1026     444     1129     444     1193     442     1198
GR   442     1202     444     1209     444     1216     442     1222     440     1337
GR   438     1349     436     1456     434     1488     432     1526     430     1538
GR   428     1541     426     1545     426     1552     430     1554     432     1568
GR   434     1643     434     1715     434     1760     434     1776     432     1787
GR   430     1835     428     1841     426     1855     426     1860     426     1898
GR   428     1908     430     1922     432     1940     434     1947     436     1950
GR   438     1953     440     1958     442     1964     442     1976     440     1982
GR   438     1990     436     1993     434     2004     432     2023     432     2032
GR   434     2062     434     2062     434     2063     436     2167     438     2209
GR   440     2253     442     2302     444     2319     446     2354     448     2367
GR   450     2381     452     2435     452     2435     452     2435     454     2504
GR   456     2552
QT     2    21935   21935
X1 34421       35    1454     1935    1292      722     996
GR   464     1000     462     1094     460     1147     458     1193     456     1229
GR   456     1305     456     1305     456     1322     454     1325     452     1373
GR   450     1425     450     1439     450     1454     448     1460     446     1468
GR   444     1476     442     1491     442     1546     442     1567     442     1676
GR   442     1701     442     1870     444     1902     446     1918     448     1928
GR   450     1935     452     1951     454     1974     456     1991     458     2003
GR   460     2021     462     2040     464     2067     466     2094     468     2157
EJ
T1       CF 0029
T2       CHACON FLOOD PROTECTION PLAN
T3       Chacon Creek from Lake Casablanca to Rio-Grande
J1               3                                              27722     368
J2    15               -1


ER
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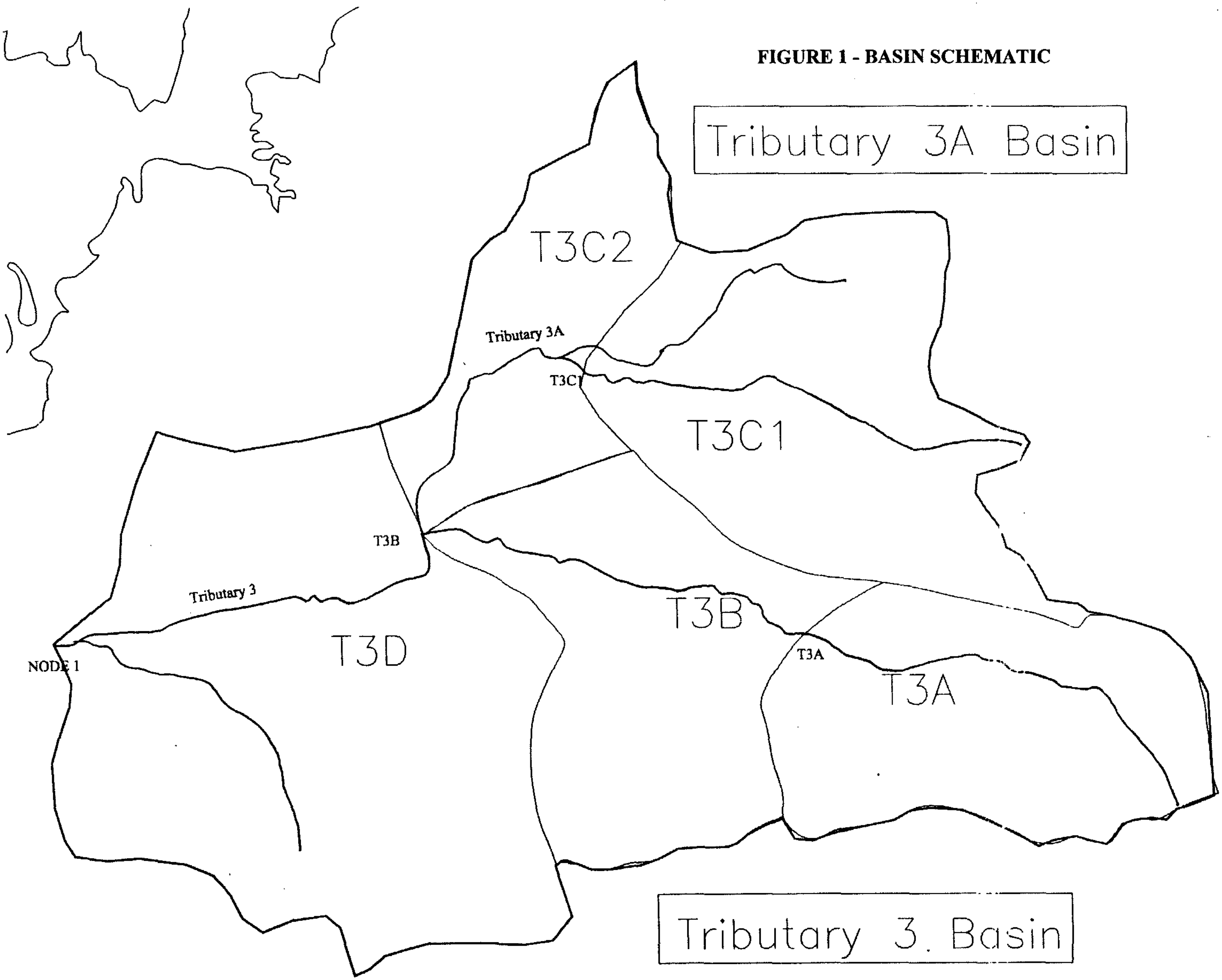
FLOODWAY DATA, Floodway Model-Method 4, 1988
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	WATER SURFACE ELEVATION DIFFERENCE
100.000	659.	5116.	5.4	368.0	367.0	1.0
1073.000	451.	4854.	5.7	371.0	370.5	.5
1160.000	167.	2387.	11.6	370.6	370.1	.5
1208.000	1272.	2618.	10.6	371.1	370.7	.4
1799.000	478.	4492.	6.2	375.4	375.3	.1
2376.000	397.	4778.	5.8	377.3	377.2	.1
3213.000	572.	6198.	4.5	379.0	379.0	.0
4240.000	624.	6233.	4.4	380.8	380.7	.1
5065.000	689.	5428.	5.1	382.3	381.9	.4
6065.000	224.	3427.	8.1	384.4	383.8	.6
6235.000	244.	3366.	8.2	385.0	384.5	.5
6318.000	242.	3293.	8.4	385.1	384.6	.5
6706.000	434.	6132.	4.5	387.0	386.6	.4
7868.000	701.	9090.	3.0	388.1	387.8	.3
8728.000	684.	7063.	3.9	388.8	388.5	.3
9180.000	1060.	11532.	2.4	389.3	389.0	.3
9730.000	1200.	15189.	1.8	389.6	389.3	.3
10909.000	821.	7740.	3.5	390.0	389.7	.3
11629.000	701.	6243.	4.4	391.0	390.5	.5
12030.000	666.	6122.	4.4	391.6	391.2	.4
12096.000	666.	6122.	4.4	391.9	391.6	.3
12759.000	623.	6829.	4.0	392.8	392.4	.4
13683.000	391.	4180.	6.5	394.3	393.7	.6
14450.000	507.	5847.	4.7	396.4	395.5	.9
15230.000	627.	5760.	4.7	397.9	397.0	.9
15916.000	612.	6973.	3.9	399.2	398.2	1.0
17336.000	563.	7862.	3.4	400.4	399.4	1.0
17848.000	1272.	3895.	6.9	403.1	402.3	.8
17860.000	1272.	8820.	3.0	413.2	413.2	.0
18372.000	1192.	25242.	1.1	413.4	413.2	.2
19664.000	1517.	25362.	1.1	413.5	413.3	.2
20686.000	762.	12006.	2.2	413.5	413.3	.2
20829.000	1103.	10755.	2.5	413.6	413.3	.3
20903.000	1103.	10328.	2.6	414.7	414.6	.1
21387.000	809.	14700.	1.8	414.8	414.6	.2
22464.000	715.	10969.	2.4	415.0	414.7	.3
24443.000	1686.	15371.	1.7	415.6	415.2	.4
25387.000	1198.	9170.	2.9	415.9	415.4	.5
26114.000	1072.	9470.	2.8	416.4	415.8	.6
26537.000	918.	6764.	4.0	416.6	416.0	.6
26588.000	918.	6744.	4.0	416.7	416.3	.4
27124.000	1505.	6099.	4.4	417.3	417.0	.3
27815.000	1452.	6866.	3.9	419.2	419.0	.2
28240.000	1507.	6943.	3.9	419.9	419.6	.3
28332.000	1501.	8512.	3.1	421.3	421.1	.2
28673.000	314.	3733.	7.2	421.3	421.0	.3
30238.000	875.	8954.	3.0	424.3	423.9	.4
31626.000	333.	2462.	10.9	426.0	425.2	.8
32354.000	257.	2611.	8.6	434.1	434.5	-.4
32760.000	472.	4843.	4.7	436.2	436.3	-.1
33425.000	565.	2678.	8.4	437.8	437.5	.3
34421.000	474.	3000.	7.3	448.8	447.8	1.0

Figures

FIGURE 1 - BASIN SCHEMATIC



Tables

TABLE 1

PRECIPITATION PATTERN FOR TRIBUTARY 3 & 3A SUB-BASINS (6-HR RAINFALL)

Return Frequency (yrs)	Total Precipitation (in)	Precipitation Percentages						Total
		8	15	47	13	9	8	100
		0.080	0.150	0.470	0.130	0.090	0.080	1.000
10	4.32	0.35	0.65	2.03	0.56	0.39	0.35	4.32
25	5.06	0.40	0.76	2.38	0.66	0.46	0.40	5.06
50	5.75	0.46	0.86	2.70	0.75	0.52	0.46	5.75
100	6.58	0.53	0.99	3.09	0.86	0.59	0.53	6.58
500	8.00	0.64	1.20	3.76	1.04	0.72	0.64	8.00

TABLE 2

HEC-1 PARAMETERS FOR TRIBUTARY 3 & 3A SUB-BASINS (EXISTING CONDITION)

RETURN PERIOD	AREA	AREA SQ. MILES	L (ft)	Lc (ft)	Areal Correction	Rainfall TP-40	Correct. Rainfall	CN	S	Ia	Q	F	F / # Periods	Tp	Cp
10	T3A	0.960	8034.0	4858.0	0.920	4.70	4.32	79	2.66	0.53	2.23	1.56	0.260	1.23	0.80
	T3B	1.010	8801.0	5650.0	0.920	4.70	4.32	79	2.66	0.53	2.23	1.56	0.260	1.16	0.80
	T3C1	1.220	10309.0	4699.0	0.920	4.70	4.32	79	2.66	0.53	2.23	1.56	0.260	1.38	0.80
	T3C2	0.670	9433.0	5016.0	0.920	4.70	4.32	79	2.66	0.53	2.23	1.56	0.260	1.28	0.80
	T3D	2.100	12208.0	6389.0	0.920	4.70	4.32	82	2.20	0.44	2.48	1.40	0.234	1.43	0.80
25	T3A	0.960	8034.0	4858.0	0.920	5.50	5.06	79	2.66	0.53	2.85	1.67	0.279	1.23	0.80
	T3B	1.010	8801.0	5650.0	0.920	5.50	5.06	79	2.66	0.53	2.85	1.67	0.279	1.16	0.80
	T3C1	1.220	10309.0	4699.0	0.920	5.50	5.06	79	2.66	0.53	2.85	1.67	0.279	1.38	0.80
	T3C2	0.670	9433.0	5016.0	0.920	5.50	5.06	79	2.66	0.53	2.85	1.67	0.279	1.28	0.80
	T3D	2.100	12208.0	6389.0	0.920	5.50	5.06	82	2.20	0.44	3.13	1.49	0.248	1.43	0.80
50	T3A	0.960	8034.0	4858.0	0.920	6.25	5.75	79	2.66	0.53	3.46	1.76	0.294	1.23	0.80
	T3B	1.010	8801.0	5650.0	0.920	6.25	5.75	79	2.66	0.53	3.46	1.76	0.294	1.16	0.80
	T3C1	1.220	10309.0	4699.0	0.920	6.25	5.75	79	2.66	0.53	3.46	1.76	0.294	1.38	0.80
	T3C2	0.670	9433.0	5016.0	0.920	6.25	5.75	79	2.66	0.53	3.46	1.76	0.294	1.28	0.80
	T3D	2.100	12208.0	6389.0	0.920	6.25	5.75	82	2.20	0.44	3.76	1.55	0.259	1.43	0.80
100	T3A	0.960	8034.0	4858.0	0.920	7.15	6.58	79	2.66	0.53	4.20	1.85	0.308	1.23	0.80
	T3B	1.010	8801.0	5650.0	0.920	7.15	6.58	79	2.66	0.53	4.20	1.85	0.308	1.16	0.80
	T3C1	1.220	10309.0	4699.0	0.920	7.15	6.58	79	2.66	0.53	4.20	1.85	0.308	1.38	0.80
	T3C2	0.670	9433.0	5016.0	0.920	7.15	6.58	79	2.66	0.53	4.20	1.85	0.308	1.28	0.80
	T3D	2.100	12208.0	6389.0	0.920	7.15	6.58	82	2.20	0.44	4.52	1.62	0.269	1.43	0.80
500	T3A	0.960	8034.0	4858.0	0.920	8.70	8.00	79	2.66	0.53	5.51	1.96	0.327	1.23	0.80
	T3B	1.010	8801.0	5650.0	0.920	8.70	8.00	79	2.66	0.53	5.51	1.96	0.327	1.16	0.80
	T3C1	1.220	10309.0	4699.0	0.920	8.70	8.00	79	2.66	0.53	5.51	1.96	0.327	1.38	0.80
	T3C2	0.670	9433.0	5016.0	0.920	8.70	8.00	79	2.66	0.53	5.51	1.96	0.327	1.28	0.80
	T3D	2.100	12208.0	6389.0	0.920	8.70	8.00	82	2.20	0.44	5.86	1.70	0.284	1.43	0.80

* "DARF" applied for the entire T3 Watershed.

TABLE 3

HEC-1 PARAMETERS FOR TRIBUTARY 3 & 3A SUB-BASINS (FUTURE CONDITION)

RETURN PERIOD	AREA	AREA SQ. MILES	L (ft)	Lc (ft)	Areal Correction	Rainfall TP-40	Correct. Rainfall	CN	S	Ia	Q	F	F / # Periods	Tp	Cp
10	T3A	0.960	8034.0	4858.0	0.920	4.70	4.32	85	1.76	0.35	2.75	1.22	0.204	1.01	0.80
	T3B	1.010	8801.0	5650.0	0.920	4.70	4.32	90	1.11	0.22	3.23	0.87	0.146	0.79	0.80
	T3C1	1.220	10309.0	4699.0	0.920	4.70	4.32	89	1.24	0.25	3.13	0.95	0.158	0.98	0.80
	T3C2	0.670	9433.0	5016.0	0.920	4.70	4.32	90	1.11	0.22	3.23	0.87	0.146	0.87	0.80
	T3D	2.100	12208.0	6389.0	0.920	4.70	4.32	87	1.49	0.30	2.94	1.09	0.182	1.20	0.80
25	T3A	0.960	8034.0	4858.0	0.920	5.50	5.06	85	1.76	0.35	3.42	1.28	0.214	1.01	0.80
	T3B	1.010	8801.0	5650.0	0.920	5.50	5.06	90	1.11	0.22	3.93	0.90	0.151	0.79	0.80
	T3C1	1.220	10309.0	4699.0	0.920	5.50	5.06	89	1.24	0.25	3.83	0.98	0.164	0.98	0.80
	T3C2	0.670	9433.0	5016.0	0.920	5.50	5.06	90	1.11	0.22	3.93	0.90	0.151	0.87	0.80
	T3D	2.100	12208.0	6389.0	0.920	5.50	5.06	87	1.49	0.30	3.62	1.14	0.190	1.20	0.80
50	T3A	0.960	8034.0	4858.0	0.920	6.25	5.75	85	1.76	0.35	4.07	1.33	0.222	1.01	0.80
	T3B	1.010	8801.0	5650.0	0.920	6.25	5.75	90	1.11	0.22	4.60	0.93	0.154	0.79	0.80
	T3C1	1.220	10309.0	4699.0	0.920	6.25	5.75	89	1.24	0.25	4.49	1.01	0.168	0.98	0.80
	T3C2	0.670	9433.0	5016.0	0.920	6.25	5.75	90	1.11	0.22	4.60	0.93	0.154	0.87	0.80
	T3D	2.100	12208.0	6389.0	0.920	6.25	5.75	87	1.49	0.30	4.28	1.17	0.195	1.20	0.80
100	T3A	0.960	8034.0	4858.0	0.920	7.15	6.58	85	1.76	0.35	4.85	1.37	0.229	1.01	0.80
	T3B	1.010	8801.0	5650.0	0.920	7.15	6.58	90	1.11	0.22	5.41	0.95	0.158	0.79	0.80
	T3C1	1.220	10309.0	4699.0	0.920	7.15	6.58	89	1.24	0.25	5.30	1.03	0.172	0.98	0.80
	T3C2	0.670	9433.0	5016.0	0.920	7.15	6.58	90	1.11	0.22	5.41	0.95	0.158	0.87	0.80
	T3D	2.100	12208.0	6389.0	0.920	7.15	6.58	87	1.49	0.30	5.07	1.21	0.201	1.20	0.80
500	T3A	0.960	8034.0	4858.0	0.920	8.70	8.00	85	1.76	0.35	6.22	1.43	0.239	1.01	0.80
	T3B	1.010	8801.0	5650.0	0.920	8.70	8.00	90	1.11	0.22	6.81	0.97	0.162	0.79	0.80
	T3C1	1.220	10309.0	4699.0	0.920	8.70	8.00	89	1.24	0.25	6.69	1.07	0.178	0.98	0.80
	T3C2	0.670	9433.0	5016.0	0.920	8.70	8.00	90	1.11	0.22	6.81	0.97	0.162	0.87	0.80
	T3D	2.100	12208.0	6389.0	0.920	8.70	8.00	87	1.49	0.30	6.45	1.25	0.209	1.20	0.80

* "DARF" applied for the entire T3 Watershed.

TABLE 4
Tributary 3 - Channel Routing Parameters for the HEC-1 Model (Reach 1)

U/S cross section	D/S cross section	Flow (cfs)	Vol (ac-ft) U/S	Vol (ac-ft) D/S	Storage (ac-ft)	U/S (hrs)	D/S (hrs)	Travel Time (hrs)
7326	0	500	53	0	53	1.25	0.00	1.25
7326	0	1000	89	0	89	1.10	0.00	1.10
7326	0	1500	119	0	119	0.97	0.00	0.97
7326	0	2000	149	0	149	0.90	0.00	0.90
7326	0	2500	177	0	177	0.85	0.00	0.85
7326	0	3000	202	0	202	0.81	0.00	0.81
7326	0	3500	227	0	227	0.78	0.00	0.78
7326	0	4000	254	0	254	0.76	0.00	0.76
7326	0	4500	277	0	277	0.74	0.00	0.74
7326	0	5000	300	0	300	0.71	0.00	0.71
							Average	**0.89**

No of Routing Steps = Travel Time/ Computational Interval = 10.6 Used 10

TABLE 5
Tributary 3 - Channel Routing Parameters for the HEC-1 Model (Reach 2)

U/S cross section	D/S cross section	Flow (cfs)	Vol (ac-ft) U/S	Vol (ac-ft) D/S	Storage (ac-ft)	Travel Time (hrs)
15336	7326	300	67	36	31	1.21
15336	7326	600	117	60	57	1.15
15336	7326	900	158	80	78	1.04
15336	7326	1200	198	102	96	0.97
15336	7326	1500	231	119	112	0.90
15336	7326	1800	263	136	127	0.85
15336	7326	2100	296	154	142	0.81
15336	7326	2400	326	171	155	0.76
15336	7326	2700	355	187	168	0.73
					Average	**0.94**
No of Routing Steps = Travel Time/ Computational Interval =					11.1	Used 10

TABLE 6
Tributary 3A - Channel Routing Parameters for the HEC-1 Model

U/S cross section	D/S cross section	Flow (cfs)	Vol (ac-ft) U/S	Vol (ac-ft) D/S	Storage (ac-ft)	Travel Time (hrs)
5451.6	0	300	38	0	38	1.42
5451.6	0	600	58	0	58	1.14
5451.6	0	900	73	0	73	0.97
5451.6	0	1200	90	0	90	0.91
5451.6	0	1500	104	0	104	0.85
5451.6	0	1800	117	0	117	0.80
5451.6	0	2100	130	0	130	0.76
5451.6	0	2400	141	0	141	0.73
					Average	0.95

No of Routing Steps = Travel Time/ Computational Interval = 11.3 Used 10

TRIBUTARY 3 HEC-2 MODEL
(Flood Hazard)

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C
C        2
C 1019Highway 59
C 1114Highway 59
T1City of Laredo Flood Insurance Study Update (for development to Jan. 1994)
T2Chacon Creek Watershed - Tributary 3 to Chacon Creek -  1988 NAVD
T3Existing Condition Model- JAN. 1999
J1               2                 0.01779                            3207  422.96
J2       1                -1
J3      38      43       7       6      41       1     150       0       0       0
NC    0.06    0.06   0.065
X1       0      24 1030.56 1329.65
GR     442   977.3     440    1000     438 1008.27     436 1012.46     434  1024.3
GR     432 1030.56     430 1044.79     428 1051.65     426 1058.75     424 1068.46
GR     421 1078.62     420  1140.9     421 1313.79     424 1317.07     426 1319.16
GR     428 1321.22     430 1322.01     430 1322.02     432 1329.65     434 1385.77
GR     436 1397.23     438 1431.26     440 1478.28     442 1564.94
X1      56      21 1040.02 1199.05   140.8   26.18   56.21
GR     440    1000     438 1004.97     436 1012.05     436 1012.08     434 1018.13
GR     432 1029.69     430 1040.02     428 1045.36     426 1047.87     424 1056.74
GR     421  1064.6     421 1185.82     424 1188.84     426 1193.28     430 1199.05
GR     432 1225.46     434 1235.73     436  1257.6     438 1290.41     440 1340.94
GR     440 1372.15
X1     178      20 1024.63 1354.34  147.76  127.02   122.4
GR     440    1000     438 1011.57     436 1024.63     434 1077.76     434 1077.87
GR     432  1153.9     430 1162.19     426 1165.22     424    1168     421 1174.57
GR     421 1223.69     424 1253.12     426  1282.6     428 1289.52     430  1293.8
GR     432 1314.88     434 1345.07     436 1354.34     438 1361.45     440 1379.04
X1     281      20 1107.64 1433.41  101.78   61.14  102.43
GR     440    1000     438 1024.67     436 1078.58     434 1093.64     432 1100.95
GR     430 1107.64     428 1123.35     426 1243.49     424 1277.96     421 1283.79
GR     421  1315.3     424 1339.55     426 1404.26     428 1418.78     430 1433.41
GR     432 1495.69     434 1508.74     436 1513.97     438 1520.84     440  1530.1
X1     420      19    1000 1313.98   41.12   17.37  139.15
GR     440  951.75     436  977.12     432    1000     430 1045.33     428 1054.43
GR     426 1066.38     424 1080.34     422 1084.85     422 1122.08     422 1136.75
GR     422 1167.83     424 1188.43     426 1190.88     428 1192.29     430 1193.42
GR     432 1313.98     436 1328.85     440 1351.94  441.99 1385.21
X1     509      20 1027.99 1378.12  101.47   59.93   89.52
GR     438  893.74     436    1000     434 1010.15     432 1027.99     430 1194.64
GR     428 1198.44     426 1206.12     424 1214.66     422 1217.91     422 1252.62
GR     424 1254.41     426 1267.34     428 1272.07     430 1280.86     432 1378.12
GR     434 1383.61     434 1383.62     436 1386.81     438 1392.82     442 1412.66
X1     661      16 1050.42 1311.07  125.21  169.99  151.39
GR     438  846.13     436    1000     434 1013.28     432 1050.33     432 1050.42
GR     430 1212.04     426 1214.74     424 1218.65     422 1220.32     422 1249.42
GR     424 1251.96     430 1256.21     432 1311.07     434 1317.86     436 1321.47
GR     442 1349.95
X1     814      15    1000  1244.8  138.17  162.62  153.77
GR     438  789.97     436  928.11     434    1000     432 1060.41     430 1147.33
GR     424 1152.99     422 1157.12     422 1176.26     424 1181.18     426 1185.51
GR     428 1190.03     430  1194.1     432 1238.48     434  1244.8     442 1273.96
X1     957      16 1039.53 1179.03  106.25  190.79  134.47
GR     440  714.39     438  770.41     434    1000     432 1039.53     430 1068.43
GR     428 1072.83     424 1075.83     424 1075.88     424 1104.25     426 1152.63
GR     430 1156.53     432 1179.03     434  1208.4     434 1208.53     436 1903.34
GR     440 2151.01
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NC                 0.015     0.3     0.5
* Highway 59 Culvert #9
* Downstream
X1  1019      16 1098.19 1150.51   67.11   35.13   61.53
GR   440  759.66     438  816.16     434    1000     434 1050.18     432 1065.58
GR   430 1098.19     424 1099.09     424    1138     424 1147.01     426 1148.61
GR   428 1149.41     430 1150.51     432 1254.36     434  1459.3     436 1910.64
GR   440 2167.95
NC  0.06    0.06   0.015
SC 4.015     0.4     2.5     233       9      10      95    10.1  424.57  424.38
* Highway 59 Culvert #9
* Upstream
X1  1114      16 1098.19 1150.51   97.11   95.79   95.05
X2                     2          436.18
GR   440  759.66     438  816.16     434    1000     434 1050.18     432 1065.58
GR   430 1098.19     424 1099.09     424    1138     424 1147.01     426 1148.61
GR   428 1149.41     430 1150.51     432 1254.36     434  1459.3     436 1910.64
GR   440 2167.95
NC                 0.065     0.1     0.3
X1  1253      21 1244.14 1740.25  219.18  132.44  138.83
GR   442    1000     442 1052.16     442 1056.07     440 1061.52     440 1066.87
GR   440 1159.63     438 1186.14     436 1244.14     434 1278.14     432 1300.12
GR   430 1309.92     428 1313.96     426 1316.81     426 1325.83     430 1331.84
GR   432 1349.91     434 1512.63     436 1740.25     438 2321.19     440 2344.49
GR   442 2437.33
X1  1578      14 1114.01 1401.47  309.97  171.99   325.4
GR   442    1000     440 1078.88     438 1092.26     436 1114.01     434 1133.11
GR   432 1143.73     432 1197.66     434 1247.98     436 1401.47     436 1407.87
GR   436 1408.99     438 1926.58     440 1930.69     442 2016.45
X1  2006      23 1399.42 1726.95  428.58  442.81  427.38
GR   444  953.16     438    1000     436 1399.42     436 1444.72     436 1450.42
GR   434 1451.89     432 1460.89     432 1477.36     434 1512.28     436 1602.93
GR   436 1648.31     434 1658.31     432  1664.4     432 1691.74     434 1701.94
GR   436 1726.95     438 1963.14     440 2055.84     442 2129.14     444  2197.4
GR   446 2238.47     448 2259.47     450 2328.44
X1  2697      23 1747.15  2160.1  640.63   704.2   691.9
GR   450  816.15     442    1000     440 1048.79     438 1491.71     438 1536.05
GR   440 1597.15     440 1597.18     440 1632.47     440 1747.15     440 1942.52
GR   440 1961.65     440 1963.66     438 1981.78     436 2013.28     436 2117.06
GR   438 2141.19     440  2160.1     442 2281.53     444 2426.44     446 2495.93
GR   448 2534.04     450 2545.66     452 2584.63
X1  3427      19 1556.98 2163.96  808.91  656.48  729.41
GR   450    1000     448  1035.8     446 1161.03     444 1311.62     442 1556.98
GR   442  1563.6     442  1624.1     442 1676.77     442  1890.1     440  1920.5
GR   440 2020.73     440 2102.14     440 2149.95     442 2163.91     442 2163.96
GR   444 2350.78     446 2517.03     448  2597.7     450 2684.33
X1  4058      22 1245.07 2419.28  698.44  539.45  631.44
GR   456    1000     454 1094.91     452 1178.71     450 1195.57     448 1245.07
GR   446 1580.86     444 1612.66     444 1634.23     444 1773.43     444 1817.76
GR   446 1852.55     446 1853.99     446 2034.58     446 2081.82     444 2247.25
GR   444 2292.82     446 2385.04     448 2419.28     450 2462.93     452 2474.55
GR   454 2493.29     456 2518.23
X1  5312      21 1263.73 2073.97 1285.83 1240.67 1253.57
GR   464    1000     462 1006.89     460 1013.94     458 1025.73     456 1038.76
GR   454  1046.3     452 1263.73     450 1324.26     450 1399.23     450 1465.91
GR   450 1495.11     450 1530.72     450 1636.85     450  1922.6     450 2040.72
GR   452 2073.97     454 2117.87     456 2148.03     458  2198.2     460 2235.42
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GR    462 2356.32
X1   6097       24 1640.37 2220.43  774.63  801.81  784.97
GR    466     1000     464 1116.86     464 1116.87     462 1138.97     460 1215.45
GR    458 1275.46      456 1342.17     454 1640.37     452 1703.65     452 1738.49
GR    452 1738.78      450 1755.26     450  1952.5     452 1965.18     452 2112.98
GR    452 2113.49      454 2220.43     454 2312.49     454 2526.86     456 2775.51
GR    458 2852.68      460 2908.49     462 2932.23     464 2972.42
X1   6770       25  1240.7 2036.85  659.87  689.59  673.52
GR    464     1000     462 1069.11     460 1120.35     458 1194.77     456  1240.7
GR    454 1260.91      454  1293.9     456 1328.02     456 1535.85     454 1631.76
GR    452 1677.34      452 1701.09     454 1712.58     454  1912.8     454 1951.18
GR    454 1965.49      454 1987.59     456 2036.85     456 2085.24     456  2085.3
GR    456 2213.81      458  2366.8     460 2397.92     462 2434.85     464 2439.57
QT     10     2297    2711    2846    3330    3354    3950    4017    4698    5148
QT   5943
X1   7236       18 1143.76 2111.94  436.91  506.75  465.52
GR    468    899.4     464    1000     462 1031.35     460 1040.91     460  1094.7
GR    460 1143.76      458  1167.3     458 1190.37     460 1340.15     460 1403.91
GR    458  1550.6      456 1567.13     456 1567.14     456 1598.32     458  1960.4
GR    460 2111.94      462 2293.23     466 2356.88
X1   8426       16 1208.44 2251.92 1035.53 1680.16 1189.64
GR    476     1000     474 1104.03     472 1162.54     470 1208.44     468 1241.03
GR    466 1385.13      466 1832.58     468 2107.62     468 2176.51     466 2189.62
GR    466 2205.02      468 2219.09     470 2251.92     472 2327.73     474  2514.2
GR    476 2590.17
X1   9293       28 1810.16 2441.49  798.01  613.89  867.11
GR    486     1000     484 1078.28     482 1231.92     480 1317.69     478 1455.08
GR    476 1586.35      474 1810.16     474 2140.07     474 2167.22     472 2177.51
GR    470 2183.01      470 2201.84     472 2221.73     474 2343.31     476 2441.49
GR    478 2501.13      480 2538.11     482 2684.96     484 2719.98     486 2806.54
GR    488 2909.59      488 2980.53     486 3065.27     486  3134.7     488 3199.54
GR    488 3199.57      490 3232.26     492 3396.37
X1  10034       34 1403.37 2025.48  746.26  727.07  741.01
GR    502     1000     500 1011.79     498  1025.1     496 1041.15     494 1075.35
GR    492 1103.92      490 1138.83     490 1138.84     488 1198.02     486 1258.84
GR    484 1325.84      482 1403.37     480    1436     478 1477.83     478 1502.39
GR    478  1502.4      478 1705.13     478 1749.91     478 1829.22     478 1898.85
GR    480  1990.9      482 2025.48     484 2048.62     486 2068.72     486 2068.78
GR    486 2122.67      486 2219.17     488 2352.33     490 2435.92     492 2490.98
GR    494 2566.38      496 2649.87     498 2706.51     500 2761.77
X1  10527       22 1274.42  1722.9  459.34   552.6  493.36
GR    500     1000     498 1026.52     496 1057.18     494 1085.82     492 1114.99
GR    490 1141.66      488 1157.51     486 1190.72     484 1274.42     482 1294.42
GR    480 1399.16      480 1462.18     482 1519.36     484  1722.9     486 1825.58
GR    488 1851.19      490 1882.44     492  2082.9     494 2171.35     496 2237.47
GR    498 2291.32      500 2381.29
X1  11263       29 1255.04 1660.14  660.09  803.75  736.11
GR    512     1000     510 1009.36     508 1078.62     506 1099.14     504 1119.06
GR    502 1157.03      500 1184.55     498 1193.37     496 1206.09     494 1218.92
GR    492 1226.12      490 1236.22     488 1255.04     486 1441.27     486 1494.25
GR    486 1528.63      486    1561     488 1660.14     490 1713.51     492 1829.75
GR    494  1906.5      496 1924.31     498 2010.66     500 2044.07     502 2100.53
GR    504 2170.98      506 2273.91     508 2337.06     510 2367.42
X1  12079       22 1431.74 1756.54  870.89  725.56  816.13
GR    506     1000     504 1063.59     502 1139.47     500 1245.39     498 1308.29
GR    496 1354.42      494 1431.74     492 1663.61     492 1663.63     490 1685.06
GR    490 1699.61      492 1713.26     494 1756.54     496 1794.82     498 1871.79
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GR     500 1937.08     502  1980.2     504 2074.82     506 2136.03     508 2178.26
GR     510 2241.77     512 2264.62
X1   12495      21 1666.98 2135.59  517.65     339  415.69
GR     506    1000     504 1074.39     502 1218.12     500 1331.46     500  1337.1
GR     500 1373.81     498 1666.98     496 1987.61     494 2025.71     494 2075.44
GR     496 2100.28     498 2135.59     500 2179.21     502 2225.21     502 2228.04
GR     502 2241.56     504 2351.92     506 2395.38     508 2432.86     510 2495.71
GR     512 2580.75
X1   13112      20 1578.33 2089.76  495.26  726.59  617.47
GR     514    1000     512 1081.03     510 1184.93     508 1243.83     506 1321.63
GR     504 1395.35     502 1578.33     502 1613.61     502 1646.39     502    1647
GR     502 1680.44     500 1729.49     498 1739.35     498 1759.53     500 1786.43
GR     502 2089.76     504 2352.27     506 2471.72     508 2603.22     510 2669.91
X1   13954      30  1487.8 1844.98   812.3  894.48  841.66
GR     520    1000     518 1128.81     518 1128.82     516 1223.51     514 1295.88
GR     512 1414.64     510  1487.8     508 1524.54     506 1585.48     506 1585.51
GR     504  1604.5     504 1632.39     506 1645.34     508 1675.12     508  1693.7
GR     506  1765.7     506 1793.99     508 1818.57     510 1844.98     512 1865.18
GR     512 1876.96     512 1923.07     514 1933.54     516 1943.07     518 1953.59
GR     520 1958.67     522 1997.64     524 2065.61     526 2168.13     528 2388.96
X1   14591      22 1284.59 1633.94  602.78  665.41  637.37
GR     526    1000     524 1044.26     522 1095.98     520 1167.83     518  1201.4
GR     516 1284.59     514 1317.42     512 1338.15     512 1360.69     512 1363.36
GR     512  1390.5     512 1418.55     512 1448.96     514  1541.5     516 1633.94
GR     518 1669.47     520 1710.03     522  1775.2     524 1814.32     526 1931.58
GR     528 2035.38     530 2117.17
QT      10     727     847     874    1011    1007    1160    1171    1342    1457
QT    1660
X1   15336      25 1418.46 1712.84  787.57  770.87  744.31
GR     530    1000     528 1116.79     526 1190.42     524 1333.95     522 1418.46
GR     520 1556.23     518 1663.29     518 1690.09     520 1703.59     522 1712.84
GR     522 1746.29     524 1783.34     526 1807.45     528 1853.57     528 1928.62
GR     526 1955.31     526  1971.4     528 1989.07     530 2051.09     532 2108.02
GR     534 2166.87     536 2208.44     538 2257.46     538 2257.54     540    2418
X1   16166      38 1292.78 1640.27  852.39  824.36  830.65
GR     550    1000     548 1037.33     546 1061.02     544 1084.24     542  1124.7
GR     540 1160.13     538  1169.7     536 1183.82     534 1203.69     532 1244.51
GR     530 1292.78     528 1338.14     526  1379.7     524 1404.02     522  1417.8
GR     522 1439.81     524 1448.44     526 1459.03     526 1506.08     526 1514.66
GR     528 1602.95     530 1640.27     532 1657.85     534 1700.65     536 1849.32
GR     536 1883.37     534  1918.3     534 1919.69     536 1950.32     536 1950.33
GR     538 2005.71     540 2074.53     542 2107.43     544 2134.69     546 2171.59
GR     548 2199.14     550 2236.18     552 2318.37
X1   16715      26 1419.33 1792.14  569.81  517.87  548.77
GR     550    1000     548 1073.41     546 1152.15     544 1210.64     542 1245.57
GR     540 1293.84     538 1365.24     536 1393.33     534 1419.33     532 1446.61
GR     530  1487.8     528 1496.92     528  1580.7     530 1608.15     532 1700.13
GR     534 1792.14     536  1901.3     536 1901.32     538 1989.36     540 2041.88
GR     542 2130.18     544  2208.8     546 2227.81     548 2267.23     550 2290.36
GR     552  2398.7
X1   17279      29 1651.41 1997.98  619.53  509.76  563.83
GR     552    1000     550 1114.98     548 1211.44     546 1306.93     544 1440.45
GR     542 1554.35     540 1651.41     538 1676.49     536  1687.3     534 1704.32
GR     534 1727.15     534  1784.4     532 1796.08     532 1815.22     534 1823.48
GR     536 1884.54     538 1964.21     540 1997.98     542 2085.41     544 2127.18
GR     546 2173.54     548 2201.21     550 2216.09     552 2229.44     554 2247.92
GR     556 2269.07     556 2334.06     556 2364.86     558 2404.13
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X1 18032      23 1580.83 1863.84  758.73  717.04  753.01
GR   560    1000     558 1063.99     556 1127.21     554 1215.88     552 1256.72
GR   550 1349.74     548 1441.91     546 1511.24     544 1580.83     542 1624.05
GR   540 1747.06     540 1773.34     542 1819.53     544 1863.84     546 1896.41
GR   548 1914.48     550 1938.16     552 2064.25     554 2094.22     556 2277.26
GR   558 2335.63     560 2375.19     562 2413.22
EJ
T1      CF0029
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 3                                 10-YR   Future
J1             3                 0.01779                      3992   423.3
J2     2              -1
T1      CF0029
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 3                                 25-YR Existing
J1             4                 0.01779                      3974   423.3
J2     3              -1
T1      CF0029
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 3                                 25-YR   Future
J1             5                 0.01779                      4857  423.65
J2     4              -1
T1      CF0029
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 3                                 50-YR Existing
J1             6                 0.01779                      4739   423.6
J2     5              -1
T1      CF0029
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 3                                 50-YR   Future
J1             7                 0.01779                      5630  423.94
J2     6              -1
T1      CF0029
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 3                                100-YR Existing
J1             8                 0.01779                      5550  423.92
J2     7              -1
T1      CF0029
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 3                                100-YR   Future
J1             9                 0.01779                      6685   424.3
J2     8              -1
T1      CF0029
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 3                                500-YR Existing
J1            10                 0.01779                      7954  424.73
J2     9              -1
T1      CF0029
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 3                                500-YR   Future
J1            11                 0.01779                      8555  424.93
J2    15              -1


ER
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SECNO	DEPTH	CWSEL	CRIWS	WSELK	EG	HV	HL	OLOSS	L-BANK ELEV
Q	QLOB	QCH	QROB	ALOB	ACH	AROB	VOL	TWA	R-BANK ELEV
TIME	VLOB	VCH	VROB	XNL	XNCH	XNR	WTN	ELMIN	SSTA
SLOPE	XLOBL	XLCH	XLOBR	ITRIAL	IDC	ICONT	CORAR	TOPWID	ENDST

*SECNO 17279.000

3302 WARNING: CONVEYANCE CHANGE OUTSIDE OF ACCEPTABLE RANGE, KRATIO = .63

17279.000	4.17	536.17	.00	.00	536.42	.26	4.20	.04	540.00
1660.0	.0	1660.0	.0	.0	409.0	.0	790.9	304.9	540.00
1.41	.00	4.06	.00	.000	.065	.000	.000	532.00	1686.38
.012595	620.	564.	510.	3	0	0	.00	204.97	1891.35

*SECNO 18032.000

18032.000	3.35	543.35	.00	.00	543.50	.15	7.07	.01	544.00
1660.0	.0	1660.0	.0	.0	525.5	.0	799.0	308.9	544.00
1.48	.00	3.16	.00	.000	.065	.000	.000	540.00	1594.88
.007269	759.	753.	717.	5	0	0	.00	254.55	1849.43

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THIS RUN EXECUTED 01JUN99 10:47:58

****
HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Existing Condition Model- Tributary 3

SUMMARY PRINTOUT

	SECNO	Q	VOL	TIME	ELLC	CWSEL
	.000	3207.00	.00	.00	.00	422.96
	.000	3992.00	.00	.00	.00	423.30
	.000	3974.00	.00	.00	.00	423.30
	.000	4857.00	.00	.00	.00	423.65
	.000	4739.00	.00	.00	.00	423.60
	.000	5630.00	.00	.00	.00	423.94
	.000	5550.00	.00	.00	.00	423.92
	.000	6685.00	.00	.00	.00	424.30
	.000	7954.00	.00	.00	.00	424.73
	.000	8555.00	.00	.00	.00	424.93
*	56.000	3207.00	.60	.00	.00	423.74
*	56.000	3992.00	.69	.00	.00	424.18
*	56.000	3974.00	.69	.00	.00	424.17
*	56.000	4857.00	.79	.00	.00	424.61
*	56.000	4739.00	.77	.00	.00	424.55
*	56.000	5630.00	.87	.00	.00	424.99
*	56.000	5550.00	.86	.00	.00	424.95
*	56.000	6685.00	.97	.00	.00	425.46
*	56.000	7954.00	1.09	.00	.00	425.99
*	56.000	8555.00	1.14	.00	.00	426.22
*	178.000	3207.00	1.81	.01	.00	426.92
*	178.000	3992.00	2.08	.01	.00	427.46
*	178.000	3974.00	2.07	.01	.00	427.45
*	178.000	4857.00	2.35	.01	.00	428.01
*	178.000	4739.00	2.31	.01	.00	427.94
*	178.000	5630.00	2.58	.01	.00	428.44
*	178.000	5550.00	2.56	.01	.00	428.40
	178.000	6685.00	2.87	.01	.00	429.00
	178.000	7954.00	3.21	.00	.00	429.61
	178.000	8555.00	3.36	.00	.00	429.88

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SECNO	Q	VOL	TIME	ELLC	CWSEL

	281.000	3207.00	3.43	.01	.00	428.16
*	281.000	3992.00	3.99	.01	.00	428.76
*	281.000	3974.00	3.98	.01	.00	428.75
*	281.000	4857.00	4.57	.01	.00	429.38
*	281.000	4739.00	4.49	.01	.00	429.30
	281.000	5630.00	5.06	.01	.00	429.90
	281.000	5550.00	5.01	.01	.00	429.85
*	281.000	6685.00	5.69	.01	.00	430.56
*	281.000	7954.00	6.42	.01	.00	431.30
*	281.000	8555.00	6.76	.01	.00	431.64
	420.000	3207.00	6.07	.02	.00	428.73
	420.000	3992.00	7.05	.02	.00	429.29
	420.000	3974.00	7.03	.02	.00	429.28
	420.000	4857.00	8.07	.02	.00	429.85
	420.000	4739.00	7.93	.02	.00	429.77
	420.000	5630.00	8.96	.02	.00	430.38
	420.000	5550.00	8.87	.02	.00	430.32
	420.000	6685.00	10.16	.02	.00	431.04
*	420.000	7954.00	11.58	.02	.00	431.77
*	420.000	8555.00	12.25	.02	.00	432.08
*	509.000	3207.00	7.20	.03	.00	428.02
*	509.000	3992.00	8.28	.02	.00	428.30
*	509.000	3974.00	8.26	.02	.00	428.28
*	509.000	4857.00	9.44	.02	.00	428.99
*	509.000	4739.00	9.29	.02	.00	428.90
*	509.000	5630.00	10.58	.02	.00	430.57
*	509.000	5550.00	10.45	.02	.00	430.39
*	509.000	6685.00	12.23	.02	.00	431.81
*	509.000	7954.00	14.15	.02	.00	432.65
	509.000	8555.00	15.03	.02	.00	432.93
*	661.000	3207.00	8.90	.04	.00	432.23
*	661.000	3992.00	10.31	.03	.00	432.85
*	661.000	3974.00	10.28	.03	.00	432.83
*	661.000	4857.00	11.84	.03	.00	433.42
*	661.000	4739.00	11.64	.03	.00	433.35
*	661.000	5630.00	13.54	.03	.00	433.99
*	661.000	5550.00	13.33	.03	.00	433.93
*	661.000	6685.00	15.91	.03	.00	434.40
*	661.000	7954.00	18.52	.03	.00	434.70
	661.000	8555.00	19.65	.03	.00	434.86

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	814.000	3207.00	11.53	.05	.00	433.60
	814.000	3992.00	13.44	.04	.00	434.08
	814.000	3974.00	13.40	.04	.00	434.07
	814.000	4857.00	15.47	.04	.00	434.54
	814.000	4739.00	15.20	.04	.00	434.48
	814.000	5630.00	17.67	.04	.00	434.97
	814.000	5550.00	17.41	.04	.00	434.93
	814.000	6685.00	20.48	.04	.00	435.41
	814.000	7954.00	23.47	.04	.00	435.83
	814.000	8555.00	24.80	.04	.00	436.03
*	957.000	3207.00	14.39	.06	.00	434.05
*	957.000	3992.00	16.79	.05	.00	434.57
*	957.000	3974.00	16.73	.05	.00	434.56
*	957.000	4857.00	19.52	.05	.00	435.08
*	957.000	4739.00	19.14	.05	.00	435.02
*	957.000	5630.00	22.54	.05	.00	435.54
*	957.000	5550.00	22.19	.05	.00	435.49
*	957.000	6685.00	26.47	.05	.00	436.05
*	957.000	7954.00	30.71	.05	.00	436.56
*	957.000	8555.00	32.64	.05	.00	436.80
*	1019.000	3207.00	15.75	.06	.00	433.94
*	1019.000	3992.00	18.38	.06	.00	434.43
*	1019.000	3974.00	18.32	.06	.00	434.42
*	1019.000	4857.00	21.42	.05	.00	434.90
*	1019.000	4739.00	20.99	.05	.00	434.84
*	1019.000	5630.00	24.77	.05	.00	435.33
*	1019.000	5550.00	24.38	.05	.00	435.28
*	1019.000	6685.00	29.13	.05	.00	435.79
*	1019.000	7954.00	33.89	.05	.00	436.25
*	1019.000	8555.00	36.04	.05	.00	436.46
*	1114.000	3207.00	19.53	.07	.00	435.71
*	1114.000	3992.00	23.58	.07	.00	436.73
*	1114.000	3974.00	23.49	.07	.00	436.71

*	1114.000	4857.00	27.86	.06	.00	437.46
*	1114.000	4739.00	27.31	.06	.00	437.41
*	1114.000	5630.00	32.34	.06	.00	438.05
*	1114.000	5550.00	31.82	.06	.00	437.98
*	1114.000	6685.00	37.22	.06	.00	438.10
*	1114.000	7954.00	43.50	.06	.00	438.83
	1114.000	8555.00	46.42	.06	.00	439.19

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	1253.000	3207.00	25.12	.08	.00	435.80
*	1253.000	3992.00	31.99	.08	.00	436.85
*	1253.000	3974.00	31.83	.08	.00	436.84
*	1253.000	4857.00	38.77	.08	.00	437.61
*	1253.000	4739.00	38.01	.08	.00	437.55
*	1253.000	5630.00	45.52	.08	.00	438.21
*	1253.000	5550.00	44.75	.08	.00	438.14
*	1253.000	6685.00	50.72	.08	.00	438.32
*	1253.000	7954.00	60.00	.08	.00	439.06
*	1253.000	8555.00	64.42	.08	.00	439.42
	1578.000	3207.00	33.08	.11	.00	437.31
	1578.000	3992.00	42.96	.11	.00	437.74
	1578.000	3974.00	42.74	.11	.00	437.73
	1578.000	4857.00	52.80	.11	.00	438.22
	1578.000	4739.00	51.76	.11	.00	438.17
	1578.000	5630.00	62.37	.11	.00	438.65
	1578.000	5550.00	61.29	.11	.00	438.61
	1578.000	6685.00	68.39	.10	.00	438.86
	1578.000	7954.00	81.39	.10	.00	439.44
	1578.000	8555.00	87.66	.11	.00	439.75
*	2006.000	3207.00	49.00	.18	.00	438.27
*	2006.000	3992.00	62.24	.18	.00	438.65
*	2006.000	3974.00	61.93	.18	.00	438.64
*	2006.000	4857.00	76.01	.18	.00	439.04
*	2006.000	4739.00	74.52	.18	.00	438.99
*	2006.000	5630.00	89.16	.18	.00	439.38
	2006.000	5550.00	87.69	.18	.00	439.34
	2006.000	6685.00	97.52	.16	.00	439.67
*	2006.000	7954.00	115.57	.16	.00	440.15
	2006.000	8555.00	124.46	.16	.00	440.40
*	2697.000	3207.00	73.16	.24	.00	439.81
*	2697.000	3992.00	92.42	.25	.00	440.25
*	2697.000	3974.00	92.01	.25	.00	440.25
*	2697.000	4857.00	111.47	.24	.00	440.51
*	2697.000	4739.00	109.31	.25	.00	440.47
*	2697.000	5630.00	129.36	.24	.00	440.73
*	2697.000	5550.00	127.38	.24	.00	440.71
*	2697.000	6685.00	142.70	.23	.00	441.03
*	2697.000	7954.00	167.97	.23	.00	441.38
*	2697.000	8555.00	180.56	.23	.00	441.55

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
	3427.000	3207.00	95.30	.34	.00	443.34
*	3427.000	3992.00	121.08	.34	.00	443.69
*	3427.000	3974.00	120.57	.34	.00	443.69
	3427.000	4857.00	144.54	.33	.00	443.90
	3427.000	4739.00	141.78	.33	.00	443.88
	3427.000	5630.00	166.19	.32	.00	444.07
	3427.000	5550.00	163.83	.32	.00	444.05
	3427.000	6685.00	184.42	.30	.00	444.27
	3427.000	7954.00	215.45	.30	.00	444.48
	3427.000	8555.00	230.77	.29	.00	444.58
*	4058.000	3207.00	115.40	.40	.00	446.50
*	4058.000	3992.00	144.79	.40	.00	446.70
*	4058.000	3974.00	144.21	.40	.00	446.69
	4058.000	4857.00	171.64	.39	.00	446.96
	4058.000	4739.00	168.43	.39	.00	446.93
	4058.000	5630.00	196.11	.38	.00	447.18
	4058.000	5550.00	193.47	.38	.00	447.16
	4058.000	6685.00	217.92	.36	.00	447.46
	4058.000	7954.00	253.00	.35	.00	447.75
	4058.000	8555.00	270.17	.35	.00	447.88
*	5312.000	3207.00	157.13	.58	.00	452.14

*	5312.000	3992.00	192.55	.57	.00	452.43
*	5312.000	3974.00	191.82	.57	.00	452.42
*	5312.000	4857.00	226.23	.54	.00	452.68
*	5312.000	4739.00	222.11	.54	.00	452.64
*	5312.000	5630.00	256.54	.52	.00	452.88
*	5312.000	5550.00	253.31	.52	.00	452.86
*	5312.000	6685.00	285.95	.49	.00	453.14
	5312.000	7954.00	329.73	.47	.00	453.43
	5312.000	8555.00	350.88	.47	.00	453.56
	6097.000	3207.00	186.06	.69	.00	454.17
	6097.000	3992.00	226.38	.67	.00	454.47
	6097.000	3974.00	225.54	.67	.00	454.47
	6097.000	4857.00	264.90	.63	.00	454.77
	6097.000	4739.00	260.14	.64	.00	454.73
	6097.000	5630.00	299.38	.61	.00	455.01
	6097.000	5550.00	295.73	.61	.00	454.99
	6097.000	6685.00	334.22	.58	.00	455.31
	6097.000	7954.00	384.30	.56	.00	455.63
	6097.000	8555.00	408.34	.55	.00	455.78

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
	6770.000	3207.00	209.41	.77	.00	456.37
	6770.000	3992.00	254.12	.74	.00	456.63
	6770.000	3974.00	253.19	.75	.00	456.63
	6770.000	4857.00	297.21	.71	.00	456.89
	6770.000	4739.00	291.84	.71	.00	456.86
	6770.000	5630.00	335.56	.68	.00	457.09
	6770.000	5550.00	331.53	.69	.00	457.07
	6770.000	6685.00	375.42	.65	.00	457.36
	6770.000	7954.00	431.27	.62	.00	457.65
	6770.000	8555.00	457.96	.61	.00	457.78
*	7236.000	2297.00	222.25	.82	.00	458.94
*	7236.000	2711.00	269.03	.79	.00	459.10
*	7236.000	2846.00	268.21	.79	.00	459.14
*	7236.000	3330.00	314.43	.76	.00	459.32
*	7236.000	3354.00	308.86	.76	.00	459.32
	7236.000	3950.00	354.79	.73	.00	459.52
*	7236.000	4017.00	350.67	.73	.00	459.52
*	7236.000	4698.00	397.21	.69	.00	459.74
*	7236.000	5148.00	455.66	.66	.00	459.92
*	7236.000	5943.00	484.16	.65	.00	460.11
	8426.000	2297.00	248.83	.97	.00	467.56
	8426.000	2711.00	299.02	.93	.00	467.73
	8426.000	2846.00	299.26	.93	.00	467.79
	8426.000	3330.00	349.27	.89	.00	467.96
	8426.000	3354.00	343.85	.89	.00	467.97
	8426.000	3950.00	394.56	.86	.00	468.18
	8426.000	4017.00	390.86	.86	.00	468.19
	8426.000	4698.00	442.01	.81	.00	468.36
	8426.000	5148.00	503.57	.78	.00	468.45
	8426.000	5943.00	537.50	.77	.00	468.65
	9293.000	2297.00	267.21	1.05	.00	474.94
	9293.000	2711.00	319.63	1.02	.00	475.07
	9293.000	2846.00	320.60	1.01	.00	475.10
	9293.000	3330.00	373.07	.96	.00	475.24
	9293.000	3354.00	367.79	.97	.00	475.24
	9293.000	3950.00	421.67	.93	.00	475.39
	9293.000	4017.00	418.26	.93	.00	475.41
	9293.000	4698.00	472.30	.88	.00	475.58
	9293.000	5148.00	535.64	.85	.00	475.71
	9293.000	5943.00	572.72	.83	.00	475.86

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
	10034.000	2297.00	282.72	1.14	.00	479.99
	10034.000	2711.00	336.83	1.10	.00	480.18
	10034.000	2846.00	338.30	1.09	.00	480.25
*	10034.000	3330.00	392.61	1.04	.00	480.45
*	10034.000	3354.00	387.40	1.04	.00	480.46
*	10034.000	3950.00	443.41	1.00	.00	480.69
*	10034.000	4017.00	440.21	1.00	.00	480.72
*	10034.000	4698.00	496.54	.94	.00	480.96
*	10034.000	5148.00	561.44	.91	.00	481.09
*	10034.000	5943.00	600.85	.89	.00	481.37

10527.000	2297.00	292.06	1.18	.00	483.31
10527.000	2711.00	347.26	1.14	.00	483.53
10527.000	2846.00	349.08	1.13	.00	483.59
* 10527.000	3330.00	404.57	1.08	.00	483.83
* 10527.000	3354.00	399.43	1.08	.00	483.84
10527.000	3950.00	456.79	1.04	.00	484.08
10527.000	4017.00	453.75	1.04	.00	484.10
10527.000	4698.00	511.48	.98	.00	484.33
10527.000	5148.00	577.24	.94	.00	484.48
10527.000	5943.00	618.24	.92	.00	484.72
11263.000	2297.00	304.88	1.26	.00	488.75
11263.000	2711.00	361.62	1.21	.00	488.97
11263.000	2846.00	363.92	1.20	.00	489.04
11263.000	3330.00	421.10	1.14	.00	489.27
11263.000	3354.00	416.03	1.14	.00	489.28
11263.000	3950.00	475.31	1.10	.00	489.54
11263.000	4017.00	472.45	1.10	.00	489.57
11263.000	4698.00	532.12	1.03	.00	489.83
11263.000	5148.00	599.14	1.00	.00	489.97
11263.000	5943.00	642.24	.97	.00	490.25
12079.000	2297.00	318.85	1.32	.00	494.63
12079.000	2711.00	377.15	1.27	.00	494.82
12079.000	2846.00	379.94	1.26	.00	494.88
12079.000	3330.00	438.83	1.20	.00	495.08
12079.000	3354.00	433.85	1.20	.00	495.09
12079.000	3950.00	495.11	1.15	.00	495.33
12079.000	4017.00	492.47	1.15	.00	495.36
12079.000	4698.00	554.29	1.08	.00	495.62
12079.000	5148.00	622.65	1.04	.00	495.79
12079.000	5943.00	668.05	1.02	.00	496.06

SECNO	Q	VOL	TIME	ELLC	CWSEL
12495.000	2297.00	325.90	1.36	.00	498.16
12495.000	2711.00	385.01	1.30	.00	498.35
12495.000	2846.00	388.06	1.30	.00	498.41
12495.000	3330.00	447.88	1.23	.00	498.62
12495.000	3354.00	442.94	1.24	.00	498.63
12495.000	3950.00	505.34	1.18	.00	498.86
12495.000	4017.00	502.83	1.18	.00	498.88
12495.000	4698.00	565.92	1.12	.00	499.11
12495.000	5148.00	635.12	1.08	.00	499.26
12495.000	5943.00	681.97	1.05	.00	499.50
13112.000	2297.00	337.95	1.43	.00	502.59
13112.000	2711.00	398.49	1.37	.00	502.75
13112.000	2846.00	402.01	1.36	.00	502.79
13112.000	3330.00	463.45	1.29	.00	502.96
13112.000	3354.00	458.60	1.29	.00	502.97
13112.000	3950.00	522.92	1.24	.00	503.16
13112.000	4017.00	520.62	1.24	.00	503.18
13112.000	4698.00	585.85	1.17	.00	503.38
13112.000	5148.00	656.43	1.13	.00	503.49
13112.000	5943.00	705.68	1.09	.00	503.69
13954.000	2297.00	353.08	1.50	.00	508.77
13954.000	2711.00	415.36	1.43	.00	509.00
13954.000	2846.00	419.43	1.42	.00	509.07
13954.000	3330.00	482.79	1.35	.00	509.31
13954.000	3354.00	478.02	1.35	.00	509.32
13954.000	3950.00	544.60	1.29	.00	509.59
13954.000	4017.00	542.54	1.29	.00	509.62
13954.000	4698.00	610.23	1.22	.00	509.89
13954.000	5148.00	682.36	1.18	.00	510.05
13954.000	5943.00	734.19	1.14	.00	510.31
14591.000	2297.00	362.22	1.54	.00	514.90
14591.000	2711.00	425.59	1.47	.00	515.16
14591.000	2846.00	430.01	1.46	.00	515.24
14591.000	3330.00	494.57	1.39	.00	515.52
14591.000	3354.00	489.86	1.39	.00	515.54
14591.000	3950.00	557.86	1.33	.00	515.84
14591.000	4017.00	555.96	1.33	.00	515.88
14591.000	4698.00	625.10	1.26	.00	516.18
14591.000	5148.00	698.11	1.21	.00	516.35
14591.000	5943.00	751.41	1.17	.00	516.63

	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	15336.000	727.00	370.45	1.65	.00	521.19
*	15336.000	847.00	434.92	1.58	.00	521.41
*	15336.000	874.00	439.66	1.57	.00	521.46
*	15336.000	1011.00	505.45	1.50	.00	521.68
	15336.000	1007.00	500.79	1.50	.00	521.69
*	15336.000	1160.00	570.23	1.44	.00	521.92
*	15336.000	1171.00	568.48	1.44	.00	521.94
*	15336.000	1342.00	639.05	1.36	.00	522.14
*	15336.000	1457.00	712.95	1.31	.00	522.26
*	15336.000	1660.00	767.78	1.27	.00	522.47
*	16166.000	727.00	375.84	1.70	.00	525.65
*	16166.000	847.00	440.96	1.63	.00	525.87
*	16166.000	874.00	445.86	1.62	.00	525.90
*	16166.000	1011.00	512.87	1.55	.00	526.42
*	16166.000	1007.00	508.19	1.56	.00	526.40
*	16166.000	1160.00	578.51	1.49	.00	526.56
*	16166.000	1171.00	576.83	1.49	.00	526.57
*	16166.000	1342.00	648.28	1.41	.00	526.72
*	16166.000	1457.00	722.73	1.36	.00	526.81
*	16166.000	1660.00	778.51	1.32	.00	526.97
*	16715.000	727.00	378.63	1.76	.00	530.55
*	16715.000	847.00	444.13	1.69	.00	530.81
*	16715.000	874.00	449.11	1.68	.00	530.87
*	16715.000	1011.00	516.96	1.61	.00	531.21
*	16715.000	1007.00	512.26	1.62	.00	531.21
*	16715.000	1160.00	583.05	1.55	.00	531.44
*	16715.000	1171.00	581.40	1.55	.00	531.45
*	16715.000	1342.00	653.34	1.47	.00	531.68
*	16715.000	1457.00	728.12	1.42	.00	531.83
*	16715.000	1660.00	784.45	1.37	.00	532.06
*	17279.000	727.00	381.93	1.81	.00	535.21
*	17279.000	847.00	447.88	1.74	.00	535.36
*	17279.000	874.00	452.96	1.73	.00	535.39
*	17279.000	1011.00	521.35	1.66	.00	535.50
*	17279.000	1007.00	516.64	1.66	.00	535.49
*	17279.000	1160.00	587.94	1.59	.00	535.67
*	17279.000	1171.00	586.33	1.59	.00	535.68
	17279.000	1342.00	658.83	1.51	.00	535.87
*	17279.000	1457.00	733.97	1.46	.00	535.98
*	17279.000	1660.00	790.93	1.41	.00	536.17

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
	18032.000	727.00	386.48	1.90	.00	542.36
	18032.000	847.00	452.93	1.82	.00	542.51
	18032.000	874.00	458.12	1.81	.00	542.55
	18032.000	1011.00	527.04	1.74	.00	542.74
*	18032.000	1007.00	522.31	1.74	.00	542.73
	18032.000	1160.00	594.21	1.67	.00	542.89
	18032.000	1171.00	592.64	1.67	.00	542.90
	18032.000	1342.00	665.78	1.58	.00	543.06
	18032.000	1457.00	741.33	1.53	.00	543.17
	18032.000	1660.00	799.01	1.48	.00	543.35

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TRIBUTARY 3A HEC-2 MODEL
(Flood Hazard)

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T1  City of Laredo Flood Insurance Study Update (for development to Jan.  1994)
T2  Chacon Creek Watershed - Unnamed Tributary 3A to Tributary 3 of Chacon Creek
T3  Existing Condition Model, 1988 NAVD, Jan. 1999
J1             2                 0.00386                         861  463.83
J2       1              -1
J3      38      43       7       6      41       1     150       0       0       0
NC    0.06    0.06   0.065     0.1     0.3
X1    7560      30 1900.03 2655.47
GR     480    1000     478 1090.61     476 1237.49     474 1273.54     472 1392.64
GR     470 1509.77     468 1533.76     466 1566.23     466 1626.83     468  1670.9
GR     468 1682.82     466 1705.73     466  1732.4     468 1739.22     470 1746.86
GR     470 1786.31     468 1840.84     466 1900.03     464  2172.6     462 2311.77
GR     462 2587.94     464 2626.51     466 2655.47     466 2694.01     466 2797.35
GR     468  2862.5     470 2887.83     472 2951.28     474  2991.6     476 3019.91
X18595.4      14 1156.72 1884.33 1258.03 1249.07 1271.49
GR     478    1000     476 1010.74     474 1028.52     472 1046.68     470 1091.61
GR     468 1156.71     468 1156.72     468 1156.72     466 1326.57     466 1356.19
GR     468 1884.33     470 1936.47     472 2117.03     474 2190.86
X19526.7      16 1347.18 1693.77  757.15 1094.61  931.32
GR     484    1000     482  1045.5     480 1084.08     478 1106.34     476 1146.34
GR     474 1200.25     472 1347.18     470 1528.67     470 1542.93     472 1693.77
GR     472 1739.75     472 1820.73     474  2133.7     476 2186.81     476 2377.57
GR     474 2511.89
X1   10514      13 1106.22 1755.89  827.52 1113.52  987.32
GR     488    1000     486 1020.72     484 1038.92     482 1051.73     480 1106.22
GR     478 1512.61     478 1583.13     480 1755.89     482 1839.16     484 1936.35
GR     486 2098.08     488 2186.82     490 2240.37
X1   11329      18 1325.61 2019.65  799.07  853.67  815.42
GR     500    1000     498 1051.34     496 1118.76     494 1202.12     492 1233.23
GR     490 1267.62     488 1280.49     486 1325.61     484 1761.55     484 1871.41
GR     486 2019.65     488 2142.74     490 2200.68     490  2245.3     490 2272.26
GR     492 2355.05     494 2458.22     496 2525.03
X1   11963      22 1285.09 1890.91  592.76  702.04  634.02
GR     508    1000     506 1011.29     504 1024.57     502 1038.31     500 1057.15
GR     498 1078.83     496 1103.85     494  1143.9     492 1185.71     490 1285.09
GR     488 1485.64     488 1511.74     488 1549.51     488 1625.17     490 1890.91
GR     492 2145.08     494 2253.51     496 2290.88     498 2300.07     500 2314.12
GR     500 2336.47     498 2340.87
X1   12722      24 1267.96 1764.08  614.72  777.78  758.56
GR     518    1000     516  1011.6     514 1025.14     512  1043.3     510 1051.02
GR     508 1063.35     506  1073.6     504 1091.64     502 1103.84     500 1113.26
GR     498 1140.23     496 1169.95     494 1240.18     492 1267.96     490    1320
GR     490 1379.54     492 1764.08     494 1838.32     496 1906.47     498 1957.74
GR     500 2175.04     502 2243.98     504 2298.86     506 2385.92
X1   13532      27 1405.88  1588.4  799.44     846   810.5
GR     508    1000     506 1047.08     504 1098.47     502 1173.94     502 1254.49
GR     502  1321.5     500 1337.54     498 1372.96     496 1405.88     496 1425.41
GR     496 1436.64     494 1544.81     492 1552.56     492 1567.81     494 1572.78
GR     496  1588.4     496  1643.3     496  2062.4     496 2142.54     496 2230.87
GR     498 2309.43     500 2383.19     502 2432.04     504 2490.23     506 2528.78
GR     508 2639.02     510 2741.31
X1   14505      25 1563.33 1880.63 1013.56  946.04  972.22
GR     512    1000     510 1147.39     508 1176.58     506 1221.64     506 1221.71
GR     506 1365.49     506    1369     506 1436.97     506 1476.97     506 1495.21
GR     506 1563.33     504 1646.62     502 1664.48     502  1701.2     504  1718.6
GR     506 1880.63     508 1923.14     510 1992.67     512 2039.67     514 2114.43
GR     516 2193.37     518 2237.39     520 2292.32     522 2352.35     524 2420.39
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X1 15239      22 1284.21 1535.92  668.31  703.27  734.92
GR   528    1000     526 1055.64     524 1096.65     522 1137.39     520 1171.37
GR   518 1191.97     516 1243.06     514 1284.21     512 1337.36     510  1412.6
GR   510  1445.4     512 1500.46     514 1535.92     516 1585.75     518 1612.92
GR   520  1653.2     522 1699.96     524 1783.02     526 1849.26     526 1849.61
GR   528 1974.62     528 1977.68
EJ
T1      Flood Insurance Study
T2      Chacon Creek Watershed - Tributary 3A
T3      File: Trib3a.ih2                          10-YR   Future
J1            3                 0.00386                     1134   464.14
J2      2            -1
T1      Flood Insurance Study
T2      Chacon Creek Watershed - Tributary 3A
T3      File: Trib3a.ih2                          25-YR Existing
J1            4                 0.00386                     1036   464.03
J2      3            -1
T1      Flood Insurance Study
T2      Chacon Creek Watershed - Tributary 3A
T3      File: Trib3a.ih2                          25-YR   Future
J1            5                 0.00386                     1350   464.36
J2      4            -1
T1      Flood Insurance Study
T2      Chacon Creek Watershed - Tributary 3A
T3      File: Trib3a.ih2                          50-YR Existing
J1            6                 0.00386                     1196   464.21
J2      5            -1
T1      Flood Insurance Study
T2      Chacon Creek Watershed - Tributary 3A
T3      File: Trib3a.ih2                          50-YR   Future
J1            7                 0.00386                     1546   464.55
J2      6            -1
T1      Flood Insurance Study
T2      Chacon Creek Watershed - Tributary 3A
T3      File: Trib3a.ih2                         100-YR Existing
J1            8                 0.00386                     1393   464.41
J2      7            -1
T1      Flood Insurance Study
T2      Chacon Creek Watershed - Tributary 3A
T3      File: Trib3a.ih2                         100-YR   Future
J1            9                 0.00386                     1783   464.77
J2      8            -1
T1      Flood Insurance Study
T2      Chacon Creek Watershed - Tributary 3A
T3      File: Trib3a.ih2                         500-YR Existing
J1           10                 0.00386                     1735   464.73
J2      9            -1
T1      Flood Insurance Study
T2      Chacon Creek Watershed - Tributary 3A
T3      File: Trib3a.ih2                         500-YR   Future
J1           11                 0.00386                     2171   465.09
J2     15            -1


ER
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 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

Existing Condition Model, Tributary 3A

SUMMARY PRINTOUT

	SECNO	Q	VOL	TIME	ELLC	CWSEL
	7560.000	861.00	.00	.00	.00	463.52
	7560.000	1134.00	.00	.00	.00	463.76
	7560.000	1036.00	.00	.00	.00	463.68
	7560.000	1350.00	.00	.00	.00	463.94
	7560.000	1196.00	.00	.00	.00	463.81
	7560.000	1546.00	.00	.00	.00	464.10
	7560.000	1393.00	.00	.00	.00	463.98
	7560.000	1783.00	.00	.00	.00	464.29
	7560.000	1735.00	.00	.00	.00	464.25
	7560.000	2171.00	.00	.00	.00	464.56
	8595.400	861.00	17.56	.28	.00	467.89
	8595.400	1134.00	21.21	.26	.00	468.11
	8595.400	1036.00	20.01	.27	.00	468.04
	8595.400	1350.00	23.82	.24	.00	468.23
	8595.400	1196.00	21.97	.25	.00	468.15
	8595.400	1546.00	26.15	.23	.00	468.35
	8595.400	1393.00	24.31	.24	.00	468.27
	8595.400	1783.00	28.90	.22	.00	468.49
	8595.400	1735.00	28.35	.22	.00	468.46
	8595.400	2171.00	33.22	.21	.00	468.69
*	9526.700	861.00	29.28	.40	.00	472.11
	9526.700	1134.00	35.53	.37	.00	472.28
	9526.700	1036.00	33.49	.38	.00	472.22
*	9526.700	1350.00	39.91	.35	.00	472.40
*	9526.700	1196.00	36.81	.36	.00	472.32
*	9526.700	1546.00	43.78	.33	.00	472.49
*	9526.700	1393.00	40.75	.34	.00	472.42
*	9526.700	1783.00	48.33	.32	.00	472.60
*	9526.700	1735.00	47.43	.32	.00	472.57
*	9526.700	2171.00	55.43	.30	.00	472.76

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SECNO	Q	VOL	TIME	ELLC	CWSEL
10514.000	861.00	39.24	.55	.00	479.57
10514.000	1134.00	47.81	.51	.00	479.77
10514.000	1036.00	44.95	.52	.00	479.70
10514.000	1350.00	53.90	.48	.00	479.91
10514.000	1196.00	49.59	.50	.00	479.81
10514.000	1546.00	59.24	.46	.00	480.02
10514.000	1393.00	55.08	.48	.00	479.94
10514.000	1783.00	65.34	.44	.00	480.13
10514.000	1735.00	64.13	.44	.00	480.11
10514.000	2171.00	74.85	.41	.00	480.29
11329.000	861.00	48.17	.68	.00	485.50
11329.000	1134.00	58.78	.63	.00	485.68
11329.000	1036.00	55.20	.65	.00	485.62
11329.000	1350.00	66.41	.60	.00	485.81
11329.000	1196.00	61.01	.62	.00	485.72
11329.000	1546.00	73.05	.57	.00	485.91
11329.000	1393.00	67.88	.59	.00	485.84
11329.000	1783.00	80.51	.54	.00	486.02
11329.000	1735.00	79.05	.55	.00	486.00
11329.000	2171.00	91.96	.51	.00	486.16
11963.000	861.00	55.31	.78	.00	489.55
11963.000	1134.00	67.51	.72	.00	489.76
11963.000	1036.00	63.38	.74	.00	489.68
11963.000	1350.00	76.33	.69	.00	489.91
11963.000	1196.00	70.09	.71	.00	489.80
11963.000	1546.00	83.98	.66	.00	490.02

	11963.000	1393.00	78.04	.68	.00	489.93
	11963.000	1783.00	92.52	.63	.00	490.13
	11963.000	1735.00	90.86	.63	.00	490.12
	11963.000	2171.00	105.48	.58	.00	490.32
*	12722.000	861.00	65.31	.94	.00	492.20
*	12722.000	1134.00	79.51	.87	.00	492.44
	12722.000	1036.00	74.68	.89	.00	492.35
*	12722.000	1350.00	89.80	.82	.00	492.60
*	12722.000	1196.00	82.52	.85	.00	492.49
*	12722.000	1546.00	98.70	.78	.00	492.73
*	12722.000	1393.00	91.79	.81	.00	492.63
*	12722.000	1783.00	108.55	.74	.00	492.88
*	12722.000	1735.00	106.63	.75	.00	492.85
*	12722.000	2171.00	123.56	.69	.00	493.10

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01JUN99 10:51:13

	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	13532.000	861.00	74.00	1.00	.00	496.07
*	13532.000	1134.00	90.63	.93	.00	496.24
*	13532.000	1036.00	84.99	.96	.00	496.17
*	13532.000	1350.00	102.62	.89	.00	496.34
*	13532.000	1196.00	94.14	.92	.00	496.27
*	13532.000	1546.00	112.93	.86	.00	496.43
*	13532.000	1393.00	104.92	.88	.00	496.36
*	13532.000	1783.00	124.40	.82	.00	496.55
*	13532.000	1735.00	122.16	.83	.00	496.52
*	13532.000	2171.00	141.90	.77	.00	496.70
*	14505.000	861.00	81.30	1.12	.00	505.61
*	14505.000	1134.00	100.30	1.04	.00	505.86
*	14505.000	1036.00	93.87	1.07	.00	505.78
	14505.000	1350.00	113.91	.99	.00	506.02
*	14505.000	1196.00	104.28	1.03	.00	505.92
	14505.000	1546.00	125.75	.95	.00	506.11
	14505.000	1393.00	116.56	.98	.00	506.04
	14505.000	1783.00	138.89	.91	.00	506.19
	14505.000	1735.00	136.32	.92	.00	506.18
	14505.000	2171.00	158.83	.85	.00	506.32
	15239.000	861.00	86.58	1.18	.00	512.28
	15239.000	1134.00	106.76	1.10	.00	512.64
*	15239.000	1036.00	99.91	1.13	.00	512.52
	15239.000	1350.00	121.24	1.05	.00	512.90
	15239.000	1196.00	110.99	1.08	.00	512.72
	15239.000	1546.00	133.92	1.01	.00	513.11
	15239.000	1393.00	124.09	1.04	.00	512.95
	15239.000	1783.00	147.96	.96	.00	513.34
	15239.000	1735.00	145.22	.97	.00	513.30
	15239.000	2171.00	169.24	.90	.00	513.69

TRIBUTARY 3 HEC-2 MODEL
(Floodway - Method 1)

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1*****************************************                  **************************************
 *  HEC-2 WATER SURFACE PROFILES           *                 *  U.S. ARMY CORPS OF ENGINEERS      *
 *                                         *                 *  HYDROLOGIC ENGINEERING CENTER     *
 *  Version   4.6.2;  May 1991             *                 *  609 SECOND STREET, SUITE D        *
 *                                         *                 *  DAVIS, CALIFORNIA 95616-4687      *
 *  RUN DATE    15MAR99    TIME  13:58:42  *                 *         (916) 756-1104             *
 *****************************************                  **************************************



                       X     X  XXXXXXX   XXXXX            XXXXX
                       X     X  X        X     X          X     X
                       X     X  X        X                      X
                       XXXXXXX  XXXX     X         XXXXX   XXXXX
                       X     X  X        X                X
                       X     X  X        X     X          X
                       X     X  XXXXXXX   XXXXX           XXXXXXX
1
   15MAR99      13:58:42



                                                                   THIS RUN EXECUTED 15MAR99    13:58:42
 ***********************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ***********************************


 T1  City of Laredo Flood Insurance Study Update (for development to Jan.1994)
 T2  Chacon Creek Watershed - Tributary 3 to Chacon Creek - 1988 NAVD
 T3  Filename:TRIB3FW1.IH2     100-Year Frequency      Dec.1998
 T4

 J1  ICHECK     INQ       NINV      IDIR       STRT     METRIC    HVINS      Q        WSEL       FQ

                 2                                                          5550    423.92

 J2  NPROF     IPLOT     PRFVS     XSECV      XSECH       FN       ALLDC     IBW      CHNIM      ITRACE

                           -1


 J3  VARIABLE CODES FOR SUMMARY PRINTOUT

     110       200

 NC      0.06       0.06     0.065
 ET                            7.1                                           1030.56    1329.65
 X1         0         24   1030.56   1329.65
 GR       442      977.3       440      1000         438    1008.27         436   1012.46         434     1024.3
 GR       432    1030.56       430   1044.79         428    1051.65         426   1058.75         424    1068.46
 GR       421    1078.62       420    1140.9         421    1313.79         424   1317.07         426    1319.16
 GR       428    1321.22       430   1322.01         430    1322.02         432   1329.65         434    1385.77
 GR       436    1397.23       438   1431.26         440    1478.28         442   1564.94

 ET                            7.1                                           1040.02    1199.05
 X1        56         21   1040.02   1199.05       140.8      26.18       56.21
 GR       440       1000       438   1004.97         436    1012.05         436   1012.08         434    1018.13
 GR       432    1029.69       430   1040.02         428    1045.36         426   1047.87         424    1056.74
 GR       421     1064.6       421   1185.82         424    1188.84         426   1193.28         430    1199.05
 GR       432    1225.46       434   1235.73         436     1257.6         438   1290.41         440    1340.94
 GR       440    1372.15

 ET                            7.1                                           1024.63    1354.34
 X1       178         20   1024.63   1354.34      147.76     127.02       122.4
 GR       440       1000       438   1011.57         436    1024.63         434   1077.76         434    1077.87
 GR       432     1153.9       430   1162.19         426    1165.22         424      1168         421    1174.57
 GR       421    1223.69       424   1253.12         426     1282.6         428   1289.52         430     1293.8
 GR       432    1314.88       434   1345.07         436    1354.34         438   1361.45         440    1379.04
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 ET                            7.1                                           1107.64    1433.41
 X1       281         20   1107.64   1433.41      101.78      61.14      102.43
 GR       440       1000       438   1024.67         436    1078.58         434   1093.64         432    1100.95
 GR       430    1107.64       428   1123.35         426    1243.49         424   1277.96         421    1283.79
          421     1315.3       424   1339.55         426    1404.26         428   1418.78         430    1433.41
          432    1495.69       434   1508.74         436    1513.97         438   1520.84         440     1530.1

 ET                            7.1                                              1000    1313.98
 X1       420         19      1000   1313.98       41.12      17.37      139.15
 GR       440     951.75       436    977.12         432       1000         430   1045.33         428    1054.43
 GR       426    1066.38       424   1080.34         422    1084.85         422   1122.08         422    1136.75
 GR       422    1167.83       424   1188.43         426    1190.88         428   1192.29         430    1193.42
 GR       432    1313.98       436   1328.85         440    1351.94      441.99   1385.21
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ET                          7.1                                      1027.99     1378.12
X1      509         20  1027.99    1378.12     101.47      59.93       89.52
GR      438     893.74      436       1000        434    1010.15         432     1027.99        430     1194.64
GR      428    1198.44      426    1206.12        424    1214.66         422     1217.91        422     1252.62
GR      424    1254.41      426    1267.34        428    1272.07         430     1280.86        432     1378.12
GR      434    1383.61      434    1383.62        436    1386.81         438     1392.82        442     1412.66

ET                          7.1                                      1050.42     1311.07
        661         16  1050.42    1311.07     125.21     169.99      151.39
        438     846.13      436       1000        434    1013.28         432     1050.33        432     1050.42
GR      430    1212.04      426    1214.74        424    1218.65         422     1220.32        422     1249.42
GR      424    1251.96      430    1256.21        432    1311.07         434     1317.86        436     1321.47
GR      442    1349.95

ET                          7.1                                         1000      1244.8
X1      814         15     1000     1244.8     138.17     162.62      153.77
GR      438     789.97      436     928.11        434       1000         432     1060.41        430     1147.33
GR      424    1152.99      422    1157.12        422    1176.26         424     1181.18        426     1185.51
GR      428    1190.03      430     1194.1        432    1238.48         434      1244.8        442     1273.96

ET                          7.1                                      1039.53     1179.03
X1      957         16  1039.53    1179.03     106.25     190.79      134.47
GR      440     714.39      438     770.41        434       1000         432     1039.53        430     1068.43
GR      428    1072.83      424    1075.83        424    1075.88         424     1104.25        426     1152.63
GR      430    1156.53      432    1179.03        434     1208.4         434     1208.53        436     1903.34
GR      440    2151.01

NC                        0.015        0.3        0.5
ET                          7.1                                      1098.19     1150.51
  Highway 59 Culvert #9
  Downstream
       Highway 59 Culvert #9
       Downstream
X1     1019         16  1098.19    1150.51      67.11      35.13       61.53
GR      440     759.66      438     816.16        434       1000         434     1050.18        432     1065.58
GR      430    1098.19      424    1099.09        424       1138         424     1147.01        426     1148.61
GR      428    1149.41      430    1150.51        432    1254.36         434      1459.3        436     1910.64
GR      440    2167.95
1
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NC     0.06       0.06    0.015
ET                          7.1                                      1098.19     1150.51
                   7.1                     970.7 1113.81
      '.015        0.4      2.5        233          9         10          95        10.1        424         424
     ay 59 Culvert #9
     .eam
       Highway 59 Culvert #9
       Upstream
X1     1114         16  1098.19    1150.51      97.11      95.79       95.05
   1114       18    970.7 1113.81    97.11    95.79    95.05
X2                        2                       435
GR      440     759.66      438     816.16        434       1000         434     1050.18        432     1065.58
GR      430    1098.19      424    1099.09        424       1138         424     1147.01        426     1148.61
GR      428    1149.41      430    1150.51        432    1254.36         434      1459.3        436     1910.64
GR      440    2167.95
    440  634.99     438  699.69      436  923.87      434   970.7      432   979.5
    430    1000     428 1007.08      426 1013.64      424 1026.56      424 1050.54
    426  1056.6     428 1066.69      430 1078.98      432 1096.25      434 1113.81
    434  1318.8     436 1544.63      440 2167.79

NC                        0.065        0.1        0.3
ET                          7.1                                      1244.14     1740.25
X1     1253         21  1244.14    1740.25     219.18     132.44      138.83
GR      442       1000      442    1052.16        442    1056.07         440     1061.52        440     1066.87
GR      440    1159.63      438    1186.14        436    1244.14         434     1278.14        432     1300.12
GR      430    1309.92      428    1313.96        426    1316.81         426     1325.83        430     1331.84
GR      432    1349.91      434    1512.63        436    1740.25         438     2321.19        440     2344.49
GR      442    2437.33

ET                          7.1                                      1114.01     1401.47
X1     1578         14  1114.01    1401.47     309.97     171.99       325.4
GR      442       1000      440    1078.88        438    1092.26         436     1114.01        434     1133.11
GR      432    1143.73      432    1197.66        434    1247.98         436     1401.47        436     1407.87
GR      436    1408.99      438    1926.58        440    1930.69         442     2016.45

ET                          7.1                                      1399.42     1726.95
X1     2006         23  1399.42    1726.95     428.58     442.81      427.38
GR      444     953.16      438       1000        436    1399.42         436     1444.72        436     1450.42
GR      434    1451.89      432    1460.89        432    1477.36         434     1512.28        436     1602.93
GR      436    1648.31      434    1658.31        432     1664.4         432     1691.74        434     1701.94
GR      436    1726.95      438    1963.14        440    2055.84         442     2129.14        444      2197.4
GR      446    2238.47      448    2259.47        450    2328.44

                            7.1                                       1456.1      2171.6
X1     2697         23  1747.15     2160.1     640.63      704.2       691.9
GR      450     816.15      442       1000        440    1048.79         438     1491.71        438     1536.05
GR      440    1597.15      440    1597.18        440    1632.47         440     1747.15        440     1942.52
GR      440    1961.65      440    1963.66        438    1981.78         436     2013.28        436     2117.06
GR      438    2141.19      440     2160.1        442    2281.53         444     2426.44        446     2495.93
GR      448    2534.04      450    2545.66        452    2584.63
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ET			7.1				1556.98	2163.96		
X1	3427	19	1556.98	2163.96	808.91	656.48	729.41			
GR	450	1000	448	1035.8	446	1161.03	444	1311.62	442	1556.98
GR	442	1563.6	442	1624.1	442	1676.77	442	1890.1	440	1920.5
GR	440	2020.73	440	2102.14	440	2149.95	442	2163.91	442	2163.96
	444	2350.78	446	2517.03	448	2597.7	450	2684.33		
E.			7.1				1245.07	2419.28		
X1	4058	22	1245.07	2419.28	698.44	539.45	631.44			
GR	456	1000	454	1094.91	452	1178.71	450	1195.57	448	1245.07
GR	446	1580.86	444	1612.66	444	1634.23	444	1773.43	444	1817.76
GR	446	1852.55	446	1853.99	446	2034.58	446	2081.82	444	2247.25
GR	444	2292.82	446	2385.04	448	2419.28	450	2462.93	452	2474.55
GR	454	2493.29	456	2518.23						
ET			7.1				1263.73	2073.97		
X1	5312	21	1263.73	2073.97	1285.83	1240.67	1253.57			
GR	464	1000	462	1006.89	460	1013.94	458	1025.73	456	1038.76
GR	454	1046.3	452	1263.73	450	1324.26	450	1399.23	450	1465.91
GR	450	1495.11	450	1530.72	450	1636.85	450	1922.6	450	2040.72
GR	452	2073.97	454	2117.87	456	2148.03	458	2198.2	460	2235.42
GR	462	2356.32								
ET			7.1				1640.37	2220.43		
X1	6097	24	1640.37	2220.43	774.63	801.81	784.97			
GR	466	1000	464	1116.86	464	1116.87	462	1138.97	460	1215.45
GR	458	1275.46	456	1342.17	454	1640.37	452	1703.65	452	1738.49
GR	452	1738.78	450	1755.26	450	1952.5	452	1965.18	452	2112.98
GR	452	2113.49	454	2220.43	454	2312.49	454	2526.86	456	2775.51
GR	458	2852.68	460	2908.49	462	2932.23	464	2972.42		
ET			7.1				1240.7	2036.85		
X1	6770	25	1240.7	2036.85	659.87	689.59	673.52			
GR	464	1000	462	1069.11	460	1120.35	458	1194.77	456	1240.7
GR	454	1260.91	454	1293.9	456	1328.02	456	1535.85	454	1631.76
GR	452	1677.34	452	1701.09	454	1712.58	454	1912.8	454	1951.18
GR	454	1965.49	454	1987.59	456	2036.85	456	2085.24	456	2085.3
GR	456	2213.81	458	2366.8	460	2397.92	462	2434.85	464	2439.57
QT	2	4017	4017							
ET			7.1				1143.76	2111.94		
X1	7236	18	1143.76	2111.94	436.91	506.75	465.52			
GR	468	899.4	464	1000	462	1031.35	460	1040.91	460	1094.7
	460	1143.76	458	1167.3	458	1190.37	460	1340.15	460	1403.91
	458	1550.6	456	1567.13	456	1567.14	456	1598.32	458	1960.4
	460	2111.94	462	2293.23	466	2356.88				
ET			7.1				1208.44	2251.92		
X1	8426	16	1208.44	2251.92	1035.53	1680.16	1189.64			
GR	476	1000	474	1104.03	472	1162.54	470	1208.44	468	1241.03
GR	466	1385.13	466	1832.58	468	2107.62	468	2176.51	466	2189.62
GR	466	2205.02	468	2219.09	470	2251.92	472	2327.73	474	2514.2
GR	476	2590.17								

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ET			7.1				1810.16	2441.49		
X1	9293	28	1810.16	2441.49	798.01	613.89	867.11			
GR	486	1000	484	1078.28	482	1231.92	480	1317.69	478	1455.08
GR	476	1586.35	474	1810.16	474	2140.07	474	2167.22	472	2177.51
GR	470	2183.01	470	2201.84	472	2221.73	474	2343.31	476	2441.49
GR	478	2501.13	480	2538.11	482	2684.96	484	2719.98	486	2806.54
GR	488	2909.59	488	2980.53	486	3065.27	486	3134.7	488	3199.54
GR	488	3199.57	490	3232.26	492	3396.37				
ET			7.1				1403.37	2025.48		
X1	10034	34	1403.37	2025.48	746.26	727.07	741.01			
GR	502	1000	500	1011.79	498	1025.1	496	1041.15	494	1075.35
GR	492	1103.92	490	1138.83	490	1138.84	488	1198.02	486	1258.84
GR	484	1325.84	482	1403.37	480	1436	478	1477.83	478	1502.39
GR	478	1502.4	478	1705.13	478	1749.91	478	1829.22	478	1898.85
GR	480	1990.9	482	2025.48	484	2048.62	486	2068.72	486	2068.78
GR	486	2122.67	486	2219.17	488	2352.33	490	2435.92	492	2490.98
GR	494	2566.38	496	2649.87	498	2706.51	500	2761.77		
ET			7.1				1274.42	1722.9		
X1	10527	22	1274.42	1722.9	459.34	552.6	493.36			
GR	500	1000	498	1026.52	496	1057.18	494	1085.82	492	1114.99
GR	490	1141.66	488	1157.51	486	1190.72	484	1274.42	482	1294.42
GR	480	1399.16	480	1462.18	482	1519.36	484	1722.9	486	1825.58
	488	1851.19	490	1882.44	492	2082.9	494	2171.35	496	2237.47
	498	2291.32	500	2381.29						
ET			7.1				1255.04	1660.14		
X1	11263	29	1255.04	1660.14	660.09	803.75	736.11			
GR	512	1000	510	1009.36	508	1078.62	506	1099.14	504	1119.06
GR	502	1157.03	500	1184.55	498	1193.37	496	1206.09	494	1218.92
GR	492	1226.12	490	1236.22	488	1255.04	486	1441.27	486	1494.25
GR	486	1528.63	486	1561	488	1660.14	490	1713.51	492	1829.75
GR	494	1906.5	496	1924.31	498	2010.66	500	2044.07	502	2100.53

GR	504	2170.98	506	2273.91	508	2337.06	510	2367.42		
ET			7.1				1431.74	1756.54		
X1	12079	22	1431.74	1756.54	870.89	725.56	816.13			
GR	506	1000	504	1063.59	502	1139.47	500	1245.39	498	1308.29
GR	496	1354.42	494	1431.74	492	1663.61	492	1663.63	490	1685.06
GR	490	1699.61	492	1713.26	494	1756.54	496	1794.82	498	1871.79
	500	1937.08	502	1980.2	504	2074.82	506	2136.03	508	2178.26
	510	2241.77	512	2264.62						
ET			7.1				1666.98	2135.59		
X1	12495	21	1666.98	2135.59	517.65	339	415.69			
GR	506	1000	504	1074.39	502	1218.12	500	1331.46	500	1337.1
GR	500	1373.81	498	1666.98	496	1987.61	494	2025.71	494	2075.44
GR	496	2100.28	498	2135.59	500	2179.21	502	2225.21	502	2228.04
GR	502	2241.56	504	2351.92	506	2395.38	508	2432.86	510	2495.71
GR	512	2580.75								

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ET			7.1				1578.33	2089.76		
X1	13112	20	1578.33	2089.76	495.26	726.59	617.47			
GR	514	1000	512	1081.03	510	1184.93	508	1243.83	506	1321.63
GR	504	1395.35	502	1578.33	502	1613.61	502	1646.39	502	1647
GR	502	1680.44	500	1729.49	498	1739.35	498	1759.53	500	1786.43
GR	502	2089.76	504	2352.27	506	2471.72	508	2603.22	510	2669.91
ET			7.1				1487.8	1844.98		
X1	13954	30	1487.8	1844.98	812.3	894.48	841.66			
GR	520	1000	518	1128.81	518	1128.82	516	1223.51	514	1295.88
GR	512	1414.64	510	1487.8	508	1524.54	506	1585.48	506	1585.51
GR	504	1604.5	504	1632.39	506	1645.34	508	1675.12	508	1693.7
GR	506	1765.7	506	1793.99	508	1818.57	510	1844.98	512	1865.18
GR	512	1876.96	512	1923.07	514	1933.54	516	1943.07	518	1953.59
GR	520	1958.67	522	1997.64	524	2065.61	526	2168.13	528	2388.96
ET			7.1				1284.59	1633.94		
X1	14591	22	1284.59	1633.94	602.78	665.41	637.37			
GR	526	1000	524	1044.26	522	1095.98	520	1167.83	518	1201.4
GR	516	1284.59	514	1317.42	512	1338.15	512	1360.69	512	1363.36
GR	512	1390.5	512	1418.55	512	1448.96	514	1541.5	516	1633.94
GR	518	1669.47	520	1710.03	522	1775.2	524	1814.32	526	1931.58
GR	528	2035.38	530	2117.17						
	2	1171	1171							
			7.1				1418.46	1712.84		
	15336	25	1418.46	1712.84	787.57	770.87	744.31			
GR	530	1000	528	1116.79	526	1190.42	524	1333.95	522	1418.46
GR	520	1556.23	518	1663.29	518	1690.09	520	1703.59	522	1712.84
GR	522	1746.29	524	1783.34	526	1807.45	528	1853.57	528	1928.62
GR	526	1955.31	526	1971.4	528	1989.07	530	2051.09	532	2108.02
GR	534	2166.87	536	2208.44	538	2257.46	538	2257.54	540	2418
ET			7.1				1292.78	1640.27		
X1	16166	38	1292.78	1640.27	852.39	824.36	830.65			
GR	550	1000	548	1037.33	546	1061.02	544	1084.24	542	1124.7
GR	540	1160.13	538	1169.7	536	1183.82	534	1203.69	532	1244.51
GR	530	1292.78	528	1338.14	526	1379.7	524	1404.02	522	1417.8
GR	522	1439.81	524	1448.44	526	1459.03	526	1506.08	526	1514.66
GR	528	1602.95	530	1640.27	532	1657.85	534	1700.65	536	1849.32
GR	536	1883.37	534	1918.3	534	1919.69	536	1950.32	536	1950.33
GR	538	2005.71	540	2074.53	542	2107.43	544	2134.69	546	2171.59
GR	548	2199.14	550	2236.18	552	2318.37				
ET			7.1				1419.33	1792.14		
X1	16715	26	1419.33	1792.14	569.81	517.87	548.77			
GR	550	1000	548	1073.41	546	1152.15	544	1210.64	542	1245.57
GR	540	1293.84	538	1365.24	536	1393.33	534	1419.33	532	1446.61
GR	530	1487.8	528	1496.92	528	1580.7	530	1608.15	532	1700.13
GR	534	1792.14	536	1901.3	536	1901.32	538	1989.36	540	2041.88
GR	542	2130.18	544	2208.8	546	2227.81	548	2267.23	550	2290.36
GR	552	2398.7								

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15MAR99 13:58:42

ET			7.1				1651.41	1997.98		
X1	17279	29	1651.41	1997.98	619.53	509.76	563.83			
GR	552	1000	550	1114.98	548	1211.44	546	1306.93	544	1440.45
GR	542	1554.35	540	1651.41	538	1676.49	536	1687.3	534	1704.32
GR	534	1727.15	534	1784.4	532	1796.08	532	1815.22	534	1823.48
	536	1884.54	538	1964.21	540	1997.98	542	2085.41	544	2127.18
	546	2173.54	548	2201.21	550	2216.09	552	2229.44	554	2247.92
	556	2269.07	556	2334.06	556	2364.86	558	2404.13		
ET			7.1				1580.83	1863.84		
X1	18032	23	1580.83	1863.84	758.73	717.04	753.01			
GR	560	1000	558	1063.99	556	1127.21	554	1215.88	552	1256.72
GR	550	1349.74	548	1441.91	546	1511.24	544	1580.83	542	1624.05
GR	540	1747.06	540	1773.34	542	1819.53	544	1863.84	546	1896.41
GR	548	1914.48	550	1938.16	552	2064.25	554	2094.22	556	2277.26
GR	558	2335.63	560	2375.19	562	2413.22				

BOSS RMS for AutoCAD HEC-2 Analysis version 3.5
PROJECT TITLE : Chacon Creek Watershed - City of Laredo
PROJECT NUMBER : CF0029 3/09/1999

SPECIAL NOTE :

sterisk (*) to the left of the cross-section number indicates a special
is present in the SUMMARY OF WARNING AND STATUS MESSAGES section.

SUMMARY PRINTOUT TABLE 110 : Chacon Creek Watershed - City of Laredo
Tributary 3
CF0029

	Cross-Section Number SECNO	Computed W. S. Elevation (ft MSL) CWSEL	W.S. Elev Diff per Know/Comp (ft) DIFKWS	Energy Gradient Elevation (ft MSL) EG	Water Surface Top Width (ft) TOPWID	Left Overbank Flow (cfs) QLOB	Channel Flow (cfs) QCH	Right Overbank Flow (cfs) QROB	Encroach. Target Requested PERENC	Left Encroach. Station (ft) STENCL	Left Bank Station (ft) STCHL	Right Bank Station (ft) STCHR	Right Encroach. Station (ft) STENCR
	.000	423.92	.00	424.63	248.25	.00	5550.00	.00	.00	.00	1030.56	1329.65	.00
	.000	424.92	1.00	425.33	254.04	.00	5550.00	.00	299.09	1030.56	1030.56	1329.65	1329.65
*	56.000	424.95	.00	426.80	138.45	.00	5550.00	.00	.00	.00	1040.02	1199.05	.00
*	56.000	424.94	-.01	426.80	138.39	.00	5550.00	.00	159.03	1040.02	1040.02	1199.05	1199.05
*	178.000	428.40	.00	429.38	127.00	.00	5550.00	.00	.00	.00	1024.63	1354.34	.00
*	178.000	428.41	.00	429.38	127.01	.00	5550.00	.00	329.71	1024.63	1024.63	1354.34	1354.34
*	281.000	429.85	.00	430.10	323.50	.00	5550.00	.00	.00	.00	1107.64	1433.41	.00
*	281.000	429.85	.00	430.10	323.53	.00	5550.00	.00	325.77	1107.64	1107.64	1433.41	1433.41
	420.000	430.32	.00	430.78	174.79	.00	5550.00	.00	.00	.00	1000.00	1313.98	.00
	420.000	430.32	.00	430.78	174.89	.00	5550.00	.00	313.98	1000.00	1000.00	1313.98	1313.98
*	509.000	430.39	.00	432.20	137.64	.00	5550.00	.00	.00	.00	1027.99	1378.12	.00
*	509.000	430.39	.00	432.20	137.91	.00	5550.00	.00	350.13	1027.99	1027.99	1378.12	1378.12
*	661.000	433.93	.00	434.30	303.11	70.63	5466.86	12.50	.00	.00	1050.42	1311.07	.00
*	661.000	433.96	.03	434.35	260.65	.00	5550.00	.00	260.65	1050.42	1050.42	1311.07	1311.07
	814.000	434.93	.00	435.28	281.50	17.48	5530.79	1.73	.00	.00	1000.00	1244.80	.00
	814.000	434.97	.05	435.33	244.80	.00	5550.00	.00	244.80	1000.00	1000.00	1244.80	1244.80
	000	435.49	.00	435.73	813.07	262.53	4778.11	509.36	.00	.00	1039.53	1179.03	.00
	000	435.51	.01	435.87	139.50	.00	5550.00	.00	139.50	1039.53	1039.53	1179.03	1179.03
*	1019.000	435.28	.00	436.01	809.03	227.58	4415.77	906.65	.00	.00	1098.19	1150.51	.00
*	1019.000	435.01	-.28	436.51	52.32	.00	5550.00	.00	52.32	1098.19	1098.19	1150.51	1150.51
*	1114.000	437.20	.00	437.42	941.25	56.18	4924.01	569.80	.00	.00	970.70	1113.81	.00

BOSS RMS for AutoCAD HEC-2 Analysis version 3.5
PROJECT TITLE : Chacon Creek Watershed - City of Laredo
PROJECT NUMBER : CF0029 3/09/1999

	Cross-Section SECNO	Computed W. S. Elevation (ft MSL) CWSEL	W.S. Elev Diff per Know/Comp (ft) DIFKWS	Energy Gradient Elevation (ft MSL) EG	Water Surface Top Width (ft) TOPWID	Left Overbank Flow (cfs) QLOB	Channel Flow (cfs) QCH	Right Overbank Flow (cfs) QROB	Encroach. Target Requested PERENC	Left Encroach. Station (ft) STENCL	Left Bank Station (ft) STCHL	Right Bank Station (ft) STCHR	Right Encroach. Station (ft) STENCR
*	1114.000	437.00	-.19	437.34	143.11	.00	5550.00	.00	143.11	970.70	970.70	1113.81	1113.81
*	1253.000	437.34	.00	437.47	925.69	26.69	5255.89	267.42	.00	.00	1244.14	1740.25	.00
*	1253.000	437.26	-.09	437.41	496.11	.00	5550.00	.00	496.11	1244.14	1244.14	1740.25	1740.25
	1578.000	438.28	.00	438.44	836.75	47.57	4326.57	1175.86	.00	.00	1114.01	1401.47	.00
	1578.000	438.50	.22	438.79	287.46	.00	5550.00	.00	287.46	1114.01	1114.01	1401.47	1401.47
*	2006.000	439.22	.00	439.28	1028.83	1311.39	3443.98	794.63	.00	.00	1399.42	1726.95	.00
*	2006.000	439.95	.72	440.10	327.53	.00	5550.00	.00	327.53	1399.42	1399.42	1726.95	1726.95
*	2697.000	440.72	.00	440.84	1172.45	2887.81	2647.61	14.59	.00	.00	1747.15	2160.10	.00
	2697.000	441.69	.98	441.81	715.50	1873.06	3644.92	32.01	715.50	1456.10	1747.15	2160.10	2171.60
	3427.000	444.04	.00	444.15	1047.01	395.53	4853.30	301.17	.00	.00	1556.98	2163.96	.00
	3427.000	444.24	.20	444.38	606.98	.00	5550.00	.00	606.98	1556.98	1556.98	2163.96	2163.96
	4058.000	447.16	.00	447.30	1019.59	.00	5550.00	.00	.00	.00	1245.07	2419.28	.00
	4058.000	447.29	.12	447.41	1040.48	.00	5550.00	.00	1174.21	1245.07	1245.07	2419.28	2419.28
*	5312.000	452.86	.00	452.95	922.55	31.35	5512.33	6.32	.00	.00	1263.73	2073.97	.00
	5312.000	452.81	-.05	452.91	810.24	.00	5550.00	.00	810.24	1263.73	1263.73	2073.97	2073.97
	6097.000	454.99	.00	455.08	1158.25	56.17	5078.23	415.59	.00	.00	1640.37	2220.43	.00
	6097.000	455.10	.11	455.21	580.06	.00	5550.00	.00	580.06	1640.37	1640.37	2220.43	2220.43
	6770.000	457.07	.00	457.18	1080.24	14.06	5169.58	366.36	.00	.00	1240.70	2036.85	.00
	6770.000	457.23	.16	457.34	796.15	.00	5550.00	.00	796.15	1240.70	1240.70	2036.85	2036.85
*	7236.000	459.52	.00	459.66	792.25	.00	4017.00	.00	.00	.00	1143.76	2111.94	.00
*	7236.000	459.55	.03	459.68	799.17	.00	4017.00	.00	968.18	1143.76	1143.76	2111.94	2111.94
	8426.000	468.19	.00	468.30	984.62	.00	4017.00	.00	.00	.00	1208.44	2251.92	.00
	[illegible].000	468.18	-.02	468.28	984.08	.00	4017.00	.00	1043.48	1208.44	1208.44	2251.92	2251.92
	[illegible].000	475.41	.00	475.59	759.75	225.29	3791.70	.00	.00	.00	1810.16	2441.49	.00
	9293.000	475.49	.08	475.68	606.11	.00	4017.00	.00	631.33	1810.16	1810.16	2441.49	2441.49
*	10034.000	480.72	.00	480.85	579.19	.00	4017.00	.00	.00	.00	1403.37	2025.48	.00
*	10034.000	480.73	.01	480.86	579.58	.00	4017.00	.00	622.11	1403.37	1403.37	2025.48	2025.48
*	10527.000	484.10	.00	484.35	457.44	.06	4016.85	.08	.00	.00	1274.42	1722.90	.00
*	10527.000	484.09	-.01	484.34	448.48	.00	4017.00	.00	448.48	1274.42	1274.42	1722.90	1722.90

Cross-Section SECNO	Computed W. S. Elevation (ft MSL) CWSEL	W.S. Elev Diff per Know/Comp (ft) DIFKWS	Energy Gradient Elevation (ft MSL) EG	Water Surface Top Width (ft) TOPWID	Left Overbank Flow (cfs) QLOB	Channel Flow (cfs) QCH	Right Overbank Flow (cfs) QROB	Encroach. Target Requested PERENC	Left Encroach. Station (ft) STENCL	Left Bank Station (ft) STCHL	Right Bank Station (ft) STCHR	Right Encroach. Station (ft) STENCR
11263.000	489.57	.00	489.75	461.88	18.02	3947.72	51.26	.00	.00	1255.04	1660.14	.00
11263.000	489.60	.03	489.78	405.10	.00	4017.00	.00	405.10	1255.04	1255.04	1660.14	1660.14
12079.000	495.36	.00	495.66	403.30	68.37	3914.80	33.83	.00	.00	1431.74	1756.54	.00
12079.000	495.41	.05	495.72	324.80	.00	4017.00	.00	324.80	1431.74	1431.74	1756.54	1756.54
12495.000	498.88	.00	499.06	616.32	65.99	3941.20	9.81	.00	.00	1666.98	2135.59	.00
12495.000	498.92	.04	499.10	468.61	.00	4017.00	.00	468.61	1666.98	1666.98	2135.59	2135.59
13112.000	503.18	.00	503.34	772.94	92.84	3790.97	133.19	.00	.00	1578.33	2089.76	.00
13112.000	503.24	.06	503.42	511.43	.00	4017.00	.00	511.43	1578.33	1578.33	2089.76	2089.76
13954.000	509.62	.00	509.88	345.11	.00	4017.00	.00	.00	.00	1487.80	1844.98	.00
13954.000	509.65	.04	509.91	346.28	.00	4017.00	.00	357.18	1487.80	1487.80	1844.98	1844.98
14591.000	515.88	.00	516.21	341.63	.00	4017.00	.00	.00	.00	1284.59	1633.94	.00
14591.000	515.85	-.03	516.19	339.96	.00	4017.00	.00	349.35	1284.59	1284.59	1633.94	1633.94
* 15336.000	521.94	.00	522.00	290.11	.00	1171.00	.00	.00	.00	1418.46	1712.84	.00
* 15336.000	521.97	.02	522.02	291.74	.00	1171.00	.00	294.38	1418.46	1418.46	1712.84	1712.84
* 16166.000	526.57	.00	526.85	171.81	.00	1171.00	.00	.00	.00	1292.78	1640.27	.00
* 16166.000	526.54	-.03	526.83	170.09	.00	1171.00	.00	347.49	1292.78	1292.78	1640.27	1640.27
* 16715.000	531.45	.00	531.56	216.81	.00	1171.00	.00	.00	.00	1419.33	1792.14	.00
* 16715.000	531.46	.01	531.57	217.61	.00	1171.00	.00	372.81	1419.33	1419.33	1792.14	1792.14
* 17279.000	535.68	.00	535.90	184.76	.00	1171.00	.00	.00	.00	1651.41	1997.98	.00
* 17279.000	535.67	-.01	535.89	184.41	.00	1171.00	.00	346.57	1651.41	1651.41	1997.98	1997.98
18032.000	542.90	.00	543.02	234.96	.00	1171.00	.00	.00	.00	1580.83	1863.84	.00
18032.000	542.91	.01	543.03	235.19	.00	1171.00	.00	283.01	1580.83	1580.83	1863.84	1863.84

FLOODWAY DATA, name:TRIB3FW1.IH2 10
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.000	254.	1074.	5.2	424.9	423.9	1.0
56.000	138.	508.	10.9	425.0	425.0	.0
178.000	127.	699.	7.9	428.4	428.4	.0
281.000	324.	1391.	4.0	429.9	429.9	.0
420.000	175.	1024.	5.4	430.3	430.3	.0
509.000	138.	514.	10.8	430.4	430.4	.0
661.000	261.	1117.	5.0	433.9	433.9	.0
814.000	245.	1159.	4.8	434.9	434.9	.0
957.000	139.	1153.	4.8	435.5	435.5	.0
1019.000	52.	564.	9.8	435.0	435.3	-.3
1114.000	52.	621.	8.9	436.1	437.1	-1.0
1253.000	496.	1862.	3.0	437.5	437.4	.1
1578.000	287.	1302.	4.3	438.6	438.3	.3
2006.000	328.	1779.	3.1	439.9	439.2	.7
2697.000	715.	2046.	2.7	441.7	440.7	1.0
3427.000	607.	1866.	3.0	444.2	444.0	.2
4058.000	1040.	2002.	2.8	447.3	447.2	.1
5312.000	810.	2185.	2.5	452.9	452.9	.0
6097.000	580.	2052.	2.7	455.1	455.0	.1
6770.000	796.	2063.	2.7	457.3	457.1	.2
7236.000	929.	1398.	2.9	459.5	459.5	.0
8426.000	984.	1553.	2.6	468.2	468.2	.0
9293.000	606.	1130.	3.6	475.5	475.4	.1
10034.000	580.	1393.	2.9	480.7	480.7	.0
10527.000	448.	1001.	4.0	484.1	484.1	.0
11263.000	405.	1175.	3.4	489.6	489.6	.0
12079.000	325.	897.	4.5	495.5	495.4	.1
12495.000	469.	1172.	3.4	498.9	498.9	.0
13112.000	511.	1178.	3.4	503.3	503.2	.1
13954.000	346.	981.	4.1	509.6	509.6	.0
14591.000	340.	857.	4.7	515.9	515.9	.0
15336.000	292.	605.	1.9	521.9	521.9	.0
16166.000	170.	273.	4.3	526.6	526.6	.0
16715.000	218.	451.	2.6	531.5	531.5	.0
17279.000	184.	312.	3.8	535.7	535.7	.0
18032.000	235.	417.	2.8	542.9	542.9	.0

TRIBUTARY 3A HEC-2 MODEL
(Floodway - Method 1)

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1*********************************************                    **************************************
 *  HEC-2 WATER SURFACE PROFILES              *                    *  U.S. ARMY CORPS OF ENGINEERS      *
 *                                            *                    *  HYDROLOGIC ENGINEERING CENTER     *
 *  Version   4.6.2;  May 1991                *                    *  609 SECOND STREET, SUITE D        *
 *                                            *                    *  DAVIS, CALIFORNIA 95616-4687      *
 *  RUN DATE    15MAR99    TIME   14:08:11    *                    *       (916) 756-1104               *
 **********************************************                    **************************************
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X     X  XXXXXXX   XXXXX              XXXXX
X     X  X        X     X            X     X
X     X  X        X                        X
XXXXXXX  XXXX     X          XXXXX    XXXXX
X     X  X        X                  X
X     X  X        X     X            X
X     X  XXXXXXX   XXXXX             XXXXXXX
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15MAR99   14:08:11

THIS RUN EXECUTED 15MAR99   14:08:11

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************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
************************************
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T1 City of Laredo Flood Insurance Study Update (for development to Jan.1994)
T2 Chacon Creek Watershed - Tributary 3A to Tributary 3 - 1988 NAVD
T3 Filename:TRIB3AFW.IH2   100-Year Frequency   Dec.1998

J1	ICHECK	INQ	NINV	IDIR	STRT	METRIC	HVINS	Q	WSEL	FQ
		2						1393	464.41	

J2	NPROF	IPLOT	PRFVS	XSECV	XSECH	FN	ALLDC	IBW	CHNIM	ITRACE
	1		-1							

ABLE CODES FOR SUMMARY PRINTOUT

110 200

NC	0.06	0.06	0.065	0.1	0.3					
ET			7.1				1900.03	2655.47		
X1	7560	30	1900.03	2655.47						
GR	480	1000	478	1090.61	476	1237.49	474	1273.54	472	1392.64
GR	470	1509.77	468	1533.76	466	1566.23	466	1626.83	468	1670.9
GR	468	1682.82	466	1705.73	466	1732.4	468	1739.22	470	1746.86
GR	470	1786.31	468	1840.84	466	1900.03	464	2172.6	462	2311.77
GR	462	2587.94	464	2626.51	466	2655.47	466	2694.01	466	2797.35
GR	468	2862.5	470	2887.83	472	2951.28	474	2991.6	476	3019.91
ET			7.1				1156.72	1884.33		
X1	8595.4	14	1156.72	1884.33	1258.03	1249.07	1271.49			
GR	478	1000	476	1010.74	474	1028.52	472	1046.68	470	1091.61
GR	468	1156.71	468	1156.72	468	1156.72	466	1326.57	466	1356.19
GR	468	1884.33	470	1936.47	472	2117.03	474	2190.86		
ET			7.1				1347.18	1693.77		
X1	9526.7	16	1347.18	1693.77	757.15	1094.61	931.32			
GR	484	1000	482	1045.5	480	1084.08	478	1106.34	476	1146.34
GR	474	1200.25	472	1347.18	470	1528.67	470	1542.93	472	1693.77
GR	472	1739.75	472	1820.73	474	2133.7	476	2186.81	476	2377.57
GR	474	2511.89								
ET			7.1				1106.22	1755.89		
X1	10514	13	1106.22	1755.89	827.52	1113.52	987.32			
GR	488	1000	486	1020.72	484	1038.92	482	1051.73	480	1106.22
GR	478	1512.61	478	1583.13	480	1755.89	482	1839.16	484	1936.35
GR	486	2098.08	488	2186.82	490	2240.37				

1
15MAR99   14:08:11

			7.1				1325.61	2019.65		
	29	18	1325.61	2019.65	799.07	853.67	815.42			
GR	500	1000	498	1051.34	496	1118.76	494	1202.12	492	1233.23
GR	490	1267.62	488	1280.49	486	1325.61	484	1761.55	484	1871.41
GR	486	2019.65	488	2142.74	490	2200.68	490	2245.3	490	2272.26
GR	492	2355.05	494	2458.22	496	2525.03				
ET			7.1				1285.09	1890.91		
X1	11963	22	1285.09	1890.91	592.76	702.04	634.02			
GR	508	1000	506	1011.29	504	1024.57	502	1038.31	500	1057.15

GR	498	1078.83	496	1103.85	494	1143.9	492	1185.71	490	1285.09
GR	488	1485.64	488	1511.74	488	1549.51	488	1625.17	490	1890.91
GR	492	2145.08	494	2253.51	496	2290.88	498	2300.07	500	2314.12
GR	500	2336.47	498	2340.87						
ET			7.1				1267.96	1764.08		
X1	12722	24	1267.96	1764.08	614.72	777.78	758.56			
GR	518	1000	516	1011.6	514	1025.14	512	1043.3	510	1051.02
	508	1063.35	506	1073.6	504	1091.64	502	1103.84	500	1113.26
	498	1140.23	496	1169.95	494	1240.18	492	1267.96	490	1320
GR	490	1379.54	492	1764.08	494	1838.32	496	1906.47	498	1957.74
GR	500	2175.04	502	2243.98	504	2298.86	506	2385.92		
ET			7.1				1405.88	1588.4		
X1	13532	27	1405.88	1588.4	799.44	846	810.5			
GR	508	1000	506	1047.08	504	1098.47	502	1173.94	502	1254.49
GR	502	1321.5	500	1337.54	498	1372.96	496	1405.88	496	1425.41
GR	496	1436.64	494	1544.81	492	1552.56	492	1567.81	494	1572.78
GR	496	1588.4	496	1643.3	496	2062.4	496	2142.54	496	2230.87
GR	498	2309.43	500	2383.19	502	2432.04	504	2490.23	506	2528.78
GR	508	2639.02	510	2741.31						
ET			7.1				1563.33	1880.63		
X1	14505	25	1563.33	1880.63	1013.56	946.04	972.22			
GR	512	1000	510	1147.39	508	1176.58	506	1221.64	506	1221.71
GR	506	1365.49	506	1369	506	1436.97	506	1476.97	506	1495.21
GR	506	1563.33	504	1646.62	502	1664.48	502	1701.2	504	1718.6
GR	506	1880.63	508	1923.14	510	1992.67	512	2039.67	514	2114.43
GR	516	2193.37	518	2237.39	520	2292.32	522	2352.35	524	2420.39
ET			7.1				1284.21	1535.92		
X1	15239	22	1284.21	1535.92	668.31	703.27	734.92			
GR	528	1000	526	1055.64	524	1096.65	522	1137.39	520	1171.37
GR	518	1191.97	516	1243.06	514	1284.21	512	1337.36	510	1412.6
GR	510	1445.4	512	1500.46	514	1535.92	516	1585.75	518	1612.92
GR	520	1653.2	522	1699.96	524	1783.02	526	1849.26	526	1849.61
GR	528	1974.62	528	1977.68						

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
****

ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

name:TRIB3AFW.IH2 1

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	7560.000	464.41	.00	464.44	515.72	.00	1393.00	.00	.00	.00	1900.03	2655.47	.00
	7560.000	465.41	1.00	465.42	666.49	.00	1393.00	.00	755.44	1900.03	1900.03	2655.47	2655.47
*	8595.400	468.09	.00	468.13	732.73	.03	1392.97	.00	.00	.00	1156.72	1884.33	.00
*	8595.400	467.43	-.65	467.62	529.84	.00	1393.00	.00	727.61	1156.72	1156.72	1884.33	1884.33
	9526.700	472.60	.00	472.67	610.19	10.08	1268.31	114.60	.00	.00	1347.18	1693.77	.00
*	9526.700	473.12	.53	473.18	346.59	.00	1393.00	.00	346.59	1347.18	1347.18	1693.77	1693.77
*	10514.000	479.76	.00	479.85	580.47	.00	1393.00	.00	.00	.00	1106.22	1755.89	.00
*	10514.000	479.29	-.47	479.56	445.55	.00	1393.00	.00	649.67	1106.22	1106.22	1755.89	1755.89
*	11329.000	485.95	.00	486.00	679.11	.00	1393.00	.00	.00	.00	1325.61	2019.65	.00
*	11329.000	486.14	.19	486.18	694.04	.00	1393.00	.00	694.04	1325.61	1325.61	2019.65	2019.65
	11963.000	489.85	.00	489.92	569.69	.00	1393.00	.00	.00	.00	1285.09	1890.91	.00
*	11963.000	489.63	-.21	489.74	520.28	.00	1393.00	.00	605.82	1285.09	1285.09	1890.91	1890.91
*	12722.000	492.66	.00	492.69	529.58	1.65	1386.94	4.41	.00	.00	1267.96	1764.08	.00
*	12722.000	492.74	.08	492.77	496.12	.00	1393.00	.00	496.12	1267.96	1267.96	1764.08	1764.08
*	13532.000	496.33	.00	496.51	843.61	.85	1073.79	318.36	.00	.00	1405.88	1588.40	.00
*	13532.000	496.36	.03	496.72	182.52	.00	1393.00	.00	182.52	1405.88	1405.88	1588.40	1588.40
*	14505.000	506.07	.00	506.18	662.06	8.45	1384.55	.00	.00	.00	1563.33	1880.63	.00
*	14505.000	506.23	.16	506.32	317.30	.00	1393.00	.00	317.30	1563.33	1563.33	1880.63	1880.63
	15239.000	512.90	.00	513.13	202.96	.00	1393.00	.00	.00	.00	1284.21	1535.92	.00
*	15239.000	512.70	-.20	512.99	193.90	.00	1393.00	.00	251.71	1284.21	1284.21	1535.92	1535.92

FLOODWAY DATA, name:TRIB3AFW.IH2 1
PROFILE NO. 2

	------- FLOODWAY -------			WATER SURFACE ELEVATION		
STATION	WIDTH	SECTION AREA	MEAN VELOCITY	WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
7560.000	666.	1520.	.9	465.4	464.4	1.0
8595.400	530.	401.	3.5	467.4	468.1	-.7
9526.700	347.	749.	1.9	473.1	472.6	.5
10514.000	446.	334.	4.2	479.3	479.8	-.5
11329.000	694.	905.	1.5	486.2	486.0	.2
11963.000	520.	539.	2.6	489.6	489.8	-.2
12722.000	496.	917.	1.5	492.8	492.7	.1
13532.000	183.	289.	4.8	496.3	496.3	.0
14505.000	317.	569.	2.4	506.3	506.1	.2
15239.000	194.	320.	4.4	512.7	512.9	-.2

TRIBUTARY 3 HEC-2 MODEL
(Floodway - Method 4)

```
C
C       4
C     1019Highway 59 Culvert #9
C     1019Downstream
C     1114Highway 59 Culvert #9
C     1114Upstream
T1        Method 4 Input
T2        Chacon Creek Watershed - City of Laredo
T3        Tributary 3
J1               2                                                  5550  423.92
J2       1                -1
J3     110     200
NC    0.06    0.06   0.065
ET                     7.1                              1030.56 1329.65
X1       0      24 1030.56 1329.65
GR     442   977.3     440    1000     438 1008.27     436 1012.46     434  1024.3
GR     432 1030.56     430 1044.79     428 1051.65     426 1058.75     424 1068.46
GR     421 1078.62     420  1140.9     421 1313.79     424 1317.07     426 1319.16
GR     428 1321.22     430 1322.01     430 1322.02     432 1329.65     434 1385.77
GR     436 1397.23     438 1431.26     440 1478.28     442 1564.94
ET                     7.1                              1040.02 1199.05
X1      56      21 1040.02 1199.05   140.8   26.18   56.21
GR     440    1000     438 1004.97     436 1012.05     436 1012.08     434 1018.13
GR     432 1029.69     430 1040.02     428 1045.36     426 1047.87     424 1056.74
GR     421  1064.6     421 1185.82     424 1188.84     426 1193.28     430 1199.05
GR     432 1225.46     434 1235.73     436  1257.6     438 1290.41     440 1340.94
GR     440 1372.15
ET                     7.1                              1024.63 1354.34
X1     178      20 1024.63 1354.34  147.76  127.02   122.4
GR     440    1000     438 1011.57     436 1024.63     434 1077.76     434 1077.87
GR     432  1153.9     430 1162.19     426 1165.22     424    1168     421 1174.57
GR     421 1223.69     424 1253.12     426  1282.6     428 1289.52     430  1293.8
GR     432 1314.88     434 1345.07     436 1354.34     438 1361.45     440 1379.04
ET                     7.1                              1107.64 1433.41
X1     281      20 1107.64 1433.41  101.78   61.14  102.43
GR     440    1000     438 1024.67     436 1078.58     434 1093.64     432 1100.95
GR     430 1107.64     428 1123.35     426 1243.49     424 1277.96     421 1283.79
GR     421  1315.3     424 1339.55     426 1404.26     428 1418.78     430 1433.41
GR     432 1495.69     434 1508.74     436 1513.97     438 1520.84     440  1530.1
ET                     7.1                                 1000 1313.98
X1     420      19    1000 1313.98   41.12   17.37  139.15
GR     440  951.75     436  977.12     432    1000     430 1045.33     428 1054.43
GR     426 1066.38     424 1080.34     422 1084.85     422 1122.08     422 1136.75
GR     422 1167.83     424 1188.43     426 1190.88     428 1192.29     430 1193.42
GR     432 1313.98     436 1328.85     440 1351.94  441.99 1385.21
ET                     7.1                              1027.99 1378.12
X1     509      20 1027.99 1378.12  101.47   59.93   89.52
GR     438  893.74     436    1000     434 1010.15     432 1027.99     430 1194.64
GR     428 1198.44     426 1206.12     424 1214.66     422 1217.91     422 1252.62
GR     424 1254.41     426 1267.34     428 1272.07     430 1280.86     432 1378.12
GR     434 1383.61     434 1383.62     436 1386.81     438 1392.82     442 1412.66
ET                     7.1                              1050.42 1311.07
X1     661      16 1050.42 1311.07  125.21  169.99  151.39
GR     438  846.13     436    1000     434 1013.28     432 1050.33     432 1050.42
GR     430 1212.04     426 1214.74     424 1218.65     422 1220.32     422 1249.42
GR     424 1251.96     430 1256.21     432 1311.07     434 1317.86     436 1321.47
GR     442 1349.95
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ET                   7.1                                1000  1244.8
X1   814      15    1000  1244.8  138.17  162.62  153.77
GR   438  789.97     436  928.11     434    1000     432 1060.41     430 1147.33
GR   424 1152.99     422 1157.12     422 1176.26     424 1181.18     426 1185.51
GR   428 1190.03     430  1194.1     432 1238.48     434  1244.8     442 1273.96
ET                   7.1                             1039.53 1179.03
X1   957      16 1039.53 1179.03  106.25  190.79  134.47
GR   440  714.39     438  770.41     434    1000     432 1039.53     430 1068.43
GR   428 1072.83     424 1075.83     424 1075.88     424 1104.25     426 1152.63
GR   430 1156.53     432 1179.03     434  1208.4     434 1208.53     436 1903.34
GR   440 2151.01
NC                 0.015     0.3     0.5
ET                   7.1                             1098.19 1150.51
* Highway 59 Culvert #9
* Downstream
X1  1019      16 1098.19 1150.51   67.11   35.13   61.53
GR   440  759.66     438  816.16     434    1000     434 1050.18     432 1065.58
GR   430 1098.19     424 1099.09     424    1138     424 1147.01     426 1148.61
GR   428 1149.41     430 1150.51     432 1254.36     434  1459.3     436 1910.64
GR   440 2167.95
NC  0.06    0.06   0.015
ET                   7.1                               970.7 1113.81
SC 4.015     0.4     2.5     233       9      10      95    10.1     424     424
* Highway 59 Culvert #9
* Upstream
X1  1114      18   970.7 1113.81   97.11   95.79   95.05
X2                     2             435
GR   440  634.99     438  699.69     436  923.87     434   970.7     432   979.5
GR   430    1000     428 1007.08     426 1013.64     424 1026.56     424 1050.54
GR   426  1056.6     428 1066.69     430 1078.98     432 1096.25     434 1113.81
GR   434  1318.8     436 1544.63     440 2167.79
NC                 0.065     0.1     0.3
ET                   7.1                             1244.14 1740.25
X1  1253      21 1244.14 1740.25  219.18  132.44  138.83
GR   442    1000     442 1052.16     442 1056.07     440 1061.52     440 1066.87
GR   440 1159.63     438 1186.14     436 1244.14     434 1278.14     432 1300.12
GR   430 1309.92     428 1313.96     426 1316.81     426 1325.83     430 1331.84
GR   432 1349.91     434 1512.63     436 1740.25     438 2321.19     440 2344.49
GR   442 2437.33
ET                   7.1                             1114.01 1401.47
X1  1578      14 1114.01 1401.47  309.97  171.99   325.4
GR   442    1000     440 1078.88     438 1092.26     436 1114.01     434 1133.11
GR   432 1143.73     432 1197.66     434 1247.98     436 1401.47     436 1407.87
GR   436 1408.99     438 1926.58     440 1930.69     442 2016.45
ET                   7.1                             1399.42 1726.95
X1  2006      23 1399.42 1726.95  428.58  442.81  427.38
GR   444  953.16     438    1000     436 1399.42     436 1444.72     436 1450.42
GR   434 1451.89     432 1460.89     432 1477.36     434 1512.28     436 1602.93
GR   436 1648.31     434 1658.31     432  1664.4     432 1691.74     434 1701.94
GR   436 1726.95     438 1963.14     440 2055.84     442 2129.14     444  2197.4
GR   446 2238.47     448 2259.47     450 2328.44
ET                   7.1                              1456.1  2171.6
X1  2697      23 1747.15  2160.1  640.63   704.2   691.9
GR   450  816.15     442    1000     440 1048.79     438 1491.71     438 1536.05
GR   440 1597.15     440 1597.18     440 1632.47     440 1747.15     440 1942.52
GR   440 1961.65     440 1963.66     438 1981.78     436 2013.28     436 2117.06
GR   438 2141.19     440  2160.1     442 2281.53     444 2426.44     446 2495.93
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GR     448 2534.04     450 2545.66     452 2584.63
ET                     7.1                     1556.98 2163.96
X1    3427      19 1556.98 2163.96  808.91  656.48  729.41
GR     450    1000     448  1035.8     446 1161.03     444 1311.62     442 1556.98
GR     442  1563.6     442  1624.1     442 1676.77     442  1890.1     440  1920.5
GR     440 2020.73     440 2102.14     440 2149.95     442 2163.91     442 2163.96
GR     444 2350.78     446 2517.03     448  2597.7     450 2684.33
ET                     7.1                     1245.07 2419.28
X1    4058      22 1245.07 2419.28  698.44  539.45  631.44
GR     456    1000     454 1094.91     452 1178.71     450 1195.57     448 1245.07
GR     446 1580.86     444 1612.66     444 1634.23     444 1773.43     444 1817.76
GR     446 1852.55     446 1853.99     446 2034.58     446 2081.82     444 2247.25
GR     444 2292.82     446 2385.04     448 2419.28     450 2462.93     452 2474.55
GR     454 2493.29     456 2518.23
ET                     7.1                     1263.73 2073.97
X1    5312      21 1263.73 2073.97 1285.83 1240.67 1253.57
GR     464    1000     462 1006.89     460 1013.94     458 1025.73     456 1038.76
GR     454  1046.3     452 1263.73     450 1324.26     450 1399.23     450 1465.91
GR     450 1495.11     450 1530.72     450 1636.85     450  1922.6     450 2040.72
GR     452 2073.97     454 2117.87     456 2148.03     458  2198.2     460 2235.42
GR     462 2356.32
ET                     7.1                     1640.37 2220.43
X1    6097      24 1640.37 2220.43  774.63  801.81  784.97
GR     466    1000     464 1116.86     464 1116.87     462 1138.97     460 1215.45
GR     458 1275.46     456 1342.17     454 1640.37     452 1703.65     452 1738.49
GR     452 1738.78     450 1755.26     450  1952.5     452 1965.18     452 2112.98
GR     452 2113.49     454 2220.43     454 2312.49     454 2526.86     456 2775.51
GR     458 2852.68     460 2908.49     462 2932.23     464 2972.42
ET                     7.1                      1240.7 2036.85
X1    6770      25  1240.7 2036.85  659.87  689.59  673.52
GR     464    1000     462 1069.11     460 1120.35     458 1194.77     456  1240.7
GR     454 1260.91     454  1293.9     456 1328.02     456 1535.85     454 1631.76
GR     452 1677.34     452 1701.09     454 1712.58     454  1912.8     454 1951.18
GR     454 1965.49     454 1987.59     456 2036.85     456 2085.24     456  2085.3
GR     456 2213.81     458  2366.8     460 2397.92     462 2434.85     464 2439.57
QT       2    4017    4017
ET                     7.1                     1143.76 2111.94
X1    7236      18 1143.76 2111.94  436.91  506.75  465.52
GR     468   899.4     464    1000     462 1031.35     460 1040.91     460  1094.7
GR     460 1143.76     458  1167.3     458 1190.37     460 1340.15     460 1403.91
GR     458  1550.6     456 1567.13     456 1567.14     456 1598.32     458  1960.4
GR     460 2111.94     462 2293.23     466 2356.88
ET                     7.1                     1208.44 2251.92
X1    8426      16 1208.44 2251.92 1035.53 1680.16 1189.64
GR     476    1000     474 1104.03     472 1162.54     470 1208.44     468 1241.03
GR     466 1385.13     466 1832.58     468 2107.62     468 2176.51     466 2189.62
GR     466 2205.02     468 2219.09     470 2251.92     472 2327.73     474  2514.2
GR     476 2590.17
ET                     7.1                     1810.16 2441.49
X1    9293      28 1810.16 2441.49  798.01  613.89  867.11
GR     486    1000     484 1078.28     482 1231.92     480 1317.69     478 1455.08
GR     476 1586.35     474 1810.16     474 2140.07     474 2167.22     472 2177.51
GR     470 2183.01     470 2201.84     472 2221.73     474 2343.31     476 2441.49
GR     478 2501.13     480 2538.11     482 2684.96     484 2719.98     486 2806.54
GR     488 2909.59     488 2980.53     486 3065.27     486  3134.7     488 3199.54
GR     488 3199.57     490 3232.26     492 3396.37
ET                     7.1                     1403.37 2025.48
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X1	10034	34	1403.37	2025.48	746.26	727.07	741.01			
GR	502	1000	500	1011.79	498	1025.1	496	1041.15	494	1075.35
GR	492	1103.92	490	1138.83	490	1138.84	488	1198.02	486	1258.84
GR	484	1325.84	482	1403.37	480	1436	478	1477.83	478	1502.39
GR	478	1502.4	478	1705.13	478	1749.91	478	1829.22	478	1898.85
GR	480	1990.9	482	2025.48	484	2048.62	486	2068.72	486	2068.78
GR	486	2122.67	486	2219.17	488	2352.33	490	2435.92	492	2490.98
GR	494	2566.38	496	2649.87	498	2706.51	500	2761.77		
ET			7.1				1274.42	1722.9		
X1	10527	22	1274.42	1722.9	459.34	552.6	493.36			
GR	500	1000	498	1026.52	496	1057.18	494	1085.82	492	1114.99
GR	490	1141.66	488	1157.51	486	1190.72	484	1274.42	482	1294.42
GR	480	1399.16	480	1462.18	482	1519.36	484	1722.9	486	1825.58
GR	488	1851.19	490	1882.44	492	2082.9	494	2171.35	496	2237.47
GR	498	2291.32	500	2381.29						
ET			7.1				1255.04	1660.14		
X1	11263	29	1255.04	1660.14	660.09	803.75	736.11			
GR	512	1000	510	1009.36	508	1078.62	506	1099.14	504	1119.06
GR	502	1157.03	500	1184.55	498	1193.37	496	1206.09	494	1218.92
GR	492	1226.12	490	1236.22	488	1255.04	486	1441.27	486	1494.25
GR	486	1528.63	486	1561	488	1660.14	490	1713.51	492	1829.75
GR	494	1906.5	496	1924.31	498	2010.66	500	2044.07	502	2100.53
GR	504	2170.98	506	2273.91	508	2337.06	510	2367.42		
ET			7.1				1431.74	1756.54		
X1	12079	22	1431.74	1756.54	870.89	725.56	816.13			
GR	506	1000	504	1063.59	502	1139.47	500	1245.39	498	1308.29
GR	496	1354.42	494	1431.74	492	1663.61	492	1663.63	490	1685.06
GR	490	1699.61	492	1713.26	494	1756.54	496	1794.82	498	1871.79
GR	500	1937.08	502	1980.2	504	2074.82	506	2136.03	508	2178.26
GR	510	2241.77	512	2264.62						
ET			7.1				1666.98	2135.59		
X1	12495	21	1666.98	2135.59	517.65	339	415.69			
GR	506	1000	504	1074.39	502	1218.12	500	1331.46	500	1337.1
GR	500	1373.81	498	1666.98	496	1987.61	494	2025.71	494	2075.44
GR	496	2100.28	498	2135.59	500	2179.21	502	2225.21	502	2228.04
GR	502	2241.56	504	2351.92	506	2395.38	508	2432.86	510	2495.71
GR	512	2580.75								
ET			7.1				1578.33	2089.76		
X1	13112	20	1578.33	2089.76	495.26	726.59	617.47			
GR	514	1000	512	1081.03	510	1184.93	508	1243.83	506	1321.63
GR	504	1395.35	502	1578.33	502	1613.61	502	1646.39	502	1647
GR	502	1680.44	500	1729.49	498	1739.35	498	1759.53	500	1786.43
GR	502	2089.76	504	2352.27	506	2471.72	508	2603.22	510	2669.91
ET			7.1				1487.8	1844.98		
X1	13954	30	1487.8	1844.98	812.3	894.48	841.66			
GR	520	1000	518	1128.81	518	1128.82	516	1223.51	514	1295.88
GR	512	1414.64	510	1487.8	508	1524.54	506	1585.48	506	1585.51
GR	504	1604.5	504	1632.39	506	1645.34	508	1675.12	508	1693.7
GR	506	1765.7	506	1793.99	508	1818.57	510	1844.98	512	1865.18
GR	512	1876.96	512	1923.07	514	1933.54	516	1943.07	518	1953.59
GR	520	1958.67	522	1997.64	524	2065.61	526	2168.13	528	2388.96
ET			7.1				1284.59	1633.94		
X1	14591	22	1284.59	1633.94	602.78	665.41	637.37			
GR	526	1000	524	1044.26	522	1095.98	520	1167.83	518	1201.4
GR	516	1284.59	514	1317.42	512	1338.15	512	1360.69	512	1363.36
GR	512	1390.5	512	1418.55	512	1448.96	514	1541.5	516	1633.94
GR	518	1669.47	520	1710.03	522	1775.2	524	1814.32	526	1931.58

```
GR    528 2035.38      530 2117.17
QT      2    1171     1171
ET                     7.1                               1418.46 1712.84
X1 15336        25 1418.46 1712.84  787.57  770.87  744.31
GR    530    1000      528 1116.79     526 1190.42     524 1333.95     522 1418.46
GR    520 1556.23      518 1663.29     518 1690.09     520 1703.59     522 1712.84
GR    522 1746.29      524 1783.34     526 1807.45     528 1853.57     528 1928.62
GR    526 1955.31      526  1971.4     528 1989.07     530 2051.09     532 2108.02
GR    534 2166.87      536 2208.44     538 2257.46     538 2257.54     540    2418
ET                     7.1                               1292.78 1640.27
X1 16166        38 1292.78 1640.27  852.39  824.36  830.65
GR    550    1000      548 1037.33     546 1061.02     544 1084.24     542  1124.7
GR    540 1160.13      538  1169.7     536 1183.82     534 1203.69     532 1244.51
GR    530 1292.78      528 1338.14     526  1379.7     524 1404.02     522  1417.8
GR    522 1439.81      524 1448.44     526 1459.03     526 1506.08     526 1514.66
GR    528 1602.95      530 1640.27     532 1657.85     534 1700.65     536 1849.32
GR    536 1883.37      534  1918.3     534 1919.69     536 1950.32     536 1950.33
GR    538 2005.71      540 2074.53     542 2107.43     544 2134.69     546 2171.59
GR    548 2199.14      550 2236.18     552 2318.37
ET                     7.1                               1419.33 1792.14
X1 16715        26 1419.33 1792.14  569.81  517.87  548.77
GR    550    1000      548 1073.41     546 1152.15     544 1210.64     542 1245.57
GR    540 1293.84      538 1365.24     536 1393.33     534 1419.33     532 1446.61
GR    530  1487.8      528 1496.92     528  1580.7     530 1608.15     532 1700.13
GR    534 1792.14      536  1901.3     536 1901.32     538 1989.36     540 2041.88
GR    542 2130.18      544  2208.8     546 2227.81     548 2267.23     550 2290.36
GR    552  2398.7
ET                     7.1                               1651.41 1997.98
X1 17279        29 1651.41 1997.98  619.53  509.76  563.83
GR    552    1000      550 1114.98     548 1211.44     546 1306.93     544 1440.45
GR    542 1554.35      540 1651.41     538 1676.49     536  1687.3     534 1704.32
GR    534 1727.15      534  1784.4     532 1796.08     532 1815.22     534 1823.48
GR    536 1884.54      538 1964.21     540 1997.98     542 2085.41     544 2127.18
GR    546 2173.54      548 2201.21     550 2216.09     552 2229.44     554 2247.92
GR    556 2269.07      556 2334.06     556 2364.86     558 2404.13
ET                     7.1                               1580.83 1863.84
X1 18032        23 1580.83 1863.84  758.73  717.04  753.01
GR    560    1000      558 1063.99     556 1127.21     554 1215.88     552 1256.72
GR    550 1349.74      548 1441.91     546 1511.24     544 1580.83     542 1624.05
GR    540 1747.06      540 1773.34     542 1819.53     544 1863.84     546 1896.41
GR    548 1914.48      550 1938.16     552 2064.25     554 2094.22     556 2277.26
GR    558 2335.63      560 2375.19     562 2413.22
EJ
T1      Method 4 Input
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 3
J1             3                                            5550  424.92
J2     15              -1


ER
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FLOODWAY DATA, Tributary 3
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	DIFFERENCE
.000	254.	1074.	5.2	424.9	423.9	1.0
56.000	138.	508.	10.9	425.0	425.0	.0
178.000	127.	699.	7.9	428.4	428.4	.0
281.000	324.	1391.	4.0	429.9	429.9	.0
420.000	175.	1024.	5.4	430.3	430.3	.0
509.000	138.	514.	10.8	430.4	430.4	.0
661.000	261.	1117.	5.0	433.9	433.9	.0
814.000	245.	1159.	4.8	434.9	434.9	.0
957.000	139.	1153.	4.8	435.5	435.5	.0
1019.000	52.	564.	9.8	435.0	435.3	-.3
1114.000	143.	1193.	4.7	437.0	437.2	-.2
1253.000	496.	1771.	3.1	437.2	437.3	-.1
1578.000	287.	1288.	4.3	438.5	438.3	.2
2006.000	328.	1774.	3.1	439.9	439.2	.7
2697.000	715.	2048.	2.7	441.7	440.7	1.0
3427.000	607.	1863.	3.0	444.2	444.0	.2
4058.000	1040.	2004.	2.8	447.3	447.2	.1
5312.000	810.	2185.	2.5	452.9	452.9	.0
6097.000	580.	2052.	2.7	455.1	455.0	.1
6770.000	796.	2063.	2.7	457.3	457.1	.2
7236.000	929.	1398.	2.9	459.5	459.5	.0
8426.000	984.	1553.	2.6	468.2	468.2	.0
9293.000	606.	1130.	3.6	475.5	475.4	.1
10034.000	580.	1393.	2.9	480.7	480.7	.0
10527.000	448.	1001.	4.0	484.1	484.1	.0
11263.000	405.	1175.	3.4	489.6	489.6	.0
12079.000	325.	897.	4.5	495.5	495.4	.1
12495.000	469.	1172.	3.4	498.9	498.9	.0
13112.000	511.	1178.	3.4	503.3	503.2	.1
13954.000	346.	981.	4.1	509.6	509.6	.0
14591.000	340.	857.	4.7	515.9	515.9	.0
15336.000	292.	605.	1.9	521.9	521.9	.0
16166.000	170.	273.	4.3	526.6	526.6	.0
16715.000	218.	451.	2.6	531.5	531.5	.0
17279.000	184.	312.	3.8	535.7	535.7	.0
18032.000	235.	417.	2.8	542.9	542.9	.0

TRIBUTARY 3A HEC-2 MODEL
(Floodway - Method 4)

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T1       Method 4 Input
T2       Chacon Creek Watershed - City of Laredo
T3       Tributary 3A
J1               2                                                       1393  464.41
J2       1                 -1
J3     110       200
NC    0.06      0.06     0.065       0.1       0.3
ET                       -10.4
X1    7560        30   1900.03   2655.47
GR     480      1000       478   1090.61       476   1237.49       474   1273.54       472   1392.64
GR     470   1509.77       468   1533.76       466   1566.23       466   1626.83       468    1670.9
GR     468   1682.82       466   1705.73       466    1732.4       468   1739.22       470   1746.86
GR     470   1786.31       468   1840.84       466   1900.03       464    2172.6       462   2311.77
GR     462   2587.94       464   2626.51       466   2655.47       466   2694.01       466   2797.35
GR     468    2862.5       470   2887.83       472   2951.28       474    2991.6       476   3019.91
X18595.4          14   1156.72   1884.33   1258.03   1249.07   1271.49
GR     478      1000       476   1010.74       474   1028.52       472   1046.68       470   1091.61
GR     468   1156.71       468   1156.72       468   1156.72       466   1326.57       466   1356.19
GR     468   1884.33       470   1936.47       472   2117.03       474   2190.86
X19526.7          16   1347.18   1693.77    757.15   1094.61    931.32
GR     484      1000       482    1045.5       480   1084.08       478   1106.34       476   1146.34
GR     474   1200.25       472   1347.18       470   1528.67       470   1542.93       472   1693.77
GR     472   1739.75       472   1820.73       474    2133.7       476   2186.81       476   2377.57
GR     474   2511.89
X1   10514        13   1106.22   1755.89    827.52   1113.52    987.32
GR     488      1000       486   1020.72       484   1038.92       482   1051.73       480   1106.22
GR     478   1512.61       478   1583.13       480   1755.89       482   1839.16       484   1936.35
GR     486   2098.08       488   2186.82       490   2240.37
X1   11329        18   1325.61   2019.65    799.07    853.67    815.42
GR     500      1000       498   1051.34       496   1118.76       494   1202.12       492   1233.23
GR     490   1267.62       488   1280.49       486   1325.61       484   1761.55       484   1871.41
GR     486   2019.65       488   2142.74       490   2200.68       490    2245.3       490   2272.26
GR     492   2355.05       494   2458.22       496   2525.03
X1   11963        22   1285.09   1890.91    592.76    702.04    634.02
GR     508      1000       506   1011.29       504   1024.57       502   1038.31       500   1057.15
GR     498   1078.83       496   1103.85       494    1143.9       492   1185.71       490   1285.09
GR     488   1485.64       488   1511.74       488   1549.51       488   1625.17       490   1890.91
GR     492   2145.08       494   2253.51       496   2290.88       498   2300.07       500   2314.12
GR     500   2336.47       498   2340.87
X1   12722        24   1267.96   1764.08    614.72    777.78    758.56
GR     518      1000       516    1011.6       514   1025.14       512    1043.3       510   1051.02
GR     508   1063.35       506    1073.6       504   1091.64       502   1103.84       500   1113.26
GR     498   1140.23       496   1169.95       494   1240.18       492   1267.96       490      1320
GR     490   1379.54       492   1764.08       494   1838.32       496   1906.47       498   1957.74
GR     500   2175.04       502   2243.98       504   2298.86       506   2385.92
X1   13532        27   1405.88    1588.4    799.44       846     810.5
GR     508      1000       506   1047.08       504   1098.47       502   1173.94       502   1254.49
GR     502    1321.5       500   1337.54       498   1372.96       496   1405.88       496   1425.41
GR     496   1436.64       494   1544.81       492   1552.56       492   1567.81       494   1572.78
GR     496    1588.4       496    1643.3       496    2062.4       496   2142.54       496   2230.87
GR     498   2309.43       500   2383.19       502   2432.04       504   2490.23       506   2528.78
GR     508   2639.02       510   2741.31
X1   14505        25   1563.33   1880.63   1013.56    946.04    972.22
GR     512      1000       510   1147.39       508   1176.58       506   1221.64       506   1221.71
GR     506   1365.49       506      1369       506   1436.97       506   1476.97       506   1495.21
GR     506   1563.33       504   1646.62       502   1664.48       502    1701.2       504    1718.6
GR     506   1880.63       508   1923.14       510   1992.67       512   2039.67       514   2114.43
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GR   516 2193.37      518 2237.39      520 2292.32      522 2352.35      524 2420.39
X1 15239        22 1284.21 1535.92  668.31  703.27   734.92
GR   528    1000      526 1055.64      524 1096.65      522 1137.39      520 1171.37
GR   518 1191.97      516 1243.06      514 1284.21      512 1337.36      510  1412.6
GR   510  1445.4      512 1500.46      514 1535.92      516 1585.75      518 1612.92
GR   520  1653.2      522 1699.96      524 1783.02      526 1849.26      526 1849.61
GR   528 1974.62      528 1977.68
EJ
T1      Method 4 Input
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 3A
J1            3                                                    1393  465.41
J2    15               -1


ER
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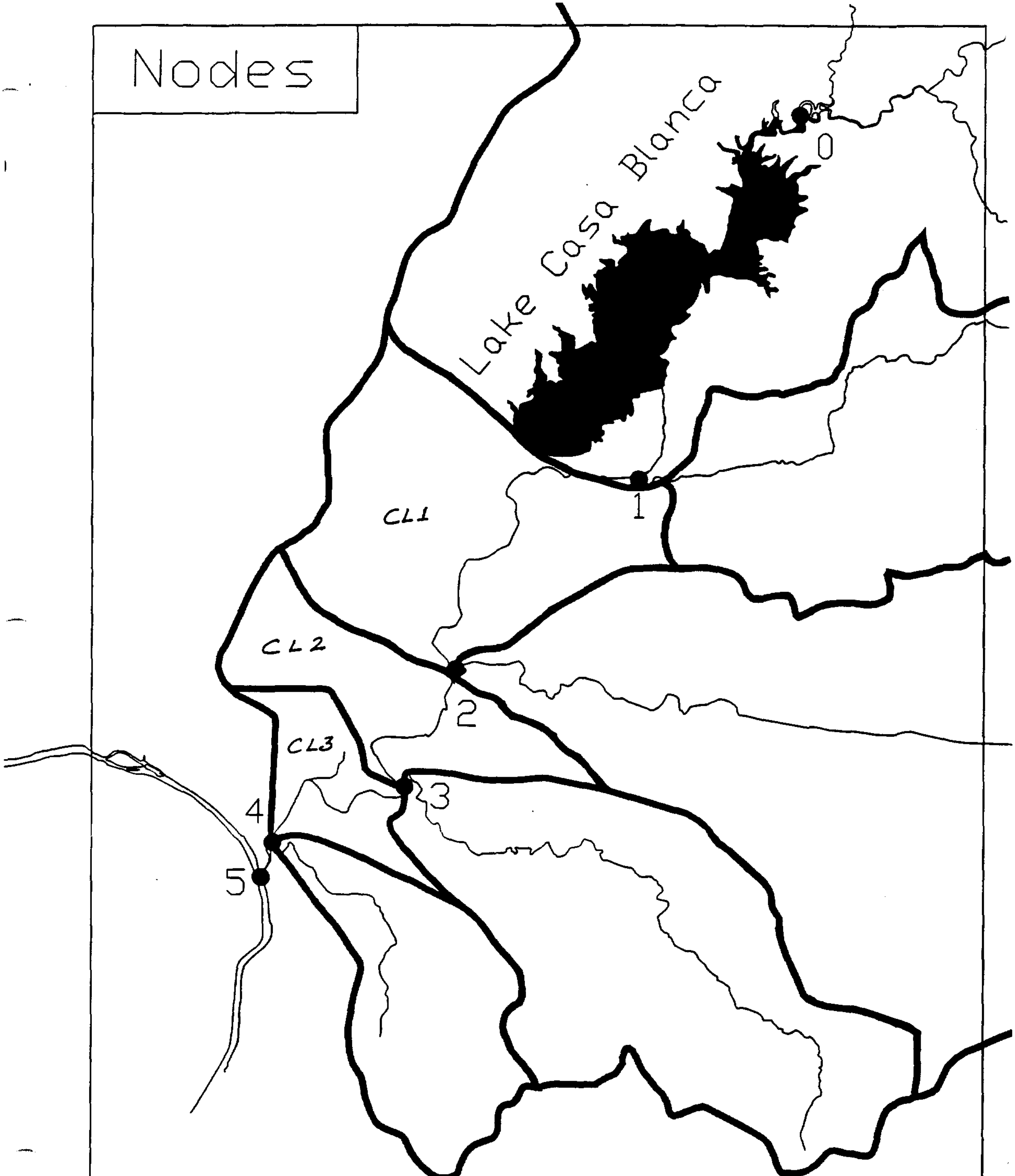
FLOODWAY DATA, Tributary 3A
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
7560.000	666.	1520.	.9	465.4	464.4	1.0
8595.400	530.	401.	3.5	467.4	468.1	-.7
9526.700	347.	749.	1.9	473.1	472.6	.5
10514.000	446.	334.	4.2	479.3	479.8	-.5
11329.000	694.	905.	1.5	486.2	486.0	.2
11963.000	520.	538.	2.6	489.6	489.8	-.2
12722.000	496.	919.	1.5	492.8	492.7	.1
13532.000	183.	286.	4.9	496.3	496.3	.0
14505.000	317.	571.	2.4	506.3	506.1	.2
15239.000	194.	318.	4.4	512.7	512.9	-.2

Figures



Chacon Flood Insurance Study	**FIGURE 1 - BASIN SCHEMATIC**	Brown & Root, Inc. 12/1/98

Tables

CL1 Precipitation Pattern

	Precipitation Percentages						
	1	2	3	4	5	6	Total
Total Precipitation (in)	0.080	0.150	0.470	0.130	0.090	0.080	1.000
4.38	0.35	0.66	2.06	0.57	0.39	0.35	4.38
5.12	0.41	0.77	2.41	0.67	0.46	0.41	5.12
5.82	0.47	0.87	2.74	0.76	0.52	0.47	5.82
6.66	0.53	1.00	3.13	0.87	0.60	0.53	6.66
8.1	0.65	1.22	3.81	1.05	0.73	0.65	8.10

CL2 Precipitation Pattern

	Precipitation Percentages						
	1	2	3	4	5	6	Total
Total Precipitation (in)	0.080	0.150	0.470	0.130	0.090	0.080	1.000
4.55	0.36	0.68	2.14	0.59	0.41	0.36	4.55
5.32	0.43	0.80	2.50	0.69	0.48	0.43	5.32
6.05	0.48	0.91	2.84	0.79	0.54	0.48	6.05
6.92	0.55	1.04	3.25	0.90	0.62	0.55	6.92
8.42	0.67	1.26	3.96	1.09	0.76	0.67	8.42

CL3 Precipitation Pattern

	Precipitation Percentages						
	1	2	3	4	5	6	Total
Total Precipitation (in)	0.080	0.150	0.470	0.130	0.090	0.080	1.000
4.62	0.37	0.69	2.17	0.60	0.42	0.37	4.62
5.41	0.43	0.81	2.54	0.70	0.49	0.43	5.41
6.14	0.49	0.92	2.89	0.80	0.55	0.49	6.14
7.03	0.56	1.05	3.30	0.91	0.63	0.56	7.03
8.55	0.68	1.28	4.02	1.11	0.77	0.68	8.55

TABLE 1
PRECIPITATION PATTERN FOR LOWER CHACON SUB-BASINS

TABLE 2
HEC-1 PARAMETERS FOR LOWER CHACON SUB-BASINS (EXISTING CONDITION)

RETURN PERIOD	AREA	AREA SQ. MILES	L (miles)	Lc (miles)	Areal Correction	Rainfall TP-40	Correct. Rainfall	CN	S	Ia	Q	F	F / # Periods	Tp	Cp
10	CL1	4.060	2.5	1.1	0.931	4.70	4.38	81	2.35	0.47	2.44	1.47	0.244	1.95	0.80
25	CL1	4.060	2.5	1.1	0.931	5.50	5.12	81	2.35	0.47	3.09	1.56	0.260	1.95	0.80
50	CL1	4.060	2.5	1.1	0.931	6.25	5.82	81	2.35	0.47	3.72	1.63	0.272	1.95	0.80
100	CL1	4.060	2.5	1.1	0.931	7.15	6.66	81	2.35	0.47	4.49	1.70	0.283	1.95	0.80
500	CL1	4.060	2.5	1.1	0.931	8.70	8.10	81	2.35	0.47	5.84	1.79	0.299	1.95	0.80
10	CL2	1.880	1.4	0.6	0.968	4.70	4.55	81	2.35	0.47	2.59	1.49	0.248	0.88	0.80
25	CL2	1.880	1.4	0.6	0.968	5.50	5.32	81	2.35	0.47	3.27	1.58	0.264	0.88	0.80
50	CL2	1.880	1.4	0.6	0.968	6.25	6.05	81	2.35	0.47	3.93	1.65	0.275	0.88	0.80
100	CL2	1.880	1.4	0.6	0.968	7.15	6.92	81	2.35	0.47	4.73	1.72	0.287	0.88	0.80
500	CL2	1.880	1.4	0.6	0.968	8.70	8.42	81	2.35	0.47	6.14	1.81	0.302	0.88	0.80
10	CL3	1.000	1.8	0.9	0.983	4.70	4.62	81	2.35	0.47	2.65	1.50	0.250	0.89	0.80
25	CL3	1.000	1.8	0.9	0.983	5.50	5.41	81	2.35	0.47	3.35	1.59	0.265	0.89	0.80
50	CL3	1.000	1.8	0.9	0.983	6.25	6.14	81	2.35	0.47	4.01	1.66	0.277	0.89	0.80
100	CL3	1.000	1.8	0.9	0.983	7.15	7.03	81	2.35	0.47	4.83	1.73	0.288	0.89	0.80
500	CL3	1.000	1.8	0.9	0.983	8.70	8.55	81	2.35	0.47	6.26	1.82	0.303	0.89	0.80

TABLE 3
HEC-1 PARAMETERS FOR LOWER CHACON SUB-BASINS (FUTURE CONDITION)

RETURN PERIOD	AREA	AREA SQ. MILES	L (miles)	Lc (miles)	Areal Correction	Rainfall TP-40	Correct. Rainfall	CN	S	Ia	Q	F	F / # Periods	Tp	Cp
10	CL1	4.060	2.5	1.1	0.931	4.70	4.38	86	1.63	0.33	2.89	1.16	0.194	1.65	0.80
25	CL1	4.060	2.5	1.1	0.931	5.50	5.12	86	1.63	0.33	3.58	1.22	0.203	1.65	0.80
50	CL1	4.060	2.5	1.1	0.931	6.25	5.82	86	1.63	0.33	4.24	1.26	0.209	1.65	0.80
100	CL1	4.060	2.5	1.1	0.931	7.15	6.66	86	1.63	0.33	5.04	1.29	0.216	1.65	0.80
500	CL1	4.060	2.5	1.1	0.931	8.70	8.10	86	1.63	0.33	6.43	1.35	0.224	1.65	0.80
10	CL2	1.880	1.4	0.6	0.968	4.70	4.55	86	1.63	0.33	3.05	1.18	0.196	0.74	0.80
25	CL2	1.880	1.4	0.6	0.968	5.50	5.32	86	1.63	0.33	3.77	1.23	0.205	0.74	0.80
50	CL2	1.880	1.4	0.6	0.968	6.25	6.05	86	1.63	0.33	4.46	1.27	0.211	0.74	0.80
100	CL2	1.880	1.4	0.6	0.968	7.15	6.92	86	1.63	0.33	5.29	1.31	0.218	0.74	0.80
500	CL2	1.880	1.4	0.6	0.968	8.70	8.42	86	1.63	0.33	6.74	1.36	0.226	0.74	0.80
10	CL3	1.000	1.8	0.9	0.983	4.70	4.62	86	1.63	0.33	3.11	1.18	0.197	0.75	0.80
25	CL3	1.000	1.8	0.9	0.983	5.50	5.41	86	1.63	0.33	3.85	1.23	0.205	0.75	0.80
50	CL3	1.000	1.8	0.9	0.983	6.25	6.14	86	1.63	0.33	4.55	1.27	0.212	0.75	0.80
100	CL3	1.000	1.8	0.9	0.983	7.15	7.03	86	1.63	0.33	5.39	1.31	0.218	0.75	0.80
500	CL3	1.000	1.8	0.9	0.983	8.70	8.55	86	1.63	0.33	6.87	1.36	0.226	0.75	0.80

Figures

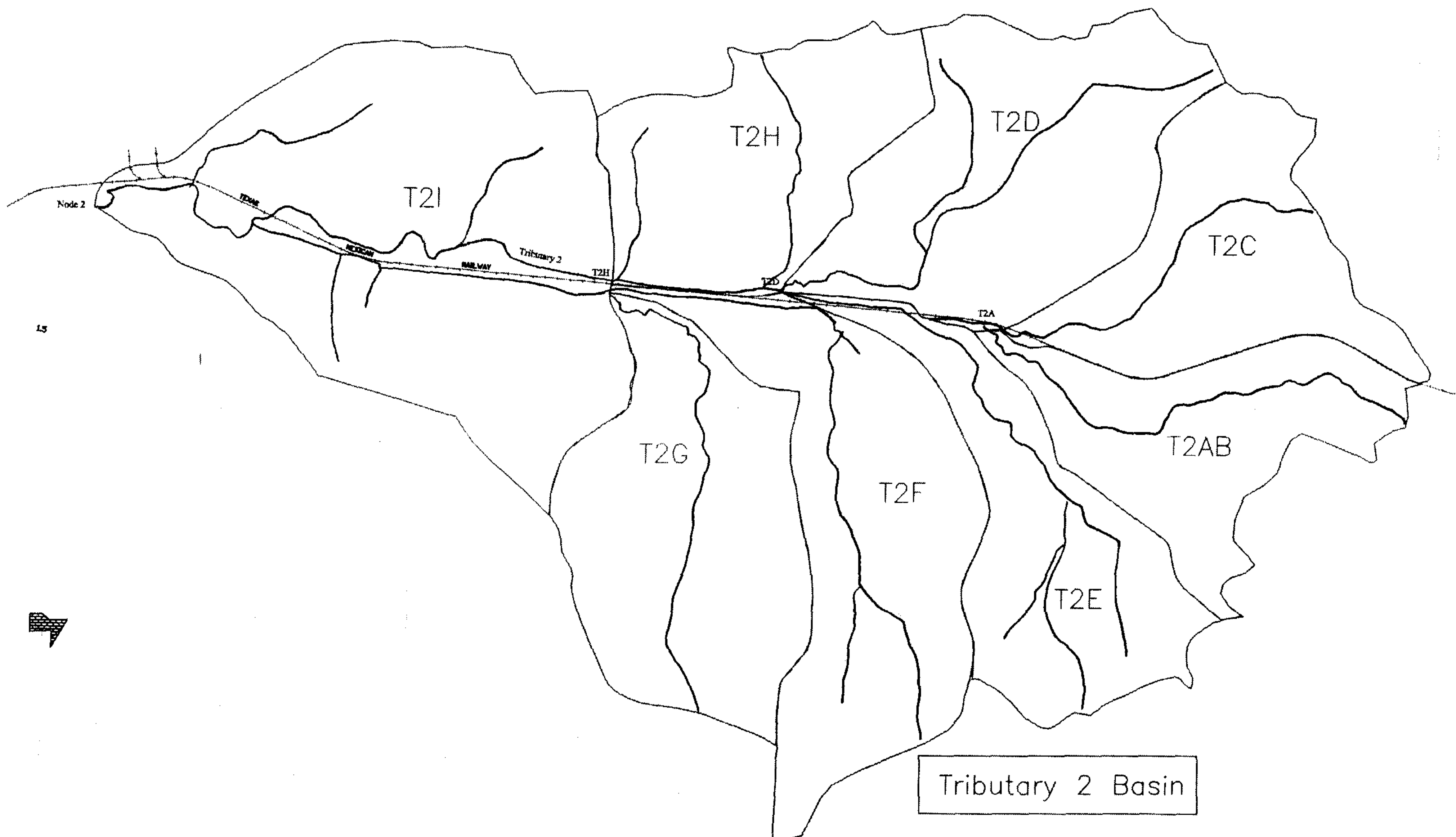


FIGURE 1 - BASIN SCHEMATIC

Tables

TABLE 1

PRICIPITATION PATTERN FOR THE TRIBUTARY 2 SUBBASIN

Return Frequency (yrs)	Total Precipitation (in)	Precipitation Percentages						Total
		8	15	47	13	9	8	100
		0.08	0.15	0.47	0.13	0.09	0.08	1.00
10	4.14	0.33	0.62	1.95	0.54	0.37	0.33	4.14
25	4.84	0.39	0.73	2.27	0.63	0.44	0.39	4.84
50	5.50	0.44	0.83	2.59	0.72	0.50	0.44	5.50
100	6.29	0.50	0.94	2.96	0.82	0.57	0.50	6.29
500	7.66	0.61	1.15	3.60	1.00	0.69	0.61	7.66

TABLE 2
HEC-1 PARAMETERS FOR TRIBUTARY 2 SUB-BASIN (EXISTING CONDITION)

RETURN PERIOD	AREA	AREA SQ. MILES	L (ft)	Lc (ft)	Areal Correction	Rainfall TP-40	Correct. Rainfall	CN	S	Ia	Q	F	F / # Periods	Tp	Cp
10	T2A&T2B	1.370	14257.0		0.880	4.70	4.14	69	4.49	0.90	1.36	1.88	0.314	2.07	0.80
	T2C	1.480	14791.0	7564.0	0.880	4.70	4.14	69	4.49	0.90	1.36	1.88	0.314	1.40	0.80
	T2D	2.120	15679.0	8900.0	0.880	4.70	4.14	69	4.49	0.90	1.36	1.88	0.314	2.33	0.80
	T2E	1.540	15022.0	9787.0	0.880	4.70	4.14	72	3.89	0.78	1.56	1.80	0.300	1.66	0.80
	T2F	1.930	16751.0	8715.0	0.880	4.70	4.14	69	4.49	0.90	1.36	1.88	0.314	2.55	0.80
	T2G	2.020	7049.0	9100.0	0.880	4.70	4.14	70	4.29	0.86	1.42	1.86	0.310	3.03	0.80
	T2H	1.780	13564.0	6834.0	0.880	4.70	4.14	69	4.49	0.90	1.36	1.88	0.314	2.17	0.80
	T2I	3.740	17623.0	11315.0	0.880	4.70	4.14	70	4.29	0.86	1.42	1.86	0.310	2.17	0.80
25	T2A&T2B	1.370	14257.0		0.880	5.50	4.84	69	4.49	0.90	1.84	2.10	0.350	2.07	0.80
	T2C	1.480	14791.0	7564.0	0.880	5.50	4.84	69	4.49	0.90	1.84	2.10	0.350	1.40	0.80
	T2D	2.120	15679.0	8900.0	0.880	5.50	4.84	69	4.49	0.90	1.84	2.10	0.350	2.33	0.80
	T2E	1.540	15022.0	9787.0	0.880	5.50	4.84	72	3.89	0.78	2.08	1.99	0.331	1.66	0.80
	T2F	1.930	16751.0	8715.0	0.880	5.50	4.84	69	4.49	0.90	1.84	2.10	0.350	2.55	0.80
	T2G	2.020	7049.0	9100.0	0.880	5.50	4.84	70	4.29	0.86	1.92	2.06	0.344	3.03	0.80
	T2H	1.780	13564.0	6834.0	0.880	5.50	4.84	69	4.49	0.90	1.84	2.10	0.350	2.17	0.80
	T2I	3.740	17623.0	11315.0	0.880	5.50	4.84	70	4.29	0.86	1.92	2.06	0.344	2.17	0.80
50	T2A&T2B	1.370	14257.0		0.880	6.25	5.50	69	4.49	0.90	2.33	2.27	0.379	2.07	0.80
	T2C	1.480	14791.0	7564.0	0.880	6.25	5.50	69	4.49	0.90	2.33	2.27	0.379	1.40	0.80
	T2D	2.120	15679.0	8900.0	0.880	6.25	5.50	69	4.49	0.90	2.33	2.27	0.379	2.33	0.80
	T2E	1.540	15022.0	9787.0	0.880	6.25	5.50	72	3.89	0.78	2.59	2.13	0.355	1.66	0.80
	T2F	1.930	16751.0	8715.0	0.880	6.25	5.50	69	4.49	0.90	2.33	2.27	0.379	2.55	0.80
	T2G	2.020	7049.0	9100.0	0.880	6.25	5.50	70	4.29	0.86	2.41	2.23	0.371	3.03	0.80
	T2H	1.780	13564.0	6834.0	0.880	6.25	5.50	69	4.49	0.90	2.33	2.27	0.379	2.17	0.80
	T2I	3.740	17623.0	11315.0	0.880	6.25	5.50	70	4.29	0.86	2.41	2.23	0.371	2.17	0.80
100	T2A&T2B	1.370	14257.0		0.880	7.15	6.29	69	4.49	0.90	2.94	2.45	0.409	2.07	0.80
	T2C	1.480	14791.0	7564.0	0.880	7.15	6.29	69	4.49	0.90	2.94	2.45	0.409	1.40	0.80
	T2D	2.120	15679.0	8900.0	0.880	7.15	6.29	69	4.49	0.90	2.94	2.45	0.409	2.33	0.80
	T2E	1.540	15022.0	9787.0	0.880	7.15	6.29	72	3.89	0.78	3.23	2.28	0.380	1.66	0.80
	T2F	1.930	16751.0	8715.0	0.880	7.15	6.29	69	4.49	0.90	2.94	2.45	0.409	2.55	0.80
	T2G	2.020	7049.0	9100.0	0.880	7.15	6.29	70	4.29	0.86	3.04	2.40	0.399	3.03	0.80
	T2H	1.780	13564.0	6834.0	0.880	7.15	6.29	69	4.49	0.90	2.94	2.45	0.409	2.17	0.80
	T2I	3.740	17623.0	11315.0	0.880	7.15	6.29	70	4.29	0.86	3.04	2.40	0.399	2.17	0.80
500	T2A&T2B	1.370	14257.0		0.880	8.70	7.66	69	4.49	0.90	4.06	2.70	0.450	2.07	0.80
	T2C	1.480	14791.0	7564.0	0.880	8.70	7.66	69	4.49	0.90	4.06	2.70	0.450	1.40	0.80
	T2D	2.120	15679.0	8900.0	0.880	8.70	7.66	69	4.49	0.90	4.06	2.70	0.450	2.33	0.80
	T2E	1.540	15022.0	9787.0	0.880	8.70	7.66	72	3.89	0.78	4.39	2.48	0.414	1.66	0.80
	T2F	1.930	16751.0	8715.0	0.880	8.70	7.66	69	4.49	0.90	4.06	2.70	0.450	2.55	0.80
	T2G	2.020	7049.0	9100.0	0.880	8.70	7.66	70	4.29	0.86	4.17	2.63	0.438	3.03	0.80
	T2H	1.780	13564.0	6834.0	0.880	8.70	7.66	69	4.49	0.90	4.06	2.70	0.450	2.17	0.80
	T2I	3.740	17623.0	11315.0	0.880	8.70	7.66	70	4.29	0.86	4.17	2.63	0.438	2.17	0.80

* "DARF" applied for the entire T2 Watershed.

TABLE 3
HEC-1 PARAMETERS FOR TRIBUTARY 2 SUB-BASIN (FUTURE CONDITION)

RETURN PERIOD	AREA	AREA SQ. MILES	L (ft)	Lc (ft)	Areal Correction	Rainfall TP-40	Correct. Rainfall	CN	S	Ia	Q	F	F / # Periods	Tp	Cp
10	T2A&T2B	1.370	14257.0		0.880	4.70	4.14	74	3.51	0.70	1.70	1.74	0.289	1.81	0.80
	T2C	1.480	14791.0	7564.0	0.880	4.70	4.14	69	4.49	0.90	1.36	1.88	0.314	1.40	0.80
	T2D	2.120	15679.0	8900.0	0.880	4.70	4.14	74	3.51	0.70	1.70	1.74	0.289	2.02	0.80
	T2E	1.540	15022.0	9787.0	0.880	4.70	4.14	80	2.50	0.50	2.15	1.48	0.247	1.31	0.80
	T2F	1.930	16751.0	8715.0	0.880	4.70	4.14	77	2.99	0.60	1.92	1.62	0.270	2.04	0.80
	T2G	2.020	7049.0	9100.0	0.880	4.70	4.14	73	3.70	0.74	1.63	1.77	0.295	2.62	0.80
	T2H	1.780	13564.0	6834.0	0.880	4.70	4.14	75	3.33	0.67	1.77	1.70	0.283	1.84	0.80
	T2I	3.740	17623.0	11315.0	0.880	4.70	4.14	79	2.66	0.53	2.07	1.53	0.255	2.03	0.80
25	T2A&T2B	1.370	14257.0		0.880	5.50	4.84	74	3.51	0.70	2.24	1.90	0.317	1.81	0.80
	T2C	1.480	14791.0	7564.0	0.880	5.50	4.84	69	4.49	0.90	1.84	2.10	0.350	1.40	0.80
	T2D	2.120	15679.0	8900.0	0.880	5.50	4.84	74	3.51	0.70	2.24	1.90	0.317	2.02	0.80
	T2E	1.540	15022.0	9787.0	0.880	5.50	4.84	80	2.50	0.50	2.75	1.59	0.264	1.31	0.80
	T2F	1.930	16751.0	8715.0	0.880	5.50	4.84	77	2.99	0.60	2.49	1.75	0.292	2.04	0.80
	T2G	2.020	7049.0	9100.0	0.880	5.50	4.84	73	3.70	0.74	2.16	1.94	0.324	2.62	0.80
	T2H	1.780	13564.0	6834.0	0.880	5.50	4.84	75	3.33	0.67	2.32	1.85	0.309	1.84	0.80
	T2I	3.740	17623.0	11315.0	0.880	5.50	4.84	79	2.66	0.53	2.66	1.64	0.274	2.03	0.80
50	T2A&T2B	1.370	14257.0		0.880	6.25	5.50	74	3.51	0.70	2.77	2.03	0.338	1.81	0.80
	T2C	1.480	14791.0	7564.0	0.880	6.25	5.50	69	4.49	0.90	2.33	2.27	0.379	1.40	0.80
	T2D	2.120	15679.0	8900.0	0.880	6.25	5.50	74	3.51	0.70	2.77	2.03	0.338	2.02	0.80
	T2E	1.540	15022.0	9787.0	0.880	6.25	5.50	80	2.50	0.50	3.33	1.67	0.278	1.31	0.80
	T2F	1.930	16751.0	8715.0	0.880	6.25	5.50	77	2.99	0.60	3.05	1.86	0.309	2.04	0.80
	T2G	2.020	7049.0	9100.0	0.880	6.25	5.50	73	3.70	0.74	2.68	2.08	0.347	2.62	0.80
	T2H	1.780	13564.0	6834.0	0.880	6.25	5.50	75	3.33	0.67	2.86	1.97	0.329	1.84	0.80
	T2I	3.740	17623.0	11315.0	0.880	6.25	5.50	79	2.66	0.53	3.24	1.73	0.289	2.03	0.80
100	T2A&T2B	1.370	14257.0		0.880	7.15	6.29	74	3.51	0.70	3.43	2.16	0.360	1.81	0.80
	T2C	1.480	14791.0	7564.0	0.880	7.15	6.29	69	4.49	0.90	2.94	2.45	0.409	1.40	0.80
	T2D	2.120	15679.0	8900.0	0.880	7.15	6.29	74	3.51	0.70	3.43	2.16	0.360	2.02	0.80
	T2E	1.540	15022.0	9787.0	0.880	7.15	6.29	80	2.50	0.50	4.05	1.75	0.291	1.31	0.80
	T2F	1.930	16751.0	8715.0	0.880	7.15	6.29	77	2.99	0.60	3.74	1.96	0.327	2.04	0.80
	T2G	2.020	7049.0	9100.0	0.880	7.15	6.29	73	3.70	0.74	3.33	2.22	0.370	2.62	0.80
	T2H	1.780	13564.0	6834.0	0.880	7.15	6.29	75	3.33	0.67	3.53	2.09	0.349	1.84	0.80
	T2I	3.740	17623.0	11315.0	0.880	7.15	6.29	79	2.66	0.53	3.94	1.82	0.303	2.03	0.80
500	T2A&T2B	1.370	14257.0		0.880	8.70	7.66	74	3.51	0.70	4.62	2.33	0.389	1.81	0.80
	T2C	1.480	14791.0	7564.0	0.880	8.70	7.66	69	4.49	0.90	4.06	2.70	0.450	1.40	0.80
	T2D	2.120	15679.0	8900.0	0.880	8.70	7.66	74	3.51	0.70	4.62	2.33	0.389	2.02	0.80
	T2E	1.540	15022.0	9787.0	0.880	8.70	7.66	80	2.50	0.50	5.30	1.85	0.309	1.31	0.80
	T2F	1.930	16751.0	8715.0	0.880	8.70	7.66	77	2.99	0.60	4.96	2.10	0.350	2.04	0.80
	T2G	2.020	7049.0	9100.0	0.880	8.70	7.66	73	3.70	0.74	4.51	2.41	0.402	2.62	0.80
	T2H	1.780	13564.0	6834.0	0.880	8.70	7.66	75	3.33	0.67	4.73	2.26	0.376	1.84	0.80
	T2I	3.740	17623.0	11315.0	0.880	8.70	7.66	79	2.66	0.53	5.19	1.94	0.323	2.03	0.80

TABLE 4
TRIBUTARY 2 - CHANNEL ROUTING PARAMETERS FOR THE HEC-1 MODEL

U/S cross section	D/S cross section	**Flow** (cfs)	Vol (ac-ft) U/S	Vol (ac-ft) D/S	**Storage** (ac-ft)	Travel Time (hrs)
5891	0	1600	69	0	69	0.58
5891	0	3200	120	0	120	0.50
5891	0	4800	161	0	161	0.44
5891	0	6400	201	0	201	0.40
5891	0	8000	242	0	242	0.38
5891	0	9600	282	0	282	0.36
					Average	**0.44**
16335	5891	1600	266	69	197	1.43
16335	5891	3200	448	120	328	1.18
16335	5891	4800	597	161	436	1.05
16335	5891	6400	734	201	533	0.95
16335	5891	8000	870	242	628	0.90
16335	5891	9600	999	282	717	0.85
					Average	**1.06**
23010	16335	1600	387	266	121	0.93
23010	16335	3200	651	448	203	0.78
23010	16335	4800	877	597	280	0.71
23010	16335	6400	1074	734	340	0.65
23010	16335	8000	1266	870	396	0.60
23010	16335	9600	1447	999	448	0.57
					Average	**0.71**
27641	23010	1200	454	387	67	0.98
27641	23010	2400	779	651	128	1.11
27641	23010	3600	1078	877	201	1.00
27641	23010	4800	1329	1074	255	0.92
27641	23010	6000	1562	1266	296	0.85
27641	23010	7200	1781	1447	334	0.80
					Average	**0.94**
31348	27641	500	485	454	31	0.80
31348	27641	1000	832	779	53	0.63
31348	27641	1500	1147	1078	69	0.56
31348	27641	2000	1412	1329	83	0.51
31348	27641	2500	1658	1562	96	0.47
31348	27641	3000	1896	1781	115	0.47
					Average	**0.57**

TRTIBUTARY 2 HEC-2 MODEL
(Flood Hazard)

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1*******************************************                                      **************************************
 *  HEC-2 WATER SURFACE PROFILES            *                                      *  U.S. ARMY CORPS OF ENGINEERS       *
 *                                          *                                      *  HYDROLOGIC ENGINEERING CENTER      *
 *  Version   4.6.2;  May 1991              *                                      *  609 SECOND STREET, SUITE D         *
 *                                          *                                      *  DAVIS, CALIFORNIA 95616-4687       *
 *  RUN DATE    23MAR99    TIME   16:10:18  *                                      *          (916) 756-1104             *
 ********************************************                                      **************************************


                                              X      X  XXXXXXX   XXXXX            XXXXX
                                              X      X  X        X     X          X     X
                                              X      X  X        X                      X
                                              XXXXXXX  XXXX      X         XXXXX    XXXXX
                                              X      X  X        X                X
                                              X      X  X        X     X          X
                                              X      X  XXXXXXX   XXXXX           XXXXXXX
1
   23MAR99      16:10:18


                                                                              THIS RUN EXECUTED 23MAR99    16:10:18
 ************************************
  HEC-2 WATER SURFACE PROFILES

  Version   4.6.2;  May 1991
 ************************************


T1  City of Laredo Flood Insurance Study Update (for development to Jan. 1994)
T2  Chacon Creek Watershed - Tributary 2 to Chacon Creek - 1988 NAVD
T3  Filename:Trib2.ih2           10-YEAR FREQ.(Existing)      Dec.     1998

J1  ICHECK    INQ       NINV      IDIR      STRT      METRIC    HVINS     Q         WSEL      FQ

                2                           0.00478                       5265      390.6

J2  NPROF     IPLOT     PRFVS     XSECV     XSECH     FN        ALLDC     IBW       CHNIM     ITRACE

     1                  -1


      ..IABLE CODES FOR SUMMARY PRINTOUT

     38        43         7          6        41          1         150          0          0          0

NC      0.06       0.06     0.065        0.1        0.3
X1         0         26   1381.05    1954.14
GR       396       1000       396    1125.94        394    1147.97        394    1168.04        394    1172.34
GR       392    1175.59       390    1298.95        390    1335.11        390    1365.99        390    1375.23
GR       390    1381.05       388    1426.94        386    1536.65        384    1557.24        382    1567.16
GR       382    1581.22       384     1591.6        386    1605.02        388    1681.89        390    1954.14
GR       392    2031.79       394    2083.26        396    2187.39        398    2190.78        400    2195.84
GR       402    2202.89

X1       836         26      1090     1447.5      735.1      619.4      836.5
GR       406        562       400       1000        398     1030.5        396     1060.2        396     1060.3
GR       394       1090       392     1246.9        390     1360.4        388     1365.4        386     1371.5
GR       386     1397.7       388     1401.7        390     1407.5        392     1426.8        394     1447.5
GR       396     1461.8       398     1542.3        400     1547.9        402     1554.3        402     1568.5
GR       402     1570.3     401.7     1578.3      401.7     1580.1      401.6     1589.8        400     1708.8
GR       402     1803.6

X1      1201         21    1119.6     1386.8      291.5      362.6      365.2
GR       406        670       402       1000        400     1119.6        398     1193.4        398     1193.4
GR       396     1260.8       394     1281.9        392     1297.5        392     1347.6        394     1363.3
GR       396     1380.9       398     1382.3        400     1386.8        402       1392        404     1394.8
GR       404     1403.7       402     1407.4        402     2691.9        404     2828.4        406     2988.5
GR       412     3057.2

X1      1850         36    1031.6     1297.3      566.2      675.5      672.4
X3         0                                                  1388        406
GR       418       1000       416     1010.3        414     1011.2        412     1015.5        410     1018.7
GR       402     1031.6       400     1034.8        398     1040.7        396     1047.4        394       1051
GR       394     1082.1       396     1117.5        398     1163.9        400     1238.7        402     1297.3
GR       404     1306.1       404     1323.7        404       1346        406     1385.6        406       1404
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         406     1687.7       406     1811.9        404     1815.4        404     1845.8        404     1863.7
...      404     1915.8       404     1915.8        404     2319.3        404     2335.3        406     2340.5
GR       408     2344.8       410     2348.1        412       2408        414     2465.4        416     2484.9
GR       418     2498.1

X1      2039         35    1158.7     1309.8      155.1      159.7      155.2
GR       450       1000       448     1015.1        446     1017.3        444     1025.4        442     1034.5
GR       440     1038.8       438     1048.3        436     1054.3        434     1063.8        432     1075.2
GR       430     1079.9       424     1084.9        422     1090.8        420     1094.3        418     1120.5
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GR	416	1127.5	414	1130.7	410	1140	400	1158.7	398	1167.6
GR	396	1174.6	394	1179.6	394	1203.3	396	1213.4	398	1241.2
GR	400	1279.1	402	1309.8	404	1387.2	406	1463.2	408	1534.1
GR	408	2189.5	410	2529.8	412	2545.9	416	2565.6	418	2589.8
X1	2679	27	1457.7	1715.1	648.7	606.5	640.2			
GR	420	1000	418	1045.2	416	1105	414	1168.3	412	1204.3
GR	410	1231	408	1292.4	406	1457.7	404	1487.9	402	1523
	400	1547.5	398	1563.9	396	1573.8	396	1602.8	398	1609.3
	400	1616.8	402	1638.2	404	1660.4	406	1715.1	408	1728.4
GR	410	1812.1	410	1838.1	408	2127.4	408	2303.4	410	2333.5
GR	412	2347	414	2599.5						
NC			0.04	0.3	0.5					

Loop 20 Bridge #10
Downstream
Loop 20

X1	2993	40	1934.94	2115.64	288	287.6	313.8			
GR	428	1000	430	1191.21	432	1293.15	434	1436.06	436	1546.49
GR	438	1654.23	440	1789.17	440	1892.23	420	1893.98	419.74	1895.33
GR	412.67	1931.52	412	1934.94	410	1938.55	408	1946.92	406	1954.13
GR	404	1959.73	402	1972.7	400	1990.25	398	2046.47	396	2057.52
GR	396	2074.19	398	2081.02	400	2087.45	404	2093.84	406	2100.39
GR	408	2107.57	410	2114.54	412	2115.64	412	2139.14	412	2140.38
GR	412	2142.99	412	2207.47	412	2226.72	412.15	2227.8	420	2283.16
GR	440	2284.85	440	2312.62	436	2593.85	434	2691.53	432	2792.8
NC			0.04							
SB	1.05	1.5	2.5	450	100	4	12176	3.30681	396	396

Loop 20 Bridge #10
Upstream
Loop 20

X1	3051	40	1934.94	2115.64	50.1	61.8	57.9			
X2			1	440	443			1.33		
GR	428	1000	430	1191.21	432	1293.15	434	1436.06	436	1546.49
GR	438	1654.23	440	1789.17	440	1892.23	420	1893.98	419.74	1895.33
GR	412.67	1931.52	412	1934.94	410	1938.55	408	1946.92	406	1954.13
GR	404	1959.73	402	1972.7	400	1990.25	398	2046.47	396	2057.52
GR	396	2074.19	398	2081.02	400	2087.45	404	2093.84	406	2100.39
GR	408	2107.57	410	2114.54	412	2115.64	412	2139.14	412	2140.38
GR	412	2142.99	412	2207.47	412	2226.72	412.15	2227.8	420	2283.16
GR	440	2284.85	440	2312.62	436	2593.85	434	2691.53	432	2792.8

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			0.065	0.1	0.3					
	3441	22	1165.42	1317.97	325.5	448.3	390.7			
GR	434	790.37	412	1000	410	1038.95	408	1165.42	406	1188.94
GR	404	1205.17	402	1207.1	400	1218	398	1222.38	398	1235.58
GR	400	1242.34	402	1247.34	404	1262.21	406	1306.16	408	1317.97
GR	410	1411.88	410	1426.08	410	1426.3	412	1487.3	412	1527.73
GR	414	1959.97	436	2158.53						
X1	4144	21	1213	1559.4	697.4	681.7	702.9			
GR	432	711.5	424	1000	422	1052	420	1091.9	418	1131.8
GR	416	1160.4	414	1191.5	412	1213	410	1228.8	408	1261.5
GR	406	1273.9	406	1273.9	404	1293.4	402	1300.4	402	1329.8
GR	412	1559.4	414	2189.5	416	2244.9	418	2680.2	420	2701.5
GR	432	2763.6								
X1	4727	23	1279.93	1654.88	569.3	546.9	582.5			
GR	430	802.52	422	1000	420	1026.83	418	1070.83	416	1106.35
GR	414	1232.85	412	1279.93	410	1475.71	408	1481.97	406	1487.41
GR	404	1492.3	402	1496.43	402	1503.41	404	1507.56	406	1544.78
GR	408	1551.05	410	1564.35	412	1654.88	414	1704.11	416	1784.39
GR	416	2533.1	416	2555.35	422	3012.72				
X1	5298	21	1394.72	1682.15	561.8	492.8	571.3			
GR	430	796.51	422	1000	420	1084.56	418	1109.9	416	1146.05
GR	414	1394.72	412	1427.95	412	1427.97	410	1505.72	408	1513.34
GR	406	1518.28	406	1519.82	408	1551.94	410	1556.51	412	1642.61
GR	414	1682.15	416	1732.24	416	1853.14	416	2330.52	416	2393.33
GR	434	2891.27								
QT	10	5125	6344	6198	7556	7430	8992	8545	10276	11450
QT	13288									
X1	5891	16	1102.78	1645.64	724.6	463.3	592.9			
GR	430	804.78	426	1000	424	1024.17	422	1050.37	420	1075.97
GR	418	1102.78	416	1234.52	414	1416.76	412	1436.96	412	1607.66
GR	414	1628.83	416	1637.65	418	1645.64	420	1710.19	420	1730.34
GR	434	2272.02								
NC			0.04	0.3	0.5					

Mexican Railroad Bridge #11
ream
Tex-Mex R.R.

X1	6500	16	1796.1	2000.2	643.8	496.3	586.6			
GR	426	1000	424	1025.9	422	1111.8	420	1637.2	420	1788.1
GR	420	1796.1	416	1816.1	414	1822.8	412	1849.3	412	1895.2
GR	414	1998.8	420	2000.2	420	2639.2	422	2701.4	432	2721.4
GR	436	2741.2								
SB	1.05	1.5	2.5	188	183	14	1328	1.2	412	412

Texas Mexican Railroad Bridge #11
Upstream

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Tex-Mex R.R.

X1	6550	16	1796.1	2000.2	31.2	32	34.7			
			1	420	423			1.33		
	426	1000	424	1025.9	422	1111.8	420	1637.2	420	1788.1
GR	420	1796.1	416	1816.1	414	1822.8	412	1849.3	412	1895.2
GR	414	1998.8	420	2000.2	420	2639.2	422	2701.4	432	2721.4
GR	436	2741.2								

NC			0.065	0.1	0.3					
X1	7000	31	1194.8	1666.9	711.5	945.2	843.1			
GR	436	1000	434	1003.4	432	1007.3	430	1015.4	428	1020.8
GR	426	1025.2	424	1033.3	422	1037.4	422	1057	424	1067.6
GR	424	1085.1	422	1091.6	422	1109.2	422	1194.8	420	1307.9
GR	418	1385.5	416	1471.6	416	1486.9	416	1590	414	1598.8
GR	414	1615.8	416	1642.4	418	1647.4	420	1657.7	422	1666.9
GR	424	1676.2	426	1688.5	428	1701.8	428	1731	428	1763.3
GR	430	1801.5								

X1	7904	33	717.2	1669.29	316.1	472.7	365.8			
GR	440	181.4	438	334.1	436	717.2	428	751.31	422	764.24
GR	422	770.83	430	784.82	432	794.06	432	888.15	428	908.17
GR	424	979.5	422	1005.3	422	1018.84	422	1150.47	420	1208.69
GR	418	1343.35	416	1355.94	414	1364.5	414	1374.74	416	1382.98
GR	418	1399	420	1499.76	422	1533.28	424	1579.09	426	1604.97
GR	428	1624.19	430	1638.84	432	1648.69	434	1659.23	436	1669.29
GR	438	1680.16	440	1689.85	442	1695.48				

X1	8639	38	833.23	1421.61	728.3	751.4	735.6			
GR	442	493.3	440	544.7	438	613.8	436	659.7	434	728.7
GR	432	751.8	432	771.2	434	777.4	434	788.4	432	802.7
GR	430	819.1	428	833.23	426	846.8	424	886.74	424	911.42
GR	426	921.43	428	933.28	428	950.88	426	957.74	426	1000
GR	426	1010.04	424	1014.33	422	1113	420	1121.45	418	1126.09
GR	416	1130.09	416	1140.55	418	1152.5	420	1191.8	422	1383.26
GR	424	1399.39	426	1411.57	428	1421.61	430	1431.31	432	1444.36
GR	434	1454.21	436	1473.62	438	1498.45				

X1	9484	32	892.6	1337.8	787.2	788.2	845			
GR	442	592.2	438	646.4	436	677.7	434	711.5	430	860
GR	427.1	892.6	425.9	906.7	424	928.9	424	929.4	426	967.3
	426	983.6	426	1000	424	1028.3	424	1091.9	424	1145.2
	422	1167.8	422	1193.1	422	1242.1	420	1250.5	418	1254.3
	416	1260.3	416	1268.2	418	1270.3	418	1270.3	420	1275.3
GR	422	1280.7	424	1323.3	426	1337.8	428	1367.6	430	1496.1
GR	432	1597.8	434	1797.2						

X1	9810	31	1318.54	1908.86	369.4	338.2	325.3			
GR	438	1000	436	1042.47	434	1098.36	432	1258.69	430	1299.76
GR	428	1318.54	426	1335.26	424	1349.18	424	1369.98	426	1388.49
GR	428	1405.04	428	1450.62	426	1459.57	424	1581.47	422	1653.91
GR	420	1660.75	418	1667.19	416	1675.41	416	1685.21	418	1689.55
GR	420	1694.43	422	1697.5	424	1729.96	426	1773.33	426	1803.25
GR	426	1878.33	428	1908.86	430	1925.34	432	1950.77	434	2075.63
GR	436	2122.04								

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X1	10296	23	901.03	1502.22	506.5	408	486.8			
GR	440	689.88	430	901.03	428	910.17	426	964.63	428	988.75
GR	428	1059.22	426	1137.99	424	1256.02	422	1259.31	420	1263.91
GR	418	1267.11	418	1275.83	420	1279.72	422	1286.47	424	1291.28
GR	426	1482.39	428	1489.38	428	1489.7	430	1502.22	432	1564.45
GR	434	1667.77	436	1720.36	438	1777.5				

X1	11400	36	764.5	2294.8	768.6	1106.4	882.2			
GR	446	656.7	440	741.2	434	764.5	433.8	768.6	433.6	772.9
GR	433.3	779.5	433.2	781.1	432.7	792.3	432.7	792.4	432.3	800.9
GR	432	807.8	436	818.4	438	826.9	434	861.1	434	1000
GR	432	1074.9	430	1630.5	428	1758.5	426	1763.1	424	1769.5
GR	422	1775	420	1783.8	420	1794	422	1800.3	424	1804
GR	426	1806.5	428	1819.7	430	2113.8	432	2266	434	2294.8
GR	436	2311.1	438	2321.9	440	2331.5	442	2359.6	442	2390.1
GR	442	2390.4								

X1	12000	53	1041.1	2660.7	493.2	522.5	555.9			
GR	458	1000	456	1005.9	454	1016.3	452	1020.7	450	1025.8
GR	440	1033.6	438	1038.4	436	1041.1	434	1045	432	1048.6
	130	1052.7	430	1062.3	440	1073.4	442	1076.1	442	1077
	444	1079.8	444	1108.5	442	1111.1	440	1115.1	438	1119.9
GR	436	1123.7	436	1124.6	436	1138.2	436	1145.2	438	1149.2
GR	440	1153	442	1157.6	442	1162.1	442	1169.1	442	1175.9
GR	440	1185.2	438	1195	436	1220.2	434	1236.6	432	1255.3
GR	430	1299.7	430	1328.8	430	1335.1	428	1360.1	428	1399.8
GR	430	1410.8	432	1501	432	1832	430	1968.8	428	1995.3
GR	428	2016.6	430	2047.8	430	2328.4	430	2347.6	432	2379.2
GR	434	2626.9	436	2660.7	438	2771.2				

X1	13028	36	933.8	2390.7	1001.1	717.2	1021.7			
GR	462	850.4	460	891.1	438	933.8	434	956.2	442	972.7
GR	442	1000	440	1012.7	438	1016	438	1022.5	438	1035.1
GR	438	1039.8	440	1046.3	440	1075.1	438	1080.6	436	1109
GR	434	1260.7	434	1559.8	434	1615.7	432	1621.6	430	1626.2
GR	430	1640.9	432	1645.4	434	1649.1	434	1649.1	434	1698.2
GR	432	1981.5	432	1991.8	434	2033.9	434	2033.9	436	2175.4
GR	438	2390.7	440	2413.6	442	2502.8	444	2629	446	2701.2
	448	2785.9								
QT	10	4642	5507	5461	6459	6575	7711	7732	8933	10091
QT	11398									
X1	13821	22	885.73	2102.74	729.9	545.8	792.4			
GR	446	733.33	442	885.73	438	909.46	438	940.19	442	954.27
GR	444	967.49	444	1000	442	1034.13	440	1205.2	438	1371.43
GR	436	1841.89	434	1851.8	432	1856.48	432	1865.13	434	1870.52
GR	436	1875.73	438	2027.31	440	2068.3	442	2102.74	444	2117.36
GR	446	2145.58	448	2170.22						

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X1	15090	30	903.7	1896.5	972.3	1326.7	1269.7			
GR	456	629.1	454	666.6	452	723.7	450	760.5	450	843.6
GR	444	903.7	438	917.9	444	944.4	446	1000	446	1012.9
GR	444	1028.4	444	1261.6	444	1334.1	442	1339.7	440	1347.6
GR	438	1351.5	438	1371.2	440	1384.1	442	1387.9	444	1395.3
GR	444	1490.3	444	1886	446	1896.5	448	1908.7	450	1920.4
GR	452	1967.2	454	2057.9	456	2217.3	458	2239.1	462	2279.9
X1	15668	31	660.03	1553.72	651.4	534.5	577.7			
GR	460	491.37	450	660.03	442	902.7	444	949.45	446	972.35
GR	448	1000	448	1011.74	446	1060.18	446	1217.17	446	1266.68
GR	444	1275.81	442	1280.21	442	1280.22	440	1288.51	440	1299.8
GR	442	1304.31	444	1305.62	446	1331.37	446	1386.93	446	1510.23
GR	448	1539.66	450	1553.72	452	1569.73	454	1588.46	456	1595.77
GR	458	1603.63	460	1610.33	462	1620.27	464	1633.15	466	1646.28
GR	468	1655.51								
X1	16335	55	1053.38	1843.69	646.3	631.5	666.6			
GR	470	1000	466	1007.02	464	1007.7	462	1015.21	460	1021.04
GR	458	1027.64	456	1042.91	454	1053.38	452	1057.48	450	1061.2
GR	448	1095.02	446	1190.36	446	1237.68	446	1268.4	444	1296.12
GR	442	1308.47	442	1326.51	444	1334.68	446	1340.52	448	1470.39
GR	448	1470.39	450	1541.01	450	1573.41	450	1588.77	452	1620.83
	454	1629.6	456	1664.85	458	1693.38	460	1699.54	462	1732.78
	462	1769.92	460	1790.55	452	1796.49	450	1799.01	448	1800.54
	446	1802.11	444	1804.47	444	1821.29	446	1826.53	448	1828.37
GR	450	1834.7	452	1837.22	454	1843.69	456	1853.73	458	1858.8
GR	460	1864.09	462	1880.15	464	1886.7	464	2017.06	462	2102.02
GR	462	2135.72	464	2209.55	466	2255.35	468	2292.22	470	2344.58
X1	16774	68	1061.71	2077.33	437.4	436.7	438.9			
GR	466	1000	464	1027.75	462	1050.53	460	1061.71	458	1083.6
GR	456	1097.61	454	1117.03	452	1138.47	450	1198.59	448	1224.69
GR	448	1262.44	448	1341.05	446	1355.99	446	1377.3	448	1392.6
GR	450	1404.66	450	1427.66	448	1446.67	448	1461.76	446	1475.95
GR	444	1481.21	444	1494.71	446	1504.26	448	1517.33	450	1541.12
GR	452	1570.32	454	1593.13	456	1639.49	458	1663.9	460	1725.65
GR	460	1833.81	460	1835.76	458	1838.38	454	1843.24	454	1881.01
GR	460	1886.73	462	1893.46	466	1913.12	464	1917.11	462	1999.4
GR	460	2012.05	452	2026.85	450	2031.38	448	2042.56	446	2047.05
GR	446	2051.9	448	2056.32	450	2059.89	460	2077.33	462	2083.83
GR	464	2088.25	466	2095.89	468	2105.01	470	2108.5	472	2113.51
GR	472	2116.89	470	2119.03	468	2120.21	466	2126.6	464	2201.6
GR	464	2223.73	464	2247.62	464	2255.13	466	2368.19	468	2546.24
GR	468	2546.26	468	2546.26	470	2622.69				
X1	17468	41	1221.46	2446.23	705	674.1	693.9			
GR	466	1000	464	1097.49	462	1144.24	462	1144.27	462	1144.28
GR	460	1165.65	458	1200.74	456	1221.46	454	1280.92	452	1738.15
GR	450	1774.37	450	1802.56	452	1822.85	454	1855.22	456	2037.48
GR	458	2046.77	460	2052.56	462	2059.22	464	2062.18	464	2064.86
GR	464	2069.98	464	2077.32	462	2079.32	460	2085.52	452	2097.84
GR	450	2102.49	450	2123.39	452	2134.41	454	2150.1	454	2214.66

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GR	454	2216.14	454	2219.2	454	2253.93	454	2332.65	456	2446.23
GR	458	2515.53	460	2550.73	462	2608.12	464	2678.3	466	2709.39
GR	468	2729.82								
X1	18323	35	1174.63	3338.88	854.4	862.3	855.7			
	470	1000	468	1016.15	466	1036.55	464	1069.28	462	1126.22
	460	1174.63	458	1248.53	456	1485.77	456	1651.55	456	1717.06
GR	454	1724.29	454	1754.23	456	2026.93	456	2307.34	456	2311.59
GR	454	2319.7	454	2344.11	456	2360.71	458	2378.54	460	2457.76
GR	462	2463.49	464	2469.29	464	2485.27	462	2488.1	460	2494.91
GR	452	2501.41	452	2510.6	454	2520.63	456	2529.23	458	2537.98
GR	458	2636.64	458	3254.18	460	3338.88	462	3498	464	3851.86
X1	19350	42	1154.08	2744.29	1023.3	1027.6	1027.2			
GR	474	1000	472	1016.35	470	1033.48	468	1039.95	468	1039.96

GR	468	1039.97	466	1050.4	464	1059.96	464	1084.55	464	1154.08
GR	462	1267.68	462	1295.19	462	1333.67	462	1366	462	1892.89
GR	460	1975.64	458	1988.66	458	2005.67	460	2013.28	462	2034.43
GR	464	2124.02	466	2130.22	468	2140.31	468	2147.41	468	2154.2
GR	466	2156.44	464	2158.2	462	2166.61	460	2178.13	458	2183.6
GR	458	2194.41	460	2207.64	462	2445.43	464	2744.29	466	2858.49
GR	468	2941.99	470	3016.61	472	3068.74	474	3109.71	476	3162.53
	478	3255.37	480	3321.04						

	20198	27	1105	3246.34	871.6	836.1	847.5			
GR	480	1000	478	1013.58	476	1021.18	474	1033.36	472	1067.93
GR	470	1105	468	1419.8	468	1698.72	468	1833.18	466	2296.36
GR	464	2309.11	464	2338.45	466	2363.09	468	2412.34	470	2455.19
GR	472	2464.17	472	2474.81	470	2481.48	468	2484.77	466	2489.43
GR	464	2492.89	464	2517.9	466	2537.05	468	3128.8	470	3246.34
GR	472	3510.37	474	3623.23						

X1	21000	34	1547.5	3729.8	855.1	899.1	874.3			
GR	482	1000	480	1067.2	478	1223.8	476	1332.1	474	1463.1
GR	472	1547.5	470	1654.4	468	2193	468	2226.5	470	2466.9
GR	470	2625.6	470	2665.7	470	2711.5	468	2729.7	468	2741.9
GR	470	2748.2	472	2919.3	474	2959.2	474	2976.5	472	2978.6
GR	470	2990.1	468	2995.3	466	3000	464	3005.1	464	3022.8
GR	466	3029.1	468	3042.3	470	3055.9	470	3301.6	470	3436.1
GR	472	3729.8	474	3876.7	476	3944.5	478	3952.2		

X1	21695	39	1684.74	3232.61	627.3	604.8	608.8			
GR	490	1000	488	1077.17	486	1138	484	1205.12	482	1289.79
GR	480	1318.87	478	1489.45	476	1581.85	474	1684.74	472	2133.64
GR	470	2278.3	470	2311.62	472	2369.4	472	2469.31	472	2476.36
GR	470	2485.3	470	2508.64	472	2519.73	474	2530.92	476	2661.23
GR	476	2681.48	476	2728.37	478	2735.32	478	2746.55	476	2751.46
GR	474	2761.5	472	2774.24	472	2813.82	472	2928.63	470	2949.04
GR	468	2960.63	466	2971.46	466	2988.81	468	2997.02	470	3015.46
GR	472	3034.22	474	3232.61	476	3393.66	478	3427.17		

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QT	10	3439	4044	3944	4642	4886	5624	5741	6535	7471
QT	8360									
X1	23010	32	739.85	1695.73	1314.1	1344.7	1315.3			
GR	488	304.25	480	739.85	476	762.74	476	798.25	480	829
GR	482	999.38	484	1004.02	484	1023.23	482	1028.14	480	1035.8
GR	478	1044.22	478	1070.31	480	1082.35	480	1093.21	478	1097.63
	476	1101.05	474	1118.85	474	1151.37	476	1161.34	478	1174.31
	478	1205.47	478	1243.51	478	1586.13	476	1595.86	476	1609.36
	478	1623.11	480	1695.73	482	2006.37	484	2023.11	486	2131.17
GR	488	2172.49	490	2207.3						

X1	24360	38	1062.14	2517.39	1355.5	1352.6	1349.7			
GR	500	1000	498	1011.6	496	1027.89	494	1039.53	492	1050.67
GR	490	1062.14	488	1071.42	486	1086.96	484	1101.04	482	1109.32
GR	480	1115.69	480	1182.09	482	1185.91	484	1195.62	486	1213.92
GR	488	1219.12	490	1356.3	490	1378.08	490	1393.36	490	1409.06
GR	480	1422.4	478	1429.76	478	1459.9	480	1473.69	482	1485.85
GR	484	1498.95	486	1511.92	486	1557.88	486	1596.41	486	1854.83
GR	484	1874.94	484	1882.99	486	1948.77	484	2233.93	484	2381.67
GR	488	2472.54	490	2517.39	494	2712.35				

X1	25436	34	1281.05	2428.24	1081.4	1085.4	1076.1			
GR	512	1000	510	1019.68	508	1038.88	506	1046.95	504	1059.26
GR	502	1072.1	500	1087.48	498	1114.25	496	1133.77	496	1255.88
GR	496	1270.1	494	1281.05	492	1287.23	490	1293.38	488	1305.72
GR	486	1319.99	484	1329.48	484	1337.54	486	1343.4	488	1351.22
GR	490	1358.41	492	1370.75	492	1393.01	492	1426.24	492	1473.54
GR	492	1583.6	492	1652.32	492	1669.45	492	1694.44	492	2250.94
GR	494	2428.24	496	2712.87	498	3024.41	500	3172.89		

QT	10	1375	1541	1661	1848	1958	2173	2311	2555	2935
QT	3222									
X1	27641	37	1065.24	2013.81	1958.8	2160.8	2204.8			
GR	510	1000	508	1022.54	506	1042.55	504	1054.52	502	1065.24
GR	500	1077.17	498	1083.84	496	1087.2	496	1099.12	498	1102.96
GR	500	1110.04	500	1591.29	498	1623.22	496	1632.53	494	1641.26
GR	494	1689.63	496	1696.06	500	1703.89	500	1703.92	500	1703.95
GR	502	1728.95	504	1744.94	504	1780.08	502	1792.47	500	1811.52
GR	498	1840.03	496	1853.35	496	1869.48	498	1880.31	500	1896.1
GR	502	2013.81	504	2214.81	506	2409.87	508	2507.2	510	2597.24
GR	512	2640.71	514	2661.87						

X1	28422	55	1269.27	2381.49	719.5	833.7	781.2			
GR	520	1000	518	1016.12	518	1016.31	516	1041.7	514	1051.4
GR	514	1051.43	514	1051.44	512	1062.47	510	1082.12	508	1106.01
	506	1269.27	504	1276.96	502	1284.63	502	1304.67	504	1325.02
	504	1334.11	504	1366.73	506	1698.16	506	1880.93	504	1952.55
GR	504	1968.78	504	2106.84	504	2106.85	504	2106.86	502	2113.69
GR	500	2122.69	500	2146.67	502	2153.34	502	2171.82	502	2191.23
GR	504	2196.91	504	2197.01	504	2197.1	506	2266.48	506	2332.69
GR	504	2339.99	502	2349.15	502	2362.54	504	2370.16	506	2381.49
GR	508	2448.91	510	2461.18	512	2468.51	512	2471.76	514	2478.79
GR	514	2493.87	514	2496.88	512	2502.38	510	2509.99	510	2517.62

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GR	514	2526.8	514	2537.91	516	2574.19	518	2610.96	520	2646.36
X1	29403	26	1120.34	1880.49	1212.6	875.9	980.8			
GR	526	1000	524	1023.3	522	1039.41	520	1074.75	518	1105.56
GR	516	1120.34	514	1142.81	512	1198.18	510	1317.97	510	1362.83
	512	1372.5	512	1597.32	512	1653.35	514	1732.35	514	1854.57
	514	1874.15	516	1880.49	518	1887.02	518	1890.04	518	1916.15
	514	1921.77	514	1983.94	516	2011.86	518	2451.31	520	2542.68
GR	530	2691.73								
X1	30485	20	1207.46	2164.12	974.6	1016.6	1082.6			
GR	536	1000	534	1012	532	1028.94	530	1038.61	528	1058.38
GR	526	1080	524	1121.89	522	1155.55	520	1207.46	518	1333.01
GR	516	1482.81	516	2057.81	518	2134.1	520	2164.12	522	2172.56
GR	522	2215.16	524	2220.14	524	2220.85	530	2280.99	536	2393.72
X1	31348	34	1405.39	2413	865.9	807.1	863			
GR	526	1000	524	1067.3	524	1067.36	522	1219.36	520	1301.34
GR	520	1301.37	520	1301.41	520	1358.92	520	1405.39	518	1527.85
GR	518	1546.95	518	1800.13	518	1810.64	518	1837.98	518	1899.03
GR	520	2413	522	2524.53	524	2532.38	526	2535.14	528	2540.54
GR	528	2557.13	528	2579.58	526	2586.8	524	2686.14	524	2692.57
GR	526	2713.08	528	2736.91	530	2770.91	532	2797.33	534	2820.25
GR	536	2835.01	538	2847.58	540	2856.73	542	2873.69		

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 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
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[illegible] STERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

name:Trib2.ih2

SUMMARY PRINTOUT

	SECNO	Q	VOL	TIME	ELLC	CWSEL
	.000	5265.00	.00	.00	.00	390.57
	.000	6552.00	.00	.00	.00	390.97
	.000	6376.00	.00	.00	.00	390.90
	.000	7837.00	.00	.00	.00	391.30
	.000	7653.00	.00	.00	.00	391.23
	.000	9323.00	.00	.00	.00	391.63
	.000	8829.00	.00	.00	.00	391.52
	.000	10702.00	.00	.00	.00	391.93
	.000	11872.00	.00	.00	.00	392.20
	.000	13841.00	.00	.00	.00	392.54
	836.000	5265.00	28.44	.06	.00	395.01
	836.000	6552.00	32.70	.05	.00	395.43
	836.000	6376.00	32.07	.05	.00	395.38
	836.000	7837.00	36.51	.05	.00	395.82
	836.000	7653.00	35.88	.05	.00	395.78
	836.000	9323.00	40.56	.04	.00	396.24
	836.000	8829.00	39.22	.04	.00	396.11
	836.000	10702.00	44.22	.04	.00	396.58
	836.000	11872.00	47.30	.04	.00	396.83
	836.000	13841.00	51.78	.04	.00	397.27
*	1201.000	5265.00	36.75	.07	.00	398.30
*	1201.000	6552.00	42.19	.06	.00	398.89
*	1201.000	6376.00	41.41	.06	.00	398.81
*	1201.000	7837.00	47.13	.06	.00	399.40
*	1201.000	7653.00	46.35	.06	.00	399.32
*	1201.000	9323.00	52.42	.06	.00	399.90
*	1201.000	8829.00	50.68	.06	.00	399.74
	1201.000	10702.00	57.12	.05	.00	400.28
	1201.000	11872.00	61.02	.05	.00	400.58
	1201.000	13841.00	66.90	.05	.00	401.03

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	1850.000	5265.00	53.04	.12	.00	403.19
*	1850.000	6552.00	60.97	.11	.00	403.91
*	1850.000	6376.00	59.85	.11	.00	403.82
*	1850.000	7837.00	68.37	.10	.00	404.55
*	1850.000	7653.00	67.23	.10	.00	404.46
*	1850.000	9323.00	76.36	.09	.00	405.19
*	1850.000	8829.00	73.73	.10	.00	404.99
*	1850.000	10702.00	83.28	.09	.00	405.73
*	1850.000	11872.00	89.97	.09	.00	406.14
*	1850.000	13841.00	102.51	.08	.00	406.68
*	2039.000	5265.00	57.24	.13	.00	403.62
*	2039.000	6552.00	65.82	.12	.00	404.32
*	2039.000	6376.00	64.62	.12	.00	404.23
*	2039.000	7837.00	73.88	.11	.00	404.94
*	2039.000	7653.00	72.65	.11	.00	404.86
*	2039.000	9323.00	82.60	.10	.00	405.58
*	2039.000	8829.00	79.73	.10	.00	405.39
	2039.000	10702.00	90.15	.10	.00	406.12
	2039.000	11872.00	97.58	.09	.00	406.53
*	2039.000	13841.00	111.73	.09	.00	407.00
	2679.000	5265.00	74.04	.17	.00	406.85
	2679.000	6552.00	85.72	.16	.00	407.57
	2679.000	6376.00	84.10	.16	.00	407.47
	2679.000	7837.00	97.14	.15	.00	408.18
	2679.000	7653.00	95.36	.15	.00	408.10
*	2679.000	9323.00	110.34	.14	.00	408.79
*	2679.000	8829.00	105.98	.14	.00	408.59
	2679.000	10702.00	122.13	.14	.00	409.28
	2679.000	11872.00	133.14	.13	.00	409.67
	2679.000	13841.00	152.78	.13	.00	410.23
*	2993.000	5265.00	82.96	.19	.00	407.38
*	2993.000	6552.00	95.98	.17	.00	408.12
*	2993.000	6376.00	94.17	.18	.00	408.03
*	2993.000	7837.00	108.79	.16	.00	408.75
*	2993.000	7653.00	106.78	.17	.00	408.66
	2993.000	9323.00	123.86	.16	.00	409.34

	2993.000	8829.00	118.88	.16	.00	409.15
	2993.000	10702.00	137.38	.15	.00	409.81
	2993.000	11872.00	149.85	.14	.00	410.16
	2993.000	13841.00	171.85	.14	.00	410.65

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
	3051.000	5265.00	84.48	.19	440.00	407.40
	3051.000	6552.00	97.65	.18	440.00	408.14
	3051.000	6376.00	95.83	.18	440.00	408.05
	3051.000	7837.00	110.60	.17	440.00	408.77
	3051.000	7653.00	108.57	.17	440.00	408.69
	3051.000	9323.00	125.80	.16	440.00	409.37
	3051.000	8829.00	120.78	.16	440.00	409.19
	3051.000	10702.00	139.43	.15	440.00	409.85
	3051.000	11872.00	151.98	.15	440.00	410.21
	3051.000	13841.00	174.10	.14	440.00	410.72
*	3441.000	5265.00	92.51	.21	.00	408.04
*	3441.000	6552.00	107.03	.19	.00	408.92
*	3441.000	6376.00	105.01	.19	.00	408.81
*	3441.000	7837.00	121.49	.18	.00	409.71
*	3441.000	7653.00	119.24	.18	.00	409.61
*	3441.000	9323.00	138.51	.17	.00	410.53
*	3441.000	8829.00	132.90	.17	.00	410.27
*	3441.000	10702.00	153.76	.17	.00	411.18
*	3441.000	11872.00	167.66	.16	.00	411.70
*	3441.000	13841.00	192.22	.16	.00	412.52
*	4144.000	5265.00	112.31	.27	.00	411.97
*	4144.000	6552.00	130.91	.25	.00	412.68
*	4144.000	6376.00	128.26	.26	.00	412.59
*	4144.000	7837.00	150.35	.24	.00	413.27
*	4144.000	7653.00	147.36	.24	.00	413.19
*	4144.000	9323.00	173.46	.23	.00	413.81
*	4144.000	8829.00	165.82	.23	.00	413.64
*	4144.000	10702.00	194.28	.22	.00	414.24
*	4144.000	11872.00	212.81	.22	.00	414.57
*	4144.000	13841.00	245.33	.21	.00	415.11
*	4727.000	5265.00	134.09	.32	.00	413.49
*	4727.000	6552.00	156.84	.30	.00	414.14
	7.000	6376.00	153.60	.30	.00	414.05
	7.000	7837.00	180.64	.28	.00	414.68
	27.000	7653.00	177.02	.28	.00	414.61
	4727.000	9323.00	208.68	.27	.00	415.21
	4727.000	8829.00	199.40	.27	.00	415.05
	4727.000	10702.00	233.87	.26	.00	415.63
	4727.000	11872.00	255.98	.25	.00	415.95
	4727.000	13841.00	296.37	.25	.00	416.44

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
	5298.000	5265.00	153.92	.36	.00	415.66
	5298.000	6552.00	181.17	.34	.00	416.18
	5298.000	6376.00	177.19	.34	.00	416.11
	5298.000	7837.00	210.04	.32	.00	416.61
	5298.000	7653.00	205.72	.33	.00	416.55
	5298.000	9323.00	243.43	.31	.00	417.05
	5298.000	8829.00	232.43	.32	.00	416.91
	5298.000	10702.00	273.18	.31	.00	417.42
	5298.000	11872.00	298.94	.30	.00	417.72
	5298.000	13841.00	346.69	.30	.00	418.13
	5891.000	5125.00	176.80	.42	.00	417.64
	5891.000	6344.00	208.71	.39	.00	418.16
	5891.000	6198.00	204.03	.39	.00	418.11
	5891.000	7556.00	242.37	.37	.00	418.52
	5891.000	7430.00	237.42	.37	.00	418.48
	5891.000	8992.00	280.73	.36	.00	418.88
	5891.000	8545.00	268.14	.36	.00	418.77
	5891.000	10276.00	314.75	.35	.00	419.18
	5891.000	11450.00	343.93	.34	.00	419.43
	5891.000	13288.00	396.75	.33	.00	419.81
*	6500.000	5125.00	196.11	.46	.00	418.82
	00.000	6344.00	230.69	.42	.00	419.40
	0.000	6198.00	225.72	.43	.00	419.34
	0.000	7556.00	266.34	.40	.00	419.85
	6500.000	7430.00	261.17	.40	.00	419.80
	6500.000	8992.00	308.31	.38	.00	420.31
	6500.000	8545.00	294.38	.39	.00	420.18
	6500.000	10276.00	346.09	.37	.00	420.67
	6500.000	11450.00	378.58	.37	.00	420.96
	6500.000	13288.00	436.61	.36	.00	421.38
	6550.000	5125.00	197.00	.46	420.00	418.87

	6550.000	6344.00	231.68	.43	420.00	419.46
	6550.000	6198.00	226.70	.43	420.00	419.40
	6550.000	7556.00	267.46	.40	420.00	420.15
	6550.000	7430.00	262.26	.41	420.00	420.08
	6550.000	8992.00	309.94	.39	420.00	420.99
	6550.000	8545.00	295.82	.39	420.00	420.72
*	6550.000	10276.00	348.26	.38	420.00	421.77
	0.000	11450.00	381.30	.37	420.00	422.47
	.000	13288.00	440.14	.36	420.00	423.48

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	7000.000	5125.00	222.34	.53	.00	420.99
*	7000.000	6344.00	261.30	.49	.00	421.74
*	7000.000	6198.00	255.84	.50	.00	421.66
	7000.000	7556.00	303.02	.47	.00	422.38
	7000.000	7430.00	296.75	.47	.00	422.33
*	7000.000	8992.00	358.10	.45	.00	422.87
*	7000.000	8545.00	339.90	.45	.00	422.74
*	7000.000	10276.00	409.09	.44	.00	423.25
*	7000.000	11450.00	454.86	.43	.00	423.61
*	7000.000	13288.00	533.36	.42	.00	424.28
	7904.000	5125.00	235.06	.56	.00	422.73
	7904.000	6344.00	276.73	.52	.00	423.29
	7904.000	6198.00	270.94	.53	.00	423.22
	7904.000	7556.00	321.09	.50	.00	423.77
	7904.000	7430.00	314.58	.50	.00	423.72
	7904.000	8992.00	378.57	.48	.00	424.23
	7904.000	8545.00	359.67	.48	.00	424.09
	7904.000	10276.00	431.46	.46	.00	424.60
	7904.000	11450.00	479.05	.45	.00	424.94
	7904.000	13288.00	560.78	.45	.00	425.49
*	8639.000	5125.00	263.08	.63	.00	425.49
	8639.000	6344.00	309.79	.59	.00	426.08
	8639.000	6198.00	303.45	.59	.00	426.03
	8639.000	7556.00	358.44	.56	.00	426.49
	8639.000	7430.00	351.51	.56	.00	426.45
	8639.000	8992.00	420.42	.53	.00	426.95
	8639.000	8545.00	400.17	.54	.00	426.81
	8639.000	10276.00	477.06	.52	.00	427.33
	.000	11450.00	527.99	.50	.00	427.66
	.000	13288.00	615.28	.49	.00	428.17
	9484.000	5125.00	298.14	.71	.00	427.59
	9484.000	6344.00	350.56	.67	.00	428.24
	9484.000	6198.00	343.67	.67	.00	428.18
	9484.000	7556.00	403.70	.63	.00	428.71
	9484.000	7430.00	396.30	.64	.00	428.66
	9484.000	8992.00	470.81	.60	.00	429.21
	9484.000	8545.00	448.98	.61	.00	429.06
	9484.000	10276.00	531.85	.58	.00	429.64
	9484.000	11450.00	586.71	.57	.00	430.00
	9484.000	13288.00	680.28	.56	.00	430.55

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SECNO	Q	VOL	TIME	ELLC	CWSEL
9810.000	5125.00	312.90	.75	.00	428.34
9810.000	6344.00	367.81	.70	.00	428.94
9810.000	6198.00	360.68	.71	.00	428.87
9810.000	7556.00	422.97	.67	.00	429.42
9810.000	7430.00	415.37	.67	.00	429.37
9810.000	8992.00	492.37	.63	.00	429.94
9810.000	8545.00	469.85	.64	.00	429.78
9810.000	10276.00	555.37	.61	.00	430.37
9810.000	11450.00	611.99	.60	.00	430.74
9810.000	13288.00	708.28	.58	.00	431.28
10296.000	5125.00	336.69	.80	.00	429.33
10296.000	6344.00	395.42	.75	.00	429.87
10296.000	6198.00	387.87	.76	.00	429.81
10296.000	7556.00	453.78	.72	.00	430.34
10296.000	7430.00	445.85	.72	.00	430.29
10296.000	8992.00	526.77	.68	.00	430.85
10296.000	8545.00	503.15	.69	.00	430.70
.000	10276.00	592.85	.65	.00	431.28
.000	11450.00	652.18	.64	.00	431.65
.000	13288.00	752.56	.62	.00	432.19
11400.000	5125.00	380.93	.91	.00	431.76
11400.000	6344.00	447.69	.86	.00	432.17
11400.000	6198.00	439.24	.87	.00	432.12
11400.000	7556.00	513.40	.82	.00	432.52
11400.000	7430.00	504.73	.82	.00	432.49
11400.000	8992.00	594.75	.78	.00	432.93
11400.000	8545.00	568.56	.79	.00	432.81

	SECNO	Q	VOL	TIME	ELLC	CWSEL
	11400.000	10276.00	668.24	.75	.00	433.28
	11400.000	11450.00	734.19	.73	.00	433.59
	11400.000	13288.00	845.76	.72	.00	434.12
*	12000.000	5125.00	414.45	1.00	.00	433.23
*	12000.000	6344.00	487.19	.94	.00	433.58
*	12000.000	6198.00	478.08	.95	.00	433.54
	00.000	7556.00	558.30	.90	.00	433.88
	0.000	7430.00	549.08	.90	.00	433.85
	0.000	8992.00	645.84	.85	.00	434.22
	12000.000	8545.00	617.75	.87	.00	434.11
	12000.000	10276.00	724.80	.82	.00	434.49
	12000.000	11450.00	795.65	.80	.00	434.75
	12000.000	13288.00	916.00	.79	.00	435.20

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	13028.000	5125.00	475.30	1.12	.00	435.88
*	13028.000	6344.00	557.64	1.06	.00	436.19
*	13028.000	6198.00	547.46	1.06	.00	436.15
*	13028.000	7556.00	637.52	1.00	.00	436.50
*	13028.000	7430.00	627.39	1.01	.00	436.47
*	13028.000	8992.00	734.85	.96	.00	436.81
*	13028.000	8545.00	703.79	.97	.00	436.72
*	13028.000	10276.00	822.08	.92	.00	437.06
*	13028.000	11450.00	900.33	.90	.00	437.28
*	13028.000	13288.00	1033.01	.87	.00	437.59
	13821.000	4642.00	511.31	1.21	.00	439.35
	13821.000	5507.00	598.90	1.14	.00	439.61
	13821.000	5461.00	588.18	1.15	.00	439.59
	13821.000	6459.00	683.95	1.08	.00	439.87
	13821.000	6575.00	673.59	1.09	.00	439.88
	13821.000	7711.00	787.19	1.03	.00	440.18
	13821.000	7732.00	754.88	1.04	.00	440.15
	13821.000	8933.00	879.51	.99	.00	440.46
	13821.000	10091.00	962.30	.96	.00	440.70
	13821.000	11398.00	1101.28	.94	.00	440.99
	15090.000	4642.00	564.35	1.35	.00	445.57
	15090.000	5507.00	658.31	1.27	.00	445.79
	15090.000	5461.00	647.24	1.28	.00	445.78
	0.000	6459.00	750.13	1.21	.00	446.03
	0.000	6575.00	740.46	1.21	.00	446.06
	90.000	7711.00	861.53	1.15	.00	446.30
	15090.000	7732.00	829.12	1.16	.00	446.32
	15090.000	8933.00	961.38	1.10	.00	446.55
	15090.000	10091.00	1050.97	1.07	.00	446.78
	15090.000	11398.00	1197.65	1.04	.00	447.00
	15668.000	4642.00	589.64	1.42	.00	447.91
	15668.000	5507.00	686.43	1.33	.00	448.18
	15668.000	5461.00	675.23	1.34	.00	448.16
	15668.000	6459.00	781.27	1.27	.00	448.42
	15668.000	6575.00	771.97	1.27	.00	448.45
	15668.000	7711.00	896.15	1.20	.00	448.73
	15668.000	7732.00	863.90	1.21	.00	448.73
	15668.000	8933.00	999.19	1.15	.00	449.00
	15668.000	10091.00	1091.72	1.12	.00	449.24
	15668.000	11398.00	1241.42	1.09	.00	449.49

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SECNO	Q	VOL	TIME	ELLC	CWSEL
16335.000	4642.00	617.85	1.48	.00	450.03
16335.000	5507.00	717.70	1.40	.00	450.35
16335.000	5461.00	706.34	1.41	.00	450.34
16335.000	6459.00	815.52	1.33	.00	450.67
16335.000	6575.00	806.56	1.33	.00	450.70
16335.000	7711.00	934.02	1.26	.00	451.05
16335.000	7732.00	901.80	1.27	.00	451.06
16335.000	8933.00	1040.35	1.21	.00	451.40
16335.000	10091.00	1135.85	1.17	.00	451.70
16335.000	11398.00	1288.71	1.13	.00	452.02
16774.000	4642.00	633.87	1.52	.00	451.57
16774.000	5507.00	735.48	1.43	.00	451.93
74.000	5461.00	724.03	1.44	.00	451.92
.000	6459.00	835.05	1.36	.00	452.29
4.000	6575.00	826.29	1.36	.00	452.33
16774.000	7711.00	955.71	1.29	.00	452.72
16774.000	7732.00	923.53	1.30	.00	452.72
16774.000	8933.00	1064.03	1.24	.00	453.10
16774.000	10091.00	1161.27	1.20	.00	453.44
16774.000	11398.00	1316.03	1.16	.00	453.80
17468.000	4642.00	659.77	1.60	.00	454.96
17468.000	5507.00	765.05	1.51	.00	455.26

	SECNO	Q	VOL	TIME	ELLC	CWSEL
	17468.000	5461.00	753.41	1.51	.00	455.24
	17468.000	6459.00	868.40	1.43	.00	455.56
	17468.000	6575.00	860.11	1.43	.00	455.59
	17468.000	7711.00	993.94	1.36	.00	455.91
	17468.000	7732.00	961.84	1.37	.00	455.92
	17468.000	8933.00	1106.62	1.30	.00	456.22
	17468.000	10091.00	1207.82	1.26	.00	456.48
	58.000	11398.00	1366.86	1.23	.00	456.78
	23.000	4642.00	706.64	1.75	.00	458.21
*	18323.000	5507.00	818.06	1.65	.00	458.40
*	18323.000	5461.00	806.09	1.66	.00	458.39
	18323.000	6459.00	928.01	1.57	.00	458.58
	18323.000	6575.00	920.50	1.57	.00	458.60
	18323.000	7711.00	1061.92	1.48	.00	458.80
	18323.000	7732.00	1029.96	1.50	.00	458.80
	18323.000	8933.00	1182.15	1.42	.00	459.00
	18323.000	10091.00	1290.06	1.38	.00	459.18
	18323.000	11398.00	1456.62	1.34	.00	459.38

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	19350.000	4642.00	761.30	1.85	.00	462.92
*	19350.000	5507.00	879.13	1.74	.00	463.08
*	19350.000	5461.00	866.83	1.75	.00	463.08
*	19350.000	6459.00	995.77	1.66	.00	463.24
*	19350.000	6575.00	989.05	1.66	.00	463.26
*	19350.000	7711.00	1138.04	1.57	.00	463.43
*	19350.000	7732.00	1106.21	1.58	.00	463.43
*	19350.000	8933.00	1265.96	1.51	.00	463.61
*	19350.000	10091.00	1380.98	1.46	.00	463.77
*	19350.000	11398.00	1555.34	1.41	.00	463.93
*	20198.000	4642.00	801.30	1.98	.00	468.55
*	20198.000	5507.00	923.90	1.86	.00	468.72
*	20198.000	5461.00	911.36	1.87	.00	468.71
*	20198.000	6459.00	1045.54	1.77	.00	468.87
*	20198.000	6575.00	1039.41	1.77	.00	468.89
*	20198.000	7711.00	1194.04	1.68	.00	469.08
*	20198.000	7732.00	1162.32	1.69	.00	469.08
*	20198.000	8933.00	1327.76	1.61	.00	469.27
*	20198.000	10091.00	1448.10	1.55	.00	469.43
	8.000	11398.00	1628.22	1.50	.00	469.60
	00.000	4642.00	857.38	2.14	.00	471.17
*	21000.000	5507.00	986.51	2.02	.00	471.36
*	21000.000	5461.00	973.63	2.03	.00	471.36
*	21000.000	6459.00	1114.90	1.91	.00	471.56
*	21000.000	6575.00	1109.58	1.91	.00	471.58
*	21000.000	7711.00	1271.92	1.81	.00	471.79
*	21000.000	7732.00	1240.34	1.82	.00	471.79
	21000.000	8933.00	1413.60	1.74	.00	471.99
*	21000.000	10091.00	1540.71	1.68	.00	472.17
*	21000.000	11398.00	1728.23	1.62	.00	472.35
*	21695.000	4642.00	891.53	2.20	.00	473.27
*	21695.000	5507.00	1024.91	2.08	.00	473.47
*	21695.000	5461.00	1011.82	2.09	.00	473.46
*	21695.000	6459.00	1157.65	1.97	.00	473.70
*	21695.000	6575.00	1152.84	1.97	.00	473.72
*	21695.000	7711.00	1320.14	1.87	.00	473.95
*	21695.000	7732.00	1288.65	1.88	.00	473.95
*	21695.000	8933.00	1466.81	1.79	.00	474.16
*	21695.000	10091.00	1598.15	1.73	.00	474.32
*	21695.000	11398.00	1790.16	1.67	.00	474.51

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SECNO	Q	VOL	TIME	ELLC	CWSEL
23010.000	3439.00	941.63	2.37	.00	479.77
23010.000	4044.00	1081.36	2.24	.00	480.02
23010.000	3944.00	1067.60	2.25	.00	479.98
23010.000	4642.00	1220.69	2.12	.00	480.25
23010.000	4886.00	1217.16	2.12	.00	480.31
23010.000	5624.00	1392.10	2.01	.00	480.57
23010.000	5741.00	1361.04	2.02	.00	480.59
23010.000	6535.00	1546.55	1.92	.00	480.82
10.000	7471.00	1685.05	1.86	.00	481.05
0.000	8360.00	1884.52	1.80	.00	481.28
24360.000	3439.00	985.99	2.51	.00	485.31
24360.000	4044.00	1131.43	2.37	.00	485.59
24360.000	3944.00	1116.58	2.38	.00	485.54
24360.000	4642.00	1276.20	2.26	.00	485.83
24360.000	4886.00	1278.45	2.27	.00	486.17
24360.000	5624.00	1459.87	2.15	.00	486.33
24360.000	5741.00	1429.73	2.17	.00	486.36
24360.000	6535.00	1621.84	2.06	.00	486.55

24360.000	7471.00	1767.83	1.99	.00	486.75
24360.000	8360.00	1974.33	1.93	.00	486.93
25436.000	3439.00	1018.10	2.62	.00	492.92
25436.000	4044.00	1167.81	2.48	.00	493.09
25436.000	3944.00	1152.24	2.49	.00	493.07
25436.000	4642.00	1316.61	2.36	.00	493.23
436.000	4886.00	1324.40	2.38	.00	493.36
36.000	5624.00	1510.06	2.26	.00	493.49
436.000	5741.00	1480.61	2.26	.00	493.51
25436.000	6535.00	1677.10	2.16	.00	493.64
25436.000	7471.00	1828.06	2.08	.00	493.77
25436.000	8360.00	2039.04	2.01	.00	493.91
27641.000	1375.00	1086.23	3.24	.00	500.92
27641.000	1541.00	1242.96	3.08	.00	501.06
27641.000	1661.00	1227.34	3.06	.00	501.08
27641.000	1848.00	1399.33	2.91	.00	501.24
27641.000	1958.00	1410.62	2.90	.00	501.24
27641.000	2173.00	1603.74	2.76	.00	501.43
27641.000	2311.00	1576.04	2.76	.00	501.49
27641.000	2555.00	1780.17	2.64	.00	501.67
27641.000	2935.00	1940.25	2.54	.00	501.89
27641.000	3222.00	2159.09	2.46	.00	502.08

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	28422.000	1375.00	1100.50	3.28	.00	503.08
*	28422.000	1541.00	1258.44	3.11	.00	503.20
*	28422.000	1661.00	1243.09	3.09	.00	503.29
*	28422.000	1848.00	1416.40	2.94	.00	503.41
*	28422.000	1958.00	1427.90	2.93	.00	503.51
*	28422.000	2173.00	1622.53	2.79	.00	503.66
*	28422.000	2311.00	1595.33	2.79	.00	503.69
*	28422.000	2555.00	1802.24	2.68	.00	504.26
*	28422.000	2935.00	1964.29	2.58	.00	504.31
*	28422.000	3222.00	2185.07	2.50	.00	504.44
*	29403.000	1375.00	1111.42	3.43	.00	513.11
*	29403.000	1541.00	1270.23	3.26	.00	513.23
*	29403.000	1661.00	1255.49	3.23	.00	513.31
*	29403.000	1848.00	1429.73	3.08	.00	513.43
	03.000	1958.00	1441.77	3.06	.00	513.48
	03.000	2173.00	1637.43	2.92	.00	513.60
	9403.000	2311.00	1610.87	2.91	.00	513.69
*	29403.000	2555.00	1821.62	2.81	.00	514.01
*	29403.000	2935.00	1985.43	2.71	.00	514.18
*	29403.000	3222.00	2207.71	2.62	.00	514.27
	30485.000	1375.00	1131.55	3.61	.00	517.31
	30485.000	1541.00	1291.95	3.44	.00	517.41
	30485.000	1661.00	1278.32	3.40	.00	517.47
	30485.000	1848.00	1454.27	3.25	.00	517.56
	30485.000	1958.00	1467.25	3.23	.00	517.62
	30485.000	2173.00	1664.75	3.08	.00	517.73
	30485.000	2311.00	1639.40	3.07	.00	517.78
	30485.000	2555.00	1853.96	2.97	.00	517.94
	30485.000	2935.00	2020.89	2.85	.00	518.08
	30485.000	3222.00	2245.27	2.76	.00	518.20
	31348.000	1375.00	1151.35	3.81	.00	519.76
	31348.000	1541.00	1313.34	3.63	.00	519.87
	31348.000	1661.00	1300.86	3.59	.00	519.93
	31348.000	1848.00	1478.50	3.43	.00	520.03
	31348.000	1958.00	1492.45	3.41	.00	520.08
	31348.000	2173.00	1691.77	3.26	.00	520.17
	31348.000	2311.00	1667.51	3.24	.00	520.23
	31348.000	2555.00	1884.26	3.13	.00	520.31
	31348.000	2935.00	2054.03	3.01	.00	520.46
	31348.000	3222.00	2280.54	2.91	.00	520.57

TRTIBUTARY 2 HEC-2 MODEL
(Floodway - Method 1)

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1*******************************************                              **************************************
 *  HEC-2 WATER SURFACE PROFILES           *                              *  U.S. ARMY CORPS OF ENGINEERS      *
 *                                         *                              *  HYDROLOGIC ENGINEERING CENTER     *
 *  Version   4.6.2;  May 1991             *                              *  609 SECOND STREET, SUITE D        *
 *                                         *                              *  DAVIS, CALIFORNIA 95616-4687      *
 *  RUN DATE    15MAR99    TIME   13:30:16 *                              *       (916) 756-1104               *
 *******************************************                              **************************************


                              X     X  XXXXXXX   XXXXX            XXXXX
                              X     X  X        X     X          X     X
                              X     X  X        X                      X
                              XXXXXXX  XXXX     X         XXXXX   XXXXX
                              X     X  X        X                X
                              X     X  X        X     X          X
                              X     X  XXXXXXX   XXXXX           XXXXXXX
1
  15MAR99      13:30:16



                                                                         THIS RUN EXECUTED 15MAR99    13:30:16
 ************************************
 HEC-2 WATER SURFACE PROFILES

 Version   4.6.2;  May 1991
 ************************************


T1  City of Laredo Flood Insurance Study Update (for development to Jan.1994)
T2  Chacon Creek Watershed - Tributary 2 to Chacon Creek - 1988 NAVD
T3  Filename:TRIB2FW.IH2    100-Year Frequency       Dec.1998

J1  ICHECK     INQ       NINV      IDIR      STRT      METRIC     HVINS     Q          WSEL       FQ

                2                                                           8829       391.5

J2  NPROF      IPLOT     PRFVS     XSECV     XSECH     FN         ALLDC     IBW        CHNIM      ITRACE

      1                   -1


  .ARIABLE CODES FOR SUMMARY PRINTOUT

    110        200

NC      0.06       0.06      0.065        0.1        0.3
ET                             7.1                                           1381.1      1954.1
X1         0         26    1381.05    1954.14
GR       396       1000        396    1125.94        394    1147.97        394    1168.04        394    1172.34
GR       392    1175.59        390    1298.95        390    1335.11        390    1365.99        390    1375.23
GR       390    1381.05        388    1426.94        386    1536.65        384    1557.24        382    1567.16
GR       382    1581.22        384     1591.6        386    1605.02        388    1681.89        390    1954.14
GR       392    2031.79        394    2083.26        396    2187.39        398    2190.78        400    2195.84
GR       402    2202.89

ET                             7.1                                             1090      1447.5
X1       836         26       1090     1447.5      735.1      619.4      836.5
GR       406        562        400       1000        398     1030.5        396     1060.2        396     1060.3
GR       394       1090        392     1246.9        390     1360.4        388     1365.4        386     1371.5
GR       386     1397.7        388     1401.7        390     1407.5        392     1426.8        394     1447.5
GR       396     1461.8        398     1542.3        400     1547.9        402     1554.3        402     1568.5
GR       402     1570.3      401.7     1578.3      401.7     1580.1      401.6     1589.8        400     1708.8
GR       402     1803.6

ET                             7.1                                           1119.6      1386.8
X1      1201         21     1119.6     1386.8      291.5      362.6      365.2
GR       406        670        402       1000        400     1119.6        398     1193.4        398     1193.4
GR       396     1260.8        394     1281.9        392     1297.5        392     1347.6        394     1363.3
GR       396     1380.9        398     1382.3        400     1386.8        402       1392        404     1394.8
GR       404     1403.7        402     1407.4        402     2691.9        404     2828.4        406     2988.5
GR       412     3057.2
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ET                             7.1                                           1031.6      1297.3
        1850         36     1031.6     1297.3      566.2      675.5      672.4
         418       1000        416     1010.3        414     1011.2        412     1015.5        410     1018.7
         402     1031.6        400     1034.8        398     1040.7        396     1047.4        394       1051
GR       394     1082.1        396     1117.5        398     1163.9        400     1238.7        402     1297.3
GR       404     1306.1        404     1323.7        404       1346        406     1385.6        406       1404
GR       406     1687.7        406     1811.9        404     1815.4        404     1845.8        404     1863.7
GR       404     1915.8        404     1915.8        404     2319.3        404     2335.3        406     2340.5
GR       408     2344.8        410     2348.1        412       2408        414     2465.4        416     2484.9
GR       418     2498.1

ET                             7.1                                           1158.7      1309.8
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X1      2039          35      1158.7     1309.8       155.1       159.7       155.2
GR       450        1000         448     1015.1         446      1017.3         444      1025.4         442      1034.5
GR       440      1038.8         438     1048.3         436      1054.3         434      1063.8         432      1075.2
GR       430      1079.9         424     1084.9         422      1090.8         420      1094.3         418      1120.5
GR       416      1127.5         414     1130.7         410        1140         400      1158.7         398      1167.6
GR       396      1174.6         394     1179.6         394      1203.3         396      1213.4         398      1241.2
GR       400      1279.1         402     1309.8         404      1387.2         406      1463.2         408      1534.1
         408      2189.5         410     2529.8         412      2545.9         416      2565.6         418      2589.8

                                 7.1                                         1457.7      1715.1
X1      2679          27      1457.7     1715.1       648.7       606.5       640.2
GR       420        1000         418     1045.2         416        1105         414      1168.3         412      1204.3
GR       410        1231         408     1292.4         406      1457.7         404      1487.9         402        1523
GR       400      1547.5         398     1563.9         396      1573.8         396      1602.8         398      1609.3
GR       400      1616.8         402     1638.2         404      1660.4         406      1715.1         408      1728.4
GR       410      1812.1         410     1838.1         408      2127.4         408      2303.4         410      2333.5
GR       412        2347         414     2599.5

NC                              0.04        0.3         0.5
ET                               7.1                                         1934.9      2115.6
  Loop 20 Bridge #10
  Downstream
       Loop 20 Bridge #10
       Downstream
X1      2993          40     1934.94    2115.64         288       287.6       313.8
GR       428        1000         430    1191.21         432     1293.15         434     1436.06         436     1546.49
GR       438     1654.23         440    1789.17         440     1892.23         420     1893.98      419.74     1895.33
GR    412.67     1931.52         412    1934.94         410     1938.55         408     1946.92         406     1954.13
GR       404     1959.73         402     1972.7         400     1990.25         398     2046.47         396     2057.52
GR       396     2074.19         398    2081.02         400     2087.45         404     2093.84         406     2100.39
GR       408     2107.57         410    2114.54         412     2115.64         412     2139.14         412     2140.38
GR       412     2142.99         412    2207.47         412     2226.72      412.15      2227.8         420     2283.16
GR       440     2284.85         440    2312.62         436     2593.85         434     2691.53         432      2792.8

NC                              0.04
ET                               7.1                                         1934.9      2115.6
SB      1.05         1.5         2.5        450         100           4       12176     3.30681         396         396
  Loop 20 Bridge #10
  Upstream
1
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       Loop 20 Bridge #10
       Upstream
X1      3051          40     1934.94    2115.64        50.1        61.8        57.9
                                   1        440         443                                1.33
         428        1000         430    1191.21         432     1293.15         434     1436.06         436     1546.49
         438     1654.23         440    1789.17         440     1892.23         420     1893.98      419.74     1895.33
GR    412.67     1931.52         412    1934.94         410     1938.55         408     1946.92         406     1954.13
GR       404     1959.73         402     1972.7         400     1990.25         398     2046.47         396     2057.52
GR       396     2074.19         398    2081.02         400     2087.45         404     2093.84         406     2100.39
GR       408     2107.57         410    2114.54         412     2115.64         412     2139.14         412     2140.38
GR       412     2142.99         412    2207.47         412     2226.72      412.15      2227.8         420     2283.16
GR       440     2284.85         440    2312.62         436     2593.85         434     2691.53         432      2792.8

NC                             0.065        0.1         0.3
ET                               7.1                                         1165.4        1318
X1      3441          22     1165.42    1317.97       325.5       448.3       390.7
GR       434      790.37         412       1000         410     1038.95         408     1165.42         406     1188.94
GR       404     1205.17         402     1207.1         400        1218         398     1222.38         398     1235.58
GR       400     1242.34         402    1247.34         404     1262.21         406     1306.16         408     1317.97
GR       410     1411.88         410    1426.08         410      1426.3         412      1487.3         412     1527.73
GR       414     1959.97         436    2158.53

ET                               7.1                                           1213      1559.4
X1      4144          21        1213     1559.4       697.4       681.7       702.9
GR       432       711.5         424       1000         422        1052         420      1091.9         418      1131.8
GR       416      1160.4         414     1191.5         412        1213         410      1228.8         408      1261.5
GR       406      1273.9         406     1273.9         404      1293.4         402      1300.4         402      1329.8
GR       412      1559.4         414     2189.5         416      2244.9         418      2680.2         420      2701.5
GR       432      2763.6

ET                               7.1                                         1279.9      1654.9
X1      4727          23     1279.93    1654.88       569.3       546.9       582.5
GR       430      802.52         422       1000         420     1026.83         418     1070.83         416     1106.35
GR       414     1232.85         412    1279.93         410     1475.71         408     1481.97         406     1487.41
GR       404      1492.3         402    1496.43         402     1503.41         404     1507.56         406     1544.78
GR       408     1551.05         410    1564.35         412     1654.88         414     1704.11         416     1784.39
GR       416      2533.1         416    2555.35         422     3012.72

ET                               7.1                                         1394.7      1682.2
X1      5298          21     1394.72    1682.15       561.8       492.8       571.3
GR       430      796.51         422       1000         420     1084.56         418      1109.9         416     1146.05
         414     1394.72         412    1427.95         412     1427.97         410     1505.72         408     1513.34
         406     1518.28         406    1519.82         408     1551.94         410     1556.51         412     1642.61
         414     1682.15         416    1732.24         416     1853.14         416     2330.52         416     2393.33
GR       434     2891.27

QT         2        8545        8545
ET                               7.1                                         1102.8      1645.6
X1      5891          16     1102.78    1645.64       724.6       463.3       592.9
GR       430      804.78         426       1000         424     1024.17         422     1050.37         420     1075.97
GR       418     1102.78         416    1234.52         414     1416.76         412     1436.96         412     1607.66
GR       414     1628.83         416    1637.65         418     1645.64         420     1710.19         420     1730.34
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 GR       434     2272.02
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 NC                             0.04          0.3           0.5
                                 7.1                                          1796.1        2000.2
      s Mexican Railroad Bridge #11
     stream
        Texas Mexican Railroad Bridge #11
        Downstream
 X1      6500          16     1796.1       2000.2         643.8         496.3         586.6
 GR       426        1000        424       1025.9           422         1111.8          420        1637.2           420        1788.1
 GR       420      1796.1        416       1816.1           414         1822.8          412        1849.3           412        1895.2
 GR       414      1998.8        420       2000.2           420         2639.2          422        2701.4           432        2721.4
 GR       436      2741.2

 NC                             0.04
 ET                              7.1                                          1796.1        2000.2
 SB      1.05         1.5        2.5          188           167             14         1328         1.875           412           412
   Texas Mexican Railroad Bridge #11
   Upstream
        Texas Mexican Railroad Bridge #11
        Upstream
 X1      6550          16     1796.1       2000.2          31.2             32         34.7
 X2                                1          420           423                                      1.33
 GR       426        1000        424       1025.9           422         1111.8          420        1637.2           420        1788.1
 GR       420      1796.1        416       1816.1           414         1822.8          412        1849.3           412        1895.2
 GR       414      1998.8        420       2000.2           420         2639.2          422        2701.4           432        2721.4
 GR       436      2741.2

 NC                            0.065          0.1           0.3
 ET                              7.1                                          1194.8        1666.9
 X1      7000          31     1194.8       1666.9         711.5          945.2        843.1
 GR       436        1000        434       1003.4           432         1007.3          430        1015.4           428        1020.8
 GR       426      1025.2        424       1033.3           422         1037.4          422          1057           424        1067.6
 GR       424      1085.1        422       1091.6           422         1109.2          422        1194.8           420        1307.9
 GR       418      1385.5        416       1471.6           416         1486.9          416          1590           414        1598.8
 GR       414      1615.8        416       1642.4           418         1647.4          420        1657.7           422        1666.9
 GR       424      1676.2        426       1688.5           428         1701.8          428          1731           428        1763.3
 GR       430      1801.5

 ET                              7.1                                           717.2        1669.3
 X1      7904          33      717.2      1669.29         316.1          472.7        365.8
 GR       440       181.4        438        334.1           436          717.2          428        751.31           422        764.24
          422      770.83        430       784.82           432         794.06          432        888.15           428        908.17
          424       979.5        422       1005.3           422        1018.84          422       1150.47           420       1208.69
          418     1343.35        416      1355.94           414         1364.5          414       1374.74           416       1382.98
 GR       418        1399        420      1499.76           422        1533.28          424       1579.09           426       1604.97
 GR       428     1624.19        430      1638.84           432        1648.69          434       1659.23           436       1669.29
 GR       438     1680.16        440      1689.85           442        1695.48

 ET                              7.1                                           833.2        1421.6
 X1      8639          38     833.23      1421.61         728.3          751.4        735.6
 GR       442       493.3        440        544.7           438          613.8          436         659.7           434         728.7
 GR       432       751.8        432        771.2           434          777.4          434         788.4           432         802.7
 GR       430       819.1        428       833.23           426          846.8          424        886.74           424        911.42
 GR       426      921.43        428       933.28           428         950.88          426        957.74           426          1000
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 GR       426     1010.04        424      1014.33           422           1113          420       1121.45           418       1126.09
 GR       416     1130.09        416      1140.55           418         1152.5          420        1191.8           422       1383.26
 GR       424     1399.39        426      1411.57           428        1421.61          430       1431.31           432       1444.36
 GR       434     1454.21        436      1473.62           438        1498.45

 ET                              7.1                                           892.6        1337.8
 X1      9484          32      892.6       1337.8         787.2          788.2          845
 GR       442       592.2        438        646.4           436          677.7          434         711.5           430           860
 GR     427.1       892.6      425.9        906.7           424          928.9          424         929.4           426         967.3
 GR       426       983.6        426         1000           424         1028.3          424        1091.9           424        1145.2
 GR       422      1167.8        422       1193.1           422         1242.1          420        1250.5           418        1254.3
 GR       416      1260.3        416       1268.2           418         1270.3          418        1270.3           420        1275.3
 GR       422      1280.7        424       1323.3           426         1337.8          428        1367.6           430        1496.1
 GR       432      1597.8        434       1797.2

 ET                              7.1                                          1318.5        1908.9
 X1      9810          31    1318.54      1908.86         369.4          338.2        325.3
 GR       438        1000        436      1042.47           434        1098.36          432       1258.69           430       1299.76
 GR       428     1318.54        426      1335.26           424        1349.18          424       1369.98           426       1388.49
 GR       428     1405.04        428      1450.62           426        1459.57          424       1581.47           422       1653.91
 GR       420     1660.75        418      1667.19           416        1675.41          416       1685.21           418       1689.55
          420     1694.43        422       1697.5           424        1729.96          426       1773.33           426       1803.25
          426     1878.33        428      1908.86           430        1925.34          432       1950.77           434       2075.63
          436     2122.04

 ET                              7.1                                             901        1502.2
 X1     10296          23     901.03      1502.22         506.5            408        486.8
 GR       440      689.88        430       901.03           428         910.17          426        964.63           428        988.75
 GR       428     1059.22        426      1137.99           424        1256.02          422       1259.31           420       1263.91
 GR       418     1267.11        418      1275.83           420        1279.72          422       1286.47           424       1291.28
 GR       426     1482.39        428      1489.38           428         1489.7          430       1502.22           432       1564.45
 GR       434     1667.77        436      1720.36           438         1777.5
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ET			7.1				764.5	2294.8		
X1	11400	36	764.5	2294.8	768.6	1106.4	882.2			
GR	446	656.7	440	741.2	434	764.5	433.8	768.6	433.6	772.9
GR	433.3	779.5	433.2	781.1	432.7	792.3	432.7	792.4	432.3	800.9
GR	432	807.8	436	818.4	438	826.9	434	861.1	434	1000
GR	432	1074.9	430	1630.5	428	1758.5	426	1763.1	424	1769.5
	422	1775	420	1783.8	420	1794	422	1800.3	424	1804
	426	1806.5	428	1819.7	430	2113.8	432	2266	434	2294.8
	436	2311.1	438	2321.9	440	2331.5	442	2359.6	442	2390.1
GR	442	2390.4								
ET			7.1				1041.1	2660.7		
X1	12000	53	1041.1	2660.7	493.2	522.5	555.9			
GR	458	1000	456	1005.9	454	1016.3	452	1020.7	450	1025.8
GR	440	1033.6	438	1038.4	436	1041.1	434	1045	432	1048.6
GR	430	1052.7	430	1062.3	440	1073.4	442	1076.1	442	1077
GR	444	1079.8	444	1108.5	442	1111.1	440	1115.1	438	1119.9
GR	436	1123.7	436	1124.6	436	1138.2	436	1145.2	438	1149.2
GR	440	1153	442	1157.6	442	1162.1	442	1169.1	442	1175.9
GR	440	1185.2	438	1195	436	1220.2	434	1236.6	432	1255.3
GR	430	1299.7	430	1328.8	430	1335.1	428	1360.1	428	1399.8

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GR	430	1410.8	432	1501	432	1832	430	1968.8	428	1995.3
GR	428	2016.6	430	2047.8	430	2328.4	430	2347.6	432	2379.2
GR	434	2626.9	436	2660.7	438	2771.2				
ET			7.1				933.8	2390.7		
X1	13028	36	933.8	2390.7	1001.1	717.2	1021.7			
GR	462	850.4	460	891.1	438	933.8	434	956.2	442	972.7
GR	442	1000	440	1012.7	438	1016	438	1022.5	438	1035.1
GR	438	1039.8	440	1046.3	440	1075.1	438	1080.6	436	1109
GR	434	1260.7	434	1559.8	434	1615.7	432	1621.6	430	1626.2
GR	430	1640.9	432	1645.4	434	1649.1	434	1649.1	434	1698.2
GR	432	1981.5	432	1991.8	434	2033.9	434	2033.9	436	2175.4
GR	438	2390.7	440	2413.6	442	2502.8	444	2629	446	2701.2
GR	448	2785.9								
QT	2	7732	7732							
ET			7.1				885.7	2102.7		
X1	13821	22	885.73	2102.74	729.9	545.8	792.4			
GR	446	733.33	442	885.73	438	909.46	438	940.19	442	954.27
GR	444	967.49	444	1000	442	1034.13	440	1205.2	438	1371.43
	436	1841.89	434	1851.8	432	1856.48	432	1865.13	434	1870.52
	436	1875.73	438	2027.31	440	2068.3	442	2102.74	444	2117.36
	446	2145.58	448	2170.22						
ET			7.1				903.7	1896.5		
X1	15090	30	903.7	1896.5	972.3	1326.7	1269.7			
GR	456	629.1	454	666.6	452	723.7	450	760.5	450	843.6
GR	444	903.7	438	917.9	444	944.4	446	1000	446	1012.9
GR	444	1028.4	444	1261.6	444	1334.1	442	1339.7	440	1347.6
GR	438	1351.5	438	1371.2	440	1384.1	442	1387.9	444	1395.3
GR	444	1490.3	444	1886	446	1896.5	448	1908.7	450	1920.4
GR	452	1967.2	454	2057.9	456	2217.3	458	2239.1	462	2279.9
ET			7.1				660	1553.7		
X1	15668	31	660.03	1553.72	651.4	534.5	577.7			
GR	460	491.37	450	660.03	442	902.7	444	949.45	446	972.35
GR	448	1000	448	1011.74	446	1060.18	446	1217.17	446	1266.68
GR	444	1275.81	442	1280.21	442	1280.22	440	1288.51	440	1299.8
GR	442	1304.31	444	1305.62	446	1331.37	446	1386.93	446	1510.23
GR	448	1539.66	450	1553.72	452	1569.73	454	1588.46	456	1595.77
GR	458	1603.63	460	1610.33	462	1620.27	464	1633.15	466	1646.28
GR	468	1655.51								
ET			7.1				1053.4	1843.7		
X1	16335	55	1053.38	1843.69	646.3	631.5	666.6			
GR	470	1000	466	1007.02	464	1007.7	462	1015.21	460	1021.04
GR	458	1027.64	456	1042.91	454	1053.38	452	1057.48	450	1061.2
GR	448	1095.02	446	1190.36	446	1237.68	446	1268.4	444	1296.12
GR	442	1308.47	442	1326.51	444	1334.68	446	1340.52	448	1470.39
GR	448	1470.39	450	1541.01	450	1573.41	450	1588.77	452	1620.83
GR	454	1629.6	456	1664.85	458	1693.38	460	1699.54	462	1732.78
GR	462	1769.92	460	1790.55	452	1796.49	450	1799.01	448	1800.54
GR	446	1802.11	444	1804.47	444	1821.29	446	1826.53	448	1828.37
GR	450	1834.7	452	1837.22	454	1843.69	456	1853.73	458	1858.8

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	460	1864.09	462	1880.15	464	1886.7	464	2017.06	462	2102.02
	462	2135.72	464	2209.55	466	2255.35	468	2292.22	470	2344.58
ET			7.1				1061.7	2077.3		
X1	16774	68	1061.71	2077.33	437.4	436.7	438.9			
GR	466	1000	464	1027.75	462	1050.53	460	1061.71	458	1083.6
GR	456	1097.61	454	1117.03	452	1138.47	450	1198.59	448	1224.69
GR	448	1262.44	448	1341.05	446	1355.99	446	1377.3	448	1392.6
GR	450	1404.66	450	1427.66	448	1446.67	448	1461.76	446	1475.95
GR	444	1481.21	444	1494.71	446	1504.26	448	1517.33	450	1541.12
GR	452	1570.32	454	1593.13	456	1639.49	458	1663.9	460	1725.65

GR	460	1833.81	460	1835.76	458	1838.38	454	1843.24	454	1881.01
GR	460	1886.73	462	1893.46	466	1913.12	464	1917.11	462	1999.4
GR	460	2012.05	452	2026.85	450	2031.38	448	2042.56	446	2047.05
GR	446	2051.9	448	2056.32	450	2059.89	460	2077.33	462	2083.83
GR	464	2088.25	466	2095.89	468	2105.01	470	2108.5	472	2113.51
GR	472	2116.89	470	2119.03	468	2120.21	466	2126.6	464	2201.6
GR	464	2223.73	464	2247.62	464	2255.13	466	2368.19	468	2546.24
	468	2546.26	468	2546.26	470	2622.69				
			7.1				1221.5	2446.2		
X1	17468	41	1221.46	2446.23	705	674.1	693.9			
GR	466	1000	464	1097.49	462	1144.24	462	1144.27	462	1144.28
GR	460	1165.65	458	1200.74	456	1221.46	454	1280.92	452	1738.15
GR	450	1774.37	450	1802.56	452	1822.85	454	1855.22	456	2037.48
GR	458	2046.77	460	2052.56	462	2059.22	464	2062.18	464	2064.86
GR	464	2069.98	464	2077.32	462	2079.32	460	2085.52	452	2097.84
GR	450	2102.49	450	2123.39	452	2134.41	454	2150.1	454	2214.66
GR	454	2216.14	454	2219.2	454	2253.93	454	2332.65	456	2446.23
GR	458	2515.53	460	2550.73	462	2608.12	464	2678.3	466	2709.39
GR	468	2729.82								
ET			7.1				1174.6	3338.9		
X1	18323	35	1174.63	3338.88	854.4	862.3	855.7			
GR	470	1000	468	1016.15	466	1036.55	464	1069.28	462	1126.22
GR	460	1174.63	458	1248.53	456	1485.77	456	1651.55	456	1717.06
GR	454	1724.29	454	1754.23	456	2026.93	456	2307.34	456	2311.59
GR	454	2319.7	454	2344.11	456	2360.71	458	2378.54	460	2457.76
GR	462	2463.49	464	2469.29	464	2485.27	462	2488.1	460	2494.91
GR	452	2501.41	452	2510.6	454	2520.63	456	2529.23	458	2537.98
GR	458	2636.64	458	3254.18	460	3338.88	462	3498	464	3851.86
ET			7.1				1154.1	2744.3		
X1	19350	42	1154.08	2744.29	1023.3	1027.6	1027.2			
GR	474	1000	472	1016.35	470	1033.48	468	1039.95	468	1039.96
GR	468	1039.97	466	1050.4	464	1059.96	464	1084.55	464	1154.08
GR	462	1267.68	462	1295.19	462	1333.67	462	1366	462	1892.89
GR	460	1975.64	458	1988.66	458	2005.67	460	2013.28	462	2034.43
GR	464	2124.02	466	2130.22	468	2140.31	468	2147.41	468	2154.2
GR	466	2156.44	464	2158.2	462	2166.61	460	2178.13	458	2183.6
GR	458	2194.41	460	2207.64	462	2445.43	464	2744.29	466	2858.49
GR	468	2941.99	470	3016.61	472	3068.74	474	3109.71	476	3162.53
GR	478	3255.37	480	3321.04						

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			7.1				1105	3246.3		
	20198	27	1105	3246.34	871.6	836.1	847.5			
GR	480	1000	478	1013.58	476	1021.18	474	1033.36	472	1067.93
GR	470	1105	468	1419.8	468	1698.72	468	1833.18	466	2296.36
GR	464	2309.11	464	2338.45	466	2363.09	468	2412.34	470	2455.19
GR	472	2464.17	472	2474.81	470	2481.48	468	2484.77	466	2489.43
GR	464	2492.89	464	2517.9	466	2537.05	468	3128.8	470	3246.34
GR	472	3510.37	474	3623.23						
ET			7.1				1547.5	3729.8		
X1	21000	34	1547.5	3729.8	855.1	899.1	874.3			
GR	482	1000	480	1067.2	478	1223.8	476	1332.1	474	1463.1
GR	472	1547.5	470	1654.4	468	2193	468	2226.5	470	2466.9
GR	470	2625.6	470	2665.7	470	2711.5	468	2729.7	468	2741.9
GR	470	2748.2	472	2919.3	474	2959.2	474	2976.5	472	2978.6
GR	470	2990.1	468	2995.3	466	3000	464	3005.1	464	3022.8
GR	466	3029.1	468	3042.3	470	3055.9	470	3301.6	470	3436.1
GR	472	3729.8	474	3876.7	476	3944.5	478	3952.2		
ET			7.1				1684.7	3232.6		
X1	21695	39	1684.74	3232.61	627.3	604.8	608.8			
GR	490	1000	488	1077.17	486	1138	484	1205.12	482	1289.79
GR	480	1318.87	478	1489.45	476	1581.85	474	1684.74	472	2133.64
GR	470	2278.3	470	2311.62	472	2369.4	472	2469.31	472	2476.36
GR	470	2485.3	470	2508.64	472	2519.73	474	2530.92	476	2661.23
GR	476	2681.48	476	2728.37	478	2735.32	478	2746.55	476	2751.46
GR	474	2761.5	472	2774.24	472	2813.82	472	2928.63	470	2949.04
GR	468	2960.63	466	2971.46	466	2988.81	468	2997.02	470	3015.46
GR	472	3034.22	474	3232.61	476	3393.66	478	3427.17		
QT	2	5741	5741							
ET			7.1				739.9	1695.7		
X1	23010	32	739.85	1695.73	1314.1	1344.7	1315.3			
GR	488	304.25	480	739.85	476	762.74	476	798.25	480	829
GR	482	999.38	484	1004.02	484	1023.23	482	1028.14	480	1035.8
GR	478	1044.22	478	1070.31	480	1082.35	480	1093.21	478	1097.63
GR	476	1101.05	474	1118.85	474	1151.37	476	1161.34	478	1174.31
GR	478	1205.47	478	1243.51	478	1586.13	476	1595.86	476	1609.36
	478	1623.11	480	1695.73	482	2006.37	484	2023.11	486	2131.17
	488	2172.49	490	2207.3						
ET			7.1				1062.1	2517.4		
X1	24360	38	1062.14	2517.39	1355.5	1352.6	1349.7			
GR	500	1000	498	1011.6	496	1027.89	494	1039.53	492	1050.67
GR	490	1062.14	488	1071.42	486	1086.96	484	1101.04	482	1109.32
GR	480	1115.69	480	1182.09	482	1185.91	484	1195.62	486	1213.92
GR	488	1219.12	490	1356.3	490	1378.08	490	1393.36	490	1409.06
GR	480	1422.4	478	1429.76	478	1459.9	480	1473.69	482	1485.85

GR	484	1498.95	486	1511.92	486	1557.88	486	1596.41	486	1854.83
GR	484	1874.94	484	1882.99	486	1948.77	484	2233.93	484	2381.67
GR	488	2472.54	490	2517.39	494	2712.35				

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			7.1				1281.1	2428.2		
	.5436	34	1281.05	2428.24	1081.4	1085.4	1076.1			
GR	512	1000	510	1019.68	508	1038.88	506	1046.95	504	1059.26
GR	502	1072.1	500	1087.48	498	1114.25	496	1133.77	496	1255.88
GR	496	1270.1	494	1281.05	492	1287.23	490	1293.38	488	1305.72
GR	486	1319.99	484	1329.48	484	1337.54	486	1343.4	488	1351.22
GR	490	1358.41	492	1370.75	492	1393.01	492	1426.24	492	1473.54
GR	492	1583.6	492	1652.32	492	1669.45	492	1694.44	492	2250.94
GR	494	2428.24	496	2712.87	498	3024.41	500	3172.89		
QT	2	2311	2311							
ET			7.1				1065.2	2013.8		
X1	27641	37	1065.24	2013.81	1958.8	2160.8	2204.8			
GR	510	1000	508	1022.54	506	1042.55	504	1054.52	502	1065.24
GR	500	1077.17	498	1083.84	496	1087.2	496	1099.12	498	1102.96
GR	500	1110.04	500	1591.29	498	1623.22	496	1632.53	494	1641.26
GR	494	1689.63	496	1696.06	500	1703.89	500	1703.92	500	1703.95
GR	502	1728.95	504	1744.94	504	1780.08	502	1792.47	500	1811.52
GR	498	1840.03	496	1853.35	496	1869.48	498	1880.31	500	1896.1
GR	502	2013.81	504	2214.81	506	2409.87	508	2507.2	510	2597.24
GR	512	2640.71	514	2661.87						
ET			7.1				1269.3	2381.5		
X1	28422	55	1269.27	2381.49	719.5	833.7	781.2			
GR	520	1000	518	1016.12	518	1016.31	516	1041.7	514	1051.4
GR	514	1051.43	514	1051.44	512	1062.47	510	1082.12	508	1106.01
GR	506	1269.27	504	1276.96	502	1284.63	502	1304.67	504	1325.02
GR	504	1334.11	504	1366.73	506	1698.16	506	1880.93	504	1952.55
GR	504	1968.78	504	2106.84	504	2106.85	504	2106.86	502	2113.69
GR	500	2122.69	500	2146.67	502	2153.34	502	2171.82	502	2191.23
GR	504	2196.91	504	2197.01	504	2197.1	506	2266.48	506	2332.69
GR	504	2339.99	502	2349.15	502	2362.54	504	2370.16	506	2381.49
GR	508	2448.91	510	2461.18	512	2468.51	512	2471.76	514	2478.79
GR	514	2493.87	514	2496.88	512	2502.38	510	2509.99	510	2517.62
GR	514	2526.8	514	2537.91	516	2574.19	518	2610.96	520	2646.36
ET			7.1				1120.3	1880.5		
X1	29403	26	1120.34	1880.49	1212.6	875.9	980.8			
	526	1000	524	1023.3	522	1039.41	520	1074.75	518	1105.56
	516	1120.34	514	1142.81	512	1198.18	510	1317.97	510	1362.83
	512	1372.5	512	1597.32	512	1653.35	514	1732.35	514	1854.57
GR	514	1874.15	516	1880.49	518	1887.02	518	1890.04	518	1916.15
GR	514	1921.77	514	1983.94	516	2011.86	518	2451.31	520	2542.68
GR	530	2691.73								
ET			7.1				1207.5	2164.1		
X1	30485	20	1207.46	2164.12	974.6	1016.6	1082.6			
GR	536	1000	534	1012	532	1028.94	530	1038.61	528	1058.38
GR	526	1080	524	1121.89	522	1155.55	520	1207.46	518	1333.01
GR	516	1482.81	516	2057.81	518	2134.1	520	2164.12	522	2172.56
GR	522	2215.16	524	2220.14	524	2220.85	530	2280.99	536	2393.72

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ET			7.1				1405.4	2413		
X1	31348	34	1405.39	2413	865.9	807.1	863			
GR	526	1000	524	1067.3	524	1067.36	522	1219.36	520	1301.34
GR	520	1301.37	520	1301.41	520	1358.92	520	1405.39	518	1527.85
GR	518	1546.95	518	1800.13	518	1810.64	518	1837.98	518	1899.03
GR	520	2413	522	2524.53	524	2532.38	526	2535.14	528	2540.54
GR	528	2557.13	528	2579.58	526	2586.8	524	2686.14	524	2692.57
GR	526	2713.08	528	2736.91	530	2770.91	532	2797.33	534	2820.25
GR	536	2835.01	538	2847.58	540	2856.73	542	2873.69		

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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
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ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

name:TRIB2FW.IH2 100-

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	.000	391.50	.00	391.72	805.95	379.44	8387.01	62.56	.00	.00	1381.05	1954.14	.00
	.000	392.50	1.00	392.66	573.00	.00	8829.00	.00	573.00	1381.10	1381.05	1954.14	1954.10
	836.000	396.12	.00	396.54	408.29	73.03	8720.90	35.07	.00	.00	1090.00	1447.50	.00
*	836.000	395.83	-.30	396.32	357.50	.00	8829.00	.00	357.50	1090.00	1090.00	1447.50	1447.50
*	1201.000	399.73	.00	400.88	256.18	.00	8829.00	.00	.00	.00	1119.60	1386.80	.00
*	1201.000	400.00	.27	401.01	267.02	.00	8829.00	.00	267.20	1119.60	1119.60	1386.80	1386.80
*	1850.000	404.86	.00	405.14	859.69	9.93	8204.33	614.74	.00	.00	1031.60	1297.30	.00
*	1850.000	405.02	.16	405.36	265.70	.00	8829.00	.00	265.70	1031.60	1031.60	1297.30	1297.30
*	2039.000	405.19	.00	405.95	283.35	90.37	8109.17	629.46	.00	.00	1158.70	1309.80	.00
*	2039.000	405.36	.17	406.28	151.10	.00	8829.00	.00	151.10	1158.70	1158.70	1309.80	1309.80
*	2679.000	408.59	.00	408.90	748.65	504.54	8160.82	163.64	.00	.00	1457.70	1715.10	.00
*	2679.000	409.05	.46	409.39	257.40	.00	8829.00	.00	257.40	1457.70	1457.70	1715.10	1715.10
	2993.000	409.15	.00	409.74	169.47	.00	8829.00	.00	.00	.00	1934.94	2115.64	.00
*	2993.000	409.59	.44	410.13	172.89	.00	8829.00	.00	180.70	1934.90	1934.94	2115.64	2115.60
	3051.000	409.18	.00	409.77	169.71	.00	8829.00	.00	.00	.00	1934.94	2115.64	.00
	3051.000	409.62	.44	410.15	173.08	.00	8829.00	.00	180.70	1934.90	1934.94	2115.64	2115.60
*	3441.000	410.27	.00	411.19	400.96	480.58	7987.05	361.36	.00	.00	1165.42	1317.97	.00
*	3441.000	410.40	.13	411.58	152.60	.00	8829.00	.00	152.60	1165.40	1165.42	1317.97	1318.00
*	4144.000	413.64	.00	413.83	879.50	13.30	8424.70	391.00	.00	.00	1213.00	1559.40	.00
*	4144.000	414.02	.38	414.21	346.40	.00	8829.00	.00	346.40	1213.00	1213.00	1559.40	1559.40
	[illegible].000	415.05	.00	415.31	579.70	266.56	8297.61	264.83	.00	.00	1279.93	1654.88	.00
	[illegible]7.000	415.33	.29	415.61	375.00	.01	8828.99	.00	375.00	1279.90	1279.93	1654.88	1654.90

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	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	5298.000	416.91	.00	417.11	1288.77	962.38	6928.11	938.51	.00	.00	1394.72	1682.15	.00
	5298.000	417.32	.41	417.67	287.50	.00	8828.97	.03	287.50	1394.70	1394.72	1682.15	1682.20
	5891.000	418.77	.00	418.97	577.92	3.06	8534.55	7.39	.00	.00	1102.78	1645.64	.00
	5891.000	419.29	.52	419.45	542.80	.00	8545.00	.00	542.80	1102.80	1102.78	1645.64	1645.60
	6500.000	420.18	.00	420.75	1054.26	11.25	8492.25	41.51	.00	.00	1796.10	2000.20	.00
	6500.000	420.39	.21	420.94	204.10	.00	8545.00	.00	204.10	1796.10	1796.10	2000.20	2000.20
	6550.000	420.72	.00	421.14	1215.66	123.68	8056.55	364.77	.00	.00	1796.10	2000.20	.00
	6550.000	420.87	.15	421.35	204.10	.00	8545.00	.00	204.10	1796.10	1796.10	2000.20	2000.20
*	7000.000	422.74	.00	422.95	606.14	105.54	8438.57	.90	.00	.00	1194.80	1666.90	.00
	7000.000	422.95	.21	423.15	472.10	.00	8545.00	.00	472.10	1194.80	1194.80	1666.90	1666.90
	7904.000	424.09	.00	424.30	617.07	.00	8545.00	.00	.00	.00	717.20	1669.29	.00
	7904.000	424.18	.09	424.38	620.27	.00	8545.00	.00	952.10	717.20	717.20	1669.29	1669.30
	8639.000	426.81	.00	427.00	545.66	.00	8545.00	.00	.00	.00	833.23	1421.61	.00
	8639.000	426.81	.00	427.00	545.38	.00	8545.00	.00	588.40	833.20	833.23	1421.61	1421.60
	9484.000	429.06	.00	429.24	565.22	25.06	8375.05	144.89	.00	.00	892.60	1337.80	.00
	9484.000	429.11	.05	429.29	445.20	.00	8545.00	.00	445.20	892.60	892.60	1337.80	1337.80
	9810.000	429.78	.00	429.91	621.67	14.60	8517.60	12.80	.00	.00	1318.54	1908.86	.00
	9810.000	429.83	.06	429.96	590.40	.00	8545.00	.00	590.40	1318.50	1318.54	1908.86	1908.90
	10296.000	430.70	.00	430.82	637.51	2.73	8538.24	4.03	.00	.00	901.03	1502.22	.00
	[illegible]6.000	430.73	.03	430.86	601.20	.00	8545.00	.00	601.20	901.00	901.03	1502.22	1502.20
	[illegible].000	432.81	.00	432.90	1253.03	.00	8545.00	.00	.00	.00	764.50	2294.80	.00
	11400.000	432.81	.01	432.91	1253.41	.00	8545.00	.00	1530.30	764.50	764.50	2294.80	2294.80
	12000.000	434.11	.00	434.18	1415.02	.00	8545.00	.00	.00	.00	1041.10	2660.70	.00
	12000.000	434.11	.00	434.18	1415.01	.00	8545.00	.00	1619.60	1041.10	1041.10	2660.70	2660.70
*	13028.000	436.72	.00	436.84	1175.27	.00	8545.00	.00	.00	.00	933.80	2390.70	.00
*	13028.000	436.72	.00	436.84	1175.44	.00	8545.00	.00	1456.90	933.80	933.80	2390.70	2390.70

13821.000	440.15	.00	440.29	929.24	.00	7732.00	.00	.00	.00	885.73	2102.74	.00
13821.000	440.15	.00	440.29	929.17	.00	7732.00	.00	1217.00	885.70	885.73	2102.74	2102.70
15090.000	446.32	.00	446.46	1018.00	51.16	7680.68	.16	.00	.00	903.70	1896.50	.00
15090.000	446.33	.01	446.47	992.80	.00	7732.00	.00	992.80	903.70	903.70	1896.50	1896.50
15668.000	448.73	.00	448.86	846.16	.00	7732.00	.00	.00	.00	660.03	1553.72	.00
68.000	448.73	.01	448.86	846.40	.00	7732.00	.00	893.70	660.00	660.03	1553.72	1553.70
35.000	451.06	.00	451.23	584.77	.00	7732.00	.00	.00	.00	1053.38	1843.69	.00
16335.000	451.06	.00	451.23	584.75	.00	7732.00	.00	790.30	1053.40	1053.38	1843.69	1843.70

1

15MAR99 13:30:16

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
16774.000	452.72	.00	452.96	487.01	.00	7732.00	.00	.00	.00	1061.71	2077.33	.00
16774.000	452.72	.00	452.96	487.01	.00	7732.00	.00	1015.60	1061.70	1061.71	2077.33	2077.30
17468.000	455.92	.00	456.03	1155.60	.00	7732.00	.00	.00	.00	1221.46	2446.23	.00
17468.000	455.92	.00	456.03	1155.60	.00	7732.00	.00	1224.70	1221.50	1221.46	2446.23	2446.20
18323.000	458.80	.00	458.86	1983.88	.00	7732.00	.00	.00	.00	1174.63	3338.88	.00
18323.000	458.80	.00	458.86	1983.89	.00	7732.00	.00	2164.30	1174.60	1174.63	3338.88	3338.90
* 19350.000	463.43	.00	463.60	1410.57	.00	7732.00	.00	.00	.00	1154.08	2744.29	.00
* 19350.000	463.43	.00	463.60	1410.56	.00	7732.00	.00	1590.20	1154.10	1154.08	2744.29	2744.30
* 20198.000	469.08	.00	469.16	1896.90	.00	7732.00	.00	.00	.00	1105.00	3246.34	.00
* 20198.000	469.08	.00	469.16	1896.90	.00	7732.00	.00	2141.30	1105.00	1105.00	3246.34	3246.30
* 21000.000	471.79	.00	471.84	2060.52	.00	7732.00	.00	.00	.00	1547.50	3729.80	.00
* 21000.000	471.79	.00	471.84	2060.51	.00	7732.00	.00	2182.30	1547.50	1547.50	3729.80	3729.80
* 21695.000	473.95	.00	474.10	1302.01	.00	7732.00	.00	.00	.00	1684.74	3232.61	.00
* 21695.000	473.96	.00	474.10	1302.03	.00	7732.00	.00	1547.90	1684.70	1684.74	3232.61	3232.60
23010.000	480.59	.00	480.70	926.10	6.16	5717.26	17.58	.00	.00	739.85	1695.73	.00
23010.000	480.60	.01	480.70	802.39	.00	5741.00	.00	955.80	739.90	739.85	1695.73	1695.70
24360.000	486.36	.00	486.47	1152.21	.00	5741.00	.00	.00	.00	1062.14	2517.39	.00
24360.000	486.37	.00	486.47	1152.31	.00	5741.00	.00	1455.30	1062.10	1062.14	2517.39	2517.40
25436.000	493.51	.00	493.65	1101.58	.00	5741.00	.00	.00	.00	1281.05	2428.24	.00
6.000	493.51	.00	493.65	1101.36	.00	5741.00	.00	1147.10	1281.10	1281.05	2428.24	2428.20
41.000	501.49	.00	501.51	840.46	.00	2311.00	.00	.00	.00	1065.24	2013.81	.00
27641.000	501.49	.00	501.51	840.64	.00	2311.00	.00	948.60	1065.20	1065.24	2013.81	2013.80
* 28422.000	503.69	.00	504.66	159.47	.00	2311.00	.00	.00	.00	1269.27	2381.49	.00
* 28422.000	503.69	.00	504.66	159.50	.00	2311.00	.00	1112.20	1269.30	1269.27	2381.49	2381.50
* 29403.000	513.69	.00	513.76	569.09	.00	2311.00	.00	.00	.00	1120.34	1880.49	.00
* 29403.000	513.69	.00	513.76	569.07	.00	2311.00	.00	760.20	1120.30	1120.34	1880.49	1880.50
30485.000	517.78	.00	517.84	777.04	.00	2311.00	.00	.00	.00	1207.46	2164.12	.00
30485.000	517.78	.00	517.83	777.10	.00	2311.00	.00	956.60	1207.50	1207.46	2164.12	2164.10
31348.000	520.23	.00	520.26	1133.27	10.01	2300.62	.37	.00	.00	1405.39	2413.00	.00
31348.000	520.23	.00	520.26	1007.60	.00	2311.00	.00	1007.60	1405.40	1405.39	2413.00	2413.00

FLOODWAY DATA, name:TRIB2FW.IH2 100-
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.000	573.	2735.	3.2	392.5	391.5	1.0
836.000	357.	1562.	5.7	395.8	396.1	-.3
1201.000	267.	1097.	8.0	400.0	399.7	.3
1850.000	266.	1894.	4.7	405.1	404.9	.2
2039.000	151.	1148.	7.7	405.4	405.2	.2
2679.000	257.	1876.	4.7	409.1	408.6	.5
2993.000	173.	1504.	5.9	409.6	409.2	.4
3051.000	173.	1508.	5.9	409.6	409.2	.4
3441.000	153.	1009.	8.7	410.4	410.3	.1
4144.000	346.	2518.	3.5	414.0	413.6	.4
4727.000	375.	2094.	4.2	415.3	415.0	.3
5298.000	287.	1849.	4.8	417.3	416.9	.4
5891.000	543.	2643.	3.2	419.3	418.8	.5
6500.000	204.	1433.	6.0	420.4	420.2	.2
6550.000	204.	1533.	5.6	420.8	420.7	.1
7000.000	472.	2382.	3.6	422.9	422.7	.2
7904.000	822.	2401.	3.6	424.2	424.1	.1
8639.000	574.	2445.	3.5	426.8	426.8	.0
9484.000	445.	2486.	3.4	429.1	429.1	.0
9810.000	590.	2993.	2.9	429.9	429.8	.1
10296.000	601.	2981.	2.9	430.7	430.7	.0
11400.000	1488.	3490.	2.4	432.8	432.8	.0
12000.000	1584.	4225.	2.0	434.1	434.1	.0
13028.000	1312.	3113.	2.7	436.7	436.7	.0
13821.000	1174.	2504.	3.1	440.1	440.1	.0
15090.000	993.	2580.	3.0	446.3	446.3	.0
15668.000	846.	2649.	2.9	448.7	448.7	.0
16335.000	777.	2309.	3.3	451.1	451.1	.0
16774.000	934.	2003.	3.9	452.7	452.7	.0
17468.000	1218.	2807.	2.8	455.9	455.9	.0
18323.000	2069.	4129.	1.9	458.8	458.8	.0
19350.000	1473.	2339.	3.3	463.4	463.4	.0
20198.000	1944.	3429.	2.3	469.1	469.1	.0
21000.000	2139.	4345.	1.8	471.8	471.8	.0
21695.000	1533.	2568.	3.0	474.0	474.0	.0
23010.000	956.	2195.	2.6	480.6	480.6	.0
24360.000	1351.	2211.	2.6	486.4	486.4	.0
25436.000	1101.	1909.	3.0	493.5	493.5	.0
27641.000	915.	1861.	1.2	501.5	501.5	.0
28422.000	1091.	293.	7.9	503.7	503.7	.0
29403.000	569.	1087.	2.1	513.7	513.7	.0
30485.000	777.	1209.	1.9	517.8	517.8	.0
31348.000	1008.	1607.	1.4	520.2	520.2	.0

TRTIBUTARY 2 HEC-2 MODEL
(Floodway - Method 4)

```
C
C        8
C     2993Loop 20 Bridge #10
C     2993Downstream
C     3051Loop 20 Bridge #10
C     3051Upstream
C     6500Texas Mexican Railroad Bridge #11
C     6500Downstream
C     6550Texas Mexican Railroad Bridge #11
C     6550Upstream
T1        Method 4 Input
T2        Chacon Creek Watershed - City of Laredo
T3        Tributary 2
J1               2                                                  8829   391.5
J2       1                -1
J3     110     200
NC    0.06    0.06   0.065     0.1     0.3
ET                   -10.4
X1       0      26 1381.05 1954.14
GR     396    1000     396 1125.94     394 1147.97     394 1168.04     394 1172.34
GR     392 1175.59     390 1298.95     390 1335.11     390 1365.99     390 1375.23
GR     390 1381.05     388 1426.94     386 1536.65     384 1557.24     382 1567.16
GR     382 1581.22     384  1591.6     386 1605.02     388 1681.89     390 1954.14
GR     392 2031.79     394 2083.26     396 2187.39     398 2190.78     400 2195.84
GR     402 2202.89
X1     836      26    1090  1447.5   735.1   619.4   836.5
GR     406     562     400    1000     398  1030.5     396  1060.2     396  1060.3
GR     394    1090     392  1246.9     390  1360.4     388  1365.4     386  1371.5
GR     386  1397.7     388  1401.7     390  1407.5     392  1426.8     394  1447.5
GR     396  1461.8     398  1542.3     400  1547.9     402  1554.3     402  1568.5
GR     402  1570.3   401.7  1578.3   401.7  1580.1   401.6  1589.8     400  1708.8
GR     402  1803.6
X1    1201      21  1119.6  1386.8   291.5   362.6   365.2
GR     406     670     402    1000     400  1119.6     398  1193.4     398  1193.4
GR     396  1260.8     394  1281.9     392  1297.5     392  1347.6     394  1363.3
GR     396  1380.9     398  1382.3     400  1386.8     402    1392     404  1394.8
GR     404  1403.7     402  1407.4     402  2691.9     404  2828.4     406  2988.5
GR     412  3057.2
X1    1850      36  1031.6  1297.3   566.2   675.5   672.4
GR     418    1000     416  1010.3     414  1011.2     412  1015.5     410  1018.7
GR     402  1031.6     400  1034.8     398  1040.7     396  1047.4     394    1051
GR     394  1082.1     396  1117.5     398  1163.9     400  1238.7     402  1297.3
GR     404  1306.1     404  1323.7     404    1346     406  1385.6     406    1404
GR     406  1687.7     406  1811.9     404  1815.4     404  1845.8     404  1863.7
GR     404  1915.8     404  1915.8     404  2319.3     404  2335.3     406  2340.5
GR     408  2344.8     410  2348.1     412    2408     414  2465.4     416  2484.9
GR     418  2498.1
X1    2039      35  1158.7  1309.8   155.1   159.7   155.2
GR     450    1000     448  1015.1     446  1017.3     444  1025.4     442  1034.5
GR     440  1038.8     438  1048.3     436  1054.3     434  1063.8     432  1075.2
GR     430  1079.9     424  1084.9     422  1090.8     420  1094.3     418  1120.5
GR     416  1127.5     414  1130.7     410    1140     400  1158.7     398  1167.6
GR     396  1174.6     394  1179.6     394  1203.3     396  1213.4     398  1241.2
GR     400  1279.1     402  1309.8     404  1387.2     406  1463.2     408  1534.1
GR     408  2189.5     410  2529.8     412  2545.9     416  2565.6     418  2589.8
X1    2679      27  1457.7  1715.1   648.7   606.5   640.2
GR     420    1000     418  1045.2     416    1105     414  1168.3     412  1204.3
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GR   410     1231      408  1292.4      406  1457.7      404  1487.9      402    1523
GR   400   1547.5      398  1563.9      396  1573.8      396  1602.8      398  1609.3
GR   400   1616.8      402  1638.2      404  1660.4      406  1715.1      408  1728.4
GR   410   1812.1      410  1838.1      408  2127.4      408  2303.4      410  2333.5
GR   412     2347      414  2599.5
NC                    0.04     0.3      0.5
* Loop 20 Bridge #10
* Downstream
X1  2993       40 1934.94 2115.64      288   287.6    313.8
GR   428     1000      430 1191.21      432 1293.15      434 1436.06      436 1546.49
GR   438  1654.23      440 1789.17      440 1892.23      420 1893.98   419.74 1895.33
GR412.67  1931.52      412 1934.94      410 1938.55      408 1946.92      406 1954.13
GR   404  1959.73      402  1972.7      400 1990.25      398 2046.47      396 2057.52
GR   396  2074.19      398 2081.02      400 2087.45      404 2093.84      406 2100.39
GR   408  2107.57      410 2114.54      412 2115.64      412 2139.14      412 2140.38
GR   412  2142.99      412 2207.47      412 2226.72   412.15  2227.8      420 2283.16
GR   440  2284.85      440 2312.62      436 2593.85      434 2691.53      432  2792.8
NC                    0.04
ET                   -10.4
SB  1.05      1.5      2.5      450      100       4    12176 3.30681      396     396
* Loop 20 Bridge #10
* Upstream
X1  3051       33 1680.65  1852.9     50.1    61.8     57.9
X2                       1     440      443                     1.33
GR   430     1000      432 1089.54      434 1191.04      436 1290.47      438 1399.86
GR   440  1532.61      440 1636.09      420 1638.34      412 1680.65      410 1685.09
GR   408   1691.7      406 1698.62      404 1705.12      402 1720.09      400 1740.38
GR   398  1784.54      396 1791.36      396 1810.81      398  1820.7      400 1826.29
GR   404  1832.81      406 1838.45      408  1847.7      410 1850.79      412  1852.9
GR   412  1879.92      412  1981.8      420 2038.81      440 2041.32      440 2142.39
GR   438  2308.82      436 2403.22      434 2485.54
NC                   0.065     0.1      0.3
X1  3441       22 1165.42 1317.97    325.5   448.3    390.7
GR   434   790.37      412    1000      410 1038.95      408 1165.42      406 1188.94
GR   404  1205.17      402  1207.1      400    1218      398 1222.38      398 1235.58
GR   400  1242.34      402 1247.34      404 1262.21      406 1306.16      408 1317.97
GR   410  1411.88      410 1426.08      410  1426.3      412  1487.3      412 1527.73
GR   414  1959.97      436 2158.53
X1  4144       21     1213  1559.4    697.4   681.7    702.9
GR   432    711.5      424    1000      422    1052      420  1091.9      418  1131.8
GR   416   1160.4      414  1191.5      412    1213      410  1228.8      408  1261.5
GR   406   1273.9      406  1273.9      404  1293.4      402  1300.4      402  1329.8
GR   412   1559.4      414  2189.5      416  2244.9      418  2680.2      420  2701.5
GR   432   2763.6
X1  4727       23 1279.93 1654.88    569.3   546.9    582.5
GR   430   802.52      422    1000      420 1026.83      418 1070.83      416 1106.35
GR   414  1232.85      412 1279.93      410 1475.71      408 1481.97      406 1487.41
GR   404   1492.3      402 1496.43      402 1503.41      404 1507.56      406 1544.78
GR   408  1551.05      410 1564.35      412 1654.88      414 1704.11      416 1784.39
GR   416   2533.1      416 2555.35      422 3012.72
X1  5298       21 1394.72 1682.15    561.8   492.8    571.3
GR   430   796.51      422    1000      420 1084.56      418  1109.9      416 1146.05
GR   414  1394.72      412 1427.95      412 1427.97      410 1505.72      408 1513.34
GR   406  1518.28      406 1519.82      408 1551.94      410 1556.51      412 1642.61
GR   414  1682.15      416 1732.24      416 1853.14      416 2330.52      416 2393.33
GR   434  2891.27
QT     2     8545     8545
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X1    5891      16 1102.78 1645.64   724.6   463.3   592.9
GR     430  804.78     426    1000     424 1024.17     422 1050.37     420 1075.97
GR     418 1102.78     416 1234.52     414 1416.76     412 1436.96     412 1607.66
GR     414 1628.83     416 1637.65     418 1645.64     420 1710.19     420 1730.34
GR     434 2272.02
NC                    0.04     0.3     0.5
* Texas Mexican Railroad Bridge #11
* Downstream
X1    6500      16  1796.1  2000.2   643.8   496.3   586.6
GR     426    1000     424  1025.9     422  1111.8     420  1637.2     420  1788.1
GR     420  1796.1     416  1816.1     414  1822.8     412  1849.3     412  1895.2
GR     414  1998.8     420  2000.2     420  2639.2     422  2701.4     432  2721.4
GR     436  2741.2
NC                    0.04
ET                   -34.4
SB    1.05     1.5     2.5     188     167      14    1328   1.875     412     412
* Texas Mexican Railroad Bridge #11
* Upstream
X1    6550      20  1675.2  1871.3    31.2      32    34.7
X2                       1     420     423                    1.33
GR     426   838.8     422   884.1     422   949.5     424    1000     422  1154.6
GR     420  1675.2     416  1683.1     414  1690.5     412  1707.3     412  1776.8
GR     414  1869.2     420  1871.3     420  2108.5     420  2152.8     422  2315.9
GR     422  2328.7     422  2469.7     424  2484.1     428  2504.9     432  2529.7
NC                   0.065     0.1     0.3
X1    7000      31  1194.8  1666.9   711.5   945.2   843.1
GR     436    1000     434  1003.4     432  1007.3     430  1015.4     428  1020.8
GR     426  1025.2     424  1033.3     422  1037.4     422    1057     424  1067.6
GR     424  1085.1     422  1091.6     422  1109.2     422  1194.8     420  1307.9
GR     418  1385.5     416  1471.6     416  1486.9     416    1590     414  1598.8
GR     414  1615.8     416  1642.4     418  1647.4     420  1657.7     422  1666.9
GR     424  1676.2     426  1688.5     428  1701.8     428    1731     428  1763.3
GR     430  1801.5
X1    7904      33   717.2 1669.29   316.1   472.7   365.8
GR     440   181.4     438   334.1     436   717.2     428  751.31     422  764.24
GR     422  770.83     430  784.82     432  794.06     432  888.15     428  908.17
GR     424   979.5     422  1005.3     422 1018.84     422 1150.47     420 1208.69
GR     418 1343.35     416 1355.94     414  1364.5     414 1374.74     416 1382.98
GR     418    1399     420 1499.76     422 1533.28     424 1579.09     426 1604.97
GR     428 1624.19     430 1638.84     432 1648.69     434 1659.23     436 1669.29
GR     438 1680.16     440 1689.85     442 1695.48
X1    8639      38  833.23 1421.61   728.3   751.4   735.6
GR     442   493.3     440   544.7     438   613.8     436   659.7     434   728.7
GR     432   751.8     432   771.2     434   777.4     434   788.4     432   802.7
GR     430   819.1     428  833.23     426   846.8     424  886.74     424  911.42
GR     426  921.43     428  933.28     428  950.88     426  957.74     426    1000
GR     426 1010.04     424 1014.33     422    1113     420 1121.45     418 1126.09
GR     416 1130.09     416 1140.55     418  1152.5     420  1191.8     422 1383.26
GR     424 1399.39     426 1411.57     428 1421.61     430 1431.31     432 1444.36
GR     434 1454.21     436 1473.62     438 1498.45
X1    9484      32   892.6  1337.8   787.2   788.2     845
GR     442   592.2     438   646.4     436   677.7     434   711.5     430     860
GR   427.1   892.6   425.9   906.7     424   928.9     424   929.4     426   967.3
GR     426   983.6     426    1000     424  1028.3     424  1091.9     424  1145.2
GR     422  1167.8     422  1193.1     422  1242.1     420  1250.5     418  1254.3
GR     416  1260.3     416  1268.2     418  1270.3     418  1270.3     420  1275.3
GR     422  1280.7     424  1323.3     426  1337.8     428  1367.6     430  1496.1
```

GR	432	1597.8	434	1797.2						
X1	9810	31	1318.54	1908.86	369.4	338.2	325.3			
GR	438	1000	436	1042.47	434	1098.36	432	1258.69	430	1299.76
GR	428	1318.54	426	1335.26	424	1349.18	424	1369.98	426	1388.49
GR	428	1405.04	428	1450.62	426	1459.57	424	1581.47	422	1653.91
GR	420	1660.75	418	1667.19	416	1675.41	416	1685.21	418	1689.55
GR	420	1694.43	422	1697.5	424	1729.96	426	1773.33	426	1803.25
GR	426	1878.33	428	1908.86	430	1925.34	432	1950.77	434	2075.63
GR	436	2122.04								
X1	10296	23	901.03	1502.22	506.5	408	486.8			
GR	440	689.88	430	901.03	428	910.17	426	964.63	428	988.75
GR	428	1059.22	426	1137.99	424	1256.02	422	1259.31	420	1263.91
GR	418	1267.11	418	1275.83	420	1279.72	422	1286.47	424	1291.28
GR	426	1482.39	428	1489.38	428	1489.7	430	1502.22	432	1564.45
GR	434	1667.77	436	1720.36	438	1777.5				
X1	11400	36	764.5	2294.8	768.6	1106.4	882.2			
GR	446	656.7	440	741.2	434	764.5	433.8	768.6	433.6	772.9
GR	433.3	779.5	433.2	781.1	432.7	792.3	432.7	792.4	432.3	800.9
GR	432	807.8	436	818.4	438	826.9	434	861.1	434	1000
GR	432	1074.9	430	1630.5	428	1758.5	426	1763.1	424	1769.5
GR	422	1775	420	1783.8	420	1794	422	1800.3	424	1804
GR	426	1806.5	428	1819.7	430	2113.8	432	2266	434	2294.8
GR	436	2311.1	438	2321.9	440	2331.5	442	2359.6	442	2390.1
GR	442	2390.4								
X1	12000	53	1041.1	2660.7	493.2	522.5	555.9			
GR	458	1000	456	1005.9	454	1016.3	452	1020.7	450	1025.8
GR	440	1033.6	438	1038.4	436	1041.1	434	1045	432	1048.6
GR	430	1052.7	430	1062.3	440	1073.4	442	1076.1	442	1077
GR	444	1079.8	444	1108.5	442	1111.1	440	1115.1	438	1119.9
GR	436	1123.7	436	1124.6	436	1138.2	436	1145.2	438	1149.2
GR	440	1153	442	1157.6	442	1162.1	442	1169.1	442	1175.9
GR	440	1185.2	438	1195	436	1220.2	434	1236.6	432	1255.3
GR	430	1299.7	430	1328.8	430	1335.1	428	1360.1	428	1399.8
GR	430	1410.8	432	1501	432	1832	430	1968.8	428	1995.3
GR	428	2016.6	430	2047.8	430	2328.4	430	2347.6	432	2379.2
GR	434	2626.9	436	2660.7	438	2771.2				
X1	13028	36	933.8	2390.7	1001.1	717.2	1021.7			
GR	462	850.4	460	891.1	438	933.8	434	956.2	442	972.7
GR	442	1000	440	1012.7	438	1016	438	1022.5	438	1035.1
GR	438	1039.8	440	1046.3	440	1075.1	438	1080.6	436	1109
GR	434	1260.7	434	1559.8	434	1615.7	432	1621.6	430	1626.2
GR	430	1640.9	432	1645.4	434	1649.1	434	1649.1	434	1698.2
GR	432	1981.5	432	1991.8	434	2033.9	434	2033.9	436	2175.4
GR	438	2390.7	440	2413.6	442	2502.8	444	2629	446	2701.2
GR	448	2785.9								
QT	2	7732	7732							
X1	13821	22	885.73	2102.74	729.9	545.8	792.4			
GR	446	733.33	442	885.73	438	909.46	438	940.19	442	954.27
GR	444	967.49	444	1000	442	1034.13	440	1205.2	438	1371.43
GR	436	1841.89	434	1851.8	432	1856.48	432	1865.13	434	1870.52
GR	436	1875.73	438	2027.31	440	2068.3	442	2102.74	444	2117.36
GR	446	2145.58	448	2170.22						
X1	15090	30	903.7	1896.5	972.3	1326.7	1269.7			
GR	456	629.1	454	666.6	452	723.7	450	760.5	450	843.6
GR	444	903.7	438	917.9	444	944.4	446	1000	446	1012.9
GR	444	1028.4	444	1261.6	444	1334.1	442	1339.7	440	1347.6
GR	438	1351.5	438	1371.2	440	1384.1	442	1387.9	444	1395.3

GR	444	1490.3	444	1886	446	1896.5	448	1908.7	450	1920.4
GR	452	1967.2	454	2057.9	456	2217.3	458	2239.1	462	2279.9
X1	15668	31	660.03	1553.72	651.4	534.5	577.7			
GR	460	491.37	450	660.03	442	902.7	444	949.45	446	972.35
GR	448	1000	448	1011.74	446	1060.18	446	1217.17	446	1266.68
GR	444	1275.81	442	1280.21	442	1280.22	440	1288.51	440	1299.8
GR	442	1304.31	444	1305.62	446	1331.37	446	1386.93	446	1510.23
GR	448	1539.66	450	1553.72	452	1569.73	454	1588.46	456	1595.77
GR	458	1603.63	460	1610.33	462	1620.27	464	1633.15	466	1646.28
GR	468	1655.51								
X1	16335	55	1053.38	1843.69	646.3	631.5	666.6			
GR	470	1000	466	1007.02	464	1007.7	462	1015.21	460	1021.04
GR	458	1027.64	456	1042.91	454	1053.38	452	1057.48	450	1061.2
GR	448	1095.02	446	1190.36	446	1237.68	446	1268.4	444	1296.12
GR	442	1308.47	442	1326.51	444	1334.68	446	1340.52	448	1470.39
GR	448	1470.39	450	1541.01	450	1573.41	450	1588.77	452	1620.83
GR	454	1629.6	456	1664.85	458	1693.38	460	1699.54	462	1732.78
GR	462	1769.92	460	1790.55	452	1796.49	450	1799.01	448	1800.54
GR	446	1802.11	444	1804.47	444	1821.29	446	1826.53	448	1828.37
GR	450	1834.7	452	1837.22	454	1843.69	456	1853.73	458	1858.8
GR	460	1864.09	462	1880.15	464	1886.7	464	2017.06	462	2102.02
GR	462	2135.72	464	2209.55	466	2255.35	468	2292.22	470	2344.58
X1	16774	68	1061.71	2077.33	437.4	436.7	438.9			
GR	466	1000	464	1027.75	462	1050.53	460	1061.71	458	1083.6
GR	456	1097.61	454	1117.03	452	1138.47	450	1198.59	448	1224.69
GR	448	1262.44	448	1341.05	446	1355.99	446	1377.3	448	1392.6
GR	450	1404.66	450	1427.66	448	1446.67	448	1461.76	446	1475.95
GR	444	1481.21	444	1494.71	446	1504.26	448	1517.33	450	1541.12
GR	452	1570.32	454	1593.13	456	1639.49	458	1663.9	460	1725.65
GR	460	1833.81	460	1835.76	458	1838.38	454	1843.24	454	1881.01
GR	460	1886.73	462	1893.46	466	1913.12	464	1917.11	462	1999.4
GR	460	2012.05	452	2026.85	450	2031.38	448	2042.56	446	2047.05
GR	446	2051.9	448	2056.32	450	2059.89	460	2077.33	462	2083.83
GR	464	2088.25	466	2095.89	468	2105.01	470	2108.5	472	2113.51
GR	472	2116.89	470	2119.03	468	2120.21	466	2126.6	464	2201.6
GR	464	2223.73	464	2247.62	464	2255.13	466	2368.19	468	2546.24
GR	468	2546.26	468	2546.26	470	2622.69				
X1	17468	41	1221.46	2446.23	705	674.1	693.9			
GR	466	1000	464	1097.49	462	1144.24	462	1144.27	462	1144.28
GR	460	1165.65	458	1200.74	456	1221.46	454	1280.92	452	1738.15
GR	450	1774.37	450	1802.56	452	1822.85	454	1855.22	456	2037.48
GR	458	2046.77	460	2052.56	462	2059.22	464	2062.18	464	2064.86
GR	464	2069.98	464	2077.32	462	2079.32	460	2085.52	452	2097.84
GR	450	2102.49	450	2123.39	452	2134.41	454	2150.1	454	2214.66
GR	454	2216.14	454	2219.2	454	2253.93	454	2332.65	456	2446.23
GR	458	2515.53	460	2550.73	462	2608.12	464	2678.3	466	2709.39
GR	468	2729.82								
X1	18323	35	1174.63	3338.88	854.4	862.3	855.7			
GR	470	1000	468	1016.15	466	1036.55	464	1069.28	462	1126.22
GR	460	1174.63	458	1248.53	456	1485.77	456	1651.55	456	1717.06
GR	454	1724.29	454	1754.23	456	2026.93	456	2307.34	456	2311.59
GR	454	2319.7	454	2344.11	456	2360.71	458	2378.54	460	2457.76
GR	462	2463.49	464	2469.29	464	2485.27	462	2488.1	460	2494.91
GR	452	2501.41	452	2510.6	454	2520.63	456	2529.23	458	2537.98
GR	458	2636.64	458	3254.18	460	3338.88	462	3498	464	3851.86
X1	19350	42	1154.08	2744.29	1023.3	1027.6	1027.2			
GR	474	1000	472	1016.35	470	1033.48	468	1039.95	468	1039.96

GR	468	1039.97	466	1050.4	464	1059.96	464	1084.55	464	1154.08
GR	462	1267.68	462	1295.19	462	1333.67	462	1366	462	1892.89
GR	460	1975.64	458	1988.66	458	2005.67	460	2013.28	462	2034.43
GR	464	2124.02	466	2130.22	468	2140.31	468	2147.41	468	2154.2
GR	466	2156.44	464	2158.2	462	2166.61	460	2178.13	458	2183.6
GR	458	2194.41	460	2207.64	462	2445.43	464	2744.29	466	2858.49
GR	468	2941.99	470	3016.61	472	3068.74	474	3109.71	476	3162.53
GR	478	3255.37	480	3321.04						
X1	20198	27	1105	3246.34	871.6	836.1	847.5			
GR	480	1000	478	1013.58	476	1021.18	474	1033.36	472	1067.93
GR	470	1105	468	1419.8	468	1698.72	468	1833.18	466	2296.36
GR	464	2309.11	464	2338.45	466	2363.09	468	2412.34	470	2455.19
GR	472	2464.17	472	2474.81	470	2481.48	468	2484.77	466	2489.43
GR	464	2492.89	464	2517.9	466	2537.05	468	3128.8	470	3246.34
GR	472	3510.37	474	3623.23						
X1	21000	34	1547.5	3729.8	855.1	899.1	874.3			
GR	482	1000	480	1067.2	478	1223.8	476	1332.1	474	1463.1
GR	472	1547.5	470	1654.4	468	2193	468	2226.5	470	2466.9
GR	470	2625.6	470	2665.7	470	2711.5	468	2729.7	468	2741.9
GR	470	2748.2	472	2919.3	474	2959.2	474	2976.5	472	2978.6
GR	470	2990.1	468	2995.3	466	3000	464	3005.1	464	3022.8
GR	466	3029.1	468	3042.3	470	3055.9	470	3301.6	470	3436.1
GR	472	3729.8	474	3876.7	476	3944.5	478	3952.2		
X1	21695	39	1684.74	3232.61	627.3	604.8	608.8			
GR	490	1000	488	1077.17	486	1138	484	1205.12	482	1289.79
GR	480	1318.87	478	1489.45	476	1581.85	474	1684.74	472	2133.64
GR	470	2278.3	470	2311.62	472	2369.4	472	2469.31	472	2476.36
GR	470	2485.3	470	2508.64	472	2519.73	474	2530.92	476	2661.23
GR	476	2681.48	476	2728.37	478	2735.32	478	2746.55	476	2751.46
GR	474	2761.5	472	2774.24	472	2813.82	472	2928.63	470	2949.04
GR	468	2960.63	466	2971.46	466	2988.81	468	2997.02	470	3015.46
GR	472	3034.22	474	3232.61	476	3393.66	478	3427.17		
QT	2	5741	5741							
X1	23010	32	739.85	1695.73	1314.1	1344.7	1315.3			
GR	488	304.25	480	739.85	476	762.74	476	798.25	480	829
GR	482	999.38	484	1004.02	484	1023.23	482	1028.14	480	1035.8
GR	478	1044.22	478	1070.31	480	1082.35	480	1093.21	478	1097.63
GR	476	1101.05	474	1118.85	474	1151.37	476	1161.34	478	1174.31
GR	478	1205.47	478	1243.51	478	1586.13	476	1595.86	476	1609.36
GR	478	1623.11	480	1695.73	482	2006.37	484	2023.11	486	2131.17
GR	488	2172.49	490	2207.3						
X1	24360	38	1062.14	2517.39	1355.5	1352.6	1349.7			
GR	500	1000	498	1011.6	496	1027.89	494	1039.53	492	1050.67
GR	490	1062.14	488	1071.42	486	1086.96	484	1101.04	482	1109.32
GR	480	1115.69	480	1182.09	482	1185.91	484	1195.62	486	1213.92
GR	488	1219.12	490	1356.3	490	1378.08	490	1393.36	490	1409.06
GR	480	1422.4	478	1429.76	478	1459.9	480	1473.69	482	1485.85
GR	484	1498.95	486	1511.92	486	1557.88	486	1596.41	486	1854.83
GR	484	1874.94	484	1882.99	486	1948.77	484	2233.93	484	2381.67
GR	488	2472.54	490	2517.39	494	2712.35				
X1	25436	34	1281.05	2428.24	1081.4	1085.4	1076.1			
GR	512	1000	510	1019.68	508	1038.88	506	1046.95	504	1059.26
GR	502	1072.1	500	1087.48	498	1114.25	496	1133.77	496	1255.88
GR	496	1270.1	494	1281.05	492	1287.23	490	1293.38	488	1305.72
GR	486	1319.99	484	1329.48	484	1337.54	486	1343.4	488	1351.22
GR	490	1358.41	492	1370.75	492	1393.01	492	1426.24	492	1473.54
GR	492	1583.6	492	1652.32	492	1669.45	492	1694.44	492	2250.94

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GR    494 2428.24     496 2712.87     498 3024.41     500 3172.89
QT      2    2311    2311
X1 27641      37 1065.24 2013.81  1958.8  2160.8  2204.8
GR    510    1000     508 1022.54     506 1042.55     504 1054.52     502 1065.24
GR    500 1077.17     498 1083.84     496  1087.2     496 1099.12     498 1102.96
GR    500 1110.04     500 1591.29     498 1623.22     496 1632.53     494 1641.26
GR    494 1689.63     496 1696.06     500 1703.89     500 1703.92     500 1703.95
GR    502 1728.95     504 1744.94     504 1780.08     502 1792.47     500 1811.52
GR    498 1840.03     496 1853.35     496 1869.48     498 1880.31     500  1896.1
GR    502 2013.81     504 2214.81     506 2409.87     508  2507.2     510 2597.24
GR    512 2640.71     514 2661.87
X1 28422      55 1269.27 2381.49   719.5   833.7   781.2
GR    520    1000     518 1016.12     518 1016.31     516  1041.7     514  1051.4
GR    514 1051.43     514 1051.44     512 1062.47     510 1082.12     508 1106.01
GR    506 1269.27     504 1276.96     502 1284.63     502 1304.67     504 1325.02
GR    504 1334.11     504 1366.73     506 1698.16     506 1880.93     504 1952.55
GR    504 1968.78     504 2106.84     504 2106.85     504 2106.86     502 2113.69
GR    500 2122.69     500 2146.67     502 2153.34     502 2171.82     502 2191.23
GR    504 2196.91     504 2197.01     504  2197.1     506 2266.48     506 2332.69
GR    504 2339.99     502 2349.15     502 2362.54     504 2370.16     506 2381.49
GR    508 2448.91     510 2461.18     512 2468.51     512 2471.76     514 2478.79
GR    514 2493.87     514 2496.88     512 2502.38     510 2509.99     510 2517.62
GR    514  2526.8     514 2537.91     516 2574.19     518 2610.96     520 2646.36
X1 29403      26 1120.34 1880.49  1212.6   875.9   980.8
GR    526    1000     524  1023.3     522 1039.41     520 1074.75     518 1105.56
GR    516 1120.34     514 1142.81     512 1198.18     510 1317.97     510 1362.83
GR    512  1372.5     512 1597.32     512 1653.35     514 1732.35     514 1854.57
GR    514 1874.15     516 1880.49     518 1887.02     518 1890.04     518 1916.15
GR    514 1921.77     514 1983.94     516 2011.86     518 2451.31     520 2542.68
GR    530 2691.73
X1 30485      20 1207.46 2164.12   974.6  1016.6  1082.6
GR    536    1000     534    1012     532 1028.94     530 1038.61     528 1058.38
GR    526    1080     524 1121.89     522 1155.55     520 1207.46     518 1333.01
GR    516 1482.81     516 2057.81     518  2134.1     520 2164.12     522 2172.56
GR    522 2215.16     524 2220.14     524 2220.85     530 2280.99     536 2393.72
X1 31348      34 1405.39    2413   865.9   807.1     863
GR    526    1000     524  1067.3     524 1067.36     522 1219.36     520 1301.34
GR    520 1301.37     520 1301.41     520 1358.92     520 1405.39     518 1527.85
GR    518 1546.95     518 1800.13     518 1810.64     518 1837.98     518 1899.03
GR    520    2413     522 2524.53     524 2532.38     526 2535.14     528 2540.54
GR    528 2557.13     528 2579.58     526  2586.8     524 2686.14     524 2692.57
GR    526 2713.08     528 2736.91     530 2770.91     532 2797.33     534 2820.25
GR    536 2835.01     538 2847.58     540 2856.73     542 2873.69
EJ
T1       Method 4 Input
T2       Chacon Creek Watershed - City of Laredo
T3       Tributary 2
J1              3                                                8829   392.5
J2     15              -1


ER
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FLOODWAY DATA, Tributary 2
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	WATER SURFACE ELEVATION DIFFERENCE
.000	573.	2735.	3.2	392.5	391.5	1.0
836.000	358.	1562.	5.7	395.8	396.1	-.3
1201.000	267.	1098.	8.0	400.0	399.7	.3
1850.000	266.	1892.	4.7	405.1	404.9	.2
2039.000	151.	1148.	7.7	405.4	405.2	.2
2679.000	257.	1876.	4.7	409.1	408.6	.5
2993.000	173.	1504.	5.9	409.6	409.2	.4
3051.000	166.	1525.	5.8	410.2	409.2	1.0
3441.000	153.	1091.	8.1	410.9	410.4	.5
4144.000	346.	2558.	3.5	414.1	413.6	.5
4727.000	375.	2119.	4.2	415.4	415.0	.4
5298.000	287.	1864.	4.7	417.4	416.9	.5
5891.000	543.	2661.	3.2	419.4	418.8	.6
6500.000	204.	1437.	5.9	420.4	420.2	.2
6550.000	196.	1556.	5.5	420.9	420.7	.2
7000.000	472.	2357.	3.6	422.8	422.7	.1
7904.000	821.	2383.	3.6	424.2	424.1	.1
8639.000	574.	2451.	3.5	426.8	426.8	.0
9484.000	445.	2485.	3.4	429.1	429.1	.0
9810.000	590.	2989.	2.9	429.8	429.8	.0
10296.000	601.	2980.	2.9	430.7	430.7	.0
11400.000	1488.	3492.	2.4	432.8	432.8	.0
12000.000	1584.	4231.	2.0	434.1	434.1	.0
13028.000	1312.	3105.	2.8	436.7	436.7	.0
13821.000	1174.	2509.	3.1	440.1	440.1	.0
15090.000	993.	2578.	3.0	446.3	446.3	.0
15668.000	846.	2647.	2.9	448.7	448.7	.0
16335.000	777.	2314.	3.3	451.1	451.1	.0
16774.000	934.	1998.	3.9	452.7	452.7	.0
17468.000	1218.	2812.	2.8	455.9	455.9	.0
18323.000	2069.	4124.	1.9	458.8	458.8	.0
19350.000	1474.	2344.	3.3	463.4	463.4	.0
20198.000	1944.	3423.	2.3	469.1	469.1	.0
21000.000	2141.	4357.	1.8	471.8	471.8	.0
21695.000	1531.	2561.	3.0	474.0	474.0	.0
23010.000	956.	2199.	2.6	480.6	480.6	.0
24360.000	1351.	2208.	2.6	486.4	486.4	.0
25436.000	1102.	1912.	3.0	493.5	493.5	.0
27641.000	915.	1858.	1.2	501.5	501.5	.0
28422.000	1091.	292.	7.9	503.7	503.7	.0
29403.000	569.	1088.	2.1	513.7	513.7	.0
30485.000	777.	1208.	1.9	517.8	517.8	.0
31348.000	1008.	1610.	1.4	520.2	520.2	.0

Figures

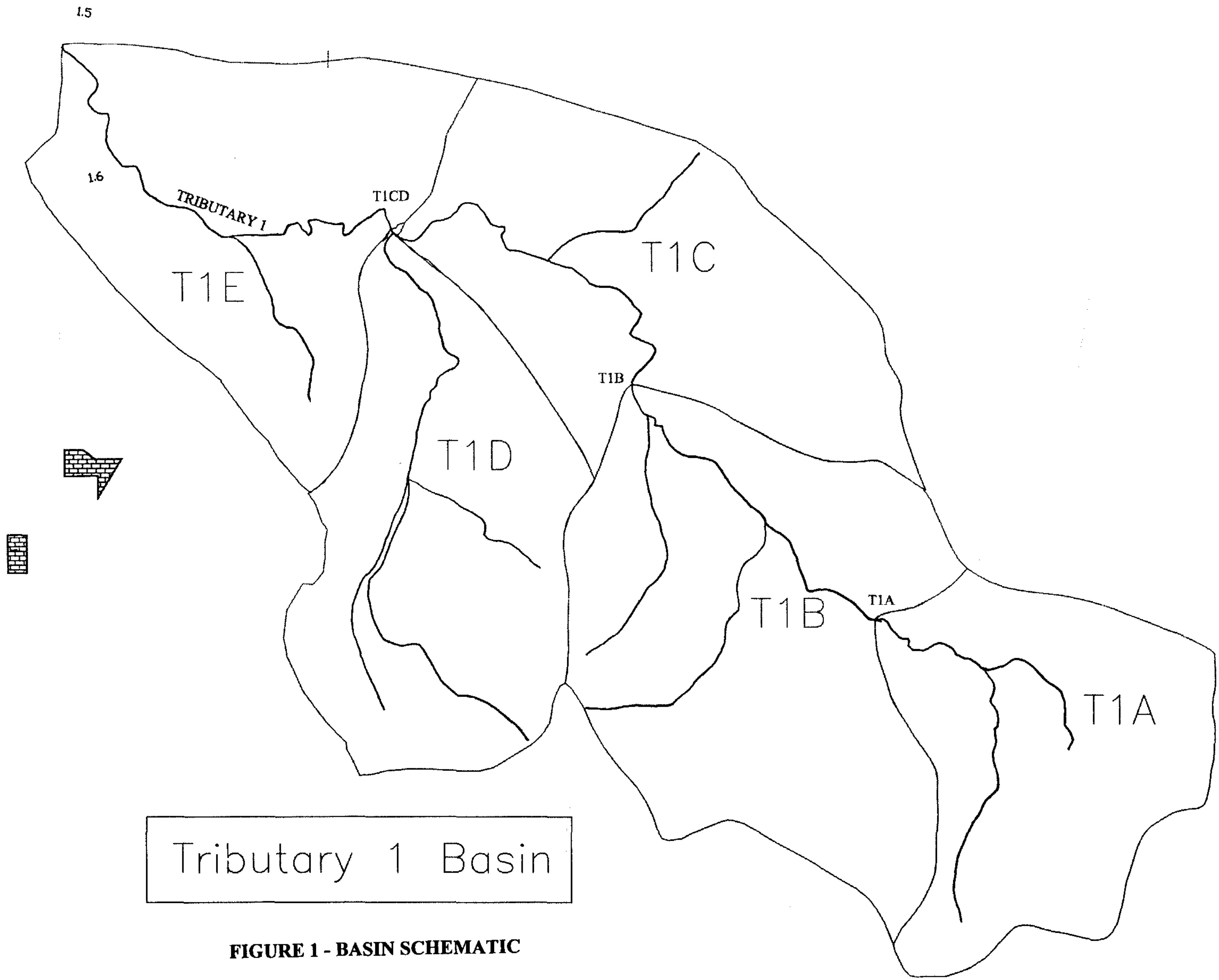

FIGURE 1 - BASIN SCHEMATIC

Tables

TABLE 1

PRECIPITATION PATTERN FOR TRIBUTARY 1 SUBBASIN

Return Frequency (yrs)	Total Precipitation (in)	Precipitation Percentages						Total
		8	15	47	13	9	8	100
		0.080	0.150	0.470	0.130	0.090	0.080	1.000
10	4.32	0.35	0.65	2.03	0.56	0.39	0.35	4.32
25	5.06	0.40	0.76	2.38	0.66	0.46	0.40	5.06
50	5.75	0.46	0.86	2.70	0.75	0.52	0.46	5.75
100	6.58	0.53	0.99	3.09	0.86	0.59	0.53	6.58
500	8.00	0.64	1.20	3.76	1.04	0.72	0.64	8.00

TABLE 2
HEC-1 PARAMETERS FOR TRIBUTARY 1 SUB-BASIN (EXISTING CONDITION)

RETURN PERIOD	AREA	AREA SQ. MILES	L (ft)	Lc (ft)	Areal Correction	Rainfall TP-40	Correct. Rainfall	CN	S	Ia	Q	F	F / # Periods	Tp	Cp	
10	T1A	1.002	8346.0	5169.0	0.920	4.70	4.32	70	4.29	0.86	1.55	1.92	0.319	1.11	0.80	
	T1B	1.537	11161.0	5186.0	0.920	4.70	4.32	69	4.49	0.90	1.48	1.94	0.324	1.68	0.80	
	T1C	1.241	11328.0	5371.0	0.920	4.70	4.32	71	4.08	0.82	1.62	1.89	0.314	1.78	0.80	
	T1D	1.192	11477.0	6133.0	0.920	4.70	4.32	69	4.49	0.90	1.48	1.94	0.324	1.80	0.80	
	T1E	1.229	10238.0	5823.0	0.920	4.70	4.32	78	2.82	0.56	2.15	1.61	0.269	1.22	0.80	Changed to 0.66 to account for detention
25	T1A	1.002	8346.0	5169.0	0.920	5.50	5.06	70	4.29	0.86	2.08	2.12	0.354	1.11	0.80	
	T1B	1.537	11161.0	5186.0	0.920	5.50	5.06	69	4.49	0.90	2.00	2.16	0.360	1.68	0.80	
	T1C	1.241	11328.0	5371.0	0.920	5.50	5.06	71	4.08	0.82	2.16	2.08	0.347	1.78	0.80	
	T1D	1.192	11477.0	6133.0	0.920	5.50	5.06	69	4.49	0.90	2.00	2.16	0.360	1.80	0.80	
	T1E	1.229	10238.0	5823.0	0.920	5.50	5.06	78	2.82	0.56	2.76	1.73	0.289	1.22	0.80	"
50	T1A	1.002	8346.0	5169.0	0.920	6.25	5.75	70	4.29	0.86	2.61	2.28	0.381	1.11	0.80	
	T1B	1.537	11161.0	5186.0	0.920	6.25	5.75	69	4.49	0.90	2.52	2.33	0.389	1.68	0.80	
	T1C	1.241	11328.0	5371.0	0.920	6.25	5.75	71	4.08	0.82	2.70	2.23	0.372	1.78	0.80	
	T1D	1.192	11477.0	6133.0	0.920	6.25	5.75	69	4.49	0.90	2.52	2.33	0.389	1.80	0.80	
	T1E	1.229	10238.0	5823.0	0.920	6.25	5.75	78	2.82	0.56	3.36	1.83	0.304	1.22	0.80	"
100	T1A	1.002	8346.0	5169.0	0.920	7.15	6.58	70	4.29	0.86	3.27	2.45	0.408	1.11	0.80	
	T1B	1.537	11161.0	5186.0	0.920	7.15	6.58	69	4.49	0.90	3.17	2.51	0.418	1.68	0.80	
	T1C	1.241	11328.0	5371.0	0.920	7.15	6.58	71	4.08	0.82	3.37	2.39	0.398	1.78	0.80	
	T1D	1.192	11477.0	6133.0	0.920	7.15	6.58	69	4.49	0.90	3.17	2.51	0.418	1.80	0.80	
	T1E	1.229	10238.0	5823.0	0.920	7.15	6.58	78	2.82	0.56	4.09	1.92	0.320	1.22	0.80	"
500	T1A	1.002	8346.0	5169.0	0.920	8.70	8.00	70	4.29	0.86	4.47	2.68	0.447	1.11	0.80	
	T1B	1.537	11161.0	5186.0	0.920	8.70	8.00	69	4.49	0.90	4.35	2.75	0.459	1.68	0.80	
	T1C	1.241	11328.0	5371.0	0.920	8.70	8.00	71	4.08	0.82	4.58	2.60	0.434	1.78	0.80	
	T1D	1.192	11477.0	6133.0	0.920	8.70	8.00	69	4.49	0.90	4.35	2.75	0.459	1.80	0.80	
	T1E	1.229	10238.0	5823.0	0.920	8.70	8.00	78	2.82	0.56	5.39	2.05	0.341	1.22	0.80	"

* "DARF" applied for the entire T1 Watershed.

TABLE 3
HEC-1 PARAMETERS FOR TRIBUTARY 1 SUB-BASIN (FUTURE CONDITION)

RETURN PERIOD	AREA	AREA SQ. MILES	L (ft)	Lc (ft)	Areal Correction	Rainfall TP-40	Correct. Rainfall	CN	S	Ia	Q	F	F / # Periods	Tp	Cp	
10	T1A	1.002	8346.0	5169.0	0.920	4.70	4.32	80	2.50	0.50	2.31	1.51	0.252	0.83	0.80	
	T1B	1.537	11161.0	5186.0	0.920	4.70	4.32	80	2.50	0.50	2.31	1.51	0.252	1.23	0.80	
	T1C	1.241	11328.0	5371.0	0.920	4.70	4.32	82	2.20	0.44	2.48	1.40	0.234	1.29	0.80	
	T1D	1.192	11477.0	6133.0	0.920	4.70	4.32	82	2.20	0.44	2.48	1.40	0.234	1.23	0.80	
	T1E	1.229	10238.0	5823.0	0.920	4.70	4.32	78	2.82	0.56	2.15	1.61	0.269	1.22	0.80	changed to 0.66 to account for detention
25	T1A	1.002	8346.0	5169.0	0.920	5.50	5.06	80	2.50	0.50	2.95	1.61	0.269	0.83	0.80	
	T1B	1.537	11161.0	5186.0	0.920	5.50	5.06	80	2.50	0.50	2.95	1.61	0.269	1.23	0.80	
	T1C	1.241	11328.0	5371.0	0.920	5.50	5.06	82	2.20	0.44	3.13	1.49	0.248	1.29	0.80	
	T1D	1.192	11477.0	6133.0	0.920	5.50	5.06	82	2.20	0.44	3.13	1.49	0.248	1.23	0.80	
	T1E	1.229	10238.0	5823.0	0.920	5.50	5.06	78	2.82	0.56	2.76	1.73	0.289	1.22	0.80	"
50	T1A	1.002	8346.0	5169.0	0.920	6.25	5.75	80	2.50	0.50	3.56	1.69	0.282	0.83	0.80	
	T1B	1.537	11161.0	5186.0	0.920	6.25	5.75	80	2.50	0.50	3.56	1.69	0.282	1.23	0.80	
	T1C	1.241	11328.0	5371.0	0.920	6.25	5.75	82	2.20	0.44	3.76	1.55	0.259	1.29	0.80	
	T1D	1.192	11477.0	6133.0	0.920	6.25	5.75	82	2.20	0.44	3.76	1.55	0.259	1.23	0.80	
	T1E	1.229	10238.0	5823.0	0.920	6.25	5.75	78	2.82	0.56	3.36	1.83	0.304	1.22	0.80	"
100	T1A	1.002	8346.0	5169.0	0.920	7.15	6.58	80	2.50	0.50	4.31	1.77	0.295	0.83	0.80	
	T1B	1.537	11161.0	5186.0	0.920	7.15	6.58	80	2.50	0.50	4.31	1.77	0.295	1.23	0.80	
	T1C	1.241	11328.0	5371.0	0.920	7.15	6.58	82	2.20	0.44	4.52	1.62	0.269	1.29	0.80	
	T1D	1.192	11477.0	6133.0	0.920	7.15	6.58	82	2.20	0.44	4.52	1.62	0.269	1.23	0.80	
	T1E	1.229	10238.0	5823.0	0.920	7.15	6.58	78	2.82	0.56	4.09	1.92	0.320	1.22	0.80	"
500	T1A	1.002	8346.0	5169.0	0.920	8.70	8.00	80	2.50	0.50	5.63	1.88	0.313	0.83	0.80	
	T1B	1.537	11161.0	5186.0	0.920	8.70	8.00	80	2.50	0.50	5.63	1.88	0.313	1.23	0.80	
	T1C	1.241	11328.0	5371.0	0.920	8.70	8.00	82	2.20	0.44	5.86	1.70	0.284	1.29	0.80	
	T1D	1.192	11477.0	6133.0	0.920	8.70	8.00	82	2.20	0.44	5.86	1.70	0.284	1.23	0.80	
	T1E	1.229	10238.0	5823.0	0.920	8.70	8.00	78	2.82	0.56	5.39	2.05	0.341	1.22	0.80	"

* "DARF" applied for the entire T1 Watershed.

TABLE 4
TRIBUTARY 1 - CHANNEL ROUTING PARAMETERS FOR THE HEC-1 MODEL

U/S cross section	D/S cross section	**Flow** (cfs)	Vol (ac-ft) U/S	Vol (ac-ft) D/S	**Storage** (ac-ft)	Travel Time (hrs)
9284	0	500	51	0	51	1.02
9284	0	1000	83	0	83	0.90
9284	0	1500	109	0	109	0.81
9284	0	2000	135	0	135	0.76
9284	0	3000	181	0	181	0.68
9284	0	4000	227	0	227	0.64
9284	0	5000	272	0	272	0.62
9284	0	6000	315	0	315	0.60
9284	0	7000	359	0	359	0.58
Reach 3					**Average**	**0.73**
No. of routing steps = Travel Time/ Time Interva			8.7		**Used 8**	
15913	9284	500	84	51	33	0.70
15913	9284	1000	141	83	58	0.60
15913	9284	1500	192	109	83	0.57
15913	9284	2000	237	135	102	0.54
15913	9284	3000	318	181	137	0.49
15913	9284	4000	394	227	167	0.45
15913	9284	5000	467	272	195	0.41
15913	9284	6000	537	315	222	0.39
15913	9284	7000	605	359	246	0.37
Reach 2					**Average**	**0.50**
No. of routing steps = Travel Time/ Time Interva			6.0		**Used 6**	
20844	15913	300	78	54	24	1.05
20844	15913	600	134	96	38	0.86
20844	15913	900	181	131	50	0.74
20844	15913	1200	224	162	62	0.68
20844	15913	1500	264	192	72	0.64
20844	15913	1800	301	219	82	0.60
20844	15913	2100	337	246	91	0.57
20844	15913	2400	370	271	99	0.54
20844	15913	2700	402	295	107	0.53
Reach 1					**Average**	**0.69**
No. of routing steps = Travel Time/ Time Interva			8.2		**Used 8**	

TRTIBUTARY 1 HEC-2 MODEL
(Flood Hazard)

```
C
C       6
C     3552Loop 20
C     3635Loop 20
C     5617Century City Blvd
C     5692Century City Blvd
C     6559Culvert East C.C.
C     6593Culvert East C.C.
T1    City of Laredo Flood Insurance Study Update (for development to Jan.1994)
T2    Chacon Creek Watershed - Tributary 1 to Chacon Creek - 1988 NAVD
T3         TRIB 1 EXISTING CHANNEL MODEL Dec. 1998
J1               2                 0.00946                           2948  376.73
J2          1              -1
J3         38      43       7       6      41       1     150       0       0       0
J6          1
NC       0.06    0.06   0.065     0.1     0.3
X1          0      32 1197.23 1344.37
GR        396    1000     394 1030.55     392 1048.26     390 1067.01     388  1085.4
GR        386 1110.35     384 1131.52     384 1131.53     382 1142.05     380 1150.32
GR        378 1176.67     376 1197.23     374 1232.76     372 1235.92     370 1239.75
GR        370  1276.2     372 1285.25     374 1309.92     376 1344.37     376 1373.46
GR        376 1384.47     376 1384.49     378 1525.68     380  1561.9     380 1562.01
GR        382 1587.23     384 1611.58     386 1628.11     388 1631.83     390 1635.83
GR        392 1637.69     394 1643.04
X1        634      20 1569.95  1709.3  577.11  631.08  633.75
GR        390 1023.11     384 1297.65     384 1569.95     382 1585.65     380  1595.8
GR        378 1632.28     376 1643.51     376 1664.33     378  1676.1     380 1689.25
GR        382 1695.25     384 1704.08     386  1709.3     388 1714.53     390 1719.31
GR        392 1733.33     394 1748.62     396  1757.2     398 1773.59     400 1805.18
X1        994      28 1278.04 1417.07  285.08  398.72  360.37
X3          0                    1238     384
GR        394  843.04     390    1000     388 1012.12     386 1017.51     384 1024.09
GR        382  1029.5     380 1037.22     380 1040.64     382 1069.01     382 1107.49
GR        382 1195.67     384 1237.44     384 1278.04     382 1341.61     380 1351.58
GR        378 1355.13     376 1357.97     376 1373.82     378  1383.3     380 1392.07
GR        382 1402.99     384 1417.07     384 1550.17     384 1625.95     386 1691.61
GR        388 1789.46     390 1922.96     394 2030.87
X1       1278      30 1186.85 1379.69  228.71  289.34  284.13
X3          0                 1136.75  387.93
GR        396  799.61     392  982.03     390    1000     388 1011.71     386 1017.63
GR        384 1026.93     382  1041.7     382 1065.08     384 1087.54     386  1115.5
GR        388 1136.49     388  1147.5     388 1171.06     388 1186.85     386 1219.55
GR        384 1227.84     382 1237.16     380 1253.11     378 1259.43     378 1270.09
GR        380 1275.97     382 1288.07     384 1300.96     386    1324     388 1379.69
GR        390 1419.23     392 1548.67     394 1585.73     396 1635.45     404  1714.1
X1       1671      26 1146.13 1265.68   339.2  395.72  393.34
X3          0                                 1266.88  388.07
GR        396  965.42     392    1000     390  1122.8     388 1146.13     386 1158.18
GR        384 1172.78     382 1198.32     380 1208.08     380  1235.9     382 1242.17
GR        384 1244.97     386 1259.04     388 1265.68     388 1326.78     386 1363.14
GR        386 1402.89     388 1440.64     390 1464.39     392 1487.03     394 1510.04
GR        396 1542.29     398 1563.39     400 1584.43     402 1611.03     402 1611.04
GR        404 1628.41
X1       1745      21 1317.84 1503.63   84.05   66.59   74.37
GR        400    1000     398 1132.92     396 1154.99     394 1163.88     392 1243.66
GR        390 1311.45     388 1317.84     386 1338.79     384 1402.31     382 1421.41
GR        380 1433.63     380 1457.47     382 1461.05     384 1473.02     386 1483.32
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GR   388 1503.63     390 1663.66     392 1698.21     394 1725.65     396 1761.94
GR   398 1797.75
X1  1910      24  1152.6 1420.98  206.24  104.55  164.85
GR   404    1000     402 1071.19     402 1123.47     402 1134.09     400 1143.91
GR   398 1147.86     396 1149.15     394  1152.6     392 1157.78     390 1164.96
GR   384 1168.11     384 1168.14     382 1170.86     382 1170.89     382  1182.3
GR   384 1192.54     386 1203.24     388 1248.29     390 1319.75     392 1382.97
GR   394 1420.98     396 1729.01     398  1781.2     400 1848.67
X1  2079      30 1445.05 1585.93  178.21   139.7  168.26
X3     0                                 1657.73  393.99
GR   402    1000     400  1109.6     398 1121.74     396  1131.6     394 1201.52
GR   394 1201.62     392 1281.24     392 1420.05     392 1445.05     390 1463.37
GR   388 1469.25     386 1472.15     384 1478.55     382 1487.81     382 1497.86
GR   384 1502.68     386 1508.85     388  1531.7     390 1559.99     392 1585.93
GR   394 1656.39     394 1702.19     392 1723.42     392 1748.65     394 1755.86
GR   394 1857.65     394 1860.27     396 1870.44     398 1902.16     400 2036.79
X1  2259      15 1462.53 1569.09   213.6  106.58  180.22
GR   400    1000     398 1053.48     396 1321.14     394 1450.07     392 1462.53
GR   390 1479.25     384 1485.03     382 1488.36     382 1508.59     384 1516.25
GR   386 1529.14     388  1543.1     390 1552.25     392 1569.09     400  2031.8
X1  2596      18 1263.86 1456.47  186.69  360.82  337.24
GR   406  897.78     398    1000     396 1263.86     394  1310.6     392 1396.86
GR   390  1415.9     388 1419.92     385 1421.89     385 1431.78     388 1436.91
GR   390 1440.69     400 1456.47     400 1502.13     400 1603.23     402 1618.05
GR   404 1627.51     406 1686.83     406 1686.88
X1  2815      22 1152.76 1429.77  189.97  266.11  218.66
GR   406    1000     406 1030.51     404 1036.02     402  1039.7     400 1044.72
GR   398  1058.6     398 1103.79     398 1152.76     396 1177.96     394 1312.79
GR   392 1320.59   385.8 1326.54   385.8 1337.21     392 1348.73     394 1416.69
GR   396 1423.67     398 1429.77     400 1434.62     402 1616.83     404  1769.3
GR   406 1834.75     408 1881.87
NC  0.06    0.06   0.065
X1  3318      19 1218.26 1479.48  557.22  419.32  503.54
GR   410  886.35     406    1000     404  1059.8     402 1134.75     400 1218.26
GR   398  1331.8     396 1391.24     394 1406.84   386.1 1419.36   386.1 1444.31
GR   394 1450.38     396 1456.94     398 1461.17     400 1467.31     402 1479.48
GR   404 1658.49     406  1729.8     408 1889.53     410 1978.67
NC  0.06    0.06   0.015     0.3     0.5
* Loop 20 Culvert Crossing - Downstream
X1  3552      19 1497.66 1847.94  207.89   285.4  233.42
GR   410    1000     408 1037.59     406 1090.84     404 1180.76     402 1242.38
GR   400 1497.66     394 1635.88  386.15 1648.77  386.15 1695.95     394 1698.37
GR   400 1755.15     402  1798.5     404 1847.94     406 1886.31     408 1923.05
GR   410 1958.86     412 1992.38     414 2025.44     416 2055.75
SC 3.015     0.5     2.5  257.59      12      10      90     8.1  386.15  386.15
* Loop 20 Culvert Crossing - Upstream
X1  3635      19 1497.66 1847.94   22.87   98.69   83.43
X2                     2          399.42
GR   410    1000     408 1037.59     406 1090.84     404 1180.76     402 1242.38
GR   400 1497.66     394 1635.88  386.15 1648.77  386.15 1695.95     394 1698.37
GR   400 1755.15     402  1798.5     404 1847.94     406 1886.31     408 1923.05
GR   410 1958.86     412 1992.38     414 2025.44     416 2055.75
NC  0.06    0.06    .065     0.1     0.3
X1  3774      21 1506.01  1670.8  183.37   98.23  138.58
GR   410    1000     408 1061.07     406 1112.05     404 1128.25     402 1387.23
GR   402 1388.59     400 1506.01     398 1519.16     396 1531.71     394 1543.08
GR   390 1554.21     390 1558.99     394 1570.53     396 1579.24     398 1595.19
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GR   400  1670.8     402 1764.63     404 1839.06     406 1852.93     408  1864.8
GR   410 1884.05
X1  4035      31 1501.49 1638.91  210.79  271.59  261.14
X3     0                                 1640.22  401.98
GR   422    1000     420 1005.47     418 1016.11     416 1021.97     416    1022
GR   414 1126.75     412 1181.75     410 1260.02     408 1287.12     408 1356.19
GR   408 1358.87     406 1381.11     404 1452.57     404 1461.97     404 1467.19
GR   402 1501.49     400  1558.4     398 1570.31     396 1580.42     396 1599.94
GR   398 1613.48     400 1627.07     402 1638.91     402 1760.25     400 1883.48
GR   398  1905.6     398 1919.44     400 1933.56     402 1954.32     404 2014.19
GR   420 2247.71
X1  4183      27 1409.08 1628.61  192.75  148.35  148.35
X3     0                                 1631.88  404.03
GR   420    1000     418 1024.39     416 1042.04     414 1101.74     412 1132.83
GR   410  1201.4     408 1268.46     406 1340.65     404 1409.08     402 1436.14
GR   400 1497.01     398 1506.96     396 1518.37     396 1527.07     398 1531.77
GR   400 1538.97     402 1548.58     404 1628.61     404 1735.34     402 1788.53
GR   400 1814.15     400 1845.67     402 1853.44     404 1886.31     406 1941.56
GR   408 2023.15     410 2094.25
X1  4536      33 1554.81 1796.88  384.62  320.98  352.42
GR   432    1000     430 1008.45     428 1022.64     428 1095.07     428 1131.73
GR   426 1137.77     424 1147.89     422 1166.47     420 1197.59     418 1269.87
GR   416 1280.08     414 1300.75     412 1312.61     410 1480.46     408 1521.23
GR   406 1529.86     406 1548.65     406 1554.81     404 1589.11     402 1632.96
GR   400 1656.55     400 1714.79     402 1727.05     404 1743.43     406 1796.88
GR   408 1906.75     410 2001.97     412 2090.95     412    2091     414 2110.85
GR   416 2135.83     416 2140.86     416 2156.74
X1  4989      24 1390.33 1485.87     394  479.93  453.69
GR   430  686.41     420  848.82     414    1000     412 1031.44     410 1109.75
GR   408 1142.27     406 1390.33     404 1409.85   401.5 1419.28   401.5 1436.86
GR   404 1445.22     404 1453.42     404 1467.26     406 1485.87     408 1508.91
GR   410 1526.76     410 1526.79     412 1559.58     414 1563.96     416 1581.18
GR   418  1595.6     420 1611.58     422 1649.08     424 1679.38
NC  0.06    0.06   0.065
X1  5229      31  1441.6 1537.34  225.52  201.25  240.16
GR   434    1000     432 1018.02     430 1054.15     428 1074.85     426 1096.89
GR   424 1105.17     422 1141.37     420 1167.84     418 1198.83     416 1264.56
GR   414 1285.88     412 1331.22     410 1398.68     408 1441.59     408  1441.6
GR   406 1459.36     404 1469.67   401.5 1478.88   401.5 1497.82     404 1509.95
GR   406 1528.89     408 1537.34     408  1610.4     408 1718.15     410 1745.82
GR   412 1769.89     414 1788.02     416  1797.1     418 1812.55     420 1857.72
GR   422  1947.1
NC  0.06    0.06   0.015     0.3     0.5
* Culvert at Century City  #13 - Downstream
X1  5617      31  1198.1  1411.3  436.55  342.76   387.1
GR   448    1000     446 1004.89     444  1009.5     440 1018.47     430 1039.19
GR   428    1056     426 1067.44     424 1078.77     422 1087.38     420  1094.1
GR   418 1099.18     416 1103.59     414 1148.76     412  1198.1     410 1250.34
GR   408 1269.89     406 1276.26     404 1288.77  401.79 1296.19  401.79 1307.68
GR401.79 1314.26     406 1320.67     408 1330.84     410  1411.3     412 1604.39
GR   412 1604.44     414 1685.32     416 1741.28     418 1817.86     420 1887.57
GR   422 1989.98
SC 3.015     0.5     2.5  161.03       5       0      83     1.2   402.1   401.8
* Culvert at Century City - Upstream
X1  5692      31  1198.1  1411.3   74.17   78.41   75.13
X2                     2           410.4
GR   448    1000     446 1004.89     444  1009.5     440 1018.47     430 1039.19
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GR     428    1056     426 1067.44     424 1078.77     422 1087.38     420  1094.1
GR     418 1099.18     416 1103.59     414 1148.76     412  1198.1     410 1250.34
GR     408 1269.89     406 1276.26     404 1288.77  401.79 1296.19  401.79 1307.68
GR401.79 1314.26     406 1320.67     408 1330.84     410  1411.3     412 1604.39
GR     412 1604.44     414 1685.32     416 1741.28     418 1817.86     420 1887.57
GR     422 1989.98
NC  0.06    0.06    .065     0.1     0.3
X1  5895      36 1489.83 1764.34  219.35  173.92  203.69
GR     430    1000     428 1053.26     426 1075.49     424  1094.8     422 1120.38
GR     420 1142.52     418  1156.3     416 1181.86     414 1233.73     412 1489.83
GR     410 1506.83     408 1531.12     406 1560.26     406 1560.26     404 1572.68
GR     404 1572.71     402 1594.29     402 1594.31     402 1619.43     404 1637.98
GR     406 1652.58     408 1668.22     406 1672.58     406 1681.47     408  1697.2
GR     410 1711.45     412 1764.34     414  1824.4     416 1870.99     418 1935.55
GR     420 2095.04     422 2228.88     424 2295.78     426 2351.96     428 2396.18
GR     430 2414.13
X1  6125      24 1403.92 1492.14  209.06  239.76  229.69
GR     430  757.46     420    1000     418 1024.37     416 1068.67     414 1102.35
GR     414 1114.57     414 1223.32     412 1403.92     410 1415.67     408 1430.34
GR     406 1442.98     404 1457.93     404 1468.97     406 1473.66     408 1480.13
GR     410 1484.67     412 1492.14     414 1517.75     416 1523.34     418 1542.58
GR     420 1673.21     422 1735.89     424 1953.83     430  2132.1
NC  0.06    0.06   0.065
X1  6441      26 1361.66  1530.2  316.23  307.03  316.23
GR     440  896.52     430    1000     428  1015.9     426 1039.22     424 1058.02
GR     422 1078.58     420 1094.09     418 1139.44     416 1224.37     414 1361.66
GR     412 1383.06     410 1393.51     408 1399.14     406 1405.14     406 1421.28
GR     408 1429.97     410 1440.55     412 1458.75     414  1530.2     416 1600.41
GR     418 1629.91     420 1674.94     422 1761.77     424 1821.02     426 1885.92
GR     432 2039.87
NC  0.06    0.06   0.015     0.3     0.5
* Culvert East of Century City  #14 - Downstream
X1  6559      33 1481.86 1591.53  102.66  128.65  117.95
GR     440    1000     438 1016.92     436 1048.38     434 1072.18     432  1107.7
GR     430 1127.67     428 1140.17     426 1159.94     424 1169.11     422 1185.68
GR     420 1200.65     418 1275.56     416  1328.3     414 1388.17     412 1481.86
GR     410 1510.93     408 1519.36     406 1529.21     406 1541.21     406 1544.21
GR     410 1564.11     412 1591.53     414 1625.75     416 1686.02     418 1740.29
GR     420 1772.26     422 1842.21     424 1876.48     426 1935.42     428 2000.59
GR     430 2030.92     430 2030.94     432 2094.76
SC 4.028     0.5     2.5  111.94       3       0   32.57     2.2  406.35  406.02
* Culvert East of Century City - Upstream
X1  6593      33 1481.86 1591.53   33.17    31.2   33.75
X2                       2          414.18
GR     440    1000     438 1016.92     436 1048.38     434 1072.18     432  1107.7
GR     430 1127.67     428 1140.17     426 1159.94     424 1169.11     422 1185.68
GR     420 1200.65     418 1275.56     416  1328.3     414 1388.17     412 1481.86
GR     410 1510.93     408 1519.36     406 1529.21     406 1541.21     406 1544.21
GR     410 1564.11     412 1591.53     414 1625.75     416 1686.02     418 1740.29
GR     420 1772.26     422 1842.21     424 1876.48     426 1935.42     428 2000.59
GR     430 2030.92     430 2030.94     432 2094.76
NC  0.06    0.06    .065     0.1     0.3
X1  7059      24 1556.28  1700.4  470.37  427.44  466.51
GR     462  714.17     430    1000     428 1036.64     426 1060.95     424 1150.39
GR     424 1150.52     422 1253.77     420 1312.25     418 1556.28     416 1570.28
GR     414 1587.95     412  1602.4     412 1630.51     414 1648.17     416 1674.97
GR     418  1700.4     420 1745.45     422 1791.67     422 1791.68     424 1817.66
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GR   426 1857.81     428 1891.19     430 1945.88     434 2230.72
X1  7516      18  1637.9 1764.87  386.77  471.27  456.53
GR   440  745.76     430    1000     428 1025.81     426 1095.83     424 1135.68
GR   422 1380.64     420  1637.9     418  1651.7     418 1682.56     418 1702.79
GR   418 1727.22     420 1764.87     422 1852.47     424 1891.01     426 1995.67
GR   428 2056.76     430 2125.65     436 2293.02
X1  8409      28 1640.43 1774.42   680.2  570.16  892.51
X3     0                    1644     426
GR   446 1165.15     444 1183.78     444 1198.39     444 1209.81     442 1220.48
GR   440 1239.82     438 1278.18     436 1344.02     434 1388.58     432 1425.08
GR   430 1499.66     428 1522.82     426 1553.07     424 1590.35     424 1615.19
GR   426 1633.94     426 1640.43     424 1691.66     422 1698.96     420  1703.9
GR   420 1739.87     422 1745.69     424 1753.72     426 1774.42     428 2233.88
GR   430 2311.34     432 2348.52     440 2526.63
QT    10    2653    3552    3345    4360    3934    5067    4609    5923    5886
QT  7495
X1  9097      36 1801.94 2557.86  713.79  565.77  688.24
X3     0                    1800     432
GR   450    1000     448 1049.06     446 1112.13     444 1181.19     442  1225.9
GR   440 1364.46     438 1478.95     436 1593.05     434 1644.58     432    1735
GR   430 1755.71     430 1770.81     432 1778.99     432 1801.94     430 1840.12
GR   428  1886.9     426 1935.92     426  1946.5     426 2206.22     426 2206.26
GR   426 2303.99     428 2386.88     430 2516.65     432 2542.61     432 2542.74
GR   434 2557.86     434 2602.17     432  2626.2     432  2654.6     434 2680.59
GR   436 2704.39     438  2723.8     440 2735.74     442 2745.08     444 2753.05
GR   446  2821.9
X1  9604      26 1410.99 2186.91  494.92  534.35   507.2
GR   454    1000     452 1020.63     450 1040.38     448 1055.77     446 1070.58
GR   444 1083.79     444 1083.83     442 1102.22     440 1126.22     438 1204.08
GR   436 1273.25     434 1410.99     432 1729.03     432  2020.3     432 2094.16
GR   432 2183.12     434 2186.91     436 2195.51     438  2214.9     440 2254.82
GR   442 2281.38     444  2324.5     446 2334.99     446 2335.05     448 2360.12
GR   450 2445.03
X1 10915      32 1414.56 1659.15 1215.89 1306.41  1311.5
X3     0                                    1661     446
GR   460    1000     458 1048.99     456 1122.48     454 1171.88     452 1220.44
GR   452 1220.46     450 1286.35     448 1306.35     446 1335.81     446  1359.8
GR   446 1414.56     444 1447.36     442 1502.37     440 1533.26     438 1550.91
GR   438 1590.11     440 1614.98     442 1631.53     444 1644.36     446 1659.15
GR   446 1707.01     444  1743.6     442 1750.29     442 2116.05     444 2159.02
GR   446 2176.21     448 2191.28     450 2217.26     452 2245.51     454 2259.35
GR   456 2279.28     458 2294.15
X1 11419      33 1391.72 1782.55  421.59  558.28   503.5
GR   466    1000     464    1035     462  1100.7     460 1122.13     458  1148.8
GR   456 1173.21     454 1194.56     452  1256.8     450 1324.07     448 1349.16
GR   446 1391.72     444 1455.18     442 1503.53     442 1536.65     444 1544.25
GR   444  1697.2     444 1704.22     446 1782.55     448 1835.41     450  1868.1
GR   452 1917.54     454 1934.48     456  1943.8     458 1953.06     460 1960.32
GR   462 1990.71     464 1998.94     466 2012.74     468 2022.04     470 2032.33
GR   472 2045.47     474 2053.09     476  2104.2
X1 12181      27 1403.82 1555.84  735.94  760.05  761.78
GR   472    1000     470 1075.95     468 1157.84     468 1157.84     466 1192.45
GR   464 1215.81     462 1247.75     462 1247.76     460 1283.33     458 1310.16
GR   456 1344.49     454 1376.89     452 1403.82     450 1436.65     448 1453.06
GR   446 1479.74     446 1496.51     450 1504.18     452 1555.84     454 1699.61
GR   456  1761.4     458 1790.58     460 1826.82     462 1905.41     464 1948.65
GR   466 1977.27     468 1998.33
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X1 12391      23 1309.29 1492.26  217.61  190.06  210.04
GR   480  712.81     470    1000     468 1059.33     466 1079.24     464  1103.4
GR   462 1126.34     460 1219.49     458 1265.75     458 1291.08     458 1309.29
GR   456 1387.69     454 1417.95     452 1433.08     452 1469.67     454 1477.28
GR   456 1485.33     458 1492.26     460  1713.7     462 1733.18     464 1787.85
GR   466 1808.51     468 1821.94     470 1835.79
X1 12546      31 1653.06  1889.5  148.33  137.62  155.24
GR   480    1000     478 1062.88     476 1102.84     474 1135.59     472 1192.13
GR   470 1310.56     468 1356.56     466 1394.91     464 1428.24     462 1506.56
GR   460 1632.75     458 1653.06     456 1726.41     454 1741.47     452 1755.66
GR   450 1767.75     450 1794.78     452 1801.95     454 1814.85     456 1825.71
GR   458  1889.5     458 1970.43     458 1997.48     460 2080.62     462  2120.3
GR   462 2120.31     464 2154.79     466 2222.84     468 2260.44     468 2260.45
GR   470 2283.45
X1 13008      27 1377.92 1513.83  446.35  495.99  461.74
GR   470    1000     468 1063.37     466 1093.37     464 1145.92     462 1183.84
GR   460 1297.52     458 1369.34     456 1377.92     454 1412.61     452 1464.05
GR   454 1499.11     456 1513.83     458 1694.88     460  1707.5     462 1722.06
GR   464 1729.81     466 1738.38     468 1742.57     470  1746.5     472 1754.69
GR   476 1764.21     478 1773.58     480 1784.53     482 1800.03     484 1814.05
GR   484 1864.94     482 1886.72
X1 14115      19 1487.57 1706.41 1067.05 1148.74 1107.42
GR   472    1000     470 1251.07     468 1265.89     466 1345.64     464 1487.57
GR   462 1597.37     460 1610.33     460 1675.57     462    1698     464 1706.41
GR   466 1725.67     468 1782.85     470 1794.49     472 1817.45     474 1870.07
GR   474 1893.01     474 1910.17     476 2019.62     478 2061.18
QT    10    1569    2062    1908    2474    2218    2860    2586    3310    3252
QT  4116
X1 14607      29 1648.65 1911.01  476.51  535.82  491.47
GR   480    1000     478 1027.01     476 1183.24     474 1262.64     472 1318.04
GR   470 1459.12     468 1648.65     466 1693.23     464 1819.92     462 1834.56
GR   462 1834.64     462 1886.05     464 1895.83     466 1904.67     468 1911.01
GR   468 1911.01     470 1917.82     472 1931.87     474 1944.23     476 1953.59
GR   478 1964.23     480 1972.17     482 1986.47     482  2029.9     482 2322.15
GR   484  2381.2     486 2481.89     488  2496.3     490 2516.15
EJ
T1      CF0029, 12/15/98
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 1                                 10-YR   FUTURE
J1             3                 0.00946                        3931  377.31
J2     2              -1
T1      CF0029, 12/15/98
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 1                                 25-YR EXISTING
J1             4                 0.00946                        3703  377.18
J2     3              -1
T1      CF0029, 12/15/98
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 1                                 25-YR   FUTURE
J1             5                 0.00946                        4835  377.77
J2     4              -1
T1      CF0029, 12/15/98
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 1                                 50-YR EXISTING
J1             6                 0.00946                        4387  377.55
J2     5              -1
T1      CF0029, 12/15/98
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T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 1                                     50-YR   FUTURE
J1             7                0.00946                           5673  378.12
J2      6              -1
T1      CF0029, 12/15/98
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 1                                    100-YR EXISTING
J1             8                0.00946                           5143  377.89
J2      7              -1
T1      CF0029, 12/15/98
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 1                                    100-YR   FUTURE
J1             9                0.00946                           6610  378.47
J2      8              -1
T1      CF0029, 12/15/98
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 1                                    500-YR EXISTING
J1            10                0.00946                           6627  378.48
J2      9              -1
T1      CF0029, 12/15/98
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 1                                    500-YR   FUTURE
J1            11                0.00946                           8438  379.09
J2     15              -1


ER
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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

TRIBUTARY 1 EXISTING CHANNEL

SUMMARY PRINTOUT

	SECNO	Q	VOL	TIME	ELLC	CWSEL
	.000	2948.00	.00	.00	.00	376.73
	.000	3931.00	.00	.00	.00	377.31
	.000	3703.00	.00	.00	.00	377.18
	.000	4835.00	.00	.00	.00	377.77
	.000	4387.00	.00	.00	.00	377.55
	.000	5673.00	.00	.00	.00	378.12
	.000	5143.00	.00	.00	.00	377.89
	.000	6610.00	.00	.00	.00	378.47
	.000	6627.00	.00	.00	.00	378.48
	.000	8438.00	.00	.00	.00	379.05
	634.000	2948.00	7.95	.03	.00	382.82
	634.000	3931.00	9.80	.03	.00	383.61
	634.000	3703.00	9.38	.03	.00	383.45
	634.000	4835.00	11.70	.02	.00	384.17
	634.000	4387.00	10.63	.03	.00	383.92
	634.000	5673.00	13.65	.02	.00	384.55
	634.000	5143.00	12.44	.02	.00	384.33
	634.000	6610.00	15.60	.02	.00	384.90
	634.000	6627.00	15.64	.02	.00	384.90
	634.000	8438.00	19.02	.02	.00	385.48
*	994.000	2948.00	14.59	.06	.00	385.16
*	994.000	3931.00	18.49	.06	.00	385.79
*	994.000	3703.00	17.61	.06	.00	385.65
*	994.000	4835.00	22.22	.06	.00	386.30
*	994.000	4387.00	20.21	.06	.00	386.07
*	994.000	5673.00	25.74	.06	.00	386.66
*	994.000	5143.00	23.59	.06	.00	386.44
*	994.000	6610.00	29.22	.06	.00	387.00
*	994.000	6627.00	29.28	.06	.00	387.01
*	994.000	8438.00	35.35	.06	.00	387.58

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	1278.000	2948.00	19.76	.08	.00	386.75
*	1278.000	3931.00	25.17	.07	.00	387.26
*	1278.000	3703.00	23.95	.07	.00	387.15
*	1278.000	4835.00	30.16	.07	.00	387.67
*	1278.000	4387.00	27.56	.07	.00	387.47
*	1278.000	5673.00	34.67	.07	.00	388.01
*	1278.000	5143.00	31.90	.07	.00	387.80
*	1278.000	6610.00	39.21	.07	.00	388.29
*	1278.000	6627.00	39.28	.07	.00	388.29
*	1278.000	8438.00	47.20	.06	.00	388.76
*	1671.000	2948.00	25.90	.11	.00	388.95
*	1671.000	3931.00	32.77	.10	.00	389.71
*	1671.000	3703.00	31.22	.10	.00	389.55
*	1671.000	4835.00	38.99	.10	.00	390.30
*	1671.000	4387.00	35.79	.10	.00	390.02
*	1671.000	5673.00	44.62	.10	.00	390.78
*	1671.000	5143.00	41.14	.10	.00	390.48
*	1671.000	6610.00	50.38	.09	.00	391.21
*	1671.000	6627.00	50.48	.09	.00	391.22
*	1671.000	8438.00	60.55	.09	.00	391.92
	1745.000	2948.00	27.47	.11	.00	389.22
	1745.000	3931.00	34.74	.11	.00	389.98
	1745.000	3703.00	33.11	.11	.00	389.82

	1745.000	4835.00	41.30	.10	.00	390.56
	1745.000	4387.00	37.94	.11	.00	390.28
	1745.000	5673.00	47.24	.10	.00	391.03
	1745.000	5143.00	43.56	.10	.00	390.74
	1745.000	6610.00	53.30	.10	.00	391.47
	1745.000	6627.00	53.41	.10	.00	391.48
	1745.000	8438.00	64.01	.09	.00	392.19
*	1910.000	2948.00	30.31	.12	.00	390.36
*	1910.000	3931.00	38.22	.12	.00	391.09
*	1910.000	3703.00	36.44	.12	.00	390.94
*	1910.000	4835.00	45.33	.11	.00	391.65
*	1910.000	4387.00	41.69	.11	.00	391.38
*	1910.000	5673.00	51.76	.11	.00	392.09
*	1910.000	5143.00	47.77	.11	.00	391.82
*	1910.000	6610.00	58.30	.10	.00	392.50
*	1910.000	6627.00	58.41	.10	.00	392.51
*	1910.000	8438.00	69.87	.10	.00	393.20

	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	2079.000	2948.00	32.49	.13	.00	392.09
*	2079.000	3931.00	41.12	.12	.00	392.79
*	2079.000	3703.00	39.18	.13	.00	392.64
*	2079.000	4835.00	48.86	.12	.00	393.33
*	2079.000	4387.00	44.92	.12	.00	393.07
*	2079.000	5673.00	55.84	.12	.00	393.77
*	2079.000	5143.00	51.51	.12	.00	393.50
*	2079.000	6610.00	63.01	.11	.00	394.21
*	2079.000	6627.00	63.14	.11	.00	394.21
*	2079.000	8438.00	75.83	.11	.00	394.94
	2259.000	2948.00	35.17	.14	.00	392.99
	2259.000	3931.00	44.57	.13	.00	393.69
	2259.000	3703.00	42.46	.14	.00	393.55
	2259.000	4835.00	52.97	.13	.00	394.22
	2259.000	4387.00	48.70	.13	.00	393.97
	2259.000	5673.00	60.55	.13	.00	394.63
	2259.000	5143.00	55.84	.13	.00	394.37
	2259.000	6610.00	68.43	.12	.00	395.02
	2259.000	6627.00	68.57	.12	.00	395.02
	2259.000	8438.00	82.60	.12	.00	395.63
*	2596.000	2948.00	39.99	.16	.00	395.44
*	2596.000	3931.00	50.46	.15	.00	396.19
*	2596.000	3703.00	48.12	.15	.00	396.04
*	2596.000	4835.00	59.80	.15	.00	396.72
*	2596.000	4387.00	55.07	.15	.00	396.47
	2596.000	5673.00	68.25	.14	.00	397.15
*	2596.000	5143.00	62.99	.14	.00	396.89
	2596.000	6610.00	77.08	.14	.00	397.57
	2596.000	6627.00	77.24	.14	.00	397.58
	2596.000	8438.00	92.99	.13	.00	398.27
*	2815.000	2948.00	43.61	.18	.00	397.10
*	2815.000	3931.00	54.92	.17	.00	397.84
*	2815.000	3703.00	52.40	.17	.00	397.68
*	2815.000	4835.00	65.03	.16	.00	398.37
*	2815.000	4387.00	59.90	.16	.00	398.12
*	2815.000	5673.00	74.19	.16	.00	398.80
*	2815.000	5143.00	68.48	.16	.00	398.53
*	2815.000	6610.00	83.77	.15	.00	399.21
*	2815.000	6627.00	83.93	.15	.00	399.22
*	2815.000	8438.00	101.02	.14	.00	399.89

SECNO	Q	VOL	TIME	ELLC	CWSEL
3318.000	2948.00	53.33	.22	.00	399.32
3318.000	3931.00	66.85	.20	.00	400.13
3318.000	3703.00	63.86	.21	.00	399.98
3318.000	4835.00	78.86	.19	.00	400.65
3318.000	4387.00	72.79	.20	.00	400.41
3318.000	5673.00	89.70	.19	.00	401.08
3318.000	5143.00	82.95	.19	.00	400.81
3318.000	6610.00	101.02	.18	.00	401.51

	3318.000	6627.00	101.21	.18	.00	401.52
	3318.000	8438.00	121.31	.17	.00	402.26
*	3552.000	2948.00	58.87	.24	.00	399.51
*	3552.000	3931.00	73.48	.23	.00	400.34
*	3552.000	3703.00	70.26	.23	.00	400.19
*	3552.000	4835.00	86.37	.22	.00	400.89
*	3552.000	4387.00	79.86	.22	.00	400.63
*	3552.000	5673.00	98.02	.21	.00	401.34
*	3552.000	5143.00	90.75	.21	.00	401.06
*	3552.000	6610.00	110.27	.20	.00	401.80
*	3552.000	6627.00	110.48	.20	.00	401.81
*	3552.000	8438.00	132.36	.19	.00	402.58
	3635.000	2948.00	61.53	.25	.00	400.44
	3635.000	3931.00	76.58	.24	.00	401.25
	3635.000	3703.00	73.27	.24	.00	401.09
	3635.000	4835.00	89.81	.22	.00	401.83
	3635.000	4387.00	83.14	.23	.00	401.55
	3635.000	5673.00	101.77	.22	.00	402.30
	3635.000	5143.00	94.32	.22	.00	402.02
	3635.000	6610.00	114.36	.21	.00	402.80
	3635.000	6627.00	114.58	.21	.00	402.82
	3635.000	8438.00	136.67	.19	.00	402.64
*	3774.000	2948.00	64.99	.26	.00	400.75
*	3774.000	3931.00	80.93	.25	.00	401.50
*	3774.000	3703.00	77.42	.25	.00	401.34
*	3774.000	4835.00	94.99	.23	.00	402.05
*	3774.000	4387.00	87.89	.24	.00	401.78
*	3774.000	5673.00	107.75	.22	.00	402.50
*	3774.000	5143.00	99.80	.23	.00	402.23
*	3774.000	6610.00	121.29	.21	.00	402.99
*	3774.000	6627.00	121.55	.21	.00	403.00
*	3774.000	8438.00	143.38	.20	.00	402.96

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
	4035.000	2948.00	69.27	.28	.00	402.81
	4035.000	3931.00	86.65	.26	.00	403.34
	4035.000	3703.00	82.82	.27	.00	403.23
	4035.000	4835.00	101.96	.25	.00	403.77
	4035.000	4387.00	94.23	.26	.00	403.57
	4035.000	5673.00	115.82	.24	.00	404.11
	4035.000	5143.00	107.18	.25	.00	403.90
	4035.000	6610.00	130.65	.23	.00	404.46
	4035.000	6627.00	130.93	.23	.00	404.47
	4035.000	8438.00	153.65	.21	.00	405.01
	4183.000	2948.00	71.71	.29	.00	404.19
	4183.000	3931.00	89.88	.27	.00	404.57
	4183.000	3703.00	85.88	.28	.00	404.48
	4183.000	4835.00	105.88	.26	.00	404.89
	4183.000	4387.00	97.82	.26	.00	404.74
	4183.000	5673.00	120.32	.25	.00	405.17
	4183.000	5143.00	111.31	.25	.00	404.99
	4183.000	6610.00	135.79	.24	.00	405.45
	4183.000	6627.00	136.08	.24	.00	405.46
	4183.000	8438.00	159.88	.22	.00	405.96
*	4536.000	2948.00	78.02	.32	.00	406.34
*	4536.000	3931.00	97.58	.30	.00	406.89
*	4536.000	3703.00	93.26	.30	.00	406.77
*	4536.000	4835.00	114.77	.28	.00	407.29
*	4536.000	4387.00	106.13	.29	.00	407.10
*	4536.000	5673.00	130.26	.27	.00	407.62
*	4536.000	5143.00	120.59	.28	.00	407.42
	4536.000	6610.00	146.84	.26	.00	407.95
	4536.000	6627.00	147.15	.26	.00	407.95
	4536.000	8438.00	172.95	.24	.00	408.50
	4989.000	2948.00	86.65	.35	.00	408.35
	4989.000	3931.00	108.12	.33	.00	408.93
	4989.000	3703.00	103.38	.33	.00	408.80
	4989.000	4835.00	126.88	.31	.00	409.39
	4989.000	4387.00	117.48	.32	.00	409.17
	4989.000	5673.00	143.72	.30	.00	409.77
	4989.000	5143.00	133.21	.31	.00	409.53
	4989.000	6610.00	161.73	.29	.00	410.17
	4989.000	6627.00	162.06	.29	.00	410.17

	4989.000	8438.00	190.42	.27	.00	410.83

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
	5229.000	2948.00	90.93	.36	.00	409.54
	5229.000	3931.00	113.43	.34	.00	410.07
	5229.000	3703.00	108.45	.35	.00	409.95
	5229.000	4835.00	133.04	.32	.00	410.50
	5229.000	4387.00	123.23	.33	.00	410.29
	5229.000	5673.00	150.62	.31	.00	410.86
	5229.000	5143.00	139.65	.32	.00	410.64
	5229.000	6610.00	169.43	.30	.00	411.24
	5229.000	6627.00	169.78	.30	.00	411.24
	5229.000	8438.00	199.56	.28	.00	411.89
*	5617.000	2948.00	96.44	.38	.00	410.02
*	5617.000	3931.00	120.16	.36	.00	410.55
*	5617.000	3703.00	114.90	.36	.00	410.43
*	5617.000	4835.00	140.88	.34	.00	410.96
*	5617.000	4387.00	130.51	.35	.00	410.76
*	5617.000	5673.00	159.48	.32	.00	411.32
*	5617.000	5143.00	147.87	.33	.00	411.10
*	5617.000	6610.00	179.44	.31	.00	411.67
*	5617.000	6627.00	179.81	.31	.00	411.68
*	5617.000	8438.00	211.74	.29	.00	412.26
*	5692.000	2948.00	98.33	.39	.00	413.53
*	5692.000	3931.00	122.52	.36	.00	414.33
*	5692.000	3703.00	117.14	.37	.00	414.13
*	5692.000	4835.00	143.68	.35	.00	415.02
*	5692.000	4387.00	133.09	.35	.00	414.68
*	5692.000	5673.00	162.67	.33	.00	415.59
*	5692.000	5143.00	150.82	.34	.00	415.25
*	5692.000	6610.00	183.07	.32	.00	416.17
*	5692.000	6627.00	183.46	.32	.00	416.20
*	5692.000	8438.00	216.24	.30	.00	417.31
*	5895.000	2948.00	106.92	.43	.00	413.62
*	5895.000	3931.00	133.17	.40	.00	414.45
*	5895.000	3703.00	127.24	.40	.00	414.24
*	5895.000	4835.00	156.24	.38	.00	415.15
*	5895.000	4387.00	144.71	.39	.00	414.81
*	5895.000	5673.00	176.88	.36	.00	415.73
*	5895.000	5143.00	164.04	.37	.00	415.38
*	5895.000	6610.00	199.05	.35	.00	416.33
*	5895.000	6627.00	199.53	.35	.00	416.36
*	5895.000	8438.00	235.88	.32	.00	417.49

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	6125.000	2948.00	114.17	.44	.00	413.90
*	6125.000	3931.00	142.44	.41	.00	414.70
*	6125.000	3703.00	135.97	.42	.00	414.50
*	6125.000	4835.00	167.36	.39	.00	415.37
*	6125.000	4387.00	154.92	.40	.00	415.04
*	6125.000	5673.00	189.59	.38	.00	415.94
*	6125.000	5143.00	175.79	.39	.00	415.60
*	6125.000	6610.00	213.46	.36	.00	416.51
*	6125.000	6627.00	214.03	.36	.00	416.54
*	6125.000	8438.00	253.82	.34	.00	417.63
	6441.000	2948.00	119.77	.46	.00	415.29
	6441.000	3931.00	150.05	.43	.00	415.97
	6441.000	3703.00	143.09	.44	.00	415.83
	6441.000	4835.00	176.78	.41	.00	416.50
	6441.000	4387.00	163.45	.42	.00	416.24
	6441.000	5673.00	200.62	.40	.00	416.96
	6441.000	5143.00	185.83	.41	.00	416.68
	6441.000	6610.00	226.24	.39	.00	417.45
	6441.000	6627.00	226.88	.39	.00	417.46
	6441.000	8438.00	270.22	.36	.00	418.39
*	6559.000	2948.00	122.18	.47	.00	415.32
*	6559.000	3931.00	153.06	.44	.00	415.98
*	6559.000	3703.00	145.96	.45	.00	415.84

*	6559.000	4835.00	180.30	.42	.00	416.48
*	6559.000	4387.00	166.71	.43	.00	416.24
*	6559.000	5673.00	204.62	.40	.00	416.91
*	6559.000	5143.00	189.54	.41	.00	416.65
*	6559.000	6610.00	230.77	.39	.00	417.37
*	6559.000	6627.00	231.43	.39	.00	417.38
*	6559.000	8438.00	275.87	.37	.00	418.25
*	6593.000	2948.00	123.43	.48	.00	418.42
*	6593.000	3931.00	154.59	.45	.00	419.46
*	6593.000	3703.00	147.43	.45	.00	419.23
*	6593.000	4835.00	182.08	.42	.00	420.27
*	6593.000	4387.00	168.37	.43	.00	419.91
*	6593.000	5673.00	206.63	.41	.00	421.05
*	6593.000	5143.00	191.40	.42	.00	420.60
*	6593.000	6610.00	233.05	.39	.00	421.88
*	6593.000	6627.00	233.72	.39	.00	421.90
*	6593.000	8438.00	278.65	.37	.00	423.26

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	7059.000	2948.00	139.65	.51	.00	419.26
*	7059.000	3931.00	175.47	.48	.00	420.15
*	7059.000	3703.00	167.21	.48	.00	419.96
*	7059.000	4835.00	207.10	.46	.00	420.86
*	7059.000	4387.00	191.49	.47	.00	420.54
*	7059.000	5673.00	235.84	.45	.00	421.54
*	7059.000	5143.00	218.14	.46	.00	421.14
*	7059.000	6610.00	267.13	.43	.00	422.29
*	7059.000	6627.00	267.96	.43	.00	422.31
*	7059.000	8438.00	321.73	.41	.00	423.60
	7516.000	2948.00	147.74	.54	.00	421.98
*	7516.000	3931.00	186.41	.51	.00	422.47
*	7516.000	3703.00	177.47	.51	.00	422.37
*	7516.000	4835.00	220.68	.49	.00	422.86
*	7516.000	4387.00	203.79	.50	.00	422.67
*	7516.000	5673.00	252.13	.48	.00	423.24
*	7516.000	5143.00	232.78	.48	.00	423.00
*	7516.000	6610.00	286.78	.47	.00	423.68
*	7516.000	6627.00	287.71	.47	.00	423.69
*	7516.000	8438.00	348.32	.45	.00	424.56
	8409.000	2948.00	163.06	.60	.00	427.33
	8409.000	3931.00	205.41	.56	.00	427.70
	8409.000	3703.00	195.65	.57	.00	427.62
	8409.000	4835.00	242.87	.54	.00	427.97
	8409.000	4387.00	224.42	.55	.00	427.85
	8409.000	5673.00	277.17	.52	.00	428.16
	8409.000	5143.00	256.02	.53	.00	428.04
	8409.000	6610.00	315.10	.51	.00	428.32
	8409.000	6627.00	316.10	.51	.00	428.32
*	8409.000	8438.00	383.42	.49	.00	428.58
*	9097.000	2653.00	182.13	.71	.00	429.22
*	9097.000	3552.00	228.60	.66	.00	429.74
*	9097.000	3345.00	217.94	.67	.00	429.63
*	9097.000	4360.00	269.37	.63	.00	430.12
*	9097.000	3934.00	249.31	.65	.00	429.93
*	9097.000	5067.00	306.13	.61	.00	430.40
*	9097.000	4609.00	283.42	.62	.00	430.22
*	9097.000	5923.00	346.56	.59	.00	430.70
*	9097.000	5886.00	347.53	.59	.00	430.70
*	9097.000	7495.00	419.08	.56	.00	431.22

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	9604.000	2653.00	195.96	.76	.00	433.45
*	9604.000	3552.00	244.00	.69	.00	433.37
*	9604.000	3345.00	234.15	.71	.00	433.67
*	9604.000	4360.00	287.15	.66	.00	433.59
*	9604.000	3934.00	265.89	.68	.00	433.48
*	9604.000	5067.00	325.78	.64	.00	433.78
*	9604.000	4609.00	301.88	.65	.00	433.66
*	9604.000	5923.00	368.36	.62	.00	433.98

*	9604.000	5886.00	369.27	.62	.00	433.97
*	9604.000	7495.00	446.13	.59	.00	434.66
*	10915.000	2653.00	218.74	.85	.00	444.14
*	10915.000	3552.00	268.82	.78	.00	445.04
*	10915.000	3345.00	260.92	.80	.00	444.66
*	10915.000	4360.00	316.08	.75	.00	445.56
*	10915.000	3934.00	292.68	.76	.00	445.29
*	10915.000	5067.00	358.13	.72	.00	445.98
*	10915.000	4609.00	332.02	.74	.00	445.71
*	10915.000	5923.00	406.90	.69	.00	446.29
*	10915.000	5886.00	407.54	.69	.00	446.28
	10915.000	7495.00	495.70	.66	.00	446.53
	11419.000	2653.00	228.48	.90	.00	446.59
	11419.000	3552.00	281.22	.83	.00	447.21
	11419.000	3345.00	272.43	.85	.00	447.05
	11419.000	4360.00	330.45	.79	.00	447.71
	11419.000	3934.00	306.03	.81	.00	447.45
	11419.000	5067.00	374.18	.76	.00	448.10
	11419.000	4609.00	347.00	.78	.00	447.85
*	11419.000	5923.00	425.53	.74	.00	448.46
*	11419.000	5886.00	426.08	.74	.00	448.44
*	11419.000	7495.00	517.12	.70	.00	449.00
*	12181.000	2653.00	241.20	.94	.00	452.33
*	12181.000	3552.00	296.98	.86	.00	452.74
*	12181.000	3345.00	287.45	.88	.00	452.66
*	12181.000	4360.00	348.84	.82	.00	453.07
*	12181.000	3934.00	323.05	.84	.00	452.90
*	12181.000	5067.00	394.81	.79	.00	453.33
*	12181.000	4609.00	366.19	.81	.00	453.16
*	12181.000	5923.00	448.52	.76	.00	453.65
*	12181.000	5886.00	448.97	.76	.00	453.64
*	12181.000	7495.00	544.02	.72	.00	454.20

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
	12391.000	2653.00	243.15	.95	.00	456.89
	12391.000	3552.00	299.38	.87	.00	457.58
	12391.000	3345.00	289.74	.89	.00	457.43
	12391.000	4360.00	351.62	.83	.00	458.06
	12391.000	3934.00	325.63	.85	.00	457.82
	12391.000	5067.00	397.92	.80	.00	458.34
	12391.000	4609.00	369.09	.82	.00	458.16
	12391.000	5923.00	452.05	.77	.00	458.64
	12391.000	5886.00	452.48	.77	.00	458.63
*	12391.000	7495.00	548.33	.73	.00	459.12
*	12546.000	2653.00	245.40	.96	.00	458.60
*	12546.000	3552.00	302.27	.89	.00	459.27
*	12546.000	3345.00	292.49	.90	.00	459.13
*	12546.000	4360.00	355.03	.84	.00	459.78
*	12546.000	3934.00	328.77	.86	.00	459.52
*	12546.000	5067.00	401.74	.81	.00	460.14
*	12546.000	4609.00	372.64	.83	.00	459.91
*	12546.000	5923.00	456.33	.78	.00	460.54
*	12546.000	5886.00	456.74	.78	.00	460.52
*	12546.000	7495.00	553.43	.74	.00	461.15
*	13008.000	2653.00	257.31	1.02	.00	459.46
*	13008.000	3552.00	317.10	.94	.00	460.14
*	13008.000	3345.00	306.67	.96	.00	459.99
*	13008.000	4360.00	372.26	.89	.00	460.66
*	13008.000	3934.00	344.76	.92	.00	460.40
*	13008.000	5067.00	420.84	.86	.00	461.05
*	13008.000	4609.00	390.55	.88	.00	460.80
*	13008.000	5923.00	477.60	.83	.00	461.47
*	13008.000	5886.00	477.93	.83	.00	461.45
*	13008.000	7495.00	578.29	.78	.00	462.14
*	14115.000	2653.00	280.37	1.08	.00	464.10
*	14115.000	3552.00	345.31	.99	.00	464.62
*	14115.000	3345.00	333.72	1.01	.00	464.51
*	14115.000	4360.00	404.86	.94	.00	465.04
*	14115.000	3934.00	375.07	.97	.00	464.82
*	14115.000	5067.00	457.08	.91	.00	465.37
*	14115.000	4609.00	424.46	.93	.00	465.16
*	14115.000	5923.00	517.99	.88	.00	465.72
*	14115.000	5886.00	518.10	.88	.00	465.70

*	14115.000	7495.00	628.92	.84	.00	466.86

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	14607.000	1569.00	286.85	1.13	.00	467.00
	14607.000	2062.00	353.26	1.05	.00	467.55
	14607.000	1908.00	341.30	1.07	.00	467.40
	14607.000	2474.00	414.07	.99	.00	467.96
	14607.000	2218.00	383.59	1.02	.00	467.72
	14607.000	2860.00	467.38	.96	.00	468.28
	14607.000	2586.00	434.03	.98	.00	468.07
	14607.000	3310.00	529.55	.92	.00	468.62
	14607.000	3252.00	529.56	.92	.00	468.59
	14607.000	4116.00	644.22	.88	.00	469.21

TRTIBUTARY 1 HEC-2 MODEL
(Floodway - Method 1)

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C
C      6
C    3552Loop 20 Culvert Crossing - Downstream
C    3635Loop 20 Culvert Crossing - Upstream
C    5617Culvert at Century City  #13 - Downstream
C    5692Culvert at Century City - Upstream
C    6559Culvert East of Century City  #14 - Downstream
C    6593Culvert East of Century City - Upstream
T1   City of Laredo Flood Insurance Study Update (for development to Jan.1994)
T2   Chacon Creek Watershed - Tributary 1 to Chacon Creek - 1988 NAVD
T3   Filename:TRIB1FW.IH2     100-Year Frequency      Dec.1998
J1              2                                                5143  377.89
J2      1               -1
J3    110     200
NC   0.06    0.06   0.065     0.1     0.3
ET                    7.1                         1197.23 1344.37
X1      0      32 1197.23 1344.37
GR    396    1000     394 1030.55     392 1048.26     390 1067.01     388  1085.4
GR    386 1110.35     384 1131.52     384 1131.53     382 1142.05     380 1150.32
GR    378 1176.67     376 1197.23     374 1232.76     372 1235.92     370 1239.75
GR    370  1276.2     372 1285.25     374 1309.92     376 1344.37     376 1373.46
GR    376 1384.47     376 1384.49     378 1525.68     380  1561.9     380 1562.01
GR    382 1587.23     384 1611.58     386 1628.11     388 1631.83     390 1635.83
GR    392 1637.69     394 1643.04
ET                    7.1                         1569.95  1709.3
X1    634      20 1569.95  1709.3  577.11  631.08  633.75
GR    390 1023.11     384 1297.65     384 1569.95     382 1585.65     380  1595.8
GR    378 1632.28     376 1643.51     376 1664.33     378  1676.1     380 1689.25
GR    382 1695.25     384 1704.08     386  1709.3     388 1714.53     390 1719.31
GR    392 1733.33     394 1748.62     396  1757.2     398 1773.59     400 1805.18
ET                    7.1                         1084.97 1486.72
X1    994      28 1278.04 1417.07  285.08  398.72  360.37
GR    394  843.04     390    1000     388 1012.12     386 1017.51     384 1024.09
GR    382  1029.5     380 1037.22     380 1040.64     382 1069.01     382 1107.49
GR    382 1195.67     384 1237.44     384 1278.04     382 1341.61     380 1351.58
GR    378 1355.13     376 1357.97     376 1373.82     378  1383.3     380 1392.07
GR    382 1402.99     384 1417.07     384 1550.17     384 1625.95     386 1691.61
GR    388 1789.46     390 1922.96     394 2030.87
ET                    7.1                         1062.87 1379.69
X1   1278      30 1186.85 1379.69  228.71  289.34  284.13
GR    396  799.61     392  982.03     390    1000     388 1011.71     386 1017.63
GR    384 1026.93     382  1041.7     382 1065.08     384 1087.54     386  1115.5
GR    388 1136.49     388  1147.5     388 1171.06     388 1186.85     386 1219.55
GR    384 1227.84     382 1237.16     380 1253.11     378 1259.43     378 1270.09
GR    380 1275.97     382 1288.07     384 1300.96     386    1324     388 1379.69
GR    390 1419.23     392 1548.67     394 1585.73     396 1635.45     404  1714.1
ET                    7.1                         1146.13 1325.04
X1   1671      26 1146.13 1265.68   339.2  395.72  393.34
GR    396  965.42     392    1000     390  1122.8     388 1146.13     386 1158.18
GR    384 1172.78     382 1198.32     380 1208.08     380  1235.9     382 1242.17
GR    384 1244.97     386 1259.04     388 1265.68     388 1326.78     386 1363.14
GR    386 1402.89     388 1440.64     390 1464.39     392 1487.03     394 1510.04
GR    396 1542.29     398 1563.39     400 1584.43     402 1611.03     402 1611.04
GR    404 1628.41
ET                    7.1                         1317.84 1503.63
X1   1745      21 1317.84 1503.63   84.05   66.59   74.37
GR    400    1000     398 1132.92     396 1154.99     394 1163.88     392 1243.66
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GR   390 1311.45     388 1317.84     386 1338.79     384 1402.31     382 1421.41
GR   380 1433.63     380 1457.47     382 1461.05     384 1473.02     386 1483.32
GR   388 1503.63     390 1663.66     392 1698.21     394 1725.65     396 1761.94
GR   398 1797.75
ET               7.1                          1152.6 1420.98
X1  1910      24  1152.6 1420.98  206.24  104.55  164.85
GR   404    1000     402 1071.19     402 1123.47     402 1134.09     400 1143.91
GR   398 1147.86     396 1149.15     394  1152.6     392 1157.78     390 1164.96
GR   384 1168.11     384 1168.14     382 1170.86     382 1170.89     382  1182.3
GR   384 1192.54     386 1203.24     388 1248.29     390 1319.75     392 1382.97
GR   394 1420.98     396 1729.01     398  1781.2     400 1848.67
ET               7.1                         1445.05 1585.93
X1  2079      30 1445.05 1585.93  178.21   139.7  168.26
GR   402    1000     400  1109.6     398 1121.74     396  1131.6     394 1201.52
GR   394 1201.62     392 1281.24     392 1420.05     392 1445.05     390 1463.37
GR   388 1469.25     386 1472.15     384 1478.55     382 1487.81     382 1497.86
GR   384 1502.68     386 1508.85     388  1531.7     390 1559.99     392 1585.93
GR   394 1656.39     394 1702.19     392 1723.42     392 1748.65     394 1755.86
GR   394 1857.65     394 1860.27     396 1870.44     398 1902.16     400 2036.79
ET               7.1                         1462.53 1569.09
X1  2259      15 1462.53 1569.09   213.6  106.58  180.22
GR   400    1000     398 1053.48     396 1321.14     394 1450.07     392 1462.53
GR   390 1479.25     384 1485.03     382 1488.36     382 1508.59     384 1516.25
GR   386 1529.14     388  1543.1     390 1552.25     392 1569.09     400  2031.8
ET               7.1                         1263.86 1456.47
X1  2596      18 1263.86 1456.47  186.69  360.82  337.24
GR   406  897.78     398    1000     396 1263.86     394  1310.6     392 1396.86
GR   390  1415.9     388 1419.92     385 1421.89     385 1431.78     388 1436.91
GR   390 1440.69     400 1456.47     400 1502.13     400 1603.23     402 1618.05
GR   404 1627.51     406 1686.83     406 1686.88
ET               7.1                         1152.76 1429.77
X1  2815      22 1152.76 1429.77  189.97  266.11  218.66
GR   406    1000     406 1030.51     404 1036.02     402  1039.7     400 1044.72
GR   398  1058.6     398 1103.79     398 1152.76     396 1177.96     394 1312.79
GR   392 1320.59   385.8 1326.54   385.8 1337.21     392 1348.73     394 1416.69
GR   396 1423.67     398 1429.77     400 1434.62     402 1616.83     404  1769.3
GR   406 1834.75     408 1881.87
NC  0.06    0.06   0.065
ET               7.1                         1218.26 1479.48
X1  3318      19 1218.26 1479.48  557.22  419.32  503.54
GR   410  886.35     406    1000     404  1059.8     402 1134.75     400 1218.26
GR   398  1331.8     396 1391.24     394 1406.84   386.1 1419.36   386.1 1444.31
GR   394 1450.38     396 1456.94     398 1461.17     400 1467.31     402 1479.48
GR   404 1658.49     406  1729.8     408 1889.53     410 1978.67
NC  0.06    0.06   0.015     0.3     0.5
ET              7.11                         1497.66 1847.94
* Loop 20 Culvert Crossing - Downstream
X1  3552      19 1497.66 1847.94  207.89   285.4  233.42
GR   410    1000     408 1037.59     406 1090.84     404 1180.76     402 1242.38
GR   400 1497.66     394 1635.88  386.15 1648.77  386.15 1695.95     394 1698.37
GR   400 1755.15     402  1798.5     404 1847.94     406 1886.31     408 1923.05
GR   410 1958.86     412 1992.38     414 2025.44     416 2055.75
ET              7.11                         1497.66 1847.94
*                7.1                            1469 1702.51
SC 3.013     0.5     2.5  257.59      12      10      90     8.1  386.78  386.18
* Loop 20 Culvert Crossing - Upstream
X1  3635      19 1497.66 1847.94   22.87   98.69   83.43
```

*	3635	12	1469	1702.51	22.87	98.69	83.43			
X2			2		399.42					
GR	410	1000	408	1037.59	406	1090.84	404	1180.76	402	1242.38
GR	400	1497.66	394	1635.88	386.15	1648.77	386.15	1695.95	394	1698.37
GR	400	1755.15	402	1798.5	404	1847.94	406	1886.31	408	1923.05
GR	410	1958.86	412	1992.38	414	2025.44	416	2055.75		
*	410	948.6	408	1000	406	1053.06	404	1149.47	402	1200.16
*	400	1469	394	1585.17	386.78	1588.8	386.78	1625.03	394	1627.75
*	400	1702.51	416	1924.11						
NC	0.06	0.06	.065	0.1	0.3					
ET			7.1				1506.01	1670.8		
X1	3774	21	1506.01	1670.8	183.37	98.23	138.58			
GR	410	1000	408	1061.07	406	1112.05	404	1128.25	402	1387.23
GR	402	1388.59	400	1506.01	398	1519.16	396	1531.71	394	1543.08
GR	392	1554.21	392	1558.99	394	1570.53	396	1579.24	398	1595.19
GR	400	1670.8	402	1764.63	404	1839.06	406	1852.93	408	1864.8
GR	410	1884.05								
ET			7.1				1501.49	1638.91		
X1	4035	31	1501.49	1638.91	210.79	271.59	261.14			
GR	422	1000	420	1005.47	418	1016.11	416	1021.97	416	1022
GR	414	1126.75	412	1181.75	410	1260.02	408	1287.12	408	1356.19
GR	408	1358.87	406	1381.11	404	1452.57	404	1461.97	404	1467.19
GR	402	1501.49	400	1558.4	398	1570.31	396	1580.42	396	1599.94
GR	398	1613.48	400	1627.07	402	1638.91	402	1760.25	400	1883.48
GR	398	1905.6	398	1919.44	400	1933.56	402	1954.32	404	2014.19
GR	420	2247.71								
ET			7.1				1409.08	1735.34		
X1	4183	27	1409.08	1628.61	192.75	148.35	148.35			
GR	420	1000	418	1024.39	416	1042.04	414	1101.74	412	1132.83
GR	410	1201.4	408	1268.46	406	1340.65	404	1409.08	402	1436.14
GR	400	1497.01	398	1506.96	396	1518.37	396	1527.07	398	1531.77
GR	400	1538.97	402	1548.58	404	1628.61	404	1735.34	402	1788.53
GR	400	1814.15	400	1845.67	402	1853.44	404	1886.31	406	1941.56
GR	408	2023.15	410	2094.25						
ET			7.1				1554.81	1796.88		
X1	4536	33	1554.81	1796.88	384.62	320.98	352.42			
GR	432	1000	430	1008.45	428	1022.64	428	1095.07	428	1131.73
GR	426	1137.77	424	1147.89	422	1166.47	420	1197.59	418	1269.87
GR	416	1280.08	414	1300.75	412	1312.61	410	1480.46	408	1521.23
GR	406	1529.86	406	1548.65	406	1554.81	404	1589.11	402	1632.96
GR	400	1656.55	400	1714.79	402	1727.05	404	1743.43	406	1796.88
GR	408	1906.75	410	2001.97	412	2090.95	412	2091	414	2110.85
GR	416	2135.83	416	2140.86	416	2156.74				
ET			7.1				1390.33	1485.87		
X1	4989	24	1390.33	1485.87	394	479.93	453.69			
GR	430	686.41	420	848.82	414	1000	412	1031.44	410	1109.75
GR	408	1142.27	406	1390.33	404	1409.85	401.5	1419.28	401.5	1436.86
GR	404	1445.22	404	1453.42	404	1467.26	406	1485.87	408	1508.91
GR	410	1526.76	410	1526.79	412	1559.58	414	1563.96	416	1581.18
GR	418	1595.6	420	1611.58	422	1649.08	424	1679.38		
NC	0.06	0.06	0.065							
ET			7.1				1441.6	1592.64		
X1	5229	31	1441.6	1537.34	225.52	201.25	240.16			
GR	434	1000	432	1018.02	430	1054.15	428	1074.85	426	1096.89
GR	424	1105.17	422	1141.37	420	1167.84	418	1198.83	416	1264.56
GR	414	1285.88	412	1331.22	410	1398.68	408	1441.59	408	1441.6
GR	406	1459.36	404	1469.67	401.5	1478.88	401.5	1497.82	404	1509.95

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GR    406 1528.89     408 1537.34     408  1610.4     408 1718.15     410 1745.82
GR    412 1769.89     414 1788.02     416  1797.1     418 1812.55     420 1857.72
GR    422  1947.1
NC  0.06    0.06   0.015     0.3     0.5
ET                    7.11                             1198.1  1411.3
* Culvert at Century City  #13 - Downstream
X1  5617      31  1198.1  1411.3  436.55  342.76   387.1
GR    448    1000     446 1004.89     444  1009.5     440 1018.47     430 1039.19
GR    428    1056     426 1067.44     424 1078.77     422 1087.38     420  1094.1
GR    418 1099.18     416 1103.59     414 1148.76     412  1198.1     410 1250.34
GR    408 1269.89     406 1276.26     404 1288.77  401.79 1296.19  401.79 1307.68
GR401.79 1314.26     406 1320.67     408 1330.84     410  1411.3     412 1604.39
GR    412 1604.44     414 1685.32     416 1741.28     418 1817.86     420 1887.57
GR    422 1989.98
ET                    7.11                             1198.1  1411.3
*                     7.11                            1294.62 1417.18
SC 3.015     0.5     2.5  161.03       5       5      83     1.2   402.1   401.8
* Culvert at Century City - Upstream
X1  5692      31  1198.1  1411.3   74.17   78.41   75.13
*   5692      31 1294.62 1417.18   74.17   78.41   75.13
X2                       2           410.4
GR    448    1000     446 1004.89     444  1009.5     440 1018.47     430 1039.19
GR    428    1056     426 1067.44     424 1078.77     422 1087.38     420  1094.1
GR    418 1099.18     416 1103.59     414 1148.76     412  1198.1     410 1250.34
GR    408 1269.89     406 1276.26     404 1288.77  401.79 1296.19  401.79 1307.68
GR401.79 1314.26     406 1320.67     408 1330.84     410  1411.3     412 1604.39
GR    412 1604.44     414 1685.32     416 1741.28     418 1817.86     420 1887.57
GR    422 1989.98
*     436    1000     434 1005.64     432 1012.51     430 1019.77     428 1036.35
*     426 1099.94     424 1126.81     422 1143.17     420  1152.5     418 1161.52
*     416  1171.4     414 1237.17     412 1294.62     410 1328.84     410 1328.89
*     408 1338.44     406 1343.43     404 1347.62     402 1353.06     402 1373.69
*     404 1378.66     406 1384.91     408 1392.59     410 1417.18     412 1651.72
*     414 1727.21     416 1793.25     418  1861.3     420 1878.01     422 1971.66
*     424 2040.33
NC  0.06    0.06    .065     0.1     0.3
ET                     7.1                            1489.83 1764.34
X1  5895      36 1489.83 1764.34  219.35  173.92  203.69
GR    430    1000     428 1053.26     426 1075.49     424  1094.8     422 1120.38
GR    420 1142.52     418  1156.3     416 1181.86     414 1233.73     412 1489.83
GR    410 1506.83     408 1531.12     406 1560.26     406 1560.26     404 1572.68
GR    404 1572.71     402 1594.29     402 1594.31     402 1619.43     404 1637.98
GR    406 1652.58     408 1668.22     406 1672.58     406 1681.47     408  1697.2
GR    410 1711.45     412 1764.34     414  1824.4     416 1870.99     418 1935.55
GR    420 2095.04     422 2228.88     424 2295.78     426 2351.96     428 2396.18
GR    430 2414.13
ET                     7.1                            1403.92 1492.14
X1  6125      24 1403.92 1492.14  209.06  239.76  229.69
GR    430  757.46     420    1000     418 1024.37     416 1068.67     414 1102.35
GR    414 1114.57     414 1223.32     412 1403.92     410 1415.67     408 1430.34
GR    406 1442.98     404 1457.93     404 1468.97     406 1473.66     408 1480.13
GR    410 1484.67     412 1492.14     414 1517.75     416 1523.34     418 1542.58
GR    420 1673.21     422 1735.89     424 1953.83     430  2132.1
NC  0.06    0.06   0.065
ET                     7.1                            1361.66  1530.2
X1  6441      26 1361.66  1530.2  316.23  307.03  316.23
GR    440  896.52     430    1000     428  1015.9     426 1039.22     424 1058.02
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GR   422 1078.58     420 1094.09     418 1139.44     416 1224.37     414 1361.66
GR   412 1383.06     410 1393.51     408 1399.14     406 1405.14     406 1421.28
GR   408 1429.97     410 1440.55     412 1458.75     414  1530.2     416 1600.41
GR   418 1629.91     420 1674.94     422 1761.77     424 1821.02     426 1885.92
GR   432 2039.87
NC  0.06    0.06   0.015     0.3     0.5
ET                  7.11                           1481.86 1591.53
* Culvert East of Century City  #14 - Downstream
X1  6559      33 1481.86 1591.53  102.66  128.65  117.95
GR   440    1000     438 1016.92     436 1048.38     434 1072.18     432  1107.7
GR   430 1127.67     428 1140.17     426 1159.94     424 1169.11     422 1185.68
GR   420 1200.65     418 1275.56     416  1328.3     414 1388.17     412 1481.86
GR   410 1510.93     408 1519.36     406 1529.21     406 1541.21     406 1544.21
GR   410 1564.11     412 1591.53     414 1625.75     416 1686.02     418 1740.29
GR   420 1772.26     422 1842.21     424 1876.48     426 1935.42     428 2000.59
GR   430 2030.92     430 2030.94     432 2094.76
ET                  7.11                           1481.86 1591.53
*                   7.11                           1445.87 1559.08
SC 4.028     0.5     2.5  111.94       3       3   32.57     2.2  406.35  406.02
* Culvert East of Century City - Upstream
X1  6593      33 1481.86 1591.53   33.17    31.2   33.75
*   6593      31 1445.87 1559.08   33.17    31.2   33.75
X2                     2          414.18
*    438    1000     436 1025.61     434 1056.15     432 1099.43     430 1117.18
*    428  1128.6     426 1142.37     424  1151.6     422 1167.67     420 1187.38
*    418 1262.27     416 1309.29     414 1365.29     412 1445.87     410 1483.85
*    408 1500.87     406 1502.77     406 1519.77     408 1522.77     410 1527.09
*    412 1559.08     414  1611.8     416  1659.5     418 1710.59     420 1756.47
*    422 1827.22     424 1854.28     426 1902.26     428 1965.82     430 2008.03
*    432 2069.34
GR   440    1000     438 1016.92     436 1048.38     434 1072.18     432  1107.7
GR   430 1127.67     428 1140.17     426 1159.94     424 1169.11     422 1185.68
GR   420 1200.65     418 1275.56     416  1328.3     414 1388.17     412 1481.86
GR   410 1510.93     408 1519.36     406 1529.21     406 1541.21     406 1544.21
GR   410 1564.11     412 1591.53     414 1625.75     416 1686.02     418 1740.29
GR   420 1772.26     422 1842.21     424 1876.48     426 1935.42     428 2000.59
GR   430 2030.92     430 2030.94     432 2094.76
NC  0.06    0.06   0.015     0.1     0.3
ET                   7.1                           1556.28  1700.4
X1  7059      24 1556.28  1700.4  470.37  427.44  466.51
GR   462  714.17     430    1000     428 1036.64     426 1060.95     424 1150.39
GR   424 1150.52     422 1253.77     420 1312.25     418 1556.28     416 1570.28
GR   414 1587.95     412  1602.4     412 1630.51     414 1648.17     416 1674.97
GR   418  1700.4     420 1745.45     422 1791.67     422 1791.68     424 1817.66
GR   426 1857.81     428 1891.19     430 1945.88     434 2230.72
NC  0.06    0.06   0.065
ET                   7.1                            1637.9 1764.87
X1  7516      18  1637.9 1764.87  386.77  471.27  456.53
GR   440  745.76     430    1000     428 1025.81     426 1095.83     424 1135.68
GR   422 1380.64     420  1637.9     418  1651.7     418 1682.56     418 1702.79
GR   418 1727.22     420 1764.87     422 1852.47     424 1891.01     426 1995.67
GR   428 2056.76     430 2125.65     436 2293.02
ET                   7.1                           1593.95 1946.09
X1  8409      28 1640.43 1774.42   680.2  570.16  892.51
GR   446 1165.15     444 1183.78     444 1198.39     444 1209.81     442 1220.48
GR   440 1239.82     438 1278.18     436 1344.02     434 1388.58     432 1425.08
GR   430 1499.66     428 1522.82     426 1553.07     424 1590.35     424 1615.19
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GR    426 1633.94      426 1640.43      424 1691.66      422 1698.96      420  1703.9
GR    420 1739.87      422 1745.69      424 1753.72      426 1774.42      428 2233.88
GR    430 2311.34      432 2348.52      440 2526.63
QT      2    4609     4609
ET                     7.1                            1801.94 2557.86
X1   9097        36 1801.94 2557.86   713.79  565.77   688.24
GR    450    1000      448 1049.06      446 1112.13      444 1181.19      442  1225.9
GR    440 1364.46      438 1478.95      436 1593.05      434 1644.58      432    1735
GR    430 1755.71      430 1770.81      432 1778.99      432 1801.94      430 1840.12
GR    428  1886.9      426 1935.92      426  1946.5      426 2206.22      426 2206.26
GR    426 2303.99      428 2386.88      430 2516.65      432 2542.61      432 2542.74
GR    434 2557.86      434 2602.17      432  2626.2      432  2654.6      434 2680.59
GR    436 2704.39      438  2723.8      440 2735.74      442 2745.08      444 2753.05
GR    446  2821.9
ET                     7.1                            1410.99 2186.91
X1   9604        26 1410.99 2186.91   494.92  534.35    507.2
GR    454    1000      452 1020.63      450 1040.38      448 1055.77      446 1070.58
GR    444 1083.79      444 1083.83      442 1102.22      440 1126.22      438 1204.08
GR    436 1273.25      434 1410.99      432 1729.03      432  2020.3      432 2094.16
GR    432 2183.12      434 2186.91      436 2195.51      438  2214.9      440 2254.82
GR    442 2281.38      444  2324.5      446 2334.99      446 2335.05      448 2360.12
GR    450 2445.03
ET                     7.1                            1414.56  1977.5
X1  10915        32 1414.56 1659.15 1215.89 1306.41   1311.5
GR    460    1000      458 1048.99      456 1122.48      454 1171.88      452 1220.44
GR    452 1220.46      450 1286.35      448 1306.35      446 1335.81      446  1359.8
GR    446 1414.56      444 1447.36      442 1502.37      440 1533.26      438 1550.91
GR    438 1590.11      440 1614.98      442 1631.53      444 1644.36      446 1659.15
GR    446 1707.01      444  1743.6      442 1750.29      442 2116.05      444 2159.02
GR    446 2176.21      448 2191.28      450 2217.26      452 2245.51      454 2259.35
GR    456 2279.28      458 2294.15
ET                     7.1                            1391.72 1782.55
X1  11419        33 1391.72 1782.55   421.59  558.28    503.5
GR    466    1000      464    1035      462  1100.7      460 1122.13      458  1148.8
GR    456 1173.21      454 1194.56      452  1256.8      450 1324.07      448 1349.16
GR    446 1391.72      444 1455.18      442 1503.53      442 1536.65      444 1544.25
GR    444  1697.2      444 1704.22      446 1782.55      448 1835.41      450  1868.1
GR    452 1917.54      454 1934.48      456  1943.8      458 1953.06      460 1960.32
GR    462 1990.71      464 1998.94      466 2012.74      468 2022.04      470 2032.33
GR    472 2045.47      474 2053.09      476  2104.2
ET                     7.1                            1403.82 1555.84
X1  12181        27 1403.82 1555.84   735.94  760.05   761.78
GR    472    1000      470 1075.95      468 1157.84      468 1157.84      466 1192.45
GR    464 1215.81      462 1247.75      462 1247.76      460 1283.33      458 1310.16
GR    456 1344.49      454 1376.89      452 1403.82      450 1436.65      448 1453.06
GR    446 1479.74      446 1496.51      450 1504.18      452 1555.84      454 1699.61
GR    456  1761.4      458 1790.58      460 1826.82      462 1905.41      464 1948.65
GR    466 1977.27      468 1998.33
ET                     7.1                            1309.29 1492.26
X1  12391        23 1309.29 1492.26   217.61  190.06   210.04
GR    480  712.81      470    1000      468 1059.33      466 1079.24      464  1103.4
GR    462 1126.34      460 1219.49      458 1265.75      458 1291.08      458 1309.29
GR    456 1387.69      454 1417.95      452 1433.08      452 1469.67      454 1477.28
GR    456 1485.33      458 1492.26      460  1713.7      462 1733.18      464 1787.85
GR    466 1808.51      468 1821.94      470 1835.79
ET                     7.1                            1653.06  1889.5
X1  12546        31 1653.06  1889.5   148.33  137.62   155.24
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GR   480    1000     478 1062.88     476 1102.84     474 1135.59     472 1192.13
GR   470 1310.56     468 1356.56     466 1394.91     464 1428.24     462 1506.56
GR   460 1632.75     458 1653.06     456 1726.41     454 1741.47     452 1755.66
GR   450 1767.75     450 1794.78     452 1801.95     454 1814.85     456 1825.71
GR   458  1889.5     458 1970.43     458 1997.48     460 2080.62     462  2120.3
GR   462 2120.31     464 2154.79     466 2222.84     468 2260.44     468 2260.45
GR   470 2283.45
ET                   7.1                     1377.92 1647.91
X1 13008      27 1377.92 1513.83  446.35  495.99  461.74
GR   470    1000     468 1063.37     466 1093.37     464 1145.92     462 1183.84
GR   460 1297.52     458 1369.34     456 1377.92     454 1412.61     452 1464.05
GR   454 1499.11     456 1513.83     458 1694.88     460  1707.5     462 1722.06
GR   464 1729.81     466 1738.38     468 1742.57     470  1746.5     472 1754.69
GR   476 1764.21     478 1773.58     480 1784.53     482 1800.03     484 1814.05
GR   484 1864.94     482 1886.72
ET                   7.1                     1487.57 1706.41
X1 14115      19 1487.57 1706.41 1067.05 1148.74 1107.42
GR   472    1000     470 1251.07     468 1265.89     466 1345.64     464 1487.57
GR   462 1597.37     460 1610.33     460 1675.57     462    1698     464 1706.41
GR   466 1725.67     468 1782.85     470 1794.49     472 1817.45     474 1870.07
GR   474 1893.01     474 1910.17     476 2019.62     478 2061.18
QT     2    2478    2478
ET                   7.1                     1648.65 1911.01
X1 14607      29 1648.65 1911.01  476.51  535.82  491.47
GR   480    1000     478 1027.01     476 1183.24     474 1262.64     472 1318.04
GR   470 1459.12     468 1648.65     466 1693.23     464 1819.92     462 1834.56
GR   462 1834.64     462 1886.05     464 1895.83     466 1904.67     468 1911.01
GR   468 1911.01     470 1917.82     472 1931.87     474 1944.23     476 1953.59
GR   478 1964.23     480 1972.17     482 1986.47     482  2029.9     482 2322.15
GR   484  2381.2     486 2481.89     488  2496.3     490 2516.15
EJ
T1      CF0029, 12/15/98
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 1
J1            3                                         5143   378.89
J2    15            -1


ER
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THIS RUN EXECUTED 24MAR99 07:59:34

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HEC-2 WATER SURFACE PROFILES

sion 4.6.2; May 1991
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

name:TRIB1FW.IH2 100

SUMMARY PRINTOUT TABLE 110

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	.000	377.89	.00	378.45	340.11	42.47	4528.80	571.73	.00	.00	1197.23	1344.37	.00
	.000	378.89	1.00	379.44	147.14	.00	5143.00	.00	147.14	1197.23	1197.23	1344.37	1344.37
	634.000	384.33	.00	385.13	422.22	114.19	5028.81	.00	.00	.00	1569.95	1709.30	.00
	634.000	384.34	.01	385.19	135.01	.00	5143.00	.00	139.35	1569.95	1569.95	1709.30	1709.30
*	994.000	386.22	.00	386.31	685.51	2407.56	1894.56	840.88	.00	.00	1278.04	1417.07	.00
*	994.000	386.59	.37	386.73	401.75	2204.77	2556.89	381.35	401.75	1084.97	1278.04	1417.07	1486.72
*	1278.000	386.71	.00	387.34	243.37	2088.35	3054.65	.00	.00	.00	1186.85	1379.69	.00
*	1278.000	387.43	.72	388.08	235.31	1245.00	3898.00	.00	316.82	1062.87	1186.85	1379.69	1379.69
*	1671.000	389.59	.00	389.90	332.01	19.78	3808.57	1314.65	.00	.00	1146.13	1265.68	.00
*	1671.000	390.43	.84	390.86	178.91	.00	4736.53	406.47	178.91	1146.13	1146.13	1265.68	1325.04
	1745.000	389.88	.00	390.20	342.19	8.20	4922.96	211.84	.00	.00	1317.84	1503.63	.00
	1745.000	390.86	.98	391.12	185.79	.00	5143.00	.00	185.79	1317.84	1317.84	1503.63	1503.63
*	1910.000	390.66	.00	391.96	178.01	.00	5143.00	.00	.00	.00	1152.60	1420.98	.00
*	1910.000	391.41	.76	392.24	204.21	.00	5143.00	.00	268.38	1152.60	1152.60	1420.98	1420.98
	2079.000	393.55	.00	393.92	467.87	684.35	4274.70	183.95	.00	.00	1445.05	1585.93	.00
	2079.000	393.62	.07	394.23	140.88	.00	5143.00	.00	140.88	1445.05	1445.05	1585.93	1585.93
	2259.000	394.36	.00	394.88	278.40	37.79	4795.32	309.89	.00	.00	1462.53	1569.09	.00
	2259.000	394.77	.41	395.34	106.56	.00	5143.00	.00	106.56	1462.53	1462.53	1569.09	1569.09
*	2596.000	396.72	.00	397.35	282.40	46.78	5096.22	.00	.00	.00	1263.86	1456.47	.00
	2596.000	397.06	.34	397.62	187.96	.00	5143.00	.00	192.61	1263.86	1263.86	1456.47	1456.47
*	2815.000	398.56	.00	398.80	376.39	56.64	5086.12	.24	.00	.00	1152.76	1429.77	.00
*	2815.000	398.67	.11	398.91	277.01	.00	5143.00	.00	277.01	1152.76	1152.76	1429.77	1429.77

1
24MAR99 07:59:32

	SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
	3318.000	400.81	.00	401.11	287.78	13.34	5129.66	.00	.00	.00	1218.26	1479.48	.00
	3318.000	400.84	.03	401.14	254.17	.00	5143.00	.00	261.22	1218.26	1218.26	1479.48	1479.48
*	3552.000	401.08	.00	401.23	419.44	11.77	5131.23	.00	.00	.00	1497.66	1847.94	.00
*	3552.000	401.11	.03	401.26	281.67	.00	5143.00	.00	350.28	1497.66	1497.66	1847.94	1847.94
	3635.000	402.01	.00	402.12	556.88	49.88	5093.12	.00	.00	.00	1497.66	1847.94	.00
	3635.000	402.01	-.01	402.11	301.00	.00	5143.00	.00	350.28	1497.66	1497.66	1847.94	1847.94
*	3774.000	401.70	.00	402.29	344.83	193.22	4795.39	154.39	.00	.00	1506.01	1670.80	.00
*	3774.000	401.58	-.12	402.34	164.79	.00	5143.00	.00	164.79	1506.01	1506.01	1670.80	1670.80
*	4035.000	403.70	.00	403.88	532.90	33.93	2339.43	2769.63	.00	.00	1501.49	1638.91	.00
	4035.000	404.64	.94	405.39	137.42	.00	5143.00	.00	137.42	1501.49	1501.49	1638.91	1638.91
*	4183.000	404.43	.00	404.77	504.22	2.81	3182.19	1958.00	.00	.00	1409.08	1628.61	.00
*	4183.000	406.13	1.70	406.40	326.26	.00	4530.26	612.74	326.26	1409.08	1409.08	1628.61	1735.34
	4536.000	407.04	.00	407.39	328.64	55.26	5049.99	37.75	.00	.00	1554.81	1796.88	.00
	4536.000	407.65	.61	407.94	242.07	.00	5143.00	.00	242.07	1554.81	1554.81	1796.88	1796.88
	4989.000	409.54	.00	409.84	405.52	2065.25	2873.58	204.17	.00	.00	1390.33	1485.87	.00
*	4989.000	410.18	.64	411.25	95.54	.00	5143.00	.00	95.54	1390.33	1390.33	1485.87	1485.87
	5229.000	410.64	.00	410.99	376.41	175.87	3267.80	1699.34	.00	.00	1441.60	1537.34	.00
*	5229.000	412.39	1.75	412.81	151.04	.00	4196.65	946.35	151.04	1441.60	1441.60	1537.34	1592.64
*	5617.000	411.17	.00	412.10	304.09	.00	5103.61	39.39	.00	.00	1198.10	1411.30	.00

FLOODWAY DATA, name:TRIB1FW.IH2 100
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.000	147.	862.	6.0	378.9	377.9	1.0
634.000	135.	694.	7.4	384.3	384.3	.0
994.000	402.	1719.	3.0	386.6	386.2	.4
1278.000	301.	794.	6.5	387.4	386.7	.7
1671.000	179.	1015.	5.1	390.4	389.6	.8
1745.000	186.	1251.	4.1	390.9	389.9	1.0
1910.000	204.	704.	7.3	391.5	390.7	.8
2079.000	141.	819.	6.3	393.6	393.5	.1
2259.000	107.	846.	6.1	394.8	394.4	.4
2596.000	188.	857.	6.0	397.0	396.7	.3
2815.000	277.	1310.	3.9	398.7	398.6	.1
3318.000	254.	1165.	4.4	400.8	400.8	.0
3552.000	282.	1691.	3.0	401.1	401.1	.0
3635.000	301.	1951.	2.6	402.0	402.0	.0
3774.000	165.	733.	7.0	401.6	401.7	-.1
4035.000	137.	743.	6.9	404.6	403.7	.9
4183.000	326.	1280.	4.0	406.1	404.4	1.7
4536.000	242.	1197.	4.3	407.6	407.0	.6
4989.000	96.	619.	8.3	410.1	409.5	.6
5229.000	151.	1012.	5.1	412.4	410.6	1.8
5617.000	213.	981.	5.2	412.8	411.2	1.6
5692.000	213.	1532.	3.4	415.3	415.2	.1
5895.000	275.	2313.	2.2	415.4	415.3	.1
6125.000	88.	682.	7.5	415.2	415.3	-.1
6441.000	169.	1083.	4.8	417.5	416.6	.9
6559.000	110.	904.	5.7	417.5	416.6	.9
6593.000	110.	1228.	4.2	420.5	420.6	-.1
7059.000	144.	834.	6.2	420.3	420.4	-.1
7516.000	127.	467.	11.0	422.1	422.1	.0
8409.000	352.	1557.	3.3	429.4	428.4	1.0
9097.000	697.	2479.	1.9	430.6	430.2	.4
9604.000	672.	762.	6.0	433.3	433.3	.0
10915.000	545.	1527.	3.0	444.9	444.5	.4
11419.000	391.	1201.	3.8	447.1	446.8	.3
12181.000	152.	654.	7.0	453.6	453.8	-.2
12391.000	179.	517.	8.9	457.9	457.7	.2
12546.000	236.	1221.	3.8	460.2	460.1	.1
13008.000	270.	1616.	2.9	461.2	460.9	.3
14115.000	219.	628.	7.3	464.7	464.2	.5
14607.000	262.	1048.	2.4	468.6	468.8	-.2

TRTIBUTARY 1 HEC-2 MODEL
(Floodway - Method 4)

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C
C      6
C   3552Loop 20 Culvert Crossing - Downstream
C   3635Loop 20 Culvert Crossing - Upstream
C   5617Culvert at Century City  #13 - Downstream
C   5692Culvert at Century City - Upstream
C   6559Culvert East of Century City  #14 - Downstream
C   6593Culvert East of Century City - Upstream
T1       CF0029, 12/15/98
T2       Chacon Creek Watershed - City of Laredo
T3       Tributary 1
T4
J1             2                                                     5143  377.89
J2       1              -1                                             -6
J3     110       200
J5     -10       -10
NC    0.06      0.06   0.065     0.1     0.3
ET                       9.4
X1       0        32 1197.23 1344.37
GR     396      1000     394 1030.55     392 1048.26     390 1067.01     388  1085.4
GR     386 1110.35     384 1131.52     384 1131.53     382 1142.05     380 1150.32
GR     378 1176.67     376 1197.23     374 1232.76     372 1235.92     370 1239.75
GR     370  1276.2     372 1285.25     374 1309.92     376 1344.37     376 1373.46
GR     376 1384.47     376 1384.49     378 1525.68     380  1561.9     380 1562.01
GR     382 1587.23     384 1611.58     386 1628.11     388 1631.83     390 1635.83
GR     392 1637.69     394 1643.04
X1     634        20 1569.95  1709.3  577.11  631.08  633.75
GR     390 1023.11     384 1297.65     384 1569.95     382 1585.65     380  1595.8
GR     378 1632.28     376 1643.51     376 1664.33     378  1676.1     380 1689.25
GR     382 1695.25     384 1704.08     386  1709.3     388 1714.53     390 1719.31
GR     392 1733.33     394 1748.62     396  1757.2     398 1773.59     400 1805.18
X1     994        28 1278.04 1417.07  285.08  398.72  360.37
GR     394  843.04     390    1000     388 1012.12     386 1017.51     384 1024.09
GR     382  1029.5     380 1037.22     380 1040.64     382 1069.01     382 1107.49
GR     382 1195.67     384 1237.44     384 1278.04     382 1341.61     380 1351.58
GR     378 1355.13     376 1357.97     376 1373.82     378  1383.3     380 1392.07
GR     382 1402.99     384 1417.07     384 1550.17     384 1625.95     386 1691.61
GR     388 1789.46     390 1922.96     394 2030.87
X1    1278        30 1186.85 1379.69  228.71  289.34  284.13
GR     396  799.61     392  982.03     390    1000     388 1011.71     386 1017.63
GR     384 1026.93     382  1041.7     382 1065.08     384 1087.54     386  1115.5
GR     388 1136.49     388  1147.5     388 1171.06     388 1186.85     386 1219.55
GR     384 1227.84     382 1237.16     380 1253.11     378 1259.43     378 1270.09
GR     380 1275.97     382 1288.07     384 1300.96     386    1324     388 1379.69
GR     390 1419.23     392 1548.67     394 1585.73     396 1635.45     404  1714.1
X1    1671        26 1146.13 1265.68   339.2  395.72  393.34
GR     396  965.42     392    1000     390  1122.8     388 1146.13     386 1158.18
GR     384 1172.78     382 1198.32     380 1208.08     380  1235.9     382 1242.17
GR     384 1244.97     386 1259.04     388 1265.68     388 1326.78     386 1363.14
GR     386 1402.89     388 1440.64     390 1464.39     392 1487.03     394 1510.04
GR     396 1542.29     398 1563.39     400 1584.43     402 1611.03     402 1611.04
GR     404 1628.41
X1    1745        21 1317.84 1503.63   84.05   66.59   74.37
GR     400      1000     398 1132.92     396 1154.99     394 1163.88     392 1243.66
GR     390 1311.45     388 1317.84     386 1338.79     384 1402.31     382 1421.41
GR     380 1433.63     380 1457.47     382 1461.05     384 1473.02     386 1483.32
GR     388 1503.63     390 1663.66     392 1698.21     394 1725.65     396 1761.94
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GR   398 1797.75
X1  1910      24  1152.6 1420.98  206.24  104.55  164.85
GR   404    1000     402 1071.19     402 1123.47     402 1134.09     400 1143.91
GR   398 1147.86     396 1149.15     394  1152.6     392 1157.78     390 1164.96
GR   384 1168.11     384 1168.14     382 1170.86     382 1170.89     382  1182.3
GR   384 1192.54     386 1203.24     388 1248.29     390 1319.75     392 1382.97
GR   394 1420.98     396 1729.01     398  1781.2     400 1848.67
X1  2079      30 1445.05 1585.93  178.21   139.7  168.26
GR   402    1000     400  1109.6     398 1121.74     396  1131.6     394 1201.52
GR   394 1201.62     392 1281.24     392 1420.05     392 1445.05     390 1463.37
GR   388 1469.25     386 1472.15     384 1478.55     382 1487.81     382 1497.86
GR   384 1502.68     386 1508.85     388  1531.7     390 1559.99     392 1585.93
GR   394 1656.39     394 1702.19     392 1723.42     392 1748.65     394 1755.86
GR   394 1857.65     394 1860.27     396 1870.44     398 1902.16     400 2036.79
X1  2259      15 1462.53 1569.09   213.6  106.58  180.22
GR   400    1000     398 1053.48     396 1321.14     394 1450.07     392 1462.53
GR   390 1479.25     384 1485.03     382 1488.36     382 1508.59     384 1516.25
GR   386 1529.14     388  1543.1     390 1552.25     392 1569.09     400  2031.8
X1  2596      18 1263.86 1456.47  186.69  360.82  337.24
GR   406  897.78     398    1000     396 1263.86     394  1310.6     392 1396.86
GR   390  1415.9     388 1419.92     385 1421.89     385 1431.78     388 1436.91
GR   390 1440.69     400 1456.47     400 1502.13     400 1603.23     402 1618.05
GR   404 1627.51     406 1686.83     406 1686.88
X1  2815      22 1152.76 1429.77  189.97  266.11  218.66
GR   406    1000     406 1030.51     404 1036.02     402  1039.7     400 1044.72
GR   398  1058.6     398 1103.79     398 1152.76     396 1177.96     394 1312.79
GR   392 1320.59   385.8 1326.54   385.8 1337.21     392 1348.73     394 1416.69
GR   396 1423.67     398 1429.77     400 1434.62     402 1616.83     404  1769.3
GR   406 1834.75     408 1881.87
NC  0.06    0.06   0.065
X1  3318      19 1218.26 1479.48  557.22  419.32  503.54
GR   410  886.35     406    1000     404  1059.8     402 1134.75     400 1218.26
GR   398  1331.8     396 1391.24     394 1406.84   386.1 1419.36   386.1 1444.31
GR   394 1450.38     396 1456.94     398 1461.17     400 1467.31     402 1479.48
GR   404 1658.49     406  1729.8     408 1889.53     410 1978.67
NC  0.06    0.06   0.015     0.3     0.5
* Loop 20 Culvert Crossing - Downstream
X1  3552      19 1497.66 1847.94  207.89   285.4  233.42
GR   410    1000     408 1037.59     406 1090.84     404 1180.76     402 1242.38
GR   400 1497.66     394 1635.88  386.15 1648.77  386.15 1695.95     394 1698.37
GR   400 1755.15     402  1798.5     404 1847.94     406 1886.31     408 1923.05
GR   410 1958.86     412 1992.38     414 2025.44     416 2055.75
SC 3.013     0.5     2.5  257.59      12      10      90     8.1  386.78  386.18
* Loop 20 Culvert Crossing - Upstream
X1  3635      12    1469 1702.51   22.87   98.69   83.43
X2                     2          399.42
GR   410   948.6     408    1000     406 1053.06     404 1149.47     402 1200.16
GR   400    1469     394 1585.17  386.78  1588.8  386.78 1625.03     394 1627.75
GR   400 1702.51     416 1924.11
NC  0.06    0.06   0.015     0.1     0.3
X1  3774      21 1506.01  1670.8  183.37   98.23  138.58
GR   410    1000     408 1061.07     406 1112.05     404 1128.25     402 1387.23
GR   402 1388.59     400 1506.01     398 1519.16     396 1531.71     394 1543.08
GR   392 1554.21     392 1558.99     394 1570.53     396 1579.24     398 1595.19
GR   400  1670.8     402 1764.63     404 1839.06     406 1852.93     408  1864.8
GR   410 1884.05
X1  4035      31 1501.49 1638.91  210.79  271.59  261.14
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GR    422    1000     420 1005.47     418 1016.11     416 1021.97     416    1022
GR    414 1126.75     412 1181.75     410 1260.02     408 1287.12     408 1356.19
GR    408 1358.87     406 1381.11     404 1452.57     404 1461.97     404 1467.19
GR    402 1501.49     400  1558.4     398 1570.31     396 1580.42     396 1599.94
GR    398 1613.48     400 1627.07     402 1638.91     402 1760.25     400 1883.48
GR    398  1905.6     398 1919.44     400 1933.56     402 1954.32     404 2014.19
GR    420 2247.71
X1   4183      27 1409.08 1628.61  192.75  148.35  148.35
GR    420    1000     418 1024.39     416 1042.04     414 1101.74     412 1132.83
GR    410  1201.4     408 1268.46     406 1340.65     404 1409.08     402 1436.14
GR    400 1497.01     398 1506.96     396 1518.37     396 1527.07     398 1531.77
GR    400 1538.97     402 1548.58     404 1628.61     404 1735.34     402 1788.53
GR    400 1814.15     400 1845.67     402 1853.44     404 1886.31     406 1941.56
GR    408 2023.15     410 2094.25
X1   4536      33 1554.81 1796.88  384.62  320.98  352.42
GR    432    1000     430 1008.45     428 1022.64     428 1095.07     428 1131.73
GR    426 1137.77     424 1147.89     422 1166.47     420 1197.59     418 1269.87
GR    416 1280.08     414 1300.75     412 1312.61     410 1480.46     408 1521.23
GR    406 1529.86     406 1548.65     406 1554.81     404 1589.11     402 1632.96
GR    400 1656.55     400 1714.79     402 1727.05     404 1743.43     406 1796.88
GR    408 1906.75     410 2001.97     412 2090.95     412    2091     414 2110.85
GR    416 2135.83     416 2140.86     416 2156.74
X1   4989      24 1390.33 1485.87     394  479.93  453.69
GR    430  686.41     420  848.82     414    1000     412 1031.44     410 1109.75
GR    408 1142.27     406 1390.33     404 1409.85   401.5 1419.28   401.5 1436.86
GR    404 1445.22     404 1453.42     404 1467.26     406 1485.87     408 1508.91
GR    410 1526.76     410 1526.79     412 1559.58     414 1563.96     416 1581.18
GR    418  1595.6     420 1611.58     422 1649.08     424 1679.38
NC   0.06    0.06   0.065
X1   5229      31  1441.6 1537.34  225.52  201.25  240.16
GR    434    1000     432 1018.02     430 1054.15     428 1074.85     426 1096.89
GR    424 1105.17     422 1141.37     420 1167.84     418 1198.83     416 1264.56
GR    414 1285.88     412 1331.22     410 1398.68     408 1441.59     408  1441.6
GR    406 1459.36     404 1469.67   401.5 1478.88   401.5 1497.82     404 1509.95
GR    406 1528.89     408 1537.34     408  1610.4     408 1718.15     410 1745.82
GR    412 1769.89     414 1788.02     416  1797.1     418 1812.55     420 1857.72
GR    422  1947.1
NC   0.06    0.06   0.015     0.3     0.5
* Culvert at Century City  #13 - Downstream
X1   5617      31  1198.1  1411.3  436.55  342.76   387.1
GR    448    1000     446 1004.89     444  1009.5     440 1018.47     430 1039.19
GR    428    1056     426 1067.44     424 1078.77     422 1087.38     420  1094.1
GR    418 1099.18     416 1103.59     414 1148.76     412  1198.1     410 1250.34
GR    408 1269.89     406 1276.26     404 1288.77  401.79 1296.19  401.79 1307.68
GR401.79 1314.26     406 1320.67     408 1330.84     410  1411.3     412 1604.39
GR    412 1604.44     414 1685.32     416 1741.28     418 1817.86     420 1887.57
GR    422 1989.98
NC   0.06    0.06   0.015
SC  3.015     0.5     2.5  161.03       5       5      83     1.2   402.1   401.8
* Culvert at Century City - Upstream
X1   5692      31 1294.62 1417.18   74.17   78.41   75.13
X2                      2           410.4
GR    436    1000     434 1005.64     432 1012.51     430 1019.77     428 1036.35
GR    426 1099.94     424 1126.81     422 1143.17     420  1152.5     418 1161.52
GR    416  1171.4     414 1237.17     412 1294.62     410 1328.84     410 1328.89
GR    408 1338.44     406 1343.43     404 1347.62     402 1353.06     402 1373.69
GR    404 1378.66     406 1384.91     408 1392.59     410 1417.18     412 1651.72
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GR   414 1727.21     416 1793.25     418  1861.3     420 1878.01     422 1971.66
GR   424 2040.33
NC  0.06    0.06   0.015     0.1     0.3
X1  5895      36 1489.83 1764.34  219.35  173.92  203.69
GR   430    1000     428 1053.26     426 1075.49     424  1094.8     422 1120.38
GR   420 1142.52     418  1156.3     416 1181.86     414 1233.73     412 1489.83
GR   410 1506.83     408 1531.12     406 1560.26     406 1560.26     404 1572.68
GR   404 1572.71     402 1594.29     402 1594.31     402 1619.43     404 1637.98
GR   406 1652.58     408 1668.22     406 1672.58     406 1681.47     408  1697.2
GR   410 1711.45     412 1764.34     414  1824.4     416 1870.99     418 1935.55
GR   420 2095.04     422 2228.88     424 2295.78     426 2351.96     428 2396.18
GR   430 2414.13
NC  0.06    0.06   0.065
ET                  17.4
X1  6125      24 1403.92 1492.14  209.06  239.76  229.69
GR   430  757.46     420    1000     418 1024.37     416 1068.67     414 1102.35
GR   414 1114.57     414 1223.32     412 1403.92     410 1415.67     408 1430.34
GR   406 1442.98     404 1457.93     404 1468.97     406 1473.66     408 1480.13
GR   410 1484.67     412 1492.14     414 1517.75     416 1523.34     418 1542.58
GR   420 1673.21     422 1735.89     424 1953.83     430  2132.1
NC  0.06    0.06   0.065
X1  6441      26 1361.66  1530.2  316.23  307.03  316.23
GR   440  896.52     430    1000     428  1015.9     426 1039.22     424 1058.02
GR   422 1078.58     420 1094.09     418 1139.44     416 1224.37     414 1361.66
GR   412 1383.06     410 1393.51     408 1399.14     406 1405.14     406 1421.28
GR   408 1429.97     410 1440.55     412 1458.75     414  1530.2     416 1600.41
GR   418 1629.91     420 1674.94     422 1761.77     424 1821.02     426 1885.92
GR   432 2039.87
NC  0.06    0.06   0.015     0.3     0.5
* Culvert East of Century City  #14 - Downstream
X1  6559      33 1481.86 1591.53  102.66  128.65  117.95
GR   440    1000     438 1016.92     436 1048.38     434 1072.18     432  1107.7
GR   430 1127.67     428 1140.17     426 1159.94     424 1169.11     422 1185.68
GR   420 1200.65     418 1275.56     416  1328.3     414 1388.17     412 1481.86
GR   410 1510.93     408 1519.36     406 1529.21     406 1541.21     406 1544.21
GR   410 1564.11     412 1591.53     414 1625.75     416 1686.02     418 1740.29
GR   420 1772.26     422 1842.21     424 1876.48     426 1935.42     428 2000.59
GR   430 2030.92     430 2030.94     432 2094.76
ET                  18.4
SC 4.028     0.5     2.5  111.94       3       3   32.57     2.2  406.35  406.02
* Culvert East of Century City - Upstream
X1  6593      31 1445.87 1559.08   33.17    31.2   33.75
X2                     2          414.18
GR   438    1000     436 1025.61     434 1056.15     432 1099.43     430 1117.18
GR   428  1128.6     426 1142.37     424  1151.6     422 1167.67     420 1187.38
GR   418 1262.27     416 1309.29     414 1365.29     412 1445.87     410 1483.85
GR   408 1500.87     406 1502.77     406 1519.77     408 1522.77     410 1527.09
GR   412 1559.08     414  1611.8     416  1659.5     418 1710.59     420 1756.47
GR   422 1827.22     424 1854.28     426 1902.26     428 1965.82     430 2008.03
GR   432 2069.34
NC  0.06    0.06   0.015     0.1     0.3
ET                  10.4
X1  7059      24 1556.28  1700.4  470.37  427.44  466.51
GR   462  714.17     430    1000     428 1036.64     426 1060.95     424 1150.39
GR   424 1150.52     422 1253.77     420 1312.25     418 1556.28     416 1570.28
GR   414 1587.95     412  1602.4     412 1630.51     414 1648.17     416 1674.97
GR   418  1700.4     420 1745.45     422 1791.67     422 1791.68     424 1817.66
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GR   426 1857.81     428 1891.19     430 1945.88     434 2230.72
NC  0.06    0.06   0.065
ET                   8.4
X1  7516      18  1637.9 1764.87  386.77  471.27  456.53
GR   440  745.76     430    1000     428 1025.81     426 1095.83     424 1135.68
GR   422 1380.64     420  1637.9     418  1651.7     418 1682.56     418 1702.79
GR   418 1727.22     420 1764.87     422 1852.47     424 1891.01     426 1995.67
GR   428 2056.76     430 2125.65     436 2293.02
ET                   5.4
X1  8409      28 1640.43 1774.42   680.2  570.16  892.51
GR   446 1165.15     444 1183.78     444 1198.39     444 1209.81     442 1220.48
GR   440 1239.82     438 1278.18     436 1344.02     434 1388.58     432 1425.08
GR   430 1499.66     428 1522.82     426 1553.07     424 1590.35     424 1615.19
GR   426 1633.94     426 1640.43     424 1691.66     422 1698.96     420  1703.9
GR   420 1739.87     422 1745.69     424 1753.72     426 1774.42     428 2233.88
GR   430 2311.34     432 2348.52     440 2526.63
QT     2    4609    4609
X1  9097      36 1801.94 2557.86  713.79  565.77  688.24
GR   450    1000     448 1049.06     446 1112.13     444 1181.19     442  1225.9
GR   440 1364.46     438 1478.95     436 1593.05     434 1644.58     432    1735
GR   430 1755.71     430 1770.81     432 1778.99     432 1801.94     430 1840.12
GR   428  1886.9     426 1935.92     426  1946.5     426 2206.22     426 2206.26
GR   426 2303.99     428 2386.88     430 2516.65     432 2542.61     432 2542.74
GR   434 2557.86     434 2602.17     432  2626.2     432  2654.6     434 2680.59
GR   436 2704.39     438  2723.8     440 2735.74     442 2745.08     444 2753.05
GR   446  2821.9
X1  9604      26 1410.99 2186.91  494.92  534.35   507.2
GR   454    1000     452 1020.63     450 1040.38     448 1055.77     446 1070.58
GR   444 1083.79     444 1083.83     442 1102.22     440 1126.22     438 1204.08
GR   436 1273.25     434 1410.99     432 1729.03     432  2020.3     432 2094.16
GR   432 2183.12     434 2186.91     436 2195.51     438  2214.9     440 2254.82
GR   442 2281.38     444  2324.5     446 2334.99     446 2335.05     448 2360.12
GR   450 2445.03
X1 10915      32 1414.56 1659.15 1215.89 1306.41  1311.5
GR   460    1000     458 1048.99     456 1122.48     454 1171.88     452 1220.44
GR   452 1220.46     450 1286.35     448 1306.35     446 1335.81     446  1359.8
GR   446 1414.56     444 1447.36     442 1502.37     440 1533.26     438 1550.91
GR   438 1590.11     440 1614.98     442 1631.53     444 1644.36     446 1659.15
GR   446 1707.01     444  1743.6     442 1750.29     442 2116.05     444 2159.02
GR   446 2176.21     448 2191.28     450 2217.26     452 2245.51     454 2259.35
GR   456 2279.28     458 2294.15
X1 11419      33 1391.72 1782.55  421.59  558.28   503.5
GR   466    1000     464    1035     462  1100.7     460 1122.13     458  1148.8
GR   456 1173.21     454 1194.56     452  1256.8     450 1324.07     448 1349.16
GR   446 1391.72     444 1455.18     442 1503.53     442 1536.65     444 1544.25
GR   444  1697.2     444 1704.22     446 1782.55     448 1835.41     450  1868.1
GR   452 1917.54     454 1934.48     456  1943.8     458 1953.06     460 1960.32
GR   462 1990.71     464 1998.94     466 2012.74     468 2022.04     470 2032.33
GR   472 2045.47     474 2053.09     476  2104.2
X1 12181      27 1403.82 1555.84  735.94  760.05  761.78
GR   472    1000     470 1075.95     468 1157.84     468 1157.84     466 1192.45
GR   464 1215.81     462 1247.75     462 1247.76     460 1283.33     458 1310.16
GR   456 1344.49     454 1376.89     452 1403.82     450 1436.65     448 1453.06
GR   446 1479.74     446 1496.51     450 1504.18     452 1555.84     454 1699.61
GR   456  1761.4     458 1790.58     460 1826.82     462 1905.41     464 1948.65
GR   466 1977.27     468 1998.33
X1 12391      23 1309.29 1492.26  217.61  190.06  210.04
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GR    480  712.81     470    1000     468 1059.33     466 1079.24     464  1103.4
GR    462 1126.34     460 1219.49     458 1265.75     458 1291.08     458 1309.29
GR    456 1387.69     454 1417.95     452 1433.08     452 1469.67     454 1477.28
GR    456 1485.33     458 1492.26     460  1713.7     462 1733.18     464 1787.85
GR    466 1808.51     468 1821.94     470 1835.79
X1 12546      31 1653.06  1889.5  148.33  137.62  155.24
GR    480    1000     478 1062.88     476 1102.84     474 1135.59     472 1192.13
GR    470 1310.56     468 1356.56     466 1394.91     464 1428.24     462 1506.56
GR    460 1632.75     458 1653.06     456 1726.41     454 1741.47     452 1755.66
GR    450 1767.75     450 1794.78     452 1801.95     454 1814.85     456 1825.71
GR    458  1889.5     458 1970.43     458 1997.48     460 2080.62     462  2120.3
GR    462 2120.31     464 2154.79     466 2222.84     468 2260.44     468 2260.45
GR    470 2283.45
X1 13008      27 1377.92 1513.83  446.35  495.99  461.74
GR    470    1000     468 1063.37     466 1093.37     464 1145.92     462 1183.84
GR    460 1297.52     458 1369.34     456 1377.92     454 1412.61     452 1464.05
GR    454 1499.11     456 1513.83     458 1694.88     460  1707.5     462 1722.06
GR    464 1729.81     466 1738.38     468 1742.57     470  1746.5     472 1754.69
GR    476 1764.21     478 1773.58     480 1784.53     482 1800.03     484 1814.05
GR    484 1864.94     482 1886.72
X1 14115      19 1487.57 1706.41 1067.05 1148.74 1107.42
GR    472    1000     470 1251.07     468 1265.89     466 1345.64     464 1487.57
GR    462 1597.37     460 1610.33     460 1675.57     462    1698     464 1706.41
GR    466 1725.67     468 1782.85     470 1794.49     472 1817.45     474 1870.07
GR    474 1893.01     474 1910.17     476 2019.62     478 2061.18
QT      2    2478    2478
X1 14607      29 1648.65 1911.01  476.51  535.82  491.47
GR    480    1000     478 1027.01     476 1183.24     474 1262.64     472 1318.04
GR    470 1459.12     468 1648.65     466 1693.23     464 1819.92     462 1834.56
GR    462 1834.64     462 1886.05     464 1895.83     466 1904.67     468 1911.01
GR    468 1911.01     470 1917.82     472 1931.87     474 1944.23     476 1953.59
GR    478 1964.23     480 1972.17     482 1986.47     482  2029.9     482 2322.15
GR    484  2381.2     486 2481.89     488  2496.3     490 2516.15
EJ
T1      CF0029, 12/15/98
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 1
J1             3                                           5143  378.89
J2     15              -1                                    -6


ER
```

FLOODWAY DATA, Tributary 1
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.000	147.	862.	6.0	378.9	377.9	1.0
634.000	135.	694.	7.4	384.3	384.3	.0
994.000	402.	1717.	3.0	386.6	386.2	.4
1278.000	301.	797.	6.5	387.4	386.7	.7
1671.000	179.	1015.	5.1	390.4	389.6	.8
1745.000	186.	1250.	4.1	390.9	389.9	1.0
1910.000	205.	706.	7.3	391.5	390.7	.8
2079.000	141.	817.	6.3	393.6	393.5	.1
2259.000	107.	845.	6.1	394.8	394.4	.4
2596.000	188.	856.	6.0	397.0	396.7	.3
2815.000	277.	1309.	3.9	398.7	398.6	.1
3318.000	254.	1165.	4.4	400.8	400.8	.0
3552.000	282.	1692.	3.0	401.1	401.1	.0
3635.000	234.	1569.	3.3	402.0	402.0	.0
3774.000	165.	729.	7.1	401.6	401.6	.0
4035.000	137.	477.	10.8	402.7	402.4	.3
4183.000	210.	548.	9.4	403.8	403.5	.3
4536.000	188.	534.	9.6	404.8	404.8	.0
4989.000	96.	425.	12.1	408.2	408.4	-.2
5229.000	151.	767.	6.7	410.8	410.3	.5
5617.000	202.	735.	7.0	411.6	411.0	.6
5692.000	123.	929.	5.5	414.9	415.1	-.2
5895.000	275.	2285.	2.3	415.4	415.3	.1
6125.000	88.	639.	8.1	414.7	415.1	-.4
6441.000	169.	1059.	4.9	417.3	416.5	.8
6559.000	110.	888.	5.8	417.3	416.5	.8
6593.000	113.	1218.	4.2	420.5	420.6	-.1
7059.000	144.	835.	6.2	420.3	420.4	-.1
7516.000	127.	467.	11.0	422.1	422.1	.0
8409.000	352.	1557.	3.3	429.4	428.4	1.0
9097.000	697.	2476.	1.9	430.6	430.2	.4
9604.000	672.	762.	6.0	433.3	433.3	.0
10915.000	545.	1527.	3.0	444.9	444.5	.4
11419.000	391.	1197.	3.9	447.1	446.8	.3
12181.000	152.	657.	7.0	453.7	453.8	-.1
12391.000	178.	513.	9.0	457.9	457.7	.2
12546.000	236.	1223.	3.8	460.2	460.1	.1
13008.000	270.	1617.	2.8	461.2	460.9	.3
14115.000	219.	628.	7.3	464.7	464.2	.5
14607.000	262.	1047.	2.4	468.6	468.8	-.2

Figures

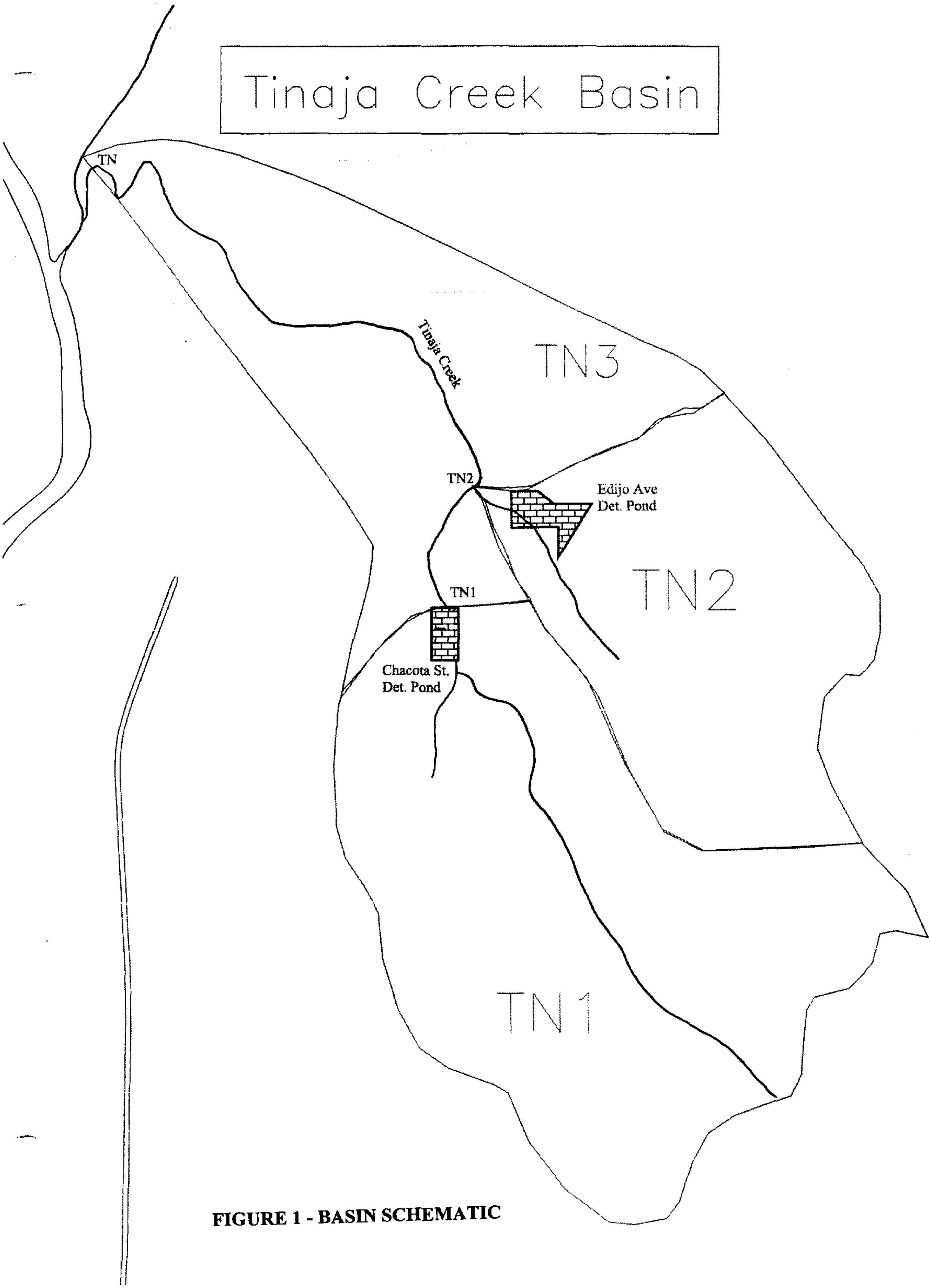


FIGURE 1 - BASIN SCHEMATIC

FIGURE 2

Stage V's Storage relationship for Edijo Ave. detention basin in the Tinaja Watershed

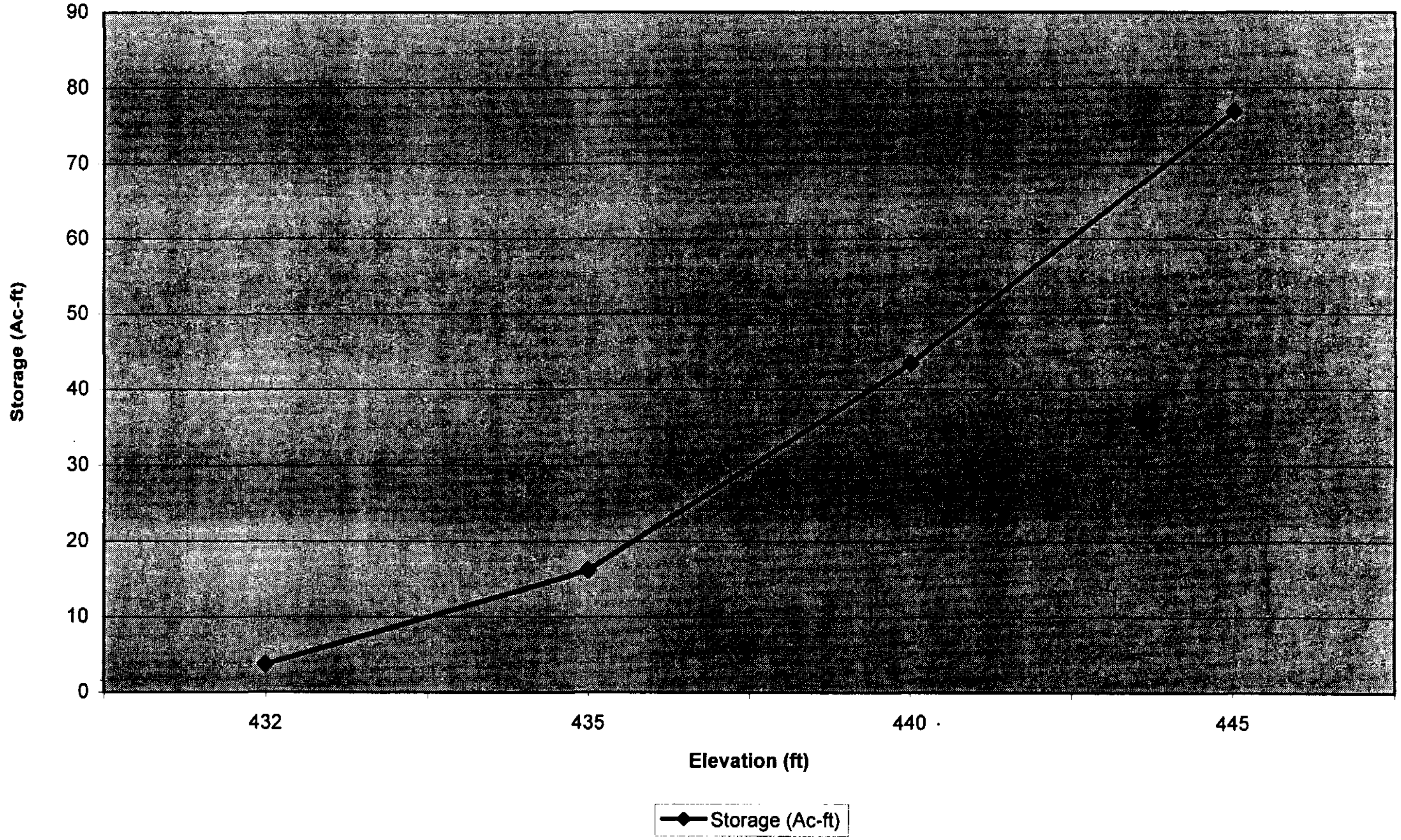
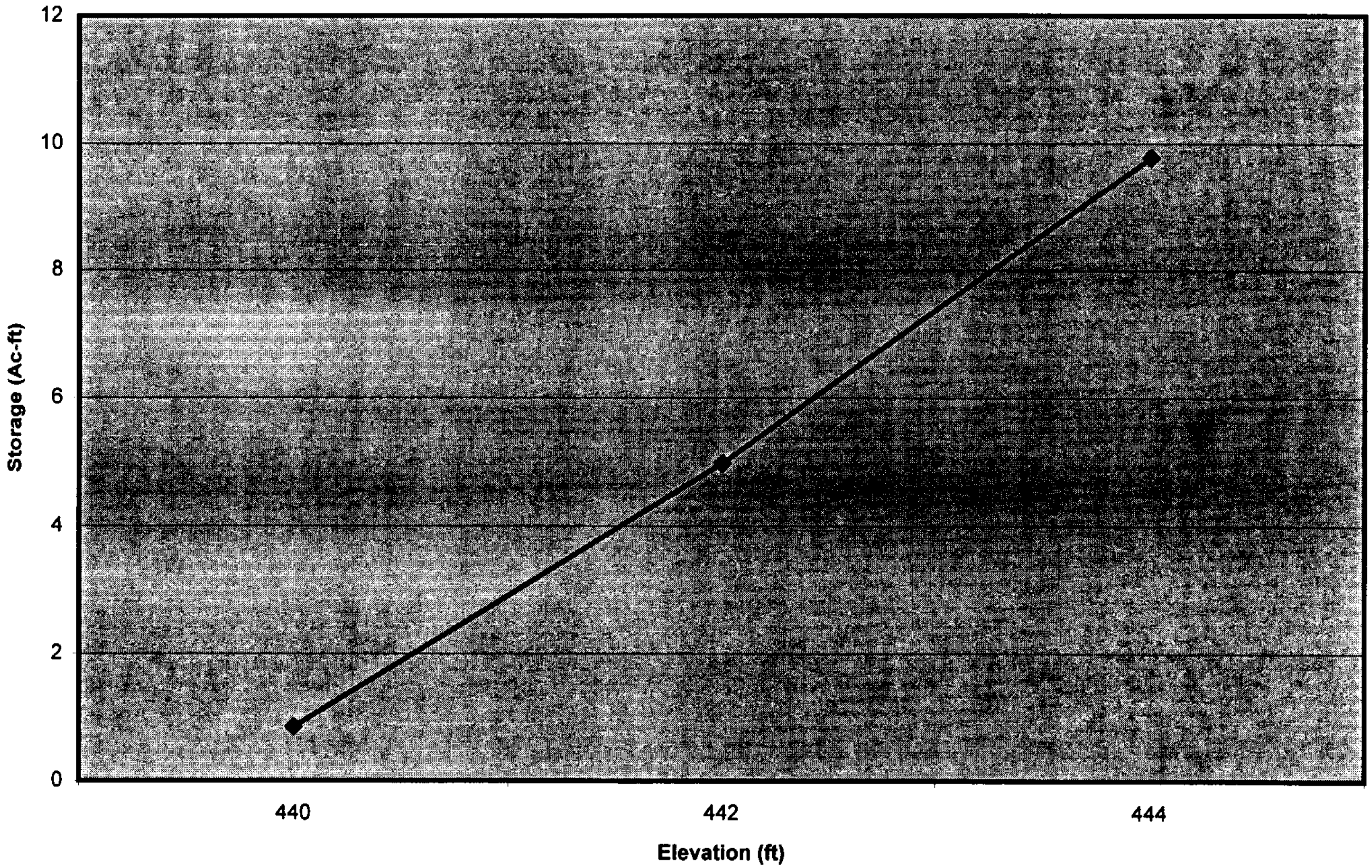


FIGURE 3

Stage V's Storage relationship for the Chacota Street detention basin in the Tinaja Watershed



Tables

Rainfall Breakdown - Existing

	10 YR	25 YR	50 YR	100 YR	500 YR
8%	0.346	0.405	0.460	0.526	0.640
15%	0.649	0.759	0.863	0.987	1.201
47%	2.032	2.378	2.703	3.092	3.762
13%	0.562	0.658	0.748	0.855	1.041
9%	0.389	0.455	0.518	0.592	0.720
8%	0.346	0.405	0.460	0.526	0.640
Total =	4.32	5.06	5.75	6.58	8.00

Rainfall Breakdown - Future

	10 YR	25 YR	50 YR	100 YR	500 YR
8%	0.346	0.405	0.460	0.526	0.640
15%	0.649	0.759	0.863	0.987	1.201
47%	2.032	2.378	2.703	3.092	3.762
13%	0.562	0.658	0.748	0.855	1.041
9%	0.389	0.455	0.518	0.592	0.720
8%	0.346	0.405	0.460	0.526	0.640
Total =	4.32	5.06	5.75	6.58	8.00

Table 1 – Precipitation Pattern for Tinaja Sub-basin

TABLE 2
HEC-1 PARAMETERS FOR TINAJA SUB-BASIN (EXISTING CONDITION)

RETURN PERIOD	AREA	AREA SQ. MILES	L (ft)	Lc (ft)	Areal Correction	Rainfall TP-40	Correct. Rainfall	CN	S	Ia	Q	F	F / # Periods	Tp	Cp
10	TN1	8026.0	4858.0	4790.0	0.920	4.70	4.32	74	3.51	0.70	1.84	1.78	0.297	1.38	0.80
	TN2	6717.0	3909.0	3909.0	0.920	4.70	4.32	74	3.51	0.70	1.84	1.78	0.297	1.16	0.80
	TN3	7717.0	6104.0	6104.0	0.920	4.70	4.32	85	1.76	0.35	2.75	1.22	0.204	0.98	0.80
25	TN1	8026.0	4858.0	4790.0	0.920	5.50	5.06	74	3.51	0.70	2.41	1.95	0.324	1.38	0.80
	TN2	6717.0	3909.0	3909.0	0.920	5.50	5.06	74	3.51	0.70	2.41	1.95	0.324	1.16	0.80
	TN3	7717.0	6104.0	6104.0	0.920	5.50	5.06	85	1.76	0.35	3.42	1.28	0.214	0.98	0.80
50	TN1	8026.0	4858.0	4790.0	0.920	6.25	5.75	74	3.51	0.70	2.98	2.07	0.345	1.38	0.80
	TN2	6717.0	3909.0	3909.0	0.920	6.25	5.75	74	3.51	0.70	2.98	2.07	0.345	1.16	0.80
	TN3	7717.0	6104.0	6104.0	0.920	6.25	5.75	85	1.76	0.35	4.07	1.33	0.222	0.98	0.80
100	TN1	8026.0	4858.0	4790.0	0.920	7.15	6.58	74	3.51	0.70	3.68	2.20	0.366	1.38	0.80
	TN2	6717.0	3909.0	3909.0	0.920	7.15	6.58	74	3.51	0.70	3.68	2.20	0.366	1.16	0.80
	TN3	7717.0	6104.0	6104.0	0.920	7.15	6.58	85	1.76	0.35	4.85	1.37	0.229	0.98	0.80
500	TN1	8026.0	4858.0	4790.0	0.920	8.70	8.00	74	3.51	0.70	4.93	2.37	0.395	1.38	0.80
	TN2	6717.0	3909.0	3909.0	0.920	8.70	8.00	74	3.51	0.70	4.93	2.37	0.395	1.16	0.80
	TN3	7717.0	6104.0	6104.0	0.920	8.70	8.00	85	1.76	0.35	6.22	1.43	0.239	0.98	0.80

* "DARF" applied for the entire Tinaja Watershed.

TABLE 3
HEC-1 PARAMETERS FOR TINAJA SUB-BASIN (FUTURE CONDITION)

RETURN PERIOD	AREA	AREA SQ. MILES	L (ft)	Lc (ft)	Areal Correction	Rainfall TP-40	Correct. Rainfall	CN	S	Ia	Q	F	F / # Periods	Tp	Cp
10	TN1	1.120	8026.0	4858.0	0.920	4.70	4.32	85	1.76	0.35	2.75	1.22	0.204	0.98	0.80
	TN2	0.637	6717.0	3909.0	0.920	4.70	4.32	86	1.63	0.33	2.84	1.16	0.193	0.79	0.80
	TN3	0.745	7717.0	6104.0	0.920	4.70	4.32	86	1.63	0.33	2.84	1.16	0.193	0.95	0.80
25	TN1	1.120	8026.0	4858.0	0.920	5.50	5.06	85	1.76	0.35	3.42	1.28	0.214	0.98	0.80
	TN2	0.637	6717.0	3909.0	0.920	5.50	5.06	86	1.63	0.33	3.52	1.21	0.202	0.79	0.80
	TN3	0.745	7717.0	6104.0	0.920	5.50	5.06	86	1.63	0.33	3.52	1.21	0.202	0.95	0.80
50	TN1	1.120	8026.0	4858.0	0.920	6.25	5.75	85	1.76	0.35	4.07	1.33	0.222	0.98	0.80
	TN2	0.637	6717.0	3909.0	0.920	6.25	5.75	86	1.63	0.33	4.17	1.25	0.209	0.79	0.80
	TN3	0.745	7717.0	6104.0	0.920	6.25	5.75	86	1.63	0.33	4.17	1.25	0.209	0.95	0.80
100	TN1	1.120	8026.0	4858.0	0.920	7.15	6.58	85	1.76	0.35	4.85	1.37	0.229	0.98	0.80
	TN2	0.637	6717.0	3909.0	0.920	7.15	6.58	86	1.63	0.33	4.96	1.29	0.215	0.79	0.80
	TN3	0.745	7717.0	6104.0	0.920	7.15	6.58	86	1.63	0.33	4.96	1.29	0.215	0.95	0.80
500	TN1	1.120	8026.0	4858.0	0.920	8.70	8.00	85	1.76	0.35	6.22	1.43	0.239	0.98	0.80
	TN2	0.637	6717.0	3909.0	0.920	8.70	8.00	86	1.63	0.33	6.34	1.34	0.224	0.79	0.80
	TN3	0.745	7717.0	6104.0	0.920	8.70	8.00	86	1.63	0.33	6.34	1.34	0.224	0.95	0.80

* "DARF" applied for the entire Tinaja Watershed.

TABLE 4
TINAJA CREEK - CHANNEL ROUTING PARAMETERS FOR THE HEC-1 MODEL

U/S cross section	D/S cross section	Flow (cfs)	Vol (ac-ft) U/S	Vol (ac-ft) D/S	Storage (ac-ft)	Travel Time (hrs)
7314.5	0	500	23.20	0	23.20	0.54
7314.5	0	1000	37.09	0	37.09	0.44
7314.5	0	1500	50.55	0	50.55	0.40
7314.5	0	2000	65.50	0	65.50	0.38
7314.5	0	2500	84.81	0	84.81	0.39
7314.5	0	3000	104.88	0	104.88	0.39
7314.5	0	3500	124.24	0	124.24	0.38
7314.5	0	4000	143.27	0	143.27	0.37
7314.5	0	4500	152.37	0	152.37	0.35
					Avg	0.40

No. of routing steps = Travel Time/ Computational Interval = 4.8 Used 4 steps

TABLE 5

Stage - storage relationship for the detention basins in the Tinaja Watershed

Ejido Ave. Detention basin

Elevation (ft)	Vol. (ac-ft)	Width of spillway (ft)	Elev. Of spillway (ft)
432	3.73	75	442
435	16.2		
440	43.43		
445	76.91		

Chacota Street Detention Basin

Elevation (ft)	Vol. (ac-ft)	Width of spillway (ft)	Elev. Of spillway (ft)
440	0.85	65	444
442	4.98		
444	9.78		

```
C
C     15
C     10Meadow Ave
C     38Meadow Ave
C   3874 Hwy. 83
C   4105 Hwy. 83
C   5115Louisiana Ave
C   5144Louisiana Ave
C   5807New York Ave
C   5840New York Ave
C   6127Santa Clara St
C   6150Santa Clara St
C   6535Pecan St
C   6598Pecan St
C   6902San Salvador St
C   6930San Salvador St
C   7315 Pine St
T1   City of Laredo Flood Insurance Study Update (for development to Jan. 1994)
T2   Chacon Creek Watershed - Tinaja Creek- Tributary to Chacon Creek-1988 NAVD
T3        TINAJA  CREEK  CHANNEL - EXISTING, FEB. 1999
J1             2                 0.00933                         1189  355.69
J2       1               -1
J3      38      43       7       6      41       1     150       0       0       0
NC    0.06    0.06   0.065     0.1     0.3
X1       0      21 1073.08 1216.36
X3       0                                    1116     358
GR     382    1000     380 1068.72     370 1071.64     360 1073.08     352 1083.69
GR     352 1101.83     354 1106.78     356 1111.22     358 1112.79     358    1130
GR     356 1136.24     354 1142.69     352 1151.36     352 1185.46     354 1193.08
GR     356 1203.87     358  1209.3     360 1216.36     370 1239.76     380 1263.18
GR     382 1297.59
NC 0.065   0.065    0.06     0.3     0.5
* Meadow Street Bridge
X1      10      20 1070.03 1212.11   12.04   12.79    9.83
X3       0                                    1119     358
GR     382    1000     380 1066.58     370 1069.25     360 1070.03     352 1080.62
GR     352 1098.05     354 1103.21     356 1106.68     358 1108.54     358  1134.5
GR     356 1140.15     354  1145.7     352 1154.31     352 1187.87     354 1195.15
GR     356 1203.43     360 1212.11     370 1236.04     380 1260.36     382 1305.03
NC    0.06    0.06   0.065
SB    1.05     1.5     2.5  300.13   85.07       6 3973.14 1.87015  351.91  351.91
X1      38      20 1070.03 1212.11   29.79   25.16   28.01
X2                       1  381.90     384                    1.33
X3       0                                    1119     358
GR     382    1000     380 1066.58     370 1069.25     360 1070.03     352 1080.62
GR     352 1098.05     354 1103.21     356 1106.68     358 1108.54     358  1134.5
GR     356 1140.15     354  1145.7     352 1154.31     352 1187.87     354 1195.15
GR     356 1203.43     360 1212.11     370 1236.04     380 1260.36     382 1305.03
NC                             0.1     0.3
X1      50      18 1039.44 1202.12    9.44    8.99   12.18
X3       0                                    1086     360
GR     382    1000     380 1002.77     370 1032.47     360 1039.44     352 1048.83
GR     352    1062     354 1068.94     358 1074.71     360 1081.57     360 1126.77
GR     358 1136.01     354 1144.62     352 1154.14     352 1187.29     360 1202.12
GR     370 1225.21     380 1241.63     382 1299.46
X1     214      18 1019.35 1139.28  112.81  209.22  164.23
GR     374  907.72     370  940.47     368    1000     366 1019.35     364 1040.17
```

GR	362	1060	360	1073.53	356	1081.9	354	1088.18	354	1092.41
GR	356	1097.71	360	1102.72	362	1108.52	364	1133.33	366	1139.28
GR	368	1166.73	368	1166.74	372	1322.2				
X1	365	26	1140.97	1348.94	114.83	153.06	150.64			
GR	378	1000	376	1006.26	376	1006.27	374	1012.39	372	1021.26
GR	370	1140.97	368	1163.53	366	1203.08	364	1221.54	362	1232.48
GR	360	1241.18	356	1253.12	356	1260.6	358	1264.8	360	1267.46
GR	362	1275.27	364	1289.54	366	1300.59	368	1328.17	368	1328.28
GR	370	1348.94	372	1358.72	374	1390.11	376	1424.38	378	1439.4
GR	380	1449.18								
X1	532	20	1109.16	1245.67	177.8	211.35	166.91			
GR	390	1000	380	1026.01	378	1035.46	376	1058.21	374	1097.69
GR	372	1109.16	370	1125.64	360	1149.54	358	1163.84	358	1175.94
GR	360	1183.88	362	1190.16	364	1198.38	366	1203.2	368	1209.66
GR	370	1231.05	372	1245.67	374	1315.22	380	1338.87	390	1350.04
X1	707	18	1107.05	1196.95	144.12	164.97	175.01			
GR	392	1000	392	1087.98	390	1093.07	380	1107.05	370	1121.32
GR	360	1139.97	360	1153.72	362	1156.17	364	1161.66	366	1169.08
GR	368	1171.4	370	1176.26	380	1196.95	382	1209	384	1213.23
GR	386	1296.72	390	1328.58	390	1332.29				
X1	982	21	1006.87	1115.31	323.19	196.11	275.26			
GR	398	859.77	396	989.61	390	1000	380	1006.87	370	1014.93
GR	368	1019.13	366	1021.23	364	1025.56	364	1047.23	366	1055.25
GR	368	1071.62	370	1085.31	372	1091.09	374	1100.11	376	1104.55
GR	378	1112.13	380	1115.31	384	1120.68	386	1121.11	390	1126.26
GR	390	1160.89								
NC	0.06	0.06	0.065							
X1	1101	18	1020.72	1155.41	103.01	120.6	118.88			
GR	398	899.83	390	1000	380	1020.72	372	1038.7	370	1050.06
GR	366	1065	364	1071.73	364	1092.25	366	1100.84	368	1104.38
GR	370	1108.19	372	1116.89	374	1131.72	376	1146.3	378	1149.28
GR	380	1155.41	390	1171.92	394	1308.77				
NC				0.1	0.3					
X1	1388	18	1138.7	1391.87	112.02	280.82	287.32			
X3	0			1139	378					
GR	390	1000	380	1012.03	374	1024.19	374	1051.55	376	1061.66
GR	378	1066.6	378	1138.7	376	1291.5	374	1315.72	372	1325.62
GR	370	1333.81	366	1337.42	368	1340.66	366	1358.07	368	1366.44
GR	370	1372.71	380	1391.87	390	1399.68				
X1	1696	28	1099.75	1400.39	172.85	337.35	307.32			
X3	0			1101	378					
GR	390	1000	380	1013.18	374	1024.35	374	1030.63	376	1036.28
GR	378	1046.22	378	1099.75	376	1108.61	374	1126.47	372	1138.21
GR	370	1153.14	368	1159.8	368	1176.76	370	1179.93	372	1199.43
GR	374	1214.09	376	1241.36	378	1398.19	380	1400.39	390	1406.03
GR	392	1410.37	394	1414.42	396	1417.89	398	1429.22	400	1432.76
GR	402	1447.09	404	1459.12	406	1472.47				
X1	1837	19	1050.53	1233.63	114.61	174.54	141			
X3	0			1051	378					
GR	390	1000	380	1009.92	378	1015.47	376	1020.99	376	1022.91
GR	378	1025.47	378	1050.53	376	1070.76	374	1103.83	372	1122.43
GR	372	1150.83	374	1168.75	376	1184.68	378	1233.63	380	1245.3
GR	382	1247.64	384	1252.45	386	1254.25	390	1258.11		
X1	2242	18	1048.89	1125.56	386.56	404.47	405.79			
GR	400	1000	398	1016.33	396	1026.46	394	1031.98	392	1040.91
GR	390	1048.89	380	1063.87	380	1098.08	382	1099.01	384	1106.4
GR	386	1108.41	388	1112.81	390	1125.56	392	1130.21	394	1250.51

```
GR   396 1256.73     398 1309.44     400 1324.28
QT     5    1103    1391    1604    1893    2542
X1  2572      22  1069.3 1185.39  321.87  315.94   329.6
GR   400    1000     398 1006.26     396 1013.62     396 1013.62     394 1016.92
GR   392 1026.03     390  1069.3     388 1088.26     386 1097.38     384 1110.48
GR   382  1119.7     380 1124.32     380 1150.46     382 1156.86     384 1164.97
GR   386 1178.26     390 1185.39     392 1195.07     394 1203.75     396 1207.76
GR   398 1235.95     400 1261.28
X1  2949      17 1100.99 1197.71  380.14  373.06   377.4
GR   404    1000     402 1095.53     400 1100.99     398 1107.05     396  1111.6
GR   394 1116.19     392 1124.36     390 1128.56     388 1131.94     386 1136.04
GR   384  1138.2     384  1163.3     386 1165.84     390 1174.56     400 1197.71
GR   402 1206.24     404  1252.6
X1  3312      24 1032.29 1192.43  350.95  392.57  363.03
GR   404    1000     402 1019.37     400 1025.75     398 1032.29     396  1039.1
GR   394 1046.32     392 1051.46     390 1054.17     390 1054.38     388 1096.65
GR   388 1096.74     386 1104.44     384  1109.1     384 1126.72     386 1131.86
GR   388 1134.08     390 1137.84     392 1151.65     394  1162.4     396  1177.4
GR   398 1192.43     400 1201.38     402 1215.15     404 1267.61
X1  3582      20 1086.34 1219.78   278.5  258.02  269.61
GR   406    1000     404 1037.29     402 1059.79     400 1086.34     398 1094.82
GR   396 1113.98     394  1117.7     392 1120.58     390 1132.27     388 1146.55
GR   386 1149.88     384 1157.97     384 1175.88     386 1180.81     388 1186.39
GR   390 1195.87     400 1219.78     402 1232.21     404 1300.63     406 1311.52
NC  0.12    0.12   0.065
X1  3850      25  1033.4  1169.6  318.48  209.93  267.49
GR   410  670.88     408  823.67     406    1000     404 1017.59     402  1027.1
GR   400  1033.4     398 1037.44     396  1040.5     394 1043.63     392 1048.76
GR   390 1085.79     388 1087.36     386 1088.31     386 1112.13     388 1118.63
GR   390 1126.76     392 1137.75     394  1150.7     396 1157.28     398 1162.92
GR   400  1169.6     402 1242.74     404 1279.34     406 1383.37     410  1557.4
NC  0.12    0.12   0.015     0.3     0.5
* Hwy. 83 - Santa Barbara & Napolean
* Box Culvert
X1  3874      27 1067.35 1203.22   34.24   17.92   24.13
GR   410  720.18     408  870.68     408    1000     406  1036.1     404 1049.45
GR   402  1059.8     400 1067.35     398 1074.01     396 1078.96     394 1086.18
GR   392 1111.13     390 1117.09     388 1119.37     386 1119.55     386 1146.25
GR   388 1147.58     390  1148.5     392 1151.46     394 1173.74     396 1190.81
GR   398  1196.1     400 1203.22     402 1263.14     404  1313.4     406 1324.16
GR   406 1386.23     410 1572.23
NC  0.12    0.12   0.015
SC 2.015     0.4     2.5  246.14       8      10     291     8.1     387     386
X1  4105      27 1067.35 1203.22  194.84  245.13  230.93
X2                     2           404.3
GR   410  720.18     408  870.68     408    1000     406  1036.1     404 1049.45
GR   402  1059.8     400 1067.35     398 1074.01     396 1078.96     394 1086.18
GR   392 1111.13     390 1117.09     388 1119.37     387 1119.55     387 1146.25
GR   388 1147.58     390  1148.5     392 1151.46     394 1173.74     396 1190.81
GR   398  1196.1     400 1203.22     402 1263.14     404  1313.4     406 1324.16
GR   406 1386.23     410 1572.23
NC  0.12    0.12   0.065     0.1     0.3
X1  4467      17 1084.25 1198.19  414.31  295.13  362.52
GR   410  753.77     406    1000     404 1084.25     402 1124.22     400 1138.39
GR   398 1144.72     396 1148.51     394 1154.96     394 1171.41     396 1175.23
GR   398 1179.44     400 1180.16     402 1190.25     404 1198.19     406 1243.79
GR   408 1340.98     416 1532.76
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NC  0.12    0.12   0.015
QT     5    1023    1265    1443    1693    2387
X1  4956      18    1128 1195.16  536.44  469.26  488.56
GR   412  647.09     410    1000     408    1128     406 1135.48     404 1139.76
GR   402 1144.06     400 1151.79     396 1162.15     396 1175.72     398 1178.67
GR   400 1183.69     404 1185.36     402 1185.82     406 1188.38     408 1195.16
GR   410 1221.75     412    1291     418 1410.84
NC  0.12    0.12   0.015     0.3     0.5
* Santa Barbara & Louisiana
* Culvert
X1  5115      16    1089 1148.09  127.64   159.5  159.31
GR   416  354.95     412  586.38     410    1000     408    1089     406 1091.85
GR   404 1097.93     402 1100.34  396.95 1102.43  396.95 1135.03     402 1138.88
GR   404 1141.86     406  1144.9     408 1148.09     410 1182.81     412 1207.02
GR   418 1328.16
NC                 0.015
SC 3.015     0.5     2.5      64       9       9      29    10.1   397.5  396.95
X1  5144      16    1089 1148.09   28.93    30.6    28.9
X2                     2          409.95
GR   416  354.95     412  586.38     410    1000     408    1089     406 1091.85
GR   404 1097.93     402 1100.34   397.5 1102.43   397.5 1135.03     402 1138.88
GR   404 1141.86     406  1144.9     408 1148.09     410 1182.81     412 1207.02
GR   418 1328.16
NC  0.12    0.12   0.015     0.1     0.3
X1  5296      16 1112.44 1193.06  150.12  150.05  151.86
GR   414  601.85     410    1000     410 1112.44     408 1134.42     406 1139.33
GR   404 1144.54     402 1148.81     400 1151.02     400 1173.16     402 1178.93
GR   404 1183.34     408 1184.54     410 1193.06     412 1226.78     414 1339.18
GR   420 1408.09
X1  5628      13 1072.93 1139.56  313.13  312.44  332.36
GR   426  501.05     416  683.66     412    1000     410 1072.93     408 1085.33
GR   402 1089.03     402 1135.05     408 1137.43     410 1139.56     412 1257.23
GR   414 1270.44     416 1321.21     420  1503.1
X1  5731      14 1379.08 1472.43   92.01   95.02   92.02
GR   426  815.33     416    1000     414 1158.31     412 1379.08     410 1390.14
GR   408 1401.16     403 1405.05     403 1449.84     408 1453.65     410  1456.2
GR   412 1472.43     414 1577.18     416 1597.53     420 1795.29
NC                           0.3     0.5
* Santa Barbara & Newyork
* Culvert
X1  5807      12    1127 1190.84   88.01   92.09    91.2
GR   426  528.92     416  718.01     412    1000     410    1127     408 1134.26
GR403.47 1137.12  403.47  1181.2     408 1186.38     410 1190.84     412 1214.33
GR   414 1325.98     420 1532.06
SC 4.015     0.5     2.5    62.1       5       9      33    10.1  403.53  403.47
X1  5840      12 1118.03  1180.8    33.2   34.55   32.82
X2                     2          410.28
GR   426   506.4     416  708.57     412    1000     410 1118.03     408 1124.19
GR 403.5 1128.59   403.5 1170.06     408 1175.99     410  1180.8     412 1195.63
GR   414 1308.78     420 1543.65
NC                           0.1     0.3
X1  5985      13 1126.92 1223.98  120.64  214.86  145.41
GR   426  523.18     416  739.91     414    1000     414 1126.92     412  1136.8
GR   410 1144.44   404.5 1150.35   404.5 1187.04     410 1189.75     412 1202.58
GR   414 1223.98     418  1337.8     422 1469.98
NC                           0.3     0.5
* Santa Clara between Newyork & Canada
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* Culvert
X1  6127      15  1051.6 1137.92  103.25  177.44  141.92
GR425.85  518.92     416  736.63     414    1000     414  1051.6     412 1061.97
GR   410 1067.97  406.58 1071.11  406.58 1118.18     410 1124.07     412 1131.34
GR   414 1137.92     416 1166.79     416 1226.08     416 1247.27     422 1440.22
SC 4.015     0.5     2.5      67       5      10      22    10.1   406.6  406.58
X1  6150      13 1053.18 1131.61   20.94   22.61   22.47
X2                     2          414.73
GR   426  534.59     416  749.27     414    1000     414 1053.18     412 1058.96
GR   410 1065.48   406.6 1070.44   406.6 1112.89     410 1119.49     412 1127.48
GR   414 1131.61     416 1250.15     422  1478.8
NC                             0.1     0.3
X1  6341      15 1100.92 1198.11   207.1  167.74  190.93
GR   420  840.21     416    1000     416 1100.92     414  1129.7     412 1132.47
GR   410 1138.69     407 1142.14     407 1179.12     410 1183.77     412 1187.34
GR   414 1193.99     416 1198.11     416  1268.8     416 1313.64     420 1453.83
NC                             0.3     0.5
* Pecan between India & Newyork
* Culvert
X1  6535      15 1049.67 1118.26  185.68   194.1  194.81
GR   422  658.29     420  735.53     418  959.93     416    1000     414 1049.67
GR   412 1056.83   407.5 1059.63   407.5 1110.05     412 1115.88     414 1118.26
GR   416 1134.53     416 1146.82     416 1173.39     418 1214.61     420 1338.15
SC 4.015     0.5     2.5      88       5    12.5      63    10.1   407.6  407.50
X1  6598      16 1038.89 1110.82   59.26   65.98   62.62
X2                     2          414.55
GR   422  675.42     420  721.54     420    1000     420 1002.12     418 1023.45
GR   416 1035.69     414 1038.89     412 1046.15   407.5 1054.61   407.5 1101.19
GR   412 1107.27     414 1110.82     416 1127.48     418 1209.46     420 1294.92
GR   422 1361.66
NC                             0.1     0.3
X1  6771      17 1085.77 1173.82  157.51  184.73  172.36
GR   422  775.05     420  835.85     422    1000     422 1053.13     420 1072.44
GR   418 1085.77     416 1096.98     414    1100     412 1104.78  407.55  1112.6
GR407.55 1146.01     412 1153.78     414 1161.33     416 1166.81     418 1173.82
GR   420 1297.95     422 1461.92
NC                             0.3     0.5
* San Salvador between India & Canada
* Culvert
X1  6902      15 1176.33 1257.58  132.86   129.3  131.67
GR   422  895.02     420    1000     418 1176.33     416 1180.28     414 1186.28
GR   412  1189.2   408.5 1192.23   408.5 1241.44     412 1243.86     414 1246.64
GR   416  1251.6     416 1251.65     418 1257.58     420 1498.45     424 1603.84
SC 4.015     0.5     2.5      64       5      10      28    10.1  408.61   408.5
X1  6930      15 1176.33 1257.58   27.42   28.65   28.03
X2                     2          416.84
GR   422  895.02     420    1000     418 1176.33     416 1180.28     414 1186.28
GR   412  1189.2   408.5 1192.23   408.5 1241.44     412 1243.86     414 1246.64
GR   416  1251.6     416 1251.65     418 1257.58     420 1498.45     424 1603.84
NC                             0.1     0.3
X1  6992      17 1058.03 1186.08   59.77   60.37   61.56
GR   424   751.9     420    1000     420 1058.03     418 1070.13     416  1080.7
GR   414 1087.34     412 1096.71     410 1102.29     410 1107.34     412 1122.27
GR   414 1128.19     416 1136.06     418 1147.62     420 1186.08     422 1213.63
GR   422 1335.09     424 1406.54
NC                             0.3     0.5
QT     5     944    1140    1284    1496    2233
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* Pine St. between Smith and India
X1  7315      17 1108.18 1176.59  334.53  286.43  317.64
GR   430  542.79     426  690.18     424  895.35     424    1000     422 1108.18
GR   420 1124.95     418 1134.04  414.29 1142.24  414.29 1142.29  414.29 1155.48
GR   418 1162.23     420 1167.98     422 1170.98     424 1176.59     426 1270.82
GR   428 1382.86     434 1564.96
EJ
T1      CF0029
T2      Chacon Creek Watershed - City of Laredo
T3      Tinaja Creek , 12/10/98                          25-YRExisting
J1             3                 0.00933                        1527  356.21
J2      2              -1
T1      CF0029
T2      Chacon Creek Watershed - City of Laredo
T3      Tinaja Creek , 12/10/98                          50-YRExisting
J1             4                 0.00933                        1777  356.55
J2      3              -1
T1      CF0029
T2      Chacon Creek Watershed - City of Laredo
T3      Tinaja Creek , 12/10/98                         100-YRExisting
J1             5                 0.00933                        2108  356.95
J2      4              -1
T1      CF0029
T2      Chacon Creek Watershed - City of Laredo
T3      Tinaja Creek , 12/10/98                         500-YRExisting
J1             6                 0.00933                        2709  357.64
J2      5              -1


ER
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HEC-2 WATER SURFACE PROFILES

Version 4.6.2; May 1991
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NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

TINAJA CREEK CHANNEL

SUMMARY PRINTOUT

	SECNO	Q	VOL	TIME	ELLC	CWSEL
	.000	1189.00	.00	.00	.00	359.05
	.000	1527.00	.00	.00	.00	359.44
	.000	1777.00	.00	.00	.00	359.70
	.000	2108.00	.00	.00	.00	360.03
	.000	2709.00	.00	.00	.00	360.52
	10.000	1189.00	.07	.00	.00	359.15
	10.000	1527.00	.08	.00	.00	359.53
	10.000	1777.00	.09	.00	.00	359.79
	10.000	2108.00	.10	.00	.00	360.12
	10.000	2709.00	.12	.00	.00	360.62
	38.000	1189.00	.28	.00	381.90	359.17
	38.000	1527.00	.33	.00	381.90	359.56
	38.000	1777.00	.36	.00	381.90	359.82
	38.000	2108.00	.40	.00	381.90	360.16
	38.000	2709.00	.46	.00	381.90	360.66
	50.000	1189.00	.35	.00	.00	358.96
	50.000	1527.00	.41	.00	.00	359.17
*	50.000	1777.00	.44	.00	.00	359.25
*	50.000	2108.00	.50	.00	.00	360.34
*	50.000	2709.00	.58	.00	.00	360.59
	214.000	1189.00	.99	.01	.00	361.33
	214.000	1527.00	1.16	.01	.00	362.42
	214.000	1777.00	1.30	.01	.00	363.22
*	214.000	2108.00	1.71	.01	.00	364.37
*	214.000	2709.00	1.99	.01	.00	365.00

	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	365.000	1189.00	1.67	.02	.00	363.85
*	365.000	1527.00	2.04	.02	.00	364.74
*	365.000	1777.00	2.36	.02	.00	365.29
	365.000	2108.00	3.05	.02	.00	365.91
	365.000	2709.00	3.59	.02	.00	366.76
*	532.000	1189.00	2.69	.03	.00	365.00
	532.000	1527.00	3.29	.03	.00	365.83
	532.000	1777.00	3.75	.03	.00	366.36
	532.000	2108.00	4.63	.03	.00	366.96
	532.000	2709.00	5.50	.03	.00	367.88
*	707.000	1189.00	3.57	.04	.00	365.98
*	707.000	1527.00	4.35	.03	.00	366.75
*	707.000	1777.00	4.93	.03	.00	367.26
*	707.000	2108.00	5.95	.03	.00	367.85
*	707.000	2709.00	7.05	.03	.00	368.79
*	982.000	1189.00	4.87	.05	.00	369.91
*	982.000	1527.00	5.91	.05	.00	370.63
*	982.000	1777.00	6.67	.05	.00	371.11
*	982.000	2108.00	7.93	.05	.00	371.73
*	982.000	2709.00	9.42	.04	.00	372.77
	1101.000	1189.00	5.61	.06	.00	370.67
	1101.000	1527.00	6.79	.06	.00	371.41
	1101.000	1777.00	7.66	.06	.00	371.91
	1101.000	2108.00	9.04	.05	.00	372.52
	1101.000	2709.00	10.77	.05	.00	373.57

	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	1388.000	1189.00	7.26	.07	.00	372.47
	1388.000	1527.00	8.76	.07	.00	373.30
	1388.000	1777.00	9.86	.07	.00	373.83
	1388.000	2108.00	11.55	.07	.00	374.50
	1388.000	2709.00	13.87	.06	.00	375.55
*	1696.000	1189.00	9.27	.10	.00	374.76
*	1696.000	1527.00	11.25	.10	.00	375.55
*	1696.000	1777.00	12.72	.09	.00	376.11
*	1696.000	2108.00	15.07	.09	.00	376.91
*	1696.000	2709.00	18.55	.09	.00	377.90
*	1837.000	1189.00	10.23	.11	.00	375.68
*	1837.000	1527.00	12.49	.10	.00	376.39
*	1837.000	1777.00	14.18	.10	.00	376.90
	1837.000	2108.00	16.95	.10	.00	377.64
	1837.000	2709.00	21.09	.10	.00	378.48

	SECNO	Q	VOL	TIME	ELLC	CWSEL
	2242.000	1189.00	12.03	.12	.00	383.82
*	2242.000	1527.00	14.72	.12	.00	384.04
*	2242.000	1777.00	16.78	.11	.00	384.19
*	2242.000	2108.00	20.19	.11	.00	384.62
*	2242.000	2709.00	25.28	.11	.00	385.35
*	2572.000	1103.00	13.97	.15	.00	386.87
*	2572.000	1391.00	16.96	.14	.00	387.66
*	2572.000	1604.00	19.25	.14	.00	388.20
*	2572.000	1893.00	22.98	.14	.00	388.85
*	2572.000	2542.00	28.66	.13	.00	389.94
*	2949.000	1103.00	16.18	.17	.00	388.56
*	2949.000	1391.00	19.58	.16	.00	389.19
*	2949.000	1604.00	22.17	.15	.00	389.65
*	2949.000	1893.00	26.30	.15	.00	390.26
*	2949.000	2542.00	32.74	.15	.00	391.37
*	3312.000	1103.00	18.35	.20	.00	391.61
*	3312.000	1391.00	22.16	.19	.00	392.31
*	3312.000	1604.00	25.04	.18	.00	392.78
*	3312.000	1893.00	29.56	.18	.00	393.39
*	3312.000	2542.00	36.82	.17	.00	394.61
	3582.000	1103.00	20.71	.23	.00	392.25
	3582.000	1391.00	24.92	.21	.00	392.96
	3582.000	1604.00	28.07	.21	.00	393.43
	3582.000	1893.00	32.96	.20	.00	394.03
	3582.000	2542.00	41.00	.19	.00	395.24
	3850.000	1103.00	22.96	.25	.00	392.95
	3850.000	1391.00	27.56	.24	.00	393.66
	3850.000	1604.00	31.00	.23	.00	394.13
	3850.000	1893.00	36.24	.22	.00	394.73
	3850.000	2542.00	45.04	.21	.00	395.95
*	3874.000	1103.00	23.12	.25	.00	392.88
*	3874.000	1391.00	27.76	.24	.00	393.58
*	3874.000	1604.00	31.21	.23	.00	394.05
*	3874.000	1893.00	36.49	.23	.00	394.65
*	3874.000	2542.00	45.37	.21	.00	395.88
*	4105.000	1103.00	24.68	.27	.00	394.76
*	4105.000	1391.00	29.79	.26	.00	396.01
*	4105.000	1604.00	33.70	.25	.00	397.16
*	4105.000	1893.00	39.74	.25	.00	399.05
*	4105.000	2542.00	51.38	.25	.00	403.90

	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	4467.000	1103.00	26.62	.28	.00	398.14
*	4467.000	1391.00	32.36	.27	.00	398.71
*	4467.000	1604.00	36.88	.26	.00	399.11
*	4467.000	1893.00	43.97	.26	.00	399.58
*	4467.000	2542.00	60.29	.27	.00	403.55

*	4956.000	1023.00	27.91	.30	.00	400.96
*	4956.000	1265.00	33.90	.28	.00	401.58
*	4956.000	1443.00	38.60	.28	.00	401.99
*	4956.000	1693.00	45.92	.28	.00	402.54
*	4956.000	2387.00	64.13	.28	.00	404.31
*	5115.000	1023.00	28.45	.31	.00	401.84
*	5115.000	1265.00	34.52	.29	.00	402.43
*	5115.000	1443.00	39.28	.28	.00	402.82
*	5115.000	1693.00	46.68	.28	.00	403.35
	5115.000	2387.00	65.17	.29	.00	404.82
	5144.000	1023.00	28.58	.31	.00	403.23
	5144.000	1265.00	34.67	.29	.00	404.11
*	5144.000	1443.00	39.44	.29	.00	404.73
*	5144.000	1693.00	46.86	.29	.00	405.58
*	5144.000	2387.00	65.41	.29	.00	407.75
*	5296.000	1023.00	29.13	.31	.00	403.60
*	5296.000	1265.00	35.32	.30	.00	404.07
*	5296.000	1443.00	40.16	.29	.00	404.39
*	5296.000	1693.00	47.68	.29	.00	404.81
*	5296.000	2387.00	66.63	.30	.00	407.24
	5628.000	1023.00	30.06	.32	.00	404.89
	5628.000	1265.00	36.41	.31	.00	405.42
	5628.000	1443.00	41.38	.30	.00	405.79
	5628.000	1693.00	49.05	.30	.00	406.27
	5628.000	2387.00	68.70	.31	.00	407.75
*	5731.000	1023.00	30.32	.33	.00	405.49
*	5731.000	1265.00	36.73	.31	.00	405.87
*	5731.000	1443.00	41.72	.30	.00	406.11
*	5731.000	1693.00	49.44	.30	.00	406.46
*	5731.000	2387.00	69.22	.31	.00	407.33
*	5807.000	1023.00	30.57	.33	.00	405.98
*	5807.000	1265.00	37.01	.31	.00	406.35
*	5807.000	1443.00	42.03	.31	.00	406.61
*	5807.000	1693.00	49.79	.31	.00	406.96
*	5807.000	2387.00	69.66	.31	.00	407.82

	SECNO	Q	VOL	TIME	ELLC	CWSEL
*	5840.000	1023.00	30.69	.33	.00	408.23
*	5840.000	1265.00	37.16	.32	.00	408.96
*	5840.000	1443.00	42.20	.31	.00	409.48
*	5840.000	1693.00	49.98	.31	.00	410.28
*	5840.000	2387.00	69.93	.31	.00	411.65
*	5985.000	1023.00	31.29	.34	.00	407.92
*	5985.000	1265.00	37.88	.32	.00	408.67
*	5985.000	1443.00	43.00	.31	.00	409.18
*	5985.000	1693.00	50.93	.31	.00	410.00
*	5985.000	2387.00	71.27	.32	.00	411.33
*	6127.000	1023.00	31.70	.34	.00	408.96
*	6127.000	1265.00	38.37	.33	.00	409.32
*	6127.000	1443.00	43.56	.32	.00	409.56
*	6127.000	1693.00	51.58	.32	.00	409.88
	6127.000	2387.00	72.17	.32	.00	411.33
*	6150.000	1023.00	31.79	.34	.00	410.95
*	6150.000	1265.00	38.48	.33	.00	411.64
*	6150.000	1443.00	43.67	.32	.00	412.13
*	6150.000	1693.00	51.71	.32	.00	412.78
*	6150.000	2387.00	72.42	.32	.00	415.11
	6341.000	1023.00	32.63	.35	.00	410.88
	6341.000	1265.00	39.49	.34	.00	411.56
	6341.000	1443.00	44.81	.33	.00	412.03
	6341.000	1693.00	53.03	.33	.00	412.67
*	6341.000	2387.00	74.86	.33	.00	415.02
	6535.000	1023.00	33.46	.36	.00	411.27
	6535.000	1265.00	40.48	.35	.00	411.93
	6535.000	1443.00	45.92	.34	.00	412.39
	6535.000	1693.00	54.30	.34	.00	413.01
	6535.000	2387.00	76.87	.34	.00	415.19
	6598.000	1023.00	33.77	.37	.00	411.70
	6598.000	1265.00	40.85	.35	.00	412.41

	6598.000	1443.00	46.33	.34	.00	412.91
	6598.000	1693.00	54.79	.34	.00	413.89
	6598.000	2387.00	77.61	.35	.00	416.21
*	6771.000	1023.00	34.53	.37	.00	411.60
*	6771.000	1265.00	41.77	.36	.00	412.29
	6771.000	1443.00	47.37	.35	.00	412.79
	6771.000	1693.00	56.07	.35	.00	413.78
	6771.000	2387.00	79.58	.36	.00	416.13

	SECNO	Q	VOL	TIME	ELLC	CWSEL
	6902.000	1023.00	35.04	.38	.00	411.75
	6902.000	1265.00	42.38	.36	.00	412.46
	6902.000	1443.00	48.06	.36	.00	412.95
	6902.000	1693.00	56.93	.35	.00	413.90
	6902.000	2387.00	80.90	.36	.00	416.19
*	6930.000	1023.00	35.17	.38	.00	413.01
*	6930.000	1265.00	42.54	.36	.00	413.72
*	6930.000	1443.00	48.24	.36	.00	414.23
*	6930.000	1693.00	57.15	.36	.00	415.37
*	6930.000	2387.00	81.25	.36	.00	418.40
*	6992.000	1023.00	35.42	.38	.00	414.36
*	6992.000	1265.00	42.83	.37	.00	414.78
*	6992.000	1443.00	48.56	.36	.00	415.08
*	6992.000	1693.00	57.54	.36	.00	415.47
*	6992.000	2387.00	81.92	.37	.00	418.00
*	7315.000	944.00	36.18	.39	.00	418.65
*	7315.000	1140.00	43.72	.37	.00	419.14
*	7315.000	1284.00	49.55	.37	.00	419.46
*	7315.000	1496.00	58.66	.37	.00	419.88
*	7315.000	2233.00	83.85	.37	.00	421.11

1

TINAJA CREEK HEC-2 MODEL
(Floodway - Method 1)

```
C
C       14
C       10Meadow Street Bridge
C     3874Hwy. 83 - Santa Barbara & Napolean
C     3874Box Culvert
C     5115Santa Barbara & Louisiana
C     5115Culvert
C     5807Santa Barbara & Newyork
C     5807Culvert
C     6127Santa Clara between Newyork & Canada
C     6127Culvert
C     6535Pecan between India & Newyork
C     6535Culvert
C     6902San Salvador between India & Canada
C     6902Culvert
C     7315Pine St. between Smith and India
T1        METHOD 1 - Floodway Model
T2        Chacon Creek Watershed - City of Laredo, Texas
T3          Tinaja  Creek  Channel        Dec. 1998
J1               2                                                  2108  356.95
J2         1              -1
J3       110     200
NC      0.06    0.06   0.065     0.1     0.3
ET                       7.1                         1073.08 1216.36
X1         0      21 1073.08 1216.36
GR       382    1000     380 1068.72     370 1071.64     360 1073.08     352 1083.69
GR       352 1101.83     354 1106.78     356 1111.22     358 1112.79     358    1130
GR       356 1136.24     354 1142.69     352 1151.36     352 1185.46     354 1193.08
GR       356 1203.87     358  1209.3     360 1216.36     370 1239.76     380 1263.18
GR       382 1297.59
NC     0.065   0.065    0.06     0.3     0.5
ET                       7.1                         1070.03 1212.11
* Meadow Street Bridge
X1        10      20 1070.03 1212.11   12.04   12.79    9.83
GR       382    1000     380 1066.58     370 1069.25     360 1070.03     352 1080.62
GR       352 1098.05     354 1103.21     356 1106.68     358 1108.54     358  1134.5
GR       356 1140.15     354  1145.7     352 1154.31     352 1187.87     354 1195.15
GR       356 1203.43     360 1212.11     370 1236.04     380 1260.36     382 1305.03
NC      0.06    0.06   0.065
ET                       7.1                         1026.75  1183.5
SB      1.05     1.5     2.5  300.13   85.07       6 3973.14 1.87015  351.91  351.91
X1        38      18 1026.75  1183.5   29.79   25.16   28.01
X2                         1   381.9     384                    1.33
GR       382    1000     380 1024.04     370 1025.28     360 1026.75     352 1037.45
GR       352    1051     354 1058.26     358 1063.01     360 1077.08     360 1101.34
GR       358 1112.33     354 1121.28     352 1128.34     352 1164.27     360  1183.5
GR       370 1202.96     380 1223.93     382 1272.04
NC                               0.1     0.3
ET                       7.1                         1039.44 1202.12
X1        50      18 1039.44 1202.12    9.44    8.99   12.18
GR       382    1000     380 1002.77     370 1032.47     360 1039.44     352 1048.83
GR       352    1062     354 1068.94     358 1074.71     360 1081.57     360 1126.77
GR       358 1136.01     354 1144.62     352 1154.14     352 1187.29     360 1202.12
GR       370 1225.21     380 1241.63     382 1299.46
ET                       7.1                         1019.35 1139.28
X1       214      18 1019.35 1139.28  112.81  209.22  164.23
GR       374  907.72     370  940.47     368    1000     366 1019.35     364 1040.17
```

GR	362	1060	360	1073.53	356	1081.9	354	1088.18	354	1092.41
GR	356	1097.71	360	1102.72	362	1108.52	364	1133.33	366	1139.28
GR	368	1166.73	368	1166.74	372	1322.2				
ET			7.1				1140.97	1348.94		
X1	365	26	1140.97	1348.94	114.83	153.06	150.64			
GR	378	1000	376	1006.26	376	1006.27	374	1012.39	372	1021.26
GR	370	1140.97	368	1163.53	366	1203.08	364	1221.54	362	1232.48
GR	360	1241.18	356	1253.12	356	1260.6	358	1264.8	360	1267.46
GR	362	1275.27	364	1289.54	366	1300.59	368	1328.17	368	1328.28
GR	370	1348.94	372	1358.72	374	1390.11	376	1424.38	378	1439.4
GR	380	1449.18								
ET			7.1				1109.16	1245.67		
X1	532	20	1109.16	1245.67	177.8	211.35	166.91			
GR	390	1000	380	1026.01	378	1035.46	376	1058.21	374	1097.69
GR	372	1109.16	370	1125.64	360	1149.54	358	1163.84	358	1175.94
GR	360	1183.88	362	1190.16	364	1198.38	366	1203.2	368	1209.66
GR	370	1231.05	372	1245.67	374	1315.22	380	1338.87	390	1350.04
ET			7.1				1107.05	1196.95		
X1	707	18	1107.05	1196.95	144.12	164.97	175.01			
GR	392	1000	392	1087.98	390	1093.07	380	1107.05	370	1121.32
GR	360	1139.97	360	1153.72	362	1156.17	364	1161.66	366	1169.08
GR	368	1171.4	370	1176.26	380	1196.95	382	1209	384	1213.23
GR	386	1296.72	390	1328.58	390	1332.29				
ET			7.1				1006.87	1115.31		
X1	982	21	1006.87	1115.31	323.19	196.11	275.26			
GR	398	859.77	396	989.61	390	1000	380	1006.87	370	1014.93
GR	368	1019.13	366	1021.23	364	1025.56	364	1047.23	366	1055.25
GR	368	1071.62	370	1085.31	372	1091.09	374	1100.11	376	1104.55
GR	378	1112.13	380	1115.31	384	1120.68	386	1121.11	390	1126.26
GR	390	1160.89								
NC	0.06	0.06	0.065							
ET			7.1				1020.72	1155.41		
X1	1101	18	1020.72	1155.41	103.01	120.6	118.88			
GR	398	899.83	390	1000	380	1020.72	372	1038.7	370	1050.06
GR	366	1065	364	1071.73	364	1092.25	366	1100.84	368	1104.38
GR	370	1108.19	372	1116.89	374	1131.72	376	1146.3	378	1149.28
GR	380	1155.41	390	1171.92	394	1308.77				
NC				0.1	0.3					
ET			7.1				1138.7	1391.87		
X1	1388	18	1138.7	1391.87	112.02	280.82	287.32			
GR	390	1000	380	1012.03	374	1024.19	374	1051.55	376	1061.66
GR	378	1066.6	378	1138.7	376	1291.5	374	1315.72	372	1325.62
GR	370	1333.81	366	1337.42	368	1340.66	366	1358.07	368	1366.44
GR	370	1372.71	380	1391.87	390	1399.68				
ET			7.1				1099.75	1400.39		
X1	1696	28	1099.75	1400.39	172.85	337.35	307.32			
GR	390	1000	380	1013.18	374	1024.35	374	1030.63	376	1036.28
GR	378	1046.22	378	1099.75	376	1108.61	374	1126.47	372	1138.21
GR	370	1153.14	368	1159.8	368	1176.76	370	1179.93	372	1199.43
GR	374	1214.09	376	1241.36	378	1398.19	380	1400.39	390	1406.03
GR	392	1410.37	394	1414.42	396	1417.89	398	1429.22	400	1432.76
GR	402	1447.09	404	1459.12	406	1472.47				
ET			7.1				1050.53	1233.63		
X1	1837	19	1050.53	1233.63	114.61	174.54	141			
GR	390	1000	380	1009.92	378	1015.47	376	1020.99	376	1022.91
GR	378	1025.47	378	1050.53	376	1070.76	374	1103.83	372	1122.43
GR	372	1150.83	374	1168.75	376	1184.68	378	1233.63	380	1245.3

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GR   382 1247.64      384 1252.45      386 1254.25      390 1258.11
ET                    7.1                           1048.89 1125.56
X1  2242        18 1048.89 1125.56  386.56  404.47  405.79
GR   400     1000     398 1016.33      396 1026.46      394 1031.98      392 1040.91
GR   390 1048.89      380 1063.87      380 1098.08      382 1099.01      384  1106.4
GR   386 1108.41      388 1112.81      390 1125.56      392 1130.21      394 1250.51
GR   396 1256.73      398 1309.44      400 1324.28
ET                    7.1                            1069.3 1185.39
X1  2572        22  1069.3 1185.39  321.87  315.94   329.6
GR   400     1000     398 1006.26      396 1013.62      396 1013.62      394 1016.92
GR   392 1026.03      390  1069.3      388 1088.26      386 1097.38      384 1110.48
GR   382  1119.7      380 1124.32      380 1150.46      382 1156.86      384 1164.97
GR   386 1178.26      390 1185.39      392 1195.07      394 1203.75      396 1207.76
GR   398 1235.95      400 1261.28
ET                    7.1                           1100.99 1197.79
X1  2949        17 1100.99 1197.71  380.14  373.06   377.4
GR   404     1000     402 1095.53      400 1100.99      398 1107.05      396  1111.6
GR   394 1116.19      392 1124.36      390 1128.56      388 1131.94      386 1136.04
GR   384  1138.2      384  1163.3      386 1165.84      390 1174.56      400 1197.71
GR   402 1206.24      404  1252.6
ET                    7.1                           1032.29 1192.43
X1  3312        24 1032.29 1192.43  350.95  392.57  363.03
GR   404     1000     402 1019.37      400 1025.75      398 1032.29      396  1039.1
GR   394 1046.32      392 1051.46      390 1054.17      390 1054.38      388 1096.65
GR   388 1096.74      386 1104.44      384  1109.1      384 1126.72      386 1131.86
GR   388 1134.08      390 1137.84      392 1151.65      394  1162.4      396  1177.4
GR   398 1192.43      400 1201.38      402 1215.15      404 1267.61
ET                    7.1                           1086.34 1219.78
X1  3582        20 1086.34 1219.78   278.5  258.02  269.61
GR   406     1000     404 1037.29      402 1059.79      400 1086.34      398 1094.82
GR   396 1113.98      394  1117.7      392 1120.58      390 1132.27      388 1146.55
GR   386 1149.88      384 1157.97      384 1175.88      386 1180.81      388 1186.39
GR   390 1195.87      400 1219.78      402 1232.21      404 1300.63      406 1311.52
NC  0.12      0.12   0.065
ET                    7.1                            1033.4  1169.6
X1  3850        25  1033.4  1169.6  318.48  209.93  267.49
GR   410  670.88      408  823.67      406     1000      404 1017.59      402  1027.1
GR   400  1033.4      398 1037.44      396  1040.5      394 1043.63      392 1048.76
GR   390 1085.79      388 1087.36      386 1088.31      386 1112.13      388 1118.63
GR   390 1126.76      392 1137.75      394  1150.7      396 1157.28      398 1162.92
GR   400  1169.6      402 1242.74      404 1279.34      406 1383.37      410  1557.4
NC  0.12      0.12   0.015     0.3     0.5
ET                    7.1                           1067.35 1203.22
* Hwy. 83 - Santa Barbara & Napolean
* Box Culvert
X1  3874        28 1067.35 1203.22   34.24   17.92   24.13
GR   410  720.18      408  870.68      408     1000      406  1036.1      404 1049.45
GR   402  1059.8      400 1067.35      398 1074.01      396 1078.96      394 1086.18
GR   392 1111.13      390 1117.09      386 1119.18      388 1119.37      386 1119.55
GR   386 1146.25      388 1147.58      390  1148.5      392 1151.46      394 1173.74
GR   396 1190.81      398  1196.1      400 1203.22      402 1263.14      404  1313.4
GR   406 1324.16      406 1386.23      410 1572.23
NC  0.12      0.12   0.015
ET                    7.1                           1098.74 1197.51
SC 2.015       0.4     2.5  246.14       8      10     291     8.1   386.6   386.6
X1  4105        25 1098.74 1197.51  194.84  245.13  230.93
X2                       2             404.3
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GR    410  794.59      406    1000      404 1098.74      402 1108.43      400 1112.72
GR    398 1114.74      396 1120.87      394 1132.88      392 1134.77      390 1141.25
GR    388 1142.22      386 1144.47      386 1154.92      388  1158.8      390 1161.94
GR    394 1167.24      396 1167.54      398 1172.66      400 1177.59      402 1192.23
GR    404 1197.51      406 1236.42      408 1329.19      410 1455.62      416 1685.02
NC   0.12    0.12    0.065     0.1      0.3
ET                     7.1                           1084.25 1198.19
X1   4467      17  1084.25 1198.19   414.31  295.13   362.52
GR    410  753.77      406    1000      404 1084.25      402 1124.22      400 1138.39
GR    398 1144.72      396 1148.51      394 1154.96      394 1171.41      396 1175.23
GR    398 1179.44      400 1180.16      402 1190.25      404 1198.19      406 1243.79
GR    408 1340.98      416 1532.76
NC   0.12    0.12    0.015
ET                     7.1                              1128 1195.16
X1   4956      19     1128 1195.16   536.44  469.26   488.56
GR    412  647.09      410    1000      408    1128      406 1135.48      404 1139.76
GR    402 1144.06      400 1151.79      396 1162.15      398 1163.99      396 1175.72
GR    398 1178.67      400 1183.69      404 1185.36      402 1185.82      406 1188.38
GR    408 1195.16      410 1221.75      412    1291      418 1410.84
NC   0.12    0.12    0.015     0.3      0.5
ET                     7.1                              1089 1148.09
* Santa Barbara & Louisiana
* Culvert
X1   5115      16     1089 1148.09   127.64   159.5   159.31
GR    416  354.95      412  586.38      410    1000      408    1089      406 1091.85
GR    404 1097.93      402 1100.34   396.95 1102.43   396.95 1135.03      402 1138.88
GR    404 1141.86      406  1144.9      408 1148.09      410 1182.81      412 1207.02
GR    418 1328.16
NC                   0.015
ET                     7.1                           1057.73 1108.11
SC  3.015     0.5      2.5      64        9       9       29    10.1   396.95   396.95
X1   5144      16  1057.73 1108.11    28.93    30.6     28.9
X2                       2           409.95
GR    416  336.71      412  573.25      410    1000      408 1057.73      406  1062.5
GR    404 1066.61      402 1069.28   396.95 1071.62   396.95 1098.03      402 1101.81
GR    404 1103.66      406 1107.31      408 1108.11      410  1154.7      412 1179.08
GR    418 1295.86
NC   0.12    0.12    0.015     0.1      0.3
ET                     7.1                           1112.44 1193.06
X1   5296      16  1112.44 1193.06   150.12  150.05   151.86
GR    414  601.85      410    1000      410 1112.44      408 1134.42      406 1139.33
GR    404 1144.54      402 1148.81      400 1151.02      400 1173.16      402 1178.93
GR    404 1183.34      408 1184.54      410 1193.06      412 1226.78      414 1339.18
GR    420 1408.09
ET                     7.1                           1072.93 1139.56
X1   5628      13  1072.93 1139.56   313.13  312.44   332.36
GR    426  501.05      416  683.66      412    1000      410 1072.93      408 1085.33
GR    402 1089.03      402 1135.05      408 1137.43      410 1139.56      412 1257.23
GR    414 1270.44      416 1321.21      420  1503.1
ET                     7.1                           1379.08 1472.43
X1   5731      14  1379.08 1472.43    92.01   95.02    92.02
GR    426  815.33      416    1000      414 1158.31      412 1379.08      410 1390.14
GR    408 1401.16      406 1405.05      406 1449.84      408 1453.65      410  1456.2
GR    412 1472.43      414 1577.18      416 1597.53      420 1795.29
NC                             0.3      0.5
ET                     7.1                              1127 1190.84
* Santa Barbara & Newyork
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* Culvert
X1  5807      12    1127 1190.84   88.01   92.09    91.2
GR   426  528.92     416  718.01     412    1000     410    1127     408 1134.26
GR   403 1137.12     403  1181.2     408 1186.38     410 1190.84     412 1214.33
GR   414 1325.98     420 1532.06
ET                   7.1                         1118.03  1180.8
SC 4.015     0.5     2.5    62.1       5       9      33    10.1  403.47  403.47
X1  5840      12 1118.03  1180.8    33.2   34.55   32.82
X2                     2          410.28
GR   426   506.4     416  708.57     412    1000     410 1118.03     408 1124.19
GR   403 1128.59     403 1170.06     408 1175.99     410  1180.8     412 1195.63
GR   414 1308.78     420 1543.65
NC                           0.1     0.3
ET                   7.1                         1126.92 1223.98
X1  5985      13 1126.92 1223.98  120.64  214.86  145.41
GR   426  523.18     416  739.91     414    1000     414 1126.92     412  1136.8
GR   410 1144.44   404.5 1150.35   404.5 1187.04     410 1189.75     412 1202.58
GR   414 1223.98     418  1337.8     422 1469.98
NC                           0.3     0.5
ET                   7.1                          1051.6 1137.92
* Santa Clara between Newyork & Canada
* Culvert
X1  6127      15  1051.6 1137.92  103.25  177.44  141.92
GR425.85  518.92     416  736.63     414    1000     414  1051.6     412 1061.97
GR   410 1067.97  406.58 1071.11  406.58 1118.18     410 1124.07     412 1131.34
GR   414 1137.92     416 1166.79     416 1226.08     416 1247.27     422 1440.22
ET                   7.1                         1053.18 1131.61
SC 4.015     0.5     2.5      67       5      10      22    10.1  406.58  406.58
X1  6150      13 1053.18 1131.61   20.94   22.61   22.47
X2                     2          414.73
GR   426  534.59     416  749.27     414    1000     414 1053.18     412 1058.96
GR   410 1065.48  406.58 1070.44  406.58 1112.89     410 1119.49     412 1127.48
GR   414 1131.61     416 1250.15     422  1478.8
NC                           0.1     0.3
ET                   7.1                         1100.92 1198.11
X1  6341      15 1100.92 1198.11   207.1  167.74  190.93
GR   420  840.21     416    1000     416 1100.92     414  1129.7     412 1132.47
GR   410 1138.69     407 1142.14     407 1179.12     410 1183.77     412 1187.34
GR   414 1193.99     416 1198.11     416  1268.8     416 1313.64     420 1453.83
NC                           0.3     0.5
ET                   7.1                         1049.67 1118.26
* Pecan between India & Newyork
* Culvert
X1  6535      15 1049.67 1118.26  185.68   194.1  194.81
GR   422  658.29     420  735.53     418  959.93     416    1000     414 1049.67
GR   412 1056.83   407.5 1059.63   407.5 1110.05     412 1115.88     414 1118.26
GR   416 1134.53     416 1146.82     416 1173.39     418 1214.61     420 1338.15
ET                   7.1                         1038.89 1110.82
SC 4.015     0.5     2.5      88       5      10      63    10.1   407.5   407.5
X1  6598      16 1038.89 1110.82   59.26   65.98   62.62
X2                     2          414.55
GR   422  675.42     420  721.54     420    1000     420 1002.12     418 1023.45
GR   416 1035.69     414 1038.89     412 1046.15   407.5 1054.61   407.5 1101.19
GR   412 1107.27     414 1110.82     416 1127.48     418 1209.46     420 1294.92
GR   422 1361.66
NC                           0.1     0.3
ET                   7.1                         1085.77 1173.82
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X1   6771        17 1085.77 1173.82  157.51  184.73  172.36
GR    422  775.05      420  835.85     422    1000     422 1053.13     420 1072.44
GR    418 1085.77      416 1096.98     414    1100     412 1104.78  407.55  1112.6
GR407.55 1146.01      412 1153.78     414 1161.33     416 1166.81     418 1173.82
GR    420 1297.95      422 1461.92
NC                              0.3     0.5
ET                     7.1                            1176.33 1257.58
* San Salvador between India & Canada
* Culvert
X1   6902        15 1176.33 1257.58  132.86   129.3  131.67
GR    422  895.02      420    1000     418 1176.33     416 1180.28     414 1186.28
GR    412  1189.2   408.61 1192.23  408.61 1241.44     412 1243.86     414 1246.64
GR    416  1251.6      416 1251.65     418 1257.58     420 1498.45     424 1603.84
ET                     7.1                            1185.88 1262.89
SC 4.015     0.5       2.5      64       5      10      28    10.1  408.61  408.61
X1   6930        14 1185.88 1262.89   27.42   28.65   28.03
X2                       2          416.84
GR    422  907.07      420    1000     418 1185.88     416 1193.57     414 1199.63
GR    412 1205.88   408.61 1208.61  408.61 1230.77     412 1238.97     414 1244.09
GR    416  1251.3      418 1262.89     420 1514.85     424 1612.07
NC                              0.1     0.3
ET                     7.1                            1058.03 1186.08
X1   6992        17 1058.03 1186.08   59.77   60.37   61.56
GR    424   751.9      420    1000     420 1058.03     418 1070.13     416  1080.7
GR    414 1087.34      412 1096.71     410 1102.29     410 1107.34     412 1122.27
GR    414 1128.19      416 1136.06     418 1147.62     420 1186.08     422 1213.63
GR    422 1335.09      424 1406.54
NC                              0.3     0.5
QT      2     944     1218
ET                     7.1                            1108.18 1176.59
* Pine St. between Smith and India
X1   7315        17 1108.18 1176.59  334.53  286.43  317.64
GR    430  542.79      426  690.18     424  895.35     424    1000     422 1108.18
GR    420 1124.95      418 1134.04  414.29 1142.24  414.29 1142.29  414.29 1155.48
GR    418 1162.23      420 1167.98     422 1170.98     424 1176.59     426 1270.82
GR    428 1382.86      434 1564.96
EJ
T1       CF0029
T2       Chacon Creek Watershed - City of Laredo
T3       Tinaja Creek , 12/10/98
J1               3                                             2108  357.95
J2     15             -1


ER
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FLOODWAY DATA, Tinaja Creek Channel
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.000	133.	516.	4.1	358.0	357.0	1.0
10.000	135.	497.	4.2	358.0	357.0	1.0
38.000	149.	465.	4.5	358.0	357.1	.9
50.000	157.	450.	4.7	358.1	357.2	.9
214.000	50.	190.	11.1	362.0	362.0	.0
365.000	97.	411.	5.1	366.0	366.0	.0
532.000	74.	427.	4.9	367.0	367.0	.0
707.000	46.	233.	9.1	367.9	367.9	.0
982.000	77.	392.	5.4	371.7	371.7	.0
1101.000	83.	423.	5.0	372.5	372.5	.0
1388.000	72.	340.	6.2	374.5	374.5	.0
1696.000	209.	657.	3.2	376.9	376.8	.1
1837.000	171.	505.	4.2	377.6	377.5	.1
2242.000	50.	190.	11.1	384.6	384.6	.0
2572.000	104.	560.	3.8	389.0	389.0	.0
2949.000	49.	236.	8.9	390.6	390.6	.0
3312.000	115.	608.	3.5	393.8	393.8	.0
3582.000	90.	574.	3.7	394.4	394.4	.0
3850.000	113.	579.	3.6	395.1	395.1	.0
3874.000	101.	418.	5.0	395.1	395.1	.0
4105.000	68.	511.	4.1	400.4	400.4	.0
4467.000	42.	178.	11.8	399.9	399.9	.0
4956.000	45.	190.	11.1	403.0	403.0	.0
5115.000	47.	288.	7.3	404.6	404.6	.0
5144.000	46.	318.	6.6	406.4	406.4	.0
5296.000	44.	188.	11.2	405.6	405.6	.0
5628.000	51.	239.	8.8	406.9	406.9	.0
5731.000	65.	207.	10.2	409.9	409.9	.0
5807.000	64.	457.	4.6	411.6	411.6	.0
5840.000	63.	524.	4.0	412.8	412.8	.0
5985.000	77.	386.	5.5	412.7	412.7	.0
6127.000	75.	354.	6.0	412.7	412.7	.0
6150.000	78.	512.	4.1	415.0	415.0	.0
6341.000	80.	409.	5.2	414.9	414.9	.0
6535.000	69.	447.	4.7	415.1	415.1	.0
6598.000	72.	543.	3.9	416.3	416.3	.0
6771.000	72.	444.	4.7	416.2	416.2	.0
6902.000	73.	444.	4.7	416.3	416.3	.0
6930.000	76.	403.	5.2	417.9	417.9	.0
6992.000	75.	306.	6.9	417.7	417.7	.0
7315.000	38.	120.	10.2	419.3	418.7	.6

TINAJA CREEK HEC-2 MODEL
(Floodway - Method 4)

```
C
C     14
C      10Meadow Street Bridge
C    3874Hwy. 83 - Santa Barbara & Napolean
C    3874Box Culvert
C    5115Santa Barbara & Louisiana
C    5115Culvert
C    5807Santa Barbara & Newyork
C    5807Culvert
C    6127Santa Clara between Newyork & Canada
C    6127Culvert
C    6535Pecan between India & Newyork
C    6535Culvert
C    6902San Salvador between India & Canada.
C    6902Culvert
C    7315Pine St. between Smith and India
T1       Method 4 - Floodway Model
T2       Chacon Creek Watershed - City of Laredo, Texas.  1988 NAVD
T3        Tinaja   Creek  Channel        Dec. 1998
J1              2                                            2108  356.95
J2       1             -1
J3     110     200
NC    0.06    0.06   0.065     0.1     0.3
ET                   -10.4
X1       0      21 1073.08 1216.36
GR     382    1000     380 1068.72     370 1071.64     360 1073.08     352 1083.69
GR     352 1101.83     354 1106.78     356 1111.22     358 1112.79     358    1130
GR     356 1136.24     354 1142.69     352 1151.36     352 1185.46     354 1193.08
GR     356 1203.87     358  1209.3     360 1216.36     370 1239.76     380 1263.18
GR     382 1297.59
NC 0.065   0.065    0.06     0.3     0.5
* Meadow Street Bridge
X1      10      20 1070.03 1212.11   12.04   12.79    9.83
GR     382    1000     380 1066.58     370 1069.25     360 1070.03     352 1080.62
GR     352 1098.05     354 1103.21     356 1106.68     358 1108.54     358  1134.5
GR     356 1140.15     354  1145.7     352 1154.31     352 1187.87     354 1195.15
GR     356 1203.43     360 1212.11     370 1236.04     380 1260.36     382 1305.03
NC    0.06    0.06   0.065
SB    1.05     1.5     2.5  300.13   85.07       6 3973.14 1.87015  351.91  351.91
X1      38      18 1026.75  1183.5   29.79   25.16   28.01
X2                       1  381.90     384                    1.33
GR     382    1000     380 1024.04     370 1025.28     360 1026.75     352 1037.45
GR     352    1051     354 1058.26     358 1063.01     360 1077.08     360 1101.34
GR     358 1112.33     354 1121.28     352 1128.34     352 1164.27     360  1183.5
GR     370 1202.96     380 1223.93     382 1272.04
NC                             0.1     0.3
X1      50      18 1039.44 1202.12    9.44    8.99   12.18
GR     382    1000     380 1002.77     370 1032.47     360 1039.44     352 1048.83
GR     352    1062     354 1068.94     358 1074.71     360 1081.57     360 1126.77
GR     358 1136.01     354 1144.62     352 1154.14     352 1187.29     360 1202.12
GR     370 1225.21     380 1241.63     382 1299.46
X1     214      18 1019.35 1139.28  112.81  209.22  164.23
GR     374  907.72     370  940.47     368    1000     366 1019.35     364 1040.17
GR     362    1060     360 1073.53     356  1081.9     354 1088.18     354 1092.41
GR     356 1097.71     360 1102.72     362 1108.52     364 1133.33     366 1139.28
GR     368 1166.73     368 1166.74     372  1322.2
X1     365      26 1140.97 1348.94  114.83  153.06  150.64
```

GR	378	1000	376	1006.26	376	1006.27	374	1012.39	372	1021.26
GR	370	1140.97	368	1163.53	366	1203.08	364	1221.54	362	1232.48
GR	360	1241.18	356	1253.12	356	1260.6	358	1264.8	360	1267.46
GR	362	1275.27	364	1289.54	366	1300.59	368	1328.17	368	1328.28
GR	370	1348.94	372	1358.72	374	1390.11	376	1424.38	378	1439.4
GR	380	1449.18								
X1	532	20	1109.16	1245.67	177.8	211.35	166.91			
GR	390	1000	380	1026.01	378	1035.46	376	1058.21	374	1097.69
GR	372	1109.16	370	1125.64	360	1149.54	358	1163.84	358	1175.94
GR	360	1183.88	362	1190.16	364	1198.38	366	1203.2	368	1209.66
GR	370	1231.05	372	1245.67	374	1315.22	380	1338.87	390	1350.04
X1	707	18	1107.05	1196.95	144.12	164.97	175.01			
GR	392	1000	392	1087.98	390	1093.07	380	1107.05	370	1121.32
GR	360	1139.97	360	1153.72	362	1156.17	364	1161.66	366	1169.08
GR	368	1171.4	370	1176.26	380	1196.95	382	1209	384	1213.23
GR	386	1296.72	390	1328.58	390	1332.29				
X1	982	21	1006.87	1115.31	323.19	196.11	275.26			
GR	398	859.77	396	989.61	390	1000	380	1006.87	370	1014.93
GR	368	1019.13	366	1021.23	364	1025.56	364	1047.23	366	1055.25
GR	368	1071.62	370	1085.31	372	1091.09	374	1100.11	376	1104.55
GR	378	1112.13	380	1115.31	384	1120.68	386	1121.11	390	1126.26
GR	390	1160.89								
NC	0.06	0.06	0.065							
X1	1101	18	1020.72	1155.41	103.01	120.6	118.88			
GR	398	899.83	390	1000	380	1020.72	372	1038.7	370	1050.06
GR	366	1065	364	1071.73	364	1092.25	366	1100.84	368	1104.38
GR	370	1108.19	372	1116.89	374	1131.72	376	1146.3	378	1149.28
GR	380	1155.41	390	1171.92	394	1308.77				
NC				0.1	0.3					
X1	1388	18	1138.7	1391.87	112.02	280.82	287.32			
GR	390	1000	380	1012.03	374	1024.19	374	1051.55	376	1061.66
GR	378	1066.6	378	1138.7	376	1291.5	374	1315.72	372	1325.62
GR	370	1333.81	366	1337.42	368	1340.66	366	1358.07	368	1366.44
GR	370	1372.71	380	1391.87	390	1399.68				
X1	1696	28	1099.75	1400.39	172.85	337.35	307.32			
GR	390	1000	380	1013.18	374	1024.35	374	1030.63	376	1036.28
GR	378	1046.22	378	1099.75	376	1108.61	374	1126.47	372	1138.21
GR	370	1153.14	368	1159.8	368	1176.76	370	1179.93	372	1199.43
GR	374	1214.09	376	1241.36	378	1398.19	380	1400.39	390	1406.03
GR	392	1410.37	394	1414.42	396	1417.89	398	1429.22	400	1432.76
GR	402	1447.09	404	1459.12	406	1472.47				
X1	1837	19	1050.53	1233.63	114.61	174.54	141			
GR	390	1000	380	1009.92	378	1015.47	376	1020.99	376	1022.91
GR	378	1025.47	378	1050.53	376	1070.76	374	1103.83	372	1122.43
GR	372	1150.83	374	1168.75	376	1184.68	378	1233.63	380	1245.3
GR	382	1247.64	384	1252.45	386	1254.25	390	1258.11		
X1	2242	18	1048.89	1125.56	386.56	404.47	405.79			
GR	400	1000	398	1016.33	396	1026.46	394	1031.98	392	1040.91
GR	390	1048.89	380	1063.87	380	1098.08	382	1099.01	384	1106.4
GR	386	1108.41	388	1112.81	390	1125.56	392	1130.21	394	1250.51
GR	396	1256.73	398	1309.44	400	1324.28				
X1	2572	22	1069.3	1185.39	321.87	315.94	329.6			
GR	400	1000	398	1006.26	396	1013.62	396	1013.62	394	1016.92
GR	392	1026.03	390	1069.3	388	1088.26	386	1097.38	384	1110.48
GR	382	1119.7	380	1124.32	380	1150.46	382	1156.86	384	1164.97
GR	386	1178.26	390	1185.39	392	1195.07	394	1203.75	396	1207.76
GR	398	1235.95	400	1261.28						

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X1   2949       17 1100.99 1197.71  380.14  373.06   377.4
GR    404     1000     402 1095.53     400 1100.99     398 1107.05     396  1111.6
GR    394  1116.19     392 1124.36     390 1128.56     388 1131.94     386 1136.04
GR    384   1138.2     384  1163.3     386 1165.84     390 1174.56     400 1197.71
GR    402  1206.24     404  1252.6
X1   3312       24 1032.29 1192.43  350.95  392.57  363.03
GR    404     1000     402 1019.37     400 1025.75     398 1032.29     396  1039.1
GR    394  1046.32     392 1051.46     390 1054.17     390 1054.38     388 1096.65
GR    388  1096.74     386 1104.44     384  1109.1     384 1126.72     386 1131.86
GR    388  1134.08     390 1137.84     392 1151.65     394  1162.4     396  1177.4
GR    398  1192.43     400 1201.38     402 1215.15     404 1267.61
X1   3582       20 1086.34 1219.78   278.5  258.02  269.61
GR    406     1000     404 1037.29     402 1059.79     400 1086.34     398 1094.82
GR    396  1113.98     394  1117.7     392 1120.58     390 1132.27     388 1146.55
GR    386  1149.88     384 1157.97     384 1175.88     386 1180.81     388 1186.39
GR    390  1195.87     400 1219.78     402 1232.21     404 1300.63     406 1311.52
NC   0.12     0.12   0.065
X1   3850       25  1033.4  1169.6  318.48  209.93  267.49
GR    410   670.88     408  823.67     406    1000     404 1017.59     402  1027.1
GR    400   1033.4     398 1037.44     396  1040.5     394 1043.63     392 1048.76
GR    390  1085.79     388 1087.36     386 1088.31     386 1112.13     388 1118.63
GR    390  1126.76     392 1137.75     394  1150.7     396 1157.28     398 1162.92
GR    400   1169.6     402 1242.74     404 1279.34     406 1383.37     410  1557.4
NC   0.12     0.12   0.015     0.3     0.5
* Hwy. 83 - Santa Barbara & Napolean
* Box Culvert
X1   3874       28 1067.35 1203.22   34.24   17.92   24.13
GR    410   720.18     408  870.68     408    1000     406  1036.1     404 1049.45
GR    402   1059.8     400 1067.35     398 1074.01     396 1078.96     394 1086.18
GR    392  1111.13     390 1117.09     386 1119.18     388 1119.37     386 1119.55
GR    386  1146.25     388 1147.58     390  1148.5     392 1151.46     394 1173.74
GR    396  1190.81     398  1196.1     400 1203.22     402 1263.14     404  1313.4
GR    406  1324.16     406 1386.23     410 1572.23
NC   0.12     0.12   0.015
SC 2.015      0.4     2.5  246.14       8      10     291     8.1   386.6   386.6
X1   4105       25 1098.74 1197.51  194.84  245.13  230.93
X2                       2           404.3
GR    410   794.59     406    1000     404 1098.74     402 1108.43     400 1112.72
GR    398  1114.74     396 1120.87     394 1132.88     392 1134.77     390 1141.25
GR    388  1142.22     386 1144.47     386 1154.92     388  1158.8     390 1161.94
GR    394  1167.24     396 1167.54     398 1172.66     400 1177.59     402 1192.23
GR    404  1197.51     406 1236.42     408 1329.19     410 1455.62     416 1685.02
NC   0.12     0.12   0.065     0.1     0.3
X1   4467       17 1084.25 1198.19  414.31  295.13  362.52
GR    410   753.77     406    1000     404 1084.25     402 1124.22     400 1138.39
GR    398  1144.72     396 1148.51     394 1154.96     394 1171.41     396 1175.23
GR    398  1179.44     400 1180.16     402 1190.25     404 1198.19     406 1243.79
GR    408  1340.98     416 1532.76
NC   0.12     0.12   0.015
X1   4956       19    1128 1195.16  536.44  469.26  488.56
GR    412   647.09     410    1000     408    1128     406 1135.48     404 1139.76
GR    402  1144.06     400 1151.79     396 1162.15     398 1163.99     396 1175.72
GR    398  1178.67     400 1183.69     404 1185.36     402 1185.82     406 1188.38
GR    408  1195.16     410 1221.75     412    1291     418 1410.84
NC   0.12     0.12   0.015     0.3     0.5
* Santa Barbara & Louisiana
* Culvert
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X1  5115       16     1089 1148.09  127.64   159.5  159.31
GR   416  354.95       412  586.38     410    1000     408    1089     406 1091.85
GR   404 1097.93       402 1100.34  396.95 1102.43  396.95 1135.03     402 1138.88
GR   404 1141.86       406  1144.9     408 1148.09     410 1182.81     412 1207.02
GR   418 1328.16
NC                   0.015
SC 3.015      0.5      2.5      64       9       9      29    10.1  396.95  396.95
X1  5144       16 1057.73 1108.11   28.93    30.6    28.9
X2                       2          409.95
GR   416  336.71       412  573.25     410    1000     408 1057.73     406  1062.5
GR   404 1066.61       402 1069.28  396.95 1071.62  396.95 1098.03     402 1101.81
GR   404 1103.66       406 1107.31     408 1108.11     410  1154.7     412 1179.08
GR   418 1295.86
NC  0.12     0.12    0.015     0.1     0.3
X1  5296       16 1112.44 1193.06  150.12  150.05  151.86
GR   414  601.85       410    1000     410 1112.44     408 1134.42     406 1139.33
GR   404 1144.54       402 1148.81     400 1151.02     400 1173.16     402 1178.93
GR   404 1183.34       408 1184.54     410 1193.06     412 1226.78     414 1339.18
GR   420 1408.09
X1  5628       13 1072.93 1139.56  313.13  312.44  332.36
GR   426  501.05       416  683.66     412    1000     410 1072.93     408 1085.33
GR   402 1089.03       402 1135.05     408 1137.43     410 1139.56     412 1257.23
GR   414 1270.44       416 1321.21     420  1503.1
X1  5731       14 1379.08 1472.43   92.01   95.02   92.02
GR   426  815.33       416    1000     414 1158.31     412 1379.08     410 1390.14
GR   408 1401.16       406 1405.05     406 1449.84     408 1453.65     410  1456.2
GR   412 1472.43       414 1577.18     416 1597.53     420 1795.29
NC                             0.3     0.5
* Santa Barbara & Newyork
* Culvert
X1  5807       12     1127 1190.84   88.01   92.09    91.2
GR   426  528.92       416  718.01     412    1000     410    1127     408 1134.26
GR   403 1137.12       403  1181.2     408 1186.38     410 1190.84     412 1214.33
GR   414 1325.98       420 1532.06
SC 4.015      0.5      2.5    62.1       5       9      33    10.1  403.47  403.47
X1  5840       12 1118.03  1180.8    33.2   34.55   32.82
X2                       2          410.28
GR   426   506.4       416  708.57     412    1000     410 1118.03     408 1124.19
GR   403 1128.59       403 1170.06     408 1175.99     410  1180.8     412 1195.63
GR   414 1308.78       420 1543.65
NC                             0.1     0.3
X1  5985       13 1126.92 1223.98  120.64  214.86  145.41
GR   426  523.18       416  739.91     414    1000     414 1126.92     412  1136.8
GR   410 1144.44     404.5 1150.35   404.5 1187.04     410 1189.75     412 1202.58
GR   414 1223.98       418  1337.8     422 1469.98
NC                             0.3     0.5
* Santa Clara between Newyork & Canada
* Culvert
X1  6127       15  1051.6 1137.92  103.25  177.44  141.92
GR425.85  518.92       416  736.63     414    1000     414  1051.6     412 1061.97
GR   410 1067.97    406.58 1071.11  406.58 1118.18     410 1124.07     412 1131.34
GR   414 1137.92       416 1166.79     416 1226.08     416 1247.27     422 1440.22
SC 4.015      0.5      2.5      67       5      10      22    10.1  406.58  406.58
X1  6150       13 1053.18 1131.61   20.94   22.61   22.47
X2                       2          414.73
GR   426  534.59       416  749.27     414    1000     414 1053.18     412 1058.96
GR   410 1065.48    406.58 1070.44  406.58 1112.89     410 1119.49     412 1127.48
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GR   414 1131.61     416 1250.15     422  1478.8
NC                           0.1     0.3
X1  6341      15 1100.92 1198.11   207.1  167.74  190.93
GR   420  840.21     416    1000     416 1100.92     414  1129.7     412 1132.47
GR   410 1138.69     407 1142.14     407 1179.12     410 1183.77     412 1187.34
GR   414 1193.99     416 1198.11     416  1268.8     416 1313.64     420 1453.83
NC                           0.3     0.5
* Pecan between India & Newyork
* Culvert
X1  6535      15 1049.67 1118.26  185.68   194.1  194.81
GR   422  658.29     420  735.53     418  959.93     416    1000     414 1049.67
GR   412 1056.83   407.5 1059.63   407.5 1110.05     412 1115.88     414 1118.26
GR   416 1134.53     416 1146.82     416 1173.39     418 1214.61     420 1338.15
SC 4.015     0.5     2.5      88       5      10      63    10.1   407.5   407.5
X1  6598      16 1038.89 1110.82   59.26   65.98   62.62
X2                     2          414.55
GR   422  675.42     420  721.54     420    1000     420 1002.12     418 1023.45
GR   416 1035.69     414 1038.89     412 1046.15   407.5 1054.61   407.5 1101.19
GR   412 1107.27     414 1110.82     416 1127.48     418 1209.46     420 1294.92
GR   422 1361.66
NC                           0.1     0.3
X1  6771      17 1085.77 1173.82  157.51  184.73  172.36
GR   422  775.05     420  835.85     422    1000     422 1053.13     420 1072.44
GR   418 1085.77     416 1096.98     414    1100     412 1104.78  407.55  1112.6
GR407.55 1146.01     412 1153.78     414 1161.33     416 1166.81     418 1173.82
GR   420 1297.95     422 1461.92
NC                           0.3     0.5
* San Salvador between India & Canada
* Culvert
X1  6902      15 1176.33 1257.58  132.86   129.3  131.67
GR   422  895.02     420    1000     418 1176.33     416 1180.28     414 1186.28
GR   412  1189.2  408.61 1192.23  408.61 1241.44     412 1243.86     414 1246.64
GR   416  1251.6     416 1251.65     418 1257.58     420 1498.45     424 1603.84
SC 4.015     0.5     2.5      64       5      10      28    10.1  408.61  408.61
X1  6930      14 1185.88 1262.89   27.42   28.65   28.03
X2                     2          416.84
GR   422  907.07     420    1000     418 1185.88     416 1193.57     414 1199.63
GR   412 1205.88  408.61 1208.61  408.61 1230.77     412 1238.97     414 1244.09
GR   416  1251.3     418 1262.89     420 1514.85     424 1612.07
NC                           0.1     0.3
X1  6992      17 1058.03 1186.08   59.77   60.37   61.56
GR   424   751.9     420    1000     420 1058.03     418 1070.13     416  1080.7
GR   414 1087.34     412 1096.71     410 1102.29     410 1107.34     412 1122.27
GR   414 1128.19     416 1136.06     418 1147.62     420 1186.08     422 1213.63
GR   422 1335.09     424 1406.54
NC                           0.3     0.5
QT     2     944    1218
* Pine St. between Smith and India
X1  7315      17 1108.18 1176.59  334.53  286.43  317.64
GR   430  542.79     426  690.18     424  895.35     424    1000     422 1108.18
GR   420 1124.95     418 1134.04  414.29 1142.24  414.29 1142.29  414.29 1155.48
GR   418 1162.23     420 1167.98     422 1170.98     424 1176.59     426 1270.82
GR   428 1382.86     434 1564.96
EJ
T1      CF0029
T2      Chacon Creek Watershed - City of Laredo
T3      Tinaja Creek , 12/10/98
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J1              3                                              2108  357.95
J2    15                 -1


ER
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FLOODWAY DATA - METHOD 4, Tinaja Creek Channel
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.000	133.	516.	4.1	358.0	357.0	1.0
10.000	135.	497.	4.2	358.0	357.0	1.0
38.000	150.	474.	4.5	358.1	357.1	1.0
50.000	157.	459.	4.6	358.1	357.2	.9
214.000	50.	190.	11.1	362.0	362.0	.0
365.000	97.	411.	5.1	366.0	366.0	.0
532.000	74.	426.	4.9	367.0	367.0	.0
707.000	46.	233.	9.0	367.9	367.9	.0
982.000	77.	392.	5.4	371.7	371.7	.0
1101.000	83.	423.	5.0	372.5	372.5	.0
1388.000	72.	340.	6.2	374.5	374.5	.0
1696.000	209.	657.	3.2	376.9	376.8	.1
1837.000	171.	506.	4.2	377.6	377.5	.1
2242.000	50.	190.	11.1	384.6	384.6	.0
2572.000	104.	560.	3.8	389.0	389.0	.0
2949.000	49.	236.	8.9	390.6	390.6	.0
3312.000	115.	609.	3.5	393.8	393.8	.0
3582.000	90.	574.	3.7	394.4	394.4	.0
3850.000	113.	579.	3.6	395.1	395.1	.0
3874.000	101.	418.	5.0	395.1	395.1	.0
4105.000	68.	512.	4.1	400.4	400.4	.0
4467.000	42.	178.	11.8	399.9	399.9	.0
4956.000	45.	190.	11.1	403.0	403.0	.0
5115.000	47.	288.	7.3	404.6	404.6	.0
5144.000	46.	317.	6.6	406.4	406.4	.0
5296.000	43.	187.	11.3	405.6	405.6	.0
5628.000	51.	240.	8.8	406.9	406.9	.0
5731.000	65.	207.	10.2	409.9	409.9	.0
5807.000	64.	457.	4.6	411.6	411.6	.0
5840.000	63.	524.	4.0	412.8	412.8	.0
5985.000	77.	386.	5.5	412.7	412.7	.0
6127.000	75.	353.	6.0	412.7	412.7	.0
6150.000	78.	513.	4.1	415.0	415.0	.0
6341.000	80.	409.	5.2	414.9	414.9	.0
6535.000	69.	447.	4.7	415.1	415.1	.0
6598.000	72.	543.	3.9	416.3	416.3	.0
6771.000	72.	444.	4.7	416.2	416.2	.0
6902.000	73.	444.	4.7	416.3	416.3	.0
6930.000	76.	402.	5.2	417.9	417.9	.0
6992.000	75.	306.	6.9	417.7	417.7	.0
7315.000	38.	120.	10.2	419.3	418.7	.6

GR	362	1060	360	1073.53	356	1081.9	354	1088.18	354	1092.41
GR	356	1097.71	360	1102.72	362	1108.52	364	1133.33	366	1139.28
GR	368	1166.73	368	1166.74	372	1322.2				
ET			7.1				1140.97	1348.94		
X1	365	26	1140.97	1348.94	114.83	153.06	150.64			
GR	378	1000	376	1006.26	376	1006.27	374	1012.39	372	1021.26
GR	370	1140.97	368	1163.53	366	1203.08	364	1221.54	362	1232.48
GR	360	1241.18	356	1253.12	356	1260.6	358	1264.8	360	1267.46
GR	362	1275.27	364	1289.54	366	1300.59	368	1328.17	368	1328.28
GR	370	1348.94	372	1358.72	374	1390.11	376	1424.38	378	1439.4
GR	380	1449.18								
ET			7.1				1109.16	1245.67		
X1	532	20	1109.16	1245.67	177.8	211.35	166.91			
GR	390	1000	380	1026.01	378	1035.46	376	1058.21	374	1097.69
GR	372	1109.16	370	1125.64	360	1149.54	358	1163.84	358	1175.94
GR	360	1183.88	362	1190.16	364	1198.38	366	1203.2	368	1209.66
GR	370	1231.05	372	1245.67	374	1315.22	380	1338.87	390	1350.04
ET			7.1				1107.05	1196.95		
X1	707	18	1107.05	1196.95	144.12	164.97	175.01			
GR	392	1000	392	1087.98	390	1093.07	380	1107.05	370	1121.32
GR	360	1139.97	360	1153.72	362	1156.17	364	1161.66	366	1169.08
GR	368	1171.4	370	1176.26	380	1196.95	382	1209	384	1213.23
GR	386	1296.72	390	1328.58	390	1332.29				
ET			7.1				1006.87	1115.31		
X1	982	21	1006.87	1115.31	323.19	196.11	275.26			
GR	398	859.77	396	989.61	390	1000	380	1006.87	370	1014.93
GR	368	1019.13	366	1021.23	364	1025.56	364	1047.23	366	1055.25
GR	368	1071.62	370	1085.31	372	1091.09	374	1100.11	376	1104.55
GR	378	1112.13	380	1115.31	384	1120.68	386	1121.11	390	1126.26
GR	390	1160.89								
NC	0.06	0.06	0.065							
ET			7.1				1020.72	1155.41		
X1	1101	18	1020.72	1155.41	103.01	120.6	118.88			
GR	398	899.83	390	1000	380	1020.72	372	1038.7	370	1050.06
GR	366	1065	364	1071.73	364	1092.25	366	1100.84	368	1104.38
GR	370	1108.19	372	1116.89	374	1131.72	376	1146.3	378	1149.28
GR	380	1155.41	390	1171.92	394	1308.77				
NC				0.1	0.3					
ET			7.1				1138.7	1391.87		
X1	1388	18	1138.7	1391.87	112.02	280.82	287.32			
GR	390	1000	380	1012.03	374	1024.19	374	1051.55	376	1061.66
GR	378	1066.6	378	1138.7	376	1291.5	374	1315.72	372	1325.62
GR	370	1333.81	366	1337.42	368	1340.66	366	1358.07	368	1366.44
GR	370	1372.71	380	1391.87	390	1399.68				
ET			7.1				1099.75	1400.39		
X1	1696	28	1099.75	1400.39	172.85	337.35	307.32			
GR	390	1000	380	1013.18	374	1024.35	374	1030.63	376	1036.28
GR	378	1046.22	378	1099.75	376	1108.61	374	1126.47	372	1138.21
GR	370	1153.14	368	1159.8	368	1176.76	370	1179.93	372	1199.43
GR	374	1214.09	376	1241.36	378	1398.19	380	1400.39	390	1406.03
GR	392	1410.37	394	1414.42	396	1417.89	398	1429.22	400	1432.76
GR	402	1447.09	404	1459.12	406	1472.47				
ET			7.1				1050.53	1233.63		
X1	1837	19	1050.53	1233.63	114.61	174.54	141			
GR	390	1000	380	1009.92	378	1015.47	376	1020.99	376	1022.91
GR	378	1025.47	378	1050.53	376	1070.76	374	1103.83	372	1122.43
GR	372	1150.83	374	1168.75	376	1184.68	378	1233.63	380	1245.3

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GR   382 1247.64     384 1252.45     386 1254.25     390 1258.11
ET                     7.1                       1048.89 1125.56
X1  2242      18 1048.89 1125.56  386.56  404.47  405.79
GR   400    1000     398 1016.33     396 1026.46     394 1031.98     392 1040.91
GR   390 1048.89     380 1063.87     380 1098.08     382 1099.01     384  1106.4
GR   386 1108.41     388 1112.81     390 1125.56     392 1130.21     394 1250.51
GR   396 1256.73     398 1309.44     400 1324.28
ET                     7.1                        1069.3 1185.39
X1  2572      22  1069.3 1185.39  321.87  315.94   329.6
GR   400    1000     398 1006.26     396 1013.62     396 1013.62     394 1016.92
GR   392 1026.03     390  1069.3     388 1088.26     386 1097.38     384 1110.48
GR   382  1119.7     380 1124.32     380 1150.46     382 1156.86     384 1164.97
GR   386 1178.26     390 1185.39     392 1195.07     394 1203.75     396 1207.76
GR   398 1235.95     400 1261.28
ET                     7.1                       1100.99 1197.79
X1  2949      17 1100.99 1197.71  380.14  373.06   377.4
GR   404    1000     402 1095.53     400 1100.99     398 1107.05     396  1111.6
GR   394 1116.19     392 1124.36     390 1128.56     388 1131.94     386 1136.04
GR   384  1138.2     384  1163.3     386 1165.84     390 1174.56     400 1197.71
GR   402 1206.24     404  1252.6
ET                     7.1                       1032.29 1192.43
X1  3312      24 1032.29 1192.43  350.95  392.57  363.03
GR   404    1000     402 1019.37     400 1025.75     398 1032.29     396  1039.1
GR   394 1046.32     392 1051.46     390 1054.17     390 1054.38     388 1096.65
GR   388 1096.74     386 1104.44     384  1109.1     384 1126.72     386 1131.86
GR   388 1134.08     390 1137.84     392 1151.65     394  1162.4     396  1177.4
GR   398 1192.43     400 1201.38     402 1215.15     404 1267.61
ET                     7.1                       1086.34 1219.78
X1  3582      20 1086.34 1219.78   278.5  258.02  269.61
GR   406    1000     404 1037.29     402 1059.79     400 1086.34     398 1094.82
GR   396 1113.98     394  1117.7     392 1120.58     390 1132.27     388 1146.55
GR   386 1149.88     384 1157.97     384 1175.88     386 1180.81     388 1186.39
GR   390 1195.87     400 1219.78     402 1232.21     404 1300.63     406 1311.52
NC  0.12    0.12   0.065
ET                     7.1                        1033.4  1169.6
X1  3850      25  1033.4  1169.6  318.48  209.93  267.49
GR   410  670.88     408  823.67     406    1000     404 1017.59     402  1027.1
GR   400  1033.4     398 1037.44     396  1040.5     394 1043.63     392 1048.76
GR   390 1085.79     388 1087.36     386 1088.31     386 1112.13     388 1118.63
GR   390 1126.76     392 1137.75     394  1150.7     396 1157.28     398 1162.92
GR   400  1169.6     402 1242.74     404 1279.34     406 1383.37     410  1557.4
NC  0.12    0.12   0.015     0.3     0.5
ET                     7.1                       1067.35 1203.22
* Hwy. 83 - Santa Barbara & Napolean
* Box Culvert
X1  3874      28 1067.35 1203.22   34.24   17.92   24.13
GR   410  720.18     408  870.68     408    1000     406  1036.1     404 1049.45
GR   402  1059.8     400 1067.35     398 1074.01     396 1078.96     394 1086.18
GR   392 1111.13     390 1117.09     386 1119.18     388 1119.37     386 1119.55
GR   386 1146.25     388 1147.58     390  1148.5     392 1151.46     394 1173.74
GR   396 1190.81     398  1196.1     400 1203.22     402 1263.14     404  1313.4
GR   406 1324.16     406 1386.23     410 1572.23
NC  0.12    0.12   0.015
ET                     7.1                       1098.74 1197.51
SC 2.015     0.4     2.5  246.14       8      10     291     8.1   386.6   386.6
X1  4105      25 1098.74 1197.51  194.84  245.13  230.93
X2                       2           404.3
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GR   410  794.59     406    1000     404 1098.74     402 1108.43     400 1112.72
GR   398 1114.74     396 1120.87     394 1132.88     392 1134.77     390 1141.25
GR   388 1142.22     386 1144.47     386 1154.92     388  1158.8     390 1161.94
GR   394 1167.24     396 1167.54     398 1172.66     400 1177.59     402 1192.23
GR   404 1197.51     406 1236.42     408 1329.19     410 1455.62     416 1685.02
NC  0.12    0.12   0.065     0.1     0.3
ET                   7.1                         1084.25 1198.19
X1  4467      17 1084.25 1198.19  414.31  295.13  362.52
GR   410  753.77     406    1000     404 1084.25     402 1124.22     400 1138.39
GR   398 1144.72     396 1148.51     394 1154.96     394 1171.41     396 1175.23
GR   398 1179.44     400 1180.16     402 1190.25     404 1198.19     406 1243.79
GR   408 1340.98     416 1532.76
NC  0.12    0.12   0.015
ET                   7.1                            1128 1195.16
X1  4956      19    1128 1195.16  536.44  469.26  488.56
GR   412  647.09     410    1000     408    1128     406 1135.48     404 1139.76
GR   402 1144.06     400 1151.79     396 1162.15     398 1163.99     396 1175.72
GR   398 1178.67     400 1183.69     404 1185.36     402 1185.82     406 1188.38
GR   408 1195.16     410 1221.75     412    1291     418 1410.84
NC  0.12    0.12   0.015     0.3     0.5
ET                   7.1                            1089 1148.09
* Santa Barbara & Louisiana
* Culvert
X1  5115      16    1089 1148.09  127.64   159.5  159.31
GR   416  354.95     412  586.38     410    1000     408    1089     406 1091.85
GR   404 1097.93     402 1100.34  396.95 1102.43  396.95 1135.03     402 1138.88
GR   404 1141.86     406  1144.9     408 1148.09     410 1182.81     412 1207.02
GR   418 1328.16
NC                 0.015
ET                   7.1                         1057.73 1108.11
SC 3.015     0.5     2.5      64       9       9      29    10.1  396.95  396.95
X1  5144      16 1057.73 1108.11   28.93    30.6    28.9
X2                     2          409.95
GR   416  336.71     412  573.25     410    1000     408 1057.73     406  1062.5
GR   404 1066.61     402 1069.28  396.95 1071.62  396.95 1098.03     402 1101.81
GR   404 1103.66     406 1107.31     408 1108.11     410  1154.7     412 1179.08
GR   418 1295.86
NC  0.12    0.12   0.015     0.1     0.3
ET                   7.1                         1112.44 1193.06
X1  5296      16 1112.44 1193.06  150.12  150.05  151.86
GR   414  601.85     410    1000     410 1112.44     408 1134.42     406 1139.33
GR   404 1144.54     402 1148.81     400 1151.02     400 1173.16     402 1178.93
GR   404 1183.34     408 1184.54     410 1193.06     412 1226.78     414 1339.18
GR   420 1408.09
ET                   7.1                         1072.93 1139.56
X1  5628      13 1072.93 1139.56  313.13  312.44  332.36
GR   426  501.05     416  683.66     412    1000     410 1072.93     408 1085.33
GR   402 1089.03     402 1135.05     408 1137.43     410 1139.56     412 1257.23
GR   414 1270.44     416 1321.21     420  1503.1
ET                   7.1                         1379.08 1472.43
X1  5731      14 1379.08 1472.43   92.01   95.02   92.02
GR   426  815.33     416    1000     414 1158.31     412 1379.08     410 1390.14
GR   408 1401.16     406 1405.05     406 1449.84     408 1453.65     410  1456.2
GR   412 1472.43     414 1577.18     416 1597.53     420 1795.29
NC                           0.3     0.5
ET                   7.1                            1127 1190.84
* Santa Barbara & Newyork
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* Culvert
X1  5807      12    1127 1190.84   88.01   92.09    91.2
GR   426  528.92     416  718.01     412    1000     410    1127     408 1134.26
GR   403 1137.12     403  1181.2     408 1186.38     410 1190.84     412 1214.33
GR   414 1325.98     420 1532.06
ET                   7.1                         1118.03  1180.8
SC 4.015     0.5     2.5    62.1       5       9      33    10.1  403.47  403.47
X1  5840      12 1118.03  1180.8    33.2   34.55   32.82
X2                     2          410.28
GR   426   506.4     416  708.57     412    1000     410 1118.03     408 1124.19
GR   403 1128.59     403 1170.06     408 1175.99     410  1180.8     412 1195.63
GR   414 1308.78     420 1543.65
NC                           0.1     0.3
ET                   7.1                         1126.92 1223.98
X1  5985      13 1126.92 1223.98  120.64  214.86  145.41
GR   426  523.18     416  739.91     414    1000     414 1126.92     412  1136.8
GR   410 1144.44   404.5 1150.35   404.5 1187.04     410 1189.75     412 1202.58
GR   414 1223.98     418  1337.8     422 1469.98
NC                           0.3     0.5
ET                   7.1                          1051.6 1137.92
* Santa Clara between Newyork & Canada
* Culvert
X1  6127      15  1051.6 1137.92  103.25  177.44  141.92
GR425.85  518.92     416  736.63     414    1000     414  1051.6     412 1061.97
GR   410 1067.97  406.58 1071.11  406.58 1118.18     410 1124.07     412 1131.34
GR   414 1137.92     416 1166.79     416 1226.08     416 1247.27     422 1440.22
ET                   7.1                         1053.18 1131.61
SC 4.015     0.5     2.5      67       5      10      22    10.1  406.58  406.58
X1  6150      13 1053.18 1131.61   20.94   22.61   22.47
X2                     2          414.73
GR   426  534.59     416  749.27     414    1000     414 1053.18     412 1058.96
GR   410 1065.48  406.58 1070.44  406.58 1112.89     410 1119.49     412 1127.48
GR   414 1131.61     416 1250.15     422  1478.8
NC                           0.1     0.3
ET                   7.1                         1100.92 1198.11
X1  6341      15 1100.92 1198.11   207.1  167.74  190.93
GR   420  840.21     416    1000     416 1100.92     414  1129.7     412 1132.47
GR   410 1138.69     407 1142.14     407 1179.12     410 1183.77     412 1187.34
GR   414 1193.99     416 1198.11     416  1268.8     416 1313.64     420 1453.83
NC                           0.3     0.5
ET                   7.1                         1049.67 1118.26
* Pecan between India & Newyork
* Culvert
X1  6535      15 1049.67 1118.26  185.68   194.1  194.81
GR   422  658.29     420  735.53     418  959.93     416    1000     414 1049.67
GR   412 1056.83   407.5 1059.63   407.5 1110.05     412 1115.88     414 1118.26
GR   416 1134.53     416 1146.82     416 1173.39     418 1214.61     420 1338.15
ET                   7.1                         1038.89 1110.82
SC 4.015     0.5     2.5      88       5      10      63    10.1   407.5   407.5
X1  6598      16 1038.89 1110.82   59.26   65.98   62.62
X2                     2          414.55
GR   422  675.42     420  721.54     420    1000     420 1002.12     418 1023.45
GR   416 1035.69     414 1038.89     412 1046.15   407.5 1054.61   407.5 1101.19
GR   412 1107.27     414 1110.82     416 1127.48     418 1209.46     420 1294.92
GR   422 1361.66
NC                           0.1     0.3
ET                   7.1                         1085.77 1173.82
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X1   6771        17 1085.77 1173.82  157.51  184.73  172.36
GR    422  775.05       420  835.85     422    1000     422 1053.13     420 1072.44
GR    418 1085.77       416 1096.98     414    1100     412 1104.78  407.55  1112.6
GR407.55 1146.01       412 1153.78     414 1161.33     416 1166.81     418 1173.82
GR    420 1297.95       422 1461.92
NC                              0.3     0.5
ET                      7.1                             1176.33 1257.58
* San Salvador between India & Canada
* Culvert
X1   6902        15 1176.33 1257.58  132.86   129.3  131.67
GR    422  895.02       420    1000     418 1176.33     416 1180.28     414 1186.28
GR    412  1189.2  408.61 1192.23  408.61 1241.44     412 1243.86     414 1246.64
GR    416  1251.6       416 1251.65     418 1257.58     420 1498.45     424 1603.84
ET                      7.1                             1185.88 1262.89
SC 4.015      0.5       2.5      64       5      10      28    10.1  408.61  408.61
X1   6930        14 1185.88 1262.89   27.42   28.65   28.03
X2                        2          416.84
GR    422  907.07       420    1000     418 1185.88     416 1193.57     414 1199.63
GR    412 1205.88  408.61 1208.61  408.61 1230.77     412 1238.97     414 1244.09
GR    416  1251.3       418 1262.89     420 1514.85     424 1612.07
NC                              0.1     0.3
ET                      7.1                             1058.03 1186.08
X1   6992        17 1058.03 1186.08   59.77   60.37   61.56
GR    424   751.9       420    1000     420 1058.03     418 1070.13     416  1080.7
GR    414 1087.34       412 1096.71     410 1102.29     410 1107.34     412 1122.27
GR    414 1128.19       416 1136.06     418 1147.62     420 1186.08     422 1213.63
GR    422 1335.09       424 1406.54
NC                              0.3     0.5
QT      2     944      1218
ET                      7.1                             1108.18 1176.59
* Pine St. between Smith and India
X1   7315        17 1108.18 1176.59  334.53  286.43  317.64
GR    430  542.79       426  690.18     424  895.35     424    1000     422 1108.18
GR    420 1124.95       418 1134.04  414.29 1142.24  414.29 1142.29  414.29 1155.48
GR    418 1162.23       420 1167.98     422 1170.98     424 1176.59     426 1270.82
GR    428 1382.86       434 1564.96
EJ
T1       CF0029
T2       Chacon Creek Watershed - City of Laredo
T3       Tinaja Creek , 12/10/98
J1                3                                        2108  357.95
J2     15                -1


ER
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FLOODWAY DATA, Tinaja Creek Channel
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WATER SURFACE ELEVATION WITHOUT FLOODWAY	WATER SURFACE ELEVATION DIFFERENCE
.000	133.	516.	4.1	358.0	357.0	1.0
10.000	135.	497.	4.2	358.0	357.0	1.0
38.000	149.	465.	4.5	358.0	357.1	.9
50.000	157.	450.	4.7	358.1	357.2	.9
214.000	50.	190.	11.1	362.0	362.0	.0
365.000	97.	411.	5.1	366.0	366.0	.0
532.000	74.	427.	4.9	367.0	367.0	.0
707.000	46.	233.	9.1	367.9	367.9	.0
982.000	77.	392.	5.4	371.7	371.7	.0
1101.000	83.	423.	5.0	372.5	372.5	.0
1388.000	72.	340.	6.2	374.5	374.5	.0
1696.000	209.	657.	3.2	376.9	376.8	.1
1837.000	171.	505.	4.2	377.6	377.5	.1
2242.000	50.	190.	11.1	384.6	384.6	.0
2572.000	104.	560.	3.8	389.0	389.0	.0
2949.000	49.	236.	8.9	390.6	390.6	.0
3312.000	115.	608.	3.5	393.8	393.8	.0
3582.000	90.	574.	3.7	394.4	394.4	.0
3850.000	113.	579.	3.6	395.1	395.1	.0
3874.000	101.	418.	5.0	395.1	395.1	.0
4105.000	68.	511.	4.1	400.4	400.4	.0
4467.000	42.	178.	11.8	399.9	399.9	.0
4956.000	45.	190.	11.1	403.0	403.0	.0
5115.000	47.	288.	7.3	404.6	404.6	.0
5144.000	46.	318.	6.6	406.4	406.4	.0
5296.000	44.	188.	11.2	405.6	405.6	.0
5628.000	51.	239.	8.8	406.9	406.9	.0
5731.000	65.	207.	10.2	409.9	409.9	.0
5807.000	64.	457.	4.6	411.6	411.6	.0
5840.000	63.	524.	4.0	412.8	412.8	.0
5985.000	77.	386.	5.5	412.7	412.7	.0
6127.000	75.	354.	6.0	412.7	412.7	.0
6150.000	78.	512.	4.1	415.0	415.0	.0
6341.000	80.	409.	5.2	414.9	414.9	.0
6535.000	69.	447.	4.7	415.1	415.1	.0
6598.000	72.	543.	3.9	416.3	416.3	.0
6771.000	72.	444.	4.7	416.2	416.2	.0
6902.000	73.	444.	4.7	416.3	416.3	.0
6930.000	76.	403.	5.2	417.9	417.9	.0
6992.000	75.	306.	6.9	417.7	417.7	.0
7315.000	38.	120.	10.2	419.3	418.7	.6

TINAJA CREEK HEC-2 MODEL
(Floodway - Method 4)

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C
C     14
C     10Meadow Street Bridge
C   3874Hwy. 83 - Santa Barbara & Napolean
C   3874Box Culvert
C   5115Santa Barbara & Louisiana
C   5115Culvert
C   5807Santa Barbara & Newyork
C   5807Culvert
C   6127Santa Clara between Newyork & Canada
C   6127Culvert
C   6535Pecan between India & Newyork
C   6535Culvert
C   6902San Salvador between India & Canada.
C   6902Culvert
C   7315Pine St. between Smith and India
T1      Method 4 - Floodway Model
T2      Chacon Creek Watershed - City of Laredo, Texas.  1988 NAVD
T3        Tinaja   Creek  Channel        Dec. 1998
J1             2                                           2108  356.95
J2       1             -1
J3     110     200
NC    0.06    0.06   0.065     0.1     0.3
ET                   -10.4
X1       0      21 1073.08 1216.36
GR     382    1000     380 1068.72     370 1071.64     360 1073.08     352 1083.69
GR     352 1101.83     354 1106.78     356 1111.22     358 1112.79     358    1130
GR     356 1136.24     354 1142.69     352 1151.36     352 1185.46     354 1193.08
GR     356 1203.87     358  1209.3     360 1216.36     370 1239.76     380 1263.18
GR     382 1297.59
NC 0.065   0.065    0.06     0.3     0.5
* Meadow Street Bridge
X1      10      20 1070.03 1212.11   12.04   12.79    9.83
GR     382    1000     380 1066.58     370 1069.25     360 1070.03     352 1080.62
GR     352 1098.05     354 1103.21     356 1106.68     358 1108.54     358  1134.5
GR     356 1140.15     354  1145.7     352 1154.31     352 1187.87     354 1195.15
GR     356 1203.43     360 1212.11     370 1236.04     380 1260.36     382 1305.03
NC    0.06    0.06   0.065
SB    1.05     1.5     2.5  300.13   85.07       6 3973.14 1.87015  351.91  351.91
X1      38      18 1026.75  1183.5   29.79   25.16   28.01
X2                       1  381.90     384                    1.33
GR     382    1000     380 1024.04     370 1025.28     360 1026.75     352 1037.45
GR     352    1051     354 1058.26     358 1063.01     360 1077.08     360 1101.34
GR     358 1112.33     354 1121.28     352 1128.34     352 1164.27     360  1183.5
GR     370 1202.96     380 1223.93     382 1272.04
NC                                 0.1     0.3
X1      50      18 1039.44 1202.12    9.44    8.99   12.18
GR     382    1000     380 1002.77     370 1032.47     360 1039.44     352 1048.83
GR     352    1062     354 1068.94     358 1074.71     360 1081.57     360 1126.77
GR     358 1136.01     354 1144.62     352 1154.14     352 1187.29     360 1202.12
GR     370 1225.21     380 1241.63     382 1299.46
X1     214      18 1019.35 1139.28  112.81  209.22  164.23
GR     374  907.72     370  940.47     368    1000     366 1019.35     364 1040.17
GR     362    1060     360 1073.53     356  1081.9     354 1088.18     354 1092.41
GR     356 1097.71     360 1102.72     362 1108.52     364 1133.33     366 1139.28
GR     368 1166.73     368 1166.74     372  1322.2
X1     365      26 1140.97 1348.94  114.83  153.06  150.64
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GR   378    1000     376 1006.26     376 1006.27     374 1012.39     372 1021.26
GR   370 1140.97     368 1163.53     366 1203.08     364 1221.54     362 1232.48
GR   360 1241.18     356 1253.12     356  1260.6     358  1264.8     360 1267.46
GR   362 1275.27     364 1289.54     366 1300.59     368 1328.17     368 1328.28
GR   370 1348.94     372 1358.72     374 1390.11     376 1424.38     378  1439.4
GR   380 1449.18
X1   532      20 1109.16 1245.67   177.8  211.35  166.91
GR   390    1000     380 1026.01     378 1035.46     376 1058.21     374 1097.69
GR   372 1109.16     370 1125.64     360 1149.54     358 1163.84     358 1175.94
GR   360 1183.88     362 1190.16     364 1198.38     366  1203.2     368 1209.66
GR   370 1231.05     372 1245.67     374 1315.22     380 1338.87     390 1350.04
X1   707      18 1107.05 1196.95  144.12  164.97  175.01
GR   392    1000     392 1087.98     390 1093.07     380 1107.05     370 1121.32
GR   360 1139.97     360 1153.72     362 1156.17     364 1161.66     366 1169.08
GR   368  1171.4     370 1176.26     380 1196.95     382    1209     384 1213.23
GR   386 1296.72     390 1328.58     390 1332.29
X1   982      21 1006.87 1115.31  323.19  196.11  275.26
GR   398  859.77     396  989.61     390    1000     380 1006.87     370 1014.93
GR   368 1019.13     366 1021.23     364 1025.56     364 1047.23     366 1055.25
GR   368 1071.62     370 1085.31     372 1091.09     374 1100.11     376 1104.55
GR   378 1112.13     380 1115.31     384 1120.68     386 1121.11     390 1126.26
GR   390 1160.89
NC  0.06    0.06   0.065
X1  1101      18 1020.72 1155.41  103.01   120.6  118.88
GR   398  899.83     390    1000     380 1020.72     372  1038.7     370 1050.06
GR   366    1065     364 1071.73     364 1092.25     366 1100.84     368 1104.38
GR   370 1108.19     372 1116.89     374 1131.72     376  1146.3     378 1149.28
GR   380 1155.41     390 1171.92     394 1308.77
NC                           0.1     0.3
X1  1388      18  1138.7 1391.87  112.02  280.82  287.32
GR   390    1000     380 1012.03     374 1024.19     374 1051.55     376 1061.66
GR   378  1066.6     378  1138.7     376  1291.5     374 1315.72     372 1325.62
GR   370 1333.81     366 1337.42     368 1340.66     366 1358.07     368 1366.44
GR   370 1372.71     380 1391.87     390 1399.68
X1  1696      28 1099.75 1400.39  172.85  337.35  307.32
GR   390    1000     380 1013.18     374 1024.35     374 1030.63     376 1036.28
GR   378 1046.22     378 1099.75     376 1108.61     374 1126.47     372 1138.21
GR   370 1153.14     368  1159.8     368 1176.76     370 1179.93     372 1199.43
GR   374 1214.09     376 1241.36     378 1398.19     380 1400.39     390 1406.03
GR   392 1410.37     394 1414.42     396 1417.89     398 1429.22     400 1432.76
GR   402 1447.09     404 1459.12     406 1472.47
X1  1837      19 1050.53 1233.63  114.61  174.54     141
GR   390    1000     380 1009.92     378 1015.47     376 1020.99     376 1022.91
GR   378 1025.47     378 1050.53     376 1070.76     374 1103.83     372 1122.43
GR   372 1150.83     374 1168.75     376 1184.68     378 1233.63     380  1245.3
GR   382 1247.64     384 1252.45     386 1254.25     390 1258.11
X1  2242      18 1048.89 1125.56  386.56  404.47  405.79
GR   400    1000     398 1016.33     396 1026.46     394 1031.98     392 1040.91
GR   390 1048.89     380 1063.87     380 1098.08     382 1099.01     384  1106.4
GR   386 1108.41     388 1112.81     390 1125.56     392 1130.21     394 1250.51
GR   396 1256.73     398 1309.44     400 1324.28
X1  2572      22  1069.3 1185.39  321.87  315.94   329.6
GR   400    1000     398 1006.26     396 1013.62     396 1013.62     394 1016.92
GR   392 1026.03     390  1069.3     388 1088.26     386 1097.38     384 1110.48
GR   382  1119.7     380 1124.32     380 1150.46     382 1156.86     384 1164.97
GR   386 1178.26     390 1185.39     392 1195.07     394 1203.75     396 1207.76
GR   398 1235.95     400 1261.28
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X1   2949       17 1100.99 1197.71  380.14  373.06   377.4
GR    404     1000     402 1095.53     400 1100.99     398 1107.05     396  1111.6
GR    394  1116.19     392 1124.36     390 1128.56     388 1131.94     386 1136.04
GR    384   1138.2     384  1163.3     386 1165.84     390 1174.56     400 1197.71
GR    402  1206.24     404  1252.6
X1   3312       24 1032.29 1192.43  350.95  392.57  363.03
GR    404     1000     402 1019.37     400 1025.75     398 1032.29     396  1039.1
GR    394  1046.32     392 1051.46     390 1054.17     390 1054.38     388 1096.65
GR    388  1096.74     386 1104.44     384  1109.1     384 1126.72     386 1131.86
GR    388  1134.08     390 1137.84     392 1151.65     394  1162.4     396  1177.4
GR    398  1192.43     400 1201.38     402 1215.15     404 1267.61
X1   3582       20 1086.34 1219.78   278.5  258.02  269.61
GR    406     1000     404 1037.29     402 1059.79     400 1086.34     398 1094.82
GR    396  1113.98     394  1117.7     392 1120.58     390 1132.27     388 1146.55
GR    386  1149.88     384 1157.97     384 1175.88     386 1180.81     388 1186.39
GR    390  1195.87     400 1219.78     402 1232.21     404 1300.63     406 1311.52
NC   0.12     0.12   0.065
X1   3850       25  1033.4  1169.6  318.48  209.93  267.49
GR    410   670.88     408  823.67     406    1000     404 1017.59     402  1027.1
GR    400   1033.4     398 1037.44     396  1040.5     394 1043.63     392 1048.76
GR    390  1085.79     388 1087.36     386 1088.31     386 1112.13     388 1118.63
GR    390  1126.76     392 1137.75     394  1150.7     396 1157.28     398 1162.92
GR    400   1169.6     402 1242.74     404 1279.34     406 1383.37     410  1557.4
NC   0.12     0.12   0.015     0.3     0.5
* Hwy. 83 - Santa Barbara & Napolean
* Box Culvert
X1   3874       28 1067.35 1203.22   34.24   17.92   24.13
GR    410   720.18     408  870.68     408    1000     406  1036.1     404 1049.45
GR    402   1059.8     400 1067.35     398 1074.01     396 1078.96     394 1086.18
GR    392  1111.13     390 1117.09     386 1119.18     388 1119.37     386 1119.55
GR    386  1146.25     388 1147.58     390  1148.5     392 1151.46     394 1173.74
GR    396  1190.81     398  1196.1     400 1203.22     402 1263.14     404  1313.4
GR    406  1324.16     406 1386.23     410 1572.23
NC   0.12     0.12   0.015
SC  2.015      0.4     2.5  246.14       8      10     291     8.1   386.6   386.6
X1   4105       25 1098.74 1197.51  194.84  245.13  230.93
X2                       2           404.3
GR    410   794.59     406    1000     404 1098.74     402 1108.43     400 1112.72
GR    398  1114.74     396 1120.87     394 1132.88     392 1134.77     390 1141.25
GR    388  1142.22     386 1144.47     386 1154.92     388  1158.8     390 1161.94
GR    394  1167.24     396 1167.54     398 1172.66     400 1177.59     402 1192.23
GR    404  1197.51     406 1236.42     408 1329.19     410 1455.62     416 1685.02
NC   0.12     0.12   0.065     0.1     0.3
X1   4467       17 1084.25 1198.19  414.31  295.13  362.52
GR    410   753.77     406    1000     404 1084.25     402 1124.22     400 1138.39
GR    398  1144.72     396 1148.51     394 1154.96     394 1171.41     396 1175.23
GR    398  1179.44     400 1180.16     402 1190.25     404 1198.19     406 1243.79
GR    408  1340.98     416 1532.76
NC   0.12     0.12   0.015
X1   4956       19    1128 1195.16  536.44  469.26  488.56
GR    412   647.09     410    1000     408    1128     406 1135.48     404 1139.76
GR    402  1144.06     400 1151.79     396 1162.15     398 1163.99     396 1175.72
GR    398  1178.67     400 1183.69     404 1185.36     402 1185.82     406 1188.38
GR    408  1195.16     410 1221.75     412    1291     418 1410.84
NC   0.12     0.12   0.015     0.3     0.5
* Santa Barbara & Louisiana
* Culvert
```

```
X1  5115      16    1089 1148.09  127.64   159.5  159.31
GR   416  354.95     412  586.38     410    1000     408    1089     406 1091.85
GR   404 1097.93     402 1100.34  396.95 1102.43  396.95 1135.03     402 1138.88
GR   404 1141.86     406  1144.9     408 1148.09     410 1182.81     412 1207.02
GR   418 1328.16
NC                 0.015
SC 3.015     0.5     2.5      64       9       9      29    10.1  396.95  396.95
X1  5144      16 1057.73 1108.11   28.93    30.6    28.9
X2                     2          409.95
GR   416  336.71     412  573.25     410    1000     408 1057.73     406  1062.5
GR   404 1066.61     402 1069.28  396.95 1071.62  396.95 1098.03     402 1101.81
GR   404 1103.66     406 1107.31     408 1108.11     410  1154.7     412 1179.08
GR   418 1295.86
NC  0.12    0.12   0.015     0.1     0.3
X1  5296      16 1112.44 1193.06  150.12  150.05  151.86
GR   414  601.85     410    1000     410 1112.44     408 1134.42     406 1139.33
GR   404 1144.54     402 1148.81     400 1151.02     400 1173.16     402 1178.93
GR   404 1183.34     408 1184.54     410 1193.06     412 1226.78     414 1339.18
GR   420 1408.09
X1  5628      13 1072.93 1139.56  313.13  312.44  332.36
GR   426  501.05     416  683.66     412    1000     410 1072.93     408 1085.33
GR   402 1089.03     402 1135.05     408 1137.43     410 1139.56     412 1257.23
GR   414 1270.44     416 1321.21     420  1503.1
X1  5731      14 1379.08 1472.43   92.01   95.02   92.02
GR   426  815.33     416    1000     414 1158.31     412 1379.08     410 1390.14
GR   408 1401.16     406 1405.05     406 1449.84     408 1453.65     410  1456.2
GR   412 1472.43     414 1577.18     416 1597.53     420 1795.29
NC                           0.3     0.5
* Santa Barbara & Newyork
* Culvert
X1  5807      12    1127 1190.84   88.01   92.09    91.2
GR   426  528.92     416  718.01     412    1000     410    1127     408 1134.26
GR   403 1137.12     403  1181.2     408 1186.38     410 1190.84     412 1214.33
GR   414 1325.98     420 1532.06
SC 4.015     0.5     2.5    62.1       5       9      33    10.1  403.47  403.47
X1  5840      12 1118.03  1180.8    33.2   34.55   32.82
X2                     2          410.28
GR   426   506.4     416  708.57     412    1000     410 1118.03     408 1124.19
GR   403 1128.59     403 1170.06     408 1175.99     410  1180.8     412 1195.63
GR   414 1308.78     420 1543.65
NC                           0.1     0.3
X1  5985      13 1126.92 1223.98  120.64  214.86  145.41
GR   426  523.18     416  739.91     414    1000     414 1126.92     412  1136.8
GR   410 1144.44   404.5 1150.35   404.5 1187.04     410 1189.75     412 1202.58
GR   414 1223.98     418  1337.8     422 1469.98
NC                           0.3     0.5
* Santa Clara between Newyork & Canada
* Culvert
X1  6127      15  1051.6 1137.92  103.25  177.44  141.92
GR425.85  518.92     416  736.63     414    1000     414  1051.6     412 1061.97
GR   410 1067.97  406.58 1071.11  406.58 1118.18     410 1124.07     412 1131.34
GR   414 1137.92     416 1166.79     416 1226.08     416 1247.27     422 1440.22
SC 4.015     0.5     2.5      67       5      10      22    10.1  406.58  406.58
X1  6150      13 1053.18 1131.61   20.94   22.61   22.47
X2                     2          414.73
GR   426  534.59     416  749.27     414    1000     414 1053.18     412 1058.96
GR   410 1065.48  406.58 1070.44  406.58 1112.89     410 1119.49     412 1127.48
```

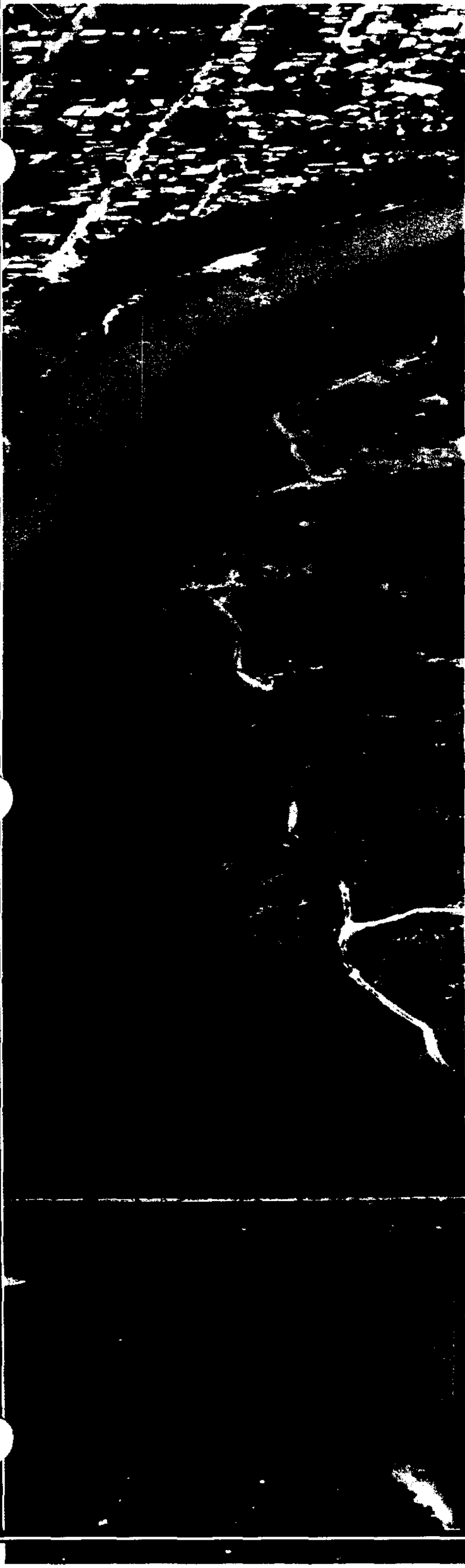
```
GR   414 1131.61     416 1250.15     422  1478.8
NC                           0.1     0.3
X1  6341      15 1100.92 1198.11   207.1  167.74  190.93
GR   420  840.21     416    1000     416 1100.92     414  1129.7     412 1132.47
GR   410 1138.69     407 1142.14     407 1179.12     410 1183.77     412 1187.34
GR   414 1193.99     416 1198.11     416  1268.8     416 1313.64     420 1453.83
NC                           0.3     0.5
* Pecan between India & Newyork
* Culvert
X1  6535      15 1049.67 1118.26  185.68   194.1  194.81
GR   422  658.29     420  735.53     418  959.93     416    1000     414 1049.67
GR   412 1056.83   407.5 1059.63   407.5 1110.05     412 1115.88     414 1118.26
GR   416 1134.53     416 1146.82     416 1173.39     418 1214.61     420 1338.15
SC 4.015     0.5     2.5      88       5      10      63    10.1   407.5   407.5
X1  6598      16 1038.89 1110.82   59.26   65.98   62.62
X2                     2          414.55
GR   422  675.42     420  721.54     420    1000     420 1002.12     418 1023.45
GR   416 1035.69     414 1038.89     412 1046.15   407.5 1054.61   407.5 1101.19
GR   412 1107.27     414 1110.82     416 1127.48     418 1209.46     420 1294.92
GR   422 1361.66
NC                           0.1     0.3
X1  6771      17 1085.77 1173.82  157.51  184.73  172.36
GR   422  775.05     420  835.85     422    1000     422 1053.13     420 1072.44
GR   418 1085.77     416 1096.98     414    1100     412 1104.78  407.55  1112.6
GR407.55 1146.01     412 1153.78     414 1161.33     416 1166.81     418 1173.82
GR   420 1297.95     422 1461.92
NC                           0.3     0.5
* San Salvador between India & Canada
* Culvert
X1  6902      15 1176.33 1257.58  132.86   129.3  131.67
GR   422  895.02     420    1000     418 1176.33     416 1180.28     414 1186.28
GR   412  1189.2  408.61 1192.23  408.61 1241.44     412 1243.86     414 1246.64
GR   416  1251.6     416 1251.65     418 1257.58     420 1498.45     424 1603.84
SC 4.015     0.5     2.5      64       5      10      28    10.1  408.61  408.61
X1  6930      14 1185.88 1262.89   27.42   28.65   28.03
X2                     2          416.84
GR   422  907.07     420    1000     418 1185.88     416 1193.57     414 1199.63
GR   412 1205.88  408.61 1208.61  408.61 1230.77     412 1238.97     414 1244.09
GR   416  1251.3     418 1262.89     420 1514.85     424 1612.07
NC                           0.1     0.3
X1  6992      17 1058.03 1186.08   59.77   60.37   61.56
GR   424   751.9     420    1000     420 1058.03     418 1070.13     416  1080.7
GR   414 1087.34     412 1096.71     410 1102.29     410 1107.34     412 1122.27
GR   414 1128.19     416 1136.06     418 1147.62     420 1186.08     422 1213.63
GR   422 1335.09     424 1406.54
NC                           0.3     0.5
QT     2     944    1218
* Pine St. between Smith and India
X1  7315      17 1108.18 1176.59  334.53  286.43  317.64
GR   430  542.79     426  690.18     424  895.35     424    1000     422 1108.18
GR   420 1124.95     418 1134.04  414.29 1142.24  414.29 1142.29  414.29 1155.48
GR   418 1162.23     420 1167.98     422 1170.98     424 1176.59     426 1270.82
GR   428 1382.86     434 1564.96
EJ
T1       CF0029
T2       Chacon Creek Watershed - City of Laredo
T3       Tinaja Creek , 12/10/98
```

J1		3			
J2	15		-1	2108	357.95

ER

FLOODWAY DATA - METHOD 4, Tinaja Creek Channel
PROFILE NO. 2

STATION	------- FLOODWAY ------- WIDTH	SECTION AREA	MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
.000	133.	516.	4.1	358.0	357.0	1.0
10.000	135.	497.	4.2	358.0	357.0	1.0
38.000	150.	474.	4.5	358.1	357.1	1.0
50.000	157.	459.	4.6	358.1	357.2	.9
214.000	50.	190.	11.1	362.0	362.0	.0
365.000	97.	411.	5.1	366.0	366.0	.0
532.000	74.	426.	4.9	367.0	367.0	.0
707.000	46.	233.	9.0	367.9	367.9	.0
982.000	77.	392.	5.4	371.7	371.7	.0
1101.000	83.	423.	5.0	372.5	372.5	.0
1388.000	72.	340.	6.2	374.5	374.5	.0
1696.000	209.	657.	3.2	376.9	376.8	.1
1837.000	171.	506.	4.2	377.6	377.5	.1
2242.000	50.	190.	11.1	384.6	384.6	.0
2572.000	104.	560.	3.8	389.0	389.0	.0
2949.000	49.	236.	8.9	390.6	390.6	.0
3312.000	115.	609.	3.5	393.8	393.8	.0
3582.000	90.	574.	3.7	394.4	394.4	.0
3850.000	113.	579.	3.6	395.1	395.1	.0
3874.000	101.	418.	5.0	395.1	395.1	.0
4105.000	68.	512.	4.1	400.4	400.4	.0
4467.000	42.	178.	11.8	399.9	399.9	.0
4956.000	45.	190.	11.1	403.0	403.0	.0
5115.000	47.	288.	7.3	404.6	404.6	.0
5144.000	46.	317.	6.6	406.4	406.4	.0
5296.000	43.	187.	11.3	405.6	405.6	.0
5628.000	51.	240.	8.8	406.9	406.9	.0
5731.000	65.	207.	10.2	409.9	409.9	.0
5807.000	64.	457.	4.6	411.6	411.6	.0
5840.000	63.	524.	4.0	412.8	412.8	.0
5985.000	77.	386.	5.5	412.7	412.7	.0
6127.000	75.	353.	6.0	412.7	412.7	.0
6150.000	78.	513.	4.1	415.0	415.0	.0
6341.000	80.	409.	5.2	414.9	414.9	.0
6535.000	69.	447.	4.7	415.1	415.1	.0
6598.000	72.	543.	3.9	416.3	416.3	.0
6771.000	72.	444.	4.7	416.2	416.2	.0
6902.000	73.	444.	4.7	416.3	416.3	.0
6930.000	76.	402.	5.2	417.9	417.9	.0
6992.000	75.	306.	6.9	417.7	417.7	.0
7315.000	38.	120.	10.2	419.3	418.7	.6



STORMWATER MASTER DRAINAGE PLANS FOR THE CHACON CREEK WATERSHED (INTERIM AND ULTIMATE CONDITIONS)

City of Laredo and Webb County, Texas
November, 1999

Prepared For:
City of Laredo
Webb County
Webb County Drainage District No. 1
The Texas Water Development Board

Brown & Root

TOBIN

Storm Water Master Drainage Plans for the Chacon Creek Watershed

INTERIM CONDITIONS

City of Laredo and Webb County, Texas
November 1999

Prepared For:
City of Laredo
Webb County
Webb County Drainage District No. 1
The Texas Water Development Board

STATE OF TEXAS
SHASHI KRISHNAPPA
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LICENSED
PROFESSIONAL ENGINEER

3/13/2000

Brown & Root Services
Engineered by Halliburton Tech. Services, Inc.

TOBIN

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STORMWATER MASTER DRAINAGE PLANS
FOR THE CHACON CREEK WATERSHED
CITY OF LAREDO AND WEBB COUNTY, TEXAS

INTERIM CONDITIONS

1.0 EXECUTIVE SUMMARY

The interim drainage plan provides the recommended improvements and the associated preliminary construction costs for implementation to minimize flooding from the 100-year design storm. The interim drainage plan also presents a "buy-out" alternative for structures located in the 100-year floodplain. The interim conditions are based on existing conditions in the watershed. The recommended drainage improvement plan for each channel was designed to relieve the existing flooding conditions identified in the Updated Flood Insurance Study. These improvements are compatible with the ultimate drainage plan improvements for the different channels. These costs are also independent of the ultimate drainage plan recommendations. The cost of implementing proposed drainage improvements for all the channels in the watershed is approximately 40 million dollars. The proposed improvements would eliminate or minimize the flooding potential due to the 100-year design storm.

The cost associated with the non-structural "buy-out" alternative is 24 million dollars. The "buy-out" alternative is based on preliminary cost estimates and did not consider other potential issues such as public discontent and legal issues associated with removing structures from the floodplain. For the interim conditions, the cost of drainage improvements is less than the cost associated with "buy-out" for the Tinaja Creek and Chacon Creek Channels. "Buy-out" alternative is the cost-effective option for Tributary 1, Tributary 2, Tributary 3 and 3A channels.

However, a combination of drainage improvements and "buy-out" is the recommended cost-effective solution to mitigate the flooding problem in the watershed. The estimated cost for this alternative is 22 million dollars. These cost estimates can be used for planning, budgeting, and scheduling the implementation of the improvements. Detailed engineering studies and designs should be performed before implementing the recommendations identified in this study.

2.0 INTRODUCTION

2.1 Purpose of Study

The purpose of this work effort consists of developing an interim drainage improvement plan for Chacon Creek and tributaries. The interim plan consists of recommendations for infrastructure improvements (channel, bridges, detention ponds, etc.) and estimated costs consistent with the proposed ultimate drainage plan and eliminates the existing flooding problems caused by the 100-year frequency storm. The parameters such as the percent of urbanization within each watershed were developed in the Flood Insurance Study. The existing development hydrologic (HEC-1) models were developed and provided the amount of the rainfall runoff discharge that would result from the January 1994 development plan.

The existing development hydraulic (HEC-2) models were developed and resulted in identifying existing flooding problems within each sub-watershed due to inadequate channel capacity or bridge restrictions.

2.2 Interim and Ultimate Drainage Plans

The following sections present several interim infrastructure improvement scenarios for each studied stream (consistent with the ultimate drainage plan) which were evaluated with the goal of accommodating the existing development discharges and decreasing the flooding at critical locations along the studied streams. The ultimate drainage plan is presented in another accompanying report.

3.0 STUDY AREA AND SCOPE

3.1 Watershed Description

Chacon Creek is one of the major drainage systems in Laredo and Webb County, Texas. Chacon Creek has a drainage area of approximately 155 square miles that drain south and southwesterly into the Rio Grande. Within the Chacon Creek watershed there are five (5) distinct drainage systems.

3.2 Scope of Study

This task provides recommendations for interim infrastructure improvements along with associated costs for each of the drainage systems. These improvements are necessary to accommodate existing development within the watershed. The recommended interim improvements are compatible with the recommended improvements for the ultimate condition and will eliminate flooding of residential structures by the 100-year event flood.

This task provides the City with the preliminary infrastructure requirements and associated cost estimates that can be used for planning, budgeting, and scheduling the implementation of the interim improvements. The streams studied consist of:

1.) Chacon Creek, from the Rio Grande upstream to Lake Casablanca, for a total length of 34,421 linear feet, and Upstream of Lake Casablanca
2.) Tinaja Creek, Tributary to Chacon Creek at River Mile 0.20 for a total length of 7,315 linear feet, and
3.) Tributary No. 1, Tributary to Chacon Creek at River Mile 1.84 for a total length of 14,607 linear feet, and
4.) Tributary No. 2, Tributary to Chacon Creek at River Mile 3.28, for a total length of 31,348 linear feet, and
5.) Tributary No. 3, Tributary to Chacon Creek at River Mile 6.12, for a total length of 18,012 linear feet, and
6.) Tributary No. 3A, Tributary to Tributary No. 3 at River Mile 1.43, for a total length of 7,679 linear feet.

The studied streams can be seen on Figure 2.

4.0 ENGINEERING METHODS

4.1 Hydrologic Analyses

The existing development hydrologic analyses to compute peak discharges for the Chacon Creek Watershed were determined using the HEC-1 program for storms of selected recurrence intervals. The hydrologic methodology previously developed in the updated Flood Insurance Study was used for this effort. For the purpose of the existing development condition, the peak discharges (Q) for Chacon Creek and its tributaries were calculated based on the January 1994 land use. In addition, the various infrastructure improvement alternatives (discussed in Section 5.0) were remodeled and incorporated into the HEC-1 model to evaluate the effect on downstream areas within each channel. Detailed analyses of the hydrologic characteristics of the Chacon Creek channel and its tributaries were carried out to compute the 10-, 25-, 50-, 100- and 500-year return frequencies.

4.2 Hydraulic Analyses

The existing development hydraulic analyses to compute the water surface elevations (CWSEL) for the Chacon Creek Watershed were determined using the HEC-2 program for the various selected storms. The hydraulic methodology previously developed in the updated Flood Insurance Study was used for this effort. For the purpose of the existing development condition, the peak discharges

(Q) for Chacon Creek and its tributaries were calculated based on the January 1994 land use. In addition, the various infrastructure improvement alternatives (discussed in Section 5.0) were remodeled and incorporated into the HEC-1 model to evaluate the effect on downstream areas within each channel. Detailed analyses of the hydraulic characteristics of the Chacon Creek channel and its tributaries were carried out to compute water surface profiles for various flood frequencies. Water surface profiles for these channels were computed for the 10-, 25-, 50-, 100- and 500-year return frequencies. The effectiveness of the proposed channel improvements is illustrated on the water surface profiles for each channel as presented in Appendix A. The profiles were developed assuming completion of the improvements presented in this report.

5.0 ALTERNATIVE SOLUTIONS

5.1 General

Several alternative improvement plans were evaluated for each of the studied streams. Typical alternative flood control concepts considered consisted of the No-Action Alternative, the Nonstructural Alternative, the Channelization Alternative, the Detention Alternative and any combination of the Alternatives. These alternatives vary from channel to channel since some of the alternatives did not apply to the specific situation. The multiple profile option of HEC-2 was used to compute water surface profiles for the various return frequencies for Chacon Creek and five tributaries. Major findings for each alternative are presented below.

5.2 Upper Chacon Creek Watershed

The Upper Chacon (CU) sub-basin has a total drainage area of approximately 116.9 square miles, and includes Lake Casablanca. The Upper Chacon Creek watershed also includes Tios and San Ygnacio Creeks. The approximate drainage areas of these two basins are 22.11 and 34.21 square miles, respectively. The runoff from this basin drains into Lake Casablanca. As presented in the updated Flood Insurance Study, the sub-watershed parameters were revised and an existing condition hydrologic (HEC-1) model was developed and peak discharges estimated (Table 1). The existing development 100-year discharge is 36,918 cubic feet per second (cfs) for the Upper Chacon Watershed. For the 100-year return frequency, Lake Casablanca attenuates approximately 35% of the peak discharge from the Upper Chacon watershed. The 100-year peak discharge passing downstream to lower Chacon Creek is estimated as 22,535 cfs.

Providing additional storage/detention in the upper watershed would result in producing lower discharges downstream and thus reduce the size of channel required in the lower reaches of Chacon Creek below the Lake. Since the majority of the upper basin is undeveloped, two detention alternatives were evaluated; one was to provide detention within the Upper Chacon, Tios, and San Ygnacio Creeks and the other was to provide additional detention within Lake Casablanca. The results of providing detention within the Upper Chacon, Tios, and San Ygnacio Creeks did not benefit lower Chacon Creek since the control of downstream discharges is by the Lake Casablanca spillway. The Current Lake Casablanca spillway elevation is 446.4 feet mean sea level (msl) and the existing 100-year flood level within the lake is approximately 453.8 feet msl. The results of the alternative to provide more storage within Lake Casablanca did not provide the anticipated benefits. The evaluation of the alternative to raise the spillway elevation by four (4) feet to an elevation of 450.4 feet would reduce the amount of discharge downstream by approximately 841 cfs and increase the Casablanca Lake level to 456.6 feet. The results indicated that this alternative would not be feasible to implement since it would 1.) nominally reduce the discharges downstream of the Lake and, 2.) raise the Lake 100-year flood level by approximately 3 feet and, 3.) increase the flood potential of some existing homes adjacent to the lake.

Pursuant to the Scope of Work for this project, no hydraulic HEC-2 models were developed for the upper Chacon Creek, the Tios, and the San Ygnacio Creeks. Therefore, due to the limited scope and the small amount of development in the area, it is recommended that the Upper Chacon Creek, Tios, and San Ygnacio Creeks can continue to develop as indicated in the Future Land Use Map dated September 15, 1997 (Figure 1). Development should be allowed to proceed with requirements for on-site detention and no building in the 100-year floodplain. Lake Casablanca will be able to accommodate the majority of the drainage from the Upper Chacon Watershed. Site specific channel improvements may be required in the Upper Chacon Creek, Tios, and San Ygnacio Creeks to convey the channel flow through some of the future developed areas to Lake Casablanca.

5.3 Chacon Creek

The Chacon Creek channel begins at the Rio Grande, just south of Meadows Avenue, and extends upstream to Lake Casablanca. The total length of the Chacon Creek channel is approximately 6.52 miles. The downstream portion of the Chacon Creek channel is within the City Limits of Laredo. The upstream portion of the channel is outside the City Limits of Laredo and within Webb County. In this study, Chacon Creek is modeled from the confluence with the Rio Grande on the downstream end and extending for a distance of 34,421 linear feet (the limit of detail study) to the south side of the Lake Casablanca spillway. The average slope of this channel is 14.5 feet per mile. The Chacon Creek channel is not maintained leading to the growth of vegetation and brush at many locations in the channel.

From the existing FIS analyses, the 10-year CWSEL would exceed the elevation of the top of the roadway at four locations; Highway 359, the Texas-Mexican Railroad, Clark Blvd., and Highway 59. The critical bridge section is at the Texas-Mexican Railroad Bridge. The constriction to the flow area of the channel at this bridge significantly raises the CWSEL at all upstream locations. This bridge opening is hydraulically inadequate to accommodate the 100-year peak discharge, resulting in an increase of 11 feet in CWSEL between the downstream side and the upstream side of the bridge. From the existing conditions Flood Insurance Study (FIS) model, the 100-year peak discharge of Chacon Creek at the Rio Grande is 27,722 cfs (Table 1). Four channelization alternatives were evaluated to develop the recommended plan for improvement, which would convey the future 100-year storm within the channel banks. These channelization alternatives were 1.) raising the elevation on the existing Casablanca Lake Spillway to obtain more detention volume within the Lake, 2.) clearing of the existing channel, 3.) concrete lining the channel between the existing bridges to minimize bridge replacements, and 4.) combination of earthen channel improvements between the existing bridges to minimize bridge replacements. The objective was to recommend a plan of improvements that would accommodate the 100-year existing discharge and eliminate flooding problems. Since the difference between the existing condition and the ultimate condition discharges are very small (7% variance), the recommended improvement plan for the ultimate condition is same as the recommended improvement plan for the interim condition, please refer to Table 2 for the comparison of the various scenarios. There are six locations where residential and business properties are within the existing 100-year floodplain and are impacted by the existing inadequate bridge structures. The cost-effective solution is to provide channel improvements so that the discharges from Lake Casablanca can safely pass through these areas. Exhibits 1 and 2 present Earthen Channel Alternatives and Exhibit 3 and 4 present the Concrete Lined Channel Alternatives. With the earthen channel improvement alternatives, four bridges will also need to be replaced. These bridges are at Highway 359, the Texas-Mexican Railroad, Clark Boulevard, and the U.S. Highway 59. The recommended earthen channel improvements range from between a 150 to 250-foot bottom with 3:1 side slopes at varying channel slopes (Exhibits 1 and 2). The estimated cost for these improvements are approximately $20.3 million dollars, please refer to Table 3. The total cost of improvements could be reduced by approximately $5.0 million dollars due to the TxDOT projects in the vicinity of U.S. Hwy. 59 and State Hwy. 359.

The "buy-out" option was also considered in lieu of the channel improvements. However, the "buy-out" cost ($22.4 million) exceeds the costs associated with channel improvements ($ 20.3 million). Also, it may be difficult to relocate a large number of residential structures using the "buy-out" option along the Chacon Creek channel. Channel improvement option is the recommended solution for mitigating the flooding problems along the Chacon Creek Channel.

5.4 Tributary 3 and 3A

The Tributary 3 and 3A watershed has a total drainage area of approximately 5.96 square miles. Tributary 3 of Chacon Creek begins at river mile 6.12 of Chacon Creek, just downstream of the Lake Casablanca spillway, and extends upstream for a distance of approximately 18,032 feet (the limit of detail study). The average slope of this channel is 35 feet per mile. The only major hydraulic structure located across Tributary 3 is a culvert at U.S. Highway 59. Tributary 3A is modeled from the confluence of Tributary 3 and extends upstream for a total distance of 7,679 linear feet (the limit of detail study). No major hydraulic structures are located across Tributary 3A.

The results of the updated FIS HEC-2 model for Tributary 3 indicates that the 10-year and the 50-year CWSEL's will not exceed the roadway elevation at the U.S. 59 crossing. However, the 100-year CWSEL will exceed the roadway elevation at this location. From the existing FIS analyses, the 100-year peak discharge for the Tributary 3 channel at the confluence with Chacon Creek is 5,550 cfs., with only 5% of the basin developed. Since the majority of the existing basin is undeveloped, the combinations of flood control alternatives considered were channelization and detention. Table 5 presents the comparison of the various scenarios. Recommending a regional detention pond at strategic locations will minimize the size of channel downstream improvements required for conveying the 100-year storm. The improvements will consist of clearing the main channel from bank to bank to eliminate the obstruction to the flow caused by the existing overgrown trees and vegetation, please refer to Exhibit 5. The size of the detention pond is approximately 1,450 acre-feet and located downstream of the Tributary 3A. The existing culvert crossing at U. S. Highway 59 will be adequate for existing conditions and is currently under design by the TxDOT Laredo District. The future bridge could be funded with the proposed U. S. Highway 59 Improvements. The estimated cost for these improvements without the Highway 59 bridge is approximately $ 5.7 million dollars (Table 6).

Only one major structure is located in the 100-yr floodplain. The "buy-out" option will be the most cost-effective option to mitigate the existing flooding problem. The recommended solution is "buy-out" of one structure located in the floodplain, and improvements to the US 59 crossing to accommodate the 100-year flood. Channelization and detention alternatives should be evaluated if future developments are planned along the banks of Tributary 3 and 3A channels. Floodplain management and on-site detention structures should be part of an overall floodplain management plan for the watershed.

5.5 Tributary 2

The Tributary 2 watershed has a total drainage area of approximately 15.98 square miles. This tributary drains to Chacon Creek just south of the Texas-Mexican Railroad Bridge. Tributary 2 begins at river mile 3.28 of Chacon Creek and extends upstream for a distance of approximately 26,741 feet (the limit of detail study). Most of this channel extends outside the City Limits of Laredo. Tributary 2 is a well-defined channel downstream of the Texas-Mexican Railroad Bridge, which is located approximately 6,500 linear feet from the downstream end. Upstream of this bridge, the channel is not well defined and is covered with vegetation and brush. Upstream of the Railroad Bridge the channel splits into two separate channels with a ridge (embankment) located at the center of the section. The railroad is located on this embankment with channels on either side covered with vegetation and thick brush. The average slopes of these channels are 23 feet per mile. There are two hydraulic structures located across Tributary 2, which are the Loop 20 Bridge, and the Texas-Mexican Railroad Bridge. The results of the existing FIS indicates that the two bridges are safe against overtopping from the existing 100-year frequency storm. However, based on the modeled results, the 100-year storm will overtop the railroad in the upstream reaches of the study area.

From the existing FIS analyses, the 100-year peak discharge for the Tributary 2 channel at the confluence with Chacon Creek is 8,982 cfs., with only 20% of the basin developed. Since the majority of the basin is undeveloped, the combinations of flood control alternatives considered were the channelization and the detention alternatives. This channel was divided into two drainage channels. For reference, they were labeled as the north and the south channels since they are on the respective side of the Tex-Mex Railroad. The recommended earthen channel improvements for the north channel will range from 50 to 90-foot bottom with 3:1 side slopes and the south channel improvements will range from 25 to 45-foot bottom width with 3.1 side slopes (Exhibit 6). In addition, in areas where no channel improvements are recommended, it is recommended that the main channel be cleared from bank to bank to eliminate the obstruction to the flow caused by the existing overgrown trees and vegetation. Table 7 presents the comparison of the various scenarios. The estimated cost for these improvements for both the north and the south channel are approximately $ 3.42 million dollars (Table 8).

Only a few (6) residential/ industrial structures are located in the 100-yr floodplain. The "buy-out" option will be the most cost-effective option to eliminate potential flooding of these existing structures. The cost of this "buy-out" option is 0.54 million dollars. However, the "buy-out" option will not eliminate the flooding of the

Tex-Mex Railroad from the 100-year storm. This "buy-out" cost estimate did not include the cost of re-aligning the railroad.

The recommended solution is "buy-out" of all structures located in the floodplain, and selective channel improvements to eliminate flooding of the railroad for the 100-year flood. This may also involve elevating the structures located along the railroad. A detailed engineering study should be conducted to determine the cost associated with this alternative. Floodplain management and on-site detention should be part of an overall floodplain management plan for the watershed.

5.6 Tributary 1

The Tributary 1 watershed has a total drainage area of approximately 6.20 square miles. The Tributary 1 channel joins Chacon Creek just south of US Highway 359. Tributary 1 begins at river mile 1.87 of Chacon Creek and extends upstream for a distance of approximately 14,607 linear feet. Most of this channel extends outside the City Limits of Laredo. Tributary 1 is a natural (earthen) grass lined channel with thick vegetation and brush. The average slope of this channel is 32 feet per mile. The lower reach of the channel runs through the City Limits of Laredo. One detention pond has been constructed in the "Los Presidentes" area. There are three hydraulic structures located across Tributary 1. They are culvert crossings of various sizes located at Loop 20, Century City Boulevard, and just east of Century City Street. The results of the existing FIS indicates that the 10-year frequency storm would exceed the roadway crown elevations at all three culvert crossings (Loop 20, Century City Boulevard, and just east of Century City).

From the existing FIS analyses, the 100-year peak discharge for the Tributary 1 channel at the confluence with Chacon Creek is 5,143 cfs with only 13% of the basin developed. Since the majority of the existing basin is undeveloped, the combination of flood control alternatives considered was the channelization and the detention alternatives. Supplementing the existing "Los Presidentes" detention pond with three additional detention ponds (at strategic locations) will minimize the size of downstream channel improvements required to convey the 100-year storm. The recommended channel improvement alternative is to construct a 40-foot bottom earthen channel with 3:1 side slopes. Table 9 presents a comparison of the various scenarios. In addition, it is recommended that the main channel be cleared from bank to bank to eliminate the obstruction to the flow caused by the existing overgrown trees and vegetation. The sizes of the detention ponds are approximately 480, 160, and 420 acre-feet for detention ponds 1, 2, and 3, respectively. In addition, only two existing culvert crossings at Century City Boulevard, and just east of Century City will need to be replaced with span bridges (Exhibit 7). The estimated cost for these improvements are approximately $10.2 million dollars (Table 10).

Only eight (8) major structures are located in the 100-yr floodplain. The "buy-out" option will be the most cost-effective option to eliminate the flooding potential of these existing structures. The cost associated with this option is 0.60 million dollars. The recommended solution is "buy-out" of all structures located in the floodplain. Channelization and detention alternatives should be evaluated if future developments are planned along the banks of Tributary 3 and 3A channels. Floodplain management and on-site detention should be part of an overall floodplain management plan for the watershed.

5.7 Tinaja Creek

The Tinaja Creek watershed has a total drainage area of approximately 2.50 square miles. The Tinaja Creek channel begins at river mile 0.20 of Chacon Creek, just south of Meadows Avenue. This channel was modeled for approximately 7,400 linear feet and extends to Pine Street (the limit of detail study). The existing lower main channel is well defined and the mid and upper reaches have been improved with concrete lining and storm sewers. The average slope of this channel is 45 feet per mile. The Tinaja Creek channel and the surrounding subdivision (Santo Nino) have been subjected to severe flooding in the past. The City of Laredo has completed several projects to help with the flooding problems along the Tinaja Creek channel. Approximately 1,600 linear feet of earthen channel between Louisiana Street and Pine Street (that was prone to flooding) has been concrete lined. The flowline (invert) of the channel has also been lowered. New culverts have been built at Louisiana Avenue, San Salvador Street, Pine Street and Chesnut Street. The unlined (earthen) channel extends between Meadows Avenue and Louisiana Street for approximately 5,800 linear feet. This reach of the channel is not well maintained leading to the growth of brush and trees at some locations. At the downstream end of the channel at Meadows Avenue, debris and heavy brush in the channel are constricting flow in the channel and reducing the channel conveyance of the drainage system. From the existing FIS analyses, the 100-year frequency exceeded the top of the road elevations at the four crossings.

From the existing FIS analyses, the 100-year peak discharge for Tinaja Creek at the confluence with Chacon Creek is 2,108 cfs, with 52% of the basin developed. Since approximately half of the basin is undeveloped and two detention ponds exist within the watershed, several alternatives considered are 1.) clearing of the main channel downstream of the concrete lined reach 2.) replacing the existing earthen channel with the proposed concrete lined section (per City of Laredo future project), and 3.) replacements of one existing culvert crossings with span bridge at Santa Barbara Street. Table 11 presents the resulting CWSEL's for the 10-, 25-, 50-, 100-, and 500-year frequency storms for all three alternatives considered. The replacement of the existing culvert with span bridges will reduce the 100-year flood elevation between 3.3 feet and 5.1 feet at different locations.

By supplementing the existing "Chacota" and "Ejido" detention ponds with the channel clearing and the span bridge improvement, the 100-year storm can be contained within the existing channel banks of Tinaja Creek (Exhibit 8). The estimated cost for the recommended drainage improvement is approximately $202,000 (Table 12).

The "buy-out" option was also considered in lieu of the drainage improvements. However, the "buy-out" cost ($0.28 million) is higher than the cost of the drainage improvements ($ 0.21 million). Drainage improvement option is the recommended solution for eliminating potential flooding along the Tinaja Creek channel. Floodplain management and on-site detention should be part of an overall floodplain management plan for the watershed.

6.0 COST ESTIMATES FOR INTERIM DRAINAGE PLAN

The following table presents the summary of the preliminary construction cost estimates for implementing the interim drainage plan improvements (channel improvements and detention alternatives) for each of the different channel systems. These costs are independent of the ultimate drainage plan recommendations.

CHANNEL	INTERIM DRAINAGE PLAN ($)
CHACON CREEK	$ 20.3 M
TRIBUTARY 1	$ 10.23 M
TRIBUTARY 2	$ 3.46 M
TRIBUTARY 3 & 3A	$ 5.74 M
TINAJA CREEK	$ 0.21 M
TOTAL COST	**$ 39.94 M**

7.0 BUY-OUT COSTS

One of the alternatives evaluated in lieu of drainage improvements to the Chacon Watershed was "buying-out" the structures located in the 100-year floodplain. The "buy-out" costs for structures located in the 100-year floodplain for various drainage channels are presented below. These costs were derived based on average cost of a typical structure in the drainage basin. No attempt was made to accurately determine the appraised value of the structure or the property. The approximate unit costs for the land and the structure were determined after discussion with the Real Estate Division Manager, Community Development Department, City of Laredo. The number of structures and their unit costs used in this estimate are presented in Table 13.

EVALUATION OF DRAINAGE IMPROVEMENTS VERSUS BUYOUT OPTION
INTERIM CONDITIONS

Drainage Channel	Cost of Proposed Drainage Improvements (Million Dollars)	Buyout Cost (Million Dollars)
Chacon Creek	20.3	22.42
Tributary 1	10.23	0.60
Tributary 2	3.46	0.54
Tributary 3 & 3A	5.74	0.10
Tinaja Creek	0.21	0.28
TOTAL COST	**39.94**	**23.90**

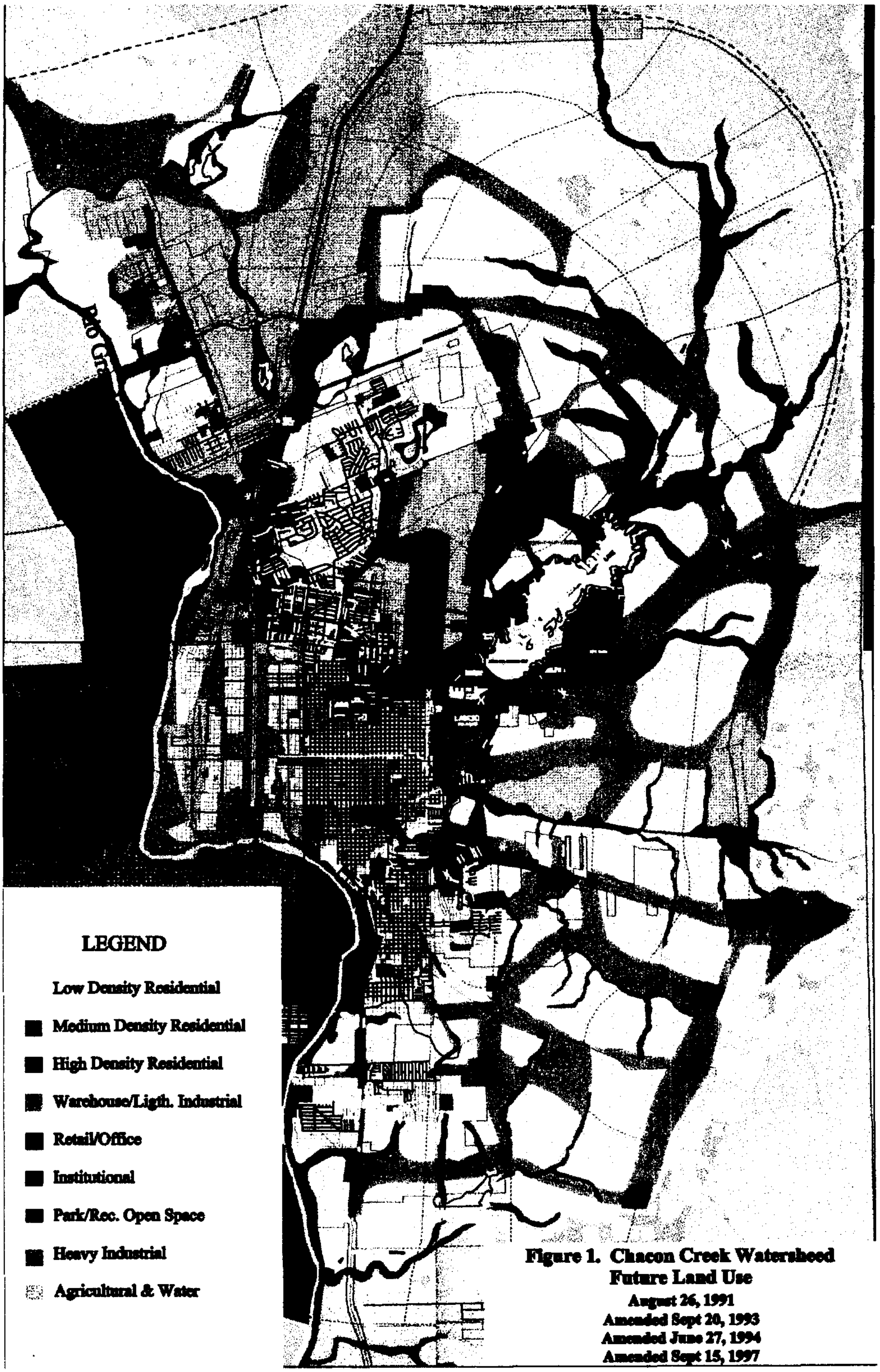
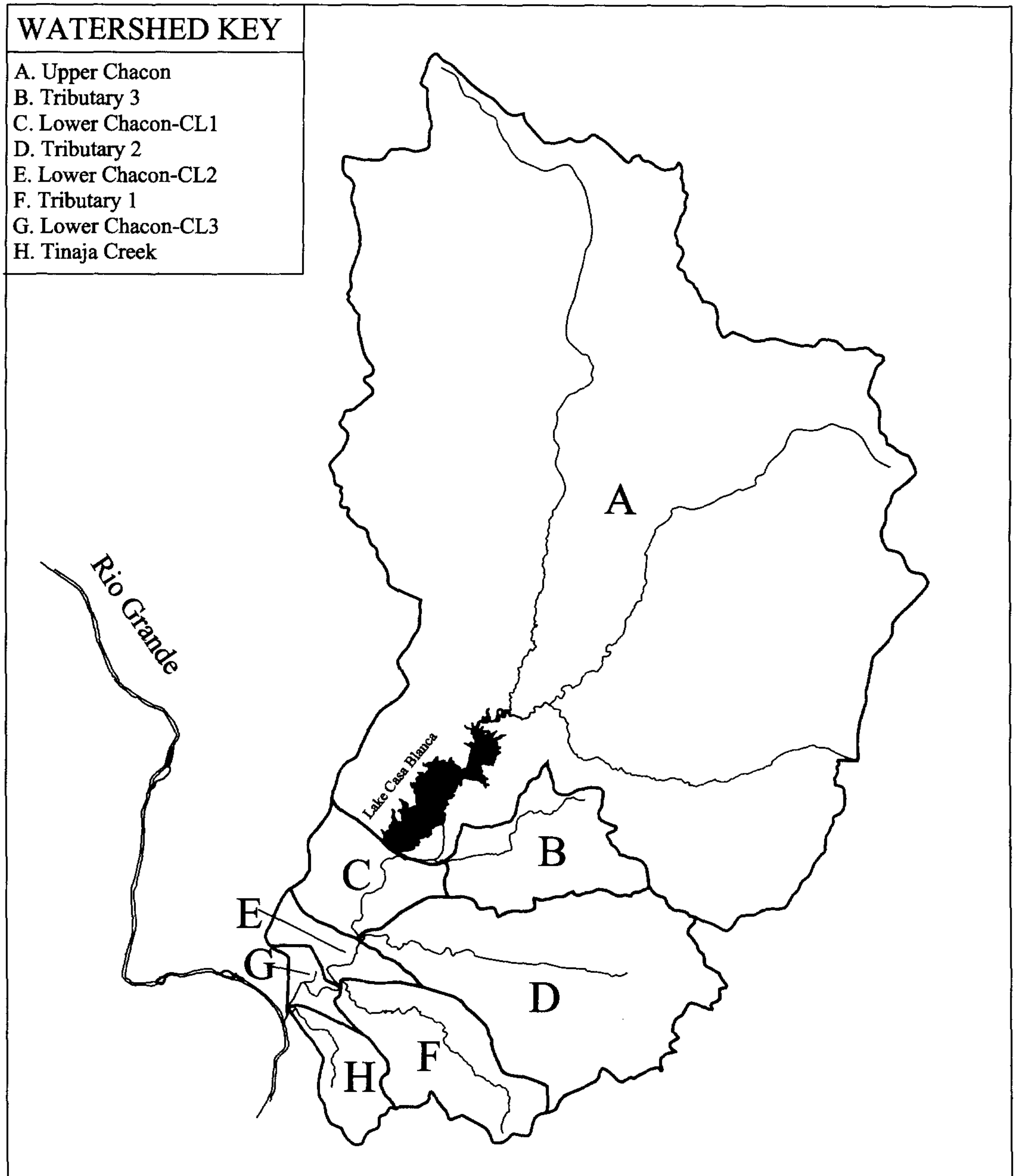


Figure 1. Chacon Creek Watershed Future Land Use

August 26, 1991
Amended Sept 20, 1993
Amended June 27, 1994
Amended Sept 15, 1997



Chacon Flood Insurance Study	FIGURE 2	Brown & Root 12/1/98

TABLES

TABLE 1 - SUMMARY OF DISCHARGES (Existing versus Future)

FIOODING SOURCE AND LOCATION	DRAINAGE AREA (square miles)	PEAK DISCHARGES (cfs)									
		10-YR		25-YR		50-YR		100-YR		500-YR	
		FIS update	Future	FIS update	Future	FIS update	Future	FIS update	Future	FIS update	Future
Chacon Creek at Node 0 (Upstream of Lake Casa Blanca)	116.90	22,857	25,315	27,533	30,348	31,900	35,047	36,918	40,697	46,262	50,468
Chacon Creek at Node 1 (confluence with Tributary 3 and after routing through Lake Casa Blanca)	116.90	13,105	14,018	16,185	17,319	19,160	20,401	22,535	24,155	29,916	31,332
Chacon Creek at Node 2 (confluence with Tributary 2)	143.00	15,485	16,387	19,120	20,214	22,660	23,669	26,742	28,172	34,902	36,863
Chacon Creek at Node 3 (confluence with Tributary 1)	151.00	15,971	16,869	19,604	20,686	23,130	24,149	27,232	28,636	35,323	37,275
Chacon Creek at Node 4 (confluence with Tinaja Creek)	154.50	16,463	17,361	20,096	21,176	23,619	24,643	27,722	29,125	35,802	37,755
Chacon Creek at Node 5 (confluence with Rio-Grande)	155.00	16,463	17,361	20,096	21,176	23,619	24,643	27,722	29,125	35,802	37,754
Tinaja Creek, tributary to Chacon Creek	2.50	1,189	1,700	1,527	2,055	1,777	2,361	2,108	2,826	2,709	3,671
Tributary 1, tributary to Chacon Creek	6.20	2,948	3,931	3,703	4,835	4,387	5,673	5,143	6,610	6,627	8,438
Tributary 2, tributary to Chacon Creek	15.98	5,282	5,792	6,075	6,964	7,033	8,212	8,982	10,035	10,909	12,777
Tributary 3, tributary to Chacon Creek	5.96	3,207	3,992	3,974	4,857	4,739	5,630	5,550	6,685	7,954	8,555

TABLE 2 - WATER SURFACE ELEVATIONS FOR CHACON CREEK (INTERIM PLAN / MASTER PLAN)

Location	Station (ft)	10-YR CWSEL (ft)			25-YR CWSEL (ft)			50-YR CWSEL (ft)			100-YR CWSEL (ft)			500-YR CWSEL (ft)			Hydraulic	Flow Line	Low Chord	Top of Road
		FIS Update	scenario 1	scenario 2	FIS Update	scenario 1	scenario 2	FIS Update	scenario 1	scenario 2	FIS Update	scenario 1	scenario 2	FIS Update	scenario 1	scenario 2	Structure	Elev. (ft)	Elev. (ft)	Elev. (ft)
Meadow Street	DS 1160	368.24	365.73	364.51	369.53	366.47	365.19	369.88	366.93	365.28	370.63	367.65	365.91	371.79	367.91	367.42	Bridge	352.00	380.46	383.78
	US 1208	368.46	366.26	365.15	369.91	367.56	366.30	370.31	368.08	367.92	371.24	369.21	369.40	372.87	371.33	372.30				
Highway 83	DS 6235	381.70	371.19	370.76	383.93	372.99	372.05	384.46	373.50	373.46	385.66	375.27	374.57	387.58	377.28	376.64	Bridge	362.00	396.00	400.23
	US 6318	381.77	371.68	373.35	384.02	373.54	374.91	384.56	374.04	376.61	385.78	375.85	377.87	387.74	377.83	380.35				
Highway 359	DS 12030	388.59	378.43	377.37	390.06	380.36	378.70	390.75	381.12	380.36	391.86	383.00	381.67	393.81	385.14	384.35	Bridge	372.67	383.09	385.91
	US 12096	388.92	378.48	377.45	390.28	380.41	378.76	391.02	381.17	380.40	392.15	383.05	381.70	394.16	385.19	384.38				
Texas Mexican Railroad	DS 17848	399.88	383.42	387.36	403.79	384.91	388.18	403.72	385.96	389.00	404.14	387.50	389.97	404.49	389.69	391.48	Bridge	383.00	396.00	402.00
	US 17860	407.64	383.50	387.38	410.68	384.98	388.25	412.28	386.04	389.01	414.43	387.56	389.98	418.40	389.74	391.49				
Clark Boulevard	DS 20829	407.74	389.59	397.81	410.72	390.91	398.89	412.32	392.01	399.83	414.47	393.39	400.99	418.43	395.76	402.79	Bridge	390.58	404.18	409.51
	US 20903	408.56	389.74	397.98	411.77	391.06	399.08	413.42	392.15	400.04	415.48	393.53	401.24	419.25	395.88	406.86				
Highway 59	DS 26537	412.49	403.34	403.26	414.28	404.28	404.30	415.46	405.07	405.20	417.00	406.05	406.30	420.12	407.79	406.39	Bridge	398.00	410.00	412.00
	US 26586	412.99	404.36	405.77	414.64	405.46	407.02	415.73	406.40	408.10	417.21	407.53	409.42	420.33	409.53	411.22				
Loop 20	DS 28240	417.93	411.25	409.56	418.79	412.26	410.75	419.38	413.09	411.79	419.95	414.10	413.06	421.44	415.96	415.02	Bridge	402.50	416.23	422.00
	US 28332	418.21	411.46	410.07	419.29	412.52	411.27	420.14	413.41	412.33	421.13	414.47	413.64	423.60	417.04	415.66				

Notes:

All elevations correspond to the 1988 North American Vertical Datum

Scenario 1: Earth cut channel, bridges at Hwy. 359, Tex-Mex Railroad, Clark Blvd. and Hwy. 59 to be replaced

Scenario 2: Concrete lined channel, bridges at Hwy 359 and Tex-Mex Railroad replaced, lower channel flow line at Hwy. 59 bridge (1 ft)

TABLE 3

CHACON CREEK WATERSHED MASTER DRAINAGE PLAN

OPINION OF COST ESTIMATE FOR CHANNEL IMPROVEMENT

CHACON CREEK MAIN CHANNEL

INTERIM / ULTIMATE CONDITION

ALTERNATIVE 1 - EARTHEN CUT CHANNEL

Descrition	Unit	Quantity	Unit cost	Cost
Clearing	Acre	250	$ 1,000.00	$ 250,000
Grubbing	Acre	250	$ 1,000.00	$ 250,000
Excavation & Haul	CY	804,000	$ 4.00	$ 3,216,000
Bridge Installation				
Hwy 359	SF	45,984	$ 57.00	$ 2,621,088
Tex-Mex*	SF	3 * 13927	$ 57.00	$ 2,353,200
Clark Blvd	SF	27,011	$ 57.00	$ 1,539,627
Hwy 59	SF	41,454	$ 57.00	$ 2,362,878
Culvert Installation	LS	0	$ -	$ -
Slope Protection & Concrete Lining	CY	0	$ 225.00	$ -
Backslope Drains	Each	34	$ 2,500.00	$ 85,000
Seeding & Mulching	Acre	250	$ 1,000.00	$ 250,000
Land Acquisition	SF	9,010,644	$ 0.35	$ 3,153,725
Sub-total				$ 16,081,518
Constingencies (15%)				$ 2,412,228
Total Construction Cost				$ 18,493,746
Engineering & Administration (10%)				$ 1,849,375
Total				$ 20,343,122

*use of spur recommended, original price is tripled

TABLE 4

CHACON CREEK WATERSHED MASTER DRAINAGE PLAN

OPINION OF COST ESTIMATE FOR CHANNEL IMPROVEMENT

CHACON CREEK MAIN CHANNEL

INTERIM / ULTIMATE CONDITION

ALTERNATIVE 2 - CONCRETE LINED CHANNEL

Descrition	Unit	Quantity	Unit cost	Cost
Clearing	Acre	225	$ 1,000.00	$ 225,000
Grubbing	Acre	225	$ 1,000.00	$ 225,000
Excavation & Haul	CY	1381000	$ 4.00	$ 5,524,000
Bridge Installation				
Hwy 359	SF	33762	$ 57.00	$ 1,924,434
Tex-Mex*	SF	3 * 13927	$ 57.00	$ 2,353,200
Culvert Installation	LS	0	$ -	$ -
Slope Protection & Concrete Lining	CY	130430	$ 225.00	$ 29,346,750
Backslope Drains	Each	34	$ 2,500.00	$ 85,000
Seeding & Mulching	Acre	20	$ 1,000.00	$ 20,000
Land Acquisition	SF	7,551,403	$ 0.35	$ 2,642,991
Sub-total				$ 42,346,376
Constingencies (15%)				$ 6,351,957
Total Construction Cost				$ 48,698,333
Engineering & Administration (10%)				$ 4,869,834
Total				$ 53,568,167

*use of spur recommended, original price is tripled

TABLE 5 - WATER SURFACE ELEVATIONS FOR TRIBUTARY 3 AND 3A (INTERIM)

Tributary 3

Location	Station (ft)	10-YR WSEL (ft)			25-YR WSEL (ft)			50-YR WSEL (ft)			100-YR WSEL (ft)			500-YR WSEL (ft)			Hydraulic Structure	Invert Elev. (ft)	Top of culvert Elev. (ft)	Top of road Elev. (ft)
		FIS Update	Scenario 1	Scenario 2	FIS Update	Scenario 1	Scenario 2	FIS Update	Scenario 1	Scenario 2	FIS Update	Scenario 1	Scenario 2	FIS Update	Scenario 1	Scenario 2				
	0	422.96	422.28	421.43	423.30	422.55	421.79	423.60	422.81	422.10	423.92	423.06	422.41	424.73	423.75	423.19				
	509	428.02	427.60	425.28	428.28	428.28	426.34	428.90	428.91	427.15	430.39	429.44	427.92	432.65	431.79	429.62				
U.S. Highway 59	DS 1019	433.94	432.19	428.13	434.42	433.02	429.74	434.84	433.26	431.24	435.28	433.43	432.56	436.25	434.27	433.51	Culvert	424.57	433.71	436.18
U.S. Highway 59	US 1114	435.38	434.33	429.44	436.02	435.86	431.38	436.59	436.60	433.20	437.14	437.38	435.01	437.55	438.84	437.64				
	2006	438.27	437.31	435.84	438.61	437.64	436.60	438.93	438.01	437.08	439.22	438.39	437.44	439.92	439.51	438.58				
	3427	443.34	442.69	441.54	443.69	442.91	442.32	443.87	443.11	442.55	444.04	443.35	442.79	444.50	443.83	443.45				
	5312	452.14	451.43	451.13	452.42	451.64	451.30	452.64	451.84	451.48	452.86	452.03	451.66	453.43	452.45	452.10				
	7238	458.94	458.24	458.26	459.14	458.39	458.40	459.32	458.52	458.51	459.52	458.76	458.64	459.92	458.98	458.93				
	10034	479.99	479.26	479.25	480.25	479.46	479.45	480.46	479.62	479.63	480.72	479.78	479.84	481.09	480.07	480.09				
	12079	494.63	493.87	493.88	494.88	494.01	494.02	495.09	494.11	494.11	495.36	494.29	494.29	495.79	494.61	494.61				
	13954	508.77	507.87	507.86	509.07	508.19	508.19	509.32	508.39	508.39	509.62	508.60	508.59	510.05	508.90	508.90				
	16166	525.65	524.60	524.60	525.90	524.88	524.85	526.40	525.10	525.10	526.57	525.35	525.35	526.81	525.73	525.72				
	18032	542.36	541.77	541.77	542.55	541.92	541.92	542.73	541.99	541.99	542.90	542.14	542.14	543.17	542.32	542.32				

Tributary 3A

Location	Station (ft)	10-YR WSEL (ft)			25-YR WSEL (ft)			50-YR WSEL (ft)			100-YR WSEL (ft)			500-YR WSEL (ft)			Hydraulic Structure	Invert Elev. (ft)	Top of culvert Elev. (ft)	Top of road Elev. (ft)
		FIS Update	Scenario 1	Scenario 2	FIS Update	Scenario 1	Scenario 2	FIS Update	Scenario 1	Scenario 2	FIS Update	Scenario 1	Scenario 2	FIS Update	Scenario 1	Scenario 2				
	7560	463.52	462.97		463.68	463.08		463.81	463.17		463.98	463.28		464.25	463.45					
	9527	472.11	471.57		472.22	471.69		472.32	471.78		472.42	471.88		472.57	472.02					
	11329	485.50	485.05	NOT USED	485.62	485.14	NOT USED	485.72	485.21	NOT USED	485.84	485.29	NOT USED	486.00	4875.42	NOT USED	NONE			
	12722	492.20	491.65		492.35	491.77		492.49	491.88		492.63	492.01		492.85	492.15					
	13532	496.07	495.34		496.17	495.52		496.27	495.70		496.36	495.92		496.52	496.28					
	15239	512.28	511.68		512.52	511.84		512.72	511.98		512.95	512.12		513.30	512.49					

Notes:

Scenario 1: existing channel "degrubbed" (n value changed from 0.06 to 0.03)

Scenario 2: existing channel "degrubbed" and 2000 cfs detained upstream of cross section 4058

All elevations correspond to the 1988 North American Vertical Datum

TABLE 6

CHACON CREEK WATERSHED MASTER DRAINAGE PLAN

OPINION OF COST ESTIMATE FOR DRAINAGE IMPROVEMENTS

TRIBUTARY 3 & 3A

INTERIM CONDITION

Description	Unit	Quantity	Unit cost		Cost	
Clearing	Acre	70	$	1,000.00	$	70,000
Grubbing	Acre	70	$	1,000.00	$	70,000
Excavation & Haul						
Tributary 3	CY	0	$	4.00	$	-
Tributary 3A	CY	0	$	4.00	$	-
Detention Pond	CY	909,920	$	4.00	$	3,639,680
Bridge Installation & Culvert Removal						
Hwy 59	SF	0	$	57.00	$	-
Detention Pond land & Construction Cost						
Detention Pond	Acre	47	$	15,000.00	$	705,000
Slope Protection & Concrete Lining	CY	0	$	225.00	$	-
Backslope Drains	Each	0	$	55.00	$	-
Seeding & Mulching	Acre	47	$	1,000.00	$	47,000
Land Acquisition	SF	0	$	0.35	$	-
Sub-total					$	4,531,680
Constingencies (15%)					$	679,752
Total Construction Cost					$	5,211,432
Engineering & Administration (10%)					$	521,144
Total					$	5,732,576

TABLE 7 - WATER SURFACE ELEVATIONS FOR TRIBUTARY 2 (INTERIM SCENARIO)

Location	Station (ft)		100-YR WSEL (ft)	100-YR WSEL (ft)	Hydrulic	Flow Line	Low Chord	Top of Road
			FIS update	Scenario 1	Structure	Elev. (ft)	Elev. (ft)	Elev. (ft)
		0	391.52	388.7				
Loop 20 Bridge	US	2993	409.15	404.42	Bridge	396.00	440.00	443.00
	DS	3051	409.19	404.94				
Texas-Mexican Railroad Bridge	US	6500	420.18	419.36	Bridge	412.00	420.00	423.00
	DS	6550	420.72	419.38				

Note:

All elevations correspond to the 1988 North American Vertical Datum

Scenario 1: combination of channel improvements (earthen) and "cleaning" of channel

TABLE 8

CHACON CREEK WATERSHED MASTER DRAINAGE PLAN
OPINION OF COST ESTIMATE FOR CHANNEL IMPROVEMENTS
TRIBUTARY 2
INTERIM CONDITION

Description	Unit	Quantity	Unit cost	Cost
Clearing				
North Channel	Acre	80	$ 1,000.00	$ 80,000
South Channel	Acre	45	$ 1,000.00	$ 45,000
Grubbing				
North Channel	Acre	30	$ 1,000.00	$ 30,000
South Channel	Acre	45	$ 1,000.00	$ 45,000
Excavation & Haul				
North Channel	CY	40,000	$ 4.00	$ 160,000
South Channel	CY	266,000	$ 4.00	$ 1,064,000
Bridge Installation & Culvert Removal				
	SF	0	$ 57.00	$ -
Slope Protection & Concrete Lining	CY	0	$ 225.00	$ -
Backslope Drains	Each	25	$ 2,500.00	$ 62,500
Seeding & Mulching				
North Channel	Acre	30	$ 1,000.00	$ 30,000
South Channel	Acre	45	$ 1,000.00	$ 45,000
Land Acquisition				
North Channel	SF	1,578,310	$ 0.35	$ 552,409
South Channel	SF	1,781,757	$ 0.35	$ 623,615
Sub-total				$ 2,737,523
Constingencies (15%)				$ 410,629
Total Construction Cost				$ 3,148,152
Engineering & Administration (10%)				$ 314,816
Total				$ 3,462,968

TABLE 9 - WATER SURFACE ELEVATIONS FOR TRIBUTARY 1 (INTERIM)

Location	Station (ft)	10-YR WSEL (ft) Based on Existing Condition			25-YR WSEL (ft) Based on Existing Condition			50-YR WSEL (ft) Based on Existing Condition			100-YR WSEL (ft) Based on Existing Condition			500-YR WSEL (ft) Based on Existing Condition			Hydraulic Structure	Invert Elevation (ft)	Top of Culvert Elevation (ft)	Top of Road Elevation (ft)
		FIS Update	Scenario 1	Scenario 2	FIS Update	Scenario 1	Scenario 2	FIS Update	Scenario 1	Scenario 2	FIS Update	Scenario 1	Scenario 2	FIS Update	Scenario 1	Scenario 2				
Loop 20	DS 3552	399.51	397.78	396.00	400.19	398.47	396.67	400.63	399.01	397.20	401.06	399.57	397.73	401.81	400.42	398.48	Culvert	386.18	398.18	399.42
	US 3635	400.44	398.49	396.00	401.09	400.26	396.67	401.55	400.84	397.30	402.02	401.39	398.40	402.82	401.45	400.28				
Century City Blvd.	DS 5617	410.02	409.13	407.43	410.43	409.91	407.85	410.76	410.11	408.28	411.10	410.43	408.77	411.68	411.09	409.57	Culvert	402.10	407.10	410.40
	US 5692	413.53	413.44	407.66	414.13	414.11	408.22	414.68	414.61	408.92	415.25	415.22	409.58	416.20	416.21	410.19				
East of Century City	DS 6559	415.32	414.17	412.37	415.84	414.73	412.92	416.24	415.13	413.43	416.65	415.57	413.91	417.38	416.41	414.58	Culvert	406.02	409.02	414.18
	US 6593	418.42	418.42	412.45	419.23	419.23	412.99	419.91	419.91	413.49	420.60	420.60	413.96	421.90	421.90	414.63				
	10915	444.14	442.52	440.53	444.66	442.96	440.76	445.29	443.28	440.95	445.71	443.60	441.16	446.28	444.10	441.49	None	438.00		
	14607	467.00	466.24	464.55	467.40	466.61	464.82	467.72	466.90	465.02	468.07	467.21	465.26	468.59	467.71	465.59	None	462.00		

Notes:

Note : FIS update run accounted for detention of all runoff from sub-basin T1A
Scenario 1: Same as FIS Update, but the channel was assumed to be "cleaned"
Scenario 2: Existing channel "cleaned", channel improvement between c/s 0 and 1745, replace 2 culverts at c/s 5617 & 6559 with bridges, detention of flow from sub-basins T1A & T1B
All elevations correspond to the 1988 North American Vertical Datum

TABLE 10

CHACON CREEK WATERSHED MASTER DRAINAGE PLAN

OPINION OF COST ESTIMATE FOR DRAINAGE IMPROVEMENTS

TRIBUTARY 1

INTERIM CONDITION

Description	Unit	Quantity	Unit cost	Cost
Clearing	Acre	35	$ 1,000.00	$ 35,000
Grubbing	Acre	2	$ 1,000.00	$ 2,000
Excavation & Haul				
Tributary 1	CY	5,320	$ 4.00	$ 21,280
Detention Pond 1	CY	677,600	$ 4.00	$ 2,710,400
Detention Pond 2	CY	232,320	$ 4.00	$ 929,280
Detention Pond 3	CY	600,160	$ 4.00	$ 2,400,640
Bridge Installation & Culvert Removal				
Loop 20	SF	0	$ 57.00	$ -
Century City	SF	7,950	$ 57.00	$ 453,150
East Century City	SF	3,196	$ 57.00	$ 182,172
Detention Pond land & Construction Cost				
Detention Pond 1	Acre	35	$ 15,000.00	$ 525,000
Detention Pond 2	Acre	12	$ 15,000.00	$ 180,000
Detention Pond 3	Acre	31	$ 15,000.00	$ 465,000
Backslope Drains	Each	0	$ 2,500.00	$ -
Seeding & Mulching	Acre	80	$ 1,000.00	$ 80,000
Land Accuisition	SF	298,686	$ 0.35	$ 104,540
Sub-total				$ 8,088,462
Constingencies (15%)				$ 1,213,270
Total Construction Cost				$ 9,301,732
Engineering & Administration (10%)				$ 930,174
Total				$ 10,231,906

TABLE 11 - WATER SURFACE ELEVATIONS FOR TINAJA CREEK (INTERIM)

Location	Station (ft)		10-YR CWSEL (ft) Based on Existing Condition			25-YR CWSEL (ft) Based on Existing Condition			50-YR CWSEL (ft) Based on Existing Condition			100-YR CWSEL (ft) Based on Existing Condition			500-YR CWSEL (ft) Based on Existing Condition			Hydraulic Structure	Flow line Elevation (ft)	Low Chord/ Top of Culvert Elev. (ft)	Top of road Elevation (ft)
			FIS Update	Scenario 1	Scenario 2	FIS Update	Scenano 1	Scenario 2	FIS Update	Scenario 1	Scenario 2	FIS Update	Scenario 1	Scenario 2	FIS Update	Scenario 1	Scenario 2				
Meadow Street	DS	10	359.15	356.43	356.43	359.53	358.66	358.66	359.79	358.86	358.86	360.12	359.11	359.11	360.62	359.53	359.53	Bridge	352.00	381.90	384.00
	US	38	359.17	357.42	357.42	359.56	358.76	358.76	359.82	358.97	358.97	360.16	359.24	359.24	360.66	359.69	359.69				
Highway 83	DS	3874	392.88	390.92	390.92	393.58	391.47	391.47	394.05	391.82	391.82	394.65	392.27	392.27	395.88	393.30	393.30	Culvert	386.60	394.60	404.30
	US	4105	394.76	394.47	394.47	396.01	395.78	395.78	397.16	396.69	396.69	399.05	398.77	398.77	403.90	403.13	403.13				
Santa Barbara & Louisiana	DS	5115	401.84	401.91	401.91	402.43	402.52	402.52	402.82	402.89	402.89	403.35	403.38	403.38	404.82	404.54	404.54	Culvert	396.95	405.95	409.95
	US	5144	403.23	403.23	403.23	404.11	404.12	404.12	404.73	404.74	404.74	405.58	405.58	405.58	407.75	407.76	407.76				
Santa Barbara & New York	DS	5807	405.98	405.98	405.98	406.35	406.35	406.35	406.61	406.61	406.61	406.96	406.96	406.96	407.82	407.82	407.82	Culvert	403.47	408.40	410.28
	US	5840	408.23	408.23	406.09	408.96	408.96	406.47	409.48	409.48	406.74	410.28	410.28	407.09	411.65	411.65	407.97				
Santa Clara Street	DS	6127	408.96	408.96	408.97	409.32	409.32	409.33	409.56	409.56	409.57	409.88	409.88	409.89	411.33	411.33	410.76	Culvert	406.58	411.66	414.73
	US	6150	410.95	410.95	410.95	411.64	411.64	411.64	412.13	412.13	412.13	412.78	412.78	412.78	415.11	415.11	415.10				
Pecan Street	DS	6535	411.27	411.27	411.27	411.93	411.93	411.93	412.39	412.39	412.39	413.01	413.01	413.01	415.19	415.19	415.19	Culvert	407.50	412.60	414.55
	US	6598	411.70	411.70	411.70	412.41	412.41	412.41	412.91	412.91	412.91	413.89	413.89	413.89	416.21	416.21	416.20				
San Salvador Street	DS	6902	411.75	411.75	411.75	412.46	412.46	412.46	412.95	412.95	412.95	413.90	413.90	413.90	416.19	416.19	416.18	Culvert	408.61	413.72	416.84
	US	6930	413.01	413.01	413.01	413.72	413.72	413.72	414.23	414.23	414.23	415.37	415.37	415.37	418.40	418.40	418.40				
Pine Street	DS	7315	418.65	418.65	418.65	419.14	419.15	419.14	419.46	419.46	419.46	419.88	419.88	419.88	421.11	421.11	421.11	Culvert	414.29	419.32	421.77
	*** Flow Routed Through Underground Culverts ***																				

Notes:

Scenario 1: existing channel "cleaned" (n value changed from 0.06 to 0.03)

Scenario 2: existing channel "cleaned" and modeled with culvert at Santa Barbara & Newyork removed

All elevations correspond to the 1988 North American Vertical Datum

TABLE 12

CHACON CREEK WATERSHED MASTER DRAINAGE PLAN
OPINION OF COST ESTIMATE FOR DRAINAGE IMPROVEMENTS
TINAJA CREEK
INTERIM CONDITION

Description	Unit	Quantity		Unit cost		Cost
Clearing	Acre	20	$	1,000	$	20,000
Grubbing	Acre	0	$	1,000	$	-
Excavation & Haul	CY	0	$	4	$	-
Bridge Installation &						
Culvert Removal						
Santa Barbara St	SF	2450	$	57	$	139,650
Santa Clara St	SF	0	$	57	$	-
Pecan St	SF	0	$	57	$	-
San Salvador St	SF	0	$	57	$	-
Slope Protection &						
Concrete Lining	CY	0	$	225	$	-
Backslope Drains	Each	0	$	55	$	-
Seeding & Mulching	Acre	0	$	1,000	$	-
Sub-total					$	159,650
Constingencies (15%)					$	23,948
Total Construction Cost					$	183,598
Engineering & Administration (10%)					$	18,360
Total					$	201,957

TABLE 13

"BUY-OUT" COST ESTIMATE FOR STRUCTURES IN THE 100-YEAR FLOODPLAIN (INTERIM CONDITIONS)

Sub-basin/Channel	No. of Structures	Type of Structure	Unit Cost	Total Cost
Tinaja Creek	4	Residential	$70,000	$280,000
Tributary 1	8	Residential/ Small Industrial	$75,000	$600,000
Tributary 2	6	Industrial/ Rail Road	$90,000	$540,000
Tributary 3	1	Truck Loading Yard	$100,000	$100,000
Chacon Creek				
	1	Wastewater Treatment Plant	Lump Sum	$3,000,000
	241	Residential	$70,000	$16,870,000
	30	Small Industrial	$75,000	$2,250,000
	3	Large Industrial	$100,000	$300,000
		Chacon Creek Total		$22,420,000
		Watershed Total		**$23,940,000**

EXHIBITS

KEY TO MAP

Existing Channel

Earthen Channel Improv.

250 Ft. Bottom Width

200 Ft. Bottom Width

Existing Bridge to Remain

Replace Existing Bridge

Note:

Side Slope for Channel
Improvements: SS = 3 : 1

N

NOT TO SCALE

CHACON CREEK

STORMWATER
INTERIM AND ULTIMATE
DRAINAGE PLANS
Alternative 1:
Earthen Channel Improvement

Chacon Creek Watershed
Exhibit 1

Revised Date: November 1999

KEY TO MA

Farthen Channel Imp

200 Ft. Bottom Width
150 Ft. Bottom Width

Existing Bridge to R
Replace Existing Br

Note:
Side Slope for Channel Improvements: SS = 3 : 1

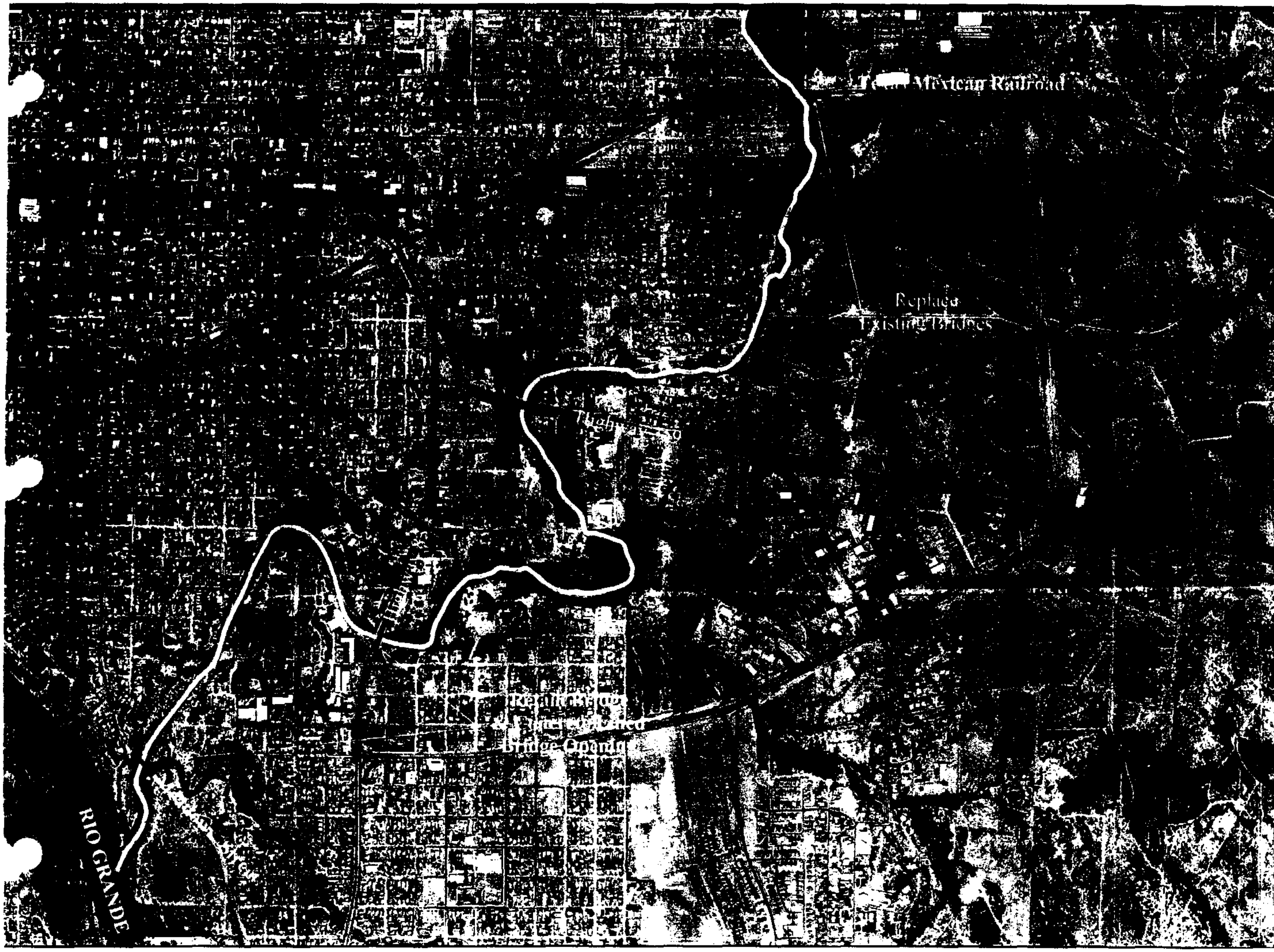
N

NOT TO SCALE

CHACON CREEK
STORMWATER
INTERIM AND ULTIMATE
DRAINAGE PLANS
Alternative 1:
Farthen Channel Improvement

Chacon Creek Watershed
Exhibit 2

Revised Date: November 199



KEY TO MAP

Concrete Lined Channel
Improvement.
200 Ft. Bottom Width

Existing Bridge to Remain
Replace Existing Bridge

Note:
Side Slope for Channel Improvements: SS = 3 : 1

N

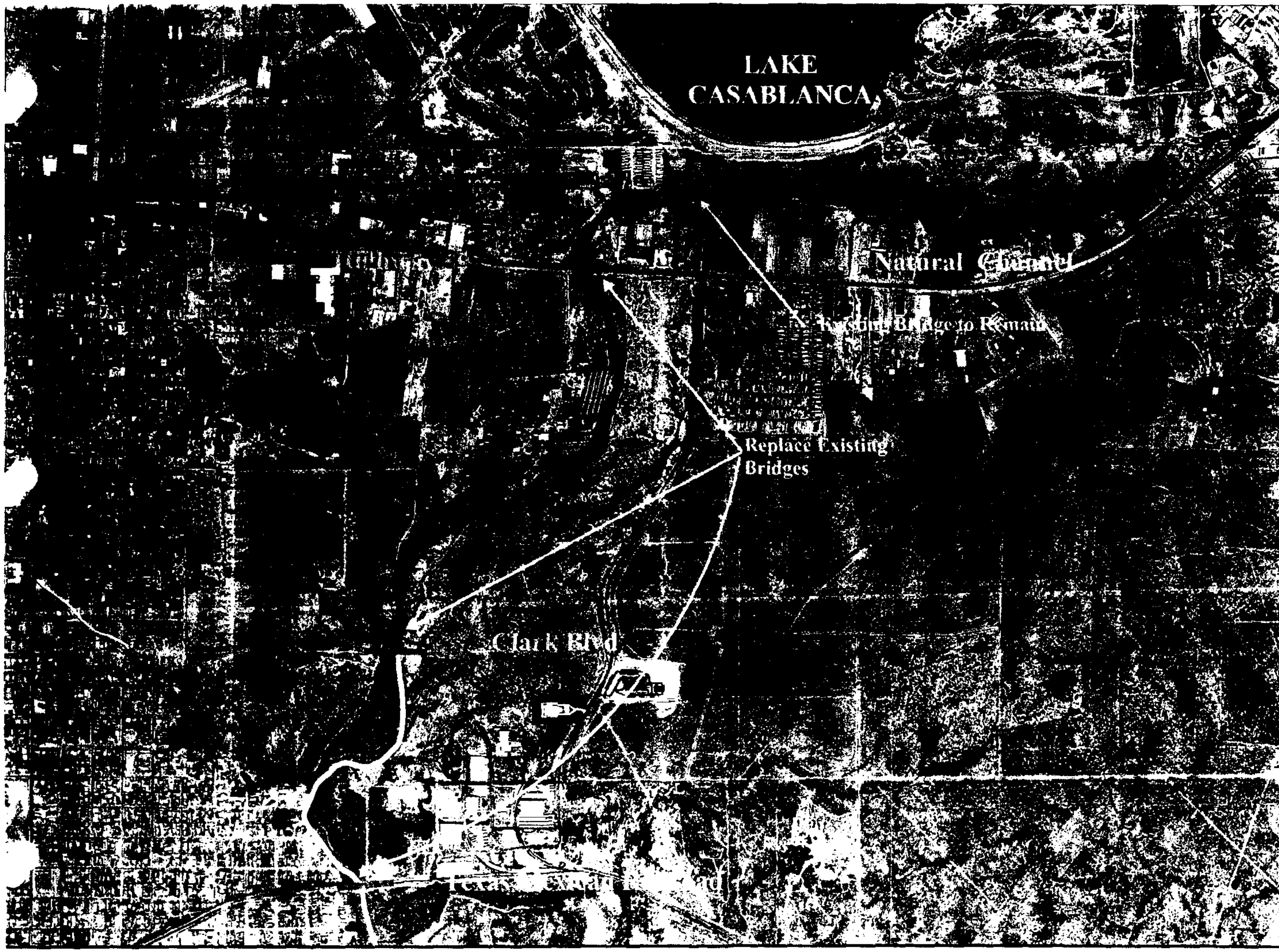
NOT TO SCALE

CHACON CREEK

STORMWATER
INTERIM AND ULTIMATE DRAINAGE PLANS
Alternative 2:
Concrete Lined Channel

Chacon Creek Watershed
Exhibit 3

Revised Date: November 1999



KEY TO MA

Existing Channel

Proposed Concrete

200 Ft. Bottom Width

150 Ft. Bottom Width

Existing Bridge to

Replace Existing Bridge

Note:

Side Slope for Channel
Improvements: SS = 3 : 1

N

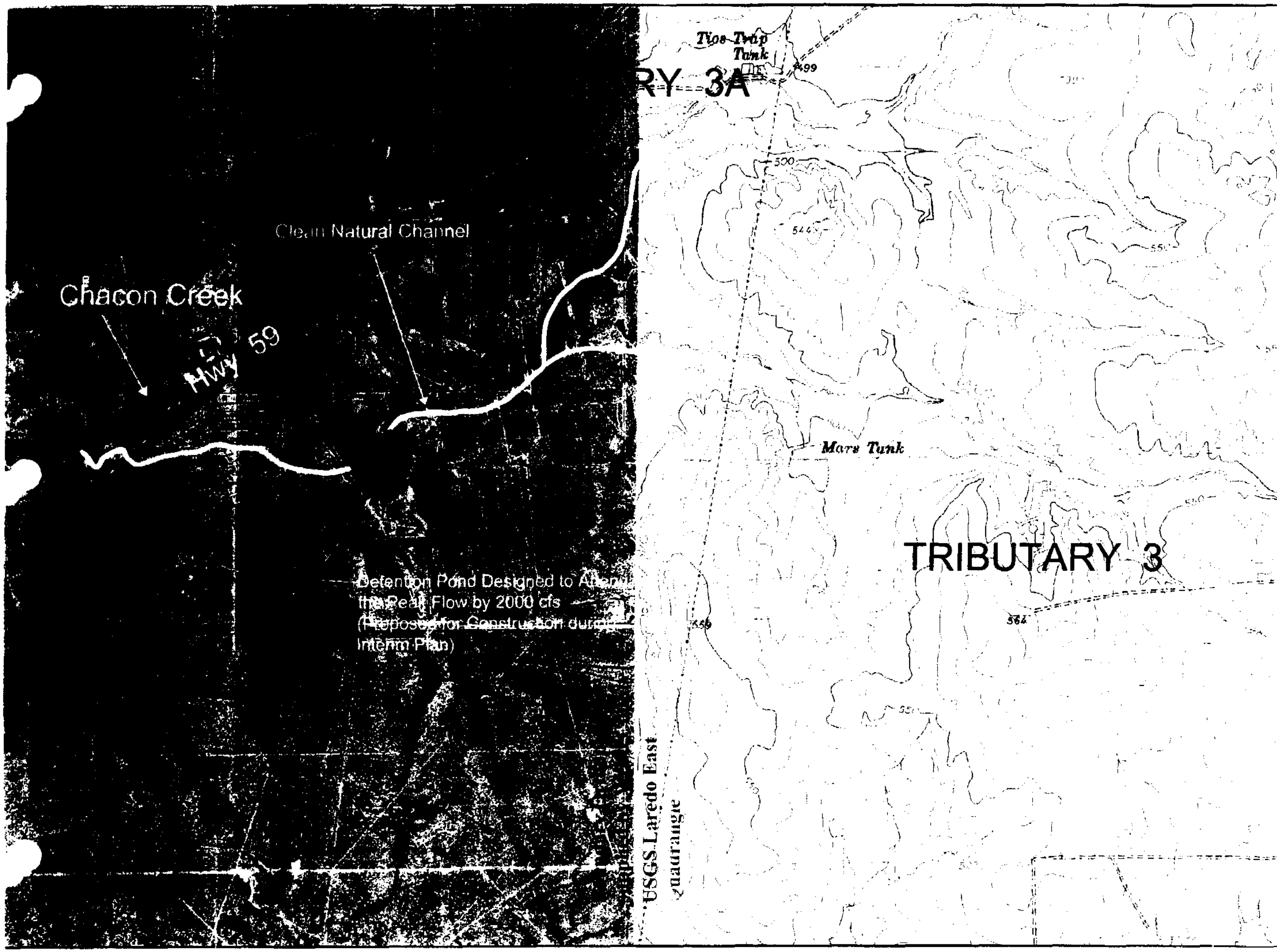
NOT TO SCALE

CHACON CREEK

STORMWATER
INTERIM AND ULTIMATE
DRAINAGE PLANS
Alternative 2:
Concrete Lined Channel

Chacon Creek Watershed
Exhibit 4

Revised Date: November 1999



KEY TO MAP

Existing Channel
Clean Natural Channel
Proposed Detention Pon
Existing Box Culvert

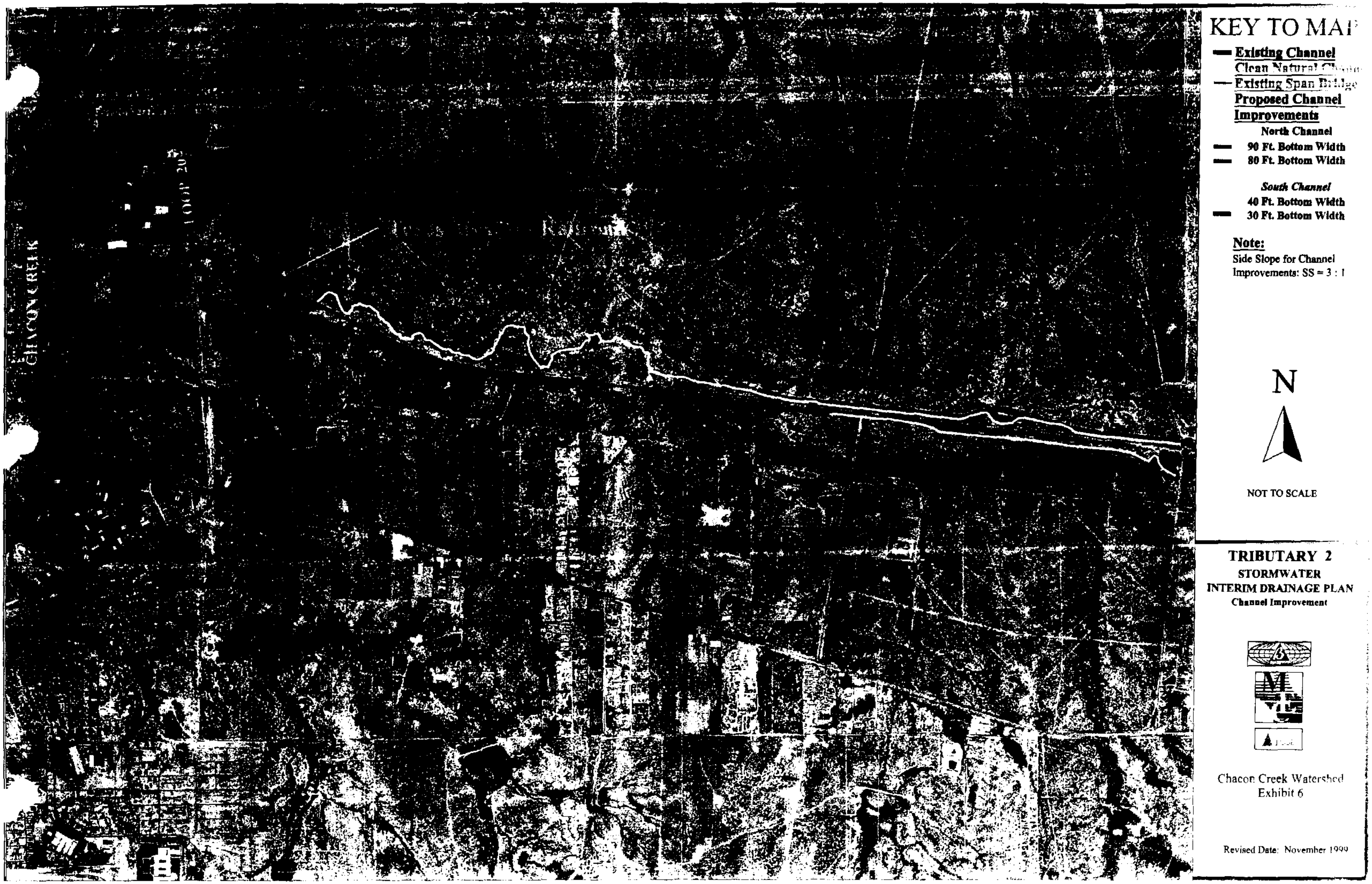
N

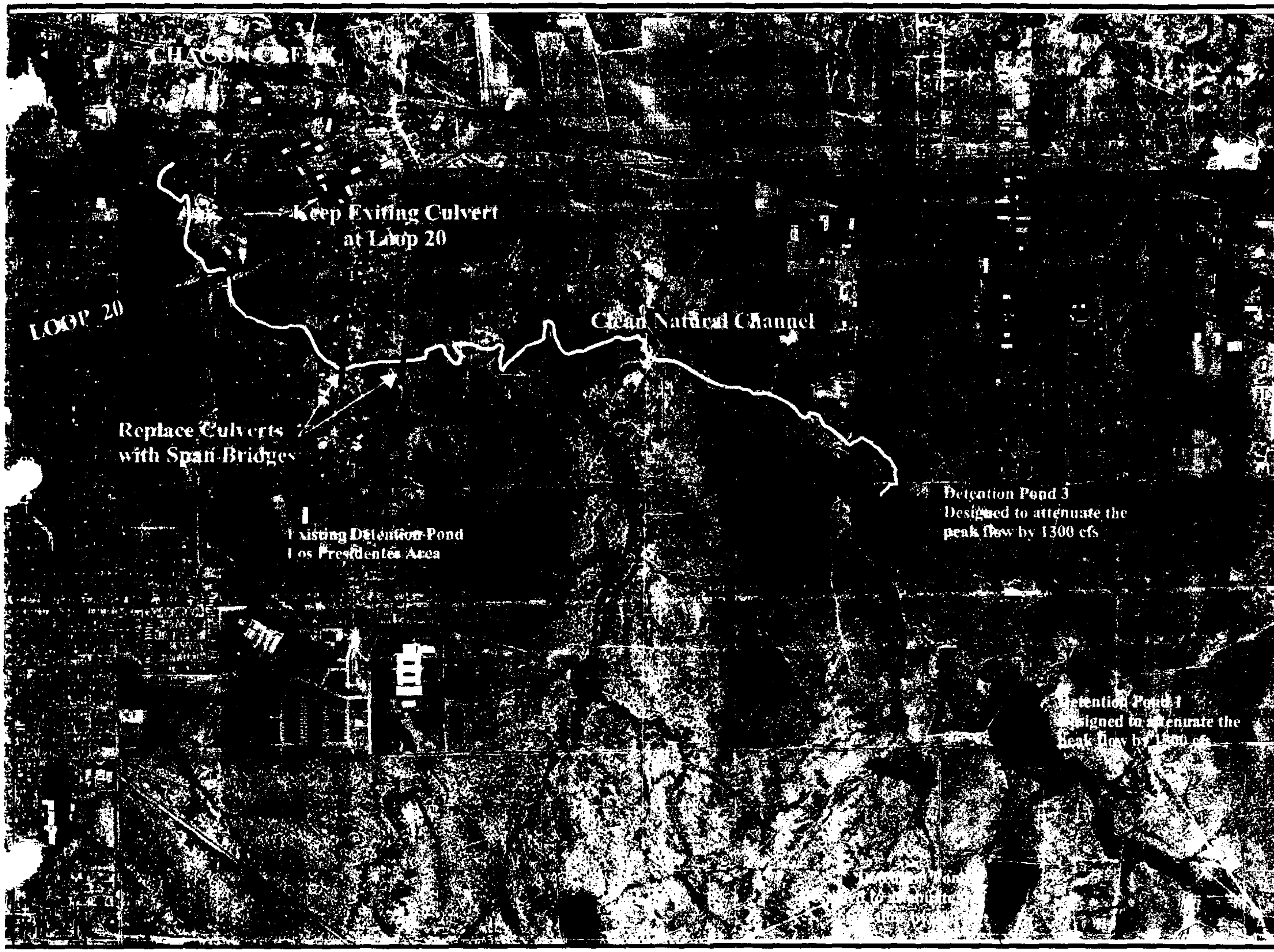
NOT TO SCALE

TRIBUTARY 3 &
TRIBUTARY 3A
STORMWATER
INTERIM DRAINAGE PLAN
Channel Improvement

Chacon Creek Watershed
Exhibit 5

Revised Date: November 1999


KEY TO MAP
Existing Channel
Clean Natural Channel
Existing Span Bridge
Proposed Channel Improvements
North Channel
90 Ft. Bottom Width
80 Ft. Bottom Width
South Channel
40 Ft. Bottom Width
30 Ft. Bottom Width
Note:
Side Slope for Channel Improvements: SS = 3 : 1
N
NOT TO SCALE
TRIBUTARY 2
STORMWATER
INTERIM DRAINAGE PLAN
Channel Improvement
Chacon Creek Watershed
Exhibit 6
Revised Date: November 1999



KEY TO MA

Existing Channel

Clean Natural Cha

Existing Culvert

Replace Existing C

with Span Bridge

Proposed Detent. P

Proposed Channel Improvement

40 Ft. Bottom Width

Note:

Side Slope for Channel Improvements: SS = 3 : 1

N

NOT TO SCALE

TRIBUTARY 1

STORMWATER

INTERIM DRAINAGE PLA

Channel Improvement

Chacon Creek Watershed
Exhibit 7

Revised Date: November 1999

KEY TO MAP

- Existing Channel
- Clean Natural Channel
- Existing Detention Pond
- Existing Box Culvert
- Existing Bridge
- Existing Concrete Lining
- Underground Conduits
- Replace Existing Culvert with Span Bridge

TINAJA CREEK
Interim Drainage Plan

1. Clearing of Vegetation between Chacon Creek and Louisiana St.
2. Replace existing culverts with a span bridge at the intersection of Santa Barbara and New York St.

N

NOT TO SCALE

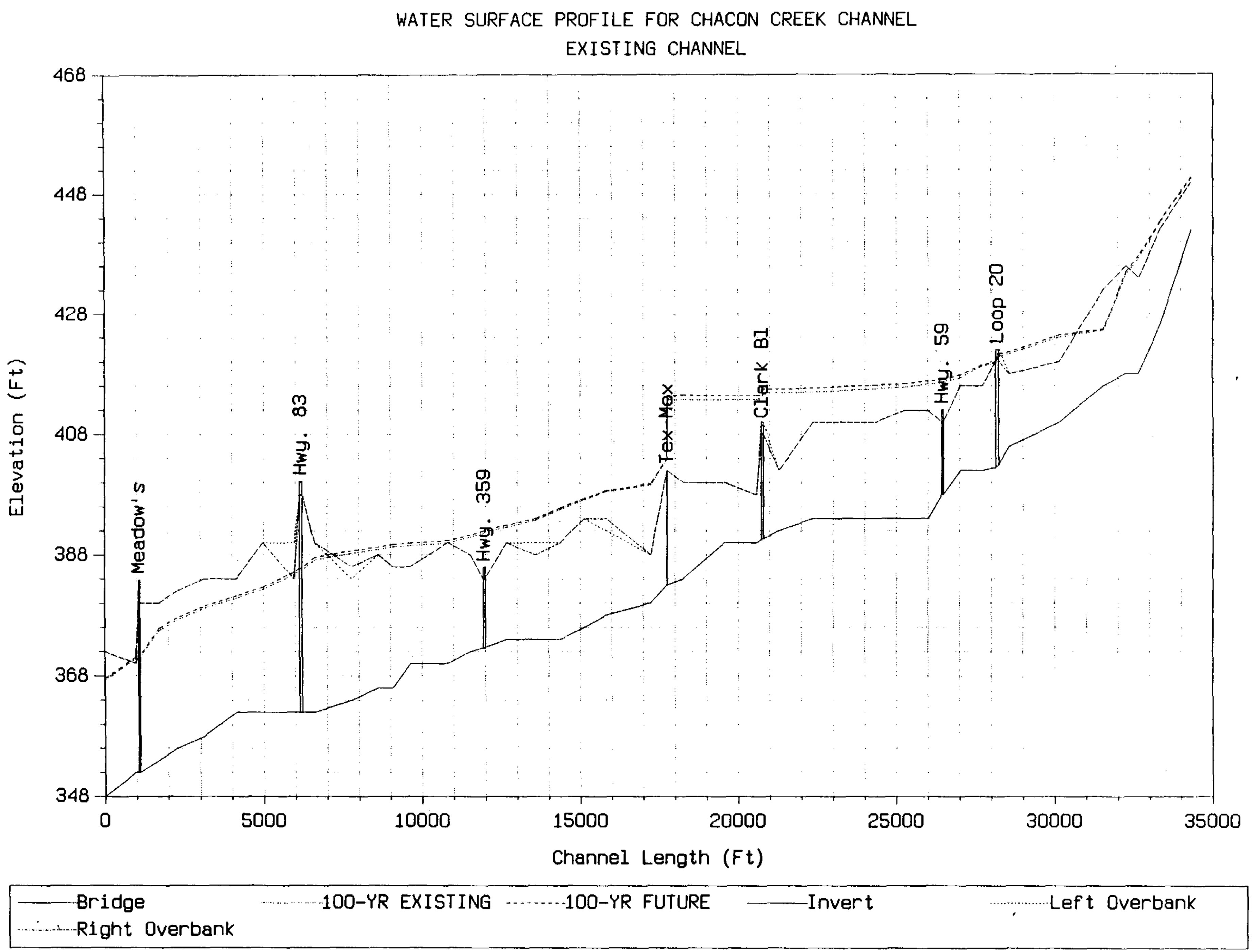
TINAJA CREEK
STORMWATER
INTERIM DRAINAGE PLAN
Channel Improvement

Chacon Creek Watershed
Exhibit 8

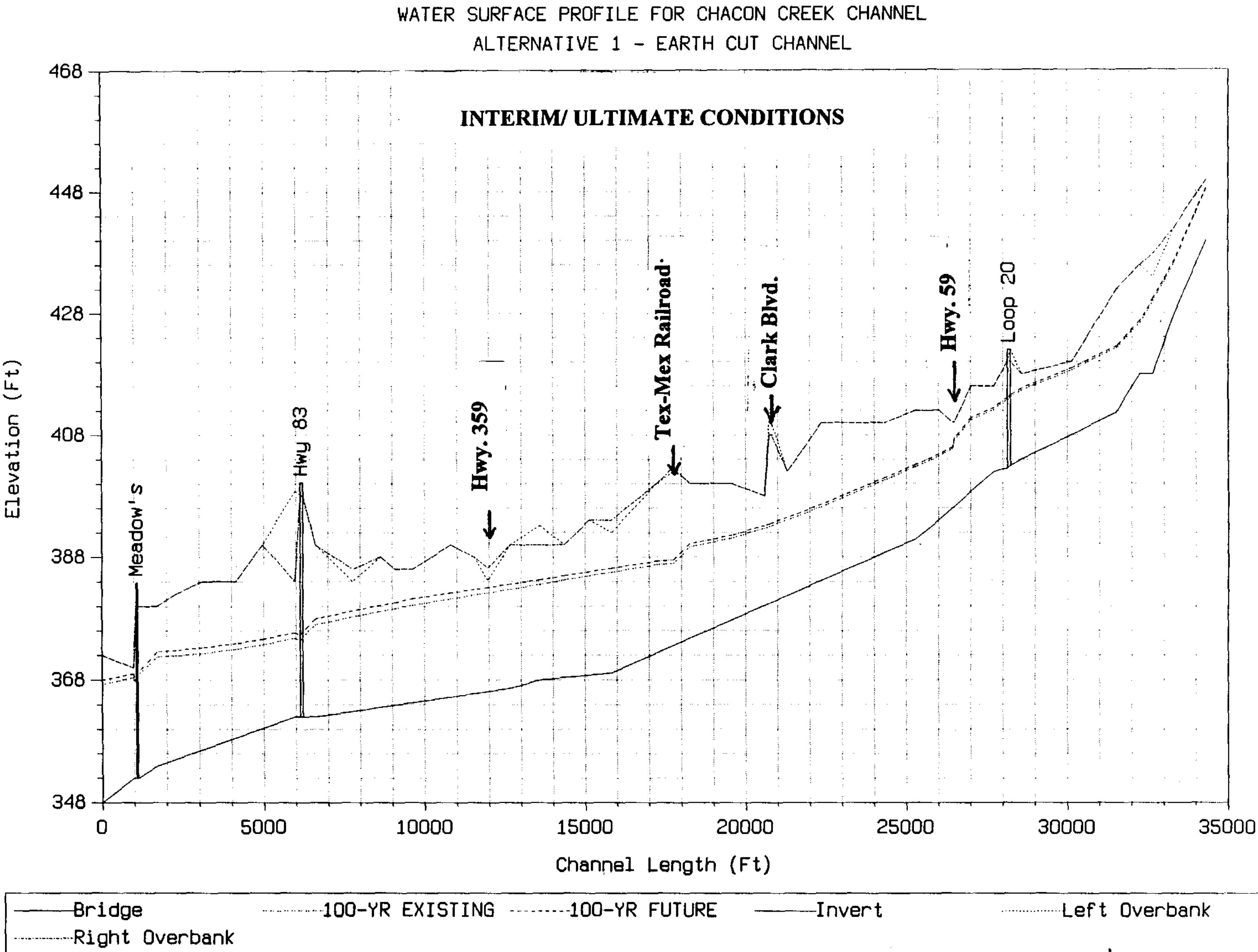
Revised Date: November 1999

WATER SURFACE PROFILES

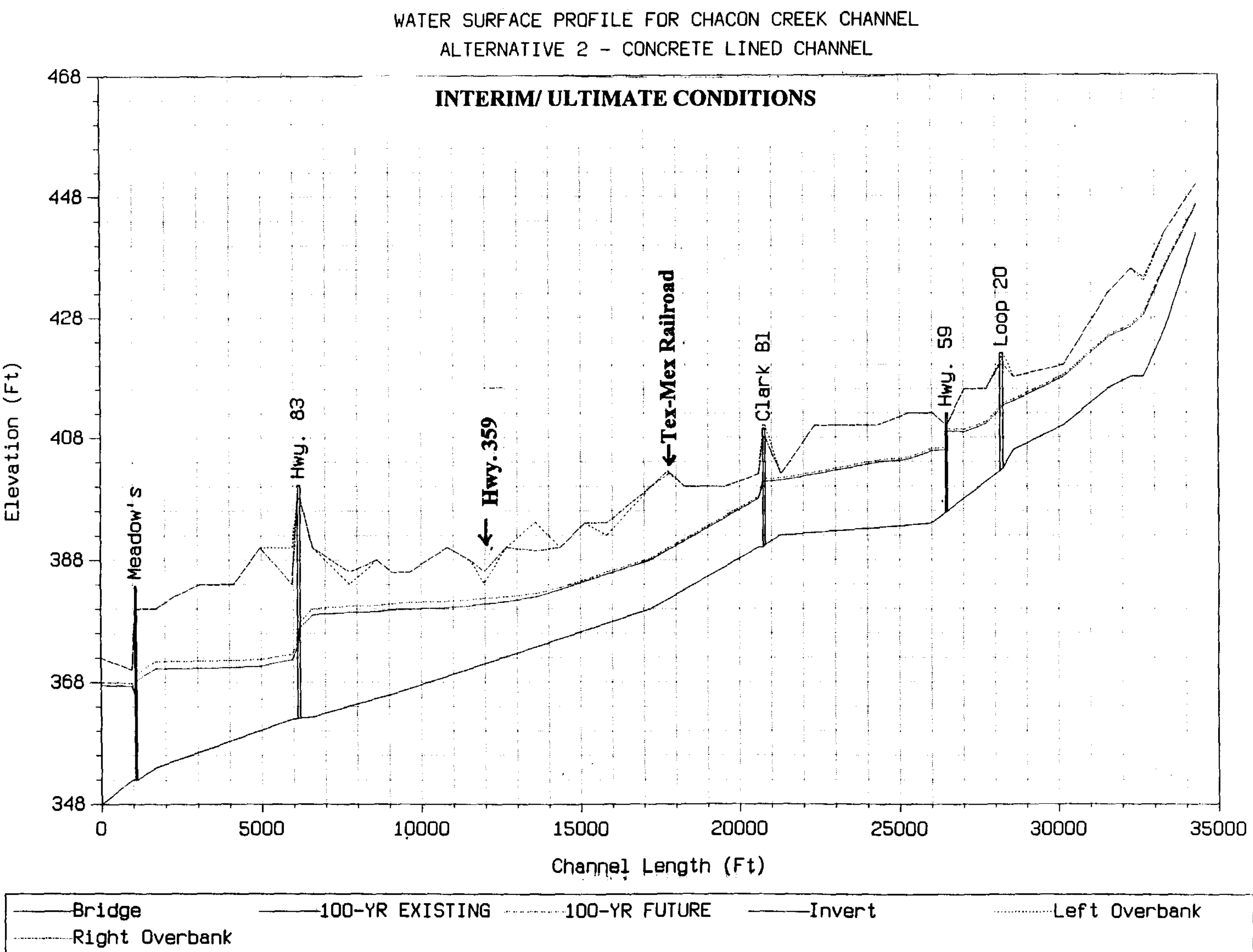
Chacon Creek Main Channel



WATER SURFACE PROFILE FOR CHACON CREEK CHANNEL
EXISTING CHANNEL
Elevation (Ft)
468
448
428
408
388
368
348
0
5000
10000
15000
20000
25000
30000
35000
Channel Length (Ft)
Meadow's
Hwy. 83
Hwy. 359
Tex Mex
Clark Bl
Hwy. 59
Loop 20
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank

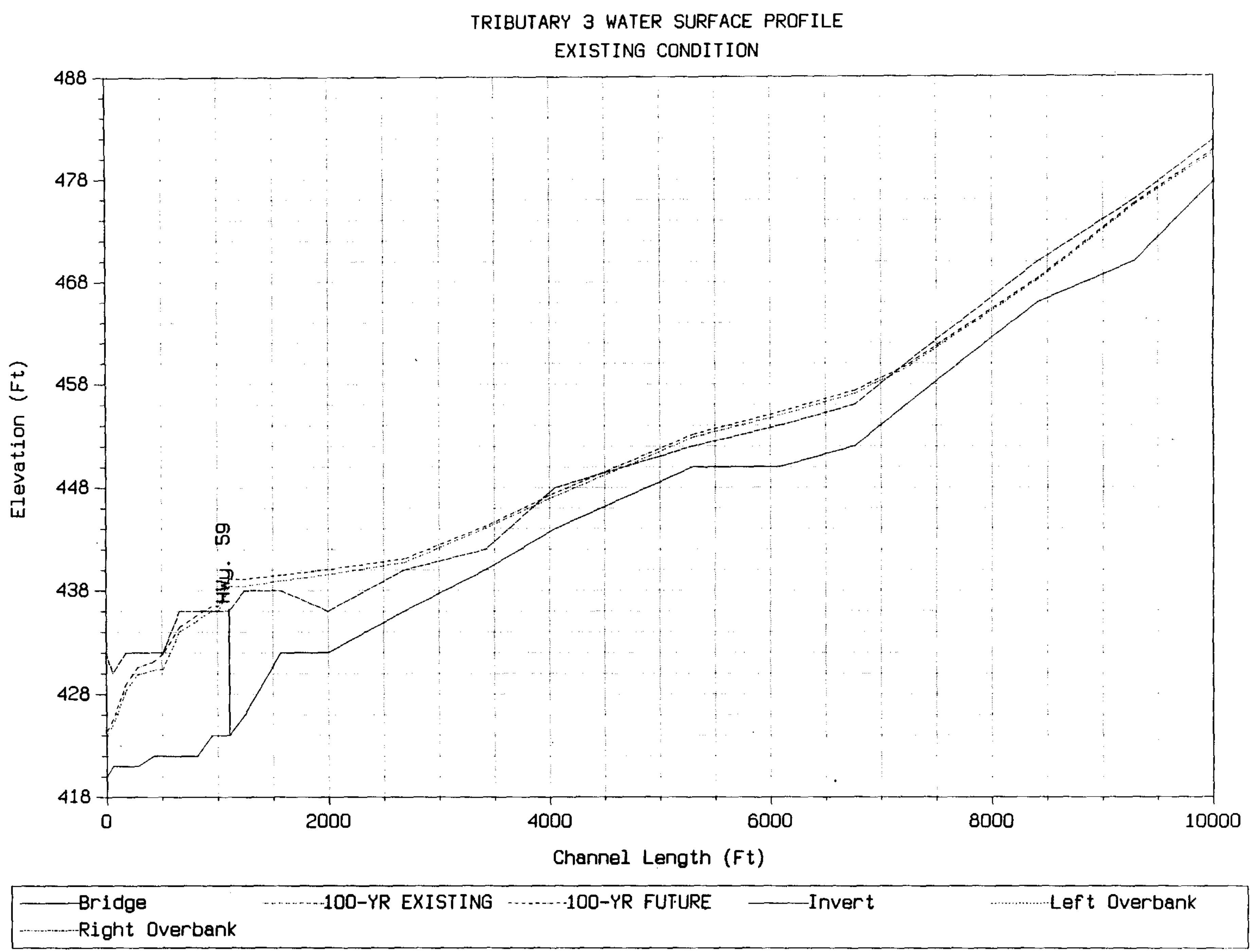


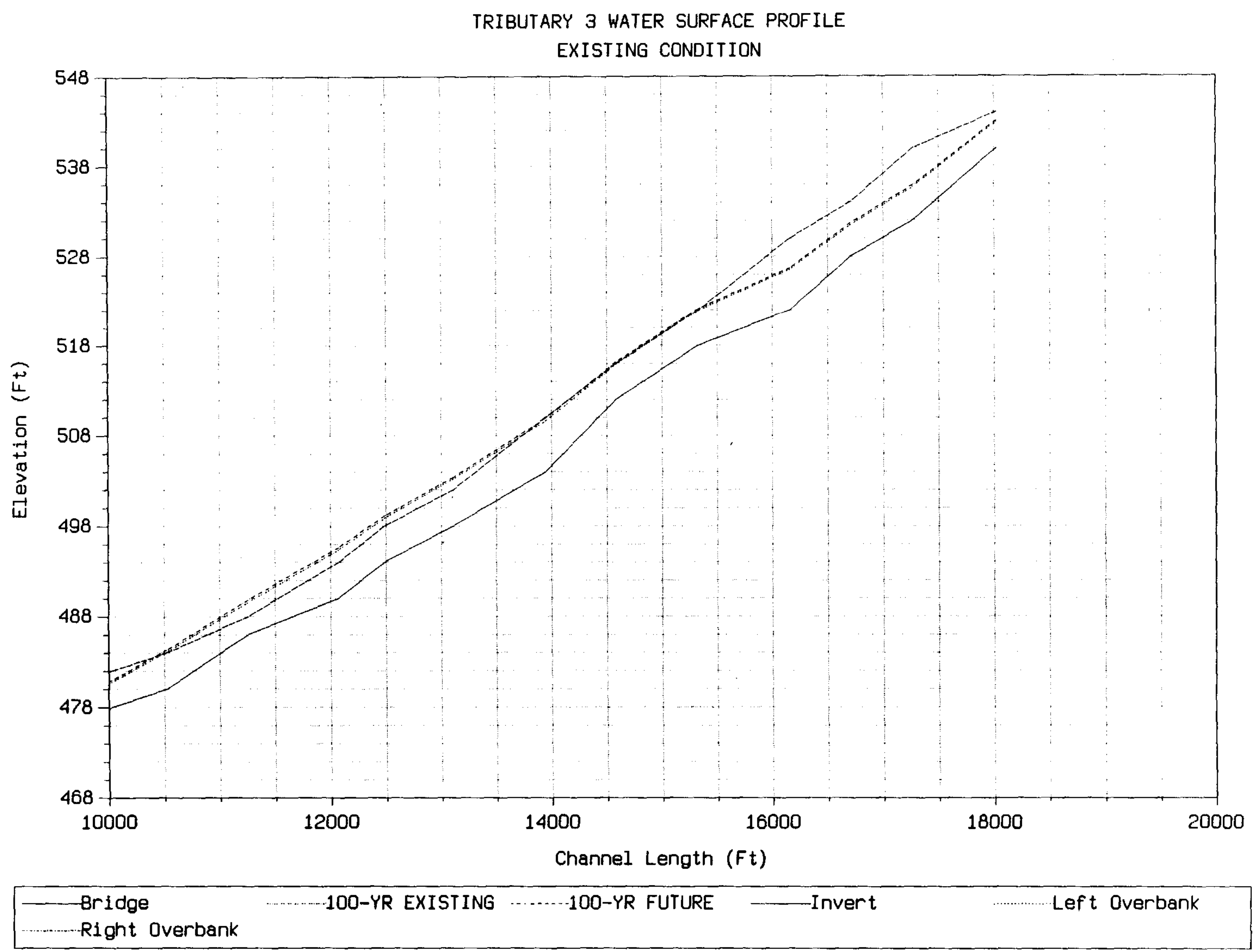
Hwy. 359, Tex-Mex, Clark Blvd. and Hwy. 59 Bridges to be replaced



Hwy. 359 and Tex-Mex Railroad Bridges to be replaced

Tributary 3

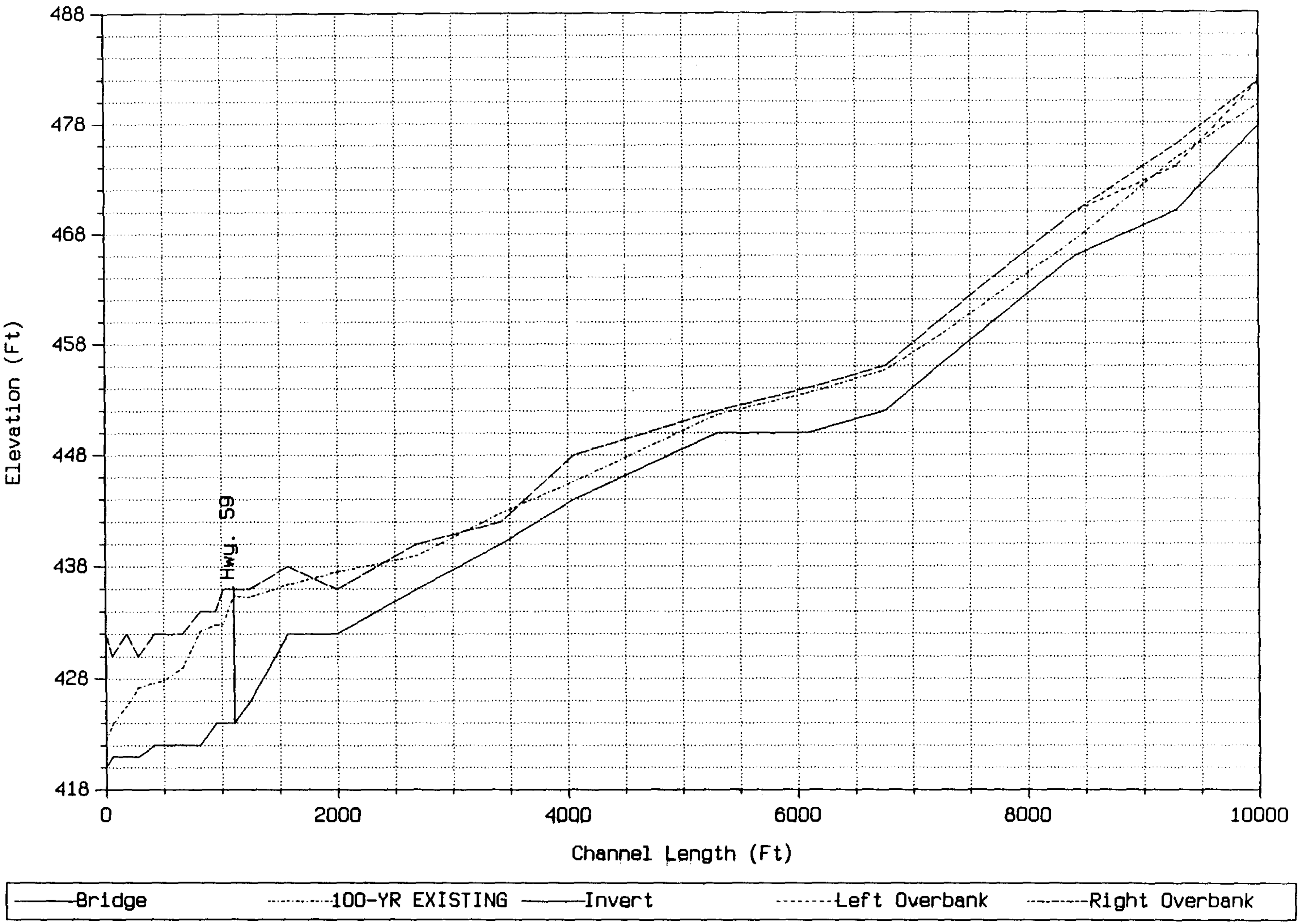

TRIBUTARY 3 WATER SURFACE PROFILE
EXISTING CONDITION
Elevation (Ft)
488
478
468
458
448
438
428
418
HWY. 59
0
2000
4000
6000
8000
10000
Channel Length (Ft)
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank

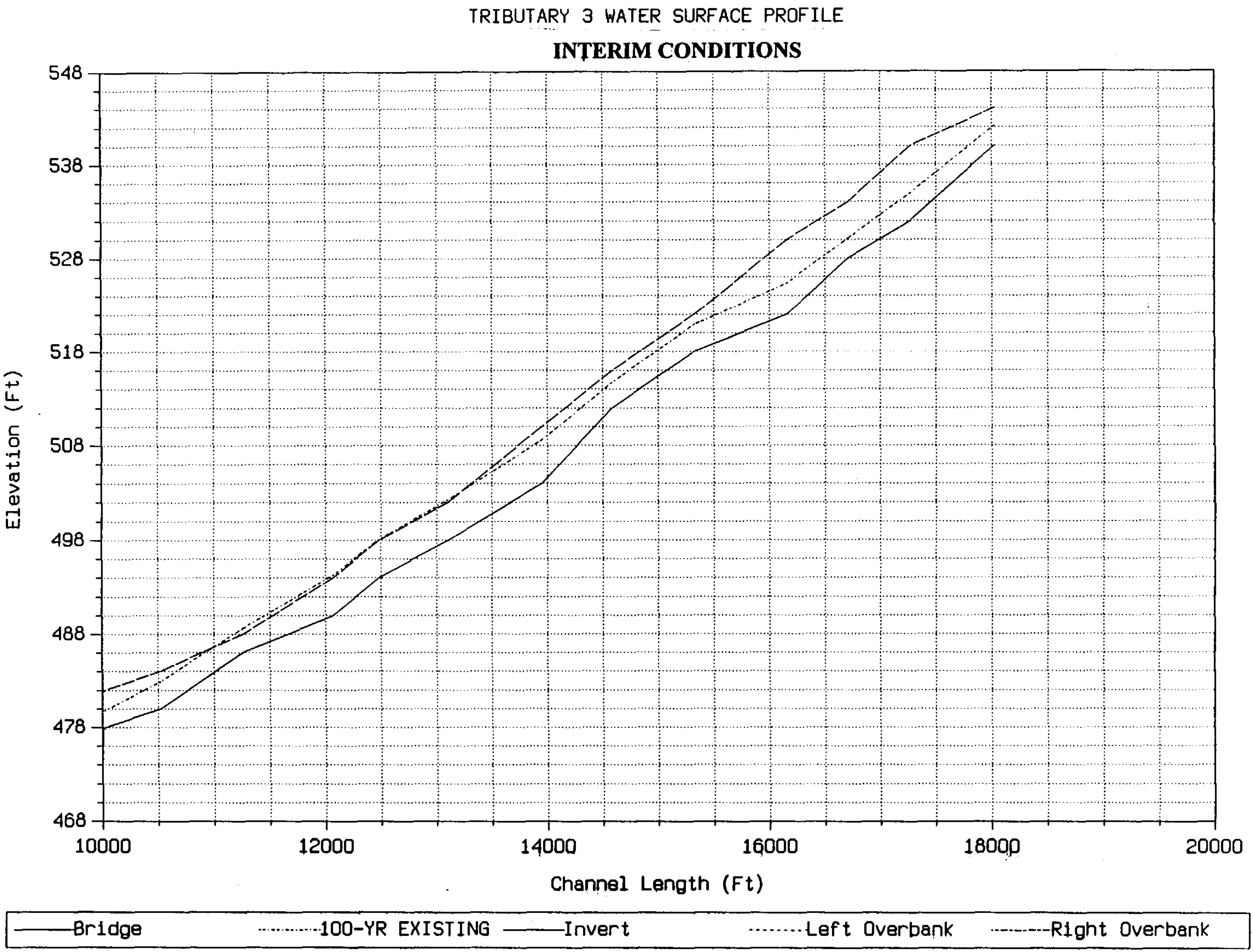


TRIBUTARY 3 WATER SURFACE PROFILE
EXISTING CONDITION
Elevation (Ft)
548
538
528
518
508
498
488
478
468
10000
12000
14000
16000
18000
20000
Channel Length (Ft)
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank

TRIBUTARY 3 WATER SURFACE PROFILE

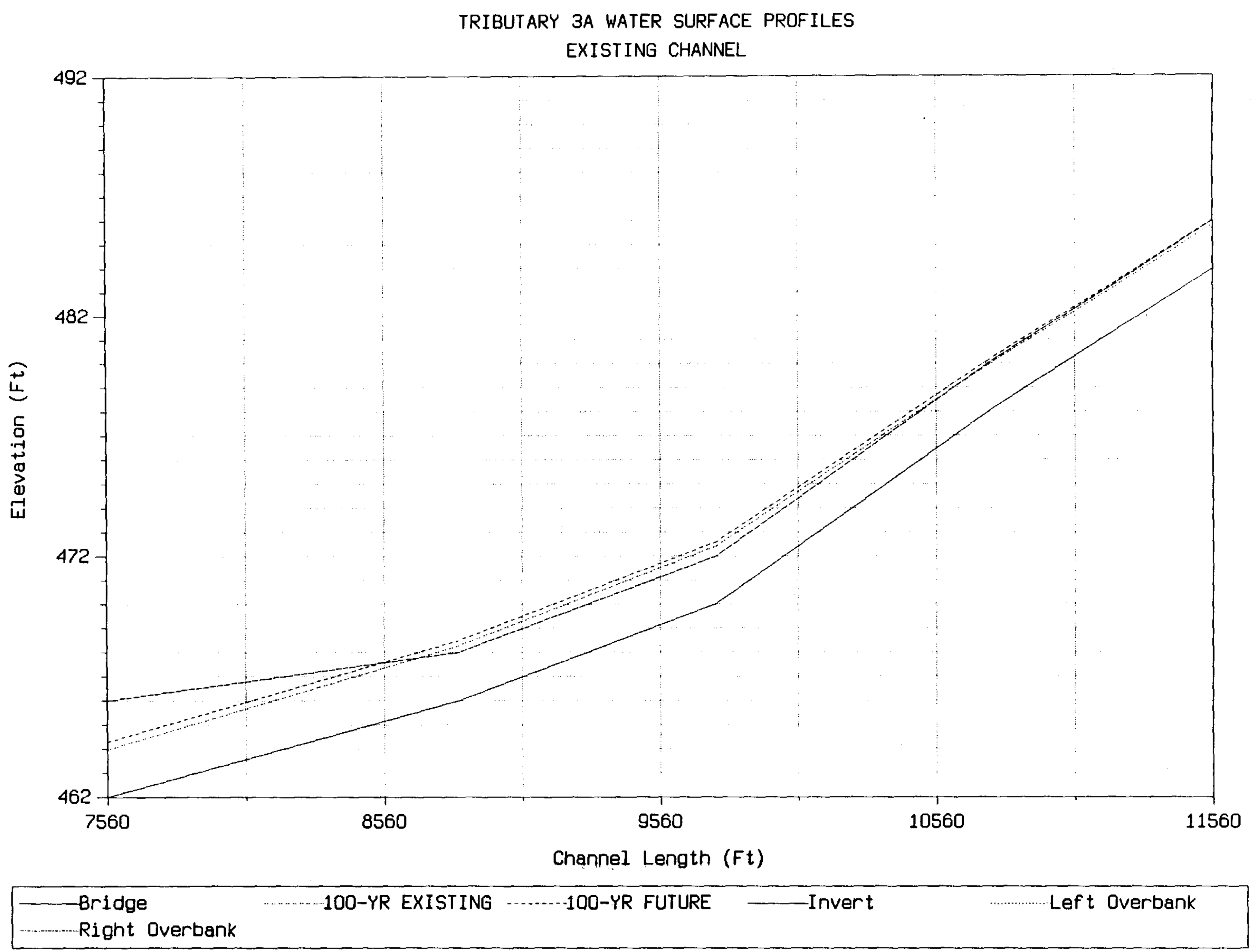
INTERIM CONDITIONS



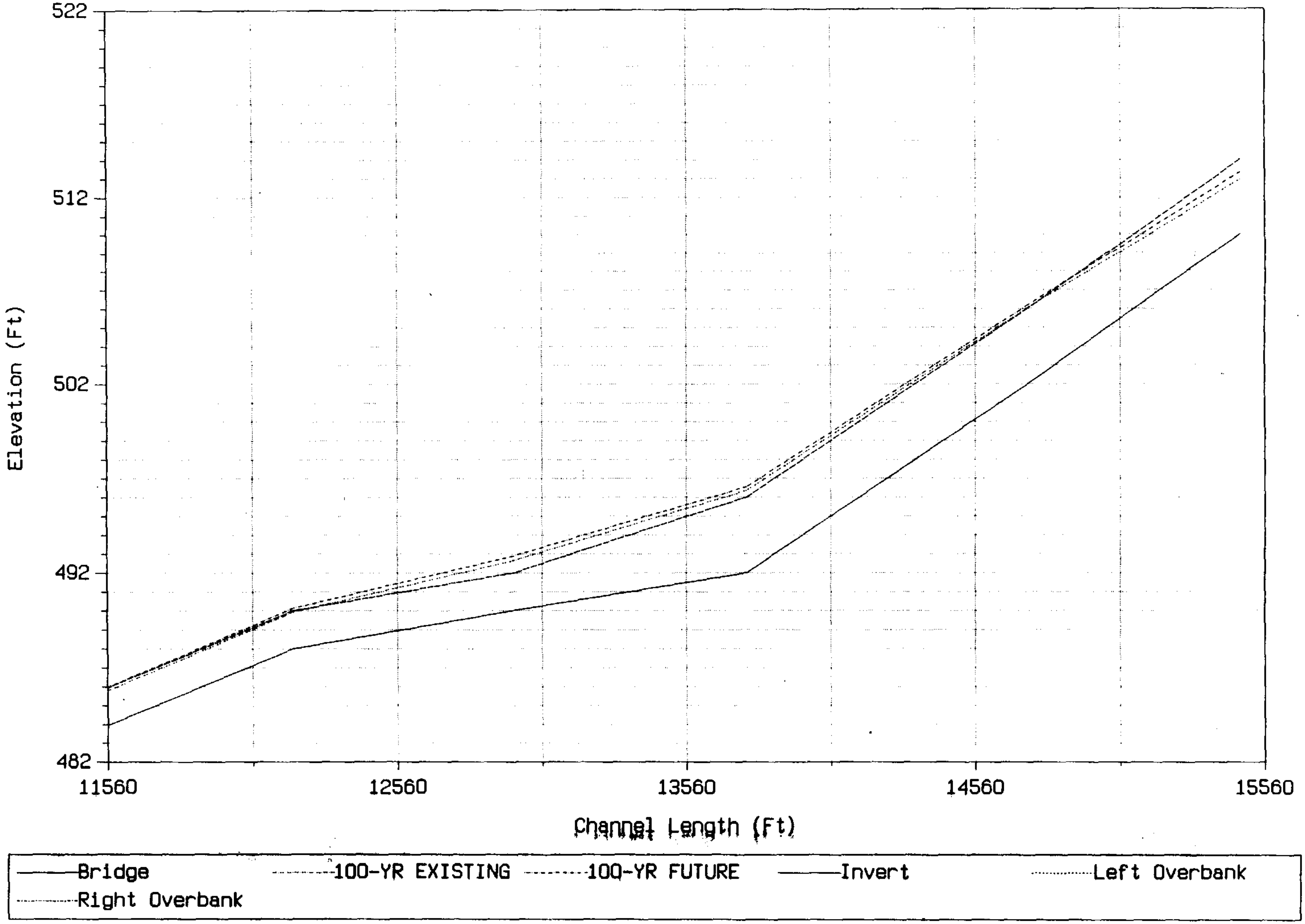


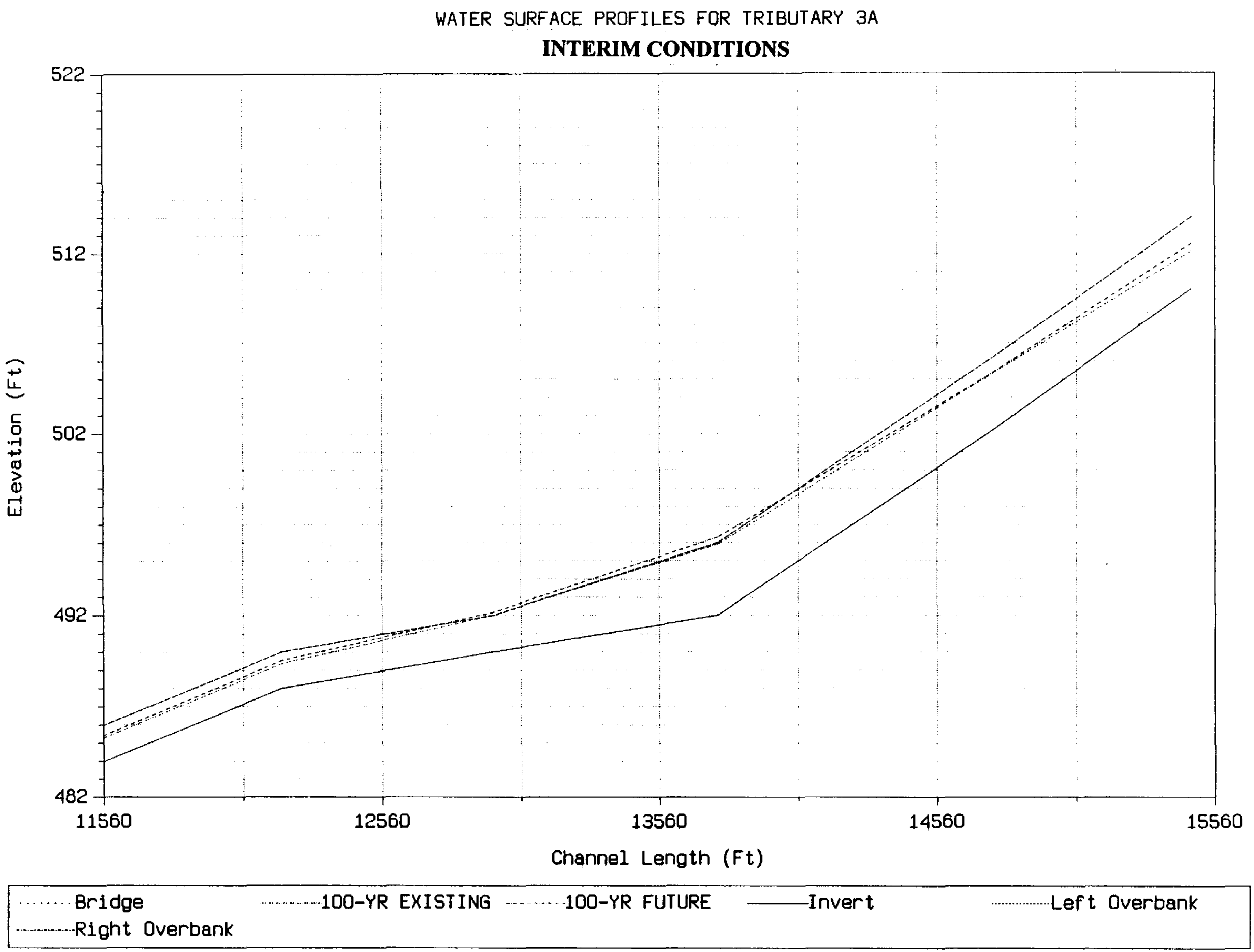
TRIBUTARY 3 WATER SURFACE PROFILE
INTERIM CONDITIONS
Elevation (Ft)
548
538
528
518
508
498
488
478
468
10000
12000
14000
16000
18000
20000
Channel Length (Ft)
Bridge
100-YR EXISTING
Invert
Left Overbank
Right Overbank

Tributary 3A

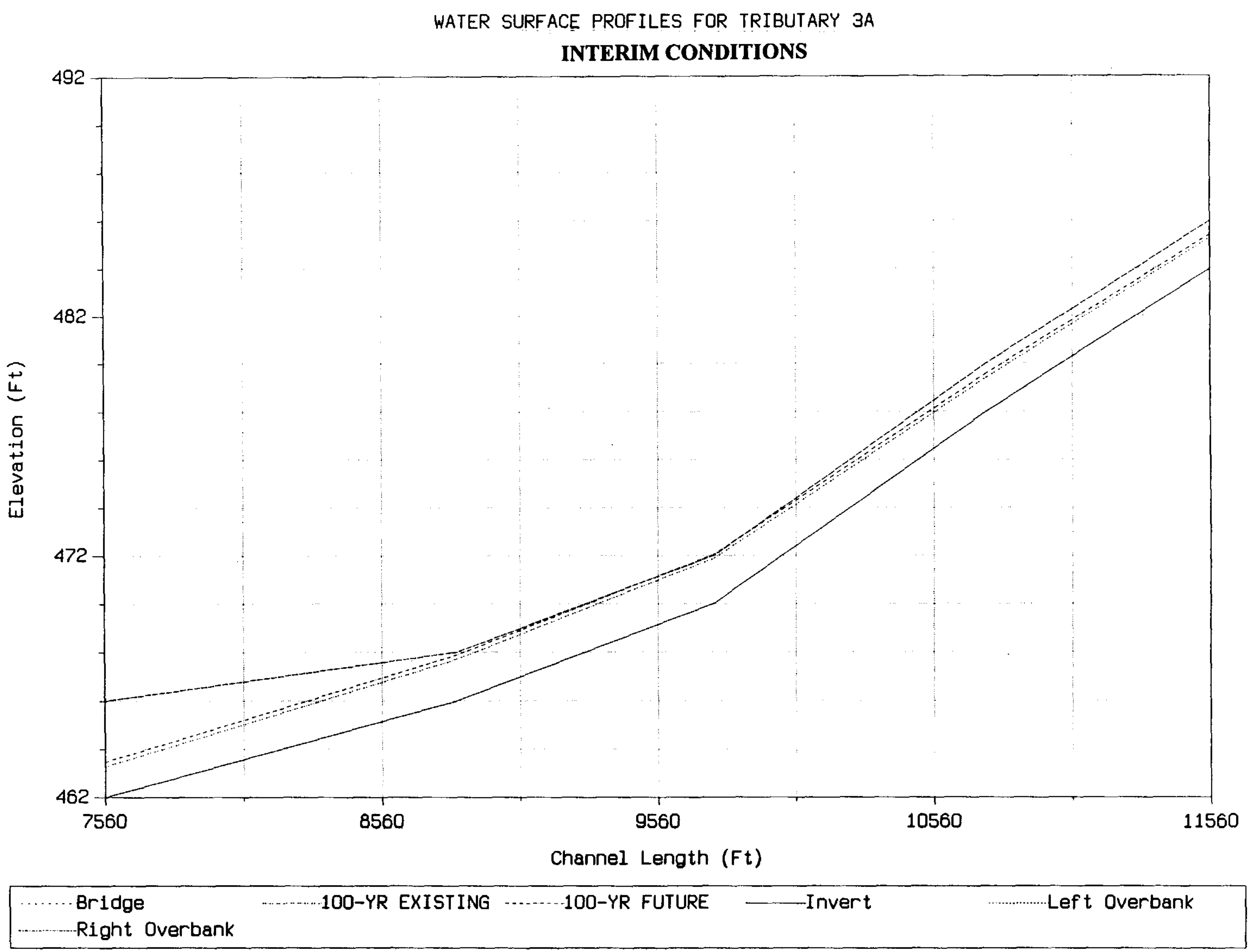

TRIBUTARY 3A WATER SURFACE PROFILES
EXISTING CHANNEL
492
482
472
462
Elevation (Ft)
7560
8560
9560
10560
11560
Channel Length (Ft)
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank

TRIBUTARY 3A WATER SURFACE PROFILES
EXISTING CHANNEL

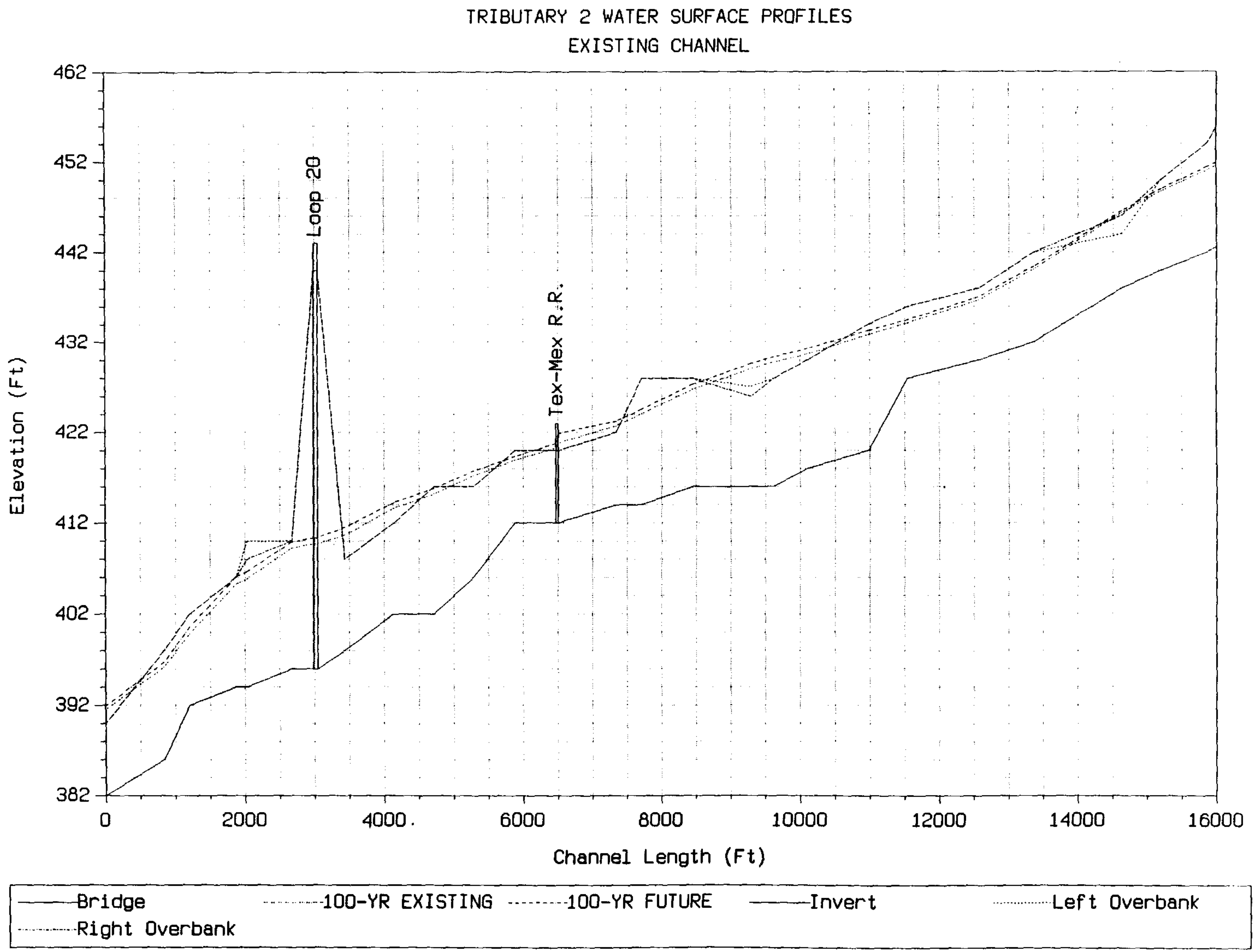


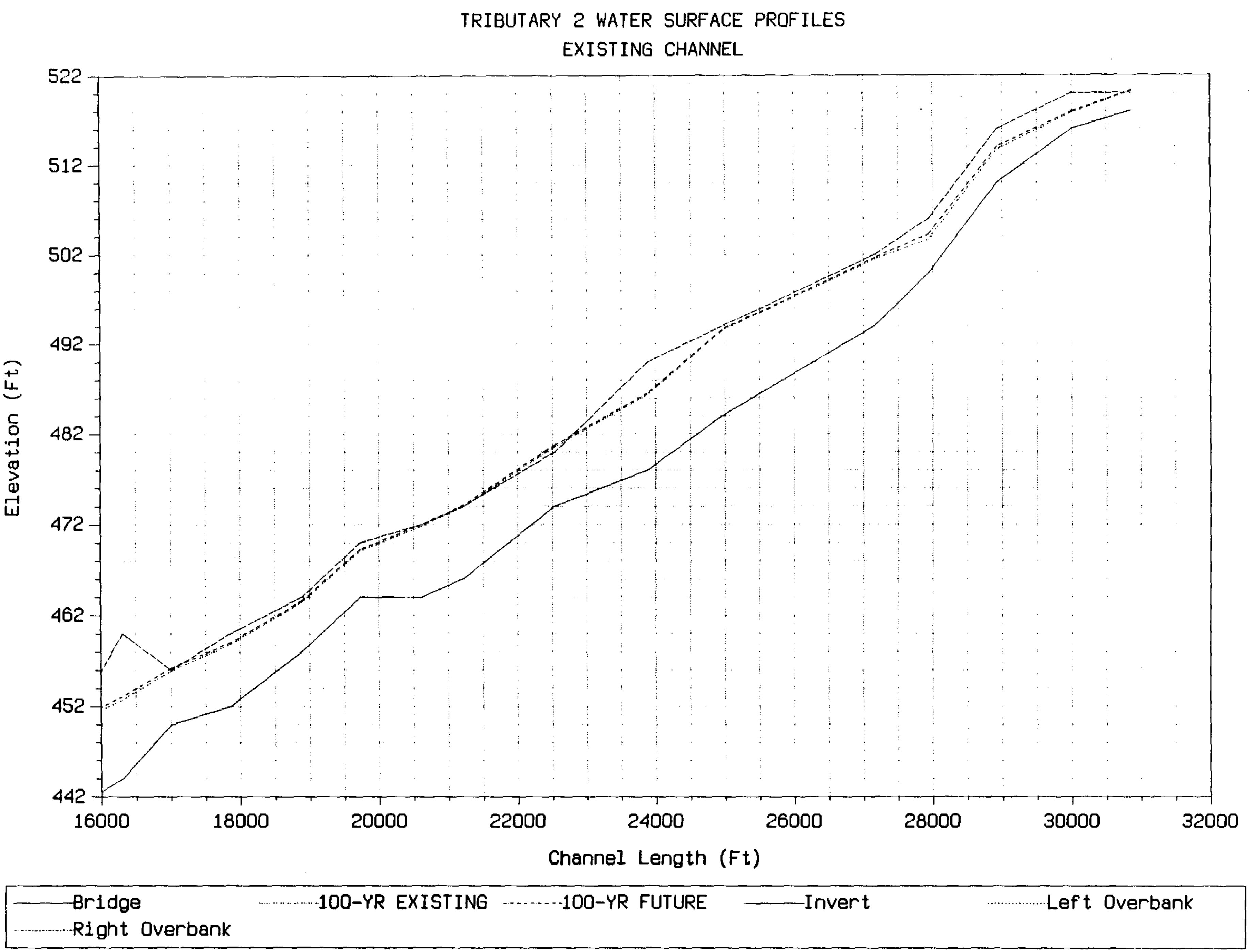


WATER SURFACE PROFILES FOR TRIBUTARY 3A
INTERIM CONDITIONS
522
512
502
492
482
Elevation (Ft)
11560
12560
13560
14560
15560
Channel Length (Ft)
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank

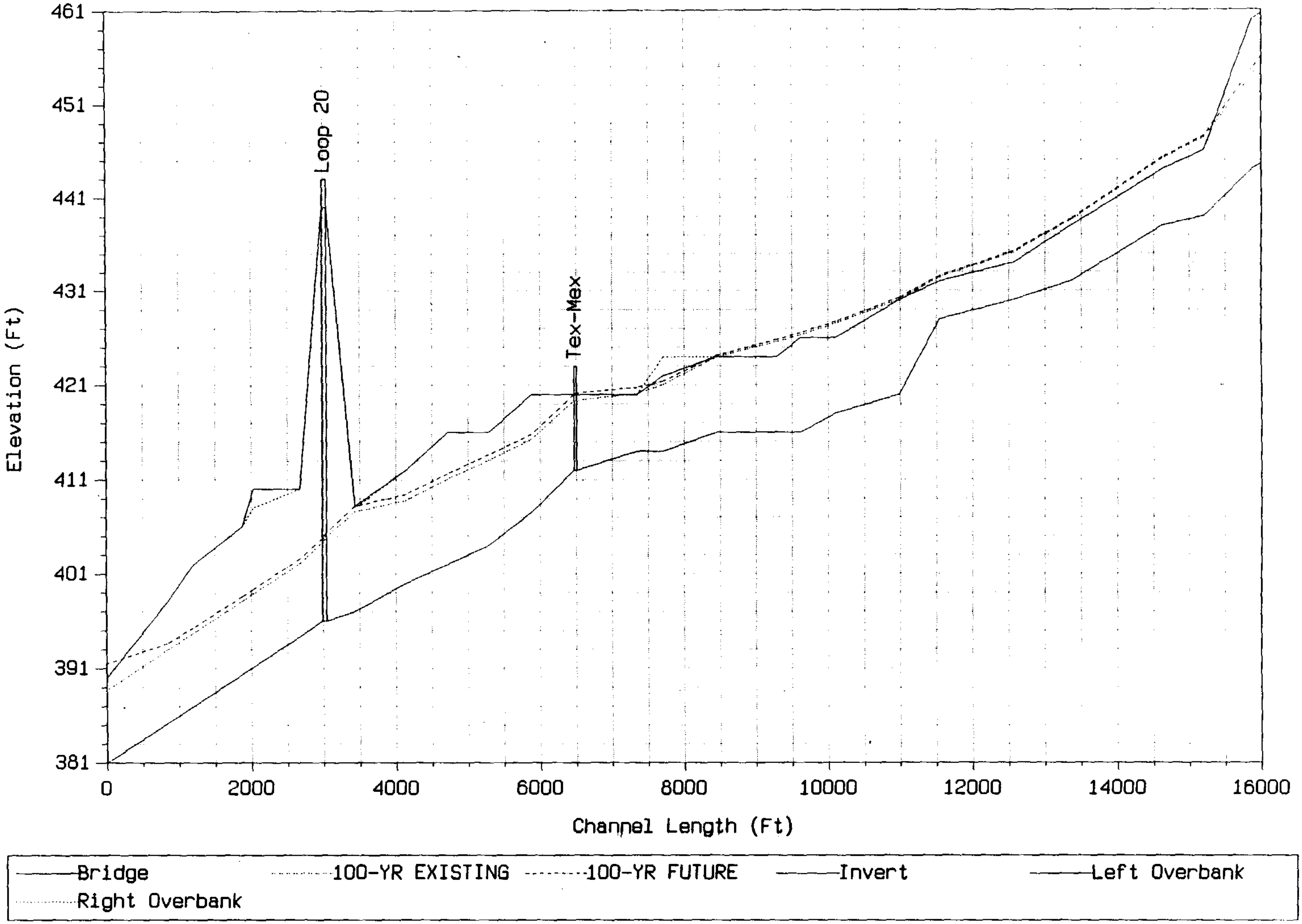

WATER SURFACE PROFILES FOR TRIBUTARY 3A
INTERIM CONDITIONS
492
482
472
462
Elevation (Ft)
7560
8560
9560
10560
11560
Channel Length (Ft)
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank

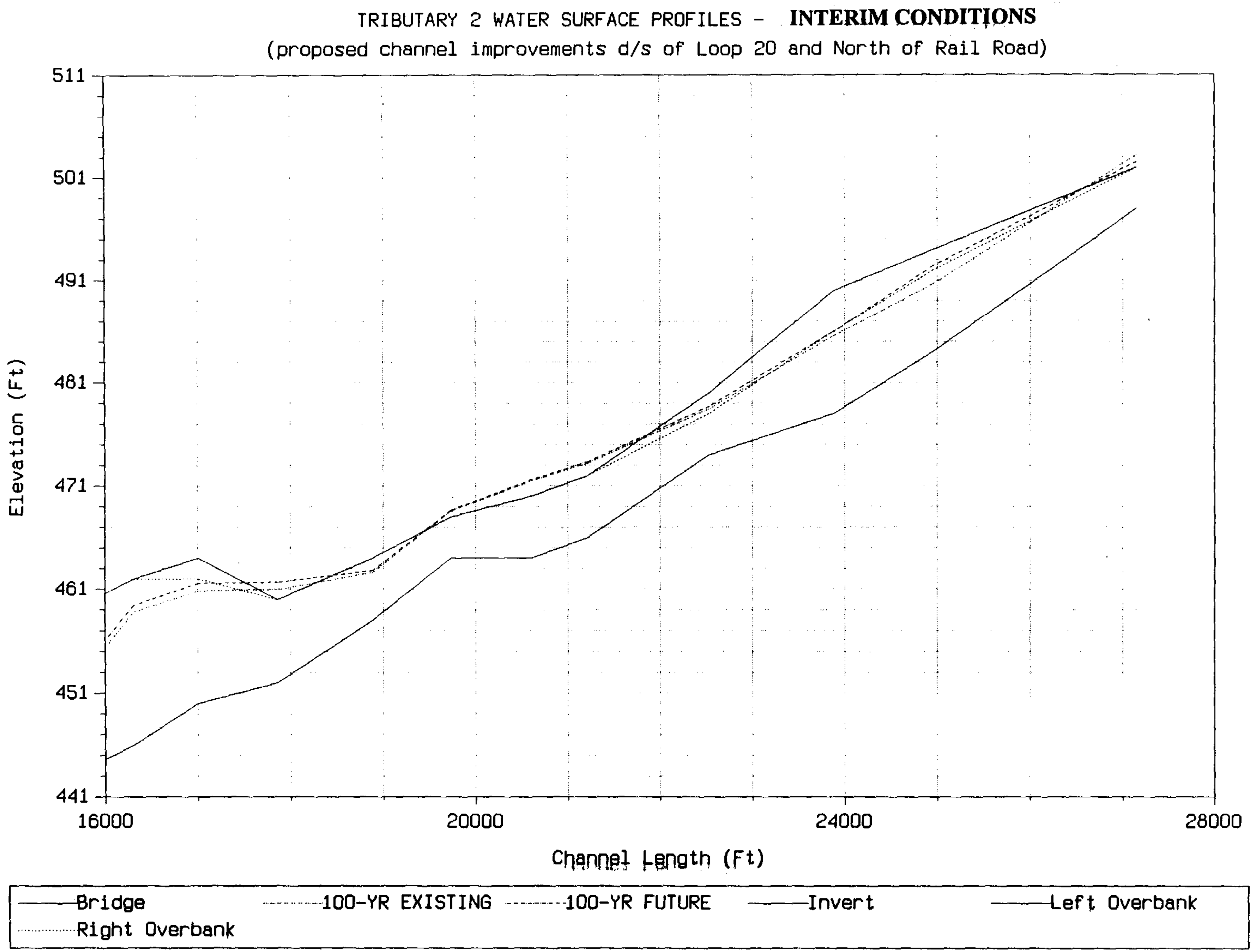
Tributary 2

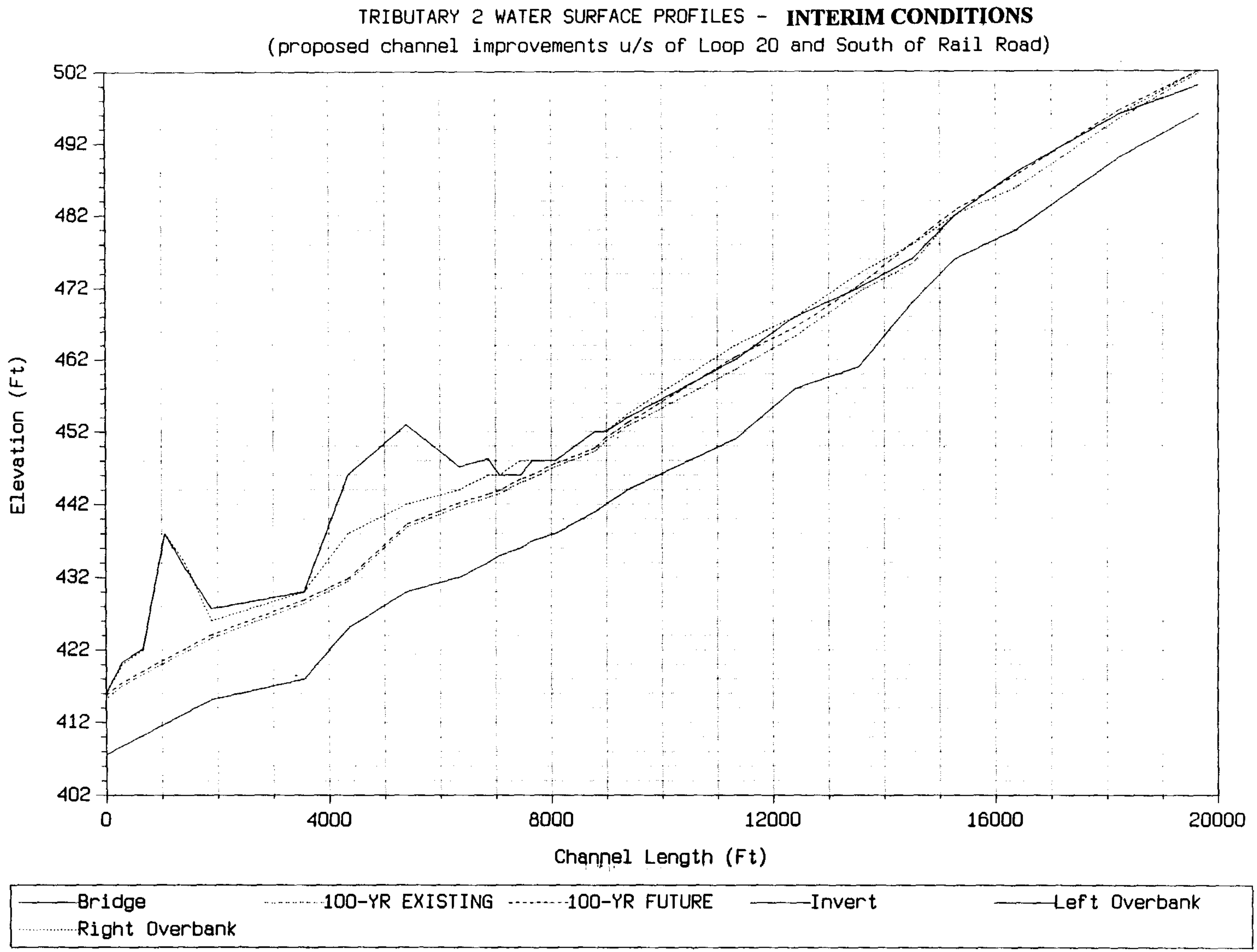

TRIBUTARY 2 WATER SURFACE PROFILES
EXISTING CHANNEL
Loop 20
Tex-Mex R.R.
Elevation (Ft)
462
452
442
432
422
412
402
392
382
Channel Length (Ft)
0
2000
4000
6000
8000
10000
12000
14000
16000
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank


TRIBUTARY 2 WATER SURFACE PROFILES
EXISTING CHANNEL
522
512
502
492
482
472
462
452
442
Elevation (Ft)
16000
18000
20000
22000
24000
26000
28000
30000
32000
Channel Length (Ft)
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank

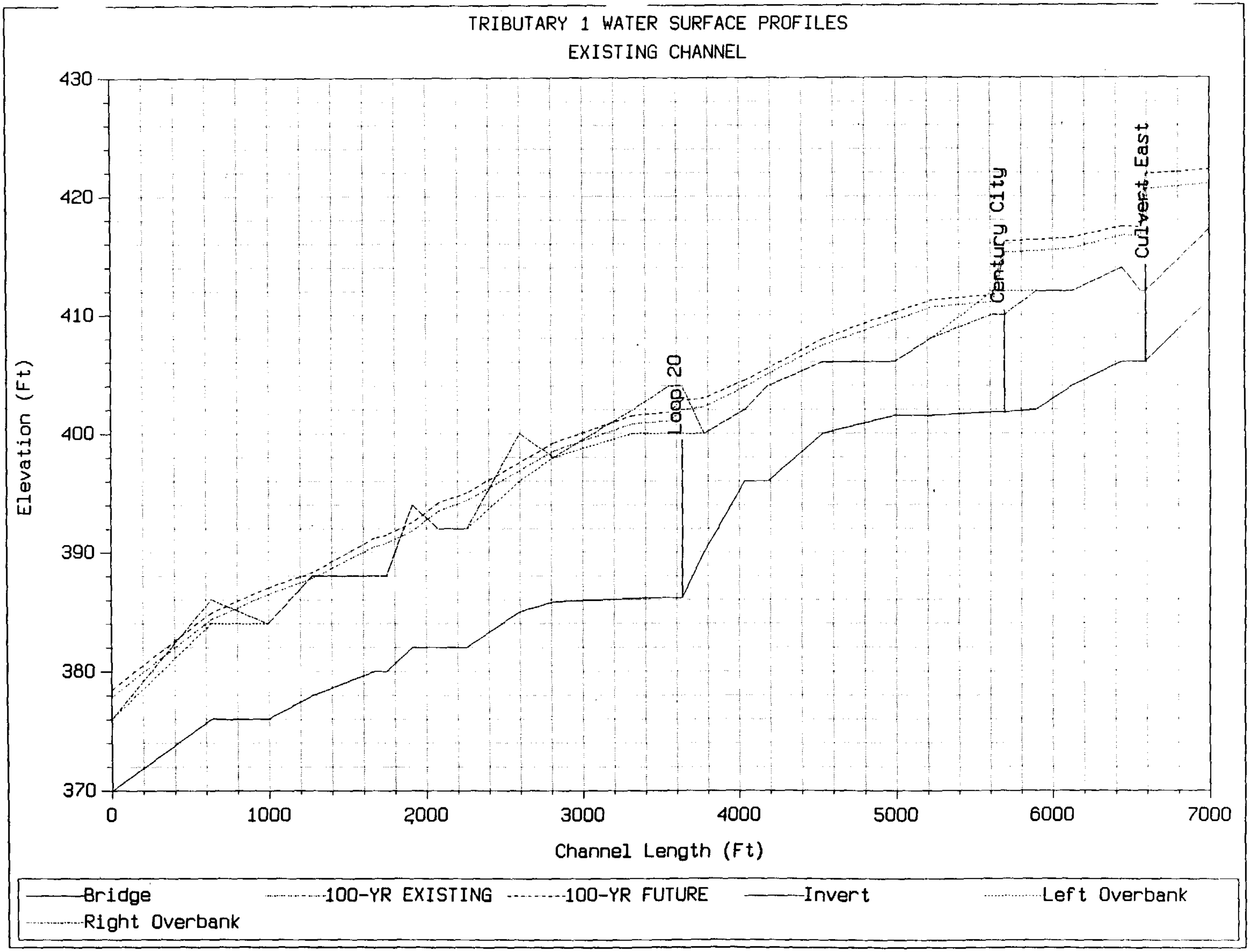
TRIBUTARY 2 WATER SURFACE PROFILES - **INTERIM CONDITIONS**
(proposed channel improvements d/s of Loop 20 and North of Rail Road)



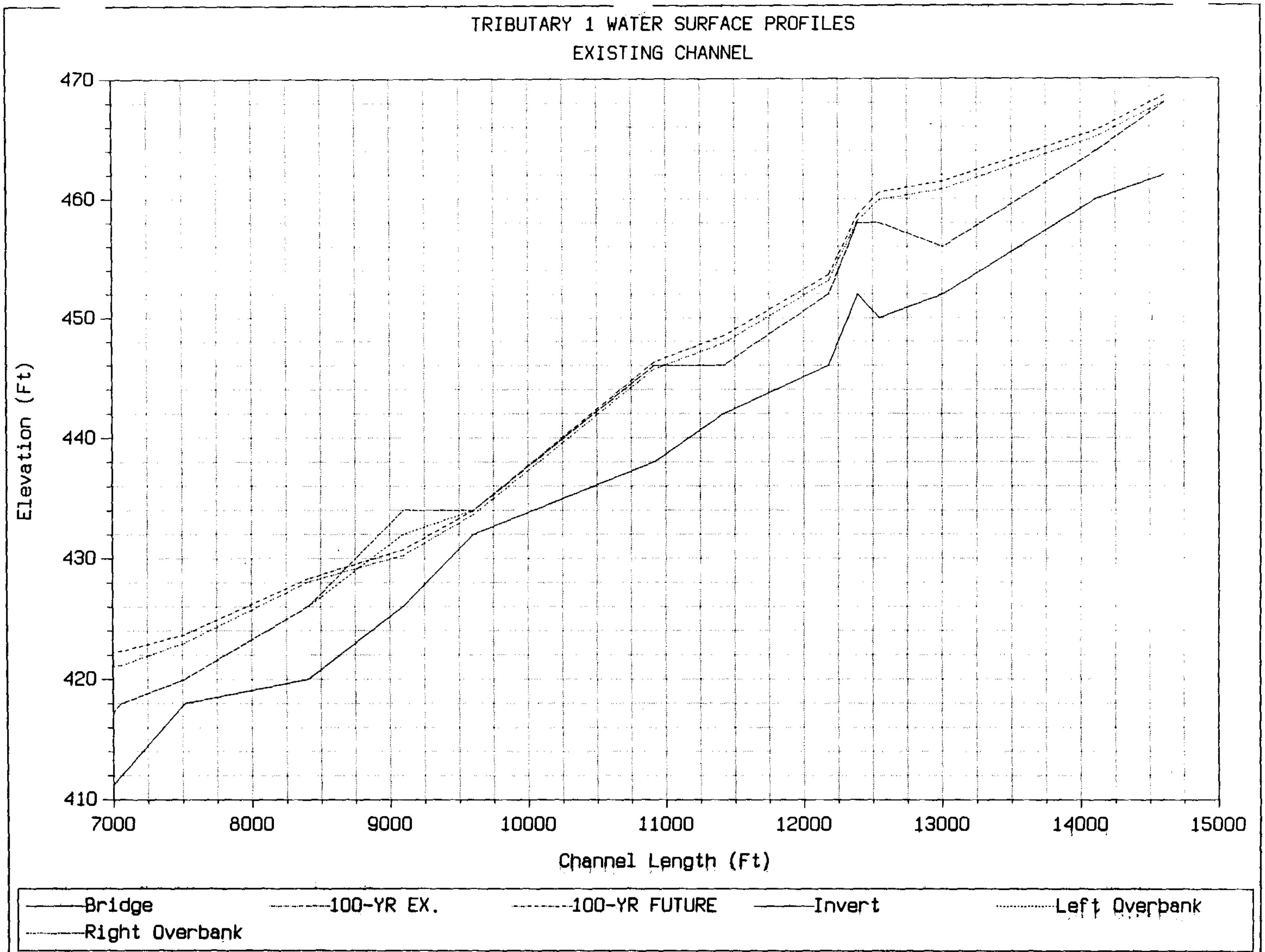

TRIBUTARY 2 WATER SURFACE PROFILES - INTERIM CONDITIONS
(proposed channel improvements d/s of Loop 20 and North of Rail Road)
511
501
491
481
471
461
451
441
Elevation (Ft)
16000
20000
24000
28000
Channel Length (Ft)
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank


TRIBUTARY 2 WATER SURFACE PROFILES - INTERIM CONDITIONS
(proposed channel improvements u/s of Loop 20 and South of Rail Road)
502
492
482
472
462
452
442
432
422
412
402
Elevation (Ft)
0
4000
8000
12000
16000
20000
Channel Length (Ft)
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank

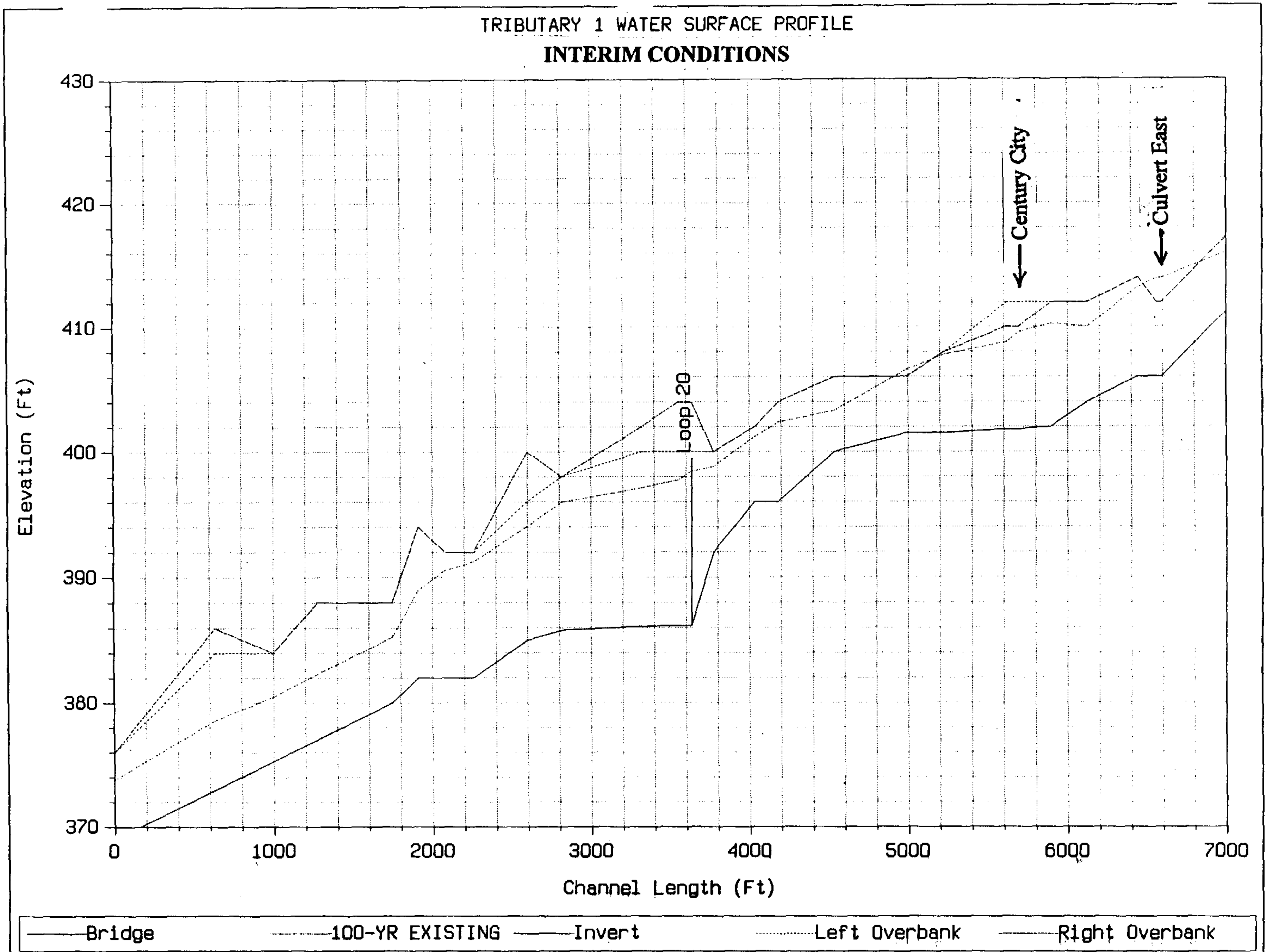
Tributary 1



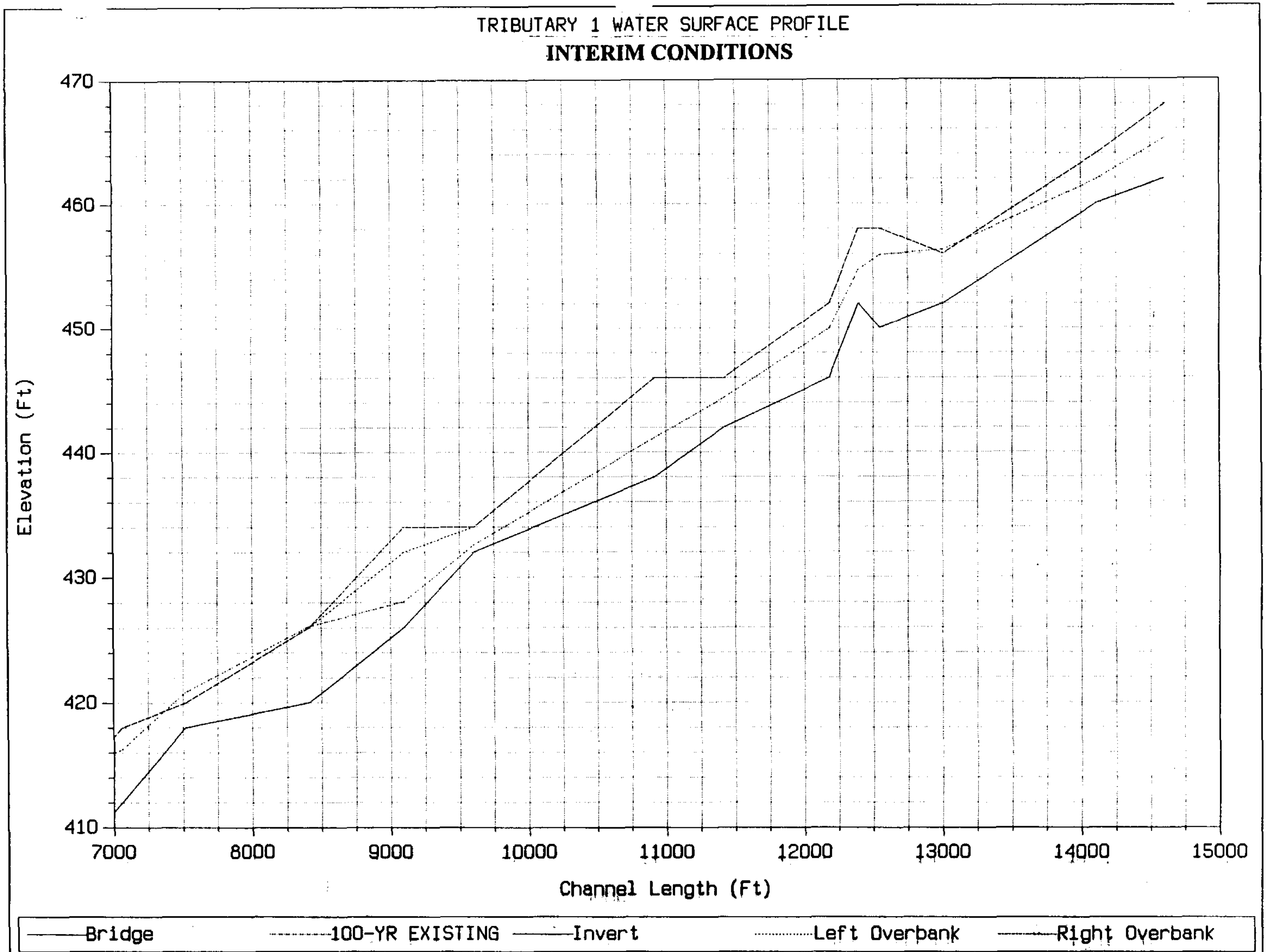
TRIBUTARY 1 WATER SURFACE PROFILES
EXISTING CHANNEL
Elevation (Ft)
430
420
410
400
390
380
370
0
1000
2000
3000
4000
5000
6000
7000
Channel Length (Ft)
Loop 20
Century City
Culvert East
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank



TRIBUTARY 1 WATER SURFACE PROFILES
EXISTING CHANNEL
Elevation (Ft)
470
460
450
440
430
420
410
7000
8000
9000
10000
11000
12000
13000
14000
15000
Channel Length (Ft)
Bridge
100-YR EX.
100-YR FUTURE
Invert
Left Overbank
Right Overbank

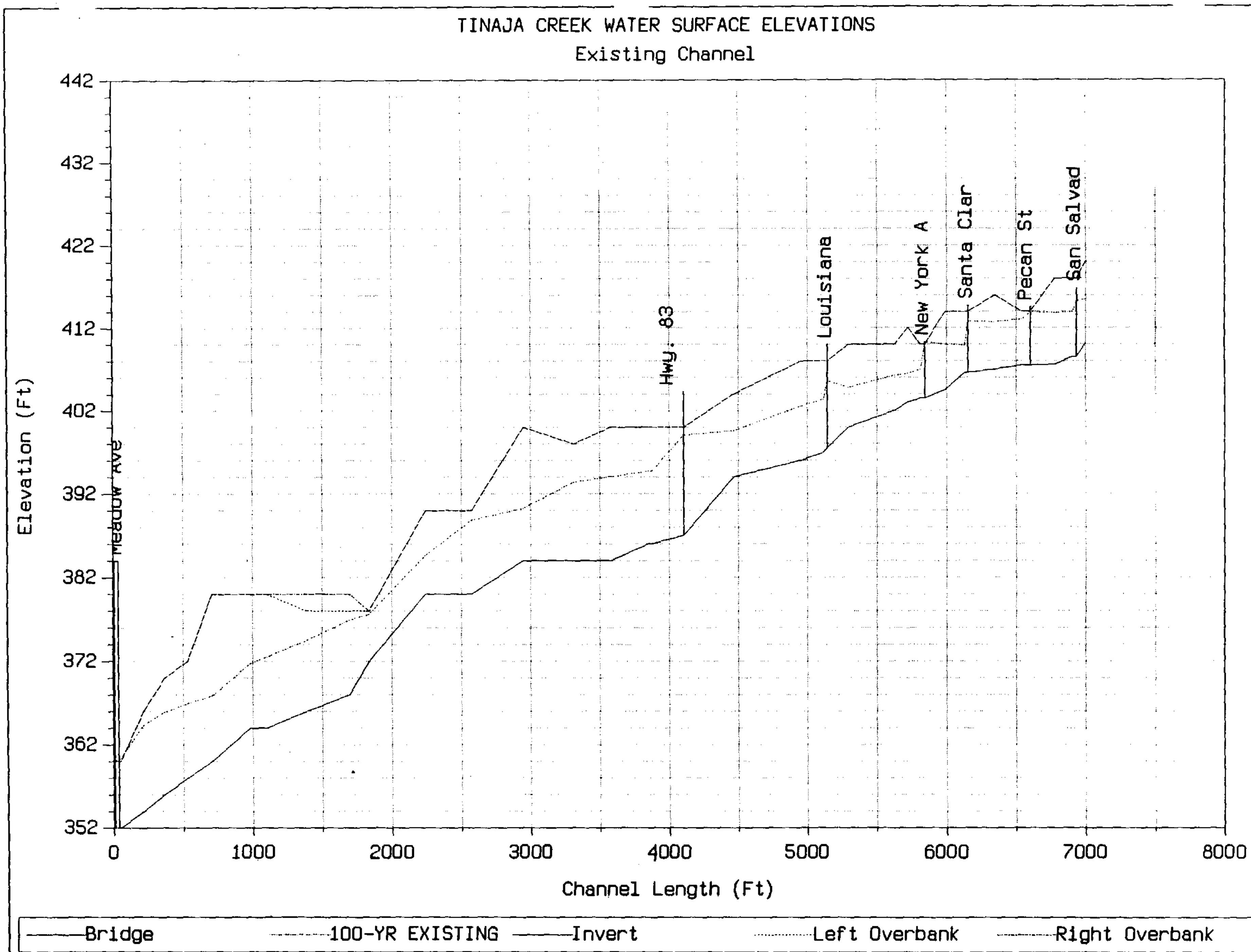


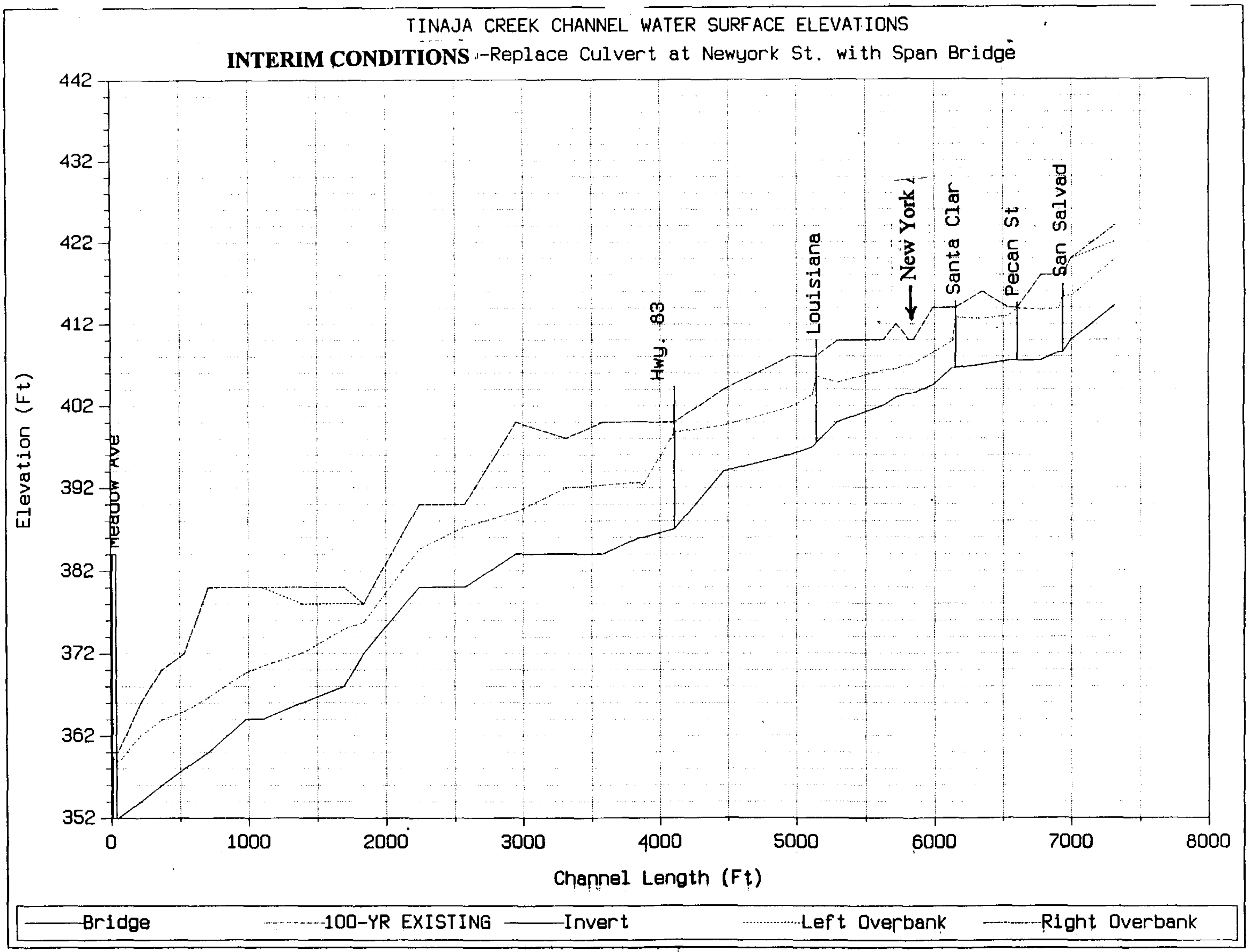
Culverts at Century City & East of Century City to be replaced by Span bridges



TRIBUTARY 1 WATER SURFACE PROFILE
INTERIM CONDITIONS
Elevation (Ft)
470
460
450
440
430
420
410
7000
8000
9000
10000
11000
12000
13000
14000
15000
Channel Length (Ft)
Bridge
100-YR EXISTING
Invert
Left Overbank
Right Overbank

Tinaja Creek


TINAJA CREEK WATER SURFACE ELEVATIONS
Existing Channel
Elevation (Ft)
442
432
422
412
402
392
382
372
362
352
0
1000
2000
3000
4000
5000
6000
7000
8000
Channel Length (Ft)
Meadow Ave
Hwy. 83
Louisiana
New York A
Santa Clar
Pecan St
San Salvad
Bridge
100-YR EXISTING
Invert
Left Overbank
Right Overbank



TINAJA CREEK CHANNEL WATER SURFACE ELEVATIONS
INTERIM CONDITIONS -Replace Culvert at Newyork St. with Span Bridge
Elevation (Ft)
Channel Length (Ft)
442
432
422
412
402
392
382
372
362
352
0
1000
2000
3000
4000
5000
6000
7000
8000
Meadow Ave
Hwy. 83
Louisiana
New York
Santa Clar
Pecan St
San Salvad
Bridge
100-YR EXISTING
Invert
Left Overbank
Right Overbank

Storm Water Master Drainage Plans for the Chacon Creek Watershed

ULTIMATE CONDITIONS

City of Laredo and Webb County, Texas
November 1999

Prepared For:
City of Laredo
Webb County
Webb County Drainage District No. 1
The Texas Water Development Board

STATE OF TEXAS
SHASHI KRISHNAPPA
83948
LICENSED
PROFESSIONAL ENGINEER

3/13/2000

Brown & Root Services
Engineered by Halliburton Tech. Services, Inc.

TOBIN

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STORMWATER MASTER DRAINAGE PLANS
FOR THE CHACON CREEK WATERSHED
CITY OF LAREDO AND WEBB COUNTY, TEXAS

ULTIMATE CONDITIONS

1.0 EXECUTIVE SUMMARY

The ultimate drainage plan provides the recommended improvements and the associated preliminary construction costs for implementation to minimize flooding from the 100-year design storm. The ultimate drainage plan also presents a "buy-out" alternative for structures located within the 100-year floodplain. The ultimate conditions are based on future condition flows, which were determined based on the ultimate development of the watershed. The ultimate development was assumed to occur based on the future land use map provided for this study (please see Figure 1) by the City of Laredo. The recommended drainage improvements for each channel were designed to accommodate full development of each watershed. These improvements are compatible with the interim drainage plan improvements for the different channels. The costs are also independent of the interim drainage plan recommendations. The cost of proposed ultimate condition drainage improvements for all the channels in the watershed is approximately 13 million dollars. This 13 millions is in addition to the costs of the interim condition plans. The proposed improvements would eliminate or minimize the flooding potential due to the 100-year design storm.

The cost associated with the non-structural "buy-out" alternative is approximately 3.3 million dollars. This is in addition to the 24 million dollars for interim conditions "buy-out". This cost is based on preliminary estimates and did not consider other potential issues such as public discontent and legal issues associated with removing structures from the floodplain. The structures used in this estimate for calculating the "buy-out " costs were not included in the interim conditions. The cost of drainage improvements for the Tinaja Creek and Chacon Creek channel is less than the estimated cost for "buy-out". "Buy-out" alternative is the cost-effective option for Tributary 1, Tributary 2, Tributary 3 and 3A channels.

However, a combination of drainage improvements and "buy-out" is the recommended cost-effective solution to mitigate the flooding problem in the watershed. The estimated cost for this alternative is 1.8 million dollars. This estimate assumes that the recommended drainage improvements in the interim drainage plan were constructed. These cost estimates can be used for planning, budgeting, and scheduling the implementation of the improvements. Detailed engineering studies and designs should be performed before implementing the recommendations identified in this study.

2.0 INTRODUCTION

2.1 Purpose of Study

The purpose of this work effort consists of developing an ultimate drainage plan for Chacon Creek and tributaries. The ultimate plan consists of providing recommendations for infrastructure improvements (channel, bridges, detention ponds, etc.) and estimated costs to accommodate the discharges resulting from proposed ultimate development conditions as identified in the City of Laredo Future Land Use map dated September 15, 1997. The Future Land Use Map was developed by the Planning Department of the City of Laredo and contains proposed land use plans for areas inside and outside the City limits (Figure 1). The parameters such as the percent of urbanization within each watershed were revised to reflect the future land use for each sub-area. The future development hydrologic (HEC-1) models were developed to provide the amount of the rainfall runoff discharge that would result from the identified future development plan.

2.1 Interim and Ultimate Drainage Plans

The future development hydraulic (HEC-2) models were developed and resulted in higher water surface elevations in the channel due to the higher discharges resulting from the Future Land Use plan without any infrastructure improvements. The following sections present several infrastructure improvement scenarios for each studied stream which were evaluated with the goal of accommodating the ultimate development discharges without increasing the flooding conditions at critical locations along the studied streams. The interim drainage plan is presented in the first section of this report.

3.0 STUDY AREA AND SCOPE

3.1 Watershed Description

Chacon Creek is one of the major drainage systems in Laredo and Webb County, Texas. Chacon Creek has a drainage area of approximately 155 square miles that drain south and southwesterly into the Rio Grande. Within the Chacon Creek watershed there are five (5) distinct drainage systems.

3.2 Scope of Study

This task will provide recommendations for ultimate condition infrastructure improvements along with associated costs for each of the drainage systems. These improvements will be necessary to accommodate full development of the watershed as identified on the City of Laredo Future Land Use map. The recommended improvements will allow development of the watershed and eliminate or reduce the flooding of structures the by the 100-year flood event.

This task provides the City with the preliminary infrastructure requirements and associated costs that can be used for planning, budgeting, and scheduling the implementation of the ultimate improvements. The streams studied consist of:

1.) Chacon Creek, from the Rio Grande upstream to Lake Casablanca, for a total length of 34,421 linear feet, and Upstream of Lake Casablanca
2.) Tinaja Creek, Tributary to Chacon Creek at River Mile 0.20 for a total length of 7,315 linear feet, and
3.) Tributary No. 1, Tributary to Chacon Creek at River Mile 1.84 for a total length of 14,607 linear feet, and
4.) Tributary No. 2, Tributary to Chacon Creek at River Mile 3.28, for a total length of 31,348 linear feet, and
5.) Tributary No. 3, Tributary to Chacon Creek at River Mile 6.12, for a total length of 18,012 linear feet, and
6.) Tributary No. 3A, Tributary to Tributary No. 3 at River Mile 1.43, for a total length of 7,679 linear feet.

The studied streams can be seen on Figure 2.

4.0 ENGINEERING METHODS

4.1 Hydrologic Analyses

The ultimate development hydrologic analyses to compute peak discharges for the Chacon Creek Watershed were determined using the HEC-1 program for storms of selected recurrence intervals. The hydrologic methodology previously developed in the updated Flood Insurance Study was used for this effort. For the purpose of the ultimate development condition, the peak discharges (Q) for Chacon Creek and its tributaries were calculated based on the future land use. In addition, the various infrastructure improvement alternatives (discussed in Section 5.0) were remodeled and incorporated into the HEC-1 model to evaluate the effect on downstream areas within each channel. Detailed analyses of the hydrologic characteristics of the Chacon Creek channel and its tributaries were carried out to compute the 10-, 25-, 50-, 100- and 500-year return frequencies (Table 1).

4.2 Hydraulic Analyses

The ultimate development hydraulic analyses to compute the water surface elevations (CWSEL) for the Chacon Creek Watershed were determined using the HEC-2 program for the various selected storms. The hydraulic methodology previously developed in the updated Flood Insurance Study was used for this effort. For the ultimate development condition, the peak discharges (Q) for Chacon Creek and its tributaries were calculated based on the future land use. In addition, the various infrastructure improvement alternatives (discussed in Section 5.0) were remodeled and incorporated into the HEC-1 model to evaluate the effect on downstream areas within each channel. Detailed analyses of the hydraulic characteristics of the Chacon Creek channel and its tributaries were carried out to compute water surface profiles for various flood frequencies. Water surface profiles for these channels were computed for the 10-, 25-, 50-, 100- and 500-year return frequencies. The effectiveness of the proposed channel improvements is illustrated on the water surface profiles for each channel presented in Appendix A. The profiles were developed assuming completion of the improvements presented in the report.

5.0 ALTERNATIVE SOLUTIONS

5.1 General

Several alternative improvement plans were evaluated for each of the studied streams. Typical alternative flood control concepts considered were the No-Action Alternative, the Nonstructural Alternative, the Channelization Alternative, the Detention Alternative and any combination of the Alternatives. These alternatives vary from channel to channel since some of the alternatives did not apply to the specific situation. The multiple profile option of HEC-2 was used to compute water surface profiles for the various return frequencies for Chacon Creek and five tributaries. Major findings for each alternative are presented below.

5.2 Upper Chacon Creek Watershed

The Upper Chacon (CU) subbasin has a total drainage area of approximately 116.9 square miles which includes Lake Casablanca. The Upper Chacon Creek watershed also includes Tios and the San Ygnacio Creeks. The approximate drainage areas of these two basins are 22.11 and 34.21 square miles, respectively. The runoff from this basin drains into Lake Casablanca. In accordance with the Future Land Use map, the sub-watershed parameters were revised and the ultimate condition hydrologic model (HEC-1) condition was developed (Table 1). The ultimate development 100-year discharge is 40,697 cubic feet per second (cfs), as compared to a peak discharge of 36,918 cfs in the existing conditions updated FIS Model. This represents a 10 % increase in peak discharge into the Lake. This increase in flow into Lake Casablanca increases the 100-year discharge downstream into the lower Chacon Creek a maximum of 1,620 cfs. For the 100-year return frequency, Lake Casablanca attenuates approximately 41% of the peak discharge from the Upper Chacon basin. The 100-year peak discharge flowing downstream to the lower Chacon Creek is 24,155 cfs as compared to a peak discharge of 22,535 cfs for existing conditions.

Providing additional storage/detention in the upper watershed would result in producing lower discharges downstream and thus reduce the size of channel required in the lower reaches of Chacon Creek below the Lake. Since the majority of the upper basin is undeveloped, two detention alternatives were evaluated; one was to provide detention within the Upper Chacon, Tios and San Ygnacio Creeks and the other was to provide detention within the Lake Casablanca. The results of providing Detention within the Upper Chacon, Tios and San Ygnacio Creeks did not benefit the lower Chacon Creek since the control of downstream discharges is by the Lake Casablanca spillway. The current Lake Casablanca spillway elevation is 446.4 feet mean sea level (msl) and the existing 100-year flood level within the Lake is approximately 453.8 feet, msl. The results of the alternative to provide more storage within Lake Casablanca did not provide the anticipated benefits. The evaluation of the alternative to raise the spillway elevation by four (4) feet to an elevation of 450.4 feet would reduce the amount of discharge downstream by approximately 841 cfs and increase the Casablanca Lake level to 456.6 feet. The results indicated that this alternative would not be feasible to implement since it would 1.) nominally reduce the discharges downstream of the Lake and, 2.) raise the Lake 100-year flood level by approximately 3 feet and, 3.) increase the flood potential of some existing homes adjacent to the lake.

Pursuant to the Scope of Work for this project, no hydraulic HEC-2 models were developed for the upper Chacon Creek, the Tios, and the San Ygnacio Creeks. Therefore, due to the limited scope and the small amount of development in the area, it is recommended that the Upper Chacon Creek, Tios, and San Ygnacio Creeks can continue to develop as indicated in the City of Laredo Future Land Use Map dated September 15, 1997. Development should be allowed to proceed with requirements for on-site detention and with no building in the 100-year floodplain. Lake Casablanca will be able to accommodate the majority of the drainage from the additional development in the Upper Chacon Watershed. Site specific channel improvements may be required in the Upper Chacon Creek, the Tios, and the San Ygnacio Creeks to convey the channel flow through some of the future developed areas to Lake Casablanca.

5.3 Chacon Creek

The Chacon Creek channel begins at the Rio Grande, just south of Meadows Avenue, and extends upstream to Lake Casablanca. The total length of the Chacon Creek channel is approximately 6.52 miles. The downstream portion of the Chacon Creek channel is within the City Limits of Laredo. The upstream portion of the channel is outside the City Limits of Laredo and within Webb County. In this study, Chacon Creek is modeled from the confluence with the Rio Grande on the downstream end and extending for a distance of 34,421 linear feet (the limit of detail study) to the south side of the Lake Casablanca spillway. The average slope of this channel is 14.5 feet per mile. The Chacon Creek channel is not maintained leading to the growth of vegetation and brush at many locations in the channel.

From the existing FIS analyses, the 10-year CWSEL would exceed the elevation of the top of the roadway at four locations; Highway 359, the Texas-Mexican Railroad, Clark Blvd., and Highway 59. The critical bridge section is at the Texas-Mexican Railroad Bridge. The constriction to the flow area of the channel at this bridge significantly raises the CWSEL at all upstream locations. This bridge opening is hydraulically inadequate to accommodate the 100-year peak discharge, resulting in an increase of 11 feet in CWSEL between the downstream side and the upstream side of the bridge. From the existing conditions Flood Insurance Study (FIS) model, the 100-year peak discharge of Chacon Creek at the Rio Grande is 27,722 cfs. The ultimate development of the watershed resulted in an increase of an additional 1,403 cfs. Four channelization alternatives were evaluated to develop the recommended plan for improvement that would convey the future 100-year storm within the channel banks. These channelization alternatives were 1.) raising the elevation on the existing Casablanca Lake Spillway to obtain more detention volume within the Lake, 2.) clearing of the existing channel, 3.) concrete lining the channel between the existing bridges to minimize bridge replacements, and 4.) combination of earthen channel improvements between the existing bridges to minimize bridge replacements. The objective was to recommend a plan of improvements that would accommodate the 100-year ultimate condition discharge with minimal flooding problems. Since the difference between the existing and the ultimate condition discharges is very small (7% variance), the recommended improvement plan for the ultimate condition is same as the recommended improvement plan for the interim condition. Table 2 presents the comparison of the various scenarios. There are six locations where residential and business properties are within the existing 100-year floodplain and are impacted by the existing bridge structures. The cost-effective solution is to provide channel improvements so that the discharges from Lake Casablanca can safely pass through these areas. Exhibits 1 and 2 present the Earthen Channel Alternatives and Exhibits 3 and 4 present the Concrete Lined Channel Alternatives. With the earthen channel improvement alternatives, four bridges will also need to be replaced. These bridges are at Highway 359, Texas-Mexican Railroad, Clark Boulevard, and U.S. Highway 59. The recommended earthen channel improvement range from between a 150 to 250-foot bottom with 3:1 side slopes at varying channel slopes (Exhibits 1 and 2). These improvements were already recommended in the interim plan. If the recommended interim improvements were implemented, there will be no need for additional improvements to accommodate the ultimate condition flows. Therefore, there is no cost estimate for these improvements in ultimate drainage plan.

5.4 Tributary 3 and 3A

The Tributary 3 and 3A watersheds have a total drainage area of approximately 5.96 square miles. Tributary 3 of Chacon Creek begins at river mile 6.12 of Chacon Creek, just downstream of the Lake Casablanca spillway, and extends upstream for a distance of approximately 18,032 feet (the limit of detail study). The average slope of this channel is 35 feet per mile. The only major hydraulic structure located across Tributary 3 is a culvert at U.S. Highway 59. Tributary 3A is modeled from the confluence of Tributary 3 and extends upstream for a total distance of 7,679 linear feet (the limit of detail study). No major hydraulic structures are located across Tributary 3A.

The results of the updated FIS HEC-2 model for Tributary 3 indicates that the 10-year and the 50-year CWSEL's will not exceed the roadway elevation at the U.S. 59 crossing. However, the 100-year CWSEL will exceed the roadway elevation at this location. From the existing FIS analyses, the 100-year peak discharge for the Tributary 3 channel at the confluence with Chacon Creek is 5,550 cfs with only 5% of the basin developed. The ultimate development of the watershed resulted in an increase of an additional 1,135 cfs. Since the majority of the existing basin is undeveloped, the combination of flood control alternatives considered was the channelization and the detention. Table 5 presents comparison of the various scenarios. A regional detention pond was recommended in the interim drainage plan. The proposed drainage improvements in the ultimate plan assume that all the interim drainage plan recommendations were implemented. For the ultimate condition additional drainage improvements will be necessary to accommodate the increase in flow. The recommended earthen channel improvement will range from 40 to 100-foot bottom with 3:1 side slopes (Exhibit 5). The estimated cost of the recommended channel improvements is $3.02 million dollars (Table 6). This cost estimate excludes the cost of improvements recommended in the interim drainage plan.

For ultimate conditions, eight additional residential/ industrial structures will be within the 100-yr floodplain. "Buy-out" of these structures will be the cost-effective option for mitigating the flooding problem. The cost associated with the buy-out option is $ 0.6 million dollars. The buy-out was also the cost-effective option in the interim drainage plan. If no developments are planned along the banks of Tributary 3 and 3A, "buy-out" of structures within the floodplain is recommended. If proposed developments in the watershed require the flow to be contained within the banks of the channel, the above recommended drainage improvements will be necessary. Floodplain management and on-site detention structures should be part of an overall floodplain management plan for the watershed.

5.5 Tributary 2

The Tributary 2 watershed has a total drainage area of approximately 15.98 square miles. This tributary drains to Chacon Creek just south of the Texas-Mexican Railroad Bridge. Tributary 2 begins at river mile 3.28 of Chacon Creek and extends upstream for a distance of approximately 26,741 feet (the limit of detail study). Most of this channel extends outside the City Limits of Laredo. Tributary 2 is a well-defined channel downstream of the Texas-Mexican Railroad

Bridge, which is located approximately 6,500 linear feet from the downstream end. Upstream of this bridge, the channel is not well defined and is covered with vegetation and brush. Upstream of the railroad bridge the channel splits into two separate channels with a ridge (embankment) located at the center of the section. The railroad is located on this embankment with channels on either side covered with vegetation and thick brush. The average slopes of these channels are 23 feet per mile. There are two hydraulic structures located across Tributary 2, which are the Loop 20 Bridge and the Texas-Mexican Railroad Bridge. The results of the existing FIS indicates that the two bridges are safe against overtopping from the existing 100-year frequency storm. However, based on the modeled results, the 100-year storm will overtop the railroad in the upstream reaches of the study area.

From the existing FIS analyses, the 100-year peak discharge for the Tributary 2 channel at the confluence with Chacon Creek is 8,982 cfs, with only 20% of the basin developed. The ultimate development of the watershed resulted in an increase of an additional 1,053 cfs. Channelization was one of the alternatives proposed in the interim plan to eliminate flooding problems due to existing conditions. Additional channel improvements will be necessary for the ultimate conditions to accommodate the increased flows. This channel was divided into two drainage channels. For reference, they were labeled as the north and the south channels since they are on the respective side of the Tex-Mex Railroad. The recommended earthen channel improvements for the north channel will range from 20 to 100-foot bottom with 3:1 side slopes and the south channel improvements will range from 30 to 50-foot bottom width with 3.1 side slopes (Exhibit 6). In addition, in areas where no channel improvements are recommended, it is suggested that the main channel be cleared from bank to bank to eliminate the obstruction to the flow caused by the existing overgrown trees and vegetation. Table 7 presents the comparison of the various scenarios. The estimated cost of the improvements for Tributary 2 is approximately $ 7.0 million dollars (Table 8). The 7 million dollars does not include the 3.42 million dollars estimated for the interim conditions improvements.

Six (6) structures were within the 100-yr floodplain for the interim conditions. No additional structures are included in the floodplain due to the increase in discharge for ultimate conditions. The "buy-out" option will be the most cost-effective option to eliminate potential flooding of these existing structures. The cost of this "buy-out" option is 0.54 million dollars, which was already included in the interim cost estimate. Therefore no "buy-out" cost is shown in this estimate for ultimate conditions. However, the "buy-out" option will not eliminate the flooding of the Tex-Mex Railroad from the 100-year storm. This "buy-out" cost estimate also did not include the cost of re-aligning the railroad. The above identified channel improvements would be necessary to eliminate flooding of the existing Tex-Mex Railroad.

The recommended solution is "buy-out" of all structures located in the floodplain, and selective channel improvements to eliminate flooding of the railroad for the 100-year flood. This may also involve elevating the structures located along the railroad. A detailed engineering study should be conducted to determine the cost of this alternative. Floodplain management and on-site detention structures should be part of an overall floodplain management plan for the watershed.

5.6 Tributary 1

The Tributary 1 watershed has a total drainage area of approximately 6.20 square miles. The Tributary 1 channel joins Chacon Creek just south of US Highway 359. Tributary 1 begins at river mile 1.87 of Chacon Creek and extends upstream for a distance of approximately 14,607 linear feet. Most of this channel extends outside the City Limits of Laredo. Tributary 1 is a natural (earthen) grass lined channel with thick vegetation and brush. The average slope of this channel is 32 feet per mile. The lower reach of the channel runs through the City Limits of Laredo. One detention pond has been constructed in the "Los Presidentes" area. There are three hydraulic structures located across Tributary 1. They are culvert crossings of various sizes located at Loop 20, Century City Boulevard and just east of Century City Street. The results of the existing FIS indicates that the 10-year frequency storm would exceed the roadway crown elevations at all three culvert crossings (Loop 20, Century City Boulevard and just east of Century City).

From the existing FIS analyses, the 100-year peak discharge for the Tributary 1 channel at the confluence with Chacon Creek is 5,143 cfs, with only 13% of the basin developed. The ultimate development of the watershed resulted in an increase of an additional 1,467 cfs. Three detention ponds and earthen channel improvements for a small reach of the creek were proposed in the interim conditions to eliminate the flooding problems. In addition, two existing culvert crossings at Century City Boulevard and just east of Centruy were to be replaced with span bridges. Additional channel improvements will be necessary for ultimate conditions in the upstream reaches of the channel to accommodate the increase in flows. The recommended earthen channel improvements will range from 30 to 40-foot bottom with 3:1 side slopes. Table 9 presents the comparison of the various scenarios. In areas where no channel improvements are needed, it is recommended to clear the main channel from bank to bank to eliminate the obstruction to the flow caused by the existing overgrown trees and vegetation. In addition, the Loop 20 culvert will also need to be replaced with a span bridge (Exhibit 7). The estimated cost for these improvements are approximately $2 million dollars (Table 10). This cost estimate excludes the cost of recommended drainage improvements in the interim drainage plan.

For the ultimate condition, two additional residential/ industrial structures will be within the 100-yr floodplain. "Buy-out" of these structures will be the cost-effective option for mitigating the flooding problem. The cost associated with this option is $ 0.15 million dollars. The "buy-out" was also the cost-effective option in the interim drainage plan. If no developments are planned along the banks of Tributary 1, "buy-out" of structures within the floodplain is recommended. If proposed developments in the watershed require the flow to be contained within the banks of the channel, the above recommended drainage improvements will be necessary. Floodplain management and on-site detention structures should be part of an overall floodplain management plan for the watershed.

5.7 Tinaja Creek

The Tinaja Creek watershed has a total drainage area of approximately 2.50 square miles. The Tinaja Creek channel begins at river mile 0.20 of Chacon Creek, just south of Meadows Avenue. This channel was modeled for approximately 7,400 linear feet and extends to Pine Street (the limit of detail study). The existing lower main channel is well defined and the mid and upper reaches have been improved with concrete lining and storm sewers. The average slope of this channel is 45 feet per mile. The Tinaja Creek channel and the surrounding subdivision (Santo Nino) have been subjected to severe flooding in the past. The City of Laredo has completed several projects to reduce the flooding problems along the Tinaja Creek channel. Approximately 1,600 linear feet of earthen channel between Louisiana Street and Pine Street (that was prone to flooding) has been concrete lined. The flowline (invert) of the channel has also been lowered. New culverts have been built at Louisiana Avenue, San Salvador Street, Pine Street and Chesnut Street. The unlined (earthen) channel extends between Meadows Avenue and Louisiana Street for approximately 5,800 linear feet. This reach of the channel is not well maintained leading to the growth of brush and trees at some locations. At the downstream end of the channel at Meadows Avenue, debris and heavy brush in the channel are constricting flow in the channel and reducing the channel conveyance of the drainage system. From the existing FIS analyses, the 100-year frequency exceeded the top of the road elevations at the four crossings.

From the existing FIS analyses, the 100-year peak discharge for Tinaja Creek at the confluence with Chacon Creek is 2,108 cfs with 52% of the basin developed. The ultimate development of the watershed resulted in an increase of an additional 718 cfs. Since approximately half of the basin is undeveloped and two detention ponds exist within the watershed, several alternatives considered are 1.) clearing of the main channel below the concrete lined reaches, 2.) replacing the existing earthen channel with the proposed concrete lined section (per City of Laredo future project), and 3.) replacement of four (4) existing culvert crossings with span bridges at Santa Barbara, Santa Clara, Pecan, and San Salvador Streets. Table 11 presents the resulting CWSEL's for the 10-, 25-, 50-, 100-, and 500-year frequency storms for all three alternatives considered. The replacement of the existing culverts with span bridges will reduce the 100-year lood elevations between 3.3 feet and 5.1 feet at different locations. By supplementing the existing "Chacota" and "Ejido" detention ponds with the channel clearing and the span bridge improvements, the 100-year storm can be contained within the existing channel banks of Tinaja Creek (Exhibit 8). The estimated cost for the recommended improvements are approximately $ 716,000 (Table 12). This cost is independent of the interim drainage plan recommendations.

The "buy-out" option was also considered in lieu of the drainage improvements. However, the "buy-out" cost ($2.22 million dollars) is higher than the cost of the drainage improvements ($ 0.72 million dollars). Drainage improvement option is the recommended solution for eliminating potential flooding along the Tinaja Creek channel. Floodplain management and on-site detention structures should be part of an overall floodplain management plan for the watershed.

6.0 COST ESTIMATE FOR ULTIMATE DRAINAGE PLAN

The following table presents the summary of the preliminary construction cost estimates for implementing the ultimate drainage plan improvements (channel improvements and detention alternatives) for each of the different channel systems. These costs are independent of the interim drainage plan recommendations.

CHANNEL	ULTIMATE CONDITIONS ($)
CHACON CREEK	$ 0.0 M
TRIBUTARY 1	$ 2.03 M
TRIBUTARY 2	$ 7.06 M
TRIBUTARY 3	$ 3.02 M
TINAJA CREEK	$ 0.72 M
TOTAL COST	**$ 12.83 M**

7.0 BUY-OUT COSTS

One of the alternatives evaluated in lieu of drainage improvements to the Chacon Watershed was "buying-out" the structures located in the 100-year floodplain. The "buy-out" costs for structures located in the 100-year floodplain for various drainage channels are presented below. These costs were derived based on average cost of a typical structure in the drainage basin. No attempt was made to accurately determine the appraised value of the structure or the property. The approximate unit costs for the land and the structure were determined after discussion with the Real Estate Division Manager, Community Development Department, City of Laredo. The number of structures and their unit costs used in this estimate are presented in Table 13. The structures already identified in the interim conditions were not included in this estimate.

EVALUATION OF DRAINAGE IMPROVEMENTS VERSUS BUYOUT OPTION
ULTIMATE CONDITIONS

Drainage Channel	Cost of Proposed Drainage Improvements (Million Dollars)	Buyout Cost (Million Dollars)
Chacon Creek	0 *	0 *
Tributary 1	2.03	0.15
Tributary 2	7.06	0.00
Tributary 3 & 3A	3.02	0.90
Tinaja Creek	0.72	2.24
TOTAL COST	**12.83**	**3.29**

* Cost is in the interim condition plan. There are no additional improvements or buy-out cost for the ultimate plan.

FIGURES

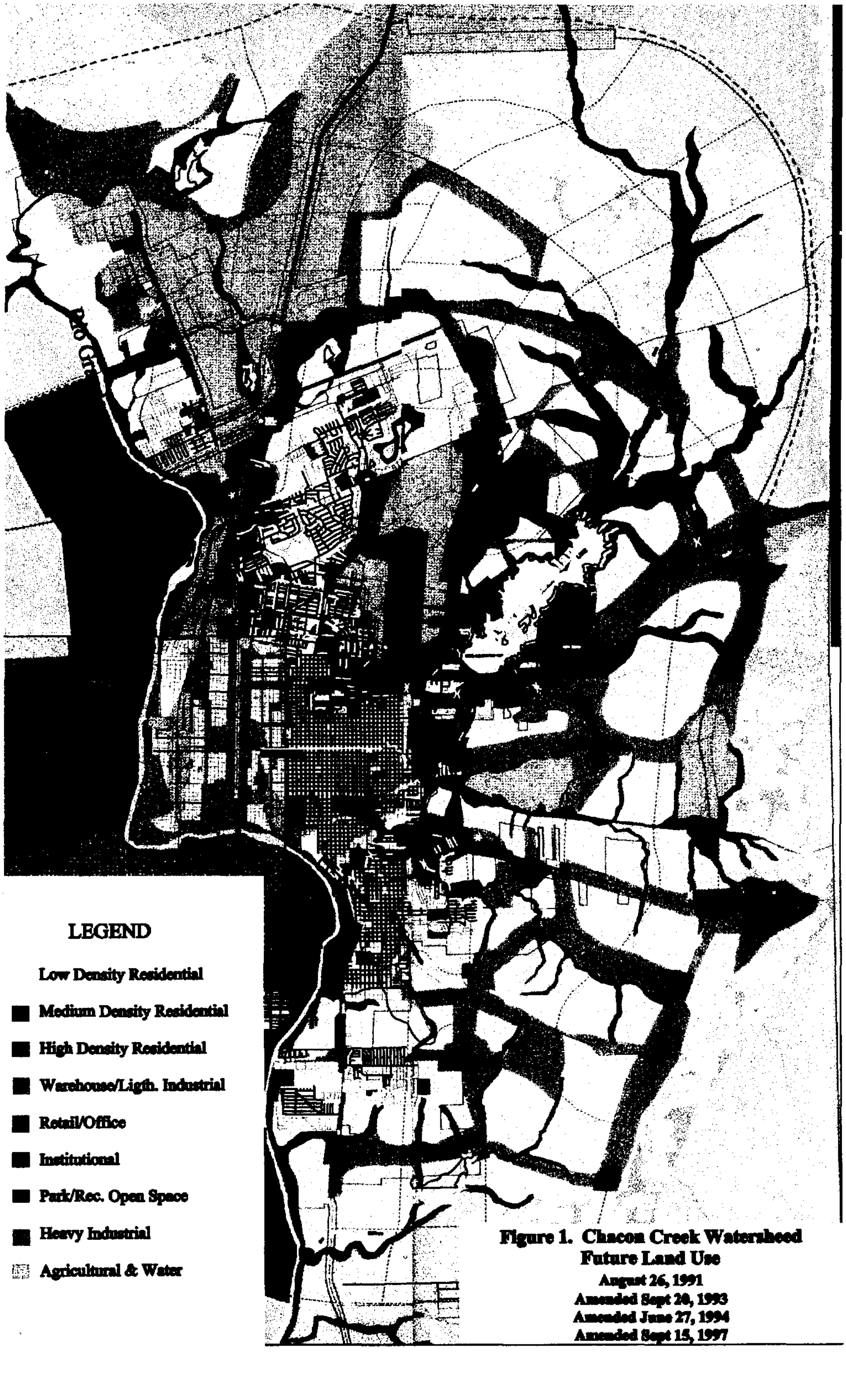
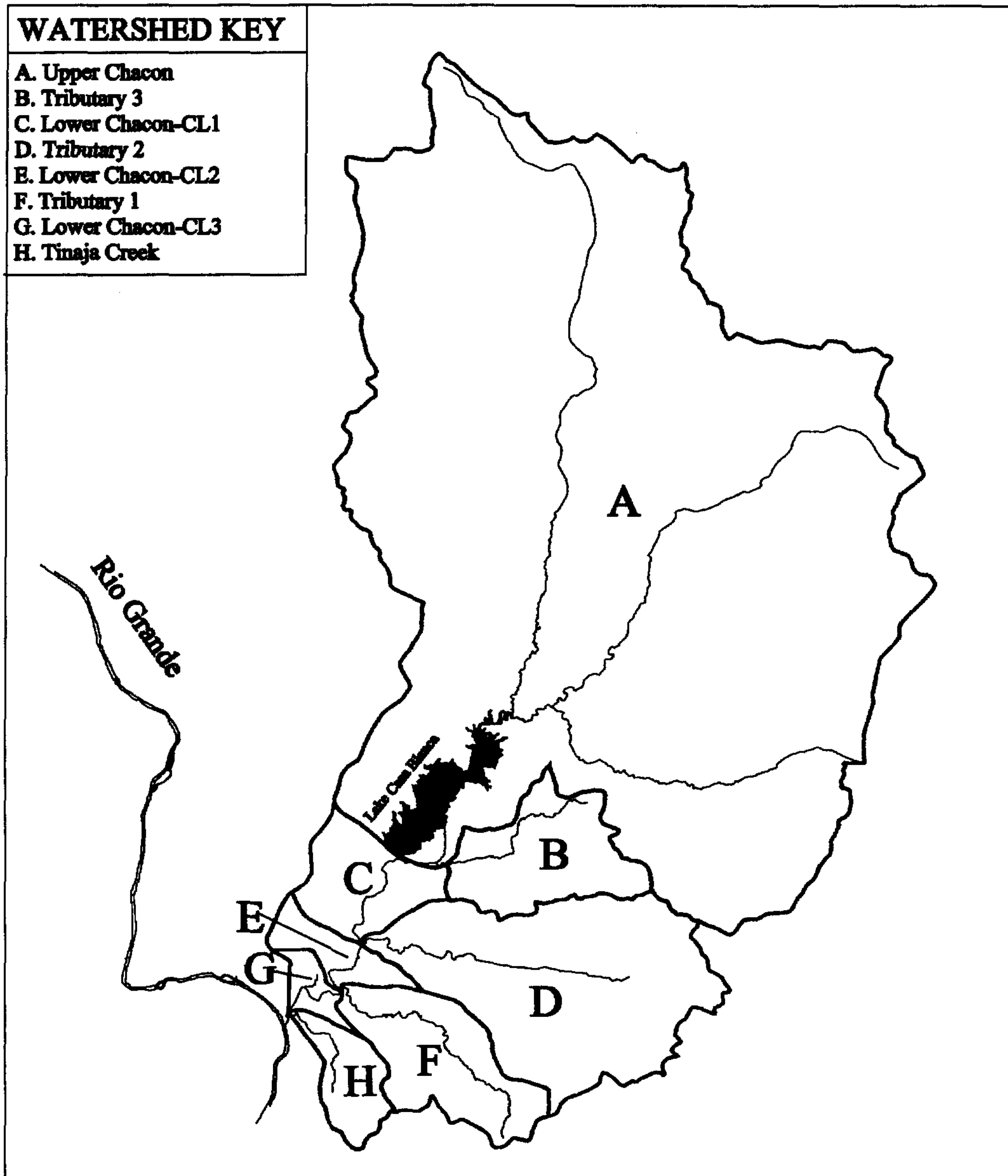


Figure 1. Chacon Creek Watershed Future Land Use

August 26, 1991
Amended Sept 20, 1993
Amended June 27, 1994
Amended Sept 15, 1997



Chacon Flood Insurance Study	FIGURE 2	Brown & Root 12/1/98

TABLES

TABLE 1 - SUMMARY OF DISCHARGES (Existing versus Future)

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (square miles)	PEAK DISCHARGES (cfs)									
		10-YR		25-YR		50-YR		100-YR		500-YR	
		FIS update	Future	FIS update	Future	FIS update	Future	FIS update	Future	FIS update	Future
Chacon Creek at Node 0 (Upstream of Lake Casa Blanca)	116.90	22,857	25,315	27,533	30,348	31,900	35,047	36,918	40,697	46,262	50,468
Chacon Creek at Node 1 (confluence with Tributary 3 and after routing through Lake Casa Blanca)	116.90	13,105	14,018	16,185	17,319	19,160	20,401	22,535	24,155	29,916	31,332
Chacon Creek at Node 2 (confluence with Tributary 2)	143.00	15,485	16,387	19,120	20,214	22,660	23,669	26,742	28,172	34,902	36,863
Chacon Creek at Node 3 (confluence with Tributary 1)	151.00	15,971	16,869	19,604	20,686	23,130	24,149	27,232	28,636	35,323	37,275
Chacon Creek at Node 4 (confluence with Tinaja Creek)	154.50	16,463	17,361	20,096	21,176	23,619	24,643	27,722	29,125	35,802	37,755
Chacon Creek at Node 5 (confluence with Rio-Grande)	155.00	16,463	17,361	20,096	21,176	23,619	24,643	27,722	29,125	35,802	37,754
Tinaja Creek, tributary to Chacon Creek	2.50	1,189	1,700	1,527	2,055	1,777	2,361	2,108	2,826	2,709	3,671
Tributary 1, tributary to Chacon Creek	6.20	2,948	3,931	3,703	4,835	4,387	5,673	5,143	6,610	6,627	8,438
Tributary 2, tributary to Chacon Creek	15.98	5,282	5,792	6,075	6,964	7,033	8,212	8,982	10,035	10,909	12,777
Tributary 3, tributary to Chacon Creek	5.96	3,207	3,992	3,974	4,857	4,739	5,630	5,550	6,685	7,954	8,555

TABLE 2 - WATER SURFACE ELEVATIONS FOR CHACON CREEK (INTERIM / ULTIMATE CONDITIONS)

Location	Station (ft)		10-YR CWSEL (ft)			25-YR CWSEL (ft)			50-YR CWSEL (ft)			100-YR CWSEL (ft)			500-YR CWSEL (ft)			Hydraulic	Flow Line	Low Chord	Top of Road
			FIS Update	scenario 1	scenario 2	FIS Update	scenario 1	scenario 2	FIS Update	scenario 1	scenario 2	FIS Update	scenario 1	scenario 2	FIS Update	scenario 1	scenario 2	Structure	Elev. (ft)	Elev. (ft)	Elev. (ft)
Meadow Street	DS	1160	368.24	365.73	364.51	369.53	366.47	365.19	369.88	366.93	365.28	370.63	367.65	365.91	371.79	367.91	367.42	Bridge	352.00	380.46	383.78
	US	1208	368.46	366.26	365.15	369.91	367.56	366.30	370.31	368.08	367.92	371.24	369.21	369.40	372.87	371.33	372.30				
Highway 83	DS	6235	381.70	371.19	370.76	383.93	372.99	372.05	384.46	373.50	373.46	385.66	375.27	374.57	387.58	377.28	376.64	Bridge	362.00	396.00	400.23
	US	6318	381.77	371.68	373.35	384.02	373.54	374.91	384.56	374.04	376.61	385.78	375.85	377.87	387.74	377.83	380.35				
Highway 359	DS	12030	388.59	378.43	377.37	390.06	380.36	378.70	390.75	381.12	380.36	391.86	383.00	381.67	393.81	385.14	384.35	Bridge	372.67	383.09	385.91
	US	12096	388.92	378.48	377.45	390.28	380.41	378.76	391.02	381.17	380.40	392.15	383.05	381.70	394.16	385.19	384.38				
Texas Mexican Railroad	DS	17848	399.88	383.42	387.36	403.79	384.91	388.18	403.72	385.96	389.00	404.14	387.50	389.97	404.49	389.69	391.48	Bridge	383.00	396.00	402.00
	US	17860	407.64	383.50	387.38	410.68	384.98	388.25	412.28	386.04	389.01	414.43	387.56	389.98	418.40	389.74	391.49				
Clark Boulevard	DS	20829	407.74	389.59	397.81	410.72	390.91	398.89	412.32	392.01	399.83	414.47	393.39	400.99	418.43	395.76	402.79	Bridge	390.58	404.18	409.51
	US	20903	408.56	389.74	397.98	411.77	391.06	399.08	413.42	392.15	400.04	415.48	393.53	401.24	419.25	395.88	406.86				
Highway 59	DS	26537	412.49	403.34	403.26	414.28	404.28	404.30	415.46	405.07	405.20	417.00	406.05	406.30	420.12	407.79	408.39	Bridge	398.00	410.00	412.00
	US	26588	412.99	404.36	405.77	414.64	405.46	407.02	415.73	406.40	408.10	417.21	407.53	409.42	420.33	409.53	411.22				
Loop 20	DS	28240	417.93	411.25	409.56	418.79	412.26	410.75	419.38	413.09	411.79	419.95	414.10	413.06	421.44	415.96	415.02	Bridge	402.50	418.23	422.00
	US	28332	418.21	411.46	410.07	419.29	412.52	411.27	420.14	413.41	412.33	421.13	414.47	413.64	423.60	417.04	415.66				

Notes:
All elevations correspond to the 1988 North American Vertical Datum
Scenario 1: Earth cut channel, bridges at Hwy. 359, Tex-Mex Railroad, Clark Blvd. and Hwy. 59 to be replaced
Scenario 2: Concrete lined channel, bridges at Hwy 359 and Tex-Mex Railroad replaced, lower channel flow line at Hwy. 59 bridge (1 ft)

TABLE 3

CHACON CREEK WATERSHED MASTER DRAINAGE PLAN

OPINION OF COST ESTIMATE FOR CHANNEL IMPROVEMENT

CHACON CREEK MAIN CHANNEL

INTERIM / ULTIMATE CONDITION

ALTERNATIVE 1 - EARTHEN CUT CHANNEL

Descrition	Unit	Quantity	Unit cost	Cost
Clearing	Acre	250	$ 1,000.00	$ 250,000
Grubbing	Acre	250	$ 1,000.00	$ 250,000
Excavation & Haul	CY	804,000	$ 4.00	$ 3,216,000
Bridge Installation				
Hwy 359	SF	45,984	$ 57.00	$ 2,621,088
Tex-Mex*	SF	3 * 13927	$ 57.00	$ 2,353,200
Clark Blvd	SF	27,011	$ 57.00	$ 1,539,627
Hwy 59	SF	41,454	$ 57.00	$ 2,362,878
Culvert Installation	LS	0	$ -	$ -
Slope Protection & Concrete Lining	CY	0	$ 225.00	$ -
Backslope Drains	Each	34	$ 2,500.00	$ 85,000
Seeding & Mulching	Acre	250	$ 1,000.00	$ 250,000
Land Acquisition	SF	9,010,644	$ 0.35	$ 3,153,725
Sub-total				$ 16,081,518
Constingencies (15%)				$ 2,412,228
Total Construction Cost				$ 18,493,746
Engineering & Administration (10%)				$ 1,849,375
Total				$ 20,343,122

*use of spur recommended, original price is tripled

TABLE 4

CHACON CREEK WATERSHED MASTER DRAINAGE PLAN

OPINION OF COST ESTIMATE FOR CHANNEL IMPROVEMENT

CHACON CREEK MAIN CHANNEL

INTERIM / ULTIMATE CONDITION

ALTERNATIVE 2 - CONCRETE LINED CHANNEL

Descrition	Unit	Quantity	Unit cost		Cost	
Clearing	Acre	225	$	1,000.00	$	225,000
Grubbing	Acre	225	$	1,000.00	$	225,000
Excavation & Haul	CY	1381000	$	4.00	$	5,524,000
Bridge Installation						
Hwy 359	SF	33762	$	57.00	$	1,924,434
Tex-Mex*	SF	3 * 13927	$	57.00	$	2,353,200
Culvert Installation	LS	0	$	-	$	-
Slope Protection & Concrete Lining	CY	130430	$	225.00	$	29,346,750
Backslope Drains	Each	34	$	2,500.00	$	85,000
Seeding & Mulching	Acre	20	$	1,000.00	$	20,000
Land Acquisition	SF	7,551,403	$	0.35	$	2,642,991
Sub-total					$	42,346,376
Constingencies (15%)					$	6,351,957
Total Construction Cost					$	48,698,333
Engineering & Administration (10%)					$	4,869,834
Total					$	53,568,167

*use of spur recommended, original price is tripled

TABLE 5 - WATER SURFACE ELEVATIONS FOR TRIBUTARY 3 AND 3A (ULTIMATE CONDITIONS)

Tributary 3

Location	Station (ft)	10-YR WSEL (ft)		25-YR WSEL (ft)		50-YR WSEL (ft)		100-YR WSEL (ft)		500-YR WSEL (ft)		Hydraulic	Invert	Top of culvert	Top of road
		Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Structure	Elev. (ft)	Elev. (ft)	Elev. (ft)
	0	422.56	421.07	422.85	421.84	423.09	422.47	423.40	423.22	423.92	424.11				
	509	428.30	423.99	429.00	424.88	429.39	425.57	431.40	426.41	432.10	427.41				
U.S. Highway 59	DS 1019	433.04	425.82	433.30	426.64	433.44	427.28	433.64	428.07	434.70	428.98	Culvert	424.57	433.71	436.18
U.S. Highway 59	US 1114	435.89	426.62	436.82	427.44	437.43	428.08	438.09	428.85	439.21	429.79				
	2006	437.65	431.52	438.05	432.48	438.43	433.22	438.91	434.11	439.92	435.16				
	3427	442.91	438.61	443.14	439.46	443.37	440.11	443.62	440.93	443.86	442.71				
	5312	451.64	447.35	451.87	448.11	452.04	448.69	452.25	449.41	452.49	450.03				
	7236	458.37	458.39	458.52	458.65	458.75	458.84	458.88	459.00	459.10	459.05				
	10034	479.41	479.36	479.61	479.50	479.74	479.66	479.97	479.86	480.26	480.28				
	12079	493.99	490.76	494.11	491.21	494.28	491.62	494.28	492.09	494.85	494.07				
	13954	508.12	507.71	508.37	508.04	508.58	508.30	508.78	508.49	509.08	508.97				
	16166	524.83	524.97	525.11	525.10	525.34	525.34	525.59	525.58	526.32	526.29				
	18032	541.90	541.85	541.99	541.99	542.14	542.13	542.24	542.23	542.24	542.44				

Tributary 3A

Location	Station (ft)	10-YR WSEL (ft)		25-YR WSEL (ft)		50-YR WSEL (ft)		100-YR WSEL (ft)		500-YR WSEL (ft)		Hydraulic	Invert	Top of culvert	Top of road
		Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Structure	Elev. (ft)	Elev. (ft)	Elev. (ft)
	7560	463.14	461.85	463.26	462.15	463.35	462.4	463.47	462.7	463.64	463.11				
	9527	471.74	469.14	471.86	469.39	471.95	469.61	472.04	469.86	472.17	470.24				
	11329	485.18	482.72	485.28	483.03	485.35	483.29	485.43	483.57	485.56	484.04	NONE			
	12722	491.84	489.78	491.97	490.17	492.07	490.5	492.17	490.86	492.33	491.41				
	13532	495.61	493.09	495.78	493.43	496.22	493.72	496.31	494.05	496.48	494.98				
	15239	511.93	512.12	512.09	512.29	512.39	512.42	512.55	512.57	512.78	512.78				

Notes:

Scenario 1: existing channel "cleaned" (n value changed from 0.06 to 0.03)

Scenario 2: existing channel "cleaned", 2000 cfs detained upstream of cross section 4058 and channel improvements

All elevations correspond to the 1988 North American Vertical Datum

TABLE 6

CHACON CREEK WATERSHED MASTER DRAINAGE PLAN
OPINION OF COST ESTIMATE FOR DRAINAGE IMPROVEMENTS
TRIBUTARY 3 & 3A
ULTIMATE CONDITION

Description	Unit	Quantity	Unit cost		Cost	
Clearing	Acre	0	$	1,000.00	$	-
Grubbing	Acre	0	$	1,000.00	$	-
Excavation & Haul						
Tributary 3	CY	72,000	$	4.00	$	288,000
Tributary 3A	CY	77,000	$	4.00	$	308,000
Detention Pond	CY	0	$	4.00	$	-
Bridge Installation & Culvert Removal						
Hwy 59	SF	10,300	$	57.00	$	587,100
Detention Pond land & Construction Cost						
Detention Pond	Acre	0	$	15,000.00	$	-
Slope Protection & Concrete Lining	CY	0	$	225.00	$	-
Backslope Drains	Each	10	$	2,500.00	$	25,000
Seeding & Mulching	Acre	70	$	1,000.00	$	70,000
Land Acquisition	SF	3,162,365	$	0.35	$	1,106,828
Sub-total					$	2,384,928
Constingencies (15%)					$	357,739
Total Construction Cost					$	2,742,667
Engineering & Administration (10%)					$	274,267
Total					$	3,016,934

TABLE 7 - WATER SURFACE ELEVATIONS FOR TRIBUTARY 2 (ULTIMATE CONDITIONS)

Location	Station (ft)		100-YR WSEL (ft)	100-YR WSEL (ft)	Hydrulic	Flow Line	Low Chord	Top of Road
			FIS update	Scenario 1	Structure	Elev. (ft)	Elev. (ft)	Elev. (ft)
		0	391.52	388.79				
Loop 20 Bridge	US	2993	409.15	403.74	Bridge	396.00	440.00	443.00
	DS	3051	409.19	404.23				
Texas-Mexican Railroad Bridge	US	6500	420.18	419.00	Bridge	412.00	420.00	423.00
	DS	6550	420.72	419.04				

Note:

All elevations correspond to the 1988 North American Vertical Datum

Scenario 1: With channel improvements for the entire reach (earthen channel)

TABLE 8

CHACON CREEK WATERSHED MASTER DRAINAGE PLAN

OPINION OF COST ESTIMATE FOR CHANNEL IMPROVEMENTS

TRIBUTARY 2

ULTIMATE CONDITION

Description	Unit	Quantity	Unit cost	Cost
Clearing				
North Channel	Acre	40	$ 1,000.00	$ 40,000
South Channel	Acre	25	$ 1,000.00	$ 25,000
Grubbing				
North Channel	Acre	40	$ 1,000.00	$ 40,000
South Channel	Acre	25	$ 1,000.00	$ 25,000
Excavation & Haul				
North Channel	CY	355000	$ 4.00	$ 1,420,000
South Channel	CY	328000	$ 4.00	$ 1,312,000
Bridge Installation & Culvert Removal				
	SF	0	$ 57.00	$ -
Slope Protection & Concrete Lining	CY	0	$ 225.00	$ -
Backslope Drains	Each	48	$ 2,500.00	$ 120,000
Seeding & Mulching				
North Channel	Acre	40	$ 1,000.00	$ 40,000
South Channel	Acre	25	$ 1,000.00	$ 25,000
Land Acquisition				
North Channel	SF	4,305,231	$ 0.35	$ 1,506,831
South Channel	SF	2,929,628	$ 0.35	$ 1,025,370
Sub-total				$ 5,579,201
Constingencies (15%)				$ 836,880
Total Construction Cost				$ 6,416,081
Engineering & Administration (10%)				$ 641,608
Total				$ 7,057,689

TABLE 9 - WATER SURFACE ELEVATIONS FOR TRIBUTARY 1 (ULTIMATE CONDITIONS)

Location	Station (ft)	10-YR WSEL (ft) Based on Future Condition			25-YR WSEL (ft) Based on Future Condition			50-YR WSEL (ft) Based on Future Condition			100-YR WSEL (ft) Based on Future Condition			500-YR WSEL (ft) Based on Future Condition			Hydraulic Structure	Invert Elevation (ft)	Top of Culvert Elevation (ft)	Top of Road Elevation (ft)
		Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3				
Loop 20	DS 3552	397.14	395.42	392.73	397.76	396.10	393.12	398.22	396.70	393.63	398.68	397.21	394.36	399.42	397.94	395.26	Culvert	386.18	398.18	399.42
	US 3635	397.18	395.42	393.06	398.46	396.10	393.45	399.99	396.70	393.96	400.48	397.32	394.69	401.24	398.88	395.59				
Century City Blvd.	DS 5617	408.56	407.90	404.50	409.12	408.64	404.92	409.75	409.24	405.37	410.01	409.73	405.97	410.34	410.43	406.78	Culvert	402.10	407.10	410.40
	US 5692	412.93	408.22	404.96	413.43	409.07	405.38	413.88	409.67	405.83	414.31	410.13	406.43	415.05	410.77	407.24				
East of Century City	DS 6559	413.68	412.18	409.52	414.16	412.75	409.99	414.53	413.33	410.51	414.88	413.78	411.18	415.45	414.43	412.23	Culvert	406.02	409.02	414.18
	US 6593	417.86	412.26	409.47	418.43	412.81	409.93	418.95	413.39	410.44	419.50	413.83	411.11	420.43	414.48	412.26				
	10915	441.89	440.91	437.81	442.21	441.15	438.13	442.46	441.34	438.41	442.74	441.55	438.73	443.16	442.39	439.23	None	438.00		
	14607	466.01	464.99	465.00	466.26	465.24	465.25	466.48	465.44	465.46	466.72	465.66	465.68	467.10	466.42	466.02	None	462.00		

Notes:

Scenario 1: existing channel "cleaned" (n value of channel changed from 0.06 to 0.03)
Scenario 2: existing channel "cleaned", two culverts (Century City & East of Century City) to be replaced by spanned bridge
Scenario 3: existing channel "cleaned", all three culverts to be replaced by spanned bridges, channel improvement between C/S 0 and C/S 14607
All elevations correspond to the 1988 North American Vertical Datum

TABLE 10

CHACON CREEK WATERSHED MASTER DRAINAGE PLAN

OPINION OF COST ESTIMATE FOR DRAINAGE IMPROVEMENTS

TRIBUTARY 1

ULTIMATE CONDITION

Description	Unit	Quantity	Unit cost	Cost
Clearing	Acre	0	$ 1,000.00	$ -
Grubbing	Acre	0	$ 1,000.00	$ -
Excavation & Haul				
Tributary 1	CY	76960	$ 4.00	$ 307,840
Detention Pond 1	CY	0	$ 4.00	$ -
Detention Pond 2	CY	0	$ 4.00	$ -
Detention Pond 3	CY	0	$ 4.00	$ -
Bridge Installation & Culvert Removal				
Loop 20	SF	10292	$ 57.00	$ 586,644
Century City	SF	0	$ 57.00	$ -
East Century City	SF	0	$ 57.00	$ -
Detention Pond land & Construction Cost				
Detention Pond 1	Acre	0	$ 15,000.00	$ -
Detention Pond 2	Acre	0	$ 15,000.00	$ -
Detention Pond 3	Acre	0	$ 15,000.00	$ -
Backslope Drains	Each	15	$ 2,500.00	$ 37,500
Seeding & Mulching	Acre	35	$ 1,000.00	$ 35,000
Land Accuisition	SF	1,814,213	$ 0.35	$ 634,975
Sub-total				$ 1,601,959
Constingencies (15%)				$ 240,294
Total Construction Cost				$ 1,842,253
Engineering & Administration (10%)				$ 184,226
Total				$ 2,026,479

TABLE 11 - WATER SURFACE ELEVATIONS FOR TINAJA CREEK (ULTIMATE CONDITIONS)

Location	Station (ft)	10-YR CWSEL (ft) Based on Existing Condition			25-YR CWSEL (ft) Based on Existing Condition			50-YR CWSEL (ft) Based on Existing Condition			100-YR CWSEL (ft) Based on Existing Condition			500-YR CWSEL (ft) Based on Existing Condition			Hydraulic Structure	Flow line Elevation (ft)	Low Chord/ Top of Culvert Elev. (ft)	Top of road Elevation (ft)
		Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3	Scenario 1	Scenario 2	Scenario 3				
Meadow Street	DS 10	358.80	358.84	358.80	359.09	359.13	359.09	359.26	359.29	359.26	359.63	359.63	359.63	360.13	360.13	360.13	Bridge	352.00	381.90	384.00
	US 38	358.91	358.95	358.91	359.21	359.25	359.21	359.41	359.44	359.41	359.78	359.80	359.78	360.34	360.34	360.34				
Highway 83	DS 3874	391.79	390.53	391.79	392.29	391.02	392.29	392.74	391.41	392.74	393.50	392.04	393.50	394.77	393.09	394.77	Culvert	386.60	394.60	404.30
	US 4105	396.01	396.60	396.01	397.73	398.60	397.73	399.41	400.46	399.41	402.80	404.04	402.80	405.14	405.28	405.14				
Santa Barbara & Louisiana	DS 5115	402.76	402.87	402.76	403.31	403.42	403.31	403.82	403.88	403.82	404.70	404.77	404.70	405.73	405.94	405.73	Culvert	396.95	405.95	409.95
	US 5144	404.50	404.67	404.50	405.38	405.56	405.38	406.25	406.38	406.25	407.81	407.95	407.81	410.18	410.19	410.18				
Santa Barbara & New York	DS 5807	406.51	406.58	406.51	406.88	406.95	406.88	407.23	407.28	407.23	407.84	407.90	407.84	409.94	409.96	409.94	Culvert	403.47	408.40	410.28
	US 5840	409.28	409.42	406.63	410.13	410.26	407.00	410.72	410.80	407.37	411.67	411.70	408.00	412.96	412.96	409.93				
Santa Clara Street	DS 6127	409.47	409.53	409.47	409.80	409.87	409.82	410.33	410.42	410.16	411.36	411.37	410.78	412.70	412.70	411.65	Culvert	406.58	411.66	414.73
	US 6150	411.94	412.07	409.65	412.62	412.76	410.00	413.59	413.74	410.37	415.14	415.26	411.00	416.70	416.71	411.87				
Pecan Street	DS 6535	412.21	412.34	411.84	412.86	413.00	412.34	413.76	413.90	412.82	415.23	415.34	413.63	416.67	416.68	414.75	Culvert	407.50	412.60	414.55
	US 6598	412.71	412.85	411.87	413.64	413.86	412.37	414.85	414.97	412.86	416.26	416.36	413.70	417.63	417.65	414.84				
San Salvador Street	DS 6902	412.76	412.89	412.10	413.66	413.87	412.62	414.83	414.95	413.10	416.24	416.35	413.92	417.61	417.63	415.00	Culvert	408.61	413.72	416.84
	US 6930	414.03	414.17	412.19	414.99	415.33	412.70	416.80	416.96	413.18	418.46	418.57	413.98	420.15	420.18	415.07				
Pine Street	DS 7315	419.31	419.41	419.31	419.75	419.85	419.75	420.24	420.29	420.22	421.07	421.13	421.07	422.05	422.05	422.04	Culvert	414.29	419.32	421.77
	*** Flow Routed Through Underground Culverts ***																			

Notes.
Scenario 1: existing channel "cleaned" (n value changed from 0.06 to 0.03)
Scenario 2: existing channel "cleaned" and modeled with proposed project (channelization) between Malinche Ave. and Louisiana St.
Scenario 3: existing channel "cleaned" and modeled with culverts removed at Snanta Barbara & NY, Santa Clara, Pecan & San Salvador St.
All elevations correspond to the 1988 North American Vertical Datum

TABLE 12

CHACON CREEK WATERSHED MASTER DRAINAGE PLAN

OPINION OF COST ESTIMATE FOR DRAINAGE IMPROVEMENTS

TINAJA CREEK

ULTIMATE CONDITION

Description	Unit	Quantity	Unit cost	Cost
Clearing	Acre	0	$ 1,000	$ -
Grubbing	Acre	0	$ 1,000	$ -
Excavation & Haul	CY	0	$ 4	$ -
Bridge Installation & Culvert Removal				
	SF	0	$ 57	$ -
Santa Clara St	SF	2210	$ 57	$ 125,970
Pecan St	SF	5170	$ 57	$ 294,690
San Salvador St	SF	2550	$ 57	$ 145,350
Slope Protection & Concrete Lining	CY	0	$ 225	$ -
Backslope Drains	Each	0	$ 55	$ -
Seeding & Mulching	Acre	0	$ 1,000	$ -
Sub-total				$ 566,010
Constingencies (15%)				$ 84,902
Total Construction Cost				$ 650,912
Engineering & Administration (10%)				$ 65,091
Total				$ 716,003

TABLE 13

"BUY-OUT" COST ESTIMATE FOR STRUCTURES IN THE 100-YR FLOODPLAIN (ULTIMATE CONDITIONS)

Sub-basin/Channel	No. of Structures	Type of Structure	Unit Cost	Total Cost
Tinaja Creek	32	Residential	$70,000	$2,240,000
Tributary 1	2	Residential/ Small Industrial	$75,000	$150,000
Tributary 2	0	Industrial/ Rail Road	$90,000	$0
Tributary 3	12	Residential/ Small Industrial	$75,000	$900,000
Chacon Creek				
	0	Wastewater Treatment Plant	Lump Sum	$3,000,000
	180	Residential	$70,000	$12,600,000
	11	Small Industrial	$75,000	$825,000
	7	Large Industrial	$100,000	$700,000
		Chacon Creek Total		$17,125,000
		Watershed Total		**$20,415,000**

Excludes structures already considered for "Buy-out" in the Interim Conditions

EXHIBITS

KEY TO MAP

Existing Channel

Earthen Channel Improv

250 Ft. Bottom Width

200 Ft. Bottom Width

Existing Bridge to Remain

Replace Existing Bridge

Note:

Side Slope for Channel Improvements: SS = 3 : 1

N

NOT TO SCALE

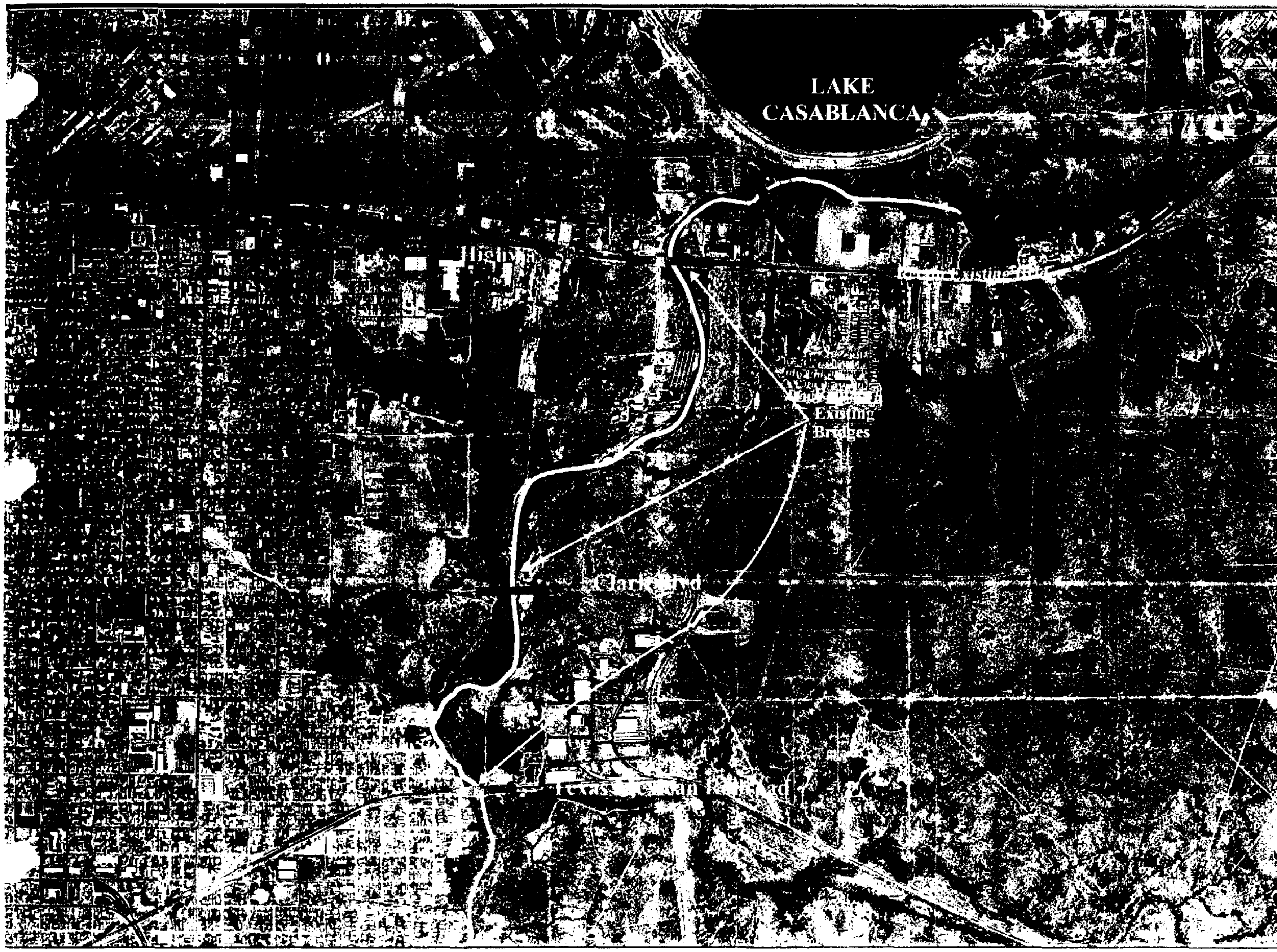
CHACON CREEK

STORMWATER ULTIMATE AND INTERIM DRAINAGE PLANS

Alternative 1: Earthen Channel Improvement

Chacon Creek Watershed
Exhibit 1

Revised Date: November 1999



KEY TO MAP

Earthen Channel Impro
200 Ft. Bottom Width
150 Ft. Bottom Width

Existing Bridge to Rema
Replace Existing Bridge

Note:
Side Slope for Channel
Improvements: SS = 3 : 1

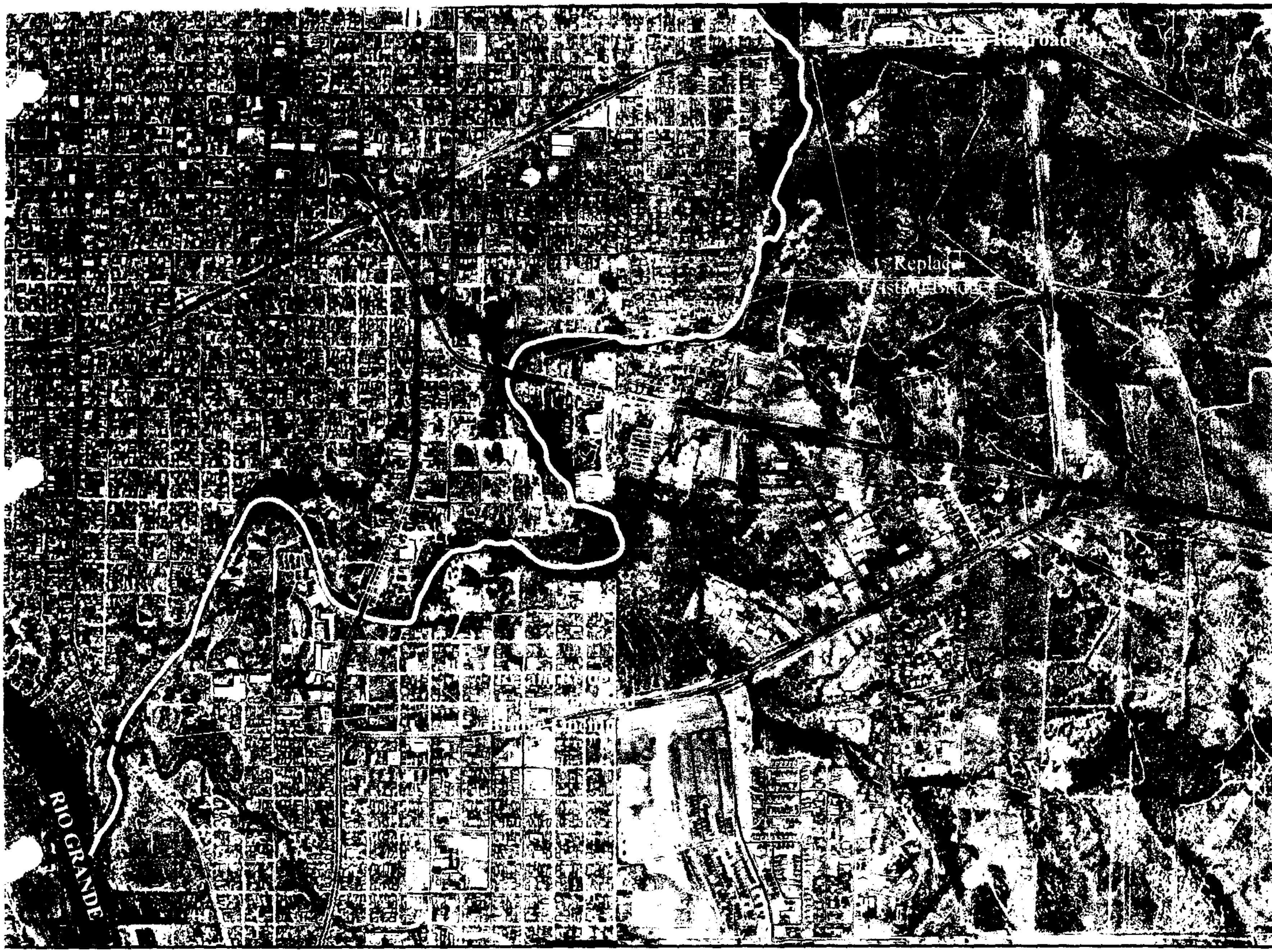
N

NOT TO SCALE

CHACON CREEK
STORMWATER
ULTIMATE AND INTERIM
DRAINAGE PLANS
Alternative 1:
Earthen Channel Improvement

Chacon Creek Watershed
Exhibit 2

Revised Date: November 1999



KEY TO MA[illegible]

Concrete Lined Channel Improvement.
200 Ft. Bottom Width

Existing Bridge to Remain
Replace Existing Bridge

Note:
Side Slope for Channel Improvements: SS = 3 : 1

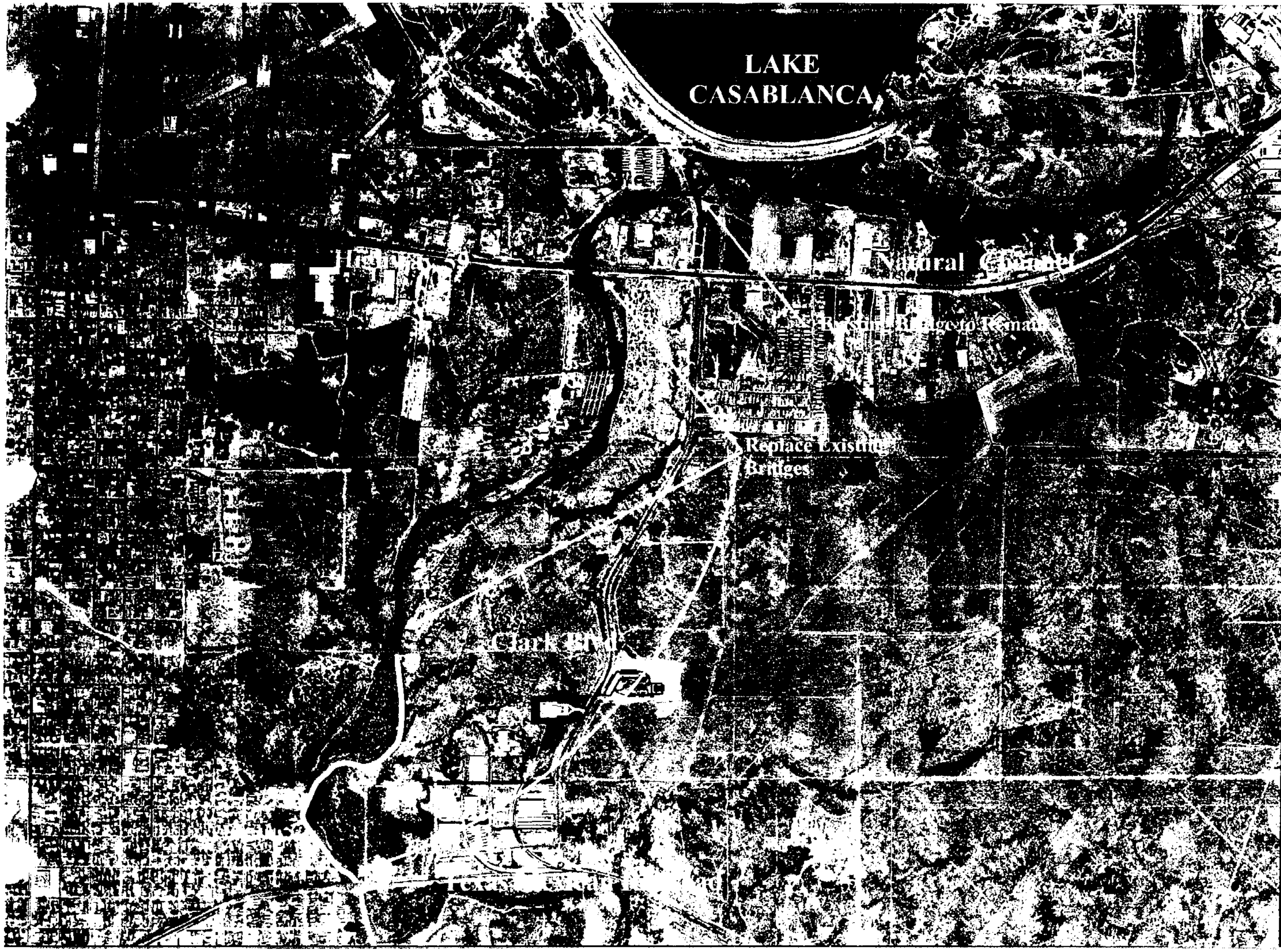
N

NOT TO SCALE

CHACON CREEK
STORMWATER
ULTIMATE AND INTERIM DRAINAGE PLANS
Alternative 2:
Concrete Lined Channel

Chacon Creek Watershed
Exhibit 3

Revised Date: November 1999



KEY TO MAP

Existing Channel
Proposed Concrete Lining
200 Ft. Bottom Width
150 Ft. Bottom Width

Existing Bridge to Remain
Replace Existing Bridge

Note:
Side Slope for Channel
Improvements: SS = 3 : 1

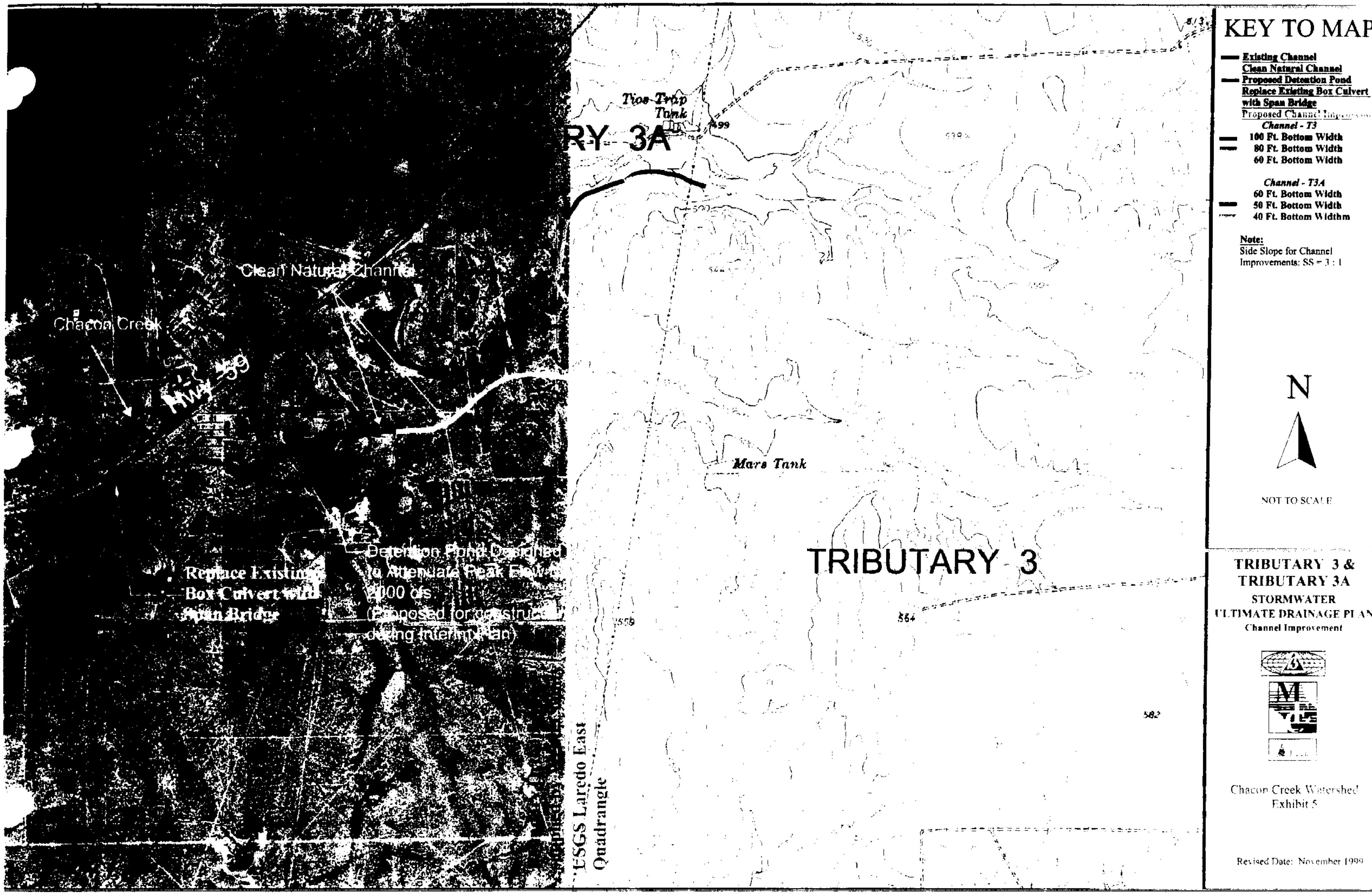
N

NOT TO SCALE

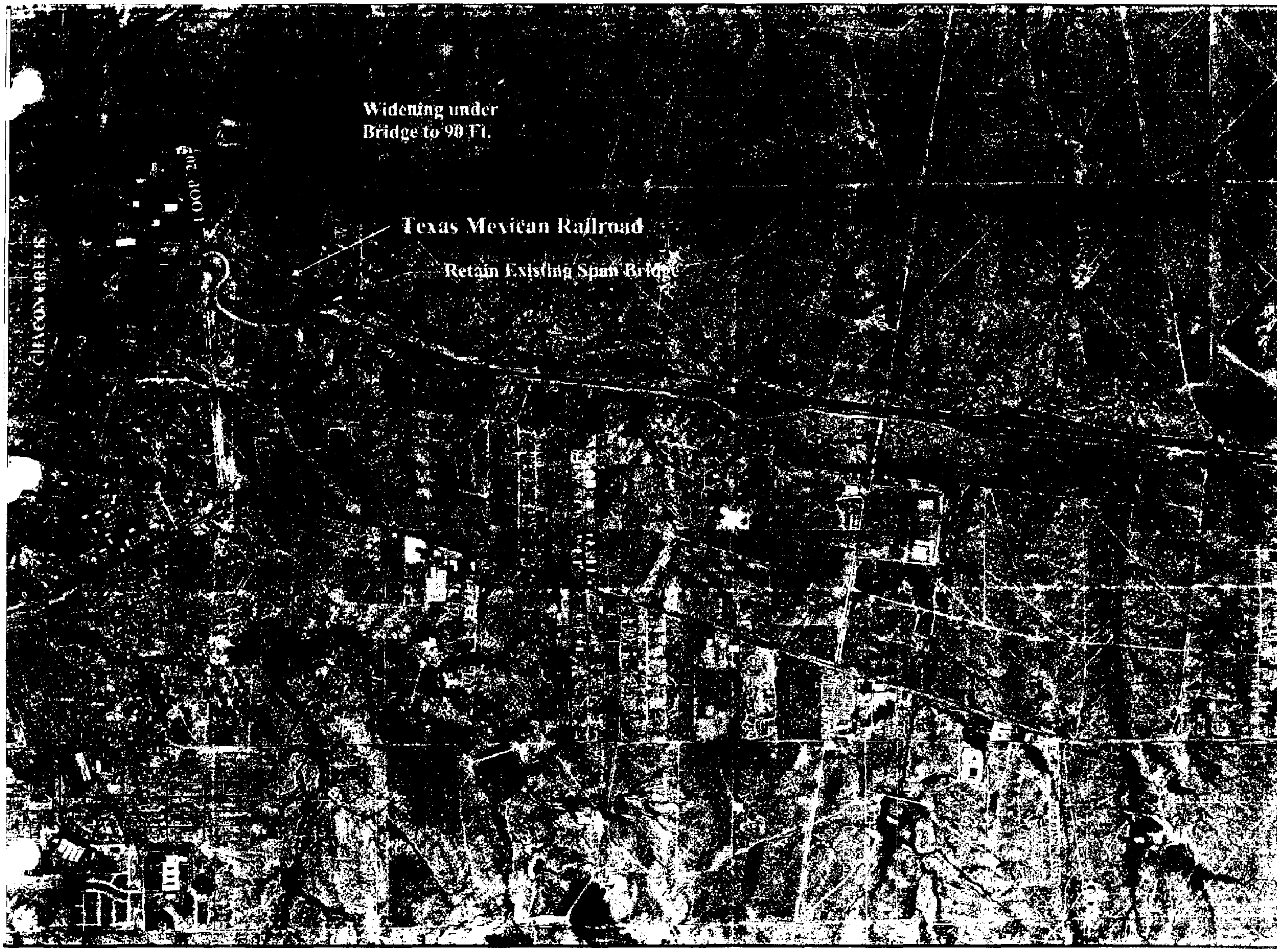
CHACON CREEK
STORMWATER
ULTIMATE AND INTERIM
DRAINAGE PLANS
Alternative 2:
Concrete Lined Channel

Chacon Creek Watershed
Exhibit 4

Revised Date: November 199[illegible]



KEY TO MAP
Existing Channel
Clean Natural Channel
Proposed Detention Pond
Replace Existing Box Culvert with Span Bridge
Channel - T3
100 Ft. Bottom Width
80 Ft. Bottom Width
60 Ft. Bottom Width
Channel - T3A
60 Ft. Bottom Width
50 Ft. Bottom Width
40 Ft. Bottom Widthm
Note:
Side Slope for Channel Improvements: SS = 3 : 1
N
NOT TO SCALE
TRIBUTARY 3 & TRIBUTARY 3A
STORMWATER
ULTIMATE DRAINAGE PLAN
Channel Improvement
Chacon Creek Watershed
Exhibit 5
Revised Date: November 1999
RY 3A
Tios Trap Tank
Clean Natural Channel
Chacon Creek
Hwy 59
Mars Tank
TRIBUTARY 3
Replace Existing Box Culvert with Span Bridge
2000 cfs
USGS Laredo East Quadrangle



KEY TO MAP

Existing Channel
Existing Span Bridge
Proposed Channel Improvement

North Channel
- **100 Ft. Wide**
- **80 Ft. Wide**
- **60 Ft. Wide**
- **30 Ft. Wide**
- **20 Ft. Wide**

South Channel
- **50 Ft. Wide**
- **40 Ft. Wide**
- **30 Ft. Wide**

Note:
Side Slope for Channel Improvements: SS = 3 : 1

N

NOT TO SCALE

TRIBUTARY 2
STORMWATER
ULTIMATE DRAINAGE PLAN
Channel Improvement

Chacon Creek Watershed
Exhibit 6

Revised Date: November 1999

KEY TO MAP

Existing Channel
Proposed Detention Pond
Replace Culvert with Span Bridge
Proposed Channel Improvements
40 Ft. Bottom Width
30 Ft. Bottom Width

Note:
Side Slope for Channel Improvements: SS = 3 : 1

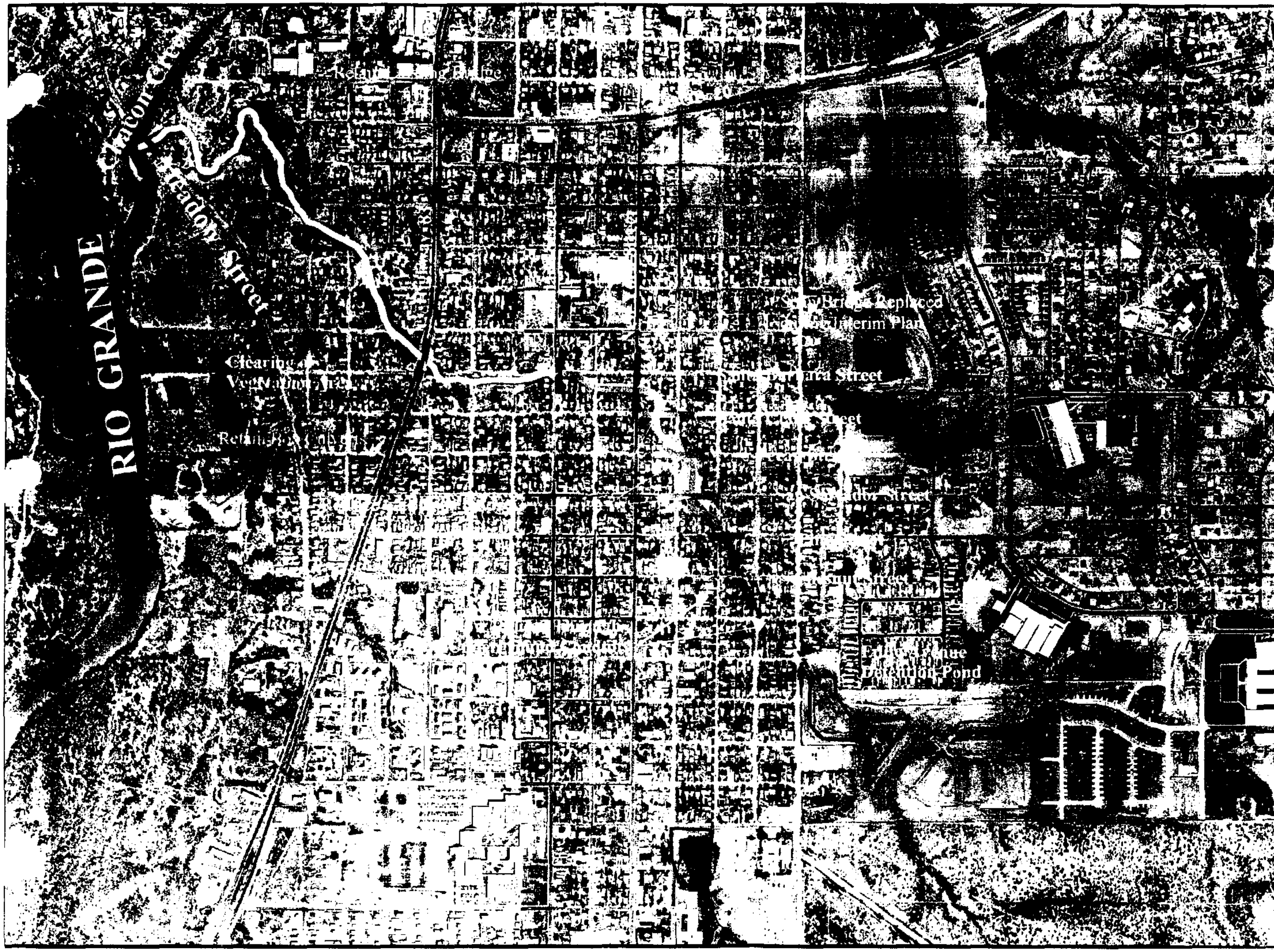
N

NOT TO SCALE

TRIBUTARY 1
STORMWATER
ULTIMATE DRAINAGE PLAN
Channel Improvement

Chacon Creek Watershed
Exhibit 7

Revised Date: November 1999



KEY TO MAP

- Existing Channel
- Existing Concrete
- Existing Box Culvert
- Existing Detention
- Existing Bridge
- Underground Conduits
- Clean Natural Channel
- Replace Existing with Span Bridge

TINAJA CREEK
Ultimate Drainage Plan

1. Replace existing culverts with a span bridge at the intersection Santa Clara Street, Pecan Street, and San Salvador Street
2. Includes improvements suggested during interim plan

N

NOT TO SCALE

TINAJA CREEK
STORMWATER
ULTIMATE DRAINAGE PLAN
Channel Improvement

Chacon Creek Watershed
Exhibit 8

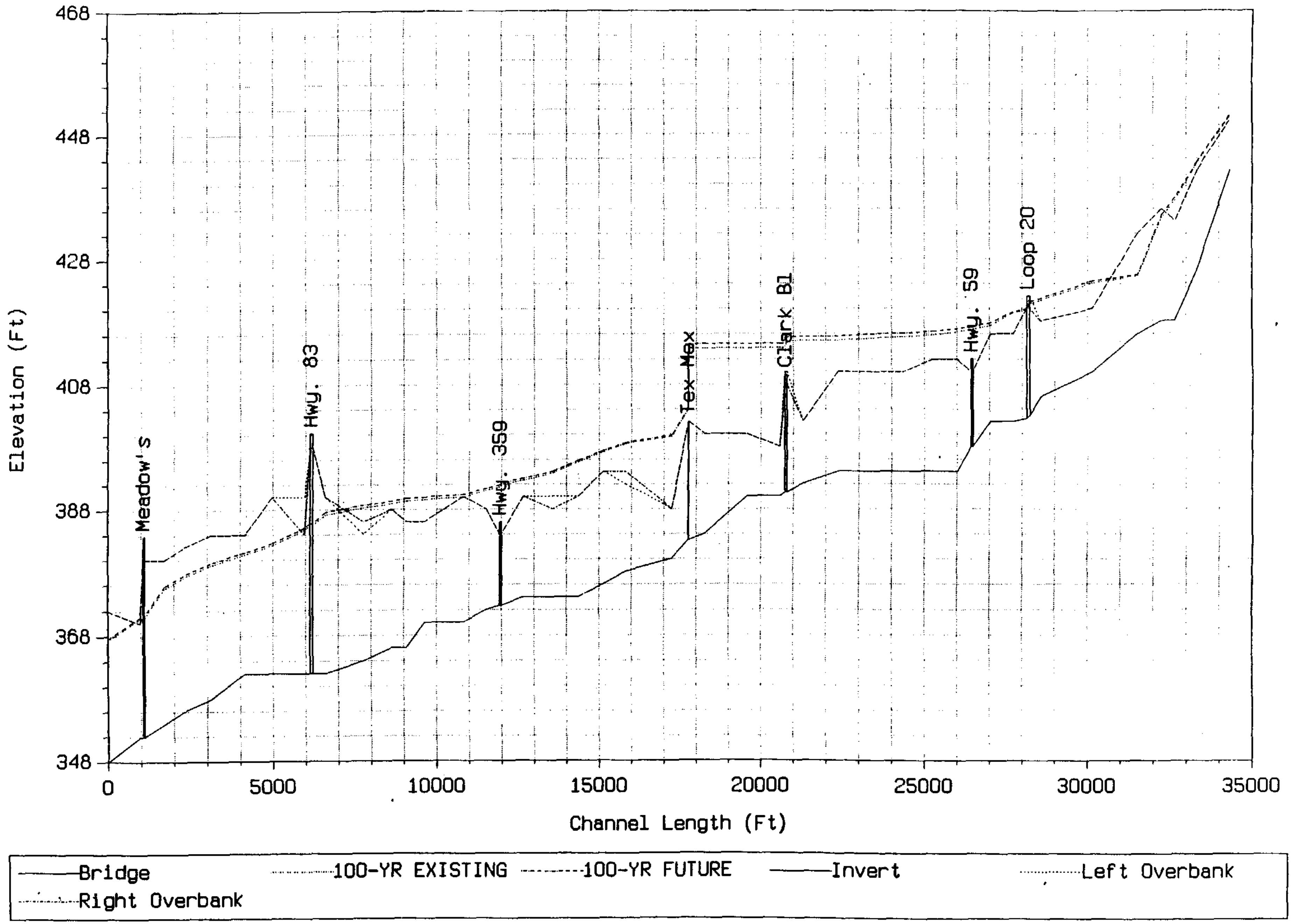
Revised Date: November 1999

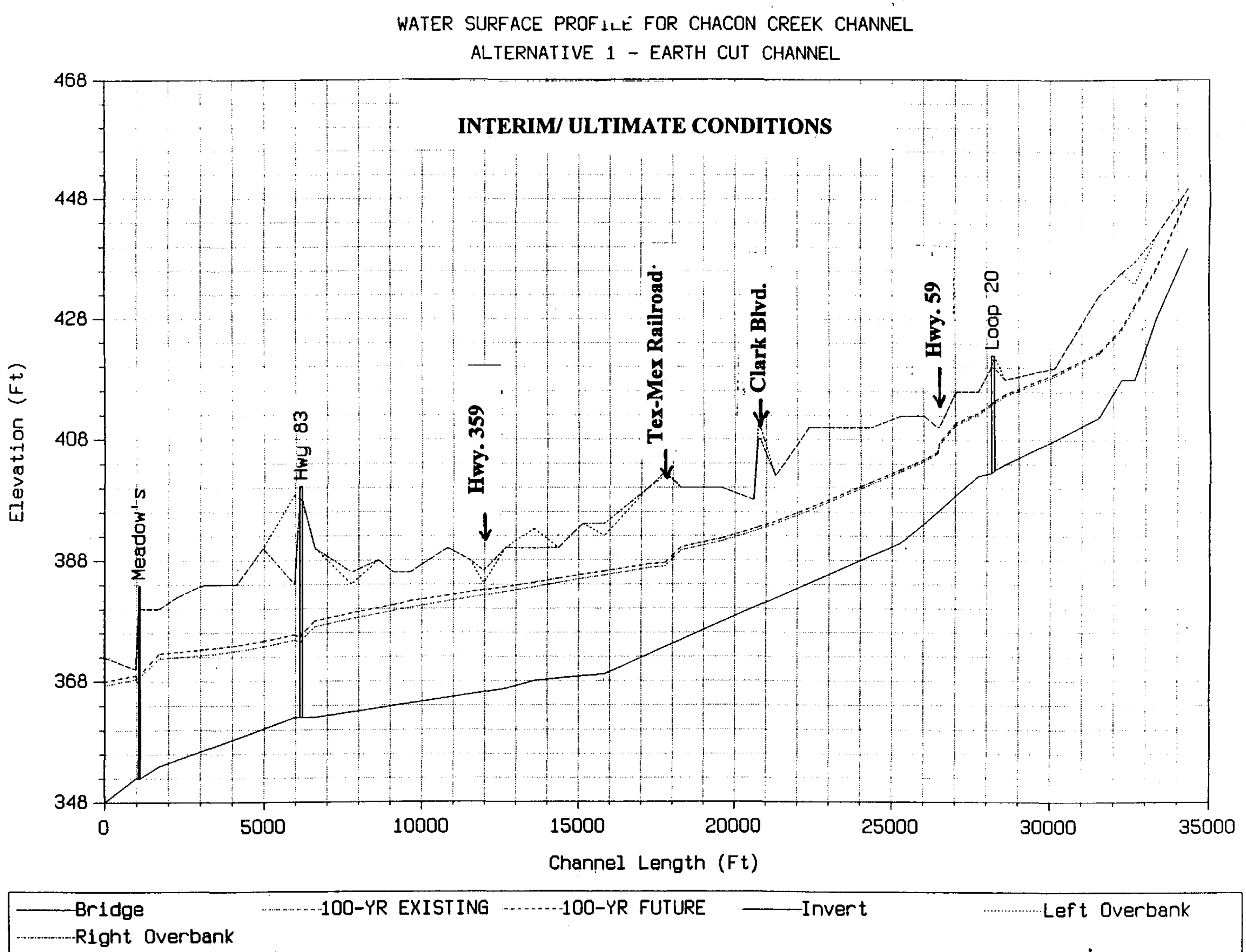
APPENDIX A

WATER SURFACE PROFILES

Chacon Creek Main Channel

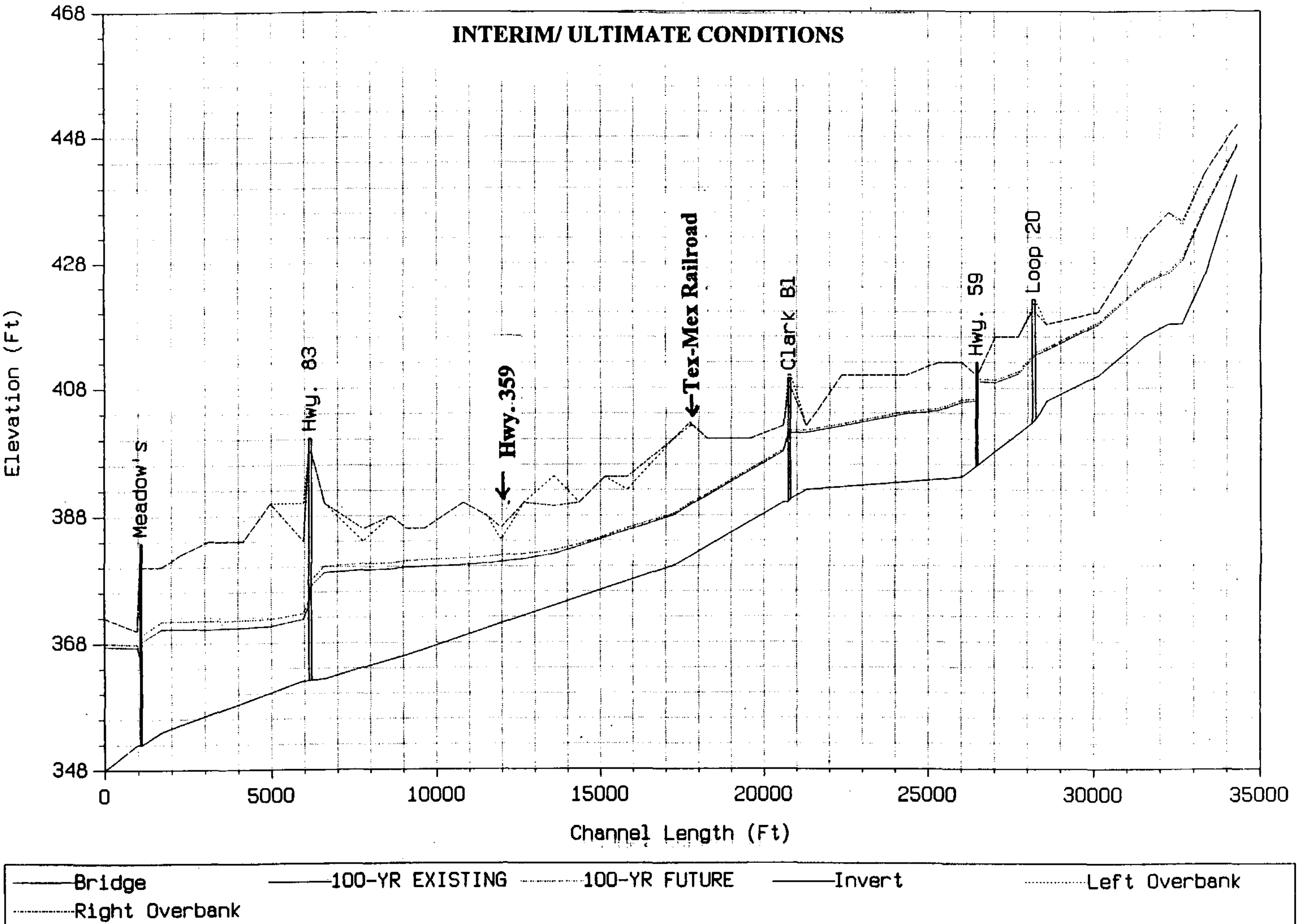
WATER SURFACE PROFILE FOR CHACON CREEK CHANNEL
EXISTING CHANNEL





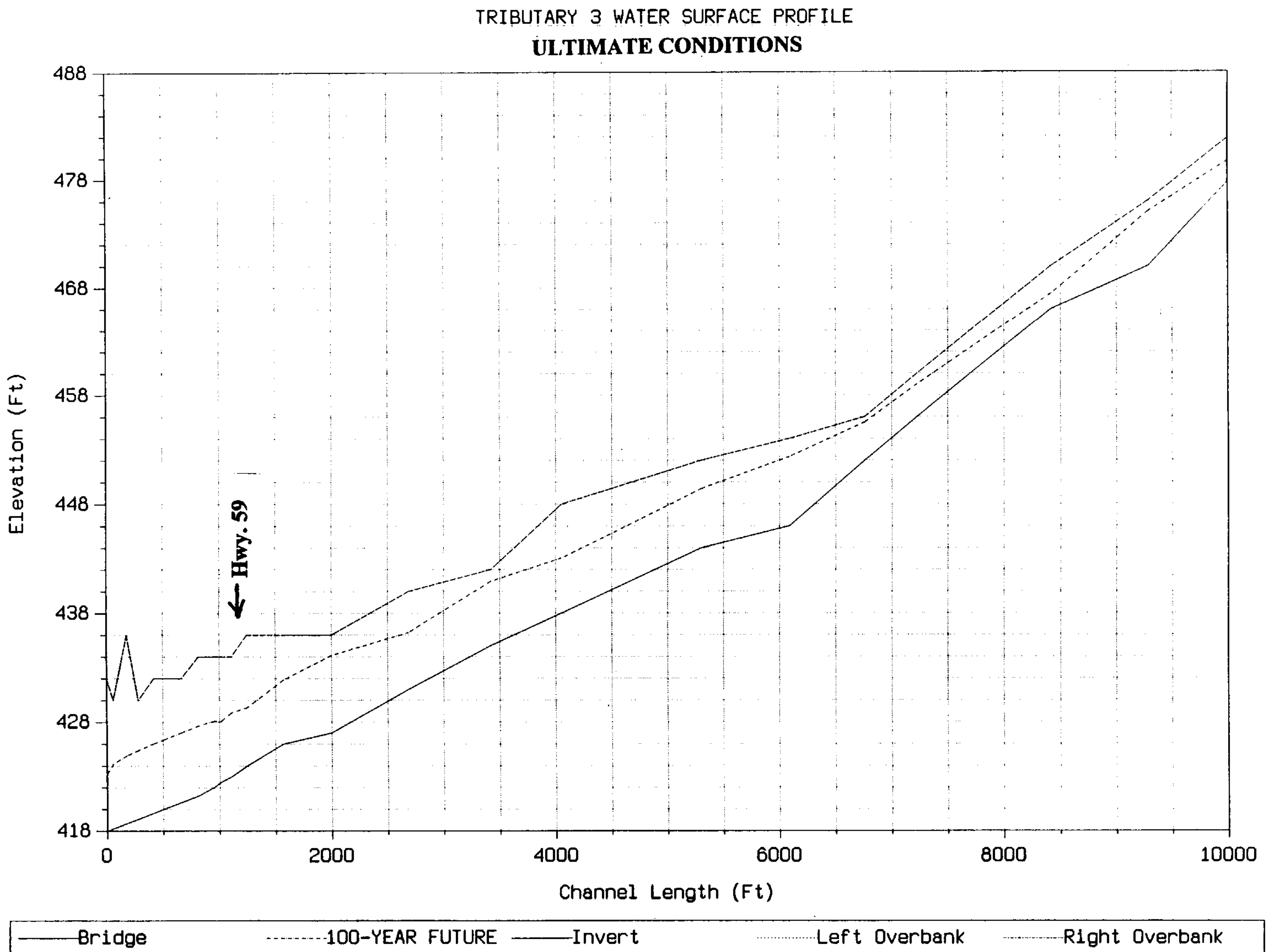
Hwy. 359, Tex-Mex, Clark Blvd. and Hwy. 59 Bridges to be replaced

WATER SURFACE PROFILE FOR CHACON CREEK CHANNEL
ALTERNATIVE 2 - CONCRETE LINED CHANNEL

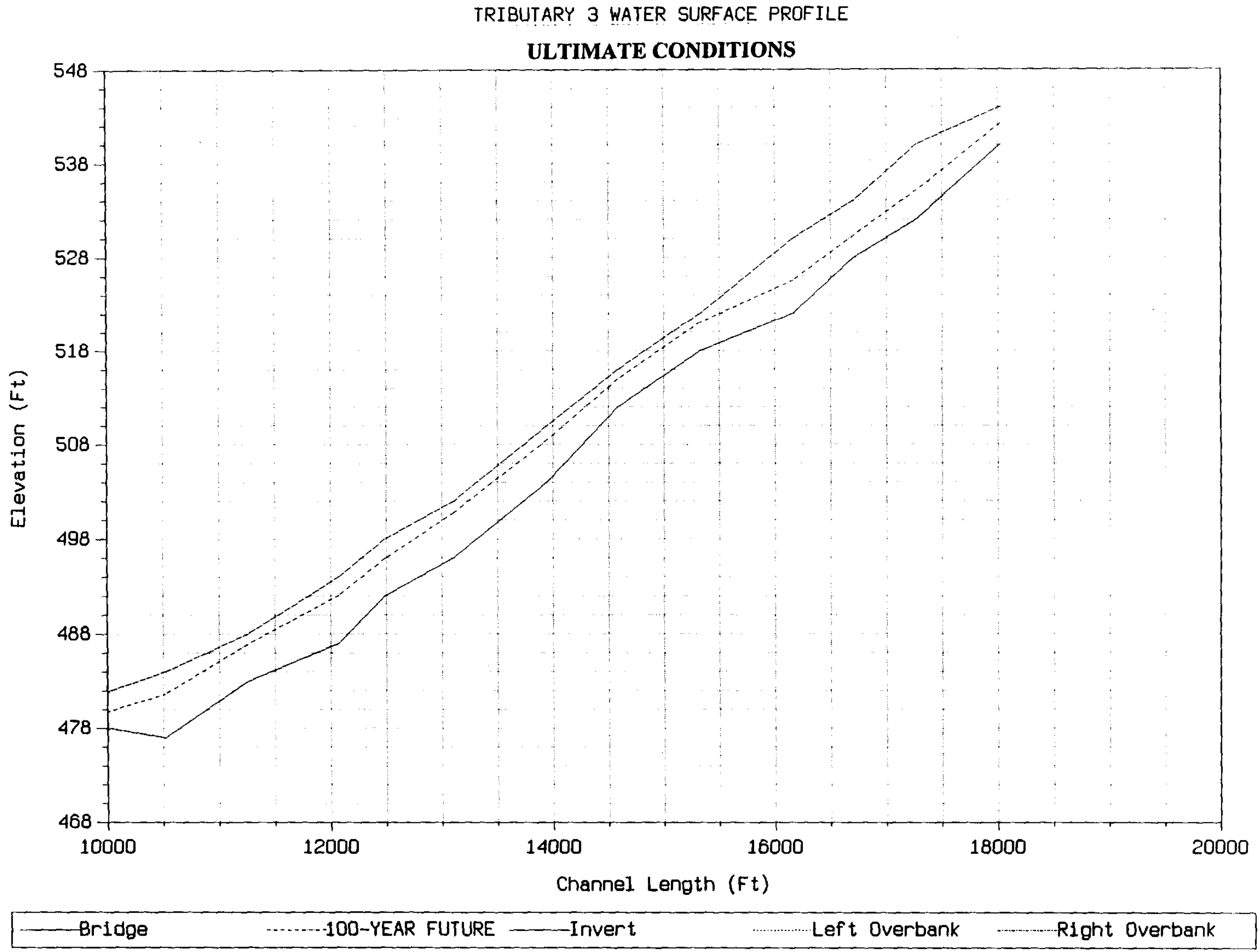


Hwy. 359 and Tex-Mex Railroad Bridges to be replaced

Tributary 3



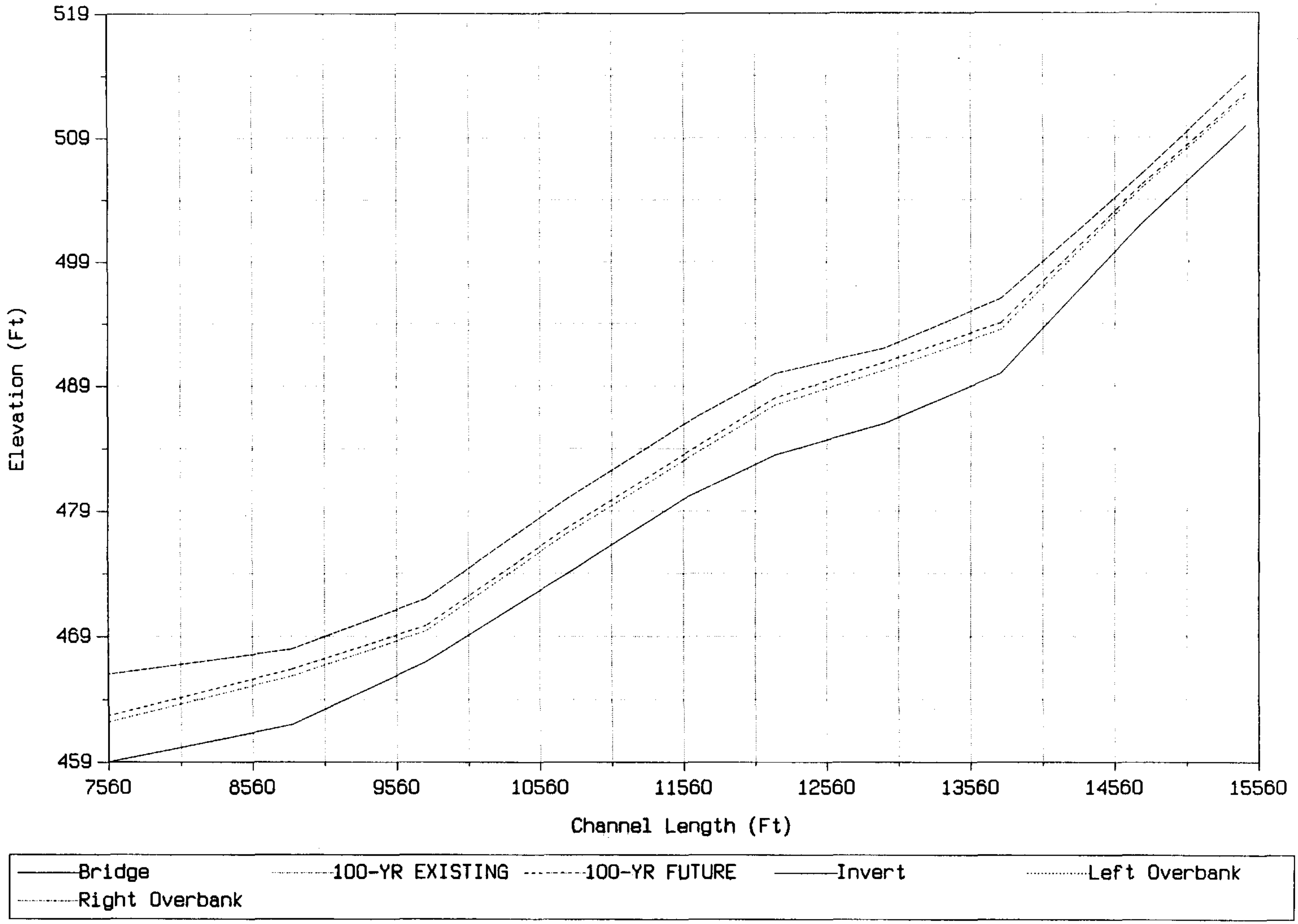
Replace culvert at Hwy. 59 with span bridge

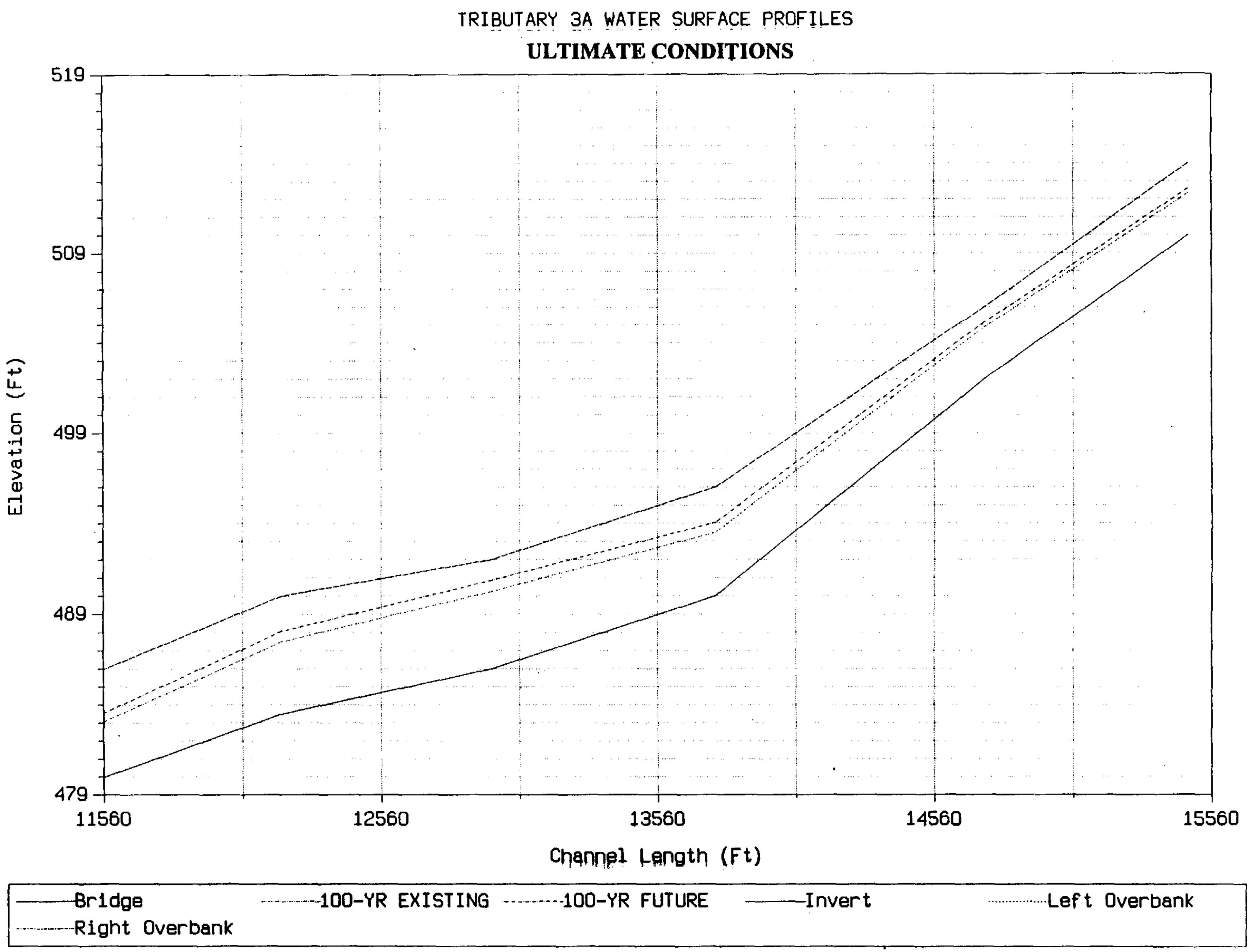

TRIBUTARY 3 WATER SURFACE PROFILE
ULTIMATE CONDITIONS
Elevation (Ft)
548
538
528
518
508
498
488
478
468
10000
12000
14000
16000
18000
20000
Channel Length (Ft)
Bridge
100-YEAR FUTURE
Invert
Left Overbank
Right Overbank

Tributary 3A

TRIBUTARY 3A WATER SURFACE PROFILES

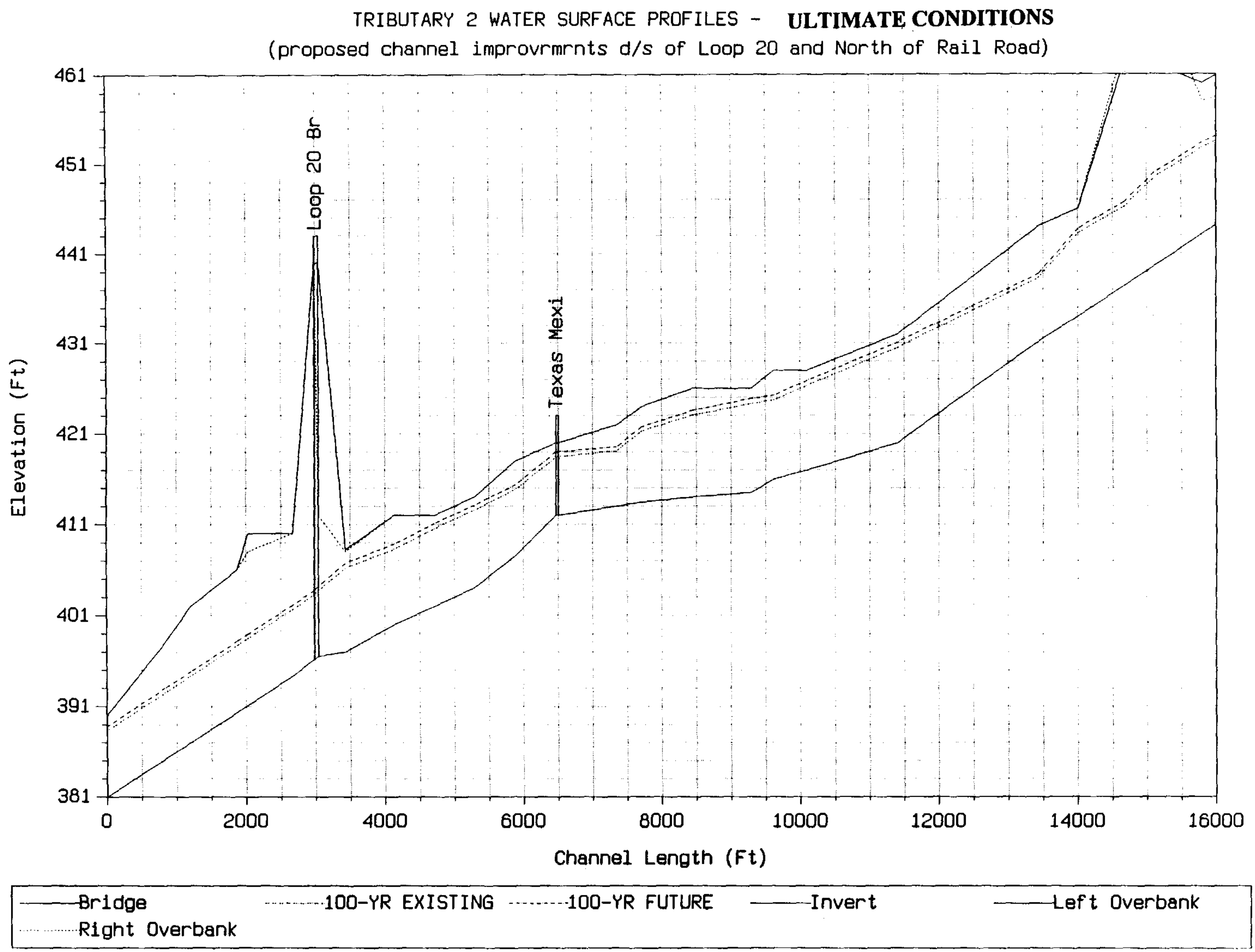
ULTIMATE CONDITIONS



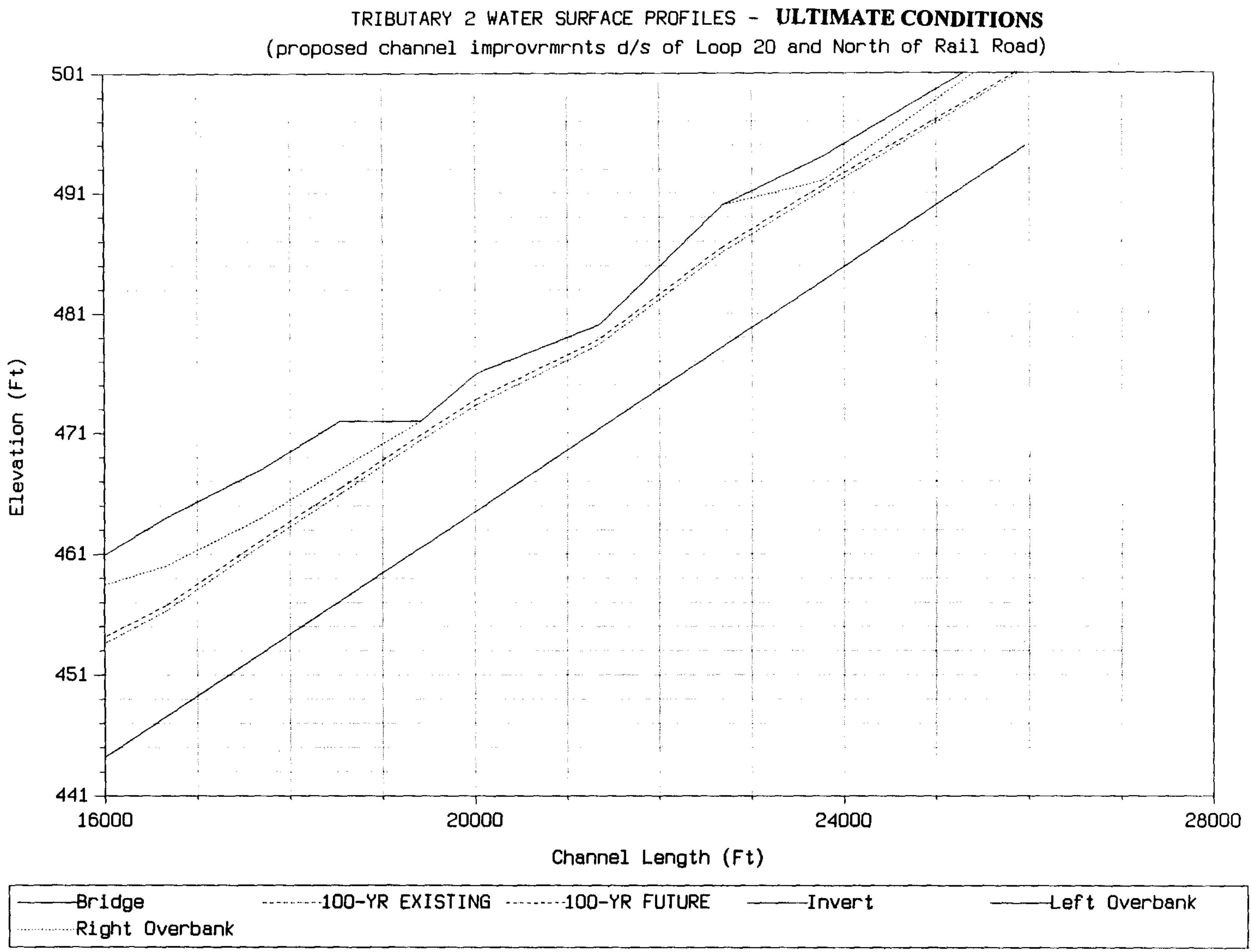


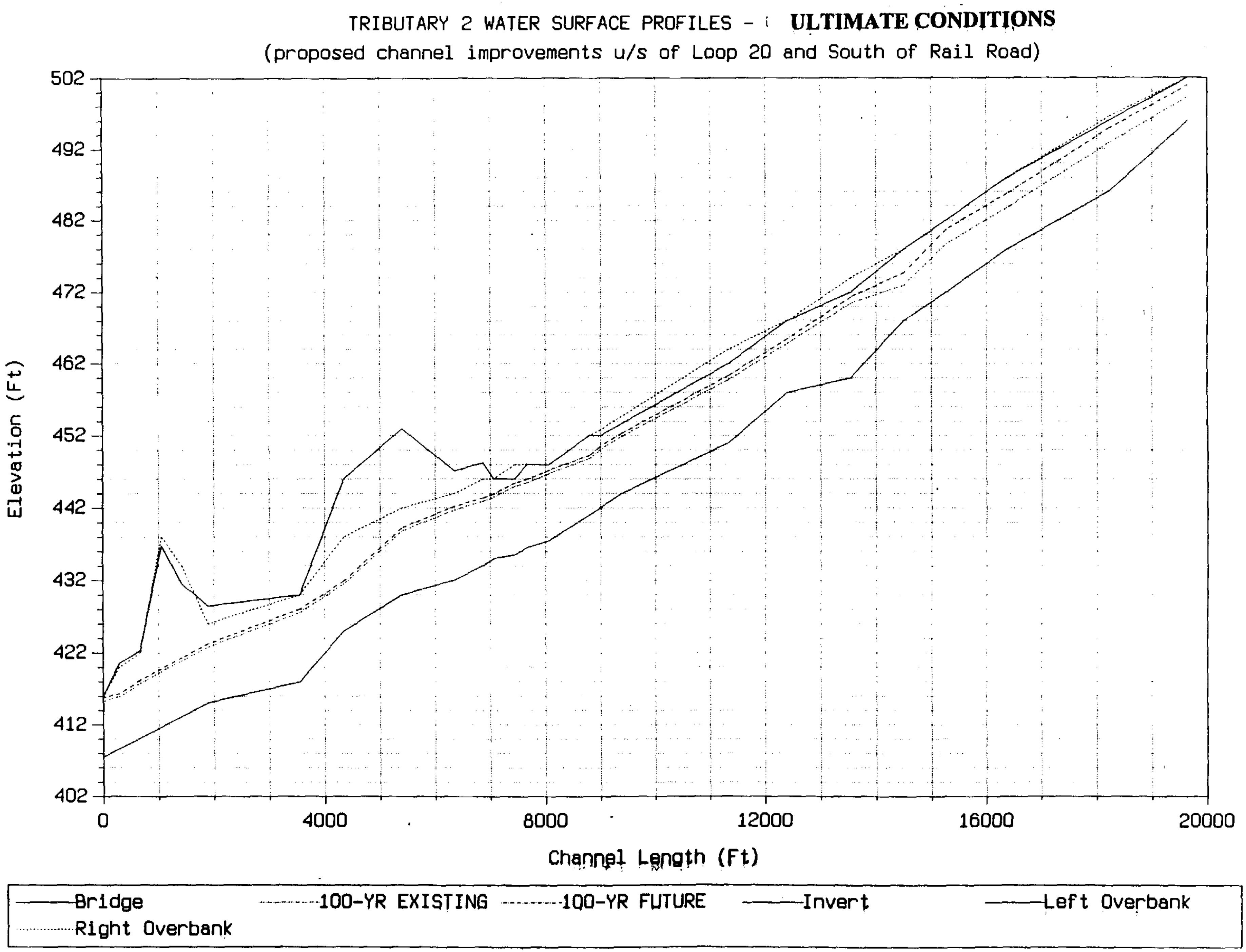
TRIBUTARY 3A WATER SURFACE PROFILES
ULTIMATE CONDITIONS
519
509
499
489
479
Elevation (Ft)
11560
12560
13560
14560
15560
Channel Length (Ft)
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank

Tributary 2

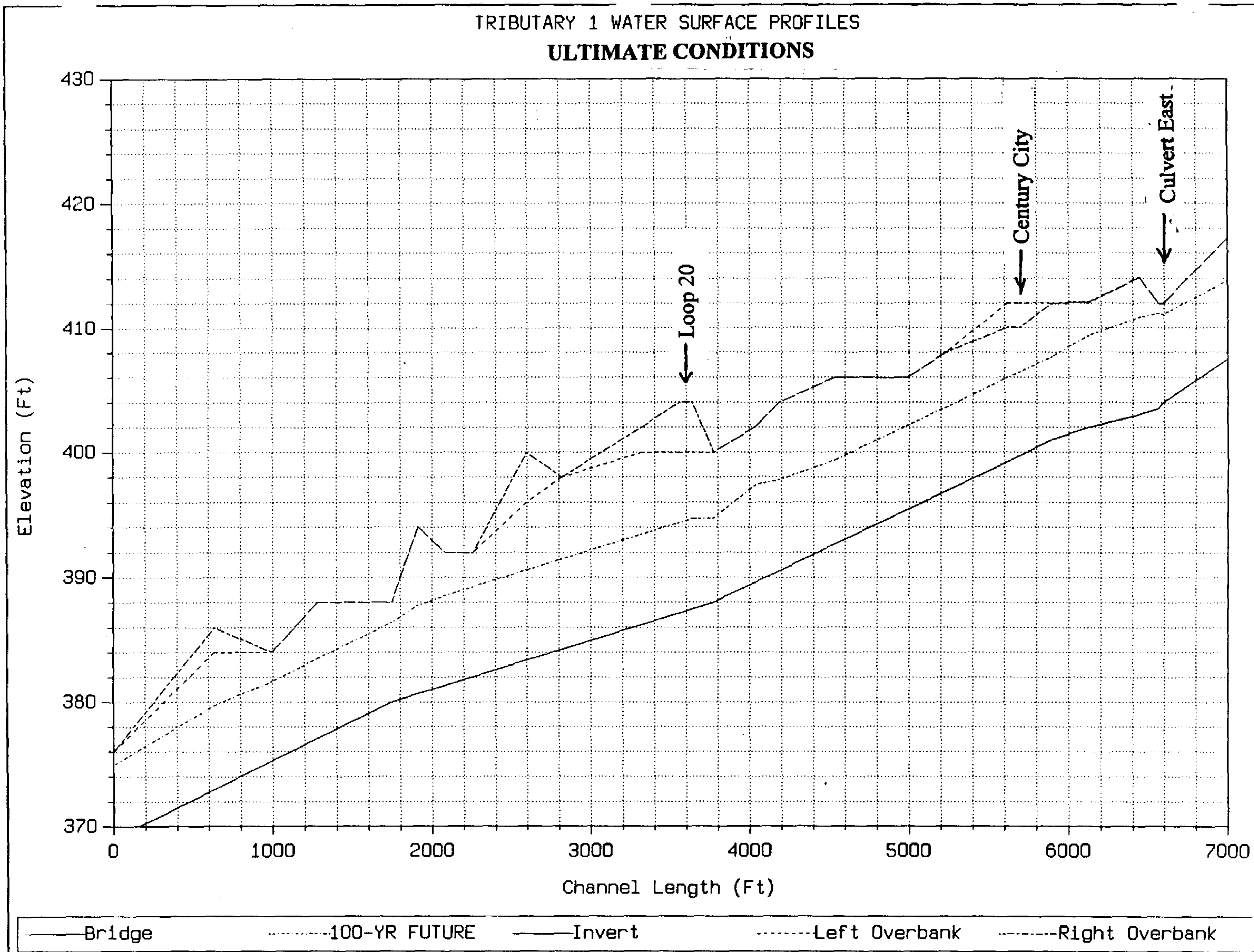


TRIBUTARY 2 WATER SURFACE PROFILES - ULTIMATE CONDITIONS
(proposed channel improvrmrnts d/s of Loop 20 and North of Rail Road)
Loop 20 Br
Texas Mexi
Elevation (Ft)
461
451
441
431
421
411
401
391
381
0
2000
4000
6000
8000
10000
12000
14000
16000
Channel Length (Ft)
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank

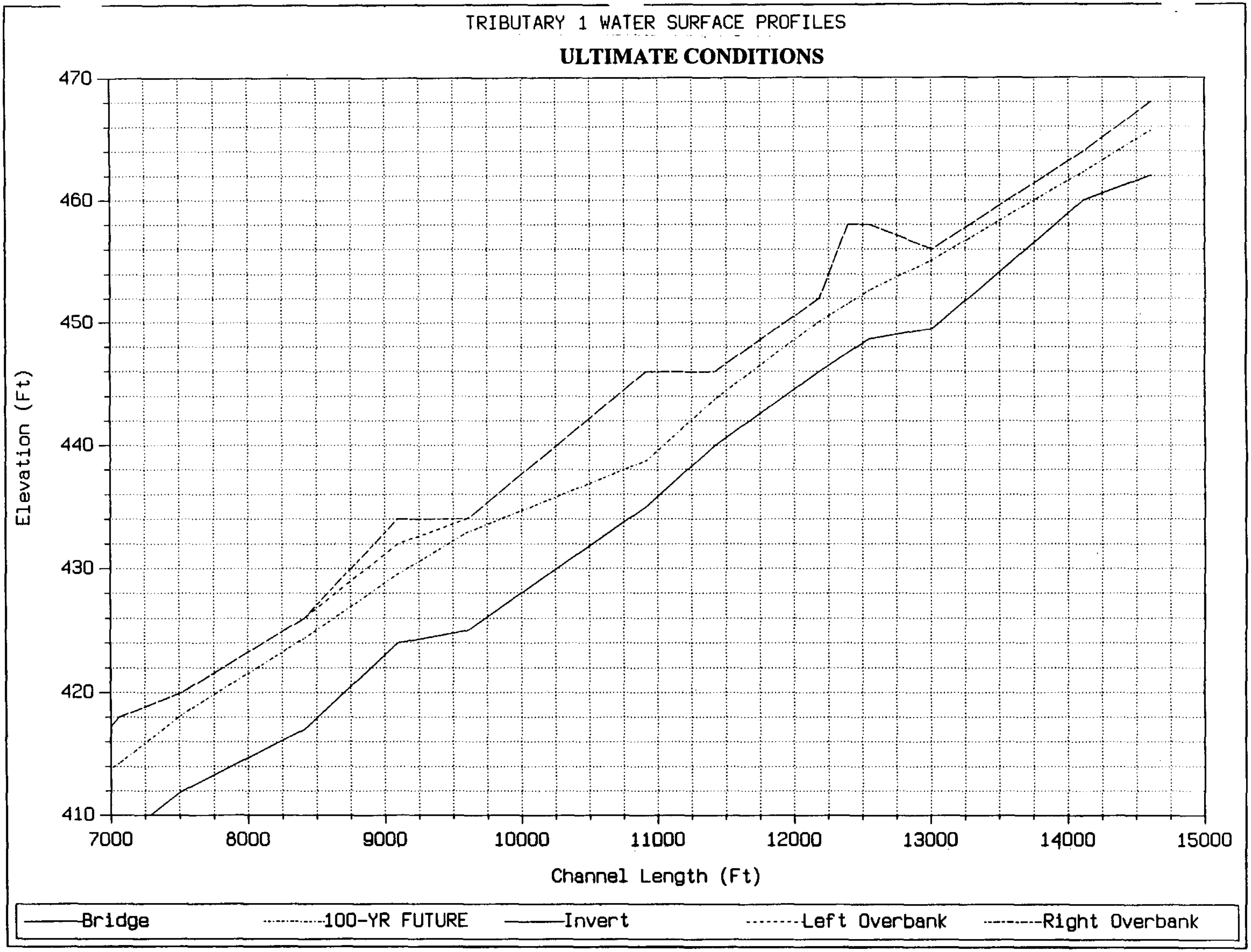

TRIBUTARY 2 WATER SURFACE PROFILES - ULTIMATE CONDITIONS
(proposed channel improvrmrnts d/s of Loop 20 and North of Rail Road)
Elevation (Ft)
501
491
481
471
461
451
441
16000
20000
24000
28000
Channel Length (Ft)
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank


TRIBUTARY 2 WATER SURFACE PROFILES - ULTIMATE CONDITIONS
(proposed channel improvements u/s of Loop 20 and South of Rail Road)
Elevation (Ft)
502
492
482
472
462
452
442
432
422
412
402
0
4000
8000
12000
16000
20000
Channel Length (Ft)
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank

Tributary 1

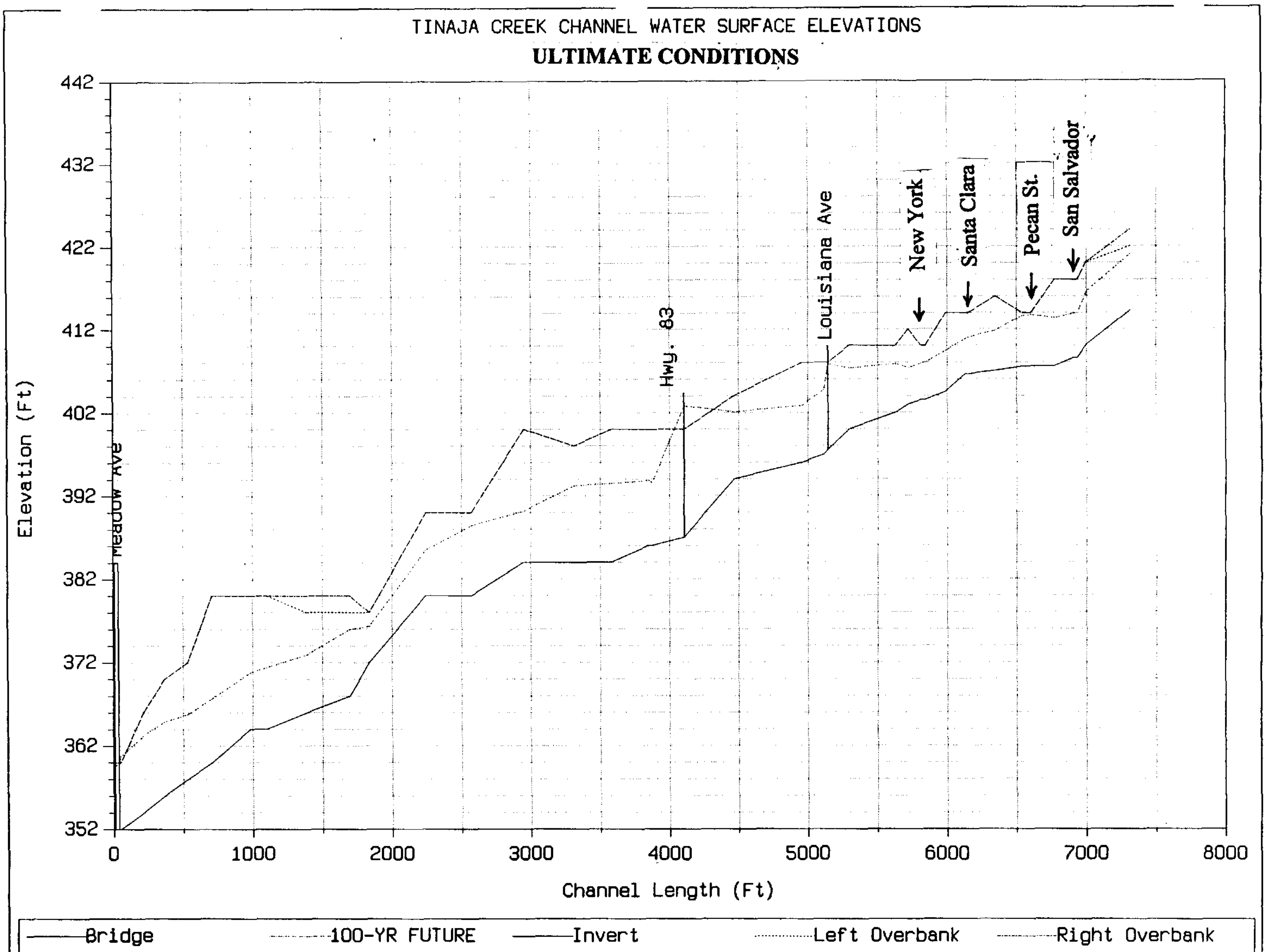


Culverts at Loop 20, Century City & East of Century City to be replaced by Span bridges



TRIBUTARY 1 WATER SURFACE PROFILES
ULTIMATE CONDITIONS
Elevation (Ft)
470
460
450
440
430
420
410
7000
8000
9000
10000
11000
12000
13000
14000
15000
Channel Length (Ft)
Bridge
100-YR FUTURE
Invert
Left Overbank
Right Overbank

Tinaja Creek



Replace culverts at Santa Clara St., Pecan St. and San Salvador St. with span bridges

APPENDIX B

TEXAS WATER DEVELOPMENT BOARD COMMENTS ON DRAFT REPORT
AND
BROWN & ROOT RESPONSES

RESPONSES TO TEXAS WATER DEVELOPMENT BOARD COMMENTS

The Texas Water Development Board commented on the Draft Final Report by letter signed by Dr. Tommy Knowles and dated September 21, 1999. Brown & Root's responses to and actions resulting from the comments are as follows beginning with the comments contained in the body of September 21, 1999, letter followed by responses to the comments contained in Attachment 1 to the letter.

Comments in Dr. Tommy Knowles letter dated September 21, 1999

1. The Scope of Work specifically states that non-structural alternatives, such as buyouts, will be considered under ultimate condition analysis. This was not provided.

   The report has been modified to incorporate non-structural alternatives such as buy-outs in the analyses for flood mitigation under ultimate conditions.

2. Task I-Item 8, Task II-Item 15 and Task III-Item 22 were not addressed.

   For Task 1-Item 8, Task II-Item 15, and Task III-Item 22, the floodway encroachment methodology used in the analyses was a two-step process. Using the HEC-2 model, floodway encroachment Method 4 was used to identify the right and left bank stations to obtain a one-foot rise in the 100-year flood elevation. Method 1 was used as a check method to verify the results from Method 4. Each method yielded similar results.

   Additional text has been added to the report to explain this methodology.

3. Task IV-Item 23, there was no discussion of public meeting or public input solicited.

   For Task IV-Item 23, public meetings and briefings were held to inform the public and local officials of the procedures and findings resulting from the work. These meetings included:

   <u>April 7, 1999</u>
   Meeting with City Manager, City Department Managers, Webb County Executive Administrator, Webb County Engineer, and Executive Director, Attorney and Engineer for Webb County Drainage District No. 1.

June 16, 1999
Meeting with Assistant City Manager, City Department Managers, Webb County Executive Administrator, Webb County Engineer, and Executive Director, Attorney and Engineer for Webb County Drainage District No. 1.

July 6, 1999
Public meeting as part of City of Laredo Council Meeting with City Council, city staff, other local sponsors and general public invited to attend.

Other
Numerous other meetings, presentations and briefings were held during the course of the study to solicit and receive public input.

Comments in Attachment 1 to Dr. Tommy Knowles letter dated September 21, 1999

A. Chacon Creek Flood Insurance Study Update Volumes 1 and 2

1. Please include the Executive Summary in Chacon Creek Flood Insurance Study Update, Volume 1

   An Executive Summary has been included in the Chacon Creek Flood Insurance Study Update, Volume 1

2. Volume 1, Page 2, Section 2.1; First sentence does not make sense ("of" is left out).

   Sentence has been rewritten to make sense.

3. More detailed labeling of Volume 2 contents would be beneficial.

   Additional labeling has been added.

4. Volume 1, Section 4.0. There should be a Section 4.0 describing Floodplain Management Applications and a description of subsections 4.1 and 4.2. A more detailed explanation of the methodology and how the various boundaries (Flood Boundary, 100-year and 500-year) were calculated and mapped would be useful. The purple Floodway boundaries, for example, appear to be based on a very different mapping method than other boundaries. Please explain if this boundary was based on physical features, HEC output/section, or some other map.

   Additional descriptive text has been added to Section 4.0. Additional text has been added to explain the methodology used to determine and map the floodway, 100-year and 500-year floodplains.

5. As per Scope of Work, Task I-Item 8 (also Task II-Item 15 and Task III-Item 22) there was no discussion of the Development of an Encroachment Method 1 Floodway HEC-2 model for each of the streams. This needs to be provided to satisfy the project Scope of work.

For Task 1-Item 8, Task II-Item 15, and Task III-Item 22, the floodway encroachment methodology used in the analyses was a two-step process. Using the HEC-2 model, floodway encroachment Method 4 was used to identify the right and left bank stations to obtain a one-foot rise in the 100-year flood elevation. Method 1 was used as a check method to verify the results from Method 4. Each method yielded similar results.

Additional text has been added to the report to explain this methodology.

B. "Stormwater Master and Interim Drainage Plan for the Chacon Creek Watershed"

1. Change Title on cover to "Stormwater Master and Interim Drainage Plans for the Chacon Creek Watershed.

Change has been made.

2. It is suggested that the executive summaries be moved to the beginning of their respective reports.

Executive summaries have been moved as suggested.

3. Interim Drainage Plan, page 3, title is wrong. Also, last sentence, same page doesn't make sense.

Title has been corrected and sentence rewritten.

4. The reports fail to include the costs of obtaining right-of-ways for improvements. This could be a major cost item and should be included.

The reports have been modified to include consideration of right-of-way costs in evaluation and selection of alternatives.

5. The report does not adequately address the non-structural alternative "buy-out" considerations specifically detailed in the Scope of Work. The reports recommend construction of "improvements" in every case without presenting buy-out costs to compare. The buy-out alternative is not described nor is it compared in any case. This should be presented to satisfy the projects Scope of Work. Include text section and present this alternative's cost in report.

Buy-out alternatives have been added to the report for consideration as a method to mitigate the impact of flooding. The buy-out alternatives are presented for comparison with structural alternatives. It should be noted that additional indirect costs surround buy-out alternatives that may make the buy-out alternatives less desirable (examples are social issues and potential for condemnation and litigation).

6. Stormwater Master Drainage Plan Volume, Figure 1: Medium and High Density Residential are the same color, this makes the map unusable. Make these different.

   The map has been revised.

7. Stormwater Master and Interim Drainage Plan Volume, Exhibits 1: Legend for 250 ft and 200 ft channels are the same, hence the figure is unusable.

   Legend has been corrected.

8. Stormwater Master and Interim Drainage Plan Volume, Exhibits 3: Legend for 200 ft and 150 ft channels are the same. Make these different.

   Legend has been corrected.

9. Stormwater Master and Interim Drainage Plan Volume, Exhibits 4: Legend for 200 ft and 150 ft channels are the same. Make these different.

   Legend has been corrected.

10. Stormwater Master and Interim Drainage Plan Volume, Exhibits 5: Numerous items in Legend do not appear (e.g. solid orange). Remove items from legend that do not appear on map.

    Legend and exhibit have been corrected.

11. Stormwater Master and Interim Drainage Plan Volume, Exhibits 6: Cannot tell the difference between the following items:
    50 Ft./SS=3.1/Avg. S=0.4%
    40 FT./SS=3:1/Avg. S=0.35%
    Please make appropriate changes to figure and/or legend.

    Legend and exhibit have been corrected.

12. Stormwater Master and Interim Drainage Plan Volume, Exhibits 7: several items in Legend do not appear or do not correspond to items shown on the figure. Remove items from legend that do not appear on figure and include items shown on the map.

Legend and exhibit have been corrected.

13. Per Task IV 23.0: Report does not adequately address this task. Include section describing efforts to solicit public input and the results of these efforts.

For Task IV-Item 23, public meetings and briefings were held to inform the public and local officials of the procedures and findings resulting from the work. These meetings included:

<u>April 7, 1999</u>
Meeting with City Manager, City Department Managers, Webb County Executive Administrator, Webb County Engineer, and Executive Director, Attorney and Engineer for Webb County Drainage District No. 1.

<u>June 16, 1999</u>
Meeting with Assistant City Manager, City Department Managers, Webb County Executive Administrator, Webb County Engineer, and Executive Director, Attorney and Engineer for Webb County Drainage District No. 1.

<u>July 6, 1999</u>
Public meeting as part of City of Laredo Council Meeting with City Council, city staff, other local sponsors and general public invited to attend.

<u>Other</u>
Numerous other meetings, presentations and briefings were held during the course of the study to solicit and receive public input.

14. The reports should include maps showing the locations and extent of flood areas after recommended interim and ultimate improvements are made. (Or maybe a graph of channel x-section location vs. WSEL comparing existing, interim and ultimate conditions would suffice).

We have added to the report stream profiles illustrating water surface elevations for the existing conditions and the interim and ultimate conditions after improvements.

15. Flood Hazard "Plate Layout" Map/Key: Legend has a black color where there should be a red hatched area.

Legend and map have been corrected to correspond.