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**Nantwich Waterlogged Deposits
Cheshire**

**Phase 2 Interim Report No.2
November 2011 – October 2012
English Heritage HEEP 3839 Main**



November 2012



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1.0 INTRODUCTION

In November 2010, SLR Consulting Limited (SLR) was commissioned by English Heritage and Cheshire East Council to undertake Phase 2 of the Nantwich Waterlogged Deposits Project. The purpose of the project is to develop an effective methodology for monitoring the condition of urban waterlogged deposits, and to monitor waterlogged archaeological deposits within Nantwich over a three year period as a case study. The results of this study will enable an update to the strategy for managing these remains effectively, within the context of the need for continuing economic development within the historic centre of Nantwich.

The details relating to Phase 1 of the Nantwich Waterlogged Deposits project are recorded in a separate report¹ completed in October 2010, followed by an interim report² in November 2011 which summarised the works undertaken as the first part of Phase 2 up to that date. These previous reports should be read in conjunction with the present report.

This report presents a summary of the fieldwork undertaken as part of the project during 2012, which comprised the following key elements:

- Collecting groundwater samples from each of the fifteen separate dipwell locations for geochemical laboratory analysis;
- Completing quarterly monitoring at all of the eighteen dipwells for depth to groundwater, water quality parameters and ground gas concentrations.

Drawings are presented in Appendix A. Appendix B presents the borehole logs, Appendix C presents the groundwater and gas monitoring data, Appendix D presents the analytical chemistry results, Appendix E presents the transducer and rain gauge data and Appendix F presents the permeability data.

¹ SLR Consulting Limited (January 2010): *Nantwich Waterlogged Deposits Report No 2: The Character and Extent of Archaeological Preservation*

² SLR Consulting Limited (November 2011): *Nantwich Waterlogged Deposits Phase 2 Interim Report (Ref:406.008889.00005)*

2.0 BOREHOLE INVESTIGATION

2.1 Summary

SLR completed borehole investigations in January 2011 to obtain additional soil information to supplement the existing data set from previous borehole investigations undertaken in 2007. The borehole logs are shown in Appendix B.

The works undertaken and results are fully detailed in the previous interim report completed in November 2011 and are summarised below:

- Seven boreholes (F1, F2, N1, P1, AE, AF and AG) were drilled on the 10th and 11th January 2011 to a maximum depth of 4m. These were located to provide additional coverage and to target specific cultural horizons containing organic material, using a window sampling drilling rig provided and operated by Sherwood Drilling under the supervision of SLR.
- Once the soil cores had been extracted 'permanent' 50mm diameter groundwater monitoring wells were installed into the boreholes;
- The soil cores were transported to the Palaeoecology Research Services Laboratory in Hull on the 12th January 2011 so that the samples could be logged, sampled and recorded;
- 18 subsamples were retained from the three new borehole locations (AE, AF and AG) to investigate microfossil and macrofossil preservation. The palaeoecological assessment indicated that the areas comprised disturbed scrubland and damp habitats, with evidence of anthropogenic activity close to borehole AF.
- Seven soil samples were retained and analysed for Sulphur, Ammoniacal Nitrogen, Chloride, Nitrate, Nitrite, Phosphate, Sulphate, Loss on Ignition and Sulphide. All laboratory analyses were undertaken by Jones Environmental Forensics of Deeside. Overall, the results indicated that reducing conditions exist in the floodplain sediments, although there were some conflicting data sets potentially caused by an influx of salt-laden groundwater from natural brine-runs.

2.2 C14 Dating

Six samples from Boreholes AE and AF were submitted for radiocarbon dating. The samples were mainly twigs and hazelnut shell fragments and have produced the following results:

- Two samples from a hazelnut at Borehole AE at 3.4 – 4m depth below ground surface gave a date of 1532 \pm 29 BP (Oxford) and 1496 + 30 BP (SUERC)
- Two samples from a twig at Borehole AF at 2m – 2.27m depth below ground surface gave a date of 826 \pm 30 BP (Oxford) and 890 \pm 30 BP (SUERC)
- Two samples from a hazelnut at Borehole AF at 3.4 – 4m depth below ground surface gave a date of 897 \pm 27 BP (Oxford) and 875 + 30 BP (SUERC).

Each of the pairs of duplicate radiocarbon measurements from the different heights in the different boreholes are statistically consistent at 95% confidence (calibrated dates are presented in Table 1 below), which would place the sample from AF in the sub-Roman period, and both those from AE in the Norman period.

Table 1
Radiocarbon Dates and stable isotope measurements from the second set of samples from the Nantwich boreholes

| Laboratory number | Sample | Radio-carbon age (BP) | ¹³ C (‰) | Calibrated date (68% confidence) | Calibrated date (95% confidence) |
|---------------------------------|-------------------------|-----------------------|---------------------|----------------------------------|----------------------------------|
| Nantwich borehole AE6/T | | | | | |
| OxA-26170 | Hazel nutshell, 340-400 | 1532±29 | -22.97 | cal AD 470-570 | cal AD 430-605 |
| SUERC-39418 | Hazel nutshell, 340-400 | 1495±30 | -26.9 | cal AD 545-605 | cal AD 535-640 |
| Nantwich borehole AF19/T | | | | | |
| OxA-26171 | Hazel nutshell, 248-300 | 897±27 | -23.35 | cal AD1050-1180 | cal AD 1035-1215 |
| SUERC-39423 | Hazel nutshell 248-300 | 875±30 | -28.0 | cal AD 1155-1215 | cal AD 1045-1225 |
| Nantwich borehole AF17/T | | | | | |
| OxA-26232 | Wood twig 200-227 | 826±30 | -27.21 | cal AD 1190-1260 | cal AD 1160-1270 |
| SUERC-39419 | Wood twig 200-227 | 890±30 | -28.8 | cal AD 1050-1210 | cal AD 1035-1220 |

3.0 RESULTS OF HYDROGEOLOGICAL ASSESSMENT

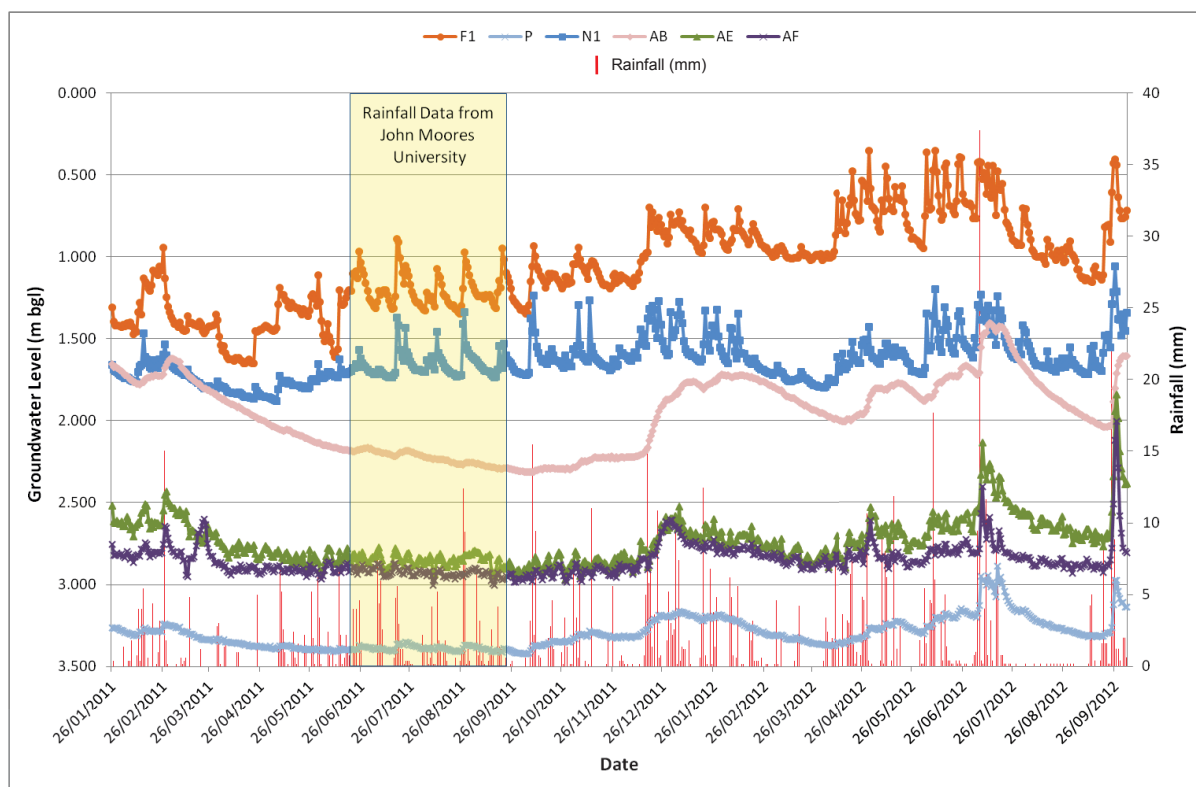
3.1.1 Transducer Data: Rainfall and Groundwater Levels

SLR completed the installation of the transducers at six locations to monitor particularly sensitive areas within the waterlogged deposits. This provides a minimum of three transducer points on each side of the River Weaver. Therefore the six transducers were installed in dipwells F1, N1, P, AB, AE and AF. The transducer was installed in dipwell P instead of P1, because P1 contained insufficient water. The transducer that was intended for installation in dipwell AG was moved to AB because no waterlogged deposits were recorded in Bowers Row Car Park. The locations of the transducers are shown on a plan in Appendix A.

A rain gauge connected to a digital data logger was installed to the rear of Nantwich Museum. Unfortunately nesting insects and larvae blocked the rain gauge between the 17th June and 19th September 2011 and therefore there is gap in the rainfall information for this period. However, rainfall data was obtained from a rain gauge in Merseyside operated by John Moores University to cover this period, and this data appears to be broadly consistent with the pattern of data from the Nantwich log.

The results of water level measurement from the transducers and rainfall gauge are shown in Appendix E and summarised in Figure 1 below.

Figure 1
Groundwater Level and Rainfall Data Graph



The results from the pressure transducer monitoring show a direct correlation between rainfall and groundwater level. However, this relationship is less pronounced to the west of the River weaver in dipwells AB, AE and AF.

3.1.2 Groundwater Monitoring Data

In situ monitoring has been undertaken at the seventeen dipwells at quarterly intervals since February 2011. In addition to groundwater depth measurements, dissolved oxygen, conductivity, pH and REDOX potential were also measured using a YSI 556™ water quality meter.

The in situ monitoring results are included in Appendix C, and are summarised in Table 2 below. No water has ever been recorded in dipwell P1 because the water table is located below the archaeological deposits specifically targeted by the borehole, and therefore it has been excluded from the results table.

Table 2
Groundwater Monitoring Data

| Well No | Screened interval (m) | Surface elevation (m AOD) | Values | Depth to water below Ground (m) | Water elevation (m AOD) | Dissolved Oxygen (mg/l) | REDOX (mV) | pH | Conductivity (µS/CM) | Temp (°C) |
|---------|-----------------------|---------------------------|---------|---------------------------------|-------------------------|-------------------------|------------|------|----------------------|-----------|
| AB | 1.0-3.0 | 37.93 | Max | 2.27 | 36.16 | 3.94 | 186 | 7.52 | 1253 | 12.40 |
| | | | Min | 1.77 | 35.66 | 0.00 | -106 | 6.73 | 344 | 7.89 |
| | | | Average | 2.02 | 35.91 | 1.60 | 33 | 7.12 | 756 | 10.01 |
| AC | 1.0-4.0 | 36.42 | Max | 2.98 | 34.00 | 1.70 | 198 | 7.20 | 3505 | 14.90 |
| | | | Min | 2.42 | 33.44 | 0.00 | -132 | 6.37 | 1343 | 8.00 |
| | | | Average | 2.70 | 33.72 | 0.76 | 23 | 6.84 | 2481 | 11.79 |
| AE | 1.0 – 4.0 | 35.19 | Max | 2.84 | 32.61 | 1.67 | 287 | 7.14 | 2114 | 14.50 |
| | | | Min | 2.58 | 32.35 | 0.28 | -71 | 6.66 | 883 | 10.30 |
| | | | Average | 2.71 | 32.48 | 0.82 | 13 | 6.98 | 1406 | 11.90 |
| AF | 1.0 – 4.0 | 34.89 | Max | 2.99 | 32.12 | 1.17 | 289 | 7.82 | 2337 | 15.20 |
| | | | Min | 2.77 | 31.90 | 0.36 | -214 | 6.55 | 1117 | 9.89 |
| | | | Average | 2.88 | 32.01 | 0.79 | 37 | 7.11 | 1748 | 11.84 |
| AG | 1.0 – 4.0 | 37.03 | Max | 2.61 | 35.50 | 1.64 | 271 | 7.55 | 7274 | 14.30 |
| | | | Min | 1.53 | 34.42 | 0.46 | -87 | 6.61 | 2355 | 8.03 |
| | | | Average | 1.78 | 35.25 | 1.03 | 74 | 6.93 | 4108 | 11.44 |
| F1 | 1.3 – 2.0 | 39.69 | Max | 1.31 | 38.71 | 3.30 | 218 | 7.40 | 1076 | 16.50 |
| | | | Min | 0.98 | 38.38 | 1.45 | -93 | 6.97 | 302 | 5.54 |
| | | | Average | 1.14 | 38.55 | 2.25 | 29 | 7.20 | 575 | 11.37 |
| F2 | 1.0 – 4.0 | 39.69 | Max | 1.44 | 38.68 | 1.53 | 379 | 7.38 | 1918 | 13.82 |
| | | | Min | 1.01 | 38.25 | 0.24 | -170 | 6.55 | 354 | 7.44 |
| | | | Average | 1.21 | 38.48 | 0.92 | 66 | 7.04 | 993 | 10.79 |
| L | 1.0-4.0 | 38.71 | Max | 2.35 | 37.53 | 2.10 | 171 | 7.60 | 1807 | 13.30 |
| | | | Min | 1.18 | 36.36 | 0.39 | -124 | 6.52 | 260 | 7.97 |
| | | | Average | 2.12 | 36.59 | 1.22 | 51 | 7.03 | 987 | 10.54 |
| M | 1.0-3.0 | 37.81 | Max | 1.68 | 36.36 | 3.71 | 220 | 7.20 | 1577 | 13.20 |
| | | | Min | 1.45 | 36.13 | 0.00 | -49 | 6.52 | 664 | 7.66 |
| | | | Average | 1.55 | 36.26 | 1.39 | 98 | 6.86 | 1070 | 10.82 |
| N | 1.0-4.0 | 39.17 | Max | 1.80 | 37.89 | 1.54 | 224 | 7.20 | 7939 | 14.10 |
| | | | Min | 1.27 | 37.37 | 0.30 | -158 | 6.52 | 286 | 8.82 |
| | | | Average | 1.57 | 37.59 | 1.01 | 44 | 6.95 | 1543 | 11.48 |
| N1 | 1.0 – 3.0 | 39.16 | Max | 1.81 | 37.89 | 2.34 | 250 | 7.40 | 1183 | 14.90 |
| | | | Min | 1.28 | 37.35 | 0.28 | -150 | 6.51 | 355 | 9.21 |
| | | | Average | 1.61 | 37.55 | 1.20 | 81 | 7.06 | 792 | 11.20 |

| Well No | Screened interval (m) | Surface elevation (m AOD) | Values | Depth to water below Ground (m) | Water elevation (m AOD) | Dissolved Oxygen (mg/l) | REDOX (mV) | pH | Conductivity (µS/CM) | Temp (°C) |
|---------|-----------------------|---------------------------|---------|---------------------------------|-------------------------|-------------------------|------------|------|----------------------|-----------|
| O | 1.0-4.0 | 39.64 | Max | 1.57 | 38.20 | 2.37 | 216 | 7.30 | 1981 | 14.00 |
| | | | Min | 1.44 | 38.07 | 0.07 | -134 | 6.60 | 348 | 8.47 |
| | | | Average | 1.50 | 38.14 | 1.13 | 56 | 7.00 | 840 | 11.59 |
| P | 1.0-3.8 | 39.93 | Max | 3.42 | 37.57 | 1.34 | 252 | 7.27 | 1401 | 14.40 |
| | | | Min | 2.36 | 36.51 | 0.00 | -76 | 5.83 | 565 | 10.35 |
| | | | Average | 3.19 | 36.73 | 0.79 | 80 | 6.59 | 937 | 12.23 |
| Q | 1.0-4.0 | 39.22 | Max | 1.88 | 37.51 | 2.10 | 237 | 7.21 | 3246 | 15.50 |
| | | | Min | 1.71 | 37.34 | 0.17 | -83 | 6.50 | 548 | 7.79 |
| | | | Average | 1.82 | 37.39 | 1.11 | 53 | 6.86 | 1422 | 11.68 |
| S | 1.0-4.0 | 39.77 | Max | 3.44 | 36.51 | 3.22 | 236 | 7.27 | 2386 | 14.20 |
| | | | Min | 3.26 | 36.33 | 0.00 | -85 | 6.48 | 501 | 7.26 |
| | | | Average | 3.35 | 36.42 | 1.11 | 84 | 6.82 | 1083 | 10.81 |
| T | 1.0-3.0 | 39.5 | Max | 3.22 | 36.44 | 2.81 | 254 | 7.25 | 853 | 12.56 |
| | | | Min | 3.06 | 36.28 | 0.04 | -140 | 6.38 | 304 | 7.89 |
| | | | Average | 3.15 | 36.35 | 1.36 | 64 | 6.86 | 519 | 10.05 |
| V | 1.0-3.0 | 39.39 | Max | 2.25 | 37.73 | 1.42 | 235 | 7.20 | 1001 | 12.68 |
| | | | Min | 1.66 | 37.14 | 0.00 | -112 | 5.68 | 274 | 6.99 |
| | | | Average | 1.95 | 37.44 | 0.94 | 10 | 6.57 | 639 | 10.01 |

The groundwater monitoring results indicate that groundwater is present between 0.98m and 3.44m below ground level. As expected, the hydraulic gradient indicates that flow direction is toward the River Weaver from both sides of Nantwich.

Figure 2
Groundwater elevations plotted against borehole logs

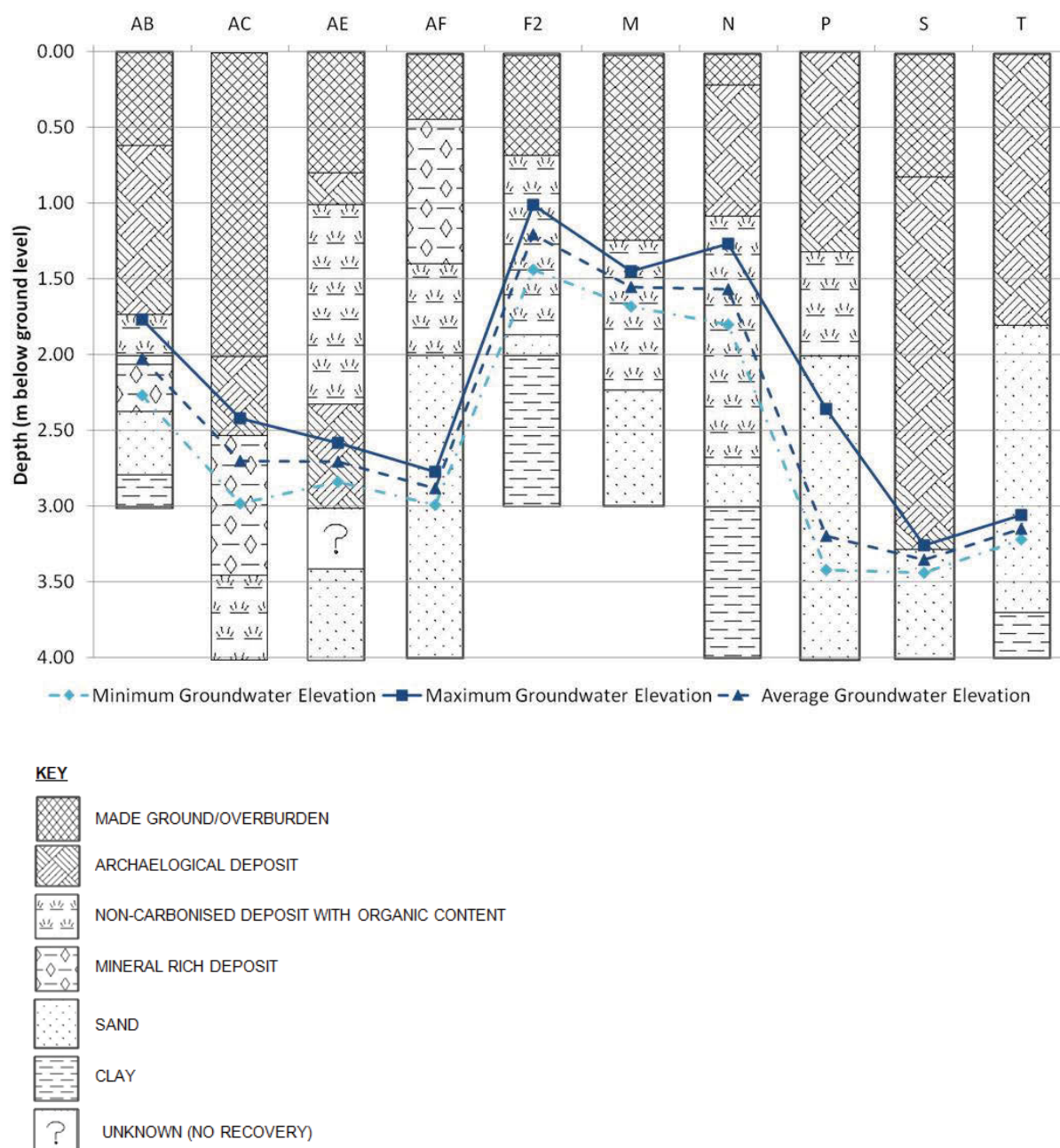


Figure 2 shows the maximum and minimum groundwater elevations plotted against ten borehole logs from the key borehole locations. This suggests that the Phase 1 conclusions were accurate in suggesting that the saturation of shallow sands overlying boulder clay is a contributing factor to the waterlogging of deposits, whereas areas with deeper sand deposition contribute to rapid drainage.

Redox Potential and Dissolved Oxygen

Figure 3
Redox v. Dissolved Oxygen graph

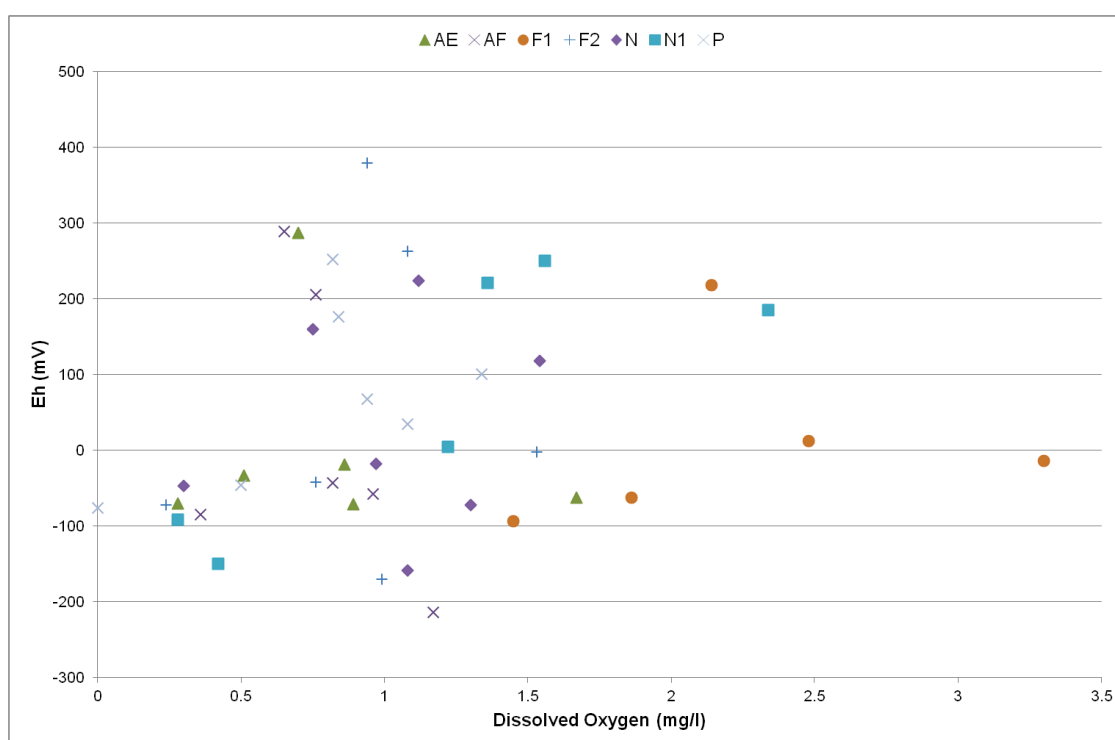


Figure 3 above indicates that there is a broad positive correlation between redox potential (ORP) and dissolved oxygen as was expected.

Dipwells F and P are in Preservation Zone 2, and Borehole P exhibited evidence for active decay when investigated in 2007 where as Borehole F showed evidence of good preservation. This would suggest that redox potential is a more reliable indicator of preservation levels than dissolved oxygen, as Borehole P exhibits relatively high oxidation potential although dissolved oxygen concentrations are less than 1.5mg/l. This contrasts with Borehole F which generally has lower redox potential but higher levels of dissolved oxygen. On this basis the comparison between reduction potential and pH (Figure 4 below) appears to give a more reliable indication of the preservation conditions within the study area.

Borehole N in Zone 1 produced the best preserved specimens during the soil sampling process, although data anomalies in this area may suggest that the preservation conditions are in a state of flux. Borehole AF is in the River Weaver floodplain and hence in Preservation Zone 1 as well, and this area recorded generally more reducing conditions and lower concentrations of dissolved oxygen which corresponds with the high levels of preservation observed in this area.

It must be noted that outliers in the data set should be used with caution as some margin of error can occur within the equipment sensors during the monitoring process. However the data set as a whole generally produces consistent values at each location.

Figure 4
Redox v. pH graph

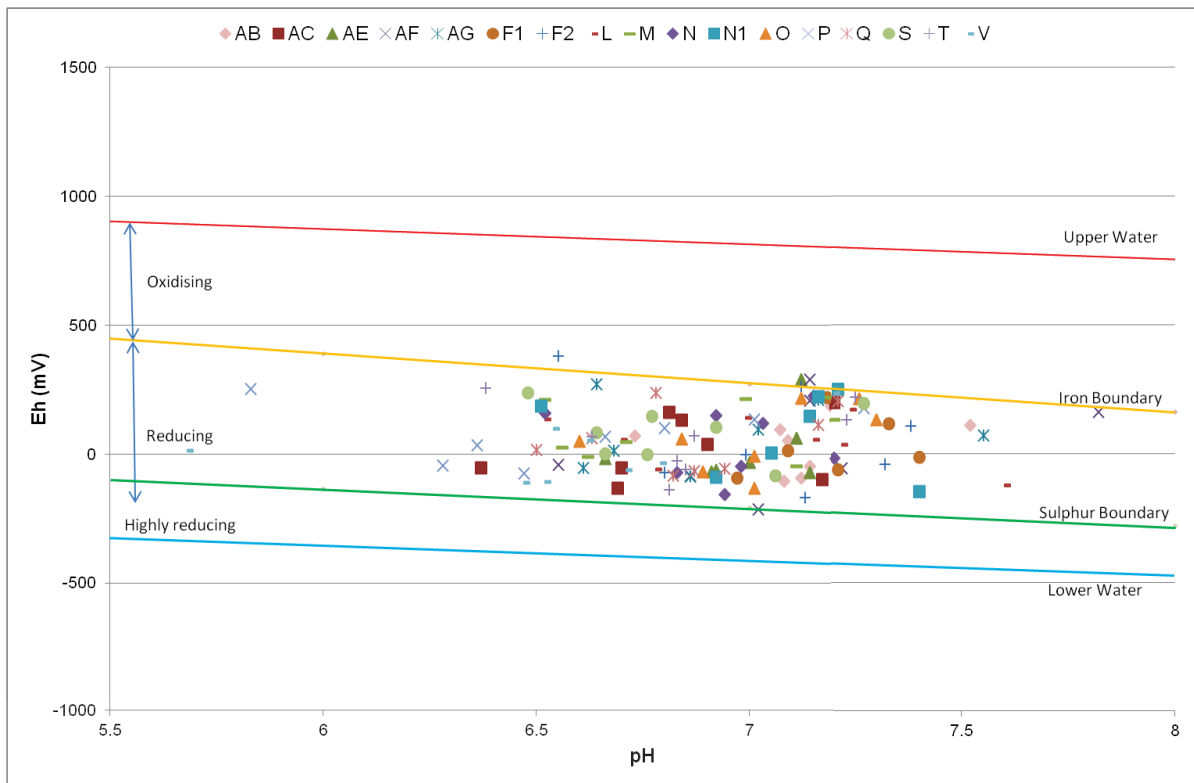


Figure 4 above shows a redox/pH diagram which indicates that reducing conditions predominate at the majority of monitoring points across Nantwich.

Figure 5
Seasonal Redox Fluctuations

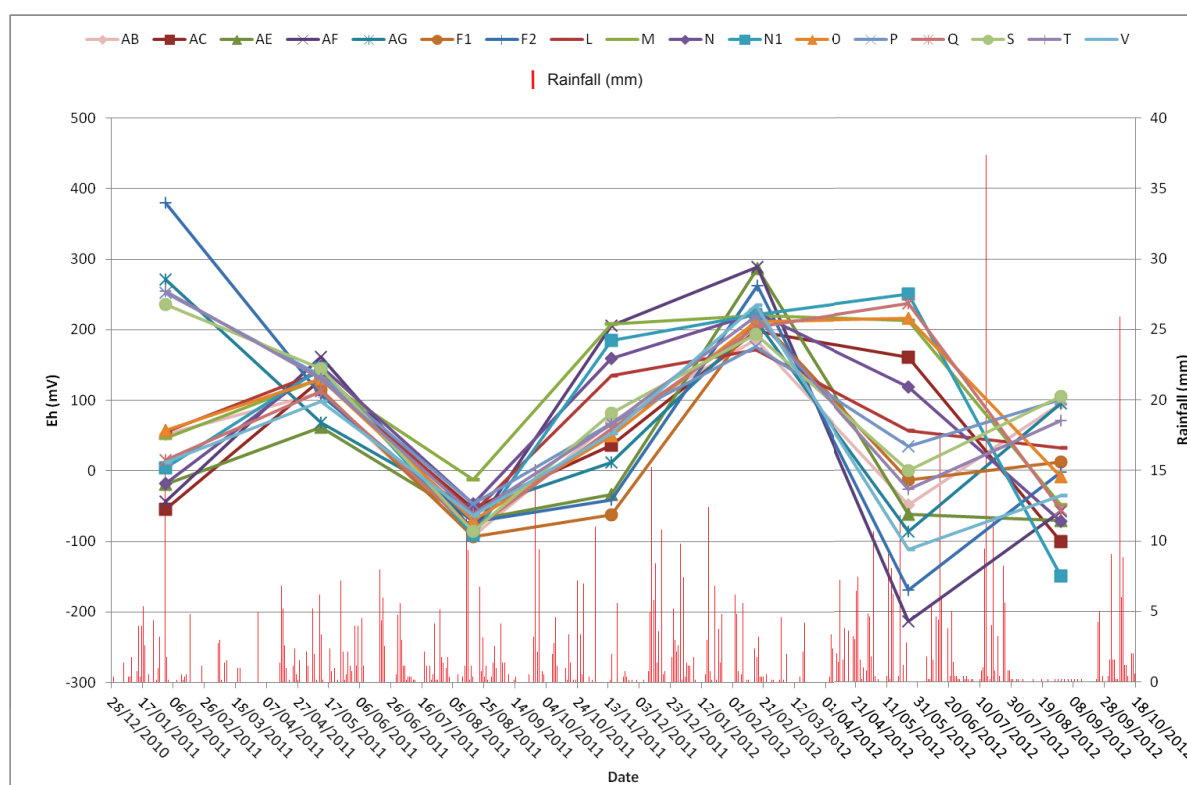


Figure 5 above shows the seasonal fluctuations in Redox values between January 2011 and September 2012. The data suggests that there is a general increase in Redox values over the winter period when effective rainfall causes an influx of oxygenated water into the ground. This theory is supported by the anomalous readings in spring/summer 2012 which coincide with the unseasonably high rainfall over that period.

Conductivity

Conductivity measurements provide a reliably accurate idea of the source of the water. Values recorded to date are all quite high suggesting an influx of chemical-laden groundwater into the deposits. Rainwater probably has a negligible influence. Very high readings probably indicate salt-rich groundwater from natural brine runs. These results complement the geochemical analyses that indicate the presence of sodium and chlorides.

pH

Overall the groundwater samples are near neutral or mildly acidic.

3.1.3 Groundwater Geochemical Laboratory Analysis

SLR collected groundwater samples on an annual basis from the fifteen separate monitoring points located across Nantwich (5 from Preservation Zone 1 and the remainder in Zone 2) and completed a suite of laboratory tests to characterise the geochemistry of the groundwater. Sampling was undertaken in February 2011 and February 2012 using a peristaltic low flow pump and each dipwell was purged of stagnant water until the water quality parameters stabilised. Samples were despatched to Jones Environmental Forensics of Deeside for analysis,

The results of the chemical analysis undertaken on the collected samples of groundwater are presented in Appendix D and key dissolved phase contaminants are summarised in Table 3. Another further round of groundwater geochemical analysis will be undertaken in February 2013.

Table 3
Water Analytical Chemistry Results

| BH | Date | Fe | Mn | CaCO ₃ | NO ₃ | SO ₄ | PO ₄ | S ²⁻ | CH ₄ | Na | C ⁻ | N | pH |
|----|---------|-------|-------|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|------|----------------|------|-----|
| AB | Feb '11 | 0 | 0.01 | 430 | 25 | 45 | 9.9 | 0 | 0 | 65 | 91 | 0.03 | 8.1 |
| | Feb '12 | 0 | 0 | 490 | 8.5 | 56 | 10 | 0 | 0.006 | 66 | 96 | 0 | 8.4 |
| AC | Feb '11 | 14 | 3.5 | 480 | 5.4 | 170 | 0 | 0 | 0 | 510 | 1100 | 1.5 | 7.4 |
| | Feb '12 | 0 | 2.1 | 430 | 0.4 | 190 | 0 | 0 | 0.36 | 2100 | 2800 | 2.6 | 8 |
| AE | Feb '11 | 0.25 | 1.7 | 710 | 0 | 62 | 12 | 0 | 2 | 150 | 230 | 21 | 7.8 |
| | Feb '12 | 0.011 | 1.2 | 850 | 0.9 | 9.9 | 11 | 0 | 5.3 | 200 | 310 | 24 | 8.3 |
| AF | Feb '11 | 0.1 | 0.92 | 870 | 0 | 12 | 11 | 0 | 3.4 | 470 | 790 | 46 | 7.7 |
| | Feb '12 | 0.021 | 0.92 | 940 | 0 | 12 | 8.6 | 0 | 3.8 | 410 | 590 | 50 | 8 |
| AG | Feb '11 | 0.24 | 0.54 | 550 | 0 | 310 | 0 | 0 | 0.009 | 600 | 1500 | 5.3 | 7.5 |
| | Feb '12 | 0.021 | 0.83 | 560 | 2.5 | 270 | 0.19 | 0 | 0.012 | 1700 | 3000 | 1.5 | 7.6 |
| F2 | Feb '11 | 0 | 1.4 | 480 | 0 | 220 | 0.82 | 0 | 0 | 180 | 330 | 4.7 | 7.7 |
| | Feb '12 | 0.058 | 0.45 | 310 | 0 | 38 | 14 | 0 | 0.94 | 91 | 100 | 1.9 | 8.4 |
| L | Feb '11 | 0 | 0.64 | 480 | 9.7 | 150 | 0.89 | 0 | 0.032 | 150 | 300 | 22 | 7.9 |
| | Feb '12 | 0.027 | 0.5 | 460 | 6.4 | 120 | 1.4 | 0 | 0 | 140 | 220 | 21 | 8.3 |
| M | Feb '11 | 0 | 0.15 | 350 | 3.1 | 100 | 7.8 | 0 | 0 | 200 | 370 | 0.23 | 7.5 |
| | Feb '12 | 0.03 | 0.24 | 390 | 6 | 130 | 7.1 | 0 | 0 | 210 | 300 | 0.09 | 8.3 |
| N1 | Feb '11 | 0.07 | 0.48 | 470 | 1.2 | 86 | 0.41 | 0 | 8.1 | 110 | 180 | 4.5 | 7.9 |
| | Feb '12 | 0.17 | 0.6 | 470 | 1.5 | 75 | 0.12 | 0 | 6.8 | 64 | 79 | 3.5 | 8.3 |
| O | Feb '11 | 0 | 1.4 | 590 | 3.4 | 42 | 1.2 | 0 | 0 | 140 | 200 | 10 | 7.8 |
| | Feb '12 | 0.023 | 1.2 | 450 | 0.3 | 28 | 5 | 0 | 0 | 73 | 76 | 8.1 | 8.4 |
| P | Feb '11 | 0 | 1.3 | 250 | 17 | 470 | 16 | 0 | 0.007 | 15 | 17 | 0.12 | 7 |
| | Feb '12 | 0 | 2.3 | 240 | 32 | 880 | 15 | 0 | 0 | 23 | 23 | 0.4 | 8.1 |
| Q | Feb '11 | 0 | 0.15 | 280 | 6 | 59 | 6 | 0 | 0 | 660 | 1100 | 0.15 | 7.5 |
| | Feb '12 | 0.013 | 0.034 | 370 | 24 | 58 | 11 | 0 | 0 | 550 | 750 | 0 | 8.3 |
| S | Feb '11 | 0 | 0.21 | 340 | 2 | 56 | 7.7 | 0 | 0.017 | 100 | 200 | 0.29 | 7.3 |
| | Feb '12 | 0.016 | 0.31 | 310 | 16 | 72 | 5 | 0 | 0.005 | 310 | 580 | 0.17 | 8.1 |
| T | Feb '11 | 0 | 0.79 | 300 | 1.8 | 20 | 12 | 0 | 3 | 31 | 69 | 4 | 7.4 |
| | Feb '12 | 0.084 | 1.1 | 380 | 0 | 30 | 14 | 0 | 2 | 45 | 76 | 6 | 8.2 |
| V | Feb '11 | 0 | 4 | 78 | 0 | 400 | 0 | 0 | 0.094 | 18 | 16 | 1.2 | 6.4 |
| | Feb '12 | 1.9 | 8.6 | 0 | 0 | 970 | 0 | 0 | 0.026 | 38 | 35 | 1.8 | - |

All concentrations are measured in mg/l rounded to 2 significant figures, except pH.

Most samples were alkaline or had near-neutral pH values, apart from BHV. Assays for the principal redox reactive species proved negative for sulphides, but sulphates were present in all samples, whilst nitrates were absent from boreholes AE, AF, F2, T and V. Dissolved iron was low too but appreciable concentrations of both sodium and chloride were recorded in all samples. Interestingly methane was also detected from 10 samples, with the highest concentration recorded from BH N1. It will be remembered that the best level of preservation was recorded from samples from N during the Phase 1 work completed in 2007.

BH P which was described as being in active decay when assessed in 2007 exhibited a high concentration of sulphate (880 mg/L), although the highest concentration of sulphate was recorded in BH V.

3.1.4 Permeability of Deposits

In Situ permeability testing was undertaken in fifteen of the dipwells during 2011 in order to assess the differences in permeability within the varying soil types encountered during the previous borehole investigations. The tests used a plastic cylindrical slug that had been lowered into the water column to displace a fixed volume from the dipwell. Once the groundwater level had returned to rest conditions the plastic cylindrical slug was removed as quickly as possible. The rate of groundwater recharge was then measured using a pressure transducer to calculate the length of time that the water level took to stabilise. The results were then analysed to calculate the permeability of the deposits at each location.

The details of the permeability analysis are shown in Appendix F and the results of the permeability testing are summarised in Table 4 below.

Table 4
Permeability Results

| BH Ref. | Permeability (m/day) | Soil Type |
|----------------|-----------------------------|----------------------|
| AB | 0.5 | SILT & SAND |
| AC | 0.1 | Clayey SAND |
| AE | 0.3 | Very sandy SILT |
| AF | 0.2 | Sandy SILT |
| AG | 0.01 | CLAY |
| F2 | 0.1 | Sandy SILT & CLAY |
| L | 2 | SAND |
| M | 3 | SAND |
| N | 0.02 | SILT & CLAY |
| O | 0.001 | CLAY |
| P | 2 | SAND |
| Q | 0.7 | Silty SAND |
| S | 3 | SAND |
| T | 6 | SAND |
| V | 4 | Slightly clayey SAND |

The results of permeability testing show that the rates of permeability fall within the typical values for the relevant soil types, and therefore can be considered to be appropriate. The soil types and permeability values show that there is an area of high permeability in the vicinity of St Mary's church which may have a significant drainage effect on the surrounding locality.

Therefore, the dipwells in this area tend to have a lower water table and this is confirmed in the groundwater monitoring data. In general the inverse is true at other locations where less permeable sediments are present, and the dipwells in these locations tend to have a water table at a shallower depth.

4.0 RESULTS OF GROUND GAS MONITORING

Quarterly ground gas monitoring was undertaken in each of the installed seventeen dipwells using a Geotechnical Instruments GA2000 gas analyser. The Gas Analyser is used to measure the concentration of hydrogen sulphide, methane, oxygen, carbon monoxide and dioxide through the gas taps which have been fitted to all dipwells. Methane and hydrogen sulphide are indicators of anaerobic conditions, but methane can also be generated from the decay of organic debris. Oxygen, carbon monoxide and carbon dioxide are indicators of oxygen-rich deposits.

The results of the ground gas monitoring are shown in Table 5 below.

Table 5
Ground Gas Monitoring Results

| BH | Value | Methane (%) | Hydrogen Sulphide (ppm) | Carbon Dioxide (%) | Oxygen (%) | Carbon Monoxide (ppm) |
|----|---------|-------------|-------------------------|--------------------|------------|-----------------------|
| AB | Max | 0.00 | 0.00 | 0.70 | 20.90 | 5.00 |
| | Min | 0.00 | 0.00 | 0.00 | 19.40 | 0.00 |
| | Average | 0.00 | 0.00 | 0.27 | 20.23 | 0.71 |
| AC | Max | 5.90 | 5.00 | 4.60 | 14.70 | 5.00 |
| | Min | 1.80 | 0.00 | 1.60 | 1.70 | 0.00 |
| | Average | 3.89 | 0.71 | 3.47 | 6.50 | 1.14 |
| AE | Max | 0.10 | 0.00 | 11.70 | 20.70 | 7.00 |
| | Min | 0.00 | 0.00 | 0.10 | 6.90 | 0.00 |
| | Average | 0.03 | 0.00 | 6.91 | 12.29 | 1.00 |
| AF | Max | 0.80 | 0.00 | 7.40 | 17.20 | 4.00 |
| | Min | 0.00 | 0.00 | 0.90 | 11.90 | 0.00 |
| | Average | 0.19 | 0.00 | 3.29 | 15.63 | 0.71 |
| AG | Max | 0.00 | 0.00 | 10.30 | 20.90 | 0.00 |
| | Min | 0.00 | 0.00 | 0.00 | 5.20 | 0.00 |
| | Average | 0.00 | 0.00 | 4.79 | 13.64 | 0.00 |
| F1 | Max | 0.00 | 0.00 | 3.20 | 20.50 | 0.00 |
| | Min | 0.00 | 0.00 | 0.60 | 16.80 | 0.00 |
| | Average | 0.00 | 0.00 | 1.61 | 18.44 | 0.00 |
| F2 | Max | 0.10 | 0.00 | 2.10 | 20.60 | 3.00 |
| | Min | 0.00 | 0.00 | 0.00 | 18.00 | 0.00 |
| | Average | 0.03 | 0.00 | 0.86 | 19.34 | 0.57 |
| L | Max | 0.00 | 1.00 | 1.00 | 20.40 | 5.00 |
| | Min | 0.00 | 0.00 | 0.05 | 19.60 | 0.00 |
| | Average | 0.00 | 0.14 | 0.71 | 20.04 | 1.00 |
| M | Max | 0.10 | 0.00 | 3.20 | 20.80 | 0.00 |
| | Min | 0.00 | 0.00 | 0.30 | 17.60 | 0.00 |
| | Average | 0.01 | 0.00 | 1.44 | 19.33 | 0.00 |
| N | Max | 0.10 | 0.00 | 7.40 | 20.60 | 3.00 |
| | Min | 0.00 | 0.00 | 0.00 | 10.50 | 0.00 |
| | Average | 0.01 | 0.00 | 3.44 | 15.51 | 0.43 |
| N1 | Max | 0.10 | 0.00 | 7.60 | 20.90 | 2.00 |
| | Min | 0.00 | 0.00 | 0.00 | 9.30 | 0.00 |
| | Average | 0.03 | 0.00 | 2.06 | 17.69 | 0.29 |
| O | Max | 0.10 | 0.00 | 0.40 | 20.80 | 0.00 |
| | Min | 0.00 | 0.00 | 0.00 | 20.00 | 0.00 |
| | Average | 0.01 | 0.00 | 0.19 | 20.50 | 0.00 |
| P | Max | 0.00 | 0.00 | 3.20 | 20.90 | 0.00 |
| | Min | 0.00 | 0.00 | 0.00 | 16.90 | 0.00 |
| | Average | 0.00 | 0.00 | 0.51 | 19.96 | 0.00 |

| BH | Value | Methane (%) | Hydrogen Sulphide (ppm) | Carbon Dioxide (%) | Oxygen (%) | Carbon Monoxide (ppm) |
|-----------|---------|-------------|-------------------------|--------------------|------------|-----------------------|
| P1 | Max | 0.00 | 0.00 | 3.30 | 20.70 | 5.00 |
| | Min | 0.00 | 0.00 | 0.10 | 16.20 | 0.00 |
| | Average | 0.00 | 0.00 | 1.70 | 18.76 | 0.71 |
| Q | Max | 0.10 | 0.00 | 1.60 | 20.90 | 0.00 |
| | Min | 0.00 | 0.00 | 0.10 | 17.70 | 0.00 |
| | Average | 0.03 | 0.00 | 0.40 | 20.10 | 0.00 |
| S | Max | 0.00 | 0.00 | 4.70 | 20.60 | 3.00 |
| | Min | 0.00 | 0.00 | 0.00 | 14.00 | 0.00 |
| | Average | 0.00 | 0.00 | 2.60 | 17.77 | 0.43 |
| T | Max | 0.00 | 0.00 | 1.60 | 21.00 | 3.00 |
| | Min | 0.00 | 0.00 | 0.10 | 18.80 | 0.00 |
| | Average | 0.00 | 0.00 | 0.59 | 20.06 | 0.43 |
| V | Max | 0.10 | 0.00 | 2.70 | 20.20 | 0.00 |
| | Min | 0.00 | 0.00 | 0.40 | 18.50 | 0.00 |
| | Average | 0.01 | 0.00 | 1.66 | 19.19 | 0.00 |

The results of the ground gas monitoring indicate that as would be expected, oxygen is the principal gas present, followed by carbon dioxide, carbon monoxide, methane and lastly hydrogen sulphide. Borehole AC has consistently recorded the highest concentrations of methane and one of only two detections, to date, of hydrogen sulphide (the other was from borehole L). High levels of methane in BH AC also correspond with lower concentrations of oxygen which suggest reducing conditions exist at this location. However, methane gas can travel long distances underground following paths of less resistance and therefore the source of the gas might not be immediately adjacent to the dipwell at AC.

Furthermore as both methane and hydrogen sulphide can oxidise rapidly then an absence in detection does not necessarily imply the gas is not present within the deposits. For example, higher-than-average concentrations of carbon dioxide have been observed in borehole AE with corresponding lower-than-average levels of oxygen and zero levels of methane. Such high levels of carbon dioxide could have resulted from the aerobic conversion of methane gas and hence an absence of either methane or hydrogen sulphide does not indicate an absence of reducing conditions.

5.0 DISCUSSION

5.1 Summary

After 21 months of data collection it can be seen that some significant potential results are being obtained on which to base preliminary hypotheses which can be tested over the final year of the project. Although some refining of the methodology has been introduced during this period to increase efficiency, in general the results demonstrate that the original design for the project was robust and is achieving a successful outcome. A complementary study for comparative redox measurements is also being undertaken at location N as part of a separate English Heritage project, which will produce a synergy to enhance both projects.

The results appear to show distinct sets of results within certain areas which should be confirmed through GIS analysis of the data set modelling:

- a) Zone 1 east of river Snow Hill car park;
- b) Zone 2 east of river locations;
- c) Zone 2 east of river around St Nicholas' church;
- d) Zone 1 west of river Welsh Row and car park locations.

The unsaturated sandy deposits around location P are of most concern for sustainable conservation of the water-logged deposits and it is recommended that further investigation of the soil moisture content in this location would enhance our understanding of the burial environment.

The radiocarbon dates obtained for locations AE and AF (First Wood Street) add significantly to the existing corpus of scientific dates from Nantwich. They reiterate the early onset of waterlogged conditions and thus preservation of organic remains, with the sub-Roman date at AE similar to the date established for the base of deposits at location N (Snow Hill). The dates from AF conform to other sites which have Late Saxon and Norman dates including the brushwood trackway at location AD (Welsh Row), location P (between High Street and Pepper Street), and location F (Church Lane).

5.2 Equipment performance and recording frequency

During the past year there have been no faults with monitoring equipment, and there has been no damage to the dipwells. Data download and data management has also proceeded without problem. Restricted flow to the rainwater gauge occurred during the summer from an insect infestation, even though a mesh had been applied to prevent the kind of blockage that resulted in loss of measurements in 2011. Loss of data was prevented by more frequent visits to check the gauge, and to clean out any potential blockages. One recommendation from this project would be to use a different design for rainfall measurement in the future, such as a water-butt with a transducer although this approach could result in a minimal loss in accuracy compared to the existing rainfall gauge.

Since November 2011 the quarterly gas and *in situ* water monitoring rounds have been separated rather than being undertaken at the same time. This has allowed a more frequent interval for checking on the dipwells and rain gauge, which is now undertaken on a six weekly interval, rather than the previous three monthly interval as originally specified in the methodology. During the gas monitoring round a simple dip round is also undertaken to record water depth, which has increased the volume of data available from that anticipated in the original design.

5.3 Hydrological results

The data show a consistent relationship between rainfall and groundwater level. Two groups emerge from these data, the first consisting of dipwells AE, AF and P which each have a relatively low maximum response to rainfall (e.g. 0.4m for P) and which group within a depth below ground level generally ranging between 2.5 – 3.4m, and a second group consisting of dipwells AB, F1 and N1 which display a greater maximum response to rainfall (e.g. 1.2m for F1) and which group within a depth below ground level generally ranging between 0.5 – 2.3m (see Figure 1 above).

The relationship between these results and the underlying geology suggests that coarse sediments drain more rapidly only where there is sufficient depth for the sands not to become saturated. Where these are shallow deposits overlying boulder clay the water appears to become trapped, thus maintaining water-logged conditions.

5.4 Water and gas chemistry

Conductivity and salinity is highest around the Snow Hill car park area, as represented by dipwells N, N1 and AC. Dipwell N also records high levels of dissolved methane, in contrast to the gas monitoring which shows high levels of carbon-dioxide. These potentially conflicting data need more analysis, but it could indicate that the elevated levels of CO₂ are the result of decay, in spite of visual and chemical analysis of soil cores which have suggested there is good preservation in this location. It is recommended that more analysis is undertaken to try to identify the source and pathways of methane and carbon-dioxide.

The very low levels of hydrogen sulphide and lack of sulphate reduction generally indicate that conditions for preservation are continuing without much change in the locations being monitored. The redox v. pH graph (Figure 4) supports this hypothesis showing that predominantly reducing conditions exist within all dipwell locations in Nantwich.

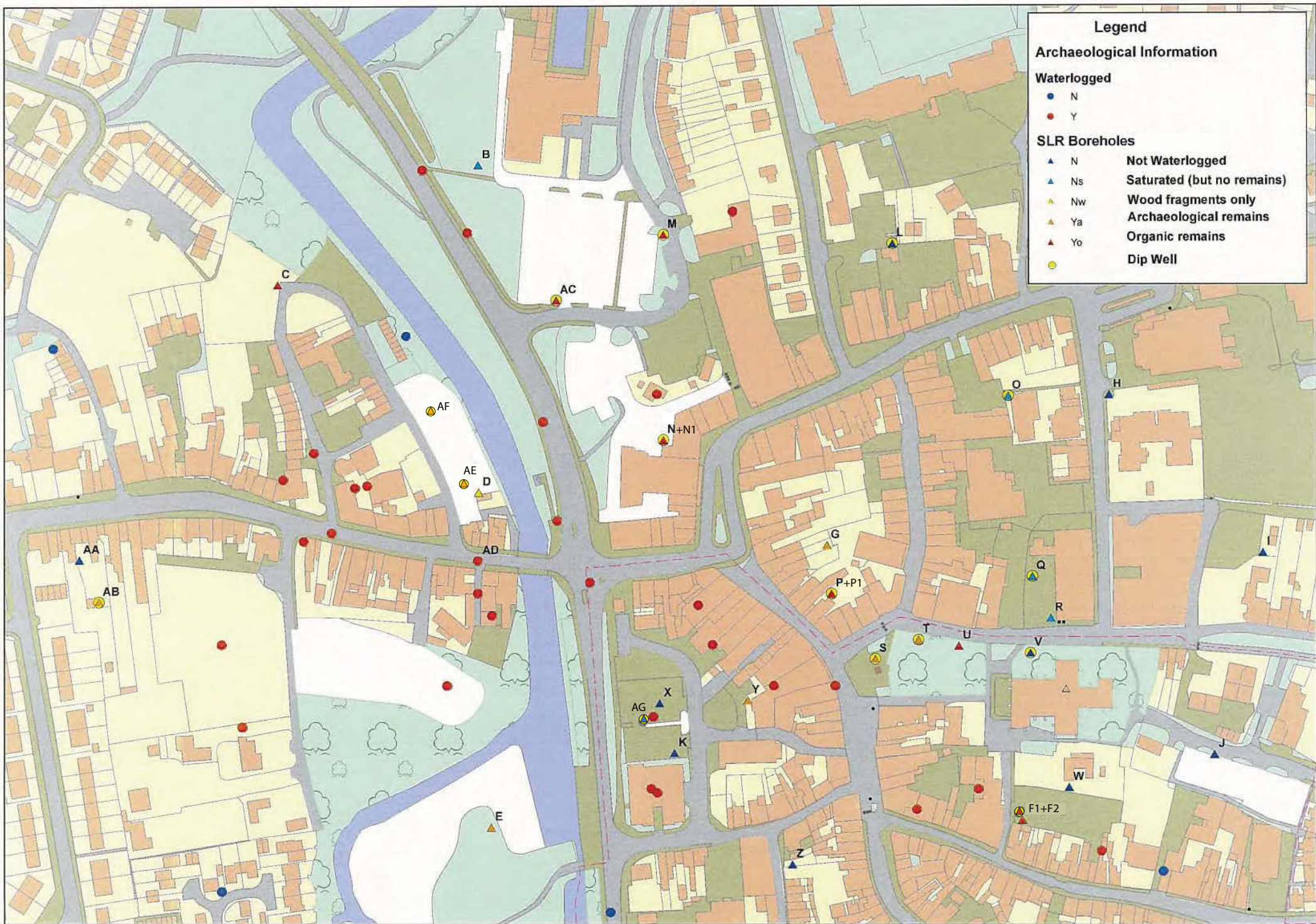
6.0 CONCLUSIONS

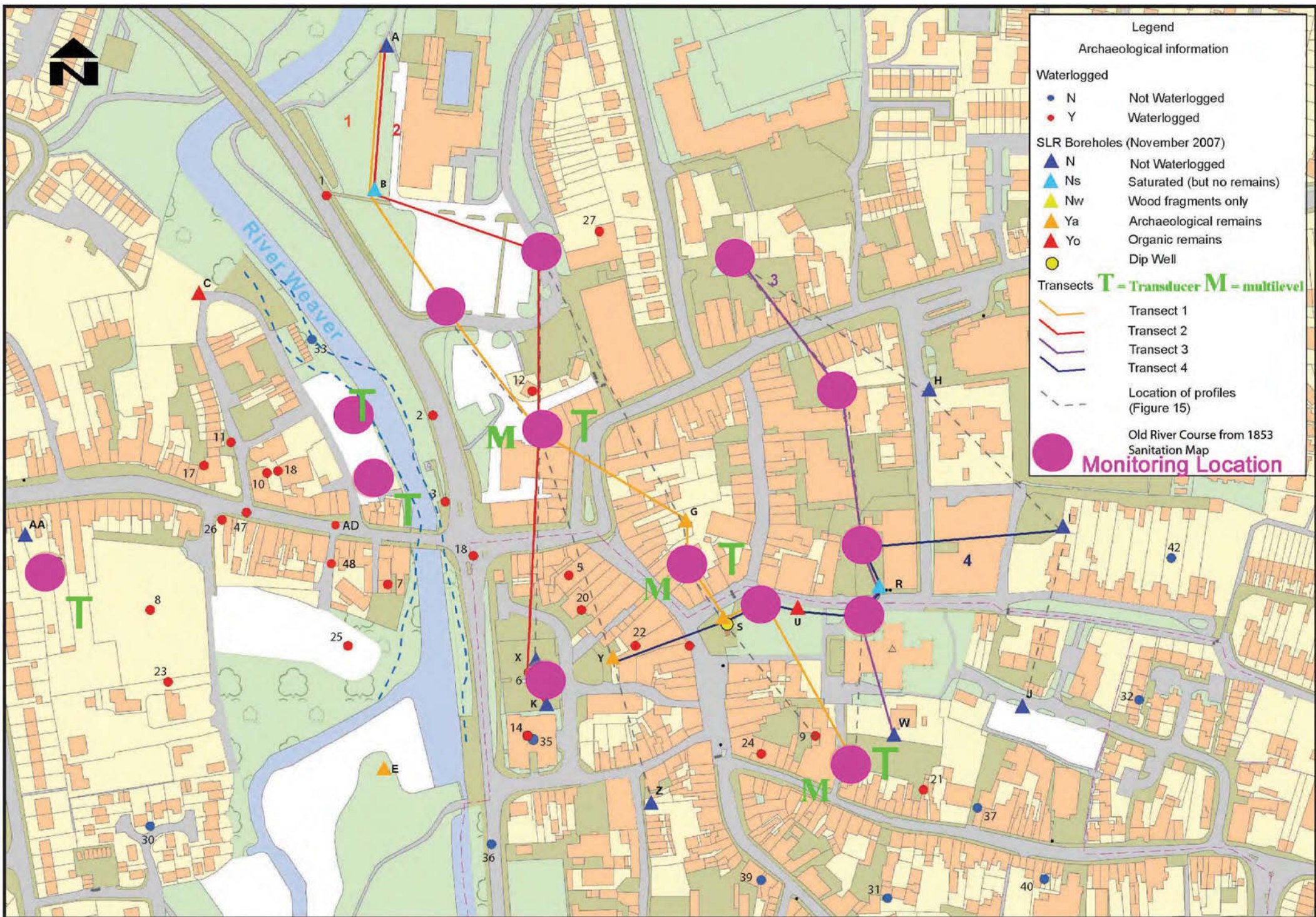
The project is progressing according to schedule and is proving the effectiveness of the methodology designed for the delivery of the project. A number of recommendations are included above, and the results so far have generated preliminary hypotheses that can be tested over the final year through modelling the data in GIS.

7.0 CLOSURE

This report has been prepared by SLR Consulting Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Cheshire East Council and English Heritage; no warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR Consulting. SLR Consulting disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.





BOREHOLE LOG

BOREHOLE No.
BH AA

Client:
CHESHIRE COUNTY COUNCIL



Project No:
406.0889.00003.005

Date:
12/09/07

Ground Level:
37.97maOD

Co-ordinates:
E364730 N352391

Project:
NANTWICH WATERLOGGED DEPOSITS

Sheet:
1 of 1

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|-------|---|-------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| | | | | | | | 37.33 | (0.64) | 0.64 | MADE GROUND/OVERBURDEN 0.35 - 0.54 Crushed brick and tile fragments present (<20mm). | |
| 1 | | | | | | | | (1.96) | 2.60 | SAND 0.64 - 0.74 Becomes dark greyish brown. | |
| 2 | | | | | | | 35.37 | (0.40) | 3.00 | CLAY | |
| 3 | | | | | | | 34.97 | | | Borehole complete at 3.00m | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

All dimensions in metres
Scale 1:37.5

Contractor : Sherwood Drilling
Plant: Geotool

Method: Windowless Sampler
Hole Size:

Logged By:

Approved By:

BOREHOLE LOG

BOREHOLE No.
BH AB

Client:
CHESHIRE COUNTY COUNCIL



Project No:
406.0889.00003.005

Date:
12/09/07

Ground Level:
37.93maOD

Co-ordinates:
E364740 N352370

Project:
NANTWICH WATERLOGGED DEPOSITS

Sheet:
1 of 1

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|-------|--|-------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| 1 | | | | | | ↓ 1 | 37.32 | (0.61) | 0.61 | MADE GROUND/OVERBURDEN 0.34 - 0.43 Brick becoming abundant. | █ |
| | | | | | | | 36.20 | (1.12) | 1.73 | ARCHAEOLOGICAL DEPOSIT 0.61 - 1.00 Brick, tile, coal and charcoal fragments (<20mm). 1.10 - 1.73 Occasional black gravels of ash/cinder (<10mm). | |
| | | | | | | | 35.93 | (2.00) | 2.00 | NON-CARBONISED DEPOSIT WITH ORGANIC CONTENT 1.73 - 2.00 Slight sulphide odour. | |
| | | | | | | | 35.87 | (2.06) | 2.06 | No Recovery. | |
| | | | | | | | 35.56 | (0.31) | 2.37 | MINERAL RICH DEPOSIT | |
| | | | | | | | 35.14 | (0.42) | 2.79 | SAND 2.70 - 2.79 Rounded pebbles (<20 mm) common. | |
| | | | | | | | 34.93 | (3.00) | 3.00 | CLAY | |
| | | | | | | | | | | Borehole complete at 3.00m | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|---|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | Groundwater present at 2.13m bgl. Well headspace concentration 40ppm. |

All dimensions in metres
Scale 1:37.5

Contractor : Sherwood Drilling
Plant: Geotool

Method: Windowless Sampler
Hole Size:

Logged By:

Approved By:

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| | | | | | |
|--|-------------------|----------------------------|----------------------------------|--|------------------------------|
| <h1>BOREHOLE LOG</h1> | | | | | BOREHOLE No. BH AC |
| Client: CHESHIRE COUNTY COUNCIL | | | | | |
| Project No: 406.0889.00003.005 | Date: 12/09/07 | Ground Level: 36.42maOD | Co-ordinates: E364963 N352517 | | |
| Project: NANTWICH WATERLOGGED DEPOSITS | | | | | Sheet: 1 of 1 |

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|--------|--|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | |
| 1 | | | | | | ↓ | | | (2.00) | MADE GROUND/OVERBURDEN 0.77 - 0.80 Brick and tile fragments (<40 mm) present. 0.99 - 1.00 Modern glass fragments (<40 mm) present. |
| 2 | | | | | | | 34.42 | | 2.00 | ARCHAEOLOGICAL DEPOSIT |
| 3 | | | | | | | 33.90 | | (0.52) | 2.38 - 2.44 Rotted mortar (<12 mm) present. |
| 4 | | | | | | | 32.98 | | (0.92) | MINERAL RICH DEPOSIT |
| 5 | | | | | | | 32.42 | | (0.56) | NON-CARBONISED DEPOSIT WITH ORGANIC CONTENT 3.55 - 3.59 Large stone inclusions (<60mm). 3.63 - 3.68 Large stone inclusions (<60mm). |
| | | | | | | | | | | Borehole complete at 4.00m |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|---|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | Groundwater present at 2.83m bgl. Well headspace concentration 20 000ppm. |

| | | | |
|--|--|--|--|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| | | | | |
|--|-------------------|----------------------------|---------------|---------------------------|
| BOREHOLE LOG | | | | BOREHOLE No. AE |
| Client: ENGLISH HERITAGE & CHESHIRE EAST COUNCIL | | | | |
| Project No: 406.00889.00005 | Date: 10/01/11 | Ground Level: 35.19maOD | Co-ordinates: | |
| Project: NANTWICH WATERLOGGED DEPOSITS | | | | Sheet: 1 of 1 |

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|--------|--|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | |
| | | | | | | | 35.04 | | 0.15 | MADE GROUND: Tarmac over sub base |
| | | | | | | | | ? | (0.40) | No recovery |
| | | | | | | | 34.64 | | 0.55 | |
| | | | | | | | 34.49 | o o o | 0.70 | Very loose dark greyish brown silty sandy medium GRAVEL |
| | | | | | | | 34.40 | | 0.79 | Medium dense dark grey gravelly coarse SAND |
| | | | | | | | 34.29 | o o o | 0.90 | Medium dense greyish white GRAVEL of mortar with rare brick/tile fragments |
| 1 | | | | | | | 34.19 | x x x | 1.00 | Very dense dark greyish brown silty fine SAND, with rare flecks of mortar 0.97 - 1.00 ...Large brick/tile fragment (60 mm). |
| | | | | | | | | x x x | (1.00) | Very soft greyish brown sandy SILT, with rare brick/tile and slight sulphide odour and rotted wood fragments. |
| | | | | | | | 33.19 | x x x | 2.00 | |
| 2 | | | | | | | 33.02 | x x x | 2.17 | Very soft dark grey slightly sandy coarse SILT with frequent brick/tile and mortar |
| | | | | | | | 32.88 | x x x | 2.31 | Very soft coarse SILT, with abundant charcoal and rare mortar fragments 2.27 - 2.31 ...Very rotted wood fragments. |
| | | | | | | | | x x x | (0.69) | Very soft greyish brown sandy coarse SILT with reddish brown mottling and rare fragments of brick/tile, mortar and charcoal |
| | | | | | | | 32.19 | x x x | 3.00 | 2.70 - 3.00 ...Becoming slightly clayey. |
| 3 | | | | | | | | ? | (0.40) | No recovery |
| | | | | | | | 31.79 | x x x | 3.40 | Very dense dark grey silty fine SAND with rare patches of black staining |
| | | | | | | | | x x x | (0.60) | |
| 4 | | | | | | | 31.19 | | 4.00 | Borehole complete at 4.00m |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

| | | | | |
|---|---|--|-----------------------|--------------------|
| All dimensions in metres Scale 1:31.25 | Contractor : Sherwood Drilling Plant:Geotool | Method: Windowless Sampler Hole Size: | Logged By: JC & IP | Approved By: TM |
|---|---|--|-----------------------|--------------------|

BOREHOLE LOG

BOREHOLE No.
AF

Client:
ENGLISH HERITAGE & CHESHIRE EAST COUNCIL



| | | | |
|--------------------------------|-------------------|----------------------------|---------------|
| Project No: 406.00889.00005 | Date: 11/01/11 | Ground Level: 34.89maOD | Co-ordinates: |
|--------------------------------|-------------------|----------------------------|---------------|

Project:
NANTWICH WATERLOGGED DEPOSITS

Sheet:
1 of 1

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|-------|--|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | |
| | | | | | | | 34.74 | | 0.15 | MADE GROUND: Tarmac over sub base |
| | | | | | | | 34.59 | ? | 0.30 | No recovery |
| | | | | | | | 34.46 | o o o | 0.43 | Very loose greyish brown slightly silty slightly sandy coarse GRAVEL |
| | | | | | | | | (0.40) | | Stiff brown CLAY |
| | | | | | | | 34.06 | x x x | 0.83 | Firm brown to dark grey slightly sandy silty CLAY |
| 1 | | | | | | | 33.89 | x x x | 1.00 | 0.98 - 1.00 ...Single coarse gravel fragment. |
| | | | | | | | | (0.39) | | Stiff brown CLAY 1.17 - 1.20 ...Cinder fragments up to 18 mm. |
| | | | | | | | 33.50 | x x x | 1.39 | 1.30 ...Single coarse gravel fragment. |
| | | | | | | | | (0.61) | | Firm dark grey silty CLAY, becoming increasingly silty with depth 1.52 - 1.56 ...Wood fragments up to 15 mm . 1.72 - 1.78 ...Pocket of brown clay. |
| 2 | | | | | | | 32.89 | x x x | 2.00 | Very soft dark greyish brown sandy organic SILT with occasional patches of black - sulphide staining. |
| | | | | | | | 32.41 | x x x | 2.48 | Very soft greyish brown slightly clayey sandy SILT |
| 3 | | | | | | | | (1.18) | | |
| | | | | | | | 31.23 | x x x | 3.66 | Very dense greyish brown to dark grey slightly clayey fine SAND |
| 4 | | | | | | | 30.89 | x x x | 4.00 | Borehole complete at 4.00m |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

| | | | |
|---|--|--|---------------------------------------|
| All dimensions in metres Scale 1:31.25 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: JC & IP Approved By: TM |
|---|--|--|---------------------------------------|

| | | | | | |
|--|--|-------------------|----------------------------|---------------------------|--|
| BOREHOLE LOG | | | | BOREHOLE No. AG | |
| Client: ENGLISH HERITAGE & CHESHIRE EAST COUNCIL | | | | | |
| Project No: 406.00889.00005 | | Date: 11/01/11 | Ground Level: 37.03maOD | | |
| Project: NANTWICH WATERLOGGED DEPOSITS | | | | Sheet: 1 of 1 | |

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|---------|---------|---------|-------|--------|---------------|--------------------|--------|--|-------------|
| Depth | Type No | HS(ppm) | HV(kPa) | PP(kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| | | | | | | | 36.88 | | 0.15 | MADE GROUND: Tarmac over sub base | |
| | | | | | | | | ? | (0.75) | No recovery | |
| | | | | | | | 36.13 | | 0.90 | | |
| 1 | | | | | | | 36.03 | ? | 1.00 | Very loose light grey slightly sandy silty coarse GRAVEL | |
| | | | | | | | | ? | (0.90) | No recovery | |
| | | | | | | | 35.13 | | 1.90 | | |
| 2 | | | | | | | 35.03 | ? | 2.00 | Firm brown slightly sandy silty gravelly CLAY with abundant dark grey/black ash. | |
| | | | | | | | | ? | (0.30) | No recovery | |
| | | | | | | | 34.73 | | 2.30 | | |
| | | | | | | | 34.53 | | 2.50 | Firm brown slightly sandy silty gravelly CLAY with abundant dark grey/black ash. | |
| 3 | | | | | | | | ? | (1.50) | Stiff brown CLAY | |
| | | | | | | | | | | | |
| 4 | | | | | | | 33.03 | | 4.00 | | |
| | | | | | | | | | | Borehole complete at 4.00m | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

| | | | |
|---|--|--|---------------------------------------|
| All dimensions in metres Scale 1:31.25 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: JC & IP Approved By: TM |
|---|--|--|---------------------------------------|

BOREHOLE LOG

BOREHOLE No.
BHA

Client:
CHESHIRE COUNTY COUNCIL



Project No:
406.0889.00003.005

Date:
30/07/07

Ground Level:
33.29maOD

Co-ordinates:
E364931 N352661

Project:
NANTWICH WATERLOGGED DEPOSITS

Sheet:
1 of 1

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|--------|--|-------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| 1 | | | | | | | | ◇ | | MINERAL RICH DEPOSIT | |
| 2 | | | | | | | | ◇ | (3.48) | 1.61 - 1.63 Discontinuity of moist to wet, soft to unconsolidated, light grey, sand. | |
| 3 | | | | | | | | ◇ | | 2.35 - 2.65 Very granular appearance caused by presence of indurated clay lumps (<3 mm) within the matrix. | |
| 4 | | | | | | | 29.81 | ◇ | 3.48 | 3.20 - 3.48 Becoming slightly wetter and more sticky. | |
| 4 | | | | | | | 29.39 | ◇ | (0.42) | SAND | |
| 4 | | | | | | | | | 3.90 | Borehole complete at 3.90m | |

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

| | | | |
|--|--|--|--|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

BOREHOLE LOG

BOREHOLE No.
BHAE

Client:
CHESHIRE COUNTY COUNCIL



Project No:
406.0889.00003.005

Date:
10/01/11

Ground Level:
35.19maOD

Co-ordinates:
E364917.887 N352428.049

Project:
NANTWICH WATERLOGGED DEPOSITS

Sheet:
1 of 1

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|-------|---|-------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| 1 | | | | | | | 34.40 | (0.79) | 0.79 | MADE GROUND/OVERBURDEN | |
| | | | | | | | 34.19 | (1.00) | 1.00 | ARCHAEOLOGICAL DEPOSIT | |
| 2 | | | | | | | | (1.31) | 1.31 | NON-CARBONISED DEPOSIT WITH ORGANIC CONTENT | |
| | | | | | | | 32.88 | (2.31) | 2.31 | | |
| 3 | | | | | | | 32.19 | (0.69) | 3.00 | ARCHAEOLOGICAL DEPOSIT | |
| | | | | | | | 31.79 | (0.40) | 3.40 | No Recovery. | |
| 4 | | | | | | | | (0.60) | 4.00 | SAND | |
| | | | | | | | 31.19 | (4.00) | 4.00 | Borehole complete at 4.00m | |

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

All dimensions in metres
Scale 1:37.5

Contractor : Sherwood Drilling
Plant: Geotool

Method: Windowless Sampler
Hole Size:

Logged By: Approved By:

BOREHOLE LOG

BOREHOLE No.
BHAF

Client:
CHESHIRE COUNTY COUNCIL



Project No:
406.0889.00003.005

Date:
11/01/11

Ground Level:
34.89maOD

Co-ordinates:
E364899.123 N352463.451

Project:
NANTWICH WATERLOGGED DEPOSITS

Sheet:
1 of 1

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|--------|---|-------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| | | | | | | | 34.46 | (0.43) | 0.43 | MADE GROUND/OVERBURDEN | |
| 1 | | | | | | | 33.50 | (0.96) | 1.39 | MINERAL RICH DEPOSIT | |
| 2 | | | | | | | 32.89 | (0.61) | 2.00 | NON-CARBONISED DEPOSIT WITH ORGANIC CONTENT | |
| 3 | | | | | | | | | (2.00) | SAND | |
| 4 | | | | | | | 30.89 | | 4.00 | | |
| 5 | | | | | | | | | | Borehole complete at 4.00m | |

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

| | | | |
|--|--|--|--|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

BOREHOLE LOG

BOREHOLE No.
BHAG

Client:
CHESHIRE COUNTY COUNCIL



Project No:
406.0889.00003.005

Date:
11/01/11

Ground Level:
37.03maOD

Co-ordinates:
E365007.316 N352313.389

Project:
NANTWICH WATERLOGGED DEPOSITS

Sheet:
1 of 1

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|---------------------------|----------------|----------------------------|-------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| 1 | | | | | | | 36.03 | [Cross-hatch pattern] | (1.00) 1.00 | MADE GROUND/OVERBURDEN | |
| | | | | | | | | ? | (0.90) 1.90 | No Recovery. | |
| 2 | | | | | | | 35.13 | | | | |
| | | | | | | | 34.53 | [Diagonal hatch pattern] | (0.60) 2.50 | ARCHAEOLOGICAL DEPOSIT | |
| 3 | | | | | | | | [Horizontal line pattern] | (1.50) 4.00 | CLAY | |
| | | | | | | | 33.03 | | | Borehole complete at 4.00m | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

| | | | |
|--|--|--|--|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

BOREHOLE LOG

BOREHOLE No.
BHB

Client:
CHESHIRE COUNTY COUNCIL



Project No:
406.0889.00003.005

Date:
30/07/07

Ground Level:
36.62maOD

Co-ordinates:
E364925 N352582

Project:
NANTWICH WATERLOGGED DEPOSITS


Sheet:
1 of 1


| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|---------------------|--------|--|-------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thick-ness) | Depth | | DESCRIPTION |
| 1 | | | | | | | | | (2.44) | MADE GROUND/OVERBURDEN 0.06 - 0.08 Becoming mid to dark grey-brown. | |
| 2 | | | | | | | 34.18 | | 2.44 | ARCHAEOLOGICAL DEPOSIT. Contains cinder and burnt material. | |
| 3 | | | | | | | | | (1.56) | 3.00 - 4.00 Slight sulphide odour. | |
| 4 | | | | | | | 32.62 | | 4.00 | 3.92 Rounded edge pot fragment (<11mm) CLAY | |
| 5 | | | | | | | | | (2.00) | | |
| | | | | | | | 30.62 | | 6.00 | | |

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| Boring Progress and Water Observations | | | | Casing | | Boring | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|--------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

| | | | |
|--|--|--|--|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|


| | | | | | |
|--|--|-------------------|----------------------------|---|--|
| BOREHOLE LOG | | | | BOREHOLE No. BHC | |
| Client: CHESHIRE COUNTY COUNCIL | | | |  | |
| Project No: 406.0889.00003.005 | | Date: 31/07/07 | Ground Level: 34.87maOD | | |
| Project: NANTWICH WATERLOGGED DEPOSITS | | | | Sheet: 1 of 1 | |

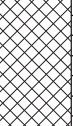






| SAMPLES & TESTS | | | | | | STRATA | | | | | Instrument/ Backfill |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|---|---|--|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | DESCRIPTION | |
| 1 | | | | | | | | (1.90) | | ARCHAEOLOGICAL DEPOSIT 0.35 - 1.00 Fine ash/cinder. 1.47 - 1.52 Pocket of orange sand. 1.60 - 1.62 Pocket of light grey-brown sand. 1.72 - 1.78 Waterlogged wood fragments. |  |
| 2 | | | | | | 32.97 | (1.90) | | NON-CARBONISED DEPOSIT WITH ORGANIC CONTENT 1.90 - 1.95 Slight sulphide odour. 1.95 Waterlogged wood fragments. 2.19 - 3.00 Moderate sulphide odour. | | |
| 3 | | | | | | | (2.10) | | | | |
| 4 | | | | | | | 30.87 | (4.00) | | Borehole complete at 4.00m | |
| 5 | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

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|--|--|--|--|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12


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|--|--|-------------------|----------------------------|---|--|
| BOREHOLE LOG | | | | BOREHOLE No. BHD | |
| Client: CHESHIRE COUNTY COUNCIL | | | |  | |
| Project No: 406.0889.00003.005 | | Date: 31/07/07 | Ground Level: 35.03maOD | | |
| Project: NANTWICH WATERLOGGED DEPOSITS | | | | Sheet: 1 of 1 | |





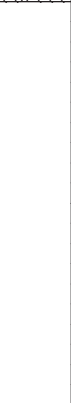
| SAMPLES & TESTS | | | | | | STRATA | | | | | Instrument/ Backfill | | |
|---|---------|----------|----------|----------|-------|--------|---------------|---|---|-------------|--|--|---|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | DESCRIPTION | | | |
| 1 2 3 4 5 | | | | | | | 34.33 |  | (0.70) | 0.70 | MADE GROUND/OVERBURDEN |  | |
| | | | | | | | |  | (1.39) | | ARCHAEOLOGICAL DEPOSIT. Contains fine ash/cinder and mortar. | | |
| | | | | | | | | 32.94 |  | 2.09 | | | 2.00 - 2.09 Slight sulphide odour. |
| | | | | | | | | 32.66 |  | 2.37 | | | SAND |
| | | | | | | | | 32.03 |  | (0.63) | | | NON-CARBONISED DEPOSIT WITH ORGANIC CONTENT 2.47 - 2.50 Rotted wood. |
| | | | | | | | | 31.03 |  | (1.00) | 4.00 | | CLAY |
| | | | | | | | | | | | Borehole complete at 3.00m | | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

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|--|--|--|------------|--------------|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: | Approved By: |
|--|--|--|------------|--------------|

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| | | | | |
|--|-------------------|----------------------------|----------------------------------|---|
| BOREHOLE LOG | | | | BOREHOLE No. BHE |
| Client: CHESHIRE COUNTY COUNCIL | | | |  |
| Project No: 406.0889.00003.005 | Date: 31/07/07 | Ground Level: 35.34maOD | Co-ordinates: E364931 N352261 | |
| Project: NANTWICH WATERLOGGED DEPOSITS | | | | Sheet: 1 of 1 |

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|---|--------|--|--|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| 1 | | | | | | | 34.34 |  | (1.00) | MADE GROUND/OVERBURDEN |  |
| | | | | | | | 33.84 |  | (0.50) | ARCHAEOLOGICAL DEPOSIT. Contains brick, stones and slate. | |
| 2 | | | | | | | 32.93 |  | (0.91) | MINERAL RICH DEPOSIT | |
| | | | | | | | 31.34 |  | (1.59) | ARCHAEOLOGICAL DEPOSIT. Contains fragments of brick and ash. | |
| 4 | | | | | | | | | 4.00 | Borehole complete at 4.00m | |
| 5 | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

| | | | |
|--|--|--|--|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

BOREHOLE LOG

BOREHOLE No.
BHF

Client:
CHESHIRE COUNTY COUNCIL



Project No:
406.0889.00003.005

Date:
01/08/07

Ground Level:
39.74maOD

Co-ordinates:
E365191 N352264

Project:
NANTWICH WATERLOGGED DEPOSITS


Sheet:
1 of 1

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|-----------------------|--------|-------------------------|--|-----------------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION | |
| | | | | | | | 39.07 | [Cross-hatch pattern] | (0.67) | 0.67 | MADE GROUND/OVERBURDEN | [Cross-hatch pattern] |
| 1 | | | | | | | | [Downward arrows] | (1.19) | | NON-CARBONISED DEPOSIT WITH ORGANIC CONTENT 0.76 - 0.81 Waterlogged wood fragments 0.76 - 0.96 Moderate sulphide odour. 1.00 - 1.86 Slight sulphide odour. | [Downward arrows] |
| | | | | | | | 37.88 | [Downward arrows] | 1.86 | | 1.48 - 1.52 Light grey sand intrusions (at ~45 degrees to horizontal). 1.50 - 1.86 Becomes wet. 1.56 - 1.60 Light grey sand intrusions (at ~45 degrees to horizontal). 1.64 - 1.72 Light grey sand intrusions (at ~45 degrees to horizontal). 1.76 - 1.80 Fibrous organic content. | [Downward arrows] |
| 2 | | | | | | | 37.74 | [Horizontal dashes] | 2.00 | | SAND 1.96 - 2.00 Slight sulphide odour. | [Horizontal dashes] |
| | | | | | | | | [Horizontal dashes] | (1.00) | | CLAY | [Horizontal dashes] |
| 3 | | | | | | | 36.74 | [Horizontal dashes] | 3.00 | | | [Horizontal dashes] |
| | | | | | | | | | | | Borehole complete at 3.00m | |
| 4 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | |

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

| | | | |
|--|--|--|--|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

| | | | | | |
|--|-------------------|----------------------------|----------------------------------|---|--|
| BOREHOLE LOG | | | | BOREHOLE No. BHG | |
| Client: CHESHIRE COUNTY COUNCIL | | | |  | |
| Project No: 406.0889.00003.005 | Date: 01/08/07 | Ground Level: 39.60maOD | Co-ordinates: E365096 N352398 | | |
| Project: NANTWICH WATERLOGGED DEPOSITS | | | | Sheet: 1 of 1 | |

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------------|--------|--|-----------------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thick-ness) | Depth | | DESCRIPTION |
| 1 | | | | | | | 39.33 | [Cross-hatch pattern] | 0.27 | MADE GROUND/OVERBURDEN | [Cross-hatch pattern] |
| | | | | | | | | [Diagonal lines pattern] | (1.72) | ARCHAEOLOGICAL DEPOSIT. Contains ash/cinder, brick, tile fragments and rotted charcoal. 0.87 Very rotted shell. | |
| | | | | | | | 37.61 | [Diagonal lines pattern] | 1.99 | | |
| 2 | | | | | | | | [Dotted pattern] | (1.01) | SAND | |
| 3 | | | | | | | 36.60 | | 3.00 | Borehole complete at 3.00m | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

| | | | |
|--|--|--|--|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| | | | | | |
|--|-------------------|----------------------------|----------------------------------|----------------------------|--|
| BOREHOLE LOG | | | | BOREHOLE No. BHH | |
| Client: CHESHIRE COUNTY COUNCIL | | | | | |
| Project No: 406.0889.00003.005 | Date: 01/08/07 | Ground Level: 39.35maOD | Co-ordinates: E365233 N352471 | | |
| Project: NANTWICH WATERLOGGED DEPOSITS | | | | Sheet: 1 of 1 | |

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|---------------------|--------|---|-------------|--------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thick-ness) | Depth | | DESCRIPTION | |
| 1 | | | | | | | 38.99 | (0.36) | 0.36 | MADE GROUND/OVERBURDEN | | |
| | | | | | | | 38.35 | (0.64) | 1.00 | ARCHAEOLOGICAL DEPOSIT. Contains ash/cinder, brick, mortar and glass. | | |
| | | | | | | | 37.93 | ? | (0.42) | 1.42 | | No Recovery. |
| | | | | | | | 37.83 | | 1.52 | 1.52 | | SAND |
| 2 | | | | | | | | | | CLAY | | |
| | | | | | | | | | (2.48) | | | |
| 3 | | | | | | | | | | | | |
| 4 | | | | | | | 35.35 | | 4.00 | | | |
| 5 | | | | | | | | | | Borehole complete at 4.00m | | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

| | | | |
|--|--|--|--|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| | | | | | |
|--|-------------------|----------------------------|----------------------------------|----------------------------|--|
| BOREHOLE LOG | | | | BOREHOLE No. BHI | |
| Client: CHESHIRE COUNTY COUNCIL | | | | | |
| Project No: 406.0889.00003.005 | Date: 31/07/07 | Ground Level: 38.96maOD | Co-ordinates: E365308 N352394 | | |
| Project: NANTWICH WATERLOGGED DEPOSITS | | | | Sheet: 1 of 1 | |

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|--------|-------------------------|--|--|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION | |
| 1 | | | | | | | 38.10 | | (0.86) | 0.86 | ARCHAEOLOGICAL DEPOSIT 0.00 - 0.86 Very slight sulphide odour. | |
| | | | | | | | 38.00 | | 0.96 | 0.96 | NON-CARBONISED DEPOSIT WITH ORGANIC CONTENT. Contains ash/cinder and woody root fragments. | |
| | | | | | | | | | (0.41) | 1.37 | MINERAL RICH DEPOSIT | |
| | | | | | | | | 37.59 | 1.37 | 1.37 | SAND | |
| 2 | | | | | | | 37.38 | | 1.58 | 1.58 | CLAY | |
| | | | | | | | | | (2.12) | 3.70 | | |
| 3 | | | | | | | 35.26 | | | 3.70 | Borehole complete at 3.70m | |
| 4 | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

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|--|--|--|--|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12


| | | | | | |
|--|--|-------------------|----------------------------|----------------------------|--|
| BOREHOLE LOG | | | | BOREHOLE No. BHJ | |
| Client: CHESHIRE COUNTY COUNCIL | | | | | |
| Project No: 406.0889.00003.005 | | Date: 31/07/07 | Ground Level: 40.04maOD | | |
| Project: NANTWICH WATERLOGGED DEPOSITS | | | | Sheet: 1 of 1 | |

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|-------|----------------------------|-------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| 1 | | | | | | | 39.04 | (1.00) | 1.00 | MADE GROUND/OVERBURDEN | |
| | | | | | | | 38.29 | (0.75) | 1.75 | SAND | |
| | | | | | | | 36.04 | (2.25) | 4.00 | CLAY | |
| 4 | | | | | | | | | | Borehole complete at 4.00m | |
| 5 | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

| | | | |
|--|--|--|--|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| | | | | | |
|--|--|-------------------|----------------------------|---|--|
| BOREHOLE LOG | | | | BOREHOLE No. BHK | |
| Client: CHESHIRE COUNTY COUNCIL | | | |  | |
| Project No: 406.0889.00003.005 | | Date: 31/07/07 | Ground Level: 37.14maOD | | |
| Project: NANTWICH WATERLOGGED DEPOSITS | | | | Sheet: 1 of 1 | |

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|--------|----------------------------|-------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| 1 | | | | | | | 36.14 | | (1.00) | MADE GROUND/OVERBURDEN | |
| 2 | | | | | | | | | (2.00) | CLAY | |
| 3 | | | | | | | 34.14 | | 3.00 | Borehole complete at 3.00m | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

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|--|--|--|--|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

BOREHOLE LOG

BOREHOLE No.
BHL

Client:
CHESHIRE COUNTY COUNCIL



Project No:
406.0889.00003.005

Date:
11/09/07

Ground Level:
38.71maOD

Co-ordinates:
E365128 N352544

Project:
NANTWICH WATERLOGGED DEPOSITS

Sheet:
1 of 1

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|--------|---|-------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| 1 | | | | | | ↓ 1 | 37.96 | (0.75) | 0.75 | MADE GROUND/OVERBURDEN | █ |
| | | | | | | | 37.41 | (0.55) | 1.30 | ARCHAEOLOGICAL DEPOSIT 0.97 Post medieval/modern pottery fragment (<35mm). | |
| | | | | | | | | 36.26 | (1.15) | 2.45 | |
| 2 | | | | | | | | (1.55) | 2.45 | CLAY | █ |
| 3 | | | | | | | 34.71 | (1.55) | 4.00 | | █ |
| 4 | | | | | | | | | | Borehole complete at 4.00m | █ |
| 5 | | | | | | | | | | | █ |

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|---|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | Groundwater present at 2.28m bgl. Well headspace concentration 35ppm. |

| | | | |
|--|--|--|--|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

BOREHOLE LOG

BOREHOLE No.
BHM

Client:
CHESHIRE COUNTY COUNCIL



Project No:
406.0889.00003.005

Date:
11/09/07

Ground Level:
37.81maOD

Co-ordinates:
E365015 N352549

Project:
NANTWICH WATERLOGGED DEPOSITS

Sheet:
1 of 1

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|-------|---|-------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| 1 | | | | | | ↓ | 36.58 | (1.23) | 1.23 | MADE GROUND/OVERBURDEN | █ |
| | | | | | | | 35.58 | (1.00) | 1.23 | NON-CARBONISED DEPOSIT WITH ORGANIC CONTENT. Contains waterlogged organic material. 1.23 - 1.44 Slight sulphide odour. 1.44 - 1.60 Slight sulphide odour. 1.60 - 2.00 Slight sulphide odour. | |
| | | | | | | | 35.58 | (2.23) | 2.23 | 2.00 - 2.23 Very slight sulphide odour. | |
| | | | | | | | 34.81 | (0.77) | 3.00 | SAND | |
| 3 | | | | | | | | | | Borehole complete at 3.00m | █ |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|--|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | Groundwater present at 1.58m bgl. Well headspace concentration 905ppm. |

All dimensions in metres
Scale 1:37.5

Contractor : Sherwood Drilling
Plant: Geotool

Method: Windowless Sampler
Hole Size:

Logged By:

Approved By:

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

BOREHOLE LOG

BOREHOLE No.
BHN

Client:
CHESHIRE COUNTY COUNCIL



Project No:
406.0889.00003.005

Date:
12/09/07

Ground Level:
39.17maOD

Co-ordinates:
E365016 N352449

Project:
NANTWICH WATERLOGGED DEPOSITS

Sheet:
1 of 1

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|----------------------------|---|---|-------------------------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thick-ness) | Depth | | DESCRIPTION |
| 1 | | | | | | ↓ | 38.97 | [Cross-hatch pattern] | 0.20 | MADE GROUND/OVERBURDEN | [Instrument/Backfill symbols] |
| | | | | | | | | (0.87) | | ARCHAEOLOGICAL DEPOSIT. Contains ash/cinder, brick, tile fragments, mortar and rotted charcoal. | |
| | | | | | | | 38.10 | [Downward arrows pattern] | 1.07 | NON-CARBONISED DEPOSIT WITH ORGANIC CONTENT. Contains waterlogged wood and herbaceous detritus. | |
| | | | | | | | (1.65) | | 1.74 Bone fragment (<11mm) 1.88 - 1.91 Slight sulphide odour. 1.91 Blue vivianite? (<12mm) 1.91 - 2.00 Overpowering sulphide odour. 1.93 Hazelnut fragment. 2.00 - 2.46 Overpowering sulphide odour. | | |
| | | | | | | | 36.45 | [Downward arrows pattern] | 2.72 | 2.61 - 2.72 Very slight sulphide odour. 2.62 - 2.70 Large round wood (wattle?) inclusions. | |
| 3 | | | | | | | 36.17 | [Dotted pattern] | 3.00 | SAND | |
| | | | | | | | (1.00) | | CLAY | | |
| 4 | | | | | | | 35.17 | [Horizontal lines pattern] | 4.00 | | |
| 5 | | | | | | | | | | Borehole complete at 4.00m | |

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|---|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | Groundwater present at 1.37m bgl. Well headspace concentration 80ppm. |

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| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

BOREHOLE LOG

BOREHOLE No.
BHO

Client:
CHESHIRE COUNTY COUNCIL



Project No:
406.0889.00003.005

Date:
11/09/07

Ground Level:
39.64maOD

Co-ordinates:
E365184 N352470

Project:
NANTWICH WATERLOGGED DEPOSITS

Sheet:
1 of 1

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|-----------------------|--------|--|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | |
| 1 | | | | | | ↓ | 38.44 | [Cross-hatch pattern] | (1.20) | MADE GROUND/OVERBURDEN 0.50 - 0.54 Brick/tile which becomes the dominant component. |
| | | | | | | | 37.87 | [Dashed pattern] | (0.57) | NON-CARBONISED DEPOSIT WITH ORGANIC CONTENT. Contains brick, tile, coal fragments and waterlogged plant remains. 1.20 - 1.77 Slight sulphide odour. |
| 2 | | | | | | | 37.64 | [Diagonal lines] | 2.00 | ARCHAEOLOGICAL DEPOSIT |
| | | | | | | | 37.25 | [Question mark] | (0.39) | No Recovery. |
| 3 | | | | | | | 36.75 | [Dashed pattern] | (0.50) | NON-CARBONISED DEPOSIT WITH ORGANIC CONTENT 2.39 - 2.89 Slight sulphide odour. |
| | | | | | | | 35.64 | [Horizontal lines] | (1.00) | CLAY |
| 4 | | | | | | | | | | Borehole complete at 4.00m |
| 5 | | | | | | | | | | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|---|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | Groundwater present at 1.44m bgl. Well headspace concentration 10ppm. |

All dimensions in metres
Scale 1:37.5

Contractor : Sherwood Drilling
Plant: Geotool

Method: Windowless Sampler
Hole Size:

Logged By:

Approved By:

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| | | | | | |
|--|--|-------------------|----------------------------|----------------------------|--|
| BOREHOLE LOG | | | | BOREHOLE No. BHP | |
| Client: CHESHIRE COUNTY COUNCIL | | | | | |
| Project No: 406.0889.00003.005 | | Date: 10/09/07 | Ground Level: 39.93maOD | | |
| Project: NANTWICH WATERLOGGED DEPOSITS | | | | Sheet: 1 of 1 | |

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|--------|--|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | |
| 1 | | | | | | | 38.62 | [Hatched Pattern] | 1.31 | ARCHAEOLOGICAL DEPOSIT. Contains brick, tile, coal fragments and charcoal. |
| | | | | | | | | [Wavy Pattern] | 0.69 | 1.30 Animal bone fragment (<20mm). NON-CARBONISED DEPOSIT WITH ORGANIC CONTENT. Very humified amorphous organic peat. |
| 2 | | | | | | | 37.93 | [Dotted Pattern] | 2.00 | SAND |
| 3 | | | | | | ↓ | | | (2.00) | 2.67 - 3.00 Slight sulphide odour. |
| 4 | | | | | | | 35.93 | | 4.00 | Borehole complete at 4.00m |
| 5 | | | | | | | | | | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|--|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | Groundwater present at 3.33m bgl. Well headspace concentration 170ppm. |

| | | | |
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| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

BOREHOLE LOG

BOREHOLE No.
BHQ

Client:
CHESHIRE COUNTY COUNCIL



Project No:
406.0889.00003.005

Date:
10/09/07

Ground Level:
39.22maOD

Co-ordinates:
E365196 N352383

Project:
NANTWICH WATERLOGGED DEPOSITS

Sheet:
1 of 1

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|-------|--|-------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| 1 | | | | | | ↓ | 38.74 | (0.48) | 0.48 | MADE GROUND/OVERBURDEN | █ |
| | | | | | | | 37.72 | (1.02) | 1.50 | ARCHAEOLOGICAL DEPOSIT. Contains brick, tile, cinder/coal and glass fragments. | |
| | | | | | | | 37.39 | (0.33) | 1.83 | MINERAL RICH DEPOSIT | |
| | | | | | | | 36.34 | (1.05) | 2.88 | SAND | |
| | | | | | | | 35.42 | (0.92) | 3.80 | CLAY | |
| 2 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | Borehole complete at 3.80m | |
| 5 | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|--|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | Groundwater present at 1.71m bgl. Well headspace concentration 170ppm. |

All dimensions in metres
Scale 1:37.5

Contractor : Sherwood Drilling
Plant: Geotool

Method: Windowless Sampler
Hole Size:

Logged By:

Approved By:

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

BOREHOLE LOG

BOREHOLE No.
BHR

Client:
CHESHIRE COUNTY COUNCIL



Project No:
406.0889.00003.005

Date:
10/09/07

Ground Level:
39.18maOD

Co-ordinates:
E365205 N352362

Project:
NANTWICH WATERLOGGED DEPOSITS

Sheet:
1 of 1

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|-------|---|-------------------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| 1 | | | | | | | 38.68 | (0.50) | 0.50 | MADE GROUND/OVERBURDEN | Instrument/ Backfill |
| | | | | | | | 37.82 | (0.86) | 1.36 | ARCHAEOLOGICAL DEPOSIT. Contains brick, tile, cinder/coal and mortar fragments. | |
| | | | | | | | 37.31 | (0.51) | 1.87 | MINERAL RICH DEPOSIT | |
| | | | | | | | 36.68 | (0.63) | 2.50 | SAND | |
| | | | | | | | 35.18 | (1.50) | 4.00 | CLAY | |
| 2 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | Borehole complete at 4.00m | |
| 5 | | | | | | | | | | | |

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

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| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

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|--|--|-------------------|----------------------------|----------------------------|--|
| BOREHOLE LOG | | | | BOREHOLE No. BHS | |
| Client: CHESHIRE COUNTY COUNCIL | | | | | |
| Project No: 406.0889.00003.005 | | Date: 11/09/07 | Ground Level: 39.77maOD | | |
| Project: NANTWICH WATERLOGGED DEPOSITS | | | | Sheet: 1 of 1 | |

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|-------|--|-------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| | | | | | | | 38.96 | (0.81) | 0.81 | MADE GROUND/OVERBURDEN | |
| 1 | | | | | | | | (2.47) | 2.44 | ARCHAEOLOGICAL DEPOSIT. Contains fragments of brick and tile. 2.44 Brick surface (Large fragments <130mm) | |
| 2 | | | | | | | 36.49 | | 3.28 | SAND | |
| 3 | | | | | | | | (0.72) | 4.00 | | |
| 4 | | | | | | | 35.77 | | | Borehole complete at 4.00m | |
| 5 | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|--|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | Groundwater present at 3.34m bgl. Well headspace concentration 130ppm. |

| | | | |
|--|--|--|--|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

BOREHOLE LOG

BOREHOLE No.
BHT

Client:
CHESHIRE COUNTY COUNCIL



| | | | |
|-----------------------------------|-------------------|----------------------------|----------------------------------|
| Project No: 406.0889.00003.005 | Date: 14/09/07 | Ground Level: 39.50maOD | Co-ordinates: E365140 N352352 |
|-----------------------------------|-------------------|----------------------------|----------------------------------|

Project:
NANTWICH WATERLOGGED DEPOSITS

Sheet:
1 of 1

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|--------|---|----------------------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| 1 | | | | | | | 37.70 | | 1.80 | ARCHAEOLOGICAL DEPOSIT 0.70 Human skull fragment. 1.59 Charred bone fragment (<20mm) 1.60 - 1.80 Very slight sulphide odour. | |
| 2 | | | | | | | 35.80 | | 1.90 | 3.70 | SAND |
| 3 | | | | | | | 35.50 | | (0.30) | 4.00 | CLAY |
| 4 | | | | | | | | | | | Borehole complete at 4.00m |
| 5 | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|--|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | Groundwater present at 3.16m bgl. Well headspace concentration 140ppm. |

| | | | |
|--|--|--|--|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

BOREHOLE LOG

BOREHOLE No.
BHU

Client:
CHESHIRE COUNTY COUNCIL



Project No:
406.0889.00003.005

Date:
14/09/07

Ground Level:
39.43maOD

Co-ordinates:
E365160 N352349

Project:
NANTWICH WATERLOGGED DEPOSITS

Sheet:
1 of 1

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|-------|--|-------------------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| 1 | | | | | | | 37.93 | (1.50) | 1.50 | ARCHAEOLOGICAL DEPOSIT. Contains brick, tile and coal fragments. 0.35 Animal bone fragment (<55mm) 0.60 - 0.65 Human skull fragments (<40mm) 1.00 - 1.08 Large human skull fragment (<80mm) | Instrument/ Backfill |
| | | | | | | | 37.66 | (1.77) | 1.77 | MINERAL RICH DEPOSIT | |
| 2 | | | | | | | | (1.23) | 3.00 | NON-CARBONISED DEPOSIT WITH ORGANIC CONTENT 1.77 - 1.96 Slight sulphide odour. 2.00 - 2.17 Slight sulphide odour. | |
| 3 | | | | | | | 36.43 | | 3.00 | Borehole complete at 3.00m | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

| | | | |
|--|--|--|------------------------------|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: Approved By: |
|--|--|--|------------------------------|

BOREHOLE LOG

BOREHOLE No.
BHV

Client:
CHESHIRE COUNTY COUNCIL



Project No:
406.0889.00003.005

Date:
14/09/07

Ground Level:
39.39maOD

Co-ordinates:
E365195 N352346

Project:
NANTWICH WATERLOGGED DEPOSITS

Sheet:
1 of 1

| SAMPLES & TESTS | | | | | | STRATA | | | | | Instrument/ Backfill |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|-------|---|-------------------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | DESCRIPTION | |
| 1 | | | | | | ↓ | 37.95 | ◇ | 1.44 | MINERAL RICH DEPOSIT | |
| 2 | | | | | | ↓ | 36.89 | ∩ | 2.50 | NON-CARBONISED DEPOSIT WITH ORGANIC CONTENT. Contains waterlogged wood fragments. | |
| 3 | | | | | | | 34.89 | — | 4.50 | CLAY | |
| 4 | | | | | | | | | | Borehole complete at 4.50m | |
| 5 | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|---|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | Groundwater present at 1.95m bgl. Well headspace concentration 60ppm. |

All dimensions in metres
Scale 1:37.5


Contractor : Sherwood Drilling
Plant: Geotool

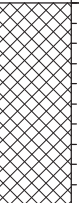


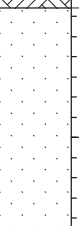

Method: Windowless Sampler
Hole Size:

Logged By:

Approved By:

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12


| | | | | | |
|--|-------------------|----------------------------|----------------------------------|---|--|
| BOREHOLE LOG | | | | BOREHOLE No. BHW | |
| Client: CHESHIRE COUNTY COUNCIL | | | |  | |
| Project No: 406.0889.00003.005 | Date: 13/09/07 | Ground Level: 40.03maOD | Co-ordinates: E365214 N352280 | | |
| Project: NANTWICH WATERLOGGED DEPOSITS | | | | Sheet: 1 of 1 | |


| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|---|----------------|---|--|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| 1 | | | | | | | 39.03 |  | (1.00) 1.00 | MADE GROUND/OVERBURDEN |  |
| | | | | | | | 38.67 |  | (0.36) 1.36 | ARCHAEOLOGICAL DEPOSIT. Contains brick and tile fragments. 1.20 Single pot sherd | |
| 2 | | | | | | | |  | (1.12) 2.48 | SAND | |
| | | | | | | | 37.55 | | | | |
| 3 | | | | | | | |  | (0.52) 3.00 | CLAY | |
| | | | | | | | 37.03 | | | Borehole complete at 3.00m | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

| | | | | |
|--|--|--|------------|--------------|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: | Approved By: |
|--|--|--|------------|--------------|

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12


| | | | | | |
|--|-------------------|----------------------------|----------------------------------|---|--|
| BOREHOLE LOG | | | | BOREHOLE No. BHX | |
| Client: CHESHIRE COUNTY COUNCIL | | | |  | |
| Project No: 406.0889.00003.005 | Date: 13/09/07 | Ground Level: 37.62maOD | Co-ordinates: E365014 N352321 | | |
| Project: NANTWICH WATERLOGGED DEPOSITS | | | | Sheet: 1 of 1 | |

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|---------------------|-------|--|--|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thick-ness) | Depth | | DESCRIPTION |
| 1 | | | | | | | 37.02 | (0.60) | 0.60 | MADE GROUND/OVERBURDEN |  |
| | | | | | | | 36.20 | (0.82) | 1.42 | ARCHAEOLOGICAL DEPOSIT. Possible castle mound construction material. | |
| | | | | | | | 34.62 | (1.58) | 3.00 | CLAY | |
| 2 | | | | | | | | | | | |
| 3 | | | | | | | | | | Borehole complete at 3.00m | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

| | | | |
|--|--|--|--|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12


| | | | | | |
|--|--|-------------------|----------------------------|---|--|
| BOREHOLE LOG | | | | BOREHOLE No. BHY | |
| Client: CHESHIRE COUNTY COUNCIL | | | |  | |
| Project No: 406.0889.00003.005 | | Date: 13/09/07 | Ground Level: 39.90maOD | | |
| Project: NANTWICH WATERLOGGED DEPOSITS | | | | Sheet: 1 of 1 | |


| SAMPLES & TESTS | | | | | | STRATA | | | | | Instrument/ Backfill |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|--------|----------------------------|-------------------------|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | DESCRIPTION | |
| 1 | | | | | | | | | (2.06) | MADE GROUND/OVERBURDEN | |
| 2 | | | | | | | 37.84 | | 2.06 | SAND | |
| 3 | | | | | | | | | (1.68) | | |
| 4 | | | | | | | 36.16 | | 3.74 | CLAY | |
| | | | | | | | 35.90 | | 4.00 | Borehole complete at 4.00m | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

| | | | | | | | |
|--|--|--|--|--|--|------------|--------------|
| All dimensions in metres Scale 1:37.5 | | Contractor : Sherwood Drilling Plant: Geotool | | Method: Windowless Sampler Hole Size: | | Logged By: | Approved By: |
|--|--|--|--|--|--|------------|--------------|

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| | | | | | |
|--|--|-------------------|----------------------------|---|--|
| BOREHOLE LOG | | | | BOREHOLE No. BHZ | |
| Client: CHESHIRE COUNTY COUNCIL | | | |  | |
| Project No: 406.0889.00003.005 | | Date: 13/09/07 | Ground Level: 38.46maOD | | |
| Project: NANTWICH WATERLOGGED DEPOSITS | | | | Sheet: 1 of 1 | |

| SAMPLES & TESTS | | | | | | STRATA | | | | Instrument/ Backfill | |
|-----------------|---------|----------|----------|----------|-------|--------|---------------|--------------------|-------|----------------------------|--|
| Depth | Type No | HS (ppm) | HV (kPa) | PP (kPa) | SPT-N | Water | Reduced Level | Legend (Thickness) | Depth | | DESCRIPTION |
| 1 | | | | | | | 37.76 | (0.70) | 0.70 | MADE GROUND/OVERBURDEN |  |
| | | | | | | | | (1.34) | | SAND | |
| | | | | | | | 36.42 | (0.96) | 2.04 | CLAY | |
| 2 | | | | | | | 35.46 | (0.96) | 3.00 | Borehole complete at 3.00m | |
| 3 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |

| Boring Progress and Water Observations | | | | Casing | | Chiselling | | | Water Added | | General Remarks |
|--|------|-------|-----------|--------|---------|------------|----|-------|-------------|----|-----------------|
| Date | Time | Depth | Water Dpt | Depth | Dia. mm | From | To | Hours | From | To | |
| | | | | | | | | | | | |

| | | | |
|--|--|--|--|
| All dimensions in metres Scale 1:37.5 | Contractor : Sherwood Drilling Plant: Geotool | Method: Windowless Sampler Hole Size: | Logged By: _____ Approved By: _____ |
|--|--|--|--|

Form SLR AGS3 UK BH File 406.0889.00003.005 NANTWICH INTERPRETATION LOGS.GPJ 16-11-12

| BOREHOLE_ | EASTING_ | NORTHING_ | SURFACE_ELEV | | GROUNDWATER | | DATE_ | DISSOLVED_ | | PH_ | CONDUCTIVI | | TEMP_CELCI |
|-----------|------------|------------|--------------|----------|----------------|------------|-------|------------|----------|------|------------|----|------------|
| | | | ATION_M_OD | _DEPTH_M | ELEVATION_M_OD | | | OXYGEN_M | REDOX_MV | | TY_μS/CM_ | US | |
| AB | 364740 | 352370 | 37.93 | 1.97 | 35.96 | 25/05/2012 | 1.88 | -49.5 | 7.14 | 908 | 7.89 | | |
| AC | 364963 | 352517 | 36.42 | 2.53 | 33.89 | 25/05/2012 | 1.7 | 160.4 | 6.81 | 3013 | 9.09 | | |
| AE | 364917.887 | 352428.049 | 35.19 | 2.65 | 32.54 | 25/05/2012 | 1.67 | -62.1 | 6.92 | 2114 | 10.3 | | |
| AF | 364899.123 | 352463.451 | 34.89 | 2.92 | 31.97 | 25/05/2012 | 1.17 | -214.1 | 7.02 | 2303 | 10.05 | | |
| AG | 365007.316 | 352313.389 | 37.03 | 1.55 | 35.48 | 25/05/2012 | 1.64 | -86.9 | 6.86 | 7274 | 9.81 | | |
| F1 | 365188.877 | 352269.226 | 39.69 | 1.02 | 38.67 | 25/05/2012 | 3.3 | -13.6 | 7.4 | 560 | 10.05 | | |
| F2 | 365188.877 | 352269.226 | 39.69 | 1.01 | 38.68 | 25/05/2012 | 0.99 | -170.1 | 7.13 | 1501 | 8.99 | | |
| L | 365128 | 352544 | 38.710 | 2.13 | 36.58 | 25/05/2012 | 2.1 | 56.1 | 7.15 | 838 | 8.36 | | |
| M | 365015 | 352549 | 37.810 | 1.45 | 36.36 | 25/05/2012 | 3.71 | 212.3 | 6.99 | 1230 | 8.91 | | |
| N | 365016 | 352449 | 39.16 | 1.61 | 37.55 | 25/05/2012 | 1.54 | 118.6 | 7.03 | 797 | 9.8 | | |
| N1 | 365016 | 352449 | 39.165 | 1.68 | 37.49 | 25/05/2012 | 1.56 | 250.1 | 7.21 | 1005 | 9.76 | | |
| O | 365184 | 352470 | 39.642 | 1.5 | 38.14 | 25/05/2012 | 1.62 | 216.1 | 7.12 | 572 | 9.9 | | |
| P | 365098 | 352374 | 39.925 | 3.24 | 36.69 | 25/05/2012 | 1.08 | 34.5 | 6.36 | 1401 | 11.02 | | |
| Q | 365196 | 352383 | 39.215 | 1.82 | 37.40 | 25/05/2012 | 1.62 | 236.9 | 6.78 | 1533 | 9.71 | | |
| S | 365119 | 352343 | 39.770 | 3.26 | 36.51 | 25/05/2012 | 0.92 | 0.3 | 6.66 | 2386 | 7.26 | | |
| T | 365140 | 352352 | 39.495 | 3.06 | 36.44 | 25/05/2012 | 2 | -26.8 | 6.83 | 520 | 8.41 | | |
| V | 365195 | 352346 | 39.390 | 1.9 | 37.49 | 25/05/2012 | 1.12 | -112.2 | 6.47 | 1001 | 8.1 | | |
| AB | 364740 | 352370 | 37.93 | 1.96 | 35.97 | 31/08/2012 | 1.06 | 94.7 | 7.07 | 898 | 10.68 | | |
| AC | 364963 | 352517 | 36.42 | 2.56 | 33.86 | 31/08/2012 | 0.79 | -100.8 | 7.17 | 2172 | 13.49 | | |
| AE | 364917.887 | 352428.049 | 35.188 | 2.72 | 32.468 | 31/08/2012 | 0.89 | -71.3 | 7.14 | 1484 | 12.11 | | |
| AF | 364899.123 | 352463.451 | 34.89 | 2.92 | 31.97 | 31/08/2012 | 0.96 | -57.9 | 7.22 | 1709 | 12.42 | | |
| AG | 365007.316 | 352313.389 | 37.0298 | 1.56 | 35.4698 | 31/08/2012 | 1.15 | 94.6 | 7.02 | 5348 | 14.18 | | |
| F1 | 365188.877 | 352269.226 | 39.6888 | 1.1 | 38.5888 | 31/08/2012 | 2.48 | 12.3 | 7.09 | 389 | 11.24 | | |
| F2 | 365188.877 | 352269.226 | 39.6918 | 1.13 | 38.5618 | 31/08/2012 | 1.53 | -2.2 | 6.99 | 496 | 13.82 | | |
| L | 365128 | 352544 | 38.71 | 2.24 | 36.47 | 31/08/2012 | 1.35 | 32.4 | 7.22 | 762 | 11.84 | | |
| M | 365015 | 352549 | 37.81 | 1.54 | 36.27 | 31/08/2012 | 1.15 | -49.1 | 7.11 | 804 | 12.17 | | |
| N | 365016 | 352449 | 39.155 | 1.27 | 37.885 | 31/08/2012 | 1.3 | -72.3 | 6.83 | 372 | 12.21 | | |
| N1 | 365016 | 352449 | 39.165 | 1.28 | 37.885 | 31/08/2012 | 0.42 | -149.5 | 7.4 | 846 | 11.82 | | |
| O | 365184 | 352470 | 39.642 | 1.55 | 38.092 | 31/08/2012 | 1.21 | -9.4 | 7.01 | 401 | 13.36 | | |
| P | 365098 | 352374 | 39.925 | 3.26 | 36.665 | 31/08/2012 | 1.34 | 100.3 | 6.8 | 1030 | 11.99 | | |
| Q | 365196 | 352383 | 39.215 | 1.82 | 37.395 | 31/08/2012 | 1.48 | -55.9 | 6.94 | 548 | 13.91 | | |
| S | 365119 | 352343 | 39.77 | 3.32 | 36.45 | 31/08/2012 | 3.22 | 104.6 | 6.92 | 964 | 11.99 | | |
| T | 365140 | 352352 | 39.495 | 3.13 | 36.365 | 31/08/2012 | 1.65 | 70.6 | 6.87 | 357 | 10.67 | | |
| V | 365195 | 352346 | 39.39 | 1.98 | 37.41 | 31/08/2012 | 1.38 | -35.5 | 6.79 | 587 | 11.27 | | |

Jones Environmental Laboratory

Client Name: SLR Consulting Ltd
Reference: 406.00889.00005
Location: NANTWICH
Contact: Mark Swain
JE Job No.: 11/2257

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

| J E Sample No. | 1-5 | 6-10 | 11-15 | 16-20 | 21-25 | 26-30 | 31-35 | 36-40 | 41-45 | 46-50 | Please see attached notes for all abbreviations and acronyms | | |
|------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--|----------|------------|
| Sample ID | AB | AC | AE | AF | AG | F2 | L | M | N | O | | | |
| Depth | 1.77 | 2.65 | 2.58 | 2.84 | 2.61 | 1.44 | 2.26 | 1.55 | 1.73 | 1.49 | | | |
| COC No / misc | | | | | | | | | | | | | |
| Containers | V H P G | V H P G | V H P G | V H P G | V H P G | V H P G | V H P G | V H P G | V H P G | V H P G | | | |
| Sample Date | 01/02/2011 | 01/02/2011 | 01/02/2011 | 01/02/2011 | 01/02/2011 | 01/02/2011 | 02/02/2011 | 02/02/2011 | 02/02/2011 | 02/02/2011 | | | |
| Sample Type | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | | | |
| Batch Number | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | |
| Date of Receipt | 04/02/2011 | 04/02/2011 | 04/02/2011 | 04/02/2011 | 04/02/2011 | 04/02/2011 | 04/02/2011 | 04/02/2011 | 04/02/2011 | 04/02/2011 | LOD | Units | Method No. |
| Dissolved Iron # | <0.02 | 13.55 | 0.25 | 0.10 | 0.24 | <0.02 | <0.02 | <0.02 | 0.07 | <0.02 | <0.02 | mg/l | TM30/PM14 |
| Dissolved Manganese # | 0.007 | 3.516 | 1.663 | 0.920 | 0.543 | 1.353 | 0.643 | 0.148 | 0.476 | 1.365 | <0.002 | mg/l | TM30/PM14 |
| Dissolved Sodium # | 64.7 | 505.9 | 145.1 | 467.2 | 604.4 | 176.0 | 151.5 | 196.5 | 114.3 | 141.2 | <0.1 | mg/l | TM30/PM14 |
| Sulphate # | 44.94 | 171.73 | 62.12 | 12.39 | 311.67 | 222.30 | 153.71 | 104.96 | 86.18 | 41.96 | <0.05 | mg/l | TM38/PM0 |
| Chloride # | 90.6 | 1051.9 | 228.6 | 787.0 | 1488.6 | 325.3 | 298.5 | 368.1 | 176.5 | 201.6 | <0.3 | mg/l | TM38/PM0 |
| Nitrate as NO3 # | 25.3 | 5.4 | <0.2 | <0.2 | <0.2 | <0.2 | 9.7 | 3.1 | 1.2 | 3.4 | <0.2 | mg/l | TM38/PM0 |
| Ortho Phosphate as PO4 # | 9.91 | <0.06 | 11.78 | 10.95 | <0.06 | 0.82 | 0.89 | 7.79 | 0.41 | 1.24 | <0.06 | mg/l | TM38/PM0 |
| Sulphide Aquakem | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | mg/l | TM38/PM0 |
| Ammoniacal Nitrogen as NH4 # | 0.03 | 1.52 | 21.36 | 46.22 | 5.27 | 4.71 | 21.52 | 0.23 | 4.48 | 10.19 | <0.03 | mg/l | TM38/PM0 |
| Dissolved Methane | <0.001 | <0.001 | 1.981 | 3.396 | 0.009 | <0.001 | 0.032 | <0.001 | 8.107 | <0.001 | <0.001 | mg/l | TM25/PM0 |
| Total Alkalinity as CaCO3 # | 434 | 480 | 708 | 868 | 552 | 476 | 476 | 352 | 466 | 592 | <1 | mg/l | TM75/PM0 |
| pH # | 8.10 | 7.43 | 7.82 | 7.73 | 7.49 | 7.70 | 7.93 | 7.54 | 7.93 | 7.78 | <0.01 | pH units | TM73/PM0 |

Jones Environmental Laboratory

Client Name: SLR Consulting Ltd
Reference: 406.00889.00005
Location: NANTWICH
Contact: Mark Swain
JE Job No.: 11/2257

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

| J E Sample No. | 51-55 | 56-60 | 61-65 | 66-70 | 71-75 | | | | | | | | | |
|---|------------|------------|------------|------------|------------|--|--|--|--|--|--|--------|----------|------------|
| Sample ID | P | Q | S | T | V | | | | | | | | | |
| Depth | 3.29 | 1.86 | 3.35 | 3.14 | 1.75 | | | | | | | | | |
| COC No / misc | | | | | | | | | | | | | | |
| Containers | V H P G | V H P G | V H P G | V H P G | V H P G | | | | | | | | | |
| Sample Date | 01/02/2011 | 01/02/2011 | 01/02/2011 | 01/02/2011 | 01/02/2011 | | | | | | | | | |
| Sample Type | Liquid | Liquid | Liquid | Liquid | Liquid | | | | | | | | | |
| Batch Number | 1 | 1 | 1 | 1 | 1 | | | | | | | | | |
| Date of Receipt | 04/02/2011 | 04/02/2011 | 04/02/2011 | 04/02/2011 | 04/02/2011 | | | | | | | | | |
| | | | | | | | | | | | | LOD | Units | Method No. |
| Dissolved Iron [#] | <0.02 | <0.02 | <0.02 | <0.02 | <0.02 | | | | | | | <0.02 | mg/l | TM30/PM14 |
| Dissolved Manganese [#] | 1.313 | 0.154 | 0.213 | 0.786 | 4.041 | | | | | | | <0.002 | mg/l | TM30/PM14 |
| Dissolved Sodium [#] | 14.9 | 661.9 | 104.8 | 31.0 | 18.3 | | | | | | | <0.1 | mg/l | TM30/PM14 |
| Sulphate [#] | 468.44 | 59.37 | 56.09 | 20.25 | 396.31 | | | | | | | <0.05 | mg/l | TM38/PM0 |
| Chloride [#] | 16.9 | 1075.0 | 202.1 | 68.6 | 15.5 | | | | | | | <0.3 | mg/l | TM38/PM0 |
| Nitrate as NO3 [#] | 16.5 | 6.0 | 2.0 | 1.8 | <0.2 | | | | | | | <0.2 | mg/l | TM38/PM0 |
| Ortho Phosphate as PO4 [#] | 16.26 | 6.00 | 7.73 | 12.44 | <0.06 | | | | | | | <0.06 | mg/l | TM38/PM0 |
| Sulphide Aquakem | <0.3 | <0.3 | <0.3 | <0.3 | <0.3 | | | | | | | <0.3 | mg/l | TM38/PM0 |
| Ammoniacal Nitrogen as NH4 [#] | 0.12 | 0.15 | 0.29 | 3.99 | 1.24 | | | | | | | <0.03 | mg/l | TM38/PM0 |
| Dissolved Methane | 0.007 | <0.001 | 0.017 | 2.970 | 0.094 | | | | | | | <0.001 | mg/l | TM25/PM0 |
| Total Alkalinity as CaCO3 [#] | 246 | 282 | 342 | 304 | 78 | | | | | | | <1 | mg/l | TM75/PM0 |
| pH [#] | 6.98 | 7.45 | 7.31 | 7.36 | 6.36 | | | | | | | <0.01 | pH units | TM73/PM0 |

Please see attached notes for all abbreviations and acronyms

Jones Environmental Laboratory

Client Name: SLR Consulting Ltd
Reference: 406.00889.00005
Location: NANTWICH
Contact: Tim Malim
JE Job No.: 12/1723

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

| J E Sample No. | 1-6 | 7-12 | 13-18 | 19-24 | 25-30 | 31-36 | 37-42 | 43-48 | 49-54 | 55-60 | Please see attached notes for all abbreviations and acronyms | | |
|----------------------------|-------------|-------------|--------------------|--------------------|-------------|-------------|--------------------|-------------|-------------|-------------|--|-------|------------|
| Sample ID | AB | AC | AE | AF | AG | F2 | L | M | N1 | O | LOD | Units | Method No. |
| Depth | 1.77 | 2.42 | 2.58 | 2.77 | 1.53 | 1.05 | 1.18 | 1.47 | 1.54 | 1.49 | | | |
| COC No / misc | | | | | | | | | | | | | |
| Containers | V H HCL Z P | V H HCL Z P | V H HCL Z P | V H HCL Z P | V H HCL Z P | V H HCL Z P | V H HCL Z P | V H HCL Z P | V H HCL Z P | V H HCL Z P | | | |
| Sample Date | 16/02/2012 | 16/02/2012 | 16/02/2012 | 16/02/2012 | 16/02/2012 | 16/02/2012 | 16/02/2012 | 16/02/2012 | 16/02/2012 | 16/02/2012 | | | |
| Sample Type | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | | | |
| Batch Number | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | |
| Date of Receipt | 21/02/2012 | 21/02/2012 | 21/02/2012 | 21/02/2012 | 21/02/2012 | 21/02/2012 | 21/02/2012 | 21/02/2012 | 21/02/2012 | 21/02/2012 | | | |
| Total Dissolved Iron | <0.0047 | <0.0047 | 0.0105 | 0.0206 | 0.0211 | 0.0583 | 0.0268 | 0.0304 | 0.1682 | 0.0234 | <0.0047 | mg/l | TM30/PM14 |
| Dissolved Manganese | <0.0015 | 2.0510 | 1.2410 | 0.9210 | 0.8265 | 0.4455 | 0.4951 | 0.2375 | 0.5999 | 1.2010 | <0.0015 | mg/l | TM30/PM14 |
| Dissolved Sodium | 66.2 | 2071.0 | 196.9 | 408.5 | 1705.0 | 90.7 | 141.4 | 207.9 | 64.0 | 73.2 | <0.1 | mg/l | TM30/PM14 |
| Sulphate | 55.76 | 186.08 | 9.89 | 12.18 | 271.66 | 38.04 | 119.21 | 133.55 | 74.66 | 28.48 | <0.05 | mg/l | TM38/PM0 |
| Chloride | 96.1 | 2803.6 | 307.4 | 592.9 | 3047.8 | 102.0 | 222.3 | 300.5 | 79.1 | 76.2 | <0.3 | mg/l | TM38/PM0 |
| Nitrate as NO3 | 8.5 | 0.4 | 0.9 | <0.2 | 2.5 | <0.2 | 6.4 | 6.0 | 1.5 | 0.3 | <0.2 | mg/l | TM38/PM0 |
| Ortho Phosphate as PO4 | 9.99 | <0.06 | 11.43 | 8.61 | 0.19 | 13.64 | 1.44 | 7.09 | 0.12 | 4.95 | <0.06 | mg/l | TM38/PM0 |
| Ammoniacal Nitrogen as NH4 | <0.03 | 2.63 | 24.23 ⁺ | 49.88 ⁺ | 1.52 | 1.85 | 20.91 ⁺ | 0.09 | 3.54 | 8.06 | <0.03 | mg/l | TM38/PM0 |
| Dissolved Methane | 0.006 | 0.364 | 5.273 | 3.765 | 0.012 | 0.943 | <0.001 | <0.001 | 6.777 | <0.001 | <0.001 | mg/l | TM25/PM0 |
| Total Alkalinity as CaCO3 | 490 | 428 | 850 | 942 | 564 | 308 | 462 | 394 | 468 | 450 | <1 | mg/l | TM75/PM0 |
| Sulphide | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | mg/l | TM106/PM0 |

Jones Environmental Laboratory

Client Name: SLR Consulting Ltd

Report : Liquid

Reference: 406.00889.00005

Location: NANTWICH

Contact: Tim Malim

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle

JE Job No.: 12/1723

H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

| J E Sample No. | 61-66 | 67-72 | 73-78 | 79-84 | 85-90 | | | | | | | | |
|----------------------------|-------------|-------------|-------------|-------------|-------------|--|--|--|--|--|---------|-------|------------|
| Sample ID | P | Q | S | T | V | | | | | | | | |
| Depth | 2.36 | 1.82 | 3.32 | 3.12 | 1.66 | | | | | | | | |
| COC No / misc | | | | | | | | | | | | | |
| Containers | V H HCL Z P | V H HCL Z P | V H HCL Z P | V H HCL Z P | V H HCL Z P | | | | | | | | |
| Sample Date | 16/02/2012 | 16/02/2012 | 16/02/2012 | 16/02/2012 | 16/02/2012 | | | | | | | | |
| Sample Type | Liquid | Liquid | Liquid | Liquid | Liquid | | | | | | | | |
| Batch Number | 1 | 1 | 1 | 1 | 1 | | | | | | | | |
| Date of Receipt | 21/02/2012 | 21/02/2012 | 21/02/2012 | 21/02/2012 | 21/02/2012 | | | | | | | | |
| | | | | | | | | | | | LOD | Units | Method No. |
| Total Dissolved Iron | <0.0047 | 0.0131 | 0.0156 | 0.0844 | 1.9220 | | | | | | <0.0047 | mg/l | TM30/PM14 |
| Dissolved Manganese | 2.3170 | 0.0336 | 0.3080 | 1.0960 | 8.6010 | | | | | | <0.0015 | mg/l | TM30/PM14 |
| Dissolved Sodium | 22.8 | 549.6 | 310.8 | 44.9 | 38.4 | | | | | | <0.1 | mg/l | TM30/PM14 |
| Sulphate | 876.01 | 57.52 | 71.68 | 29.81 | 974.34 | | | | | | <0.05 | mg/l | TM38/PM0 |
| Chloride | 23.2 | 750.0 | 577.0 | 75.9 | 34.5 | | | | | | <0.3 | mg/l | TM38/PM0 |
| Nitrate as NO3 | 32.0 | 23.7 | 15.9 | <0.2 | <0.2 | | | | | | <0.2 | mg/l | TM38/PM0 |
| Ortho Phosphate as PO4 | 14.90 | 10.61 | 5.04 | 13.55 | <0.06 | | | | | | <0.06 | mg/l | TM38/PM0 |
| Ammoniacal Nitrogen as NH4 | 0.40 | <0.03 | 0.17 | 5.96 | 1.83 | | | | | | <0.03 | mg/l | TM38/PM0 |
| Dissolved Methane | <0.001 | <0.001 | 0.005 | 2.024 | 0.026 | | | | | | <0.001 | mg/l | TM25/PM0 |
| Total Alkalinity as CaCO3 | 242 | 374 | 308 | 378 | NDP | | | | | | <1 | mg/l | TM75/PM0 |
| Sulphide | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 | | | | | | <0.01 | mg/l | TM106/PM0 |

Please see attached notes for all abbreviations and acronyms

Jones Environmental Laboratory

Client Name: SLR Consulting Ltd
Reference: 406.00889.00005
Location: NANTWICH
Contact: Tim Malim
JE Job No.: 12/1723

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

| J E Sample No. | 1-6 | 7-12 | 13-18 | 19-24 | 25-30 | 31-36 | 37-42 | 43-48 | 49-54 | 55-60 | Please see attached notes for all abbreviations and acronyms | | |
|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|----------|------------|
| Sample ID | AB | AC | AE | AF | AG | F2 | L | M | N1 | O | | | |
| Depth | 1.77 | 2.42 | 2.58 | 2.77 | 1.53 | 1.05 | 1.18 | 1.47 | 1.54 | 1.49 | | | |
| COC No / misc | | | | | | | | | | | | | |
| Containers | V H HCL Z P | V H HCL Z P | V H HCL Z P | V H HCL Z P | V H HCL Z P | V H HCL Z P | V H HCL Z P | V H HCL Z P | V H HCL Z P | V H HCL Z P | | | |
| Sample Date | 16/02/2012 | 16/02/2012 | 16/02/2012 | 16/02/2012 | 16/02/2012 | 16/02/2012 | 16/02/2012 | 16/02/2012 | 16/02/2012 | 16/02/2012 | | | |
| Sample Type | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | Liquid | | | |
| Batch Number | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | |
| Date of Receipt | 21/02/2012 | 21/02/2012 | 21/02/2012 | 21/02/2012 | 21/02/2012 | 21/02/2012 | 21/02/2012 | 21/02/2012 | 21/02/2012 | 21/02/2012 | LOD | Units | Method No. |
| pH ¹ | 8.38 | 8.04 | 8.27 | 7.97 | 7.63 | 8.39 | 8.28 | 8.34 | 8.28 | 8.42 | <0.01 | pH units | TM73/PM0 |
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Jones Environmental Laboratory

Client Name: SLR Consulting Ltd
 Reference: 406.00889.00005
 Location: NANTWICH
 Contact: Tim Malim
 JE Job No.: 12/1723

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
 H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

| J E Sample No. | 61-66 | 67-72 | 73-78 | 79-84 | 85-90 | | | | | | | | |
|-----------------|-------------|-------------|-------------|-------------|-------------|--|--|--|--|--|-------|----------|------------|
| Sample ID | P | Q | S | T | V | | | | | | | | |
| Depth | 2.36 | 1.82 | 3.32 | 3.12 | 1.66 | | | | | | | | |
| COC No / misc | | | | | | | | | | | | | |
| Containers | V H HCL Z P | V H HCL Z P | V H HCL Z P | V H HCL Z P | V H HCL Z P | | | | | | | | |
| Sample Date | 16/02/2012 | 16/02/2012 | 16/02/2012 | 16/02/2012 | 16/02/2012 | | | | | | | | |
| Sample Type | Liquid | Liquid | Liquid | Liquid | Liquid | | | | | | | | |
| Batch Number | 1 | 1 | 1 | 1 | 1 | | | | | | | | |
| Date of Receipt | 21/02/2012 | 21/02/2012 | 21/02/2012 | 21/02/2012 | 21/02/2012 | | | | | | | | |
| | | | | | | | | | | | LOD | Units | Method No. |
| pH ¹ | 8.08 | 8.30 | 8.07 | 8.22 | 3.41 | | | | | | <0.01 | pH units | TM73/PM0 |
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Please see attached notes for all abbreviations and acronyms

| Date | F1 | P | N1 | AB | AE | AF | Nantwich Rainfall (mm) | Merseyside Rainfall (mm) |
|------------|--------|---------|--------|---------|--------|--------|---------------------------|-----------------------------|
| 26/01/2011 | 1.311 | 3.26147 | 1.658 | 1.65483 | 2.517 | 2.754 | 0 | |
| 27/01/2011 | 1.393 | 3.27025 | 1.689 | 1.67294 | 2.617 | 2.820 | 0.402 | |
| 28/01/2011 | 1.419 | 3.26382 | 1.699 | 1.66981 | 2.624 | 2.819 | 0 | |
| 29/01/2011 | 1.418 | 3.26454 | 1.704 | 1.67665 | 2.611 | 2.809 | 0 | |
| 30/01/2011 | 1.418 | 3.2694 | 1.712 | 1.68407 | 2.623 | 2.815 | 0 | |
| 31/01/2011 | 1.425 | 3.27611 | 1.721 | 1.69105 | 2.631 | 2.821 | 0 | |
| 01/02/2011 | 1.429 | 3.27742 | 1.726 | 1.69787 | 2.616 | 2.811 | 0 | |
| 02/02/2011 | 1.413 | 3.28416 | 1.732 | 1.70773 | 2.646 | 2.829 | 1.407 | |
| 03/02/2011 | 1.425 | 3.29351 | 1.741 | 1.72298 | 2.646 | 2.834 | 0 | |
| 04/02/2011 | 1.406 | 3.29413 | 1.737 | 1.72627 | 2.588 | 2.798 | 0 | |
| 05/02/2011 | 1.419 | 3.29734 | 1.742 | 1.73566 | 2.616 | 2.812 | 0.402 | |
| 06/02/2011 | 1.400 | 3.30336 | 1.751 | 1.75063 | 2.666 | 2.843 | 0.402 | |
| 07/02/2011 | 1.422 | 3.30351 | 1.755 | 1.75098 | 2.643 | 2.828 | 1.809 | |
| 08/02/2011 | 1.471 | 3.31245 | 1.759 | 1.76653 | 2.707 | 2.867 | 0 | |
| 09/02/2011 | 1.450 | 3.30596 | 1.761 | 1.76451 | 2.647 | 2.833 | 0 | |
| 10/02/2011 | 1.456 | 3.31055 | 1.763 | 1.77312 | 2.634 | 2.824 | 0.804 | |
| 11/02/2011 | 1.337 | 3.3001 | 1.704 | 1.77588 | 2.622 | 2.818 | 4.02 | |
| 12/02/2011 | 1.280 | 3.28985 | 1.669 | 1.78192 | 2.624 | 2.824 | 0.402 | |
| 13/02/2011 | 1.351 | 3.28717 | 1.659 | 1.77077 | 2.561 | 2.784 | 4.02 | |
| 14/02/2011 | 1.132 | 3.27127 | 1.467 | 1.76427 | 2.549 | 2.784 | 5.427 | |
| 15/02/2011 | 1.150 | 3.26598 | 1.610 | 1.74371 | 2.510 | 2.744 | 2.613 | |
| 16/02/2011 | 1.164 | 3.27391 | 1.628 | 1.73933 | 2.518 | 2.753 | 0 | |
| 17/02/2011 | 1.194 | 3.28095 | 1.651 | 1.73478 | 2.606 | 2.799 | 0.603 | |
| 18/02/2011 | 1.209 | 3.28757 | 1.676 | 1.73428 | 2.659 | 2.831 | 0 | |
| 19/02/2011 | 1.176 | 3.28321 | 1.683 | 1.72602 | 2.617 | 2.804 | 0 | |
| 20/02/2011 | 1.085 | 3.28242 | 1.629 | 1.72967 | 2.648 | 2.823 | 4.422 | |
| 21/02/2011 | 1.097 | 3.28383 | 1.660 | 1.72396 | 2.621 | 2.802 | 0 | |
| 22/02/2011 | 1.101 | 3.28463 | 1.670 | 1.72266 | 2.625 | 2.802 | 0.201 | |
| 23/02/2011 | 1.113 | 3.28604 | 1.678 | 1.72527 | 2.625 | 2.801 | 1.005 | |
| 24/02/2011 | 1.061 | 3.2836 | 1.626 | 1.72805 | 2.641 | 2.814 | 3.216 | |
| 25/02/2011 | 1.082 | 3.28825 | 1.658 | 1.72619 | 2.637 | 2.808 | 0 | |
| 26/02/2011 | 0.942 | 3.24676 | 1.595 | 1.71505 | 2.547 | 2.754 | 0 | |
| 27/02/2011 | 1.131 | 3.23903 | 1.536 | 1.68043 | 2.453 | 2.646 | 15.075 | |
| 28/02/2011 | 1.249 | 3.24495 | 1.604 | 1.65724 | 2.434 | 2.654 | 1.809 | |
| 01/03/2011 | 1.305 | 3.24954 | 1.633 | 1.64106 | 2.489 | 2.716 | 0.201 | |
| 02/03/2011 | 1.338 | 3.24852 | 1.651 | 1.62769 | 2.505 | 2.753 | 0 | |
| 03/03/2011 | 1.365 | 3.25071 | 1.658 | 1.61986 | 2.517 | 2.784 | 0 | |
| 04/03/2011 | 1.388 | 3.25444 | 1.670 | 1.62332 | 2.532 | 2.798 | 0 | |
| 05/03/2011 | 1.411 | 3.2546 | 1.677 | 1.6239 | 2.535 | 2.804 | 0 | |
| 06/03/2011 | 1.409 | 3.26296 | 1.688 | 1.63196 | 2.568 | 2.823 | 0.201 | |
| 07/03/2011 | 1.430 | 3.26254 | 1.696 | 1.63844 | 2.575 | 2.826 | 0 | |
| 08/03/2011 | 1.402 | 3.26041 | 1.695 | 1.642 | 2.541 | 2.802 | 0 | |
| 09/03/2011 | 1.4334 | 3.2829 | 1.7062 | 1.672 | 2.5724 | 2.7973 | 0.603 | |
| 10/03/2011 | 1.4497 | 3.2888 | 1.7128 | 1.6846 | 2.5687 | 2.8574 | 0.201 | |
| 11/03/2011 | 1.4518 | 3.2868 | 1.7235 | 1.6927 | 2.6004 | 2.8452 | 0.402 | |
| 12/03/2011 | 1.4497 | 3.2902 | 1.7152 | 1.7009 | 2.5547 | 2.9396 | 0.603 | |
| 13/03/2011 | 1.361 | 3.286 | 1.6878 | 1.7175 | 2.6259 | 2.9496 | 0 | |
| 14/03/2011 | 1.4051 | 3.3011 | 1.7277 | 1.7313 | 2.707 | 2.8392 | 4.824 | |
| 15/03/2011 | 1.402 | 3.2999 | 1.7365 | 1.7341 | 2.6707 | 2.8393 | 0 | |
| 16/03/2011 | 1.4069 | 3.3021 | 1.7461 | 1.7414 | 2.6668 | 2.8402 | 0 | |
| 17/03/2011 | 1.4149 | 3.3117 | 1.7493 | 1.7541 | 2.6759 | 2.8295 | 0 | |
| 18/03/2011 | 1.4185 | 3.3192 | 1.7582 | 1.7641 | 2.7073 | 2.762 | 0 | |
| 19/03/2011 | 1.423 | 3.3201 | 1.7701 | 1.7724 | 2.7325 | 2.6805 | 0 | |
| 20/03/2011 | 1.3958 | 3.3206 | 1.7695 | 1.7767 | 2.6956 | 2.6939 | 0 | |
| 21/03/2011 | 1.4116 | 3.3304 | 1.7832 | 1.789 | 2.7236 | 2.667 | 1.206 | |
| 22/03/2011 | 1.4527 | 3.3354 | 1.795 | 1.797 | 2.7444 | 2.622 | 0 | |
| 23/03/2011 | 1.4679 | 3.3368 | 1.802 | 1.8046 | 2.7281 | 2.5985 | 0 | |
| 24/03/2011 | 1.452 | 3.3368 | 1.8032 | 1.8057 | 2.6802 | 2.6367 | 0 | |
| 25/03/2011 | 1.4329 | 3.3346 | 1.7929 | 1.8109 | 2.6392 | 2.7501 | 0 | |
| 26/03/2011 | 1.4241 | 3.3337 | 1.7884 | 1.8122 | 2.6622 | 2.8047 | 0 | |

| Date | F1 | P | N1 | AB | AE | AF | Nantwich Rainfall (mm) | Merseyside Rainfall (mm) |
|------------|--------|--------|--------|--------|--------|--------|---------------------------|-----------------------------|
| 27/03/2011 | 1.4228 | 3.3376 | 1.7976 | 1.8207 | 2.6855 | 2.8266 | 0 | |
| 28/03/2011 | 1.4215 | 3.3418 | 1.8061 | 1.8284 | 2.7083 | 2.8257 | 0 | |
| 29/03/2011 | 1.413 | 3.3446 | 1.8071 | 1.8362 | 2.6902 | 2.8675 | 0 | |
| 30/03/2011 | 1.3512 | 3.3322 | 1.8038 | 1.836 | 2.6828 | 2.8655 | 0 | |
| 31/03/2011 | 1.3878 | 3.3369 | 1.759 | 1.8517 | 2.734 | 2.8634 | 2.814 | |
| 01/04/2011 | 1.4857 | 3.3328 | 1.7841 | 1.8541 | 2.7443 | 2.8799 | 3.015 | |
| 02/04/2011 | 1.5393 | 3.3401 | 1.7909 | 1.862 | 2.7389 | 2.866 | 0.201 | |
| 03/04/2011 | 1.5708 | 3.3448 | 1.8005 | 1.8694 | 2.7642 | 2.8809 | 0 | |
| 04/04/2011 | 1.5432 | 3.3359 | 1.7923 | 1.8649 | 2.7667 | 2.8985 | 1.407 | |
| 05/04/2011 | 1.5886 | 3.3478 | 1.8042 | 1.8786 | 2.7833 | 2.8862 | 1.608 | |
| 06/04/2011 | 1.6124 | 3.3501 | 1.8202 | 1.8861 | 2.8118 | 2.9171 | 0 | |
| 07/04/2011 | 1.6277 | 3.3509 | 1.8255 | 1.8901 | 2.8375 | 2.9291 | 0 | |
| 08/04/2011 | 1.6275 | 3.3533 | 1.8299 | 1.8976 | 2.8038 | 2.9397 | 0 | |
| 09/04/2011 | 1.6253 | 3.3533 | 1.8306 | 1.9019 | 2.7785 | 2.9181 | 0 | |
| 10/04/2011 | 1.6345 | 3.3563 | 1.8325 | 1.9068 | 2.7822 | 2.9058 | 0 | |
| 11/04/2011 | 1.6177 | 3.3552 | 1.8307 | 1.9092 | 2.7746 | 2.9052 | 0 | |
| 12/04/2011 | 1.6202 | 3.361 | 1.8364 | 1.9173 | 2.819 | 2.9131 | 1.005 | |
| 13/04/2011 | 1.6158 | 3.354 | 1.8265 | 1.9164 | 2.7399 | 2.9184 | 1.005 | |
| 14/04/2011 | 1.6299 | 3.3581 | 1.8328 | 1.9223 | 2.7584 | 2.8776 | 0 | |
| 15/04/2011 | 1.6364 | 3.3613 | 1.8417 | 1.9303 | 2.7788 | 2.8917 | 0 | |
| 16/04/2011 | 1.6478 | 3.366 | 1.8495 | 1.9378 | 2.8037 | 2.904 | 0 | |
| 17/04/2011 | 1.6513 | 3.3689 | 1.8543 | 1.9431 | 2.8091 | 2.9185 | 0 | |
| 18/04/2011 | 1.6355 | 3.3668 | 1.8533 | 1.9465 | 2.7584 | 2.9171 | 0 | |
| 19/04/2011 | 1.6277 | 3.3734 | 1.8567 | 1.9534 | 2.7689 | 2.8825 | 0 | |
| 20/04/2011 | 1.6469 | 3.3751 | 1.8602 | 1.9608 | 2.7819 | 2.8957 | 0 | |
| 21/04/2011 | 1.6497 | 3.3749 | 1.8632 | 1.9665 | 2.7772 | 2.9028 | 0 | |
| 22/04/2011 | 1.6495 | 3.3796 | 1.8645 | 1.9736 | 2.7616 | 2.8934 | 0 | |
| 23/04/2011 | 1.4551 | 3.3741 | 1.7946 | 1.9768 | 2.8113 | 2.8914 | 0 | |
| 24/04/2011 | 1.457 | 3.3742 | 1.8173 | 1.9831 | 2.8394 | 2.9197 | 5.025 | |
| 25/04/2011 | 1.4538 | 3.3806 | 1.834 | 1.9888 | 2.8443 | 2.9342 | 0 | |
| 26/04/2011 | 1.4447 | 3.376 | 1.84 | 1.9897 | 2.8329 | 2.9374 | 0 | |
| 27/04/2011 | 1.4419 | 3.3806 | 1.8497 | 1.996 | 2.8165 | 2.9283 | 0 | |
| 28/04/2011 | 1.4284 | 3.382 | 1.8521 | 2.0003 | 2.7831 | 2.9199 | 0 | |
| 29/04/2011 | 1.4217 | 3.3833 | 1.8549 | 2.007 | 2.7646 | 2.8895 | 0 | |
| 30/04/2011 | 1.4262 | 3.3848 | 1.8541 | 2.0169 | 2.7764 | 2.8835 | 0 | |
| 01/05/2011 | 1.4316 | 3.3838 | 1.8565 | 2.0195 | 2.7902 | 2.8889 | 0 | |
| 02/05/2011 | 1.4389 | 3.3765 | 1.8631 | 2.0264 | 2.8077 | 2.8969 | 0 | |
| 03/05/2011 | 1.4475 | 3.3869 | 1.8679 | 2.0323 | 2.8279 | 2.9095 | 0 | |
| 04/05/2011 | 1.4531 | 3.39 | 1.8721 | 2.0351 | 2.8311 | 2.9207 | 0 | |
| 05/05/2011 | 1.4488 | 3.3915 | 1.8754 | 2.038 | 2.8072 | 2.9142 | 0 | |
| 06/05/2011 | 1.4319 | 3.394 | 1.8791 | 2.0448 | 2.8069 | 2.89 | 0 | |
| 07/05/2011 | 1.2877 | 3.3836 | 1.8106 | 2.0475 | 2.7868 | 2.895 | 1.407 | |
| 08/05/2011 | 1.1907 | 3.3748 | 1.7248 | 2.0527 | 2.8114 | 2.8831 | 6.834 | |
| 09/05/2011 | 1.23 | 3.3728 | 1.7552 | 2.059 | 2.8382 | 2.9115 | 5.226 | |
| 10/05/2011 | 1.2331 | 3.3722 | 1.7655 | 2.0625 | 2.85 | 2.9226 | 2.613 | |
| 11/05/2011 | 1.2594 | 3.3746 | 1.7681 | 2.059 | 2.8139 | 2.9237 | 1.005 | |
| 12/05/2011 | 1.2683 | 3.3716 | 1.7563 | 2.0557 | 2.8045 | 2.9027 | 0 | |
| 13/05/2011 | 1.3032 | 3.3757 | 1.7751 | 2.0603 | 2.8497 | 2.9051 | 0.201 | |
| 14/05/2011 | 1.3135 | 3.3746 | 1.7614 | 2.0604 | 2.8366 | 2.908 | 0 | |
| 15/05/2011 | 1.2804 | 3.381 | 1.7727 | 2.0678 | 2.8761 | 2.9268 | 1.206 | |
| 16/05/2011 | 1.2974 | 3.3869 | 1.7839 | 2.0759 | 2.8586 | 2.9161 | 2.412 | |
| 17/05/2011 | 1.3055 | 3.388 | 1.7836 | 2.079 | 2.8402 | 2.9064 | 0.603 | |
| 18/05/2011 | 1.3137 | 3.3891 | 1.7853 | 2.0838 | 2.8181 | 2.895 | 0.201 | |
| 19/05/2011 | 1.3148 | 3.3909 | 1.7858 | 2.0849 | 2.8545 | 2.9168 | 1.608 | |
| 20/05/2011 | 1.3312 | 3.3916 | 1.7915 | 2.092 | 2.8492 | 2.9157 | 0 | |
| 21/05/2011 | 1.3527 | 3.3925 | 1.7999 | 2.0938 | 2.8705 | 2.9152 | 0 | |
| 22/05/2011 | 1.3203 | 3.3901 | 1.791 | 2.0984 | 2.8113 | 2.9055 | 0 | |
| 23/05/2011 | 1.3299 | 3.3967 | 1.8012 | 2.1055 | 2.8797 | 2.9253 | 2.211 | |
| 24/05/2011 | 1.3313 | 3.4003 | 1.7953 | 2.1081 | 2.8885 | 2.9498 | 1.206 | |
| 25/05/2011 | 1.3632 | 3.3981 | 1.8054 | 2.1128 | 2.9096 | 2.9317 | 0 | |

| Date | F1 | P | N1 | AB | AE | AF | Nantwich Rainfall (mm) | Merseyside Rainfall (mm) |
|------------|--------|--------|--------|--------|--------|--------|---------------------------|-----------------------------|
| 26/05/2011 | 1.3267 | 3.3956 | 1.7924 | 2.1156 | 2.7868 | 2.8771 | 0 | |
| 27/05/2011 | 1.2397 | 3.3951 | 1.7538 | 2.1209 | 2.8721 | 2.9307 | 5.226 | |
| 28/05/2011 | 1.2273 | 3.3923 | 1.7439 | 2.124 | 2.8358 | 2.9021 | 2.01 | |
| 29/05/2011 | 1.2565 | 3.4004 | 1.7561 | 2.1299 | 2.819 | 2.899 | 0.201 | |
| 30/05/2011 | 1.2997 | 3.4035 | 1.7601 | 2.1355 | 2.8528 | 2.9169 | 0 | |
| 31/05/2011 | 1.1138 | 3.3867 | 1.6545 | 2.1326 | 2.8602 | 2.9348 | 6.231 | |
| 01/06/2011 | 1.2768 | 3.3943 | 1.7159 | 2.1369 | 2.9111 | 2.9556 | 3.417 | |
| 02/06/2011 | 1.3915 | 3.4039 | 1.7379 | 2.1456 | 2.9247 | 2.9635 | 0.201 | |
| 03/06/2011 | 1.4756 | 3.4033 | 1.7433 | 2.1472 | 2.9119 | 2.9469 | 0 | |
| 04/06/2011 | 1.5146 | 3.4045 | 1.737 | 2.1507 | 2.8657 | 2.9134 | 0 | |
| 05/06/2011 | 1.4762 | 3.3998 | 1.7251 | 2.1516 | 2.8263 | 2.8787 | 0 | |
| 06/06/2011 | 1.41 | 3.3942 | 1.7014 | 2.1544 | 2.7806 | 2.8637 | 2.412 | |
| 07/06/2011 | 1.4858 | 3.3963 | 1.7039 | 2.1549 | 2.7803 | 2.86 | 0.804 | |
| 08/06/2011 | 1.5191 | 3.4008 | 1.7068 | 2.1572 | 2.7936 | 2.8767 | 0 | |
| 09/06/2011 | 1.5845 | 3.4075 | 1.7237 | 2.1628 | 2.8601 | 2.9242 | 1.005 | |
| 10/06/2011 | 1.6116 | 3.4045 | 1.7313 | 2.1631 | 2.8746 | 2.9276 | 0 | |
| 11/06/2011 | 1.6134 | 3.4065 | 1.7321 | 2.1657 | 2.8696 | 2.9289 | 0.201 | |
| 12/06/2011 | 1.5621 | 3.4024 | 1.7354 | 2.1668 | 2.8692 | 2.9056 | 0 | |
| 13/06/2011 | 1.2025 | 3.3862 | 1.6261 | 2.1718 | 2.7972 | 2.9042 | 7.236 | |
| 14/06/2011 | 1.2875 | 3.3944 | 1.6892 | 2.1718 | 2.8815 | 2.9288 | 2.211 | |
| 15/06/2011 | 1.2952 | 3.3989 | 1.7086 | 2.1773 | 2.8398 | 2.898 | 0.201 | |
| 16/06/2011 | 1.2846 | 3.398 | 1.7125 | 2.1774 | 2.823 | 2.8921 | 0.603 | |
| 17/06/2011 | 1.2512 | 3.3964 | 1.716 | 2.1785 | 2.8281 | 2.8784 | 2.211 | |
| 18/06/2011 | 1.2154 | 3.3924 | 1.7091 | 2.1791 | 2.7783 | 2.8688 | | 1.2 |
| 19/06/2011 | 1.2041 | 3.3996 | 1.7045 | 2.1819 | 2.8507 | 2.9231 | | 0.8 |
| 20/06/2011 | 1.2074 | 3.3989 | 1.7003 | 2.1828 | 2.8642 | 2.9154 | | 0 |
| 21/06/2011 | 1.1022 | 3.3991 | 1.6765 | 2.1876 | 2.817 | 2.8956 | | 4 |
| 22/06/2011 | 1.1153 | 3.3952 | 1.6789 | 2.1858 | 2.8104 | 2.8961 | | 1.2 |
| 23/06/2011 | 1.0901 | 3.3951 | 1.6571 | 2.1841 | 2.8431 | 2.923 | | 4 |
| 24/06/2011 | 1.1326 | 3.3966 | 1.6746 | 2.1794 | 2.8804 | 2.9357 | | 0 |
| 25/06/2011 | 0.9698 | 3.3675 | 1.5675 | 2.1782 | 2.8163 | 2.9061 | | 4.6 |
| 26/06/2011 | 1.0372 | 3.3775 | 1.623 | 2.1729 | 2.8429 | 2.9051 | | 1.2 |
| 27/06/2011 | 1.0796 | 3.3783 | 1.6496 | 2.1721 | 2.803 | 2.8806 | | 0 |
| 28/06/2011 | 1.1056 | 3.3792 | 1.6633 | 2.1689 | 2.8319 | 2.8983 | | 0 |
| 29/06/2011 | 1.1599 | 3.3785 | 1.675 | 2.1664 | 2.8496 | 2.915 | | 0 |
| 30/06/2011 | 1.2099 | 3.3819 | 1.6891 | 2.1661 | 2.8649 | 2.9256 | | 0 |
| 01/07/2011 | 1.2538 | 3.385 | 1.7008 | 2.1711 | 2.8719 | 2.9263 | | 0 |
| 02/07/2011 | 1.2696 | 3.3854 | 1.7027 | 2.1701 | 2.8431 | 2.9013 | | 0 |
| 03/07/2011 | 1.2832 | 3.3917 | 1.7085 | 2.1779 | 2.83 | 2.9019 | | 0 |
| 04/07/2011 | 1.3039 | 3.3951 | 1.716 | 2.1816 | 2.8424 | 2.9064 | | 0 |
| 05/07/2011 | 1.3116 | 3.3967 | 1.7195 | 2.1862 | 2.8285 | 2.8933 | | 0 |
| 06/07/2011 | 1.2754 | 3.3876 | 1.7123 | 2.1875 | 2.7929 | 2.8764 | | 8 |
| 07/07/2011 | 1.2063 | 3.3854 | 1.6873 | 2.1884 | 2.7758 | 2.8749 | | 4.4 |
| 08/07/2011 | 1.2302 | 3.3925 | 1.6938 | 2.1929 | 2.8187 | 2.8903 | | 6 |
| 09/07/2011 | 1.2129 | 3.3891 | 1.7079 | 2.1955 | 2.8516 | 2.9249 | | 2.6 |
| 10/07/2011 | 1.2017 | 3.3948 | 1.7189 | 2.1955 | 2.9029 | 2.9502 | | 0 |
| 11/07/2011 | 1.2009 | 3.3962 | 1.7274 | 2.1962 | 2.9096 | 2.9538 | | 0 |
| 12/07/2011 | 1.2318 | 3.3997 | 1.7315 | 2.201 | 2.9004 | 2.9461 | | 0 |
| 13/07/2011 | 1.2635 | 3.4022 | 1.7346 | 2.2042 | 2.8961 | 2.9431 | | 0 |
| 14/07/2011 | 1.2972 | 3.404 | 1.7356 | 2.2068 | 2.8893 | 2.9382 | | 0 |
| 15/07/2011 | 1.3182 | 3.4062 | 1.7348 | 2.21 | 2.8793 | 2.9269 | | 0 |
| 16/07/2011 | 1.3128 | 3.402 | 1.7238 | 2.2153 | 2.8101 | 2.8738 | | 0.6 |
| 17/07/2011 | 1.2429 | 3.4001 | 1.7086 | 2.2168 | 2.7803 | 2.8719 | | 4.8 |
| 18/07/2011 | 0.8901 | 3.3659 | 1.3704 | 2.2132 | 2.7997 | 2.894 | | 5.6 |
| 19/07/2011 | 0.909 | 3.362 | 1.4202 | 2.2044 | 2.8194 | 2.9121 | | 3 |
| 20/07/2011 | 1.0044 | 3.3621 | 1.5698 | 2.1936 | 2.8506 | 2.9237 | | 1.2 |
| 21/07/2011 | 1.0999 | 3.3652 | 1.6092 | 2.1906 | 2.862 | 2.9342 | | 1.2 |
| 22/07/2011 | 1.1628 | 3.37 | 1.634 | 2.19 | 2.8843 | 2.9387 | | 0.2 |
| 23/07/2011 | 1.0547 | 3.3516 | 1.4335 | 2.1815 | 2.841 | 2.9109 | | 0.4 |
| 24/07/2011 | 1.083 | 3.354 | 1.5805 | 2.1813 | 2.8119 | 2.8967 | | 0.4 |

| Date | F1 | P | N1 | AB | AE | AF | Nantwich Rainfall (mm) | Merseyside Rainfall (mm) |
|------------|--------|--------|--------|--------|--------|--------|---------------------------|-----------------------------|
| 25/07/2011 | 1.1177 | 3.3554 | 1.6087 | 2.1824 | 2.8085 | 2.8969 | | 0.4 |
| 26/07/2011 | 1.1676 | 3.3642 | 1.6385 | 2.1878 | 2.8439 | 2.9238 | | 0.2 |
| 27/07/2011 | 1.212 | 3.3705 | 1.6611 | 2.1934 | 2.8858 | 2.9465 | | 0.2 |
| 28/07/2011 | 1.2391 | 3.3719 | 1.675 | 2.1941 | 2.8817 | 2.9488 | | 0 |
| 29/07/2011 | 1.2676 | 3.3763 | 1.6874 | 2.2001 | 2.8854 | 2.9467 | | 0 |
| 30/07/2011 | 1.278 | 3.3766 | 1.6911 | 2.2012 | 2.8727 | 2.9343 | | 0 |
| 31/07/2011 | 1.2814 | 3.3794 | 1.6902 | 2.206 | 2.8365 | 2.9111 | | 0 |
| 01/08/2011 | 1.2978 | 3.3868 | 1.6953 | 2.2131 | 2.8401 | 2.9157 | | 0 |
| 02/08/2011 | 1.3108 | 3.3898 | 1.6967 | 2.2141 | 2.8542 | 2.9289 | | 2.2 |
| 03/08/2011 | 1.3217 | 3.3914 | 1.703 | 2.2193 | 2.8758 | 2.936 | | 1.2 |
| 04/08/2011 | 1.3268 | 3.3924 | 1.7041 | 2.2229 | 2.8526 | 2.9226 | | 0 |
| 05/08/2011 | 1.2192 | 3.3894 | 1.6302 | 2.2256 | 2.8667 | 2.9471 | | 1.2 |
| 06/08/2011 | 1.2484 | 3.3845 | 1.6593 | 2.2264 | 2.846 | 2.9222 | | 0.2 |
| 07/08/2011 | 1.2649 | 3.3905 | 1.6659 | 2.2278 | 2.8207 | 2.9179 | | 0.6 |
| 08/08/2011 | 1.2397 | 3.3901 | 1.6088 | 2.2295 | 2.8526 | 2.9482 | | 4.2 |
| 09/08/2011 | 1.2739 | 3.399 | 1.656 | 2.2354 | 2.9413 | 3.0055 | | 0.2 |
| 10/08/2011 | 1.3028 | 3.3955 | 1.687 | 2.2321 | 2.9356 | 2.9741 | | 0.2 |
| 11/08/2011 | 1.0716 | 3.3786 | 1.4588 | 2.2379 | 2.8342 | 2.9199 | | 5.2 |
| 12/08/2011 | 1.1101 | 3.3824 | 1.5866 | 2.2367 | 2.8507 | 2.9287 | | 1.8 |
| 13/08/2011 | 1.1251 | 3.3803 | 1.6145 | 2.2369 | 2.814 | 2.9071 | | 1.4 |
| 14/08/2011 | 1.1697 | 3.3859 | 1.6312 | 2.2376 | 2.832 | 2.923 | | 0 |
| 15/08/2011 | 1.2272 | 3.3901 | 1.652 | 2.238 | 2.8818 | 2.9527 | | 1 |
| 16/08/2011 | 1.2432 | 3.3889 | 1.6721 | 2.242 | 2.8749 | 2.9494 | | 1.8 |
| 17/08/2011 | 1.2484 | 3.394 | 1.683 | 2.2427 | 2.8919 | 2.9607 | | 0.4 |
| 18/08/2011 | 1.2732 | 3.3952 | 1.6926 | 2.2425 | 2.8821 | 2.9476 | | 0 |
| 19/08/2011 | 1.2891 | 3.3972 | 1.7051 | 2.2499 | 2.8601 | 2.9463 | | 0 |
| 20/08/2011 | 1.3008 | 3.4022 | 1.7105 | 2.2545 | 2.8584 | 2.9416 | | 0 |
| 21/08/2011 | 1.2942 | 3.4014 | 1.7123 | 2.2557 | 2.8379 | 2.9357 | | 0 |
| 22/08/2011 | 1.32 | 3.4081 | 1.7243 | 2.2586 | 2.8898 | 2.9662 | | 0.6 |
| 23/08/2011 | 1.3244 | 3.4095 | 1.7311 | 2.2642 | 2.873 | 2.9452 | | 0 |
| 24/08/2011 | 1.3368 | 3.4091 | 1.7283 | 2.2646 | 2.8481 | 2.9373 | | 0 |
| 25/08/2011 | 1.3469 | 3.4024 | 1.7286 | 2.2664 | 2.8481 | 2.9404 | | 0.4 |
| 26/08/2011 | 1.3009 | 3.4019 | 1.7207 | 2.2668 | 2.8391 | 2.9301 | | 1.2 |
| 27/08/2011 | 1.1914 | 3.3905 | 1.4091 | 2.2706 | 2.8563 | 2.9522 | | 12.4 |
| 28/08/2011 | 0.975 | 3.3698 | 1.3368 | 2.2604 | 2.8174 | 2.9394 | | 9.4 |
| 29/08/2011 | 1.0296 | 3.3677 | 1.5386 | 2.2553 | 2.8221 | 2.9351 | | 0.2 |
| 30/08/2011 | 1.0632 | 3.3677 | 1.5704 | 2.2539 | 2.8203 | 2.9281 | | 1.2 |
| 31/08/2011 | 1.1142 | 3.3681 | 1.592 | 2.2532 | 2.8143 | 2.9186 | | 0.4 |
| 01/09/2011 | 1.1569 | 3.3723 | 1.607 | 2.2557 | 2.8169 | 2.9131 | | 0 |
| 02/09/2011 | 1.178 | 3.3736 | 1.6151 | 2.2568 | 2.797 | 2.9064 | | 0 |
| 03/09/2011 | 1.2061 | 3.3762 | 1.6278 | 2.2617 | 2.795 | 2.901 | | 0 |
| 04/09/2011 | 1.2296 | 3.384 | 1.6326 | 2.2629 | 2.802 | 2.9028 | | 6.8 |
| 05/09/2011 | 1.244 | 3.3819 | 1.644 | 2.2618 | 2.8007 | 2.9191 | | 0.8 |
| 06/09/2011 | 1.2357 | 3.3798 | 1.6584 | 2.2639 | 2.8059 | 2.9173 | | 3.2 |
| 07/09/2011 | 1.2433 | 3.3918 | 1.6691 | 2.2673 | 2.8441 | 2.9391 | | 0.4 |
| 08/09/2011 | 1.2383 | 3.3885 | 1.6809 | 2.2699 | 2.8399 | 2.9355 | | 1.2 |
| 09/09/2011 | 1.2577 | 3.394 | 1.6916 | 2.2757 | 2.8512 | 2.9451 | | 0.2 |
| 10/09/2011 | 1.2333 | 3.3945 | 1.6972 | 2.2793 | 2.8333 | 2.9191 | | 0 |
| 11/09/2011 | 1.2411 | 3.3983 | 1.6973 | 2.2784 | 2.8274 | 2.928 | | 0.4 |
| 12/09/2011 | 1.2314 | 3.3933 | 1.7031 | 2.2809 | 2.8159 | 2.9324 | | 1.4 |
| 13/09/2011 | 1.2523 | 3.4058 | 1.7171 | 2.2824 | 2.9083 | 2.9765 | | 2.6 |
| 14/09/2011 | 1.2786 | 3.4101 | 1.7255 | 2.2826 | 2.9297 | 2.9968 | | 1 |
| 15/09/2011 | 1.3051 | 3.4101 | 1.7344 | 2.2861 | 2.9454 | 3.0023 | | 0 |
| 16/09/2011 | 1.3128 | 3.4109 | 1.7328 | 2.2885 | 2.912 | 2.9609 | | 0 |
| 17/09/2011 | 1.218 | 3.4028 | 1.6902 | 2.2916 | 2.8492 | 2.9282 | | 4.2 |
| 18/09/2011 | 1.1469 | 3.3959 | 1.5431 | 2.2877 | 2.8409 | 2.9353 | | 1.4 |
| 19/09/2011 | 1.1873 | 3.4071 | 1.65 | 2.2931 | 2.8952 | 2.9627 | | 1.4 |
| 20/09/2011 | 0.9496 | 3.4103 | 1.6775 | 2.2929 | 2.905 | 2.9706 | | 0 |
| 21/09/2011 | 1.0154 | 3.3905 | 1.5276 | 2.2884 | 2.8911 | 2.9644 | 0 | |
| 22/09/2011 | 1.0992 | 3.3944 | 1.6018 | 2.2906 | 2.8896 | 2.9462 | 0.603 | |

| Date | F1 | P | N1 | AB | AE | AF | Nantwich Rainfall (mm) | Merseyside Rainfall (mm) |
|------------|--------|--------|--------|--------|--------|--------|---------------------------|-----------------------------|
| 23/09/2011 | 1.1202 | 3.3964 | 1.6325 | 2.2903 | 2.8917 | 2.9575 | 0 | |
| 24/09/2011 | 1.1549 | 3.3987 | 1.6394 | 2.292 | 2.8618 | 2.9356 | 0 | |
| 25/09/2011 | 1.1925 | 3.4028 | 1.6521 | 2.2941 | 2.8773 | 2.9301 | 0.201 | |
| 26/09/2011 | 1.2527 | 3.41 | 1.6694 | 2.2976 | 2.8975 | 2.9359 | 0.402 | |
| 27/09/2011 | 1.2699 | 3.4115 | 1.6896 | 2.2963 | 2.945 | 2.9834 | 0 | |
| 28/09/2011 | 1.2805 | 3.4163 | 1.701 | 2.3023 | 2.933 | 2.9841 | 0 | |
| 29/09/2011 | 1.2931 | 3.4165 | 1.7024 | 2.3039 | 2.9133 | 2.9675 | 0 | |
| 30/09/2011 | 1.3055 | 3.4191 | 1.7063 | 2.3065 | 2.9095 | 2.9624 | 0 | |
| 01/10/2011 | 1.3217 | 3.4197 | 1.7119 | 2.3081 | 2.9272 | 2.966 | 0 | |
| 02/10/2011 | 1.3304 | 3.4201 | 1.7178 | 2.3091 | 2.9322 | 2.9764 | 0 | |
| 03/10/2011 | 1.3177 | 3.421 | 1.7178 | 2.3123 | 2.9053 | 2.9598 | 0 | |
| 04/10/2011 | 1.348 | 3.4225 | 1.7196 | 2.3109 | 2.9229 | 2.9419 | 0.603 | |
| 05/10/2011 | 1.3431 | 3.4203 | 1.7183 | 2.3144 | 2.901 | 2.9603 | 0 | |
| 06/10/2011 | 1.2967 | 3.4193 | 1.709 | 2.3128 | 2.8757 | 2.937 | 0 | |
| 07/10/2011 | 1.149 | 3.4015 | 1.3756 | 2.3127 | 2.9139 | 2.9579 | 3.216 | |
| 08/10/2011 | 1.0608 | 3.3893 | 1.4514 | 2.3124 | 2.9181 | 2.9803 | 15.477 | |
| 09/10/2011 | 0.9349 | 3.3765 | 1.2361 | 2.3138 | 2.8606 | 2.9442 | 2.211 | |
| 10/10/2011 | 0.9977 | 3.3704 | 1.4642 | 2.3029 | 2.8329 | 2.9107 | 9.447 | |
| 11/10/2011 | 1.0604 | 3.3747 | 1.5508 | 2.304 | 2.8492 | 2.911 | 0 | |
| 12/10/2011 | 1.0836 | 3.3746 | 1.5895 | 2.299 | 2.8787 | 2.9314 | 0.804 | |
| 13/10/2011 | 1.1183 | 3.375 | 1.6205 | 2.2954 | 2.919 | 2.9533 | 0.603 | |
| 14/10/2011 | 1.1315 | 3.3721 | 1.6402 | 2.296 | 2.9227 | 2.9713 | 0 | |
| 15/10/2011 | 1.1519 | 3.3664 | 1.6402 | 2.2904 | 2.8911 | 2.9484 | 0 | |
| 16/10/2011 | 1.1876 | 3.3633 | 1.6436 | 2.2906 | 2.8685 | 2.9296 | 0 | |
| 17/10/2011 | 1.1548 | 3.3665 | 1.6546 | 2.2938 | 2.8682 | 2.9296 | 0 | |
| 18/10/2011 | 1.1031 | 3.3529 | 1.5984 | 2.2907 | 2.8222 | 2.8978 | 2.01 | |
| 19/10/2011 | 1.1317 | 3.3582 | 1.6362 | 2.2924 | 2.8807 | 2.9119 | 2.814 | |
| 20/10/2011 | 1.1033 | 3.3463 | 1.5647 | 2.289 | 2.9314 | 2.9622 | 4.623 | |
| 21/10/2011 | 1.1054 | 3.3452 | 1.6029 | 2.2908 | 2.8868 | 2.9559 | 1.206 | |
| 22/10/2011 | 1.1063 | 3.3477 | 1.6307 | 2.2912 | 2.865 | 2.9287 | 0 | |
| 23/10/2011 | 1.1352 | 3.3493 | 1.6352 | 2.2923 | 2.8216 | 2.892 | 0 | |
| 24/10/2011 | 1.1483 | 3.3524 | 1.6409 | 2.2949 | 2.8008 | 2.8817 | 0 | |
| 25/10/2011 | 1.1678 | 3.3519 | 1.6494 | 2.2937 | 2.8186 | 2.8809 | 0 | |
| 26/10/2011 | 1.1958 | 3.3513 | 1.6649 | 2.293 | 2.8808 | 2.9222 | 1.005 | |
| 27/10/2011 | 1.1767 | 3.3508 | 1.68 | 2.2938 | 2.9145 | 2.9486 | 0.201 | |
| 28/10/2011 | 1.1213 | 3.3469 | 1.6021 | 2.2962 | 2.9685 | 2.9776 | 3.417 | |
| 29/10/2011 | 1.1201 | 3.3404 | 1.6473 | 2.2903 | 2.9347 | 2.9844 | 1.407 | |
| 30/10/2011 | 1.1632 | 3.3499 | 1.6561 | 2.2933 | 2.9006 | 2.9451 | 0 | |
| 31/10/2011 | 1.1611 | 3.3523 | 1.6714 | 2.2964 | 2.8921 | 2.9458 | 0.201 | |
| 01/11/2011 | 1.1551 | 3.3382 | 1.6676 | 2.2912 | 2.8653 | 2.9175 | 0.201 | |
| 02/11/2011 | 1.0471 | 3.3256 | 1.5638 | 2.2834 | 2.8681 | 2.9285 | 7.236 | |
| 03/11/2011 | 1.0465 | 3.3303 | 1.5951 | 2.2836 | 2.7997 | 2.8756 | 0 | |
| 04/11/2011 | 0.9967 | 3.3177 | 1.5459 | 2.2772 | 2.8163 | 2.8722 | 3.417 | |
| 05/11/2011 | 0.9416 | 3.3044 | 1.2931 | 2.2711 | 2.8875 | 2.9211 | 0.603 | |
| 06/11/2011 | 1.0177 | 3.308 | 1.5396 | 2.2606 | 2.9479 | 2.9665 | 7.035 | |
| 07/11/2011 | 1.0561 | 3.3018 | 1.5943 | 2.2462 | 2.9308 | 2.9783 | 0 | |
| 08/11/2011 | 1.0636 | 3.3065 | 1.6114 | 2.2517 | 2.8631 | 2.9275 | 0 | |
| 09/11/2011 | 1.0893 | 3.308 | 1.6192 | 2.2478 | 2.8564 | 2.9104 | 0.402 | |
| 10/11/2011 | 1.103 | 3.3155 | 1.6358 | 2.2501 | 2.8842 | 2.9228 | 0 | |
| 11/11/2011 | 1.1376 | 3.3123 | 1.6422 | 2.2445 | 2.8787 | 2.9302 | 0.201 | |
| 12/11/2011 | 1.0533 | 3.2815 | 1.2665 | 2.2424 | 2.8866 | 2.924 | 0 | |
| 13/11/2011 | 1.0246 | 3.2931 | 1.5469 | 2.2336 | 2.9063 | 2.9548 | 11.055 | |
| 14/11/2011 | 1.0304 | 3.2937 | 1.5941 | 2.2261 | 2.8687 | 2.9255 | 0 | |
| 15/11/2011 | 1.0512 | 3.2944 | 1.6171 | 2.2226 | 2.848 | 2.9026 | 0 | |
| 16/11/2011 | 1.0793 | 3.294 | 1.6259 | 2.2271 | 2.8414 | 2.891 | 0 | |
| 17/11/2011 | 1.0972 | 3.2951 | 1.6332 | 2.2253 | 2.8383 | 2.8843 | 0 | |
| 18/11/2011 | 1.1263 | 3.3024 | 1.6455 | 2.2267 | 2.8513 | 2.8936 | 0 | |
| 19/11/2011 | 1.15 | 3.3067 | 1.6543 | 2.2277 | 2.8631 | 2.9013 | 0 | |
| 20/11/2011 | 1.1717 | 3.3062 | 1.6633 | 2.2217 | 2.8839 | 2.9156 | 0 | |
| 21/11/2011 | 1.1728 | 3.3104 | 1.6661 | 2.2256 | 2.8632 | 2.9093 | 0 | |

| Date | F1 | P | N1 | AB | AE | AF | Nantwich Rainfall (mm) | Merseyside Rainfall (mm) |
|------------|--------|--------|--------|--------|--------|--------|---------------------------|-----------------------------|
| 22/11/2011 | 1.1676 | 3.3118 | 1.6683 | 2.2282 | 2.8748 | 2.9115 | 0.201 | |
| 23/11/2011 | 1.1784 | 3.3099 | 1.6758 | 2.2232 | 2.9174 | 2.9407 | 2.01 | |
| 24/11/2011 | 1.1949 | 3.3217 | 1.6929 | 2.2318 | 2.9198 | 2.9489 | 0 | |
| 25/11/2011 | 1.1781 | 3.3264 | 1.6836 | 2.2186 | 2.8768 | 2.9247 | 0 | |
| 26/11/2011 | 1.1191 | 3.3147 | 1.6262 | 2.2257 | 2.9113 | 2.9459 | 5.628 | |
| 27/11/2011 | 1.1029 | 3.3169 | 1.6391 | 2.2303 | 2.8382 | 2.9112 | 0 | |
| 28/11/2011 | 1.1606 | 3.3203 | 1.6682 | 2.2229 | 2.9255 | 2.9547 | 0 | |
| 29/11/2011 | 1.1281 | 3.3259 | 1.6576 | 2.2326 | 2.8291 | 2.8994 | 0 | |
| 30/11/2011 | 1.1459 | 3.3174 | 1.5589 | 2.2239 | 2.9047 | 2.8759 | 0.402 | |
| 01/12/2011 | 1.1133 | 3.3258 | 1.6017 | 2.2233 | 2.8141 | 2.9067 | 0.804 | |
| 02/12/2011 | 1.1296 | 3.3146 | 1.5858 | 2.2204 | 2.8679 | 2.9156 | 0.402 | |
| 03/12/2011 | 1.1261 | 3.3137 | 1.6032 | 2.227 | 2.8031 | 2.8881 | 0.201 | |
| 04/12/2011 | 1.1363 | 3.3167 | 1.6077 | 2.2219 | 2.8464 | 2.8901 | 0 | |
| 05/12/2011 | 1.1464 | 3.3177 | 1.6232 | 2.2202 | 2.8598 | 2.8875 | 0.201 | |
| 06/12/2011 | 1.1599 | 3.3194 | 1.6303 | 2.2222 | 2.8677 | 2.9098 | 0 | |
| 07/12/2011 | 1.1591 | 3.3242 | 1.634 | 2.22 | 2.8416 | 2.9005 | 0 | |
| 08/12/2011 | 1.1779 | 3.3141 | 1.6066 | 2.2193 | 2.9215 | 2.9352 | 0.201 | |
| 09/12/2011 | 1.1251 | 3.3158 | 1.5811 | 2.2192 | 2.8715 | 2.8901 | 0 | |
| 10/12/2011 | 1.1465 | 3.3144 | 1.6173 | 2.2159 | 2.9 | 2.9198 | 0 | |
| 11/12/2011 | 1.1395 | 3.3169 | 1.6162 | 2.2188 | 2.8668 | 2.9141 | 0 | |
| 12/12/2011 | 1.0962 | 3.3115 | 1.5353 | 2.2123 | 2.8349 | 2.8766 | 0.201 | |
| 13/12/2011 | 1.0323 | 3.3009 | 1.4431 | 2.2087 | 2.7363 | 2.8389 | 0 | |
| 14/12/2011 | 0.9967 | 3.2932 | 1.471 | 2.2005 | 2.79 | 2.8425 | 0 | |
| 15/12/2011 | 1.0085 | 3.2886 | 1.5209 | 2.1925 | 2.7881 | 2.8495 | 0.804 | |
| 16/12/2011 | 0.9777 | 3.2797 | 1.5428 | 2.177 | 2.7866 | 2.8407 | 5.025 | |
| 17/12/2011 | 0.9748 | 3.2752 | 1.3782 | 2.1636 | 2.8944 | 2.9078 | 15.276 | |
| 18/12/2011 | 0.7008 | 3.2421 | 1.3189 | 2.1214 | 2.8545 | 2.8828 | 5.829 | |
| 19/12/2011 | 0.8177 | 3.2296 | 1.3923 | 2.0913 | 2.8027 | 2.8182 | 8.442 | |
| 20/12/2011 | 0.7262 | 3.2223 | 1.301 | 2.0642 | 2.753 | 2.8196 | 1.407 | |
| 21/12/2011 | 0.7758 | 3.2121 | 1.3254 | 2.024 | 2.7351 | 2.8098 | 3.618 | |
| 22/12/2011 | 0.8014 | 3.2176 | 1.4364 | 2.0019 | 2.7828 | 2.8223 | 0 | |
| 23/12/2011 | 0.8425 | 3.2153 | 1.4982 | 1.9764 | 2.7172 | 2.7696 | 10.854 | |
| 24/12/2011 | 0.7631 | 3.1887 | 1.2694 | 1.9414 | 2.7115 | 2.7471 | 0.603 | |
| 25/12/2011 | 0.804 | 3.1891 | 1.4154 | 1.9164 | 2.6365 | 2.6836 | 0.804 | |
| 26/12/2011 | 0.8546 | 3.1974 | 1.5162 | 1.9072 | 2.6665 | 2.6779 | 0 | |
| 27/12/2011 | 0.8778 | 3.1986 | 1.5642 | 1.8923 | 2.6671 | 2.6541 | 0 | |
| 28/12/2011 | 0.8448 | 3.1875 | 1.5761 | 1.8726 | 2.5867 | 2.6171 | 0 | |
| 29/12/2011 | 0.9198 | 3.1982 | 1.6015 | 1.8726 | 2.6659 | 2.6332 | 1.809 | |
| 30/12/2011 | 0.8793 | 3.1974 | 1.5925 | 1.8694 | 2.6522 | 2.6234 | 5.226 | |
| 31/12/2011 | 0.743 | 3.1906 | 1.3399 | 1.8641 | 2.5982 | 2.6072 | 3.015 | |
| 01/01/2012 | 0.7888 | 3.1946 | 1.4918 | 1.8607 | 2.5942 | 2.6047 | 2.211 | |
| 02/01/2012 | 0.8053 | 3.1886 | 1.481 | 1.8513 | 2.6085 | 2.6459 | 2.613 | |
| 03/01/2012 | 0.7873 | 3.1767 | 1.4465 | 1.8383 | 2.5809 | 2.6474 | 9.849 | |
| 04/01/2012 | 0.7807 | 3.1772 | 1.3562 | 1.837 | 2.6571 | 2.6675 | 0.201 | |
| 05/01/2012 | 0.7298 | 3.1623 | 1.2738 | 1.8147 | 2.5218 | 2.6518 | 7.437 | |
| 06/01/2012 | 0.8044 | 3.1683 | 1.3544 | 1.8019 | 2.6754 | 2.708 | 0.402 | |
| 07/01/2012 | 0.7808 | 3.1664 | 1.4044 | 1.7856 | 2.6095 | 2.6969 | 1.407 | |
| 08/01/2012 | 0.8265 | 3.1722 | 1.5147 | 1.7771 | 2.6589 | 2.7227 | 1.206 | |
| 09/01/2012 | 0.8367 | 3.1758 | 1.5613 | 1.7689 | 2.674 | 2.7433 | 1.206 | |
| 10/01/2012 | 0.8428 | 3.1794 | 1.5817 | 1.7656 | 2.7017 | 2.7524 | 0 | |
| 11/01/2012 | 0.8649 | 3.1871 | 1.5956 | 1.7661 | 2.6974 | 2.751 | 1.809 | |
| 12/01/2012 | 0.8368 | 3.185 | 1.5844 | 1.7638 | 2.6659 | 2.7409 | 0.201 | |
| 13/01/2012 | 0.8918 | 3.1924 | 1.6067 | 1.7662 | 2.7269 | 2.764 | 0 | |
| 14/01/2012 | 0.8966 | 3.1873 | 1.6018 | 1.7587 | 2.7061 | 2.7443 | 0 | |
| 15/01/2012 | 0.9162 | 3.1916 | 1.6147 | 1.7635 | 2.6814 | 2.7361 | 0 | |
| 16/01/2012 | 0.9455 | 3.2 | 1.6263 | 1.7724 | 2.7029 | 2.7534 | 0 | |
| 17/01/2012 | 0.9677 | 3.2066 | 1.6336 | 1.7794 | 2.7264 | 2.7687 | 0 | |
| 18/01/2012 | 0.9705 | 3.2113 | 1.6408 | 1.7867 | 2.7072 | 2.772 | 0.603 | |
| 19/01/2012 | 0.9763 | 3.2213 | 1.6275 | 1.7978 | 2.7175 | 2.7774 | 3.015 | |
| 20/01/2012 | 0.9287 | 3.2191 | 1.5353 | 1.8086 | 2.7332 | 2.7916 | 12.462 | |

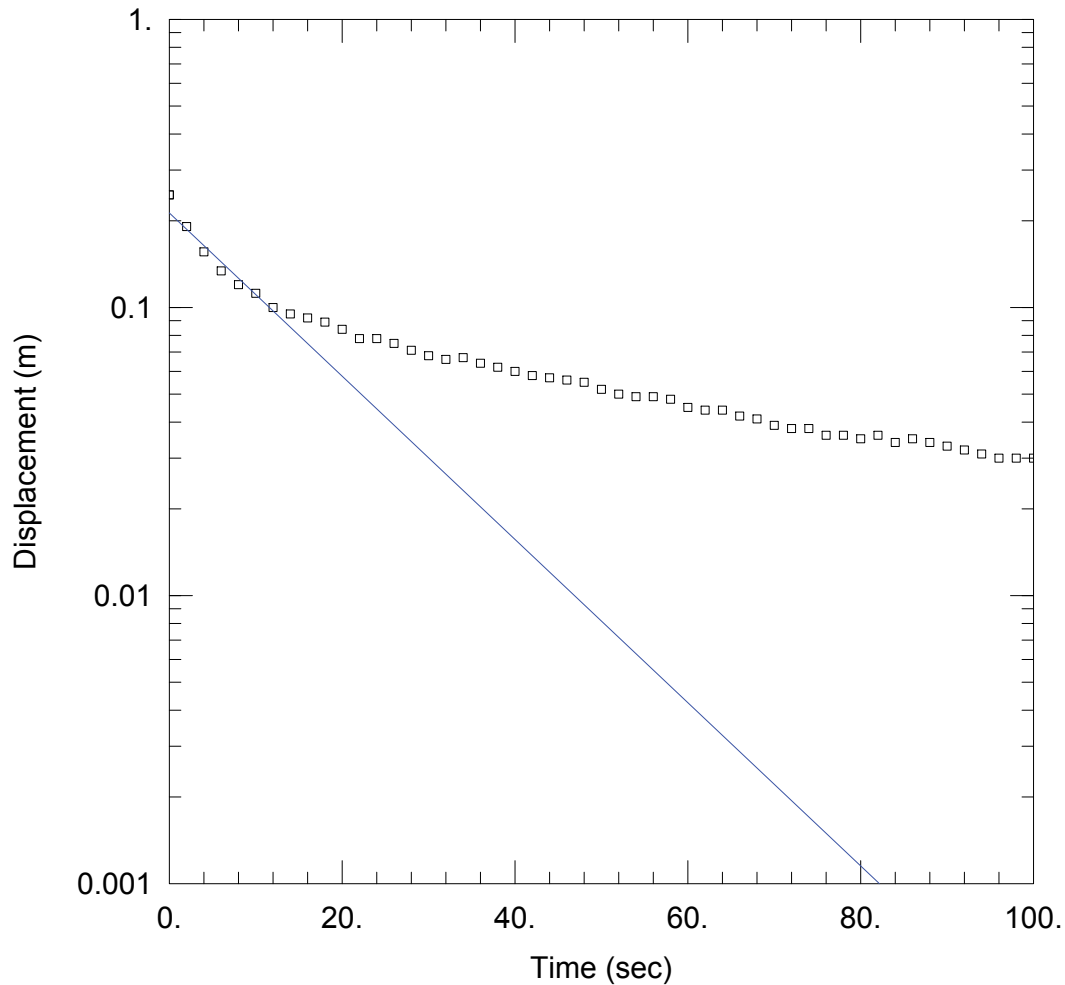
| Date | F1 | P | N1 | AB | AE | AF | Nantwich Rainfall (mm) | Merseyside Rainfall (mm) |
|------------|--------|--------|--------|--------|--------|--------|---------------------------|-----------------------------|
| 21/01/2012 | 0.6984 | 3.1933 | 1.327 | 1.7928 | 2.6367 | 2.7457 | 0.804 | |
| 22/01/2012 | 0.8071 | 3.1975 | 1.4761 | 1.784 | 2.6453 | 2.7546 | 0.201 | |
| 23/01/2012 | 0.8638 | 3.2051 | 1.5354 | 1.7816 | 2.6891 | 2.7726 | 0 | |
| 24/01/2012 | 0.8857 | 3.2067 | 1.5722 | 1.7745 | 2.7112 | 2.7744 | 6.834 | |
| 25/01/2012 | 0.791 | 3.2002 | 1.4202 | 1.7683 | 2.6637 | 2.7504 | 0.201 | |
| 26/01/2012 | 0.7856 | 3.1936 | 1.4189 | 1.7568 | 2.6032 | 2.7235 | 3.819 | |
| 27/01/2012 | 0.8319 | 3.2007 | 1.4832 | 1.7597 | 2.6757 | 2.7741 | 1.407 | |
| 28/01/2012 | 0.832 | 3.1902 | 1.3219 | 1.7533 | 2.7357 | 2.8119 | 4.824 | |
| 29/01/2012 | 0.8333 | 3.1816 | 1.4859 | 1.7305 | 2.7129 | 2.7767 | 0 | |
| 30/01/2012 | 0.8447 | 3.1868 | 1.5532 | 1.7259 | 2.6831 | 2.7611 | 0 | |
| 31/01/2012 | 0.864 | 3.1871 | 1.578 | 1.7188 | 2.6757 | 2.7673 | 0 | |
| 01/02/2012 | 0.9169 | 3.1971 | 1.6048 | 1.7211 | 2.7389 | 2.8029 | 0 | |
| 02/02/2012 | 0.9392 | 3.1989 | 1.6239 | 1.7206 | 2.7534 | 2.8081 | 0 | |
| 03/02/2012 | 0.9552 | 3.2081 | 1.6364 | 1.7247 | 2.7573 | 2.8113 | 0 | |
| 04/02/2012 | 0.9602 | 3.2094 | 1.6476 | 1.7229 | 2.748 | 2.7891 | 0 | |
| 05/02/2012 | 0.9133 | 3.208 | 1.4324 | 1.7298 | 2.6755 | 2.7766 | 6.231 | |
| 06/02/2012 | 0.8964 | 3.2098 | 1.4363 | 1.7368 | 2.7345 | 2.806 | 4.824 | |
| 07/02/2012 | 0.8303 | 3.2138 | 1.5068 | 1.7314 | 2.759 | 2.8233 | 0.804 | |
| 08/02/2012 | 0.8361 | 3.2184 | 1.5776 | 1.7274 | 2.7611 | 2.8119 | 0 | |
| 09/02/2012 | 0.8376 | 3.2239 | 1.62 | 1.727 | 2.7282 | 2.7888 | 0.603 | |
| 10/02/2012 | 0.7105 | 3.2195 | 1.3481 | 1.7274 | 2.7036 | 2.7848 | 5.628 | |
| 11/02/2012 | 0.7876 | 3.2245 | 1.5129 | 1.7225 | 2.6974 | 2.7814 | 0 | |
| 12/02/2012 | 0.8407 | 3.2342 | 1.5888 | 1.7227 | 2.704 | 2.7811 | 0.201 | |
| 13/02/2012 | 0.8568 | 3.2408 | 1.5905 | 1.722 | 2.6936 | 2.7642 | 0.201 | |
| 14/02/2012 | 0.8756 | 3.2483 | 1.591 | 1.7249 | 2.6907 | 2.7713 | 0 | |
| 15/02/2012 | 0.895 | 3.2559 | 1.6212 | 1.7273 | 2.6947 | 2.7844 | 0 | |
| 16/02/2012 | 0.9227 | 3.262 | 1.6422 | 1.733 | 2.7213 | 2.7886 | 0 | |
| 17/02/2012 | 0.9033 | 3.2652 | 1.6445 | 1.7345 | 2.6998 | 2.7769 | 2.412 | |
| 18/02/2012 | 0.8423 | 3.2629 | 1.6525 | 1.7307 | 2.6444 | 2.7484 | 1.809 | |
| 19/02/2012 | 0.7979 | 3.2693 | 1.6396 | 1.7433 | 2.72 | 2.819 | 3.216 | |
| 20/02/2012 | 0.8386 | 3.2695 | 1.6213 | 1.7435 | 2.7672 | 2.8158 | 0.402 | |
| 21/02/2012 | 0.8592 | 3.2777 | 1.6533 | 1.7474 | 2.728 | 2.8039 | 0.402 | |
| 22/02/2012 | 0.8761 | 3.2838 | 1.6679 | 1.7482 | 2.7171 | 2.7761 | 0.402 | |
| 23/02/2012 | 0.9011 | 3.2901 | 1.6769 | 1.7593 | 2.7309 | 2.8141 | 0 | |
| 24/02/2012 | 0.9237 | 3.2937 | 1.6886 | 1.7622 | 2.7592 | 2.8323 | 0.603 | |
| 25/02/2012 | 0.9327 | 3.2899 | 1.6903 | 1.7617 | 2.7783 | 2.8287 | 0 | |
| 26/02/2012 | 0.9492 | 3.297 | 1.6956 | 1.7666 | 2.7705 | 2.8275 | 0 | |
| 27/02/2012 | 0.9457 | 3.3002 | 1.7017 | 1.7706 | 2.7494 | 2.81 | 0.201 | |
| 28/02/2012 | 0.961 | 3.3071 | 1.7086 | 1.7801 | 2.7584 | 2.8207 | 0.201 | |
| 29/02/2012 | 0.9732 | 3.3112 | 1.7141 | 1.7848 | 2.7694 | 2.8289 | 0 | |
| 01/03/2012 | 0.9809 | 3.3091 | 1.7114 | 1.7867 | 2.7751 | 2.8355 | 0 | |
| 02/03/2012 | 0.9992 | 3.3115 | 1.7205 | 1.7945 | 2.7977 | 2.8391 | 0 | |
| 03/03/2012 | 0.9687 | 3.3096 | 1.7086 | 1.7948 | 2.7328 | 2.8094 | 0.201 | |
| 04/03/2012 | 0.9921 | 3.314 | 1.7074 | 1.8036 | 2.7602 | 2.8261 | 4.623 | |
| 05/03/2012 | 0.9428 | 3.3079 | 1.6639 | 1.8107 | 2.796 | 2.8513 | 0.201 | |
| 06/03/2012 | 0.9626 | 3.3111 | 1.6963 | 1.8156 | 2.7999 | 2.8453 | 0 | |
| 07/03/2012 | 0.9322 | 3.3068 | 1.7015 | 1.8139 | 2.7227 | 2.8115 | 2.01 | |
| 08/03/2012 | 0.9515 | 3.3126 | 1.7146 | 1.8292 | 2.8112 | 2.866 | 0 | |
| 09/03/2012 | 0.975 | 3.3226 | 1.7361 | 1.8401 | 2.8289 | 2.8707 | 0 | |
| 10/03/2012 | 0.9955 | 3.3299 | 1.746 | 1.8504 | 2.8406 | 2.8824 | 0 | |
| 11/03/2012 | 1.0057 | 3.3314 | 1.7549 | 1.8532 | 2.845 | 2.8744 | 0 | |
| 12/03/2012 | 1.0044 | 3.3336 | 1.759 | 1.8563 | 2.8245 | 2.8612 | 0 | |
| 13/03/2012 | 1.0098 | 3.3371 | 1.7606 | 1.8613 | 2.8215 | 2.8663 | 0 | |
| 14/03/2012 | 1.0111 | 3.3352 | 1.7564 | 1.863 | 2.8093 | 2.8528 | 0 | |
| 15/03/2012 | 1.0053 | 3.331 | 1.7491 | 1.8619 | 2.7812 | 2.8368 | 0.402 | |
| 16/03/2012 | 1.0047 | 3.3231 | 1.7485 | 1.872 | 2.775 | 2.8305 | 0 | |
| 17/03/2012 | 1.0075 | 3.3252 | 1.7446 | 1.8804 | 2.7579 | 2.8275 | 2.211 | |
| 18/03/2012 | 0.988 | 3.3325 | 1.7413 | 1.8884 | 2.7856 | 2.8669 | 4.221 | |
| 19/03/2012 | 0.9411 | 3.3337 | 1.7006 | 1.8931 | 2.871 | 2.9059 | 0 | |
| 20/03/2012 | 0.9731 | 3.3397 | 1.7243 | 1.8998 | 2.8657 | 2.9006 | 0 | |

| Date | F1 | P | N1 | AB | AE | AF | Nantwich Rainfall (mm) | Merseyside Rainfall (mm) |
|------------|--------|--------|--------|--------|--------|--------|---------------------------|-----------------------------|
| 21/03/2012 | 0.9904 | 3.3458 | 1.7411 | 1.9094 | 2.8702 | 2.8991 | 0 | |
| 22/03/2012 | 0.9819 | 3.3428 | 1.7423 | 1.9059 | 2.8443 | 2.8803 | 0 | |
| 23/03/2012 | 0.9873 | 3.3485 | 1.7484 | 1.9157 | 2.821 | 2.8732 | 0 | |
| 24/03/2012 | 1.0047 | 3.3504 | 1.7543 | 1.9203 | 2.8367 | 2.8808 | 0 | |
| 25/03/2012 | 1.0195 | 3.3562 | 1.7681 | 1.9287 | 2.8682 | 2.9031 | 0 | |
| 26/03/2012 | 1.0153 | 3.3575 | 1.7767 | 1.9317 | 2.8842 | 2.9059 | 0 | |
| 27/03/2012 | 0.9994 | 3.3596 | 1.783 | 1.9351 | 2.8766 | 2.9012 | 0 | |
| 28/03/2012 | 0.9848 | 3.3577 | 1.7865 | 1.9385 | 2.8599 | 2.887 | 0 | |
| 29/03/2012 | 0.9858 | 3.3598 | 1.7892 | 1.9421 | 2.843 | 2.8803 | 0 | |
| 30/03/2012 | 0.9958 | 3.365 | 1.796 | 1.9518 | 2.8415 | 2.8739 | 0 | |
| 31/03/2012 | 0.9841 | 3.3642 | 1.7955 | 1.9535 | 2.8083 | 2.861 | 0 | |
| 01/04/2012 | 1.0201 | 3.3629 | 1.7959 | 1.9544 | 2.8495 | 2.871 | 0 | |
| 02/04/2012 | 1.0097 | 3.366 | 1.799 | 1.9592 | 2.8046 | 2.8427 | 0.402 | |
| 03/04/2012 | 0.9945 | 3.367 | 1.7943 | 1.9644 | 2.7781 | 2.8285 | 3.417 | |
| 04/04/2012 | 0.9813 | 3.368 | 1.7819 | 1.9703 | 2.8076 | 2.8743 | 2.412 | |
| 05/04/2012 | 1.005 | 3.3693 | 1.7415 | 1.9788 | 2.8915 | 2.9061 | 0 | |
| 06/04/2012 | 1.0061 | 3.3672 | 1.755 | 1.9757 | 2.8552 | 2.872 | 0 | |
| 07/04/2012 | 0.9985 | 3.373 | 1.76 | 1.9848 | 2.8149 | 2.87 | 2.01 | |
| 08/04/2012 | 0.9674 | 3.3736 | 1.7645 | 1.9907 | 2.8375 | 2.8756 | 1.407 | |
| 09/04/2012 | 0.8681 | 3.3664 | 1.7486 | 1.9879 | 2.7743 | 2.8157 | 7.236 | |
| 10/04/2012 | 0.611 | 3.3504 | 1.6112 | 1.9892 | 2.7035 | 2.8174 | 0 | |
| 11/04/2012 | 0.7918 | 3.3565 | 1.6745 | 1.9947 | 2.7913 | 2.8682 | 1.608 | |
| 12/04/2012 | 0.8394 | 3.3628 | 1.7021 | 2.0015 | 2.8376 | 2.8913 | 3.819 | |
| 13/04/2012 | 0.7887 | 3.3544 | 1.6623 | 1.9993 | 2.8394 | 2.8862 | 0 | |
| 14/04/2012 | 0.658 | 3.3549 | 1.5928 | 2.0048 | 2.8406 | 2.8988 | 3.618 | |
| 15/04/2012 | 0.79 | 3.3598 | 1.652 | 2.0051 | 2.8857 | 2.925 | 0 | |
| 16/04/2012 | 0.8584 | 3.3633 | 1.6883 | 2.0043 | 2.9003 | 2.9139 | 0 | |
| 17/04/2012 | 0.7946 | 3.3524 | 1.6762 | 1.9906 | 2.7491 | 2.8245 | 3.216 | |
| 18/04/2012 | 0.6851 | 3.3453 | 1.653 | 1.9928 | 2.6843 | 2.7873 | 3.015 | |
| 19/04/2012 | 0.6407 | 3.3456 | 1.5918 | 2.0026 | 2.7316 | 2.8303 | 6.432 | |
| 20/04/2012 | 0.479 | 3.3305 | 1.5225 | 1.9925 | 2.7519 | 2.8453 | 7.437 | |
| 21/04/2012 | 0.6571 | 3.3292 | 1.601 | 1.98 | 2.7399 | 2.8415 | 1.608 | |
| 22/04/2012 | 0.7372 | 3.3322 | 1.6308 | 1.9744 | 2.7722 | 2.8515 | 0.201 | |
| 23/04/2012 | 0.7521 | 3.3307 | 1.6375 | 1.9655 | 2.7509 | 2.8264 | 1.005 | |
| 24/04/2012 | 0.7822 | 3.3371 | 1.6496 | 1.9679 | 2.7691 | 2.8422 | 0 | |
| 25/04/2012 | 0.7746 | 3.3286 | 1.6515 | 1.9571 | 2.7283 | 2.7915 | 0.804 | |
| 26/04/2012 | 0.5343 | 3.3225 | 1.5386 | 1.9601 | 2.6963 | 2.822 | 4.824 | |
| 27/04/2012 | 0.5508 | 3.3193 | 1.5102 | 1.9615 | 2.7932 | 2.876 | 4.623 | |
| 28/04/2012 | 0.57 | 3.3115 | 1.5059 | 1.944 | 2.7624 | 2.8005 | 1.809 | |
| 29/04/2012 | 0.6586 | 3.3065 | 1.5807 | 1.92 | 2.6908 | 2.7479 | 10.653 | |
| 30/04/2012 | 0.3531 | 3.2636 | 1.4296 | 1.8773 | 2.5953 | 2.7024 | 0.402 | |
| 01/05/2012 | 0.5837 | 3.2688 | 1.5678 | 1.8484 | 2.5284 | 2.6099 | 0 | |
| 02/05/2012 | 0.696 | 3.268 | 1.6126 | 1.8301 | 2.585 | 2.7102 | 0.201 | |
| 03/05/2012 | 0.7026 | 3.2664 | 1.6194 | 1.8155 | 2.5858 | 2.7465 | 0 | |
| 04/05/2012 | 0.7169 | 3.2669 | 1.6221 | 1.8059 | 2.5793 | 2.7717 | 0 | |
| 05/05/2012 | 0.7826 | 3.2717 | 1.6335 | 1.8026 | 2.651 | 2.8139 | 0 | |
| 06/05/2012 | 0.8219 | 3.2762 | 1.6428 | 1.8019 | 2.6828 | 2.839 | 0 | |
| 07/05/2012 | 0.8464 | 3.2791 | 1.653 | 1.8021 | 2.7032 | 2.8414 | 0.402 | |
| 08/05/2012 | 0.656 | 3.2614 | 1.5896 | 1.8034 | 2.66 | 2.8301 | 9.045 | |
| 09/05/2012 | 0.7218 | 3.2706 | 1.6085 | 1.811 | 2.6811 | 2.8456 | 0.201 | |
| 10/05/2012 | 0.4491 | 3.2417 | 1.5309 | 1.8107 | 2.6383 | 2.8303 | 8.04 | |
| 11/05/2012 | 0.5196 | 3.2499 | 1.5316 | 1.8118 | 2.6923 | 2.8836 | 6.231 | |
| 12/05/2012 | 0.6467 | 3.2448 | 1.5627 | 1.8006 | 2.7819 | 2.9046 | 0 | |
| 13/05/2012 | 0.7092 | 3.2452 | 1.589 | 1.789 | 2.7292 | 2.8457 | 0 | |
| 14/05/2012 | 0.6968 | 3.2485 | 1.5965 | 1.7865 | 2.6319 | 2.8082 | 0.402 | |
| 15/05/2012 | 0.723 | 3.2492 | 1.6093 | 1.7883 | 2.6594 | 2.8359 | 11.859 | |
| 16/05/2012 | 0.5739 | 3.2239 | 1.5538 | 1.781 | 2.7089 | 2.8585 | 0 | |
| 17/05/2012 | 0.6449 | 3.2279 | 1.5823 | 1.7734 | 2.6768 | 2.8215 | 1.206 | |
| 18/05/2012 | 0.6433 | 3.2274 | 1.5888 | 1.7723 | 2.625 | 2.802 | 0 | |
| 19/05/2012 | 0.6544 | 3.2282 | 1.6041 | 1.7759 | 2.6672 | 2.8333 | 2.814 | |

| Date | F1 | P | N1 | AB | AE | AF | Nantwich Rainfall (mm) | Merseyside Rainfall (mm) |
|------------|--------|--------|--------|--------|--------|--------|---------------------------|-----------------------------|
| 20/05/2012 | 0.5686 | 3.2311 | 1.5747 | 1.7748 | 2.698 | 2.8401 | 0 | |
| 21/05/2012 | 0.6645 | 3.2395 | 1.5908 | 1.7772 | 2.6918 | 2.8436 | 0 | |
| 22/05/2012 | 0.7416 | 3.2498 | 1.6098 | 1.7858 | 2.7303 | 2.8686 | 0 | |
| 23/05/2012 | 0.7989 | 3.259 | 1.639 | 1.7983 | 2.7793 | 2.8927 | 0 | |
| 24/05/2012 | 0.8337 | 3.2629 | 1.6483 | 1.8054 | 2.7907 | 2.8918 | 0 | |
| 25/05/2012 | 0.837 | 3.2647 | 1.6535 | 1.8129 | 2.7707 | 2.8789 | 0 | |
| 26/05/2012 | 0.889 | 3.2713 | 1.6998 | 1.8136 | 2.7472 | 2.8658 | 0 | |
| 27/05/2012 | 0.8802 | 3.2745 | 1.6989 | 1.8234 | 2.736 | 2.8603 | 0 | |
| 28/05/2012 | 0.8914 | 3.2812 | 1.7027 | 1.836 | 2.737 | 2.8608 | 0 | |
| 29/05/2012 | 0.9013 | 3.2862 | 1.7045 | 1.8452 | 2.7511 | 2.8654 | 0 | |
| 30/05/2012 | 0.9111 | 3.2893 | 1.7068 | 1.8543 | 2.7473 | 2.8657 | 0 | |
| 31/05/2012 | 0.9302 | 3.2946 | 1.7127 | 1.8637 | 2.7631 | 2.8753 | 1.809 | |
| 01/06/2012 | 0.9378 | 3.2982 | 1.7162 | 1.8719 | 2.7643 | 2.8783 | 0.201 | |
| 02/06/2012 | 0.949 | 3.3008 | 1.7192 | 1.8791 | 2.7568 | 2.8628 | 0.201 | |
| 03/06/2012 | 0.7498 | 3.2857 | 1.6771 | 1.8787 | 2.7038 | 2.8417 | 5.427 | |
| 04/06/2012 | 0.3613 | 3.2537 | 1.3459 | 1.8611 | 2.7113 | 2.8561 | 1.608 | |
| 05/06/2012 | 0.6669 | 3.2602 | 1.5439 | 1.8584 | 2.7031 | 2.8272 | 0 | |
| 06/06/2012 | 0.7137 | 3.2606 | 1.5735 | 1.8559 | 2.6082 | 2.7871 | 4.623 | |
| 07/06/2012 | 0.7055 | 3.2612 | 1.5494 | 1.8633 | 2.6467 | 2.7902 | 4.422 | |
| 08/06/2012 | 0.4754 | 3.2391 | 1.3619 | 1.8494 | 2.5569 | 2.7841 | 17.688 | |
| 09/06/2012 | 0.3551 | 3.2017 | 1.2003 | 1.8242 | 2.631 | 2.8217 | 6.03 | |
| 10/06/2012 | 0.4838 | 3.1995 | 1.41 | 1.7805 | 2.6065 | 2.7754 | 0 | |
| 11/06/2012 | 0.6267 | 3.2054 | 1.5077 | 1.7678 | 2.5847 | 2.7692 | 0 | |
| 12/06/2012 | 0.7212 | 3.2131 | 1.5485 | 1.7673 | 2.6356 | 2.7991 | 0 | |
| 13/06/2012 | 0.7748 | 3.2201 | 1.5818 | 1.7678 | 2.6738 | 2.8148 | 3.819 | |
| 14/06/2012 | 0.7473 | 3.1994 | 1.4482 | 1.7558 | 2.6598 | 2.797 | 0.402 | |
| 15/06/2012 | 0.4537 | 3.1802 | 1.3078 | 1.7464 | 2.5808 | 2.7569 | 5.025 | |
| 16/06/2012 | 0.43 | 3.1787 | 1.3861 | 1.738 | 2.5654 | 2.7559 | 1.407 | |
| 17/06/2012 | 0.5667 | 3.1867 | 1.4241 | 1.7353 | 2.6465 | 2.8109 | 0.402 | |
| 18/06/2012 | 0.6909 | 3.1936 | 1.525 | 1.7274 | 2.6584 | 2.8071 | 0.402 | |
| 19/06/2012 | 0.6953 | 3.2005 | 1.558 | 1.7282 | 2.6658 | 2.808 | 0.201 | |
| 20/06/2012 | 0.7206 | 3.2055 | 1.5842 | 1.7296 | 2.6771 | 2.8027 | 0.201 | |
| 21/06/2012 | 0.7429 | 3.2079 | 1.5946 | 1.7286 | 2.6338 | 2.7717 | 0 | |
| 22/06/2012 | 0.6606 | 3.1984 | 1.4956 | 1.7303 | 2.6068 | 2.7855 | 0.402 | |
| 23/06/2012 | 0.4361 | 3.1844 | 1.3615 | 1.73 | 2.6719 | 2.8178 | 0.201 | |
| 24/06/2012 | 0.3912 | 3.1618 | 1.3313 | 1.7161 | 2.6039 | 2.7865 | 0.402 | |
| 25/06/2012 | 0.3957 | 3.1471 | 1.3944 | 1.6842 | 2.5979 | 2.7648 | 0.201 | |
| 26/06/2012 | 0.6156 | 3.1609 | 1.5055 | 1.6748 | 2.6033 | 2.7525 | 0 | |
| 27/06/2012 | 0.6597 | 3.1646 | 1.5331 | 1.6694 | 2.6042 | 2.7523 | 0.201 | |
| 28/06/2012 | 0.6733 | 3.1695 | 1.5501 | 1.666 | 2.5724 | 2.7237 | 0.201 | |
| 29/06/2012 | 0.6799 | 3.1771 | 1.5573 | 1.6682 | 2.5618 | 2.745 | 0 | |
| 30/06/2012 | 0.6737 | 3.1838 | 1.5715 | 1.6792 | 2.6255 | 2.7828 | 0 | |
| 01/07/2012 | 0.6958 | 3.1876 | 1.598 | 1.686 | 2.6654 | 2.8124 | 0 | |
| 02/07/2012 | 0.7653 | 3.194 | 1.6158 | 1.6952 | 2.6764 | 2.8092 | 0.201 | |
| 03/07/2012 | 0.759 | 3.1925 | 1.494 | 1.703 | 2.558 | 2.808 | 0.804 | |
| 04/07/2012 | 0.766 | 3.201 | 1.5519 | 1.715 | 2.549 | 2.801 | 1.005 | |
| 05/07/2012 | 0.425 | 3.1769 | 1.2954 | 1.721 | 2.558 | 2.812 | 9.447 | |
| 06/07/2012 | 0.422 | 3.1313 | 1.3108 | 1.706 | 2.521 | 2.782 | 37.386 | |
| 07/07/2012 | 0.424 | 2.9498 | 1.2333 | 1.556 | 2.333 | 2.565 | 0.402 | |
| 08/07/2012 | 0.524 | 2.9764 | 1.3872 | 1.488 | 2.134 | 2.403 | 0.201 | |
| 09/07/2012 | 0.490 | 2.9726 | 1.3262 | 1.466 | 2.282 | 2.630 | 4.02 | |
| 10/07/2012 | 0.615 | 3.0054 | 1.3971 | 1.461 | 2.361 | 2.727 | 11.658 | |
| 11/07/2012 | 0.446 | 2.9467 | 1.2978 | 1.418 | 2.301 | 2.632 | 0.804 | |
| 12/07/2012 | 0.566 | 2.9905 | 1.41 | 1.406 | 2.263 | 2.592 | 0 | |
| 13/07/2012 | 0.641 | 3.0158 | 1.4735 | 1.411 | 2.292 | 2.675 | 3.216 | |
| 14/07/2012 | 0.445 | 2.9855 | 1.3298 | 1.418 | 2.361 | 2.752 | 0.402 | |
| 15/07/2012 | 0.622 | 3.0407 | 1.4755 | 1.437 | 2.437 | 2.787 | 0 | |
| 16/07/2012 | 0.748 | 3.076 | 1.5374 | 1.457 | 2.472 | 2.793 | 8.241 | |
| 17/07/2012 | 0.480 | 2.8869 | 1.2429 | 1.443 | 2.454 | 2.782 | 5.628 | |
| 18/07/2012 | 0.590 | 2.9894 | 1.4198 | 1.424 | 2.344 | 2.672 | 0 | |

| Date | F1 | P | N1 | AB | AE | AF | Nantwich Rainfall (mm) | Merseyside Rainfall (mm) |
|------------|-------|--------|--------|-------|-------|-------|---------------------------|-----------------------------|
| 19/07/2012 | 0.593 | 2.9565 | 1.3283 | 1.428 | 2.352 | 2.722 | 0.804 | |
| 20/07/2012 | 0.555 | 2.9937 | 1.3749 | 1.430 | 2.429 | 2.780 | 0.804 | |
| 21/07/2012 | 0.713 | 3.0408 | 1.4844 | 1.446 | 2.478 | 2.800 | 0.201 | |
| 22/07/2012 | 0.790 | 3.077 | 1.5244 | 1.469 | 2.500 | 2.809 | 0.201 | |
| 23/07/2012 | 0.806 | 3.1006 | 1.5515 | 1.492 | 2.492 | 2.808 | 0 | |
| 24/07/2012 | 0.830 | 3.1161 | 1.5677 | 1.515 | 2.501 | 2.811 | 0.201 | |
| 25/07/2012 | 0.860 | 3.1317 | 1.5899 | 1.540 | 2.523 | 2.830 | 0.201 | |
| 26/07/2012 | 0.894 | 3.144 | 1.6083 | 1.562 | 2.551 | 2.837 | 0 | |
| 27/07/2012 | 0.903 | 3.1519 | 1.616 | 1.579 | 2.539 | 2.830 | 0 | |
| 28/07/2012 | 0.909 | 3.1571 | 1.6178 | 1.597 | 2.536 | 2.822 | 0.201 | |
| 29/07/2012 | 0.930 | 3.1676 | 1.625 | 1.616 | 2.543 | 2.836 | 0 | |
| 30/07/2012 | 0.919 | 3.1583 | 1.5194 | 1.632 | 2.572 | 2.850 | 0 | |
| 31/07/2012 | 0.930 | 3.1698 | 1.5987 | 1.649 | 2.579 | 2.845 | 0 | |
| 01/08/2012 | 0.704 | 3.1524 | 1.4198 | 1.658 | 2.551 | 2.820 | 0 | |
| 02/08/2012 | 0.770 | 3.1612 | 1.4502 | 1.672 | 2.557 | 2.837 | 0 | |
| 03/08/2012 | 0.710 | 3.1636 | 1.4632 | 1.685 | 2.582 | 2.842 | 0.201 | |
| 04/08/2012 | 0.804 | 3.1774 | 1.5231 | 1.697 | 2.572 | 2.835 | 0 | |
| 05/08/2012 | 0.851 | 3.1867 | 1.5442 | 1.706 | 2.573 | 2.834 | 0 | |
| 06/08/2012 | 0.896 | 3.1977 | 1.5768 | 1.718 | 2.582 | 2.850 | 0 | |
| 07/08/2012 | 0.960 | 3.2065 | 1.6136 | 1.734 | 2.641 | 2.881 | 0 | |
| 08/08/2012 | 0.973 | 3.2122 | 1.6374 | 1.744 | 2.660 | 2.887 | 0.201 | |
| 09/08/2012 | 0.996 | 3.2203 | 1.6543 | 1.757 | 2.668 | 2.890 | 0 | |
| 10/08/2012 | 1.004 | 3.2251 | 1.6649 | 1.769 | 2.669 | 2.883 | 0 | |
| 11/08/2012 | 1.003 | 3.2296 | 1.6652 | 1.778 | 2.639 | 2.859 | 0 | |
| 12/08/2012 | 0.999 | 3.2314 | 1.6632 | 1.787 | 2.596 | 2.841 | 0.201 | |
| 13/08/2012 | 0.995 | 3.2359 | 1.6669 | 1.798 | 2.595 | 2.845 | 0 | |
| 14/08/2012 | 1.022 | 3.2442 | 1.6746 | 1.809 | 2.620 | 2.865 | 0 | |
| 15/08/2012 | 1.044 | 3.2494 | 1.6788 | 1.820 | 2.634 | 2.851 | 0 | |
| 16/08/2012 | 0.897 | 3.2381 | 1.5762 | 1.826 | 2.625 | 2.875 | 0.201 | |
| 17/08/2012 | 0.938 | 3.2451 | 1.6414 | 1.836 | 2.628 | 2.867 | 0 | |
| 18/08/2012 | 0.937 | 3.2511 | 1.6779 | 1.843 | 2.635 | 2.875 | 0.201 | |
| 19/08/2012 | 0.985 | 3.2582 | 1.6898 | 1.851 | 2.672 | 2.883 | 0 | |
| 20/08/2012 | 0.997 | 3.2622 | 1.6954 | 1.857 | 2.672 | 2.890 | 0.201 | |
| 21/08/2012 | 1.021 | 3.2646 | 1.7027 | 1.866 | 2.674 | 2.879 | 0 | |
| 22/08/2012 | 0.964 | 3.2633 | 1.6389 | 1.870 | 2.644 | 2.870 | 0.201 | |
| 23/08/2012 | 0.998 | 3.27 | 1.6701 | 1.880 | 2.653 | 2.873 | 0 | |
| 24/08/2012 | 1.003 | 3.2706 | 1.6768 | 1.883 | 2.615 | 2.844 | 0.201 | |
| 25/08/2012 | 0.961 | 3.2693 | 1.6194 | 1.892 | 2.587 | 2.841 | 0 | |
| 26/08/2012 | 1.034 | 3.2824 | 1.6531 | 1.905 | 2.699 | 2.906 | 0.201 | |
| 27/08/2012 | 1.025 | 3.2779 | 1.672 | 1.906 | 2.692 | 2.878 | 0 | |
| 28/08/2012 | 0.937 | 3.2809 | 1.6209 | 1.914 | 2.652 | 2.882 | 0.201 | |
| 29/08/2012 | 0.969 | 3.2849 | 1.6581 | 1.922 | 2.668 | 2.877 | 0 | |
| 30/08/2012 | 0.906 | 3.2839 | 1.5559 | 1.926 | 2.656 | 2.904 | 0.201 | |
| 31/08/2012 | 0.989 | 3.2872 | 1.6298 | 1.933 | 2.748 | 2.930 | 0 | |
| 01/09/2012 | 1.001 | 3.2907 | 1.654 | 1.936 | 2.699 | 2.878 | 0.201 | |
| 02/09/2012 | 1.024 | 3.2954 | 1.6625 | 1.946 | 2.680 | 2.880 | 0 | |
| 03/09/2012 | 1.079 | 3.299 | 1.6815 | 1.950 | 2.719 | 2.889 | 0 | |
| 04/09/2012 | 1.080 | 3.3028 | 1.6855 | 1.957 | 2.692 | 2.885 | 0 | |
| 05/09/2012 | 1.115 | 3.3066 | 1.6958 | 1.963 | 2.726 | 2.904 | 0 | |
| 06/09/2012 | 1.133 | 3.3071 | 1.7049 | 1.965 | 2.732 | 2.892 | 0 | |
| 07/09/2012 | 1.127 | 3.3112 | 1.7066 | 1.974 | 2.703 | 2.885 | 0 | |
| 08/09/2012 | 1.148 | 3.3133 | 1.7155 | 1.981 | 2.709 | 2.880 | 0 | |
| 09/09/2012 | 1.129 | 3.3097 | 1.713 | 1.983 | 2.662 | 2.845 | 0 | |
| 10/09/2012 | 1.142 | 3.3199 | 1.7173 | 1.993 | 2.661 | 2.860 | 0.201 | |
| 11/09/2012 | 1.149 | 3.3157 | 1.564 | 1.998 | 2.698 | 2.893 | 4.221 | |
| 12/09/2012 | 1.154 | 3.3135 | 1.6723 | 1.999 | 2.726 | 2.891 | 5.025 | |
| 13/09/2012 | 1.078 | 3.3139 | 1.5464 | 2.007 | 2.752 | 2.908 | 0 | |
| 14/09/2012 | 1.059 | 3.3114 | 1.6343 | 2.014 | 2.680 | 2.881 | 0.402 | |
| 15/09/2012 | 1.116 | 3.3205 | 1.6681 | 2.020 | 2.741 | 2.903 | 0 | |
| 16/09/2012 | 1.111 | 3.3164 | 1.68 | 2.024 | 2.707 | 2.878 | 0 | |

| Date | F1 | P | N1 | AB | AE | AF | Nantwich Rainfall (mm) | Merseyside Rainfall (mm) |
|-------------|-----------|----------|-----------|-----------|-----------|-----------|-----------------------------------|-------------------------------------|
| 17/09/2012 | 1.126 | 3.3182 | 1.6865 | 2.027 | 2.716 | 2.889 | 0.402 | |
| 18/09/2012 | 1.140 | 3.3158 | 1.6972 | 2.033 | 2.712 | 2.900 | 1.608 | |
| 19/09/2012 | 1.114 | 3.3187 | 1.5885 | 2.037 | 2.770 | 2.926 | 9.045 | |
| 20/09/2012 | 0.817 | 3.301 | 1.4812 | 2.038 | 2.723 | 2.890 | 1.608 | |
| 21/09/2012 | 0.809 | 3.2963 | 1.5101 | 2.037 | 2.689 | 2.877 | 1.608 | |
| 22/09/2012 | 0.806 | 3.2966 | 1.4777 | 2.036 | 2.716 | 2.891 | 0.201 | |
| 23/09/2012 | 0.911 | 3.2918 | 1.5522 | 2.035 | 2.686 | 2.851 | 0.201 | |
| 24/09/2012 | 0.607 | 3.2632 | 1.2893 | 2.026 | 2.556 | 2.779 | 25.929 | |
| 25/09/2012 | 0.430 | 3.1229 | 1.2191 | 1.884 | 2.341 | 2.512 | 6.03 | |
| 26/09/2012 | 0.405 | 2.976 | 1.0611 | 1.803 | 1.944 | 2.118 | 8.844 | |
| 27/09/2012 | 0.441 | 2.9739 | 1.211 | 1.715 | 1.842 | 2.006 | 1.206 | |
| 28/09/2012 | 0.635 | 3.041 | 1.3788 | 1.664 | 1.988 | 2.291 | 1.206 | |
| 29/09/2012 | 0.716 | 3.0856 | 1.3859 | 1.635 | 2.187 | 2.581 | 0.402 | |
| 30/09/2012 | 0.767 | 3.1146 | 1.4806 | 1.618 | 2.292 | 2.686 | 0 | |
| 01/10/2012 | 0.768 | 3.1086 | 1.3516 | 1.608 | 2.340 | 2.777 | 2.01 | |
| 02/10/2012 | 0.757 | 3.1399 | 1.4536 | 1.608 | 2.389 | 2.798 | 2.01 | |
| 03/10/2012 | 0.718 | 3.1374 | 1.3446 | 1.608 | 2.3856 | 2.809 | 0.603 | |



WELL TEST ANALYSIS

Data Set: T:\...\110509_406.00889.00005_Nantwich_RHT_T.aqt
 Date: 11/25/11 Time: 20:31:41

PROJECT INFORMATION

Company: SLR
 Client: English Heritage
 Project: 406.00889.00005
 Location: Nantwich
 Test Well: AE
 Test Date: March 2011

AQUIFER DATA

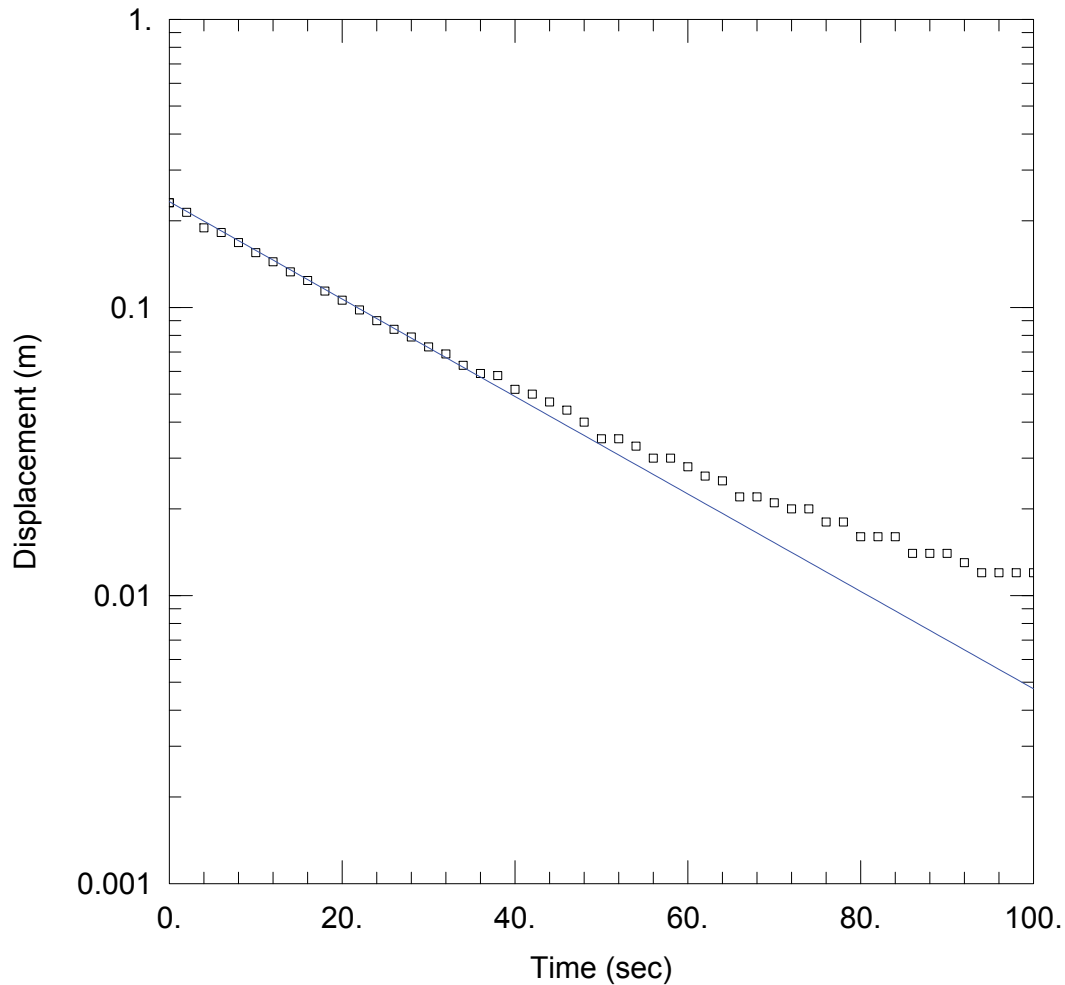
Saturated Thickness: 0.5 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (T)

Initial Displacement: 0.246 m Static Water Column Height: 0.78 m
 Total Well Penetration Depth: 0.78 m Screen Length: 0.78 m
 Casing Radius: 0.025 m Well Radius: 0.075 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 5.623 m/day y0 = 0.2129 m



WELL TEST ANALYSIS

Data Set: T:\...\110509_406.00889.00005_Nantwich_RHT_S.aqt
 Date: 11/25/11 Time: 20:31:58

PROJECT INFORMATION

Company: SLR
 Client: English Heritage
 Project: 406.00889.00005
 Location: Nantwich
 Test Well: AE
 Test Date: March 2011

AQUIFER DATA

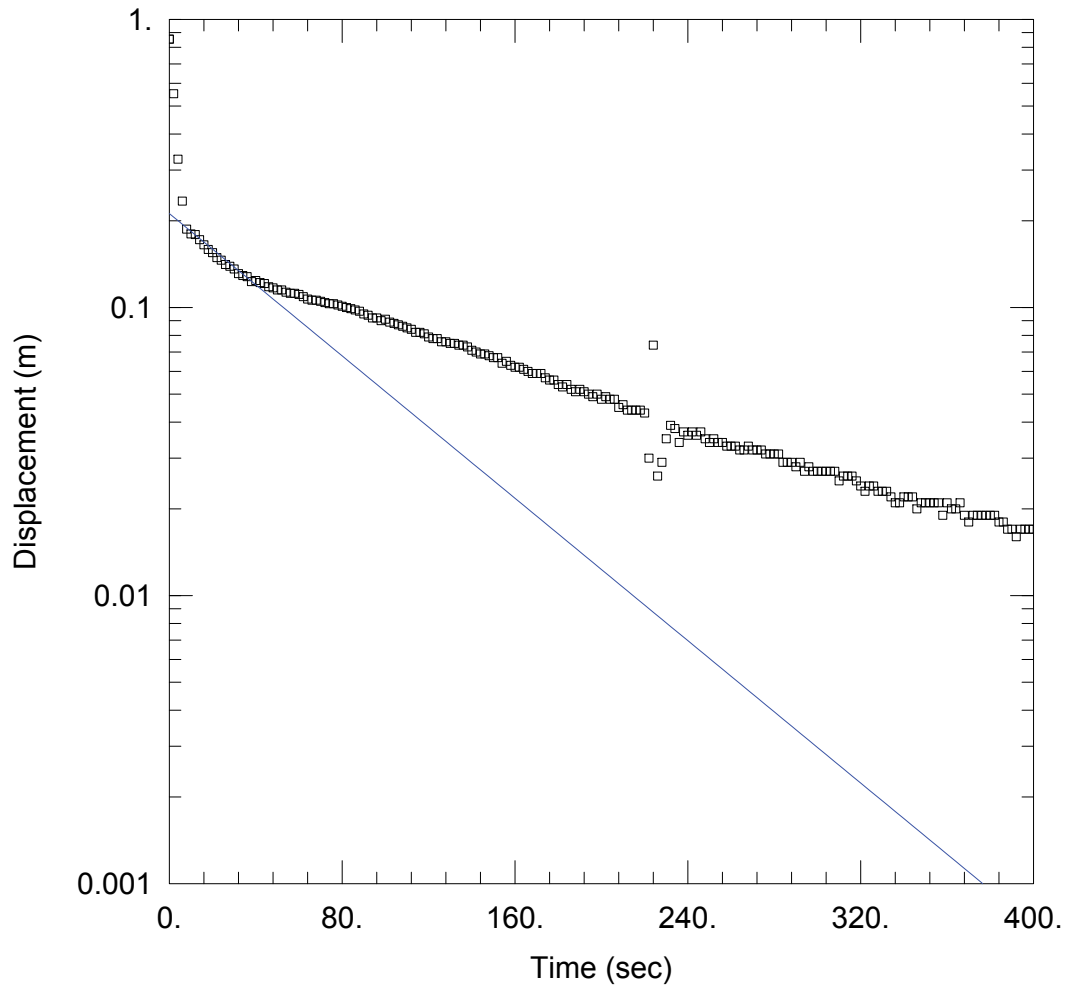
Saturated Thickness: 0.52 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (S)

Initial Displacement: 0.231 m Static Water Column Height: 0.52 m
 Total Well Penetration Depth: 0.52 m Screen Length: 0.52 m
 Casing Radius: 0.025 m Well Radius: 0.075 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 2.799 m/day y0 = 0.233 m



WELL TEST ANALYSIS

Data Set: T:\...\110509_406.00889.00005_Nantwich_RHT_Q.aqt
 Date: 11/25/11 Time: 20:32:12

PROJECT INFORMATION

Company: SLR
 Client: English Heritage
 Project: 406.00889.00005
 Location: Nantwich
 Test Well: AE
 Test Date: March 2011

AQUIFER DATA

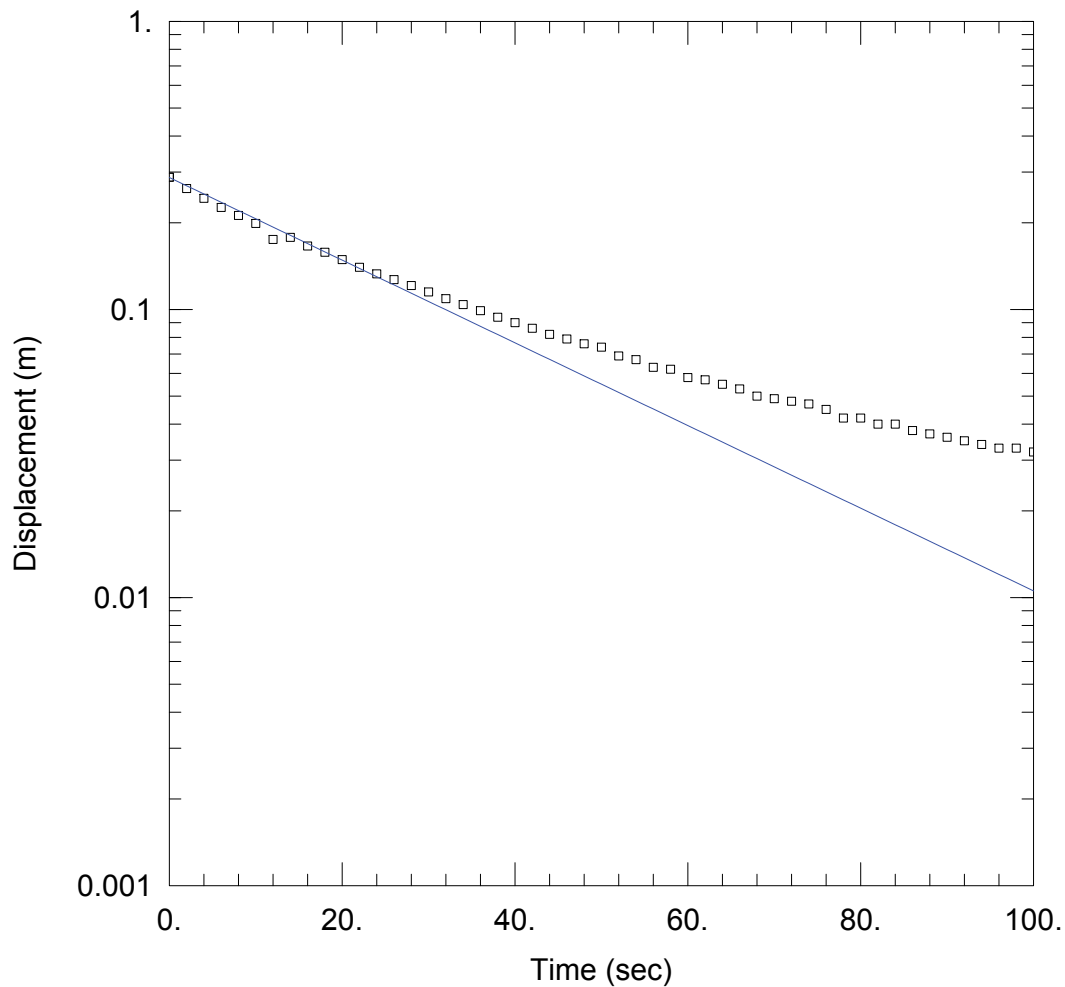
Saturated Thickness: 1.19 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (Q)

Initial Displacement: 0.854 m Static Water Column Height: 1.93 m
 Total Well Penetration Depth: 1.93 m Screen Length: 1.93 m
 Casing Radius: 0.025 m Well Radius: 0.075 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bower-Rice
 K = 0.7419 m/day y0 = 0.2118 m



WELL TEST ANALYSIS

Data Set: T:\...\110509_406.00889.00005_Nantwich_RHT_P.aqt
 Date: 11/25/11 Time: 20:28:36

PROJECT INFORMATION

Company: SLR
 Client: English Heritage
 Project: 406.00889.00005
 Location: Nantwich
 Test Well: AE
 Test Date: March 2011

AQUIFER DATA

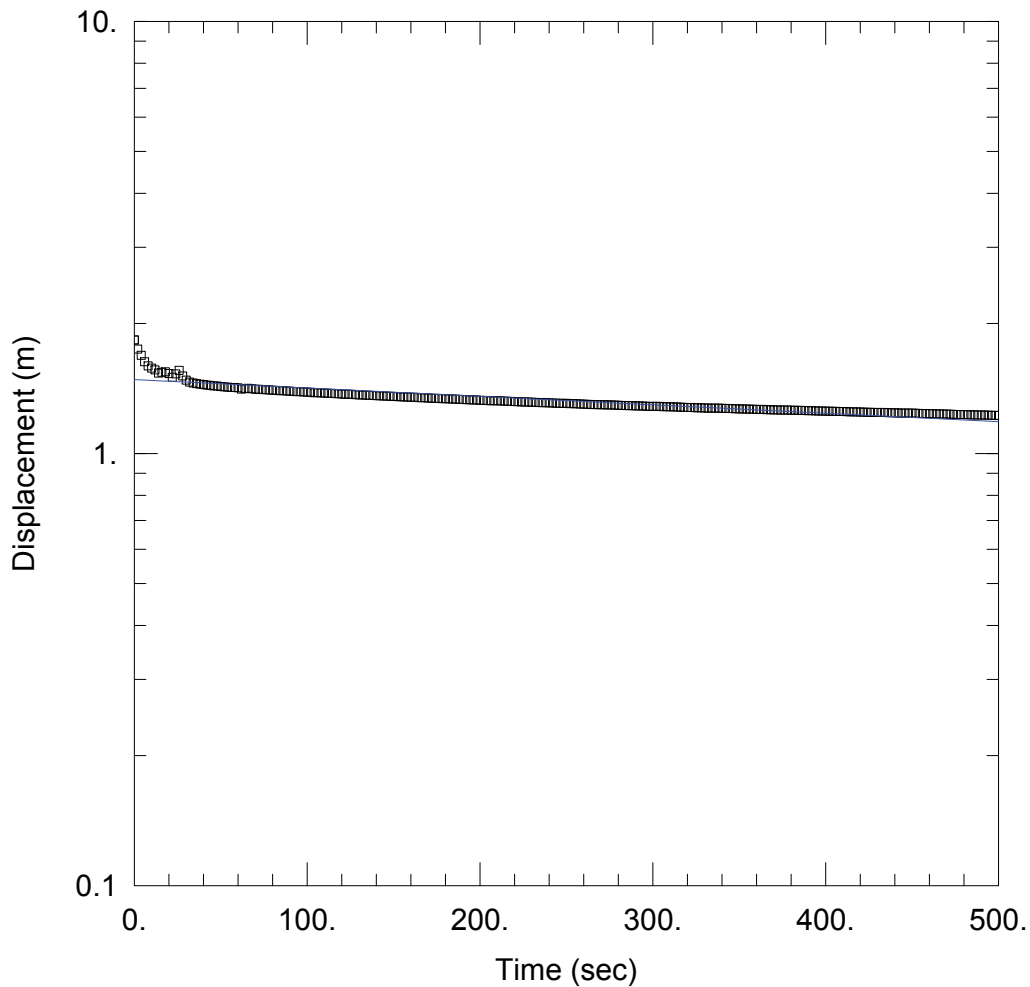
Saturated Thickness: 0.6 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (P)

Initial Displacement: 0.288 m Static Water Column Height: 0.6 m
 Total Well Penetration Depth: 0.6 m Screen Length: 0.6 m
 Casing Radius: 0.025 m Well Radius: 0.075 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 2.208 m/day y0 = 0.2872 m



WELL TEST ANALYSIS

Data Set: T:\...\110509_406.00889.00005_Nantwich_RHT_N.aqt
 Date: 11/25/11 Time: 20:29:31

PROJECT INFORMATION

Company: SLR
 Client: English Heritage
 Project: 406.00889.00005
 Location: Nantwich
 Test Date: March 2011

AQUIFER DATA

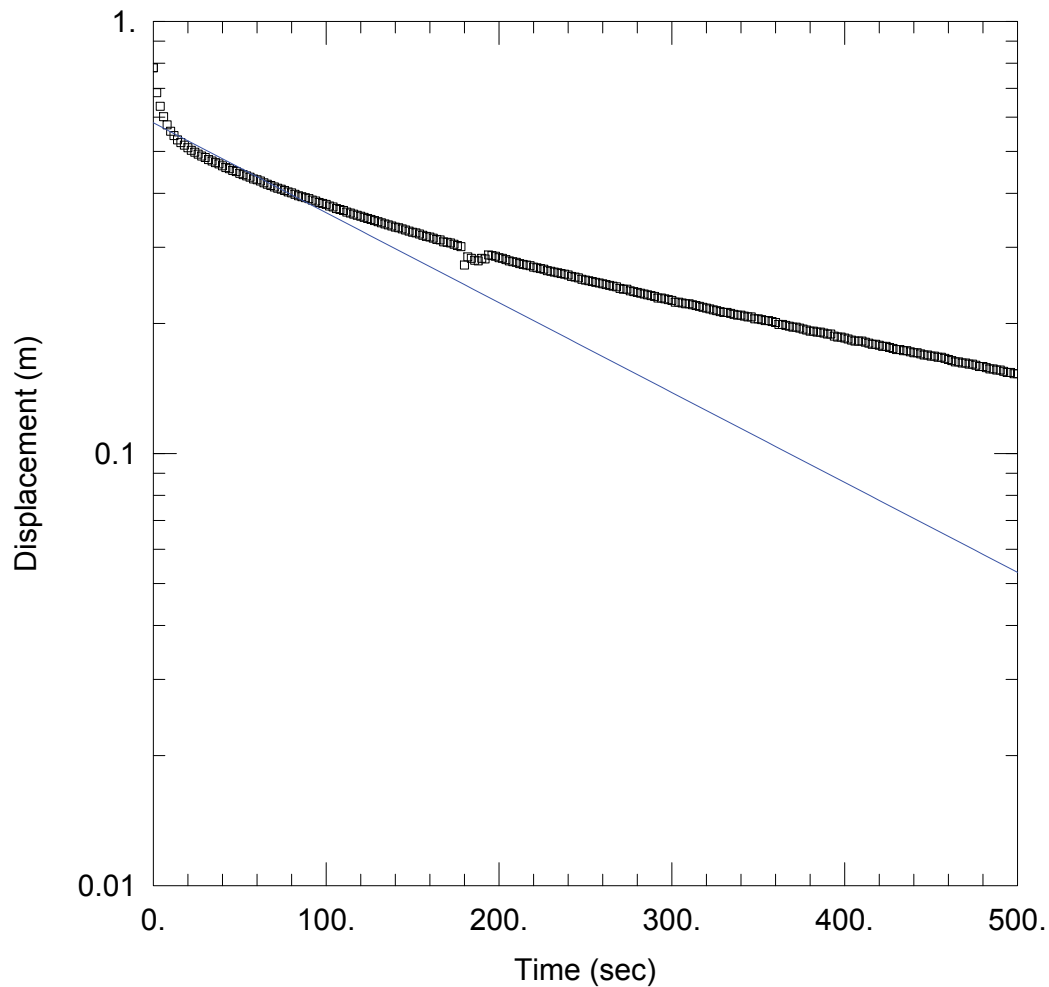
Saturated Thickness: 2.22 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (N)

Initial Displacement: 1.832 m Static Water Column Height: 2.22 m
 Total Well Penetration Depth: 1.22 m Screen Length: 1.22 m
 Casing Radius: 0.025 m Well Radius: 0.075 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.01741 m/day y0 = 1.483 m



WELL TEST ANALYSIS

Data Set: T:\...\110509_406.00889.00005_Nantwich_RHT_F2.aqt
 Date: 11/25/11 Time: 20:29:49

PROJECT INFORMATION

Company: SLR
 Client: English Heritage
 Project: 406.00889.00005
 Location: Nantwich
 Test Date: March 2011

AQUIFER DATA

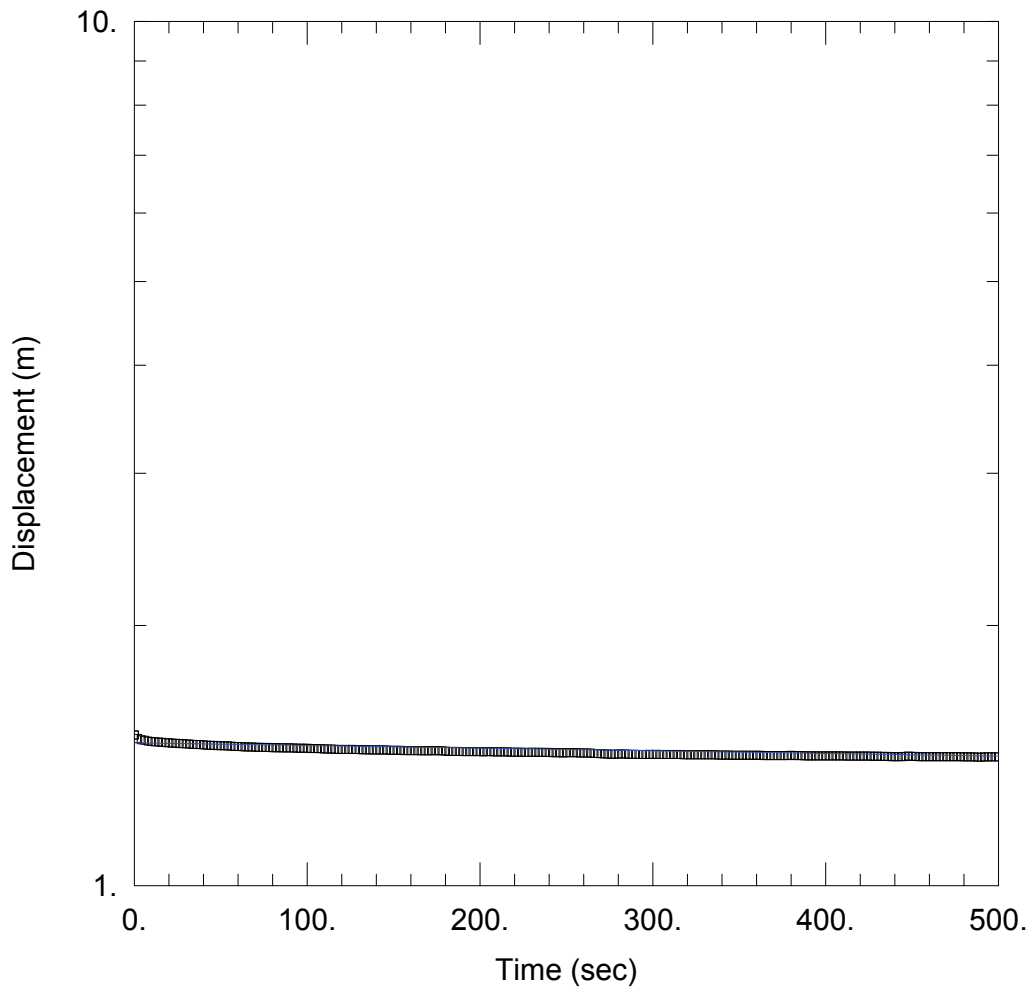
Saturated Thickness: 2.61 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (F2)

Initial Displacement: 0.781 m Static Water Column Height: 2.61 m
 Total Well Penetration Depth: 2.61 m Screen Length: 2.61 m
 Casing Radius: 0.025 m Well Radius: 0.075 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.1336 m/day y0 = 0.5824 m



WELL TEST ANALYSIS

Data Set: T:\...\110509_406.00889.00005_Nantwich_RHT_AG.aqt
 Date: 11/25/11 Time: 20:30:21

PROJECT INFORMATION

Company: SLR
 Client: English Heritage
 Project: 406.00889.00005
 Location: Nantwich
 Test Date: March 2011

AQUIFER DATA

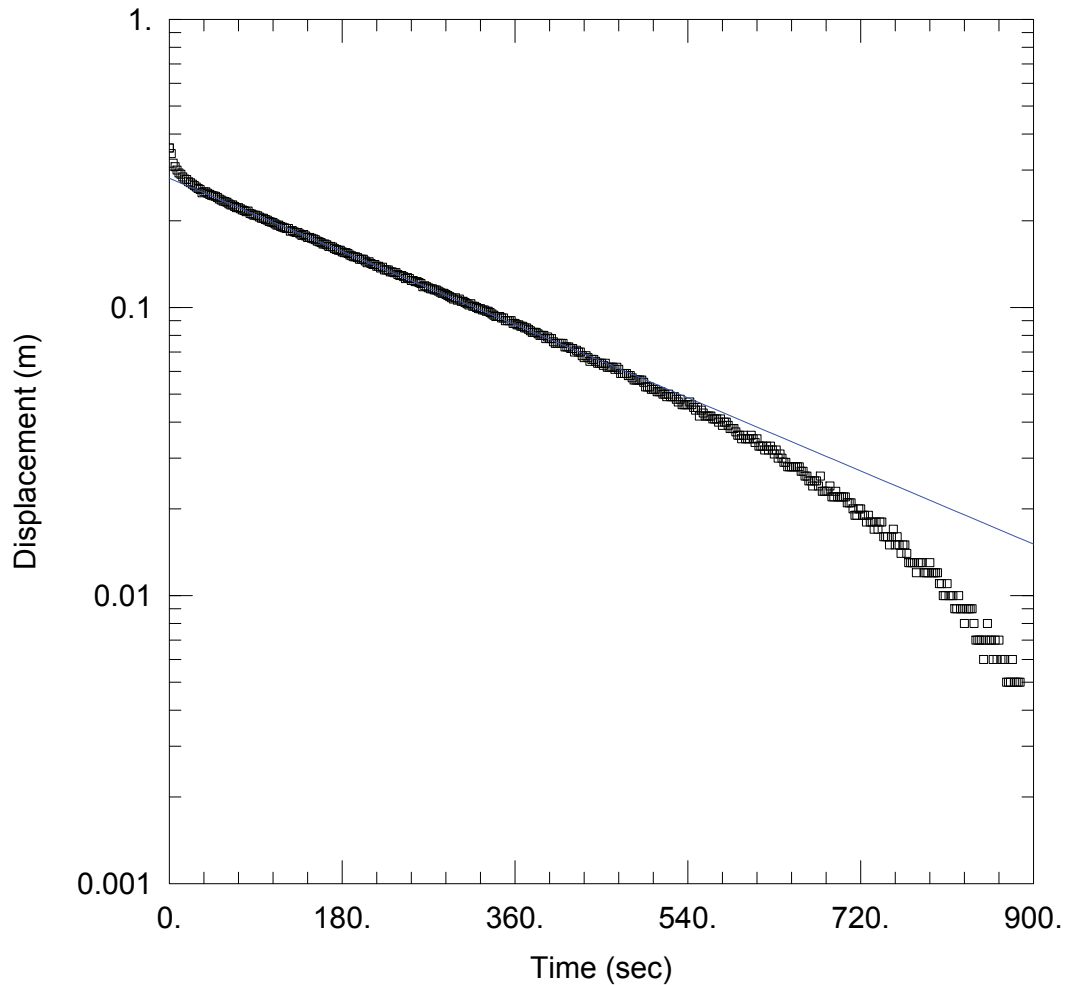
Saturated Thickness: 0.41 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (AG)

Initial Displacement: 1.494 m Static Water Column Height: 1.94 m
 Total Well Penetration Depth: 1.94 m Screen Length: 1.94 m
 Casing Radius: 0.025 m Well Radius: 0.075 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.009173 m/day y0 = 1.463 m



WELL TEST ANALYSIS

Data Set: T:\...\110509_406.00889.00005_Nantwich_RHT_AF.aqt
 Date: 11/25/11 Time: 20:30:39

PROJECT INFORMATION

Company: SLR
 Client: English Heritage
 Project: 406.00889.00005
 Location: Nantwich
 Test Well: AE
 Test Date: March 2011

AQUIFER DATA

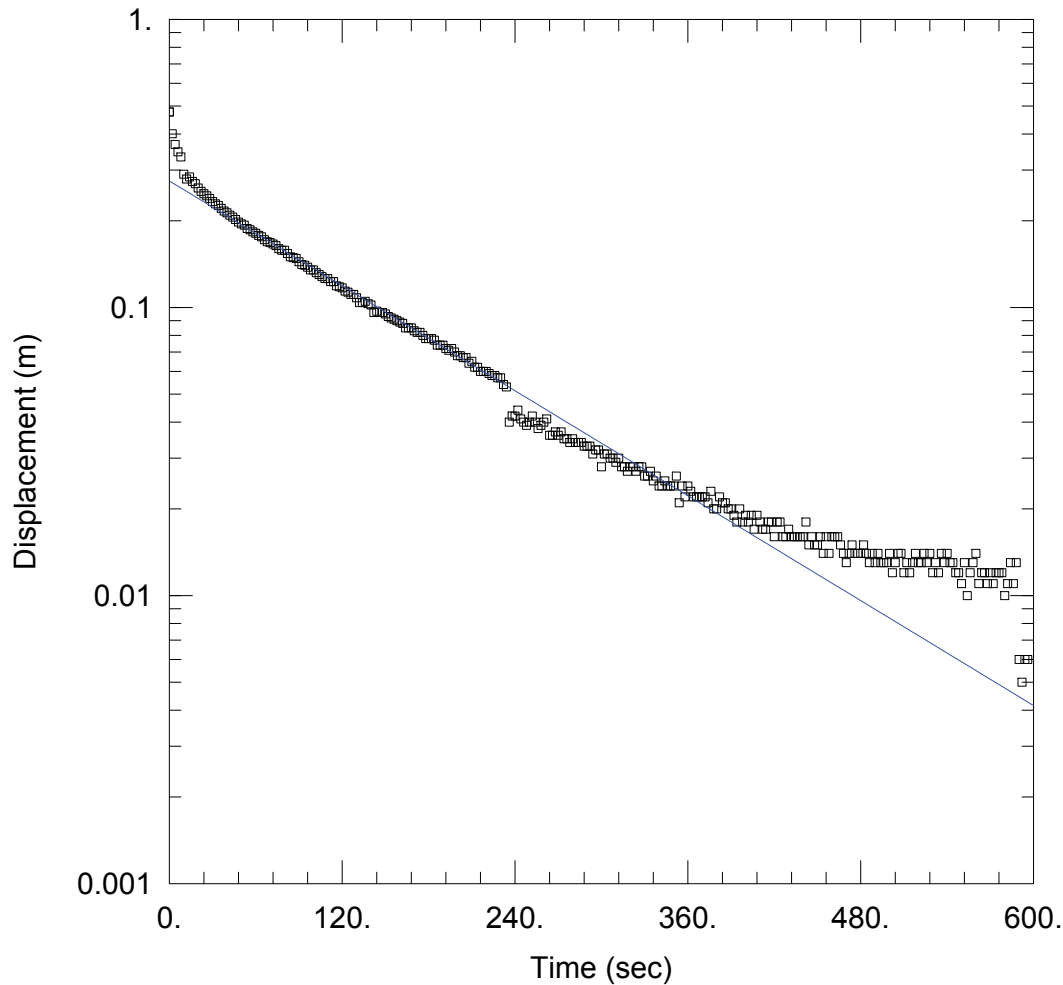
Saturated Thickness: 1.08 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (AF)

Initial Displacement: 0.358 m Static Water Column Height: 1.08 m
 Total Well Penetration Depth: 1.08 m Screen Length: 1.08 m
 Casing Radius: 0.025 m Well Radius: 0.075 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.1578 m/day y0 = 0.2809 m



WELL TEST ANALYSIS

Data Set: T:\...\110509_406.00889.00005_Nantwich_RHT_AE.aqt
 Date: 11/25/11 Time: 20:30:54

PROJECT INFORMATION

Company: SLR
 Client: English Heritage
 Project: 406.00889.00005
 Location: Nantwich
 Test Well: AE
 Test Date: March 2011

AQUIFER DATA

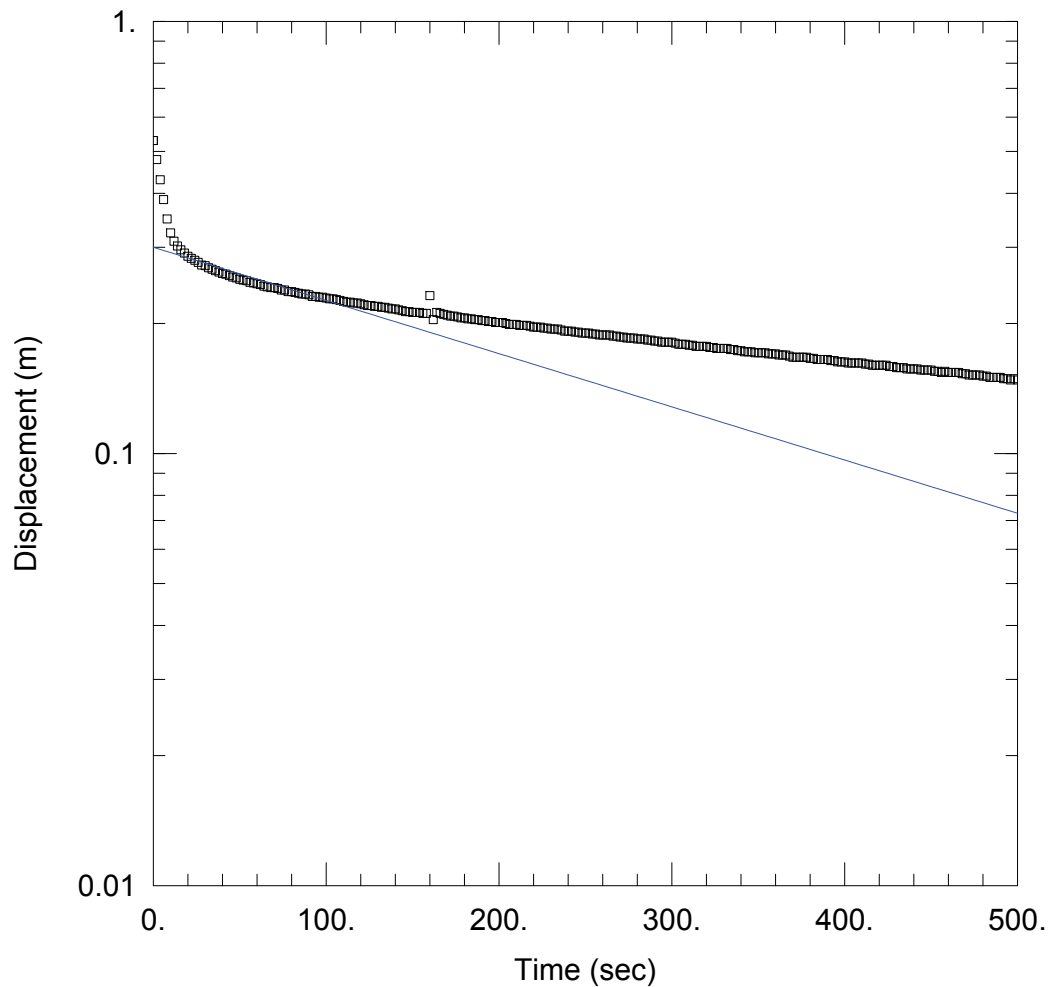
Saturated Thickness: 1.24 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (AE)

Initial Displacement: 0.477 m Static Water Column Height: 1.24 m
 Total Well Penetration Depth: 1.24 m Screen Length: 1.24 m
 Casing Radius: 0.025 m Well Radius: 0.075 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.3132 m/day y0 = 0.275 m



WELL TEST ANALYSIS

Data Set: T:\...\110509_406.00889.00005_Nantwich_RHT_AC.aqt
 Date: 11/25/11 Time: 20:31:11

PROJECT INFORMATION

Company: SLR
 Client: English Heritage
 Project: 406.00889.00005
 Location: Nantwich
 Test Date: March 2011

AQUIFER DATA

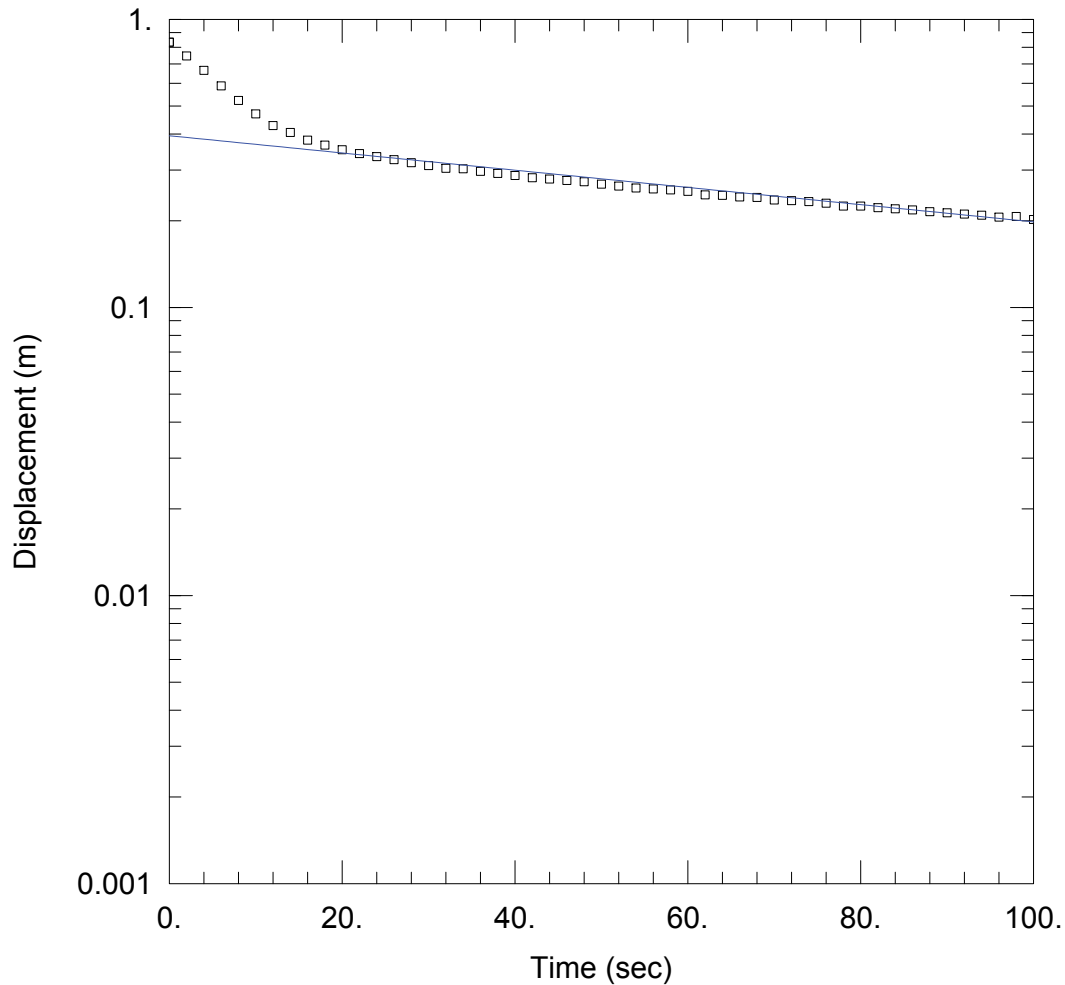
Saturated Thickness: 1.4 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (AC)

Initial Displacement: 0.53 m Static Water Column Height: 1.4 m
 Total Well Penetration Depth: 1.4 m Screen Length: 1.4 m
 Casing Radius: 0.025 m Well Radius: 0.075 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.1182 m/day y0 = 0.3001 m



WELL TEST ANALYSIS

Data Set: T:\...\110509_406.00889.00005_Nantwich_RHT_AB.aqt
 Date: 11/25/11 Time: 20:32:28

PROJECT INFORMATION

Company: SLR
 Client: English Heritage
 Project: 406.00889.00005
 Location: Nantwich
 Test Well: AE
 Test Date: March 2011

AQUIFER DATA

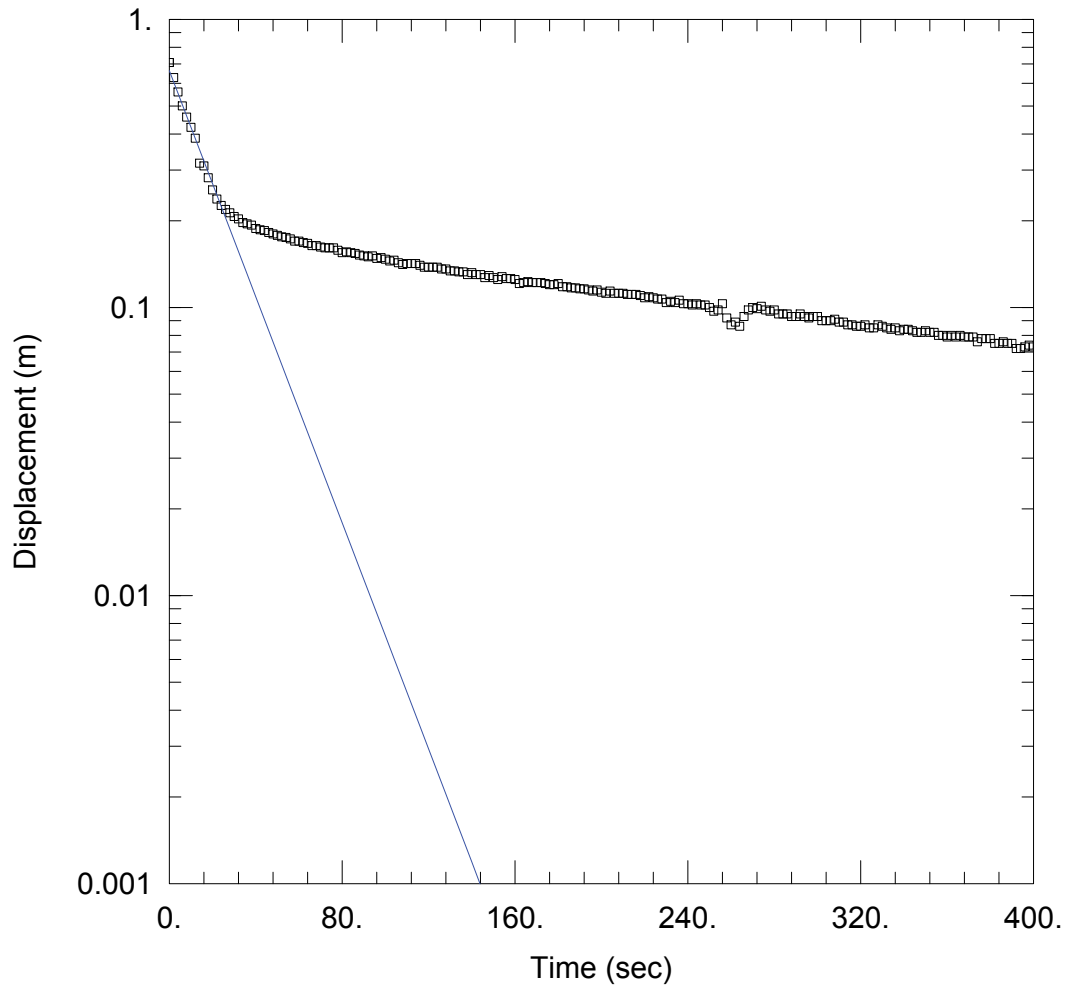
Saturated Thickness: 0.91 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (AB)

Initial Displacement: 0.833 m Static Water Column Height: 1.96 m
 Total Well Penetration Depth: 1.96 m Screen Length: 1.96 m
 Casing Radius: 0.025 m Well Radius: 0.075 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.4525 m/day y0 = 0.3945 m



WELL TEST ANALYSIS

Data Set: T:\...\110509_406.00889.00005_Nantwich_RHT_V.aqt
 Date: 11/25/11 Time: 20:31:28

PROJECT INFORMATION

Company: SLR
 Client: English Heritage
 Project: 406.00889.00005
 Location: Nantwich
 Test Well: AE
 Test Date: March 2011

AQUIFER DATA

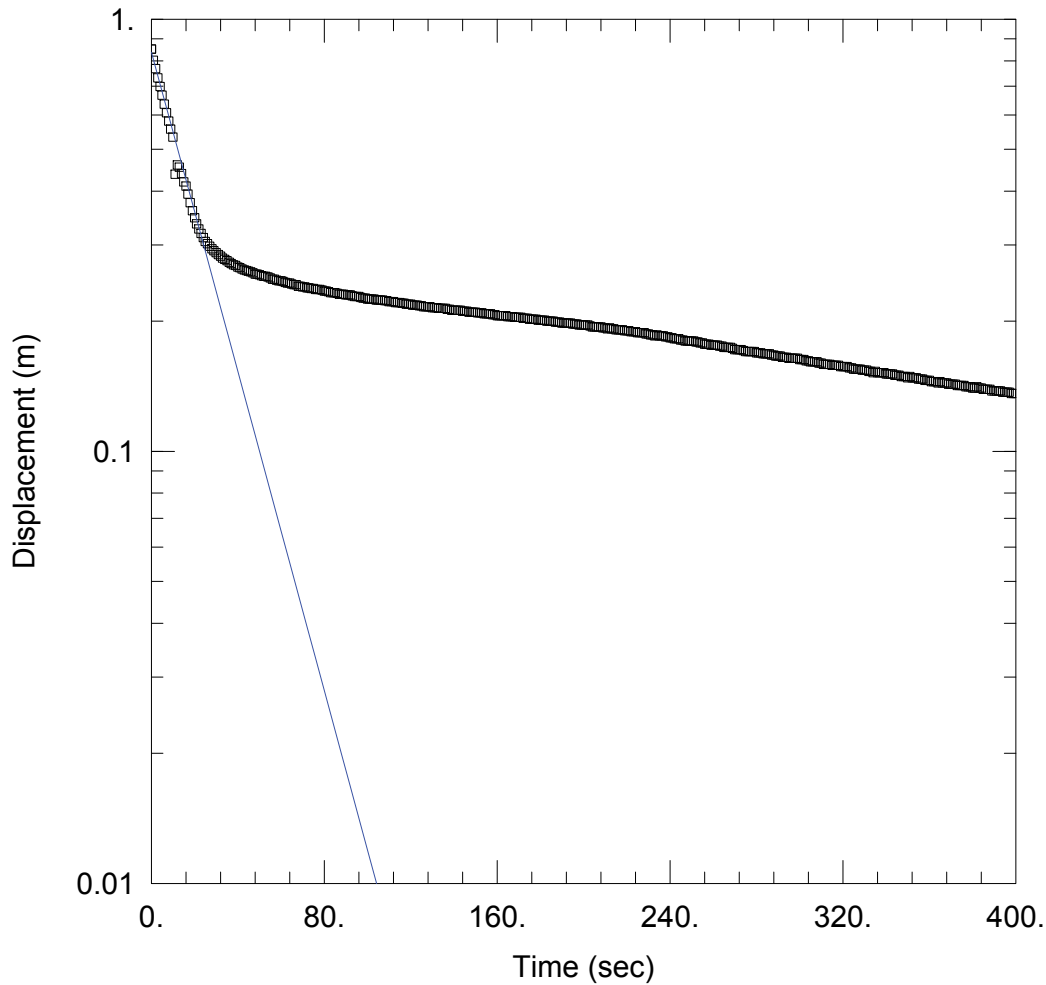
Saturated Thickness: 0.67 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (V)

Initial Displacement: 0.708 m Static Water Column Height: 2.15 m
 Total Well Penetration Depth: 2.15 m Screen Length: 2.15 m
 Casing Radius: 0.025 m Well Radius: 0.075 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 3.921 m/day y0 = 0.6636 m



WELL TEST ANALYSIS

Data Set: T:\...\111216_406.00889.00005_Nantwich_RHT_L.aqt
 Date: 11/16/12 Time: 16:28:57

PROJECT INFORMATION

Company: SLR
 Client: English Heritage
 Project: 406.00889.00005
 Location: Nantwich
 Test Well: AE
 Test Date: March 2011

AQUIFER DATA

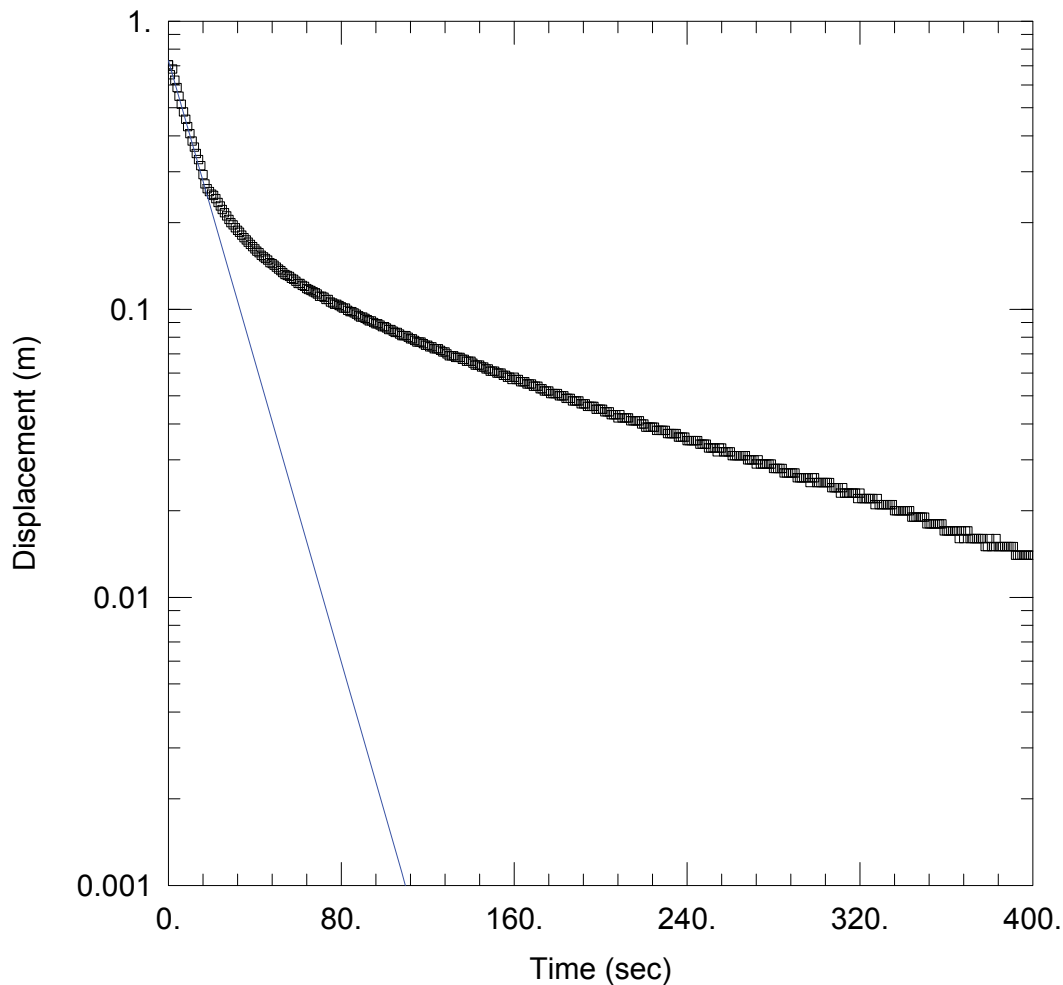
Saturated Thickness: 1.06 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (L)

Initial Displacement: 0.852 m Static Water Column Height: 1.67 m
 Total Well Penetration Depth: 1.67 m Screen Length: 1.67 m
 Casing Radius: 0.025 m Well Radius: 0.075 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 2.363 m/day y0 = 0.8383 m



WELL TEST ANALYSIS

Data Set: T:\...\111216_406.00889.00005_Nantwich_RHT_M.aqt
 Date: 11/16/12 Time: 16:29:59

PROJECT INFORMATION

Company: SLR
 Client: English Heritage
 Project: 406.00889.00005
 Location: Nantwich
 Test Well: AE
 Test Date: March 2011

AQUIFER DATA

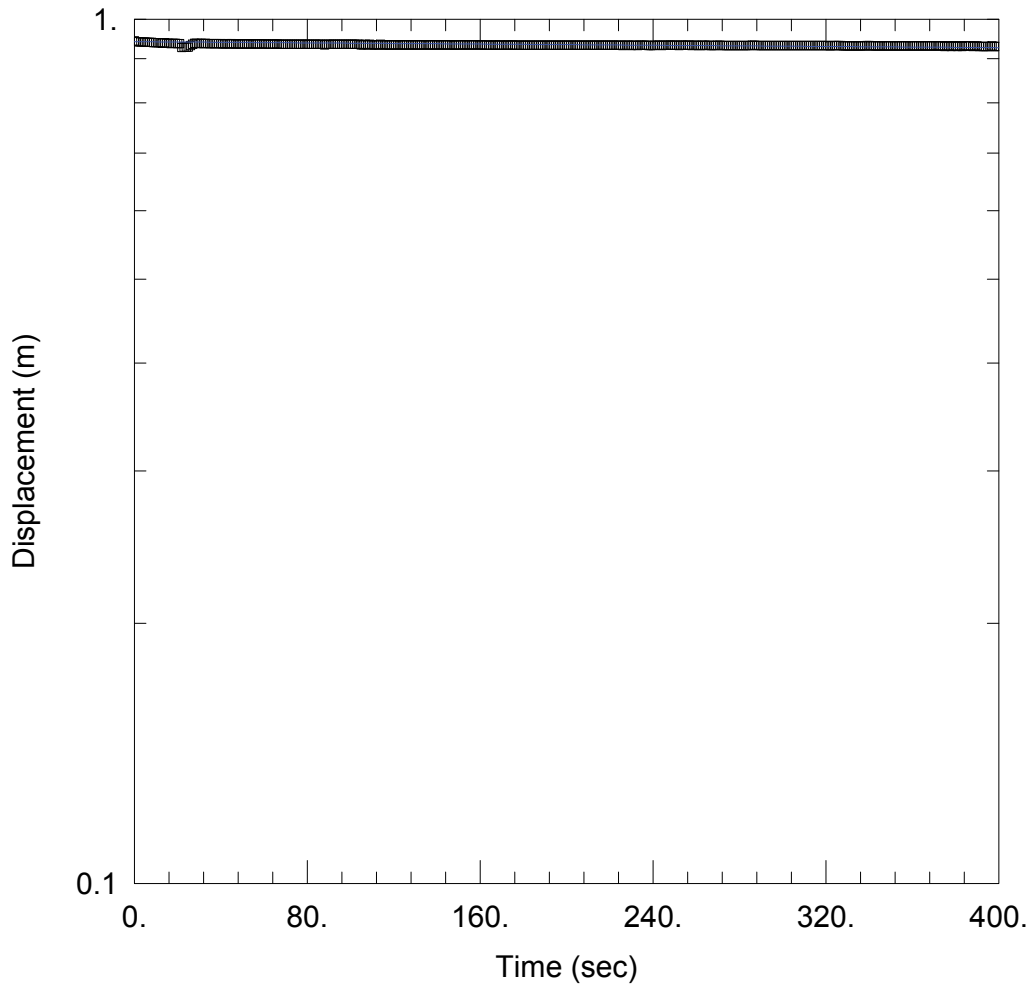
Saturated Thickness: 1.5 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (M)

Initial Displacement: 0.706 m Static Water Column Height: 2.28 m
 Total Well Penetration Depth: 2.28 m Screen Length: 2.28 m
 Casing Radius: 0.025 m Well Radius: 0.075 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 2.669 m/day y0 = 0.7291 m



WELL TEST ANALYSIS

Data Set: T:\...\111216_406.00889.00005_Nantwich_RHT_O.aqt
 Date: 11/16/12 Time: 16:30:27

PROJECT INFORMATION

Company: SLR
 Client: English Heritage
 Project: 406.00889.00005
 Location: Nantwich
 Test Well: AE
 Test Date: March 2011

AQUIFER DATA

Saturated Thickness: 2.21 m Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (O)

Initial Displacement: 0.943 m Static Water Column Height: 2.21 m
 Total Well Penetration Depth: 2.21 m Screen Length: 2.21 m
 Casing Radius: 0.025 m Well Radius: 0.075 m

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice
 K = 0.001239 m/day y0 = 0.9417 m



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