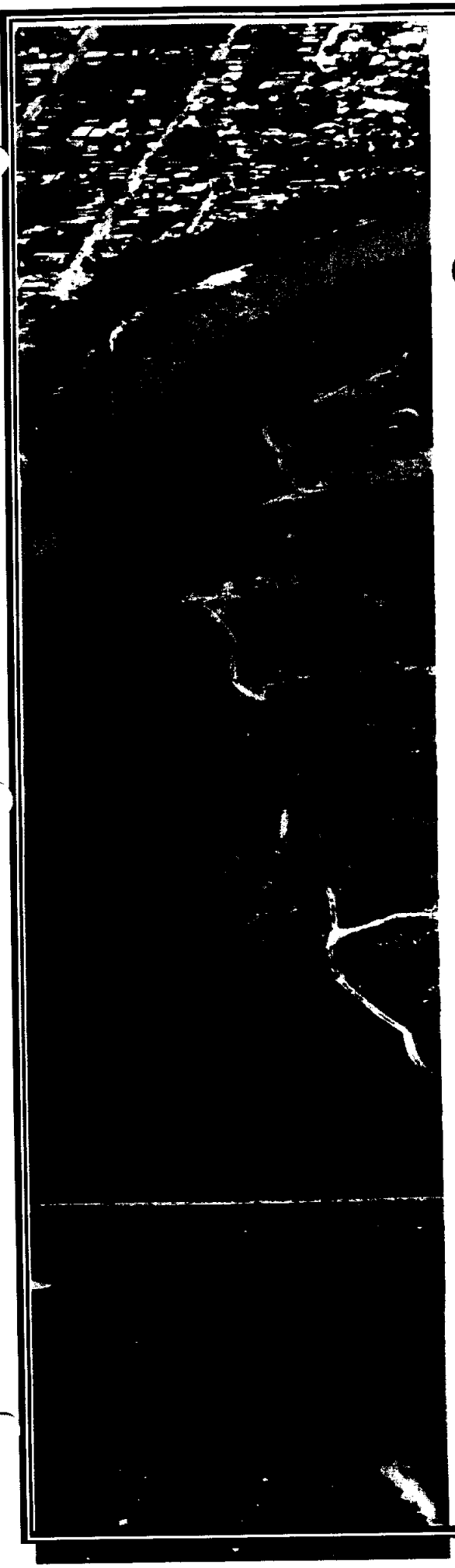

City of Laredo and Webb County, Texas

CHACON CREEK WATERSHED

Flood Insurance Study Update
Volume 2 of 2
November 1999

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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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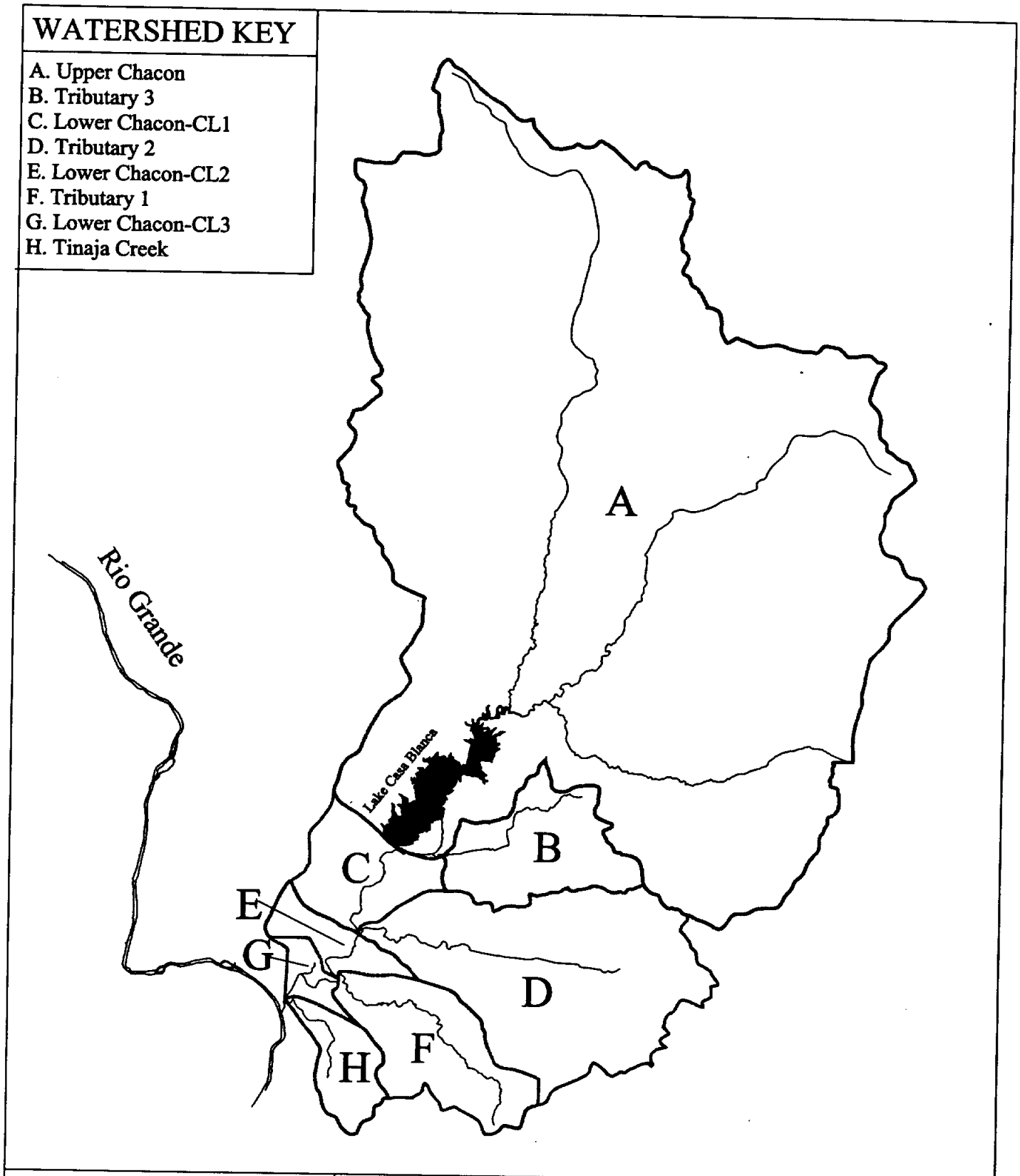
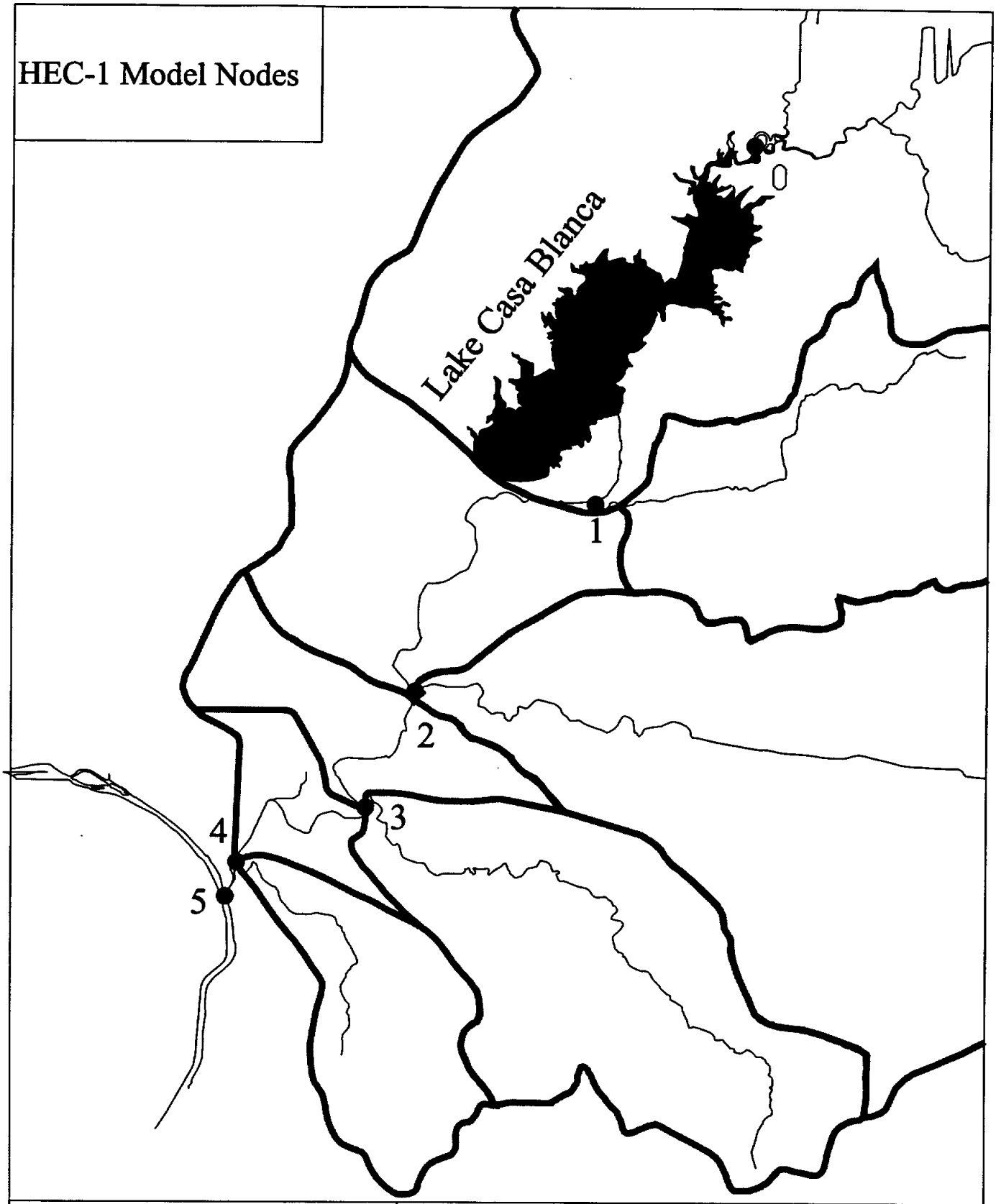


Chacon Flood Insurance Study

FIGURE 1

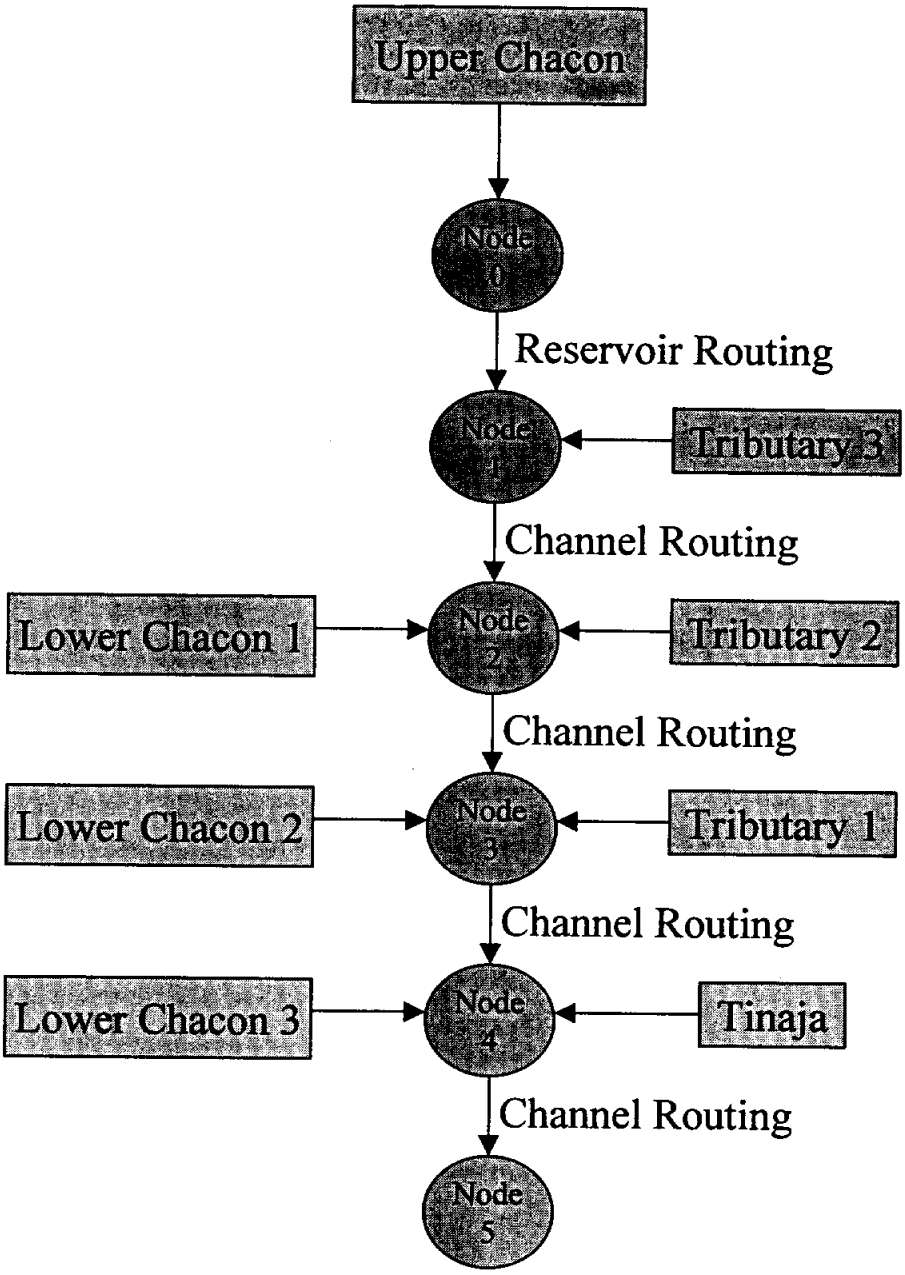
Brown & Root

12/1/98



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

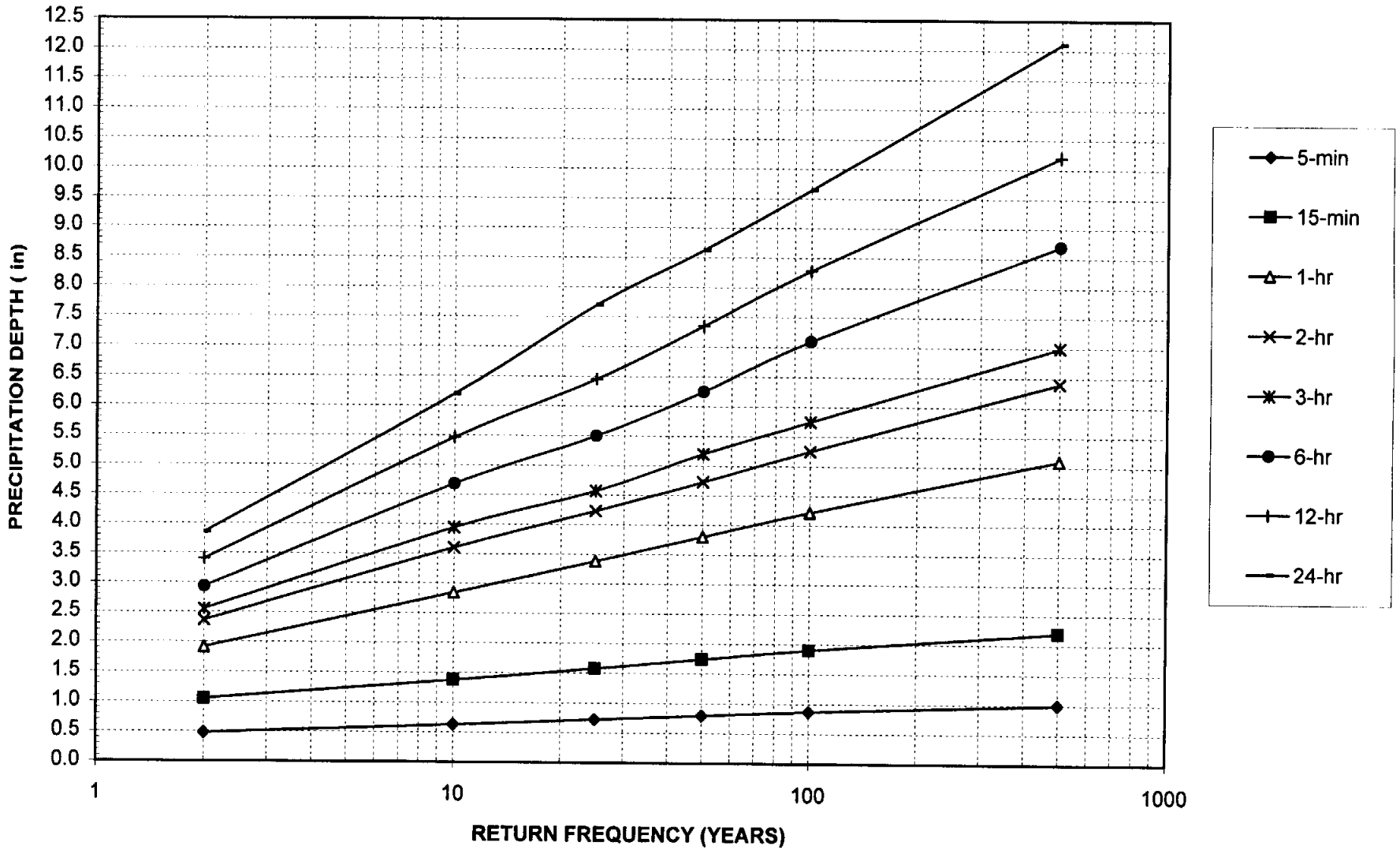
HEC-1 SCHEMATIC
for the Chacon Creek Watershed



11/30/99

Figure 3

FIGURE 4: RAINFALL FREQUENCY CURVES



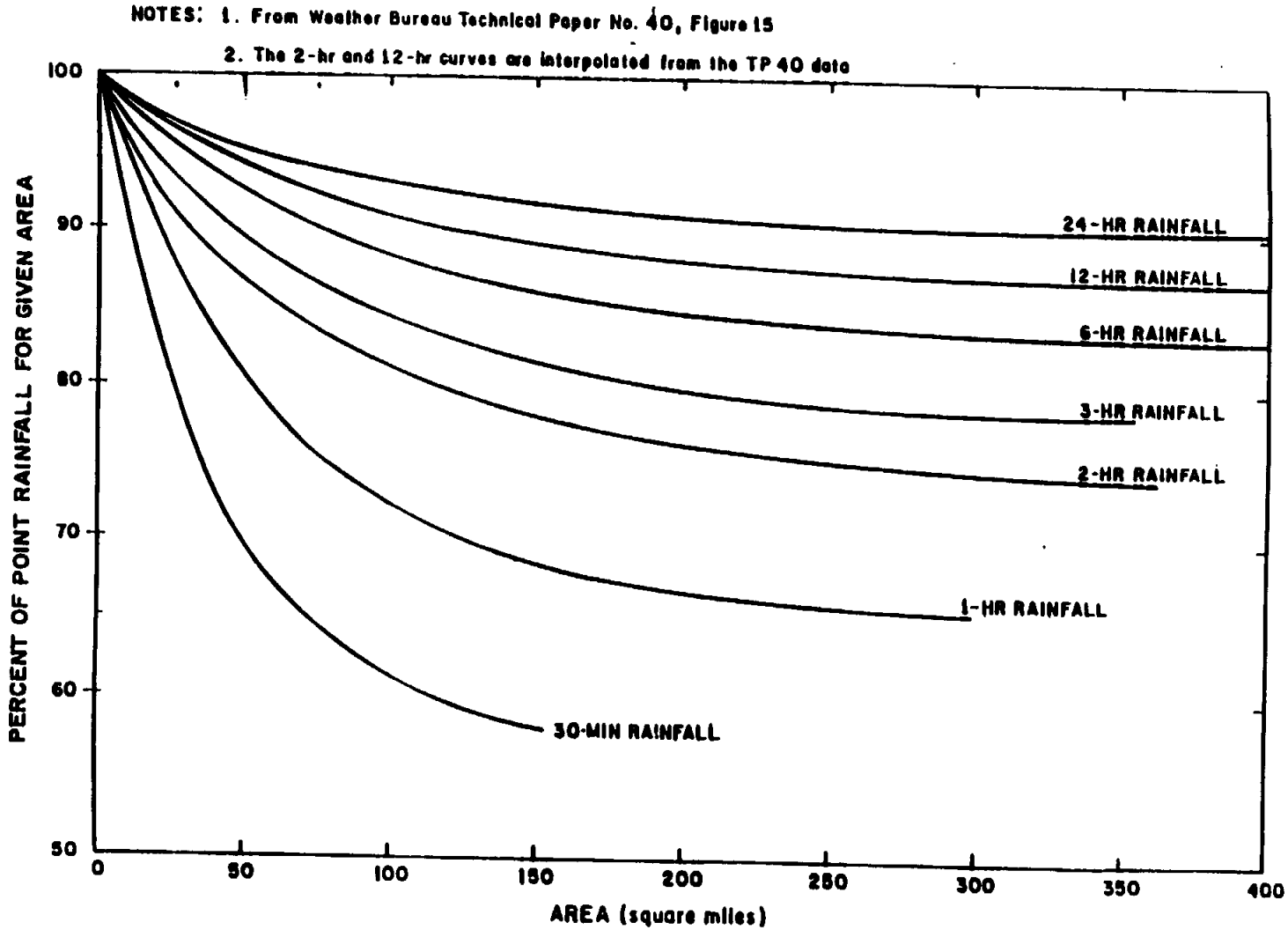
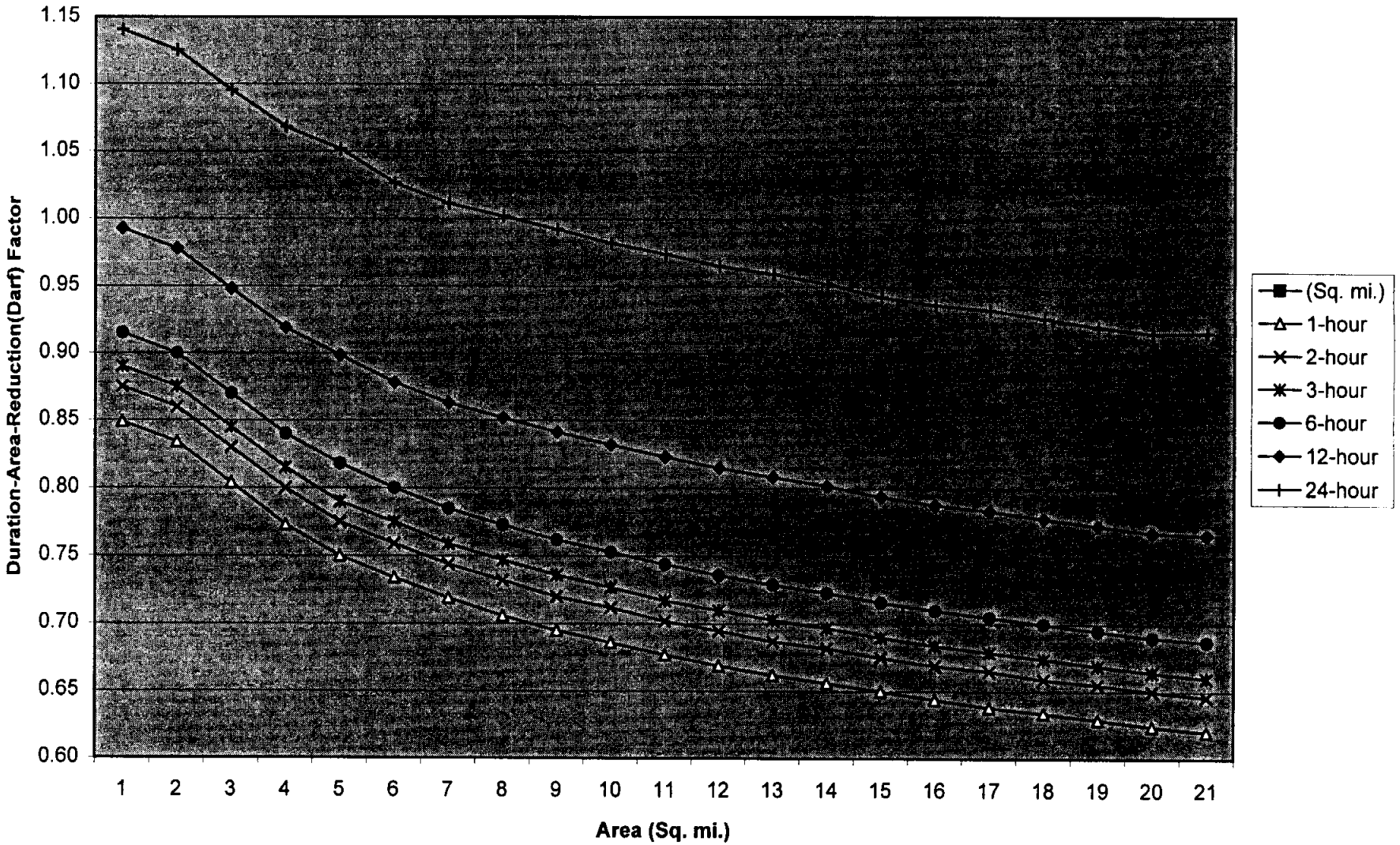


FIGURE 5: DEPTH AREA CURVES FOR ADJUSTING POINT RAINFALLS

FIGURE 6: DEPTH AREA REDUCTION FACTOR FOR ADJUSTING POINT RAINFALL



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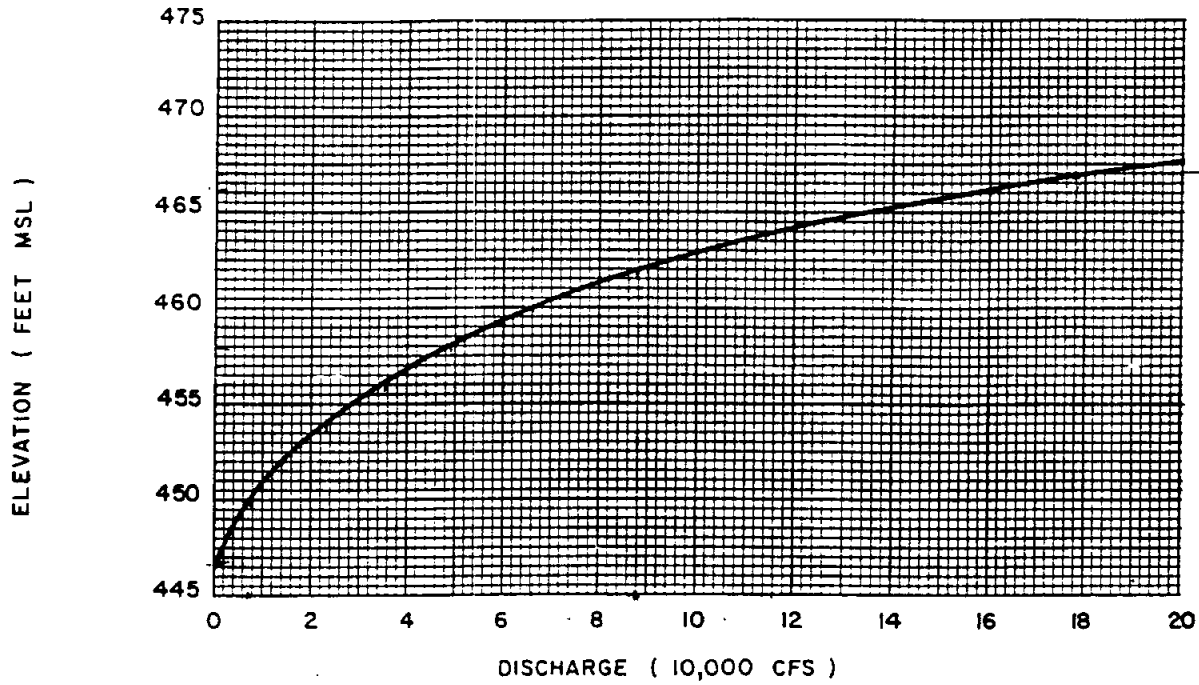

SOURCE:

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

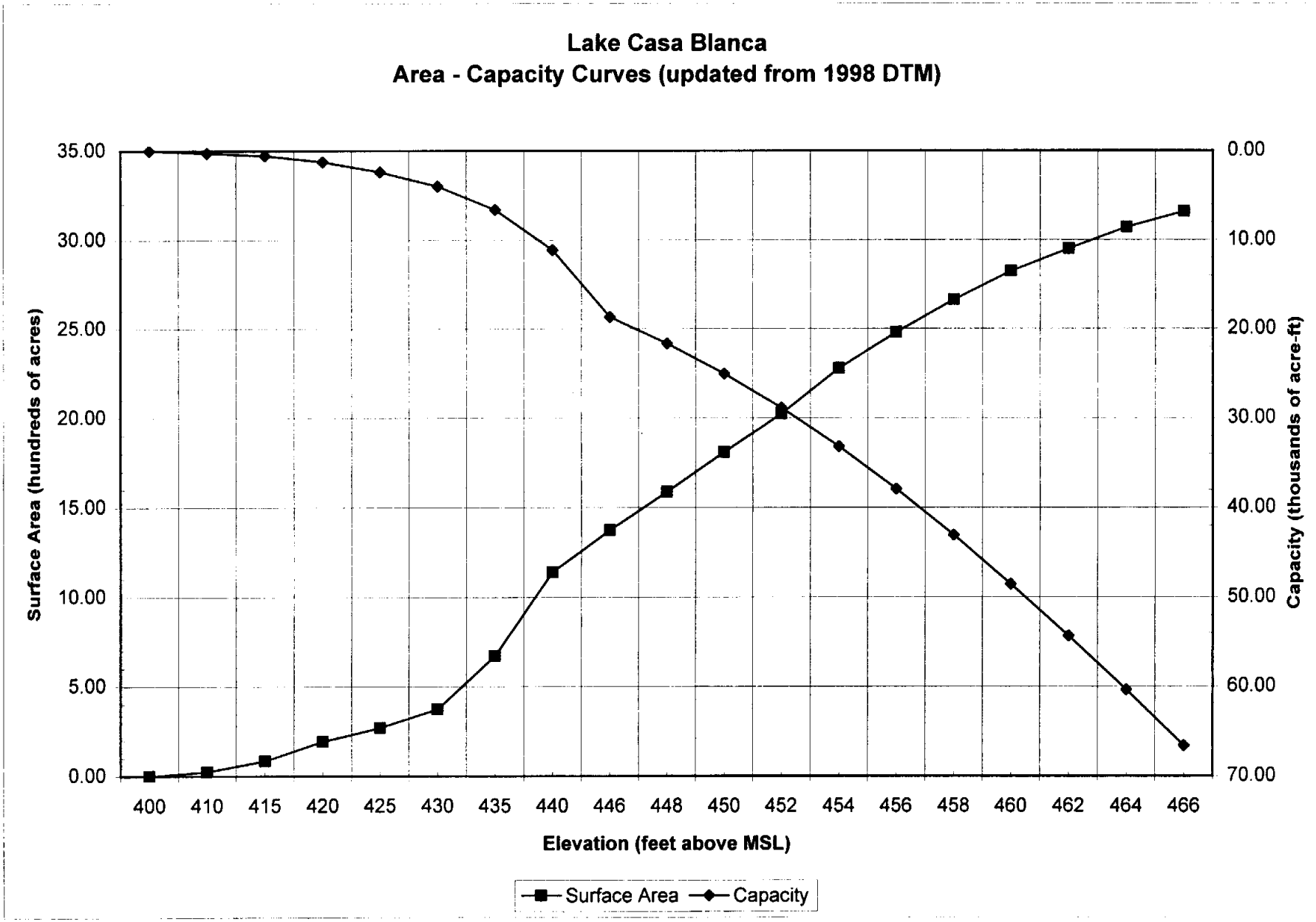
Lake Casa Blanca
Area - Capacity Curves (updated from 1998 DTM)
Surface Area (hundreds of acres)
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
Capacity (thousands of acre-ft)
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
400
410
415
420
425
430
435
440
446
448
450
452
454
456
458
460
462
464
466
Elevation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

Node 4 to Node 5

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)
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   T2I
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
```

```
KK   T2E
BA  1.54
LU  0.78    0.331
US  1.66     0.80
KK  T2D, COMBINE
HC     2
KK   T2E
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			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
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      2
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			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
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			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
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.	2.00
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			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
					6-HOUR	24-HOUR	72-HOUR			
+	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)

```
*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
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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
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```
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
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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   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
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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			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
					6-HOUR	24-HOUR	72-HOUR			
+	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 ***

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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
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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    0.190
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
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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     .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
```

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			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
					6-HOUR	24-HOUR	72-HOUR			
+	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
```

```
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
```

```
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			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
					6-HOUR	24-HOUR	72-HOUR			
+	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			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
					6-HOUR	24-HOUR	72-HOUR			
+	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
```

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


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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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	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

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

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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
X1 12759      51    1750    2373    580     740     663                    1750    2373
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
X1 22464      42    1309    2024    973    1198    1309    2024
                                                   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
X1 24443      62    2504    3091    1849    1925    2038    3725
                                                   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
X1 25387      75    2548    3196    1081     784    1998    3196
                                                    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
X1 26114      55    2420    2998    724     708    1926    2998
                                                    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
J2       1               -1                                      27722     367
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

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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
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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
```

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
J2     15             -1                                   27722     368


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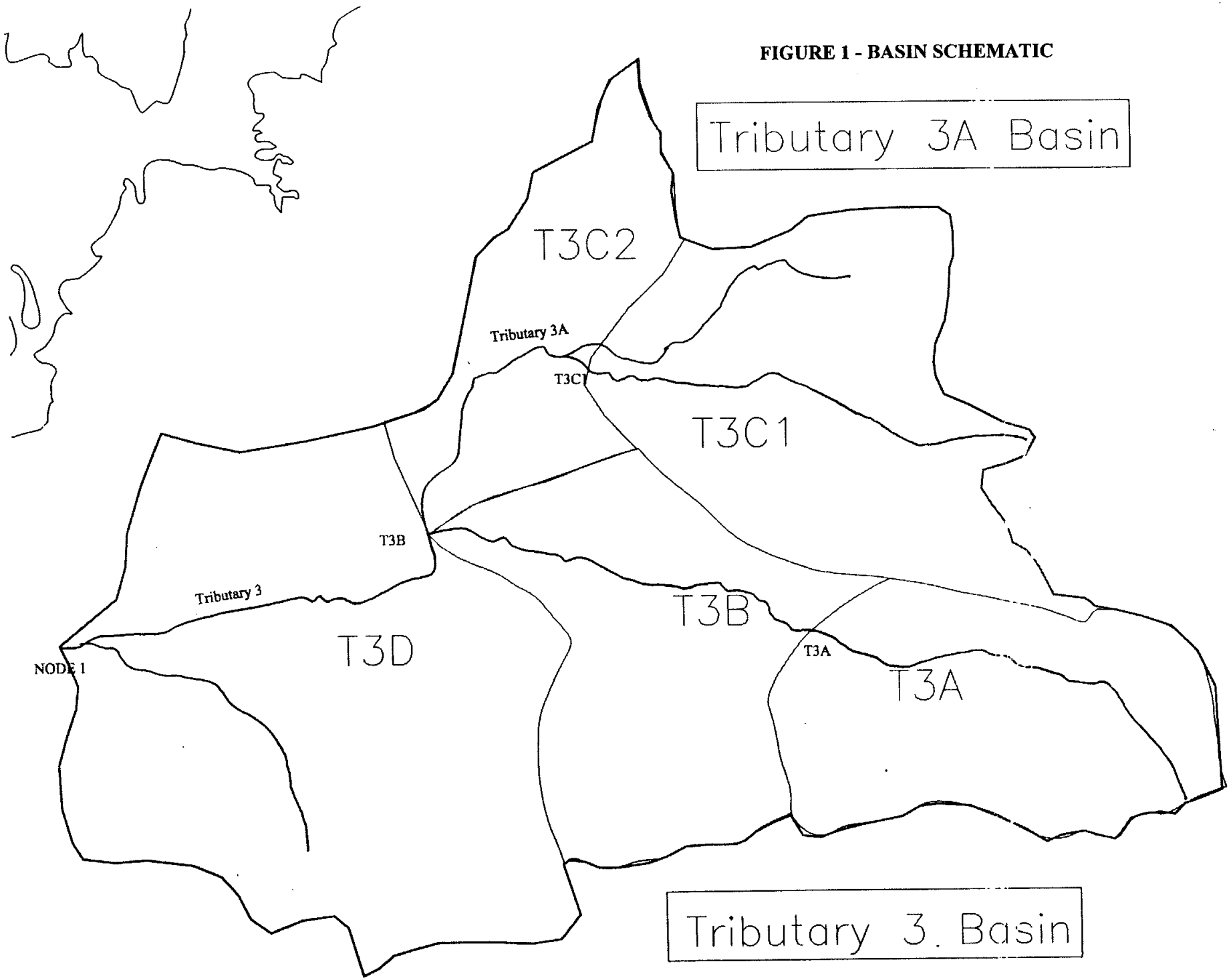
FLOODWAY DATA, Floodway Model-Method 4, 1988
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	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	0.166	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	0.196	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
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   Existing 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

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- Tribatary 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

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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01JUN99 10:47:57

	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

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01JUN99 10:47:57

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

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	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
****

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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01JUN99 10:51:13

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         *
 *                                       *
 *  Version   4.6.2;  May 1991           *
 *                                       *
 *  RUN DATE    15MAR99    TIME   13:58:42 *
 *****************************************
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**************************************
*  U.S. ARMY CORPS OF ENGINEERS      *
*  HYDROLOGIC ENGINEERING CENTER     *
*  609 SECOND STREET, SUITE D        *
*  DAVIS, CALIFORNIA 95616-4687      *
*        (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 13:58:42

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

 Version   4.6.2;  May 1991
**************************************
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THIS RUN EXECUTED 15MAR99 13:58:42

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							
X1	0	24	1030.56	1329.65			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							
X1	56	21	1040.02	1199.05	140.8	26.18	1040.02	1199.05		
GR	440	1000	438	1004.97	436	1012.05	56.21			
GR	432	1029.69	430	1040.02	428	1045.36	436	1012.08	434	1018.13
GR	421	1064.6	421	1185.82	424	1188.84	426	1047.87	424	1056.74
GR	432	1225.46	434	1235.73	436	1257.6	426	1193.28	430	1199.05
GR	440	1372.15					438	1290.41	440	1340.94
ET			7.1							
X1	178	20	1024.63	1354.34	147.76	127.02	1024.63	1354.34		
GR	440	1000	438	1011.57	436	1024.63	122.4			
GR	432	1153.9	430	1162.19	426	1165.22	434	1077.76	434	1077.87
GR	421	1223.69	424	1253.12	426	1282.6	424	1168	421	1174.57
GR	432	1314.88	434	1345.07	436	1354.34	428	1289.52	430	1293.8
							438	1361.45	440	1379.04

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ET			7.1							
X1	281	20	1107.64	1433.41	101.78	61.14	1107.64	1433.41		
GR	440	1000	438	1024.67	436	1078.58	102.43			
GR	430	1107.64	428	1123.35	426	1243.49	434	1093.64	432	1100.95
	421	1315.3	424	1339.55	426	1404.26	424	1277.96	421	1283.79
	432	1495.69	434	1508.74	436	1513.97	428	1418.78	430	1433.41
							438	1520.84	440	1530.1
ET			7.1							
X1	420	19	1000	1313.98	41.12	17.37	1000	1313.98		
GR	440	951.75	436	977.12	432	1000	139.15			
GR	426	1066.38	424	1080.34	422	1084.85	430	1045.33	428	1054.43
GR	422	1167.83	424	1188.43	426	1190.88	422	1122.08	422	1136.75
GR	432	1313.98	436	1328.85	440	1351.94	428	1192.29	430	1193.42
							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
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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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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				

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
.000	468.18	-.02	468.28	984.08	.00	4017.00	.00	1043.48	1208.44	1208.44	2251.92	2251.92
.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                *
 *********************************************                    **************************************


                         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      14:08:11



                                                                          THIS RUN EXECUTED 15MAR99    14:08:11
 ************************************
  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 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
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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
****

'STERISK (*) 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

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.	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
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
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
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
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
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
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
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
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
```

```
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
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GR   528 2035.38     530 2117.17
QT     2    1171    1171
ET                    7.1
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
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
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
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
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
J2    15               -1                                        5550  424.92


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	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)

```
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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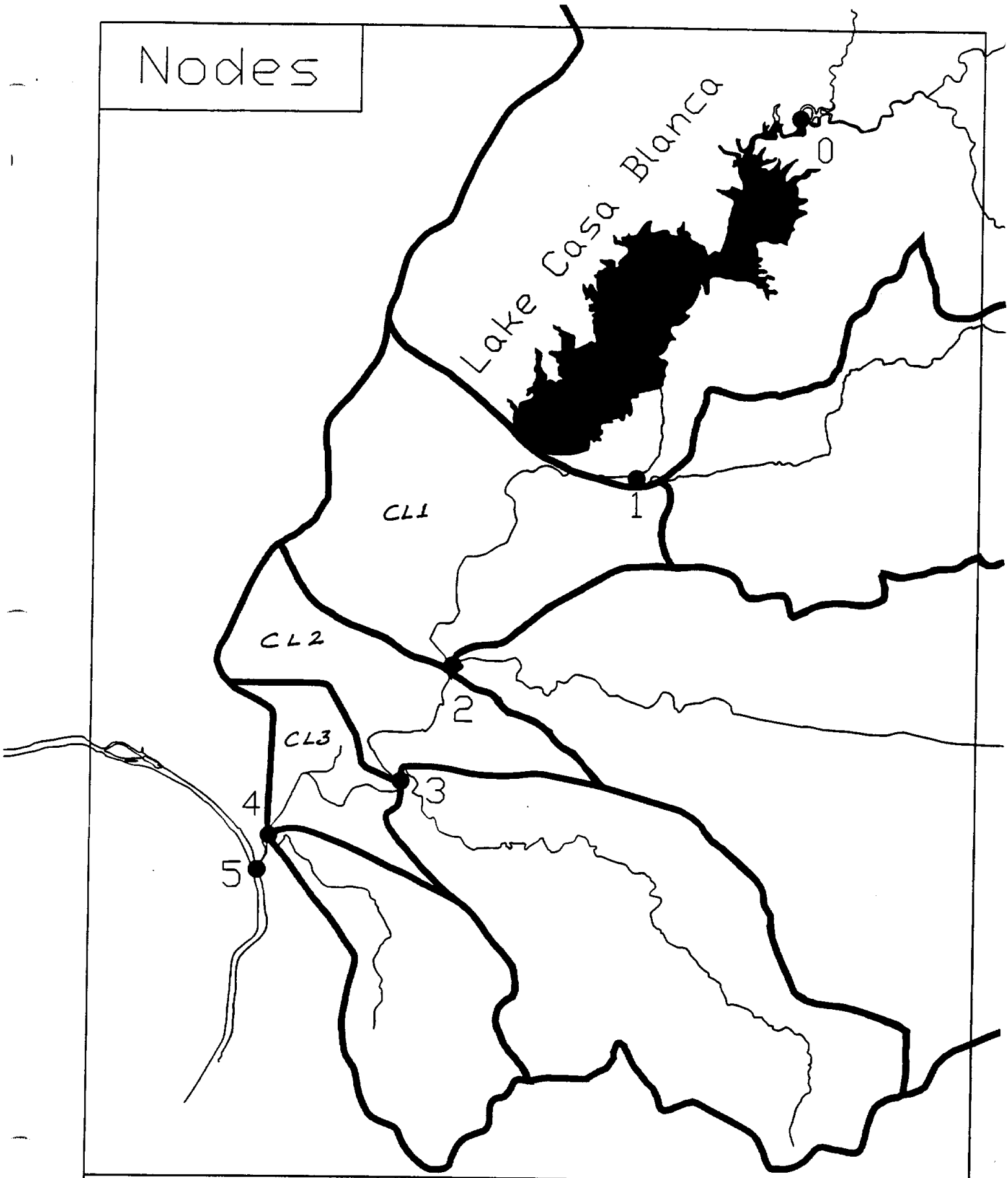
FLOODWAY DATA, Tributary 3A
PROFILE NO. 2

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

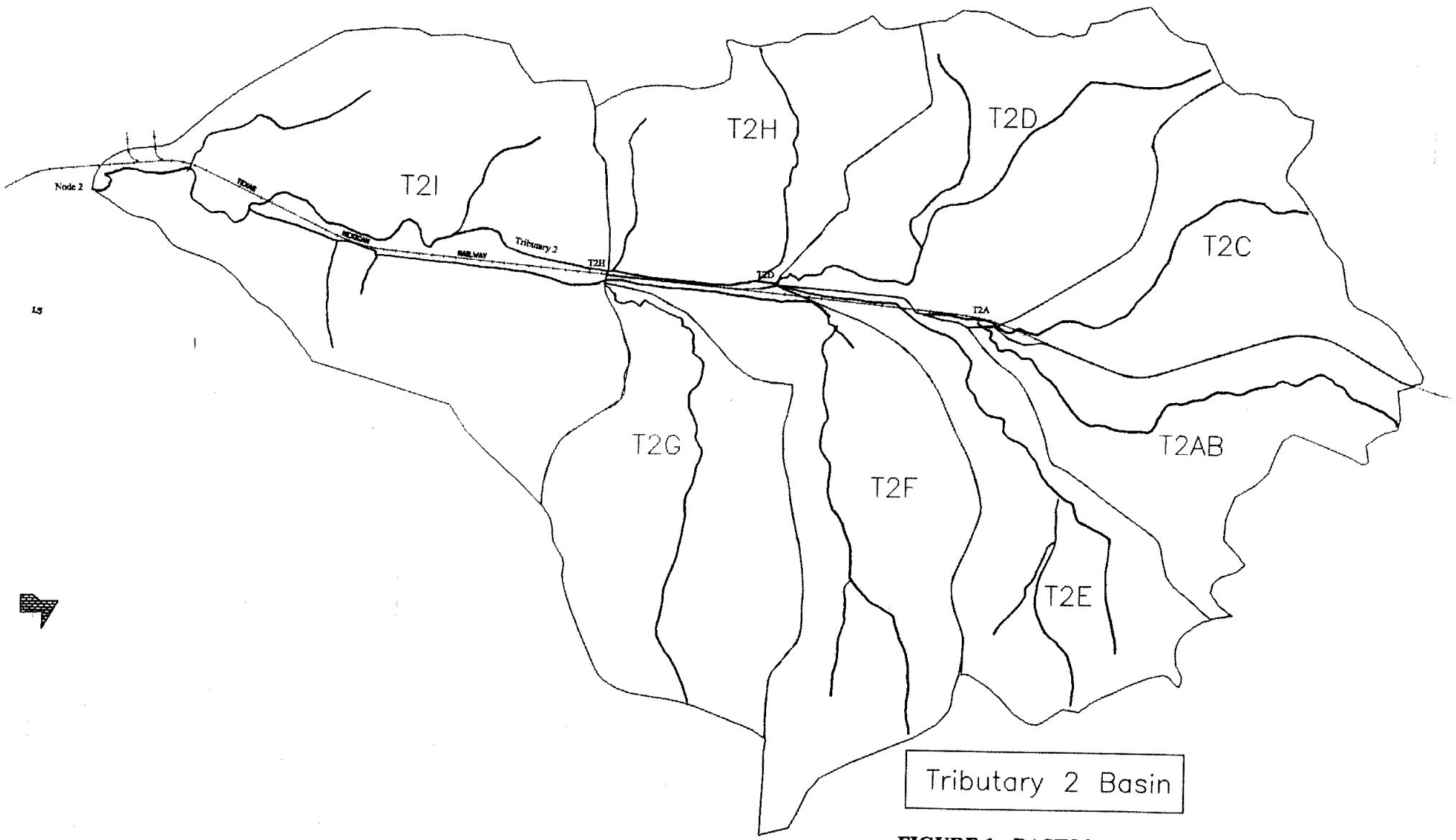


FIGURE 1 - BASIN SCHEMATIC

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         *
 *                                       *
 *  Version   4.6.2;  May 1991           *
 *                                       *
 *  RUN DATE    23MAR99    TIME   16:10:18 *
 *****************************************
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*************************************
*  U.S. ARMY CORPS OF ENGINEERS     *
*  HYDROLOGIC ENGINEERING CENTER    *
*  609 SECOND STREET, SUITE D       *
*  DAVIS, CALIFORNIA 95616-4687     *
*        (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
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THIS RUN EXECUTED 23MAR99 16:10:18

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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 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    137I.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
	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						
	0198	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
****

AN ASTERISK (*) 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
	1.000	10702.00	57.12	.05	.00	400.28
	1.000	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
	2679.500	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

	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

	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

	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

	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
	68.000	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
	21000.000	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
	1.000	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         *
 *                                       *
 *  Version   4.6.2;  May 1991           *
 *                                       *
 *  RUN DATE    15MAR99    TIME   13:30:16 *
 *****************************************
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**************************************
*  U.S. ARMY CORPS OF ENGINEERS      *
*  HYDROLOGIC ENGINEERING CENTER     *
*  609 SECOND STREET, SUITE D        *
*  DAVIS, CALIFORNIA 95616-4687      *
*           (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      13:30:16
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THIS RUN EXECUTED 15MAR99 13:30:16

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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 2 to Chacon Creek - 1988 NAVD
T3  Filename:TRIB2FW.IH2     100-Year Frequency       Dec.1998
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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							

VARIABLE 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		
X1	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
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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
       3 Mexican Railroad Bridge #11
       Upstream
         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
GR	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								
			7.1				1174.6	3338.9		
ET										
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
			7.1				1154.1	2744.3		
ET										
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						
			7.1				1547.5	3729.8		
ET										
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		
			7.1				1684.7	3232.6		
ET										
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							
			7.1				739.9	1695.7		
ET										
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						
			7.1				1062.1	2517.4		
ET										
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							
	15436	34	1281.05	2428.24	1081.4	1085.4	1281.1	2428.2		
GR	512	1000	510	1019.68	508	1038.88	1076.1			
GR	502	1072.1	500	1087.48	498	1114.25	506	1046.95	504	1059.26
GR	496	1270.1	494	1281.05	492	1287.23	496	1133.77	496	1255.88
GR	486	1319.99	484	1329.48	484	1337.54	490	1293.38	488	1305.72
GR	490	1358.41	492	1370.75	492	1393.01	486	1343.4	488	1351.22
GR	492	1583.6	492	1652.32	492	1669.45	492	1426.24	492	1473.54
GR	494	2428.24	496	2712.87	498	3024.41	492	1694.44	492	2250.94
							500	3172.89		
QT	2	2311	2311							
ET			7.1							
X1	27641	37	1065.24	2013.81	1958.8	2160.8	1065.2	2013.8		
GR	510	1000	508	1022.54	506	1042.55	2204.8			
GR	500	1077.17	498	1083.84	496	1087.2	504	1054.52	502	1065.24
GR	500	1110.04	500	1591.29	498	1623.22	496	1099.12	498	1102.96
GR	494	1689.63	496	1696.06	500	1703.89	496	1632.53	494	1641.26
GR	502	1728.95	504	1744.94	504	1780.08	500	1703.92	500	1703.95
GR	498	1840.03	496	1853.35	496	1869.48	502	1792.47	500	1811.52
GR	502	2013.81	504	2214.81	506	2409.87	498	1880.31	500	1896.1
GR	512	2640.71	514	2661.87			508	2507.2	510	2597.24
ET			7.1							
X1	28422	55	1269.27	2381.49	719.5	833.7	1269.3	2381.5		
GR	520	1000	518	1016.12	518	1016.31	781.2			
GR	514	1051.43	514	1051.44	512	1062.47	516	1041.7	514	1051.4
GR	506	1269.27	504	1276.96	502	1284.63	510	1082.12	508	1106.01
GR	504	1334.11	504	1366.73	506	1698.16	502	1304.67	504	1325.02
GR	504	1968.78	504	2106.84	504	2106.85	506	1880.93	504	1952.55
GR	500	2122.69	500	2146.67	502	2153.34	504	2106.86	502	2113.69
GR	504	2196.91	504	2197.01	504	2197.1	502	2171.82	502	2191.23
GR	504	2339.99	502	2349.15	502	2362.54	506	2266.48	506	2332.69
GR	508	2448.91	510	2461.18	512	2468.51	504	2370.16	506	2381.49
GR	514	2493.87	514	2496.88	512	2502.38	512	2471.76	514	2478.79
GR	514	2526.8	514	2537.91	516	2574.19	510	2509.99	510	2517.62
							518	2610.96	520	2646.36
ET			7.1							
X1	29403	26	1120.34	1880.49	1212.6	875.9	1120.3	1880.5		
	526	1000	524	1023.3	522	1039.41	980.8			
	516	1120.34	514	1142.81	512	1198.18	520	1074.75	518	1105.56
	512	1372.5	512	1597.32	512	1653.35	510	1317.97	510	1362.83
GR	514	1874.15	516	1880.49	518	1887.02	514	1732.35	514	1854.57
GR	514	1921.77	514	1983.94	516	2011.86	518	1890.04	518	1916.15
GR	530	2691.73					518	2451.31	520	2542.68
ET			7.1							
X1	30485	20	1207.46	2164.12	974.6	1016.6	1207.5	2164.1		
GR	536	1000	534	1012	532	1028.94	1082.6			
GR	526	1080	524	1121.89	522	1155.55	530	1038.61	528	1058.38
GR	516	1482.81	516	2057.81	518	2134.1	520	1207.46	518	1333.01
GR	522	2215.16	524	2220.14	524	2220.85	520	2164.12	522	2172.56
							530	2280.99	536	2393.72

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ET			7.1							
X1	31348	34	1405.39	2413	865.9	807.1	1405.4	2413		
GR	526	1000	524	1067.3	524	1067.36	863			
GR	520	1301.37	520	1301.41	520	1358.92	522	1219.36	520	1301.34
GR	518	1546.95	518	1800.13	518	1810.64	520	1405.39	518	1527.85
GR	520	2413	522	2524.53	524	2532.38	518	1837.98	518	1899.03
GR	528	2557.13	528	2579.58	526	2586.8	526	2535.14	528	2540.54
GR	526	2713.08	528	2736.91	530	2770.91	524	2686.14	524	2692.57
GR	536	2835.01	538	2847.58	540	2856.73	532	2797.33	534	2820.25
							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
	.000	415.05	.00	415.31	579.70	266.56	8297.61	264.83	.00	.00	1279.93	1654.88	.00
	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
	6.000	430.73	.03	430.86	601.20	.00	8545.00	.00	601.20	901.00	901.03	1502.22	1502.20
	.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	FLOODWAY SECTION AREA	FLOODWAY 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
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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
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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
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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   488 2172.49     490  2207.3     482 2006.37     484 2023.11     486 2131.17
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	WITHOUT FLOODWAY	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

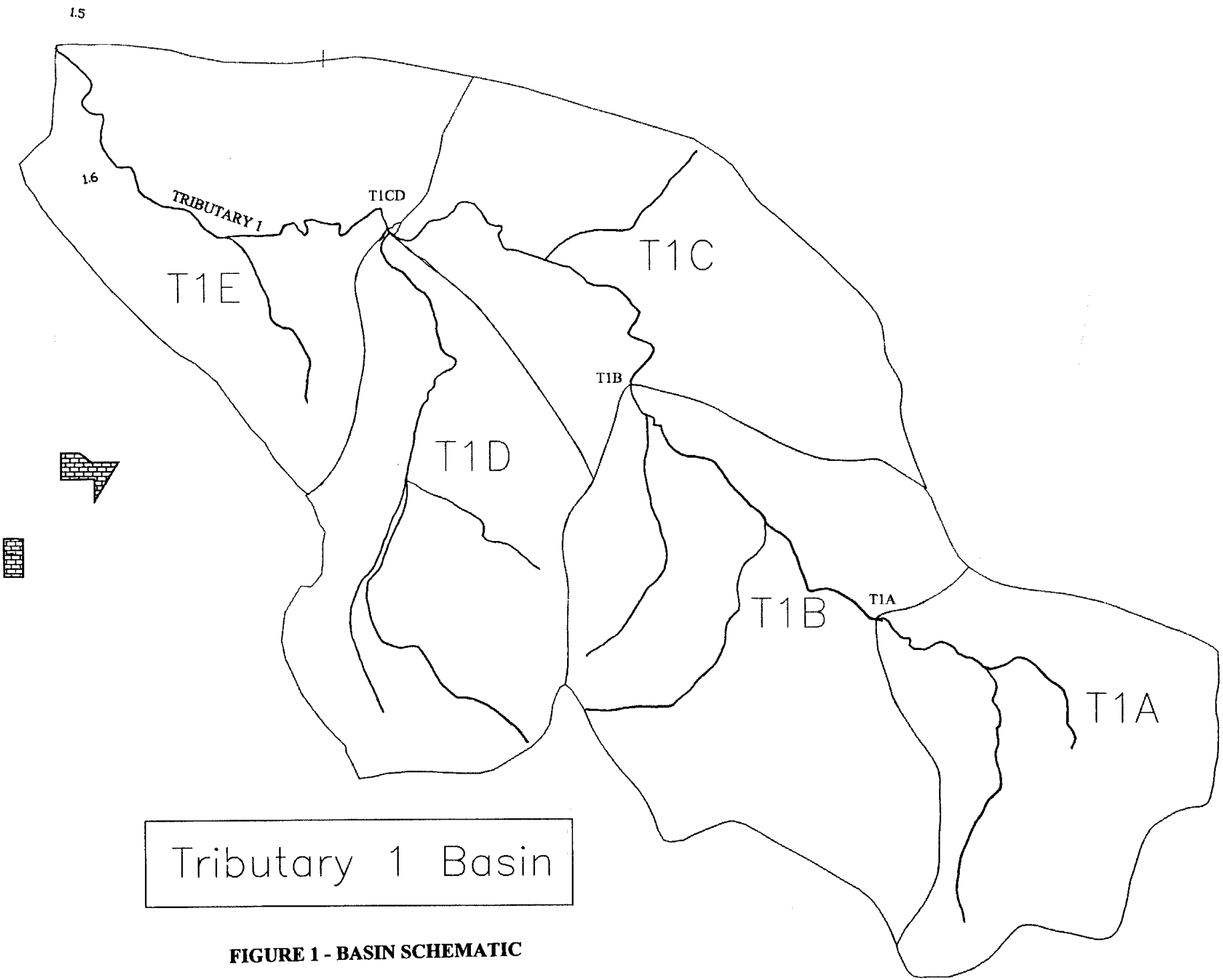

FIGURE 1 - BASIN SCHEMATIC

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
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

Changed to 0.66 to account for detention

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* "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
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.

← Changed to 0.66 to account for detention

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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)

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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
J2       1                -1                                          2948   376.73
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
J2     2            -1                                       3931   377.31
T1      CF0029, 12/15/98
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 1                                  25-YR EXISTING
J1            4                 0.00946
J2     3            -1                                       3703   377.18
T1      CF0029, 12/15/98
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 1                                  25-YR   FUTURE
J1            5                 0.00946
J2     4            -1                                       4835   377.77
T1      CF0029, 12/15/98
T2      Chacon Creek Watershed - City of Laredo
T3      Tributary 1                                  50-YR EXISTING
J1            6                 0.00946
J2     5            -1                                       4387   377.55
T1      CF0029, 12/15/98
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T2     Chacon Creek Watershed - City of Laredo
T3     Tributary 1
J1          7                     0.00946           50-YR     FUTURE
J2     6               -1                                       5673    378.12
T1     CF0029, 12/15/98
T2     Chacon Creek Watershed - City of Laredo
T3     Tributary 1
J1          8                     0.00946           100-YR EXISTING
J2     7               -1                                       5143    377.89
T1     CF0029, 12/15/98
T2     Chacon Creek Watershed - City of Laredo
T3     Tributary 1
J1          9                     0.00946           100-YR    FUTURE
J2     8               -1                                       6610    378.47
T1     CF0029, 12/15/98
T2     Chacon Creek Watershed - City of Laredo
T3     Tributary 1
J1         10                     0.00946           500-YR EXISTING
J2     9               -1                                       6627    378.48
T1     CF0029, 12/15/98
T2     Chacon Creek Watershed - City of Laredo
T3     Tributary 1
J1         11                     0.00946           500-YR    FUTURE
J2     15              -1                                       8438    379.09


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
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*	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
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*	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

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	SECNO	Q	VOL	TIME	ELLC	CWSEL
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*	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

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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

	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

	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

	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

	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)

```
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
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*   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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HEC-2 WATER SURFACE PROFILES

sion 4.6.2; May 1991
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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	FLOODWAY SECTION AREA	FLOODWAY 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
J2    15              -1                                          5143  378.89
                                                                   -6


ER
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FLOODWAY DATA, Tributary 1
PROFILE NO. 2

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY 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

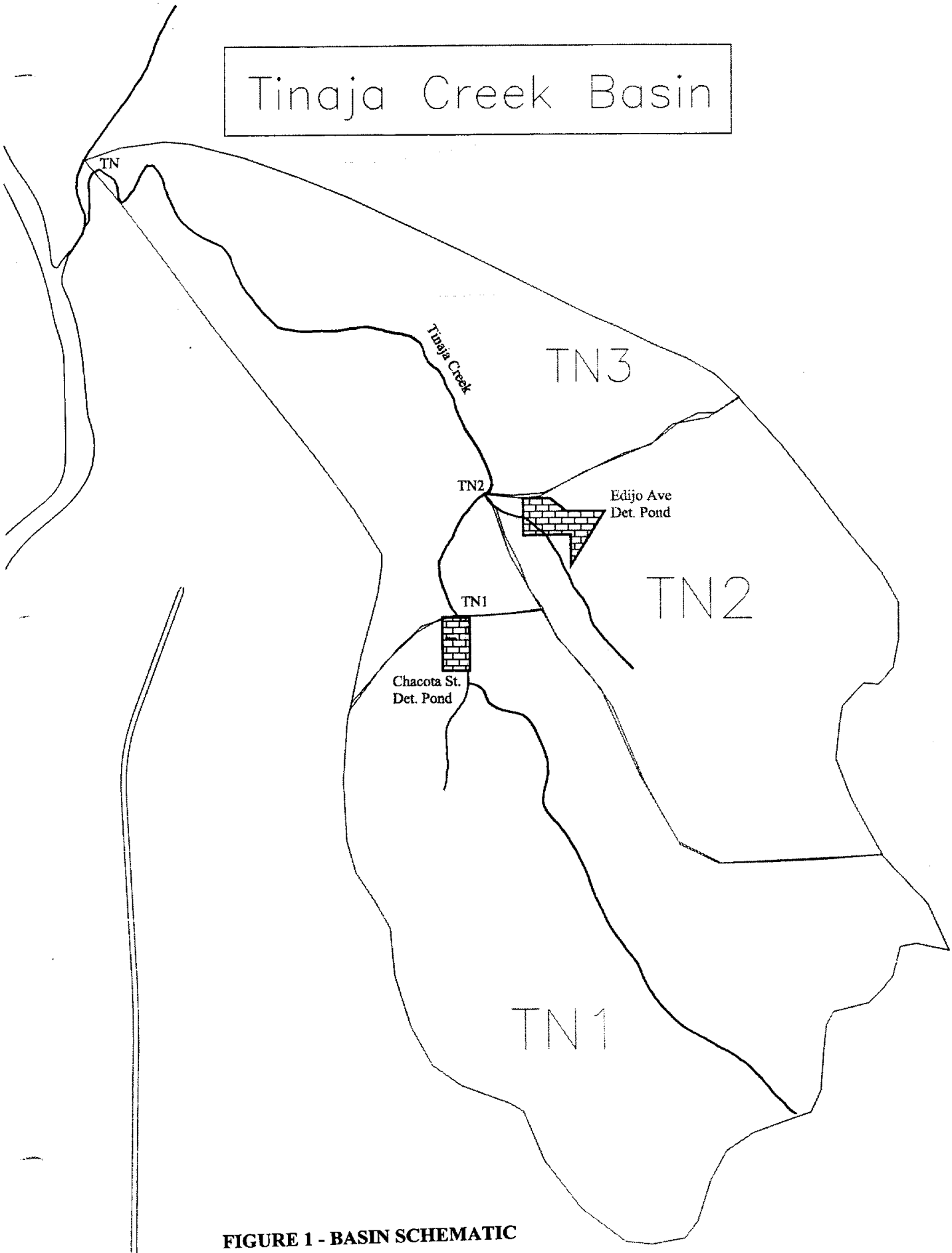


FIGURE 1 - BASIN SCHEMATIC

FIGURE 2

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

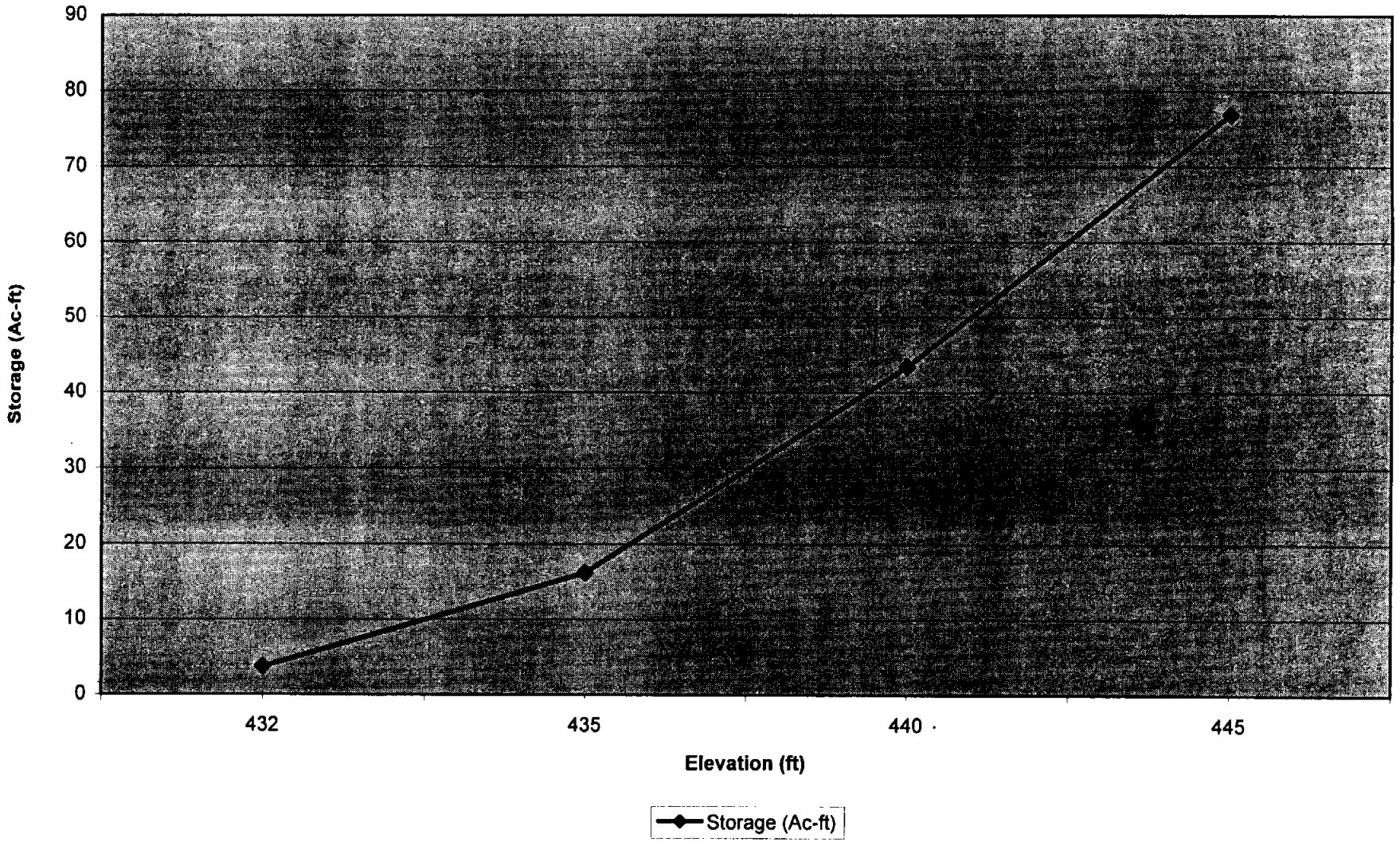
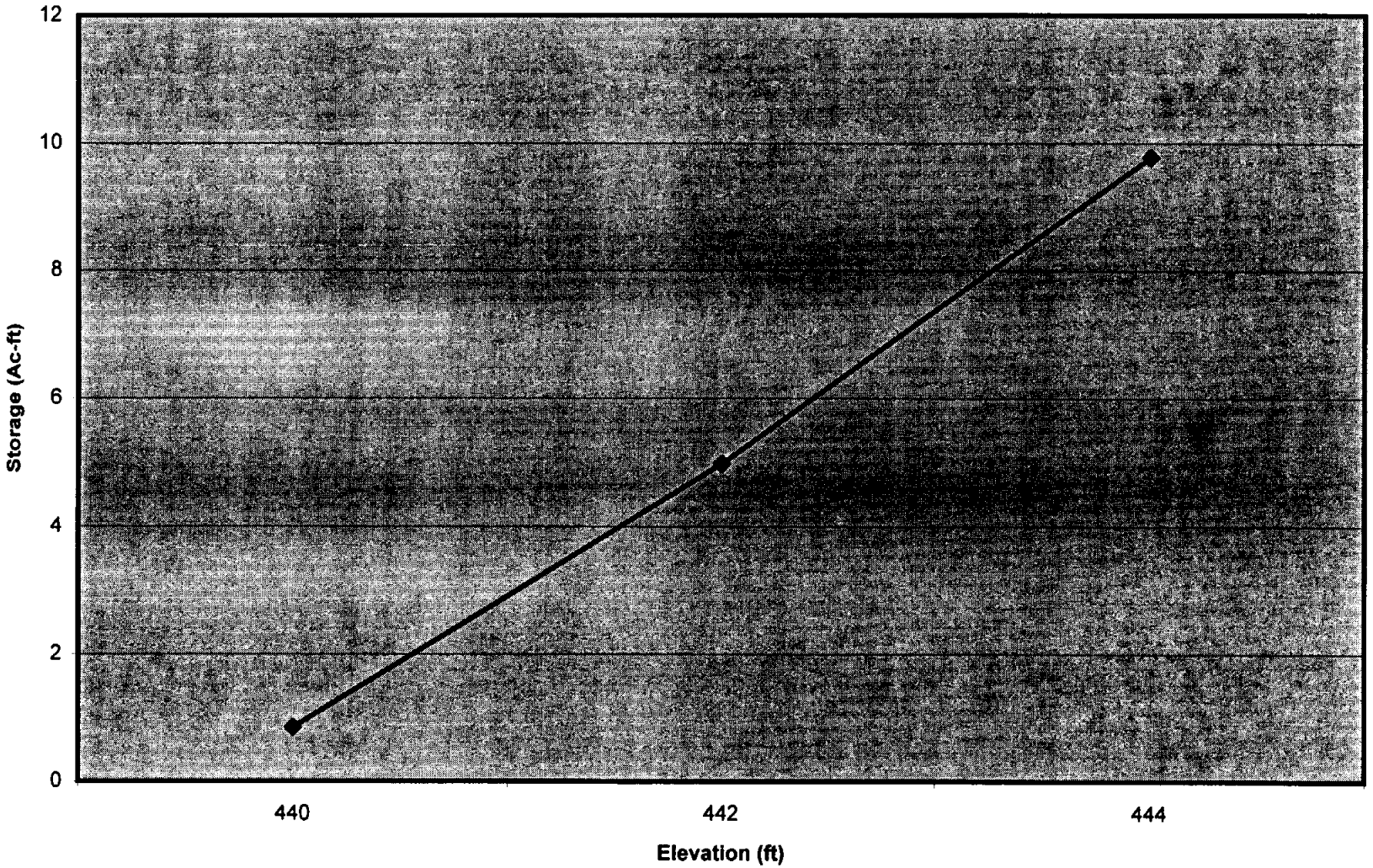


FIGURE 3

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	1.36	0.60
	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	0.60
	TN3	7717.0	6104.0	6104.0	0.920	4.70	4.32	85	1.76	0.35	2.75	1.22	0.204	0.96	0.60
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	1.36	0.60
	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	0.60
	TN3	7717.0	6104.0	6104.0	0.920	5.50	5.06	85	1.76	0.35	3.42	1.28	0.214	0.96	0.60
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	1.36	0.60
	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	0.60
	TN3	7717.0	6104.0	6104.0	0.920	6.25	5.75	85	1.76	0.35	4.07	1.33	0.222	0.96	0.60
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	1.36	0.60
	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	0.60
	TN3	7717.0	6104.0	6104.0	0.920	7.15	6.58	85	1.76	0.35	4.85	1.37	0.229	0.96	0.60
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	1.36	0.60
	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	0.60
	TN3	7717.0	6104.0	6104.0	0.920	8.70	8.00	85	1.76	0.35	6.22	1.43	0.239	0.96	0.60

* "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	0.96	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
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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
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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

*	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

1

	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
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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	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
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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
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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			
J2	15		-1	2108	357.95

ER

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

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY 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

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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
```

```
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	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
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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
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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
```
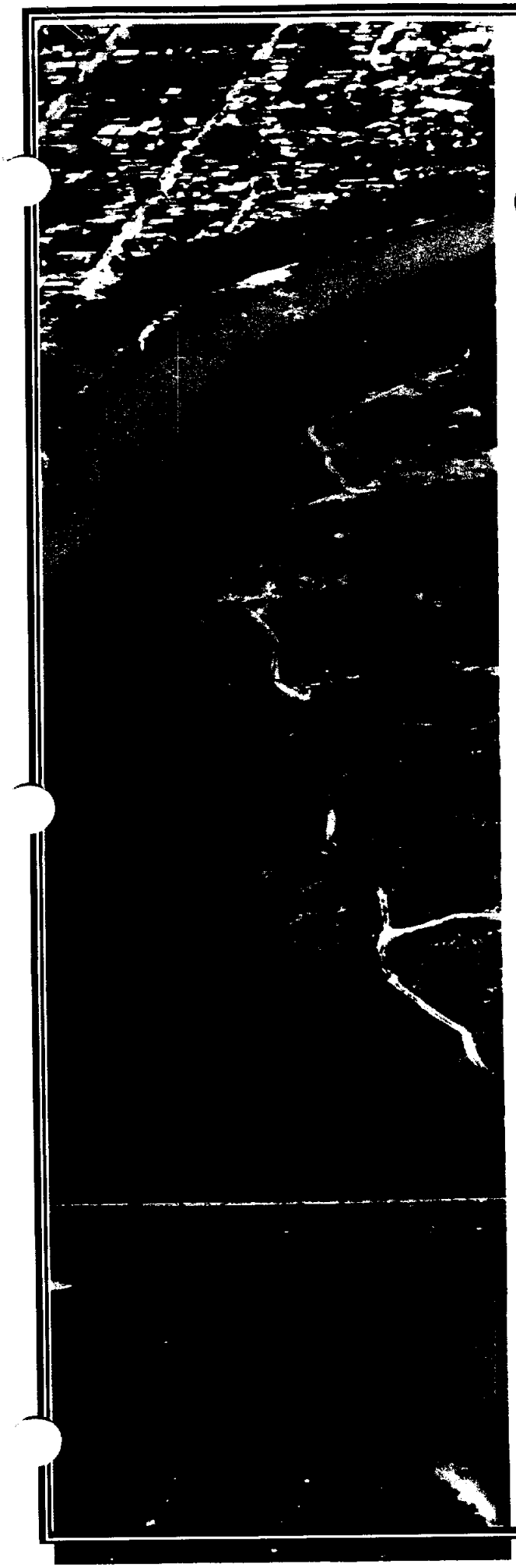

J1		3			
J2	15		-1	2108	357.95

ER

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

STATION	FLOODWAY WIDTH	FLOODWAY SECTION AREA	FLOODWAY 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

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GRANTS MANAGEMENT

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

Brown & Root
TOBIN

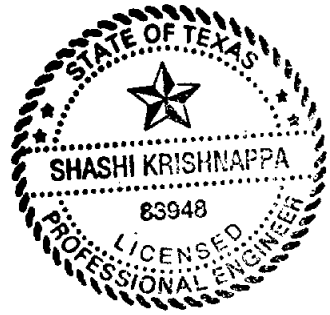
Storm Water Master Drainage Plans for the Chacon Creek Watershed

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

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



3/13/2000

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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**

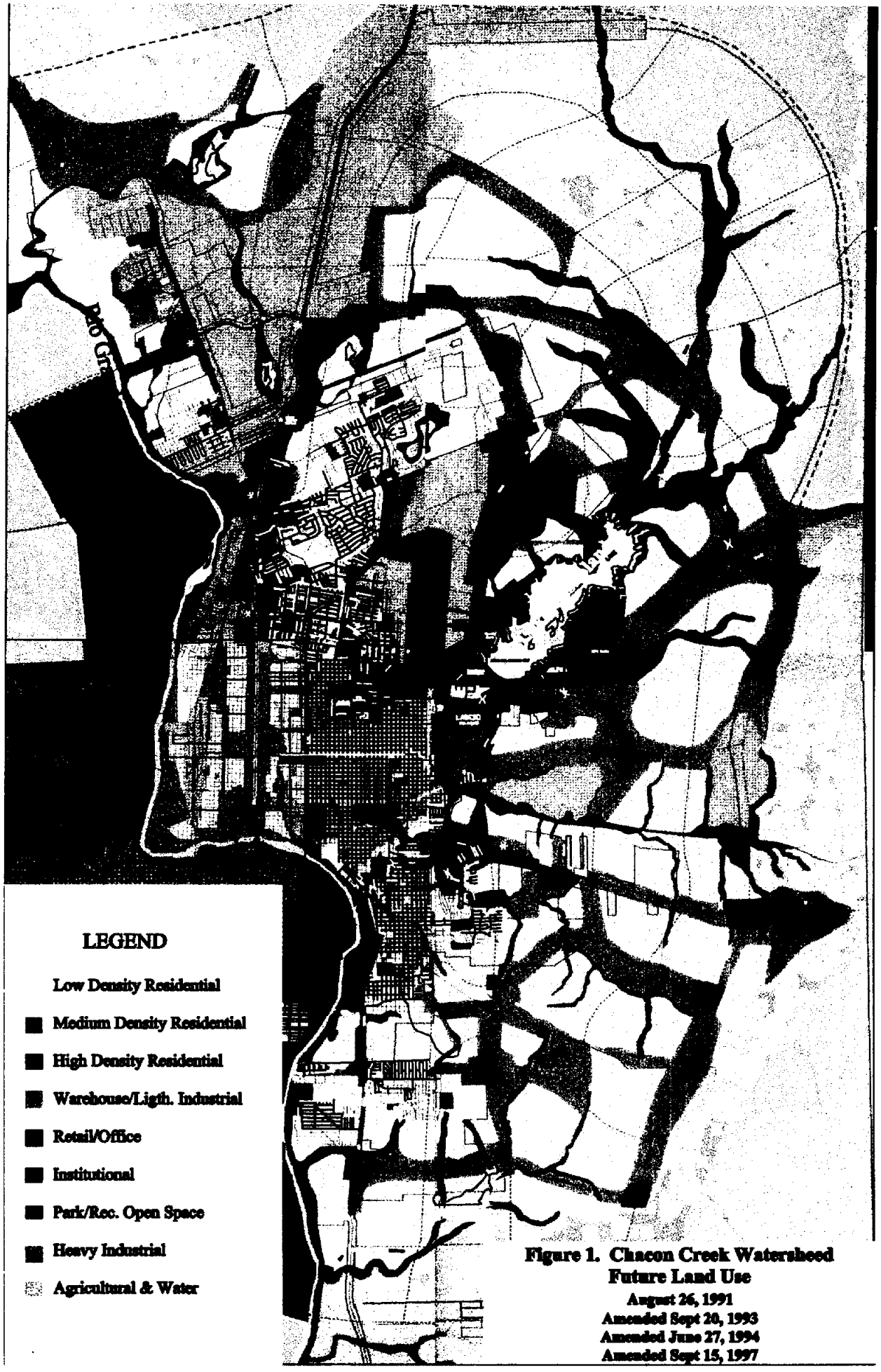
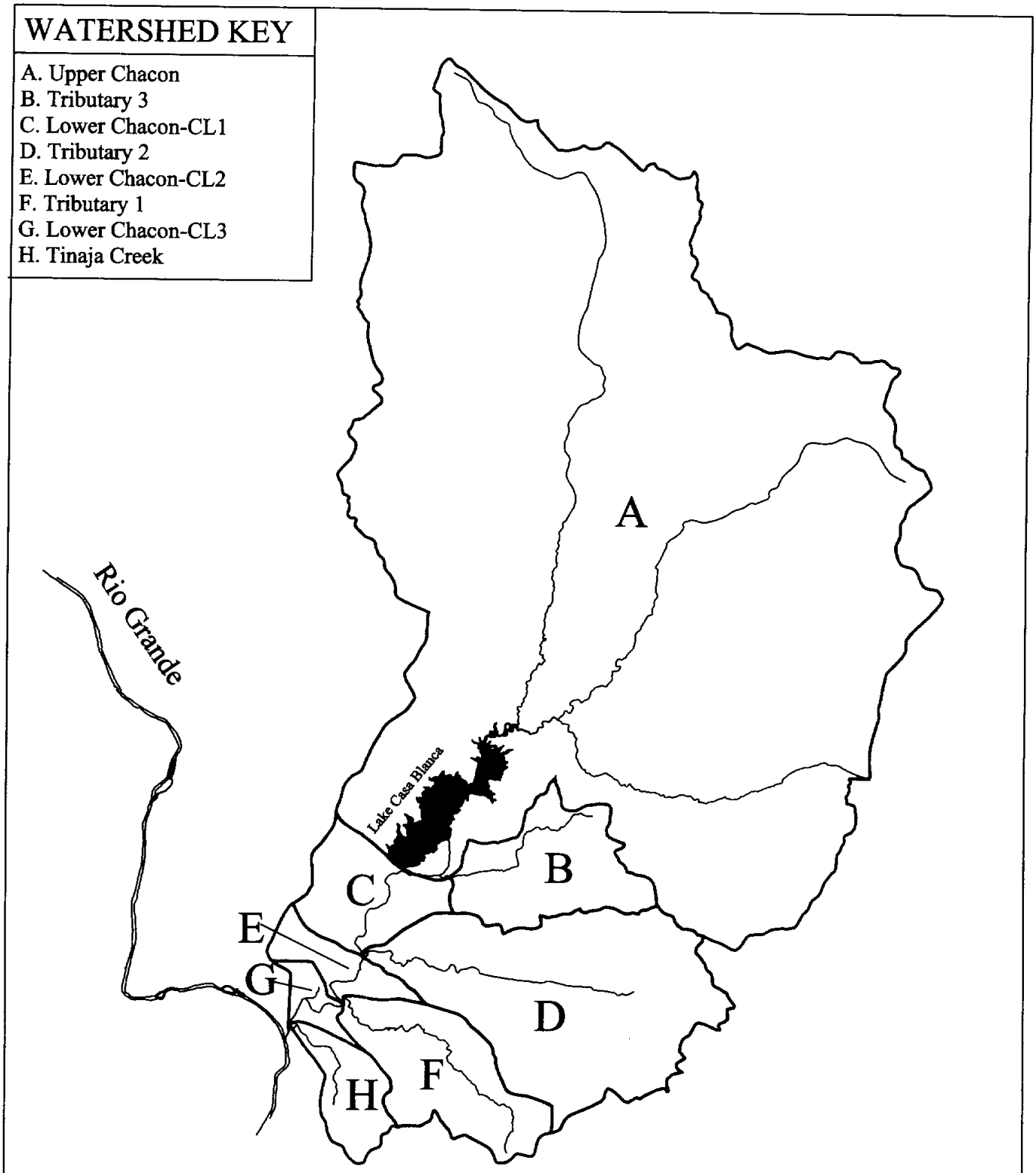


Figure 1. Chacon Creek Watershed Future Land Use

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)

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 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 Structure	Flow Line Elev. (ft)	Low Chord 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				
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	360.48	363.78
	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	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	415.86				

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	423.80	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				
U.S. Highway 59	US 1114	435.38	434.33	429.44	436.02	435.86	431.38	436.59	436.80	433.20	437.14	437.38	435.01	437.55	438.84	437.64	Culvert	424.57	433.71	436.18
	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	443.67	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				
	7236	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) FIS update	100-YR WSEL (ft) Scenario 1	Hydrulic Structure	Flow Line Elev. (ft)	Low Chord Elev. (ft)	Top of Road 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	Scenario 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	360.82	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	360.86	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	408.09	408.96	408.96	408.47	409.48	409.48	408.74	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	419.48	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

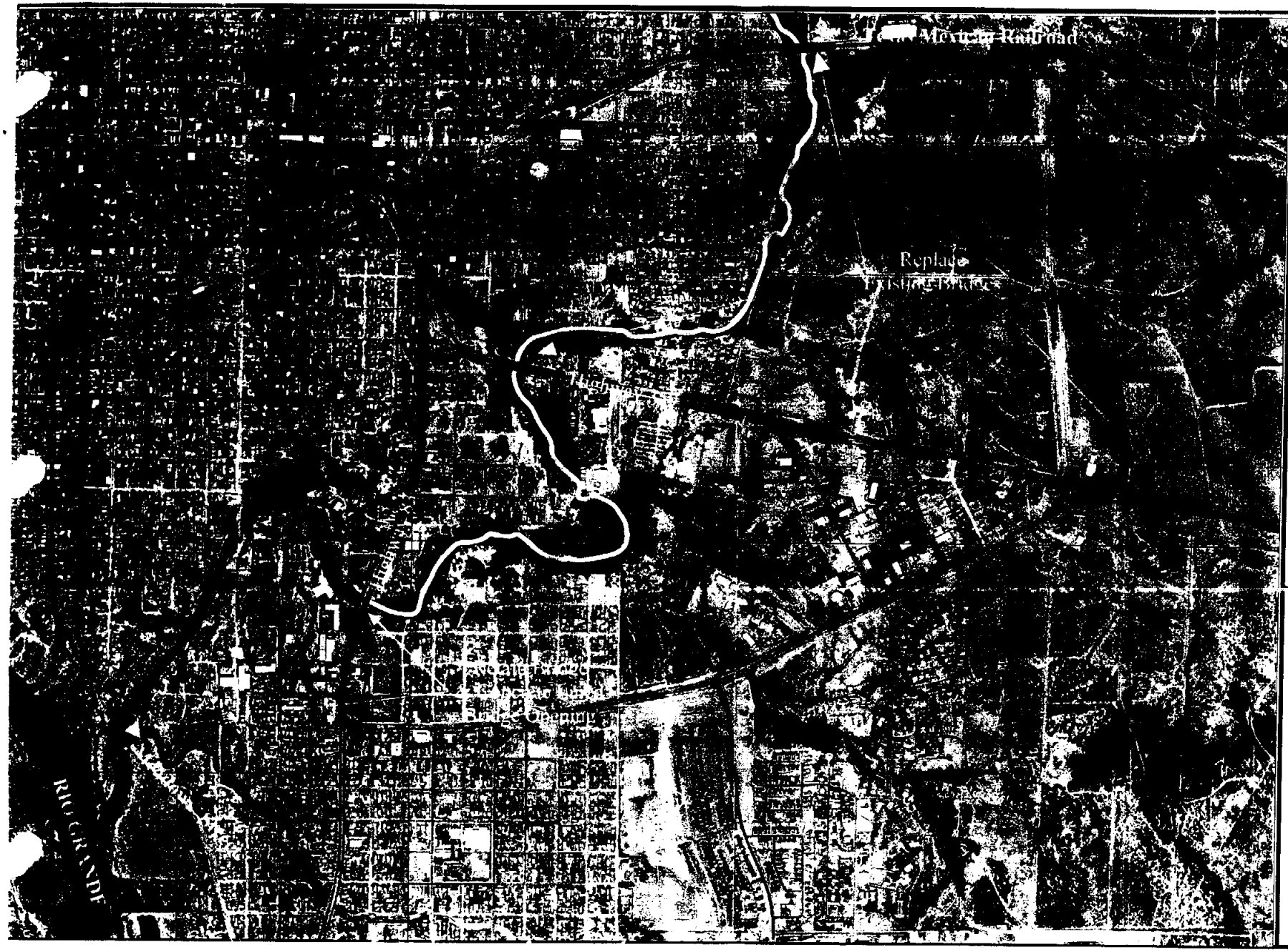
Description	Unit	Quantity	Unit cost	Cost
Clearing	Acre	20	$ 1,000	$ 20,000
Grubbing	Acre	0	$ 1,000	$ -
Excavation & Haul	CY	0	$ 4	$ -
Bridge Installation &				
Culvert Removal				
Santa Barbara St	SF	2450	$ 57	$ 139,650
Santa Clara St	SF	0	$ 57	$ -
Pecan St	SF	0	$ 57	$ -
San Salvador St	SF	0	$ 57	$ -
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

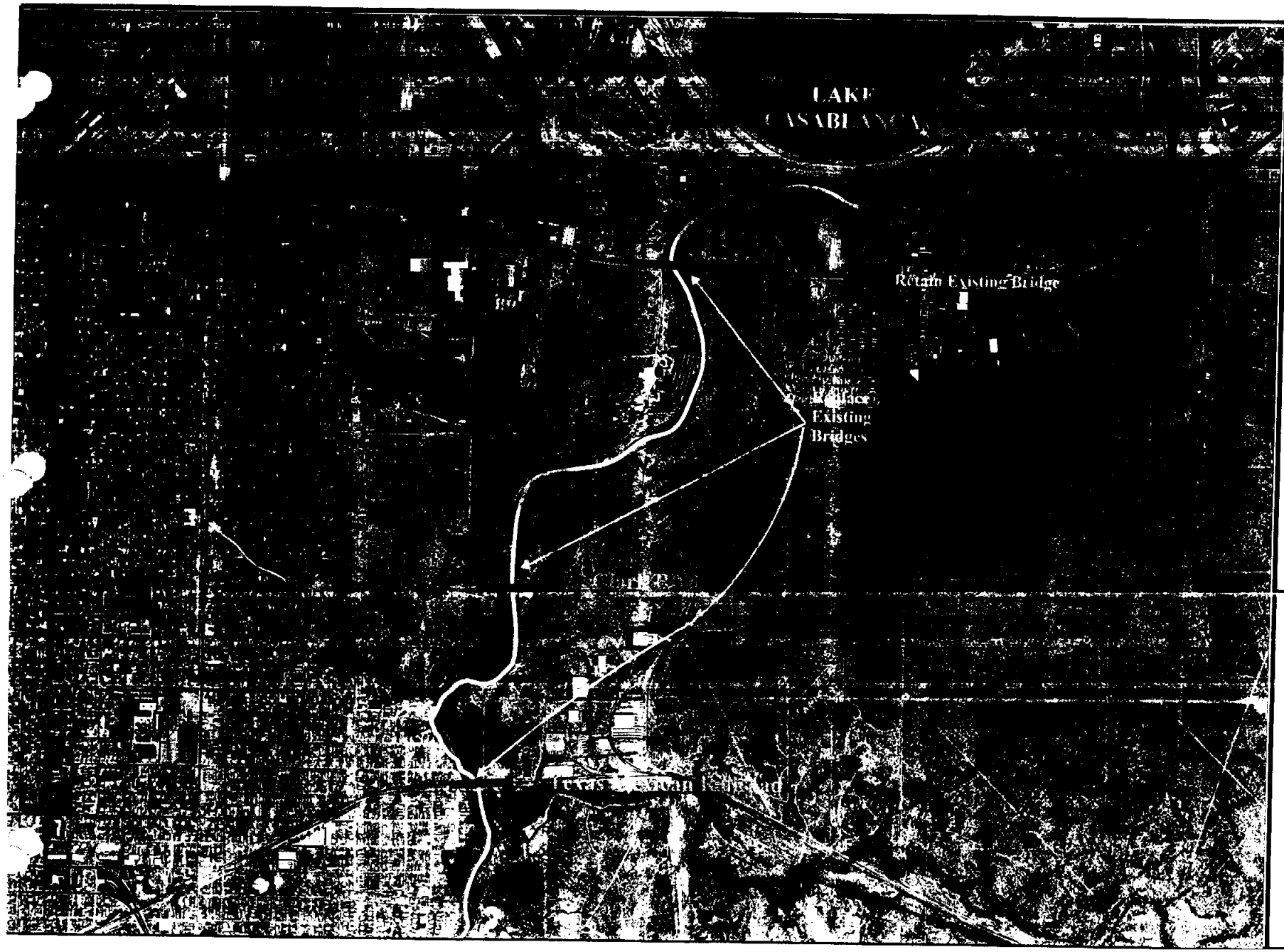
Alternative 1:

Earthen Channel Improvement

Chacon Creek Watershed

Exhibit 1

Revised Date: November 1999



KEY TO MA

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

Existing Bridge to R
Replace Existing Br

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

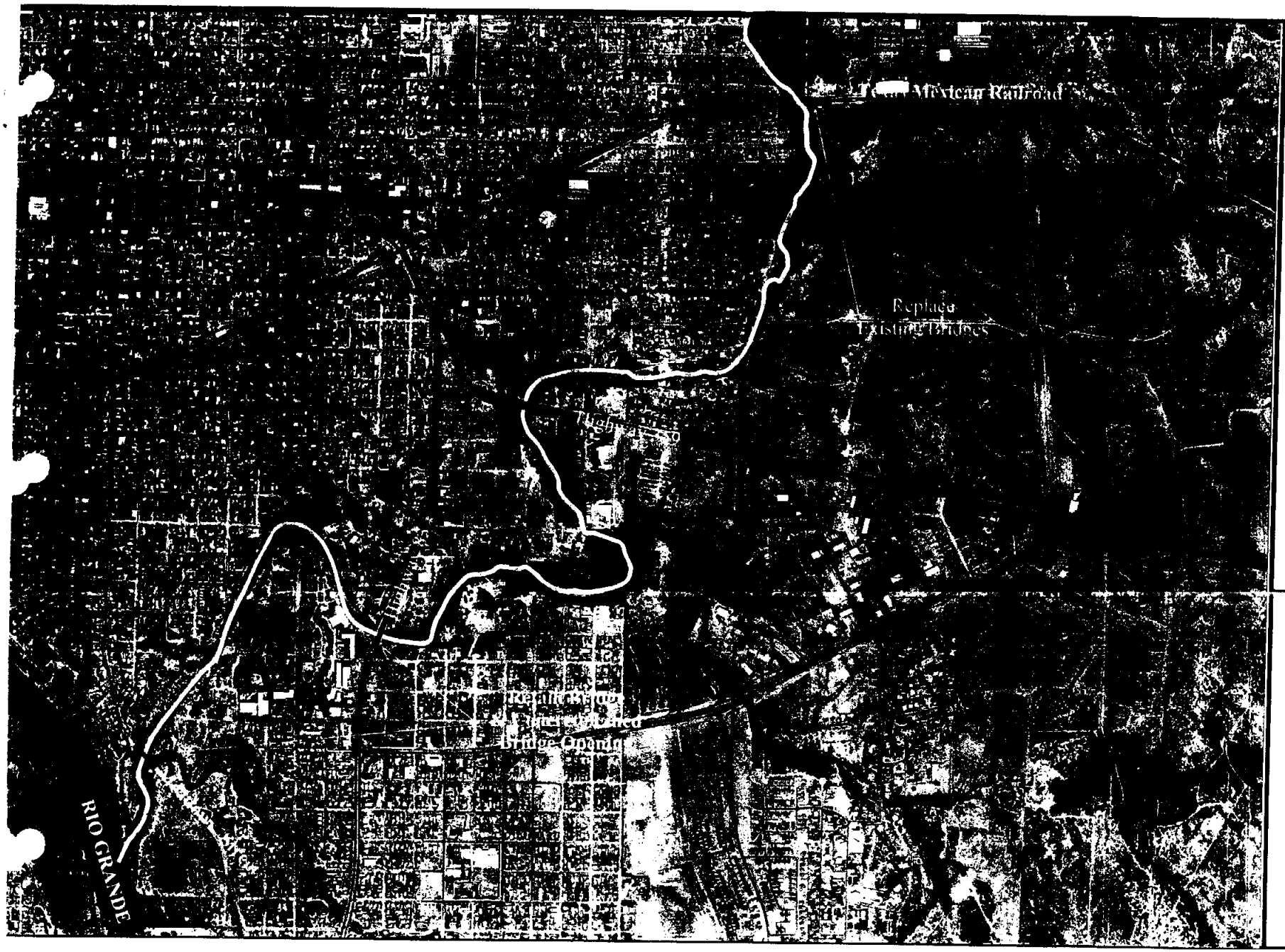
N

NOT TO SCALE

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

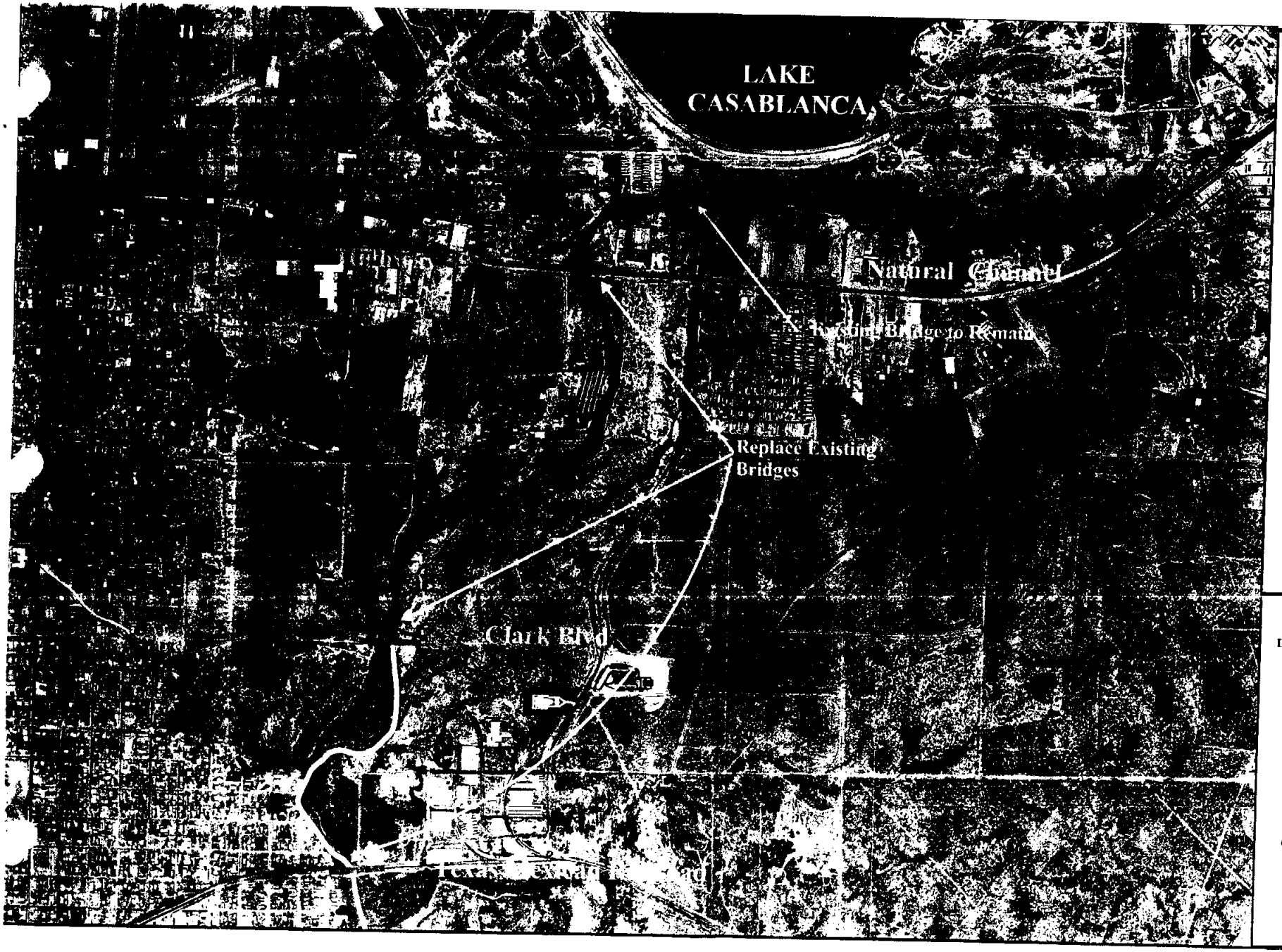
CHACON CREEK

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

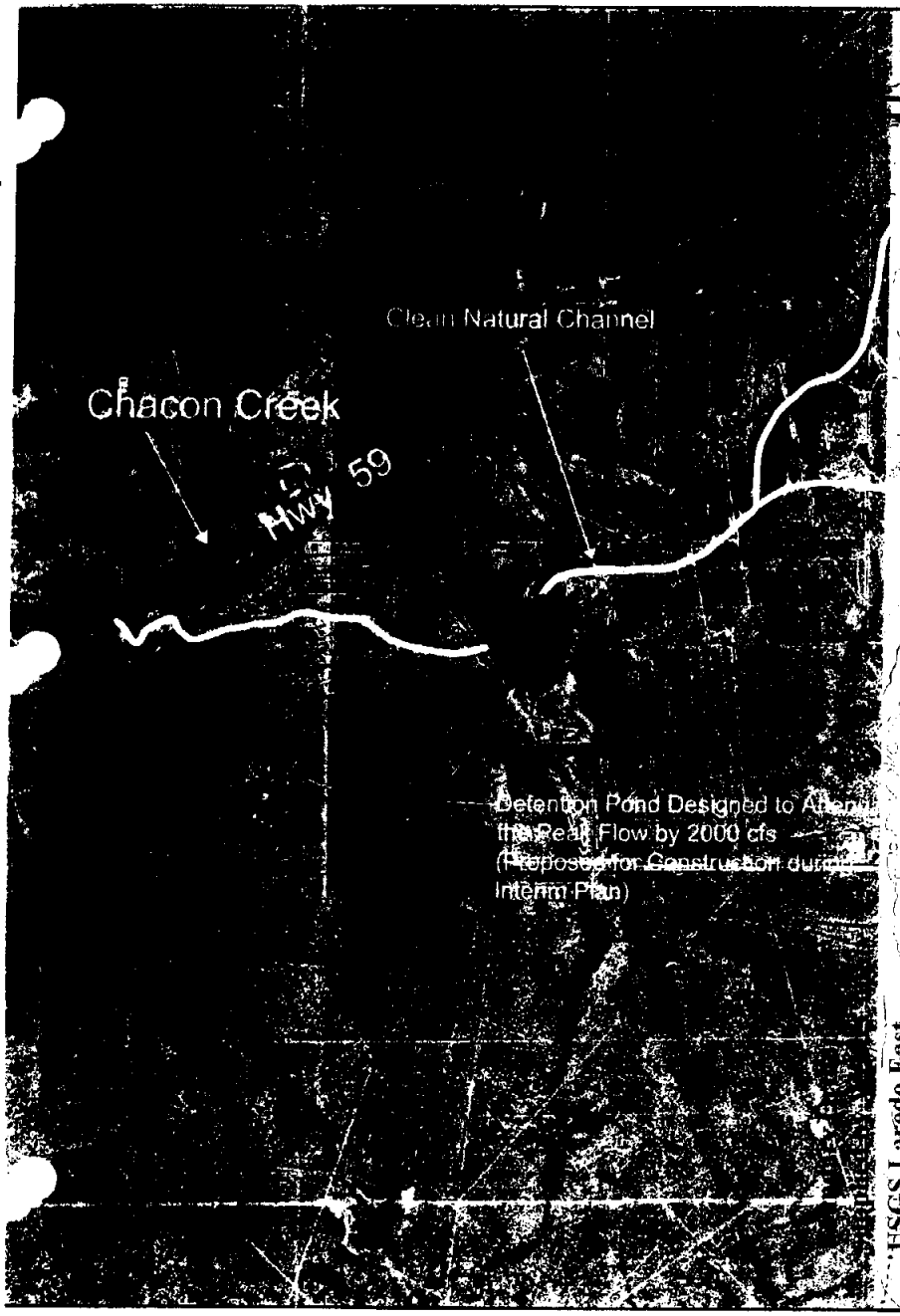
CHACON CREEK

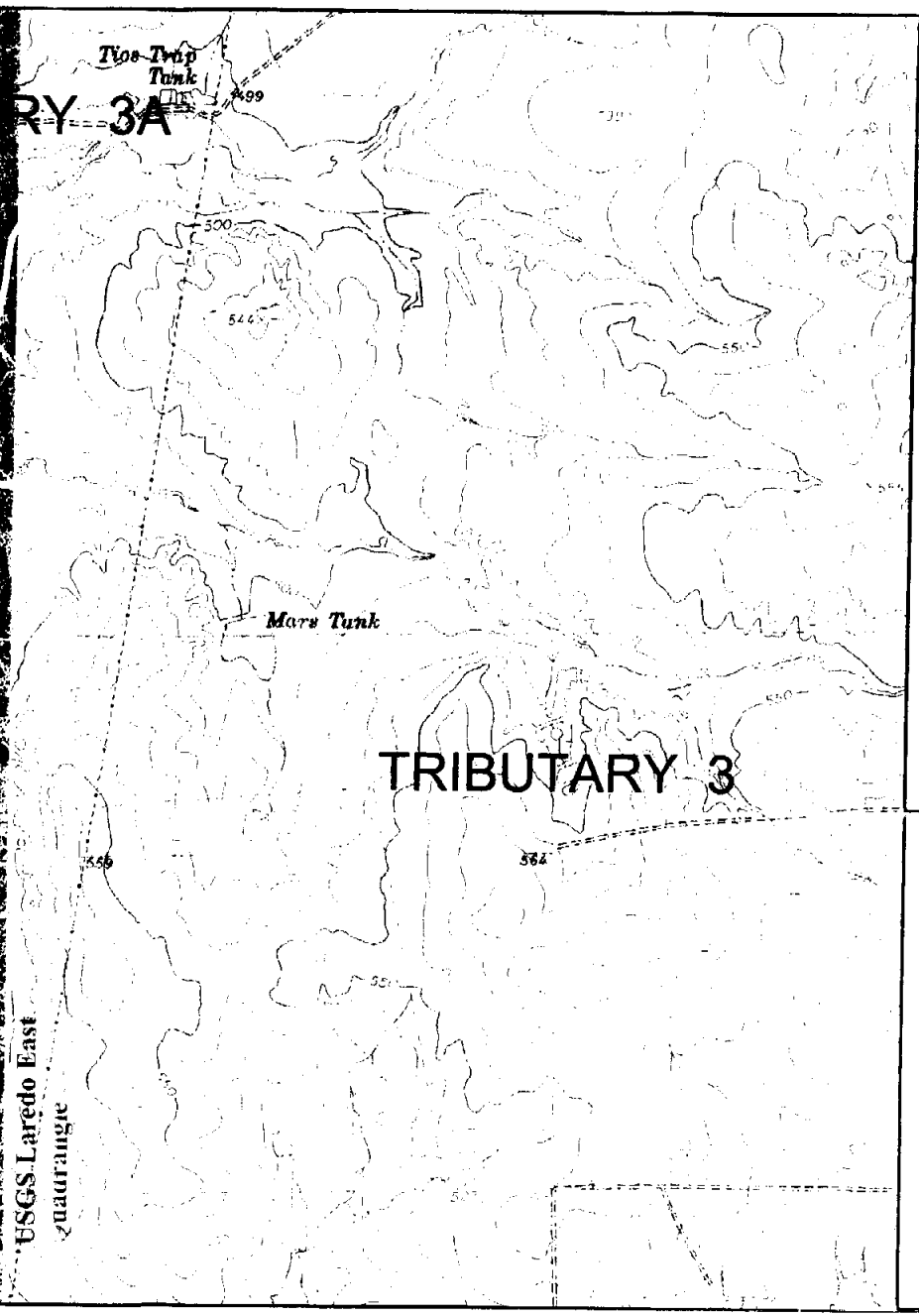
STORMWATER INTERIM AND ULTIMATE DRAINAGE PLANS

Alternative 2: Concrete Lined Channel

Chacon Creek Watershed
Exhibit 4

Revised Date: November 1999





KEY TO MAP

- **Existing Channel**
- **Clean Natural Channel**
- **Proposed Detention Pond**
- **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

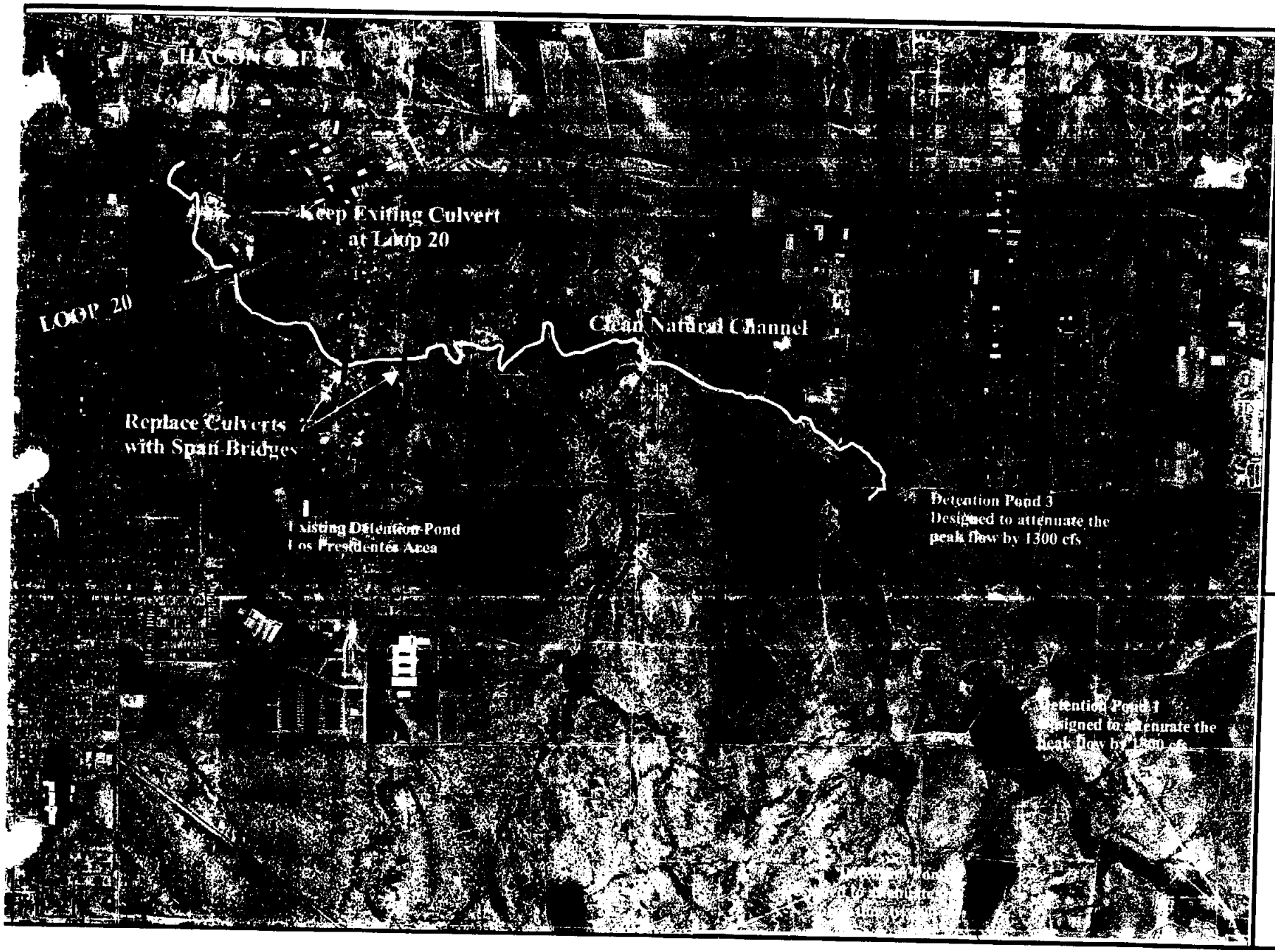
STORMWATER INTERIM DRAINAGE PLAN

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

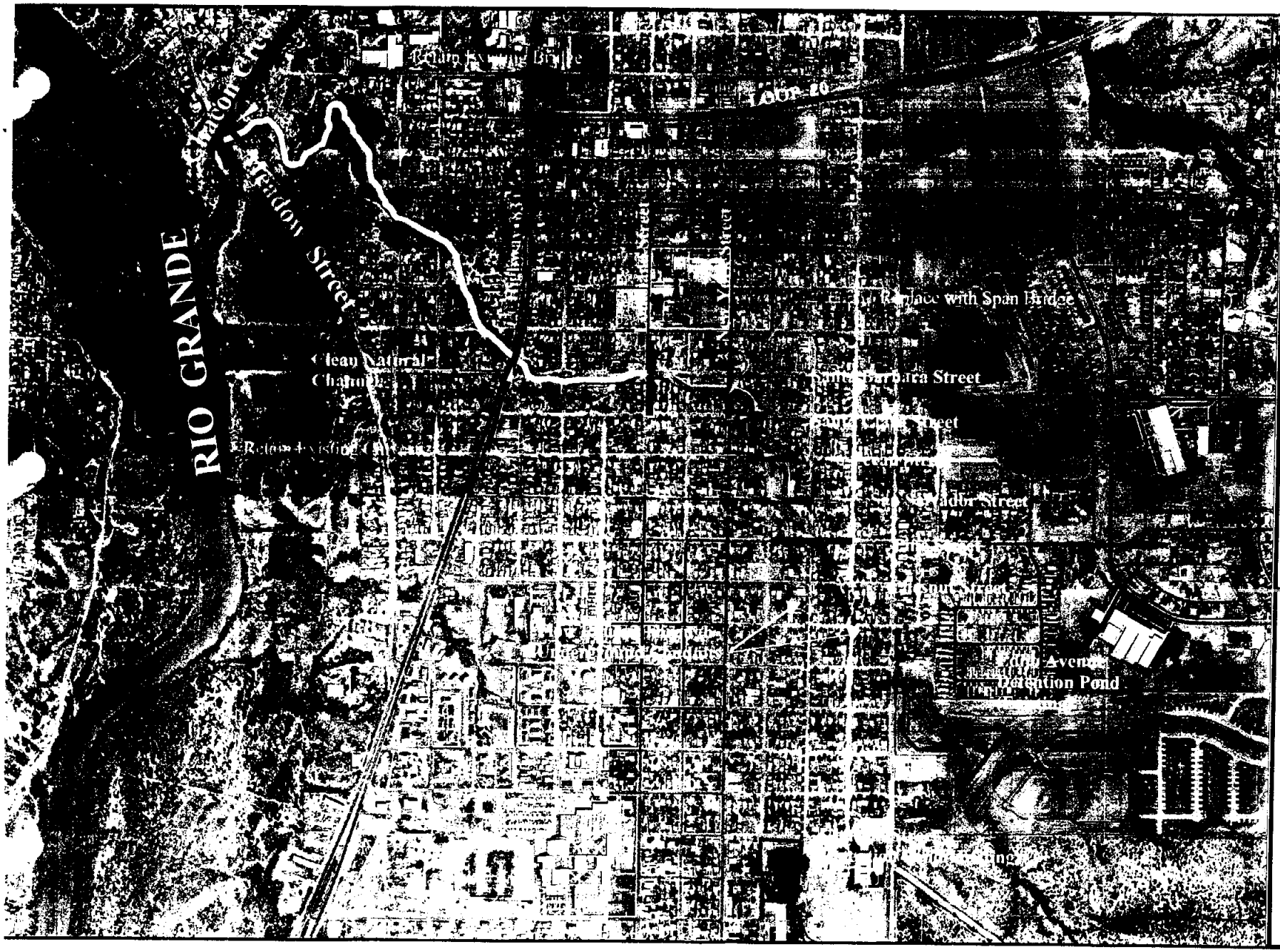
N

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 Culvert**
- **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

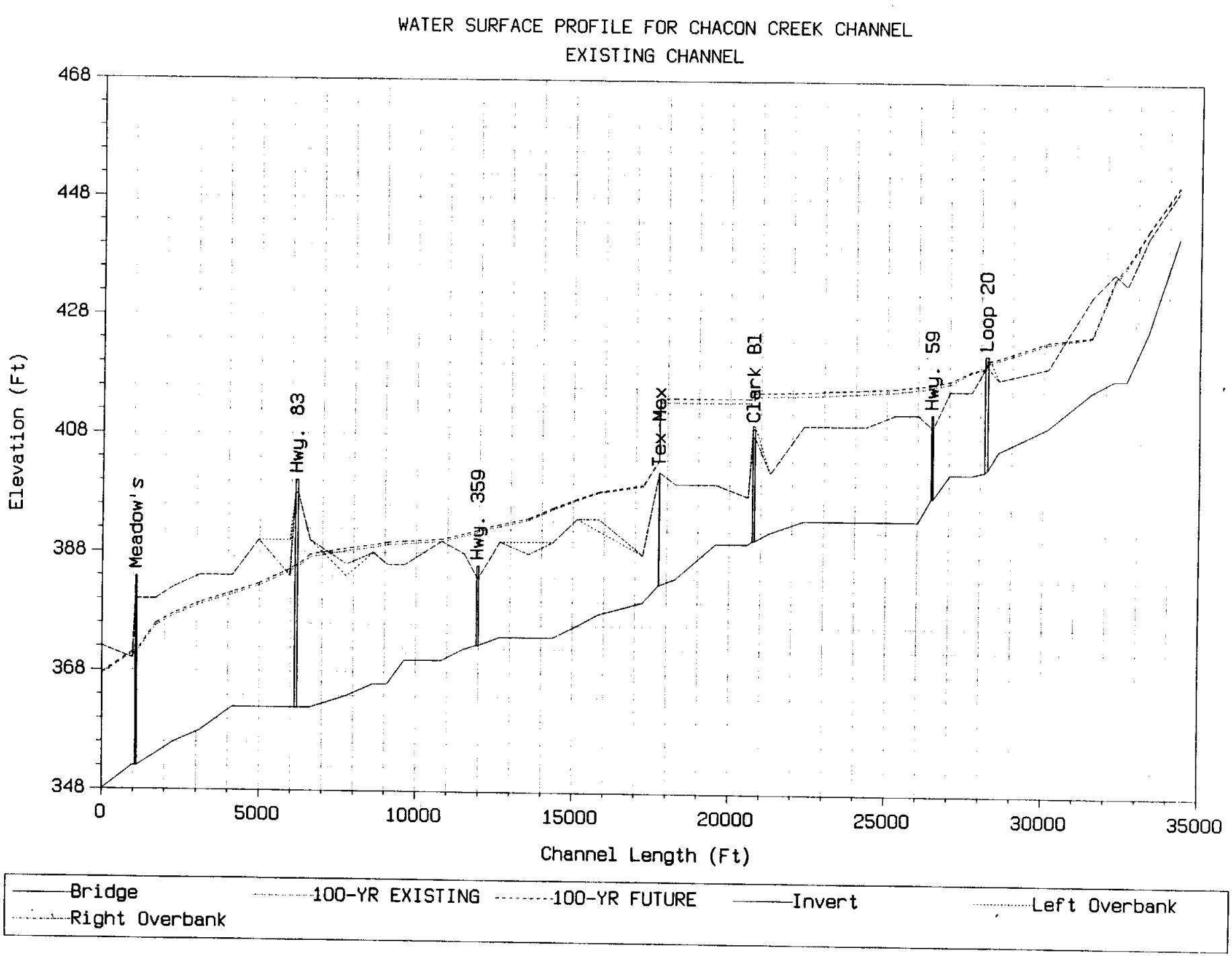
TINAJA CREEK
STORMWATER
INTERIM DRAINAGE PLAN
Channel Improvement

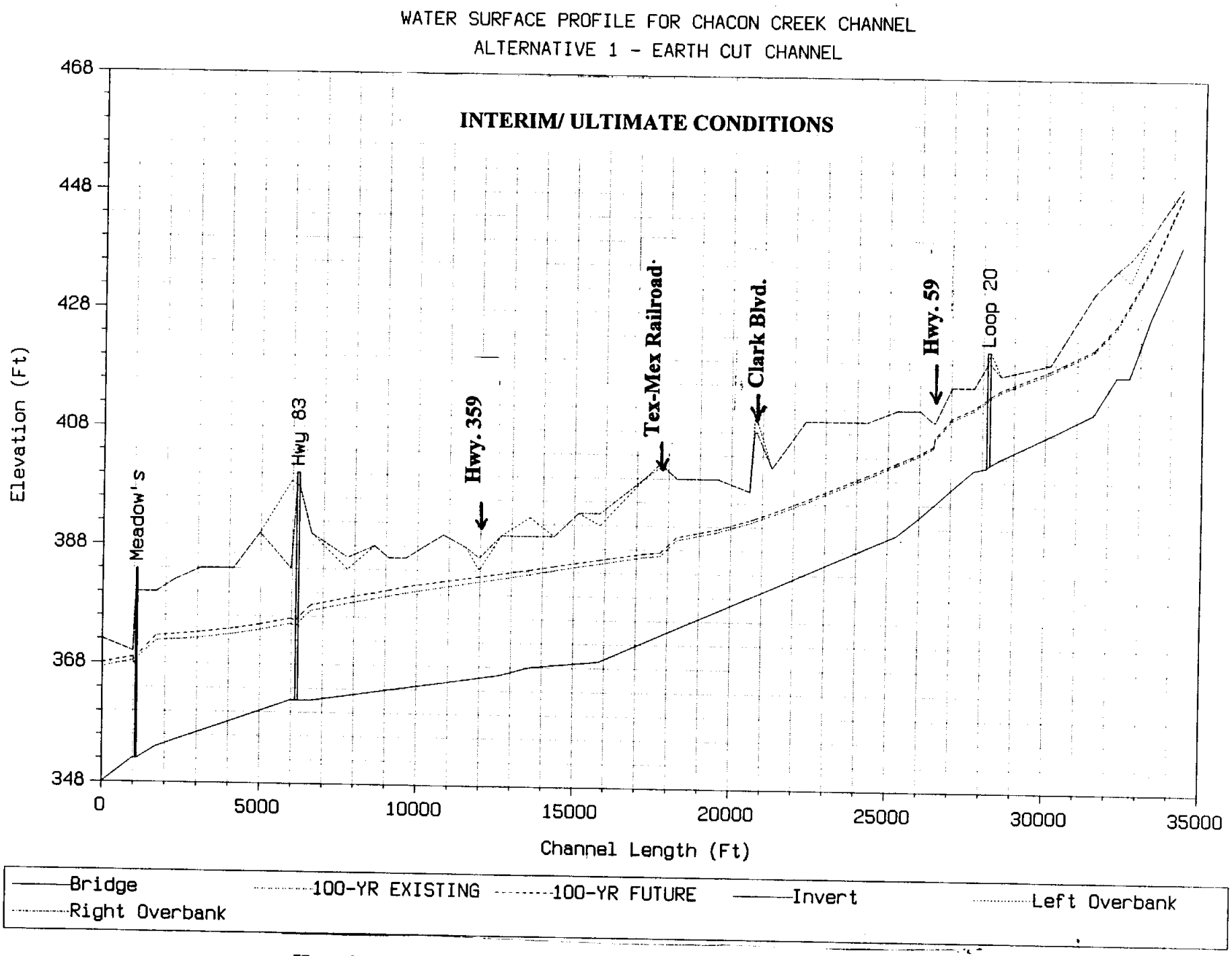
Chacon Creek Watershed
Exhibit 8

Revised Date: November 1999

WATER SURFACE PROFILES

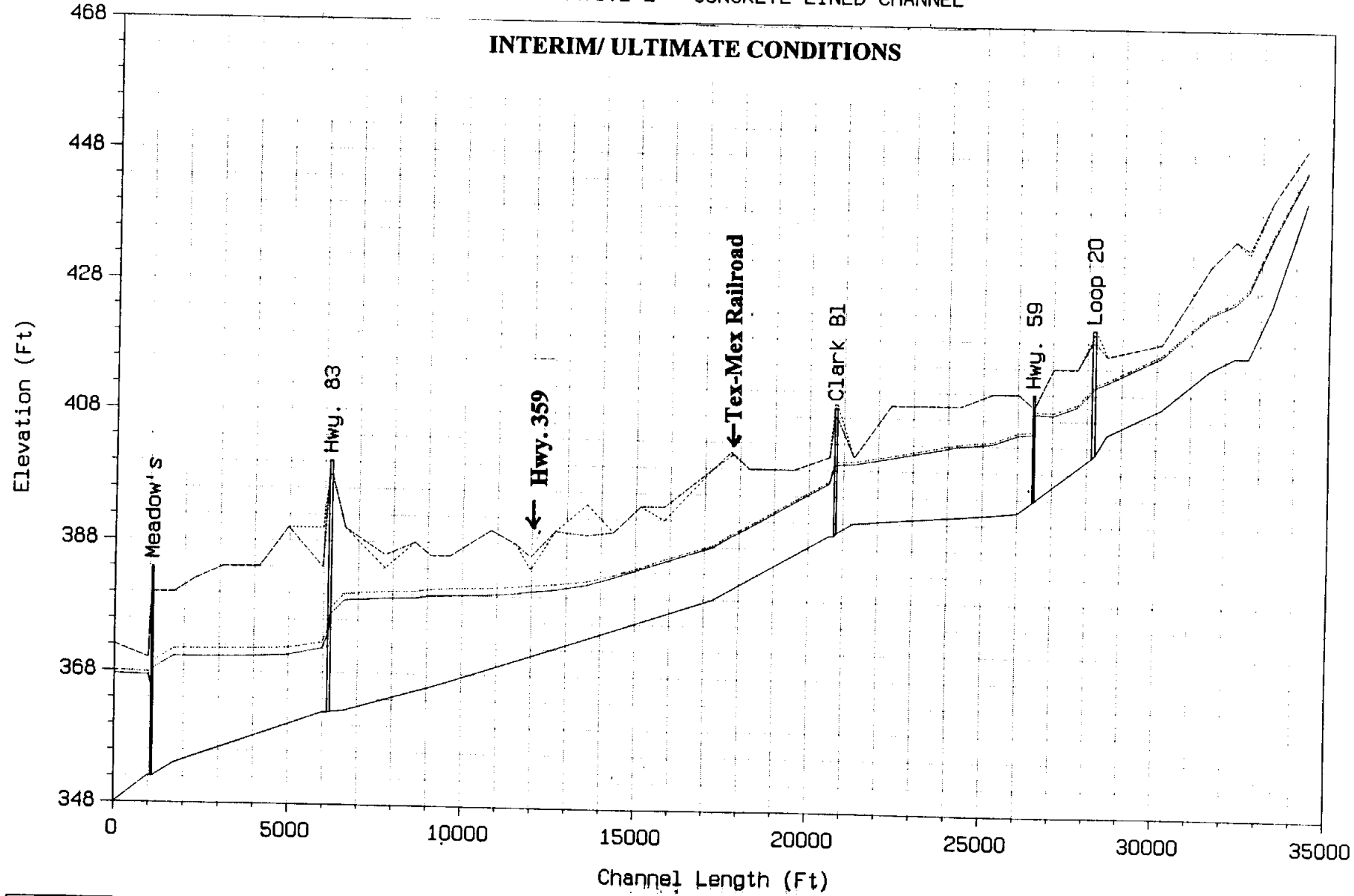
Chacon Creek Main Channel


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 Rd
Hwy. 59
Loop 20
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank



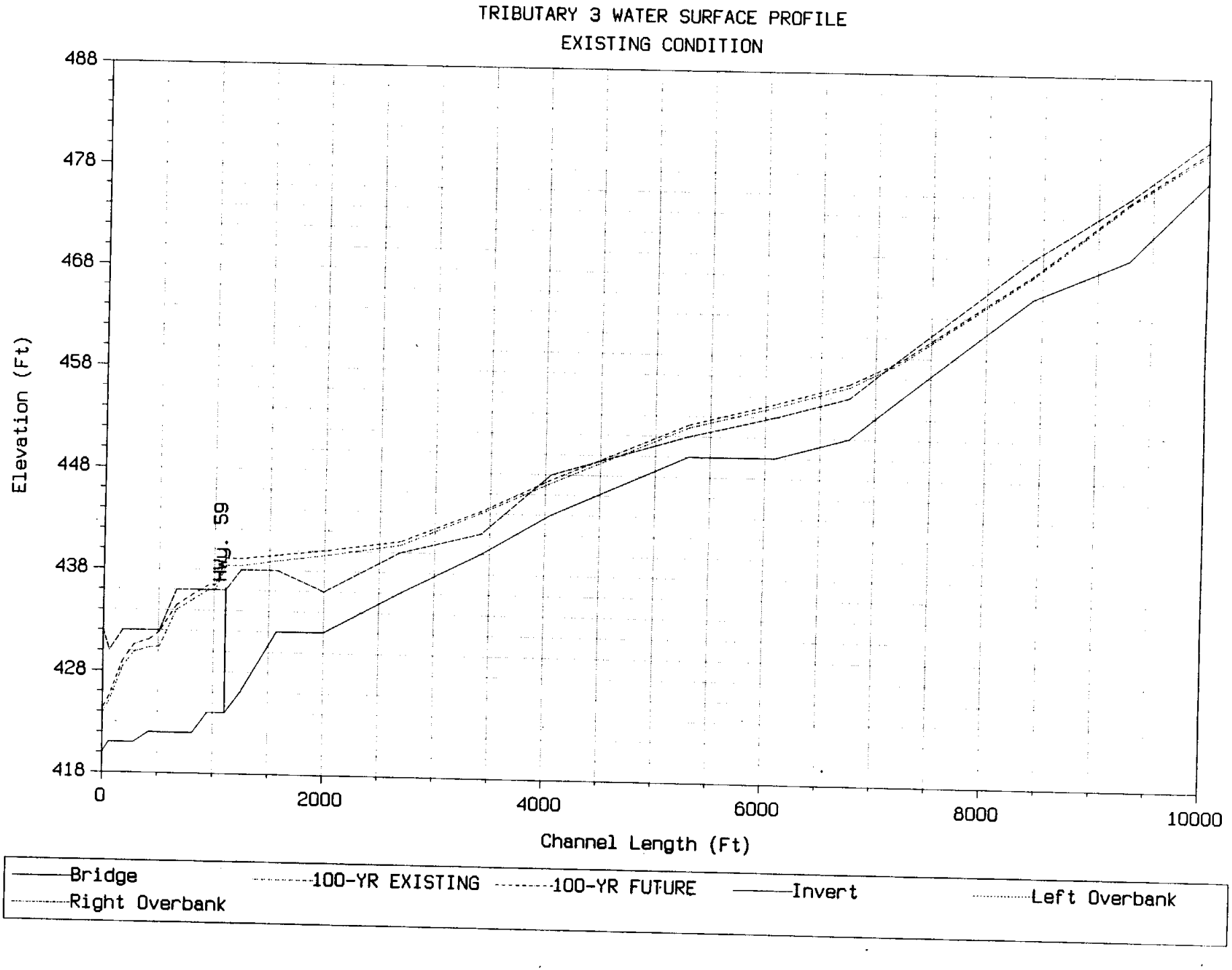
Hwy. 359, Tex-Mex, Clark Blvd. and Hwy. 59 Bridges to be replaced

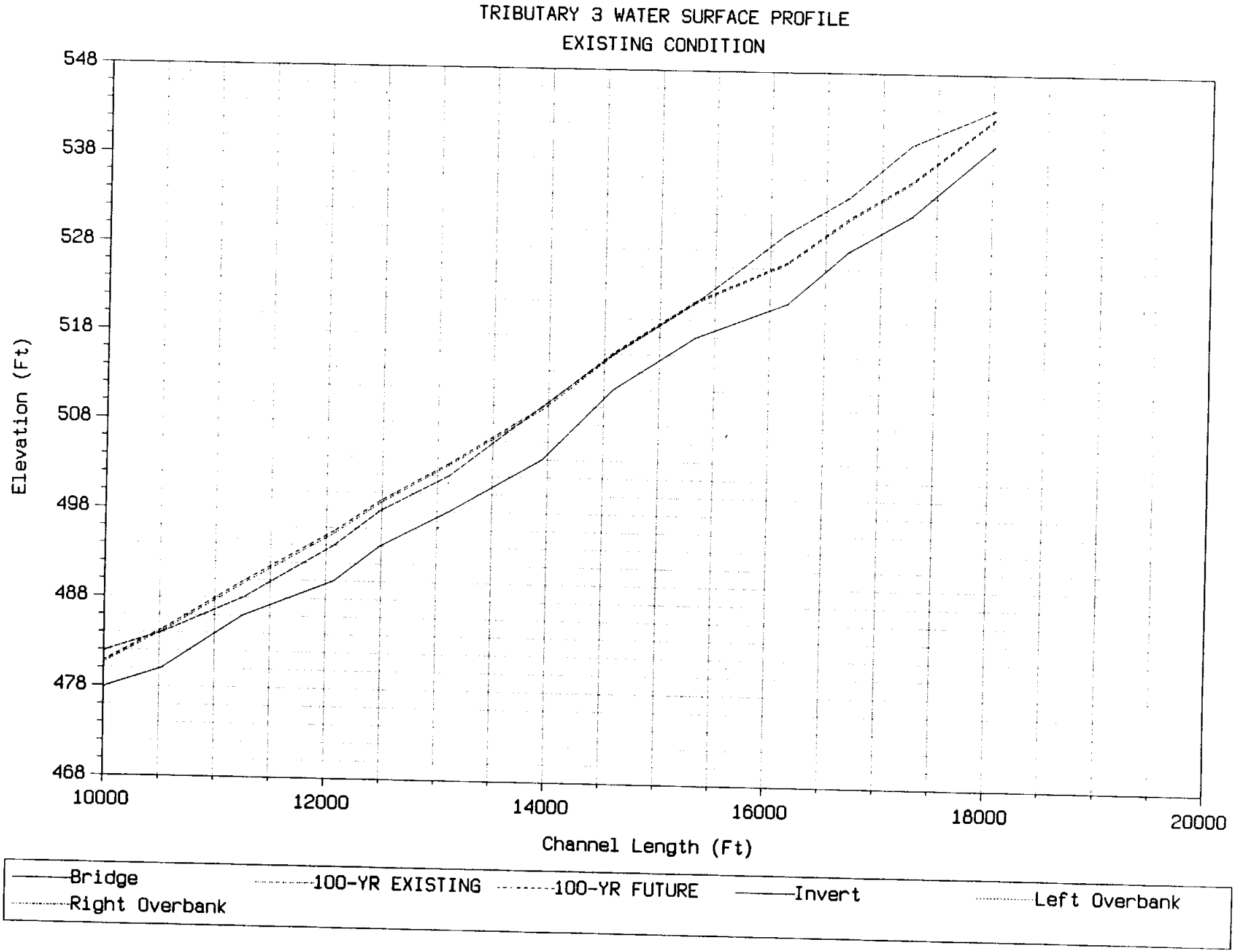
WATER SURFACE PROFILE FOR CHACON CREEK CHANNEL
ALTERNATIVE 2 - CONCRETE LINED CHANNEL



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

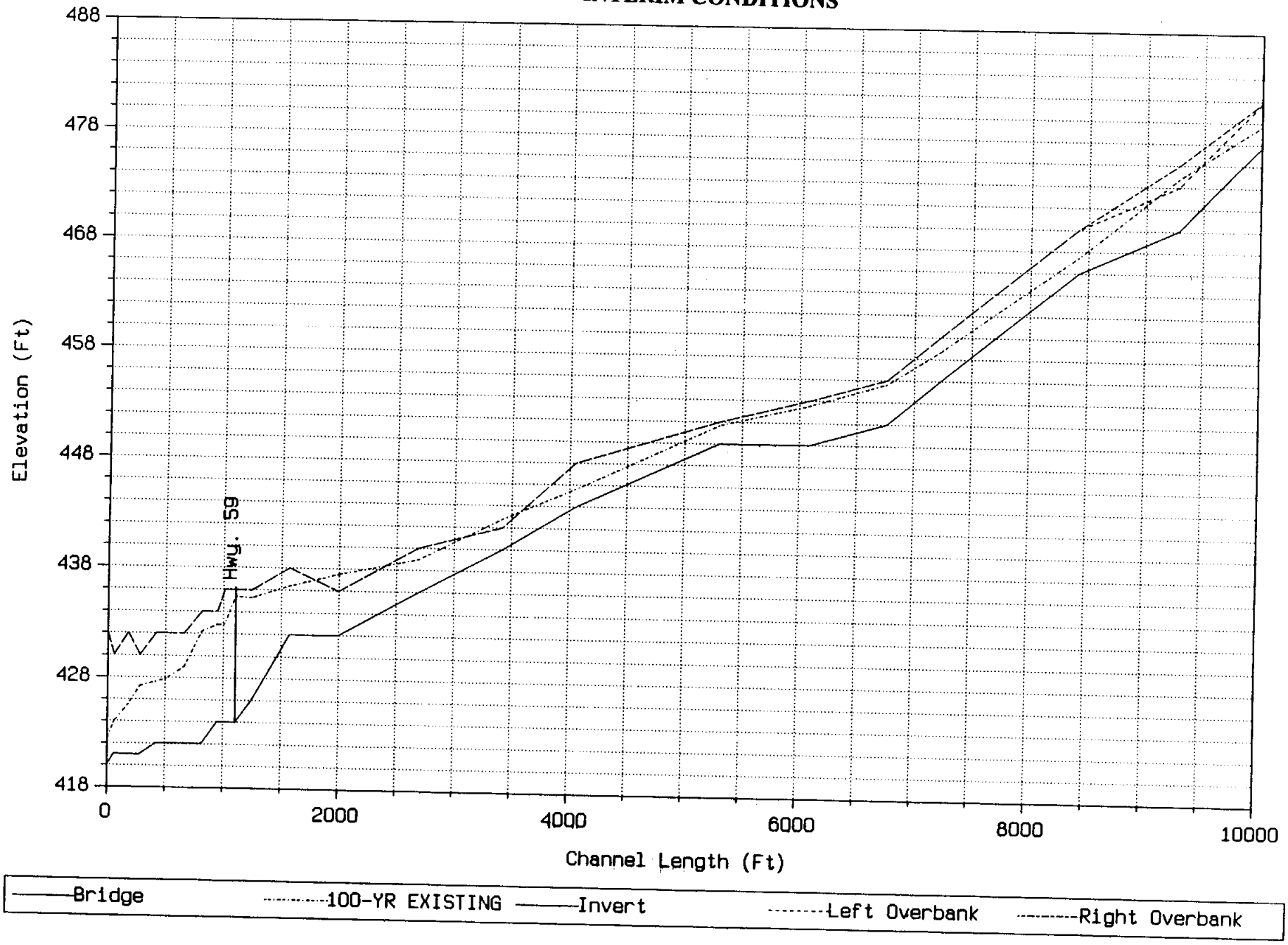
Tributary 3


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

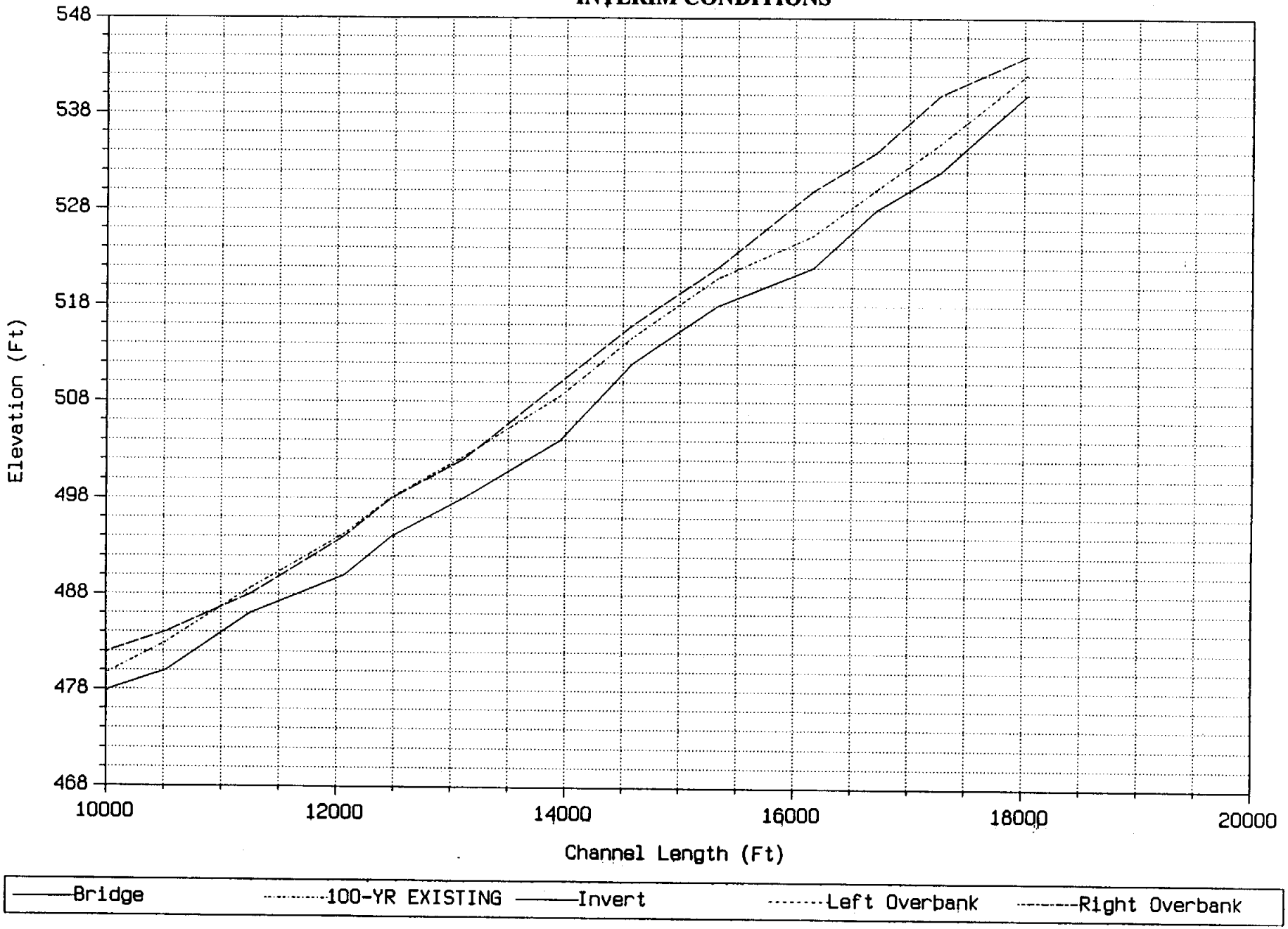
TRIBUTARY 3 WATER SURFACE PROFILE

INTERIM CONDITIONS



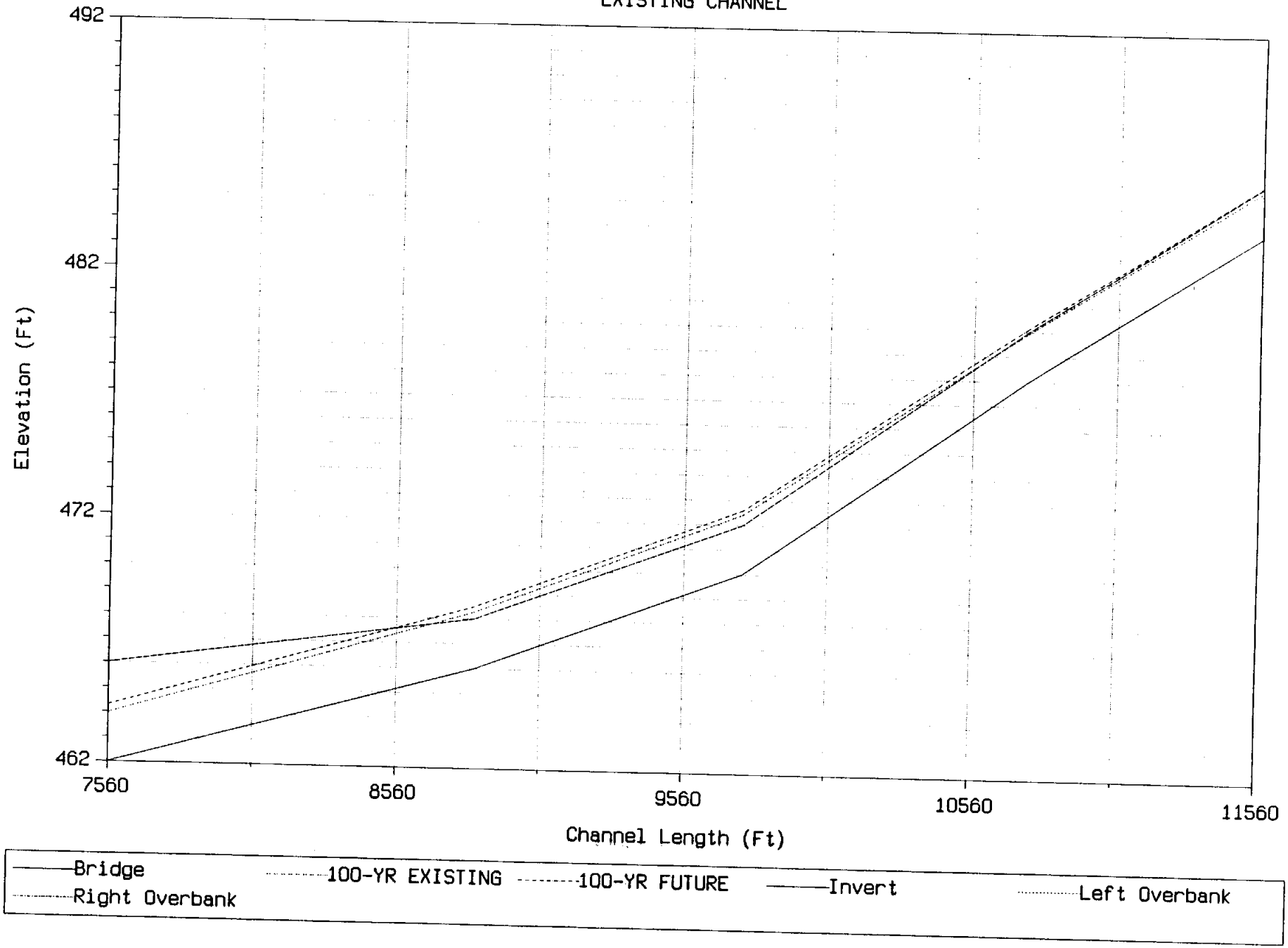
TRIBUTARY 3 WATER SURFACE PROFILE

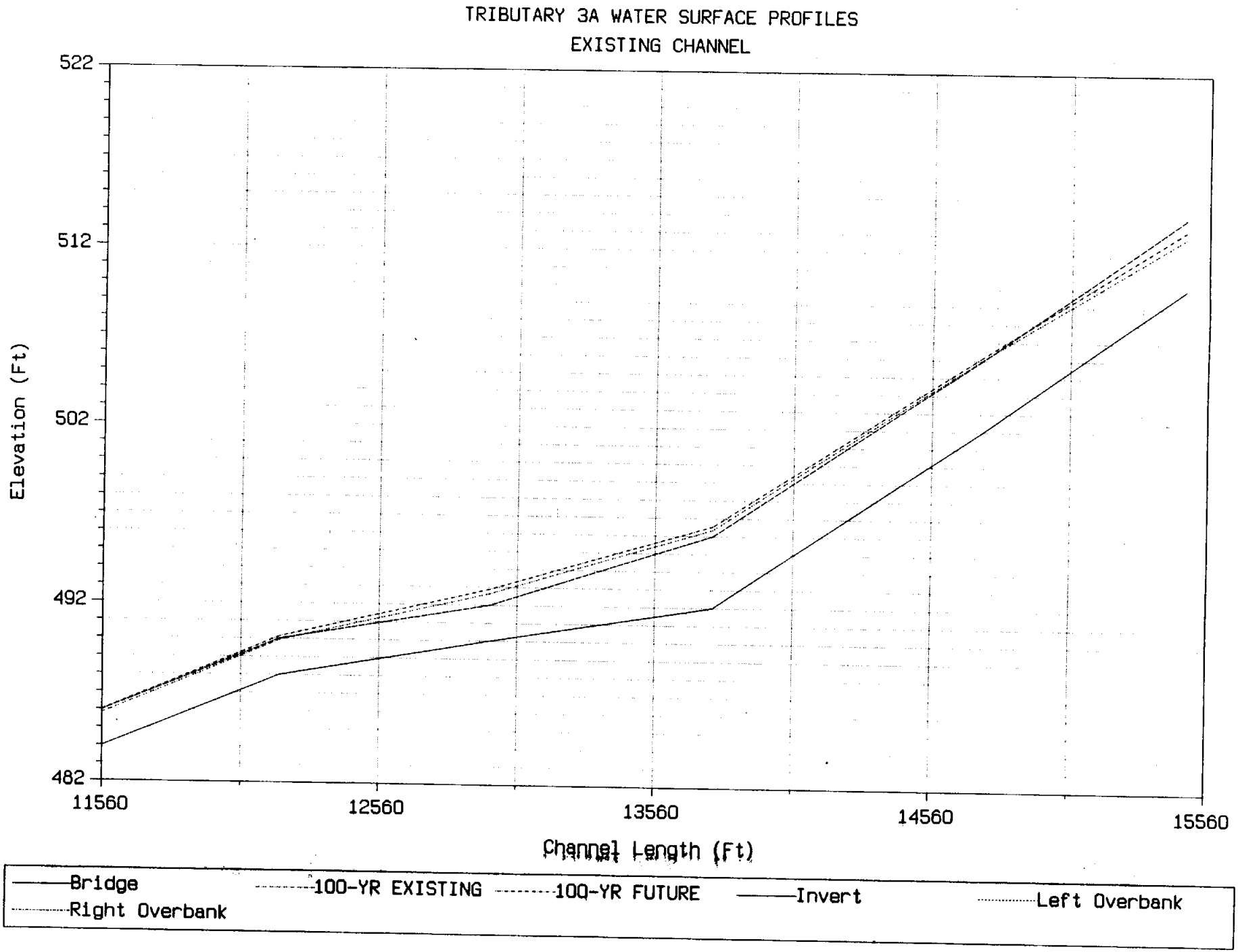
INTERIM CONDITIONS



Tributary 3A

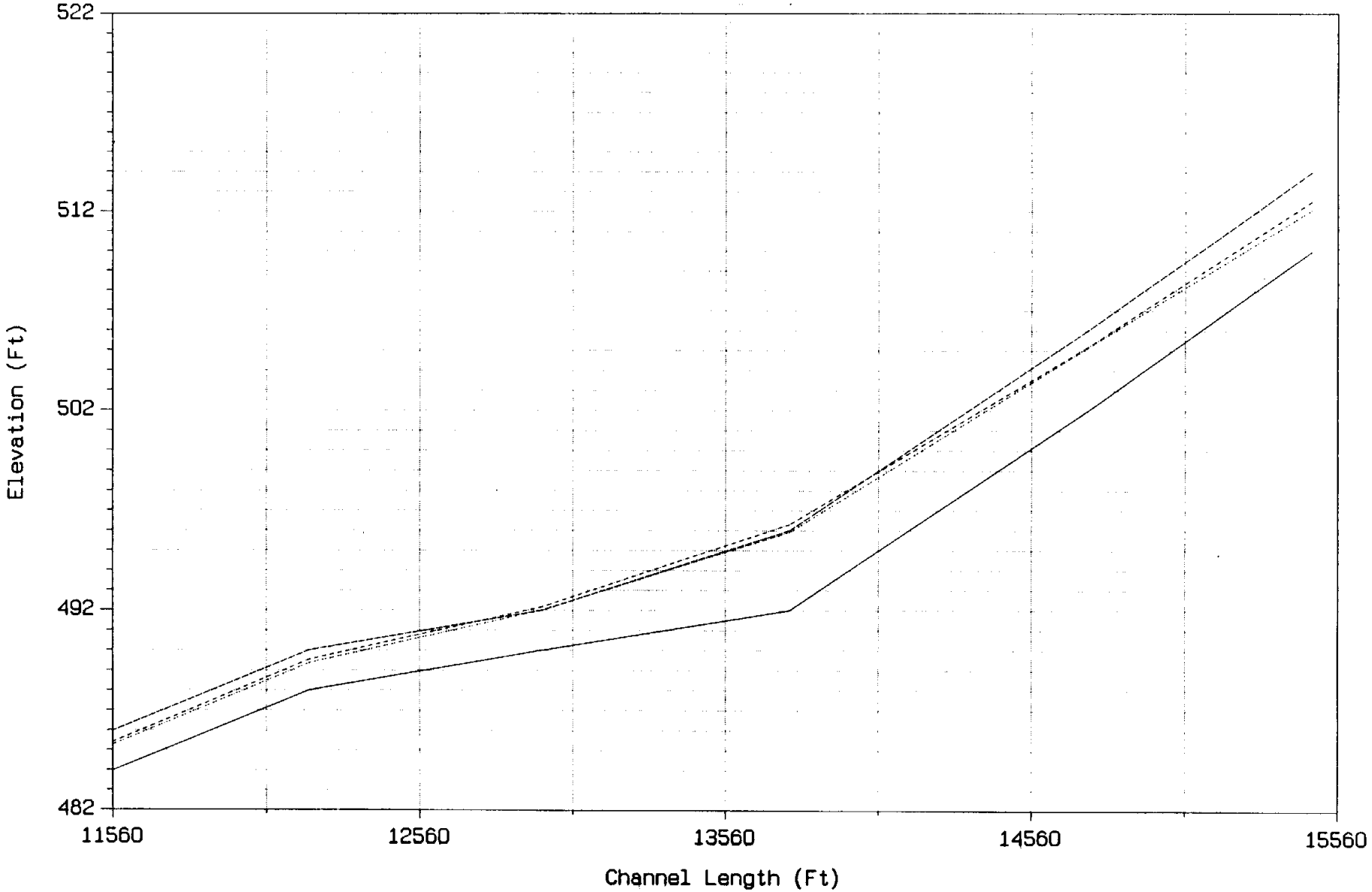
TRIBUTARY 3A WATER SURFACE PROFILES
EXISTING CHANNEL




TRIBUTARY 3A WATER SURFACE PROFILES
EXISTING CHANNEL
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

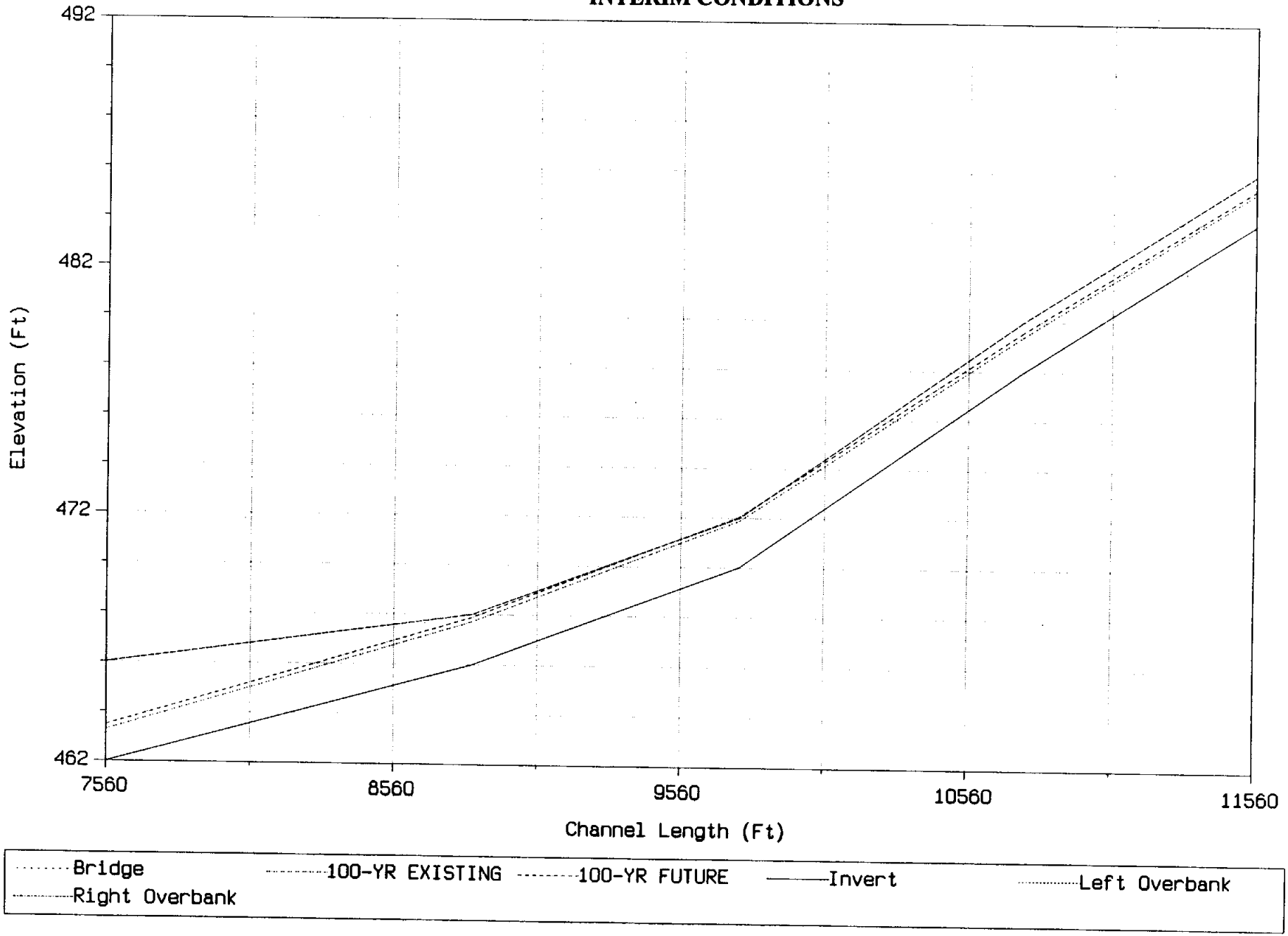
WATER SURFACE PROFILES FOR TRIBUTARY 3A

INTERIM CONDITIONS

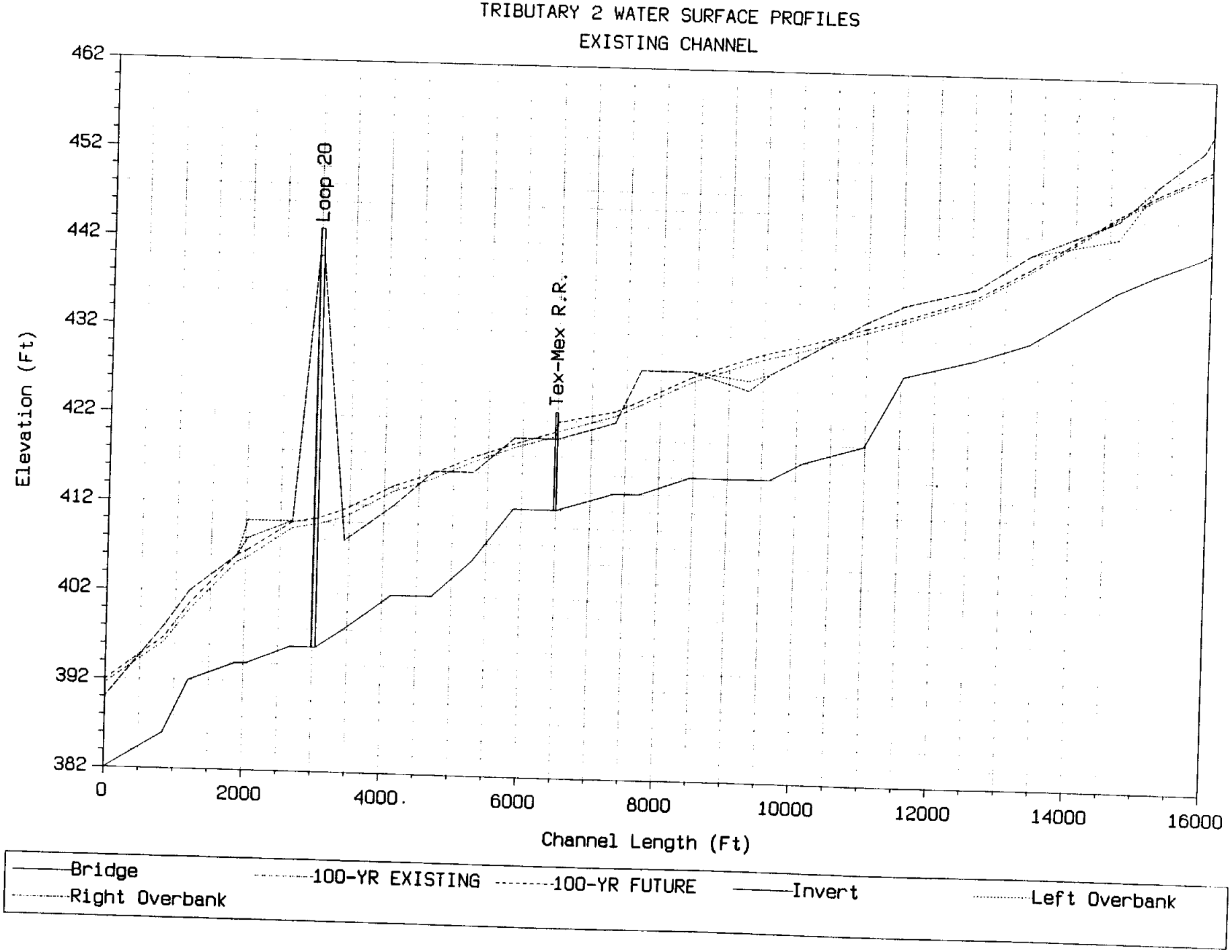


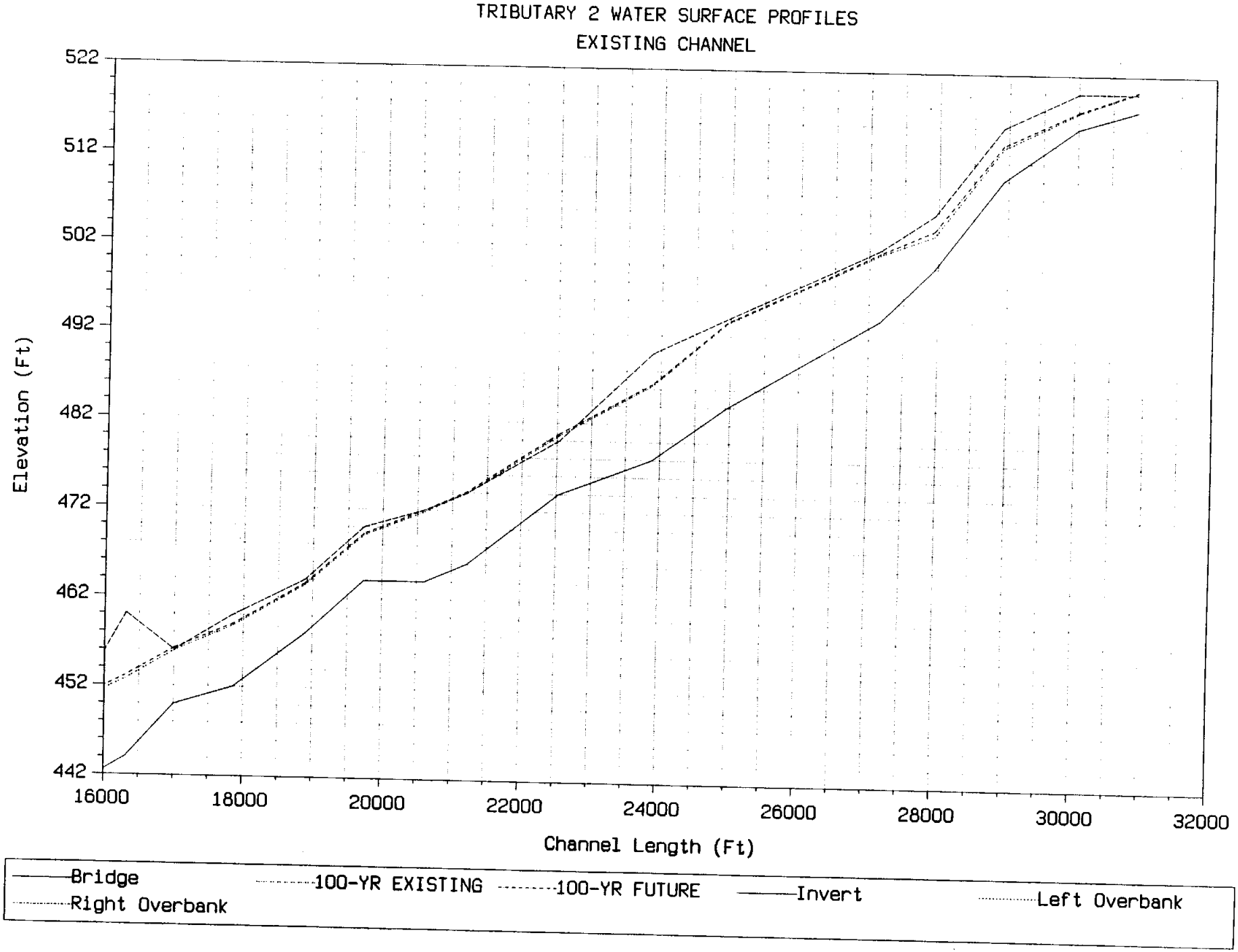
WATER SURFACE PROFILES FOR TRIBUTARY 3A

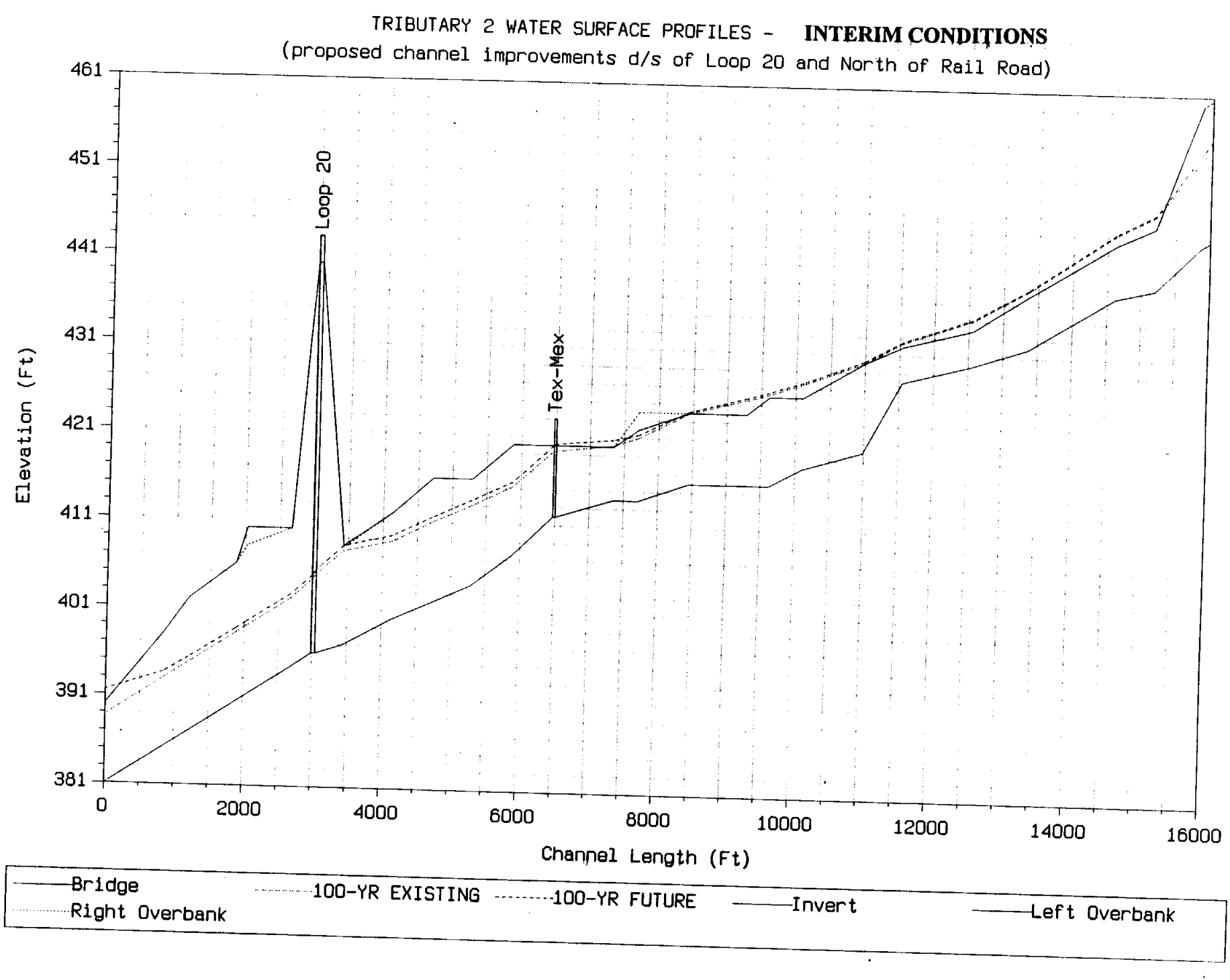
INTERIM CONDITIONS



Tributary 2

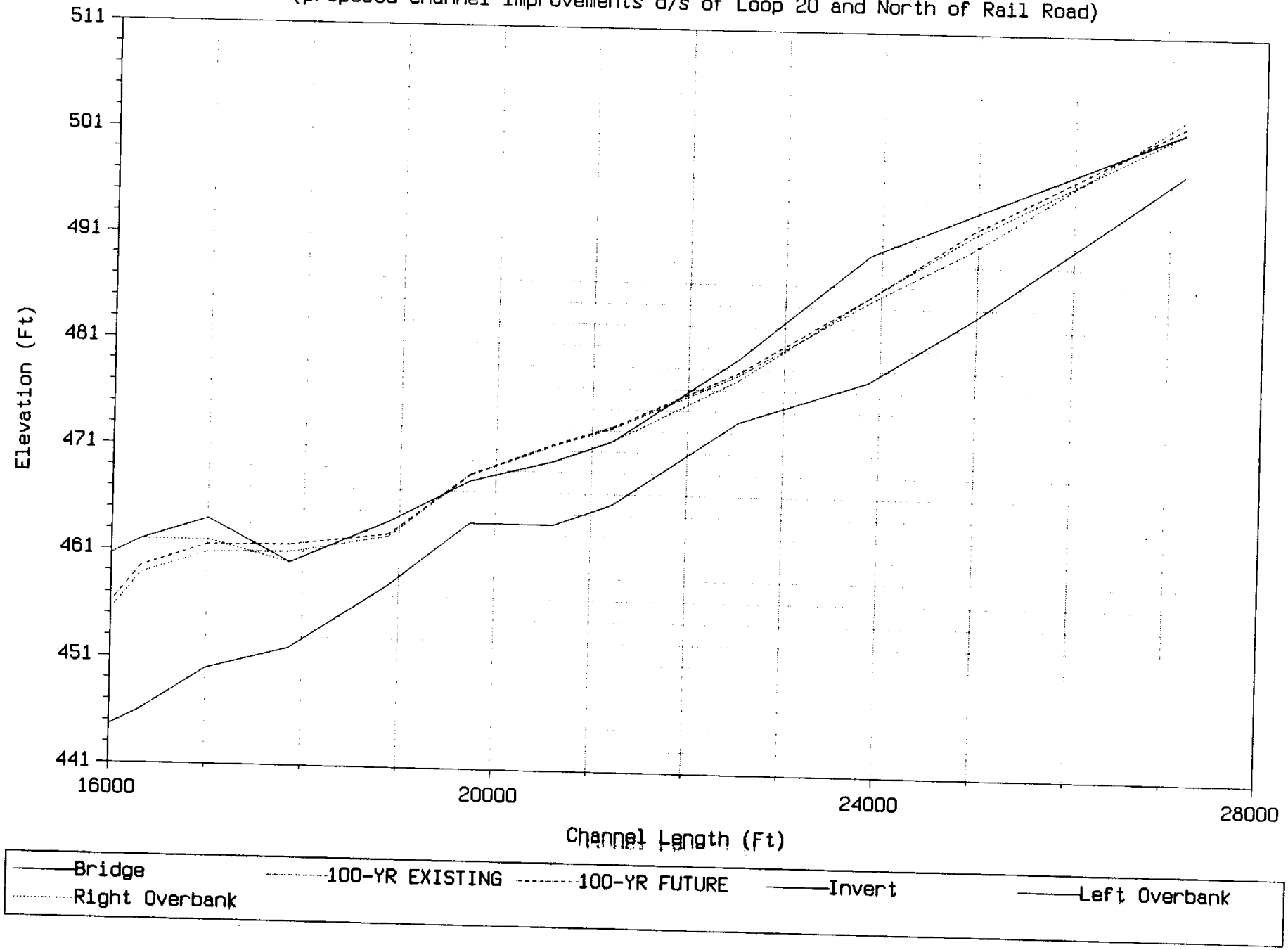

TRIBUTARY 2 WATER SURFACE PROFILES
EXISTING CHANNEL
Elevation (Ft)
462
452
442
432
422
412
402
392
382
Loop 20
Tex-Mex R.R.
0
2000
4000.
6000
8000
10000
12000
14000
16000
Channel Length (Ft)
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank

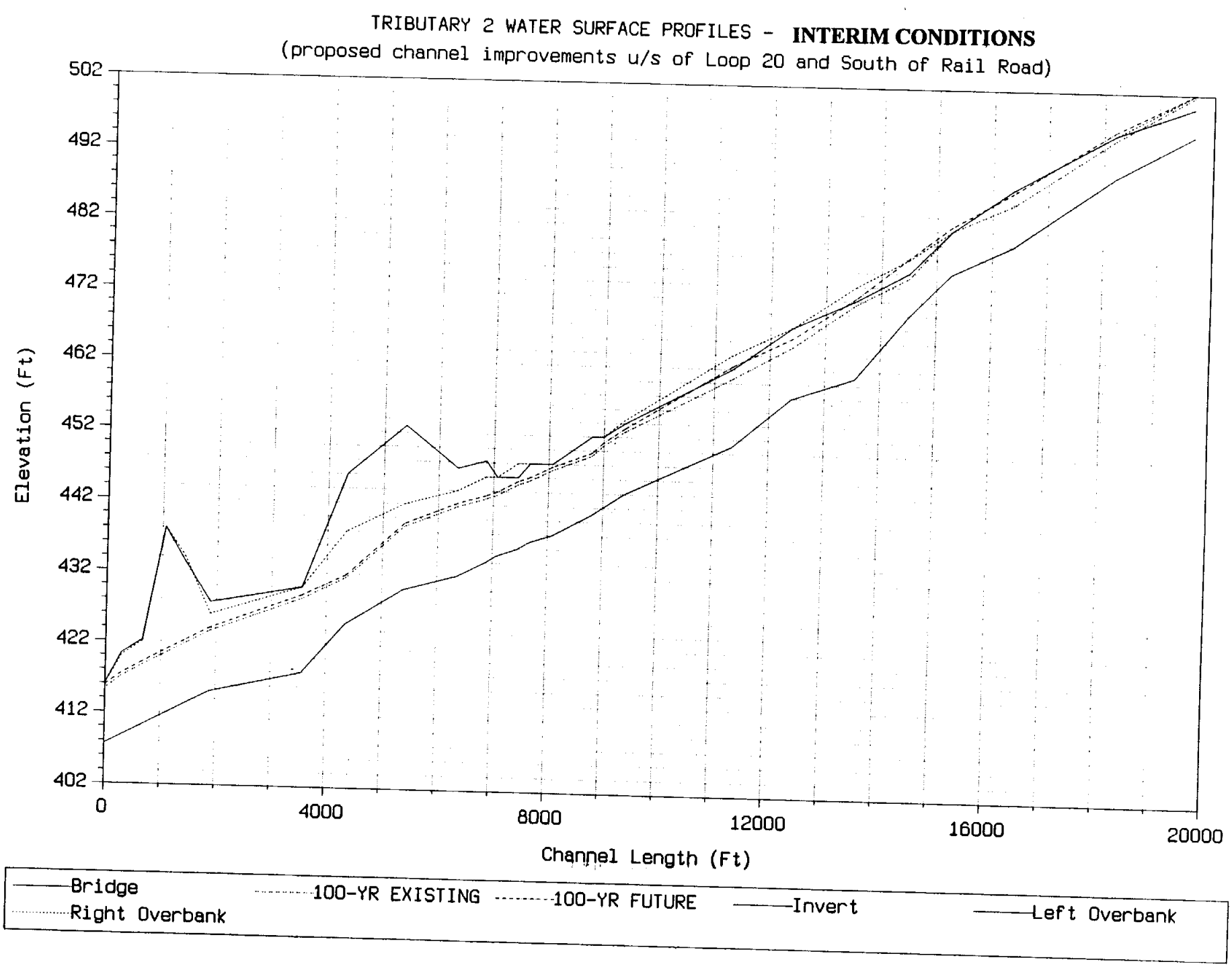

TRIBUTARY 2 WATER SURFACE PROFILES
EXISTING CHANNEL
Elevation (Ft)
522
512
502
492
482
472
462
452
442
16000
18000
20000
22000
24000
26000
28000
30000
32000
Channel Length (Ft)
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank


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

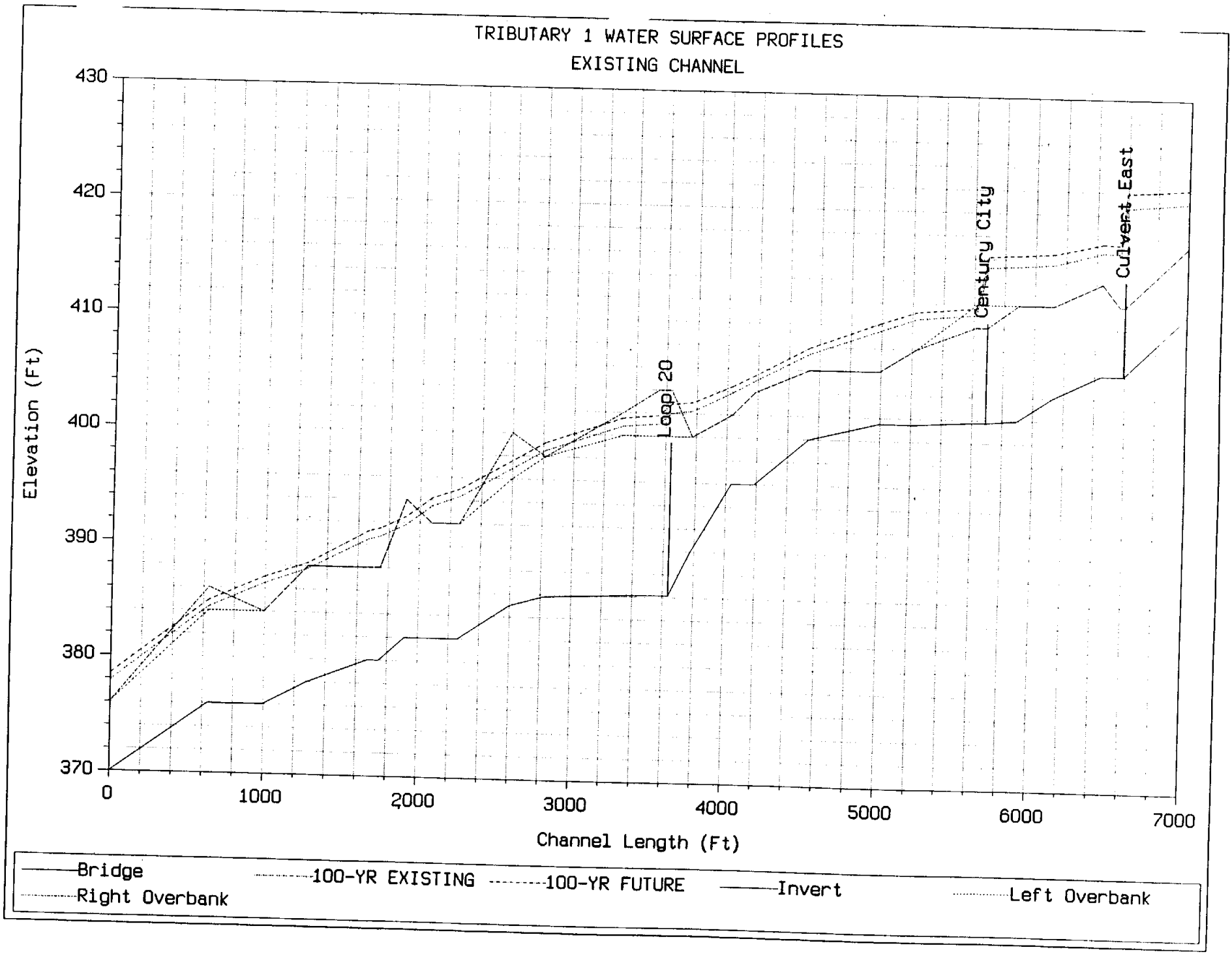
TRIBUTARY 2 WATER SURFACE PROFILES - **INTERIM CONDITIONS**

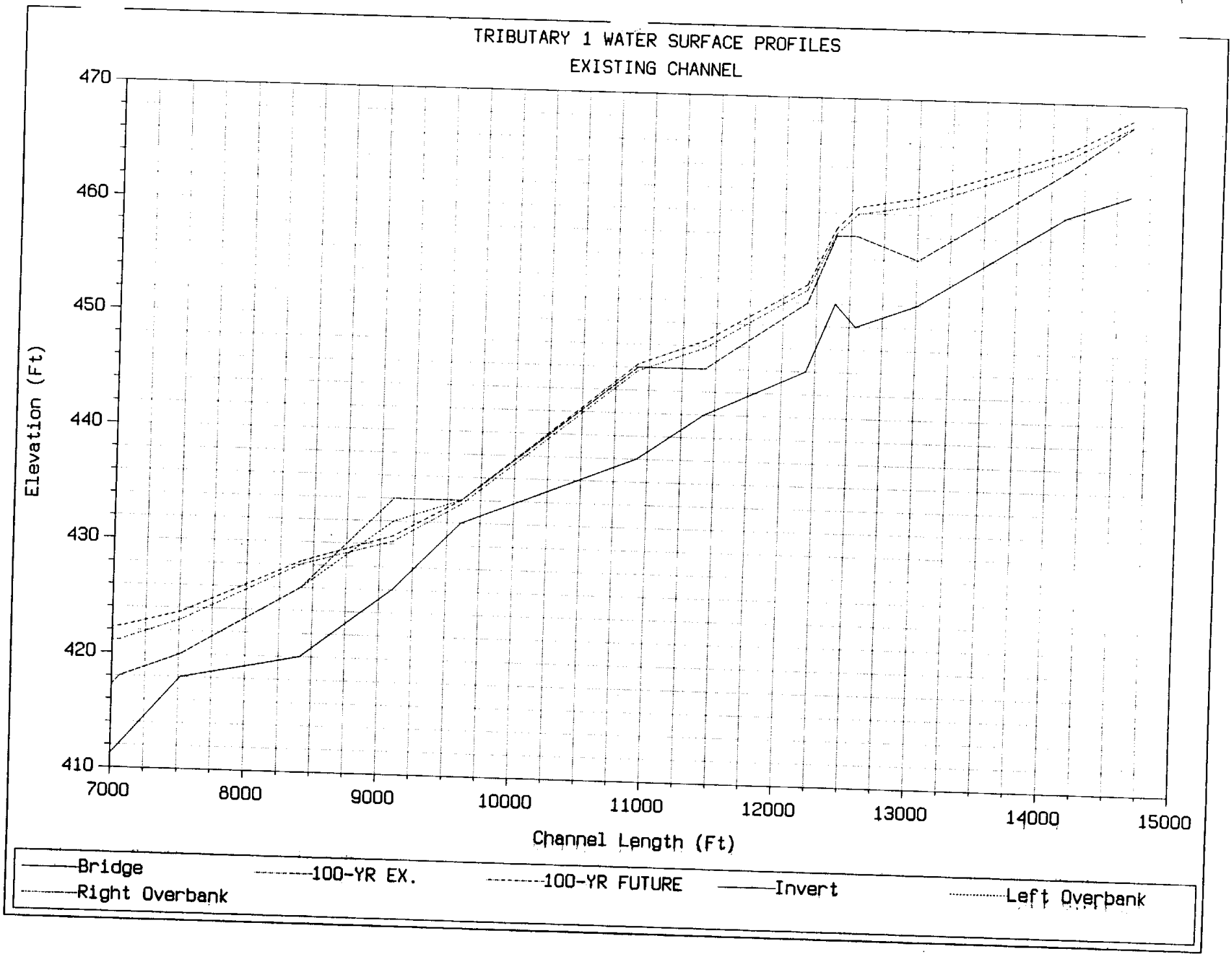
(proposed channel improvements d/s of Loop 20 and North of Rail Road)

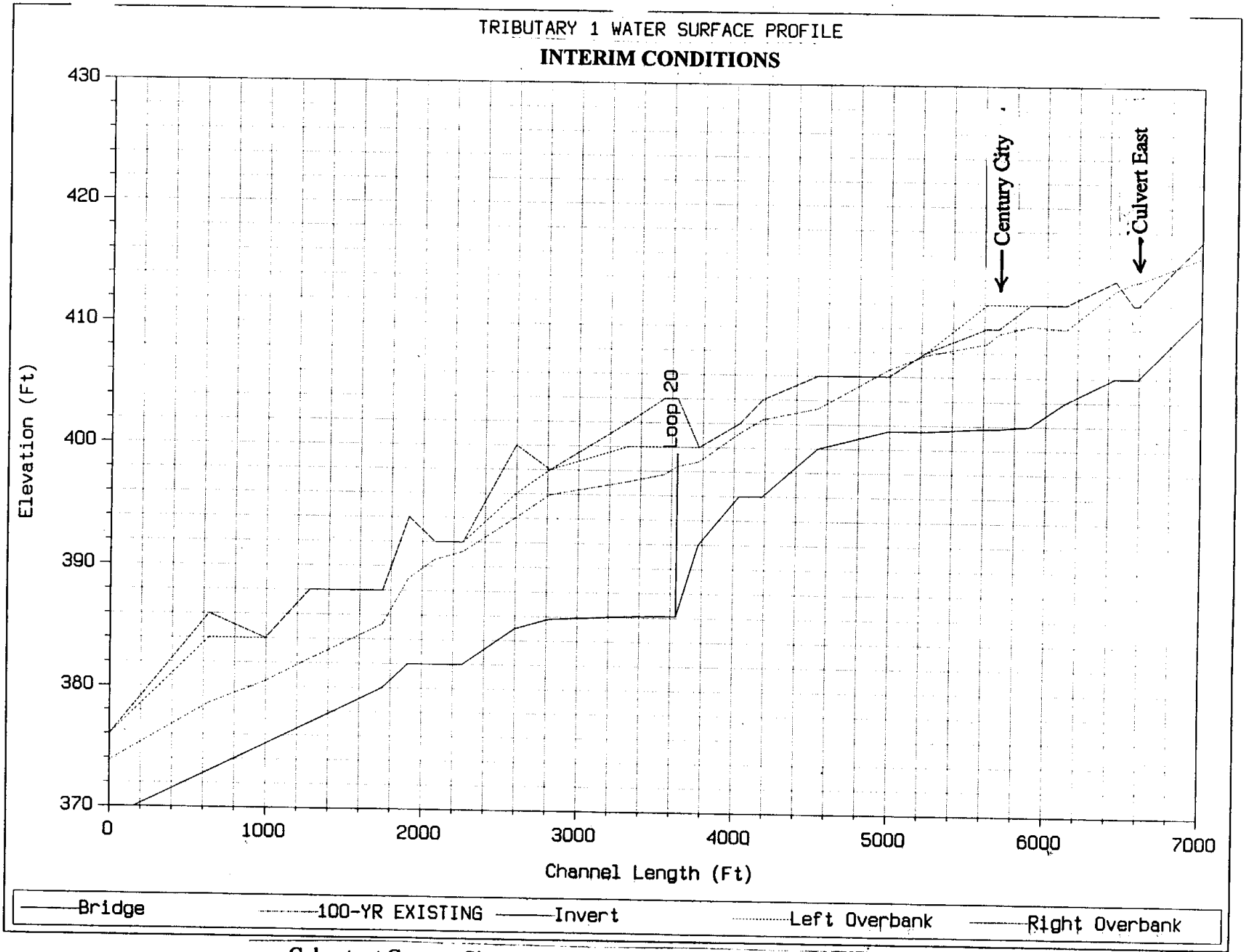



TRIBUTARY 2 WATER SURFACE PROFILES - INTERIM CONDITIONS
(proposed channel improvements u/s of Loop 20 and South of Rail Road)
Elevation (Ft)
502
492
482
472
462
452
442
432
422
412
402
0
4000
8000
12000
16000
20000
Channel Length (Ft)
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank

Tributary 1


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
Right Overbank
Left Overbank

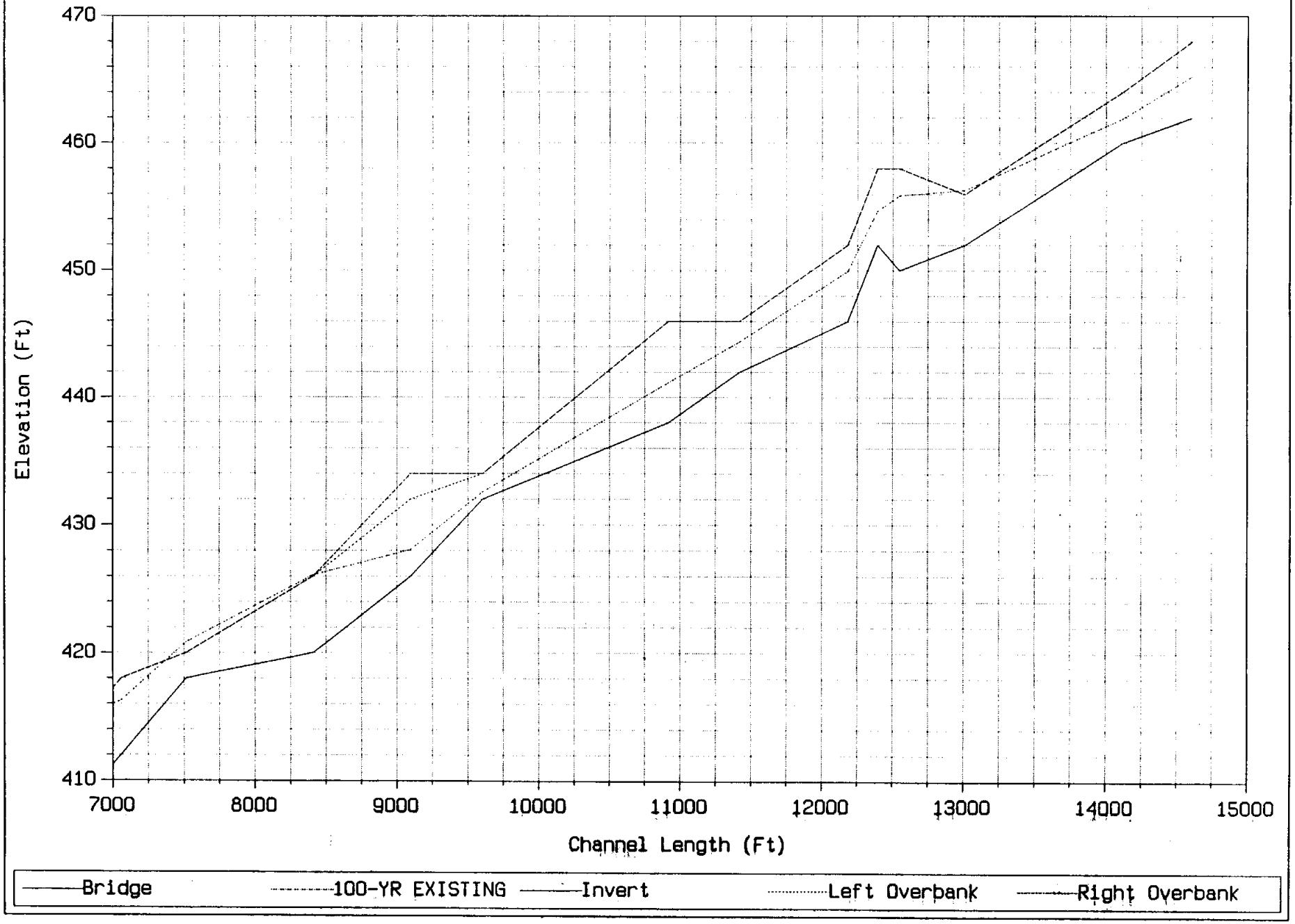

TRIBUTARY 1 WATER SURFACE PROFILES
EXISTING CHANNEL
Elevation (Ft)
470
460
450
440
430
420
410
7000
8000
9000
10000
11000
12000
13000
14000
15000
Channel Length (Ft)
Bridge
100-YR EX.
100-YR FUTURE
Invert
Left Overbank
Right Overbank



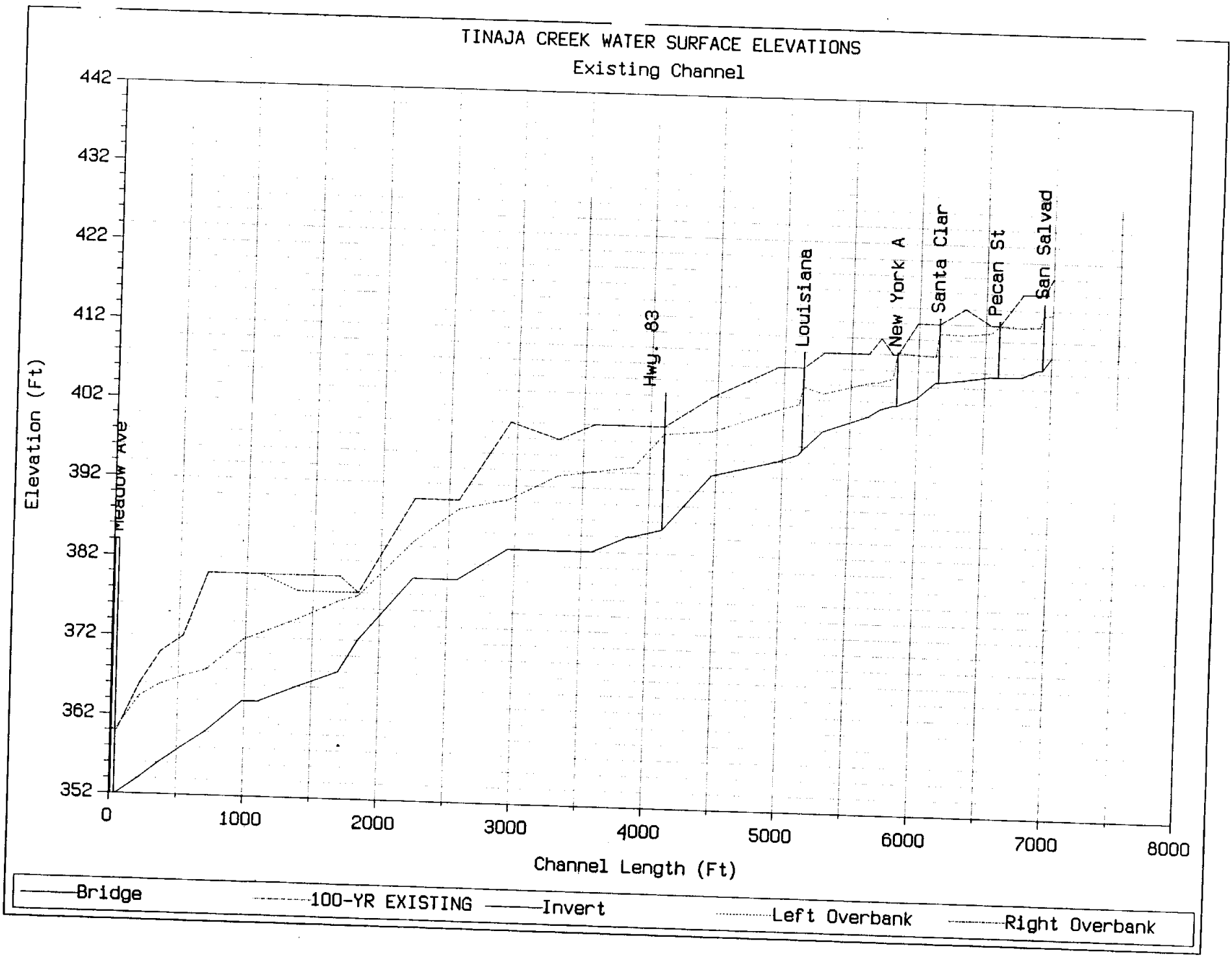
Culverts at Century City & East of Century City to be replaced by Span bridges

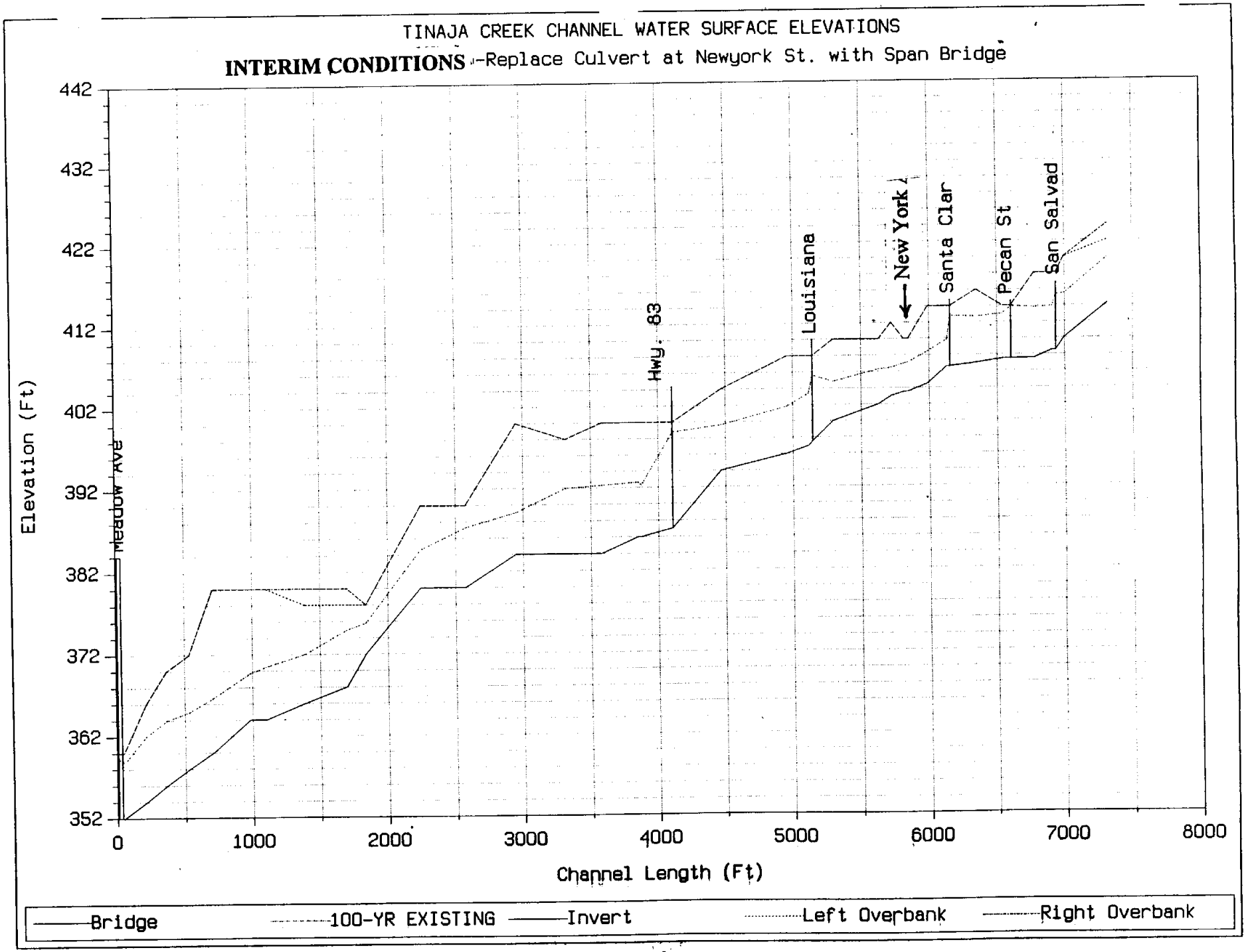
TRIBUTARY 1 WATER SURFACE PROFILE

INTERIM CONDITIONS



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

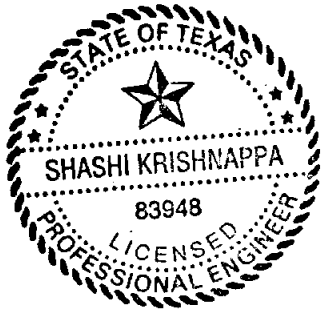

TINAJA CREEK CHANNEL WATER SURFACE ELEVATIONS
INTERIM CONDITIONS -Replace Culvert at Newyork St. with Span Bridge
Elevation (Ft)
442
432
422
412
402
392
382
372
362
352
0
1000
2000
3000
4000
5000
6000
7000
8000
Channel Length (Ft)
Meadow Ave
Hwy. 83
Louisiana
New York
Santa Clar
Pecan St
San Salvad
Bridge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



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

3/13/2000

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

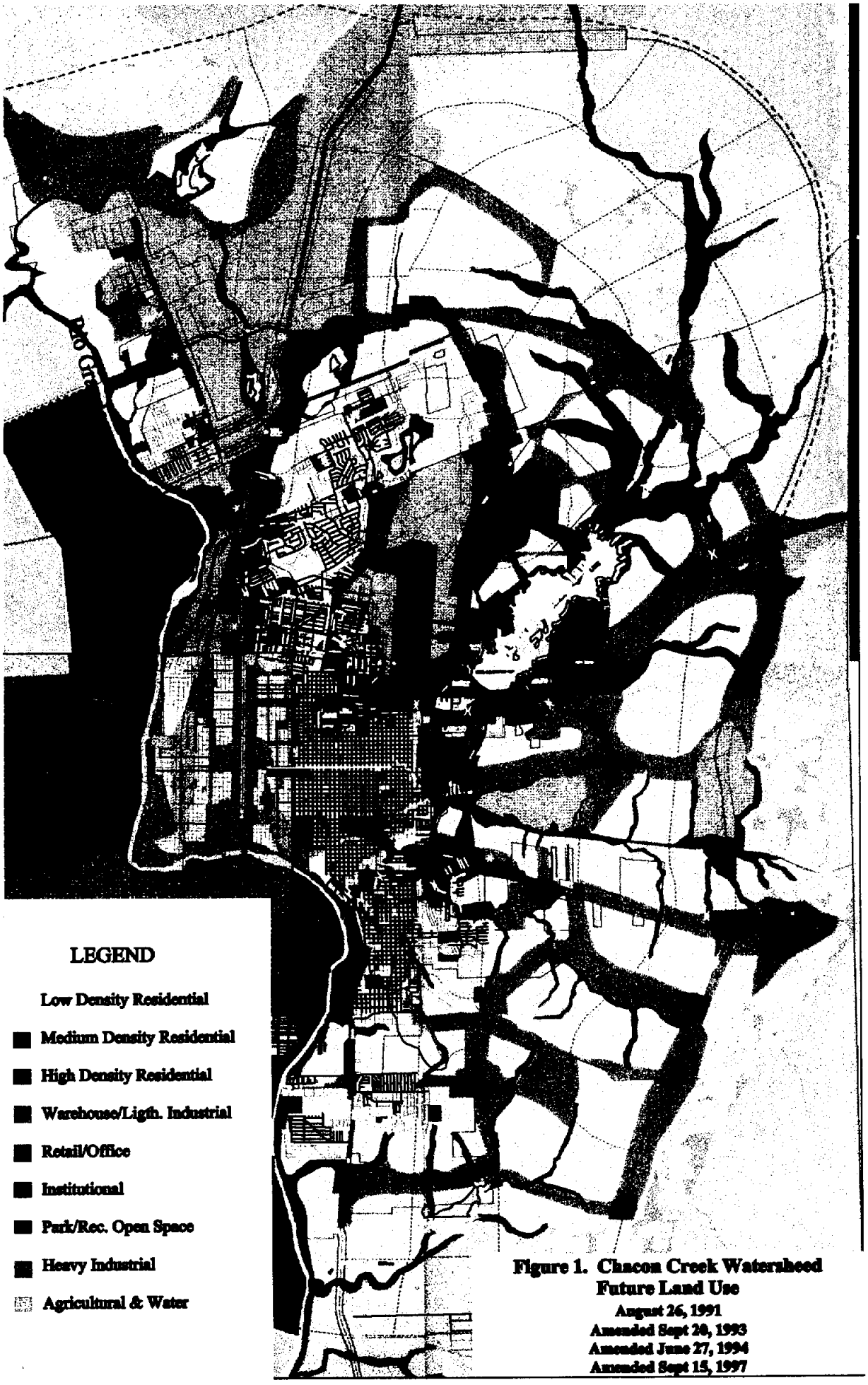
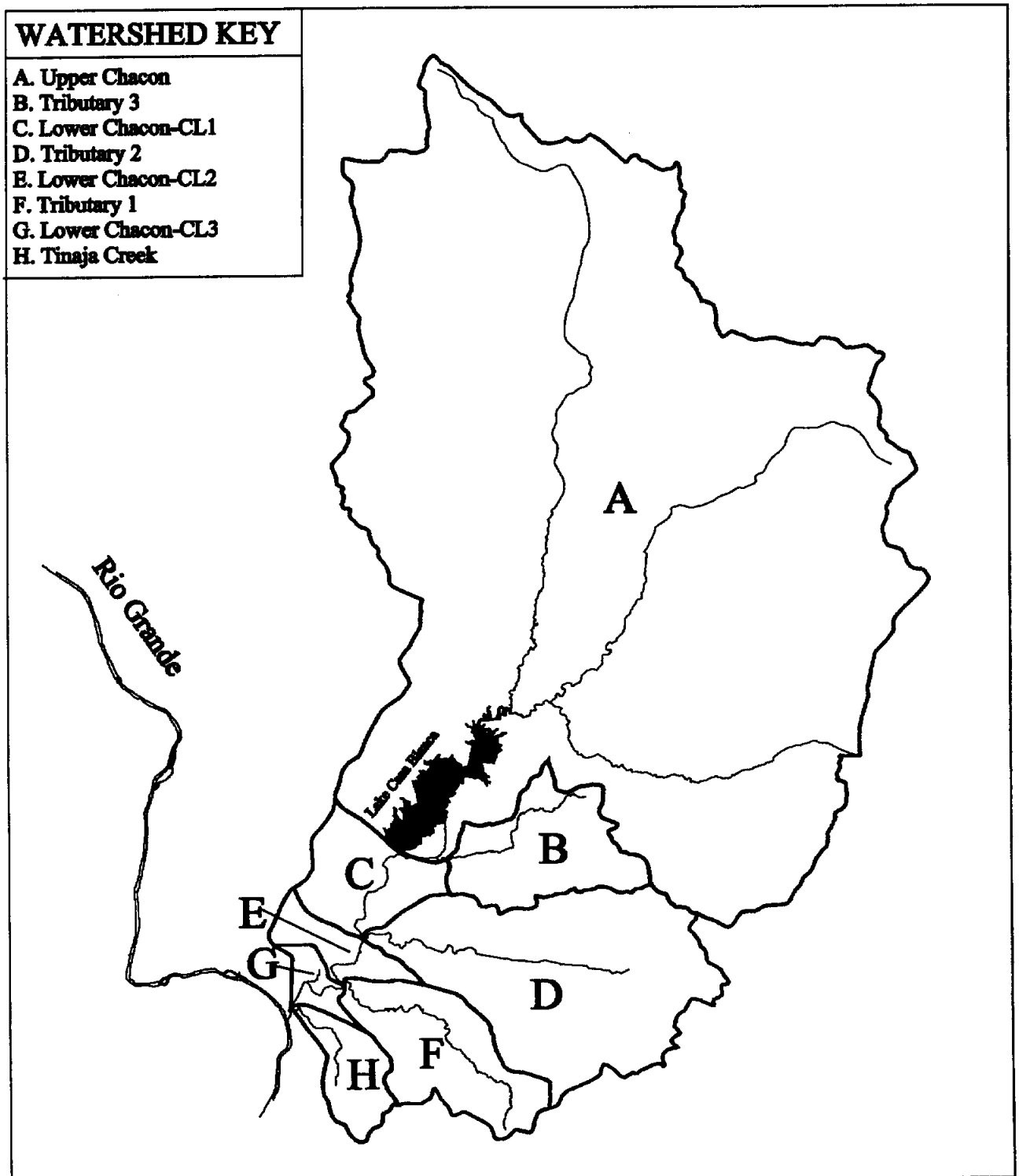


Figure 1. Chacon Creek Watershed Future Land Use

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	380.48	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	406.66				
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	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 (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 Structure	Invert Elev. (ft)	Top of culvert Elev. (ft)	Top of road Elev. (ft)
		Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2				
	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 Structure	Invert Elev. (ft)	Top of culvert Elev. (ft)	Top of road Elev. (ft)
		Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2				
	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) FIS update	100-YR WSEL (ft) Scenario 1	Hydrulic Structure	Flow Line Elev. (ft)	Low Chord Elev. (ft)	Top of Road 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	408.58	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	398.80	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

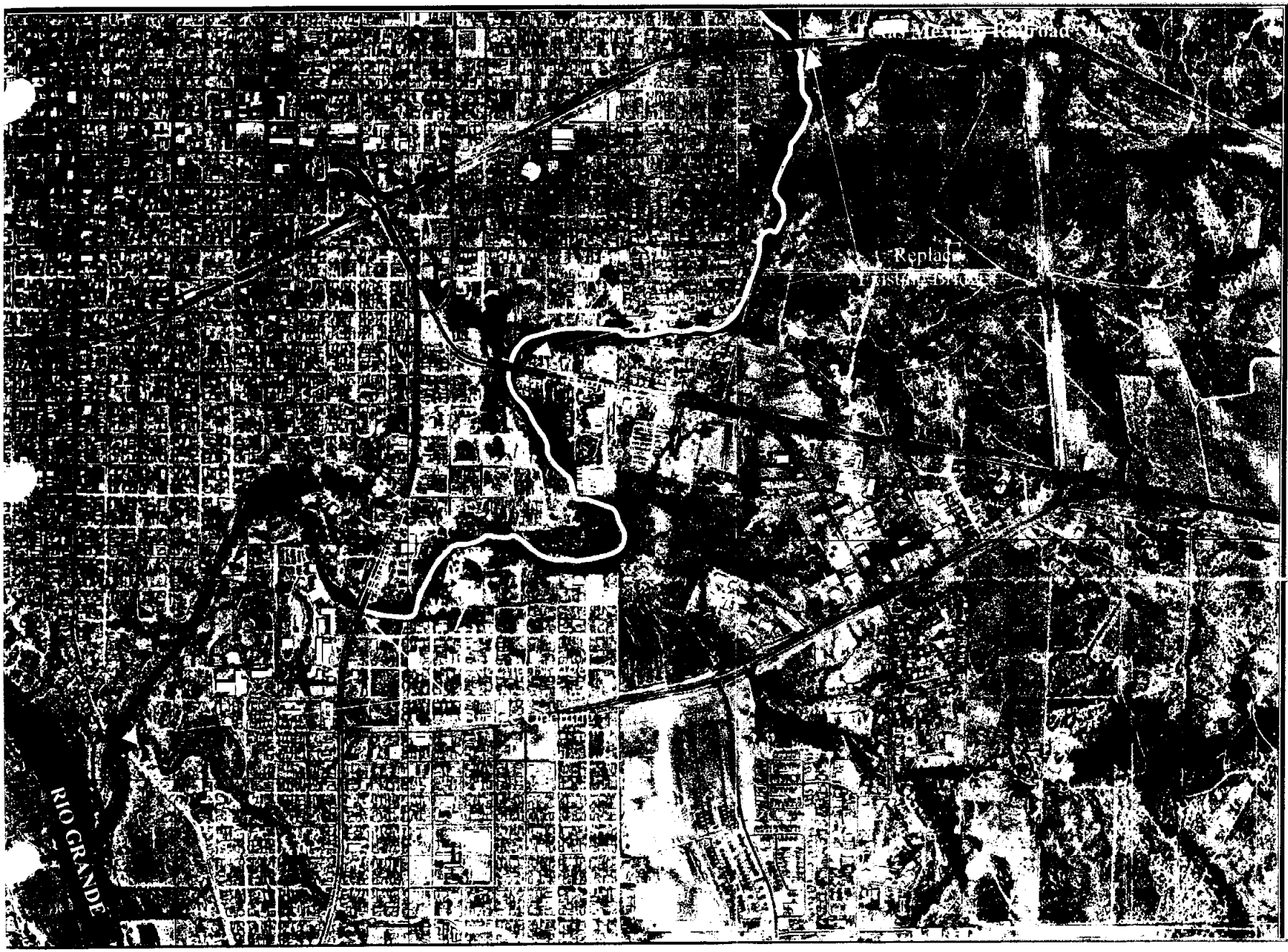
TABLE 13

"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

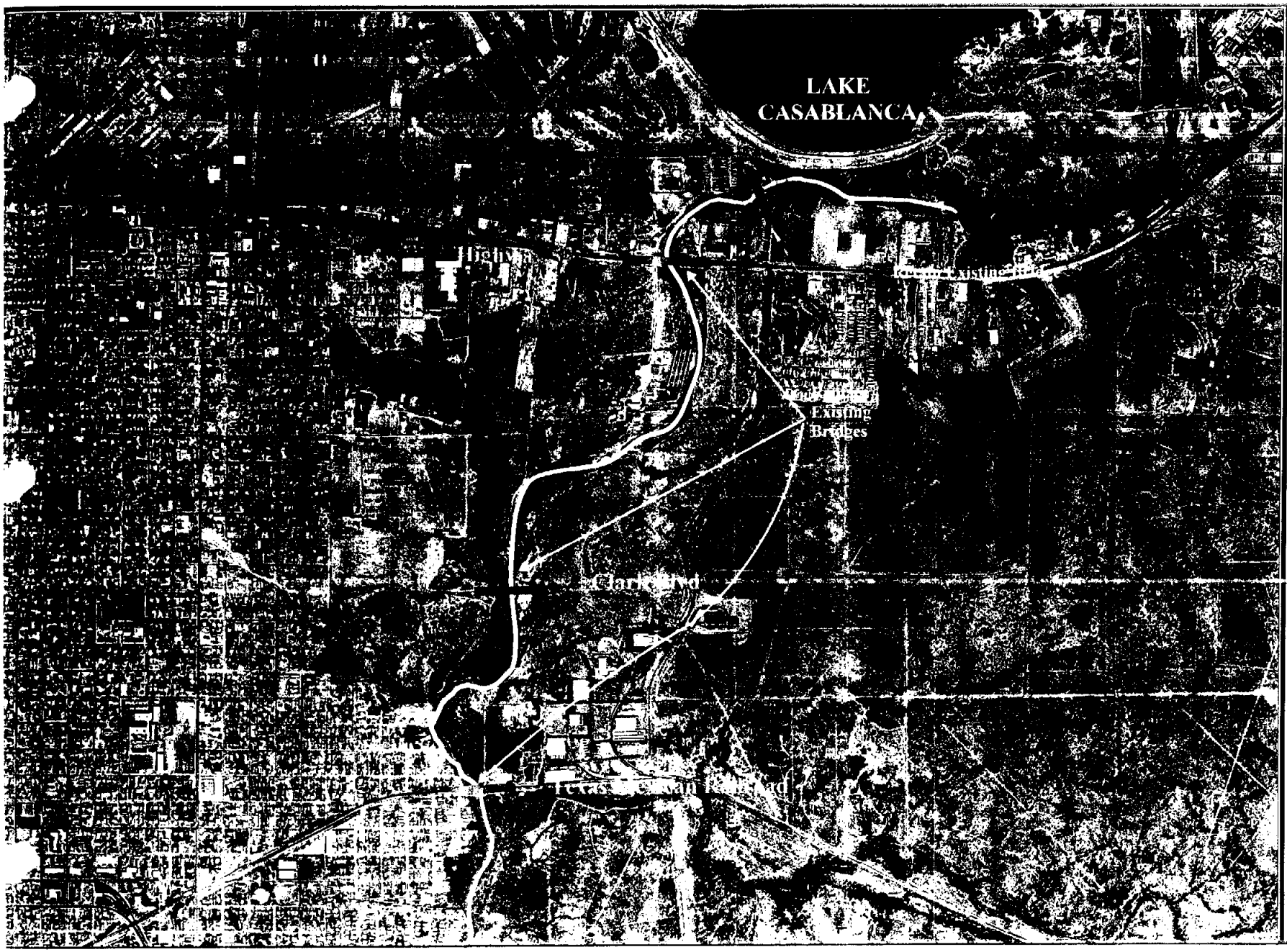
CHACON CREEK

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 Remo
Replace Existing Bridge

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

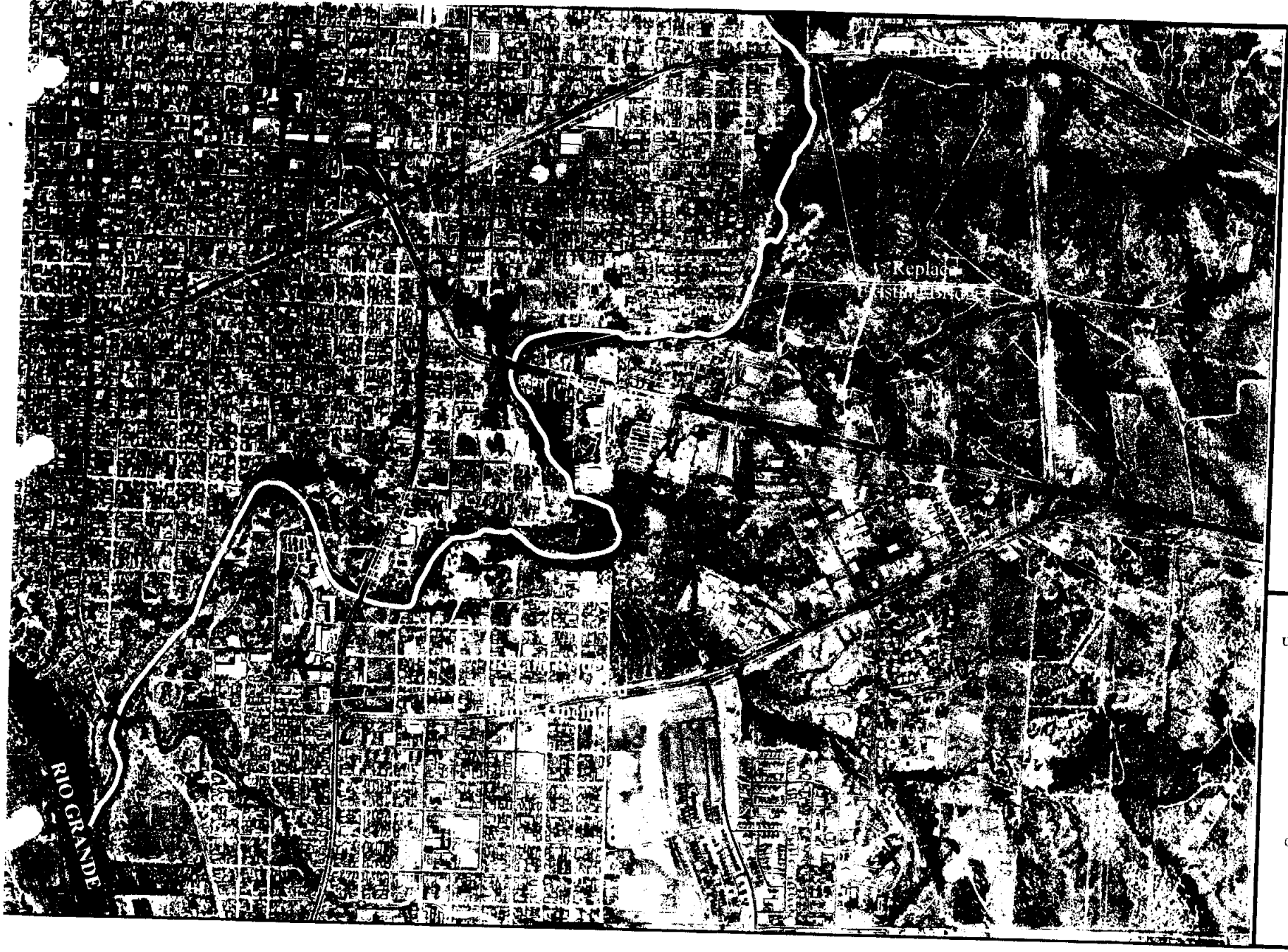
N

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

Concrete Lined Channel Improvement.
200 Ft. Bottom Width

Existing Bridge to Remain
Replace Existing Bridge

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

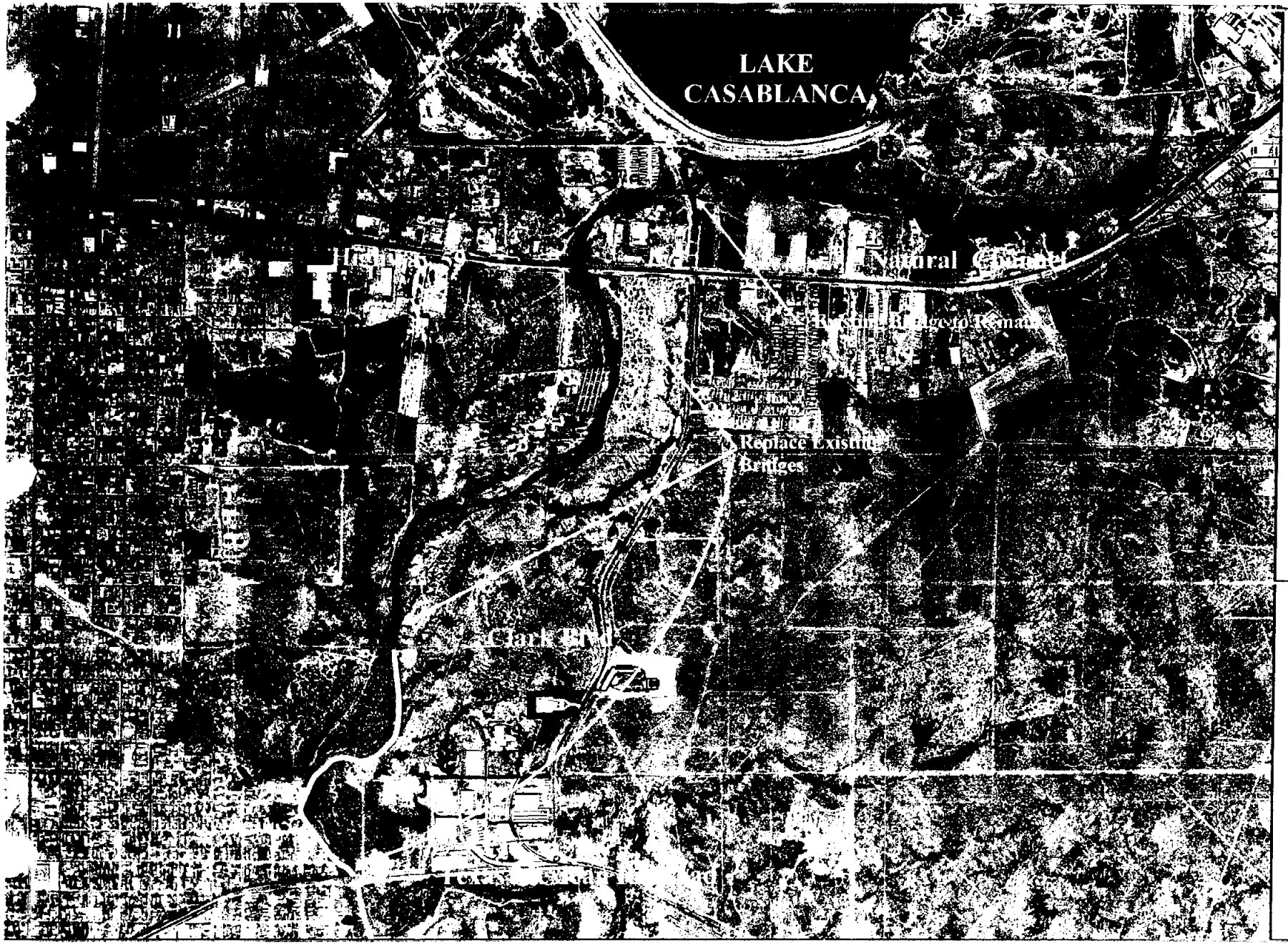
N

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

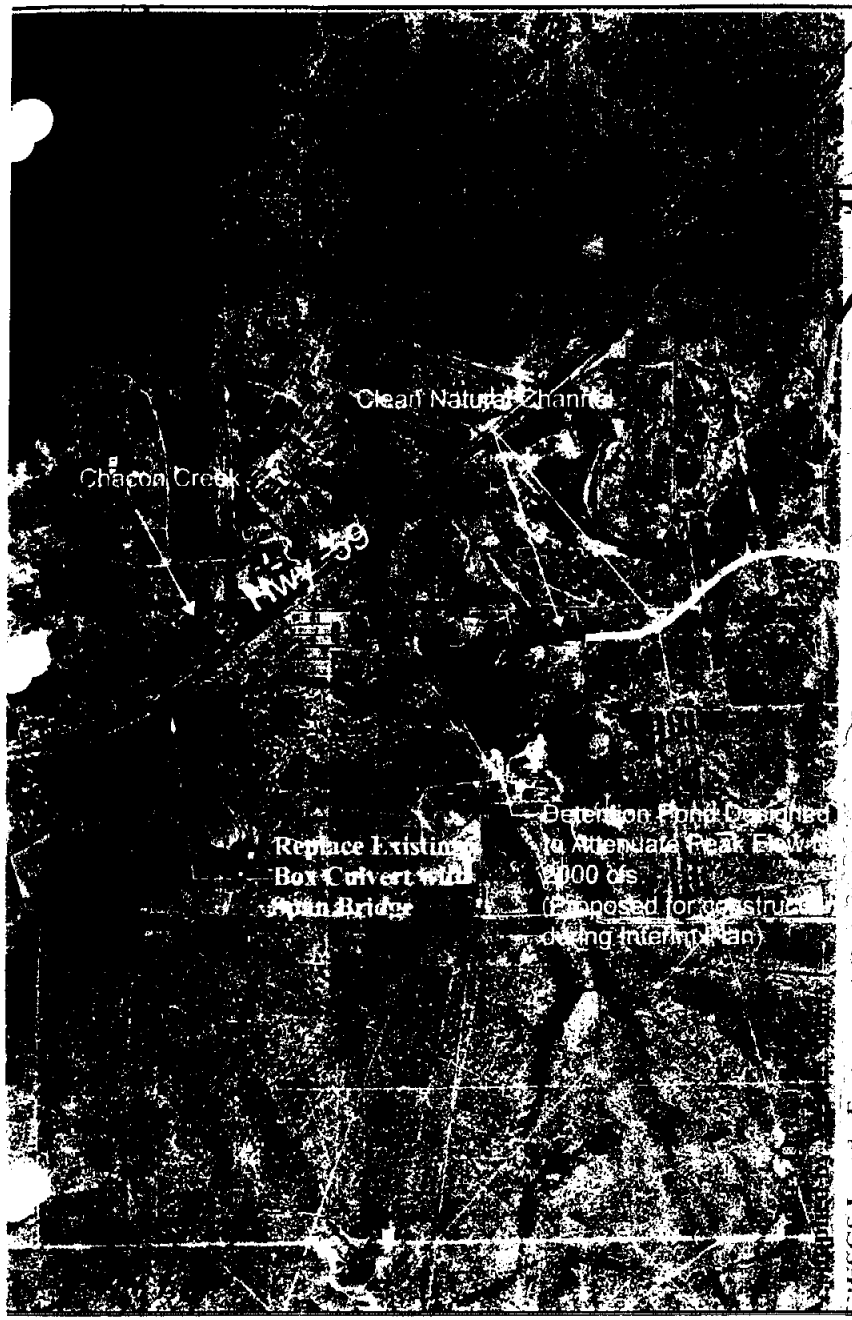
Alternative 2:

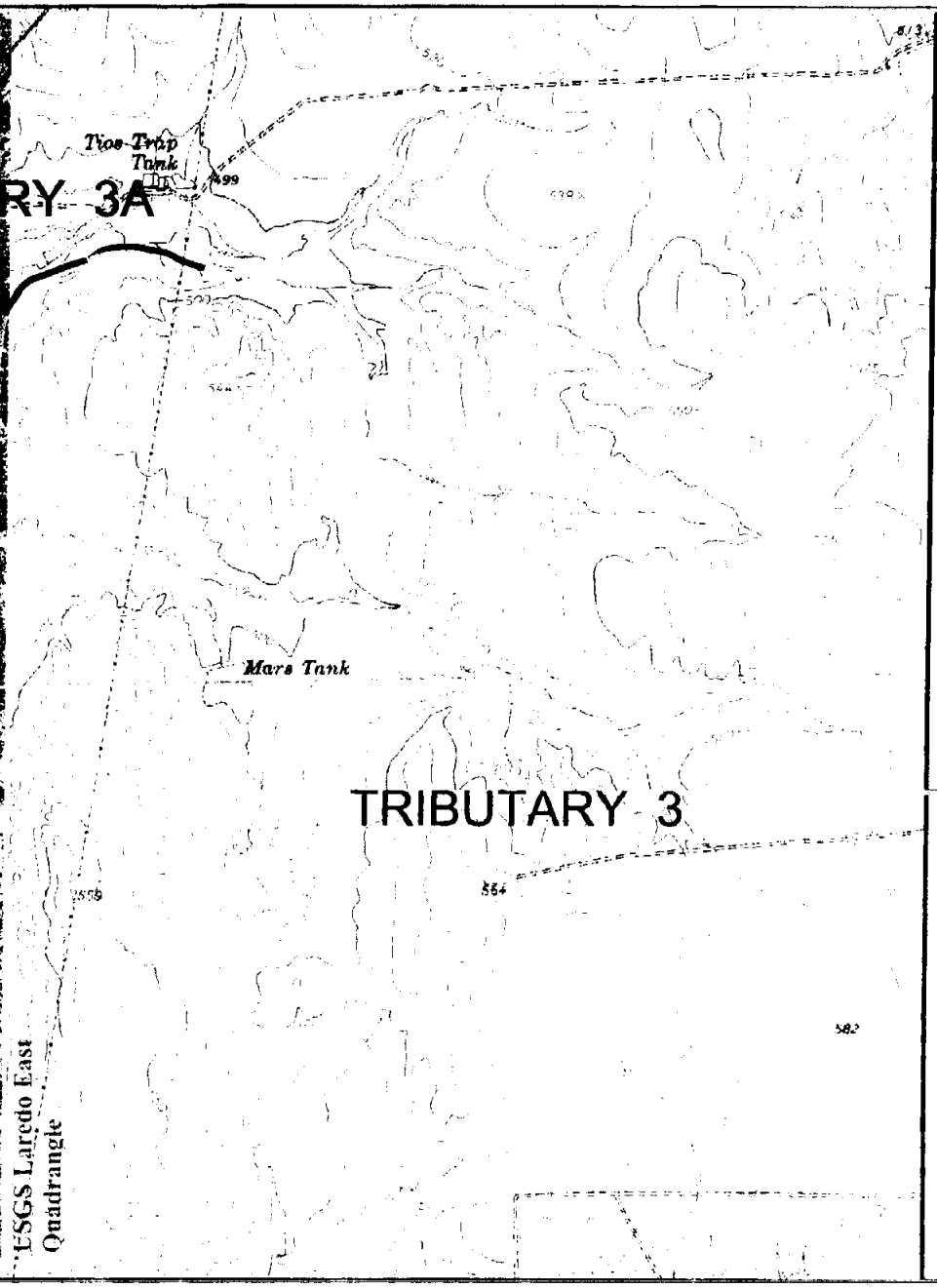
Concrete Lined Channel

Chacon Creek Watershed

Exhibit 4

Revised Date: November 1999





KEY TO MAP

Existing Channel
Clean Natural Channel
Proposed Detention Pond
Replace Existing Box Culvert with Span Bridge
Proposed Channel Improvements

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

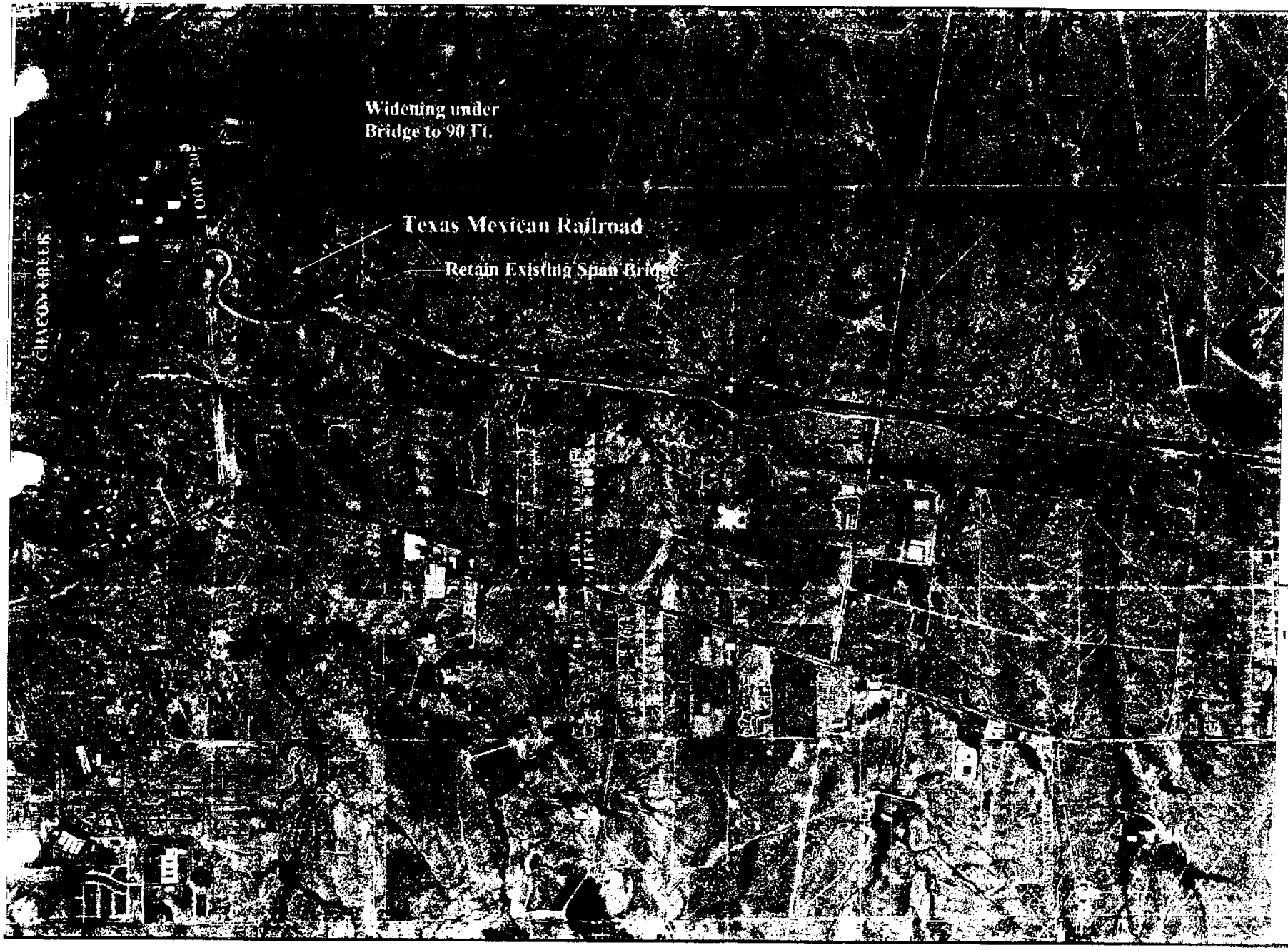
TRIBUTARY 3 & TRIBUTARY 3A

STORMWATER ULTIMATE DRAINAGE PLAN

Channel Improvement

Chacon Creek Watershed
Exhibit 5

Revised Date: November 1999



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

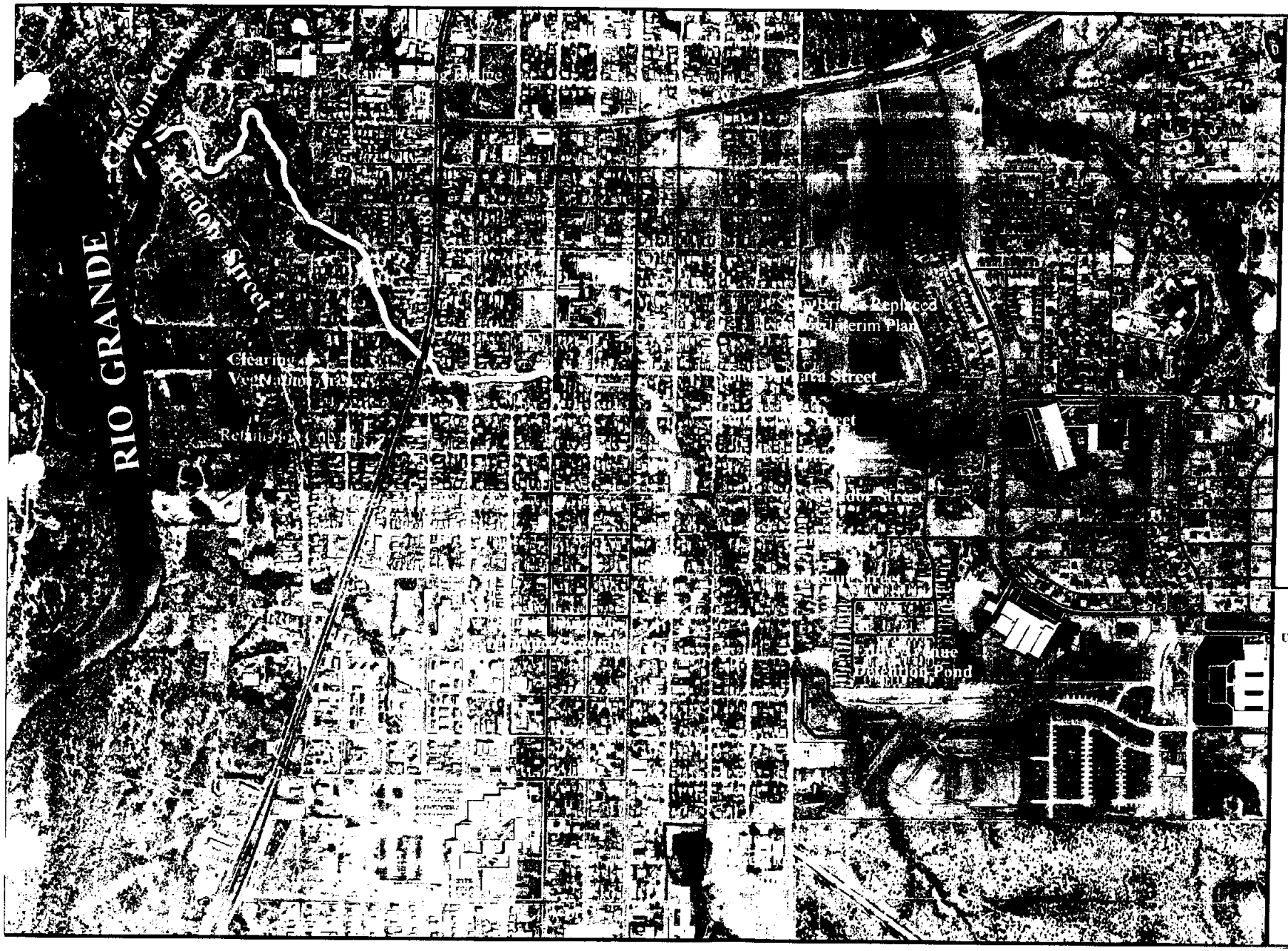
N

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

TINAJA CREEK
Ultimate Drainage Plan

1. Replace existing culverts with a span bridge at the intersection of 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

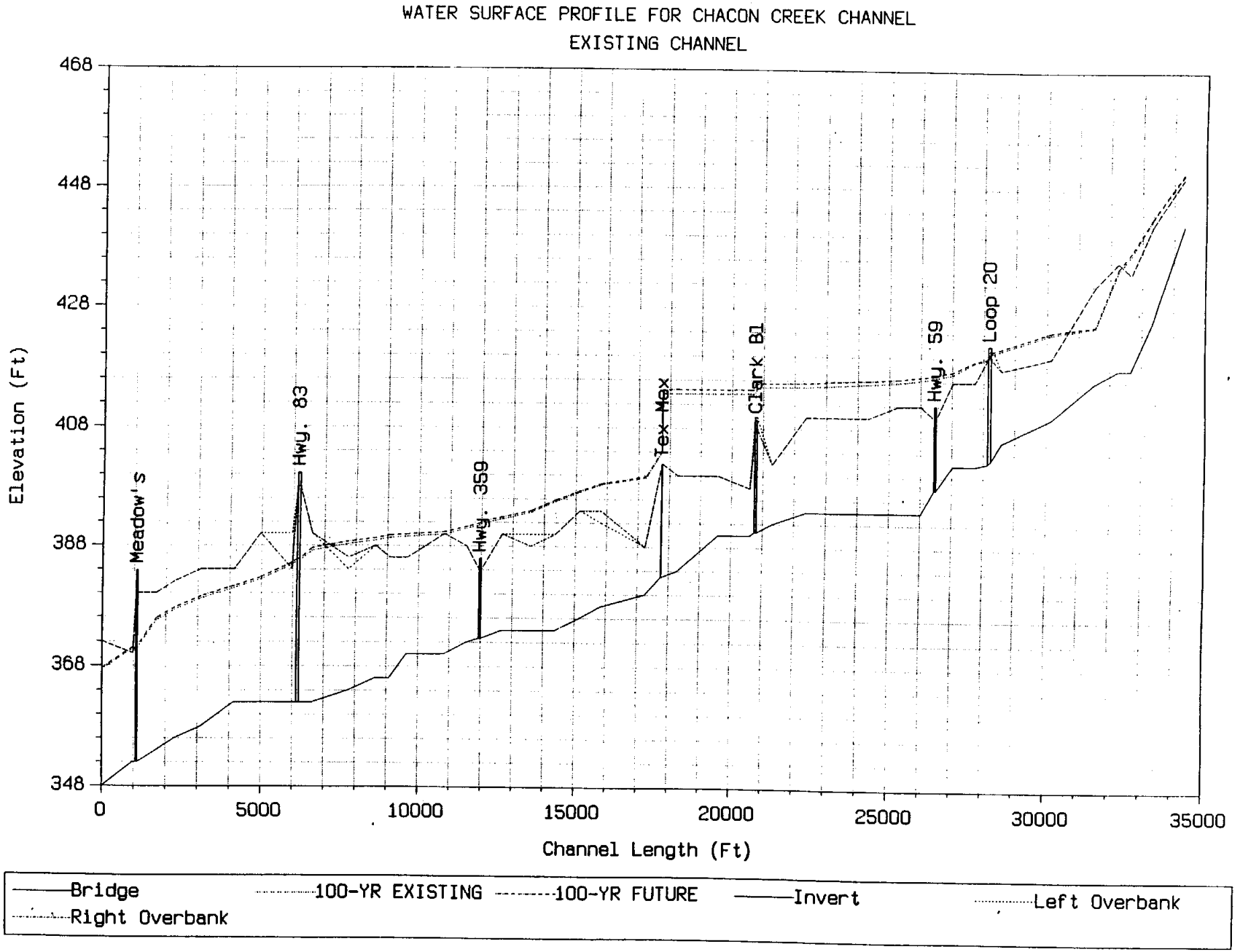
Chacon Creek Watershed
Exhibit 8

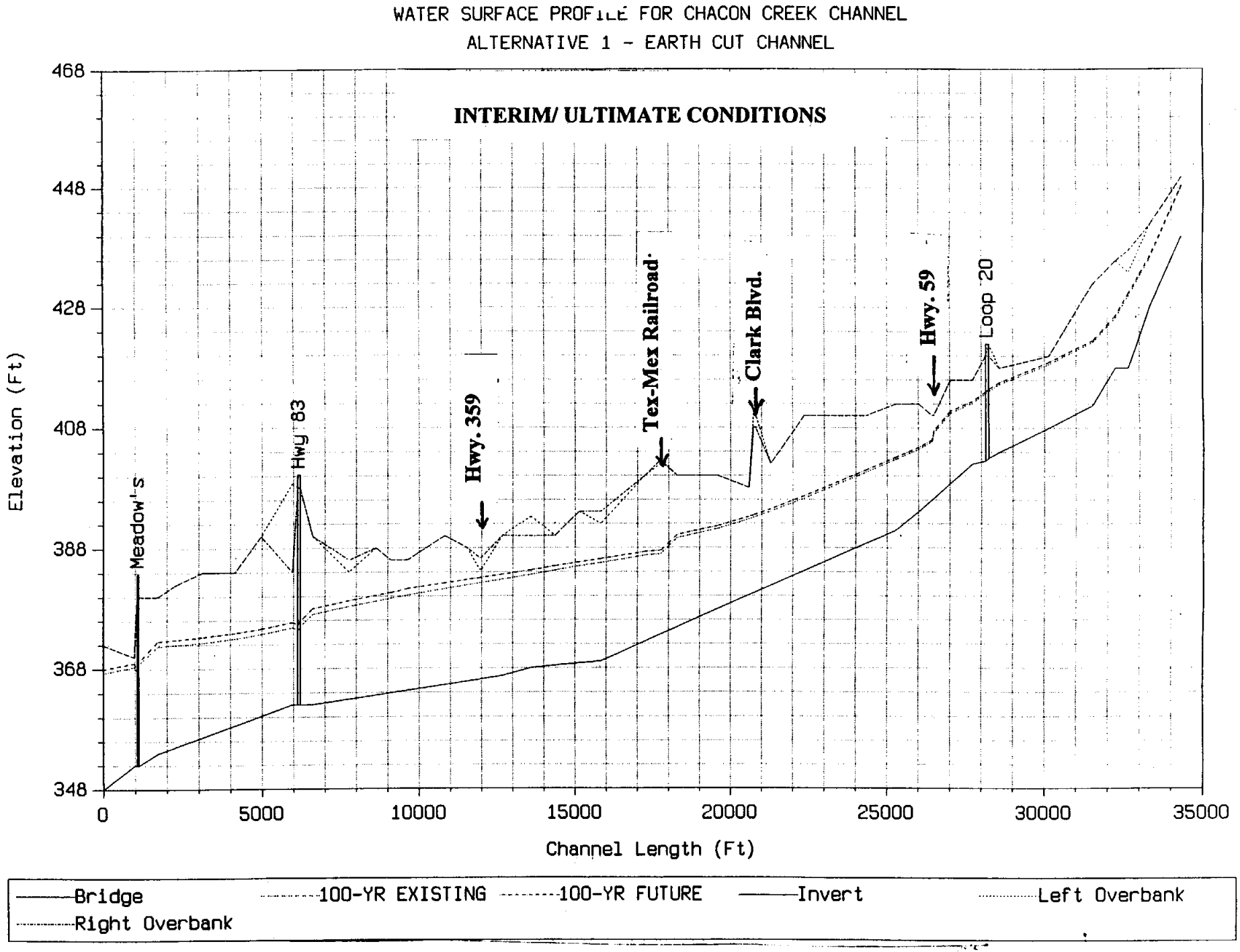
Revised Date: November 1999

APPENDIX A

WATER SURFACE PROFILES

Chacon Creek Main Channel

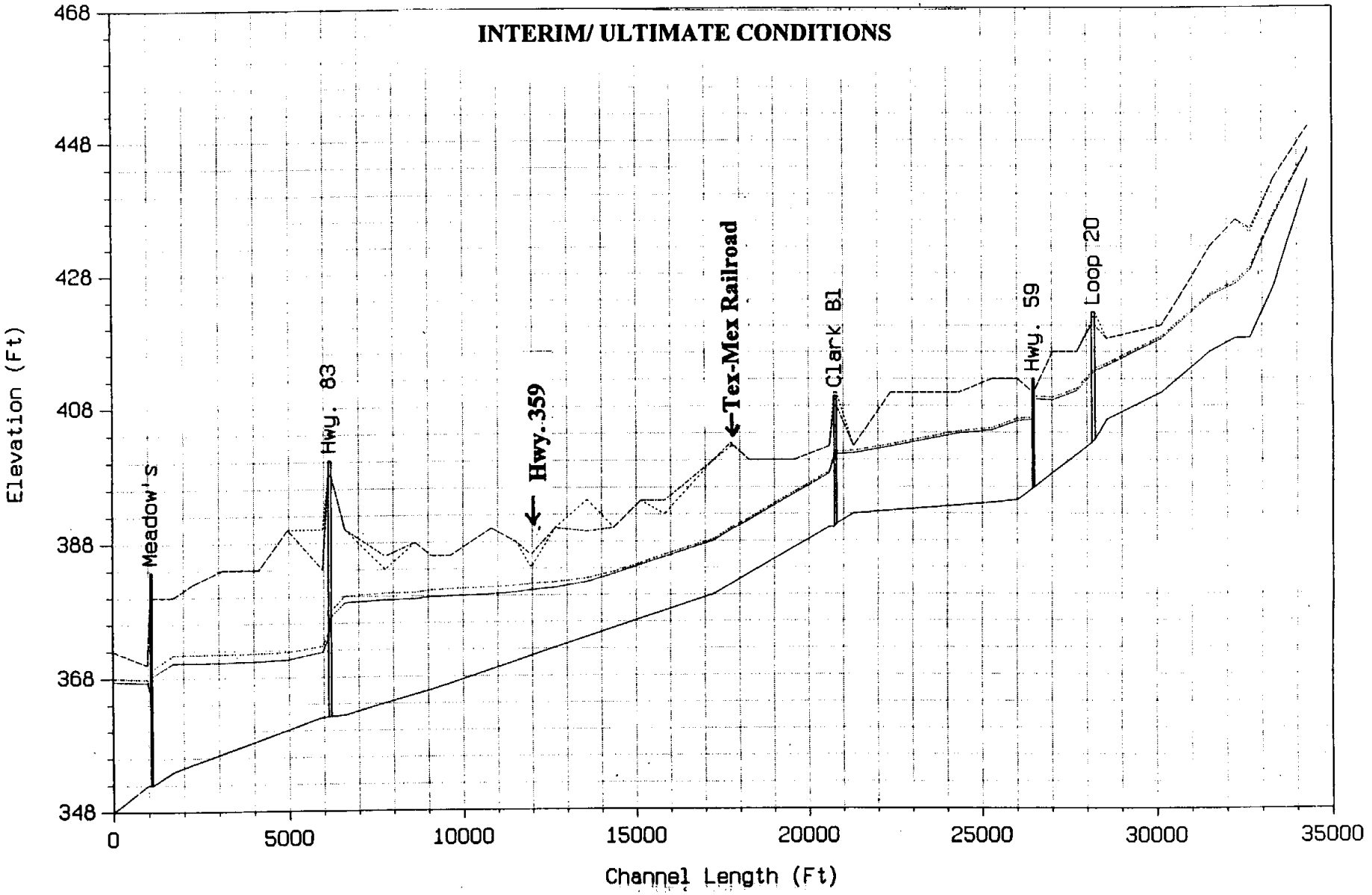

WATER SURFACE PROFILE FOR CHACON CREEK CHANNEL
EXISTING CHANNEL
Elevation (Ft)
468
448
428
408
388
368
348
0
5000
10000
15000
20000
25000
30000
35000
Channel Length (Ft)
Meadow's
Hwy. 83
Hwy. 359
Tex Mex
Clark Bl
Hwy. 59
Loop 20
Bridge
100-YR EXISTING
100-YR FUTURE
Invert
Left Overbank
Right Overbank



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

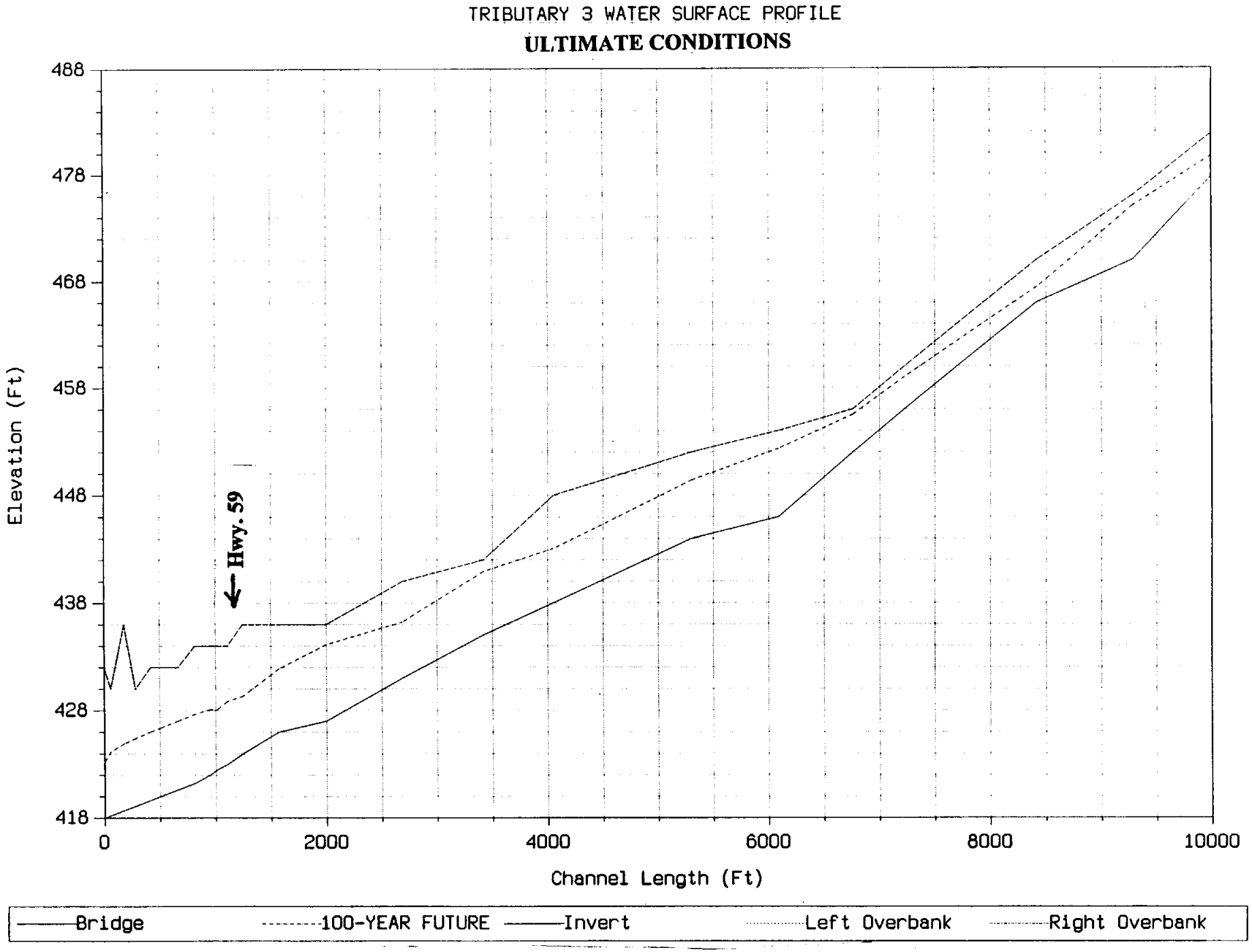
WATER SURFACE PROFILE FOR CHACON CREEK CHANNEL

ALTERNATIVE 2 - CONCRETE LINED CHANNEL



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

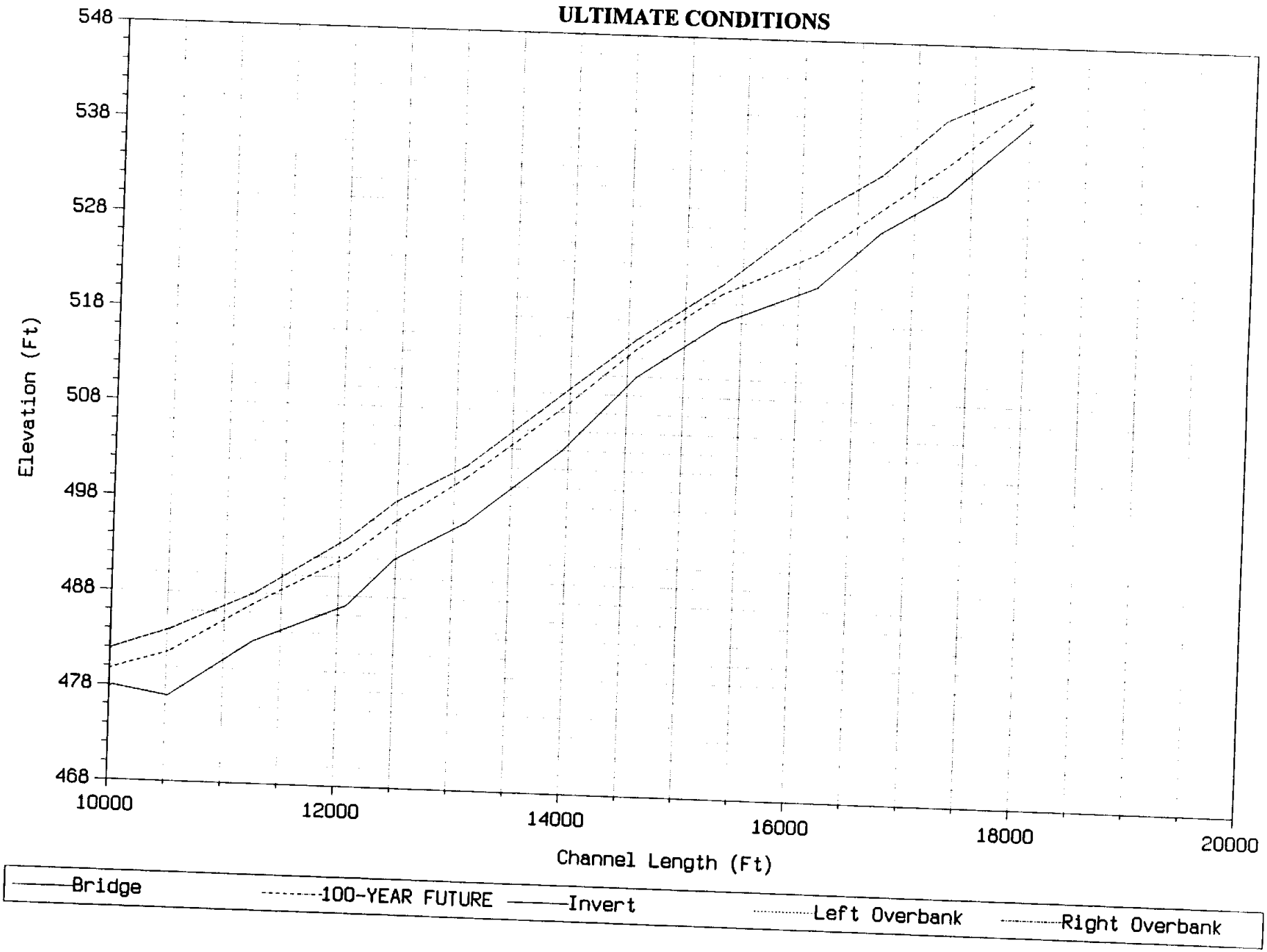
Tributary 3



Replace culvert at Hwy. 59 with span bridge

TRIBUTARY 3 WATER SURFACE PROFILE

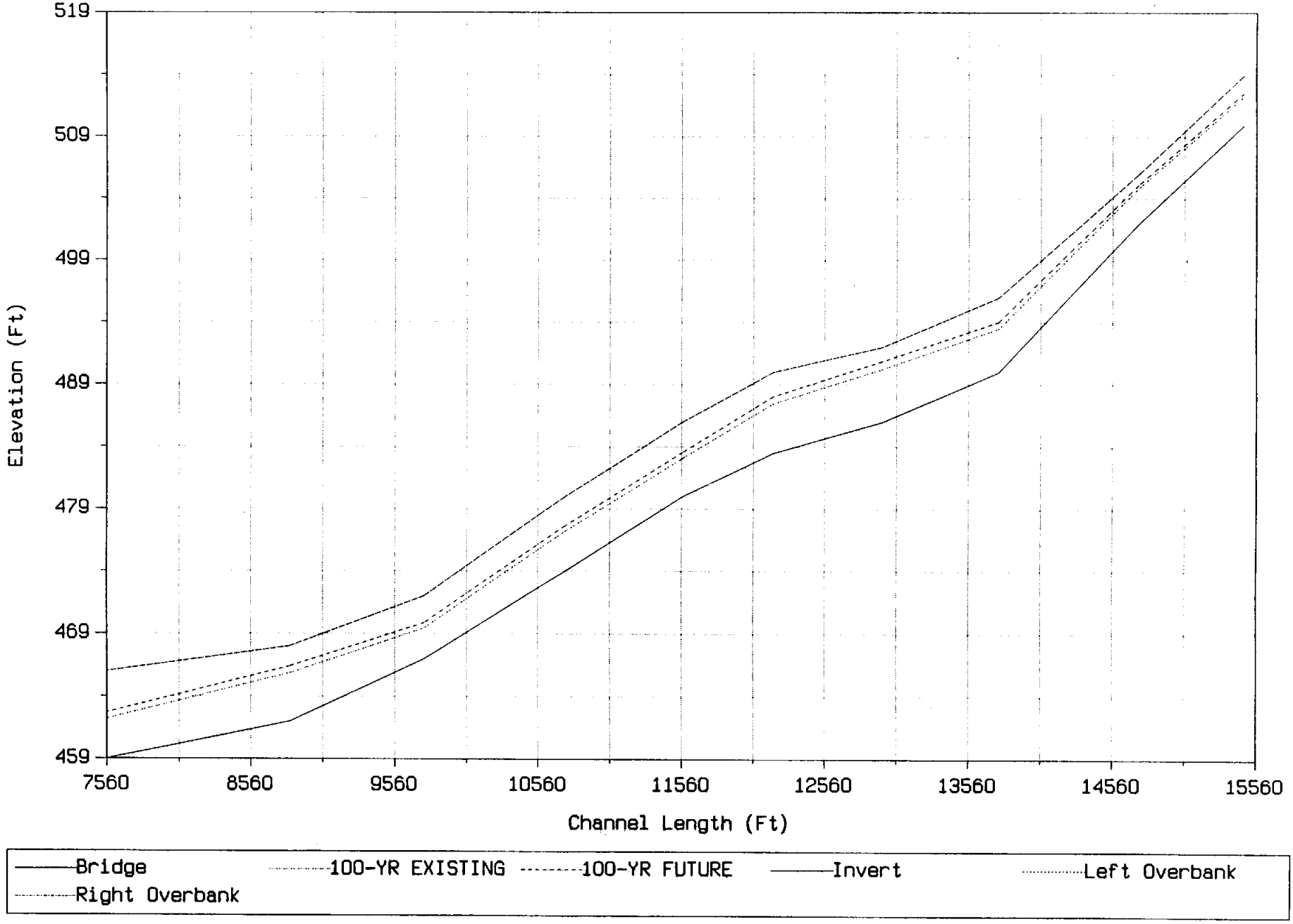
ULTIMATE CONDITIONS



Tributary 3A

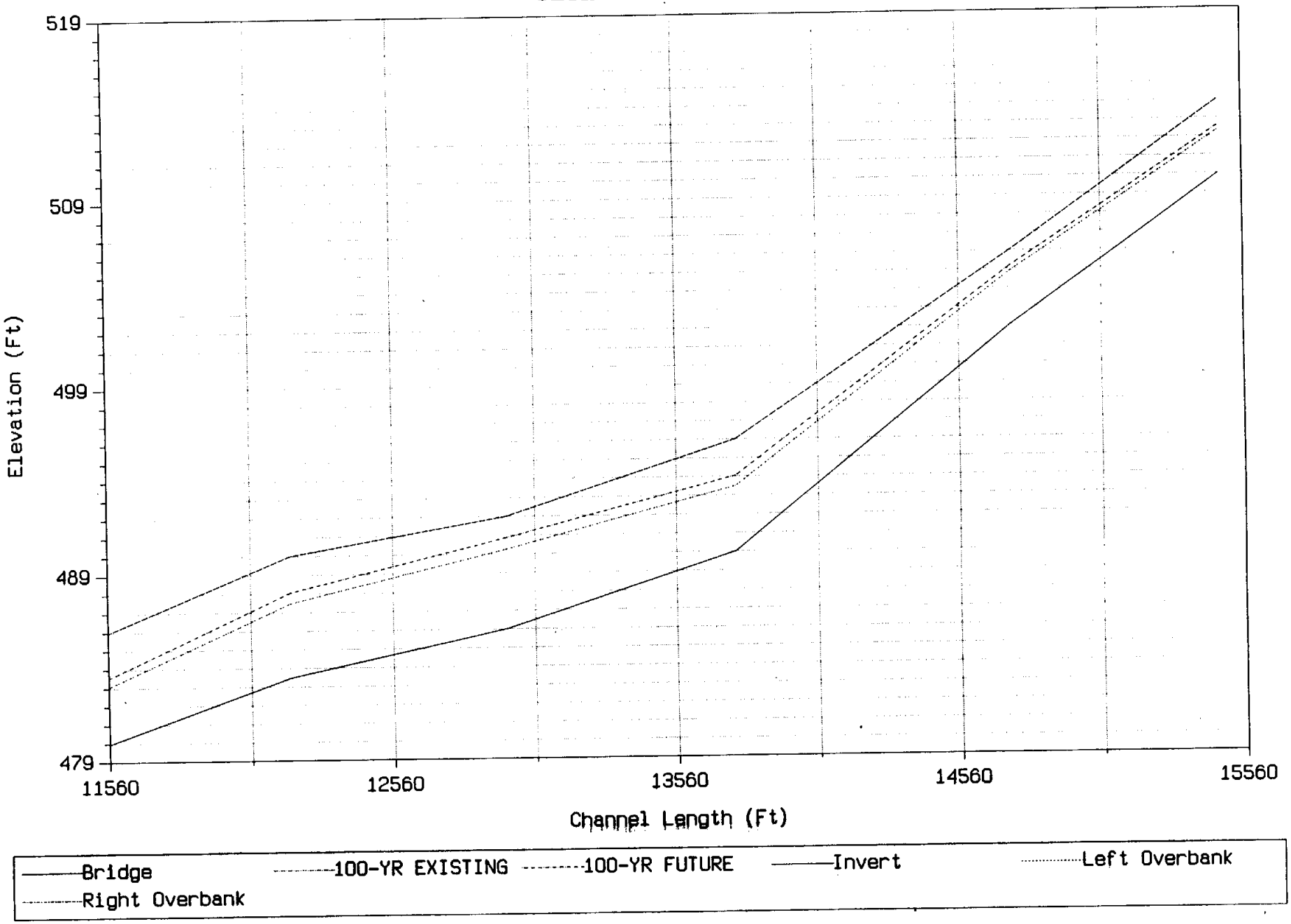
TRIBUTARY 3A WATER SURFACE PROFILES

ULTIMATE CONDITIONS

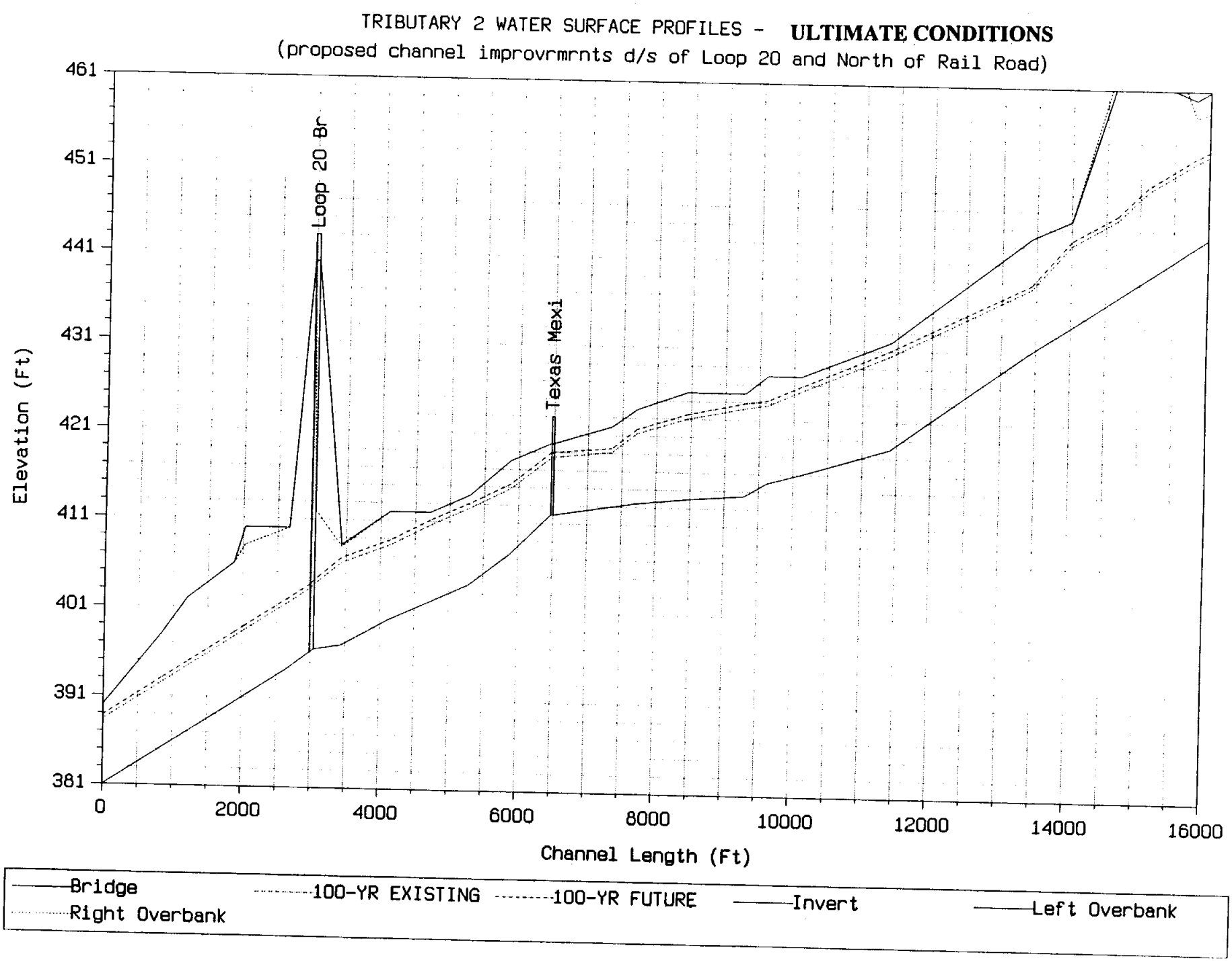


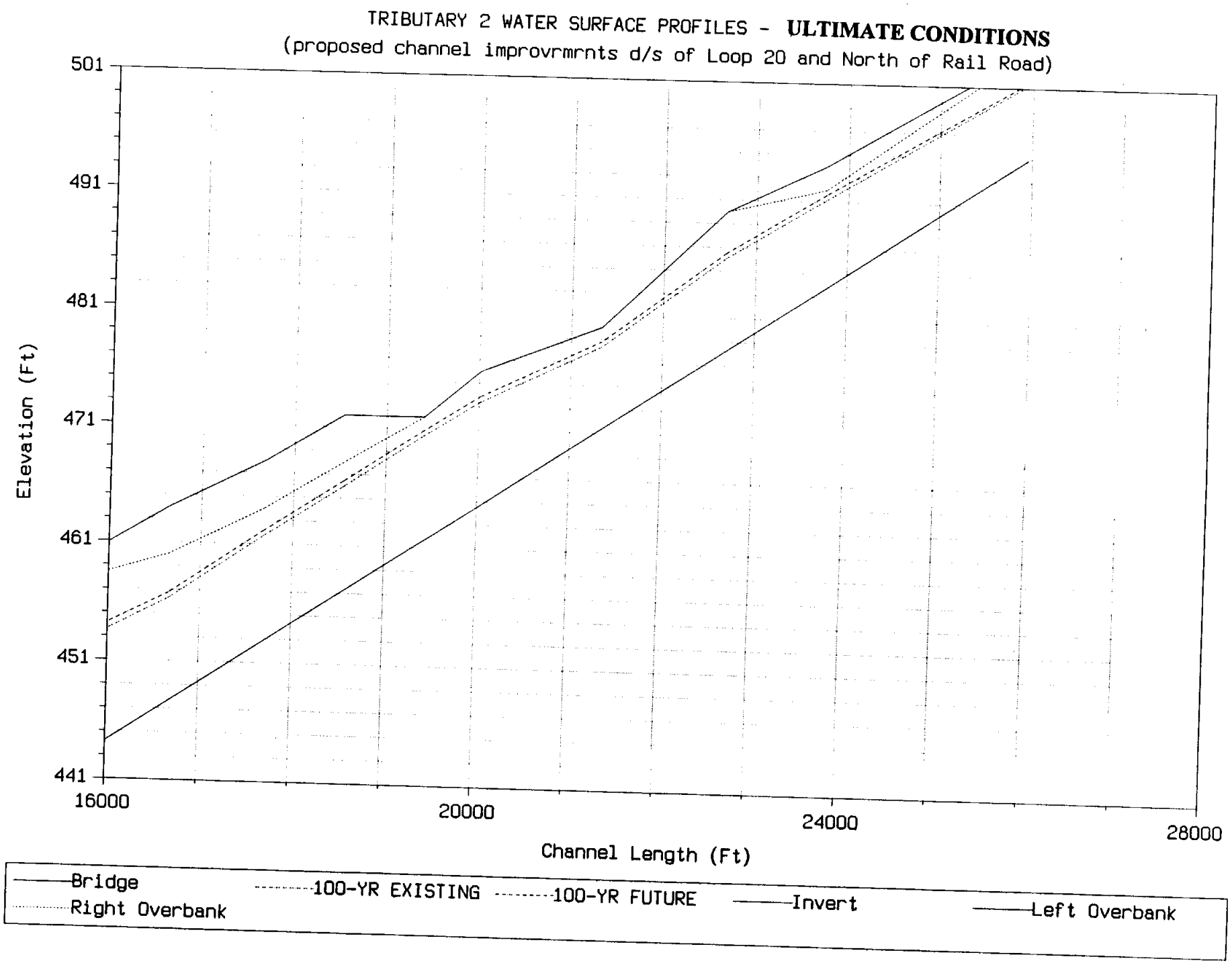
TRIBUTARY 3A WATER SURFACE PROFILES

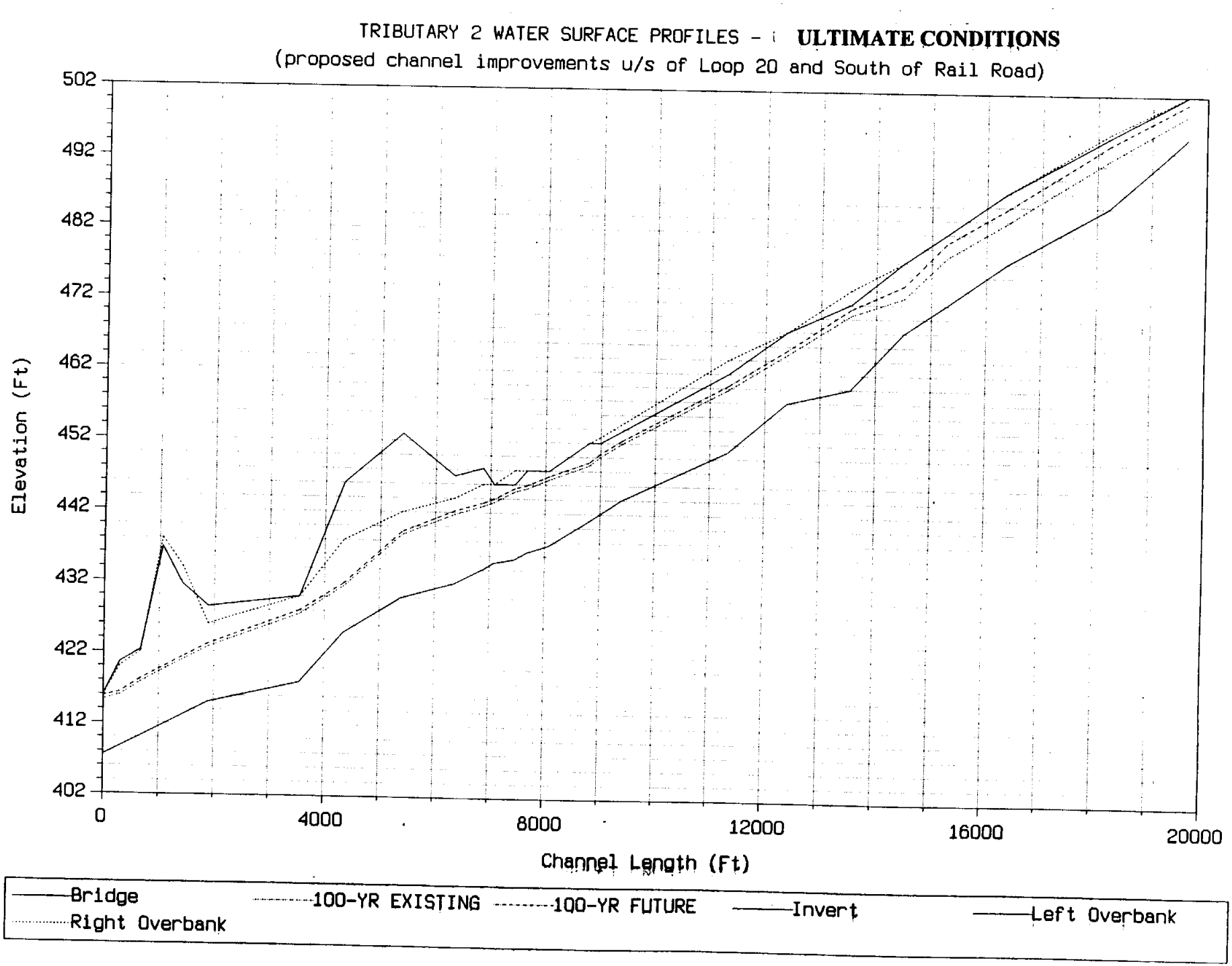
ULTIMATE CONDITIONS



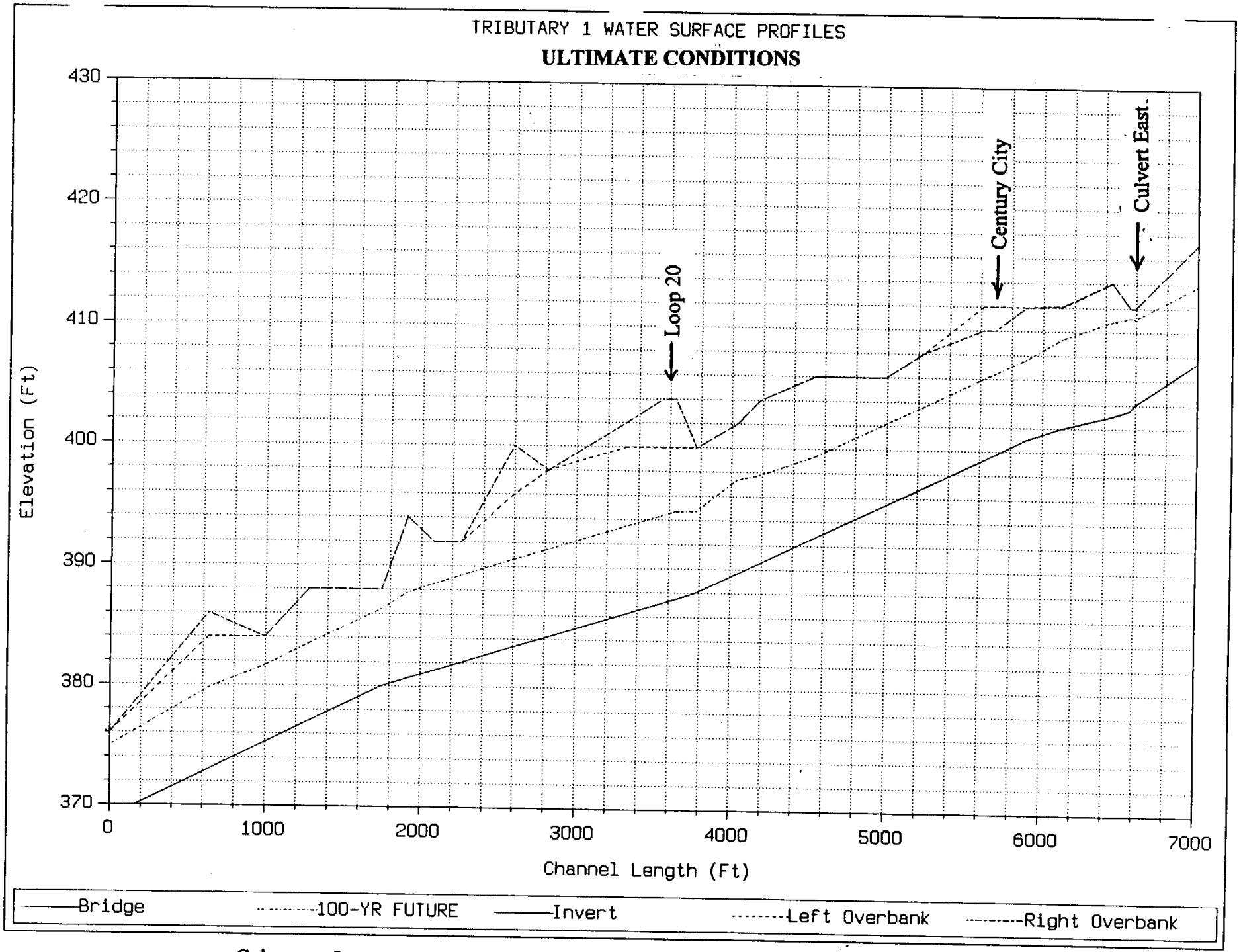
Tributary 2


TRIBUTARY 2 WATER SURFACE PROFILES - ULTIMATE CONDITIONS
(proposed channel improvrmrnts d/s of Loop 20 and North of Rail Road)
Elevation (Ft)
461
451
441
431
421
411
401
391
381
Loop 20 Br
Texas Mexi
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)
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 - 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

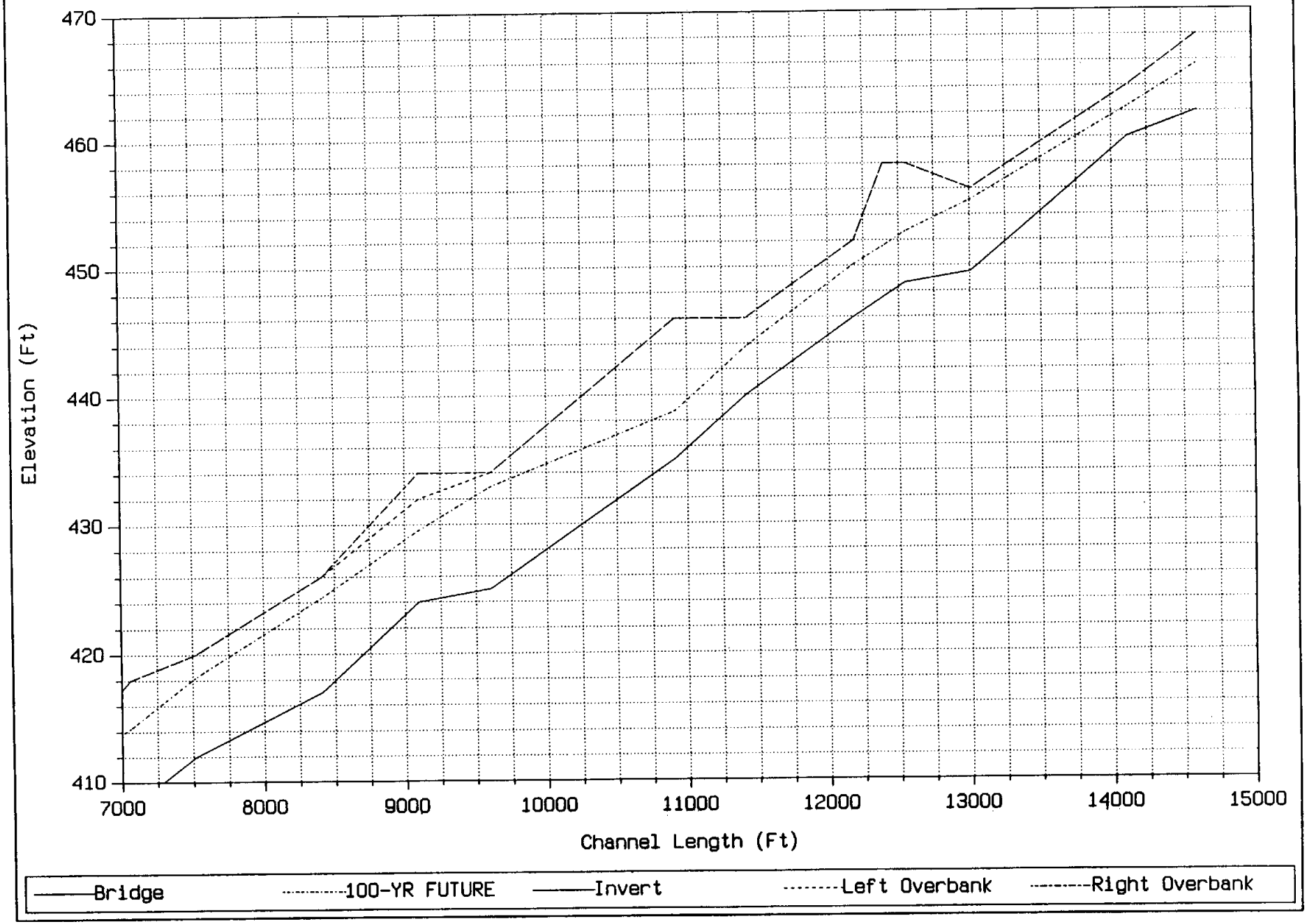
Tributary 1



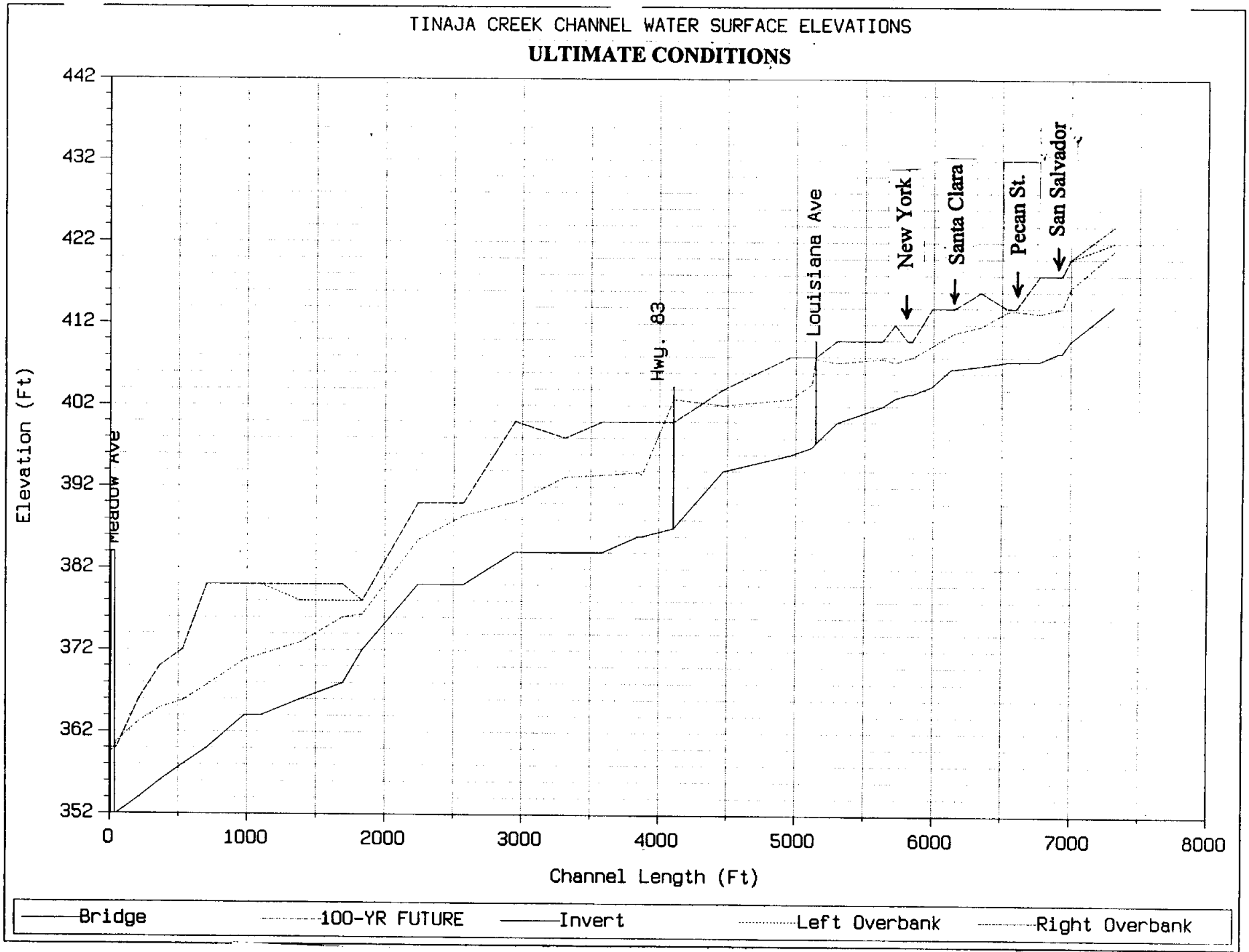
Culverts at Loop 20, Century City & East of Century City to be replaced by Span bridges

TRIBUTARY 1 WATER SURFACE PROFILES

ULTIMATE CONDITIONS



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:

   April 7, 1999
   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:

April 7, 1999
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.

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.