



Minerals | Planning | Geology | Environment

**LAND TO THE SOUTH OF VASEY CLOSE
BASSINGHAM, LINCOLNSHIRE**

MINERALS ASSESSMENT

**MAY 2022
HC/0362/8**



Minerals | Planning | Geology | Environment

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BASSINGHAM, LINCOLNSHIRE**

MINERALS ASSESSMENT

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1. EXECUTIVE SUMMARY

This Minerals Assessment (the 'Assessment') relates to the proposed erection of 23 affordable houses along with associated infrastructure on land to the south of Vasey Close, Bassingham, Lincolnshire ('the Development'). The application site ('the site') extends to approximately 0.7ha. and consists of flat lying agricultural land immediately to the south of the existing residential properties on Vasey Close.

The site lies within a Mineral Safeguarding Area (MSA) in respect of sand and gravel as set out within Lincolnshire County Council's (LCC's) Minerals and Waste Local Plan (MWLP). Accordingly an appropriate Minerals Assessment has been prepared to demonstrate that the Development will not result in the unnecessary sterilisation of a potentially important mineral resource.

Published geological information confirms the site and the surrounding area to be underlain by deposits of sand and gravel, which represent the sole economic mineral. The site has been subject to a ground investigation, which has confirmed the underlying sands and gravels to be of relatively limited thickness and to contain interbedded silts and clays.

The site is constrained by the presence of the existing residential properties and, combined with the limited thickness and quality of the underlying sand and gravel, the potential for the site-wide prior extraction of mineral has been discounted on the basis that it would be uneconomic and would result in unacceptable impacts on residential amenity.

Notwithstanding this it is recognised that the Development may result in the disturbance of relatively minor volumes of mineral through the excavation of footings, services trenches etc. and it is therefore recommended that consideration is given to the retention and use of any arisings where reasonably practicable.

Safeguarded mineral extends in all directions however any extraction from land to the north, east and west is effectively prevented either by the presence of, or proximity to, residential properties. Whilst a small area of mineral may potentially be sterilised to the south, given the limited thickness of the deposit, combined with the presence of more distant residential properties, any potential volume sterilised is negligible.

Whilst sand and gravel are actively extracted in the surrounding area, the site lies in excess of 2km from any existing or proposed mineral activity and the Development will therefore not impact upon any mineral site's continued operation.

It is therefore concluded that the Development will have negligible impact with regard to sterilising a mineral resource, and will not prejudice the effective working of any permitted mineral or minerals infrastructure.

The Development therefore accords with the safeguarding policies contained within LCC's MWLP and the presence of the underlying sand and gravel should not be viewed as a constraint.

2. INTRODUCTION

2.1. Purpose and Scope of the Assessment

Planning policy at all levels acknowledges that minerals are a finite natural resource which must be used prudently in order to ensure adequate resources for future generations. Non-mineral development proposals with the potential to impact upon either current mineral workings or known mineral resources should therefore be accompanied by appropriate information to allow an informed decision on future development proposals to be reached.

As the site lies within an area where deposits of sand and gravel are known to exist, and in line with policies contained within LCC's MWLP, an appropriate Minerals Assessment is required to demonstrate that the Development will not result in the unnecessary sterilisation of a potentially important mineral resource.

This Assessment brings together all relevant geological information, reviews the potential significance of any identified mineral deposits, and assesses the Development's implications in respect of identified mineral resources, existing and proposed mineral operations and any identified minerals infrastructure.

2.2. The Proposed Development

It is understood that a full planning application has been submitted to North Kesteven District Council (NKDC) for the erection of 23 affordable houses along with associated infrastructure.

For further details of the Development, reference should be made to submitted planning documents.

2.3. Sources of Information

This Assessment draws on a range of information, the majority of which is available in the public domain. The principal sources of information are included within Table 1, with the most relevant information appended to this Assessment.

Source	Description
Lincolnshire County Council (LCC)	<ul style="list-style-type: none">Minerals and Waste Local Plan Core Strategy and Development Management Policies (CSDMP, 2016).Minerals and Waste Local Plan Site Locations Document (SLD, 2017).Local Aggregate Assessment (LAA, 2021).

<p>British Geological Survey (BGS)</p>	<ul style="list-style-type: none"> • 1:50,000 geological sheet 114 – Lincoln (1973). • Mineral Assessment Report 27 <i>'The Sand and Gravel Resources of the Country West and South of Lincoln, Lincolnshire'</i> (1977). • Mineral Resources Map – Lincolnshire (2002). • Geology of Britain Viewer (http://mapapps.bgs.ac.uk/geologyofbritain/home.html)
<p>Others</p>	<ul style="list-style-type: none"> • Preliminary Risk Assessment and Geo-Environmental Assessment, Torgate Lane, Bassingham (Delta Simons, Project No. 12-0310.03) (2021). • Ordnance Survey mapping at a variety of scales. • MAGIC database (http://www.magic.gov.uk/home.htm)

Table 1. Principal sources of information.

3. SITE DETAILS

3.1. Location

The site, centred at 491380, 359650, is located immediately to the south of the existing residential development of Vasey Close, on the southern fringe of Bassingham village, approximately 13km southwest of Lincoln and 12.5km northeast of Newark on Trent.

The site's location and boundaries are shown on drawings 0362-8-1 and 2, both of which are reproduced at Appendix 1.

3.2. Description

The site is rectangular in plan, extending to approximately 0.7ha. and lying at an elevation of approximately 14m AOD.

It comprises entirely of agricultural land and lies in the northeastern corner of a larger arable field. It is bordered to the north by the existing residential properties on Vasey Close, with access being from Torgate Lane, to the north, via Vasey Close.

The Bassingham Medical Practice and further residential properties lie to the northwest, with residential properties approximately 275m to the west separated from the site by agricultural land.

The site's eastern boundary is delineated by an established hedgerow, with agricultural land lying to the south, east and west. Manor Farm lies approximately 275m to the south.

3.3. Relevant Designations

A search of the MAGIC database confirms there to be no statutorily designated sites within 1km.

The closest listed building, the grade 2 '*Corner Cottage and Outbuilding*', lies approximately 300m to the west.

The site lies entirely within Flood Zone 1 and does not lie within a groundwater Source Protection Zone.

4. PLANNING POLICY AND GUIDANCE

4.1. National Planning Policy

Mineral safeguarding is the process used in the planning system to ensure the protection of mineral resources from the risk of sterilisation. Paragraph 210 of the National Planning Policy Framework (NPPF, 2021) requires Mineral Planning Authorities (MPAs) to define MSAs and adopt appropriate policies within their local plans to ensure that known locations of specific minerals are not needlessly sterilised by other forms of development. Importantly the NPPF acknowledges that this does not create a presumption that such resources will ever be worked.

This is reinforced by Paragraph 005 (Reference ID: 27-005-20140306) of the Planning Practice Guidance (PPG, 2014) which identifies that, whilst district councils are not mineral planning authorities, they have an important role in safeguarding minerals in three ways:

- *having regard to the local minerals plan when identifying suitable areas for non-mineral development in their local plans. District councils should show Mineral Safeguarding Areas on their policy maps;*
- *in those areas where a mineral planning authority has defined a Minerals Consultation Area, consulting the mineral planning authority and taking account of the local minerals plan before determining a planning application on any proposal for non-minerals development within it; and*
- *when determining planning applications, doing so in accordance with development policy on minerals safeguarding, and taking account of the views of the mineral planning authority on the risk of preventing minerals extraction.*

NKDC's planning policy is set out within the Central Lincolnshire Local Plan (CLLP), with the Policies Maps confirming the site to lie within an MSA in respect of sand and gravel. The CLLP contains no specific minerals safeguarding policies.

4.2. Minerals and Waste Local Plan

The most relevant mineral safeguarding policy in respect of the Application is contained within LCC's MWLP, which is made up of two parts:

- The Core Strategy and Development Management Policies (CSDMP, 2016), which sets out the key principles to guide minerals and waste developments, and the criteria against which planning applications for minerals and waste development are considered; and
- The Site Locations document (SLD, 2017), which includes specific proposals and policies for minerals and waste development.

The CSDMP contains MSAs in relation to a number of minerals, and makes it clear that the main purpose of such areas is to protect a mineral resource for the long term for future generations. The principal safeguarding policy is Policy M11: ‘Safeguarding of Mineral Resources’, which states:

‘Sand and gravel, blown sand and limestone resources that are considered to be of current or future economic importance within the Minerals Safeguarding Areas shown on Figure 1, together with potential sources of dimension stone for use in building and restoration projects connected to Lincoln Cathedral/Lincoln Castle within the areas shown on Figure 2, and chalk resources included on Figure 3, will be protected from permanent sterilisation by other development.

Applications for non-minerals development in a minerals safeguarding area must be accompanied by a Minerals Assessment. Planning permission will be granted for development within a Minerals Safeguarding Area provided that it would not sterilise mineral resources within the Mineral Safeguarding Areas or prevent future minerals extraction on neighbouring land.

Where this is not the case, planning permission will be granted when:

- the applicant can demonstrate to the Mineral Planning Authority that prior extraction of the mineral would be impracticable, and that the development could not reasonably be sited elsewhere; or*
- the incompatible development is of a temporary nature and can be completed and the site restored to a condition that does not inhibit extraction within the timescale that the mineral is likely to be needed; or*
- there is an overriding need for the development to meet local economic needs, and the development could not reasonably be sited elsewhere; or*
- the development is of a minor nature which would have a negligible impact with respect to sterilising the mineral resource; or*
- the development is, or forms part of, an allocation in the Development Plan.’*

Figure 1 of the CSDMP confirms the site to lie within an MSA in respect of sand and gravel. The adopted MSAs are based on BGS data however, in recognition that incompatible development close to an MSA may lead to sterilisation of part of the resource, the boundaries have been extended beyond the identified mineral. In respect of sand and gravel, the MSA has been extended for 250m beyond the mineral outcrop shown by the BGS. The site also lies within a ‘Sand and Gravel Area of Search’ as set out in CSDMP Figure 4 ‘Key Diagram’.

In addition, Policy M12: ‘Safeguarding of Existing Mineral Sites and Associated Minerals Infrastructure’, states:

‘Mineral sites (excluding dormant sites) and associated infrastructure that supports the supply of minerals in the County will be safeguarded against development that would unnecessarily sterilise the sites and infrastructure or prejudice or jeopardise their use by creating incompatible land uses nearby.’

Figure 3 of the CSDMP confirms that the site does not lie within a site specific mineral safeguarding area.

The SLD contains safeguarding policies in respect of the specific site allocations, with Policy SL2: ‘Safeguarding Mineral Allocations’, stating:

‘Allocated sites, as set out in Policy SL1, including an area of 250 metres surrounding each site, will be safeguarded against development that would unnecessarily sterilise the sites or prejudice or jeopardise their use by creating incompatible land uses nearby.’

Figure 1 ‘Site Locations Policies Map’ of the SLD confirms allocations MS04-LT (Swinderby Airfield, Witham St Hughs) and MS05-LT (Norton Bottoms Quarry, Stapleford) to lie approximately 3.2km to the northwest and 3.6km to the southwest respectively. The Development Briefs contained within the SLD confirms the site to lie outside the Site Specific Safeguarding Area for each allocation.

4.3. Other Relevant Publications

Local Aggregates Assessment

The latest Local Aggregate Assessment (LAA) for Lincolnshire was published in December 2021 and reports data up to 31 December 2018. The LAA splits sand and gravel extraction within the County into three production areas, with the site lying within the Lincoln/Trent Valley area.

The LAA confirms that, based on a rolling 10 year average of sales, the County contained a permitted landbank of sand and gravel of 9.50 years. At a sub-county level, the landbank within the Lincoln/Trent Valley production area stood at 9.97 years. These landbanks exceed the national requirement of 7 years.

Accordingly it is considered that the area has sufficient reserves and/or allocations of sand and gravel to meet predicted needs throughout the Plan period and there is no overriding requirement to seek further reserves, either within the County or within the Lincoln/Trent Valley production area.

5. GEOLOGY

5.1. Overview

The geology of the area is shown on the British Geological Survey (BGS) sheet 114 'Lincoln' (1:50,000, 1973), with a more detailed assessment of the sand and gravel resources set out within the Institute of Geological Sciences (now BGS) Mineral Assessment Report (MAR): MAR 27 '*The Sand and Gravel Resources of the Country West and south of Lincoln, Lincolnshire*' (1977).

These publications confirm the general geological sequence of the area to consist of Quaternary superficial deposits of varying depths and composition, overlying Jurassic and Triassic mudstones.

In addition to published mapping, the site and adjacent land have been subject to a number of ground investigations. Land immediately to the north of the site (now occupied by Vasey Close) was subject to investigation in 2012, with five boreholes drilled to a maximum depth of 3.6m and three trial pits progressed to a depth of 3.5m.

These investigations proved the topsoils to be directly underlain by gravelly sands and occasional sandy clays to a maximum depth of 3.3m, with mudstones proved beneath this depth. Groundwaters were observed at depths of between 0.6m and 2.8m.

Further site works were undertaken on land to the north in 2013, with six trial pits proving gravelly sand with localised bands of sandy clay. Groundwaters were encountered at depths of between 1.8m and 2.2m.

A ground investigation was undertaken across the site by Delta-Simons Ltd. in 2021, the results of which are discussed below. BGS mapping is reproduced at Appendix 2, with 2021 borehole records reproduced at Appendix 3.

5.2. Bedrock

Superficial deposits beneath the site lie unconformably on mudstones of the Scunthorpe Mudstone Formation, which typically consist of grey, variably calcareous and silty mudstones with thin beds of argillaceous limestone and calcareous siltstones. These mudstones were encountered in all site boreholes at depths of between 1.9m and 2.7m.

Such mudstones are widespread beneath the area and are of no specific economic value. Accordingly they do not represent a potential economic resource and are consequently not considered further within this Assessment.

5.3. Superficial Deposits

Published Data

BGS mapping confirms the site to be underlain by the Balderton Sand and Gravel Member, which outcrops extensively between Newark and Lincoln. The site lies close to the eastern margin of a relatively limited, north-south trending outcrop. BGS data confirms the Member to be dominated by rounded pebbles of 'Bunter' quartz/quartzite with subordinate, subangular flints.

Within the MAR mineral deposits are assigned to Mineral Resource Blocks, which contain mineral resources of generally similar characteristics. The site lies within Block E, which is typified by localised outcrops of floodplain terrace sands and gravels, with a mean thickness of 2.6m.

The closest borehole recorded by the BGS, SK95NW5, lies approximately 100m to the north and confirms 2.4m of sand and gravel with a mean grading of 29% gravel, 66% sand and 5% fines. The Resource Block as a whole exhibits an average grading of 20% gravel, 71% sand and 9% fines.

Ground Investigation

The 2021 ground investigations included the drilling of five dynamic sampler boreholes to depths of 3.0m (DS101 to 105), the hand excavation of two trial pits to depths of 2.0m (HP101 to 102) and the excavation of four soakaway test pits to a maximum depth of 1.85m (SA101 to 103). The approximate locations of these investigations is shown on the '*Approximate Intrusive Location Plan*' reproduced at Appendix 1.

The topsoils varied in thickness between 0.3m and 0.8m and, in trial pits HP102 and SA101 to 103, were underlain by sandy clays of up to 1.1m in thickness.

Sand and gravel was proved in all boreholes and one trial pit, with the full thickness of mineral being proved in all five borehole locations. The sand and gravel varied between 1.4m and 2.2m in thickness, with a mean of 1.7m.

The mineral was typified by brown, fine to coarse sands with sub-angular to sub-rounded gravels and occasional horizons of fine to medium sand. Two boreholes (DS10104 and DS105) encountered horizons of sandy, gravelly clays of between 0.2m and 0.6m in thickness, whilst DS104 encountered a layer of clayey sand at a similar level. Groundwater was observed at depths of between 1.8m and 2.0m.

Owing to the relatively simple, well understood nature of the deposits, the geology of the area can be inferred with a high degree of confidence and, for the purposes of this Assessment, it is considered that no further geological information is required.

6. RESOURCE AND RECOVERY POTENTIAL

6.1. Assessment of Sand and Gravel

In order to help identify potentially workable deposits of sand and gravel, the BGS have assessed the geology of the County, based on published borehole data, against the following criteria:

- The deposit average is at least 1m in thickness.
- The ratio of overburden to mineral is no more than 3:1.
- The proportion of fines (particles less than 1/16mm) is less than 40%.
- The deposit lies within 25m of the surface.

Deposits that meet these criteria are classified as 'potentially workable' and are shown on the BGS Mineral Resources maps. In turn these maps have been used as the basis for the MSAs identified within the MWLP.

Data contained within the MAR, and the results of the 2021 ground investigation, indicate that the sand and gravel underlying the site meets the above criteria, and accordingly the deposit can be classified as 'potentially workable'. It should however be recognised that, whilst these criteria are suitable to identify a 'potentially workable' deposit on a regional scale, compliance does not imply that a deposit represents a mineral resource of economic importance or that it could realistically be worked.

The identification of potentially workable mineral (with reference to the above BGS criteria) does not necessarily equate to a mineral resource worthy of safeguarding however, where potentially workable mineral has been identified, it should be subject to further assessment. Such assessment should aim to determine:

- Whether or not a mineral resource of sufficient size and quality exists, with regard to all relevant and reasonably identifiable constraints;
- The reasonable likelihood of any identified resource being extracted and marketed economically; and
- If a potentially economically significant resource exists, whether it would be practical to extract this prior to non-mineral development ('prior extraction').

6.2. Resource Potential

The deposit underlying the site is relatively thin and the volume of mineral beneath the site is therefore limited. Further to this the presence of interbedded clays and silty horizons reduce both the mineral volume and quality to the extent that any revenues from its recovery would be minimal.

In addition to the limited volume of mineral, the presence of the interbedded clays significantly reduces the commercial attractiveness of the deposit. Given the variability observed within the boreholes, coupled with the limited thickness of mineral, the extraction of 'clean' mineral would be difficult and stripping losses would be substantial.

Any recovered mineral would be likely to require significant processing in order to meet recognised aggregate standards, and this would introduce exceptional costs which would be unsustainable given the overall volumes involved.

The ground investigations noted the presence of reasonably shallow groundwaters within the sands and gravel, and the requirement to address this issue (either by dewatering or working any mineral 'wet') would introduce further complications and costs.

In light of the above it is considered that the mineral underlying the site is neither of a suitable quality or quantity to support economic prior extraction. Notwithstanding this, in order to provide a robust assessment, consideration has been given to the potential recovery of any mineral either prior to, or as part of, the Development.

6.3. Recovery Potential

In order to refine the area of potentially workable mineral within the site, consideration must be given to existing constraints and the stand-offs which may reasonably be required to allow any mineral to be worked without giving rise to unacceptable impacts. For the purposes of this Assessment the following stand-offs have therefore been applied:

- 100m to the facade of existing residential properties to the north;
- 10m to all other site boundaries.

The entire site lies within 100m of existing residential properties and accordingly the widespread extraction of mineral from the site would be likely to result in unacceptable amenity impacts. The potential for the larger scale prior extraction of mineral is therefore discounted on the basis that it would be both uneconomic and would be likely to result in unacceptable impacts on amenity.

It is recognised that there may be the potential for the more limited, incidental extraction to take place as part of the Development and accordingly it is recommended that, should sand and gravel be encountered during the Development (through the excavation of footings, services trenches, drainage infrastructure etc.), consideration is given to its retention and potential use within the Development.

Whilst it is unlikely that such materials would meet any high quality aggregate specifications, they may nevertheless be used for less demanding applications such as general fill, landscaping etc. within the Development.

The retention and use of any such materials will help not only reduce the Development's reliance on imported aggregates but will also reduce the requirement for the off-site disposal of materials. Both aspects will help to deliver sustainability benefits throughout the construction phase whilst ensuring that the best, most sustainable and practical use is made of the underlying mineral.

In light of the above it is concluded that the site does not contain any significant volume of potentially recoverable mineral and it the Development will therefore have a negligible impact with regard to sterilising a mineral resource. The Development is therefore considered to comply with Policy M11 '*Safeguarding of Mineral Resources*' of the CSDMP.

6.4. Proximal Sterilisation

In addition to the potential to sterilise mineral within the site, consideration must also be given to the possibility of sterilising safeguarded minerals beyond the site's boundaries. In this respect the Development will introduce a land use (residential) which is considered to be sensitive to impacts arising from mineral extraction (noise, dust etc.).

As with the identification of constraints outlined above, it is considered that a stand-off of 100m between any mineral extraction and a residential property is generally sufficient to allow the successful mitigation of potential impacts and the Development therefore has the potential to impact upon the workability of mineral within this distance.

Safeguarded sands and gravels extend in all directions however, given the presence of existing residential properties to the north, any mineral in this direction is already sterilised. Similarly any mineral immediately to the east and west of the site is also effectively sterilised by its proximity to the residential properties.

Whilst the land immediately to the south may be relatively unconstrained, given the variable quality and limited thickness of the deposit, any potential mineral sterilisation arising as a result of the Development would be minimal. Furthermore the extent of any potential extraction to the south and southwest would be limited by the presence of residential properties in these directions, whilst any extraction to the southeast would be limited by the extent of the mineral.

Accordingly it is concluded that the Development will not result in the proximal sterilisation of any significant off-site mineral resource.

6.5. Infrastructure Assessment

Mineral extraction is currently taking place at Norton Bottoms Quarry which lies, at closest, approximately 2.6km to the southwest, and at Swinderby Quarry, 3km to the northwest. Given its distance from either quarry, the Development will not result in any impacts upon the consented operations.

Both quarries include allocated extensions however no allocated extraction area, as set out within the MWLP SLD, lies lie within 2km of the site. Accordingly it can be concluded that the Development will not prejudice the effective working of any permitted mineral reserve or mineral operations.

The Development is therefore in accordance with Policy M12 *Safeguarding of Existing Mineral Sites and Associated Minerals Infrastructure* of the CSDMP and SL2 *'Safeguarding Mineral Allocations'* of the SLD.

7. CONCLUSIONS

The site lies within an MSA in respect of sand and gravel and accordingly, in line with policies contained within LCC's MWLP, an appropriate Minerals Assessment has been undertaken.

Geological information confirms the site and the surrounding area to be underlain by deposits of sand and gravel, which represent the sole economic mineral potentially worthy of safeguarding. Ground investigations have proved the site to be underlain by a limited thickness of variable quality mineral.

The site is constrained by the presence of residential properties to the north and, combined with the limited thickness and quality of the deposit, the potential for the site-wide prior extraction of mineral has been discounted on the basis that it would be both uneconomic and likely to result in unacceptable impacts on amenity.

Notwithstanding this it is recognised that the Development may result in the disturbance of relatively minor volumes of mineral through the excavation of footings, services trenches etc. and it is therefore recommended that consideration is given to the retention and on site and use of any arisings where reasonably practicable.

Safeguarded mineral extends in all directions however any extraction from land immediately to the north, east and west is prevented by the presence of, or proximity to, existing residential properties. Given the limited depth of the deposit, coupled with the presence of more distant residential properties, any mineral potentially sterilised to the south is negligible. Accordingly the Development will have a negligible impact with regard to sterilising any mineral resource beneath adjacent land.

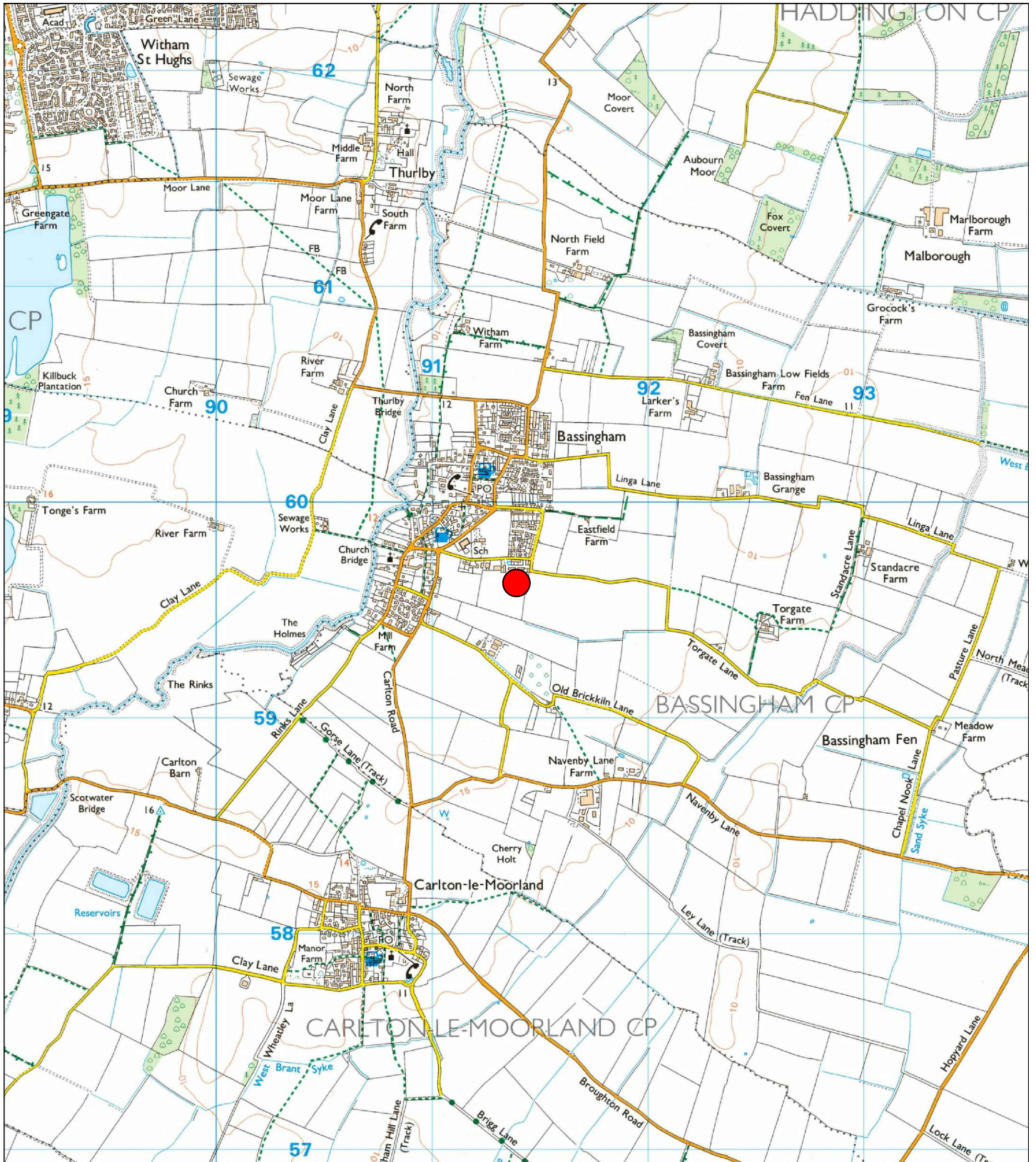
Whilst sand and gravel are being actively extracted in the surrounding area, the site lies in excess of 2km from any existing or proposed mineral activity and the Development will therefore not impact upon any mineral site's continued operation.

It is therefore concluded that the Development is of a minor nature that will have negligible impact with regard to sterilising a mineral resource, and will not prejudice the effective working of any permitted mineral or minerals infrastructure.

The Development therefore accords with the aims of the safeguarding policies contained within LCC's MWLP and the presence of the underlying sand and gravel should not be viewed as a constraint.

APPENDIX 1

PLANS



NOTES:

 SITE LOCATION



Minerals | Planning | Geology | Environment
 Sparkhouse, Ropewalk, Lincoln, LN6 7DQ
 01522 849555
 www.hughes-craven.co.uk



PROJECT
**LAND SOUTH OF VASEY CLOSE,
 BASSINGHAM, LINCOLNSHIRE**

TITLE
SITE LOCATION PLAN

CLIENT
LINDUM GROUP LTD.

DATE
04/05/2022

STATUS
FINAL

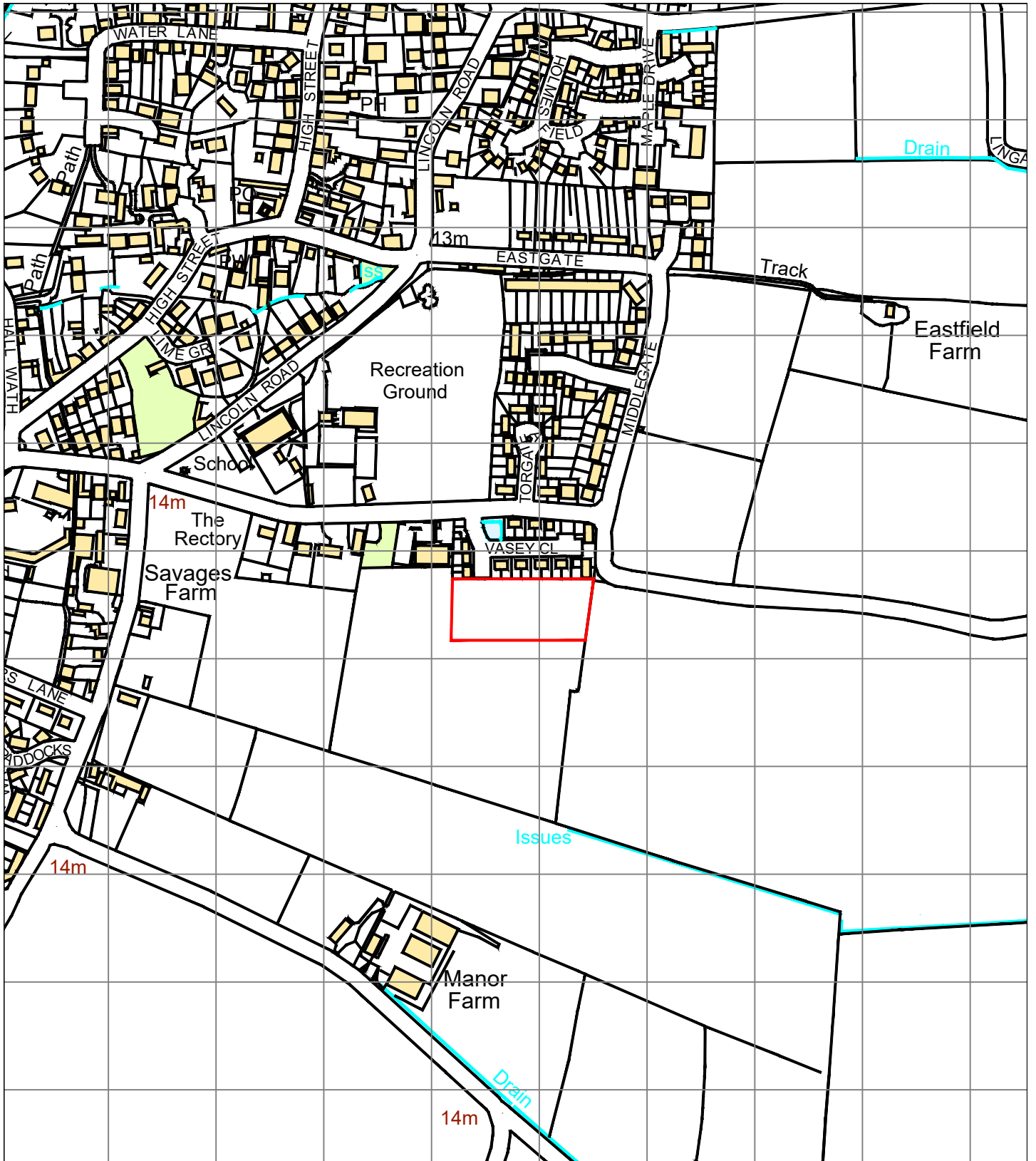
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SCALE
1:25,000

SHEET
A4

DRAWING NO.
0362-8-1

REV
-



NOTES:

— SITE LOCATION



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 Sparkhouse, Ropewalk, Lincoln, LN6 7DQ
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 www.hughes-craven.co.uk



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PROJECT

**LAND SOUTH OF VASEY CLOSE,
 BASSINGHAM, LINCOLNSHIRE**

TITLE

SITE BOUNDARY PLAN

DATE

04/05/2022

STATUS

FINAL

SCALE

1:5,000

SHEET

A4

DRAWING NO.

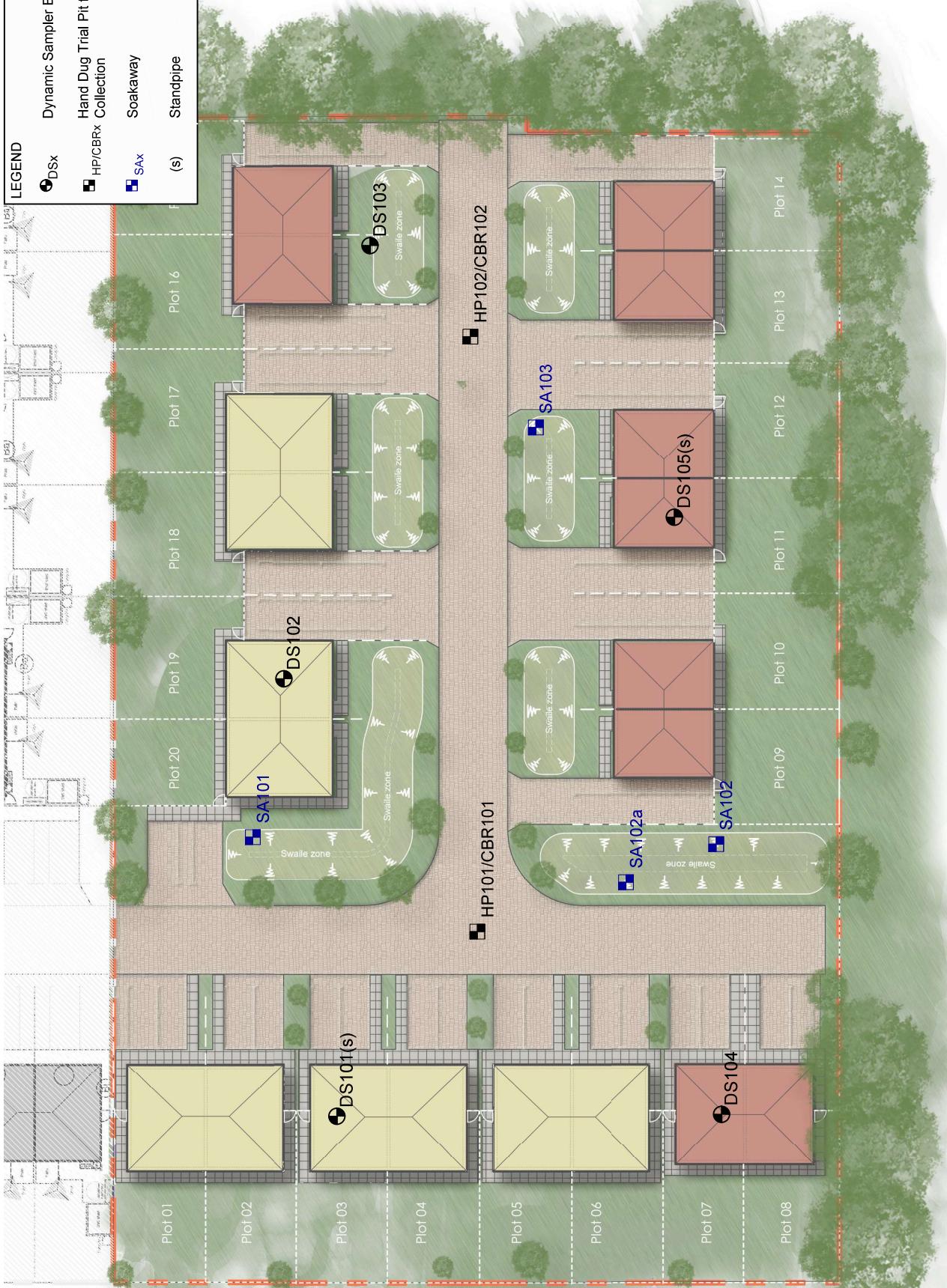
0362-8-2

REV

-



LEGEND	
	Dynamic Sampler Borehole
	Hand Dug Trial Pit for CBR Collection
	Soakaway
	Standpipe



DRAWN BY: KE		SCALE: Not to Scale	PROJECT NO: 12-0310.03
CHECKED BY: JR		REVISION: 1	FIGURE NO: 3
DATE: 25 October 2021			

Site Plan Provided by Client





TITLE: Approximate Intrusive Location Plan
 Additional Land, Torngate Lane
 Basingstham





APPENDIX 2
GEOLOGICAL MAPPING

Geology 1:50,000 Maps Legends

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Not Supplied - Holocene
	BDTN	Balderton Sand and Gravel Member	Sand and Gravel	Not Supplied - Pleistocene
	FULB	Fulbeck Sand and Gravel Member	Sand and Gravel	Not Supplied - Pleistocene
	RTDU	River Terrace Deposits (Undifferentiated)	Sand and Gravel	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	CHAM	Charmouth Mudstone Formation	Mudstone	Not Supplied - Sinemurian
	SMD	Scunthorpe Mudstone Formation	Mudstone and Limestone, Interbedded	Not Supplied - Rhaetian

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Geology 1:50,000 Maps

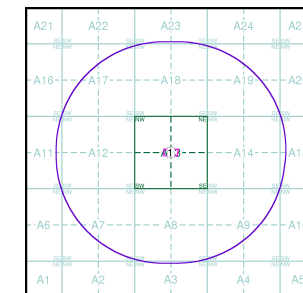
This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.

The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID: 1
 Map Sheet No: 114
 Map Name: Lincoln
 Map Date: 1973
 Bedrock Geology: Available
 Superficial Geology: Available
 Artificial Geology: Available
 Faults: Not Supplied
 Landslip: Not Available
 Rock Segments: Not Supplied

Geology 1:50,000 Maps - Slice A



Order Details:

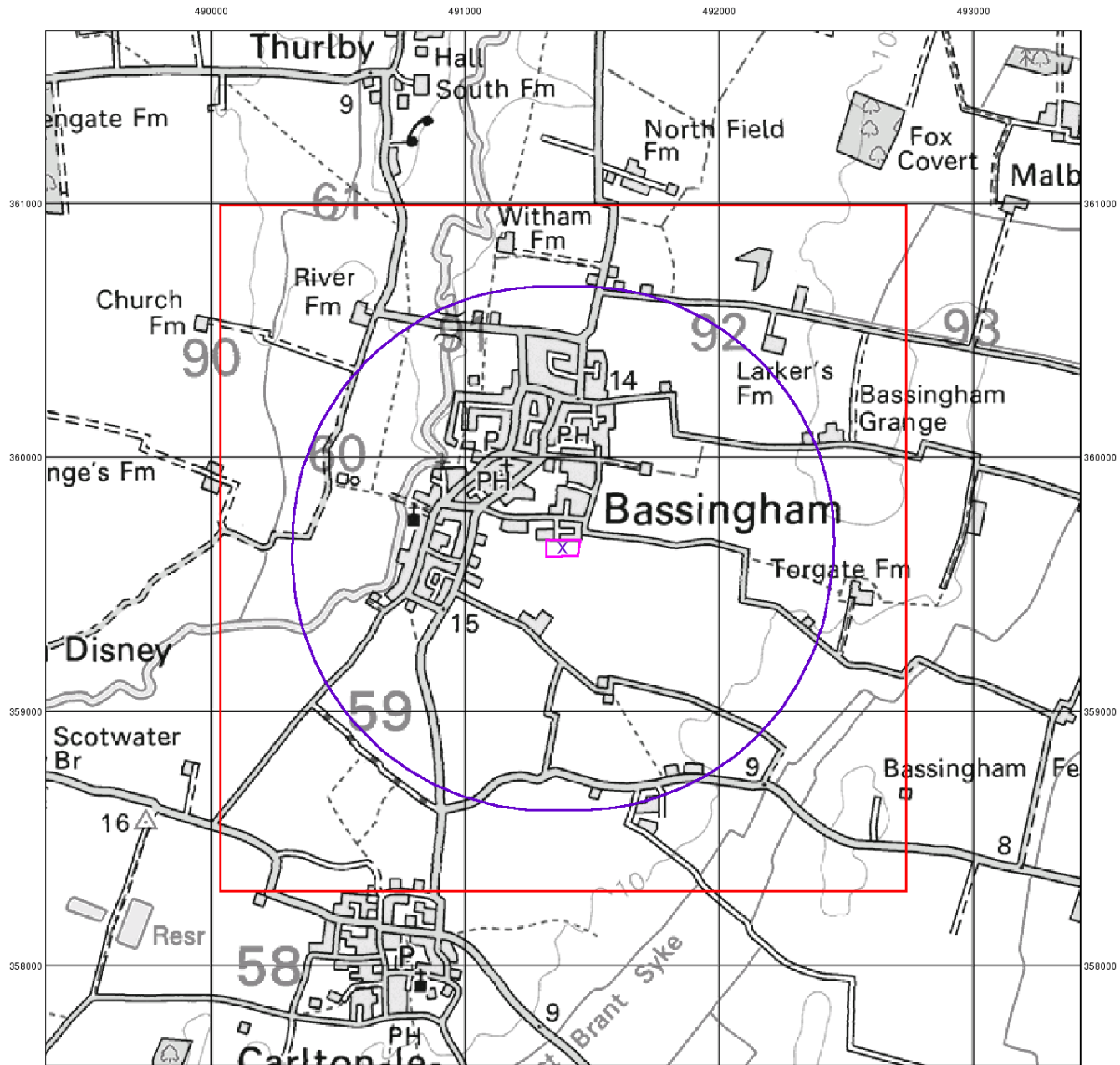
Order Number: 294891508_1_1
 Customer Reference: HC/0762/8
 National Grid Reference: 491380, 359640
 Slice: A
 Site Area (Ha): 0.79
 Search Buffer (m): 1000

Site Details:

Site at, Bassingham, Lincolnshire

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Artificial Ground and Landslip

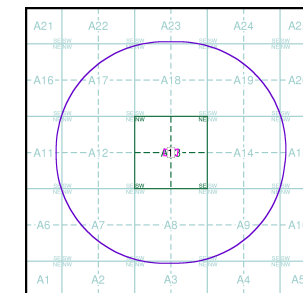
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



Order Details:

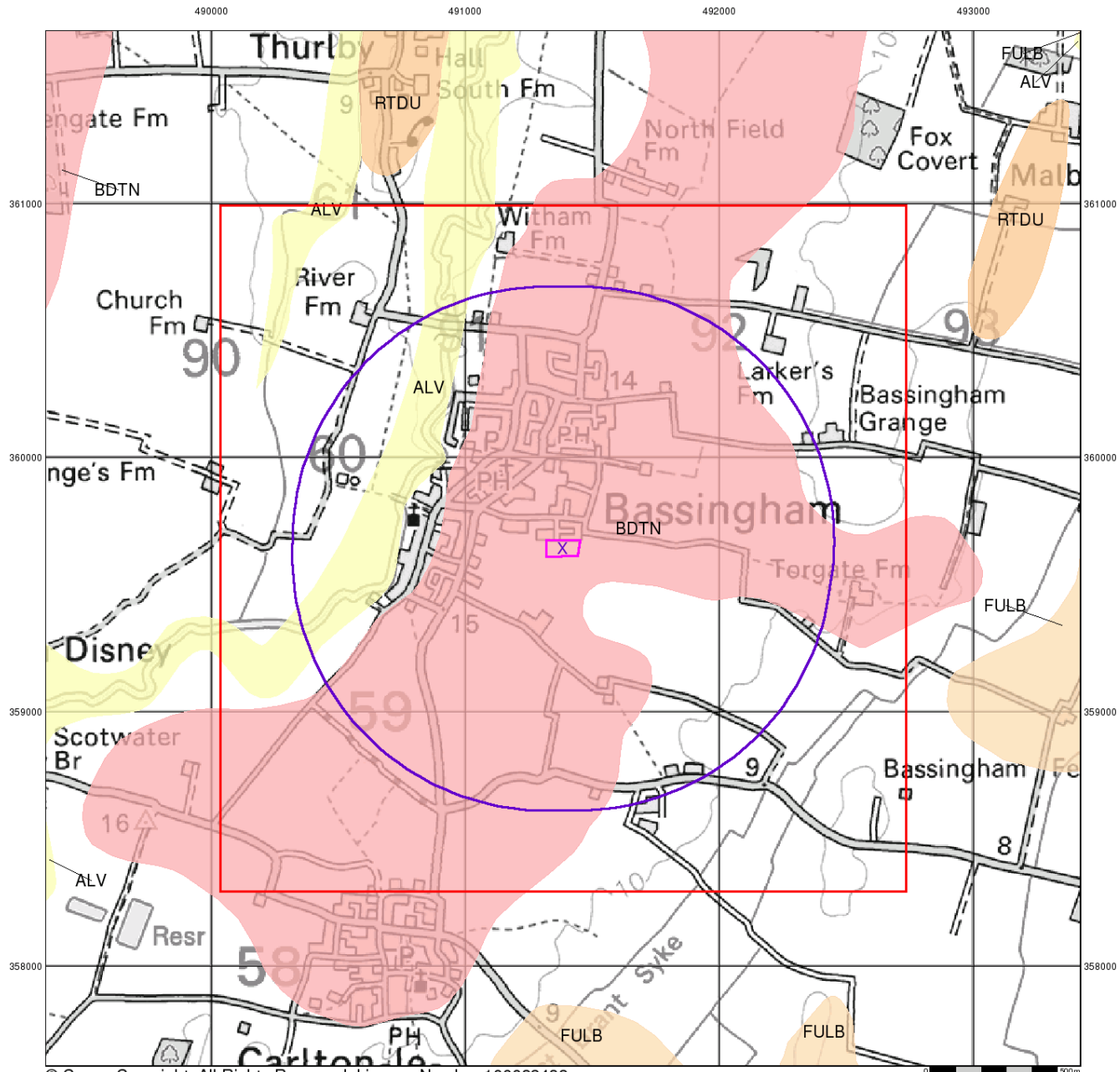
Order Number: 294891508_1_1
 Customer Reference: HC/0762/8
 National Grid Reference: 491380, 359640
 Slice: A
 Site Area (Ha): 0.79
 Search Buffer (m): 1000

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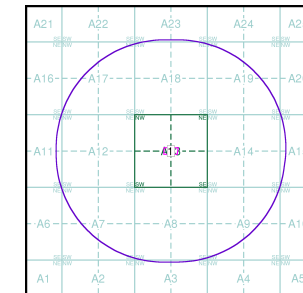
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



Order Details:

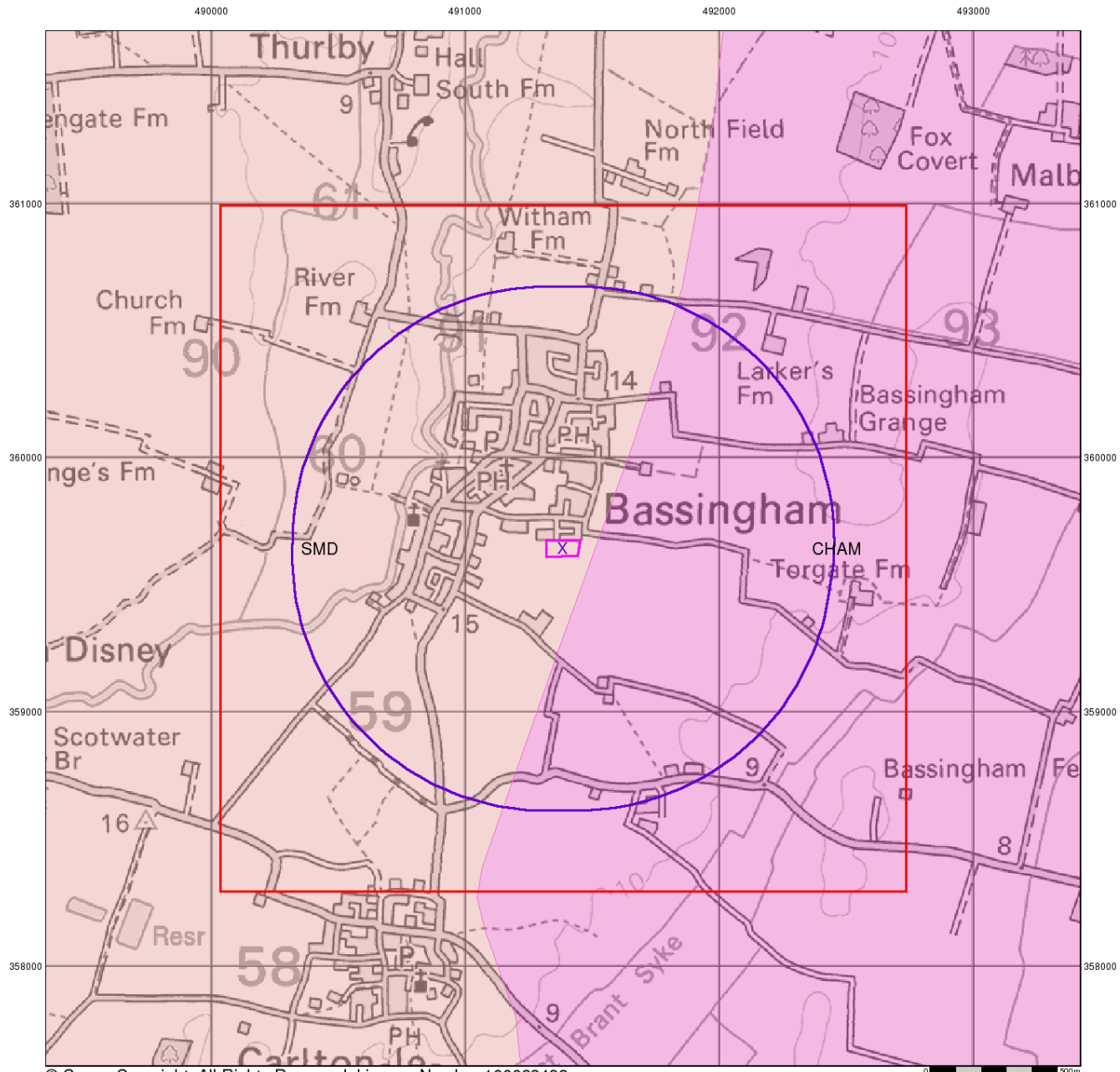
Order Number: 294891508_1_1
 Customer Reference: HC/0762/8
 National Grid Reference: 491380, 359640
 Slice: A
 Site Area (Ha): 0.79
 Search Buffer (m): 1000

Site Details:

Site at, Bassingham, Lincolnshire

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Bedrock and Faults

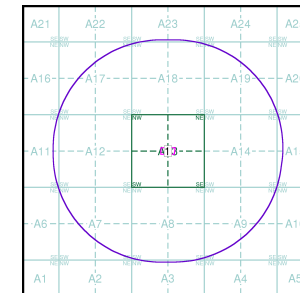
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A



Order Details:

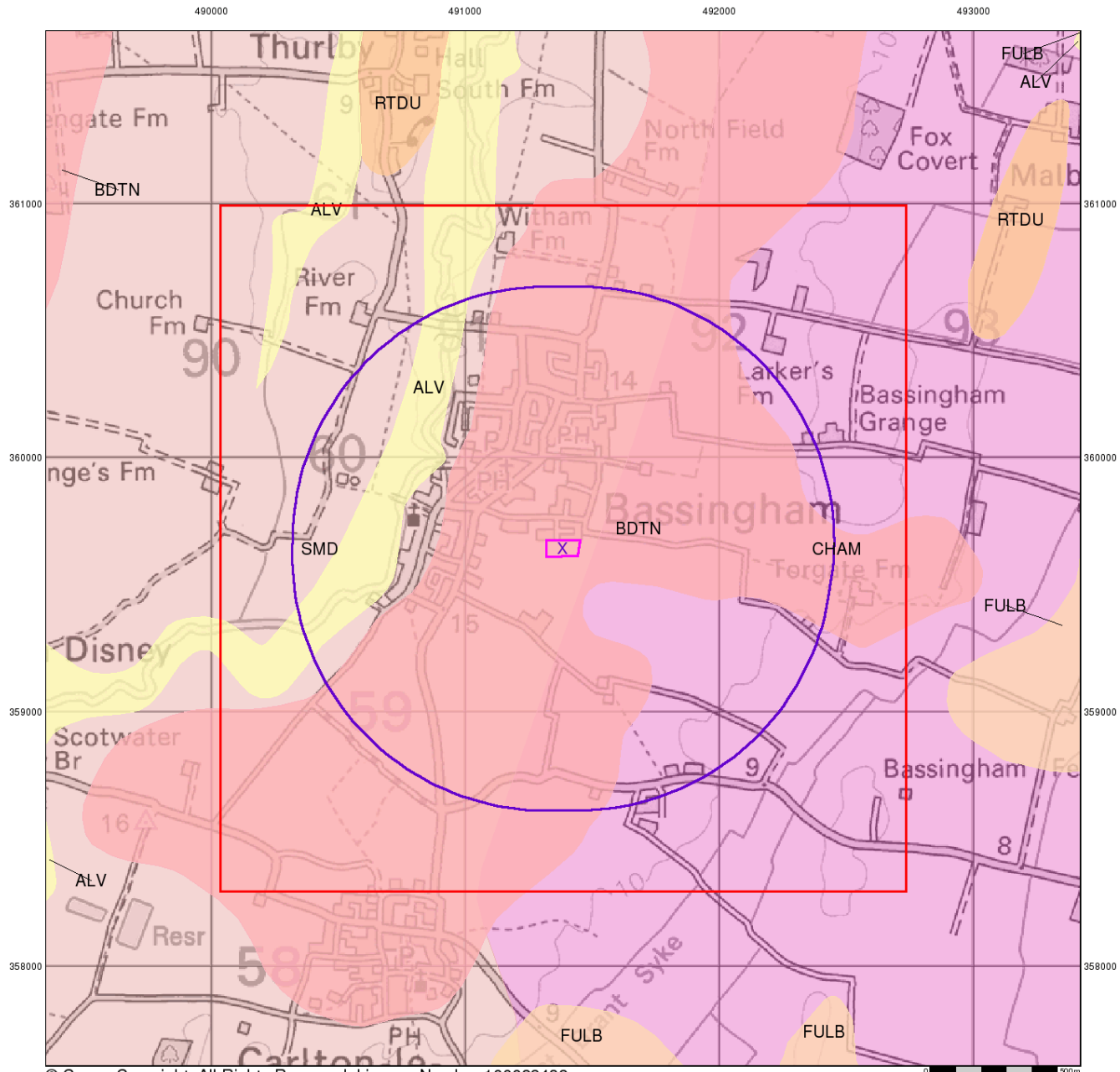
Order Number: 294891508_1_1
 Customer Reference: HC/0762/8
 National Grid Reference: 491380, 359640
 Slice: A
 Site Area (Ha): 0.79
 Search Buffer (m): 1000

Site Details:

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Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

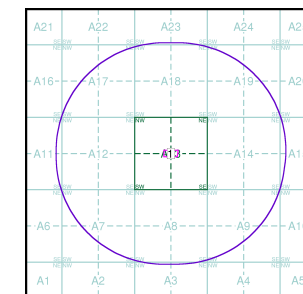
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

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 Fax: 0115 936 3276
 email: enquiries@bgs.ac.uk
 website: www.bgs.ac.uk

Combined Geology Map - Slice A



Order Details:

Order Number: 294891508_1_1
 Customer Reference: HC/0762/8
 National Grid Reference: 491380, 359640
 Slice: A
 Site Area (Ha): 0.79
 Search Buffer (m): 1000

Site Details:


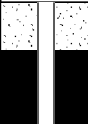

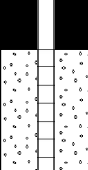
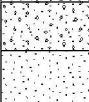
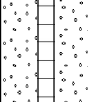



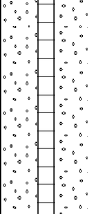


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APPENDIX 3
BOREHOLE/TRIAL PIT RECORDS









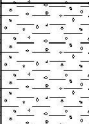


Dynamic Sampler Log

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill
							Depth (m)	Type & Ref	Depth (m)	Results	
TOPSOIL: Yellowish brown gravelly medium SAND with frequent fine rootlets. Gravel is sub-angular to rounded fine to medium flint.		0.50	(0.50)	13.82			0.40 - 0.45	ES1			
Brown fine to coarse SAND and sub-angular to rounded fine to coarse flint GRAVEL. (BALDERTON SAND AND GRAVEL MEMBER).		1.20	(0.70)	13.12			1.10 - 1.15	ES2	1.20	SPT(S) N=44 (7,8/9,11,11,13)	
Dense light brown mottled orange slightly clayey fine to medium SAND and sub-angular to rounded fine to medium flint GRAVEL. (BALDERTON SAND AND GRAVEL MEMBER).		1.40	(0.20)	12.92							
Dense orangish brown fine to medium SAND. (BALDERTON SAND AND GRAVEL MEMBER).		1.80	(0.40)	12.52							
Medium dense brown fine to coarse SAND and sub-angular to rounded fine to coarse flint GRAVEL. (BALDERTON SAND AND GRAVEL MEMBER).		2.70	(0.90)	11.62		2.00 2.00			2.00	SPT(S) N=28 (6,6/8,7,6,7)	
Firm blueish grey slightly gravelly CLAY. Gravel is sub-angular to sub-rounded fine flint. (SCUNTHORPE MUDSTONE FORMATION).		3.00	(0.30)	11.32			2.80 - 2.85	D1	3.00	SPT(S) N=13 (1,2/2,2,4,5)	
Borehole complete at 3.00 m bgl.											

Remarks:
1) Engineer verified logged in general accordance to BS 5930:2015+A1:2020. 2) Area CAT scanned prior to excavation. 3) Groundwater encountered at 2.00 m bgl and remained at 2.00 m bgl after 20 minutes. 4) Borehole completed at 3.00 m bgl. 5) Installed with a 63 mm HDPE standpipe to 2.80 m bgl due to slightly collapsed well.

Water Strike			Water Level		Borehole Diameter	
Date	Depth (m)	Remarks	Duration (min)	Depth	Depth Base	Diameter
31/08/2021	2.00		20	2		

Dynamic Sampler Log Date: **31/08/2021** Client: **Lindum Group**

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill
							Depth (m)	Type & Ref	Depth (m)	Results	
TOPSOIL: Dark brown gravelly fine to coarse SAND with frequent fine rootlets. Gravel is sub-angular to rounded fine to coarse flint.		0.50	(0.50)	13.66			0.20 - 0.25	ES1			
Brown clayey fine to medium SAND and sub-angular to sub-rounded fine to coarse flint GRAVEL. (BALDERTON SAND AND GRAVEL MEMBER).		1.20	(0.70)	12.96					1.20	SPT(S) N=9 (1,2/2,2,3,2)	
Loose light brownish grey slightly silty medium SAND and sub-angular to rounded fine to medium flint GRAVEL. (BALDERTON SAND AND GRAVEL MEMBER).		1.90	(0.70)	12.26							
Soft blueish grey gravelly CLAY. Gravel is angular to sub-rounded fine flint. (SCUNTHORPE MUDSTONE FORMATION).		2.50	(0.60)	11.66					2.00	SPT(S) N=5 (2,1/1,1,2,1)	
Soft blueish grey gravelly sandy CLAY. Gravel is angular to sub-rounded fine flint. Sand is fine. (SCUNTHORPE MUDSTONE FORMATION).		3.00	(0.50)	11.16			2.60 - 2.70	D1			
Borehole complete at 3.00 m bgl.									3.00	SPT(S) N=20 (6,6/5,5,5,5)	

Remarks:
1) Engineer verified logged in general accordance to BS 5930:2015+A1:2020. 2) Area CAT scanned prior to excavation. 3) Borehole remained dry upon completion. 4) Borehole completed at 3.00 m bgl. 5) Backfilled with arisings.

Water Strike			Water Level		Borehole Diameter	
Date	Depth (m)	Remarks	Duration (min)	Depth	Depth Base	Diameter



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Project No: **12-0310.03** Hole ID: **DS103** Page: **1 of 1**

Project: **Torgate Lane, Bassingham**








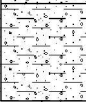
Dynamic Sampler Log Date: **31/08/2021** Client: **Lindum Group**

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill
							Depth (m)	Type & Ref	Depth (m)	Results	
TOPSOIL: Dark brown gravelly fine to coarse SAND with frequent fine rootlets. Gravel is sub-angular to rounded fine to coarse flint.		0.80	(0.80)	13.27			0.70 - 0.75	ES1			
Yellowish brown coarse SAND and sub-angular to rounded fine to coarse flint GRAVEL. (BALDERTON SAND AND GRAVEL MEMBER).		1.35	(0.55)	12.72					1.20	SPT(C) N=32 (5,5/7,8,8,9)	
Firm orangish brown gravelly clayey fine to coarse SAND. Gravel is sub-rounded to rounded fine to medium flint. (BALDERTON SAND AND GRAVEL MEMBER).		1.80	(0.45)	12.27		1.60 1.60	1.60 - 1.65	D1			
Loose brown medium SAND and sub-angular to rounded fine to medium flint GRAVEL. (BALDERTON SAND AND GRAVEL MEMBER).		2.50	(0.70)	11.57					2.00	SPT(C) N=5 (1,1/1,1,1,2)	
Very stiff blueish grey gravelly CLAY. Gravel is angular to sub-angular fine to medium flint. (SCUNTHORPE MUDSTONE FORMATION).		3.00	(0.50)	11.07					3.00	SPT(C) N=50 (15,10/50 for 280mm)	
Borehole complete at 3.00 m bgl.											

Remarks:
 1) Engineer verified logged in general accordance to BS 5930:2015+A1:2020. 2) Area CAT scanned prior to excavation. 3) Groundwater encountered at 1.60 m bgl and remained at 1.60 m bgl after 20 minutes. 4) Borehole complete at 3.00 m bgl. 5) Backfilled with arisings.



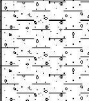



Water Strike			Water Level		Borehole Diameter	
Date	Depth (m)	Remarks	Duration (min)	Depth	Depth Base	Diameter
31/08/2021	1.60		20	1.6		

Coordinates: **E491412.16 N359662.89** Elevation (mAOD): **14.07** Drilled By: **Delta-Drilling** Plant Used: **Premier 110** Logged: **JJR** Checked: **LD** Approved: **JR** Scale: **1:32**

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill
							Depth (m)	Type & Ref	Depth (m)	Results	
TOPSOIL: Light brown slightly gravelly fine SAND with frequent fine rootlets. Gravel is sub-angular to sub-rounded fine to medium flint.		0.50	(0.50)	13.88			0.30 - 0.35	ES1			
Brown mottled orange medium SAND and sub-angular to sub-rounded fine to medium flint GRAVEL. (BALDERTON SAND AND GRAVEL MEMBER).		0.90	(0.40)	13.48							
Very stiff brown mottled orange sandy slightly gravelly CLAY. Gravel is sub-angular to sub-rounded fine to medium flint. Sand is medium. (BALDERTON SAND AND GRAVEL MEMBER).		1.10	(0.20)	13.28					1.20	SPT(C) N=41 (5,7/8,10,11,12)	
Dense brown medium SAND and sub-rounded to rounded fine to coarse flint GRAVEL. (BALDERTON SAND AND GRAVEL MEMBER).		1.70	(0.60)	12.68							
Firm brownish orange mottled grey slightly sandy gravelly CLAY. Gravel is sub-rounded to rounded fine to coarse flint. Sand is coarse. (BALDERTON SAND AND GRAVEL MEMBER).		2.00	(0.30)	12.38		1.80			2.00	SPT(C) N=12 (2,4/4,4,2,2)	
Medium dense brown coarse SAND and sub-angular to sub-rounded fine to coarse flint GRAVEL. (BALDERTON SAND AND GRAVEL MEMBER).		2.60	(0.60)	11.78		1.80					
Firm blueish grey slightly sandy slightly silty gravelly CLAY. Gravel is sub-angular fine flint. Sand is fine. (SCUNTHORPE MUDSTONE FORMATION).		3.00	(0.40)	11.38			2.80 - 2.85	D1	3.00	SPT(C) N=12 (1,1/2,2,4,4)	
Borehole complete at 3.00 m bgl.											

Remarks:
1) Engineer verified logged in general accordance to BS 5930:2015+A1:2020. 2) Area CAT scanned prior to excavation. 3) Groundwater encountered at 1.80 m bgl and remained at 1.80 m bgl after 20 minutes. 4) Borehole completed at 3.00 m bgl. 5) Backfilled with arisings.

Water Strike			Water Level		Borehole Diameter	
Date	Depth (m)	Remarks	Duration (min)	Depth	Depth Base	Diameter
31/08/2021	1.80		20	1.8		

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details		Test Details		Backfill
							Depth (m)	Type & Ref	Depth (m)	Results	
TOPSOIL: Dark brown gravelly fine to coarse SAND with frequent fine rootlets. Gravel is sub-angular to rounded fine to coarse flint.		0.40	(0.40)	13.60							
Yellowish brown medium SAND and sub-rounded to rounded fine to coarse flint GRAVEL. (BALDERTON SAND AND GRAVEL MEMBER).		0.80	(0.40)	13.20							
Firm light brown mottled dark brown slightly gravelly sandy CLAY. Gravel is sub-angular to sub-rounded fine flint. Sand is coarse. (BALDERTON SAND AND GRAVEL MEMBER).		1.40	(0.60)	12.60			1.00 - 1.05	ES1	1.20	SPT(S) N=16 (4,3/3,4,4,5)	
Light grey slightly gravelly medium SAND. Gravel is sub-angular to sub-rounded fine flint. (BALDERTON SAND AND GRAVEL MEMBER).		1.70	(0.30)	12.30							
Loose reddish brown gravelly fine to medium SAND. Gravel is sub-angular to sub-rounded fine to coarse flint. (BALDERTON SAND AND GRAVEL MEMBER).		2.40	(0.70)	11.60		1.90	2.10 - 2.15	D1	2.00	SPT(C) N=8 (1,1/2,1,2,3)	
Stiff blueish grey silty slightly gravelly CLAY. Gravel is sub-angular to sub-rounded fine to medium flint. (SCUNTHORPE MUDSTONE FORMATION).		3.00	(0.60)	11.00							
Borehole complete at 3.00 m bgl.											

Remarks:
1) Engineer verified logged in general accordance to BS 5930:2015+A1:2020. 2) Area CAT scanned prior to excavation. 3) Groundwater encountered at 1.90 m bgl and remained at 1.90 m bgl after 20 minutes. 4) Borehole completed at 3.00 m bgl. 5) Installed with a 63 mm HDPE standpipe to 2.50 m bgl.

Water Strike			Water Level		Borehole Diameter	
Date	Depth (m)	Remarks	Duration (min)	Depth	Depth Base	Diameter
31/08/2021	1.90		20	1.9		



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Project No: **12-0310.03** Hole ID: **HP101/ CBR101** Page: **1 of 1**

Project: **Torgate Lane, Bassingham**

Hand Pit Log

Date: **31/08/2021**

Client: **Lindum Group**

Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details			Test Details		Backfill
							Depth (m)	Type	Ref	Depth (m)	Results	
TOPSOIL: Dark brown gravelly fine to coarse SAND with frequent fine rootlets. Gravel is sub-angular to rounded fine to coarse flint.		0.35	(0.35)	13.86								
Yellowish brown medium SAND and sub-rounded to rounded fine to medium flint GRAVEL. (BALDERTON SAND AND GRAVEL MEMBER).		0.90	(0.55)	13.31			0.60 - 0.80	B - CB R1				
Hand pit complete at 0.90 m bgl.												

Remarks:
 1) Engineer verified logged in general accordance to BS 5930:2015+A1:2020. 3) Hand Pit remained dry and stable upon completion. 4) Hand pit completed at 0.90 m bgl. 5) Hand pit backfilled with arisings.

Water Level Observations					Pit Diameter	
Date	Time	Strike (m)	Duration	Standing	Depth (m)	Diameter (mm)

Coordinates: E491347.76 N359659.02	Elevation (mAOD): 14.21	Excavated By: Delta-Simons	Plant Used: Hand Tools	Logged: JJR	Checked: LD	Approved: JR	Scale: 1:30
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Project No: **12-0310.03** Hole ID: **HP102/ CBR102** Page: **1 of 1**

Project: **Torgate Lane, Bassingham**

Hand Pit Log

Date: **31/08/2021**

Client: **Lindum Group**

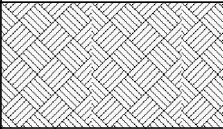
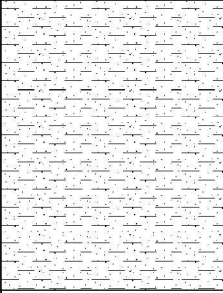
Description of Strata	Legend	Strata Depth (m bgl)	Strata Thickness (m)	Reduced Level (mAOD)	Casing Diameter (mm)	Water	Sample Details			Test Details		Backfill
							Depth (m)	Type	Ref	Depth (m)	Results	
TOPSOIL: Dark brown gravelly fine to coarse SAND with frequent fine rootlets. Gravel is sub-angular to rounded fine to coarse flint.		0.30	(0.30)	13.78								
Firm brown mottled orange sandy slightly gravelly CLAY. Gravel is sub-angular to sub-rounded fine to medium flint. Sand is medium. (BALDERTON SAND AND GRAVEL MEMBER).		0.80	(0.50)	13.28			0.50 - 0.70	B - CB R1				
Hand pit complete at 0.80 m bgl.												

Remarks:
 1) Engineer verified logged in general accordance to BS 5930:2015+A1:2020. 3) Hand Pit remained dry and stable upon completion. 4) Hand pit completed at 0.80 m bgl. 5) Hand pit backfilled with arisings.

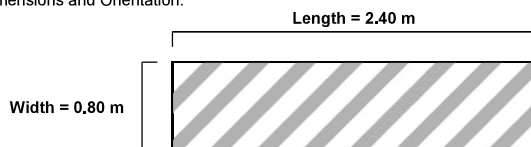
Water Level Observations					Pit Diameter	
Date	Time	Strike (m)	Duration	Standing	Depth (m)	Diameter (mm)

Coordinates: E491401.91 N359653.91	Elevation (mAOD): 14.08	Excavated By: Delta-Simons	Plant Used: Hand Tools	Logged: JJR	Checked: LD	Approved: JR	Scale: 1:30
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Trial Pit Log

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type & Ref	Depth (m)	Results
TOPSOIL: Dark brown clayey gravelly fine to coarse SAND. Gravel is sub-angular to rounded fine to coarse flint.		0.50	13.71					
Firm yellowish orange mottled grey sandy CLAY. Sand is fine to coarse. (BALDERTON SAND AND GRAVEL MEMBER).		1.65	12.56					
Trial pit complete at 1.65 m bgl.								

Dimensions and Orientation:



Orientation:

Inclination:


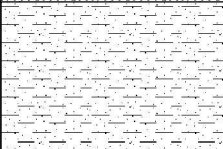
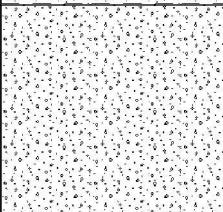
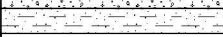
Remarks:

1) Engineer verified logged in general accordance to BS 5930:2015 +A1:2020. 2) Area CAT scanned prior to excavation. 3) Trial Pit remained dry upon completion. 4) Converted to a BRE365 Soakaway Infiltration Test.

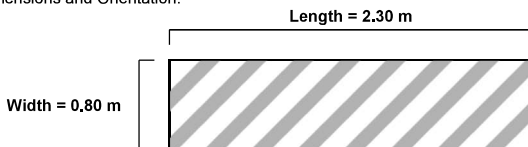
Trial Pit Log

Date: **31/08/2021**

Client: **Lindum Group**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type & Ref	Depth (m)	Results
TOPSOIL: Dark brown clayey gravelly fine to coarse SAND. Gravel is sub-angular to rounded fine to coarse flint.		0.30	13.85	1.80	0.70			
Firm yellowish orange mottled grey sandy CLAY. Sand is fine to coarse. (BALDERTON SAND AND GRAVEL MEMBER).		0.90	13.25					
Orangish brown very clayey fine to coarse SAND and angular to rounded fine to coarse flint GRAVEL. (BALDERTON SAND AND GRAVEL MEMBER).		1.75	12.40					
Firm reddish brown sandy CLAY. Sand is fine. (BALDERTON SAND AND GRAVEL MEMBER).		1.85	12.30					
Trial pit complete at 1.85 m bgl.								

Dimensions and Orientation:



Orientation:

Inclination:

Remarks:

1) Engineer verified logged in general accordance to BS 5930:2015 +A1:2020. 2) Area CAT scanned prior to excavation. 3) Land drain struck at 0.70 m bgl causing water ingress at base of trial pit to 1.80 m bgl. 4) Trail pit terminated and relocated 5.00 m north to SA102a.

Coordinates: **E491357.25 N359647.85**

Elevation (mAOD): **14.15**

Excavated By: **Lindum Plant**

Plant Used: **JCB 3CX**

Logged: **JJR**

Checked: **LD**


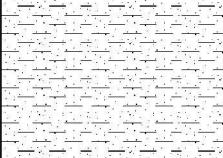
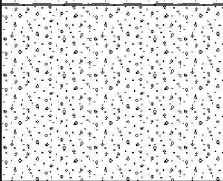
Approved: **JR**

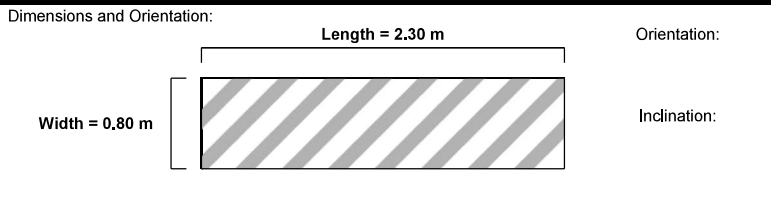
Scale: **1:30**

Trial Pit Log

Date: **31/08/2021**

Client: **Lindum Group**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type & Ref	Depth (m)	Results
TOPSOIL: Dark brown clayey gravelly fine to coarse SAND. Gravel is sub-angular to rounded fine to coarse flint.		0.25	13.80					
Firm yellowish orange mottled grey sandy CLAY. Sand is fine to medium. (BALDERTON SAND AND GRAVEL MEMBER).		0.90	13.15					
Orangish brown very clayey fine to coarse SAND and sub-angular to rounded fine to medium flint GRAVEL. (BALDERTON SAND AND GRAVEL MEMBER).		1.60	12.45					
Trial pit complete at 1.60 m bgl.								



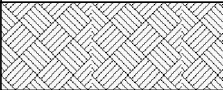
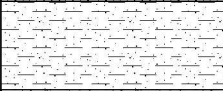
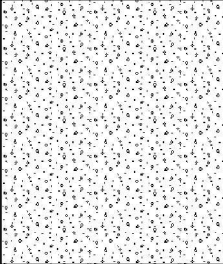
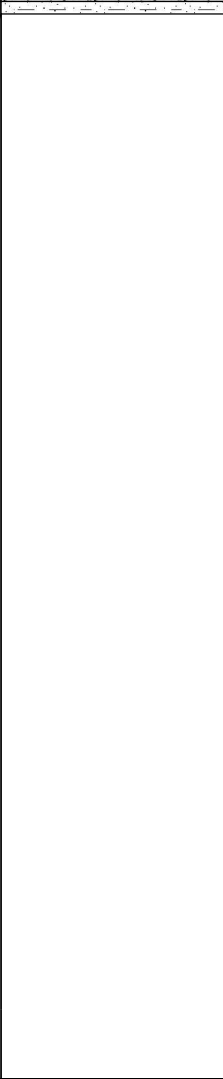
Remarks:
1) Engineer verified logged in general accordance to BS 5930:2015 +A1:2020. 2) Area CAT scanned prior to excavation. 3) Trial Pit remained dry upon completion. 4) Converted to a BRE365 Soakaway Infiltration Test.

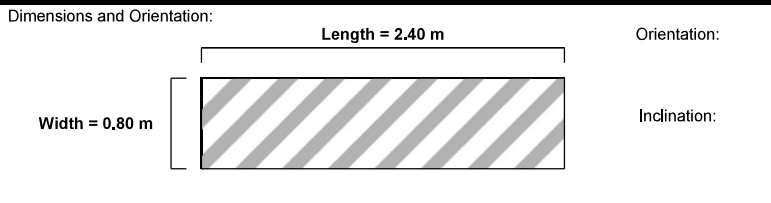
Coordinates: E491357.44 N359647.91	Elevation (mAOD): 14.05	Excavated By: Lindum Plant	Plant Used: JCB 3CX	Logged: JJR	Checked: LD	Approved: JR	Scale: 1:30
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Trial Pit Log

Date: **31/08/2021**

Client: **Lindum Group**

Description of Strata	Legend	Strata Depth (m)	Reduced Level (mAOD)	Water Strike (m)	Sample Details		Test Details	
					Depth (m)	Type & Ref	Depth (m)	Results
TOPSOIL: Dark brown clayey gravelly fine to coarse SAND. Gravel is sub-angular to rounded fine to coarse flint.		0.35	13.70					
Soft yellowish orange mottled grey sandy CLAY. Sand is fine to coarse. (BALDERTON SAND AND GRAVEL MEMBER).		0.70	13.35					
Reddish brown fine to coarse clayey SAND and sub-angular to rounded fine to coarse flint GRAVEL. (BALDERTON SAND AND GRAVEL MEMBER).		1.75	12.30					
Dark grey slightly sandy CLAY. Sand is fine. (BALDERTON SAND AND GRAVEL MEMBER). Trial pit complete at 1.80 m bgl.		1.80	12.25	1.80 1.80				



Remarks:
1) Engineer verified logged in general accordance to BS 5930:2015 +A1:2020. 2) Area CAT scanned prior to excavation. 3) Groundwater encountered at 1.80 m bgl. 4) Converted to a BRE365 Soakaway Infiltration Test.