**Experimental Data Measured at Potterne WWTP**

**Dissolved Oxygen (mg/l)**

Date: 22nd August 2018

All measurements taken near to water surface.

Measurements taken in anti-clockwise direction in oxidation ditch 1

Measurements taken in clockwise direction in oxidation ditch 2

Temperature measured at 20.5 C

Measurements taken at a height of 1.7 m (0.1 m below water surface)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  OD1 | Description | DO(mg/l)Meas | DO Pred4mm  | DO Pred3mm  | DO Pred2mm | DOPred1 mm  | DOPred4mmSurfaerx4 | DO Pred4mmExpCond |
| 1 | Inlet | 0.08 | 0.08 (s) | 0.08 (s) | 0.08 (s)  | 0.08 (s) | 0.08 (s) |  0.08 (s)  |
| 2A | Bridge near inlet- upstream- inside centre | 0.05 | 0.54 | 0.49 | 0.37 | 0.17 | 0.70 |  0.52 |
| 2B | - outside centre | 0.07 | 0.56 | 0.56 | 0.54 | 0.48 | 0.58 |  0.56 |
| 3A | Bridge near inlet- downstream- near central wall | 1.06 | 0.59 | 0.57 | 0.50 | 0.44 | 0.78 |  0.57 |
| 3B | - near outside wall | 0.46 | 0.56 | 0.59 | 0.63 | 0.71 | 0.61 |  0.56 |
| 4 | 5 divisions from bridge near inlet (22 divisions between bridges)- near outside wall | 0.05 | 0.49 | 0.48 | 0.42 | 0.29 | 0.49 |  0.49 |
| 5 | 16 divisions from bridge near inlet- near outside wall | 0.06  | 0.45 | 0.41 | 0.31 | 0.07 | 0.44 |  0.45 |
| 6 | Bridge away from inlet- end of walkway- other side of central wall | 0.46 | 0.21 | 0.004 | 0 | 0 | 0.31 |  0.16 |
| 7 | Opposite grid aerator- 1 m after bridge- near outside wall | 0.86  | 0.84 | 1.00 | 1.31 | 1.97 | 0.83 |  0.85 |
| 8 | Opposite jet aerator- near outside wall | 1.38 | 0.72 | 0.85 | 1.12 | 1.85 | 0.72 |  0.73 |
| 9 | Opposite end of central wall- near outside wall | 1.10 | 0.71 | 0.83 | 1.06 | 1.68 | 0.71 |  0.72 |
| 10a | Bridge away from inlet- upstream- outside centre | 0.19  | 0.70 | 0.77 | 0.89 | 1.19 | 0.72 |  0.71 |
| 10b | Bridge away from inlet- upstream- inside centre- stagnant flow zone | 5.52\* (outlier) | 0.83 | 0.93 | 1.10 | 1.49 | 0.93 |  0.83 |
| 11a | Bridge away from inlet- downstream- near central wall | 0.36 | 0.75 | 0.82 | 0.91 | 1.09 | 0.94 |  0.75 |
| 11b | Bridge away from inlet- downstream- near outside wall | 0.22  | 0.75 | 0.88 | 1.10 | 1.64 | 0.87 |  0.76 |
| 12 | Halfway along outside wall | 0.29  | 0.68 | 0.77 | 0.91 | 1.27 | 0.70 |  0.69 |
| 13 | Outlet | 0.065 | 0.59 | 0.61 | 0.64 | 0.68 | 0.57 |  0.59 |
|  |  |  |  |  |  |  |  |  |
|   | Mean points | 0.44 | 0.61 | 0.66 | 0.74 | 0.90 | 0.68 |  0.61 |
|   | Max points | 1.38 | 0.84 | 1.00 | 1.31 | 1.97 | 0.94 |  0.85 |
|   | Min points | 0.06 | 0.21 | 0.003 | 0 | 0 | 0 |  0 |
|   | Mean ditch | - | 0.57 | 0.56 | 0.55 | 0.62 | 0.61 |  0.56 |
|   | Max ditch | - | 1.40 | 1.80 | 2.49 | 3.83 | 2.03 |  1.41 |
|   | Min ditch | - | 0 | 0 | 0 | 0 | 0 |  0 |

TABLE 1 Dissolved Oxygen Measurements in Oxidation Ditch 1

|  |  |  |  |
| --- | --- | --- | --- |
| Experimental Measurement in OD2 | Description | DO (mg/)measured | DO (mg/l)PredictedD = 4 mm-0.00275 kg/s |
| 1 | Inlet | 0.04 (set) | 0.04 (set) |
| 2 | Inlet - downstream- end of weir furthest from walkway- near outside wall | 0.29 | 0.32 |
| 3 | Opposite grid aerator 3- grid closest to inlet- near outside wall | 0.49 | 0.44 |
| 4 | Opposite grid aerator 2 + booster- near walkway- outside wall |  0.37 | 0.90 |
| 5a | Walkway near inlet- upstream- near outside wall |  0.30 | 1.11 |
| 5b |  Walkway near inlet- upstream- outside centre | 0.24  | 1.24 |
| 5c |  Walkway near inlet- upstream- near centre wall |  0.31 | 0.34 |
| 6 |  Walkway near inlet- downstream- opposite jet aerator 1- near outside wall |  0.21 | 1.18 |
| 7 | Opposite grid aerator 1- divisions 5.5(from 22)- near outside wall |  0.41 | 1.24 |
| 8 | Halfway along outside wall (11 divisions)- near outside wall |  0.44  | 0.95 |
| 9a | Walkway away from inlet (same side inlet)- near outside wall |  0.04 | 0.76 |
| 9b | Walkway away from inlet (same side inlet) - near centre wall | 0.03 | 0.44 |
| 10 | Opposite centre wall away from inlet- near outside wall | 0.03  | 0.22 |
| 11 | Walkway furthest from inlet- upstream- inside centre | 0.04  | 0.37 |
| 12a | Walkway furthest from inlet- downstream- near centre wall |  2.40 | 0.89 |
| 12b | Walkway furthest from inlet- downstream- near jet aerator 2- inside centre- stagnant flow zone | 3.67 | 1.23 |
| 12c | Walkway furthest from inlet- downstream- near jet aerator 1- outside centre- highest flow zone | 3.11 | 1.10 |
| 13 |  Along outside wall- divisions 5.5(from 22) | 0.23 | 0.29 |
| 14 | 2/3rds between bridges near probe- outside wall | 0.03 | 0.10 |
| 15 | Opposite bridge nearest outlet weir- outside wall | 0.03 | 0 |
| 16 | Walkway near inlet- upstream-other side centre wall- near centre wall  | 0.09 | 0.16 |
| 17 | Outlet- upstream- end of weir closest to walkway |  0.11 | 0 |
| 18 | Outlet |  0.04 | 0 |
|  |  |  |  |
|   | Mean (points) |  0.55 | 0.70 |
|   | Max (points) |  3.64 | 1.24 |
|   | Min (points) |  0.03 | 0 |
|   | Mean (ditch) | - | 0.57 |
|   | Max (ditch) | - | 3.07 |
|   | Min (ditch) | - | 0 |

TABLE 2 Dissolved Oxygen Measurements in Oxidation Ditch 2