



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

Our Ref: P11340/MRA-1/Rev-A
Date: 10/09/26

**George Macari, C/O Mr A Petty
MCA Architects**

Abbey House,
Hickleys Court,
South Street
Farnham, Surrey
GU9 7QQ

Dear Andrew,

RE: Mineral Resource Assessment – Toat Cafe, Stane Street, Pulborough.

Introduction

GRM Development Solutions Limited (GRM) has been instructed by MCA Associates (Client's Agent) on behalf of Mr George Macari (Client), to produce a Minerals Resource Assessment (MRA) for a proposed residential development at Toat Cafe, Stane Street, Pulborough, West Sussex, RH20 1DN. The GRM Standard Limitations of Reporting are provided in Appendix A of this report.

GRM can comment on the geological considerations regarding Mineral Resources. However, a legal expert should be commissioned concerning Mineral and Manorial Rights.

The site is proposed to be developed with residential housing units with private gardens, soft landscaping and associated infrastructure. The site area is located off Stane Street, approximately 2.43km northeast of Pulborough town centre and covers an area of approximately 6 hectares. The Proposed Development Plan and a Site Location and Boundary Plan is included in Appendix B and Appendix C respectively.

Published information that has been used in the production of this MRA and are listed below:

- British Geological Survey (BGS), Geological mapping at a scale of 1:50,000.
- BGS, Mineral resource information for development plans: Phase one West Sussex: Resources and Constraints, 1998.
- BGS, West Sussex Mineral Resource Mapping at a scale of 1:100,000, 1998.
- West Sussex and South Downs Joint Minerals Local Plan, July 2018, (review March 2021).
- West Sussex Joint Minerals Local Plan and Waste Local Plan, Monitoring Report 2016/17.



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

- West Sussex Joint Minerals Local Plan and Waste Local Plan, Monitoring Report 2024/25.
- BGS, Mineral Planning Factsheet Brick Clay.

Site Setting

The site primarily comprises grass fields, divided by three main tree/hedge rows. Footpaths also cross these fields. The southern-most field contains a house and an associated garage along its southern boundary. The easternmost field contains a large area of hardstanding, a hand car wash business, Toat Café and a small children's play area on the grass next to the café.

The site is largely bound by fields to the north and west, dwellings with gardens to the south and south west and the A29 (Stane Street) to its east. There is no evidence of historical quarrying on satellite imagery or recorded within the BGS records on the site itself. However, the former North Heath Tileworks is located approximately 0.6km to the northeast and the Codmore Hill Brickworks is located 0.4km to the south of the site, both likely targeting the Weald Clay Formation.

Local Authority Mineral Plans and Policies

Mineral resources of local and national importance are protected from needless sterilisation by non-mineral development by a series of Mineral Safeguarding Areas defined by the County Council and detailed by the documents produced by each of the district/borough councils. West Sussex County Council in cooperation with the neighbouring South Downs National Park Authority have concluded that sand and gravel, silica and soft sand, chalk, brick clay, building stone and potential hydrocarbons within the county are of current or future economic importance and warrant protection.

A Policies Map from Local Plan Document & BGS Mineral Resources Map is presented in Appendix D and shows the Minerals Safeguarding Area (MSA) relevant to the Pulborough area. The plan confirms that the proposed development site is located within a MSA for brick clay.

Geology and Mineral Resource Map

The BGS Geological Map 1:50,000 scale, indicates that significant superficial deposits are not present and the whole site is directly underlain by the solid geology of Weald Clay Formation (Mudstone). The Weald Clay Formation is described in the BGS lexicon as 'Dark grey thinly-bedded mudstones (shales) and mudstones with subordinate siltstones, fine- to medium-grained sandstones, including calcareous sandstone (Horsham Stone Member), shelly limestones (Paludina Limestones) and clay ironstones. Whilst no ground investigation has been undertaken on the site, the BGS holds borehole records close to the site, which are summarised below and presented in Appendix E.

Borehole Reference	Distance from the site	Geology
TQ02SW2	1.31km W	0 – 16ft (4.88m) – Mottled clay (Weald Clay) 16ft – 105ft (32m) – Blue Clay (Weald Clay)
TQ02SW4	1.39km NW	20ft (6.01m) – Clay and Shale 20ft – 58 ft (6.01m - 17.68m) – Hard blue clay >58ft (>17.68m) – Rock
TQ01NE93	1.34km S	0.0-0.5m Topsoil 0.5-4.0m Orange sandy clay 4.0-74.0m Weald Clay: hard bands and interbedded red mudstones.

Available aerial photography shows no history of significant development; therefore, it is reasonable to assume that the solid geology beneath the site is likely present between 1m and 5m below existing ground level (begl).

Mineral Resource of the Brick Clay

The Weald Clay is a major source of brick clay both within the West Sussex and South Downs region and nationally as well. Other closely related clays such as the Wadhurst Clay, the Gault Formation and the East Grinstead Clay are also exploited as a source of brick clay within the region.

Brick clay resources are widespread with the West Sussex area and West Sussex County Council has not deemed it necessary to safeguard large areas of outcrop from sterilisation. Previous brick clay extraction existed on a more local, artisanal scale, with the draft joint minerals local plan noting that, 'during the nineteenth century almost every parish in West Sussex had at least one tile works or brickyard'. However, the industry has since undergone significant modernisation.

Modern day mineral planning and strategy places a priority on extending existing extraction sites or developing new sites in close proximity to established workings, before considering the development of entirely new extraction sites.

Local supply is generally desirable to reduce costs, as are the environmental and social impacts of transportation of clay from pits to the works; therefore, additional resources would normally be released as close as practicable to the brickworks that is to be supplied.

There are currently four brickworks within the area:

- Pitsham Brickworks with a 23 years landbank*.
- Wealden / Warnham Brickworks with an excess of 25 years landbank*.
- Ladybrook Brickworks with an excess of 25 years landbank*.
- Freshfield Lane Brickworks with an excess of 25 years landbank*.

** At the time of MLP Monitoring Report Draft Report publishing*

Recent monitoring reports suggest an average annual sales of 0.3Mt, with remaining permitted clay reserves with a 10-year average of 15.3Mt

The nearest brick clay quarry is the Ladybrook Brickworks, approximately 6km west of the site, primarily targeting the Weald Clay. Given its relative distance from the proposed site, extensive landbank reserves (25+ years) and the current planning policy of preferring to extend existing sites rather than open new ones, it is unlikely that the proposed development risks an unnecessary sterilisation of economically viable reserves.

Reserves within the Site Area

Whilst the proposed development will sterilise the mineral resource (by physically developing above it), the plan area of the proposed development is only circa 8.3 hectares. Assuming an average thickness for extraction of at least 5m for easily winnable materials, then even if the whole area was excavated the volume would only equate to circa. 415,000 cubic metres, the equivalent of 0.87Mt (working on a conversion factor of 2.1 tonnes/m³ and is not bulked). When allowance for local natural variations in the mineral and unsuitable material (overburden of soft clay/ made ground) and

boundary standoffs, such as the adjacent residential properties and road network, are taken into account, the calculated tonnage has been reduced by circa 20% to 0.7Mt.

A depth of 5m for extraction has been selected on the basis that this represents the limit of 'clean' easily winnable resources. Further deposits may be accessible subject to the excavation conditions encountered. However, it is the boundary conditions and nearby roads that will most likely limit the depth of excavation and 5m begl seems to represent a sensible compromise.

The calculated tonnage forms a very small percentage of the overall reserves of brick clay produced in West Sussex as a whole. Therefore, the potential recoverable reserve from the site is considered to be minimal.

Practicality of Extraction

The MRA also has to consider the practicalities of extraction. It is considered that the extraction of the mineral deposits below the development site would have a negative impact on the local area including the adjacent residential properties. The extraction process would create a general nuisance to the local population through increased lorry movements, noise and dust generation.

Specific standoffs and screening requirements are also required to shield the impacts of on-site mineral extraction from the general public, further reducing the total accessible area for mineral extraction and further increasing potential cost. Therefore, it is considered unlikely that the mineral resource would be worthy of costly mineral assessment or that a large-scale quarry operator would take on such a small operation.

Conclusion

It is considered, based on the desk-based assessment undertaken to date, the site does have the potential to sterilise a relatively small quantity of mineral below the site. However, it has been demonstrated that the tonnage being sterilised is small compared to the overall resources available and as such, development would not adversely impact the overall reserves. It has also been suggested that due to the nearby existing residential properties and road network, the exploitation of this resource is unlikely to be commercially or socially viable.

The current government's stated aim is to promote housebuilding, so preventing development to preserve a mineral resource runs contrary to this aim, particularly when brick clay is common across the county.

Therefore, for the reasons outlined above, there is considered to be no merit in the commercial extraction of the mineral prior to development.

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

Tom Perkins MSci (Hons)
Assistant Geologist

George Salloway BSc (Hons) MSc MEnvSc CEnv
Senior Geo-environmental Scientist

Matthew Tomkins BSc (Hons), PGDip, FGS
Acting Principal Geologist

Appendix A – Data sources and Standard Limitations of Reporting
Appendix B – Proposed Development Plan
Appendix C – Site Location and Boundary Plan
Appendix D – Mineral Resources Safeguarding Map
Appendix E – BGS Boreholes



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



- 01 Green Corridor
- 02 Cycle/Footpath
- 03 Locally Equipped Area for Play (LEAP)
- 04 SUDS Feature/Pond
- 05 Mountain Bike Technical Skills Area
- 06 Natural Greenspace
- 07 Swale for Water Management
- 08 Existing Ditch for Water Management
- 09 Meadow with Mown Paths
- 10 Native Hedgerow
- 11 Vehicle/Bike Parking Area
- 12 Pharmacy
- 13 Shop/Cafe
- 14 Pavillion
- 15 Roundabout and Site Access

- Existing Trees
- Proposed Trees

Housing Mix		
Houses	Flats	TOTAL
1 Bed x 12	12 units	
2 Bed x 6	29 units	
3 Bed x 30	34 units	
4 Bed x 18	18 units	
54 units	39 units	93 units
35% Affordable Housing Evenly Distributed Across Site		

Proposed Site Plan
Scale 1:500

MCA

MICHAEL
CONOLEY
ARCHITECTS | ASSOCIATES

PROJECT
Toot Cafe, Stanes Cottage and Stanes Farm
Stane Street, Pulborough, West Sussex RH20 1DN

DATE
02.26

DRAWING TITLE
Proposed Site Plan

SCALE
1:500

PAPER SIZE
A0

DRAWING NUMBER
1726/P-01

1726/P-01

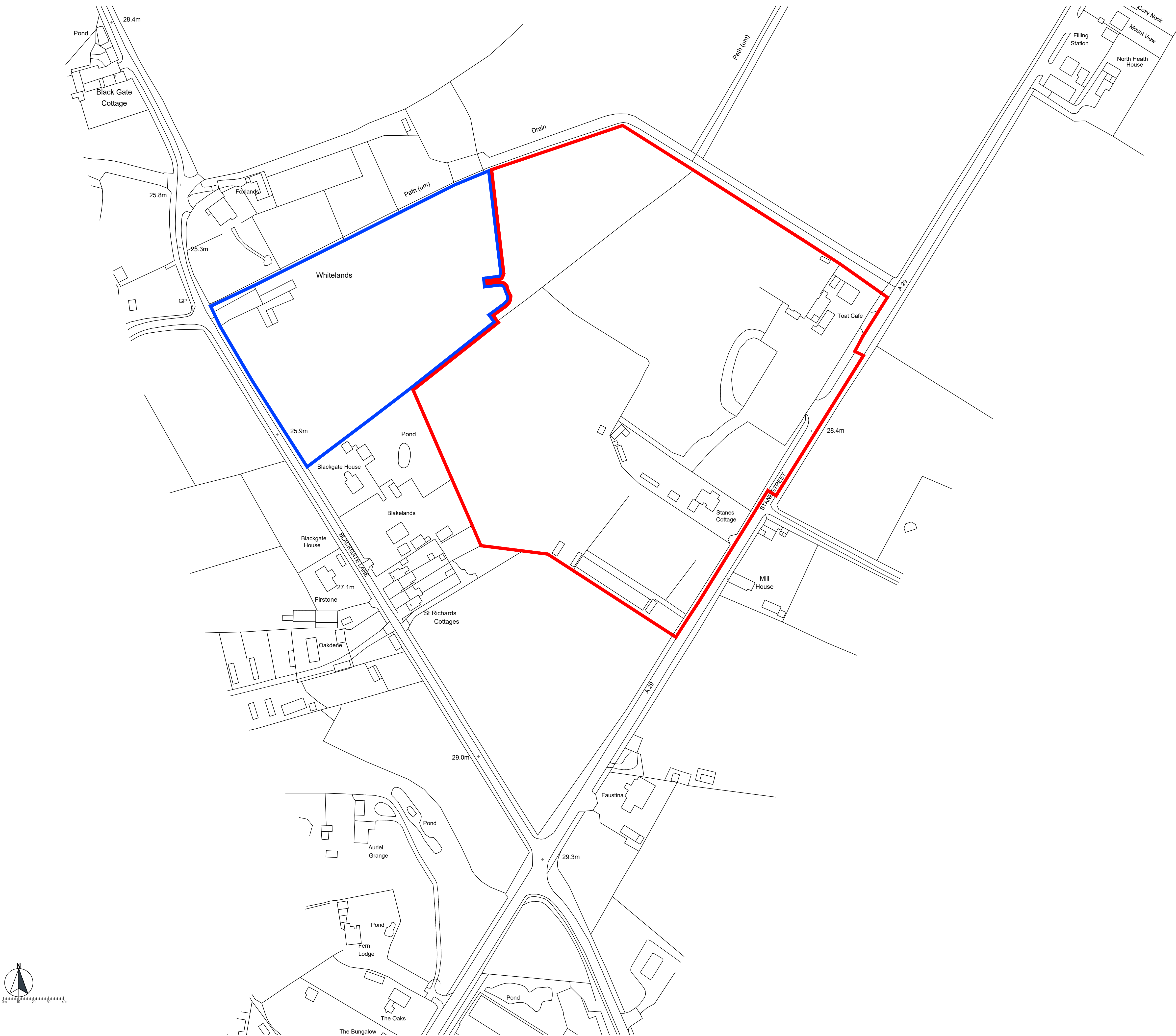
1726/P-01



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



MCA

ARCHITECTS

MICHAEL CONOLEY ASSOCIATES

PROJECT:
Toat Cafe, Stanes Cottage, Stanes Farm and Whitelands Farm, Stane Street, Pulborough, West Sussex RH20 1DN

DATE:
03.26

JOB NUMBER:
1726

SCALE:
1:1250

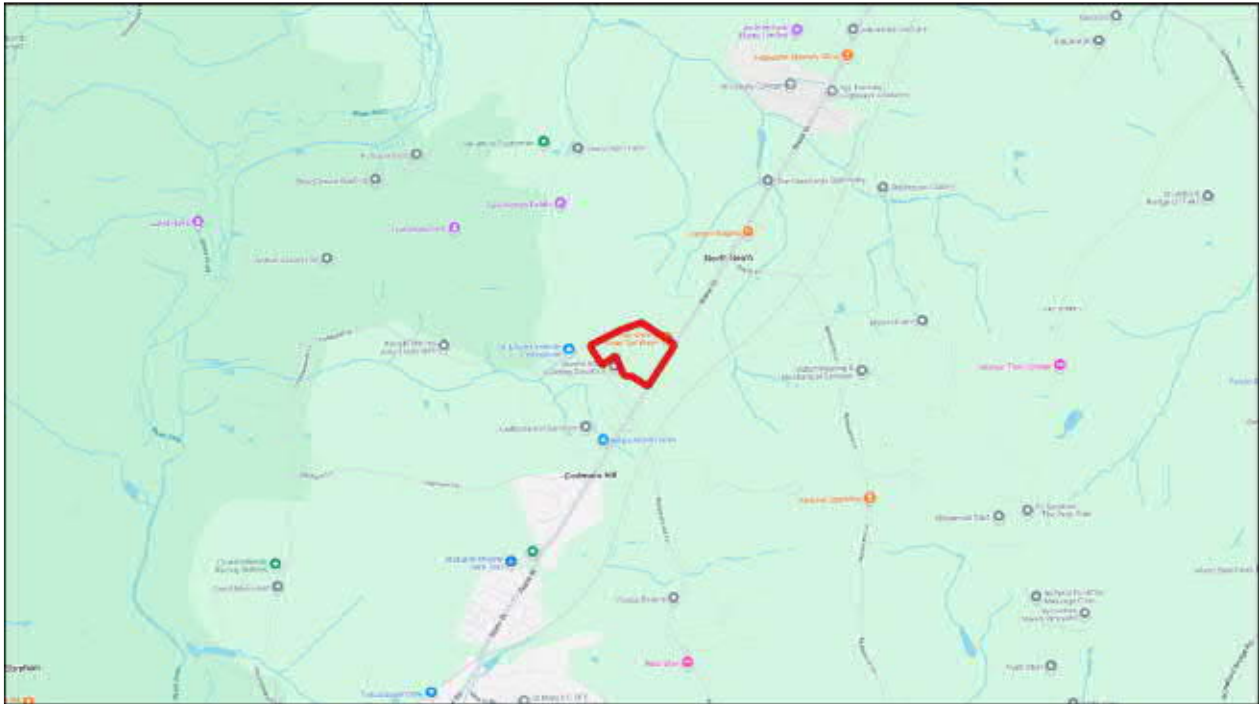
PAPER SIZE:
A1

DRAWING TITLE:
Site Location Plan

DRAWING NUMBER:
1726/OS-100

Legend

Site Boundary



NOTES:

Notes

CLIENT:

George Macari C/O MCA Architects

PROJECT:

Toat Cafe, Stane Street, Pulborough

TITLE:

Site Location and Boundary Plan

PROJECT No:

P11340

DATE:

Sept 2026

DESIGN/DRAWN:

GS

DRAWING NUMBER:

1

ISSUE:

Final

© GRM Development Solutions Ltd © Crown Copyright. AL 100014100



GRM Development Solutions Ltd

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

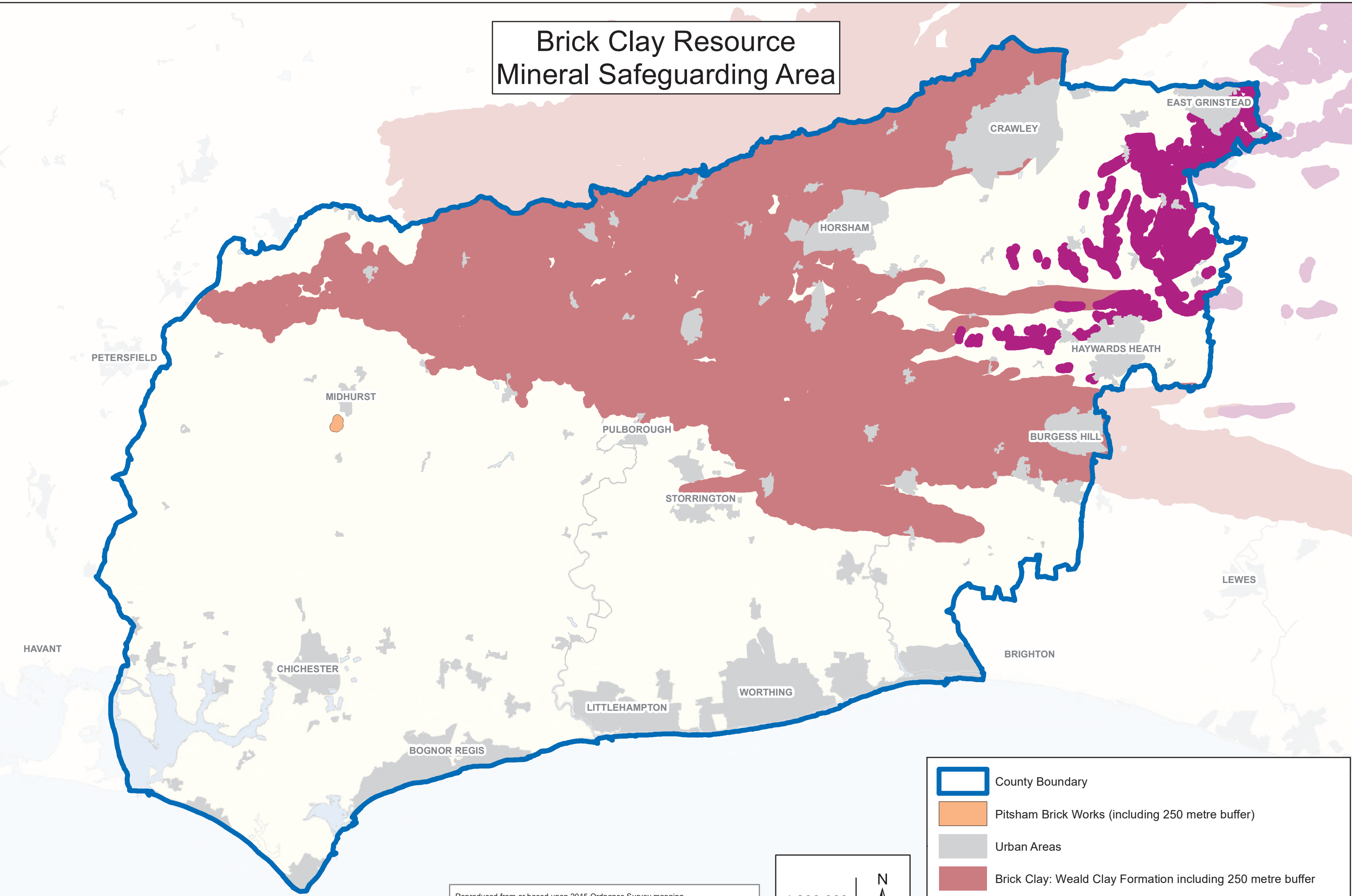


A P P E N D I X D

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

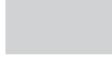
GRM Development Solutions Limited, Laurus House, First Avenue, Centrum 100, Burton upon Trent, Staffs DE14 2WH
www.grm-uk.com | info@grm-uk.com | 01283 551249 Company No. 3099018 (England), VAT Reg. No. 658 1005 48

Brick Clay Resource Mineral Safeguarding Area



Reproduced from or based upon 2015 Ordnance Survey mapping with permission of the Controller of HMSO © Crown Copyright reserved. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings West Sussex County Council Licence No. 100023447



-  County Boundary
-  Pitsham Brick Works (including 250 metre buffer)
-  Urban Areas
-  Brick Clay: Weald Clay Formation including 250 metre buffer
-  Brick Clay: Wadhurst Clay Formation including 250 metres buffer



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



TQ 02 SW12
RECORD of WELL or BORING

at (house or farm) New House
Town, Village, &c. Fulborough County Sussex
Exact site (unless a tracing from a map is supplied, give distance and direction from parish church, cross-roads, or other object shown on maps). 260 yds S.S.W. of [see note below]
250 yds South of the Toat Monument 1 1/3 m N of ch
Surface level of ground 150 ft. above Ordnance Datum. Well or Bore commenced at 0 ft. below surface level of ground.
Sunk - ft., diameter - ft. Bored 121 ft.; diameter of boring: at top 4 1/2 in., at bottom 4 1/2 in.
Details of lining tubes (internal diameters preferred) 4 1/2" int. dia. Tubes. Surface to 110'0"
perforated from 46'7" to 66'0" and from 77'8" to 87'0"
Water struck at depths of (feet) 61' and 80'
Rest-level of water below top of well or bore 49 ft. Pumping level - ft. Time of recovery - hours.
Suction at 103 ft. depth. Yield: (i) on test 450 galls. per hour (ii) normal 350 galls. per hour
Quality (attach copy of analysis if available)
Made by Duke & Ockenden Ltd. for Mr. R.T.S. Grigg Date of boring July 1937
Information from Duke & Ockenden, Ltd. Artesian Well Engineers, London & L'hmptn

(For Survey use only). GEOLOGICAL CLASSIFICATION.	NATURE OF STRATA. (and any additional remarks)	THICKNESS.		DEPTH.	
		Feet.	Inches.	Feet.	Inches.
Weald Clay, 121	Mottled Clay	16	0	16	0
	Blue Clay	105	0	121	0
(MH, 19/2/73)	Veins of Brown Clay from 109'6" to 117'0"				
	Analysis.	Grains per gallon			
	Total Solids	100.0			
	Chlorine	11.8			
	Ammonia	0.070			
	Albumenoid Ammonia	absent			
	Nitrogen as Nitrites				
	Nitrogen as Nitrates				
	Metals				
	Slight Trace of Iron				
	Total Hardness	28°			

6 mi. Sussex 23 S.E. (W) O.D. +150. "Tullers". Motor pump. In use but has given some trouble lately - ? silted up to some extent, supply tending to fail at times.
Visited



RECORD of WELL or BORING

at (house or farm) **New House**

TQ 0485 2138

Town, Village, &c. **Pulborough**

County **Sussex**

Exact site (unless a tracing from a map is supplied, give distance and direction from parish church, cross-roads, or other object shown on maps).

260 yds. S.S.W. of Tont Monument

250 yds. South of the Tont Monument 1 1/2 m. N. of Ch.

Surface level of ground **150** ft. above Ordnance Datum. Well or Bore commenced at **0** ft. below surface level of ground.

Sunk **121** ft., diameter **4 1/2** in.

Bored **121** ft.; diameter of boring: at top **4 1/2** in., at bottom **4 1/2** in.

Details of lining tubes (internal diameters preferred) **4 1/2** int. dia. Tubes. Surface to **110'0"**

perforated from 46'7" to 66'0" and from 77'8" to 87'0"

Water struck at depths of (feet) **61' and 80'**

Rest-level of water below top of well or bore **49** ft. Pumping level **49** ft. Time of recovery **4** hours.

Suction at **103** ft. depth. Yield: (i) on test **450** galls. per hour (ii) normal **350** galls. per hour

Quality (attach copy of analysis if available)

Made by **Duke & Cockenden Ltd.** for Mr. **R.T.S. Grigg** Date of boring **July 1937**

Information from **Duke & Cockenden, Ltd., Artesian Well Engineers, London & L'hampton**

(For Survey use only). GEOLOGICAL CLASSIFICATION.	NATURE OF STRATA. (and any additional remarks)	THICKNESS.		DEPTH.	
		Feet.	Inches.	Feet.	Inches.
Weald Clay 121	Mottled Clay	16	0	16	0
	Blue Clay	105	0	121	0
	Veins of Brown Clay from 109'6" to 117'0"				
	Analysis.	Grains per gallon			
	Total Solids	100.0			
	Chlorine	11.8			
	Ammonia	0.070			
	Albumenoid Ammonia	absent			
	Nitrogen as Nitrites				
	Nitrogen as Nitrates				
	Metals				
	Slight Trace of Iron				
	Total Hardness	28°			

6 mi. Sussex 23 SE. (W.) A.D. +150. "Tullens". Motor pump. In use but has given some trouble lately - ? added up to some extent, supply tending to fail at times. Visited, SCAT. 13. 3. 41.

NB. bore 260 yds S.S.W. of the Tont Monument

David Atkins owner. Drained. Inaccessible owing to pump.

Results of water unfit for drinking or spraying

13-5-57. A.I.S.



TQ 02 SW/4
WELL BORING at Pulborough

Geol. map 1 in. map New Series

Made by Duke & Ockenden

Sunk feet.

Bored 100 feet.

Communicated by Duke & Ockenden

Height above Ordnance Datum

Rest level of water 60 ft.

Yield Tested at 400 g.p.h. with suction at 90 ft.

Quality (with copy of analysis on separate sheet)

GEOLOGICAL FORMATION.

NATURE OF STRATA.

THICKNESS.

Feet.

Inches.

DEPTH.

Feet.

Inches.

Weald clay, 100' {
Clay + Shale
Hard blue clay
Rock
Clay
Rock + clay

20

—

20

— 6.1

58

—

78

— 23.77

2

—

80

— 24.28

—

6

80

6 24.54

19

6

100

30.48

Lined 4 1/2" tubes to 100 ft.
Perforations. 55 ft. — 60 ft.
80 ft. — 90 ft.

At Toat Farm

for E. Schmer, Esq.
Published in

'Wells & Springs
of Sussex,'

Page 172

377. TOAT FARM, 2 miles N. of Pulborough church. 1927. Ht. above O.D. about 50 ft. Maps 23 S.W., S.E.

					Thickness		Depth	
					Ft.		Ft.	
Weald Clay	{	Clay and shale	...	...	20		20	
	{	Hard blue clay	...	...	58		78	
	{	Rock	...	...	2		80	
	{	Clay	...	...	1 1/2		80 1/2	
	{	Rock and clay	...	...	19 1/2		100	

R.L.W. 60 ft. down. Yield, 400 g. p. hour tested, with suction at 90 ft. Lined 4 1/2 in. tubes to 100 ft. Perforations at 55 ft. to 60 ft., 80 ft. to 90 ft. Information from Messrs. Duke and Ockenden, Ltd.

Field Slip
6 mi. S.W. of 23. S.E. (W) O.D. +185. N.B. 375 yds. S.E. of Toat Farm. Old bore, silted up and therefore disused. In small pump house.
(b) O.D. +182. New bore by D. and O. 1939. Motor pump, in small



WELL BORING at Pulborough

Geol. map 1 in. map New Series 317

Made by Duke & Ockenden

Sunk feet.

County Sussex

6 in. map

Date 1927

Bored 100 feet.

Communicated by Duke & Ockenden

Height above Ordnance Datum

Rest level of water 60 ft.

Yield Tested at 400 gph. with suction at 90 ft.

Quality (with copy of analysis on separate sheet)

TQ 0488 2165

108

GEOLOGICAL FORMATION.	NATURE OF STRATA.	THICKNESS.		DEPTH.	
		Feet.	Inches.	Feet.	Inches.
Weald clay, 100	Clay + Shale	20	—	20	—
	Hard blue clay	58	—	78	—
	Rock	2	—	80	—
	Clay	—	6	80	6
	Rock & clay	19	6	100	
Lined 4 1/2" tubes to 100 ft. Perforations: 55 ft - 60 ft. 80 ft - 90 ft.					
At Toat Farm for E. Schmer, Esq. Published in 'Wells & Springs of Sussex,' Page 172					

377. TOAT FARM, 1/4 mile N. of Pulborough church. 1927. Ht. above O.D. about 50 ft. Maps 23 & 24, S.E.

	Thickness	Depth
	Ft.	Ft.
Clay and shale ...	20	20
Hard blue clay ...	58	78
Rock ...	2	80
Clay ...	1/2	80 1/2
Rock and clay ...	19 1/2	100

R.L.W. 60 ft. down. Yield, 400 g. p. hour tested, with suction at 90 ft. Lined 4 1/2 in. tubes to 100 ft. Perforations at 55 ft. to 60 ft., 80 ft. to 90 ft. Information from Messrs. Duke and Ockenden, Ltd.

Field Sketch
Cm. Sussex 23. S.E. (W) O.D. +185. N.B. 375 yds. S.E. of Toat Farm. Old bore, silted up and therefore disused. In small pump house.

(b) O.D. +182. New bore by D. and O. 1939. Motor pump, in small pump house, adjacent to (a).

Visited, S.C.A.H., 13.3.41.

notified

9/27.

CAL SURVEY AND MUSEUM.

WR38: Borehole record form

Borehole record form



British
Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL



Environment
Agency

Water Resources Act 1991 (as amended by the Water Act 2003)

A Site details

Borehole drilled for [REDACTED]
Location BH1443 - Greendene, Pulborough, West Sussex RH20 1BQ
NGR (ten digits) TQ 05532 19781 Please attach site plan
Ground level (if known) _____ metres Above Ordnance Datum
Drilling company Nicholls Boreholes
Date drilling commenced 08/06/2023 (DD/MM/YYYY) Completed 08/06/2023 (DD/MM/YYYY)

B Construction details

Borehole datum (if not ground level) _____ metres (m). Please tick if this is above ☐ or below ☐ ground level.
(point from which all measurements of depth are taken, for example, flange, edge of chamber)

Borehole drilled diameter 250 mm from 0 to 74 m/depth
_____ mm from _____ to _____ m/depth
_____ mm from _____ to _____ m/depth
_____ mm from _____ to _____ m/depth

Casing material Solid UPVC diameter 125 mm from 0 to 15 m/depth
and type (for example, if plain steel, plastic slotted). Please record permanent casing details, not temporary casing.

Casing material Slotted UPVC diameter 125 mm from 15 to 71 m/depth

Casing material Solid UPVC diameter 125 mm from 71 to 74 m/depth

Casing material _____ diameter _____ mm from _____ to _____ m/depth

Grouting details 141 bags of shingle, 30 bags of mikolit

Water struck at 1. _____ m (depth below datum – mbd) 2. _____ m (mbd)
3. _____ m (mbd) 4. _____ m (mbd)

C Test pumping summary (Please supply full details on form WR39)

Test pumping datum _____ m. Please tick if this is above ☐ or below ☐ ground level.
(if different from borehole datum)

Pump suction depth _____ mbd

Water level (start of test) _____ mbd

Water level (end of test) _____ mbd

Type of test (for example, bailer, step, constant rate)

Pumping rate _____ m³/hour ☐ or litres/second ☐. Please tick as appropriate.
for _____ days, _____ hours, _____ mins

Recovery to _____ mbd in _____ days, _____ hours, _____ mins
(from end of pumping)

Date(s) of measurements Pump started _____ (DD/MM/YYYY)

Pump stopped _____ (DD/MM/YYYY)

Please supply chemical analysis if available. If you have included this please tick this box ☐

WR38: Borehole record form

D Strata log

Geological classification (BGS only)	Description of strata	Thickness m	Depth (to base of strata) m
	Top soil Orange sandy clay Dark weald clay - hard bands at 26m, 30m, 34m, 37-38, 46m, 48-49m, 51-52m Firm weald clay with interbedded red mudstones	0.5 3.5 41 19	0.5 4 55 74
	(continue on separate page if necessary)		
	Other comments (for example, gas encountered, saline water intercepted)		

E Completing this form

How long did it take you to fill in this form? _____

For Official use only

Date received (DD/MM/YYYY)	File	Consent number	BGS reference number
_____	_____	_____	_____
Accession number	Wellmaster number	SOBI number	NGR
_____	_____	_____	_____
LIC NO	Purpose	EA reference number	
_____	_____	_____	
Copy number	Entered by		
_____	_____		



GRM

We understand land

GRM provide specialist ground, environmental, structural and design services for landowners and developers across the UK.

Our experience spans a wide range of sectors including private residential, social housing, healthcare, education, commercial, and industrial. Our sole aim is to maximise the potential of the site and thereby the commercial return for our clients.

Land Appraisal

Phase I Desk Studies | Phase II Site Investigations
Soakaway Testing | Specialist Land Surveys

Environmental

Preliminary Risk Assessments | Detailed Quantitative Risk Assessments
Ground Gas Assessments | Material Management Plans
Environmental Impact Assessments & Reports
Remediation Strategies & Validation | Due Diligence Audits

Geotechnical

Geotechnical Investigations | Earthworks | Slope Stability
Retaining Wall Design | Ground Stability | Vibration Assessments
Value Engineering

Design

Budget Foundation Schedules | Detailed Foundation Design
Structural Design | Structural Surveys

Mining

Coal Mining Risk Assessments | Coal Mining Investigations | Treatment of
Mine Workings | Mine Shafts | Subsidence | Mineral Resource Assessments

Site Services

Foundation Inspections | Gas Membrane Verification
Remediation Validation | Structural Inspections

We also work with key partners to deliver a range of other support services and surveys including topographical, ecology, tree, archaeological, flood risk, and utilities.

Please contact us for an informal discussion on how we can save both time and money on your development project:

www.grm-uk.com | 01283 551249 | info@grm-uk.com