



Appendix 14.1

AGRICULTURAL LAND CLASSIFICATION



Agricultural Land Classification:

Begbroke Innovation District, Oxfordshire

Prepared for:
Oxford University Developments

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1 INTRODUCTION

1.1 Background

1.1.1 This report was commissioned by Oxford University Developments to determine the quality of agricultural land at Begbroke, Oxfordshire, OX5 1PG ('the Site'). The assessment was made in accordance with the Agricultural Land Classification (ALC) system for England and Wales (see 'Methodology' below). The approximately 172 hectare (ha) Site is located to the south-west of Kidlington, Oxfordshire, as shown on **Figure 1**. The approximate centre of the Site is located at British National Grid (BNG) reference SP 481 132.

1.2 Competency

1.2.1 The work has been carried out by a Chartered Scientist (CSci), who is a Fellow (F.I. Soil Sci) of the British Society of Soil Science (BSSS). The soil surveyor meets the requirements of the BSSS Professional Competency Standard (PCS) scheme for ALC (see BSSS PCS Document 2 '*Agricultural Land Classification of England and Wales*'¹). The BSSS PCS scheme is endorsed, amongst others, by the Department for Environment, Food and Rural Affairs (Defra), Natural England, the Science Council, and the Institute of Environmental Assessment and Management (IEMA).

1.3 Methodology

1.3.1 The ALC system provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use. The ALC system divides agricultural land into five grades (Grade 1 '*Excellent*' to Grade 5 '*Very Poor*'), with Grade 3 subdivided into Subgrade 3a '*Good*' and Subgrade 3b '*Moderate*'. Agricultural land classified as Grade 1, 2 and Subgrade 3a falls in the '*best and most versatile*' category in Paragraph 174 and 175 of the National Planning Policy Framework (NPPF) revised in July 2021. Further details of the ALC system and national planning policy implications are set out in Natural England's '*Guide to assessing development proposals on agricultural land*' online².

1.3.2 A detailed soil survey and ALC of the Site was carried out in February 2023. The ALC survey involved examination of the soil's physical properties at 166 auger-bore locations on an approximate 100 m grid pattern, at a sampling density of approximately 1 auger bore per ha. The soil profile was examined at each sample location to a maximum depth of approximately 1.2 m by hand with the use of a 5cm diameter Dutch (Edleman) soil auger. Five soil pits (1-5) were excavated by hand with a spade in order to examine certain soil physical properties, such as stone content and the structural condition of the subsoil, more closely. The location of each auger-bore and soil pit is shown on **Figure 1**.

1.3.3 The auger-bore locations were located using a hand-held Garmin E-Trec Geographic Information System (GIS) to enable the sample locations to be relocated for verification, if

necessary. Where auger locations on a 100 m grid pattern fall on headland, tramlines, or within 3 m of a hedgerow or tree, they were relocated on agricultural land close by, i.e., to avoid compacted ground or land affected by tree roots, etc.

1.3.4 The soil profile at each sample location was described using the '*Soil Survey Field Handbook: Describing and Sampling Soil Profiles*' (Ed. J.M. Hodgson, Cranfield University, 1997)³. Each soil profile was ascribed an Agricultural Land Classification (ALC) grade following the MAFF ALC Guidelines. A log of all the soil profiles examined and recorded on Site is given as **Appendix 1**. A description of each soil pit is given in **Appendix 2**.

1.3.5 A sample of topsoil was collected at eleven auger-bore locations, i.e., A13, A16, B32, C49, D74, E93, F016, F111, G130, G139, and H158, as shown on **Figure 1**. The samples were sent to an accredited laboratory for particle size analysis, i.e., the proportions of sand, silt and clay. This is to determine the definitive texture class of the topsoil, especially with regard to distinguishing between medium clay loams (i.e., <27% clay) and heavy clay loams (27% to 35% clay). A laboratory report setting out the findings of the topsoil texture analysis is given as **Appendix 3**.

1.4 Structure of the Remainder of this Report

1.4.1 The remainder of this report is structured as follows:

- Section 2 – Planning Policy Framework
- Section 3 – Agricultural Land Classification;
 - Climate;
 - Site (Gradient, Micro-relief, Risk of Flooding);
 - Soil (Geology, Soil Properties);
 - Interactive Limitations (Soil Droughtiness, Soil Wetness);
 - ALC Grading at the Site.
- Section 4 - ALC at the Site in a Wider Geographical Context; and
- Section 5 – Summary and Conclusions.

2 NATIONAL PLANNING POLICY FRAMEWORK AND RELEVANT GUIDANCE

2.1 Background

2.1.1 This section of the report sets out the national and local planning framework in which to assess the opportunities and constraints to development at the Site in agricultural land quality terms.

2.2 National Planning Policy Statement (NPPF) July 2021

2.2.1 National planning policy guidance on development involving agricultural land is set out in National Planning Policy Framework (NPPF), which was revised on the 20th July 2021. The NPPF aims to provide a simplified planning framework which sets out the Government's economic, environmental and social planning policies for England. The NPPF includes policy on '*Conserving and Enhancing the Natural Environment*' (Section 15). Paragraph 174 (a and b) (page 50) are of relevance to this assessment of agricultural land quality and soil and states that:

'174...Planning policies and decisions should contribute to and enhance the natural and local environment by:

a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;...'

2.2.2 Paragraph 175 of the NPPF (2021) goes on to describe that:

'175. PlanS should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework⁵³ ...'

2.2.3 Footnote number 58 states that:

'Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.'

2.3 Development Plan Policy

2.3.1 The Site is located in Cherwell District. The Cherwell District Council (CDC) Adopted Cherwell Local Plan 2011 – 2031 (Part 1) includes Policy Kidlington 1: Accommodating High Value Employment Needs which states in part that '*An assessment of whether the site contains best and most versatile agricultural land, including a detailed survey where necessary*'; and '*A soil management plan may be required to be submitted with planning applications to ensure that soils will be retained onsite and used where possible.*'

2.3.2 Also of relevance is the Adopted Cherwell Local Plan 2011-2031 (Part 1) Partial Review – Oxford’s Unmet Housing Need. Key Delivery Requirements of proposed development policies PR6a, PR6b, PR6c, PR7a, PR7b, PR8, and PR9 state the ‘...*application should include a management plan for the appropriate re-use and improvement of soils...*’

2.4 Soils Functions and Soil Health

2.4.1 Aims and objectives for safeguarding and, where possible, improving soil health are set out in the Government’s ‘*Safeguarding our soils: A strategy for England*’⁴. The Soil Strategy for England, which builds on Defra’s ‘*Soil Action Plan for England (2004-2006)*’, sets out an ambitious vision to protect and improve soil to meet an increased global demand for food and to help combat the adverse effects of climate change.

2.4.2 The Soil Strategy for England states that ‘...soil is a fundamental and essentially non-renewable natural resource, providing the essential link between the components that make up our environment. Soils vary hugely from region to region and even from field to field. They all perform a number of valuable functions⁵ or ecosystem services⁶ for society’.

2.4.3 The main soil functions are:

- Food and other biomass production;
- Environmental Interaction: storage (including carbon sequestration), filtering, and transformation;
- Biological habitat and gene pool;
- Source of raw materials;
- Physical and cultural heritage; and
- Platform for man-made structures: buildings, highways.

2.4.4 The vision of the Soil Strategy for England has been developed in the Government’s 25 Year Plan for the Environment⁷. Soil is recognised as an important national resource, and the Plan states that:

‘We will ensure that resources from nature, such as food, fish and timber, are used more sustainably and efficiently. We will do this (in part) by:

...improving our approach to soil management: by 2030 we want all of England’s soils to be managed sustainably, and we will use natural capital thinking to develop appropriate soil metrics and management approaches...’

2.4.5 The maintenance, and improvement, of soil health is therefore a material consideration when deciding if a development is appropriate on agricultural land. Soil health can be defined as a soil’s ability to function and sustain plants, animals and humans as part of the ecosystem.

2.5 Best Practice Guidance

2.5.1 This assessment of agricultural land and soil has drawn on best practice guidance set out in the key documents below:

- The Institute of Civil Engineering (ICE) provides guidance on assessing agricultural land quality and soil in the *'Environmental Impact Assessment Handbook: A practical guide for planners, developers and communities'*⁸.
- The Institute of Environmental Assessment and Management (IEMA) has produced a *'New Perspective on Land and Soil in Environmental Assessment'*⁹, which encourages a new approach a new approach to assessing soil functions, ecosystem services and natural capital provided by land and soils.
- The Department for Environment, Food and Rural Affairs (Defra) has published *'Safeguarding our Soils – A Strategy for England'* (24th September 2009)¹⁰. The Soil Strategy was published in tandem with a *'Code of Practice for the Sustainable Use of Soils on Construction Sites'*¹¹. The Soil Strategy for England, which builds on Defra's *'Soil Action Plan for England (2004-2006)'*, sets out an ambitious vision to protect and improve soil to meet an increased global demand for food and to help combat the adverse effects of climate change.
- This assessment also considers recent guidance produced by the Soils in Planning Construction Task Force (Lancaster University *et al*) regarding *'Building on soil sustainability: Principles for soils in planning and construction'* (September 2022)¹². This report contains guidance for local authorities, contractors, clients, developers and design teams on managing soil in construction and planning. This guidance for conserving soil resources on site follows the principles of sustainable development and the circular economy (defined as *'The circular economy is a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products as long as possible. In this way, the **life cycle of products is extended**. In practice, it implies **reducing waste** to a minimum. When a product reaches the end of its life, its materials are kept within the economy wherever possible. These can be productively used again and again, thereby **creating further value**'*¹³.
- Best practice for the handling of soil is set out in the Institute of Quarrying (2021) *'Good Practice for Handling Soils in Mineral Workings'* (Sheets A to E are of main relevance to this assessment)¹⁴.

3 AGRICULTURAL LAND CLASSIFICATION

3.1 Background

3.1.1 This section of the report sets out the findings of the Agricultural Land Classification (ALC). It is based on a desktop study of relevant published information on climate, topography, geology, and soil in conjunction with a soil survey.

3.1.2 As described in the ALC Guidelines, the main physical factors influencing agricultural land quality are:

- climate;
- site;
- soil; and
- interactive limitations.

3.1.3 These factors are considered in turn below.

3.2 Climate

3.2.1 Interpolated climate data relevant to the determination of the Agricultural Land Classification (ALC) grade of land at the Site is given in Table 3.1 below.

| Climate Parameter | Grid Ref: SP478140 (North) | Grid Ref: SP484125 (South) |
|--|---|---|
| Average Altitude (m) | 67 | 58 |
| Average Annual Rainfall (mm) | 658 | 661 |
| Accumulated Temperature above 0°C (January – June) | 1434 | 1445 |
| Moisture Deficit (mm) Wheat | 109 | 110 |
| Moisture Deficit (mm) Potatoes | 101 | 104 |
| Field Capacity Days (FCD) | 143 | 142 |
| Grade According to Climate | 1 | 1 |

3.2.2 With reference to Figure 1 'Grade according to climate' on page 6 of the ALC Guidelines, there is no overall climatic limitation to the quality of agricultural land at the Site. This means that agricultural land at the Site could be graded as ALC Grade 1 in overall climatic terms, in the absence of any other limiting factor, i.e., site, soil and/or interactive limitations.

3.2.3 Agricultural land at the Site is predicted to be at a range of field capacity (i.e., the amount of soil moisture or water content held in the soil after excess water has drained away) for between 142 and 143 Field Capacity Days (FCD) days per year, mainly over the late autumn, winter and early spring.

3.2.4 The combination of topsoil texture, drainage status (Wetness Class) of the profile, and number of FCD affects the degree to which agricultural land is limited by soil wetness. The climate at the Site falls in the 126-150 category (regarding Table 6 of the ALC Guidelines), as described in more detail under 'interactive limitations' below.

3.3 Site

3.3.1 The Site is located to the south-west of Kidlington, Oxfordshire. The approximate centre of the Site is located at British National Grid (BNG) reference SP481132. The location and boundaries of the Site are shown on **Figure 1**.

3.3.2 With regard to the ALC Guidelines, agricultural land quality can be limited by one or more of three main site factors as follows:

- gradient;
- micro-relief (i.e., complex change in slope angle over short distances); and
- risk of flooding.

I. Gradient and Micro-Relief

3.3.3 The land at the Site is level, with the highest elevation at 71 metres (m) Above Ordnance Datum (AOD) in the north-east of the Site. The lowest elevation at 60 metres mAOD occurs in the south of the Site. The quality of agricultural land at the Site is not limited by gradient (as per Table 1 of the ALC Guidelines, 1988), as the gradient of the slope does not exceed 7°. Likewise, the quality of agricultural land at the Site is not limited by micro-relief, i.e., complex changes in slope angle and direction over short distances.

II. Risk of Flooding

3.3.4 From the Government Flood Map for Planning website¹⁵, the Site is located in Flood Zone 1 with Flood Zone 2 and 3 in the south of the Site with a region in the south east benefitting from flood defences. There is no evidence the quality of the agricultural land is limited by a risk of flooding in accordance with the criteria for frequency and duration set out in Table 2 'Grade according to flood risk in summer', and/or Table 3 'Grade according to flood risk in winter' of the ALC Guidelines.

3.4 Soil

I. Geology/Soil Parent Material

- 3.4.1 British Geological Survey (BGS) information available online¹⁶ has been utilised to identify the Bedrock underlying the Site and any Superficial (Drift) Deposits over the Bedrock. This information helps to determine the parent material¹⁷ from and within which a soil has formed.
- 3.4.2 The BGS information (1:50,000) indicates that Site is mainly underlain by the Oxford Clay Formation and West Walton Formation (mudstone), with Cornbrash Formation (limestone), Kellaways Clay Member Mudstone and Kellaways Sand Member (sandstone and siltstone) in the north.
- 3.4.3 The bedrock in Site is covered by Alluvium (clay, silt, sand and gravel) in the southern and eastern regions of the Site, with Summertown-radley Sand and Gravel Member (sand and gravel) in the north and areas that are uncovered.

II. Published Information on Soil

- 3.4.4 The National Soil Map¹⁸ reports that agricultural land at the Site is covered by soils predominantly in the Sutton 1 and Kelmscot Association.
- 3.4.5 As described by the Soil Survey of England and Wales (SSEW)¹⁹, the Sutton 1 Association often stony, loamy typical argillic brown earths, usually over gravel at moderate depth. The gravels are mainly flint and although the matrix is calcareous, chalk stones are rare. These soils are well drained (Wetness Class I) and excess winter rain drains rapidly through the soil into the underlying permeable gravels.
- 3.4.6 The Kelmscot Association consists mainly of calcareous fine loamy soils over limestone gravel. It is found on low-lying river terrace drift affected at shallow depth by groundwater. Most of the soils are permeable but are affected by shallow groundwater and flooding. Depending on outfalls and field drainage measures, waterlogging may be short-term and confined to winter, or prolonged into the growing season (Wetness Class II to IV).

III. Soil Survey

- 3.4.7 A log of the 166 soil profiles recorded on Site (see Figure 1) is given as **Appendix 1**. A description of the five soil pits (Soil Pit 1-5) is given as **Appendix 2**. The detailed soil survey determined the central and northern parts of the Site have soils predominantly in the Sutton 1 Association developed in sand and gravel. The Sutton 1 Association consists of well drained fine and coarse (sandy) loam soils which are calcareous locally.

- 3.4.8 In the east and south-east there are soils which are similar to those described by the SSEW as belonging to the Kelmscot Association. This type of soil consists of calcareous, fine (medium clay loam) loamy soils over gravel variably affected by groundwater.

Topsoil Particle Size Analysis

- 3.4.8 To substantiate topsoil texture determined during the ALC survey by hand-texturing, a sample of topsoil were collected at eleven auger-bore locations over the Site (i.e., auger bore locations A13, A16, B32, C49, D74, E93, F016, F111, G130, G139, and H158, as shown on **Figure 1**). The topsoil sample was sent to an accredited laboratory for analysis of particle size distribution (PSD), based on the British Standard Institution particle size grades. The certificate of analysis is provided as **Appendix 3**. The findings of the PSD analysis are shown in Table 3.2 below:

| Topsoil Sample Location (See Fig. 1) | % sand 0.063-2.0 mm | % silt 0.002- 0.063 mm | % clay <0.002 mm | ALC Soil Texture Class |
|---|------------------------------------|---------------------------------------|--------------------------------|-------------------------------|
| A13 | 57 | 30 | 13 | Medium Sandy Loam |
| A16 | 62 | 28 | 10 | Medium Sandy Loam |
| B32 | 59 | 29 | 12 | Medium Sandy Loam |
| C49 | 55 | 32 | 13 | Medium Sandy Loam |
| D74 | 56 | 31 | 13 | Medium Sandy Loam |
| E93 | 50 | 37 | 13 | Medium Sandy Silt Loam |
| F016 | 51 | 38 | 11 | Medium Sandy Loam |
| F111 | 46 | 41 | 13 | Medium Sandy Silt Loam |
| G130 | 47 | 38 | 15 | Medium Sandy Silt Loam |
| G139 | 55 | 34 | 11 | Medium Sandy Loam |
| H158 | 42 | 42 | 16 | Medium Sandy Silt Loam |

3.5 Interactive Limitations

- 3.5.1 From the published information above, together with the findings of the detailed soil survey, it has been determined that the quality of agricultural land at the Site is limited mainly by soil droughtiness, with some land limited by soil wetness in the south-east.

I. Soil Droughtiness

3.5.2 From the ALC Guidelines, a soil droughtiness limitation exists ‘*in areas with relatively low rainfall or high evapotranspiration, or where the soil holds only small reserves of moisture available to plant roots.*’ The ALC grade according to soil droughtiness is shown in Table 3.3 below (based on Table 8 ‘*Grade According to Droughtiness*’ in the ALC Guidelines). To be eligible for Grades 1 to 3b the moisture balances (MBs) must be equal to, or exceed, the stated minimum values for both wheat and potatoes. If the MB for either crop is less (i.e., more negative) than that shown for Subgrade 3b, the soil is Grade 4 on droughtiness):

| Grade/Subgrade | Moisture Balance (MB) Limits (mm) | |
|----------------|-----------------------------------|----------|
| | Wheat | Potatoes |
| 1 | +30 | +10 |
| 2 | +5 | -10 |
| 3a | -20 | -30 |
| 3b | -50 | -55 |
| 4 | <-50 | <-55 |

3.5.3 As shown from the Moisture Balance (MB) values in **Appendix 1**, agricultural land in Grade 2 is mainly limited by slight soil droughtiness during the growing season, and slight soil wetness during the autumn/winter/early spring. The Grade 2 soils are well drained to slightly seasonally waterlogged (the latter mainly in the east) sandy loam, sandy silt loam and clay loams.

3.5.4 Subgrade 3a agricultural land is limited by soil droughtiness, due to well drained sandy loam soils over gravelly subsoil.

3.5.5 Subgrade 3b agricultural land is limited by soil droughtiness in the west with shallow, well drained sandy loams over gravel.

II. Soil Wetness

3.5.6 From the ALC Guidelines, a soil wetness limitation exists where ‘*the soil water regime adversely affects plant growth or imposes restrictions on cultivations or grazing by livestock.*’ Agricultural land quality at the Site is limited by soil wetness according to the combination of (i) number of Field Capacity Days (FCD), (ii) topsoil texture, and (iii) soil wetness class, as set out in Table 3.4 below (based on Table 6 ‘*Grade According to Soil Wetness – Mineral Soils*’ in the ALC Guidelines):

| Table 3.4: ALC Grade According to Soil Wetness | | |
|---|---|------------------------------------|
| Wetness Class | Texture of the Top 25 cm | 126-150 Field Capacity Days |
| I | Sand, Loamy Sand, Sandy Loam, Sandy Silt Loam | 1 |
| | Sandy Clay Loam/Medium Silty Clay Loam /Medium Clay Loam* | 1 |
| | Heavy Clay Loam** | 2 |
| | Sandy Clay/Silty Clay/Clay | 3a(2) |
| II | Sand, Loamy Sand, Sandy Loam, Sandy Silt Loam | 1 |
| | Sandy Clay Loam/Medium Silty Clay Loam /Medium Clay Loam* | 2 |
| | Heavy Clay Loam** | 3a(2) |
| | Sandy Clay/Silty Clay/Clay | 3b(3a) |
| III | Sand, Loamy Sand, Sandy Loam, Sandy Silt Loam | 2 |
| | Sandy Clay Loam/Medium Silty Clay Loam /Medium Clay Loam* | 3a(2) |
| | Heavy Clay Loam** | 3b(3a) |
| | Sandy Clay/Silty Clay/Clay | 3b(3a) |
| IV | Sand, Loamy Sand, Sandy Loam, Sandy Silt Loam | 3a |
| | Sandy Clay Loam/Medium Silty Clay Loam /Medium Clay Loam* | 3b |
| | Heavy Clay Loam** | 3b |
| | Sandy Clay/Silty Clay/Clay | 3b |
| Key * <27% clay; and ** >27% clay | | |

3.5.7 Subgrade 3b agricultural land adjacent to the Oxford Canal in the east is limited by soil wetness, where the soil profiles in Wetness Class IV have medium clay loam topsoil.

3.6 ALC Grading at the Site

3.6.2 A detailed ALC survey has determined that agricultural land at the Site is limited by soil droughtiness to a mixture of Grade 2, Subgrade 3a and Subgrade 3b, and by soil wetness to Subgrade 3b in the south-east. The area of land in each ALC grade has been measured from **Figure 2** and the area (ha) and proportion (% of Site) is given in Table 3.5.

| Table 3.5: Agricultural Land Classification – Begbroke, Oxfordshire | | |
|--|------------------|-----------------|
| ALC Grade | Area (Ha) | Area (%) |
| Grade 1 (Excellent) | 0 | 0 |
| Grade 2 (Very Good) | 34.0 | 19.8 |
| Subgrade 3a (Good) | 93.9 | 54.6 |
| Subgrade 3b (Moderate) | 24.1 | 14.0 |
| Grade 4 (Poor) | 0 | 0 |
| Grade 5 (Very Poor) | 0 | 0 |
| Other Land / Non-agricultural | 20.0 | 11.6 |
| Total | 172.0 | 100 |

4 ALC AT THE SITE IN A WIDER GEOGRAPHICAL CONTEXT

4.1 Introduction

4.1.1 The aim of this section is to examine agricultural land quality at the Site in a national, regional, county and local context.

4.2 Pre-1988 ALC Information

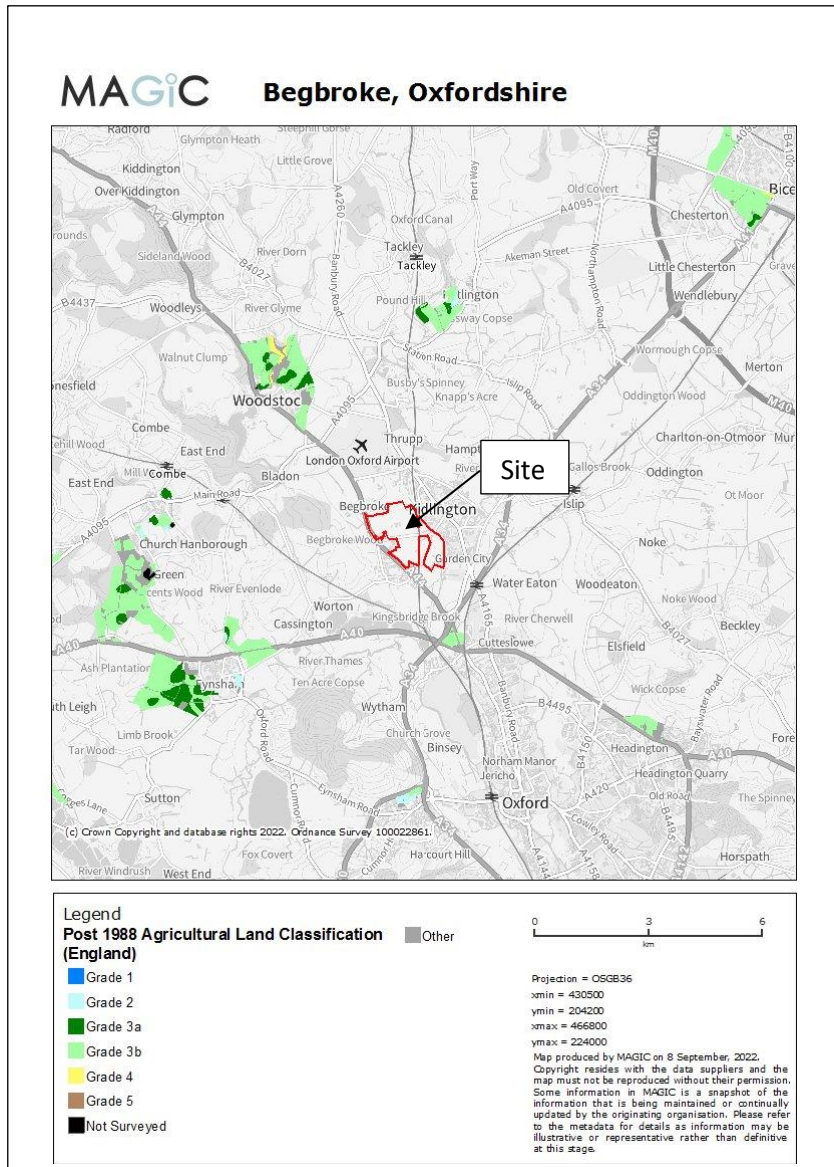
4.2.1 During the 1960's and 1970's MAFF produced a series of maps to show the provisional ALC grade of agricultural land over the whole of England and Wales at a scale of 1:250,000. These provisional ALC maps are suitable for strategic land use planning only, i.e., they appropriate for land areas greater than 80 ha. The provisional MAFF ALC map of South East England (1:250,000, 1984) indicates that the quality of agricultural land at the Site is mainly Grade 2 and Grade 3 (not differentiated between Subgrade 3a and Subgrade 3b), with some Grade 4 in the south-east. The proportion of agricultural land in each of the ALC grades (derived from MAFF provisional or pre-1988 ALC information) in England, South East Government Office, Oxfordshire County, and Cherwell District is shown for comparison in Table 4.1 below.

| ALC Grade | England | South East Office | Oxfordshire County | Cherwell District |
|-----------------------------|---------|-------------------|--------------------|-------------------|
| 1 (excellent) | 2.7 | 2.5 | 0.5 | 0 |
| 2 (very good) | 14.2 | 10.4 | 19.6 | 15.9 |
| 3 (good to moderate) | 48.2 | 52.4 | 54.4 | 51.1 |
| 4 (poor) | 14.1 | 16.1 | 19.3 | 26.9 |
| 5 (very poor) | 8.4 | 1.3 | 0.4 | 1.6 |
| Non-Agricultural | 5.0 | 9.6 | 2.7 | 2.0 |
| Urban | 7.3 | 7.7 | 3.1 | 2.5 |

4.2.2 Of note, the provisional (Pre 1988) ALC information shows that Cherwell District has slightly higher proportions of Grade 2 and Grade 3 (not differentiated between Subgrade 3a or Subgrade 3b) in comparison with England as a whole.

4.3 Post-1988 ALC Information

4.3.1 The former MAFF has not carried a Post-1988 ALC survey of agricultural land covering the Site. An extract from the Post-1988 Agricultural Land Classification map online²¹ surrounding the Site is given below.

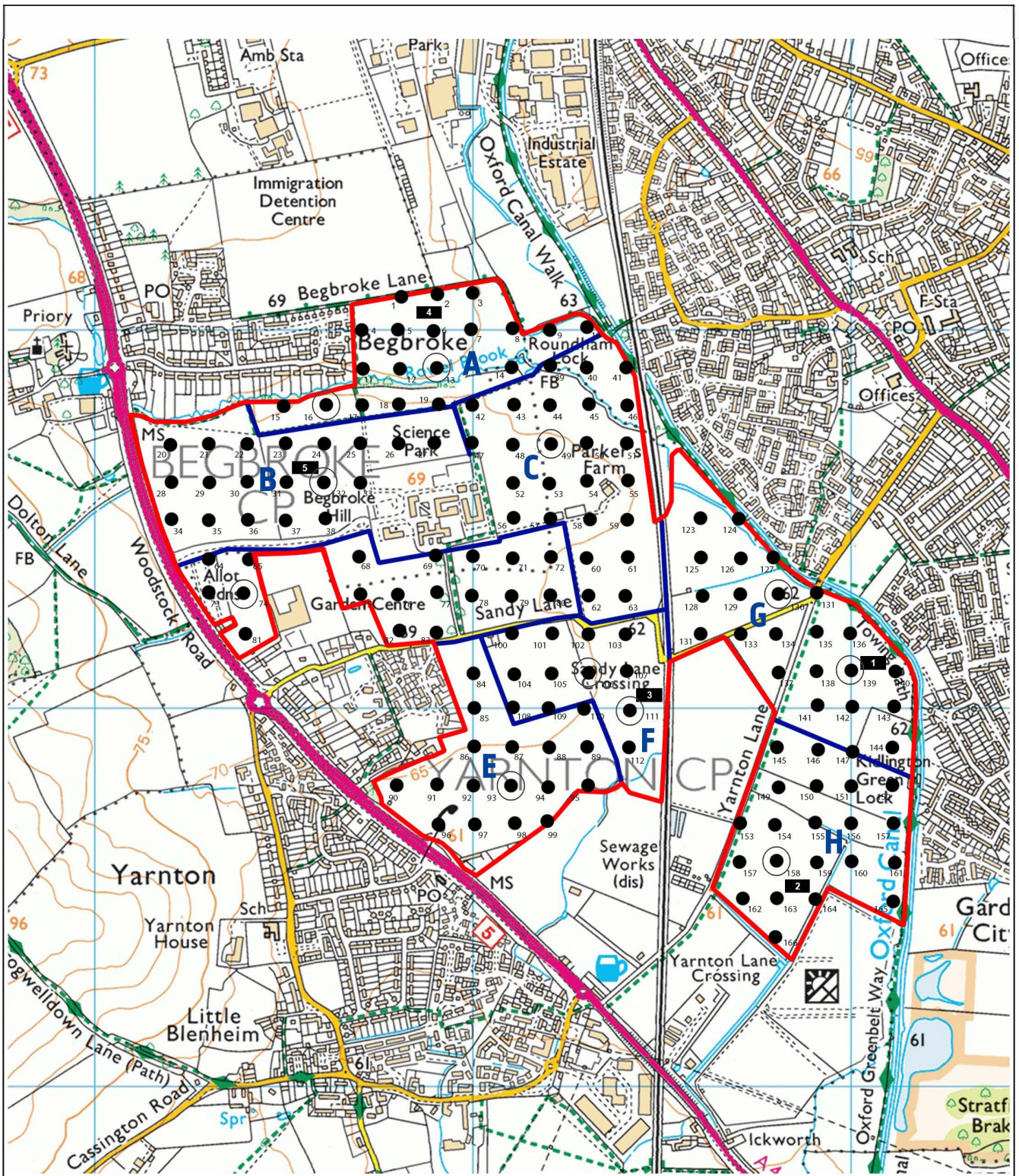


4.3.2 As shown on the Post-1988 ALC survey above, MAFF determined there is mainly Subgrade 3a and Subgrade 3b within an approximately 5km radius of the Site, with some Grade 4 to the north and Grade 2 to the south.

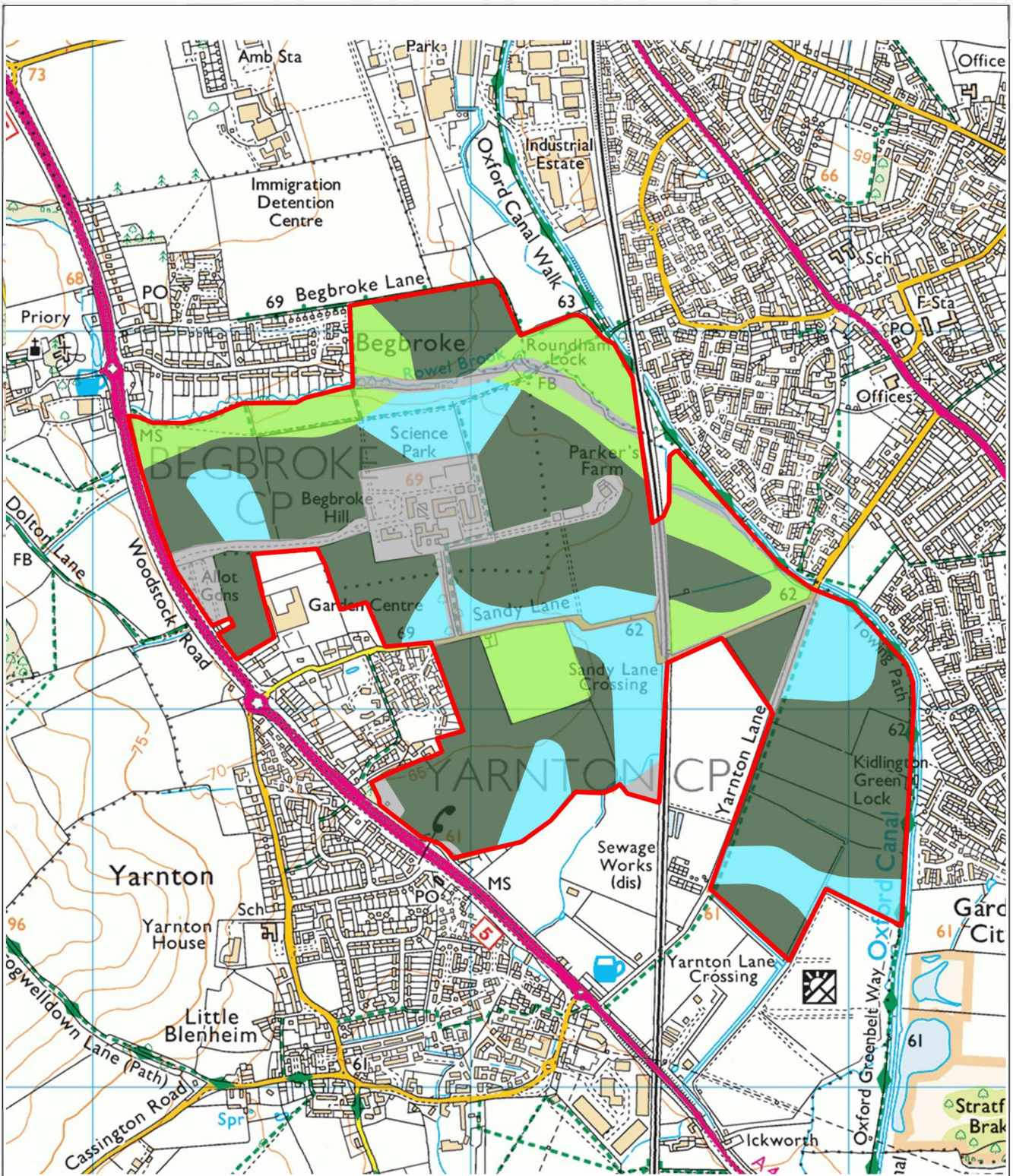
5 SUMMARY AND CONCLUSIONS

- 5.1.1 This report was commissioned by Oxford University Developments to determine the quality of agricultural land at Begbroke, Oxfordshire, OX5 1PG ('the Site'). The assessment was made in accordance with the Agricultural Land Classification (ALC) system for England and Wales. The approximately 172 hectare (ha) Site is located to the south-west of Kidlington, Oxfordshire. The approximate centre of the Site is located at British National Grid (BNG) reference SP 481 132.
- 5.1.2 British Geological Survey (BGS) information (1:50,000) indicates that Site is mainly underlain Oxford Clay Formation and West Walton Formation (mudstone), with Cornbrash Formation (limestone), Kellaways Clay Member Mudstone and Kellaways Sand Member (sandstone and siltstone) in the north. This bedrock is mainly covered by Alluvium (clay, silt, sand and gravel) in the southern and eastern regions of the Site, with Summertown-radley Sand and Gravel Member (sand and gravel) in the north and areas that are uncovered.
- 5.1.3 The National Soil Map (1:250,000) shows the Site is covered by soils predominantly in the Sutton 1 and Kelmscot Association. The Sutton 1 Association consists of often stony, loamy typical argillic brown earths, that are well drained (Wetness Class I). The Kelmscot Association consists mainly of calcareous fine loamy soils that are permeable but are affected by shallow groundwater and flooding (Wetness Class II to IV).
- 5.1.4 The quality of agricultural land at the Site is limited mainly by soil droughtiness, and by soil wetness in the south-east, to a mixture of Grade 2 (i.e., 34.0 ha, or 19.8% of the Site), Subgrade 3a (i.e., 93.9 ha or 54.6% of the Site), and Subgrade 3b (i.e., 24.1 ha, or 14.0% of the Site). Approximately 20.0 ha, or 11.6% of the Site, is classified as non-agricultural, i.e., buildings, roads, allotments, woodland, water bodies/courses.
- 5.1.5 MAFF provisional (Pre-1988) ALC information shows that Cherwell District has slightly higher proportions of Grade 2 and Grade 3 (not differentiated between Subgrade 3a or Subgrade 3b) in comparison with England as a whole.
- 5.1.6 From Post-1988 ALC surveys, MAFF has determined there is mainly Subgrade 3a and Subgrade 3b within an approximately 5km radius of the Site, with some Grade 4 to the north and Grade 2 to the south.

Figures




| | | | |
|---|--|--|------------------|
| | | Client | Figure 1 |
| | | Oxford University Development Ltd | Sample Locations |
| Project No C888 Dwg. No 01 Scale NTS Date 30/03/2023 Drawn By ELA | | Project Name Begbroke, Oxfordshire | |
| | | R W Askew BSc(Hons) MSc SoilSci MSc CSCi The Old Stables, Upexe, Exeter, EX5 5ND Tel: 07753 227 224 Email: rw.askew@btinternet.com | |



ALC Grade

- Grade 1
- Grade 2
- Subgrade 3a
- Subgrade 3b
- Grade 4
- Grade 5
- Non-agricultural

Site boundary



N

Client
Oxford University Development Ltd

Project No
 Dwg. No 02
 Scale NTS
 Date 30/03/2023
 Drawn By ELA

Figure 2:
Agricultural Land Classification

Project Name
Begbroke, Oxfordshire

R W Askew BSc(Hons) MSc CSCi
 The Old Stables, Upexe, Exeter, EX5 5ND
 Tel: 07753 227 224
 Email: rw.askew@btinternet.com

Appendix 1: Soil Profile Logs

| | | |
|----------------|-----------------------|--------|
| Project Number | Project Name | Parcel |
| C888 | Begbroke, Oxfordshire | A-H |

| | | | |
|----------------|--------------|--------------|-------------------------|
| Date of Survey | Survey Type | Surveyor(s) | Company |
| February 2023 | Detailed ALC | RWA, RDM, AR | Askew Land and Soil Ltd |

| | | |
|------------|--------|-------------------------|
| Weather | Relief | Land use and vegetation |
| Dry, Sunny | Level | CER |

| | | | |
|----------------|----------|----------|------|
| Grid Reference | Postcode | Altitude | Area |
| SP478139 | OX51PG | 66 | 189 |

| | | |
|-----------|---------------|--------------|
| MAFF prov | MAFF detailed | Flooding |
| Grade 2/3 | None | Flood Zone 1 |

| | | | | | |
|-----|------|-----|-----|-----|---------------|
| AAR | ATO | MDw | MDp | FCD | Climate grade |
| 658 | 1436 | 109 | 102 | 143 | 1 |

| | |
|--|----------------------|
| Bedrock | Superficial deposits |
| Cornrash Formation/Kellaways Sand Member | Alluvium/Summertown |

| | |
|-------------------------------|---------------------------|
| Soil association(s) 1:250,000 | Detailed soil information |
| Sutton 1 / Kelmscott | None |

| | |
|-----------------|--------------|
| Revision Number | Date Revised |
| 2 | 01/06/2023 |

| Point | Grid ref. | | | Alt (m) | Slope ° | Aspect | Land use | Depth (cm) | | | Matrix | | Ochreous Mottles | | Grey Mottles | | Gley | Texture | Stones - type 1 | | | Stones - type 2 | | | Ped | | | SUBS STR | CaCO3 | Mn C | SPL | Drought | | | Wet | | Final ALC | | | |
|-------|-----------|-------|--------|---------|---------|--------|----------|------------|-----|-------|----------------|------|------------------|------|----------------|-------------|-----------|---------|---|---|------|-----------------|---------------|---------|------|----------|------|----------|-------|------|-----|--------------|------|------|-----|----|-----------|--------------|--------------|--------------|
| | NGR | X | Y | | | | | Top | Btm | Thick | Munsell colour | Form | Munsell colour | Form | Munsell colour | % | | | > 2cm | > 6cm | Type | % | > 2cm | > 6cm | Type | Strength | Size | | | | | Shape | IMBw | IMBp | Gd | WC | Gw | Limitation 1 | Limitation 2 | Limitation 3 |
| 63 | SP 48400 | 13300 | 448400 | 213300 | 63 | ≤7 | N/A | 0 | 29 | 29 | 7.5YR4/3 | | | | | No | MSL - Me6 | 2 | 2 | GH - Gravel with non-porous (hard) stones | | | Not Applic | NON - N | No | No | 28 | 2 | 2 | WC1 | 1 | Droughtiness | | | 2 | | | | | |
| | | | | | | | | 29 | 70 | 41 | 7.5YR4/3 | | | | No | MSL - Me8 | | | GH - Gravel with non-porous (hard) stones | | | Moderate | NON - N | No | No | | | | | | | | | | | | | | | |
| | | | | | | | | 70 | 120 | 50 | 7.5YR5/3 | | | | No | SCL - San20 | | | GH - Gravel with non-porous (hard) stones | | | Moderate | NON - Non-cal | No | No | | | | | | | | | | | | | | | |
| END | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Point | Grid ref. | | Alt (m) | Slope ° | Aspect | Land use | Depth (cm) | | | Matrix | | Ochreous Mottles | | Grey Mottles | | Gley | Texture | Stones - type 1 | | | Stones - type 2 | | | Ped | | | SUBS STR | CaCO3 | Mn C | SPL | Drought | | | Wet | | Final ALC | | |
|-------|----------------|--------|---------|---------|--------|----------|------------|-----|------|---------|----------------|------------------|----------------|--------------|----------------|-----------|---------|--|----------|------|-----------------|-------|------|----------|-------|-------|--------------|---------|------|-----|---------|-----|----|-----|----|--------------|--------------|--------------|
| | NGR | X | | | | | Y | Top | Bttm | Thick | Munsell colour | Form | Munsell colour | Form | Munsell colour | | | % > 2cm | > 6cm | Type | % > 2cm | > 6cm | Type | Strength | Size | Shape | | | | | MBw | MBp | Gd | WC | Gw | Limitation 1 | Limitation 2 | Limitation 3 |
| 123 | SP 48600 13500 | 448600 | 213500 | 63 | ≤7 | S | 0 | 27 | 27 | 10YR4/2 | | | | | | MCL - Cla | 0 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Poor | NON | Non-calcare | 18 | 2 | 2 | WC IV | 3b | Wetness | | | | | | | | | 3b | | |
| | | | | | | | 27 | 120 | 93 | 2.5Y6/1 | CP - C10YR5/6 | | | | | C - Clay | 0 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Poor | NON | Non-calcare | 18 | 2 | 2 | WC IV | 3b | Wetness | | | | | | | | | 3b | | |
| 124 | SP 48680 13500 | 448680 | 213500 | 62 | ≤7 | S | 0 | 26 | 26 | 10YR4/3 | | | | | | MCL - Cla | 0 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Poor | NON | Non-calcare | 8 | 0 | 2 | WC IV | 3b | Wetness | | | | | | | | | 3b | | |
| | | | | | | | 26 | 55 | 29 | 2.5Y5/2 | CP - C10YR5/6 | | | | | C - Clay | 0 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Poor | NON | Non-calcare | 8 | 0 | 2 | WC IV | 3b | Wetness | | | | | | | | | 3b | | |
| | | | | | | | 55 | 90 | 35 | 2.5Y6/1 | CP - C10YR5/6 | | | | | HCL - Cla | 0 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Poor | NON | Non-calcare | 8 | 0 | 2 | WC IV | 3b | Wetness | | | | | | | | | 3b | | |
| | | | | | | | 90 | 120 | 30 | 2.5Y6/1 | CP - C10YR5/6 | | | | | LMS - Lo | 15 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 8 | 0 | 2 | WC IV | 3b | Wetness | | | | | | | | | 3b | | |
| 125 | SP 48600 13400 | 448600 | 213400 | 63 | ≤7 | S | 0 | 25 | 25 | 10YR4/3 | | | | | | MSZL - M | 3 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Poor | NON | Non-calcare | 0 | -6 | 3a | WC IV | 3a | Droughtiness | Wetness | | | | | | | | 3a | | |
| | | | | | | | 25 | 60 | 35 | 2.5Y6/2 | CP - C10YR5/6 | | | | | SC - Sand | 3 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Poor | NON | Non-calcare | 0 | -6 | 3a | WC IV | 3a | Droughtiness | Wetness | | | | | | | | | 3a | |
| | | | | | | | 60 | 120 | 60 | 10YR6/3 | CD - C10YR5/6 | | | | | LMS - Lo | 15 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 0 | -6 | 3a | WC IV | 3a | Droughtiness | Wetness | | | | | | | | | 3a | |
| 126 | SP 48700 13400 | 448700 | 213400 | 62 | ≤7 | S | 0 | 20 | 20 | 10YR4/2 | | | | | | MCL - Cla | 0 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 12 | 3 | 2 | WC IV | 3b | Wetness | | | | | | | | | 3b | | |
| | | | | | | | 20 | 30 | 10 | 10YR4/4 | | | | | | HCL - Cla | 0 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 12 | 3 | 2 | WC IV | 3b | Wetness | | | | | | | | | 3b | | |
| | | | | | | | 30 | 60 | 30 | 10YR6/3 | CD - C10YR5/6 | | | | | C - Clay | 0 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Poor | NON | Non-calcare | 12 | 3 | 2 | WC IV | 3b | Wetness | | | | | | | | | 3b | | |
| | | | | | | | 60 | 80 | 20 | 10YR6/3 | CD - C10YR5/6 | | | | | SCL - San | 0 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 12 | 3 | 2 | WC IV | 3b | Wetness | | | | | | | | | 3b | | |
| | | | | | | | 80 | 120 | 40 | 2.5Y6/1 | CP - C10YR5/6 | | | | | LMS - Lo | 10 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 12 | 3 | 2 | WC IV | 3b | Wetness | | | | | | | | | 3b | | |
| 127 | SP 48800 13400 | 448800 | 213400 | 63 | ≤7 | S | 0 | 25 | 25 | 10YR4/3 | | | | | | MCL - Cla | 0 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Poor | NON | Non-calcare | 16 | 0 | 2 | WC IV | 3b | Wetness | | | | | | | | | 3b | | |
| | | | | | | | 25 | 120 | 95 | 2.5Y5/2 | CP - C10YR5/6 | | | | | C - Clay | 0 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Poor | NON | Non-calcare | 16 | 0 | 2 | WC IV | 3b | Wetness | | | | | | | | | 3b | | |
| 128 | SP 48600 13300 | 448600 | 213300 | 62 | ≤7 | S | 0 | 30 | 30 | 10YR4/2 | | | | | | MSZL - M | 5 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 5 | -10 | 3a | WC I | 1 | Droughtiness | | | | | | | | | 3a | | |
| | | | | | | | 30 | 50 | 20 | 10YR5/3 | CD - C10YR5/6 | | | | | SCL - San | 5 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 5 | -10 | 3a | WC I | 1 | Droughtiness | | | | | | | | | 3a | | |
| | | | | | | | 50 | 60 | 10 | 10YR5/4 | | | | | | LMS - Lo | 15 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 5 | -10 | 3a | WC I | 1 | Droughtiness | | | | | | | | | 3a | | |
| | | | | | | | 60 | 120 | 60 | 10YR5/4 | | | | | | MS - Me | 30 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 5 | -10 | 3a | WC I | 1 | Droughtiness | | | | | | | | | 3a | | |
| 129 | SP 48700 13300 | 448700 | 213300 | 63 | ≤7 | S | 0 | 20 | 20 | 10YR4/3 | | | | | | MCL - Cla | 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 4 | -1 | 3a | WC I | 1 | Droughtiness | | | | | | | | | 3a | | |
| | | | | | | | 20 | 50 | 30 | 10YR5/5 | | | | | | HCL - Cla | 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 4 | -1 | 3a | WC I | 1 | Droughtiness | | | | | | | | | 3a | | |
| | | | | | | | 50 | 60 | 10 | 10YR5/4 | | | | | | MSL - Me | 5 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 4 | -1 | 3a | WC I | 1 | Droughtiness | | | | | | | | | 3a | | |
| | | | | | | | 60 | 120 | 60 | 10YR5/4 | | | | | | MS - Me | 15 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 4 | -1 | 3a | WC I | 1 | Droughtiness | | | | | | | | | 3a | | |
| 130 | SP 48800 13300 | 448800 | 213300 | 61 | ≤7 | S | 0 | 28 | 28 | 10YR4/2 | | | | | | MSZL - M | 0 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 21 | 13 | 2 | WC II | 1 | Droughtiness | | | | | | | | | 2 | | |
| | | | | | | | 28 | 38 | 10 | 10YR4/4 | | | | | | SCL - San | 0 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 21 | 13 | 2 | WC II | 1 | Droughtiness | | | | | | | | | 2 | | |
| | | | | | | | 38 | 80 | 42 | 2.5Y5/2 | CP - C10YR5/6 | | | | | SCL - San | 0 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 21 | 13 | 2 | WC II | 1 | Droughtiness | | | | | | | | | 2 | | |
| | | | | | | | 80 | 120 | 40 | 2.5Y6/1 | CP - C10YR5/6 | | | | | MS - Me | 10 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 21 | 13 | 2 | WC II | 1 | Droughtiness | | | | | | | | | 2 | | |
| 131 | SP 48880 13300 | 448880 | 213300 | 61 | ≤7 | S | 0 | 20 | 20 | 10YR4/2 | | | | | | MCL - Cla | 15 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 37 | 6 | 2 | WC I | 1 | Droughtiness | | | | | | | | | 2 | | |
| | | | | | | | 20 | 40 | 20 | 10YR4/4 | | | | | | MCL - Cla | 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 37 | 6 | 2 | WC I | 1 | Droughtiness | | | | | | | | | 2 | | |
| | | | | | | | 40 | 60 | 20 | 10YR4/2 | | | | | | MCL - Cla | 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 37 | 6 | 2 | WC I | 1 | Droughtiness | | | | | | | | | 2 | | |
| | | | | | | | 60 | 120 | 60 | 10YR6/3 | CD - C10YR5/6 | | | | | HCL - Cla | 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 37 | 6 | 2 | WC I | 1 | Droughtiness | | | | | | | | | 2 | | |
| 132 | SP 48600 13200 | 448600 | 213200 | 62 | ≤7 | S | 0 | 30 | 30 | 10YR4/2 | | | | | | MSZL - M | 5 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 16 | 8 | 2 | WC I | 1 | Droughtiness | | | | | | | | | 2 | | |
| | | | | | | | 30 | 50 | 20 | 10YR5/4 | | | | | | SCL - San | 5 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 16 | 8 | 2 | WC I | 1 | Droughtiness | | | | | | | | | 2 | | |
| | | | | | | | 50 | 70 | 20 | 10YR5/4 | | | | | | MSL - Me | 5 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 16 | 8 | 2 | WC I | 1 | Droughtiness | | | | | | | | | 2 | | |
| | | | | | | | 70 | 120 | 50 | 10YR5/4 | | | | | | LMS - Lo | 10 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 16 | 8 | 2 | WC I | 1 | Droughtiness | | | | | | | | | 2 | | |
| 133 | SP 48700 13200 | 448700 | 213200 | 63 | ≤7 | S | 0 | 22 | 22 | 10YR4/2 | | | | | | MSZL - M | 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 14 | 13 | 2 | WC I | 1 | Droughtiness | | | | | | | | | 2 | | |
| | | | | | | | 22 | 45 | 23 | 10YR4/4 | | | | | | MCL - Cla | 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 14 | 13 | 2 | WC I | 1 | Droughtiness | | | | | | | | | 2 | | |
| | | | | | | | 45 | 70 | 25 | 10YR5/3 | CD - C10YR5/6 | | | | | HCL - Cla | 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 14 | 13 | 2 | WC I | 1 | Droughtiness | | | | | | | | | 2 | | |
| | | | | | | | 70 | 120 | 50 | 10YR5/4 | | | | | | LMS - Lo | 20 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 14 | 13 | 2 | WC I | 1 | Droughtiness | | | | | | | | | 2 | | |
| 134 | SP 48800 13200 | 448800 | 213200 | 61 | ≤7 | S | 0 | 22 | 22 | 10YR4/2 | | | | | | MSZL - M | 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 1 | -3 | 3a | WC I | 1 | Droughtiness | | | | | | | | | 3a | | |
| | | | | | | | 22 | 35 | 13 | 10YR4/4 | | | | | | MCL - Cla | 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON | Non-calcare | 1 | -3 | 3a | WC I | 1 | Droughtiness | | | | | | | | | 3a | | |
| | | | | | | | 35 | 55 | 20 | 10YR5/3 | CD - C10YR5/6 | | | | | HCL - Cla | 2 | HR - All hard rocks or stones (i.e | | | | | | | | | | | | | | | | | | | | |

| Point | Grid ref. | | | Alt (m) | Slope ° | Aspect | Land use | Depth (cm) | | | Matrix Munsell colour | Ochreous Mottles | | Grey Mottles | | Gley | Texture | Stones - type 1 | | | Stones - type 2 | | | Ped | | | SUBS STR | CaCO3 | Mn C | SPL | Drought | | | Wet | | Final ALC | | | Grade | | |
|-------|----------------|--------|--------|---------|---------|--------|----------|------------|---------|----------------|--------------------------|------------------|----------------|--------------|----------------|------|-------------|--|----------|---------|-----------------|---------|-------|-------|------|----------|----------|--------------|---------|-----|---------|-------|-----|-----|----|-----------|----|--------------|-------|--------------|--------------|
| | NGR | X | Y | | | | | Top | Bttm | Thick | | Form | Munsell colour | Form | Munsell colour | | | % | > 2cm | > 6cm | Type | % | > 2cm | > 6cm | Type | Strength | | | | | Size | Shape | MbW | MBp | Gd | WC | Gw | Limitation 1 | | Limitation 2 | Limitation 3 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 135 | SP 48900 13200 | 448900 | 213200 | 61 | ≤7 | S | | 0 25 25 | 10YR4/2 | | | | | | | | MCL - Cla 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON - N | NON - N | NON - N | 11 | 10 | 2 | WC II | 2 | Droughtiness | Wetness | 2 | | | | | | | | | | | |
| | | | | | | | | 25 50 25 | 2.5Y5/2 | CP - C10YR5/6 | | | | | | | HCL - Cla 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 50 70 20 | 2.5Y5/2 | CP - C10YR5/6 | | | | | | | SCL - San 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 70 120 50 | 10YR5/4 | | | | | | | | MS - Me 10 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| 136 | SP 49000 13200 | 449000 | 213200 | 62 | ≤7 | S | | 0 25 25 | 10YR4/2 | | | | | | | | MCL - Cla 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON - N | NON - N | NON - N | 11 | 11 | 2 | WC II | 2 | Droughtiness | Wetness | 2 | | | | | | | | | | | |
| | | | | | | | | 25 35 10 | 10YR4/4 | | | | | | | | MCL - Cla 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | Yes | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 35 60 25 | 10YR5/2 | CP - C7.5YR5/6 | | | | | | | HCL - Cla 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | Yes | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 60 70 10 | 10YR5/2 | CP - C7.5YR5/6 | | | | | | | SCL - San 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 70 120 50 | 10YR5/4 | | | | | | | | MS - Me 10 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| 137 | SP 48800 13100 | 448800 | 213100 | 62 | ≤7 | S | | 0 22 22 | 10YR4/2 | | | | | | | | MSZL - M 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON - N | NON - N | NON - N | 20 | 13 | 2 | WC I | 1 | Droughtiness | | 2 | | | | | | | | | | | |
| | | | | | | | | 22 45 23 | 10YR4/4 | | | | | | | | MCL - Cla 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | Yes | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 45 70 25 | 2.5Y5/3 | CP - C10YR5/6 | | | | | | | HCL - Cla 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | Yes | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 70 80 10 | 2.5Y5/3 | CP - C10YR5/6 | | | | | | | MSL - M 10 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 80 120 40 | 10YR5/4 | | | | | | | | LMS - Lo 20 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| 138 | SP 48900 13100 | 448900 | 213100 | 62 | ≤7 | S | | 0 25 25 | 10YR4/3 | | | | | | | | MSL - Me 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON - N | NON - N | NON - N | 34 | 6 | 2 | WC I | 1 | Droughtiness | | 2 | | | | | | | | | | | |
| | | | | | | | | 25 55 30 | 10YR4/4 | | | | | | | | SCL - San 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | Yes | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 55 90 35 | 2.5Y5/3 | CP - C10YR5/6 | | | | | | | HCL - Cla 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 90 120 30 | 10YR5/4 | | | | | | | | MSL - Me 20 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| 139 | SP 49000 13100 | 449000 | 213100 | 61 | ≤7 | S | | 0 25 25 | 10YR4/2 | | | | | | | | MSL - Me 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON - N | NON - N | NON - N | 16 | 5 | 2 | WC II | 1 | Droughtiness | | 2 | | | | | | | | | | | |
| | | | | | | | | 25 70 45 | 10YR6/2 | CD - C10YR5/6 | | | | | | | SCL - San 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 70 90 20 | 10YR6/2 | CD - C10YR5/6 | | | | | | | MSL - Me 10 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 90 120 30 | 10YR5/4 | | | | | | | | LMS - Lo 20 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| 140 | SP 49100 13100 | 449100 | 213100 | 61 | ≤7 | S | | 0 22 22 | 10YR4/2 | | | | | | | | MCL - Cla 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON - N | NON - N | NON - N | 4 | 0 | 3a | WC II | 1 | Droughtiness | | 3a | | | | | | | | | | | |
| | | | | | | | | 22 55 33 | 2.5Y5/2 | CP - C10YR5/6 | | | | | | | HCL - Cla 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | Yes | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 55 60 5 | 2.5Y6/2 | CP - C10YR5/6 | | | | | | | SCL - San 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 60 120 60 | 10YR5/4 | | | | | | | | MS - Me 10 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| 141 | SP 48900 13000 | 448900 | 213000 | 62 | ≤7 | S | | 0 25 25 | 10YR4/3 | | | | | | | | MSL - Me 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON - N | NON - N | NON - N | 5 | -11 | 3a | WC II | 1 | Droughtiness | | 3a | | | | | | | | | | | |
| | | | | | | | | 25 50 25 | 2.5Y6/3 | CP - C10YR5/6 | | | | | | | SCL - San 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | Yes | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 50 70 20 | 2.5Y6/3 | CP - C10YR5/6 | | | | | | | LMS - Lo 10 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 70 120 50 | 10YR5/4 | | | | | | | | MS - Me 10 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| 142 | SP 49000 13000 | 449000 | 213000 | 61 | ≤7 | S | | 0 25 25 | 10YR4/2 | | | | | | | | MSL - Me 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON - N | NON - N | NON - N | 10 | -12 | 3a | WC II | 1 | Droughtiness | | 3a | | | | | | | | | | | |
| | | | | | | | | 25 55 30 | 2.5Y6/3 | CP - C10YR5/6 | | | | | | | SCL - San 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | Yes | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 55 120 65 | 10YR5/4 | | | | | | | | MS - Me 40 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| 143 | SP 49100 13000 | 449100 | 213000 | 61 | ≤7 | S | | 0 24 24 | 10YR4/2 | | | | | | | | MSL - Me 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON - N | NON - N | NON - N | 4 | 0 | 3a | WC II | 1 | Droughtiness | | 3a | | | | | | | | | | | |
| | | | | | | | | 24 60 36 | 2.5Y6/2 | CP - C10YR5/6 | | | | | | | HCL - Cla 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 60 70 10 | 10YR5/4 | | | | | | | | LMS - Lo 5 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 70 120 50 | 10YR5/4 | | | | | | | | MS - Me 5 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| 144 | SP 49100 12900 | 449100 | 212900 | 61 | ≤7 | S | | 0 22 22 | 10YR4/2 | | | | | | | | MSL - Me 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) | Moderate | NON - N | NON - N | NON - N | 4 | 4 | 3a | WC II | 1 | Droughtiness | | 3a | | | | | | | | | | | |
| | | | | | | | | 22 30 8 | 10YR4/4 | | | | | | | | SCL - San 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 30 70 40 | 2.5Y6/2 | CP - C10YR5/6 | | | | | | | SCL - San 2 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| | | | | | | | | 70 120 50 | 10YR5/4 | | | | | | | | MS - Me 20 | HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate | NON - N | NON - N | NON - N | No | | | | | | | | | | | | | | | | | | |
| END | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Point | Grid ref. | | | Alt (m) | Slope ° | Aspect | Land use | Depth (cm) | | | Matrix | | Ochreous Mottles | | Grey Mottles | | Gley | Texture | Stones - type 1 | | | Stones - type 2 | | | Ped | | | SUBS STR | CaCO3 | Mn C | SPL | Drought | | | Wet | | Final ALC | | | Grade |
|-------|-----------------------|--------|----|---------|---------|--------|--|--------------------------------|---------------|-------|----------------|------------------|---|--|--|---|------------------|---------|-----------------|-------|------|-----------------|-------|-------|------|----------|------|----------------------|----------------------|------|-----|---------|-----|-----|-----|----|-----------|--------------|--------------|-------|
| | NGR | X | Y | | | | | Top | Bttm | Thick | Munsell colour | Form | Munsell colour | Form | Munsell colour | % | | | > 2cm | > 6cm | Type | % | > 2cm | > 6cm | Type | Strength | Size | | | | | Shape | MBw | MBp | Gd | WC | Gw | Limitation 1 | Limitation 2 | |
| 157 | SP 48700 12600 448700 | 212600 | 61 | ≤7 | S | | 0 28 28 10YR4/2 28 60 32 2.5Y6/3 60 70 10 10YR5/3 70 120 50 10YR5/5 | CP - C10YR5/6 CD - C10YR5/6 | | | | Yes Yes No | MSL - Me2 HCL - Cla2 MSL - Me5 MS - Me10 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) HR - All hard rocks or stones (i.e. those which cannot be scratched w HR - All hard rocks or stones (i.e. those which cannot be scratched w HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate Moderate Moderate | NON - Non-care10 NON - NYes NON - NNo NON - NNo | 8 2 | 2 | WC II 1 | | | | | | | | | | Droughtiness | | | | 2 | | | | | | | |
| 158 | SP 48800 12600 448800 | 212600 | 60 | ≤7 | S | | 0 25 25 10YR4/3 25 80 55 2.5Y6/3 80 120 40 10YR5/5 | CP - C10YR5/6 | | | | Yes No | MSL - Me2 HCL - Cla2 MS - Me40 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) HR - All hard rocks or stones (i.e. those which cannot be scratched w HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate Moderate | NON - Non-care16 NON - NYes NON - NNo | 16 14 2 | 2 | WC II 2 | | | | | | | | | | Droughtiness Wetness | | | | 2 | | | | | | | |
| 159 | SP 48900 12600 448900 | 212600 | 60 | ≤7 | S | | 0 28 28 10YR4/2 28 50 22 2.5Y6/3 50 60 10 2.5Y6/3 60 120 60 7.5YR5/3 | CP - C10YR5/6 CP - C10YR5/6 | | | | Yes Yes No | MCL - Cla2 HCL - Cla2 SCL - San20 MS - Me40 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) HR - All hard rocks or stones (i.e. those which cannot be scratched w HR - All hard rocks or stones (i.e. those which cannot be scratched w HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate Moderate Moderate | NON - Non-care-3 NON - NYes NON - NNo NON - NNo | -3 -3 3a | 3a | WC II 2 | | | | | | | | | | Droughtiness | | | | 3a | | | | | | | |
| 160 | SP 49000 12600 449000 | 212600 | 61 | ≤7 | S | | 0 28 28 10YR4/3 28 70 42 2.5Y6/3 70 120 50 10YR5/5 | CP - C10YR5/6 | | | | Yes No | SCL - San2 SCL - San10 LMS - Lo40 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) HR - All hard rocks or stones (i.e. those which cannot be scratched w HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate Moderate | NON - Non-care0 NON - NYes NON - NNo | 0 1 3a | 3a | WC II 2 | | | | | | | | | Droughtiness | | | | 3a | | | | | | | | |
| 161 | SP 49100 12600 449100 | 212600 | 62 | ≤7 | S | | 0 25 25 10YR4/2 25 35 10 10YR4/4 35 55 20 2.5Y6/3 55 120 65 10YR5/5 | CP - C10YR5/6 | | | | No No No | MCL - Cla2 HCL - Cla2 HCL - Cla2 MS - Me20 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) HR - All hard rocks or stones (i.e. those which cannot be scratched w HR - All hard rocks or stones (i.e. those which cannot be scratched w HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate Moderate Moderate | NON - Non-care0 NON - NYes NON - NNo NON - NNo | 0 -5 3a | 3a | WC II 2 | | | | | | | | | Droughtiness | | | | 3a | | | | | | | | |
| 162 | SP 48700 12500 448700 | 212500 | 61 | ≤7 | S | | 0 25 25 10YR4/3 25 50 25 10YR5/4 50 65 15 10YR6/4 65 120 55 10YR5/5 | | | | | No No No | MSL - Me2 HCL - Cla2 SCL - San2 MS - Me50 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) HR - All hard rocks or stones (i.e. those which cannot be scratched w HR - All hard rocks or stones (i.e. those which cannot be scratched w HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate Moderate Moderate | NON - Non-care-2 NON - NYes NON - NYes NON - NNo | -2 2 3a | 3a | WC I 1 | | | | | | | | | Droughtiness | | | | 3a | | | | | | | | |
| 163 | SP 48800 12500 448800 | 212500 | 60 | ≤7 | S | | 0 28 28 10YR4/2 28 45 17 10YR6/3 45 120 75 10YR5/5 | CD - C10YR5/6 | | | | Yes No | MSL - Me2 SCL - San5 MS - Me10 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) HR - All hard rocks or stones (i.e. those which cannot be scratched w HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate Moderate | NON - Non-care-11 NON - NNo NON - NNo | -11 -19 3a | 3a | WC I 1 | | | | | | | | | Droughtiness | | | | 3a | | | | | | | | |
| 164 | SP 48900 12500 448900 | 212500 | 60 | ≤7 | S | | 0 30 30 10YR4/3 30 55 25 10YR5/3 55 60 5 10YR5/3 60 120 60 10YR5/5 | CD - C10YR5/6 CD - C10YR5/6 | CD - C2.5Y6/2 | | | Yes Yes No | MCL - Cla2 HCL - Cla2 SCL - San10 MS - Me5 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) HR - All hard rocks or stones (i.e. those which cannot be scratched w HR - All hard rocks or stones (i.e. those which cannot be scratched w HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate Moderate Moderate | NON - Non-care7 NON - NNo NON - NNo NON - NNo | 7 1 2 | 2 | WC II 2 | | | | | | | | | Droughtiness Wetness | | | | 2 | | | | | | | | |
| 165 | SP 49100 12500 449100 | 212500 | 62 | ≤7 | S | | 0 20 20 10YR4/2 20 30 10 10YR4/4 30 60 30 2.5Y5/2 60 70 10 10YR5/5 70 120 50 10YR5/5 | CP - C10YR5/6 | | | | No Yes No | MCL - Cla2 MCL - Cla2 HCL - Cla2 MSL - Me10 MS - Me20 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) HR - All hard rocks or stones (i.e. those which cannot be scratched w HR - All hard rocks or stones (i.e. those which cannot be scratched w HR - All hard rocks or stones (i.e. those which cannot be scratched w HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate Moderate Moderate Moderate | NON - Non-care9 NON - NYes NON - NNo NON - NNo NON - Non-ca | 9 9 2 | 2 | WC II 2 | | | | | | | | | | Droughtiness Wetness | | | | 2 | | | | | | | |
| 166 | SP 48800 12400 448800 | 212400 | 61 | ≤7 | S | | 0 25 25 10YR4/3 25 50 25 10YR6/4 50 60 10 10YR5/4 60 120 60 10YR5/4 | | | | | No No No | MSL - Me2 SCL - San5 LMS - Lo30 MS - Me40 | HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger) HR - All hard rocks or stones (i.e. those which cannot be scratched w HR - All hard rocks or stones (i.e. those which cannot be scratched w HR - All hard rocks or stones (i.e. those which cannot be scratched w | Moderate Moderate Moderate | NON - Non-care-14 NON - NNo NON - NNo NON - NNo | -14 -17 3a | 3a | WC I 1 | | | | | | | | | Droughtiness | | | | 3a | | | | | | | | |
| END | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Mottle form

FF - Few Faint
 FD - Few Distinct
 FP - Few Prominent
 CF - Common Faint
 CD - Common Distinct
 CP - Common Prominent
 MF - Many Faint
 MD - Many Distinct
 MP - Many Prominent
 VF - Very many Faint
 VD - Very many Distinct
 VP - Very many Prominent

Texture

C - Clay
 CHK - Chalk
 CS - Coarse Sand
 CSL - Coarse sandy loam
 CSZL - Coarse sandy silt loam
 FP - Fibrous and semifibrous peats
 FS - Fine Sand
 FSL - Fine sandy loam
 FSZL - Fine sandy silt loam
 HCL - Clay loam (heavy)
 HP - Humified peats
 HZCL - Silty clay loam (heavy)
 IMP - Impenetrable to roots
 LCS - Loamy Coarse Sand
 LFS - Loamy fine sand
 LMS - Loamy medium sand
 LP - Loamy peats
 MCL - Clay loam (medium)
 MS - Medium Sand
 MSL - Medium sandy loam
 MSZL - Medium sandy silt loam
 MZ - Marine Light Silts
 MZCL - Silty clay loam (medium)
 OC - Organic clays
 OL - Organic loams
 OS - Organic sands
 PL - Peaty loams
 PS - Peaty sands
 SC - Sandy clay
 SCL - Sandy clay loam
 SP - Sandy peats
 ZC - Silty clay
 ZL - Silt loam

Stone Type

CH - Chalk or chalk stones
 FSST - Soft fine grained sandstones
 GH - Gravel with non-porous (hard) stones
 GS - Gravel with porous stones (mainly soft stone types listed above)
 HR - All hard rocks or stones (i.e. those which cannot be scratched with a finger nail)
 MSST - Soft, medium or coarse grained sandstones
 SI - Soft 'weathered' igneous or metamorphic rocks or stones
 SLST - Soft oolitic or dolomitic limestones
 ZR - Soft, argillaceous or silty rocks or stones

Ped. Shape

SG - Single grain
 GRA - Granular
 SAB - Subangular Blocky
 AB - Angular Blocky
 PRIS - Prismatic
 PLAT - Platy
 MASS - Massive
 NA - N/A

Subsoil Structure Condition

Not Applicable
 Good
 Moderate
 Poor

Soil or Ped. Strength

Loose
 Very friable
 Friable
 Firm
 Very firm
 Extremely firm
 Extremely hard
 N/A

Calcareousness

NON - Non-calcareous (<0.5% CaCO₃)
 VSC - Very slightly calcareous (0.5 - 1% CaCO₃)
 SC - Slightly calcareous (1 - 5% CaCO₃)
 MC - Moderately calcareous (5 - 10% CaCO₃)
 VC - Very calcareous (>10% CaCO₃)

Ped. Size

VF - Very Fine
 F - Fine
 M - Medium
 C - Coarse
 VC - Very Coarse
 NA - N/A

Degree of Ped. Development

W - Weak
 M - Moderate
 S - Strong
 NA - Not applicable

Wetness Class

WC I
 WC II
 WC III
 WC IV
 WC V
 WC VI

ALC Grades

1
 2
 3a
 3b
 4
 5
 Non-Ag

Gley

None
 Gley
 N/A

Appendix 2: Soil Pit Description

| | | | | | |
|--------------------|---------------------|--------------|-------------------|----------------|-------------------|
| Soil Survey | | | | Surveyor | RA |
| Easting (X) | 447900 | Northing (Y) | 214000 | Alt (m) | 66 |
| Land Use | | Reference | 6 (Pit 4) | Slope ° | ≤7 |
| Bedrock | Cornbrash Formation | Superficial | Summertown-radley | Aspect | NE |
| | | | | Grid Reference | SP 47900 14000 |
| | | | | Date | 05/09/2022 |

| Layer | Topsoil | 2 | 3 | 4 | 5 | 6 | 7 |
|------------------------------|------------------|---------------------------|------------------|--|---|---|---|
| Lower Depth (cm) | 25 | 45 | 65 | 120 | | | |
| Texture | MSL - Medium s | SCL - Sandy clay loam | SCL - Sandy clay | MS - Medium Sand | | | |
| Matrix Colour | 10YR3/2 | 10YR4/3 | 10YR4/4 | 10YE5/3 | | | |
| Gley (Y/N) | No | No | No | No | | | |
| Ochreous Mottles | Form | | | | | | |
| | Munsell Colour | | | | | | |
| Grey Mottles | Form | | | | | | |
| | Munsell Colour | | | | | | |
| Manganese (Y/N) | No | No | No | No | | | |
| % Stones (type 1) | 8 | 10 | 12 | 80 | | | |
| Stones > 2cm | 4 | | | | | | |
| Stones > 6cm | 0 | | | | | | |
| Stone Type | GH - Gravel with | GH - Gravel with non-poro | GH - Gravel with | GH - Gravel with non-porous (hard) stones | | | |
| % Stones (type 2) | | | | | | | |
| Stones > 2cm | | | | | | | |
| Stones > 6cm | | | | | | | |
| Stone Type | | | | | | | |
| CaCO3 | NON - Non-calca | NON - Non-calcareous (<0 | NON - Non-calca | MC - Moderately calcareous (5 - 10% CaCO3) | | | |
| Shape of Peds. | GRA - Granular | SAB - Subangular Blocky | SAB - Subangula | SG - Single grain | | | |
| Size of Peds. | M - Medium | M - Medium | C - Coarse | M - Medium | | | |
| Subsoil Structure | Not Applicable | Moderate | Moderate | Poor | | | |
| Soil or Ped. Strength | Friable | Firm | Firm | Loose | | | |
| Degree of Ped. Development | M - Moderate | M - Moderate | M - Moderate | M - Moderate | | | |
| Slowly Permeable Layer (Y/N) | No | No | No | No | | | |

| | | |
|-----|-----|-----|
| MDw | MDp | FCD |
| 109 | 102 | 143 |

| | | |
|---------|------------|------|
| Wetness | Class (WC) | WC I |
| | Grade (WE) | 1 |

| | |
|-------|--|
| Notes | |
|-------|--|

| | | | | | |
|--------------------|---------------------|--------------|-------------------|----------------|-------------------|
| Soil Survey | | | | Surveyor | RA |
| Easting (X) | 447600 | Northing (Y) | 213600 | Alt (m) | 67 |
| Land Use | | Reference | 32 (Pit 5) | Slope ° | ≤7 |
| Bedrock | Cornbrash Formation | Superficial | Summertown-radley | Aspect | N/A |
| | | | | Grid Reference | SP 47600 13600 |
| | | | | Date | 05/09/2022 |

| Layer | | Topsoil | 2 | 3 | 4 | 5 | 6 | 7 |
|------------------------------|----------------|------------------|-----------------------------------|---|---|---|---|---|
| Lower Depth (cm) | | 35 | 45 | 120 | | | | |
| Texture | | SCL - Sandy clay | C - Clay | C - Clay | | | | |
| Matrix Colour | | 10YR4/4 | 10YR4/6 | | | | | |
| Gley (Y/N) | | No | No | | | | | |
| Ochreous Mottles | Form | | | | | | | |
| | Munsell Colour | | | | | | | |
| Grey Mottles | Form | | | | | | | |
| | Munsell Colour | | | | | | | |
| Manganese (Y/N) | | No | No | | | | | |
| % Stones (type 1) | | 4 | 10 | 80 | | | | |
| Stones > 2cm | | | | | | | | |
| Stones > 6cm | | | | | | | | |
| Stone Type | | GH - Gravel with | GH - Gravel with non-poro | GH - Gravel with non-porous (hard) stones | | | | |
| % Stones (type 2) | | | | | | | | |
| Stones > 2cm | | | | | | | | |
| Stones > 6cm | | | | | | | | |
| Stone Type | | | | | | | | |
| CaCO3 | | MC - Moderately | VC - Very calcareous (>10% CaCO3) | | | | | |
| Shape of Peds. | | SAB - Subangular | AB - Angular Blocky | AB - Angular Blocky | | | | |
| Size of Peds. | | M - Medium | M - Medium | C - Coarse | | | | |
| Subsoil Structure | | Not Applicable | Moderate | Poor | | | | |
| Soil or Ped. Strength | | Firm | Firm | Firm | | | | |
| Degree of Ped. Development | | M - Moderate | M - Moderate | M - Moderate | | | | |
| Slowly Permeable Layer (Y/N) | | No | No | No | | | | |

| | | |
|-----|-----|-----|
| MDw | MDp | FCD |
| 108 | 101 | 143 |

| | | |
|---------|------------|------|
| Wetness | Class (WC) | WC I |
| | Grade (WE) | 1 |


| | |
|-------|--|
| Notes | |
|-------|--|

Appendix 3: Topsoil Particle Size Distribution (PSD)



TEST REPORT
ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 16/02/2023



| | | |
|------------------------------|--|--|
| Contract | Begbroke Oxon | |
| Serial No. | 42147_1 | |
| Client: | Askew Land and Soil Ltd The Old Stables Upexe Exeter EX5 5ND | Soil Property Testing Ltd 15, 16, 18 Halcyon Court, St Margaret's Way, Stukeley Meadows, Huntingdon, Cambridgeshire, PE29 6DG Tel: 01480 455579 Email: enquiries@soilpropertytesting.com Website: www.soilpropertytesting.com |
| Samples Submitted By: | Askew Land and Soil Ltd | Approved Signatories: |
| Samples Labelled: | Begbroke Oxon | <input checked="" type="checkbox"/> J.C. Garner B.Eng (Hons) FGS Technical Director & Quality Manager <input type="checkbox"/> W. Johnstone Materials Lab Manager  |
| Date Received: | 10/02/2023 | Samples Tested Between: 10/02/2023 and 16/02/2023 |
| Remarks: | For the attention of Robert Askew Your Reference No: C888 | |
| Notes: | <ol style="list-style-type: none">1 All remaining samples or remnants from this contract will be disposed of after 21 days from today, unless we are notified to the contrary.2 Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.3 Tests marked "NOT UKAS ACCREDITED" in this test report are not included in the UKAS Accreditation Schedule for this testing laboratory.4 This test report may not be reproduced other than in full except with the prior written approval of the issuing laboratory.5 The results within this report only relate to the items tested or sampled. | |



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 16/02/2023



0998

| Contract | | Begbroke Oxon | | | | | | | | | | | | | | | |
|-------------------------|------|--------------------------------|-----------|-------------------------------------|--|--|--|--------------------|--|--|-------------------|--|--|----------------|--|--|------------------------|
| Serial No. | | 42147_1 | | | | | | Target Date | | | 24/02/2023 | | | | | | |
| Scheduled By | | Askew Land and Soil Ltd | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| Schedule Remarks | | | | | | | | | | | | | | | | | |
| Bore Hole No. | Type | Sample Ref. | Top Depth | Particle Size Distribution (BS1377) | | | | | | | | | | Sample Remarks | | | |
| | | | | | | | | | | | | | | | | | |
| TP | A | 16 | 0.00 | 1 | | | | | | | | | | | | | |
| TP | B | 32 | 0.00 | 1 | | | | | | | | | | | | | |
| TP | C | 49 | 0.00 | 1 | | | | | | | | | | | | | |
| TP | D | 74 | 0.00 | 1 | | | | | | | | | | | | | |
| TP | E | 93 | 0.00 | 1 | | | | | | | | | | | | | |
| TP | F | 106 | 0.00 | 1 | | | | | | | | | | | | | |
| TP | H | 158 | 0.00 | 1 | | | | | | | | | | | | | |
| Totals | | | | 7 | | | | | | | | | | | | | End of Schedule |



TEST REPORT

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DATE ISSUED: 16/02/2023



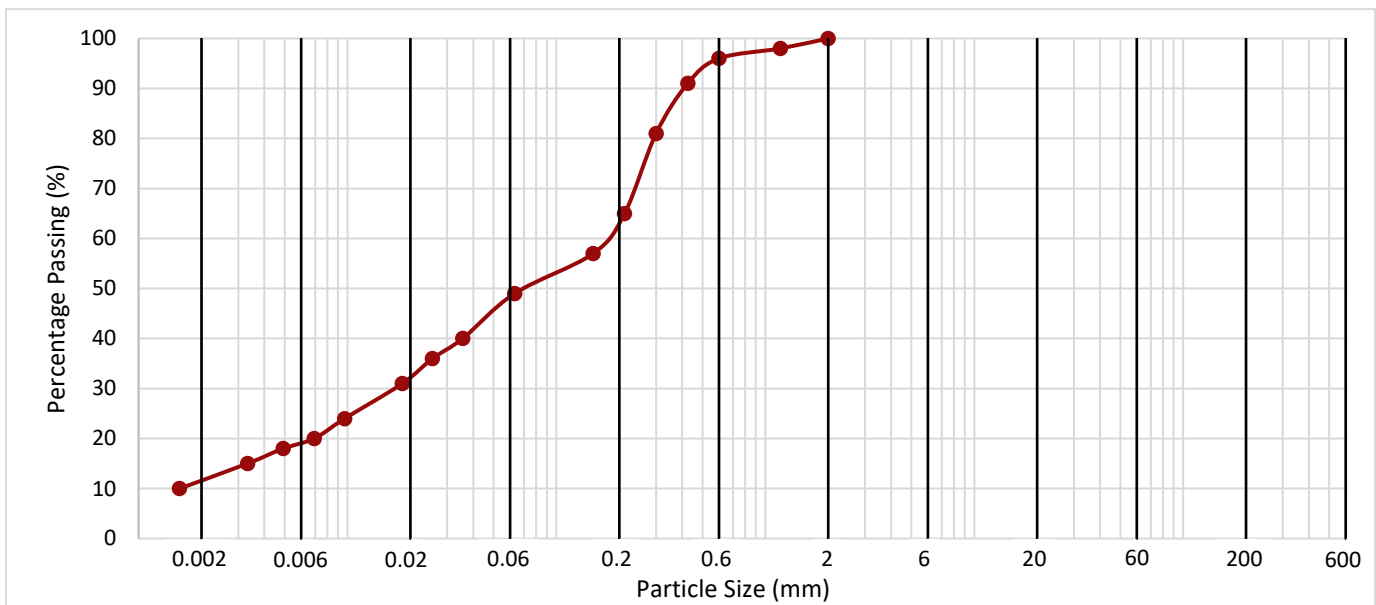
0998

| | |
|-------------------|----------------------|
| Contract | Begbroke Oxon |
| Serial No. | 42147_1 |

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

| Borehole / Pit No. | Depth (m) | Sample | | Description | Remarks |
|--------------------|-------------|--------|-----------|--|----------------------------------|
| | | Type | Reference | | |
| TP | 0.00 - 0.25 | F | 106 | Dark yellowish brown slightly gravelly sandy CLAY/SILT with occasional recently active roots. Gravel is fine to medium angular to sub angular chert and ironstone. | Material >2mm removed from test. |

Method of Test: **Hydrometer + Pre-sieve** Method of Pretreatment: **Not required**



| | | | | | | | | | | | |
|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | COBBLES | BOULDERS |
| | SILT | | | SAND | | | GRAVEL | | | | |

| Hydrometer | Particle Size (mm) | Passing (%) | Silt by Dry Mass (%) |
|------------|--------------------|-------------|----------------------|
| | 0.0356 | 40 | 38 |
| | 0.0255 | 36 | |
| | 0.0183 | 31 | |
| | 0.0097 | 24 | Clay by Dry Mass (%) |
| | 0.0069 | 20 | |
| | 0.0049 | 18 | |
| | 0.0033 | 15 | |
| | 0.0016 | 10 | 11 |

| Sieve Size (mm) | Passing (%) | Sand By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 2.00 | 100 | 51 |
| 1.18 | 98 | |
| 0.600 | 96 | |
| 0.425 | 91 | |
| 0.300 | 81 | |
| 0.212 | 65 | |
| 0.150 | 57 | |
| 0.063 | 49 | |

| Sieve Size (mm) | Passing (%) | 2mm+ By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 300 | | 0 |
| 125 | | |
| 90 | | |
| 63 | | |
| 50 | | |
| 37.5 | | |
| 28 | | |
| 20 | | |
| 14 | | |
| 10 | | |
| 6.3 | | |
| 5 | | |

| Fines By Dry Mass (%) | |
|-----------------------|-----------|
| <0.063mm | 49 |

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2,9.5
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 16/02/2023



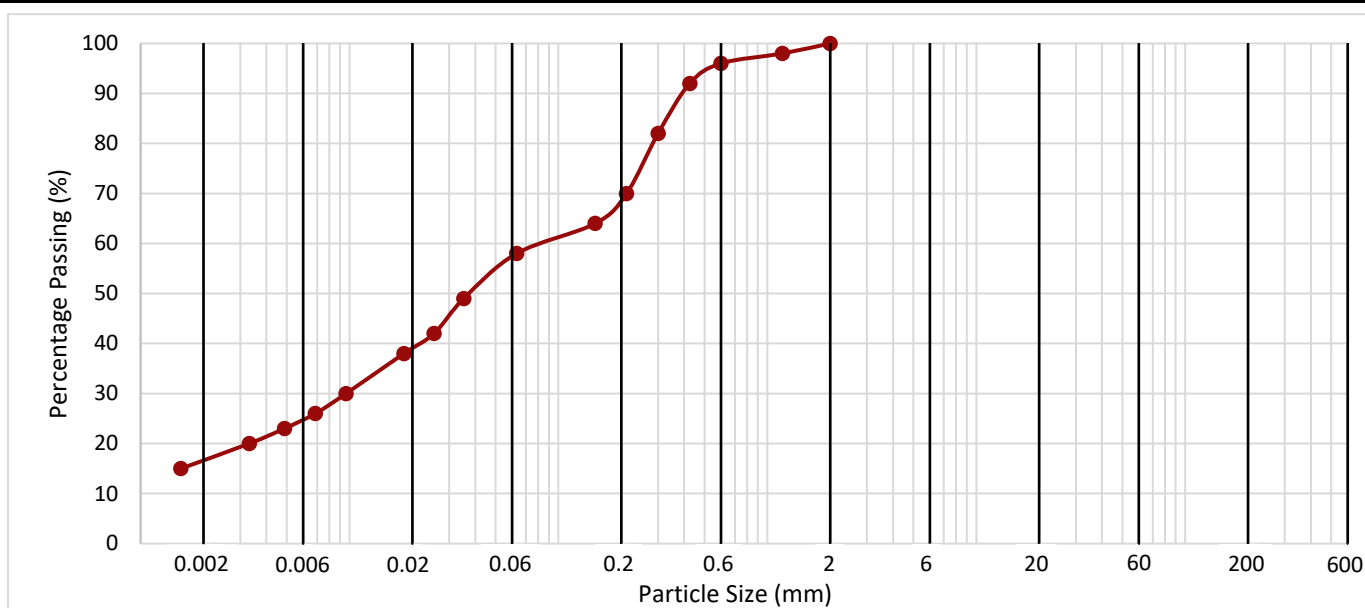
0998

| | |
|-------------------|----------------------|
| Contract | Begbroke Oxon |
| Serial No. | 42147_1 |

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

| Borehole / Pit No. | Depth (m) | Sample | | Description | Remarks |
|--------------------|-------------|--------|-----------|---|----------------------------------|
| | | Type | Reference | | |
| TP | 0.00 - 0.25 | H | 158 | Brown slightly gravelly sandy CLAY/SILT with occasional recently active roots. Gravel is fine to medium angular to sub angular chert. | Material >2mm removed from test. |

Method of Test: **Hydrometer + Pre-sieve** Method of Pretreatment: **Not required**



| | | | | | | | | | | | |
|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | COBBLES | BOULDERS |
| | SILT | | | SAND | | | GRAVEL | | | | |

| Hydrometer | Particle Size (mm) | Passing (%) | Silt by Dry Mass (%) |
|------------|--------------------|-------------|----------------------|
| | 0.0352 | 49 | 42 |
| | 0.0254 | 42 | |
| | 0.0182 | 38 | |
| | 0.0096 | 30 | Clay by Dry Mass (%) |
| | 0.0069 | 26 | |
| | 0.0049 | 23 | |
| | 0.0033 | 20 | |
| 0.0016 | 15 | 16 | |

| Sieve Size (mm) | Passing (%) | Sand By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 2.00 | 100 | 42 |
| 1.18 | 98 | |
| 0.600 | 96 | |
| 0.425 | 92 | |
| 0.300 | 82 | |
| 0.212 | 70 | |
| 0.150 | 64 | |
| 0.063 | 58 | |

| Sieve Size (mm) | Passing (%) | 2mm+ By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 300 | | 0 |
| 125 | | |
| 90 | | |
| 63 | | |
| 50 | | |
| 37.5 | | |
| 28 | | |
| 20 | | |
| 14 | | |
| 10 | | |
| 6.3 | | |
| 5 | | |

| Fines By Dry Mass (%) | |
|-----------------------|-----------|
| <0.063mm | 58 |

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2,9.5
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 16/02/2023



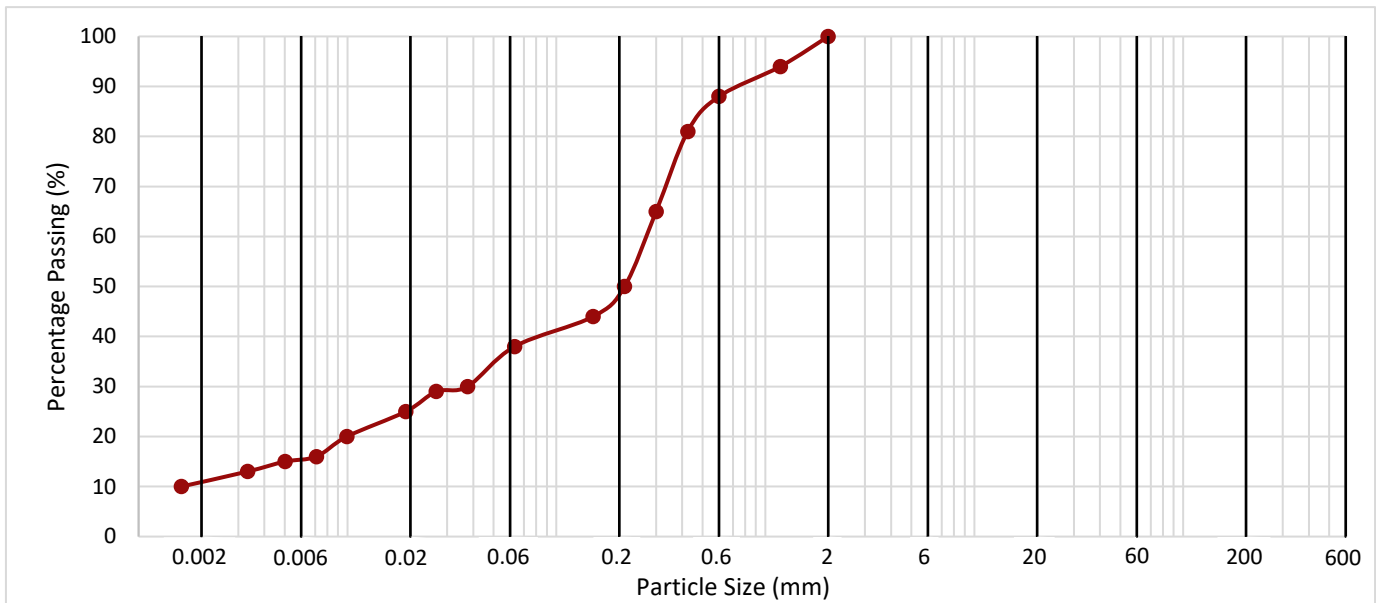
0998

| | |
|-------------------|----------------------|
| Contract | Begbroke Oxon |
| Serial No. | 42147_1 |

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

| Borehole / Pit No. | Depth (m) | Sample | | Description | Remarks |
|--------------------|-------------|--------|-----------|---|----------------------------------|
| | | Type | Reference | | |
| TP | 0.00 - 0.25 | A | 16 | Dark yellowish brown clayey silty SAND with occasional recently active roots. Gravel is fine to medium angular chert. | Material >2mm removed from test. |

Method of Test: **Hydrometer + Pre-sieve** Method of Pretreatment: **Not required**



| | | | | | | | | | | | |
|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | COBBLES | BOULDERS |
| | SILT | | | SAND | | | GRAVEL | | | | |

| Hydrometer | Particle Size (mm) | Passing (%) | Silt by Dry Mass (%) |
|------------|--------------------|-------------|----------------------|
| | 0.0375 | 30 | 28 |
| | 0.0266 | 29 | |
| | 0.0190 | 25 | |
| | 0.0099 | 20 | Clay by Dry Mass (%) |
| | 0.0071 | 16 | |
| | 0.0050 | 15 | |
| | 0.0033 | 13 | |
| | 0.0016 | 10 | 10 |

| Sieve Size (mm) | Passing (%) | Sand By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 2.00 | 100 | 62 |
| 1.18 | 94 | |
| 0.600 | 88 | |
| 0.425 | 81 | |
| 0.300 | 65 | |
| 0.212 | 50 | |
| 0.150 | 44 | |
| 0.063 | 38 | |

| Sieve Size (mm) | Passing (%) | 2mm+ By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 300 | | 0 |
| 125 | | |
| 90 | | |
| 63 | | |
| 50 | | |
| 37.5 | | |
| 28 | | |
| 20 | | |
| 14 | | |
| 10 | | |
| 6.3 | | |
| 5 | | |

| Fines By Dry Mass (%) | |
|-----------------------|-----------|
| <0.063mm | 38 |

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2,9.5
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 16/02/2023



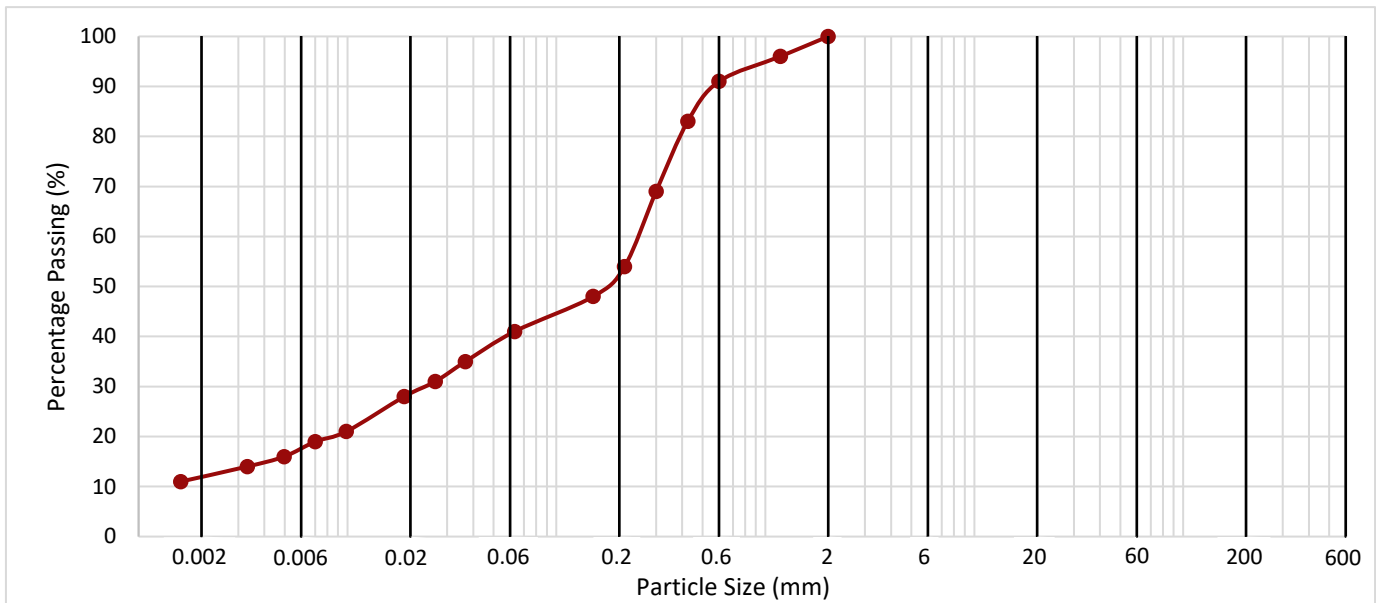
0998

| | |
|-------------------|----------------------|
| Contract | Begbroke Oxon |
| Serial No. | 42147_1 |

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

| Borehole / Pit No. | Depth (m) | Sample | | Description | Remarks |
|--------------------|-------------|--------|-----------|---|----------------------------------|
| | | Type | Reference | | |
| TP | 0.00 - 0.25 | B | 32 | Dark yellowish brown slightly gravelly sandy CLAY/SILT with rare recently active roots. Gravel is fine to medium angular chert. | Material >2mm removed from test. |

Method of Test: **Hydrometer + Pre-sieve** Method of Pretreatment: **Not required**



| | | | | | | | | | | | |
|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | COBBLES | BOULDERS |
| | SILT | | | SAND | | | GRAVEL | | | | |

| Hydrometer | Particle Size (mm) | Passing (%) | Silt by Dry Mass (%) |
|------------|--------------------|-------------|----------------------|
| | 0.0367 | 35 | 29 |
| | 0.0263 | 31 | |
| | 0.0187 | 28 | |
| | 0.0099 | 21 | Clay by Dry Mass (%) |
| | 0.0070 | 19 | |
| | 0.0050 | 16 | |
| | 0.0033 | 14 | |
| | 0.0016 | 11 | 12 |

| Sieve Size (mm) | Passing (%) | Sand By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 2.00 | 100 | 59 |
| 1.18 | 96 | |
| 0.600 | 91 | |
| 0.425 | 83 | |
| 0.300 | 69 | |
| 0.212 | 54 | |
| 0.150 | 48 | |
| 0.063 | 41 | |

| Sieve Size (mm) | Passing (%) | 2mm+ By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 300 | | 0 |
| 125 | | |
| 90 | | |
| 63 | | |
| 50 | | |
| 37.5 | | |
| 28 | | |
| 20 | | |
| 14 | | |
| 10 | | |
| 6.3 | | |
| 5 | | |

| Fines By Dry Mass (%) | |
|-----------------------|-----------|
| <0.063mm | 41 |

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2,9.5
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 16/02/2023



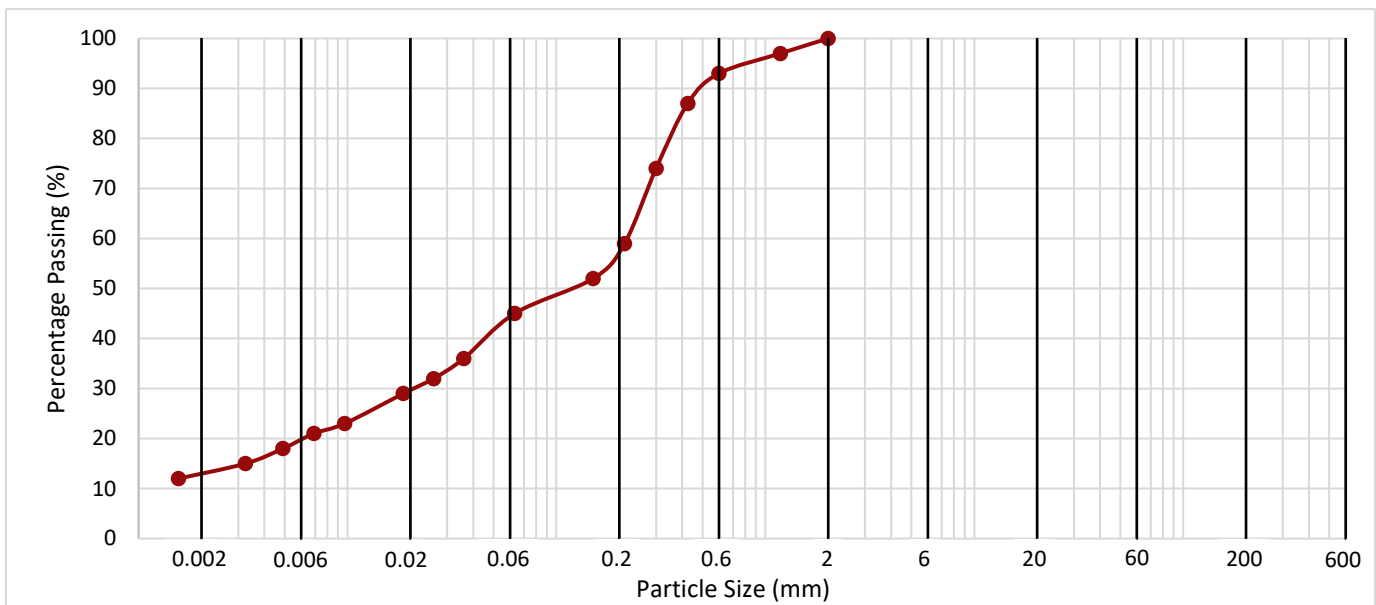
0998

| | |
|-------------------|----------------------|
| Contract | Begbroke Oxon |
| Serial No. | 42147_1 |

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

| Borehole / Pit No. | Depth (m) | Sample | | Description | Remarks |
|--------------------|-------------|--------|-----------|--|----------------------------------|
| | | Type | Reference | | |
| TP | 0.00 - 0.25 | C | 49 | Dark yellowish brown slightly gravelly sandy CLAY/SILT with occasional recently active roots. Gravel is fine to medium angular to sub angular chert and ironstone. | Material >2mm removed from test. |

Method of Test: **Hydrometer + Pre-sieve** Method of Pretreatment: **Not required**



| | | | | | | | | | | | |
|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | COBBLES | BOULDERS |
| | SILT | | | SAND | | | GRAVEL | | | | |

| Hydrometer | Particle Size (mm) | Passing (%) | Silt by Dry Mass (%) |
|------------|--------------------|-------------|----------------------|
| | 0.0360 | 36 | 32 |
| | 0.0258 | 32 | |
| | 0.0185 | 29 | |
| | 0.0097 | 23 | Clay by Dry Mass (%) |
| | 0.0069 | 21 | |
| | 0.0049 | 18 | |
| | 0.0033 | 15 | |
| | 0.0016 | 12 | 13 |

| Sieve Size (mm) | Passing (%) | Sand By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 2.00 | 100 | 55 |
| 1.18 | 97 | |
| 0.600 | 93 | |
| 0.425 | 87 | |
| 0.300 | 74 | |
| 0.212 | 59 | |
| 0.150 | 52 | |
| 0.075 | 45 | |
| 0.063 | 45 | |

| Sieve Size (mm) | Passing (%) | 2mm+ By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 300 | | 0 |
| 125 | | |
| 90 | | |
| 63 | | |
| 50 | | |
| 37.5 | | |
| 28 | | |
| 20 | | |
| 14 | | |
| 10 | | |
| 6.3 | | |
| 5 | | |

| Fines By Dry Mass (%) | |
|-----------------------|-----------|
| <0.063mm | 45 |

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2,9.5
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 16/02/2023



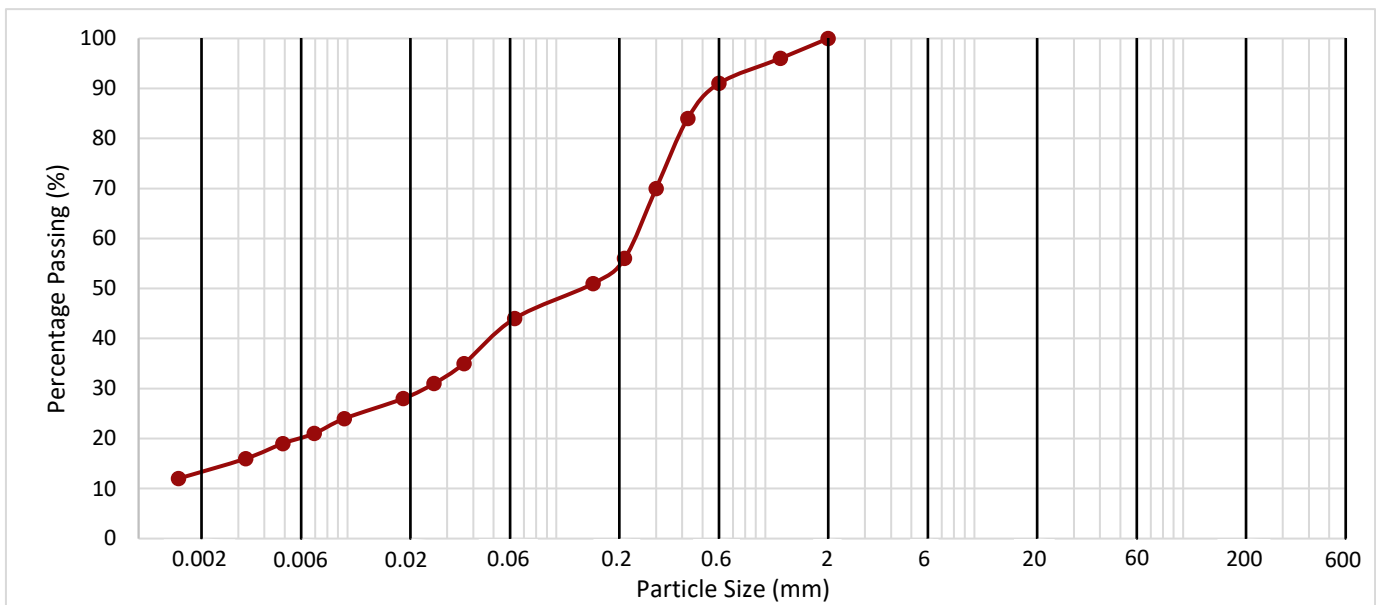
0998

| | |
|-------------------|----------------------|
| Contract | Begbroke Oxon |
| Serial No. | 42147_1 |

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

| Borehole / Pit No. | Depth (m) | Sample | | Description | Remarks |
|--------------------|-------------|--------|-----------|--|----------------------------------|
| | | Type | Reference | | |
| TP | 0.00 - 0.25 | D | 74 | Dark yellowish brown slightly gravelly sandy CLAY/SILT with occasional recently active roots. Gravel is fine to medium angular to sub angular chert and ironstone. | Material >2mm removed from test. |

Method of Test: **Hydrometer + Pre-sieve** Method of Pretreatment: **Not required**



| | | | | | | | | | | | |
|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | COBBLES | BOULDERS |
| | SILT | | | SAND | | | GRAVEL | | | | |

| Hydrometer | Particle Size (mm) | Passing (%) | Silt by Dry Mass (%) |
|------------|--------------------|-------------|-----------------------------|
| | 0.0361 | 35 | 31 |
| | 0.0259 | 31 | |
| | 0.0185 | 28 | |
| | 0.0097 | 24 | Clay by Dry Mass (%) |
| | 0.0069 | 21 | |
| | 0.0049 | 19 | |
| | 0.0033 | 16 | |
| | 0.0016 | 12 | 13 |

| Sieve Size (mm) | Passing (%) | Sand By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 2.00 | 100 | 56 |
| 1.18 | 96 | |
| 0.600 | 91 | |
| 0.425 | 84 | |
| 0.300 | 70 | |
| 0.212 | 56 | |
| 0.150 | 51 | |
| 0.063 | 44 | |

| Sieve Size (mm) | Passing (%) | 2mm+ By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 300 | | 0 |
| 125 | | |
| 90 | | |
| 63 | | |
| 50 | | |
| 37.5 | | |
| 28 | | |
| 20 | | |
| 14 | | |
| 10 | | |
| 6.3 | | |
| 5 | | |

| Fines By Dry Mass (%) | |
|-----------------------|-----------|
| <0.063mm | 44 |

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2,9.5
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 16/02/2023



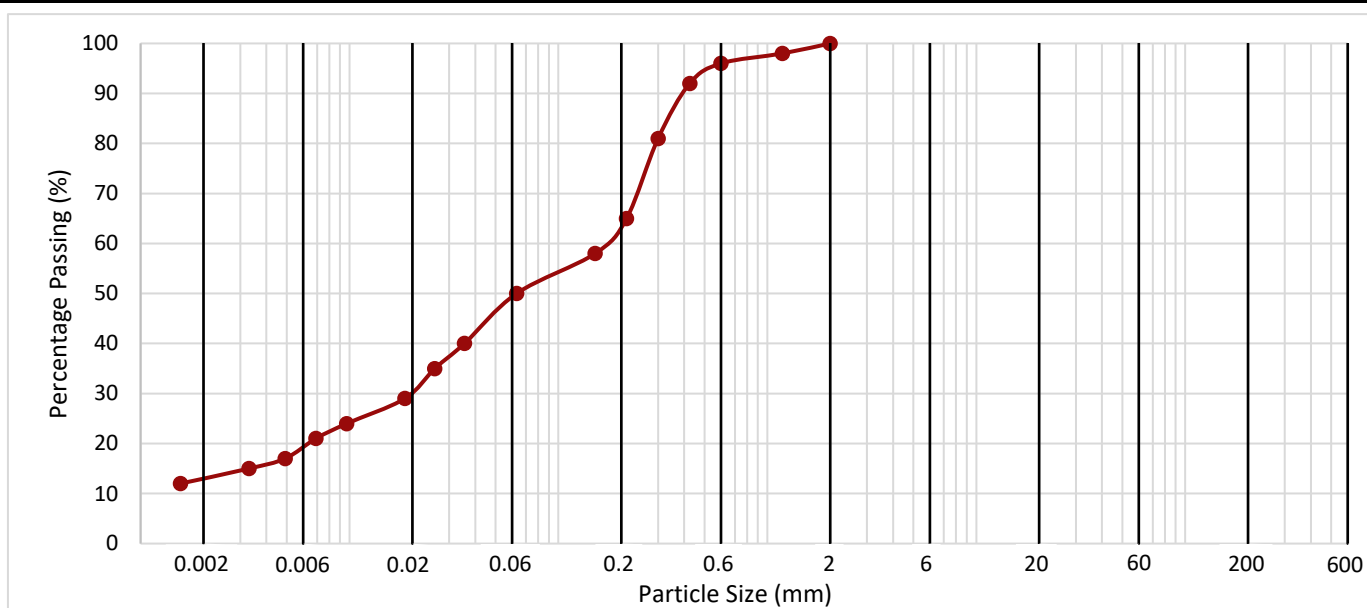
0998

| | |
|-------------------|----------------------|
| Contract | Begbroke Oxon |
| Serial No. | 42147_1 |

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

| Borehole / Pit No. | Depth (m) | Sample | | Description | Remarks |
|--------------------|-------------|--------|-----------|---|----------------------------------|
| | | Type | Reference | | |
| TP | 0.00 - 0.25 | E | 93 | Yellowish brown slightly gravelly sandy CLAY/SILT with frequent recently active roots. Gravel is fine to medium angular to sub angular chert and ironstone. | Material >2mm removed from test. |

Method of Test: **Hydrometer + Pre-sieve** Method of Pretreatment: **Not required**



| | | | | | | | | | | | |
|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | COBBLES | BOULDERS |
| | SILT | | | SAND | | | GRAVEL | | | | |

| Hydrometer | Particle Size (mm) | Passing (%) | Silt by Dry Mass (%) |
|------------|--------------------|-------------|----------------------|
| | 0.0355 | 40 | 37 |
| | 0.0256 | 35 | |
| | 0.0184 | 29 | |
| | 0.0097 | 24 | Clay by Dry Mass (%) |
| | 0.0069 | 21 | |
| | 0.0049 | 17 | |
| | 0.0033 | 15 | |
| 0.0016 | 12 | 13 | |

| Sieve Size (mm) | Passing (%) | Sand By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 2.00 | 100 | 50 |
| 1.18 | 98 | |
| 0.600 | 96 | |
| 0.425 | 92 | |
| 0.300 | 81 | |
| 0.212 | 65 | |
| 0.150 | 58 | |
| 0.063 | 50 | |

| Sieve Size (mm) | Passing (%) | 2mm+ By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 300 | | 0 |
| 125 | | |
| 90 | | |
| 63 | | |
| 50 | | |
| 37.5 | | |
| 28 | | |
| 20 | | |
| 14 | | |
| 10 | | |
| 6.3 | | |
| 5 | | |


| Fines By Dry Mass (%) | |
|-----------------------|-----------|
| <0.063mm | 50 |

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2,9.5
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



TEST REPORT
ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 17/02/2023



| | |
|---|---|
| Contract | Begbrook |
| Serial No. | 42179_1 |
| Client: Askew Land and Soil Ltd The Old Stables Upexe Exeter EX5 5ND | <i>Soil Property Testing Ltd</i> 15, 16, 18 Halcyon Court, St Margaret's Way, Stukeley Meadows, Huntingdon, Cambridgeshire, PE29 6DG Tel: 01480 455579 Email: enquiries@soilpropertytesting.com Website: www.soilpropertytesting.com |
| Samples Submitted By: Askew Land and Soil Ltd Samples Labelled: Begbrook | Approved Signatories: <input checked="" type="checkbox"/> J.C. Garner B.Eng (Hons) FGS Technical Director & Quality Manager <input type="checkbox"/> W. Johnstone Materials Lab Manager  |
| Date Received: 15/02/2023 | Samples Tested Between: 15/02/2023 and 17/02/2023 |
| Remarks: For the attention of Robert Askew Your Reference No: C888 | |
| Notes: 1 All remaining samples or remnants from this contract will be disposed of after 21 days from today, unless we are notified to the contrary. 2 Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. 3 Tests marked "NOT UKAS ACCREDITED" in this test report are not included in the UKAS Accreditation Schedule for this testing laboratory. 4 This test report may not be reproduced other than in full except with the prior written approval of the issuing laboratory. 5 The results within this report only relate to the items tested or sampled. | |



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 17/02/2023



0998

| Contract | | Begbrook | | | | | | | | | | | | | | | | | | |
|-------------------------|------|--------------------------------|-----------|-------------------------------------|---|---|--------------------|---|-------------------|---|---|------------------------|----|----------------|----|----|--|--|--|--|
| Serial No. | | 42179_1 | | | | | Target Date | | 01/03/2023 | | | | | | | | | | | |
| Scheduled By | | Askew Land and Soil Ltd | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| Schedule Remarks | | | | | | | | | | | | | | | | | | | | |
| Bore Hole No. | Type | Sample Ref. | Top Depth | Particle Size Distribution (BS1377) | | | | | | | | | | Sample Remarks | | | | | | |
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | 11 | 12 | | | | |
| TP | AB | G130 | 0.00 | 1 | | | | | | | | | | | | | | | | |
| TP | AB | G139 | 0.00 | 1 | | | | | | | | | | | | | | | | |
| Totals | | | | 2 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | End of Schedule | | | | | | | | |



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 17/02/2023



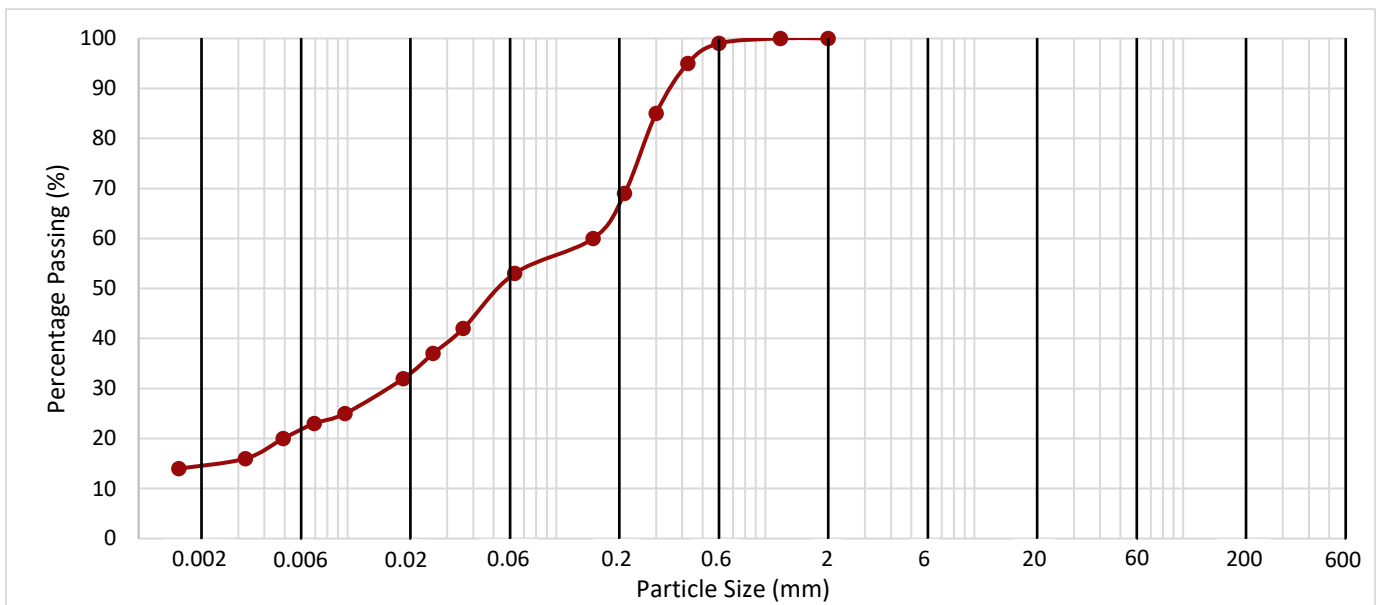
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| | |
|-------------------|-----------------|
| Contract | Begbrook |
| Serial No. | 42179_1 |

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

| Borehole / Pit No. | Depth (m) | Sample | | Description | Remarks |
|--------------------|-------------|--------|-----------|---|----------------------------------|
| | | Type | Reference | | |
| TP | 0.00 - 0.25 | AB | G130 | Dark yellowish brown sandy CLAY/SILT with rare gravel and occasional recently active roots. | Material >2mm removed from test. |

Method of Test: **Hydrometer + Pre-sieve** Method of Pretreatment: **Not required**



| | | | | | | | | | | | |
|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | COBBLES | BOULDERS |
| | SILT | | | SAND | | | GRAVEL | | | | |

| Hydrometer | Particle Size (mm) | Passing (%) | Silt by Dry Mass (%) |
|------------|--------------------|-------------|----------------------|
| | 0.0358 | 42 | 38 |
| | 0.0257 | 37 | |
| | 0.0185 | 32 | |
| | 0.0097 | 25 | Clay by Dry Mass (%) |
| | 0.0069 | 23 | |
| | 0.0049 | 20 | |
| | 0.0033 | 16 | |
| | 0.0016 | 14 | 15 |

| Sieve Size (mm) | Passing (%) | Sand By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 2.00 | 100 | 47 |
| 1.18 | 100 | |
| 0.600 | 99 | |
| 0.425 | 95 | |
| 0.300 | 85 | |
| 0.212 | 69 | |
| 0.150 | 60 | |
| 0.063 | 53 | |

| Sieve Size (mm) | Passing (%) | 2mm+ By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 300 | | 0 |
| 125 | | |
| 90 | | |
| 63 | | |
| 50 | | |
| 37.5 | | |
| 28 | | |
| 20 | | |
| 14 | | |
| 10 | | |
| 6.3 | | |
| 5 | | |

| Fines By Dry Mass (%) | |
|-----------------------|-----------|
| <0.063mm | 53 |

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2,9.5
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 17/02/2023



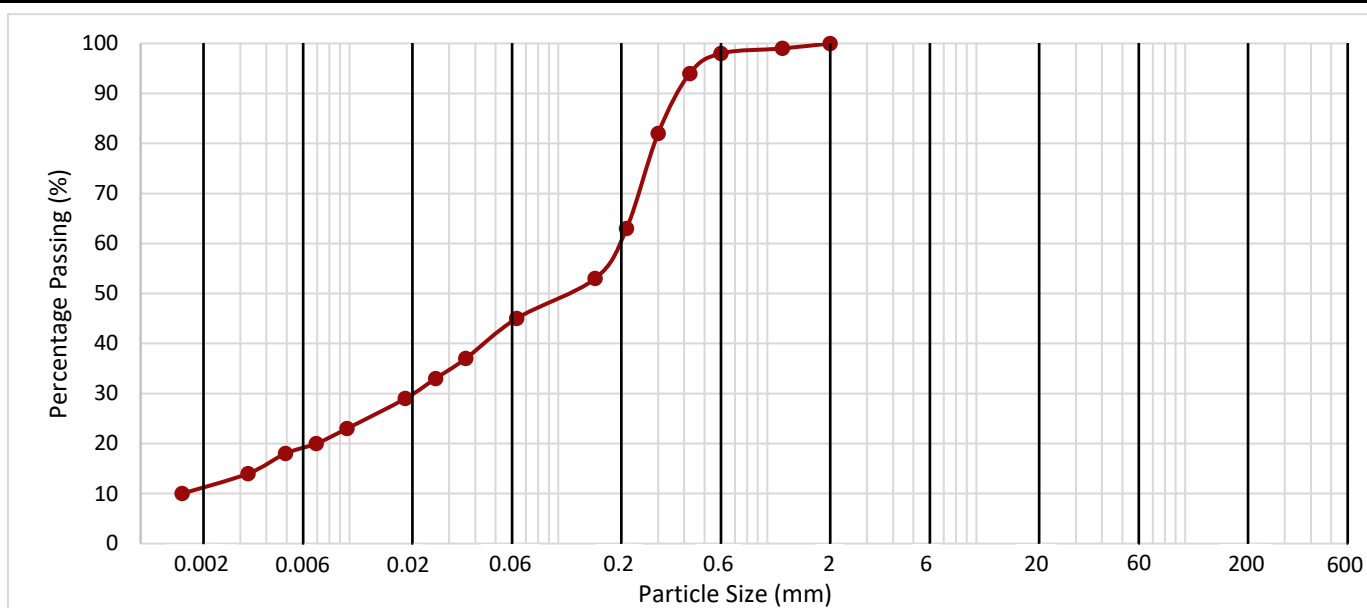
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| | |
|-------------------|-----------------|
| Contract | Begbrook |
| Serial No. | 42179_1 |

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

| Borehole / Pit No. | Depth (m) | Sample | | Description | Remarks |
|--------------------|-------------|--------|-----------|---|----------------------------------|
| | | Type | Reference | | |
| TP | 0.00 - 0.25 | AB | G139 | Dark yellowish brown sandy CLAY/SILT with rare gravel and rare recently active roots. | Material >2mm removed from test. |

Method of Test: **Hydrometer + Pre-sieve** Method of Pretreatment: **Not required**



| | | | | | | | | | | | |
|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | COBBLES | BOULDERS |
| | SILT | | | SAND | | | GRAVEL | | | | |

| Hydrometer | Particle Size (mm) | Passing (%) | Silt by Dry Mass (%) |
|------------|--------------------|-------------|----------------------|
| | 0.0360 | 37 | 34 |
| | 0.0258 | 33 | |
| | 0.0185 | 29 | |
| | 0.0097 | 23 | Clay by Dry Mass (%) |
| | 0.0069 | 20 | |
| | 0.0049 | 18 | |
| | 0.0033 | 14 | |
| | 0.0016 | 10 | 11 |

| Sieve Size (mm) | Passing (%) | Sand By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 2.00 | 100 | 55 |
| 1.18 | 99 | |
| 0.600 | 98 | |
| 0.425 | 94 | |
| 0.300 | 82 | |
| 0.212 | 63 | |
| 0.150 | 53 | |
| 0.063 | 45 | |

| Sieve Size (mm) | Passing (%) | 2mm+ By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 300 | | 0 |
| 125 | | |
| 90 | | |
| 63 | | |
| 50 | | |
| 37.5 | | |
| 28 | | |
| 20 | | |
| 14 | | |
| 10 | | |
| 6.3 | | |
| 5 | | |


| Fines By Dry Mass (%) | |
|-----------------------|-----------|
| <0.063mm | 45 |

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2,9.5
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



TEST REPORT
ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 01/03/2023



| | |
|---|--|
| Contract | Begbrook |
| Serial No. | 42179_2 |
| Client: Askew Land and Soil Ltd The Old Stables Upexe Exeter EX5 5ND | <i>Soil Property Testing Ltd</i> 15, 16, 18 Halcyon Court, St Margaret's Way, Stukeley Meadows, Huntingdon, Cambridgeshire, PE29 6DG Tel: 01480 455579 Email: enquiries@soilpropertytesting.com Website: www.soilpropertytesting.com |
| Samples Submitted By: Askew Land and Soil Ltd Samples Labelled: Begbrook | Approved Signatories: <input checked="" type="checkbox"/> J.C. Garner B.Eng (Hons) FGS Technical Director & Quality Manager <input type="checkbox"/> W. Johnstone Materials Lab Manager  |
| Date Received: 15/02/2023 | Samples Tested Between: 15/02/2023 and 01/03/2023 |
| Remarks: For the attention of Robert Askew Your Reference No: C888 | |
| Notes: | <ol style="list-style-type: none">1 All remaining samples or remnants from this contract will be disposed of after 21 days from today, unless we are notified to the contrary.2 Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.3 Tests marked "NOT UKAS ACCREDITED" in this test report are not included in the UKAS Accreditation Schedule for this testing laboratory.4 This test report may not be reproduced other than in full except with the prior written approval of the issuing laboratory.5 The results within this report only relate to the items tested or sampled. |



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 01/03/2023



0998

| Contract | | Begbrook | | | | | | | | | | | | | | | | | | | | |
|-------------------------|------|--------------------------------|-----------|-------------------------------------|---|---|--------------------|---|-------------------|---|---|---|----|----------------|----|----|--|--|--|--|--|------------------------|
| Serial No. | | 42179_2 | | | | | Target Date | | 08/03/2023 | | | | | | | | | | | | | |
| Scheduled By | | Askew Land and Soil Ltd | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | |
| Schedule Remarks | | | | | | | | | | | | | | | | | | | | | | |
| Bore Hole No. | Type | Sample Ref. | Top Depth | Particle Size Distribution (BS1377) | | | | | | | | | | Sample Remarks | | | | | | | | |
| | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | 11 | 12 | | | | | | |
| TP | A | 13 | 0.00 | 1 | | | | | | | | | | | | | | | | | | |
| TP | F | 111 | 0.00 | 1 | | | | | | | | | | | | | | | | | | |
| Totals | | | | 2 | | | | | | | | | | | | | | | | | | End of Schedule |



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 01/03/2023



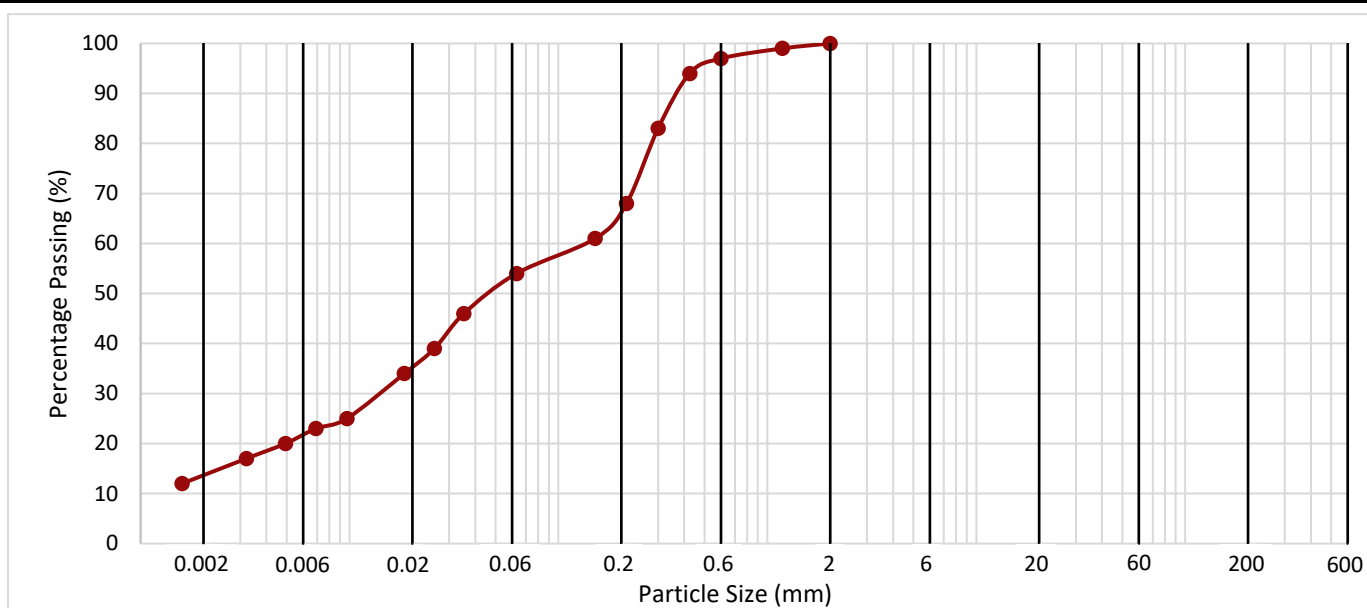
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| | |
|-------------------|-----------------|
| Contract | Begbrook |
| Serial No. | 42179_2 |

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

| Borehole / Pit No. | Depth (m) | Sample | | Description | Remarks |
|--------------------|-------------|--------|-----------|---|---|
| | | Type | Reference | | |
| TP | 0.00 - 0.25 | F | 111 | Yellowish brown slightly gravelly sandy silty CLAY with occasional recently active roots. Gravel is fine and medium angular to subrounded limestone and ironstone | Material greater than 2mm removed before test |

Method of Test: **Hydrometer + Pre-sieve** Method of Pretreatment: **Not required**



| | | | | | | | | | | | |
|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | COBBLES | BOULDERS |
| | SILT | | | SAND | | | GRAVEL | | | | |

| Hydrometer | Particle Size (mm) | Passing (%) | Silt by Dry Mass (%) |
|------------|--------------------|-------------|----------------------|
| | 0.0353 | 46 | 41 |
| | 0.0255 | 39 | |
| | 0.0183 | 34 | |
| | 0.0097 | 25 | Clay by Dry Mass (%) |
| | 0.0069 | 23 | |
| | 0.0049 | 20 | |
| | 0.0032 | 17 | |
| 0.0016 | 12 | 13 | |

| Sieve Size (mm) | Passing (%) | Sand By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 2.00 | 100 | 46 |
| 1.18 | 99 | |
| 0.600 | 97 | |
| 0.425 | 94 | |
| 0.300 | 83 | |
| 0.212 | 68 | |
| 0.150 | 61 | |
| 0.063 | 54 | |

| Sieve Size (mm) | Passing (%) | 2mm+ By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 300 | | 0 |
| 125 | | |
| 90 | | |
| 63 | | |
| 50 | | |
| 37.5 | | |
| 28 | | |
| 20 | | |
| 14 | | |
| 10 | | |
| 6.3 | | |
| 5 | | |

| Fines By Dry Mass (%) | |
|-----------------------|-----------|
| <0.063mm | 54 |

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2,9.5
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 01/03/2023



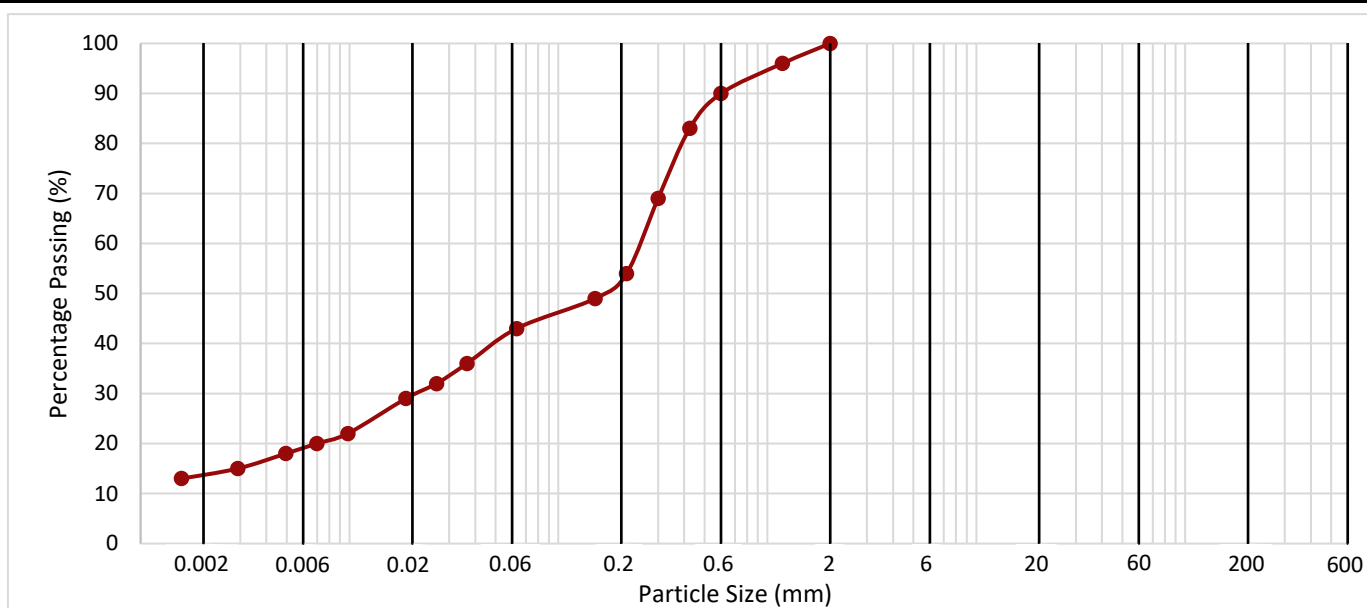
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| | |
|-------------------|-----------------|
| Contract | Begbrook |
| Serial No. | 42179_2 |

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

| Borehole / Pit No. | Depth (m) | Sample | | Description | Remarks |
|--------------------|-------------|--------|-----------|--|---|
| | | Type | Reference | | |
| TP | 0.00 - 0.25 | A | 13 | Yellowish brown slightly gravelly sandy silty CLAY with occasional recently active roots. Gravel is fine and medium angular to subrounded chert, sandstone and ironstone | Material greater than 2mm removed before test |

Method of Test: **Hydrometer + Pre-sieve** Method of Pretreatment: **Not required**



| | | | | | | | | | | | |
|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine | Medium | Coarse | COBBLES | BOULDERS |
| | SILT | | | SAND | | | GRAVEL | | | | |

| Hydrometer | Particle Size (mm) | Passing (%) | Silt by Dry Mass (%) |
|------------|--------------------|-------------|----------------------|
| | 0.0365 | 36 | 30 |
| | 0.0261 | 32 | |
| | 0.0186 | 29 | |
| | 0.0098 | 22 | Clay by Dry Mass (%) |
| | 0.0070 | 20 | |
| | 0.0050 | 18 | |
| | 0.0029 | 15 | |
| | 0.0016 | 13 | 13 |

| Sieve Size (mm) | Passing (%) | Sand By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 2.00 | 100 | 57 |
| 1.18 | 96 | |
| 0.600 | 90 | |
| 0.425 | 83 | |
| 0.300 | 69 | |
| 0.212 | 54 | |
| 0.150 | 49 | |
| 0.063 | 43 | |

| Sieve Size (mm) | Passing (%) | 2mm+ By Dry Mass (%) |
|-----------------|-------------|----------------------|
| 300 | | 0 |
| 125 | | |
| 90 | | |
| 63 | | |
| 50 | | |
| 37.5 | | |
| 28 | | |
| 20 | | |
| 14 | | |
| 10 | | |
| 6.3 | | |
| 5 | | |

| Fines By Dry Mass (%) | |
|-----------------------|-----------|
| <0.063mm | 43 |

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2,9.5
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:

REFERENCES

- ¹ British Society of Soil Science. Professional Competency Scheme Document 2 'Agricultural Land Classification of England and Wales'. Available online @ <https://www.soils.org.uk/sites/default/files/events/flyers/ipss-competency-doc2.pdf> Last accessed June 2023
- ² Natural England (2022) 'Guide to assessing development proposals on agricultural land'. Available online at <https://www.gov.uk/government/publications/agricultural-land-assess-proposals-for-development/guide-to-assessing-development-proposals-on-agricultural-land> Last accessed May 2023
- ³ Hodgson, J.M., (ed.) (1977). 'Soil Survey Field Handbook'. Soil Survey Technical Monograph No.5, Silsoe.
- ⁴ Department for Environment, Food and Rural Affairs (2009). 'Safeguarding our soils: A strategy for England'. Available online @ <https://www.gov.uk/government/publications/safeguarding-our-soils-a-strategy-for-england> Last accessed May 2023
- ⁵ ISRIC World Soil Information. Available online @ <http://www.isric.org/about-soils/functions-soil> Last accessed May 2023
- ⁶ Department for Environment, Food and Rural Affairs (Defra)(2013) 'Ecosystem Services' . Available online @ <https://www.gov.uk/guidance/ecosystems-services> Last accessed May 2023
- ⁷ Department for Environment, Food and Rural Affairs (2009). 'A Green Future: Our 25 Year Plan to Improve the Environment'. Available online @ <https://www.gov.uk/government/publications/25-year-environment-plan> Last accessed May 2023
- ⁸ Askew, R.W. Section 7.4 'Soil' and Section 7.11 'Agricultural Land; in Institute of Civil Engineers (ICE) (2021) 'Environmental Impact Assessment Handbook: A practical guide for planners, developers and communities, Third edition'. Available online at <https://www.icevirtuallibrary.com/doi/abs/10.1680/eiah3e.61415.169> Last accessed May 2023
- ⁹ Institute of Environmental Assessment and Management (2022) 'A New Perspective on Land and Soil in Environmental Impact Assessment'. Available online at <https://www.iema.net/articles/iema-publishes-new-land-and-soils-guidance> Last accessed May 2023
- ¹⁰ Department for Environment, Food and Rural Affairs (2009). Safeguarding our soils: A strategy for England'. Available online @ <https://www.gov.uk/government/publications/safeguarding-our-soils-a-strategy-for-england> Last accessed May 2023
- ¹¹ Department for Environment, Food and Rural Affairs (September, 2009) 'Code of Practice for the Sustainable Use of Soils on Construction Sites'. Available online @

<https://www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites>. Last accessed May 2023

¹² Soils in Planning Construction Task Force (September 2022) '*Building on soil sustainability: Principles for soils in planning and construction*'. Available online at <https://wp.lancs.ac.uk/sustainable-soils/files/2022/09/Soils-in-Planning-and-Construction-Sept-22.pdf> Last accessed May 2023

¹³ European Parliament (2015) Definition of a Circular Economy. Available online at <https://www.europarl.europa.eu/news/en/headlines/economy/20151201STO05603/circular-economy-definition-importance-and-benefits> Last accessed May 2023

¹⁴ Institute of Quarrying (2021) 'Good Practice Guide for Handlings Soils in Mineral Workings'. Available online at <https://www.quarrying.org/soils-guidance> Last accessed May 2023

¹⁵ Government Flood Map for Planning. Available online @ <https://flood-map-for-planning.service.gov.uk/> Last accessed May 2023

¹⁶ British Geological Survey 'Geology of Britain Viewer'. Available online @ <http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html> Last accessed May 2023

¹⁷ British Geological Survey. A 'parent material' is a soil-science name for a weathered rock or deposit from and within which a soil has formed. In the UK, parent materials provide the basic foundations and building blocks of the soil, influencing their texture, structure, drainage and chemistry. Available online @ [Soil Parent Material Model - British Geological Survey \(bgs.ac.uk\)](http://www.bgs.ac.uk/soilparentmaterial/) Last accessed May 2023

¹⁸ Cranfield University (2023) Soil site report, Soil Report for location 551340E, 201054N, 1km x 1km, Cranfield University.

¹⁹ Soil Survey of England and Wales, National Soil Resource Institute, Cranfield University (2023). *The Soils Guide*. Available online at https://www.landis.org.uk/soilsguide/mapunit_list.cfm Last accessed May 2023

²⁰ Ministry of Agriculture, Fisheries and Food, Land and Water Service, Technical Notes, Resource Planning (February 1983) 'Agricultural Land Classification of England and Wales – The Distribution of the Grades' (TN/RP/01 TFS 846)

²¹ Multi Agency Geographic Information for the Countryside. Post 1988 Agricultural Land Classification. Available online @ www.MAGIC.gov.uk Last accessed June 2023