



GRM Development Solutions Ltd  
Laurus House  
First Avenue  
Centrum 100  
Burton upon Trent  
Staffordshire  
DE14 2WH

Tel: 01283 551 249  
Web: [www.grm-uk.com](http://www.grm-uk.com)

Our Ref: P9013/LET-1

Date: 5<sup>th</sup> February 2024

Hamish Byers  
Mather Jamie  
**By Email Only**

Dear Hamish,

**RE: Groundwater Monitoring Completion Letter Report for Land off Workhouse Lane, Burbage**

GRM Development Solutions Ltd were instructed to undertake the installation of groundwater monitoring wells and conduct groundwater monitoring over a six month period between the 29<sup>th</sup> June and 20<sup>th</sup> December 2023 in order to assess the groundwater regime and recommend a suitable dewatering solution for the proposed development. This letter report provides the detail and assessment of the works undertaken.

GRM Standard Limitations of Reporting are provided in Appendix A. The Proposed Development Layout and Site Location Plan are provided in Appendix B and C, respectively.

The works described in this letter should be read in conjunction with the following:

- WSP ground investigation report (Workhouse Lane, Burbage – Ground Investigation, ref: 70060615-L01, dated 14<sup>th</sup> November 2019).
- GRM Phase II Site Appraisal (ref: GRM/P9013/PHIISAR.1, dated August 2023).

**Ground Investigation**

GRM attended site on the 28<sup>th</sup> and 29<sup>th</sup> June 2023 in order to progress ten windowless sample boreholes (WS01 to WS10) to depths of between 2.80m and 5.00m below existing ground level (begl) throughout the site.

An Exploratory Hole Location Plan is presented in Appendix D.

All boreholes were installed with groundwater monitoring standpipes during the site work. Data loggers were emplaced within each monitoring well and readings were recorded at half-hourly intervals over a six month period to allow the groundwater regime beneath the site to be characterised.



**Land Appraisal | Environmental | Geotechnical | Design | Mining | Inspections**

GRM Development Solutions Limited, Laurus House, First Avenue, Centrum 100, Burton upon Trent, Staffs DE14 2WH  
[www.grm-uk.com](http://www.grm-uk.com) | [info@grm-uk.com](mailto:info@grm-uk.com) | 01283 551249 Company No. 3099018 (England), VAT Reg. No. 658 1005 48

## Ground Conditions

The ground conditions encountered during the ground investigation are discussed in the Phase II Site Appraisal Report undertaken by GRM (ref: GRM/P9013/PHIISAR.1, dated August 2023) and were similar to those encountered in the previous WSP investigation.

In summary, the following ground conditions were encountered:

- Topsoil – comprising variably clayey, variably gravelly SAND with gravel of chert and chalk, and variably sandy, variably gravelly CLAY with gravel of chert, in all exploratory holes to a maximum depth of 0.50m below existing ground level (begl).
- Alluvium – comprising soft to firm, brown and grey, slightly gravelly, sandy CLAY with gravel of chert, quartzite and rare chalk; medium dense, orangish-brown SAND; and firm, locally soft, light grey and orangish-brown, slightly sandy, slightly gravelly CLAY with gravel of chert to depths of between 0.90m and 2.40m begl in the centre and east of the site.
- Oadby Member – comprising firm to very stiff, locally soft, grey and brown, slightly sandy, gravelly CLAY with gravel of chalk, chert, quartzite, and rare mudstone, coal and sandstone; firm to stiff, dark brownish-grey, slightly sandy, silty CLAY; and loose to medium dense, brown, slightly clayey SAND between depths of 0.40m and 5.00m begl across the entire site area.
- Wolston Sand and Gravel – comprising firm, greyish-brown SILT; loose to medium dense, brown and grey, slightly clayey SAND; and medium dense to very dense, greyish-brown and brown, slightly gravelly SAND with gravel of chert and quartzite between depths of 0.90m and 5.00m begl in the centre and east of the site.

During the ground investigation, groundwater was encountered within four boreholes between depths of 0.90m and 2.00m as damp and wet strata predominantly in the centre of the site. The Exploratory Hole Logs are presented in Appendix E.

## Groundwater Conditions

Groundwater monitoring has been conducted over a six month period between the 29<sup>th</sup> June and 20<sup>th</sup> December 2023, the results are presented in Appendix F and are summarised below:

Location ID	Well Depth (begl)	Shallowest Groundwater Depth Recorded (begl)	Deepest Groundwater Depth Recorded (begl)	Geological Unit (cohesive/granular)
WS01	5.00m	0.36m	1.15m	Oadby Member (cohesive)
WS02	4.00m	0.57m	1.55m	Oadby Member (cohesive, granular between 0.90m and 1.50m)
WS03	4.00m	0.26m	1.10m	Oadby Member (cohesive)
WS04	4.00m	0.15m	1.12m	Oadby Member (cohesive)
WS05	3.00m	0.37m	1.47m	Alluvium 0.40-0.90m (cohesive), Wolston Sand and Gravel 0.90-4.00m (cohesive and granular)
WS06	4.00m	0.35m	1.03m	Alluvium (cohesive)
WS07	4.00m	0.66m	2.21m	Alluvium (cohesive)
WS08	3.00m	1.07m	1.80m	Alluvium to 2.00m (cohesive), Wolston Sand and Gravel from 2.00m (granular)
WS09	2.80m	1.15m	2.51m	Alluvium to 2.00m (0.70-1.20m granular, 1.20-2.00m cohesive), Oadby Member from 2.00m (cohesive)
WS10	3.00m	0.24m	1.60m	Oadby Member (cohesive)

The results suggest that the groundwater is generally shallow, with a general deepening in the east of the site (WS07-WS10) relative to surface levels, and at slightly shallower depths in the west (WS01-WS03) and centre (WS04-WS06). The shallow groundwater in the west of the site is considered to be representative of perched volumes within more granular horizons within the cohesive material of the Oadby Member, seeping into the monitoring wells and filling them over time. Due to the relatively impermeable nature of these deposits, the water is considered to have remained in the monitoring wells, therefore resulting in the impression of shallow groundwater in the western area, although this is not considered representative of the regional groundwater table. Similarly, the shallow groundwater in the east is considered to represent perched volumes; however, generally slightly deeper due to the topography and in part, the depths at which granular horizons are present. The groundwater monitoring results suggest there are more significant volumes of groundwater in the centre of the site with the shallowest readings being recorded in this area, corresponding to the presence of more granular deposits of Alluvium and Wolston Sand and Gravel.

It is considered that overall, the data indicates a flow direction to the south west, in line with the local topography, with local shallowing, particularly in the area of granular deposits and close to the spring recorded on historical mapping. A plan illustrating the shallowest groundwater levels monitored across the site is presented in Appendix G.

#### Dewatering Recommendations

##### *Eastern Area:*

The groundwater monitoring period confirmed the presence of groundwater in the east of the site, although the results suggest that the groundwater is deeper in this area compared to the rest of the site, with localised areas of shallower groundwater. Therefore, as the groundwater depths are variable in this area, rather than indicating a pervasive and continuous water table, an allowance should be made for localised simple dewatering techniques such as sump pumping. However, it is considered prudent to make allowance for more aggressive dewatering for any medium to long term excavations deeper than 1m.

##### *Western Area:*

The groundwater monitoring period confirmed the presence of groundwater in the west of the site, although this is considered to be representative of perched volumes within more granular horizons within the predominantly cohesive material in this area, suggesting only minor volumes are present. As the current development layout does not propose any plots in the western area, no dewatering is required, although if the development layout were to be revised, it would be considered prudent to allow for simple dewatering techniques such as sump pumping in the west of the site, with consideration given to well pointing for medium to long term excavations deeper than 1m.

##### *Central Area:*

The groundwater monitoring period confirmed the presence of significant volumes of groundwater within the granular strata in the centre of the site. As such, it is considered that simple dewatering techniques are not suitable for this area, and more aggressive dewatering techniques such as well pointing are recommended.

A plan showing the dewatering recommendations is presented in Appendix H.

We trust this is suitable for your current requirements, should you require any further information or would like any clarification of the points raised please do not hesitate to contact us.

Yours Sincerely,  
for GRM Development Solutions Ltd

Author:

**Amy McKenna** MSc BSc (Hons) FGS  
Engineering Geologist

Reviewed by:

**Lewis Gibbs** BSc (Hons) FGS  
Senior Geologist and Project Manager

**Paul Wardle** MA BSc (Hons) FGS  
Acting Principal Engineering Geologist

Approved by:

**Geoff Beckett** FGS CGeol  
Director

Appendices:

Appendix A – GRM Standard Limitations of Reporting  
Appendix B – Proposed Development Plan  
Appendix C – Site Location Plan  
Appendix D – Exploratory Hole Location Plan  
Appendix E – Exploratory Hole Logs  
Appendix F – Hydrographs  
Appendix G – Groundwater Level Plan  
Appendix H – Dewatering Recommendations Plan



# A P P E N D I X A

Land Appraisal | Environmental | Geotechnical | Design | Mining | Inspections

GRM Development Solutions Limited, Laurus House, First Avenue, Centrum 100, Burton upon Trent, Staffs DE14 2WH  
www.grm-uk.com | info@grm-uk.com | 01283 551249      Company No. 3099018 (England), VAT Reg. No. 658 1005 48

## **GENERAL APPRAISAL COMMENTS**

### **i INFORMATION SOURCES**

Where available the following sources have been used for the identification and assessment of potential ground hazards:

- Relevant British Standards
- British Geological Survey (BGS) Geology Map Scale 1:10,000 for local area
- British Geological Survey (BGS) Geology Map Scale 1:50,000/1:63,320
- BGS Memoir
- BGS Borehole Records: <https://mapapps2.bgs.ac.uk/geoindex/home.html>
- BGS online viewer: <https://geologyviewer.bgs.ac.uk>
- Magic Groundwater Vulnerability Maps
- Historical Ordnance Survey (OS) Maps
- Environmental Data Report
- Environment Agency Website: <http://www.environment-agency.gov.uk/>
- Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites, UKWIR, 2010.
- Coal Authority Records / Coal Mining Report
- DEFRA/Environment Agency Contaminated Land publications and DoE Industry Profiles
- BRE Guide BR211 (2023), 'Radon: Guidance on protective measures for new buildings (including supplementary advice for extensions, conversions and refurbishment projects)'
- UK HSA Radon Maps: <https://www.ukradon.org/information/ukmaps>
- CIRIA C665 'Assessing risks posed by hazardous ground gases to buildings'
- BS8485:2015 +A1: 2019, 'Code of Practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'
- Other technical references used throughout this document are detailed in the text.

### **ii CONTAMINANTS OF CONCERN**

The DoE Industry Profiles are normally used to assess likely contaminants from past land use and potential nearby industrial sources. For land uses where no profile is available, likely contaminants of concern are selected by GRM based on past experience of similar sites, a general screening suite of contaminants covered by CLEA and common contaminants from the Industry Profiles.

- |            |                   |  |
|------------|-------------------|--|
| • Arsenic  | • Copper          | • Water soluble sulphate                 |
| • Cadmium  | • Nickel          | • PAH (polycyclic aromatic hydrocarbons) |
| • Chromium | • Zinc            |  |
| • Lead     | • Phenols         |  |
| • Mercury  | • cyanide (total) |  |
| • Selenium | • pH              |  |

Asbestos and PCBs are listed in the vast majority of profiles. PCBs are listed as the profiles expect electricity substations and switch boxes on all industrial sites. There is the potential for asbestos containing material to be mixed up with made ground, following any demolition works.

### iii CONCEPTUAL MODEL METHODOLOGY

The consideration of contamination is based upon the principles of risk assessment, using the 'source-pathway-receptor' model in order to establish the presence, or potential presence, of a pollutant linkage.

To create a risk, contamination must have the potential to cause harm to susceptible targets or receptors such as humans, the water environment or the built environment. The potential for harm to occur requires three conditions to be satisfied to form a pollutant linkage:

- The presence of substances that may cause harm (SOURCE).
- The presence of a target which may be harmed (RECEPTOR).
- The existence of a plausible migration route between the source and the receptor (PATHWAY).

In the absence of a plausible pollutant linkage there is no risk. Where a potential linkage is identified in order for it not to pose a risk to the identified receptor it must be broken.

### iv INTRUSIVE INVESTIGATION SAMPLING METHODOLOGY

The ground investigation (including fieldwork, sampling, monitoring and laboratory analyses) has been designed to identify and assess potential ground related problems and to allow cost effective solutions to be advised. It has been planned on the basis of the desk study, site inspection and the proposed development layout (where available). All fieldwork and soil descriptions were carried out in general accordance with relevant British Standards.

The exploratory holes have been positioned and advanced to depths to determine the general ground/groundwater/gas conditions below the site. A general grid pattern has been adopted, where possible, to provide sufficient information based on the current proposed layout scheme. Some holes have been targeted at particular hazards identified in the Phase I assessment. The resultant exploratory hole density is considered to be commensurate with the complexity of the site conditions and detail of information required for this phase of the investigation.

### v GROUND GAS RISK ASSESSMENT METHODOLOGY

Gas monitoring programmes undertaken by GRM are designed to broadly comply with the recommendations outlined in CIRIA Report C665 'Assessing risks posed by hazardous ground gas to buildings' (2007) and BS8576 'Guidance on Investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs) (2013).

To assess the risks posed by ground gases such as radon, carbon dioxide and methane, the relevant current guidance has been used. For radon the site has been assessed following the guidelines in 'Radon: guidance on protective measures for new dwellings (including supplementary advice for extensions, conversions and refurbishment projects) (BR211: 2023)'. For methane and carbon dioxide the primary guidance document used to determine if protection measures are required is *BS8485:2015 Code of practice for the design of protective measures from methane and carbon dioxide ground gases for new buildings*. This uses hazardous gas flow rates ( $Q_{hg}$ ), which are gas concentrations multiplied by borehole flow rates, to derive a Gas Flow Rate (GSV) for the site. The gas regime is then determined based on the GSV and other limiting factors such as gas concentrations.

Where flow is not recorded during the monitoring a default flow rate of 0.1l/hr will be used in the assessment to produce a positive result.



**vi HUMAN HEALTH RISK ASSESSMENT METHODOLOGY**

Guidance contained in the Environment Agency's CLEA Reports has been used to assess the risks posed to human health.

For residential developments that include domestic gardens the default Tier 1 Assessment Criteria (TAC) for 'residential land with plant uptake' are used, i.e. a female with a start age class of one and an end age class of six. All pathways are considered including the consumption of home-grown vegetables.

For residential developments that do not include domestic gardens the default Tier 1 Assessment Criteria (TAC) for 'residential land without plant uptake' are used, i.e. a female with a start age class of one and an end age class of six. All pathways are considered except the consumption of home-grown vegetables. For commercial/industrial developments the default Tier 1 Assessment Criteria (TAC) for 'commercial/industrial' are used, i.e. a female with a start age class of sixteen and an end age class of eighteen. All pathways are considered except the consumption of home-grown vegetables.

The TAC used by GRM include Category 4 Screening Levels (C4SLs) published by DEFRA, values calculated by GRM using the CLEA v1.071 risk assessment, and values and Suitable for Use Levels (S4UL) developed by LQM/CIEH. The TAC used in the assessment are selected based on the lowest site specific SOM values returned as part of the chemical analysis.

Where soil chemical analysis results are found to exceed the TAC, Site-Specific Risk Assessments may be undertaken using the CLEA v1.071 risk assessment software using the age classes and pathways described above.

**vii RISK TO SITE WORKERS – GENERAL COMMENTS**

The risks to site workers are similar to those posed to site end users, although likely to be less severe due to the site workers' shorter exposure to the identified contamination. However, site workers (particularly groundworkers) are more likely to come into direct contact with contaminated soils due to the nature of their work. On this basis ground and construction workers should be provided with basic Personal Protective Equipment based on the site's general health and safety risk assessment, but including as a minimum safety footwear, gloves and overalls.

A site specific risk assessment should be carried out for all hazards identified within the ground investigation in accordance with current health and safety legislation. This assessment should identify any measures required to further reduce risks i.e. providing further Personal Protective Equipment, welfare facilities and if necessary preventing access to certain areas.

Demolition and dismantling of existing structures on the site must be carried out to a safe and acceptable standard, in accordance with current UK guidance and best practice. Whilst not ground related, asbestos and hazardous substances surveys should be conducted prior to any demolition.

Any unusual colours, odours and suspicious ground should be reported immediately to site management and then GRM.

Whilst this appraisal has considered the long-term effects of contamination, GRM can also help during the formulation of Health and Safety documentation, if required.

**viii CONTROLLED WATERS RISK ASSESSMENT METHODOLOGY**

Where the desk study and fieldwork do not reveal a potential source of contamination no leachate or groundwater testing will be performed. Where a potential source is identified the testing will comprise leachate testing on the material considered most likely to pose a risk, groundwater testing will be undertaken if water is present at shallow depth.

The UK Drinking Water Standards (UKDWS) or Environmental Quality Standards (EQS) are usually adopted for comparison with the leachate/groundwater test results. When the most sensitive receptor is considered to be the aquifer (groundwater) UKDWS will be adopted as the Initial Tier 1 screening values.

**Land Appraisal | Environmental | Geotechnical | Design | Mining | Inspections**

GRM Development Solutions Limited, Laurus House, First Avenue, Centrum 100, Burton upon Trent, Staffs DE14 2WH  
www.grm-uk.com | info@grm-uk.com | 01283 551249 Company No. 3099018 (England), VAT Reg. No. 658 1005 48



Where the most sensitive receptor is a surface water feature the EQS values will be used as Initial Tier I Screening values.

**ix CONSTRUCTION MATERIALS RISK ASSESSMENT METHODOLOGY**

The 'screening levels' adopted for the assessment of risk to construction materials are taken from the following documents:

- UK Water Industry Research (UKWIR) Contamination thresholds for sub-surface water pipes, for the protection of buried pipes.
- Building Research Establishment (BRE) Special Digest SD1 (2005), 'Concrete in Aggressive Ground', for the protection of buried concrete.

**x WASTE DISPOSAL, SITE WASTE MANAGEMENT PLANS AND MATERIAL MANAGEMENT PLANS**

Under current Waste Management Regulations, waste soil materials produced from the site will require characterisation to enable it to be disposed of correctly.

The chemical analysis results included in this report should be provided to the relevant landfill operators to establish the characterisation of the waste, confirm its suitability for landfill disposal and provide estimated costings. If material is classified as hazardous, then the site will need to be registered with the Environment Agency prior to the movement of the waste. Depending on the receiving landfill's current permit, further chemical analysis, incorporating Waste Acceptance Criteria (WAC) leachate analysis, may be required.

All materials removed from the site will be classified as 'waste' and therefore must be removed by a suitably licensed carrier of waste. This applies whether or not the waste is contaminated. All waste removed to landfill will attract Landfill Tax.

The developer/builder is likely to be classed as the waste producer and therefore, has a duty of care to ensure that all waste is disposed of appropriately. This includes ensuring the waste carrier is licensed and disposes of the waste to a suitably licensed landfill site. They are also required to keep a paper trail from 'cradle to grave' including copies of the waste disposal tickets.

Efficient materials management on site is recommended as it can lead to significant cost savings when compared to the traditional side casting or single stockpile of arisings. GRM can assist in the production of Material Management Plans under the CL:AIRE Definition of Waste: Code of Practice. The DoWCoP enables:

- The direct transfer and re-use of clean naturally occurring soil materials between sites, and
- The re-use of both contaminated and uncontaminated materials on their site of origin and between sites within defined Cluster projects.

GRM can also undertake the role of Qualified Person and submit the DoW CoP project Declaration.

Likewise making the site as volume neutral as possible will reduce the costs of development. Whilst not a statutory requirement, Site Waste Management Plans allow better waste management practices, help to reduce the amount of waste produced and identify best environmental disposal options. Implementing a Site Waste Management Plan (SWMP) can reduce costs (increasing business profits) and maximise resource efficiency.

**xi GEOTECHNICAL ASSESSMENT GENERAL COMMENTS**

Where finished floor levels of proposed structures have not been provided by the Client, then for the purposes of initial assessment, GRM will assume that finished levels will not vary appreciably from the existing ground levels. If the depths of any underground engineering works (i.e. sewers, pumping stations etc.) are unknown they will not be taken in to account in the assessment and it will be assumed that any such works will not compromise foundation or ground stability.

Should the development proposals or finished levels be different from these assumptions then the comments/recommendations in the Geotechnical Assessment may require revising.

It should be noted that the results of window sampling and/or cable percussive boreholes may not give a true indication of a soils actual engineering properties (i.e. stability, mass structure etc). GRM consider that that prior to development trial pitting should be undertaken to confirm the recommendations in the Geotechnical Assessment.

**xii GEOTECHNICAL ASSESSMENT – ENGINEERING GROUND TREATMENT**

Near surface soils have the potential to be disturbed by weathering and site traffic. Precautions should always be taken to avoid this, as excessive disturbance may leads to more onerous floor slab designs, road cap thickness and increased amounts of off-site disposal etc.

Near surface soils may need treatment or reinforcing to allow safe movement of construction plant and labour. An assessment by the contractor should be undertaken once the type of machinery/plant needed to complete the development is known.

**xiii GEOTECHNICAL ASSESSMENT – EXCAVATIONS**

Excavation instability (over-break) can result in damage to existing services or structures (e.g. foundations, roads or boundary walls/fences) both on and off-site, as well as increased foundation concrete costs. In order to minimise this, all excavations deeper than 1.2m deep (or any excavation within 1.5m of any existing structure or service) should be supported. Full support should be provided to the full depth of all near vertically sided excavations in made ground, soft and very soft clays and granular soils. A reduction to intermediate support should be acceptable within firm and stiffer natural clays.

Wherever possible, man entry into excavations should be prevented; however, where this is not possible, entry to, and time spent in, excavations should be kept to a minimum.

The build program should be tailored to reflect the impact that deep excavations through potentially unstable strata can have on adjacent properties, so that they are not undermined.

All excavations on site should be in accordance with HSE guidelines and stability should be practically maintained at all times. Reference should be made to HSE construction information sheet No. 8 (Revision 1) 'Safety in Excavations'.

Care should be taken to ensure that falls from excavation faces do not adversely affect the integrity of foundation concrete.

If contaminated water enters excavations it should be removed and transported to an appropriate treatment facility by a suitably licensed carrier before construction begins.

**xiv GEOTECHNICAL ASSESSMENT – SUBSTRUCTURES**

Where practicable, existing buried construction should be fully removed; however, if this is not practicable all new foundations should be carried down to fully penetrate it and it should be broken well away from all new structures.

There may be existing structures and/or infrastructure in close proximity to the proposed development. New build foundations may be constructed next to pavements with existing underground services beneath them, or excavations may be required near existing footings associated with adjacent properties. These potential hazards need to be taken into consideration when designing foundations and the groundworker needs to be made aware of their potential impact during the redevelopment works. Foundations close to existing underground services or buildings may require alternative foundation techniques (such as piling) to protect the integrity of these structures.

The contractor for the works should carry them out in such a fashion so as to not cause excessive overbreak, concrete usage or undermine existing buildings/roads/ services that are to be retained.

#### xv **GEOTECHNICAL ASSESSMENT – SOAKAWAYS**

Soakaway testing in trial pits by GRM is broadly carried out in accordance with BRE DG 365 (2016). The testing comprises the excavation of a test pit to a suitable depth, and the placement of water into the pit. The level of water present is then monitored over time. For borehole installations, the permeability testing (falling head/rising head) is undertaken in accordance with BS5930.

If it is decided to proceed with the use of soakaway drainage, then the following general points should be noted:

- Soakaways should not be placed so that water can be discharged through potentially contaminated made ground.
- The Environment Agency may require soakaways to be sealed systems such that only roof run off falls to soakaway.
- Interceptors are likely to be required for soakaways for highway drainage. The adopting authority for the highways should be consulted at the earliest opportunity regarding the use of soakaways for highways drainage.
- Consideration of site levels and slopes should be taken into account during the design.
- The construction of all soakaways should be in accordance with the current building regulations.
- Soakaways should not be placed within 5m of a proposed building.
- Placement of soakaways needs to be considered so as to avoid ponding of water down slope.
- The base of a soakaway should not be below the highest recorded water level.
- The Environment Agency prefer 1m of dry soil to be present between the base of a soakaway and the water table to provide attenuation for contamination.

#### xvi **GEOTECHNICAL ASSESSMENT – FOUNDATIONS**

If soft or hard spots are encountered during foundation excavation then they should be replaced with suitably compacted material or the footings deepened to suitable strata, to avoid differential settlement.

If strata of differing bearing character (e.g. sand and clay) are encountered at foundation levels within the excavations for a single plot then the excavation depths should be altered as appropriate to ensure the foundations rest on a single stratum, or strata that will not induce differential settlement. Where this is impractical then GRM should be contacted to assess a reinforced concrete detail or an alternative foundation solution (e.g. piles or vibro-replacement).

## NOTES ON LIMITATIONS

### General

GRM Development Solutions Limited has prepared this report solely for the use of the Client and those parties with whom a warranty agreement had been executed, or with whom an assignment had been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from GRM Development Solutions Limited; a charge may be levied against such approval.

GRM Development Solutions Limited accepts no responsibility or liability for:

- a) the consequences of this document being used for any purpose or project other than for which it was commissioned, and
- b) the consequences of this document being used by any third party with whom an agreement has not been executed.

### Phase I Environmental Audits/ Desk Studies

The work undertaken to provide the basis of this report comprised a study of available documented information from a variety of sources (including the Client), together with (where appropriate) a brief walk over inspection of the site and meetings and discussions with relevant authorities and other interested parties. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only to the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, GRM Development Solutions Limited reserves the right to review such information and as considered necessary and appropriate to modify the opinions accordingly. It should be noted that any risks identified in a Phase 1 report are perceived risks based on the information reviewed; actual risks can only be assessed following a physical investigation of the site.

### Phase II Environmental Audits (Contamination Investigations)

The investigation of the site has been carried out to provide sufficient information concerning the type and degree of contamination, ground and groundwater conditions to allow a reasonable risk assessment to be made. The objectives of the investigation have been limited to establishing the risks associated with potential human targets, building materials, and controlled waters.

The amount of exploratory work and chemical testing undertaken has necessarily been restricted by the short timescale available, and the locations of exploratory holes have been restricted to the areas unoccupied by the building(s) on the site and by buried services. A more comprehensive investigation may be required if the site is to be redeveloped as, in addition to risk assessment, a number of important engineering and environmental issues need to be resolved.

For these reasons if costs have been included in relation to site remediation these must be considered as provisional only and must, in any event, be confirmed by a commercial adviser.

The exploratory holes undertaken, which investigate only a small volume of the ground in relation to the size of the site, can only provide a general indication of site conditions. Whilst exploratory testing is intended to gain an accurate representation of the site, the very nature of sampling and testing is such that it cannot ensure that all localised conditions are detected.

The risk assessment and opinions provided take in to consideration, inter alia, currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.

### Phase II Geo-environmental Investigations (Combined Geotechnical and Contamination Investigations)

The investigation of the site has been carried out to provide sufficient information concerning the type and degree of contamination, geotechnical characteristics, and ground and groundwater conditions to provide a reasonable assessment of the environment risks together with engineering and development implications. If costs have been included in relation to site development a commercial adviser must confirm these.

The exploratory holes undertaken, which investigate only a small volume of the ground in relation to the size of the site, can only provide a general indication of site conditions. The opinions provided and recommendations given in this report are based on the ground conditions apparent at the site for each of the exploratory holes. There may be exceptional ground conditions elsewhere on the site which have not been disclosed by this investigation and which have therefore not been taken into account in this report.

The comments made on groundwater conditions are based on observations made at the time the site work was conducted. It should be noted that groundwater levels will vary owing to seasonal, tidal and weather related effects. The scope of the investigation was selected on the basis of the specific development proposed by the Client and may be inappropriate to another form of development or scheme.



The risk assessment and opinions provided take in to consideration, inter alia, currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.



# A P P E N D I X B

Land Appraisal | Environmental | Geotechnical | Design | Mining | Inspections

GRM Development Solutions Limited, Laurus House, First Avenue, Centrum 100, Burton upon Trent, Staffs DE14 2WH  
www.grm-uk.com | info@grm-uk.com | 01283 551249      Company No. 3099018 (England), VAT Reg. No. 658 1005 48



1:2000  
1:1000  
1:500  
1:250  
1:125  
1:62.5  
1:31.25  
1:15.625  
1:7.8125  
1:3.90625  
1:1.953125  
1:0.9765625  
1:0.48828125  
1:0.244140625  
1:0.1220703125  
1:0.06103515625  
1:0.030517578125  
1:0.0152587890625  
1:0.00762939453125  
1:0.003814697265625  
1:0.0019073486328125  
1:0.00095367431640625  
1:0.000476837158203125  
1:0.0002384185791015625  
1:0.00011920928955078125  
1:0.000059604644775390625  
1:0.0000298023223876953125  
1:0.00001490116119384765625  
1:0.000007450580596923828125  
1:0.0000037252902984619140625  
1:0.00000186264514923095703125  
1:0.000000931322574615478515625  
1:0.0000004656612873077392578125  
1:0.00000023283064365386962890625  
1:0.000000116415321826934814453125  
1:0.0000000582076609134674072265625  
1:0.00000002910383045673370361328125  
1:0.000000014551915228366851806640625  
1:0.0000000072759576141834259033203125  
1:0.00000000363797880709171295166015625  
1:0.000000001818989403545856475830078125  
1:0.0000000009094947017729282379150390625  
1:0.00000000045474735088646411895751953125  
1:0.000000000227373675443232059478759765625  
1:0.0000000001136868377216160297393798828125  
1:0.00000000005684341886080801486968994140625  
1:0.000000000028421709430404007434844970703125  
1:0.0000000000142108547152020037174224853515625  
1:0.00000000000710542735760100185871124267578125  
1:0.000000000003552713678800500929355621337890625  
1:0.0000000000017763568394002500464778106689453125  
1:0.00000000000088817841970012502323889533447265625  
1:0.0000000000004440892098500625116192927667236328125  
1:0.00000000000022204460492503125580964638336181640625  
1:0.0000000000001110223024625157925482319166808203125  
1:0.00000000000005551115123125789627411595834041015625  
1:0.000000000000027755575615628948137057979170205078125  
1:0.0000000000000138777878078144740685289895851025390625  
1:0.000000000000006938893903907237034264494792551953125  
1:0.0000000000000034694469519536185171322473962759765625  
1:0.00000000000000173472347597680925856612369813798828125  
1:0.000000000000000867361737988404628283061849068994140625  
1:0.0000000000000004336808689942023141415309245034970703125  
1:0.00000000000000021684043449710115707076547250174853125  
1:0.000000000000000108420217248550578535382736250874265625  
1:0.0000000000000000542101086242752892676913681254371328125  
1:0.000000000000000027105054312137644633845684062185640625  
1:0.0000000000000000135525271560688223169228420310928203125  
1:0.00000000000000000677626357803441115846142101546141015625  
1:0.0000000000000000033881317890172055792307105077305578125  
1:0.0000000000000000016940658945086027896153552538677890625  
1:0.00000000000000000084703294725430139480767762693389453125  
1:0.0000000000000000004235164736271506974038388134694765625  
1:0.00000000000000000021175823681357534870191940673473828125  
1:0.000000000000000000105879118406787674350959703367369140625  
1:0.00000000000000000005293955920339383717547985168368453125  
1:0.000000000000000000026469779601696918587739925841842265625  
1:0.0000000000000000000132348898008484592938699629209211328125  
1:0.0000000000000000000066174449004242296469349814604605640625  
1:0.00000000000000000000330872245021211482346749073023028203125  
1:0.000000000000000000001654361225106057411733745365115141015625  
1:0.00000000000000000000082718061255302870586687268255757053125  
1:0.000000000000000000000413590306276514352933436341278785265625  
1:0.00000000000000000000020679515313825717646671817063939265625  
1:0.000000000000000000000103397576569128588233359085319696328125  
1:0.0000000000000000000000516987882845642941166795426598481640625  
1:0.00000000000000000000002584939414228214705833977132992408203125  
1:0.000000000000000000000012924697071141073529169885664962041015625  
1:0.0000000000000000000000064623485355705367645849428324810205078125  
1:0.00000000000000000000000323117426778526838229247141624051025390625  
1:0.0000000000000000000000016155871338926341911462357081202551953125  
1:0.000000000000000000000000807793566946317095573117854060127890625  
1:0.0000000000000000000000004038967834731585477865589270300639453125  
1:0.00000000000000000000000020194839173657927389327946351503197265625  
1:0.000000000000000000000000100974195868289636946639731757515986828125  
1:0.00000000000000000000000005048709793414481847331986587875799341015625  
1:0.000000000000000000000000025243548967072409236659932939378996705078125  
1:0.00000000000000000000000001262177448353620461832996646968949835265625  
1:0.000000000000000000000000006310887241768102309164983234844749676328125  
1:0.0000000000000000000000000031554436208840511545824916174223983381640625  
1:0.00000000000000000000000000157772181044202577229124580871119916908203125  
1:0.00000000000000000000000000078886090522101288614562290435559958450390625  
1:0.000000000000000000000000000394430452610506443072811452177799792251953125  
1:0.000000000000000000000000000197215226305253221536405726088899896127890625  
1:0.0000000000000000000000000000986076131526266107682028630444499480639453125  
1:0.00000000000000000000000000004930380657631330538410143152222497403197265625  
1:0.000000000000000000000000000024651903288156652692050715761112487015986828125  
1:0.000000000000000000000000000012325951644078326346025357880556243529945078125  
1:0.000000000000000000000000000006162975822039163173012678940277812176497265625  
1:0.0000000000000000000000000000030814879110195815865063394701389060882486328125  
1:0.00000000000000000000000000000154074395550979079325316973506945304412431640625  
1:0.000000000000000000000000000000770371977754895396626584867534726522062151953125  
1:0.00000000000000000000000000000038518598887744769831329243376736326103107890625  
1:0.000000000000000000000000000000192592994438723849156646216883681630515489453125  
1:0.000000000000000000000000000000096296497219361924578323108441840815257744765625  
1:0.0000000000000000000000000000000481482486096809622891615542209204076288723828125  
1:0.00000000000000000000000000000002407412430484048114458077711046020381443619140625  
1:0.0000000000000000000000000000000120370621524202405722903885552301019072180568203125  
1:0.00000000000000000000000000000000601853107621012028614519427761505095360902841015625  
1:0.00000000000000000000000000000000300926553810506014307259713880752547680451405625  
1:0.000000000000000000000000000000001504632769052530071536298569403762738402257028125  
1:0.0000000000000000000000000000000007523163845262650357681494284701881192011285140625  
1:0.0000000000000000000000000000000003761581922631325178840747142350940596005642578125  
1:0.00000000000000000000000000000000018807909613156625894203735711754702980028212890625  
1:0.000000000000000000000000000000000094039548065783129471018678558773514900141064203125  
1:0.0000000000000000000000000000000000470197740328915647355093392793867574500705321015625  
1:0.00000000000000000000000000000000002350988701644578236775466963969337872503526605078125  
1:0.000000000000000000000000000000000011754943508222891183877334819846689362517633025390625  
1:0.0000000000000000000000000000000000058774717541114455919386674099233446812568165140625  
1:0.00000000000000000000000000000000000293873587705572279596933370496167234062840825703125  
1:0.0000000000000000000000000000000000014693679385278613979846668524808361703142041015625  
1:0.00000000000000000000000000000000000073468396926393069899233342624041808515710205078125  
1:0.000000000000000000000000000000000000367341984631965349496166713120209257578551025390625  
1:0.0000000000000000000000000000000000001836709923159826747480833565601010478892751953125  
1:0.000000000000000000000000000000000000091835496157991337374041678280050523944637578125  
1:0.00000000000000000000000000000000000004591774807899566868702083914002526197231890625  
1:0.000000000000000000000000000000000000022958874039497834343510419570012630986159453125  
1:0.000000000000000000000000000000000000011479437019748917171755209785006315493077265625  
1:0.0000000000000000000000000000000000000057397185098744585858776048925003157465386828125  
1:0.000000000000000000000000000000000000002869859254937229292938802446250157873269341015625  
1:0.000000000000000000000000000000000000001434929627468614646469401223125078893671680568203125  
1:0.0000000000000000000000000000000000000007174648137343073232347006115625394468358402841015625  
1:0.000000000000000000000000000000000000000358732406867153661617350305781269723417920140568203125  
1:0.0000000000000000000000000000000000000001793662034335768308086751528906348619609600702841015625  
1:0.0089683101716788415404337576445031930980480035140568203125  
1:0.00448415508583942077021687882225159654902400175702841015625  
1:0.0022420775429197103851084394111257982745120008785140568203125  
1:0.00112103877145985519255421970556289913725600043925702841015625  
1:0.000560519385729927596277109852778144958280002196285140568203125  
1:0.0002802596928649637981385549263890724791400010981425702841015625  
1:0.000140129846432481899069277463194536239570000549071425702841015625  
1:0.007006492321624094953463873159726811978500027453571425702841015625  
1:0.00350324616081204747673193657986340598925001372678571425702841015625  
1:0.0017516230804060237383659682899317029946250068633928571425702841015625  
1:0.0008758115402030118691829841449658514973125003431696428571425702841015625  
1:0.000437905770101505934591492072482925748656250017158481428571425702841015625  
1:0.000218952885050752967295746036241146374328125000857924071428571425702841015625  
1:0.000109476442525376483647873018120573187164062500042896203571428571425702841015625  
1:0.0054738221262688241823936509060286593582031250002144810178571428571425702841015625  
1:0.0027369110631344120911968254530142967791015625000107240508928571428571425702841015625  
1:0.001368455531567206045598412726507148389507812500005362025446428571428571425702841015625  
1:0.0006842277657836030227992063632535719449750390625000026810127231428571428571425702841015625  
1:0.0003421138828918015113996031816267859724875195312500001340506361571428571428571425702841015625  
1:0.0001710569414459007556998015908133392962437597656250000067025318078571428571428571425702841015625  
1:0.00855284707229503778499407954066696481218798828125000003351265903928571428571428571425702841015625  
1:0.00427642353614751889249703977033348240609399414062500000167563295196428571428571428571425702841015625  
1:0.00213821176807375944624851988516674120304699707031250000008378164759821428571428571428571425702841015625  
1:0.00106910588403687972312425994258337060152349853515625000000418908237991071428571428571428571425702841015625  
1:0.000534552942018439861562129971291668507617174627812500000020945411899553571428571428571428571425702841015625  
1:0.00026727647100921993078106498564583325358558731390625000000104727059497778571428571428571428571425702841015625  
1:0.00013363823550460996539053249282291662679279365695312500000005236352974888928571428571428571428571425702841015625  
1:0.00668191177523049826952662464114583133963968284265625000000026181764874444428571428571428571428571425702841015625  
1:0.00334095588761524913476331232057291569819984142132812500000001309088243722221428571428571428571428571425702841015625  
1:0.0016704779438076245673816561602864578495999207106640625000000006545441218611107142857142857142857142857142



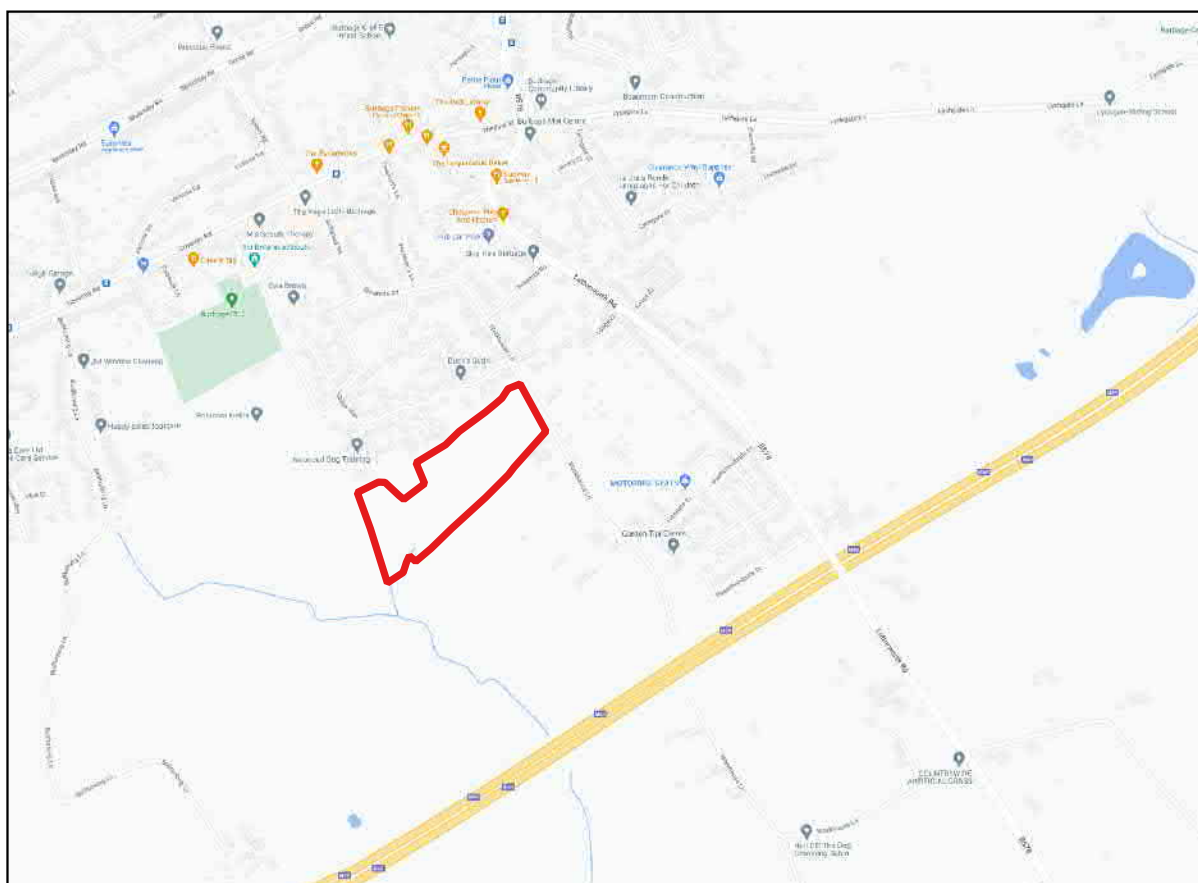
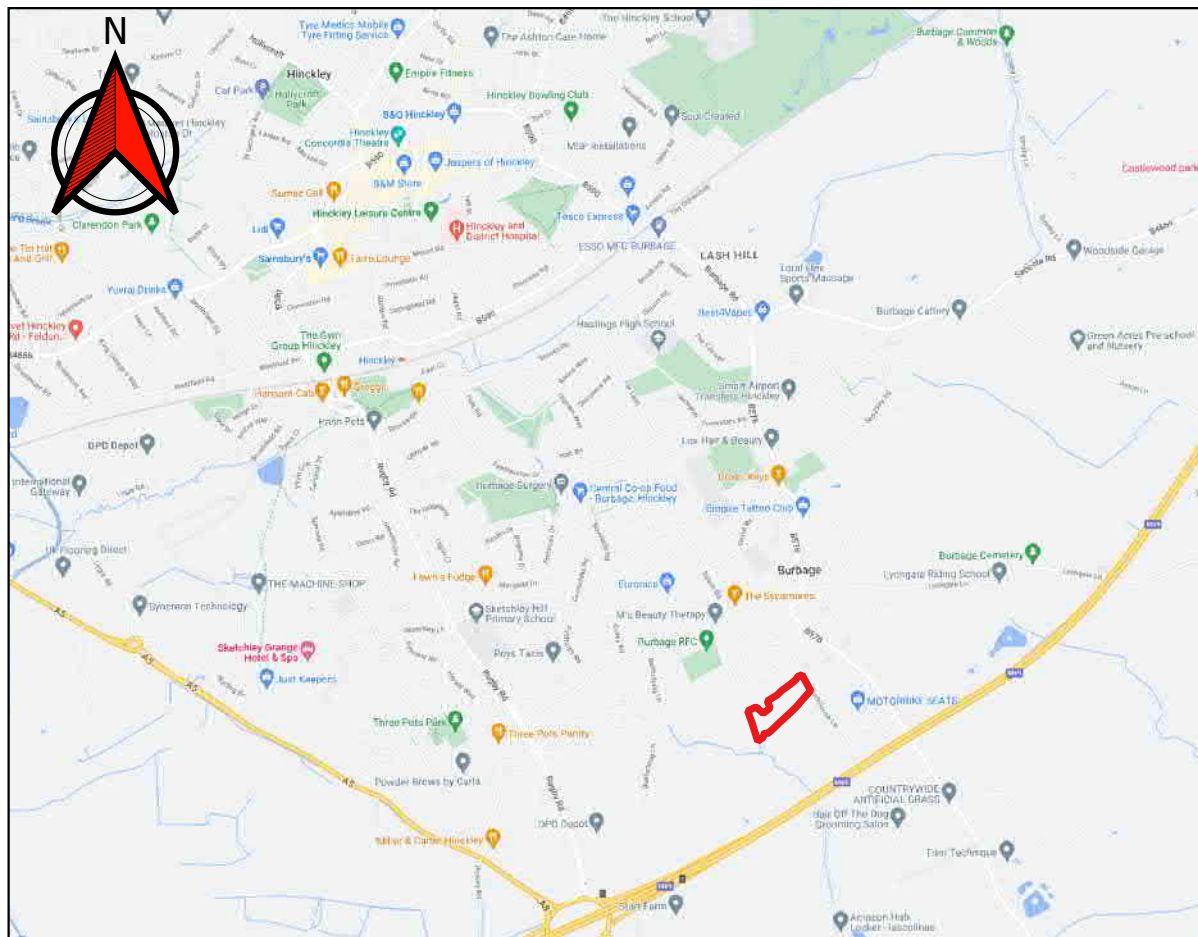


# A P P E N D I X C

Land Appraisal | Environmental | Geotechnical | Design | Mining | Inspections

GRM Development Solutions Limited, Laurus House, First Avenue, Centrum 100, Burton upon Trent, Staffs DE14 2WH  
www.grm-uk.com | info@grm-uk.com | 01283 551249      Company No. 3099018 (England), VAT Reg. No. 658 1005 48





NOTES:

NOTES

CLIENT:

MATHER JAMIE

PROJECT:

LAND OFF WORKHOUSE LANE, BURBAGE, HINCKLEY

TITLE:

## SITE LOCATION AND BOUNDARY PLAN

PROJECT No:

P9013

DATE:

06/2023

DESIGN/DRAWN:

AM

DRAWING NUMBER:

001

ISSUE:

FINAL

© GRM Development Solutions Ltd © Crown Copyright. AL 100014100



GRM Development Solutions Ltd

Tel: 01283 551 249  
mail@grm-uk.com www.grm-uk.com





# A P P E N D I X D

Land Appraisal | Environmental | Geotechnical | Design | Mining | Inspections

GRM Development Solutions Limited, Laurus House, First Avenue, Centrum 100, Burton upon Trent, Staffs DE14 2WH  
www.grm-uk.com | info@grm-uk.com | 01283 551249      Company No. 3099018 (England), VAT Reg. No. 658 1005 48



Legend

Site Boundary

Exploratory Holes

Window Sample Borehole with Gas/Groundwater Monitoring Installation



NOTES:  
NOTES

CLIENT:  
MATHER JAMIE

PROJECT:  
LAND OFF WORKHOUSE LANE, BURBAGE, HINCKLEY

TITLE:  
EXPLORATORY HOLE LOCATION PLAN

PROJECT  
P9013

DATE  
07/2023

DESIGN/  
DRAWN  
AM

DRAWING  
003

ISSUE:  
FINAL

© GRM Development Solutions Ltd © Crown Copyright.  
AL 100014100

**GRM**

GRM Development Solutions Ltd  
Tel: 01283 551 249  
mail@grm-uk.com www.grm-uk.com


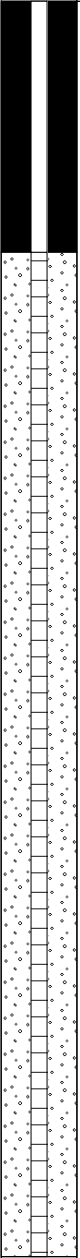







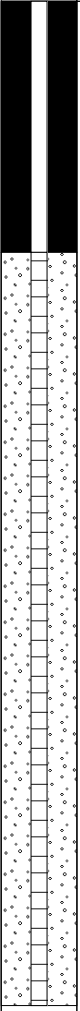
# A P P E N D I X E

Land Appraisal | Environmental | Geotechnical | Design | Mining | Inspections

GRM Development Solutions Limited, Laurus House, First Avenue, Centrum 100, Burton upon Trent, Staffs DE14 2WH  
www.grm-uk.com | info@grm-uk.com | 01283 551249      Company No. 3099018 (England), VAT Reg. No. 658 1005 48


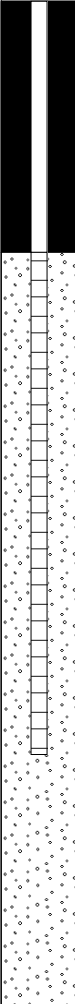


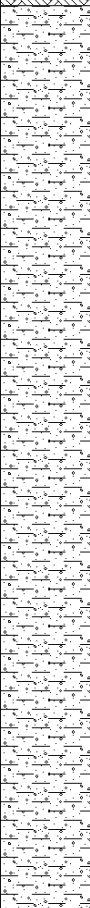
		<b>GRM Development Solutions Ltd</b> Laurus House, First Avenue, Centrum 100, Burton-on-Trent, DE14 2WH Tel (HQ): 01283 551249 Email: info@grm-uk.com		<h1>Windowless Sample Borehole</h1>			<b>Borehole No</b> WS01 Sheet 1 of 1		
<b>Site Name:</b> Land off Workhouse Lane, Burbage, Hinckley							<b>Ground Level (mAOD)</b> 109.58		
<b>Client:</b> Mather Jamie					<b>GRM Project Ref:</b> P9013			<b>Coordinates</b> 444160 E 291739 N	
Installation/ Backfill	Water Strike	Samples/Tests			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth	Type	SPT Result					
		0.10 - 0.20	ES		0.40	109.18		Brown, clayey SAND. Sand is fine to coarse. Abundant rootlets. TOPSOIL	1
		0.80 - 0.90	D						
		1.00	C	N=4 (1,1/1,1,1,1)					
		1.50 - 1.60	D						
		2.00	C	N=12 (3,3/3,3,3,3)					2
		2.50 - 2.60	D						
		3.00	C	N=15 (3,3/3,4,4,4)					3
		3.60 - 3.70	D		3.50	106.08		Firm to stiff, high strength, dark brownish-grey, slightly sandy, silty CLAY. Sand is fine to coarse. OADBY MEMBER	4
		4.00	C	N=16 (4,4/4,4,4,4)					
		4.60 - 4.70	D						
	5.00	C	N=20 (4,5/5,5,5,5)	5.00	104.58		End of Borehole at 5.000m	5	
<b>Crew:</b> Dynamic Sampling UK Ltd.				<b>Logger:</b> AM			<b>Weather:</b> Overcast.		
<b>Equipment:</b> Tracked Window Sampling Rig									
<b>Reason for termination of borehole:</b> Target depth reached.									
<b>Groundwater Remarks:</b> No groundwater encountered.									
<b>General Remarks:</b>									
<b>Hole Started:</b> 28/06/2023		<b>Hole Complete:</b> 28/06/2023		<b>Version:</b> FINAL			<b>Scale:</b> 1:31		


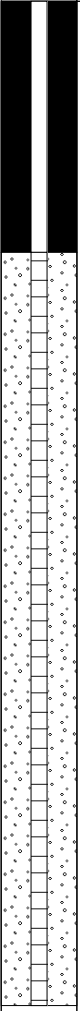
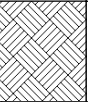
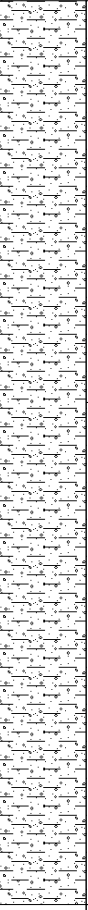
		<b>GRM Development Solutions Ltd</b> Laurus House, First Avenue, Centrum 100, Burton-on-Trent, DE14 2WH Tel (HQ): 01283 551249 Email: info@grm-uk.com		<h1>Windowless Sample Borehole</h1>			<b>Borehole No</b> WS02 Sheet 1 of 1	
<b>Site Name:</b> Land off Workhouse Lane, Burbage, Hinckley							<b>Ground Level (mAOD)</b> 112.27	
<b>Client:</b> Mather Jamie					<b>GRM Project Ref:</b> P9013		<b>Coordinates</b> 444125 E 291822 N	


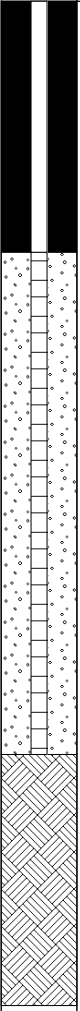
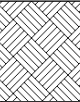
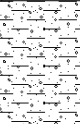





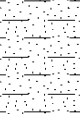
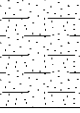
Installation/ Backfill	Water Strike	Samples/Tests			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth	Type	SPT Result					
		0.10 - 0.20	ES				Light brown, slightly clayey SAND. Sand is fine to coarse. Abundant rootlets. TOPSOIL		
					0.40	111.86			
		0.70 - 0.80	D				Soft to firm, approximately low to medium strength, dark grey and dark brown, slightly sandy, gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded chalk, chert and quartzite. OADBY MEMBER		
		1.00	C	N=6 (2,2/2,2,1,1)		111.36			1
		1.10 - 1.20	D				Loose to medium dense, brown, slightly clayey SAND. Sand is fine to coarse. Recovered damp. OADBY MEMBER		
					1.50	110.76			
		1.80 - 1.90	D				Firm, medium strength, becoming stiff to very stiff, high to very high strength, dark grey and dark brown, slightly sandy, gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded chalk, chert and quartzite. Rootlets observed to 2.00m. OADBY MEMBER		
		2.00	C	N=12 (3,3/3,3,3,3)					2
		2.80 - 2.90	D						
		3.00	C	N=16 (4,4/4,4,4,4)					3
	3.80 - 3.90	D							
	4.00	C	50 (8,9/50 for 295mm)	4.00	108.26		End of Borehole at 4.000m	4	
								5	


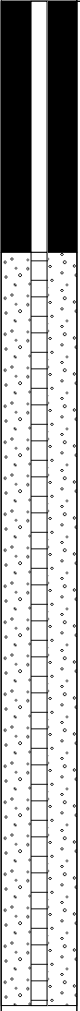
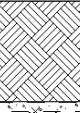
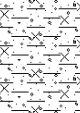
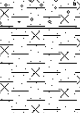
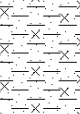

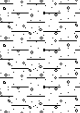
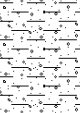
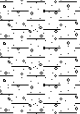
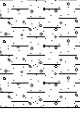

<b>Crew:</b> Dynamic Sampling UK Ltd		<b>Logger:</b> AM		<b>Weather:</b> Overcast.	
<b>Equipment:</b> Tracked Window Sampling Rig					
<b>Reason for termination of borehole:</b> SPT refusal at 4.00m.					
<b>Groundwater Remarks:</b> Recovered damp between 0.90m and 1.50m.					
<b>General Remarks:</b>					
<b>Hole Started:</b> 28/06/2023		<b>Hole Complete:</b> 28/06/2023		<b>Version:</b> FINAL	
				<b>Scale:</b> 1:31	


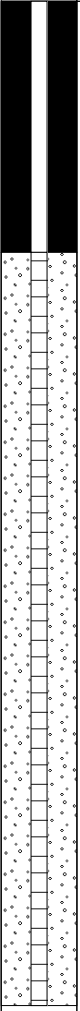
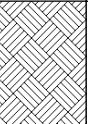
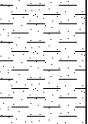
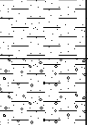
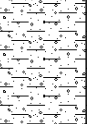
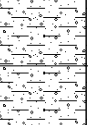



		GRM Development Solutions Ltd Laurus House, First Avenue, Centrum 100, Burton-on-Trent, DE14 2WH Tel (HQ): 01283 551249 Email: info@grm-uk.com		Windowless Sample Borehole				Borehole No WS03 Sheet 1 of 1	
Site Name: Land off Workhouse Lane, Burbage, Hinckley								Ground Level (mAOD) 111.33	
Client: Mather Jamie					GRM Project Ref: P9013			Coordinates 444170 E 291805 N	
Installation/ Backfill	Water Strike	Samples/Tests			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth	Type	SPT Result					
		0.10 - 0.20	ES		0.40	110.93		Dark brown, very sandy CLAY. Sand is fine to coarse. Abundant rootlets. TOPSOIL	
		0.90 - 1.00	D					Soft to firm, low to medium strength, becoming very stiff, very high strength, dark grey and orangish-brown, slightly sandy, gravelly CLAY. Sand is fine to coarse, subangular to subrounded chalk, chert and quartzite. Rootlets observed to 2.00m. OADBY MEMBER	
		1.00	C	N=8 (1,1/2,2,2,2)					
		1.50 - 1.60	D						
		2.00	C	N=12 (3,3/3,3,3,3)					
		2.50 - 2.60	D						
		3.00	C	N=15 (3,3/3,4,4,4)					
		3.50 - 3.60	D						
4.00	C	N=50 (7,7/50 for 260mm)	4.00	107.33		End of Borehole at 4.000m			
Crew: Dynamic Sampling UK Ltd				Logger: AM			Weather: Overcast.		
Equipment: Tracked Window Sampling Rig									
Reason for termination of borehole: SPT refusal at 4.00m.									
Groundwater Remarks: No groundwater encountered.									
General Remarks:									
Hole Started: 28/06/2023		Hole Complete: 28/06/2023		Version: FINAL		Scale: 1:31			

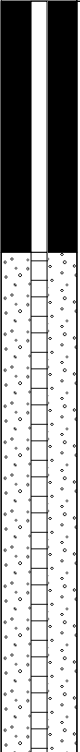




		<b>GRM Development Solutions Ltd</b> Laurus House, First Avenue, Centrum 100, Burton-on-Trent, DE14 2WH Tel (HQ): 01283 551249 Email: info@grm-uk.com		<h1>Windowless Sample Borehole</h1>			<b>Borehole No</b> WS04 Sheet 1 of 1		
<b>Site Name:</b> Land off Workhouse Lane, Burbage, Hinckley							<b>Ground Level (mAOD)</b> 110.66		
<b>Client:</b> Mather Jamie					<b>GRM Project Ref:</b> P9013			<b>Coordinates</b> 444206 E 291782 N	
Installation/ Backfill	Water Strike	Samples/Tests			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth	Type	SPT Result					
		0.10 - 0.20	ES		0.40	110.26		Dark brown, clayey SAND. Sand is fine to coarse. Abundant rootlets. TOPSOIL	
		0.80 - 0.90	D					Firm, medium strength, becoming very stiff, very high strength, grey and brown, slightly sandy, gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded chalk, chert and quartzite. OADBY MEMBER  Not mottled brown from 2.00m.	
		1.00	C	N=8 (2,2/2,2,2,2)					1
		1.50 - 1.60	D						
		2.00	C	N=11 (2,2/2,3,3,3)					2
		2.50 - 2.60	D						
		3.00	C	N=15 (3,3/3,4,4,4)					3
		3.50 - 3.60	D						
	4.00	C	50 (9,10/50 for 275mm)	4.00	106.66		End of Borehole at 4.000m	4	
								5	
<b>Crew:</b> Dynamic Sampling UK Ltd				<b>Logger:</b> AM			<b>Weather:</b> Overcast.		
<b>Equipment:</b> Tracked Window Sampling Rig									
<b>Reason for termination of borehole:</b> SPT refusal at 4.00m.									
<b>Groundwater Remarks:</b> No groundwater encountered.									
<b>General Remarks:</b>									
<b>Hole Started:</b> 28/06/2023		<b>Hole Complete:</b> 28/06/2023		<b>Version:</b> FINAL			<b>Scale:</b> 1:31		

		<b>GRM Development Solutions Ltd</b> Laurus House, First Avenue, Centrum 100, Burton-on-Trent, DE14 2WH Tel (HQ): 01283 551249 Email: info@grm-uk.com		<h1>Windowless Sample Borehole</h1>			<b>Borehole No</b> WS05 Sheet 1 of 1		
<b>Site Name:</b> Land off Workhouse Lane, Burbage, Hinckley							<b>Ground Level (mAOD)</b> 112.87		
<b>Client:</b> Mather Jamie					<b>GRM Project Ref:</b> P9013			<b>Coordinates</b> 444203 E 291842 N	
Installation/ Backfill	Water Strike	Samples/Tests			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth	Type	SPT Result					
		0.10 - 0.20	ES		0.40	112.47		Dark brown, clayey SAND. Sand is fine to coarse. Abundant rootlets. TOPSOIL	
		0.80 - 0.90	D		0.90	111.97		Soft, approximately low strength, light brown and grey, slightly gravelly, sandy CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded chert, quartzite and rare chalk. ALLUVIUM	
		1.00	C	N=6 (2,2/2,2,1,1)				Loose, brown and grey, slightly clayey SAND. Sand is fine to coarse. Recovered damp.	1
		1.20 - 1.30	D		1.50	111.37		WOLSTON SAND AND GRAVEL	
		1.80 - 1.90	D					Firm, medium strength, greyish-brown, sandy SILT. Sand is fine to coarse. Rootlets and organic material observed to 2.40m. Recovered damp.	2
		2.00	C	N=13 (3,3/3,3,3,4)				WOLSTON SAND AND GRAVEL	
		2.50 - 2.60	D		2.40	110.47		Loose, brown and grey, slightly clayey SAND. Sand is fine to coarse. Recovered wet from 2.50m.	
		2.80 - 2.90	D		2.70	110.17		WOLSTON SAND AND GRAVEL	
		3.00	C	N=12 (2,2/2,2,4,4)	3.00	109.87		Firm, medium strength, greyish-brown, sandy SILT. Sand is fine to coarse. Recovered wet.	3
		3.50 - 3.60	D					Loose to medium dense, brown and grey, slightly clayey SAND. Sand is fine to coarse. Recovered wet.	
		4.00	C	N=16 (2,2/4,4,4,4)	4.00	108.87		WOLSTON SAND AND GRAVEL	4
								End of Borehole at 4.000m	
<b>Crew:</b> Dynamic Sampling UK Ltd				<b>Logger:</b> AM			<b>Weather:</b> Overcast.		
<b>Equipment:</b> Tracked Window Sampling Rig									
<b>Reason for termination of borehole:</b> Hole collapsed up to 3.00m.									
<b>Groundwater Remarks:</b> Recovered damp between 0.90m and 2.50m. Recovered wet from 2.50m.									
<b>General Remarks:</b>									
<b>Hole Started:</b> 28/06/2023		<b>Hole Complete:</b> 28/06/2023		<b>Version:</b> FINAL			<b>Scale:</b> 1:31		


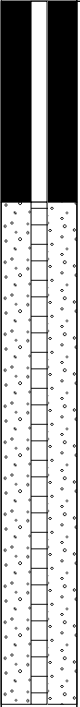
		<b>GRM Development Solutions Ltd</b> Laurus House, First Avenue, Centrum 100, Burton-on-Trent, DE14 2WH Tel (HQ): 01283 551249 Email: info@grm-uk.com		<h1>Windowless Sample Borehole</h1>			<b>Borehole No</b> WS06 Sheet 1 of 1		
<b>Site Name:</b> Land off Workhouse Lane, Burbage, Hinckley							<b>Ground Level (mAOD)</b> 112.97		
<b>Client:</b> Mather Jamie					<b>GRM Project Ref:</b> P9013		<b>Coordinates</b> 444259 E 291834 N		
Installation/ Backfill	Water Strike	Samples/Tests			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth	Type	SPT Result					
		0.10 - 0.20	ES		0.40	112.57		Dark brown, very sandy CLAY. Sand is fine to coarse. Abundant rootlets. TOPSOIL	1
		0.60 - 0.70	D					Firm, approximately medium strength, dark brown, slightly sandy, silty, gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded chert and quartzite. ALLUVIUM	
		1.00	C	N=8 (2,2/2,1,2,3)	1.00	111.97		Firm, medium strength, brown, slightly sandy, silty CLAY. Sand is fine to coarse. ALLUVIUM	
		1.50 - 1.60	D						
		1.90 - 2.00	D		1.80	111.17		Medium dense, orangish-brown SAND. Sand is fine to coarse. Recovered damp. ALLUVIUM	2
		2.00	C	N=17 (3,3/4,5,4,4)					
		2.50 - 2.60	D		2.20	110.77		Stiff to very stiff, high to very high strength, dark grey, slightly sandy, gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded chalk, chert and quartzite. OADBY MEMBER	
		3.00	C	N=28 (4,5/6,7,7,8)					
	3.50 - 3.60	D						3	
	4.00	C	N=50 (11,13/50 for 295mm)	4.00	108.97		End of Borehole at 4.000m		
									4
									5
<b>Crew:</b> Dynamic Sampling UK Ltd				<b>Logger:</b> AM			<b>Weather:</b> Overcast.		
<b>Equipment:</b> Tracked Window Sampling Rig									
<b>Reason for termination of borehole:</b> SPT refusal at 4.00m.									
<b>Groundwater Remarks:</b> Recovered damp between 1.80m and 2.20m.									
<b>General Remarks:</b>									
<b>Hole Started:</b> 29/06/2023		<b>Hole Complete:</b> 29/06/2023		<b>Version:</b> FINAL		<b>Scale:</b> 1:31			

		<b>GRM Development Solutions Ltd</b> Laurus House, First Avenue, Centrum 100, Burton-on-Trent, DE14 2WH Tel (HQ): 01283 551249 Email: info@grm-uk.com		<h1>Windowless Sample Borehole</h1>			<b>Borehole No</b> WS07 Sheet 1 of 1		
<b>Site Name:</b> Land off Workhouse Lane, Burbage, Hinckley							<b>Ground Level (mAOD)</b> 116.12		
<b>Client:</b> Mather Jamie					<b>GRM Project Ref:</b> P9013		<b>Coordinates</b> 444250 E 291909 N		
Installation/ Backfill	Water Strike	Samples/Tests			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth	Type	SPT Result					
		0.10 - 0.20	ES		0.50	115.62		Light brown, slightly clayey SAND. Sand is fine to coarse. Abundant rootlets. TOPSOIL	1
		0.90 - 1.00 1.00	D C	N=8 (1,1/2,2,2,2)				Firm, medium strength, dark brown and orangish-brown, sandy CLAY. Sand is fine to coarse. ALLUVIUM	
		1.50 - 1.60	D		1.30	114.82		Firm, locally soft, medium strength, light grey and orangish-brown, slightly sandy, slightly gravelly, silty CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular chert. ALLUVIUM	2
		2.00	C	N=15 (3,3/4,4,3,4)					
		2.50 - 2.60	D		2.40	113.72		Stiff, high strength, dark grey and dark brown, slightly sandy, slightly gravelly CLAY. Sand is fine to medium. Gravel is fine to medium, subangular to subrounded chert, mudstone, coal and quartzite. Rootlets observed to 3m. OADBY MEMBER	3
		3.00	C	N=25 (4,4/5,6,7,7)					
		3.60 - 3.70	D		3.50	112.62		Stiff to very stiff, high to very high strength, dark grey, slightly sandy, gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded chalk, chert and quartzite. OADBY MEMBER	4
		4.00	C	50 (10,17/50 for 295mm)	4.00	112.12		End of Borehole at 4.000m	
								5	
<b>Crew:</b> Dynamic Sampling UK Ltd.				<b>Logger:</b> AM		<b>Weather:</b> Overcas			
<b>Equipment:</b> Tracked Window Sampling Rig									
<b>Reason for termination of borehole:</b> SPT refusal at 4.00m.									
<b>Groundwater Remarks:</b> No groundwater encountered.									
<b>General Remarks:</b>									
<b>Hole Started:</b> 29/06/2023		<b>Hole Complete:</b> 29/06/2023		<b>Version:</b> FINAL		<b>Scale:</b> 1:31			


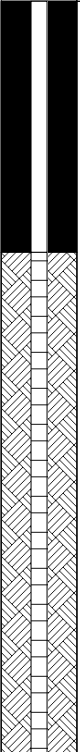
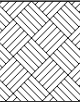
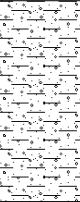
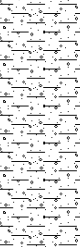
		<b>GRM Development Solutions Ltd</b> Laurus House, First Avenue, Centrum 100, Burton-on-Trent, DE14 2WH Tel (HQ): 01283 551249 Email: info@grm-uk.com		<h1>Windowless Sample Borehole</h1>			<b>Borehole No</b> WS08 Sheet 1 of 1	
<b>Site Name:</b> Land off Workhouse Lane, Burbage, Hinckley							<b>Ground Level (mAOD)</b> 115.52	
<b>Client:</b> Mather Jamie					<b>GRM Project Ref:</b> P9013		<b>Coordinates</b> 444292 E 291895 N	

Installation/ Backfill	Water Strike	Samples/Tests			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth	Type	SPT Result					
		0.10 - 0.20	ES		0.40	115.12	 Light brown, clayey SAND. Sand is fine to coarse. Abundant rootlets. <b>TOPSOIL</b>	1	
		0.80 - 0.90	D				 Soft to firm, low strength, dark grey and orangish-brown, slightly gravelly, sandy CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded chert and quartzite. <b>ALLUVIUM</b>		
		1.00	C	N=6 (1,1/1,2,1,2)	1.10	114.42		2	
		1.50 - 1.60	D				 Soft to firm, low strength, light grey and orangish-brown, slightly gravelly, sandy CLAY. Sand is fine to coarse, subangular to subrounded quartzite and chert. Recovered damp. <b>ALLUVIUM</b>		
	▼	2.00	C	N=14 (3,2/3,3,4,4)	2.00	113.52		3	
		2.50 - 2.60	D				 Medium dense becoming dense to very dense, brown, slightly gravelly SAND. Sand is fine to coarse. Gravel is fine to medium, subangular to subrounded chert and quartzite. Recovered wet. <b>WOLSTON SAND AND GRAVEL</b>		
	3.00	C	N=50 (10,11/50 for 285mm)	3.00	112.52		End of Borehole at 3.000m	3	
								4	
								5	

<b>Crew:</b> Dynamic Sampling UK Ltd		<b>Logger:</b> AM		<b>Weather:</b> Overcast	
<b>Equipment:</b> Tracked Window Sampling Rig					
<b>Reason for termination of borehole:</b> SPT refusal at 3.00m.					
<b>Groundwater Remarks:</b> Recovered damp between 1.10m and 2.00m. Recovered wet from 2.00m.					
<b>General Remarks:</b>					
<b>Hole Started:</b> 29/06/2023		<b>Hole Complete:</b> 29/06/2023		<b>Version:</b> FINAL	
				<b>Scale:</b> 1:31	

		<b>GRM Development Solutions Ltd</b> Laurus House, First Avenue, Centrum 100, Burton-on-Trent, DE14 2WH Tel (HQ): 01283 551249 Email: info@grm-uk.com		<h1>Windowless Sample Borehole</h1>			<b>Borehole No</b> WS09 Sheet 1 of 1		
<b>Site Name:</b> Land off Workhouse Lane, Burbage, Hinckley							<b>Ground Level (mAOD)</b> 116.72		
<b>Client:</b> Mather Jamie					<b>GRM Project Ref:</b> P9013			<b>Coordinates</b> 444343 E 291917 N	
Installation/ Backfill	Water Strike	Samples/Tests			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth	Type	SPT Result					
		0.10 - 0.20	ES					Light brown, clayey SAND. Sand is fine to coarse. Abundant rootlets. TOPSOIL	
		0.50 - 0.60	D		0.40	116.32		Loose, light brown, clayey SAND. Sand is fine to coarse. Occasional rootlets. ALLUVIUM	
		0.90 - 1.00	D		0.70	116.02		Loose, dark brown, dark brown, slightly gravelly, very clayey SAND. Sand is fine to coarse. Gravel is fine to coarse subangular to subrounded quartzite. ALLUVIUM	1
		1.00	C	N=4 (1,1/1,1,1,1)	1.20	115.52		Soft, low strength, dark orangish-brown sandy CLAY. Sand is fine to coarse. ALLUVIUM	
		1.50 - 1.60	D						
		2.00	C	N=20 (3,4/4,5,5,6)	2.00	114.72		Stiff to very stiff, high to very high strength, dark brownish-grey, slightly sandy, gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded chalk and chert. OADBY MEMBER	2
		2.50 - 2.60	D						
		2.80	C	50 (10,12/50 for 275mm)	2.80	113.92		End of Borehole at 2.800m	3
									4
									5
<b>Crew:</b> Dynamic Sampling UK Ltd				<b>Logger:</b> AM			<b>Weather:</b> Overcast.		
<b>Equipment:</b> Tracked Window Sampling Rig									
<b>Reason for termination of borehole:</b> Sampler and SPT refusal at 2.80m.									
<b>Groundwater Remarks:</b> No groundwater encountered.									
<b>General Remarks:</b>									
<b>Hole Started:</b> 29/06/2023		<b>Hole Complete:</b> 29/06/2023		<b>Version:</b> FINAL			<b>Scale:</b> 1:31		



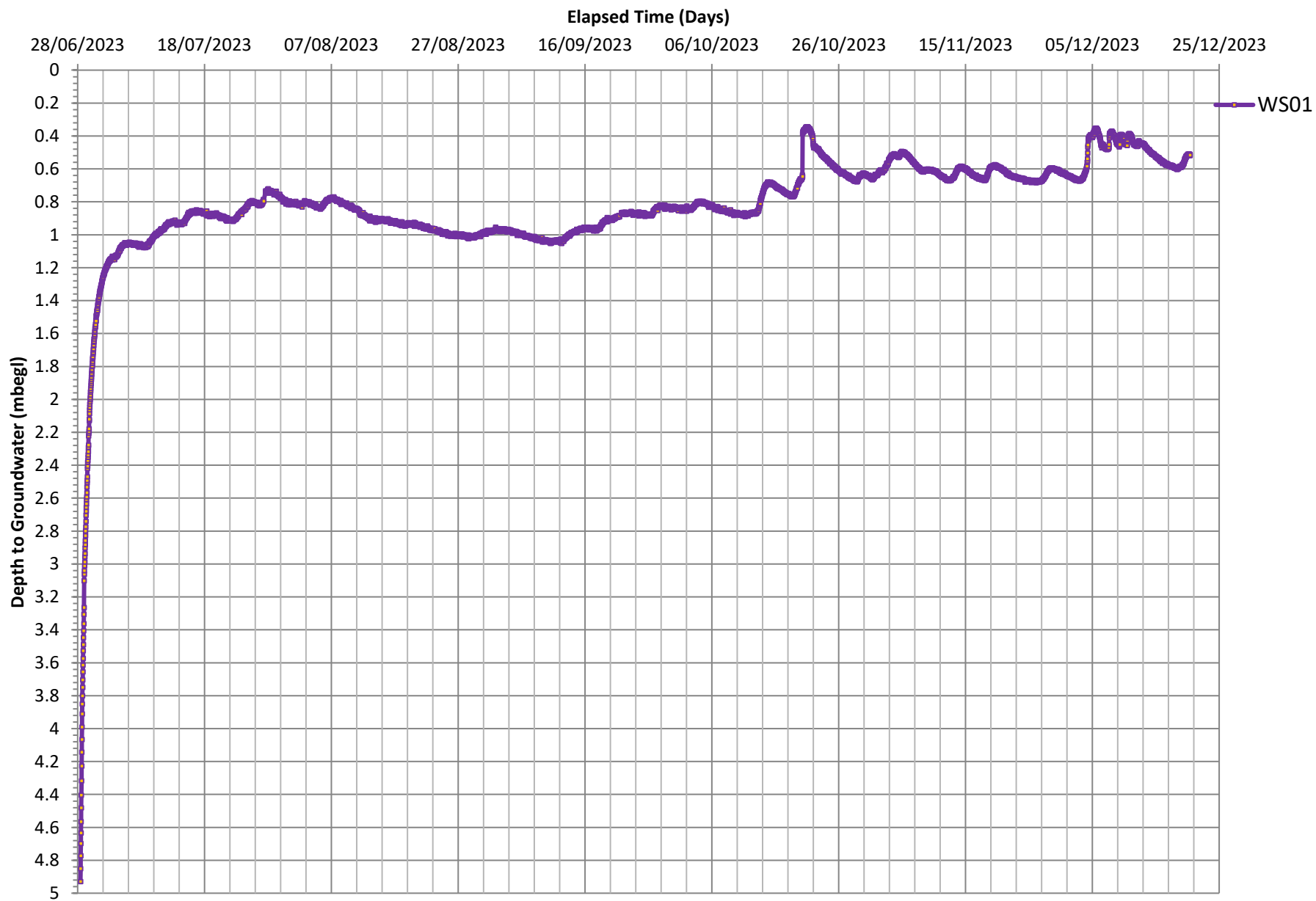
		<b>GRM Development Solutions Ltd</b> Laurus House, First Avenue, Centrum 100, Burton-on-Trent, DE14 2WH Tel (HQ): 01283 551249 Email: info@grm-uk.com		<h1>Windowless Sample Borehole</h1>			<b>Borehole No</b> WS10 Sheet 1 of 1		
<b>Site Name:</b> Land off Workhouse Lane, Burbage, Hinckley							<b>Ground Level (mAOD)</b> 117.01		
<b>Client:</b> Mather Jamie					<b>GRM Project Ref:</b> P9013		<b>Coordinates</b> 444308 E 291955 N		
Installation/ Backfill	Water Strike	Samples/Tests			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth	Type	SPT Result					
		0.10 - 0.20	ES		0.40	116.61		Dark brown, slightly clayey SAND. Sand is fine to coarse. Abundant rootlets. TOPSOIL	
		0.80 - 0.90	D					Firm, medium strength, dark brown, slightly sandy, slightly gravelly CLAY. Sand is fine to coarse. Gravel is fine to medium, subangular to subrounded chert, chalk and quartzite. OADBY MEMBER	1
		1.00	C	N=15 (2,2/3,4,4,4)	1.20	115.81			
		1.50 - 1.60	D					Stiff to very stiff, high to very high strength, dark brown mottled grey, slightly sandy, gravelly CLAY. Sand is fine to coarse. Gravel is fine to coarse, subangular to subrounded mudstone, chert, quartzite, coal and sandstone. OADBY MEMBER	2
		2.00	C	N=24 (4,4/5,6,6,7)				Becoming slightly gravelly from 2.00m.	
		2.50 - 2.60	D						
	3.00	C	N=50 (9,11/50 for 231mm)	3.00	114.01		End of Borehole at 3.000m	3	
									4
									5
<b>Crew:</b> Dynamic Sampling UK Ltd				<b>Logger:</b> AM			<b>Weather:</b> Overcast.		
<b>Equipment:</b> Tracked Window Sampling Rig									
<b>Reason for termination of borehole:</b> SPT refusal at 3.00m.									
<b>Groundwater Remarks:</b> No groundwater encountered.									
<b>General Remarks:</b>									
<b>Hole Started:</b> 29/06/2023		<b>Hole Complete:</b> 29/06/2023		<b>Version:</b> FINAL			<b>Scale:</b> 1:31		

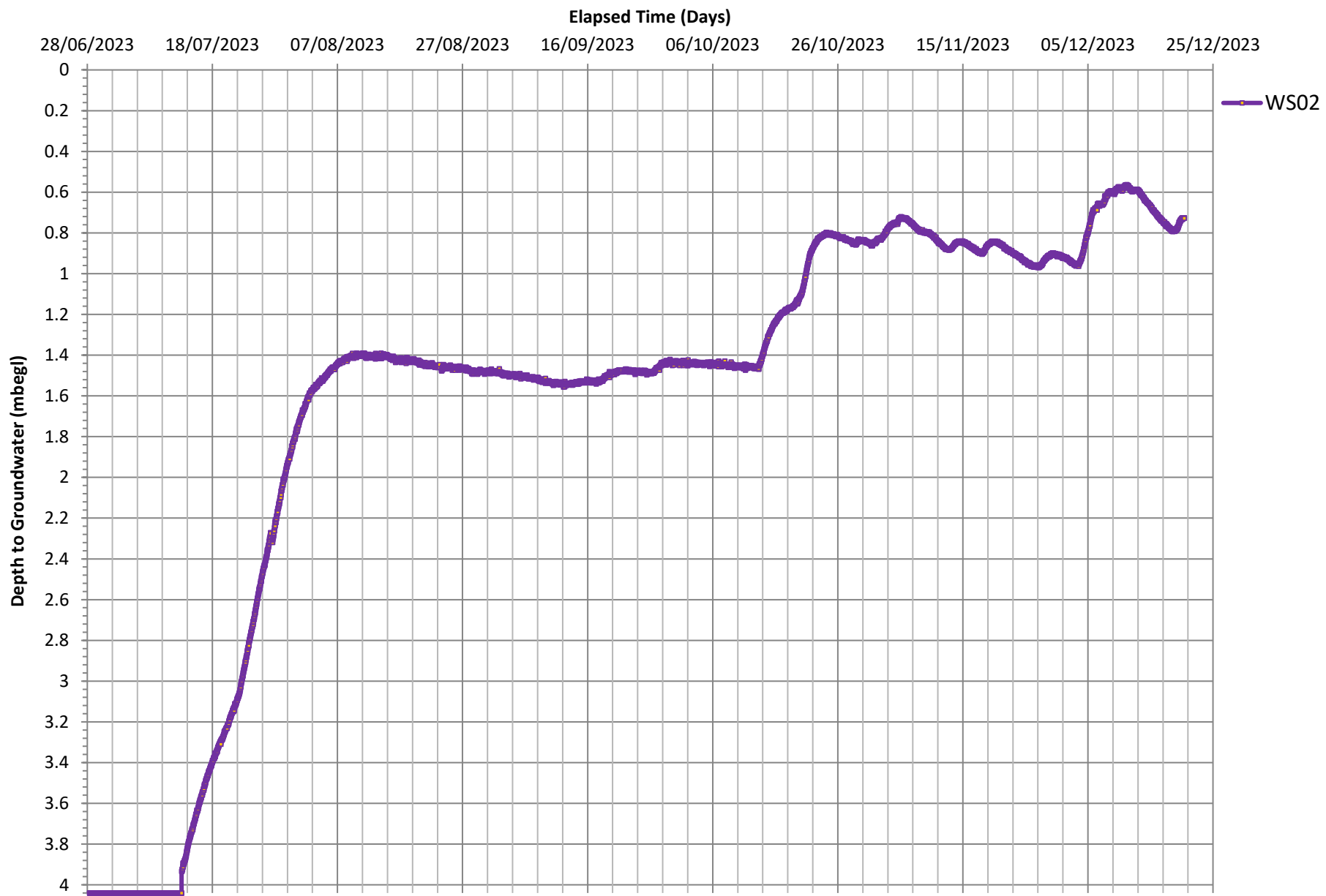


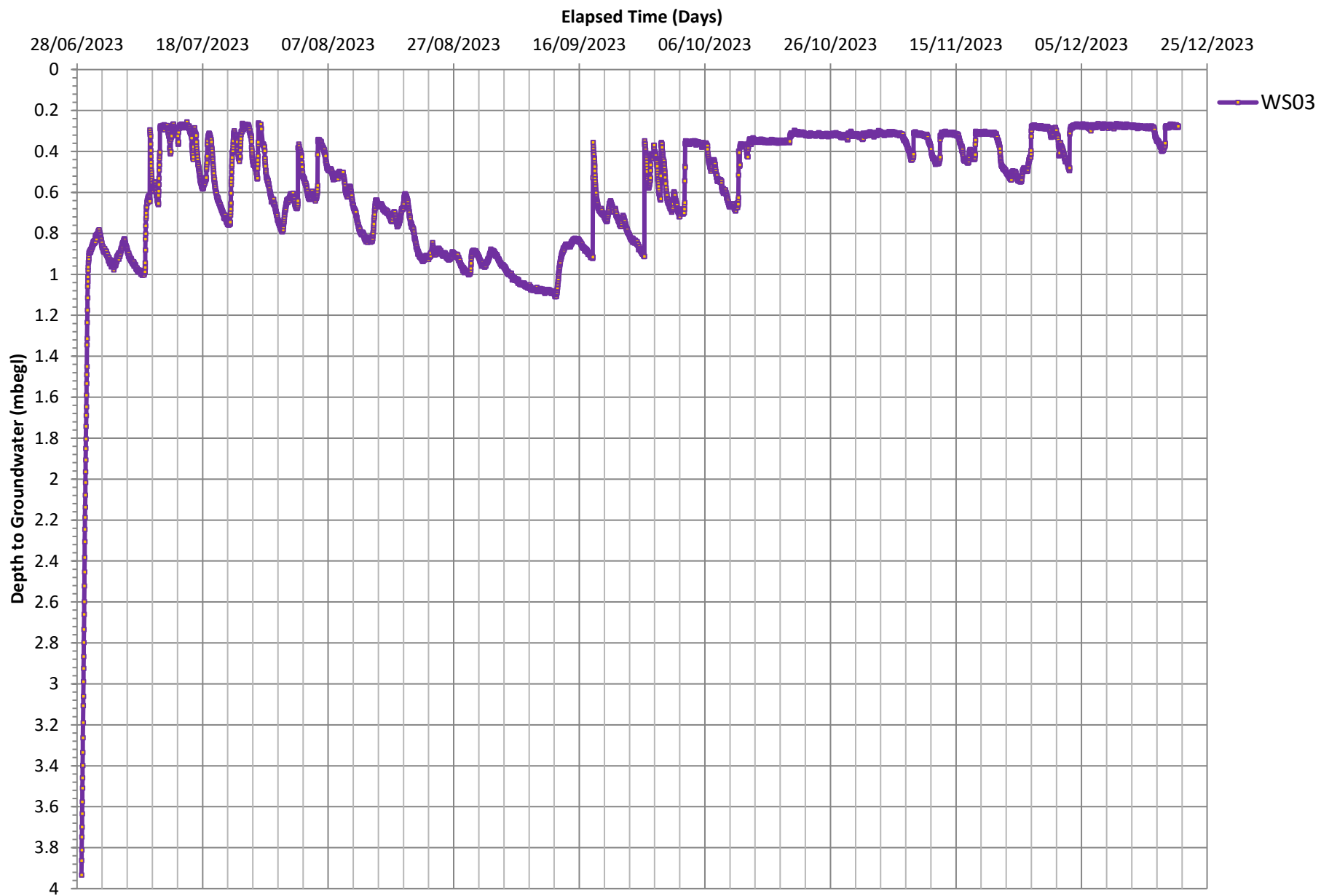
# A P P E N D I X F

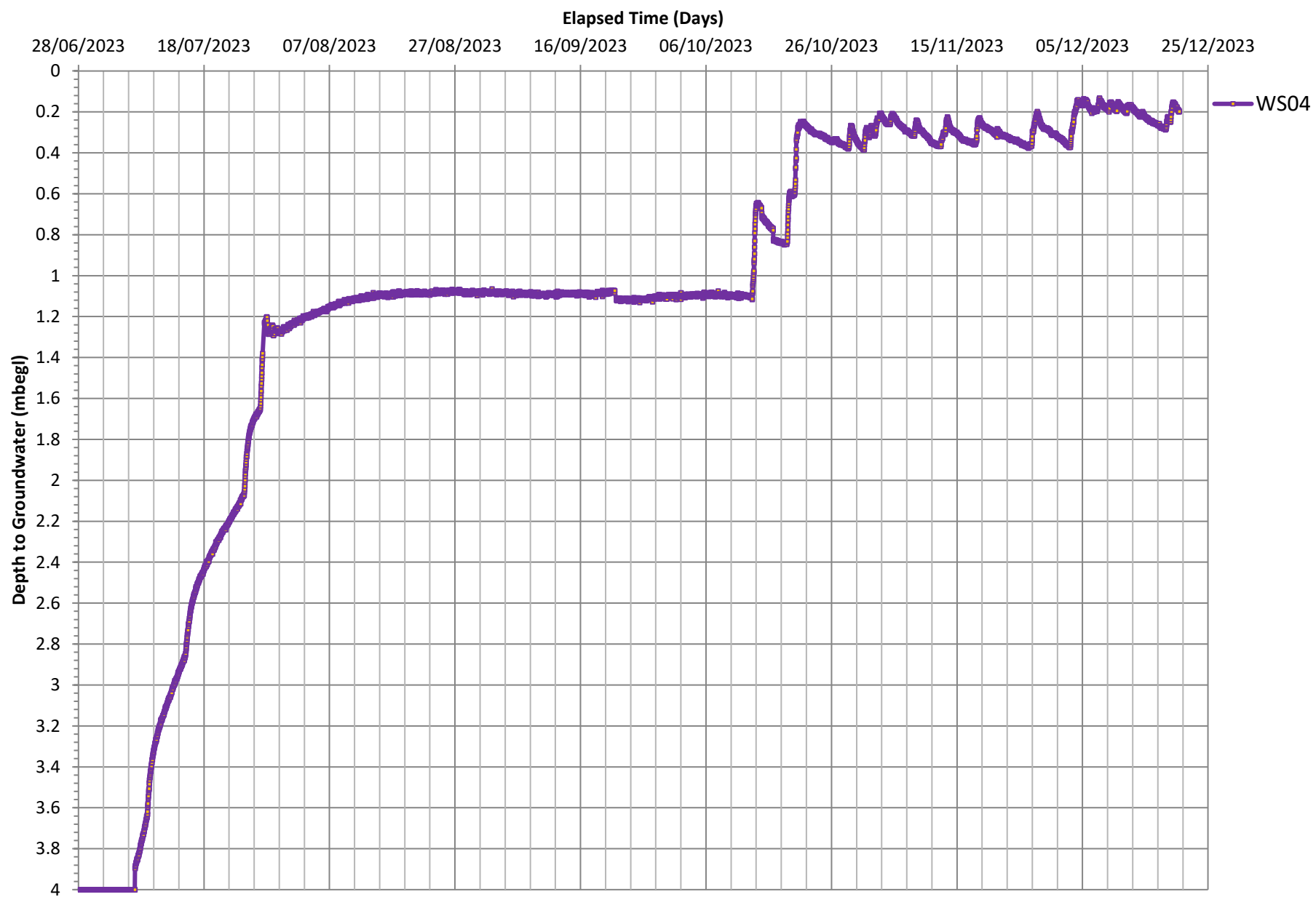
Land Appraisal | Environmental | Geotechnical | Design | Mining | Inspections

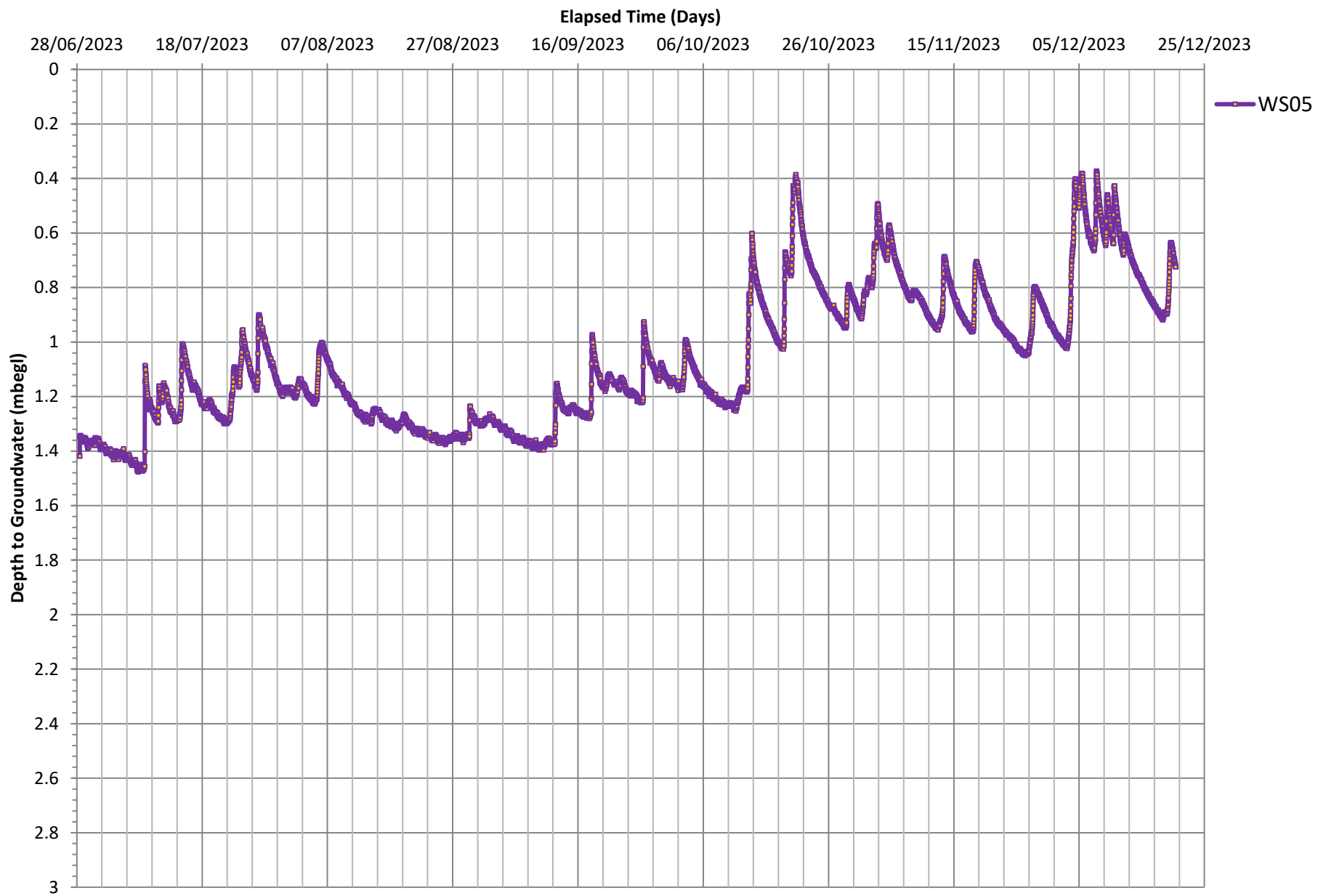
GRM Development Solutions Limited, Laurus House, First Avenue, Centrum 100, Burton upon Trent, Staffs DE14 2WH  
www.grm-uk.com | info@grm-uk.com | 01283 551249      Company No. 3099018 (England), VAT Reg. No. 658 1005 48



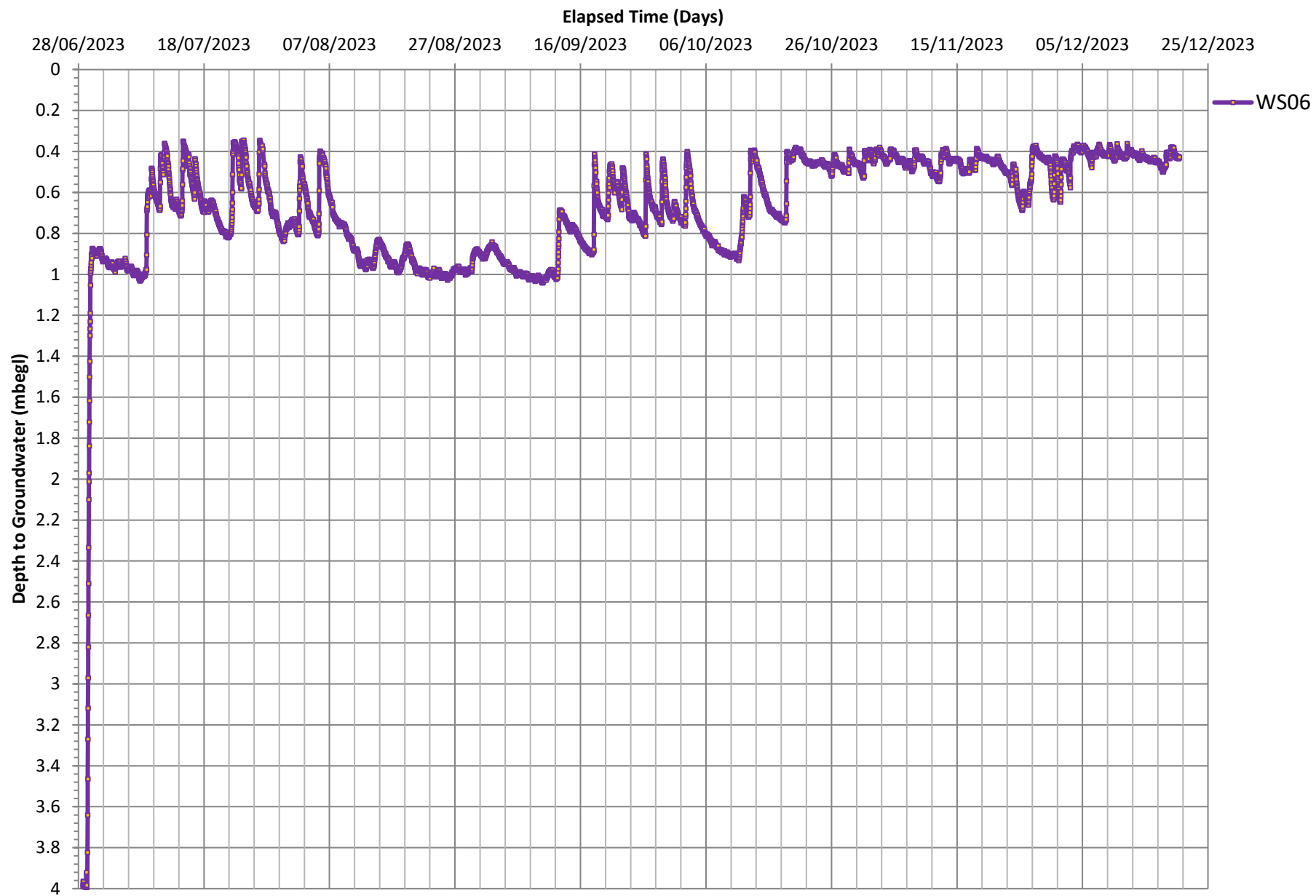


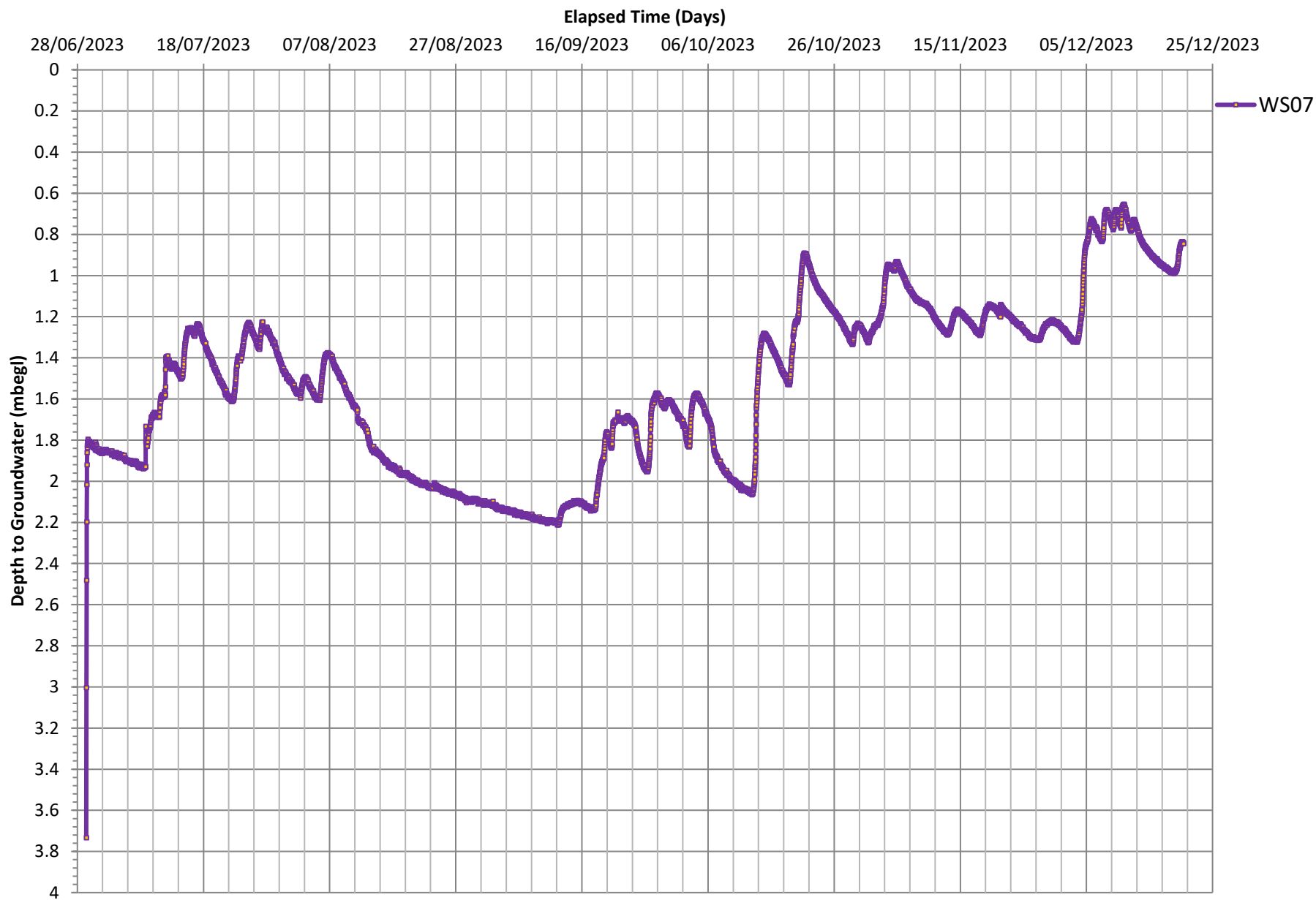


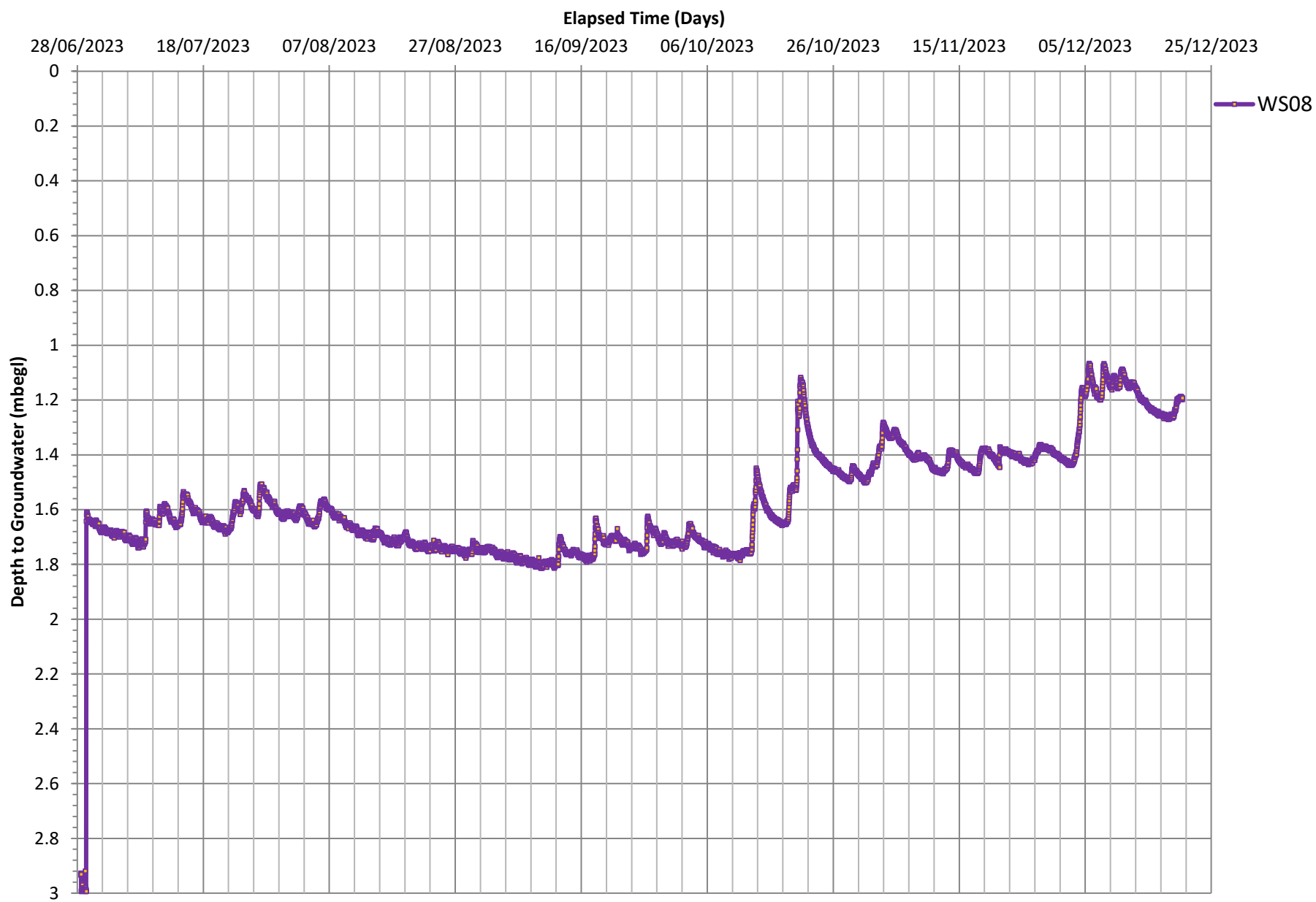


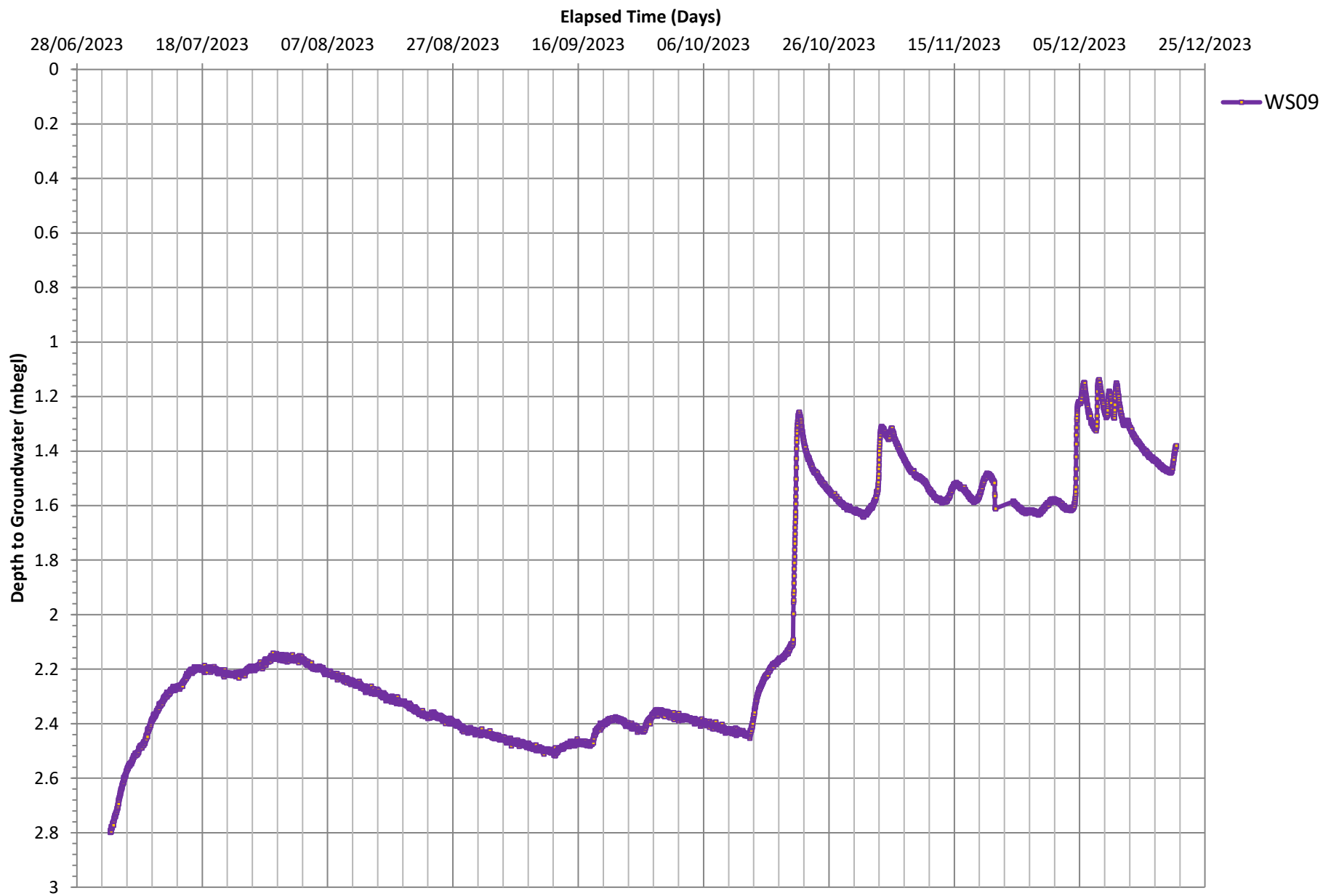


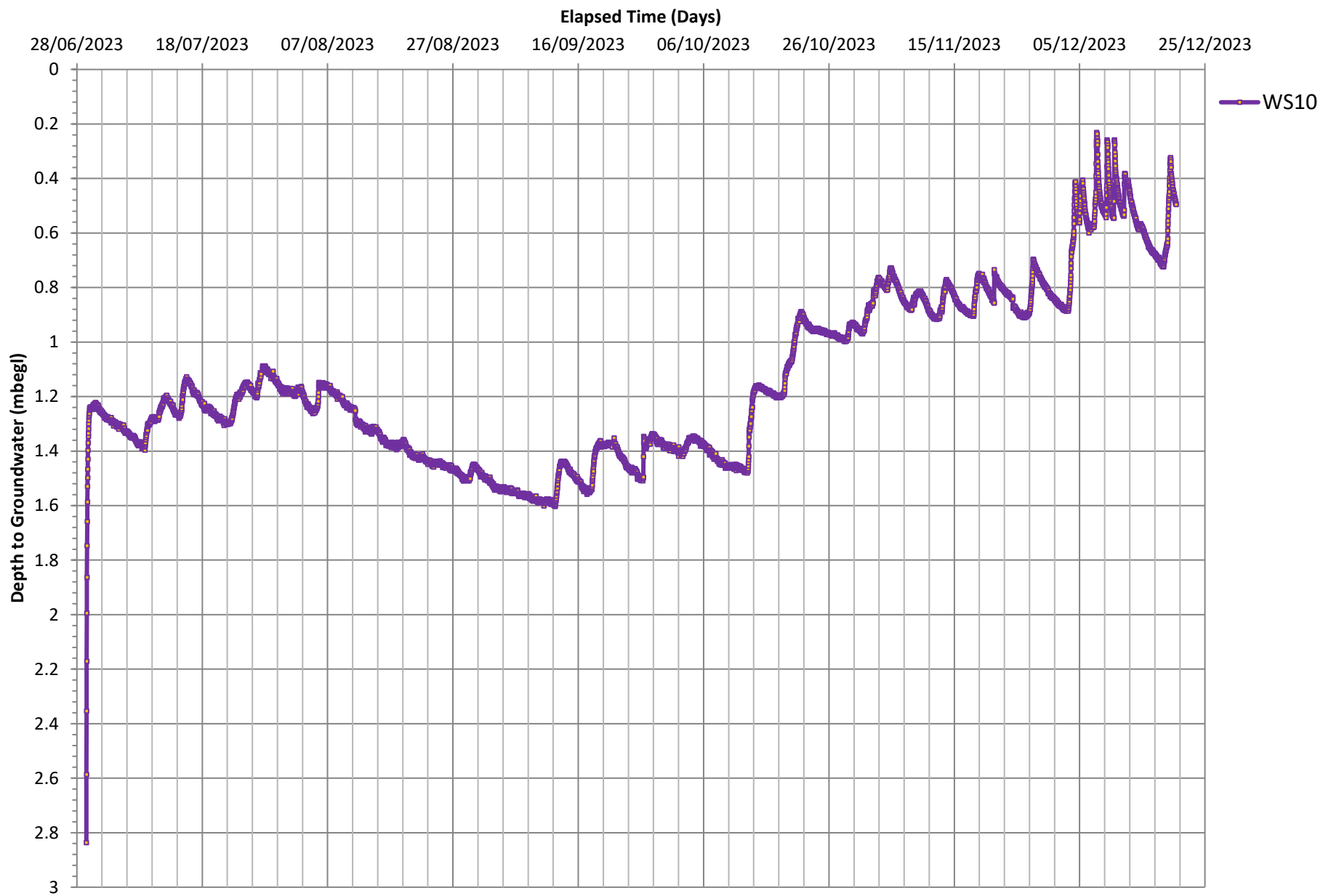














# A P P E N D I X G

Land Appraisal | Environmental | Geotechnical | Design | Mining | Inspections

GRM Development Solutions Limited, Laurus House, First Avenue, Centrum 100, Burton upon Trent, Staffs DE14 2WH  
www.grm-uk.com | info@grm-uk.com | 01283 551249      Company No. 3099018 (England), VAT Reg. No. 658 1005 48



Legend

- Site Boundary
- Shallowest groundwater level recorded during spot monitoring



NOTES:

CLIENT:

MATHER JAMIE

PROJECT:

LAND OFF WORKHOUSE LANE, BURBAGE, HINCKLEY

TITLE:

GROUNDWATER LEVEL PLAN

PROJECT No:

P9013

DATE:

05/02/2024

DESIGN/DRAWN:

LG

DRAWING NUMBER:

007

ISSUE:

FINAL

© GRM Development Solutions Ltd © Crown Copyright. AL 100014100



GRM Development Solutions Ltd

Tel: 01283 551 249  
mail@grm-uk.comwww.grm-uk.com





# A P P E N D I X H

Land Appraisal | Environmental | Geotechnical | Design | Mining | Inspections

GRM Development Solutions Limited, Laurus House, First Avenue, Centrum 100, Burton upon Trent, Staffs DE14 2WH  
www.grm-uk.com | info@grm-uk.com | 01283 551249      Company No. 3099018 (England), VAT Reg. No. 658 1005 48



Legend

Site Boundary

Exploratory Holes

Window Sample Borehole with Gas/Groundwater Monitoring Installation

Well Pointing Required



SCHEDULE OF ACCOMMODATION			
	Number	Sq ft	Total sq ft
PRIVATE			
Willow	3	2148	6444
Harewood	3	2228	6684
Barnburgh 2.5	4	2010	8040
Dalton	4	1503	6012
Ravensworth 2.5	2	1910	3820
Kingsgate 2.5	1	1910	1910
Spruce	3	1205	3615
Holly	4	1194	4776
Chestnut	1	1072	1072
Birch	3	1047	3141
Lester	4	984	3936
AFFORDABLE			
SH430.1	1	1080	1080
SH330.1	4	936	3744
SH230.1	3	762	2286
	40		56560

NOTES:

NOTES

CLIENT:

MATHER JAMIE

PROJECT:

WORKHOUSE LANE, BURBAGE

TITLE:

DEWATERING RECOMMENDATIONS PLAN

PROJECT No:

P9013

DATE:

01/2024

DESIGN/DRAWN:

AM

DRAWING NUMBER:

006

ISSUE:

FINAL

© GRM Development Solutions Ltd © Crown Copyright. AL 100014100



GRM Development Solutions Ltd

Tel: 01283 551 249  
mail@grm-uk.comwww.grm-uk.com