

### 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)        | 0.200         |
| CV                                   | 0.750  | Preferred Cover Depth (m)          | 1.200         |
| Time of Entry (mins)                 | 5.00   | Include Intermediate Ground        | ✓             |
| Maximum Time of Concentration (mins) | 30.00  | Enforce best practice design rules | ✓             |
| Maximum Rainfall (mm/hr)             | 50.0   |                                    |               |

### Adoptable Manhole Type

| Max Width (mm) | Diameter (mm) | Max Width (mm) | Diameter (mm) |
|----------------|---------------|----------------|---------------|
| 374            | 1200          | 749            | 1500          |
| 499            | 1350          | 900            | 1800          |

>900 Link+900 mm

| Max Depth (m) | Diameter (mm) | Max Depth (m) | Diameter (mm) |
|---------------|---------------|---------------|---------------|
| 1.500         | 1050          | 99.999        | 1200          |

### Nodes

| Name | Area (ha) | T of E (mins) | Add Inflow (l/s) | Cover Level (m) | Diameter (mm) | Easting (m) | Northing (m) | Depth (m) |
|------|-----------|---------------|------------------|-----------------|---------------|-------------|--------------|-----------|
| 37   | 0.199     | 5.00          |                  | 23.309          | 1200          | 530812.494  | 120523.807   | 1.909     |
| 47   | 0.073     | 5.00          |                  | 22.654          | 1200          | 530758.919  | 120451.531   | 1.425     |
| 38   | 0.074     | 5.00          |                  | 22.327          | 1350          | 530786.741  | 120488.890   | 1.789     |
| 39   | 0.095     | 5.00          |                  | 22.194          | 1350          | 530790.590  | 120486.261   | 1.703     |
| 40   | 0.070     | 5.00          |                  | 21.039          | 1350          | 530823.296  | 120463.290   | 1.839     |
| 48   | 0.030     | 5.00          |                  | 22.369          | 1200          | 530757.242  | 120412.818   | 1.425     |
| 41   | 0.093     | 5.00          |                  | 21.350          | 2100          | 530776.969  | 120399.414   | 2.550     |
| HW7  | 0.023     |               |                  | 20.660          | 1350          | 530783.955  | 120394.924   | 2.060     |
| HW8  | 0.000     | 5.00          |                  | 19.400          | 1200          | 530796.735  | 120402.996   | 0.800     |
| 42   | 0.000     |               |                  | 21.350          | 1200          | 530798.733  | 120421.115   | 2.831     |
| 43   | 0.000     |               |                  | 21.063          | 1200          | 530828.724  | 120461.380   | 2.767     |
| 44   | 0.000     |               | 8.3              | 22.253          | 1200          | 530862.478  | 120500.213   | 4.186     |
| 45   | 0.000     |               |                  | 20.570          | 1200          | 530891.023  | 120518.330   | 2.653     |
| 46   | 0.000     |               |                  | 19.550          | 1200          | 530913.373  | 120508.100   | 1.742     |
| HW9  | 0.000     |               |                  | 19.800          | 1200          | 530914.757  | 120498.487   | 2.035     |

### 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 | 37      | 38      | 43.387     | 0.600       | 21.400    | 20.688    | 0.712    | 60.9        | 300      | 5.36          | 34.8         |
| 2.000 | 47      | 38      | 46.581     | 0.600       | 21.229    | 20.763    | 0.466    | 100.0       | 225      | 5.59          | 34.2         |
| 1.001 | 38      | 39      | 4.661      | 0.600       | 20.538    | 20.491    | 0.047    | 100.0       | 450      | 5.63          | 34.1         |
| 1.002 | 39      | 40      | 39.967     | 0.600       | 20.491    | 19.200    | 1.291    | 31.0        | 450      | 5.81          | 33.6         |
| 1.003 | 40      | 41      | 78.907     | 0.600       | 19.200    | 18.800    | 0.400    | 197.3       | 450      | 6.72          | 31.5         |
| 3.000 | 48      | 41      | 23.850     | 0.600       | 20.944    | 19.025    | 1.919    | 12.4        | 225      | 5.11          | 35.4         |
| 1.004 | 41      | HW7     | 8.304      | 0.600       | 18.800    | 18.600    | 0.200    | 41.5        | 450      | 6.77          | 31.4         |
| 1.005 | HW8     | 42      | 18.229     | 0.600       | 18.600    | 18.519    | 0.081    | 225.0       | 225      | 5.35          | 34.8         |
| 1.006 | 42      | 43      | 50.207     | 0.600       | 18.519    | 18.296    | 0.223    | 225.0       | 225      | 6.32          | 32.4         |
| 1.007 | 43      | 44      | 51.452     | 0.600       | 18.296    | 18.067    | 0.229    | 225.0       | 225      | 7.30          | 30.3         |
| 1.008 | 44      | 45      | 33.809     | 0.600       | 18.067    | 17.917    | 0.150    | 225.0       | 225      | 7.95          | 29.0         |
| 1.010 | 45      | 46      | 24.580     | 0.600       | 17.917    | 17.808    | 0.109    | 225.0       | 225      | 8.43          | 28.1         |
| 1.011 | 46      | HW9     | 9.712      | 0.600       | 17.808    | 17.765    | 0.043    | 225.0       | 225      | 8.61          | 27.8         |

| 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 | 2.017     | 142.6     | 18.8       | 1.609        | 1.339        | 0.199       | 0.0                | 73             | 1.410              |
| 2.000 | 1.307     | 52.0      | 6.8        | 1.200        | 1.339        | 0.073       | 0.0                | 55             | 0.911              |
| 1.001 | 2.033     | 323.3     | 32.0       | 1.339        | 1.253        | 0.346       | 0.0                | 94             | 1.313              |
| 1.002 | 3.664     | 582.7     | 40.2       | 1.253        | 1.389        | 0.441       | 0.0                | 79             | 2.133              |
| 1.003 | 1.444     | 229.6     | 43.6       | 1.389        | 2.100        | 0.511       | 0.0                | 132            | 1.122              |
| 3.000 | 3.731     | 148.4     | 2.9        | 1.200        | 2.100        | 0.030       | 0.0                | 22             | 1.475              |
| 1.004 | 3.162     | 502.8     | 54.0       | 2.100        | 1.610        | 0.634       | 0.0                | 99             | 2.098              |
| 1.005 | 0.867     | 34.5      | 0.0        | 0.575        | 2.606        | 0.000       | 0.0                | 0              | 0.000              |
| 1.006 | 0.867     | 34.5      | 0.0        | 2.606        | 2.542        | 0.000       | 0.0                | 0              | 0.000              |
| 1.007 | 0.867     | 34.5      | 0.0        | 2.542        | 3.961        | 0.000       | 0.0                | 0              | 0.000              |
| 1.008 | 0.867     | 34.5      | 8.3        | 3.961        | 2.428        | 0.000       | 8.3                | 75             | 0.717              |
| 1.010 | 0.867     | 34.5      | 8.3        | 2.428        | 1.517        | 0.000       | 8.3                | 75             | 0.717              |
| 1.011 | 0.867     | 34.5      | 8.3        | 1.517        | 1.810        | 0.000       | 8.3                | 75             | 0.717              |

### 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 | 43.387     | 60.9        | 300      | Circular_Default Sewer Type | 23.309    | 21.400    | 1.609        | 22.327    | 20.688    | 1.339        |
| 2.000 | 46.581     | 100.0       | 225      | Circular_Default Sewer Type | 22.654    | 21.229    | 1.200        | 22.327    | 20.763    | 1.339        |
| 1.001 | 4.661      | 100.0       | 450      | Circular_Default Sewer Type | 22.327    | 20.538    | 1.339        | 22.194    | 20.491    | 1.253        |
| 1.002 | 39.967     | 31.0        | 450      | Circular_Default Sewer Type | 22.194    | 20.491    | 1.253        | 21.039    | 19.200    | 1.389        |
| 1.003 | 78.907     | 197.3       | 450      | Circular_Default Sewer Type | 21.039    | 19.200    | 1.389        | 21.350    | 18.800    | 2.100        |
| 3.000 | 23.850     | 12.4        | 225      | Circular_Default Sewer Type | 22.369    | 20.944    | 1.200        | 21.350    | 19.025    | 2.100        |
| 1.004 | 8.304      | 41.5        | 450      | Circular_Default Sewer Type | 21.350    | 18.800    | 2.100        | 20.660    | 18.600    | 1.610        |

| Link  | US Node | Dia (mm) | Node Type | MH Type   | DS Node | Dia (mm) | Node Type | MH Type   |
|-------|---------|----------|-----------|-----------|---------|----------|-----------|-----------|
| 1.000 | 37      | 1200     | Manhole   | Adoptable | 38      | 1350     | Manhole   | Adoptable |
| 2.000 | 47      | 1200     | Manhole   | Adoptable | 38      | 1350     | Manhole   | Adoptable |
| 1.001 | 38      | 1350     | Manhole   | Adoptable | 39      | 1350     | Manhole   | Adoptable |
| 1.002 | 39      | 1350     | Manhole   | Adoptable | 40      | 1350     | Manhole   | Adoptable |
| 1.003 | 40      | 1350     | Manhole   | Adoptable | 41      | 2100     | Manhole   | Adoptable |
| 3.000 | 48      | 1200     | Manhole   | Adoptable | 41      | 2100     | Manhole   | Adoptable |
| 1.004 | 41      | 2100     | Manhole   | Adoptable | HW7     | 1350     | Manhole   | Adoptable |

### 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) |
|-------|---------------|----------------|-------------|-----------------------------|--------------|--------------|-----------------|--------------|--------------|-----------------|
| 1.005 | 18.229        | 225.0          | 225         | Circular_Default Sewer Type | 19.400       | 18.600       | 0.575           | 21.350       | 18.519       | 2.606           |
| 1.006 | 50.207        | 225.0          | 225         | Circular_Default Sewer Type | 21.350       | 18.519       | 2.606           | 21.063       | 18.296       | 2.542           |
| 1.007 | 51.452        | 225.0          | 225         | Circular_Default Sewer Type | 21.063       | 18.296       | 2.542           | 22.253       | 18.067       | 3.961           |
| 1.008 | 33.809        | 225.0          | 225         | Circular_Default Sewer Type | 22.253       | 18.067       | 3.961           | 20.570       | 17.917       | 2.428           |
| 1.010 | 24.580        | 225.0          | 225         | Circular_Default Sewer Type | 20.570       | 17.917       | 2.428           | 19.550       | 17.808       | 1.517           |
| 1.011 | 9.712         | 225.0          | 225         | Circular_Default Sewer Type | 19.550       | 17.808       | 1.517           | 19.800       | 17.765       | 1.810           |

| 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 |
|-------|------------|-------------|--------------|------------|------------|-------------|--------------|------------|
| 1.005 | HW8        | 1200        | Manhole      | Adoptable  | 42         | 1200        | Manhole      | Adoptable  |
| 1.006 | 42         | 1200        | Manhole      | Adoptable  | 43         | 1200        | Manhole      | Adoptable  |
| 1.007 | 43         | 1200        | Manhole      | Adoptable  | 44         | 1200        | Manhole      | Adoptable  |
| 1.008 | 44         | 1200        | Manhole      | Adoptable  | 45         | 1200        | Manhole      | Adoptable  |
| 1.010 | 45         | 1200        | Manhole      | Adoptable  | 46         | 1200        | Manhole      | Adoptable  |
| 1.011 | 46         | 1200        | Manhole      | Adoptable  | HW9        | 1200        | Manhole      | Adoptable  |

### Simulation Settings

|                      |          |                            |          |                          |   |
|----------------------|----------|----------------------------|----------|--------------------------|---|
| Rainfall Methodology | FEH-13   | Analysis Speed             | Detailed | Starting Level (m)       |   |
| Rainfall Events      | Singular | Skip Steady State          | ✓        | Check Discharge Rate(s)  | ✓ |
| Summer CV            | 0.750    | Drain Down Time (mins)     | 240      | Check Discharge Volume   | ✓ |
| Winter CV            | 0.840    | Additional Storage (m³/ha) | 20.0     | 100 year 360 minute (m³) |   |

### Storm Durations

|    |     |     |     |     |      |      |      |      |       |
|----|-----|-----|-----|-----|------|------|------|------|-------|
| 15 | 60  | 180 | 360 | 600 | 960  | 2160 | 4320 | 7200 | 10080 |
| 30 | 120 | 240 | 480 | 720 | 1440 | 2880 | 5760 | 8640 |       |

| Return Period<br>(years) | Climate Change<br>(CC %) | Additional Area<br>(A %) | Additional Flow<br>(Q %) |
|--------------------------|--------------------------|--------------------------|--------------------------|
| 1                        | 0                        | 0                        | 0                        |
| 30                       | 0                        | 2                        | 0                        |
| 100                      | 40                       | 4                        | 0                        |

### Pre-development Discharge Rate

|                              |            |                        |      |
|------------------------------|------------|------------------------|------|
| Site Makeup                  | Greenfield | Growth Factor 30 year  | 1.95 |
| Greenfield Method            | IH124      | Growth Factor 100 year | 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 (m³)    |     |

### Node 42 Online Hydro-Brake® Control

|                          |        |                         |                                |
|--------------------------|--------|-------------------------|--------------------------------|
| Flap Valve               | x      | Objective               | (HE) Minimise upstream storage |
| Replaces Downstream Link | ✓      | Sump Available          | ✓                              |
| Invert Level (m)         | 18.519 | Product Number          | CTL-SHE-0087-3200-0850-3200    |
| Design Depth (m)         | 0.850  | Min Outlet Diameter (m) | 0.100                          |
| Design Flow (l/s)        | 3.2    | Min Node Diameter (mm)  | 1200                           |

### Node 41 Online Hydro-Brake® Control

|                          |        |                         |                                |
|--------------------------|--------|-------------------------|--------------------------------|
| Flap Valve               | x      | Objective               | (HE) Minimise upstream storage |
| Replaces Downstream Link | ✓      | Sump Available          | ✓                              |
| Invert Level (m)         | 18.800 | Product Number          | CTL-SHE-0084-4200-2000-4200    |
| Design Depth (m)         | 2.000  | Min Outlet Diameter (m) | 0.100                          |
| Design Flow (l/s)        | 4.2    | Min Node Diameter (mm)  | 1200                           |

### Node HW8 Flow through Pond Storage Structure

|                             |         |                           |        |                          |         |
|-----------------------------|---------|---------------------------|--------|--------------------------|---------|
| Base Inf Coefficient (m/hr) | 0.00000 | Porosity                  | 1.00   | Main Channel Length (m)  | 15.000  |
| Side Inf Coefficient (m/hr) | 0.00000 | Invert Level (m)          | 18.600 | Main Channel Slope (1:X) | 99999.0 |
| Safety Factor               | 2.0     | Time to half empty (mins) | 1620   | Main Channel n           | 0.001   |

#### **Inlets**

HW7

| 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        | 39.0                      | 0.0                           | 0.700        | 129.0                     | 0.0                           |

### Node 41 Carpark Storage Structure

|                             |         |                           |        |               |       |
|-----------------------------|---------|---------------------------|--------|---------------|-------|
| Base Inf Coefficient (m/hr) | 0.00000 | Invert Level (m)          | 18.800 | Slope (1:X)   | 999.0 |
| Side Inf Coefficient (m/hr) | 0.00000 | Time to half empty (mins) |        | Depth (m)     | 1.000 |
| Safety Factor               | 2.0     | Width (m)                 | 4.800  | Inf Depth (m) |       |
| Porosity                    | 0.30    | Length (m)                | 87.000 |               |       |

### Node 41 Depth/Area Storage Structure

|                             |         |               |      |                           |        |
|-----------------------------|---------|---------------|------|---------------------------|--------|
| Base Inf Coefficient (m/hr) | 0.00000 | Safety Factor | 2.0  | Invert Level (m)          | 18.800 |
| Side Inf Coefficient (m/hr) | 0.00000 | Porosity      | 0.95 | 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> ) |
|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|--------------|---------------------------|-------------------------------|
| 0.000        | 249.6                     | 0.0                           | 1.500        | 249.6                     | 0.0                           | 1.501        | 0.0                       | 0.0                           |

**Results for 1 year Critical Storm Duration. Lowest mass balance: 98.83%**

| 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  | 37         | 10             | 21.473       | 0.073        | 18.4            | 0.2336           | 0.0000        | OK     |
| 15 minute winter  | 47         | 11             | 21.283       | 0.054        | 6.7             | 0.1159           | 0.0000        | OK     |
| 15 minute winter  | 38         | 10             | 20.642       | 0.104        | 30.8            | 0.2358           | 0.0000        | OK     |
| 15 minute winter  | 39         | 11             | 20.569       | 0.078        | 39.3            | 0.1990           | 0.0000        | OK     |
| 15 minute winter  | 40         | 11             | 19.357       | 0.157        | 45.3            | 0.3451           | 0.0000        | OK     |
| 15 minute winter  | 48         | 10             | 20.965       | 0.021        | 2.8             | 0.0333           | 0.0000        | OK     |
| 480 minute winter | 41         | 352            | 19.010       | 0.210        | 10.9            | 71.3367          | 0.0000        | OK     |
| 720 minute winter | HW7        | 660            | 18.696       | 0.096        | 3.4             | 0.1595           | 0.0000        | OK     |
| 720 minute winter | HW8        | 660            | 18.696       | 0.096        | 3.2             | 0.1090           | 0.0000        | OK     |
| 720 minute winter | 42         | 660            | 18.696       | 0.177        | 3.1             | 0.1998           | 0.0000        | OK     |
| 720 minute winter | 43         | 660            | 18.341       | 0.045        | 3.1             | 0.0514           | 0.0000        | OK     |
| 720 minute winter | 44         | 660            | 18.158       | 0.091        | 11.4            | 0.1027           | 0.0000        | OK     |
| 600 minute winter | 45         | 585            | 18.009       | 0.092        | 11.4            | 0.1037           | 0.0000        | OK     |
| 600 minute winter | 46         | 585            | 17.903       | 0.095        | 11.4            | 0.1074           | 0.0000        | OK     |
| 600 minute winter | HW9        | 585            | 17.853       | 0.088        | 11.4            | 0.0000           | 0.0000        | OK     |

| Link Event<br>(Outflow) | 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        | 37         | 1.000             | 38         | 17.8             | 1.380             | 0.124    | 0.5603           |                       |
| 15 minute winter        | 47         | 2.000             | 38         | 6.4              | 0.893             | 0.124    | 0.3354           |                       |
| 15 minute winter        | 38         | 1.001             | 39         | 30.7             | 1.338             | 0.095    | 0.1075           |                       |
| 15 minute winter        | 39         | 1.002             | 40         | 39.3             | 1.198             | 0.067    | 1.3528           |                       |
| 15 minute winter        | 40         | 1.003             | 41         | 46.4             | 1.795             | 0.202    | 2.2288           |                       |
| 15 minute winter        | 48         | 3.000             | 41         | 2.7              | 1.442             | 0.018    | 0.0453           |                       |
| 480 minute winter       | 41         | Hydro-Brake®      | HW7        | 3.2              |                   |          |                  |                       |
| 240 minute summer       | HW7        | Flow through pond | HW8        | 3.4              | 0.026             | 0.000    | 2.8697           |                       |
| 240 minute summer       | HW8        | 1.005             | 42         | 3.2              | 0.271             | 0.094    | 0.3377           |                       |
| 720 minute winter       | 42         | Hydro-Brake®      | 43         | 3.1              |                   |          |                  |                       |
| 720 minute winter       | 43         | 1.007             | 44         | 3.1              | 0.309             | 0.091    | 0.5327           |                       |
| 720 minute winter       | 44         | 1.008             | 45         | 11.4             | 0.758             | 0.332    | 0.5100           |                       |
| 600 minute winter       | 45         | 1.010             | 46         | 11.4             | 0.736             | 0.332    | 0.3820           |                       |
| 600 minute winter       | 46         | 1.011             | HW9        | 11.4             | 0.758             | 0.332    | 0.1466           | 528.1                 |

**Results for 30 year +2% A Critical Storm Duration. Lowest mass balance: 98.83%**

| Node Event         | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|--------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter   | 37      | 10          | 21.560    | 0.160     | 75.5         | 0.5217        | 0.0000     | OK         |
| 15 minute winter   | 47      | 10          | 21.346    | 0.117     | 27.7         | 0.2556        | 0.0000     | OK         |
| 15 minute winter   | 38      | 10          | 20.767    | 0.229     | 128.6        | 0.5209        | 0.0000     | OK         |
| 15 minute winter   | 39      | 10          | 20.651    | 0.160     | 164.2        | 0.4118        | 0.0000     | OK         |
| 15 minute winter   | 40      | 10          | 19.533    | 0.333     | 189.7        | 0.7346        | 0.0000     | OK         |
| 15 minute winter   | 48      | 10          | 20.987    | 0.043     | 11.4         | 0.0667        | 0.0000     | OK         |
| 480 minute winter  | 41      | 472         | 19.454    | 0.654     | 28.0         | 234.3410      | 0.0000     | SURCHARGED |
| 2160 minute winter | HW7     | 2280        | 18.981    | 0.381     | 3.6          | 0.6320        | 0.0000     | OK         |
| 2160 minute winter | HW8     | 2280        | 18.981    | 0.381     | 3.4          | 0.4308        | 0.0000     | SURCHARGED |
| 2160 minute winter | 42      | 2280        | 18.980    | 0.461     | 3.2          | 0.5216        | 0.0000     | SURCHARGED |
| 120 minute summer  | 43      | 326         | 18.342    | 0.046     | 3.2          | 0.0520        | 0.0000     | OK         |
| 120 minute summer  | 44      | 326         | 18.158    | 0.091     | 11.5         | 0.1031        | 0.0000     | OK         |
| 120 minute summer  | 45      | 326         | 18.009    | 0.092     | 11.5         | 0.1040        | 0.0000     | OK         |
| 120 minute summer  | 46      | 328         | 17.903    | 0.095     | 11.5         | 0.1077        | 0.0000     | OK         |
| 120 minute summer  | HW9     | 332         | 17.853    | 0.088     | 11.5         | 0.0000        | 0.0000     | OK         |

  

| Link Event (Outflow) | US Node | Link              | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|----------------------|---------|-------------------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter     | 37      | 1.000             | 38      | 73.9          | 2.003          | 0.518    | 1.6036        |                    |
| 15 minute winter     | 47      | 2.000             | 38      | 26.8          | 1.311          | 0.516    | 0.9532        |                    |
| 15 minute winter     | 38      | 1.001             | 39      | 128.1         | 1.952          | 0.396    | 0.3067        |                    |
| 15 minute winter     | 39      | 1.002             | 40      | 163.1         | 1.835          | 0.280    | 3.5222        |                    |
| 15 minute winter     | 40      | 1.003             | 41      | 192.9         | 2.284          | 0.840    | 7.0849        |                    |
| 15 minute winter     | 48      | 3.000             | 41      | 11.3          | 2.187          | 0.076    | 0.1295        |                    |
| 30 minute winter     | 41      | Hydro-Brake®      | HW7     | 3.3           |                |          |               |                    |
| 30 minute winter     | HW7     | Flow through pond | HW8     | 8.8           | 0.105          | 0.000    | 6.8473        |                    |
| 15 minute winter     | HW8     | 1.005             | 42      | 5.7           | 0.414          | 0.165    | 0.4840        |                    |
| 120 minute summer    | 42      | Hydro-Brake®      | 43      | 3.2           |                |          |               |                    |
| 120 minute summer    | 43      | 1.007             | 44      | 3.2           | 0.314          | 0.093    | 0.5368        |                    |
| 120 minute summer    | 44      | 1.008             | 45      | 11.5          | 0.759          | 0.334    | 0.5123        |                    |
| 120 minute summer    | 45      | 1.010             | 46      | 11.5          | 0.740          | 0.334    | 0.3837        |                    |
| 120 minute summer    | 46      | 1.011             | HW9     | 11.5          | 0.759          | 0.334    | 0.1472        | 238.8              |

**Results for 100 year +40% CC +4% A Critical Storm Duration. Lowest mass balance: 98.83%**

| Node Event         | US Node | Peak (mins) | Level (m) | Depth (m) | Inflow (l/s) | Node Vol (m³) | Flood (m³) | Status     |
|--------------------|---------|-------------|-----------|-----------|--------------|---------------|------------|------------|
| 15 minute winter   | 37      | 10          | 21.651    | 0.251     | 137.1        | 0.8286        | 0.0000     | OK         |
| 15 minute winter   | 47      | 10          | 21.409    | 0.180     | 50.3         | 0.3957        | 0.0000     | OK         |
| 15 minute winter   | 38      | 11          | 20.879    | 0.341     | 232.5        | 0.7822        | 0.0000     | OK         |
| 15 minute winter   | 39      | 11          | 20.757    | 0.266     | 296.6        | 0.6890        | 0.0000     | OK         |
| 960 minute winter  | 40      | 930         | 20.653    | 1.453     | 23.7         | 3.2304        | 0.0000     | SURCHARGED |
| 15 minute winter   | 48      | 10          | 21.002    | 0.058     | 20.7         | 0.0911        | 0.0000     | OK         |
| 960 minute winter  | 41      | 930         | 20.653    | 1.853     | 27.8         | 483.4586      | 0.0000     | SURCHARGED |
| 7200 minute winter | HW7     | 5760        | 19.351    | 0.751     | 3.6          | 1.2497        | 0.0000     | OK         |
| 7200 minute winter | HW8     | 5760        | 19.351    | 0.751     | 3.4          | 0.8494        | 0.0000     | FLOOD RISK |
| 7200 minute winter | 42      | 5760        | 19.350    | 0.831     | 3.2          | 0.9400        | 0.0000     | SURCHARGED |
| 30 minute winter   | 43      | 35          | 18.342    | 0.046     | 3.2          | 0.0520        | 0.0000     | OK         |
| 30 minute winter   | 44      | 35          | 18.158    | 0.091     | 11.5         | 0.1031        | 0.0000     | OK         |
| 30 minute winter   | 45      | 36          | 18.009    | 0.092     | 11.5         | 0.1040        | 0.0000     | OK         |
| 30 minute winter   | 46      | 37          | 17.903    | 0.095     | 11.5         | 0.1077        | 0.0000     | OK         |
| 30 minute winter   | HW9     | 40          | 17.853    | 0.088     | 11.5         | 0.0000        | 0.0000     | OK         |

  

| Link Event (Outflow) | US Node | Link              | DS Node | Outflow (l/s) | Velocity (m/s) | Flow/Cap | Link Vol (m³) | Discharge Vol (m³) |
|----------------------|---------|-------------------|---------|---------------|----------------|----------|---------------|--------------------|
| 15 minute winter     | 37      | 1.000             | 38      | 133.4         | 2.236          | 0.936    | 2.6039        |                    |
| 15 minute winter     | 47      | 2.000             | 38      | 48.7          | 1.469          | 0.937    | 1.5432        |                    |
| 15 minute winter     | 38      | 1.001             | 39      | 231.1         | 2.206          | 0.715    | 0.5277        |                    |
| 15 minute winter     | 39      | 1.002             | 40      | 292.1         | 2.061          | 0.501    | 5.1135        |                    |
| 15 minute winter     | 40      | 1.003             | 41      | 330.1         | 2.333          | 1.438    | 12.0588       |                    |
| 15 minute winter     | 48      | 3.000             | 41      | 20.5          | 2.590          | 0.138    | 0.5160        |                    |
| 960 minute winter    | 41      | Hydro-Brake®      | HW7     | 3.8           |                |          |               |                    |
| 15 minute winter     | HW7     | Flow through pond | HW8     | 15.3          | 0.145          | 0.000    | 7.7993        |                    |
| 15 minute summer     | HW8     | 1.005             | 42      | 7.2           | 0.449          | 0.209    | 0.6241        |                    |
| 30 minute winter     | 42      | Hydro-Brake®      | 43      | 3.2           |                |          |               |                    |
| 30 minute winter     | 43      | 1.007             | 44      | 3.2           | 0.314          | 0.093    | 0.5368        |                    |
| 30 minute winter     | 44      | 1.008             | 45      | 11.5          | 0.814          | 0.334    | 0.5123        |                    |
| 30 minute winter     | 45      | 1.010             | 46      | 11.5          | 0.740          | 0.334    | 0.3837        |                    |
| 30 minute winter     | 46      | 1.011             | HW9     | 11.5          | 0.759          | 0.334    | 0.1472        | 182.1              |