

### Design Settings

|                       |                   |                                      |               |
|-----------------------|-------------------|--------------------------------------|---------------|
| Rainfall Methodology  | FSR               | Maximum Time of Concentration (mins) | 30.00         |
| Return Period (years) | 100               | Maximum Rainfall (mm/hr)             | 50.0          |
| Additional Flow (%)   | 0                 | Minimum Velocity (m/s)               | 0.50          |
| FSR Region            | England and Wales | Connection Type                      | Level Soffits |
| M5-60 (mm)            | 20.000            | Minimum Backdrop Height (m)          | 0.200         |
| Ratio-R               | 0.300             | Preferred Cover Depth (m)            | 1.000         |
| CV                    | 0.750             | Include Intermediate Ground          | x             |
| Time of Entry (mins)  | 5.00              | Enforce best practice design rules   | x             |

### Nodes

| Name | Area (ha) | T of E (mins) | Cover Level (m) | Diameter (mm) | Easting (m) | Northing (m) | Depth (m) |
|------|-----------|---------------|-----------------|---------------|-------------|--------------|-----------|
| 1    | 0.010     | 5.00          | 71.000          | 450           | 498576.561  | 885422.432   | 1.150     |
| 2    | 0.005     | 5.00          | 71.000          | 450           | 498568.796  | 885447.312   | 1.263     |
| 5    | 0.005     | 5.00          | 71.000          | 450           | 498554.369  | 885420.394   | 1.150     |
| 3    | 0.000     |               | 71.000          | 450           | 498543.044  | 885439.230   | 1.380     |
| 4    |           |               | 71.000          | 1200          | 498527.276  | 885426.235   | 1.468     |

### 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) |
|-------|---------|---------|------------|-------------|-----------|-----------|----------|-------------|----------|---------------|--------------|
| 1.000 | 1       | 2       | 26.064     | 0.600       | 69.850    | 69.737    | 0.113    | 230.7       | 150      | 5.66          | 50.0         |
| 1.001 | 2       | 3       | 26.990     | 0.600       | 69.737    | 69.620    | 0.117    | 230.7       | 150      | 6.35          | 50.0         |
| 2.000 | 5       | 3       | 21.978     | 0.600       | 69.850    | 69.620    | 0.230    | 95.6        | 150      | 5.36          | 50.0         |
| 1.002 | 3       | 4       | 20.433     | 0.600       | 69.620    | 69.532    | 0.088    | 232.2       | 150      | 6.87          | 50.0         |

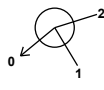
| Name  | Vel (m/s) | Cap (l/s) | Flow (l/s) | US Depth (m) | DS Depth (m) | Σ Area (ha) | Σ Add Inflow (l/s) | Pro Depth (mm) | Pro Velocity (m/s) |
|-------|-----------|-----------|------------|--------------|--------------|-------------|--------------------|----------------|--------------------|
| 1.000 | 0.657     | 11.6      | 1.4        | 1.000        | 1.113        | 0.010       | 0.0                | 35             | 0.441              |
| 1.001 | 0.657     | 11.6      | 2.0        | 1.113        | 1.230        | 0.015       | 0.0                | 42             | 0.495              |
| 2.000 | 1.028     | 18.2      | 0.7        | 1.000        | 1.230        | 0.005       | 0.0                | 20             | 0.486              |
| 1.002 | 0.655     | 11.6      | 2.7        | 1.230        | 1.318        | 0.020       | 0.0                | 50             | 0.536              |

### 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 | 26.064     | 230.7       | 150      | Circular_Default Sewer Type | 71.000    | 69.850    | 1.000        | 71.000    | 69.737    | 1.113        |
| 1.001 | 26.990     | 230.7       | 150      | Circular_Default Sewer Type | 71.000    | 69.737    | 1.113        | 71.000    | 69.620    | 1.230        |
| 2.000 | 21.978     | 95.6        | 150      | Circular_Default Sewer Type | 71.000    | 69.850    | 1.000        | 71.000    | 69.620    | 1.230        |
| 1.002 | 20.433     | 232.2       | 150      | Circular_Default Sewer Type | 71.000    | 69.620    | 1.230        | 71.000    | 69.532    | 1.318        |

| Link  | US Node | Dia (mm) | Node Type | MH Type   | DS Node | Dia (mm) | Node Type | MH Type   |
|-------|---------|----------|-----------|-----------|---------|----------|-----------|-----------|
| 1.000 | 1       | 450      | Manhole   | Adoptable | 2       | 450      | Manhole   | Adoptable |
| 1.001 | 2       | 450      | Manhole   | Adoptable | 3       | 450      | Manhole   | Adoptable |
| 2.000 | 5       | 450      | Manhole   | Adoptable | 3       | 450      | Manhole   | Adoptable |
| 1.002 | 3       | 450      | Manhole   | Adoptable | 4       | 1200     | Manhole   | Adoptable |

### Manhole Schedule

| Node | Easting (m) | Northing (m) | CL (m) | Depth (m) | Dia (mm) | Connections                                                                        | Link  | IL (m) | Dia (mm) |
|------|-------------|--------------|--------|-----------|----------|------------------------------------------------------------------------------------|-------|--------|----------|
| 1    | 498576.561  | 885422.432   | 71.000 | 1.150     | 450      |   |       |        |          |
|      |             |              |        |           |          | 0                                                                                  | 1.000 | 69.850 | 150      |
| 2    | 498568.796  | 885447.312   | 71.000 | 1.263     | 450      |   | 1     | 1.000  | 69.737   |
|      |             |              |        |           |          | 0                                                                                  | 1.001 | 69.737 | 150      |
| 5    | 498554.369  | 885420.394   | 71.000 | 1.150     | 450      |   |       |        |          |
|      |             |              |        |           |          | 0                                                                                  | 2.000 | 69.850 | 150      |
| 3    | 498543.044  | 885439.230   | 71.000 | 1.380     | 450      |  | 1     | 2.000  | 69.620   |
|      |             |              |        |           |          | 2                                                                                  | 1.001 | 69.620 | 150      |
|      |             |              |        |           |          | 0                                                                                  | 1.002 | 69.620 | 150      |
| 4    | 498527.276  | 885426.235   | 71.000 | 1.468     | 1200     |  | 1     | 1.002  | 69.532   |
|      |             |              |        |           |          |                                                                                    |       |        | 150      |

### Simulation Settings

|                      |                   |                            |      |
|----------------------|-------------------|----------------------------|------|
| Rainfall Methodology | FSR               | Drain Down Time (mins)     | 240  |
| FSR Region           | England and Wales | Additional Storage (m³/ha) | 20.0 |
| M5-60 (mm)           | 20.000            | Check Discharge Rate(s)    | ✓    |
| Ratio-R              | 0.300             | 1 year (l/s)               |      |
| Summer CV            | 0.750             | 30 year (l/s)              |      |
| Winter CV            | 0.840             | 100 year (l/s)             |      |
| Analysis Speed       | Normal            | Check Discharge Volume     | ✓    |
| Skip Steady State    | ✓                 | 100 year 360 minute (m³)   |      |

### Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

| Return Period (years) | Climate Change (CC %) | Additional Area (A %) | Additional Flow (Q %) |
|-----------------------|-----------------------|-----------------------|-----------------------|
| 100                   | 40                    | 0                     | 0                     |

### Pre-development Discharge Rate

|                              |            |                         |      |
|------------------------------|------------|-------------------------|------|
| Site Makeup                  | Greenfield | Growth Factor 30 years  | 1.95 |
| Greenfield Method            | IH124      | Growth Factor 100 years | 2.48 |
| Positively Drained Area (ha) |            | Betterment (%)          | 0    |
| SAAR (mm)                    |            | QBar                    |      |
| Soil Index                   | 1          | Q 1 year (l/s)          |      |
| SPR                          | 0.10       | Q 30 year (l/s)         |      |
| Region                       | 1          | Q 100 year (l/s)        |      |
| Growth Factor 1 year         | 0.85       |                         |      |

### Pre-development Discharge Volume

|                              |            |                                 |     |
|------------------------------|------------|---------------------------------|-----|
| Site Makeup                  | Greenfield | Return Period (years)           | 100 |
| Greenfield Method            | FSR/FEH    | Climate Change (%)              | 0   |
| Positively Drained Area (ha) |            | Storm Duration (mins)           | 360 |
| Soil Index                   | 1          | Betterment (%)                  | 0   |
| SPR                          | 0.10       | PR                              |     |
| CWI                          |            | Runoff Volume (m <sup>3</sup> ) |     |

### Node 4 Online Hydro-Brake® Control

|                          |        |                         |                                |
|--------------------------|--------|-------------------------|--------------------------------|
| Flap Valve               | x      | Objective               | (HE) Minimise upstream storage |
| Replaces Downstream Link | ✓      | Sump Available          | ✓                              |
| Invert Level (m)         | 69.532 | Product Number          | CTL-SHE-0031-5000-1200-5000    |
| Design Depth (m)         | 1.200  | Min Outlet Diameter (m) | 0.075                          |
| Design Flow (l/s)        | 0.5    | Min Node Diameter (mm)  | 1200                           |

### Node 4 Depth/Area Storage Structure

|                             |         |               |      |                           |        |
|-----------------------------|---------|---------------|------|---------------------------|--------|
| Base Inf Coefficient (m/hr) | 0.00000 | Safety Factor | 2.0  | Invert Level (m)          | 69.532 |
| Side Inf Coefficient (m/hr) | 0.00000 | Porosity      | 1.00 | Time to half empty (mins) | 0      |

| 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        | 25.0                      | 0.0                           | 0.750        | 35.0                      | 0.0                           |

### Approval Settings

|             |   |                         |       |                    |   |
|-------------|---|-------------------------|-------|--------------------|---|
| Node Size   | x | Cover Depth             | ✓     | Surcharged Depth   | x |
| Node Losses | x | Minimum Cover Depth (m) | 0.000 | Flooding           | x |
| Link Size   | x | Maximum Cover Depth (m) | 4.000 | Time to Half Empty | x |
| Link Length | x | Backdrops               | x     | Discharge Rates    | x |
| Coordinates | x | Full Bore Velocity      | x     | Discharge Volume   | x |
| Crossings   | x | Proportional Velocity   | x     |                    |   |

### Rainfall

| Event                              | Peak<br>Intensity<br>(mm/hr) | Average<br>Intensity<br>(mm/hr) | Event                               | Peak<br>Intensity<br>(mm/hr) | Average<br>Intensity<br>(mm/hr) |
|------------------------------------|------------------------------|---------------------------------|-------------------------------------|------------------------------|---------------------------------|
| 100 year +40% CC 15 minute summer  | 441.486                      | 124.925                         | 100 year +40% CC 360 minute summer  | 63.377                       | 16.309                          |
| 100 year +40% CC 15 minute winter  | 309.815                      | 124.925                         | 100 year +40% CC 360 minute winter  | 41.197                       | 16.309                          |
| 100 year +40% CC 30 minute summer  | 304.460                      | 86.152                          | 100 year +40% CC 480 minute summer  | 50.006                       | 13.215                          |
| 100 year +40% CC 30 minute winter  | 213.656                      | 86.152                          | 100 year +40% CC 480 minute winter  | 33.223                       | 13.215                          |
| 100 year +40% CC 60 minute summer  | 214.603                      | 56.713                          | 100 year +40% CC 600 minute summer  | 40.997                       | 11.214                          |
| 100 year +40% CC 60 minute winter  | 142.577                      | 56.713                          | 100 year +40% CC 600 minute winter  | 28.011                       | 11.214                          |
| 100 year +40% CC 120 minute summer | 135.791                      | 35.885                          | 100 year +40% CC 720 minute summer  | 36.560                       | 9.799                           |
| 100 year +40% CC 120 minute winter | 90.216                       | 35.885                          | 100 year +40% CC 720 minute winter  | 24.571                       | 9.799                           |
| 100 year +40% CC 180 minute summer | 104.615                      | 26.921                          | 100 year +40% CC 960 minute summer  | 30.041                       | 7.911                           |
| 100 year +40% CC 180 minute winter | 68.003                       | 26.921                          | 100 year +40% CC 960 minute winter  | 19.900                       | 7.911                           |
| 100 year +40% CC 240 minute summer | 82.776                       | 21.875                          | 100 year +40% CC 1440 minute summer | 21.775                       | 5.836                           |
| 100 year +40% CC 240 minute winter | 54.994                       | 21.875                          | 100 year +40% CC 1440 minute winter | 14.634                       | 5.836                           |

**Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.01%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 15 minute winter  | 1          | 10             | 69.923       | 0.073        | 5.7             | 0.0243           | 0.0000        | OK         |
| 360 minute winter | 2          | 344            | 69.870       | 0.133        | 1.5             | 0.0318           | 0.0000        | OK         |
| 15 minute winter  | 5          | 10             | 69.890       | 0.040        | 2.8             | 0.0097           | 0.0000        | OK         |
| 360 minute winter | 3          | 344            | 69.870       | 0.250        | 2.0             | 0.0398           | 0.0000        | SURCHARGED |
| 360 minute winter | 4          | 344            | 69.870       | 0.338        | 1.7             | 9.6078           | 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) |
|--------------------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 15 minute winter               | 1          | 1.000        | 2          | 5.6              | 0.568             | 0.480    | 0.2583           |                       |
| 360 minute winter              | 2          | 1.001        | 3          | 1.5              | 0.375             | 0.127    | 0.4610           |                       |
| 15 minute winter               | 5          | 2.000        | 3          | 2.8              | 0.461             | 0.152    | 0.1980           |                       |
| 360 minute winter              | 3          | 1.002        | 4          | 1.7              | 0.480             | 0.147    | 0.3597           |                       |
| 360 minute winter              | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 9.2                   |

**Results for 100 year +40% CC 15 minute summer. 255 minute analysis at 1 minute timestep. Mass balance: 100.00%**

| 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 |
|------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|--------|
| 15 minute summer | 1          | 10             | 69.921       | 0.071        | 5.4             | 0.0236           | 0.0000        | OK     |
| 15 minute summer | 2          | 11             | 69.827       | 0.090        | 8.0             | 0.0214           | 0.0000        | OK     |
| 15 minute summer | 5          | 10             | 69.889       | 0.039        | 2.7             | 0.0095           | 0.0000        | OK     |
| 15 minute summer | 3          | 11             | 69.731       | 0.111        | 10.5            | 0.0177           | 0.0000        | OK     |
| 15 minute summer | 4          | 20             | 69.678       | 0.146        | 10.4            | 3.9466           | 0.0000        | OK     |

| Link Event       | 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) |
|------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 15 minute summer | 1          | 1.000        | 2          | 5.3              | 0.568             | 0.457    | 0.2494           |                       |
| 15 minute summer | 2          | 1.001        | 3          | 7.9              | 0.629             | 0.680    | 0.3380           |                       |
| 15 minute summer | 5          | 2.000        | 3          | 2.7              | 0.459             | 0.147    | 0.1931           |                       |
| 15 minute summer | 3          | 1.002        | 4          | 10.4             | 1.092             | 0.902    | 0.2579           |                       |
| 15 minute summer | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 4.0                   |

**Results for 100 year +40% CC 15 minute winter. 255 minute analysis at 1 minute timestep. Mass balance: 100.00%**

| 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 |
|------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|--------|
| 15 minute winter | 1          | 10             | 69.923       | 0.073        | 5.7             | 0.0243           | 0.0000        | OK     |
| 15 minute winter | 2          | 11             | 69.830       | 0.093        | 8.4             | 0.0221           | 0.0000        | OK     |
| 15 minute winter | 5          | 10             | 69.890       | 0.040        | 2.8             | 0.0097           | 0.0000        | OK     |
| 15 minute winter | 3          | 11             | 69.734       | 0.114        | 11.0            | 0.0181           | 0.0000        | OK     |
| 15 minute winter | 4          | 22             | 69.694       | 0.162        | 10.8            | 4.3970           | 0.0000        | OK     |

| Link Event       | 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) |
|------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 15 minute winter | 1          | 1.000        | 2          | 5.6              | 0.568             | 0.480    | 0.2583           |                       |
| 15 minute winter | 2          | 1.001        | 3          | 8.3              | 0.640             | 0.713    | 0.3484           |                       |
| 15 minute winter | 5          | 2.000        | 3          | 2.8              | 0.461             | 0.152    | 0.1980           |                       |
| 15 minute winter | 3          | 1.002        | 4          | 10.8             | 1.099             | 0.934    | 0.2799           |                       |
| 15 minute winter | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 4.3                   |

**Results for 100 year +40% CC 30 minute summer. 270 minute analysis at 1 minute timestep. Mass balance: 100.00%**

| 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 | 1          | 18             | 69.919       | 0.069        | 5.1             | 0.0230           | 0.0000        | OK     |
| 30 minute summer | 2          | 18             | 69.825       | 0.088        | 7.7             | 0.0209           | 0.0000        | OK     |
| 30 minute summer | 5          | 18             | 69.888       | 0.038        | 2.6             | 0.0094           | 0.0000        | OK     |
| 30 minute summer | 3          | 19             | 69.731       | 0.111        | 10.2            | 0.0176           | 0.0000        | OK     |
| 30 minute summer | 4          | 36             | 69.723       | 0.191        | 9.8             | 5.2438           | 0.0000        | OK     |

| Link Event       | 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 | 1          | 1.000        | 2          | 5.1              | 0.551             | 0.438    | 0.2429           |                       |
| 30 minute summer | 2          | 1.001        | 3          | 7.6              | 0.632             | 0.655    | 0.3302           |                       |
| 30 minute summer | 5          | 2.000        | 3          | 2.6              | 0.425             | 0.143    | 0.1899           |                       |
| 30 minute summer | 3          | 1.002        | 4          | 9.8              | 0.870             | 0.846    | 0.3119           |                       |
| 30 minute summer | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 4.7                   |

**Results for 100 year +40% CC 30 minute winter. 270 minute analysis at 1 minute timestep. Mass balance: 100.00%**

| 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 winter | 1          | 18             | 69.915       | 0.065        | 4.6             | 0.0217           | 0.0000        | OK     |
| 30 minute winter | 2          | 18             | 69.819       | 0.082        | 6.9             | 0.0195           | 0.0000        | OK     |
| 30 minute winter | 5          | 18             | 69.886       | 0.036        | 2.3             | 0.0089           | 0.0000        | OK     |
| 30 minute winter | 3          | 36             | 69.746       | 0.126        | 9.1             | 0.0201           | 0.0000        | OK     |
| 30 minute winter | 4          | 35             | 69.746       | 0.214        | 9.1             | 5.9097           | 0.0000        | OK     |

| Link Event       | 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 winter | 1          | 1.000        | 2          | 4.6              | 0.537             | 0.396    | 0.2241           |                       |
| 30 minute winter | 2          | 1.001        | 3          | 6.8              | 0.609             | 0.588    | 0.3077           |                       |
| 30 minute winter | 5          | 2.000        | 3          | 2.3              | 0.440             | 0.127    | 0.1794           |                       |
| 30 minute winter | 3          | 1.002        | 4          | 9.1              | 0.832             | 0.786    | 0.3417           |                       |
| 30 minute winter | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 4.8                   |

**Results for 100 year +40% CC 60 minute summer. 300 minute analysis at 1 minute timestep. Mass balance: 100.00%**

| 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 |
|------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|--------|
| 60 minute summer | 1          | 33             | 69.910       | 0.060        | 4.0             | 0.0201           | 0.0000        | OK     |
| 60 minute summer | 2          | 33             | 69.812       | 0.075        | 6.0             | 0.0179           | 0.0000        | OK     |
| 60 minute summer | 5          | 33             | 69.884       | 0.034        | 2.0             | 0.0083           | 0.0000        | OK     |
| 60 minute summer | 3          | 64             | 69.769       | 0.149        | 7.9             | 0.0238           | 0.0000        | OK     |
| 60 minute summer | 4          | 63             | 69.769       | 0.237        | 7.9             | 6.5817           | 0.0000        | OK     |

| Link Event       | 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) |
|------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 60 minute summer | 1          | 1.000        | 2          | 4.0              | 0.519             | 0.344    | 0.2017           |                       |
| 60 minute summer | 2          | 1.001        | 3          | 5.9              | 0.594             | 0.510    | 0.2751           |                       |
| 60 minute summer | 5          | 2.000        | 3          | 2.0              | 0.382             | 0.110    | 0.1997           |                       |
| 60 minute summer | 3          | 1.002        | 4          | 7.9              | 0.645             | 0.683    | 0.3595           |                       |
| 60 minute summer | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 5.2                   |

**Results for 100 year +40% CC 60 minute winter. 300 minute analysis at 1 minute timestep. Mass balance: 99.63%**

| Node Event       | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 60 minute winter | 1       | 34          | 69.904    | 0.053     | 3.2          | 0.0178        | 0.0000     | OK         |
| 60 minute winter | 2       | 34          | 69.804    | 0.067     | 4.8          | 0.0159        | 0.0000     | OK         |
| 60 minute winter | 5       | 33          | 69.880    | 0.030     | 1.6          | 0.0074        | 0.0000     | OK         |
| 60 minute winter | 3       | 63          | 69.799    | 0.179     | 6.4          | 0.0284        | 0.0000     | SURCHARGED |
| 60 minute winter | 4       | 63          | 69.799    | 0.267     | 6.3          | 7.4464        | 0.0000     | OK         |

| Link Event       | US Node | Link         | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|------------------|---------|--------------|---------|---------------|----------------|----------|---------------|--------------------|
| 60 minute winter | 1       | 1.000        | 2       | 3.2           | 0.488          | 0.275    | 0.1721        |                    |
| 60 minute winter | 2       | 1.001        | 3       | 4.8           | 0.569          | 0.413    | 0.3293        |                    |
| 60 minute winter | 5       | 2.000        | 3       | 1.6           | 0.372          | 0.088    | 0.2086        |                    |
| 60 minute winter | 3       | 1.002        | 4       | 6.3           | 0.719          | 0.547    | 0.3597        |                    |
| 60 minute winter | 4       | Hydro-Brake® |         | 0.3           |                |          |               | 5.1                |

**Results for 100 year +40% CC 120 minute summer. 360 minute analysis at 2 minute timestep. Mass balance: 99.50%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 120 minute summer | 1          | 64             | 69.899       | 0.049        | 2.7             | 0.0163           | 0.0000        | OK         |
| 120 minute summer | 2          | 122            | 69.811       | 0.074        | 4.1             | 0.0175           | 0.0000        | OK         |
| 120 minute summer | 5          | 64             | 69.878       | 0.028        | 1.4             | 0.0069           | 0.0000        | OK         |
| 120 minute summer | 3          | 122            | 69.810       | 0.190        | 5.5             | 0.0303           | 0.0000        | SURCHARGED |
| 120 minute summer | 4          | 124            | 69.811       | 0.279        | 5.0             | 7.7976           | 0.0000        | OK         |

| Link Event        | 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) |
|-------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 120 minute summer | 1          | 1.000        | 2          | 2.7              | 0.464             | 0.232    | 0.1527           |                       |
| 120 minute summer | 2          | 1.001        | 3          | 4.1              | 0.544             | 0.352    | 0.3534           |                       |
| 120 minute summer | 5          | 2.000        | 3          | 1.4              | 0.308             | 0.077    | 0.2073           |                       |
| 120 minute summer | 3          | 1.002        | 4          | 5.0              | 0.557             | 0.433    | 0.3597           |                       |
| 120 minute summer | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 5.8                   |

**Results for 100 year +40% CC 120 minute winter. 360 minute analysis at 2 minute timestep. Mass balance: 99.16%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 120 minute winter | 1          | 64             | 69.893       | 0.043        | 2.1             | 0.0143           | 0.0000        | OK         |
| 120 minute winter | 2          | 120            | 69.846       | 0.109        | 3.1             | 0.0260           | 0.0000        | OK         |
| 120 minute winter | 5          | 64             | 69.874       | 0.024        | 1.0             | 0.0059           | 0.0000        | OK         |
| 120 minute winter | 3          | 120            | 69.846       | 0.226        | 4.1             | 0.0359           | 0.0000        | SURCHARGED |
| 120 minute winter | 4          | 122            | 69.846       | 0.314        | 3.7             | 8.8654           | 0.0000        | OK         |

| Link Event        | 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) |
|-------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 120 minute winter | 1          | 1.000        | 2          | 2.1              | 0.436             | 0.181    | 0.1903           |                       |
| 120 minute winter | 2          | 1.001        | 3          | 3.1              | 0.498             | 0.266    | 0.4232           |                       |
| 120 minute winter | 5          | 2.000        | 3          | 1.0              | 0.292             | 0.055    | 0.2107           |                       |
| 120 minute winter | 3          | 1.002        | 4          | 3.7              | 0.616             | 0.319    | 0.3597           |                       |
| 120 minute winter | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 5.7                   |

**Results for 100 year +40% CC 180 minute summer. 420 minute analysis at 4 minute timestep. Mass balance: 99.40%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 180 minute summer | 1          | 96             | 69.892       | 0.042        | 2.0             | 0.0140           | 0.0000        | OK         |
| 180 minute summer | 2          | 180            | 69.824       | 0.087        | 3.0             | 0.0207           | 0.0000        | OK         |
| 180 minute summer | 5          | 96             | 69.874       | 0.024        | 1.0             | 0.0059           | 0.0000        | OK         |
| 180 minute summer | 3          | 184            | 69.824       | 0.204        | 4.0             | 0.0324           | 0.0000        | SURCHARGED |
| 180 minute summer | 4          | 184            | 69.824       | 0.292        | 3.4             | 8.1971           | 0.0000        | OK         |

| Link Event        | 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) |
|-------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 180 minute summer | 1          | 1.000        | 2          | 2.0              | 0.427             | 0.172    | 0.1482           |                       |
| 180 minute summer | 2          | 1.001        | 3          | 3.0              | 0.479             | 0.258    | 0.3803           |                       |
| 180 minute summer | 5          | 2.000        | 3          | 1.0              | 0.307             | 0.055    | 0.2072           |                       |
| 180 minute summer | 3          | 1.002        | 4          | 3.4              | 0.532             | 0.289    | 0.3597           |                       |
| 180 minute summer | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 6.5                   |

**Results for 100 year +40% CC 180 minute winter. 420 minute analysis at 4 minute timestep. Mass balance: 99.01%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 180 minute winter | 1          | 96             | 69.887       | 0.037        | 1.6             | 0.0125           | 0.0000        | OK         |
| 180 minute winter | 2          | 180            | 69.859       | 0.122        | 2.4             | 0.0290           | 0.0000        | OK         |
| 180 minute winter | 5          | 96             | 69.871       | 0.021        | 0.8             | 0.0053           | 0.0000        | OK         |
| 180 minute winter | 3          | 180            | 69.859       | 0.239        | 3.2             | 0.0380           | 0.0000        | SURCHARGED |
| 180 minute winter | 4          | 180            | 69.859       | 0.327        | 2.7             | 9.2468           | 0.0000        | OK         |

| Link Event        | 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) |
|-------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 180 minute winter | 1          | 1.000        | 2          | 1.6              | 0.401             | 0.138    | 0.2096           |                       |
| 180 minute winter | 2          | 1.001        | 3          | 2.4              | 0.453             | 0.207    | 0.4441           |                       |
| 180 minute winter | 5          | 2.000        | 3          | 0.8              | 0.335             | 0.044    | 0.2075           |                       |
| 180 minute winter | 3          | 1.002        | 4          | 2.7              | 0.515             | 0.235    | 0.3597           |                       |
| 180 minute winter | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 6.5                   |

**Results for 100 year +40% CC 240 minute summer. 480 minute analysis at 4 minute timestep. Mass balance: 99.37%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 240 minute summer | 1          | 124            | 69.888       | 0.038        | 1.7             | 0.0128           | 0.0000        | OK         |
| 240 minute summer | 2          | 240            | 69.831       | 0.094        | 2.6             | 0.0225           | 0.0000        | OK         |
| 240 minute summer | 5          | 124            | 69.873       | 0.023        | 0.9             | 0.0056           | 0.0000        | OK         |
| 240 minute summer | 3          | 240            | 69.831       | 0.211        | 3.4             | 0.0336           | 0.0000        | SURCHARGED |
| 240 minute summer | 4          | 240            | 69.831       | 0.299        | 2.9             | 8.4214           | 0.0000        | OK         |

| Link Event        | 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) |
|-------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 240 minute summer | 1          | 1.000        | 2          | 1.7              | 0.405             | 0.145    | 0.1616           |                       |
| 240 minute summer | 2          | 1.001        | 3          | 2.5              | 0.452             | 0.219    | 0.3952           |                       |
| 240 minute summer | 5          | 2.000        | 3          | 0.9              | 0.318             | 0.049    | 0.2058           |                       |
| 240 minute summer | 3          | 1.002        | 4          | 2.9              | 0.520             | 0.251    | 0.3597           |                       |
| 240 minute summer | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 7.4                   |

**Results for 100 year +40% CC 240 minute winter. 480 minute analysis at 4 minute timestep. Mass balance: 99.04%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 240 minute winter | 1          | 124            | 69.884       | 0.034        | 1.3             | 0.0112           | 0.0000        | OK         |
| 240 minute winter | 2          | 236            | 69.862       | 0.125        | 1.9             | 0.0297           | 0.0000        | OK         |
| 240 minute winter | 5          | 120            | 69.869       | 0.019        | 0.6             | 0.0046           | 0.0000        | OK         |
| 240 minute winter | 3          | 236            | 69.862       | 0.242        | 2.5             | 0.0384           | 0.0000        | SURCHARGED |
| 240 minute winter | 4          | 236            | 69.862       | 0.330        | 2.1             | 9.3396           | 0.0000        | OK         |

| Link Event        | 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) |
|-------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 240 minute winter | 1          | 1.000        | 2          | 1.3              | 0.382             | 0.112    | 0.2138           |                       |
| 240 minute winter | 2          | 1.001        | 3          | 1.9              | 0.420             | 0.164    | 0.4488           |                       |
| 240 minute winter | 5          | 2.000        | 3          | 0.6              | 0.273             | 0.033    | 0.2059           |                       |
| 240 minute winter | 3          | 1.002        | 4          | 2.1              | 0.521             | 0.186    | 0.3597           |                       |
| 240 minute winter | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 7.4                   |

**Results for 100 year +40% CC 360 minute summer. 600 minute analysis at 8 minute timestep. Mass balance: 99.37%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 360 minute summer | 1          | 184            | 69.884       | 0.034        | 1.3             | 0.0112           | 0.0000        | OK         |
| 360 minute summer | 2          | 360            | 69.840       | 0.103        | 2.0             | 0.0245           | 0.0000        | OK         |
| 360 minute summer | 5          | 184            | 69.870       | 0.020        | 0.7             | 0.0049           | 0.0000        | OK         |
| 360 minute summer | 3          | 360            | 69.840       | 0.220        | 2.6             | 0.0350           | 0.0000        | SURCHARGED |
| 360 minute summer | 4          | 360            | 69.840       | 0.308        | 2.2             | 8.6769           | 0.0000        | OK         |

| Link Event        | 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) |
|-------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 360 minute summer | 1          | 1.000        | 2          | 1.3              | 0.374             | 0.111    | 0.1744           |                       |
| 360 minute summer | 2          | 1.001        | 3          | 2.0              | 0.401             | 0.168    | 0.4115           |                       |
| 360 minute summer | 5          | 2.000        | 3          | 0.7              | 0.211             | 0.038    | 0.2040           |                       |
| 360 minute summer | 3          | 1.002        | 4          | 2.2              | 0.445             | 0.194    | 0.3597           |                       |
| 360 minute summer | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 9.1                   |

**Results for 100 year +40% CC 360 minute winter. 600 minute analysis at 8 minute timestep. Mass balance: 99.07%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 360 minute winter | 1          | 184            | 69.880       | 0.030        | 1.0             | 0.0098           | 0.0000        | OK         |
| 360 minute winter | 2          | 344            | 69.870       | 0.133        | 1.5             | 0.0318           | 0.0000        | OK         |
| 360 minute winter | 5          | 344            | 69.871       | 0.021        | 0.5             | 0.0050           | 0.0000        | OK         |
| 360 minute winter | 3          | 344            | 69.870       | 0.250        | 2.0             | 0.0398           | 0.0000        | SURCHARGED |
| 360 minute winter | 4          | 344            | 69.870       | 0.338        | 1.7             | 9.6078           | 0.0000        | OK         |

| Link Event        | 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) |
|-------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 360 minute winter | 1          | 1.000        | 2          | 1.0              | 0.350             | 0.085    | 0.2345           |                       |
| 360 minute winter | 2          | 1.001        | 3          | 1.5              | 0.375             | 0.127    | 0.4610           |                       |
| 360 minute winter | 5          | 2.000        | 3          | 0.5              | 0.198             | 0.028    | 0.2093           |                       |
| 360 minute winter | 3          | 1.002        | 4          | 1.7              | 0.480             | 0.147    | 0.3597           |                       |
| 360 minute winter | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 9.2                   |

**Results for 100 year +40% CC 480 minute summer. 720 minute analysis at 8 minute timestep. Mass balance: 99.57%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 480 minute summer | 1          | 248            | 69.880       | 0.030        | 1.0             | 0.0099           | 0.0000        | OK         |
| 480 minute summer | 2          | 440            | 69.831       | 0.094        | 1.5             | 0.0225           | 0.0000        | OK         |
| 480 minute summer | 5          | 240            | 69.867       | 0.017        | 0.5             | 0.0042           | 0.0000        | OK         |
| 480 minute summer | 3          | 440            | 69.831       | 0.211        | 2.0             | 0.0336           | 0.0000        | SURCHARGED |
| 480 minute summer | 4          | 440            | 69.831       | 0.299        | 1.7             | 8.4182           | 0.0000        | OK         |

| Link Event        | 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) |
|-------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 480 minute summer | 1          | 1.000        | 2          | 1.0              | 0.350             | 0.086    | 0.1585           |                       |
| 480 minute summer | 2          | 1.001        | 3          | 1.5              | 0.386             | 0.129    | 0.3951           |                       |
| 480 minute summer | 5          | 2.000        | 3          | 0.5              | 0.194             | 0.028    | 0.2022           |                       |
| 480 minute summer | 3          | 1.002        | 4          | 1.7              | 0.360             | 0.148    | 0.3597           |                       |
| 480 minute summer | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 10.7                  |

**Results for 100 year +40% CC 480 minute winter. 720 minute analysis at 8 minute timestep. Mass balance: 99.02%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 480 minute winter | 1          | 240            | 69.877       | 0.027        | 0.8             | 0.0089           | 0.0000        | OK         |
| 480 minute winter | 2          | 392            | 69.869       | 0.132        | 1.2             | 0.0314           | 0.0000        | OK         |
| 480 minute winter | 5          | 392            | 69.869       | 0.019        | 0.4             | 0.0046           | 0.0000        | OK         |
| 480 minute winter | 3          | 392            | 69.869       | 0.249        | 1.6             | 0.0396           | 0.0000        | SURCHARGED |
| 480 minute winter | 4          | 392            | 69.869       | 0.337        | 1.4             | 9.5579           | 0.0000        | OK         |

| Link Event        | 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) |
|-------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 480 minute winter | 1          | 1.000        | 2          | 0.8              | 0.328             | 0.069    | 0.2304           |                       |
| 480 minute winter | 2          | 1.001        | 3          | 1.2              | 0.353             | 0.103    | 0.4589           |                       |
| 480 minute winter | 5          | 2.000        | 3          | 0.4              | 0.184             | 0.022    | 0.2075           |                       |
| 480 minute winter | 3          | 1.002        | 4          | 1.4              | 0.430             | 0.123    | 0.3597           |                       |
| 480 minute winter | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 10.9                  |

**Results for 100 year +40% CC 600 minute summer. 840 minute analysis at 15 minute timestep. Mass balance: 99.78%**

| Node Event        | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|-------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 600 minute summer | 1       | 315         | 69.878    | 0.028     | 0.9          | 0.0094        | 0.0000     | OK         |
| 600 minute summer | 2       | 495         | 69.822    | 0.085     | 1.3          | 0.0202        | 0.0000     | OK         |
| 600 minute summer | 5       | 315         | 69.865    | 0.015     | 0.4          | 0.0038        | 0.0000     | OK         |
| 600 minute summer | 3       | 495         | 69.822    | 0.202     | 1.7          | 0.0321        | 0.0000     | SURCHARGED |
| 600 minute summer | 4       | 495         | 69.822    | 0.290     | 1.5          | 8.1273        | 0.0000     | OK         |

| Link Event        | US Node | Link         | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|-------------------|---------|--------------|---------|---------------|----------------|----------|---------------|--------------------|
| 600 minute summer | 1       | 1.000        | 2       | 0.9           | 0.345          | 0.077    | 0.1400        |                    |
| 600 minute summer | 2       | 1.001        | 3       | 1.3           | 0.368          | 0.112    | 0.3759        |                    |
| 600 minute summer | 5       | 2.000        | 3       | 0.4           | 0.186          | 0.022    | 0.2020        |                    |
| 600 minute summer | 3       | 1.002        | 4       | 1.5           | 0.355          | 0.127    | 0.3597        |                    |
| 600 minute summer | 4       | Hydro-Brake® |         | 0.3           |                |          |               | 12.0               |

**Results for 100 year +40% CC 600 minute winter. 840 minute analysis at 15 minute timestep. Mass balance: 99.05%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 600 minute winter | 1          | 315            | 69.875       | 0.025        | 0.7             | 0.0083           | 0.0000        | OK         |
| 600 minute winter | 2          | 480            | 69.868       | 0.131        | 1.0             | 0.0311           | 0.0000        | OK         |
| 600 minute winter | 5          | 480            | 69.868       | 0.018        | 0.3             | 0.0044           | 0.0000        | OK         |
| 600 minute winter | 3          | 480            | 69.868       | 0.248        | 1.3             | 0.0394           | 0.0000        | SURCHARGED |
| 600 minute winter | 4          | 480            | 69.868       | 0.336        | 1.1             | 9.5262           | 0.0000        | OK         |

| Link Event        | 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) |
|-------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 600 minute winter | 1          | 1.000        | 2          | 0.7              | 0.321             | 0.060    | 0.2278           |                       |
| 600 minute winter | 2          | 1.001        | 3          | 1.0              | 0.338             | 0.086    | 0.4576           |                       |
| 600 minute winter | 5          | 2.000        | 3          | 0.3              | 0.186             | 0.017    | 0.2064           |                       |
| 600 minute winter | 3          | 1.002        | 4          | 1.1              | 0.445             | 0.099    | 0.3597           |                       |
| 600 minute winter | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 12.8                  |

**Results for 100 year +40% CC 720 minute summer. 960 minute analysis at 15 minute timestep. Mass balance: 100.00%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 720 minute summer | 1          | 375            | 69.877       | 0.027        | 0.8             | 0.0089           | 0.0000        | OK         |
| 720 minute summer | 2          | 555            | 69.821       | 0.084        | 1.2             | 0.0200           | 0.0000        | OK         |
| 720 minute summer | 5          | 375            | 69.865       | 0.015        | 0.4             | 0.0038           | 0.0000        | OK         |
| 720 minute summer | 3          | 555            | 69.821       | 0.201        | 1.6             | 0.0320           | 0.0000        | SURCHARGED |
| 720 minute summer | 4          | 555            | 69.821       | 0.289        | 1.4             | 8.1096           | 0.0000        | OK         |

| Link Event        | 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) |
|-------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 720 minute summer | 1          | 1.000        | 2          | 0.8              | 0.328             | 0.069    | 0.1389           |                       |
| 720 minute summer | 2          | 1.001        | 3          | 1.2              | 0.338             | 0.103    | 0.3748           |                       |
| 720 minute summer | 5          | 2.000        | 3          | 0.4              | 0.186             | 0.022    | 0.2016           |                       |
| 720 minute summer | 3          | 1.002        | 4          | 1.4              | 0.355             | 0.120    | 0.3597           |                       |
| 720 minute summer | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 13.5                  |

**Results for 100 year +40% CC 720 minute winter. 960 minute analysis at 15 minute timestep. Mass balance: 99.24%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 720 minute winter | 1          | 360            | 69.873       | 0.023        | 0.6             | 0.0077           | 0.0000        | OK         |
| 720 minute winter | 2          | 555            | 69.861       | 0.124        | 0.9             | 0.0295           | 0.0000        | OK         |
| 720 minute winter | 5          | 345            | 69.863       | 0.013        | 0.3             | 0.0033           | 0.0000        | OK         |
| 720 minute winter | 3          | 555            | 69.861       | 0.241        | 1.2             | 0.0383           | 0.0000        | SURCHARGED |
| 720 minute winter | 4          | 555            | 69.861       | 0.329        | 1.1             | 9.3092           | 0.0000        | OK         |

| Link Event        | 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) |
|-------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 720 minute winter | 1          | 1.000        | 2          | 0.6              | 0.301             | 0.052    | 0.2107           |                       |
| 720 minute winter | 2          | 1.001        | 3          | 0.9              | 0.314             | 0.077    | 0.4473           |                       |
| 720 minute winter | 5          | 2.000        | 3          | 0.3              | 0.167             | 0.017    | 0.2020           |                       |
| 720 minute winter | 3          | 1.002        | 4          | 1.1              | 0.345             | 0.094    | 0.3597           |                       |
| 720 minute winter | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 14.3                  |

**Results for 100 year +40% CC 960 minute summer. 1200 minute analysis at 15 minute timestep. Mass balance: 100.00%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 960 minute summer | 1          | 480            | 69.873       | 0.023        | 0.6             | 0.0077           | 0.0000        | OK         |
| 960 minute summer | 2          | 690            | 69.811       | 0.074        | 0.9             | 0.0176           | 0.0000        | OK         |
| 960 minute summer | 5          | 480            | 69.863       | 0.013        | 0.3             | 0.0033           | 0.0000        | OK         |
| 960 minute summer | 3          | 690            | 69.811       | 0.191        | 1.2             | 0.0303           | 0.0000        | SURCHARGED |
| 960 minute summer | 4          | 690            | 69.811       | 0.279        | 1.1             | 7.8021           | 0.0000        | OK         |

| Link Event        | 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) |
|-------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 960 minute summer | 1          | 1.000        | 2          | 0.6              | 0.302             | 0.052    | 0.1189           |                       |
| 960 minute summer | 2          | 1.001        | 3          | 0.9              | 0.333             | 0.077    | 0.3541           |                       |
| 960 minute summer | 5          | 2.000        | 3          | 0.3              | 0.167             | 0.017    | 0.1999           |                       |
| 960 minute summer | 3          | 1.002        | 4          | 1.1              | 0.355             | 0.091    | 0.3597           |                       |
| 960 minute summer | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 16.7                  |

**Results for 100 year +40% CC 960 minute winter. 1200 minute analysis at 15 minute timestep. Mass balance: 100.00%**

| 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     |
|-------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 960 minute winter | 1          | 480            | 69.871       | 0.021        | 0.5             | 0.0070           | 0.0000        | OK         |
| 960 minute winter | 2          | 735            | 69.830       | 0.093        | 0.7             | 0.0222           | 0.0000        | OK         |
| 960 minute winter | 5          | 390            | 69.861       | 0.011        | 0.2             | 0.0027           | 0.0000        | OK         |
| 960 minute winter | 3          | 735            | 69.830       | 0.210        | 0.9             | 0.0334           | 0.0000        | SURCHARGED |
| 960 minute winter | 4          | 735            | 69.830       | 0.298        | 0.8             | 8.3803           | 0.0000        | OK         |

| Link Event        | 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) |
|-------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 960 minute winter | 1          | 1.000        | 2          | 0.5              | 0.293             | 0.043    | 0.1562           |                       |
| 960 minute winter | 2          | 1.001        | 3          | 0.7              | 0.314             | 0.060    | 0.3926           |                       |
| 960 minute winter | 5          | 2.000        | 3          | 0.2              | 0.167             | 0.011    | 0.1999           |                       |
| 960 minute winter | 3          | 1.002        | 4          | 0.8              | 0.345             | 0.070    | 0.3597           |                       |
| 960 minute winter | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 17.0                  |

**Results for 100 year +40% CC 1440 minute summer. 1680 minute analysis at 30 minute timestep. Mass balance: 100.00%**

| 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     |
|--------------------|------------|----------------|--------------|--------------|-----------------|------------------|---------------|------------|
| 1440 minute summer | 1          | 750            | 69.871       | 0.021        | 0.5             | 0.0070           | 0.0000        | OK         |
| 1440 minute summer | 2          | 930            | 69.782       | 0.045        | 0.7             | 0.0106           | 0.0000        | OK         |
| 1440 minute summer | 5          | 690            | 69.861       | 0.011        | 0.2             | 0.0027           | 0.0000        | OK         |
| 1440 minute summer | 3          | 930            | 69.782       | 0.162        | 0.9             | 0.0257           | 0.0000        | SURCHARGED |
| 1440 minute summer | 4          | 930            | 69.782       | 0.250        | 0.8             | 6.9389           | 0.0000        | OK         |

| Link Event         | 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) |
|--------------------|------------|--------------|------------|------------------|-------------------|----------|------------------|-----------------------|
| 1440 minute summer | 1          | 1.000        | 2          | 0.5              | 0.293             | 0.043    | 0.0642           |                       |
| 1440 minute summer | 2          | 1.001        | 3          | 0.7              | 0.314             | 0.060    | 0.2970           |                       |
| 1440 minute summer | 5          | 2.000        | 3          | 0.2              | 0.167             | 0.011    | 0.1975           |                       |
| 1440 minute summer | 3          | 1.002        | 4          | 0.8              | 0.333             | 0.069    | 0.3597           |                       |
| 1440 minute summer | 4          | Hydro-Brake® |            | 0.3              |                   |          |                  | 18.2                  |

**Results for 100 year +40% CC 1440 minute winter. 1680 minute analysis at 30 minute timestep. Mass balance: 99.76%**

| Node Event         | US<br>Node | Peak<br>(mins) | Level<br>(m) | Depth<br>(m) | Inflow<br>(l/s) | Node<br>Vol (m <sup>3</sup> ) | Flood<br>(m <sup>3</sup> ) | Status     |
|--------------------|------------|----------------|--------------|--------------|-----------------|-------------------------------|----------------------------|------------|
| 1440 minute winter | 1          | 630            | 69.867       | 0.017        | 0.3             | 0.0055                        | 0.0000                     | OK         |
| 1440 minute winter | 2          | 990            | 69.784       | 0.047        | 0.5             | 0.0112                        | 0.0000                     | OK         |
| 1440 minute winter | 5          | 690            | 69.861       | 0.011        | 0.2             | 0.0027                        | 0.0000                     | OK         |
| 1440 minute winter | 3          | 990            | 69.784       | 0.164        | 0.7             | 0.0261                        | 0.0000                     | SURCHARGED |
| 1440 minute winter | 4          | 990            | 69.784       | 0.252        | 0.7             | 7.0033                        | 0.0000                     | OK         |

| Link Event         | US<br>Node | Link         | DS<br>Node | Outflow<br>(l/s) | Velocity<br>(m/s) | Flow/Cap | Link<br>Vol (m <sup>3</sup> ) | Discharge<br>Vol (m <sup>3</sup> ) |
|--------------------|------------|--------------|------------|------------------|-------------------|----------|-------------------------------|------------------------------------|
| 1440 minute winter | 1          | 1.000        | 2          | 0.3              | 0.256             | 0.026    | 0.0681                        |                                    |
| 1440 minute winter | 2          | 1.001        | 3          | 0.5              | 0.294             | 0.043    | 0.3010                        |                                    |
| 1440 minute winter | 5          | 2.000        | 3          | 0.2              | 0.167             | 0.011    | 0.1975                        |                                    |
| 1440 minute winter | 3          | 1.002        | 4          | 0.7              | 0.333             | 0.059    | 0.3597                        |                                    |
| 1440 minute winter | 4          | Hydro-Brake® |            | 0.3              |                   |          |                               | 22.0                               |