Local Plan 2040

Have Your Say on the Future of Your Borough

Bedford Borough Council – Local Plan 2040
Draft Plan Consultation Response Form

We would prefer to receive your comments via our online system
www.bedford.gov.uk/localplan2040
In particular, if you are a planning consultant or agent please help us to speed up the production of local plans by using the online system. If you require assistance, please contact us on 01234 718070.

Please only use this form if you cannot respond online and to make your comments on the Local Plan 2040 Draft Plan and its supporting documents. You will need to have the document you want to comment on to hand so that you can enter the appropriate references. Copies of the document are available to view on the Council's website www.bedford.gov.uk/LocalPlan2040 and in paper copy (**by 45 minute appointment**) at Bedford Central Library, Harpur Street, Bedford MK40 1PG (01234 718174). Subject to Covid restrictions being lifted on 19th July, paper copies will also be made available at all libraries in the borough, plus the key documents will be available at Rushden, St Neots, Biggleswade and Flitwick libraries during normal opening hours.

Please email this response form to us: **planningforthefuture@bedford.gov.uk**

Alternatively, responses can be sent by post. Please attach a stamp and send to:

Planning Policy Team
Bedford Borough Council
Borough Hall, Cauldwell Street
Bedford, MK42 9AP

PLEASE DO NOT SUBMIT COMMENTS IN MORE THAN ONE FORMAT OR SEND TO MORE THAN ONE EMAIL ADDRESS. If you have submitted comments electronically you do not need to print and post them. **All responses (electronic and paper) must be received by 5pm on 3 September 2021.**

Your contact information will be kept on the Planning Policy database so that we can keep you up to date about this and other planning policy documents. Personal data will be collected and processed in accordance with the Data Protection Act and the General Data Protection Regulations. Further information can be found on the council's Data Protection webpage and in the Privacy Notices for planning policy.

All responses will be made public.

CONTACT DETAILS

Personal details

Title _____

Name _____

Job title (if applicable) _____

Organisation (if applicable) **L&P Chess Ltd**

Address **40 Shirdley Road**
Eynesbury
St Neots, Cambs

Postcode **PE19 2DR**

Telephone Number _____

Email _____

AGENT DETAILS (if applicable)

If you are a planning consultant or agent, you can do this on-line. You will be able to save a draft to complete later, save the final version for your records, save paper and speed up plan making. If you require assistance, please call 01234 718070

Title [redacted]

Name [redacted]

Job title (if applicable) [redacted]

Organisation (if applicable) **Eclipse Planning Services**

Address **12 Church Green**

Ramsey, Huntingson, Cambs

Postcode **PE26 1DW**

Telephone Number [redacted]

Email [redacted]

If you are using an agent, who would you prefer any correspondence to go to?
(Please mark X one box only)

Contact agent	Contact client	Contact both
x		

Your interest (Please mark X one box only)

Land owner	Resident	Consultant	Agent	Other
				x

Please specify 'Other' (please write in)

Part Landowner

Please use a separate form (this page) for each consultation document paragraph, policy or evidence base document you are commenting on.

Which paragraph number, policy number or evidence base document are you commenting on?

Site Assessment Proformas – Site ID no.951 Land West of A1, Wyboston

Please add your comments in the box below, and continue on an additional sheet if necessary.

Please see the attached Addendum to the original Statement submitted in August 2020 as part of the Call for Sites exercise.

Land West of A1, Wyboston

Statement to Inform

Call for Sites Submission - Addendum

On behalf of L & P Chess Ltd

Our Reference: 1156

September 2021

Eclipse Planning Services
12 Church Green, Ramsey, Cambridgeshire, PE26 1DW
Tel: [redacted]
Email: [redacted]
eclipseplanningservices.com

Contents

1 Introduction

1.1 L&P Chess Ltd have land interests to the west of the A1 at Wyboston which they are promoting through the Local Plan review process for a mixed use development comprising residential, employment and a new local centre. In 2020 the site was submitted in response to Bedford Borough Council's Call for Sites (ID no. 951) and included a Statement that provides a summary of the proposed mixed use development, the site's land use features and constraints and the associated environmental and technical issues to assist the Council in its consideration of its development potential.

1.2 Since that submission, the site's potential to accommodate an Electric Vehicle Trunk Road Service Area (EV TRSA) has been identified. This site is ideally located to provide EV public charging facilities to serve the strategic trunk road network (both the A1 and A428) and the large area of housing and commercial development within 5km of the site. It is also conveniently sited close to (within 800m) National Power's electrical sub-station at Eaton Socon located just north of the site. Discussions have been held with a leading electric vehicle charging forecourt operator and there is strong interest.

1.3 In addition, an Acoustic Assessment and Mineral Resource Assessment have been undertaken and the concept Masterplan has been updated.

1.4 This Addendum provides additional information about the EV TRSA and seeks to address other comments made by the Council in its assessment of this site.

1.5 It remains the case that the mixed use development, including the EV TRSA is deliverable and can play a positive role in helping the Council to boost significantly the supply of housing and employment in the Borough, as well as contribute to combating climate change with the provision of EV charging infrastructure for public use in a key strategic location.

2 Proposed Development

The Proposal

2.1 As previously stated, the excellent position of this site adjacent to the A1, and in close proximity to the A421 and A428 and the links they offer to London, Cambridge, the A14 and north, as well as Eaton Socon and St Neots, provides significant opportunities to deliver a sustainable mixed used development, including an EV TRSA.

2.2 The original 2020 Call for Sites submission proposed:

i. 11.1 hectares (ha) of employment land (Class B1, B2 and B8);

ii. Up to 485 dwellings, mixed in size and tenure, including 30% affordable housing provision;

iii. 1.9ha for a mixed use development comprising a new local centre, including opportunities for retail, health and community facilities;

iv. Up to 5.4ha of open space and 3.3ha for boundary landscaping/buffer;

v. Vehicular access from a new roundabout on the A1 Northbound Off-Slip to Great North Road at the A1/A428 interchange and from The Lane to the south; and

vi. The stopping up of all other existing access points within the site onto the A1 within the site.

2.3 The proposed changes are:

- 13.58ha of employment land (business uses within Class E(g), B2 and B8);
- Up to 370 dwellings, mixed in size and tenure, including 30% affordable housing provision;
- 2.14ha for a EV TRSA, including a total of 40 public charging bays, with room for expansion as demand requires and associated commercial, business and service use that could provide, refreshments, meeting space, leisure and play area for customer use whilst vehicles charge. It would reflect similar design principles to those found at the recently opened Braintree 'Electric Highway' charging station operated by GridServe;
- Up to 4.48ha of open space and 3.86ha for boundary landscaping/buffer.

2.4 There would be no change to (iv) and (v) above.

2.5 A plan of the EV TRSA, together with the proposed access from the A1 (drawing no. E4054-703A) has been produced by Wormald Burrows, Civil Engineering Consultants. It is attached at **Appendix 1.**

2.6 An amended Concept Masterplan for the site is attached at **Appendix 2**.

EV TRSA

2.7 The location of the site of this proposed EV TRSA is ideal in a number of respects:

i. It is within 800m of the major electricity sub-station, located close to the northern site boundary. The grid supply will be used to meet the load, supplemented by PV electricity generation panels within the TRSA;

ii. The EV TRSA is conveniently situated at the junction of the A1 and the A428;

iii. There are major residential and commercial areas within 5km radius of the EV TRSA. This EV charging facility will serve those properties that cannot be easily connected to the Grid at home or work. This will significantly increase in the event that further housing development proceeds to the west and/or east of Wyboston;

iv. The proposal is fully compliant with UK Government Climate Change policy as regards provision of charging facilities for sustainable transport. This facility will be fully operational well in advance of the impending ban on the sale of ICE (Internal Combustion Engine) powered vehicles that comes into force within 8 years;

v. This EV TRSA is designed to serve future sustainable transport demands; the proposal does not include facilities for ICE powered vehicles, other than, parking, restaurant and toilet facilities.

2.8 Additionally, any TRSA will include Sustainable Urban Drainage for surface water and the opportunity to provide habitat for fauna and flora.

3 Response to BBC Site Assessment

3.1 Our response to the Council's assessment of site no. 951 is below:

2b. In an area where protected species are known or likely to exist?

It should also be noted that the site should be subject to a Preliminary Ecological Assessment and any necessary Protected Species Survey as part of any planning application. This is not a constraint to development.

2c. Potentially able to achieve a net gain in biodiversity?

This is a major development site and biodiversity net gain will be a consideration for any planning application. It should be noted that this site has the potential to achieve a net gain in biodiversity.

3a. Proposing a renewable energy scheme or extra energy efficiency standards?

The proposal now includes an EV TRSA with public charging bays for circa 40 vehicles.

5a. Likely to increase future economic and employment opportunities?

It is noted that no answers have been chosen by the Council in response to this question. This proposal now includes 13.58ha of employment land and could contribute 7.5% of the 179 ha of employment land requirement, the largest figure stated in the Strategy Options and Draft Policies Consultation document 2021. The site is therefore likely to increase future economic and employment opportunities.

11a. At risk of flooding?

All of the site is in Flood Zone 1, not Flood Zone 2 as stated.

15e. Connect highway without constraint?

The Council has identified a *"serious access constraint"*. The Council's subsequent highway comments are noted; however, they do not explain why the proposed A1 access is not considered suitable.

Wormald Burrows have had a long-standing involvement in this site, having advised on the previous proposals for a TRSA. To further assist the Council, they have provided information about the background to the proposed roundabout access, including its approval by the Highways Agency (now Highways England) as a departure from Highway Design Standards, the resultant highway improvements, the links to the EV TRSA, the implications of the proposed A428 highway improvements and further information about the EV TRSA itself. Their letter is attached at **Appendix 1.**

Environmental Health

3.2 In response to comments that *"noise from A1 would affect housing all other uses would affect existing premises in Wyboston"*, a Noise Assessment has been prepared by Cass Allen and is attached at **Appendix 3**. It concluded that *"the site is considered to be acceptable for residential development subject to the adoption of acoustically upgraded glazing and ventilation, strategic positioning of the dwellings to protect gardens from road traffic noise and acoustic screening to gardens where appropriate"*.

3.3 Furthermore, appropriate limits for noise from mechanical plant and commercial activities have been calculated and are considered to be achievable.

Mineral Safeguarding Area

3.4 The site lies within the Bedfordshire Mineral Safeguarding Area and a Mineral Resource Assessment has been commissioned and is attached ay **Appendix 4**. It concludes that development of this site would not sterilise a commercially viable reserve due to site, access and utility infrastructure constraints. This report has been previously submitted to the Council and is appended to this Addendum for completeness.

4 Conclusion

4.1 The development potential of Site 951, as set out in the report submitted with the 2020 Call for Sites and this Addendum, remains. In summary:

- It is a clearly defined site, by the A1 to the east and the plotlands to the west.
- It would represent a negligible incursion into the open countryside. Whilst part of the site is used for agriculture, it is land locked and suffers from poor access via the A1 underpass which makes it unsuitable for modern farm machinery.
- It has no significant constraints in terms of natural or historic assets. Lake Autos is a brownfield site and this will be decontaminated and cleaned up as part of the proposals to the benefit of the local area.
- It is located close to the built up areas of St Neots and Eaton Socon and therefore to the employment services and facilities located there.
- It would provide a significant proportion of the required new employment land adjacent to the strategic highway network.
- It has the potential to provide a charging station for electric vehicles, again in an ideal location close to an electric sub-station, on the strategic road network but also accessible to local users.
- The new roundabout access from the A1 has the potential to provide a significant number of highway improvements, including the further closure of sub-standard accesses directly on to the A1 and facilitate a bus route through the site.

4.2 Furthermore, independent technical reports have confirmed that safe access to the site can be achieved, that housing can be accommodated on the site without detriment to amenity from noise and that any development would not sterilise a commercially viable mineral reserve due to site, access and utility infrastructure constraints. In previous discussions, the Parish Council have indicated their support for the development of this site.

Appendix 1

Highways Response from Wormald Burrows and drawing of EV TRSA

Wormald Burrows Partnership Limited
Civil Engineering Consultants
12a-18a Hitchin Street, Biggleswade, SG18 8AX Tel: (01767) 317244 Fax: (01767) 315434

Our Ref: E4054/Wyboston EV TRSA Access 27.08.2021

27 h August 2021 **By Email**

[redacted]
Eclipse Planning Services
12 Church Green,
Ramsey,
Cambridgeshire,
PE26 1DW

Dear [redacted],

Wyboston EV TRSA Access

Further to our earlier telephone conversation in respect of vehicular access to the proposed EV TRSA to the west of the A1 Trunk Road, at its junction with the A428 Trunk Road, I attach a copy of the approval letter from the Highways Agency dated 7th September 2011, headed 'TRSA AT WYBOSTON: APPROVAL OF TECHNICAL SUBMISSIONS'.

Background

Approval of the roundabout access scheme was the outcome of extensive investigations and discussions with the HA (now Highways England); an analysis of the existing highway layout confirmed that there are many problem areas that do not comply with current standards and which the introduction of a roundabout rectified.

A roundabout was proposed on the A1 northbound Off/On-Slip to provide access to the development as part of the assessment for the TRSA. The access design required a Departure from Standard application as it went against paragraph 41 of the section 'Capacity enhancements and access to the network' in the Department for Transport (DfT) Circular 02/07, where it states that for connector roads, "connections to slip roads and/or connector roads will not be permitted."

As the roundabout was deemed to be safe and the benefits of it outweighed the principle of paragraph 41, the Departure from Standard application for the proposed roundabout access was accepted by the Highways Agency [Highways England] on 23 October 2012.

DfT Circular 02/07 has since been superseded by DfT Circular 02/2013 'The Strategic Road Network and the Delivery of Sustainable Development.' Paragraph 42 of Circular 02/2013 similarly states that "in line with the standards contained in the Design Manual for Roads and Bridges, for safety and operational.

Past discussions and correspondence with the HA have been on the basis that the roundabout would be adopted as part of the HA Trunk Road network.

The Roundabout Provides Significant Highway Improvements

The new roundabout will provide a significant number of highway improvements and benefits over and above the access to the proposed site, as it will:

i) enable the closure of the sub-standard access to and egress from the existing garage south of the proposed site onto the A1 Northbound Off-Slip.

ii) remove the sub-standard link road arrangement and weaving length from the garage egress onto the A1 Northbound.

iii) remove the sub-standard short link road On-slip between the A1 Northbound Off-slip and the A1 Northbound.

iv) improve the sub-standard forward Stopping Sight Distance at the A428 Connector Road right-hand bend and highway cross-sections.

v) improve the sub-standard design of the existing carriageway drainage, currently resulting in a sheet of water crossing the A428 Connector Road at a critical point on the right-hand bend which, under heavy rainfall conditions, leads to aquaplaning, loss of control and accidents.

vi) improve the restricted visibility relative to vehicle speeds, due to interaction between the horizontal and vertical curvatures on the A428 Connector Road.

vii) improve the sub-standard Stopping Sight Distance on approach to the signalised junction at the entrance to Wyboston Lakes.

viii) improve the sub-standard spacing of warning signs associated with the signalised junction.

ix) improve the sub-standard forward Stopping Sight Distance at the A428 Connector Road left-hand bend.

Links to the EV TRSA

As highlighted in the original Transport Assessment prepared for the TRSA, vehicular access to the site *via* the proposed roundabout is readily available from all points of the compass:

a) Vehicles travelling from the south along the A1 would gain access to the proposed development from the A1 Northbound Off-Slip and then the new access roundabout.

b) A1 southbound vehicles would utilise the A1 Southbound Off-Slip, the third exit at the A428/Great North Road/A1 Southbound Off-Slip/Phoenix Park roundabout and then the new access roundabout.

c) Vehicles approaching from east along the A428 would take the first exit at the A428/Great North Road/A1 Southbound Off-Slip/Phoenix Park roundabout and then access the site *via* the new roundabout.

d) Vehicles approaching from Eaton Socon would take the second exit at the A428/Great North Road/A1 Southbound Off-Slip/Phoenix Park roundabout and then access the site *via* the new roundabout.

The proposed roundabout on the A1 Northbound Off-Slip and the internal road layout of the site allows access to be provided to the garage south of the proposed development. This allows the sub-standard access (and crossing of the A1 Northbound Off-Slip traffic when exiting), to be closed, greatly lessening the potential for accidents on the off-slip.

Local Highway Improvements

The A428 is a single carriageway with one lane in each direction between the A1 junction adjacent to the proposed site and the A1198 Caxton Gibbet roundabout. As suggested on Highways England's website, "it experiences major delays during peak periods, resulting in delays and reduced speeds. With few available diversions, incidents and accidents result in disruption over a wide area."

This length of the A428 has recently been subject to public consultation for a major improvement scheme that will entail the realignment of the A428 between the A1198 Caxton Gibbet roundabout and the Black Cat roundabout on the A1. The route options plan is provided in Appendix C.

Construction for this scheme was expected to proceed in 2021/2022 with the project planned for completion by 2025.

The realignment of the A428 will have a significant positive impact upon the traffic conditions of the local road network associated with the proposed development.

Currently, the major traffic movement through the local road network is between the A1 south and A428, which, according to the 2011 traffic survey, accounts for more than 60% of traffic volumes utilising the A428/B1428/Great North Road/A1 Southbound Off-Slip/Phoenix Park roundabout during the AM and PM peak hours.

Once the A428 realignment has been opened, the traffic demand on the A428/B1428/Great North Road/A1 Southbound Off-Slip/Phoenix Park roundabout as well as the Great North Road/Wyboston Lakes access signalised junction will be reduced significantly.

The strategic network traffic movements will be redistributed to the realigned A428 at the Black Cat roundabout meaning that the local road network associated with the proposed development will need to accommodate local traffic only.

Sustainable Travel Options

Whilst this letter is about the site access, equally as important is the provision of sustainable travel options. Existing Bus services will be extended into and throughout the development

Sustainable travel for pedestrians and cyclists is provided *via* the existing underpass under the A1, linking with the industrial estates to the south of Eaton Socon and further connection with existing links to St Neots.

EV TRSA

Whilst the earlier approval has been granted in respect of a TRSA and associated development, it is now proposed that more sustainable and future proof 'Electric Highway' provisions are enacted in compliance with UK Government policy to ban the sale of ICE (Internal Combustion Engine) vehicles within eight years.

A plan of the EV TRSA, *E4054 – 703A – Proposed Access Roundabout.pdf* has been prepared and is attached, showing the proposed access roundabout and the charging station layout.

A total of 40 vehicle charging points, providing for charging rates up to 350 kW, are proposed, similar to the 'Green Energy' GridServe installation at Braintree, with room for expansion as demand requires.

Additional areas of parking are provided to the east and south of the EV charge points for those travellers that require toilet and refreshment facilities, rather than use of vehicle charging.

The EV TRSA is not only ideally located to serve the A1 and A428 Trunk Roads and the large areas of housing and commercial development within 5km of the site, but it is also ideally positioned relative to the major electricity sub-station distribution site, which is located less than 800m away, on the northern boundary of the development site. Every aspect of this EV TRSA is fully in accordance with HE and Government policy.

Environmental Benefits

On the assumption that the development is allocated, this will hasten the closure of the car breaking business. The site would then be cleared and decontaminated, providing significant benefit to the local environment, fauna and flora.

A landscaped picnic area is proposed adjacent to the large 'wet' balancing pond, immediately to the south of the EV TRSA, for the use of those customers awaiting completion of charge of their vehicle; the balancing pond is proposed to be set within a naturalised landscaped surround.

I trust that the above information provides sufficient advice to confirm approval of the new access and if I can be of further assistance, then please do not hesitate to contact me.

Kind regards,

[redacted]

[redacted]

[redacted]

Attached:

Highways Agency letter dated 7th September 2011

E4054 – 703A – Proposed Access Roundabout.pdf

HIGHWAYS AGENCY

Our ref:
Your ref:

[redacted]
Wormald Burrows Partnership
Civil Engineering Consultants
12a-18a Hitchin Street Biggleswade
SG18 8AX

[redacted]
Policy and Procedures Advisor
10th Floor
The Cube
199 Wharfside Street
Birmingham B1 1RN

Direct Line: [redacted]

7 September 2011

Dear [redacted]

TRSA AT WYBOSTON: APPROVAL OF TECHNICAL SUBMISSIONS

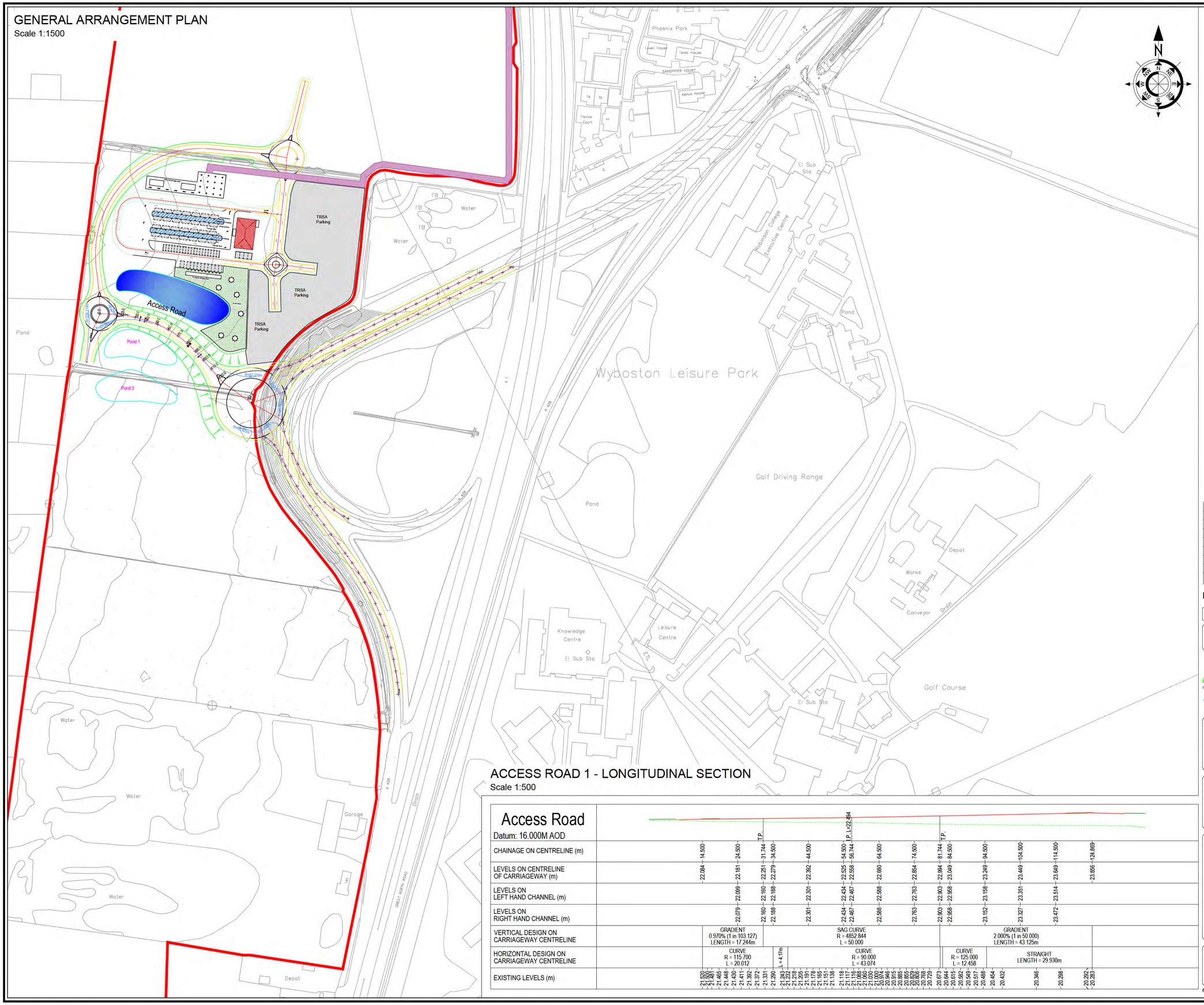
Regarding the above development proposal and the policy departures required from DFT Circular 02/2007 and DfT Circular 01/2008 requested in order to facilitate delivery of that development.

Please consider this letter to be a formal agreement to required departures under 01/2008. Further, as the 01/2007 departure requires alongside it a departure from Highway Design standards set out elsewhere, please consider this also a formal agreement to required departures under 01/2207 subject to agreement of the technical standards departure(s) as required. Therefore, should you obtain those departures, no further approvals or confirmations will be required regarding the above mentioned circulars.

Yours sincerely

[redacted]
Spatial Planning Team
[redacted]

cc: [redacted] - Wormald Burrows Partnership
[redacted] - Highways Agency
[redacted] - Highways AGency



GENERAL ARRANGEMENT PLAN

Scale 1:1500

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TRSA Key

▨	PV roof areas
▭	Charging and parking spaces
▨	Brick roof
▨	Grass picnic area
○	Picnic table and chairs
▬	Electricity service strip
■	Ponds

KEY:

—	Site Boundary

NOTES:

1. Roundabout designed to DMRB CD116 'Geometric design of roundabouts'.
2. Access Road designed to CD107 'Highway Link design and CD116 'Geometric design of roundabouts'. Access road and development spine road to be suitable for bus operation.
3. The road signs and markings shown are indicative and not necessarily complete. They will be reviewed as necessary at the detailed design to construction stage.

ACCESS ROAD 1 - LONGITUDINAL SECTION

Scale 1:500

Access Road

Datum: 16.000M AOD

CHAINAGE ON CENTRELINE (m)	LEVELS ON CENTRELINE OF CARRIAGEWAY (m)	LEVELS ON LEFT HAND CHANNEL (m)	LEVELS ON RIGHT HAND CHANNEL (m)
14.500	22.084		
24.500	22.181	22.099	22.079
31.744	22.251	22.160	22.160
34.500	22.279	22.188	22.188
44.500	22.392	22.301	22.301
54.500	22.525	22.434	22.434
56.744	22.558	22.467	22.467
64.500	22.680	22.588	22.588
74.500	22.854	22.763	22.763
81.744	22.994	22.903	22.903
84.500	23.049	22.958	22.958
94.500	23.249	23.158	23.152
104.500	23.449	23.351	23.327
114.500	23.649	23.514	23.472
124.869	23.856		

VERTICAL DESIGN ON CARRIAGEWAY CENTRELINE:
GRADIENT 0.970% (1 in 103.127) LENGTH = 17.244m
SAG CURVE R = 4852.844 L = 50.000
GRADIENT 2.000% (1 in 50.000) LENGTH = 43.125m

HORIZONTAL DESIGN ON CARRIAGEWAY CENTRELINE:
CURVE R = 115.700 L = 20.012
L = 4.17m
CURVE R = 90.000 L = 43.074
CURVE R = 125.000 L = 12.458
STRAIGHT LENGTH = 29.930m

EXISTING LEVELS (m): 21.520, 21.500, 21.481, 21.465, 21.448, 21.430, 21.411, 21.392, 21.372, 21.331, 21.290, 21.243, 21.232, 21.218, 21.205, 21.191, 21.178, 21.165, 21.151, 21.138, 21.118, 21.117, 21.116, 21.088, 21.060, 21.030, 21.000, 20.974, 20.946, 20.915, 20.885, 20.855, 20.829, 20.806, 20.768, 20.729, 20.673, 20.644, 20.615, 20.582, 20.549, 20.517, 20.488, 20.454, 20.432, 20.346, 20.298, 20.292, 20.283

Rev	Description	Date	Drawn	Checked
A	Electric vehicle charging Trunk Road Services Area added.	18.09.21	DCA	ACC

Drawing Approval Status:-

N/A Section 104 N/A Section 38 N/A Section 278

FOR PLANNING

Wormald Burrows Partnership Ltd
Civil Engineering Consultants
12a - 18a Hitchin Street, Biggleswade, SG18 8AX
Tel: (01767) 317244 Fax: (01767) 315434
Web: www.wormburp.com
Email: engineer@wormburp.com

Project:
Proposed Mixed Use Development
Wyboston, Bedfordshire

Drawing Description:
Proposed Access Roundabout from
A1 Slip Road

Client:
L & P Chess Ltd.
Lower Court 3
Copley Hill Innovation Park
Babraham
CB22 3GN

Drawing Number: E4054/703/A

Client Reference:

Scale: 1:1500@ A1
1:3000 @ A3

Designed By: ACC
Date: 25.07.20

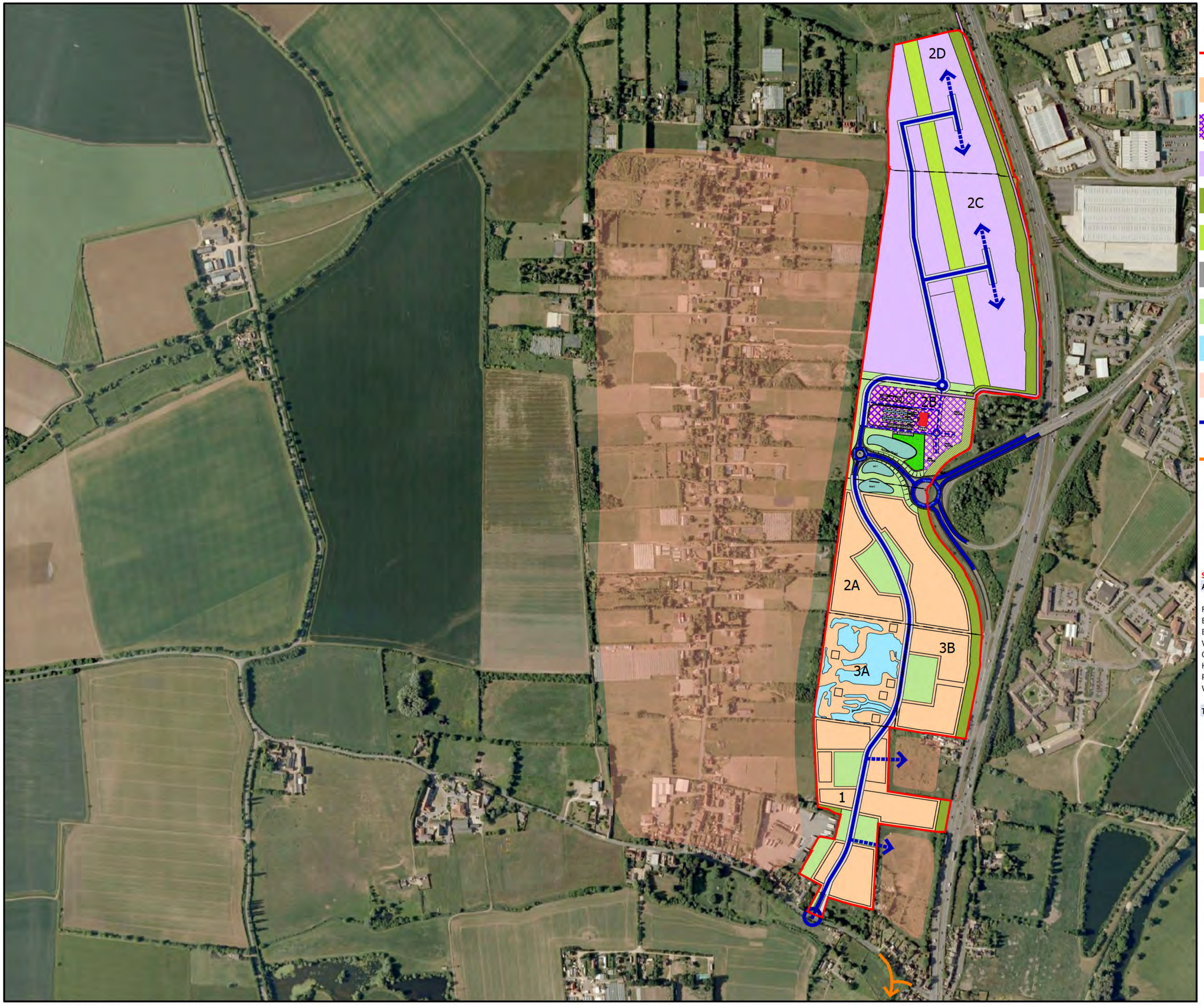
Drawn By: DTZ
Date: 27.07.20

Checked By: ACC
Date: 28.07.20

afaq ISO 9001 Quality
UKAS MANAGEMENT SYSTEMS 022
Certified by Afnor UK

Appendix 2

Amended Concept Masterplan



The scaling of this drawing cannot be assured

Revision		Date	Drn	Ckd
G	Access Roundabout Added	25.08.21	S.M.	D.S.

- Site Boundary
- Residential Development Area
- EV TRSA and Mixed Use
- Employment Area
- Woodland Landscape Buffer
- Overhead Cable Buffer
- Highway Infrastructure
- Public Open Space
- Water Bodies within 3A
- Potential Future Development
- Spine Road & Access Points
- Proposed New Junction

Site Boundary	40.30	99.59		
Area	**Ha**	**Ac**	**Units**	**Floor Space (SqFt)**
Residential Development Area	12.22	30.18	368	671,216
EV TRSA and Mixed Use	2.14	5.29		
Employment Area	13.58	33.56		
Woodland Landscape Buffer	3.86	9.55		
Overhead Cable Buffer	2.07	5.11		
Highway Infrastructure	0.50	1.24		
Public Open Space	4.48	11.06		
Water Bodies within 3A	1.46	3.60		
Total	**40.30**	**99.59**	**368**	

Project
Wyboston

N

Drawing Title
Concept Masterplan

Date	Scale	Drawn by	Check by
08.01.20	1:5000@A2	S.M.	O.C./D.S.

Project No	Drawing No	Revision
31369	RG-M-11 -2	G

0 100 200 250m

DRAFT

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J:\31000\31369 - Wyboston\A4 - Drawings & Registers\Masterplanning\31369 - RG-M-11G - Concept Masterplan.dwg - (1-5000@A2) -2

Appendix 3

Acoustic Assessment

cass allen

Architectural & Environmental Acousticians

Noise & Vibration Engineers

Acoustic Assessment

Land West of A1 Wyboston

Acoustic Assessment

Project: LAND WEST OF A1 WYBOSTON

Report reference: RP01-21416-R1

Client:
L & P CHESS LTD
40 SHIRDLEY ROAD
EYNESBURY
ST NEOTS
CAMBRIDGESHIRE
PE19 2DR

Our details:
CASS ALLEN ASSOCIATES LTD
BEDFORD I-LAB
BEDFORD
MK44 3RZ

Document control:

REVISION	ISSUE DATE	REPORT BY	CHECKED BY	NOTES
0	23 August 2021	[redacted] Acoustics Consultant	[redacted] Technical Director	Initial issue
1	01 September 2021	[redacted] Acoustics Consultant	-	Minor Amendments

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1. INTRODUCTION

1.1 Cass Allen has been instructed by L & P Chess Ltd to assess the noise impact of a proposed new development at Land West of A1 in Wyboston.

1.2 The assessment has been carried out in accordance with relevant local and national guidance.

1.3 The aims of the assessment were:

- To establish the suitability of existing noise levels at the site for the proposed development;
- Where required, identify appropriate measures to optimise the acoustic design of the development and achieve acceptable noise levels in habitable areas; and
- To assess the potential impact of noise emissions from mechanical plant and operational activities associated with the development at the positions of existing sensitive receptors in the area.

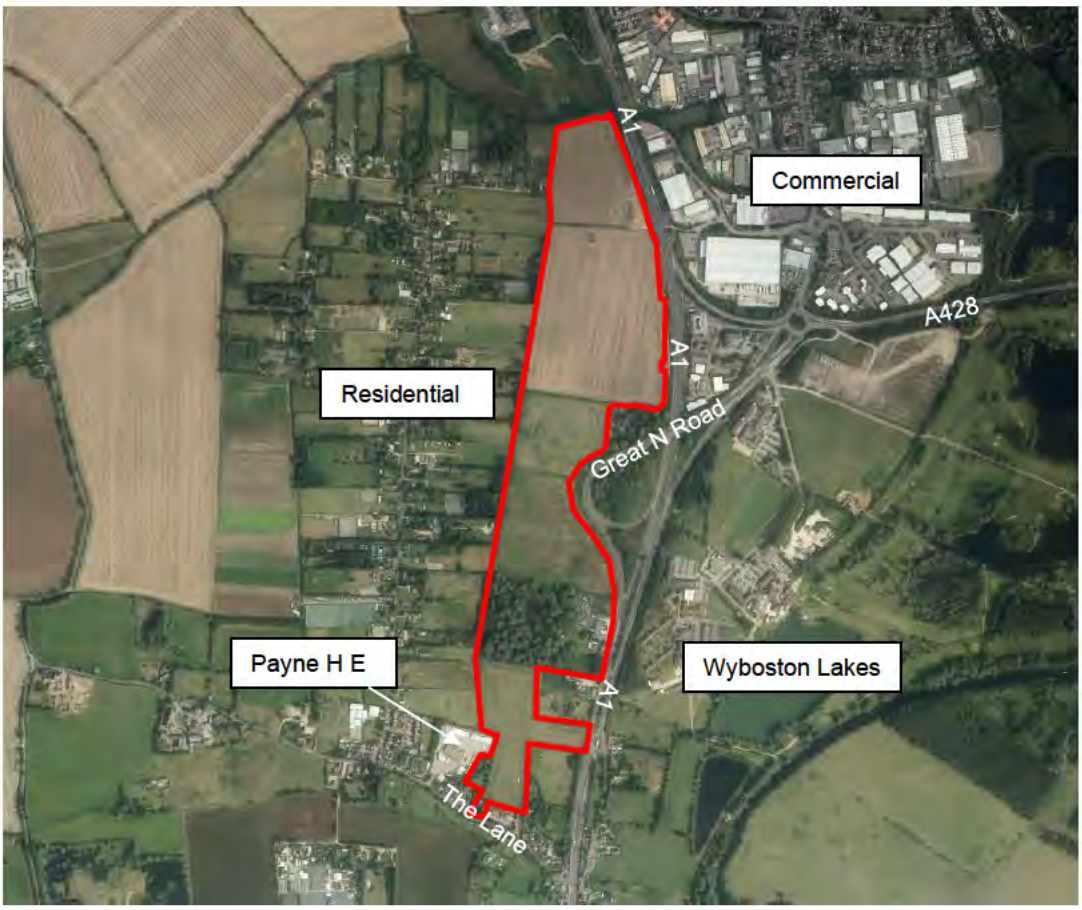
1.4 This report contains technical terminology; a glossary of terms can be found at www.cassallen.co.uk/glossary.

2. PROJECT DESCRIPTION

2.1 The site currently contains agricultural land, a small parcel of woodland with ponds, a vehicle repair shop and a single dwelling at the southern border. The site is located in a mixed-use area, bounded to the east by the A1 and Great North Road and to the south by The Lane. Commercial units and Wyboston Lakes are situated east of the development and residential bounds the site to the west and south. To the north of the site is grassland and to the south west is a delivery company, Payne H E.

2.2 The site location is shown in Figure 1 below.

Figure 1 Site Location and Surrounding Area



2.3 The proposal is to develop the site into residential properties with an area to the north for commercial premises. At this stage of the planning process, details of the proposed site layout are fairly general and subject to change. However, the latest drawing is shown in Appendix 1.

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3. PLANNING POLICY

National Policy

3.1 Outline guidance for the assessment of noise affecting new developments is given in the National Planning Policy Framework (NPPF). Relevant sections in this case are highlighted below:

> *174. Planning policies and decisions should contribute to and enhance the natural and local environment by … preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of …noise pollution.*
>
> *185. Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*
>
> *a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;*
>
> *b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.*

Local Policy

3.2 Policy 32 and 47S of the Bedford Borough Local Plan 2030 (January 2020) document is relevant to this application. With regards to noise, it states:

> *Policy 32 – The impact of development – disturbance and pollution impacts*
>
> *Development proposals should ensure that they minimise and take account of the effects of pollution and disturbance. Planning applications should give particular attention to all of the following considerations:*
>
> *i. Noise, vibration… which is likely to be generated by the development*
>
> *Developers will be required to implement or contribute towards mitigation measures to mitigate adverse impacts*
>
> *Policy 47S – Pollution, disturbance and contaminated land*
>
> *All development proposals will be required to:*
>
> *ii. … Avoid noise giving rise to significant adverse impacts on health and quality of life or, where appropriate, mitigate and reduce its impact…*

v. Be appropriate for their location, having regard to the existing noise, air quality, ground stability or pollution environment, including the proximity of pollutants, hazardous substances and noise generating or disruptive uses…

3.3 To address the requirements of the national and local policies, the following key acoustic matters have been assessed:

- Noise affecting the habitable areas of the proposed development;
- Noise emissions from mechanical plant associated with the development at the position of existing sensitive receptors in the area; and
- Noise emissions from operational activities associated with the development at the positions of existing sensitive receptors in the area.

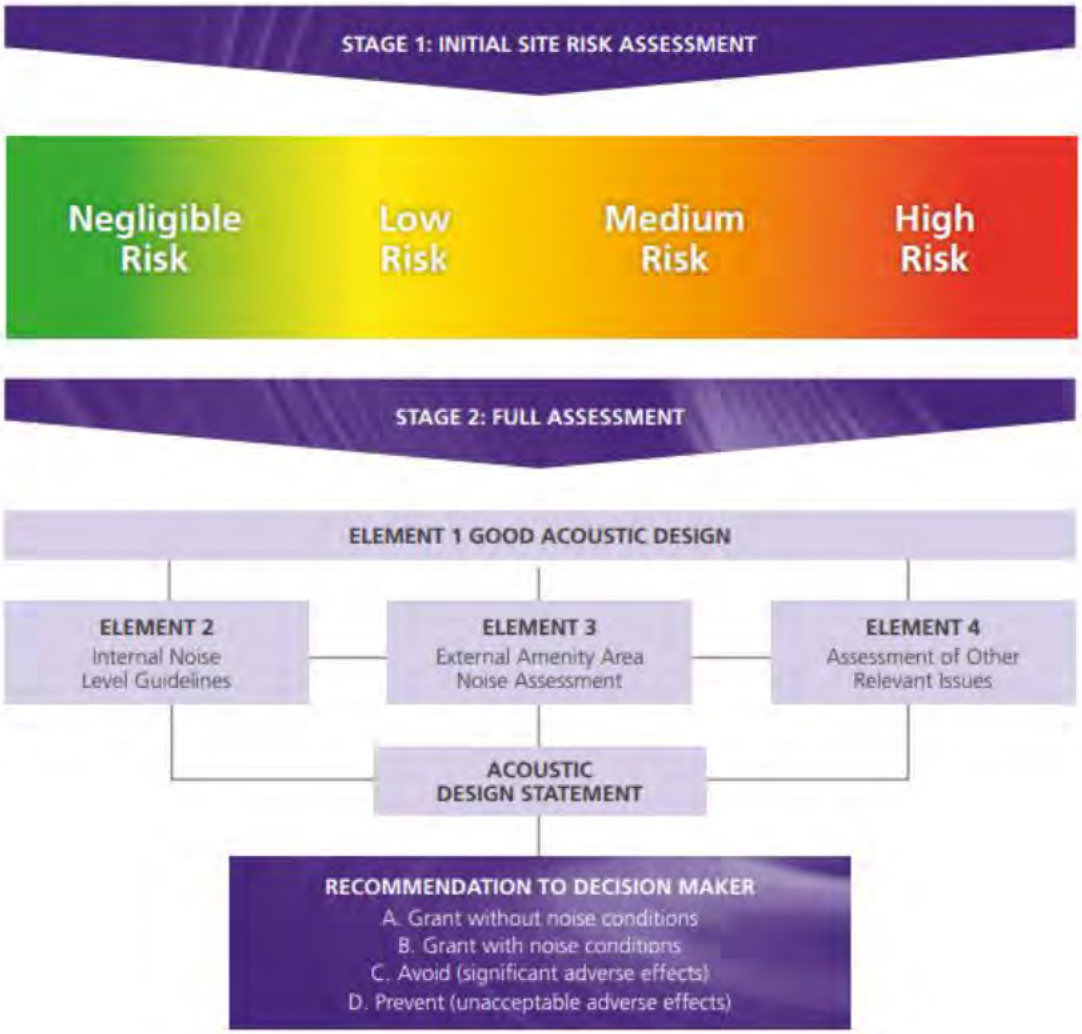
4. NOISE AFFECTING THE DEVELOPMENT

4.1 Specific guidance on the assessment of noise affecting new residential development is given in ProPG: Planning and Noise for New Residential Development, May 2017 (ProPG). The process within the ProPG guidance for the appraisal of noise levels affecting new residential development is considered to be current 'best practice' and therefore has been followed for the assessment. The assessment process can be summarised as follows:

- Stage 1 – measure noise levels at the site and carry out an initial noise risk assessment of the proposed development site based on the measured levels.
- Stage 2 – where a higher noise risk is identified, carry out a detailed assessment including the following four considerations:
    - Element 1 – the overall acoustic design and layout of the site
    - Element 2 – internal noise levels in habitable areas
    - Element 3 – noise levels in external amenity areas
    - Element 4 – consideration of other relevant issues
- Based on the results of the Stage assessment, provide a recommendation to the decision maker on whether planning permission can and should be granted.

4.2 The process is shown visually in Figure 2 below

Figure 2 ProPG Assessment Process



4.3 It should be noted that the guidance in ProPG relates primarily to noise from transportation sources, i.e. road traffic, aircraft, rail etc. Any significant noise from other sources (e.g. industrial, commercial or entertainment sources) is outside the scope of the ProPG guidance and therefore requires separate consideration.

Stage 1 – Noise survey and initial assessment

4.4 A noise survey was carried out at the site from 9th August to 13th August 2021 to assess existing noise levels in the area. The full methodology and results of the noise survey are provided in Appendix 2.

4.5 Average (LAeq) and maximum (LAmax) noise levels across the site were generally dictated by road traffic on the A1.

4.6 Background noise levels (LA90) across the site were also dictated by constant road traffic noise from the A1.

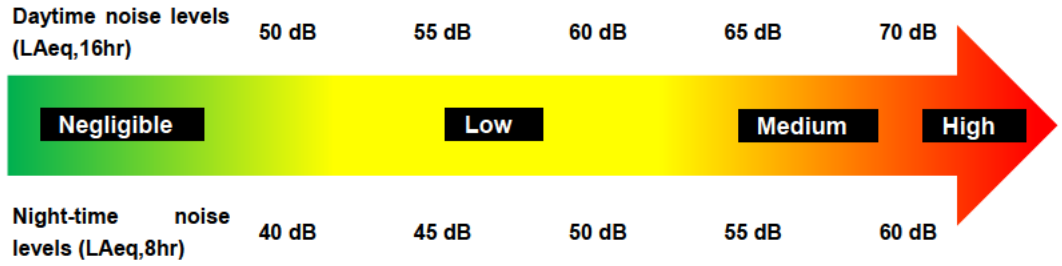
4.7 Noise from the commercial units to the east and Wyboston Lakes are insignificant in comparison to noise from the A1 and therefore have not been assessed further.

4.8 Areas of the development at the eastern edge of the site will be subject to the highest noise levels due to road traffic noise emissions from the A1. The noise survey results show that noise levels at this position are as follows:

- Average noise levels during the daytime - 72 dB LAeq,0700-2300hrs;
- Average noise levels during the night-time - 69 dB LAeq,2300-0700hrs;
- Typical maximum noise levels during the night-time - 79 dB LAmax.

4.9 The measured noise levels can be compared with Figure 3 below to assess the 'noise risk' of the site. Where the noise risk is high, significant acoustic design measures may be required to achieve acceptable noise levels in the development. Where the noise risk is low, acceptable noise levels may be achievable with no specific acoustic design measures.

Figure 3 Noise Risk Assessment (Adaption of Figure 1 from ProPG)



4.10 It can be seen from a comparison of the measured noise levels in paragraph 4.8 above with Figure 3 that the site is 'High' risk in relation to daytime noise levels night-time noise levels. ProPG therefore requires that a more detailed 'Stage 2' assessment is carried out.

4.11 It is also important to consider the type of noise at the site. In this case the site is also subject to noise from Payne H E, a delivery company situated to the south west of the site. Intermittent and/or tonal type noise from commercial or industrial uses is often more annoying to residents than noise from transportation sources at similar levels (e.g. road traffic, railways, aircraft etc). It is therefore necessary to assess the potential impact of this noise on the development separately.

4.12 In our opinion, it will be possible to mitigate noise from this source through the careful positing of dwellings so that gardens are screened from the source and the design of the facades is used to achieve suitable internal noise levels. The design of the development and facades is discussed further below.

Stage 2 – Element 1 – Overall acoustic design of the site

4.1 The design of the development is at an early stage and as such, the measured noise levels at the site have been reviewed assuming dwellings will be positioned at a minimum distance of 8m from the A1. Indeed, the concept masterplan suggests there will be a landscape buffer between the A1 and residential areas.

4.2 Acoustically attenuating residential facades overlooking A1 may offer potential improvements to the acoustic design of the development. The treatment of the facades is an acceptable approach and is in line with current guidance, where the efficient use of land and the need for housing is a priority. The detailed design of the facades is discussed further below.

Stage 2 – Element 2 - Internal noise levels

4.3 Appropriate design criteria for acceptable noise levels in acoustically sensitive areas of new developments are given in BS8233:2014 '*Guidance on sound insulation and noise reduction for buildings*'.

4.4 Relevant BS8233 design criteria are summarised in Table 1 below.

Table 1 BS8233:2014 Internal Noise Criteria

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB LAeq,16hour	-
Dining	Dining room/area	40 dB LAeq,16hour	-
Sleeping (daytime resting)	Bedroom	35 dB LAeq,16hour	30 dB LAeq,8hour

4.5 It is also considered appropriate in this case to assess the potential impact of noise emissions from individual noise events on the bedrooms of the development during the night-time. This is in line with guidance given in BS8233:2014 and ProPG, which both point out that regular individual noise events during the night have the potential to cause sleep disturbance.

4.6 Appropriate design criteria for acceptable maximum noise levels in habitable rooms of new residential developments are given in the ProPG guidance, which states that "*In most circumstances in noise-sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45 dB LAmax,F more than 10 times a night.*"

4.7 BS8233 also states that it is desirable that noise levels in external amenity areas of residential developments do not exceed 50 dB LAeq and that 55 dB LAeq,T should be regarded as a upper guideline value. BS8233 recognises however that these guideline values will not always be achievable in city centres or urban areas adjoining main roads or other transport sources. In these cases, BS8233 states that the development should be designed to achieve the lowest practical noise levels in the amenity spaces.

4.8 The following acoustic design criteria have therefore been adopted for the development:

- Average noise levels in living rooms and dining rooms during the day should not exceed 35 dB LAeq,0700-2300hrs and 40 dB LAeq,0700-2300hrs respectively;
- Average noise levels in bedrooms should not exceed 35 dB LAeq,0700-2300hrs during the day and 30 dB LAeq,2300-0700hrs during the night;
- Maximum noise levels should not regularly exceed 45 dB LAmax in bedrooms during the night.
- Where possible, average noise levels in external amenity areas during the day should be lower than 50-55 dB LAeq,0700-2300hrs.

4.9 Full construction details for the development have not been finalised as the project is at an early design stage. It has therefore been assumed that the external walls of the development will be constructed using a standard masonry construction (e.g. 102mm brick, 100mm insulated cavity, 100mm concrete block) or a light-weight construction designed to achieve a similar level of sound insulation (this is technically achievable subject to detailed design). Consequently, internal noise levels would be dictated by external noise ingress via glazing and ventilators.

4.10 The ventilation scheme for the project has not yet been decided and therefore, for the purpose of the assessment, it has been assumed that units will be ventilated via Mechanical Ventilation with Heat Recovery (MVHR) i.e. System 4 from Building Regulations Part F. Therefore, there will be no background ventilators in the external facades (e.g. trickle ventilators etc).

4.11 The MVHR system will be selected to ensure that noise from air supply and extract ductwork does not exceed acceptable levels within habitable rooms. Appropriate specifications for noise levels from the MVHR system (operating at typical maximum duty) would be as follows:

- Bedrooms and living rooms – 30 dB LAeq,T at 1.5m from any ventilation aperture; and,
- Other habitable areas – 35 dB LAeq,T at 1.5m from any ventilation aperture.

4.12 Calculations were carried out using facade modelling software in accordance with the methodology given in BS8233:2014 to calculate the sound insulation performance required of the glazing and ventilation to achieve the nominated internal noise criteria in the 'worst-case' habitable rooms of the development (i.e. the habitable rooms that will be subject to the highest external noise levels).

4.13 If acceptable internal noise levels can be achieved in 'worst case' habitable rooms then it follows that acceptable internal noise levels can be achieved in all other habitable rooms of the development using similar glazing and ventilator types.

4.14 The calculations were carried out based on the following typical dimensions/details for facade elements:

- Glazing – 1.5m^2 for bedrooms and 2m^2 for living rooms; and
- External walls – 8m^2 for bedrooms and 15m^2 for living rooms.

4.15 The results of the calculations are shown in Appendix 3 and are summarised in Table 2 below.

Table 2 Acoustic Requirements for 'Worst Case' Habitable Rooms

'Worst Case' Rooms	Glazing Performance Requirements (inc. Frames)	Ventilator Performance Requirements (in Open Position)
Habitable rooms with direct line of sight to A1 and Payne H E	36 dB Rw+Ctr	MVHR

Note The requirements given are approximate only and should be confirmed at the detailed design stage when full design details are available.

4.16 The required sound insulation performance values in Table 2 could typically be achieved by the glazing types shown in Table 3.

Table 3 Typical Glazing Acoustic Performances

Glazing (in Good Quality Sealed Frames)	Typical Weighted Sound Reduction (Rw + Ctr)
10mm/16/8.8mm acoustically upgraded thermal double glazing	36

4.17 It can be seen from the above that acceptable internal noise levels will be achievable in the development subject to the specification of suitable glazing and ventilation systems at the detailed design stage (which could be secured with a suitable planning condition). It is our view therefore that the proposed development is, in principle, acceptable with regards to the noise levels that will exist within the habitable rooms.

4.18 It should be noted that it will be possible to use lower acoustic performance facade elements for facades that are further from or acoustically screened from the surrounding noise sources. This could be investigated further at a later stage of the design process.

4.19 It should be noted that the above assessment is based on windows being closed whereas the ProPG guidance suggests that internal noise levels should also be assessed with windows in the open position, which will likely be required at times to control overheating. This can be assessed further at a later design stage when full details of the construction of the development will be available and a full overheating assessment can be carried out. If the units closest to the A1 are predicted to overheat for long periods with windows closed then an enhanced mechanical ventilation system may be required.

Stage 2 – Element 3 – Noise levels in external amenity areas

4.20 BS8233 states that it is desirable that noise levels in external amenity areas of residential developments do not exceed 50 dB LAeq and that 55 dB LAeq,T should be regarded as a upper guideline value. BS8233 recognises however that these guideline values will not always be achievable in city centres or urban areas adjoining main roads or other transport sources. In these cases, BS8233 states that the development should be designed to achieve the lowest practical noise levels in the amenity spaces.

4.21 While the locations of gardens are yet to be specified, it should be possible for garden noise levels to be below 55 dB LAeq,T through careful design consideration. Some examples are to include terrace houses in the design to create a noise barrier between the A1 and garden spaces and the adoption of 1.8m high close-boarded timber fencing to reduce noise levels in external amenity areas as far as practicable, especially towards east of the site.

4.22 It is also likely that proposed dwellings will also provide additional screening, reducing noise levels in gardens across the site from east to west.

Stage 2 – Element 4 – Other relevant issues

4.23 In our view the design and acoustic approach outlined above is in line with both local and national noise policy. It is common for residential properties to be situated near to main roads and this is an acceptable scenario provided that the properties are positioned strategically and acoustically upgraded where necessary to achieve acceptable noise levels in habitable areas.

Recommendation to decision maker

4.24 It is our view that that acceptable noise levels can be achieved in habitable areas of the finished development subject to the adoption of acoustically upgraded glazing and ventilation, the dwellings are positioned appropriately to provide screening to the gardens and acoustic screening is placed around gardens where necessary.

5. PLANT NOISE IMPACT ASSESSMENT

Design criteria – Mechanical plant noise

5.1 BS4142:2014 – *Methods for rating and assessing industrial and commercial sound* (BS4142) can be used to assess the impact of noise from external industrial and/or commercial noise sources on nearby sensitive receptors.

5.2 The BS4142 assessment methodology can be summarised as follows:

1. Measure the existing background noise levels (LA90,T dB) at the locations of nearby noise sensitive receptors during the quietest periods when the noise source(s) under investigation will operate;
2. Predict or measure the noise emissions (LAeq,T dB) from the noise source(s) under investigation at the location(s) of the nearby sensitive receptors, and add corrections for any distinguishable acoustic features (e.g. tones, whines, screeches, hisses etc);
3. Subtract the measured background noise levels (item 1 above) with the measured or predicted rating noise levels (item 2 above) at each sensitive receptor. BS4142 states that:

a) Typically, the greater this difference, the greater the magnitude of the impact.

b) A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.

c) A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.

d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

NOTE Adverse impacts include, but are not limited to, annoyance and sleep disturbance. Not all adverse impacts will lead to complaints and not every complaint is proof of an adverse impact.

5.3 In the absence of specific criteria from Bedford Borough Council, the criteria of "equal to background" has been adopted for the assessment of noise emissions from the development. This criterion is subject to change, based on any Planning Conditions provided by the Local Planning Authority.

5.4 Background noise levels (LA90) at the site were measured as part of the site noise survey outlined in Appendix 2. The measured background noise levels have been used to develop limits for plant noise emissions from the new development at the positions of the surrounding residential

properties in accordance with the BS4142 assessment methodology. The limits are shown in Table 4 below.

Table 4 BS4142 Noise Limits - Free-field Levels

Location	Period	
	Day-time/Evening (0700-2300hrs)	Night-time (2300-0700hrs)
Nearest existing residential properties to proposed commercial area	46 dB LAr,Tr	38 dB LAr,Tr

Note 1 The above limits are 'rated' noise levels. Any mechanical plant noise emissions should have appropriate corrections for the character of the noise applied and still meet these limits.

Proposed mechanical plant design

5.5 Detailed design information is not yet available for external mechanical plant or commercial activities associated with the development, and therefore noise emissions from external mechanical plant and commercial activities cannot be accurately predicted at the positions of nearby residential properties at this stage.

5.6 The selection and design of external mechanical plant will be reviewed as project information becomes available to ensure that the project BS4142:2014 noise limits given in Table 4 are achieved.

5.7 It is expected that it will be straightforward to achieve the BS4142 noise limits given the relatively large distances between the proposed commercial areas and the nearby existing and proposed residential properties.

6. CONCLUSIONS

6.1 Cass Allen was instructed by L & P Chess Ltd to assess the suitability of the site for the proposed development with regards to noise.

6.2 The assessment was carried out in accordance with relevant local and national planning guidance.

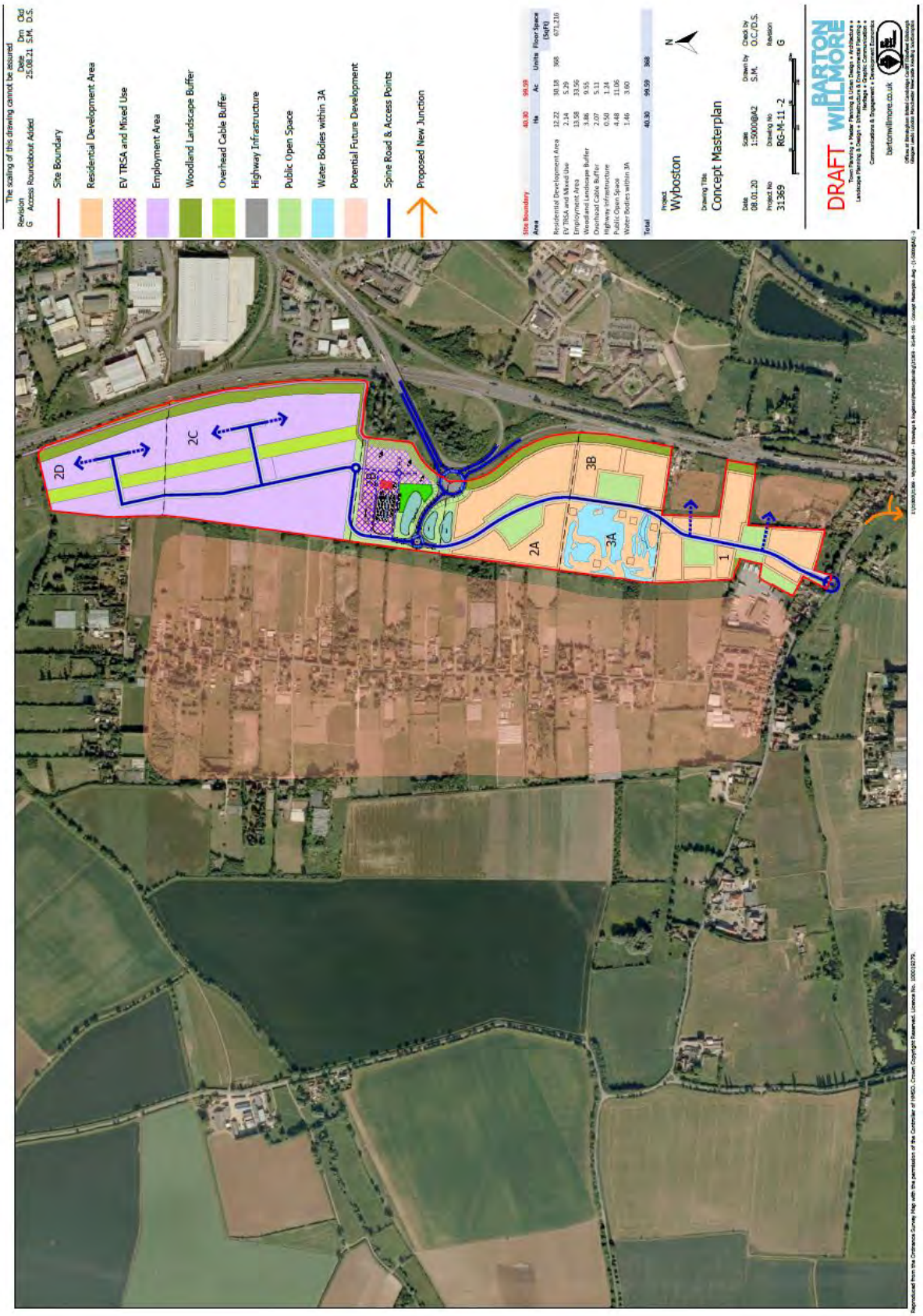
6.3 A noise survey was carried out at the site. Noise levels at the site are dictated by road traffic noise emissions from the A1.

6.4 Noise affecting the development has been assessed in accordance with the ProPG guidance. The site is considered to be acceptable for residential development subject to the adoption of acoustically upgraded glazing and ventilation, strategic positioning of the dwellings to protect gardens from road traffic noise and acoustic screening to gardens where appropriate. This can be investigated further as more details of the development design become available.

6.5 Appropriate limits for noise from mechanical plant and commercial activities have been calculated based on measured noise levels at the site and guidance given in BS4142. It is envisaged that it will be straightforward to achieve the plant noise limits. This will be investigated further as more details become available.

6.6 In summary of the above it is our view that the site is suitable for the development in terms of noise levels.

Appendix 1 Site Layout



Appendix 2 Survey Results

Survey Summary:

The survey comprised short-term operator attended noise measurements and longer-term unattended noise monitoring at the site. Noise levels at the site were generally dictated by road traffic on the A1.

Survey Period:

09/08/2021 to 13/08/2021

Survey Objectives:

- To identify noise sources that contribute to ambient noise levels at the site;
- To measure noise levels around the site over a typical day and night-time period.

Equipment Used:

Type	Manufacturer	Model	Serial Number
Sound level meter[1] (noise logger)	NTi Audio	XL2	A2A-17487-E0
Calibrator	NTi Audio	600 000 388	15011
Sound level meter[1] (noise logger)	Rion	NL-32	01182950, 01213688, 00623765
Sound level meter[1] (noise logger)	Rion	NL-32	
Sound level meter[1] (noise logger)	Rion	NL-32	
Calibrator	Rion	NC-74	34551703
Sound level meter[1]	Rion	NL-52	00965090

Note 1: All sound level meters were calibrated before and after measurement periods and no significant drift in calibration was found to have occurred. The results of the measurements are therefore considered to be representative.

Weather Conditions:

The observed weather conditions were acceptable for acoustic measurement throughout the attended survey periods (low-medium wind speeds and no rain). Weather records for the area confirmed that weather conditions were also generally acceptable for acoustic measurement during the unattended monitoring.

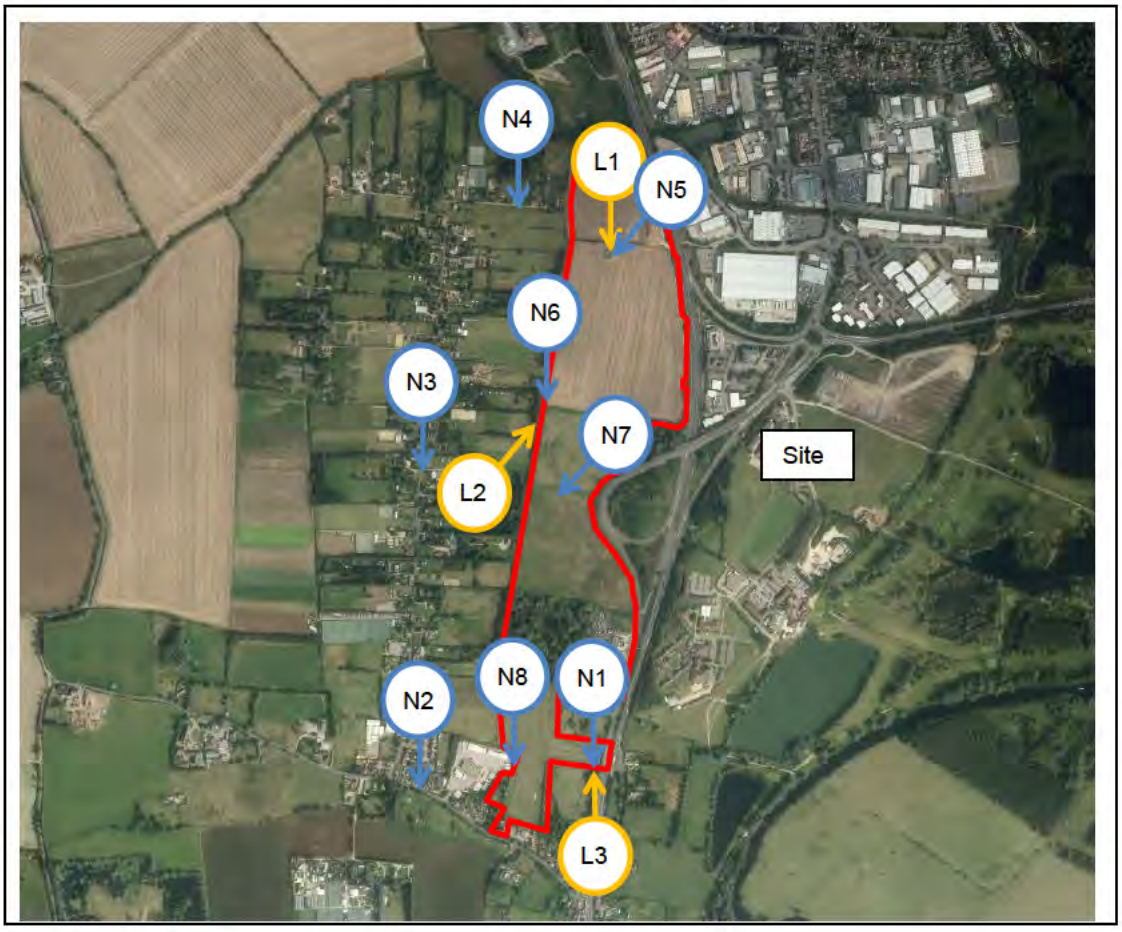
Measurement Positions:

Position (refer plan below)	Description
N1	Attended noise monitoring position. 1.5m above ground. Free-field. Direct line of sight to A1
N2	Attended noise monitoring position. 1.5m above ground. Free-field. Direct line of sight to The Lane.
N3	Attended noise monitoring position. 1.5m above ground. Free-field. Direct line of sight to Rookery Road.

Measurement Positions:

Position (refer plan below)	Description
N4	Attended noise monitoring position. 1.5m above ground. Free-field. Direct line of sight to A1
N5	
N6	
N7	
N8	Attended noise monitoring position. 1.5m above ground. Free-field. Direct line of sight to Payne H E (commercial).
L1	Unattended noise logging position. 2m above ground level. Free-field. Direct line of sight to A1
L2	
L3	Unattended noise logging position. 2m above ground level. Free-field. Direct line of sight to A1, 8m from road edge.

Site Plan showing Measurement Positions:



Attended Noise Monitoring Results:

Date	Position	Time	Meas. Length	LAeq, dB	LAmax, dB	LA90, dB	Observations
09/08/2021	N1	11:07	10 secs	68	73	65	Noise dictated by road traffic from the A1.
			9 secs	73	76	70	
			14 secs	69	73	65	
			17 secs	70	77	64	
	N2	11:26	32 secs	43	46	43	Noise dictated by distant road traffic from the A1, nature sounds.
		11:27	1 min	43	47	42	
		11:28	51 secs	44	58	42	
	N3	11:47	31 secs	42	47	41	Noise dictated by distant road traffic from the A1.
		11:55	5 mins	54	73	42	Noise dictated by distant road traffic from the A1, nature sounds and sporadic vehicle movements on Rookery Road.
		12:00		45	60	43	
	N4	12:30		45	55	43	Noise dictated by distant road traffic from the A1, nature sounds.
		12:35		49	61	44	Noise dictated by distant road traffic from the A1, nature sounds, maximum noise level dictated by overhead aircraft.
	N5	12:50		53	57	52	Noise dictated by road traffic from the A1.
		12:55		53	60	52	
	N6	13:10		46	50	45	Noise dictated by distant road traffic from the A1, nature sounds.
		13:15		47	52	45	
	N7	13:30		52	63	49	
		13:35		50	60	48	
	N1	14:20		71	77	66	Noise dictated by road traffic from the A1.
		14:25		70	77	66	
	N8	14:33	1 min	59	62	58	Noise dictated by idle HGV engine.
		14:43		60	61	60	

Unattended Noise Monitoring Results:

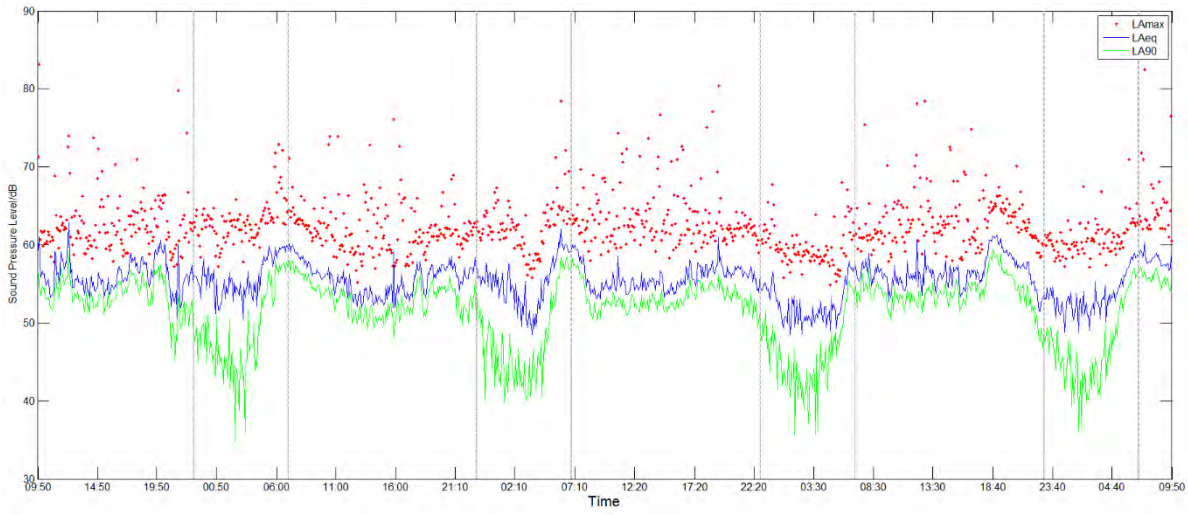
Meas. Period	Position	Daytime (0700-2300hrs)		Night-time (2300-0700hrs)		
		LAeq,16hr, dB	LA90,1hr dB[1]	LAeq,8hr, dB	LA90,5mins, dB[1]	LAmax, dB[2]
09/08/2021 to 13/08/2021	L1	56	54	55	45	64-65
	L2	52	51	50	43	59-61
09/08/2021 to 12/08/2021	L3	72	68	69	48	79-79

Note 1: Typical lowest measured during the period shown.

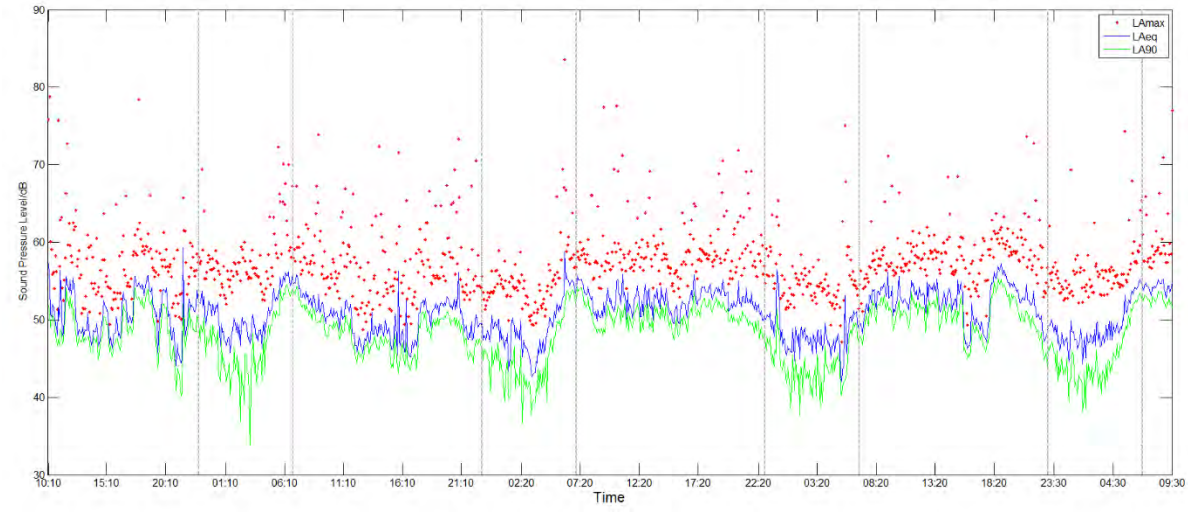
Note 2: Highest typical maximum noise level during the night-time (not exceeded more than 10-15 times per night).

Unattended Noise Monitoring Results:

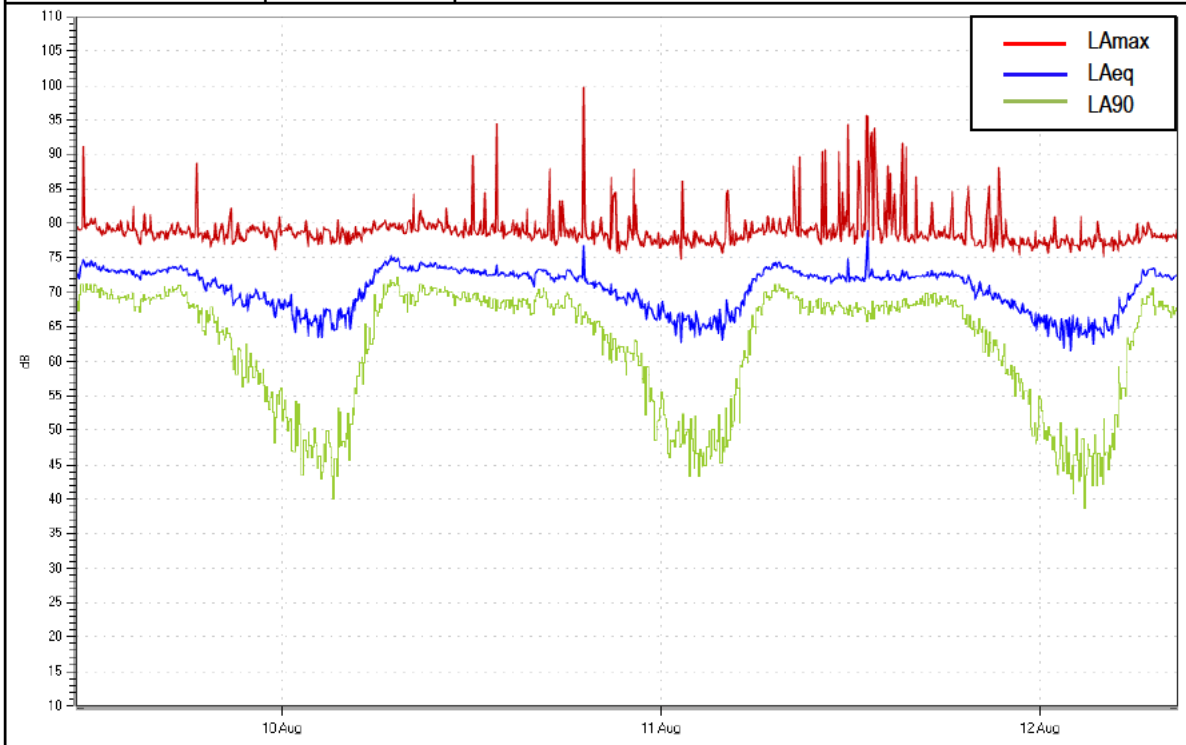
Meas. Period	Position	
09/08/2021 to 13/08/2021	L1	



Meas. Period	Position	
09/08/2021 to 13/08/2021	L2	



Meas. Period	Position
09/08/2021 to 12/08/2021	L3



Appendix 3 Facade Calculations

FACSIM V2.7.4 - MODELLING OF FACADE ACOUSTIC INSULATION TO BS12354-3 and BS8233

CLIENT:	L & P CHESS LTD
PROJECT:	Land West of A1, Wyboston
ROOM:	Bedroom
RUN REF:	21416
VARIANT:	Daytime Average Noise Levels (LAeq,16hr)

Room Dimensions [m] W 3.0 X L 4.0 X H 2.4

Room Volume = 28.8 m3
Parti ion Area = 9.5 m2
Ventilation ref area = 10.0 m2
SELECT Free Field or Façade SPL for model input >>>
Free Field SPL K = 3 dB

h

NOTES:

EXTERNAL SPECTRUM (A weighted)

	dBA	63	125	250	500	1000	2000	4000	
Direct input - Free Field SPL (A weighted octave bands) dB ----->	-								**No data**
Road traffic spectrum (according to BS 8233:1999 section 6)	72.0								
		53.8	57.9	61.4	64.8	68.0	65.2	60.0	**Reference spectrum**

REVERBERATION TIME

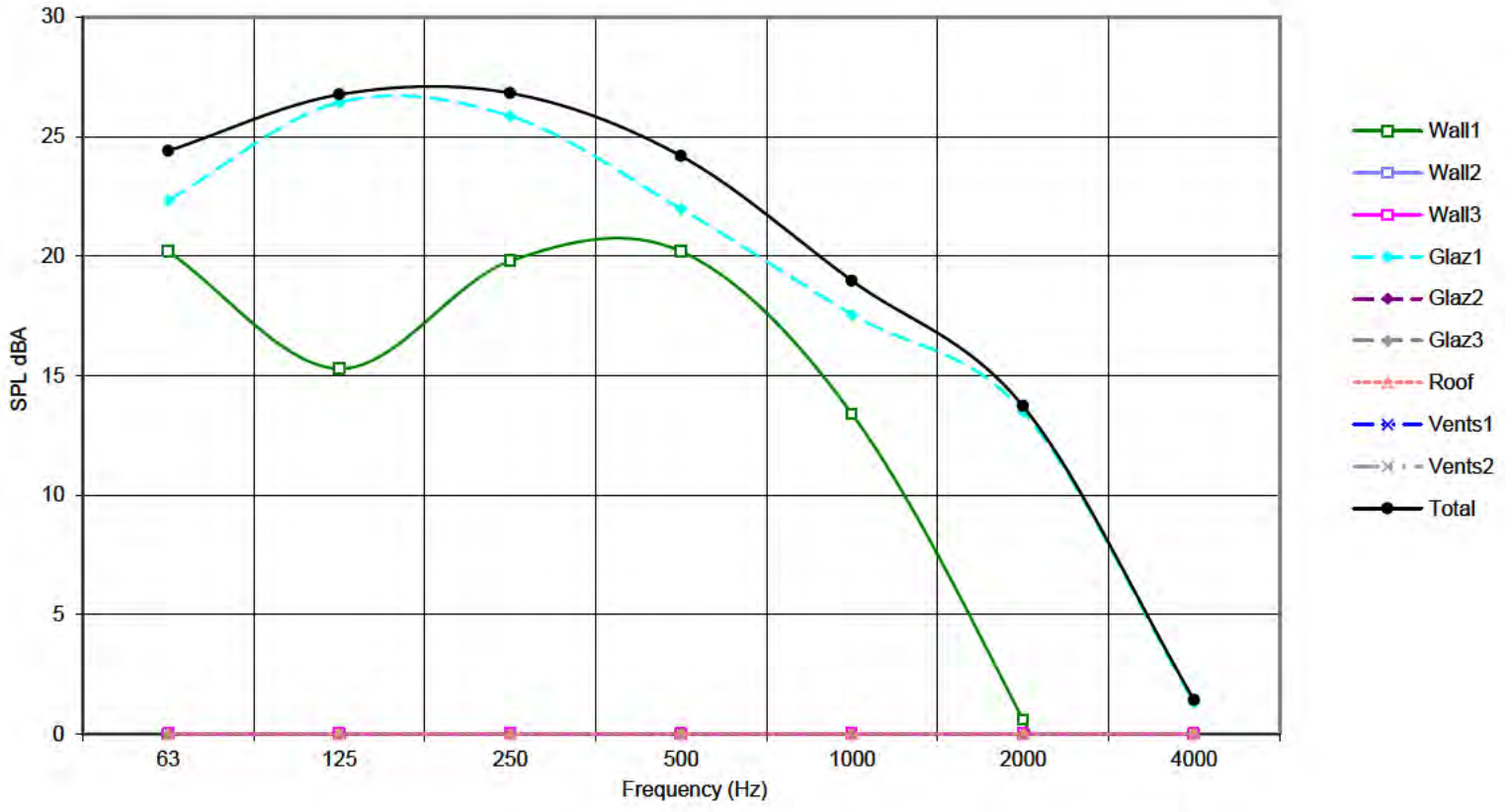
DIRECT INPUT ----->									**No data**
EQUAL RT for all bands ----->									
		0.5	0.5	0.5	0.5	0.5	0.5	0.5	**Default - RT set to 0.5s**

Façade Element		Area [m2]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1	Typical - 102mm brick/50mm cavity/100mm block	8.0	36	45	44	47	57	67	77	23%	54	0	-4
	ATTENUATION												
Wall 2	WALLS		0	0	0	0	0	0	0	0%			
	ATTENUATION												
Wall 3	WALLS		0	0	0	0	0	0	0	0%			
	ATTENUATION												
Glazing 1	36 dB Rw + Ctr - High Acoustic Performance Double Glazing	1.5	27	27	31	38	46	47	54	77%	36 (inc Ctr)	-	-
	ATTENUATION												
Glazing 2	GLAZING		0	0	0	0	0	0	0	0%			
	ATTENUATION												
Glazing 3	GLAZING		0	0	0	0	0	0	0	0%			
	ATTENUATION												
Roof	ROOF / FLOOR		0	0	0	0	0	0	0	0%			
	ATTENUATION												
	Resultant composite Façade SRI		33	34	38	44	52	55	62				
	Resultant SPL inside room excluding ventilators dB	32.0	24	27	27	24	19	14	1	100%			

Ventilator Type		Num	$D_{n,e}$ dB to BS EN 20140-10:1992								Dnew	C	Ctr
Ventilation			0	0	0	0	0	0	0	0%			
	ATTENUATION												
Ventilation	VENTS		0	0	0	0	0	0	0	0%			
	ATTENUATION												
	Resultant SPL inside room through ventilators dB	-99.0	-96	-96	-96	-96	-96	-96	-96	0%			

Total SPL inside room	**32.0**	24	27	27	24	19	14	1

Element contribution to total internal noise level



FACSIM V2.7.4 - MODELLING OF FACADE ACOUSTIC INSULATION TO BS12354-3 and BS8233

CLIENT:	L & P CHESS LTD
PROJECT:	Land West of A1, Wyboston
ROOM:	Bedroom
RUN REF:	21416
VARIANT:	Night- ime Average Noise Levels (LAeq,8hr)

Room Dimensions [m] W 3 0 X L 4.0 X H 2.4

Room Volume = 28.8 m3
Parti ion Area = 9.5 m2
Ventilation ref area = 10.0 m2
SELECT Free Field or Façade SPL for model input >>>
Free Field SPL K = 3 dB

h

NOTES:

EXTERNAL SPECTRUM (A weighted)

	dBA	63	125	250	500	1000	2000	4000	
Direct input - Free Field SPL (A weighted octave bands) dB ----->	-								**No data**
Road traffic spectrum (according to BS 8233:1999 section 6)	69.0								
		50.8	54 9	58.4	61.8	65.0	62.2	57.0	**Reference spectrum**

REVERBERATION TIME

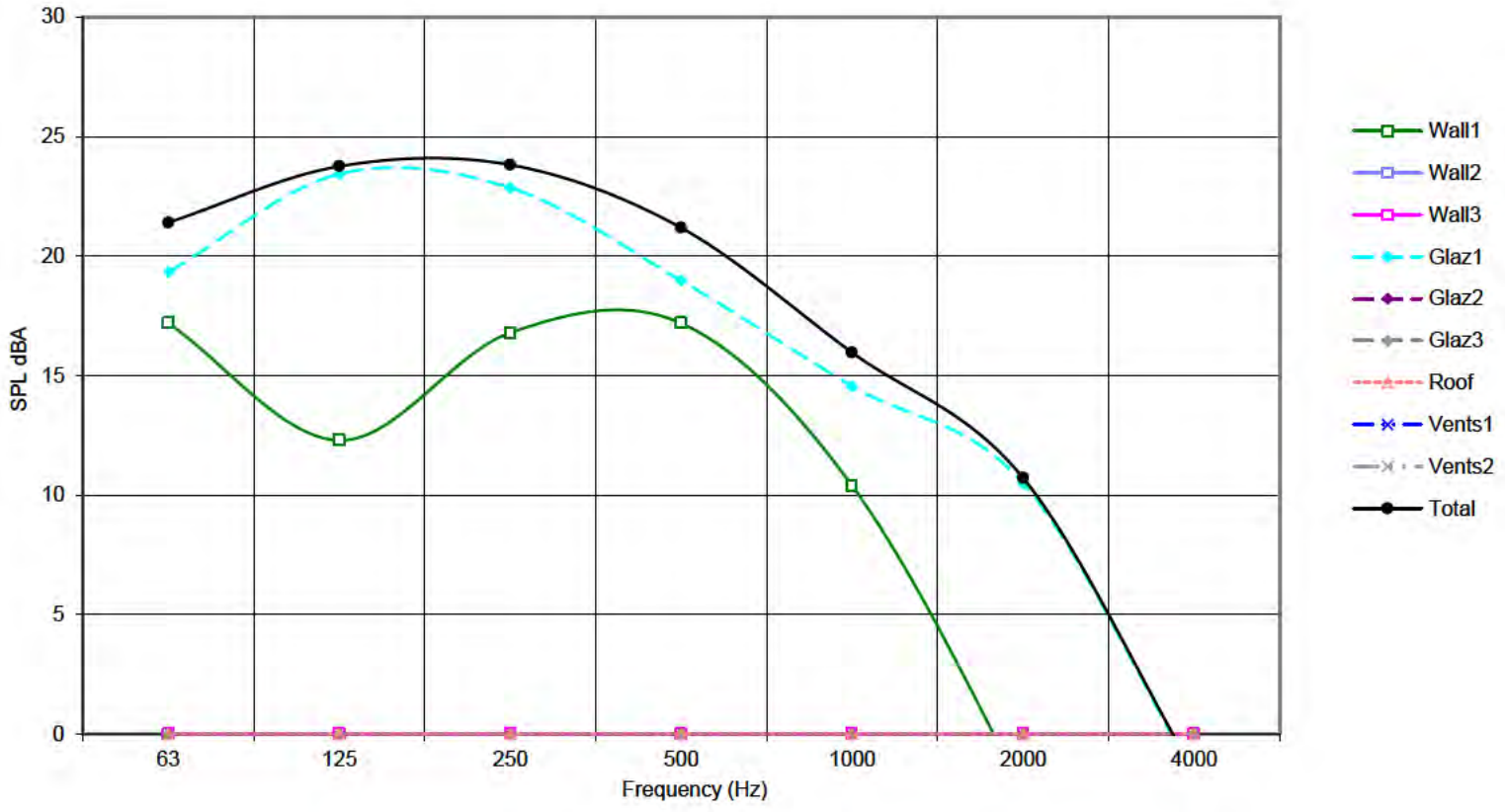
DIRECT INPUT ----->									**No data**
EQUAL RT for all bands ----->									
	0.5	0.5	0 5	0.5	0.5	0.5	0.5	**Default - RT set to 0.5s**	

Façade Element		Area [m2]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1	Typical - 102mm brick/50mm cavity/100mm block	8.0	36	45	44	47	57	67	77	22%	54	0	-4
	ATTENUATION												
Wall 2	WALLS		0	0	0	0	0	0	0	0%			
	ATTENUATION												
Wall 3	WALLS		0	0	0	0	0	0	0	0%			
	ATTENUATION												
Glazing 1	36 dB Rw + Ctr - High Acoustic Performance Double Glazing	1.5	27	27	31	38	46	47	54	77%	36 (inc Ctr)	-	-
	ATTENUATION												
Glazing 2	GLAZING		0	0	0	0	0	0	0	0%			
	ATTENUATION												
Glazing 3	GLAZING		0	0	0	0	0	0	0	0%			
	ATTENUATION												
Roof	ROOF / FLOOR		0	0	0	0	0	0	0	0%			
	ATTENUATION												
	Resultant composite Façade SRI		33	34	38	44	52	55	62				
	Resultant SPL inside room excluding ventilators dB	29.0	21	24	24	21	16	11	-2	100%			

Ventilator Type		Num	$D_{n,e}$ dB to BS EN 20140-10:1992								Dnew	C	Ctr
Ventilation			0	0	0	0	0	0	0	0%			
	ATTENUATION												
Ventilation	VENTS		0	0	0	0	0	0	0	0%			
	ATTENUATION												
	Resultant SPL inside room through ventilators dB	-99.0	-96	-96	-96	-96	-96	-96	-96	0%			

Total SPL inside room	**29.0**	21	24	24	21	16	11	-2

Element contribution to total internal noise level



FACSIM V2.7.4 - MODELLING OF FACADE ACOUSTIC INSULATION TO BS12354-3 and BS8233

CLIENT:	L & P CHESS LTD
PROJECT:	Land West of A1, Wyboston
ROOM:	Bedroom
RUN REF:	21416
VARIANT:	Nigh Time Maximum Noise Levels (LAmax)

Room Dimensions [m] W 3 0 X L 4.0 X H 2.4

Room Volume = 28.8 m3
Parti ion Area = 9.5 m2
Ventilation ref area = 10.0 m2
SELECT Free Field or Façade SPL for model input >>> Free Field SPL K = 3 dB

NOTES:

EXTERNAL SPECTRUM (A weighted)

	dBA	63	125	250	500	1000	2000	4000	
Direct input - Free Field SPL (A weighted octave bands) dB ---->	79.0	52.4	56 9	60.0	74.5	76.1	68.8	60.1	
Road traffic spectrum (according to BS 8233:1999 section 6)									
		52.4	56 9	60.0	74.5	76.1	68.8	60.1	**Direct input**

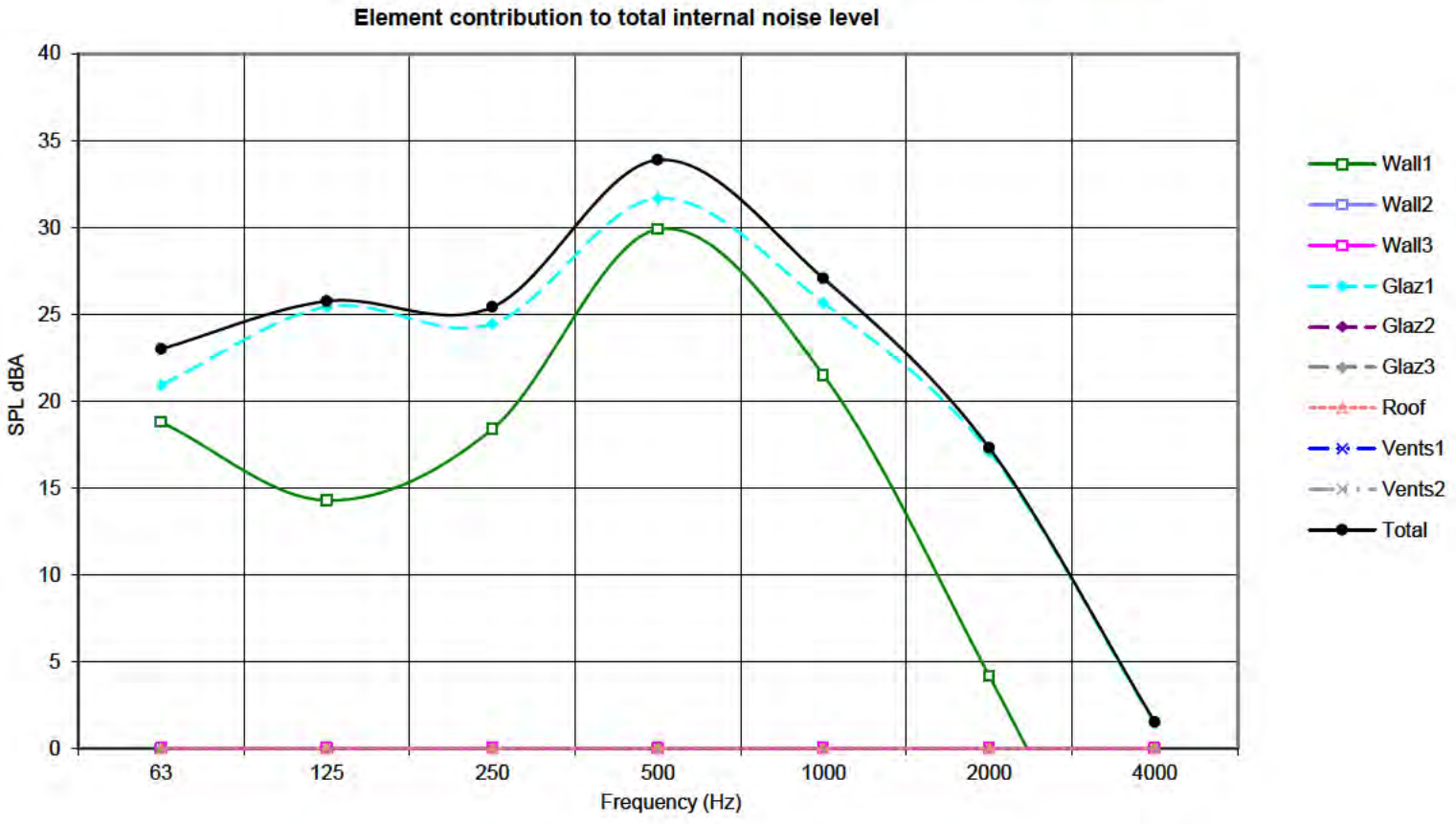
REVERBERATION TIME

DIRECT INPUT ---->									**No data**
EQUAL RT for all bands ---->									
	0.5	0.5	0 5	0.5	0.5	0.5	0.5		**Default - RT set to 0.5s**

Façade Element		Area [m2]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1	Typical - 102mm brick/50mm cavity/100mm block	8.0	36	45	44	47	57	67	77	33%	54	0	-4
	ATTENUATION												
Wall 2	WALLS		0	0	0	0	0	0	0	0%			
	ATTENUATION												
Wall 3	WALLS		0	0	0	0	0	0	0	0%			
	ATTENUATION												
Glazing 1	36 dB Rw + Ctr - High Acoustic Performance Double Glazing	1.5	27	27	31	38	46	47	54	67%	36 (inc Ctr)	-	-
	ATTENUATION												
Glazing 2	GLAZING		0	0	0	0	0	0	0	0%			
	ATTENUATION												
Glazing 3	GLAZING		0	0	0	0	0	0	0	0%			
	ATTENUATION												
Roof	ROOF / FLOOR		0	0	0	0	0	0	0	0%			
	ATTENUATION												
	Resultant composite Façade SRI		33	34	38	44	52	55	62				
	Resultant SPL inside room excluding ventilators dB	35.9	23	26	25	34	27	17	2	100%			

Ventilator Type		Num	$D_{n,e}$ dB to BS EN 20140-10:1992								Dnew	C	Ctr
Ventilation			0	0	0	0	0	0	0	0%			
	ATTENUATION												
Ventilation	VENTS		0	0	0	0	0	0	0	0%			
	ATTENUATION												
	Resultant SPL inside room through ventilators dB	-99.0	-96	-96	-96	-96	-96	-96	-96	0%			

Total SPL inside room	**35.9**	23	26	25	34	27	17	2



FACSIM V2.7.4 - MODELLING OF FACADE ACOUSTIC INSULATION TO BS12354-3 and BS8233

CLIENT:	L & P CHESS LTD
PROJECT:	Land West of A1, Wyboston
ROOM:	Living Room
RUN REF:	21416
VARIANT:	Daytime Average Noise Levels (LAeq,16hr)

Room Dimensions [m] W 5.0 X L 4.0 X H 2.4 h

Room Volume = 48.0 m3
Parti ion Area = 17.5 m2
Ventilation ref area = 10.0 m2
SELECT Free Field or Façade SPL for model input >>>
Free Field SPL K = 3 dB

NOTES:

EXTERNAL SPECTRUM (A weighted)

	dBA	63	125	250	500	1000	2000	4000	
Direct input - Free Field SPL (A weighted octave bands) dB ---->	-								**No data**
Road traffic spectrum (according to BS 8233:1999 section 6)	72.0								
		53.8	57.9	61.4	64.8	68.0	65.2	60.0	**Reference spectrum**

REVERBERATION TIME

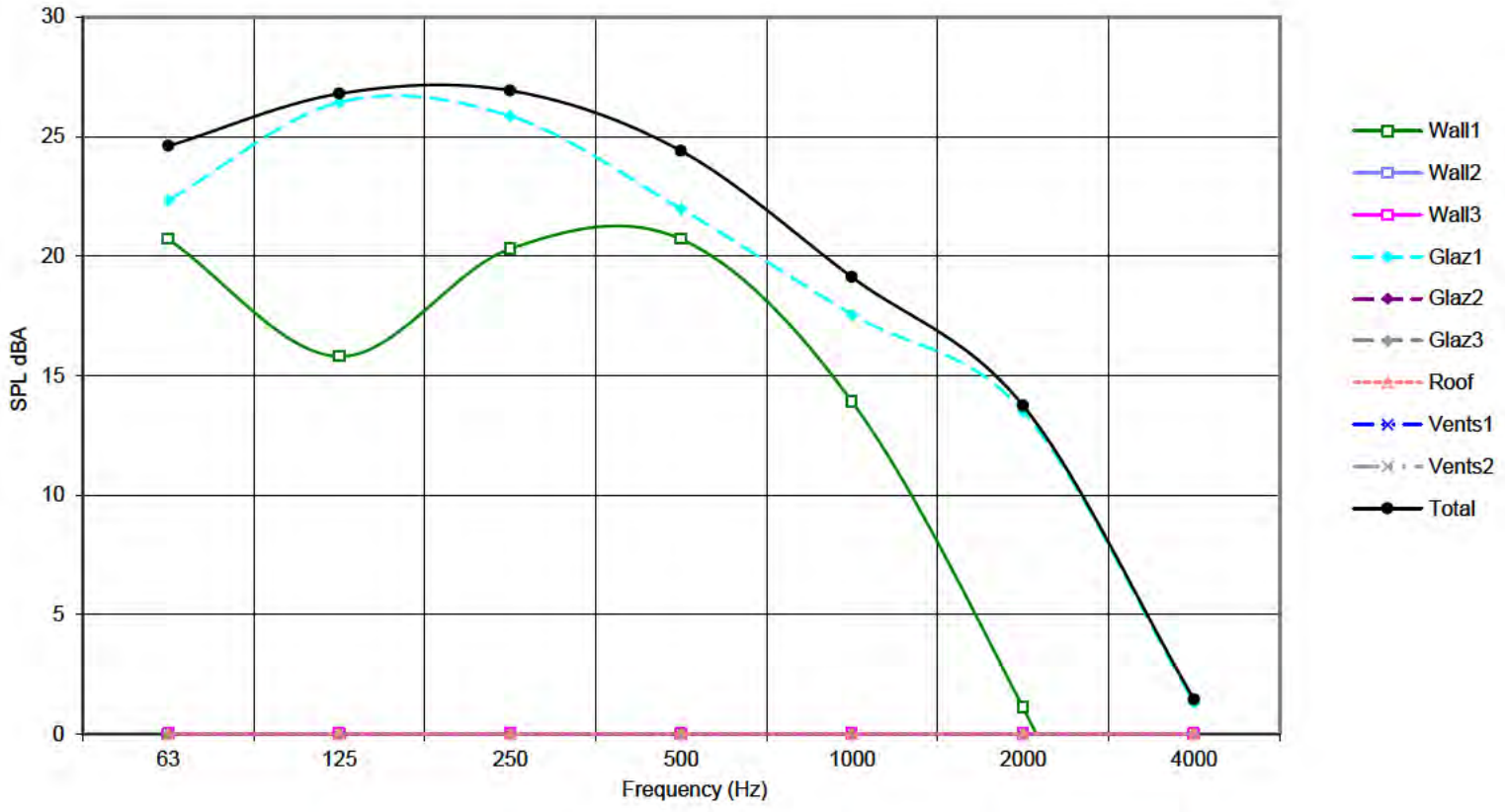
DIRECT INPUT ---->									**No data**
EQUAL RT for all bands ---->									
		0.5	0.5	0.5	0.5	0.5	0.5	0.5	**Default - RT set to 0.5s**

Façade Element		Area [m2]	SRI dB to BS EN ISO 140-3:1995								Rw	C	Ctr
Wall 1	Typical - 102mm brick/50mm cavity/100mm block	15.0	36	45	44	47	57	67	77	25%	54	0	-4
	ATTENUATION												
Wall 2	WALLS		0	0	0	0	0	0	0	0%			
	ATTENUATION												
Wall 3	WALLS		0	0	0	0	0	0	0	0%			
	ATTENUATION												
Glazing 1	36 dB Rw + Ctr - High Acoustic Performance Double Glazing	2.5	27	27	31	38	46	47	54	75%	36 (inc Ctr)	-	-
	ATTENUATION												
Glazing 2	GLAZING		0	0	0	0	0	0	0	0%			
	ATTENUATION												
Glazing 3	GLAZING		0	0	0	0	0	0	0	0%			
	ATTENUATION												
Roof	ROOF / FLOOR		0	0	0	0	0	0	0	0%			
	ATTENUATION												
	Resultant composite Façade SRI		33	35	38	44	52	55	62				
	Resultant SPL inside room excluding ventilators dB	32.1	25	27	27	24	19	14	1	100%			

Ventilator Type		Num	$D_{n,e}$ dB to BS EN 20140-10:1992								Dnew	C	Ctr
Ventilation			0	0	0	0	0	0	0	0%			
	ATTENUATION												
Ventilation	VENTS		0	0	0	0	0	0	0	0%			
	ATTENUATION												
	Resultant SPL inside room through ventilators dB	-99.0	-96	-96	-96	-96	-96	-96	-96	0%			

Total SPL inside room	**32.1**	25	27	27	24	19	14	1

Element contribution to total internal noise level



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Architectural & Environmental Acousticians

Noise & Vibration Engineers

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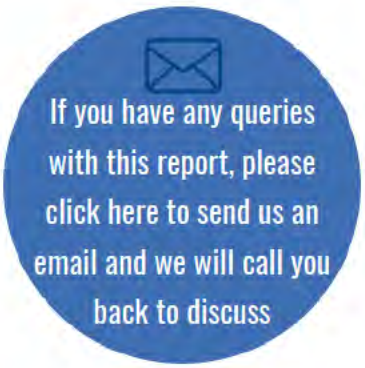

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Appendix 4

Mineral Resource Assessment

MINERAL RESOURCE ASSESSMENT

LAND AT WYBOSTON, ST NEOTS BEDFORDSHIRE

Prepared for

L AND P CHESS LTD & OTHERS

APRIL 2021

Prepared by

[redacted]

For and on behalf of
FISHER GERMAN LLP
CHARTERED SURVEYORS
The Estates Office, Norman Court, Ashby de la Zouch
Leicestershire, LE65 2UZ
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INDEX

APPENDICES

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DATE ISSUED: APRIL 2021

REPORT NUMBER: 01

L AND P CHESS LTD & OTHERS

LAND AT WYBOSTON, ST NEOTS, BEDFORDSHIRE

MINERAL ASSESSMENT REPORT

PREPARED & APPROVED BY:

[redacted] RICS Registered Valuer
MRICS MIQ

[redacted]

DATED: **30 April 2021**

EXECUTIVE SUMMARY

- The site falls within the Bedfordshire Mineral Safeguarding Area based on the high-level geology.
- Part of the site has been subject to prior extraction and thus the MSA restrictions should not apply to this area in any event.
- The borehole information suggests a variable deposit, particularly towards the northern end of the site, with only one borehole showing a depth of mineral greater than 3m.
- The mineral is believed to disappear to the west of the site, which suggests the mineral depths within the site could be lower than those recorded in the boreholes which were taken from the eastern boundary.
- Some of the boreholes indicate very shallow deposits of mineral and in one case barren.
- Access for HGV traffic to the site is poor. The underpass is narrow, low, and shared with a public bridleway. This is the only viable means of access to the site and it is difficult to see how plant and machinery could be delivered, as well as safely operating HGV traffic.
- The site is affected by a series of utility infrastructure which causes large areas to be sterilised.
- The layout of the site is a long, narrow site with a number of areas that would be impractical to extract due to their small size and shape. The gross resource which could be available for extraction is in the region of 536,000 tonnes.
- The on-site use of this resource could be considered by the proposed mixed-use development.
- For the above reasons it is not believed that the proposed development will sterilise a reserve that operators would regards as commercially viable.

1 BACKGROUND

1.1 Fisher German LLP have been instructed by L and P Chess Ltd, acting for a consortium of landowners of the site at Wyboston, Bedfordshire, edged in red on the site boundary plan attached at Appendix 1, to prepare a Mineral Resource Assessment in support of the promotion of the site through the Bedford Borough Council local plan process.

1.2 The site is to the north of Wyboston, located in the Bedford Borough Council area. It is bounded to the east by the A1(M) trunk road, to the west by the Rookery Road smallholdings, to the south by residential development on The Lane and to the north by the Eaton Socon National Grid electricity substation.

1.3 The site is currently in agricultural use, other than the area to the rear of Lakes Garage which has a history of previous excavation and now comprises a series of shallow lakes and woodland

1.4 The site falls within the Mineral Safeguarding Area (MSA) identified by Bedford Borough Council. As the land is being promoted for a mixed-use development a Mineral Resource Assessment has been prepared in support of the site's promotion as required under the provisions of the National Planning Policy Framework and Bedford Borough Council.

1.5 This Mineral Resource Assessment has been prepared in accordance with the Guidance document issued by the Mineral Products Association and the Planning Officers Society, dated April 2019

PLANNING POLICY

2 Local Plan Update (Planning Policy)

2.1 The land in question is located to the north east of the settlement of Wyboston in Bedford Borough Council. In terms of planning policy, Bedford Borough Council adopted their New Local Plan in January 2020. This sets out the development framework until 2030.

2.2 Given the rural nature of Wyboston a settlement boundary is not defined; the site itself is unallocated and according to Bedford Borough Council's online planning search, the site has no planning history of relevance within the last 10 years.

3 National Planning Policy Framework (2019)

3.1 Paragraph 203 of the NPPF (2019) states that it is essential that there is a sufficient supply of minerals to provide infrastructure, buildings, energy, and goods that the country needs. However, since minerals are a finite resource, thought needs to be given to secure their long-term conservation.

Paragraph 204 states planning policies should:

"*safeguard mineral resources by defining Mineral Safeguarding Areas; and adopt appropriate policies so that known locations of specific minerals resources of local and national importance are not sterilised by non-mineral development where this should be avoided (whilst not creating a presumption that the resources defined will be worked);*

set out policies to encourage the prior extraction of minerals, where practical and environmentally feasible, if it is necessary for non-mineral development to take place;

set out criteria or requirements to ensure that permitted and proposed operations do not have unacceptable adverse impacts on the natural and historic environment or human health, taking into account the cumulative effects of multiple impacts from individual sites and/or a number of sites in a locality;"

Paragraph 206 states "*Local planning authorities should not normally permit other development proposals in Mineral Safeguarding Areas if it might constrain potential future use for mineral working*".

3.2 NPPF establishes the importance of Mineral Safeguarding Areas but accepts that site specific investigations and circumstances need to be researched in assessing whether individual sites should be so protected. NPPF also establishes the circumstances in which non-mineral development could be allowed within an MSA.

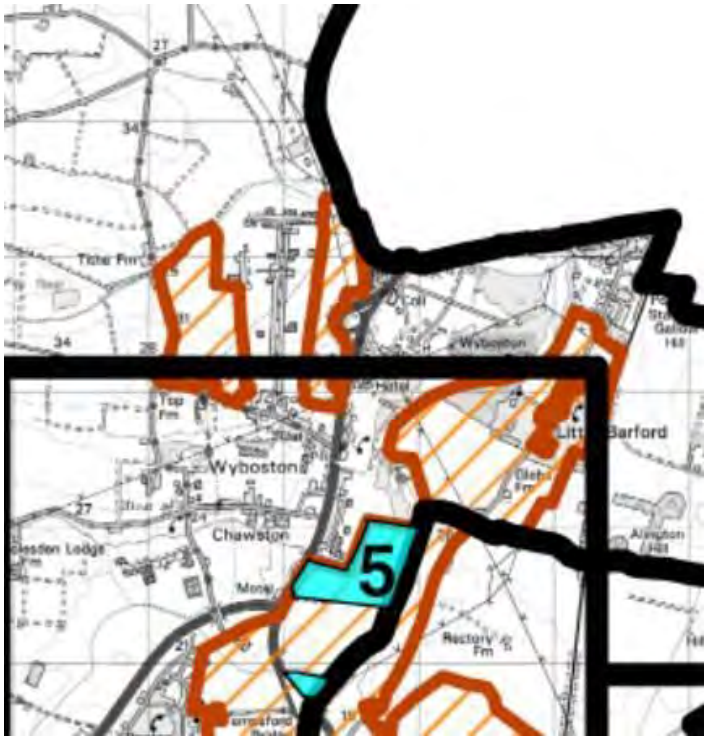
4 Minerals and Waste Local Plan (2014)

4.1 Similarly to the Local Planning Policy, the land in question falls under the mineral planning control of Bedford Borough Council. The current local plan is the Minerals and Waste Local Plan (MWLP) that covers the whole of Bedfordshire and was adopted in 2014 by the three relevant unitary authorities (Bedford Borough Council, Luton Borough Council and Central Bedfordshire Council.)

4.2 The MWLP establishes the vision, objectives and strategy for minerals and waste for the whole of Bedfordshire. This MWLP comprises of policies that set out the minerals and waste strategy until 2024.

4.3 The County is a significant producer of aggregate sands and gravels, industrial (silica) sands, as well as chalk and historically, other minerals such as Cornbrash Limestone for use as building stone. The MSA plan for the MWLP area covers not just sand and gravel but also silica sand, chalk, cornbrash limestone and clay.

4.4 The Site at Wyboston is located within the River Valley (Glacial Sand and Gravel) Mineral Safeguarding Area. The screenshot below shows this in further detail (full map included at Appendix 2):



4.5 MSA designations cover areas of believed mineral deposits which are desired to be kept safeguarded from sterilisation by non-mineral development (as defined in Local Plan Policy and the National Planning Policy Framework 2019). These designations normally follow geological map boundaries and are taken from high-level research. They do not necessarily indicate that mineral exists as they are not based on site specific investigations.

4.6 Key local policies of relevance for surface development are listed below:

4.6.1 Policy MSP1 (Overall Spatial Strategy for Aggregate Sand and Gravel and Silica Sand) lists the strategic minerals sites to meet supply. These are as follows:

- Willington Lock
- Blunham/ Roxton
- Black Cat
- Willowhill Farm
- Bridge Farm
- Land south of Broom Village and for specialist silica sands: Land at Clipstone Brook

4.6.2 Policy MSP 12 (Surface Development within a Mineral Safeguarding Area). This states that surface development will only be permitted within a MSA where it has been demonstrated that:

"• The mineral concerned is proven to be of no economic value as a result of the undertaking of the Mineral Resource Assessment; or
• The development will not inhibit extraction if required in the future; or
• There is an overriding need for the development and prior extraction cannot reasonably be undertaken; or
• The mineral can be extracted prior to the development taking place.

4.6.3 Policies MSP11 and MSP12 will not apply to the following classes of surface development as they are unlikely to lead to the long-term sterilisation of minerals:

• Extensions of existing buildings within their curtilage;
• Infilling development except for proposals within 250 metres of an existing permission for mineral extraction/waste disposal;
• Minor development (such as walls, gates, accesses);
• Individual residential caravans for a period of less than 5 years;
• Amendments to previously approved developments;
• Applications for Listed Building Consent;
• Reserved matters;
• Changes of Use (except where further built development is proposed). Where a development is applied for which is of a form not exempt under this policy and within an area of a designated Mineral Safeguarding Area, then policy MSP11 shall apply"

4.6.4 Policy MSP11 (Minerals Resource Assessment) is of relevance because it seeks to ensure that all surface development proposals within MSA's (excluding the exemptions set out in MSP12) shall be accompanied by a Minerals Resource Assessment. Extracts of Policies MSP11 and MSP 12 are attached at Appendix 3.

GEOLOGY

The geology of any specific area is generally divided into two separate parts, being the solid geology and the superficial deposits. These superficial deposits comprise material at, or close to, the surface whilst deposits below that are generally referred to as solid geology or bedrock.

5 Solid Geology

5.1 Attached at Appendix 4 are two reports from the British Geological Survey which summarise the geology of the site (each report can only cover a maximum area and the layout of this land required it to straddle two separate applications.) The solid geology or bedrock of the area comprises solely mudstone from the Oxford Clay Formation and Peterborough Member, neither of which has any commercial use. These deposits are not safeguarded.

6 Superficial Geology

6.1 The British Geological Survey reports referred to in 5.1 above and attached at Appendix 4 indicate that the majority of the superficial deposit at the site comprises River Terrace deposit of sand and gravel. A small part of the site at the northern boundary is shown as comprising a Diamicton (glacial till) deposit of the Oadby Member.

6.2 Diamicton or glacial till is not a commercial deposit as it is essentially unconsolidated clay and is not safeguarded. It should be noted that the British Geological Survey information is taken from a high level and it is likely that the precise boundary between the River Terrace deposit and the glacial till will be different from that show on the attached maps. It is noted that the glacial till to the north of the stream, which forms the northern boundary of the site, is extensive whereas it is very limited in extent to the south of the stream.

7 Borehole Information

7.1 Studies of the British Geological Survey borehole records show a number of boreholes were sunk as part of the Eaton Socon bypass project (A1) in 1965 and these are attached at Appendix 5. These show a modest depth of River Terrace sand and gravel with varying amounts of cover. The table below summarises the respective depths and overburden/mineral ratio:

Borehole	Overburden (m)	Mineral (m)	Ratio
1	1.83	1.52	1.204
2	1.83	1.52	1.204
3	1.98	1.22	1.623
4	0.76	2.75	0.276
5	0.9	2.45	0.367
6	0.9	2.15	0.419
7	0.91	4.88	0.186
8	0.25	2.65	0.094
9	0.3	2.75	0.109
10 (underpass)	1.68	2.13	0.789
11 (northern boundary)		Barren	-

7.2 Boreholes 1-9 all show the same grid reference point on their datasheets, being on the line of the A1 and thus on the site's eastern boundary. This is the closest location to the River Ouse, which forms the centre line of the River Terrace deposit. It is noted from the superficial deposit maps that the river terrace deposits disappear a short distance to the west of the site (roughly along Rookery Road). It could therefore be reasonably surmised that the mineral within the site reduces in depth as the distance from the River Ouse increases. As a result, the mineral depths shown and the overburden/mineral ratios along the eastern boundary of the site are probably at their most favourable.

7.3 Boreholes 10 and 11 do have grid references attached and borehole 10 indicates a shallowing of the reserve to the north, with increased levels of overburden. Borehole 11, which was located adjacent to the Colmworth Brook, was barren.

7.4 In general, an overburden/mineral ratio of greater than 1 is the threshold for commercial viability due to the cost of removing the overburden against the value of the sand and gravel. Furthermore, in any mineral extraction exercise it is impossible to extract all the mineral as the interfaces with non-mineral can be erratic and some mineral is left unextracted. As a result, extracting shallow beds of mineral can be uneconomic as c.30cm of material, on average, will remain unextracted.

7.5 In the light of this extraction in the vicinity of boreholes 1-3 and 11 would be unlikely to be economically viable.

7.6 At an average gross mineral depth at the site of 2.4m (an average of boreholes 1-10) less extraction losses of 0.3m the potential yield per hectare (at a mineral density of 1.65t/m3) would be 34,6500 tonnes.

7.7 In the light of the utility infrastructure which exists at the site (see section 9) the only area that could realistically be available for mineral extraction is the central area between the previously extracted lakes and the MoD oil pipeline (shown yellow on the plan at Appendix 7.) This area measures some 15.48 hectares which would give a maximum yield from the site of 536,000 tonnes. In reality the net yield would be lower than this due to the need for boundary stand-offs.

7.8 The MWLP requires a provision of 1.84 million tonnes of sand and gravel per annum across the three Council areas. As a result, the site at Wyboston would provide a maximum of 4 months mineral supply towards the MWLP.

CONSTRAINTS ON MINERAL EXTRACTION

8 Access

8.1 The site has two access points comprising one towards the northern end of the site from Alpha Drive and one at the southern end of The Lane. The northern access runs through an underpass beneath the A1 which is shared with a public bridleway. The underpass is designed for agricultural vehicles and would only be capable of taking one way HGV traffic. In addition, the underpass is shared with a public bridleway and there would be significant health and safety risks to the use of this for commercial vehicles. A diversion of the public bridleway would not be feasible as there are no other crossing points over or under the A1.

8.2 Alternative routes for HGV access are not available given that the whole of the eastern side of the site is bounded by the A1 and there are no access points from this road. The southern and western boundaries comprise residential gardens with no road frontage.

8.3 The access from the South is directly from The Lane and comprises an agricultural access between two residential properties which is approximately 12 feet wide. There is no available land to enable the widening of this access to facilitate HGV traffic, with residential properties located on both sides.

8.4 Due to the constraints presented by the boundaries of the property and the absence of a destination processing plant it would not be possible to remove the mineral by field conveyor to an off-site processing plant. Deliveries of larger plant and excavating machinery would also be impossible given the low height of the underpass under the A1.

8.5 I attach photographs at Appendix 6 showing the underpass under the A1 and its unsuitability for HGV traffic to use for removing mineral from site.

9 Utility Infrastructure

9.1 The site is substantially affected by utility infrastructure, partly connected with the Eaton Socon National Grid substation immediately to the north. The northern part of the site is crossed by two high voltage overhead power lines on metal towers which run approximately north-south. In addition, a high voltage underground cable was recently installed along the eastern boundary of the site from the substation and exiting the site via the underpass previously referred to. Finally, there is a further high voltage power line which crosses these southern part of the site

9.2 In terms of below ground infrastructure there is a government oil pipeline which runs down the western boundary of the site before cutting diagonally across land to exit under the A1.

9.3 Due to the nature of the agreements on which this infrastructure is held diverting the equipment will be difficult. In addition, there is a lack of alternative routes that would enable any diversions to take place due to the presence of the A1 to one side and the proximity of the substation which fixes one end of the electricity infrastructure.

9.4 The northern part of the site is particularly badly affected and once reasonable safety stand-offs have been taken into account from all of the infrastructure only small pockets of mineral will be available for extraction in this area. Battered slopes will be required to maintain the support at surface level and these will further eat into the extractable volumes that could be obtained. It is therefore unlikely that any of the mineral in the northern area could be realistically extracted in a commercially viable operation.

9.5 A similar issue presents itself with the southern part of the site (i.e. south of the previously extracted ponds) where this area comprises some narrow sections of fields. Once boundary standoffs, landscaping bunds and side batters have been taken into account the actual net yield of such areas would be minimal. In addition, the overhead power line is likely to sterilise a further area of mineral in this area.

9.6 The photographs at Appendix 6 show some of the utility infrastructure on site and the plan at Appendix 7 indicates the location of the various utilities.

10 Opportunities for Mineral Extraction

10.1 The site does not adjoin any existing consented mineral extraction sites, nor any that have been allocated in the MWLP. Extraction of the mineral as an extension to other operating sites in the region by conveyor will not be possible due to the neighbouring uses. The land to the south and east is in residential use and no corridors exist for a conveyor route to be created. The eastern boundary comprises the A1, with commercial development sites beyond the A1.

10.2 Removal of the mineral by HGV is constrained by the size of the underpass from Alpha Drive, details of which have been set out in section 8 above.

10.3 There may be an opportunity for the extraction of the mineral in connection with the proposed development, for use in construction, landscaping, and the manufacture of concrete. This will depend on the precise details of the scheme and should be addressed as part of a detailed planning application.

10.4 I am not aware that the site has ever been promoted to any MWLP, presumably due to the constraints imposed by its access and the existing on-site infrastructure.

11 Prior Extraction

11.1 Planning policy encourages the consideration of prior extraction within mineral safeguarding areas. The area of lakes in the centre of the site has been subject to historic extraction although there is no information available as to the depth of these. However, it is understood that they are relatively shallow, and this may explain why extraction was limited to this area and did not extend either north or south at the time.

11.2 In any event this area should not be included within the MSA as prior extraction has already taken place.

11.3 As set out in section 10 above, removal of the mineral from the site is seriously constrained as would the import of any infill material to be able to restore the land to its original levels.

11.4 Prior extraction of the current agricultural area of the site would inevitably reduce the level of the land and it is noted that other extraction in the vicinity of the site has almost entirely been restored either to low lying wetland or lakes. Restoration to either of these landforms would be inappropriate for the proposed development and prior extraction is therefore not considered to be feasible in this instance. Prior extraction would also cause a delay to the delivery of the development through having to wait for the mineral extraction and restoration to take place.

Appendix 1

515800 516000 516200 516400 516600 516800 517000

258400 258200 258000 257800 257600 257400 257200 257000 256800

N W E S

18m

NORTHFIELD ROAD

24m

Rookery Nurseries

Path

Drain

Subway

A1

FOUNDRY WAY

GREAT NORTH ROAD

Quora Retail Park

ALPHA DRIVE

MARLBOROUGH ROAD

EATON COURT ROAD

B1428

19m

Little End

Sanibel

WESTFIELD ROAD

ROOKERY ROAD

24m

SANDPIPER CT

Drain

FBs

ESS

Exhibition Centre

Iss

Sks

Wyboston Leisure Park

The Bungalow

Wyboston Lak

21m

Path

Driving Range

The Old Forge

ROOKERY ROAD

ESS

Drain

ESS

Hotel

ESS

ESS

18m

21m

Drain

Track

Track

A1

20m

Hall

Moat

THE LANE

19m

H ROAD

OVERVIEW WINDOW	REVISION: A	FP: 129175
Green End, St Neots, Chapel End, Dutter End	SCHEME: SITE PLAN	
0 100 200 Metres	TITLE: Wyboston Mineral Resource Assessment	
	SCALE: 1:5,000 @ A3 DATE: 13/04/2021	

LEGEND:

Land of interest = 99.90 ac

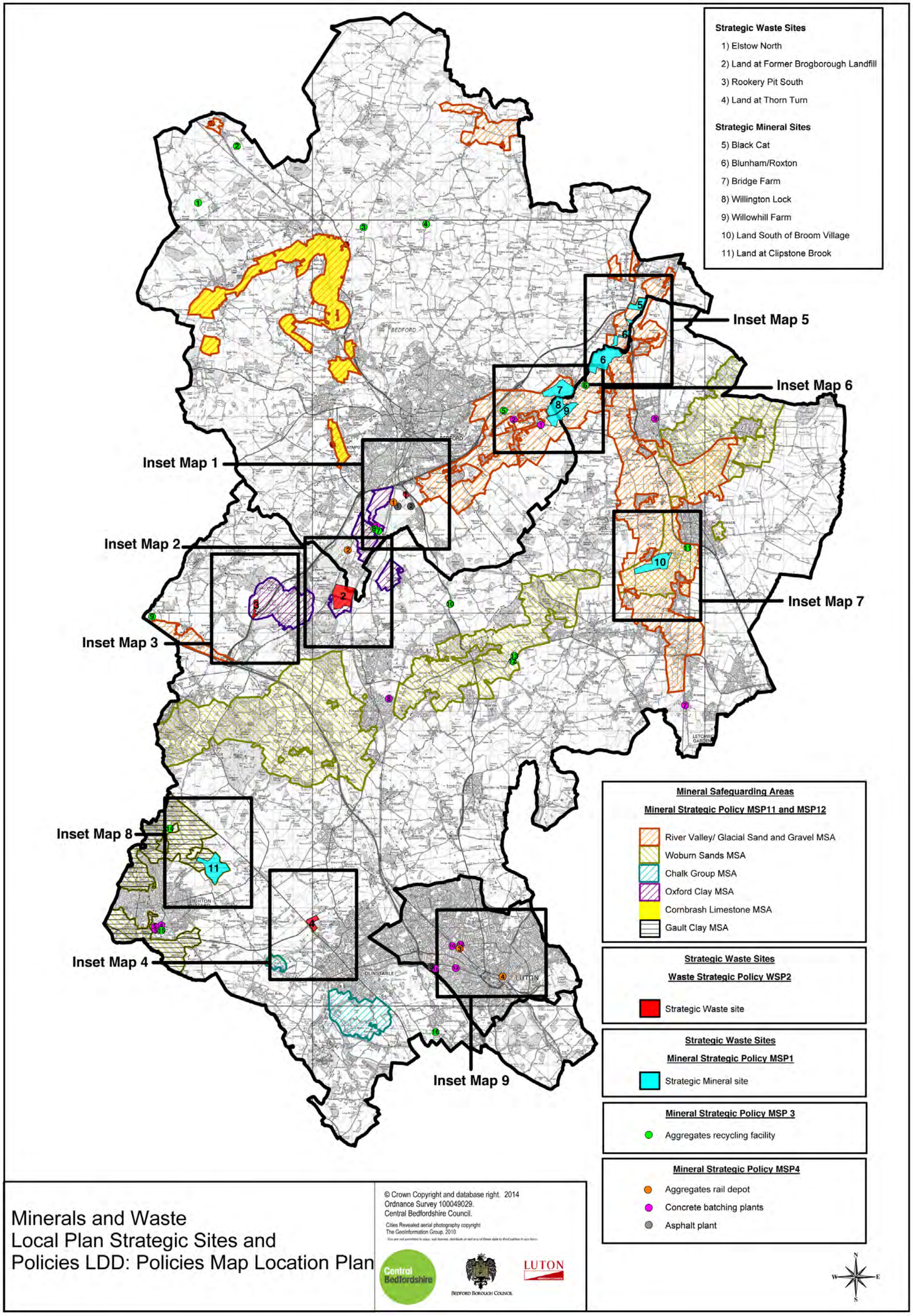
FISHER GERMAN

The Estates Office Norman Court
Ashby de la Zouch
Leicestershire LE65 2UZ

01530 412821
https://www.fishergerman.co.uk
ashby@fishergerman.co.uk

DRAWING REF:
WYBOSTON-2021-04-NI-SP
Wyboston Mineral
Resource Assessment

Appendix 2



Minerals and Waste Local Plan Strategic Sites and Policies LDD: Policies Map Location Plan

Central Bedfordshire

Bedford Borough Council

LUTON

Appendix 3

- Fuller's Earth
- Cornbrash limestone

6.38 The Plan area includes the river valleys of the Ouse, Ivel, and Flit which contain the aggregate sand and gravel resource. An additional source of aggregates occurs within the Woburn Sands formation which is an important source of concreting, building, and asphalting sands, and locally, industrial silica sands, and fuller's earth. In addition, the Marston Vale to the south of Bedford is an area of low lying land which contains significant clay deposits. Finally, in the southern part of the Plan area the land is underlain by chalk, and rises in topography to the eastern extremity of the Chiltern Hills Area of Outstanding Natural Beauty.

6.39 The areas to be subject to Mineral Safeguarding are shown on the Policies Map. Most development proposed within an area designated for Mineral Safeguarding will be subject to policies MSP 11 and MSP 12.

Mineral Strategic Policy MSP 11

Minerals Resource Assessment

Surface development proposals within a Mineral Safeguarding Area (excluding exemptions set out under policy MSP12: Surface Development within a Mineral Safeguarding Area) shall be accompanied by a Minerals Resource Assessment. This shall be undertaken by a suitably qualified professional, which establishes through site specific geological survey data, the existence or otherwise of a mineral resource of economic importance.

6.40 The areas designated as Mineral Safeguarding Areas are shown on the plans in the Policies Map Local Development Plan Document. On receipt of a Mineral Resource Assessment the Mineral Planning Authority can decide on the most appropriate course of action. According to the results of this assessment in relation to the quality and quantity of mineral that could be recovered; the practicability of extraction; and the environmental impacts of mineral extraction, the mineral resource present may be required to be extracted before the surface development takes place, or else left in situ and allowed to be sterilised. Where prior extraction is deemed appropriate a separate planning application will be required for the extraction of the mineral.

Mineral Strategic Policy MSP 12

Surface Development within a Mineral Safeguarding Area

Surface development will only be permitted within a Mineral Safeguarding Area where it has been demonstrated that:

• The mineral concerned is proven to be of no economic value as a result of the undertaking of the Mineral Resource Assessment; or

• The development will not inhibit extraction if required in the future; or

• There is an overriding need for the development and prior extraction cannot reasonably be undertaken; or

• The mineral can be extracted prior to the development taking place.

Policies MSP11 and MSP12 will not apply to the following classes of surface development as they are unlikely to lead to the long term sterilisation of minerals:

• Extensions of existing buildings within their curtilage;

• Infilling development except for proposals within 250 metres of an existing permission for mineral extraction/waste disposal;

• Minor development (such as walls, gates, accesses);

• Individual residential caravans for a period of less than 5 years;

• Amendments to previously approved developments;

• Applications for Listed Building Consent;

• Reserved matters;

• Changes of Use (except where further built development is proposed).

Where a development is applied for which is of a form not exempt under this policy and within an area of a designated Mineral Safeguarding Area, then policy MSP11 shall apply.

6.41 Where it has been determined that it is necessary for the development to take place, and that the mineral is considered to be of sufficient quality and quantity etc, the MPA will seek prior extraction of that mineral subject to the provision of satisfactory information, including a full assessment and acceptability of:

- The size and nature of the proposed surface development
- The quality and quantity of the mineral that would be recovered.
- The practicability of extraction.
- The environmental impacts of mineral extraction
- The size and nature of the proposed development

By this means valuable mineral resources will be safeguarded from needless sterilisation.

Appendix 4

GeoReports

British Geological Survey

[redacted]
Fisher German LLP
The Estates Office Unit A1
Norman Court
Ashby De La Zouch
LE65 2UZ

Geological Map Extracts

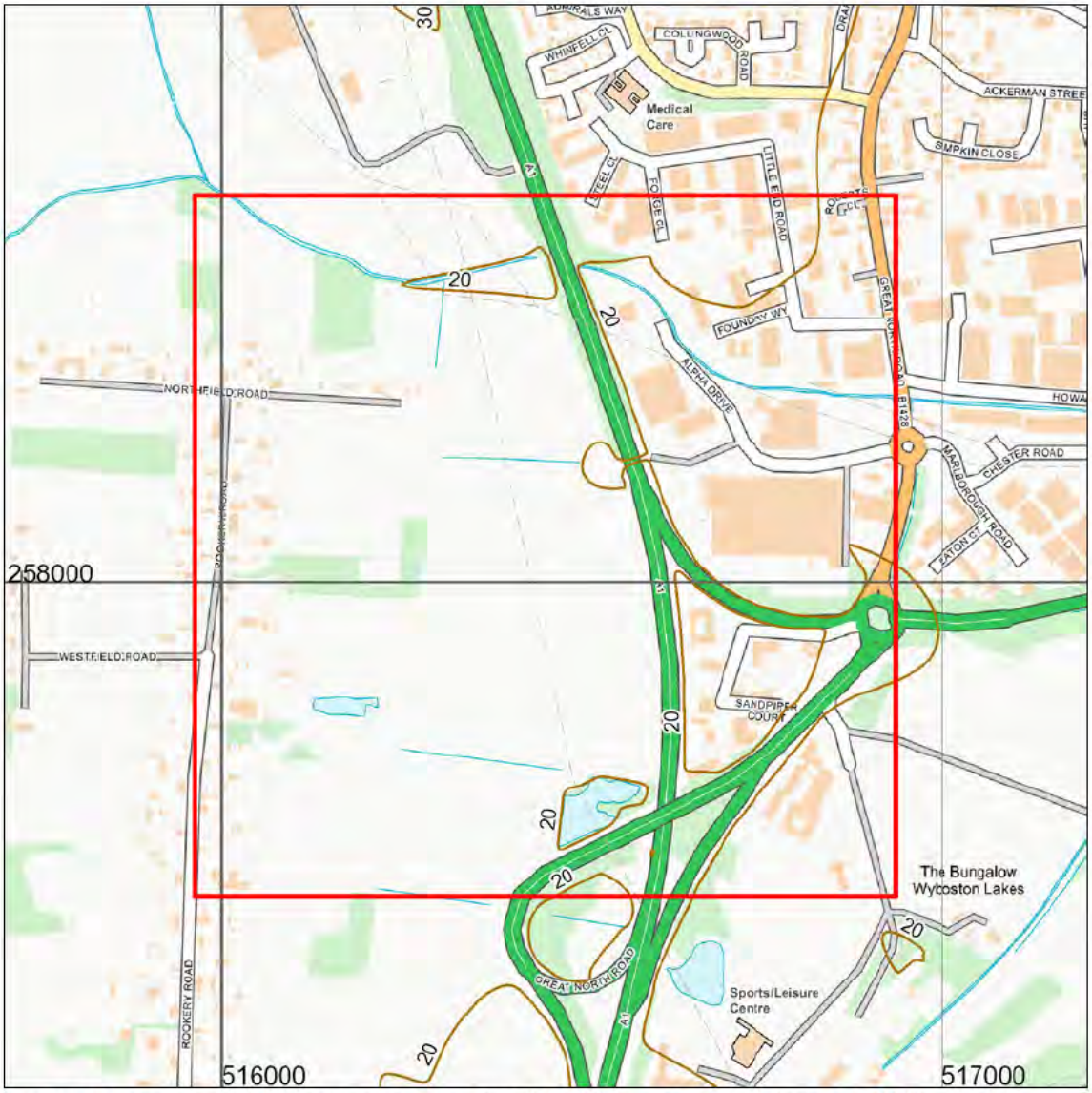
This report is designed for users carrying out preliminary site assessments who require geological maps for the area around their site, as well as for those who have a general interest in their local geology.

The report contains geological map extracts taken from the BGS Digital Geological Map of Great Britain at 1:10,000 scale (BGS Geology 10k) where available, otherwise at 1:50,000 scale (BGS Geology 50k). The various geological layers - artificial (man-made), landslip, superficial and solid (bedrock) geology - are displayed separately as 10 by 10cm extracts.

Report Id: *BGS_315611/20292*

Client reference: Fisher German

Search location



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Search location indicated in red

This report describes a site located at National Grid Reference 516450, 258051. Note that for sites of irregular shape, this point may lie outside the site boundary. Where the client has submitted a site plan the assessment will be based on the area given.

Geological Map Extracts 1:50,000 Scale

This part of the report contains extracts of geological maps taken from the 1:50 000 scale BGS Digital Geological Map of Great Britain (BGS Geology 50k). The geological information in BGS Geology is divided into four themes: artificial ground, landslide deposits, superficial deposits and bedrock, shown here in separate maps. The fifth 'combined geology' map superimposes all four of these themes, to show the uppermost geological formations.

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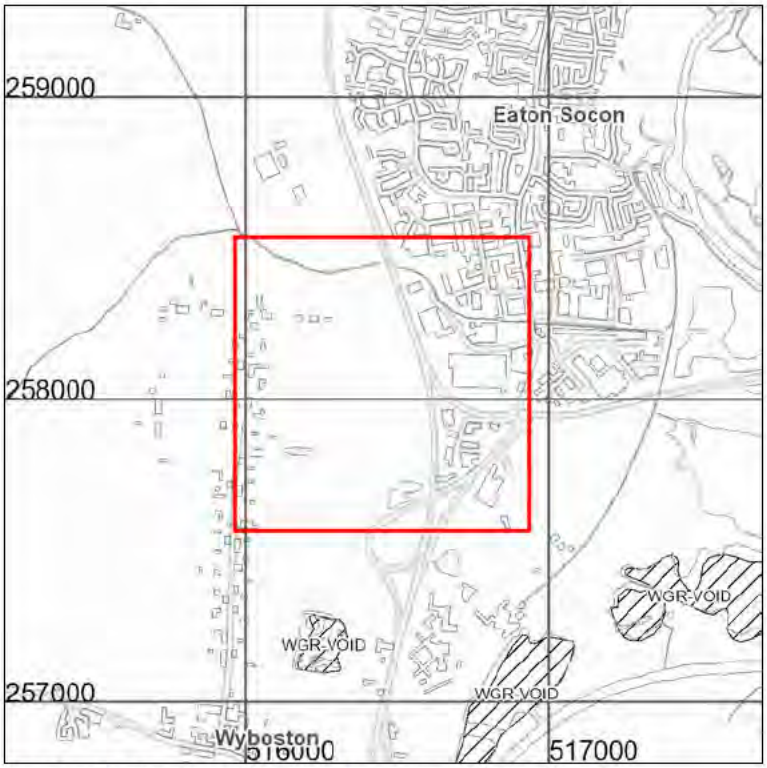
In the map legends the geological units are listed in order of their age, as defined in the BGS Lexicon, with the youngest first. However, where units are of the same defined age they are listed alphabetically and this may differ from the actual geological sequence.

Artificial ground

This is ground at or near the surface that has been modified by man. It includes ground that has been deposited (Made Ground) or excavated (Worked Ground), or some combination of these: Landscaped Ground or Disturbed Ground.



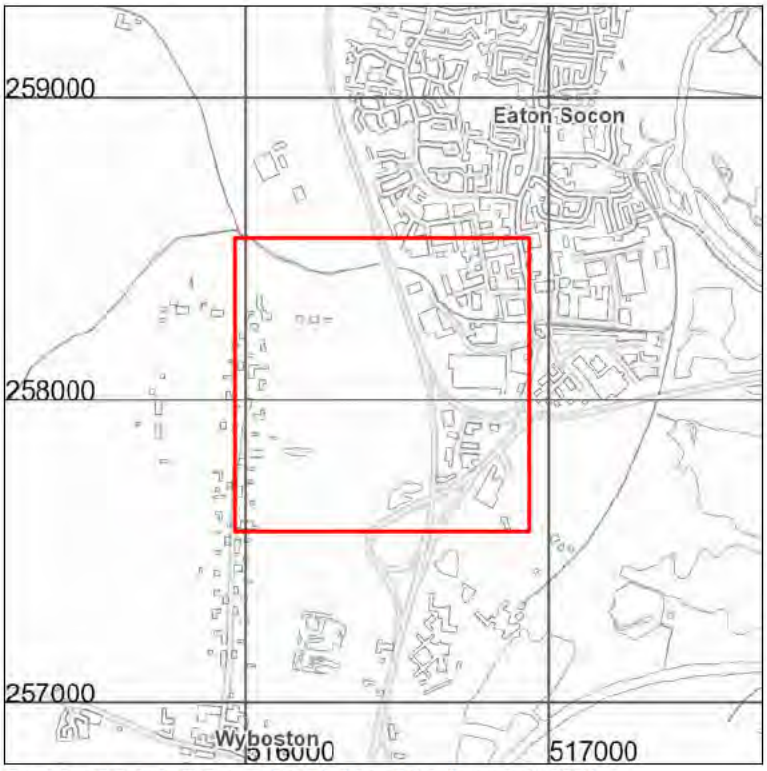
Scale: 1:25 000 (1cm = 250 m)
Search area indicated in red

Key to Artificial ground:

Map colour	Computer Code	Name of geological unit	Composition
▨	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID

Landslide deposits

These are deposits formed by localised mass-movement of soils and rocks on slopes under the action of gravity. Landslides may occur within the bedrock, superficial deposits or artificial ground; and the landslide deposits may themselves be artificially modified.



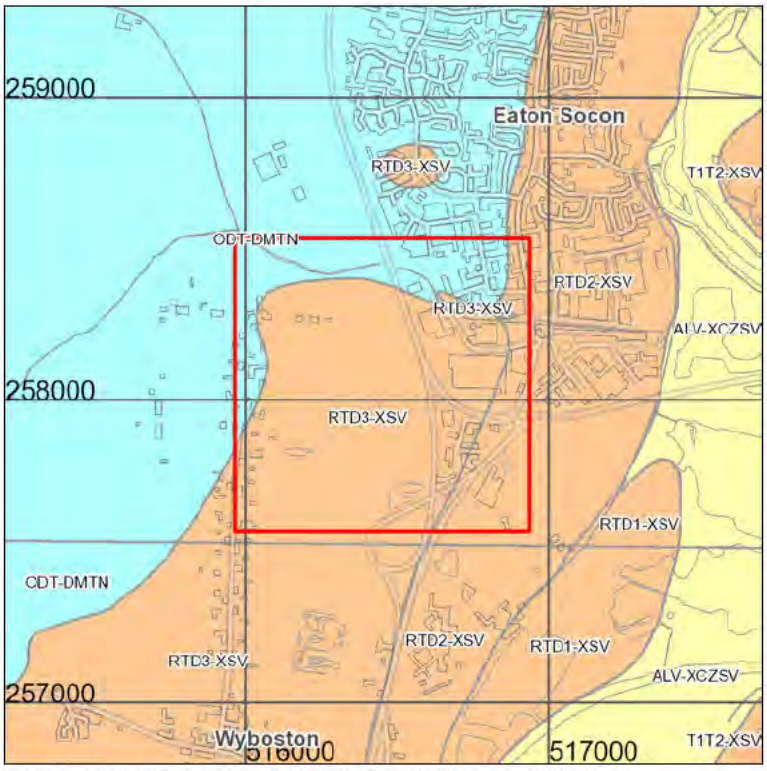
Scale: 1:25 000 (1cm = 250 m)
Search area indicated in red

Key to Landslide deposits:

No deposits found in the search area

Superficial deposits

These are relatively young geological deposits, formerly known as 'Drift', which lie on the bedrock in many areas. They include deposits such as unconsolidated sands and gravels formed by rivers, and clayey tills formed by glacial action. They may be overlain by landslide deposits or by artificial deposits, or both.



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Scale: 1:25 000 (1cm = 250 m)
Search area indicated in red

Key to Superficial deposits:

Map colour	Computer Code	Name of geological unit	Composition
	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
	T1T2-XSV	RIVER TERRACE DEPOSITS, 1 TO 2	SAND AND GRAVEL
	ODT-DMTN	OADBY MEMBER	DIAMICTON
	RTD1-XSV	RIVER TERRACE DEPOSITS, 1	SAND AND GRAVEL
	RTD2-XSV	RIVER TERRACE DEPOSITS, 2	SAND AND GRAVEL
	RTD3-XSV	RIVER TERRACE DEPOSITS, 3	SAND AND GRAVEL

Bedrock

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Search area indicated in red

Fault

Coal, ironstone or mineral vein

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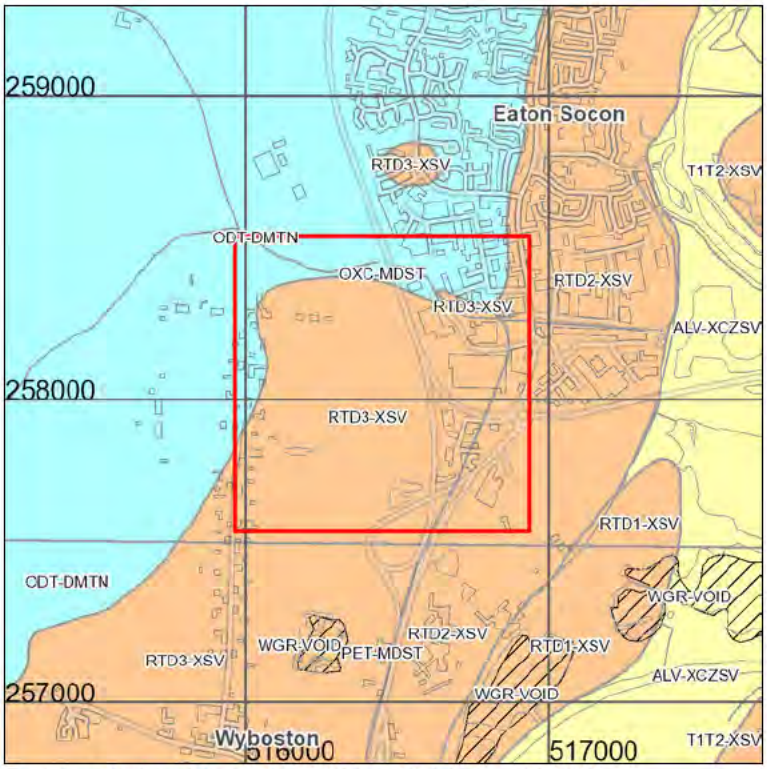
Scale: 1:25 000 (1cm = 250 m)

Key to Bedrock geology:

Map colour	Computer Code	Name of geological unit	Rock type
	OXC-MDST	OXFORD CLAY FORMATION	MUDSTONE
	PET-MDST	PETERBOROUGH MEMBER	MUDSTONE

Combined 'Surface Geology' Map

This map shows all the geological themes from the previous four maps overlaid in order of age.



Scale: 1:25 000 (1cm = 250 m)
Search area indicated in red

Please see the Keys to the Artificial, Landslide, Superficial and Bedrock geology maps.

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- Note that for some sites, the latest available records may be historical in nature, and while every effort is made to place the analysis in a modern geological context, it is possible in some cases that the detailed geology at a site may differ from that descr bed.

Report issued by
BGS Enquiry Service

GeoReports

British Geological Survey

[redacted]
Fisher German LLP
The Estates Office Unit A1
Norman Court
Ashby De La Zouch
LE65 2UZ

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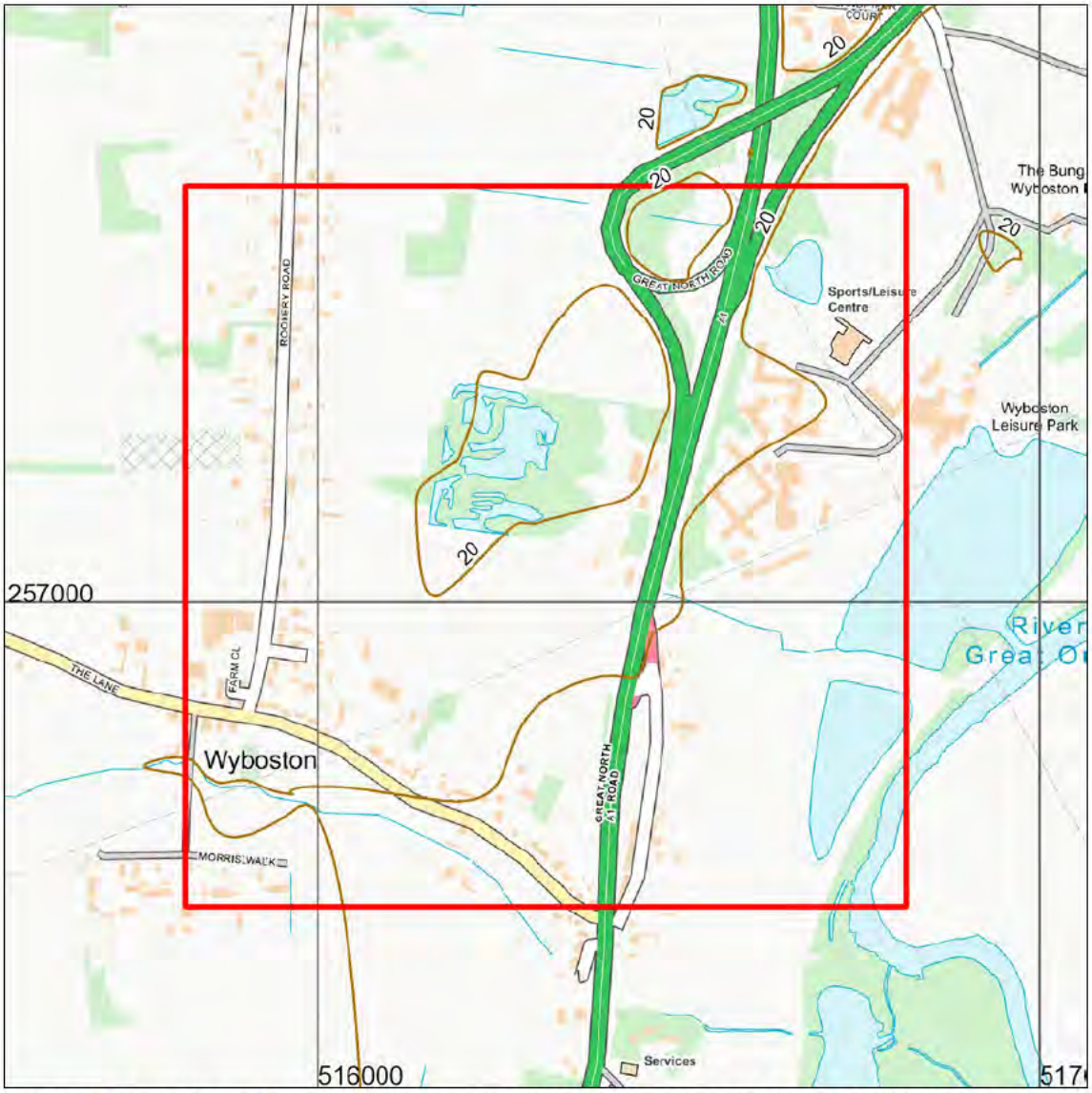
Report Id: *BGS_315611/20294*

Client reference: Fisher German

Search location



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Scale: 1:25 000 (1cm = 250 m)
Search area indicated in red

Key to Artificial ground:

Map colour	Computer Code	Name of geological unit	Composition
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	WGR-VOID	WORKED GROUND (UNDIVIDED)	VOID

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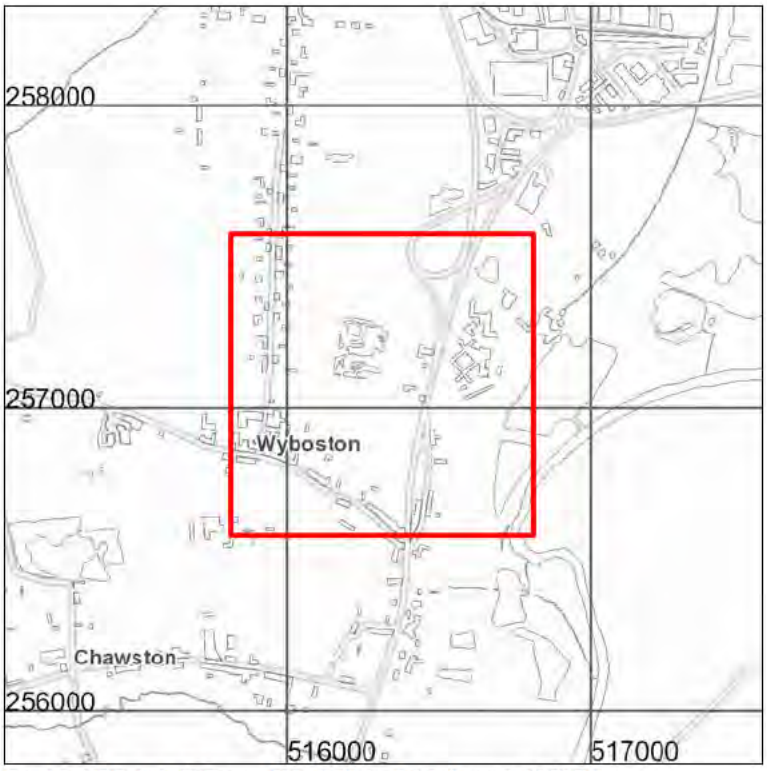

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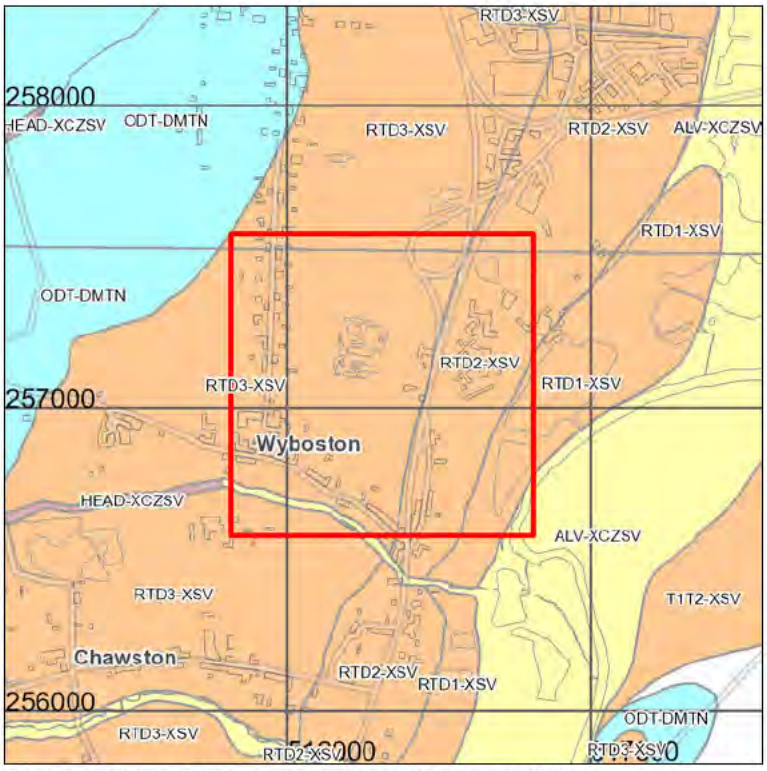

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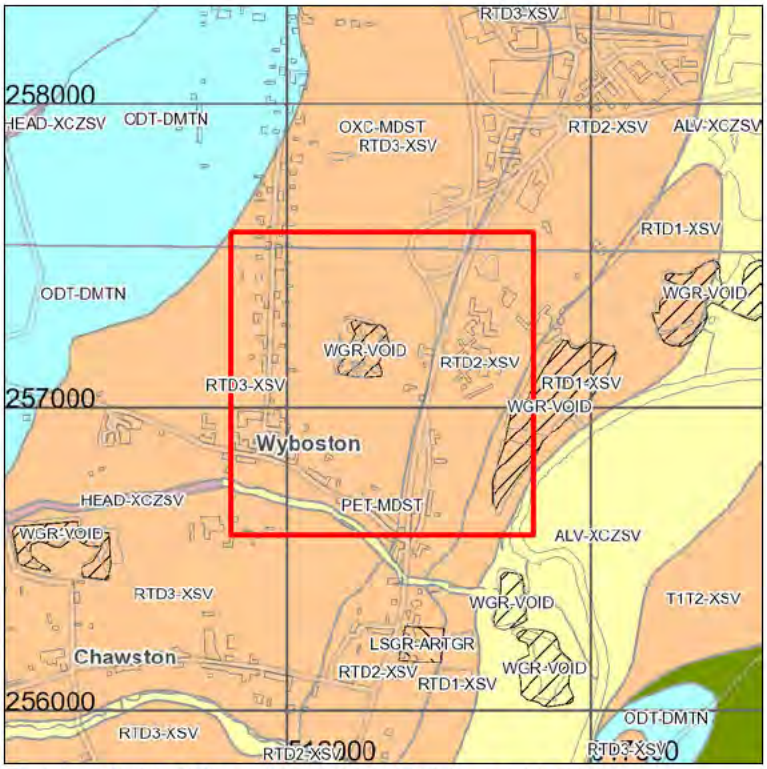

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- Note that for some sites, the latest available records may be historical in nature, and while every effort is made to place the analysis in a modern geological context, it is possible in some cases that the detailed geology at a site may differ from that descr bed.

Report issued by
BGS Enquiry Service

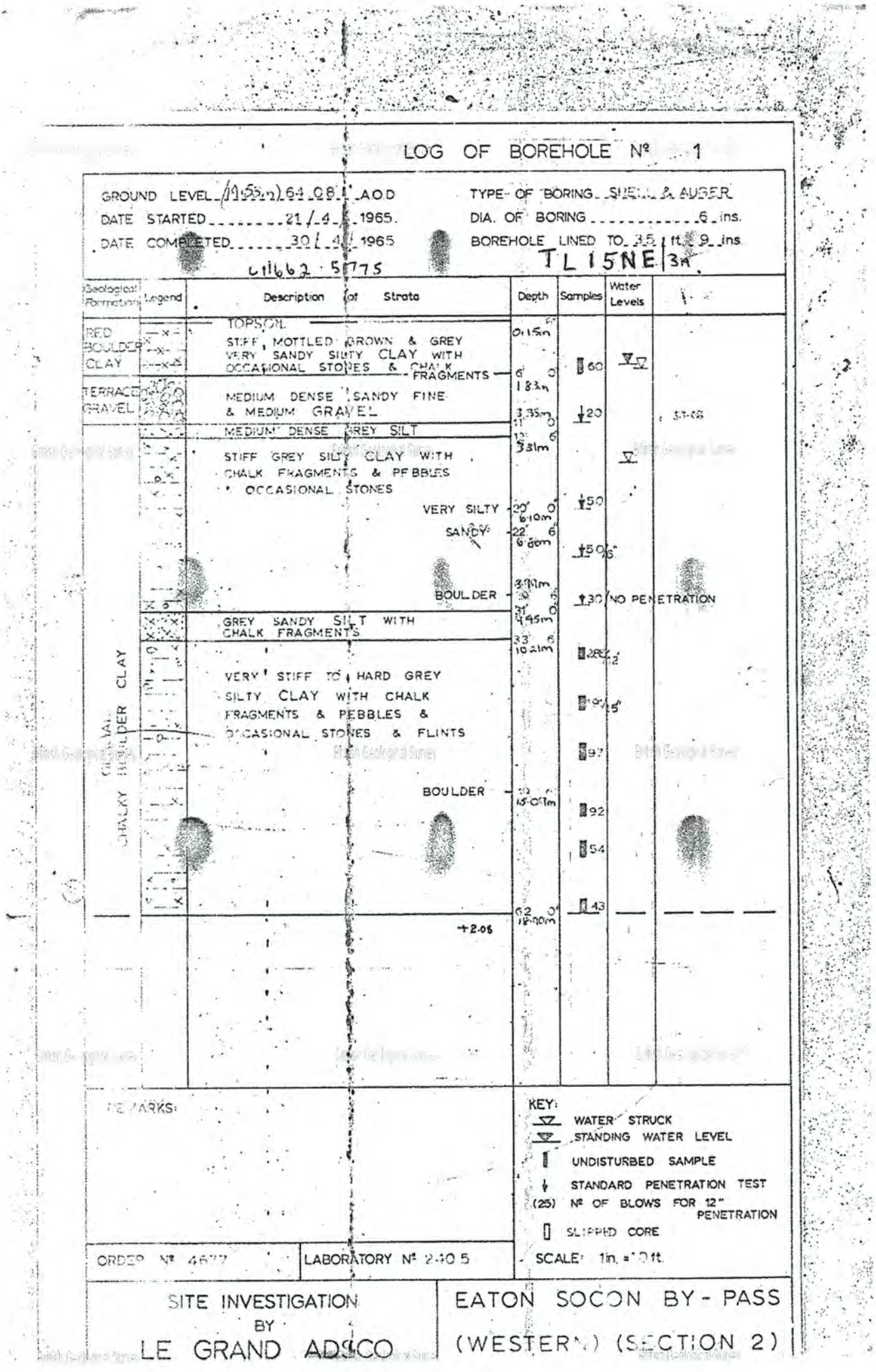
Appendix 5

British Geological Survey

Version 2.0.6.3

BGS ID: 529312 : BGS Reference: TL15NE3/A-I
British National Grid (27700) : 516620,257750

Report an issue with this borehole



LOG OF BOREHOLE Nº 1

GROUND LEVEL (115.2m) 64.08 AOD
DATE STARTED 21/4/1965.
DATE COMPLETED 30/4/1965
TYPE OF BORING SHELL & AUGER
DIA. OF BORING 6 ins.
BOREHOLE LINED TO 35 ft. 9 ins.
611662 · 5775
TL 15NE 3A

Geological Formation	Legend	Description of Strata	Depth	Samples	Water Levels
RED BOULDER CLAY		TOPSOIL	0·15m		
		STIFF MOTTLED BROWN & GREY VERY SANDY SILTY CLAY WITH OCCASIONAL STONES & CHALK FRAGMENTS	6' 0 1·83m	60	▽
TERRACE GRAVEL		MEDIUM DENSE SANDY FINE & MEDIUM GRAVEL	3·35m	20	
		MEDIUM DENSE GREY SILT	12' 0 3·81m		▽
		STIFF GREY SILTY CLAY WITH CHALK FRAGMENTS & PEBBLES OCCASIONAL STONES			
		VERY SILTY	20' 0 6·10m	50	
		SANDY	22' 6 6·86m	50/5"	
		BOULDER	3·91m	30	NO PENETRATION
		GREY SANDY SILT WITH CHALK FRAGMENTS	31' 0 4·45m		
GLACIAL CHALKY BOULDER CLAY		VERY STIFF TO HARD GREY SILTY CLAY WITH CHALK FRAGMENTS & PEBBLES & OCCASIONAL STONES & FLINTS	33' 6 10·21m	28	
				50/5"	
				97	
		BOULDER	15·01m	92	
				54	
			52' 0 15·90m	43	
		+2·05			

REMARKS:

KEY:
- ▽ WATER STRUCK
- ▽ STANDING WATER LEVEL
- UNDISTURBED SAMPLE
- STANDARD PENETRATION TEST
- (25) Nº OF BLOWS FOR 12" PENETRATION
- SLIPPED CORE

ORDER Nº 4677 | LABORATORY Nº 2405 | SCALE: 1in. = 10ft.

SITE INVESTIGATION BY LE GRAND ADSCO

EATON SOCON BY-PASS (WESTERN) (SECTION 2)

British Geological Survey

Version 2.0.6.3

BGS ID: 529312 : BGS Reference: TL15NE3/A-I
British National Grid (27700) : 516620,257750

Report an issue with this borehole

LOG OF BOREHOLE Nº 1

GROUND LEVEL 164.08 A.O.D
DATE STARTED 21/4/1965
DATE COMPLETED 30/4/1965
TYPE OF BORING SHELL & AUGER
DIA. OF BORING 6 ins.
BOREHOLE LINED TO 35 ft 9 ins.

c 1662 · 5775
TL 15 NE 3A

Geological Formation	Legend	Description of Strata	Depth	Samples	Water Levels
RED BOULDER CLAY		TOPSOIL	0·15m		
		STIFF MOTTLED BROWN & GREY VERY SANDY SILTY CLAY WITH OCCASIONAL STONES & CHALK FRAGMENTS	6' 0 1·83m	60	▽
TERRACE GRAVEL		MEDIUM DENSE SANDY FINE & MEDIUM GRAVEL	3·35m 11' 0	20	33-06
		MEDIUM DENSE GREY SILT	12' 6 3·81m		▽
GLACIAL CHALKY BOULDER CLAY		STIFF GREY SILTY CLAY WITH CHALK FRAGMENTS & PEBBLES & OCCASIONAL STONES			
		VERY SILTY	20' 0 6·10m	50	
		SANDY	22' 6 6·86m	50/6"	
		BOULDER	3·91m 19' 0	30	NO PENETRATION
		GREY SANDY SILT WITH CHALK FRAGMENTS	31' 4·45m 33' 6 10·21m	28	12
		VERY STIFF TO HARD GREY SILTY CLAY WITH CHALK FRAGMENTS & PEBBLES & OCCASIONAL STONES & FLINTS		19	15
				97	
		BOULDER	49 15·01m	92	
				54	
			52 15·90m	43	
		+2.05			

REMARKS:

KEY:
- ▽ WATER STRUCK
- ▽ STANDING WATER LEVEL
- ▮ UNDISTURBED SAMPLE
- ↓ STANDARD PENETRATION TEST
- (25) Nº OF BLOWS FOR 12" PENETRATION
- ▯ SLIPPED CORE

ORDER Nº 5577 LABORATORY Nº 2405 SCALE: 1in. = 10 ft.

SITE INVESTIGATION BY J.F. GRAND ADSCO

EATON SOCON BY-PASS (WESTERN) (SECTION 2)

British Geological Survey

Version 2.0.6.3

BGS ID: 529312 : BGS Reference: TL15NE3/A-I
British National Grid (27700) : 516620,257750
Report an issue with this borehole

LOG OF BOREHOLE Nº 2

GROUND LEVEL (19.46m) 63.8 A.O.D. TYPE OF BORING SHELL & AUGER
DATE STARTED 1/5/1965 DIA. OF BORING 7¼ ins.
DATE COMPLETED 7/5/1965 BOREHOLE LINED TO 29 ft. 0 ins.
C 1662.5775 TL 15 NE/38

Geological Formation	Legend	Description of Strata	Depth	Samples	Water Levels
RED BOULDER CLAY		TOPSOIL	1' 0.30m		
		BROWN VERY SANDY SILTY CLAY WITH OCCASIONAL STONES & CHALK FRAGMENTS	6' 1.83m	50	
TERRACE GRAVEL		MEDIUM DENSE SANDY FINE AND MEDIUM GRAVEL	11' 3.35m	30	+ 62 ft
		MEDIUM DENSE GREY SILT	13' 3.96m	11 8	
BOULDER CLAY		STIFF GREY VERY SILTY CLAY WITH CHALK FRAGMENTS & PEBBLES & OCCASSIONAL STONES		39	
		MORE SILTY	22' 6" 6.86m	208	
		BOULDER	27' 3" 8.31m	175 9 / 147 12	
		DENSE GREY SANDY SILT WITH CHALK FRAGMENTS	29' 6" 9.09m	50/6	
GLACIAL CHALKY		VERY STIFF TO HARD GREY SILTY CLAY WITH CHALK FRAGMENTS & PEBBLES & OCCASIONAL STONES	32' 0" 9.75m	172/10	
				91	
				122	
				132	
				64	
				141	
			61' 5" 18.75m	133/6	
		+ 2.5ft			

REMARKS:

KEY:
- WATER STRUCK
- STANDING WATER LEVEL
- UNDISTURBED SAMPLE
- STANDARD PENETRATION TEST
- (25) Nº OF BLOWS FOR 12" PENETRATION
- SLIPPED CORE

SCALE: 1in. = 10 ft.

ORDER Nº 4677 LABORATORY Nº 2405

SITE INVESTIGATION BY I.F. GRAND & CO.

EATON SOCON BY-PASS (WESTERN) (SECTION 2)

British Geological Survey

Version 2.0.6.3

BGS ID: 529312 : BGS Reference: TL15NE3/A-I
British National Grid (27700) : 516620,257750
Report an issue with this borehole

LOG OF BOREHOLE Nº 3

GROUND LEVEL (1948m) 63.93 A.O.D
DATE STARTED 8/5/1965
DATE COMPLETED 14/5/1965
TYPE OF BORING SHELL & AUGER
DIA. OF BORING 7½ ins.
BOREHOLE LINED TO 29 ft. ins.

c 1662 5775 TL 15NE/3c

Geological Formation	Legend	Description of Strata	Depth	Samples	Water Levels	
		TOPSOIL	1' 0.30m			
RED CLAY		BROWN SANDY SILTY CLAY WITH OCCASIONAL STONES	2'	D 0.76m		
		YELLOW SAND WITH OCCASIONAL STONES	3'			
		BROWN VERY SANDY SILTY CLAY WITH STONES & CHALK FRAGMENTS	4' 1.14m	D		
TERRACE GRAVEL		SANDY FINE & MEDIUM GRAVEL	6' 1.98m	D		
		GREY SANDY SILTY CLAY WITH CHALK FRAGMENTS & STONES	10' 3.20m	D	23	+53.45
			15' 4.51m	D	50	
CLAY		HARD GREY VERY SILTY CLAY WITH CHALK FRAGMENTS & PEBBLES & STONES & FLINTS.			190	
		DENSE GREY SILT	24 7.32m	D	50	
			26 8.03m	D	18/3	
BOULDER CLAY		VERY STIFF TO HARD GREY VERY SILTY CLAY WITH OCCASIONAL CHALK FRAGMENTS & PEBBLES & STONES			130/3	
					83	
					69	
GLACIAL					100/2"	
			62 19.05m	D		
		+1.45				

REMARKS:

KEY:
- WATER STRUCK
- STANDING WATER LEVEL
- UNDISTURBED SAMPLE
- STANDARD PENETRATION TEST
- (25) Nº OF BLOWS FOR 12" PENETRATION
- SLIPPED CORE

ORDER Nº 4677 | LABORATORY Nº 2405

SCALE: 1in. = 10ft.

SITE INVESTIGATION BY I.F. GRAND ADSCO

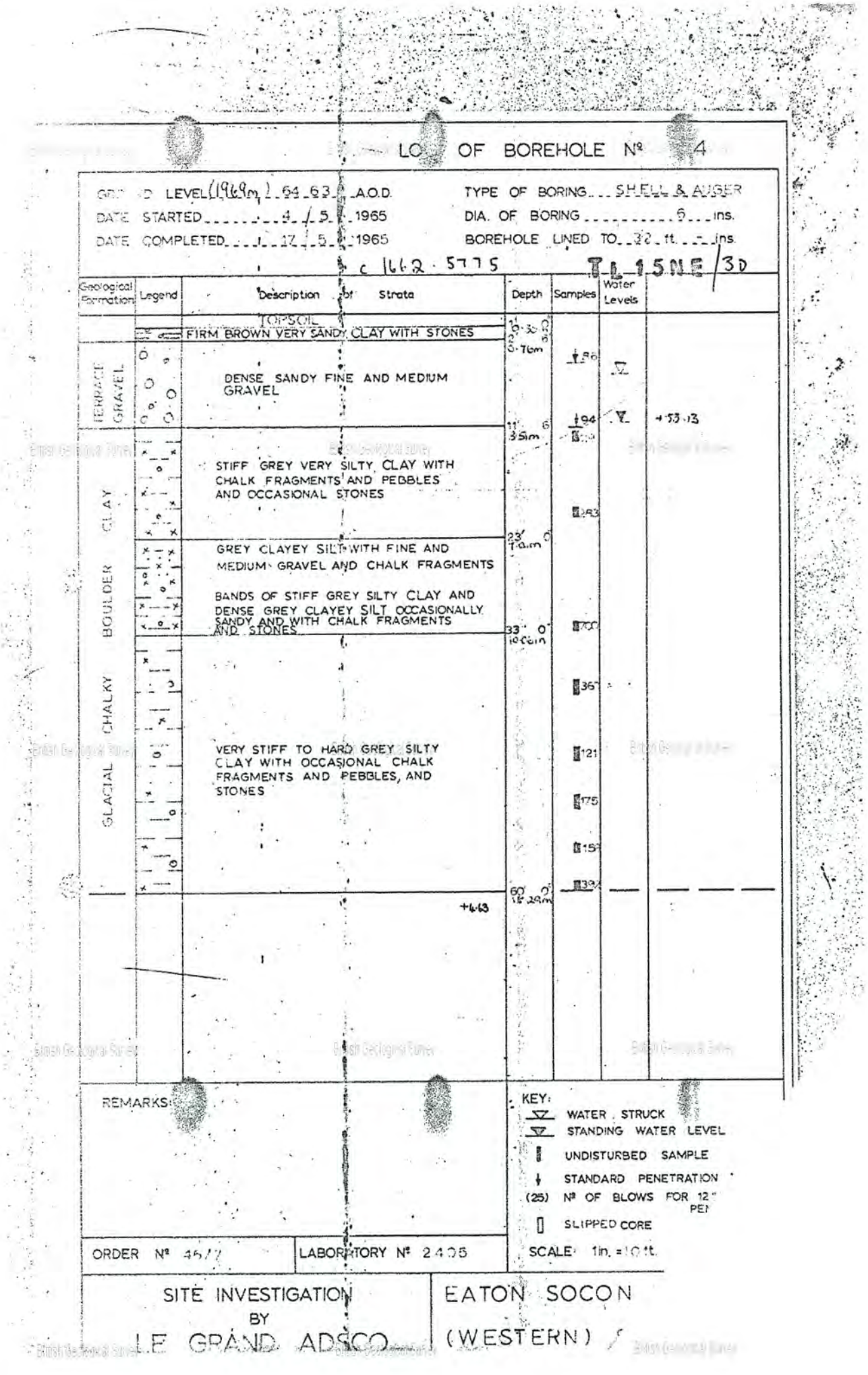
EATON SOCON BY-PASS (WESTERN) (SECTION 2)

British Geological Survey

Version 2.0.6.3

BGS ID: 529312 : BGS Reference: TL15NE3/A-I
British National Grid (27700) : 516620,257750

Report an issue with this borehole



LOG OF BOREHOLE Nº 4

GROUND LEVEL (1969m) 64.63 A.O.D. TYPE OF BORING SHELL & AUGER
DATE STARTED 4/5/1965 DIA. OF BORING 6 ins.
DATE COMPLETED 17/5/1965 BOREHOLE LINED TO 22 ft. ins.

c 662.5775 TL 15 NE/3D

Geological Formation	Legend	Description of Strata	Depth	Samples	Water Levels
		TOPSOIL	1' 0" 0.30m		
		FIRM BROWN VERY SANDY CLAY WITH STONES	2' 6" 0.76m		
TERRACE GRAVEL		DENSE SANDY FINE AND MEDIUM GRAVEL	11' 6" 3.51m	194	▽ +53.13
GLACIAL BOULDER CLAY		STIFF GREY VERY SILTY CLAY WITH CHALK FRAGMENTS AND PEBBLES AND OCCASIONAL STONES		293	
		GREY CLAYEY SILT WITH FINE AND MEDIUM GRAVEL AND CHALK FRAGMENTS BANDS OF STIFF GREY SILTY CLAY AND DENSE GREY CLAYEY SILT OCCASIONALLY SANDY AND WITH CHALK FRAGMENTS AND STONES	23' 0" 7.01m		
			33' 0" 10.06m	700	
		VERY STIFF TO HARD GREY SILTY CLAY WITH OCCASIONAL CHALK FRAGMENTS AND PEBBLES, AND STONES		36	
				121	
				175	
				15	
			60' 0" 18.29m	39	
		+643			

REMARKS:

KEY:
- ▽ WATER STRUCK
- ▽ STANDING WATER LEVEL
- UNDISTURBED SAMPLE
- STANDARD PENETRATION
- (25) Nº OF BLOWS FOR 12" PEN
- SLIPPED CORE

SCALE 1in. = 10 ft.

ORDER Nº 4577 LABORATORY Nº 2405

SITE INVESTIGATION BY LE GRAND ADSCO

EATON SOCON (WESTERN)

British Geological Survey

Version 2.0.6.3

BGS ID: 529312 : BGS Reference: TL15NE3/A-I
British National Grid (27700) : 516620,257750
Report an issue with this borehole

LOG OF BOREHOLE Nº 4

GROUND LEVEL (1969m) 64.63 A.O.D. TYPE OF BORING SHELL & AUGER
DATE STARTED 4/5/1965 DIA. OF BORING 6 ins.
DATE COMPLETED 17/5/1965 BOREHOLE LINED TO 32 ft. ins.

c 662.5775 TL 15NE/3D

Geological Formation	Legend	Description of Strata	Depth	Samples	Water Levels	
		TOPSOIL	1' 0" 0.30m			
		FIRM BROWN VERY SANDY CLAY WITH STONES	2' 6" 0.76m			
TERRACE GRAVEL		DENSE SANDY FINE AND MEDIUM GRAVEL	11' 6" 3.51m	1 80	▽	
GLACIAL CHALKY BOULDER CLAY		STIFF GREY VERY SILTY CLAY WITH CHALK FRAGMENTS AND PEBBLES AND OCCASIONAL STONES		1 94	▽	+53.13
				2 93		
		GREY CLAYEY SILT WITH FINE AND MEDIUM GRAVEL AND CHALK FRAGMENTS	23' 0" 7.01m			
		BANDS OF STIFF GREY SILTY CLAY AND DENSE GREY CLAYEY SILT OCCASIONALLY SANDY AND WITH CHALK FRAGMENTS AND STONES	33' 0" 10.06m	3 100		
				4 36		
		VERY STIFF TO HARD GREY SILTY CLAY WITH OCCASIONAL CHALK FRAGMENTS AND PEBBLES, AND STONES		5 121		
				6 175		
				7 159		
			60' 0" 18.29m	8 394		
		+4.63				

REMARKS:

KEY:
- ▽ WATER STRUCK
- ▽ STANDING WATER LEVEL
- ▮ UNDISTURBED SAMPLE
- ↓ STANDARD PENETRATION
- (25) Nº OF BLOWS FOR 12" PEN
- ▯ SLIPPED CORE

ORDER Nº 4677 LABORATORY Nº 2405 SCALE 1in. = 10 ft.

SITE INVESTIGATION BY LE GRAND ADSCO

EATON SOCON (WESTERN)

British Geological Survey

Version 2.0.6.3

BGS ID: 529312 : BGS Reference: TL15NE3/A-I
British National Grid (27700) : 516620,257750
Report an issue with this borehole

LOG OF BOREHOLE Nº 5

GROUND LEVEL 118m. 65.00 A.O.D
DATE STARTED 18/5/1965
DATE COMPLETED 25/5/1965
TYPE OF BORING SHELL & AUGER
DIA. OF BORING 6 ins.
BOREHOLE LINED TO 33 ft. ins
c 1662 5775
TL 15NE/3E

Geological Formation	Legend	Description of Strata	Depth	Samples	Water Levels	
		TOPSOIL	0.30 0'			
		BROWN VERY SANDY CLAY WITH GRAVEL	3' 0.91m			
TERRACE GRAVEL		DENSE SANDY FINE AND MEDIUM GRAVEL		41	▽	
CHALKY BOULDER CLAY (GLACIAL)		STIFF GREY SANDY SILTY CLAY WITH CHALK FRAGMENTS AND PEBBLES AND OCCASIONAL STONES	11' 3.35m 0'	141	12"	+64
			16 0' 4.88m	178		
				198		
				126		
		VERY STIFF TO HARD GREY SILTY CLAY WITH CHALK FRAGMENTS AND PEBBLES AND OCCASIONAL STONES		309		
				131	▽	
				162		
			60' 18.29m 0'	168	12"	
		+5.0				

REMARKS:

KEY:
- ▽ WATER STRUCK
- ▽ STANDING WATER LEVEL
- UNDISTURBED SAMPLE
- STANDARD PENETRATION TEST
- (25) Nº OF BLOWS FOR 12" PENETRATION
- SLIPPED CORE

ORDER Nº 4077 LABORATORY Nº 2405

SCALE 1in. = 10 ft.

SITE INVESTIGATION BY LE GRAND ADSCO

EATON SOCON BY-PASS (WESTERN) (SECTION 2)

British Geological Survey

Version 2.0.6.3

BGS ID: 529312 : BGS Reference: TL15NE3/A-I
British National Grid (27700) : 516620,257750
Report an issue with this borehole

LOG OF BOREHOLE Nº 6

GROUND [illegible]L 194m 64.78 A.O.D
DATE STARTED 15/5/1965
DATE COMPLETED 20/5/1965
TYPE OF BORING SHELL & AUGER
DIA. OF BORING 7¼ ins.
BOREHOLE LINED TO 39 ft. ins.

C 1662 · 5775 TL 15 NE/3F

Geological Formation	Legend	Description of Strata	Depth	Samples	Water Levels
		TOPSOIL	0 0		
		BROWN VERY SANDY CLAY WITH GRAVEL	3' 0 0.91m		
TERRACE GRAVEL		DENSE SANDY FINE AND MEDIUM GRAVEL		4 7	▽
GLACIAL BOULDER CLAY		MEDIUM DENSE GREY SILTY FINE SAND WITH OCCASIONAL CHALK FRAGMENTS	10' 0 3.05m	32 31	
		VERY STIFF GREY VERY SILTY CLAY WITH CHALK FRAGMENTS AND PEBBLES, POCKETS OF SILT, AND OCCASIONAL STONES	13' 0 3.96m	9	▽
		SANDY -	6.86m 22' 6"	10	
		DENSE GREY CLAYEY SILT WITH CHALK FRAGMENTS AND PEBBLES, AND OCCASIONAL STONES	24' 0 7.32m	15 50/3"	
		VERY STIFF GREY SILTY CLAY, WITH CHALK FRAGMENTS AND PEBBLES	30' 0 9.14m	18	
		DENSE GREY SANDY CLAYEY SILT WITH OCCASIONAL CHALK FRAGMENTS	35' 6 10.82m	150/12"	
		VERY STIFF TO HARD GREY SILTY CLAY WITH CHALK FRAGMENTS AND PEBBLES, AND OCCASIONAL STONES AND FLINTS	38' 0 11.58m	72	
				124/3"	
				67	
				77	
			61' 6 18.75m	122/3"	
			+6.3ft		

REMARKS

KEY:
- ▽ WATER STRUCK
- ▽ STANDING WATER LEVEL
- UNDISTURBED SAMPLE
- STANDARD PENETRATION TEST
- (25) Nº OF BLOWS FOR 12" PENETRATION
- SLIPPED CORE

ORDER Nº 4677 | LABORATORY Nº 2405

SCALE: 1in. = 10ft.

SITE INVESTIGATION BY J.E. GRAND ADSCO

EATON SOCON BY-PASS (WESTERN) (SECTION 2)

British Geological Survey

Version 2.0.6.3

BGS ID: 529312 : BGS Reference: TL15NE3/A-I
British National Grid (27700) : 516620,257750
Report an issue with this borehole

LOG OF BOREHOLE Nº

GROUND LEVEL 19.65m 64.57 A.O.D.
DATE STARTED 26/5/1965
DATE COMPLETED 2/6/1965

TYPE OF BORING SHELL & AUGER
DIA. OF BORING 6 ins.
BOREHOLE LINED TO 32 ft. ins

c 1662 5775

TL 15 NE /36

Geological Formation	Legend	Description of Strata	Depth	Samples	Water Levels
		TOPSOIL	1' 0" 0.30m		
		VERY SANDY CLAY WITH GRAVEL	3' 0" 0.91m		
TERRACE GRAVEL		DENSE SANDY FINE AND MEDIUM GRAVEL	19' 0" 5.79m	↓45	
GLACIAL CHALKY BOULDER CLAY		VERY STIFF TO HARD GREY SILTY CLAY WITH CHALK FRAGMENTS AND PEBBLES, AND OCCASIONAL STONES	61' 0" 18.59m	130/1" 145/1" 150/1" 236/12" 236 232/12" 233 184/1" 227	▽
		+3.57			

REMARKS:

KEY:
▽ WATER STRUCK
▼ STANDING WATER LEVEL
▌ UNDISTURBED SAMPLE
↓ STANDARD PENETRATION TEST
(25) Nº OF BLOWS FOR 12" PENETRATION
▯ SLIPPED CORE

ORDER Nº 577 | LABORATORY Nº 2 05 | SCALE: 1in. =10ft.

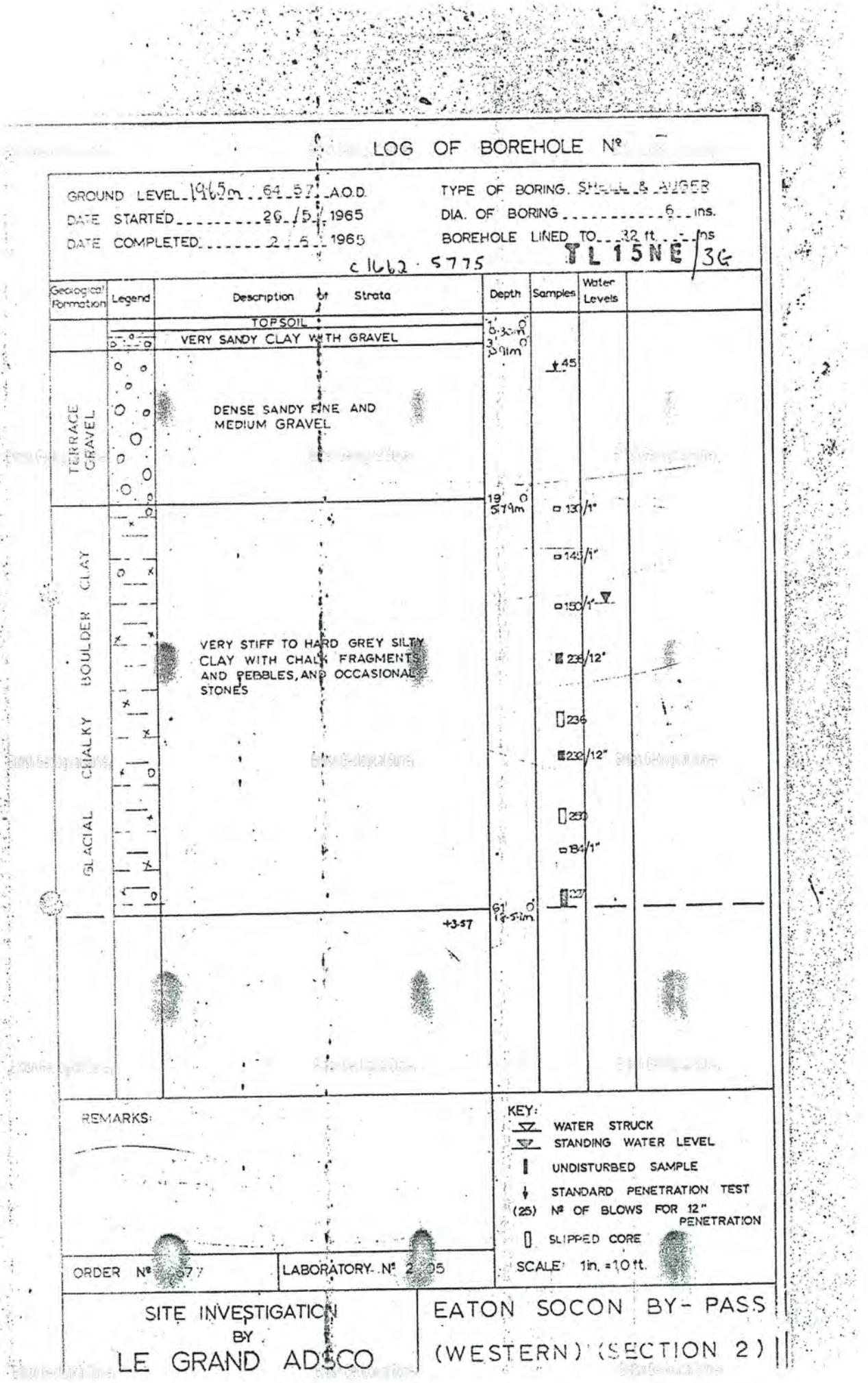
SITE INVESTIGATION BY LE GRAND ADSCO

EATON SOCON BY-PASS (WESTERN) (SECTION 2)

British Geological Survey

Version 2.0.6.3

BGS ID: 529312 : BGS Reference: TL15NE3/A-I
British National Grid (27700) : 516620,257750
Report an issue with this borehole



LOG OF BOREHOLE Nº

GROUND LEVEL 196.5m 64.57 A.O.D.
DATE STARTED 20/5/1965
DATE COMPLETED 2/6/1965
TYPE OF BORING SHELL & AUGER
DIA. OF BORING 6 ins.
BOREHOLE LINED TO 32 ft ins
c 1662 5775
TL 15 NE/3G

Geological Formation	Legend	Description of Strata	Depth	Samples	Water Levels
		TOPSOIL	1' 0" 0.30m		
		VERY SANDY CLAY WITH GRAVEL	3' 0" 0.91m		
TERRACE GRAVEL		DENSE SANDY FINE AND MEDIUM GRAVEL		45	
GLACIAL CHALKY BOULDER CLAY		VERY STIFF TO HARD GREY SILTY CLAY WITH CHALK FRAGMENTS AND PEBBLES, AND OCCASIONAL STONES	19' 0" 5.79m	130/1"	
				145/1"	
				150/1"	
				238/12"	
				236	
				232/12"	
				230	
				84/1"	
				227	
			61' 18.5m		
		+3.57			

REMARKS:

KEY:
- WATER STRUCK
- STANDING WATER LEVEL
- UNDISTURBED SAMPLE
- STANDARD PENETRATION TEST
- (25) Nº OF BLOWS FOR 12" PENETRATION
- SLIPPED CORE

ORDER Nº 577 LABORATORY Nº 2705
SCALE: 1in. = 10ft.

SITE INVESTIGATION BY LE GRAND ADSCO

EATON SOCON BY-PASS (WESTERN) (SECTION 2)

British Geological Survey

Version 2.0.6.3

BGS ID: 529312 : BGS Reference: TL15NE3/A-I
British National Grid (27700) : 516620,257750
Report an issue with this borehole

LOG OF BOREHOLE Nº 8

GROUND LEVEL (15.58m) 54.28 A.O.D
DATE STARTED 26/5/1965
DATE COMPLETED 29/5/1965
TYPE OF BORING SHELL & AUGER
DIA. OF BORING 6 ins.
BOREHOLE LINED TO 45' 6 ins
C1662.5775 TL15NE/3H

Geological Formation	Legend	Description of Strata	Depth	Samples	Water Levels
		TOPSOIL	0'2" 0.23m		
TERRACE GRAVEL		DENSE SANDY FINE AND MEDIUM GRAVEL		33/6"	
BOULDER CLAY		MEDIUM DENSE GREY CLAYEY SILT WITH OCCASIONAL STONES AND CHALK FRAGMENTS	9' 6" 2.90m	70	
		GREY SILTY FINE SAND WITH OCC. CHALK FRAGMENTS	14' 6" 4.42m	87	
		BANDS OF VERY STIFF GREY SILTY CLAY AND DENSE CLAYEY SILT, OCCASIONALLY SANDY AND WITH CHALK FRAGMENTS AND STONES	15' 0" 4.57m	90/2" 100/2"	
CHALKY GLACIAL		VERY STIFF TO HARD GREY SILTY CLAY WITH OCCASIONAL CHALK FRAGMENTS & PEBBLES, & STONES	33' 0" 10.06m	300/12" 67 128 80 55	
		+2·78	61' 6" 18.75m	100/12"	

REMARKS

KEY:
- WATER STRUCK
- STANDING WATER LEVEL
- UNDISTURBED SAMPLE
- STANDARD PENETRATION TEST
- (25) Nº OF BLOWS FOR 12" PENETRATION
- SLIPPED CORE

ORDER Nº 46 LABORATORY Nº 2405
SCALE 1in. = 10 ft

SITE INVESTIGATION BY LE GRAND ADSCO

EATON SOCON BY-PASS (WESTERN) SECTION 2)

British Geological Survey

Version 2.0.6.3

BGS ID: 529312 : BGS Reference: TL15NE3/A-I
British National Grid (27700) : 516620,257750

Report an issue with this borehole

LOG OF BOREHOLE Nº 9

GROUND LEVEL 85 . 64 . . . AOD
DATE STARTED 20 / 5 / 1965
DATE COMPLETED [illegible] 1965

TYPE OF BORING SHELL & AUGER
DIA. OF BORING 6 ins.
BOREHOLE LINED TO 30 ft [illegible] ins

c 1662 . 5775 TL 15 NE/3 I

Geological Formation	Legend	Description of Strata	Depth	Samples	Water Levels	
		TOPSOIL	1' 0" 0.30m			
TERRACE GRAVEL		DENSE SANDY FINE AND MEDIUM GRAVEL	11' 0" 3.35m	21/9" 24/9"	▽	+53.07
GLACIAL BOULDER CLAY / CHALKY CLAY		DENSE GREY SANDY SILT WITH CHALK FRAGMENTS AND STONES	15' 6" 4.72m	2		
		VERY STIFF GREY SLIGHTLY SANDY SILTY CLAY WITH CHALK FRAGMENTS AND PEBBLES AND OCCASIONAL STONES	33' 0" 10.06m	152/12" 100/2" 160/9"		
		GREY CLAYEY SILT	35' 0" 10.67m	182/9"		
		VERY STIFF TO HARD GREY SILTY CLAY WITH OCCASIONAL CHALK FRAGMENTS AND PEBBLES AND STONES	40' 0" 12.19m	U 80/12"		
		+26.7				

REMARKS:

KEY:
▽ WATER STRUCK
▽ STANDING WATER LEVEL
UNDISTURBED SAMPLE
↓ STANDARD PENETRATION TEST
(25) Nº OF BLOWS FOR 12" PENETRATION
SLIPPED CORE

ORDER Nº 11577 | LABORATORY Nº 2435 | SCALE 1in. = 10ft.

SITE INVESTIGATION BY LE GRAND & CO.

EATON SOCON BY-PASS (WESTERN) (SECTION 2)

LOG OF BOREHOLE No 10

GROUND LEVEL (OCAm) 65.79 A.O.D.
DATE STARTED 11/6/1965
DATE COMPLETED 14/6/1965
TYPE OF BORING SHELL & AUGER
DIA. OF BORING 6 ins.
BOREHOLE LINED, TO 22 ft. 5 ins.

GR 1659 5816 TL 15NE/4

Geological Formation	Legend	Description of Strata	Depth	Samples	Water Levels	
		TOPSOIL	0.30m 1			
RED BOULDER CLAY		SOFT TO FIRM BROWN SILTY CLAY WITH CHALK FRAGMENTS & OCCASIONAL STONES	1.22m 4			
		SOFT BROWN VERY SANDY CLAY WITH STONES	1.68m 5	1 85		
TERRACE GRAVEL		VERY DENSE SANDY FINE & MEDIUM GRAVEL				+53 29
GLACIAL CHALKY BOULDER CLAY		VERY DENSE GREY SANDY SILT WITH CHALK FRAGMENTS & STONES	3.81m 12	1 95		
		VERY STIFF TO HARD GREY SILTY CLAY WITH CHALK FRAGMENTS & PEBBLES & OCCASIONAL STONES	4.88m 16			
				1 120		
			9.30m 30	1 125		

REMARKS

KEY:
- WATER STRUCK
- STANDING WATER LEVEL
- UNDISTURBED SAMPLE
- STANDARD PENETRATION TEST
- (25) Nº OF BLOWS FOR 12" PENETRATION
- SLIPPED CORE

ORDER Nº 4677 | LABORATORY Nº 2405 | SCALE: 1in. = 10ft.

SITE INVESTIGATION BY I.E. GRAND ADSCO

EATON SOCON BY-PASS (WESTERN) (SECTION 2)

LOG OF BOREHOLE Nº 11

GROUND LEVEL (17.98m) 59.00 A.O.D
DATE STARTED 15/6/1965
DATE COMPLETED 17/6/1965
GR 1651 5243

TYPE OF BORING SHELL & AUGER
DIA. OF BORING 6 ins.
BOREHOLE LINED TO 13 ft. ins.

TL 15NE/5

Geological Formation	Legend	Description of Strata	Depth	Samples	Water Levels
		TOPSOIL	1' 0 0.30m		
		FIRM YELLOWISH BROWN SANDY SILTY CLAY			
CHALKY BOULDER CLAY		STIFF BROWNISH GREY SILTY CLAY WITH CHALK FRAGMENTS & OCCASIONAL STONES	6' 0 1.83m	74	
GLACIAL		VERY STIFF TO HARD GREY SILTY CLAY WITH CHALK FRAGMENTS & PEBBLES & OCCASIONAL STONES	12' 6 3.81m	85	
				87	
				93	
				83	
				80	
				97	
			51' 0 15.54m	47	
		+8.0.			

REMARKS:

KEY:
- WATER STRUCK
- STANDING WATER LEVEL
- UNDISTURBED SAMPLE
- STANDARD PENETRATION TEST
- (25) Nº OF BLOWS FOR 12" PENETRATION
- SLIPPED CORE

ORDER Nº 46[illegible]

LABORATORY Nº 2405

SCALE: 1in. =10ft.

SITE INVESTIGATION BY GRAND ADSCO

EATON SOCON BY-PASS (WESTERN) (SECTION 2)

Appendix 6

Land at Wyboston – Inspection Photos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Land at Wyboston – Inspection Photos


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Land at Wyboston – Inspection Photos


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Land at Wyboston – Inspection Photos

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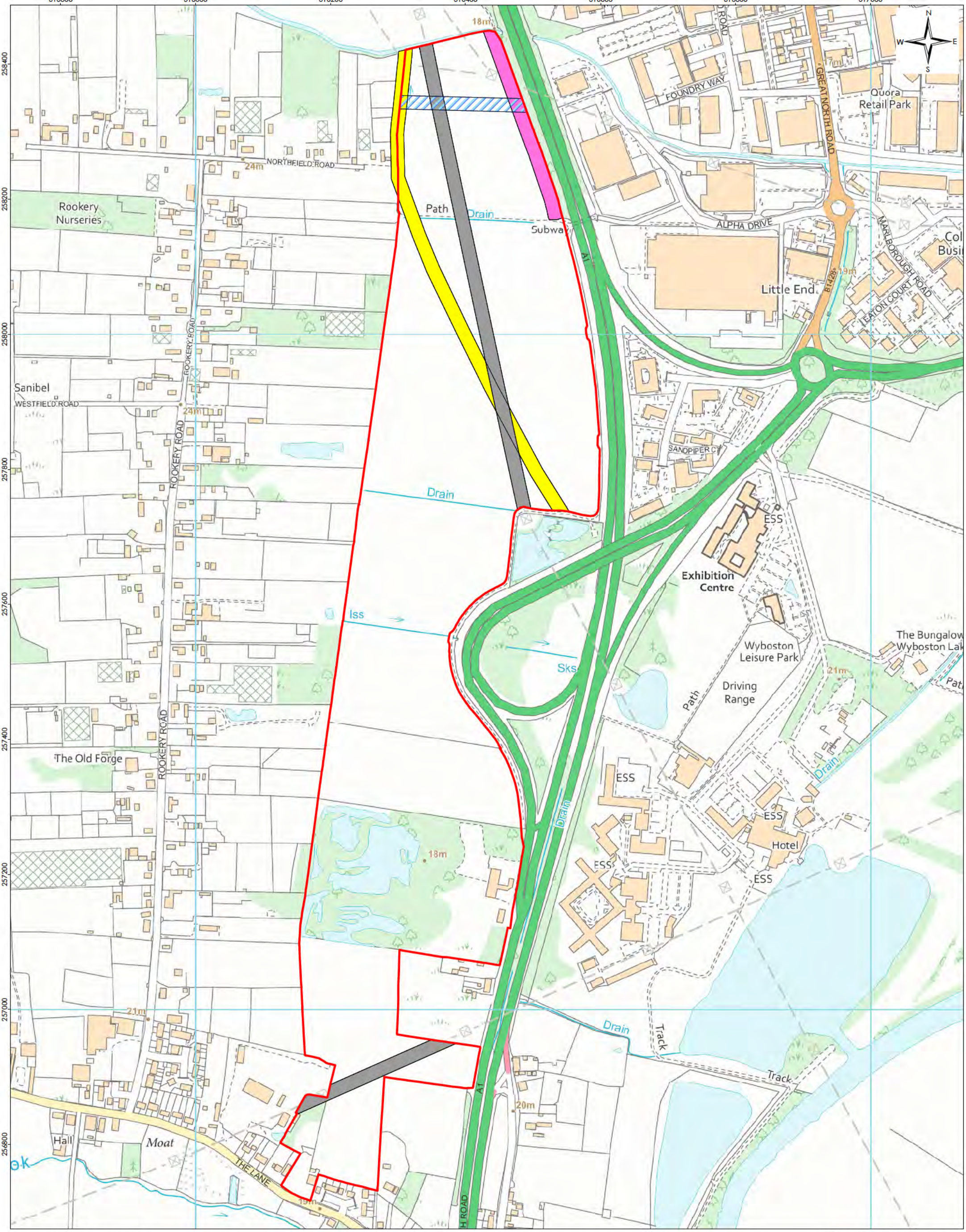
Appendix 7



OVERVIEW WINDOW

REVISION: A | FP: 129175

SCHEME: SITE PLAN - UTILITIES

TITLE: Wyboston Mineral Resource Assessment

SCALE: 1:5,000 @ A3

DATE: 13/04/2021

LEGEND:

- Land of interest = 99.90 ac
- MoD pipeline
- Overhead electric lines
- Underground electric
- Water pipe

FISHER GERMAN

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ashby@fishergerman.co.uk

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WYBOSTON-2021-04-NI-SP
Wyboston Mineral
Resource Assessment - Utilities