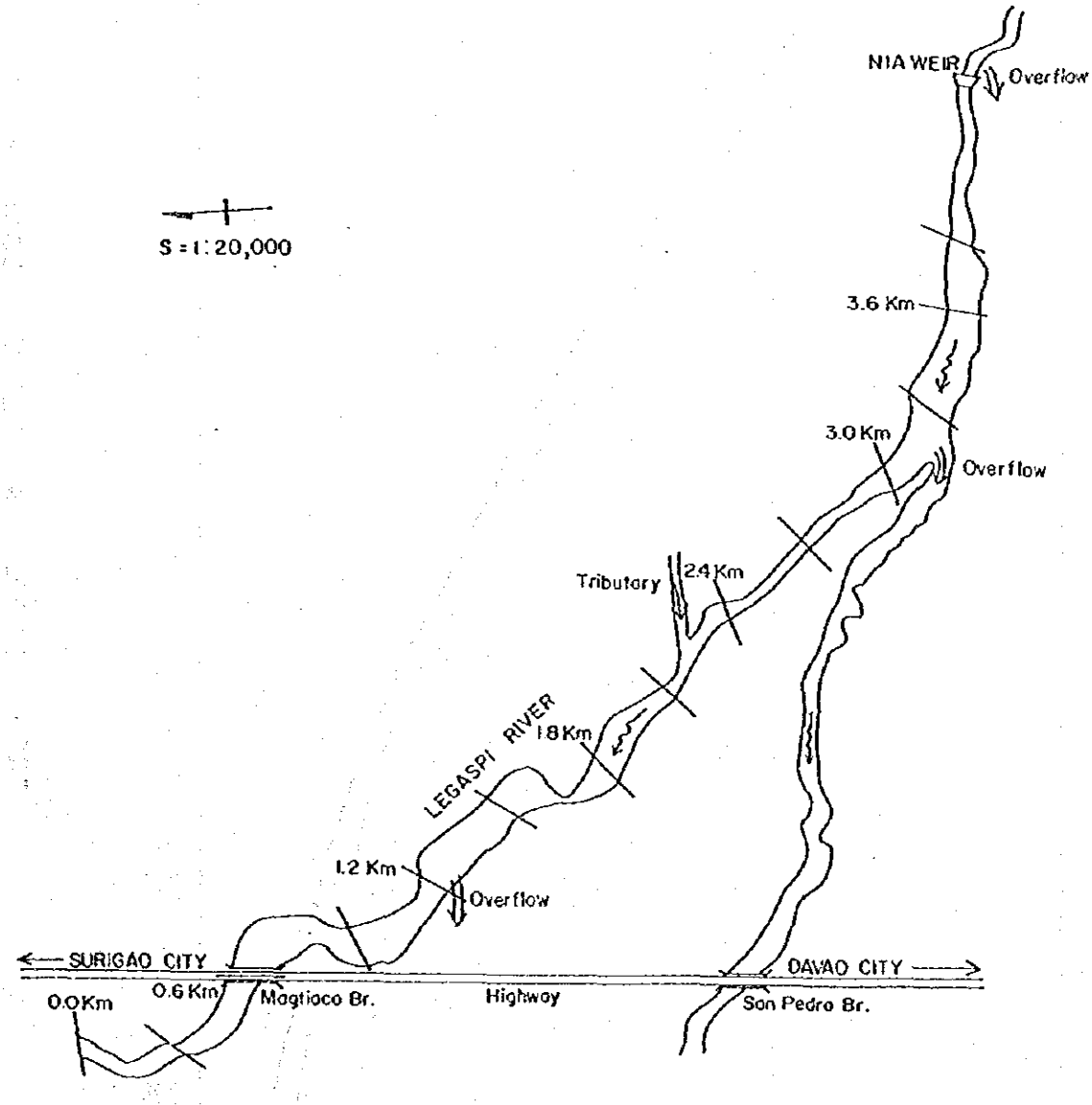
APPENDIX 6.6-1

NON-UNIFORM FLOW ANALYSIS

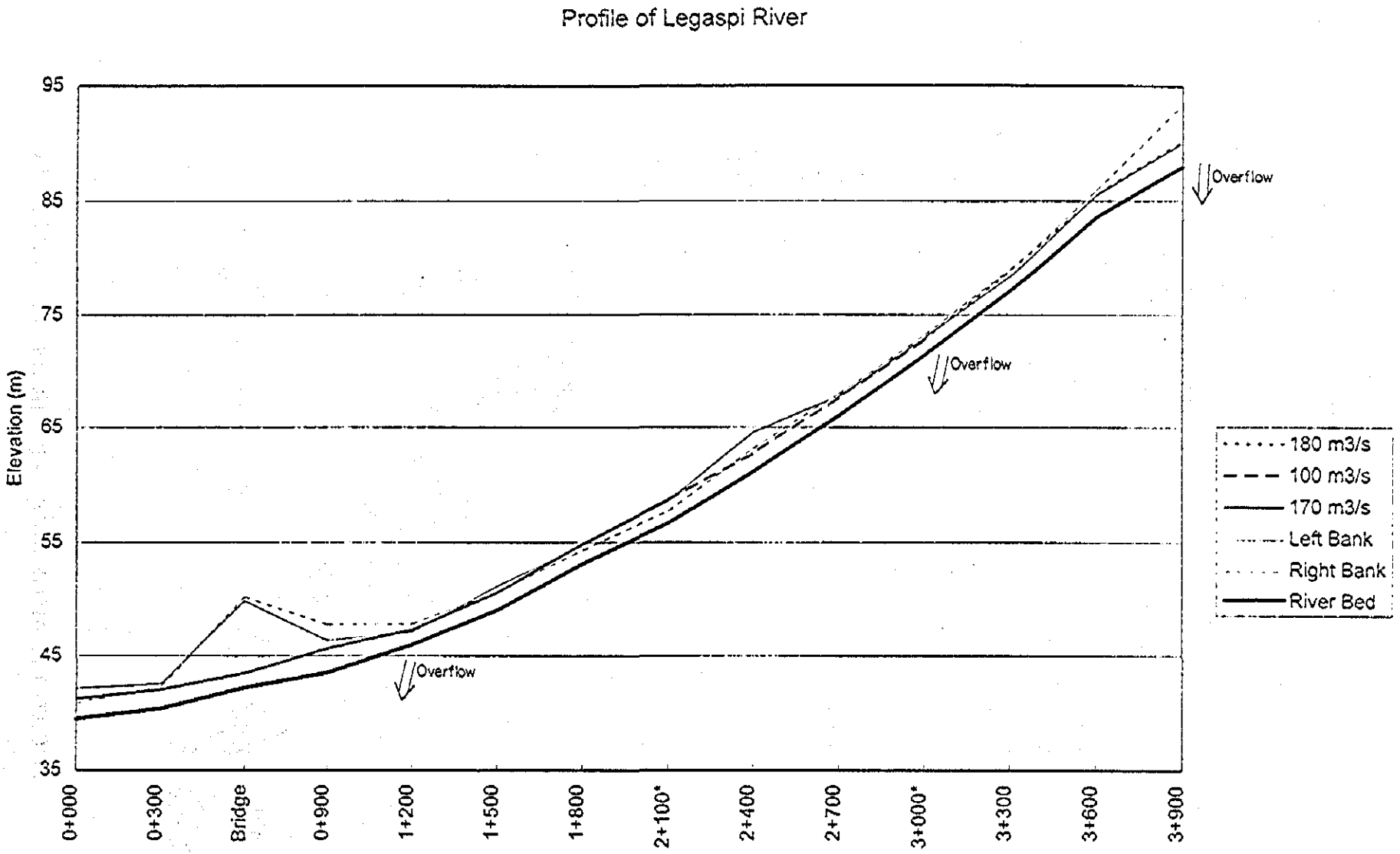
RESULT OF ANALYSIS

Legaspi RIVER NON-UNIFORM FLOW CALCULATION 171m3/s

NO	D-NAME	H	A	R	B	V
1	2.0km	42.000	229.0	1.109	208.7	.747
2	3.0km	43.460	73.5	.601	120.1	2.328
3	4.0km	45.667	147.9	.734	200.1	1.157
4	5.0km	47.322	74.6	.572	129.4	2.294
5	6.0km	50.645	89.5	.582	151.5	1.910
6	7.0km	54.876	87.0	.617	134.8	1.965
7	8.0km	58.734	89.5	.583	151.6	1.911



LOCATION MAP OF CROSS-SECTIONS: LEGASPI RIVER



PROFILE OF HIGH WATER LEVEL: LEGASPI RIVER

INPUT DATA

```
   0    0    0    1    1    0    1    1    0    0
        Magtco  RIVER  NON-UNIFORM FLOW CALCULATION
   7    0    1.0      0.0005      0.8       1.000     0.0005      0.5
  DANMEN TOKUSEI   untill 0.0 K ------EXISTING CROSS SECTION
   1
   1    0    1    0
2.0km          0.0       0.03      41.0       0.5       10   21     1   18
  -100.00      42.11     -47.50     41.97     -40.49      41.90    -32.63     41.93
   -23.52      41.87     -17.59     41.48     -12.21      41.15     -7.59     40.05
    -3.00      40.11       0.00     40.60       8.70      40.75     18.41     40.29
    21.13      39.85      22.31     39.46      26.84      39.47     31.97     39.85
    33.79      41.11      40.83     41.12      55.96      41.02     61.50     40.71
   150.00      40.71
3.0km          340.0       0.03      43.0       0.5       10   41     4   39
   -35.23      49.55     -23.03     49.66     -13.35      49.75      0.00     49.91
     1.90      49.12       5.57     48.26      12.07      44.56     25.54     44.17
    32.15      44.13      34.87     43.18      38.46      43.50     40.44     43.99
    47.76      43.15      51.81     42.77      58.22      42.92     62.64     43.19
    70.28      43.40      75.17     42.52      80.58      42.32     86.68     42.58
    90.58      42.86      96.99     42.59      98.12      42.40    100.76     42.53
   102.39      42.55     103.82     42.42     108.93      42.19    113.80     42.43
   119.18      43.26     133.85     43.15     146.63      42.91    160.11     42.73
   163.37      43.25     167.44     44.47     182.31      44.31    184.82     45.77
   188.64      48.16     192.00     48.83     192.42      50.25    211.74     49.80
   225.59      49.58
4.0km          350.0       0.03      44.0       0.5       10   27     1   27
  -134.33      46.35    -130.53     46.35    -126.77      46.30   -111.80     45.91
   -99.49      45.20     -80.37     44.39     -76.77      44.29    -70.53     44.35
   -69.10      44.96     -61.68     45.02     -40.33      45.10    -16.83     45.21
     0.00      45.13       5.34     44.90       6.45      43.94     10.91     43.54
    17.27      43.93      22.15     44.70      31.12      45.01     42.36     44.95
    48.47      44.57      57.65     44.57      63.35      45.28     73.07     45.36
    78.00      45.62      86.01     45.11      94.51      45.73
5.0km          315.0       0.03      47.0       0.5       10   24     1   24
   -70.65      47.13     -60.65     47.13     -52.54      47.14    -37.60     46.85
   -24.94      47.33     -12.69     47.47       0.00      47.18     26.31     47.50
    39.03      46.71      44.98     46.40      50.41      46.41     52.56     47.86
    64.45      47.44      69.25     46.17      73.69      46.00     76.52     45.99
    80.25      46.48      89.83     46.31      99.24      46.19    108.34     46.31
   110.74      47.79     131.58     47.85     151.48      47.83    180.20     47.99
6.0km          300.0       0.03      50.0       0.5       10   28     2   28
   -49.93      50.59     -30.87     51.21     -12.73      50.91      0.00     50.45
     2.19      49.47       5.65     49.45       6.90      50.41      7.79     49.83
    11.02      49.72      15.94     49.09      17.26      49.43     18.00     49.76
    28.02      50.15      43.10     50.42      55.20      50.29     71.56     50.17
    75.56      50.29      75.90     49.73      82.40      49.28     92.73     49.65
   100.02      49.64     104.13     49.27     106.94      49.69    107.50     50.70
   116.70      50.44     126.12     50.70     142.33      50.11    152.68     50.53
7.0km          300.0       0.03      54.0       0.5       10   24     1   24
     0.00      54.73       2.65     54.48       3.03      53.16      9.97     53.43
    16.83      53.72      18.01     54.01      24.42      54.64     31.17     54.89
    37.34      54.21      50.79     54.74      62.97      54.71     76.11     54.48
    85.35      54.09      86.49     53.82      88.83      53.97     93.99     53.83
    95.96      54.16     106.52     54.56     119.04      54.49    120.32     54.28
   122.82      54.01     128.90     54.35     139.77      54.19    148.92     54.05
8.0km          280.0       0.03      57.0       0.5       10   22     2   22
   -49.50      58.41     -31.37     58.47     -18.26      58.57     -6.97     58.58
     0.00      58.44       1.00     57.38       4.00      56.68      7.48     57.93
    14.08      58.18      21.76     58.50      38.75      58.12     40.10     58.43
    52.90      58.49      61.15     58.23      68.75      58.05     77.52     57.56
    85.90      57.38      96.96     57.72     103.51      58.54    119.51     58.61
   128.44      58.96     133.63     60.84
   1    0     42.00      171.0
99999
```

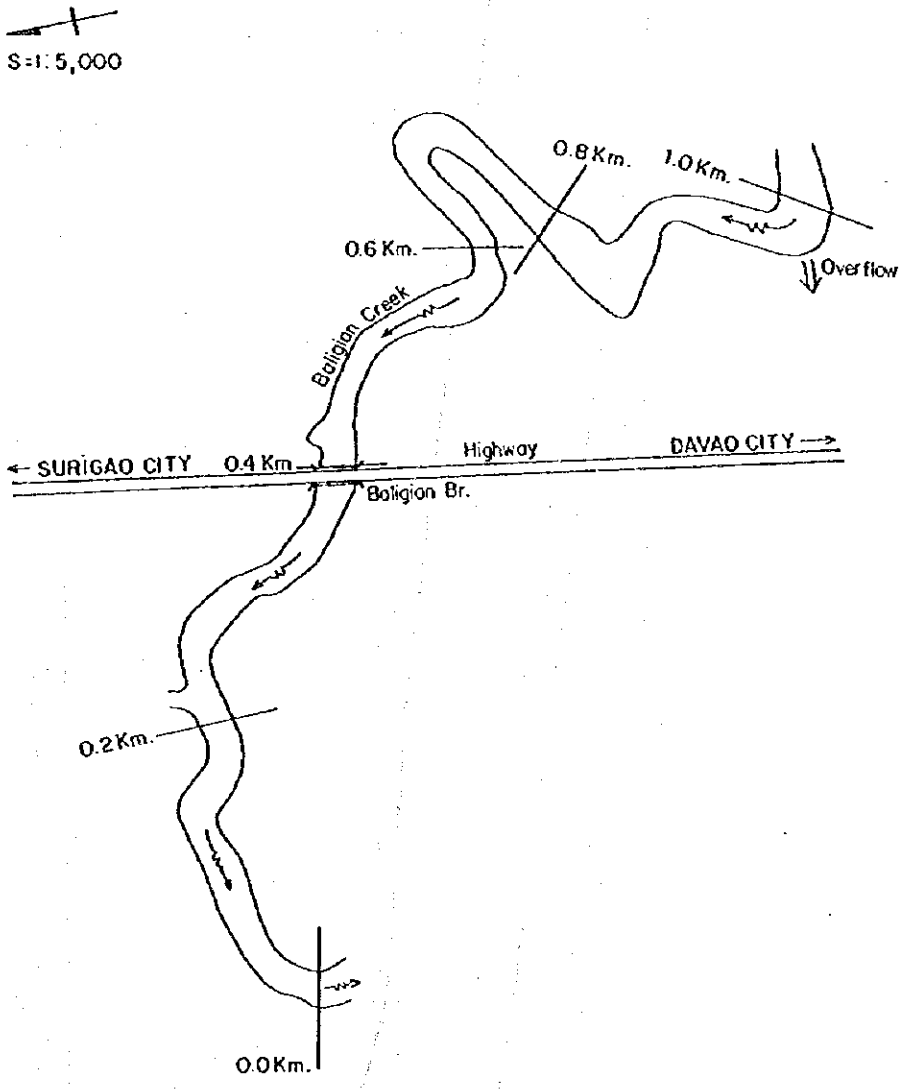
INPUT DATA

```
   0    0    0    1    1    0    1    1    0    0
          Magtco  RIVER  NON-UNIFORM FLOW CALCULATION
   7    0    1.0      0.0005      0.8        1.000     0.0005      0.5
  DANMEN TOKUSEI   untill 0.0 K ------EXISTING CROSS SECTION
   1
   1    0    1    0
8.0km          0.0       0.03      57.0       0.5       10   22     2   12
    -49.50      58.41     -31.37     58.47     -18.26     58.57      -6.97     58.58
      0.00      58.44       1.00     57.38       4.00     56.68       7.48     57.93
     14.08      58.18      21.76     58.50      38.75     58.12      40.10     58.43
     52.90      58.49      61.15     58.23      68.75     58.05      77.52     57.56
     85.90      57.38      96.96     57.72     103.51     58.54     119.51     58.61
    128.44      58.96     133.63     60.84
9.0km          280.0       0.03      62.0       0.5       10   16     2   16
    -50.20      62.65     -36.81     62.62     -24.32     62.66     -13.78     62.19
     -9.87      64.56      -5.46     63.69       0.00     62.98       1.50     61.35
      5.15      61.15      10.02     61.20      16.97     61.65      27.70     61.94
     35.80      62.21      36.22     63.12      54.67     63.33      70.11     63.35
10.0km         290.0       0.03      67.0       0.5       10   16     2   16
    -50.20      67.60     -38.18     67.51     -29.05     67.74     -25.62     66.90
    -22.44      66.92     -10.06     66.93       0.00     67.51       1.50     66.65
      5.52      66.39      10.50     66.20      15.55     66.45      21.63     66.04
     22.33      67.97      35.22     67.88      45.60     68.05      65.80     68.35
11.0km         300.0       0.03      72.0       0.5       10   23     2   23
    -50.20      72.78     -37.34     72.70     -30.67     72.99     -21.63     71.99
    -15.88      72.08      -8.68     72.30       0.00     72.89       3.22     71.68
      5.20      71.46       7.26     71.64      15.23     71.83      18.50     71.56
     22.98      71.83      23.31     72.75      32.57     73.10      40.18     73.24
     40.88      72.14      44.01     71.98      54.75     72.91      56.20     73.08
     62.28      73.22      78.45     73.07      95.57     73.43
12.0km         240.0       0.03      78.0       0.5       10   23     2   23
    -44.17      78.45     -34.00     78.40     -30.92     77.15     -21.13     77.88
    -13.35      78.25      -2.89     78.08      -1.20     79.02       0.00     78.99
      1.50      79.01       3.19     77.65       5.10     77.42      10.60     78.20
     12.34      78.57      20.10     78.44      33.22     78.41      44.31     78.76
     56.19      78.66      73.87     78.16      89.37     79.04     100.00     78.85
    109.46      78.76     121.52     78.34     128.30     83.22
13.0km         280.0       0.03      84.0       0.5       10   20     2   20
    -24.28      85.17     -14.68     85.45      -5.22     85.26       0.00     85.42
      2.60      83.71       7.20     83.59      15.20     83.53      21.09     83.76
     22.61      84.50      26.89     85.08      32.44     85.00      40.26     84.11
     43.79      84.49      57.21     84.97      69.81     84.99      78.24     85.17
     84.63      84.55      89.03     85.85      94.81     85.51     110.20     86.13
14.0km         210.0       0.03      88.0       0.5       10   14     2   14
    -75.30      90.04     -56.61     89.72     -40.10     89.83     -35.08     88.58
    -30.97      88.14     -29.07     89.06     -21.40     89.60     -18.25     88.90
    -13.55      87.99      -9.50     88.66      -2.50     88.89       0.00     93.37
     13.47      92.57      22.89     92.24
   1    0    58.74      100.0
   1    0    58.74      181.8
99999
```

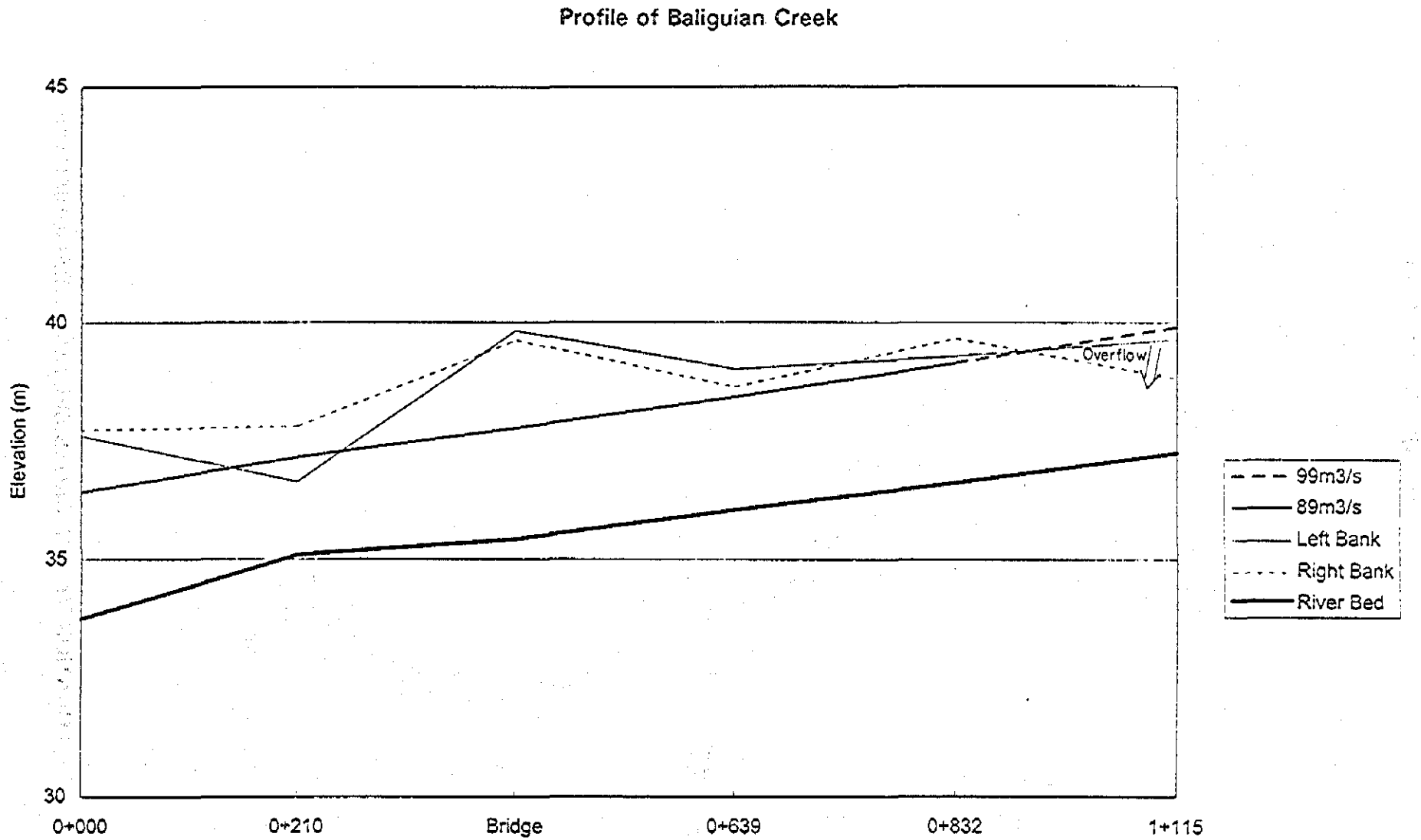
RESULT OF ANALYSIS

Baliguian RIVER NON-UNIFORM FLOW CALCULATION 89.0m3/s

NO	D-NAME	H	A	R	B	V
1	0.0	36.400	38.4	1.561	23.7	2.320
2	0+210.50	37.130	40.8	1.156	35.3	2.182
3	0+425.50	37.754	38.2	1.676	23.5	2.329
4	0+639.5	38.418	41.0	1.135	34.9	2.169
5	0+832.5	39.138	40.1	1.239	30.5	2.218
6	1+115.50	39.787	93.6	1.237	76.4	.951



LOCATION MAP OF CROSS-SECTIONS: BALIGUIAN CREEK



PROFILE OF HIGH WATER LEVEL: BALIGUIAN CREEK

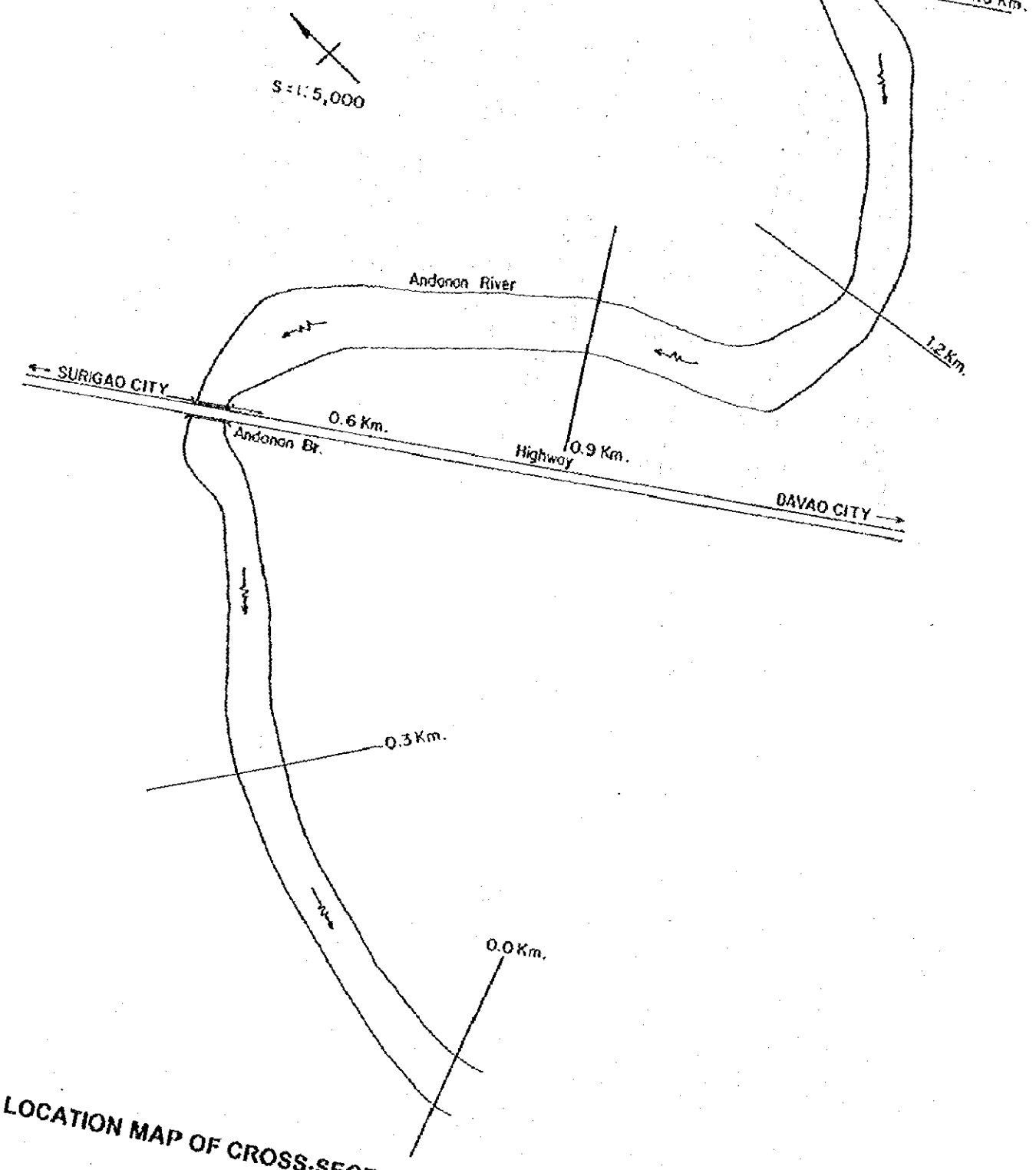
INPUT DATA

```
   0    0    0    1    1    0    1    1    0    0
          Baliguian RIVER  NON-UNIFORM FLOW CALCULATION
   6    0    1.0      0.0005      0.8        1.000     0.0005      0.5
  DANMEN TOKUSEI   untill 0.0 K ------EXISTING CROSS SECTION
    1
    1    0    1    0
 0.0            0.0       0.03      34.0       0.25      20   11     2    9
    -58.81      37.18     -46.61      37.23     -27.58      37.59     -26.31      37.05
    -24.34      35.46     -15.48      33.76      -2.94      35.61       0.00      37.71
      9.38      37.49      21.48      37.63      40.81      37.78
0+210.50       225.0       0.03      35.5       0.25      20   12     2    9
    -40.98      36.26     -32.58      36.37     -26.76      36.62     -23.51      36.40
    -19.95      35.47     -12.96      35.10      -8.05      35.46      -5.07      37.55
      0.00      37.79       7.07      37.44      20.64      37.80      40.84      37.62
0+425.50       220.0       0.03      36.0       0.25      20   13     2    9
    -21.56      39.50      -8.01      39.57       0.00      39.82       2.61      38.86
      5.84      38.20      10.44      35.59      14.53      35.41      18.59      35.65
     25.01      36.18      35.18      39.31      36.18      39.62      44.68      39.55
     51.68      39.50
0+639.5        208.0       0.03      36.5       0.25      20   10     2    9
    -45.98      38.95     -38.09      38.97     -22.02      39.02     -18.90      38.15
    -16.99      36.02      -8.89      36.04      -4.89      37.01       0.00      37.63
     19.30      38.64      31.89      38.54
0+832.5        212.0       0.03      37.0       0.25      20    8     1    8
      0.00      39.28       5.35      37.51      12.68      36.60      21.15      37.23
     21.73      39.33      24.31      39.66      34.00      39.04      41.47      38.89
1+115.50       225.0       0.03      37.5       0.25      20   10     2    9
    -50.08      40.12     -35.49      39.76     -25.86      39.64     -23.42      38.32
    -20.69      37.39     -12.94      37.23       0.00      38.82      14.20      38.45
     29.16      38.87      40.18      38.87
    1    0    36.40       89.0
    2    0    36.50       99.0
99999
```

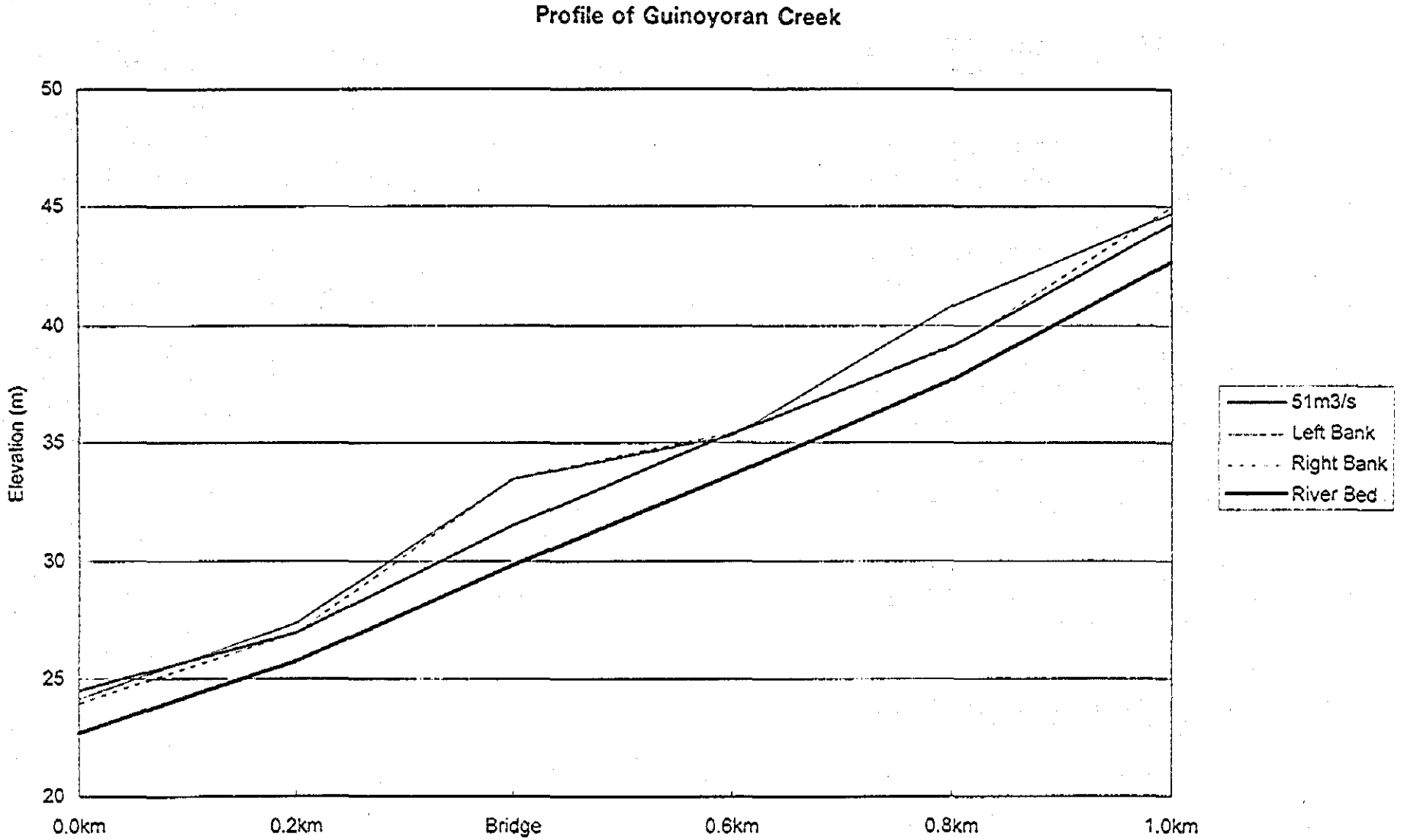
RESULT OF ANALYSIS

Guinoyoran RIVER NON-UNIFORM FLOW CALCULATION 51m3/s

NO	D-NAME	H	A	R	B	V
1	0.0km	24.500	63.4	.611	104.8	.798
2	0.2km	26.990	31.1	.422	76.7	1.626
3	0.4km	31.516	22.2	.827	26.7	2.276
4	0.6km	35.394	25.6	.625	40.3	1.979
5	0.8km	39.106	26.6	.576	54.9	1.901
6	1.0km	44.255	25.3	.637	39.3	1.998



LOCATION MAP OF CROSS-SECTIONS: GUINOYORAN CREEK



PROFILE OF HIGH WATER LEVEL: GUINOYORAN CREEK

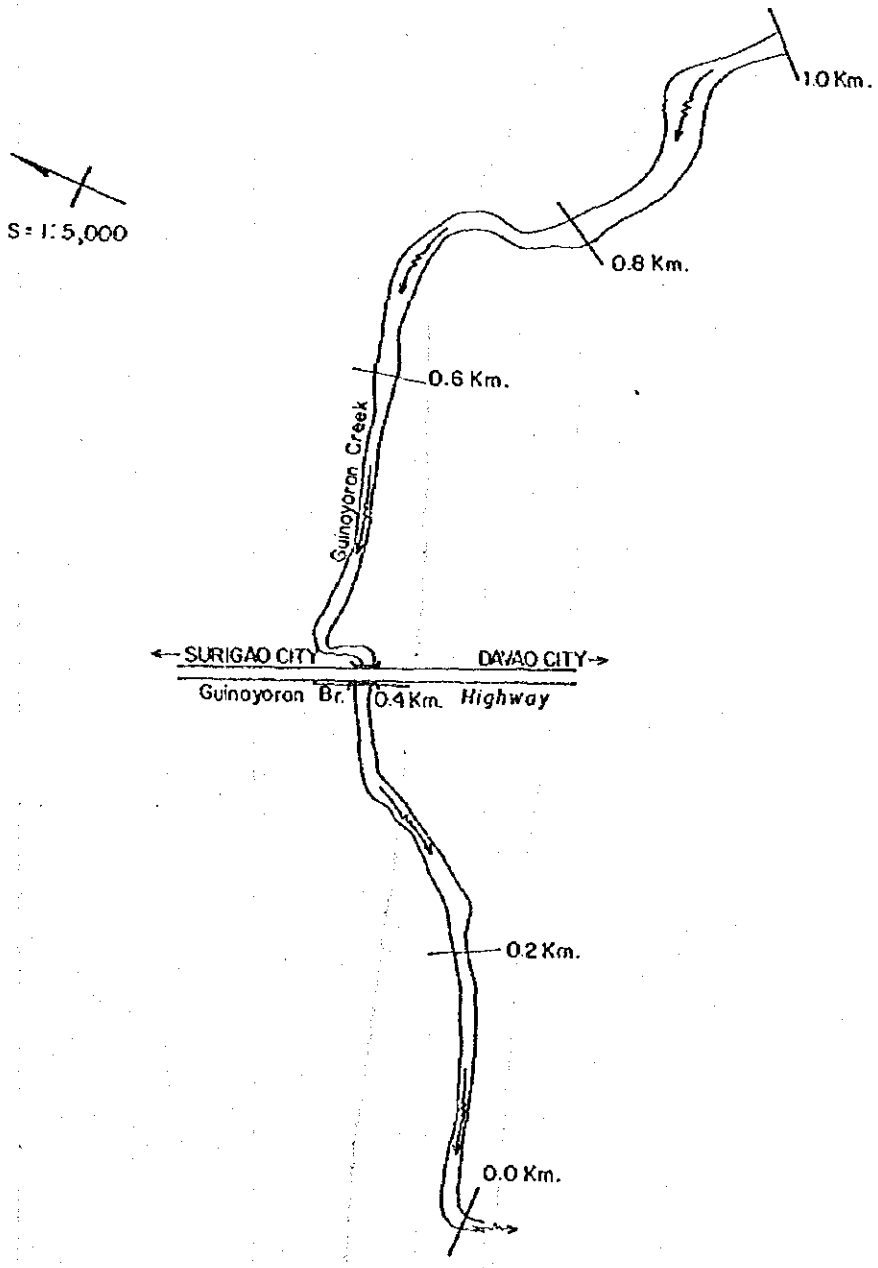
INPUT DATA

```
   0    0    0    1    1    0    1    1    0    0
          Guinoyoran RIVER  NON-UNIFORM FLOW CALCULATION
   6    0    1.0      0.0005      0.8       1.000     0.0005      0.5
  DANMEN TOKUSEI   untill 0.0 K ------EXISTING CROSS SECTION
   1
   1    0    1    0
 0.0km        0.0       0.03      23.0       0.25      20   11     2    9
    -49.00     24.14     -36.67     24.10     -19.67     23.92     -13.80     23.71
    -11.97     23.33      -6.97     23.33      -3.53     22.72      -3.00     23.96
      0.00     24.10      32.86     23.91      55.82     23.75
 0.2km        190.0       0.03      26.0       0.25      20   10     2   10
    -52.93     27.40     -33.90     26.77     -24.06     26.70      -7.84     26.36
     -6.34     26.07      -3.88     25.77      -1.76     26.06       0.00     26.49
      8.91     26.41      36.63     26.98
 0.4km        205.0       0.03      30.0       0.25      20    3     1    3
    -40.00     32.35     -20.00     29.85       0.00     32.35
 0.6km        210.0       0.03      34.0       0.25      20    8     1    8
    -33.51     35.29     -15.86     35.19     -12.27     33.63      -8.03     34.44
     -2.34     34.52       0.00     34.14       5.14     34.63       6.92     35.40
 0.8km        210.0       0.03      38.0       0.25      20   10     1    8
    -65.95     41.13     -22.94     40.81     -17.11     38.40     -12.59     37.89
     -9.26     37.76      -6.12     37.68      -4.70     38.89       0.00     39.03
     34.05     38.56      37.77     39.57
 1.0km        210.0       0.03      43.0       0.25      20   10     1    9
    -39.05     44.69     -34.39     43.94     -15.52     43.54     -14.04     44.01
     -8.62     43.07      -5.34     42.70      -2.19     43.07       0.00     44.02
     11.84     44.96      24.10     48.61
    1    0    24.50      50.6
    2    0    24.50      60.0
99999
```

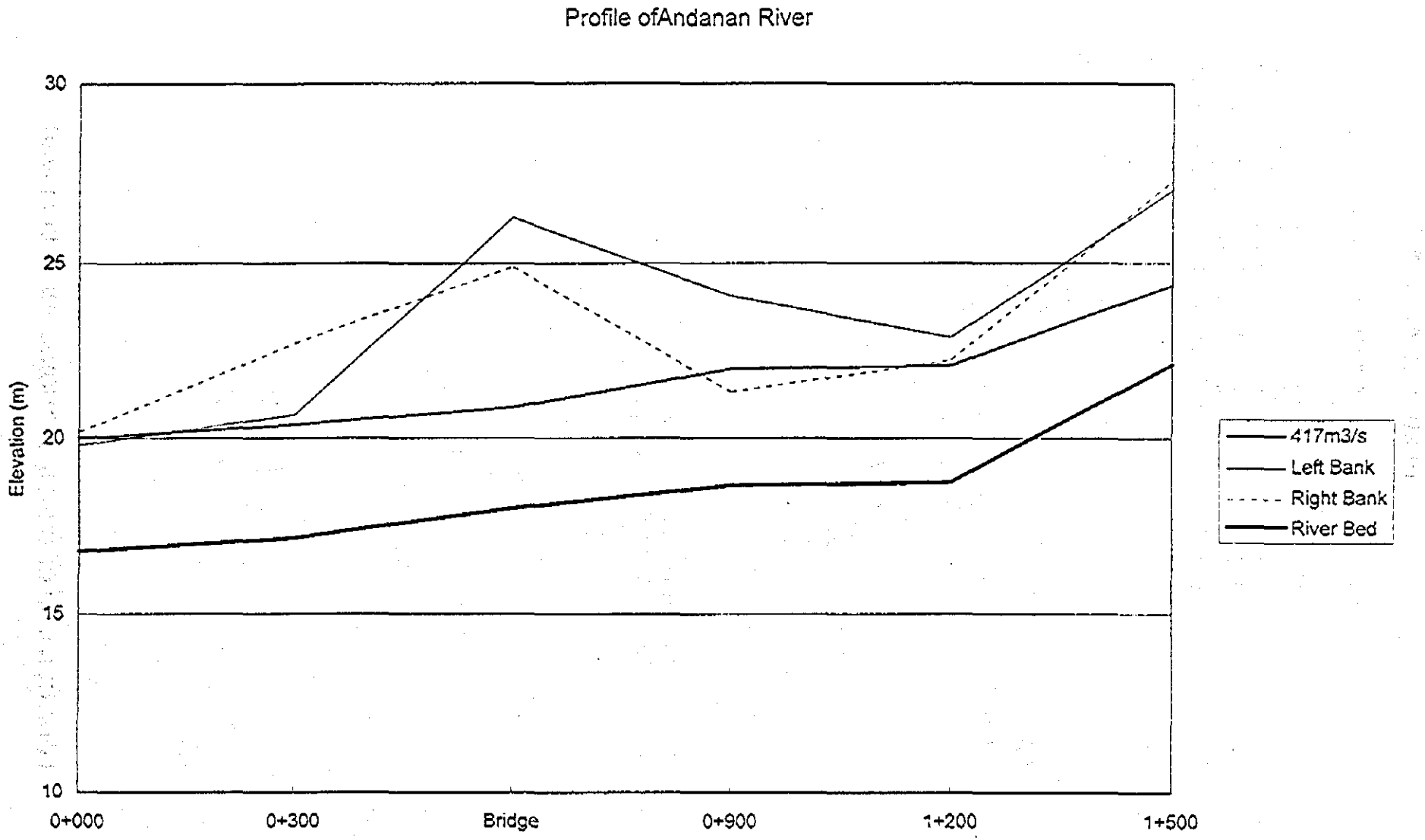
RESULT OF ANALYSIS

Andanan RIVER NON-UNIFORM FLOW CALCULATION 417m3/s

NO	D-NAME	H	A	R	B	V
1	0.0km	20.000	246.9	1.692	171.4	1.625
2	0.3km	20.373	189.2	1.954	125.4	2.120
3	0.6km	20.868	304.1	2.166	147.9	1.319
4	0.9km	21.377	207.8	1.135	182.0	1.930
5	1.2km	22.076	156.8	1.431	109.0	2.558
6	1.5km	24.363	119.6	1.793	65.5	3.354



LOCATION MAP OF CROSS-SECTIONS: ANDANAN RIVER



PROFILE OF HIGH WATER LEVEL: ANDANAN RIVER

INPUT DATA

XANDANAN.DAT

```
  0    0    0    1    1    0    1    1    0    0
          Andanan RIVER  NON-UNIFORM FLOW CALCULATION
  6    0    1.0      0.0005      0.8        1.000     0.0005      0.5
 DANMEN TOKUSEI    untill 47.0 K ------EXISTING CROSS SECTION
  1
  1    0    1    0
0.0km          0.0       0.03      16.0       0.5       20   25    6   21
   -99.10      19.38     -92.74      19.48     -81.79      19.14   -73.48     19.34
   -67.33      19.73     -56.13      19.80     -46.46      19.14   -35.41     18.60
   -24.58      17.96     -13.19      17.93      -5.64      17.76     0.00     17.88
     2.17      17.32       3.79      16.99      19.22      16.94    32.79     16.78
    36.92      17.36      42.61      17.97      47.26      18.72    49.14     19.65
    64.21      20.17      79.15      20.05     101.87      20.05   135.31     20.03
   143.40      19.86
0.3km          330.0       0.03      16.0       0.5       20   28    6   21
   -94.88      20.69     -81.90      19.97     -59.36      20.15   -49.90     20.28
   -38.19      20.65     -29.98      20.08     -24.24      18.99   -18.60     18.94
   -12.93      18.77      -6.76      18.53      -5.01      17.83     0.00     18.43
     2.25      18.29       3.64      17.68      11.58      17.58    28.20     17.16
    43.84      17.74      44.49      18.83      44.99      19.94    50.62     19.99
    55.70      21.01      57.56      22.42      64.95      22.70    77.08     22.70
    85.93      22.62     100.19      22.72     115.20      20.61   125.10     20.56
0.6km          320.0       0.03      16.0       0.5       20   35   15   31
  -132.37      25.66    -105.61      25.99     -87.28      26.08   -65.46     26.20
   -47.46      26.19     -28.31      26.28     -14.89      26.24     0.00     26.35
     2.60      25.93       4.34      24.83       7.03      24.80    11.67     21.50
    21.11      20.68      35.54      19.77      50.59      18.98    52.34     18.34
    65.88      18.52      80.84      18.62      92.36      18.58    93.33     18.09
   105.08      18.35     114.89      18.61     121.71      18.94   129.89     18.10
   136.74      18.01     151.94      18.11     156.15      18.99   161.34     19.39
   163.79      20.30     170.16      21.40     175.58      23.42   185.82     24.90
   188.03      24.71     206.06      24.81     240.14      24.52
0.9km          360.0       0.03      16.0       0.5       20   17    2   17
  -102.15      24.22     -98.29      24.07     -90.40      20.93   -67.76     20.64
   -42.06      20.18     -15.53      20.24       0.00      19.98     4.47     19.76
     8.47      19.11      25.78      18.68      42.52      19.05    52.62     21.32
    62.16      21.49      71.38      21.64      83.85      21.34    96.53     21.09
   115.28      21.23
1.2km          260.0       0.03      16.0       0.5       20   12    1   12
    -1.19      23.09       0.00      20.80       1.60      20.41     1.97     20.52
    17.84      18.76      31.83      19.40      34.21      20.03    46.96     20.43
    61.21      20.71      84.33      21.81     108.79      22.12   125.25     22.22
1.5km          280.0       0.03      16.0       0.5       20   20    9   15
  -114.45      24.82     -92.33      25.12     -79.88      24.97   -53.35     25.06
   -36.54      24.87     -16.78      24.91      -9.22      24.66    -6.99     24.60
    -4.49      27.04       0.00      23.38      16.51      22.73    17.02     22.50
    36.43      22.11      61.88      22.36      67.84      27.30    77.53     27.27
    87.07      26.08      92.65      25.84     100.12      27.34   115.83     27.23
    1    0    20.00      417.0
    2    0    20.50      417.0
99999
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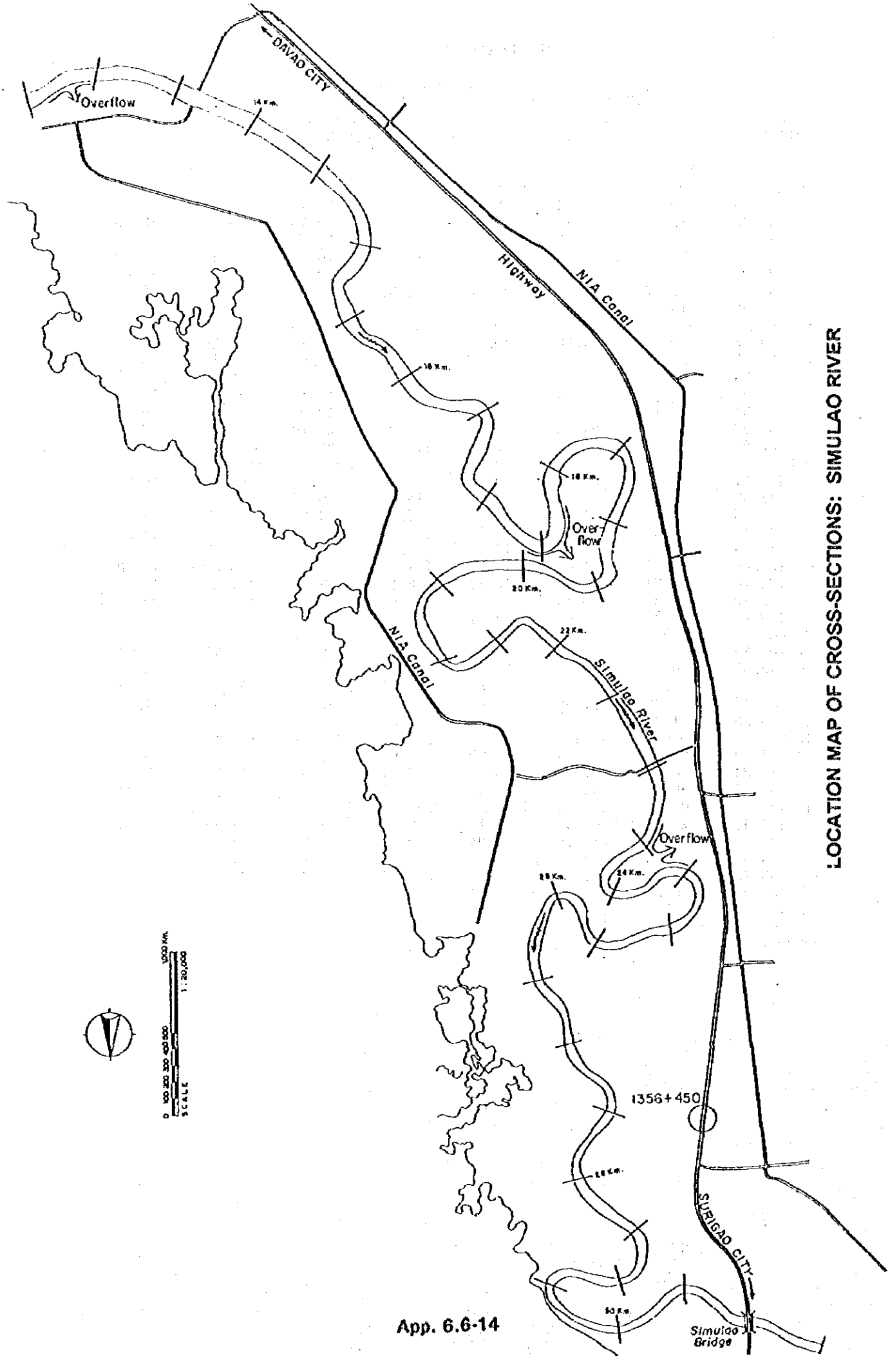


LOCATION MAP OF CROSS-SECTIONS: SIMULAO RIVER

RESULT OF ANALYSIS

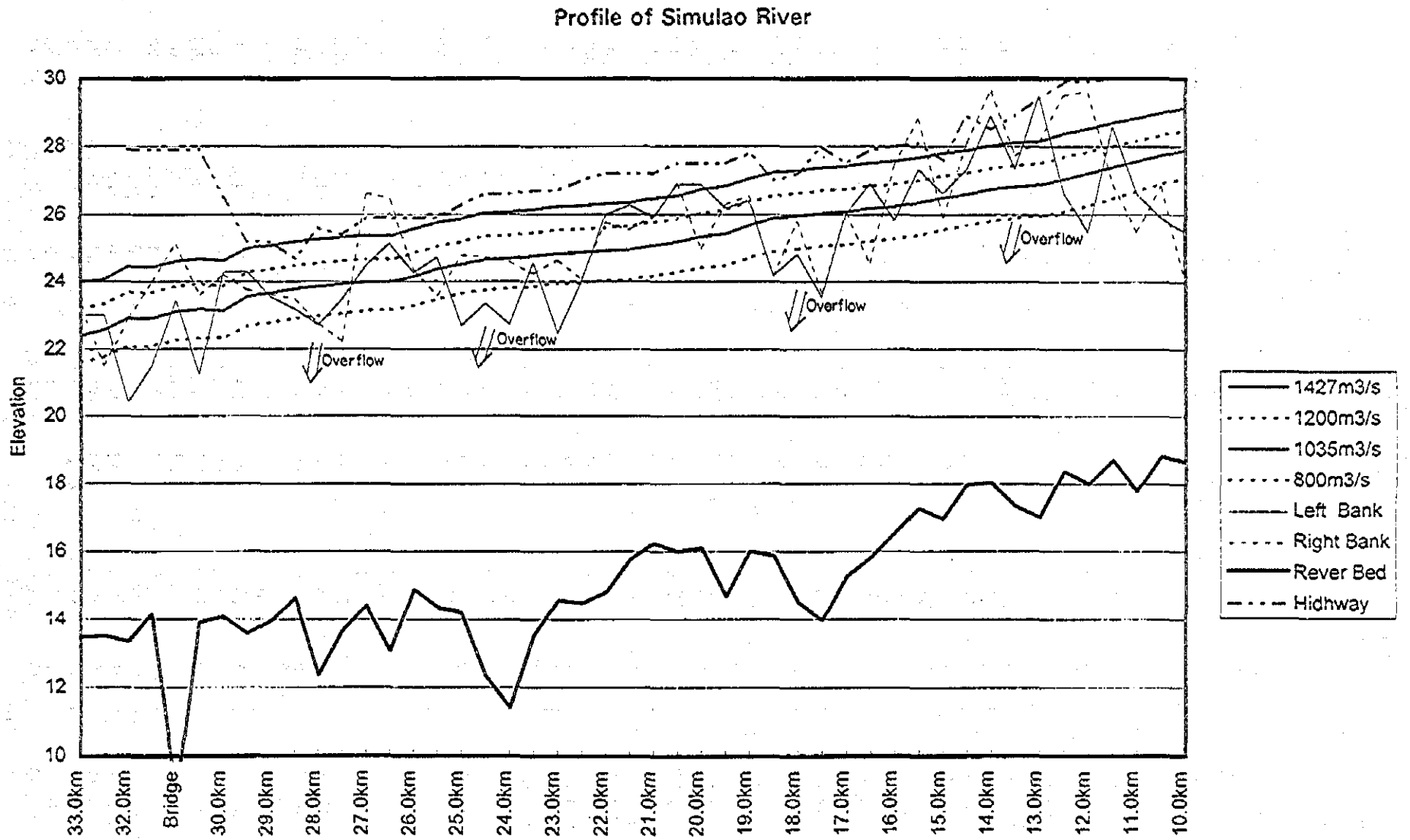
Simulao RIVER NON-UNIFORM FLOW CALCULATION 800m3/s

NO	D-NAME	H	A	R	B	V
1	33.0km	21.600	431.2	5.048	82.6	1.855
2	32.5km	21.768	382.5	4.441	80.6	2.091
3	32.0km	22.087	689.6	4.539	157.2	1.160
4	31.5km	22.100	459.9	5.986	87.7	1.739
5	31.0km	22.269	673.9	7.013	108.2	1.187
6	30.5km	22.325	585.6	4.077	168.3	1.366
7	30.0km	22.329	343.1	5.388	58.8	2.331
8	29.5km	22.674	480.2	5.502	97.3	1.666
9	28.5km	22.907	659.9	5.267	139.9	1.212
10	28.0km	22.978	672.7	4.903	191.2	1.189
11	27.5km	23.046	598.1	4.515	145.5	1.338
12	27.0km	23.134	598.6	6.616	98.8	1.336
13	26.5km	23.155	444.9	5.492	77.4	1.798
14	26.0km	23.281	377.9	5.470	74.4	2.117
15	25.5km	23.477	430.8	5.843	120.8	1.857
16	25.0km	23.643	523.6	6.580	82.6	1.528
17	24.5km	23.748	692.4	5.576	196.6	1.155
18	24.0km	23.795	608.7	5.695	106.3	1.314
19	23.5km	23.861	628.9	5.768	118.3	1.272
20	23.0km	23.945	823.7	6.351	144.7	.971
21	22.5km	23.969	611.9	4.783	169.8	1.307
22	22.0km	24.041	598.5	6.331	106.0	1.337
23	21.5km	24.067	459.6	5.953	93.1	1.741
24	21.0km	24.180	498.0	5.885	86.4	1.606
25	20.5km	24.291	483.6	5.795	79.2	1.654
26	20.0km	24.427	549.7	6.116	85.3	1.455
27	19.5km	24.486	401.4	4.663	82.3	1.993
28	19.0km	24.722	453.3	4.860	89.0	1.765
29	18.5km	24.913	613.6	5.329	167.1	1.304
30	18.0km	24.990	626.6	5.373	149.5	1.277
31	17.5km	25.079	718.8	5.836	149.2	1.113
32	17.0km	25.121	643.9	5.532	112.0	1.242
33	16.5km	25.221	643.9	4.043	155.9	1.242
34	16.0km	25.287	505.1	5.815	88.4	1.584
35	15.5km	25.408	521.2	4.906	131.3	1.535
36	15.0km	25.562	563.2	3.906	140.0	1.420
37	14.5km	25.688	544.8	5.768	90.4	1.468
38	14.0km	25.815	576.9	4.875	115.3	1.387
39	13.5km	25.896	542.7	5.960	86.9	1.474
40	13.0km	25.961	451.1	5.719	75.4	1.773
41	12.5km	26.097	472.3	5.121	92.8	1.694
42	12.0km	26.263	467.7	4.261	131.8	1.710
43	11.5km	26.465	472.5	3.953	135.9	1.693
44	11.0km	26.680	456.6	3.663	146.7	1.752
45	10.5km	26.904	508.3	4.644	148.7	1.574
46	10.0km	27.076	761.4	4.935	166.8	1.051

RESULT OF ANALYSIS

Simulao RIVER NON-UNIFORM FLOW CALCULATION 1427m3/s

NO	D-NAME	H	A	R	B	V
1	33.0km	24.000	713.2	5.924	167.6	2.001
2	32.5km	24.081	573.4	6.405	83.6	2.489
3	32.0km	24.458	1147.2	6.151	212.9	1.244
4	31.5km	24.445	755.0	6.693	161.4	1.890
5	31.0km	24.616	1005.3	8.018	157.7	1.420
6	30.5km	24.695	1074.4	5.133	234.5	1.328
7	30.0km	24.629	566.9	6.060	160.3	2.517
8	29.5km	24.999	819.5	6.374	170.0	1.741
9	28.5km	25.208	1044.7	6.872	172.5	1.366
10	28.0km	25.277	1115.7	6.486	192.8	1.279
11	27.5km	25.331	1042.5	5.856	207.4	1.369
12	27.0km	25.377	897.5	7.655	158.3	1.590
13	26.5km	25.378	663.5	6.497	151.9	2.151
14	26.0km	25.581	681.0	5.828	162.7	2.095
15	25.5km	25.772	800.0	5.912	195.8	1.784
16	25.0km	25.875	746.0	6.456	113.5	1.913
17	24.5km	26.054	1154.7	6.788	201.6	1.236
18	24.0km	26.075	927.2	7.108	152.0	1.539
19	23.5km	26.152	995.6	6.946	171.9	1.433
20	23.0km	26.239	1229.3	7.770	182.2	1.161
21	22.5km	26.266	1038.4	6.214	190.3	1.374
22	22.0km	26.311	923.1	7.124	183.1	1.546
23	21.5km	26.347	747.3	6.347	168.8	1.910
24	21.0km	26.468	800.6	6.587	186.9	1.783
25	20.5km	26.544	678.9	6.993	100.0	2.102
26	20.0km	26.737	796.0	6.899	139.0	1.793
27	19.5km	26.830	679.6	5.522	165.7	2.100
28	19.0km	27.044	752.6	5.798	160.0	1.896
29	18.5km	27.230	1001.1	6.791	167.2	1.425
30	18.0km	27.296	999.6	6.705	165.6	1.428
31	17.5km	27.374	1061.3	7.675	149.2	1.345
32	17.0km	27.419	994.4	6.848	173.1	1.435
33	16.5km	27.513	1048.8	5.947	194.0	1.361
34	16.0km	27.555	826.5	6.553	174.7	1.727
35	15.5km	27.671	852.0	6.097	167.1	1.675
36	15.0km	27.806	946.4	5.593	189.9	1.508
37	14.5km	27.876	802.5	7.031	153.5	1.778
38	14.0km	28.024	873.0	6.104	167.2	1.635
39	13.5km	28.113	817.1	6.304	177.9	1.746
40	13.0km	28.153	630.5	6.965	104.9	2.263
41	12.5km	28.378	781.4	6.040	152.3	1.826
42	12.0km	28.523	787.8	5.589	145.3	1.811
43	11.5km	28.688	833.0	5.212	176.3	1.713
44	11.0km	28.825	796.0	5.305	158.7	1.793
45	10.5km	28.981	840.7	5.893	162.6	1.697
46	10.0km	29.133	1104.7	6.785	166.8	1.292



PROFILE OF HIGH WATER LEVEL: SIMULAO RIVER

INPUT DATA

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 0    0    0    1    1    0    1    1    0    0
        Simulao RIVER  NON-UNIFORM FLOW CALCULATION
46    0    1.0      0.0005      0.8       1.000     0.0005      0.5
DANMEN TOKUSEI   untill 47.0 K ------EXISTING CROSS SECTION
 1
 1    0    1    0
33.0km        0.0       0.03      16.0       0.5      20   21     2   17
   -111.88    22.61    -96.09     23.01    -72.40     19.58   -67.46    18.03
    -62.53    15.65    -57.80     14.61    -52.69     14.45   -48.26    14.09
    -43.11    13.82    -37.99     13.79    -33.09     13.58   -27.88    13.49
    -22.62    13.52    -18.99     15.47    -12.98     17.33    -7.64    19.58
      0.00    23.55      5.36     23.30     23.79     23.05    38.76    23.30
     55.70    23.20
32.5km      480.0       0.03      16.0       0.5      20   15     1   15
      0.00    23.38     14.68     15.49     17.28     15.48    22.78    13.52
     25.38    15.52     27.78     13.82     32.78     13.84    37.57    14.08
     42.57    14.13     47.57     14.25     52.40     14.41    58.26    15.55
     60.60    17.74     64.84     21.52     83.56     21.63
32.0km      470.0       0.03      16.0       0.5      20   18     2   15
   -159.95    20.43   -138.95     20.44   -114.50     19.94   -80.73    18.72
    -69.37    15.64    -61.66     14.49    -56.64     14.60   -51.58    14.46
    -46.50    14.31    -41.43     14.29    -36.30     14.06   -31.05    13.92
    -25.75    13.52    -20.40     13.37      0.00     23.42    14.40    22.93
     31.77    22.86     52.97     22.79
31.5km      480.0       0.03      16.0       0.5      20   24     5   19
   -110.57    21.05   -101.88     21.54    -90.76     22.65   -80.50    22.82
    -70.89    20.67    -67.58     17.53    -64.17     16.06   -57.95    14.75
    -53.10    14.38    -48.02     14.28    -42.99     14.18   -37.90    14.24
    -32.65    14.24    -26.65     14.40    -22.02     13.42   -14.07    16.82
    -12.55    15.73     -5.79     19.96     -3.15     22.87     0.00    23.99
      6.61    23.81     20.80     22.75     32.67     23.63    50.84    23.65
31.0km      500.0       0.03      16.0       0.5      20   20     5   18
    -50.58    23.45    -29.05     22.54    -22.90     22.24   -10.91    22.19
      0.00    22.59      7.50     17.83      9.17     15.74    17.65    13.57
     22.64    11.39     27.71      9.82     31.74      9.36    42.16     8.31
     48.29    14.80     53.43     15.42     58.54     14.51    66.51    16.12
     71.22    17.97     83.84     18.90    102.13     24.51   130.46    25.15
30.5km      450.0       0.03      16.0       0.5      20   19     5   17
    -80.67    21.25    -45.45     20.75    -21.08     20.57   -17.45    20.33
     -7.39    20.97      0.00     18.61      4.37     15.82    13.88    13.38
     19.06    13.69     24.01     13.91     29.07     13.94    34.15    14.28
     34.18    15.45     39.17     14.56     51.67     15.95    55.61    19.53
    100.48    23.45    132.72     23.59    153.85     23.04
30.0km      480.0       0.03      16.0       0.5      20   19     3   14
   -107.96    24.28    -90.47     23.39    -70.56     23.11   -58.24    19.89
    -54.49    16.33    -47.45     14.84    -42.37     14.83   -37.38    14.74
    -32.18    14.56    -26.99     14.50    -21.87     14.09   -15.00    16.00
    -12.04    18.59     -8.39     22.74      0.00     24.41    13.27    24.28
     27.17    23.89     41.69     23.82     52.31     23.66
29.5km      540.0       0.03      16.0       0.5      20   17     3   14
   -116.41    24.29    -93.15     22.16    -82.50     22.15   -56.53    16.58
    -54.88    16.12    -44.51     15.39    -39.39     15.10   -34.32    14.82
    -29.10    14.49    -23.71     14.15    -19.15     13.59   -13.96    14.41
    -10.31    16.19      0.00     23.76     16.48     23.42    28.59    23.35
     53.55    23.33
28.5km      830.0       0.03      17.0       0.5      20   20     2   17
    -60.59    23.81    -46.15     22.82    -29.25     20.37   -15.88    18.86
      0.00    18.12      3.42     15.50     15.25     14.49    20.34    14.65
     25.34    14.60     30.93     14.64     35.94     14.77    40.94    14.96
     45.96    15.09     50.95     15.23     63.30     16.96    68.84    20.66
     72.66    22.93     86.00     23.48     97.25     22.54   111.95    22.28
28.0km      460.0       0.03      17.0       0.5      20   20     2   17
   -132.00    22.71   -119.18     22.42    -95.28     21.10   -73.23    19.92
    -64.77    17.00    -56.45     14.90    -52.20     14.34   -47.56    14.31
    -41.46    13.35    -35.74     12.40    -30.65     12.38   -25.78    13.27
    -20.42    13.27    -14.83     15.78     -9.51     17.02    -7.78    17.56
      0.00    22.75     15.93     22.65     32.85     22.42    60.81    22.37
27.5km      470.0       0.03      17.0       0.5      20   17     4   16
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   -65.93    23.43   -37.39    23.43   -22.69    23.47     0.00    23.69
     9.59    17.09    19.36    13.55    24.47    13.61    29.55    13.73
    34.58    13.67    39.42    14.49    44.54    14.78    49.93    16.67
    55.15    16.62    61.40    15.36    76.82    21.39   117.22    22.23
   141.45    21.53
27.0km      510.0     0.03     17.0      0.5     20   21    3   19
  -117.36    24.84   -83.55    23.06   -73.53    23.36   -65.74    17.85
   -63.22    15.07   -58.19    14.23   -53.35    14.25   -47.88    14.29
   -42.60    14.44   -37.40    14.38   -32.57    14.41   -25.40    14.33
   -20.60    14.30   -15.26    14.93   -10.50    15.58    -5.51    17.10
     0.00    18.72     2.96    19.76     8.83    20.85    25.41    24.04
    55.39    26.62
26.5km      440.0     0.03     17.0      0.5     20   19    4   17
  -157.16    25.15  -134.19    24.95  -106.39    24.90   -87.47    24.31
   -74.22    18.71   -63.24    17.19   -57.90    16.37   -53.38    16.16
   -48.49    13.13   -43.13    13.09   -41.31    12.81   -36.25    14.73
   -27.80    16.16   -16.72    19.86     0.00    25.74     9.40    25.77
    18.74    25.85    36.19    26.10    56.89    26.46
26.0km      530.0     0.03     17.0      0.5     20   14    4   12
   -65.66    24.27   -41.24    24.10   -18.71    23.96     0.00    24.41
    11.05    17.20    17.36    15.69    22.46    14.88    27.48    14.89
    32.53    14.94    37.76    16.57    48.73    17.63    58.04    19.81
    77.99    23.64    97.04    24.36
25.5km      400.0     0.03     17.0      0.5     20   15    4   12
   -60.40    24.76   -44.92    24.67   -21.86    24.70     0.00    24.96
    14.59    17.47    25.45    13.96    30.61    14.35    35.61    14.02
    40.27    15.55    45.43    16.05    59.20    17.22    69.49    23.05
    91.26    23.34   120.16    23.57   135.40    23.39
25.0km      470.0     0.03     17.0      0.5     20   14    2   14
   -83.14    22.69   -71.57    21.93   -63.07    17.95   -59.90    17.01
   -50.58    15.28   -40.64    15.05   -28.32    14.74   -18.34    14.22
   -12.72    16.10    -4.90    19.29     0.00    24.14     9.57    24.71
    22.09    24.78    30.39    24.80
24.5km      370.0     0.03     17.0      0.5     20   23    5   17
  -123.90    23.09  -112.48    23.06  -101.68    23.03   -91.33    23.19
   -81.12    23.35   -73.99    22.32   -70.08    20.10   -67.50    18.75
   -61.30    17.15   -47.19    15.54   -40.28    14.95   -30.09    12.83
   -21.92    12.36   -13.45    14.87    -9.00    17.17    -2.88    20.14
    -1.00    22.96     0.00    22.98    11.89    22.46    26.19    22.35
    42.05    22.31    66.46    22.48    77.74    24.76
24.0km      490.0     0.03     17.0      0.5     20   19    2   16
  -108.64    22.73  -101.10    22.70   -91.69    21.93   -86.02    20.97
   -78.21    21.76   -68.90    21.23   -63.77    18.42   -60.86    17.35
   -57.49    15.81   -40.10    14.57   -28.36    11.41   -20.31    13.47
   -13.09    17.30    -5.03    20.96    -2.73    22.65    -2.00    24.60
     0.00    24.52    12.78    24.36    43.36    24.42
23.5km      410.0     0.03     17.0      0.5     20   20    5   18
   -51.19    24.22   -39.73    24.53   -24.32    24.58   -10.24    24.09
     0.00    24.25     6.93    23.09     9.32    19.79    15.74    17.50
    24.99    14.10    34.96    13.53    41.87    14.03    52.77    14.95
    58.48    15.37    65.67    17.46    68.09    18.32    74.29    19.97
    85.85    21.17    97.92    22.17   110.27    22.52   120.67    23.08
23.0km      470.0     0.03     17.0      0.5     20   19    4   16
  -140.90    22.37  -130.70    22.47  -119.58    21.96  -109.35    22.38
  -103.78    20.49   -99.04    18.54   -96.25    14.10   -88.83    14.60
   -76.84    14.83   -62.13    15.16   -46.94    14.57   -31.38    14.71
   -23.87    17.61   -17.43    20.74    -6.47    22.76     0.00    23.75
    10.39    24.33    26.36    24.11    41.34    24.66
22.5km      480.0     0.03     17.0      0.5     20   20    5   17
   -42.03    22.74   -30.10    22.82   -22.19    23.31    -9.25    23.93
     0.00    24.17     1.00    23.18     6.23    18.18    12.40    16.55
    20.55    14.48    30.69    14.55    45.39    14.97    60.08    15.97
    62.20    17.47    65.28    19.80    72.04    22.37    90.07    22.00
   106.37    25.16   121.10    24.08   136.44    23.33   148.29    23.16
22.0km      460.0     0.03     17.0      0.5     20   17    4   13
  -138.65    25.59  -123.80    25.43  -106.60    25.12   -93.92    24.83
   -76.74    19.22   -68.79    15.93   -55.03    16.36   -40.74    15.71
   -28.38    14.81   -16.70    15.62   -11.68    17.72    -4.10    21.27
```

INPUT DATA

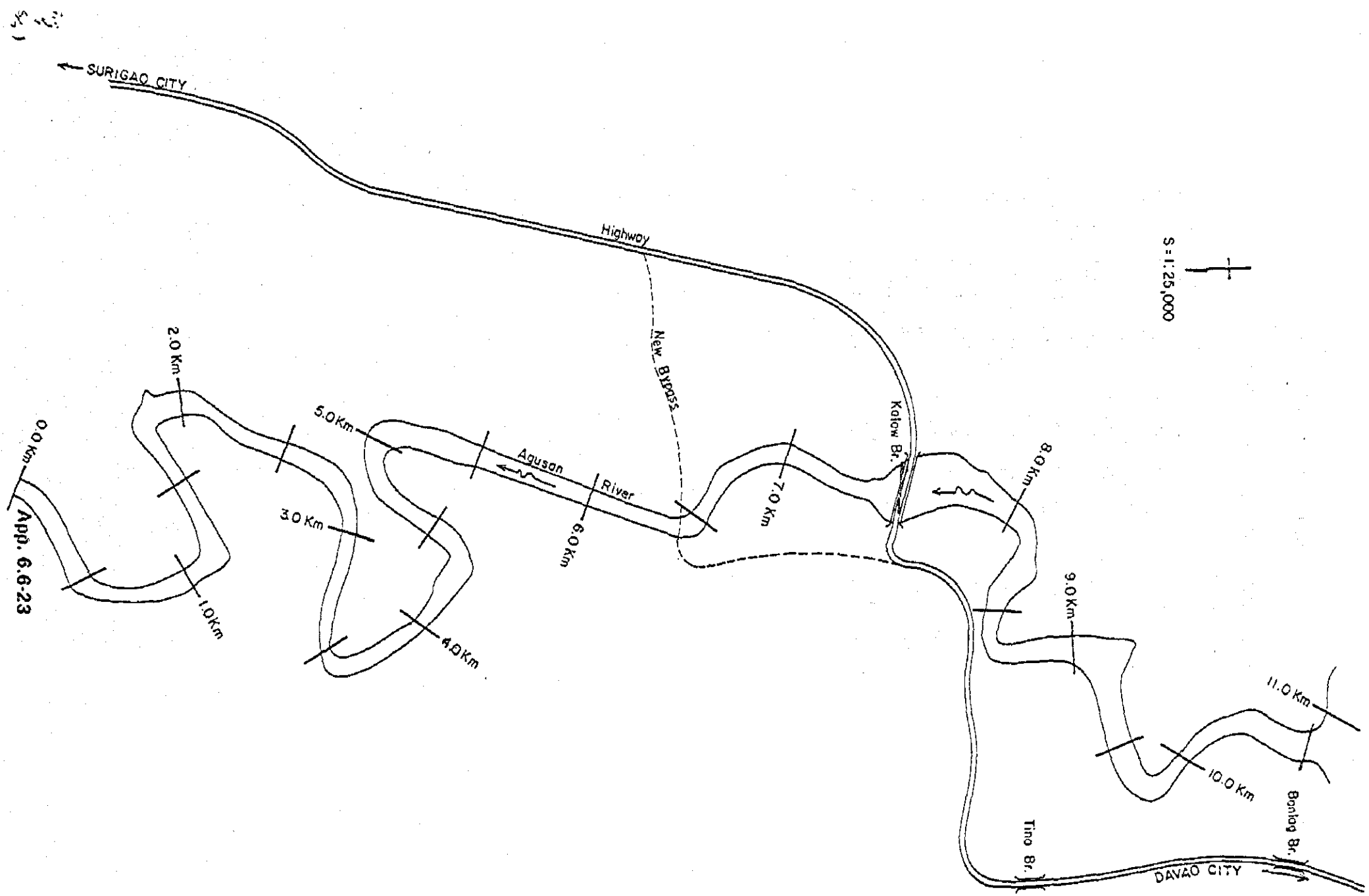
```
     0.00     25.78      7.98     25.61     18.96     25.15     28.67     24.13
    44.43     23.73
21.5km       460.0      0.03     17.0       0.5      20   22    5   16
  -130.47     25.21   -108.16     25.30    -99.95     26.02    -87.76     26.27
   -78.21     25.95    -69.74     21.18    -66.25     17.51    -62.53     16.01
   -53.83     15.76    -44.16     16.08    -38.58     16.12    -29.11     16.38
   -20.03     16.59    -16.28     17.79    -12.27     19.58     -7.61     24.99
    -4.88     21.62      0.00     24.17      9.55     23.44     25.34     24.19
    29.05     25.56     43.52     25.07
21.0km       380.0      0.03     17.0       0.5      20   20    6   15
  -137.90     25.92   -126.13     25.72   -118.72     25.52   -109.32     24.96
  -100.22     24.45    -92.14     25.31    -79.33     20.40    -73.86     17.62
   -72.03     16.33    -60.54     16.24    -44.50     16.50    -44.50     17.66
   -36.98     16.38    -19.14     17.10    -11.17     23.32      0.00     24.54
     7.26     24.86     18.39     25.79     34.41     25.94     49.85     26.41
20.5km       525.0      0.03     17.0       0.5      20   19    5   17
   -45.13     44.57    -31.31     26.67    -22.71     26.70    -12.05     26.84
     0.00     27.04      5.54     24.41     16.56     24.42     25.38     18.57
    28.72     17.33     43.81     16.38     51.36     16.18     64.00     16.00
    76.45     16.19     78.48     17.59     84.43     20.00     92.64     26.91
   109.95     26.71    127.57     26.63    142.99     26.68
20.0km       510.0      0.03     18.0       0.5      20   18    5   17
  -139.31     26.88   -128.29     26.85   -117.20     26.78   -110.26     26.58
  -101.13     25.97    -88.24     25.16    -71.44     18.07    -66.95     17.77
   -50.70     16.98    -36.27     16.82    -26.95     16.35    -16.56     16.11
    -8.47     17.90     -6.06     18.39     -1.29     23.79     -1.00     25.28
     0.00     25.31     15.62     25.36
19.5km       490.0      0.03     18.0       0.5      20   20    6   19
   -52.16     26.10    -38.70     26.16    -23.33     26.16    -10.44     26.19
     0.00     26.30      1.00     26.33      2.18     25.27     11.32     21.88
    16.20     18.14     22.04     14.68     29.79     14.96     37.46     16.33
    49.43     17.74     53.95     18.24     60.38     20.69     69.67     23.48
    78.23     24.14     89.72     24.62    100.90     25.29    113.54     25.64
19.0km       480.0      0.03     18.0       0.5      20   18    6   17
   -45.66     25.28    -34.93     25.66    -22.81     26.11    -12.82     26.41
     0.00     26.54      2.48     26.14      7.53     23.44     11.57     17.83
    22.72     16.01     31.05     16.11     44.23     16.20     55.83     16.78
    59.28     19.54     69.06     23.38     77.90     23.91     88.22     24.93
   104.15     24.94    114.31     24.96
18.5km       470.0      0.03     18.0       0.5      20   22    5   16
   -41.88     23.25    -23.00     23.84    -12.23     24.19      0.00     24.57
     1.00     24.69      1.28     22.82      4.31     20.10      9.74     18.07
    14.77     15.87     22.56     15.90     28.63     16.20     38.52     16.44
    54.98     17.95     64.55     19.65     69.24     21.83     75.70     24.22
    80.85     23.32     87.99     23.35     94.86     22.98    104.11     23.32
   114.35     24.41    125.36     24.26
18.0km       460.0      0.03     18.0       0.5      20   20    4   19
  -135.41     24.20   -120.67     24.36   -102.74     24.56    -89.43     24.84
   -80.18     19.43    -76.25     17.78    -72.36     15.61    -64.71     14.49
   -52.98     15.55    -46.22     16.18    -36.65     16.46    -31.08     16.90
   -26.07     18.00    -23.22     18.77    -17.73     21.50    -10.12     22.13
     0.00     23.95      8.16     24.46     20.66     25.58     30.15     25.83
17.5km       530.0      0.03     18.0       0.5      20   18    4   14
  -121.38     22.78   -104.58     22.31    -91.67     22.84    -79.60     22.68
   -66.75     19.73    -60.20     18.50    -54.21     18.07    -41.75     16.60
   -31.35     15.49    -20.23     13.98    -10.95     17.31     -8.55     18.42
    -3.31     21.80     -0.80     23.56      0.00     23.66     11.79     23.45
    23.84     23.60     27.85     23.54
17.0km       460.0      0.03     18.0       0.5      30   20    2   16
   -45.76     25.99    -35.02     26.03    -24.60     23.92    -11.83     22.58
     0.00     23.17      3.54     23.19      7.28     20.35     13.42     18.45
    22.88     17.44     29.99     16.56     40.01     15.92     52.63     15.27
    66.73     16.83     68.79     18.21     78.24     21.30     82.29     26.09
    91.51     25.94    103.29     25.83    116.46     25.91    127.38     25.84
16.5km       560.0      0.03     18.0       0.5      20   22    4   22
  -148.59     26.90   -136.33     26.35   -126.05     26.08   -114.09     26.16
  -101.56     21.83    -97.70     23.07    -92.56     21.12    -86.35     18.24
   -83.30     16.70    -70.44     15.82    -65.59     17.11    -56.78     17.38
```

INPUT DATA

```
   -48.85     18.15    -38.96     18.91    -22.54     21.81    -10.21     21.67
    -2.00     24.70      0.00     24.55     10.44     23.83     22.35     23.70
    36.61     24.37     45.40     25.31
16.0km       535.0      0.03     18.0       0.5      20   19    5   15
  -132.14     25.83   -117.50     25.79   -108.92     25.62   -100.00     25.51
   -86.87     25.10    -80.07     21.63    -76.66     18.07    -72.96     16.55
   -50.96     16.95    -43.13     17.21    -34.41     17.38    -26.52     18.31
   -16.16     23.04     -5.13     24.93     -1.77     26.86      0.00     27.44
     9.80     26.74     24.53     26.57     42.53     25.81
15.5km       480.0      0.03     18.0       0.5      20   24    5   18
  -150.09     25.40   -138.08     25.31   -122.84     25.03   -111.59     25.30
  -102.22     25.94    -90.33     23.49    -81.23     23.81    -73.65     20.46
   -71.34     18.46    -68.66     17.53    -56.85     17.34    -42.10     17.27
   -42.10     18.31    -28.42     17.41    -20.50     18.68    -14.77     22.08
    -2.41     24.73     -1.50     27.33      0.00     27.48      8.68     28.00
    19.36     27.94     29.64     28.84     36.04     28.24     41.84     27.40
15.0km       500.0      0.03     19.0       0.5      20   21    5   21
  -139.85     26.43   -127.90     26.61   -114.78     26.48   -104.64     26.42
   -94.46     26.41    -93.31     24.49    -77.20     18.58    -73.95     16.97
   -65.90     17.24    -65.90     18.80    -59.38     17.66    -53.33     18.31
   -46.88     18.73    -35.51     18.91    -22.38     20.75     -8.76     22.55
     0.00     23.88     10.79     24.45     22.42     24.77     38.80     24.97
    50.07     25.89
14.5km       550.0      0.03     19.0       0.5      20   24    6   20
  -138.39     27.17   -127.34     27.32   -121.75     27.18   -111.67     26.88
   -99.13     26.50    -88.42     26.91    -79.53     20.99    -73.29     18.94
   -68.34     17.98    -60.28     18.12    -49.68     18.06    -40.83     18.97
   -40.83     18.16    -31.36     18.09    -19.65     18.23    -16.21     18.96
    -4.56     22.55     -2.89     23.86      0.00     24.93      5.82     26.09
    13.40     28.02     20.78     28.10     26.32     28.01     28.00     27.01
14.0km       580.0      0.03     19.0       0.5      20   27    2   23
  -53.37     28.89    -40.71     28.48    -34.99     25.81    -25.18     25.45
   -11.38     25.58      0.00     25.65      1.44     25.44      4.42     23.47
    10.86     22.60     17.91     19.12     19.74     17.96     27.94     18.12
    34.65     18.22     41.99     18.25     47.59     19.13     56.20     18.25
    66.19     18.05     77.71     17.86     80.21     19.07     87.02     22.73
    93.66     28.08    104.40     29.65    110.49     29.45    115.72     27.65
   126.13     27.73    136.14     27.65    148.39     27.75
13.5km       480.0      0.03     19.0       0.5      20   25    6   20
  -40.95     26.99    -31.50     27.34    -20.06     27.24    -10.54     27.29
     0.00     27.76      1.28     27.61      5.92     24.99      8.55     21.87
    17.96     19.38     23.91     17.35     31.19     17.84     41.38     18.31
    49.52     18.70     58.51     19.13     68.65     18.88     77.66     19.33
    81.53     21.66     87.11     22.97     92.48     26.81    102.22     29.33
   112.17     28.96    117.45     28.30    127.06     26.81    138.01     26.28
   151.55     27.11
13.0km       500.0      0.03     19.0       0.5      20   19    5   15
  -47.21     29.09    -29.94     29.46    -10.22     29.71      0.00     29.67
     1.59     29.10      3.29     25.97     14.48     19.50     15.76     18.86
    23.27     17.39     29.49     17.29     39.71     17.01     50.92     19.47
    62.19     19.88     71.13     23.65     86.82     28.39     99.68     28.11
   112.25     28.11    125.52     28.13    140.06     28.24
12.5km       430.0      0.03     20.0       0.5      20   22    4   21
  -154.12     26.33   -132.63     26.53   -114.79     26.95    -99.99     26.98
   -87.77     23.91    -82.81     20.72    -81.17     19.62    -80.85     18.96
   -66.28     18.85    -50.59     18.66    -38.50     18.39    -32.24     18.33
   -29.39     20.06    -17.36     24.71    -10.18     25.61     -3.69     26.96
    -1.00     28.97      0.00     29.01     11.07     29.06     19.76     29.12
    28.80     29.51     43.03     29.81
12.0km       500.0      0.03     20.0       0.5      20   21    3   18
  -132.19     25.58   -115.51     25.65    -95.28     25.40    -80.84     23.98
   -63.58     21.18    -60.54     19.66    -59.82     19.27    -50.78     18.71
   -44.30     18.00    -38.37     17.66    -25.22     18.66    -23.75     19.69
   -18.43     23.90     -5.25     25.06     -1.63     26.71      0.00     26.64
     8.98     26.39     16.13     30.09     22.79     30.29     33.40     29.64
    39.88     29.56
11.5km       500.0      0.03     20.0       0.5      20   23    3   20
  -135.70     28.60   -125.97     28.73   -113.59     28.57   -102.01     26.10
```

INPUT DATA

```
    -92.26     26.22    -88.17     24.79    -84.71     22.36    -82.02     21.54
    -79.26     19.93    -78.53     18.87    -66.90     18.28    -56.27     18.47
    -50.88     18.75    -40.01     19.91    -30.81     22.17    -22.52     21.53
    -22.13     23.33     -8.02     25.91      0.00     26.19      9.51     26.34
     24.11     26.24     42.01     26.74     54.63     26.91
11.0km        500.0      0.03     20.0      0.5       20   22    5   22
   -105.18     26.62    -99.56     26.66    -88.08     26.39    -74.17     26.37
    -61.02     26.61    -54.46     22.59    -52.55     20.04    -51.17     18.77
    -43.91     17.79    -33.57     20.00    -29.25     18.78    -21.81     18.85
    -15.94     19.25    -14.82     20.07     -8.39     21.83     -4.80     24.08
      0.00     24.81      5.81     25.38     16.74     25.02     29.93     25.42
     43.00     25.53     53.50     26.40
10.5km        500.0      0.03     20.0      0.5       20   22    3   16
   -113.31     25.99    -104.43     25.89    -94.08     25.44    -82.19     24.23
    -71.68     23.43    -60.52     21.31    -52.01     20.39    -47.34     19.84
    -30.17     19.62    -23.00     19.54    -17.13     20.41    -16.97     18.83
    -12.86     20.51     -8.49     22.96     -2.07     24.16     -0.50     27.31
      0.00     27.33      9.63     26.95     18.79     26.84     27.03     26.85
     38.25     27.00     49.34     26.86
10.0km        500.0      0.03     20.0      0.5       20   21    3   16
   -121.86     25.51    -110.88     25.53    -93.84     25.48    -74.03     24.58
    -71.98     22.65    -67.52     20.90    -64.41     19.54    -62.44     18.68
    -41.73     19.57    -41.67     18.68    -34.31     18.76    -23.11     19.36
    -12.73     19.57    -11.94     19.70     -6.65     22.32      0.00     24.53
      7.63     23.01     14.40     23.03     25.84     24.01     35.10     24.17
     44.99     23.79
     1    0   21.60     800.0
     2    0   22.40    1035.0
     3    0   23.20    1200.0
     4    0   24.00    1427.0
99999
```

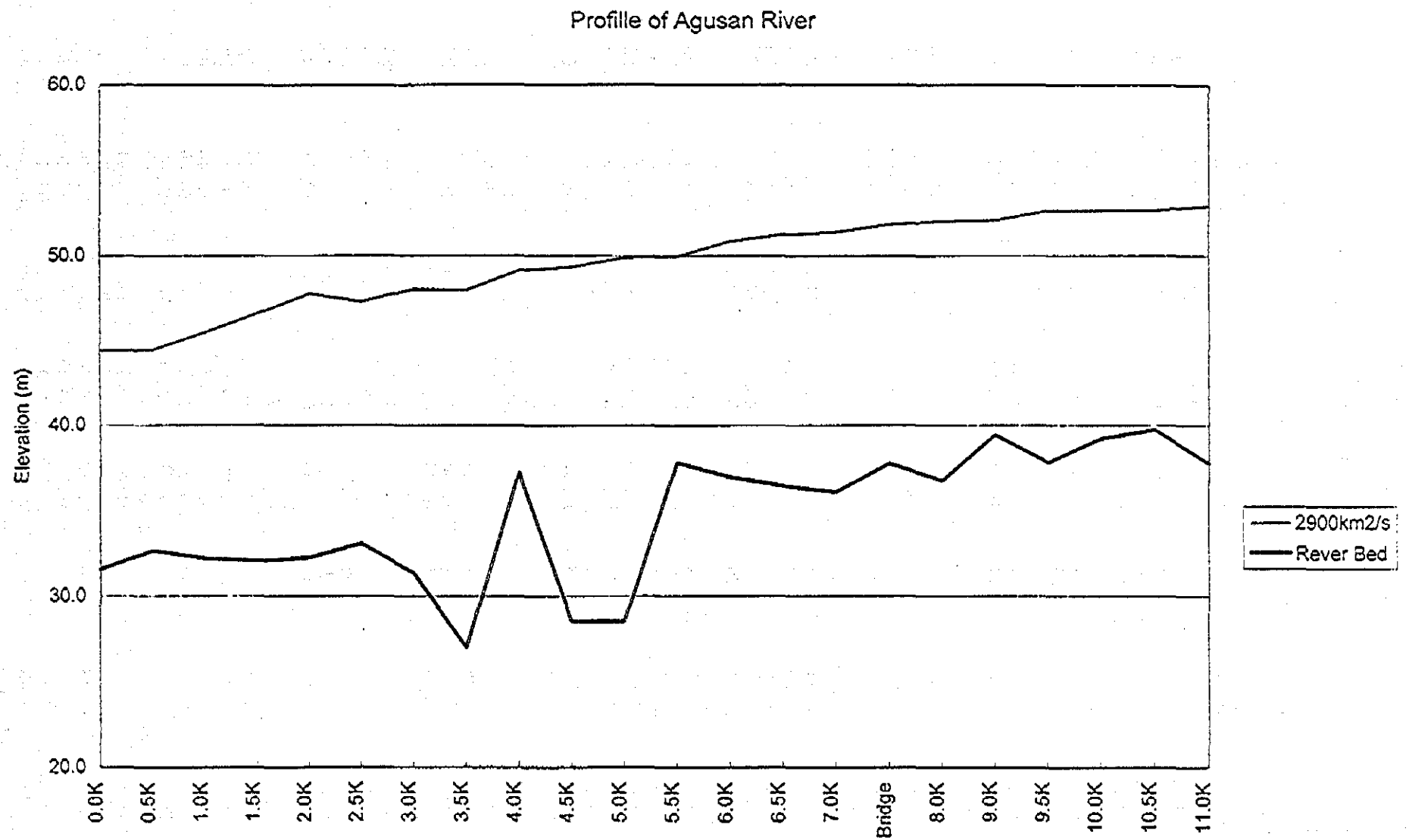


LOCATION MAP OF CROSS-SECTIONS: AGUSAN RIVER

RESULT OF ANALYSIS

Agusan RIVER NON-UNIFORM FLOW CALCULATION 2900m3/s

NO	D-NAME	H	A	R	B	V
1	0.0K	44.400	1048.0	4.496	367.2	2.764
2	0.5K	44.469	601.3	6.837	88.1	4.818
3	1.0K	45.531	605.0	7.257	113.5	4.789
4	1.5K	46.660	708.3	8.141	114.6	4.090
5	2.0K	47.805	2446.8	4.979	575.1	1.184
6	2.5K	47.324	706.3	9.543	74.1	4.101
7	3.0K	48.069	898.0	9.265	95.4	3.226
8	3.5K	48.138	652.1	7.943	77.2	4.442
9	4.0K	49.232	986.1	8.817	121.7	2.938
10	4.5K	49.429	876.0	9.350	96.1	3.307
11	5.0K	49.891	1004.3	8.267	112.7	2.885
12	5.5K	49.962	733.6	8.199	97.9	3.949
13	6.0K	50.841	1140.0	7.967	157.7	2.541
14	6.5K	51.227	1959.2	7.772	277.5	1.479
15	7.0K	51.357	3362.2	7.380	480.1	.862
16	7.5K	51.069	789.9	6.936	106.2	3.668
17	8.0K	52.030	2438.4	6.580	400.0	1.188
18	9.5K	52.180	3853.9	6.240	613.6	.752
19	10.0K	52.190	3077.1	7.154	439.7	.941
20	10.5K	52.215	2376.1	6.689	371.1	1.219
21	11.0K	52.263	1906.5	6.831	290.3	1.520



PROFILE OF HIGH WATER LEVEL: AGUSAN RIVER

Appr. 6.6.26

INPUT DATA

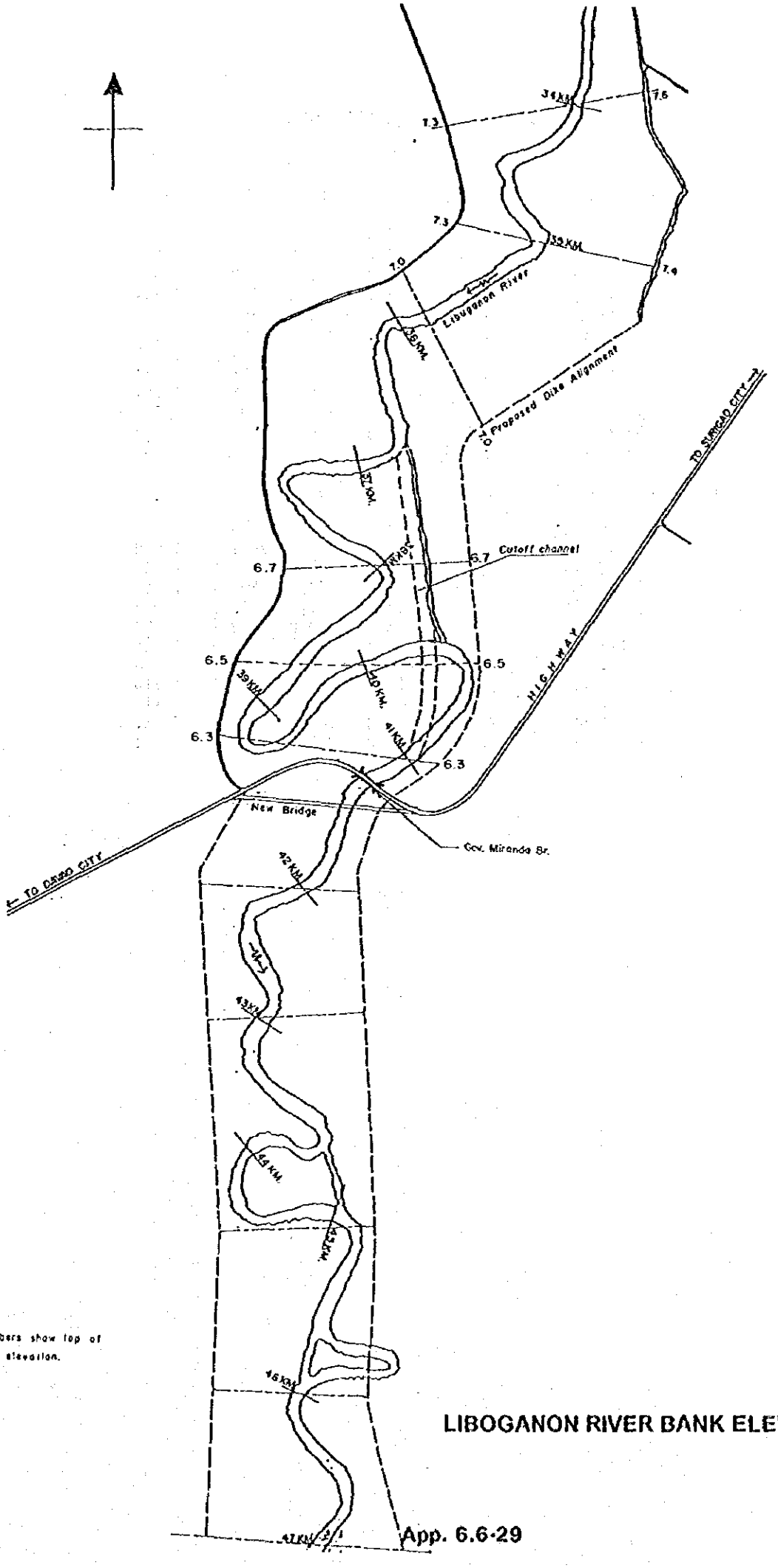
```
  0    0    0    1    1    0    1    1    0    0
          Agusan RIVER  NON-UNIFORM FLOW CALCULATION
 21    0    1.0      0.0005      0.8        1.000     0.0005      0.5
 DANMEN TOKUSEI   untill  0.0 K ------EXISTING CROSS SECTION
  1
  1    0    1    0
0.0K          0.0       0.035     36.0        0.5       20   30     3   18
   -9.96      51.47      -7.21     47.76       -4.00     41.59       0.00     39.41
    0.00      39.40       5.98     35.39       10.96     31.89      15.94     31.69
   20.92      31.59      25.90     32.19       30.88     32.59      35.86     33.39
   40.84      36.89      45.82     39.38       45.82     39.39      49.46     40.66
   54.73      40.07      60.58     42.91       62.84     42.70      82.06     41.95
   89.17      40.95     150.31     43.63      162.36     45.66     165.20     45.67
  165.20      45.67     217.10     43.86      219.16     44.31     275.26     42.60
  360.63      42.60     410.76     42.60
0.5K          500.0     0.035      36.0        0.5       20   21     5   21
  -27.50      49.85     -20.71     46.84       -8.71     43.65      -5.42     41.11
    0.00      39.61       0.00     39.21        3.91     38.10       8.91     37.66
   13.91      33.66      18.91     32.66       23.91     34.66      28.91     34.66
   33.91      37.15      38.91     37.15       43.94     37.66      48.91     37.66
   53.91      37.16      58.91     37.16       63.91     39.25      63.92     39.66
   76.28      39.65
1.0K          500.0     0.035      36.0        0.5       20   18     6   16
  -81.44      46.85     -62.07     44.69      -17.08     42.89     -11.03     41.60
   -2.09      40.83       0.00     39.81        0.00     39.43       5.00     36.81
   10.00      35.81      15.00     34.81       20.00     33.21      25.00     32.81
   29.99      32.21      34.99     32.61       41.09     39.51      41.09     39.89
   43.31      41.98      44.30     48.00
1.5K          500.0     0.035      37.0        0.5       20   19     5   16
  -69.40      48.71     -52.48     46.24      -27.46     44.45      -2.52     42.06
    0.00      41.10       0.00     40.16        3.94     35.51       8.94     34.06
   13.94      32.06      18.94     32.56       23.94     34.06      28.94     34.06
   33.94      37.06      38.94     37.06       43.94     37.56      48.94     40.06
   48.94      41.01      50.70     43.03       63.29     48.37
2.0K          500.0     0.035      37.0        0.5       20   30    12   25
 -500.41      54.21    -476.08     47.89     -469.12     45.16    -367.75     44.93
 -267.13      43.41     -96.37     44.95      -29.76     44.45      -15.20     43.75
   -9.45      42.28      -3.61     42.50       -0.63     42.22       0.00     40.25
    0.00      40.21       5.00     36.50       10.00     35.25      15.00     32.25
   20.00      32.25      25.00     35.55       30.00     37.25      35.00     38.25
   40.00      38.25      45.00     38.25       50.00     38.25      55.00     38.25
   59.38      40.53      59.38     40.57       83.79     43.26      86.73     44.65
   95.82      46.72     109.94     52.21
2.5K          500.0     0.035      37.0        0.5       20   19     5   18
  -55.60      50.84     -38.56     48.12      -19.43     47.41      -10.94     42.51
   -0.55      41.34       0.00     40.23        0.00     38.87       6.91     35.33
   11.91      33.08      16.91     33.53       21.91     34.33      26.91     34.58
   31.91      34.58      36.91     35.08       41.91     35.58      46.91     38.97
   46.91      40.33      48.73     40.33       54.83     41.19
3.0K          500.0     0.035      38.0        0.5       20   22     5   17
  -26.32      49.41     -19.80     48.28      -10.84     43.18       0.00     40.35
    0.00      40.30       3.56     33.35        8.56     32.85      13.56     31.35
   18.56      33.85      23.56     35.85       28.56     36.35      33.56     37.35
   38.56      37.85      43.56     35.35       48.56     39.35      53.56     39.35
   58.56      40.30      58.56     40.35       61.53     41.19      72.01     42.45
   74.18      43.47      76.01     43.66
3.5K          500.0     0.035      38.0        0.5       20   20     6   17
  -24.41      44.71     -22.54     44.61      -16.03     42.24      -8.41     42.02
   -3.38      40.43       0.00     41.02        0.00     39.18       6.36     39.52
   11.36      39.52      16.36     39.52       21.36     39.27      26.36     37.02
   31.36      35.02      36.36     33.02       41.36     37.02      46.36     38.60
   46.36      40.44      47.15     41.21       52.17     47.49      52.69     47.51
4.0K          500.0     0.035      38.0        0.5       20   24     6   23
  -25.43      50.32     -25.23     47.32       -9.15     46.45      -5.41     44.54
   -1.54      41.49       0.00     41.23        0.00     40.68       5.00     37.23
    9.46      37.23      14.46     37.23       19.46     37.23      24.46     37.23
   29.46      39.13      34.46     39.23       39.46     39.23      44.46     39.73
   49.46      38.23      54.46     37.73       59.46     37.23      64.46     39.93
   69.46      38.63      75.19     39.60       75.19     41.25     101.29     51.08
4.5K          500.0     0.035      39.0        0.5       20   19     3   17
```

INPUT DATA

```
    -9.73     47.21     -1.58     42.02      0.00     41.49      0.00     41.11
     3.27     37.41      8.27     37.41     13.27     37.71     18.27     37.91
    23.27     38.41     28.27     37.21     33.27     36.91     38.27     36.91
    43.27     36.41     48.27     37.41     53.27     37.41     58.27     37.71
    58.27     41.41     70.63     43.74     93.02     51.81
5.0K        510.0     0.035     41.0      0.5       50   25     4   20
   -12.62     53.83     -2.78     45.32     -0.23     43.06      0.00     42.69
     0.00     42.19      3.80     28.54      8.80     32.54     13.80     34.84
    18.80     37.74     23.80     39.54     28.80     39.54     33.80     40.34
    38.80     40.54     43.80     40.54     48.80     40.54     53.80     40.54
    58.72     40.54     63.72     40.54     68.72     41.03     68.72     41.54
    73.14     42.54     83.80     43.80     89.67     44.50     93.80     44.50
   105.48     50.33
5.5K        500.0     0.035     41.0      0.5       20   18     2   14
   -10.78     49.67      0.00     43.40      0.00     41.70      5.83     39.79
    10.83     38.09     15.83     38.29     20.83     38.29     25.83     39.79
    30.83     37.99     35.83     37.79     40.83     38.79     45.72     37.99
    50.72     41.79     50.72     43.49     53.53     45.09     66.83     45.60
    83.09     47.78     92.20     52.71
6.0K        500.0     0.035     42.0      0.5       20   24     4   18
   -26.58     50.21     -7.22     43.92      0.00     41.85      0.00     42.05
     8.54     41.45     13.54     41.45     18.54     41.45     23.54     40.95
    28.54     40.75     33.54     39.95     38.54     40.15     43.54     39.70
    48.54     39.15     53.54     39.45     58.54     38.45     63.54     36.95
    68.54     41.75     68.54     41.95     72.46     44.60     74.09     44.64
    85.65     44.52     90.61     45.58    127.81     48.74    157.92     67.65
6.5K        500.0     0.035     42.0      0.5       20   26     3   21
   -32.83     53.48    -13.01     47.14     -3.37     45.55      0.00     42.66
     0.00     42.29      2.24     38.14      7.24     38.14     12.24     38.14
    17.24     38.14     22.24     39.14     27.24     38.14     32.24     38.64
    37.24     38.14     42.24     36.44     47.24     36.64     52.24     38.14
    57.24     38.14     61.34     38.14     66.34     42.14     66.34     42.50
    69.55     45.44     77.24     45.08    172.42     45.87    208.88     45.20
   242.86     47.80    263.83     55.95
7.0K        480.0     0.035     43.0      0.5       20   29     4   18
   -18.94     48.58    -11.72     45.70     -4.71     42.97      0.00     42.57
     0.00     40.12      5.18     37.07     10.76     37.57     15.76     37.57
    20.76     37.07     25.76     37.77     30.76     37.57     35.76     36.07
    40.76     37.07     45.76     36.57     50.76     39.57     55.18     39.87
    60.18     40.12     60.18     42.57     62.76     41.74     73.76     44.32
    81.65     44.56     88.04     44.76     91.69     43.46    175.17     44.96
   245.01     45.61    295.55     45.46    374.08     45.53    445.21     46.66
   485.59     58.58
7.5K        550.0     0.035     43.0      0.5       20   30     2   30
   -38.45     51.30    -31.59     51.30    -22.21     45.55    -17.70     44.87
   -16.96     44.35    -14.49     43.85     -7.44     44.21     -3.66     45.96
    -1.79     44.98      0.00     44.33      0.00     44.31      6.25     43.60
    11.25     43.60     16.25     43.60     21.25     43.60     26.25     41.50
    31.25     42.25     36.25     42.50     41.25     41.50     46.25     40.75
    51.25     40.75     56.25     39.25     61.25     39.75     66.25     44.25
    68.25     46.48     72.22     48.64     75.21     51.30     86.75     51.30
    96.46     51.30    108.25     51.30
8.0K        500.0     0.035     44.0      0.5       20   26     8   18
   -89.44     48.95    -44.13     48.77    -38.10     46.85     -8.17     45.83
    -2.65     45.80     -1.93     43.71      0.00     43.55      0.00     43.17
     5.00     40.15      9.99     36.75     15.00     38.05     20.00     39.05
    25.00     39.45     30.00     39.55     34.99     39.95     39.99     40.55
    44.99     41.05     48.03     43.16     48.03     43.55     53.48     43.90
    78.79     45.38     97.93     52.85    194.13     44.03    259.93     44.95
   311.07     47.66    330.21     55.61
9.5K       1070.0     0.035     45.0      0.5       20   30     3    9
  -267.34     49.71   -250.97     49.69   -241.67     47.54   -178.82     45.79
  -116.92     46.15    -72.43     45.51    -40.46     45.09    -28.41     44.58
   -27.33     44.33      0.00     44.19      0.00     44.01      5.18     42.75
    10.18     43.22     15.18     43.22     20.18     43.22     25.18     42.02
    30.18     40.62     35.18     40.72     40.18     40.22     45.18     40.42
    50.18     40.22     55.18     39.22     60.18     39.22     65.18     44.05
    65.18     44.22     70.88     47.27    147.94     47.39    209.40     48.11
   304.43     44.89    346.21     44.48
10.0K       370.0     0.035     45.0      0.5       20   22     7   16
```

INPUT DATA

```
  -150.65     45.84   -107.29     45.82    -65.62     45.69    -14.63     45.27
    -1.34     44.55      0.00     44.34      0.00     44.21      5.25     40.26
    10.50     40.76     15.74     39.76     20.99     40.46     26.24     39.76
    31.49     40.46     36.73     40.76     41.98     41.36     47.23     44.33
    47.23     44.46     89.24     44.87    151.49     44.61    153.64     45.77
   285.07     47.35    289.06     49.65
10.5K        500.0      0.035    46.0       0.5      20   25    9   20
  -156.69     46.49    -93.72     46.08    -50.56     46.08    -49.18     45.68
   -34.79     45.67    -30.49     45.78    -28.50     45.27      0.00     44.74
     0.00     44.08      4.07     43.57      9.07     43.27     14.07     42.27
    19.07     41.77     24.07     41.07     29.07     39.77     34.07     40.77
    39.07     38.77     44.07     37.77     49.07     37.77     54.07     44.56
    54.07     44.77     56.01     46.89    138.20     46.23    201.70     49.58
   214.40     50.26
11.0K        500.0      0.035    46.0       0.5      20   26    5   17
   -28.94     47.41    -21.79     47.75     -0.43     47.73      0.00     45.01
     0.00     44.82      5.02     41.95     10.02     40.95     15.02     40.45
    20.02     40.95     25.02     38.95     30.02     36.95     35.02     42.95
    40.02     42.75     45.02     42.95     50.02     43.15     55.02     43.15
    60.02     43.95     65.02     43.95     70.02     44.50     75.02     44.77
    75.02     44.95     99.01     45.92    132.87     46.16    182.01     47.07
   231.14     47.94    261.36     48.00
  50    0    44.00    2600.0
 100    0    44.40    2900.0
 100    0    45.00    5000.0
99999
```



NOTE: Numbers show top of dike elevation.

LIBOGANON RIVER BANK ELEVATION

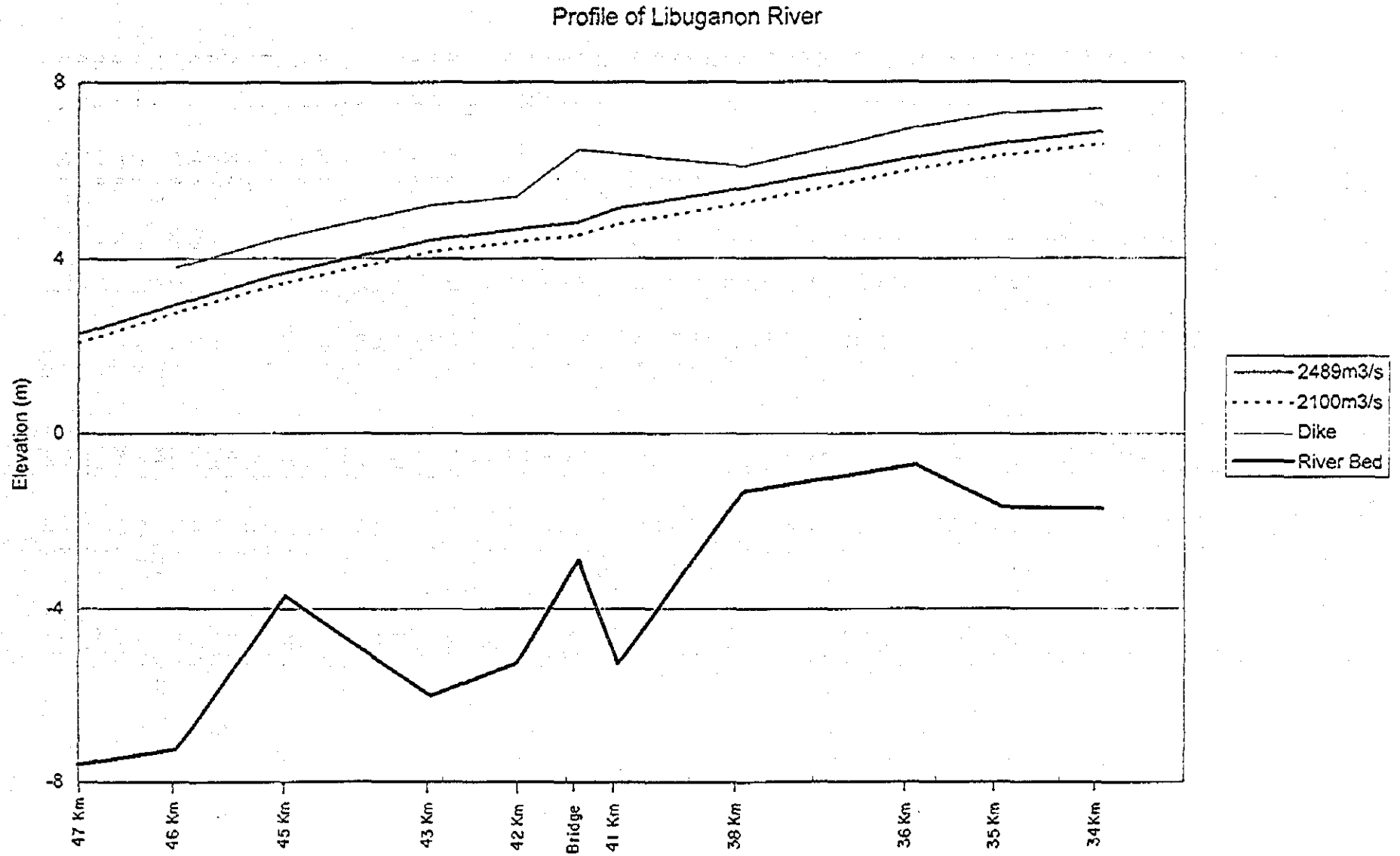
RESULT OF ANALYSIS

LIBUGANON RIVER NON-UNIFORM FLOW CALCULATION 2100m3/s

NO	D-NAME	H	A	R	B	V
1	47.0K	2.100	1920.8	1.615	2026.4	1.093
2	46.0K	2.772	1563.4	2.752	809.6	1.343
3	45.0K	3.451	1683.7	2.503	807.0	1.247
4	43.0K	4.158	2058.9	2.904	809.9	1.020
5	42.0K	4.379	2676.3	3.776	801.0	.785
6	bridge	4.528	1436.8	3.151	555.3	1.462
7	41.0K	4.773	2409.7	2.551	1171.6	.871
8	38.0K	5.242	1907.1	2.361	948.0	1.101
9	36.0K	6.042	1974.4	2.552	904.8	1.064
10	35.0K	6.361	2381.2	2.636	1048.2	.882
11	34.0K	6.620	2523.8	2.706	1048.0	.832

LIBUGANON RIVER NON-UNIFO 2489m3/s

NO	D-NAME	H	A	R	B	V
1	47.0K	2.300	2326.2	1.706	2027.2	1.070
2	46.0K	2.947	1705.0	2.844	810.1	1.460
3	45.0K	3.686	1873.5	2.692	808.4	1.329
4	43.0K	4.420	2271.2	3.123	811.2	1.096
5	42.0K	4.656	2898.2	4.010	802.1	.859
6	bridge	4.826	1494.4	3.277	577.6	1.666
7	41.0K	5.129	2618.9	2.708	1198.6	.950
8	38.0K	5.585	2232.2	2.642	949.1	1.115
9	36.0K	6.322	2228.3	2.788	905.2	1.117
10	35.0K	6.638	2672.0	2.867	1049.1	.931
11	34.0K	6.898	2815.3	2.947	1048.9	.884



PROFILE OF HIGH WATER LEVEL: LIBOGANON RIVER

INPUT DATA

```
   0    0    0    1    1    0    1    1    0    0
          LIBUGANON RIVER  NON-UNIFORM FLOW CALCULATION
  11    0    1.0      0.0005      0.8        1.000     0.0005      0.5
  DANMEN TOKUSEI   untill 47.0 K ------EXISTING CROSS SECTION
   1
   1    0    1    0
47.0K          0.0       0.040     2.0       0.5       10   14    3    9
   3844.0       4.60     3852.0      1.20    4852.0       1.60   4869.0    -7.39
   4875.0      -7.00     4878.0     -7.59    4900.0      -2.75   4922.0    -2.20
   4931.0       1.59     4960.0      1.20    4972.0       0.60   4978.0     1.38
   5875.0       1.20     5880.0      4.60
46.0K        800.0       0.040     2.0       0.5       10   11    4    9
   4745.0       5.10     4750.0      1.40    4755.0       1.10   5055.0     1.60
   5060.0      -0.80     5103.0     -3.00    5129.0      -7.25   5136.0    -6.70
   5151.0       1.48     5555.0      1.30    5562.0       5.10
45.0K        900.0       0.040     2.0       0.5       10   11    3    7
   4710.0       5.60     4720.0      2.80    4820.0       2.80   4832.0    -3.12
   4870.0      -2.85     4878.0     -3.70    4890.0       1.25   4910.0     1.60
   5240.0       1.45     5520.0      1.60    5530.0       5.60
43.0K       1200.0       0.040     3.0       0.5       10   18    9   14
   4440.0       6.30     4450.0      2.10    4455.0       2.10   4644.0     1.90
   4809.0       2.40     4885.0      1.20    4982.0       1.95   4984.0     2.55
   4990.0       2.50     4998.0     -0.60    5007.0      -1.30   5035.0    -6.00
   5043.0      -5.00     5050.0      2.20    5072.0       1.45   5106.0     1.95
   5250.0       2.00     5260.0      6.30
42.0K        700.0       0.040     3.0       0.5       10   15    5   11
   4288.0       6.70     4298.0      0.85    4450.0       1.10   4516.0     1.60
   4518.0       2.50     4522.0     -3.05    4532.0      -5.20   4544.0    -5.25
   4582.0      -2.60     4598.0     -0.05    4600.0       1.70   4605.0     1.90
   4950.0       1.45     5088.0      2.10    5098.0       6.70
bridge       500.0       0.040     5.0       0.5       10   20    4   15
   3540.0       6.40     3550.0      3.10    3580.0       3.10   3638.0     3.10
   3641.0       0.90     3654.0     -0.90    3656.0      -2.40   3662.0    -1.60
   3672.0      -2.50     3690.0     -2.50    3696.0      -2.90   3702.0    -1.70
   3706.0      -1.40     3716.0     -2.40    3730.0       2.70   3744.0     3.10
   3762.0       3.10     3770.0      3.10    4130.0       3.10   4140.0     7.03
41.0K        320.0       0.040     5.0       0.5       10   17    8   12
    108.0       8.50      118.0      2.60     150.0       4.45    166.0     3.22
    172.0       4.20      209.0      4.10     220.0       2.55    468.0     4.10
    484.0       0.15      496.0     -5.25     526.0      -4.80    541.0     3.40
    594.0       3.70      890.0      3.35    1220.0       2.60   1308.0     2.60
   1318.0       8.50
38.0K       1020.0       0.040     5.0       0.5       10   22    7   17
   3441.5       8.75     3452.4      3.10    3614.0       4.17   3628.0     4.42
   3632.0       4.18     3638.0      4.30    3640.0       4.20   3642.0     1.50
   3644.0       1.40     3646.0      0.50    3648.0       0.30   3664.0     0.15
   3686.0      -0.90     3700.0     -0.90    3708.0      -1.35   3714.0    -1.10
   3718.0       4.60     3746.0      4.15    4066.0       3.75   4300.0     2.60
   4391.5       2.10     4401.5      8.75
36.0K       1400.0       0.040     5.0       0.5       10   24   11   21
   1562.0       9.70     1572.0      2.60    1700.0       3.10   1822.0     4.55
   1945.0       3.90     1960.0      4.15    2110.0       4.50   2122.0     4.78
   2167.0       4.70     2170.0      4.50    2172.0       5.00   2174.0     1.56
   2176.0       1.30     2178.0      0.70    2180.0      -0.50   2184.0    -0.68
   2195.0      -0.57     2205.0     -0.71    2224.0      -0.40   2230.0     0.20
   2238.0       3.10     2240.0      4.50    2255.0       5.00   2472.0     4.60
35.0K        700.0       0.040     6.0       0.5       10   35   12   29
   1094.0       9.95     1101.0      3.60    1356.0       4.30   1658.0     4.78
   1660.0       5.00     1696.0      5.22    1698.0       4.85   1702.0     4.90
   1704.0       4.50     1706.0      4.50    1708.0       4.15   1710.0     4.00
   1716.0       0.93     1718.0     -0.95    1720.0      -1.59   1722.0    -1.72
   1724.0      -1.40     1726.0     -0.61    1728.0      -0.70   1732.0    -0.17
   1743.0      -0.41     1746.0     -0.60    1750.0      -0.40   1752.0    -0.65
   1760.0      -0.67     1764.0     -0.42    1768.0      -0.70   1776.0     0.54
   1780.0       5.08     1830.0      4.66    1875.0       4.98   2014.0     4.10
   2130.0       4.12     2144.0      4.10    2154.0       9.95
34.0K        800.0       0.040     6.0       0.5       10   22    6   12
   1726.0      10.09     1736.0      4.53    1940.0       4.92   1958.0     4.30
   2033.0       5.04     2036.0      4.81    2038.0       0.80   2044.0    -1.75
   2048.0      -1.68     2057.0     -0.61    2094.0       0.80   2100.0     4.40
   2108.0       4.85     2166.0      4.55    2178.0       4.10   2203.0     4.58
   2356.0       4.12     2358.0      4.85    2450.0       4.54   2632.5     4.10
   2776.0       4.10     2786.0     10.09
   1    0    2.10    2100.0
   2    0    2.30    2489.0
   3    0    2.50    2854.0
99999
```

APPENDICES FOR CHAPTER 8

APPENDIX 8.3-1

CUMULATIVE ESAL FOR EACH TRAFFIC LOADING CLASS

SECTION 21 TRAFFIC LOADING CLASS A

YEAR	BUS (Per Lane)	TRUCK (Per Lane)	BUS Factor	TRUCK Factor	18-kip ESAL Per Day	18-KIP ESAL Per Year	Cumulative ESAL
1994	522	1061	0.9	2.5	3,122.00	1,139,640.00	
1995	564	1138	0.9	2.5	3,353.00	1,223,699.00	
1996	609	1222	0.9	2.5	3,603.00	1,315,132.00	
1997	659	1311	0.9	2.5	3,871.00	1,412,769.00	
1998	712	1406	0.9	2.5	4,156.00	1,516,867.00	1,516,867.00
1999	770	1509	0.9	2.5	4,466.00	1,629,908.00	3,146,775.00
2000	832	1619	0.9	2.5	4,796.00	1,750,650.00	4,897,425.00
2001	885	1712	0.9	2.5	5,077.00	1,852,923.00	6,750,348.00
2002	942	1809	0.9	2.5	5,370.00	1,960,160.00	8,710,508.00
2003	1002	1912	0.9	2.5	5,682.00	2,073,857.00	10,784,365.00
2004	1067	2021	0.9	2.5	6,013.00	2,194,672.00	12,979,037.00
2005	1135	2136	0.9	2.5	6,362.00	2,321,948.00	15,300,985.00
2006	1207	2258	0.9	2.5	6,731.00	2,456,925.00	17,757,910.00
2007	1285	2387	0.9	2.5	7,124.00	2,600,260.00	20,358,170.00
2008	1367	2523	0.9	2.5	7,538.00	2,751,297.00	23,109,467.00
2009	1454	2667	0.9	2.5	7,976.00	2,911,277.00	26,020,744.00
2010	1547	2819	0.9	2.5	8,440.00	3,080,527.00	29,101,271.00
2011	1625	2954	0.9	2.5	8,848.00	3,229,338.00	32,330,609.00
2012	1706	3096	0.9	2.5	9,275.00	3,385,521.00	35,716,130.00
2013	1791	3244	0.9	2.5	9,722.00	3,548,494.00	39,264,624.00
2014	1881	3400	0.9	2.5	10,193.00	3,720,409.00	42,985,033.00
2015	1975	3563	0.9	2.5	10,685.00	3,900,025.00	46,885,058.00
2016	2074	3734	0.9	2.5	11,202.00	4,088,584.00	50,973,642.00
2017	2177	3914	0.9	2.5	11,744.00	4,286,670.00	55,260,312.00
2018	2286	4102	0.9	2.5	12,312.00	4,494,026.00	59,754,338.00
2019	2401	4298	0.9	2.5	12,906.00	4,710,654.00	64,464,992.00
2020	2521	4505	0.9	2.5	13,531.00	4,938,961.00	69,403,953.00
2021	2647	4730	0.9	2.5	14,207.00	5,185,665.00	74,589,618.00
2022	2773	4955	0.9	2.5	14,883.00	5,432,368.00	80,021,986.00
						80,021,986.00	

SECTION 20 TRAFFIC LOADING CLASS B

YEAR	BUS (Per Lane)	TRUCK (Per Lane)	BUS Factor	TRUCK Factor	18-kip ESAL Per Day	18-KIP ESAL Per Year	Cumulative ESAL
1994	453.00	763.00	0.9	2.5	2,315.00	845,048.00	
1995	469.00	819.00	0.9	2.5	2,488.00	907,974.00	
1996	529.00	878.00	0.9	2.5	2,671.00	974,952.00	
1997	572.00	943.00	0.9	2.5	2,872.00	1,048,390.00	
1998	618.00	1,011.00	0.9	2.5	3,084.00	1,125,551.00	1,125,551.00
1999	668.00	1,085.00	0.9	2.5	3,314.00	1,209,501.00	2,335,052.00
2000	722.00	1,164.00	0.9	2.5	3,560.00	1,299,327.00	3,634,379.00
2001	768.00	1,231.00	0.9	2.5	3,769.00	1,375,576.00	5,009,955.00
2002	817.00	1,301.00	0.9	2.5	3,988.00	1,455,547.00	6,465,502.00
2003	870.00	1,375.00	0.9	2.5	4,221.00	1,540,483.00	8,005,985.00
2004	925.00	1,454.00	0.9	2.5	4,468.00	1,630,638.00	9,636,623.00
2005	985.00	1,536.00	0.9	2.5	4,727.00	1,725,173.00	11,361,796.00
2006	1,048.00	1,624.00	0.9	2.5	5,003.00	1,826,168.00	13,187,964.00
2007	1,115.00	1,717.00	0.9	2.5	5,296.00	1,933,040.00	15,121,004.00
2008	1,186.00	1,814.00	0.9	2.5	5,602.00	2,044,876.00	17,165,880.00
2009	1,262.00	1,918.00	0.9	2.5	5,931.00	2,164,742.00	19,330,622.00
2010	1,343.00	2,027.00	0.9	2.5	6,276.00	2,290,813.00	21,621,435.00
2011	1,410.00	2,124.00	0.9	2.5	6,579.00	2,401,335.00	24,022,770.00
2012	1,480.00	2,226.00	0.9	2.5	6,897.00	2,517,405.00	26,540,175.00
2013	1,554.00	2,333.00	0.9	2.5	7,231.00	2,639,352.00	29,179,527.00
2014	1,632.00	2,445.00	0.9	2.5	7,581.00	2,767,175.00	31,946,702.00
2015	1,714.00	2,563.00	0.9	2.5	7,950.00	2,901,787.00	34,848,489.00
2016	1,799.00	2,686.00	0.9	2.5	8,334.00	3,041,947.00	37,890,436.00
2017	1,889.00	2,815.00	0.9	2.5	8,738.00	3,189,224.00	41,079,660.00
2018	1,984.00	2,950.00	0.9	2.5	9,161.00	3,343,619.00	44,423,279.00
2019	2,083.00	3,091.00	0.9	2.5	9,602.00	3,504,803.00	47,928,082.00
2020	2,187.00	3,240.00	0.9	2.5	10,068.00	3,674,930.00	51,603,012.00
2021	2,297.00	3,402.00	0.9	2.5	10,572.00	3,858,890.00	55,461,902.00
2022	2,406.00	3,564.00	0.9	2.5	11,075.00	4,042,521.00	59,504,423.00
						59,504,423.00	

SECTION 19 TRAFFIC LOADING CLASS C

YEAR	BUS (Per Lane)	TRUCK (Per Lane)	BUS Factor	TRUCK Factor	18-kip ESAL Per Day	18-KIP ESAL Per Year	Cumulative ESAL
1994	244.00	569.00	1.5	1.8	1,390.00	507,423.00	
1995	264.00	615.00	1.5	1.8	1,503.00	548,595.00	
1996	285.00	666.00	1.5	1.8	1,626.00	593,600.00	
1997	308.00	720.00	1.5	1.8	1,758.00	641,670.00	
1998	333.00	779.00	1.5	1.8	1,902.00	694,121.00	694,121.00
1999	360.00	843.00	1.5	1.8	2,057.00	750,951.00	1,445,072.00
2000	389.00	912.00	1.5	1.8	2,225.00	812,162.00	2,257,234.00
2001	414.00	957.00	1.5	1.8	2,344.00	855,414.00	3,112,648.00
2002	441.00	1,004.00	1.5	1.8	2,469.00	901,076.00	4,013,724.00
2003	469.00	1,053.00	1.5	1.8	2,599.00	948,599.00	4,962,323.00
2004	499.00	1,105.00	1.5	1.8	2,738.00	999,188.00	5,961,511.00
2005	531.00	1,159.00	1.5	1.8	2,883.00	1,052,186.00	7,013,697.00
2006	565.00	1,215.00	1.5	1.8	3,035.00	1,107,593.00	8,121,290.00
2007	601.00	1,275.00	1.5	1.8	3,197.00	1,166,723.00	9,288,013.00
2008	640.00	1,338.00	1.5	1.8	3,368.00	1,229,466.00	10,517,479.00
2009	680.00	1,403.00	1.5	1.8	3,545.00	1,294,071.00	11,811,550.00
2010	724.00	1,472.00	1.5	1.8	3,736.00	1,363,494.00	13,175,044.00
2011	760.00	1,534.00	1.5	1.8	3,901.00	1,423,938.00	14,598,982.00
2012	798.00	1,598.00	1.5	1.8	4,073.00	1,486,791.00	16,085,773.00
2013	838.00	1,665.00	1.5	1.8	4,254.00	1,552,710.00	17,638,483.00
2014	880.00	1,735.00	1.5	1.8	4,443.00	1,621,695.00	19,260,178.00
2015	924.00	1,808.00	1.5	1.8	4,640.00	1,693,746.00	20,953,924.00
2016	970.00	1,884.00	1.5	1.8	4,846.00	1,768,863.00	22,722,787.00
2017	1,019.00	1,963.00	1.5	1.8	5,062.00	1,847,594.00	24,570,381.00
2018	1,070.00	2,045.00	1.5	1.8	5,286.00	1,929,390.00	26,499,771.00
2019	1,123.00	2,131.00	1.5	1.8	5,520.00	2,014,910.00	28,514,681.00
2020	1,179.00	2,221.00	1.5	1.8	5,766.00	2,104,700.00	30,619,381.00
2021	1,238.00	2,332.00	1.5	1.8	6,055.00	2,209,929.00	32,829,310.00
2022	1,297.00	2,443.00	1.5	1.8	6,343.00	2,315,159.00	35,144,469.00
						35,144,469.00	

SECTION 18 TRAFFIC LOADING CLASS D

YEAR	BUS (Per Lane)	TRUCK (Per Lane)	BUS Factor	TRUCK Factor	18-kip ESAL Per Day	18-KIP ESAL Per Year	Cumulative ESAL
1994	159.00	337.00	1.5	1.8	845.00	308,462.00	
1995	172.00	364.00	1.5	1.8	913.00	333,318.00	
1996	186.00	394.00	1.5	1.8	988.00	360,693.00	
1997	201.00	426.00	1.5	1.8	1,068.00	389,930.00	
1998	217.00	461.00	1.5	1.8	1,155.00	421,685.00	421,685.00
1999	235.00	499.00	1.5	1.8	1,251.00	456,506.00	878,191.00
2000	254.00	540.00	1.5	1.8	1,353.00	493,845.00	1,372,036.00
2001	270.00	566.00	1.5	1.8	1,424.00	519,687.00	1,891,723.00
2002	287.00	594.00	1.5	1.8	1,500.00	547,391.00	2,439,114.00
2003	306.00	623.00	1.5	1.8	1,580.00	576,846.00	3,015,960.00
2004	325.00	654.00	1.5	1.8	1,665.00	607,616.00	3,623,576.00
2005	346.00	686.00	1.5	1.8	1,754.00	640,137.00	4,263,713.00
2006	368.00	719.00	1.5	1.8	1,846.00	673,863.00	4,937,576.00
2007	392.00	755.00	1.5	1.8	1,847.00	710,655.00	5,648,231.00
2008	417.00	792.00	1.5	1.8	2,051.00	748,652.00	6,396,883.00
2009	443.00	830.00	1.5	1.8	2,159.00	787,853.00	7,184,736.00
2010	472.00	871.00	1.5	1.8	2,276.00	830,667.00	8,015,403.00
2011	495.00	908.00	1.5	1.8	2,377.00	867,569.00	8,882,972.00
2012	520.00	946.00	1.5	1.8	2,483.00	906,222.00	9,789,194.00
2013	546.00	986.00	1.5	1.8	2,594.00	946,737.00	10,735,931.00
2014	573.00	1,027.00	1.5	1.8	2,708.00	988,457.00	11,724,388.00
2015	602.00	1,070.00	1.5	1.8	2,829.00	1,032,585.00	12,756,973.00
2016	632.00	1,115.00	1.5	1.8	2,955.00	1,078,575.00	13,835,548.00
2017	664.00	1,162.00	1.5	1.8	3,088.00	1,126,974.00	14,962,522.00
2018	697.00	1,211.00	1.5	1.8	3,225.00	1,177,235.00	16,139,757.00
2019	732.00	1,262.00	1.5	1.8	3,370.00	1,229,904.00	17,369,661.00
2020	769.00	1,315.00	1.5	1.8	3,521.00	1,284,983.00	18,654,644.00
2021	807.00	1,380.00	1.5	1.8	3,695.00	1,348,493.00	20,003,137.00
2022	845.00	1,446.00	1.5	1.8	3,870.00	1,412,660.00	21,415,797.00
						21,415,797.00	

SECTION 9 TRAFFIC LOADING CLASS E

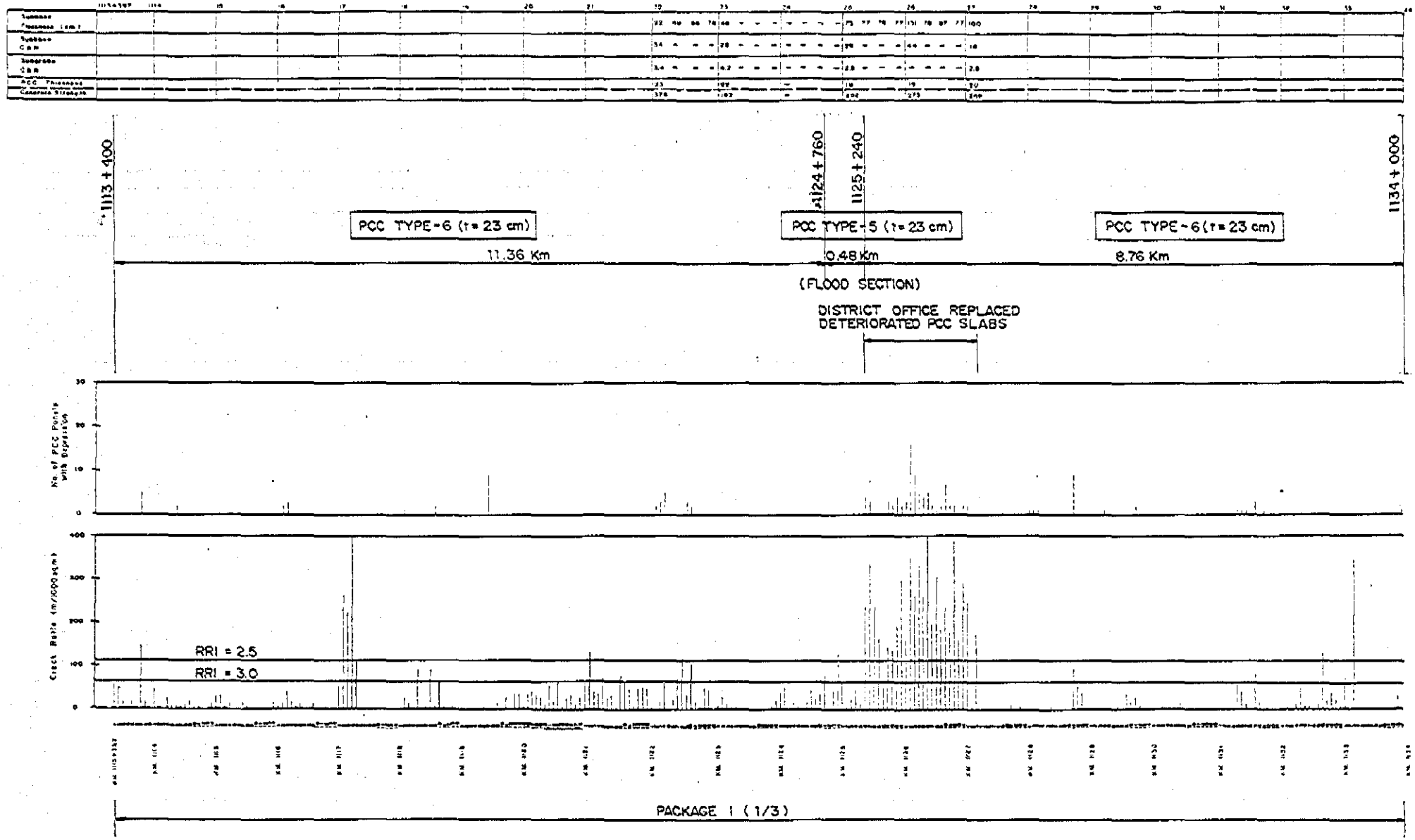
YEAR	BUS (Per Lane)	TRUCK (Per Lane)	BUS Factor	TRUCK Factor	18-kip ESAL Per Day	18-KIP ESAL Per Year	Cumulative ESAL
1994	95.00	246.00	1.5	1.8	585.00	213,635.00	
1995	103.00	265.00	1.5	1.8	632.00	230,498.00	
1996	113.00	287.00	1.5	1.8	686.00	250,427.00	
1997	124.00	310.00	1.5	1.8	744.00	271,560.00	
1998	135.00	335.00	1.5	1.8	806.00	294,008.00	294,008.00
1999	148.00	362.00	1.5	1.8	874.00	318,864.00	612,872.00
2000	162.00	392.00	1.5	1.8	949.00	346,239.00	959,111.00
2001	174.00	411.00	1.5	1.8	1,001.00	365,292.00	1,324,403.00
2002	186.00	431.00	1.5	1.8	1,055.00	385,002.00	1,709,405.00
2003	199.00	452.00	1.5	1.8	1,112.00	405,917.00	2,115,322.00
2004	213.00	474.00	1.5	1.8	1,173.00	428,036.00	2,543,358.00
2005	228.00	498.00	1.5	1.8	1,238.00	452,016.00	2,995,374.00
2006	244.00	522.00	1.5	1.8	1,306.00	476,544.00	3,471,918.00
2007	262.00	548.00	1.5	1.8	1,379.00	503,481.00	3,975,399.00
2008	280.00	574.00	1.5	1.8	1,453.00	530,418.00	4,505,817.00
2009	300.00	603.00	1.5	1.8	1,535.00	560,421.00	5,066,238.00
2010	322.00	632.00	1.5	1.8	1,621.00	591,519.00	5,657,757.00
2011	339.00	659.00	1.5	1.8	1,695.00	618,566.00	6,276,323.00
2012	358.00	688.00	1.5	1.8	1,775.00	648,021.00	6,924,344.00
2013	378.00	717.00	1.5	1.8	1,858.00	678,024.00	7,602,368.00
2014	399.00	748.00	1.5	1.8	1,945.00	709,889.00	8,312,257.00
2015	420.00	780.00	1.5	1.8	2,034.00	742,410.00	9,054,667.00
2016	444.00	814.00	1.5	1.8	2,131.00	777,888.00	9,832,555.00
2017	468.00	849.00	1.5	1.8	2,230.00	814,023.00	10,646,578.00
2018	494.00	885.00	1.5	1.8	2,334.00	851,910.00	11,498,488.00
2019	521.00	923.00	1.5	1.8	2,443.00	891,659.00	12,390,147.00
2020	549.00	963.00	1.5	1.8	2,557.00	933,269.00	13,323,416.00
2021	577.00	1,011.00	1.5	1.8	2,685.00	980,135.00	14,303,551.00
2022	604.00	1,059.00	1.5	1.8	2,812.00	1,026,453.00	15,330,004.00
							15,330,004.00

SECTION 12 TRAFFIC LOADING CLASS F

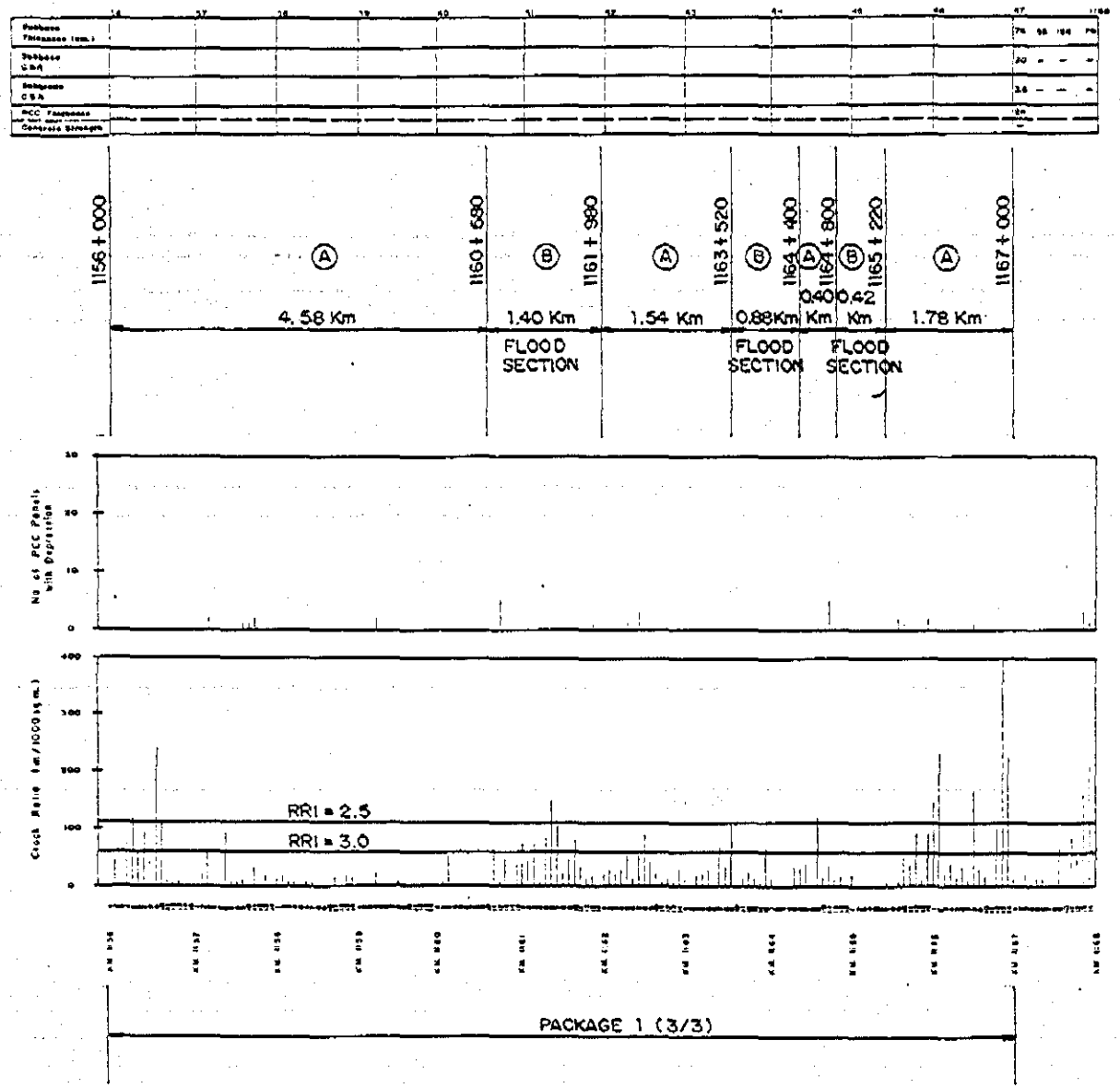
YEAR	BUS (Per Lane)	TRUCK (Per Lane)	BUS Factor	TRUCK Factor	18-kip ESAL Per Day	18-KIP ESAL Per Year	Cumulative ESAL
1994	58.00	148.00	1.5	1.8	353.00	128,991.00	
1995	63.00	160.00	1.5	1.8	383.00	139,613.00	
1996	69.00	173.00	1.5	1.8	415.00	151,439.00	
1997	75.00	187.00	1.5	1.8	449.00	163,922.00	
1998	82.00	202.00	1.5	1.8	487.00	177,609.00	177,609.00
1999	90.00	219.00	1.5	1.8	529.00	193,158.00	370,767.00
2000	99.00	237.00	1.5	1.8	575.00	209,912.00	580,679.00
2001	106.00	248.00	1.5	1.8	605.00	220,971.00	801,650.00
2002	113.00	260.00	1.5	1.8	638.00	232,688.00	1,034,338.00
2003	121.00	273.00	1.5	1.8	673.00	245,609.00	1,279,947.00
2004	130.00	287.00	1.5	1.8	712.00	259,734.00	1,539,681.00
2005	139.00	301.00	1.5	1.8	750.00	273,860.00	1,813,541.00
2006	149.00	315.00	1.5	1.8	791.00	288,533.00	2,102,074.00
2007	159.00	331.00	1.5	1.8	834.00	304,520.00	2,406,594.00
2008	171.00	347.00	1.5	1.8	881.00	321,602.00	2,728,196.00
2009	183.00	364.00	1.5	1.8	930.00	339,341.00	3,067,537.00
2010	196.00	382.00	1.5	1.8	982.00	358,284.00	3,425,821.00
2011	206.00	398.00	1.5	1.8	1,025.00	374,271.00	3,800,092.00
2012	218.00	415.00	1.5	1.8	1,074.00	392,010.00	4,192,102.00
2013	230.00	432.00	1.5	1.8	1,123.00	409,749.00	4,601,851.00
2014	242.00	450.00	1.5	1.8	1,173.00	428,145.00	5,029,996.00
2015	256.00	469.00	1.5	1.8	1,228.00	448,293.00	5,478,289.00
2016	270.00	489.00	1.5	1.8	1,285.00	469,098.00	5,947,387.00
2017	285.00	509.00	1.5	1.8	1,344.00	490,451.00	6,437,838.00
2018	300.00	531.00	1.5	1.8	1,406.00	513,117.00	6,950,955.00
2019	317.00	553.00	1.5	1.8	1,471.00	536,879.00	7,487,834.00
2020	334.00	576.00	1.5	1.8	1,538.00	561,297.00	8,049,131.00
2021	351.00	605.00	1.5	1.8	1,616.00	589,658.00	8,638,789.00
2022	368.00	634.00	1.5	1.8	1,693.00	618,018.00	9,256,807.00
						9,256,807.00	

APPENDIX 8.3-2

PRESENT CONDITION OF EXISTING PAVEMENT


1113 + 400
1124 + 760
1125 + 240
1134 + 000
PCC TYPE-6 (t = 23 cm)
11.36 Km
PCC TYPE-5 (t = 23 cm)
0.48 Km
PCC TYPE-6 (t = 23 cm)
8.76 Km
(FLOOD SECTION)
DISTRICT OFFICE REPLACED
DETERIORATED PCC SLABS
RRI = 2.5
RRI = 3.0
PACKAGE I (1/3)

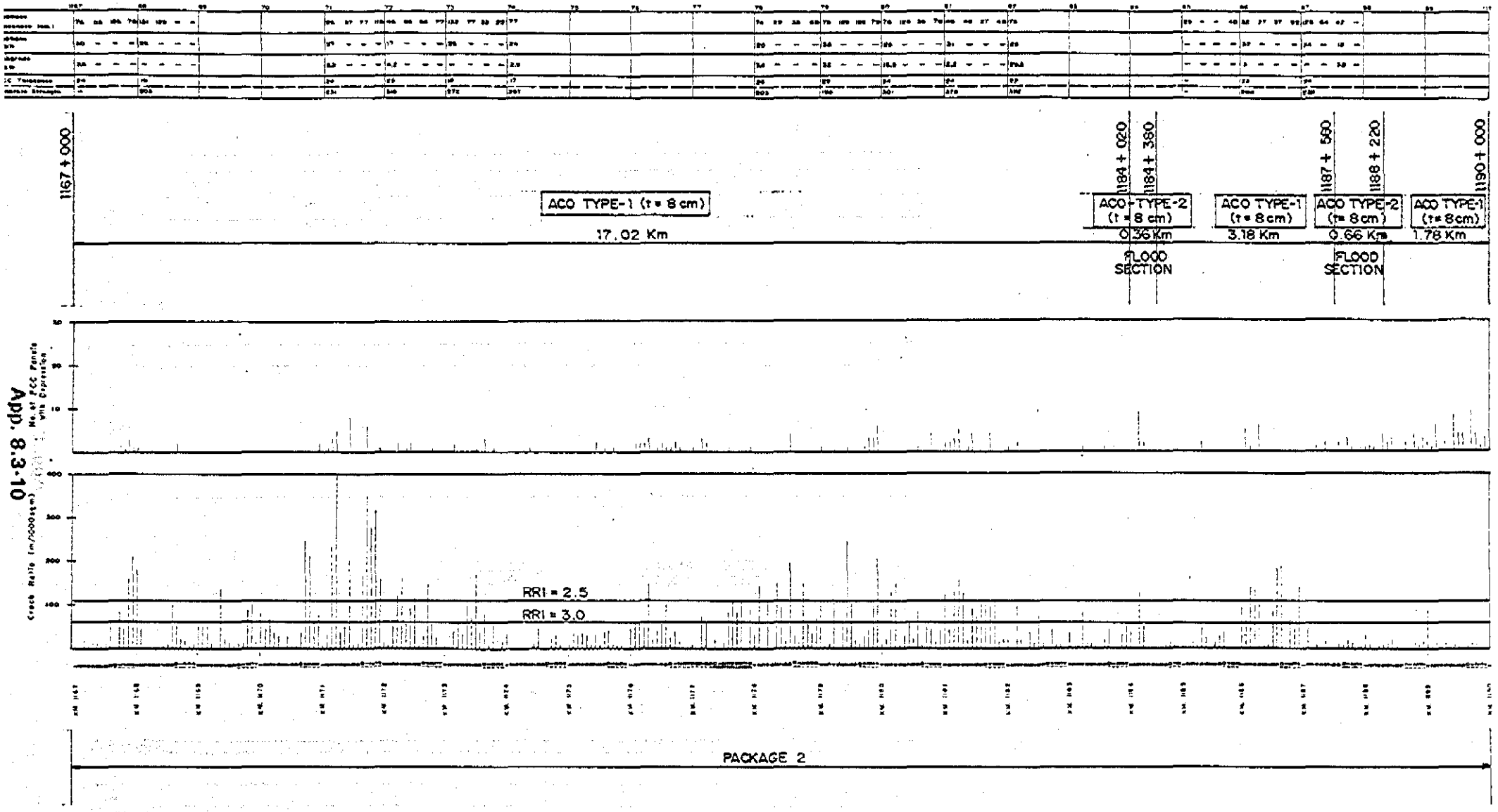
1134+000
1156+000
PCC TYPE - 6 (t = 23 cm)
22.00 K m
RRI = 2.5
RRI = 3.0
PACKAGE 1. (2/3)



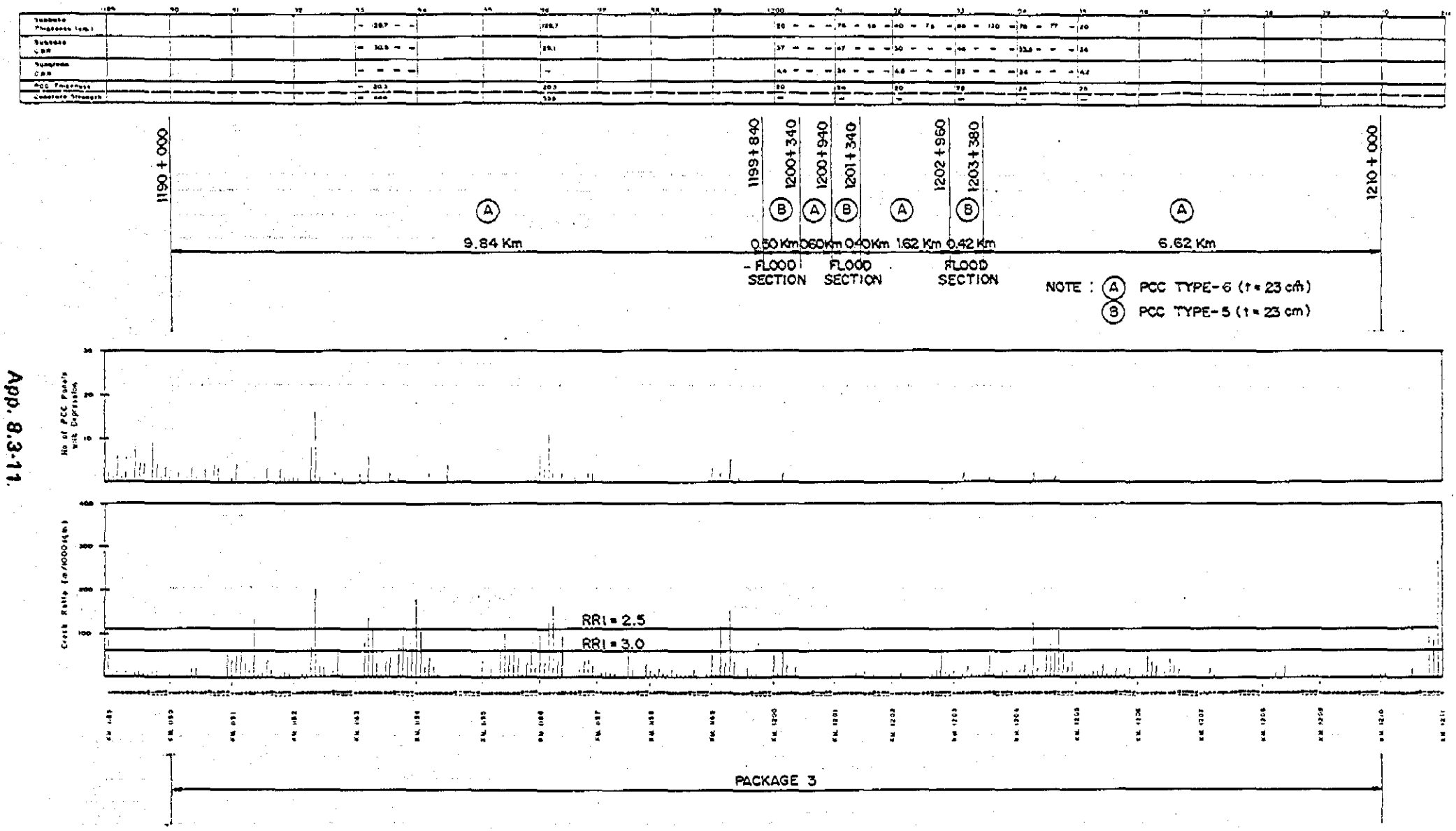
(A) = PCC TYPE - 6 (t = 23 cm)

(B) = PCC TYPE - 5 (t = 23 cm)

App. 8.3.9


1167 + 000
ACO TYPE-1 (t = 8 cm)
17.02 Km
1184 + 020
1184 + 380
ACO TYPE-2 (t = 8 cm)
0.36 Km
FLOOD SECTION
ACO TYPE-1 (t = 8 cm)
3.18 Km
1187 + 560
1188 + 220
ACO TYPE-2 (t = 8 cm)
0.66 Km
FLOOD SECTION
ACO TYPE-1 (t = 8 cm)
1.78 Km
1190 + 000
RRI = 2.5
RRI = 3.0
PACKAGE 2

App. 8.3-10


1190+000
1199+840
1200+340
1200+940
1201+340
1202+960
1203+380
1210+000
A
B
9.84 Km
0.50 Km
0.60 Km
0.40 Km
1.62 Km
0.42 Km
6.62 Km
FLOOD SECTION
FLOOD SECTION
FLOOD SECTION
NOTE : A PCC TYPE-6 (t = 23 cm)
B PCC TYPE-5 (t = 23 cm)
RRI = 2.5
RRI = 3.0
PACKAGE 3

App. 8.3-11

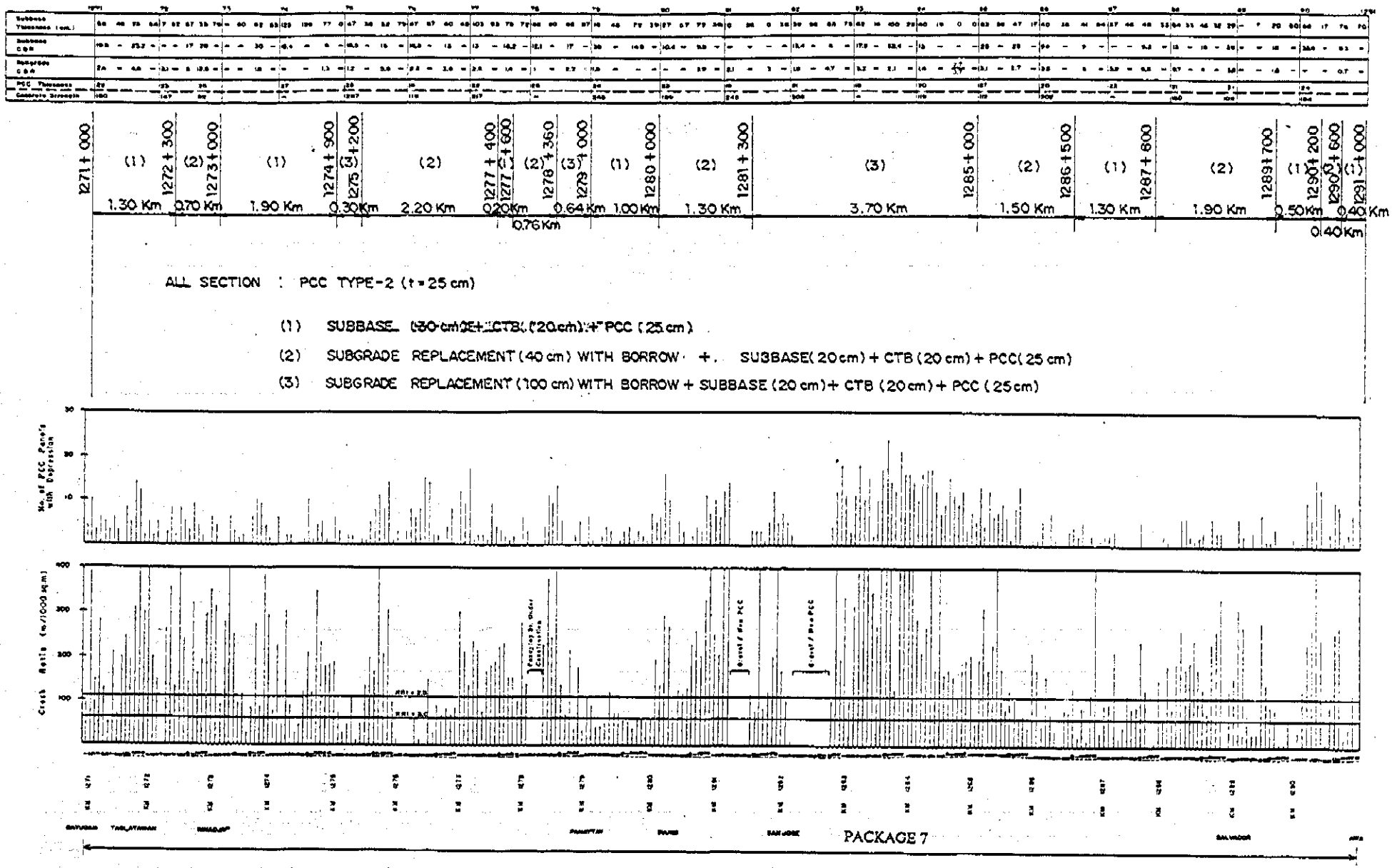
1230+000
PCC TYPE-6 (t=23cm)
9.80 Km
1220+200
1219+670
PCC TYPE-5 (t=23 cm)
0.53 Km
PCC TYPE-6 (t=23cm)
9.67 Km
1210+000
RRI = 2.5
RRI = 3.0
PACKAGE 4 (1/2)

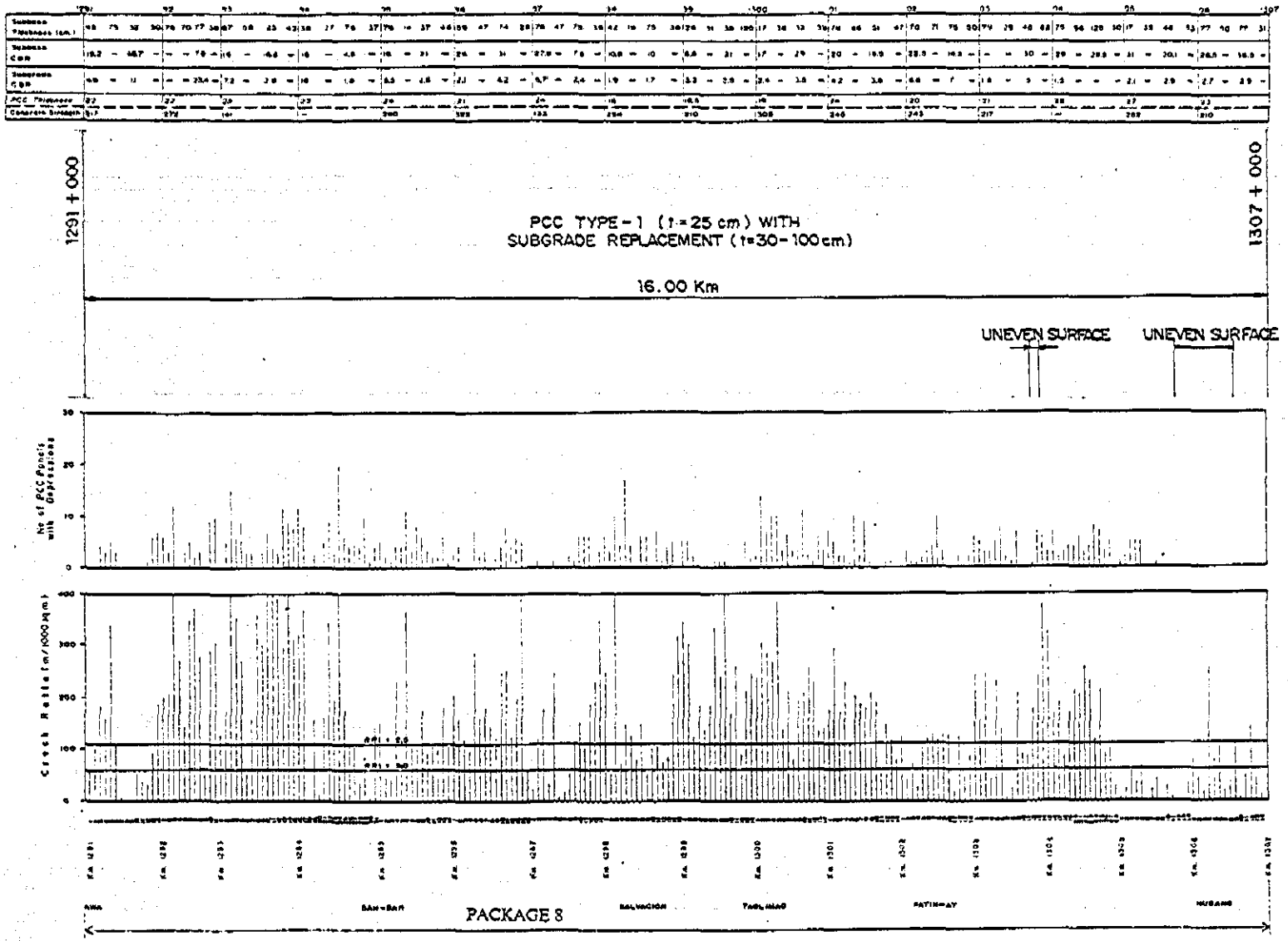
1237+000
PCC TYPE-6 (t = 23 cm)
7.00Km
1230+000
RRI = 2.5
RRI = 3.0
PACKAGE 4 (2/2)

App. 8.3-13

1254+000
PCC TYPE-1 (t=25 cm)
7.60 Km
1246+400
APGA BRIDGE
ACO TYPE-1(t=8 cm)
9.40 Km
1237+000
NEW PAVEMENT
PACKAGE 5

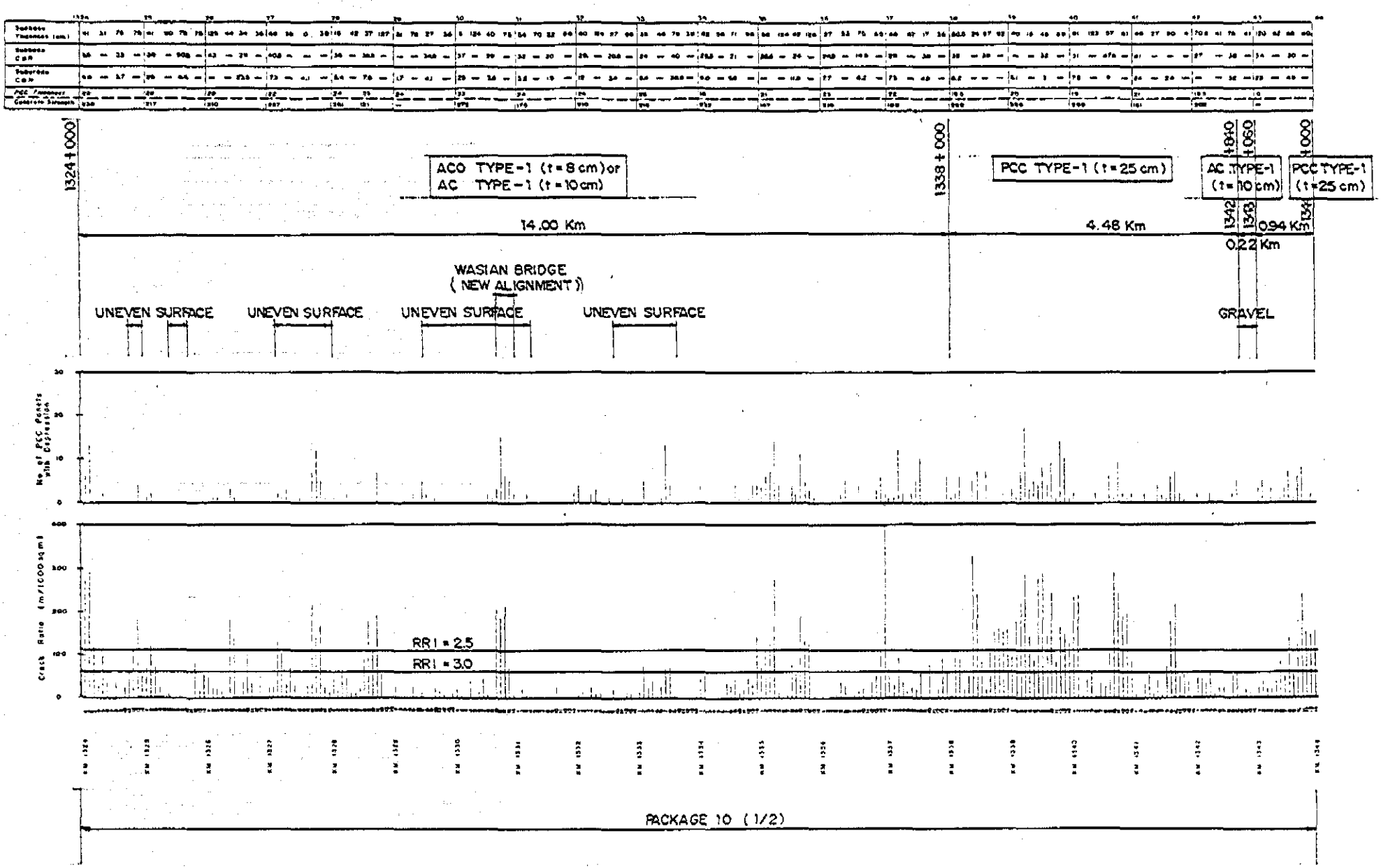
1264+000
1254+300
PCC TYPE-1 (t = 25 cm)
0.90 Km
1257+300
ACO TYPE-1 (t = 8 cm)
3.00 Km
1259+600
PCC TYPE-1 (t = 25 cm)
2.30 Km
1265+600
ACO TYPE-1 (t = 8 cm)
6.00 Km
1271+000
PCC TYPE-1 (t = 25 cm)
5.40 Km
RRI = 2.5
RRI = 3.0
PACKAGE 6


1271+000
(1)
1272+300
1.30 Km
(2)
1273+000
0.70 Km
(1)
1274+900
1.90 Km
(3)
1275+200
0.30 Km
(2)
1277+400
2.20 Km
1277+600
0.20 Km
(2)
1278+360
0.76 Km
(3)
1279+000
0.64 Km
(1)
1280+000
1.00 Km
(2)
1281+300
1.30 Km
(3)
1285+000
3.70 Km
(2)
1286+500
1.50 Km
(1)
1287+800
1.30 Km
(2)
1289+700
1.90 Km
(1)
1290+200
0.50 Km
1290+600
0.40 Km
1291+000
0.40 Km
ALL SECTION : PCC TYPE-2 (t = 25 cm)
(1) SUBBASE (30 cm)+CTB(20 cm)+PCC (25 cm)
(2) SUBGRADE REPLACEMENT (40 cm) WITH BORROW + SUBBASE(20 cm) + CTB (20 cm) + PCC(25 cm)
(3) SUBGRADE REPLACEMENT (100 cm) WITH BORROW + SUBBASE (20 cm)+ CTB (20 cm) + PCC (25 cm)
No. of PCC Panels with Depression
Crack Ratio (no./1000 sq.m)
PACKAGE 7


1291 + 000
1307 + 000
PCC TYPE - 1 (t = 25 cm) WITH
SUBGRADE REPLACEMENT (t = 30 - 100 cm)
16.00 Km
UNEVEN SURFACE
UNEVEN SURFACE
PACKAGE 8

App. 8.3.17

PCC TYPE-1 (t=25 cm)
3.20 Km
ACO TYPE-1 (t=8 cm)
6.60 Km
PCC TYPE-6 (t=23 cm)
3.46 Km
ACO TYPE-1(t=8 cm) or AC TYPE-1(t=10 cm)
3.74 Km
LAGCOGANGAN BRIDGE (NEW ALIGNMENT)
TAGBAYAGAN BRIDGE (NEW ALIGNMENT)
UNEVEN SURFACE
GRAVEL
1307 + 000
1310 + 200
1316 + 800
1316 + 260
1324 + 000
PACKAGE 9

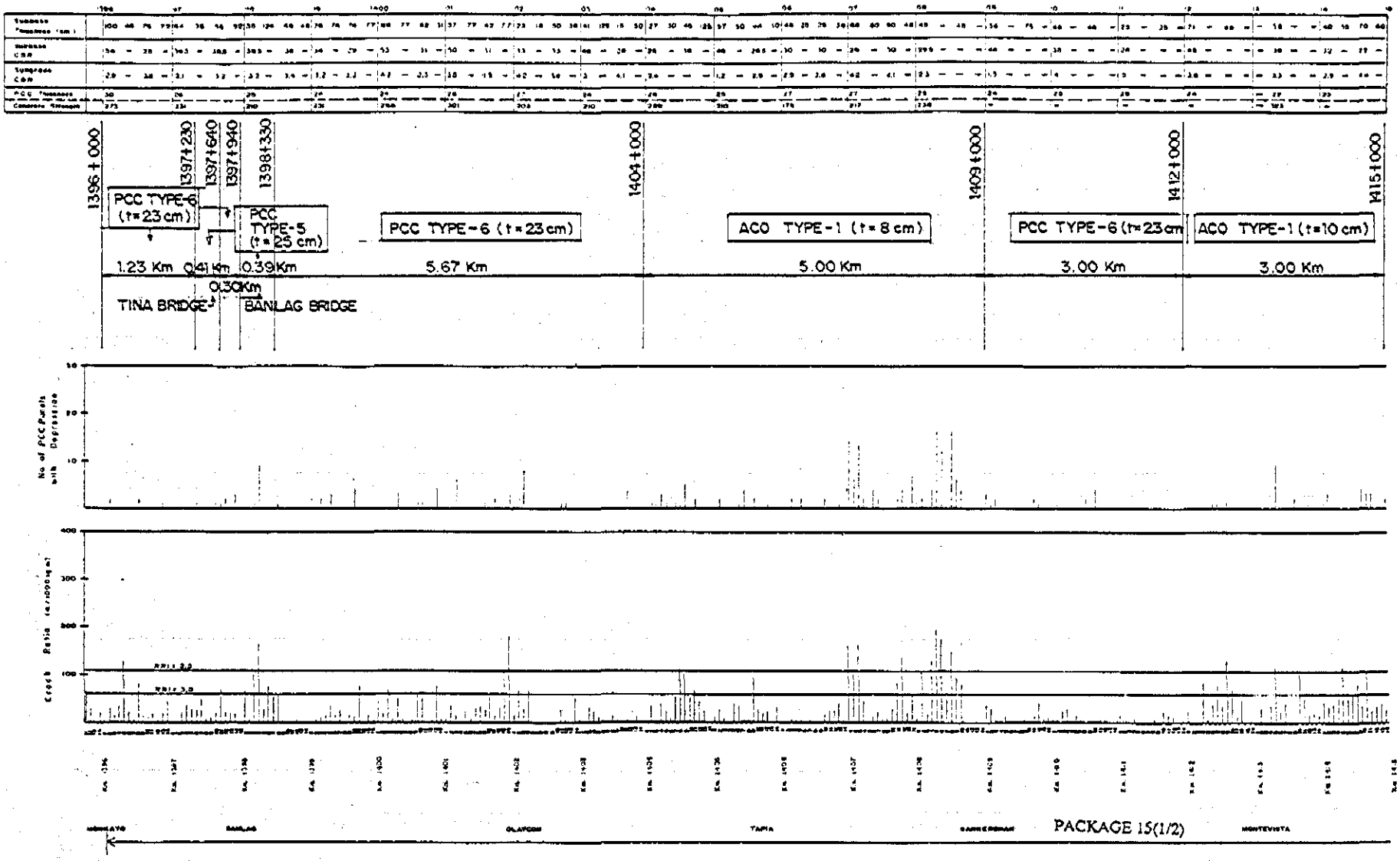

1324+000
1338+000
1340
1342
1344
1350
1360
1000
ACO TYPE-1 (t=8 cm) or
AC TYPE-1 (t=10 cm)
PCC TYPE-1 (t=25 cm)
AC TYPE-1 (t=10 cm)
PCC TYPE-1 (t=25 cm)
14.00 Km
4.48 Km
0.94 Km
0.22 Km
WASIAN BRIDGE
(NEW ALIGNMENT)
UNEVEN SURFACE
UNEVEN SURFACE
UNEVEN SURFACE
UNEVEN SURFACE
GRAVEL
No. of PCC Panels with Depression
Crack Ratio (m/1000 sq.m)
RRI = 2.5
RRI = 3.0
PACKAGE 10 (1/2)

1349+000
PCC TYPE-1
(t=25 cm)
5.00 Km
1344+000
RRI = 2.5
RRI = 3.0
PACKAGE 10 (2/2)

1349 + 000
1355 + 140
1357 + 620
1360 + 100
1361 + 220
1364 + 000
ACO TYPE-1 (t = 8 cm)
6.14 Km
ACO TYPE-2 (t=10cm)
2.48 Km
ACO TYPE-1 (t=8 cm)
2.48 Km
ACO TYPE-2 (t=10 cm)
1.12 Km
ACO TYPE-1 (t=8 cm)
2.78 Km
(FLOOD SECTION)
(FLOOD SECTION)
PACKAGE 11

1376 + 830
PCC TYPE - 1 (t = 25 cm)
12.83 Km
1364 + 000
RRI = 2.5
RRI = 3.0
PACKAGE 12

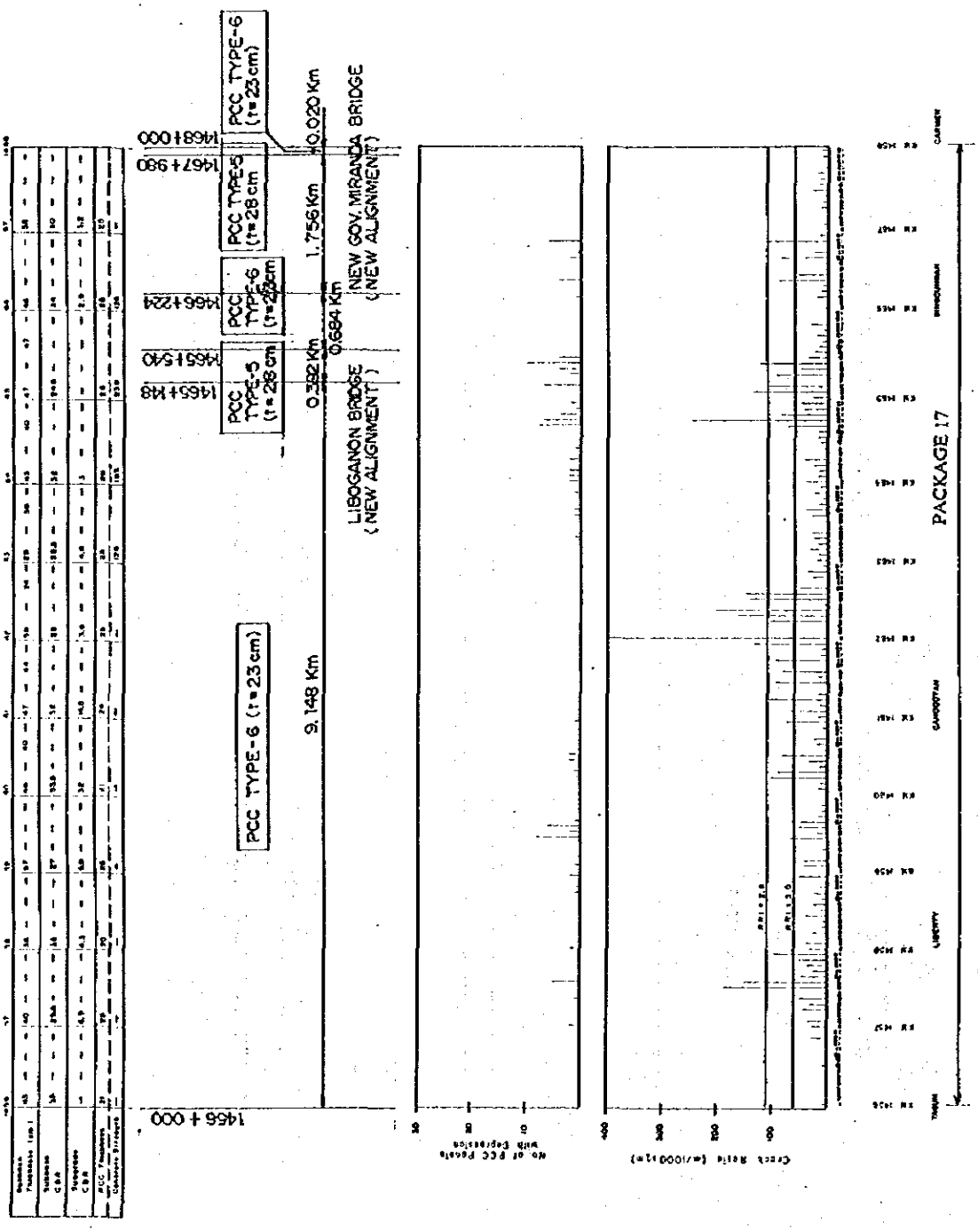
PACKAGE 14
PCC TYPE-6 (t = 23 cm)
0.815 Km
1396 + 000
1395 + 185
ACO TYPE-1 (t = 8 cm)
1.085 Km
ACO TYPE-2 (TYPE-1) (t = 8 cm)
0.80 Km
1394 + 120
1393 + 320
ACO TYPE-1 (t = 8 cm)
6.32 Km
1387 + 000
ACO TYPE-1 (t = 10 cm)
10.17 Km
1376 + 830
PACKAGE 13


1396+000
1397+230
1397+640
1397+940
1398+330
1404+000
1409+000
1412+000
1415+000
PCC TYPE-6 (t=23 cm)
PCC TYPE-5 (t=25 cm)
PCC TYPE-6 (t=23 cm)
ACO TYPE-1 (t=8 cm)
PCC TYPE-6 (t=23 cm)
ACO TYPE-1 (t=10 cm)
1.23 Km
0.41 Km
0.39 Km
5.67 Km
5.00 Km
3.00 Km
3.00 Km
0.30Km
TINA BRIDGE
BANLAG BRIDGE
PACKAGE 15(1/2)

1415+000
1425+000
ACO TYPE - 1 (t = 10 cm)
10.00 Km
PACKAGE 15 (2/2)

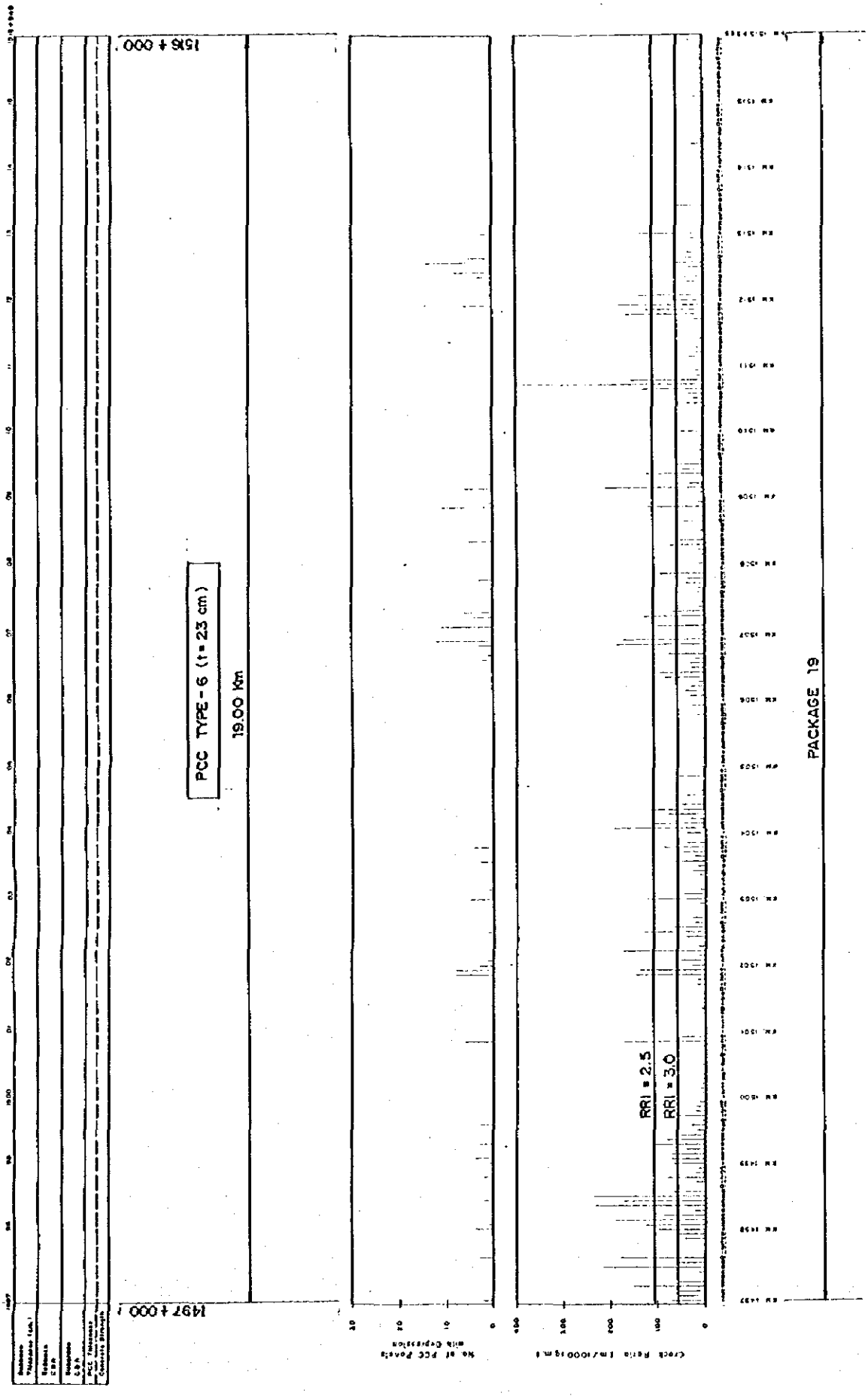
1425+000
1433+140
1433+680
1437+000
1445+000
ACO TYPE-1 (t=10 cm)
8.14 Km
0.74 Km
AC TYPE-1 (t=10 cm)
WITH
ACO TYPE-1 (t=10cm)
3.12 Km
ACO TYPE-1
(t=10 cm)
SCATTERED
UNEVEN SURFACE
8.00 Km
ACO TYPE-1 (t=12 cm)
PACKAGE 16(1/2)

1445+000
ACO TYPE-1 (t=12cm)
1.22 Km
1446+220
ACO TYPE-2 (t=12cm)
0.302Km
1446+522
ACO TYPE-1 (t=12cm)
3.678 Km
NEW ALIGNMENT
1450+200
PCC TYPE-6 (t=23cm)
5.80 Km
1456+000
RRI=2.5
RRI=3.0
PACKAGE 16 (2/2)


PCC TYPE-6 (t=23cm)
9.148 Km
PCC TYPE-5 (t=28cm)
0.392 Km
PCC TYPE-6 (t=23cm)
0.684 Km
PCC TYPE-5 (t=28cm)
1.756 Km
PCC TYPE-6 (t=23cm)
0.020 Km
LIBOGANON BRIDGE (NEW ALIGNMENT)
NEW GOV. MIRANDA BRIDGE (NEW ALIGNMENT)
1466+000
1466+148
1465+540
1466+224
1467+980
1468+000
PACKAGE 17

1488 + 000
1483 + 400
1482 + 800
1477 + 800
1472 + 680
1472 + 440
1471 + 640
1471 + 400
1468 + 640
1468 + 440
1468 + 000
4.60 Km
0.60 Km
5.00 Km
4.92 Km
0.44Km
0.80Km
0.24Km
2.76 Km
0.20 Km
0.44Km
LASANG BRIDGE
UNEVEN SURFACE
UNEVEN SURFACE
UNEVEN SURFACE
Ⓐ Ⓑ Ⓒ : PCC TYPE-6 (t=23cm)
: : : PCC TYPE-5 (t=28cm)
: : : PCC TYPE-1 (t=28cm)
RRI = 2.5
RRI = 3.0
PACKAGE 18 (1/2)

1488 + 000
1491 + 700
1491 + 920
1494 + 200
1494 + 660
1497 + 000
3.70 Km
0.22 Km
2.28 Km
0.42 Km
2.34 Km
ILANG BRIDGE
PCC TYPE-6 (t = 23 cm)
PCC TYPE-5 (t = 28 cm)
RRI = 2.5
RRI = 3.0
PACKAGE 18 (2/2)


1497 + 000
1516 + 000
PCC TYPE - 6 (t = 23 cm)
19.00 Km
RRI = 2.5
RRI = 3.0
PACKAGE 19