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New Monks Farm

Interpretative Hydrogeological Report on Groundwater Levels and Influencing Factors

For New Monks Farm Developments Ltd

April 2014

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Quality Management

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Prepared by	Martin Weil/ Lawrence Jones	Signature (for file)	
Checked by	Trevor Muten	Signature (for file)	
Authorised by	Neil Greenwood	Signature (for file)	

Executive Summary

The Site	The proposed development site, which is of approximately 28 hectares, is located off Marsh Barn Lane at New Monks Farm, Lancing, West Sussex. The site comprises part open fields and part a golf course in construction. Overall the site slopes in a north easterly direction, with ground levels ranging between 2.0 m and 5.0m AOD. The site contains numerous watercourses.
Report objectives	To test the validity of preliminary mapping by the Environment Agency, which classifies the site as being at high risk from groundwater flooding, additional intrusive investigations and detailed water level logging in multiple geological horizons has been undertaken. The results have been compiled and assessed by experienced hydrogeologists to derive a comprehensive understanding of the hydrogeology and hydrogeological processes operating at the site (refer last box for conclusions).
Investigation carried out	The drilling work, which occurred mainly over the period 23/1/2014 to 5/2/2014 (during which time the weather was generally very wet), included: • 10 No Cable percussion boreholes to a depth of between 10m and 15 m bgl and dual 50 mm diameter monitoring wells (one borehole was redrilled); • 2 No falling head tests; • 20 No automatic water level data recorders were installed in ten borehole wells on the 7/2/2014 and these were set to record water levels at 2 minute intervals. The divers were withdrawn and the data information downloaded on the 4/3/2014, so as to allow this interim report to be produced. The loggers were then reset the same day with the aim to continue through to the week commencing 5th May 2014; and • 10 No divers were installed at ten surface water localities utilising a mix of hanging lines off culverts and bridge decks and from wooden gantry type structures. The loggers were installed at the same time as the well loggers and recorded at the same intervals. They were downloaded on the same date and re-set in the same manner as the wells.
Geology findings	The ground conditions encountered by the boreholes were in accordance with the published geology for the site with made ground over clay superficial (Alluvium or Head deposits) with chalk beneath. It is noted that granular beach deposits were absent (a porous geological units found elsewhere in the Worthing area). The clay cover is complete over the whole site. The nature of the clay superficial is divided into two types; namely

	soft highly compressible alluvial silty clays and lower compressibility soft or soft firm (locally firm) slightly gravelly silty clay head deposits. Of the superficial deposits, the clay head dominates in terms of footprint coverage and the stratum is typically 3 to 4m thick. The alluvial clay is present as finger shaped deposit which runs in an east- west alignment in the northern fifth of the site. The clay alluvium is either of similar thickness to the clay head or in the case of a northern-central area considerable thicker (8.6m).
Groundwater findings	The site is not located within a groundwater source protection zone (ie a zone of land where groundwater resource is protected by the regulatory authorities). The pattern of response from the water level versus time graphs for shallow and deep geological units confirms that the Head Deposits and the alluvial clays are acting as an aquiclude or aquitard; with nominal hydraulic interconnectivity between the units. This separation of water units applies both during periods when the Chalk piezometric surface (equivalent to the water pressure) in a unit is artesian, with a pressure head above the elevation of the perched water table level in the clay above; and when the piezometric surface in the Chalk is lower than this perched water table. In a single location (central northern sub area) the chalk piezometric level rises less than a metre above the land surface. The most southerly borehole on the site has a lower piezometric surface in the Chalk aquifer than the near surface perched water table. Moreover, the observed water level in the Chalk in this peripheral location shows a clear tidal influence, with a diurnal water level range of up to approximately 3cm. The periodicity of the diurnal variability in Chalk groundwater head confirms a direct tidal influence and therefore hydraulic connectivity with the sea or estuarine water at this sector of the site.
Surface water findings	The closest major water feature is the River Adur located approximately 1.5 km east of Marsh Barn Lane. Surface water movements at the site are influenced by a series of ditches that eventually combine and discharge via a control structure adjacent to the south-east corner of the site boundary with Shoreham airfield which then drains into the tidal River Adur. The hydrographs (water height in the channel versus time graphs) for all the functioning surface water stations show there is a response to rainfall, with a fairly rapid response with an increase in water level during and following rainfall, with a tail off back to a base level. The hydrographs for those monitoring points placed on the most northerly water courses show higher amplitude peaks with quite marked tails offs. This pattern is attributed to surface water runoff, in part via the A27 drainage and in part from the hills to the north of the A27. The surface water level data also displays a longer trend with the

	surface water height data reducing over the course of the monitoring period notably from a peak level on the 14 February 2014 through the 03 March 2014. This longer term trend in declining surface water levels over this period is identifiable in all of the surface water monitoring locations across the site; although is less pronounced in the water course located in the north-eastern corner of the site. Furthermore, the surface water monitoring locations to the south and east of the study site all show evidence of diurnal fluctuation in water level related to the tidal cycle. This tidal influence on the surface water levels over much of the site is interpreted to most likely be a result of retardation where flow within the channels backs up due to the rising and high tide in the Adur estuary and sea.
Conclusions/ groundwater model	The Newhaven Chalk forms the bedrock geology to the site. The Chalk aquifer is recharged at its outcrop to the north of the A27, and is confined by superficial deposits over the entirety of the site, with semi-confinement just beyond the northern boundary of the site. Towards the southeast of the study site, there is a tidal signal in the Chalk piezometry, inferring hydraulic connectivity between the Chalk aquifer and the marine or estuarine environment. This is not identified elsewhere across the deep monitoring boreholes at the site. Furthermore, the water levels in the shallow boreholes towards the eastern boundary of the study site also display a diurnal cycle that can be attributed to tidal fluctuation influence. The superficial Head and Alluvium deposits overlay the Chalk bedrock and form an aquiclude or aquitard, substantially limiting vertical groundwater movement between the Chalk and the near surface deposits. As a result, during the period of groundwater level monitoring, the Chalk aquifer beneath the site is confined with the piezometric surface above the base of the superficial deposits. The superficial deposits act as an aquitard or aquiclude, with some evidence for low to very low vertical permeability, related to clays and silts within specific lateral continuous horizons within the Head and Alluvium deposits. This provides protection to the Chalk aquifer at depth and results in both a perched aquifer in the superficial deposits; and confinement of the Chalk aquifer. The intense and substantially above average rainfall prior to and during the field monitoring has led to elevated water table levels in the superficial deposits, forming localised groundwater mounds. The excess groundwater storage is released via flows and seepages into the surface water drainage system. During the high rainfall event, the water level within the surface water drainage was observed to be lower than the perched groundwater mounds. Therefore, there is a component of perched groundwater contribution to the base flow within the surface water drainage at the site. There is no evidence to indicate that there is direct contribution to

	surface water flows from the Chalk aquifer at depth beneath the site. It is noted that during the study period, excess groundwater storage was released from the unconfined Chalk aquifer to the north of the A27 via ephemeral springs and streams, resulting in localised groundwater flows and flooding in parts of Lancing close to the A27 in February and March 2014. The groundwater flooding event in Lancing did not lead to groundwater flooding of the study site. It may have contributed to additional flows within the surface water drainage across the site, as the excess groundwater flowed (and was also pumped) from the affected areas through the surface water drainage towards the River Adur, estuary and sea.
Overall conclusions and implications to the surface water management system.	The observations made during the very high rainfall and groundwater conditions experienced in early 2014 show that the study site is not susceptible to groundwater flooding, provided the geological units remain intact during any development. The EA mapping of a 'high risk' of flood emergence' would appear over cautious for this site.
Relevance to surface water management	A key component of the development proposals is to mitigate against flood risk by raising ground levels to a height commensurate with the 1 in 200 year coastal flood level (to 2115) plus a 300mm freeboard to account for varying wave heights and uncertainty. To mitigate against potential overland flows entrance thresholds to buildings will be raised a further 150mm. The investigations have encountered a degree of baseflow (at least during wet weather periods) between the shallow superficial geology and the water courses but this is restricted by the clay geology (hence low permeability). In this setting it is not considered that the capacity of the existing channels will be compromised by baseflow. Any filling of the site will increase the capacity of the channel and act to improve flow capacities.
Recommendations	It is recommended that the planned additional monitoring of the various measuring points is continued into May when the response of the surface water and groundwater to drier weather can be seen.

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Appendices

1. Introduction

1.1 Capita Property and Infrastructure Ltd were commissioned by New Monks Farm Development Ltd to undertake a hydrogeological study at New Monks Farm, North Lancing focused on assessing groundwater water levels and factors which influence these, including rainfall and seasonal affects and to make an assessment of this data to interpret the risk level of groundwater flooding at the site. A mixed use development is planned for the site comprising commercial, housing and a school.

1.2 Our approach to the above was outlined in a letter to the Capita Project Manager dated 2nd December 2013, which comprised the following tasks:

1. Preparation of a Hydrogeological Desk Study report to include:
    a) Site walkover;
    b) Review of published available geological and hydrogeological mapping; and
    c) Review of published hydrogeological records (including borehole records).
2. Design and supervision of a ground investigation to assess relationship between groundwater and surface water levels;
3. Collection of two rounds of groundwater samples for chemical analysis (one undertaken at time of issue);
4. Installation of groundwater level dataloggers; and
5. Production of an interpretative hydrogeological report to assess seasonal impacts[1] and impact of recharge from rainfall intensity on groundwater levels.

1.3 The preparation of this report, which is an interim issue, has involved the examination of information from the following sources:

1. Digital mapping supplied by Landmark Information Group, including:
    a) British Geological Survey 1:10,000 Superficial and Bedrock Geology maps;
    b) British Geological Survey Geological Indicators of Flooding Map;
    c) British Geological Survey Groundwater Flooding Susceptibility Map; and
    d) Environment Agency Historic Flood Events Record.
2. British Geological Survey Solid and Drift Geological Mapping – Sheet 318: Brighton (1:50,000)
3. British Geological Survey Memoir for Geological Sheet 318 entitled *Geology of the country around Brighton and Worthing*;

[1] It was appreciated from the outset that seasonal impacts would take a time period more extensive than the 3 months length of the monitoring exercise but it was acknowledged that the period of highest rainfall (ie winter) would be covered which was the 'worst cakey b se' month in terms of groundwater flooding (should it occur).

4. Electronic records of historical boreholes accessed using http://mapapps.bgs.ac.uk/geologyofbritain/home.html;
5. Harrison Group Environmental Ltd Factual *Letter-style* Report on Ground Investigation at New Monks Farm, Lancing dated February 2014;
6. Brassington, F.C. and Younger, P.L., 2010. A proposed framework for hydrogeological conceptual modelling. *Water and Environment Journal* Volume 24, Issue 4, pages 261–273, December 2010.
7. Shepley, M. G, Whiteman, M. I., Hulme, P. J. and Grout, M.J., 2012. *Introduction: groundwater resources modelling: a case study from the UK*. In: Shepley, M. G., Whiteman, M. I., Hulme, P. J. and Grout, M. W. (eds) G*roundwater Resources Modelling: A Case Study from the UK*. Geological Society, London, Special Publications, 364, 1–5.
8. Rushton, K. R. and Skinner, A.C., 2012*. A national approach to groundwater modelling: developing a programme and establish technical standards*. In: Shepley, M. G., Whiteman, M. I., Hulme, P. J. and Grout, M. W. (eds) *Groundwater Resources Modelling: A Case Study from the UK*. Geological Society, London, Special Publications, 364, 8–17.
9. Whiteman, M. I., Seymour, K. J., van Wonderen, J. J., Maginness, C. H., Hulme, P. J., Grout, M. W. and Farrell, R. P. 2012. *Start, development, and status of the regulator-led national groundwater resources modelling programme in England and Wales*. In: Shepley, M. G., Whiteman, M. I., Hulme, P. J. and Grout, M. W. (eds) *Groundwater Resources Modelling: A Case Study from the UK*. Geological Society, London, Special Publications, 364, 19–37.
10. Met Office Rainfall data for Shoreham Airport February 2014 to March 2014;
11. Environment Agency groundwater level monitoring data;
12. Environment Agency monthly water situation report for South East Region, Solent and South Downs, February 2014.
13. Tidal data for Shoreham Harbour; and
14. Groundwater level data Brighton and Hove Albion Training Ground.

Disclaimer

1.4 This report is for the use of New Monks Farm Developments Ltd only and should not be used by any other party unless specifically advised in writing by Capita Property and Infrastructure Ltd.

1.5 This report has been prepared by Capita Property and Infrastructure Ltd on the basis of the available information received during the assessment period. Although every reasonable effort has been made to obtain all relevant information, all potential environmental constraints or liabilities associated with the site may not necessarily have been revealed.

2. Background

Site Location and Immediate Environs

2.1 The proposed development site is located off Marsh Barn Lane at New Monks Farm, Lancing, West Sussex (approximate NGR 519575 105380). The development boundary covers approximately 28 hectares. A site plan is shown on Figure 1.

2.2 The site currently exists as undeveloped greenfield land in the west and a golf course (under construction) located on eastern portion. The A27 dual carriageway bounds the site to the north; a residential development to the west; Shoreham airport bounds the site to the east; and the Brighton and Hove Albion Football Club Training Ground (under construction) forms the southern boundary.

Site Description

2.3 A site visit was conducted by an environmental consultant on the 7th January 2013, which confirmed the land uses described above. Site access off the A27 via the VOSA weighbridge lay-by.

2.4 Two stacked portacabins are located to the immediate west of the site entrance and a vehicle wheel wash is located approximately 50 m to the south of the entrance. A surfaced haul road extends past the site entrance following the boundary to the east and south, providing access to the Brighton and Hove Albion Football Club development on the southern boundary. A site security office managed by the football club developers is located on the haul road approximately 600 m south of the site entrance.

2.5 Numerous drainage ditches and balancing ponds are located throughout the site; Figure 2 illustrates the main surface water features.

2.6 A topographic survey was carried out by M.J Zara Associates on behalf of Michael Cox Associates in April 1999. Overall the site slopes in a north easterly direction, with the following observations noted:-

i. The area of highest elevation can be found in the south western corner where ground levels are approximately 5.0 m AOD;
ii. Ground levels in the north western corner are 2.0m AOD; and
iii. Ground levels in the centre of the site are typically 2-2.5m AOD.

Development Proposal

2.7 An indicative development proposal is included as Figure 9 for a mixed used development and includes the following:

iv. Residential;
v. Business and Commercial; and

vi. Primary School

Previous Reports

2.8 A summary of reports specific to groundwater flooding at New Monks Farm, Lancing are provided below.

Strategic Flood Risk Assessment – Capita Symonds Ltd January 2008 - 2010

2.9 Groundwater flooding is caused by the emergence of water originating from sub-surface permeable strata (Jacobs 2006). An increase groundwater level sufficient for the water table to rise above the ground surface and inundate land downstream from the outflow may result in a groundwater flood event. Groundwater floods can emerge from either point or diffuse locations; and may be via substantial flows via ephemeral springs or numerous smaller springs and seepage at the ground surface. Groundwater flooding may also occur via groundwater infiltration into sewers and drains. Groundwater flood events tend to be long in duration developing over weeks or months and prevailing for days or weeks.

2.10 Groundwater flood events have been recorded in various aquifer units (including Cretaceous Chalk, Limestones, river terrace gravels). However most accounts of groundwater flooding are confined to the Chalk outcrop, which includes the Chalk of Southern England (Jacobs 2006).

2.11 The primary control on the distribution and timing of groundwater flooding from the Chalk are:

- Spatial and temporal distribution of rainfall.
- Spatial distribution of aquifer properties.
- Recharge mechanisms, duration and spatial distribution.
- Spatial and lateral distribution of geological structures (drift deposits, stratigraphy).
- Efficiency of the surface runoff and drainage network.

2.12 Compared to other aquifer units, the Chalk can be more vulnerable to groundwater flooding because of its geological formation. Characteristically, groundwater movement and storage in the Chalk is predominantly via transmissive fractures and fissures which can result in rapid rises in groundwater levels, which may take a substantial time to recede. The propensity for groundwater flooding is higher where the Chalk is exposed with minimal drift cover. The vulnerability of an aquifer to groundwater flooding can largely be determined by an analysis of the meteorological situation and geological knowledge.

2.13 Map G of the strategic flood risk assessment – titled ‘Areas Prone to Groundwater Flooding’ highlights that the proposed development is located in an area classified as a ‘High Potential for Groundwater Flooding’ and land that borders the site to the immediate north is classified as a ‘Groundwater Emergence Zone Area’ and also a contains a ‘Recorded Groundwater Flooding Event’.

Strategic Flood Risk Assessment – JBA Consulting January 2012

2.14 A "Core Strategy" summary sheet is provided for New Monks Farm[2] which states with respect to Groundwater Flood Risk *'The site is underlain by the Newhaven Chalk Formation, and is within the EA's major aquifer high vulnerability zone. Consequently the area may be susceptible to groundwater emergence. According to the EA groundwater flood susceptibility map, the majority of the site resides in a 1km square where the proportion of the 1 km square that is susceptible to groundwater flood emergence is more than 75%.'*

2.15 And recommends that 'The site is also at risk of groundwater and surface water flooding, therefore steps should be taken to reduce the consequence of flooding. Any future development should ensure that it would not increase the surface water flood risk elsewhere, to achieve this any existing flow paths would need to be maintained. The site is greenfield so surface water drainage techniques should be built into any new design to ensure the runoff rate does not increase.'

Meeting of Capita, Planners and Environment Agency on 14 January 2014

2.16 Dr Rob Hares of Capita property and Infrastructure produced a memo to inform the meeting at the EA offices in Worthing. This provided a plan of intrusive investigation to assess the potential for groundwater flooding and this involved the following measures:

i. Strike and resting groundwater levels across the site (determined by groundwater strikes during Cable Percussion Boreholes);
ii. Assessment of permeability of Head Deposits; Alluvium and Beach Deposits;
iii. Continual measurement of groundwater water levels (using Schlumberger data loggers) within Newhaven Chalk; Gravel; and Beach Deposits; and
iv. Continual measurement of water levels within notable surface water features (using Schaumberg data loggers)

2.17 To facilitate the above it is intended to excavate ten boreholes to a maximum depth of 15 m bgl. The groundwater monitoring will be undertaken over a 3 month period and will assess changes in groundwater levels in response to rainfall intensity and tidal variance. The data will also be used to assess groundwater/surface water interactions and will be used to provide conceptualism of the site with hydrographs. This scoping/methodology was generally agreed.

[2] http://www.adur-worthing.gov.uk/media/media,87208,en.pdf accessed 17/03/14

3. Ground Conditions

Geology

3.1 A review of published geological information was carried out, including information from the British Geological Survey (BGS) 'GeoIndex' online database (which includes 1:50000 scale geological mapping), Lexicon and borehole information.

3.2 The site is underlain by bedrock of the Newhaven Chalk Formation, superficial deposits are found across the site comprising Head Deposits at the near surface to the west of Marsh Barn Lane, with borehole logs confirming Head Deposits underlie the whole study site; and Alluvium at the near surface above the Head Deposits, to the east of Marsh Barn Lane; with an area of Alluvium to the west of Marsh Barn Lane immediately south of the A27.

3.3 The British Geological Survey (BGS) have records of several historical boreholes on site and within the surrounding area. A summary of the published and encountered geological sequence is provided in Table 3.1 below.

3.4 The geology beneath the land to west of New Monks Farm and to east of Shadwells Road comprises of superficial Head Deposits, comprising Clay Silt Sand and Gravel. This is above a bedrock of formed by the Newhaven Chalk Formation. The Newhaven Chalk is underlain by the Seaford Chalk which forms the bedrock outcrops to the east and northeast from the site; and is overlain by the Tarrant Chalk Member of the Culver Chalk Formation which outcrops to the west and northwest from the site. The Seaford Chalk, Newhaven Chalk and Tarrant Chalk form a continuous Principal Aquifer that underlies the site; and has a recharge area to the north of the A27, along the South Downs dip and scarpe slope.

3.5 Two borehole logs are identified in the area west of New Monks Farm and east of Shadwells Road.

- TQ10NE86 Topsoil to 0.2 m over; CLAY 1.5 m over; clay gravel 0.2 m; over CHALK 4.1 m Standing water level at 0.4 m bgl (moderate seepage at depths > 3.8 m bgl);
- TQ10SE193 Brown silty CLAY with Gravel 2.92 m over; putty chalk 1.64 m water strike approx. 3.81 m rose to approx. 2.92 m.

3.6 The land to the west of North Barn Farm and to east of Barfield Park Road is underlain by superficial Raised Beach Deposits, comprising Sand and Gravel. Beneath the Raise Beach Deposits, the bedrock comprises of the Newhaven Chalk Formation. This geology is confirmed from the following borehole logs in this area:

- TQ10SE38 Drift overlying Upper Chalk (thicknesses not given) to max depth 8.84 m; with rest water level at 0.76 m bgl;
- TQ10SE23/A Drift (Gravel) 3.05 m over; Chalk 15.2 m;
- TQ10SE23/B Drift (Beach deposits) 3.05 m over; Chalk 27.4 m. Water level about 3.05 m (top of the Chalk).

3.7 The geology underlying the land to the east of Marsh Barn Lane consists of superficial Alluvium deposits comprising Clay, Silts, Peat and Sands. The bedrock is Newhaven Chalk Formation. This is confirmed by the following borehole logs:

- TQ10SE192 Topsoil 0.3 m over; soft-firm silty CLAY 1.3m over; firm brown grey silty CLAY 1.0m over; Putty Chalk 1.5 m; water strike at top of the Chalk (3.048 m) rising to 1.5 m;
- TQ10NE108 Dark Clay 9 m over; Chalk 18 m; water struck at 11 m.

Table 3.1 Description of Geology

<table>
<tr><th colspan="2">Geological Unit</th><th>Description</th><th>Thicknesses</th></tr>
<tr><td colspan="2">Made Ground</td><td>Not known – in location of new Golf Course</td><td>Not known</td></tr>
<tr><td rowspan="2">Quaternary</td><td>Alluvium</td><td>Clay, Silty, Peaty, Sandy. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by rivers.

TQ10SE192 soft to firm brown and grey silty CLAY and fine grey SAND with flint and putty CHALK

TQ10N108 Dark CLAY</td><td>4.57 m

9.00 m</td></tr>
<tr><td>Head</td><td>Clay, Silt, Sand And Gravel. Superficial Deposits formed up to 3 million years ago in the Quaternary Period. Local environment previously dominated by sub-aerial slopes

TQ10NE86 soft to firm grey mottled brown silty CLAY fine gravel with soft brown CLAY at the base.

TQ10SE193 Firm brown silty CLAY with gravel</td><td>1.90 m

2.92 m</td></tr>
<tr><td>Cretaceous</td><td>Newhaven Chalk Formation</td><td>Chalk. Sedimentary Bedrock formed approximately 71 to 86 million years ago in the Cretaceous Period. Local environment previously dominated by warm chalk seas.

TQ10NE86 describes extremely soft structureless putty chalk becoming firm structureless CHALK with lumps of intact CHALK and a few flints. (Grade V)</td><td>Base not recorded on historic borehole logs. Published records report 204 m</td></tr>
</table>

Hydrogeology

3.8 Hydrogeological information has been obtained from the Environment Agency's (EA's) website page 'What's in Your Backyard'. The bedrock geology (Newhaven Chalk Formation) is classified as a Principal Aquifer, which is described by the EA as *"layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale."*

3.9 The superficial deposits (Head and Alluvium) are described by the EA as *"Secondary Undifferentiated - where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type."*

3.10 The site is not located within a groundwater source protection zone. The groundwater vulnerability for the majority of the site is classed as Major Aquifer High. However, a section of land to the west of Marsh Barn Lane is classified as Major Aquifer Intermediate. The groundwater vulnerability maps are a "*broad appraisal of where groundwater resources may be vulnerable from surface land use activities."* A high classification assumes that the soils can readily transmit liquid discharges because they are either shallow or susceptible to rapid flow directly to rock, gravel or groundwater.

3.11 The Environment Agency monitors groundwater levels at a number of observation boreholes in the Lancing area. Historic water level data for five observation boreholes in the Lancing area has been reviewed as part of this study. Three of the data sets from boreholes referred to as Sussex Pad Hotel, Old Salts Farm and New Salts Farm have historic data but not continuous over recent years. However, the boreholes referred to as Sussex Pad No.1, north of the A27 close to the north-eastern corner of the study site and the surface water monitoring location SW10; and the Daniels Barn borehole, south of the A27 and north of the study site, close to BH10, has a long term water level monitoring record.

Hydrology

3.12 The closest major water feature is the River Adur located approximately 1.5 km east of Marsh Barn Lane. However, surface water which runs off the developable part of the site is collected by a series of ditches that eventually combine and discharge via a control structure adjacent to the south-east corner of the site boundary with Shoreham airfield. These ultimately discharge to the River Adur. The surface water ditches are illustrated on Figure 2.

3.13 The estuarine reach of the River Adur has been classed as good and moderate potential with respect to current chemical and ecological potential, respectively.

3.14 A freshwater spring known as Honeyman's Hole is located offsite, approximately 450 m to the east of the site entrance.

4. Site Works

Scope of Investigations

4.1 A site investigation specification and tender package was prepared by Capita in January 2014 and Harrison Environment Group Ltd were duly commissioned to undertake the drilling work. The drilling occurred mainly over the period 23/1/2014 to 5/2/2014 during which time the weather was generally very wet. A further borehole (BH4S) was drilled after a hiatus on 19/3/2014 and on the same date the seal was rectified in 6S and BH5 decommissioned by grouting. The objectives of the site investigation were as described in para 2.16.

4.2 The site investigation Contractor carried out the following exploratory works:

- CAT scan to screen for buried services;
- 10 No Cable percussion bored excavations to a depth of between 10m and 15 m bgl and dual 50 mm diameter monitoring wells (designated BH1 to BH10)
- A re-drill designated BH4AS with a 1.5m long 50mm diameter monitoring well;
- 2 No falling head tests at locations specified by the Project Manager;
- The recovery of small disturbed samples and bulks samples and U100 samples for soil classification purposes;
- Grouting sections of boreholes;
- Preparation of Factual Reports (to include x,y,z co-ordinates and levels of boreholes and pits); and
- Provision of digital data in AGS and AutoCAD format.

4.3 Ten locations were proposed for exploratory boreholes. The final locations, determined from access considerations and with respect to any buried services were to be agreed on site with the Project Manager, and are shown in Figure 4. Those wells selected for water level installations were as follows: BH1S and D, BH2 S and D, BH4D, BH6D, BH7 S and D, BH10 S and D.

4.4 Capita engineers installed automatic water level data recorders (called divers) in ten borehole wells on the 7/2/2014 and these were set to record water levels at 2 minute intervals. The divers were withdrawn and the data information downloaded on the 4/3/2014, so as to allow an interim report to be produced. The loggers were then reset the same day with the aim to continue through to the week commencing 5th May 2014. A barometric data logger was installed to record atmospheric pressure over the same data collection intervals.

4.5 Capita engineers installed automatic water level data recorders (called divers) at ten surface water localities utilising a mix of hanging lines of coverts and bridge decks and from wooden gantry type structures. The loggers were installed at the same time as the well loggers and recorded at the same intervals. They were downloaded on the same date and re-set in the same matter as the wells.

4.6 Manual dips were collected on the 5/6 of March and the 4/5 of April 2014 of all functioning loggers, both wells and surface waters.

4.7 Capita engineers collected water samples from each borehole and surface water location over the period 4 to 6/3/2014. Low flow pump techniques (with stabilised water quality parameters using a multiparameter troll) were used to collect groundwater samples and simple jar immersion techniques were used to collect surface water samples. These were despatched in cool boxes under ice packs to I2 Laboratories.

Findings of Site Works: Ground Conditions

4.8 The ground conditions encountered by the boreholes were in accordance with the published geology for the site with made ground over clay superficial (Alluvium or Head deposits) with chalk beneath. It is noted that granular beech deposits were absent.

4.9 A summary of the geology is shown in Figure 2. This illustrates that there is cover of clay over the Chalk bedrock over the whole of the site. The nature of the clay superficial is divided into types namely soft highly compressible alluvial silty clays and lower compressibility soft or soft firm (locally firm) slightly gravelly silty Clay head deposits.

4.10 Of the superficial deposits, the clay head dominates in terms of footprint coverage and the stratum is typically 3 to 4m thick. Where it is thinner this is because its upper layers have been replaced with made ground. The alluvial clay is present as finger shaped deposit which appear to follow the larger current water coarse which runs in an east- west alignment in the northern fifth of the site (within 200m of the Old Shoreham Road (A27). The clay alluvium is either of similar thickness to the cay head or in the case of BH1 considerable thicker (8.6m).

4.11 The chalk subcrop proved difficult to sample and log its various weathering grades despite an attempt to collect 'undisturbed' U100 samples of the material. However, there often appears to be a 1.5m thick upper unit of structureless gravelly Silt over a layer of structureless chalk cobbles and gravel.

4.12 When drilling, most boreholes made two separate water strikes, an upper one in the shallow perched water table (ie within the superficial deposits an second one within the Chalk. Both strikes had a significant head rise after 20 minutes. Refer Borehole logs in Appendix A for detail. None of the borehole strikes gave rise to water flowing out of the casing top.

5. Hydrogeological Assessment

Groundwater Levels Analysis

5.1 As detailed in Section 4, water levels within the upper superficial and Lower Chalk aquifer units have been measured using pressure transducers logging the piezometric head. This data is presented in Figures 8 a to f for the period from 07 February to the 03 March 2014.

5.2 Distinct water levels are observed between water level within the upper superficial aquifer and the Lower Chalk aquifer at depth. This is noted in BH01, BH02, BH07 and BH10 as presented in Figures a, b, e and f, respectively. In plan the flow directions in the units are shown in the surfer plots in Figures 6a and 6b (superficial deposits) and Figures 7a and 7b (Chalk -2 dates).

5.3 The water level in the shallow borehole BH02S (Head deposits) shows a relatively flat trend between 2.65 m AOD and 2.78 m AOD over the period 07 February to the 03 March 2014 which contrasts with the deeper piezometer at this location which is more variable. For example, for the same period the Chalk has a piezometric head greater than that of the perched water table at the start of the data period with a maximum of 3.096 m AOD; which drops to lower than the water level in the Head from 22 February 2014, reaching a minimum water level of 2.527 m AOD. The shallow and deep water level time series confirms that the Head Deposits are acting as an aquiclude or aquitard; with nominal hydraulic interconnectivity, both during periods when the Chalk piezometry is artesian with a pressure head above the elevation of the perched water table level above; and when the piezometric surface in the Chalk is lower than this perched water table.

5.4 Borehole BH01 is positioned towards the north of the site, drilled through Alluvium deposits. The water level data in the shallow well shows a relatively flat trend between 2.82 and 2.86 m AOD; whereas the deeper Chalk piezometry commences at a higher head, approximately 9cm above the shallow water level in mid-February, with a gradual decline to be essentially coincident with the shallow water level by early March 2014. The initial difference in the piezometric head should be considered in the context of the position of BH01 towards the north of the site, closer to the Chalk outcrop than the other boreholes drilled through the Head Deposits at the site. The elevated piezometric surface is interpreted to be in response to the intense rainfall falling up to mid-February; and as the excess groundwater storage in the Chalk aquifer drained from the aquifer via perennial and ephemeral springs to the north of the A27, and then the pressure in the Chalk aquifer slowly diminished. As the water table in the Chalk aquifer reduced, the difference in the piezometric level in the Chalk relative to the Alluvium and Head deposits also reduced.

5.5 The difference in superficial/Chalk heads during the elevated piezometry and the lag before the two piezometric levels reached equilibrium, indicates that there is a delay in the hydraulic interconnection between the two aquifer systems. It is unclear solely from the groundwater level data whether the hydraulic interconnection occurs via a predominantly vertical pathway or via a lateral interaction due to the thinning of the Head Deposits and proximity of the Chalk outcrop to the north. This thinning may be further exacerbated by underground services and the depth and constituent make-up of the A27 base in relation to the thickness of the Head Deposits.

5.6 Borehole BH10 is located to the northeast of the site, immediately to the south of the A27 and caravan park and in a similar geological setting as BH01. The shallow piezometer BH10S is drilled into the Alluvium deposits, with the water level essentially flat, rising from 2.90 m AOD at the start of February to approximately 3.05 m AOD by mid-February before declining to 2.77 m AOD by the end of February 2014. This is the same situation as found in the shallow well in BH01S. It is noted that the shallow groundwater level is approximately 2.9m above the level of the nearest water level monitoring points at SW08. This is a result of intense and prolonged rainfall-recharge to the alluvium aquifer building up groundwater levels without sufficient time for these to drain down to reach equilibrium with the level of the adjacent surface water. The drain down being slowed buy the low permeability of the alluvial clay.

5.7 This contrasts with the piezometric surface measurements in the Chalk aquifer beneath the Alluvium at this location, whereby the piezometric surface in BH10D rises steadily from approximately 2.17 m AOD on 07 February 2014 to approximately 2.63 m AOD by the beginning of March 2014. Although the Chalk piezometer rising and the Alluvium falls over the same period, there is no evidence to indicate that these converge and therefore the Chalk groundwater and the perched groundwater in the Alluvium deposits act locally as separate hydrogeological units; with layers in the Alluvium deposits retarding vertical groundwater movement sufficiently to act as an aquitard.

5.8 The most southerly borehole on the site – BH07 – has a lower piezometric surface in the deeper Chalk aquifer than the near surface perched water table. The water table in the superficial deposits over the period from 07 February to 03 March 2014 ranges from 3.67 m AOD to 4.01 m AOD, varying in response to rainfall and surface water levels. In contrast, the piezometric surface in the Chalk aquifer beneath the Alluvium in BH07D ranges from 2.233 m AOD to 2.735 m AOD. Moreover, the observed water level in the Chalk borehole BH07D shows a clear tidal influence, with a diurnal water level range of up to approximately 3cm. The periodicity of the diurnal variability in Chalk groundwater head confirms a direct tidal influence and therefore hydraulic connectivity with the sea or estuarine water at this sector of the site.

5.9 The water levels in the upper and lower aquifer units in BH4 shows identical values throughout the time series, strongly indicating that there is direct hydraulic connectivity between the units at this location. Investigations determined that the borehole was poorly grouted, and allowed water flow between the units via borehole BH04. This was addressed through the re-drilling of the shallow piezometer – referred to as BH04A - to a depth of 1.5m below ground level into the Head Deposits on the 20 March 2014. The shallow borehole – BH04S – was grouted to ensure that the water level measured in BH04D was only that of the Chalk aquifer at depth. There was no water strike during the drilling BH04A. Future monitoring at BH04D and BH04AS will allow clarification of the true head differences.

5.10 The water level time series for the shallow and deep aquifers monitored at BH06 show a parallel water level between the shallow level water level and the deeper piezometric head of approximately 8 cm throughout. The near-constant difference between these two piezometric measurements indicates that there is a strong interconnectivity between the upper and lower aquifers at this location. It is understood that the bentonite plug dropped during the construction of BH06 which may explain the difference between the water levels whilst representing a fairly rapid pathway via the borehole. Other possible explanation, such an error in the water level measurement, reading error in the pressure transducer or adjustment to atmospheric pressure have been checked and shown not to be the case.

Chalk Aquifer Groundwater Levels

5.11 As described previously the Environment Agency monitors groundwater levels at two key wells in the environs of the site namely Sussex Pad No.1, north of the A27 close to the north-eastern corner of the study site and the surface water monitoring location SW10; and the Daniels Barn borehole, south of the A27 and north of the study site, close to BH10, has a long term water level monitoring record. Refer to Figure 1 for locations of these wells.

5.12 These two long term Chalk groundwater monitoring boreholes are well placed to determine the seasonal and long term range in Chalk groundwater conditions beneath the study site.

5.13 The historic water level at Sussex Pad Borehole No.1 has a range from -0.31 m AOD to +3.43 m AOD over the period 1977 to 2013; and the Daniels Barn Borehole has a range from -1.26 m AOD to +2.12 m AOD over the period 1976 to 2010.

5.14 The higher end of these ranges compare well with those found in the Chalk during the march monitoring period. This is to be expected given that the weather followed one of the wettest period in the UK for tens of years. Capita has a data request logged with the EA for the Sussex Pad well to seek availability of levels for the same period as water level monitoring for this study. However, we would expect the similarity to be maintained.

Surface Flows

5.15 The level of the surface water monitoring was monitored at nine locations across the site, as identified in Figure 4. The time series of the surface water levels recorded using Diver pressure transducer loggers and adjusted for atmospheric pressure, are presented in Figure 8g.

5.16 A number of similar trends can be identified from the time series for the nine surface water level monitoring points. There is a response to rainfall, with a fairly rapid response with an increase in water level during and following rainfall, with a tail off back to a base level.

5.17 The magnitude of the hydrograph peak and the duration of the tail vary between the monitoring points. There is evidence of individual rainfall events in the hydrographs, notably present in SW01 and SW02 to the north of the study area, adjacent to Marsh Barn Lane. Surface runoff, in part via the A27 drainage, from the hills to the north of the A27 can explain the short term rainfall response within these hydrographs.

5.18 The surface water level data also displays a longer trend or hydrograph. The water level within the surface water monitoring points has a trend reducing over the course of the monitoring period notably from a peak level on the 14 February 2014 through the 03 March 2014, as presented in Figure 8g. This longer term trend in declining surface water levels over this period is identifiable in all of the surface water monitoring locations across the site; although is less pronounced in SW10 on the north-eastern corner of the site.

5.19 Furthermore, the surface water monitoring locations to the south and east of the study site – namely SW03, SW04, SW05, SW06, SW07, SW08 and SW10 – all show evidence of diurnal fluctuation in water level related to the tidal cycle. This is particularly pronounced at SW07 and SW10 to the south east and north east of the study area, respectively. This tidal influence on the surface water levels over much of the site is an important consideration in terms understanding the drainage. The tidal water level response may be either a result of marine or estuary water flowing back into the channels within the study area; however, it is more likely that the flow within the channels backs up due to the rising and high tide in the Adur estuary and sea, resulting in the hydraulic response at the monitoring locations.

Water Quality

5.20 Analysis of the water samples taken from the deep and shallow boreholes on 04 and 05 March 2014 and surface water monitoring locations on 05 and 06 March 2014 (monitoring locations as identified in Figure 4). A significant range of parameters were tested for comprising general inorganics, total phenols, heavy metals and metalloids, monoaromatics, total and speciated PAHs and aliphatic (C5 - C35) and aromatic (C5 - C35) petroleum hydrocarbons. The analytical results are provided in Appendix D.

5.21 The groundwater quality results from samples taken from the deep boreholes drilled into the Chalk aquifer are generally good. The metals are within EQS with the exception of dissolved manganese in BH07D, BH08D, BH09 and BH10D – located towards the eastern side of the study site. All the other parameters, as listed above, analysed within the samples taken from the Chalk groundwater are within EQS and DWS.

5.22 The water quality of the groundwater samples from the shallow boreholes shows a significant number of parameters are within EQS and DWS. However, notably manganese is elevated across the study site; boron is elevated above DWS and nickel above DWS and EQS in BH07S and BH08S. Dissolved sodium is found at elevated concentrations in BH06S, BH08S, BH09S and BH10S. Total PAH is identified in BH08S at 0.7 μg/l; although not identified in the speciated hydrocarbon analysis results for this borehole. All other parameters are within DWS and EQS limits.

5.23 The water quality analysis finds that the surface water samples are mostly within EQS and DWS, with the exception of arsenic and boron above DWS whilst within EQS in SW01; and dissolved manganese above DWS and EQS in SW10.

5.24 Sodium and chloride are elevated only in BH07D in the deeper boreholes and in BH07S, BH08S and BH09S for the shallow boreholes; and only in SW06 for the surface water samples.

6. Hydrogeological Conceptual Site Model

Conceptual Model Framework

6.1 Conceptual models provide a framework to enable interpretation of the available information to provide validate and justifiable set of simplifying assumptions to describe the groundwater system (Brassington and Younger, 2010; Whiteman *et al*, 2012).

6.2 A phased approach based on the data availability is regarded as best practice when developing conceptual model. This phased approach is outlined in Rushton and Skinner (2012). Such that a Phase 1 Conceptual Model is built on the scoping stage data and understanding and on the Phase 1 field data collection, collation and analysis. Subsequent Phases of conceptual model development are based on testing the Phase 1 conceptual model with further data collation and interpretation to refine the conceptual understanding.

6.3 The conceptual model of the groundwater system and potential surface water interaction sets out to define the extent of the study area and lateral and vertical subdivisions based on the geology, hydrogeology, topography and drainage.

6.4 The conceptual model includes a description of the hydrogeological conditions and flows across the site and at its boundary based on observed groundwater levels in specific horizons and geologies and surface water flows, together with an understanding of the groundwater movement, the inflows and outflows with respect to the study area.

6.5 Furthermore, the conceptual model considers a plausible range of aquifer parameters and their variability across the site and within the specific geological lithologies encountered

6.6 The Phase 1 conceptual model, as described by Rushton and Skinner (2012), considers the limitations of the data, the inherent assumptions and the applicability of the conceptual model in the context of the data analysed. The level of confidence associated with the numerical model and the a view as to whether there limitations within the Phase 1 conceptual model could lead to model refinement with further targeted data collection and interpretation. The cyclic process of conceptual model development and testing is presented by the Environment Agency (2002) as referred to in Whiteman, *et al*. (2012), such that the initial conceptual model is developed, then tested prior to further model development and testing.

Initial Conceptual Understanding

6.7 From the information presented in Section 3 Ground Conditions and 4 Site Investigation Findings, the generalised conceptual understanding of the site and surrounding area has a number of primary features. The Newhaven Chalk forms the bedrock beneath the site and is underlain by the Seaford Chalk which forms the bedrock outcrops to the east and northeast from the site; and overlain by the Tarrant Chalk Member of the Culver Chalk Formation which outcrops to the west and northwest from the site. The Seaford Chalk, Newhaven Chalk and Tarrant Chalk form a continuous Principal Aquifer that underlies the site; and has an recharge area to the north of the A27, along the South Downs dip and scarpe slope.

6.8 The Chalk bedrock and aquifer beneath the site is entirely overlain by superficial deposits. The superficial deposits overlying the Chalk across the site broadly divided into the Head Deposits to centre and south; and Alluvium deposits to the north possibly extending to the central- east of the site. This sub –division is however, a little meaningless as both the Head and the Alluvium provide a confinement of the Chalk aquifer across the site.

6.9 The superficial Head Deposits are also found to the north of the A27, up to between approximately 75 metres to the north of the north-eastern site boundary corner to approximately 300 metres to north of the north-western site boundary corner. Beyond the Head Deposits to the north, the Chalk is unconfined. The conceptual understanding developed in this assessment asserts that the recharge for the Chalk aquifer occurs at the unconfined Chalk to the north of the Head Deposits where there is no confinement by the superficial deposits, therefore, beyond between 75 and 300 metres north of the A27 (ie 100m to 325m from the site).

6.10 There is a general understanding that effective rainfall-recharge of the Chalk aquifer occurs predominantly throughout the winter, and ceases with increasing temperature, soil moisture deficit and evapo-transpiration by plants during the later spring, summer and early autumn.

6.11 The elevation of the Chalk and the effective recharge means that the groundwater table is at higher elevation above sea level in the aquifer outcrop to the north of the A27 than to the south. The regional groundwater movement is from the outcrop southwards towards the sea and eastwards towards the River Adur. At the site, the surfer plots suggest that the eastwards flow towards the River Adur is dominant. Where the Adur has hydraulic interconnectivity with the Chalk, the Adur forms a hydraulic fixed head boundary to the Chalk groundwater system. The sea forms a fixed head boundary to the south; with either direct or indirect chalk groundwater-seawater interaction. In terms of the conceptual understanding, there is a presumption of west to east groundwater flow within the Chalk beneath the site.

6.12 The site is not within published groundwater protection zones of public or private water supply abstractions; and therefore understood not to be within the catchment of such abstractions. There are major public water supply abstractions from boreholes in the Chalk to the west of the site in the Northbrook and Broadwater areas of Worthing which are not expected to have an hydraulic impact on the site. The water flow is away from these locations. Furthermore, there is abstraction for public water supply in Shoreham – however, because the Adur is understood to act as a hydraulic boundary, confirmed by the Source Protection Zones indicating their catchment is to the east of the Adur, this abstraction is understood not to affect groundwater movement in the Chalk beneath the site.

6.13 Topographically, the site is set on the coastal plain. The superficial Head and Alluvium deposits confine the Chalk aquifer. As such, the piezometric (or pressure) head within the confined Chalk aquifer is expected to be above the base of the superficial deposits. It is noted that with the site lying in a built environment that the 'high risk' of groundwater flooding classification for the site will more than likely have been predicted on the assumption that cohesive covers soils at the site were absent or could not be relied upon to provide an aquiclude.

6.14 Furthermore, whilst the Alluvium and Head deposits are variable gravelly clays, clays and silts the presence of fine sands and medium grained sands cannot be ruled out locally. Groundwater will pass through these superficial deposits via the sand matrix, along channel deposits and specific horizons. Nonetheless, both the Head Deposits and the Alluvium are shown to form an aquitard (with limited groundwater movement) or aquiclude (an effective barrier to a groundwater flow). This is likely to be more pronounced with the vertical direction than the lateral one. Therefore, the conceptual understanding asserts that a perched water table in the Alluvium and Head deposits will be found and that movement between the surface water and near surface perched groundwater and the Chalk aquifer beneath will be limited.

Conceptual Site Model Development

6.15 The data collected within this study tests the initial conceptual understanding.

6.16 Broadly, the piezometric data from the deeper boreholes confirms that the Chalk is semi-confined to the north the site and confined across the majority of the site. The Head Deposits confine the Chalk to the main body of the site; and the Alluvium deposits confine the Chalk to the northeast, north and part of the northwest of the study site.

6.17 To the southeast of the study area, the Chalk groundwater piezometry has a clear tidal signal, confirmed by water quality sampling in this area. The extent of tidal influence and interaction is discussed later in this section.

6.18 There is a distinct perched groundwater table within the Superficial Head and Alluvium deposits. The extent of the interaction with the surface water and Chalk groundwater at depth and at outcrop to the north is discussed in this section.

6.19 Furthermore, the period of study covered the period of above average monthly rainfall, a sequence of intense rainfall events and a rapid rise in groundwater levels within the Chalk which led to localised impacts of ephemeral springs and streams flowing from the Chalk on the Lancing area. These conditions were excellent in testing the conceptual understanding in terms of risks from groundwater flooding within the study site.

Surface Water - Groundwater Interaction

6.20 As discussed in Section 5, some of the observation borehole data shows evidence of interaction between the groundwater and surface water, whereas some of the other groundwater level data does not display direct correlation with longer and short term surface water data tends.

6.21 The degree to which water level in the shallow piezometers is affected by the surface water is a function of the proximity to the surface water and the elevation of the perched water table in the superficial deposits. As the site investigation and monitoring took place over a period of significantly above average monthly rainfall, the water table in the superficial deposits are interpreted to have established local mounds, with the elevation of the water table above the elevation of the nearby surface water features. Therefore, the surface water features were gaining water and not contributing significantly to the groundwater system over this period.

6.22 In contrast the monitored surface water levels appear to respond to changes in groundwater levels in the superficial Head and Alluvium deposits. This indicates that these features are gaining water from the perched groundwater in the superficial deposits.

6.23 The period over which the data was collected, was a period of above average monthly rainfall with a number of intense heavy rain storms occurring. The drainage system across the site responded to these events with elevated water levels within all the surface water level monitoring points. These levels reduced following cessation of the respective rain events, inferring a notable contribution from surface water drainage within their hydrographs.

6.24 However, there is also evidence of a notable baseflow component within these hydrographs; and a relationship between the water levels within the superficial deposits and the surface water levels. As the water levels in the superficial deposits are greater than the surface water levels, this relationship may relate to the rainfall response, such that the rainfall event adds to the groundwater storage and therefore imposes an increased driving head releasing this storage to the surface water drainage, whilst the rainfall response is also observed in the surface water system. To assess fully the degree of baseflow contribution from the perched groundwater in the superficial deposits, monitoring over a period of low or no rainfall would be required.

Tidal Influence

6.25 As discussed above, a significant number of the surface water monitoring locations have a diurnal pattern within the logger data parallel with the tidal cycle. This is particularly with respect to the surface water monitoring locations to the south and east of the study site – namely SW03, SW04, SW05, SW06, SW07, SW08 and SW10. This is notably pronounced at SW07 and SW10 to the southeast and northeast of the study area, respectively. The drainage pattern indicates that this hydraulic response is related to direct surface water interaction with the tidal estuary or marine environment; and is not considered directly or indirectly related to the groundwater hydraulics.

6.26 This is confirmed by the shallow observation boreholes which do not display a diurnal pattern attributable to the tidal cycle. Although there is evidence from some of the shallow observation borehole to indicate surface water - groundwater interaction, the responsiveness in groundwater level is insufficient to show a tidal response. This may be a result of groundwater levels in the Alluvium are observed to be higher than that of the surface water, therefore the extent of groundwater – to surface water interaction is one of aquifer drainage from the Alluvium to the drainage channels, rather than the other direction during the high water table conditions. Therefore the hydraulic response does not directly reflect changes in the surface water drainage depth.

6.27 Data from the deeper Chalk boreholes shows the piezometric surface is generally unaffected by the tidal cycle; with the one exception of BH07D which is located on the eastern end of the southern boundary of the study site. BH07D displays a clear tidal response, indicating direct hydraulic interaction with the marine or estuarine environment. This tidal response is not observed at BH06D drilled into the Chalk beneath Head deposits towards the southwest corner of the site. In terms of hydraulics, it therefore indicates rapid groundwater movement between the sea or estuarine water and the Chalk occurs at depth in the area of BH07D. The tidal hydraulic response identified in BH07D is not mirrored in the groundwater in the Alluvium above (ie in BH07S).

6.28 Sodium and chloride are elevated only in BH07D out of the deeper borehole monitoring set indicating confirmation of the marine or estuarine influence within the Chalk aquifer towards the southeast of the study area. The elevated sodium and chloride concentrations in BH07S, BH08S and BH09S towards the eastern boundary of the study site may be indicative of the tidal influence within the surface drainage, though as described above water quality measurement in low flow conditions would be required to add evidence for this observation.

6.29 Sodium and chloride concentrations within the surface water samples from the single sampling round identified elevated chloride and sodium concentrations only in SW06 – towards the southeast corner of the site. This may be reflected the position of the tide at the time of the sampling – such that the surface water samples were taken between 11:55 and 12:17 on 5 March 2014 and between 10:30 and 14:51 on 6 March 2014; and the high tide at Shoreham-by-Sea was at 13:57 on 5 March and 14:59 on 6 March 2014, therefore all samples were taken during a rising tide and do not necessarily reflect the surface water quality at or immediately following high tide. The quality may also reflect the predominance of surface water flows following the intense rainfall preceding the sampling round.

Above long term average rainfall events

6.30 The period of study coincided with an extremely high rainfall sequence which included a series of intense rainfall events. The Environment Agency (2014) reported that the area experienced three consecutive months with more than double the long term average rainfall during December 2013, January and February 2014.

6.31 The monitoring data needs to be considered within the context of this period of extreme rainfall. The data shows a response to this particularly in terms of the water levels in the surface water drainage across the study site and the water levels within the shallow boreholes. The piezometric surface within the Chalk aquifer is also understood to be have been significantly affected by the elevated groundwater levels within Chalk aquifer as a whole.

6.32 The conceptual understanding of the surface water, perched groundwater and deeper Chalk piezometric head above the level base of the superficial deposits across the site has been confirmed from the observation data and developed in the context of this extreme event.

6.33 Some of these effects are shown to have a relatively short duration, such that the piezometric levels in some of the deep boreholes – notably BH02D - were greater than the water level in the superficial deposits above – BH02S – at the start of February, with a notable decline in the Chalk piezometry to less than the piezometric head above by mid to late February 2014. The rainfall sequence at the end of January and beginning of February included a series of very intense, high rainfall events; with an initial response in piezometric level which drained with gravity via ephemeral springs and streams in the Chalk outcrop to the north of the A27, reducing the driving head over February as the excess groundwater storage was release from the Chalk aquifer.

6.34 The perched aquifer within the superficial deposits also responded to this rainfall sequence through localised groundwater mounds and notably higher water table than the surrounding surface water drainage system. The conceptual model would indicate that with prolonged low rainfall, the water level within the superficial deposits would deplete further and approach the water levels associated with the surface water drainage.

6.35 The water levels within the surface water drainage system were also high in response to these rainfall events, although drained quicker than the superficial perched aquifer and the Chalk aquifer beneath. The surface water drainage levels measured during the study period were strongly affected by the rainfall response, with tidal affects less prominent, and only towards the east of the study site.

6.36 The extreme above long term average rainfall events of the winter 2013/14 has enabled a robust assessment of risk from groundwater flooding. The site was not flooded in response to the elevated groundwater levels. However, the volume of ponded water, notably to the northwest of the study area, adjacent to Marsh Barn Lane immediately to the south of the A27 is a response to the intense rainfall and demonstrates the importance of the surface drainage channels in allowing this water to drain from this area.

6.37 There may be a contribution from the raised perched groundwater in the superficial deposits in response to the extreme rainfall sequence, and the associated release from perched groundwater storage of this excess groundwater. This too will drain into the surface water drainage system and therefore also demonstrates the importance of maintaining effective drainage of the site. Nonetheless, there were no observed effects of ground surface flooding within or surrounding the study site from the superficial deposits apart from an additional contribution to the flow and level surface water drainage system as the excess storage within the localised perched groundwater drained.

6.38 The superficial deposits are generally shown not to have direct hydraulic continuity with the Chalk aquifer beneath, and therefore act as an aquiclude or aquitard. This was confirmed with the Chalk piezometric surface was observed to rise above the level of the base of superficial deposits without direct hydraulic interaction.

6.39 Therefore, the study shows that the superficial deposits provide a substantive cover to the aquifer and groundwater from the Chalk would flow into the superficial deposits and potentially result in localised groundwater flooding and exacerbated surface water drainage if this natural cover provided by the superficial deposits was breached. There are building solutions available to stop such a breach occurring (e.g. use of raft foundations) but the detailed solutions are not part of this report.

7. Conclusions and Recommendations

Conclusions

7.1 This hydrogeological study has established an understanding of the groundwater hydraulics and interactions associated with the study site at New Monks Farm, North Lancing.

7.2 From the desk and field study, a conceptual model of the groundwater system associated with the study site has been developed and refined.

7.3 Furthermore, the period of the site investigation and monitoring coincided with the end of a period of three consecutive months with more than double the long term average rainfall; with localised surface and groundwater flooding occurring within the area and region (but not at the site). The data and observations made during this period have enabled a robust assessment of the risk of groundwater flooding from high water table levels at the site.

7.4 The Newhaven Chalk forms the bedrock geology to the site. The Chalk aquifer is recharged at its outcrop to the north of the A27, and is confined by superficial deposits over the entirety of the site, with semi-confinement just beyond the northern boundary of the site.

7.5 Towards the southeast of the study site, there is a tidal signal in the Chalk piezometry, inferring hydraulic connectivity between the Chalk aquifer and the marine or estuarine environment. This is not identified elsewhere across the deep monitoring borehole at the site.

7.6 However, the water levels in the shallow boreholes towards the eastern boundary of the study site also display a diurnal cycle that can be attributed to tidal fluctuation influence.

7.7 The superficial Head and Alluvium deposits overly the Chalk bedrock and form an aquiclude or aquitard, substantially limiting vertical groundwater movement between the Chalk and the near surface deposits. As a result, during the period of groundwater level monitoring, the Chalk aquifer beneath the site is confined with the piezometric surface above the base of the superficial deposits.

7.8 The superficial deposits act as an aquitard or aquiclude, with some evidence for low to very low vertical permeability, related to clays and silts within specific lateral continuous horizons within the Head and Alluvium deposits. This provides protection to the Chalk aquifer at depth and results in both a perched aquifer in the superficial deposits; and confinement of the Chalk aquifer.

7.9 The intense and substantially above average rainfall prior to and during the field monitoring has led to elevated water table levels in the superficial deposits, forming localised groundwater mounds. The excess groundwater storage is released via flows and seepages into the surface water drainage system. During the high rainfall event, the water level within the surface water drainage was observed to be lower than the perched groundwater mounds. Therefore, there is a component of perched groundwater contribution to the base flow .within the surface water drainage at the site.

7.10 There is no evidence to indicate that there is direct contribution to surface water flows from the Chalk aquifer at depth beneath the site.

7.11 It is noted that during the study period, excess groundwater storage was released from the unconfined Chalk aquifer to the north of the A27 via ephemeral springs and streams, resulting on localised groundwater flows and flooding in parts of the Lancing close to the A27 in February and March 2014. The groundwater flooding event in Lancing did not lead to groundwater flooding of the study site; although it may have contributed to additional flows within the surface water drainage across the site as the excess groundwater flowed (and was also pumped) from the affected areas, through the surface water drainage towards the River Adur, estuary and sea.

7.12 The observations made during the very high rainfall and groundwater conditions experienced in early 2014 show that the study site is not directly susceptible to groundwater flooding.

7.13 However, this is on the proviso that the surface drainage system is maintained to ensure its capacity to drain the site in terms of rainfall-runoff; tidal increase and movement; perched groundwater storage release and additional flows through the site from ephemeral groundwater springs and streams, including drainage from groundwater flooding events in the sites near environs.

7.14 Furthermore, this is on the second proviso that the superficial deposits maintain the confinement of the Chalk aquifer and are not breached. This is because groundwater monitoring during the study period indicates that the piezometric surface within the Chalk can be above the base of the superficial deposits, and a breach of these superficial deposits could result in a groundwater flow into the near surface perched aquifer, increased flow into the surface drainage system and the potential for localised ponding or flooding of the land surface.

7.15 During low groundwater conditions, such breaches if allowed to occur, may also lead to drainage of the perched water table into the Chalk aquifer beneath. This may have implication in terms of groundwater quality, particularly with respect to the elevated concentrations of parameters identified within the shallow boreholes and surface water drainage during the monitoring period which may enter the Chalk aquifer beneath.

7.16 The baseline water quality of the site has been established and may be of use to monitor future construction affects.

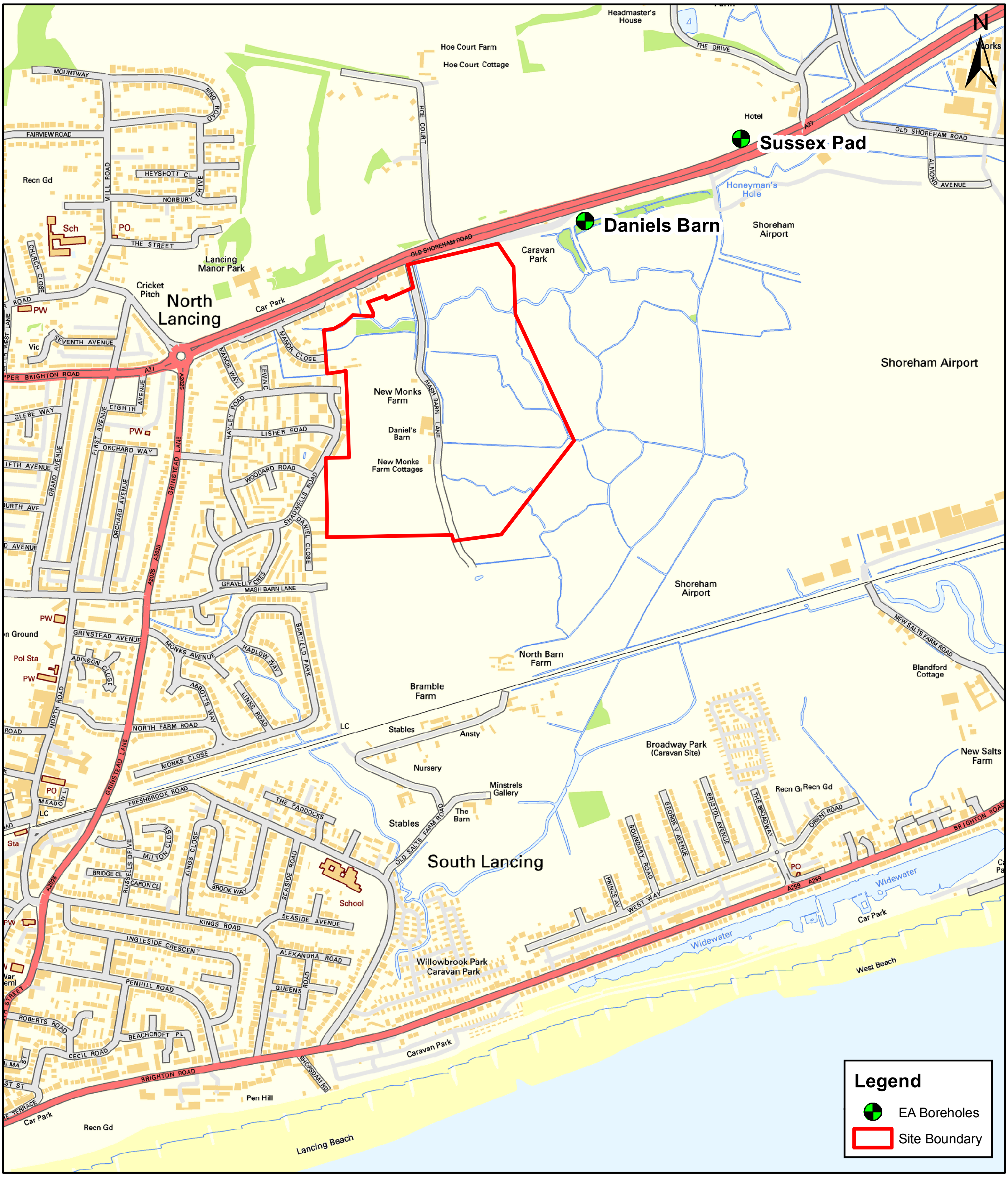
Recommendations

7.17 The field monitoring and associated desk study interpretation is based on a limited period during early 2014. Principally, this period included intense and prolonged above long term average rainfall and episode of groundwater flooding in the Lancing area to the north of the site. To fully evaluate the impact of groundwater on the baseflow within the surface drainage system, to further understanding the extent of vertical interconnectivity during periods of low water table and the tidal influence, there is value to continuing the monitoring to include a period of low rainfall and low groundwater levels. However, we consider that this will only refine the hydrogeology model rather than substantially change it.

7.18 It will be helpful to obtain further water level information from the EA historically monitored Sussex Pad well in order to have coincident information between that well and the site wells.

7.19 Any construction at this site should fully consider and have measures in place to avoid breaching the confinement of the Chalk by the overlying Head and Alluvium deposits. Building solutions to achieve this are available.

Figures



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NEW MONKS FARM

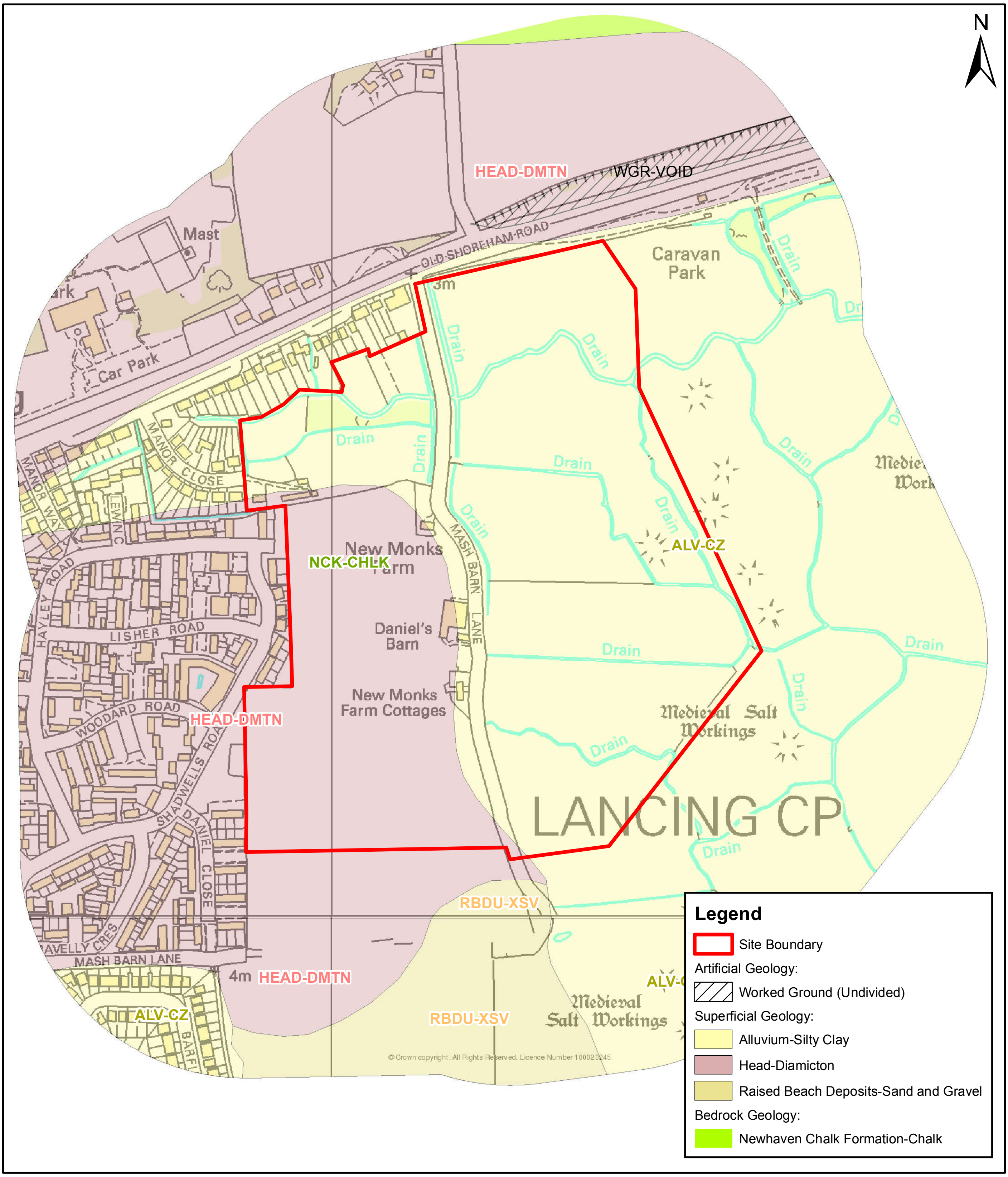
Figure 1
Site Location

CAPITA

Property and infrastructure
Capita House, Wood Street, East Grinstead, West Sussex, RH19 1UU
T 01342 327161 F 01342 315927 www.capita.co.uk
Capita Property and infrastructure Ltd.

DRAWN BY	CHECKED BY	PASSED BY	DATE	SCALE @ A4	ISSUING OFFICE	DRAWING NUMBER	REV
ST	NG	NG	09/04/2014	1:12,500	E.Grinstead	CS056361/Fig1	-

LAYOUT FILENAME: F:/ZENV/!Projects/CS056361_ New_Monks_Farm/B.Work_Tasks/5.GIS/ARC/Mxds: CS056361_Fig1.mxd



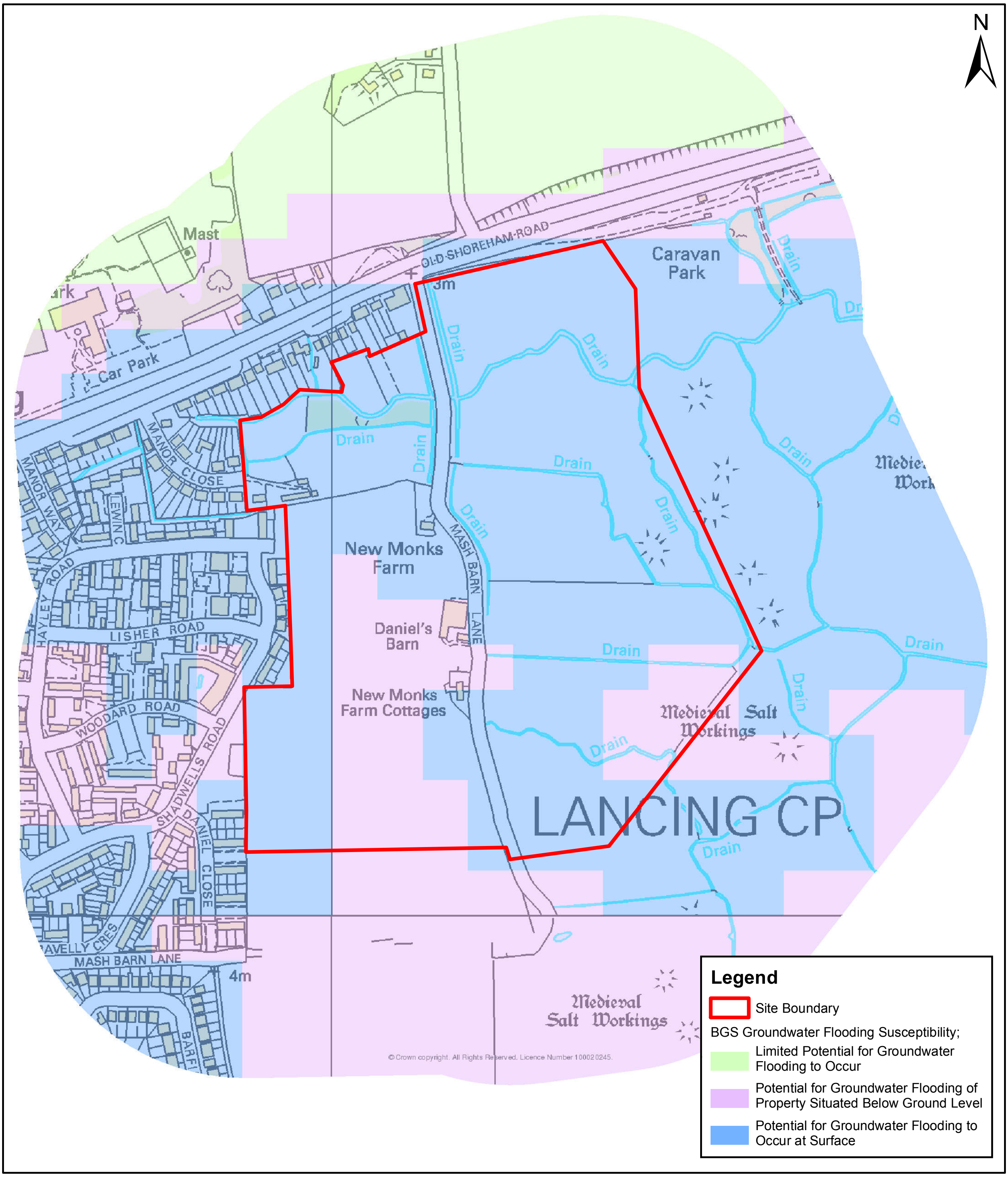
NEW MONKS FARM

Figure 2
Geological Map

CAPITA
Property and infrastructure
Capita House, Wood Street, East Grinstead, West Sussex, RH19 1UU
T 01342 327161 F 01342 315927 www.capita.co.uk
Capita Propery and infrastructure Ltd.

DRAWN BY	CHECKED BY	PASSED BY	DATE	SCALE @ A4	ISSUING OFFICE	DRAWING NUMBER	REV
ST	NG	NG	22/01/2014	1:6,000	E.Grinstead	CS056361/Fig2	-

LAYOUT FILENAME: F:/ZENV/!Projects/CS056361_ New_Monks_Farm/B.Work_Tasks/5.GIS/ARC/Mxds: CS056361_Fig1.mxd



NEW MONKS FARM

Figure 3
Susceptibility to groundwater flood risk

CAPITA
Property and infrastructure
Capita House, Wood Street, East Grinstead, West Sussex, RH19 1UU
T 01342 327161 F 01342 315927 www.capita.co.uk
Capita Property and infrastructure Ltd.

DRAWN BY	CHECKED BY	PASSED BY	DATE	SCALE @ A4	ISSUING OFFICE	DRAWING NUMBER	REV
ST	NG	NG	22/01/2014	1:6,000	E.Grinstead	CS056361/Fig3	-

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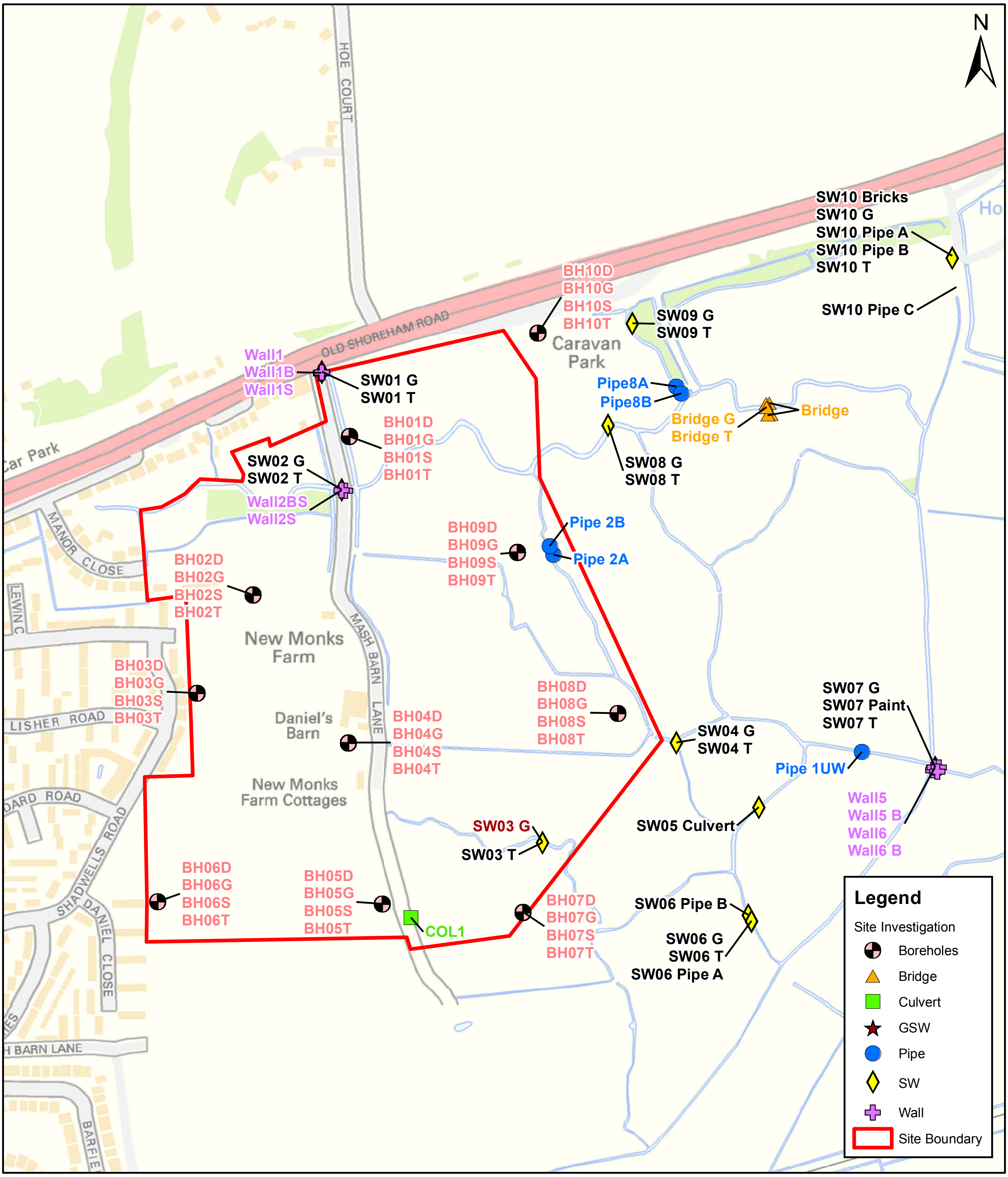

NEW MONKS FARM

Figure 4
Lancing Site Investigation

CAPITA
Property and infrastructure
Capita House, Wood Street, East Grinstead, West Sussex, RH19 1UU
T 01342 327161 F 01342 315927 www.capita.co.uk
Capita Propery and infrastructure Ltd.

DRAWN BY	CHECKED BY	PASSED BY	DATE	SCALE @ A4	ISSUING OFFICE	DRAWING NUMBER	REV
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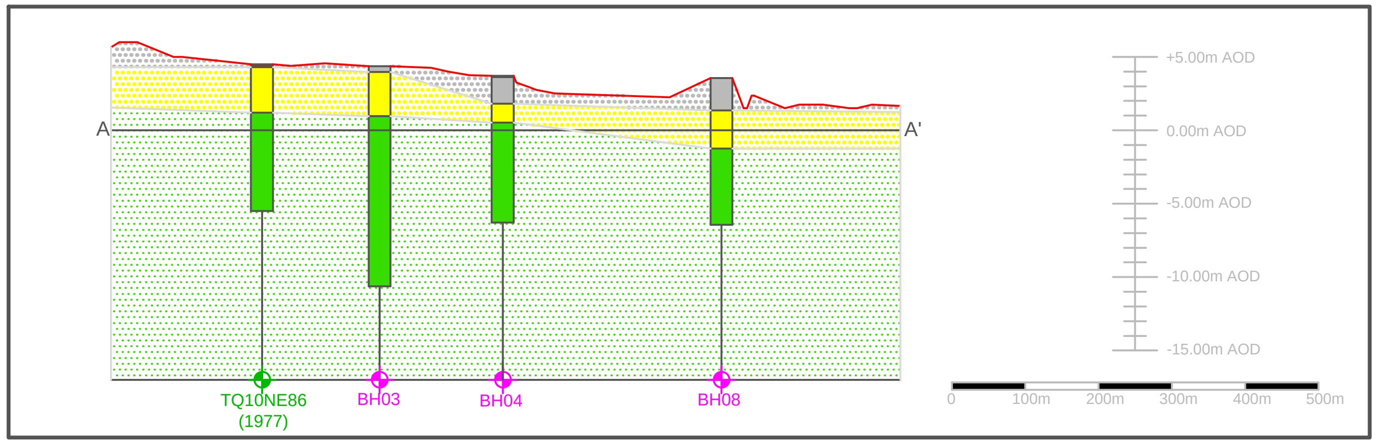
LAYOUT FILENAME: F:/ZENV/!Projects/CS056361_ New_Monks_Farm/B.Work_Tasks/5.GIS/ARC/Mxds: CS056361_Fig5.mxd

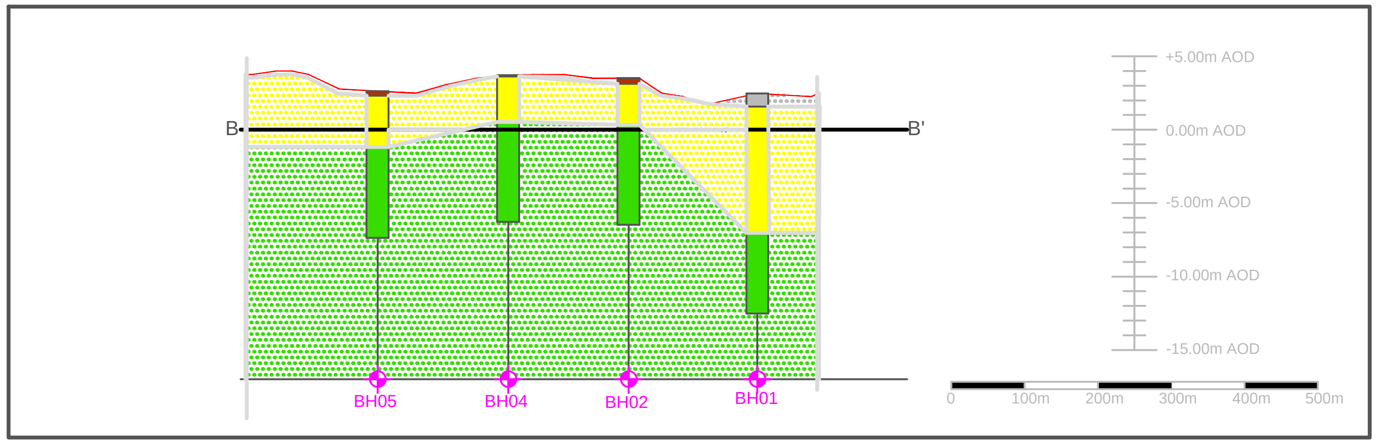
GEOLOGICAL SECTION LOCATION PLAN

KEY

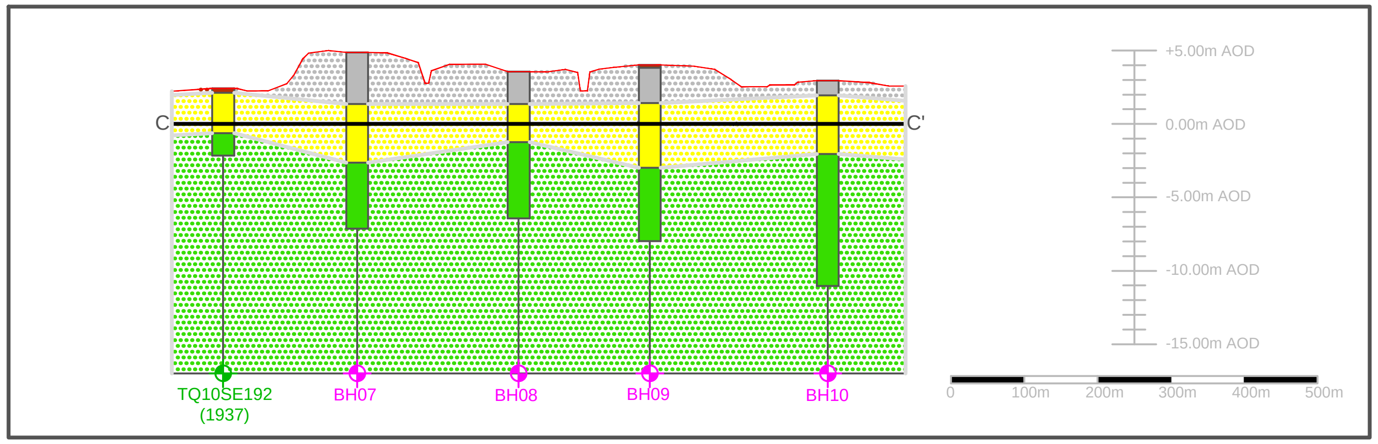
- Top Soil
- Made Ground
- Clay
- Chalk
- Capita Borehole
- BGS Borehole



SECTION A-A



SECTION B-B



SECTION C-C

10mm 0 -10mm

REV		DR	CH	PA	DATE

NOTE: LEVELS OF BOREHOLES BASED ON SURVEY DATA. GROUND PROFILE DISPLAYED IN SECTIONS APPROXIMATED FROM TOPOGRAPHICAL SURVEY (PRE-DATING GOLF COURSE EARTHWORKS) AND SURVEY DATA COLLECTED DURING SITE INVESTIGATION.

NOTE: BH04 LOG STATES MADE GROUND (CLAY) TO 1.9M BGL. DRILLING OF BH04A FOUND CLAY 0.1M TO 1.5M BGL.

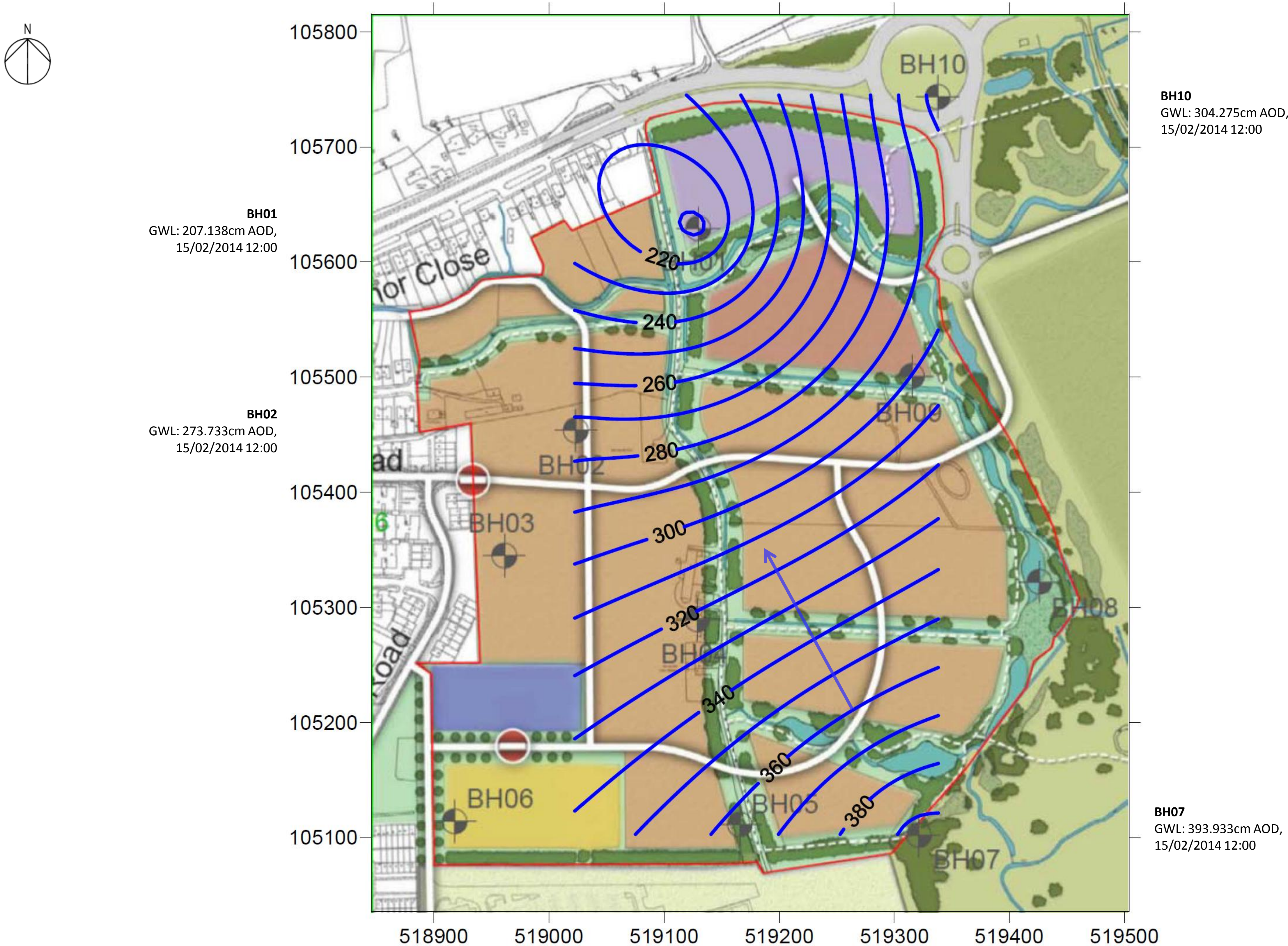
NEW MONKS FARM

New Monks Farm Development

Figure 5:
GEOLOGICAL SECTIONS

CAPITA

DRAWN BY	CHECKED BY	PASSED BY	DATE	SCALES @ A3 SIZE	ISSUE STATUS	DRAWING NUMBER	REV.
LJ	NG	NG	MAR 14	NTS	Final	CS056361-FIG 5	-



NOTES

All values quoted cm AOD, taken at 12:00 15/02/2014.

No groundwater levels recorded for BH03, BH05, BH08, BH09.

Shallow groundwater levels not recorded for BH04 as shall well penetrated chalk aquifer.

Shallow groundwater levels not recorded for BH06 as plug between wells ineffectual.

New Monks Farm

Figure 6a: Superficial Groundwater Levels 15/02/2014

New Monks Farm Development

CAPITA

Capita House, Wood Street,
East Grinstead, West Sussex. RH19 1UU
Tel: +44(0)1342 327 161 Fax: +44(0)1342 315 927

DRAWN BY	CHECKED BY	PASSED BY	SCALE @ A3	ISSUE STATUS	DRAWING NUMBER	REVISION
LJ	NG	NG	NTS	FINAL	CS056361-FIG6a	-

NOTES

All values quoted cm AOD, taken at 12:00 25/02/2014.

No groundwater levels recorded for BH03, BH05, BH08, BH09.

Shallow groundwater levels not recorded for BH04 as shall well penetrated chalk aquifer.

Shallow groundwater levels not recorded for BH06 as plug between wells ineffectual.

BH01 under artesian conditions from 16/02/2014 and overflowing deep well. Exact influence on shallow measurements uncertain.

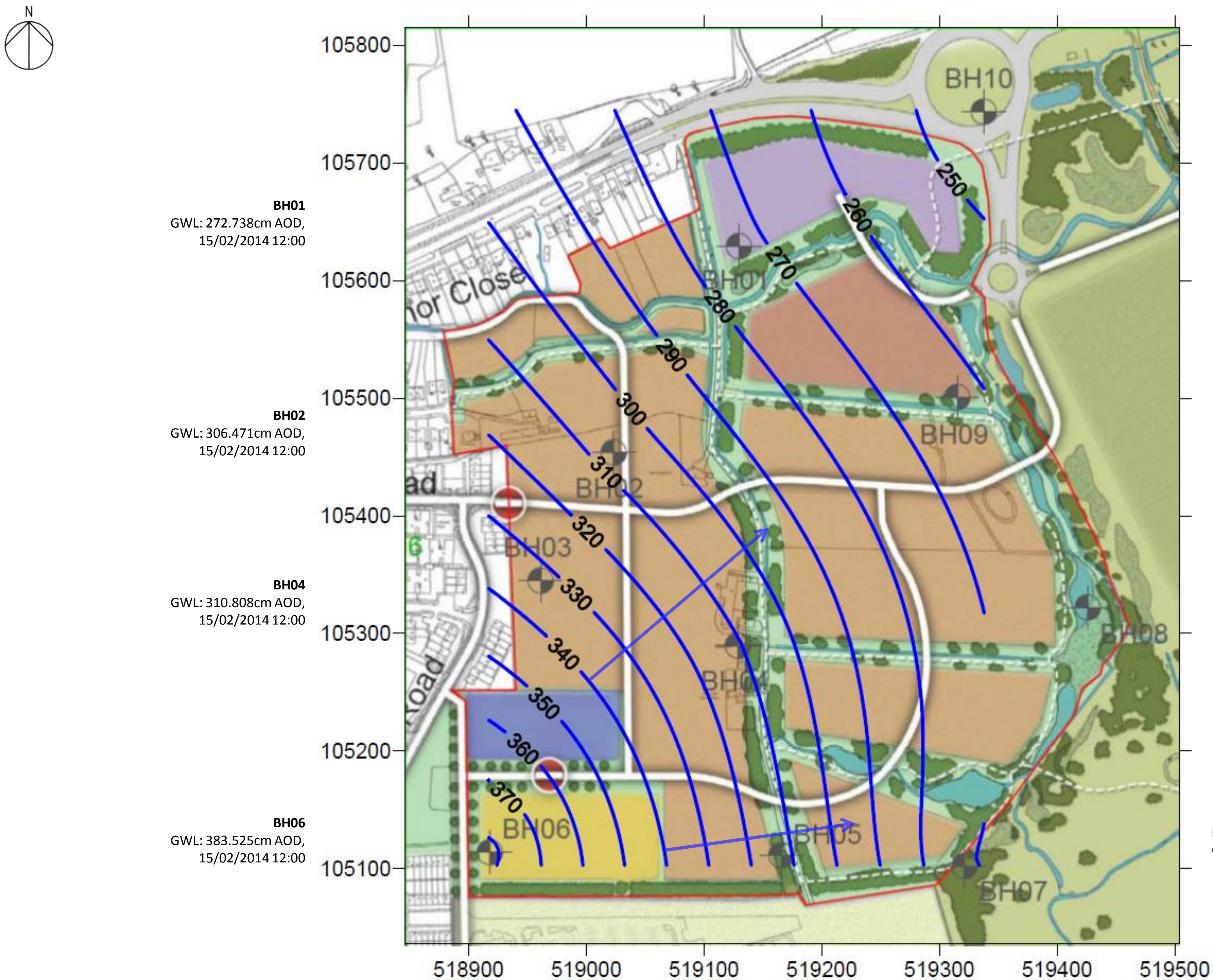
New Monks Farm

Figure 6b Superficial Groundwater Levels 25/02/2014

New Monks Farm Development

CAPITA
Capita House, Wood Street,
East Grinstead, West Sussex. RH19 1UU
Tel: +44(0)1342 327 161 Fax: +44(0)1342 315 927

DRAWN BY	CHECKED BY	PASSED BY	SCALE @ A3	ISSUE STATUS	DRAWING NUMBER	REVISION
LJ	NG	NG	NTS	FINAL	CS056361-FIG6b	-



BH10
GWL: 243.63cm AOD,
15/02/2014 12:00

BH01
GWL: 272.738cm AOD,
15/02/2014 12:00

BH02
GWL: 306.471cm AOD,
15/02/2014 12:00

BH04
GWL: 310.808cm AOD,
15/02/2014 12:00

BH06
GWL: 383.525cm AOD,
15/02/2014 12:00

BH07
GWL: 270.671cm AOD,
15/02/2014 12:00

NOTES

All values quoted cm AOD, taken at 12:00 15/02/2014.

No groundwater levels recorded for BH03, BH05, BH08, BH09.

New Monks Farm

Figure 7a: Chalk Groundwater Levels 15/02/2014

New Monks Farm Development

CAPITA
Capita House, Wood Street,
East Grinstead, West Sussex. RH19 1UU
Tel: +44(0)1342 327 161 Fax: +44(0)1342 315 927

DRAWN BY	CHECKED BY	PASSED BY	SCALE @ A3	ISSUE STATUS	DRAWING NUMBER	REVISION
LJ	NG	NG	NTS	FINAL	CS056361-FIG7a	-

BH10
GWL: 261.810cm AOD,
25/02/2014 12:00

BH01
GWL: 284.363cm AOD,
25/02/2014 12:00

BH02
GWL: 261.746cm AOD,
25/02/2014 12:00

BH04
GWL: 276.525cm AOD,
25/02/2014 12:00

BH06
GWL: 325.667cm AOD,
25/02/2014 12:00

BH07
GWL: 235.921cm AOD,
25/02/2014 12:00

NOTES

All values quoted cm AOD, taken at 12:00 25/02/2014.

No groundwater levels recorded for BH03, BH05, BH08, BH09.

New Monks Farm

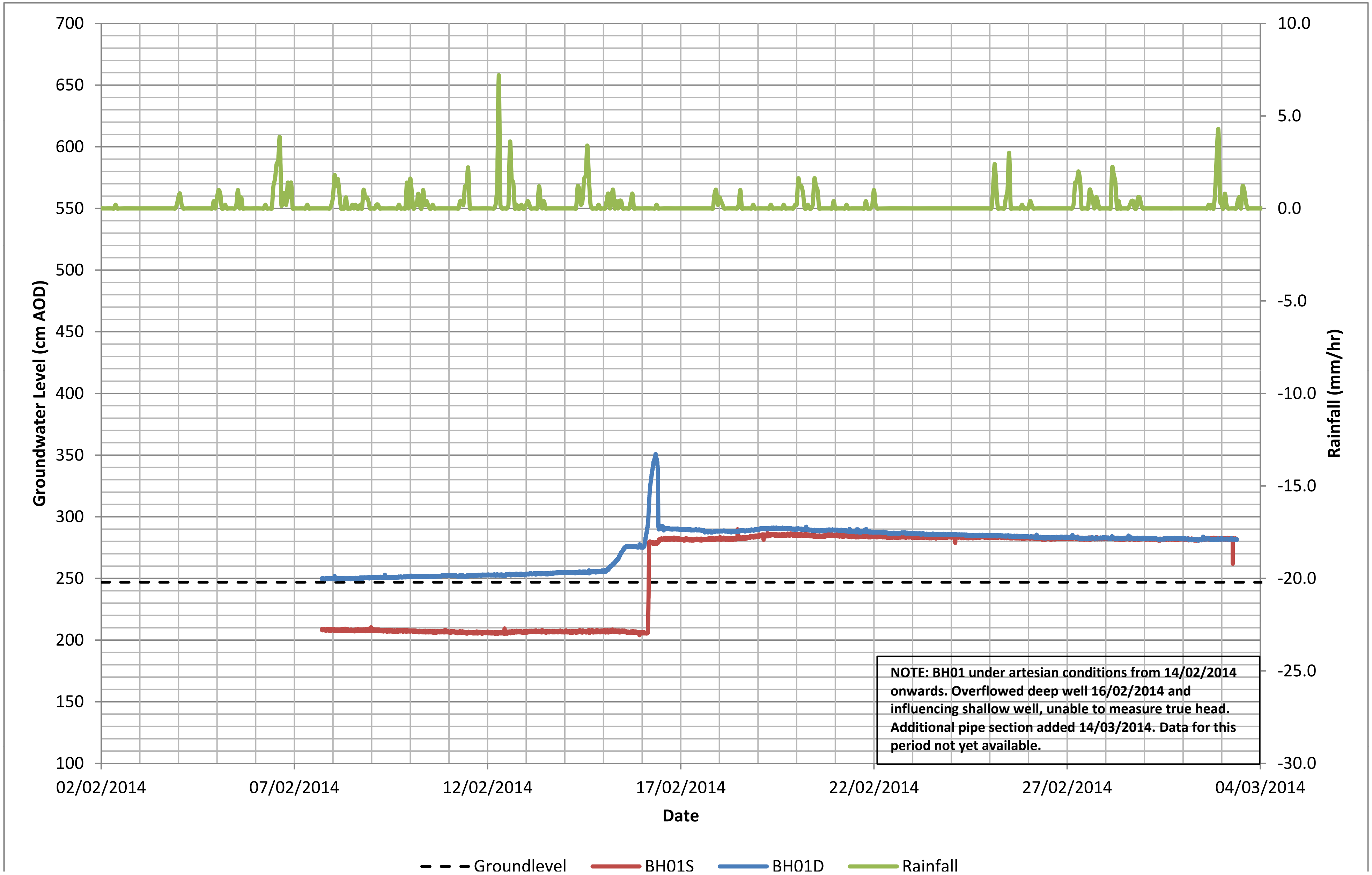
Figure 7b: Chalk Groundwater Levels 25/02/2014

New Monks Farm Development

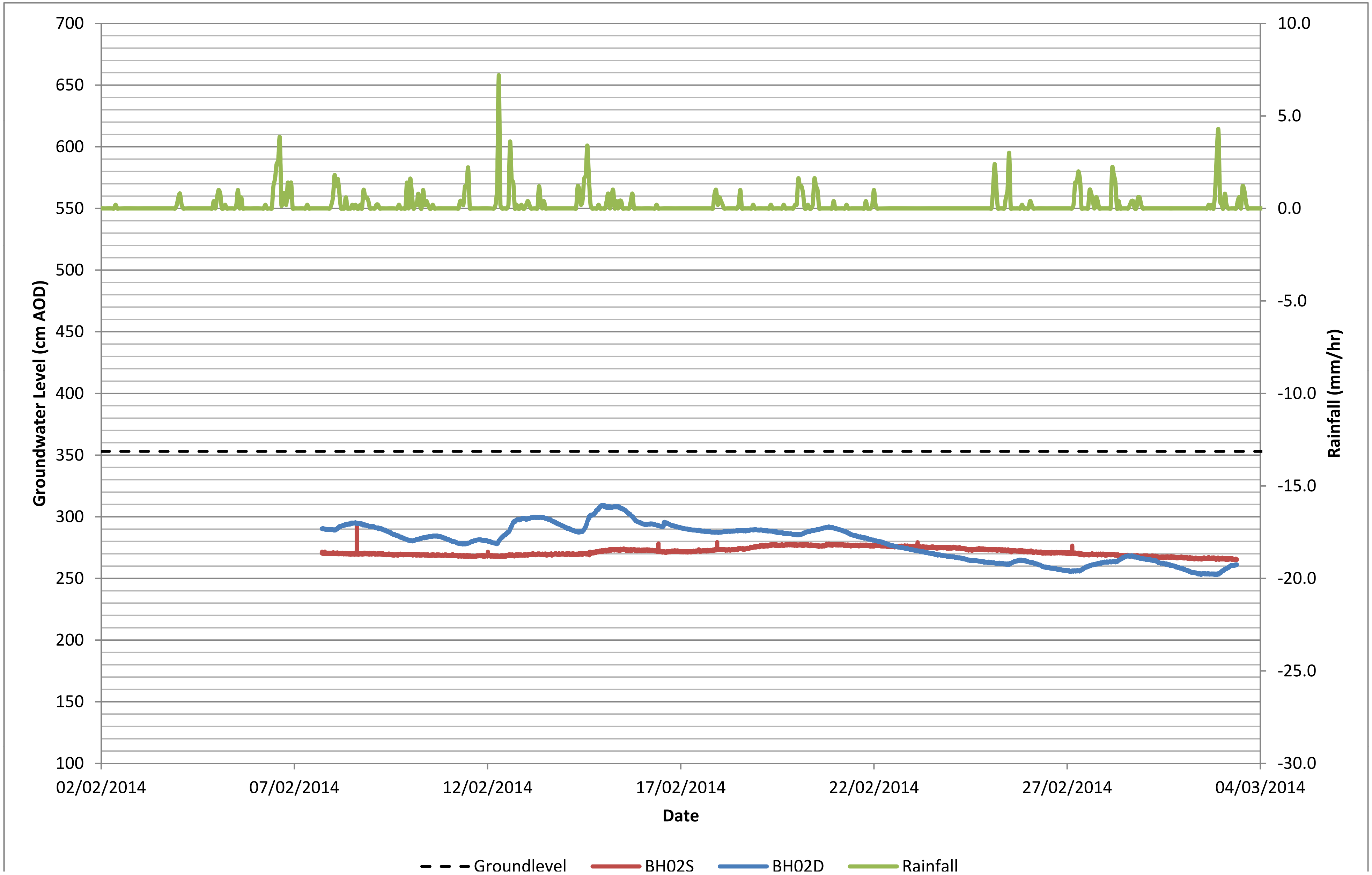
CAPITA

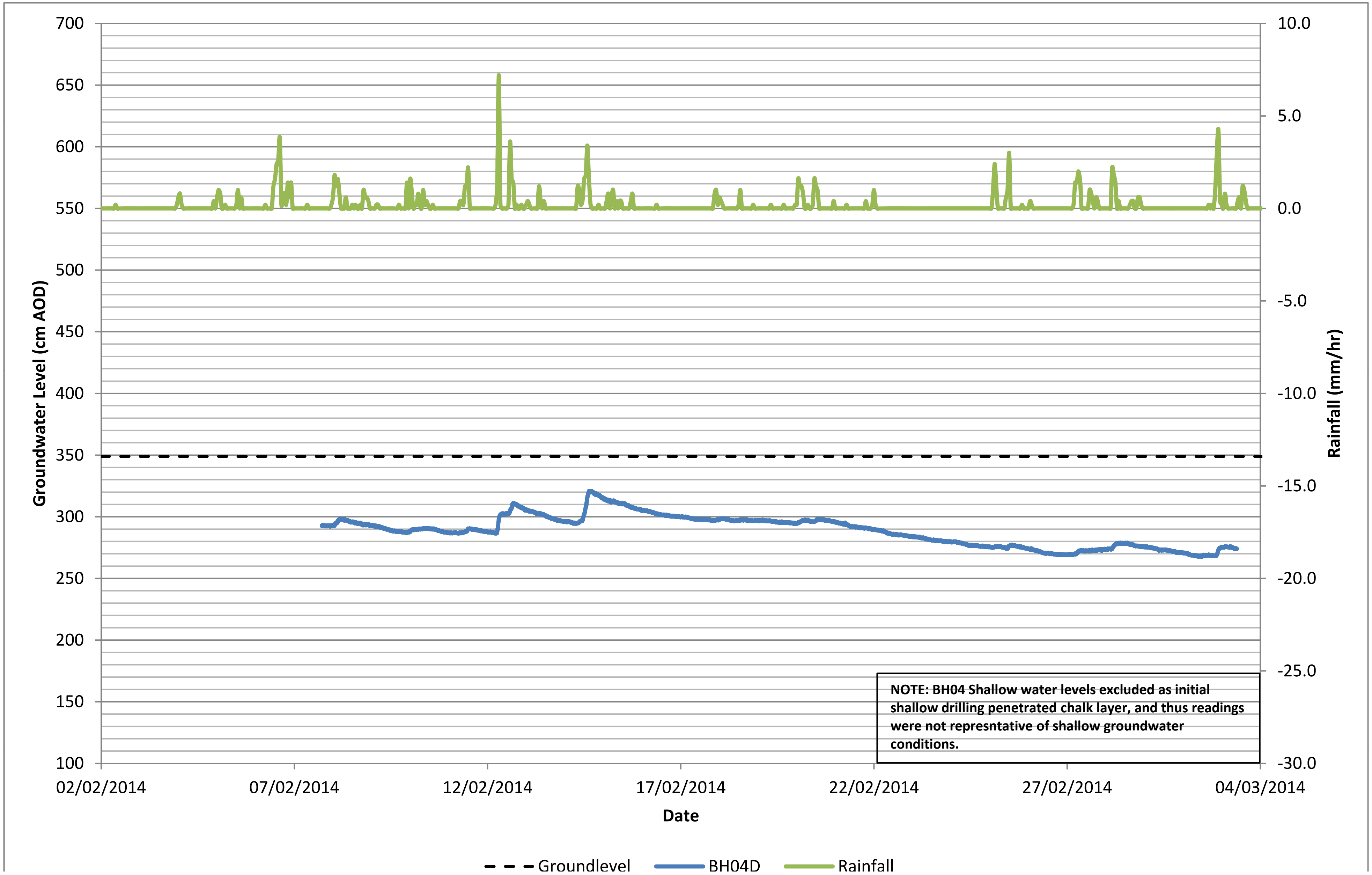
Capita House, Wood Street,
East Grinstead, West Sussex. RH19 1UU
Tel: +44(0)1342 327 161 Fax: +44(0)1342 315 927

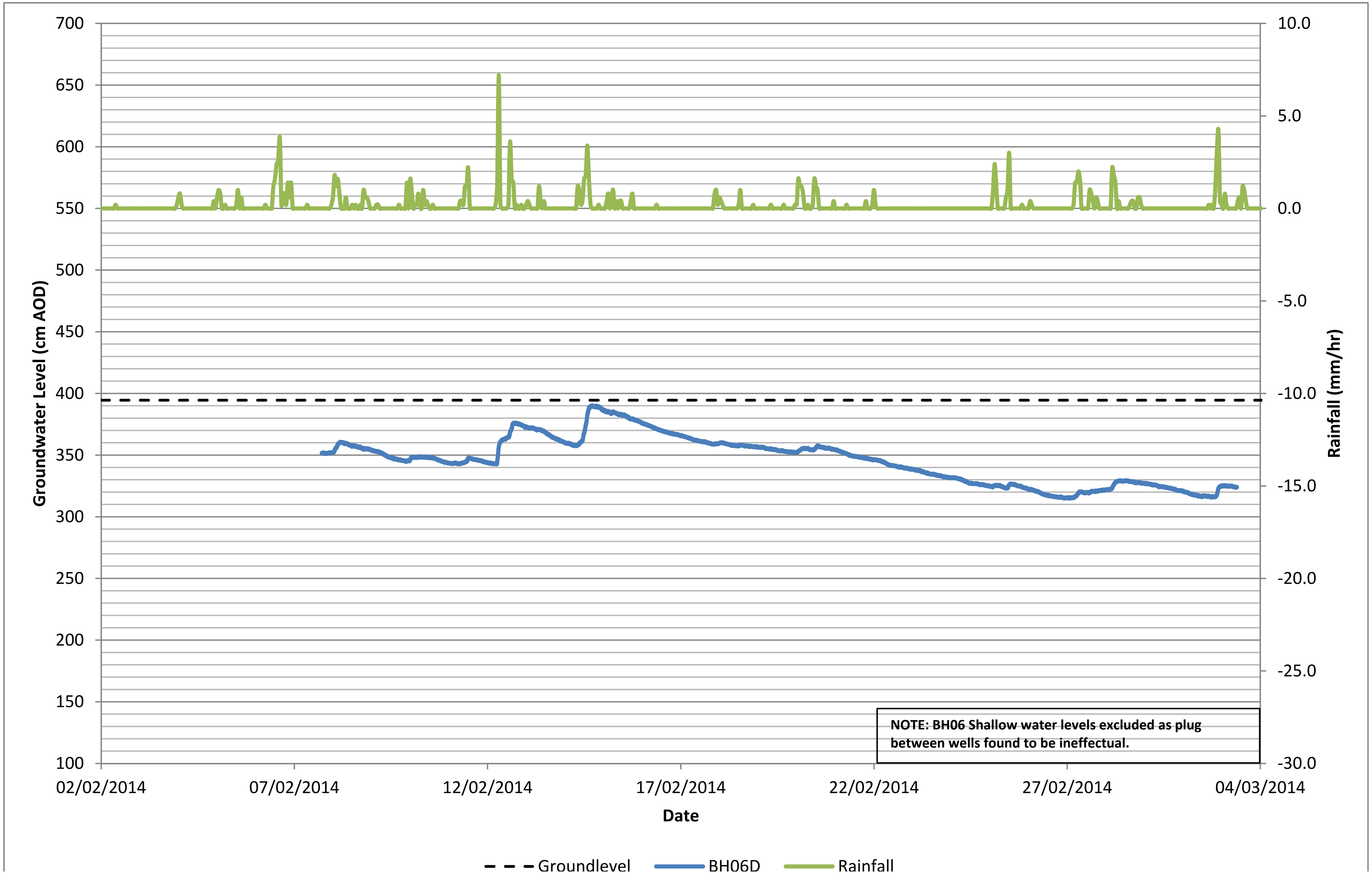
DRAWN BY	CHECKED BY	PASSED BY	SCALE @ A3	ISSUE STATUS	DRAWING NUMBER	REVISION
LJ	NG	NG	NTS	FINAL	CS056361-FIG7b	-



700
650
600
550
500
450
400
350
300
250
200
150
100
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
Groundwater Level (cm AOD)
Rainfall (mm/hr)
02/02/2014
07/02/2014
12/02/2014
17/02/2014
22/02/2014
27/02/2014
04/03/2014
Date
NOTE: BH01 under artesian conditions from 14/02/2014 onwards. Overflowed deep well 16/02/2014 and influencing shallow well, unable to measure true head. Additional pipe section added 14/03/2014. Data for this period not yet available.
Groundlevel
BH01S
BH01D
Rainfall


Groundwater Level (cm AOD)
700
650
600
550
500
450
400
350
300
250
200
150
100
Rainfall (mm/hr)
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
02/02/2014
07/02/2014
12/02/2014
17/02/2014
22/02/2014
27/02/2014
04/03/2014
Date
Groundlevel
BH02S
BH02D
Rainfall

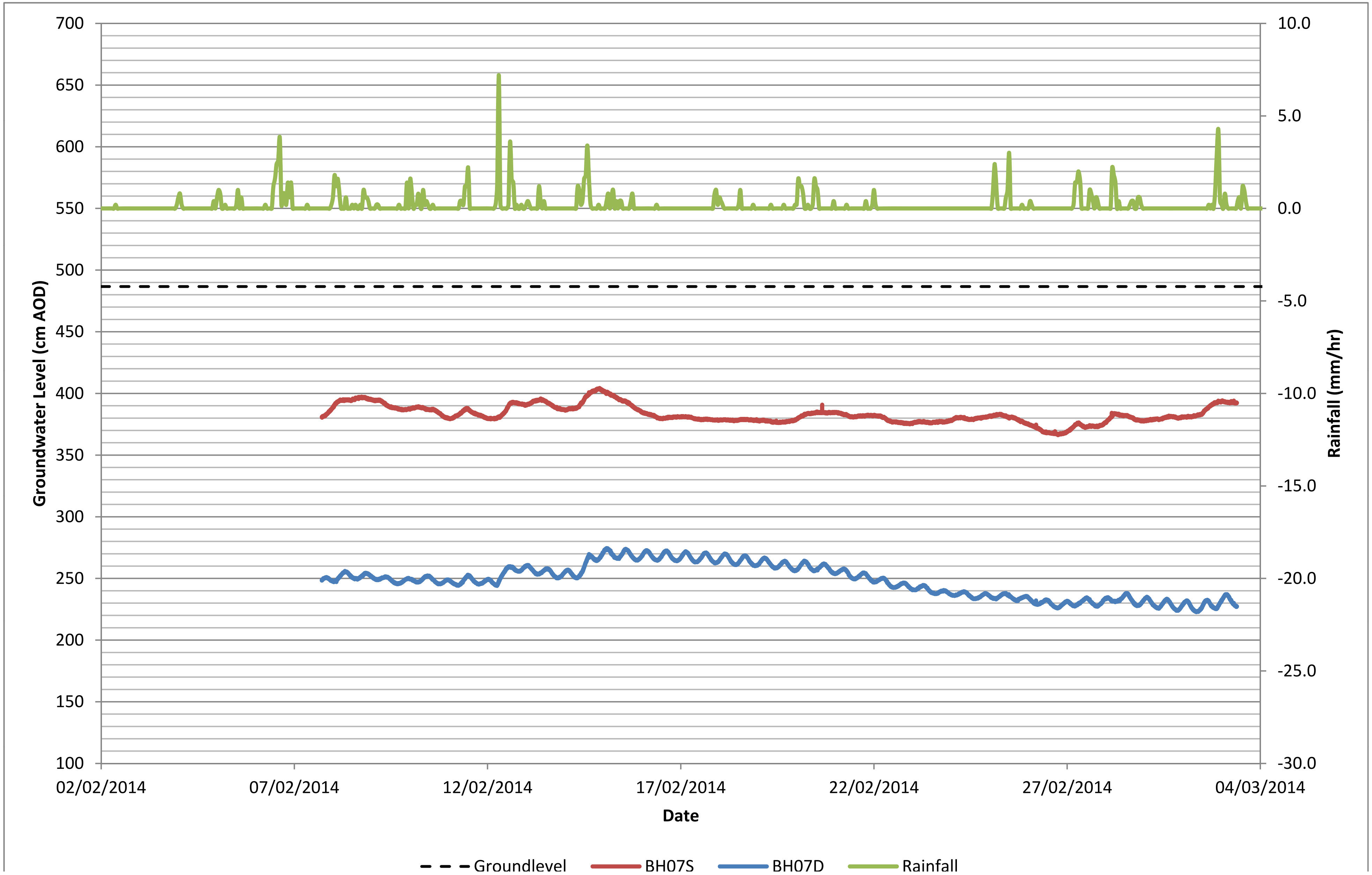

Groundwater Level (cm AOD)
700
650
600
550
500
450
400
350
300
250
200
150
100
Rainfall (mm/hr)
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
02/02/2014
07/02/2014
12/02/2014
17/02/2014
22/02/2014
27/02/2014
04/03/2014
Date
NOTE: BH04 Shallow water levels excluded as initial shallow drilling penetrated chalk layer, and thus readings were not represntative of shallow groundwater conditions.
Groundlevel
BH04D
Rainfall

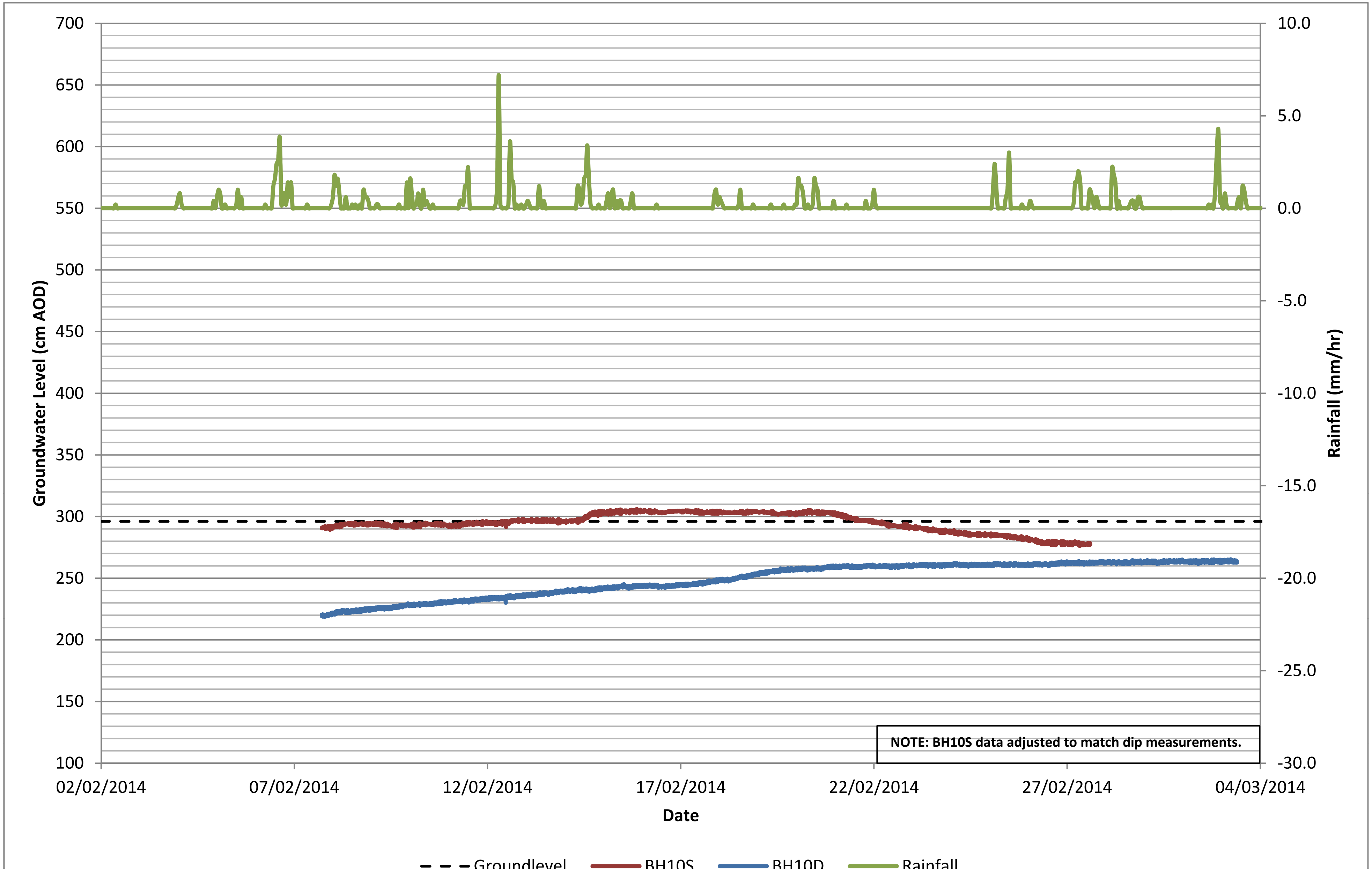

700
650
600
550
500
450
400
350
300
250
200
150
100
Groundwater Level (cm AOD)
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
Rainfall (mm/hr)
02/02/2014
07/02/2014
12/02/2014
17/02/2014
22/02/2014
27/02/2014
04/03/2014
Date
NOTE: BH06 Shallow water levels excluded as plug between wells found to be ineffectual.
Groundlevel
BH06D
Rainfall

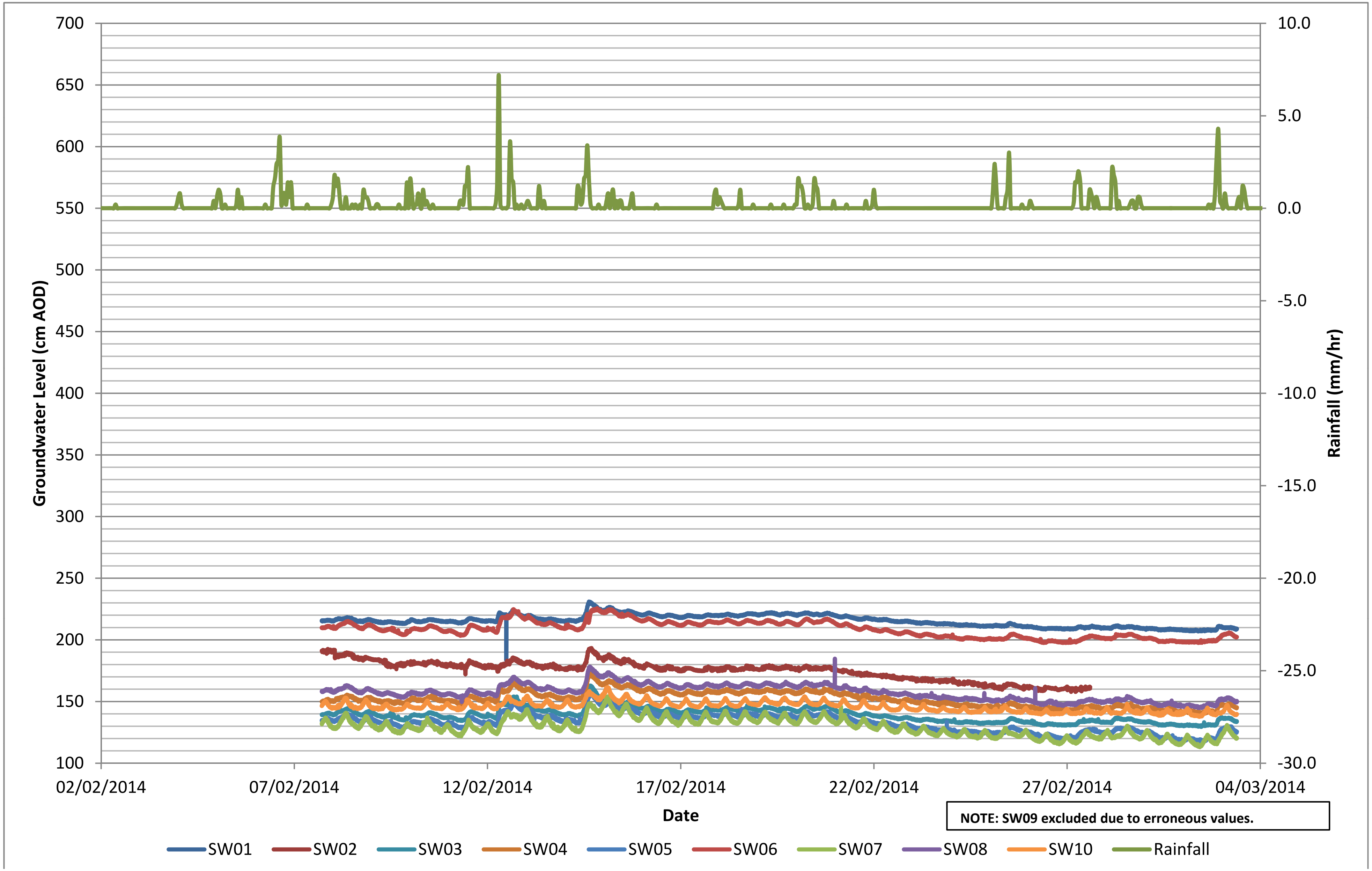
CAPITA

Figure 8e: BH07 Hydrograph

New Monks Farm CS056361




Groundwater Level (cm AOD)
700
650
600
550
500
450
400
350
300
250
200
150
100
Rainfall (mm/hr)
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
02/02/2014
07/02/2014
12/02/2014
17/02/2014
22/02/2014
27/02/2014
04/03/2014
Date
NOTE: BH10S data adjusted to match dip measurements.
Groundlevel
BH10S
BH10D
Rainfall


700
650
600
550
500
450
400
350
300
250
200
150
100
Groundwater Level (cm AOD)
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
Rainfall (mm/hr)
02/02/2014
07/02/2014
12/02/2014
17/02/2014
22/02/2014
27/02/2014
04/03/2014
Date
NOTE: SW09 excluded due to erroneous values.
SW01
SW02
SW03
SW04
SW05
SW06
SW07
SW08
SW10
Rainfall

-10mm 0 10mm

REV		DR	CH	PA	DATE

NOTED: PLAN EXTRACTED FROM NEW MONKS FARM MASTERPLAN FOR REFERENCE WITHIN HYDROGEOLOGICAL REPORT.

NEW MONKS FARM

New Monks Farm Development

Figure 9:
DEVELOPMENT PROPOSALS

CAPITA

DRAWN BY	CHECKED BY	PASSED BY	DATE	SCALES @ A3 SIZE	ISSUE STATUS	DRAWING NUMBER	REV.
GWP	RH	NG	JAN 14	NTS	Preliminary	CS056361-FIG 9	-

Appendix A

Harrison's Site Report

harrisongroup

Percussion Borehole Record

BH1

Project: Hydrogeological Ground Investigation, New Monks Farm, West Sussex

Project ID.: GL18017	Coordinates: 519129.3E 105630.2N	Ground Level: 2.47mAOD
		Sheet 1 of 2

Description	Depth (m)	O.D. Level (m)	Samples/ Test Type	Samples/ Test Depth (m)	Casing (Water) Depth (m)	Remarks and Test Results
MADE GROUND. Light brown slightly gravelly slightly sandy CLAY. Gravel is angular to subangular fine to coarse flint, brick and tile.			B1	0.50		
Firm orangish brown slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to coarse chalk. Occasional organic matter.	0.90	1.57	D1	1.00		
			U1	1.50-1.95		8 blows: NR recovery
Soft dark grey silty CLAY.	2.00	0.47	B2 D2	2.00 2.00		
			D3	3.00		
			U2	4.00-4.45		10 blows: 75% recovery
			D4	5.00		
			D5	6.00		
			D6 D7	7.00 7.00		
			B3	8.00		
From 9.30m to 9.50m: Band of fine to coarse flint.	9.50	-7.03	D8	9.50		
	9.90	-7.43				

Installations: 0.20, 3.00, 5.00

Continued next sheet

Hole Diameter Details			Chiselling Details		
Diameter (mm)	Depth (m)	Casing Depth (m)	From (m)	To (m)	Time (hhmm)
200	9.50	6.00			
150	15.00	15.00			

Water Level Observations

Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
23/01/14	5.50	20	1.50	4.20	6.00
23/01/14	9.00	20	5.10	9.50	

Client: Capita
Engineer: Capita
Contractor: Harrison Group Environmental Ltd
Dates: 23/01/2014
Plant: Dando 2000 Cable Percussive Rig
Drilled By: D. Bowman
Logged By: P. Price
Checked By: J. Keay

Remarks:

1. Inspection pit excavated from GL to 1.20mbgl.
2. Groundwater was encountered at 5.50mbgl and 9.50mbgl.
3. Environmental seal placed between from 5.00 to 6.00mbgl.
4. Dual Installation details: 50mm diameter HDPE standpipe installed from 15.00mbgl to GL. Slotted from 15.00mbgl to 12.00mbgl, plain from 12.00mbgl to GL. 50mm diameter HDPE standpipe installed from 5.00mbgl to GL. Slotted from 5.00mbgl to 3.00mbgl, plain from 3.00mbgl to GL. Finished with gas tap/bung, end cap and top hat cover.
5. Backfill details: Gravel filter packs from 15.00mbgl to 12.00mbgl, bentonite pellets from12.00mbgl to 5.00mbgl, gravel filter packs from 5.00mbgl to 3.00mbgl, bentonite pellets from 3.00mbgl to 0.20mbgl and concrete from 0.20mbgl to GL.

harrisongroup

Percussion Borehole Record

BH1

Project: Hydrogeological Ground Investigation, New Monks Farm, West Sussex

Project ID.: GL18017	Coordinates: 519129.3E 105630.2N	Ground Level: 2.47mAOD
		Sheet 2 of 2

Description	Legend	Depth (m)	O.D. Level (m)	Samples/ Test Type	Samples/ Test Depth (m)	Casing (Water) Depth (m)	Remarks and Test Results	Installations
				B4	10.00			
9.50m - 9.90m : Structureless CHALK composed of slightly gravelly SILT. Clasts are very weak to weak low and medium density white. Matrix is light brown.								
9.90m - 15.00m : Structureless CHALK composed of silty GRAVEL and COBBLES. Clasts are very weak to weak low and medium density white. Occasional subangular to subrounded fine to coarse flint.				U3 D9	11.00-11.45 11.00		25 blows: NR recovery	
				D10	12.00			12.00
				B5	13.00			
				D11	14.00			
Borehole Complete at 15.00 m		15.00	-12.53	D12 U4	15.00 15.00-15.45		50 blows: NR recovery	15.00

Water Level Observations

Hole Diameter Details: Diameter (mm)	Depth (m)	Casing Depth (m)	Chiselling Details: From (m)	To (m)	Time (hhmm)
200	9.50	6.00			
150	15.00	15.00			

Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
23/01/14	5.50	20	1.50	4.20	6.00
23/01/14	9.00	20	5.10	9.50	

Client: Capita
Engineer: Capita
Contractor: Harrison Group Environmental Ltd
Dates: 23/01/2014
Plant: Dando 2000 Cable Percussive Rig
Drilled By: D. Bowman
Logged By: P. Price
Checked By: J. Keay

Remarks:

Percussion Borehole Record

harrisongroup

BH2

Project: Hydrogeological Ground Investigation, New Monks Farm, West Sussex

Project ID.: GL18017

Coordinates: 519022.5E 105454.6N

Ground Level: 3.53mAOD

Sheet 1 of 1

Description	Legend	Depth (m)	O.D. Level (m)	Samples/ Test Type	Samples/ Test Depth (m)	Casing (Water) Depth (m)	Remarks and Test Results	Installations
Brown slightly gravelly silty CLAY TOPSOIL. Gravel is subangular to subrounded fine and medium flint.		0.40	3.13	D1	0.20			0.20
Soft to firm orangish brown slightly gravelly CLAY. Gravel is subangular to subrounded fine and medium flint.		1.80	1.73	B1 D2	1.00 1.00			
Firm orangish grey mottled off white slightly gravelly CLAY. Gravel is subangular to subrounded fine and medium flint and chalk.		2.70	0.83					2.00
Firm grey mottled off white slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint and chalk.		3.20	0.33					3.00
Structureless CHALK composed of a very gravelly SILT. Clasts are very weak to weak low and medium density white with occasional black specks and orange staining.		5.10	-1.57	D3	3.30			
Structureless CHALK composed of silty GRAVEL and COBBLES. Clasts are very weak to weak low and medium density white with occasional yellow staining.		6.00	-2.47					
Structureless CHALK composed of silty GRAVEL and COBBLES. Clasts are very weak to weak low and medium density white. Matrix is very light brown.								7.00

Borehole Complete at 10.00 m

Hole Diameter Details			Chiselling Details		
Diameter (mm)	Depth (m)	Casing Depth (m)	From (m)	To (m)	Time (hhmm)
200 150	4.20 10.00	4.20 10.00			

Water Level Observations

Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
30/01/14	4.20	20	2.00	4.00	5.00

Client: Capita
Engineer: Capita
Contractor: Harrison Group Environmental Ltd
Dates: 30/01/2014-31/01/2014
Plant: Dando 2000 Cable Percussive Rig
Drilled By: D. Bowman
Logged By: P. Price
Checked By: J. Keay

Remarks:

1. Inspection pit excavated from GL to 1.20mbgl.
2. Groundwater was encountered at 4.20mbgl.
3. Environmental seal placed between from 3.20mbgl to 4.20mbg.
4. Dual Installation details: 50mm diameter HDPE standpipe installed from 10.00mbgl to GL. Slotted from 10.00mbgl to 7.00mbgl, plain from 7.00mbgl to GL. 50mm diameter HDPE standpipe installed from 3.00mbgl to GL. Slotted from 3.00mbgl to 2.00mbgl, plain from 1.50mbgl to GL. Finished with gas tap/bung, end cap and top hat cover.
5. Backfill details: Gravel filter packs from 10.00mbgl to 7.00mbgl, bentonite pellets from 7.00mbgl to 3.00mbgl, gravel filter packs from 3.00mbgl to 2.00mbgl, bentonite pellets from 2.00mbgl to 0.20mbgl and concrete from 0.20mbgl to GL.

harrisongroup

Percussion Borehole Record

BH3

Project: Hydrogeological Ground Investigation, New Monks Farm, West Sussex

Project ID.: GL18017

Coordinates: 518960.4E 105345.7N

Ground Level: 4.37mAOD

Description	Legend	Depth (m)	O.D. Level (m)	Samples/ Test Type	Samples/ Test Depth (m)	Casing (Water) Depth (m)	Remarks and Test Results	Installations
MADE GROUND. Brown slightly gravelly sandy CLAY. Gravel is subangular to subrounded fine to coarse medium flint, asphalt and plastic fragments.		0.40	3.97	D1	0.20			0.20
Soft to firm orangish brown sandy gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint.				B1	1.00			1.00
From 2.00m to 2.4m: Thin bands of off white gravelly clay. Gravel is of chalk.		2.40	1.97	D2	2.00			2.00
Soft light brown mottled off white slightly sandy gravelly CLAY. Gravel is subangular to subrounded fine and medium flint and chalk. Occasional light grey silty clay pockets.		3.40	0.97	U1 D3	3.00-3.45 3.00		30 blows: NR recovery 30 blows: recovery	
Structureless CHALK composed of slightly sandy gravelly SILT. Clasts are very weak to weak low and medium density, white with occasional black specs. Matrix is light brown.				D4	3.60			
				U2	5.00-5.45		100 blows: NR recovery	
At 6.00m: Occasional flint.		7.00	-2.63					
Structureless CHALK composed of silty GRAVEL and COBBLES. Clasts are very weak to weak low and medium density white with occasional yellow staining.				D5	8.00			

Continued next sheet

Hole Diameter Details			Chiselling Details		
Diameter (mm)	Depth (m)	Casing Depth (m)	From (m)	To (m)	Time (hhmm)
200 150	4.00 15.00	4.00 15.00			

Water Level Observations

Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
29/01/14	3.00	20	1.00	2.80	4.00
30/01/14	5.40	20	2.00	5.00	

Client: Capita
Engineer: Capita
Contractor: Harrison Group Environmental Ltd
Dates: 29/01/2014-30/01/2014
Plant: Dando 2000 Cable Percussive Rig
Drilled By: D. Bowman
Logged By: P. Price
Checked By: J. Keay

Remarks:

1. Inspection pit excavated from GL to 1.20mbgl.
2. Groundwater was encountered at 3.00mbgl and 5.40mbgl.
3. Environmental seal placed between from 3.00mbgl to 4.00mbg.
4. Dual Installation details: 50mm diameter HDPE standpipe installed from 15.00mbgl to GL. Slotted from 15.00mbgl to 12.00mbgl, plain from 12.00mbgl to GL. 50mm diameter HDPE standpipe installed from 2.00mbgl to GL. Slotted from 2.00mbgl to 1.00mbgl, plain from 1.00mbgl to with gas tap/bung, end cap and top hat cover.
5. Backfill details: Gravel filter packs from 15.00mbgl to 12.00mbgl, bentonite pellets from 12.00mbgl to 2.00mbgl, gravel filter packs from 2.00mbgl to 1.00mbgl, bentonite pellets from 1.00mbgl to 0.20mbgl and concrete from 0.20mbgl to GL.

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Percussion Borehole Record

BH3

Project: Hydrogeological Ground Investigation, New Monks Farm, West Sussex

Project ID.: GL18017

Coordinates: 518960.4E 105345.7N

Ground Level: 4.37mAOD

Description	Legend	Depth (m)	O.D. Level (m)	Samples/ Test Type	Samples/ Test Depth (m)	Casing (Water) Depth (m)	Remarks and Test Results	Installations
Structureless CHALK composed of silty GRAVEL and COBBLES. Clasts are very weak to weak low and medium density white with occasional yellow staining.		15.00	-10.63					12.00 15.00
Borehole Complete at 15.00 m								

Water Level Observations

Hole Diameter Details: Diameter (mm)	Depth (m)	Casing Depth (m)	Chiselling Details: From (m)	To (m)	Time (hhmm)
200 150	4.00 15.00	4.00 15.00			

Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
29/01/14 30/01/14	3.00 5.40	20 20	1.00 2.00	2.80 5.00	4.00

Client: Capita
Engineer: Capita
Contractor: Harrison Group Environmental Ltd
Dates: 29/01/2014-30/01/2014
Plant: Dando 2000 Cable Percussive Rig
Drilled By: D. Bowman
Logged By: P. Price
Checked By: J. Keay

Remarks:

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Percussion Borehole Record

BH4

Project: Hydrogeological Ground Investigation, New Monks Farm, West Sussex

Project ID.: GL18017

Coordinates: 518960.4E 105290.7N

Ground Level: 3.72mAOD

Sheet 1 of 1

Description	Depth (m)	O.D. Level (m)
Dark brown slightly gravelly slightly sandy silty CLAY TOPSOIL. Gravel is subangular to subrounded fine and medium flint and chalk.	0.10	3.62
MADE GROUND. Off white comminuted CHALK.	0.15	3.57
MADE GROUND. Soft orangish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse concrete, asphalt, flint and chalk.	1.90	1.82
Soft light brown mottled off white slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint and chalk.	2.50	1.22
Soft light brown mottled white slightly sandy gravelly CLAY. Gravel is subangular to subrounded fine to coarse flint and chalk.	3.20	0.52
Structureless CHALK composed of gravelly SILT. Clasts are very weak to weak low and medium density white with occasional black specs. Matrix is light brown.	3.50	0.22
Structureless CHALK composed of silty GRAVEL and COBBLES. Clasts are very weak to weak low and medium density white, with occasional black specks. Matrix is light brown.	4.80	-1.08
Structureless CHALK composed of silty GRAVEL and COBBLES. Clasts are very weak to weak low and medium density white. Occasional flint.		

Samples/ Test Type	Samples/ Test Depth (m)	Casing (Water) Depth (m)	Remarks and Test Results
D1	0.10		
B1	0.50		
D2	1.00		
U1	1.50-1.95		20 blows: 85% recovery
D3	2.00		
B2	2.50		
D4	2.50		
D5	3.50		
U2	4.50		20 blows: NR recovery
B3	9.00		

Installations: 0.20, 2.00, 2.90, 7.00

Borehole Complete at 10.00 m

Hole Diameter Details			Chiselling Details		
Diameter (mm)	Depth (m)	Casing Depth (m)	From (m)	To (m)	Time (hhmm)
200	0.00	3.50			
150	10.00				

Water Level Observations

Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
24/01/14	2.50	20	1.00	2.00	

Client: Capita
Engineer: Capita
Contractor: Harrison Group Environmental Ltd
Dates: 24/01/2014
Plant: Dando 2000 Cable Percussive Rig
Drilled By: D. Bowman
Logged By: P. Price
Checked By: J. Keay

Remarks:

1. Inspection pit excavated from GL to 1.20mbgl.
2. Groundwater was encountered 2.50mbgl.
3. Environmental seal placed between from 3.50mbgl to 2.50mbg.
4. Dual Installation details: 50mm diameter HDPE standpipe installed from 10.00mbgl to GL. Slotted from 10.00mbgl to 7.00mbgl, plain from 7.00mbgl to GL. 50mm diameter HDPE standpipe installed from 2.90mbgl to GL. Slotted from 1.90mbgl to 2.90mbgl, plain from 1.90mbgl to GL with gas tap/bung, end cap and top hat cover.
5. Backfill details: Gravel filter packs from 10.00mbgl to 7.00mbgl, bentonite pellets from 7.00mbgl to 2.90mbgl, gravel filter packs from 2.90mbgl to 1.90mbgl, bentonite pellets from 1.90mbgl to 0.20mbgl and concrete from 0.20mbgl to GL.

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Percussion Borehole Record

BH5

Project: Hydrogeological Ground Investigation, New Monks Farm, West Sussex

Project ID.: GL18017

Coordinates: 519165.6E 105112.1N

Ground Level: 2.63mAOD

Sheet 1 of 1

Description	Depth (m)	O.D. Level (m)	Samples/ Test Type	Samples/ Test Depth (m)	Casing (Water) Depth (m)	Remarks and Test Results	Installations
Dark brown slightly gravelly slightly sandy CLAY TOPSOIL. Gravel is subangular to subrounded fine to coarse flint.	0.30	2.33	D1	0.20			0.20
			B1	0.50			
Soft orangish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine and medium flint.			B1	1.00			
			C	1.50		N=6 (1,2,1,2,1,2)	1.50
	1.70	0.93					
Soft to firm orangish brown mottled off white slightly silty slightly gravelly CLAY. Gravel is subangular to subrounded fine and medium flint and chalk.			C	2.50		N=7 (1,2,2,1,2,2)	2.50
			U1	2.50-2.95		30 blows: NR recovery	
			D2	3.00			
	3.80	-1.18					
Structureless CHALK composed of gravelly SILT. Clasts are very weak to weak low and medium density white with occasional black specs.			B2	4.00			
			U2	5.00-5.45		50 blows: NR recovery	
	5.50	-2.88					
Structureless CHALK composed of silty GRAVEL and COBBLES. Clasts are very weak to weak low and medium density white.			D3	6.00			
							7.00

Borehole Complete at 10.00 m

Hole Diameter Details			Chiselling Details		
Diameter (mm)	Depth (m)	Casing Depth (m)	From (m)	To (m)	Time (hhmm)
200	3.80	3.80			
150	10.00	10.00			

Water Level Observations

Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
29/01/14	2.20	20	1.50	-	3.80
29/01/14	3.80	20	0.90	3.50	

Client: Capita
Engineer: Capita
Contractor: Harrison Group Environmental Ltd
Dates: 28/01/2014-29/01/2014
Plant: Dando 2000 Cable Percussive Rig
Drilled By: D. Bowman
Logged By: P. Price
Checked By: J. Keay

Remarks:

1. Inspection pit excavated from GL to 1.20mbgl.
2. Groundwater was encountered at 2.20mbgl and 3.80mbgl.
3. Environmental seal placed between from 2.80mbgl to 3.80mbg.
4. Dual Installation details: 50mm diameter HDPE standpipe installed from 10.00mbgl to GL. Slotted from 10.00mbgl to 7.00mbgl, plain from 7.00mbgl to GL. 50mm diameter HDPE standpipe installed from 2.50mbgl to GL. Slotted from 2.50mbgl to 1.50mbgl, plain from 1.50mbgl to GL. Finished with gas tap/bung, end cap and top hat cover.
5. Backfill details: Gravel filter packs from 10.00mbgl to 7.00mbgl, benotnite pellets from 7.00mbgl to 2.50mbgl, gravel filter packs from 2.50mbgl to 1.50mbgl, bentonite pellets from 1.50mbgl to 0.20mbgl and concrete from 0.20mbgl to GL.

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Percussion Borehole Record

BH6

Project: Hydrogeological Ground Investigation, New Monks Farm, West Sussex

Project ID.: GL18017	Coordinates: 518917.0E 105114.7N	Ground Level: 3.95mAOD
		Sheet 1 of 1

Description	Depth (m)	O.D. Level (m)	Samples/ Test Type	Samples/ Test Depth (m)	Casing (Water) Depth (m)	Remarks and Test Results	Installations
Dark brown slightly gravelly silty CLAY TOPSOIL. Gravel is subangular to subrounded fine to coarse flint and chalk. Occasional rootlets.	0.40	3.55	D1	0.20			0.20
Soft light brown slightly gravelly silty CLAY. Gravel is subangular to subrounded fine to coarse flint and chalk.			B1	1.00			
			U1	1.50-1.95		20 blows: 85% recovery	
	2.10	1.85	D2	2.00			2.00
Soft light brown mottled off white gravelly silty CLAY. Gravel is subangular to subrounded fine and medium flint and chalk.			B2	3.00-3.60			3.00
	4.80	-0.85					
Structureless CHALK composed of gravelly SILT. Clasts are very weak to weak low and medium density white with occasional black specs. Occasional flint.			U2	5.00-5.45		No Recovery	
			D3 U3	6.00 6.00-6.45		No Recovery	
	6.40	-2.45					
Structureless CHALK composed of silty GRAVEL and COBBLES. Clasts are very weak to weak low and medium density white. Occasional flint.			B3 U4	7.00 7.00-7.45		No Recovery	7.00
From 8.50m to 9.60m: Occasional bands of flint gravel.			U5	9.00		100 blows: 65% recovery	

Borehole Complete at 10.00 m

Hole Diameter Details			Chiselling Details		
Diameter (mm)	Depth (m)	Casing Depth (m)	From (m)	To (m)	Time (hhmm)
200 150	5.00 10.00	5.00 10.00			

Water Level Observations

Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
27/01/14 28/01/14	3.00 7.00	20 20	1.00 3.60	2.50 10.00	4.20

Client: Capita
Engineer: Capita
Contractor: Harrison Group Environmental Ltd
Dates: 27/01/2014-28/01/2014
Plant: Dando 2000 Cable Percussive Rig
Drilled By: D. Bowman
Logged By: P. Price
Checked By: J. Keay

Remarks:

1. Inspection pit excavated from GL to 1.20mbgl.
2. Groundwater was encountered at 3.00mbgl and 7.00mbgl.
3. Environmental seal placed between from 5.50mbgl to 4.50mbg.
4. Dual Installation details: 50mm diameter HDPE standpipe installed from 10.00mbgl to GL. Slotted from 10.00mbgl to 7.00mbgl, plain from 7.00mbgl to GL. 50mm diameter HDPE standpipe installed from 3.00mbgl to GL. Slotted from 3.00mbgl to 2.00mbgl, plain from 2.00mbgl to GL. Finished with gas tap/bung, end cap and top hat cover.
5. Backfill details: Gravel filter packs from 10.00mbgl to 7.00mbgl, benotnite pellets from 7.00mbgl to 3.00mbgl, gravel filter packs from 3.00mbgl to 2.00mbgl, bentonite pellets from 2.00mbgl to 0.20mbgl and concrete from 0.20mbgl to GL.

Percussion Borehole Record

BH7

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Project: Hydrogeological Ground Investigation, New Monks Farm, West Sussex

Project ID.: GL18017

Coordinates: 519321.8E 105102.8N

Ground Level: 4.87mAOD

Sheet 1 of 2

Description	Depth (m)	O.D. Level (m)	Sample Type	Sample Depth (m)	Casing (Water) Depth (m)	Remarks and Test Results
MADE GROUND. Very soft brown slightly sandy gravelly silty CLAY. Gravel is subangular to subrounded fine to coarse medium flint, brick and chalk with glass, ceramic and metal fragments.	0.60	4.27	D1	0.20		
MADE GROUND. Soft dark brown gravelly CLAY, with a low cobble content. Gravel is angular to subangular fine to coarse flint, brick and ceramic fragments. Occasional organic matter. Cobbles are of concrete. At 2.90m: Concrete slab.	3.50	1.37	B1 D2	1.00 2.00		
Firm brownish grey sandy gravelly CLAY. Gravel is subangular to subrounded fine and medium flint and chalk.	4.40	0.47	D3 U1 B2	3.50 4.00-4.45 4.00		No Recovery
Soft to firm light brown sandy gravelly CLAY. Gravel is subangular to subrounded fine and medium flint and chalk.	7.50	-2.63	U2	4.45-4.95		15 blows: 100% recovery
Structureless CHALK composed of slightly sandy gravelly SILT. Clasts are very weak to weak low and medium density, white. Matrix is light brown.	9.00	-4.13				
Structureless CHALK composed of sandy silty GRAVEL and COBBLES. Clasts are very weak to weak low and medium density, white.						

Installations: 0.20, 1.00, 2.00, 9.00

Continued next sheet

Hole Diameter: Diameter (mm)	Depth (m)	Casing Depth (m)	Chiselling: From (m)	To (m)	Time (hhmm)
200	7.70	7.50			
150	12.00	12.00			

Water Level Observations

Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
04/02/14	1.60	20	0.40	1.50	2.50
05/02/14	7.50	20	1.00	7.50	

Client: Capita
Engineer: Capita
Contractor: Harrison Group Environmental Ltd
Dates: 04/02/2014-05/02/2014
Plant: Dando 2000 Cable Percussive Rig
Drilled By: D. Bowman
Logged By: P. Price
Checked By: J. Keay

Remarks:

1. Inspection pit excavated from GL to 1.20mbgl.
2. Groundwater was encountered at 1.60mbgl and 7.40mbgl.
3. Environmental seal placed between from 6.50mbgl to 7.50mbg.
4. Dual Installation details: 50mm diameter HDPE standpipe installed from 12.00mbgl to GL. Slotted from 12.00mbgl to 9.00mbgl, plain from 9.00mbgl to GL. 50mm diameter HDPE standpipe installed from 2.00mbgl to GL. Slotted from 2.00mbgl to 1.00mbgl, plain from 1.00mbgl to with gas tap/bung, end cap and top hat cover.
5. Backfill details: Gravel filter packs from 12.00mbgl to 9.00mbgl, bentonite pellets from 9.00mbgl to 2.00mbgl, gravel filter packs from 2.00mbgl to 1.00mbgl, bentonite pellets from 1.00mbgl to 0.20mbgl and concrete from 0.20mbgl to GL.

Percussion Borehole Record

BH7

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Project: Hydrogeological Ground Investigation, New Monks Farm, West Sussex

Project ID.: GL18017

Coordinates: 519321.8E 105102.8N

Ground Level: 4.87mAOD

Description	Legend	Depth (m)	O.D. Level (m)	Samples/ Test Type	Samples/ Test Depth (m)	Casing (Water) Depth (m)	Remarks and Test Results	Installations
Structureless CHALK composed of sandy silty GRAVEL and COBBLES. Clasts are very weak to weak low and medium density, white.		12.00	-7.13	U3	12.00-12.45		100 blows: NR recovery	12.00
Borehole Complete at 12.00 m								

Water Level Observations

Hole Diameter Details: Diameter (mm)	Depth (m)	Casing Depth (m)	Chiselling Details: From (m)	To (m)	Time (hhmm)
200	7.70	7.50			
150	12.00	12.00			

Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
04/02/14	1.60	20	0.40	1.50	2.50
05/02/14	7.50	20	1.00	7.50	

Client: Capita
Engineer: Capita
Contractor: Harrison Group Environmental Ltd
Dates: 04/02/2014-05/02/2014
Plant: Dando 2000 Cable Percussive Rig
Drilled By: D. Bowman
Logged By: P. Price
Checked By: J. Keay

Remarks:

Percussion Borehole Record

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BH8

Project: Hydrogeological Ground Investigation, New Monks Farm, West Sussex

Project ID.: GL18017

Coordinates: 519426.8E 105323.2N

Ground Level: 3.56mAOD

Sheet 1 of 1

Description	Legend	Depth (m)	O.D. Level (m)	Samples/ Test Type	Samples/ Test Depth (m)	Casing (Water) Depth (m)	Remarks and Test Results	Installations
				D1	0.10			0.20
MADE GROUND. Brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse concrete, brick, asphalt and glass fragments.		0.50	3.06	D2	0.50			
				D3	1.00			1.00
				ES1	1.50			
								2.00
MADE GROUND. Dark grey/black slightly sandy to sandy slightly gravel to gravelly clayey SILT. Gravel is angular to subangular fine to coarse asphalt, ceramic and glass fragments. Frequent decomposed organic matter and occasional synthetic fibres.		2.20	1.36					
Soft to firm brown and grey gravelly CLAY. Gravel is subangular to subrounded fine to coarse chalk.				D4	2.50			
		4.80	-1.24					
Structureless CHALK composed of sandy gravelly SILT. Clasts are very weak to weak low and medium density, white. Matrix is light brown.				D5	5.00			
		6.20	-2.64					
Structureless CHALK composed of silty GRAVEL and COBBLES. Clasts are very weak to weak low and medium density, white with occasional yellow staining.								7.00

Borehole Complete at 10.00 m

Hole Diameter Details: Diameter (mm)	Depth (m)	Casing Depth (m)	Chiselling Details: From (m)	To (m)	Time (hhmm)
200	5.00	5.00			
150	10.00	10.00			

Water Level Observations

Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
03/02/14	4.80	20	1.20	4.00	5.00

Client: Capita
Engineer: Capita
Contractor: Harrison Group Environmental Ltd
Dates: 03/02/2014-04/02/2014
Plant: Dando 2000 Cable Percussive Rig
Drilled By: D. Bowman
Logged By: P. Price
Checked By: J. Keay

Remarks:

1. Inspection pit excavated from GL to 1.20mbgl.
2. Groundwater was encountered at 4.80mbgl.
3. Environmental seal placed between from 5.00mbgl to 4.00mbg.
4. Dual Installation details: 50mm diameter HDPE standpipe installed from 10.00mbgl to GL. Slotted from 7.00mbgl to 9.00mbgl, plain from 7.00mbgl to GL. 50mm diameter HDPE standpipe installed from 2.00mbgl to GL. Slotted from 2.00mbgl to 1.00mbgl, plain from 1.00mbgl to with gas tap/bung, end cap and top hat cover.
5. Backfill details: Gravel filter packs from 10.00mbgl to 7.00mbgl, bentonite pellets from 7.00mbgl to 2.00mbgl, gravel filter packs from 2.00mbgl to 1.00mbgl, bentonite pellets from 1.00mbgl to 0.20mbgl and concrete from 0.20mbgl to GL.

Percussion Borehole Record

BH9

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Project: Hydrogeological Ground Investigation, New Monks Farm, West Sussex

Project ID.: GL18017	Coordinates: 519315.5E 105501.7N	Ground Level: 4.02mAOD
		Sheet 1 of 2

Description	Legend	Depth (m)	O.D. Level (m)	Samples/ Test Type	Samples/ Test Depth (m)	Casing (Water) Depth (m)	Remarks and Test Results	Installations
Brown slightly gravelly silty CLAY TOPSOIL. Gravel is subangular to subrounded fine and medium flint, chalk, brick and asphalt.		0.20	3.82	D1	0.10			0.20
MADE GROUND. Light brown slightly sandy to sandy slightly gravelly to gravelly silty CLAY. Gravel is angular to subangular fine to coarse concrete, brick, asphalt and flint		2.40	1.62					1.00 2.00
MADE GROUND. Soft dark bluish grey and dark brown slightly gravelly silty CLAY. Gravel is angular to subangular fine to coarse brick, chalk and flint.		2.60	1.42	B1 D2	2.50 2.50			
Soft bluish grey and brown gravelly silty CLAY. Gravel is subangular to subrounded fine and medium flint and chalk.		2.80	1.22	U1 D3	3.00-3.45 3.00		No Recovery	
Soft light brown gravelly silty CLAY. Gravel is subangular to subrounded fine and medium chalk.		3.60	0.42					
Soft bluish grey gravelly silty CLAY. Gravel is subangular to subrounded fine and medium flint and chalk.		6.20	-2.18	D4	5.00			
Soft bluish mottled off white grey gravelly silty CLAY. Gravel is subangular to subrounded fine and medium chalk.		7.00	-2.98					
Structureless CHALK composed of sandy gravelly SILT. Clasts are very weak to weak low and medium density, white with occasional yellow staining.		7.90	-3.88					
Structureless CHALK composed of silty GRAVEL. Clasts are very weak to weak low and medium density, white with occasional yellow staining.								9.00

Continued next sheet

Hole Diameter Details: Diameter (mm)	Depth (m)	Casing Depth (m)	Chiselling Details: From (m)	To (m)	Time (hhmm)
200 150	7.20 12.00	7.20 12.00			

Water Level Observations

Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
31/01/14 31/01/14	1.20 7.10	20 20	0.20 1.50	1.20 7.10	3.00

Client: Capita
Engineer: Capita
Contractor: Harrison Group Environmental Ltd
Dates: 31/01/2014-03/02/2014
Plant: Dando 2000 Cable Percussive Rig
Drilled By: D. Bowman
Logged By: P. Price
Checked By: J. Keay

Remarks:

1. Inspection pit excavated from GL to 1.20mbgl.
2. Groundwater was encountered at 1.20mbg and 7.1mbgl.
3. Environmental seal placed between from 6.20mbgl to 7.20mbg.
4. Dual Installation details: 50mm diameter HDPE standpipe installed from 12.00mbgl to GL. Slotted from 12.00mbgl to 9.00mbgl, plain from 9.00mbgl to GL. 50mm diameter HDPE standpipe installed from 2.00mbgl to GL. Slotted from 2.00mbgl to 1.00mbgl, plain from 1.00mbgl to with gas tap/bung, end cap and top hat cover.
5. Backfill details: Gravel filter packs from 12.00mbgl to 9.00mbgl, bentonite pellets from 9.00mbgl to 2.00mbgl, gravel filter packs from 2.00mbgl to 1.00mbgl, bentonite pellets from 1.00mbgl to 0.20mbgl and concrete from 0.20mbgl to GL.

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Percussion Borehole Record

BH9

Project: Hydrogeological Ground Investigation, New Monks Farm, West Sussex

Project ID.: GL18017

Coordinates: 519315.5E 105501.7N

Ground Level: 4.02mAOD

Description	Legend	Depth (m)	O.D. Level (m)	Samples/ Test Type	Samples/ Test Depth (m)	Casing (Water) Depth (m)	Remarks and Test Results	Installations
Structureless CHALK composed of silty GRAVEL. Clasts are very weak to weak low and medium density, white with occasional yellow staining.		12.00	-7.98	U2	12.00-12.45		100 blows: NR recovery	12.00
Borehole Complete at 12.00 m								

Hole Diameter Details			Chiselling Details		
Diameter (mm)	Depth (m)	Casing Depth (m)	From (m)	To (m)	Time (hhmm)
200 150	7.20 12.00	7.20 12.00			

Water Level Observations

Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
31/01/14	1.20	20	0.20	1.20	3.00
31/01/14	7.10	20	1.50	7.10	

Client: Capita
Engineer: Capita
Contractor: Harrison Group Environmental Ltd
Dates: 31/01/2014-03/02/2014
Plant: Dando 2000 Cable Percussive Rig
Drilled By: D. Bowman
Logged By: P. Price
Checked By: J. Keay

Remarks:

Percussion Borehole Record

BH10

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Project: Hydrogeological Ground Investigation, New Monks Farm, West Sussex

Project ID.: GL18017

Coordinates: 519338.1E 10574.9N

Ground Level: 2.96mAOD

Description	Depth (m)	O.D. Level (m)	Samples/ Test Type	Samples/ Test Depth (m)	Casing (Water) Depth (m)	Remarks and Test Results	Installations
MADE GROUND. Orangish brown gravelly slightly sandy CLAY. Gravel is angular to subangular fine to coarse flint, brick.							0.20
Soft grey silty CLAY.	1.00	1.96	B1	1.00			
			D1	1.00			
			U1	1.50-1.95		10 blows: 75% recovery	
			D2	2.00			2.00
			D3	3.00			3.00
			D4	4.00			
Structureless CHALK composed of gravelly slightly sandy SILT. Clasts are very weak to weak low and medium density, white.	5.00	-2.04	U2	5.00-5.45			
			D5	6.00			
Structureless CHALK composed of silty GRAVEL and COBBLES. Clasts are very weak to weak low and medium density, white. Occasional orange brown staining.	6.50	-3.54					
			B2	7.00			
			D6	8.00			
			D7	9.00			

Continued next sheet

Hole Diameter Details: Diameter (mm)	Depth (m)	Casing Depth (m)	Chiselling Details: From (m)	To (m)	Time (hhmm)
200	4.20	4.20			
150	14.00	12.00			

Water Level Observations

Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
22/01/14	4.10	20	0.00	3.50	4.20
22/01/14	5.70	20	3.80	5.70	

Client: Capita
Engineer: Capita
Contractor: Harrison Group Environmental Ltd
Dates: 22/01/2014
Plant: Dando 2000 Cable Percussive Rig
Drilled By: D. Bowman
Logged By: P. Price
Checked By: J. Keay

Remarks:

1. Inspection pit excavated from GL to 1.20mbgl.
2. Groundwater was encountered at 4.10mbgl and 5.70mbgl.
3. Environmental seal placed between from 4,20mbgl to 3.20mbg.
4. Dual Installation details: 50mm diameter HDPE standpipe installed from 13.50mbgl to GL. Slotted from 13.50mbgl to 10.50mbgl, plain from 10.50mbgl to GL. 50mm diameter HDPE standpipe installed from 3.00mbgl to GL. Slotted from 3.00mbgl to 2.00mbgl, plain from 2.00mbgl to with gas tap/bung, end cap and top hat cover.
5. Backfill details: Gravel filter packs from 14.00mbgl to 10.50mbgl, bentonite pellets from10.50mbgl to 3.00mbgl, gravel filter packs from 3.00mbgl to 2.00mbgl, bentonite pellets from 2.00mbgl to 0.20mbgl and concrete from 0.20mbgl to GL.

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Percussion Borehole Record

BH10

Project: Hydrogeological Ground Investigation, New Monks Farm, West Sussex

Project ID.: GL18017	Coordinates: 519338.1E 10574.9N	Ground Level: 2.96mAOD
		Sheet 2 of 2

Description	Legend	Depth (m)	O.D. Level (m)	Samples/ Test Type	Samples/ Test Depth (m)	Casing (Water) Depth (m)	Remarks and Test Results	Installations
Structureless CHALK composed of silty GRAVEL and COBBLES. Clasts are very weak to weak low and medium density, white. Occasional orange brown staining.				U3	10.00-10.45		No Recovery	10.00
				D8	10.00			
				D9	11.00			
				D10	12.00			
				D11	13.00			
		14.00	-11.04	D12	14.00			14.00
Borehole Complete at 14.00 m								

Hole Diameter Details			Chiselling Details		
Diameter (mm)	Depth (m)	Casing Depth (m)	From (m)	To (m)	Time (hhmm)
200	4.20	4.20			
150	14.00	12.00			

Water Level Observations

Date	Water Strike (m)	Standing Time (mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)
22/01/14	4.10	20	0.00	3.50	4.20
22/01/14	5.70	20	3.80	5.70	

Client: Capita
Engineer: Capita
Contractor: Harrison Group Environmental Ltd
Dates: 22/01/2014
Plant: Dando 2000 Cable Percussive Rig
Drilled By: D. Bowman
Logged By: P. Price
Checked By: J. Keay

Remarks:

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Window Sample Record

WS4A
Sheet 1 of 1

Project: Hydrogeological Ground Investigation, New Monks Farm, West Sussex

Project ID: GL18017

Coordinates: 518960.35E 105290.66N

Ground Level: 3.72maOD

Description	Legend	Depth (m)	O.D. Level (m)	Sample Test Type	Sample Test Depth (m)	Remarks and Test Results	Installations
Dark brown slightly gravelly slightly sandy silty CLAY TOPSOIL. Gravel is subangular to subrounded fine and medium flint and chalk.		0.15	3.57				
MADE GROUND. Soft to firm orangish brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse concrete, asphalt, flint and chalk.		1.50	2.22				0.50
Window Sample Complete at 1.50 m							1.50

Drive Records

Diameter (mm)	From (m)	To (m)	Recovery (%)
87	0.50	1.50	100

Water Level Observations

Date	Water Strike (m)	Standing Time (Mins)	Standing Level (m)	Casing Depth (m)	Depth Sealed (m)

Client: Capita
Engineer: Capita
Contractor: Harrison Group Environmental Ltd
Date: 19/03/2014
Plant: Hand Held Window Sampler Rig

Drilled By: JS
Logged By: JS
Checked By: J. Keay

Remarks:
1. Borehole located adjacent to BH4 - utilised same co-ordinates.
2. Inspection pit excavated from GL to 0.50mbgl.
3. Groundwater was not encountered.
4. Installation details: 50mm diameter HDPE standpipe installed from 1.50mbgl to GL. Slotted from 1.50mbgl to 0.50mbgl, plain from 0.50mbgl to GL with end caps and cover.
5. Backfill details: Gravel filter packs from 1.50mbgl to 0.50mbgl, bentonite pellets from 0.50mbgl to 0.0mbgl.

4031

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SERVICES

Harrison Testing Services
Units 1 & 2 Alston Road
Hellesdon Park Industrial Estate
Norwich NR6 5DS
Tel:+44 (0) 1603 416333
Fax +44 (0) 1603 416443

Client: **Harrison Group Environmental**
Poplar Business Park
10 Preston Road
London
E14 9RL

For the attention of: John Keay

Date of Issue: 10/03/2014

TEST REPORT TRANSMITTAL

Report Form FMR3000 Rev.C Revision Date 26/11/08

Project	**Hydrogeological Ground Investigation, New Monks Farm, West Sussex**	**Samples Received**	**10/02/2014**
Report No	**GL18017**	**Instruction received**	**10/02/2014**
Your Ref	**GL18017**	**Testing commenced**	**14/02/2014**

SUMMARY OF RESULTS ATTACHED

Test Method and Description	Quantity	UKAS Accredited
BS1377: Part 2: 1990:3.2 Moisture Content	15	Yes
BS1377: Part 2: 1990:4.4/5.0 Liquid & Plastic Limits - Single Point Method	5	Yes
BS1377: Part 2: 1990:7.3 Bulk Density - Immersion Method	1	No
BS1377: Part 5: 1990:3.0 One Dimensional Consolidation	2	Yes
Non Standard - Shear Strength by Hand Vane	5	No

Remarks:

Issued by: M Willson

Approved Signatories:

M Willson (Laboratory Manager), G Bream (Senior Laboratory Technician)

Unless we are notified to the contrary, samples will be disposed after a period of one month from this date

Only those results indicated in this report are UKAS accredited and any opinion or interpretations expressed are outside the scope of UKAS accreditation

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PROJECT NAME:	**Hydrogeological Ground Investigation, New Monks Farm, West Sussex**
PROJECT NUMBER:	**GL18017**
CLIENT:	**Capita Property and Infrastructure**
DATE OF ISSUE:	**10/03/2014**

SUMMARY OF MOISTURE CONTENT, LIQUID LIMIT (ONE POINT CONE PENETROMETER METHOD), PLASTIC LIMIT AND PLASTICITY INDEX TO BS1377 : PART 2 : 1990

BH/TP No	Depth (m)	Sample No.	Moisture Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index	NHBC Modified Plasticity Index	Passing 0.425mm (%)	Soil Class	Sample Description
BH1	1.00	D1	49							Grey brown CLAY
BH1	2.00	D2	77							Grey and brown CLAY
BH1	4.00	U2	71	84	30	55	55	100	CV	Grey and dark grey CLAY
BH1	7.00	D6	56							Grey CLAY
BH2	1.00	B1	29	50	17	33	33	99	CI	Brown and orange brown slightly gravelly CLAY. Gravel is of chalk
BH3	1.00	B1	23							Brown CLAY
BH3	2.00	D2	17							Light brown and cream silty CLAY with pockets of structureless chalk
BH3	3.00	D3	21							Light grey brown and grey slightly gravelly silty CLAY. Gravel is of flint

BS1377 : Part 2 : Clause 3.2 : 1990 Determination of Moisture Content
BS1377 : Part 2 : Clause 4.4 : 1990 Determination of Liquid Limit (Single Point Cone Penetrometer Method)
BS1377 : Part 2 : Clause 5 : 1990 Determination of Plastic Limit and Plasticity Index
NHBC Standards Chapter 4.2 : Determination of the modified plasticity index

REMARKS (Including any abnormalities or departures from procedure)
Determination of modified plasticity index is not covered by UKAS accreditation

Harrison Geotechnical Engineering
Units 1 & 2 Alston Road
Norwich
Norfolk
NR6 5DS
Tel: +44 (0)1603 416333
Fax: +44 (0)1603 416443
email: laboratory@harrisongroupuk.com

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PROJECT NAME: Hydrogeological Ground Investigation, New Monks Farm, West Sussex
PROJECT NUMBER: GL18017
CLIENT: Capita Property and Infrastructure
DATE OF ISSUE: 10/03/2014

DETERMINATION OF BULK & DRY DENSITY (IMMERSION METHOD) TO BS1377 : PART 2 : 1990 : CLAUSE 7.3

BH/TP No.	Sample Depth (m)	Sample No.	Moisture Content (%)	Bulk Density (Mg/m^3)	Dry Density (Mg/m^3)	Sample Description
BH6	9.00	U5	18	2.23	1.89	Weak to moderately weak high density white CHALK

REMARKS (Including any abnormalities or departures from procedure)

Insufficient intact sample to test in full accordance with BS1377

Harrison Geotechnical Engineering
Units 1 & 2
Norwich
Norfolk
NR6 5DS
Tel: +44 (0)1603 416333
Fax: +44 (0)1603 416443
email: laboratory@harrisongroupuk.com

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PROJECT NAME:	**Hydrogeological Ground Investigation, New Monks Farm, West Sussex**	**BH/TP No.:**	**BH6**
PROJECT NUMBER:	**GL18017**	**Depth (m):**	**1.50**
CLIENT:	**Capita Property and Infrastructure**	**Sample No.:**	**U1**
DATE OF ISSUE:	**10/03/2014**		

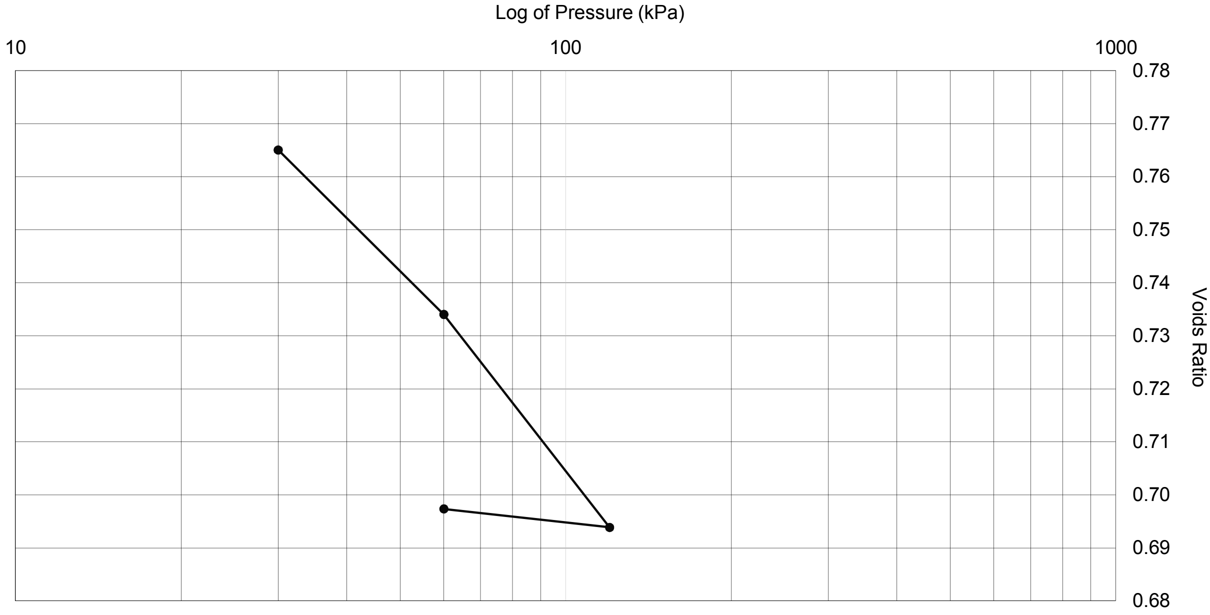
DETERMINATION OF ONE DIMENSIONAL CONSOLIDATION PROPERTIES TO BS1377 : PART 5 : 1990 : CLAUSE 3

Description: Brown slightly gravelly CLAY. Gravel is of fine chalk

Preparation: Undisturbed
Orientation: Vertical
Depth of sample within original sample (m): 1.60

Initial Conditions:		**Final Conditions**	
Moisture Content	30 %	Moisture Content	27 %
Voids Ratio	0.824	Voids Ratio	0.6974
Diameter	74.91 mm		
Height	19.99 mm	Degree of Saturation	100 %
Bulk Density	1.94 Mg/m^3	Particle Density	2.72 Mg/m^3 (Assumed)
Dry Density	1.49 Mg/m^3	Laboratory Temperature	18 ^{o}C

Pressure Range kPa	Time Fitting Method	Mv (m^2/MN)	Voids Ratio	Cv M^2/year
30	t90	1.074	0.7651	0.902
60	t90	0.586	0.7340	0.565
120	t90	0.386	0.6939	1.249
60	t90	0.034	0.6974	~



REMARKS:

Harrison Geotechnical Engineering
Units 1 & 2 Alston Road
Norwich
Norfolk
NR6 5DS
Tel: +44 (0)1603 416333
Fax: +44 (0)1603 416443
email: laboratory@harrisongroupuk.com

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PROJECT NAME:	**Hydrogeological Ground Investigation, New Monks Farm, West Sussex**	**BH/TP No.:**	**BH1**
PROJECT NUMBER:	**GL18017**	**Depth (m):**	**4.00**
CLIENT:	**Capita Property and Infrastructure**	**Sample No.:**	**U2**
DATE OF ISSUE:	**10/03/2014**		

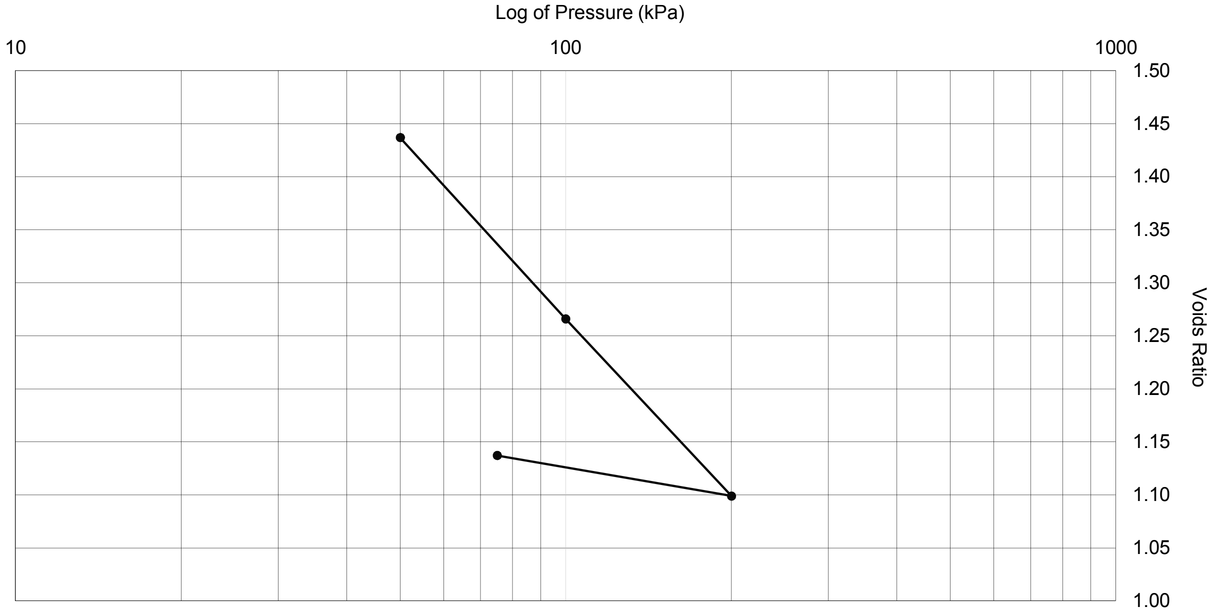
DETERMINATION OF ONE DIMENSIONAL CONSOLIDATION PROPERTIES TO BS1377 : PART 5 : 1990 : CLAUSE 3

Description: Grey and dark grey CLAY

Preparation: Undisturbed
Orientation: Vertical
Depth of sample within original sample (m): 4.20

Initial Conditions:		**Final Conditions**	
Moisture Content	69 %	Moisture Content	46 %
Voids Ratio	1.829	Voids Ratio	1.1372
Diameter	74.79 mm		
Height	20.13 mm	Degree of Saturation	100 %
Bulk Density	1.58 Mg/m^3	Particle Density	2.65 Mg/m^3 (Assumed)
Dry Density	0.94 Mg/m^3	Laboratory Temperature	18 ^{o}C

Pressure Range kPa	Time Fitting Method	Mv (m^2/MN)	Voids Ratio	Cv M^2/year
50	t90	2.772	1.4368	0.208
100	t90	1.403	1.2659	0.173
200	t90	0.737	1.0990	0.151
75	t90	0.146	1.1372	~



REMARKS:

Harrison Geotechnical Engineering
Units 1 & 2 Alston Road
Norwich
Norfolk
NR6 5DS
Tel: +44 (0)1603 416333
Fax: +44 (0)1603 416443
email: laboratory@harrisongroupuk.com

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PROJECT NAME:	**Hydrogeological Ground Investigation, New Monks Farm, West Sussex**
PROJECT NUMBER:	**GL18017**
CLIENT:	**Capita Property Infrastructure**
DATE OF ISSUE:	**10/03/2014**

DETERMINATION OF SHEAR STRENGTH BY HAND VANE

BH/TP No.	Sample Depth (m)	Sample No.	Sample Description	Shear Strength (kPa)
BH1	4.00	U2	Very low strength grey and dark grey CLAY	6
BH6	1.50	U1	Low strength brown slightly gravelly CLAY. Gravel is of fine flint	28
BH7	4.45	U2	Very low strength brown slightly gravelly slightly sandy silty CLAY. Gravel is of chalk	12
BH10	1.50	U1	High strength grey brown, greenish brown and orange brown slightly gravelly CLAY. Gravel is of chalk	86
BH10	5.00	U2	TOP OF TUBE: Low strength light brown and dark grey slightly gravelly CLAY. Gravel is of chalk. BASE OF TUBE: White structureless CHALK composed of slightly sandy silty GRAVEL. Gravel is of very weak low density chalk. Hand vane determination carried out in top of sample	25

REMARKS (Including any abnormalities or departures from procedure)

Harrison Geotechnical Engineering
Units 1 & 2
Norwich
Norfolk
NR6 5DS
Tel: +44 (0)1603 416333
Fax: +44 (0)1603 416443
email: laboratory@harrisongroupuk.com

harrisongroup	U100 Photograph Sheet		
	Job No: GL18017		
Client : Capita Property and Infrastructure	Project: Hydrogeological Ground Investigation, New Monks Farm, West Sussex		
Borehole No : BH6 / Sample No.: U5	Sample Depth (m): 9.00	Date Logged: 14/2/14	
Sample diameter (mm): 103.11	Sample length (mm): 385	Sample mass (g): 6284.2	

Description:

Structureless CHALK composed of white and light grey gravelly sandy SILT. Gravel is of fine to coarse angular to subangular very weak to moderately weak low to high density white chalk. Grade Dm.

Coarse elongated flint at 9.08m

Photograph:

Sample disturbance:

Details of sub samples: (type, depth etc)	Remarks:	
None	Logged by: MW	Checked By: MW

Appendix B

Groundwater Levels (Compensated Logger Data)

	BH01D		BH01S		BH02D		BH02S		BH04D		BH04S		BH06D		BH06S		BH07D		BH07S		BH10D		BH10S	BH10S Adjusted	
Date	Water head [cm]	temperature [oC]	Water head [cm]	temperature	Water head [cm]	temperature	Water head [cm]	temperature	Water head [cm]	temperature	Water head [cm]	temperature	Water head [cm]	temperature	Water head [cm]	temperature	Water head [cm]	temperature	Water head [cm]	temperature	Water head [cm]	temperature	Water head [cm]	Water Head (cm)	temperature
	249.779	11.517	208.746	9.927	290.338	10.563	270.675	8.82	292.983	10.69	294.825	8.613	351.692	11.273	361.783	8.553	248.471	11.837	381.008	9.38	220.33	11.507	490.75	290.75	
	249.629	11.517	208.229	9.88	290.246	10.57	270.692	8.8	292.775	10.71	294.575	8.68	351.717	11.28	362.2	8.573	249.896	11.837	381.558	9.407	220.11	11.533	491.3	291.3	
	249.779	11.523	208.238	9.953	290.104	10.557	270.967	8.793	292.692	10.743	294.317	8.653	351.575	11.253	361.808	8.573	250.571	11.837	382.233	9.407	220.02	11.52	491.975	291.975	
07/02/2014	249.663	11.537	207.729	9.993	289.813	10.607	270.192	8.767	292.342	10.75	294.208	8.687	351.342	11.23	361.433	8.607	250.804	11.823	383.325	9.4	220.48	11.52	491.2	291.2	
	249.838	11.543	208.021	10.293	289.463	10.62	270.083	8.767	292.692	10.77	294.633	8.66	351.283	11.243	361.725	8.6	250.163	11.823	384.283	9.393	220.93	11.52	491.425	291.425	
	250.196	11.543	209.096	10.263	289.704	10.613	270.625	8.753	292.933	10.77	294.642	8.687	352.108	11.253	362	8.573	249.238	11.837	385.892	9.367	221.28	11.52	490.3	290.3	
	249.904	11.543	208.446	10.347	289.413	10.647	270.108	8.753	293.225	10.77	294.525	8.693	351.992	11.243	362.283	8.627	248.304	11.853	387.242	9.353	220.15	11.533	491.05	291.05	
	249.554	11.55	208.196	10.293	289.413	10.613	270.392	8.793	292.875	10.777	293.875	8.707	352.225	11.253	362.567	8.6	247.546	11.837	388.458	9.347	221.13	11.533	490.8	290.8	
	251.979	11.55	207.954	10.347	289.621	10.627	270.417	8.78	293.667	10.777	295.367	8.72	354.008	11.253	364.058	8.6	248.104	11.837	390.75	9.307	222.03	11.533	492.225	292.225	
	249.821	11.55	207.529	10.3	289.621	10.613	270.258	8.793	294.717	10.777	296.142	8.693	355.933	11.267	367.9	8.56	248.454	11.837	392.058	9.347	222.83	11.55	492.8	292.8	
	249.679	11.543	207.921	10.107	290.704	10.607	270.383	8.807	296.733	10.783	298.8	8.693	359	11.223	373.358	8.533	249.946	11.837	393.383	9.347	223.03	11.55	492.525	292.525	
	249.854	11.543	208.088	10.133	291.754	10.607	269.75	8.82	297.608	10.783	299.767	8.687	360.05	11.253	378.458	8.52	251.054	11.837	394.083	9.34	222.96	11.55	493.225	293.225	
	250.354	11.543	208.321	10.36	292.371	10.62	270.25	8.82	297.933	10.783	300.667	8.687	360.55	11.253	380.692	8.48	252.896	11.823	394.85	9.34	222.69	11.55	492.725	292.725	
	250.029	11.543	208.038	10.32	292.688	10.62	270.1	8.807	297.783	10.79	300.25	8.647	359.875	11.253	380.275	8.493	254.146	11.837	394.167	9.32	223.31	11.55	493.575	293.575	
	249.679	11.55	207.554	10.273	292.804	10.62	269.883	8.78	296.85	10.777	299.233	8.647	359.35	11.243	378.725	8.54	254.788	11.837	394.083	9.313	223.73	11.55	493.225	293.225	
	250.179	11.557	208.096	10.313	293.479	10.62	270.292	8.793	297.35	10.777	299.642	8.653	359.5	11.253	378.2	8.533	255.288	11.837	394.758	9.333	222.87	11.55	493.9	293.9	
	250.179	11.55	207.788	10.267	294.121	10.627	269.717	8.78	296.825	10.79	299.067	8.66	358.8	11.217	377.492	8.553	254.471	11.837	394.583	9.32	223.46	11.55	493.725	293.725	
	249.829	11.557	207.921	10.313	294.004	10.6	270.25	8.767	296.475	10.783	298.933	8.68	358.217	11.23	376.292	8.553	253.421	11.837	394.583	9.313	222.12	11.563	493.725	293.725	
08/02/2014	250.179	11.557	208.054	10.187	294.413	10.647	269.583	8.76	296.125	10.79	298.4	8.66	358.158	11.243	374.825	8.56	251.788	11.837	394.583	9.333	222.88	11.563	493.725	293.725	
	250.179	11.557	207.696	10.133	294.938	10.613	270.025	8.767	295.833	10.79	297.775	8.687	357.808	11.243	373.8	8.567	250.738	11.837	394.758	9.32	223.63	11.577	493.9	293.9	
	250.238	11.563	208.038	10.133	294.821	10.647	270.1	8.78	295.717	10.79	297.05	8.68	357.517	11.243	373.608	8.593	250.154	11.823	395.1	9.3	222.98	11.577	494.775	294.775	
	249.888	11.543	208.029	10.293	294.879	10.613	270.092	8.767	294.958	10.777	296.642	8.673	357.342	11.253	372.4	8.573	249.688	11.823	396.158	9.287	224.27	11.577	493.3	293.3	
	250.063	11.557	208.338	10.447	294.763	10.64	269.733	8.767	294.958	10.783	296.683	8.68	356.817	11.253	371.775	8.607	249.571	11.823	396.2	9.307	223.87	11.563	493.475	293.475	
	250.063	11.55	207.754	10.16	294.471	10.627	269.95	8.787	294.492	10.79	295.967	8.707	356.35	11.253	370.792	8.607	249.979	11.823	396.283	9.287	224.03	11.577	493.825	293.825	
	250.238	11.563	208.104	10.393	294.529	10.6	270.3	8.78	294.492	10.783	296.183	8.673	356.35	11.243	370.608	8.607	251.321	11.837	397.033	9.307	225.14	11.577	494.175	294.175	
	250.063	11.557	208.288	10.113	294.121	10.627	270.217	8.793	293.967	10.783	295.3	8.707	355.475	11.26	369.325	8.607	252.079	11.837	396.683	9.287	223.45	11.563	493.825	293.825	
	250.588	11.55	208.154	10.187	293.654	10.627	269.817	8.793	293.85	10.777	294.767	8.693	355.125	11.26	369.192	8.587	253.304	11.823	396.683	9.333	224.22	11.563	493.825	293.825	
	250.238	11.557	208.113	10.147	293.013	10.633	269.908	8.787	293.5	10.783	294.858	8.693	354.833	11.267	368.483	8.6	253.888	11.837	396.775	9.273	224.81	11.563	493.65	293.65	
	250.413	11.563	208.038	10.093	292.954	10.6	270.233	8.787	293.267	10.783	293.85	8.687	355.125	11.273	368.542	8.62	253.888	11.837	395.367	9.333	224.51	11.577	492.775	292.775	
	250.413	11.557	207.904	10.287	292.429	10.613	270.1	8.76	293.442	10.783	294.517	8.673	355.183	11.237	369.208	8.62	253.538	11.823	395.5	9.36	224.51	11.577	492.775	292.775	
	250.704	11.563	208.221	10.22	292.429	10.62	270.417	8.793	293.267	10.777	294.833	8.68	354.775	11.253	368.992	8.62	252.488	11.837	395.283	9.32	224.93	11.563	493.425	293.425	
	250.354	11.557	207.788	10.387	292.021	10.627	269.983	8.76	292.742	10.777	294.267	8.693	353.9	11.253	368.692	8.633	251.029	11.823	394.983	9.32	224.99	11.577	493.725	293.725	
	251.054	11.563	207.479	10.38	291.846	10.653	270.208	8.747	292.683	10.79	293.958	8.693	353.433	11.267	367.45	8.673	250.446	11.823	394.675	9.333	225.58	11.577	493.55	293.55	
	250.729	11.577	207.688	10.287	291.404	10.64	270.017	8.76	292.708	10.783	293.233	8.687	353.05	11.26	366.725	8.68	249.479	11.823	394.617	9.367	225.26	11.577	493.225	293.225	
	250.704	11.563	207.571	10.147	291.088	10.66	269.633	8.753	292.158	10.79	293.65	8.687	352.85	11.273	365.808	8.653	249.221	11.823	394.367	9.34	225.41	11.577	493.375	293.375	
	250.729	11.577	207.463	10.133	290.588	10.62	269.658	8.76	292.183	10.79	293.008	8.673	352.7	11.273	364.9	8.62	249.246	11.823	394.258	9.353	226.2	11.577	493.4	293.4	
	250.729	11.57	207.646	10.2	290.238	10.627	269.842	8.747	291.833	10.77	292.392	8.707	352.233	11.267	364.95	8.693	249.071	11.823	394.175	9.353	225.85	11.577	493.05	293.05	
	250.846	11.583	207.429	10.16	290.238	10.613	269.625	8.76	291.542	10.777	292.308	8.693	351.708	11.273	364.067	8.64	250.179	11.823	393.692	9.34	225.5	11.577	494.7	294.7	
	250.671	11.57	207.404	10.033	289.654	10.593	269.467	8.767	291.075	10.783	291.75	8.693	350.95	11.26	362.842	8.593	250.646	11.823	392.6	9.347	225.81	11.577	493.475	293.475	
	250.988	11.59	207.538	10.113	289.213	10.62	269.333	8.767	290.575	10.783	291.083	8.713	350.275	11.26	362.175	8.553	251.313	11.823	391.933	9.347	225.38	11.577	494.275	294.275	
	251.163	11.59	207.113	10.273	288.804	10.653	269.575	8.78	290.225	10.777	291.058	8.713	349.75	11.26	360.817	8.507	251.546	11.823	390.842	9.393	226.26	11.59	493.05	293.05	
	250.813	11.597	207.263	10.147	288.396	10.583	269.592	8.787	289.817	10.777	290.808	8.707	349.167	11.26	359.9	8.553	250.904	11.823	389.925	9.353	226.74	11.577	494	294	
09/02/2014	250.779	11.59	207.263	10.28	287.488	10.583	269.058	8.78	289.375	10.77	289.608	8.72	348.142	11.28	358.7	8.507	249.938	11.823	389.392	9.373	226.31	11.577	492.8	292.8	
	250.754	11.59	207.288	10.267	286.996	10.62	269.35	8.787	289.175	10.77	289.9	8.733	348.117	11.26	358.058	8.52	248.921	11.823	389.55	9.367	225.93	11.577	492.425	292.425	
	250.779	11.597	207.196	10.26	285.971	10.64	269.258	8.793	288.033	10.777	288.875	8.747	347.267	11.273	356.767	8.553	247.488	11.823	388.525	9.4	225.68	11.577	491.4	291.4	
	250.721	11.59	207.596	10.38	285.329	10.6	268.992	8.787	288.325	10.783	288.742	8.78	346.917	11.273	356.633	8.54	246.671	11.823	388.525	9.4	226.44	11.577	491.4	291.4	
	250.896	11.597	207.379	10.313	284.979	10.62	269.175	8.807	288.267	10.77	288.792	8.693	346.625	11.267	356.15	8.567	246.088	11.823	388.442	9.347	226.86	11.577	492.05	292.05	
	251.071	11.597	207.429	10.313	284.454	10.607	269.225	8.807	287.917	10.77	288.708	8.713	346.625	11.267	355.533	8.54	245.738	11.823	387.958	9.393	227.28	11.577	491.7	291.7	
	251.446	11.597	207.638	10.347	284.129	10.563	269.3	8.8	288	10.777	287.983	8.8	346.417	11.26	354.942	8.553	246.054	11.823	387.633	9.393	226.95	11.577	493.375	293.375	
	251.271	11.603	207.871	10.393	283.429	10.62	269.533	8.787	287.592	10.777	287.683	8.78	345.775	11.267	355.175	8.54	246.404	11.823	386.8	9.407	227.78	11.577	492.675	292.675	
	251.096	11.597	207.696	10.107	283.254	10.6	269.625	8.793	287.883	10.77	287.908	8.8	345.892	11.253	354.867	8.56	247.046	11.823	386.892	9.407	227.61	11.577	492.5	292.5	
	251.096	11.597	207.654	10.193	282.438	10.62	269.05	8.78	287.592	10.777	287.333	8.8	345.25	11.267	354.025	8.553	248.096	11.823	386.983	9.42	227.43	11.577	492.325	292.325	
	251.388	11.597	207.654	10.367	281.971	10.627	269.05	8.82	287.533	10.783	287.333	8.78	345.192	11.273	354.425	8.567	249.146	11.823	386.983	9.393	228.2	11.577	492.325	292.325	
	251.446	11.603	207.963	10.113	281.388	10.6	269.358	8.78	287.592	10.777	287.375	8.793	345.542	11.273	354.333	8.56	249.846	11.837	387.025	9.44	228.38	11.577	492.5	292.5	
	251.446	11.603	207.646	10.313	280.921	10.62	269.708	8.787	287.65	10.777	287.458	8.8	345.367	11.26	353.617	8.553	249.904	11.823	387.242	9.393	227.96	11.577	492.85	292.85	
	251.621	11.603	207.196	10.273	280.629	10.62	269.525	8.82	288.583	10.783	287.942	8.78	346.767	11.26	354.5	8.527	249.379	11.823	387.858	9.373	228.31	11.577	493.2	293.2	
	251.621	11.59	207.013	10.26	280.338	10.583	269.208	8.78	289.167	10.777	289.225	8.8	347.933	11.253	358.317	8.507	249.146	11.823	387.675	9.4	227.89	11.577	493.55	293.55	
	251.421	11.597	207.379	10.113	280.546	10.607	269.308	8.787	289.492	10.777	289.725	8.793	348.142	11.243	359.617	8.533	248.363	11.823	388.308	9.42	228.39	11.59	493.05	293.05	
	251.096	11.603	207.179	9.913	280.746	10.607	269.108	8.78	289.808	10.783	289.392	8.793	347.817	11.243	359.283	8.607	247.338	11.823	388.242	9.373	227.83	11.577	492.25	292.25	
	251.479	11.597	207.279	10.16	281.538	10.593	269.342	8.78	289.55	10.777	290.158	8.713	348.2	11.267	359.65	8.62	247.138	11.81	389.008	9.347	228.33	11.577	491.75	291.75	
	251.654	11.597	207.188	10.16	281.888	10.633	269.25	8.767	290.192	10.777	290.867	8.693	348.667	11.253	359.692	8.507	247.371	11.823	389.583	9.373	229.27	11.577	491.925	291.925	
	251.446	11.603	206.821	10.16	281.854	10.593	268.883	8.787	289.867	10.777	290.633	8.773	348.633	11.253	360.658	8.573	247.513	11.823	388.95	9.36	228.77	11.577	491.425	291.425	
	251.771	11.597	207.154	10.193	282.296	10.607	269.083	8.78	290.133	10.777	290.833	8.773	348.317	11.253	361.258	8.62	248.538	11.823	388.35	9.373	228.57	11.577	494.225	294.225	
	251.446	11.597	206.921	9.947	283.021	10.593	269.25	8.78	290.275	10.77	290.6	8.78	348.458	11.26	361.158	8.627	249.904	11.823	388.383	9.4	228.83	11.59	493.725	293.725	
	251.646	11.603	206.779	10.107	282.871	10.607	268.708	8.787	290.125	10.777	290.725	8.773	348.133	11.253	360.75	8.567	251.038	11.837	387.575	9.42	229.69	11.577	493.05	293.05	
	251.388	11.603	206.721	10.127	283.079	10.6	268.917	8.787	290.333	10.783	290.8	8.767	347.933	11.267	361.225	8.607	252.004	11.837	387.25	9.4	229.54	11.577	494.325	294.325	
10/02/2014	251.563	11.603	206.904	10.293	283.838	10.6	269.367	8.8	290.508	10.783	290.983	8.8	347.933	11.253	360.475	8.473	252.238	11.837	387.167	9.42	229.19	11.577	493.975	293.975	
	251.738	11.603	206.596	10.26	284.304	10.62	268.792	8.8	290.625	10.783	291.475	8.747	347.875	11.26	360.3	8.533	251.654	11.837	386.858	9.4	228.44	11.577	493.8	293.8	
	251.563	11.603	206.954	9.893	283.954	10.62	268.75	8.793	290.275	10.77	291.167	8.747	347.875	11.273	360.525	8.66	250.429	11.853	386.55	9.4	229.61	11.577	493.625	293.625	
	251.854	11.61	207.038	9.793	284.479	10.607	269.233	8.8	290.217	10.777	291.783	8.707	347.758	11.267	360.342	8.52	249.321	11.837	386.9	9.407	229.19	11.577	493.975	293.975	
	251.329	11.61	206.471	10.26	284.538	10.593	268.667	8.813	289.633	10.763	290.95	8.627	347.35	11.26	358.842	8.607	248.038	11.853	386.333	9.407	229.26	11.577	493.275	293.275	
	251.854	11.61	206.704	10.14	284.654	10.62	269.3	8.813	289.633	10.777	290.517	8.673	347	11.26	359.075	8.647	246.929	11.853	386.033	9.407	229.33	11.577	493.575	293.575	
	251.846	11.61	206.738	9.88	284.121	10.607	268.533	8.8	289.042	10.777	289.617	8.747	346.175	11.26	357.508	8.56	245.813	11.853	385	9.4	229.16	11.577	494.875	294.875	
	251.996	11.603	206.771	9.813	284.154	10.6	268.967	8.813	288.667	10.777	289.517	8.747	345.975	11.237	356.608	8.5	245.788	11.837	383.967	9.427	229.79	11.577	493.975	293.975	
	252.021	11.603	206.954	10.053	283.713	10.583	268.883	8.8	288.05	10.77	288.9	8.593	345.3	11.237	355.592	8.54	245.696	11.853	382.95	9.427	231.31	11.577	493.425	293.425	
	252.254	11.61	207.021	10.313	282.954	10.607	268.683	8.82	287.817	10.77	288.7	8.62	344.717	11.253	354.458	8.553	246.338	11.853	381.417	9.433	229.91	11.577	493.025	293.025	
	252.254	11.603	206.954	10.107	282.663	10.607	268.75	8.82	287.408	10.777	288.233	8.607	344.133	11.243	353.858	8.6	247.213	11.853	381.217	9.427	230.62	11.577	493.625	293.625	
	252.129	11.603	206.613	10.267	282.479	10.613	269.075	8.8	287.575	10.777	287.758	8.62	344.008	11.253	353.383	8.533	248.196	11.853	380.475	9.44	230.14	11.577	493.15	293.15	
	252.129	11.603	206.846	10.347	281.488	10.607	269.042	8.793	287.05	10.777	287.458	8.613	343.658	11.26	352.683	8.527	248.779	11.853	380.042	9.453	230.98	11.577	492.45	292.45	
	252.246	11.61	206.188	10.26	281.371	10.57	268.65	8.807	286.992	10.77	287.467	8.613	343.483	11.243	352.692	8.513	248.663	11.853	380.05	9.467	230.45	11.563	491.925	291.925	
	252.071	11.603	206.329	10.26	280.729	10.583	268.792	8.8	286.817	10.77	286.808	8.64	343.25	11.253	352.033	8.54	247.554	11.867	379.658	9.467	230.69	11.577	491.4	291.4	
	252.621	11.603	206.396	10.26	279.996	10.607	268.992	8.767	286.9	10.777	287.142	8.62	343.158	11.243	351.7	8.527	246.646	11.853	379.725	9.467	230.89	11.577	492.6	292.6	
	252.804	11.603	206.596	10.227	279.713	10.607	268.658	8.787	287.2	10.777	287.208	8.64	343.458	11.26	351.9	8.493	245.838	11.867	380.858	9.453	231.13	11.577	492.6	292.6	
	252.254	11.61	206.329	10.093	279.513	10.6	268.525	8.767	287.292	10.777	287.475	8.62	343.958	11.26	351.9	8.527	245.346	11.867	381.525	9.467	230.79	11.577	492.8	292.8	
	252.138	11.603	205.921	10.053	279.046	10.583	268.917	8.767	286.942	10.77	287.333	8.62	343.492	11.26	351.892	8.5	244.588	11.853	382.05	9.44	231.32	11.577	492.325	292.325	
	251.788	11.603	206.046	10.027	278.346	10.607	267.842	8.787	286.825	10.77	287.058	8.613	342.792	11.273	351.483	8.513	244.529	11.853	382.575	9.44	231.08	11.577	492.85	292.85	
	251.996	11.603	206.129	9.927	278.438	10.593	268.325	8.767	287.092	10.777	287.008	8.627	343.408	11.237	351.967	8.593	245.204	11.853	383.992	9.453	231.28	11.577	492.4	292.4	
	252.346	11.603	206.471	9.787	278.321	10.613	268.667	8.767	287.092	10.77	287.35	8.613	343.525	11.26	351.775	8.48	246.721	11.853	384.867	9.46	232.16	11.577	493.275	293.275	
	252.054	11.603	206.263	10.287	278.204	10.593	268.325	8.787	287.267	10.75	287.675	8.62	343.817	11.267	352.1	8.627	248.238	11.853	385.725	9.427	231.78	11.577	494.2	294.2	
	251.704	11.603	206.021	10.227	277.679	10.607	268.083	8.793	287.5	10.763	287.967	8.607	344.167	11.237	352.525	8.553	249.871	11.853	387.217	9.453	232.24	11.577	494.425	294.425	
11/02/2014	252.204	11.61	205.938	10.007	278.529	10.563	268.267	8.793	288.35	10.763	288.817	8.607	345.367	11.26	354.842	8.62	251.771	11.853	387.8	9.407	232.33	11.577	494.275	294.275	
	252.113	11.603	206.188	10.193	278.729	10.6	268.117	8.787	290.183	10.763	289.867	8.593	347.725	11.26	359.492	8.48	252.846	11.853	387.517	9.433	231.41	11.563	495.125	295.125	
	252.171	11.61	206.038	10.007	279.021	10.583	268.633	8.78	290.183	10.77	290.117	8.587	347.317	11.253	362.542	8.6	251.738	11.853	386.033	9.433	231.96	11.577	494.375	294.375	
	252.171	11.61	206.146	10.193	279.838	10.583	267.942	8.78	290.242	10.77	290.492	8.573	347.142	11.253	362.383	8.573	249.988	11.867	385.208	9.407	232.27	11.563	494.15	294.15	
	252.288	11.61	206.113	10.193	280.304	10.6	268.308	8.76	289.775	10.763	290.858	8.58	346.792	11.253	362.35	8.527	248.763	11.853	384.775	9.407	231.57	11.577	493.45	293.45	
	252.313	11.61	205.663	10.187	280.504	10.593	267.858	8.787	289.858	10.77	290.675	8.573	346.408	11.253	360.833	8.553	247.271	11.837	383.792	9.473	232.25	11.563	493.6	293.6	
	252.688	11.603	205.788	10.193	280.821	10.607	267.983	8.78	289.417	10.763	290.4	8.58	346.258	11.243	360.692	8.467	246.188	11.837	383.65	9.453	232.92	11.577	493.925	293.925	
	252.804	11.61	205.804	9.967	281.288	10.57	268.4	8.78	289.3	10.757	290.017	8.56	346.083	11.253	359.375	8.527	245.546	11.837	382.467	9.44	232.63	11.577	494.875	294.875	
	252.779	11.603	206.496	9.733	281.263	10.613	268.425	8.78	288.925	10.763	289.908	8.587	345.533	11.243	357.667	8.573	245.638	11.853	382.358	9.44	232.45	11.563	494.5	294.5	

*Data filtered to display one reading per hour. Data recorded at 2 minute intervals throughout test period, full data available on request.

	252.779	11.597	206.196	9.82	281.204	10.593	268.258	8.78	288.692	10.757	289.875	8.56	345.358	11.26	357.233	8.453	245.929	11.853	382.058	9.453	232.33	11.577	493.8	293.8
	252.479	11.597	205.554	10.087	280.554	10.6	267.75	8.78	288.217	10.763	288.567	8.58	344.475	11.243	356.325	8.48	246.213	11.853	381.15	9.44	232.68	11.577	495.625	295.625
	252.771	11.603	206.279	9.853	280.788	10.577	267.808	8.767	287.867	10.763	288.225	8.587	344.358	11.23	354.917	8.473	247.438	11.853	380.408	9.473	234.11	11.563	494.75	294.75
	252.771	11.603	206.288	10.06	280.846	10.593	268.217	8.78	288.1	10.757	288.767	8.58	344.3	11.243	354.925	8.433	248.546	11.853	379.883	9.46	234.35	11.577	494.225	294.225
	252.913	11.61	205.879	10.227	280.054	10.6	267.942	8.78	287.6	10.763	288.625	8.573	343.8	11.237	353.85	8.433	249.154	11.853	379.875	9.487	233.68	11.563	494.55	294.55
	252.913	11.603	205.929	10.033	279.879	10.6	268.658	8.787	287.717	10.77	288.408	8.58	343.8	11.243	352.833	8.467	249.213	11.853	379.925	9.473	233.33	11.563	495.2	295.2
	252.971	11.603	205.971	10.24	279.704	10.593	268.7	8.767	287.892	10.757	288.05	8.58	343.508	11.23	352.742	8.433	248.338	11.853	380.233	9.473	234.27	11.563	495.375	295.375
	252.913	11.603	205.621	10.153	278.713	10.627	267.817	8.767	287.075	10.763	287.433	8.58	343.45	11.26	352.258	8.447	246.763	11.853	379.75	9.473	233.15	11.577	495.025	295.025
	252.913	11.603	205.796	9.913	278.771	10.6	268.125	8.76	287.25	10.763	287.208	8.58	343.275	11.237	352.033	8.42	245.479	11.853	379.525	9.493	234.09	11.577	494.2	294.2
	252.271	11.603	205.088	10.213	278.188	10.57	267.817	8.767	286.433	10.763	286.767	8.587	342.808	11.237	351.725	8.473	244.254	11.853	379.483	9.493	233.92	11.577	494.025	294.025
	252.621	11.603	205.613	10.26	278.304	10.583	268.208	8.787	288.067	10.757	287.558	8.587	344.792	11.243	352.25	8.433	244.371	11.853	379.875	9.46	233.68	11.577	493.55	293.55
	252.921	11.597	206.213	10.267	280.704	10.55	268.008	8.76	298.575	10.77	297.892	8.587	357.167	11.26	365.917	8.473	247.646	11.853	381.408	9.473	233.91	11.577	494.55	294.55
	252.771	11.603	205.613	10.033	282.013	10.62	267.942	8.787	301.633	10.763	304.092	8.56	360.458	11.253	377.583	8.54	250.121	11.853	380.942	9.46	233.34	11.577	494.75	294.75
	253.154	11.603	205.421	10.113	283.446	10.593	268.817	8.753	302.833	10.77	306.3	8.487	362.533	11.237	382.058	8.48	252.838	11.853	383.15	9.453	233.88	11.563	495.825	295.825
	252.488	11.603	205.329	10	284.413	10.6	268.058	8.733	302.458	10.763	305.675	8.5	363.033	11.253	381.567	8.407	254.446	11.853	383.858	9.46	233.15	11.563	495.2	295.2
12/02/2014	251.988	11.603	205.521	10.007	285.254	10.577	267.583	8.753	301.667	10.75	304.8	8.613	362.592	11.243	381.225	8.367	256.163	11.853	385.25	9.427	233.68	11.577	495.925	295.925
	253.221	11.61	206.129	10.053	286.896	10.57	268.992	8.753	302.608	10.757	305.542	8.52	364.35	11.26	381.3	8.353	258.446	11.853	387.858	9.407	234.85	11.74	495.2	295.2
	253.079	11.61	205.796	10.113	287.804	10.577	268.792	8.753	302.642	10.763	305.608	8.613	364.267	11.23	380.7	8.387	259.354	11.853	390.058	9.393	235.15	11.74	494.8	294.8
	253.288	11.61	206.396	10.213	289.938	10.607	269.125	8.747	304.892	10.763	307.808	8.553	369.375	11.253	382.9	8.373	259.446	11.853	392.125	9.4	235.45	11.753	496.4	296.4
	253.463	11.61	206.746	10.14	292.971	10.6	269.075	8.707	307.575	10.75	311.092	8.547	371.767	11.237	386.717	8.347	259.213	11.853	392.475	9.373	235.03	11.74	496.75	296.75
	253.113	11.61	206.204	10.02	295.771	10.6	268.667	8.72	310.725	10.763	315.35	8.527	375.85	11.237	389.775	8.32	258.863	11.853	392.867	9.393	234.79	11.74	497.275	297.275
	253.113	11.61	206.304	10.173	296.296	10.593	268.5	8.733	310.492	10.77	314.65	8.547	375.85	11.237	390.542	8.3	256.938	11.853	392.3	9.373	234.86	11.727	496.575	296.575
	253.288	11.61	206.621	10.233	297.229	10.583	269.35	8.727	309.967	10.757	313.633	8.607	375.675	11.237	390.192	8.313	256.179	11.853	392.617	9.367	235.28	11.713	496.225	296.225
	253.313	11.603	206.613	10.14	297.663	10.577	268.808	8.693	308.825	10.763	312.292	8.533	375.35	11.23	389.383	8.34	255.913	11.853	391.675	9.407	235.37	11.713	497.55	297.55
	253.313	11.603	206.888	10.267	297.604	10.577	268.683	8.673	308.125	10.763	311.233	8.56	374.825	11.237	388.858	8.287	255.796	11.853	391.417	9.407	235.61	11.713	497.025	297.025
	253.313	11.597	206.454	10.2	298.304	10.577	268.65	8.66	307.425	10.763	309.867	8.58	374.125	11.237	388.158	8.247	256.554	11.837	391.117	9.393	235.68	11.7	496.325	296.325
	253.138	11.603	206.504	10.113	298.654	10.607	268.967	8.633	307.25	10.75	308.983	8.58	373.892	11.237	387.008	8.247	258.071	11.837	391.033	9.38	236.09	11.7	495.975	295.975
	252.579	11.597	206.188	10.183	298.388	10.563	269.05	8.64	305.933	10.75	307.333	8.627	372.75	11.23	385.758	8.253	259.321	11.837	390.85	9.393	235.24	11.7	497.125	297.125
	253.129	11.603	206.313	10.227	297.421	10.607	268.908	8.647	305.258	10.763	306.658	8.52	372.542	11.26	385.35	8.26	260.104	11.853	390.708	9.4	236.1	11.7	496.45	296.45
	253.804	11.603	206.813	10.227	298.504	10.57	269.542	8.64	305.35	10.743	306.758	8.527	372.692	11.26	385.85	8.28	260.604	11.853	391.208	9.407	235.83	11.7	496.95	296.95
	253.779	11.603	207.279	10.293	298.654	10.577	269.208	8.607	304.683	10.757	306.158	8.507	372.025	11.23	385.383	8.233	259.529	11.853	391.408	9.42	236.4	11.7	496.75	296.75
	254.129	11.603	207.088	10.033	299.179	10.57	269.417	8.593	304.625	10.75	305.833	8.52	371.908	11.23	384.658	8.227	258.363	11.837	392.283	9.4	237.28	11.7	497.625	297.625
	253.954	11.603	206.896	10.153	299.588	10.577	269.758	8.6	304.158	10.75	305.642	8.527	372.083	11.23	385.133	8.22	256.963	11.837	393.425	9.4	236.62	11.7	496.5	296.5
	254.013	11.603	207.196	10.1	299.821	10.593	269.925	8.593	303.692	10.75	304.875	8.533	371.733	11.243	384.1	8.187	255.329	11.837	393.992	9.407	237.32	11.7	497.2	297.2
	253.663	11.597	207.154	10.233	299.646	10.583	270.017	8.593	303.167	10.757	304.167	8.533	371.092	11.223	383.792	8.22	254.163	11.837	394.083	9.373	237.14	11.7	497.025	297.025
	254.163	11.597	207.029	10.113	299.679	10.593	269.758	8.58	302.908	10.75	304.042	8.547	370.833	11.253	383.267	8.213	253.554	11.837	394.492	9.367	237.05	11.7	496.7	296.7
	254.013	11.603	206.696	10.1	299.588	10.583	269.692	8.607	302.467	10.763	303.442	8.547	370.567	11.243	383.067	8.227	253.579	11.837	394.825	9.38	237.25	11.7	496.9	296.9
	253.988	11.603	206.929	9.953	299.913	10.57	269.392	8.587	302.617	10.763	303.542	8.62	370.6	11.23	382.767	8.267	254.254	11.837	395.325	9.36	237.75	11.7	496.4	296.4
	254.188	11.603	206.871	9.993	299.238	10.557	269.733	8.593	302.233	10.757	303.083	8.62	370.1	11.237	382.575	8.22	255.388	11.837	395	9.373	237.43	11.7	496.075	296.075
13/02/2014	254.129	11.61	207.013	10.187	299.413	10.577	269.875	8.58	301.708	10.757	302.158	8.613	369.342	11.243	382.317	8.16	256.554	11.837	394.342	9.34	236.9	11.7	496.55	296.55
	253.604	11.61	206.671	10.233	298.829	10.577	269.533	8.58	300.717	10.763	301.15	8.613	368.35	11.237	381.175	8.287	257.313	11.837	393.6	9.347	237.56	11.7	496.675	296.675
	253.604	11.603	206.554	10.033	298.246	10.563	268.883	8.58	300.192	10.75	300.5	8.647	367.592	11.253	380.658	8.193	257.954	11.837	392.55	9.373	237.28	11.7	496.625	296.625
	253.779	11.603	206.704	10.093	297.779	10.57	269.3	8.58	299.783	10.75	299.983	8.647	366.542	11.26	380.142	8.213	257.313	11.837	392.167	9.353	236.8	11.7	496.575	296.575
	254.271	11.603	206.879	10.147	297.454	10.577	269.208	8.593	299.108	10.75	299.492	8.56	365.75	11.23	378.583	8.233	256.054	11.837	391.542	9.34	237.31	11.7	496.55	296.55
	254.038	11.603	206.679	10.147	296.696	10.563	269.142	8.593	298.467	10.757	298.492	8.507	364.817	11.237	377.85	8.133	254.246	11.837	390.275	9.393	238.21	11.7	497.15	297.15
	254.713	11.603	206.888	9.727	296.263	10.55	269.75	8.58	298.558	10.757	298.7	8.5	364.442	11.223	376.458	8.193	252.704	11.837	389.417	9.373	238.25	11.7	497.425	297.425
	254.554	11.603	207.029	10.047	295.404	10.557	270.025	8.593	298.05	10.757	297.508	8.58	363.408	11.243	375.533	8.213	251.379	11.837	388.892	9.373	239.23	11.7	496.1	296.1
	254.879	11.603	206.929	9.913	294.679	10.53	269.525	8.58	297.15	10.743	297.542	8.593	362.917	11.23	374.367	8.2	250.479	11.837	388.258	9.4	239.09	11.7	495.2	295.2
	254.354	11.603	206.854	9.913	293.804	10.557	269.583	8.6	296.8	10.763	296.667	8.56	362.158	11.243	373.492	8.167	250.421	11.837	387.383	9.393	238.22	11.7	496.325	296.325
	254.821	11.597	207.121	9.88	293.513	10.55	269.583	8.6	297.092	10.757	296.8	8.58	362.042	11.223	373.092	8.233	251.238	11.837	387.783	9.393	239.56	11.7	495.325	295.325
	254.721	11.603	206.813	10.06	292.713	10.577	269.542	8.593	296.35	10.75	296.092	8.58	361.242	11.23	372.25	8.22	252.129	11.837	386.808	9.373	238.58	11.7	496.35	296.35
	254.871	11.597	206.879	10.06	292.279	10.557	269.742	8.6	296.442	10.75	296.292	8.56	361.042	11.237	371.783	8.173	253.796	11.837	387.142	9.393	239.92	11.7	496.15	296.15
	255.046	11.603	206.888	9.813	291.579	10.557	269.75	8.567	296.208	10.757	295.233	8.587	360.108	11.217	371.125	8.167	255.371	11.837	386.617	9.407	239.39	11.7	495.625	295.625
	254.846	11.597	206.729	9.64	290.971	10.537	269.458	8.593	296.067	10.75	295.608	8.587	359.792	11.223	370.167	8.14	256.571	11.837	386.992	9.42	240.13	11.7	495.6	295.6
	255.221	11.603	206.746	9.647	290.704	10.557	270.142	8.593	296.442	10.757	295.625	8.573	359.875	11.23	370.05	8.127	257.121	11.837	387.542	9.387	239.92	11.7	496.15	296.15
	254.821	11.597	206.554	9.867	290.129	10.53	269.55	8.593	296.217	10.743	295.567	8.587	359.475	11.237	369.725	8.113	255.963	11.837	387.75	9.387	239.63	11.7	496.625	296.625
	254.846	11.603	206.138	9.993	289.279	10.543	269.267	8.593	294.958	10.75	295.15	8.553	358.508	11.23	368.642	8.14	253.713	11.837	387.733	9.367	239.48	11.7	496.475	296.475
	254.696	11.603	206.521	10.093	288.663	10.563	269.783	8.58	294.983	10.743	294.733	8.58	358.3	11.243	367.825	8.167	252.338	11.837	387.583	9.387	240.86	11.7	496.325	296.325
	254.646	11.603	206.329	10.187	288.321	10.537	269.592	8.553	294.817	10.75	294.675	8.58	357.958	11.23	367.767	8.16	251.121	11.837	388.058	9.393	239.8	11.7	496.8	296.8
	254.821	11.603	206.679	10.167	288.263	10.55	269.808	8.58	294.642	10.75	294.358	8.593	357.783	11.237	367.85	8.173	250.654	11.837	388.275	9.373	239.38	11.7	497.15	297.15
	255.054	11.597	207.154	9.96	287.679	10.543	269.75	8.553	294.992	10.757	294.7	8.58	358.192	11.23	367.392	8.113	250.946	11.837	389.017	9.393	240.26	11.7	496.025	296.025
	255.554	11.597	206.971	10.08	288.121	10.563	270.233	8.573	295.958	10.75	296.117	8.573	359.567	11.23	368.808	8.127	252.263	11.837	389.9	9.407	241.23	11.7	496.575	296.575
	255.063	11.603	207.088	10.16	287.979	10.543	270.217	8.587	296.692	10.737	297.033	8.533	361.058	11.243	371.458	8.127	253.871	11.837	392.283	9.367	241.95	11.7	497.825	297.825
14/02/2014	254.971	11.603	207.813	10.157	288.179	10.543	270.275	8.547	297.125	10.75	297.358	8.587	361.958	11.243	373.783	8.127	255.704	11.823	392.742	9.34	240.38	11.7	497.55	297.55
	255.354	11.603	207.296	10.147	289.904	10.55	270.158	8.54	301.825	10.757	302.842	8.52	368	11.237	380.2	8.287	259.296	11.823	394.758	9.313	241.03	11.7	498.5	298.5
	255.038	11.597	207.179	9.967	292.388	10.563	270.175	8.553	307.925	10.75	310.325	8.507	374.858	11.23	387.017	8.187	263.063	11.823	397.708	9.333	241.1	11.7	499.45	299.45
	254.746	11.597	206.763	9.913	296.004	10.563	270.025	8.513	316.033	10.75	319.375	8.487	382.733	11.23	392.333	8.2	266.154	11.837	397.825	9.313	239.85	11.7	500.5	300.5
	255.479	11.597	207.229	9.713	299.363	10.57	270.225	8.553	320.558	10.757	324.642	8.5	388.192	11.23	395.733	8.18	268.754	11.837	399.758	9.333	240.15	11.7	501.1	301.1
	255.629	11.597	206.529	9.64	300.971	10.55	269.792	8.527	320.125	10.75	325.008	8.44	389.858	11.237	395.567	8.153	267.971	11.837	400.525	9.287	239.88	11.7	501.6	301.6
	255.629	11.597	207.529	9.66	301.729	10.537	270.925	8.527	320.358	10.757	325.208	8.44	390.092	11.237	395.633	8.213	267.329	11.837	401.792	9.307	240.52	11.7	502	302
	255.338	11.597	206.679	10.073	302.079	10.563	270.875	8.527	319.192	10.743	323.158	8.44	389.392	11.223	395.45	8.16	265.988	11.837	401.875	9.287	240.1	11.7	502.35	302.35
	255.338	11.603	206.979	9.853	303.713	10.57	271.308	8.527	318.317	10.75	323.192	8.453	389.1	11.223	395.483	8.147	265.054	11.837	402.442	9.28	240.8	11.7	503.05	303.05
	255.488	11.597	207.204	10.14	305.088	10.557	271.4	8.527	318	10.757	321.683	8.46	389.25	11.243	395.042	8.247	264.621	11.837	403.067	9.24	241.06	11.7	503.075	303.075
	255.371	11.597	207.054	9.927	306.254	10.543	271.783	8.527	317.242	10.737	321.4	8.46	388.958	11.23	395.025	8.193	265.496	11.823	403.583	9.267	242.11	11.7	501.125	301.125
	255.721	11.597	206.563	9.887	308.179	10.537	272.225	8.513	316.6	10.757	320.375	8.453	388.608	11.223	394.8	8.2	267.071	11.837	403.225	9.22	240.94	11.7	503.3	303.3
	256.013	11.597	207.288	10.127	308.763	10.563	271.883	8.513	315.725	10.757	318.567	8.467	387.033	11.26	393.792	8.227	269.113	11.837	402.883	9.267	240.64	11.7	503.425	303.425
	255.338	11.597	207.204	10.167	308.846	10.53	271.933	8.507	314	10.743	317.95	8.42	385.833	11.223	393.442	8.267	271.121	11.837	401.333	9.227	241.39	11.7	502.875	302.875
	255.338	11.603	206.771	10.073	307.796	10.563	272.167	8.513	313.65	10.75	316.583	8.487	385.367	11.23	393.142	8.233	272.871	11.837	400.767	9.247	241.46	11.7	503.175	303.175
	256.854	11.597	207.671	9.913	307.854	10.537	272.667	8.493	313.592	10.75	316.017	8.387	385.425	11.217	392.708	8.233	273.863	11.837	400.333	9.307	242.29	11.7	502.475	302.475
	257.696	11.597	206.863	10.173	307.529	10.543	272.525	8.513	312.917	10.75	315.208	8.453	385.333	11.223	392.7	8.28	273.188	11.837	399.925	9.307	241.62	11.7	501.8	301.8
	258.863	11.603	207.054	10.173	307.879	10.543	273.117	8.513	312.567	10.75	314.2	8.44	384.458	11.223	392.892	8.193	272.079	11.837	399.183	9.307	241.51	11.7	503.925	303.925
	260.204	11.603	207.204	9.78	307.354	10.53	272.867	8.493	311.867	10.75	313.55	8.467	384.283	11.23	392.108	8.153	269.804	11.837	398.267	9.3	241.23	11.7	503.875	303.875
	261.371	11.603	207.254	9.793	307.938	10.543	273.45	8.493	312.625	10.75	314.933	8.3	385.217	11.223	393.758	8.26	269.338	11.823	398.45	9.313	243.18	11.7	503.525	303.525
	262.888	11.597	206.788	10.14	308.113	10.537	272.983	8.507	311.867	10.737	313.4	8.427	384.167	11.223	392.758	8.247	267.004	11.837	397.183	9.3	242.35	11.687	503.125	303.125
	264.254	11.603	207.363	10.227	307.904	10.537	273.158	8.487	311.367	10.75	312.775	8.407	383.842	11.23	393.067	8.193	266.621	11.837	396.692	9.287	242.86	11.7	505.1	305.1
	265.771	11.603	206.979	9.78	308.138	10.557	273.975	8.48	311.25	10.757	312.392	8.433	383.608	11.223	392.55	8.187	266.388	11.837	395.508	9.32	242.58	11.687	504.05	304.05
	268.304	11.61	206.713	10.02	307.288	10.55	273.042	8.467	310.925	10.75	311.458	8.453	383.283	11.223	391.75	8.22	267.054	11.837	395.108	9.34	242.91	11.687	504.85	304.85
15/02/2014	270.346	11.61	206.771	10.147	306.529	10.557	273.367	8.44	310.692	10.75	311.383	8.42	382.758	11.23	391.542	8.113	268.688	11.837	394.367	9.3	242.8	11.687	503.975	303.975
	272.738	11.603	207.138	9.967	306.471	10.537	273.733	8.433	310.808	10.757	311.483	8.3	382.525	11.237	391.642	8.16	270.671	11.837	393.933	9.333	243.63	11.687	504.275	304.275
	274.779	11.61	206.829	10.14	305.304	10.543	273.825	8.453	310.458	10.737	310.908	8.433	382.525	11.223	390.933	8.253	272.596	11.837	393.892	9.333	244.23	11.687	504.1	304.1
	276.121	11.61	206.663	10.027	304.488	10.537	273.658	8.453	309.758	10.757	309.942	8.46	382	11.237	390.767	8.193	273.529	11.837	393.592	9.333	242.76	11.687	503.4	303.4
	275.913	11.617	206.088	9.933	302.996	10.483	272.817	8.453	308.908	10.75	308.833	8.507	380.625	11.223	388.992	8.293	272.563	11.837	392.35	9.347	242.92	11.687	504.025	304.025
	275.588	11.617	205.904	9.887	302.263	10.53	273.033	8.453	308.35	10.75	308.117	8.547	379.6	11.237	388.542	8.287	271.013	11.823	391.767	9.36	242.83	11.687	503.175	303.175
	275.854	11.617	206.213	10.113	301.129	10.543	272.942	8.46	307.742	10.743	306.958	8.527	379.517	11.243	388.317	8.28	269.063	11.837	390.742	9.367	242.75	11.687	503.75	303.75
	276.054	11.61	206.304	10.173	300.279	10.55	273.033	8.44	307.533	10.75	306.517	8.527	379.192	11.223	388.542	8.22	267.338	11.823	389.633	9.38	242.91	11.687	504.375	304.375
	276.171	11.617	206.679	9.853	298.354	10.523	273.275	8.427	307.125	10.75	306.358	8.5	378.667	11.223	388.783	8.293	265.938	11.823	388.808	9.373	243.98	11.687	504.15	304.15
	275.846	11.617	206.371	9.647	296.979	10.543	273.233	8.453	306.858	10.743	306.05	8.52	378.108	11.267	387.942	8.373	265.146	11.823	387.967	9.38	243.38	11.687	503.775	303.775
	275.263	11.617	206.213	9.647	296.104	10.537	272.808	8.44	306.158	10.75	305.225	8.527	377.875	11.217	387.25	8.4	264.913	11.837	386.875	9.367	242.92	11.687	505.55	305.55
	275.438	11.617	205.696	9.813	295.346	10.537	272.958	8.453	305.925	10.75	305.108	8.553	377.058	11.21	387.133	8.367	265.321	11.837	386.358	9.373	244.17	11.687	504.5	304.5
	275.579	11.61	206.138	10.047	294.788	10.543	272.733	8.433	305.892	10.743	304.883	8.547	377.025	11.237	386.508	8.287	266.863	11.823	385.733	9.373	243.72	11.687	503.475	303.475
	275.404	11.61	206.071	9.98	294.379	10.557	272.533	8.427	305.133	10.757	304.017	8.533	375.975	11.253	386.308	8.187	268.379	11.823	384.6	9.38	243.85	11.687	504.075	304.075

*Data filtered to display one reading per hour. Data recorded at 2 minute intervals throughout test period, full data available on request.

16/02/2014	275.454	11.61	205.646	10.147	294.079	10.53	272.508	8.433	305.125	10.743	303.592	8.56	375.325	11.223	385.617	8.227	270.471	11.823	384.175	9.393	243.03	11.687	504.25	304.25
	281.404	11.597	205.746	10.047	293.496	10.523	272.875	8.44	304.6	10.737	303.025	8.533	374.625	11.253	384.917	8.187	272.046	11.823	383.742	9.367	243.86	11.687	504.55	304.55
	289.254	11.583	205.813	9.767	294.054	10.557	273.342	8.44	304.867	10.743	303.625	8.547	374.892	11.26	384.983	8.093	272.604	11.837	383.675	9.4	244.43	11.687	504.35	304.35
	302.788	11.583	238.979	9.76	293.996	10.537	272.908	8.46	304.225	10.737	302.925	8.547	374.075	11.237	384.817	8.2	271.554	11.823	382.842	9.4	243.73	11.687	503.65	303.65
	325.304	11.563	279.254	9.833	294.288	10.537	272.783	8.44	304.167	10.737	302.8	8.553	373.725	11.237	383.758	8.067	269.804	11.823	382.717	9.407	243.97	11.687	504.125	304.125
	335.046	11.557	278.421	10.207	294.229	10.523	272.617	8.427	303.642	10.75	302.5	8.56	373.025	11.23	383.725	8.113	267.821	11.823	382.283	9.393	244.03	11.687	504.425	304.425
	344.346	11.517	278.854	10.293	294.079	10.55	272.65	8.433	303.492	10.75	301.733	8.533	372.467	11.26	382.825	8.08	266.738	11.823	381.917	9.407	243.53	11.687	503.925	303.925
	348.421	11.437	278.438	10.433	293.488	10.53	271.967	8.473	302.608	10.743	301.317	8.547	371.642	11.223	382.008	8.027	265.154	11.823	381.367	9.42	243.72	11.687	504.575	304.575
	346.729	11.35	278.713	10.4	292.963	10.51	272.508	8.453	302.725	10.737	300.658	8.58	371.175	11.23	381.617	8.04	264.863	11.823	380.708	9.407	243.96	11.687	504.05	304.05
	304.321	11.45	279.171	10.02	292.554	10.523	272.167	8.46	302.025	10.743	299.917	8.553	370.767	11.253	380.608	8.047	264.804	11.823	379.967	9.42	243.08	11.687	503.175	303.175
	291.788	11.43	281.654	10.053	292.679	10.53	272.117	8.44	301.8	10.737	299.867	8.573	370.367	11.217	381.225	8.033	266.446	11.823	379.917	9.42	243.8	11.687	503.125	303.125
	291.638	11.423	281.554	10.593	292.004	10.543	271.35	8.453	301.475	10.737	299.767	8.533	369.517	11.253	379.925	8.013	267.579	11.823	379.417	9.427	242.53	11.687	502.625	302.625
	291.238	11.423	281.988	10.893	292.013	10.53	271.517	8.46	301.6	10.743	300.2	8.533	369.35	11.267	379.292	8.013	270.154	11.823	379.45	9.42	242.83	11.687	502.925	302.925
	289.863	11.423	282.588	10.797	295.188	10.523	271.317	8.46	301.333	10.75	299.733	8.527	369.025	11.21	378.825	8.013	271.638	11.823	379.917	9.433	243.03	11.687	503.125	303.125
	290.363	11.423	281.271	10.747	294.929	10.51	270.933	8.46	301.308	10.743	299.483	8.533	368.533	11.23	378.708	8.06	271.963	11.823	380.067	9.407	243.95	11.687	503.275	303.275
	290.213	11.423	281.954	10.727	294.371	10.503	271.35	8.46	301.042	10.737	299.5	8.553	367.975	11.243	378.592	8.067	271.696	11.823	380.35	9.42	243.73	11.687	503.825	303.825
	290.421	11.423	282.321	10.84	293.996	10.537	271.983	8.433	301.075	10.75	300	8.507	368.183	11.217	378.558	8.073	269.921	11.823	381.117	9.407	244.23	11.687	504.325	304.325
	290.096	11.423	282.088	10.793	293.088	10.53	271.883	8.453	300.692	10.743	299.367	8.473	367.683	11.237	377.258	8.073	267.729	11.823	380.617	9.393	243.73	11.687	503.825	303.825
	290.096	11.423	282.129	10.813	292.679	10.517	271.792	8.453	300.517	10.73	298.608	8.533	366.983	11.21	376.9	8.08	266.038	11.823	380.658	9.407	243.91	11.687	504	304
	290.271	11.423	282.213	10.86	292.329	10.497	272.275	8.46	300.575	10.743	298.958	8.533	367.217	11.237	376.583	8.107	265.163	11.823	381.008	9.42	243.49	11.687	504.35	304.35
	290.271	11.423	281.679	10.807	292.154	10.537	272.008	8.46	300.225	10.743	299.092	8.493	366.808	11.253	375.783	8.127	264.288	11.823	381.008	9.4	243.49	11.687	504.35	304.35
	290.271	11.423	282.121	10.867	291.863	10.53	272.05	8.453	300.4	10.743	298.867	8.507	366.983	11.217	375.958	8.127	264.463	11.823	381.317	9.407	244.43	11.687	504.525	304.525
	289.796	11.423	281.329	10.873	291.271	10.55	271.792	8.473	300.1	10.743	298.742	8.527	366.1	11.23	375.567	8.127	264.979	11.823	381.325	9.4	244.31	11.687	504.4	304.4
17/02/2014	289.571	11.423	281.813	10.847	291.104	10.483	271.742	8.46	299.933	10.75	298.558	8.513	365.875	11.23	375.25	8.14	266.796	11.823	381.275	9.4	244.26	11.687	504.35	304.35
	289.921	11.423	281.721	10.827	290.929	10.53	272.183	8.453	299.758	10.75	298.333	8.5	365.642	11.223	374.625	8.167	268.838	11.823	381.317	9.393	245.2	11.687	504.525	304.525
	289.746	11.423	281.188	10.88	290.404	10.557	271.917	8.46	299.583	10.737	298.733	8.527	365	11.237	374.225	8.167	270.529	11.823	381.183	9.4	244.43	11.687	504.525	304.525
	289.921	11.423	281.496	10.867	289.996	10.517	271.692	8.453	299.758	10.743	298.242	8.533	364.65	11.223	373.867	8.167	271.521	11.823	380.958	9.42	244.61	11.687	504.7	304.7
	289.396	11.423	281.229	10.86	290.113	10.53	271.692	8.46	299.758	10.743	297.842	8.507	364.3	11.21	373.333	8.16	271.113	11.823	381.092	9.38	243.84	11.687	504.7	304.7
	289.746	11.423	281.671	10.867	289.938	10.523	272.133	8.46	299.292	10.75	298.017	8.52	364.3	11.217	372.842	8.14	269.596	11.823	381	9.407	244.78	11.687	504.875	304.875
	289.446	11.417	281.329	10.847	289.346	10.477	271.392	8.46	298.817	10.75	297.408	8.493	363.3	11.217	372.367	8.147	267.079	11.823	380.658	9.407	244.31	11.687	504.4	304.4
	289.396	11.423	281.504	10.967	289.413	10.523	272.1	8.48	298.592	10.75	296.783	8.507	362.9	11.217	371.342	8.147	265.396	11.823	380.167	9.4	244.85	11.687	504.175	304.175
	289.396	11.423	281.471	10.867	289.121	10.517	272.067	8.453	298.533	10.743	296.35	8.527	362.725	11.223	370.508	8.213	263.879	11.823	379.733	9.42	246.26	11.687	503.475	303.475
	289.246	11.423	281.504	10.913	289.088	10.517	271.967	8.453	297.917	10.737	296.65	8.52	362.108	11.223	370.142	8.14	263.146	11.823	379.633	9.393	244.99	11.687	502.975	302.975
	289.096	11.417	281.796	10.927	288.763	10.51	272.258	8.46	297.942	10.75	296.542	8.52	361.9	11.217	369.633	8.167	263.404	11.823	379.258	9.407	245.02	11.687	503	303
	289.421	11.417	281.371	10.927	289.146	10.537	272.767	8.453	298.383	10.743	296.517	8.52	361.758	11.21	369.342	8.18	264.371	11.823	379.633	9.407	246.53	11.687	504.975	304.975
	289.421	11.417	281.329	10.947	289.029	10.53	272.592	8.46	298.033	10.75	296.875	8.507	361.525	11.197	369.033	8.147	265.888	11.823	379.192	9.4	246.35	11.687	502.8	302.8
	288.896	11.417	281.288	10.907	288.563	10.51	272.017	8.433	298.208	10.75	296.3	8.493	361.233	11.223	368.325	8.193	267.579	11.823	378.75	9.407	245.41	11.687	502.625	302.625
	288.721	11.423	281.329	10.953	288.213	10.51	272.458	8.473	297.742	10.75	296.608	8.5	360.883	11.217	368.5	8.18	269.621	11.823	378.925	9.42	246.35	11.687	502.8	302.8
	287.696	11.417	281.529	10.953	288.179	10.517	272.658	8.433	297.942	10.737	296.275	8.52	360.908	11.223	367.633	8.173	270.638	11.823	379.392	9.393	246.55	11.687	503	303
	287.996	11.417	281.254	10.94	288.129	10.517	272.383	8.46	298.008	10.73	296	8.507	360.217	11.203	367.625	8.233	270.588	11.823	379.25	9.393	246.68	11.687	503.125	303.125
	287.696	11.417	281.263	10.913	287.654	10.49	271.992	8.433	297.417	10.75	296.008	8.5	359.858	11.217	367.367	8.22	268.888	11.81	378.725	9.4	246.55	11.687	503	303
	287.846	11.417	281.904	10.947	288.038	10.537	273.167	8.46	297.217	10.737	295.85	8.527	359.367	11.23	367.075	8.173	266.821	11.81	379.1	9.4	247.29	11.687	502.975	302.975
	287.521	11.417	281.579	10.953	287.479	10.51	272.442	8.433	297.242	10.743	295.258	8.507	359.042	11.203	366.217	8.22	265.038	11.81	378.508	9.4	246.97	11.687	502.65	302.65
	287.496	11.417	281.779	10.973	287.396	10.497	272.508	8.433	296.867	10.75	295.592	8.5	358.842	11.21	365.617	8.26	263.671	11.823	378.308	9.367	247.53	11.687	502.45	302.45
	287.846	11.417	281.513	10.967	287.279	10.503	273.175	8.44	297.217	10.737	295.725	8.493	358.842	11.21	365.483	8.253	262.504	11.81	378.442	9.427	247.53	11.687	502.45	302.45
	288.546	11.417	282.313	10.947	287.863	10.523	273.042	8.407	297.217	10.75	296.125	8.52	359.308	11.217	366.017	8.287	262.854	11.823	378.708	9.427	247.53	11.687	504.45	304.45
	288.196	11.417	282.004	10.927	287.221	10.51	273.533	8.453	297.508	10.743	296.617	8.507	359.192	11.203	365.975	8.267	263.496	11.823	378.267	9.427	247.36	11.687	504.275	304.275
18/02/2014	288.021	11.417	281.779	11.02	287.396	10.497	273.042	8.473	297.683	10.737	296.792	8.533	359.833	11.21	366.817	8.233	264.721	11.823	378.442	9.44	247.53	11.687	503.45	303.45
	288.546	11.417	281.729	10.96	287.454	10.51	273.125	8.427	298.208	10.75	297.408	8.52	359.892	11.223	367.967	8.32	266.529	11.823	378.258	9.407	247.88	11.687	503.8	303.8
	288.546	11.417	282.529	10.973	287.629	10.497	273.258	8.42	298.325	10.743	297.275	8.507	360.183	11.217	368.633	8.247	268.396	11.823	378.658	9.433	248.65	11.687	502.8	302.8
	288.521	11.417	282.854	10.783	287.954	10.55	273.317	8.433	298.183	10.737	298	8.507	359.692	11.223	368.692	8.227	269.946	11.823	378.717	9.42	247.44	11.687	503.125	303.125
	288.021	11.417	281.463	10.953	287.629	10.503	272.725	8.4	297.858	10.743	297.408	8.507	359.192	11.223	368.367	8.253	269.504	11.81	378.258	9.42	247.88	11.687	502.8	302.8
	288.221	11.417	281.571	10.947	288.354	10.517	273.367	8.427	298.233	10.743	297.383	8.5	359.042	11.237	367.808	8.247	268.654	11.81	378.767	9.413	249.03	11.687	503.175	303.175
	287.821	11.417	281.521	10.967	288.071	10.51	272.917	8.4	297.367	10.75	297.2	8.52	358.525	11.21	367.758	8.293	266.446	11.823	378.05	9.407	248.21	11.687	503.125	303.125
	287.821	11.417	281.788	10.973	288.071	10.51	273.317	8.433	297.075	10.737	296.667	8.507	358.175	11.19	366.958	8.253	264.229	11.81	378.45	9.407	248.98	11.687	503.125	303.125
	287.846	11.417	282.304	10.953	288.388	10.51	273.167	8.42	297.042	10.743	296.383	8.507	358.2	11.203	367.075	8.247	262.621	11.81	378.167	9.373	248.83	11.673	502.975	302.975
	287.846	11.417	281.729	10.967	288.213	10.49	273.125	8.44	296.692	10.73	296.208	8.5	357.675	11.21	366.233	8.227	261.454	11.81	377.858	9.393	249.42	11.673	502.8	302.8
	288.171	11.417	282.054	11.007	288.538	10.49	273.45	8.42	297.075	10.737	296.533	8.52	357.767	11.197	365.358	8.3	261.313	11.81	378.183	9.427	250.51	11.673	503.125	303.125
	288.021	11.417	282.038	11.007	288.446	10.517	273.3	8.427	296.575	10.73	296.117	8.5	357.5	11.203	365.075	8.267	261.396	11.81	377.767	9.427	250.36	11.673	502.975	302.975
	288.221	11.417	283.079	10.997	288.646	10.51	273.675	8.407	296.95	10.737	295.825	8.547	357.525	11.21	364.783	8.253	262.821	11.81	378.275	9.433	250.73	11.673	503.35	303.35
	288.696	11.417	282.396	11.027	288.771	10.537	273.925	8.42	297.308	10.737	296.608	8.527	357.825	11.197	365.433	8.28	264.521	11.81	378.658	9.433	250.62	11.687	504	304
	288.871	11.417	282.788	11.02	288.829	10.503	274.183	8.407	297.95	10.73	297.267	8.533	358.175	11.203	366.092	8.287	266.679	11.81	379.317	9.427	251.14	11.687	503.525	303.525
	288.404	11.417	282.346	10.993	288.188	10.503	273.475	8.433	297.133	10.737	296.425	8.533	357.358	11.21	365.65	8.293	267.846	11.823	378.742	9.393	250.97	11.687	503.35	303.35
	288.579	11.417	282.654	11	288.538	10.51	274.05	8.42	297.308	10.73	296.733	8.533	357.3	11.217	365.692	8.307	268.371	11.81	378.783	9.433	251.14	11.673	503.525	303.525
	288.754	11.417	283.229	11	288.654	10.543	274.225	8.42	297.017	10.737	296.508	8.553	357.183	11.21	365.2	8.287	267.496	11.81	379.092	9.4	251.32	11.687	503.7	303.7
	288.696	11.417	283.321	11.02	289.004	10.51	274.317	8.453	296.958	10.73	296.333	8.553	357.358	11.203	365.558	8.32	265.454	11.81	379.05	9.4	251.91	11.673	503.525	303.525
	289.096	11.417	283.421	11.033	289.521	10.55	274.95	8.427	297.067	10.723	296.033	8.533	357.525	11.197	365.125	8.307	263.696	11.81	378.617	9.4	252.38	11.673	504.225	304.225
	289.096	11.417	283.554	11.04	289.346	10.503	275.083	8.427	297.008	10.73	296.033	8.553	357.175	11.197	364.592	8.313	262.004	11.81	378.75	9.42	252.38	11.673	504.225	304.225
	288.871	11.417	283.688	11.02	289.588	10.503	275.35	8.42	296.783	10.717	295.9	8.533	356.6	11.197	364.058	8.3	260.788	11.81	378.35	9.433	251.98	11.673	503.825	303.825
	289.446	11.417	283.646	10.993	289.638	10.503	275.842	8.427	296.892	10.723	295.858	8.547	356.883	11.203	363.75	8.34	260.371	11.81	378.442	9.433	252.97	11.673	504.05	304.05
	289.571	11.417	284.304	11.02	289.588	10.463	275.833	8.433	297.25	10.73	296.117	8.573	356.833	11.21	363.742	8.373	260.729	11.81	379.1	9.427	253.86	11.673	504.175	304.175
19/02/2014	289.921	11.417	283.954	10.993	289.238	10.503	275.883	8.427	297.133	10.723	296.033	8.56	356.658	11.203	363.125	8.353	261.196	11.81	378.083	9.42	253.51	11.673	503.825	303.825
	290.096	11.417	284.138	10.987	289.238	10.497	275.933	8.433	297.133	10.723	295.55	8.553	356.425	11.197	363.175	8.34	262.538	11.81	377.733	9.42	253.16	11.673	503.475	303.475
	290.446	11.417	284.888	11.02	289.238	10.503	276.683	8.427	297.308	10.723	296.3	8.553	356.6	11.197	363.125	8.353	264.346	11.81	378.083	9.4	254.28	11.673	503.825	303.825
	290.321	11.417	284.538	11.033	288.996	10.51	276.333	8.46	297.008	10.723	296.217	8.56	356.358	11.223	362.375	8.347	265.854	11.81	378.4	9.407	254.33	11.673	503.875	303.875
	290.271	11.417	284.754	11.027	288.479	10.51	276.417	8.453	296.667	10.723	296.033	8.533	355.958	11.197	362.192	8.353	266.388	11.81	377.95	9.373	254.28	11.673	503.825	303.825
	290.563	11.417	284.804	11.053	288.596	10.497	276.867	8.453	296.958	10.71	295.55	8.573	355.258	11.203	361.842	8.353	266.271	11.81	377.467	9.407	254.69	11.673	503.475	303.475
	290.438	11.417	284.504	11.033	288.471	10.517	276.167	8.44	296.6	10.717	295.383	8.573	355.133	11.197	361.408	8.387	264.513	11.81	377.7	9.453	254.39	11.673	503.175	303.175
	290.738	11.417	284.988	11.02	288.538	10.49	277.183	8.44	297.075	10.717	295.467	8.56	355.083	11.203	361.092	8.407	262.596	11.81	377.517	9.42	255.88	11.673	503.125	303.125
	290.763	11.417	285.371	11.067	288.271	10.497	277.033	8.453	296.575	10.73	295.183	8.58	354.933	11.203	360.542	8.373	260.988	11.81	377.5	9.44	254.96	11.673	502.975	302.975
	290.763	11.417	285.338	11.007	288.329	10.523	277.133	8.46	296.225	10.723	295.15	8.553	354.583	11.183	360.242	8.367	259.471	11.81	376.933	9.453	255.6	11.673	503.275	303.275
	290.938	11.417	285.604	11.02	288.096	10.483	277.533	8.44	296.225	10.737	295.15	8.56	354.583	11.19	359.842	8.373	258.596	11.81	377.067	9.453	255.6	11.673	502.275	302.275
	290.638	11.417	286.104	11.037	287.388	10.497	276.7	8.453	296.042	10.73	294.45	8.56	354.283	11.21	359.808	8.367	258.529	11.81	376.633	9.433	255.3	11.673	501.975	301.975
	290.813	11.417	285.129	11.047	287.096	10.51	277.458	8.453	295.692	10.73	294.275	8.587	353.933	11.203	359.1	8.347	258.763	11.81	376.325	9.427	255.13	11.673	501.8	301.8
	290.588	11.417	285.254	11.067	286.871	10.503	277.05	8.46	295.7	10.723	294.133	8.573	353.708	11.197	358.825	8.367	259.938	11.81	376.183	9.433	256.02	11.673	501.925	301.925
	290.238	11.417	284.854	11.067	286.871	10.49	277.05	8.44	295.525	10.73	294.4	8.56	353.242	11.183	358.825	8.38	260.988	11.81	376.317	9.433	256.78	11.673	501.925	301.925
	290.763	11.417	285.421	11.047	287.046	10.523	277.35	8.473	295.7	10.73	294.433	8.573	353.592	11.21	359.125	8.373	262.913	11.81	377.15	9.4	256.72	11.673	502.625	302.625
	290.363	11.417	285.238	11.047	286.413	10.45	276.633	8.46	295.475	10.73	294.25	8.587	353.192	11.197	358.275	8.373	263.679	11.81	376.7	9.44	256.67	11.673	502.575	302.575
	290.588	11.417	285.329	11.027	286.463	10.497	277.125	8.453	295.408	10.717	294.475	8.573	352.892	11.197	359.033	8.373	263.729	11.81	377.058	9.453	256.89	11.673	502.8	302.8
	290.413	11.417	285.771	11.007	286.521	10.483	277.033	8.473	295.233	10.73	294.25	8.56	352.892	11.19	358.675	8.367	262.446	11.81	377.233	9.44	257.07	11.673	502.975	302.975
	290.363	11.417	285.671	11.027	286.471	10.49	277.6	8.467	295.3	10.723	293.883	8.593	352.55	11.203	358.575	8.38	260.471	11.81	377.267	9.44	256.6	11.673	502.275	302.275
	290.446	11.417	284.804	11.027	286.204	10.497	277.267	8.467	294.8	10.723	293.95	8.58	352.575	11.19	358.375	8.373	258.804	11.81	377.467	9.427	257.57	11.673	502.475	302.475
	290.096	11.417	285.371	11.04	285.854	10.483	277.3	8.453	295.15	10.717	293.85	8.587	352.75	11.197	358.142	8.4	257.579	11.81	378.433	9.387	257.5	11.673	502.175	302.175
	290.071	11.417	285.121	11.067	285.654	10.49	277.583	8.453	294.658	10.723	293.867	8.58	352.55	11.197	357.892	8.373	256.504	11.81	377.917	9.4	257.08	11.673	502.325	302.325
	289.921	11.417	285.271	11.053	285.446	10.483	277.333	8.473	294.567	10.723	294.15	8.58	352.4	11.197	357.775	8.38	256.413	11.81	378.467	9.42	257.63	11.673	502.875	302.875
	290.046	11.417	285.296	11.047	285.513	10.523	276.692	8.46	294.692	10.73	293.775	8.593	352.233	11.21	357.8	8.42	256.829	11.81	379.158	9.44	257.68	11.657	501.7	301.7
	290.304	11.417	285.479	11.033	285.829	10.523	277.542	8.48	295.65	10.717	294.358	8.587	353.308	11.197	359.317	8.407	258.196	11.797	380.275	9.433	257.4	11.673	502.95	302.95
	289.954	11.417	285.154	11.033	285.304	10.49	276.95	8.48	295.533	10.717	295.367	8.587	353.833	11.197	360.592	8.367	259.829	11.81	380.75	9.427	256.74	11.673	501.825	301.825
	290.013	11.417	285.754	11.04	285.946	10.503	277.017	8.48	296.292	10.723	295.967	8.593	354.942	11.203	363.192	8.42	261.696	11.797	381.75	9.407	257.38	11.673	503.225	303.225
	289.988	11.417	285.313	11.02	286.621	10.463	277.242	8.487	297.142	10.723	296.725	8.587	355.383	11.217	365.283	8.447	263.246	11.81	382.375	9.4	258.4	11.657	503.25	303.25
	289.963	11.417	285.096	11.04	287.004	10.497	277.292	8.48	297.35	10.723	297.175	8.58	355.3	11.203	366	8.54	263.979	11.797	383.358	9.387	257.72	11.657	503.1	303.1

*Data filtered to display one reading per hour. Data recorded at 2 minute intervals throughout test period, full data available on request.

20/02/2014	289.696	11.417	285.021	11.027	287.263	10.51	277.35	8.487	296.792	10.723	297.233	8.593	354.975	11.203	365.792	8.527	262.954	11.81	383.017	9.42	257.68	11.673	503.825	303.825
	290.071	11.417	285.029	11.04	287.988	10.49	276.958	8.493	297.517	10.717	297.508	8.587	355.35	11.19	366.6	8.5	261.871	11.797	384.092	9.38	257.98	11.657	504.9	304.9
	289.021	11.417	284.588	11.047	287.988	10.503	276.783	8.487	296.642	10.717	296.933	8.587	354.825	11.197	365.358	8.56	259.188	11.797	383.917	9.373	257.81	11.657	502.725	302.725
	289.146	11.417	284.796	11.047	288.638	10.443	276.858	8.48	296.3	10.717	295.942	8.62	354.308	11.177	364.767	8.573	257.563	11.797	383.858	9.393	257.52	11.657	503.2	303.2
	288.854	11.417	284.521	11.04	288.696	10.483	277.25	8.48	296.183	10.717	295.933	8.62	354.017	11.21	364.492	8.553	256.571	11.783	383.85	9.367	257.47	11.657	502.725	302.725
	289.029	11.417	284.471	11.047	289.046	10.477	277.067	8.487	296.183	10.717	295.883	8.607	354.658	11.217	364.575	8.567	256.046	11.783	384.2	9.36	257.82	11.657	503.075	303.075
	288.679	11.417	284.104	11.067	289.279	10.483	276.433	8.48	296.767	10.723	297.117	8.593	356.058	11.19	367.942	8.567	256.979	11.783	384.767	9.373	258.52	11.657	503.775	303.775
	288.679	11.417	284.146	11.027	289.571	10.477	276.608	8.493	297.583	10.71	298.358	8.62	357.4	11.21	371.183	8.593	256.804	11.797	384.675	9.347	257.93	11.673	501.95	301.95
	288.829	11.417	284.254	11.067	289.896	10.483	276.583	8.487	297.85	10.703	298.333	8.613	357.083	11.19	371.958	8.573	258.646	11.797	384.65	9.373	257.13	11.657	502.925	302.925
	288.679	11.417	283.838	11.06	290.038	10.497	276.167	8.487	297.7	10.717	298.45	8.607	356.7	11.197	370.742	8.567	259.779	11.797	384.367	9.367	257.75	11.657	502.775	302.775
	288.504	11.417	284.104	11.053	290.679	10.47	276.3	8.48	297.408	10.717	298.05	8.613	356.058	11.183	369.942	8.587	261.238	11.797	384.767	9.393	257.75	11.657	503.775	303.775
	289.204	11.417	284.679	11.06	291.146	10.477	277.008	8.487	297.583	10.717	298.225	8.593	356.583	11.177	369.717	8.587	261.996	11.797	384.808	9.367	258.69	11.657	503.95	303.95
	288.854	11.417	284.996	11.047	291.146	10.49	276.792	8.513	297.408	10.717	297.875	8.587	355.708	11.21	368.433	8.593	261.063	11.797	384.325	9.38	258.34	11.657	503.6	303.6
	289.029	11.417	285.179	11.087	291.438	10.45	277.108	8.487	297.058	10.717	297.792	8.607	355.708	11.203	367.417	8.6	259.546	11.783	383.708	9.393	258.57	11.657	503.25	303.25
	289.404	11.417	284.846	11.073	291.521	10.483	277.308	8.493	296.967	10.71	297.325	8.587	355.558	11.217	367.217	8.567	258.113	11.783	384.708	9.367	259.53	11.657	503.45	303.45
	289.354	11.417	284.888	11.073	291.238	10.477	276.817	8.507	296.392	10.71	296.433	8.593	355.158	11.217	366.325	8.6	256.021	11.783	384.617	9.373	259.31	11.657	503.225	303.225
	289.029	11.417	284.604	11.087	290.913	10.477	276.933	8.507	295.892	10.71	296.55	8.593	354.833	11.183	365.642	8.62	254.821	11.783	384.333	9.393	259.16	11.657	503.075	303.075
	289.204	11.417	284.379	11.08	290.796	10.457	277.642	8.493	296.242	10.703	296.058	8.627	354.658	11.183	364.75	8.62	254.179	11.783	384.642	9.38	260.1	11.657	503.25	303.25
21/02/2014	289.054	11.417	284.629	11.087	290.354	10.483	277.492	8.513	295.625	10.71	295.642	8.593	354.392	11.19	364.067	8.64	253.621	11.783	384.492	9.367	258.42	11.657	502.1	302.1
	289.554	11.417	285.179	11.08	290.446	10.503	277.775	8.513	295.425	10.71	295.792	8.533	354.542	11.203	363.55	8.64	254.588	11.783	384.508	9.353	259.33	11.657	501.25	301.25
	289.171	11.417	284.504	11.08	289.538	10.483	276.833	8.487	294.575	10.71	295.117	8.547	353.342	11.19	362.608	8.607	254.963	11.783	384.1	9.373	258.66	11.657	500.575	300.575
	288.996	11.417	284.863	11.047	289.479	10.483	277.192	8.507	294.75	10.71	294.942	8.507	353.167	11.183	361.9	8.627	256.129	11.797	383.792	9.4	260.02	11.657	500.4	300.4
	288.796	11.417	284.846	11.093	288.929	10.457	277.175	8.507	294.492	10.717	294.525	8.473	352.267	11.177	361.35	8.64	256.571	11.797	383.508	9.393	259.47	11.657	499.85	299.85
	288.996	11.41	283.946	11.087	288.546	10.503	277.475	8.52	294.167	10.71	294.425	8.607	351.767	11.19	360.85	8.633	257.879	11.783	383.008	9.373	259.73	11.657	499.35	299.35
	288.846	11.41	284.379	11.087	287.929	10.477	277.375	8.513	293.842	10.71	293.392	8.593	351.442	11.19	360.217	8.64	257.613	11.783	382.775	9.4	259.23	11.657	500.85	300.85
	288.646	11.41	284.579	11.08	287.438	10.483	277.308	8.513	293.758	10.717	293.458	8.607	351.417	11.19	359.617	8.653	256.363	11.783	382.842	9.36	259.8	11.657	500.65	300.65
	288.321	11.41	284.929	11.087	286.996	10.49	277.258	8.52	293.433	10.717	292.608	8.62	350.742	11.19	359.167	8.627	254.463	11.783	382.258	9.38	259.72	11.643	499.8	299.8
	289.963	11.417	284.004	11.107	286.421	10.47	276.6	8.52	292.333	10.717	291.95	8.62	349.817	11.223	358.108	8.593	252.079	11.783	380.933	9.4	258.79	11.643	498.875	298.875
	287.588	11.41	283.513	11.087	285.329	10.463	276.642	8.527	291.883	10.71	291.592	8.64	349.367	11.19	356.95	8.66	250.638	11.783	380.842	9.4	258.93	11.643	498.25	298.25
	287.863	11.41	284.104	11.087	285.254	10.463	276.7	8.52	291.808	10.717	291.25	8.613	349.117	11.177	356.475	8.607	249.921	11.783	380.9	9.393	259.43	11.643	498.175	298.175
	287.913	11.41	283.621	11.087	284.488	10.477	276.483	8.52	291.858	10.717	291.433	8.587	348.817	11.183	356.392	8.653	249.563	11.783	381.35	9.373	258.91	11.643	498.225	298.225
	288.213	11.41	284.004	11.107	284.846	10.497	276.733	8.52	291.983	10.703	291.683	8.62	348.942	11.19	356.108	8.633	250.446	11.783	381.333	9.393	258.79	11.643	497.875	297.875
	287.863	11.41	284.004	11.093	284.204	10.47	276.733	8.52	291.692	10.71	291.15	8.62	348.767	11.19	356.242	8.64	251.029	11.783	381.6	9.4	258.79	11.643	496.875	296.875
	287.363	11.41	283.679	11.08	283.413	10.477	276.275	8.54	290.9	10.71	290.692	8.573	348.092	11.19	356.05	8.593	251.813	11.797	381.408	9.42	258.47	11.643	496.55	296.55
	287.713	11.41	284.121	11.073	283.588	10.45	276.983	8.54	291.075	10.71	290.6	8.627	347.975	11.183	355.425	8.607	253.388	11.783	381.45	9.4	259.41	11.643	496.725	296.725
	288.238	11.41	284.296	11.087	283.121	10.483	276.892	8.56	290.9	10.717	291.042	8.607	347.975	11.19	354.933	8.62	254.263	11.797	381.758	9.407	259.58	11.643	496.9	296.9
	288.113	11.41	284.396	11.087	282.821	10.463	276.458	8.54	290.6	10.703	290.342	8.607	347.325	11.177	355.033	8.62	254.313	11.783	381.858	9.373	259.28	11.643	496.6	296.6
	288.288	11.41	284.479	11.093	282.821	10.47	276.808	8.553	291.242	10.703	290.025	8.62	347.617	11.17	355.117	8.64	253.846	11.783	382.208	9.407	260.21	11.643	496.95	296.95
	287.888	11.41	284.738	11.093	282.013	10.49	276.4	8.54	290.783	10.71	290.283	8.62	347.1	11.183	354.708	8.62	251.871	11.783	382.2	9.387	259.76	11.643	497.075	297.075
	287.596	11.41	284.029	11.093	281.663	10.497	276.225	8.547	290.083	10.71	289.308	8.653	347.1	11.197	354.4	8.653	250.238	11.783	382.292	9.38	260.16	11.643	495.9	295.9
	287.763	11.41	283.679	11.113	281.421	10.483	276.542	8.547	290.133	10.703	289.625	8.607	346.8	11.183	354.317	8.66	248.829	11.783	382.208	9.4	259.63	11.643	495.95	295.95
	287.771	11.41	284.071	11.12	281.196	10.477	276.267	8.547	289.792	10.71	289.217	8.56	346.283	11.183	353.775	8.593	247.904	11.783	382.2	9.393	260.33	11.643	496.075	296.075
22/02/2014	287.246	11.41	283.671	11.107	280.729	10.49	276	8.56	289.442	10.697	288.817	8.593	346.458	11.177	353.642	8.62	246.971	11.77	382.2	9.373	259.76	11.643	495.075	295.075
	287.471	11.41	284.079	11.127	280.429	10.457	276.808	8.54	289.492	10.71	288.958	8.627	346.333	11.19	354.183	8.667	247.429	11.77	381.942	9.373	259.63	11.643	494.95	294.95
	287.413	11.41	283.596	11.107	280.079	10.457	276.592	8.56	289.142	10.71	288.875	8.56	346.158	11.177	353.433	8.62	247.663	11.783	381.592	9.353	259.86	11.643	494.6	294.6
	287.413	11.41	283.863	11.12	280.079	10.45	276.592	8.56	289.142	10.697	288.875	8.613	345.808	11.163	353.567	8.633	248.713	11.783	381.592	9.38	259.28	11.643	494.6	294.6
	287.238	11.41	283.513	11.12	279.613	10.457	276.242	8.547	288.733	10.703	288.392	8.58	345.4	11.17	353.483	8.653	249.354	11.783	381.508	9.4	259.51	11.643	495.25	295.25
	287.563	11.41	284.029	11.12	279.354	10.47	276.492	8.56	288.592	10.71	287.975	8.62	344.733	11.177	352.8	8.653	250.088	11.783	380.825	9.4	258.96	11.643	493.7	293.7
	287.563	11.41	283.904	11.113	279.004	10.49	276.9	8.56	288.358	10.703	288.25	8.593	344.558	11.177	353.075	8.653	250.146	11.783	380.7	9.393	259.2	11.63	495.175	295.175
	287.038	11.41	283.963	11.107	278.421	10.49	276.692	8.56	287.833	10.697	287.508	8.62	343.508	11.21	351.933	8.647	249.388	11.77	379.825	9.4	259.86	11.63	494.3	294.3
	286.854	11.41	283.679	11.12	278.354	10.45	276.275	8.547	286.775	10.697	286.958	8.62	342.975	11.177	350.85	8.66	247.746	11.783	378.875	9.393	260.04	11.617	492.95	292.95
	286.654	11.41	283.446	11.113	277.454	10.477	276.308	8.58	286.867	10.703	286.592	8.613	342.425	11.177	350.483	8.633	246.029	11.753	377.842	9.393	259.14	11.63	493.05	293.05
	286.304	11.41	283.413	11.12	276.929	10.483	275.742	8.58	286.458	10.717	286.158	8.573	341.55	11.183	350.183	8.627	244.046	11.753	377.142	9.4	259.21	11.63	493.35	293.35
	286.629	11.41	283.438	11.127	276.554	10.477	276.167	8.56	285.792	10.71	285.917	8.593	341.875	11.177	350.075	8.627	243.263	11.753	377.167	9.393	259.6	11.63	492.975	292.975
	286.479	11.41	283.646	11.113	276.404	10.437	275.975	8.553	285.642	10.703	285.592	8.627	341.375	11.203	349.483	8.633	242.529	11.753	377.108	9.407	259.28	11.617	492.65	292.65
	286.479	11.41	282.804	11.127	276.054	10.49	275.667	8.58	285.467	10.697	285.55	8.627	341.025	11.177	349.575	8.653	242.763	11.753	376.933	9.393	259.1	11.617	492.475	292.475
	286.479	11.41	283.163	11.127	276.054	10.47	275.892	8.573	285.817	10.697	285.508	8.547	340.85	11.177	349.8	8.667	243.229	11.753	376.758	9.407	259.69	11.617	492.3	292.3
	286.946	11.41	284.188	11.123	275.588	10.43	275.983	8.56	285.408	10.69	285.467	8.593	340.675	11.19	349.092	8.627	243.871	11.753	376.983	9.4	260.28	11.617	492.125	292.125
	286.796	11.41	283.463	11.12	275.554	10.443	276.058	8.573	285.433	10.703	285.408	8.573	340.35	11.177	348.633	8.607	245.004	11.753	376.392	9.393	259.96	11.617	491.8	291.8
	286.796	11.41	283.996	11.127	275.088	10.483	276.325	8.58	285.317	10.697	285.142	8.56	340.525	11.163	349.567	8.56	245.938	11.77	376.658	9.393	259.96	11.63	491.8	291.8
	286.621	11.41	283.563	11.133	274.679	10.477	275.625	8.56	285.025	10.703	284.575	8.653	339.767	11.17	348.6	8.68	246.054	11.77	375.825	9.407	259.26	11.63	492.1	292.1
	286.971	11.41	283.479	11.127	274.329	10.457	276.342	8.56	284.383	10.71	284.758	8.607	339.475	11.177	348.25	8.647	245.938	11.77	375.608	9.407	260.44	11.63	490.75	290.75
	286.621	11.41	284.188	11.133	274.154	10.497	276.117	8.58	284.85	10.703	284.4	8.593	339.3	11.19	348.425	8.687	245.588	11.753	375.783	9.393	260.62	11.617	491.925	291.925
	286.796	11.41	283.613	11.147	273.979	10.457	275.808	8.58	284.558	10.69	284.492	8.593	339.242	11.17	347.583	8.66	244.188	11.753	375.608	9.4	260.44	11.617	490.75	290.75
	286.496	11.41	284.113	11.13	273.563	10.47	275.508	8.58	284.083	10.683	284.058	8.573	338.65	11.183	347.817	8.587	242.604	11.753	375.708	9.427	259.38	11.617	491.45	291.45
	286.446	11.41	283.613	11.133	273.221	10.423	275.808	8.573	284.208	10.717	283.825	8.607	338.6	11.177	347.183	8.607	241.679	11.753	375.608	9.42	259.68	11.617	490.75	290.75
23/02/2014	286.646	11.41	283.721	11.153	273.246	10.477	276.05	8.58	283.942	10.703	283.667	8.573	338.508	11.203	347.158	8.627	241.004	11.753	375.583	9.407	260.05	11.617	491.125	291.125
	286.471	11.41	283.713	11.133	272.838	10.463	275.775	8.58	283.825	10.71	283.658	8.587	337.983	11.21	346.883	8.62	240.713	11.753	376.642	9.407	260.58	11.617	491.65	291.65
	286.446	11.41	284.263	11.137	272.521	10.443	275.392	8.573	283.625	10.71	283.675	8.593	337.958	11.19	346.233	8.653	240.863	11.753	376.658	9.407	259.96	11.617	490.8	290.8
	286.129	11.41	283.429	11.127	272.263	10.483	275.492	8.593	283.6	10.703	283.375	8.587	337.467	11.177	346.333	8.653	241.538	11.753	376.892	9.427	259.69	11.617	490.3	290.3
	286.529	11.41	283.429	11.153	272.313	10.457	275.492	8.58	283.533	10.69	283.508	8.593	337.633	11.157	346.733	8.64	242.579	11.753	377.025	9.393	260.86	11.617	490.7	290.7
	285.954	11.41	283.246	11.133	271.796	10.47	275.708	8.587	283.017	10.69	283.192	8.607	336.942	11.17	346.417	8.667	243.171	11.753	377.242	9.393	260.81	11.617	490.65	290.65
	285.954	11.41	283.296	11.133	271.738	10.463	275.625	8.573	282.958	10.703	282.708	8.587	336.592	11.177	345.533	8.687	243.929	11.77	376.625	9.427	260.46	11.617	490.3	290.3
	286.179	11.41	283.696	11.147	271.496	10.49	275.358	8.593	282.717	10.703	282.975	8.58	336.467	11.17	346.067	8.66	244.446	11.753	377.425	9.42	260.86	11.617	490.7	290.7
	286.129	11.41	284.179	11.153	271.446	10.463	275.442	8.593	282.667	10.69	282.525	8.593	336.125	11.183	345.617	8.673	243.988	11.74	376.842	9.393	260.81	11.617	490.65	290.65
	285.779	11.41	283.521	11.153	270.746	10.45	275.317	8.593	282.025	10.697	281.733	8.587	335.542	11.17	344.825	8.68	242.238	11.753	376.717	9.393	260.28	11.603	490.125	290.125
	285.629	11.41	283.371	11.153	270.479	10.49	275.033	8.6	281.817	10.69	281.583	8.613	334.867	11.197	344.675	8.693	240.396	11.753	376.3	9.427	260.9	11.603	488.975	288.975
	286.154	11.41	283.329	11.16	270.304	10.463	275.392	8.58	281.175	10.683	281.942	8.607	334.925	11.183	344.767	8.653	239.404	11.753	376.392	9.427	260.73	11.617	489.8	289.8
	285.979	11.41	283.638	11.15	270.304	10.437	275.433	8.58	281.35	10.69	281.183	8.573	334.867	11.197	344.408	8.593	238.529	11.753	375.9	9.38	260.9	11.617	488.975	288.975
	286.179	11.41	283.388	11.16	270.388	10.437	275.317	8.593	281.608	10.697	281.6	8.607	334.6	11.183	344.825	8.627	238.263	11.753	376.85	9.4	260.68	11.617	489.525	289.525
	285.429	11.41	283.163	11.147	269.229	10.483	274.958	8.593	280.858	10.69	280.842	8.607	334.083	11.163	344.067	8.633	237.396	11.74	376.758	9.4	261.23	11.617	488.3	288.3
	285.429	11.41	283.296	11.167	269.054	10.463	274.425	8.593	280.333	10.69	280.708	8.613	333.383	11.177	343.267	8.687	237.629	11.753	376.625	9.4	259.69	11.617	488.3	288.3
	285.779	11.41	283.071	11.167	269.054	10.45	275	8.6	280.508	10.703	280.617	8.587	333.383	11.19	343.842	8.66	238.388	11.753	376.667	9.393	259.87	11.603	488.475	288.475
	285.954	11.41	283.863	11.167	269.113	10.463	275.258	8.593	280.45	10.71	280.875	8.587	333.383	11.17	343.967	8.707	239.321	11.753	377.458	9.4	260.39	11.617	488	288
	285.929	11.41	283.304	11.173	268.621	10.457	275.1	8.58	280.425	10.697	280.717	8.587	332.892	11.183	343.675	8.687	239.821	11.77	376.9	9.433	261.13	11.603	488.975	288.975
	285.654	11.41	283.029	11.16	268.346	10.457	274.558	8.6	279.8	10.697	279.908	8.613	332.092	11.163	342.867	8.687	239.546	11.77	376.625	9.407	260.86	11.603	487.7	287.7
	285.604	11.41	282.929	11.18	268.121	10.443	274.858	8.6	279.925	10.71	279.942	8.587	332.042	11.177	342.233	8.72	239.788	11.753	376.525	9.44	260.39	11.603	487	287
	285.604	11.41	283.054	11.173	268.238	10.483	274.85	8.607	279.983	10.71	279.933	8.613	332.392	11.163	342.492	8.713	239.438	11.753	377.45	9.393	260.92	11.577	487.525	287.525
	285.804	11.41	283.829	11.167	267.971	10.43	275.092	8.6	279.95	10.717	279.908	8.627	331.95	11.183	342.6	8.687	238.588	11.753	377.158	9.38	261.29	11.603	487.9	287.9
	285.513	11.41	283.779	11.16	267.504	10.457	274.508	8.613	279.717	10.697	279.458	8.607	331.425	11.183	342.017	8.653	237.246	11.753	377.908	9.393	260.88	11.603	487.25	287.25
	285.513	11.41	283.721	11.173	267.388	10.47	274.983	8.613	279.425	10.69	279.533	8.587	331.775	11.17	341.958	8.713	236.488	11.753	377.85	9.42	260.22	11.59	487.125	287.125
	285.638	11.41	283.971	11.173	267.104	10.443	274.7	8.613	279.375	10.683	279.517	8.593	331.783	11.183	341.942	8.713	236.321	11.753	378.633	9.393	260.87	11.603	487.775	287.775
	285.788	11.41	283.704	11.173	267.371	10.437	274.833	8.613	279.817	10.697	279.783	8.593	331.583	11.177	342.475	8.713	236.121	11.77	379.7	9.367	261.3	11.603	485.975	285.975
	285.696	11.41	284.604	11.17	266.988	10.457	274.533	8.607	279.667	10.69	280.017	8.613	331.492	11.177	341.642	8.693	236.554	11.753	380.733	9.367	261.63	11.603	486.875	286.875
	285.671	11.41	283.771	11.193	266.846	10.463	274.767	8.607	279.35	10.703	279.317	8.613	331.292	11.17	341.742	8.727	236.821	11.753	380.167	9.387	260.59	11.603	486.375	286.375
	285.646	11.41	283.604	11.187	266.879	10.437	275.133	8.613	279.267	10.697	279.417	8.613	330.742	11.17	341.175	8.72	237.729	11.74	380.267	9.4	261.67	11.59	486.875	286.875
	285.496	11.41	283.046	11.173	266.788	10.47	274.708	8.607	278.942	10.683	279.392	8.607	330.592	11.17	341.95	8.713	238.513	11.753	380.908	9.367	260.51	11.59	486.25	286.25
	285.196	11.41	284.079	11.177	266.021	10.457	273.875	8.613	278.117	10.69	278.558	8.607	329.825	11.17	340.717	8.753	238.854	11.74	380.342	9.367	260.21	11.59	486.95	286.95
	285.671	11.417	283.721	11.173	266.088	10.397	273.917	8.613	278.242	10.69	278.333	8.607	329.133	11.177	340.758	8.74	239.446	11.753	380.383	9.367	260.94	11.603	485.725	285.725
	284.996	11.41	283.354	11.2	265.646	10.423	273.95	8.633	277.8	10.697	278.1	8.613	328.633	11.163	339.858	8.72	238.771	11.753	379.217	9.347	261.21	11.603	486.225	286.225
	284.646	11.41	282.913	11.173	265.121	10.463	273.242	8.627	277.217	10.677	277.258	8.613	328.05	11.17	339.15	8.713	237.721	11.753	379.175	9.367	260.84	11.59	485.05	285.05

*Data filtered to display one reading per hour. Data recorded at 2 minute intervals throughout test period, full data available on request.

24/02/2014	284.771	11.41	283.446	11.187	264.838	10.463	273.908	8.607	277.05	10.697	277.125	8.613	327.3	11.17	339.283	8.727	236.504	11.74	378.908	9.353	259.87	11.603	485.65	285.65	
	284.646	11.41	283.138	11.173	264.771	10.45	273.867	8.613	276.925	10.69	276.95	8.613	327.233	11.143	338.842	8.713	235.271	11.74	379	9.367	261.63	11.603	485.875	285.875	
	284.421	11.417	282.996	11.187	264.079	10.45	272.925	8.613	276.35	10.69	276.808	8.613	326.833	11.163	338.567	8.727	234.171	11.74	378.858	9.347	261.56	11.577	485	285	
	284.946	11.417	283.304	11.173	264.254	10.417	273.9	8.627	276.7	10.69	276.85	8.613	326.658	11.157	338.608	8.753	233.529	11.74	379.033	9.353	260.97	11.59	485.175	285.175	
	284.971	11.41	283.588	11.173	264.046	10.41	273.65	8.633	276.783	10.69	276.733	8.613	326.858	11.157	338.492	8.747	233.438	11.74	379.45	9.367	260.94	11.603	485.725	285.725	
	285.029	11.41	283.271	11.193	264.396	10.463	273.733	8.633	276.608	10.67	276.683	8.627	326.742	11.21	338.708	8.773	233.788	11.74	379.667	9.34	261.1	11.577	486.075	286.075	
	285.029	11.417	283.488	11.2	263.929	10.47	273.683	8.633	276.375	10.697	276.633	8.613	326.392	11.19	338.125	8.773	234.371	11.753	380.15	9.347	260.68	11.59	484.425	284.425	
	284.854	11.41	283.571	11.187	263.813	10.45	273.5	8.633	276.025	10.683	276.183	8.64	326.217	11.17	338.342	8.753	235.129	11.753	380.1	9.347	260.46	11.59	484.775	284.775	
	284.854	11.417	283.654	11.2	263.696	10.457	273.317	8.64	275.908	10.697	276.4	8.613	325.925	11.19	338.025	8.76	236.063	11.74	380.183	9.34	260.81	11.59	485.125	285.125	
	285.204	11.417	283.863	11.2	263.579	10.45	273.658	8.627	276.433	10.677	276.475	8.613	326.1	11.177	337.567	8.76	236.938	11.753	380.925	9.373	260.92	11.59	486	286	
	285.054	11.417	283.304	11.2	263.313	10.45	273.767	8.633	275.992	10.677	276.183	8.607	325.658	11.177	337.408	8.773	237.721	11.753	380.767	9.34	261.29	11.59	486.375	286.375	
	284.888	11.417	283.604	11.187	263.146	10.477	273.133	8.64	275.942	10.69	275.55	8.627	325.375	11.197	336.908	8.76	237.438	11.753	381.067	9.34	260.83	11.59	484.675	284.675	
	284.713	11.417	283.288	11.2	262.563	10.437	272.95	8.64	275.3	10.683	275.9	8.64	324.792	11.177	336.325	8.793	236.388	11.77	381.55	9.34	260.41	11.603	485.025	285.025	
25/02/2014	284.363	11.417	283.013	11.2	262.621	10.457	273.342	8.64	275.475	10.683	275.492	8.64	324.558	11.17	336.583	8.793	235.396	11.74	381.275	9.333	260.93	11.603	485.55	285.55	
	284.563	11.417	283.029	11.2	262.704	10.45	273.492	8.633	275.208	10.683	275.508	8.627	324.642	11.17	336.6	8.78	234.488	11.753	381.958	9.347	260.72	11.59	485.1	285.1	
	284.563	11.41	283.646	11.207	262.238	10.443	273.308	8.64	274.917	10.65	275.592	8.647	324.467	11.17	336.417	8.773	233.613	11.74	381.642	9.347	260.3	11.59	484.45	284.45	
	284.596	11.417	282.804	11.207	262.329	10.463	273.4	8.64	275.475	10.683	275.683	8.627	324.85	11.163	336.375	8.787	233.588	11.74	382.4	9.34	260.56	11.577	485.475	285.475	
	284.746	11.417	283.121	11.213	262.246	10.43	272.917	8.633	276.15	10.683	276	8.627	325.817	11.17	337.225	8.78	233.796	11.74	382.85	9.313	260.64	11.577	485.325	285.325	
	284.721	11.417	283.404	11.207	262.513	10.443	273.467	8.647	275.95	10.69	275.617	8.64	325.325	11.163	336.975	8.787	234.588	11.74	382.6	9.333	260.79	11.59	484.475	284.475	
	284.571	11.417	283.646	11.207	262.246	10.463	273.308	8.64	276.033	10.69	275.858	8.653	325.058	11.163	336.55	8.793	235.138	11.74	383.242	9.313	261.17	11.59	484.85	284.85	
	284.746	11.417	283.688	11.22	262.246	10.45	273.083	8.647	275.858	10.683	275.9	8.64	325.058	11.177	336.058	8.787	236.363	11.74	382.883	9.313	261.34	11.603	485.025	285.025	
	284.571	11.417	283.388	11.207	262.071	10.443	272.517	8.647	275.217	10.697	275.2	8.647	324.183	11.163	335.892	8.787	237.529	11.753	382.317	9.307	260.64	11.59	484.325	284.325	
	284.046	11.41	282.596	11.207	261.546	10.417	272.658	8.64	274.808	10.69	275.342	8.647	323.483	11.177	335.367	8.833	237.704	11.77	381.525	9.32	260.12	11.59	483.8	283.8	
	284.246	11.417	282.938	11.2	261.688	10.457	272.2	8.66	274.833	10.69	275.15	8.647	323.333	11.163	335.175	8.807	237.496	11.783	381.733	9.34	261.33	11.59	484.475	284.475	
	284.246	11.417	282.946	11.207	261.629	10.41	272.475	8.66	274.425	10.683	275.025	8.64	323.625	11.15	335.317	8.813	236.679	11.797	380.675	9.34	261.57	11.59	483.95	283.95	
	284.363	11.417	283.488	11.207	261.746	10.477	272.483	8.64	276.525	10.703	275.3	8.64	325.667	11.163	336.792	8.807	235.921	11.797	380.683	9.35	261.81	11.577	484.425	284.425	
	284.188	11.417	282.729	11.24	262.096	10.437	272.258	8.647	276.875	10.69	276.408	8.647	326.017	11.163	338.567	8.813	234.871	11.797	380.592	9.333	261.98	11.577	482.6	282.6	
	284.188	11.41	282.638	11.233	262.854	10.45	272.033	8.667	276.875	10.677	276.85	8.66	326.483	11.17	338.608	8.793	233.763	11.797	381.033	9.367	261.39	11.59	482.775	282.775	
	284.188	11.417	283.221	11.213	263.496	10.443	272.217	8.66	276.933	10.697	277.167	8.673	326.133	11.17	338.392	8.813	233.004	11.797	380.15	9.333	261.04	11.577	483.425	283.425	
	284.013	11.417	282.696	11.213	263.904	10.437	271.958	8.647	276.175	10.683	277.308	8.647	325.842	11.15	338.533	8.813	232.188	11.81	379.625	9.347	261.28	11.563	482.9	282.9	
	284.013	11.417	282.663	11.227	264.488	10.463	272.592	8.66	276.117	10.683	276.875	8.647	325.608	11.157	337.967	8.833	231.896	11.81	379.325	9.34	261.35	11.577	483.2	283.2	
	283.838	11.417	282.496	11.227	264.429	10.45	272.158	8.66	275.767	10.683	276.708	8.673	324.733	11.177	337.667	8.833	233.296	11.81	377.958	9.34	261.42	11.577	482.5	282.5	
	283.713	11.417	283.004	11.227	264.596	10.423	272.133	8.667	275.292	10.69	276.017	8.647	324.55	11.17	337.375	8.813	233.696	11.81	377.667	9.333	260.59	11.577	482.675	282.675	
	283.863	11.417	282.404	11.24	264.396	10.43	271.933	8.66	275.208	10.65	275.817	8.66	324.233	11.163	336.908	8.82	234.546	11.81	377.333	9.36	261.16	11.577	481.475	281.475	
	283.654	11.417	282.579	11.227	264.246	10.463	271.842	8.673	274.883	10.69	275.592	8.66	323.558	11.15	336.15	8.847	234.804	11.81	376.308	9.353	260.71	11.59	482.45	282.45	
	283.854	11.417	282.529	11.233	264.096	10.43	271.792	8.673	274.5	10.683	275.142	8.647	323.35	11.157	335.967	8.833	235.238	11.823	375.725	9.313	261.39	11.59	481.6	281.6	
	283.829	11.417	282.821	11.227	263.838	10.417	271.683	8.66	274.475	10.67	275.433	8.673	322.858	11.15	335.325	8.82	235.504	11.823	375.35	9.3	261.02	11.59	482.225	282.225	
26/02/2014	283.829	11.417	282.696	11.24	263.663	10.403	272.225	8.673	274.125	10.677	274.908	8.673	322.333	11.177	335.2	8.847	234.338	11.823	374.825	9.3	260.49	11.577	480.7	280.7	
	283.771	11.417	282.621	11.227	263.371	10.463	271.883	8.673	273.717	10.683	274.433	8.673	322.1	11.163	334.458	8.86	232.879	11.823	374.35	9.333	261.15	11.577	481.825	281.825	
	283.921	11.417	283.046	11.233	262.879	10.41	271.775	8.673	273.692	10.69	274.192	8.66	322.25	11.177	334.217	8.82	231.629	11.823	374.108	9.32	261.54	11.59	481.45	281.45	
	283.471	11.417	282.913	11.24	262.546	10.41	270.708	8.66	273.358	10.683	273.525	8.68	321.742	11.17	333.817	8.84	230.246	11.823	373.442	9.34	260.74	11.603	480.65	280.65	
	283.121	11.417	282.171	11.24	262.021	10.41	271.567	8.667	272.833	10.69	273.183	8.68	321.217	11.197	333.075	8.82	229.371	11.823	372.833	9.333	260.63	11.603	479.775	279.775	
	285.338	11.417	282.579	11.26	261.788	10.417	271.308	8.66	272.6	10.69	272.925	8.653	320.925	11.163	333.217	8.847	229.254	11.823	372.442	9.32	260.88	11.59	479.25	279.25	
	283.088	11.417	282.529	11.24	261.229	10.443	271.125	8.66	272.275	10.677	272.342	8.66	320.25	11.163	332.367	8.84	228.813	11.823	371.992	9.32	261.56	11.577	478.4	278.4	
	283.313	11.417	282.329	11.253	260.579	10.43	271.058	8.673	271.567	10.677	272.142	8.68	319.717	11.163	332.167	8.84	229.446	11.823	370.858	9.34	260.56	11.563	479.4	279.4	
	283.238	11.417	282.404	11.233	260.271	10.423	271	8.667	271.142	10.683	271.95	8.673	319.058	11.157	332.242	8.82	230.654	11.823	370	9.32	261.54	11.577	479.275	279.275	
	283.004	11.417	281.979	11.247	259.454	10.443	270.708	8.667	270.85	10.683	271.658	8.68	318.533	11.157	331.017	8.793	231.063	11.823	369.042	9.367	261.08	11.577	479.05	279.05	
	282.979	11.417	282.496	11.247	259.079	10.417	270.425	8.673	270.65	10.677	270.975	8.68	318.158	11.17	330.733	8.813	231.971	11.823	368.625	9.373	260.53	11.59	478.5	278.5	
	282.829	11.417	281.863	11.247	258.929	10.423	270.858	8.667	270.5	10.683	271.142	8.673	317.542	11.163	330.633	8.82	232.696	11.823	368.258	9.36	260.8	11.577	478	278	
	282.979	11.417	282.504	11.247	259.021	10.437	271.1	8.673	270.65	10.683	271.117	8.68	317.458	11.157	330.342	8.84	232.263	11.823	368.367	9.333	260.78	11.577	478.975	278.975	
	283.204	11.417	281.938	11.253	258.429	10.423	270.8	8.673	270.35	10.69	270.55	8.673	317.217	11.15	329.908	8.847	230.738	11.823	367.933	9.367	261.24	11.577	477.675	277.675	
	282.804	11.417	281.271	11.247	258.204	10.443	270	8.66	269.95	10.677	270.417	8.68	316.642	11.15	329.242	8.847	229.288	11.823	367.533	9.393	260.84	11.577	477.275	277.275	
	283.154	11.417	282.246	11.26	258.496	10.437	270.708	8.667	270.125	10.69	270.592	8.653	316.817	11.15	329.683	8.807	228.413	11.823	368.108	9.367	261.78	11.577	479.45	279.45	
	282.804	11.417	281.854	11.247	257.679	10.423	270.317	8.673	269.6	10.69	270.2	8.64	316.233	11.157	328.892	8.84	226.838	11.823	367.183	9.373	261.26	11.59	478.925	278.925	
	282.904	11.417	282.179	11.24	257.779	10.417	270.908	8.667	269.642	10.677	270.125	8.66	316.333	11.157	329.35	8.847	226.588	11.823	367.375	9.373	261.95	11.577	478.85	278.85	
	282.796	11.417	282.229	11.24	257.029	10.41	270.825	8.667	269.067	10.677	269.375	8.653	315.642	11.163	328.333	8.84	225.838	11.823	366.758	9.38	261.97	11.577	479.1	279.1	
	283.321	11.417	282.404	11.24	257.321	10.403	271	8.68	269.592	10.677	270.083	8.653	315.992	11.163	328.908	8.84	226.654	11.823	367.067	9.393	262.14	11.577	479.275	279.275	
	283.721	11.417	282.671	11.253	257.138	10.43	271.4	8.673	269.642	10.683	269.95	8.653	316.217	11.163	328.108	8.873	227.638	11.823	367.2	9.373	261.78	11.59	479.675	279.675	
	283.496	11.417	282.796	11.247	256.913	10.437	270.858	8.68	269.592	10.677	269.542	8.673	315.467	11.163	327.967	8.86	228.813	11.823	367.458	9.393	262.67	11.577	479.8	279.8	
	283.146	11.417	282.038	11.247	256.504	10.423	270.9	8.673	269.125	10.663	269.583	8.66	315.408	11.17	327.742	8.867	230.038	11.823	367.633	9.38	262.08	11.577	476.975	276.975	
	283.404	11.417	283.254	11.263	256.179	10.443	270.517	8.673	269.092	10.697	269.333	8.673	315.375	11.15	327.625	8.867	230.763	11.823	368.317	9.387	261.09	11.59	477.525	277.525	
27/02/2014	283.229	11.417	282.479	11.247	256.296	10.417	270.542	8.68	269.442	10.683	269.758	8.66	315.55	11.15	327.783	8.86	231.579	11.823	369.408	9.367	262.32	11.577	478.75	278.75	
	283.579	11.417	282.504	11.26	256.413	10.45	270.833	8.68	269.5	10.67	269.917	8.653	315.608	11.15	327.675	8.86	230.938	11.823	369.967	9.393	262.78	11.59	477.975	277.975	
	283.388	11.417	282.763	11.24	255.988	10.437	270.825	8.68	269.542	10.697	269.642	8.673	315.708	11.157	327.4	8.873	229.988	11.823	371.025	9.373	261.99	11.577	479.3	279.3	
	283.038	11.417	282.788	11.26	255.988	10.45	270.583	8.68	269.425	10.683	270.067	8.66	315.592	11.15	327.558	8.867	228.704	11.823	371.983	9.38	262.45	11.577	478.525	278.525	
	283.446	11.417	283.163	11.273	255.929	10.437	270.425	8.693	269.717	10.683	270.175	8.653	315.417	11.157	327.8	8.847	227.829	11.823	373.292	9.373	262.49	11.577	478.1	278.1	
	283.154	11.417	283.129	11.247	255.988	10.417	270.792	8.693	270.008	10.69	270.275	8.66	316.525	11.17	327.5	8.867	227.596	11.823	374.458	9.373	262.29	11.563	478.2	278.2	
	283.154	11.417	282.529	11.267	256.279	10.423	270.058	8.7	270.417	10.67	270.742	8.673	317.458	11.15	327.7	8.867	228.588	11.823	374.925	9.347	262.16	11.577	478.6	278.6	
	282.813	11.417	282.238	11.213	256.229	10.43	270.167	8.68	271.767	10.67	271.517	8.68	319.1	11.157	329.408	8.873	229.121	11.823	375.967	9.34	263.33	11.55	478.775	278.775	
	282.288	11.417	282.204	11.273	256.288	10.443	269.467	8.713	272.35	10.683	271.883	8.66	320.092	11.157	331.242	8.847	229.704	11.823	374.867	9.333	261.87	11.577	478.075	278.075	
	282.104	11.417	281.829	11.267	256.863	10.417	269.092	8.7	272.342	10.69	272.175	8.673	320.083	11.17	331.667	8.873	231.038	11.823	374.358	9.34	262.23	11.563	476.9	276.9	
	282.429	11.417	282.038	11.26	257.713	10.43	269.433	8.693	272.725	10.703	272.383	8.673	319.592	11.177	331.342	8.84	232.354	11.823	373.367	9.34	261.5	11.563	478.175	278.175	
	282.429	11.417	281.471	11.273	258.646	10.423	269.4	8.693	272.025	10.69	272.617	8.653	319.183	11.157	331.042	8.847	233.346	11.823	372.4	9.36	262.33	11.577	477.475	277.475	
	282.604	11.417	281.913	11.253	259.229	10.443	269.308	8.693	272.55	10.683	272.925	8.64	319.592	11.163	331.483	8.867	233.871	11.837	372.975	9.32	261.74	11.577	477.65	277.65	
	282.579	11.417	282.279	11.28	259.963	10.41	269.542	8.713	272.233	10.677	273.425	8.647	319.217	11.15	330.917	8.847	233.788	11.823	373.342	9.34	261.48	11.577	477.15	277.15	
	282.904	11.417	282.513	11.287	260.696	10.417	270.042	8.7	273.083	10.663	274.058	8.653	320.067	11.177	331.15	8.86	232.771	11.837	374.108	9.34	262.74	11.577	478.65	278.65	
	282.804	11.417	281.979	11.28	260.771	10.423	269.775	8.693	272.283	10.67	273.658	8.647	320.083	11.15	331.55	8.833	230.513	11.837	373.308	9.333	261.94	11.577			
	282.954	11.417	282.346	11.26	260.746	10.43	269.342	8.7	272.9	10.663	273.625	8.673	320.583	11.15	331.25	8.847	229.379	11.837	373.408	9.333	262.44	11.59			
	282.429	11.417	281.904	11.28	261.038	10.403	269.3	8.68	272.608	10.69	273.983	8.673	320.292	11.137	331.208	8.833	228.329	11.81	373.367	9.38	262.27	11.577			
	282.454	11.417	281.888	11.287	261.529	10.443	269.55	8.693	272.925	10.69	273.833	8.647	320.783	11.143	331.725	8.833	227.596	11.753	373.083	9.333	262.12	11.577			
	282.629	11.417	282.421	11.293	262.054	10.423	269.283	8.693	273.275	10.677	274.233	8.653	321.075	11.157	332.125	8.833	227.363	11.753	373.217	9.373	262.88	11.577			
	282.979	11.417	282.721	11.307	262.229	10.43	269.583	8.713	273.625	10.67	274.533	8.673	321.425	11.157	332.292	8.86	228.471	11.74	373.917	9.347	262.82	11.563			
	282.979	11.417	282.538	11.26	262.463	10.43	269.8	8.713	273.508	10.677	274.35	8.673	321.308	11.157	332.242	8.86	229.638	11.753	374.133	9.32	263.17	11.577			
	282.804	11.417	282.529	11.293	262.929	10.39	269.392	8.713	273.508	10.677	274.342	8.647	321.483	11.17	332.233	8.86	231.038	11.74	374.525	9.333	262.35	11.563			
	282.838	11.417	282.529	11.287	263.196	10.437	269.392	8.713	273.425	10.683	274.742	8.68	321.517	11.143	332.367	8.86	232.646	11.74	375.458	9.313	262.59	11.577			
28/02/2014	282.813	11.417	282.438	11.28	263.113	10.417	269.033	8.7	273.808	10.65	275.183	8.647	321.9	11.15	332.008	8.813	233.788	11.74	376.433	9.34	262.43	11.577			
	282.846	11.417	282.738	11.32	263.146	10.397	269.333	8.693	274.25	10.683	275.217	8.653	322.05	11.157	332.442	8.833	234.638	11.727	377.8	9.353	262.23	11.577			
	282.346	11.417	281.854	11.313	263.113	10.397	268.983	8.7	273.692	10.67	274.867	8.647	321.608	11.157	331.425	8.833	233.613	11.713	378.917	9.32	262.71	11.577			
	282.879	11.417	282.696	11.327	263.646	10.41	269.425	8.72	274.283	10.683	275.708	8.627	322.667	11.15	332.933	8.84	233.271	11.713	380.958	9.32	262.98	11.577			
	282.879	11.417	282.454	11.313	263.413	10.437	269.05	8.713	274.342	10.677	275.867	8.627	323.6	11.15	332.158	8.807	231.638	11.74	381.517	9.373	262.87	11.563			
	282.913	11.417	282.529	11.293	263.446	10.417	269.258	8.713	276.242	10.69	276.608	8.627	326.142	11.15	334.5	8.82	231.379	11.74	383.058	9.313	262.45	11.577			
	282.421	11.417	281.871	11.307	263.013	10.41	269.4	8.713	277.617	10.677	277.95	8.653	327.983	11.157	336.775	8.807	231.063	11.7	383.467	9.353	262.55	11.577			
	282.771	11.417	282.179	11.32	263.946	10.417	269.042	8.7	278.433	10.67	279.058	8.62	328.683	11.157	337.75	8.793	231.646	11.7	383.242	9.393	262.73	11.577			
	282.771	11.417	282.671	11.297	264.763	10.41	269.133	8.713	278.9	10.683	280.217	8.62	329.325	11.157	338.642	8.787	232.696	11.7	383.6	9.387	263.13	11.55			
	282.446	11.417	281.504	11.293	265.371	10.443	269.033	8.713	278.925	10.69	279.85	8.647	329.233	11.15	338.408	8.793	233.013	11.687	382.833	9.42	262.63	11.577			
	282.213	11.417	281.913	11.327	266.246	10.383	267.975	8.72	278.4	10.677	279.858	8.62	329	11.157	338.15	8.793	233.946	11.7	381.908	9.453	262.1	11.577			
	282.388	11.417	281.921	11.327	267.004	10.41	268.517	8.7	278.517	10.677	280.133	8.647	328.825	11.157	338.558	8.793	235.521	11.713	381.917	9.427	262.34	11.577			
	282.738	11.417	282.321	11.313	267.821	10.397	268.383	8.7	278.692	10.677	280.8	8.607	329.35	11.15	338.958	8.787	237.388	11.713	382.183	9.393	263.88	11.55			
	282.738	11.417	282.371	11.32	268.229	10.37	268.433	8.693	278.458	10.677	280.317	8.673	329.35	11.15	338.342	8.78	238.088	11.713	382.233	9.407	262.18	11.563			
	282.388	11.417	282.296	11.32	268.113	10.39	268.225	8.72	278.108	10.67	279.708	8.693	328.65	11.183	338.4	8.787	236.804	11.713	381.492	9.393	261.88	11.577			
	282.704	11.417	281.846	11.313	267.788	10.403	268.442	8.7	277.608	10.67	279.392	8.68	328.617	11.15	338.083	8.793	234.671	11.7	381.175	9.287	262.57	11.577			

*Data filtered to display one reading per hour. Data recorded at 2 minute intervals throughout test period, full data available on request.

	282.729	11.417	282.238	11.313	268.221	10.383	268.7	8.7	277.575	10.663	279.383	8.673	328.642	11.143	338.342	8.78	232.538	11.7	380.233	9.24	262.66	11.563			
	282.729	11.417	282.604	11.313	267.988	10.403	268.133	8.713	277.342	10.69	278.95	8.68	328.642	11.163	337.642	8.807	231.021	11.7	380.333	9.307	263.49	11.563			
	282.496	11.417	281.871	11.327	267.521	10.417	268.6	8.693	276.583	10.683	278.217	8.733	327.708	11.157	337.442	8.793	228.804	11.7	378.667	9.287	262.86	11.563			
	282.521	11.417	282.046	11.327	267.313	10.403	268.108	8.72	276.375	10.683	277.725	8.74	327.733	11.15	337.35	8.807	228.188	11.687	378.442	9.28	262.6	11.563			
	282.321	11.423	281.713	11.313	266.938	10.403	268.308	8.7	276.175	10.683	277.658	8.733	327.825	11.157	336.883	8.813	228.163	11.713	378.642	9.273	263.17	11.563			
	282.521	11.423	281.704	11.313	266.496	10.43	267.767	8.68	276.025	10.69	277.117	8.733	327.5	11.157	336.608	8.773	228.363	11.7	378.1	9.28	262.49	11.563			
	282.463	11.423	282.246	11.313	266.088	10.403	267.775	8.72	275.85	10.677	277.258	8.733	327.5	11.157	337.017	8.813	229.879	11.7	377.708	9.253	262.73	11.533			
	282.613	11.417	282.004	11.327	265.888	10.423	267.933	8.713	275.767	10.677	277.017	8.733	326.95	11.15	336.775	8.793	231.196	11.7	377.733	9.247	263.13	11.563			
	282.438	11.423	282.096	11.327	265.538	10.43	267.892	8.72	275.592	10.67	276.708	8.72	326.95	11.15	336.733	8.793	233.063	11.7	377.958	9.3	262.95	11.563			
	282.488	11.417	282.146	11.32	265.588	10.397	268.208	8.673	275.642	10.683	277.025	8.687	327	11.15	337.05	8.807	234.571	11.713	377.875	9.313	263.58	11.55			
	282.488	11.417	281.921	11.327	265.296	10.41	268.117	8.72	275.525	10.69	276.4	8.733	326.825	11.15	336.958	8.793	234.571	11.7	378.45	9.28	263.75	11.55			
	282.613	11.417	281.913	11.32	265.071	10.417	267.708	8.68	275.475	10.677	276.525	8.72	326.658	11.15	336.817	8.787	233.238	11.713	378.575	9.307	263.11	11.577			
	282.438	11.417	281.779	11.307	265.071	10.383	267.575	8.68	275.125	10.67	276.525	8.713	326.133	11.15	336.15	8.807	231.138	11.713	378.842	9.3	262.53	11.577			
	282.463	11.423	281.713	11.327	264.804	10.39	268.175	8.707	274.975	10.65	276.058	8.707	325.983	11.183	336.217	8.807	229.296	11.713	379.042	9.32	263.5	11.563			
	282.488	11.423	282.363	11.343	264.363	10.397	267.625	8.713	274.533	10.683	275.775	8.707	326.008	11.163	335.667	8.793	227.688	11.687	378.892	9.313	263.35	11.563			
	282.196	11.423	282.363	11.363	264.188	10.397	268.025	8.72	274.008	10.683	275.508	8.733	325.658	11.15	335.8	8.787	226.813	11.687	379.425	9.333	263.35	11.563			
	281.796	11.423	281.646	11.333	263.671	10.41	267.308	8.727	273.842	10.677	275.058	8.733	325.55	11.17	336.017	8.807	226.179	11.7	379.775	9.313	262.53	11.563			
	281.471	11.417	280.838	11.327	262.354	10.43	266.367	8.68	272.467	10.657	273.85	8.713	324.583	11.15	334.942	8.787	225.679	11.713	378.833	9.353	263.2	11.55			
	281.596	11.417	281.313	11.307	262.654	10.397	267.242	8.693	273.467	10.67	273.925	8.733	324.592	11.137	335.017	8.807	227.438	11.7	379.442	9.333	263.68	11.55			
01/03/2014	281.796	11.423	281.646	11.34	262.388	10.41	267.442	8.68	273.142	10.67	273.592	8.74	324.617	11.15	334.683	8.787	229.271	11.7	379.642	9.333	262.53	11.563			
	282.321	11.417	281.504	11.32	262.096	10.403	267.3	8.693	273.025	10.677	274.117	8.74	324.208	11.157	335.075	8.787	230.846	11.7	380.167	9.36	263.06	11.563			
	282.321	11.423	281.854	11.293	261.688	10.397	267.517	8.673	273.083	10.683	273.667	8.713	323.975	11.163	334.758	8.807	232.421	11.713	380.383	9.34	263.41	11.55			
	282.471	11.423	282.046	11.36	261.663	10.403	267.308	8.72	272.883	10.677	273.992	8.72	323.775	11.15	334.817	8.787	233.213	11.713	381.108	9.367	263.73	11.563			
	282.471	11.423	281.596	11.327	261.079	10.41	267.525	8.72	272.883	10.677	273.942	8.713	323.542	11.157	334.233	8.813	232.279	11.727	381.325	9.347	264.08	11.55			
	282.321	11.423	282.421	11.353	260.929	10.397	267.283	8.7	272.442	10.683	273.3	8.713	323.275	11.177	333.992	8.813	230.263	11.713	380.95	9.353	264.11	11.55			
	282.171	11.423	282.404	11.33	260.488	10.403	267.267	8.693	272.117	10.67	272.35	8.733	322.775	11.163	333.575	8.793	228.188	11.7	381.067	9.347	263.19	11.563			
	282.171	11.423	281.696	11.34	260.313	10.377	267.092	8.7	271.767	10.67	272.442	8.733	322.6	11.17	334.067	8.793	226.379	11.7	381.025	9.347	263.78	11.563			
	282.321	11.423	282.121	11.34	259.938	10.377	267.517	8.713	271.567	10.677	272.6	8.733	322.4	11.15	333.558	8.807	225.188	11.713	381.183	9.34	263.98	11.55			
	282.321	11.423	281.863	11.327	259.238	10.397	266.992	8.693	271.217	10.683	271.675	8.733	321.408	11.143	333.167	8.787	224.254	11.7	380.258	9.347	264.42	11.563			
	281.871	11.423	281.771	11.347	258.904	10.377	266.767	8.733	270.767	10.677	271.45	8.747	321.25	11.15	332.942	8.813	224.038	11.7	379.9	9.333	263.03	11.563			
	282.196	11.423	282.229	11.33	258.471	10.397	266.825	8.707	270.917	10.677	271.508	8.733	321.283	11.15	333.133	8.84	225.413	11.713	380.225	9.313	263.35	11.563			
	282.346	11.423	282.104	11.333	258.504	10.397	267.5	8.707	270.95	10.677	271.65	8.747	320.675	11.157	332.875	8.807	227.313	11.713	380.9	9.36	264.03	11.563			
	282.321	11.423	281.938	11.34	257.838	10.39	266.667	8.7	270.925	10.677	271.483	8.733	320.883	11.17	332.975	8.787	229.271	11.727	380.867	9.34	263.76	11.563			
	282.146	11.423	281.671	11.333	257.546	10.383	266.667	8.693	270.633	10.683	271.083	8.733	320.358	11.157	332.575	8.793	230.904	11.74	381.4	9.333	263.76	11.563			
	281.971	11.423	281.629	11.353	256.438	10.417	266.225	8.713	270.108	10.677	270.642	8.733	319.833	11.157	332.267	8.807	231.604	11.753	380.425	9.307	262.82	11.563			
	281.821	11.423	281.563	11.333	255.879	10.41	266.158	8.733	269.842	10.683	270.442	8.733	319.567	11.163	331.4	8.793	231.163	11.753	381.292	9.313	263.78	11.55			
	282.146	11.423	282.154	11.36	256.029	10.397	267.15	8.72	269.817	10.67	270.233	8.74	319.308	11.17	331.325	8.78	229.796	11.753	381.35	9.307	262.58	11.563			
	281.271	11.423	281.404	11.34	255.038	10.403	266.4	8.707	269.117	10.67	269.35	8.747	318.025	11.15	330.708	8.78	226.996	11.74	381	9.313	263.76	11.55			
	281.471	11.423	281.913	11.343	254.771	10.423	266.375	8.72	268.85	10.663	269.458	8.707	318.225	11.163	330.55	8.787	225.038	11.74	381.242	9.307	263.37	11.563			
	281.096	11.423	280.863	11.36	254.571	10.39	265.992	8.72	268.358	10.683	268.942	8.733	317.5	11.163	330.167	8.787	223.788	11.727	381.525	9.307	262.75	11.577			
	281.796	11.423	281.563	11.36	254.513	10.417	266.425	8.713	268.883	10.677	269.508	8.713	317.558	11.143	330.2	8.793	223.438	11.727	381.958	9.28	264.22	11.55			
	281.479	11.423	281.396	11.333	253.904	10.43	265.725	8.7	268.392	10.663	268.808	8.74	317.183	11.183	330.433	8.78	223.529	11.74	382.458	9.273	263.95	11.55			
	281.329	11.423	281.371	11.36	253.463	10.403	266.1	8.727	268.125	10.677	268.517	8.74	316.917	11.15	329.342	8.793	223.904	11.74	383.1	9.273	263.56	11.55			
02/03/2014	281.479	11.423	281.246	11.347	253.379	10.423	265.842	8.72	268.158	10.683	268.925	8.72	316.717	11.163	329.35	8.813	225.396	11.727	382.975	9.253	262.7	11.563			
	282.004	11.423	281.371	11.34	253.846	10.39	266.367	8.7	268.158	10.677	268.783	8.76	316.425	11.177	329.342	8.807	227.146	11.74	383.5	9.28	263.99	11.55			
	282.413	11.423	282.179	11.353	254.079	10.37	266.242	8.713	268.975	10.677	269.192	8.733	316.775	11.157	330.017	8.82	230.063	11.74	385.775	9.3	263.97	11.563			
	282.096	11.423	282.038	11.353	253.704	10.39	265.967	8.727	268.542	10.677	269.317	8.72	316.983	11.15	328.942	8.807	231.788	11.74	387.233	9.247	263.58	11.563			
	282.096	11.423	282.371	11.333	253.704	10.37	266.033	8.72	268.658	10.677	269.117	8.747	316.342	11.183	329.675	8.78	232.138	11.74	387.7	9.28	263.45	11.563			
	282.479	11.423	282.446	11.333	253.854	10.383	266.108	8.7	269.392	10.677	269.458	8.72	316.842	11.157	329.217	8.847	231.529	11.713	389.242	9.28	263.99	11.563			
	281.488	11.423	282.338	11.363	253.504	10.397	266.4	8.727	268.342	10.677	269.35	8.747	316.025	11.157	329.242	8.82	228.788	11.713	390.067	9.247	263.68	11.563			
	281.696	11.423	282.154	11.373	253.654	10.377	266.75	8.7	268.433	10.683	269.433	8.72	316.117	11.15	328.925	8.82	227.421	11.713	390.55	9.247	262.93	11.533			
	282.196	11.423	283.071	11.377	253.979	10.383	267	8.7	268.7	10.657	269.817	8.74	316.617	11.157	329.708	8.813	226.754	11.713	392.133	9.227	264.42	11.55			
	281.204	11.423	282.121	11.36	253.104	10.383	266.183	8.727	268.117	10.677	269.267	8.733	316.033	11.15	328.225	8.813	225.529	11.713	391.983	9.253	263.93	11.55			
	281.354	11.423	281.463	11.353	253.021	10.397	265.658	8.72	269.142	10.683	269.408	8.693	317.7	11.15	329.833	8.813	225.563	11.713	392.125	9.32	263.84	11.55			
	281.763	11.423	281.979	11.327	253.254	10.397	265.775	8.72	273.108	10.657	272.058	8.707	322.833	11.15	334.083	8.86	227.896	11.713	393.175	9.407	262.78	11.533			
	281.588	11.423	281.929	11.347	254.071	10.383	265.458	8.713	274.45	10.683	273.875	8.693	324.233	11.177	336.967	8.813	230.113	11.713	393.392	9.433	263.9	11.55			
	281.938	11.423	281.704	11.353	255.354	10.37	265.633	8.727	275.092	10.683	274.983	8.72	324.817	11.157	337.675	8.78	231.921	11.727	393.3	9.34	263.31	11.533			
	282.113	11.423	282.054	11.34	256.521	10.39	266.117	8.733	275.442	10.67	276	8.687	325.05	11.15	337.758	8.793	234.604	11.713	393.517	9.24	263.66	11.533			
	282.113	11.423	281.788	11.347	257.629	10.363	266.117	8.727	275.792	10.637	276.8	8.68	325.342	11.157	337.892	8.773	236.471	11.727	393.25	9.273	263.66	11.533			
	282.288	11.423	281.929	11.353	257.921	10.403	265.725	8.713	275.617	10.677	276.275	8.707	324.875	11.143	337.367	8.787	236.938	11.727	393.125	9.433	263.9	11.533			
03/03/2014	281.613	11.423	281.604	11.367	258.529	10.41	265.4	8.72	275.292	10.677	276.75	8.68	324.725	11.15	336.775	8.793	235.621	11.727	392.533	9.42	264.34	11.55			
	281.938	11.423	281.979	11.347	259.613	10.35	266.308	8.733	275.267	10.683	276.992	8.68	325.225	11.13	337.283	8.787	233.729	11.713	392.375	9.433	264.32	11.55			
	282.288	11.423	282.596	11.367	260.604	10.383	266.125	8.727	275.792	10.67	277.475	8.673	325.225	11.143	337.367	8.773	231.746	11.713	393.258	9.407	263.9	11.533			
	281.763	11.423	281.579	11.333	260.429	10.39	265.642	8.707	274.742	10.67	276.858	8.68	324.525	11.15	336.883	8.773	229.354	11.713	392.642	9.453	263.55	11.533			
	281.413	11.423	281.538	11.327	260.721	10.39	264.933	8.733	274.275	10.677	276.15	8.68	323.883	11.143	335.775	8.78	228.363	11.7	392.067	9.433	264.14	11.55			
	281.413	11.423	281.404	11.367	260.721	10.41	265.333	8.733	274.275	10.67	276.283	8.687	323.883	11.143	335.375	8.78	227.721	11.687	392.067	9.427	263.38	11.533			
03/03/2014	281.238	11.423	281.629	11.367	261.013	10.39	264.892	8.733	273.75	10.677	275.975	8.66	323.533	11.143	335.6	8.76	227.313	11.7	392.025	9.307	254.96	11.55			
03/03/2014	-500.837	8.747	-5.696	9.327	260.488	10.403	264.5	8.727	-403.092	10.36	1101.983	8.127	323.3	11.143	335.342	8.78	228.479	11.7	391.767	9.32	-362.54	7.923			
03/03/2014	-499.612	8.5	-5.212	8.713	-218.896	8.597	171.783	8.913	-402.275	8.783	171.667	8.803	-354.533	9.293	233.692	9.513	-299.438	9.883	308.25	9.013	-360.85	8.023			
03/03/2014	-495.379	7.75	-0.462	7.347	-214.371	8.06	177.467	10.36	-397.692	7.863	173.617	8.583	-350.358	8.457	237.508	8.527	-295.263	8.927	312.467	7.893	-357.08	7.203			
03/03/2014	-500.354	8.683	-4.546	9.187	-219.112	10.253	172.05	11.4	-402.608	8.813	169.133	9.837	-355.392	8.903	233.425	9.493	-300.296	9.557	309.317	9.713	-361.45	9.063			
03/03/2014	-500.121	9.957	-4.979	10.387	-219.346	10.613	171.35	11.713	-402.492	9.933	229.767	10.423	-355.275	10.013	232.192	10.407	-299.946	10.413	308.617	10.413	-362.15	10.137			
03/03/2014	-500.179	9.787	-5.012	9.86	-219.521	9.773	172.117	10.9	-402.55	9.977	227.467	9.89	-354.808	10.1	233.358	10.253	-300.063	10.11	307.917	9.927	-361.32	9.567			
03/03/2014	-499.821	9.517	-11.221	9.74	-219.687	9.477	170.308	9.953	-402.658	9.6	165.392	9.553	-354.742	9.68	231.95	9.833	-300.404	9.513	304.775	9.747	-361.83	9.363			
03/03/2014	-500.729	9.813	-5.704	10.44	-219.779	10.227	171.292	10.633	-402.983	9.85	165.708	10.277	-355.65	9.75	232.667	10.06	-300.496	9.87	307.225	10.067	-362.04	10.123			
03/03/2014	-500.262	10.947	-5.196	11.287	-219.662	11.34	171.267	14.767	-402.983	11.2	170.217	11.43	-354.717	11.367	233.442	11.687			308.267	11.347	-361.35	11.027			
03/03/2014		12.527		12.82				14.527		12.707				12.833								12.85			
03/03/2014		14.737		13.8				14.233		13.323				13.357											

*Data filtered to display one reading per hour. Data recorded at 2 minute intervals throughout test period, full data available on request.

Appendix C

Groundwater Levels (Manual Dip Measurements)

Groundwater level Dips 05/06 February 2014

Location	AOD of casing	Date	Time	Water Level		Base	
				Dip (m)	m AOD	Dip (m)	m AOD
BH01S	2.801	05/02/2014	09:53	0.770	2.031	5.100	-2.299
BH01D	2.801	05/02/2014	09:53	0.280	2.521	12.550	-9.749
BH02S	3.854	06/02/2014	10:12	1.190	2.664	2.980	0.874
BH02D	3.854	06/02/2014	10:12	1.130	2.724	7.450	-3.596
BH03S	4.728	06/02/2014	10:17	1.830	2.898	2.080	2.648
BH03D	4.728	06/02/2014	10:17	1.830	2.898	11.980	-7.252
BH04S	3.864	06/02/2014	10:03	n/r		3.300	0.564
BH04D	3.864	06/02/2014	10:03	n/r		9.550	-5.686
BH05S	2.981	06/02/2014	10:30	0.440	2.541	2.670	0.311
BH05D	2.981	06/02/2014	10:30	0.440	2.541	6.400	-3.419
BH06S	4.31	06/02/2014	10:23	0.960	3.350	3.050	1.260
BH06D	4.31	06/02/2014	10:23	1.040	3.270	9.940	-5.630
BH07S	5.185	06/02/2014	10:38	1.480	3.705	3.260	1.925
BH07D	5.185	06/02/2014	10:38	11.550	-6.365	2.720	2.465
BH08S	3.919	06/02/2014	10:51	0.500	3.419	2.400	1.519
BH08D	3.919	06/02/2014	10:51	0.940	2.979	9.770	-5.851
BH09S	4.353	06/02/2014	11:21	0.610	3.743	2.620	1.733
BH09D	4.353	06/02/2014	11:21	1.050	3.303	0.476	3.877
BH10S	3.262	05/02/2014	09:46	0.300	2.962	2.700	0.562
BH10D	3.262	05/02/2014	09:46	1.170	2.092	8.270	-5.008

Groundwater Level Dips 04/05 march 2014

Location	AOD of casing	Date	Time	Water Level		Base		Comments
				Dip (m)	m AOD	Dip (m)	m AOD	
BH01S	2.801	04/03/2014	12:30	0.000	2.801	nr		Deep well under artesian conditions and overflowing, shallow well level is uncertain.
BH01D	2.801	04/03/2014	12:30	0.000	2.801	nr		
BH02S	3.854	04/03/2014	14:15	1.235	2.619	2.950	0.904	
BH02D	3.854	04/03/2014	14:16	1.310	2.544	7.300	-3.446	
BH03S	4.728	04/03/2014	15:23	1.930	2.798	2.300	2.428	
BH03D	4.728	04/03/2014	15:27	1.940	2.788	11.700	-6.972	
BH04S	3.864	04/03/2014	13:24	1.180	2.684	3.300	0.564	
BH04D	3.864	04/03/2014	13:24	1.190	2.674	9.500	-5.636	
BH05S	2.981	05/03/2014	15:54	0.435	2.546	2.400	0.581	BH05S and BH05D connected.
BH05D	2.981	05/03/2014	15:54	0.430	2.551	5.500	-2.519	
BH06S	4.31	05/03/2014	14:39	1.095	3.215	3.050	1.260	
BH06D	4.31	05/03/2014	14:41	1.245	3.065	9.920	-5.610	
BH07S	5.185	05/03/2014	12:26	1.560	3.625	3.250	1.935	
BH07D	5.185	05/03/2014	12:27	2.990	2.195	11.400	-6.215	
BH08S	3.919	05/03/2014	10:56	0.605	3.314	2.300	1.619	
BH08D	3.919	05/03/2014	10:58	1.370	2.549	9.800	-5.881	
BH09S	4.353	05/03/2014	09:48	0.665	3.688	2.600	1.753	
BH09D	4.353	05/03/2014	09:50	1.560	2.793	11.200	-6.847	
BH10S	3.262	04/03/2014	10:30	0.530	2.732	2.560	0.702	
BH10D	3.262	04/03/2014	10:30	0.670	2.592	8.010	-4.748	

Groundwater Level Dips 06 March 2014								
Location	**AOD of casing**	**Date**	**Time**	**Water Level**		**Base**		**Comments**
				Dip (m)	m AOD	Dip (m)	m AOD	
BH01S	2.801	06/03/2014	09:50	0.000	2.801			Deep well under artesian conditions and overflowing, shallow wel level is uncertain.
BH01D	2.801	06/03/2014	09:48	0.000	2.801			
BH02S	3.854	06/03/2014	11:26	1.520	2.334			
BH02D	3.854	06/03/2014	11:25	1.524	2.330			
BH03S	4.728							
BH03D	4.728							
BH04S	3.864	06/03/2014	11:08	1.290	2.574			
BH04D	3.864	06/03/2014	11:10	1.295	2.569			
BH05S	2.981							
BH05D	2.981							
BH06S	4.31	06/03/2014	11:39	1.180	3.130			
BH06D	4.31	06/03/2014	11:42	1.320	2.990			
BH07S	5.185	06/03/2014	12:04	1.580	3.605			
BH07D	5.185	06/03/2014	11:53	3.080	2.105			
BH08S	3.919							
BH08D	3.919							
BH09S	4.353							
BH09D	4.353							
BH10S	3.262	06/03/2014	09:34	0.560	2.702			
BH10D	3.262	06/03/2014	09:40	0.450	2.812			

Groundwater Level Dips 14th March 2014								
Location	**AOD of casing**	**Date**	**Time**	**Water Level**		**Base**		**Comments**
				Dip (m)	m AOD	Dip (m)	m AOD	
BH01S	2.801							
BH01D	3.076	14/03/2014	11:19	0.270	2.806			0.275m standpipe installed on top of BH01D.
BH02S	3.854							
BH02D	3.854							
BH03S	4.728							
BH03D	4.728							
BH04S	3.864							
BH04D	3.864							
BH05S	2.981							
BH05D	2.981							
BH06S	4.31							
BH06D	4.31							
BH07S	5.185							
BH07D	5.185							
BH08S	3.919							
BH08D	3.919							
BH09S	4.353							
BH09D	4.353							
BH10S	3.262							
BH10D	3.262							

Appendix D

Water Quality Data (Lab certification and in-situ index testing)

Martin Weil
Capita Property and Infrastructure Ltd
Capita House
Wood Street
East Grinstead
West Sussex
RH19 1UU

t: 01342 327161
f: 01342 315927
e: martin.weil@capita.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 14-51791

Project / Site name:	New Monks Farm	**Samples received on:**	10/03/2014
Your job number:		**Samples instructed on:**	10/03/2014
Your order number:		**Analysis completed by:**	19/03/2014
Report Issue Number:	1	**Report issued on:**	19/03/2014
Samples Analysed:	29 water samples		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Thurstan Plummer
Organics Technical Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 14-51791

Project / Site name: New Monks Farm

Lab Sample Number				321787	321788	321789	321790	321791	321792
Sample Reference				BH10D	BH10S	BH01D	BH04S	BH04D	BH02S
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.67	0.55	0.00	1.18	1.19	1.235
Date Sampled				04/03/2014	05/03/2014	04/03/2014	04/03/2014	04/03/2014	04/03/2014
Time Taken				1115	1415	1230	1330	1340	1430
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**						
General Inorganics									
pH	pH Units	N/A	ISO 17025	7.9	7.5	7.6	7.5	7.4	7.5
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10	< 10
Sulphate as SO_4	ug/l	45	ISO 17025	26600	162000	24900	17900	45900	37700
Chloride	mg/l	0.15	ISO 17025	45	240	85	48	51	69
Ammonium as NH_4	µg/l	15	ISO 17025	< 15	< 15	< 15	< 15	< 15	< 15
Alkalinity	mg/l	3	ISO 17025	120	220	120	200	150	140
Total Phenols									
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10	< 10
Speciated PAHs									
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH									
Total EPA-16 PAHs	µg/l	0.2	ISO 17025	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Heavy Metals / Metalloids									
Arsenic (dissolved)	µg/l	1	ISO 17025	4.6	9.4	6.4	10	7.0	6.5
Boron (dissolved)	µg/l	10	ISO 17025	37	220	46	72	35	42
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Copper (dissolved)	µg/l	0.7	ISO 17025	< 0.7	< 0.7	0.9	0.8	< 0.7	< 0.7
Lead (dissolved)	µg/l	1	ISO 17025	4.1	3.1	2.9	< 1.0	3.9	1.9
Manganese (dissolved)	µg/l	0.06	ISO 17025	390	2700	9.1	180	6.9	70
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	20	16	< 0.3	1.5	0.8	1.4
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	69	5.3	3.2	1.8	2.6	2.5
Calcium (dissolved)	mg/l	0.012	ISO 17025	100	130	110	110	140	100
Magnesium (dissolved)	mg/l	0.005	ISO 17025	5.5	23	7.9	9.9	8.2	7.4
Sodium (dissolved)	mg/l	0.01	ISO 17025	31	210	58	32	22	57

Analytical Report Number: 14-51791

Project / Site name: New Monks Farm

Lab Sample Number				321787	321788	321789	321790	321791	321792
Sample Reference				BH10D	BH10S	BH01D	BH04S	BH04D	BH02S
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.67	0.55	0.00	1.18	1.19	1.235
Date Sampled				04/03/2014	05/03/2014	04/03/2014	04/03/2014	04/03/2014	04/03/2014
Time Taken				1115	1415	1230	1330	1340	1430
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**						
Monoaromatics									
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons									
TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample   I/S = Insufficient Sample

UKAS TESTING 4041

Analytical Environmental Science

Analytical Report Number: 14-51791

Project / Site name: New Monks Farm

Lab Sample Number				321793	321794	321795	321796	321797	321798
Sample Reference				BH02D	BH03D	BH09S	BH09D	BH08S	BH08D
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.31	1.94	0.665	1.56	0.605	1.37
Date Sampled				04/03/2014	04/03/2014	05/03/2014	05/03/2014	05/03/2014	05/03/2014
Time Taken				1440	1600	1045	1030	1140	1120
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**						
General Inorganics									
pH	pH Units	N/A	ISO 17025	7.5	7.5	7.4	7.6	7.3	7.6
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10	< 10
Sulphate as SO_4	ug/l	45	ISO 17025	40000	80000	567000	92500	1100000	41300
Chloride	mg/l	0.15	ISO 17025	83	190	250	180	750	140
Ammonium as NH_4	µg/l	15	ISO 17025	< 15	< 15	1100	< 15	8700	< 15
Alkalinity	mg/l	3	ISO 17025	140	130	220	130	230	120
Total Phenols									
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10	< 10
Speciated PAHs									
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	0.69	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH									
Total EPA-16 PAHs	µg/l	0.2	ISO 17025	< 0.20	< 0.20	< 0.20	< 0.20	0.70	< 0.20
Heavy Metals / Metalloids									
Arsenic (dissolved)	µg/l	1	ISO 17025	8.1	7.7	15	6.0	21	5.7
Boron (dissolved)	µg/l	10	ISO 17025	88	150	580	140	1100	69
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4	< 0.4	< 0.4	< 0.4	0.6	< 0.4
Copper (dissolved)	µg/l	0.7	ISO 17025	< 0.7	< 0.7	1.5	0.8	1.2	1.0
Lead (dissolved)	µg/l	1	ISO 17025	3.4	3.6	5.2	5.2	6.9	3.9
Manganese (dissolved)	µg/l	0.06	ISO 17025	20	22	2000	110	8400	69
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.2	1.0	11	0.8	25	0.5
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	5.9	8.1	3.5	2.8	3.1	5.4
Calcium (dissolved)	mg/l	0.012	ISO 17025	120	120	270	92	410	100
Magnesium (dissolved)	mg/l	0.005	ISO 17025	8.1	11	43	29	79	10
Sodium (dissolved)	mg/l	0.01	ISO 17025	46	130	210	110	580	80

Analytical Report Number: 14-51791

Project / Site name: New Monks Farm

Lab Sample Number				321793	321794	321795	321796	321797	321798
Sample Reference				BH02D	BH03D	BH09S	BH09D	BH08S	BH08D
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.31	1.94	0.665	1.56	0.605	1.37
Date Sampled				04/03/2014	04/03/2014	05/03/2014	05/03/2014	05/03/2014	05/03/2014
Time Taken				1440	1600	1045	1030	1140	1120
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**						
Monoaromatics									
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons									
TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample   I/S = Insufficient Sample

Analytical Report Number: 14-51791

Project / Site name: New Monks Farm

Lab Sample Number				321799	321800	321801	321802	321803	321804
Sample Reference				BH07S	BH07D	BH06S	BH06D	BH05D	BH11D
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.56	2.99	1.095	1.245	0.43	1.30
Date Sampled				05/03/2014	05/03/2014	05/03/2014	05/03/2014	05/03/2014	05/03/2014
Time Taken				1300	1700	1540	1525	1625	1430
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**						
General Inorganics									
pH	pH Units	N/A	ISO 17025	7.3	7.4	7.7	7.7	7.8	7.7
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10	< 10
Sulphate as SO_4	ug/l	45	ISO 17025	1280000	806000	283000	42700	71000	43600
Chloride	mg/l	0.15	ISO 17025	230	290	580	39	120	38
Ammonium as NH_4	µg/l	15	ISO 17025	11000	2600	310	< 15	< 15	< 15
Alkalinity	mg/l	3	ISO 17025	260	180	130	110	230	110
Total Phenols									
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10	< 10
Speciated PAHs									
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH									
Total EPA-16 PAHs	µg/l	0.2	ISO 17025	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Heavy Metals / Metalloids									
Arsenic (dissolved)	µg/l	1	ISO 17025	17	10	8.3	3.6	10	5.8
Boron (dissolved)	µg/l	10	ISO 17025	720	610	320	65	630	68
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Copper (dissolved)	µg/l	0.7	ISO 17025	1.7	2.2	1.5	< 0.7	< 0.7	< 0.7
Lead (dissolved)	µg/l	1	ISO 17025	6.3	4.9	2.3	3.2	2.2	1.8
Manganese (dissolved)	µg/l	0.06	ISO 17025	5200	1400	590	7.6	320	8.2
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	21	15	2.5	< 0.3	2.8	< 0.3
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	13	83	2.6	4.0	6.7	3.2
Calcium (dissolved)	mg/l	0.012	ISO 17025	700	280	110	110	46	110
Magnesium (dissolved)	mg/l	0.005	ISO 17025	70	56	24	6.3	19	6.4
Sodium (dissolved)	mg/l	0.01	ISO 17025	200	250	390	25	190	25

Analytical Report Number: 14-51791

Project / Site name: New Monks Farm

Lab Sample Number				321799	321800	321801	321802	321803	321804
Sample Reference				BH07S	BH07D	BH06S	BH06D	BH05D	BH11D
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.56	2.99	1.095	1.245	0.43	1.30
Date Sampled				05/03/2014	05/03/2014	05/03/2014	05/03/2014	05/03/2014	05/03/2014
Time Taken				1300	1700	1540	1525	1625	1430
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**						
Monoaromatics									
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons									
TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample   I/S = Insufficient Sample

Analytical Report Number: 14-51791

Project / Site name: New Monks Farm

Lab Sample Number				321805	321806	321807	321808	321809	321810
Sample Reference				SW3	SW4	SW5	SW1	SW2	SW6
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.265	0.39	0.24	0.86	0.83	0.37
Date Sampled				05/03/2014	05/03/2014	05/03/2014	06/03/2014	06/03/2014	06/03/2014
Time Taken				1217	1155	1205	1030	1058	1234
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**						
General Inorganics									
pH	pH Units	N/A	ISO 17025	7.7	7.7	7.7	7.7	7.6	7.7
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10	< 10
Sulphate as SO_4	ug/l	45	ISO 17025	88600	78700	154000	31300	37100	262000
Chloride	mg/l	0.15	ISO 17025	160	81	170	41	49	260
Ammonium as NH_4	µg/l	15	ISO 17025	< 15	< 15	33	< 15	700	< 15
Alkalinity	mg/l	3	ISO 17025	140	140	130	120	130	160
Total Phenols									
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10	< 10
Speciated PAHs									
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH									
Total EPA-16 PAHs	µg/l	0.2	ISO 17025	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Heavy Metals / Metalloids									
Arsenic (dissolved)	µg/l	1	ISO 17025	6.3	7.4	7.5	5.4	6.4	7.9
Boron (dissolved)	µg/l	10	ISO 17025	110	94	150	35	52	230
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4	< 0.4	0.5	< 0.4	< 0.4	< 0.4
Copper (dissolved)	µg/l	0.7	ISO 17025	1.3	< 0.7	3.2	0.9	1.6	1.8
Lead (dissolved)	µg/l	1	ISO 17025	2.0	2.4	3.0	2.6	2.3	3.3
Manganese (dissolved)	µg/l	0.06	ISO 17025	5.4	7.7	43	2.6	4.2	11
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	0.4	< 0.3	1.5	< 0.3	< 0.3	0.6
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	3.0	5.2	5.8	4.9	7.1	6.8
Calcium (dissolved)	mg/l	0.012	ISO 17025	120	130	140	110	110	180
Magnesium (dissolved)	mg/l	0.005	ISO 17025	16	11	17	4.5	5.5	31
Sodium (dissolved)	mg/l	0.01	ISO 17025	89	53	98	23	28	160

Analytical Report Number: 14-51791

Project / Site name: New Monks Farm

Lab Sample Number				321805	321806	321807	321808	321809	321810
Sample Reference				SW3	SW4	SW5	SW1	SW2	SW6
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.265	0.39	0.24	0.86	0.83	0.37
Date Sampled				05/03/2014	05/03/2014	05/03/2014	06/03/2014	06/03/2014	06/03/2014
Time Taken				1217	1155	1205	1030	1058	1234
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**						
Monoaromatics									
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons									
TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	< 10

U/S = Unsuitable Sample   I/S = Insufficient Sample

Analytical
Environmental Science

Analytical Report Number: 14-51791

Project / Site name: New Monks Farm

Lab Sample Number				321811	321812	321813	321814	321815	
Sample Reference				SW7	SW8	SW9	SW10	SW11	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				0.82	0.21	0.39	0.85	0.55	
Date Sampled				06/03/2014	06/03/2014	06/03/2014	06/03/2014	06/03/2014	
Time Taken				1250	1320	1355	1410	1451	
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**						
General Inorganics									
pH	pH Units	N/A	ISO 17025	8.0	7.9	7.9	7.9	7.8	
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10	
Sulphate as SO_4	ug/l	45	ISO 17025	48500	35200	24800	159000	27400	
Chloride	mg/l	0.15	ISO 17025	53	52	41	110	32	
Ammonium as NH_4	µg/l	15	ISO 17025	< 15	< 15	< 15	< 15	< 15	
Alkalinity	mg/l	3	ISO 17025	130	120	120	170	140	
Total Phenols									
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10	
Speciated PAHs									
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Fluorene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Phenanthrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	
Total PAH									
Total EPA-16 PAHs	µg/l	0.2	ISO 17025	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	
Heavy Metals / Metalloids									
Arsenic (dissolved)	µg/l	1	ISO 17025	5.3	6.1	6.1	7.0	5.2	
Boron (dissolved)	µg/l	10	ISO 17025	54	44	28	160	27	
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	
Copper (dissolved)	µg/l	0.7	ISO 17025	1.5	1.3	1.5	3.4	12	
Lead (dissolved)	µg/l	1	ISO 17025	1.8	3.3	2.5	2.4	2.4	
Manganese (dissolved)	µg/l	0.06	ISO 17025	13	6.3	3.6	53	0.61	
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	
Nickel (dissolved)	µg/l	0.3	ISO 17025	< 0.3	< 0.3	< 0.3	1.5	< 0.3	
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	
Zinc (dissolved)	µg/l	0.4	ISO 17025	3.9	5.4	5.2	7.2	6.2	
Calcium (dissolved)	mg/l	0.012	ISO 17025	120	110	110	150	110	
Magnesium (dissolved)	mg/l	0.005	ISO 17025	6.2	5.4	4.0	14	3.3	
Sodium (dissolved)	mg/l	0.01	ISO 17025	31	28	22	81	18	

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Project / Site name: New Monks Farm

Lab Sample Number				321811	321812	321813	321814	321815	
Sample Reference				SW7	SW8	SW9	SW10	SW11	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				0.82	0.21	0.39	0.85	0.55	
Date Sampled				06/03/2014	06/03/2014	06/03/2014	06/03/2014	06/03/2014	
Time Taken				1250	1320	1355	1410	1451	
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**						
Monoaromatics									
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Petroleum Hydrocarbons									
TPH-CWG - Aliphatic >C5 - C6	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C6 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C5 - C7	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C7 - C8	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C8 - C10	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10	

U/S = Unsuitable Sample   I/S = Insufficient Sample

Analytical Report Number : 14-51791

Project / Site name: New Monks Farm

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Alkalinity in Water	Determination of Alkalinity by discreet analyser (colorimetry). Accredited matrices: SW, PW, GW.	In house method based on MEWAM & USEPA Method 310.2.	L082-PL	W	ISO 17025
Ammonium as NH4 in water	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Boron in water	Determination of boron by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073W-PL	W	ISO 17025
Chloride in water	Determination of Chloride in water by Gallery Discrete Analyser based on reaction with mercury (II) thiocyanate and acid solution with iron (III) nitrate to form a red/brown iron (III) thiocyanate	Methods for the Examination of Water and Associated Materials Chloride in Waters, Sewage and Effluents 1981.ISBN 0117516260 Accredited matrices: SW, PW,	L082 B	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
pH in water	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L070-UK	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-UK	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

In Situ Index Testing

Location	Date	Time	Temperature	PH*	Baro	ORP	Conductivity	RDO	
			°C		"Hg	mV	µs/cm	mg/l	%
SW01	06/03/2014	10:30	10.85	6.11	30.33	304	526.4	8.71	77.4
SW02	06/03/2014	10:56	11.32	0.84	30.32	342	556.1	8.41	75.3
SW03	05/03/2014	12:15	12.32	7.02	30.2	123	897.8	13.21	122.3
	06/03/2014	12:14	12.57	2.06	30.32	331	886.5	12.94	119.1
SW04	05/03/2014	11:54	10.32	0	30.18	187	696.4		81
SW05	05/03/2014	12:03	8.93	-0.82	30.19	210	915	7.65	65.5
SW06	06/03/2014	12:34	9.95	4.31	30.31	314	1739	19.37	172.5
SW07	06/03/2014	13:04	10.98	2.33	30.3	332	678	13.33	118.7
SW08	06/03/2014	13:26	12.14	3.44	30.3	326	561.8	12.92	119
SW09	06/03/2014	13:55	12.19	9.86	30.3	276	521.4	11.22	102.6
SW10	06/03/2014	14:08	8.29	2.01	30.29	336	839.9	8.29	68.8

*Ph readings found to be unreliable

Capita Property and Infrastructure Ltd
Capita House
Wood Street
East Grinstead
West Sussex
RH19 1UU

Tel +44 (0)1342 327161
Fax+44 (0)1342 315 927