

Barrow Hill Quarry, Mill Lane, Earl Shilton
Our Ref: 26726-GEO-0401
Soil Infiltration Rate Testing Technical Note
June 2025

Introduction

This technical note has been prepared by MEC Consulting Group Ltd (MEC) on behalf of AT Contracting and Plant Hire Limited (the Client), and on the instruction of Lion Planning (the Agent), to review the viability of adopting soakaway drainage at the above site. A site location plan is included in **Appendix A**.

This technical note has been prepared to support the discharge of Condition 19, allocated to the planning application by Hinckley & Bosworth Borough Council, ref: 21/01390/FUL, which states the following:

No development approved by this planning permission shall take place until such time as infiltration testing has been carried out (or suitable evidence to preclude testing) to confirm or otherwise, the suitability of the site for the use of infiltration as a drainage element, has been submitted to and approved in writing by the Local Planning Authority.

Proposals

The proposed development is to comprise 21 holiday lodges and an ancillary management building in the north-west, with associate infrastructure and balancing/attenuation basins. A proposed development plan is included in **Appendix B**.

Existing Relevant Site Information

The following report, prepared by MEC should be read in conjunction with this Technical Note:

- Phase I Desk Study Report Ref: 26726-04-DS-01 Rev.A dated June 2023; and
- Phase II Ground Investigation Report Ref: 26726-04-GI-01 Rev.A dated June 2023.

Disclaimer

MEC has completed this technical note for the benefit of the Client, the Agent, and any relevant statutory authority which may require reference in relation to approvals for the proposed development. Other third parties should not use or rely upon the contents of this technical note unless explicit written approval has been gained from MEC.

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- b) The issue of this document to any third party with whom approval for use has not been agreed.

This technical note should be read in its entirety, including all associated drawings and appendices. MEC cannot be held responsible for any misinterpretations arising from the use of extracts of this technical note that are taken out of context.

Selected findings and opinions conveyed within this technical note are based on information obtained from external sources, as detailed within the previous reports, which MEC believes are reliable. All reasonable care and skill have been applied in examining the information obtained, nevertheless MEC cannot and does not guarantee the authenticity or reliability of the information it has relied upon from external sources.

Recommendations made or opinions expressed in the technical note are based on the exploratory hole records from the previous investigation. Liability cannot be accepted for conditions not revealed by the exploratory holes, particularly between positions. Whilst every effort is made to ensure accuracy of data supplied, any opinion expressed as to the possible configuration of strata between or below investigation locations is for guidance only and responsibility cannot be accepted as to its accuracy.

The comments on groundwater are based on observations made at the time of the investigation and during the subsequent monitoring programme. It should be noted; however, that groundwater levels may vary from those reported due to seasonal or other effects.

Site Description, History, and Geo-Environmental Setting

The site comprises undeveloped open scrub land crossed by gravel tracks, covers an area of approximately 2.86ha, and was formerly occupied by a quarry. The site is generally split over two levels, comprising lower and upper sections in the east and west respectively. A quarry high wall face is exposed on the northern boundary, with Mill Lane immediately beyond. The site is covered with areas of presumably self-seeded semi mature trees and shrubs.

In the late 1880's the site was occupied by a corn mill in the north, Barrow Hill Quarry in the east, and Rock Farm in the west/south-west. By the 1950's, Barrow Hill Quarry had expanded further west and the corn mill and farm were no longer recorded. In the 1960's, the quarry was recorded as disused with spoil heaps mapped in the north-east, east and along the southern boundary, and a pond occupied the base in the east. By the 1980's the eastern pond was no longer mapped, and a new pond occupied the western and central areas of the quarry. Recent aerial photography indicates that the quarry had been at least partially infilled by the mid 1980's and the pond was no longer present.

Published information suggests most of the site is directly underlain by bedrock deposits of the South Leicestershire Diorite Complex (Quartz-diorite) which was mined from the former quarry. The diorite represents an igneous intrusion into sedimentary deposits of the Cotgrave Sandstone Member, Edwalton Member (Mudstone) and Gunthorpe Member (Mudstone) which were anticipated in the peripheral areas of the former quarry. Superficial deposits of the Thrussington Member (Diamicton) are mapped in the north-west and south/south-west, also in peripheral areas. The various superficial and bedrock strata in the general vicinity of the site are all defined as Secondary Aquifers by the Environment Agency.

The nearest surface water feature is a pond immediately to the south. A tributary of the River Soar is located approximately 130m south-west.

Intrusive Investigation and Recorded Ground Conditions

An intrusive ground investigation was completed by MEC in 2021 and included the drilling of six dynamic windowless sampler borehole locations (WS10-WS06) to depths of up to 5.00m bgl.

The investigation encountered Made Ground to the full depth of the investigation (5.00m bgl) reflecting the infilling of the former quarry. Natural strata were not encountered as penetration to greater depth was restricted by the thickness of the Made Ground and the presence of concrete obstructions within three locations advanced in the west of the site (WS04 at 4.00m bgl, WS05 at 0.90m bgl and WS06 at 3.00m bgl).

The Made Ground included both granular and cohesive materials. The granular fractions comprised dark brown and yellowish brown silty gravelly fine to medium sand. The cohesive fractions were described as soft brown mottled blue and orange, sandy gravelly clay. The gravel comprised sub-angular to angular, fine to coarse, brick, chalk, quartzite, ash, glass, sandstone, bituminous material, clinker, flint, chalk, concrete and wood fragments.

Black staining and a strong hydrocarbon odour were noted within soils at four of the six locations (WS01, WS02, WS03, and WS06). Groundwater was encountered in the locations advanced in the east (WS01 – WS03 at 3.00m bgl), and subsequent monitoring visits recorded standing groundwater levels broadly across the site at depths between 2.70m and 3.92m bgl.

Concentrations of polycyclic aromatic hydrocarbons (PAHs) and petroleum hydrocarbons, were recorded above the laboratory limits of detection in several soil samples; however, all contaminant concentrations were below the adopted generic assessment criteria (GAC) for a residential end use with the consumption of home grown produce.

Groundwater samples were collected from the monitoring wells installed in the east (WS01-WS03) and elevated concentrations of Cyanide, Ammoniacal Nitrogen, heavy metals, PAH compounds and petroleum hydrocarbons were recorded above the adopted assessment criteria for water and environmental quality standards. This indicated that contaminants were leaching from the Made Ground into the groundwater. As natural bedrock strata were not encountered during the investigation, it was unclear whether the underlying Secondary aquifers were impacted by

contaminant concentrations.

Conclusion

The British Research Establishment (BRE) Digest 365 guidance indicates that soakaways may not be an appropriate solution where '*contaminants in the ground could be mobilised, or in areas of instability*', and that the '*soakaway should not connect a contamination source to a groundwater target, i.e. creating a source-pathway-receptor linkage.*'

The presence of elevated contaminant concentrations within the groundwater samples tested suggests that a degree of contamination leaching from the Made Ground is already occurring. The introduction of a soakaway drainage solution could exacerbate the leaching of contaminants into the groundwater.

Given the age of the landfilling activities at the quarry, it is not likely that a liner was installed at the base prior to filling, indicating the potential hydraulic continuity with the underlying aquifers and quarry/landfill. The results of the groundwater contaminant testing indicate that concentrations exceed the adopted GAC for the protection of controlled waters, although it is not known if the natural strata are affected.

Soakaways within the Made Ground would also contravene guidance presented within the 'Environment Agency's approach to groundwater protection (Feb 2018)' document, with specific reference to section G12 which states that '*the method of discharge must not create new pathways for pollutants to groundwater or mobilise contaminants already in the ground.*'

Based on the above contamination concerns, it is not considered that soil infiltration rate testing will be feasible for the site and this can be precluded from the planning condition.

The EA can still act as a statutory consultee on this planning application, and may impose further conditions to fully quantify the controlled water risks, should they consider it warranted.

REGISTRATION OF AMENDMENTS

Date	Rev	Comment	Prepared By	Checked By	Approved By
June 2025	-	First issue	Jimesh Mistry MSci MSc FGS Geo-Environmental Engineer	Christopher Wall MSc BSc (Hons) AMIEnvSc RSoBRA Associate Geo-Environmental	David Torrance BSc (Hons) CGeol FGS Director

Appendices

- A. Site Location Plan
- B. Proposed Site Plan

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APPENDICES



APPENDIX A



SITE LOCATION PLAN

Project: Barrow Hill Quarry, Mill Lane, Earl Shilton
File Ref: 26726
O.S. Grid Ref: 448809 297112
Postcode: LE9 7TR





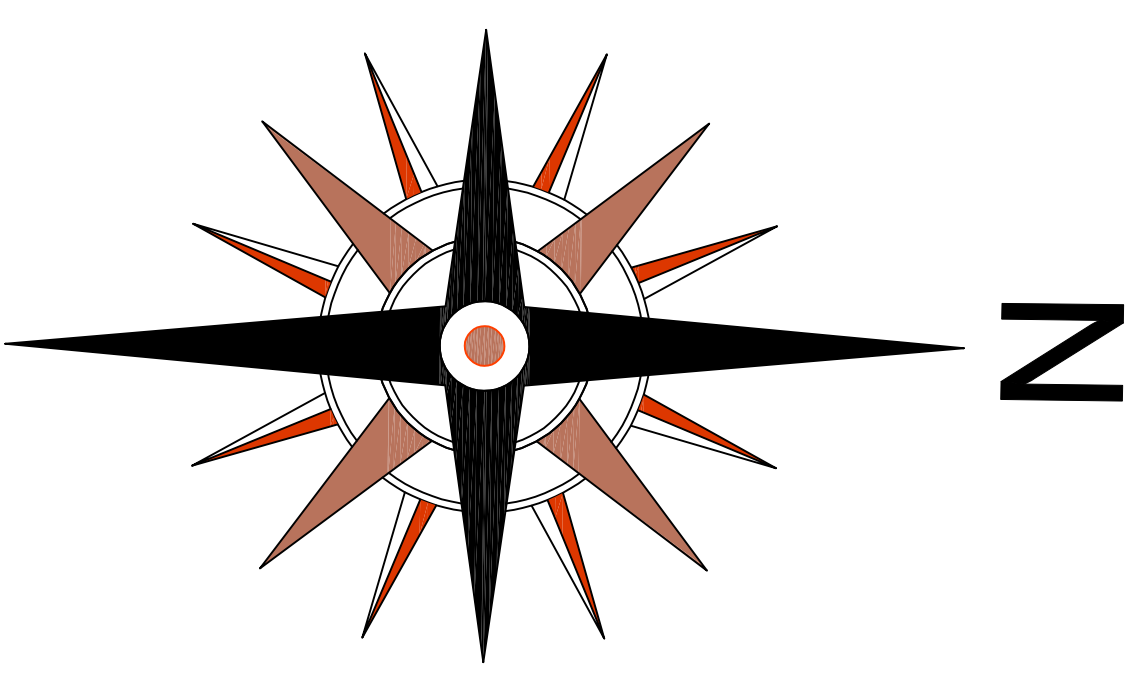
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APPENDICES



APPENDIX B

This drawing is protected under the copyright designers & patents act 1988. Do not scale, plotted dimensions only are to be taken as current information. All dimensions coordinates and levels are to be checked and confirmed on site prior to any works being undertaken.



D Balancing ponds indicated. 22/11/21

Barrow Hill Quarry
Earl Shilton

Plans

Scale.	1:500@ A1	Date.	Oct 2021
Dwg No.	1001	Revision.	D

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Landscape indicative only



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