

# APPENDICES



## **APPENDIX A**

**QUESTIONNAIRE**  
**DORRIGO FLOOD STUDY**  
**QUESTIONNAIRE / RESIDENT INTERVIEW SHEET**  
**(Please complete and return by 28 October 2005)**



**Resident's  
Name:**

**Interviewer:**

**Address:**

**Date:**

**Telephone:**

**Interview No.:**

Paterson Consultants has been engaged by the Bellingen Shire Council to undertake a flood study of the Bielsdown River at Dorrigo. Official records are sketchy and we hope to be able to get a wider spread of flood levels, flood extents and local rainfall records by interview of residents and former residents to complete the records.

1. When did you start living in Dorrigo?  year

2. Have you ever experienced flooding at your current location or any other location in Dorrigo?  yes  no

3. What year(s) was that? Year(s)

4. Do you also recall the month in that year? Please write the month next to the year in Question 3 above.

5. Which year was the highest?

6. Did the highest flood enter:  the house?  
 the garage?  
 farm shed?

7. Can you show us where?  yes  no  
 If "yes" please describe:

How did you know about this flood  I was here at the time  
 the past house owner told me  
 neighbours told me

8. There were floods in 2001.  
 Where did the March 2001 flood come to?

9. From rainfall records, major floods have occurred around the following dates. Do you remember any of these floods? Can you identify the peak level they came to, or any other peak level?

| <u>Date</u> | Yes                      | No                       |
|-------------|--------------------------|--------------------------|
| June 1950   | <input type="checkbox"/> | <input type="checkbox"/> |
| March 1974  | <input type="checkbox"/> | <input type="checkbox"/> |
| July 1985   | <input type="checkbox"/> | <input type="checkbox"/> |
| March 1989  | <input type="checkbox"/> | <input type="checkbox"/> |

10. Do you know of any floods other than the dates given?  yes  no  
If "yes" please describe under question 17.
11. Do you have any photographs of flooding?  yes  no  
If "yes" may we examine them?  yes  no
12. Do you keep a diary with such information as flooding in it?  yes  no  
If so, would you look up your entries & provide us with the information?  yes  no
13. Do you have any rainfall records? We are specifically looking for daily records.  yes  no
14. Do you know anybody else in the area who may be able to help us with flood information?  yes  no

If "yes" please advise:

15. In the future we will probably need to come back to you to survey the flood levels indicated. May we enter your property at that time to undertake the survey?  yes  no

16. We would like to phone the day before we are in the area. What is the best phone number to reach you on and at what time of day?
- |               |  |
|---------------|--|
| Telephone No. |  |
| Time.         |  |

17. Any other comments:

18. Sketch map of Property/Residence (please use separate sheet if insufficient space)

Please return by **28 October 2005** to:

**Bellingen Shire Council  
Chambers**  
33-39 Hyde Street, BELLINGEN  
(P O Box 117, BELLINGEN 2454)

OR

**Paterson Consultants Pty Ltd**  
P O Box 596, GRAFTON 2460

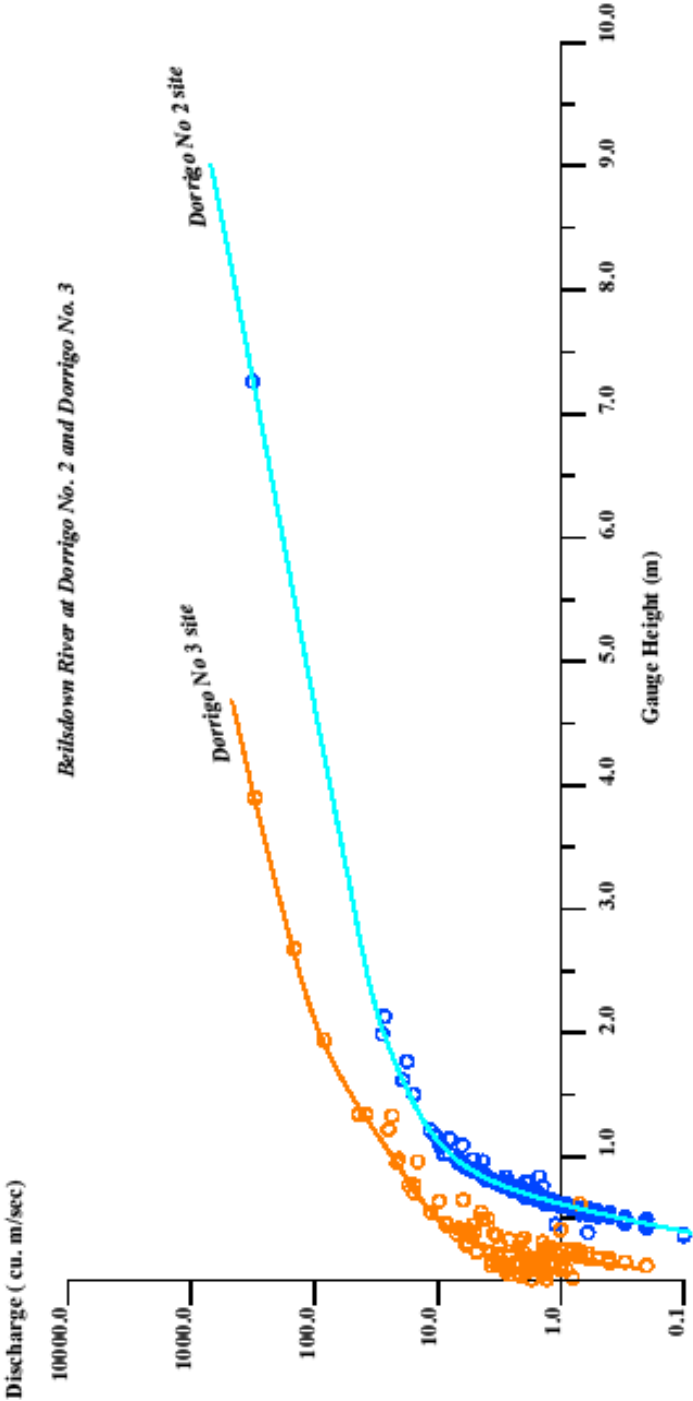
For more information please  
phone:  
Paterson Consultants Pty Ltd on  
(02) 6643 1588  
or  
Ms Denique Littler at Bellingen  
Shire Council on (02) 6655 7328



**APPENDIX B**

**ADOPTED RATING CURVES  
STATION 204017, "BIELSDOWN RIVER @ DORRIGO No. 2 & No. 3"**

BELLINGEN SHIRE COUNCIL  
DORRIGO FLOOD STUDY



22 FEB 2007  
DISC REF: 05025  
FILE REF: 05025\_B1\_REVISIED\_RATING\_TABLE

FIGURE B1  
REVISED RATING TABLE





**APPENDIX C**

**ANNUAL FLOOD SERIES  
STATION 204017, "BIELSDOWN RIVER @ DORRIGO No. 2 & No. 3"**

**APPENDIX C**



**Annual Flood Series**  
**Station 204017, "Bielsdown River @ Dorrigo No. 2 & No. 3"**

| <b>Year</b> | <b>Peak Gauge Height<br/>(m)</b> | <b>Site Number</b> | <b>Discharge<br/>(cu m/sec)</b> |
|-------------|----------------------------------|--------------------|---------------------------------|
| 1947        | 2.95                             | 2                  | 48                              |
| 1948        | 4.50                             | 2                  | 97                              |
| 1949        | 2.59                             | 2                  | 38                              |
| 1950        | 8.33                             | 2                  | 520                             |
| 1951        | 3.73                             | 2                  | 70                              |
| 1952        | 4.57                             | 2                  | 100                             |
| 1953        | 3.15                             | 2                  | 53                              |
| 1954        | 9.02                             | 2                  | 700                             |
| 1955        | 3.05                             | 2                  | 50                              |
| 1956        | 5.28                             | 2                  | 135                             |
| 1957        | 2.26                             | 2                  | 30                              |
| 1958        | 2.00                             | 3                  | 85                              |
| 1959        | 3.38                             | 3                  | 230                             |
| 1960        | 2.58                             | 3                  | 140                             |
| 1961        | 1.95                             | 3                  | 80                              |
| 1962        | 4.33                             | 3                  | 375                             |
| 1963        | 2.68                             | 3                  | 150                             |
| 1964        | 4.15                             | 3                  | 345                             |
| 1965        | 4.66                             | 3                  | 465                             |
| 1966        | 1.13                             | 3                  | 22                              |
| 1967        | 4.15                             | 3                  | 345                             |
| 1968        | 2.93                             | 3                  | 180                             |

| Year | Peak Gauge Height (m) | Site Number | Discharge (cu m/sec) |
|------|-----------------------|-------------|----------------------|
| 1969 | 1.62                  | 3           | 55                   |
| 1970 | 0.85                  | 3           | 15                   |
| 1971 | 3.00                  | 3           | 185                  |
| 1972 | 3.50                  | 3           | 250                  |
| 1973 | 4.61                  | 3           | 450                  |
| 1974 | 4.70                  | 3           | 470                  |
| 1975 | 3.39                  | 3           | 240                  |
| 1976 | 4.09                  | 3           | 335                  |
| 1977 | 6.06                  | 2           | 195                  |
| 1978 | 4.03                  | 2           | 80                   |
| 1979 | 3.52                  | 2           | 62                   |
| 1980 | 2.56                  | 2           | 35                   |
| 1981 | 3.84                  | 2           | 70                   |
| 1982 | 3.51                  | 2           | 62                   |
| 1983 | 1.91                  | 2           | 22                   |
| 1984 | 4.54                  | 2           | 100                  |
| 1985 | 7.58                  | 2           | 375                  |
| 1986 | 3.24                  | 2           | 55                   |
| 1987 | 2.95                  | 2           | 48                   |
| 1988 | 5.21                  | 2           | 130                  |
| 1989 | 6.26                  | 2           | 210                  |
| 1990 | 4.35                  | 2           | 90                   |
| 1991 | 3.23                  | 2           | 55                   |
| 1992 | 3.07                  | 2           | 52                   |
| 1993 | 2.49                  | 2           | 35                   |
| 1994 | 2.06                  | 2           | 30                   |

| <b>Year</b> | <b>Peak Gauge Height<br/>(m)</b> | <b>Site Number</b> | <b>Discharge<br/>(cu m/sec)</b> |
|-------------|----------------------------------|--------------------|---------------------------------|
| 1995        | 5.83                             | 2                  | 175                             |
| 1996        | 4.43                             | 2                  | 95                              |
| 1997        | 2.90                             | 2                  | 45                              |
| 1998        | 1.50                             | 2                  | 15                              |
| 1999        | 6.06                             | 2                  | 195                             |
| 2000        | 2.05                             | 2                  | 25                              |
| 2001        | 7.97                             | 2                  | 435                             |
| 2002        | 1.37                             | 2                  | 12                              |
| 2003        | 3.13                             | 2                  | 52                              |
| 2004        | -                                | 2                  | -                               |
| 2005        | -                                | 2                  | -                               |

**APPENDIX D**

**DAILY RAINFALL STATIONS**

| Station No. | Name                     | Dates |         | Co-ordinates (MGA) |            |
|-------------|--------------------------|-------|---------|--------------------|------------|
|             |                          | Start | Finish  | Easting            | Northing   |
| 59003       | BROOKLANA                | 1908  | 1967    | 486532.65          | 6652395.68 |
| 59004       | BROOKLANA (BOBO NURSERY) | 1937  | 1969    | 485569.24          | 6653502.58 |
| 59011       | UPPER ORARA (THE KNOLL)  | 1908  | 1974    | 498076.09          | 6652403.80 |
| 59012       | DEER VALE                | 1913  | 1974    | 456733.85          | 6646777.58 |
| 59013       | DORRIGO POST OFFICE      | 1905  | 1997    | 472125.95          | 6643503.28 |
| 59021       | MEGAN (THE MOUNT)        | 1918  | 1974    | 478841.30          | 6650167.24 |
| 59026       | UPPER ORARA (AURANIA)    | 1899  | Current | 498076.88          | 6647971.29 |
| 59033       | THORA POST OFFICE        | 1947  | Current | 477911.01          | 6634651.31 |
| 59046       | DARKWOOD                 | 1956  | 1979    | 465429.39          | 6633510.59 |
| 59049       | BOSTOBRICK POST OFFICE   | 1962  | 1982    | 464414.84          | 6650129.78 |
| 59063       | MOLETON (MOLEW ROAD)     | 1962  | 1974    | 490369.77          | 6664589.02 |
| 59066       | TALLOWOOD POINT          | 1946  | 1966    | 486544.95          | 6642422.47 |
| 59067       | DORRIGO (MYRTLE ST)      | 1954  | 1999    | 472125.95          | 6643503.28 |
| 59070       | UPPER DARKWOOD           | 2002  | Current | 463516.23          | 6631287.98 |
| 59071       | LITTLE NYMBOIDA          | 1911  | 1937    | 490374.63          | 6659048.47 |



| Station No. | Name                         | Dates |         | Co-ordinates (MGA) |            |
|-------------|------------------------------|-------|---------|--------------------|------------|
|             |                              | Start | Finish  | Easting            | Northing   |
| 59076       | TYRINGHAM POST OFFICE        | 1936  | 1977    | 454765.08          | 6657851.22 |
| 59078       | PROMISED LAND                | 1966  | Current | 490388.28          | 6643534.68 |
| 59080       | MEGAN (MOUNT MOOMBIL)        | 1967  | 1996    | 486539.48          | 6646855.03 |
| 59082       | ULONG TOWNSHIP               | 1968  | 1978    | 488453.06          | 6655722.25 |
| 59083       | DORRIGO (LEARMONTHS FARM)    | 1968  | 1974    | 464440.12          | 6642372.76 |
| 59094       | BELLINGEN (THE OBSERVATORY)  | 1985  | 1989    | 486553.17          | 6635773.59 |
| 59095       | UPPER ORARA (DAIRYVILLE)     | 1970  | Current | 496152.58          | 6651295.17 |
| 59099       | DORRIGO POLICE STATION       | 1960  | 1978    | 472125.95          | 6643503.28 |
| 59100       | ORAMA (DARKWOOD ROAD)        | 1971  | Current | 468310.29          | 6633519.38 |
| 59102       | MOLETON (CRADLE CREEK ROAD)  | 1971  | 1977    | 488444.89          | 6663479.06 |
| 59103       | UPPER BO-BO (COOLUMBLA PARK) | 1972  | 1973    | 488462.42          | 6646857.23 |
| 59105       | LOWANNA (GRAFTON ST)         | 1972  | Current | 489413.16          | 6657939.46 |
| 59108       | LOWANNA (YALAMURRA)          | 1973  | 1978    | 486521.75          | 6661260.64 |
| 59113       | LEIGH (ROLLING ACRES)        | 1974  | Current | 476922.46          | 6647947.07 |
| 59115       | DORRIGO (DEER VALE ROAD)     | 1974  | 1975    | 454829.25          | 6642337.16 |

| Station No. | Name                           | Dates |         | Co-ordinates (MGA) |            |
|-------------|--------------------------------|-------|---------|--------------------|------------|
|             |                                | Start | Finish  | Easting            | Northing   |
| 59117       | MOUNT MOOMBIL (LIGHTNING)      | 1976  | 1993    | 483653.42          | 6647959.22 |
| 59121       | THORA (BELLINGER RIVER)        | 1946  | Current | 478871.40          | 6634653.22 |
| 59126       | BELLINGEN (BELLINGER RIVER)    | 1950  | Current | 489438.94          | 6631344.15 |
| 59129       | NYMBOIDA RIVER (TYRINGHAM)     | 1937  | 1984    | 459593.71          | 6653437.49 |
| 59130       | BELLINGEN (CHELSEA)            | 1982  | 1990    | 480792.19          | 6634656.78 |
| 59134       | BELLINGEN(HYDE ST)             | 1992  | Current | 490399.04          | 6631345.05 |
| 59137       | NORTH DORRIGO (TYRINGHAM ROAD) | 1993  | Current | 468261.91          | 6650141.63 |
| 59140       | DORRIGO (OLD CORAMBA RD)       | 1996  | Current | 473088.78          | 6643040.68 |

**APPENDIX E**

**RAINFALL INTENSITY FREQUENCY DURATION DATA**

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| Program for determining IFD design rainfall information |  
|   - based on AR&R(1987) sect 2.3                       |  
|   (C) 1988 WP Software (062 815811)                   |  
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\*\*\* INPUT DATA ECHO \*\*\*

Dorrigo  
2 year, 1 hour intensity: 44.000000 mm/hr  
2 year, 12 hour intensity: 12.000000 mm/hr  
2 year, 72 hour intensity: 4.500000 mm/hr  
50 year, 1 hour intensity: 80.000000 mm/hr  
50 year, 12 hour intensity: 27.500000 mm/hr  
50 year, 72 hour intensity: 12.000000 mm/hr  
Skewness: 1.000000E-01  
Geographical factor for 6 minute, 2 yr storm: 4.360000  
Geographical factor for 6 minute, 50 yr storm: 16.400000

\*\*\* OUTPUT IFD TABLE \*\*\*

Rainfall Intensity (mm/h) for Dorrigo

| Duration | Average Storm Recurrence Interval (years) |        |        |        |        |        |        |
|----------|---|--------|--------|--------|--------|--------|--------|
|          | 1   | 2      | 5      | 10     | 20     | 50     | 100    |
| 6m       | 103.10                                    | 130.69 | 160.43 | 177.28 | 200.76 | 231.33 | 254.53 |
| 7        | 97.36                                     | 123.47 | 151.73 | 167.76 | 190.07 | 219.13 | 241.19 |
| 8        | 92.46                                     | 117.30 | 144.28 | 159.62 | 180.92 | 208.69 | 229.77 |
| 9        | 88.21                                     | 111.94 | 137.81 | 152.52 | 172.95 | 199.58 | 219.81 |
| 10       | 84.46                                     | 107.21 | 132.10 | 146.27 | 165.92 | 191.55 | 211.02 |
| 11       | 81.12                                     | 103.00 | 127.01 | 140.69 | 159.64 | 184.37 | 203.17 |
| 12       | 78.12                                     | 99.22  | 122.44 | 135.67 | 154.00 | 177.92 | 196.10 |
| 13       | 75.40                                     | 95.80  | 118.29 | 131.12 | 148.88 | 172.06 | 189.69 |
| 14       | 72.93                                     | 92.68  | 114.51 | 126.98 | 144.21 | 166.72 | 183.84 |
| 15       | 70.66                                     | 89.82  | 111.04 | 123.17 | 139.92 | 161.81 | 178.47 |
| 16       | 68.58                                     | 87.19  | 107.85 | 119.66 | 135.97 | 157.29 | 173.51 |
| 17       | 66.65                                     | 84.75  | 104.89 | 116.41 | 132.31 | 153.09 | 168.92 |
| 18       | 64.86                                     | 82.49  | 102.14 | 113.40 | 128.91 | 149.20 | 164.65 |
| 20       | 61.63                                     | 78.41  | 97.19  | 107.95 | 122.77 | 142.16 | 156.93 |
| 25       | 55.12                                     | 70.19  | 87.17  | 96.93  | 110.35 | 127.91 | 141.30 |
| 30       | 50.15                                     | 63.90  | 79.51  | 88.49  | 100.82 | 116.97 | 129.30 |
| 35       | 46.20                                     | 58.91  | 73.40  | 81.77  | 93.22  | 108.24 | 119.70 |
| 40       | 42.97                                     | 54.82  | 68.40  | 76.25  | 86.98  | 101.06 | 111.82 |
| 45       | 40.27                                     | 51.39  | 64.20  | 71.62  | 81.74  | 95.03  | 105.20 |
| 50       | 37.96                                     | 48.47  | 60.63  | 67.67  | 77.27  | 89.88  | 99.53  |
| 55       | 35.97                                     | 45.95  | 57.53  | 64.24  | 73.39  | 85.42  | 94.62  |
| 60       | 34.23                                     | 43.74  | 54.82  | 61.24  | 70.00  | 81.51  | 90.31  |
| 75       | 30.48                                     | 39.07  | 49.37  | 55.40  | 63.56  | 74.32  | 82.59  |
| 90       | 27.68                                     | 35.57  | 45.26  | 50.98  | 58.67  | 68.85  | 76.69  |
| 2.0h     | 23.73                                     | 30.63  | 39.40  | 44.64  | 51.63  | 60.93  | 68.13  |
| 3.0      | 19.05                                     | 24.74  | 32.33  | 36.95  | 43.03  | 51.19  | 57.55  |
| 4.0      | 16.29                                     | 21.25  | 28.08  | 32.28  | 37.79  | 45.21  | 51.02  |
| 5.0      | 14.43                                     | 18.88  | 25.18  | 29.08  | 34.17  | 41.06  | 46.48  |
| 6.0      | 13.07                                     | 17.15  | 23.03  | 26.70  | 31.47  | 37.96  | 43.07  |
| 8.0      | 11.19                                     | 14.74  | 20.01  | 23.34  | 27.65  | 33.54  | 38.21  |
| 10.0     | 9.92                                      | 13.11  | 17.95  | 21.03  | 25.02  | 30.48  | 34.82  |
| 12.0     | 8.99                                      | 11.91  | 16.43  | 19.32  | 23.05  | 28.19  | 32.28  |
| 14.0     | 8.29                                      | 11.00  | 15.25  | 17.99  | 21.51  | 26.37  | 30.25  |
| 16.0     | 7.72                                      | 10.27  | 14.30  | 16.91  | 20.26  | 24.89  | 28.60  |
| 18.0     | 7.26                                      | 9.66   | 13.51  | 16.01  | 19.21  | 23.65  | 27.21  |
| 20.0     | 6.86                                      | 9.15   | 12.84  | 15.24  | 18.31  | 22.59  | 26.02  |
| 22.0     | 6.52                                      | 8.71   | 12.25  | 14.57  | 17.54  | 21.66  | 24.98  |
| 24.0     | 6.22                                      | 8.32   | 11.74  | 13.98  | 16.85  | 20.85  | 24.07  |
| 36.0     | 4.98                                      | 6.69   | 9.58   | 11.49  | 13.94  | 17.36  | 20.14  |
| 48.0     | 4.22                                      | 5.69   | 8.23   | 9.93   | 12.10  | 15.16  | 17.64  |
| 60.0     | 3.69                                      | 4.99   | 7.28   | 8.82   | 10.79  | 13.57  | 15.84  |
| 72.0     | 3.29                                      | 4.46   | 6.55   | 7.97   | 9.78   | 12.35  | 14.45  |

**APPENDIX F**

**DESIGN FLOOD LEVELS - BIELSDOWN RIVER**

| Channel    | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|            |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| BIELS_HEAD | 0.00     |               | 728.71                      | 729.02  | 729.36 | 729.79 | 730.05 | 730.27   | 732.08 |
| BIELS_HEAD | 19.27    |               | 728.65                      | 728.96  | 729.30 | 729.73 | 730.00 | 730.22   | 732.02 |
| BIELS_HEAD | 38.53    |               | 728.57                      | 728.89  | 729.23 | 729.66 | 729.94 | 730.17   | 731.97 |
| BIELS_HEAD | 57.80    | B1            | 728.49                      | 728.81  | 729.16 | 729.59 | 729.88 | 730.11   | 731.91 |
| BIELS_HEAD | 77.63    |               | 728.42                      | 728.73  | 729.09 | 729.52 | 729.82 | 730.05   | 731.85 |
| BIELS_HEAD | 97.45    |               | 728.36                      | 728.66  | 729.02 | 729.45 | 729.76 | 730.00   | 731.79 |
| BIELS_HEAD | 117.28   |               | 728.29                      | 728.59  | 728.95 | 729.39 | 729.70 | 729.94   | 731.74 |
| BIELS_HEAD | 137.10   |               | 728.22                      | 728.52  | 728.89 | 729.32 | 729.64 | 729.88   | 731.68 |
| BIELS_HEAD | 156.93   |               | 728.15                      | 728.46  | 728.82 | 729.25 | 729.58 | 729.82   | 731.62 |
| BIELS_HEAD | 176.75   |               | 728.09                      | 728.39  | 728.75 | 729.19 | 729.51 | 729.77   | 731.57 |
| BIELS_HEAD | 196.57   |               | 728.02                      | 728.33  | 728.68 | 729.12 | 729.45 | 729.71   | 731.51 |
| BIELS_HEAD | 216.40   |               | 727.96                      | 728.26  | 728.61 | 729.05 | 729.38 | 729.65   | 731.45 |
| BIELS_HEAD | 236.23   |               | 727.89                      | 728.20  | 728.54 | 728.99 | 729.31 | 729.59   | 731.39 |
| BIELS_HEAD | 256.05   |               | 727.82                      | 728.13  | 728.48 | 728.92 | 729.24 | 729.53   | 731.34 |
| BIELS_HEAD | 275.88   |               | 727.76                      | 728.07  | 728.41 | 728.85 | 729.18 | 729.47   | 731.28 |

| Channel    | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|            |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| BIELS_HEAD | 295.70   |               | 727.69                      | 728.00  | 728.35 | 728.79 | 729.11 | 729.41   | 731.22 |
| BIELS_HEAD | 315.52   |               | 727.62                      | 727.93  | 728.28 | 728.72 | 729.04 | 729.35   | 731.16 |
| BIELS_HEAD | 335.35   |               | 727.56                      | 727.86  | 728.22 | 728.66 | 728.98 | 729.28   | 731.11 |
| BIELS_HEAD | 355.17   |               | 727.49                      | 727.80  | 728.15 | 728.59 | 728.91 | 729.22   | 731.05 |
| BIELS_HEAD | 375.00   |               | 727.42                      | 727.73  | 728.09 | 728.52 | 728.84 | 729.15   | 730.99 |
| BIELS_HEAD | 394.83   |               | 727.36                      | 727.66  | 728.03 | 728.46 | 728.78 | 729.09   | 730.93 |
| BIELS_HEAD | 414.65   |               | 727.29                      | 727.60  | 727.96 | 728.39 | 728.71 | 729.02   | 730.87 |
| BIELS_HEAD | 434.48   |               | 727.22                      | 727.53  | 727.90 | 728.32 | 728.64 | 728.95   | 730.81 |
| BIELS_HEAD | 454.30   |               | 727.16                      | 727.46  | 727.83 | 728.26 | 728.58 | 728.88   | 730.75 |
| BIELS_HEAD | 474.13   |               | 727.09                      | 727.40  | 727.77 | 728.19 | 728.51 | 728.81   | 730.69 |
| BIELS_HEAD | 493.95   |               | 727.02                      | 727.33  | 727.70 | 728.13 | 728.44 | 728.75   | 730.63 |
| BIELS_HEAD | 513.78   |               | 726.96                      | 727.26  | 727.64 | 728.06 | 728.38 | 728.68   | 730.57 |
| BIELS_HEAD | 533.60   |               | 726.89                      | 727.19  | 727.57 | 728.00 | 728.31 | 728.61   | 730.50 |
| BIELS_HEAD | 553.42   |               | 726.82                      | 727.13  | 727.50 | 727.94 | 728.24 | 728.54   | 730.44 |
| BIELS_HEAD | 573.25   |               | 726.75                      | 727.06  | 727.43 | 727.87 | 728.17 | 728.47   | 730.38 |



| Channel    | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|            |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| BIELS_HEAD | 593.08   |               | 726.69                      | 726.99  | 727.36 | 727.81 | 728.11 | 728.41   | 730.32 |
| BIELS_HEAD | 612.90   |               | 726.62                      | 726.92  | 727.29 | 727.74 | 728.04 | 728.34   | 730.25 |
| BIELS_HEAD | 632.72   |               | 726.55                      | 726.85  | 727.22 | 727.67 | 727.97 | 728.27   | 730.19 |
| BIELS_HEAD | 652.55   |               | 726.48                      | 726.78  | 727.15 | 727.60 | 727.91 | 728.20   | 730.12 |
| BIELS_HEAD | 672.38   |               | 726.41                      | 726.71  | 727.08 | 727.54 | 727.84 | 728.13   | 730.05 |
| BIELS_HEAD | 692.20   |               | 726.34                      | 726.64  | 727.00 | 727.46 | 727.77 | 728.06   | 729.99 |
| BIELS_HEAD | 712.03   |               | 726.27                      | 726.57  | 726.93 | 727.39 | 727.70 | 727.99   | 729.92 |
| BIELS_HEAD | 731.85   |               | 726.20                      | 726.50  | 726.86 | 727.32 | 727.63 | 727.92   | 729.85 |
| BIELS_HEAD | 751.67   |               | 726.13                      | 726.43  | 726.78 | 727.25 | 727.56 | 727.85   | 729.78 |
| BIELS_HEAD | 771.50   |               | 726.06                      | 726.35  | 726.71 | 727.17 | 727.49 | 727.77   | 729.71 |
| BIELS_HEAD | 791.33   |               | 725.99                      | 726.28  | 726.63 | 727.10 | 727.42 | 727.70   | 729.63 |
| BIELS_HEAD | 811.15   |               | 725.92                      | 726.21  | 726.56 | 727.02 | 727.34 | 727.63   | 729.56 |
| BIELS_HEAD | 830.97   |               | 725.84                      | 726.13  | 726.48 | 726.94 | 727.26 | 727.55   | 729.48 |
| BIELS_HEAD | 850.80   |               | 725.77                      | 726.05  | 726.40 | 726.85 | 727.18 | 727.47   | 729.40 |
| BIELS_HEAD | 870.63   |               | 725.69                      | 725.98  | 726.32 | 726.77 | 727.10 | 727.39   | 729.32 |

| Channel    | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|            |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| BIELS_HEAD | 890.45   |               | 725.62                      | 725.90  | 726.24 | 726.68 | 727.01 | 727.31   | 729.24 |
| BIELS_HEAD | 910.28   |               | 725.54                      | 725.82  | 726.15 | 726.59 | 726.93 | 727.22   | 729.16 |
| BIELS_HEAD | 930.10   |               | 725.46                      | 725.73  | 726.07 | 726.50 | 726.83 | 727.14   | 729.07 |
| BIELS_HEAD | 949.92   |               | 725.38                      | 725.65  | 725.98 | 726.41 | 726.74 | 727.04   | 728.98 |
| BIELS_HEAD | 969.75   |               | 725.29                      | 725.56  | 725.89 | 726.31 | 726.64 | 726.95   | 728.88 |
| BIELS_HEAD | 989.58   |               | 725.21                      | 725.47  | 725.80 | 726.22 | 726.54 | 726.85   | 728.78 |
| BIELS_HEAD | 1,009.40 |               | 725.12                      | 725.38  | 725.70 | 726.11 | 726.43 | 726.74   | 728.68 |
| BIELS_HEAD | 1,029.22 |               | 725.03                      | 725.28  | 725.60 | 726.01 | 726.32 | 726.63   | 728.56 |
| BIELS_HEAD | 1,049.05 |               | 724.93                      | 725.18  | 725.49 | 725.89 | 726.20 | 726.51   | 728.44 |
| BIELS_HEAD | 1,068.88 |               | 724.83                      | 725.07  | 725.38 | 725.78 | 726.08 | 726.37   | 728.31 |
| BIELS_HEAD | 1,088.70 |               | 724.71                      | 724.96  | 725.26 | 725.65 | 725.95 | 726.24   | 728.16 |
| BIELS_HEAD | 1,108.53 |               | 724.59                      | 724.83  | 725.13 | 725.51 | 725.81 | 726.09   | 728.00 |
| BIELS_HEAD | 1,128.35 |               | 724.46                      | 724.69  | 724.98 | 725.36 | 725.66 | 725.94   | 727.80 |
| BIELS_HEAD | 1,148.18 |               | 724.30                      | 724.53  | 724.82 | 725.20 | 725.49 | 725.76   | 727.57 |
| BIELS_HEAD | 1,168.00 | B1_5          | 724.11                      | 724.34  | 724.63 | 725.00 | 725.29 | 725.56   | 727.29 |

| Channel    | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|            |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| BIELS_HEAD | 1,187.92 |               | 723.92                      | 724.16  | 724.45 | 724.82 | 725.11 | 725.38   | 727.06 |
| BIELS_HEAD | 1,207.83 |               | 723.74                      | 723.98  | 724.27 | 724.65 | 724.93 | 725.19   | 726.84 |
| BIELS_HEAD | 1,227.75 |               | 723.56                      | 723.80  | 724.09 | 724.47 | 724.74 | 725.00   | 726.60 |
| BIELS_HEAD | 1,247.67 |               | 723.38                      | 723.62  | 723.91 | 724.29 | 724.56 | 724.81   | 726.37 |
| BIELS_HEAD | 1,267.58 |               | 723.20                      | 723.44  | 723.74 | 724.11 | 724.38 | 724.62   | 726.14 |
| BIELS_HEAD | 1,287.50 |               | 723.02                      | 723.26  | 723.56 | 723.93 | 724.19 | 724.42   | 725.90 |
| BIELS_HEAD | 1,307.42 |               | 722.85                      | 723.09  | 723.38 | 723.75 | 724.00 | 724.23   | 725.66 |
| BIELS_HEAD | 1,327.33 |               | 722.67                      | 722.91  | 723.21 | 723.57 | 723.81 | 724.03   | 725.42 |
| BIELS_HEAD | 1,347.25 |               | 722.49                      | 722.74  | 723.03 | 723.38 | 723.62 | 723.82   | 725.18 |
| BIELS_HEAD | 1,367.17 |               | 722.32                      | 722.56  | 722.86 | 723.20 | 723.43 | 723.61   | 724.93 |
| BIELS_HEAD | 1,387.08 |               | 722.15                      | 722.39  | 722.69 | 723.02 | 723.22 | 723.41   | 724.67 |
| BIELS_HEAD | 1,407.00 |               | 721.98                      | 722.23  | 722.51 | 722.82 | 723.01 | 723.21   | 724.40 |
| BIELS_HEAD | 1,426.92 |               | 721.81                      | 722.06  | 722.34 | 722.61 | 722.81 | 723.00   | 724.11 |
| BIELS_HEAD | 1,446.83 |               | 721.66                      | 721.90  | 722.15 | 722.41 | 722.61 | 722.79   | 723.83 |
| BIELS_HEAD | 1,466.75 |               | 721.50                      | 721.73  | 721.95 | 722.22 | 722.41 | 722.57   | 723.58 |

| Channel        | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|----------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|                |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| BIELS_HEAD     | 1,486.67 |               | 721.34                      | 721.55  | 721.76 | 722.02 | 722.19 | 722.35   | 723.39 |
| BIELS_HEAD     | 1,506.58 |               | 721.17                      | 721.35  | 721.57 | 721.81 | 721.97 | 722.13   | 723.26 |
| BIELS_HEAD     | 1,526.50 |               | 720.99                      | 721.17  | 721.38 | 721.60 | 721.75 | 721.90   | 723.19 |
| BIELS_HEAD     | 1,546.42 |               | 720.81                      | 720.99  | 721.17 | 721.38 | 721.53 | 721.67   | 723.14 |
| BIELS_HEAD     | 1,566.33 |               | 720.64                      | 720.80  | 720.96 | 721.17 | 721.30 | 721.42   | 723.11 |
| BIELS_HEAD     | 1,586.25 |               | 720.47                      | 720.60  | 720.77 | 720.94 | 721.07 | 721.17   | 723.09 |
| BIELS_HEAD     | 1,606.17 |               | 720.30                      | 720.43  | 720.57 | 720.72 | 720.84 | 720.98   | 723.07 |
| BIELS_HEAD     | 1,626.08 |               | 720.17                      | 720.28  | 720.39 | 720.55 | 720.71 | 720.88   | 723.06 |
| BIELS_HEAD     | 1,646.00 |               | 720.07                      | 720.20  | 720.31 | 720.48 | 720.65 | 720.83   | 723.05 |
| BIELS_HEAD     | 1,655.82 |               | 720.00                      | 720.13  | 720.24 | 720.42 | 720.60 | 720.79   | 723.04 |
| UPPER_BIELS_HF | 820.00   |               | 720.00                      | 720.13  | 720.24 | 720.42 | 720.60 | 720.79   | 723.04 |
| UPPER_BIELS_HF | 826.80   | B2            | 719.96                      | 720.08  | 720.21 | 720.40 | 720.59 | 720.78   | 723.04 |
| UPPER_BIELS_HF | 845.63   |               | 719.82                      | 719.98  | 720.12 | 720.33 | 720.51 | 720.72   | 723.03 |
| UPPER_BIELS_HF | 864.47   |               | 719.69                      | 719.86  | 720.03 | 720.26 | 720.46 | 720.69   | 723.01 |
| UPPER_BIELS_HF | 883.30   |               | 719.55                      | 719.75  | 719.93 | 720.20 | 720.42 | 720.65   | 723.00 |

| Channel        | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|----------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|                |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| UPPER_BIELS_HF | 902.13   |               | 719.42                      | 719.64  | 719.84 | 720.14 | 720.37 | 720.61   | 722.99 |
| UPPER_BIELS_HF | 920.97   |               | 719.32                      | 719.54  | 719.75 | 720.08 | 720.33 | 720.58   | 722.98 |
| UPPER_BIELS_HF | 939.80   |               | 719.23                      | 719.46  | 719.68 | 720.03 | 720.29 | 720.55   | 722.97 |
| UPPER_BIELS_HF | 958.63   |               | 719.16                      | 719.37  | 719.61 | 719.98 | 720.26 | 720.53   | 722.96 |
| UPPER_BIELS_HF | 977.47   |               | 719.10                      | 719.31  | 719.56 | 719.94 | 720.23 | 720.51   | 722.96 |
| UPPER_BIELS_HF | 996.30   |               | 719.04                      | 719.25  | 719.51 | 719.91 | 720.20 | 720.48   | 722.95 |
| UPPER_BIELS_HF | 1,015.13 |               | 719.00                      | 719.20  | 719.47 | 719.88 | 720.18 | 720.47   | 722.94 |
| UPPER_BIELS_HF | 1,033.97 |               | 718.96                      | 719.15  | 719.43 | 719.86 | 720.16 | 720.45   | 722.93 |
| UPPER_BIELS_HF | 1,052.80 | B3            | 718.92                      | 719.12  | 719.40 | 719.83 | 720.14 | 720.43   | 722.93 |
| UPPER_BIELS_HF | 1,072.46 |               | 718.88                      | 719.08  | 719.37 | 719.81 | 720.12 | 720.42   | 722.92 |
| UPPER_BIELS_HF | 1,092.12 |               | 718.84                      | 719.04  | 719.35 | 719.79 | 720.11 | 720.40   | 722.91 |
| UPPER_BIELS_HF | 1,111.77 |               | 718.81                      | 719.00  | 719.32 | 719.77 | 720.09 | 720.39   | 722.91 |
| UPPER_BIELS_HF | 1,131.43 |               | 718.77                      | 718.96  | 719.29 | 719.75 | 720.08 | 720.38   | 722.90 |
| UPPER_BIELS_HF | 1,151.09 |               | 718.73                      | 718.93  | 719.26 | 719.73 | 720.06 | 720.37   | 722.90 |
| UPPER_BIELS_HF | 1,170.75 |               | 718.69                      | 718.90  | 719.24 | 719.72 | 720.05 | 720.35   | 722.89 |

| Channel        | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|----------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|                |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| UPPER_BIELS_HF | 1,190.41 |               | 718.65                      | 718.86  | 719.21 | 719.70 | 720.04 | 720.34   | 722.88 |
| UPPER_BIELS_HF | 1,210.06 |               | 718.61                      | 718.83  | 719.19 | 719.69 | 720.03 | 720.33   | 722.88 |
| UPPER_BIELS_HF | 1,229.72 |               | 718.57                      | 718.80  | 719.17 | 719.67 | 720.02 | 720.33   | 722.87 |
| UPPER_BIELS_HF | 1,249.38 |               | 718.53                      | 718.77  | 719.14 | 719.66 | 720.01 | 720.32   | 722.87 |
| UPPER_BIELS_HF | 1,269.04 |               | 718.49                      | 718.74  | 719.12 | 719.65 | 720.00 | 720.31   | 722.86 |
| UPPER_BIELS_HF | 1,288.70 |               | 718.46                      | 718.71  | 719.11 | 719.64 | 719.99 | 720.30   | 722.86 |
| UPPER_BIELS_HF | 1,308.35 |               | 718.43                      | 718.68  | 719.09 | 719.63 | 719.98 | 720.29   | 722.86 |
| UPPER_BIELS_HF | 1,328.01 |               | 718.39                      | 718.66  | 719.08 | 719.62 | 719.98 | 720.29   | 722.85 |
| UPPER_BIELS_HF | 1,347.67 |               | 718.36                      | 718.63  | 719.06 | 719.61 | 719.97 | 720.28   | 722.85 |
| UPPER_BIELS_HF | 1,367.33 |               | 718.33                      | 718.61  | 719.05 | 719.61 | 719.96 | 720.27   | 722.84 |
| UPPER_BIELS_HF | 1,386.99 |               | 718.30                      | 718.59  | 719.04 | 719.60 | 719.96 | 720.27   | 722.84 |
| UPPER_BIELS_HF | 1,406.65 |               | 718.27                      | 718.57  | 719.03 | 719.59 | 719.95 | 720.26   | 722.84 |
| UPPER_BIELS_HF | 1,426.30 |               | 718.24                      | 718.56  | 719.02 | 719.58 | 719.95 | 720.26   | 722.83 |
| UPPER_BIELS_HF | 1,445.96 |               | 718.22                      | 718.54  | 719.01 | 719.58 | 719.94 | 720.25   | 722.83 |
| UPPER_BIELS_HF | 1,465.62 |               | 718.19                      | 718.53  | 719.00 | 719.57 | 719.94 | 720.25   | 722.83 |

| Channel        | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|----------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|                |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| UPPER_BIELS_HF | 1,485.28 |               | 718.17                      | 718.52  | 719.00 | 719.57 | 719.93 | 720.24   | 722.83 |
| UPPER_BIELS_HF | 1,504.94 |               | 718.15                      | 718.50  | 718.99 | 719.56 | 719.93 | 720.24   | 722.82 |
| UPPER_BIELS_HF | 1,524.59 |               | 718.13                      | 718.49  | 718.98 | 719.56 | 719.92 | 720.23   | 722.82 |
| UPPER_BIELS_HF | 1,544.25 |               | 718.12                      | 718.48  | 718.98 | 719.55 | 719.92 | 720.23   | 722.82 |
| UPPER_BIELS_HF | 1,563.91 |               | 718.10                      | 718.48  | 718.97 | 719.55 | 719.91 | 720.23   | 722.82 |
| UPPER_BIELS_HF | 1,583.57 |               | 718.09                      | 718.47  | 718.97 | 719.55 | 719.91 | 720.22   | 722.81 |
| UPPER_BIELS_HF | 1,603.23 |               | 718.08                      | 718.46  | 718.96 | 719.54 | 719.91 | 720.22   | 722.81 |
| UPPER_BIELS_HF | 1,622.88 |               | 718.07                      | 718.45  | 718.96 | 719.54 | 719.91 | 720.22   | 722.81 |
| UPPER_BIELS_HF | 1,642.54 |               | 718.06                      | 718.44  | 718.95 | 719.54 | 719.90 | 720.22   | 722.81 |
| UPPER_BIELS_HF | 1,662.20 | B4            | 718.05                      | 718.44  | 718.95 | 719.53 | 719.90 | 720.21   | 722.81 |
| UPPER_BIELS_HF | 1,681.31 |               | 718.04                      | 718.43  | 718.95 | 719.53 | 719.90 | 720.21   | 722.80 |
| UPPER_BIELS_HF | 1,700.43 |               | 718.03                      | 718.43  | 718.94 | 719.53 | 719.90 | 720.21   | 722.80 |
| UPPER_BIELS_HF | 1,719.54 |               | 718.02                      | 718.42  | 718.94 | 719.52 | 719.89 | 720.21   | 722.80 |
| UPPER_BIELS_HF | 1,738.65 |               | 718.01                      | 718.41  | 718.93 | 719.52 | 719.89 | 720.20   | 722.80 |
| UPPER_BIELS_HF | 1,757.77 |               | 717.99                      | 718.41  | 718.93 | 719.52 | 719.89 | 720.20   | 722.80 |

| Channel        | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|----------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|                |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| UPPER_BIELS_HF | 1,776.88 |               | 717.98                      | 718.40  | 718.92 | 719.52 | 719.88 | 720.20   | 722.79 |
| UPPER_BIELS_HF | 1,796.00 |               | 717.97                      | 718.39  | 718.92 | 719.51 | 719.88 | 720.20   | 722.79 |
| UPPER_BIELS_HF | 1,815.11 |               | 717.96                      | 718.38  | 718.92 | 719.51 | 719.88 | 720.19   | 722.79 |
| UPPER_BIELS_HF | 1,834.22 |               | 717.95                      | 718.38  | 718.91 | 719.51 | 719.88 | 720.19   | 722.79 |
| UPPER_BIELS_HF | 1,853.34 |               | 717.93                      | 718.37  | 718.91 | 719.50 | 719.87 | 720.19   | 722.79 |
| UPPER_BIELS_HF | 1,872.45 |               | 717.92                      | 718.36  | 718.90 | 719.50 | 719.87 | 720.19   | 722.79 |
| LOWER_BIELS    | 0.00     |               | 717.92                      | 718.36  | 718.90 | 719.50 | 719.87 | 720.19   | 722.79 |
| LOWER_BIELS    | 20.00    |               | 717.89                      | 718.34  | 718.88 | 719.48 | 719.85 | 720.17   | 722.78 |
| LOWER_BIELS    | 25.00    |               | 717.89                      | 718.34  | 718.88 | 719.48 | 719.85 | 720.17   | 722.80 |
| LOWER_BIELS    | 42.40    | B5            | 717.67                      | 717.93  | 718.25 | 718.68 | 719.00 | 719.28   | 721.25 |
| LOWER_BIELS    | 62.00    |               | 717.67                      | 717.93  | 718.25 | 718.68 | 719.00 | 719.28   | 721.25 |
| LOWER_BIELS    | 81.83    |               | 717.64                      | 717.89  | 718.22 | 718.64 | 718.96 | 719.24   | 721.21 |
| LOWER_BIELS    | 101.66   |               | 717.60                      | 717.86  | 718.18 | 718.60 | 718.92 | 719.20   | 721.17 |
| LOWER_BIELS    | 121.48   |               | 717.56                      | 717.82  | 718.14 | 718.56 | 718.88 | 719.16   | 721.12 |
| LOWER_BIELS    | 141.31   |               | 717.52                      | 717.78  | 718.10 | 718.52 | 718.84 | 719.12   | 721.07 |



| Channel     | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|-------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|             |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| LOWER_BIELS | 161.14   |               | 717.49                      | 717.74  | 718.06 | 718.47 | 718.79 | 719.08   | 721.02 |
| LOWER_BIELS | 180.97   |               | 717.45                      | 717.70  | 718.02 | 718.43 | 718.75 | 719.03   | 720.97 |
| LOWER_BIELS | 200.79   |               | 717.41                      | 717.66  | 717.98 | 718.39 | 718.71 | 718.99   | 720.92 |
| LOWER_BIELS | 220.62   |               | 717.37                      | 717.62  | 717.94 | 718.34 | 718.66 | 718.94   | 720.88 |
| LOWER_BIELS | 240.45   |               | 717.32                      | 717.58  | 717.90 | 718.30 | 718.62 | 718.90   | 720.83 |
| LOWER_BIELS | 260.28   |               | 717.28                      | 717.54  | 717.85 | 718.25 | 718.57 | 718.85   | 720.78 |
| LOWER_BIELS | 280.10   |               | 717.24                      | 717.50  | 717.81 | 718.21 | 718.53 | 718.80   | 720.73 |
| LOWER_BIELS | 299.93   |               | 717.20                      | 717.45  | 717.76 | 718.16 | 718.48 | 718.76   | 720.68 |
| LOWER_BIELS | 319.76   |               | 717.15                      | 717.41  | 717.72 | 718.11 | 718.43 | 718.71   | 720.63 |
| LOWER_BIELS | 339.59   |               | 717.10                      | 717.36  | 717.67 | 718.06 | 718.38 | 718.65   | 720.57 |
| LOWER_BIELS | 359.41   |               | 717.06                      | 717.31  | 717.62 | 718.01 | 718.33 | 718.60   | 720.51 |
| LOWER_BIELS | 379.24   |               | 717.01                      | 717.26  | 717.57 | 717.96 | 718.27 | 718.55   | 720.46 |
| LOWER_BIELS | 399.07   |               | 716.96                      | 717.21  | 717.52 | 717.90 | 718.22 | 718.49   | 720.40 |
| LOWER_BIELS | 418.90   |               | 716.90                      | 717.15  | 717.46 | 717.85 | 718.16 | 718.43   | 720.33 |
| LOWER_BIELS | 438.72   |               | 716.85                      | 717.10  | 717.41 | 717.79 | 718.10 | 718.37   | 720.27 |

| Channel     | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|-------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|             |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| LOWER_BIELS | 458.55   |               | 716.79                      | 717.04  | 717.35 | 717.73 | 718.03 | 718.31   | 720.21 |
| LOWER_BIELS | 478.38   |               | 716.73                      | 716.98  | 717.29 | 717.67 | 717.97 | 718.25   | 720.14 |
| LOWER_BIELS | 498.21   |               | 716.67                      | 716.91  | 717.22 | 717.60 | 717.90 | 718.18   | 720.07 |
| LOWER_BIELS | 518.03   |               | 716.60                      | 716.84  | 717.15 | 717.53 | 717.83 | 718.11   | 719.99 |
| LOWER_BIELS | 537.86   |               | 716.53                      | 716.77  | 717.08 | 717.46 | 717.75 | 718.03   | 719.91 |
| LOWER_BIELS | 557.69   |               | 716.46                      | 716.70  | 717.00 | 717.38 | 717.68 | 717.95   | 719.83 |
| LOWER_BIELS | 577.52   |               | 716.38                      | 716.62  | 716.92 | 717.30 | 717.59 | 717.86   | 719.74 |
| LOWER_BIELS | 597.34   |               | 716.29                      | 716.53  | 716.82 | 717.21 | 717.50 | 717.76   | 719.64 |
| LOWER_BIELS | 617.17   | B6            | 716.19                      | 716.43  | 716.72 | 717.11 | 717.40 | 717.66   | 719.54 |
| LOWER_BIELS | 637.00   |               | 716.07                      | 716.32  | 716.61 | 716.99 | 717.29 | 717.55   | 719.43 |
| LOWER_BIELS | 656.42   |               | 715.96                      | 716.22  | 716.52 | 716.89 | 717.19 | 717.46   | 719.32 |
| LOWER_BIELS | 675.84   |               | 715.85                      | 716.11  | 716.42 | 716.79 | 717.09 | 717.36   | 719.22 |
| LOWER_BIELS | 695.27   |               | 715.73                      | 716.00  | 716.31 | 716.70 | 716.99 | 717.26   | 719.11 |
| LOWER_BIELS | 714.69   |               | 715.61                      | 715.89  | 716.20 | 716.59 | 716.89 | 717.15   | 719.00 |
| LOWER_BIELS | 734.11   |               | 715.48                      | 715.77  | 716.08 | 716.48 | 716.79 | 717.05   | 718.89 |

| Channel     | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|-------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|             |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| LOWER_BIELS | 753.53   |               | 715.35                      | 715.65  | 715.97 | 716.36 | 716.67 | 716.94   | 718.78 |
| LOWER_BIELS | 772.96   |               | 715.24                      | 715.51  | 715.84 | 716.23 | 716.55 | 716.82   | 718.66 |
| LOWER_BIELS | 792.38   |               | 715.12                      | 715.39  | 715.71 | 716.11 | 716.41 | 716.68   | 718.53 |
| LOWER_BIELS | 811.80   | B7            | 715.01                      | 715.27  | 715.57 | 715.97 | 716.27 | 716.53   | 718.39 |
| LOWER_BIELS | 831.57   |               | 714.90                      | 715.16  | 715.45 | 715.85 | 716.15 | 716.41   | 718.26 |
| LOWER_BIELS | 851.35   |               | 714.80                      | 715.04  | 715.34 | 715.74 | 716.02 | 716.29   | 718.14 |
| LOWER_BIELS | 871.12   |               | 714.69                      | 714.91  | 715.23 | 715.62 | 715.90 | 716.17   | 718.03 |
| LOWER_BIELS | 890.89   |               | 714.58                      | 714.80  | 715.11 | 715.50 | 715.78 | 716.05   | 717.91 |
| LOWER_BIELS | 910.67   |               | 714.46                      | 714.69  | 715.00 | 715.38 | 715.66 | 715.93   | 717.80 |
| LOWER_BIELS | 930.44   |               | 714.34                      | 714.57  | 714.89 | 715.26 | 715.54 | 715.81   | 717.70 |
| LOWER_BIELS | 950.21   |               | 714.23                      | 714.46  | 714.77 | 715.14 | 715.43 | 715.69   | 717.59 |
| LOWER_BIELS | 969.98   |               | 714.12                      | 714.35  | 714.66 | 715.02 | 715.31 | 715.57   | 717.49 |
| LOWER_BIELS | 989.76   |               | 714.01                      | 714.24  | 714.54 | 714.91 | 715.20 | 715.45   | 717.39 |
| LOWER_BIELS | 1,009.53 |               | 713.90                      | 714.13  | 714.42 | 714.80 | 715.08 | 715.33   | 717.29 |
| LOWER_BIELS | 1,029.30 |               | 713.79                      | 714.02  | 714.30 | 714.68 | 714.96 | 715.20   | 717.19 |

| Channel     | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|-------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|             |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| LOWER_BIELS | 1,049.08 |               | 713.68                      | 713.90  | 714.19 | 714.57 | 714.84 | 715.08   | 717.10 |
| LOWER_BIELS | 1,068.85 |               | 713.57                      | 713.78  | 714.08 | 714.45 | 714.72 | 714.96   | 717.00 |
| LOWER_BIELS | 1,088.62 |               | 713.45                      | 713.66  | 713.96 | 714.34 | 714.60 | 714.84   | 716.90 |
| LOWER_BIELS | 1,108.40 |               | 713.33                      | 713.55  | 713.85 | 714.22 | 714.47 | 714.72   | 716.81 |
| LOWER_BIELS | 1,128.17 |               | 713.21                      | 713.43  | 713.74 | 714.10 | 714.35 | 714.60   | 716.71 |
| LOWER_BIELS | 1,147.94 |               | 713.10                      | 713.31  | 713.62 | 713.97 | 714.23 | 714.48   | 716.62 |
| LOWER_BIELS | 1,167.72 |               | 712.98                      | 713.19  | 713.50 | 713.84 | 714.11 | 714.36   | 716.51 |
| LOWER_BIELS | 1,187.49 |               | 712.85                      | 713.07  | 713.37 | 713.71 | 713.98 | 714.23   | 716.41 |
| LOWER_BIELS | 1,207.26 |               | 712.73                      | 712.94  | 713.24 | 713.58 | 713.85 | 714.11   | 716.30 |
| LOWER_BIELS | 1,227.03 |               | 712.59                      | 712.80  | 713.10 | 713.44 | 713.72 | 713.98   | 716.18 |
| LOWER_BIELS | 1,246.81 |               | 712.45                      | 712.66  | 712.95 | 713.30 | 713.58 | 713.84   | 716.06 |
| LOWER_BIELS | 1,266.58 |               | 712.29                      | 712.49  | 712.78 | 713.14 | 713.42 | 713.69   | 715.94 |
| LOWER_BIELS | 1,286.35 |               | 712.10                      | 712.30  | 712.59 | 712.96 | 713.25 | 713.52   | 715.80 |
| LOWER_BIELS | 1,306.13 |               | 711.88                      | 712.08  | 712.36 | 712.75 | 713.05 | 713.33   | 715.66 |
| LOWER_BIELS | 1,325.90 | B9            | 711.59                      | 711.78  | 712.06 | 712.48 | 712.80 | 713.10   | 715.51 |

| Channel     | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|-------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|             |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| LOWER_BIELS | 1,345.36 |               | 711.27                      | 711.47  | 711.77 | 712.23 | 712.57 | 712.89   | 715.40 |
| LOWER_BIELS | 1,364.83 |               | 710.96                      | 711.16  | 711.48 | 712.00 | 712.37 | 712.71   | 715.30 |
| LOWER_BIELS | 1,384.29 |               | 710.65                      | 710.86  | 711.21 | 711.80 | 712.19 | 712.56   | 715.22 |
| LOWER_BIELS | 1,403.75 |               | 710.34                      | 710.56  | 710.97 | 711.62 | 712.04 | 712.44   | 715.14 |
| LOWER_BIELS | 1,423.22 |               | 710.04                      | 710.29  | 710.76 | 711.47 | 711.91 | 712.34   | 715.07 |
| LOWER_BIELS | 1,442.68 |               | 709.77                      | 710.04  | 710.58 | 711.36 | 711.82 | 712.25   | 715.01 |
| LOWER_BIELS | 1,462.15 |               | 709.53                      | 709.83  | 710.43 | 711.26 | 711.75 | 712.18   | 714.96 |
| LOWER_BIELS | 1,481.61 |               | 709.34                      | 709.66  | 710.32 | 711.18 | 711.69 | 712.12   | 714.92 |
| LOWER_BIELS | 1,501.07 |               | 709.21                      | 709.54  | 710.24 | 711.13 | 711.63 | 712.06   | 714.88 |
| LOWER_BIELS | 1,520.54 |               | 709.11                      | 709.44  | 710.18 | 711.09 | 711.58 | 712.02   | 714.86 |
| LOWER_BIELS | 1,540.00 |               | 709.04                      | 709.38  | 710.13 | 711.05 | 711.55 | 711.98   | 714.84 |
| LOWER_BIELS | 1,546.00 | B10           | 709.04                      | 709.38  | 710.13 | 711.05 | 711.55 | 711.98   | 714.84 |
| LOWER_BIELS | 1,560.00 |               | 708.19                      | 708.45  | 708.78 | 709.23 | 709.56 | 709.88   | 711.96 |
| LOWER_BIELS | 1,579.59 |               | 707.99                      | 708.25  | 708.58 | 709.03 | 709.35 | 709.66   | 711.68 |
| LOWER_BIELS | 1,599.17 |               | 707.79                      | 708.05  | 708.38 | 708.82 | 709.13 | 709.44   | 711.41 |

| Channel     | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|-------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|             |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| LOWER_BIELS | 1,618.76 |               | 707.59                      | 707.85  | 708.18 | 708.61 | 708.92 | 709.22   | 711.13 |
| LOWER_BIELS | 1,638.35 |               | 707.39                      | 707.65  | 707.97 | 708.40 | 708.70 | 709.00   | 710.85 |
| LOWER_BIELS | 1,657.93 |               | 707.19                      | 707.45  | 707.77 | 708.18 | 708.48 | 708.77   | 710.57 |
| LOWER_BIELS | 1,677.52 |               | 707.00                      | 707.24  | 707.57 | 707.97 | 708.26 | 708.54   | 710.30 |
| LOWER_BIELS | 1,697.11 |               | 706.80                      | 707.04  | 707.36 | 707.75 | 708.04 | 708.31   | 710.02 |
| LOWER_BIELS | 1,716.70 |               | 706.60                      | 706.84  | 707.15 | 707.54 | 707.82 | 708.07   | 709.75 |
| LOWER_BIELS | 1,736.28 |               | 706.40                      | 706.64  | 706.95 | 707.32 | 707.60 | 707.83   | 709.48 |
| LOWER_BIELS | 1,755.87 |               | 706.20                      | 706.44  | 706.74 | 707.10 | 707.37 | 707.57   | 709.21 |
| LOWER_BIELS | 1,775.46 |               | 706.00                      | 706.23  | 706.52 | 706.88 | 707.13 | 707.33   | 708.95 |
| LOWER_BIELS | 1,795.04 |               | 705.79                      | 706.03  | 706.31 | 706.66 | 706.90 | 707.09   | 708.69 |
| LOWER_BIELS | 1,814.63 |               | 705.59                      | 705.82  | 706.09 | 706.43 | 706.65 | 706.86   | 708.45 |
| LOWER_BIELS | 1,834.22 |               | 705.39                      | 705.61  | 705.87 | 706.21 | 706.41 | 706.63   | 708.23 |
| LOWER_BIELS | 1,853.80 |               | 705.19                      | 705.41  | 705.66 | 705.98 | 706.18 | 706.40   | 708.03 |
| LOWER_BIELS | 1,873.39 |               | 704.99                      | 705.20  | 705.44 | 705.74 | 705.96 | 706.18   | 707.84 |
| LOWER_BIELS | 1,892.98 |               | 704.79                      | 704.98  | 705.23 | 705.52 | 705.75 | 705.97   | 707.69 |

| Channel     | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|-------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|             |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| LOWER_BIELS | 1,912.57 |               | 704.59                      | 704.78  | 705.02 | 705.32 | 705.55 | 705.78   | 707.57 |
| LOWER_BIELS | 1,932.15 |               | 704.40                      | 704.59  | 704.82 | 705.14 | 705.38 | 705.62   | 707.49 |
| LOWER_BIELS | 1,951.74 |               | 704.21                      | 704.41  | 704.65 | 704.98 | 705.24 | 705.49   | 707.44 |
| LOWER_BIELS | 1,971.33 |               | 704.05                      | 704.25  | 704.51 | 704.86 | 705.13 | 705.39   | 707.40 |
| LOWER_BIELS | 1,990.91 |               | 703.92                      | 704.13  | 704.41 | 704.77 | 705.05 | 705.32   | 707.37 |
| LOWER_BIELS | 2,010.50 | B11           | 703.82                      | 704.04  | 704.33 | 704.71 | 705.00 | 705.28   | 707.35 |
| LOWER_BIELS | 2,029.90 |               | 703.69                      | 703.92  | 704.22 | 704.62 | 704.92 | 705.21   | 707.30 |
| LOWER_BIELS | 2,049.30 |               | 703.56                      | 703.79  | 704.10 | 704.52 | 704.83 | 705.13   | 707.26 |
| LOWER_BIELS | 2,068.70 |               | 703.42                      | 703.66  | 703.99 | 704.42 | 704.75 | 705.05   | 707.21 |
| LOWER_BIELS | 2,088.10 |               | 703.30                      | 703.53  | 703.87 | 704.32 | 704.66 | 704.98   | 707.16 |
| LOWER_BIELS | 2,107.50 |               | 703.17                      | 703.41  | 703.75 | 704.22 | 704.57 | 704.90   | 707.12 |
| LOWER_BIELS | 2,126.90 |               | 703.05                      | 703.29  | 703.63 | 704.12 | 704.48 | 704.82   | 707.07 |
| LOWER_BIELS | 2,146.30 |               | 702.93                      | 703.18  | 703.52 | 704.02 | 704.39 | 704.74   | 707.03 |
| LOWER_BIELS | 2,165.70 |               | 702.81                      | 703.06  | 703.41 | 703.92 | 704.30 | 704.66   | 706.99 |
| LOWER_BIELS | 2,185.10 |               | 702.69                      | 702.95  | 703.31 | 703.82 | 704.21 | 704.57   | 706.94 |

| Channel     | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|-------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|             |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| LOWER_BIELS | 2,204.50 |               | 702.58                      | 702.85  | 703.21 | 703.72 | 704.12 | 704.49   | 706.90 |
| LOWER_BIELS | 2,223.90 |               | 702.47                      | 702.75  | 703.12 | 703.63 | 704.04 | 704.41   | 706.86 |
| LOWER_BIELS | 2,243.30 |               | 702.37                      | 702.66  | 703.04 | 703.55 | 703.96 | 704.34   | 706.82 |
| LOWER_BIELS | 2,262.70 |               | 702.28                      | 702.57  | 702.96 | 703.48 | 703.89 | 704.27   | 706.77 |
| LOWER_BIELS | 2,282.10 |               | 702.19                      | 702.50  | 702.89 | 703.41 | 703.82 | 704.20   | 706.73 |
| LOWER_BIELS | 2,301.50 |               | 702.11                      | 702.43  | 702.82 | 703.34 | 703.75 | 704.14   | 706.69 |
| LOWER_BIELS | 2,320.90 |               | 702.04                      | 702.36  | 702.76 | 703.28 | 703.69 | 704.08   | 706.64 |
| LOWER_BIELS | 2,340.30 |               | 701.98                      | 702.31  | 702.71 | 703.23 | 703.63 | 704.02   | 706.60 |
| LOWER_BIELS | 2,359.70 |               | 701.92                      | 702.26  | 702.66 | 703.18 | 703.58 | 703.96   | 706.56 |
| LOWER_BIELS | 2,379.10 | B12           | 701.87                      | 702.21  | 702.61 | 703.13 | 703.53 | 703.91   | 706.51 |
| LOWER_BIELS | 2,398.74 |               | 701.82                      | 702.15  | 702.56 | 703.08 | 703.47 | 703.85   | 706.46 |
| LOWER_BIELS | 2,418.39 |               | 701.77                      | 702.09  | 702.50 | 703.02 | 703.42 | 703.79   | 706.39 |
| LOWER_BIELS | 2,438.03 |               | 701.72                      | 702.03  | 702.44 | 702.96 | 703.36 | 703.73   | 706.33 |
| LOWER_BIELS | 2,457.68 |               | 701.67                      | 701.98  | 702.38 | 702.90 | 703.30 | 703.66   | 706.26 |
| LOWER_BIELS | 2,477.32 |               | 701.62                      | 701.93  | 702.32 | 702.84 | 703.23 | 703.60   | 706.19 |



| Channel     | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|-------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|             |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| LOWER_BIELS | 2,496.96 |               | 701.57                      | 701.88  | 702.26 | 702.78 | 703.17 | 703.54   | 706.11 |
| LOWER_BIELS | 2,516.61 |               | 701.51                      | 701.83  | 702.20 | 702.71 | 703.11 | 703.47   | 706.03 |
| LOWER_BIELS | 2,536.25 |               | 701.46                      | 701.77  | 702.15 | 702.64 | 703.04 | 703.40   | 705.94 |
| LOWER_BIELS | 2,555.90 |               | 701.41                      | 701.72  | 702.09 | 702.58 | 702.96 | 703.33   | 705.86 |
| LOWER_BIELS | 2,575.54 |               | 701.35                      | 701.66  | 702.03 | 702.52 | 702.89 | 703.25   | 705.77 |
| LOWER_BIELS | 2,595.18 |               | 701.29                      | 701.60  | 701.97 | 702.45 | 702.82 | 703.17   | 705.67 |
| LOWER_BIELS | 2,614.83 |               | 701.23                      | 701.54  | 701.90 | 702.38 | 702.75 | 703.09   | 705.57 |
| LOWER_BIELS | 2,634.47 |               | 701.17                      | 701.47  | 701.84 | 702.31 | 702.68 | 703.02   | 705.47 |
| LOWER_BIELS | 2,654.12 |               | 701.10                      | 701.40  | 701.76 | 702.23 | 702.60 | 702.93   | 705.36 |
| LOWER_BIELS | 2,673.76 |               | 701.02                      | 701.33  | 701.68 | 702.15 | 702.51 | 702.85   | 705.24 |
| LOWER_BIELS | 2,693.40 |               | 700.94                      | 701.25  | 701.60 | 702.07 | 702.42 | 702.75   | 705.11 |
| LOWER_BIELS | 2,713.05 |               | 700.86                      | 701.16  | 701.51 | 701.97 | 702.33 | 702.65   | 704.98 |
| LOWER_BIELS | 2,732.69 |               | 700.77                      | 701.07  | 701.42 | 701.87 | 702.22 | 702.54   | 704.84 |
| LOWER_BIELS | 2,752.34 |               | 700.67                      | 700.96  | 701.31 | 701.76 | 702.10 | 702.42   | 704.68 |
| LOWER_BIELS | 2,771.98 |               | 700.56                      | 700.85  | 701.19 | 701.63 | 701.97 | 702.29   | 704.51 |

| Channel     | Chainage | Cross-section | Design Flood Levels (m AHD) |         |        |        |        |          |        |
|-------------|----------|---------------|-----------------------------|---------|--------|--------|--------|----------|--------|
|             |          |               | 20% AEP                     | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| LOWER_BIELS | 2,791.62 |               | 700.44                      | 700.73  | 701.05 | 701.49 | 701.82 | 702.13   | 704.31 |
| LOWER_BIELS | 2,811.27 |               | 700.29                      | 700.58  | 700.89 | 701.33 | 701.65 | 701.95   | 704.09 |
| LOWER_BIELS | 2,830.91 |               | 700.11                      | 700.41  | 700.71 | 701.12 | 701.45 | 701.74   | 703.83 |
| LOWER_BIELS | 2,850.56 |               | 699.89                      | 700.18  | 700.48 | 700.88 | 701.19 | 701.48   | 703.51 |
| LOWER_BIELS | 2,870.20 |               | 699.59                      | 699.89  | 700.16 | 700.57 | 700.86 | 701.14   | 703.14 |
| LOWER_BIELS | 2,885.10 | B13           | 699.28                      | 699.60  | 699.85 | 700.24 | 700.54 | 700.81   | 702.80 |
| LOWER_BIELS | 2,900.00 |               | 698.93                      | 699.25  | 699.50 | 699.89 | 700.19 | 700.46   | 702.46 |

**APPENDIX G**

**DESIGN FLOOD FLOWS - BIELSDOWN RIVER**

| Channel    | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|            |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| BIELS_HEAD | 9.63     |               | 212                           | 255     | 312    | 392    | 455    | 522      | 1255 |
| BIELS_HEAD | 28.90    |               | 212                           | 255     | 312    | 392    | 455    | 522      | 1254 |
| BIELS_HEAD | 48.17    |               | 212                           | 255     | 312    | 392    | 455    | 522      | 1254 |
| BIELS_HEAD | 67.71    | B1            | 212                           | 255     | 312    | 391    | 455    | 522      | 1254 |
| BIELS_HEAD | 87.54    |               | 212                           | 255     | 312    | 391    | 455    | 521      | 1254 |
| BIELS_HEAD | 107.36   |               | 212                           | 255     | 312    | 391    | 455    | 521      | 1254 |
| BIELS_HEAD | 127.19   |               | 212                           | 255     | 312    | 391    | 455    | 521      | 1254 |
| BIELS_HEAD | 147.01   |               | 212                           | 255     | 312    | 391    | 455    | 521      | 1254 |
| BIELS_HEAD | 166.84   |               | 212                           | 255     | 312    | 391    | 455    | 521      | 1253 |
| BIELS_HEAD | 186.66   |               | 212                           | 255     | 312    | 391    | 455    | 521      | 1253 |
| BIELS_HEAD | 206.49   |               | 212                           | 254     | 311    | 391    | 455    | 521      | 1253 |
| BIELS_HEAD | 226.31   |               | 212                           | 254     | 311    | 391    | 455    | 521      | 1253 |
| BIELS_HEAD | 246.14   |               | 212                           | 254     | 311    | 391    | 455    | 521      | 1253 |
| BIELS_HEAD | 265.96   |               | 212                           | 254     | 311    | 391    | 455    | 521      | 1253 |
| BIELS_HEAD | 285.79   |               | 212                           | 254     | 311    | 391    | 455    | 521      | 1252 |

| Channel    | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|            |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| BIELS_HEAD | 305.61   |               | 212                           | 254     | 311    | 391    | 455    | 521      | 1252 |
| BIELS_HEAD | 325.44   |               | 212                           | 254     | 311    | 391    | 455    | 521      | 1252 |
| BIELS_HEAD | 345.26   |               | 212                           | 254     | 311    | 391    | 455    | 521      | 1252 |
| BIELS_HEAD | 365.09   |               | 212                           | 254     | 311    | 391    | 455    | 521      | 1252 |
| BIELS_HEAD | 384.91   |               | 212                           | 254     | 311    | 390    | 455    | 521      | 1252 |
| BIELS_HEAD | 404.74   |               | 212                           | 254     | 311    | 390    | 455    | 521      | 1251 |
| BIELS_HEAD | 424.56   |               | 212                           | 254     | 311    | 390    | 455    | 521      | 1251 |
| BIELS_HEAD | 444.39   |               | 212                           | 254     | 311    | 390    | 455    | 521      | 1251 |
| BIELS_HEAD | 464.21   |               | 212                           | 254     | 310    | 390    | 455    | 521      | 1251 |
| BIELS_HEAD | 484.04   |               | 212                           | 254     | 310    | 390    | 455    | 521      | 1251 |
| BIELS_HEAD | 503.86   |               | 212                           | 254     | 310    | 390    | 454    | 521      | 1250 |
| BIELS_HEAD | 523.69   |               | 212                           | 254     | 310    | 390    | 454    | 521      | 1250 |
| BIELS_HEAD | 543.51   |               | 212                           | 254     | 310    | 390    | 454    | 521      | 1250 |
| BIELS_HEAD | 563.34   |               | 212                           | 254     | 310    | 390    | 454    | 521      | 1250 |
| BIELS_HEAD | 583.16   |               | 212                           | 254     | 310    | 390    | 454    | 521      | 1250 |

| Channel    | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|            |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| BIELS_HEAD | 602.99   |               | 212                           | 254     | 310    | 390    | 454    | 521      | 1249 |
| BIELS_HEAD | 622.81   |               | 212                           | 254     | 310    | 390    | 454    | 521      | 1249 |
| BIELS_HEAD | 642.64   |               | 212                           | 254     | 310    | 390    | 454    | 521      | 1249 |
| BIELS_HEAD | 662.46   |               | 212                           | 254     | 310    | 390    | 454    | 521      | 1249 |
| BIELS_HEAD | 682.29   |               | 212                           | 254     | 310    | 390    | 454    | 521      | 1249 |
| BIELS_HEAD | 702.11   |               | 212                           | 254     | 310    | 390    | 454    | 521      | 1249 |
| BIELS_HEAD | 721.94   |               | 212                           | 254     | 310    | 389    | 454    | 521      | 1249 |
| BIELS_HEAD | 741.76   |               | 212                           | 254     | 310    | 389    | 454    | 521      | 1250 |
| BIELS_HEAD | 761.59   |               | 212                           | 254     | 310    | 389    | 454    | 521      | 1250 |
| BIELS_HEAD | 781.41   |               | 212                           | 254     | 310    | 389    | 454    | 521      | 1250 |
| BIELS_HEAD | 801.24   |               | 212                           | 254     | 310    | 389    | 454    | 521      | 1250 |
| BIELS_HEAD | 821.06   |               | 212                           | 254     | 310    | 389    | 454    | 521      | 1250 |
| BIELS_HEAD | 840.89   |               | 212                           | 254     | 310    | 389    | 454    | 521      | 1250 |
| BIELS_HEAD | 860.71   |               | 212                           | 254     | 310    | 389    | 454    | 521      | 1250 |
| BIELS_HEAD | 880.54   |               | 212                           | 254     | 310    | 389    | 454    | 521      | 1250 |

| Channel    | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|            |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| BIELS_HEAD | 900.36   |               | 212                           | 254     | 310    | 389    | 454    | 521      | 1251 |
| BIELS_HEAD | 920.19   |               | 212                           | 254     | 310    | 389    | 454    | 521      | 1251 |
| BIELS_HEAD | 940.01   |               | 212                           | 254     | 310    | 389    | 453    | 521      | 1251 |
| BIELS_HEAD | 959.84   |               | 212                           | 254     | 310    | 389    | 453    | 521      | 1251 |
| BIELS_HEAD | 979.66   |               | 212                           | 254     | 310    | 389    | 453    | 521      | 1251 |
| BIELS_HEAD | 999.49   |               | 212                           | 254     | 310    | 389    | 453    | 521      | 1251 |
| BIELS_HEAD | 1,019.31 |               | 212                           | 254     | 310    | 389    | 453    | 521      | 1251 |
| BIELS_HEAD | 1,039.14 |               | 212                           | 254     | 310    | 389    | 453    | 521      | 1251 |
| BIELS_HEAD | 1,058.96 |               | 212                           | 254     | 310    | 389    | 453    | 521      | 1251 |
| BIELS_HEAD | 1,078.79 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1252 |
| BIELS_HEAD | 1,098.61 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1252 |
| BIELS_HEAD | 1,118.44 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1252 |
| BIELS_HEAD | 1,138.26 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1252 |
| BIELS_HEAD | 1,158.09 | B1.5          | 212                           | 254     | 310    | 388    | 453    | 520      | 1252 |
| BIELS_HEAD | 1,177.96 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1252 |

| Channel    | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|            |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| BIELS_HEAD | 1,197.88 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1252 |
| BIELS_HEAD | 1,217.79 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1252 |
| BIELS_HEAD | 1,237.71 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1252 |
| BIELS_HEAD | 1,257.63 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1252 |
| BIELS_HEAD | 1,277.54 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1252 |
| BIELS_HEAD | 1,297.46 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1252 |
| BIELS_HEAD | 1,317.38 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1253 |
| BIELS_HEAD | 1,337.29 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1253 |
| BIELS_HEAD | 1,357.21 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1253 |
| BIELS_HEAD | 1,377.13 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1253 |
| BIELS_HEAD | 1,397.04 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1253 |
| BIELS_HEAD | 1,416.96 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1253 |
| BIELS_HEAD | 1,436.88 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1253 |
| BIELS_HEAD | 1,456.79 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1253 |
| BIELS_HEAD | 1,476.71 |               | 212                           | 254     | 310    | 388    | 453    | 520      | 1253 |



| Channel        | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|----------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|                |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| BIELS_HEAD     | 1,496.63 |               | 212                           | 254     | 310    | 389    | 452    | 520      | 1253 |
| BIELS_HEAD     | 1,516.54 |               | 212                           | 254     | 310    | 389    | 452    | 520      | 1253 |
| BIELS_HEAD     | 1,536.46 |               | 212                           | 254     | 310    | 389    | 452    | 520      | 1254 |
| BIELS_HEAD     | 1,556.38 |               | 212                           | 254     | 310    | 389    | 452    | 520      | 1255 |
| BIELS_HEAD     | 1,576.29 |               | 212                           | 254     | 310    | 389    | 452    | 520      | 1255 |
| BIELS_HEAD     | 1,596.21 |               | 212                           | 254     | 310    | 389    | 452    | 520      | 1256 |
| BIELS_HEAD     | 1,616.13 |               | 212                           | 254     | 310    | 389    | 452    | 520      | 1257 |
| BIELS_HEAD     | 1,636.04 |               | 212                           | 254     | 310    | 389    | 452    | 519      | 1258 |
| BIELS_HEAD     | 1,650.91 |               | 212                           | 254     | 310    | 389    | 452    | 519      | 1258 |
| UPPER_BIELS_HF | 823.40   | B2            | 212                           | 254     | 310    | 389    | 452    | 519      | 1258 |
| UPPER_BIELS_HF | 836.22   |               | 212                           | 254     | 310    | 389    | 452    | 519      | 1259 |
| UPPER_BIELS_HF | 855.05   |               | 212                           | 254     | 310    | 389    | 451    | 519      | 1259 |
| UPPER_BIELS_HF | 873.88   |               | 212                           | 254     | 310    | 389    | 451    | 518      | 1259 |
| UPPER_BIELS_HF | 892.72   |               | 212                           | 254     | 310    | 388    | 451    | 518      | 1259 |
| UPPER_BIELS_HF | 911.55   |               | 211                           | 254     | 310    | 388    | 451    | 517      | 1258 |

| Channel        | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|----------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|                |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| UPPER_BIELS_HF | 930.38   |               | 211                           | 254     | 310    | 388    | 450    | 517      | 1258 |
| UPPER_BIELS_HF | 949.22   |               | 211                           | 254     | 310    | 388    | 450    | 516      | 1257 |
| UPPER_BIELS_HF | 968.05   |               | 211                           | 254     | 310    | 388    | 450    | 516      | 1255 |
| UPPER_BIELS_HF | 986.88   |               | 211                           | 254     | 310    | 387    | 449    | 515      | 1253 |
| UPPER_BIELS_HF | 1005.72  |               | 211                           | 254     | 310    | 387    | 449    | 514      | 1251 |
| UPPER_BIELS_HF | 1024.55  |               | 211                           | 254     | 309    | 386    | 449    | 513      | 1249 |
| UPPER_BIELS_HF | 1043.38  |               | 211                           | 254     | 309    | 386    | 448    | 513      | 1246 |
| UPPER_BIELS_HF | 1062.63  | B3            | 211                           | 254     | 309    | 386    | 448    | 512      | 1242 |
| UPPER_BIELS_HF | 1082.29  |               | 211                           | 253     | 309    | 385    | 447    | 511      | 1238 |
| UPPER_BIELS_HF | 1101.95  |               | 211                           | 253     | 308    | 384    | 446    | 511      | 1234 |
| UPPER_BIELS_HF | 1121.60  |               | 211                           | 253     | 308    | 384    | 446    | 510      | 1229 |
| UPPER_BIELS_HF | 1141.26  |               | 211                           | 253     | 308    | 383    | 445    | 510      | 1225 |
| UPPER_BIELS_HF | 1160.92  |               | 211                           | 253     | 307    | 383    | 445    | 509      | 1220 |
| UPPER_BIELS_HF | 1180.58  |               | 211                           | 253     | 307    | 382    | 444    | 509      | 1215 |
| UPPER_BIELS_HF | 1200.24  |               | 211                           | 252     | 306    | 381    | 443    | 508      | 1210 |

| Channel        | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|----------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|                |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| UPPER_BIELS_HF | 1219.89  |               | 211                           | 252     | 306    | 381    | 442    | 508      | 1206 |
| UPPER_BIELS_HF | 1239.55  |               | 211                           | 252     | 305    | 380    | 442    | 507      | 1201 |
| UPPER_BIELS_HF | 1259.21  |               | 211                           | 252     | 305    | 379    | 441    | 506      | 1197 |
| UPPER_BIELS_HF | 1278.87  |               | 211                           | 251     | 304    | 378    | 440    | 506      | 1193 |
| UPPER_BIELS_HF | 1298.53  |               | 211                           | 251     | 304    | 377    | 440    | 505      | 1189 |
| UPPER_BIELS_HF | 1318.18  |               | 211                           | 251     | 303    | 377    | 439    | 505      | 1189 |
| UPPER_BIELS_HF | 1337.84  |               | 211                           | 250     | 302    | 376    | 438    | 504      | 1188 |
| UPPER_BIELS_HF | 1357.50  |               | 211                           | 250     | 301    | 375    | 437    | 503      | 1187 |
| UPPER_BIELS_HF | 1377.16  |               | 211                           | 250     | 301    | 374    | 436    | 503      | 1187 |
| UPPER_BIELS_HF | 1396.82  |               | 211                           | 249     | 300    | 373    | 436    | 502      | 1186 |
| UPPER_BIELS_HF | 1416.47  |               | 211                           | 249     | 300    | 372    | 435    | 501      | 1185 |
| UPPER_BIELS_HF | 1436.13  |               | 211                           | 249     | 299    | 372    | 434    | 501      | 1184 |
| UPPER_BIELS_HF | 1455.79  |               | 211                           | 248     | 299    | 371    | 433    | 500      | 1184 |
| UPPER_BIELS_HF | 1475.45  |               | 209                           | 248     | 298    | 371    | 432    | 499      | 1183 |
| UPPER_BIELS_HF | 1495.11  |               | 209                           | 247     | 298    | 370    | 432    | 499      | 1182 |

| Channel        | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|----------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|                |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| UPPER_BIELS_HF | 1514.76  |               | 209                           | 247     | 297    | 370    | 432    | 498      | 1182 |
| UPPER_BIELS_HF | 1534.42  |               | 209                           | 246     | 297    | 369    | 431    | 497      | 1181 |
| UPPER_BIELS_HF | 1554.08  |               | 208                           | 246     | 296    | 369    | 431    | 496      | 1181 |
| UPPER_BIELS_HF | 1573.74  |               | 208                           | 245     | 295    | 368    | 431    | 495      | 1181 |
| UPPER_BIELS_HF | 1593.40  |               | 208                           | 245     | 295    | 368    | 430    | 495      | 1181 |
| UPPER_BIELS_HF | 1613.05  |               | 207                           | 244     | 294    | 367    | 430    | 495      | 1181 |
| UPPER_BIELS_HF | 1632.71  |               | 207                           | 244     | 294    | 366    | 429    | 494      | 1181 |
| UPPER_BIELS_HF | 1652.37  |               | 207                           | 243     | 293    | 366    | 429    | 494      | 1182 |
| UPPER_BIELS_HF | 1671.76  | B4            | 207                           | 243     | 292    | 365    | 428    | 494      | 1184 |
| UPPER_BIELS_HF | 1690.87  |               | 207                           | 242     | 292    | 364    | 428    | 494      | 1186 |
| UPPER_BIELS_HF | 1709.98  |               | 207                           | 242     | 292    | 364    | 427    | 493      | 1189 |
| UPPER_BIELS_HF | 1729.10  |               | 207                           | 242     | 291    | 363    | 427    | 493      | 1194 |
| UPPER_BIELS_HF | 1748.21  |               | 207                           | 242     | 291    | 363    | 427    | 493      | 1200 |
| UPPER_BIELS_HF | 1767.33  |               | 206                           | 241     | 291    | 363    | 426    | 493      | 1209 |
| UPPER_BIELS_HF | 1786.44  |               | 206                           | 241     | 291    | 363    | 426    | 493      | 1219 |

| Channel        | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|----------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|                |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| UPPER_BIELS_HF | 1805.55  |               | 206                           | 241     | 290    | 363    | 425    | 492      | 1231 |
| UPPER_BIELS_HF | 1824.67  |               | 206                           | 240     | 290    | 363    | 425    | 492      | 1244 |
| UPPER_BIELS_HF | 1843.78  |               | 206                           | 240     | 290    | 363    | 425    | 492      | 1256 |
| UPPER_BIELS_HF | 1862.89  |               | 206                           | 240     | 289    | 363    | 425    | 492      | 1264 |
| LOWER_BIELS    | 10.00    |               | 206                           | 240     | 289    | 362    | 425    | 492      | 1267 |
| LOWER_BIELS    | 22.50    |               | 1                             | 1       | 3      | 30     | 62     | 94       | 359  |
| LOWER_BIELS    | 32.00    |               | 0                             | 0       | 3      | 30     | 62     | 94       | 358  |
| LOWER_BIELS    | 52.20    | B5            | 0                             | 0       | 3      | 30     | 62     | 94       | 356  |
| LOWER_BIELS    | 71.91    |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1245 |
| LOWER_BIELS    | 91.74    |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1238 |
| LOWER_BIELS    | 111.57   |               | 205                           | 240     | 289    | 362    | 425    | 491      | 1227 |
| LOWER_BIELS    | 131.40   |               | 205                           | 240     | 289    | 362    | 425    | 491      | 1215 |
| LOWER_BIELS    | 151.22   |               | 205                           | 240     | 289    | 362    | 425    | 491      | 1203 |
| LOWER_BIELS    | 171.05   |               | 205                           | 240     | 289    | 362    | 425    | 490      | 1192 |
| LOWER_BIELS    | 190.88   |               | 205                           | 240     | 289    | 362    | 425    | 490      | 1184 |

| Channel     | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|-------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|             |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| LOWER_BIELS | 210.71   |               | 205                           | 240     | 289    | 362    | 425    | 490      | 1179 |
| LOWER_BIELS | 230.53   |               | 205                           | 240     | 289    | 362    | 425    | 490      | 1174 |
| LOWER_BIELS | 250.36   |               | 205                           | 240     | 289    | 362    | 425    | 490      | 1172 |
| LOWER_BIELS | 270.19   |               | 205                           | 240     | 289    | 362    | 425    | 490      | 1172 |
| LOWER_BIELS | 290.02   |               | 206                           | 240     | 289    | 362    | 425    | 490      | 1172 |
| LOWER_BIELS | 309.84   |               | 206                           | 240     | 289    | 362    | 425    | 490      | 1172 |
| LOWER_BIELS | 329.67   |               | 206                           | 240     | 289    | 362    | 425    | 490      | 1172 |
| LOWER_BIELS | 349.5    |               | 206                           | 240     | 289    | 362    | 425    | 490      | 1172 |
| LOWER_BIELS | 369.33   |               | 206                           | 240     | 289    | 362    | 425    | 490      | 1172 |
| LOWER_BIELS | 389.16   |               | 206                           | 240     | 289    | 361    | 425    | 490      | 1172 |
| LOWER_BIELS | 408.98   |               | 206                           | 240     | 289    | 361    | 425    | 490      | 1172 |
| LOWER_BIELS | 428.81   |               | 206                           | 240     | 289    | 361    | 425    | 490      | 1172 |
| LOWER_BIELS | 448.64   |               | 206                           | 240     | 289    | 361    | 425    | 490      | 1172 |
| LOWER_BIELS | 468.47   |               | 206                           | 240     | 289    | 361    | 425    | 490      | 1172 |
| LOWER_BIELS | 488.29   |               | 206                           | 240     | 289    | 361    | 425    | 490      | 1172 |

| Channel     | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|-------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|             |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| LOWER_BIELS | 508.12   |               | 206                           | 240     | 289    | 361    | 425    | 490      | 1172 |
| LOWER_BIELS | 527.95   |               | 206                           | 240     | 289    | 361    | 425    | 490      | 1171 |
| LOWER_BIELS | 547.78   |               | 206                           | 240     | 289    | 361    | 425    | 490      | 1171 |
| LOWER_BIELS | 567.60   |               | 206                           | 240     | 289    | 361    | 425    | 490      | 1171 |
| LOWER_BIELS | 587.43   |               | 206                           | 240     | 290    | 361    | 425    | 490      | 1171 |
| LOWER_BIELS | 607.26   |               | 206                           | 240     | 290    | 361    | 425    | 490      | 1171 |
| LOWER_BIELS | 627.09   | B6            | 206                           | 240     | 290    | 361    | 425    | 490      | 1171 |
| LOWER_BIELS | 646.71   |               | 206                           | 240     | 290    | 361    | 425    | 490      | 1170 |
| LOWER_BIELS | 666.13   |               | 206                           | 240     | 290    | 361    | 425    | 490      | 1170 |
| LOWER_BIELS | 685.56   |               | 206                           | 240     | 289    | 361    | 425    | 490      | 1170 |
| LOWER_BIELS | 704.98   |               | 206                           | 240     | 289    | 361    | 425    | 490      | 1170 |
| LOWER_BIELS | 724.40   |               | 206                           | 240     | 289    | 361    | 425    | 490      | 1170 |
| LOWER_BIELS | 743.82   |               | 206                           | 240     | 289    | 361    | 425    | 490      | 1170 |
| LOWER_BIELS | 763.24   |               | 206                           | 240     | 289    | 361    | 425    | 490      | 1170 |
| LOWER_BIELS | 782.67   |               | 206                           | 240     | 289    | 361    | 425    | 490      | 1170 |

| Channel     | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|-------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|             |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| LOWER_BIELS | 802.09   |               | 206                           | 240     | 289    | 361    | 425    | 490      | 1170 |
| LOWER_BIELS | 821.69   | B7            | 206                           | 240     | 289    | 361    | 425    | 491      | 1170 |
| LOWER_BIELS | 841.46   |               | 206                           | 240     | 289    | 361    | 425    | 491      | 1170 |
| LOWER_BIELS | 861.23   |               | 206                           | 240     | 289    | 361    | 425    | 491      | 1170 |
| LOWER_BIELS | 881.01   |               | 206                           | 240     | 289    | 361    | 425    | 491      | 1171 |
| LOWER_BIELS | 900.78   |               | 206                           | 240     | 289    | 361    | 425    | 491      | 1171 |
| LOWER_BIELS | 920.55   |               | 206                           | 240     | 289    | 361    | 425    | 491      | 1171 |
| LOWER_BIELS | 940.33   |               | 206                           | 240     | 289    | 361    | 425    | 491      | 1171 |
| LOWER_BIELS | 960.10   |               | 206                           | 240     | 289    | 361    | 425    | 491      | 1171 |
| LOWER_BIELS | 979.87   |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1171 |
| LOWER_BIELS | 999.64   |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1171 |
| LOWER_BIELS | 1,019.42 |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1172 |
| LOWER_BIELS | 1,039.19 |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1172 |
| LOWER_BIELS | 1,058.96 |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1172 |
| LOWER_BIELS | 1,078.74 |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1172 |



| Channel     | Distance    | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|-------------|-------------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|             |             |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| LOWER_BIELS | 1,098.51    |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1172 |
| LOWER_BIELS | 1,118.28    |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1172 |
| LOWER_BIELS | 1,138.06    |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1173 |
| LOWER_BIELS | 1,157.83    |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1173 |
| LOWER_BIELS | 1,177.60    |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1173 |
| LOWER_BIELS | 1,197.38    |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1173 |
| LOWER_BIELS | 1,217.15    |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1173 |
| LOWER_BIELS | 1,236.92    |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1173 |
| LOWER_BIELS | 1,256.69    |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1173 |
| LOWER_BIELS | 1,276.47    |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1174 |
| LOWER_BIELS | 1,296.24    |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1174 |
| LOWER_BIELS | 8.8144e-280 |               | 206                           | 240     | 289    | 362    | 425    | 491      | 1174 |
| LOWER_BIELS | 1,335.63    | B9            | 206                           | 240     | 289    | 362    | 425    | 491      | 1174 |
| LOWER_BIELS | 1,355.10    |               | 206                           | 240     | 289    | 362    | 424    | 491      | 1174 |
| LOWER_BIELS | 1,374.56    |               | 206                           | 240     | 289    | 362    | 424    | 491      | 1174 |

| Channel     | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|-------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|             |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| LOWER_BIELS | 1,394.02 |               | 206                           | 240     | 289    | 362    | 424    | 491      | 1174 |
| LOWER_BIELS | 1,413.49 |               | 206                           | 240     | 289    | 362    | 424    | 491      | 1174 |
| LOWER_BIELS | 1,432.95 |               | 206                           | 240     | 289    | 362    | 424    | 491      | 1174 |
| LOWER_BIELS | 1,452.41 |               | 206                           | 240     | 289    | 362    | 424    | 491      | 1175 |
| LOWER_BIELS | 1,471.88 |               | 206                           | 240     | 288    | 362    | 424    | 491      | 1175 |
| LOWER_BIELS | 1,491.34 |               | 206                           | 240     | 288    | 362    | 424    | 491      | 1175 |
| LOWER_BIELS | 1,510.80 |               | 206                           | 240     | 288    | 362    | 424    | 491      | 1175 |
| LOWER_BIELS | 1,530.27 |               | 206                           | 240     | 288    | 362    | 424    | 491      | 1175 |
| LOWER_BIELS | 1,543.00 |               | 0                             | 0       | 1      | 22     | 48     | 77       | 361  |
| LOWER_BIELS | 1,553.00 | B10           | 0                             | 0       | 0      | 22     | 48     | 77       | 361  |
| LOWER_BIELS | 1,569.79 |               | 206                           | 240     | 288    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 1,589.38 |               | 206                           | 240     | 288    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 1,608.97 |               | 206                           | 240     | 289    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 1,628.55 |               | 206                           | 240     | 289    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 1,648.14 |               | 206                           | 240     | 289    | 362    | 424    | 491      | 1176 |

| Channel     | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|-------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|             |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| LOWER_BIELS | 1,667.73 |               | 206                           | 240     | 289    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 1,687.32 |               | 206                           | 240     | 289    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 1,706.9  |               | 206                           | 240     | 289    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 1,726.49 |               | 206                           | 240     | 289    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 1,746.08 |               | 206                           | 240     | 289    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 1,765.66 |               | 206                           | 240     | 289    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 1,785.25 |               | 205                           | 240     | 289    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 1,804.84 |               | 205                           | 240     | 289    | 362    | 424    | 491      | 1177 |
| LOWER_BIELS | 1,824.42 |               | 205                           | 240     | 289    | 362    | 424    | 491      | 1177 |
| LOWER_BIELS | 1,844.01 |               | 205                           | 240     | 289    | 362    | 424    | 491      | 1177 |
| LOWER_BIELS | 1,863.60 |               | 205                           | 240     | 289    | 362    | 424    | 491      | 1177 |
| LOWER_BIELS | 1,883.18 |               | 205                           | 240     | 289    | 362    | 424    | 491      | 1177 |
| LOWER_BIELS | 1,902.77 |               | 205                           | 240     | 289    | 362    | 424    | 491      | 1177 |
| LOWER_BIELS | 1,922.36 |               | 205                           | 240     | 289    | 362    | 424    | 491      | 1177 |
| LOWER_BIELS | 1,941.95 |               | 205                           | 240     | 289    | 362    | 424    | 491      | 1177 |

| Channel     | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|-------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|             |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| LOWER_BIELS | 1,961.53 |               | 205                           | 240     | 289    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 1,981.12 |               | 205                           | 240     | 289    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 2,000.71 |               | 205                           | 240     | 289    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 2,020.20 | B11           | 205                           | 240     | 289    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 2,039.60 |               | 205                           | 240     | 289    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 2,059.00 |               | 205                           | 240     | 289    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 2,078.40 |               | 205                           | 240     | 289    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 2,097.80 |               | 205                           | 240     | 289    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 2,117.20 |               | 205                           | 240     | 289    | 362    | 424    | 491      | 1176 |
| LOWER_BIELS | 2,136.60 |               | 205                           | 240     | 289    | 362    | 424    | 490      | 1176 |
| LOWER_BIELS | 2,156.00 |               | 205                           | 240     | 289    | 362    | 424    | 490      | 1175 |
| LOWER_BIELS | 2,175.40 |               | 208                           | 242     | 292    | 366    | 429    | 497      | 1175 |
| LOWER_BIELS | 2,194.80 |               | 208                           | 242     | 292    | 366    | 429    | 497      | 1175 |
| LOWER_BIELS | 2,214.20 |               | 208                           | 242     | 292    | 366    | 429    | 497      | 1175 |
| LOWER_BIELS | 2,233.60 |               | 208                           | 242     | 292    | 366    | 429    | 497      | 1175 |

| Channel     | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|-------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|             |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| LOWER_BIELS | 2,253.00 |               | 208                           | 242     | 292    | 366    | 429    | 497      | 1175 |
| LOWER_BIELS | 2,272.40 |               | 208                           | 242     | 292    | 366    | 429    | 497      | 1175 |
| LOWER_BIELS | 2,291.80 |               | 208                           | 242     | 292    | 366    | 429    | 497      | 1175 |
| LOWER_BIELS | 2,311.20 |               | 208                           | 242     | 292    | 366    | 429    | 497      | 1174 |
| LOWER_BIELS | 2,330.60 |               | 208                           | 242     | 292    | 366    | 429    | 497      | 1174 |
| LOWER_BIELS | 2,350.00 |               | 208                           | 242     | 292    | 366    | 429    | 497      | 1174 |
| LOWER_BIELS | 2,369.40 | B12           | 208                           | 242     | 292    | 366    | 429    | 497      | 1174 |
| LOWER_BIELS | 2,388.92 |               | 208                           | 242     | 292    | 366    | 429    | 497      | 1174 |
| LOWER_BIELS | 2,408.57 |               | 208                           | 242     | 292    | 366    | 429    | 497      | 1174 |
| LOWER_BIELS | 2,428.21 |               | 208                           | 242     | 292    | 366    | 429    | 497      | 1173 |
| LOWER_BIELS | 2,447.85 |               | 208                           | 242     | 292    | 365    | 429    | 497      | 1173 |
| LOWER_BIELS | 2,467.50 |               | 208                           | 242     | 292    | 365    | 429    | 497      | 1173 |
| LOWER_BIELS | 2,487.14 |               | 208                           | 242     | 292    | 365    | 429    | 497      | 1173 |
| LOWER_BIELS | 2,506.79 |               | 208                           | 242     | 292    | 365    | 429    | 497      | 1173 |
| LOWER_BIELS | 2,526.43 |               | 208                           | 242     | 292    | 365    | 429    | 497      | 1172 |

| Channel     | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|-------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|             |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| LOWER_BIELS | 2,546.07 |               | 208                           | 242     | 292    | 365    | 429    | 497      | 1172 |
| LOWER_BIELS | 2,565.72 |               | 208                           | 242     | 292    | 365    | 429    | 497      | 1172 |
| LOWER_BIELS | 2,585.36 |               | 208                           | 242     | 292    | 365    | 430    | 497      | 1172 |
| LOWER_BIELS | 2,605.01 |               | 208                           | 242     | 292    | 365    | 430    | 497      | 1172 |
| LOWER_BIELS | 2,624.65 |               | 208                           | 242     | 292    | 365    | 430    | 497      | 1172 |
| LOWER_BIELS | 2,644.29 |               | 208                           | 242     | 292    | 365    | 430    | 496      | 1172 |
| LOWER_BIELS | 2,663.94 |               | 208                           | 242     | 292    | 365    | 430    | 496      | 1172 |
| LOWER_BIELS | 2,683.58 |               | 208                           | 242     | 292    | 365    | 430    | 496      | 1171 |
| LOWER_BIELS | 2,703.23 |               | 208                           | 242     | 292    | 365    | 430    | 496      | 1171 |
| LOWER_BIELS | 2,722.87 |               | 208                           | 242     | 292    | 365    | 430    | 496      | 1171 |
| LOWER_BIELS | 2,742.51 |               | 208                           | 242     | 292    | 365    | 430    | 496      | 1171 |
| LOWER_BIELS | 2,762.16 |               | 208                           | 242     | 292    | 365    | 430    | 496      | 1171 |
| LOWER_BIELS | 2,781.8  |               | 208                           | 242     | 292    | 365    | 430    | 496      | 1171 |
| LOWER_BIELS | 2,801.45 |               | 208                           | 242     | 292    | 365    | 430    | 496      | 1171 |
| LOWER_BIELS | 2,821.09 |               | 208                           | 242     | 292    | 365    | 430    | 496      | 1171 |

| Channel     | Distance | Cross-section | Design Flood Flows (cu m/sec) |         |        |        |        |          |      |
|-------------|----------|---------------|-------------------------------|---------|--------|--------|--------|----------|------|
|             |          |               | 20% AEP                       | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF  |
| LOWER_BIELS | 2,840.73 |               | 208                           | 242     | 292    | 365    | 430    | 496      | 1171 |
| LOWER_BIELS | 2,860.38 |               | 208                           | 242     | 292    | 365    | 430    | 496      | 1171 |
| LOWER_BIELS | 2,877.65 | B13           | 208                           | 242     | 292    | 365    | 430    | 496      | 1170 |
| LOWER_BIELS | 2,892.55 |               | 208                           | 242     | 292    | 365    | 430    | 496      | 1170 |

**APPENDIX H**

**DESIGN FLOOD VELOCITIES - BIELSDOWN RIVER**



| Flood                | Channel     | Distance | Cross-section | Flow<br>(cu m/sec) | Velocity (m/sec)               |              |                 |               |
|----------------------|-------------|----------|---------------|--------------------|--------------------------------|--------------|-----------------|---------------|
|                      |             |          |               |                    | Velocity Over<br>Whole Section | Left<br>Bank | Main<br>Channel | Right<br>Bank |
| DESIGN 20% AEP FLOOD | BIELS_HEAD  | 57.8     | B1            | 212                | 1.53                           | 0.16         | 1.58            | 0.61          |
| “                    | BIELS_HEAD  | 1168.0   | B1.5          | 212                | 2.26                           | 0.00         | 2.45            | 1.26          |
| “                    | UPPER_BIELS | 826.8    | B2            | 123                | 1.70                           | 1.13         | 1.98            | 1.01          |
| “                    | UPPER_BIELS | 1052.8   | B3            | 123                | 0.86                           | 0.89         | 1.21            | 0.73          |
| “                    | UPPER_BIELS | 1662.2   | B4            | 124                | 0.47                           | 0.49         | 0.67            | 0.32          |
| “                    | LOWER_BIELS | 42.4     | B5            | 123                | 0.95                           | 0.98         | 1.03            | 0.68          |
| “                    | LOWER_BIELS | 637.0    | B6            | 123                | 1.78                           | 1.48         | 1.96            | 0.36          |
| “                    | LOWER_BIELS | 811.8    | B7            | 123                | 1.90                           | 0.81         | 1.95            | 0.26          |
| “                    | LOWER_BIELS | 1325.9   | B9            | 123                | 2.53                           | 1.82         | 3.26            | 1.85          |
| “                    | LOWER_BIELS | 1546.0   | B10           | 123                | 1.73                           | 1.40         | 2.06            | 1.56          |
| “                    | LOWER_BIELS | 2010.5   | B11           | 123                | 1.76                           | 0.20         | 1.76            | 0.00          |
| “                    | LOWER_BIELS | 2379.1   | B12           | 123                | 1.51                           | 0.49         | 1.61            | 0.00          |
| “                    | LOWER_BIELS | 2870.2   | B13           | 123                | 2.62                           | 0.00         | 2.62            | 0.00          |
| DESIGN 10% AEP FLOOD | BIELS_HEAD  | 57.8     | B1            | 255                | 1.50                           | 0.40         | 1.66            | 0.70          |
| “                    | BIELS_HEAD  | 1168.0   | B1.5          | 254                | 2.34                           | 0.00         | 2.59            | 1.47          |
| “                    | UPPER_BIELS | 826.8    | B2            | 179                | 1.33                           | 0.95         | 1.82            | 0.91          |

| Flood               | Channel     | Distance | Cross-section | Flow<br>(cu m/sec) | Velocity (m/sec)               |              |                 |               |
|---------------------|-------------|----------|---------------|--------------------|--------------------------------|--------------|-----------------|---------------|
|                     |             |          |               |                    | Velocity Over<br>Whole Section | Left<br>Bank | Main<br>Channel | Right<br>Bank |
| “                   | UPPER_BIELS | 1052.8   | B3            | 179                | 0.95                           | 1.05         | 1.34            | 0.81          |
| “                   | UPPER_BIELS | 1662.2   | B4            | 176                | 0.45                           | 0.49         | 0.61            | 0.35          |
| “                   | LOWER_BIELS | 42.4     | B5            | 175                | 1.06                           | 1.10         | 1.17            | 0.80          |
| “                   | LOWER_BIELS | 637.0    | B6            | 175                | 1.78                           | 1.56         | 2.01            | 0.71          |
| “                   | LOWER_BIELS | 811.8    | B7            | 175                | 2.06                           | 1.06         | 2.17            | 0.60          |
| “                   | LOWER_BIELS | 1325.9   | B9            | 175                | 2.67                           | 1.96         | 3.49            | 2.12          |
| “                   | LOWER_BIELS | 1546.0   | B10           | 175                | 1.95                           | 1.65         | 2.32            | 1.78          |
| “                   | LOWER_BIELS | 2010.5   | B11           | 175                | 1.68                           | 0.55         | 1.84            | 0.15          |
| “                   | LOWER_BIELS | 2379.1   | B12           | 177                | 1.64                           | 0.79         | 1.79            | 0.00          |
| “                   | LOWER_BIELS | 2870.2   | B13           | 177                | 2.94                           | 0.44         | 2.95            | 0.00          |
| DESIGN 5% AEP FLOOD | BIELS_HEAD  | 57.8     | B1            | 312                | 1.49                           | 0.63         | 1.73            | 0.81          |
| “                   | BIELS_HEAD  | 1168.0   | B1.5          | 312                | 2.48                           | 0.00         | 2.72            | 1.69          |
| “                   | UPPER_BIELS | 826.8    | B2            | 255                | 1.33                           | 0.97         | 1.85            | 1.05          |
| DESIGN 5% AEP FLOOD | UPPER_BIELS | 1052.8   | B3            | 254                | 1.00                           | 1.15         | 1.41            | 0.88          |
| “                   | UPPER_BIELS | 1662.2   | B4            | 244                | 0.40                           | 0.43         | 0.49            | 0.34          |
| “                   | LOWER_BIELS | 42.4     | B5            | 241                | 1.17                           | 1.21         | 1.30            | 0.92          |

| Flood               | Channel     | Distance | Cross-section | Flow<br>(cu m/sec) | Velocity (m/sec)               |              |                 |               |
|---------------------|-------------|----------|---------------|--------------------|--------------------------------|--------------|-----------------|---------------|
|                     |             |          |               |                    | Velocity Over<br>Whole Section | Left<br>Bank | Main<br>Channel | Right<br>Bank |
| “                   | LOWER_BIELS | 637.0    | B6            | 240                | 1.84                           | 1.66         | 2.11            | 1.02          |
| “                   | LOWER_BIELS | 811.8    | B7            | 241                | 2.21                           | 1.21         | 2.41            | 0.85          |
| “                   | LOWER_BIELS | 1325.9   | B9            | 241                | 2.83                           | 2.09         | 3.70            | 2.38          |
| “                   | LOWER_BIELS | 1546.0   | B10           | 241                | 2.15                           | 1.88         | 2.56            | 1.98          |
| “                   | LOWER_BIELS | 2010.5   | B11           | 240                | 1.62                           | 0.79         | 1.89            | 0.45          |
| “                   | LOWER_BIELS | 2379.1   | B12           | 244                | 1.74                           | 1.04         | 1.93            | 0.00          |
| “                   | LOWER_BIELS | 2870.2   | B13           | 244                | 3.13                           | 0.88         | 3.19            | 0.00          |
| DESIGN 2% AEP FLOOD | BIELS_HEAD  | 57.8     | B1            | 392                | 1.50                           | 0.82         | 1.79            | 0.90          |
| “                   | BIELS_HEAD  | 1168.0   | B1.5          | 388                | 2.60                           | 0.00         | 2.86            | 1.91          |
| “                   | UPPER_BIELS | 826.8    | B2            | 367                | 1.47                           | 1.14         | 2.00            | 1.27          |
| “                   | UPPER_BIELS | 1052.8   | B3            | 363                | 0.90                           | 1.09         | 1.28            | 0.81          |
| “                   | UPPER_BIELS | 1662.2   | B4            | 344                | 0.35                           | 0.38         | 0.39            | 0.31          |
| “                   | LOWER_BIELS | 42.4     | B5            | 340                | 1.31                           | 1.35         | 1.47            | 1.06          |
| DESIGN 2% AEP FLOOD | LOWER_BIELS | 637.0    | B6            | 340                | 2.00                           | 1.81         | 2.32            | 1.32          |
| “                   | LOWER_BIELS | 811.8    | B7            | 340                | 2.37                           | 1.32         | 2.73            | 1.12          |
| “                   | LOWER_BIELS | 1325.9   | B9            | 339                | 2.87                           | 2.13         | 3.75            | 2.55          |

| Flood               | Channel     | Distance | Cross-section | Flow<br>(cu m/sec) | Velocity (m/sec)               |              |                 |               |
|---------------------|-------------|----------|---------------|--------------------|--------------------------------|--------------|-----------------|---------------|
|                     |             |          |               |                    | Velocity Over<br>Whole Section | Left<br>Bank | Main<br>Channel | Right<br>Bank |
| “                   | LOWER_BIELS | 1546.0   | B10           | 339                | 2.05                           | 1.85         | 2.40            | 1.95          |
| “                   | LOWER_BIELS | 2010.5   | B11           | 339                | 1.58                           | 0.98         | 1.93            | 0.76          |
| “                   | LOWER_BIELS | 2379.1   | B12           | 344                | 1.81                           | 1.20         | 2.06            | 0.00          |
| “                   | LOWER_BIELS | 2870.2   | B13           | 344                | 3.48                           | 1.29         | 3.62            | 0.00          |
| DESIGN 1% AEP FLOOD | BIELS_HEAD  | 57.8     | B1            | 455                | 1.52                           | 0.94         | 1.82            | 0.96          |
| “                   | BIELS_HEAD  | 1168.0   | B1.5          | 453                | 2.67                           | 0.00         | 2.93            | 2.08          |
| “                   | UPPER_BIELS | 826.8    | B2            | 455                | 1.48                           | 1.20         | 1.95            | 1.35          |
| “                   | UPPER_BIELS | 1052.8   | B3            | 449                | 0.84                           | 1.03         | 1.17            | 0.78          |
| “                   | UPPER_BIELS | 1662.2   | B4            | 428                | 0.35                           | 0.38         | 0.39            | 0.32          |
| “                   | LOWER_BIELS | 42.4     | B5            | 426                | 1.39                           | 1.44         | 1.57            | 1.15          |
| “                   | LOWER_BIELS | 637.0    | B6            | 425                | 2.09                           | 1.88         | 2.44            | 1.51          |
| “                   | LOWER_BIELS | 811.8    | B7            | 425                | 2.42                           | 1.41         | 2.91            | 1.32          |
| “                   | LOWER_BIELS | 1325.9   | B9            | 426                | 2.88                           | 2.13         | 3.75            | 2.62          |
| DESIGN 1% AEP FLOOD | LOWER_BIELS | 1546.0   | B10           | 426                | 2.08                           | 1.89         | 2.50            | 1.94          |
| “                   | LOWER_BIELS | 2010.5   | B11           | 426                | 1.57                           | 1.07         | 1.96            | 0.92          |
| “                   | LOWER_BIELS | 2379.1   | B12           | 432                | 1.85                           | 1.32         | 2.13            | 0.00          |

| Flood                 | Channel     | Distance | Cross-section | Flow<br>(cu m/sec) | Velocity (m/sec)               |              |                 |               |
|-----------------------|-------------|----------|---------------|--------------------|--------------------------------|--------------|-----------------|---------------|
|                       |             |          |               |                    | Velocity Over<br>Whole Section | Left<br>Bank | Main<br>Channel | Right<br>Bank |
| “                     | LOWER_BIELS | 2870.2   | B13           | 432                | 3.70                           | 1.56         | 3.90            | 0.00          |
| DESIGN 0.5% AEP FLOOD | BIELS_HEAD  | 57.8     | B1            | 522                | 1.58                           | 1.05         | 1.90            | 1.02          |
| “                     | BIELS_HEAD  | 1168.0   | B1.5          | 520                | 2.74                           | 0.00         | 3.00            | 2.21          |
| “                     | UPPER_BIELS | 826.8    | B2            | 1242               | 1.34                           | 1.22         | 1.43            | 1.38          |
| “                     | UPPER_BIELS | 1052.8   | B3            | 1237               | 0.87                           | 0.96         | 0.98            | 0.85          |
| “                     | UPPER_BIELS | 1662.2   | B4            | 1178               | 0.47                           | 0.49         | 0.45            | 0.46          |
| “                     | LOWER_BIELS | 42.4     | B5            | 1209               | 1.85                           | 1.95         | 2.11            | 1.64          |
| “                     | LOWER_BIELS | 637.0    | B6            | 1178               | 2.44                           | 2.18         | 3.10            | 2.17          |
| “                     | LOWER_BIELS | 811.8    | B7            | 1181               | 2.83                           | 2.16         | 3.70            | 2.23          |
| “                     | LOWER_BIELS | 1325.9   | B9            | 1182               | 3.18                           | 2.50         | 3.87            | 3.13          |
| “                     | LOWER_BIELS | 1546.0   | B10           | 1176               | 2.17                           | 2.04         | 2.98            | 2.00          |
| “                     | LOWER_BIELS | 2010.5   | B11           | 1176               | 1.70                           | 1.50         | 2.08            | 1.19          |
| “                     | LOWER_BIELS | 2379.1   | B12           | 1177               | 1.85                           | 1.55         | 2.22            | 0.24          |
| DESIGN 0.5% AEP FLOOD | LOWER_BIELS | 2870.2   | B13           | 1176               | 4.85                           | 3.31         | 5.23            | 0.21          |
| DESIGN PMF FLOOD      | BIELS_HEAD  | 57.8     | B1            | 1254               | 2.06                           | 1.77         | 2.42            | 1.63          |
| “                     | BIELS_HEAD  | 1168.0   | B1.5          | 1254               | 3.48                           | 0.00         | 3.86            | 3.07          |

| Flood | Channel     | Distance | Cross-section | Flow<br>(cu m/sec) | Velocity (m/sec)               |              |                 |               |
|-------|-------------|----------|---------------|--------------------|--------------------------------|--------------|-----------------|---------------|
|       |             |          |               |                    | Velocity Over<br>Whole Section | Left<br>Bank | Main<br>Channel | Right<br>Bank |
| “     | UPPER_BIELS | 826.8    | B2            | 1242               | 1.34                           | 1.22         | 1.43            | 1.38          |
| “     | UPPER_BIELS | 1052.8   | B3            | 1237               | 0.87                           | 0.96         | 0.98            | 0.85          |
| “     | UPPER_BIELS | 1662.2   | B4            | 1178               | 0.47                           | 0.49         | 0.45            | 0.46          |
| “     | LOWER_BIELS | 42.4     | B5            | 1209               | 1.85                           | 1.95         | 2.11            | 1.64          |
| “     | LOWER_BIELS | 637.0    | B6            | 1178               | 2.44                           | 2.18         | 3.10            | 2.17          |
| “     | LOWER_BIELS | 811.8    | B7            | 1181               | 2.83                           | 2.16         | 3.70            | 2.23          |
| “     | LOWER_BIELS | 1325.9   | B9            | 1182               | 3.18                           | 2.50         | 3.87            | 3.13          |
| “     | LOWER_BIELS | 1546.0   | B10           | 1176               | 2.17                           | 2.04         | 2.98            | 2.00          |
| “     | LOWER_BIELS | 2010.5   | B11           | 1176               | 1.70                           | 1.50         | 2.08            | 1.19          |
| “     | LOWER_BIELS | 2379.1   | B12           | 1177               | 1.85                           | 1.55         | 2.22            | 0.24          |
| “     | LOWER_BIELS | 2870.2   | B13           | 1176               | 4.85                           | 3.31         | 5.23            | 0.21          |

**APPENDIX I**

**DESIGN FLOOD LEVELS – UN-NAMED TRIBUTARY**

**APPENDIX I**

**DESIGN FLOOD LEVELS - UN-NAMED TRIBUTARY**

| Channel | Chainage | Design Flood Levels (m AHD) |         |         |        |        |        |          |        |
|---------|----------|-----------------------------|---------|---------|--------|--------|--------|----------|--------|
|         |          | 50% AEP                     | 20% AEP | 10% AEP | 5% AEP | 2% AEP | 1% AEP | 0.5% AEP | PMF    |
| UN1     | 0.0      | 740.46                      | 742.77  | 742.91  | 743.02 | 743.09 | 743.16 | 743.22   | 744.19 |
| UN2     | 322.9    | 735.54                      | 735.71  | 735.82  | 735.92 | 735.99 | 736.06 | 736.12   | 739.92 |
| UN3     | 662.4    | 729.39                      | 729.57  | 729.66  | 729.76 | 729.84 | 729.92 | 729.99   | 731.00 |
| UN4     | 926.3    | 725.59                      | 725.79  | 725.89  | 725.99 | 726.06 | 726.13 | 726.19   | 726.95 |
| UN5     | 1284.30  | 719.50                      | 719.66  | 719.75  | 719.84 | 719.92 | 719.98 | 720.04   | 720.71 |
| UN6     | 1667.30  | 704.78                      | 705.11  | 705.27  | 705.48 | 705.55 | 705.57 | 705.58   | 707.00 |



**APPENDIX J**

**DESIGN FLOOD VELOCITIES – UN-NAMED TRIBUTARY**

**APPENDIX J**

**DESIGN FLOOD VELOCITIES - UN-NAMED TRIBUTARY**

| Flood          | Channel        | Cross-section | Flow | Velocities (m/sec)          |           |              |            |
|----------------|----------------|---------------|------|-----------------------------|-----------|--------------|------------|
|                |                |               |      | Velocity Over Whole Section | Left Bank | Main Channel | Right Bank |
| DESIGN 50% AEP | UN_NAMED TRIB. | UN1           | 1.2  | 0.28                        | 0.28      |              | 0.00       |
|                | UN_NAMED TRIB. | UN2           | 3.8  | 0.58                        | 0.30      | 1.12         | 0.00       |
|                | UN_NAMED TRIB. | UN3           | 6.4  | 0.74                        | 0.26      | 1.09         | 0.00       |
|                | UN_NAMED TRIB. | UN4           | 8.0  | 0.90                        | 0.26      | 1.25         | 0.00       |
|                | UN_NAMED TRIB. | UN5           | 10.9 | 1.26                        | 0.40      | 1.62         | 0.00       |
|                | UN_NAMED TRIB. | UN6           | 10.9 | 2.32                        | 0.56      | 2.93         | 0.00       |
| DESIGN 20% AEP | UN_NAMED TRIB. | UN1           | 1.9  | 0.37                        | 0.33      | 0.72         | 0.00       |
|                | UN_NAMED TRIB. | UN2           | 5.6  | 0.74                        | 0.30      | 1.31         | 0.00       |
|                | UN_NAMED TRIB. | UN3           | 9.7  | 0.92                        | 0.25      | 1.27         | 0.00       |
|                | UN_NAMED TRIB. | UN4           | 12.3 | 1.09                        | 0.26      | 1.41         | 0.00       |
|                | UN_NAMED TRIB. | UN5           | 17.2 | 1.54                        | 0.40      | 1.88         | 0.00       |
|                | UN_NAMED TRIB. | UN6           | 17.2 | 2.52                        | 0.47      | 2.97         | 0.12       |
| DESIGN 10% AEP | UN_NAMED TRIB. | UN1           | 2.5  | 0.44                        | 0.33      | 0.95         | 0.00       |
|                | UN_NAMED TRIB. | UN2           | 6.9  | 0.83                        | 0.30      | 1.41         | 0.12       |

| Flood         | Channel        | Cross-section | Flow | Velocities (m/sec)          |           |              |            |
|---------------|----------------|---------------|------|-----------------------------|-----------|--------------|------------|
|               |                |               |      | Velocity Over Whole Section | Left Bank | Main Channel | Right Bank |
|               | UN_NAMED TRIB. | UN3           | 11.7 | 1.01                        | 0.25      | 1.35         |            |
|               | UN_NAMED TRIB. | UN4           | 15.0 | 1.19                        | 0.26      | 1.50         |            |
|               | UN_NAMED TRIB. | UN5           | 21.3 | 1.68                        | 0.40      | 2.01         |            |
|               | UN_NAMED TRIB. | UN6           | 21.3 | 2.41                        | 0.43      | 2.99         | 0.88       |
| DESIGN 5% AEP | UN_NAMED TRIB. | UN1           | 3.0  | 0.51                        | 0.33      | 1.12         |            |
|               | UN_NAMED TRIB. | UN2           | 8.5  | 0.94                        | 0.30      | 1.53         | 0.37       |
|               | UN_NAMED TRIB. | UN3           | 14.0 | 1.10                        | 0.25      | 1.43         |            |
|               | UN_NAMED TRIB. | UN4           | 18.0 | 1.29                        | 0.26      | 1.59         | 0.06       |
|               | UN_NAMED TRIB. | UN5           | 26.0 | 1.82                        | 0.40      | 2.13         |            |
|               | UN_NAMED TRIB. | UN6           | 26.0 | 2.10                        | 0.35      | 2.68         | 1.22       |
| DESIGN 2% AEP | UN_NAMED TRIB. | UN1           | 3.5  | 0.56                        | 0.33      | 1.24         |            |
|               | UN_NAMED TRIB. | UN2           | 9.7  | 1.01                        | 0.30      | 1.60         | 0.49       |
|               | UN_NAMED TRIB. | UN3           | 16.1 | 1.17                        | 0.25      | 1.49         |            |
|               | UN_NAMED TRIB. | UN4           | 20.7 | 1.38                        | 0.26      | 1.68         | 0.24       |
|               | UN_NAMED TRIB. | UN5           | 30.4 | 1.93                        | 0.40      | 2.23         | 0.06       |
|               | UN_NAMED TRIB. | UN6           | 30.4 | 2.23                        | 0.36      | 2.86         | 1.38       |

| Flood           | Channel        | Cross-section | Flow  | Velocities (m/sec)          |           |              |            |
|-----------------|----------------|---------------|-------|-----------------------------|-----------|--------------|------------|
|                 |                |               |       | Velocity Over Whole Section | Left Bank | Main Channel | Right Bank |
| DESIGN 1% AEP   | UN_NAMED TRIB. | UN1           | 4.0   | 0.61                        | 0.34      | 1.33         |            |
|                 | UN_NAMED TRIB. | UN2           | 11.1  | 1.08                        | 0.30      | 1.68         | 0.60       |
|                 | UN_NAMED TRIB. | UN3           | 18.3  | 1.23                        | 0.25      | 1.55         |            |
|                 | UN_NAMED TRIB. | UN4           | 23.5  | 1.46                        | 0.27      | 1.77         | 0.36       |
|                 | UN_NAMED TRIB. | UN5           | 34.8  | 2.05                        | 0.40      | 2.36         | 0.33       |
|                 | UN_NAMED TRIB. | UN6           | 34.8  | 2.50                        | 0.40      | 3.21         | 1.57       |
| DESIGN 0.5% AEP | UN_NAMED TRIB. | UN1           | 4.4   | 0.66                        | 0.34      | 1.40         |            |
|                 | UN_NAMED TRIB. | UN2           | 12.4  | 1.14                        | 0.30      | 1.75         | 0.69       |
|                 | UN_NAMED TRIB. | UN3           | 20.4  | 1.29                        | 0.26      | 1.60         |            |
|                 | UN_NAMED TRIB. | UN4           | 26.3  | 1.54                        | 0.28      | 1.86         | 0.45       |
|                 | UN_NAMED TRIB. | UN5           | 39.1  | 2.15                        | 0.40      | 2.45         | 0.51       |
|                 | UN_NAMED TRIB. | UN6           | 39.1  | 2.76                        | 0.44      | 3.54         | 1.75       |
| PMF             | UN_NAMED TRIB. | UN1           | 18.3  | 1.52                        | 0.38      | 2.37         | -          |
| PMF             | UN_NAMED TRIB. | UN2           | 43.2  | 0.36                        | 0.27      | 0.53         | 0.31       |
|                 | UN_NAMED TRIB. | UN3           | 67.9  | 2.01                        | 0.26      | 2.24         | -          |
|                 | UN_NAMED TRIB. | UN4           | 75.6  | 2.26                        | 0.90      | 2.75         | 1.27       |
|                 | UN_NAMED TRIB. | UN5           | 118.0 | 3.43                        | 0.70      | 3.87         | 1.82       |

| Flood | Channel        | Cross-section | Flow  | Velocities (m/sec)          |           |              |            |
|-------|----------------|---------------|-------|-----------------------------|-----------|--------------|------------|
|       |                |               |       | Velocity Over Whole Section | Left Bank | Main Channel | Right Bank |
|       | UN_NAMED TRIB. | UN6           | 144.0 | 1.60                        | 1.02      | 2.16         | 2.53       |

**APPENDIX K**

**SENSITIVITY TESTING**

**APPENDIX K**

**SENSITIVITY TESTING**

| Channel    | Chainage | Cross-section | Water Level (m AHD) |                                   |   |
|------------|----------|---------------|---------------------|-----------------------------------|---|
|            |          |               | 1% AEP              | 1% AEP with Flow increased by 20% | 1% AEP with Mannings 'n' increased by 20% |
| BIELS_HEAD | 0.00     |               | 730.05              | 730.35                            | 730.34                                    |
| BIELS_HEAD | 19.27    |               | 730.00              | 730.30                            | 730.29                                    |
| BIELS_HEAD | 38.53    |               | 729.94              | 730.24                            | 730.23                                    |
| BIELS_HEAD | 57.80    | B1            | 729.88              | 730.18                            | 730.18                                    |
| BIELS_HEAD | 77.63    |               | 729.82              | 730.13                            | 730.12                                    |
| BIELS_HEAD | 97.45    |               | 729.76              | 730.07                            | 730.07                                    |
| BIELS_HEAD | 117.28   |               | 729.70              | 730.02                            | 730.01                                    |
| BIELS_HEAD | 137.10   |               | 729.64              | 729.96                            | 729.95                                    |
| BIELS_HEAD | 156.93   |               | 729.58              | 729.90                            | 729.90                                    |
| BIELS_HEAD | 176.75   |               | 729.51              | 729.85                            | 729.84                                    |
| BIELS_HEAD | 196.57   |               | 729.45              | 729.79                            | 729.78                                    |
| BIELS_HEAD | 216.40   |               | 729.38              | 729.73                            | 729.72                                    |
| BIELS_HEAD | 236.23   |               | 729.31              | 729.68                            | 729.67                                    |
| BIELS_HEAD | 256.05   |               | 729.24              | 729.62                            | 729.61                                    |
| BIELS_HEAD | 275.88   |               | 729.18              | 729.56                            | 729.55                                    |
| BIELS_HEAD | 295.70   |               | 729.11              | 729.50                            | 729.49                                    |
| BIELS_HEAD | 315.52   |               | 729.04              | 729.44                            | 729.43                                    |
| BIELS_HEAD | 335.35   |               | 728.98              | 729.38                            | 729.36                                    |
| BIELS_HEAD | 355.17   |               | 728.91              | 729.31                            | 729.30                                    |
| BIELS_HEAD | 375.00   |               | 728.84              | 729.25                            | 729.24                                    |
| BIELS_HEAD | 394.83   |               | 728.78              | 729.19                            | 729.17                                    |
| BIELS_HEAD | 414.65   |               | 728.71              | 729.12                            | 729.11                                    |

| Channel    | Chainage | Cross-section | Water Level (m AHD) |                                   |   |
|------------|----------|---------------|---------------------|-----------------------------------|---|
|            |          |               | 1% AEP              | 1% AEP with Flow increased by 20% | 1% AEP with Mannings 'n' increased by 20% |
| BIELS_HEAD | 434.48   |               | 728.64              | 729.06                            | 729.04                                    |
| BIELS_HEAD | 454.30   |               | 728.58              | 728.99                            | 728.97                                    |
| BIELS_HEAD | 474.13   |               | 728.51              | 728.92                            | 728.90                                    |
| BIELS_HEAD | 493.95   |               | 728.44              | 728.85                            | 728.83                                    |
| BIELS_HEAD | 513.78   |               | 728.38              | 728.78                            | 728.77                                    |
| BIELS_HEAD | 533.60   |               | 728.31              | 728.71                            | 728.70                                    |
| BIELS_HEAD | 553.42   |               | 728.24              | 728.64                            | 728.63                                    |
| BIELS_HEAD | 573.25   |               | 728.17              | 728.58                            | 728.56                                    |
| BIELS_HEAD | 593.08   |               | 728.11              | 728.51                            | 728.49                                    |
| BIELS_HEAD | 612.90   |               | 728.04              | 728.44                            | 728.42                                    |
| BIELS_HEAD | 632.72   |               | 727.97              | 728.37                            | 728.35                                    |
| BIELS_HEAD | 652.55   |               | 727.91              | 728.30                            | 728.28                                    |
| BIELS_HEAD | 672.38   |               | 727.84              | 728.23                            | 728.21                                    |
| BIELS_HEAD | 692.20   |               | 727.77              | 728.16                            | 728.14                                    |
| BIELS_HEAD | 712.03   |               | 727.70              | 728.09                            | 728.07                                    |
| BIELS_HEAD | 731.85   |               | 727.63              | 728.02                            | 727.99                                    |
| BIELS_HEAD | 751.67   |               | 727.56              | 727.94                            | 727.92                                    |
| BIELS_HEAD | 771.50   |               | 727.49              | 727.87                            | 727.85                                    |
| BIELS_HEAD | 791.33   |               | 727.42              | 727.80                            | 727.77                                    |
| BIELS_HEAD | 811.15   |               | 727.34              | 727.72                            | 727.70                                    |
| BIELS_HEAD | 830.97   |               | 727.26              | 727.64                            | 727.62                                    |
| BIELS_HEAD | 850.80   |               | 727.18              | 727.57                            | 727.54                                    |
| BIELS_HEAD | 870.63   |               | 727.10              | 727.49                            | 727.46                                    |
| BIELS_HEAD | 890.45   |               | 727.01              | 727.41                            | 727.38                                    |
| BIELS_HEAD | 910.28   |               | 726.93              | 727.32                            | 727.30                                    |



| Channel    | Chainage | Cross-section | Water Level (m AHD) |                                   |   |
|------------|----------|---------------|---------------------|-----------------------------------|---|
|            |          |               | 1% AEP              | 1% AEP with Flow increased by 20% | 1% AEP with Mannings 'n' increased by 20% |
| BIELS_HEAD | 930.10   |               | 726.83              | 727.23                            | 727.21                                    |
| BIELS_HEAD | 949.92   |               | 726.74              | 727.14                            | 727.11                                    |
| BIELS_HEAD | 969.75   |               | 726.64              | 727.04                            | 727.02                                    |
| BIELS_HEAD | 989.58   |               | 726.54              | 726.94                            | 726.92                                    |
| BIELS_HEAD | 1,009.40 |               | 726.43              | 726.84                            | 726.81                                    |
| BIELS_HEAD | 1,029.22 |               | 726.32              | 726.73                            | 726.70                                    |
| BIELS_HEAD | 1,049.05 |               | 726.20              | 726.61                            | 726.58                                    |
| BIELS_HEAD | 1,068.88 |               | 726.08              | 726.48                            | 726.46                                    |
| BIELS_HEAD | 1,088.70 |               | 725.95              | 726.34                            | 726.32                                    |
| BIELS_HEAD | 1,108.53 |               | 725.81              | 726.19                            | 726.17                                    |
| BIELS_HEAD | 1,128.35 |               | 725.66              | 726.03                            | 726.02                                    |
| BIELS_HEAD | 1,148.18 |               | 725.49              | 725.85                            | 725.84                                    |
| BIELS_HEAD | 1,168.00 | B1_5          | 725.29              | 725.65                            | 725.65                                    |
| BIELS_HEAD | 1,187.92 |               | 725.11              | 725.47                            | 725.46                                    |
| BIELS_HEAD | 1,207.83 |               | 724.93              | 725.28                            | 725.27                                    |
| BIELS_HEAD | 1,227.75 |               | 724.74              | 725.08                            | 725.08                                    |
| BIELS_HEAD | 1,247.67 |               | 724.56              | 724.89                            | 724.88                                    |
| BIELS_HEAD | 1,267.58 |               | 724.38              | 724.69                            | 724.69                                    |
| BIELS_HEAD | 1,287.50 |               | 724.19              | 724.50                            | 724.50                                    |
| BIELS_HEAD | 1,307.42 |               | 724.00              | 724.30                            | 724.30                                    |
| BIELS_HEAD | 1,327.33 |               | 723.81              | 724.10                            | 724.10                                    |
| BIELS_HEAD | 1,347.25 |               | 723.62              | 723.88                            | 723.89                                    |
| BIELS_HEAD | 1,367.17 |               | 723.43              | 723.68                            | 723.68                                    |
| BIELS_HEAD | 1,387.08 |               | 723.22              | 723.47                            | 723.48                                    |
| BIELS_HEAD | 1,407.00 |               | 723.01              | 723.27                            | 723.27                                    |

| Channel        | Chainage | Cross-section | Water Level (m AHD) |                                   |   |
|----------------|----------|---------------|---------------------|-----------------------------------|---|
|                |          |               | 1% AEP              | 1% AEP with Flow increased by 20% | 1% AEP with Mannings 'n' increased by 20% |
| BIELS_HEAD     | 1,426.92 |               | 722.81              | 723.06                            | 723.06                                    |
| BIELS_HEAD     | 1,446.83 |               | 722.61              | 722.85                            | 722.85                                    |
| BIELS_HEAD     | 1,466.75 |               | 722.41              | 722.63                            | 722.63                                    |
| BIELS_HEAD     | 1,486.67 |               | 722.19              | 722.40                            | 722.40                                    |
| BIELS_HEAD     | 1,506.58 |               | 721.97              | 722.18                            | 722.18                                    |
| BIELS_HEAD     | 1,526.5  |               | 721.75              | 721.95                            | 721.95                                    |
| BIELS_HEAD     | 1,546.42 |               | 721.53              | 721.71                            | 721.71                                    |
| BIELS_HEAD     | 1,566.33 |               | 721.30              | 721.46                            | 721.46                                    |
| BIELS_HEAD     | 1,586.25 |               | 721.07              | 721.21                            | 721.21                                    |
| BIELS_HEAD     | 1,606.17 |               | 720.84              | 721.03                            | 721.02                                    |
| BIELS_HEAD     | 1,626.08 |               | 720.71              | 720.94                            | 720.91                                    |
| BIELS_HEAD     | 1,646.00 |               | 720.65              | 720.90                            | 720.85                                    |
| BIELS_HEAD     | 1,655.82 |               | 720.60              | 720.87                            | 720.82                                    |
| UPPER_BIELS_HF | 820.00   |               | 720.60              | 720.87                            | 720.82                                    |
| UPPER_BIELS_HF | 826.80   | B2            | 720.59              | 720.86                            | 720.80                                    |
| UPPER_BIELS_HF | 845.63   |               | 720.51              | 720.81                            | 720.74                                    |
| UPPER_BIELS_HF | 864.47   |               | 720.46              | 720.77                            | 720.69                                    |
| UPPER_BIELS_HF | 883.30   |               | 720.42              | 720.74                            | 720.65                                    |
| UPPER_BIELS_HF | 902.13   |               | 720.37              | 720.71                            | 720.61                                    |
| UPPER_BIELS_HF | 920.97   |               | 720.33              | 720.68                            | 720.57                                    |
| UPPER_BIELS_HF | 939.80   |               | 720.29              | 720.65                            | 720.54                                    |
| UPPER_BIELS_HF | 958.63   |               | 720.26              | 720.63                            | 720.50                                    |
| UPPER_BIELS_HF | 977.47   |               | 720.23              | 720.60                            | 720.48                                    |
| UPPER_BIELS_HF | 996.30   |               | 720.20              | 720.58                            | 720.45                                    |
| UPPER_BIELS_HF | 1,015.13 |               | 720.18              | 720.57                            | 720.43                                    |

| Channel        | Chainage | Cross-section | Water Level (m AHD) |                                   |   |
|----------------|----------|---------------|---------------------|-----------------------------------|---|
|                |          |               | 1% AEP              | 1% AEP with Flow increased by 20% | 1% AEP with Mannings 'n' increased by 20% |
| UPPER_BIELS_HF | 1,033.97 |               | 720.16              | 720.55                            | 720.41                                    |
| UPPER_BIELS_HF | 1,052.80 | B3            | 720.14              | 720.54                            | 720.39                                    |
| UPPER_BIELS_HF | 1,072.46 |               | 720.12              | 720.52                            | 720.37                                    |
| UPPER_BIELS_HF | 1,092.12 |               | 720.11              | 720.51                            | 720.36                                    |
| UPPER_BIELS_HF | 1,111.77 |               | 720.09              | 720.49                            | 720.34                                    |
| UPPER_BIELS_HF | 1,131.43 |               | 720.08              | 720.48                            | 720.33                                    |
| UPPER_BIELS_HF | 1,151.09 |               | 720.06              | 720.47                            | 720.31                                    |
| UPPER_BIELS_HF | 1,170.75 |               | 720.05              | 720.46                            | 720.30                                    |
| UPPER_BIELS_HF | 1,190.41 |               | 720.04              | 720.45                            | 720.29                                    |
| UPPER_BIELS_HF | 1,210.06 |               | 720.03              | 720.44                            | 720.28                                    |
| UPPER_BIELS_HF | 1,229.72 |               | 720.02              | 720.43                            | 720.27                                    |
| UPPER_BIELS_HF | 1,249.38 |               | 720.01              | 720.42                            | 720.26                                    |
| UPPER_BIELS_HF | 1,269.04 |               | 720.00              | 720.42                            | 720.25                                    |
| UPPER_BIELS_HF | 1,288.70 |               | 719.99              | 720.41                            | 720.24                                    |
| UPPER_BIELS_HF | 1,308.35 |               | 719.98              | 720.40                            | 720.23                                    |
| UPPER_BIELS_HF | 1,328.01 |               | 719.98              | 720.39                            | 720.22                                    |
| UPPER_BIELS_HF | 1,347.67 |               | 719.97              | 720.39                            | 720.21                                    |
| UPPER_BIELS_HF | 1,367.33 |               | 719.96              | 720.38                            | 720.21                                    |
| UPPER_BIELS_HF | 1,386.99 |               | 719.96              | 720.38                            | 720.20                                    |
| UPPER_BIELS_HF | 1,406.65 |               | 719.95              | 720.37                            | 720.19                                    |
| UPPER_BIELS_HF | 1,426.30 |               | 719.95              | 720.37                            | 720.19                                    |
| UPPER_BIELS_HF | 1,445.96 |               | 719.94              | 720.36                            | 720.18                                    |
| UPPER_BIELS_HF | 1,465.62 |               | 719.94              | 720.36                            | 720.17                                    |
| UPPER_BIELS_HF | 1,485.28 |               | 719.93              | 720.35                            | 720.17                                    |
| UPPER_BIELS_HF | 1,504.94 |               | 719.93              | 720.35                            | 720.16                                    |

| Channel        | Chainage | Cross-section | Water Level (m AHD) |                                   |   |
|----------------|----------|---------------|---------------------|-----------------------------------|---|
|                |          |               | 1% AEP              | 1% AEP with Flow increased by 20% | 1% AEP with Mannings 'n' increased by 20% |
| UPPER_BIELS_HF | 1,524.59 |               | 719.92              | 720.34                            | 720.16                                    |
| UPPER_BIELS_HF | 1,544.25 |               | 719.92              | 720.34                            | 720.15                                    |
| UPPER_BIELS_HF | 1,563.91 |               | 719.91              | 720.34                            | 720.15                                    |
| UPPER_BIELS_HF | 1,583.57 |               | 719.91              | 720.33                            | 720.15                                    |
| UPPER_BIELS_HF | 1,603.23 |               | 719.91              | 720.33                            | 720.14                                    |
| UPPER_BIELS_HF | 1,622.88 |               | 719.91              | 720.33                            | 720.14                                    |
| UPPER_BIELS_HF | 1,642.54 |               | 719.90              | 720.32                            | 720.14                                    |
| UPPER_BIELS_HF | 1,662.20 | B4            | 719.90              | 720.32                            | 720.13                                    |
| UPPER_BIELS_HF | 1,681.31 |               | 719.90              | 720.32                            | 720.13                                    |
| UPPER_BIELS_HF | 1,700.43 |               | 719.90              | 720.32                            | 720.13                                    |
| UPPER_BIELS_HF | 1,719.54 |               | 719.89              | 720.31                            | 720.12                                    |
| UPPER_BIELS_HF | 1,738.65 |               | 719.89              | 720.31                            | 720.12                                    |
| UPPER_BIELS_HF | 1,757.77 |               | 719.89              | 720.31                            | 720.12                                    |
| UPPER_BIELS_HF | 1,776.88 |               | 719.88              | 720.31                            | 720.12                                    |
| UPPER_BIELS_HF | 1,796.00 |               | 719.88              | 720.30                            | 720.11                                    |
| UPPER_BIELS_HF | 1,815.11 |               | 719.88              | 720.30                            | 720.11                                    |
| UPPER_BIELS_HF | 1,834.22 |               | 719.88              | 720.30                            | 720.11                                    |
| UPPER_BIELS_HF | 1,853.34 |               | 719.87              | 720.30                            | 720.10                                    |
| UPPER_BIELS_HF | 1,872.45 |               | 719.87              | 720.29                            | 720.10                                    |
| LOWER_BIELS    | 0.00     |               | 719.87              | 720.29                            | 720.10                                    |
| LOWER_BIELS    | 20.00    |               | 719.85              | 720.27                            | 720.08                                    |
| LOWER_BIELS    | 25.00    |               | 719.85              | 720.27                            | 720.08                                    |
| LOWER_BIELS    | 42.40    | B5            | 719.00              | 719.39                            | 719.35                                    |
| LOWER_BIELS    | 62.00    |               | 719.00              | 719.39                            | 719.35                                    |
| LOWER_BIELS    | 81.83    |               | 718.96              | 719.35                            | 719.31                                    |

| Channel     | Chainage | Cross-section | Water Level (m AHD) |                                   |   |
|-------------|----------|---------------|---------------------|-----------------------------------|---|
|             |          |               | 1% AEP              | 1% AEP with Flow increased by 20% | 1% AEP with Mannings 'n' increased by 20% |
| LOWER_BIELS | 101.66   |               | 718.92              | 719.30                            | 719.27                                    |
| LOWER_BIELS | 121.48   |               | 718.88              | 719.26                            | 719.23                                    |
| LOWER_BIELS | 141.31   |               | 718.84              | 719.22                            | 719.18                                    |
| LOWER_BIELS | 161.14   |               | 718.79              | 719.18                            | 719.14                                    |
| LOWER_BIELS | 180.97   |               | 718.75              | 719.13                            | 719.10                                    |
| LOWER_BIELS | 200.79   |               | 718.71              | 719.09                            | 719.05                                    |
| LOWER_BIELS | 220.62   |               | 718.66              | 719.05                            | 719.01                                    |
| LOWER_BIELS | 240.45   |               | 718.62              | 719.00                            | 718.96                                    |
| LOWER_BIELS | 260.28   |               | 718.57              | 718.95                            | 718.91                                    |
| LOWER_BIELS | 280.10   |               | 718.53              | 718.90                            | 718.86                                    |
| LOWER_BIELS | 299.93   |               | 718.48              | 718.86                            | 718.81                                    |
| LOWER_BIELS | 319.76   |               | 718.43              | 718.80                            | 718.76                                    |
| LOWER_BIELS | 339.59   |               | 718.38              | 718.75                            | 718.71                                    |
| LOWER_BIELS | 359.41   |               | 718.33              | 718.70                            | 718.66                                    |
| LOWER_BIELS | 379.24   |               | 718.27              | 718.64                            | 718.60                                    |
| LOWER_BIELS | 399.07   |               | 718.22              | 718.59                            | 718.55                                    |
| LOWER_BIELS | 418.90   |               | 718.16              | 718.53                            | 718.49                                    |
| LOWER_BIELS | 438.72   |               | 718.10              | 718.47                            | 718.43                                    |
| LOWER_BIELS | 458.55   |               | 718.03              | 718.41                            | 718.37                                    |
| LOWER_BIELS | 478.38   |               | 717.97              | 718.34                            | 718.30                                    |
| LOWER_BIELS | 498.21   |               | 717.90              | 718.27                            | 718.23                                    |
| LOWER_BIELS | 518.03   |               | 717.83              | 718.20                            | 718.16                                    |
| LOWER_BIELS | 537.86   |               | 717.75              | 718.12                            | 718.08                                    |
| LOWER_BIELS | 557.69   |               | 717.68              | 718.04                            | 718.00                                    |
| LOWER_BIELS | 577.52   |               | 717.59              | 717.95                            | 717.92                                    |

| Channel     | Chainage | Cross-section | Water Level (m AHD) |                                   |   |
|-------------|----------|---------------|---------------------|-----------------------------------|---|
|             |          |               | 1% AEP              | 1% AEP with Flow increased by 20% | 1% AEP with Mannings 'n' increased by 20% |
| LOWER_BIELS | 597.34   |               | 717.50              | 717.86                            | 717.82                                    |
| LOWER_BIELS | 617.17   | B6            | 717.40              | 717.75                            | 717.72                                    |
| LOWER_BIELS | 637.00   |               | 717.29              | 717.64                            | 717.61                                    |
| LOWER_BIELS | 656.42   |               | 717.19              | 717.55                            | 717.52                                    |
| LOWER_BIELS | 675.84   |               | 717.09              | 717.45                            | 717.42                                    |
| LOWER_BIELS | 695.27   |               | 716.99              | 717.35                            | 717.32                                    |
| LOWER_BIELS | 714.69   |               | 716.89              | 717.25                            | 717.21                                    |
| LOWER_BIELS | 734.11   |               | 716.79              | 717.14                            | 717.10                                    |
| LOWER_BIELS | 753.53   |               | 716.67              | 717.02                            | 716.99                                    |
| LOWER_BIELS | 772.96   |               | 716.55              | 716.91                            | 716.87                                    |
| LOWER_BIELS | 792.38   |               | 716.41              | 716.77                            | 716.75                                    |
| LOWER_BIELS | 811.80   | B7            | 716.27              | 716.62                            | 716.60                                    |
| LOWER_BIELS | 831.57   |               | 716.15              | 716.50                            | 716.48                                    |
| LOWER_BIELS | 851.35   |               | 716.02              | 716.38                            | 716.36                                    |
| LOWER_BIELS | 871.12   |               | 715.90              | 716.26                            | 716.24                                    |
| LOWER_BIELS | 890.89   |               | 715.78              | 716.14                            | 716.12                                    |
| LOWER_BIELS | 910.67   |               | 715.66              | 716.02                            | 716.00                                    |
| LOWER_BIELS | 930.44   |               | 715.54              | 715.90                            | 715.88                                    |
| LOWER_BIELS | 950.21   |               | 715.43              | 715.78                            | 715.76                                    |
| LOWER_BIELS | 969.98   |               | 715.31              | 715.66                            | 715.63                                    |
| LOWER_BIELS | 989.76   |               | 715.20              | 715.54                            | 715.51                                    |
| LOWER_BIELS | 1,009.53 |               | 715.08              | 715.41                            | 715.39                                    |
| LOWER_BIELS | 1,029.30 |               | 714.96              | 715.29                            | 715.26                                    |
| LOWER_BIELS | 1,049.08 |               | 714.84              | 715.17                            | 715.14                                    |
| LOWER_BIELS | 1,068.85 |               | 714.72              | 715.05                            | 715.01                                    |

| Channel     | Chainage | Cross-section | Water Level (m AHD) |                                   |   |
|-------------|----------|---------------|---------------------|-----------------------------------|---|
|             |          |               | 1% AEP              | 1% AEP with Flow increased by 20% | 1% AEP with Mannings 'n' increased by 20% |
| LOWER_BIELS | 1,088.62 |               | 714.60              | 714.93                            | 714.89                                    |
| LOWER_BIELS | 1,108.40 |               | 714.47              | 714.81                            | 714.77                                    |
| LOWER_BIELS | 1,128.17 |               | 714.35              | 714.69                            | 714.65                                    |
| LOWER_BIELS | 1,147.94 |               | 714.23              | 714.57                            | 714.53                                    |
| LOWER_BIELS | 1,167.72 |               | 714.11              | 714.45                            | 714.40                                    |
| LOWER_BIELS | 1,187.49 |               | 713.98              | 714.32                            | 714.27                                    |
| LOWER_BIELS | 1,207.26 |               | 713.85              | 714.20                            | 714.14                                    |
| LOWER_BIELS | 1,227.03 |               | 713.72              | 714.07                            | 714.01                                    |
| LOWER_BIELS | 1,246.81 |               | 713.58              | 713.93                            | 713.87                                    |
| LOWER_BIELS | 1,266.58 |               | 713.42              | 713.79                            | 713.71                                    |
| LOWER_BIELS | 1,286.35 |               | 713.25              | 713.62                            | 713.55                                    |
| LOWER_BIELS | 1,306.13 |               | 713.05              | 713.43                            | 713.35                                    |
| LOWER_BIELS | 1,325.90 | B9            | 712.80              | 713.20                            | 713.12                                    |
| LOWER_BIELS | 1,345.36 |               | 712.57              | 713.01                            | 712.90                                    |
| LOWER_BIELS | 1,364.83 |               | 712.37              | 712.84                            | 712.70                                    |
| LOWER_BIELS | 1,384.29 |               | 712.19              | 712.69                            | 712.53                                    |
| LOWER_BIELS | 1,403.75 |               | 712.04              | 712.57                            | 712.38                                    |
| LOWER_BIELS | 1,423.22 |               | 711.91              | 712.47                            | 712.25                                    |
| LOWER_BIELS | 1,442.68 |               | 711.82              | 712.39                            | 712.14                                    |
| LOWER_BIELS | 1,462.15 |               | 711.75              | 712.32                            | 712.04                                    |
| LOWER_BIELS | 1,481.61 |               | 711.69              | 712.26                            | 711.96                                    |
| LOWER_BIELS | 1,501.07 |               | 711.63              | 712.20                            | 711.89                                    |
| LOWER_BIELS | 1,520.54 |               | 711.58              | 712.16                            | 711.82                                    |
| LOWER_BIELS | 1,540.00 |               | 711.55              | 712.12                            | 711.77                                    |
| LOWER_BIELS | 1,546.00 | B10           | 711.55              | 712.12                            | 711.77                                    |

| Channel     | Chainage | Cross-section | Water Level (m AHD) |                                   |   |
|-------------|----------|---------------|---------------------|-----------------------------------|---|
|             |          |               | 1% AEP              | 1% AEP with Flow increased by 20% | 1% AEP with Mannings 'n' increased by 20% |
| LOWER_BIELS | 1,560.00 |               | 709.56              | 709.99                            | 709.96                                    |
| LOWER_BIELS | 1,579.59 |               | 709.35              | 709.77                            | 709.74                                    |
| LOWER_BIELS | 1,599.17 |               | 709.13              | 709.55                            | 709.52                                    |
| LOWER_BIELS | 1,618.76 |               | 708.92              | 709.32                            | 709.30                                    |
| LOWER_BIELS | 1,638.35 |               | 708.70              | 709.10                            | 709.07                                    |
| LOWER_BIELS | 1,657.93 |               | 708.48              | 708.86                            | 708.84                                    |
| LOWER_BIELS | 1,677.52 |               | 708.26              | 708.63                            | 708.61                                    |
| LOWER_BIELS | 1,697.11 |               | 708.04              | 708.39                            | 708.37                                    |
| LOWER_BIELS | 1,716.70 |               | 707.82              | 708.14                            | 708.13                                    |
| LOWER_BIELS | 1,736.28 |               | 707.60              | 707.89                            | 707.88                                    |
| LOWER_BIELS | 1,755.87 |               | 707.37              | 707.65                            | 707.64                                    |
| LOWER_BIELS | 1,775.46 |               | 707.13              | 707.41                            | 707.40                                    |
| LOWER_BIELS | 1,795.04 |               | 706.90              | 707.18                            | 707.17                                    |
| LOWER_BIELS | 1,814.63 |               | 706.65              | 706.94                            | 706.94                                    |
| LOWER_BIELS | 1,834.22 |               | 706.41              | 706.71                            | 706.70                                    |
| LOWER_BIELS | 1,853.80 |               | 706.18              | 706.48                            | 706.48                                    |
| LOWER_BIELS | 1,873.39 |               | 705.96              | 706.26                            | 706.26                                    |
| LOWER_BIELS | 1,892.98 |               | 705.75              | 706.05                            | 706.06                                    |
| LOWER_BIELS | 1,912.57 |               | 705.55              | 705.86                            | 705.87                                    |
| LOWER_BIELS | 1,932.15 |               | 705.38              | 705.70                            | 705.70                                    |
| LOWER_BIELS | 1,951.74 |               | 705.24              | 705.57                            | 705.56                                    |
| LOWER_BIELS | 1,971.33 |               | 705.13              | 705.48                            | 705.46                                    |
| LOWER_BIELS | 1,990.91 |               | 705.05              | 705.42                            | 705.38                                    |
| LOWER_BIELS | 2,010.50 | B11           | 705.00              | 705.37                            | 705.32                                    |
| LOWER_BIELS | 2,029.90 |               | 704.92              | 705.30                            | 705.25                                    |



| Channel     | Chainage | Cross-section | Water Level (m AHD) |                                   |   |
|-------------|----------|---------------|---------------------|-----------------------------------|---|
|             |          |               | 1% AEP              | 1% AEP with Flow increased by 20% | 1% AEP with Mannings 'n' increased by 20% |
| LOWER_BIELS | 2,049.30 |               | 704.83              | 705.23                            | 705.18                                    |
| LOWER_BIELS | 2,068.70 |               | 704.75              | 705.16                            | 705.10                                    |
| LOWER_BIELS | 2,088.10 |               | 704.66              | 705.09                            | 705.03                                    |
| LOWER_BIELS | 2,107.50 |               | 704.57              | 705.01                            | 704.95                                    |
| LOWER_BIELS | 2,126.90 |               | 704.48              | 704.94                            | 704.87                                    |
| LOWER_BIELS | 2,146.30 |               | 704.39              | 704.86                            | 704.79                                    |
| LOWER_BIELS | 2,165.70 |               | 704.30              | 704.78                            | 704.71                                    |
| LOWER_BIELS | 2,185.10 |               | 704.21              | 704.70                            | 704.63                                    |
| LOWER_BIELS | 2,204.50 |               | 704.12              | 704.62                            | 704.55                                    |
| LOWER_BIELS | 2,223.90 |               | 704.04              | 704.55                            | 704.47                                    |
| LOWER_BIELS | 2,243.30 |               | 703.96              | 704.47                            | 704.39                                    |
| LOWER_BIELS | 2,262.70 |               | 703.89              | 704.40                            | 704.32                                    |
| LOWER_BIELS | 2,282.10 |               | 703.82              | 704.33                            | 704.25                                    |
| LOWER_BIELS | 2,301.50 |               | 703.75              | 704.27                            | 704.19                                    |
| LOWER_BIELS | 2,320.90 |               | 703.69              | 704.21                            | 704.12                                    |
| LOWER_BIELS | 2,340.30 |               | 703.63              | 704.15                            | 704.06                                    |
| LOWER_BIELS | 2,359.70 |               | 703.58              | 704.10                            | 704.00                                    |
| LOWER_BIELS | 2,379.10 | B12           | 703.53              | 704.04                            | 703.95                                    |
| LOWER_BIELS | 2,398.74 |               | 703.47              | 703.98                            | 703.88                                    |
| LOWER_BIELS | 2,418.39 |               | 703.42              | 703.92                            | 703.82                                    |
| LOWER_BIELS | 2,438.03 |               | 703.36              | 703.86                            | 703.76                                    |
| LOWER_BIELS | 2,457.68 |               | 703.30              | 703.79                            | 703.70                                    |
| LOWER_BIELS | 2,477.32 |               | 703.23              | 703.73                            | 703.63                                    |
| LOWER_BIELS | 2,496.96 |               | 703.17              | 703.66                            | 703.56                                    |
| LOWER_BIELS | 2,516.61 |               | 703.11              | 703.60                            | 703.50                                    |

| Channel     | Chainage | Cross-section | Water Level (m AHD) |                                   |   |
|-------------|----------|---------------|---------------------|-----------------------------------|---|
|             |          |               | 1% AEP              | 1% AEP with Flow increased by 20% | 1% AEP with Mannings 'n' increased by 20% |
| LOWER_BIELS | 2,536.25 |               | 703.04              | 703.53                            | 703.43                                    |
| LOWER_BIELS | 2,555.90 |               | 702.96              | 703.46                            | 703.35                                    |
| LOWER_BIELS | 2,575.54 |               | 702.89              | 703.38                            | 703.27                                    |
| LOWER_BIELS | 2,595.18 |               | 702.82              | 703.30                            | 703.19                                    |
| LOWER_BIELS | 2,614.83 |               | 702.75              | 703.22                            | 703.11                                    |
| LOWER_BIELS | 2,634.47 |               | 702.68              | 703.13                            | 703.03                                    |
| LOWER_BIELS | 2,654.12 |               | 702.60              | 703.05                            | 702.94                                    |
| LOWER_BIELS | 2,673.76 |               | 702.51              | 702.96                            | 702.85                                    |
| LOWER_BIELS | 2,693.40 |               | 702.42              | 702.87                            | 702.76                                    |
| LOWER_BIELS | 2,713.05 |               | 702.33              | 702.77                            | 702.65                                    |
| LOWER_BIELS | 2,732.69 |               | 702.22              | 702.66                            | 702.54                                    |
| LOWER_BIELS | 2,752.34 |               | 702.10              | 702.53                            | 702.41                                    |
| LOWER_BIELS | 2,771.98 |               | 701.97              | 702.40                            | 702.28                                    |
| LOWER_BIELS | 2,791.62 |               | 701.82              | 702.24                            | 702.11                                    |
| LOWER_BIELS | 2,811.27 |               | 701.65              | 702.06                            | 701.93                                    |
| LOWER_BIELS | 2,830.91 |               | 701.45              | 701.85                            | 701.71                                    |
| LOWER_BIELS | 2,850.56 |               | 701.19              | 701.58                            | 701.42                                    |
| LOWER_BIELS | 2,870.20 |               | 700.86              | 701.24                            | 701.04                                    |
| LOWER_BIELS | 2,885.10 | B13           | 700.54              | 700.92                            | 700.64                                    |
| LOWER_BIELS | 2,900.00 |               | 700.19              | 700.56                            | 700.19                                    |

**APPENDIX L**

**CROSS-SECTION PLOT POSITIONS**

**APPENDIX L**

**CROSS-SECTION PLOT POSITIONS**

| Cross-section | Plot Position (MGA) |            |           |            |
|---------------|---------------------|------------|-----------|------------|
|               | Start               |            | Finish    |            |
|               | Easting             | Northing   | Easting   | Northing   |
| B1            | 470905.34           | 6643164.95 | 470900.80 | 6642611.23 |
| B1.5          | 471330.20           | 6643446.50 | 471213.60 | 6643240.60 |
| B2            | 471619.60           | 6643088.89 | 471355.92 | 6642728.23 |
| B3            | 471640.74           | 6643060.05 | 471741.91 | 6642620.81 |
| B4            | 471696.69           | 6643458.67 | 472101.95 | 6643280.78 |
| B5            | 471910.75           | 6643671.64 | 472079.05 | 6643528.05 |
| B6            | 471892.69           | 6644059.10 | 472226.44 | 6644087.20 |
| B7            | 471945.96           | 6644270.35 | 472235.58 | 6644232.57 |
| B9            | 472156.66           | 6644759.50 | 472194.26 | 6644629.71 |
| B10           | 472428.96           | 6644563.03 | 472295.69 | 6644483.57 |
| B11           | 472638.56           | 6644662.09 | 472688.06 | 6644552.96 |
| B12           | 472557.73           | 6644712.60 | 472687.76 | 6644989.91 |
| B13           | 472766.33           | 6643188.56 | 472908.57 | 6643126.11 |
| UN1           | 472766.33           | 6643188.56 | 472908.57 | 6643126.11 |
| UN2           | 472870.41           | 6643508.75 | 472956.82 | 6643361.39 |
| UN3           | 472799.55           | 6643767.46 | 472948.11 | 6643747.00 |
| UN4           | 472804.21           | 6644032.50 | 472936.59 | 6644001.45 |
| UN5           | 472859.91           | 6644371.99 | 472999.16 | 6644338.21 |
| UN6           | 472777.51           | 6644613.86 | 472856.27 | 6644734.74 |