

|                                                  |                                 |                                                                                     |
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| Shaun Tonge Engineering                          |                                 | Page 1                                                                              |
| 11 Broomhead Road<br>Wombell<br>Barnsley S73 0SA |                                 |  |
| Date 25/02/2019 12:15<br>File Storage calc.SRCX  | Designed by Shaun<br>Checked by |                                                                                     |
| CADS Source Control 2018.1                       |                                 |                                                                                     |

  

| Summary of Results for 100 year Return Period (+30%) |                     |                     |                              |                         |                           |                       |        |
|------------------------------------------------------|---------------------|---------------------|------------------------------|-------------------------|---------------------------|-----------------------|--------|
| Half Drain Time : 49 minutes.                        |                     |                     |                              |                         |                           |                       |        |
| Storm<br>Event                                       | Max<br>Level<br>(m) | Max<br>Depth<br>(m) | Max<br>Infiltration<br>(l/s) | Max<br>Control<br>(l/s) | Max<br>Σ Outflow<br>(l/s) | Max<br>Volume<br>(m³) | Status |
| 15 min Summer                                        | 49.691              | 0.491               | 0.0                          | 3.0                     | 3.0                       | 10.5                  | O K    |
| 30 min Summer                                        | 49.814              | 0.614               | 0.0                          | 3.2                     | 3.2                       | 13.1                  | O K    |
| 60 min Summer                                        | 49.868              | 0.668               | 0.0                          | 3.3                     | 3.3                       | 14.3                  | O K    |
| 120 min Summer                                       | 49.846              | 0.646               | 0.0                          | 3.2                     | 3.2                       | 13.8                  | O K    |
| 180 min Summer                                       | 49.802              | 0.602               | 0.0                          | 3.2                     | 3.2                       | 12.9                  | O K    |
| 240 min Summer                                       | 49.752              | 0.552               | 0.0                          | 3.1                     | 3.1                       | 11.8                  | O K    |
| 360 min Summer                                       | 49.659              | 0.459               | 0.0                          | 2.9                     | 2.9                       | 9.8                   | O K    |
| 480 min Summer                                       | 49.580              | 0.380               | 0.0                          | 2.7                     | 2.7                       | 8.1                   | O K    |
| 600 min Summer                                       | 49.512              | 0.312               | 0.0                          | 2.6                     | 2.6                       | 6.7                   | O K    |
| 720 min Summer                                       | 49.454              | 0.254               | 0.0                          | 2.5                     | 2.5                       | 5.4                   | O K    |
| 960 min Summer                                       | 49.364              | 0.164               | 0.0                          | 2.3                     | 2.3                       | 3.5                   | O K    |
| 1440 min Summer                                      | 49.251              | 0.051               | 0.0                          | 2.0                     | 2.0                       | 1.1                   | O K    |
| 2160 min Summer                                      | 49.200              | 0.000               | 0.0                          | 1.7                     | 1.7                       | 0.0                   | O K    |
| 2880 min Summer                                      | 49.200              | 0.000               | 0.0                          | 1.3                     | 1.3                       | 0.0                   | O K    |
| 4320 min Summer                                      | 49.200              | 0.000               | 0.0                          | 1.0                     | 1.0                       | 0.0                   | O K    |
| 5760 min Summer                                      | 49.200              | 0.000               | 0.0                          | 0.8                     | 0.8                       | 0.0                   | O K    |
| 7200 min Summer                                      | 49.200              | 0.000               | 0.0                          | 0.6                     | 0.6                       | 0.0                   | O K    |
| 8640 min Summer                                      | 49.200              | 0.000               | 0.0                          | 0.6                     | 0.6                       | 0.0                   | O K    |
| 10080 min Summer                                     | 49.200              | 0.000               | 0.0                          | 0.5                     | 0.5                       | 0.0                   | O K    |
| 15 min Winter                                        | 49.761              | 0.561               | 0.0                          | 3.1                     | 3.1                       | 12.0                  | O K    |

  

| Storm<br>Event   | Rain<br>(mm/hr) | Flooded<br>Volume<br>(m³) | Discharge<br>Volume<br>(m³) | Time-Peak<br>(mins) |
|------------------|-----------------|---------------------------|-----------------------------|---------------------|
| 15 min Summer    | 117.781         | 0.0                       | 13.7                        | 22                  |
| 30 min Summer    | 78.510          | 0.0                       | 18.2                        | 33                  |
| 60 min Summer    | 49.937          | 0.0                       | 23.3                        | 52                  |
| 120 min Summer   | 30.696          | 0.0                       | 28.6                        | 88                  |
| 180 min Summer   | 22.772          | 0.0                       | 31.7                        | 122                 |
| 240 min Summer   | 18.305          | 0.0                       | 34.1                        | 156                 |
| 360 min Summer   | 13.390          | 0.0                       | 37.3                        | 220                 |
| 480 min Summer   | 10.728          | 0.0                       | 39.9                        | 284                 |
| 600 min Summer   | 9.027           | 0.0                       | 42.0                        | 346                 |
| 720 min Summer   | 7.835           | 0.0                       | 43.7                        | 408                 |
| 960 min Summer   | 6.260           | 0.0                       | 46.6                        | 528                 |
| 1440 min Summer  | 4.556           | 0.0                       | 50.8                        | 758                 |
| 2160 min Summer  | 3.308           | 0.0                       | 55.4                        | 0                   |
| 2880 min Summer  | 2.634           | 0.0                       | 58.8                        | 0                   |
| 4320 min Summer  | 1.906           | 0.0                       | 63.8                        | 0                   |
| 5760 min Summer  | 1.514           | 0.0                       | 67.6                        | 0                   |
| 7200 min Summer  | 1.265           | 0.0                       | 70.6                        | 0                   |
| 8640 min Summer  | 1.092           | 0.0                       | 73.1                        | 0                   |
| 10080 min Summer | 0.965           | 0.0                       | 75.4                        | 0                   |
| 15 min Winter    | 117.781         | 0.0                       | 15.3                        | 22                  |

  

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| CADS                                             |                                 | Source Control 2018.1                                                               |

Model Details

Storage is Online Cover Level (m) 50.700

Cellular Storage Structure

Invert Level (m) 49.200 Safety Factor 1.0  
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95  
Infiltration Coefficient Side (m/hr) 0.00000

| Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) | Depth (m) | Area (m <sup>2</sup> ) | Inf. Area (m <sup>2</sup> ) |
|-----------|------------------------|-----------------------------|-----------|------------------------|-----------------------------|
| 0.000     | 22.5                   | 22.5                        | 0.900     | 0.0                    | 39.3                        |
| 0.800     | 22.5                   | 39.3                        |           |                        |                             |

Crown Vortex Valve® Outflow Control

Design Head (m) 1.100 Vortex Valve® Type R1 SW Only Invert Level (m) 48.900  
Design Flow (l/s) 3.5 Diameter (mm) 75

| Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) | Depth (m) | Flow (l/s) |
|-----------|------------|-----------|------------|-----------|------------|-----------|------------|
| 0.100     | 1.1        | 1.200     | 3.6        | 3.000     | 5.8        | 7.000     | 8.8        |
| 0.200     | 1.5        | 1.400     | 3.9        | 3.500     | 6.2        | 7.500     | 9.1        |
| 0.300     | 1.8        | 1.600     | 4.2        | 4.000     | 6.7        | 8.000     | 9.4        |
| 0.400     | 2.1        | 1.800     | 4.5        | 4.500     | 7.1        | 8.500     | 9.7        |
| 0.500     | 2.4        | 2.000     | 4.7        | 5.000     | 7.4        | 9.000     | 10.0       |
| 0.600     | 2.6        | 2.200     | 4.9        | 5.500     | 7.8        | 9.500     | 10.3       |
| 0.800     | 3.0        | 2.400     | 5.2        | 6.000     | 8.1        |           |            |
| 1.000     | 3.3        | 2.600     | 5.4        | 6.500     | 8.5        |           |            |

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