

### Design Settings

|                                      |        |                                    |               |
|--------------------------------------|--------|------------------------------------|---------------|
| Rainfall Methodology                 | FEH-22 | Minimum Velocity (m/s)             | 1.00          |
| Return Period (years)                | 1      | Connection Type                    | Level Soffits |
| Additional Flow (%)                  | 0      | Minimum Backdrop Height (m)        | 1.000         |
| CV                                   | 1.000  | Preferred Cover Depth (m)          | 1.200         |
| Time of Entry (mins)                 | 5.00   | Include Intermediate Ground        | ✓             |
| Maximum Time of Concentration (mins) | 5.00   | Enforce best practice design rules | x             |
| Maximum Rainfall (mm/hr)             | 75.0   |                                    |               |

### Nodes

| Name | Area<br>(ha) | T of E<br>(mins) | Cover<br>Level<br>(m) | Diameter<br>(mm) | Easting<br>(m) | Northing<br>(m) | Depth<br>(m) |
|------|--------------|------------------|-----------------------|------------------|----------------|-----------------|--------------|
| S40  | 0.044        | 5.00             | 6.141                 | 1350             | 488625.130     | 98162.049       | 1.311        |
| S41  | 0.129        | 5.00             | 6.424                 | 1350             | 488615.962     | 98131.973       | 1.800        |
| S42  | 0.060        | 5.00             | 6.085                 | 1350             | 488603.026     | 98089.534       | 1.646        |
| S43  | 0.012        | 5.00             | 6.203                 | 1350             | 488611.079     | 98081.205       | 1.812        |
| S44  | 0.005        | 5.00             | 6.138                 | 1350             | 488627.985     | 98075.142       | 1.822        |
| S45  | 0.016        | 5.00             | 5.934                 | 1350             | 488645.324     | 98073.621       | 1.672        |
| S51  | 0.041        | 5.00             | 6.111                 | 1350             | 488676.999     | 98157.592       | 1.541        |
| S52  | 0.030        | 5.00             | 6.017                 | 1350             | 488685.242     | 98148.059       | 1.500        |
| S53  | 0.032        | 5.00             | 5.981                 | 1350             | 488684.480     | 98130.767       | 1.536        |
| S54  | 0.006        | 5.00             | 6.187                 | 1350             | 488681.136     | 98102.962       | 1.858        |
| S55  | 0.017        | 5.00             | 6.108                 | 1350             | 488673.516     | 98089.653       | 1.843        |
| S46  | 0.052        | 5.00             | 5.942                 | 1350             | 488663.260     | 98080.691       | 1.816        |
| S50  |              |                  | 5.657                 |                  | 488667.619     | 98075.418       | 1.555        |
| S47  | 0.060        | 5.00             | 5.657                 |                  | 488686.786     | 98076.484       | 1.600        |
| S48  |              |                  | 5.650                 | 1350             | 488690.604     | 98076.229       | 1.603        |
| S49  |              |                  | 5.112                 |                  | 488696.238     | 98075.778       | 1.125        |

### Links

| Name  | US<br>Node | DS<br>Node | Length<br>(m) | ks (mm) /<br>n | US IL<br>(m) | DS IL<br>(m) | Fall<br>(m) | Slope<br>(1:X) | Dia<br>(mm) | T of C<br>(mins) | Rain<br>(mm/hr) |
|-------|------------|------------|---------------|----------------|--------------|--------------|-------------|----------------|-------------|------------------|-----------------|
| 1.000 | S40        | S41        | 31.443        | 0.600          | 4.830        | 4.624        | 0.206       | 152.6          | 375         | 5.00             | 39.2            |
| 1.001 | S41        | S42        | 44.367        | 0.600          | 4.624        | 4.439        | 0.185       | 239.8          | 375         | 5.00             | 39.2            |
| 1.002 | S42        | S43        | 11.586        | 0.600          | 4.439        | 4.391        | 0.048       | 241.4          | 375         | 5.00             | 39.2            |
| 1.003 | S43        | S44        | 17.960        | 0.600          | 4.391        | 4.316        | 0.075       | 239.5          | 375         | 5.00             | 39.2            |
| 1.004 | S44        | S45        | 17.406        | 0.600          | 4.316        | 4.262        | 0.054       | 322.3          | 375         | 5.00             | 39.2            |
| 1.005 | S45        | S46        | 19.279        | 0.600          | 4.262        | 4.201        | 0.061       | 316.0          | 375         | 5.00             | 39.2            |
| 2.000 | S51        | S52        | 12.603        | 0.600          | 4.570        | 4.517        | 0.053       | 237.8          | 300         | 5.00             | 39.2            |
| 2.001 | S52        | S53        | 17.308        | 0.600          | 4.517        | 4.445        | 0.072       | 240.4          | 300         | 5.00             | 39.2            |

| Name  | Vel<br>(m/s) | Cap<br>(l/s) | Flow<br>(l/s) | US<br>Depth<br>(m) | DS<br>Depth<br>(m) | Σ Area<br>(ha) | Σ Add<br>Inflow<br>(l/s) | Pro<br>Depth<br>(mm) | Pro<br>Velocity<br>(m/s) |
|-------|--------------|--------------|---------------|--------------------|--------------------|----------------|--------------------------|----------------------|--------------------------|
| 1.000 | 1.464        | 161.7        | 6.2           | 0.936              | 1.425              | 0.044          | 0.0                      | 49                   | 0.714                    |
| 1.001 | 1.165        | 128.7        | 24.5          | 1.425              | 1.271              | 0.173          | 0.0                      | 110                  | 0.904                    |
| 1.002 | 1.162        | 128.3        | 33.0          | 1.271              | 1.437              | 0.233          | 0.0                      | 129                  | 0.979                    |
| 1.003 | 1.166        | 128.8        | 34.7          | 1.437              | 1.447              | 0.245          | 0.0                      | 132                  | 0.994                    |
| 1.004 | 1.003        | 110.8        | 35.4          | 1.447              | 1.297              | 0.250          | 0.0                      | 145                  | 0.896                    |
| 1.005 | 1.014        | 111.9        | 37.6          | 1.297              | 1.366              | 0.266          | 0.0                      | 150                  | 0.918                    |
| 2.000 | 1.015        | 71.7         | 5.8           | 1.241              | 1.200              | 0.041          | 0.0                      | 57                   | 0.614                    |
| 2.001 | 1.009        | 71.4         | 10.0          | 1.200              | 1.236              | 0.071          | 0.0                      | 76                   | 0.719                    |

### Links

| Name  | US Node | DS Node | Length (m) | ks (mm) / n | US IL (m) | DS IL (m) | Fall (m) | Slope (1:X) | Dia (mm) | T of C (mins) | Rain (mm/hr) |
|-------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|---------------|--------------|
| 2.002 | S53     | S54     | 28.006     | 0.600       | 4.445     | 4.329     | 0.116    | 241.4       | 300      | 5.00          | 39.2         |
| 2.003 | S54     | S55     | 15.335     | 0.600       | 4.329     | 4.265     | 0.064    | 239.6       | 300      | 5.00          | 39.2         |
| 2.004 | S55     | S46     | 13.620     | 0.600       | 4.265     | 4.201     | 0.064    | 212.8       | 300      | 5.00          | 39.2         |
| 1.006 | S46     | S50     | 6.841      | 0.600       | 4.126     | 4.102     | 0.024    | 285.0       | 450      | 5.00          | 39.2         |
| 1.007 | S50     | S47     | 19.197     | 0.600       | 4.102     | 4.057     | 0.045    | 426.6       | 450      | 5.00          | 39.2         |
| 1.008 | S47     | S48     | 3.827      | 0.600       | 4.057     | 4.047     | 0.010    | 382.7       | 450      | 5.00          | 39.2         |
| 1.009 | S48     | S49     | 5.652      | 0.600       | 4.047     | 3.987     | 0.060    | 94.2        | 225      | 5.00          | 39.2         |

| Name  | Vel (m/s) | Cap (l/s) | Flow (l/s) | US Depth (m) | DS Depth (m) | Σ Area (ha) | Σ Add Inflow (l/s) | Pro Depth (mm) | Pro Velocity (m/s) |
|-------|-----------|-----------|------------|--------------|--------------|-------------|--------------------|----------------|--------------------|
| 2.002 | 1.007     | 71.2      | 14.6       | 1.236        | 1.558        | 0.103       | 0.0                | 92             | 0.796              |
| 2.003 | 1.011     | 71.5      | 15.4       | 1.558        | 1.543        | 0.109       | 0.0                | 94             | 0.810              |
| 2.004 | 1.074     | 75.9      | 17.8       | 1.543        | 1.441        | 0.126       | 0.0                | 99             | 0.882              |
| 1.006 | 1.199     | 190.7     | 62.8       | 1.366        | 1.105        | 0.444       | 0.0                | 177            | 1.079              |
| 1.007 | 0.978     | 155.5     | 62.8       | 1.105        | 1.150        | 0.444       | 0.0                | 199            | 0.928              |
| 1.008 | 1.033     | 164.3     | 71.3       | 1.150        | 1.153        | 0.504       | 0.0                | 207            | 0.998              |
| 1.009 | 1.347     | 53.6      | 71.3       | 1.378        | 0.900        | 0.504       | 0.0                | 225            | 1.372              |

### Pipeline Schedule

| Link  | Length (m) | Slope (1:X) | Dia (mm) | Link Type | US CL (m) | US IL (m) | US Depth (m) | DS CL (m) | DS IL (m) | DS Depth (m) |
|-------|------------|-------------|----------|-----------|-----------|-----------|--------------|-----------|-----------|--------------|
| 1.000 | 31.443     | 152.6       | 375      | Circular  | 6.141     | 4.830     | 0.936        | 6.424     | 4.624     | 1.425        |
| 1.001 | 44.367     | 239.8       | 375      | Circular  | 6.424     | 4.624     | 1.425        | 6.085     | 4.439     | 1.271        |
| 1.002 | 11.586     | 241.4       | 375      | Circular  | 6.085     | 4.439     | 1.271        | 6.203     | 4.391     | 1.437        |
| 1.003 | 17.960     | 239.5       | 375      | Circular  | 6.203     | 4.391     | 1.437        | 6.138     | 4.316     | 1.447        |
| 1.004 | 17.406     | 322.3       | 375      | Circular  | 6.138     | 4.316     | 1.447        | 5.934     | 4.262     | 1.297        |
| 1.005 | 19.279     | 316.0       | 375      | Circular  | 5.934     | 4.262     | 1.297        | 5.942     | 4.201     | 1.366        |
| 2.000 | 12.603     | 237.8       | 300      | Circular  | 6.111     | 4.570     | 1.241        | 6.017     | 4.517     | 1.200        |
| 2.001 | 17.308     | 240.4       | 300      | Circular  | 6.017     | 4.517     | 1.200        | 5.981     | 4.445     | 1.236        |
| 2.002 | 28.006     | 241.4       | 300      | Circular  | 5.981     | 4.445     | 1.236        | 6.187     | 4.329     | 1.558        |
| 2.003 | 15.335     | 239.6       | 300      | Circular  | 6.187     | 4.329     | 1.558        | 6.108     | 4.265     | 1.543        |
| 2.004 | 13.620     | 212.8       | 300      | Circular  | 6.108     | 4.265     | 1.543        | 5.942     | 4.201     | 1.441        |
| 1.006 | 6.841      | 285.0       | 450      | Circular  | 5.942     | 4.126     | 1.366        | 5.657     | 4.102     | 1.105        |
| 1.007 | 19.197     | 426.6       | 450      | Circular  | 5.657     | 4.102     | 1.105        | 5.657     | 4.057     | 1.150        |

| Link  | US Node | Dia (mm) | Node Type | MH Type   | DS Node | Dia (mm) | Node Type | MH Type   |
|-------|---------|----------|-----------|-----------|---------|----------|-----------|-----------|
| 1.000 | S40     | 1350     | Manhole   | Adoptable | S41     | 1350     | Manhole   | Adoptable |
| 1.001 | S41     | 1350     | Manhole   | Adoptable | S42     | 1350     | Manhole   | Adoptable |
| 1.002 | S42     | 1350     | Manhole   | Adoptable | S43     | 1350     | Manhole   | Adoptable |
| 1.003 | S43     | 1350     | Manhole   | Adoptable | S44     | 1350     | Manhole   | Adoptable |
| 1.004 | S44     | 1350     | Manhole   | Adoptable | S45     | 1350     | Manhole   | Adoptable |
| 1.005 | S45     | 1350     | Manhole   | Adoptable | S46     | 1350     | Manhole   | Adoptable |
| 2.000 | S51     | 1350     | Manhole   | Adoptable | S52     | 1350     | Manhole   | Adoptable |
| 2.001 | S52     | 1350     | Manhole   | Adoptable | S53     | 1350     | Manhole   | Adoptable |
| 2.002 | S53     | 1350     | Manhole   | Adoptable | S54     | 1350     | Manhole   | Adoptable |
| 2.003 | S54     | 1350     | Manhole   | Adoptable | S55     | 1350     | Manhole   | Adoptable |
| 2.004 | S55     | 1350     | Manhole   | Adoptable | S46     | 1350     | Manhole   | Adoptable |
| 1.006 | S46     | 1350     | Manhole   | Adoptable | S50     |          | Junction  |           |
| 1.007 | S50     |          | Junction  |           | S47     |          | Junction  |           |

### Pipeline Schedule

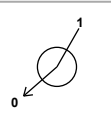
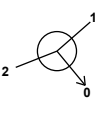
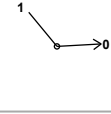
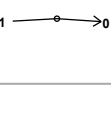
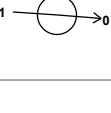
| Link  | Length<br>(m) | Slope<br>(1:X) | Dia<br>(mm) | Link<br>Type | US CL<br>(m) | US IL<br>(m) | US Depth<br>(m) | DS CL<br>(m) | DS IL<br>(m) | DS Depth<br>(m) |
|-------|---------------|----------------|-------------|--------------|--------------|--------------|-----------------|--------------|--------------|-----------------|
| 1.008 | 3.827         | 382.7          | 450         | Circular     | 5.657        | 4.057        | 1.150           | 5.650        | 4.047        | 1.153           |
| 1.009 | 5.652         | 94.2           | 225         | Circular     | 5.650        | 4.047        | 1.378           | 5.112        | 3.987        | 0.900           |

| Link  | US<br>Node | Dia<br>(mm) | Node<br>Type | MH<br>Type | DS<br>Node | Dia<br>(mm) | Node<br>Type | MH<br>Type |
|-------|------------|-------------|--------------|------------|------------|-------------|--------------|------------|
| 1.008 | S47        |             | Junction     |            | S48        | 1350        | Manhole      | Adoptable  |
| 1.009 | S48        | 1350        | Manhole      | Adoptable  | S49        |             | Junction     |            |

### Manhole Schedule

| Node | Easting<br>(m) | Northing<br>(m) | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Connections                                                                         | Link | IL<br>(m) | Dia<br>(mm) |
|------|----------------|-----------------|-----------|--------------|-------------|-------------------------------------------------------------------------------------|------|-----------|-------------|
| S40  | 488625.130     | 98162.049       | 6.141     | 1.311        | 1350        |    |      |           |             |
| S41  | 488615.962     | 98131.973       | 6.424     | 1.800        | 1350        |    | 1    | 1.000     | 4.830       |
| S42  | 488603.026     | 98089.534       | 6.085     | 1.646        | 1350        |   | 0    | 1.001     | 4.624       |
| S43  | 488611.079     | 98081.205       | 6.203     | 1.812        | 1350        |  | 1    | 1.001     | 4.439       |
| S44  | 488627.985     | 98075.142       | 6.138     | 1.822        | 1350        |  | 0    | 1.002     | 4.391       |
| S45  | 488645.324     | 98073.621       | 5.934     | 1.672        | 1350        |  | 1    | 1.002     | 4.316       |
| S51  | 488676.999     | 98157.592       | 6.111     | 1.541        | 1350        |  | 0    | 1.003     | 4.316       |
| S52  | 488685.242     | 98148.059       | 6.017     | 1.500        | 1350        |  | 1    | 1.004     | 4.262       |
| S53  | 488684.480     | 98130.767       | 5.981     | 1.536        | 1350        |  | 0    | 1.004     | 4.262       |
| S54  | 488681.136     | 98102.962       | 6.187     | 1.858        | 1350        |  | 1    | 1.005     | 4.262       |
|      |                |                 |           |              |             |  | 0    | 2.000     | 4.570       |
|      |                |                 |           |              |             |  | 1    | 2.000     | 4.517       |
|      |                |                 |           |              |             |  | 0    | 2.001     | 4.517       |
|      |                |                 |           |              |             |  | 1    | 2.001     | 4.445       |
|      |                |                 |           |              |             |  | 0    | 2.002     | 4.445       |
|      |                |                 |           |              |             |  | 1    | 2.002     | 4.329       |
|      |                |                 |           |              |             |  | 0    | 2.003     | 4.329       |

### Manhole Schedule

| Node | Easting<br>(m) | Northing<br>(m) | CL<br>(m) | Depth<br>(m) | Dia<br>(mm) | Connections                                                                                     | Link  | IL<br>(m) | Dia<br>(mm) |     |
|------|----------------|-----------------|-----------|--------------|-------------|-------------------------------------------------------------------------------------------------|-------|-----------|-------------|-----|
| S55  | 488673.516     | 98089.653       | 6.108     | 1.843        | 1350        | <div></div>   | 1     | 2.003     | 4.265       | 300 |
| S46  | 488663.260     | 98080.691       | 5.942     | 1.816        | 1350        | <div></div>   | 1     | 2.004     | 4.265       | 300 |
|      |                |                 |           |              |             | 2                                                                                               | 1.005 | 4.201     | 375         |     |
|      |                |                 |           |              |             | 0                                                                                               | 1.006 | 4.126     | 450         |     |
| S50  | 488667.619     | 98075.418       | 5.657     | 1.555        |             | <div></div>   | 1     | 1.006     | 4.102       | 450 |
| S47  | 488686.786     | 98076.484       | 5.657     | 1.600        |             | <div></div>   | 0     | 1.007     | 4.102       | 450 |
|      |                |                 |           |              |             | 1                                                                                               | 1.007 | 4.057     | 450         |     |
| S48  | 488690.604     | 98076.229       | 5.650     | 1.603        | 1350        | <div></div>  | 0     | 1.008     | 4.057       | 450 |
|      |                |                 |           |              |             | 1                                                                                               | 1.008 | 4.047     | 450         |     |
| S49  | 488696.238     | 98075.778       | 5.112     | 1.125        |             | <div></div> | 0     | 1.009     | 4.047       | 225 |
|      |                |                 |           |              |             | 1                                                                                               | 1.009 | 3.987     | 225         |     |

### Simulation Settings

|                      |          |                            |        |                         |   |
|----------------------|----------|----------------------------|--------|-------------------------|---|
| Rainfall Methodology | FEH-22   | Analysis Speed             | Normal | Starting Level (m)      |   |
| Rainfall Events      | Singular | Skip Steady State          | x      | Check Discharge Rate(s) | x |
| Summer CV            | 1.000    | Drain Down Time (mins)     | 4320   | Check Discharge Volume  | x |
| Winter CV            | 1.000    | Additional Storage (m³/ha) | 0.0    |                         |   |

### Storm Durations

|    |     |     |     |     |      |      |
|----|-----|-----|-----|-----|------|------|
| 30 | 120 | 240 | 480 | 720 | 1440 | 2880 |
| 60 | 180 | 360 | 600 | 960 | 2160 | 4320 |

| Return Period (years) | Climate Change (CC %) | Additional Area (A %) | Additional Flow (Q %) |
|-----------------------|-----------------------|-----------------------|-----------------------|
| 1                     | 45                    | 0                     | 0                     |
| 10                    | 45                    | 0                     | 0                     |
| 30                    | 45                    | 0                     | 0                     |
| 100                   | 45                    | 10                    | 0                     |

### Node S48 Online Hydro-Brake® Control

|                          |       |                         |                                |
|--------------------------|-------|-------------------------|--------------------------------|
| Flap Valve               | x     | Objective               | (HE) Minimise upstream storage |
| Replaces Downstream Link | x     | Sump Available          | ✓                              |
| Invert Level (m)         | 4.047 | Product Number          | CTL-SHE-0076-2900-1310-2900    |
| Design Depth (m)         | 1.310 | Min Outlet Diameter (m) | 0.100                          |
| Design Flow (l/s)        | 2.9   | Min Node Diameter (mm)  | 1200                           |

**Node S47 Depth/Area Storage Structure**

|                             |         |               |      |                           |       |
|-----------------------------|---------|---------------|------|---------------------------|-------|
| Base Inf Coefficient (m/hr) | 0.00000 | Safety Factor | 2.0  | Invert Level (m)          | 4.057 |
| Side Inf Coefficient (m/hr) | 0.00000 | Porosity      | 1.00 | Time to half empty (mins) |       |

| Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) | Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) | Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) | Depth<br>(m) | Area<br>(m <sup>2</sup> ) | Inf Area<br>(m <sup>2</sup> ) |
|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|
| 0.000        | 278.9                     | 0.0                           | 0.500        | 371.4                     | 0.0                           | 1.000        | 472.7                     | 0.0                           | 1.500        | 582.5                     | 0.0                           |
| 0.100        | 296.4                     | 0.0                           | 0.600        | 390.9                     | 0.0                           | 1.100        | 494.0                     | 0.0                           | 1.600        | 605.5                     | 0.0                           |
| 0.200        | 314.6                     | 0.0                           | 0.700        | 410.9                     | 0.0                           | 1.200        | 515.6                     | 0.0                           |              |                           |                               |
| 0.300        | 333.2                     | 0.0                           | 0.800        | 431.1                     | 0.0                           | 1.300        | 537.6                     | 0.0                           |              |                           |                               |
| 0.400        | 352.1                     | 0.0                           | 0.900        | 451.7                     | 0.0                           | 1.400        | 559.9                     | 0.0                           |              |                           |                               |

**Results for 1 year +45% CC Critical Storm Duration. Lowest mass balance: 92.07%**

| Node Event         | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status     |
|--------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 30 minute summer   | S40        | 18             | 4.883        | 0.053        | 7.2             | 0.0762           | 0.0000        | OK         |
| 4320 minute winter | S41        | 4260           | 4.777        | 0.153        | 1.2             | 0.2182           | 0.0000        | OK         |
| 4320 minute winter | S42        | 4260           | 4.776        | 0.337        | 1.3             | 0.4829           | 0.0000        | OK         |
| 4320 minute winter | S43        | 4260           | 4.776        | 0.385        | 1.8             | 0.5515           | 0.0000        | SURCHARGED |
| 4320 minute winter | S44        | 4260           | 4.776        | 0.460        | 2.1             | 0.6588           | 0.0000        | SURCHARGED |
| 4320 minute winter | S45        | 4260           | 4.776        | 0.514        | 2.5             | 0.7355           | 0.0000        | SURCHARGED |
| 4320 minute winter | S51        | 5520           | 4.776        | 0.206        | 0.3             | 0.2943           | 0.0000        | OK         |
| 4320 minute winter | S52        | 6360           | 4.776        | 0.259        | 0.8             | 0.3700           | 0.0000        | OK         |
| 4320 minute winter | S53        | 6900           | 4.776        | 0.331        | 1.4             | 0.4731           | 0.0000        | SURCHARGED |
| 4320 minute winter | S54        | 4560           | 4.776        | 0.447        | 0.9             | 0.6395           | 0.0000        | SURCHARGED |
| 4320 minute winter | S55        | 8040           | 4.775        | 0.510        | 1.0             | 0.7303           | 0.0000        | SURCHARGED |
| 4320 minute winter | S46        | 5880           | 4.777        | 0.651        | 3.1             | 0.9320           | 0.0000        | SURCHARGED |
| 4320 minute winter | S50        | 6300           | 4.774        | 0.672        | 3.3             | 0.0000           | 0.0000        | SURCHARGED |
| 4320 minute winter | S47        | 5040           | 4.775        | 0.718        | 3.0             | 247.8944         | 0.0000        | SURCHARGED |
| 4320 minute winter | S48        | 8340           | 4.775        | 0.728        | 0.1             | 1.0418           | 0.0000        | SURCHARGED |
| 30 minute summer   | S49        | 1              | 4.940        | 0.953        | 0.0             | 0.0000           | 0.0000        | OK         |

| Link Event<br>(Upstream Depth) | US<br>Node | Link  | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|--------------------------------|------------|-------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 30 minute summer               | S40        | 1.000 | S41        | 7.2              | 0.384             | 0.044    | 0.6117           |                       |
| 4320 minute winter             | S41        | 1.001 | S42        | 1.2              | 0.322             | 0.009    | 3.2512           |                       |
| 4320 minute winter             | S42        | 1.002 | S43        | 1.7              | 0.359             | 0.013    | 1.2444           |                       |
| 4320 minute winter             | S43        | 1.003 | S44        | 1.4              | 0.354             | 0.011    | 1.9809           |                       |
| 4320 minute winter             | S44        | 1.004 | S45        | -2.1             | 0.299             | -0.019   | 1.9198           |                       |
| 4320 minute winter             | S45        | 1.005 | S46        | -2.4             | 0.307             | -0.021   | 2.1264           |                       |
| 4320 minute winter             | S51        | 2.000 | S52        | 0.7              | 0.195             | 0.009    | 0.7312           |                       |
| 4320 minute winter             | S52        | 2.001 | S53        | 1.3              | 0.237             | 0.018    | 1.1682           |                       |
| 4320 minute winter             | S53        | 2.002 | S54        | 0.9              | 0.293             | 0.013    | 1.9722           |                       |
| 4320 minute winter             | S54        | 2.003 | S55        | 0.9              | 0.260             | 0.012    | 1.0799           |                       |
| 4320 minute winter             | S55        | 2.004 | S46        | 0.9              | 0.276             | 0.012    | 0.9591           |                       |
| 4320 minute winter             | S46        | 1.006 | S50        | 3.3              | 0.242             | 0.018    | 1.0839           |                       |
| 4320 minute winter             | S50        | 1.007 | S47        | -3.0             | 0.265             | -0.019   | 3.0416           |                       |
| 4320 minute winter             | S47        | 1.008 | S48        | -0.7             | 0.024             | -0.004   | 0.6064           |                       |
| 4320 minute winter             | S48        | 1.009 | S49        | 0.0              | 0.000             | 0.000    | 0.2248           | 0.0                   |

**Results for 10 year +45% CC Critical Storm Duration. Lowest mass balance: 97.85%**

| Node Event         | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status     |
|--------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 4320 minute summer | S40        | 2820           | 5.029        | 0.199        | 1.2             | 0.2845           | 0.0000        | OK         |
| 4320 minute summer | S41        | 2820           | 5.027        | 0.403        | 2.6             | 0.5773           | 0.0000        | SURCHARGED |
| 4320 minute winter | S42        | 3000           | 5.028        | 0.589        | 2.4             | 0.8425           | 0.0000        | SURCHARGED |
| 4320 minute winter | S43        | 3120           | 5.027        | 0.636        | 2.5             | 0.9107           | 0.0000        | SURCHARGED |
| 4320 minute winter | S44        | 3000           | 5.028        | 0.712        | 2.5             | 1.0188           | 0.0000        | SURCHARGED |
| 4320 minute winter | S45        | 3000           | 5.028        | 0.766        | 2.6             | 1.0961           | 0.0000        | SURCHARGED |
| 4320 minute winter | S51        | 3000           | 5.027        | 0.457        | 0.4             | 0.6540           | 0.0000        | SURCHARGED |
| 4320 minute winter | S52        | 3000           | 5.027        | 0.510        | 0.7             | 0.7297           | 0.0000        | SURCHARGED |
| 4320 minute winter | S53        | 3120           | 5.027        | 0.582        | 1.0             | 0.8328           | 0.0000        | SURCHARGED |
| 4320 minute winter | S54        | 3120           | 5.027        | 0.698        | 1.1             | 0.9990           | 0.0000        | SURCHARGED |
| 4320 minute winter | S55        | 3060           | 5.027        | 0.762        | 1.3             | 1.0902           | 0.0000        | SURCHARGED |
| 4320 minute winter | S46        | 3000           | 5.027        | 0.901        | 4.3             | 1.2890           | 0.0000        | SURCHARGED |
| 4320 minute winter | S50        | 3000           | 5.029        | 0.927        | 4.8             | 0.0000           | 0.0000        | SURCHARGED |
| 4320 minute winter | S47        | 3000           | 5.027        | 0.970        | 4.9             | 358.8676         | 0.0000        | SURCHARGED |
| 4320 minute winter | S48        | 3000           | 5.027        | 0.980        | 5.0             | 1.4030           | 0.0000        | SURCHARGED |
| 30 minute summer   | S49        | 1              | 4.940        | 0.953        | 0.0             | 0.0000           | 0.0000        | OK         |

| Link Event<br>(Upstream Depth) | US<br>Node | Link  | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|--------------------------------|------------|-------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 4320 minute summer             | S40        | 1.000 | S41        | 1.7              | 0.186             | 0.010    | 2.6665           |                       |
| 4320 minute summer             | S41        | 1.001 | S42        | 2.8              | 0.350             | 0.022    | 4.8936           |                       |
| 4320 minute winter             | S42        | 1.002 | S43        | 2.4              | 0.385             | 0.018    | 1.2779           |                       |
| 4320 minute winter             | S43        | 1.003 | S44        | 2.5              | 0.354             | 0.019    | 1.9809           |                       |
| 4320 minute winter             | S44        | 1.004 | S45        | 2.4              | 0.297             | 0.022    | 1.9198           |                       |
| 4320 minute winter             | S45        | 1.005 | S46        | 2.6              | 0.285             | 0.023    | 2.1264           |                       |
| 4320 minute winter             | S51        | 2.000 | S52        | 0.4              | 0.208             | 0.006    | 0.8875           |                       |
| 4320 minute winter             | S52        | 2.001 | S53        | 0.7              | 0.262             | 0.010    | 1.2188           |                       |
| 4320 minute winter             | S53        | 2.002 | S54        | 1.0              | 0.293             | 0.014    | 1.9722           |                       |
| 4320 minute winter             | S54        | 2.003 | S55        | 1.1              | 0.256             | 0.016    | 1.0799           |                       |
| 4320 minute winter             | S55        | 2.004 | S46        | 1.3              | 0.276             | 0.018    | 0.9591           |                       |
| 4320 minute winter             | S46        | 1.006 | S50        | 4.8              | 0.282             | 0.025    | 1.0839           |                       |
| 4320 minute winter             | S50        | 1.007 | S47        | 4.3              | 0.362             | 0.028    | 3.0416           |                       |
| 4320 minute winter             | S47        | 1.008 | S48        | 5.0              | 0.067             | 0.030    | 0.6064           |                       |
| 4320 minute winter             | S48        | 1.009 | S49        | 1.9              | 0.048             | 0.035    | 0.2248           | 149.1                 |

**Results for 30 year +45% CC Critical Storm Duration. Lowest mass balance: 99.19%**

| Node Event         | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status     |
|--------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 30 minute summer   | S40        | 19             | 5.117        | 0.287        | 26.7            | 0.4110           | 0.0000        | OK         |
| 4320 minute summer | S41        | 2820           | 5.115        | 0.491        | 3.1             | 0.7022           | 0.0000        | SURCHARGED |
| 4320 minute summer | S42        | 2820           | 5.113        | 0.674        | 4.0             | 0.9643           | 0.0000        | SURCHARGED |
| 4320 minute summer | S43        | 2820           | 5.113        | 0.722        | 4.1             | 1.0335           | 0.0000        | SURCHARGED |
| 4320 minute summer | S44        | 2820           | 5.112        | 0.796        | 4.1             | 1.1392           | 0.0000        | SURCHARGED |
| 4320 minute summer | S45        | 2820           | 5.112        | 0.850        | 4.4             | 1.2160           | 0.0000        | SURCHARGED |
| 4320 minute summer | S51        | 2760           | 5.115        | 0.545        | 0.7             | 0.7802           | 0.0000        | SURCHARGED |
| 4320 minute summer | S52        | 2760           | 5.115        | 0.598        | 1.2             | 0.8560           | 0.0000        | SURCHARGED |
| 4320 minute summer | S53        | 2760           | 5.115        | 0.670        | 1.7             | 0.9588           | 0.0000        | SURCHARGED |
| 4320 minute summer | S54        | 2760           | 5.114        | 0.785        | 1.8             | 1.1231           | 0.0000        | SURCHARGED |
| 4320 minute summer | S55        | 2760           | 5.113        | 0.848        | 2.1             | 1.2133           | 0.0000        | SURCHARGED |
| 4320 minute summer | S46        | 2760           | 5.112        | 0.986        | 7.2             | 1.4116           | 0.0000        | SURCHARGED |
| 4320 minute summer | S50        | 2820           | 5.113        | 1.011        | 7.7             | 0.0000           | 0.0000        | SURCHARGED |
| 4320 minute summer | S47        | 2820           | 5.111        | 1.054        | 8.9             | 398.8288         | 0.0000        | SURCHARGED |
| 4320 minute summer | S48        | 2760           | 5.111        | 1.064        | 6.5             | 1.5223           | 0.0000        | SURCHARGED |
| 30 minute summer   | S49        | 1              | 4.940        | 0.953        | 0.0             | 0.0000           | 0.0000        | OK         |

| Link Event<br>(Upstream Depth) | US<br>Node | Link  | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|--------------------------------|------------|-------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 30 minute summer               | S40        | 1.000 | S41        | 28.3             | 0.498             | 0.175    | 3.1581           |                       |
| 4320 minute summer             | S41        | 1.001 | S42        | 2.9              | 0.336             | 0.022    | 4.8936           |                       |
| 4320 minute summer             | S42        | 1.002 | S43        | 3.9              | 0.385             | 0.030    | 1.2779           |                       |
| 4320 minute summer             | S43        | 1.003 | S44        | 4.0              | 0.323             | 0.031    | 1.9809           |                       |
| 4320 minute summer             | S44        | 1.004 | S45        | 4.1              | 0.282             | 0.037    | 1.9198           |                       |
| 4320 minute summer             | S45        | 1.005 | S46        | 4.3              | 0.284             | 0.038    | 2.1264           |                       |
| 4320 minute summer             | S51        | 2.000 | S52        | 0.7              | 0.224             | 0.010    | 0.8875           |                       |
| 4320 minute summer             | S52        | 2.001 | S53        | 1.1              | 0.262             | 0.016    | 1.2188           |                       |
| 4320 minute summer             | S53        | 2.002 | S54        | 1.7              | 0.274             | 0.024    | 1.9722           |                       |
| 4320 minute summer             | S54        | 2.003 | S55        | 1.8              | 0.256             | 0.025    | 1.0799           |                       |
| 4320 minute summer             | S55        | 2.004 | S46        | 2.0              | 0.276             | 0.026    | 0.9591           |                       |
| 4320 minute summer             | S46        | 1.006 | S50        | 7.7              | 0.282             | 0.040    | 1.0839           |                       |
| 4320 minute summer             | S50        | 1.007 | S47        | 7.4              | 0.405             | 0.047    | 3.0416           |                       |
| 4320 minute summer             | S47        | 1.008 | S48        | 6.5              | 0.041             | 0.040    | 0.6064           |                       |
| 4320 minute summer             | S48        | 1.009 | S49        | 2.5              | 0.062             | 0.046    | 0.2248           | 251.1                 |

**Results for 100 year +45% CC +10% A Critical Storm Duration. Lowest mass balance: 99.58%**

| Node Event         | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m³) | Flood<br>(m³) | Status     |
|--------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 30 minute summer   | S40        | 19             | 5.979        | 1.149        | 37.0            | 1.6438           | 0.0000        | FLOOD RISK |
| 30 minute summer   | S41        | 19             | 5.965        | 1.341        | 144.3           | 1.9184           | 0.0000        | SURCHARGED |
| 30 minute summer   | S42        | 19             | 5.728        | 1.289        | 186.9           | 1.8448           | 0.0000        | SURCHARGED |
| 30 minute summer   | S43        | 19             | 5.565        | 1.174        | 191.0           | 1.6802           | 0.0000        | SURCHARGED |
| 4320 minute summer | S44        | 2880           | 5.371        | 1.055        | 5.6             | 1.5092           | 0.0000        | SURCHARGED |
| 4320 minute summer | S45        | 2880           | 5.371        | 1.109        | 6.3             | 1.5868           | 0.0000        | SURCHARGED |
| 4320 minute summer | S51        | 2880           | 5.375        | 0.805        | 1.0             | 1.1519           | 0.0000        | SURCHARGED |
| 4320 minute summer | S52        | 2880           | 5.375        | 0.858        | 1.7             | 1.2276           | 0.0000        | SURCHARGED |
| 4320 minute summer | S53        | 2880           | 5.375        | 0.930        | 2.5             | 1.3303           | 0.0000        | SURCHARGED |
| 4320 minute summer | S54        | 2880           | 5.374        | 1.045        | 2.6             | 1.4947           | 0.0000        | SURCHARGED |
| 4320 minute summer | S55        | 2880           | 5.373        | 1.108        | 2.8             | 1.5850           | 0.0000        | SURCHARGED |
| 4320 minute summer | S46        | 2880           | 5.372        | 1.246        | 10.2            | 1.7833           | 0.0000        | SURCHARGED |
| 4320 minute summer | S50        | 3000           | 5.372        | 1.270        | 11.1            | 0.0000           | 0.0000        | FLOOD RISK |
| 4320 minute summer | S47        | 2940           | 5.373        | 1.316        | 11.7            | 532.8891         | 0.0000        | FLOOD RISK |
| 4320 minute summer | S48        | 2940           | 5.373        | 1.326        | 6.6             | 1.8975           | 0.0000        | FLOOD RISK |
| 30 minute summer   | S49        | 1              | 4.940        | 0.953        | 0.0             | 0.0000           | 0.0000        | OK         |

| Link Event<br>(Upstream Depth) | US<br>Node | Link  | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m³) | Discharge<br>Vol (m³) |
|--------------------------------|------------|-------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 30 minute summer               | S40        | 1.000 | S41        | 35.9             | 0.507             | 0.222    | 3.4681           |                       |
| 30 minute summer               | S41        | 1.001 | S42        | 136.4            | 1.237             | 1.060    | 4.8936           |                       |
| 30 minute summer               | S42        | 1.002 | S43        | 180.9            | 1.640             | 1.410    | 1.2779           |                       |
| 30 minute summer               | S43        | 1.003 | S44        | 188.9            | 1.713             | 1.467    | 1.9809           |                       |
| 4320 minute summer             | S44        | 1.004 | S45        | 5.9              | 0.283             | 0.053    | 1.9198           |                       |
| 4320 minute summer             | S45        | 1.005 | S46        | 6.1              | 0.308             | 0.055    | 2.1264           |                       |
| 4320 minute summer             | S51        | 2.000 | S52        | 1.0              | 0.208             | 0.014    | 0.8875           |                       |
| 4320 minute summer             | S52        | 2.001 | S53        | 1.7              | 0.262             | 0.024    | 1.2188           |                       |
| 4320 minute summer             | S53        | 2.002 | S54        | 2.5              | 0.273             | 0.035    | 1.9722           |                       |
| 4320 minute summer             | S54        | 2.003 | S55        | 2.4              | 0.256             | 0.034    | 1.0799           |                       |
| 4320 minute summer             | S55        | 2.004 | S46        | 2.8              | 0.274             | 0.036    | 0.9591           |                       |
| 4320 minute summer             | S46        | 1.006 | S50        | 11.1             | 0.291             | 0.058    | 1.0839           |                       |
| 4320 minute summer             | S50        | 1.007 | S47        | 10.1             | 0.433             | 0.065    | 3.0416           |                       |
| 4320 minute summer             | S47        | 1.008 | S48        | 6.6              | 0.042             | 0.040    | 0.6064           |                       |
| 4320 minute summer             | S48        | 1.009 | S49        | 2.7              | 0.067             | 0.050    | 0.2248           | 462.1                 |